

LAKES Letter

In this issue, we share stories of scientists engaged in community service. Their experiences show us how we can each make a difference by offering our expertise to address issues within our communities and beyond.

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Activism, science, and Ontario's battle against corporate water bottling

by Rob Case

Water bottling is a contentious issue in communities around the Great Lakes. Although the quantities of water taken may be small relative to other uses, this industry and the corporations behind it often trigger protest wherever they set up shop. In Ontario, Canada, the [Wellington Water Watchers](#) (WWW) and its partners are leading that opposition.

Concerns about water scarcity, impacts on local groundwater and the surrounding ecosystem, and other matters for which scientific expertise is needed are part of what drives opposition to the water bottling industry. Yet for activists, the issue is about much more: plastic pollution and climate impacts from plastic production; frustration regarding the lack or weakening of local input into water governance decisions; competition between water profiteers and local government over groundwater access points; corporate power and the commodification of the water commons; and disaster capitalism and water justice in places like Flint or on the Six Nations reserve where only 9% of households have running water.

In contexts like these, the relationship between activism and science can be awkward. Activists are sometimes impatient with the slow pace of change in response to scientific discovery, even while recognizing the value of science in enhancing their understanding of issues central to their cause. And as much as scientific evidence can be an important foundation for policy advocacy, it can also make channels of influence inaccessible to grassroots environmentalists and create barriers to public engagement and progressive change.

All of this is true in the case of grassroots opposition to groundwater taking for corporate bottling in Ontario. But the history of our efforts, ultimately, illustrate that when synergies can be found between scientists and grassroots activists, the impact can be powerful.

Flying under the radar

The Wellington Water Watchers is a community-based, nonpartisan, nonprofit organization. It was formed in 2007 in response to a Nestlé Waters application for a permit to take water for bottling at its Canadian headquarters in the Wellington County village of Aberfoyle, just outside of Guelph. The company had already been active in the county, having bought the Aberfoyle Springs bottling company in 2000. Its presence, however, flew under the radar until one late night in November of 2006, when Guelph resident and environmental consultant Mark Goldberg noticed transport trucks pulling out of a driveway marked “Nestlé Waters.” Like many of us in the Guelph area, Goldberg had driven past that driveway and sign numerous times before, but it was on this trip home from the airport, at around 2 a.m., that the truck traffic seemed odd and drew Goldberg’s attention.

The next morning, Goldberg started looking into Nestlé Waters’ local operations. He discovered that the company had a permit, up for renewal the following spring, that would allow it to take 3.6 million liters each day for the next 10 years from the aquifer beneath its bottling plant in Aberfoyle. This concerned Goldberg, so he started to explore the idea of pulling together a group of people to investigate further.

One of the people he went to was his friend James Gordon, who was a musician and an activist. Goldberg’s discovery concerned Gordon as well, and the pair immediately began thinking about how to form a group to take action. As a toxicologist, Goldberg was confident in his own ability to understand and analyze the technical and scientific aspects of the issue, but he hoped Gordon



continued

could help to get the word out and raise the concern in the community. “You play lead guitar,” he told Gordon, “and I’ll play rhythm and back you up with facts and figures.”

And so began a process of community activism that has led, over 15 years later, to a four-year moratorium on new permits for water bottlers in Ontario, significant public and private investments in scientific study of related groundwater systems, regulation changes requiring more comprehensive scientific monitoring of water-taking impacts, and the imminent possibility that, for the first time in Ontario, a water-taking permit for bottling at a new site could be denied. If the goal is to end water bottling in Ontario, the activists have not yet won, but important progress is being made.

A downside to deference to “science”?

The experience of WWW is that concerted public pressure—Gordon’s “lead guitar”—has been the key to getting the attention of provincial lawmakers. Without that type of pressure, history has shown, elected officials and their governments are more likely to favor the science and rational argumentation—the “rhythm guitar”—that serve their agendas and ideological priorities.

Scientific evidence, rational argumentation, and a grounding in material reality most certainly have an important place at the core of democratic participation and public policy making. Yet too narrow a deference to “scientific evidence” in policy making, or a misrepresentation of what “science” is and what it can tell us, can make democratic public input inaccessible and protect the status quo. The application process in Ontario’s Permit To Take Water program, for instance, includes some public consultation and a mechanism for receiving public input, but only considers input of a technical nature as legitimate, biasing the process in favor of those parties with the means (and economic or regulatory incentives) to employ research consultants and commission glossy reports.

Proposed regulation changes for Ontario, similarly, would enable municipalities to veto a permit application for water bottling in their jurisdiction, but only with a scientifically supported water-resources rationale. An objection based

“You play lead guitar, and I’ll play rhythm and back you up with facts and figures.”

on a clear consensus among residents, on municipal concerns regarding truck traffic or plastic waste production, on the exclusion from decision-making of Indigenous nations with overlapping jurisdictional claims, or on a precautionary desire to reserve local water taking for higher value uses and future needs will not count. In this case, deference to narrowly defined “science” protects the applicant by dismissing a precautionary approach and overriding local, democratic decision-making.

In our county, Nestlé Waters states that it has more than 15 years of evidence showing that their bottling operations are “sustainable.” While true that the monitoring data they make public have not consistently shown significant change on the specific parameters being measured, to claim that this constitutes evidence of “sustainability” would seem an absurd overstatement of what the data actually indicate, particularly when factoring in the climate impacts of producing the plastic and trucking the product from source to market.

When under pressure from grassroots opposition, nonetheless, water bottlers and their lobby associations use “science” as a shield in their popular media statements, claiming that their position is backed by “science” in contrast to the “emotional” reaction of those who oppose them.

Finding synergy

Far from an indictment of science and research, WWW’s experience suggests that more independent research and scientific analysis are needed to confirm, challenge, or otherwise understand the overall environmental and social impacts of water bottling, and that greater scrutiny from the scientific community is needed to help to contextualize the knowledge being claimed in the name of science.

In pursuit of objective truth, scientists often keep a sceptical distance from activists (and/or keep their activism separate from their science). Our experience, however, is that such community engagement is an important companion in the translation of research evidence into progressive policy change. At key moments in Ontario’s bottled-water battle, the public attention brought to the issue has shone light on research and analyses that, in the context of mounting political pressure to do something, have led to important, if incremental, regulatory change. For example, in one local township, research stimulated by the public outrage surrounding an application for a permit to take water at a new site has become a central factor driving another round of regulatory changes at the provincial level, which could prevent water bottling from ever going forward in that location.

We would like to believe that public policy is the result of considerations of the common good derived from a rational assessment of the available, relevant evidence. We know, however, that politics is often about choices, driven by ideology, distorted by power and the desire to gain or maintain it, and rationalized with evidence when available. For knowledge and reason to do their job in this context, sometimes what is needed is grassroots social action to lead the way with a firm, collective assertion of community interests, values, and priorities.

Rob Case is board chair of the Wellington Water Watchers and an associate professor in social development studies at Renison University College, at the University of Waterloo in Waterloo, Ontario.

Walking the talk

A Q&A with Patricia Chow-Fraser, McMaster University

Describe your community engagement work. What impact did your involvement have?

Spring 1992, and I was in a meeting reviewing a proposed restoration budget with others at the Royal Botanical Gardens in Burlington, Ontario. Having just started as an assistant professor at McMaster University in July 1991, I was still getting to know members of the Remedial Action Plan team, when someone said something that invoked an involuntary “you’ve got to be kidding me.” A line item in the budget for the Cootes Paradise Restoration was the cost of hiring professional planters at a rate of several times my annual salary. Days later, I was still thinking about this while having coffee with a retired principal. Just how much training is required to put wetland plants in a marsh? Couldn’t high school or university students do the planting as volunteers? In fact, why couldn’t elementary school children grow the marsh plants if we provided the seeds and supplies?

Looking back at this almost 30 years later, I’d have to say it was common sense that propelled the inaugural Classroom Aquatic Plant Nursery program (eventually known as the “Classroom Mini-Marsh”) and the Cootes Paradise Volunteer Planting Program, both of which are still run by RBG together with the Bay Area Restoration Council. I was lucky in getting several government grants, including an unusual research grant that required inclusion of community outreach and engagement. Between 1993 and 1996, we used these funds to hire a legion of undergraduates and graduates. These students were enthusiastic about the research, but what motivated them more was the opportunity to lead dozens of volunteers. For six weeks in July and August in 1993 and 1994, rain or shine, community volunteers (aged 6 to 70+) generously gave up their weekends to build cages to protect marsh vegetation from common carp. The most ambitious

Pat Chow-Fraser is a professor at McMaster University’s Department of Biology. She conducts research on the ecology, conservation, and restoration of Great Lakes coastal wetlands and streams. She examines the negative impact of human activities on ecosystem health using indicators that include water quality and land-use changes as well as amphibians, fish, birds, and turtles.



outreach activity for us in Cootes was recruiting several classes of high school students to help us build 12 large enclosures in the marsh. My graduate student then, Dr. Vanessa Lougheed, used these enclosures to test the relationship between carp density on water turbidity and nutrients. We later used these enclosures to conduct experiments on submergent vegetation. Results from these experiments were used in 10+ publications that informed the restoration of Cootes Paradise and other coastal marshes.

Winter 2001, and I had just finished giving a presentation at Duluth’s EPA lab. Glenn Dale from Cloud Bay, near Thunder Bay, had driven three hours across the border to ask me a question: Would I help his shoreline stewardship association save a coastal wetland? The north shore of Lake Superior only has a handful of coastal marshes, and someone wanted to rip up the “weeds” and build a 300- to 600-spot trailer park. Time to start walking the talk. I rearranged my sampling schedule and sent my team to sample the wetland in 2001 so we had data in time for the Ontario Municipal Board hearing in 2002. The hearing took place during IAGLR’s annual conference in Winnipeg. I flew to Thunder Bay to give testimony and flew back on the same day to preside over the IAGLR banquet as incoming president. We saved the wetland, but what I did paled in comparison to the herculean efforts of cottagers who were burdened with raising large sums of money to hire the lawyers, planners, and other experts, and to devote

hundreds of hours attending meetings to protect this wetland.

What challenges did you face? How did you address them? What were the rewards in doing this work?

Ironically, the biggest impediment to these activities for academics is lack of an appropriate reward structure. My progression through the ranks and salary increase was probably in spite of these activities and not because of them. Chairs usually look out for their junior faculty by making sure they publish and avoid “distractions.” In my case, I was supported by my chair and got tenured, but I temporarily lost NSERC funding. Activities involving community engagement and volunteers require longer time to get published, if at all. Fortunately, I have been able to publish on both my research and my community engagement activities. Now, graduate students come specifically to work with me because of my citizen science activities, and I delight every time I learn my testimony helped save another wetland.

Any advice for fellow scientists?

Academia appears to value community engagement more so than it has in the past. At McMaster, there is even a Minor in Community Engagement. This is welcome news to those who want to involve volunteers in their research without having to worry about justifying their approach.

Elevating the voices of concerned citizens

A Q&A with Richard Rediske, Grand Valley State University

Describe your community engagement work.

In 2014, the Concerned Citizens for Responsible Remediation contacted me because they were concerned about residual environmental contamination from the demolition of a tannery in Rockford, Michigan. The tannery was working with city and state officials to redevelop the site for commercial and residential use. The CCRR, a grassroots citizen group, needed a scientist to put their concerns in a technical context and advocate for detailed environmental studies of the site. The CCRR was able to obtain thousands of Material Safety Data Sheets and chemical storage information from agency records, as well as the locations of disposal sites by interviewing waste haulers. I reviewed all the CCRR data and the information in the Michigan Department of Environmental Quality's files. This review showed extensive use of Scotchgard, which was banned in 2000 because it contained PFAS, or *per- and polyfluoroalkyl substances*, a group of chemicals linked to human health problems. I conducted patent searches and found Scotchgard use began in the 1960s. In 2017, I submitted a technical memorandum to the MDEQ outlining the CCRR's concerns about PFAS at the tannery and disposal sites near residential developments, and we also submitted similar information to the Environmental Protection Agency. Acting on this information and subsequent investigations, the EPA issued a finding that the site posed an imminent and substantial endangerment to public health and initiated legal action with the State of Michigan to compel site investigations and cleanup actions.

What impact did your involvement have?

The impact of my work was to elevate the voices of concerned citizens by conveying their concerns in a scientific context to regulators and presenting them in media interviews and public meetings. The tannery was compelled to extend municipal water service to more than 1,000 residents

who were drinking contaminated well water and to clean up hazardous wastes that were accessible to the public on a popular bike path bordering the tannery. We succeeded in our goal to eliminate exposure pathways and start the restoration process.

What challenges did you face? How did you address them?

Our efforts were challenged by considerable pushback from the tannery, and they hired consultants and technical experts to refute our efforts. We did not have financial resources to conduct PFAS testing, so we had to focus on public records to support our position.

What were the rewards in doing this work?

The work with PFAS and the CCRR was very rewarding because of the legal action taken against the tannery and the rapid pace of remediation. Based on current data, the plume of PFAS-contaminated groundwater covers 50 km² and intersects with 40 km of river frontage. Some of the blood levels in residents drinking contaminated well water exceed concentrations found in workers at 3M, the manufacturer of Scotchgard, so it was critical to remove this exposure pathway. The role of the CCRR in identification of PFAS problems at the tannery and their waste disposal sites was recognized in numerous media articles including the New York Times and CNBC. Our story also was featured in the [May 17, 2019, issue of Science](#). The greatest rewards were seeing our advocacy work

lead to supplying clean water to more than 1,000 affected residents and the tannery being held accountable for the costs of remediation.

Any advice for fellow scientists?

Community engagement is a recognized form of scholarship ([Boyer 1996](#); [Driscoll and Sandmann 2001](#)) and can be an important part of tenure and promotion considerations. It is easy for scientists to become comfortable discussing their work within professional groups, but a critical outcome of environmental research is to support efforts that lead to ecosystem sustainability, restoration, and preservation. Community engagement with stakeholders is a natural extension of academic scholarship and provides real opportunities for changing cultural values and practices, expanding collaborations, and personal growth. My PFAS work with the CCRR has led to providing testimony at Senate hearings, giving briefings to state and federal representatives, and helping additional communities advocate for clean water and the remediation of PFAS contamination. Successful community engagement requires collaboration with stakeholders and a long-term focus to yield results. These are the same foci we apply to our scientific careers as we develop expertise over time and build collaborative networks. Public Advisory Councils, watershed groups, and conservation organizations all need and welcome the participation of scientists to achieve their missions. I encourage all scientists to be involved with community engagement and further the protection of our natural resources.

Richard Rediske is a professor of water resources at the Annis Water Resources Institute at Grand Valley State University. He has a B.S. from Bowling Green State University and an M.S. and Ph.D. from the University of Michigan. Prior to joining AWRI in 1994, Dr. Rediske managed operations at an environmental consulting firm. His research areas include environmental chemistry, aquatic toxicology, and water quality assessment.



What to do about our national water crisis

by **Bopaiah Biddanda**

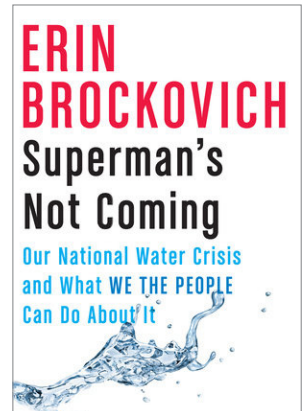
Environmental activist Erin Brockovich's latest book is an inspiring personal narrative about the drinking water crisis facing America and what you and I can do about it. With people causing more and more water pollution, the resulting scarcity of clean drinking water is an emerging challenge that will soon take center stage in the context of a changing climate. Thus, lessons contained in this book are most timely. As the title says, Superman's not coming; instead, we will have to fight our own fights.

Over the years and across the country—from Hinkley, California, (chromium-6, 1991) to Flint, Michigan (lead, 2014)—most Americans have imbibed unsafe drinking water, and all have been exposed to “forever chemicals” like PFCs (perfluorinated chemicals). Today, the top six toxins in our surface and groundwater are chromium-6, chloramines, lead, PFCs, fracking chemical cocktails, and trichloroethylene solvents. As human activity continues to contaminate the environment (often with new synthetic compounds with unknown effects) and deplete water reserves (often concentrating the very same contaminants), regulatory agencies and legislation aimed to protect the environment are only playing catch up in safeguarding our air, water, and soil. But citizen science and activism can make a difference.

Among the many practical steps Brockovich recommends is for people to contribute to a national self-reporting registry of water crisis hot-spots—a living map of current trouble spots—on the [Community Healthbook](#) website. Other engaged citizens can then take up the issue at local, state, and national levels to collectively make a difference.

While Superman may not be coming, Brockovich calls us to action and shows us the way forward. Her book is a must read for all who wish to advocate for the health of their neighborhoods and watersheds.

Bopaiah Biddanda is a professor of water resources at Grand Valley State University's Annis Water Resources Institute.



[Pantheon Books, 2020](#)

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Welcome new IAGLR members

The following members joined IAGLR between November 2020 and January 2021. We've randomly selected a few to introduce themselves. Below and on the next page are their stories.

Malcolm Barnard	Nigarsan Kokilathanan
David Benoit	Edward Kostelnik
Elizabeth Berg	Erma Leaphart
Alexis Brown	Julius Manyala
Shelby Brunner	Bradley May
Amanda Buday	Kaitlyn McKnight
Jacob Burbank	Alejandro Moctezuma
Cailin Burmaster	Patricia Owl
Jake Callaghan	Tilak Patel
Arthur Chamberlain	Andrew Phillips
Roshelle Chan	Ernest Ronoh
Katelyn Cunningham	Anna Schmidt
Gregory Dick	Cody Sheik
Behnam Doulatyari	Ana Sirviente
Erin Eberhard	Zhuoyan Song
Anna Ebers	James Stinson
George Gardner	Amanda Suchy
Cecilia Githukia	Qingqing Sun
Casey Godwin	Nathan Thomas
Elizabeth Golebie	Trista Vick-Majors
Catherine Goltz	Chelsea Volpano
Scarlett Henson	Les Warren
Craig Hill	Dawn White
Michelle Hudson	Brandon Wong
Sabrina Jaffe	Jasmine Yu
Tassiane Junqueira	Bowen Zhou
Loren King	

When you join IAGLR, you join a community of people devoted to understanding the world's large lake ecosystems

iaglr.org/membership



LIZ BERG

Biologist
U.S. Fish and Wildlife Service

About my work

I recently started a position as a biologist with the U.S. Fish and Wildlife Service's [Great Lakes Coastal Program](#). The coastal program is partnership based, and we provide technical and financial assistance for habitat conservation in coastal watersheds. Each coastal program biologist works within one or more focus areas, which were strategically selected to have the greatest impact. I'm beginning to establish partnerships in the Straits of Mackinac focus area to generate ideas and implement projects that aim to conserve and restore coastal fish and wildlife habitats.

Beyond the coastal program, I serve as the coordinator for the Great Lakes Coastal Assembly. The assembly is a binational, voluntary group of members from more than 20 state and federal agencies, Tribes, nonprofit organizations, and universities. We work collaboratively to align actions around coastal priorities, develop goals that are guided by stakeholders, and use best available science to inform conservation strategies. Currently, our work is focused on a vision for a resilient system of coastal wetlands that support economic, social, and environmental benefits to the Great Lakes region.

Why IAGLR?

My new role with the U.S. Fish and Wildlife Service has led me to explore ways to build my professional network and tune into large lake research. IAGLR seemed like a natural place to start. I'm excited to attend future in-person meetings to connect, learn, and exchange ideas with scientists, managers, and other stakeholders who share an interest in Great Lakes research and communication. In the meantime, I look forward to other opportunities to engage with the IAGLR community.

New member profiles continued



ERNEST KIPLANGAT RONOH

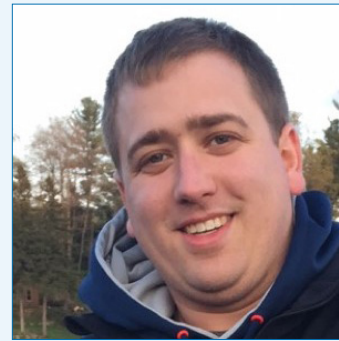
Research Scientist
Kenya Forestry Research Institute
Rift Valley Eco-Region Research Program

About my work

I joined [KEFRI](#) in 2020 as a research scientist in hydrology. I hold a bachelor's degree in agricultural and biosystems from Moi University and a master's degree in soil science from the University of Eldoret. I am currently pursuing a Ph.D. in environmental soil biogeochemistry. My research interests are in soils, hydrology, landscape processes, and nutrient dynamics on multi-scale environmental, hydrogeology, spatiotemporal variations of land degradation, and agronomic, ecological, and agroecosystem sciences. My research activities employ biometrics, GIS and remote sensing, modeling, and spatial statistical applications to mitigate land degradation, water quality, watershed management and judicious resource use, ecosystem efficiency, enhanced natural resource conservation, ecosystem sustainability, and global food security.

Why IAGLR?

In January 2020, my passion for agroecosystem studies led me to enroll in a course offered at the Cary Institute of Ecosystems Studies in Millbrook, New York, titled Fundamentals of Ecosystem Ecology. The course covered topics such as modeling of biogeochemistry, energy flow, nutrient cycling, and ecological big data. During this course, I developed an interest in studies involving mitigation of nutrient losses from agricultural fields and other land uses. Nutrient losses lead to nutrient loading in nearby streams and rivers and eventually impact adjacent lakes. This can cause increased biomass of periphyton, macroalgae, and sestonic algae and have deleterious impacts on water quality and ecosystem function. For example, in East Africa's Lake Victoria, the growth and spread of water hyacinth negatively affect fishing, aquaculture, and navigation. Therefore, I joined IAGLR to become an active member and learn about advances in research on Great Lakes such as Lake Victoria.



LES WARREN

Graduate Research Assistant
Purdue University

About my work

Currently, I am a graduate student at Purdue University in West Lafayette, Indiana. I am pursuing a Ph.D. in Aquatic Sciences from the Department of Forestry and Natural Resources in Dr. Tomas Höök's lab. My dissertation research focuses on the importance of different nursery habitats for alewife recruitment in Lake Michigan. Over the next two summers, I will be sampling drowned river-mouth lakes along southeastern Lake Michigan to collect alewives at progressing early-life stages with help from collaborators at the USGS Great Lakes Science Center and the NOAA Great Lakes Environmental Research Laboratory. At the conclusion of this sampling, I will assess the potential contribution of these drowned river-mouth lakes to the recruitment of the greater Lake Michigan population. In response to the COVID shutdown in spring 2020, I delayed the beginning of my field sampling by a year. With the additional time off the water, I continued my research in a different form and modeled alewife recruitment by analyzing annual survey data for the year-class strength of previous cohorts. This will later be used to help understand the drivers of strong alewife year classes among several Great Lakes.

Why IAGLR?

I joined IAGLR earlier this year not only to help advance my knowledge of current research going on in the Great Lakes but also to interact with the IAGLR community. In the future, I hope to attend conferences (in person!) and present my work to other Great Lakes scientists. IAGLR also provides many opportunities for students to advance their education through awards, scholarships, and travel awards.

MEMBER KUDOS

Congratulations to the following IAGLR members on their accomplishments.

PETER ALSIP (University of Michigan), recipient of the 2018-2019 IAGLR Fellowship with funding from The Erb Family Foundation, for being a co-author on a 2020 [review article on Great Lakes Areas of Concern](#) in the Journal of Great Lakes Research and the lead author on an [Area of Concern institutional arrangements paper](#) recently accepted in the journal Sustainability.

BOPAIAH BIDDANDA and Sarah Hamsher (Grand Valley State University) for receiving a \$190,000 grant from NSF's Biological Oceanography Program for their "Tango in the mat world" project exploring the diel migration of microbes in Lake Huron's sinkholes.

KEN DROUILLARD (Great Lakes Institute for Environmental Research, University of Windsor) on receiving the Environmental Achievement Conservation Award presented by the Essex Region Conservation Authority for his work with the Detroit River Canadian Clean-Up Committee.

KEVIN OBIERO (Kenya Marine and Fisheries Research Institute) for being recognized by the KMFRI Board of Management as the Best Overall Researcher in Bringing Funds to the institute in the 2019/2020 Financial Year and the 2nd Best Overall Researcher in KMFRI, as well as his appointment to the IISD Experimental Lakes Area Board of Directors.

TREVOR PITCHER (Great Lakes Institute for Environmental Research, University of Windsor) for his appointment to the Committee on the Status of Endangered Wildlife in Canada panel for freshwater fishes. He also was recognized with the 2020 Conservation Award for Education by the Essex Region Conservation Authority.



Photo by Igor Georgievski

[Kivach Falls in Karelia's Kivach Nature Reserve](#)

Conference rescheduled

The European Large Lakes Symposium—IAGLR Conference originally slated for this fall has been rescheduled for September 12–18, 2022, in Petrozavodsk, Russia.

Your nominations needed!

Board of Directors

Who would you like to see on the IAGLR Board of Directors? Nominate potential candidates, including yourself, by March 5. For details, please see the [Call for Nominations](#).

Vallentyne Award

The [John R. \(Jack\) Vallentyne Award](#) recognizes important and sustained efforts to inform and educate the public and policymakers on great lake issues. Nominations are due March 22.

IAGLR Lifetime Achievement Award

Nominations are encouraged for the [IAGLR Lifetime Achievement Award](#), which recognizes important and continued contributions to the field of Great Lakes research over a period of 20 years or more. Nominations are due March 31.

Notable JGLR paper

The [Chandler-Misener](#), [JGLR/Elsevier Early Career Scientist](#), and [JGLR/Elsevier Student](#) awards all recognize papers published in the Journal of Great Lakes Research based on the following criteria:

- Originality—an outstanding original piece of work;
- Contribution—a substantial body of theoretical, experimental, or field research;
- Presentation—clarity of literary style and illustration.

If you read a paper published in 2021 that excels in these categories, [nominate it for an award!](#) Nominations can be submitted at any point and will be considered for the appropriate award based on the career status of the lead author at the time of acceptance.

Donors & Sponsors

Last year, donations to the International Association for Great Lakes Research provided scholarships for students to attend college; supported a quick switch to our first-ever virtual conference so that we could continue to connect and learn from one another in spite of a pandemic; and helped us to publish this newsletter as another way to celebrate our members and connect the large-lake research community. We thank the following individuals and organizations who made gifts to IAGLR in 2020 that allowed us to continue the work of the association.

INDIVIDUALS

J. David Allan	Bradley May
L. Zoe Almeida	Matthew McCandless
Martin Auer	Francine McCarthy
James Bence	Robert McKay
Katherine Borgen	A. Scott McNaught
Valerie Brady	Michael Murray
George Bullerjahn	Ryan Newton
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Marcia Limbocker	Mourine Yegon
Jasmine Mancuso	<i>and our anonymous donors</i>

ORGANIZATIONS

African Centre for Aquatic Research and Education

AmazonSmile Foundation

Aquatic Ecosystem Health and Management Society

Central Michigan University, Institute for Great Lakes Research

Elsevier

Great Lakes Fishery Commission

Great Lakes Outreach Media

Innovasea

In-Situ Inc.

International Joint Commission

LimnoTech Inc.

NOAA Great Lakes Environmental Research Laboratory

Turnstone Strategies

University of Windsor, Great Lakes Institute for Environmental Research

University of Wisconsin-Milwaukee, School of Freshwater Sciences

An easy way to support IAGLR

Did you know you can support IAGLR by hosting a Facebook Birthday Fundraiser? I held one last October, and it was easy! To get started, visit Facebook's [Fundraiser page](#), select IAGLR as the nonprofit you'd like to support, write a short description about why

you've selected IAGLR, and set a fundraising goal and deadline. Then invite your Facebook friends to support your fundraiser. It helps to post a few follow-up reminders to share your progress. I did a one-week fundraiser with a goal of \$1,000 and ended up beating my

goal. It's an easy way not only to support IAGLR, but also to share with your friends something that matters to you. Give it a try!

*Paula McIntyre, IAGLR
Communications Director*



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Henry Lickers
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Karen Diver
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Bridging Land to Lake



Sherri Mason
Penn State Behrend

Hosted online by Michigan Technological University

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Trevor Pitcher

Neil Rooney

Lakes Letter is published quarterly by the International Association for Great Lakes Research, a scientific organization made up of researchers studying the Laurentian Great Lakes, other large lakes of the world, and their watersheds, as well as those with an interest in such research.

Edited by Paula McIntyre
IAGLR Communications Director

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