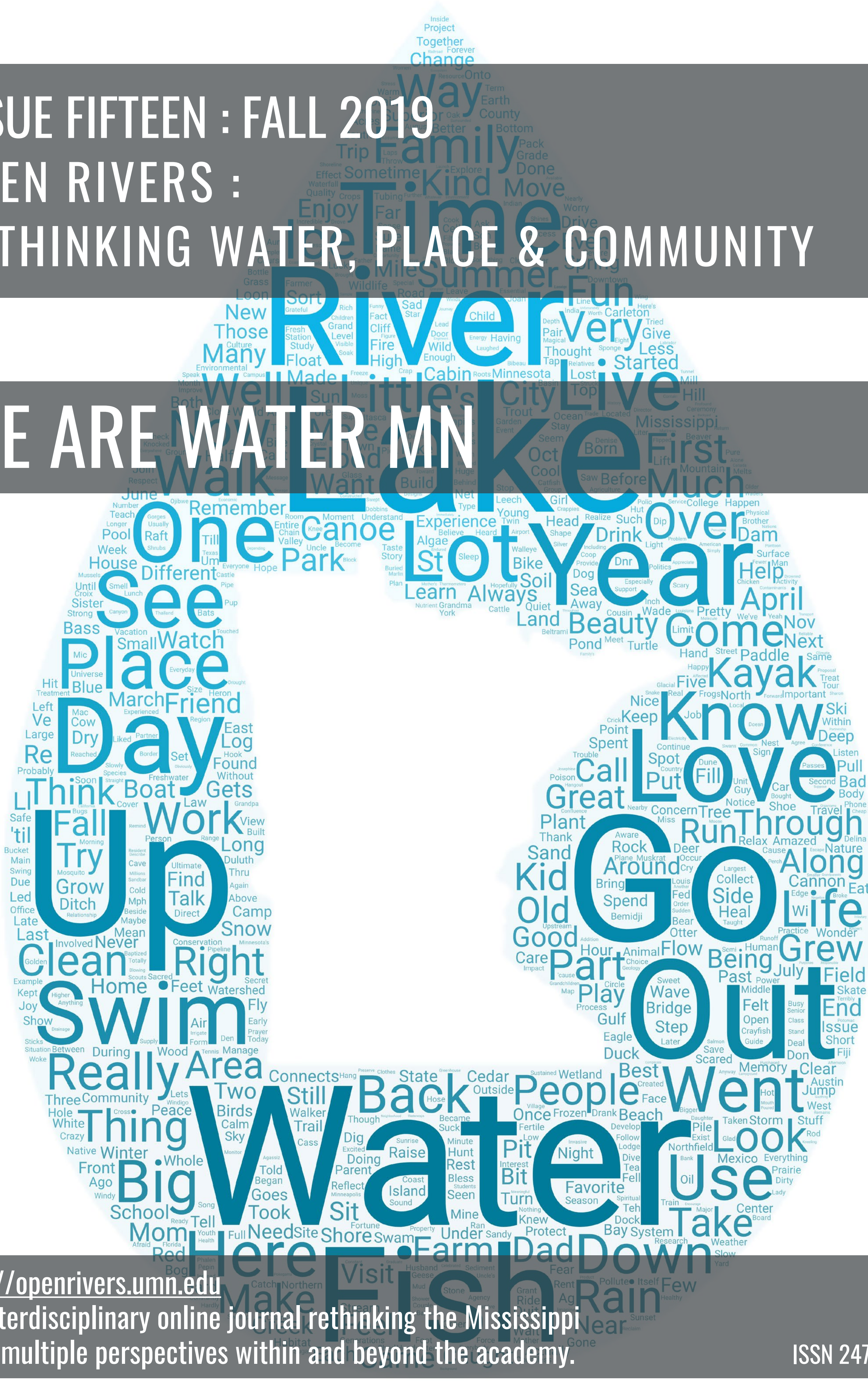
ISSUE FIFTEEN : FALL 2019

OPEN RIVERS : RETHINKING WATER, PLACE & COMMUNITY

WE ARE WATER MN



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An interdisciplinary online journal rethinking the Mississippi from multiple perspectives within and beyond the academy.

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The cover image is a word cloud made from narratives representing We Are Water MN. Image courtesy of Minnesota Humanities Center.

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Editorial Board

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INTRODUCTION

INTRODUCTION TO ISSUE FIFTEEN

By Patrick Nunnally, Editor

A couple of summers ago, the University hosted an international graduate student workshop on the environmental humanities, that is, interdisciplinary examination of environmental questions from scholars of literature, philosophy, language disciplines, and the like. Not surprisingly, the group wanted to take a Mississippi River boat tour and I was invited along as the University's resident "river guy."

I was talking with the group before the excursion departed and the conversation naturally turned to Mark Twain. I offered the opinion that Mark Twain's narratives no longer resonated as widely

The opening ceremony for the We Are Water MN exhibit at the University of Minnesota. Image courtesy of the author.

across the country as they once did, that lots of people in the United States don't really see the Mississippi River as an avenue to a particular kind of freedom from the constrictions of "civilization." Furthermore, we can't any longer simply frame the "natural" qualities of the Mississippi as unqualified assets as opposed to the "industrial" or "altered" qualities of the Mississippi as unarguable ills.

So, what are the better narratives? they asked me. Fortunately, I had been working with the We Are Water MN program, so was able to offer two ideas that might drive conversations about the river (and water more broadly).

The first of these is the notion that all of us have a responsibility to water and to the Mississippi River. All water is connected and the water that flows through my house or office in the Twin Cities begins and ends in the Mississippi. Although I don't know the exact scientific details, I suspect that water in the Colorado River, or the Nile, or the Columbia eventually, through the global hydrological cycle, eventually finds its way into the Mississippi. As a user of this water and someone who has empathy for those downstream, I have a responsibility to it.

The second idea that I have picked up from We Are Water MN is that the stresses on our water systems—both those felt now and those to come—will affect vulnerable communities disproportionately. This is an environmental justice argument that has to do with both water quantity and water quality, and that leaves open the many ways in which vulnerability can be defined. Shrinking rural communities with small tax bases and expensive fixes to their public water systems are "water precarious" in ways different from, but related to, poor urban neighborhoods. Climate change stresses our water systems in myriad ways, as do changes in demographics and political economies.

These two concepts—responsibility to water and awareness of communities' vulnerability to water stress—have become central to our work, and to our thinking in this journal. So, it seemed like a natural fit to devote an issue to the We Are Water MN program. Britt Gangeness and Jennifer Tonko, our very capable guest editors, offer more detail on the program's work, and the articles in this issue all speak directly or indirectly to the great impact that the program has had across Minnesota. These stories and communities exist everywhere; while these are Minnesota-based examples, we feel that they have something to offer to readers beyond the state.

Happy reading!

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About the Author

Patrick Nunnally coordinates the River Life program in the Institute for Advanced Study at the University of Minnesota. He serves as editor for *Open Rivers* and was one of the lead scholars for the University's John E. Sawyer Seminar which focused on the Mississippi River and was funded by the Andrew W. Mellon Foundation.

INTRODUCTION

GUEST EDITORS' INTRODUCTION TO ISSUE FIFTEEN: WE ARE WATER MN

By Britt Gangeness and Jennifer Tonko

Water can be described as a molecule, a solvent, a relative, a healer, and a force that both gives and takes life.

Reader, what is water to you?

If any article in this issue brings you into deeper understanding of the answer to this question, then we have succeeded. Like the We Are Water MN project as a whole, the goal of this issue is to share multiple ways of knowing water and to deepen your relationship with and responsibility to water.

Take, for example, "Water and Equity" by Linda Kingery. In her article, Linda describes a concept

People moving through the We Are Water MN exhibit. Image courtesy of Minnesota Humanities Center.

called the hydrosocial cycle, which is simply a way of thinking about how "water and society make and remake each other over time and space." Through the introduction of this phrase, we have been thinking differently. We wonder: how are changes in water—whether from human climate change, pollution, or overuse—remaking us?

40 percent of the water in Minnesota is not meeting standards set for safe swimming, fishing, or drinking. This pollution is remaking us. By understanding water pollution in this way, we feel a deeper sense of responsibility. We can remake and be remade.

As a society, we can be remade too. If we can act with wisdom, we might be remade into people who are remembered for humility and reverence for the natural world. We might be remade into people who understand that "all the water we have is all the water we will ever have," a phrase we heard from Indigenous leader and water protector Sharon Day at a We Are Water MN event. We think of it often.

When we learn from and with the many different people who call Minnesota home, we create shared understandings of the issues we face and build relationships from which to solve problems. The work is challenging and rewarding and it's at the heart of this issue.

The Articles in this Issue

Many of the articles in this issue are written by folks who hosted We Are Water MN in their community. These authors are part of a cohort that began learning and planning work together in 2017 that culminated in an eight-stop public-facing tour in 2018–2019. Tim Ruzek, Linda Kingery, Travis Zimmerman, and the U of M Twin Cities collaborators (Tracy Fallon, Doug Klimbal, Kimberly Long, and Patrick Nunally) are part of this group. Their articles are about local partnership building and connecting the project to their broader work.

There are also articles written by state agency staff who support the project across locations. Pieces by Ashley Ignatius, Sara Holger, and the team from the Department of Agriculture (Jen Schaust, Kevin Kuehner, and Margaret Wagner) demonstrate the ways that the Minnesota Humanities Center's Absent Narratives Approach (described more in the guest editors' feature article) is influencing our work or can be used to describe other successes the agencies experience. Paula Maday, in contrast, reviews the exhibit as an outside observer. She visited the exhibit and events put on by the Fond du Lac Band of Lake Superior Chippewa at the Great Lakes Aquarium as a journalist for the Great Lakes Indian Fish and Wildlife Commission's *Mazina'igan*. She describes her experience in words both beautiful and influential: "The exhibit was a star quilt of knowledge and meaning—many pieces and colors intertwined together into one. And in the tradition of Ojibwe star quilts, it was also a gift, a reminder that water is many things to many people, but more than anything, it is its own being; and our relative to take care of in the world, as it takes care of us."

Last, we offer two perspectives from outside the project. The first is Melissa Miller's work at the Iowa Water Center where she is finding that, through personal relationships, the Iowa Water Center's studies and residents' lived experiences are influencing each other to everyone's benefit. The second is Mahin Hamilton's review of *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants* by Robin Wall Kimmerer, a book that, like We Are Water MN, shares science, Native teaching, and personal story.

These articles reflect the experiences of the 2018–2019 cohort of We Are Water MN host

sites, but the work is not over. Another cohort has formed and planning is underway with hosts in Chisholm, Pipestone, Morris, Mankato, St. Paul, and Rochester, Minnesota. Their public-facing tour will unroll in 2020–2021. Look for those details on the project website. More importantly, reach out if you are inspired to share your water story or if these articles bring you into deeper relationship with water. Your stories shape our story and understanding too.

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About the Authors

Britt Gangeness coordinates and develops outreach and education projects at the Minnesota Pollution Control Agency. She has been working on the We Are Water MN project since 2014—a project that embraces the power of people and relationships to make local change. She has a B.A. in biology and M.Ed. in environmental education.

Jennifer Tonko is a program officer with the Minnesota Humanities Center and is the lead for We Are Water MN, a multi-agency partnership formed to tell Minnesota's water stories collaboratively, bringing together personal narratives, historical content, and scientific information. She convenes state agency partners to jointly develop program direction and works with local community leaders to use We Are Water MN as a community engagement and network building tool, to learn from and amplify the perspectives of all Minnesotans, and build relationships in Minnesota communities among those who protect and affect water.

FEATURE

WE ARE WATER: STORIES AND CONNECTIONS TO *NIBI*

By Paula Maday

We wanted to include this article by Paula Maday, written for the Great Lakes Indian Fish and Wildlife Commission's (GLIFWC) newspaper Mazina'igan, *because we were thrilled to read someone else's description and understanding of We Are Water MN and wanted to pass that along to* Open Rivers' *readers. It was exciting and affirming to learn one way the spirit and intent of We Are Water MN comes through to visitors via this article.*

—Jennifer Tonko, Guest Editor

We Are Water MN on exhibit in the lobby of Great Lakes Aquarium, Duluth, March 10–April 22, 2019. Image courtesy of Paula Maday.

Traveling exhibit explores stories & connections to *nibi* in MN

"What's my relationship to water, as a woman?" Fond du Lac's Nikki Crowe repeated the question posed to her. "Women take care of the water. Everyone in this room came from a woman, and started in the womb being carried in water, so for women, it is important for us to take care of the water."

Crowe's words resonated with those around her in the room, and were true. We all began surrounded and protected by water as our spirits took form and entered the human realm. As adults, our bodies are composed of roughly 60 percent water. Our brains and our hearts are said to be about 73 percent water, our lungs 83 percent. Other organisms within this world have a body weight made up of 90 percent water. Nibi (water) is of great importance to all living things.

Our stories and connections to the water are the theme of a traveling exhibit called We Are Water MN that tours throughout the state. A multi-agency partnership formed to tell Minnesota's water story collaboratively, the exhibit brings together personal narratives, historical materials, and scientific information in an easy-to-navigate display suitable for both adults and children. I visited the exhibit at the Great Lakes Aquarium, where it was on display March 10–April 22. What I found was great humanity, intimacy, and culture woven throughout scientific data and demonstrations. The exhibit was a star quilt of knowledge and meaning—many pieces and colors intertwined together into one. And in the tradition of Ojibwe star quilts, it was also a gift, a reminder that water is many things to many people, but more than anything, it is its own being; and our relative to take care of in this world, as it takes care of us.

Exhibit Overview

We Are Water MN is organized around four main themes. The first theme—We Are Water—recognizes that water is a large part of the identity of the state and tribes. From the state slogan "Land of 10,000 Lakes" to Mnisota Makhoche—a Dakota phrase translating to "Land where the water reflects the sky," people from all around the region embrace water as part of who they are.

This section of the exhibit highlights these relationships through listening stations where visitors are encouraged to listen to recorded water stories told by various Minnesotans. Other displays feature printed water stories and photos available to read and look at. Blank cards are on hand for visitors to write their own water stories and display them around a Story Map, marking where their story takes place with a pushpin. These local, handwritten stories were highly engaging and endearing for me; I felt like I was sitting around the kitchen table trading memories and stories with folks I had known my whole life. Many of the details shared are heartfelt and intimate. Activities for children in this section include a puppet station and book basket.

Get Active!

A big part of the initiative for We Are Water MN is to mobilize and inspire community engagement beyond the exhibit. If you can, visit the exhibit at its nearest host site to you. If you can't visit the exhibit, look for tips within the 'Get Active!' sections for ways that you can still get involved, experience parts of the exhibit remotely, and strengthen your relationship with the water. Special thank you to the Minnesota Humanities Center, Minnesota Pollution Control Agency, and other exhibit partners—including the Fond du Lac Band of Lake Superior Chippewa—for providing supplemental information and handouts as part of this exhibit. We are sharing some of those ideas here.

- Visit http://www.mnhum.org/water to watch and listen to water stories from the people who live and work in Minnesota. Some of the stories share moments of fun or play. Others tell stories of loss or change. How has hearing many perspectives influenced the way you think or feel about water?

- Write your own water story! Take time to consider your personal water story or stories. Are your stories recreational, spiritual, or something else? Is the way you tell your story similar to or different from the stories you heard on the website?

- Interview others within your community about their water stories. The exhibit's *Docent & Educator Handbook* contains a guide for interviewing community members, available at: https://mnhum.org/wp-content/uploads/2017/06/water_docent_ed_guide.pdf. The recently produced *Dibaginjigaadeg Anishinaabe Ezhitwaad: A Tribal Climate Adaptation Menu* can also provide guidance on conducting interviews or seeking knowledge from indigenous peoples or communities. This document is available at: http://www.glifwc.org/ClimateChange/TribalAdaptationMenuV1.pdf. While conducting interviews, do you notice any patterns?

How's the Water?

The second theme of the exhibit asks the question, "How's the Water?" Minnesota's waters are headwaters located on a triple, continental-scale water divide. From here, it travels to the Gulf of Mexico, Hudson Bay, and Atlantic Ocean, making the health of the water in Minnesota very important. Currently, 40 percent of Minnesota's waters are polluted. This section of the exhibit explores factors that impact the health of the water and how.

Visitors can view a map of altered streams in Minnesota, read informative panels on the condition of lakes, rivers, wetlands, and groundwater by Minnesota region, and learn how infrastructure like lead and old plumbing affects the safety of drinking water. A final multi-panel display details four ways to ensure that the future of Minnesota's water is fishable, drinkable, and swimmable. Children can keep their hands and minds busy within this section by completing a colorful water cycle puzzle, or by playing at a light table that teaches about common pollutants found in water. There is also a water tower display and activity area showing how private wells are drilled and managed.

Get Active!

- Model a watershed! This is a great activity for families to do together. Color a watershed on wax paper. Include a headwater, main river channel, tributaries, and human development. Color all the water bodies with washable marker and the rest with pencil and crayon. Crumple the wax paper to create elevation change and spritz it with water. Watch where the water flows!
- Learn about your local watershed. Visit the Minnesota Pollution Control Agency website at https://www.pca.state.mn.us/water/watersheds and enter your zip code to learn more about how your watershed is doing.
- Research and share what local tribes are doing to help protect the water. Many tribes develop and adhere to strict water quality standards. In addition, they are often engaged in research and studies that focus on protecting and improving the health of the water.

People + Water + Choices

The third theme of the exhibit explores the human ability to change water. From climate change and infrastructure change, what people do—matters. So how do people work together to agree upon water issues? What challenges or boundaries do people face when trying to make decisions about a resource that crosses boundaries? This section of the exhibit delves into these difficult questions and more!

Colorful panels illustrate examples of how decisions made by people in the past affect water today. One panel, for example, details the history of the chain of lakes around Minneapolis and how access to those lakes has changed from private to pubic over time. The information provided here provokes thought about the types of boundaries involved with water management, including political and cultural considerations.

You + Me + Water

The fourth and final theme of the exhibit focuses on efforts to protect and preserve the water in Minnesota. From individual efforts to organizational work, this section puts forth a call to action on what we can all do to pitch in and help our relative stay healthy.

“What you Flush Matters” is an interactive kiosk that teaches about the impact of contaminants entering our water through household drains. In this section, visitors can also pledge a water protection idea by writing it on a raindrop and then hanging it on a board for others to read.

Tribal Treaty Fishing Forum

As part of the We Are Water MN exhibit, Duluth host partner Fond du Lac Band of Lake Superior Chippewa organized several public events to explore connections between people and water. Events included a native plants presentation, a food and photo event, and the Fond du Lac Youth Climate Convening. On April 4, the Band and Great Lakes Indian Fish & Wildlife Commission hosted the Tribal Treaty Fishing Forum, intended to help people learn about how tribes in the region manage off-reservation treaty fishing seasons.

To a crowd of 50 attendees, GLIFWC Director of Biological Services Jonathan Gilbert spoke on intertribal co-management in the Minnesota portion of the 1837 Ceded Territory. Fond du Lac Fisheries Program Manager Brian Borkholder followed, presenting on the work that Fond du Lac Band is doing related to water, fisheries, and resource management. Points of interest with the audience included sturgeon-stocking efforts in the upper St. Louis River, and use of the Thermal Optic Habitat Area model as a way of predicting average annual walleye production in lakes.

From left, Tom Howes (Fond du Lac), Bradley Harrington (Mille Lacs), and Jason Schlender (Lac Courte Oreilles) share their personal stories about water and why they fish. Image courtesy of Paula Maday.

The second part of the forum featured tribal members Tom Howes (Fond du Lac), Bradley Harrington (Mille Lacs), and Jason Schlender (Lac Courte Oreilles) sharing what it means for them to be able to fish.

For Howes, he sees it as part of who he is as an eagle clan member. "I see it as my job as an eagle clan person to fish and exercise those rights to ensure the continuity of that practice," he says. Within Ojibwe culture, eagle clan members are recognized as spiritual leaders, intuitive and bearing a sense of knowledge about the future. Members of the clan are often looked to as teachers and keepers of important cultural knowledge.

Harrington explained the spiritual connection that Anishinaabe have to fishing. "Imagine if someone told you that if you go out and gather something, it will give you life. Fish is that, maple, sunlight, water, wild rice. A lot of the things we are given as Anishinaabe people have been given from the *manidoog* (spirits). They each have a story that they were given to us because a spirit loved us. These things represent an abundance of spiritual energy in another, spiritual world. So this is a cultural, spiritual contract between us—the most pitiful beings on this earth—and everything else that was given to us by Gitchi-Manidoo as a way for us to sustain ourselves."

For his part, Schlender noted his gratitude at being a "beneficiary of very wise, gifted visionaries." In speaking this way, he paid tribute to his ancestors who signed the treaties, ensuring that Anishinaabeg could sustain their life and their identities for generations to come.

Ending with many questions and comments, the Tribal Treaty Fishing Forum was a successful event that shared information and stimulated community dialogue about the exercise of treaty rights. Eleven tribes in Minnesota, Wisconsin, and Michigan exercise rights reserved under treaties signed with the U.S. government in the early-mid 1800s.

This article was first published in Mazina'igan, A Chronicle of the Lake Superior Ojibwe *in Summer 2019 and is reproduced here by kind permission of the author, Paula Maday, and the Great Lakes Indian Fish & Wildlife Commission.*

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About the Author

Paula Maday is a writer, photographer, and outreach assistant at Great Lakes Indian Fish & Wildlife Commission. She graduated with a bachelor's degree in English literature and art history from Dartmouth College and studied contemporary art and curatorial studies at Bard College in New York. Paula is a Bad River tribal member and currently lives in Ashland, WI with her husband, two children, and Schnoodle.

FEATURE

WE ARE WATER MN: RELATIONSHIP-BASED WATER ENGAGEMENT

By Jennifer Tonko and Britt Gangeness

"I think one of the pleasant surprises for us was getting to build those relationships with folks from Fond du Lac and really getting a better sense of the work that's going on there and the individual humans that are a part of all of this incredible work in the community. I felt we learned a lot about our own perceptions as an organization and as individuals about the Ojibwe community. And I think that that was really powerful for a lot of our staff to just have this invitation to ask questions and be on a team, a big community team. And that's one of the things that I hope will stick is those relationships that have been established."

—Sarah Erickson from the Great Lakes Aquarium sharing in a May 2019 webinar after co-hosting We Are Water MN with the Fond du Lac Department of Natural Resources

Learning from Lloyd Keoke. Image courtesy of Minnesota Pollution Control Agency.

There is a powerful idea behind this reflection. It's the belief that the people in our communities have something to teach us and that we can create new understanding together, that there is value in taking time to learn from and with each other, that building relationships with people can spark change by creating new pathways for solving problems and making decisions. This belief is at the core of the We Are Water MN project.

A project of the Minnesota Humanities Center (MHC) and Minnesota Pollution Control Agency (MPCA), in collaboration with the Minnesota Departments of Health, Natural Resources, and Agriculture as well as the Minnesota Historical Society, We Are Water MN strives to bridge the disconnect between scientific knowledges about water and human practices and engagements with water. To do this, the structures and practices of the program are centered in the Minnesota Humanities Center's equity-based approach to civic and community engagement and include state- and community-based partnerships, a traveling exhibit, and public events. We Are Water MN is built to start with the social and relational aspects of water issues instead of thinking of those as add-ons or "nice but not necessary." By starting from relationships, the state agency collaborators contribute to building communities that are better equipped to solve problems collaboratively and be more resilient in the face of current and future water and environmental issues. By putting many different ways of knowing water together, we can improve communities' abilities to work together on water issues.

In 2008, Minnesota's voters expressed their commitment to working together on water issues by passing the Clean Water, Land and Legacy Amendment (Legacy Amendment) to the Minnesota Constitution to protect drinking water sources; to protect, enhance, and restore wetlands, prairies, forests, and fish, game, and wildlife habitat; to preserve arts and cultural heritage; to support parks and trails; and to protect, enhance, and restore lakes, rivers, streams, and groundwater (Legislative Coordinating Commission 2017).

Story Circle with representatives from exhibit host sites. Image courtesy of Minnesota Pollution Control Agency.

Because of the Legacy Amendment, and the Clean Water Fund it established, Minnesota has a systematic approach to assessing and monitoring Minnesota's 80 major watersheds. We know more than ever about the quality of the water and are making plans to restore and protect the water.

While some funds are going directly into priority restoration and protection efforts, making progress on cleaning up Minnesota's many polluted waters is slow and difficult. Climate change, landscape change, and development are all part of that. But another big factor is that typical engagement around water doesn't center people and doesn't consider the social factors that are important to achieving clean water goals, such as social norms, emotional connections to people and places, self and collective efficacy, and a value of the collective good over personal interests (Davenport 2017).

We Are Water MN focuses on these emotional and social factors.

Since 2016, We Are Water MN has visited 16 communities, involved 379 community organizations, reached 44,000 visitors, and strengthened 6 state agencies' relationships with each other and their ability to do meaningful community engagement. Through this project, we at the state agencies have begun to see that practicing this relationship-based approach to engagement enables progress toward the Clean Water Fund's stated priorities of water protection and restoration through the following:

- Positive interpersonal relationships within communities promote information exchange, build trust, foster shared identity, and promote common awareness, concern, and sense of responsibility for water.
- Networks can promote positive social norms, creating a shared vision for water stewardship and encouraging participation in water protection practices.
- An increased and broadened community awareness of local water issues arises because visitors to the exhibit and public programming come from more diverse backgrounds than one host organization could convene on its own.

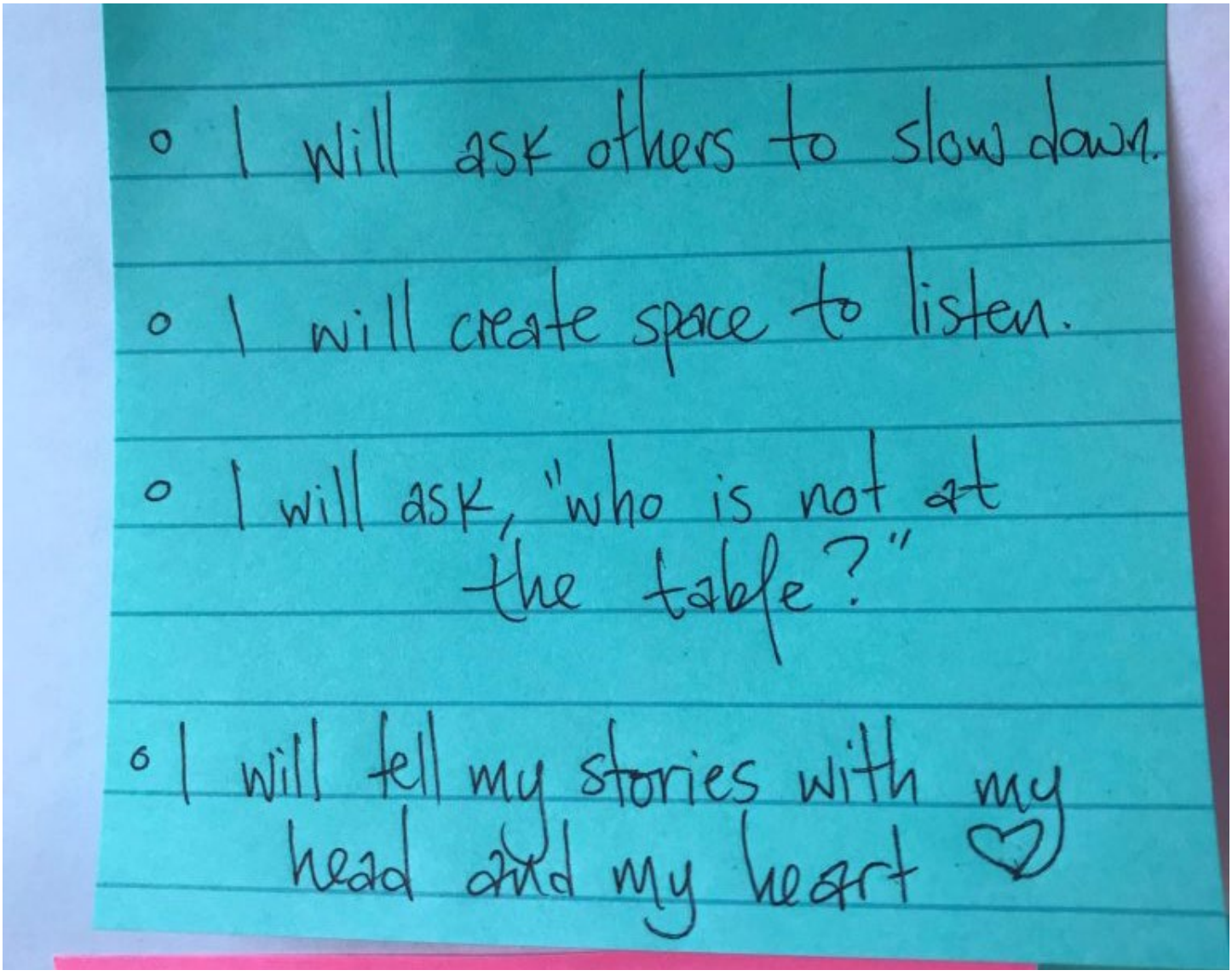
These kinds of outcomes are possible because We Are Water MN's state- and community-based partnerships, traveling exhibit, and public events all focus on the human dimensions of water. People have different experiences with water—which we often describe as different ways of knowing water—because of their race, gender, where they grew up, what their family's relationship with water is like, their socio-economic status, religion, profession, and hobbies. We Are Water MN is most successful when people of many different races, ethnicities, and backgrounds see themselves in the program, are actively involved in planning events and activities, and know that their stories are collected and shared.

We Are Water MN's theory of change is that finding ways to see your neighbors as more fully human (as people whose experiences may resonate with you), will help communities make better, more collaborative choices about water in the future.

A different take on "civic engagement"

We Are Water MN is different from other engagement efforts around water because all of the individuals and organizations that are a part of it are asked to practice the Minnesota Humanities Center's Absent Narratives Approach™ as we do our collaborative work. The Absent Narratives Approach™ is a relationship- and equity-based strategy that increases engagement with communities and fosters equitable practices within systems. In addition, this approach helps individuals understand that all actions, decisions, and beliefs exist in relationship to others and it also impacts how we work with and influence our colleagues, clients, and constituents. The approach asks practitioners to improve organizational practices through the application of four core principles.

The first principle is to build and strengthen relationships. To do this, MHC encourages people to focus on how we can know each other better and what the impacts of connecting to other individuals might be. Specifically, the approach suggests



Reflection from Absent Narratives training. Image courtesy of Minnesota Humanities Center.

that learning from others, who are speaking only for themselves and out of their lived experience, has the potential to change the ways we relate to, engage with, and see other people and empowers us to share more about ourselves as well.

The second principle is to recognize the power of story and the danger of absence. This principle asks partners and host sites to create time and space for learning and teaching through storytelling. Telling a story requires both the storytellers and the story listeners to give generously to each other. Storytellers make themselves vulnerable by opening up their personal experiences to scrutiny and questioning; story listeners put their own knowledges and assumptions on hold for the moments of the story and simply listen in order to understand someone else's experiences and perspective. MHC also presses our partners and host sites to consider whose stories are left out, erased, or marginalized and what the effects of this "absenting" are on individuals, communities, and our relationships to place and people. The objective of this principle is to challenge the assumptions of stereotypes and single stories and instead encourage people to seek out the complexity of varied stories and experiences to develop a deeper understanding of an issue.

The third principle promotes learning from and with multiple voices. Once we acknowledge that multiple stories matter and that there are problems when stories are missing, then the next step is to make sure we work to include the stories and perspectives of others by asking: Are there other ways of knowing that can be included? Whose voices are not a part of the discussion right now? What could community members add to this? Seeking out other stories, voices, and ways of knowing enriches our work overall and our relationships.

Seeking out multiple voices also helps amplify community solutions for change—the fourth principle of our relationship-based strategy. By identifying missing voices and who to learn from, we are also identifying people and organizations who are already doing the work well so that we can learn from them and support their work with our own, building relationships with them as well.

Collectively, these four principles ("the approach") center humanistic practices, drawing attention to how people engage with water as part of their stories and relationships with others.

We Are Water MN state agency partners and host sites practice these principles over about 18 months. Host sites meet with new and existing partners in their communities to identify shared goals they can work on through this project. They develop exhibit content and programming in their local community for the purpose of creating shared understanding and lasting relationships.

Using this humanities-centered approach for We Are Water MN means that:

- We ground our work in story as a vehicle for expressing and sharing knowledge.
- We acknowledge our place as the homelands of Dakota and Ojibwe people and share voices of enduring Indigenous relationships to the water.
- We reflect on our relationships and process during our meetings and trainings.
- We amplify local knowledge, concerns, and solutions when developing exhibit content and programs.
- We focus on adhering to and improving on our process, trusting that this will create robust and relevant products.
- We seek multiple sources of knowledge in a community.
- We learn and grow together.

The assets and solutions to address intractable issues—such as decisions around land use and water protection and restoration—lie in a multiplicity of voices and practicing this approach helps bring multiple voices to the tables set by each of our host communities.

Using this approach is working. During the 2018–2019 traveling exhibit tour, we collected surveys from people who visited the exhibit or attended related events at the various host sites. Based on that data, 26–31 percent of survey respondents reported learning from a perspective different from their own in the exhibit, and 79 percent said they are motivated to take action on clean water. We believe that both aspects of this are crucial to our theory of change: people must be exposed to and learn to respect ways of knowing water other than their own in order to develop relevant solutions and people must see themselves and their neighbors as having agency and efficacy to make positive changes for water.

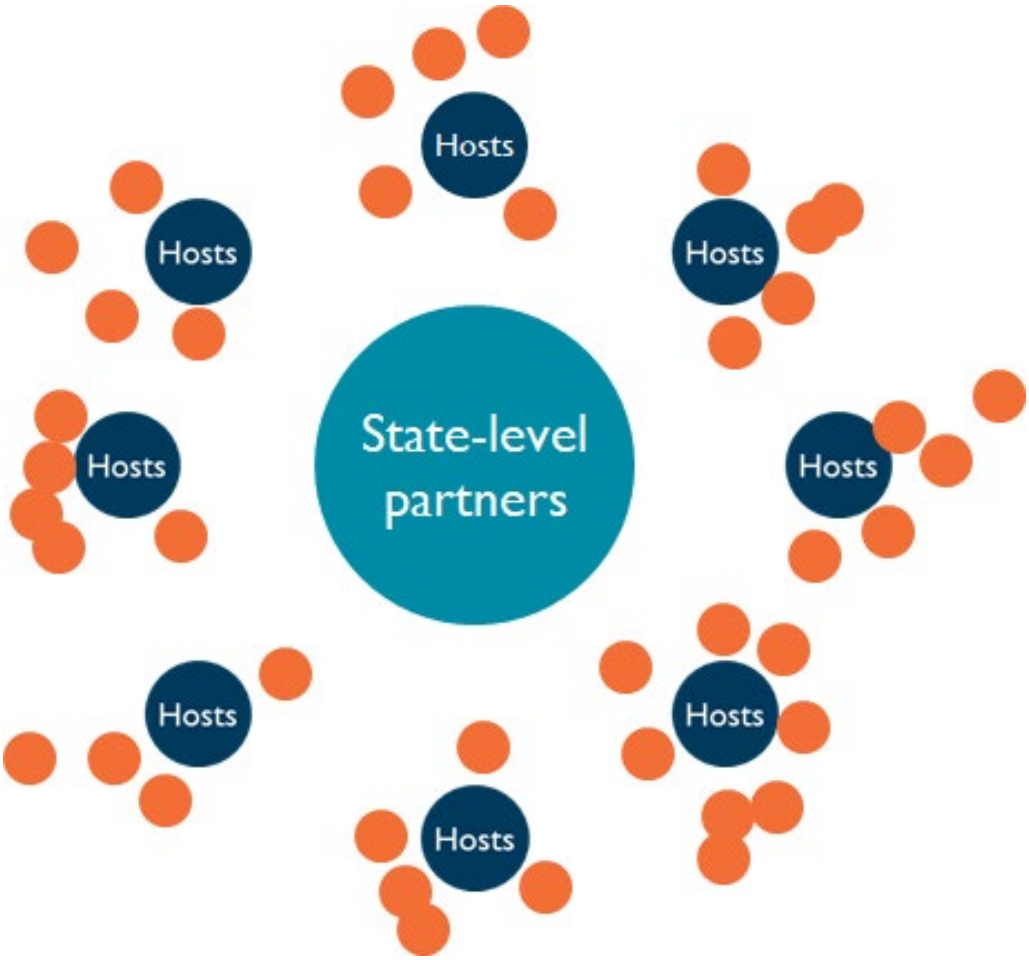
Travis Zimmerman welcoming guests to the Mille Lacs Indian Museum opening event. Image courtesy of the Minnesota Humanities Center.

State and community-based partnerships

We Are Water MN applies these core principles in each of the three main elements of the work (state and community-based partnerships, traveling exhibit, and public events). We consider the first element, the partnerships built through the project, to be of utmost importance: we expect that the partners involved in doing the work of We Are Water MN are likely to be the people affected the most by the approach and strategies of the work, to be the ones likeliest to develop novel, collaborative, and relevant solutions to water issues.

As mentioned earlier, We Are Water MN has at its center six organizations with statewide responsibilities (what we call our "state partners"): the Minnesota Humanities Center, the Minnesota Pollution Control Agency, the Minnesota Historical Society, and the Minnesota Departments of Agriculture, Health, and Natural Resources.

The state partners have goals at both the inter-agency level and at the level of relationships with communities. For the former, We Are Water



The six state partners are the light blue dot in the middle; they are most closely connected to the hosts and to each other. The hosts are the darker blue dots. They connect with the state partners, each other, and their local partners. The host community's local partners are represented by the orange dots. Image courtesy of the Minnesota Humanities Center.

MN is an opportunity for developing shared language, vision, and ways of working that benefit agencies' shared goals and individual ones as well. The state partners are also focused on connecting the host communities to resources such as people, funding opportunities, and knowledge as well as learning from host communities and providing opportunities for host communities to learn from and with each other.

The host communities are focused on developing their own local network, especially building partnerships with organizations and people of color and Indigenous people and organizations. Through these networks, they plan public events in their community that help participants build their relationships with water and with each other. In addition, their local expertise assists the state partners in identifying locally relevant topics and content areas.

The partnership brings access to large networks and to many resources for the project. The host communities are our guides to what is most relevant and engaging for their communities, and they can make local connections and foster community engagement in ways that benefit the work of the state agencies. At the same time, the state partners amplify and support community-led efforts. Both the state partners and the local networks benefit from connecting with each other outside of a regulatory context and instead in a relational context.

Traveling exhibit

The second element of We Are Water MN, the traveling exhibit, provides the opportunity for relationship-building. The exhibit itself combines three different ways of knowing water: personal stories, historical content, and scientific information. It is designed to appeal to visitors who come to the exhibit with many different interests. At the same time, the physical set of materials also becomes a gathering point for community partners who work to plan around and enhance the exhibit content. Several host sites mentioned that the exhibit was a tangible set of materials they could offer that facilitated relationships and exchanges with others in the community.

There is some content that stays the same regardless of host community. There are also five exhibit sections that are created specifically for each host community location: a collection of personal narratives in audio format; a map of the local area where visitors can add their stories; written inspiration stories of people or organizations who protect and affect water; at least one story about a farmer or producer in the host community; and a description of local water conditions and characteristics that share the specific geology, histories, or other qualities of water in each host community. This local content helps visitors understand and develop a personal connection with the breadth of information that's being shared with them in the rest of the exhibit.

The traveling exhibit arrives at the Mille Lacs Indian Museum. Image courtesy of Minnesota Humanities Center.

Personal Water Narratives

To date, We Are Water MN has collected more than 2,000 stories about water, including more than 200 high-quality audio stories and many written pieces added to the map by visitors to the exhibit. These written local water stories are a way for visitors to share their own personal experiences while learning about their neighbors' relationships with water. These stories capture a wide range of experiences with water—from water as a daily part of visitors' lives to deeply personal stories of love and loss. In addition to sharing their stories, visitors also mark where the story took place on the water story map in the exhibit.

We Are Water MN uses stories as featured content in the exhibit, as inspiration and conversation-prompts during public events, and as part of the collection of water stories that the MHC maintains. These stories are available to browse and are meant to be a resource for anyone who is interested in learning how people in Minnesota think about and express their relationship with water.

There are five video narratives shared at every exhibit site. These five videos were curated by Dakota transmedia artist Mona Smith and center Indigenous voices and perspectives about water in this place. Kevin Jensvold, Chairman of the Board of Trustees of the Upper Sioux Community, illustrates his understanding of Dakota peoples' relationships to water and a cultural mandate to protect it in his story. You can view this video through the Humanities Center's Vimeo page (closed captioning available):

See video "The Water Needs to be Protected" on Vimeo.

There are also audio stories collected specifically for each host site. This helps visitors to the exhibit really appreciate themselves as people who protect and affect water, and appreciate their neighbors as people who have layered relationships to water and people who have important knowledge:

People who are Indigenous to Minnesota, both Dakota and Ojibwe people, have water stories that often connect to spirituality, values, and cultural practices.

> Emily Buermann tells a heartfelt story from her great-grandmother that really raises the stakes on protecting water. If it's important not just for this life but also for the afterlife, does that change how one might interact with water?
>
> Jim Rock shares how water is a part of Dakota origin stories, burial practices, and values.

Children's voices are often absent in environmental discussions, yet we often form strong bonds with water in childhood. By including these stories, we are including the voices of the next generations who will be responsible for our water futures.

> This story, featuring Kimberly Musser and her triplets, features a parent and children building water relationships together.
>
> Karly Eld's story connects formal education with her lived experience of loving water.

Water is an important part of many peoples' immigration stories. For many people, water can be a way of connecting new homes with former homes; for others it is about demonstrating the differences between them.

Alberto Mijares connects his experiences with water from his home in Mexico to his actions at his new home in Northfield, Minnesota.

Caroline Williams shares how accessing safe drinking water is different in Liberia and Austin, Minnesota.

A Story Map for Gathering Local Stories

The map posted for the exhibit in each host site encourages people to think about how water matters to them, how they understand and narrate their own relationships with water. The Minnesota Humanities Center hires a professional interviewer to conduct the audio interviews in each host community and some of these interviews are used as "starter stories" to the story map that's part of each exhibit. Visitors are then invited to add their own stories as a way to reflect on their relationship with water.

A child adding her story to the Prairie Woods Environmental Learning Center Story Map, June-July 2016. Image courtesy of Minnesota Humanities Center.

Starter stories that feature different ways of knowing water help spark responses from visitors with different perspectives. Here are some examples of starter stories that emphasize often underrepresented perspectives on water:

> I think women of color and people of color in natural environments are a lot less rare than people think it is. Representation is definitely a huge part of the problem of whiteness in the outdoors. And, you know, it's self-perpetuating; people don't see folks that look like them represented and they don't think that the outdoors is a place for them. Um, so that's a big part of the reason that I've been motivated to continue working in the outdoors and doing this work that I do, because as a marketer I can help shape that narrative and that representation, or lack thereof rather.
> —Alora Jones, for the University of Minnesota River Life Program (Twin Cities) hosting, October–November 2018.

> The connection to place is really quite profound. And for me, there are many places throughout the area like on the shores of Lake Winnie where my family's been buried. I mean, we've been buried there longer than America's been a country. And you know, now of course I have to go pay a white guy for a funeral plot to be buried next to my relatives. So somehow the land and their bodies got sold, taken in the process. Sometimes that doesn't sit so well, but the connection can't be broken even by the politics and economics of a pernicious wave of colonialism that came here.
> —Anton Treuer, for Headwaters Science Center (Bemidji) hosting, December 2018–January 2019.

> I mean every chance I had I went fishing down there at the river. So at the time there was a dam there, so we used to fish right off the edge for like catfish and northerns and walleye, but then they ended up knocking that down and just made it into rapids because of flood purposes. There's plenty of fish in there. My dad used to take us fishing when we were little, but now that I'm older, it's like, you know, cast my line and leave it out. You know relax. Enjoy the sun. My kids love to fish the river as well and they go, "Dad, I like the big catfish. Can we go for it?" I'm like, sure. So, my daughter was five years old when she had started. My son pretty much born with a fishing rod in their hand.
> —Felipe Hernandez, for the West Polk County Soil and Water Conservation District (Crookston) hosting, January–March 2019.

Visitors are asked to reflect on their relationship with water in the area and then add their own stories. This builds peoples' relationships with water. It helps them identify water as something visible and vital to their lives. In the stories people share on the map, we see struggle, joy, and care in ways that are deeply personal and demonstrate the variations of experiences with water across Minnesota. Here are a few examples of stories that demonstrate these differences of experiences and connection to water:

> During the summer of 2012, I had gone through chemotherapy, after treatment, I had a checkup where I was told my cancer was back. I left the doctor's office and headed to the one place I always felt safe as a child: Wisconsin Point, the place of peace and sanctuary for my mom and I. It was also the first place my mom thought of when the doctor called to tell her the news of me running off. I later found I didn't have cancer a second time. After spending time by the lake, I was ready regardless.
> —Ariel, from the Fond du Lac Department of Natural Resources (Fond du Lac/Duluth) hosting, March–April 2019.

Mom would take us kids to Sibley State Park every Sunday after church and before evening chores on our large dairy (100 cows in the late '60s). We would swim, hike Mount Tom, play ball, and picnic. It is why we chose to live in Kandiyohi County.
—Mike Imdieke, from the Prairie Woods Environmental Learning Center (Spicer) hosting, July–August 2016.

Where I live has a flowing well that I cherish and hope to figure out how to utilize in an energy-harnessing manner. I feel fortunate to be here and able to care for the water.
—Sheila Capistran, from the West Polk County Soil and Water Conservation District (Crookston) hosting, January–March 2019.

Inspiration Stories

The exhibit also features inspiration stories drawn from each host community. These stories are 200-word profiles of local people who have found their way to protect or conserve water. By sharing these stories, we amplify local knowledge, concerns, and solutions. As their name suggests, these stories are also meant to inspire others to action and collaboration. We hope that knowing the good work others in the community are doing might encourage people to take action themselves.

The good work in Minnesota that we've featured includes giving thanks, making changes at home, being in a career dedicated to clean water, sharing spiritual practices, and participating in community decision-making and leadership. We need many types of action for clean water. These three stories demonstrate this diversity: Roger, a farmer, testing water off his land; Sage, a mother, passing lessons from her grandmother to her son; and Katy, a professor, finding innovative solutions for water quality through her research.

Roger Peterson, Austin, Minnesota

"When we purchased this farm, I noticed the land had been farmed right up to the creek and you could see where the water had washed the soil into the creek," says Roger Peterson. He owns about 350 acres of farmland near the Cedar River.

He doesn't see soil erosion like that anymore because now any runoff from the fields "has to go through 200 feet of grass before it ever gets to the creek." By putting in buffer strips and enrolling other parts of his land in conservation reserve programs, Roger has restored habitats for wildlife he hadn't seen here before: bald eagles, river otters, even sandhill cranes nesting on the property. "I never saw that when I was young," he reports.

As for the water? "We're cleaning up the system and the water quality is getting better," he says. Roger has been testing the water coming off of his fields of corn and soybeans, and compares the level of nitrates in the outflow with a field that's been in conservation reserve for 16 years. These tests help him to evaluate his farming practices—like when and how he applies fertilizer—and also improve them.

These inspiration stories, from Northfield, were also translated into Spanish and displayed with the English stories at Carleton College.
Image courtesy of Minnesota Pollution Control Agency.

Daniel Williamson stands next to his featured story. Daniel was one of six people featured in the Prairie Woods Environmental Learning Center/Spicer exhibit. Image Courtesy of Minnesota Humanities Center.

Sage Davis, Bemidji, Minnesota

"Some of my most prominent memories and teachings about the water have come from my mother and from my grandmother," says Sage Davis, a member of the Leech Lake Band of Ojibwe and an admissions representative at Bemidji State University.

When she was a child, she lived in a "tiny house" that her mother bought in Onigum. "It was a really simple, beautiful house and it was my mother's first house," she says. They didn't have running water for the first year, but she recalls bathing in Leech Lake and enjoying swimming there: "I always liked the way the lake makes my hair so soft." After their home was renovated with running water, Sage says she was happy to have a bath, shower, and working toilet and not have to walk outside to use the outhouse anymore. She remembers how her mother would sing in the bathroom. "While we were brushing our teeth, we had to make sure we turned the water off and my mom would sing a song that goes 'don't waste water, water, don't waste water.' We'd always sing that together as we're brushing our teeth or washing our hands or taking a bath."

Today, Sage is passing that lesson on to the next generation. "I tried to instill that into my son to be appreciative of water," she says, because "water is important to our being and surviving."

Katy Chapman, Crookston, Minnesota

Katy Chapman is an associate professor of biology and environmental sciences at the U of M Crookston as well as the director of sustainability on campus. Katy doesn't like to think about sustainability as solely regarding sacrifices we must make; rather, she wants to think about sustainability in terms of positive actions and innovation, how we can do things differently.

One innovative practice she's worked on aims to address the excess phosphorus and nitrogen currently flowing from the Red River basin north into Lake Winnipeg. Katy's research involved creating floating mats of plants to measure how well different species could remove phosphorus from the water.

Her findings? Well, the ferns received too much sun and didn't last long, but cattails were a different story: "We got pretty high biomass with the cattails and were able to remove a fair amount of phosphorus using that technique," she reports. "If we were to scale it out to a commercial application, you would incinerate the material or burn it." The resulting ash would be high in phosphorus and could be used as a fertilizer on the same fields that previously leached nutrients. This offers one potential method to recycle the excess nutrients closer to the source, and help prevent downstream problems.

Stories of Local Farmers and Producers

A local farmer profile is included to raise up the stories of people who are working to balance water and soil health with agricultural production. While personal, the farm profile also gets a little more technical and shares specific practices, certification programs, and insights into farm economics. Tim Little's profile, from Northfield, is an example of this blend of personal and technical.

The Little's big experiment

with cover crops and no-till farming

Where: Northern Rice County
Who: Tim Little and his family
Acres: 300 acres
Crops: Corn, soybeans
Watersheds: Cannon River

Certifications and awards:

MN Agricultural Water Quality Certification
National Association of Soil and Water Conservation Districts Soil Heath Champion, 2012 Rice County Outstanding Conservationist of the Year

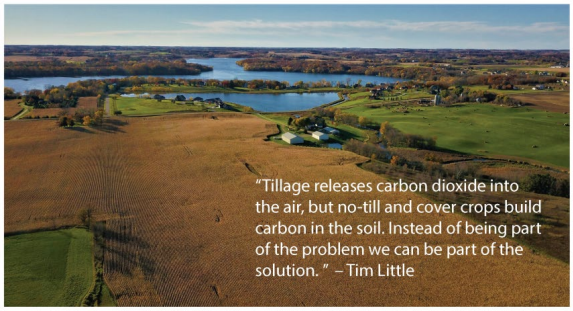
Cover crops and no-till

Tim Little has been farming since 1974 and began experimenting with no-till farming in 2005. In no-till farming the soil is not turned over or disturbed by a plow or cultivator. Crops are planted in the residue of last year's crop.

Corn planted in the Little's no-till field with last year's residue holding the soil and suppressing weeds.

With the help of funding from the Rice County SWCD, Tim tried cover crops for the first time in 2013. After seeding rye, radish, and clover late that summer, the weather turned dry and only the radish thrived. Tim examined the soil and still noticed a difference —the roots of the radish plants worked into the earth and broke up the soil, resulting in reduced compaction in just one season. This initial success inspired him to continue experimenting with cover crops, especially in his no-till fields. Within a few years, there was a noticeable increase in the number of earth worms in the soil. Earth worms are an indicator of soil health and improve nutrient cycling, boost water holding capacity of the soil, and stimulate beneficial microbial activity.

Tim also benefits from improved rain water infiltration, decreased water runoff, and reduced nutient loss and erosion. This means that after a heavy rain there is less standing water in the field, and in the springtime these fields can often be planted earlier.



Economics

Transitioning to no-till and using cover crops is not easy and involves upfront costs. Over the years, Tim has been able to offset the cost and has noticed financial benefits.

When beginning to work with no-till, Tim stopped doing heavy tillage in the fall and tilling in the spring. This saved approximately $35-38 per acre in labor and fuel costs. The money saved fully covered the cost of seed and aerial seeding of the cover crop. Tim has also been able to reduce the use of herbicides because cover crops help suppress weed growth.

Tim is hoping to reduce the use of seed treatments and fungicides too. Cover crops can defend against soil borne illnesses, such as white mold in soybeans, because the soil doesn't splash and the soybeans don't come in contact with potential diseases.

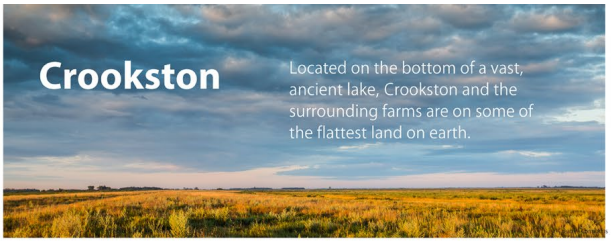
Comparing notes with fellow farmers

When Tim first tried cover crops he coordinated with four other local farmers to hire a pilot to fly the seed onto their fields. After this initial collaboration the farmers started talking about the various conservation practices they were trying out. Now several years later the group has grown to seven farmers who collaborate, explore new practices, and aerial seed cover crops on 2,500 acres in the area. This group of seven like-minded farmers still farm in their own way, yet come together and compare notes to cultivate innovative solutions for this new farming practices. Tim is also working with the Cannon River Watershed Partnership, a local non-profit organization, and ten other farmers to learn how cover crops can help improve and protect the water quality of a local trout stream.

The connection between conservation farming and clean water is something the Little family is proud of. This is one of their photo creations. High five, Littles!

Local Water Histories and Conditions

Minnesota is a place of great ecological diversity. Each watershed has its own histories, geology, development patterns, and climate—and these, in turn, affect the water. On the local panel of the exhibit, We Are Water MN is able to highlight more about the water and history of the specific



This 1/4-inch-long crustacean (Hyalella Azteca) is common in aquatic systems and is used by scientists as an indicator of environmental health and water quality in streams, lakes, and other bodies of water.

The Red Lake River and its tributaries are polluted with sediment, bacteria, and nutrients.

These pollutants are carried with sediment or water from fields and eroded streambanks. They limit the recreation opportunities on the river, and phosphorus causes algae growth, especially downstream in Lake Winnipeg.

Fish and aquatic insect populations are doing well in the Red Lake River main channel, but they are in poor condition on a majority of the tributaries. Challenges for aquatic life include barriers to migration such as culverts and control structures, and loss of consistent stream base flows in the summer and fall, a common condition in highly drained agricultural areas.

Lake sturgeon—Minnesota's largest fish—are returning to the Red River and its tributaries.

Lake sturgeon, once abundant in the Red River of the North and its tributaries, went locally extinct in the early 1900s because of overfishing and dams.

Over the last 20 years, there has been a major effort by state, tribal, and federal agencies to reconnect fish habitat, increase water quality, and stock this culturally important species.

Seven of the eight dams in the U.S. portion of the Red River have been removed or converted into sloping rapids. And since 1997, 2.6 million sturgeon have been released.

Lake sturgeon are surviving well and reaching sizes over 48 inches in length.

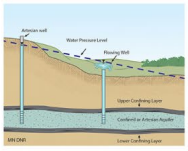
Managing water for agriculture in the Red River Basin is hard.

Farm fields here are extremely flat so without ditches the water sits on the field. A layer of clay just under the top soil does not let the water soak in which worsens flooding.

If there is too much water, crops can't grow properly. To help get better drainage, farmers divert water to ditches or put subsurface drain tiles in their fields. This helps stabilize or increase yields.

Unfortunately, traditional drainage intensifies the high and low flow levels in ditches and rivers, which is tough on fish and insects and can cause erosion. Drainage can also increase the movement of nutrients off the fields.

There are innovations in drainage that are helping. These drainage systems temporarily store water or use outlet controls to reduce the loss of nutrients and slow the flow of water. Red River Basin farmers are working to build soil health, improve fertilizer management, and improve drainage system design.



Flowing wells are common around Crookston.

A flowing well is a well that produces water without pumping. Flowing wells occur when the aquifer is under enough pressure that the water rises above the land surface when a well is drilled. Flowing wells in northwestern Minnesota are commonly found along Glacial Lake Agassiz beach ridges like those located to the east of Crookston.

Some flowing wells are constructed so that the water is controlled and contained in a water supply system. Others let the water flow, which can waste groundwater.

Glacial Ridge is the nation's largest prairie and wetland restoration project.

The grasslands and wetlands on this 24,000-acre site protect water quality for the city of Crookston and help reduce flooding in the Red River Valley.

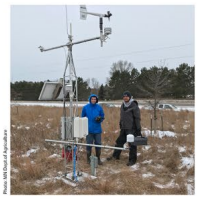
The restoration also provides excellent habitat for prairie nesting birds, threatened prairie plants, and wildlife. Tallgrass prairie originally covered more than 18 million acres in Minnesota, but only about 1% remains.

Rare calcareous fens are found at Glacial Ridge National Wildlife Refuge.

Calcareous fens are one of the rarest natural communities in Minnesota, the United States, and the world. Glacial Lake Agassiz beach ridges in northwestern Minnesota provide the ideal environment for these rare wetlands.

Fens are wetlands dependent on upwelling groundwater that we find along these beach ridges. The groundwater is cold and rich in calcium and magnesium. Because of this chemistry and upwelling groundwater, only certain rare plants can tolerate growing in the fen. They provide critical habitat to numerous rare and endangered species. Fens are an indicator for the health of the ecosystem.

Crookston



Local weather data is important for irrigators, producers.

Weather information is used to determine the best time for irrigation and chemical applications. Responding to real-time weather conditions can help reduce total water used for irrigation and protect environment and human health.

The Minnesota Ag Weather Network and the North Dakota Ag Weather Network work collaboratively to provide real-time weather data for farmers throughout central and northwestern Minnesota.

New in 2019, there will also be temperature inversion sensors at all ag weather stations in Minnesota. Producers can use a mobile app to receive a notification when a selected station measures inversion conditions.

In the last five years, this area has seen expansion of irrigated acres and also some problems with well interference.

Well interference happens when a high volume water appropriation reduces water levels beyond the reach of public water supply or private domestic wells. By law, drinking water supply has the highest priority for groundwater use.

In this region, groundwater resources are not evenly distributed. Some areas have limited groundwater resources and a history of well interferences. Expansion of agriculture irrigation is occurring which has resulted in additional well interferences. The groundwater system is highly complex and only partially understood. Studies are underway so that we can understand the groundwater better. Many people are working hard to prevent well interferences and ensure a sustainable water supply to all area water users.

Pembina ox cart trail followed the beach ridge near Crookston.

In the 1800s, a network of ox cart trails connected people from the Canadian plains through Pembina, North Dakota, and south to St. Paul. Many Métis people—a person of mixed American Indian and Euro-American ancestry—transported furs, pemmican, and handmade items to St. Paul and returned with goods from the city. The noisy carts were made from wood and could be repaired along the trail. The cart was designed so that the wheels could come off and become a raft that would float across the river.

Minnesota produces more sugar beets than any other state in the country. Rich soils of the Red River Valley are the base for this crop's $2.3 billion economic impact on the region.

Groundwater can have high, naturally occurring levels of arsenic.

Arsenic is a part of the earth's crust and occurs naturally in soil and rock in Minnesota. Arsenic has no taste or odor.

Arsenic in groundwater is common here—23% of the wells constructed in northwest Minnesota since 2008 have arsenic above the federal drinking water standard of 10 micrograms per liter (µg/L).

Public water systems make sure your water does not have arsenic levels above 10 µg/L. If you get your drinking water from a private well and the arsenic level is above 10 µg/L, Minnesota Department of Health recommends that you use an alternate source of drinking water or install a treatment system to reduce arsenic levels in the water.

How do we talk about water today?

The language used by state and national authorities has changed, reflecting the goals and values of the time.

A 1922 report from State of Minnesota on flood control on the Red Lake River discusses the "benefit" of proposed and existing dams. It describes the need for drainage of some areas and sending that water into existing creeks and ravines.

By 1974, a federal report studying a proposed dam on the river shifted the language to how a dam would destroy irreplaceable sections of the river used for recreation and by wildlife.

exhibit location. We get specific about the pollution concerns, wildlife and restoration stories, and the cultural significance of local lakes and rivers.

Crookston is located in the Red River Valley, a location that is geologically unique and profoundly transformed by agriculture. The local panel for that exhibit location speaks about the water quality and quantity challenges they face, while celebrating some of the unique attributes and hard work of local people.

This inclusion of multiple perspectives—especially those left out, marginalized, or otherwise absent from public systems and awareness—is how we all work together to practice the Humanities Center's approach, which the exhibit hosts and state partners are trained in at the beginning of the project.

Public events

The third key element to We Are Water MN is the public events. Host communities design public programming in partnership with other organizations and individuals in their community. These partnerships combine different ways of knowing water to enrich the experience for participants and also broaden the audience base. Often these events help people engage even more directly

More than 44,000 people have seen the We Are Water MN exhibit since 2017. Image courtesy of Minnesota Humanities Center.

with both local water issues and local water stories they might not otherwise know. More than 20,000 people have attended at least one We Are Water MN event. Here are a couple examples of the kinds of events that have successfully engaged communities in ongoing dialogue around water.

Historical theatre production

In Lanesboro, the local historical society partnered with the local theater company to produce a staged reading that shared the water stories of elders from their area. A well-known local writer attended this event, and a companion art show opened with it. Following the art show and staged reading, the writer wrote an editorial article reflecting on his relationship with water and his experience at the event. That article stimulated dialogue and discussion about local water issues.

Tribal fishing rights forum

When the Fond du Lac Band of Lake Superior Ojibwe's Natural Resources Department hosted We Are Water MN, a key public event was a forum on tribal fishing rights. This event was held at the Great Lakes Aquarium in Duluth, where Fond du Lac also chose to install the traveling exhibit. This forum attracted both Native and non-native residents for an important conversation that affects their whole community.

Host Site Experiences

Through these three key elements of We Are Water MN and by doing this work in collaboration, focused on the four principles of the Humanities Center approach, we build the social networks required for watershed restoration and protection, instead of just sharing information. Here are three host site examples.

Itasca Waters Experience

In 2017 we began discussions with community organizations who would be part of the 2018–2019 tour. One of these organizations was Itasca Waters, a group who works to collaborate with other organizations and residents in their area to keep water in Itasca County clean for health, enjoyment, and a strong economy. From our very first meeting, this organization was clear on how they hoped to leverage We Are Water MN. They wanted to educate landowners in Itasca County on how their shoreland influences lake health. Below is information shared by Itasca Waters with We Are Water MN through evaluation surveys and event reports:

> Several years ago, Itasca Waters surveyed Itasca County lakeshore residents. From the survey we learned lakeshore owners wanted information about shoreland in two formats: a website and a printed guide.
>
> The survey also indicated lakeshore property owners were interested in getting information about their property from ordinary citizens. As a result, Itasca Waters decided

> to pioneer and pilot a unique program: the Shoreland Advisors program. This three-year program focuses on restoring and preserving shoreland in Itasca County by using some helpful practices that can positively impact lake water quality.
>
> Our hope is the Shoreland Advisors program will be a model that can be used across the state.

The Shoreland Advisors program is a great example of working to build a community's capacity to restore and protect water. By equipping volunteers with this knowledge, they're building a community of people who care about water. By partnering with We Are Water MN, Itasca Waters has been able to host its first training for these volunteers and to raise awareness of this program.

Some examples of how this affected the first group of volunteers include:

> Others care about Shoreland buffering and are doing something about it. It was good to see what others are doing.
>
> I don't have to know exactly how to improve shoreline, but simple observation tells me if there is a problem and I have information on who to contact to resolve issues on my own property and can share this information with others.
>
> Many lakeshore owners want to do the right thing for their shorelines but need to be educated about what options they can do to improve their property and minimize impacts to the lake's water quality.

University of Minnesota's Experience

One of the big benefits of this partnership is that by working together we expand access to different skill sets, networks, knowledge sets, funding opportunities, and other resources. The University of Minnesota's River Life program used the power of partnership to pull off a student career panel.

The information here was reported by Laurie Moberg with the University of Minnesota in a post-hosting webinar:

> That event came together because I could reach out to the people that I knew through this and say, "Hey, we're doing an event for students about careers in water. Do you know any early career people who would want to talk about their careers with water and what they do to a bunch of undergraduates?" And within 24 hours we had 10 panelists. So that was all through the relationships that you guys have built at the state agency level and having met all of them through this. I think that was a really fantastic demonstration how well this works.
>
> The exhibit served as a catalyst for getting these conversations started. We introduced the state agency folks to the students and then it serves in both ways, employment opportunities for the students and future prospective employees for the agencies. So there was a lot of good that came out of that.

Cannon River Watershed Partnership's Experience

Oftentimes, community engagement is something that suffers because it's difficult to prioritize but having something tangible and defined to work on is a great motivator for doing community-engaged work.

The Cannon River Watershed Partnership, summed up their experience around this in the webinar held after their community finished hosting:

> Well, I think the biggest thing that's gonna stick is the local partnerships. I think this project gave us an opportunity and resources to really reach out to groups, some of which we've worked with in the past and some of which we hadn't. And the momentum of the projects, I think, are still building some relationships for us. We have one more We Are Water MN event coming up later this month, and that's outreach with the Latinx community.... And just the idea that we can think broader about who we want to involve in projects when usually we would think, "Okay, we want to deal with resource people and water people and recreation people."
>
> [A second thing that will stick is that] the local panels that were printed for our exhibit that are now in our office here are gonna find their way to parts of the community. And so the exhibit will be showing up here and there from time to time. And so having those resources that we would never have had the time or resources to create on our own is a great side benefit of the exhibit and we'll be finding a place to have those show up.
>
> And a third thing is the idea of working with groups that aren't connected to water conservation. There are different ways to get people interested in water issues. We want to talk about science with people and that works for some people and doesn't work for other people. And so thinking about working with arts groups or history groups or healthcare groups gives a whole other set of doorways to getting people thinking about water, interacting with water, caring about water.
>
> I think I probably had a much narrower vision of what water and watershed education looks like before working with so many partners and seeing how they did it. And not that they're necessarily teaching the exact same things about waters that we do, but they were helping build those connections with people and the river. And once people have those connections, learning more about the river gets easier and easier. And so that idea of the effectiveness of collaboration is definitely gonna stick with us.

These host site stories demonstrate how having time and support in building their local networks of people who protect and affect water have had positive impacts on their programming. We hope this will lead them to have more opportunities within their community to make changes with their new or strengthened partnerships.

Conclusion

We Are Water MN is one model of engaging people around water, equity, and relationships to place and community. And while we use the Humanities Center's approach to bring people together to increase understanding and to spark change, there are other models out there and other people who are working to deepen the connections between people, the places where we

live and work, and the decisions that we individually and collectively make.

The state agencies and host communities that are working with the program are consistently practicing the equity- and relationship-based approaches that we foreground and teach, and there are certain things that those involved can't unlearn. Specifically, this project encourages us to see that water issues are more than technical; they involve people. Because people are involved and central to water work, who is hosting a conversation, who is invited into the conversation, and how invitations are made matters. In addition, participants at all levels can't unlearn that there are Indigenous relationships to this land that precede the state of Minnesota's authority and continue to this day. Further, those who are most likely to be affected by negative consequences of environmental trade-offs that have been made are the least likely to have a powerful role in the decision-making—and that has consequences for all of us.

As state agencies and host communities learn from and with each other, our hope is that we're equipping communities to make better, more collaborative choices about water in the future.

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Jennifer Tonko is a program officer with the Minnesota Humanities Center and is the lead for We Are Water MN, a multi-agency partnership formed to tell Minnesota's water stories collaboratively, bringing together personal narratives, historical content, and scientific information. She convenes state agency partners to jointly develop program direction and works with local community leaders to use We Are Water MN as a community engagement and network building tool, to learn from and amplify the perspectives of all Minnesotans, and build relationships in Minnesota communities among those who protect and affect water.

Britt Gangeness coordinates and develops outreach and education projects at the Minnesota Pollution Control Agency. She has been working on the We Are Water MN project since 2014—a project that embraces the power of people and relationships to make local change. She has a B.A. in biology and M.Ed. in environmental education.

FEATURE

WE ARE WATER UMN

By Tracy Fallon, Douglas Klimbal, Kimberly Long, and Patrick Nunnally

Institute on the Environment—Kimberly Long

An unassuming email with the subject line "possible to talk about hosting a water-community exhibit in LES?" came through my inbox midday on February 27, 2018. Little did I know this email would change the way I looked at my work at the Institute on the Environment (IonE) and spark my drive for collaborations within and outside the University community in respect to absent narratives. With further context to the email, I learned that River Life would be hosting the We Are Water MN exhibit and was looking for the right venue to support the over

We Are Water MN exhibits are shown here in the Institute on the Environment space at the University of Minnesota. Image courtesy of the Minnesota Humanities Center.

900-square-foot traveling exhibit for six weeks. IonE's then managing director suggested the possibility of IonE hosting the physical exhibit in the Commons Meeting & Art Space within the Learning and Environmental Sciences Building (LES). Thus an email to me, IonE's event coordinator, and the rest was history—well, not completely, but pretty close.

By April 2018, we knew IonE's space would be the perfect fit for the exhibit, and an emerging IonE Impact Goal on safe drinking water was another pull to host. This investment with the exhibit and water goal made it clear IonE had a stake in Minnesotan's responsibility and relationship to water. This was an opportunity for IonE to connect to new and existing partners in a more meaningful way, to support the stories and information of the exhibit, which in turn support public access, and to demonstrate the work of the Institute. The theme of water for IonE during the year was intended to be the focus to raise awareness and novel insights. We soon realized a specific theme has so many branches of topics associated with it that we couldn't just focus on water generally, but instead focused on access to water and, tangibly, on the exhibit. As it turns out, IonE was able to build on the base of the exhibit to host an event in April 2019 on protecting source water and ensuring drinking water. We Are Water MN strengthened my realization that we need to create opportunities for public access to information on climate related issues. Communicating through public events, like exhibits and conversation series, the work can speak for itself and begin to engage the community on why issues matter, what is being done, and what they can do—all of which were strong goals and outcomes of We Are Water MN.

Around this time, I began to see the depth, value, and uniqueness of this collaboration between the core planning team of River Life, Water Resources Science (WRS), and IonE. We all brought in our own perspectives and expertise, and yet were able to set forth with the same goals and programming ambitions. This collaboration was not about a-one-and-done event, but rather the expansion to deepening relationships with partners and community members we may not have had a relationship with, which was modeled at an early host planning meeting with the Minnesota Humanities Center (MHC) and the community. I began to see the value of bringing in varying perspectives, yet knew this was an act of balancing our engagement with the time we needed to develop meaningful relationships or strengthen current ones. This way of thinking is instrumental to how I think about partnerships now. We can't reach out to others to fill a void we think we need; we need to inclusively sit at a table with all stakeholders to create trust and shape a partnership. IonE overall has many individual contributors that have vast partner relationships, and the need for IonE, as an organization, to become a stakeholder with community partners bubbled to the surface through conversations that happened prior to, during, and after We Are Water MN around access and underrepresented communities.

Our planning team started exploring how to have everyone at the table for conversations, asking what perspectives and narratives are part of a water story, who was represented in the planning or exhibit, and who was not. Through conversation on absent narratives, we realized a barrier at our host site was when the exhibit itself was open to the public: weekday business hours. In order to allow all groups—like families and community members—time to see the exhibit, we needed to make it more accessible and decided to open up the exhibit space on campus twice on Saturdays during its run and offer complimentary parking. The goal was to see more people from outside the University take advantage of We Are Water MN being in the Twin Cities. Even though attendance was low, the few families and individuals that came on the Saturdays had great stories to share with planning team members who were present as well as to add to the We Are Water MN story map. The first Saturday we were open, we even

U of M, Twin Cities

Located on the banks of one of the world's great rivers, the University of Minnesota has a special relationship with the Mississippi River

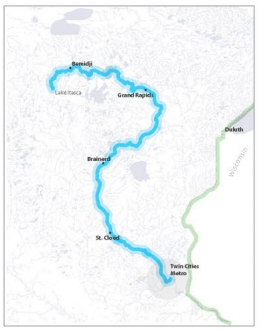
Headwaters of an important river, both pristine and challenged

Home to more than 400 different species of wildlife and 100 different species of freshwater fish, the river provides fishing and other recreation opportunities. A 72-mile corridor, including the stretch through the Twin Cities, is a National River and Recreation Area.

The river also functions as a major drinking water supply for the Twin Cities.

While the Mississippi River starts as pristine, high quality water, tributaries like the Crow River, flowing through heavily farmed areas, bring pollutants like sediment, nutrients, and bacteria into the Mississippi. When the Mississippi River reaches the Twin Cities, it no longer meets river life and recreation standards.

Though we've made great progress over the last thirty years, the river through the Twin Cities continues to have problems: high nutrient levels result in algal blooms, invasive carp threaten to outcompete other species, and many fish show elevated levels of mercury and other contaminants.



Located on the banks of one of the world's great rivers, the University of Minnesota, Twin Cities, has a special relationship with the Mississippi River.

Bohemian Flats was home to hundreds of people around 1900

Bohemian Flats circa 1910 (photo: MNHS)

During the late nineteenth and early twentieth centuries, urban riverfronts were used for industry, not for houses. Few people lived on the river. There were some exceptions though. On what is today the West Bank of the University of Minnesota, on the banks of the Mississippi River, was a multi-ethnic settlement known as Bohemian Flats.

The community, which frequently flooded, was home to as many as 100 homes and 500 residents in the 1920s. Residents often responded to the floods on their own. Many of the residents didn't understand that they did not own the land, only the structures on it. The residents had few legal options when the city chose to demolish the houses to make room for more rail and river infrastructure.

Upper Harbor riverfront redevelopment seeks to connect North Minneapolis and the Mississippi, with a focus on history and equity

The City of Minneapolis and Minneapolis Park Board are redeveloping a 48-acre site on the Mississippi in the North Minneapolis area. It was once a barge shipping terminal.

The North Minneapolis community has long been separated from the river by industry, though redevelopment has occurred along other stretches of the river.

Northside community members are working towards a plan for the Upper Harbor "rooted in community and equity, that doesn't gentrify, that creates jobs for North Minneapolis residents, that provides green space and green business opportunities for the Northside."

Source: Jamming for Justice on the Upper Harbor event flyer, September 2018

Minneapolis Slow Roll bike tour of the Upper Harbor Terminal, 2017 (photo: Minneapolis Parks Foundation)

U of M, Twin Cities

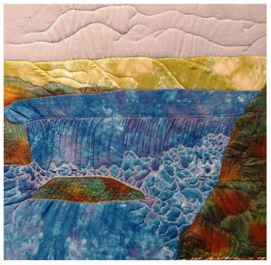
Owamniyomni (St. Anthony Falls) was a site for Dakota ceromonies long before Father Louis Hennepin named it in 1681

From local writer and artist Gwen Westerman:

In an account of his trip in 1680-81, Hennepin provides the first written record of the Dakota view of the falls…Though incomplete, these descriptions indicate the veneration in which the falls were held and the sense that the falls housed a powerful being or beings…

…The falls were used in the late nineteenth century for water power for flour milling and other purposes, hastening the destruction of the falls, which were destined, in any case, to disappear for geological reasons. The falls today bear little resemblance to those of 150 years ago.

Source: Westerman, G., & White, B. (2012). Mni Sota Makoce: The Land of the Dakota St. Paul, MN: Minnesota Historical Society Press.



Owamniyomni: Textile art by Gwen Westerman

Water pollution from salt is widespread in the Twin Cities. It's from deicers used in winter maintenance and from salts used in water softeners.

Excess chloride is toxic to some forms of aquatic life including trout, frogs, and some native aquatic plants. It can change the taste of drinking water.

The costly, challenging nature of removing chloride from groundwater and wastewater makes reduction of salt use the most feasible way to reduce chloride levels.

Sarita Wetlands are a model for storm water management and environmental education

Located in the southeast corner of the University of Minnesota St. Paul campus, the Sarita Wetland is what remains of the Sarita Lake, which was drained in the 1900's.

The Sarita Wetland Restoration Project began in 2000, along with the U of M's Sustainable Campus Initiative. The purpose of the project was to implement innovative storm-water management techniques on a substantial area of campus.

In addition to restoration projects, the wetland is also a site for education and research.

What if there were rapids in the Mississippi River Gorge?

The river directly downstream of St. Anthony Falls is known as "the gorge." Before dredging and locks were added to aid navigation, the gorge was a "6-mile reach of boulder-cobble-gravel streambed – prime habitat for numerous fish and mussel species."

In the 1900's lock and dam structures were built and changed the nature of the river. But in 2015, the Upper St. Anthony Falls Lock was closed.

Now, the U.S. Army Corps of Engineers is evaluating whether they should operate and maintain the infrastructure in this stretch of the river or release it. This process opens up the chance to evaluate dam removal and ecological restoration.

The beginning of the gorge near Downtown

Source: Mazack, Jane E. 2016. "The Once and Future River: A Present Snapshot" Open Rivers: Rethinking The Mississippi, no. 4. http://editions.lib.umn.edu/openrivers/article/the-once-and-future-river-a-present-snapshot/.

The Metro region has many swimmable lakes, but some don't meet water quality standards

In the Metro region, 43% of lakes—271 out of the 632 evaluated—do not meet aquatic recreation standards for fishing and swimming.

Challenges for Metro lakes include increased phosphorus levels leading to algae blooms, and increased levels of bacteria—like E. coli—making swimming potentially unsafe. Shoreline restoration and other clean-up efforts have been successful at restoring lakes in some areas.

Lake Nokomis in Minneapolis

Two informational panels displayed with the rest of the exhibit at the University of Minnesota. Images courtesy of the Minnesota Humanities Center and the Minnesota Pollution Control Agency.

invited researchers, scholars, and graduate students to share and record personal journeys and work stories that related to water. While it was an honorable attempt to create access, it also taught another lesson: earlier communication is needed to create awareness of opportunities like this.

While many subsequent events were planned to take place during the run of We Are Water MN, the opening day (October 12) was extremely momentous and awe-inspiring for many reasons. The University's opening was the official state launch of the traveling exhibit's second round, and the MHC was also hosting a retreat at the IonE for representatives from all the host sites so people could attend and see the exhibit. This created such a buzz around the space all day—a contagious flutter of excitement that you couldn't help but feed into. We even had the opportunity to take a river tour of the Mississippi with each other that day; there is nothing like actually feeling relaxed for an hour before your big event is supposed to start! For someone in the event industry, this is kind of unheard of, but I think meeting representatives of the other seven host sites allowed this relaxing environment to happen. Meeting everyone was an opportunity to hear about how they were going to engage with We Are Water MN and their communities. The host cities were in every corner of the state, which allowed everyone's narratives to emerge, and we were able to collectively learn from each other. Seeing the committed work of the host sites began to showcase this work as an ongoing entity,

The opening ceremony for the We Are Water MN exhibit at UMN Twin Cities featured speakers in the atrium adjacent to the exhibit itself. Image courtesy of the Institute on the Environment.

highlighting that it wouldn't end when the exhibit moved on to another site. It also created the opportunity for each of us to continuously learn from each other's successes and shortcomings to build a better community of engagement with the exhibit.

Now the opening! Over 150 people filled in the LES atrium for the opening reception awaiting the ribbon and cake cutting. We were all gathered in one space and place to honor water and our relationship to the land through water, and to share water stories to connect with one another. The opening's program introduced the second round of the traveling exhibit with organizers from the Minnesota Humanities Center and the Minnesota Pollution Control Agency and state partners from the Minnesota Historical Society, and the Minnesota Departments of Health, Natural Resources, and Agriculture taking center stage to reflect on and share their water stories from within and outside the state of Minnesota. We soon all realized most of these speakers also have University of Minnesota connections, which continued to strengthen our connection to place with each other. The University host representatives included the provost of the University and the IonE director who welcomed We Are Water MN to the academic setting and recognized the University's commitment to research and improvements to safe drinking water for all Minnesotans. Aside from the overall feeling of success throughout opening night, the joy and excitement on the faces of our two organizers for the statewide project as they cut the ribbon was so memorable and contagious. It would be hard

Visitors to the exhibit at the IonE listen to narratives. Image courtesy of the Institute on the Environment.

to look back and not think about how much work went into that opening, especially the creation of the exhibit itself. Without the exhibit curators and designers, we wouldn't have had the engagement piece to begin important conversations with communities all over Minnesota about water.

Throughout the six weeks, there were events hosted throughout the Twin Cities campuses to draw awareness to the water that flows around, through, and under campus. Classes came to view the project, a few students just passing by ended up staying an hour plus to explore, and a Girl Scout troop spent one of their meetings there. Seeing the varying generations of spectators within the exhibit brought new perspectives and increased my understanding of how others big and small, interact with water. In the future, community access to and awareness of an exhibit within a large academic institution should be considered and more strategically planned for. Earlier planning for outreach and logistics to bring other groups onto campus is needed because it directly contributes to relationship building. We knew right away we didn't have relationships and knowledge around how to bring groups to campus, and therefore, we needed more time to successfully work on that, and our planning team walked away with a huge lesson learned. The work to represent and understand absent narratives should not just be considered around the planning of an event, exhibit, or project, but should always be viewed as an opportunity for prolonged learning and stewardship.

Looking back now, I am inspired by the River Life, WRS, and IonE partnership. It may have developed quickly, but I saw firsthand what a group of people can do with like-minded values, goals, and purpose. I'm amazed at what the team was able to accomplish together, and by how openly we identified the areas where we were falling short of our goals—like continuously bringing more absent narratives into the public spotlight and cultivating deeper relationships with communities not typically represented. These are areas where IonE is focused on creating improvements, and striving for more will continue to foster these goals and bring them into existence. Though we will always have work ahead of us, we went into this working collaboration fully aware of this and with intention to do it together. It's important to recognize that work is stronger and can have more impact when collective work is done with common goals. Sometimes all it takes is to read an unassuming email with an open mind for collaborative change.

Water Resources Science—Tracy Fallon

"Alone we can do so little; together we can do so much." —Helen Keller

I got to witness firsthand the impact that one person's words could have on an entire group of students. I never imagined that this negative experience would lead to such growth.
It happened on an evening in the fall of 2017 when the Water Resources Science (WRS) graduate students offered to volunteer as "water

WRS students tend Water Bar. Image courtesy of WRS.

tenders" at an amazing new facility in northeast Minneapolis called the Water Bar and Public Studio. This group of students was just getting to know each other but all agreed that getting involved with the community was a great idea. As water tenders, the students were to serve water to patrons and engage them in stories about their experiences with water. The students introduced themselves to a woman who lived in the neighborhood and was a frequent visitor to the Water Bar. She listened for a while, but ended their discussion abruptly, and in a very direct way announced her distrust for scientists and the University of Minnesota. She talked about what it is like for a person of color to live along the river and her belief that the water was unsafe. She stated that changes in water systems wouldn't happen until unsafe water impacted people in more affluent communities. She reminded us that the University has a history of not being inclusive and that it isn't the end-all-be-all for information on water issues.

The students tried to engage her for clarification but to no avail. While I felt that she and the students were talking past each other, she had an important point to make, difficult though it may have been to hear. The students, however, expressed that they were shaken by her words and tone. They felt that, as scientists, they were simply bringing better knowledge to the discussion, and that more knowledge was, as a matter of course, better. This interaction affirmed that the students were not quite prepared for this kind of engagement with community.

After the volunteer event, we gathered to debrief about the experience. They came to see it as a learning experience and recognized the importance of knowing your audience. They understood that speaking your science to one group will look one way, while another audience will require different words and approaches.

A seed was planted that night and the students intended to nurture it. They saw an opportunity to share their science while learning from citizens who looked different than them, who had different life experiences than they had, and who saw water differently than they did. They were like sponges! It was amazing to watch them reassess their beliefs and perspectives as they processed this new knowledge and data.

It should come as no surprise, then, that they jumped at the chance to get involved in the planning of events related to the We Are Water MN exhibit on campus.

I was eager to be part of the collaboration as well. I'm the graduate program coordinator for the WRS program. In short, it's my job to recruit and advise students, support faculty, and manage the curriculum. When the initial planning began to bring the We Are Water MN exhibit to campus, I was excited for the opportunity to collaborate with on- and off-campus partners. I couldn't wait to bring recognition to water research being done by my students and faculty and to give my students a chance to create activities they could rally around.

Water Resources Science students had historically lacked a sense of community. WRS students and faculty come from a wide range of backgrounds like engineering, biology, chemistry, economics. This is a small program in size (only 66 students) but huge in the number of departments it collaborates with (111 faculty from 28 different academic units and agencies on two campuses). Being one of the most interdisciplinary graduate programs on campus, students felt closer to their faculty advisor's department than to their fellow students. Graduate students usually have a set path, often rooted in their undergraduate experience and the direction given to them by the faculty advisor funding them. In the last few years, however, a group of students took it upon themselves to strengthen their student group, the Water Resources Students in Action (WRSIA). The current cohort of students transformed WRSIA into a more social network, allowing for some amazing conversations over their shared passion for improving our water's future.

Through We Are Water MN, these students were about to add a collaborative experience that would enhance that on-campus learning.

I invited students to join me at the brainstorming sessions that started a year before the We Are Water MN exhibit was to arrive. Together we learned about the general concept of the exhibit and the goals we as a committee had for programming activities during and after its visit.

The WRS students were introduced to students from the Environmental Humanities Initiative. These two groups of students shared an interest in water but understood that they used a different vocabulary and a different lens when researching issues. They all sat down to discuss ways to get the two groups to work together on a project with an end goal that could benefit them both.

Unfortunately, homework, research responsibilities, and life got in the way and much of the progress the two groups had made was put on hold. The intent is to reconvene in the fall to redefine their plan. I, for one, hope this collaboration bears fruit.

One of my favorite events, which I also helped plan, was the panel of water professionals who talked to undergraduate and graduate students. The planning process for this event was a comedy of errors at the beginning. We all agreed it was a great idea, but time had gotten away from us. We stood at the point of deciding whether or not we could plan it in time. With the help of a trusted colleague, we dove in to make it work.

We made a list of potential speakers, thinking that at least a few wouldn't be able to make the date and time work for their busy schedules. Much to our surprise, that wasn't the case! All of them were excited to participate.

At the event, the panelists shared their education and career path and advice for the inquiring minds in the audience. They shared how water issues have changed since they got started. The students asked wonderful questions, many of which forced the panelists to dig deep into their experiences to respond. It's a win-win when you watch people learn from each other.

The really funny thing about this event that almost didn't happen is that it wouldn't end! The students stayed after to talk to the panelists and then the panelists stayed even later to talk to one another. It made it all worthwhile.

So, what's next? The WRS students have created a sense of community within their program and are committed to engaging new students to make sure it lives on after they've graduated. They have started to work together as a group on all sorts of projects. For example, they have staffed the Water Bar at two different events cosponsored by WRS and the Institute on the Environment. They plan to work together with students from across campus and across disciplines to continue the conversation toward a shared vocabulary.

The WRS program is also coordinating with the Water Resources Center and the River Life program on a research symposium that will highlight women in water. This event might be a few years in the planning because we want to do it right and include more absented voices in the conversations. Bringing the relationship full circle, we plan to invite the woman from the opening of our story, the woman who challenged the WRS students, to share her perspective so the event is inclusive and beneficial to all. I hope to share with her the impact her words had on me and an entire group of students.

Water Resources Students in Action—Douglas Klimbal

As a water resources scientist, I focus on how physical and chemical sciences relate to the human use of water and the impacts of water on natural systems. I may be biased, but to me it seems that proper application of hydrology (the physical study of water and how it cycles) and geobiochemistry (a study of the influence that biology and geochemistry have on systems) could go a long way in solving many of the world's problems. Algal blooms in the Gulf of Mexico are linked to sediment and nutrient loading in the Mississippi. Urban flooding is all about infiltration and storage. Even equity and quality of life can be impacted by the presence or absence of green landscapes that rely on and help control water. I've spent a lot of time studying the biological, chemical, and physical sciences, especially as they relate to earth systems and built environments, because, well, because I'm a total nerd. That said, I've had an avid interest in exploring language and culture since I was quite young.

These dual interests made me eager to think about the possibilities of working with the We Are Water MN project on campus. As part of the larger project, in the fall semester of 2018 I spent some time preparing an event that would be hosted by River Life as a partnership between the Water Resources Students in Action and the Environmental Humanities Initiative. While these student groups both examine human-environment dynamics, they come from very different academic backgrounds and perspectives. Water Resources Science students often focus on studying the imbalances found in natural or built systems and investigating how those imbalances impact the hydrologic cycle and water quality. Examining these impacts a step further means recognizing potential effects on populations, demographics, infrastructure, and other human phenomena. Environmental Humanities Initiative students start with the people, make observations about equity and culture, then draw conclusions back to the environment in which that human phenomena developed.

If academia were an art museum, these two groups would have entered from opposite ends only to meet in the middle. While everyone could be seeing the same artwork, the two groups would have entirely different perspectives based on what they'd seen previously. This event that stemmed from this partnership was geared toward asking across the room, "What is it that you see?" For most, it would be atypical and perhaps even uncomfortable to invite that unknown, foreign perspective. But in this controlled setting, where individuals of each group were invited to share their understanding of water and its place in our world, my hope (and the expectations of myself and the other event organizers) was that the perspectives would be complementary. My hope was to learn that my outlook needed a shot of humanities, and that the humanities could use a dose of the abstracted applied sciences that I know and love.

This seems an important step to take in the midst of the some of the dominant trends in disciplinary inquiry. In recent years, there's been a growing focus among natural scientists on an area which is sometimes called "the critical zone." Generally, this refers to an area bound above by the cloud tops and below by the lower extent of a water table, including the productive regions of seas and oceans. It goes without saying that this encompasses quite a lot of what is known (and unknown) about earth processes. Environments in the critical zone are dynamic by definition. Many are physically complex and constantly subject to change. Processes that occur here promote the growth of communities which are obligated to develop resilience and diversity in order to persist and live. The zones of transition, zones that exist at an interface between multiple phases of matter, are exposed to the most complex mixture of nutrients. These environments often

Connecting thousands of people to the river and eachother

Mary Hammes, ***Environmental Stewardship and Volunteer Manager with Mississippi Park Connection***

Mary works for Mississippi Park Connection, the National Park's non-profit partner for the Mississippi National River and Recreation Area. Since 2015, Mary has served as Environmental Stewardship and Volunteer Manager, coordinating about 7,000 volunteers each year for habitat restoration events and other projects in the 72-mile park corridor along the river.

Lately, her work has been aimed at addressing the loss of tree canopy due to Emerald Ash Borer. Though this habitat loss can have significant impacts on migratory bird species, there is also a silver lining. We can replant in a way that's more intentional, "with an eye to the future," Mary says; this gives us "an opportunity to make our forest along the river more resilient."

Mary is passionate about leading service groups and managing volunteers because she's experienced first-hand the "incredibly powerful, transformative thing that happens when people work together towards a common goal in the outdoors. I really see the river as a platform for human connection, and as this space where we can know that we're not alone. We can grow in our confidence towards taking care of each other and for the space when we work as a team."

Getting to know the river again, and the changes humans have made

Matthew Tucker, ***Assistant Professor in Landscape Architecture at the U of M***

Hailing from Sioux City, Iowa—another river city—Matthew Tucker says he's fascinated with "the ways in which water flows, the different currents and patterns, and the different ways in which a river changes." As an Assistant Professor in Landscape Architecture, Matthew teaches a course called "Making the Mississippi" at the University of Minnesota that introduces students to how humans have modified the Mississippi River landscape. "It's important for us to realize how much we have influenced the hydrology of our landscapes, but oftentimes we're disconnected from those influences, or they're so common, they're so 'everyday' we don't even see them."

We think of rivers "as these big blue lines on a map," completely separate and apart from people and our built environment, but this misses an important part of the water cycle today, argues Matthew. Those storm water pipes that run through our cities? That's a new kind of creek, a new kind of tributary, says Matthew: the Mississippi River watershed starts in our own backyards, rooftops, and parking lots. What interests Matthew and his students is not returning the landscape to what it was, but "creating new connections between communities and their environment, based on what it is today."

Learning to speak: Finding betters words to talk about water

Lark Weller, ***Community Planner for the National Park Service***

Lark Weller is a Community Planner for the National Park Service, working in the Mississippi National River and Recreation Area. With a master's degree in urban and regional planning from the Humphrey School of Public Affairs, Lark is well-versed in the vocabulary of water resource professionals, but over time she's noticed the professional lexicon doesn't always resonate with communities, and can even alienate some people. These language differences can hinder important conversations about shared places, she explains, which motivates her to consider how the park service can "think about our use of language differently, more intentionally and carefully."

Lark describes herself as a convener, and today she is focused on bringing water resource professionals together with people who have other backgrounds and lived experience, who are "inviting them to think about what water is" in new or different ways. Rather than reflexively use terms like "resource" or "value," Lark is working to center conversations around meaning: What is the meaning that people find in this place? What is the meaning that people find in this water?

"We're there to take care of this place for all people," she says, "so we need to understand what taking care of it means to all people."

Looking for community solutions for salty stormwater

Doug Klimbal, ***Master's student at the U of M***

As a master's student in Water Resources Science, Doug is exploring connections between urban land use and salt in area waters, but his interest in water didn't start in the lab. "I love being on the water," he explains. "I grew up fishing on small lakes, and then took to kayaking. Being that immersed in nature—it's very relaxing, very peaceful, and you see so many interesting things."

Doug monitors local stormwater flows for his research. He's observed that "there is more and more salt turning up in shallow groundwater around the Twin Cities metro area and around lots of northern cities," and believes this trend is connected to how we currently de-ice our roadways. Many of the ponds, lakes, and rivers are directly connected to our stormwater system, says Doug, so "water that falls on the built landscape gets channeled directly into those bodies of water"—bringing salt from our highways, parking lots, and sidewalks with it. Using less salt is not necessarily an easy change, but it's one he hopes our communities will consider.

"I can imagine that if we don't change the way we think about maintaining our roadways in the winter, you'll be out on the lake one day and you won't notice the call of the redwing blackbird standing on top of a cat tail, or you won't notice the tallgrass rustling in the breeze."

Belly up: Creating social discussions about water

Shanai Matteson, ***Artist and co-founder of Water Bar***

"The idea at first was very simple. We wanted to find ways to connect people to the water that sustains this place. In Minneapolis, the Mississippi River is the source of our drinking water, and most people don't realize that," says Shanai Matteson, working artist and co-founder of Water Bar, a bar that only serves tap water.

Most people aren't interested in a seminar on water systems, Shanai explains, but visiting a "bar" where people can sample drinking water is intriguing. "A lot of people don't get it at first," she admits, but that ambiguity can be magical: "sometimes it means that they're just curious enough to come up and ask you what you're doing." In turn, the "water tenders" serving up samples are ready to listen, share experiences, and invite people to tell their own stories about water.

When designing the Water Bar, Shanai & co. wanted to create a community and social gathering space "that is more plain-spoken and real, where people can talk to each other in a face-to-face way about water." People ask lots of really smart questions, and you can start to get into some complicated issues like access to political power, resources for infrastructure, or safe drinking water, says Shanai. It is challenging, she admits, "but I think when we sit down over a glass of water, and you're inviting people to share their own experiences, you kind of break down a lot of those walls."

Inspiration panels from the We Are Water MN exhibit at UMN Twin Cities. Images courtesy of Minnesota Humanities Center and Minnesota Pollution Control Agency.

harbor the most varied and prosperous forms of life. These environments, of course, are where people's experiences primarily take place, and are therefore the environmental zones perhaps most pertinent to scholars of the environmental humanities as well.

As a geoscientist, it occurs to me that change is inevitable. In fact, my assertion is that stagnation and specialization is likely to eventually cause impaired function and a lack of resiliency to change. Scientists often speak to others within their own discipline to try and solve problems because of shared culture. Scientific disciplines have unique languages and common practices for systematic analysis. As we work in our silos, subdisciplines develop and professionals become increasingly specialized. For a student at the cusp of a professional career, the wrong specialization could mean fewer and less rewarding prospects. Instead, early career scientists, both humanists and naturalists, should challenge themselves to develop invaluable skills—skills like being able to think and speak beyond the disciplinary boundaries. Simply by having discussions across disciplines, bonding over a common subject with your distant peers, using context cues and challenging viewpoints for the sake of keeping the conversation going brings new energy to a comfortable mind. New ways to conceptualize, verbalize, and improvise will come to hand easier, which could be advantageous at an interview, conference, forum, or even the next neighborhood barbecue. New pathways can be utilized so that scientists can flourish in an environment which was previously hazardous, stressful, or just plain boring. With the right frame of mind and an adequate diet of fresh, low-risk challenges, what one once saw as awkward and unproductive might just become a new niche.

Institute for Advanced Study/River Life—Patrick Nunnally

Since 2005, the River Life program has worked to bring together people across the campuses of the University of Minnesota and in the broader community, particularly people and organizations interested in the Mississippi River. The University's Minneapolis campus is bisected by the river, making it, to my knowledge, the only world-class university located directly on the banks of one of the world's great rivers. Furthermore, all of the Twin Cities campuses, both in Minneapolis and St. Paul, are in the homelands of Dakota people. Finally, most of the Minneapolis campus is within the boundaries of the Mississippi National River and Recreation Area, a unit of the National Park Service.

Our location is a lot to live up to.

As might be expected, River Life's work entails a lot of community meetings and collaboration with community groups. Since 2014, the program has been part of the Healing Place Collaborative led by Indigenous artists and focusing on the healing of place and by place. Water is central to the work of most Collaborative members. Another member of the Healing Place Collaborative is the Minnesota Humanities Center, and when their participants started talking in 2015 or so about the Smithsonian Water/Ways traveling exhibit program, we were intrigued. When the Humanities Center and its other statewide agency partners began developing plans for a "round two," to be called We Are Water MN, River Life began exploring the possibilities of becoming one of the host sites for the exhibit.

Broadly speaking, We Are Water MN explores two themes: the idea that all of us have responsibilities to be stewards of water, and secondly, that the present and future stresses on our water systems hurt disadvantaged communities most directly and painfully. These two ideas allowed

River Life to bring together threads of our work that had not previously coalesced: the relations between water and issues of equity and justice, and the notion that water is not just a scientific or engineered system, but might fruitfully be thought of as a "hydrosocial" concern.

Our initial explorations with the We Are Water MN conveners replicated some of the difficulties River Life had been experiencing in terms of developing a focus for our work. Many questions arose: Could we find a way for University water scientists to make their knowledge accessible to the public? Were there ways that the different disciplines at the University (humanities fields and scientific fields, for example) could learn to talk together? And exactly what did we mean by "host community": were we envisioning bringing the entire Twin Cities metropolitan region to the exhibit, or more specifically the University campuses? I will note that the University, with over 60,000 students, faculty, and staff, is larger by itself than many of the communities where We Are Water MN was hosted, so this last question was a significant consideration.

Difficult questions notwithstanding, we felt that it was important for River Life to play a host/convener role for We Are Water MN on campus. Planning the installation and management of the exhibit and the accompanying programming allowed us to expand our reach of community partners. For example, although we had worked with the Minnesota Humanities Center before, we had not done any work with the staff from the Minnesota Pollution Control Agency, the Department of Agriculture, or the Department

A visitor to the exhibit listens to narratives that explore, in part, the people who have lived here the longest. Image courtesy of the Minnesota Humanities Center.

of Health. We knew people at the Mississippi Watershed Management Organization, our local watershed district, but had not worked directly with them for several years.

Likewise, We Are Water MN became a focal point for us to strengthen on-campus relationships. River Life was formerly (2007-2012) a program of the Institute on the Environment (IonE) but had not been directly involved with that institute subsequently. When IonE stepped up and agreed to host the physical exhibit in its gallery spaces, we knew that we could actually pull the events together. IonE's strengths in the scientific disciplines complemented River Life's more humanistic and social science orientation, plus IonE's offices are on the St. Paul campus where many of the water-oriented scientists have their offices and labs. We also developed programming and curriculum involvement with the Water Resources Science program, the University Honors Program, and the Environmental Humanities Initiative, all of whom we had previously been acquainted with. The exhibit work allowed us to strengthen those relationships considerably.

The six weeks in late 2018 during which we hosted the exhibit marked a spectacular run of programs, inventive engagements and conversations about water, and a remarkable broadening of our own perspectives. We hosted three events with strong participation by Indigenous people—largely Dakota, the people who have been here the longest time. The exhibit was toured by hundreds of people; an anecdote that I shared widely with the statewide partners was about the farm family that came in, played with the agriculture and water interactive feature and reported that "you folks pretty much got it." Given historical mistrust between many in the agriculture community and many clean water advocates, this felt like a win.

We also learned a lot about our limitations, both as a physical campus for the public to visit and about our reach as researchers and teachers. Exhibit and program venues on campus were hard for non-campus visitors to find, and parking is expensive. Some of our programming did not have as broad an appeal as we had imagined; while there was important participation from the campus community, we didn't reach as broadly as we had hoped. More importantly, given the exhibit's focus on vulnerable communities and voices not often "at the table," we did not realize soon enough how much we should have done to bring in community groups associated with environmental justice, for example. In retrospect, we might have been much more intentional from the very beginning of our planning about how to reach and engage communities who don't see the University as a resource that necessarily serves their interests.

That said, there were important things started in the fall of 2018 that continue. The Institute for Advanced Study (IAS), home of the River Life program, held an event in spring 2019 on the importance of water in Hmong traditions. Work with the Office of Public Engagement, Department of American Indian Studies, and the Healing Place Collaborative is gaining momentum. The IAS has received a substantial, multiyear grant from the Andrew W. Mellon Foundation that will support teaching, research, and programming that re-centers humanistic inquiry around community and Indigenous perspectives. Though this work is not formally connected to We Are Water MN, the resemblances and intellectual connections are clear.

It's fair to say that the ongoing impacts from the We Are Water MN exhibit and programming at the University are just now being felt and will continue for some time yet. Social change and teaching are sometimes like that: quiet influences that pop back up in unexpected places and times and through unexpected means.

At universities we think a lot about learning, but we don't always turn that reflection back on ourselves and ask what we have learned from

an experience. I only represent one perspective from the dozen or more people who invested time and energy to bringing We Are Water MN to the University of Minnesota Twin Cities campus, but I can offer some observations on what some of us learned. For one thing, our expertise as scholars is not always assumed off campus; we have to be as good (or better) at listening as we are at speaking. Our campus is sometimes a barrier to community participation, hard to navigate, requiring expensive parking arrangements, even open only at certain times and days. The challenges of far-field interdisciplinary work, such as the student engagement with the Environmental Humanities Initiative and the Water Resources Science students, are great, and arise from basic issues of perception, language, and orientation, as well as more specialized knowledge that is not shared. Finally, great work can be done by assembling people who have bought in on shared goals, who recognize how the shared goals advance their own unit's goals, and who have a distinct set of talents to contribute. As long as we don't care who gets the credit, but that there is quality work taking place, we make great things happen.

Our experience with We Are Water MN began a process for the University of living up to our location.

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About the Author

Tracy Fallon (she/her/hers) is a staff and alumni of the College of Food, Agricultural, and Natural Resources Science. She is the academic advisor and program manager for the Water Resources Science graduate program.

Douglas Klimbal has been a master's student in the Water Resources Science program at UMN Twin Cities for the last two years. Prior to that, he studied environmental geoscience at Michigan State University and participated in organizations which emphasize innovation, interdisciplinarity, and leadership skills development. He aspires to be a career scientist, but also practices documentary photography and creative writing.

Kimberly Long has been in a leading event role within the Institute on the Environment (IonE) since 2014. She currently serves as IonE's event strategist & project manager with a keen interest on sustainable event management.

Patrick Nunnally coordinates the River Life program in the Institute for Advanced Study at the University of Minnesota. He serves as editor for Open Rivers and was one of the lead scholars for the University's John E. Sawyer Seminar which focused on the Mississippi River and was funded by the Andrew W. Mellon Foundation.

GEOGRAPHIES

WHITEWATER STATE PARK: 100 YEARS IN PARADISE

By Sara Holger

"Oh there's not in this wide world a valley so sweet
as the valley in whose bosom the Whitewaters meet."
—After Thomas Moore, "The Vale of Avoca," via Minnesota Department of Natural Resources

This year, 2019, marks the centennial anniversary of Whitewater State Park located in Winona County in the southeast Minnesota blufflands region. The story of how this place evolved into the popular tourist destination it is today is both fascinating and frightening and the park naturalists are working to make sure that story is not forgotten.

Whitewater State Park naturalists Jeremy Darst and Sara Holger pose on Seibenaler Ridge overlooking the Whitewater River in the Whitewater Wildlife Management Area. The naturalists are the story keepers for the Whitewater valley. They share the valley history so that others might learn from the past and make better choices for the future. Image courtesy of Minnesota Department of Natural Resources.

Over the span of 100 years, the Whitewater valley went from wilderness to tamed landscape and back to near wilderness again. The following narrative is a common story of how human relationships with the land evolve over time. Travel the world over and in nearly every region you will find a similar story. Today, more than 30,000 acres of public lands comprise the valley, providing opportunities for visitors to hike, hunt, fish, camp, bird-watch, and more. The Whitewater valley has become a paradise, but this was not always the case. In this piece, I include excerpts from stories shared by local residents during a Whitewater State Park oral history project that began in 2017 that illustrate the history and changes of this place. These stories are being transcribed and will be available online at Minnesota Reflections in the coming year.

Click here for the online version of this article with an interactive map.

Before Bridges and Roads

Nestled in the Whitewater valley is the famed Whitewater River, named by the Dakota people who once lived here as ***Minneiska***, meaning "white, water." Historically, the river would swell with snowmelt each spring and erode light-colored clay deposits along the riverbank, turning

"Wabasha's Village," by Seth Eastman, ca 1845, depicting Wabasha's village of Mdewakanton Dakota on the Mississippi River. Accounts by early European settlers to the area noted the clarity of the streams, even after heavy rains, suggesting erosion and sedimentation did not result from the traditional Dakota way of life. Image courtesy of Minnesota Historical Society.

Whitewater Valley Timeline

Sometime between 50,000 – 14,000 Years Ago	The first humans arrive in North America and migrate across the continent. Their descendants include the Dakota who have lived for countless generations in the land we call Minnesota.
10,000 – 14,000 Years Ago	Glaciers advance across the Midwest, never reaching southeast Minnesota. Their meltwaters flow into the area and carve the river valleys deep and wide.
Prior to 1850	A traditional lifestyle of communal support is the basis for Dakota society and culture. The Dakota move their villages and vary their work according to the seasons. They are the first farmers of the region, cultivating crops such as corn, squash, and beans.
1851	The Treaty of Traverse de Sioux opens land west of the Mississippi River for white settlement. The treaty relocates the Dakota to reservations along the Minnesota River and forces the cessation of nearly 24,000,000 acres of their land to the US Government.
1854	Early settlers arrive in the Whitewater Valley. The village of Beaver is platted and by 1871, there are five prospering villages in the valley. Early settlers comment that the Whitewater River never leaves its banks except during the spring snow melt. Even after a spring cloudburst, the water runs high, but clear.
1868	Wheat is the main agricultural commodity grown in the area and by 1868 Winona is the 4th largest wheat market in the country. As the prairies on the highlands are converted to wheat, and the forested hillsides are logged for timber and grazed by livestock, the land loses its ability to absorb runoff.
1900	Early flooding due to land-use practices begins to impact the towns and the 100 farms located in the valley. Large gullies begin to form on the steep hillsides as soil is washed down into the valley and streams below.
1919	Whitewater State Park is established to protect one of the most scenic sections of the valley from encroaching land use.

1920s	Flooding is intolerable. Farms and small towns in the valley flood up to 20 times per year. Low lying fields and homes are buried under 15 feet of eroded sand and silt.
1931	The Izaak Walton League petitions the State of Minnesota to consider purchasing flooded farmland in the valley and establishing a game refuge.
1932	The Minnesota Department of Conservation purchases the first parcel in the Whitewater valley and establishes the Crystal Springs Fish Hatchery on the site.
1933	The Elba Fire Tower is built to detect intentional fires set by landowners who clear hillsides for grazing. The clearing of hillsides contributes to erosion and flooding.
1937	Congress passes the Pitman-Robertson Act, placing a tax on hunting guns and ammunition in an effort to fund wildlife habitat restoration projects.
1938	Beaver village floods 28 times. Richard J. Dorer is hired by the Department of Conservation to oversee the Pitman-Robertson funds and develop a plan to restore the Whitewater valley. Winona County establishes the first Soil and Water Conservation District in the state to assist farmers with implementing conservation practices that reduce runoff and erosion.
1943	After building public support, Dorer's proposal is approved to purchase 38,000 acres along the Whitewater River for a wildlife area.
1961	After retirement, Dorer continues his crusade to protect the forests and sensitive trout streams of the region. His plan for a Memorial Hardwood Forest dedicated to the veterans and pioneers of Minnesota is approved.
1974	After his passing, the 1-million acre forest is renamed the Richard J. Dorer Memorial Hardwood Forest.
1987	The Whitewater River Watershed Project is initiated and later, in 2011, helps establish the first Farmer Led Council in the state.
2019	Whitewater State Park celebrates its Centennial Anniversary. Park staff work to ensure the lessons of the Whitewater Valley are remembered.

Timeline courtesy of the author.

the river milky white. By the time Elaine Holst's grandfather, Emanuel Hessig, settled near Beaver village in the 1870s, the clay deposits were gone and the Dakota were seasonal migrants in the valley. Now in her nineties, Elaine shared stories her grandfather once told her.

"Grampa would tell us kids . . . about the Indians coming up there. Yes, and those Indians would come and they were kind. I mean, they didn't make any disturbance, only when they came they always raided the chicken house and they'd take all the eggs. And they would go up the head of the valley, that's what Grampa always called it, the head of the valley. And that's where the Indians would settle in for the summer. My brother always talked about how the Indian children would slide into the creek."

The Dakota were forced from their homelands by the government and European settlers. By the 1890s, five villages were established in the Whitewater valley; from north to south they were Weaver, Beaver, Whitewater Falls, Elba, and Fairwater.

In 1890, John Mauer immigrated from Luxembourg and established a small tavern in Elba. Over the years the establishment has withstood many floods. Today the Mauer Brothers Tavern continues to be a favorite stop for visitors to the Whitewater valley. Image courtesy of Sara Holger.

Post-Treaty Development

In Elba, Mike Mauer's great grandfather arrived from Luxembourg in 1890 to work for Bub's Brewery out of Winona.

"Basically, the president or whatever the owner of Bub's, told my great grandfather to come to the valley because 'I think you can start a bar there and have a heck of a business.' And the town was already started; I don't think there was much for businesses then. So, they built the bar."

Elba has managed to remain on the map and Mike's family continues to operate Mauer's Tavern. The tavern has become a destination for campers, trout fishermen, and hunters who come to the Whitewater valley seeking respite from the hustle and bustle of everyday life.

Changing Land Use

During the late 1800s and early 1900s, floods caused by agricultural erosion plagued the valley villages. It turns out that plowing up the vast root systems of the virgin prairies and converting them to wheat and corn fields was not sustainable. Rain and snowmelt flowed off the fields, carrying the fertile topsoil down into the valley. Clogged streams became choked with sediment and flooded with the slightest rainfall, sometimes filling homes with up to three feet of sand and burying crops and pastureland. Beaver village flooded 28 times in 1938 and residents began to relocate (Whitewater River Watershed Project n.d.). Yes, you read that correctly: 28 times in 1938!

Meanwhile, efforts were underway to establish a state park along the middle branch of the Whitewater River. National parks were becoming very popular and Minnesota had already established a handful of state parks. Local settlers wanted to preserve the most scenic portion of the Whitewater valley as pleasant grounds for future generations. The editor of a local newspaper photographed tourists using the valley for leisure and assembled a book of photos called *The Paradise of Minnesota: The Proposed Whitewater State Park* (Warming 1917). Articles ran almost weekly in the local papers praising the proposed park.

In 1919, the Minnesota legislature approved the establishment of the park, but it wasn't until the New Deal programs of the 1930's that infrastructure was built with help from the National Park Service and the Civilian Conservation Corps and Works Progress Administration (Meyer 1991).

During the time the park was being developed, farmers in the valley were taking huge losses on their flooded properties. In 1931, the Izaak Walton League petitioned the state legislature to purchase the abandoned farmsteads and transform the valley into a game refuge. In 1932, the state purchased its first valley farmstead and made it into what is known today as the Crystal Springs Trout Hatchery.

In the early 1900s, Mike Seibenaler's grandfather arrived from Germany and settled on the ridge overlooking Beaver village. As the floods forced families from the valley and the country schools began closing down, those who remained had to face a tough choice: how to get their kids to school.

Mike recalled, "People on the ridge were willing to . . . sell. I remember my mom and dad telling the story . . . where the kids were all little, all of a sudden they were going to start school. . . . The

state was offering to buy land and they thought . . . 'We can't afford to drive them to school. . . .' So, they decided to move to town . . . and so then they sold their land to the state. My grandfather, Peter Kronebusch, was not happy. Not happy at all!"

Conservation

Most families were not happy about selling their properties, but they knew they could not make a living in the flooded valley. After the passage of the Pitman-Robertson Act of 1937, which placed a sales tax on hunting guns and ammunition, the Minnesota Department of Conservation had a funding source to acquire farms and develop a game refuge.

Richard J. Dorer was hired to oversee the Pitman-Robertson funds for the state and he devised the plan to restore the Whitewater valley. Dorer envisioned a place where urban folks who had no personal connections to private land could come experience the traditions of hunting and fishing. A self-proclaimed crusader, he worked tirelessly to enlighten others about conservation

Beaver Village circa 1900. Image courtesy of the Winona County History Center.

and stewardship. At the same time, the first Soil and Water Conservation District in Minnesota was established in Winona County and helped local farmers better understand how their farming practices contributed to soil erosion and runoff. The area farmers were some of the first in the country to help pilot experimental conservation practices at the time, such as rotational grazing, contour strips, and grass waterways.

Mike Seibenaler's father, Alex, grew up on the ridge overlooking Beaver village. He witnessed the erosion, flooding, and devastation caused by poor land use. He sold his farm to the state and later became a soil conservationist. During his career, he led many field tours to share the lessons of the Whitewater valley.

Keeping the Story Alive

Today, only two of the original five valley towns remain. The story of the Whitewater valley is now being told by the naturalists at Whitewater State Park. Monthly tours to Beaver village cemetery introduce the powerful story of destruction and restoration in the valley. During cemetery walks, visitors hear the stories of those buried at the site and learn how poor land use practices caused floods and destroyed homes, businesses, and communities. The Watershed Field Experience, a field day designed for area high school youth participating in agricultural education classes, allows students to investigate watershed issues while learning the history of the valley. In addition, the

Beaver Village flood in 1912. Image courtesy of Plainview Area History Center.

park Visitor Center houses both permanent and travelling exhibits that relate to watershed protection, including the We Are Water MN exhibit the park hosted in 2017.

Managing the natural resources of the park and surrounding Wildlife Management Area is a delicate balancing act. There is a vast spectrum of interests among visitors. The Minnesota Department of Natural Resources, through its various divisions, works to address the interests of all Minnesotans while using science to guide sound management planning. It is easy for visitors to see the restored bluff prairies and oak savannas and vastness of green perennial vegetation along the river and think, "Wow! The Whitewater valley has been restored!" But to the educated observer, the invasive species, high sediment content in the river, and recent increase in flooding tell us there is much, much more work to be done in the Whitewater valley.

Find out more about the current issues impacting the Whitewater watershed and explore the health of this and other watersheds with the Watershed Health Assessment Framework tool developed by the Minnesota Department of Natural Resources.

Whitewater State Park volunteers dress in period-appropriate attire to portray the residents of Beaver cemetery. During the Pioneer Cemetery Ghost Walk offered in October, the history of the Whitewater valley is shared through the stories of those who lived in the valley. Image courtesy of Minnesota Department of Natural Resources.

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About the Author

Sara earned her B.S. in natural resources and environmental studies from the University of Minnesota Twin Cities. She has been working as an environmental educator since 1994 at locations including the USDA Forest Service - Chippewa National Forest, Bell Museum of Natural History, Minnesota Department of Natural Resources MinnAqua Program, Eagle Bluff Environmental Learning Center, Olmsted County Parks, and Minnesota State Parks. Sara works as the lead interpretive naturalist at Whitewater State Park. She is also the founder and president of Project Get Outdoors, a nonprofit organization working to connect low income youth and children of color to the outdoors. Sara has three children and enjoys spending time outdoors with her family hiking, kayaking, agate hunting, and exploring our public lands.

GEOGRAPHIES

MISI-ZAAGA'IGANING (MILLE LACS LAKE)

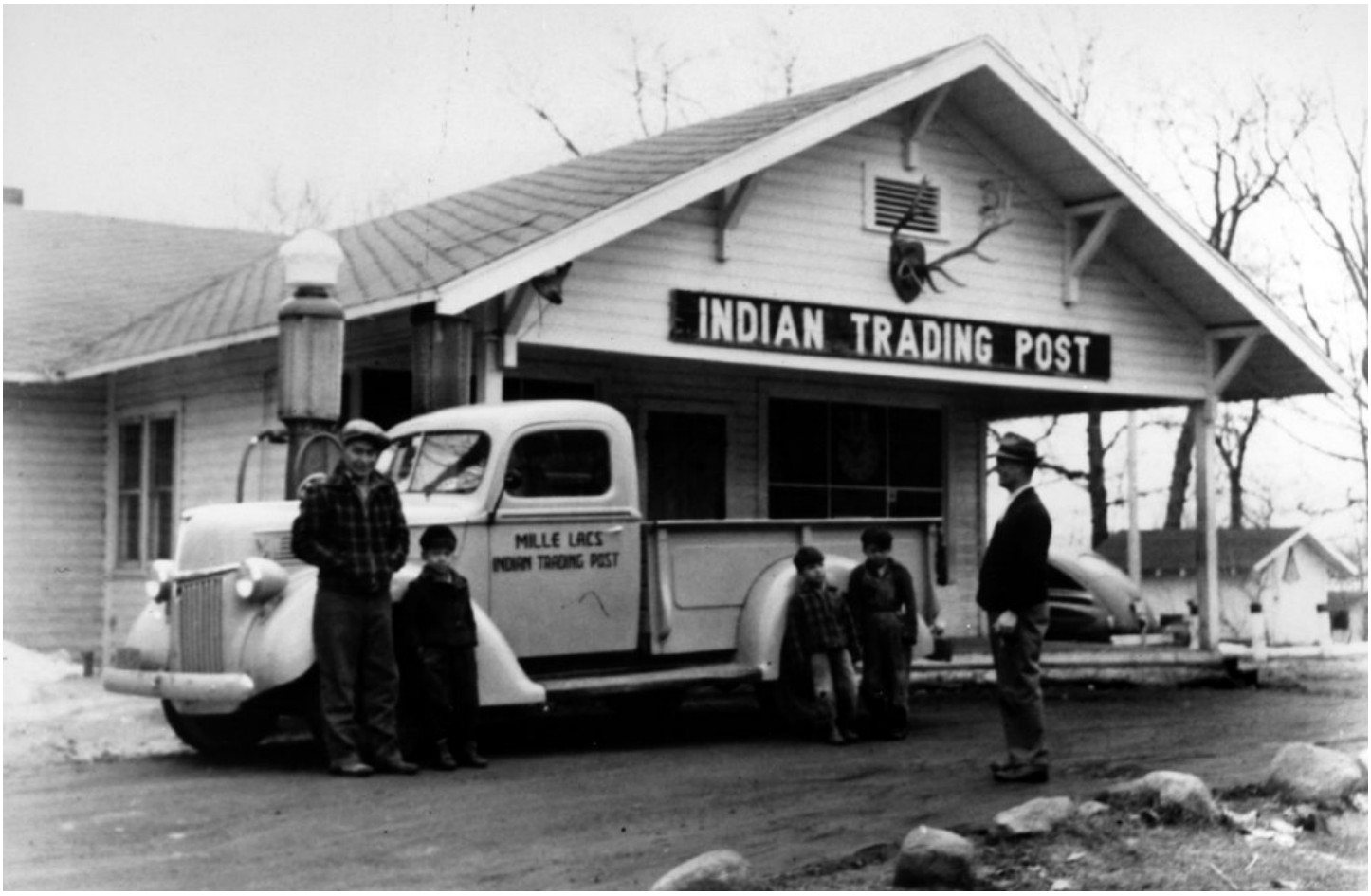
By Travis Zimmerman

Mille Lacs Lake is the second largest lake in Minnesota and archaeological evidence suggests that it was one of the first areas that humans settled in the region. Many different groups of people have called the area around the lake home. A number of Native American tribes have lived around the lake throughout time. When some of the first Europeans came through the area in the 1600s they were met by the Cheyenne. During the next century, as the Cheyenne migrated westward, the Dakota moved into the area and called the lake Bdé Wakán or Mystic Lake. When the Ojibwe arrived in the mid-eighteenth century, they called the lake Misi-zaaga'iganing, the lake that spreads all over. The first Europeans to travel through the area were French explorers, followed by French and British traders, and eventually Americans that set up towns and settlements around the lake. Following a series of treaties that resulted in the establishment of the state of Minnesota, loggers flooded into the area for the timber that was found throughout the forest

A sunset on Mille Lacs Lake as seen from Father Hennepin State Park near Isle, Minnesota. Image courtesy of Tom Webster (CC-BY-2.0).

surrounding the lake. By the early 1900s, trading posts and stores could be found around the lake and along rivers in the region. One of these trading posts was run by Harry and Jeannette Ayers, who moved to the area from St. Paul, Minnesota and were granted a trading license by the United States Indian Service in 1918. They were forced to relocate from their original location in 1925 and by the next decade their new trading post was open for business on the southwest shores of Mille Lacs Lake. In the beginning the trading post served as a general store for the local community, but as more tourists came through the area, they started to buy and sell American Indian arts and crafts. Eventually their enterprise would expand to include cottage rentals, a boat building and repair business, and fishing guide services.

The lake provided area inhabitants with everything they needed to sustain life. Besides the obvious resources a lake the size of Mille Lacs provides—like walleye, northern, and bass—the lake also provided ducks, geese, turtles, and muskrats just to name a few of the birds and other animals that frequented her shores. Plants like cattails and nettles provided a versatile food source as well as material that could be woven into bags, mats, and fiber that was used for cordage. Along the shores and surrounding wetlands, dozens of plants were used for food, medicine, and dye. The adjacent coniferous forest provided plenty of game that also provided furs and hides for clothing. Local rivers and lakes also were important sources of wild rice, the food growing on the water that led the Ojibwe to migrate into the area from the east coast. Today the Ojibwe, more specifically the Mille Lacs Band of Ojibwe, still rely on the resources provided by the lake and the surrounding area. Although the great coniferous forest is gone, fish and wild



The Mille Lacs Indian Trading Post in 1950. Image courtesy of Minnesota Historical Society.

game are plentiful, wild rice can still be found in some lakes around the area, and maple trees are abundant for collecting sap and boiling down to syrup and sugar.

When the Ayers moved their business to the southwest shore of Mille Lacs, they did so to be closer to the community of the Ojibwe that were scattered throughout the area. They relied on the members from the Mille Lacs Band of Ojibwe to assist with their operations and worked closely with the Band, often advocating on their behalf in dealings with the Bureau of Indian Affairs. Harry Ayers was also an avid collector of American Indian items and by the 1950s he had accumulated over 1,000 pieces of Ojibwe material culture. In 1959, the Ayers donated these items along with the trading post and other buildings on site as well as the land to the Minnesota Historical Society. The Mille Lacs Indian Museum and Trading Post opened as a historic site in 1960. The first museum was a building used to store Harry's collection that was attached to the trading post. The site was a unique collaboration between the Mille Lacs Band of Ojibwe and the Minnesota Historical Society. This museum stayed in operation until 1992, when it was torn down to break ground for a new museum. When the planning for this new museum began in the early 1990s, an advisory council made up of elders from the Band and other community members made sure that the relationship to the water was reflected in the architectural design of the building. As a result, the entire east side of the museum is all windows that face the lake and mimic the shoreline of Lake Mille Lacs. The current museum, which opened in 1996, brings the history, culture, and art of the Ojibwe alive through tours of the Four Seasons

Mille Lacs Indian Museum today. Image courtesy of Minnesota Historical Society.

Mille Lacs Indian Museum, 2012.
Image courtesy of Brady Willette and Minnesota Historical Society.

Birch bark basket workshop.
Image courtesy of Charlie Vaughn and Minnesota Historical Society.

Room where visitors can learn about seasonal activities that have been practiced for hundreds of years. The Four Seasons Room and the other exhibits highlight the significance of the lake to the Ojibwe way of life, and the importance of the lake throughout their history as they struggled for survival and eventually retained their hunting and fishing rights when those rights were upheld by the United States Supreme Court in 1999. The site also includes programs, workshops, and the trading post that continues to sell authentic Native American arts and crafts made by members from the local community and Native artisans from throughout the United States.

The partnership between the Mille Lacs Band of Ojibwe and the Minnesota Historical Society, and the stories that are told at the site have created both challenges and opportunities. Since the site is located on a reservation, many people assume that it is a tribally run museum, owned and operated by the Mille Lacs Band. Since it is a partnership, that creates some confusion. Another challenge, which is common amongst a lot of museums, especially museums that tell the story of any community, is keeping the exhibits and stories fresh and updated. The current museum has been around for more than 20 years, and besides a few minor additions, it has not changed much in the last couple of decades.

As the old adage goes, with every challenge comes opportunity, and the site has had the opportunity to bring in traveling exhibits throughout the past several years to get people to keep coming back to the museum. In the fall of 2019, the

Mille Lacs Indian Trading Post today.

museum was the host site for another traveling exhibit entitled We Are Water MN. This exhibit highlights the importance of water in people's lives by exploring how we relate to water, how we use water, how water unites communities, and how water affects every element of our lives. This exhibit also examines how we care for and protect water for future generations. This exhibit travels around the state and focuses on the stories particular to the areas that are hosting it. At the Mille Lacs Indian Museum, the exhibit includes stories of Mille Lacs Band members and other local community members and their relationship to Mille Lacs Lake and other watersheds in the area. We Are Water MN is led by the Minnesota Humanities Center in partnership with the Minnesota Pollution Control Agency, the Minnesota Historical Society, and the Minnesota Departments of Agriculture, Health, and Natural Resources.

Hear Gary Benjamin's We Are Water MN story, "Water is medicine." (transcript)
See more stories in the online map.

In addition to the traveling exhibit, the museum has further, future opportunities to continue to connect the stories of the Mille Lacs Band of Ojibwe with Mille Lacs Lake. Positioned on the shores of the lake, future programming ideas include a walking trail that visitors will be able to explore that will take them out to the lake and around the site. This trail will have interpretive signs of aquatic plants and animals that were used by the Ojibwe. These signs would be bilingual, including the common English name as well as the Ojibwe name. This trail could be used when the museum building is not open and hopefully birdwatchers and other nature lovers could utilize the trail. Potential partners for this project could be the Mille Lacs Band of Ojibwe, the Minnesota Department of Natural Resources, and the Lake Mille Lacs Scenic Byway Committee.

As museum professionals, we often talk about interpreting history where it happened and the power of place. The Mille Lacs Indian Museum and Trading Post is located in an area that is rich in history, has an incredible amount of biodiversity, and resides along the shores of one of the largest lakes in Minnesota. Located centrally in the middle of the state, the site is only a couple of hours from most major cities in Minnesota, so can be visited as a day trip. We invite you to come visit and experience for yourself the history, culture, and art of the Ojibwe, as well as to explore the beautiful area around Lake Mille Lacs.

Recommended Citation

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About the Author

Travis Zimmerman is from the Crane Clan of the Grand Portage Band of Lake Superior Chippewa. Travis has a B.A. in history from St. John's University in Collegeville, Minnesota, and is currently the site manager of the Mille Lacs Indian Museum, which is part of the Minnesota Historical Society (MNHS) where he has worked for the last 13 years.

IN REVIEW

WOVEN WAYS OF KNOWING

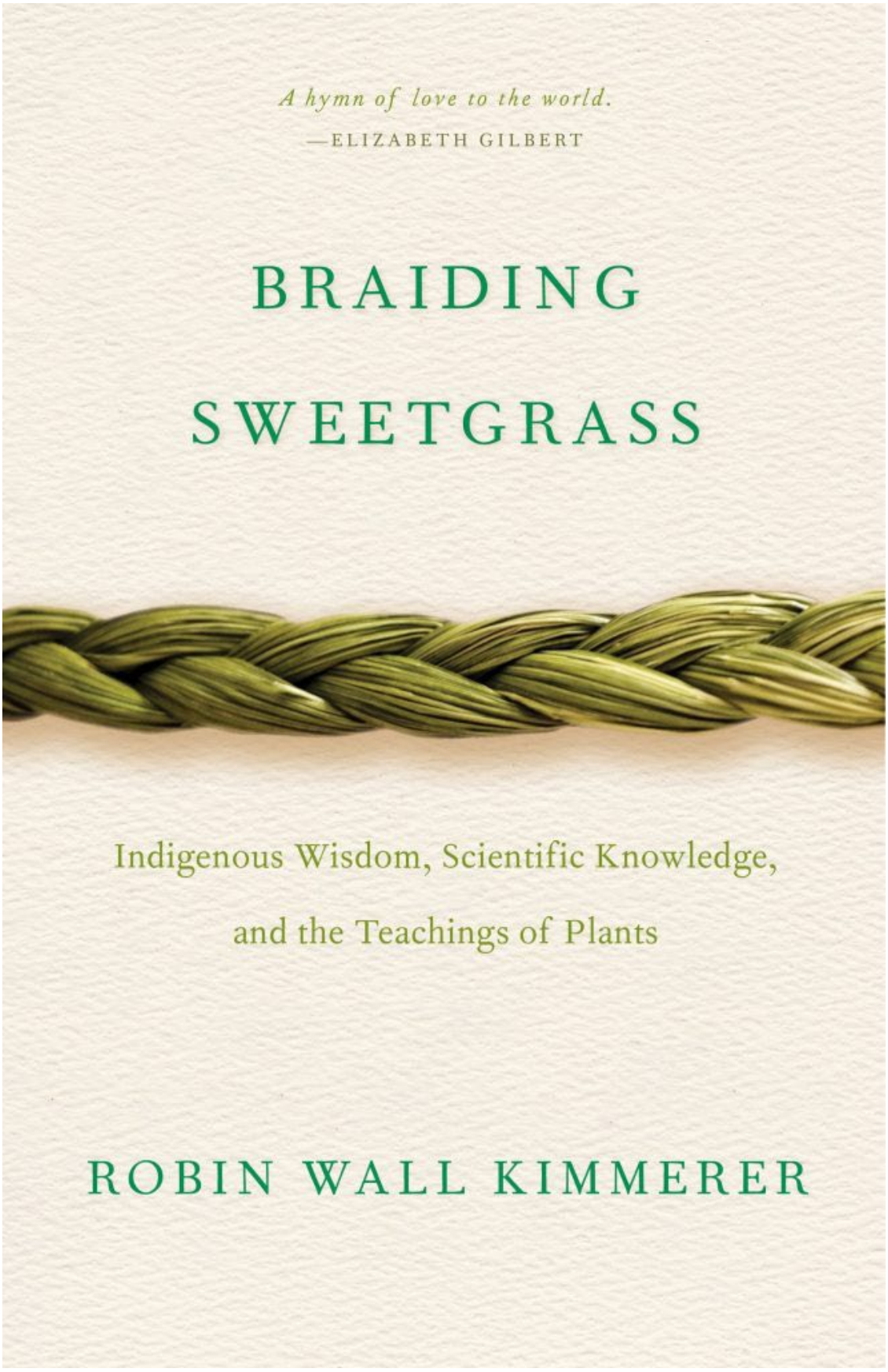
By Mahin Hamilton

Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants (2013) is a nonfiction compilation of essays written by Robin Wall Kimmerer, a celebrated botanist, poet, and Indigenous member of the Citizen Potawatomi Nation. Each section of the book is broken down according to themes related to a different plant, Native teaching, or personal story. Many times it is a combination of all three.

As with the traditional braiding of sweetgrass, the ultimate purpose of this book is to weave together three ways of knowing: scientific knowledge, Indigenous knowledge, and the knowledge of the author herself, an Anishinabekwe scientist. Kimmerer combines these elements with a powerfully poetic voice that begs for the return to a restorative and sustainable relationship between people and nature.

She invites us to seek a common language in plants and suggests that there is wisdom and poetry that all plants can teach us. She goes further by explaining that, to her people, respect of earth and plant life is inherent. The earth, sky, water,

Braided sweetgrass, its three strands representing the three interwoven components of the book: scientific knowledge, Indigenous story, and personal narrative. Image courtesy of Jamieson Lawrence (CC BY-SA 4.0).



"Braiding Sweetgrass" (2013) by Robin Wall Kimmerer. Published by Milkweed Editions.

and all living things are viewed as though they are each a nonhuman person—that is, a unique entity that should be cared for and respected, can be communicated with, has a story to tell, and has a lesson to teach. As she weaves together these lessons, she explains how each natural element plays a key role in the historic and modern survival of Indigenous people and their tribal cultures. Each essay weaves in the overarching themes of restoring balance between modern society and nature, and finding harmony between modern science and Indigenous teachings.

Kimmerer speaks continually of the importance of living with a reciprocal mindset between one another as well as between people and the land. It is a way of viewing how we care for and bestow blessings and gifts on one another and the world around us. She argues that this reciprocity creates a universal balance, which is restorative and can lead to a sustainable future for our planet through a return to abundance in the natural world. She writes that we have lost our historic communion with the earth as we have moved away from subsistence living and into lives of abundance. In her essay "Windigo Footprints," she shares the Native story of Windigo, a mythical monster that is cursed to stalk the land in a never-ending quest for food. Yet its appetite is never satisfied; the more it consumes, the hungrier it becomes. "Consumed by consumption, it lays waste to humankind" (305). This tale was told by her people during the cold winter months, at a time when starvation was a reality. It served as a warning against sociopathology to a communal people that depended on the reciprocity of one another for survival. To compare this folk story in scientific terms, Kimmerer offers Windigo as an Indigenous study on a positive feedback loop or system imbalance. Kimmerer also uses this story as an allegory for the worst of modern society: consumerism, drug addiction, overuse of technology, and the prioritization of wealth and power over global health by large corporations. She reflects that the Windigo of old still roams the earth today.

Kimmerer's personal and professional life stories are interwoven throughout the book so that it becomes part memoir, part voice for Indigenous peoples, part botanist handbook, and part plea to Western society for a return to ecological balance. She includes stories about her parents participating in rituals that they knew were important though they had not been taught the meaning because so much of her culture was lost when her people suffered the hardships of forced removal, starvation, war, disease, and persecution over the last few hundred years. She writes about clearing a pond as an adult over many summers so that her children could swim there. It became a labor of love for the ecological restoration of the pond as well as for her children, and a way for her to play a small part in correcting the damage done by surrounding farm fields that were overfertilized but completely void of all microorganic life. She writes about slowly, painfully learning her native language, one that has been almost completely lost save for a few committed elders who are passing it on to interested people like her.

In "The Three Sisters," Kimmerer shares the Indigenous practice of planting corn, beans, and squash together in a mutually symbiotic dance of efficient polycultural elegance. Throughout the story, she repeats the statement that because of these seeds, the people might "never go hungry again" (131). But to Native people, these plants are more than just food. They are also a gift, and they have a lesson to teach about reciprocity. She weaves in the scientific rationale behind the success of this ancient practice as she explains how the three plants grow and benefit one another. Kimmerer shares how the Three Sisters explain the tenets of the Ojibwe people: "Being among the sisters provides a visible manifestation of what a community can become when its members understand and share their gifts. In reciprocity, we fill our spirits as well as our bellies" (134). Because the beans, corn, and squash are fully domesticated, they depend on the people to create the proper conditions for growth. In turn, people need the Three Sisters for sustenance. Ultimately,

"Three Sisters" garden of corn, beans, and squash.
Image courtesy of Eli Sagor (CC BY-NC 2.0).

this way of growing together is a representation of a healthy reciprocal relationship, where gifts exchanged create an indefinite growth model of abundance.

The great beauty of this book is found in Kimmerer's voice. She weaves story, science, and personal narrative with a beautifully poetic style that often characterizes Native storytellers. In "The Honorable Harvest" and "Burning Cascade Head," she explains the deep respect that Indigenous people show all living things, how they never take the first thing they see, they never take more than half, and they only take what is given. This sustainable harvesting practice is incredibly rewarding for the health and success of entire ecosystems, which benefits the people in kind by creating even more food over time. She also explains how gifts are returned to plants and animals for harvesting their very lives so that the people can feed their families. Plants are gently tended to and are given gifts of tobacco. Animals are shown ceremony, prayers are spoken, and celebrations are held in the honor of their sacrifice.

There is a languid and peaceful quality to Kimmerer's prose that reads like a meditation

Kimmerer explains the premise of Indigenous sustainable harvest: never take the first thing you see, never take more than half, and only take what is given. This includes sockeye salmon, shown spawning here at Adams River, Canada.

or dance, inviting the reader into the world she has created of small moments, big ideas, and alternate ways of thinking and knowing that may be strange and beautiful to some of her readers. These readers may be put off by the repeating thematic structure of the book, the storytelling, or even the fluidity of her writing style, and not everyone may agree with her conclusions.

I, however, loved reading this book and savored each essay. Kimmerer asks many questions that deserve pondering. I am the type of reader that will normally devour a good book. With this book, I instead found myself slowing down to process the way she beautifully and simply sets the scene of a story, to capture the essence of a main idea, to find repeating elements, and to contemplate her comparisons and conclusions. Her comparison of the American Pledge of Allegiance to the Onondaga Thanksgiving Address in "Allegiance to Gratitude" is a good example of the way she weaves story with big ideas. This is a heavy, thoughtful analysis of the origin of two cultures that experience identity in very different ways. As such, it should be read with the intention of getting something new out of a familiar concept by looking at the same thing from a different perspective. I experienced reading this book as one should experience a fine wine: slowly, thoughtfully, and quietly. Kimmerer might say that the book asks to be read in this way.
If you enjoyed *Lab Girl* by Hope Jahren (2016), you may also appreciate this book. Both books illustrate the authors' passion for and devotion to plants. These authors' relationships with plants transcend the science lab and create a larger narrative than can be found in a scientific journal. In her book, Kimmerer asks the reader to learn a new way of thinking about the connection between Indigenous teachings and science, and between nature and humans. She begs the reader to imagine a world where these elements exist in a harmony that confers agreement, restores a damaged landscape, heals relationships, and ultimately creates a new modern language of sustainability based on modern scientific truths and Indigenous practices. If you are unfamiliar with the beauty of Indigenous storytelling or are looking for a book that can be picked up and skimmed over, you may miss the subtleties of this artfully crafted book. However, if you are looking for a book that invites you to take your time, savor each page, each question, and each big idea, be prepared to come away from it with a different way of seeing and knowing the world.

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About the Author

Mahin Hamilton is an alumna of the University of Minnesota and a current graduate student at Hamline University studying natural science and environmental education. With over 15 years experience in nonprofit project management and design, Hamilton is currently pursuing a career transition. She lives in St. Paul, Minnesota with her husband and their three daughters.

PERSPECTIVES

CULTIVATING AND STEWARDING A COMMUNITY OF "WATER PEOPLE"

By Melissa Miller

I didn't set out in life to be a Water Person.

Despite growing up on the Mighty Mississippi, with water as the backdrop to so many of my childhood memories, I didn't think of myself as a Water Person.

Despite spending time living in the eastern U.S. near the Chesapeake Bay, where fishing, crabbing, swimming, and boating shape the identity of the towns along its shores, I didn't think of myself as a Water Person.

When I joined the Iowa Water Center (IWC) staff in 2012 with very little understanding of the water research needs in Iowa, I especially didn't think of myself as a Water Person.

I didn't think of myself as a Water Person for most of my life. I began to reconsider in the

Tipton Creek runs through the community that the author's family calls home. This water winds through farmland, eventually connecting to the Iowa River, a tributary of the Mississippi River. Image courtesy of the author.

spring of 2017 when IWC ran an essay contest for high school students asking them to consider a body of water familiar to them and write about why it was worth protecting. This contest was established by a gift to IWC from a couple devoted to instilling a love of the environment in youth. As part of the promotion for this contest, IWC staff each wrote a piece answering the essay prompt.

At that point, I was five years into my position at IWC and I knew plenty about water and water research. I pondered my essay topic for a bit. I could write about nutrient leeching into the Mississippi River and flowing down to the Gulf of Mexico, or about the sediment loading that threatens the recreational value of Iowa lakes, or about the chemicals of emerging concern in our drinking water sources.

But as I sat to consider a *familiar* body of water, I realized—for perhaps the first time—that water is a part of who I am and who I've always been. From the creek at the end of my dead-end street, to the lake I fished with my grandpa, to that beautiful Mississippi River that still draws me in like a magnet no matter where I stand on her banks, water, to me, is home.

Water resource management is inherently a local issue—making it a personal one. When the United States Congress passed the Water Resources

The Mississippi River seen on a visit by the Iowa Water Center staff to the Minnesota Water Resources Center in summer of 2019. Image courtesy of the author.

Research Act in 1964, they recognized that states had both the need and the capacity to address water resource concerns at the local level. This legislation birthed the Water Resources Research Institutes (WRRI), housed today in universities in all fifty states and four territories, including IWC. Administered through the United States Geological Survey, we are charged with engaging stakeholders to identify water resource issues, coordinating research at the state level to address those issues, and getting research results into the hands of those who need it the most—all while training the next generation of future water scientists. Communication is at the heart of the work we do.

As IWC's associate director, I play a significant role in determining the strategic direction of the Center while balancing the needs of our many constituents. Truth be told, this has been a daunting task at times. Who is not a constituent of an institution focused on water? Where do we begin to address the vast concerns of a state so rich in water? What strategies do we employ to engage the government agencies, legislators, water resource managers, and citizens who both determine research priorities and also benefit the most from solutions found through good water science? And how do we do this successfully with extremely finite financial resources?

There was a time when information dissemination was limited to technical reports, peer-reviewed journal articles, and presentations at academic conferences. Judging by many of the grant proposals I review, that time has not completely gone by the wayside, but increasingly we see relationship-building activities taking center stage in how we communicate scientific information. Dr. Faith Kearns (2015), who coordinates research and outreach programs for the California Water Research Institute, champions the use of emotional intelligence and empathy in communicating about controversial topics like climate change. A recent article published in *American Entomologist* urges scientists to engage with the government and other civic institutions, and to communicate their science via social media channels like YouTube and Twitter (Hulcr, Dharampal, Hamm et al. 2019). This multi-pronged, relationship-centric approach permeates the activities we conduct at IWC. We believe we must cultivate our stakeholders to be willing participants in the discussion about water science. We have to help them realize they are Water People.

My first job out of college was in nonprofit fundraising. One of the concepts explained to me during my departmental orientation was the donor cultivation cycle. There are various examples out there, but the simplest version is this: once you have identified a potential donor, you must cultivate them before you make an ask. Once you've made the ask, you have to steward their gift and show them how it matters. Cultivate, ask, steward, repeat.

Disseminating water science information is really not that different. If we can draw people in and cultivate them to care about our science, then the ask we make is for them to invest their trust in the science and take action accordingly (arguably a bigger ask than a piece of one's disposable income!). We've taken some risks over the years to meet people where they are to connect them to science through emotion, art, and community. The Spirit of the Water essay contest (the one that helped me realize I'm a Water Person) is one example of many. We strive to incorporate arts and humanities into our annual Iowa Water Conference, such as when Jennifer Tonko from the Minnesota Humanities Center gave a plenary address at the 2019 Iowa Water Conference to introduce our state to We Are Water MN. We engage high school youth in project-based learning using watershed boundaries to define their communities through The Watershed Project. This fall, we started a learning community for faculty engaged in water research to inspire interdisciplinary collaboration and teach methods for engaging policy makers and fostering healthy

As part of The Watershed Project, Davenport North High School students worked with Harrison Elementary students to create this mixed media mural of The Life of a Watershed. Students in grades K–5 each contributed a facet of the ecosystem. Image courtesy of the author.

teams. We have a YouTube series, *Ask a Scientist*, where Iowa researchers explain simple land and water phenomena in one minute or less. Our researcher profile videos ask scientists to consider questions like "If your research were an athletic sport or a game, what would it be?" And yes—we're on Twitter.

Because we don't treat science communication as a transaction, we feel we're building venues where our stakeholders trust not just science, but the scientists themselves. So, when we do communicate water resource management solutions, our stakeholders are ready to invest. Stewardship, then, is the dialogue we have with stakeholders about their lived experiences with the same things we are studying, developing shared language and concepts, and incorporating that knowledge into our future research and outreach activities. Over time, we all see ourselves as Water People.

And the cycle continues.

Resources cited:

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Kearns, Faith. 2019. "Stretching Science: Why Emotional Intelligence Is Key to Tackling Climate Change." *The Conversation*, 1 May. https://theconversation.com/stretching-science-why-emotional-intelligence-is-key-to-tackling-climate-change-50654.

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About the Author

Melissa Miller is the associate director at the Iowa Water Center, the state's Water Resources Research Institute. In this role, she forges relationships across the state and region to advance and elevate Center initiatives that address the water research needs of Iowa. Melissa's work typically centers around building team capacity for interdisciplinary research, outreach, and education projects, with special emphasis on internal and external communication and strategy. Melissa has been with the Iowa Water Center since 2012. She holds a B.S. in community and public health and M.S. in community development with a focus in natural resource management, both from Iowa State University. Melissa lives on a farm in the South Fork of the Iowa River watershed in central Iowa with her husband and three daughters.

PRIMARY SOURCES

A LAKE WITH A CROSSING IN A SANDY PLACE

By Ashley Ignatius

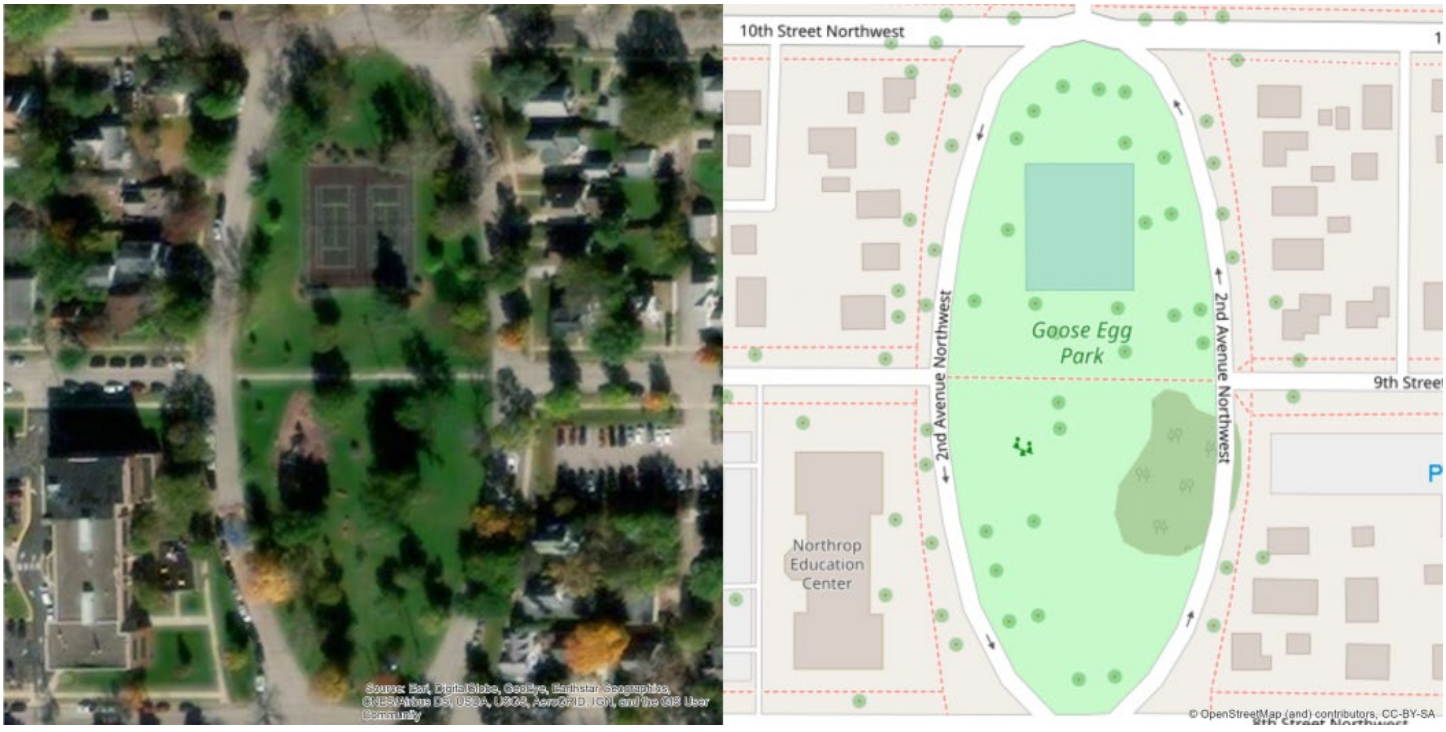
As a GIS (geographic information systems) analyst with the Minnesota Pollution Control Agency (MPCA), most of my work happens at my desk. This work ultimately supports Minnesota's Water Quality Framework, a high-level, collaborative approach to managing Minnesota's water resources. My primary focus is Watershed Restoration and Protection Strategies (WRAPS), which includes the synthesis of water quality data and the development of high-level strategies to protect and restore Minnesota's lakes, streams, and wetlands. What this means on a day-to-day basis is that I'm doing everything from running spatial analyses for the purpose of answering questions about watershed characteristics (e.g., "Can you tell me the number of acres of hay grown on land with three to six percent slopes in the north branch of the Whitewater River watershed?") to creating seemingly simple, basic map graphics for outreach publications.

A map from We Are Water MN showing visitor stories. Image courtesy of Minnesota Humanities Center.

Missing Data

A few months ago, it was a typical day at work for me. I was tasked with producing a basic map graphic for an outreach brochure—nothing extraordinary. I sent off the completed graphic and moved on to another project. The next day, our local watershed partner replied to my email and asked me to "add the reservation communities of Little Rock and Ponemah to the map." Perplexed, I wondered, "Had I made a mistake?" I was certain I had access to the most up-to-date spatial data. When using GIS to make maps, real world features are represented in spatial data as different thematic layers. For example, when making a map of a park, there would be one layer of trees (represented as points), one layer of sidewalks (represented as lines) and one layer of the park boundary (represented as a polygon). To make the park map, I would stack the different layers on top of one another: park boundary polygon on the bottom, then sidewalk lines next, then tree points on top.

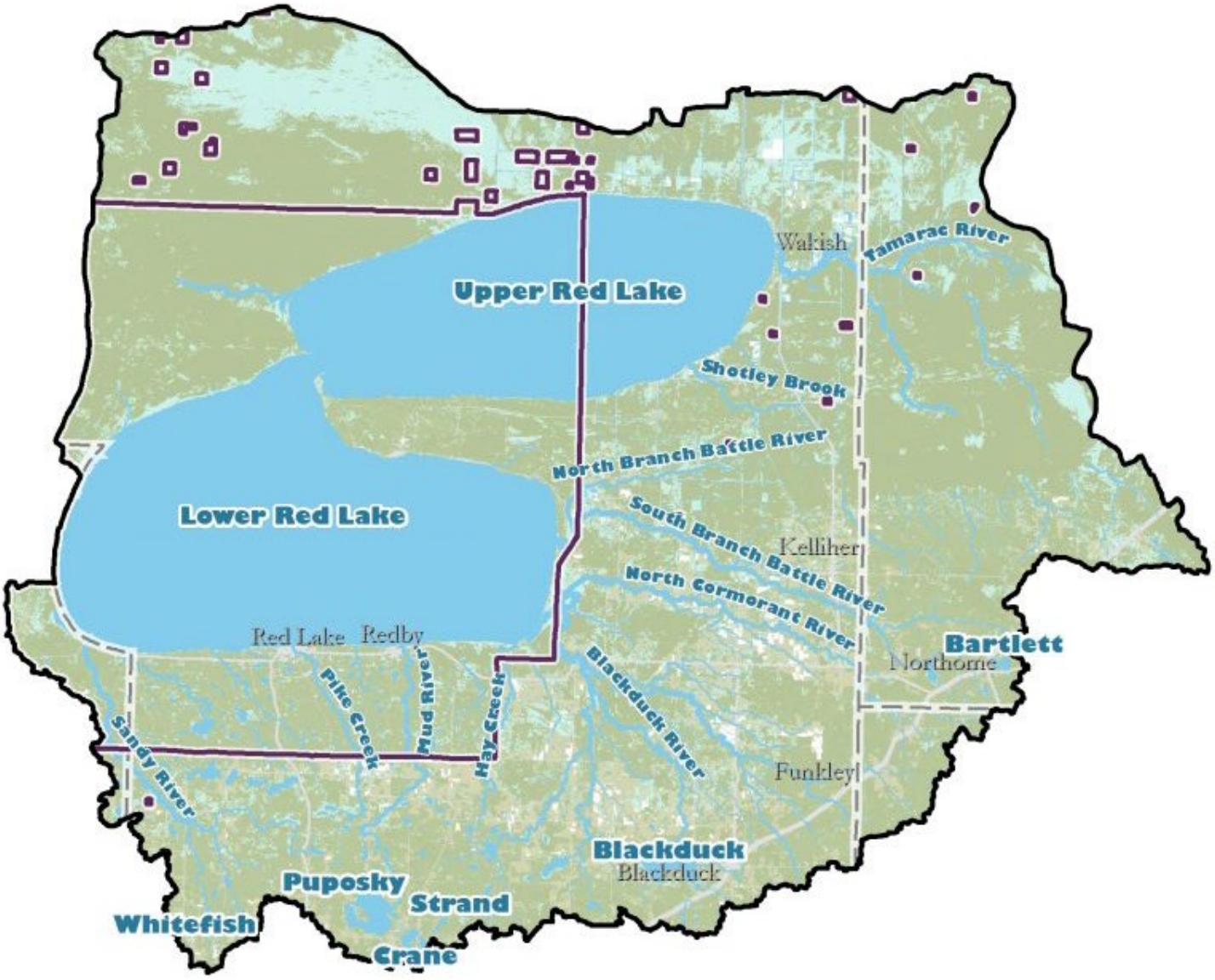
I looked through the Minnesota Cities, Townships and Unorganized Territories layer I had used, but found no polygons for the "City of Ponemah" or the "City of Little Rock."[1] The mistake I had made was assuming that this one layer I commonly use was the complete set of places. Any place that was big enough or important enough would be included in the layer, I assumed, and if it were not in the layer, I should not need to worry about it. That was far from the truth. From the isolation of my desk, in my city of 115,000 people, 350 miles away, I had inadvertently excluded entire communities, people, and their stories.



The image on the left is an aerial photograph of Goose Egg Park in Rochester, Minnesota. The image on the right illustrates how features such as trees, sidewalks, and the park property are represented in OpenStreetMap. Aerial Photograph Courtesy of Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community. Map on the right courtesy of OpenStreetMap and contributors (CC-BY-SA) and Ashley Ignatius.

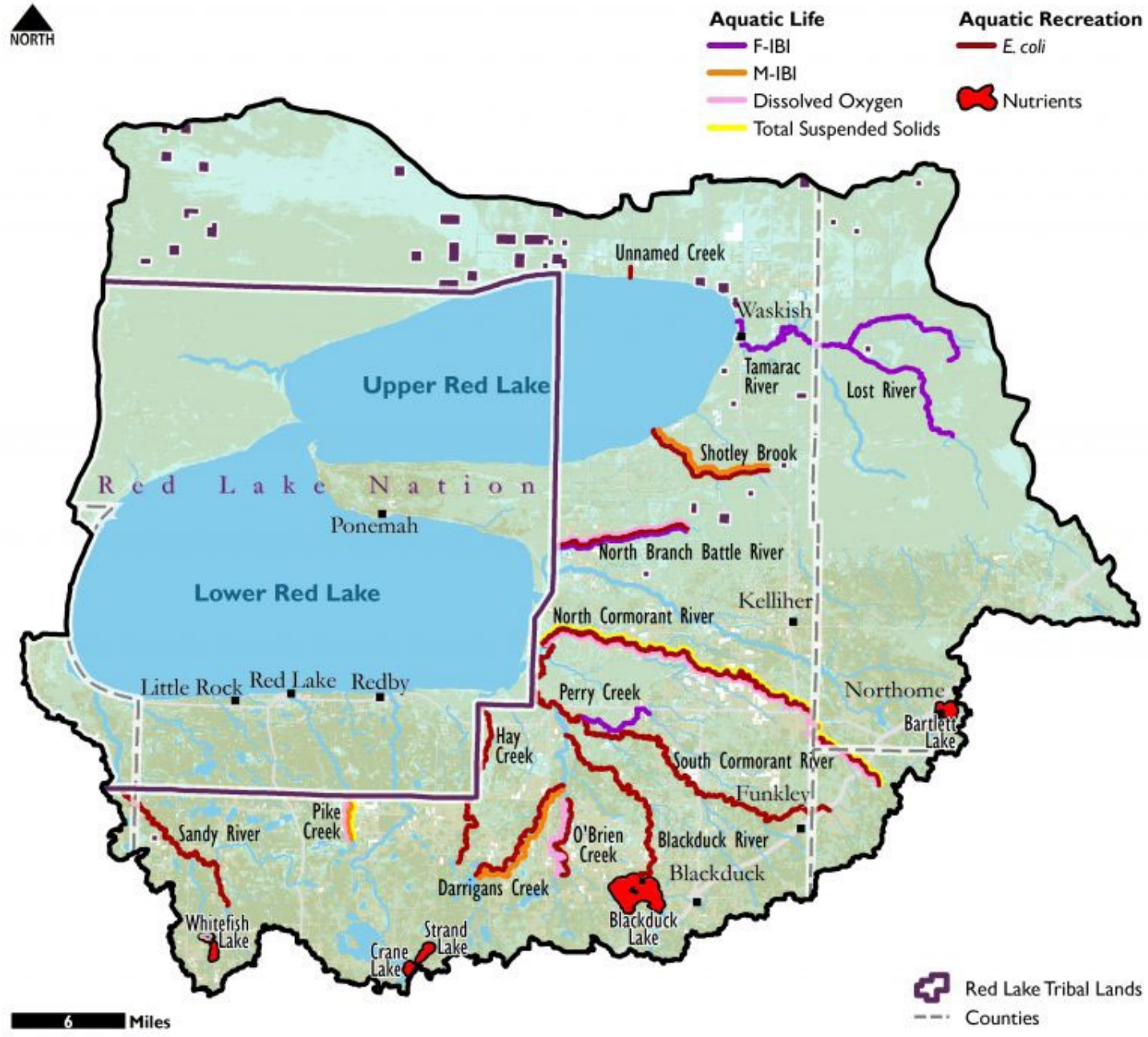
A quick Google search confirmed that these communities do indeed exist, so I sought another source of spatial data. I came across the Minnesota Geographic Names layer that includes "relatively permanent parts of the natural or manmade landscape" such as populated places, which are "places or areas with clustered or scattered buildings and a permanent human population (city, settlement, town, village)."[2]

I added the two communities to the map, replied to the email with the revised map graphic, and carried on with my day. But this exchange got me thinking about what else I might be missing and the effect my inadvertent mistake and unawareness of these communities could have had on this map and others I have made. What could these mistakes mean for and to the people and places that were left off my maps?



The Upper and Lower Red Lake watershed map graphic before my edits. Map courtesy OpenStreetMap and contributors (CC-BY-SA) and Ashley Ignatius.

There are many ways that places end up missing from a map: unintentional omission, intentional removal, or perhaps most commonly, as a result of the cartographic design process. With the latter, some places are promoted to the top level and shown with high prominence on the map while others are minimized or removed.[3] With a finite amount of space to convey information, including all places and features on a map may not provide additional benefit, but instead could result in confusion. Just as a museum curates how collections are exhibited, cartographers curate what places and features are displayed on a map.



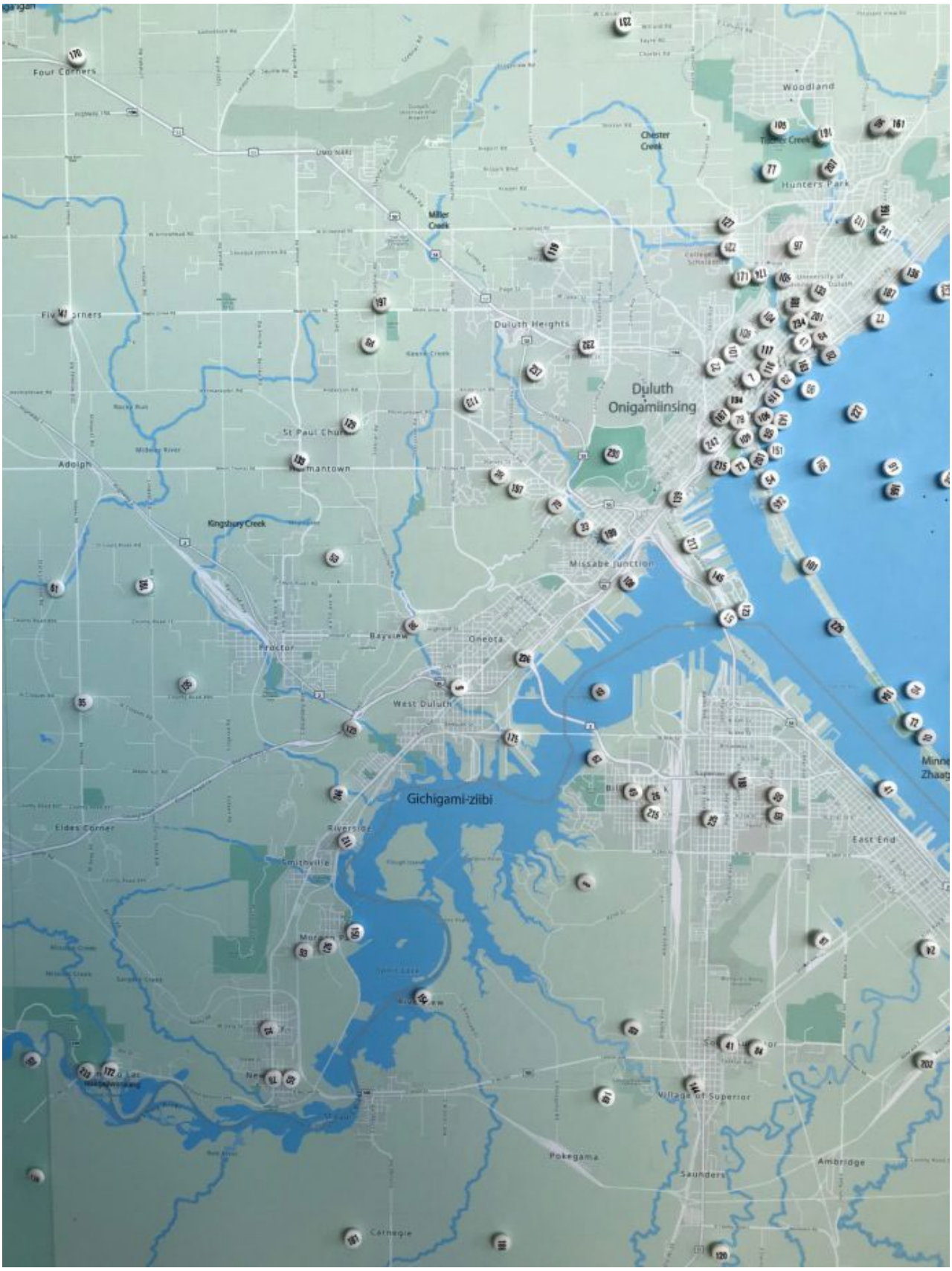
The Upper and Lower Red Lake watershed map graphic after my edits, adding the two missing communities and other details to the map. Map courtesy OpenStreetMap and contributors (CC-BY-SA) and Ashley Ignatius.

Base Map

We Are Water MN was initially part of a larger project, Water/Ways, a traveling exhibition and community-engagement initiative of the Smithsonian Institution's Museum on Main Street. In phase one of We Are Water MN, six sites took turns hosting the exhibit: New London-Spicer, Saint Peter, Red Wing, Sandstone, Lanesboro, and Detroit Lakes. My responsibility for We Are Water MN was to create a large, seven-foot-wide-by-five-foot-tall map for the region around each host site that would serve as a base where exhibit visitors could share their water stories.

When asked if I could support phase two of We Are Water MN, I was excited. How great that more people would be given an opportunity to connect their community's values around water to thoughtful action and stewardship. Phase two provided the opportunity to work with two sites hosted by Native American communities—the Fond du Lac Band of Lake Superior Chippewa in Duluth and the Mille Lacs Band of

Duluth, Minnesota map from the Fond du Lac host site showing visitor stories. Image courtesy of Minnesota Humanities Center.



Detail of the Duluth, Minnesota map from the Fond du Lac host site showing pin locations for visitor stories. Image courtesy of Minnesota Humanities Center.

Ojibwe in Onamia. Working with these host sites, it seemed like an opportunity existed to improve the map by adding the Ojibwe names of features and places.

On the other hand, I was concerned about how I would find the time to build these maps thoughtfully to reflect the diverse stories of each area. A common project management problem is to balance time, cost, and scope. I had less time allocated to work on phase two than on the previous phase, and adding Ojibwe names would change the scope of the project. It seemed important to add Ojibwe names, so we made it a priority.

My journey started as I thought about how I would create these maps of areas unfamiliar to me, and ensure that no one's place was missing from the maps. First, I needed to ask myself, "Should I do it?" Would bilingual labelling be useful to—or even welcomed by—the Native American communities hosting the exhibit? Or was this just something I wanted to do? Would I be filtering their concept of place through my own preconceived frames and experiences? Would the methods I use to make maps be able to adequately represent their concept of place? Secondly, I needed to figure out, from a technical standpoint, how to accurately source the names and place them in the correct location on the map.

Emily Buermann, the programs director at the Becker County History Museum. Image courtesy of Minnesota Humanities Center.

Becker County Ojibwe Lake Names Project

To answer the question of "Should I do it?", I wanted to have conversations with people who may be working on similar projects, and also who had a connection to Native American communities. One of the people I spoke with was Emily Buermann, the programs director at the Becker County History Museum.

Quietly tucked away next to the Detroit Lakes, Minnesota fire station, the Becker County History Museum hosts an impressive collection of stories about the people and places of Becker County. Wedding photo albums from the 1900s, every issue of every newspaper ever published in Becker County, and a two-headed calf specimen are among the vast array of items entrusted to Emily's care. Her work includes managing the extensive collections of artifacts housed at this museum and determining which pieces will be displayed and how. Each piece has a story to tell inquisitive visitors and community partners about the region and its people. Another important part of Emily's job is directing camps for children, with a particular sensitivity to meeting the needs of people of all abilities.

Right away Emily saw an opportunity to close a gap in the collection when she began in her role at the museum. "We display flags; the United States flag, the Minnesota state flag, and the county flag are on display here, but we didn't have a White Earth Reservation tribal flag. I knew that there was a flag because that's where I grew up," she said. Wanting to better represent everyone, she spoke with the tribal leadership and was able to obtain and add the White Earth tribal flag to the display. "Now we represent everybody…I think that's exactly what everyone wants," she said.

Flag of the Ojibwe White Earth Nation in Minnesota.

I first met Emily in 2017 through phase one of We Are Water MN where she shared her water story about her Grandma's idea of a perfect day. Serendipitously, I ran into Emily in Detroit Lakes, Minnesota last summer where she was staffing the Becker County History Museum booth at the Aqua Chautauqua, a community event centered on water. At the booth, Emily shared a map of Becker County that had lake names labeled in Ojibwe adjacent to the English names. That map was part of the Becker County Ojibwe Lake Names project on which she and her research library had been working.

Hear Emily Buermann's We Are Water MN story, "Fish Camp." (transcript)
See more stories in the online map.

"Every day we do a little bit of something else. We are always trying to create more, because there is always a gap…we are filling holes and blanks in our research library every day," she explained. Emily works closely with the research team to identify gaps in the collection and to acquire pieces so that everybody's story is represented, which is in part how the Becker County Ojibwe Lake Names project originated.

Detroit Lake

When you cross a river or lake in Minnesota, almost everywhere a sign marks the name in English. But once you cross onto the White Earth Reservation, the sign will be bilingual; it will say "Buffalo River and then it also has the Ojibwe name," Emily pointed out. The name Detroit Lake is French, she continued. In French, *Détroit* translates to "strait", which would describe the narrow channel through the sand bar in the middle of Detroit Lake connecting the two larger bodies of water that make up the lake. The Ojibwe name, *Gaiajawangag,* means "a lake with a crossing in a sandy place." "Whether or not that's a direct translation or whether just two people noticed the exact same thing, what sets [it] apart from other lakes is that there is a sand bar through the middle," Emily explained. Among the extensive collection held by the museum's research library is a hefty book called the *Pioneer History of Becker County* by Alvin H. Wilcox, published in 1907, about 50 years after the State of Minnesota and Becker County were established. [4] The book describes the plants and animals of the region, the lives of pioneers when they first arrived, and the names of features as told to the pioneers by their Indigenous guides. Emily and the research team used this book and other resources to find Ojibwe names for lakes. Within the first two weeks of the project, they identified 20 Ojibwe names for lakes in Becker County that were outside of the White Earth Reservation. What the research team discovered was that most of the English names of lakes in Becker County are a direct translation from their Ojibwe names.

"I grew up living on the reservation, and going to school and doing everything off the reservation," Emily said. Growing up on the White Earth Reservation and attending school off the reservation, Emily experienced life in both "Native places" and "non-native places."

The most beneficial aspect of adding the Ojibwe names to features that are more commonly known by their non-native names is that "We're showing that we are all neighbors, and that we all live here together, and that being Native or having Native things is not a magical, mystical, separate, secret thing," she explained. Emily is convinced that people are interested in seeing the Ojibwe names and English names side by side and that things are no longer Native and non-native. "It's who we are as a county, and we are not just Native and non-native—we're Swedish and we're German and we're Norwegian and we're a melting pot. We are all here together," she said. "I feel like people are really open to

the idea of learning more about their neighbors, more about how we've all lived here together for hundreds of years."

Speaking with Emily and others doing similar work, it seemed like adding Indigenous names to the We Are Water MN exhibit map would be the right thing to do, but maybe we could incorporate them into other maps and other projects in the future as well.

So then I asked myself from a technical standpoint, how could I do this? Where do I find the spatial data set of Indigenous place names? Typically, I would be able to get the data from a place like the Minnesota Geospatial Commons and add it to my map. Based on my previous experiences, I knew I would have to look beyond the data sets and sources I commonly use, which led me to OpenStreetMap.

OpenStreetMap

OpenStreetMap is a free, wiki-style, crowd-sourced map of the world where data, built from aerial imagery and the local knowledge of volunteers, is contributed to enhance the map. [5] The richness of the resource is not the map itself, but the data on which it is built. Not only can you edit the data in the map, but you can also download a portion of the data and create your own map from that data. The data includes every feature you might expect to find in a map: places, parks, streets, paths, buildings, waterways, and land use, as well as information that describes each of those features. I thought I could use OpenStreetMap to find the Ojibwe names and Dakota names for all the places on my map, but I wasn't sure how to do it.

When I was looking for assistance to find Indigenous names for places and features using OpenStreetMap, I knew that Brad Neuhauser would be my contact. I met Brad through my work with the State of Minnesota. Brad has lived in Minneapolis for almost 20 years and has worked as a GIS specialist for the Secretary of State's office for over 10 years. Like many State of Minnesota agency GIS specialists, he uses ESRI ArcMap software daily but says he has "always been interested in open source software and trying different things." When Brad is not busy managing the statewide voting precinct spatial database, that's exactly what he's doing—using open source tools to improve political district boundary data, wrangle large election results files, and streamline the process of making map atlases more accessible for users who have a vision impairment and rely on screen reading technology.

He has been adding features to OpenStreetMap on and off since 2007 and informally has been working on a project to research Dakota names, and one of the eventual goals is to add those names to OpenStreetMap.

I asked Brad what inspired him to research Dakota names. He explained that while on a trip to Scotland with his partner five years ago to celebrate their wedding anniversary, he noticed that "everything [there] is labeled in at least two languages and sometimes three." Signs he saw in Scotland were in English, Scots, and Scottish Gaelic.

Speaking with him, he was quick to bring the discussion back to Minnesota and point out that the City of Bemidji has been increasing the use of bilingual labeling, placing Ojibwe alongside English. Seeing multi-lingual labeling in Scotland and in places such as Bemidji got him thinking about the importance of adding Indigenous names to Minnesota maps. This process has been slow because of his desire to reflect on the relationships (past and present) between Indigenous people and European settlers and the importance of accurate name sourcing. He said he wanted to put Indigenous names into OpenStreetMap

but that he got stuck on starting as he thought about some of the difficult issues: broken treaties, removing Indigenous people from their land, sending Indigenous children to boarding schools, and outlawing Indigenous religions and languages.

Getting Unstuck

In his research about Dakota names and culture, Brad referred to the book *Mni Sota Makoce: The Land of the Dakota* by Gwen Westerman and Bruce White, which describes how the Dakota lived in pre-European times and the different ways and places they lived.[6] The book discusses places such as Wabasha County and the City of Shakopee, both named for Dakota leaders in the area. "Something that just kind of fascinates me is that this history in some ways is so obvious," Brad reflected. "It's right in front of you; it's on every map, but yet we don't see it or don't know its significance."

Reflecting on his intentions about adding Dakota names to OpenStreetMap, Brad explained, "You'd be able to present a more complex, richer view of history by providing names of these features" because "some of them are literally describing the place in some way and some might have a story behind it."

By encouraging people to research and add Indigenous names to OpenStreetMap, Brad hopes that people will learn how the names fit into history, and in doing so, will gain "a deeper understanding of or respect for what the land is about, what's been there, what should be there, what could be there, and what might be there in the future."

Optimism

I asked Brad about how I could use OpenStreetMap to obtain a spatial data layer of Dakota names and Ojibwe names for places. He explained that OpenStreetMap uses "key value tagging" so a house in OpenStreetMap would be tagged as such: `building (key) = house (value)`. To describe features in more complex ways, additional tags could be added, for instance Goose Egg Park would be tagged as `leisure = park` and `name = Goose Egg Park`. Additionally, the key that describes a feature can be qualified with a prefix like the language. For example, the Mississippi River has many name tags, including that for the Dakota language, `name: dak = Haha Wakpa`, and the Ojibwe language, `name: oj = Misi-ziibi`.

To find features based on their tags, Brad recommended Overpass Turbo, which is a web-based data filtering tool used to query data from OpenStreetMap based on attributes and location. Overpass Turbo has a query wizard, so anybody can enter a tag for a certain type of feature, and the wizard will build and run the query, and display the resulting data. Additionally, the resulting data can be downloaded directly from the web-browser. Once built, the query can easily be shared with other people. That is what Brad did: he built a query to show features with Dakota language names and a query to show features with Ojibwe language names and shared those queries with me.

Optimistically, I ran the queries, thinking I could get all of the Ojibwe names and all of the Dakota names for features (because that information would be in OpenStreetMap) which I could then add to the maps for the exhibit. To my surprise, in Minnesota I only found about five dozen features with Ojibwe names or Dakota names in the

OpenStreetMap data. It was then I realized that this might be more complicated than I thought. Adding the Ojibwe and Dakota names to the maps for We Are Water MN would involve stepping away from my desk and talking with people. Ultimately, the solution to adding Indigenous names to the maps would not be a technical one.

Conversations

For the last host site during phase two, conversations between MPCA staff and the Mille Lacs host site resulted in me opening my email box one day to find a thoughtfully crafted spreadsheet of Ojibwe names for features and their English names from Charlie Lippert, Air Quality Specialist for the Mille Lacs Band of Ojibwe and Ojibwe language expert. I was excited! I planned to proceed with adding all the names to the map, but very quickly, I became overwhelmed. My limited knowledge of the region and lack of knowledge of the Ojibwe language required me to carefully copy and paste the Ojibwe names from the spreadsheet into the map because mistakes would not be apparent to me. Within the study area are about 900 lakes, of which 17 are named Mud, 13 are named Bass, 9 are named Rice, 7 are named Round, and 7 are named Long. I had to make sure to match the correct Ojibwe name with the correct lake and not make assumptions that all Mud Lakes would have the same Ojibwe name. The Ojibwe name and English name may not be a direct translation of each other; later residents may have bestowed new names. I soon realized that I alone could not label all the features, but rather should work with the host site to label the features for which I was provided information. Working with Charlie and the Minnesota Historical Society's Mille Lacs Indian Museum, we were able to label over 150 features in both Ojibwe and English. This does not represent all of the features, but the consolation is knowing that these 150 bilingual labels were reviewed and contributed by someone who has direct knowledge of the region, language, and history. This information, if added, could represent a four-fold increase in the number of features with Ojibwe names in OpenStreetMap. More importantly, adding Ojibwe names to the We Are Water MN map and potentially OpenStreetMap represents communities working together, sharing their knowledge and skills, learning from one another, and protecting and preserving one another's stories.

Where Do We Go from Here?

Designing a map is a delicate balance of choosing what information to include and how to include it. What is shown on a map and how it is displayed can have a profound impact on the message conveyed and the response of those who see it. Thus, cartographers truly have a great responsibility. When designing a map, the importance of conversation and developing personal relationships cannot be underestimated. Learning about the places on the map (and those places that might be missing from the map) from the people who live there—the primary sources—is critical to creating maps that truly represent everyone. My responsibility when designing a map is to conscientiously recognize that I need to use my skills to help my neighbors to accurately document, protect, and share their places and stories. One of the tools that could be used to do just that is OpenStreetMap.

Over the course of this journey, I have learned that the task of adding bilingual labels to a map was not to be solved by technology, or by one person who is removed by distance and culture from

the places and people represented on and by the map. Rather, I learned that to make a map that is trying to demonstrate the complexity of multiple ways of knowing a place, I needed to invest time cultivating relationships, having honest, open conversations, and collaborating with Indigenous people to learn about their culture, history, language, and places. This investment may not only lead to Indigenous places and place names being added to OpenStreetMap—one way to document, protect and share their places and subsequently their stories—but also to meaningful relationships and reflections on my own work as a strategy for inclusion and change.

How You Can Help

How can you help your neighbors document, protect, and share their places and stories?

- Add your place to OpenStreetMap; help others do the same.
- Find or become a GeoMentor.
- Get teachers involved creating curriculum that connects geography and humanities.
- Reach out to Indigenous people and embrace opportunities to learn from them.
- Encourage, support, and assist Indigenous communities to share their GIS data, as appropriate, perhaps through the Minnesota Geospatial Commons.
- Have a conversation with your neighbors.

Footnotes

[1] In later conversations with Brad Neuhauser, I learned that the City, Township, and Unorganized Territory (CTU) layer and the Populated places layer are two different datasets with two different purposes. The CTU layer shows administrative boundaries that have a governing body where as the "Populated places tend to be what a collection of people call themselves. So there may be different populated places within a township that feel distinct and have their own locally used names, but all have the same governing body," Brad explained.

[2] U.S. Geological Survey, "GNIS: Geographic Names Information System," *Digital Gazetteer* (Reston, VA: U.S. Geological Survey, National Mapping Division., n.d.).

[3] Common cartographic methods for showing the importance of a feature may be to:

- increase the size a symbol or width of a line
- choose colors that have cultural significance or meaning (e.g., red) or use brighter or more saturated colors
- use boldface type or increase the font size

[4] Alvin H. Wilcox, and Jessie C. West, *A Pioneer History of Becker County, Minnesota: Including a Brief Account of Its Natural History as Embraced in the Mineral, Vegetable and Animal Kingdoms, and a History of the Early Settlement of the County*, (St. Paul, MN: Pioneer Press Co., 1907).

[5] The OpenStreetMap data set is massive, currently over 1,000 GB (in an uncompressed OSM XML format), and is governed by the Open Database License (ODbL 1.0). https://wiki.osmfoundation.org/wiki/Licence

[6] Gwen Westerman, and Bruce White, *Mni Sota Makoce: The Land of the Dakota*, (St. Paul, MN: Minnesota Historical Society Press, 2012).

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About the Author

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PRIMARY SOURCES

STRONG RELATIONSHIPS RESULT IN CONSERVATION ACTION

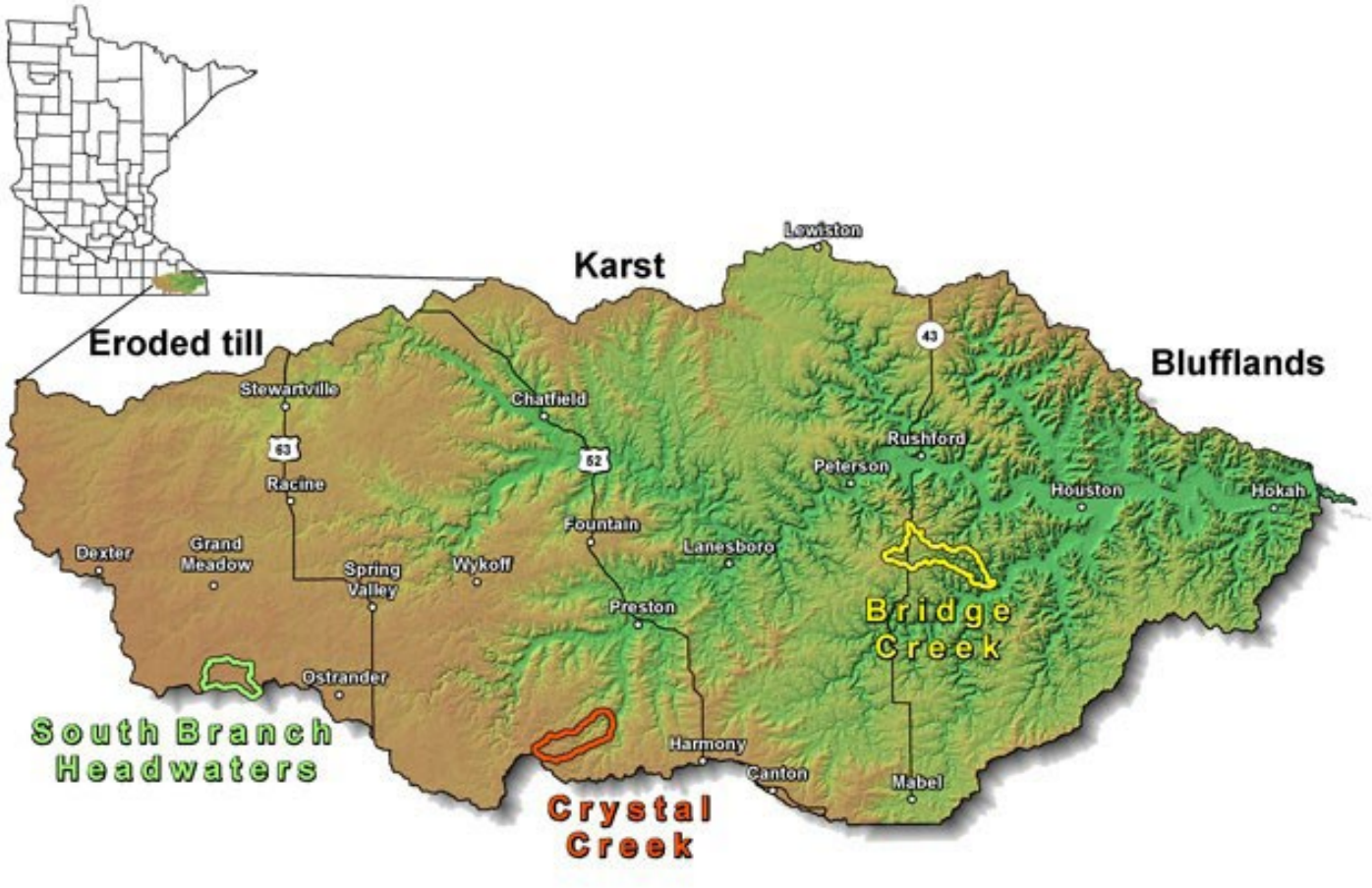
By Jen Schaust, Kevin Kuehner, and Margaret Wagner

In southeast Minnesota, we are fortunate to have an abundant supply of groundwater. It is the water we drink and the source of water in local trout streams. However, the unique geology of this region makes it vulnerable to contamination. A complex network of cracks, open channels, and caves below the surface provides a quick and direct path for surface water to reach groundwater.

Kevin Kuehner, MDA hydrologist and researcher (left), Wayne DeWall, participating farmer (center), and RRFSP walkover technician Ron Meiners (right) pause at the edge-of-field monitoring station in DeWall's field. Data collected at this station over many years is now informing on-farm management decisions throughout the region. Image courtesy of Paula Mohr, "The Farmer" magazine.

As water travels over the landscape it can carry contaminants, such as bacteria, pesticides, fertilizers, and road salt, underground. One of the most mobile and common contaminants found in Minnesota groundwater is nitrate-nitrogen which comes from natural sources and also from fertilizer, animal waste, and leaky septic systems. Land use decisions and practices we implement can directly impact the amount of contaminants lost to our water resources and the path they take to surface water and groundwater.

In three small watersheds that drain to the Root River, a group of 47 farmers are doing their part to help reduce surface runoff and improve surface and groundwater quality in southeast Minnesota. Working with crop advisers, staff from the Minnesota Department of Agriculture (MDA), local Soil and Water Conservation Districts (SWCDs), and the Minnesota Agriculture Water Resource Center, farmers are problem-solving and addressing the areas of biggest concern. Together they form the Root River Field to Stream Partnership (RRFSP) and, through an approach founded in respect and shared decision-making, they all are learning from each other. This group of farmers and landowners have demonstrated their immense insight and ability to figure out solutions to environmental challenges when they clearly understand the issue.



Three small sub-watersheds in the Root River watershed were selected for the Field to Stream study. Each watershed is less the 5,000 acres and located within the glacial till, karst, and bluffland landscapes. The strategic selection of these watersheds allows direct application to a large geographic area spanning much of southeast Minnesota. Image courtesy of Kevin Kuehner, Minnesota Department of Agriculture.

To help understand the issue, the partnership has developed one of the most intensive and comprehensive small watershed monitoring programs in the Midwest. The RRFSP measures the amount of sediment and nutrients found in runoff water at both the edge of fields and within the stream. For dissolved nutrients such as nitrate-nitrogen, sub-surface drainage tile and groundwater springs are also monitored. This baseline information quantifies what is actually leaving agricultural fields, the timing of peak losses, and provides a benchmark to measure water quality change after the farmers' land management changes have been made. To learn more about the monitoring efforts and results visit the Root River Field to Stream Partnership.

To find areas that are most vulnerable to runoff, farm leaders invited their neighbors to participate in an on-farm walkover process they helped design. Cynthie Christensen was one such neighbor and owns farmland in the Bridge Creek

Edge-of-field monitoring stations provide information about the amount of runoff, soil, and nutrients moving off a given field into the waterway. Sites are fully automated to collect water samples whenever runoff occurs. Water samples are analyzed for nitrogen, phosphorus, and sediment and monitoring occurs year-round, 365 days a year. Monitoring has shown that 40 percent of the surface runoff occurs when the ground is frozen. Image courtesy of Kevin Kuehner, Minnesota Department of Agriculture.

watershed. After receiving the letter from her farmer neighbor and a call from Ron Meiners, an experienced conservation specialist who is part of the RRFSP, Cynthie agreed to participate in a walkover. Before visiting her property, Ron first evaluated the fields using aerial photos and precision conservation planning maps produced by the MDA. Ron used this information to help plan and efficiently guide his walkover. Specifically, he was looking to answer: where are conservation practices already in place, are they working properly, where is erosion most likely to occur, and what areas of the landscape need additional, targeted conservation practices?

Once the walkover was complete, Ron produced a summary report for Cynthie and met with her to discuss it. Like many of the other participating farmers, Cynthie's property had existing conservation practices and runoff areas identified as low, moderate, and high risk. Ron asked if he could help Cynthie address one of the high-risk areas on her fields. The one they agreed to address was also the area of highest runoff risk

In-stream monitoring stations were installed at the outlets of the small study watersheds. This information combined with edge-of-field monitoring and a wide range of other assessments provides a unique opportunity to evaluate the effects of targeted agricultural conservation practices on water quality. Image courtesy of Kevin Kuehner, Minnesota Department of Agriculture.

in the project watershed. The 75-acre field was a concern because of its very steep slopes and proximity to the creek. Over the course of a few meetings she and Ron discussed a variety of solutions and met with the Root River SWCD and Natural Resource Conservation Services staff. After much thought and financial consideration, Cynthie decided to enroll the entire field into the Conservation Reserve Program (CRP). CRP is a federal land conservation program in which farmers receive a yearly rental payment in exchange for removing environmentally sensitive land from agricultural production. The plants replacing the crops provide year-round cover and help reduce runoff and improve water quality. Cynthie chose to plant a rare and declining prairie habitat seed mix. In addition to enrolling in CRP, she installed four new water and sediment control basins and several grassed waterways. When the field in CRP completes its ten-year contract, it will be ready for row cropping again. The additional practices she installed will offer added runoff protection. Cynthie truly demonstrated her understanding of the challenge and value of adding conservation practices.

Cynthie's story is just one of several success stories that could be told as a result of the RRFSP

Identified as one the highest runoff risk fields in the Bridge Creek watershed, RRFSP walkover technician Ron Meiners and landowner Cynthie Christensen discuss the various runoff control practices she installed on a 75-acre field that drains directly to Bridge Creek. The highly erodible field was enrolled into the Conservation Reserve Program (CRP) for ten years and planted to native prairie grasses and forbs. In addition to enrolling in CRP, Cynthie installed four water and sediment control basins (basin pictured in the background) and several grassed waterways to further reduce runoff. When the field completes its 10-year contract, it will be ready for row cropping again with less soil and nutrient loss to Bridge Creek. Image courtesy of Kevin Kuehner, Minnesota Department of Agriculture.

walkover approach. A remarkable 100 percent (47 out of 47) of the farmers participated in the walkovers covering 92 percent of the crop acres found in the three small watersheds (10,000 acres). This level of participation is the result of the time taken up front to develop personal relationships and the dedicated time to maintain them. The trust between farmers and partners created the foundation for openness, combined problem-solving, and the opportunity to do what they feel is important. Three farmers share their reasons for joining the RRFSP and the work done to increase conservation practices on their fields in a recent video.

See video "Root River Field to Stream Partnership: Lessons Learned.

Like Cynthie, most of the farmers were already using a wide range of practices to reduce runoff on their land. However, each farm also had new opportunities. For instance, about one-third of

Poorly functioning grassed waterway. A grassed waterway is a broad, shallow channel designed to move surface water across farmland without causing erosion. If not maintained properly, they can fill with sediment causing water to flow along the edge, resulting in ephemeral gully erosion. Ephemeral gully erosion is one of the main mechanisms for off-site delivery of sediment and attached nutrients in surface runoff. Image courtesy of Kevin Kuehner, Minnesota Department of Agriculture.

the existing conservation practices documented during the walkovers, especially grassed waterways, were not performing properly. This was the "low-hanging fruit" with regard to prioritization since the practice was already in place, but just needed to be re-shaped and re-seeded. The RRFSP also identified at least two to three high priority conservation resource needs for each farmer. Over 70 percent of the farmers have already addressed or are in the process of addressing their highest priority resource needs. Additional projects are planned through 2020.

Planning, engineering, and financing a sudden surge of conservation practices can be challenging for a local conservation office. Ron's facilitation following the walkovers were key to overcoming some of those challenges. Conservation leaders and board members with the Mower, Fillmore, and Root River SWCDs were also critical to the partnership's success. Where possible, projects leveraged funding from both state Board of Water & Soil Resources (BWSR) Clean Water Funds and federal Natural Resources Conservation Service (NRCS) Mississippi River Basin Initiative sources to maximize cost-share assistance to the landowner. While some farmers elected to pay for projects on their own, cost-share dollars did improve the rate of practice implementation.

Some of the projects implemented through the field walkover process include:

- Within just two years (2017–2018), new and restored grassed waterways spanning over 100,000 linear feet have been installed in targeted, high priority areas in the study watersheds (three small watersheds within the Root River watershed). For reference, typically 20,000 feet of grassed waterways are installed annually through a county SWCD office in southeast Minnesota. About 25 percent of these new waterways were completed without public cost-share assistance.
- 14 new water and sediment control basins and catchment ponds were installed in targeted locations. Typically, the range is about one to four per year through a county SWCD office in southeast Minnesota.
- A 1950s-era flood control structure was rehabilitated with over 20,000 cubic feet of soil removed, allowing for additional sediment and nutrient trapping for the next 50 years.
- Nearly 200 acres of cover crops have been planted by farmers in the project study area. Cover crops are planted to prevent erosion and to improve the health of the soil. They are typically planted following harvest of the cash crop and left to grow after the crop is harvested. The cover crop is typically terminated in the spring before planting. Examples of common cover crops include winter cereal rye, oats, and clover (i.e., red, white, and crimson clover).
- Over 100 acres of Conservation Reserve Program (CRP) land was targeted on the highest runoff risk fields. Many of these plantings included native prairie plants for pollinator habitat as well as other rare and declining habitats.
- 100 percent of the buffer law setbacks are in place across all three study watersheds. The buffer law, set by the 2015 special session legislature, requires perennial vegetative buffers of up to 50 feet along lakes, rivers, and streams and buffers of 16.5 feet along public ditches.
- Ten acres of perennial vegetation were targeted along a private drainage ditch system in the headwaters of the Root River to reduce impacts from flooding and field erosion.

- Feedlot improvements include an increase in manure storage to eliminate manure applications on frozen soil for two high priority feedlots, installation of three milk house wastewater treatment systems, and abandonment of two feedlots in high runoff risk locations. These changes help reduce the risk of manure runoff (nutrients and bacteria) to the stream and river. Manure applied to frozen soil is not able to soak into the ground. With added manure storage, the farmer can time applications when runoff risk is lower. Feedlot location is also important. Locating them in lower runoff risk areas with adequate buffer setbacks and clean water diversion is key for water protection.

- To date the RRFSP has leveraged over $1.5 million in private, state, and federal dollars to support accelerated and targeted conservation action.

Conservation work and water monitoring in the Root River watershed is continuing and planning is in place to apply the walkover process in other small watersheds of the Root River. There are also new initiatives in place to help reduce more complex, water-soluble contaminates like nitrate from entering groundwater. It is exciting to anticipate the next phase of monitoring as we look for positive changes in water quality because of the additional conservation practices installed by participating farmers. This, however, will take a bit of time. Results from this next phase will take a few years. It's also exciting to observe more farmers experimenting on their own with cover crops and no-till practices to improve soil health and water infiltration while reducing labor and input costs.

The time spent building and maintaining relationships, striving for the best customer service, and strengthening communication is key to this project's success. It has helped accelerate the number of practices on the land that would not otherwise be there in a very short amount of time. This has been a win-win for farmers, contractors, resource managers, and for clean water.

The Root River Field to Stream Partnership between local farmers, crop advisers, state and local agencies, and nonprofit partners is an example of the collective efforts a water quality project can have when time is taken up front to develop personal relationships, establish clear communication, and create a respectful working environment. The partnership includes shared decision-making, neighbor to neighbor encouragement, a dedicated walkover technician, and an opportunity to learn from each other.

Funding for this project is provided by the Clean Water, Land and Legacy Amendment.

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Margaret Wagner supervises the Clean Water Technical Unit at the Minnesota Department of Agriculture. In this role, she coordinates Clean Water Fund programs and manages on-farm demonstrations and research sites across Minnesota. Margaret works closely with many project partners including farmers, crops advisers, university researchers, private industry, soil and water conservation districts, and other state agencies. Margaret has a bachelor's degree in environmental science from Colorado College and a master's degree in applied plant sciences (agronomy) from the University of Minnesota.

TEACHING AND PRACTICE

WATER AND EQUITY

By Linda Kingery

Linda Kingery used these remarks to introduce themes of water and equity at the August 2019 Statewide Event for the University of Minnesota Extension Regional Sustainable Development Partnerships. Linda was part of the team that hosted the We Are Water MN exhibit in Crookston, Minnesota, January–February 2019.

Water has long played an important role in my life. In fact, it played a role in my very beginning. Like all of you, I first lived in a water

The quieter side of the bridge over the Red Lake River in downtown Crookston, Minnesota. Image courtesy of Caryn Mohr.

environment, then was born into this world. A few weeks later, I was baptized with water. This sacrament joins me with many others that share my faith traditions, and water is sacred in many traditions.

I spent my early of my life in the Mississippi River basin in Minnesota, South Dakota, and Iowa, and have lived in the Red River basin for over 30 years. I earned degrees in environmental science with an emphasis in hydrogeology. This allowed me opportunities to work in northeast North Dakota on nonpoint source pollution projects, like safe siting of landfills and protecting riparian corridors, before taking my current position with University of Minnesota Extension.

Hear Tamara Luna's We Are Water MN story, "Embrace your environment." (transcript)
See more stories in the online map.

This is the first year that we named themes for the University of Minnesota Extension Statewide Event, which is the summer meeting that is hosted each year by one of the Regional Sustainable Development Partnerships (RSDPs). We may ask ourselves: why name themes? And why water and equity?

Linda Kingery frames the water and equity themes at the University of Minnesota Extension Regional Sustainable Development Partnerships Statewide Event in Crookston, Minnesota. Image courtesy of Caryn Mohr.

The RSDPs serve large regions and engage communities around a wide range of topics, so selecting a theme is an experiment to help us focus our thinking, conversations, and interactions on a couple important topics. This year's focus on water and equity highlights common themes of project work across all regions, including in the northwest. In addition, water and equity provide a link to the Minnesota Humanities Center's We Are Water MN exhibit as it moves around greater Minnesota and visits two University of Minnesota campuses. And, water and equity guide our work together with the Institute on the Environment (IonE) and its Impact Goals, particularly the one that seeks to ensure clean drinking water to all Minnesotans.

RSDP staff and board members paddling the Red Lake River near Crookston, Minnesota. Image courtesy of Caryn Mohr.

Elizabeth Bailey, Conservation Corps member, introduces We Are Water MN events for the Crookston Exhibit. Image courtesy of Terry Tollefson.

Sheila Capistran, NWRSDP board member, and C Terrence Anderson, Center for Urban and Regional Affairs (CURA) staff, share perspectives at a Statewide Coordinating Committee meeting. Image courtesy of Caryn Mohr.

What do we mean when we say equity?

In May, the RSDP staff and executive committee spent time generating definitions of equity pertinent to our goals and considering how the RSDPs can build equity in our processes. Here are three answers that came from that discussion. We are working toward equity when we:

- Honor other ways of knowing and doing
- Recognize the role of privilege and the historic and persistent disparities
- Ensure access to opportunity for decision-making and resources

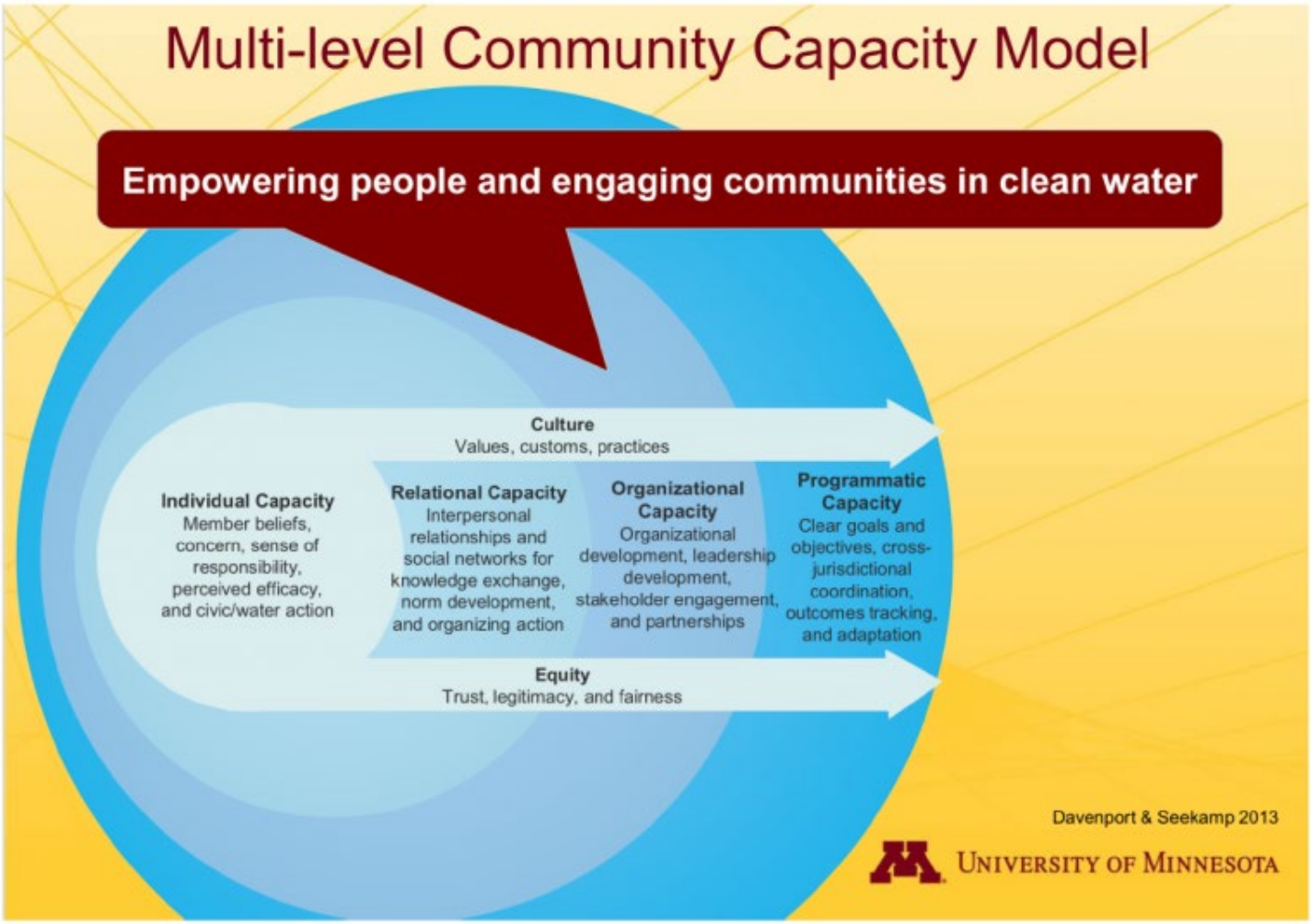
Hear Katya Zapeta's We Are Water MN story, "Rivers can remember." (transcript)
See more stories in the online map.

The water cycle. Image courtesy of the Minnesota Humanities Center.

What do we mean when we say water?

Perhaps this seems like a simpler question. We might think about the science of water. Hydrology, as a field of study, began in the 1930s by Robert Horton (1931) who founded this new area of science and described the natural cycle of water. Powered by solar energy and gravity, this natural process, called the hydrologic cycle, traces the movement of water in all its phases. Many of us learned about this cycle in middle grades of school and some people have specialized in very specific aspects of this science.

Another way to describe water is through our personal and interpersonal experiences. The We Are Water MN exhibit and process, for example, aims to collect water stories to shed light on these ways of understanding. Here I share some highlights from hosting the We Are Water MN exhibit in Crookston in the context of a model developed by Dr. Mae Davenport.



Multi-level Community Capacity Model, empowering people and engaging communities in clean water. Davenport and Seekamp, 2013. Image courtesy of Mae Davenport.

We Are Water MN in Crookston

Davenport's multi-level community capacity model for empowering people and engaging communities in clean water efforts depicts nested circles of experience, an interaction moving outward from individual to relational to organizational to programmatic. Across these nested circles of capacity, culture and equity inform our understanding and actions. Culture includes the values, customs, and practices or our society; equity is about trust, legitimacy, and fairness.

The people who visited the We Are Water MN exhibit in Crookston, Minnesota expressed an increased sense of responsibility and concern. Participants mentioned talking with others about water use and water conservation. They shared stories about recreation in and around water and memories of special places. Many people responded to the exhibit in Crookston noting they are now inspired to seek out others who are working on water resource issues.

Lorna Hollowell, Director of Diversity and Multicultural Affairs at the University of Minnesota Crookston and part of the host team, introduces Jennifer Tonko from the Minnesota Humanities Center at the We Are Water MN kickoff event in Crookston, Minnesota. Image courtesy of Terry Tollefson.

Anna Peterson, University of Minnesota Extension, and her son Vincent enjoy a moment on Big Floyd Lake near Detroit Lakes, Minnesota. Image courtesy of Glenece Hanson.

The Hydrosocial Cycle

Because water is so integrated in our experiences, the term "hydrosocial cycle" has been used to define a socio-natural process by which water and society make and remake each other over time and space. This goes beyond the ways we as individuals and organizations relate to water.

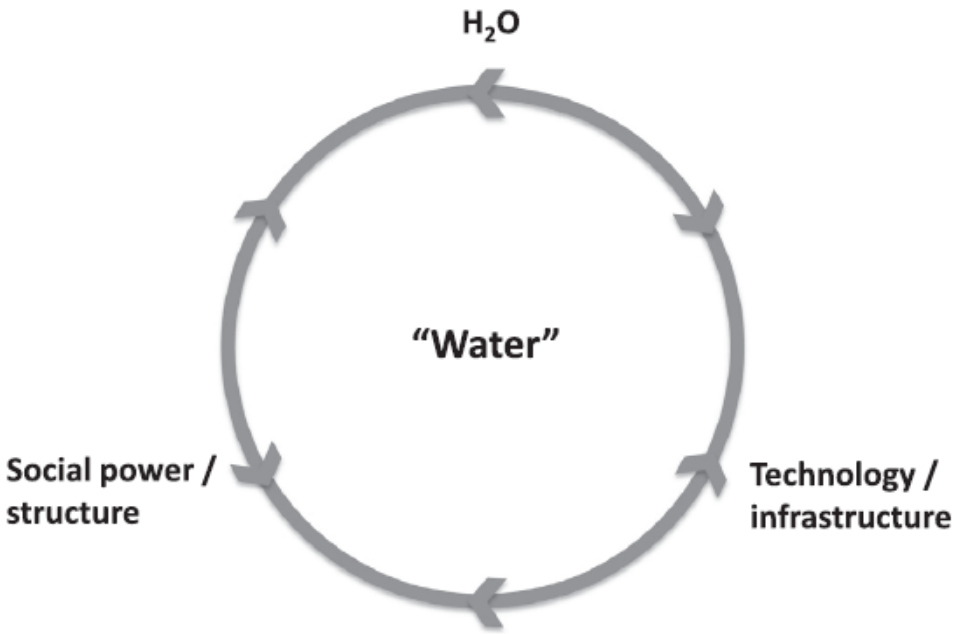
Jaime Linton, Jessica Budds, and Rachael McDonnell (2014) describe this hydrosocial cycle with three components: H_2O, social power or structures, and technology and infrastructure. The resulting water at any point in time and space is the product of these three components acting on one another. Water is therefore not only its material, chemical composition; water also shapes and is also shaped by humans and embedded in social, cultural, and political practices. This model is very practical and logical.

I took a trip to the Columbia River basin in the summer of 2019. There, this making and remaking of water and society includes dams, hydroelectric generation, apple and cherry orchards, and vineyards. These hydrosocial relations also resulted in the degradation of the salmon fishery that was central to the culture and identity of the Yakama, Nez Perce, and Umatilla Nations.

The Red River Basin as Hydrosocial

In the Red River basin, the hydrosocial cycle includes development of surface water and groundwater sources, wells serving Crookston, flood protection projects like retention areas and dikes, and a vast surface drainage system, now coupled with the rapid implementation of pattern tile drain. All of these developments were made possible by the transfer of 11 million acres of land from the Red Lake Nation to the U.S. government in 1863 through a treaty signed at what is now known as Old Crossing, currently a county park at a natural ford on the Red Lake River.

At the RSDP Statewide Event, each participant was invited to bring water from their place. The waters were poured into a common bowl, Gathering the Waters. Each person added water embedded in the hydrosocial cycles from their home watersheds, taps, or wells, taking care not to transport water from infested sources. This water is much more than H_2O. It is the water that results from precipitation, runoff, infrastructure, and social structures.



Hydrosocial cycle, Linton and Budds, 2014. Used with permission.

Mike Hirst, Lake of the Woods Soil and Water Conservation District (SWCD), in front of Willy the Walleye in Baudette, Minnesota. Image courtesy of Caryn Mohr.

Thinking Water and Equity at the Statewide Event

Later in the Statewide Event, in Heritage Hall on the University of Crookston campus, we heard presentations on projects related to this making and remaking of social and natural systems. Mike Hirst from Lake of the Woods shared the work of the Keep It Clean Committee including the sustainability assessment completed by students from the Humphrey School of Public Affairs. Torin McCormack from Roseau River Watershed District described the development of a recreation plan, a project assisted by the College of Design. Henry VanOffelen from the Minnesota Board of Soil and Water Resources presented water quality and water quantity data and trends for the Red River basin, and Nicole Bernd of West Polk Soil and Water Conservation District addressed groundwater concerns. Kate Brauman and Fred Rose from the Institute on the Environment (IonE) framed up the IonE Impact Goal of ensuring clean drinking water for all Minnesotans.

Nicole Bernd, West Polk Soil and Water Conservation District (SWCD) and We Are Water MN site host, describes SWCDs as the "boots on the ground" for bringing water quality information to agricultural producers. Image courtesy of Caryn Mohr.

Then we all traveled to Micah, the Minnesota Institute for Contemplation and Healing. Micah is near the previously mentioned Old Crossing, site of the signing of the 1863 treaty. At Micah, we heard from Sharon Day, Clean Water Council member and the organizer of Nibi Walks, an Indigenous-led practice of extended walks along waterways as a ceremony to pray for and honor the water.

In addition, we all had an opportunity to consider these topics of water and equity through one of three activities: expressing your understanding of water and equity in art, engaging in a conversation across cultures around water and equity, or planning a source water protection project.

As I reflect on the afternoon and recall what I heard from participants, I am grateful that people found new ways to connect with one another around water and equity. Whether planning a project or reflecting on personal water stories through art or conversation, people were inspired to share perspectives and to listen to the stories of others. Our best hopes for the future depend on our collective ability to strive for the dreams we share together.

Sharon Day, Clean Water Council member and Nibi Walk organizer, shares the tradition and value of honoring water. Image courtesy of Caryn Mohr.

Jane Olive captures two floods on the Zumbro River in Mantorville, Minnesota. She explained that "The water from north and west flowed downstream where, at the curve in Mantorville, it built up and overflowed the banks into homes, businesses, streets." Photograph courtesy of Caryn Mohr.

Ben Anderson shares that his Jackson Pollock-inspired painting "reflects different types or colors of people using and moving with water. Our waters should be healthy, sustainable, and accessible to everyone." Photograph courtesy of Caryn Mohr.

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About the Author

Linda Kingery serves as executive director of UMN Extension’s Northwest Regional Sustainable Development Partnership. Her education in environmental studies with emphasis in hydrogeology, and experience in watershed protection provide her with long-term familiarity with the Red River basin. She and her husband, Brad, have raised their family in the region, and now live in a home in the woods in the Lower Red Lake watershed.

TEACHING AND PRACTICE

COMMUNITY CONNECTIONS OVER WATER

By Tim Ruzek

One morning back in spring 2018, I walked down large chunks of shoreline rocks below the Cedar River's dam in downtown Austin, Minnesota.

Perched on a rock in the water, I started taking video of a calming, water-flowing scene for Cedar River Watershed District's social media when something caught my eye downstream across the river.

A circular, cone-shaped sedge hat—typically associated with eastern Asia—was popping out along the shoreline where a woman was crouched while fishing.

I had never seen one of those hats worn in my hometown of Austin. How great it was to see one of the community's newcomers enjoying the local natural resources. I also knew she was someone—along with other refugee and immigrant residents—whom the watershed district likely wasn't reaching through our outreach, projects, and events.

We Are Water MN opened those doors for us and for our local planning partners.

It gave us a reason to go outside the box of our traditional work and audience. We Are Water MN led us to initiate conversations and foster

Detail from original, showing children and adults get ready to launch canoes and kayaks. Image courtesy of T. C. Rietz.

new relationships with individuals and groups who typically don't interact with our watershed district.

When I first inquired about We Are Water MN, my focus was to get our local watershed included with a fun, effective program to promote and raise awareness for our Cedar River State Water Trail on a statewide level.

Reflecting on the overall experience after hosting the exhibit, I now realize how much more we unexpectedly gained through We Are Water MN. We connected with and learned from our communities of color in ways I never imagined, and the process has changed the way I think about our outreach efforts, especially when I have new partnerships to lean on thanks to We Are Water MN.

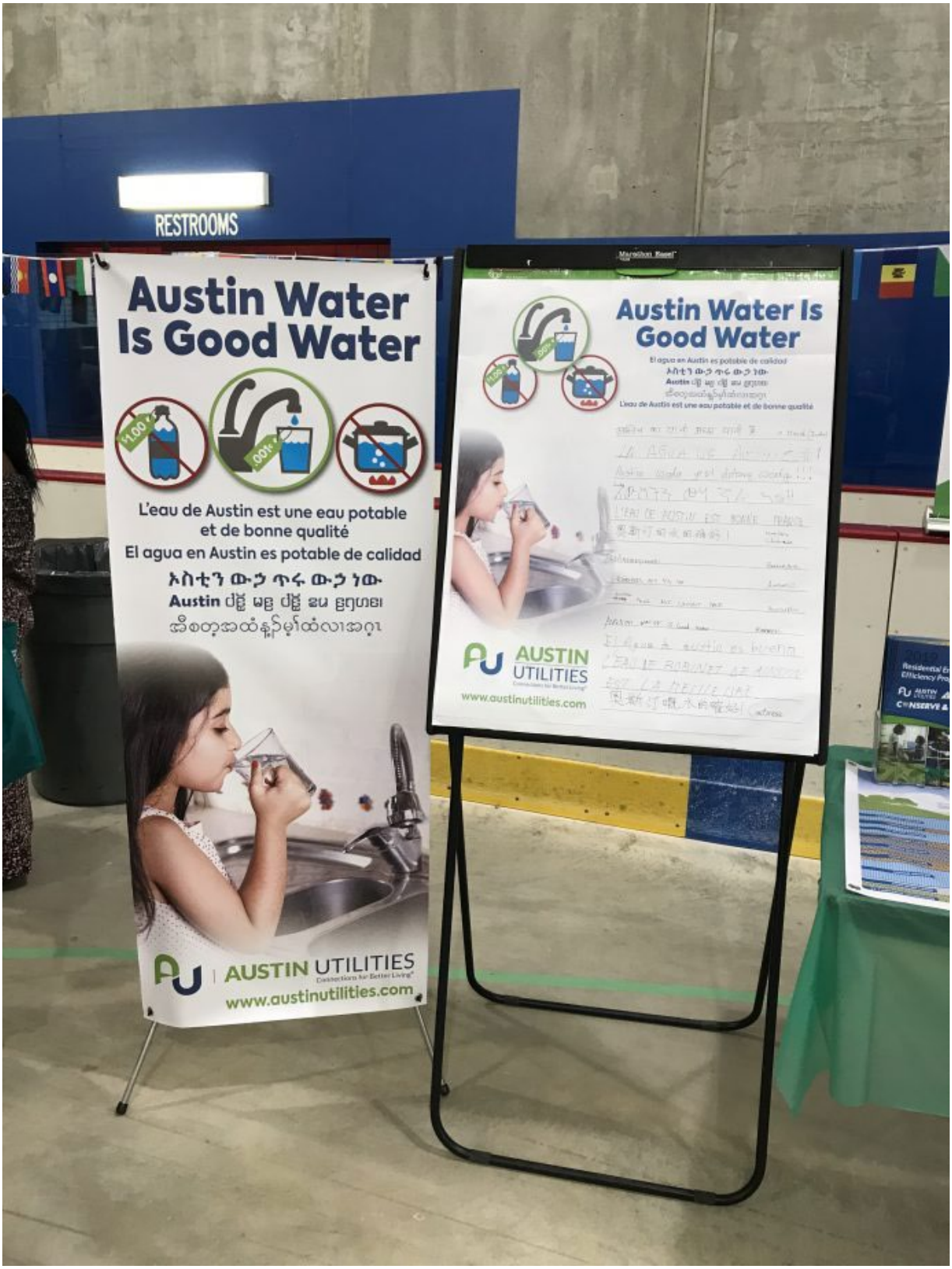
These efforts not only proved highly fruitful but also much needed in our community.

Austin has grown in the past 20 years into a diverse community. Last fall, Austin Public Schools proclaimed the 2018-2019 school year as a "landmark year" given that for the first time the district's non-white student population exceeded the number of white students.

Last year, white students totaled just under 50 percent of the district's 5,226 students overall. A little more than 20 percent of students speak Spanish; another 15 percent speak languages other than English and Spanish.

Austin's Asian student population has grown rapidly in recent years, representing about nine percent of the district's enrollment last year. Austin's Karenni population (those whose families came here from Thailand and Burma) lead that group, which also includes Karen refugees. Austin students, in fact, make up about 40 percent of all Minnesota students who speak Karenni.

Tim Ruzek of Cedar River Watershed District joins Austin High School students in one of the English Language Learner classes for a photo April 4, 2019, following his presentation on the local Cedar River watershed and drinking water supply. For two years, teacher Arik Andersen, who is an ELL instructor at Austin High, has invited Ruzek to give a few presentations each year to his classes; he also brings the students out to the Cedar River to conduct water-clarity testing and gain other natural-resources experiences. Image courtesy of Arik Andersen.



An "Austin Water is Good Water" banner translated into Austin's main languages is displayed April 6, 2019, at the 10th annual Taste of Nations festival in Austin. Attendees also could write the message in other languages on the poster next to the banner as part of the local We Are Water MN booth. Image courtesy of the author.

Making connections

Back in October 2017, future hosts of the We Are Water MN exhibit met at the Minnesota Humanities Center in St. Paul for training that emphasized the importance of reaching out to and including our community's absented voices and people of color. For Austin, we thought a lot about ways to connect and work with our communities of color and those born in other countries.

I met with two organizations that I had never connected with previously for watershed district work. The We Are Water MN talks were with the City of Austin's Human Rights Commission and staff at the Welcome Center, an Austin nonprofit started 19 years ago by concerned residents in response to a dramatic change in the area's work force and demographics.

The Welcome Center aims to create an inclusive and welcoming community; today, it provides various services with staff having cultural and linguistic expertise with Spanish, French, Karenni, Karen, Burmese, Fon, Goun, Mina, and Nuer to better serve the area's diverse populations.

Staff with the Minneapolis-based Water Bar & Public Studio and local municipal water provider Austin Utilities serve several types of water April 6, 2019, at Packer Arena in Austin, Minnesota as part of the We Are Water MN booth at the 10th annual Taste of Nations festival. Image courtesy of the author.

At our initial We Are Water MN local planning meeting, a co-planner mentioned learning through her church about many families who have come here from other countries who buy bottled water for home or boil water before consumption. Some even use bottled water for cooking. They didn't trust the local water supply. Most of us didn't know that.

Given this, our local group, which included the municipal water provider, Austin Utilities, developed outreach materials that translated the message "Austin Water is Good Water" into the main languages used in Austin.

I used these messages when speaking to English Language Learners (ELL) classes at Austin High School about our watershed and drinking water supply from underground aquifers. They seemed most impressed that Austin's deepest well goes more than 1,000 feet underground.

As our first major event for We Are Water MN, our planning group committed to running a booth with Austin Utilities and the Water Bar & Public Studio of Minneapolis at Austin's annual Taste of Nations event, a popular festival led by the Welcome Center that celebrates diversity and different cultures.

This booth proved popular, with Austin's water coming out as the favorite in a taste test that also included bottled water and metro area tap water. People also could write the message of "Austin Water is Good Water" into a language not represented on our banner.

Herve Idjidina with the Welcome Center—who worked with us on Taste of Nations—provided one of our local water stories for the We Are Water MN exhibit. His story focused on how his family of five always bought bottled water when they moved to the United States from Benin, West Africa. When they later moved to Austin, his family switched after a doctor told him the local tap water was safe.

Local residents join the Welcome Center staff along with Tim Ruzek of Cedar River Watershed District and Tony Flerlage, a Minnesota Department of Natural Resources conservation officer, for a photo following a presentation and discussion about fishing rules June 20, 2019, at the Welcome Center in Austin. Many of the attendees are new to the United States and enjoy fishing. Image courtesy of the Welcome Center.

As part of a special newspaper tab prior to the kickoff of the We Are Water MN exhibit in Austin, I wrote about the water story of Oballa Oballa, a Riverland Community College student in Austin who grew up in Africa. He shared a powerful story about the importance of water conservation while living 10 years in a refugee camp in Kenya where his family sometimes went two days without drinking water or eating food.

For another major event, we teamed with our We Are Water MN cohost, Jay C. Hormel Nature Center, to offer free canoe and kayak rentals during Austin's annual 4th Avenue Fest, an event that also celebrates diversity and opens the city pool for free swimming one evening. Our fleet of eight canoes and ten kayaks at the festival could not go out fast enough on the Cedar River at Austin Mill Pond. We helped about 120

Children and adults get ready to launch canoes and kayaks June 12, 2019, on the Cedar River State Water Trail at Austin Mill Pond as part of Austin's second annual 4th Ave Fest. Cedar River Watershed District and the Jay C. Hormel Nature Center served about 120 individuals with free canoe and kayak rentals as part of the event and their We Are Water MN programming. Image courtesy of T. C. Rietz.

individuals paddle the river, with roughly half being people of color and many paddling for the first time. This was a greatly rewarding experience, directly engaging us with most sectors of our community.

A few weeks after We Are Water MN moved on to Northfield, our new partner Herve became the executive director of the Welcome Center. Soon after, he started Saturday morning walks called "A Walk for a Better Life" around Austin Mill Pond that aims to connect people in the community over an hour-long walk along the river. At the suggestion of a Welcome Center board member, Herve also worked with a Karenni interpreter to set up a presentation on our watershed and invited Welcome Center clients who show a lot of interest in fishing. With the help of the Karenni interpreter, who had paddled the river with me in May in a 10-person canoe, I joined our local DNR conservation officer in speaking to this group about Minnesota fishing, including the rules and types of fish found locally.

This was a great conversation with good questions. I handed out maps for the Cedar River State Water Trail. We took a group photo and talked about organizing another free canoe and kayak rental night on Austin Mill Pond with the Welcome Center.

Our experience with We Are Water MN has been rewarding and has changed our community for the better. We're excited to continue our new partnerships and better connect with all sectors of our community over water.

Hear Herve Idjidina's We Are Water MN story, "Austin water is good water." (transcript)
See more stories in the online map.

Recommended Citation

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About the Author

An Austin native, Tim Ruzek has served since 2016 as the water plan and outreach coordinator for the Cedar River Watershed District and Mower Soil & Water Conservation District (one staff for two local government agencies). Prior to this, Tim worked for six years in public relations and development at The Hormel Institute, University of Minnesota while doing outreach consulting on the side for the watershed district. He started his career as a reporter for the Rochester Post-Bulletin's office in Austin from 2003 to 2010. He has a strong interest in local water history and has has given many presentations on historical aspects of the Cedar River watershed, including one called "Flood Walls in a Former Swamp" about the river's drastic changes in Austin since the 1850s. Tim and his wife, Heather, an Austin Public Schools teacher, live in Austin with their daughters, Aubrey and Estelle.