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### **Aquatic Sciences Chronicle**

University of Wisconsin Aquatic Sciences Center 1975 Willow Drive Madison, WI 53706-1177 608-263-3259 Email: chronicle@aqua.wisc.edu Web: seagrant.wisc.edu, wri.wisc.edu

The Aquatic Sciences Center is the administrative home of the University of Wisconsin Sea Grant Institute and the University of Wisconsin Water Resources Institute.

ASSISTANT DIRECTOR FOR COMMUNICATIONS Moira Harrington

EDITOR Elizabeth A. White

#### WRITERS

Moira Harrington, Anne Moser, Jennifer A. Smith, Elizabeth White and Marie Zhuikov

ART DIRECTOR Yael Gen

**DESIGNER** Yael Gen

CIRCULATION MANAGER Linda Campbell

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And if you're interested in aquaculture, you'll find a new publication waiting for you.

Written by Ryan Newton, an assistant professor at the University of Wisconsin-Milwaukee School of Freshwater Sciences, this 20-page paper describes the importance of microorganisms in freshwater aquaponics. It's the first in a series of aquaculture technical briefs produced by Fred Binkowski, senior scientist at the UW-Milwaukee School of Freshwater Sciences and aquaculture outreach specialist at Wisconsin Sea Grant.

Titled "Microorganisms in Intensive Aquaponics," the paper starts with an explanation of exactly what microorganisms are and then covers the diversity of roles they play in aquaponics systems. Although they may not be the first part of an aquaponics system that comes to mind, microbes are crucial to the healthy functioning of the system. The paper includes suggestions for biosecurity and suggestions about pre- and probiotics. A table of common freshwater fish pathogens is also included.

Binkowski said, "This is a great resource for fish farmers because it provides a clear picture and understanding of the function of the invisible workers — the bacteria one of the most important components of a healthy and productive aquaponics system."

Visit the <u>publications store</u> for this paper and many more. - EAW

### **Meet Scott McComb** NEW AIS SPECIALIST READY TO ENGAGE WITH COMMUNITY

Wisconsin Sea Grant has a new team member in the effort to protect our waters from aquatic invasive species. Scott McComb began in May as the southeast Wisconsin aquatic invasive species (AIS) outreach specialist.

McComb's position focuses on Kenosha, Racine and Milwaukee counties, where he will coordinate education, monitoring and outreach programs for communities, stakeholders and volunteers to prevent the spread of AIS. His office is located at the Kenosha County Center in Bristol, though he anticipates spending a significant amount of time in the field in the three counties.

The three main programs McComb will focus on are the "Clean Boats, Clean Waters" campaign, a purple loosestrife biocontrol program and a citizen lake monitoring program. When possible, he'll also have a presence at local and regional events to help spread the word about AIS prevention and answer the public's questions.

McComb is eager to engage with a wide range of people. "Honestly, I feel like everyone under the sun is my stakeholder!" he laughed. He will partner with lake or homeowners' associations that monitor bodies of water, government entities like parks departments, volunteer groups, conservation corps and individuals with an interest in maintaining healthy ecosystems for future generations.

He's also keen to work with people of different ages and backgrounds. "I'd really like to engage youth and the diversity of cultures and backgrounds in this region. There are so many great groups and people to connect to," said McComb.

As the summer recreation season gets underway and people head out for boating, fishing and other outdoor pastimes, McComb stressed the basics of protecting our waters, such as the "Inspect remove — drain — never move — dispose" motto. People should inspect their boats, kayaks or other watercraft for aquatic plants and animals; remove any that are found; drain water from live wells and other areas; never move water, plants or animals between waterbodies; and dispose of unused bait in the trash. Additionally, he said, "Just be curious and keep your eyes open with what's going on in the different lakes that you use. You don't need to be an expert on aquatic vegetation to see a species start to take over, and there's a whole bunch of people — including myself and DNR folks — who are here to help you identify something if you think it's an invasive."

McComb grew up in the Madison area and earned a bachelor's degree in geography from the University ofWisconsin-Milwaukee. He then spent several years in Utah, where he completed a master's degree in bioregional planning and worked in planning and conservation.



"There's a whole bunch of people...to help you identify something if you think it's an invasive."

SaidTim Campbell, Wisconsin Sea Grant's aquatic invasive species outreach specialist, "Scott has a lot of experience helping communities plan and implement projects that help them improve their communities. I look forward to seeing how that experience builds off our existing local partnerships in southeast Wisconsin to improve aquatic invasive species prevention and management."

A desire to be closer to family brought McComb and his wife back to Wisconsin. In their free time, they enjoy canoeing, kayaking and simply being out in nature.

As McComb has been settling into his new role, he encourages people seeking AIS information to get in touch. He can be reached at 608-890-0977 or mccomb@aqua.wisc.edu.—JAS Fried, baked or mashed, we love our potatoes. What we don't love is drinking water with lots of nitrate — a form of nitrogen that fuels a robust potato crop because it acts as a fertilizer. In the Central Sands area of the state, which is where most spuds are grown, drinking water is groundwater and groundwater can bear the brunt of unwelcome potato cultivation effects.

# Learning the Language of Landscape Experimental Cultivation Method

"When you look at impacts on the groundwater system from typical cropping systems in the Central Sands, they tend to leach nitrate," said Kevin Masarik. "Potatoes are particularly challenging because the hill and furrow system tends to promote both (water) recharge, as well as nitrate leaching loss due to the high nitrogen demand of that particular crop."

Although he's not armed with regulatory suggestions — or even salt, butter and sour cream — Masarik is coming for those potatoes. The researcher from the University of Wisconsin-Stevens Point and University of Wisconsin-Madison Division of Extension is armed with a one-row hand planter and rye, millet and oat seeds. He's got in mind science-based solutions, not potato-growing restrictions or even gastronomical intentions.

With two years of funding from the University of Wisconsin Water Resources Institute, he's pursuing what he termed an outside-the-box idea for assessing whether this tasty tuber can be cultivated in a way that reduces the movement of nitrite into the groundwater.

In children six months and younger, nitrate promotes the oxidation of hemoglobin to methemoglobin that limits blood's ability to bind and transport oxygen, depriving the infant of oxygen. Nitrate has also been linked to cancer, thyroid disorders, birth defects and hypertension. Both state health and agricultural officials name nitrate as the most widespread groundwater contaminant in Wisconsin affecting both municipal and private water systems. Groundwater also makes its way to surface waters, so rivers, lakes, streams and wetlands can see higher Experimental Cultivation Method Could Mean Healthy Potato Yield and Healthier Water



nitrate levels with one result being increased algae growth, disrupting ecosystems.

Masarik said for the last 20 or 30 years, when the cause and extent of nitrate in groundwater has been documented, there's been a simultaneous gap. "We've been good at pointing out that there's a problem, but we haven't been good at pointing out what the solution is."

He continued, "In the last five years, I've been trying to switch the questions that I'm interested in devoting my time and attention to, investigating potential solutions that significantly improve water quality. And that's what this project was born out of." Discoveries of last year will be applied. For example, rye is likely to be removed from the seed mix because it put early energy into root growth, resulting in slow above-ground growth. The rye was then shaded out by potato plants. Other plants, though, "Did have some success. I think it showed that the amount of biomass accumulation and the amount of nitrogen that the interplanting, or that cover crop, was able to capture is significant enough that this could be viable," Masarik said, as enthusiasm bubbled. He said he is energized for the coming growing season. "I enjoy talking about it. I'm pretty excited about it."

Masarik also wanted to talk about potato growers, who he termed as wanting to be proactive on the



"Investigating in-season cover crops for reducing nitrate loss to groundwater below potatoes" is an aptly descriptive title of what the project is doing: interseeding cover crops — rye, millet and oats among potato rows to see if these added plants will take up the excess nitrate and thereby improve water quality.

Critically, the project also needs to ensure that the potato harvest isn't hindered nor yield significantly reduced by the additional vegetation between rows.

Masarik is grateful for the cooperation of Portage County farmer Justin Isherwood who in 2020 provided a test plot. "It's (the study) giving me the book," Isherwood said. "We know a lot of things in agriculture. There are a few things in agriculture we don't know. Kevin is giving me those letters and the alphabet. He's giving me the language of the landscape."

Isherwood is game to participate in the study again this year. "It's exciting to be a part of the science and to be involved in the discovery." nitrate-loading challenge. "It's all about establishing the plots and making sure that biomass we're able to grow in that space is successful. If it's successful, then what is the impact on the actual crop itself. If the impact isn't too great, it might be a viable strategy. It might not be something that growers would naturally want to do. I think they are looking for solutions."

This project is also about building blocks. To gauge the effectiveness of this approach on water quality, it builds on Masarik's earlier refinement of methods to track groundwater quality by drawing samples from temporary wells dug with a bucket auger to sample the top of the water table. This establishes a baseline, and then he returns in 12 months, repeating the process to check what effect the interseeding might have on groundwater quality. The goal is determining a statistically significant difference that he pegged at minimum of 20% of change.

A second and future building block is if this effort, which Masarik called a proof of concept, is successful it can be used with other crops to reduce nitrate leaching in those fields -MH

Researcher Kevin Masarik is investigating the ability of betweenrow cover crops to reduce the amount of nitrate that makes its way into groundwater without reducing potato crop yields.

# **Coastal Engineering for Middle-School Students**

### UNIQUE EDUCATION PILOT PROJECT COMING TO RACINE

When Adam Bechle, Wisconsin Sea Grant's coastal engineering outreach specialist, was growing up in Green Bay, he did not feel connected to Lake Michigan. When he visited the shore during rare school field trips, he enjoyed the outings, but there was no one who could tell him how waves worked or why the dike he was sitting on was built.

So, when Sea Grant senior special librarian and education coordinator, Anne Moser, approached Bechle about a project designed to connect middle school students to their watershed by exploring coastal engineering concepts, he thought it was a great opportunity.

They wrote a proposal to the <u>Great Lakes Region Bay</u> <u>Watershed Education and Training</u> (B-WET) program, through the National Oceanic and Atmospheric Administration, which funds projects that encourage "meaningful watershed educational experiences" for K-12 students and their teachers. Their 17-month pilot project, "Coastal Engineering Education: People, Place and Practice," was funded through a competitive process and begins soon.

Moser said their Great Lakes B-WET project is unique. "This place-based approach to watershed learning is innovative in its use of coastal engineering as an educational framework to engage students. The other thing that struck the funders was that the project is focused not only on the place and the practice of coastal engineering, but also on the people. It was important for us to include career pathways that introduce students to a variety of coastal engineering, green infrastructure and healthy beach management careers."



The North Beach area in Racine (top) features several coastal engineering structures and a popular beach that will offer learning opportunities for students in the community.

Below, crew leaders and a crew supervisor with the Great Lakes Community Conservation Corps measure the width of North Beach.

Bechle and Moser plan to work with seventh-grade students and at least four teachers in the Racine Unified School District. Bechle explained that they chose Racine for several reasons. "Racine got hit by a big storm in January of 2020 that did a lot of damage on the lakefront, plus high water levels have been causing problems at North Beach. It's being inundated frequently and there's standing water at times. So, there's ongoing engineering work happening there. We also have a good relationship with the city of Racine, specifically, their public health department. They've done great work to bring their beaches up to outstanding water quality and have nature-based features that help with filtering stormwater." Also in Racine is Chris Litzau, president of the <u>Great</u> <u>Lakes Community Conservation Corps</u>, an organization that trains and educates disadvantaged populations in Racine with outdoor projects reminiscent of those conducted by the original Civilian Conservation Corps in the 1930s. Litzau's group has been working with seventh graders in Racine over the past five years on a healthy beaches project on North Beach. The wide sandy beach can average more than 1,000 visitors per month during summer. Numerous rock breakwaters, jetties and revetments lie south of the beach and offer examples of erosion and sediment movement.

The new project is multi-faceted and also involves Sea Grant staffers Natalie Chin and Ginny Carlton. In a nutshell, the team will meet with the school district to discuss its needs, create a five-lesson coastal engineering curriculum, bring the curriculum to teachers and to Great Lakes CCC crew leaders through workshops so that they can then teach their students, and work with the students to develop North Beach stewardship projects that use coastal engineering practices. Throughout the project, the students will also have the chance to be mentored by working engineers and other professionals who reflect the rich diversity of their community.

After evaluating how the project proceeds and is received, Bechle and Moser will make the curriculum available for use in other locations and school districts around the Great Lakes through the Center for Great Lakes Literacy. The Great Lakes CCC will be able to absorb the lesson into their regular programming.

Moser expects some challenges in developing the project curriculum. "We really have to start from scratch," she said. "We need to pick Adam's brain and take all the great work he's done and somehow figure out how to engage the kids in a pretty technical field. It's an exciting opportunity."

What might the beach stewardship projects entail? Bechle said students could help with protecting fragile dune systems, reducing stormwater runoff, or even by developing social media campaigns to share the issues they learn about through the project. "There's plenty of ideas where we can connect kids to the beach," he said.

Readers who are connected to the engineering field and are interested in helping the project can contact <u>Anne Moser.</u> She said they are looking for mentors from Racine, Kenosha or even Milwaukee. – MEZ

# wisconsinwaterlibrary

### What Is Coastal Engineering Anyway?

Curious about how coastal engineering works in the Great Lakes? Check out one or more of these books. If you are already know your way around the watershed, consider volunteering to work with Racine seventhgraders in our B-WET program. (See article on this page.)

Engineered!: Engineering Design at Work by Shannon Hunt; illustrated by James Gulliver Hancock. Toronto: Kids Can Press, 2017.

**Coasts in Crisis: A Global Challenge** by Gary Griggs. Oakland, Calif.: University of California Press, 2017.

Water Resources Engineering by Ray K. Linsley, Joseph B. Franzini, David L. Freyberg and George Tchobanoglous. New York: McGraw-Hill, 1992.

**Coastal Engineering: Processes, Theory and Design Practice** by Dominic Reeve, Andrew Chadwick, and Christopher Fleming. Boca Raton, Fla.: Taylor & Francis, CRC Press, 2018.

Tackling Barriers to Green Infrastructure: An Audit of Local Codes and Ordinances by Kate Morgan, Julia Noordyk and Juli Beth Hinds. Madison, Wis.: University of Wisconsin Sea Grant Institute, 2017.

Please visit the Wisconsin Water Library's blog for more titles on this topic at waterlibrary.aqua.wisc.edu/blog.

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**SEA GRANT RESEARCH** 

# Untangling the Food Web

bits do not normally spring to mind when you mention the fauna of Lake Michigan, a paper in Limnology and Oceanography: Methods, a journal of the Association for the Science of Limnology and Oceanography, shows how this cotton-tailed creature plays a role in a newly validated method for assessing the lake's food web, along with yielding surprising finds about the feeding habits of invasive spiny waterfleas.

hile New Zealand white rab-

Sea Grant-funded scientist John Berges, a University of Wisconsin-Milwaukee professor of biological sciences, and UW-M biology colleague Craig Sandren (now deceased), set about investigating the impact of invasive zooplankton on the big lake's system. As they weighed and rejected three different research tools, Berges suggested an approach that he termed, "almost naively simple." He harkened back to the 1970s for a process first used terrestrially to calculate what's eating insects and what kind of insects are being eaten. Berges said the technique had seen limited use in the marine environment but that "this is really the first time it's been used systematically in fresh waters."

Berges noted, "What we like about it as opposed to some of the DNA techniques is that it's pretty quick. It's cheap. You don't need big deep DNA sequencing. Most labs will be able to use this." Additionally, he said, scientists — such as the University of Windsor's Aaron Fisk — who are using stable isotopes to map food webs can use this process to corroborate findings.

So far, there's been references to fish and bugs. Just where do the rabbits come into the picture? Berges provided a detailed rundown of this "simple" process: "You take the likely prey (of a spiny waterflea) and... you grind it up.You basically homogenize it, make a soup of it.You take that soup and you inject it into an UW-Milwaukee researchers enlist antibodies to understand spiny waterflea diet



There is then a rabbit blood draw—after six to 12 weeks, during which time the immune response has built up. In the lab, Berges' team took the antibody (also known as immunoglobulin lgG) fraction of the blood, "which is real easy to do, and you have basically stuff, the immunoglobulins, which are going to stick very, very precisely to the proteins that were in that particular (prey) organism. So, you have a nice little marker."

The next step, he said, is to determine if any of the markers from the rabbit blood overlap with the predator, which is the spiny waterflea. "You grind up the predator (the spiny waterflea) and you let the



immunoglobulin bind to all the predator's proteins. You remove them (the predator's antibody) ...What we've got left over now is things that are going to react only to the prey and not to the predator."

Berges continued, "We found a whole bunch of the predators and checked them out for 12 different prey and some of them we didn't find. None of the predators had them and we can be pretty clear that the predators aren't eating them. And other prey, almost everybody had some of the prey in them. Now, we have a fairly clear picture of what the spiny waterflea is eating and a couple surprises came out."

There were two surprises. First was evidence that the spiny waterflea was consuming the larvae of invasive Dreissenid mussels, commonly known as zebra mussels or quagga mussels. "That's a neat story. We have one invasive species eating another invasive species. Well, that's kinda cool. But we think about it a little more and it doesn't make an awful lot of sense because we have this great big predator why is it grazing on these tiny little larvae," Berges said.

The researchers continued with their reasoning and are now confident that it's a case of what is known as hyperpredation—the spiny water flea ate something that itself first ate the larval Dressenid mussel.

The second surprise was a 180-degree turn in the category of size—not a tiny food source like the Dreissenid mussel larvae, but a large organism. Evidence of a type of zooplankton called *Limnocalanus macrurus*, or one of the "big dogs in the lake" as Berges put it, was found to have been consumed by the spiny waterflea. In this instance, Berges said they reasoned the spiny waterflea was eating the juvenile and larval forms of the large copepod.

In the end and with the help of a few New Zealand white rabbits as interim hosts for ground-up zooplankton prey, Berges said, "We have reasonable explanations for those two strange things that we found, and a technique that now we've proven out." – MH Sea Grant-funded researcher John Berges on Lake Michigan for a study of the effects of invasive zooplankton on the food web. This represents the first time the antibody-based method has been used systematically in fresh waters.



Beach Ambassador project intern Jumana Tanner with a cart filled with beach-going safety information.

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### **Beach Ambassadors Fill Vital Role on Milwaukee Beach**

This summer on Bradford Beach in Milwaukee, swimmers might have noticed people in light blue T-shirts pushing an ice cream cart across the sand. Instead of frozen treats, the cart contained brochures and other information that beachgoers need to keep safe.

The cart was part of a new Beach Ambassador Pilot Project run by Wisconsin Sea Grant, Milwaukee Water Commons, Milwaukee Riverkeeper, Coastline Services LLC and the Milwaukee Community Sailing Center. These organizations created the project in response to four drownings that occurred on McKinley Beach in Milwaukee in 2020 and an increase in beachgoers because of the pandemic.

"Obviously, there were not that many things to do during the pandemic, so a lot more people were getting outside and utilizing the beach," said Deidre Peroff, Wisconsin Sea Grant's social science outreach specialist. "People were coming from all different backgrounds and different levels of swimming knowledge and competency, so it was just really risky."

Peroff said there was a lifeguard shortage last year and that this year, in 2021, there are no lifeguards on Milwaukee beaches. This makes the Beach Ambassador project even more relevant. She explained the project is not designed to replace lifeguards, "But just to provide education and information for people so that they can protect themselves, and then, hopefully, share that information with others. There's also a social justice element to it because all four people who drowned at McKinley Beach last year were African American."

"I realized it doesn't matter how much knowledge I might have — being able to effectively communicate that with people makes a greater difference."

> — Jumana Tanner Beach Ambassador

This project supports Peroff's ongoing work to address racial disparities around swimming in Milwaukee and providing access to more opportunities for people to have meaningful experiences with water.

With funding from a National Sea Grant COVID-19 Pandemic Relief Social Justice grant that was matched by Milwaukee Water Commons, three beach ambassadors were hired as well as an intern. The ambassadors were

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### **Beach Ambassadors**

<< continued from previous page

walking Bradford Beach in teams with their cart each Thursday through Sunday from Memorial Day to Labor Day in 2021. (McKinley Beach is closed.) They informed people about topics related to water safety such as water quality conditions, rip currents, dehydration and hypothermia. The ambassadors encouraged them to check the <u>Milwaukee County Parks Weather</u> and Beach Conditions website, created and maintained by Sea Grant, for more information and also let them know where safety equipment is located on the beach, should it be needed.

Jumana Tanner is the intern Peroff hired for the Beach Ambassador project. A sophomore enrolled at the University of Wisconsin-Madison studying marine biology, Tanner had been excited about spending time on the beach several days each week.

"I definitely got a lot of hands-on experience with people. There was a lot of networking and interactions with the public and strategizing how to effectively communicate about science. I have realized it doesn't matter how much knowledge I might have — being able to effectively communicate that with people makes a greater difference," Tanner said.

Tanner was thankful for the extensive training she received leading up to her posting as a beach ambassador. She said the ambassadors learned about dangerous currents, *E. coli* testing and drowning statistics. They also practiced various educational scenarios for interacting with the public.

With her colorful headscarf and heart-shaped sunglasses, Tanner cuts an unusual and enthusiastic figure on the beach. Besides providing beach information, she saw her internship as an opportunity to show people her character and Muslim culture, as well as furthering her career goals.

"I tried to match my scarf with something else on me like jewelry or my shoes. When I came up to people with my bubbly personality, they get that color coordination to match with it. I used

## Catch up with the "Lake Talks"

When Wisconsin Sea Grant launched a new speaker series called the "Lake Talks" in March 2020, we envisioned lively, face-to-face events in communities along Lake Michigan. Clearly, we did not have a crystal ball — the pandemic had other plans. Just one in-person event took place in early March before a pivot to cyberspace was in order.

There's a silver lining to the transition to Zoom. You can now find an archive of Lake Talks from the 2020-21 season on Wisconsin Sea Grant's YouTube channel. PFAS in the Green Bay watershed and techniques for effective communication techniques with the public about aquatic invasive species are just two of the topics you'll find at **go.wisc.edu/bml14s**.



The Beach Ambassador team includes (clockwise from top left) Rhonda Nordstrom, Deidre Peroff, Jumana Tanner, Cesar Castillo and Lloyd Seawright.

it to show people what my personality's like and that I'm not intimidating. They shouldn't be scared of me.

"My ultimate career goal is to effectively communicate with people about discoveries in our water. Our water is our greatest resource and it's not being taken care of the way it takes care of us. That's an issue for the future," Tanner said.

Besides walking the beach, Tanner helped to evaluate the project to shape it for possible future use at additional beaches. After each engagement with the public, the ambassadors wrote down what kind of information they provided and how people reacted.

Peroff said she's not sure what the next steps will be for this unique program. "We'll see how it goes and see if people are finding it valuable and go from there." – MEZ

Currently, six complete Lake Talks are available for viewing, as well as shorter excerpts from our "How to Eat Wisconsin Fish" installment for those who want to zero in on the recipes prepared by Sea Grant's Manitowoc-based fisheries specialist, Titus Seilheimer. Smoked fish dip, anyone? The Lake Talks will return in fall 2021 but, as of this writing, final decisions have not been made regarding whether they will be in person or remain on Zoom. For questions about this series, or to suggest a topic, contact Jennifer Smith, Aquatic Sciences Center science communicator, at smith@aqua.wisc.edu. – JAS

#### **PEOPLEPROGRAMNEWS**





### WRI and Sea Grant Win Communications Awards

In 2020, before the pandemic swept across the globe, staff members in the Sea Grant and Water Resources Communications Department hosted a daylong education event at the Wisconsin State Capitol, reaching legislators, their aides and members of the public about Groundwater Awareness Week. The event invitation, signage and giveaway materials were eye-catching and informative.

The <u>event materials</u> have gone on to win awards in three 2021 communications competitions — the Council for Advancement and Support of Education (CASE), University and College Designers Association (UCDA) and Apex Awards.

While the public health crisis kept the team's designer, editor, writer and digital storyteller in home-based offices last year, their creativity and productivity were not hindered. Other 2021 awards for their efforts have flowed in.

The podcast series focused on aquatic invasive species, <u>Introduced</u> captured a gold CASE award. That same competition conferred a bronze award on the <u>2018-20 Sea Grant</u> biennial report.

CASE is a nonprofit that supports secondary and post-secondary education.

UCDA also recognized the biennial report, along with a marine debris teaching kit and

the video <u>Past, Present and Future Ciscoes:</u> <u>Wisconsin Sea Grant Research</u>.

UCDA Design Awards recognize exceptional design and creative work — print, digital, illustration, photography and student-work — that promotes secondary, vocational and higher education.

Finally, in late July, Apex Awards announced a grand award for the marine debris kit and an excellence award for the video on ciscoes, a fish prevalent in Great Lakes waters.

Apex Awards are based on excellence in graphic design, editorial content and the ability to achieve overall communications effectiveness.

"Our mission is to promote the sustainable use of Wisconsin's coastal and water resources," said Moira Harrington, assistant director for communications. " One of the ways to do that is to build environmental stewardship, and the way to build environmental stewardship is to deploy effective communication. Winning these awards and generating praise from other communications professionals makes me proud of our staff and secure in the knowledge that we are doing our job."

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WEEK



Introduced, our podcast series about inasive species, our biennial report and Groundwater Awareness Week material received awards in 2021.

### Keillor Fellow Works to Build Community Flood Resilience

Making tracks is nothing new for Jackson Parr, the J. Philip Keillor Flood Resilience-Wisconsin Sea Grant Fellow. A serious athlete who once committed to walking across the entire United States (his plan has morphed to running it in segments), he has also traversed the scenic towns of Wisconsin's Door Peninsula as a newspaper reporter and editor.

Now, he's getting acquainted with dozens of small communities statewide to help them build resilience to flooding hazards.

Parr began his one-year Keillor Fellowship in April. The position stems from a partnership between Wisconsin Sea Grant and the Climate and Health Program at the Wisconsin Department of Health Services (DHS).

He'll work extensively with the Flood Resilience Scorecard, a toolkit that measures how well prepared a community is to cope with the effects of flooding — and identifies steps they can take to boost that preparedness.

The Illinois native brings a varied set of skills to this work. Parr holds two master's degrees from the University of Wisconsin-Madison: one in public affairs and one in water resources management. His capstone project for the water resources degree involved analyzing the severe flooding of Coon Creek in Vernon County in August 2018. The project was suggested and advised by UW research scientist Eric Booth.

"There were a few dam breaches in that region during that flooding event, and it devastated the area," said Parr. Flash flooding brought on by torrential rains displaced residents and caused major damage to homes, businesses and public infrastructure. "While I didn't have an academic interest in flooding before working on that capstone project," said Parr, "I found myself fascinated with the ways that rural communities navigate these issues."

As he noted, sometimes smaller communities lack the administrative capacity or technical expertise required to fully address issues or tap into available funding sources that might help them. As a Keillor Fellow, Parr will be in a position to link communities with needed resources.

By March 2022, when his fellowship concludes, Parr hopes to have worked through the Flood Resilience Scorecard with 30 communities. Those locations will be chosen through collaboration with Wisconsin's nine regional planning commissions.

"Since this effort is a partnership with the Department of Health Services, they're definitely interested in the public health aspect of flooding." said Parr.

As an example, he noted that residents in low-income communities often lack the resources to find other housing when displaced. As a result, those populations face not only physical injuries related to flooding, but extreme stress and other mental health impacts.

"The goal is to identify communities that face these vulnerabilities and hopefully target more resources toward those communities to achieve health equity," he said.

Parr has a trio of mentors. At DHS, he reports to Climate and Health Program Coordinator Margaret Thelen. On the Sea Grant side, he's working with climate and tourism outreach specialist Natalie Chin and coastal engineering specialist Adam Bechle.

As university travel restrictions related to the pandemic ease, Parr hopes to complete in-person assessments, arranging visits to work through the scorecard with elected officials, administrators and planning staff in the selected communities.

"There's a huge value in having these conversations face to face; it takes collaboration from people of different backgrounds" who actually live in those communities, said Parr.

But completing the scorecard with a community is not an end point, Parr stressed. Rather, he hopes it is a springboard for taking action.

"While community leaders would immediately get some high-level recommendations on ways to improve resilience, I'd go back and look through our conversations and come back to the municipality and work with them on implementing recommendations. It's a whole other ballgame to actually pass an ordinance or apply for a grant or participate in a buyout program. The goal is for communities to act on the recommendations they receive," said Parr.

Parr can be reached at jackson.parr@dhs.wisconsin.gov.-JAS





University of Wisconsin Aquatic Sciences Center 1975 Willow Drive Madison, WI 53706-1177

Aquatic Sciences Chronicle a joint newsletter from UW Sea Grant and Water Resources Institutes

### "A River of Poems" Spans the World

It's a thin volume with a worldwide span. In 2020, we sent out a call for river poems for the RiverTalks speaker series we hold with the Lake Superior National Estuarine Research Reserve. Poets from across the world responded. Twelve were chosen and they read their poems via Zoom at one of the RiverTalks monthly presentations. You can watch the virtual reading at **go.wisc.edu/tx71s1**.

The event was so moving, and the poems so well received, we created a chapbook to showcase them. "A River of Poems," is available as a free download at go.wisc.edu/9f8y5u.





### Check Online for Calendar Updates

Uncertainty surrounding transmission of COVID-19 due to variants means many large water-science meetings remain in flux.

Check the websites of organizations you are interested in for updates regarding scheduling. For the latest on Sea Grant and University of Wisconsin Water Resources Institute functions and other news, visit **seagrant.wisc.edu** or **wri.wisc.edu** or follow our social media channels.