

LAKES Letter

COMMUNICATING SCIENCE

Pro tips

Connecting to policy

Communication strategy

Cross-cultural communication

Ecocultural storytelling

Sea lampreys & scicomm

LAKES Letter

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EXECUTIVE DIRECTOR'S NOTE



Dear Friends and Members of IAGLR,

Since the winter issue of *Lakes Letter*, we've continued to closely monitor policy developments in the United States and raise awareness about how recent cuts to science are impacting the Great Lakes and the two countries that share responsibility for their stewardship. IAGLR members have actively participated in <u>interviews with media</u> outlets on both sides of the border, helping to elevate the conversation.

At the end of almost every interview I've given, I'm asked the same question: *What can people do in the face of these unprecedented changes*? My answer is always the same— communicating clearly and purposefully about our work is essential. It is through storytelling and informed advocacy that we can contribute to capturing the attention of those in positions of power.

In this issue of *Lakes Letter*, we offer insights from science communicators to help you refine your own messages and strengthen the impact of your voice.

We are also inviting you to share your story. How have the recent cuts or the termination of scientific initiatives affected you personally or professionally? Please consider filling out <u>our short survey</u>. Your input will help us gather evidence and inform future *Lakes Letter* articles.

As you may guess, IAGLR's operations—especially our annual conference—are under pressure this year, with many researchers losing access to funding and travel support. In response, the IAGLR Board of Directors made the decision to offer assistance, including free memberships and online registration to those affected by job loss.

Meanwhile, our conference team at the School of Freshwater Sciences at the University of Wisconsin–Milwaukee has assembled another exceptional program, including engaging sessions and exciting field trips. We hope that as many of you as possible will be able to join us.

This month, we also released our <u>2024 Annual Report</u>—a key milestone for our organization. I invite you to take a look at what we've accomplished and welcome your feedback, suggestions, and ideas.

Thank you sincerely for continuing to support IAGLR and participating in our work. As we navigate these challenging times, your engagement is critical to keeping our voice strong and unified.

I look forward to seeing many of you in Milwaukee in just a couple weeks.

Warm regards,

Jérôme Marty

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On the Cover. Sea lampreys are a frequent star of the Great Lakes Fishery Commission's conference exhibits, where staff share the story of this invasive species up close and personal. See story, page 24. Photo by Paula McIntyre, IAGLR.

ASSOCIATION NEWS

Great Lakes science in the news

IAGLR Executive Director Jérôme Marty spent Earth Day in the TVO studio of *The Agenda with Steve Paikin* alongside Gail Krantzberg, of McMaster University, and Mike McKay, of the University of Windsor's Great Lakes Institute for Environmental Research. Together they addressed the question: *What effect will U.S. budget cuts have on the shared waters of Canada and the United States*?

According to Marty, "We're losing the ability to ring an alarm when it's needed." He cites inevitable harmal algal blooms and their threats to drinking water. "If we don't have the ability to report the science that reports this water is now dangerous, then I think we're going to see some significant problems."

If you missed this important discussion about the Great Lakes, check out <u>the recording</u> online. You can find this and more coverage of IAGLR—including the <u>Great Lakes Science in Crisis</u> inteview with Marty on the *Unsalted Great Lakes Podcast*—on our new <u>IAGLR In the News</u> page on the IAGLR website.



IAGLR 2024 Annual Report

We are pleased to share with you our <u>2024 Annual</u> <u>Report</u>. Take a look back at a year that saw us continue to exemplify a spirit of resilience and connection. We hosted our 67th Annual Conference on Great Lakes Research and broadened participation from Indigenous knowledge holders, saw an increasing percentage of membership from countries in Africa, welcomed a new lead editor



and experienced ongoing growth of the *Journal of Great Lakes Research*, continued to highlight the relevance of Great Lakes science through our *Lakes Letter* magazine, honored excellence in freshwater science through awards and scholarships, and partnered with other organizations to increase our impact.



We hope to see you next month at IAGLR's 68th Annual Conference on Great Lakes Research. The conference will be held June 2–6, in Milwaukee, Wisconsin. In-person and virtual registration is still open. We encourage you to register in advance, but walk-ins are welcome.

Now more than ever, it's crucial to come together and reaffirm our shared commitment to the Great Lakes.

iaglr.org/iaglr2025



Impacted by U.S. federal actions? Share your story!

Have you been affected by U.S. federal budget cuts, agency and program cutbacks, and changes in policies and partnerships important to Great Lakes protection? We'd like to hear from you. We're gathering stories to help us document, understand, and share the experiences of people affected by recent U.S. federal actions that impact the Great Lakes research community. We plan to share preliminary results at the IAGLR conference in early June and feature key findings in a future issue of *Lakes Letter* magazine. Please take a moment to visit our <u>online questionnaire</u> to share your experience.

MEMBER NEWS

Juan Carlos

Kudos

Congratulations to the following IAGLR members.

ALEX DUNCAN* (Centre for Indigenous Fisheries, Institute for the Oceans and Fisheries, University of British Columbia) for his appointment to the Great Lakes Fishery Commission's Sea Lamprey Research Board.

HÉCTOR ESPARRA-ESCALERA* for completing his Ph.D. in Biological Sciences and Urban Sustainability from Wayne State University.

JULIA PLACE* (Central Michigan University) for her new position as natural resources project manager with the Mason-Lake Conservation District in western Michigan.

For being selected to the 2025 cohort of the African Women in Science program: MARIA NANCY CHIMANUKA AHANA, Congolese, Université Catholique de Bukavu; REBECCA DUSHIMIMANA, Ugandan, National Fisheries Resources Research Institute; SULLAMITHE MERCY MANDUWA*, Malawian, University of Malawi; VANADIA RENATO MASSINGUE*, Mozambican, Eduardo Mondlane University-School of Marine and Coastal Science; ABREHET KAHSAY MEHARI*, Ethiopian, Leibniz Institute of Freshwater Ecology and Inland Fisheries; SHARON MINIGA, Kenyan, Kenya Marine and Fisheries Research Institute and Maseno University; HILDA NYABOKE MOGAKA*, Kenyan, Kenya Marine and Fisheries Research Institute; CECILIA MUKUKA*, Zambian, Ministry of Fisheries and Livestock; EVELYNE NININAHAZWE*, Burundian, Ministry of Fisheries and Livestock; HARRIET ATIENO OKEYO, Kenyan, Kenya Marine and Fisheries Research Institute and Maasai Mara University; SOPHIA SALUM SHABAN* and ASILATU HAMISI SECHONGE*, Tanzanians, Tanzania Fisheries Research Institute, EUPHROSINE UJENEZA*, Rwandan, INES-RUHENGERI, University of Applied Sciences.

* indicates those attending the IAGLR 2025 conference

Welcome new IAGLR members

The following members joined the association between February and April 2025. We're glad to have you as part of the IAGLR community!

Daniel Abiriga Samin Abolmaali Tori Agnew-Camiener Natasha Agostini Hira Ahmad Abdulkarim Ali Kenneth Anderson Jake Anderson Jeffrey Ashby Prudence Bararunyeretse Samuel Bassa Ashlynn Benedict Colton Bragg Lauren Brown Samantha Brunner Maya Casey Madelyn Casselman Yi Chen Maria Nancy Chimanuka Ahana Marissa Cudworth Jason Delborne Jonathan Dellinger Kieyarrah Dennis Kaylynne Dennis Grant Dlesk Jean d'Amour Dusabimana Rebecca Dushimimana Emily Eberly Sarah Emery Mariam Escobar Janessa Esquible Nininahazwe Evelyne Lexi Ferguson Heidi Ferris Akewake Feyyisa

Jill Furgurson John Gargasz Mira Ghosh Morgan Gilboe Frederick Goetz Sara Good Jade Gorman Kyle Gray Tim Grundl Laodong Guo Ara Hakim Mike Hassett **Timothy Havens** Drew Heckman Kendahl Hejl Hector Hernández-Arana Kambale Jargy Ikutan Jonathan Benedicto Kashindye Maria Kazour Avery Keen Jenan Kharbush Mikayla Kindler Tessa Kooij Laura Krebs Samantha Krueger Francis Kudwa Nathalie Kuria Siena Larrick Mari Leland Brayden Link Brendan Luurtsema Martin Maas Vargas Emma MacNeill Evarist Magesa Shigalla Mahongo Sullamithe Manduwa Angelina Mark

Martinez Sara Mashhadi Nejad Vanadia Massingue Matt McDonough Jaclyn McFadden Megan McLaughlin Abrehet Kahsay Mehari Saeed Memari Margaret Menso Sharon Miniga Max Moran Tyler Moulton Amina Furrkukh Mughal Cecilia Mukuka Jean Mushimiyimana Ruth Mwarabu Aisha Nankanja Hassan Nazari Msafiri Ndawala Benjamin Nelson-Mercer Hong An Nguyen Harriet Okeyo Connor O'Loughlin Beryl Omollo Eniola Onatayo Winnie Owoko William Perry Scot Peterson Quynh Phung Julia Place Bianca Possamai Autumn Potts Nicole Price Meena Raju Amaranta Ramos Sánchez

Riley Ramsey Aly Ratcliffe Abigail Reed Brenden Reid Amber Ruthenbeck Camilla Ryther **Tonny Sagwe** Sophia Salum Melissa Scanlan Marian Schmidt Nathan Semwanga Diego Sepulveda-Martinez **Connor Shelly** Satbyeol Shin Adele Shirmer Mashuk Siddiquee Madeline Sigler Abigail Smason Alyssa Smith Jessica Stevens Kaeti Stoss Natalia Szklaruk Temitope Temenu Nathan Tennies Ariyah Thomas Dominique Turney Katie Tyrrell Euphrosine Ujeneza Timothy Wahl Meghan Ward David Watkins Orion Wilson Greyson Wolf Jacob Wynn Chunjie Xia Nicole Zacharda Alamrew Zeleke Wenxin Zhang Julia Zimmer

Sumeep Bath

Editorial and Communications Manager IISD Experimental Lakes Area



Trying out your science communication messages on people you know who represent different slices of society is a great place to start.

Describe your work or studies.

Well, I am the envy of all my science communication buddies, because I somehow managed to wrangle a gig as the communications manager for <u>IISD Experimental Lakes Area</u> the world's freshwater laboratory up in northwestern Ontario, Canada. It's quite the unique freshwater research facility and the job allows me to flex multiple science communication muscles reaching everyone from policymakers to the general public, through a portfolio that spans weighty policy briefs, provocative opinion pieces, and more irreverent TikToks (I actually enjoy them all equally). An inherently photogenic subject, IISD-ELA also benefits from a broader institutional culture that supports and prioritizes communicating with the outside world, which is only ever a boon, as far as I am concerned.

What inspired you to enter this work?

Honestly, I somewhat fell into it. My career had spanned everything from Spanish teacher to public relations professional before I decided that I should convert my natural proclivities towards the English language into something more substantial and, ahem, lucrative. I have worked in a range of communications jobs (not all science focused), which have taught me that robust communications skills should be transferable to almost any discipline. That's why I tend to refer to myself as a communications professional (happily) working in the sciences, as opposed to a science communications professional. That said, focusing in on the limnology of it all has proven to be a steep yet vastly rewarding learning curve.

What advice would you give to scientists to effectively communicate their science?

I love this one! Trying out your science communication messages on people you know who represent different slices of society is a great place to start. So, say, find a 6-year-old child, a 24-year-old who does not work in the sciences, and a 65-year-old who does, and try to explain a scientific concept to them, starting from the place you think works best for each respective audiences. Then actively listen to their responses, challenges in understanding, etc., and use them to rework your messages. It will provide you with some great real-life evidence of what works for whom! <u>WIRED does a great series on this</u>.

What is something about yourself that you'd like to share with other IAGLR members?

Frankly, I am *obscenely* dull, but I do have a few nuggets to throw out there. I am obsessed with the Spanish-speaking world. I am trying to visit every U.S. state (currently on #29). I love cats although only ever owned one for six months—don't ask. There are Led Zeppelin albums whose lyrics I could recite backwards and inside out with minimal effort. I use my charming British accent daily to mask a multitude of personal and professional limitations. Oh, and in another life, I would have been a traditional Chinese Medicine practitioner.

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El Lower

GLANSIS Communication Specialist Michigan Sea Grant Pronouns: they/them

Describe your work or studies.

I work with Michigan Sea Grant as a communication specialist as part of the <u>Great Lakes Aquatic Nonindigenous Species</u> <u>Information System</u> (GLANSIS) team. GLANSIS is designed to be a one-stop shop for information about the nearly 200 nonindigenous aquatic species in the Great Lakes region, including species identification, maps of reported sightings, management and control information, and much more. As our team's communication specialist, I wear a lot of hats, and my job allows me to do everything from writing and reviewing species profiles to working on multimedia educational products to sharing weird sea lamprey facts on social media. I'm especially interested in the rhetoric of invasion science, particularly how species naming conventions and the metaphors scientists use to describe their work shape public perceptions of invasive species.

What inspired you to enter this work?

I've always been passionate about science communication. My college background was a build-your-own major called Humanities, Science & Environment that allowed me to combine ecology coursework with scientific and technical writing, and I studied the human dimensions of environmental science in grad school, which led me back to the Great Lakes after my undergraduate work. I interned with Virginia and Illinois-Indiana Sea Grant as a science writer and social science intern during and after college and absolutely loved working with the public in this capacity. From interviewing stakeholders about their perceptions of waterway cleanup projects to designing signage and other communication tools to raise awareness of environmental remediation work, I knew I wanted to do this kind of work in the Great Lakes long-term. When a position opened up with the GLANSIS team in 2018, I jumped at the opportunity, and I've been here ever since. The pivot from researching legacy waterway pollutants to invasive species was surprisingly straightforward, and it's very meaningful to me to help protect the lakes we all love through my day-to-day work.

What is the best science communication advice you've received?

A singer-songwriter I once met opened a concert with a line that's stuck in my mind ever since: "If you want someone to know the truth, tell them, but if you want someone to *love* the truth, tell them a story." Highlighting the stories of how the Great Lakes have changed due to specific biological invasions—from the ways that tiny, harmless-looking zebra mussels can damage industrial infrastructure to the incredible development of targeted lampricides in the 1950s to save our fisheries—is essential to getting the public to care about Great Lakes science. There are



so many compelling narratives to share, and highlighting success stories like the international cooperation and public-private partnerships that have led to conservation wins is more important now than ever.

What is something about yourself that you'd like to share with other IAGLR members?

I'm an enthusiastic forager and wild foods cook, and spend a lot of my free time in the woods identifying plants and looking for fun things to eat! You can find some of my recipes for native and invasive plants, wild game, and mushrooms on Michigan Sea Grant's <u>Freshwater Feasts</u> blog, and I also teach and cook at wild foodie events like the annual <u>Great Lakes Foragers Gathering</u>. Ask me about ramps sometime—or don't, if you'd prefer not to have your ear talked off!

If you want someone to know the truth, tell them, but if you want someone to *love* the truth, tell them a story.

PRO TIPS

Four key lessons for Great Lakes scientific communication

BY MIKE SHRIBERG

ERHAPS THE MOST underappreciated aspect of working in the Laurentian Great Lakes is that we generally do not have to convince people in the region about the importance of protecting and restoring the lakes. The Great Lakes are far beyond an "environmental issue"; they are a cultural cornerstone, an anchor point for the 40 million people who live in the watershed. Surveys consistently show that protecting and restoring the Great Lakes polls above 80%, often over 90%—there is not another "issue" that comes close. The Great Lakes are the Great Lakes uniters of the region.



Mike Shriber listening to U.S. Sen. Elissa Slotkin from Michigan at Great Lakes Day in Washington, D.C. in March.

But this unity is more at risk now than at any time in my over 20 years of Great Lakes policy and advocacy work. There's the obvious risk: the threats and cutbacks from the current administration to environmental protection generally, as well as specifically to U.S./Canada relations, and to the agreements, policies, programs, people, and agencies that are critically important to Great Lakes protection. But Great Lakes unity was already being challenged—albeit far more subtly—prior to President Trump's second inauguration. Climate change was and is undoing significant chunks of the progress we have made on restoration and resilience. And the movement toward a justice-oriented, people-centered vision for restoration does not necessarily align with long-standing ecologically centered visions and priorities.

Under these realities, I see our challenge as more complex than simply activating support for the Great Lakes among decision makers and citizens (which itself is extraordinarily complex) while using the best available science to guide protection and restoration. We need to communicate complexity and uncertainty while moving through political minefields as the ground and ecosystems around us continue to shift. My experience in implementing this type of complex science communication to decision makers, media, and others was mainly in the nonprofit advocacy sector (e.g., leading the National Wildlife Federation's Great Lakes Regional Center from 2015–2023) until moving to my current role as a professor of practice and engagement at the University of Michigan's School for Environment and Sustainability charged with helping to lead two "boundary organizations" funded by NOAA as well as teaching the next generation of Great Lakes leaders. These experiences have led to four key lessons learned, which are amplified in importance in the current climate of fear, anxiety, and stress.

These are by no means new nor original lessons, but having spent much of the time the past several months in intense communication with political leaders and media, I believe that these factors cannot be over-emphasized and often run counter to our standard scientific communication. We are fortunate that the unity the Great Lakes engenders has spurred scientific support and progress, largely with communication in a more traditional academic style for many years. But this unity—and the basic scientific research enterprise—is under an existential threat. This puts scientific communicators (i.e., all of us) in the uncomfortable place of needing to articulate values and gain support for the Great Lakes through unconventional means for scientists.

Mike Shriberg, Ph.D., is a professor of practice and engagement at the University of Michigan's School for Environment and Sustainability where he focuses on Great Lakes policy and advocacy. Previously, he was the Great Lakes regional executive director for the National Wildlife Federation, among other nonprofit leadership positions.

- 1. Focus on impacts. The main way that citizens experience the Great Lakes is through recreation and drinking water. The public presentation of our collective scientific work has to be tied to the impacts it has on people's lives (e.g., health and prosperity) to unlock the critical support found in surveys and move beyond virtue signaling or generalities.
- 2. Tell it with stories. These impacts cannot only be described in the way that we often do at our scientific conferences, with a dry set of facts, figures, and data. People think and remember things in stories, and our communication—while still firmly rooted in science—has to follow this pattern.
- 3. Show your passion. The scientists who I regularly work with are among the most passionate people about their work that I have ever encountered. Yet the culture of science communication is to park that passion and funnel it into carefully worded scientific findings. That works and is appropriate for academic publications. It does not work for public communication.
- 4. Unify the messages. We all tend to view the problems and solutions, as well as the urgency, from our own personal and institutional lenses on the Great Lakes. But at this time of multifaceted threats, we have to think and communicate more broadly so that we have more power and a more consistent story. It's far easier to ignore isolated impacts and stories than systemic problems and potential solutions.

Note: Any opinions expressed here are my own and not necessarily reflective of any institutions with which I am affiliated.

Forging a new era of Great Lakes protection

An urgent call to communicate your science to policy makers and the public

BY DAVID DEMPSEY

DON'T BE SHY. In a time of mass cynicism, scientists enjoy public credibility to an extent that would please any officeholder. A Pew Research public opinion survey conducted last fall found that 76% of Americans express a great deal or fair amount of confidence in scientists to act in the public's best interests and majorities view research scientists as intelligent (89%) and focused on solving realworld problems (65%). Imagine what a member of Congress or a state legislator would do with that.

In one area, however, the public found scientists lacking: communication. Of the more than 9,000 U.S. adults surveyed, 45% described research scientists as good communicators. Meanwhile, 52% said this doesn't describe research scientists well.

There's a cure for that—a willingness and training to speak scientifically to both policy makers and the public.

And there is an urgent need for that. Science-based policy for the Great Lakes faces the headwinds of ideological dogmatism and ignorance on the part of decision makers. That is not unique to our region, but the solution can be. There is, for example, a modest amount of trust in Great Lakes science among officeholders thanks to the success of the Great Lakes Restoration Initiative.

There is also a long-running perspective. I asked John Gannon, a retired senior scientist at the International Joint Commission and somebody I trust, to reflect on his experiences bringing scientists into the policy fray.

"I experienced the reluctance to communicate science to a wider audience during my career," John said. "I encouraged staff to do more communications to the public. The majority said 'no, because that takes time away from working on papers for peer-reviewed publications and that's how my performance is rated for job retention and promotion.""

He added: "I used to do all kinds of presentations in collaboration with the Great Lakes Fishery Commission, the Great Lakes Commission, and the Great Lakes Environmental Research Laboratory to inform the Great Lakes congressional delegation of the important work we all did and why they should support us. Feds can't lobby, but we sure can provide information."

John said, "The lack of sufficient communications and outreach emphasis is spelling real trouble these days."

The IJC itself brought <u>groundbreaking science</u> to the policy of fighting against algae blooms on Lake Erie in 1970. The scientific model developed predicted how much reduction in phosphorus from point sources was necessary to reduce algal blooms. It worked.

Michigan's history contains an early, successful example of science informing good policy. Aided by friends in high political places, the lumber industry slaughtered 99% of the state's original forest cover in a mere 70 years, ending around 1920. Lawmakers gave no thought to what would become of those lands next. Millions of acres of land were forfeited back to the state for nonpayment of taxes.

That could have sentenced twothirds of Michigan land to economic, environmental, and social stagnation. Instead, scientists built the case for replanting the forest lands in the public interest. Dr. William Beal of Michigan Agricultural College and_ Dr. Filibert Roth at the University of Michigan were two of the experts who, working with civic groups, persuaded the legislature to launch the grand forestry experiment. Their vision has blossomed into almost 4 million acres of state forest land, a constantly renewing resource for wood production, recreation, and nature study.

These examples illustrate the importance of continuing to pursue and share science for the public good, even in challenging times. It's a long game and requires persistence. We must now forge a new era in Great Lakes protection based in large measure on solid research and communication of its results to policy makers and the public. There is no time to hesitate.

David Dempsey is a senior policy advisor at For Love of Water and the 2022 recipient of IAGLR's John R. (Jack) Vallentyne Award.



The power of authenticity in science communication

BY TAMARA POLES

ET'S START WITH THE GOOD NEWS. Globally, people report medium to high trust in scientists. The bad news is that a minority of people worldwide distrust scientists. Even worse, that minority strongly impacts policy making, and thus should be taken seriously (<u>Cologna 2025</u>).

Trust is the variable scientists and science communicators often forget when engaging with people outside of their field. Many believe audiences will naturally trust them because they are scientists, incorrectly relying on a presumed universal trust in the scientific process. Research has repeatedly shown this belief to be unfounded (<u>Tyson 2024</u>). Unfortunately for scientists, in a world where the line between fact and fiction is becoming increasingly blurred, building trust is more important than ever.

Building trust takes time. Building trust takes humility. Building trust takes self reflection. Building trust also requires putting faith in your audience's unique expertise, even though they may not be researchers. To be effective communicators, scientists and science communicators need to start by reflecting on who they are and leaning into that authenticity. In identifying these characteristics, scientists can apply them to their outreach and how they communicate with others. When they can communicate authentically, they are able to connect with their audience on a personal level, and in return, their audience can provide feedback and connect the content with their own lived experiences. This makes the content not only relevant and relatable, which are key characteristics in making something memorable, it also makes it realistic and applicable to the audience's specific needs. Creating the space to be vulnerable by being authentic while also being receptive to feedback creates a foundation of trust.

Not too long ago, I was fortunate to be at the right place at the right time to help a communicator learn this very important lesson.

"What do you think of my shoes?" A middle-aged woman at the museum asked me this—no greeting, no context, just a swift motion toward her black-and-white checkered Vans. Puzzled but honest, I replied, "They're cute but not my style or my size." She laughed and followed up, "Do you think this looks like me?" Now even more confused, I listened as she explained: She's an emergency room doctor, and that day a young patient refused to talk to her. The patient said, "Don't come in here thinking you are like me because you have those shoes on. I bet you can't even skateboard." That moment and those words stuck with her and now with me.

After hearing that story, I immediately pictured myself and every other scientist/adult that I have worked with engaging with younger people. I thought about how we instantly, without thinking, alter how we speak and dress—even our mannerisms—to make us seem like their peer. Looking back,

To be effective communicators, scientists and science communicators need to start by knowing who they are and leaning into that authenticity.



Participants at a science communication workshop offered by Tamara Poles (front) of Universal SciCom.

I realize that it's incredibly awkward and cringy and identical to the situation with the ER doctor.

Why do we do this when we communicate with people younger than us? We do it to make us relatable and relevant. In reality, when we, as scientists and science communicators, awkwardly throw in slang like "delulu" or "sus" to seem relatable, we're doing the exact opposite because the character we embody is not who we truly are. We think it helps us connect, but in reality, it creates distrust. If we can't be truthful about who we are, then how are others supposed to trust anything we have to say?

Younger audiences know we're old, at least by comparison. Pretending otherwise is disingenuous. I am using age as an example, but this concept applies to any population we are engaging that is different from us. Real trust is earned by being authentic and sharing the parts of ourselves that make us unique, coupled with being open to the idea of our audience being experts in their own lived experiences. If a scientist walks into a classroom and acknowledges that students are the experts on being students, it shifts the dynamic. Instead of lecturing, we create a dialogue that allows them to show us how our work connects to their world. Communication is not a one-way street; it's a conversation built on mutual respect for each other's experiences, which builds trust.

I try to embrace who I am and what I am to the audience in which I am speaking. I'm a Black female science communicator who plays competitive sports, is sarcastic, has a child's sense of humor, and loves "Bob's Burgers." That might seem niche, but there's always someone in my audience who connects with at least one of those attributes, and if not, they connect with my humanity. By showing up as my full self, I become more relatable and I create real connections, which makes my communication more impactful. One caveat is to be mindful that prejudice is real, and not all identities are universally accepted; therefore, it is essential to be aware of the identities that you feel safe revealing to your audience. The thing is, a majority of the public supports the idea of having more scientists engage them (<u>Cologna 2025</u>). They want to hear from the experts. With this in mind, one way scientists can gain public trust is by investing more effort into communicating about science frequently. Being authentic and relatable are ways to make this possible. Storytelling is a common way to create opportunities for your audience to relate to you and feel safe to share their personal experiences with you. Once they do that, you can then tailor how you deliver your content to make it relevant to them. This verbal dance creates a stronger connection between you and your audience. Your audience is more likely to not only *remember* the content you teach them but also *apply* it to their lives.

That same respect applies when engaging with communities. Too often, researchers enter unfamiliar spaces and impose solutions they assume are needed. I call this phenomenon "community colonization." An example of this is when a researcher gets a grant and decides a rural town needs computers without ever consulting with the residents of that town. What if they really need mobile hotspots and cell phones? Or tablets?

True community engagement requires the scientist or communicator to take the time to build trust, listen to community leaders, and then use our resources to co-create solutions that serve that community, not just our research. Everything we do should be a conversation based on trust and mutual respect.

Authenticity is the foundation of trust, and trust is essential in science communication. If scientists feel we must hide parts of ourselves to be taken seriously, how can we expect the public to believe in us? When we embrace who we truly are, we make science more accessible, inclusive, and trustworthy for everyone.

Tamara Poles, Founder and CEO of <u>Universal SciCom</u>, leads workshops that help scientists communicate and engage with the public.

PRO TIPS

The art of communication

Notes from a long-time environmental journalist

BY TOM HENRY

HE ART of communication is an essential tool for making science effective. Without it, there are just reams of data, handfuls of statistics, and hours upon hours of sweat equity from grabbing field samples, doing stuffy lab work, and generating thought-provoking analysis with nowhere to go.

ies and sewage plants lease 17 million pou

Don't be that person who doesn't take the art of communication seriously. Think of how much further along we might be on the climate change issue, for example, if the science behind it had been communicated more effectively early on.

Consider scientists such as Neil deGrasse Tyson and the late E.O. Wilson, two guys with writing chops powerful enough to fascinate people about anything from astrophysics to Alabama ants. Their ability to engage us illustrates one of the fundamental things you should always consider when communicating about your work: What makes your subject matter fascinating? Why do you do the kind of research you do? And why should the public care?

As the longest-serving Great Lakes writer still gainfully employed by a form of media once rooted in dead trees, aka the newspaper industry, I'm fortunate enough to have received IAGLR's Jack Vallentyne Award for 20 or more years of sustained, high-impact Great Lakes science communications. In fact, I was the first newspaper writer to receive it.

I don't pretend to have all of the answers. But I like telling people it's my job to decipher scientific gobbledygook and explain it in a way that resonates with the layman.

I also recognize the enormous responsibility that environmental writers have. We have the power to needlessly inflame our readers or, equally as bad, put them to sleep about an issue they need to know about.

That's where trust comes in, not just between me and my readers but also between me and the researchers I depend upon for communicating Great Lakes science. You need to know whom to trust.

Environmental writing fascinates me because, as a journalist, you have to be more street-savvy than your colleagues who simply report on, say, the outcome of city council votes or lawsuit rulings. Everything in life isn't a convenient thumbs up or thumbs down. There are a lot of messy grey areas in science, with theories tested over and over.

So you try figuring out who's telling the truth and who's pushing an agenda, which requires trust of unbiased sources like scientists. Sure, science can be politicized. But I count on scientists for objective information. When people get into arguments about whether or not they "believe" in climate change, I respond with something like this: "The funny thing about science is it doesn't give a crap what you, me, or the corner lamppost want to believe. Science is what science is. It's gonna happen, regardless what humans believe, and the best thing we can do as a human race is figure it out."

To the right are some additional things to keep in mind when approaching journalists such as me. Arm yourself with facts and data, for sure. But use them to help tell your story instead of being it.

Some other advice

Be a storyteller. There's an old axiom in journalism: Write your stories like you're telling them to your mother. Downplay the mundane. Be loose and conversational.

Think big picture. The average reader is less likely to be as immersed in the process of how scientists reach their conclusions as they are the conclusions themselves, though both are important.

Think human impact. People want to read about people, about how lives could be upended or improved by research. Don't assume they can make the connections between ecosystem health and personal health. Many people can't-or won't. Spell it out for them, even if it's painfully obvious to you.

Money talks. It hurts the altruistic side of me to admit that. More and more, especially now as social media distorts the message, people demand programs that make wise and efficient uses of money. Justification for research spending is about as predictable as the contrarian wisecracks on Facebook and X that blur reality.

Tom Henry has been a writer for The Blade in Toledo, Ohio, for 32 years, covering the Great Lakes and other environmental issues. For his work, he received IAGLR's John R. (Jack) Vallentyne Award in 2014.

Toledo's sewage ranked fifth in total

mental, reproductive, and nervous system problems in

have established tough standards, he said. fact is, a lot of substances unhealthy to go into the

releases waste into the Portage River, a Lake Erie tributary. Larry Chako, the company's en vironmental control manager.

Strategic communication in scientific research

Start with a plan

BY ELIZABETH STRIANO

HE FIRST QUESTION a communications expert often will ask a researcher coming to them for help is: Who is your audience? But effectively communicating about research and science requires far more than knowing who you are targeting, especially if you want to be strategic and ensure the results will have their intended impacts.

Beyond knowing who your audience is—and how you are going to reach them—a key part of effective communications is knowing what your end product is going to be and having a vision for that deliverable from the beginning. This advance planning is important for several reasons. First, and perhaps most important, it requires a discussion and thought about what products the research is working towards. Second, planning in advance will highlight whether and how much funding will need to be earmarked for communications-related activities. These tasks may include hiring a communications strategist or graphics designer; gathering photos or video; capturing quotes and sound bites along the way; and other activities as needed.

Perhaps most critically, advance planning should include a pathway for providing interim results and ongoing information to keep critical audiences engaged throughout the research process. This engagement can help build trust, provide opportunities for feedback, and lead to a better understanding and acceptance of the results and products.

"Communications planning needs to be baked into the research design from the beginning to ensure the most useful product for whomever is the end user of the research findings," says Lauren Mullenbach, research program manager for Michigan Sea Grant (MISG). "And this outreach needs to occur throughout the lifetime of the research project."

According to Mullenbach, telling the story of the research and science along the way—including by sharing photos, videos, summaries, and other materials—can lead to more powerful impacts. One way to continuously engage audiences is by creating community advisory boards at a project's start. "Involve stakeholders, end users, and community members through a formal paid advisory committee position," Mullenbach advises. Such boards are most relevant for larger projects that last five to 10 years and should comprise people from the community who are the target audience, she adds. The board can be a funded part of the project and regularly apprised of data collection progress and other aspects of the project.

The following projects provide good examples of research in which communications was considered at the outset of a project, enhancing the final product or deliverables. In some cases, engaging community members early or finding local, trusted messengers led to improved outcomes. In others, researchers gained insight by getting input and feedback on how audiences would like to receive information. Communications planning needs to be baked into the research design from the beginning to ensure the most useful product for whomever is the end user of the research findings.



At left, Dan O'Keefe, senior extension educator, MISG Southwest District, holding a rainbow trout and discussing preliminary study results with local fishers during a community event. At right, O'Keefe at 4-H Great Lakes and Natural Resources Camp teaching campers how to fillet a fish.

Stakeholder Input

One MISG project on mitigating flood risk in Great Lakes communities included a stakeholder advisory board that provided opportunities for residents to help prioritize future projects. In this case, engineers are modeling how to mitigate flooding in Benton Harbor, Michigan. An advisory board is supplementing this work in two key ways: first, by providing additional details on what actually flooded and when for historic floods; second, by helping to identify key assets in the community that need to be protected because of their value to residents.

"The engineers may have provided the best, most efficient way to mitigate flooding, but their plan may not align with what the community actually needs and values," says Mike Shriberg, MISG Director of Engagement. "If the project team hadn't involved this group from the beginning, then new projects for flood mitigation may not have addressed the communities' biggest concerns."

The project team pulled together a group of community leaders that included the city planner, economic development coordinator, and other key representatives. This group provided input on what aligns with community priorities. The team used a unique approach in which the board provided input on large-scale maps on which group members helped identify areas of greatest risk.

"Future mitigation projects in this area are prioritizing community needs and using members' real-world experience with flooding and their priorities, overlaid with the technical design," says Shriberg.

This project is a good example of how the standard-issue, depersonalized report that does not speak to specific local issues would not have landed well. Using visuals such as maps that combined community input and geographic information led to a better end product. The process also allowed the team to connect better with their audience because displaying multiple types of data in storytelling fashion can prove more compelling than a traditional research report.

Feedback Opportunities

Another MISG project is providing fisheries managers with the information they need to make important decisions about stocking levels and fishing regulations. In this case, lead principal investigator Dan O'Keefe, senior extension educator, MISG Southwest District, knew how important it would be to provide a way to gather quality data from anglers and to give regular feedback to a variety of audiences.

As a result, they developed a suite of digital assets including web content and the <u>Great Lakes Angler Diary</u> app so anglers can submit numerical and geographical data about fish they catch. The project uses teams around rivers and watersheds in the state to capture data and includes leads from the state agency side along with respected members of the fishing community like a writer, guide, or angler. Each year, the entire group participates in a kickoff meeting during which the project team reminds everyone of the new season and how to log catches and to recruit in areas that do not have enough participation.

"The challenge from a science perspective during these meetings has been to give anglers and scientists and managers enough information to see progress while not overselling the results," O'Keefe says. "We try to stay away from causality and be careful of trends that we see, because we only have a few years of data at this point and it is not clear whether we are looking at part of a longterm trend or normal variation from one year to the next."

According to O'Keefe, it's important to remind people of limitations of the data to avoid any one group jumping to conclusions. "That's why it is important to do due diligence and hold off on the speculation, especially when there are multiple audiences with varying interests," he says. "In this case, it really is important to know your audience."

In addition to the digital products, the team produced an annual survey as part of quality control and requirements, including having people certify that their data are complete, but also to gather input on management, regulations, and stocks. The results of this survey are also shared with everyone every year. In the end, the



Don Carpenter, project lead, Drummond Carpenter PLLC, working with community members for the Twin Cities Sustainable Small Harbor project in Benton Harbor, Michigan.

project team will produce a summary that looks at six to seven years of quality data. This information will be particularly useful to managers, who might decide to tailor regulations to specific variables, such as contributions of stocked versus wild fish populations, the impacts of dams and habitat quality, and other issues such as the effects of non-native species.

"Good science that managers can make good decisions on," says O'Keefe.

A variety of tools

MISG's <u>Sustainable Small Harbors</u> project is helping communities with struggling public harbors to develop plans and secure funding to ensure their sustainability. This effort, a collaboration with the Michigan Department of Environment, Great Lakes, and Energy, involved partnering with experts and local leaders to help community members brainstorm a sustainable future for their public waterfront assets. "We really had to be intentional about our outreach and communications from the very beginning of this project," states project lead Don Carpenter of Drummond Carpenter PLLC. "Residents' input was so critical to the products we planned to develop, so we needed to ensure that they participated and that we captured their input accurately."

Because some of these communities were small and relatively isolated, the project team used a variety of methods for initial engagement of members of the public, including radio ads, flyer distribution, and webinars. In each of the case study cities, the project team designed workshops geared to gathering input from community members with their ideas on how to develop and prioritize ways to make their waterfronts more environmentally, socially, and financially sustainable.

"The information we gathered from members of the community was used to develop resources and other materials that will support local government, coastal communities, planning and economic development organizations, and others to ensure the sustainability of their waterfront areas," says Carpenter.

Results were captured in a variety of products, including a guidebook, decision-making tool, webinars, and ArcGIS Storymaps. The <u>project website</u> also features the recorded webinars and a series of success stories for small coastal communities seeking resiliency, and new and improved coastal resiliency tools. All of which helped community members and local decision makers see the results of their input and use the compiled information in a meaningful way.

Elizabeth Striano serves as the communications program lead for Michigan Sea Grant, Ann Arbor, Michigan. She has more than 20 years experience as a science writer and communications strategist working to maximize awareness, visibility, and engagement

Becoming a bridge

Strategies to build culturally informed and community-engaged environmental communications

BY LAURA LEGZDINS WITH SUPPORT FROM NIISAACHEWAN ANISHINAABE NATION

HOUSANDS OF POUNDS of Manomin were harvested here?" I exclaim from the stern of our canoe as the beep of our GPS alerts us that we've reached our survey location. The ancestral fields appear mostly barren. Light reflects off waters once thick with towering stems. Beside a bag of tobacco and a dissolved oxygen meter, Sam grabs our 3-meter measuring pole and guides it into the Winnipeg River until her upper arm is immersed. Here, in <u>Niisaachewan Anishinaabe Nation</u> (NAN), Elders recall the unannounced blasting of channels and installation of multiple dams within 30 kilometers of the reserve, powering settler industry upstream in Kenora, Ontario. Now, they experience an estimated 99% decline in yield of a culturally, economically and nutritionally significant crop: <u>Manomin</u>.

The relationships we established with Manomin and community opened our eyes to engaging with plant beings in ways that differed from, but could be interwoven with, scientific methodologies learned at the UofG.

Meaning "spirit berry" in Anishinaabemowin, the name "wild rice" (Zizania palustris) given by European settlers to Manomin is ill-suited, for the Anishinaabeg maintain a millennia-old responsibility, and Treaty right, to manage Manomin stands through hunting, harvesting, and reseeding. When NAN's Grievance Committee sought answers about Manomin loss, they requested that Dr. Brittany Luby, an expert in Crown-Indigenous relations whose paternal ancestors originate from NAN, form an interdisciplinary team with fellow researchers at the University of Guelph (UofG). Together with ecohydrologist Dr. Andrea Bradford and invited students, they work alongside NAN to better understand settler-imposed hydrological changes and restore Anishinaabeg food sovereignty. Meet The Manomin Project.

When I first joined as a research assistant, NAN Elders invited Dr. Samantha Mehltretter, Jane Mariotti, Tony Huynh and me to participate in field visits and Manomin harvesting. The relationships we established with Manomin and community opened our eyes to engaging with plant beings in ways that differed from, but could be interwoven with, scientific methodologies learned at the UofG. When I was asked to act as communications coordinator, this approach of weaving knowledges shaped my language and actions for The Manomin Project.

These seven strategies noted on the following page offer a path for intentional and collaborative communications that can sustain healthy working relationships between communities and deepen shared understandings of environmental needs.

Entering her final year as an undergraduate and President's Scholar at the University of Guelph, Laura Legzdins is a Latvian-Canadian environmental sciences student originally from Treaty 22 lands of the Mississaugas of the Credit First Nation, serving as communications coordinator and previously president's research assistant for The Manomin Project.





Seven strategies for cross-cultural communication

1. Prioritize ways of connecting which gather and engage community. As NAN Elders have called upon researchers to "think communally," we co-host feasts, participate in manoominikewin (Manomin harvesting) and co-organize shared excursions on the water, all where research can be discussed. Gatherings offer time to develop relationships between team members and the land. During the early years, NAN Elders encouraged researchers to share hypotheses and preliminary findings in communal spaces on reserve. Research connections were shared through an installation on a wall in the Band Office, ensuring people could access, revisit, and comment on developing research locally. A quarterly newsletter, circulated by email and posted online, was used to provide continuous updates. Members of The Manomin Project work together to identify time and space for open and continuous communication.

2. Seek out available resources from community representatives and organizations to diversify your resource list. Incoming researchers are required to participate in weekly discussions about Treaties, Indigenous (and specifically Anishinaabe) environmental perspectives, botanical *gikendaasowin* (Anishinaabe ecological knowledge around plant life cycles and needs), and knowledge weaving methodologies like <u>Two-Eyed Seeing</u>. By engaging with sources relevant to the community in their work, The Manomin Project can amplify voices and conversations of critical interest to the First Nation.

3. Lead with humility, openness and curiosity to better understand and reflect Indigenous relational philosophies in environmental research and subsequent communications. Individuals trained at Canadian and American universities are taught to think of plants as unconscious, unthinking, or 'soulless' organisms. Anishinaabeg ethics, however, respect Manomin as an other-than-human being, a plant relation. NAN Elders on The Manomin Project codeveloped a <u>culturally sensitive field protocol</u> to ensure Manomin—much like its human collaborators—had the opportunity to live well throughout the research process. We also developed a <u>Common Vocabulary</u> to reject colonial language which can <u>perpetuate harm</u>, instead promoting Anishinaabemowin terms, which carry cultural worldviews.

4. Consider whether and how collaborative research methods can be reflected and reinforced by research outputs. Presentations delivered by The Manomin Project frequently include members from the University of Guelph and Niisaachewan Anishinaabe Nation. Accommodations have been requested from conference organizers to allow First Nations to co-present remotely. When community representatives cannot attend, time is allotted in talks to share <u>video-recorded Elder testimony</u>. Knowledge and resources gained at conferences are shared back to Chief and Council in an email report. In publications like this article, community support is acknowledged in the authorship line.

- 5. Create with and for community. Healthy communication is not only reciprocal, transparent and routine, but also results in accessible outputs. We establish parameters for publication with Elders as well as Chief and Council. We <u>prioritize open access publications</u> to ensure community members can freely and independently access all research outputs. We deliver printed copies of any traditionally published texts to the Band Office for distribution to participating Elders. We recommended budgeting (or negotiating with the publisher) for free copies of traditional print works to distribute to participating community members.
- 6. Move beyond disciplines. Be open to alternative outputs that resonate with different aspects of our humanity. Members of The Manomin Project have produced <u>peer-reviewed articles</u> and a <u>scholarly anthology</u>, as well as <u>children's literature</u> and <u>photography</u>. We have worked collectively to harvest and parch Manomin. Following holistic Anishinaabe philosophies, we have sought to share knowledge in ways that feed the physical, emotional, and intellectual aspects of our being. Our Elders determined that spiritual aspects of Manomin care, such as ceremony and song, should not be published by The Manomin Project.
- 7. Reflect: How can your communication and research fit into a bigger, intergenerational picture? What values are you modelling? Our team is driven by long-term goals of cultural revitalization and <u>food sovereignty</u> in Anishinaabe communities. We share space and commit to continuous learning and communication because the future we envision requires collaboration. Culturally informed and communityengaged communication, research, and relationships are our responsibilities to generations to come.

Talking about science

The importance of your origin story

BY SANDRA SVOBODA

R PORTERS AND PRODUCERS will often ask sources a version of "How and why did you get to your current position doing this work?" They're not asking you to thank human resources or the tenure committee.



I recently finished a media-training project with a dozen-plus scientists and executives from the International Institute for Sustainable Development, and I was struck by the variety of answers they gave during our mock interviews to those questions. As a result, I though I'd provide some tips on talking about your literal starting points and how to relate them to the bigger agenda of promoting, celebrating, and valuing science in today's world.

Journalists and broadcast show hosts pose the origin-story question for a variety of reasons. It might be a way to ease you into the interview. Your answer also can help the audience get to know (and like) you as a person before the conversation jumps into more technical information.

If it's your first time talking with a journalist, they might be wanting to judge your speaking manner and style so they can gauge how to handle the rest of your chat in terms of time and style of questions they ask. If you answer "Why do you study benthos?" with a 15-minute, jargon-filled description of your first lab course with no information about why the topic relates to population or ecosystem health, you may not be building the best relationship with the journalist for future media appearances where you can share bigger findings.

If you're speaking to a class, especially K-12, the teachers are probably looking for some information from you about a pathway for their students from their science homework to your cool career. Maybe you didn't know what you wanted to do, but you found projects you were interested in and realized they could be an actual career of value—that's a great message for students.

Regardless, as a researcher, university instructor, or other Great Lakes advocate, you should have a ready, authentic origin story to help audiences get to know you, to offer credibility to your career path, and to tee up the importance of your work that will be the subject of the rest of the interview.

Sandra Svoboda has worked as a journalist in print, digital, public broadcasting, and documentary film and is now a communications consultant.

How did you get here?

- Keep it concise. Don't take too much time talking about something that happened decades ago, when you have more pressing needs like talking about current work.
- If you have it, share the *a-ha* moment when you realized you would make what you do now your life's passion. You can also state a broader message: "I didn't know I was on the cutting edge of an emerging area, but my foundation in basic science prepared me to tackle this work."
- If you don't have that *a-ha* moment, try to credit a person, class, book, news article, documentary, or other such time or event that helped you realize the need or potential impact of your work on the world or the journalist's audience and community.
- Avoid clichés. Nearly everyone "went to the lake as a child" so only tell that story if there's a unique link to what you do now; for example, doing a research project on a river you canoed as a kid. Otherwise try to describe a more recent turning point or decision that got you your current job title or project. (But if you're on tv sharing your wayback story and have relevant video of you as a kid, that can work nicely.)
- Think in terms of answering bigger questions like "What gives your daily routine value to the bigger world?" This will also allow you to describe the issue and how your work is trying to solve it—the crux of the best storytelling.
- As you describe how you got to your current situation, point out what's changed since you began. Include examples that show successes or setbacks relatable to the reporters' audience while also showing the positive impact of the science.
- Consider the connection between your early work and what you're doing now. For example, "In our recently published study, I realized it was an expansion on (your personal example), work that I did (how many) years ago, and it makes me appreciate how far we've come as well as how far we have to go."

Science and local journalism

Informing better, together

BY ELLIE KATZ

ON A REPORTING TRIP last fall, I traveled to Michigan's Upper Peninsula to talk to the family of Albert "Big Abe" LeBlanc. It was for a <u>story</u> on his defiance of state conservation officers and his assertion of tribal fishing rights. His 1971 case was one of a few that laid the groundwork for how Great Lakes fisheries are managed in Michigan today.

At the end of our interview, Big Abe's son pulled out several fragile, yellowed newspaper articles written about his dad that he'd saved all these years. That struck me: People don't remember facts and figures about the fishery of Big Abe's day—they remember stories and characters.

There is sometimes a Great Lakesized gulf between what scientists understand and what the public does. Local journalism can be a bridge.

Maybe unsurprisingly, I get the most clicks and the most emails on stories about hunting, fishing, conservation, and recreation. People care about what's happening in their backyards. They care about science that studies the fish, animals, landscapes, and waters they love. They just need a window in.

Audio has a special capability for that. It's one thing to tell someone: "Scientists in Michigan are trying to get lake whitefish to spawn in rivers." But it's a whole other ball game to <u>listen in</u> on what that actually takes. The sound of researchers trudging through snowy woods to get to a site. The sound of a bag of fish eggs sloshing. The sound of a scientist trying to slide those precious eggs down a tube and into the river as carefully as possible.

These local stories make scientists more relatable—and what they do, more accessible. They help people understand what science is, and help them realize it's happening on that same stream they love to fish every spring.

So, how to do that? Spend time on the phone with journalists, even if it's just for background research. Talk like you would to your 13-year-old nephew: without phrases like recruitment, biomass, and ecosystem services. Maybe most importantly, don't be afraid to talk about your work like you'd tell a story around the campfire. "Evidence indicates there are more algal blooms in Lake Superior," isn't a sentence that really hits someone in the gut. But you know what will? Hearing about the moment you noticed something strange in the water. Or how it looked, what it smelled like, and how it made you feel. Those ideas stick with people—they can picture themselves out there too. They can start to imagine these things as real.

I know this is hard. Research takes time and so does explaining things to journalists. But we're both in the business of asking and answering difficult questions. And when we do our jobs well together, people better understand their communities and the world around them. That's worth it.

Ellie Katz is an environment reporter with Interlochen Public Radio in northern Michigan.

The author recording on Torch Lake in Antrim County, Michigan, for a story about golden brown algae, which started coating inland lake beds in northern Michigan around 15 years ago. Biologists at Michigan State University and the University of Michigan Biological Station are still trying to figure out why.

Narrating water

Ecocultural storytelling for Great Lakes restoration

LYNNE HEASLEY & GLENN WOLFF

ANY OF OUR SCIENTIST FRIENDS are inadvertent storytellers. You can't go into the water with an aquatic ecologist without experiencing the curiosity, the wonder, and yes, even the heartbreaks of their work as it might have unfolded over decades. Likewise you can't go into the water with Indigenous colleagues and friends without experiencing the curiosity, the wonder, and yes, the still deeper heartbreaks of our more-than-human world as it has unfolded over centuries. One difference, though, is that our Indigenous colleagues intentionally keep sacred stories of water alive in a vibrant practice of ecocultural knowledge-building.

As biodiversity, climate, and water crises reshape the Laurentian Great Lakes, making sense of our region's complicated ecocultural relationships should be a calling for all of us in IAGLR. For how can people value and evolve their connections to a river or lake without narrating their own symbiotic histories with that river or lake? How can science-based restoration initiatives persist without heartfelt advocacy emanating

from local communities through today's contested political and policy spaces, and ultimately through these turbulent times?

But when you bring nature and culture together in conversation, you're moving into the realm of storytelling. Storytelling rather than science-telling can open emotional and spiritual pathways for people to connect with environmental research. Unfortunately, though, emotion and spirituality still fit most comfortably within the arts and humanities, whose narrative traditions delve deep for meaning, touch the heart, connect heart with mind. When you bring nature and culture together in conversation, you're moving into the realm of storytelling. Storytelling rather than science-telling can open emotional and spiritual pathways for people to connect with environmental research.



So how to escape an unhelpful either/or proposition—scientist or artist, researcher or storyteller? We see practitioners of all disciplinary (and cultural) leanings becoming intentional rather than inadvertent storytellers. In this extraordinarily disruptive and demoralizing time for Great Lakes research, our individual or collective storytelling might be the most important communications we undertake. What follows are examples of ecocultural storytelling.

A living river

The first example begins with the illustration at right, which is a mixed media painting by Glenn Wolff. This is also the front cover for Lynne Heasley's book, "<u>The Accidental Reef and Other</u> <u>Ecological Odysseys in the Great Lakes</u>." The book foregrounds the St. Clair River, a connecting water and international maritime corridor between lakes Huron and St. Clair spanning Canadian, U.S., and Bekejwanong Territorial waters.

One storytelling challenge is escaping the industrial narrative of a dying river, which in its simplest form goes like this: The St. Clair suffered a century and a half of continuous toxic industrial waste streams and pollution events; and these made for a historical process of ecological violence against river and people alike. Reinforcing this toxic story are the shoreline smokestacks of Chemical Valley in Sarnia, Ontario, home to 40% of Canada's petrochemical industry.

No doubt your average visitor would not see the St. Clair as a river of wonder; a living river; benighted but also awe-inspiring; home to the largest population of lake sturgeon in the Great Lakes; home to the largest freshwater delta in the world; a migratory landing pad for two international flyways; a resilient ecological meeting place. Yet stories from this living river have been both catalyst and outcomes of long-term restoration initiatives to delist the St. Clair as an international Area of Concern. Glenn's painting is a counter-visual to smokestacks, with a porpoising sturgeon reaching for the stars, an exquisite underwater world below, and two scuba divers entering the scene from stage right (who will soon share their own stories!). Collaborating in visual storytelling opens portals to new or unexpected dimensions of places like the St. Clair River.

Dreamscapes

The illustration on the following page begins our second set of examples. This is Glenn's mixed-media triptych, "Dreamscapes," and also the working title of Lynne's long-term exploration of ecocultural relationships in three Great Lakes landforms. "Dreamscapes" took much longer for Glenn to conceptualize, mostly because of Lynne's narrative muddles. But we were patient in trying to see the many stories in each landform from our different perspectives.

Left-to-right, the three landforms are (1) alvar "pavement" grasslands on Drummond and Manitoulin islands in Lake Huron; (2) Great Lakes coastal sand dune complexes; and (3) the St. Clair Flats (or delta) forming U.S.-Canada-Bkejwanong borders. Also note how Glenn depicted alvars at eye level, dunes from an elevated position, and delta from a bird's-eye view. Each choice of perspective opened up stories within that place.

But alvars, dunes, delta? Why consider these three landforms for a Great Lakes writing project? Why put them side-by-side in



Mixed media painting by Glenn Wolff. This is also the front cover for Lynne Heasley's book, "The Accidental Reef and Other Ecological Odysseys in the Great Lakes."

a painting? A simple answer is that all three are global landmarks of the Great Lakes. Not only do they represent the greatest concentration or longest extent or largest area in the world of their type, they are treasures of biodiversity at a moment when biodiversity conservation has become as urgent as decarbonizing Earth's atmosphere.

Another answer is that two of the three are underappreciated. Humble alvar grasslands on remote islands, or a river along an industrial corridor, don't inspire the same pride of place as a mountain vista. Instead they can seem unremarkable or degraded to a visitor, to a non-specialist, and often to area residents. An artist, however, can overcome our everyday sight-seeing to reveal magic.

And a third answer is that all three landforms embody crosscutting ecocultural stories. This won't surprise the botanist who marvels at a Drummond Island alvar site while simultaneously enduring waves of dust-clouds from ATVs driving past. On the



Glenn Wolff's mixed-media triptych, "Dreamscapes," and also the working title of Lynne Heasley's long-term exploration of ecocultural relationships in three Great Lakes landforms: (1) alvar "pavement" grasslands on Drummond and Manitoulin Islands in Lake Huron; (2) Great Lakes coastal sand dune complexes; and (3) the St. Clair Flats (or delta) forming U.S.-Canada-Bkejwanong borders.

surface an alvar might look like a long-abandoned parking lot of cracked dolomite or limestone splotched with lichen and moss, but it nurtures the greatest biodiversity in the world at small scales. A dense network of ATV trails may seem incongruous for an island accessible only by ferry, but it resulted from a local economic push for Drummond Island to become *the* off-road destination in Michigan.

Phragmites australis in the St. Clair Flats offers good practice for intentional storytelling. Directly below the third tin panel in "Dreamscapes," you'll see Glenn's drawing of a small camopainted flat-bottomed boat hidden among cattails and taller aquatic plants. The boat is ideal for Bkejwanong/Walpole Island fishers, hunters, and guides navigating shallow channels and bays. The aquatic plants signify *Phragmites*' spread throughout the Flats.

As most in IAGLR know, *Phragmites* is crowding out native reeds and grasses and threatening some of the richest fish and wildlife habitat in the Great Lakes. The default story is *Phragmites* the threatening invader—aggressive, fast-moving, disruptive, unwanted. By extension, one possible conservation paradigm is to overpower, or at least to control *Phragmites*. Aerial drones spraying dense swaths of *Phragmites* with an escalating succession of herbicides fortify this warlike relationship.

But what if we shift the story of *Phragmites* slightly, from "invader" to "newcomer"? Shift the story and we can see relationships differently. Reconsider our relationships and other

conservation paradigms come into view. As an imaginative exercise, reflect on this spectrum of possible relationships with *Phragmites*, along with the implications of each:

- *Conquest* (paradigm of force and control; belief in a permanent solution to a problem or enemy)
- *Co-existence* (paradigm of stewardship; commitment to local, ongoing, hands-on management)
- *Acceptance* (paradigm of welcome; openness to respecting and learning from distant relatives and new neighbors)

We'll pause here, because stories of *Phragmites* are unfolding and dividing into a bird-foot delta of alternative futures. Communicating ecological knowledge through intentional storytelling could guide such futures toward renewed relationships with our home-waters.

Lynne Heasley is an environmental historian and writer whose work centers on the Great Lakes and Upper Midwest. Her recent book is the awardwinning "<u>The Accidental Reef and Other Ecological Odysseys in the Great</u> <u>Lakes</u>" (illustrated by Glenn Wolff). She is a professor in the School of Environment, Geography, and Sustainability at Western Michigan University in Kalamazoo. <u>Glenn Wolff</u> is an artist based in Northern Michigan, and the former head of the Art Department at Northwestern Michigan College in Traverse City. He concentrates on mixed-media painting, printmaking, and book illustration.

Sea lampreys and science communication

Protecting fish and fisheries from a Great Lakes menace

BY ANDREA MIEHLS & JILL WINGFIELD



The five Great Lakes lamprey species. Credit: Andrea Miehls, Great Lakes Fishery Commission.

AKE A MOMENT TO PONDER the photo on the left. Go ahead, we'll wait. As you contemplate those many mouths, what thoughts run through your head? Do you recoil in fear at the monstrous maws? Are you fascinated by all of those teeth? Do you hunger to learn more about these curious creatures? Or have you seen enough to suit your tastes, thank you very much?

The organisms pictured are the five lamprey species of the Great Lakes. Lampreys are ancient fish, most well-known by the species that parasitize other fish, though about half of the known lamprey species are non-parasitic. The lamprey with the massive mouth dominating the top left of the photo is a sea lamprey, a species parasitic and invasive in the Great Lakes region. The four smaller lampreys are all native to the Great Lakes. The two in the middle are parasitic, and the two on the outside are non-parasitic. Of these five lamprey species, only sea lampreys are harmful to fish populations. The reason is apparent from the photo: the dramatically larger size of the sea lamprey leads to a substantially greater need for fish blood, a need typically lethal to fish-each sea lamprey will kill up to 40 pounds (18 kilograms) of fish during its parasitic stage. Before a control program was enacted in the Great Lakes, there were 2.5 million sea lampreys killing a staggering 100 million pounds of fish each year!

As a result of the harm caused to important Great Lakes fish species, a science-based control program for invasive sea lampreys began in the 1950s, which has led to a 90% decline since their historic highs. Sea lamprey control is coordinated by the Great Lakes Fishery Commission (the Commission) in partnership with the U.S. Fish and Wildlife Service and Fisheries and Oceans Canada, with science support from the U.S. Geological Survey. The sea lamprey control program is considered one of the most cost-effective and successful invasive species suppression programs in the world and an essential component of protecting economically valuable Great Lakes fisheries.

The Commission's sea lamprey control program, as well as sea lamprey and fisheries research programs, are federally funded through the governments of the United States and Canada. Because these activities are supported by taxpayer dollars, the Commission strongly values and has implemented a long-standing (30+ years) communications program to inform the public about how their taxpayer dollars are used.

Two additional, critical reasons necessitate the communications program: 1) communication is vital for maintaining funding for the Commission's full suite of programs, and 2) communication is essential to maintaining the social license to control sea lampreys. The social license refers to unwritten, informal acceptance and support from the public for an organization's activities, in this case, the sea lamprey control program.

A science communication strategy for protecting fish and fisheries

To communicate about sea lamprey control and research, the Commission employs a team of science communicators who engage with audiences across the Great Lakes region. The work of the communication team is guided by a communications strategy, which is a living document updated regularly and reflective of the joint needs of the Commission and society. The Commission's communication strategy involves setting clear and achievable goals, then determining target audiences, messages to convey, and methods most likely to reach those audiences.



Two sea lampreys attached to a brown trout. Credit: Andy Bliss, used with permission.

Goals are essential to any activity science communication and beyond. The primary goal of the Commission's communications program is to expand the Commission's interactions with primary audiences with the hope that those audiences will 1) better understand the Commission's mission, 2) appreciate the ecological and economic benefits that the Commission's programs provide to society, and 3) initiate actions or behaviors that support the Commission's work.

Knowing target audiences is critical to developing appropriate levels of messaging and determining which methods are best suited to the engagement. Primary audiences for the Commission include elected officials, partner agencies, and members of the "engageable public," defined as a segment of the broader public that either currently cares about the Great Lakes, fishing, environmental stewardship, etc., or is likely to care after some degree of interaction. The engageable public encompasses Great Lakes scientists, Great Lakes managers, the media, the fishing public, environmental and civic organizations, educators, students, and more. The distinction between the engageable public and the public-at-large is important—with finite funding and staff time, reaching the public-at-large is unachievable. By focusing efforts on the segment of society most involved and interested in our work, we achieve the greatest return on investment for our efforts.

The main messages of science communication frequently revolve around work in action (methods, results, discoveries, and applications), raising awareness and interest in science, and inspiring audiences to complete specific activities (e.g., a "call to action"), while also fostering trust and understanding between science and society. The primary messages of the Commission are varied, but frequently relate to the value that Great Lakes sea lamprey control and native fish restoration bring to society, the importance of science to the activities of the Commission, and a call to action for audiences to share what they have learned within their own networks.

Methods run the gamut from in-person to online, written to oral, and across a variety of mediums. The communications team at the Commission implements a variety of methods, including one-on-one interactions with the public, consistent engagement with the mainstream and emerging media, development and maintenance of a <u>website</u>, use of social media, and development of various communication products including videos, fact sheets, brochures, activity booklets, and press releases. Sea lamprey mouth stickers, temporary tattoos, full-length models, coasters, bottle openers, and

A science-based control program for invasive sea lampreys began in the 1950s, which has led to a 90% decline since their historic highs.

even face masks (during the COVID-19 pandemic) have been created to convey our messages. One of our primary secrets to success is that we use live sea lampreys in our engagement as often as possible. We have found that these peculiar parasites elicit strong, visceral responses. They are one of the most effective methods for conveying messages that resonate and for creating memorable engagements. Though we've held thousands of sea lampreys in our hands, we vividly remember the first time we saw a live sea lamprey—the memories are permanently etched in our minds, like the mark a sea lamprey leaves on a fish!

Science communication: A value beyond measure

To state that science communication has a value beyond measure feels right to us as science communicators, but the statement is admittedly vague, so let's look at a few stats from the Great Lakes Fishery Commission perspective. The Commission's communications program comprises 2% of our total organizational budget. Yet, with this comparatively modest budget, the communications team makes an outsized impact. Science communication is fundamental to all activities of the Commission, from securing funding for control and research, to maintaining the social license for control, to obtaining permission from landowners for access to field sites, and more. Great Lakes fisheries generate \$5.1 billion in economic output each



Jill Wingfield (left) conducting outreach with a live sea lamprey. Credit: Andrea Miehls, Great Lakes Fishery Commission.

year and directly support 35,000 jobs in addition to hundreds of thousands of jobs related to tourism, navigation, and more. And as the unplanned reduction in sea lamprey control effort during the COVID pandemic recently illustrated, sea lamprey control is essential to protecting fish and fisheries in the Great Lakes. Without the communications program, the ability of the Commission to control sea lampreys and protect Great Lakes fish and fisheries would be significantly more challenging.

Beyond these tangible benefits that science communication brings to Great Lakes fisheries, there are many additional contributions that science communicators from the Commission and all scientific organizations provide to the people of the Great Lakes region. Science communication promotes scientific literacy in the public, fosters public trust in science, and supports sound policy making. Science communication helps people make informed decisions that impact their lives, their communities, as well as future generations. Finally, science communication makes people excited for learning and connecting with the world around them. These benefits, and the many others that science communication brings, are truly invaluable.

Andrea Miehls, communications associate, and Jill Wingfield, director of communications, Great Lakes Fishery Commission.

PRO TIP: Always be willing to jump on opportunities!

Our photo of the five Great Lakes lamprey species on page 24 has received considerable attention over the last few years, most recently being published in a National Geographic article. Although the photo has enjoyed high-profile coverage, the story behind the photo is less glamorous. The photo was taken opportunistically on a typical Wednesday at work. Tyler Buchinger, a visiting scientist, arrived at Hammond Bay Biological Station with live lampreys and offhandedly suggested to Communications Associate Andrea Miehls to photograph the five species together. Dropping other work activities, with no pre-planning and using only materials scavenged from around the station (and personal camera equipment), the communications team set up a temporary photo studio in the only space they could find—a well-trafficked hallway. Was it an ideal location for a photoshoot? Absolutely not. Did it work? Absolutely. Looking back, we are incredibly grateful we jumped at the opportunity to take the five-species photo. Our primary lesson learned? Take advantage of opportunities when presented (and always carry a camera)!



Andrea Miehls photographing the five Great Lakes lamprey species. Credit: Lauren Holbrook, Great Lakes Fishery Commission.

Science communication through comedy

BY ANNA BOEGEHOLD

OMETIMES YOU HAVE TO LAUGH to keep from crying. This was my attitude when I decided to take improv comedy classes in hopes of conquering the overwhelming anxiety of giving a research talk. I didn't think that I had a fear of public speaking until it was time to present my nascent research to a room full of staring scientists. I stood there, trapped between the audience of some of the smartest people in my field and my glowing presentation. There was nothing I could do except present my research and awkwardly make it through the next 15 minutes.

For me, the talk was a massive failure even if my worst fears didn't come true. I knew that I had to do better next time. I started going to shows at my local improv theater, Planet Ant, intrigued by friends who had been taking classes there. I was amazed at the confidence and ease of the improv performers on stage, and, because they were having fun, the audience was engaged. As I continued watching, learning, and performing improv, I noticed the many ways that improv could be useful for science communication.

My favorite lesson I've learned from improv is the freedom to fail. All my public speaking anxieties stemmed from the fear of failure and what terrible things would happen if I did not deliver a perfect speech. Comedy is like science in that it takes trial and error to figure out what an audience will find funny. Improv teaches you that you're going to fail to deliver a funny line more often than you will succeed, but that's ok! What matters is how you recover from that "failure" so that you can continue building an imaginary play world with your fellow improvisers.

I have learned to let go of my fear of rejection and relax during research talks, letting my unique personality and love of science shine through. Practicing improv has led me to be comfortable answering questions at the end of a talk because I am prepared to respond to spontaneous questions on any topic. This comfort with unplanned dialogue also makes it easier to have impromptu conversations with new people, a skill that will surely be beneficial at the upcoming IAGLR 2025 conference! Improv has been a great tool to practice scary social situations.

Through improv I was introduced into the broader world of comedy, and I became interested in writing comedy sketches, similar to "Saturday Night Live." Again, I found striking similarities between writing comedy and writing science. Sketch comedy writing requires clear, concise scripts that tell a story with a strong point of view. Writing comedy has helped me trim down excess text from my manuscripts so I can focus on the important details. It's useful for writing abstracts, social media posts, and other short, punchy texts with limited space.

I use comedy for professional development, but I also use it for personal development. It's important to spend time having fun, being creative, and engaging in play. An added bonus to being a part of the comedy world is that I have been able to take workshops with some of my favorite comedians, including Kevin McDonald (at right, top) and Bruce McCulloch (at right, bottom) from Canada's "Kids in the Hall." Comedy has made me a better science communicator by teaching me how to comfortably interact with any audience to deliver my message in an approachable way. If science communication makes you want to cry, try laughing instead.

Anna Boegehold is an algal toxin and ecology research specialist at the Cooperative Institute for Great Lakes Research.





Join Anna at IAGLR 2025 for a Sci-Comedy Workshop and catch her presentation there on June 4.

RESEARCH BRIFES

Rethinking risk communication: Understanding audience needs matters

In the Great Lakes region, harmful algal blooms (HABs) continue to pose serious public health and environmental risks-yet the way we communicate these risks often misses the mark. This study focused on how we can improve the communication of risks from HABs, particularly for those engaging in recreational lake activities across Michigan.

Using interviews with community members and experimental message testing, our study revealed a striking gap: while government agencies do share health advisories, many individuals-especially from vulnerable populations-either don't receive or don't fully understand this information. This isn't just about words; it's about relationships, trust, and accessibility.

Effective risk communication must be rooted in an understanding of who we're speaking to. That means recognizing that elderly residents may need larger fonts or printed materials at local libraries. It means respecting the value of local events as communication hubs and meeting people where they are, both geographically and socially. These seemingly small adjustments can greatly increase the reach and impact of our messages.

We also found that emotionally framed messages-those that connect with people's values and experiences-were more effective than purely factual ones in increasing risk perception. This reinforces the need for communicators to go beyond simply delivering information and to instead build real, trust-based connections with their audiences.



Ultimately, good communication is not just about what we say-but how, where, and to whom we say it.

By Alex Benitez Gonzalez, is a PhD graduate research assistant in the College of Communications Art and Sciences at Michigan State University. This project was her master's thesis conducted in partnership with Michigan Sea Grant, Bowling Green State University, and Michigan State University.







Equitable environmental storytelling a potent tool to fight environmental injustice

Stories matter. Many stories matter. Stories have been used to dispossess and malign, but stories can also be used to empower and to humanize. Stories can break the dignity of a people, but stories can also repair that broken dignity.... When we reject the single story, when we realize that there is never a single story about any place, we regain a kind of paradise.

> ~ Chimamanda Ngozi Adichi at <u>TEDGlobal 2009</u>

DESPITE THE CRITICAL ROLE that storytelling and oral traditions play in passing down environmental stewardship practices and values within BIPOC communities, we as scientists rarely see ourselves as responsible for supporting these communication strategies to advance environmental justice in the regions where we work.

To explore this further, my team and I conducted interviews with 42 stakeholders across the Great Lakes region, including environmental justice community organizers, local journalists, and community engagement specialists. Our goal was to better understand the relationship between local media and communities working to combat environmental injustice. These interviews formed the foundation of a community-driven model for environmental justice storytelling, designed to be used by media organizations, environmental nonprofits, and scientists engaged in communitybased participatory work.

Our findings challenged a common perception that media coverage of environmental justice issues is largely negative and extractive. While some collaborators did recount harmful experiences with media, these were primarily linked to large, for-profit newsrooms with no local ties to the communities they were covering. Locally based journalists were frequently described as trusted community members and advocates for environmental justice. As scientists, we must recognize the profound value of community-driven narratives. Too often, our focus on data causes us to lose important context. In our



Identified Priorities for Equity-Driven Media from "A Toolkit for Transformative Community-Centric Environmental Journalism"

pursuit of answers to rigid research questions, we sometimes forget the importance of simple human connection.

Throughout our project, we found that by letting go of traditional academic measurements of success, we made space for deeper and more meaningful engagement. Abandoning rigid research protocols allowed us to build authentic relationships with our collaborators. And prioritizing personalized communication over rote efficiency led to more participation than we ever anticipated. We learned that when nurtured with care, these connections offer insights that can help us more effectively support community-led solutions to climate change, contamination, and natural resource management. Ultimately, this evolution demands one essential shift: a strong commitment from those in positions of power to, as one environmental justice organizer in the Great Lakes Basin stated, "show up for thingsand sometimes maybe not with their journalist [or expert] hat on, but just with their listening ear." Please visit our website to download the full report and toolkit.

Hira Ahmad is currently an Oak Ridge Science and Education Institute Fellow with the Environmental Protection Agency. This project was her master's thesis at the University of Michigan School of Environment and Sustainability.

Note: This work represents the results of independent research and analysis and does not imply endorsement by the author's employer.

Pictured above are four key priorities for transforming extractive story telling models into equitable communitycentered approaches. These priorities emerged from stakeholder interviews and include 1) relationships with audiences, 2) advocacy and accountability, 3) collaboration and peer learning, and 4) fostering and inspiring change. They form the backbone of the toolkit and are organized in a stepwise fashion to help organizations determine which priority best fits both their current capacity and future aspirations. Their illustration as a tree's growth cycle represents the idea that organizational change is always ongoing.

To get started, organizations identify a priority and then select two or three goals that align with their capacity and current interest. Using both the toolkit and complementary organizational workbook, users can explore strategies to achieving their goals and track their progress in their workbook, while engaging with direct quotes from our collaborators that describe the applicability of these goals to achieving community-based environmental story telling.

BOOK REVIEW

A life melding science, art, and a love of the outdoors



DAVID JUDE, limnologist and fishery research biologist and an active IAGLR member for decades, has written a poetry book. I have known Dave since we first met when I chaired the IAGLR Great Lakes Research Conference at SUNY-Oswego in 1982. We have been friends and colleagues ever since. A consummate field biologist growing up in Minnesota, Dave gained deep love of the outdoors. He has conducted his entire career on the Great Lakes and inland lakes of Michigan. When not conducting research, he explores lakes Michigan and Superior shores for Petoskey stones

and agates, respectively, fishes at his cabin on the AuSable River, and contemplates nature from his bow-hunting tree stand. We co-taught the fish ecology class at The Ohio State University's Stone Laboratory for 14 years. All that time living and teaching together, I had no idea he was a poet! I knew he composed songs on his guitar, such as "Galloping Goby Blues," but not poetry also. So, I was surprised and delighted when he sent me his recently published book.

"Voices from the Meadow of the Mind of the Wandering Spirit" is a compilation of a wide spectrum of thoughts during Dave's lifetime of loving and observing nature. The topics range from elucidating ecological processes (e.g., "Life of a Leaf"), to whimsical views of biota (e.g., "Ode to God's Creatures, especially the Slimy Ones," to the comical (e.g, "Ode to the Wart"), and to philosophical musings (e.g., "The Fleeting Soul").

The book is divided into four themes: 1) Departures: The inevitable death of living organisms, recycling of elements and rebirth; 2) Organisms of the Earth: The naturalist's curiosity about selected aquatic and terrestrial invertebrates and vertebrates; 3) Secrets of the Earth: Philosophical contemplations about the Universe; and 4) The Human Dimension: Reflections on human interactions with the environment. Dave's photographs complement each poem.

"Voices from the Meadow of the Mind of the Wandering Spirit" is a delight in which the reader will find nuggets to contemplate and enjoy. It is a celebration of the author's life of melding science and art that thankfully he has shared with a wider audience. The book is available to order or read online from <u>the publisher</u>, or order it from your favorite independent book store.

By John E. Gannon, International Joint Commission (retired) and IAGLR member since 1966.



Ode to the mysterious fishes

Few know what a fish study entails Not only fish scales and slimy entrails But zebra mussels and sinistral snails We need info on who eats who So we know what to tell people to do Who knows what lurks in the deepest muck Could be parasites that bite and suck Black grubs from kingfishers that turn fish black Or *Hexagenia*, fish crack

We need studies on walleyes, perch, and pike What prey they eat, what fish they strike Are the fish fat or way too thin Do they have tumors or big warts on their skin Sometimes I throw my hands up in despair Studying fish is hard, life is not fair...

Poet Laureate of Great Lakes Fishes

From "Voices from the Meadow of the Mind of the Wandering Spirit" by David Jude.

COMMUNITY NEWS

Freshwater insights for action: the 2025 Watershed Reports are here

The 2025 Watershed Reports have officially launched, bringing fresh insights into the state of freshwater health across Canada. These reports offer more than just data—they serve as a call to action for all Canadians to better understand and protect Canada's rivers. Dive into the results at <u>www.watershedreports.ca</u>.

Published by Water Rangers and powered by AquaAction, the reports evaluate key indicators of freshwater health across 164 watersheds, using data from over 34 million data points collected nationwide. Key areas assessed include the following:

- Overall watershed health
- Water quality
- Flow changes
- Benthic invertebrate indices
- Fish species richness

Building on previous reports from 2017 and 2020, the 2025 edition introduces an updated approach, incorporating new tools and data visualizations to enhance accessibility and impact. These reports are the result of the collective efforts of hundreds of scientists, citizens, and organizations.

The findings highlight significant data gaps, with 75.6% of subwatersheds lacking sufficient data for the indicators. Of the subwatersheds with adequate data, the majority received a "Fair" score for water quality, indicating concerns about ecosystem health. Further breakdowns of these scores provide a detailed analysis of each parameter assessed.

The third edition of the reports offers valuable insights to inform decision making, support ongoing research, and empower communities to safeguard freshwater resources.

By Kiersten McCutcheon, Community Data Coordinator, Water Rangers.



Be part of the movement to communicate the importance of science

The <u>McClintock Letters</u> is an initiative to communicate science to communities across the United States. The initiative has a goal to publish 1,000 op-eds in local hometown newspapers about the impacts of science for local communities. The goal is to have these published on or near June 16, which is the birthday of Nobel Prizeawarded geneticist Barbara McClintock. The initiative is sponsored by Cornell University's Advancing Science and Policy Club.

Let's make sure the Great Lakes are well-represented in this effort! Learn more about how you can write a simple letter to convey the necessity of good science and research at McClintock Letters Initiative.

By Molly Wick, Postdoctoral Fellow, EPA Duluth Minnesota; SP²ARK Fellow.

Improving communication between scientists and the public is crucial for rebuilding trust and addressing misinformation. Share your science story. THE MCCLINTOCK LETTERS UND:YOU! And other graduate, post-doctoral, and faculty-level researchers When: Submit to local papers early June to publish on ~June 16th, Nobel Prizeawarded geneticist Barbara McClintock's birthday

SHARE YOUR STORY

Help us document the impact of recent U.S. federal government actions on the Great Lakes science community. Visit our questionnaire today to share your story.



bit.ly/shareGL

