

International Association for Great Lakes Research
62nd Annual Conference on Great Lakes Research
at The College at Brockport, State University of New York



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PROGRAM

62nd Annual Conference on Great Lakes Research



The College at Brockport
State University of New York

#IAGLR19

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International Association for Great Lakes Research
4840 South State Road
Ann Arbor, Michigan 48108
iaglr.org

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The College at
BROCKPORT
STATE UNIVERSITY OF NEW YORK

Department of Environmental Science and Ecology
350 New Campus Drive
Brockport, NY 14420-2973

WE WELCOME YOU to The College at Brockport, State University of New York. An exciting scientific program and a diverse series of social events, ranging from soccer and hockey to the Golden String Band at the barbecue, await you. Along with 59 sessions, 610 papers and posters, and five social gatherings at which we will share food, beverage and conversation, this year's conference aims to be as environmentally sustainable as possible for such a large group.

At the registration table in the Seymour College Union (see the North Campus map on page 2), you will receive a cotton carrying bag, a ceramic cup for your beverages (no paper or plastic cups will be offered at the conference), and a carabiner to attach the cup to the bag (to free your hands for other activities when you are not using the cup).

At conference events with food and beverages, we will compost food waste and plates and recycle tableware and beverage containers IF they are properly placed in the clearly marked containers you will find at each location. The College has no capacity to sort mixed material and contaminated bins will become garbage sent to the local landfill. PLEASE take the bit of extra time needed to sort your waste and recyclables properly at each event.

If you are staying in a Brockport dorm, to conserve water and reduce the flow of cleaning agents into the countywide sewage system, which empties into Lake Ontario after treatment, bed and bath linens will not be exchanged during your stay.

We look forward to doing what we can to minimize our conference's impact on the Great Lakes ecosystem where most of us live and work.

On behalf of the many people (listed on page 5) who made this conference possible, we hope you will have a great time participating in IAGLR 2019 at The College at Brockport, State University of New York.

James M. Haynes, Site Chair
Professor

Joseph C. Makarewicz, Program Chair
Distinguished Service Professor Emeritus

Department of Environmental Science and Ecology
The College at Brockport, State University at Brockport

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Three fantastic opportunities to share science!

State of Lake Huron 2019
SAGINAW, MICHIGAN

IAGLR 2020
WINNIPEG, MANITOBA

ELLS-IAGLR 2021
PETROVADOSK, RUSSIA

See the back cover (inside and out) for more.

Campus Wi-Fi

User ID: IAGLR

PW: 2019



NORTH CAMPUS

LATHROP HALL

Nursing Mother Room—Room 118

LENNON HALL

Monday Workshops
Elsevier Editors' Reception (Tue)
Session Rooms

SEYMOUR COLLEGE UNION

Registration Area
Welcome Reception (Mon)
Session Rooms
Coffee Breaks
Exhibitors
Poster Session and Reception (Tue)

PARKING LOT O

Registration and Commuter Parking
Hotel and Village Shuttle Stop

EDWARDS HALL

Session Rooms
Coffee Breaks

MCLEAN HALL DORM (STUDENTS ONLY)

PARKING LOT P

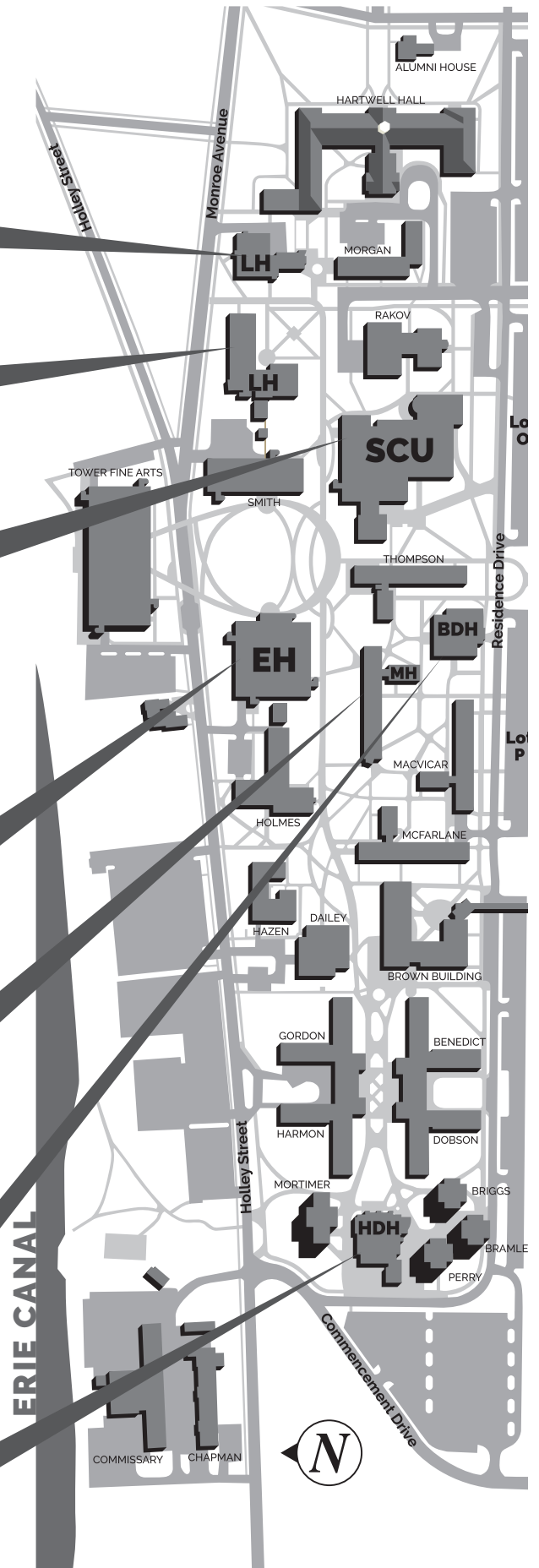
Hotel and Village Shuttle Stop

BROCKWAY DINING HALL

Lunch (Tue & Thu)

HARRISON DINING HALL

Lunch (Tue & Thu)





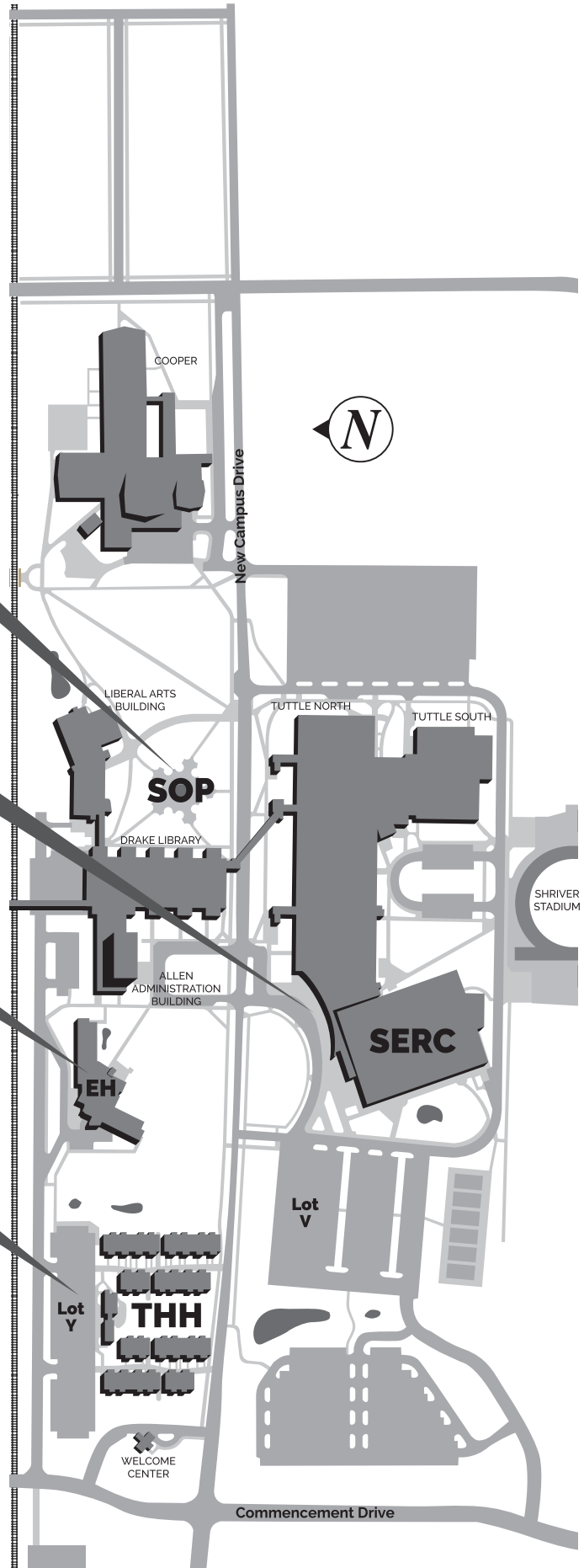
SOUTH CAMPUS

SPECIAL OLYMPICS PARK
Barbeque (Wed)

SPECIAL EVENTS AND RECREATION CENTER (SERC)
Business Lunch (Wed)
Exercise Facility
Coach Pick-up for Banquet (Thu)

EAGLE HALL HOUSING
PARKING LOT V
Hotel and Village Shuttle Stop

TOWN HOME HOUSING
PARKING LOT Y
Hotel and Village Shuttle Stop



EXHIBITORS

Welcome Conference Exhibitors!

Exhibits are open daily in the Fireside Lounge in the Seymour College Union.

Biosonics Inc.

Seattle, Washington
biosonicsinc.com

Cooperative Institute for Great Lakes Research

Ann Arbor, Michigan
cigl.r.seas.umich.edu

Echoview Software

Hobart, Tasmania, Australia
echoview.com

Ecology and Environment, Inc.

Lancaster, New York
ene.com

Fluid Imaging Technologies

Scarborough, Maine
fluidimaging.com

Great Lakes Fishery Commission

Ann Arbor, Michigan
glfc.org

Great Lakes Laboratory for Fisheries and Aquatic Science, DFO

Burlington, Ontario
dfo-mpo.gc.ca

Great Lakes Observing System

Ann Arbor, Michigan
glos.us

Great Lakes Phragmites Collaborative

Ann Arbor, Michigan
greatlakesphragmites.net

Innovasea

Bedford, Nova Scotia
vemco.com

International Association for Great Lakes Research

Ann Arbor, Michigan
iaglr.org

Michigan State University Press

East Lansing, Michigan
msupress.msu.edu

New York Department of Environmental Conservation

Albany, New York
dec.ny.gov

NOAA in the Great Lakes

Ann Arbor, Michigan
regions.noaa.gov/great-lakes

PP Systems International Inc.

Amesbury, Massachusetts
ppsyste.ms.com

SeaView Systems, Inc.

Dexter, Michigan
seaviewsystems.com

Sonotronics, Inc.

Tucson, Arizona
sonotronics.com

Turner Designs

San Jose, California
turnerdesigns.com

A Special Thanks

Thank you to the following,
whose support is vital in our efforts to
advance Great Lakes science.

Elsevier

Publisher of the *Journal of Great Lakes Research*

Great Lakes Fishery Commission

Sponsor of the *Norman S. Baldwin Fishery Science Scholarship*

NOAA Great Lakes Environmental Research Laboratory

Sponsor of IAGLR's office space

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Program Chair

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Joseph Makarewicz
Jose Maliekal
Jacques Rinchard

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Joseph Makarewicz
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Jacques Rinchard
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Frank Mancini
Joseph Serio
Dana Weiss

IAGLR

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Wendy Foster
Business Manager
Paula McIntyre
Communications Director

Thank you to those serving anonymously to judge student presentations at the conference.

An Ounce of Prevention...

Quickly analyze chlorophyll & algae classes, as well as unbound phycocyanin (free PC) with the PhycoProbe.

Don't miss Eva Leytmer's presentation:

***Early Warning System for Algal Taste and Odor Compounds
and Toxins in Drinking Water Treatment Plant***

**Tuesday, June 11th @ 2:40pm
Seymour Union Room 123 (Gallery)**

*Stop by to learn more about
bbe moldaenke's range of instruments*

bbe

moldaenke

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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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Ted Ozersky
Lyubov Burlakova
Alexander Karatayev
Peter Lavrentyev

State of Lake Huron 2019 Committee

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Co-Chair
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Steve Clement
Dave Karpovich
Bretton Joldersma
Elizabeth LaPlante
Paul Parete



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 mandate 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 State of Lake conferences, and joint meetings with the European Large Lakes Symposium
- The *Lakes Letter*, a quarterly newsletter for and about IAGLR members
- *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
- Potential 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 a big thank you to the following sustaining members.

Great Lakes Fishery Commission
Ann Arbor, Michigan

**Great Lakes Lab for Fisheries and
Aquatic Sciences, Fisheries and
Oceans Canada**
Burlington, Ontario

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.



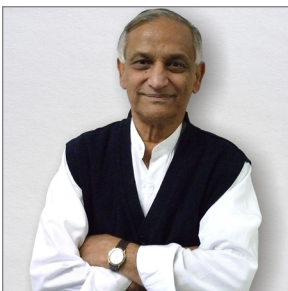
ANDERSON-EVERETT AWARD

For outstanding contributions to the association

Robert Heath

Kent State University

Awarded at Tuesday's plenary



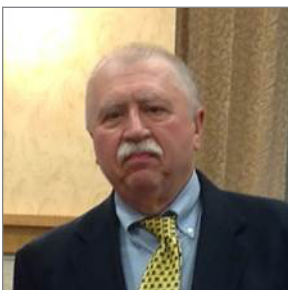
JOHN R. (JACK) VALLENTYNE AWARD

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

Mohiuddin Munawar

Great Lakes Laboratory Fisheries & Aquatic Sciences, Fisheries & Oceans Canada; Aquatic Ecosystem Health & Management Society

Awarded at Wednesday's plenary



LIFETIME ACHIEVEMENT AWARD

For important and continued contributions to Great Lakes research

Marty Auer

Michigan Technological University

Awarded at Thursday's plenary

The following awards will be announced at Thursday's banquet:

- **Chandler-Misener Award** for outstanding article in the *Journal of Great Lakes Research*
- **Elsevier Early Career Scientist Award** to recognize scientists early on in their career with an established publication record.
- **Elsevier Student Author Award** to recognize emerging scientists with a highly ranked JGLR article, as determined by the IAGLR Chandler-Misener Review Committee

AWARDS & SCHOLARSHIPS

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

IAGLR 2019 CONFERENCE APPRECIATION AWARD



James Haynes
The College at Brockport, State
University of New York

IAGLR 2019 Conference Site
Chair



Joseph Makarewicz
The College at Brockport, State
University of New York

IAGLR 2019 Program Chair

IAGLR OUTGOING BOARD OF DIRECTORS & COMMITTEE CHAIRS APPRECIATION AWARD



Erin Dunlop
Ontario Ministry of Natural
Resources and Forestry

Outgoing Past President, Board
Member



Laura Tessier
Wilfrid Laurier University

Outgoing Student Board Member



Susan Daniel
SUNY Buffalo State

Outgoing Awards Committee
Co-Chair



Robert Heath
Kent State University

Outgoing Endowment
Committee Chair

JGLR OUTGOING ASSOCIATE EDITOR APPRECIATION AWARD



Stuart Ludsin
The Ohio State University

AWARDS & SCHOLARSHIPS



BEST ASSOCIATE EDITOR 2018 AWARD

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

Craig Stow

NOAA Great Lakes Environmental Research Laboratory

Awarded at Thursday's banquet



BEST REVIEWER 2018 AWARD

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

Richard Ogutu-Ohwayo

National Fisheries Resources Research Institute in Uganda

Awarded at Thursday's banquet

IAGLR SCIENCE COMMUNICATION SCHOLARS

The following students are finalists for the 2019 IAGLR Best Student Paper and Poster awards and will be acknowledged at Thursday's banquet. Their presentations are noted with an asterisk in the schedule. The winner(s) of each award will be recognized at next year's conference.

PAPER

Kara Andres

Thomas Bianchi

Christopher Frazier

Matthew Futia

Yuan Hui

Silviya Ivanova

Leon Katona

Alexandra Leclair

Rae-Ann MacLellan-Hurd

Katelyn McKindles

Amelia McReynolds

David Ure

POSTER

Josie Mielhausen

Halle Nienhaus

Shelly Ray

Nicole Stewart

AWARDS & SCHOLARSHIPS

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

IAGLR BEST STUDENT PAPER AWARD (2018)

Tej Heer

University of Toronto

For paper titled *Using a hydrodynamic model to predict Asian carp spawning success* presented at the IAGLR 2018 Conference on Great Lakes Research

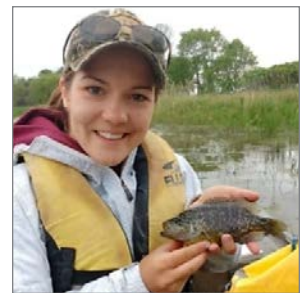


IAGLR BEST STUDENT PAPER AWARD (2018)

Fielding Montgomery

University of Toronto

For paper titled *Identifying extinction debt in Great Lakes wetland fishes* presented at the IAGLR 2018 Conference on Great Lakes Research



IAGLR BEST STUDENT POSTER AWARD (2018)

Freddy Liu

Trent University

For paper titled *Urban land cover effects on groundwater chloride and sodium concentrations* presented at the IAGLR 2018 Conference on Great Lakes Research



IAGLR BEST STUDENT POSTER AWARD (2018)

Taylor Senegal

Purdue University

For poster titled *Morphological variation in yellow perch in Lake Michigan and drowned river mouth lakes* presented at the IAGLR 2018 Conference on Great Lakes Research



INTERNATIONAL TRAVEL AWARD

Benard Mucholwa Simiyu

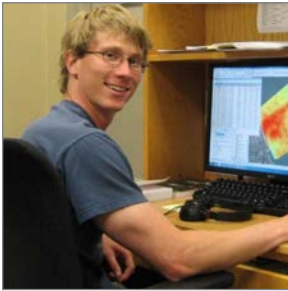
University of Innsbruck, Austria

For research on *Effects of hydrological changes on water quality and cyanotoxins in Nyanza Gulf, L. Victoria, Kenya*



AWARDS & SCHOLARSHIPS

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



IAGLR SCHOLARSHIP

Jason Fischer

University of Toledo

For research on *Evaluating habitat restoration in the St. Clair-Detroit River System*



IAGLR SCHOLARSHIP

Meghan Klasic

University of California- Davis

For research on *The politics of algae*



DAVID M. DOLAN SCHOLARSHIP

Yuan Hui

University at Buffalo, SUNY

For research on *Dynamics of phosphorus in Lake Ontario and its effects on Cladophora resurgence*



NORMAN S. BALDWIN SCHOLARSHIP

Ellen George

Cornell University

For research on *Genetic and habitat limitations to cisco restoration in Lake Ontario*



NORMAN S. BALDWIN SCHOLARSHIP

Robert Sheffer

University of Wisconsin-Stevens Point

For research on *Movements and habitat use of muskellunge in Green Bay, Lake Michigan*

SCHEDULE OVERVIEW

MONDAY

Pre-conference Workshops

IAGLR Board Meeting

Seymour College Union, Rm. 220

3:30–7 p.m.

Registration

Seymour College Union, 1st floor, south side

6–8 p.m.

Welcome Reception

Seymour College Union, Fireside Lounge

TUESDAY

7 a.m.–5 p.m.

Registration

Seymour College Union, 1st floor, south side

8–11 a.m.

Concurrent Sessions

Throughout campus

11:10 a.m.–12:20 p.m.

Plenary: John Smol

Edwards Hall, Rm. 100 (overflow to 103/106)

1:40–5:40 p.m.

Concurrent Sessions

Throughout campus

5:10–6:10 p.m.

Elsevier Editors' Reception

Lennon Hall, Rm. 302, Weather Cube

6:15–8:45 p.m.

Poster Session & Social

Seymour College Union Ballroom

9–11 p.m.

Student Social

Bill Gray's Tap Room, Off Campus

WEDNESDAY

7 a.m.–5 p.m.

Registration

Seymour College Union, 1st floor, south side

8–11 a.m.

Concurrent Sessions

Throughout campus

11:10 a.m.–12:20 p.m.

Plenary: Jennifer Tank

Edwards Hall, Rm. 100 (overflow to 103/106)

12:20–1:40 p.m.

Business Lunch

SERC Field House

1:40–5:40 p.m.

Concurrent Sessions

Throughout campus

5–7 p.m.

IAGLR Soccer

Campus practice football field

6–8:30 p.m.

Barbecue & Golden Eagle String Band

Fountain at Special Olympics Park (SERC if a rain out)

8:15–9:30 p.m.

IAGLR Defy Cup Hockey

Lakeshore Hockey Arena, Rochester

THURSDAY

Educators' Day

Bring lunch to Edwards Hall, Rm. 102

7 a.m.–5 p.m.

Registration

Seymour College Union, 1st floor, south side

8–11 a.m.

Concurrent Sessions

Throughout campus

11:10 a.m.–12:20 p.m.

Plenary: Hugh MacIsaac

Edwards Hall, Rm. 100 (overflow to 103/106)

1:40–5:20 p.m.

Concurrent Sessions

Throughout campus

6–10 p.m.

Banquet

Rochester Riverside Convention Center

FRIDAY

7:30 a.m.–12:40 p.m.

Registration

Seymour College Union, 1st floor, south side

8:00–11:40 a.m.

Concurrent Sessions

Throughout campus

**Two sports.
Two more ways to
support students.**



On Wednesday, players take to the field and the ice for our first-ever soccer game and the 10th IAGLR Defy Cup Challenge. Both raise money for the IAGLR Scholarship.

PLANNER

	MONDAY	TUESDAY	WEDNESDAY	
8:00	<p>Pre-conference Activities:</p> <p>The Coastal Society Workshop a.m. - Lennon Hall 140 p.m. - Gallery Seymour Union 8-5:30</p> <p>Copepod Taxonomy: Copepoda of the Great Lakes Workshop Lennon Hall 118 1-5</p>			
8:20				
8:40				
9:00				
9:20			Break	Break
9:40				
10:00				
10:20				
10:40				
11:00			Plenary: John Smol Edwards Hall 100 (103/106 overflow) 11:10–12:20	Plenary: Jennifer Tank Edwards Hall 100 (103/106 overflow) 11:10–12:20
12:20			Lunch (Brockway/Harrison Halls) 12:20–1:40	IAGLR Business Lunch SERC Field House 12:20–1:40
1:40				
2:00				
2:20				
2:40				
3:00				
3:20		Break	Break	
3:40				
4:00				
4:20				
4:40				
5:00				
	<p>Welcome Reception Seymour College Union Fireside Lounge 6–8</p>	<p>Elsevier Editors' Reception Lennon 302, Weather Cube 5:10–6:10</p> <p>Poster Social Seymour College Union Ballroom 6:15–8:45</p> <p>Student Reception Bill Gray's Tap Room / 9–11</p>	<p>IAGLR Soccer Campus practice football field / 5–7</p> <p>Barbecue Fountain at Special Olympics Park (SERC if rain) / 6–8:30</p> <p>IAGLR Defy Cup Hockey Lakeshore Hockey Arena 123 Ling Rd., Rochester 8:15–9:30</p>	

PLANNER

THURSDAY	FRIDAY	
		8:00
		8:20
		8:40
		9:00
Break	Break	9:20
		9:40
		10:00
		10:20
		10:40
Plenary: Hugh MacIsaac Edwards Hall 100 (103/106 overflow) 11:10–12:20		11:00
		11:20
	Conclusion of Conference	11:40
		12:00
Lunch (Brockway/Harrison Halls) 12:20–1:40		12:20
		1:40
		2:00
		2:20
		2:40
		3:00
Break		3:20
		3:40
		4:00
		4:20
		4:40
		5:00
Banquet Rochester Riverside Convention Center 6–10		

TUESDAY PLENARY

11:10 a.m.–12:20 p.m.
Edwards Hall, Room 100
(overflow to 103/106)



@QueensUBio

The power of the past: The challenges of using appropriate time scales in a rapidly changing world

Featuring John P. Smol

Queen's University

One of the greatest challenges faced by ecologists, water quality managers, and other environmental scientists is using appropriate time scales to assess environmental change. Due to the lack of systematic long-term monitoring data, it is often difficult to determine the nature and timing of ecosystem changes. Furthermore, as environmental assessments are performed typically after a problem is identified, critical data regarding pre-disturbance (or reference) conditions are rarely available. This presentation summarizes some recent developments in assessing the effects of multiple stressors on aquatic ecosystems using lake sediments as archives. Increases in algal production (especially cyanobacteria) seem to be constantly in the news. The dominant drivers of these increases are complex. Undeniably, nutrients play a role, but much of our recent paleolimnological research is concluding that limnological changes driven by recent climate warming, with concomitant changes in lake ice and stratification patterns, are linked to increased production. New paleoenvironmental approaches are also being used to assist conservation biologists by providing temporal perspectives to many ecological issues. For example, long-term population data for waterbird species in the Great Lakes are sparse, with most censuses having taken place in the last ~30-40 years (if data exist at all). Sediments from shallow ponds on summer nesting islands provide a unique archive to extend census data by tracking the arrival and population shifts of waterbirds, as well as their associated ecological impacts. Challenges posed by reconciling time scales of environmental change (often measured in decades or centuries) with that of politicians (often based on a few years) and industry (often based on days or “quarters”) will be highlighted.

ABOUT

JOHN P. SMOL is a professor of biology at Queen's University (Kingston, Ontario), where he also holds the Canada Research Chair in Environmental Change, and is currently the president-elect of the Canadian Academy of Sciences. He founded and co-directs the Paleocological Environmental Assessment and Research Lab, a group of approximately 40 students and other scientists dedicated to the study of long-term global environmental change, and especially as it relates to lake ecosystems. John has authored over 570 journal publications and chapters since 1980 and has completed 21 books. Much of his research deals with the impacts of climatic change, acidification, eutrophication, contaminant transport, and other environmental stressors. He is a frequent commentator on environmental issues for radio, television, and the print media. John was the founding editor of the *Journal of Paleolimnology* (1987-2007) and is the current editor of *Environ-*

mental Reviews. Since 1990, John has received six honorary doctorates and has been awarded more than 60 research and teaching awards and fellowships, including the 2004 NSERC Herzberg Gold Medal as Canada's top scientist or engineer and the International Ecology Institute Prize. John holds the distinction of being the first scientist since the establishment of the Royal Society of Canada (in 1883) to win three individual medals, having won the Miroslav Romanowski Medal for environmental sciences, the Flavelle Medal for biological sciences, and the McNeil Medal for the Public Awareness of Science. He has won 13 teaching, mentoring, and scientific outreach awards and was named by Nature, following a nationwide search, to be Canada's Top Mid-Career Scientific Mentor. In 2013, John was named an Officer of the Order of Canada for his environmental work and in 2018 a Fellow of the Royal Society (London).

Quantifying the effects of winter cover crops and floodplain restoration on nutrient export from agricultural watersheds

Featuring Jennifer Tank

Notre Dame University



@jenniferltank

Excess nutrient runoff from agricultural fields can enter nearby streams and rivers, harming sensitive species, contaminating water supplies, and fueling downstream algal blooms. Our research examines the benefit of two conservation strategies that potentially prevent loss of excess nutrients from agricultural lands: one practice implemented in waterways combined with one applied to the surrounding landscape. We have paired the restoration of floodplains in formerly channelized ditches with the planting of winter cover crops in agricultural fields and are quantifying their potential to reduce watershed nutrient export, especially during vulnerable periods in winter and spring. Together, we show the potential for watershed-scale conservation to reduce phosphorus and nitrogen export that would otherwise be delivered to sensitive coastal systems. Additionally, successful outcomes highlighted through demonstration projects can facilitate widespread adoption, making them powerful agents of change for advancing regional conservation success, especially in the Great Lakes and the larger agricultural Midwest.

JENNIFER TANK is the Galla Professor of Biological Sciences in the Department of Biological Sciences at Notre Dame University. She is currently the director of Notre Dame Environmental Change Initiative, is the former director of the Notre Dame Linked Experimental Ecosystem Facility, and was honored with a Leopold Leadership Fellowship at the Stanford Woods Institute for the Environment in 2013. Jennifer is the author of over 150 peer-reviewed publications, and is a frequent commentator on environmental issues for radio, television, and the print media. She serves as an associate editor for two journals, *Limnology and Oceanography Letters* and *Biogeochemistry*, and is the 2018-19 president of the Society for Freshwater Science. Her federally funded research program includes grants from the

U.S. Department of Agriculture, National Science Foundation, and the Environmental Protection Agency.

Jennifer's research focuses on the cycling of nutrients in stream and river systems with a focus on the restoration of ecosystem function in impacted systems. She also leads a multidisciplinary group of researchers examining the effect of agricultural land use on freshwater as part of the Indiana Watershed Initiative. Her research is helping to quantify the benefits of innovative conservation and to improve the health and nutrient removal efficiency of streams and rivers draining croplands through watershed-scale implementation of effective practices. Jennifer earned her B.S. from Michigan State University and her M.S. and Ph.D. from Virginia Tech.

ABOUT

THURSDAY PLENARY

11:10 a.m.–12:20 p.m.
Edwards Hall, Room 100
(overflow to 103/106)



@GLIERUWindsor

Valuing and managing aquatic ecosystem services

Featuring Hugh MacIsaac

University of Windsor

The Great Lakes have a long history of biological invasions mediated by human introductions. This presentation will explore the nature of these invasions, including different phases during which invasions rates seemingly changed as did the taxonomic composition of the invaders. These patterns relate directly to the prevailing vectors of introduction. During the latter 40 years of the 21st century, international shipping dominated introduction vectors, as vessels transported and discharged large volumes of untreated ballast water into the system. Policy changes enacted by the USA and Canada in the early 1990s and mid 2000s were intended to reduce invasion rates by requiring vessels to discharge only oceanic ballast water into the system. Invasions continued to be discovered well after the initial effort, though reported introductions appear to have declined. Four recent discoveries in Lake Erie—the copepod *Thermocyclops crassus* (2016), the rotifer *Brachionus leydigii* (2017), the cladoceran *Diaphanosoma fluviatile* (2108) and the *Mesocyclops pehpeiensis* (2018)—suggest that the system continues to sustain new invasions. While the vector for these introductions is not known, one possibility is that ballast water exchange may not have been as effective as desired. However, time lags between introduction and discovery, and development of new diagnostic tools for species detection, make it very difficult to determine when these newly found invaders actually colonized the system. Implementation of the International Maritime Organization's ballast water convention will eventually require all large foreign vessels (i.e., those thought responsible for Great Lakes invasions) to treat ballast water to ensure they only release low densities of viable organisms. This should reduce invasions as discharged organisms would have reduced propagule pressure, although species richness is not addressed and might not be affected. It is essential to curtail invasions of the Great Lakes considering that they in turn serve as the source for many inland lake invasions.

ABOUT

HUGH MACISAAC is a professor and senior Canada Research Chair in Aquatic Invasive Species at the Great Lakes Institute for Environmental Research, University of Windsor (Windsor, ON). From 2006 to 2016 he served as director of the NSERC Canadian Aquatic Invasive Species Network. Hugh's research includes collaborative investigations with European researchers working on the Baltic, North, Black, and Caspian seas. Recently, he became a Distinguished Research Fellow of the Sino-Canada Research Center on Plateau Lakes, Yunnan University, China. His editorships include a period as an associate editor of the Journal of Aquatic Ecosystem Health and Diversity and Distributions. He is a former member of the Great Lakes Invasive Species Task Force and the International Joint Commission's Science Advisory Board. He has authored over 207 peer-reviewed papers

and books and was honored with the Frank H. Rigler Award from the Society of Canadian Limnologists and the Premier's Research Excellence Award. He is interested in a variety of issues pertaining to invasive species. His interests include analyses of pathways and vectors of introduction, including risk assessment, genetic characterization and evolution, impacts and mitigation, and, more recently, identifying factors affecting establishment success. He developed conceptual and empirical models describing how alien invasive species colonize the Great Lakes and other aquatic ecosystems. Recent work addresses use of genetic markers to identify source and destination patterns and problems that may arise with this approach. He also uses a variety of approaches to predict impact of invasive species. Hugh earned a B.Sc. from the University of Windsor, M.Sc. from the University of Toronto, and a Ph.D. from Dartmouth College.

Beyond Peer Review

Why You Must Connect Your Science to Stakeholders (and how to do it)

Stakeholder Engagement

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Panelists Include:

Peter Annin, Author "Great Lakes Water Wars"
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17

Formal Presentations

Expert Panel

Moderated Discussion w/Q&A

Skills Cafe

Hands-on Practice

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WORKSHOPS & DISCUSSIONS

MONDAY

The Coastal Society Workshop

8 a.m.–5:30 p.m. / AM - 140 Lennon Hall; PM - Gallery Seymour College Union

As part of the Margaret A. Davidson Coastal Career Development Program, The Coastal Society has organized a full-day workshop to provide valuable job skills and information to the next generation of coastal practitioners. Speakers will share insights on the coastal job market, activities will provide career-building skill development, and attendees will have the opportunity to network with speakers and potential mentors.

Copepod Taxonomy: Copepoda of the Great Lakes Workshop

1–5 p.m. / Lennon Hall, Room 118

Copepods are a diverse subclass of crustaceans and inhabit a wide range of environments in the Great Lakes Basin. These minute (0.5-2.5 mm) crustaceans are important consumers of algae and prey for fish. US EPA Great Lake National Program Office assesses zooplankton communities across all five Great Lakes to assess lower food web health. This brief workshop covers the systematics of copepod morphology, along with an overview of copepod species known to the Laurentian Great Lakes, including two recently detected nonnative species. Both lecture and lab time will be allotted to allow participants to achieve a basic understanding of copepod morphology, hands-on experience in copepod dissection, and the use of taxonomic keys to identify copepods. The USGS online key for copepods will be a primary resource. Participants are encouraged to bring copepod specimens of interest for analysis but voucher specimens will also be provided for attendants. Microscopes and lab equipment will also be provided. The orders Cyclopoida, Calanoida, and Harpacticoida will be covered, as well as some parasitic forms (Siphonostomatoida, Poecilostomatoida, Arguloida). We welcome all levels of interest.

TUESDAY

Panel Discussion: Beyond Peer Review: Why You Must Connect Your Science to Stakeholders (and How to Do It)

9:40–11 a.m. / Edwards Hall, Room 103

Science communications thought leaders will explore what they see happening now and what they think the future looks like for connecting people and ideas for large lakes research. Speakers include Paul Annin, Director Mary Griggs Burke Center for Freshwater Innovation; Andrea Densham, Senior Director of Conservation and Advocacy, Shedd Aquarium; TJ Pignataro, Environmental Reporter, Buffalo News; Sandra Svoboda, Program Director, Great Lakes Now, Detroit Public Television.

Elsevier Editors' Reception (*Invitation only*)

5:10–6:10 p.m. / Lennon Hall, Room 302, Weather Cube

Each year the *Journal of Great Lakes Research* is supported by a group of dedicated associate editors and the ongoing efforts of the IAGLR Publications 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 reception.

WORKSHOPS & DISCUSSIONS

WEDNESDAY

IJC Town Hall Plenary Session: What are Healthy Great Lakes to You?

4:50–5:40 p.m. / Edwards Hall, Room 100

Top Hat Survey Link: <https://app.tophat.com/login/060535> (enter as guest)

Panelists: John Jackson, Citizen Activist and IJC Great Lakes Water Quality Board; Deborah Lee, Director, Great Lakes Environmental Research Laboratory, NOAA and IJC Great Lakes Science Advisory Board; (Henry Lickers, Environmental Science Officer, Mohawk Council of Akwesasne and IJC Great Lakes Water Quality Board; Scott Sowa, Director, Great Lakes Sustainable Fisheries Program, The Nature Conservancy and IJC Great Lakes Science Advisory Board.

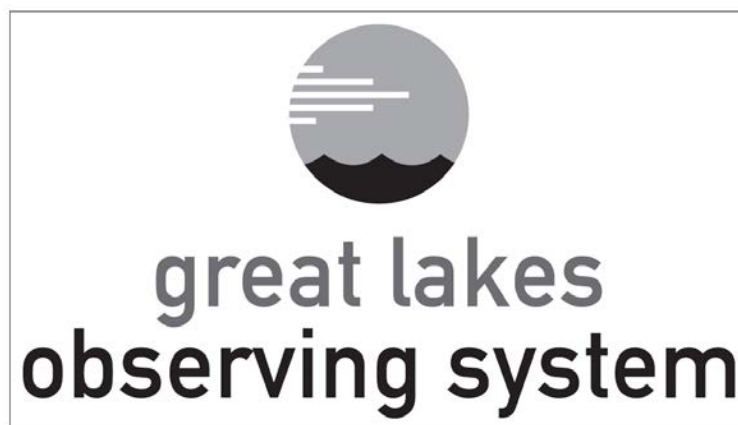
Facilitator: Gavin Christie, Division Manager, Great Lakes Laboratory for Fisheries and Aquatic Sciences, Fisheries and Oceans Canada

The Great Lakes Water Quality Agreement requires Canada and the United States to report on their progress to accomplish its objectives every three years. The IJC is responsible for obtaining input from the Great Lakes community on that report's findings, and to consider the broader health of the Great Lakes in order to recommend specific actions that will help both countries to truly restore and protect the lakes. In this final plenary session, all IAGLR conference participants are encouraged to provide your voice and perspective on the issues most affecting the lakes, and the actions and priorities needed over the next three, six and nine years that will ensure progress towards fishable, swimmable and drinkable Great Lakes waters.

Skills Cafe: Beyond Peer Review: Why You Must Connect Your Science to Stakeholders (and How to Do It)

1:40–5 p.m. / Edwards Hall, Room 102

Do people's eyes glaze over when you begin to talk about your research? Do you believe your research has the ability to make a difference, but you're not sure how to get others excited about it too? Then this session is for you! For the researcher looking to improve their accessibility in attaining broader impacts; the early career professional seeking tips on how to set themselves apart in a competitive market; the passionate scientist looking for ways to ensure their work makes an impact, the Skills Cafe is your opportunity to grow and try new things in a fun and supportive setting. This series of short interactive workshops will allow participants to practice a variety of skills that will make them more effective at communicating the "so what" of their research to lay, but key, audiences. Get tips on interacting with the media, hone your speaking skills, get feedback from a mock interview, learn from the trials and tribulations of your peers! Stop by the NOAA booth for a detailed schedule of activities.



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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. You'll find the Twitter handles of some presenters who have opted to do so already included in the schedule. Share the excellent work of people who have opted in with the hashtag #IAGLR19.

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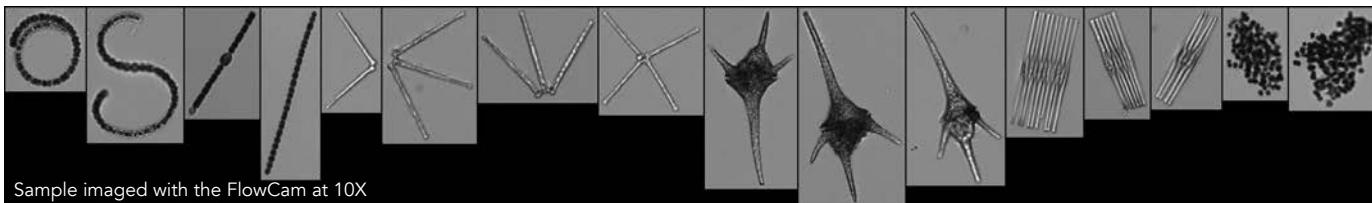
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DAILY SESSION OVERVIEW

On the following few pages, you'll find sessions grouped by theme, with page numbers to help you locate them in the detailed schedule of oral presentations. Presentations noted with an asterisk (*) are candidates for the IAGLR Best Student Paper Award. Best of luck to the 12 candidates.

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Microplastics in Freshwater Systems: Advances in Chemistry, Biology, and Physics, 26, 28, 30

Microplastics in the Environment: Source, Fate, Impact, Detection, and Mitigation, 35, 37, 39

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DAILY SESSION OVERVIEW

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TUESDAY, JUNE 11

	Edwards 100	Edwards 103	Edwards 104	Edwards 105	Edwards 106
	<p>Physical Processes in Lakes <i>Chairs: Dmitry Beletsky, Chin Wu, Cary Troy, and Joseph Atkinson</i></p>	<p>Beyond Peer Review: Why You Must Connect Your Science to Stakeholders (and How to Do It) <i>Chairs: Margaret Lansing, Devin Gill, Kathe Glassner-Schwyder, and David Ruck</i></p>	<p>Restoration and Management of Great Lakes Fishes <i>Chairs: Dmitry Gorsky, Zy Biesinger, and Jeremy Holden</i></p>	<p>Cross-lake Comparisons: Frameworks for Understanding Ecosystem Change <i>Chairs: Anne Scofield, Lars Rudstam, and Tomas Höök</i></p>	<p>Microplastics in Freshwater Systems: Advances in Chemistry, Biology and Physics <i>Chairs: Lorena Rios Mendoza, Sarah Lowe, Chelsea Rochman, and Matthew Hoffman</i></p>
8:00	<p><u>C. Arnillas</u> Using wavelet analysis to identify seasonal changes in water level fluctuations</p>		<p><u>P. Wilkins</u> Growth and recruitment of lake trout juveniles in Lake Champlain</p>	<p><u>T. Evans</u> Using size spectrum modeling to inform ecosystem management of the Great Lakes</p>	<p><u>L. Rios Mendoza</u> Microplastic particles St Louis River Estuary and Lake Superior</p>
8:20	<p><u>D. Beletsky</u> Summer hydrodynamics of Lake Erie: observations and modeling during upwelling events</p>	<p><u>M. Lansing</u> Communicating with Congress: Tailoring Your Message (@NOAA-GLERL)</p>	<p><u>S. Ivanova*</u> Habitat use of Lake Trout follows lake thermal cycles in Eastern Lake Ontario</p>	<p><u>H. Zhang</u> Comparison of the relationship between nutrient loads and fish production in Lakes Michigan and Erie</p>	<p><u>L. Erdle</u> Sources to solutions: microfiber contamination, effects, and mitigation strategies (@lisaerdle)</p>
8:40	<p><u>L. Boegman</u> Long-term three-dimensional hydrodynamic biogeochemical modelling of Lake Erie</p>	<p><u>K. Korfmacher</u> Leveraging science to inform local policy</p>	<p><u>A. Visha</u> A Bayesian methodological framework assessing fish tumour occurrences in Canadian Areas Of Concern</p>	<p><u>A. Scofield</u> A comparison of energy pathways to fishes across the Great Lakes</p>	<p><u>G. Madejski</u> Platform for Microdebris Capture and Raman Analysis from Liquid Sources Using Silicon Nanomembranes</p>
9:00	<p><u>A. Linares</u> Unexpected rip currents induced by a meteotsunami in Lake Michigan</p>	<p><u>S. Bath</u> Public Science Communication for (Very Smart) Dummies (@IISD_ELA)</p>	<p><u>K. Stratton</u> Shifts in Steelhead life histories associated with fish community change in Black Bay, Lake Superior</p>	<p><u>A. Elgin</u> Regional, seasonal & depth differences in quagga mussel growth in Lakes Michigan, Huron & Ontario</p>	<p><u>M. Hoffman</u> Modeling transport and vertical mixing of microplastic in Lake Erie</p>
9:20	BREAK				

Lennon 140	Seymour Gallery	Seymour 114	Seymour 119	Seymour 220	
<p>Great Lakes Primary Production: Methods, Results, and Management Implications <i>Chairs: Katie Bockwoldt and Barry Lesht</i></p>	<p>Harmful Algal Blooms (HABs) and Their Toxicity: Remote Sensing and Modeling Approaches <i>Chairs: Homa Kheyrollah Pour, Sergei Bocaniov, and Philippe Van Cappellen</i></p>	<p>Linking Human Well-being, Quality of Life, and Ecosystem Services to Conservation Efforts <i>Chairs: Mauri Liberati and Douglas R Pearsall</i></p>	<p>Chemical Contaminants <i>Chair: Lisa Sealock</i></p>	<p>Imperiled Species in the Great Lakes Basin: Identifying Threats and Restoring Populations <i>Chairs: Karl Lamothe, Jacob Ziegler, Rowsbyra Castaneda, and Fielding Montgomery</i></p>	
<p><u>D. Banach</u> Updated Satellite Derived Submerged Aquatic Vegetation Distribution Maps for the Great Lakes</p>	<p><u>C. Binding</u> Comparison of remote sensing algal bloom indices on three turbid eutrophic lakes (@EOLakeWatch)</p>	<p><u>M. Liberati</u> Relevant and resonant conservation: Frameworks to connect ecological and socio-economic indicators (@MRLiberati)</p>		<p><u>J. Ziegler</u> Patterns of threats for aquatic species listed under Canada’s Species at Risk Act (@JP_Ziegler)</p>	8:00
<p><u>E. Reavie</u> Primary productivity retrospection in the Great Lakes: a comparison of geochemical methods (@Milk_in_a_bag_)</p>	<p><u>A. Kuczynski</u> Periphyton monitoring using stationary and aerial red-green-blue and multispectral imagery</p>	<p><u>D. Martin</u> Decision analysis as a process for linking human values to wetland restoration</p>	<p><u>K. Som</u> Release Analysis Viewer (RAV) Tool Utilizes EPA Databases to Map the Impact of Chemical Sources</p>	<p><u>A. Leclair*</u> Seasonal Variation in Critical Thermal Maximum of Redside Dace at the Northern Edge of Its Range</p>	8:20
<p><u>S. Higgins</u> Are your methods radioactive? Alternative approaches to benthic and pelagic primary production</p>	<p><u>R. Stumpf</u> Merging the future with the present and past for detecting and evaluating cyanobacterial blooms from</p>	<p><u>C. Norris</u> Evaluating beneficial use impairment restoration in community revitalization within Areas of Concern</p>	<p><u>S. Robin Samuel</u> Effect of dietary amendment of mineral oil on PCB elimination by rainbow trout (<i>Oncorhynchus mykiss</i>) (@SweethaRobinSam)</p>	<p><u>L. Tessier</u> Effects of gill water chemistry on lampricide speciation and toxicity to non-target fishes</p>	8:40
<p><u>E. Hillis</u> Problems with using chlorophyll a to predict primary production in the Western Basin of Lake Erie (@ErinHillis7)</p>	<p><u>J. Smith</u> Development of Climate Impact Indicators (CIIs) for the Maumee Watershed</p>	<p><u>C. Yang</u> An integrated analysis of the Cootes Paradise watershed as a socio-ecological system</p>	<p><u>S. Rakhimbekova</u> Geochemical controls on occurrence of arsenic in nearshore groundwater in the Great Lakes region</p>	<p><u>H. Siersma</u> Changes in sediment texture may inhibit the recovery of <i>Hexagenia</i> spp. in Saginaw Bay, Lake Huron</p>	9:00
BREAK					9:20

TUESDAY, JUNE 11

	Edwards 100	Edwards 103	Edwards 104	Edwards 105	Edwards 106
	Physical Processes in Lakes cont'd <i>Chairs: Dmitry Beletsky, Chin Wu, Cary Troy, and Joseph Atkinson</i>	Beyond Peer Review: Panel Discussion cont'd <i>Chairs: Margaret Lansing, Devin Gill, Kathe Glassner-Shwayder, and David Ruck</i>	Restoration and Management of Great Lakes Fishes cont'd <i>Chairs: Dimitry Gorsky, Zy Biesinger, and Jeremy Holden</i>	Physical Ecology in Large Lakes and Their Watersheds <i>Chairs: Chris Farrow and Josef Ackerman</i>	Microplastics in Freshwater Systems: Advances in Chemistry, Biology, and Physics cont'd <i>Chairs: Lorena Rios Mendoza, Sarah Love, Chelsea Rochman, and Matthew Hoffman</i>
9:40	T. Jin Turbulence from Bio-Mixing by Profundal Mussels in Lake Michigan	Panelists include Peter Annin , Director Mary Griggs Burke Center for Freshwater Innovation; Andrea Densham , Senior Director of Conservation and Advocacy; TJ Pignataro , Environmental Reporter, Buffalo News; and Sandra Svoboda , Program Director, Great Lakes Now, Detroit Public Television	J. Cockburn Where did all the little fish go? Minnow and related species habitat in Southern Ontario (@sprg_guelph)	J. Lum Bed shear stress as a predictor of juvenile unionid mussel settlement	P. Semcesen Sinking of buoyant freshwater microplastics induced by biofilm growth
10:00	D. Cannon Observations of ice-free radiative convection and turbulent mixing in Lake Michigan (@TroyLab_Purdue)		L. Tristano Impacts of stocked splake on lake trout and brook trout fisheries	C. Farrow The effects of riverine nutrients and phytoplankton transport in an oligotrophic embayment	S. Mason From Rivers to Lake: Microplastics in the Water Column and Sediment in Milwaukee, WI
10:20	J. Austin Glider observations of radiatively driven convection		E. George Genetic Diversity, Stock Structure, and Hybridization of Cisco in Lake Ontario (@greatlakescisco)	J. Ackerman The Effect of TSS and Flowing Conditions on Mussel Clearance Rates (@FluidsEnviros)	P. Corcoran A Pan-Great Lakes Investigation of Plastic Pellet Pollution
10:40	M. Stastna Wind over stratified water: how accurate is the classical picture?		A. Fisk Post-stocking survival, movement, and habitat use of bloater in Lake Ontario: updates from a 4-year study	T. Jicha A nutrient's downstream fate: Assessing nutrient transport using TASC	S. Belontz Basin-wide Analysis of Microplastics in Nearshore and Offshore Benthic Sediments of Lake Huron
11:10	JOHN SMOL PLENARY, Edwards Hall, Room 100 (overflow to 103/106) <i>The power of the past: The challenges of using appropriate time scales in a rapidly changing world</i>				
12:20	LUNCH, Brockway/Harrison Halls				

Lennon 140	Seymour Gallery	Seymour 114	Seymour 119	Seymour 220	
<p>Great Lakes Primary Production: Methods, Results, and Management Implications <i>cont'd</i> <i>Chairs: Katie Bockwoldt and Barry Lesht</i></p>	<p>Harmful Algal Blooms (HABs) and Their Toxicity: Remote Sensing and Modeling Approaches <i>cont'd</i> <i>Chairs: Homa Kheyrollah Pour, Serghei Bocaniov, and Philippe Van Cappellen</i></p>	<p>Linking Human Well-being, Quality of Life, and Ecosystem Services to Conservation Efforts <i>cont'd</i> <i>Chairs: Mauri Liberati and Douglas R Pearsall</i></p>	<p>Chemical Contaminants <i>cont'd</i> <i>Chair: Lisa Sealock</i></p>	<p>Imperiled Species in the Great Lakes: Identifying Threats and Restoring Populations <i>cont'd</i> <i>Chairs: Karl Lamoth, Jacob Ziegler, Romslyra Castaneda, and Fielding Montgomery</i></p>	
<p><u>B. Lesht</u> Estimating primary production from space: Thoughts on integrating field and satellite observations</p>	<p><u>C. Stow</u> Probabilistic Prediction of Microcystin Concentrations in Lake Erie</p>	<p><u>P. Isely</u> Validating estimates of the economic value of shoreline restoration for Muskegon Lake, Michigan</p>	<p><u>D. Tillitt</u> Polychlorinated biphenyl thresholds for survival, growth, and reproduction in fish</p>	<p><u>T. Pitcher</u> Thermal tolerance across age, sex, and season in endangered reidside dace <i>Clinostomus elongates</i> (@PitcherLab)</p>	9:40
<p><u>K. Bockwoldt</u> Phytoplankton production in Lakes Michigan and Huron: Spatial, seasonal, and historical patterns</p>	<p><u>S. Bocaniov</u> On the role of physical processes in algal bloom formation in Lake St Clair</p>	<p><u>B. Hoppe</u> Solastalgia: how climate change impacts mental health and the value of re-connecting people to place</p>	<p><u>E. Shaw</u> Thirty Years of Monitoring fish PCBs, what can we learn? (@itsmeem35)</p>	<p><u>F. Montgomery</u> Extinction Debt of Fishes in Great Lakes Coastal Wetlands</p>	10:00
<p><u>A. Bramburger</u> Vertical distribution of algae and pigments in relation to underwater light climate in Lake Superior</p>	<p><u>D. Del Giudice</u> Bayesian mechanistic modeling elucidates controls on bloom timing and magnitude in Western Lake Erie</p>	<p><u>J. Hoffman</u> Bringing Great Lakes communities "back to the river" by linking ecosystem services and health</p>	<p><u>J. Newsted</u> An evaluation of the potential exposure and impact PFOS to mustelids: A current perspective</p>	<p><u>R. Bruel</u> Trophic-dynamic viewpoint on Lake Champlain fish populations evolution under environmental changes (@RosalieBruel)</p>	10:20
		<p><u>D. Pearsall</u> Relevant and resonant conservation: do we make the case for benefits to people, and does it matter? (@ecosageek)</p>	<p><u>F. Ni</u> Effects of the frequency of water level fluctuations on fish mercury levels</p>	<p><u>J. McKenna</u> Great Lakes-wide Disturbance Assessment: Lake Erie</p>	10:40
<p>JOHN SMOL PLENARY, Edwards Hall, Room 100 (overflow to 103/106) <i>The power of the past: The challenges of using appropriate time scales in a rapidly changing world</i></p>					11:10
<p>LUNCH, Brockway/Harrison Halls</p>					12:20

TUESDAY, JUNE 11

	Edwards 100	Edwards 103	Edwards 104	Edwards 105	Edwards 106
	<p>Physical Processes in Lakes cont'd Chairs: Dmitry Beletsky, Chin Wu, Cary Troy, and Joseph Atkinson</p>	<p>Beyond Peer Review: Why You Must Connect Your Science to Stakeholders (and How to Do It) cont'd Chairs: Margaret Lansing, Devin Gill, Kathe Glassner-Shwayder, and David Ruck</p>	<p>Restoration and Management of Great Lakes Fishes cont'd Chairs: Dmitry Gorsky, Zy Biesinger, and Jeremy Holden</p>	<p>Applications of Simulation Models in Watershed Science and Lake Ecology Chair: James Zollweg</p>	<p>Microplastics in Freshwater Systems: Advances in Chemistry, Biology and Physics cont'd Chairs: Lorena Rios Mendoza, Sarah Love, Chelsea Rochman, and Matthew Hoffman</p>
1:40	<p><u>L. Fitzpatrick</u> Analyzing Flux Algorithms used in FVCOM for each of the Great Lakes</p>	<p><u>E. Lower</u> Engaging stakeholders with the Great Lakes Aquatic Nonindigenous Species Information System</p>	<p><u>K. Kapuscinski</u> A novel richness-weighted relative abundance index of age-0 fishes to identify key habitat features</p>	<p><u>A. Neumann</u> Assessment of the current state of empirical watershed models to support adaptive management</p>	<p><u>I. Arturo</u> Microplastic pathways to Lake St. Clair as evidenced in sediment and stormwater outfall samples</p>
2:00	<p><u>R. Valipour</u> Development of a Lake of the Woods integrated modelling framework to study nutrient loadings and lake response</p>	<p><u>K. O'Reilly</u> A #Fishmas Carol: A tale of social media, science communication, and increasingly bad fish puns (@DrKatfish)</p>	<p><u>C. Elliott</u> Spatial ecology of Walleye (<i>Sander vitreus</i>) in the Bay of Quinte and eastern Lake Ontario</p>	<p><u>F. Dong</u> Assessment of the current state of process-based watershed models to support adaptive management</p>	
2:20	<p><u>H. Hofmann</u> Remobilization and transport of particles in the nearshore zone of Lake Constance, Germany</p>	<p><u>S. Wortman</u> Engaging Lake Erie Stakeholders through Science</p>	<p><u>S. Beech</u> Spatial ecology of Lake Whitefish in the Bay of Quinte and eastern Lake Ontario</p>	<p><u>A. Hamlet</u> Analyzing Changing Flood Risk in the St. Joseph River Basin Using Observations and Modeling</p>	
2:40	<p><u>A. Grace</u> Numerical modeling of hydrodynamic-ice dynamic coupling in a small lake</p>	<p><u>D. Gill</u> Assessing Community Need for a Saginaw Bay Harmful Algal Bloom Forecast (@gilly_devin)</p>	<p><u>J. Matley</u> Bottom-depth preference of Lake Erie walleye: informing fishery management across Lake Erie (@JK_Matley)</p>	<p><u>A. Javed</u> Estimating Phosphorus Load Reductions using the Soil and Water Assessment Tool</p>	
3:00	<p><u>N. Hawley</u> Ice thickness variations over short distances in Lake Erie</p>	<p><u>E. Verhamme</u> Yeah Buoy! How public outreach can provide sustainable funding for operational monitoring (@eddiegreatlakes)</p>	<p><u>D. Stanton</u> DNA fingerprinting of Walleye (<i>Sander vitreum</i>) from Saginaw Bay: Genetic effects of stocking</p>		
3:20	BREAK				

Lennon 140	Seymour Gallery	Seymour 114	Seymour 119	Seymour 220	
<p>Great Lakes Reefs: Research, Monitoring, Creation, and Maintenance <i>Chairs: Jason Fischer, Robin DeBruyne, and Edward Roseman</i></p>	<p>Harmful Algal Blooms (HABs) and Their Toxicity: Remote Sensing and Modeling Approaches cont'd <i>Chairs: Homa Kheyrollab Pour, Serghei Bocaniov, and Philippe Van Cappellen</i></p>	<p>Connecting Management Needs and Science Information <i>Chairs: Mary Evans, Jeffrey Schaeffer, Josh Miller, and Emily Wimmer</i></p>	<p>Chemical Contaminants cont'd <i>Chair: Lisa Sealock</i></p>	<p>Imperiled Species in the Great Lakes: Identifying Threats and Restoring Populations cont'd <i>Chairs: Karl Lamothe, Jacob Ziegler, Rowshyra Castaneda, and Fielding Montgomery</i></p>	
<p>J. Fischer Developing reef remediation projects: A retrospective analysis from the St. Clair and Detroit Rivers</p>	<p>S. Fang Space-time geostatistical trend analysis and risk assessment for in-lake cyanobacterial toxicity</p>	<p>B. Fevold Integrating QAQC into Project-Level Adaptive Management: Revisiting the Plan-Do-Check-Act cycle</p>	<p>D. Chase Patterns of Contaminant Distribution in the Sediments of Lake Nipissing</p>	<p>K. Lamothe Status of reintroduction efforts for SARA-listed fishes in Canada (@KarlLamothe)</p>	1:40
<p>W. Kerfoot LiDAR and bottom reflectance studies: migrating tailings threaten Buffalo Reef in Lake Superior</p>	<p>Y. Shimoda Examination of ecological shifts using Bayesian hierarchical structural equation modeling</p>	<p>C. Palmer Challenges when implementing quality assurance best practices for ecological restoration data</p>	<p>R. Dorman Influence of remediation on sediment toxicity within the Grand Calumet River, Indiana</p>	<p>R. Castaneda Modeling the occupancy of an endangered minnow to inform monitoring programs and habitat restoration (@Rowshyra)</p>	2:00
<p>J. Janssen Lake trout spawning at Julian's Reef, Lake Michigan. What, the shell?</p>	<p>J. Graham Estimating Cyanotoxin Occurrence with Real-Time Water-Quality Data: L Erie and Kansas Case Studies</p>	<p>L. Cartwright Assessing potential ecological impacts of land use and climate change to inform watershed planning</p>	<p>Y. Wu Polyfluoroalkyl Substances (PFASs) in the Great Lakes Atmosphere</p>	<p>J. Bontje Modelling co-occurrence: Can species interactions influence Lake Chubsucker distribution?</p>	2:20
<p>D. Castle Evaluating experimental control method for invasive Rusty Crayfish in Lake Michigan spawning reefs</p>	<p>E. Leytmer Early Warning System for Algal Taste and Odor Compounds and Toxins in Drinking Water Treatment Plant reefs</p>	<p>D. Green Strategic Use of Green Infrastructure – Making a Difference in the Great Lakes</p>	<p>S. Simoliunas Lead Problems in Drinking Water</p>	<p>R. Corchis-Scott Characterizing the genetic structure of endangered Lake Chubsucker populations for conservation</p>	2:40
<p>T. Höök Assessment and restoration of spawning reef habitat in Saginaw Bay (@hooklab)</p>		<p>M. Pawlowski Preliminary results from the 2018 Niagara River National Coastal Condition Assessment pilot survey</p>		<p>E. Redding Creating Nesting Habitat for Common Tern, a Threatened Bird Species of the Great Lakes</p>	3:00
BREAK					3:20

TUESDAY, JUNE 11

	Edwards 100	Edwards 103	Edwards 104	Edwards 105	Edwards 106
	<p>Physical Processes in Lakes cont'd <i>Chairs: Dmitry Beletsky, Chin Wu, Cary Troy, and Joseph Atkinson</i></p>	<p>Beyond Peer Review: Why You Must Connect Your Science to Stakeholders (and How to Do It) cont'd <i>Chairs: Margaret Lansing, Devin Gill, Kathe Glassner-Shwayder, and David Ruck</i></p>	<p>Restoration and Management of Great Lakes Fishes cont'd <i>Chairs: Dimitry Gorsky, Zy Biesinger, and Jeremy Holden</i></p>	<p>Application of Simulation Models in Watershed Science and Ecology cont'd <i>Chair: James Zollweg</i></p>	<p>Furthering Interdisciplinary Urban Groundwater Quality and Urban Sustainability Research <i>Chairs: Brendan O'Leary, Colleen Linn, and Camille Akemann</i></p>
3:40	<p>X. Zhao Three-dimensional simulation of ice-covered hydrodynamic modelling of Lake Erie</p>	<p>K. Korfmacher Advancing Environmental Health Literacy through Interactive, Hands-on Science Kits for Community Use</p>	<p>G. Scholten Estimating Survival and Movement of Stocked Juvenile Coregonines Using Small Acoustic Tags</p>	<p>N. Ehsani SWAT parameters for modeling watershed-scale conservation to reduce nutrient loss to surface waters (@Ehsanima)</p>	<p>C. Linn Anthropological perspectives of groundwater quality in Southeastern Michigan</p>
4:00	<p>J. Kessler Improving ice-air interactions in FVCOM+CICE</p>	<p>P. Parete Lake Ontario Lakewide Action and Management Plan - Connecting Science & Stakeholders (@GreatLakes_GC)</p>	<p>A. Gonzalez Functional Assessment of Great Lakes Coastal Wetlands: Insights from Seasonal Fish Diets</p>	<p>D. Schlea Use of multiple model grids in aquatic ecosystem modeling</p>	<p>B. O'Leary Characterization of Shallow Groundwater in Detroit: Environmental and Hydraulic Considerations</p>
4:20	<p>A. Fujisaki-Manome Impacts of Precipitation on Ice Cover and Water Temperature in the Great Lakes</p>	<p>L. McGaughey An ecosystem health report of the Upper St Lawrence River – communicating science to our community</p>	<p>G. Michaud Identifying survival of hatchery Cisco in northern Lake Michigan using otolith microchemistry</p>	<p>J. Zollweg A Python-based, object-oriented watershed modeling strategy</p>	<p>C. Miller Tailoring sustainability training for urban environmental research</p>
4:40		<p>J. Miller A strategy for collaborative, science-based decision-making in a Great Lakes Area of Concern</p>	<p>R. Sheffer Movements and habitat use of muskellunge in Green Bay, Lake Michigan</p>		<p>C. Akemann Adverse effects of 1,4-dioxane and other VOCs modeled in zebrafish</p>
5:00					<p>J. Wallace Microbial Signatures of Wastewater from Commercial Food and Beverage Processing Plants: Implications</p>
5:20					

Lennon 140	Seymour Gallery	Seymour 114	Seymour 119	Seymour 220	
<p>Great Lakes Reefs: Research, Monitoring, Creation, and Maintenance <i>cont'd</i> <i>Chairs: Jason Fischer, Robin DeBryne, and Edward Roseman</i></p>	<p>Ecosystem-Based Management: Challenges and Opportunities on the Great Lakes Coasts <i>Chairs: Amie West and Felix Martinez</i></p>	<p>Connecting Management Needs and Science Information <i>cont'd</i> <i>Chairs: Mary Evans, Jeffrey Schaeffer, Josh Miller, and Emily Wimmer</i></p>	<p>Building an Early Warning System for the Great Lakes <i>Chairs: Matthew Child, Michael Twiss, Lizhu Wang, and Lucinda Johnson</i></p>	<p>Disease and Mortality in Fishes <i>Chairs: Sean Rafferty and Vicki Blazer</i></p>	
<p><u>A. Gatch</u> Caution degraded reef: Custodial maintenance of Lake Huron’s natural and constructed reefs</p>	<p><u>M. Fraker</u> Developing an integrated ecosystem assessment of Lake Erie fisheries</p>	<p><u>A. Leach</u> Assessing benthic recovery in the Torch Lake AOC</p>	<p><u>T. Slawewski</u> Useful Components of Early Warning Systems as Demonstrated in the Great Lakes</p>	<p><u>V. Blazer</u> Melanistic skin lesions in Smallmouth Bass from the Susquehanna River and Great Lakes tributaries</p>	3:40
<p><u>J. Fischer</u> Northern Madtom (<i>Noturus stigmosus</i>) use of artificial reefs in the St. Clair – Detroit River System</p>	<p><u>D. Klein</u> Applying Concepts of Coastal Resiliency in North Pond, Sandy Creek, NY</p>	<p><u>S. Stanton</u> Implementing an adaptive management strategy for Phragmites management in the Great Lakes basin</p>	<p><u>M. Donahue</u> A Recommended Framework for a Great Lakes Early Warning System</p>	<p><u>H. Walsh</u> Intersex prevalence and transcript abundance in Bass from Great Lakes tributaries and Pennsylvania</p>	4:00
<p><u>D. Dittman</u> Habitat enhancement for Lake Sturgeon spawning in the Seneca River, NY</p>	<p><u>R. Ulatowski</u> Bridging conservation gaps: ecosystem-based management actions at coastal industrial facilities (@wildlifehc)</p>	<p><u>J. Schaeffer</u> Drawing on traditional ecological knowledge as a guide for Great Lakes Wild Rice Research</p>	<p><u>L. Johnson</u> Operational Considerations for a Great Lakes Early Warning System</p>	<p><u>M. Schall</u> Spatial variability in young of year Smallmouth Bass infections in the Chesapeake Bay Watershed</p>	4:20
<p><u>E. Chiriboga</u> Ecosystem Service Valuation for Threatened Habitats: The Buffalo Reef Spawning Area in Lake Superior</p>	<p><u>A. West</u> Perceptions of ecosystem-based management: Tales from the Great Lakes</p>	<p><u>B. Walsh</u> It feeds us, it quenches our thirst, yet it’s under threat: A report card for western Lake Erie</p>	<p><u>E. Reavie</u> The sediment fossil record as an early warning system in the Great Lakes</p>	<p><u>G. Smith</u> The role of disease in altering the population structure of Smallmouth Bass in the Susquehanna River (@GeoffSmithPFBC)</p>	4:40
<p><u>A. Brainard</u> Vegetation community structure inside / outside the St. Lawrence River AOC at Massena / Akwesasne (@AquaticEcology)</p>		<p><u>E. Wimmer</u> Cladophora ecology in changing ecosystems: an assessment guided by management information needs</p>	<p><u>R. Pearson</u> Making a Sustainable Early Warning System for Lake Erie</p>		5:00
		<p><u>S. Benson</u> Exploratory Analysis of the Cladophora Dreissenid Relationship</p>			5:20

WEDNESDAY, JUNE 12

	Edwards 100	Edwards 103	Edwards 104	Edwards 105	Edwards 106
	<p>Soil Health: Role on Nutrient Losses from Agricultural Soils <i>Chair: Angélica Vázquez-Ortega</i></p>	<p>Beyond Peer Review: Why You Must Connect Your Science to Stakeholders (and How to Do It) cont'd <i>Chairs: Margaret Lansing, Devin Gill, Kathe Glassner-Shwayder, and David Ruck</i></p>	<p>Great Lakes Tributaries: Connecting Land and Lakes <i>Chairs: Nathan Manning, Laura Johnson, and Douglas Kane</i></p>	<p>Great Lakes Coastal Wetlands: Innovative Research to Improve Restoration <i>Chairs: Rachel Schultz and Douglas Wilcox</i></p>	<p>Harmful Algal Blooms: From Ecosystem Drivers to Ecosystem Impacts <i>Chairs: Gregory Boyer, Arthur Zastepa, and Roxanne Razavi</i></p>
8:00	<p><u>M. Franks</u> The role of soil organic matter in agriculture: Implications on soil health and nutrient retention</p>		<p><u>N. Manning</u> Ecosystem drivers of metabolic regimes across several stream orders in the Maumee River watershed</p>	<p><u>D. Uzarski</u> Using a decision tree approach to inform protection and restoration of Great Lakes coastal wetlands</p>	
8:20	<p><u>A. Vázquez-Ortega</u> Dredged material benefits for crop production and environmental implications</p>	<p><u>E. Russo</u> Communicating About Dangerous Great Lakes Wetlands To The Public WITHDRAWN</p>	<p><u>R. Hirsch</u> Evaluating stream nutrient trends: A new statistical approach to compensate for changing streamflow</p>	<p><u>M. Cooper</u> A data visualization tool to support protection and restoration of Great Lakes coastal wetlands</p>	<p><u>R. Gorney</u> HABs monitoring and surveillance efforts in New York State (2012-2018) (@guble)</p>
8:40	<p><u>L. Li</u> Do cover crops reduce the leaching risk of soil legacy phosphorus in agricultural watersheds?</p>	<p><u>J. Kart</u> How the IJC Established a Great Lakes Connection Between the Public and Science (@IJCSharedWaters)</p>	<p><u>A. Richards</u> Bayesian SPARROW model for Red Assiniboine River Basin: Same data, new findings</p>	<p><u>D. Moore</u> Using coastal wetland monitoring data to determine the effectiveness of restoration actions</p>	<p><u>P. Peterson</u> A Multilevel Model of TP-Chlorophyll-a for the Great Lakes: Understanding Annual Variability</p>
9:00	<p><u>M. Duffy</u> Determining the biological turnover rate of phosphate in soils using stable oxygen isotopes (@Marge_1935)</p>	<p><u>D. Ruck</u> Using Video Stories to Reach Stakeholders, Congress, and Communities</p>	<p><u>L. Johnson</u> Nutrient loading and processing at Old Woman Creek in Ohio (@laura261)</p>	<p><u>V. Brady</u> The role of monitoring data in coastal wetland restoration: Case studies from Duluth and Green Bay</p>	<p><u>J. Owen</u> Factors influencing the current phytoplankton community in western Lake Erie (@ErieHABgirl)</p>
9:20	BREAK				

Lennon 140	Seymour Gallery	Seymour 114	Seymour 220	
<p>Invasive Species <i>Chairs: Rochelle Sturtevant and Ed Rutherford</i></p>	<p>Remote Sensing, Visualization, and Spatial Data Applications for the Great Lakes <i>Chairs: Mike Sayers, Robert Shuchman, Philip Chu, and George Lesbkeovich</i></p>	<p>Exploring Predator-Prey Dynamics and Feeding Ecology in the Great Lakes <i>Chairs: Jory Jonas, Brian Weidel, Matthew Kornis, and Michael Connerton</i></p>	<p>Microplastics in the Environment: Source, Fate, Impact, Detection, and Mitigation <i>Chairs: Yongli Zhang, Carol Miller, and Mark Cheng</i></p>	
<p><u>R. Sturtevant</u> GLANSIS Risk Explorer</p>			<p><u>M. Lavoy</u> Transport and fate of microplastics within wastewater treatment systems</p>	8:00
<p><u>H. Himes</u> Ecological Risk Screening Summaries: Evaluate the risk of potential non-native species</p>	<p><u>C. Zeng</u> The effect of mineral sediments on satellite chlorophyll-a retrievals from line-height algorithms us</p>	<p><u>J. Marsden</u> Early Development and Feeding Plasticity in An Invasive Population of Lake Trout</p>	<p><u>E. Ham</u> The occurrence of microplastics and microfibres in municipal water systems of the Niagara Region, ON</p>	8:20
<p><u>P. Bzonek</u> A non-physical deterrent in the field: Variation in avoidance across species</p>	<p><u>F. Idehen</u> Flood Risk Assessment in Uhumwonde Local Government Area (ULGA), Edo State, Nigeria., Nigeria</p>	<p><u>L. Almeida</u> Early life diet quality has lingering effects on juvenile walleye (<i>Sander vitreus</i>) (@almeida_zoe)</p>	<p><u>Y. Zhang</u> Smart Management of Microplastic Pollution in the Great Lakes</p>	8:40
<p><u>M. Glennon</u> Adirondack AIS Spread Prevention Program: Boat inspections, vectors, pathways, and people</p>	<p><u>K. Bosse</u> Evaluation of remote sensing light attenuation algorithms in the Great Lakes</p>	<p><u>W. Currie</u> I know what you're eating... spying on the plankton food web (@DrPlanktonguy)</p>	<p><u>C. Hellquist</u> Microplastics in spawning Chinook and Coho salmon from Lake Ontario</p>	9:00
BREAK				9:20

WITHDRAWN

WEDNESDAY, JUNE 12

	Edwards 100	Edwards 103	Edwards 104	Edwards 105	Edwards 106
	<p>Soil Health: Role of Nutrient Losses from Agricultural Sites cont'd Chair: <i>Angélica Vázquez-Ortega</i></p>	<p>Beyond Peer Review: Why You Must Connect Your Science to Stakeholders (and How to Do It) cont'd Chairs: <i>Margaret Lansing, Devin Gill, Kathe Glassner-Shwayder, and David Ruck</i></p>	<p>Great Lakes Tributaries: Connecting Land and Lakes cont'd Chairs: <i>Nathan Manning, Laura Johnson, and Douglas Kane</i></p>	<p>Great Lakes Coastal Wetlands: Innovative Research to Improve Restoration cont'd Chairs: <i>Rachel Schultz and Douglas Wilcox</i></p>	<p>Harmful Algal Blooms: From Ecosystem Drivers to Ecosystem Impacts cont'd Chairs: <i>Gregory Boyer, Arthur Zastepa, and Roxanne Razavi</i></p>
9:40	<p>J. Lindsey-Robbins Using detritivore abundance to manage nutrient leaching and prevent eutrophication in Lake Erie</p>	<p>S. Svoboda Ace the Interview: Pointers for talking to print, radio or TV reporters (@DETSandra)</p>	<p>J. Shore Flushing of the upper Bay of Quinte 2017-2018: Observations and model results</p>	<p>D. Wilcox Lake levels and wetland restoration on Lake Ontario</p>	<p>C. Givens Shifts in microbial community dynamics with algal bloom formation and cyanotoxin occurrence</p>
10:00	<p>M. McCandless Reducing the phosphorus surplus in the Lake Winnipeg watershed through biomass harvest (@mattmccandless)</p>	<p>K. Thompson So What? Communicating the Science Beyond the Journal</p>	<p>G. Kaltenecker Exploring variations in concentration-discharge relationships across watersheds in Ontario</p>	<p>G. Grabas Monitoring Lake Ontario coastal wetland vegetation dynamics under a new water-level regulation plan</p>	<p>M. Twiss Burgeoning planktonic Cyanobacteria in the St. Lawrence River from Lake Ontario to 600 km downstream (@MTwiss)</p>
10:20	<p>K. Fermanich Linking field management, soil health, and edge-of-field water quality in GLRI priority watersheds</p>	<p>M. Lansing SciComm Q&A w/Peter Annin (Author), Andrea Densham (Shedd), Sandra Svoboda (DPTV) & TJ Pignataro (Buffalo News)</p>	<p>A. Tamang Evaluation of the percentage of septic system effluent reaching tributaries in Lake Simcoe watershed</p>	<p>J. Unghire Restoring the ecosystem and coastal resiliency of Braddock Bay</p>	<p>L. Sitoki Harmful algal blooms and patio-temporal variability of microcystins in Nyanza Gulf, Lake Victoria</p>
10:40	<p>P. Lawrence Modelling potential manure transport from permitted livestock facilities, Maumee watershed</p>		<p>A. Richards Bayesian SPARROW model for Red Assiniboine Basin: Same data, new findings</p>	<p>G. Lawrence Use of drones in wetland restoration planning and monitoring on Lake Ontario (@gregdoesscience)</p>	<p>B. Mucholwa Effects of hydrological changes on water quality and cyanotoxins in Nyanza Gulf, L.Victoria, Kenya</p>
11:10	<p>JENNIFER TANK PLENARY, Edwards Hall, Room 100 (overflow to 103/106) <i>Quantifying the effects of winter cover crops and floodplain restoration on nutrient export from agricultural watersheds</i></p>				
12:20	<p>BUSINESS LUNCH, SERC Field House</p>				

Lennon 136	Lennon 140	Seymour Gallery	Seymour 114	Seymour 220	
<p>Watershed and Lake Science Informing Management <i>Chairs: Christopher Winslow, Christine Mayer, Kristen Fussell, Sandra Kosek-Sills, and Heather Raymond</i></p>	<p>Invasive species cont'd <i>Chairs: Rochelle Sturtevant and Ed Rutherford</i></p>	<p>Remote Sensing, Visualization, and Spatial Data Applications for the Great Lakes cont'd <i>Chairs: Mike Sayers, Robert Shuchman, Philip Chu, and George Lesbkeovich</i></p>	<p>Exploring Predator-Prey Dynamics and Feeding Ecology in the Great Lakes cont'd <i>Chairs: Jory Jonas, Brian Weidel, Matthew Kornis, and Michael Connerton</i></p>	<p>Microplastics in the Environment: Source, Fate, Impact, Detection, and Mitigation cont'd <i>Chairs: Yongli Zhang, Carol Miller, and Mark Cheng</i></p>	
<p>V. Campbell-Arvai Public attitudes and perceptions of risks to aquatic ecosystems related to pharmaceutical disposal</p>	<p>M. Kindree Predicting the effects of climate change on native and invasive stream fishes</p>	<p>B. Kobara Traditional and not so traditional uses of split beam active acoustics</p>	<p>J. Bence Round Goby Abundance in Lake Huron: An Exploratory Modeling Approach Based on Predator Consumption</p>	<p>Y. Zhang Occurrence and Fate of Microplastics in Water Treatment Systems</p>	9:40
<p>M. Wiicks Effect of liquid livestock manure storage conditions on total and water-extractable phosphorus</p>	<p>S. Avlijas Diet overlap of Eurasian tench (<i>Tinca tinca</i>) with fishes of the Great Lakes–St. Lawrence River basin (@Sunci_A)</p>	<p>M. Billmire New steps in sharing Great Lakes remote sensing products</p>	<p>T. Bianchi* Assessment of Lake Ontario Alewife reproduction</p>	<p>M. Cheng High-Throughput Detection of Microplastic Using Raman Spectroscopy</p>	10:00
<p>T. Davis The role of surface water warming in the timing of <i>Microcystis</i>-dominated blooms in western Lake Erie (@PlanktonScience)</p>	<p>F. Ercoli Effects of the invasive species Amur sleeper <i>Percottus glenii</i> in Estonian freshwater ecosystems</p>	<p>R. Sawtell Automated algorithm to generate depth invariant bottom reflectance from multiple remote sensing plat</p>	<p>B. Weidel Methods matter: Gear and seasonal impacts on Lake Ontario prey fish biomass estimates</p>	<p>J. Farver Microplastic fibers discharged from wastewater treatment plants in Northern Ohio</p>	10:20
<p>S. Ghosh Detection of the fish pathogen <i>Saprolegnia</i> spp. using LAMP from Recirculating Aquaculture Systems</p>	<p>T. Heer Using a 3-D hydrodynamic model to predict the spawning success of Asian carp</p>	<p>M. Sayers Trends in spatial and temporal variability of optical properties in western Lake Erie</p>	<p>K. Fitzpatrick Predator-prey population dynamics modeling for Chinook Salmon and Alewife in Lake Ontario</p>	<p>C. Miller Community engagement for the reduction of Great Lakes microplastics</p>	10:40
<p>JENNIFER TANK PLENARY, Edwards Hall, Room 100 (overflow to 103/106) <i>Quantifying the effects of winter cover crops and floodplain restoration on nutrient export from agricultural watersheds</i></p>					11:10
<p>BUSINESS LUNCH, SERC Field House</p>					12:20

WEDNESDAY, JUNE 12

	Edwards 100	Edwards 102	Edwards 103	Edwards 104	Edwards 105	Edwards 106
	<p>IJC Town Hall: Provide Your Valuable Perspective on Progress to Restore and Protect the Great Lakes <i>Chairs: David Burden and Sally Cole-Misch</i></p>	<p>Beyond Peer Review: Skills Café cont'd <i>Chairs: Margaret Lansing, Devin Gill, Kathe Glassner-Shwyder, and David Ruck</i></p>	<p>Seeing Below the Surface: Quantifying the Underwater Environment with Image Analysis <i>Chairs: Knut Mehler, Peter Esselman, Molly Wick, and Theodore Angradi</i></p>	<p>Great Lakes Tributaries: Connecting Land and Lake cont'd <i>Chairs: Nathan Manning, Laura Johnson, and Douglas Kane</i></p>	<p>Great Lakes Coastal Wetlands: Innovative Research to Improve Restoration cont'd <i>Chairs: Rachel Schultz and Douglas Wilcox</i></p>	<p>Harmful Algal Blooms: From Ecosystem Drivers to Ecosystem Impacts cont'd <i>Chairs: Gregory Boyer, Arthur Zastepa, and Roxanne Razavi</i></p>
1:40	<p><u>M. Child</u> IJC Town Hall Session 1: The IJC's Role and Activities to Assess Progress on Great Lakes Health</p>	<p>Sharpen your science communication prowess in the Skills Cafe! <u>Message Boxing:</u></p>	<p><u>K. Mehler</u> Using underwater imagery to improve invasive species monitoring in the Great Lakes</p>	<p><u>J. Read</u> Huron-Erie Corridor: Engaging stakeholders at the science-management interface</p>	<p><u>J. Farrell</u> Wetland responses to habitat enhancements and regulated hydrology in the Upper St. Lawrence River</p>	<p><u>M. McCarthy</u> Internal nutrient loading from large lake sediments: revisiting legacies and paradigms</p>
2:00	<p><u>J. Boehme</u> IJC Town Hall Session 2: Binational Strategies and Public Involvement in Chemicals of Mutual Concern</p>	<p>Define your message with purpose. <u>Meet the Press:</u> Practice media interviews on your research.</p>	<p><u>G. Annis</u> A new high-resolution historic substrate layer for the Laurentian Great Lakes</p>	<p><u>D. Scavia</u> Huron-Erie Corridor: P mass balance and climate impacts on the Lake Huron load (@Dscavia)</p>	<p><u>B. Lawrence</u> Harvesting invasive Typha biomass: an innovative approach to coastal wetland restoration</p>	<p><u>O. Al-Dabbagh</u> Correlations of nitrogen forms to the biovolume of Microcystis in Western Lake Erie</p>
2:20	<p><u>J. Jackson</u> IJC Town Hall Session 3: Effective Response to Emerging Chemicals</p>	<p><u>Social Media:</u> Expand the reach of your message.</p>	<p><u>C. Houghton</u> Spawning site characterization of Lake Whitefish and Lake Sturgeon in the Fox River, Lake Michigan</p>	<p><u>A. Dagneu</u> Huron-Erie Corridor: Meeting watershed P loading targets</p>	<p><u>A. Monks</u> Innovative management of European frogbit and invasive cattail</p>	<p><u>J. Stoll</u> Nutrient and trace metal impacts on Great Lakes algal growth and community composition</p>
2:40	<p><u>J. Boehme</u> IJC Town Hall Session 4: Effectiveness of Programs to Mitigate and Prevent Aquatic Invasive Species</p>		<p><u>M. Morgan</u> Ten years of monitoring lake sturgeon spawning on artificial beds in the St. Lawrence River</p>	<p><u>S. Bocaniov</u> Huron-Erie Corridor: On the role of Lake St. Clair in attenuating phosphorus loads</p>	<p><u>E. Giese</u> Restoration targets for Great Lakes coastal wetlands in the Lower Green Bay and Fox River AOC</p>	<p><u>D. Derminio</u> Effects of light on Microcystis spp.: Pigments, cell growth, photosynthetic parameters, and toxins</p>
3:00	<p><u>M. Burrows</u> IJC Town Hall Session 5: Advancing Ballast Water Protection as a Great Lakes Priority</p>		<p><u>P. Esselman</u> Performance of machine learning algorithms for classifying benthic habitats and species</p>	<p><u>Y. Wang</u> Huron-Erie Corridor: Assessing urban P loads</p>	<p><u>T. Hohman</u> Bird community response to changes in wetland extent and lake level in Great Lakes coastal wetlands</p>	<p><u>M. Neudeck</u> Characterization of the Sandusky Bay <i>Planktothrix agardhii</i> bloom of 2015 utilizing metatranscriptomics (@MichelleNeudeck)</p>
3:20	BREAK					

For the IJC Town Hall session, the Top Hat survey link is <https://app.tophat.com/login/060535> (enter as guest)

Lennon 136	Lennon 140	Seymour Gallery	Seymour 114	Seymour 119	Seymour 220	
<p>Watershed and Lake Science Informing Management cont'd <i>Chairs: Christopher Winslow, Christine Mayer, Kristen Fussell, Sandra Kosek-Sills, and Heather Raymond</i></p>	<p>Invasive Species cont'd <i>Chairs: Rochelle Sturtevant and Ed Rutherford</i></p>	<p>Remote Sensing, Visualization, and Spatial Data Applications for the Great Lakes cont'd <i>Chairs: Mike Sayers, Robert Shuchman, Philip Chu, and George Leshkevich</i></p>	<p>Exploring Predator-Prey Relationships and Feeding Ecology in the Great Lakes cont'd <i>Chairs: Jory Jonas, Brian Weidel, Matthew Kornis, and Michael Connerton</i></p>	<p>Education, Outreach and Citizen Science in Our Great Lakes: Engaging the Community <i>Chairs: Christy Tyler, Michael Boller, and Paul Sanyko</i></p>	<p>Microplastics in the Environment: Source, Fate, Impact, Detection, and Mitigation cont'd <i>Chairs: Yongli Zhang, Carol Miller, and Mark Cheng</i></p>	
<p>A. Grimm Developing a Geospatial Decision Support Tool for Great Lakes Beach Hazards</p>	<p>N. King Timing and environmental factors associated with grass carp spawning in a Lake Erie tributary</p>	<p>Y. Jia Monitoring water level over Great Lakes using multi-mission satellite altimetry</p>	<p>J. Jonas A comparison of predator diets in Lake Michigan and Lake Huron (@JonasJory)</p>	<p>C. Widmaier Building partnership and stewardship with the Genesee RiverWatch Aquatic Education Network</p>	<p>A. Cook Non-destructive extraction and identification of microplastics from the stomachs of Great Lakes fish</p>	1:40
<p>J. Chaffin Forecasting Microcystin Concentrations in Western Lake Erie</p>	<p>L. Nathan Implementation of grass carp adaptive management response actions in Lake Erie</p>	<p>P. Chu NOAA Great Lakes CoastWatch New Data, Products and Services</p>	<p>B. Leonhardt Diet Complexity Of Lake Michigan Salmonines (@TheLionHardt)</p>	<p>P. Sawyko Evaluating the effectiveness of the H2O Hero Mass Media Campaign through public opinion surveys</p>		2:00
<p>P. Bertani Biosensors for the Detection of Cyanotoxins in Lake Water and Clinical Samples</p>	<p>C. Pennuto There and back: changes in the size structure of seasonally migrating round goby in Lake Ontario.</p>	<p>G. Leshkevich Operational ice type classification and water quality satellite retrievals for the Great Lakes</p>	<p>M. Kornis Diet and niche overlap of Lake Michigan piscivorous fishes as revealed by stable isotopes</p>	<p>S. Jetoo Stakeholder engagement for inclusive climate governance: The case of the City of Turku Climate Plan</p>		2:20
<p>J. Garcia Estimating economic impacts of water disruptions on the Canadian Great Lakes watershed</p>	<p>E. Carlson Fall migration of round goby in Lake Michigan near Milwaukee, Wisconsin</p>	<p>Y. Shi Monitoring Great Lakes Coastal Wetland Water Level Fluctuations Using SAR Data</p>	<p>S. Larocque Differentiating trophic niches of salmonids in Lake Ontario using three isotopes</p>	<p>M. Boller Environmental Education on the Erie Canal (E3C)</p>		2:40
			<p>N. Saavedra A comparison of PCBs and stable isotopes as ecological tracers of Lake Ontario fishes</p>	<p>J. Hartig From Cleanup of the Detroit River to Revitalization of the Waterfront</p>		3:00
BREAK						3:20

WITHDRAWN

WEDNESDAY, JUNE 12

	Edwards 100	Edwards 102	Edwards 103	Edwards 104	Edwards 105	Edwards 106
	<p>IJC Town Hall: Provide Your Valuable Perspective on Progress to Restore and Protect the Great Lakes cont'd <i>Chairs: David Burden and Sally Cole-Misch</i></p>	<p>Beyond Peer Review: Skills Café cont'd <i>Chairs: Margaret Lansing, Devin Gill, Kathe Glassner-Shwyder, and David Ruck</i></p>	<p>Interacting Threats on the African Great Lakes <i>Chairs: Jessica Ives, Theodore Lawrence, Timothy Davis, and Richard Ogutu-Ohwayo</i></p>	<p>Great Lakes Tributaries: Connecting Land and Water cont'd <i>Chairs: Nathan Manning, Laura Johnson, and Douglas Kane</i></p>	<p>Great Lakes Coastal Wetlands: Innovative Research to Improve Restoration cont'd <i>Chairs: Rachel Schultz and Douglas Wilcox</i></p>	<p>Harmful Algal Blooms: From Ecosystem Drivers to Ecosystem Impacts cont'd <i>Chairs: Gregory Boyer, Arthur Zastepa, and Roxanne Razavi</i></p>
3:40	<p><u>R. Bejankiwar</u> IJC Town Hall Session 6: Can We Achieve Phosphorus Reduction Targets through Domestic Action Plans?</p>	<p>Sharpen your science communication prowess in the Skills Cafe! <u>Message Boxing:</u> Define your message with purpose.</p>	<p><u>R. Ogutu-Ohwayo</u> Extent and requirements for sustainability of cage aquaculture on the African Great Lakes</p>	<p><u>V. Klump</u> Tracking sediment sources in a large urban river system</p>	<p><u>A. Trebitz</u> Variability in physical and biological exchange between coastal wetlands and adjacent Great Lakes</p>	<p><u>Y. Zhang</u> Agricultural activities may trigger production of neurotoxin (PAA): the case of Lake Winnipeg, Canada</p>
4:00	<p><u>R. Graydon</u> IJC Town Hall Session 7: Climate Change Impacts</p>	<p><u>Meet the Press:</u> Practice media interviews on your research <u>Social Media:</u> Expand the reach of your message.</p>	<p><u>A. Otieno</u> Is the basin wide management the best approach for restoring and conserving Lake Victoria environments?</p>	<p><u>F. Rowland</u> Subtle changes in Lake Erie water quality 2009-2018 (@freshwaterfrey)</p>	<p><u>A. Harrison</u> Spatial and temporal (2011-2018) variation of water quality in Great Lakes coastal wetlands (@AnnaMHarr)</p>	<p><u>C. Kraft</u> The potential influence of B vitamins on harmful algal blooms</p>
4:20	<p><u>L. Wang</u> IJC Town Hall Session 8: Great Lakes Science</p>		<p><u>K. Obiero</u> Promoting conservation and management through transboundary co-operation in the African Great Lakes</p>	<p><u>P. Matson</u> Elucidating cyanotoxins, cyanobacteria, and potential abiotic drivers of the 2017 Maumee River bloom (@chico_warren)</p>	<p><u>M. Miller</u> Mapping wetland hydrological connectivity in the Laurentian Great Lakes</p>	<p><u>K. McKindles*</u> Parasites of Planktothrix; cyanophages and chytrids as top-down regulators in a Lake Erie Embayment</p>
4:40	<p><u>IJC Town Hall Plenary Session:</u> What are Healthy Great Lakes to You?</p>		<p><u>T. Lawrence</u> African Great Lakes Information Platform: advancing knowledge, information, and partnerships</p>	<p><u>D. Kane</u> Linking the land and the lake: Maumee River nutrients, cyanobacteria, and toxins</p>	<p><u>M. Windle</u> Effects of season, habitat characteristics, and water levels on fish assemblages in coastal wetlands</p>	<p><u>A. Shakoor</u> <i>Microcystis</i> exposure decreases walleye egg hatch success</p>
5:00	<p>4:50-5:40 Survey link: app.tophat.com/login/060535 (enter as guest)</p>		<p><u>I. Nyameke</u> Aquaculture production on the Volta Lake for food and jobs: Lessons to be learned from Ghana</p>		<p><u>C. Frazier*</u> Patterns of functional community structure in Great Lakes interdunal wetlands</p>	<p><u>X. Chang</u> Cyanobacteria blooms induce embryonic heart failure in an endangered fish species</p>

Lennon 140	Seymour Gallery	Seymour 114	Seymour 119	Seymour 220	
<p>Invasive Species cont'd Chairs: Rochelle Sturtevant and Ed Rutherford</p>	<p>Remote Sensing, Visualization, and Spatial Data Applications for the Great Lakes cont'd Chairs: Mike Sayers, Robert Shuchman, Philip Chu, and George Lesbkeovich</p>	<p>Exploring Predator-Prey Relationships and Feeding Ecology in the Great Lakes cont'd Chairs: Jory Jonas, Brian Weidel, Matthew Kornis, and Michael Connerton</p>	<p>Education, Outreach, and Citizen Science in our Great Lakes: Engaging the Community cont'd Chairs: Christy Tyler, Michael Boller, and Paul Samyko</p>	<p>Hydraulics, Hydrology, and Human Interactions in the Lake Champlain / Richelieu River Basin Chairs: Jesse Feyen and Deborah Lee, and Pierre-Yves Caux</p>	
<p>C. Krabbenhoft Native species diversity and riparian land cover influence round goby invasion (@ckrabb)</p>	<p>N. Torbick Fusing multi-scale imagery to generate CyanoHAB epoch metrics</p>	<p>M. Anderson Quantitative methods to reconstruct length and weight of Great Lakes prey fish using bony structures</p>	<p>J. Chadde Creating Great Lakes stewards and promoting healthy urban watersheds in Detroit</p>	<p>M. Dimitrijevic High resolution atmospheric modelling over the Lake Champlain and Richelieu River</p>	3:40
<p>J. Goretzke Range expansion of the western tubenose goby into the upper St. Lawrence River (@banditsatsea)</p>	<p>J. Wardell Using a deep convolutional neural network to identify Dreissenid mussels</p>	<p>S. Czesny Biochemical markers aid in tracing food-web interactions in the Great Lakes</p>	<p>M. Malchoff Angler use of Lake Champlain climate buoy data 2016-2018</p>	<p>L. Mason Modeling hydrology to support flood forecasting for the Lake Champlain basin using WRF-Hydro</p>	4:00
<p>S. Smith Evolutionary ecology of Great Lakes alewives: An analysis of phenotypic patterns and rates of change</p>	<p>C. Gilbert Object-Based Remote Sensing of Land Cover Dynamics at Ludington State Park, Michigan, 2010-2016</p>	<p>J. Jonas Piscivory in recovering Lake Michigan cisco (<i>Coregonus artedii</i>) (@JonasJory)</p>	<p>R. Moakley Strengthening citizen science as a tool against invasive species in the New York Finger Lakes Region</p>	<p>H. Hu A 3D unstructured grid Lake Champlain model for flood and hydrodynamics forecasting</p>	4:20
<p>J. Hume Push it: death is a stronger motivator than sex during the sea lamprey spawning migration. (@thatlampreyguy)</p>	<p>F. Idehen Flood Risk Assessment in Uhumwonde Local Government Area (ULGA), Edo State, Nigeria., Nigeria</p>		<p>B. Monteleone Finding plastic pollution outreach through citizen science</p>	<p>L. Herdman Infrastructure impacts on circulation in Lake Champlain</p>	4:40
<p>K. Grosh Effects of quagga mussels and <i>Hemimysis anomala</i> on Lake Michigan plankton and benthic algae</p>	<p>O. Ibanga Geospatial Assessment of Flood Risk in Borgu Local Government Area, Niger State, Nigeria</p>			<p>S. Moin A strategic framework for integrated flood management of the Lake Champlain Richelieu River system (@AfaqMoin)</p>	5:00

THURSDAY, JUNE 13

	Edwards 100	Edwards 103	Edwards 104	Edwards 106	Lennon 136
	<p>Application of Genomic Tools to Inform Management of the Great Lakes <i>Chairs: Wesley Larson and Wendy Lee Stott</i></p>	<p>Nutrient Sources, Transport, and Internal Cycling <i>Chairs: Jiyng Li and Maria Dittrich</i></p>	<p>Great Lakes Tributaries: Connecting Land and Water cont'd <i>Chairs: Nathan Manning, Laura Johnson, and Douglas Kane</i></p>	<p>Beyond the Edge of the Field: Mitigating the Impacts of Nutrient Pollution on HABs <i>Chairs: Rebecca Kreiling, Kenneth Gibbons, and James Larson</i></p>	<p>Invasive Species cont'd <i>Chairs: Rochelle Sturtevant and Ed Rutherford</i></p>
8:00	<p><u>W. Larson</u> The future is now: amplicon sequencing and sequence capture usher in the conservation genomics era</p>	<p><u>C. McDonald</u> The spatial relationship between nitrate and productivity in Lake Superior</p>	<p><u>R. Mooney</u> A day in the life of Lake Michigan: A comprehensive estimate of tributary nutrient loads</p>		
8:20	<p><u>S. Smith</u> Discovery of adaptive genetic variation in recovering populations of lake trout in Lake Huron</p>	<p><u>C. Boehler</u> Identifying rates and drivers of nitrogen fixation, a key component Lake Erie's nitrogen cycle</p>	<p><u>E. Houghton</u> Green Bay watersheds and their impacts on the Lower Green Bay and Fox River Area of Concern (@edubbs84)</p>	<p><u>A. Fix</u> Stakeholder perceptions of Great Lakes Restoration Initiative agricultural incentives</p>	<p><u>J. Connolly</u> Comprehensive community assessment of native and non-native Harpacticoid copepods of Lake Ontario</p>
8:40	<p><u>N. Sard</u> Sea lamprey RAPTURE baits enable efficient genotyping for population genomic and parentage studies (@FisherOfGenes)</p>	<p><u>J. Li</u> Benthic shunt: Dreissenid mussels now control phosphorus dynamics in Lake Michigan</p>	<p><u>A. McReynolds*</u> A comparative analysis of small tributaries of Green Bay, Lake Michigan (@MiaMcReynolds)</p>	<p><u>C. Tellez</u> Researching the effectiveness of Great Lakes Restoration Initiative agricultural incentive programs</p>	<p><u>C. Brooks</u> Identifying spectral patterns of Eurasian watermilfoil for mapping and monitoring (@cnbinaa)</p>
9:00	<p><u>M. Bootsma</u> High throughput genetic stock identification and parentage assessment for Mid-western walleye</p>	<p><u>N. Falk</u> Nutrient and microbial community dynamics in agriculturally intensive watersheds impacting Lake Erie (@falkemup)</p>	<p><u>R. Snider</u> Water quality in the Lake Nipissing - French River tributaries of Georgian Bay, Lake Huron</p>	<p><u>K. Czajkowski</u> Effectiveness in implementation: Mapping agricultural management practices and farmer perceptions</p>	<p><u>R. Pillsbury</u> Changes in algal and bacterial communities caused by <i>Didymosphenia geminata</i> in the St Marys River</p>
9:20	BREAK				

Lennon 140	Seymour Gallery	Seymour 114	Seymour 119	Seymour 220	
<p>State of Lake Ontario: 2003-2018 CSMI overview <i>Chairs: Joseph Atkinson, Tom Hollenborst, Jesse Lepak, James Watkins, and Mohiuddin Munawar</i></p>	<p>Finger Lakes Water Quality <i>Chairs: John Halfman and Lisa Cleckner</i></p>	<p>Large Lakes' Response to Climate: Past, Present, and Future <i>Chairs: Brent Lofgren and Jia Wang</i></p>	<p>Systems Practice: A Solution to Address Wicked Problems? <i>Chairs: Stephen Hensler and Paula McIntyre</i></p>	<p>Coastal Resilience in the Face of Change <i>Chairs: Joseph Atkinson, Carolyn Foley, and Henry Bokuniewicz</i></p>	
<p>J. Watkins Implementing Multi-Agency Bi-National CSMI Program of Offshore Lake Ontario During 2018</p>	<p>N. Hawley Year-round temperature observations in Lake Seneca, 2015-2018</p>	<p>J. Wang Great Lakes ice duration, winter severity index, and atmospheric teleconnections, 1973-2018</p>	<p>S. Hensler Use of Systems Practice for Great Lakes Ecosystem Research and Management</p>	<p>Y. Liu Regional Sediment Budget in Southwest Lake Michigan Shore</p>	8:00
<p>M. Munawar Phytoplankton Ecology of Lake Ontario 2013: Structure of Epilimnion and Metalimnion Layers</p>	<p>J. Halfman Cyanobacteria in the Finger Lakes, New York; Nutrient Sources for Shoreline Blooms.</p>	<p>S. Nummer Understanding the response of Great Lakes ice coverage to climate change using a threshold model (@NummerStephanie)</p>	<p>J. Sokolow A Universal Language and Tool for Visualizing Systems Thinking</p>	<p>C. Wu Impacts of Coastal Structure on Coastal Bluffs in Lake Michigan: New Lessons to be learned</p>	8:20
<p>M. Fitzpatrick Long Term Fluctuations in the Microbial-Planktonic Food Web of Lake Ontario</p>	<p>G. Foster Advanced Monitoring to Assess Biogeochemical Processes Related to Algal Blooms in the Finger Lakes</p>	<p>B. Lofgren Modeling Lake Circulation Using Future Climate Scenarios: A Progress Report (@Brent_Lofgren)</p>	<p>N. Mandrak Managing aquatic invasive species as a wicked problem in the Great Lakes basin</p>	<p>A. Bechle Coastal Bluff Recession Mapping in Southeastern Wisconsin: Data and Insights for Coastal Resilience</p>	8:40
<p>H. Niblock Seasonality of Near-shore and Offshore Size Fractionated Primary Productivity in Western Lake Ontario</p>	<p>K. Warner Water column mixing and internal phosphorus loading in the three basins of Conesus Lake, NY</p>	<p>P. Xue Climate projections over the Great Lakes region using the GLARM</p>	<p>P. Gerrard Extending Systems thinking from ecosystems to policy impact (@GerrardPauline)</p>	<p>K. Semmendinger A probabilistic approach to inundation prediction for decision making in coastal communities</p>	9:00
BREAK					9:20

THURSDAY, JUNE 13

	Edwards 100	Edwards 103	Edwards 104	Edwards 105	Edwards 106
	<p>Application of Genomic Tools to Inform Management of the Great Lakes cont'd Chairs: Wesley Larson and Wendy Lee Stott</p>	<p>Nutrient Sources, Transport, and Internal Cycling cont'd Chairs: Jiyng Li and Maria Dittrich</p>	<p>Great Lakes Tributaries: Connecting Land and Water cont'd Chairs: Nathan Manning, Laura Johnson, and Douglas Kane</p>	<p>Smart Lakes: Real-Time Monitoring, Networking, and Analytics Across the Great Lakes Chairs: Max Herzog and Ed Verhamme</p>	<p>Beyond the Edge of the Field: Mitigating the Impacts of Nutrient Pollution on HABS cont'd Chairs: Rebecca Kreiling, Kenneth Gibbons, and James Larson</p>
9:40	<p>N. Mamoozadeh Integrating genomics into brook charr (<i>Salvelinus fontinalis</i>) management in the Lake Superior basin</p>	<p>W. Eckert Internal phosphorus loading in a subtropical lake under extreme water level fluctuation</p>	<p>M. Herbert Development of tributary conservation priorities for Great Lakes migratory fishes</p>	<p>E. Verhamme Developing an Open Access Wireless Network for Lake Erie: A Smart Lake Necessity (@eddiegreatlakes)</p>	<p>J. Berkowitz Phosphorus fate in treatment wetlands - a tale of sources, sinks, and soils (@wetlandsoils)</p>
10:00	<p>P. Euclide Attack of the clones: the influence of PCR clones on RAD-seq genotype calls (@peuclide)</p>	<p>A. Manuel Polyphosphate dynamics in cyanobacteria and its role in P apatite formation at the sediment water in</p>	<p>T. Senegal Differential movement patterns of Yellow Perch between Lake Michigan and drowned river mouth lakes</p>	<p>S. Bickman Portable system for early detection of harmful algal bloom toxins</p>	<p>D. Ure* Tomato plant root/CMC method for the removal and recovery of phosphate from agricultural wastewater</p>
10:20	<p>J. Homola Patterns and processes associated with the round goby invasion of the Great Lakes basin (@jared_homola)</p>	<p>M. Alam Internal phosphorus loading in Lake of the Woods</p>	<p>J. Hood Stability of aquatic food chains to press and pulse perturbations</p>	<p>J. Ortiz Remote sensing of the 2019 CyanoHAB composition in Lake Erie: Spatial analysis as part of a Smart Lake (@EarthSci_Info)</p>	<p>M. Izadmehr Factors influencing the drainage nutrient removal efficiency treated by constructed wetlands</p>
10:40		<p>T. Zhang Characterization of sedimentary P in Lake Erie and on-site quantification of algal available P stock</p>	<p>A. Kowalczyk Edge-of-Field Nutrient and Sediment Monitoring in the Genesee River Watershed, New York</p>		
11:10	<p>HUGH MACISAAC PLENARY, Edwards Hall, Room 100 (overflow to 103/106) <i>Aquatic invasions in the Great Lakes and in other North American lakes</i></p>				
12:20	<p>LUNCH, Brockway/Harrison Halls</p>				

Lennon 140	Seymour Gallery	Seymour 114	Seymour 119	Seymour 220	
<p>State of Lake Ontario: 2003-2018 CSMI Overview cont'd <i>Chairs: Joseph Atkinson, Tom Hollenhorst, Jesse Lepak, James Watkins, and Mohiuddin Munawar</i></p>	<p>Finger Lakes Water Quality cont'd <i>Chairs: John Halfman and Lisa Cleckner</i></p>	<p>Large Lakes' Response to Climate: Past, Present, and Future cont'd <i>Chairs: Brent Lofgren and Jia Wang</i></p>	<p>Chemical Monitoring and Surveillance in the Great Lakes: multimedia <i>Chairs: Elizabeth Murphy, Derek Ager, Chris Marvin, and Robert Letcher</i></p>	<p>Coastal Resilience in the Face of Change cont'd <i>Chairs: Joseph Atkinson, Carolyn Foley, and Henry Bokuniewicz</i></p>	
<p>S. Dahmer Nutrient Mosaic of the Greater Toronto Coastline of Lake Ontario WITHDRAWN</p>	<p>J. Myers Internal loading of nitrogen and phosphorus supports non-N-fixing cyanobacteria in Honeoye Lake</p>	<p>A. Dehghan Study of climate change impacts on Great Lakes wetlands using the Canadian Regional Climate Model</p>	<p>S. Fakouri Baygi Discovery of Emerging Halogenated Contaminants of Concern in Great Lakes Lake Trout (@FakouriRyan)</p>	<p>K. Siman Developing a coastal resilience model in GIS for Ohio Lake Erie shoreline management and policy (@Kelly_Siman)</p>	9:40
<p>J. Pauer Understanding the Drivers of Lake Ontario Nearshore Algae Blooms: Can Models Get Us Any Closer?</p>	<p>P. Richards Assessing Septic Field Inputs in Watersheds</p>	<p>R. Bruel Quantitative approach to lakes ecological vulnerability to climate change (@RosalieBruel)</p>	<p>A. Point A Basin-Wide Temporal Trend Assessment of Perfluoroalkyl Acids in Lake Trout (2005-2015)</p>	<p>M. Austerman Post Flood-Recovery Visioning for Sodus Point, NY (@nyseagrant)</p>	10:00
<p>P. McKinney Autonomous Underwater Glider Observations in Southern Lake Ontario and Niagara Plume</p>	<p>M. Chislock Intraspecific variation in lake <i>Daphnia</i> affects response of algae and a cyanotoxin to fertilization</p>	<p>F. McCarthy Lake Ontario's sensitivity to climate - a Holocene perspective</p>	<p>R. Letcher Comparative Body Compartment and Egg Distribution of New Contaminants in Great Lakes Herring Gulls (@RobertLetcher3)</p>	<p>T. Ruswick Healthy Port Futures: Research and Implementation of Passive Sediment Management Techniques</p>	10:20
<p>J. Atkinson Model Development for Lake Ontario CSMI</p>	<p>S. Cushman Foraging ecology of Round Goby: impacts on native and non-native prey choices</p>		<p>A. Renaguli The Use of GC×GC-HR-ToF MS for the Identification of Novel Halogenated Compounds in Great Lakes fish</p>		10:40
<p>HUGH MACISAAC PLENARY, Edwards Hall, Room 100 (overflow to 103/106) <i>Aquatic invasions in the Great Lakes and in other North American lakes</i></p>					11:10
<p>LUNCH, Brockway/Harrison Halls</p>					12:20

THURSDAY, JUNE 13

	Edwards 100	Edwards 103	Edwards 104	Edwards 105	Edwards 106
	<p>Application of Genomic Tools to Inform Management of the Great Lakes <i>cont'd</i> Chairs: Wesley Larson and Wendylee Stott</p>	<p>Nutrient Sources, Transport, and Internal Cycling <i>cont'd</i> Chairs: Jiyng Li and Maria Dittrich</p>	<p>Great Lakes Fish Habitat Priorities Development, Implementation, and Adaptive Management Chairs: Jeff Tyson, Christine Mayer, and Roger Knight</p>	<p>Smart Lakes: Real-Time Monitoring, Networking, and Analytics Across the Great Lakes <i>cont'd</i> Chairs: Max Herzog and Ed Verhamme</p>	<p>Beyond the Edge of the Field: Mitigating the Impacts of Nutrient Pollution on HABS <i>cont'd</i> Chairs: Rebecca Kreiling, Kenneth Gibbons, and James Larson</p>
1:40	<p><u>D. Blumstein</u> A genetic linkage map for cisco (<i>Coregonus artedii</i>) (@DaniBlumstein)</p>	<p><u>M. River</u> Dissolved reactive phosphorus loads to western Lake Erie: the hidden influence of nanoparticles</p>	<p><u>R. Knight</u> Pulling levers for fish habitat management in the Great Lakes</p>	<p><u>M. Herzog</u> Developing a Financially Sustainable Early-Warning System for Harmful Algae (@CLEH2Oalliance)</p>	<p><u>R. Kreiling</u> Riparian zone effects on in-stream nutrient cycling in the Fox River Basin, WI, USA</p>
2:00	<p><u>W. Stott</u> Improving our ability to discriminate among cisco and deepwater cisco Populations, <i>Coregonus</i> sp.</p>	<p><u>J. White</u> Phosphorus and sediment loading in a Boreal Shield River</p>	<p><u>M. Plumley</u> The Upper Mississippi River Restoration Program – Integrating science, restoration and management.</p>	<p><u>H. King</u> Citizen science nutrient measurement via DIY spectrometry</p>	<p><u>L. Kinsman-Costello</u> What's mud got to do with it?: Sediment internal nutrient supply and sequestration in Sandusky Bay</p>
2:20	<p><u>A. Ackiss</u> Using genomic tools to investigate adaptive diversity in Great Lakes cisco (@fin_gen)</p>	<p><u>T. Maguire</u> Finding the signal in the noise; distinguishing point and non-point sources in the Detroit River</p>	<p><u>J. Houser</u> Monitoring and research inform the restoration and management of the Upper Mississippi River</p>	<p><u>R. Shuchman</u> Low-cost spectroradiometer systems for improved spatial and temporal water quality monitoring</p>	<p><u>S. Bartlett</u> Multi-year effort assessing cyanoHAB growth and toxicity in lower Green Bay, Lake Michigan (@slbartlett8)</p>
2:40	<p><u>M. Bernal</u> Elucidating the evolutionary history of ciscoes (genus: <i>Coregonus</i>) using genomic approaches (@evo_fish)</p>	<p><u>M. Boreux</u> Groundwater inflow and nutrient status in agricultural streams during summer and winter base flow</p>	<p><u>J. Tyson</u> A new fisheries management-driven framework for Great Lakes fish habitat management</p>	<p><u>M. Herzog</u> Developing an Integrated Data Infrastructure for Lake Erie Citizen Science (@CLEH2Oalliance)</p>	<p><u>J. Larson</u> Nutrient and trace metal co-limitation of cyanobacterial blooms in the Great Lakes</p>
3:00		<p><u>C. Mackie</u> Nutrient transport and interactions of groundwater and surface water in a Great Lakes clay basin</p>	<p><u>J. Lantry</u> Prioritizing fish habitat improvement actions to achieve Lake Ontario's Fish Community Objectives</p>		
3:20	BREAK				

Lennon 140	Seymour Gallery	Seymour 114	Seymour 119	Seymour 220	
<p>State of Lake Ontario: 2003-2018 CSMI Overview <i>cont'd</i> <i>Chairs: Joseph Atkinson, Tom Hollenhorst, Jesse Lepak, James Watkins, and Mobiuddin Munawar</i></p>	<p>Wetland Restoration in the Great Lakes Basin: Research and Innovation <i>Chairs: Christy Tyler, Carmody McCalley, Jim Howe, and David Klein</i></p>	<p>Large Lakes' Response to Climate: Past, Present, and Future <i>cont'd</i> <i>Chairs: Brent Lofgren and Jia Wang</i></p>	<p>Chemical Monitoring and Surveillance in the Great Lakes: Multimedia <i>cont'd</i> <i>Chairs: Elizabeth Murphy, Derek Ager, Chris Marvin, and Robert Letcher</i></p>	<p>A Possible New Paradigm to Improve the International Great Lakes Datum and Its Maintenance <i>Chairs: C.K. Shum, Dana Caccamise, Laura Rear McLaughlin, Jeff Oyler, and Michael Craymer</i></p>	
<p>J. Lepak Lake Ontario CSMI Discussion: Sharing Ideas and Contributions for Outreach Materials</p>	<p>S. VanWinkle Does community engagement improve ecosystem restoration outcomes?</p>		<p>B. Alipour Parvizan Temporal Trends of Hexabromocyclododecane in Fish Tissues From the Great Lakes Using LC-HRMS</p>	<p>D. Zilkoski Past, Present, Future Vertical Datums in the Great Lakes, and What This Means to Estimating Heights</p>	1:40
	<p>F. Page Five year <i>Typha</i> mitigation maintains native plant diversity in a Lake Ontario coastal plain fen</p>	<p>D. Apps Retrospective Analysis of the 2015-2016 El Niño and its Impacts on Great Lakes Water Levels</p>	<p>N. Urban Contaminant Mixtures in Fish: Toxicity and Risk Assessment</p>	<p>M. Bevis Absolute versus Relative Lake Levels : New Challenges versus Old</p>	2:00
	<p>C. Hellquist Three years of manual removal of invasive <i>Typha</i> in a Lake Ontario shoreline plain fen</p>	<p>L. Fry Analysis of nearly 120 years of Great Lakes water supply to identify changes in extreme events</p>	<p>R. Lepak Using Mercury Stable Isotope Ratios to Trace Hg Bioaccumulation into the Lower Food Web of Lake Erie</p>	<p>M. Craymer Defining a new International Great Lakes Datum</p>	2:20
			<p>D. Ager Great Lakes Atmospheric Trends of Polychlorinated Biphenyls and Polybrominated Diphenyl Ethers</p>	<p>C. Zervas New analysis of Low Water Datum in conjunction with the International Great Lakes Datum 2020 update</p>	2:40
			<p>E. Murphy Per- and Poly-fluoroalkyl Substance Monitoring and Surveillance in the Great Lakes (@BarerBeth)</p>	<p>C. Shum Feasibility of Using Satellite Altimetry to Validate or Enhance the International Great Lakes Datum</p>	3:00
BREAK					3:20

THURSDAY, JUNE 13

	Edwards 103	Edwards 100	Edwards 104	Edwards 105	Edwards 106
	<p>Nutrient Sources, Transport, and Internal Cycling cont'd <i>Chairs: Jiyng Li and Maria Dittrich</i></p>	<p>Application of Genomic Tools to Inform Management of the Great Lakes cont'd <i>Chairs: Wesley Larson and Wendylee Stott</i></p>	<p>Great Lakes Fish Habitats Priorities Development, Implementation, and Adaptive Management cont'd <i>Chairs: Jeff Tyson, Christine Mayer, and Roger Knight</i></p>	<p>Smart Lakes: Real-Time Monitoring, Networking, and Analytics Across the Great Lakes cont'd <i>Chairs: Max Herzog and Ed Verhamme</i></p>	<p>Spatial Dynamics in the Pelagia of Large Lakes: Technological Advances and Applications <i>Chairs: Lars Rudstam, Doran Mason, David Warner and Anne Scofield</i></p>
3:40	<p><u>U. Schneidewind</u> Phosphorus input to Georgian Bay via a discontinued septic system plume and the surrounding aquifer</p>	<p><u>H. Lachance</u> Who's there? Using genomics to answer cisco (<i>Coregonus artedii</i>) population questions in Lake Superior (@HannahMLachance)</p>	<p><u>S. Marklevitz</u> Distilling the best available information to prioritize habitat actions: The Lake Erie PMA exercise</p>	<p><u>T. Crandle</u> Practicalities and possibilities for including wave sensing capabilities on Great Lakes Buoys</p>	<p><u>D. Warner</u> Multi-trophic level spatial patterns in Lake Michigan</p>
4:00		<p><u>S. Daniel</u> Great Lakes DNA barcode reference library: Mollusca, Annelida, and minor phyla</p>	<p><u>S. Moore</u> An objective ranking tool for determining fish habitat improvement projects in Lake Superior</p>	<p><u>D. Steinmoeller</u> HGSRT: A cloud-based web application for the dissemination of real-time hydrologic forecasts</p>	<p><u>B. Flood</u> Investigating spatiotemporal dynamics of fishes in response to changes in their physical environment</p>
4:20		<p><u>K. Gallage</u> Metagenomic approach to identifying Great Lakes fishes at their early life stages</p>	<p><u>E. Hinchey Malloy</u> Using the GLWQA LAMP to develop binational habitat priorities for science and action in Lake Erie</p>	<p><u>T. Hansen</u> Two-factor authentication of data from an inexpensive water current meter</p>	<p><u>H. Nelson</u> Use of Imaging Particle Analyzer (FlowCam®) for characterizing metrics for zooplankton</p>
4:40		<p><u>B. Gallo</u> NGS reveals initial diet strongly influences northern pike gut microbiota in an aquaculture setting</p>	<p><u>S. Check</u> Great Lakes Fishery and Ecosystem Restoration Program: Restoring Great Lakes aquatic habitat</p>	<p><u>J. Kraus</u> Acoustic Tag Retention and Mortality of Juvenile Cisco (<i>Coregonus artedii</i>)</p>	<p><u>L. Rudstam</u> Fine-scale zooplankton distributions revealed with acoustics and LOPC</p>
5:00			<p><u>S. Mackey</u> <i>Implementing coastal priority management areas and functional habitats</i></p>		<p><u>T. Holda</u> Target strength estimates of <i>Mysis diluviana</i> across the Great Lakes and Finger Lakes</p>

Lennon 140	Seymour Gallery	Seymour 114	Seymour 119	Seymour 220	
<p>Thiamine Deficiency in the Great Lakes <i>Chairs: Jacques Rinchar, Matthew Futia, and Donald Tillitt</i></p>	<p>Wetland Restoration in the Great Lakes: Research and Innovation cont'd <i>Chairs: Christy Tyler, Carmody McCalley, Jim Hove, and David Klein</i></p>	<p>Mud, Macrofauna & Microbes: Benthic Organism-Abiotic Interactions at Varying Scales <i>Chairs: Elizabeth Hinchey Malloy, Lyubov Burlakova, Knut Mehler, Janet Nestlerode, and Alexander Karatayev</i></p>	<p>Great Lakes Citizen Science: Leveraging Our Love of the Lakes <i>Chairs: Tom Hollenborst, Molly Wick, Marte Kitson, and Ryan Hueffmeier</i></p>	<p>A Possible New Paradigm to Improve the International Great Lakes Datum and Its Maintenance cont'd <i>Chairs: C.K. Shum, Dana Caccamise, Laura Rear McLaughlin, Jeff Oyler, and Michael Craymer</i></p>	
<p><u>J. Rinchar</u> Prevalence of thiamine deficiency in salmonines from Lake Ontario</p>	<p><u>B. Hamilton</u> Effects of hydrology and past land-use on carbon and microbial communities in restored wetlands</p>	<p><u>A. Karatayev</u> Long-term population dynamics of dreissenids in lakes Michigan and Huron</p>	<p><u>C. Rosen</u> Citizen Science, It's More Than Just Data (@bnwaterkeeper)</p>	<p><u>W. Chen</u> Complex Independent Component Analysis of Multi-Mission Satellite Altimetry Great Lakes Water Level</p>	3:40
<p><u>D. Tillitt</u> Health metrics in Lake Ontario salmonines related to thiamine stress in Salmon River stocks.</p>	<p><u>E. Squier</u> Herbivore controls on macrophyte community structure and nitrogen retention in created wetlands</p>	<p><u>R. MacLellan-Hurd*</u> Influence of profundal quagga mussels on phosphorus cycling at the sediment-water interface</p>	<p><u>M. Wick</u> Deep Lake Explorer: Using Citizen Science to Analyze Underwater Video from the Great Lakes</p>	<p><u>J. Oyler</u> Updating U.S. & Canadian Water Level Stations to the New International Great Lakes Datum Using GNSS</p>	4:00
<p><u>K. Edwards</u> Selective detection of thiamine using bacteria-derived proteins in complex biological matrices</p>	<p><u>M. McGowan</u> Effects of prior land use, carbon availability and hydrology on nitrogen cycling in created wetlands</p>	<p><u>L. Burlakova</u> Facilitative and competitive effects of <i>Dreissena</i> on benthos of Laurentian Great Lakes</p>	<p><u>S. Simmons</u> A scalable monitoring program in Canada built by anglers</p>	<p><u>A. Grodsky</u> Analysis of US and Canadian 2017 and 2018 Great Lakes seasonal water level data to update the IGLD</p>	4:20
	<p><u>S. Huang</u> Managing greenhouse gas flux from created wetlands: hydrology, carbon supply and prior land use</p>	<p><u>A. Christiansen</u> An assessment of periphyton communities in five Upper Peninsula streams, MI</p>	<p><u>P. Mulcahy</u> Starry Trek: the next generation of citizen science for early detection of aquatic invasive species</p>	<p><u>X. Cai</u> Feasibility of Great Lakes CORS Sites as GNSS-R Water Level sensors to Support IGLD Maintenance</p>	4:40
	<p><u>R. Davis</u> Design and construction of the Little Beaver Island shoreline and coastal wetland habitat improvement</p>				5:00

FRIDAY, JUNE 14

	Edwards 100	Edwards 103	Edwards 104	Edwards 105	Edwards 106
	<p>Application of Genomic Tools to Inform Management of the Great Lakes cont'd <i>Chairs: Wesley Larson and Wendylee Stott</i></p>	<p>Great Lakes Lower Trophic Level Community Dynamics <i>Chair: Elizabeth Whitmore</i></p>	<p>Great Lakes Fish Habitat Priorities Development, Implementation and Adaptive Management cont'd <i>Chairs: Jeff Tyson, Christine Mayer, and Roger Knight</i></p>	<p>Great Lakes Outreach and Education <i>Chairs: Kristin TePas, Helen Domske, and Chiara Zuccarino-Crove</i></p>	<p>Improving Model Predictions through Coupled System and Data Assimilation <i>Chairs: Matthew Hoffman, Philip Chu, and Pengfei Xue</i></p>
8:00	<p><u>N. Lulat</u> Quantitative eDNA assessment of reintroduced Atlantic salmon using microsatellite markers WITHDRAWN</p>		<p><u>E. Roseman</u> Science and monitoring guide recovery of fisheries in the St. Clair-Detroit River system</p>	<p><u>J. Thum</u> Building relationships with non-traditional cooperators in the Western Lake Erie Basin (@FWThum)</p>	<p><u>D. Schwab</u> Creating and providing more accessible spill modeling results for Lake St. Clair and Detroit River</p>
8:20	<p><u>K. Scribner</u> Molecular and developmental effects of invertebrate feeding groups on lake sturgeon eggs and larvae</p>	<p><u>A. Chiandet</u> Algae and Zooplankton Community Dynamics in Severn Sound (@SSEA_SSRAP)</p>	<p><u>K. Robinson</u> Using decision analysis to incorporate ecological and social science into barrier removal decisions (@KFilerRobinson)</p>	<p><u>J. Chadde</u> Lake Superior Youth Symposium 1995-2019: Inspiring Stewardship</p>	<p><u>H. Chenfu</u> Three-way Coupled Modeling System for Storm Wave: A case study in Lake Superior</p>
8:40	<p><u>L. Pukk</u> eDNA metabarcoding to detect aquatic invasive species and estimate community composition in lakes</p>	<p><u>R. Rozon</u> Trophic Ratios as Ecological Status Indicators: Examples from Lake Ontario (@rockinrobin03)</p>	<p><u>C. Mayer</u> Letting go of hypothesis testing: A scary leap to better align with management needs (@cmmtoledo)</p>	<p><u>J. Chadde</u> Teacher-created innovative invasive species lessons to achieve state science standards</p>	<p><u>Y. Hui*</u> Preliminary model analysis for near-shore nutrient dynamics in Lake Ontario</p>
9:00	<p><u>K. Andres*</u> Novel environmental DNA methods for monitoring the population genetics of an invasive species (@kara_andres)</p>	<p><u>K. Bowen</u> Zooplankton community changes in Lake Ontario: species introductions and oligotrophication</p>	<p><u>J. Fischer</u> Ideal vs real: Lessons learned applying science to Upper Mississippi River restoration</p>	<p><u>H. Domske</u> Shipboard research - a partnership among teachers and scientists</p>	<p><u>M. Madani</u> Inclusion of qualitative data improve predictive capability of MLR model for beach water quality WITHDRAWN</p>
9:20	BREAK				

Lennon 140	Seymour Gallery	Seymour 114	Seymour 119	Seymour 220	
<p>Thiamine Deficiency in the Great Lakes cont'd <i>Chairs: Jacques Rinchar, Matthew Futia, and Donald Tillitt</i></p>	<p>Wetland Restoration in the Great Lakes Basin: Research and Innovation cont'd <i>Chairs: Christy Tyler, Carmody McCalley, Jim Hove, and David Klein</i></p>	<p>Mud, Macrofauna & Microbes: Benthic Organism-Abiotic Interactions at Varying Scales cont'd <i>Chairs: Elizabeth Hinchey Malloy, Lyubov Burlakova, Knut Mebler, Janet Nestlerode, and Alexander Karatayev</i></p>	<p>Great Lakes Citizen Science: Leveraging Our Love of the Lakes cont'd <i>Chairs: Tom Hollenhorst, Molly Wick, Marte Kitson, and Ryan Hueffmeier</i></p>	<p>Oxygen Cycling and Hypoxia: Processes, Impacts, and Management <i>Chairs: Mark Rowe, Val Klump, Reza Valipour, and Stuart Ludsin</i></p>	
		<p><u>T. Michael</u> Invertebrate Activities in Coastal Wetland Sediments Influence Oxygen and Nutrient Dynamics</p>	<p><u>T. Hollenhorst</u> It's Time to Embrace the Abundance of Citizen Science: Assessing Great Lakes Biodiversity with CitSc</p>	<p><u>M. Rowe</u> Performance of a Lake Erie hypoxia forecast model in 2018</p>	8:00
<p><u>C. Richter</u> Potential sources of thiaminase causing thiamine deficiency complex (TDC) in Great Lakes salmonines</p>	<p><u>G. Sargis</u> Applied wetland restoration: Successes and lessons learned</p>	<p><u>K. Rhude</u> <i>Diporeia</i> sediment preference along a Lake Superior transect</p>	<p><u>M. Kitson</u> City Nature Challenge - increasing citizen science participation through organized competitions</p>	<p><u>R. Valipour</u> Hypoxia in the nearshore waters of Lake Erie: observations and three-dimensional modeling</p>	8:20
<p><u>B. Neff</u> Effects of dietary thiaminase on three strains of Atlantic salmon</p>	<p><u>E. Brahmstedt</u> Mercury distribution in <i>Typha angustifolia</i> biomass in a St. Lawrence River wetland (@ESBrahmstedt)</p>	<p><u>L. Katona*</u> Variability in sediment and mussel-associated algal biomass along a depth gradient in Lake Ontario (@lekatona)</p>		<p><u>S. Brothers</u> Hidden oxygen depletion mechanisms: Are there implications for lake management strategies?</p>	8:40
<p><u>M. Futia*</u> Can fish have too much fat? Connections between fat content and Thiamine Deficiency in Lake Ontario</p>	<p><u>Z. Kua</u> Muskrat (<i>Ondatra zibethicus</i>) effects on wetland plant communities</p>	<p><u>P. Esselman</u> Characterization of fine scale variation in substrates using robots and machine learning</p>		<p><u>R. Jones</u> Weather-related drivers of thermal mixing and the dissolved oxygen regime of a polymictic bay</p>	9:00
BREAK				<p><u>A. Jabbari</u> Interbasin exchange of hypoxic water in the western basin of Lake Erie</p>	9:20

FRIDAY, JUNE 14

	Edwards 103	Edwards 104	Edwards 105	Edwards 106	Seymour 114
	<p>Great Lakes Lower Trophic Level Community Dynamics cont'd <i>Chair: Elizabeth Whitmore</i></p>	<p>Great Lakes Fish Habitat Priorities Development, Implementation, and Adaptive Management cont'd <i>Chairs: Jeff Tyson, Christine Mayer, and Roger Knight</i></p>	<p>Great Lakes Outreach and Education cont'd <i>Chairs: Kristin TePas, Helen Domske, and Chiara Zuccarino-Crowe</i></p>	<p>Improving Model Predictions Through Coupled System and Data Assimilation cont'd <i>Chairs: Matthew Hoffman, Philip Chu, and Pengfei Xue</i></p>	<p>Mud, Macrofauna & Microbes: Benthic Organism-Abiotic Interactions at Varying Scales cont'd <i>Chairs: Elizabeth Hinchey Malloy, Lyubov Burlakova, Knut Mebler, Janet Nestlerode, and Alexander Karatayev</i></p>
9:40	<p>J. Marino Quantifying multiple effects on Lake Michigan zooplankton from field time series data</p>	<p>R. Ghamkhar Life Cycle Assessment of an Aquaponics System: Identification of Environmental Hotspots (@R4miiiiin)</p>	<p>C. Hagley Building an educator community of practice through shared tall ship experiences</p>	<p>S. Qian LASSO -- a promising alternative to AIC for model selection</p>	<p>J. Nestlerode Spying on benthic communities: Using sediment profile imaging to evaluate soft-bottom habitats</p>
10:00	<p>B. Vercruyse Lake Erie's zooplankton community composition and relative abundance in the western basin (2010-17)</p>	<p>C. Roswell Connecting yellow perch early-life dynamics to angler harvest in southwestern Lake Michigan</p>	<p>L. Manzo From guardian to great: Bridging the gap between doing science and teaching science (@LyndseyManzo)</p>	<p>P. Chu 3D hydrodynamic and bio-physical models with data assimilation – an application for Swiss Lakes</p>	<p>Q. Liao Modeling the influence of invasive mussels on phosphorus cycling in Lake Michigan</p>
10:20	<p>C. Marshall Distribution and ecology of <i>Ergasilus cotti</i> (Kellicott 1897) from mottled sculpin and rainbow darter</p>		<p>A. Moser Collaborating across disciplines: The art and science of water (@wiscwaterlib)</p>	<p>X. Ye Using data assimilation to improve thermal structure prediction in Lake Erie</p>	
10:40	<p>E. Whitmore Biogeographic and morphological variation in bosminid communities across the Laurentian Great Lakes</p>		<p>K. Kornecki "The Aquatic Messenger" interactive VR/AR exhibit</p>	<p>Y. Chao Lake Erie Modeling and Data Assimilation to Improve Operational Forecast</p>	
11:00			<p>C. Foley Capturing research stories long after the funding ends</p>		
11:20			<p>C. Zuccarino-Crowe Strengthening connections across the Great Lakes Sea Grant Network and NOAA (@ChiaraZC)</p>		
11:40	CONFERENCE ENDS				

POSTERS BY THEME

Chemical Contaminants and Emerging Issues (CCE)

Fisheries and Fishery Management (FFM)

General Contributions (GEN)

HABs and Nutrients (H&N)

Integration of Science and Management (ISM)

Great Lakes Limnology and Health (L&H)

Remote Sensing, Networking, and Modeling (RNM)

Specific Lakes and Places (SLP)

Trophic Food Web: Dynamics, Function, and Technology (TFW)

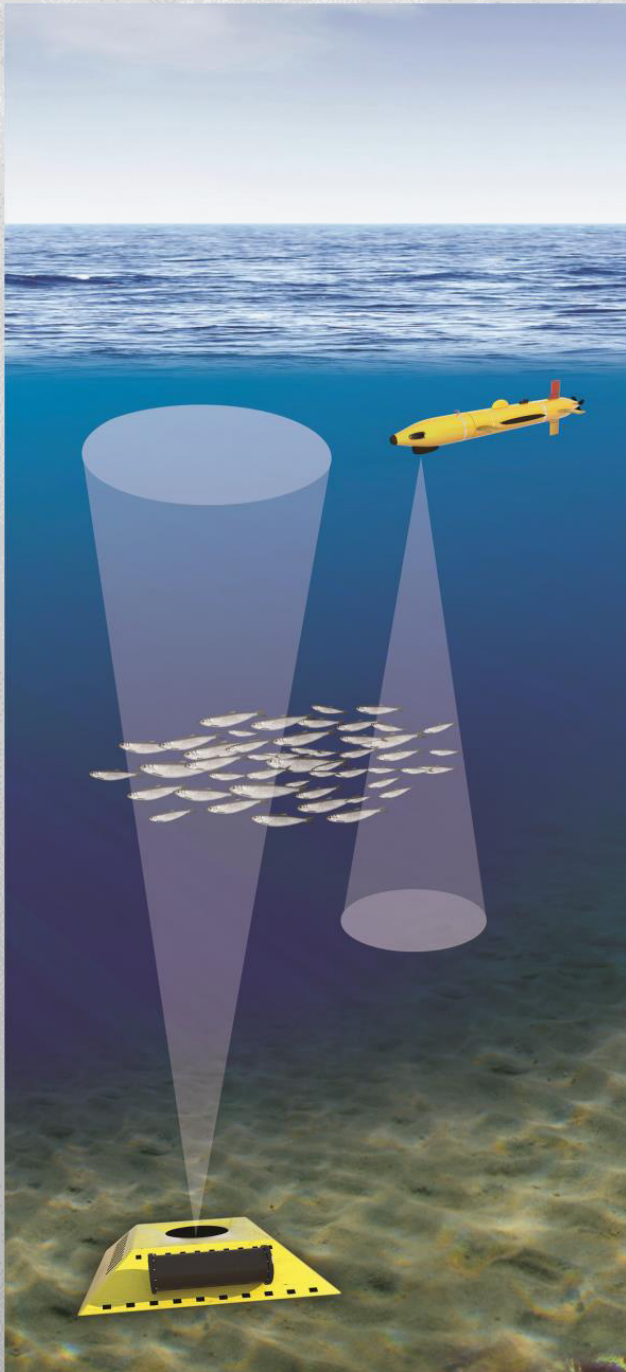
Watersheds, Groundwater, Tributaries, and Coastal Issues (WGT)

Wetlands and Reefs (W&R)

Posters noted with an asterisk (*) are candidates for
the IAGLR Best Student Poster Award.
Best of luck to the four candidates.



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Chemical Contaminants and Emerging Issues (CCE)

- | | | | |
|-------|--|-------|---|
| CCE-1 | ADAMS, J.
The microfiber footprint of blue jeans in a Great Lakes watershed (@AdamsJenniferK) | CCE-5 | EARN, A.
The Current State of Plastic Pollution in the Laurentian Great Lakes |
| CCE-2 | ATHEY, S.
Wastewater treatment plants as conduits for microfibers and other contaminants to enter Lake Ontario (@sustainablesam_) | CCE-6 | EDWARDS, M.
Chemicals of emerging concern monitoring and assessment by Great Lakes Mussel Watch Program |
| CCE-3 | CHOMIAK, K.
Assessing the toxicity and burial of microplastics in freshwater lake sediments | CCE-7 | ENSCH, M.
A pilot scale system utilizing boron-doped diamond perforated plates for the destruction of PFOA |
| CCE-4 | DIETERLE, K.
Legacy and Emerging Contaminants in Young-of-Year Fish from New York's Great Lakes Basin | CCE-8 | LEPAK, R.
Dissolved Gaseous Mercury Dynamics in Lake Michigan |
| | | CCE-9 | LIN, C.
Microplastics: Environmental Forensic |

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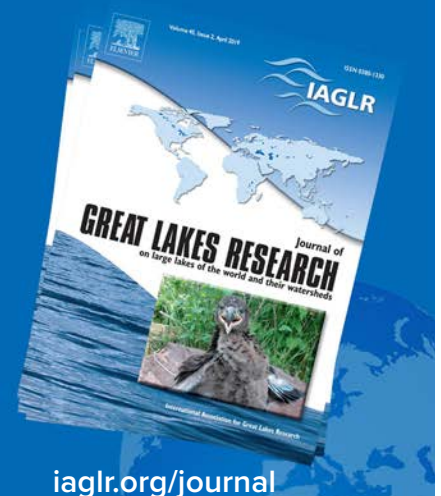
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UPCOMING SPECIAL SECTIONS & ISSUES

- Remote sensing of cyanoHABs in the western basin of Lake Erie
- European Large Lakes Symposium-IAGLR conference (Évian-les-Bains, France, 2018)
- Third Sea Lamprey International Symposium (Detroit, MI, 2019)
- Lake Baikal (from presentations in Irkutsk, Russia, 2018)
- Speciation in Ancient Lakes (Entebbe, Uganda, 2018)
- Toronto and Region Area of Concern
- Asian Carp in the Great Lakes
- Lake Winnipeg

HIGHLIGHTS

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POSTERS BY THEME

CCE-10 LIN, R.
Overview of microplastic content in Lake Superior's surface water, fish stomachs, and beach sand

CCE-11 MURPHY, E.
Probability-Based Assessments of Per- and Polyfluoroalkyl Substances (PFAS) in Great Lakes Fish

CCE-12 TEPAVCEVIC, M.
Microplastic occurrence and distribution in sediment from streams of the Niagara Peninsula, Ontario (@MartinaTepavce1)

FFM-2 CHALUPNICKI, M.
Thiamine status of lake sturgeon eggs from USA and Canada

FFM-3 FURGAL, S.
A Conundrum: a burst in lake trout reproduction in west Lake Ontario while it declined in the east

FFM-4 KOENIGBAUER, S.
Comparing cisco egg size among three Great Lake populations (@skoenigb)

FFM-5 MCPHAIL, L.
Habitat Survey and Management Recommendations for a Walleye Spawning Shoal in Severn Sound (@SSEA_SSRAP)

Fisheries and Fishery Management (FFM)

FFM-1 BREAKER, B.
Otolith microchemistry as a stock identification tool for adult Lake Michigan steelhead

FFM-6 MIELHAUSEN, J.*
Fish 'passability' in modified vortex rock weir systems

WITHDRAWN



Keep them Great!

TAKE ACTION



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POSTERS BY THEME

General Contributions (GEN)

- GEN-1 BARGE, J.
Building up the Great Lakes fauna inventory and DNA barcode library
- GEN-2 COLLIS, L.
Long-term trends and drivers of zooplankton productivity in western Lake Erie (@LyndsieC)
- GEN-3 DROUILLARD, K.
Weight of evidence assessment of brown bull-head liver tumours in Canadian waters of the Detroit River
- GEN-4 FRANKIEWICZ, A.
Developing an Updated and Educational Key for Sphaeriidae Clams of the Great Lakes Region
- GEN-5 HAYNES, J.
Pugnose Shiner Occurrence in Relation to Physicochemical and Biological Factors in LO-SLR Bays

- GEN-6 HYSLOP, I.
Assessing Microbial Communities of US Residential and Workplace Tapwater
- GEN-7 LEERMAKERS, C.
Mitigating Road Mortality of Wildlife in Rouge National Urban Park
- GEN-8 LEPAK, J.
Understanding Angler Response to Barotrauma in Lake Erie Yellow Perch
- GEN-9 ROBERTSON, D.
Estimation of Nutrient Loading from the Great Lakes Watershed Using Binational SPARROW Models
- GEN-10 SENEGAL, T.
Spatio-temporal variation of stable isotope ratios and morphology of Yellow Perch in Saginaw Bay

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- H&N-5 KAUSCH, M.
Nutrient drivers of cyanobacterial blooms in lower New York State lakes (@NYCmicrobes)
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- L&H-5 IANAIEV, V.
Beyond the nearshore shunt: Quagga mussels boost benthic-pelagic nutrient exchanges in Lake Michigan



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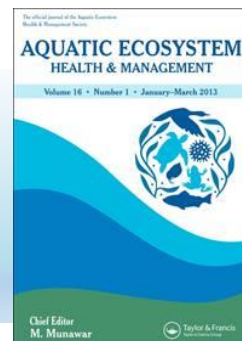
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