Building Capacity for Collaborative Governance through a Participatory Modeling Approach

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ABSTRACT

This project aimed to understand 1) Why no water user committees have formed in Michigan, 2) What the current barriers associated with the convening of a water user committee are, 3) What is needed to overcome those barriers, and 4) Once convened, what information, tools, and strategies does a water user committee need to reach an agreement for sustainable collective water use, and what is the best process for using these resources to reach an agreement? To answer these questions, we collected the perspectives of a broad swath of Michigan water stakeholders, representatives of tribal governments, interest groups, and experts through surveys, focus groups, organized meetings, and individual conversations. Throughout all of these data

collection efforts, three major themes emerged that, combined, serve to dissuade Michigan water users from engaging in collaborative water management: 1) a lack of trust in the Department of Environment, Great Lakes, and Energy and the Department of Agriculture and Rural Development, and the methods and tools they employ to manage water resources effectively and fairly; 2) general confusion around Michigan water policy and how it is implemented; and 3) perceptions that water resources are abundant and not in need of collective efforts towards conservation.

Our main deliverable is three guiding documents to inform and facilitate the formation and operation of local water user committees. These guides are written for an engaged lay audience and are based upon best practices identified by scientific research in sustainable resource management, collaborative governance, and participatory decision making, and are written for large quantity water users who are unfamiliar with what a water user committee is and why water users may need to form one. A convener guide walks an individual through the steps required to gather a group of water users within a management area and get them to the first meeting. The facilitator guide was written for an experienced facilitator, providing tools to help a potential user group through a series of modules designed to build trust, identify group priorities, and arrive at a group decision. Finally, a participant guide was created to educate participants about Michigan hydrology and water policy, help frame conversations around values and water use, and provide a process to create a group water management plan.

In this report we offer recommendations for clarifying the rules affecting the creation and function of water user committees and developing strategies to build trust and support their overall role in Michigan water use.

Keywords

Water policy, collaborative governance, water use, Michigan, Water User Committees

SECTION A. SUMMARY

Executive Summary

Under Part 327 of NREPA, water users can form a local water user committee, consisting of all registered and permitted large quantity water users and representatives of local governments within a water management area. The proposed purpose of these groups is to create a venue for water users to self-organize, build social capital, and collaboratively address current and/or impending water availability issues.

The three objectives of this work were to understand the barriers preventing the formation of water user committees, provide recommendations to overcome those barriers (based on both information gathered during this project and best practices established in the scientific literature), and create a guiding document to help future water user committees convene and collaboratively manage water use at the local level. To achieve these objectives, we formed a Stakeholder Advisory Board with representatives of tribal governments, surveyed all large quantity users in Michigan, conducted two focus groups, attempted to conduct two case studies, and synthesized those efforts in this report. From the proposal stage through to the final report, the project team was also supported by leadership from the state agencies responsible for overseeing and implementing Michigan's Water Use Program. This leadership team guided both research efforts and project outputs, ensuring this work achieved the goals set out by the Water Use Advisory Council, Office of Great Lakes, and Michigan Sea Grant.

Currently, there are three major barriers to the creation and functioning of water user committees. First, water users do not trust the state to effectively manage water use. Second, the rules surrounding the creation and composition of water user committees contain ambiguities, resulting in confusion and apprehension among water users. These ambiguities include uncertainty regarding who can, cannot, and must participate in a water user committee, what kinds of

management plans would be acceptable, questions surrounding the flexibility and decision-making power that water user committees have in coming up with management plans, and how water user committee outcomes will be enforced. Finally, the large quantity water users who participated in this research do not currently perceive Michigan water resources as scarce and in need of conservation, which is indeed the case throughout the majority of Michigan. Resource scarcity is an important driver of collaborative governance, however, and in stressed watersheds where a water user committee may need to form, perceptions of water abundance will inhibit collaboration. These findings are substantiated by the survey and focus group data, and overall lessons learned throughout the course of this project, below.

SECTION B. ACCOMPLISHMENTS

Introduction

In 2008, Michigan wrote the Great Lakes–St. Lawrence River Basin Water Resources Compact into statute, along with a body of law aimed at managing water resources and preventing diversions of water from the Great Lakes Basin. Michigan's approach focuses on managing large quantity water withdrawals to maintain stream flows and prevent adverse impacts to the characteristic fish populations in those streams, using these populations as an indicator of ecological health. A portion of this law empowered large quantity water users and representatives of local governments to form water user committees to collectively manage water use when withdrawals are nearing the threshold where an adverse resource impact may occur. Since its passing, however, no water user committee has ever formed. Our team engaged the diverse community of water stakeholders and representatives of tribal governments to achieve our three objectives: 1) understand the barriers preventing the formation of water user committees, 2) provide recommendations to overcome those barriers based on information learned and best practices established in the scientific literature, and 3) create guiding documents to help future water user committees come together and collaboratively manage their water use at the local level.

Project Narrative

At the outset, we created a Stakeholder Advisory Board comprised of 17 water stakeholders, representatives of tribal governments, and experts representing county agencies tasked with water use, Michigan Farm Bureau, industry, hydrogeologic modeling, tribal organizations, Michigan Environmental Council, Michigan State University, MSU Extension, and policy experts, who served as both a consulting group for the research team and as a way to ensure broad representation and involvement of Michigan water users. We were also supported by a Leadership Team, consisting of six representatives from EGLE's Water Use Program, Office of the Great Lakes, the Michigan Department of Agriculture and Rural Development (MDARD), and the

Department of Natural Resources, that ensured our work was in line with current law and met the needs of the Integrated Assessment. The Stakeholder Advisory Board and Leadership Team reviewed and provided feedback on all data collection instruments, reports of results, and guiding documents that resulted from this project. Our team collected data using a mixed-methods approach. First, we surveyed all large quantity water users in Michigan who report their water use to the state as required by law. We heard from 30% of all large quantity water users in Michigan, giving us high confidence in the results we obtained and their use to inform all subsequent project activities. We then convened two focus groups in February 2023 comprised of members of the Leadership Team, Stakeholder Advisory Board, representatives of tribal governments, and additional experts that included discussions of how water user committees are and should be communicated to water users, the intersection of water users and the state via the Water Withdrawal Assessment Tool, and to participate in a participatory mapping exercise.

Based on this quantitative and qualitative data, the expertise and perspectives of our Stakeholder Advisory Board and representatives of tribal governments, and the scientific expertise of the project team, we then created initial drafts of guidebooks for water user committee conveners, facilitators, and participants.

Survey of Michigan Large Quantity Water Users

A water user survey was sent to all registered and permitted large quantity water users in Michigan. Our research team used the Integrative Framework for Collaborative Governance (IFCG) (Emerson, Nabatchi, and Balogh 2012) to create a survey aimed at identifying the information, tools, resources, and strategies water users need to successfully create water user committees. The IFCG names four motivating factors that drive people to collaboratively govern common pool resources: uncertainty, interdependence, consequential incentives, and leadership. Our survey was developed to evaluate the significance of each of those factors in Michigan's water user

community. Specifically, we asked water users about their perceptions of current and future water availability, the degree to which they perceive resource management as a collective or individual responsibility, their knowledge of state water policies, and the degree to which they trust each other and regulatory agencies to manage water responsibly.

Survey Methods

MDARD and EGLE provided email addresses for agricultural and nonagricultural large quantity water users, respectively. Invitations were sent to 1,788 agricultural producers from September 23, 2022, to October 6, 2022, and to 1,531 non-agricultural water users (e.g., public water suppliers, industries) from November 11, 2022, to November 22, 2022. An initial email explained the intent of our work and provided a link to the survey. This email was followed by three follow-up emails to encourage maximum participation. Survey respondents were offered the chance to win $100 gift cards for either Amazon or Family Farm and Home.

Invitations to agricultural producers resulted in 555 responses out of 1,788 contacts, a 31% response rate. Non-agricultural participation resulted in 450 responses out of 1,531 contacts, a 29% response rate. In total, we achieved a 30% response rate. This is more than double the typical response rate for internet surveys, which we credit to an accurate list supplied by the agencies, the importance that respondents place on their water use, heightened interest in the topic of water user committees, and the use of accepted best practices in survey research (Dillman, Smyth, and Christian 2009). To maintain confidentiality, all respondents' names and contact information were separated from the information they provided, ensuring that no individual or business could be connected to their responses.

Survey Results

A detailed report of the survey results was first presented to the Stakeholder Advisory Board and representatives of tribal governments, Leadership Team, and then to the Water Use Advisory Council on October 10th, 2023. Here we present a brief summary of the key findings.

Water quantity is not the main issue of concern for Michigan water users. In an open-ended question, respondents were asked what they view as the main issue facing Michigan water users today. The responses were coded through qualitative analysis into categories. The two biggest categories were related to water quality (98 mentions) and government overreach (94). In comparison, the third largest category was related to real or state-imposed water scarcity, with only 58 mentions (total n = 1,005).

Perception of abundant water. Overall, respondents felt that water in their home watersheds was abundant and expected it to stay that way into the future. As scarcity is a key driver of collaborative governance, this perception of abundance is a major barrier to the formation of water user committees. This perception mirrors respondents' lived experiences, with only 8% of respondents having ever been denied a water withdrawal registration or permit. The belief that water is not scarce in their home watersheds was also a significant issue for our case studies, as we discuss below.

Openness to collaboration. Sixty percent of respondents agreed that their water use is affected by others a "moderate amount to a great deal." This acknowledgment of interdependence, combined with a recognition that water users should cooperate more with both the state and their neighbors when making water management decisions, signals an openness among the majority of water users to work together in some fashion. Additionally, respondents were not worried about increased communication regarding their water use harming their relationships with their neighbors.

Lack of water policy knowledge. While limited knowledge about Michigan water policy is to be expected, it is noteworthy that only 7% of respondents knew what zone they were in according to the Water Withdrawal Assessment Tool (WWAT). As a water user's engagement with the WWAT to request a withdrawal and the resulting zone classification is an entry point for their involvement with and connection to state water policy, this specific area should be a focus of engagement with water users. In addition, nearly all respondents were unfamiliar with the concept of water user committees.

Time is a major barrier to participating in a water user committee. The survey provided a brief explanation of water user committees and then asked whether users would participate in a hypothetical water user committee if given the opportunity. For those who said they would be unlikely to participate, the primary reason given was the expected time commitment. This common response highlights the need for support by conveners and facilitators to reduce the burden on water user committee participants.

Lack of trust is a major barrier to working with the state. While water users had a moderate amount of trust in the science behind the WWAT, they reported low levels of trust in working with state agencies. Just over 20% of respondents reported they had no trust at all in the state to manage water effectively. Levels of trust were significantly lower among agricultural water users compared to non-agricultural users. The issue of a lack of trust came up repeatedly in the case studies and is the largest barrier to success in forming water user committees.

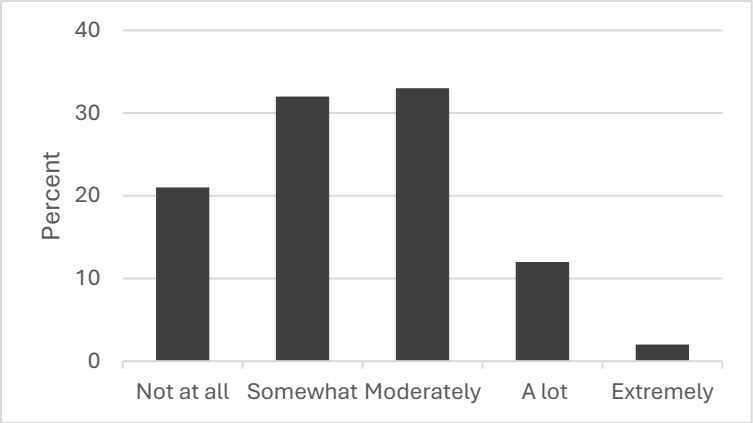

Figure 1. "To what extent do you trust the state of Michigan to manage water effectively?" n = 1,005

Focus Groups

In February 2023, we conducted two focus group discussions, one in person and one online, with members of our Stakeholder Advisory Board, representatives of tribal governments, Leadership Team, and additional experts. The discussions were intended to surface participants' mental models and beliefs about how water governance works in their home watersheds in Michigan. We also sought to understand how state-level stakeholders think about water management, compared to water users on the ground in Michigan communities. Our goal was to reveal underlying differences in perspectives which would need to be addressed for successful collaborative problem-solving, as well as any gaps in knowledge or data (Schmitt Olabisi et al. 2016).

Focus Group Methods

We used causal loop diagramming (CLD) with each focus group, drawing from the field of system dynamics. CLD is a technique for exploring causal relationships between key variables around a common problem. It is particularly concerned with feedback, in which two variables influence one another in a causal loop. Within each focus group, we separated participants into two smaller groups and instructed them to create a CLD around the focal question, *What are the challenges to equitable and sustainable water use in your home watershed?* Participants listed all potential causes of these challenges on sticky notes and connected them to the central variable and to one another using arrows. Groups were also instructed to identify feedback loops, which can highlight potential impediments to change.

Focus Group Results

The CLD exercise revealed both similarities and discrepancies between the views expressed by state-level water stakeholders and those gleaned from individual water users through the survey. First, the CLD workshop participants all identified key connections between water quantity and water quality, while survey respondents largely saw these as separate issues. Second,

the CLD workshop participants framed the central concern around water sustainability as a tradeoff between water needed for ecological system function and water needed for economic production (agriculture and urban consumption, among others). Given that most survey participants perceived water in Michigan to be abundant, this concept of a tradeoff was largely not present in the survey responses. One common theme emerging from both the CLD exercise and the survey responses was the importance of trust among water users, and between water users and the state, as a foundation of good water governance.

Focus Group Conclusions and Recommendations

Unfortunately, we were not able to conduct the CLD exercise with a group of actual water users situated within a specific water management area (detailed in Case Studies below). However, we believe this exercise would be very useful as a starting point for discussion among water users, including those forming water user committees. The exercise surfaced participants' mental models of water governance and conservation in Michigan, including points of agreement and disagreement. It also prompted participants to think systemically and to consider potential tradeoffs. This could be used to prompt water user committees to consider their community's water use in a broader context, and to come up with more holistic solutions. For example, reflecting on the tradeoffs between agricultural and urban water use could lead water user committees to pursue water conservation efforts in multiple settings, not just agriculture. Alternatively, users themselves seem to not be as aware of or concerned about the ways in which water quality and water quantity are connected, or of the tradeoffs between different uses of water, including supporting ecological function. On the other hand, state level participants may not be aware of the specific conditions that drive water users' mistrust of the state or the user-level dynamics that constrain water users' choices. Since this CLD exercise was so effective at highlighting these

discrepancies as areas for further communication and education, we have included it as part of the collaborative process laid out in both the facilitator and participant water user committee guides.

Case Studies

After the focus groups were completed, the project team spent nine months developing, refining, and soliciting critical feedback from the Stakeholder Advisory Board and representatives of tribal governments on the water user committee guides (detailed in Section C: Outputs). After final drafts were developed, the guides were then shared with the Leadership Team. From November 2023 to March 2024, our project team attempted to test the process established in these guides in two separate case studies. During this time, we engaged in individual conversations, emails, and meetings with large quantity water users, local MSU Extension educators, state agency representatives, and members of the Water Use Advisory Council. While we were unable to test the guides in an actual water user committee, these interactions with water users and other stakeholders provided invaluable information.

<u>Case Study Methods</u>

We tasked the Leadership Team with providing a list of watersheds that met the criteria laid out in Figure 1, recognizing no one location could possibly meet them all. Two locations were recommended: Whitmore Drain, located primarily in Midland County (with some area in Gratiot and Saginaw Counties) and Dickerson Creek, located in Montcalm County. While determining whether a watershed had a high chance of success overall of creating a collaborative water use plan was a subjective decision, each of these locations ranked

1) High chance of success overall in creating a collaborative water use plan approved by the state
2) Watershed exhibits some amount of stress (with greater weight given to higher levels of stress)
3) Neither too few nor too many water users, either of which could make collaboration a challenge
4) History of collaboration
5) An acknowledgement of need for collaboration
6) Little or no animosity towards the state

Figure 2. List of criteria, in order of importance, used to determine case study locations.

highly on the second, third, and fourth criteria for selection. Large quantity water users in both areas are predominantly potato growers, and a number are associated with Midwest Water Stewards to collect groundwater data.

Case Study Conclusions and Recommendations

For each case study watershed, we began our outreach efforts with local MSU Extension agents. Our Extension partners provided valuable assistance in providing local history and context, making initial contacts, and setting up meeting locations. In both instances, water users were wary of participating for several reasons. First and foremost was a lack of trust. This lack of trust was due to several factors, beginning with negative experiences with EGLE, either first- or secondhand, related to water use. The expensive and lengthy conflict in Cass County was of particular salience. These past experiences framed the perceived potential negative consequences of engaging with EGLE and, combined with the uncertainty surrounding water user committees and their overall purpose, significantly heightened the risks water users associated with participating (Wilson, Zwickle, and Walpole 2019). Water users feel they are not receiving clear, accurate and transparent information about the state of their watersheds and water withdrawals from the state. In light of this communication 'gap,' other actors are stepping in to foster misinformation and distrust. This has resulted in water users receiving conflicting information from various sources outside of the Water Use Program, EGLE, or MDARD which has included: misinformation about the nature and goals of this project, active campaigning to discourage water users from participating in our case studies, misleading information about water user committees and state policies (*i.e.,* that joining a water user committee constitutes an agreement with the state that an adverse resource impact is imminent and would result in a forced reduction in water use, that results from the WWAT would not be verified with hydrogeological data collection), and inaccurate information about the intentions and authority of the state in regard to restricting water use (*i.e.,* the state has a goal of

setting up water user committees and reducing water use to achieve environmental gains for a political agenda beyond what is required by the Compact).

Another major theme we heard from water users during our meetings was a perceived lack of water scarcity. Specifically, there was a belief that nearby streams were not experiencing diminished flows. Many felt this was a false narrative produced by the state, as they could not observe any diminished flow, and this added to the mistrust of EGLE.

Potential case study participants also disliked a decision by the project team to limit water user committee participation to just those stakeholders listed in the law, namely large quantity water users and representatives of local government. Without sufficient trust in place and the high degree of uncertainty about the intentions and potential outcomes associated with participating in this research, water users viewed the risks associated with participation as too high.

Finally, in the lead-up to an early informational meeting in our Whitmore Drain case study area, we communicated to those water users that the current zone classification by EGLE was Zone C, just above the threshold for a Zone D. After EGLE reviewed the well drilling logs for withdrawals in that area, those withdrawals were reclassified as coming from an aquifer separated from the stream by a layer of clay. Because withdrawals in this area were not hydrologically connected to surface water, “geology pass” site-specific review authorizations were issued. When this new and corrected information was communicated to water users, the consensus among participants was that this mistake reflected a lack of competence and/or capacity within EGLE and provided an additional example of their untrustworthiness. To be clear, the authors of this report are not necessarily supporting or agreeing with the statements made by participants in the Whitmore Drain discussion. As researchers, we are objectively reporting their statements during the meeting in order to shed light on the opinions and decision-making processes of water users.

Management/Research Implications

Our prolonged efforts to convene a water user committee made clear that there is currently insufficient trust in EGLE among water users to justify their time, energy, and vulnerability associated with creating or joining a water user committee. A key component of this vulnerability stems from the lack of clarity surrounding important details associated with a water user committee's requirements, the flexibility and freedom available to users to propose different water use agreements, and the specific benefits to water users for participating. We offer several recommendations to facilitate and support the formation and success of water user committees in Michigan. These recommendations are focused both on clarifying the rules governing water user committees and on agency policy for how that law is implemented.

Recommendations for Clarifying the Rules for Water User Committees

Clarity is needed regarding the intended makeup of a water user committee. Group dynamics, the range of possible outcomes, and the overall success of the process begins with who is initially in the room at the problem formulation stage (Slovic 2016; Hammond, Keeney, and Raiffa 1999). Therefore, it should be clearly defined and communicated who can, cannot, and/or must participate in a water user committee.

Details surrounding authority, monitoring, and sanctions should be settled prior to establishing a water user committee. Uncertainty surrounding what kind of authority a water user committee does or does not have is one reason water users were hesitant to participate in our case studies. Successful examples of local collaborative water management have clearly specified what power a group decision has, who is responsible for monitoring that the agreement is upheld, and how sanctions against individuals who violate that agreement are decided upon, with a preference for sanctions that increase gradually with repeated infractions (Zwickle et al. 2021).

The possible benefits of participating in a water user committee should be clearly delineated. Without a clear benefit, there is not a compelling reason for any water user committee to form before being compelled by the state to do so. While a reduction in water use at the watershed level may ultimately be required, the fact that users have the flexibility to determine how they meet that mandate should be made known. Open questions about other possible benefits, such as whether participation in a water user committee protects users from future litigation, should be settled so that users can have a complete understanding of what their participation might entail.

Examples of acceptable and unacceptable water user committee outcomes should be provided. Perhaps the biggest challenge our project team faced in convening our case study groups was the lack of clarity surrounding what kind of water use agreement would be accepted by EGLE. Water users were unwilling to suggest possible outcomes, as they feared this could be used against them or other water users in the future. Without clear alternatives for reducing use, or even a specific goal of a target stream flow in the WWAT, users are essentially incentivized to not speak up, not suggest possible outcomes, and not collaborate.

<u>Recommendations to EGLE for Encouraging and Supporting Water User Committees</u>

EGLE must earn the trust of Michigan water users. Repairing damaged trust is a slow and difficult task but vital for effective governance, particularly between a state agency and its regulated public (Van Fossen et al. 2025). We recommend that building trust be set as a central goal for EGLE's Water Use Program, as all aspects of its organizational responsibilities offer opportunities to do so and increased trust from the public will facilitate meeting its legal obligations. The following recommendations draw from the well-established scientific literature on building trust in government (Christensen and Laegreid 2005; Cooper, Knotts, and Brennan 2008).

Clearer and regular communication is needed between EGLE and Michigan water users. This may take the form of webinars, an accessible guide to state water policy, effective use of internet platforms and social media, occasional in-person events, and timely and transparent correction of any inaccuracies in the WWAT. Better and more frequent outreach would build relationships with water users and help correct misinformation regarding the intentions, requirements, and limits of EGLE's Water Use Program being spread by a small number of individuals to the detriment of Michigan water users. This misinformation has been taken up by the public because of the absence of EGLE in these conversations. Working with MSU Extension to disseminate information could effectively extend the reach of the Water Use Program's limited staff, as MSU Extension is generally well liked and trusted by water users, but appointing an outreach coordinator to serve as the point person for water user committees would be preferable. Education around what diminished flows can look like in a stream would also be beneficial. For example, temperature-sensitive streams may appear to have plenty of flow visually, but decreased baseflow may increase temperatures and limit characteristic and thriving fish species. Helping water users understand that some factors that constitute an adverse resource impact may be unobservable to the naked eye is a necessary component of communications about the WWAT and water user committees. Related to water user committees specifically, explaining when a water user committee can/must be formed, what data will be allowed/needed, and what options users may have in a manner that is understandable to a general audience should be a priority.

Increased transparency and timeliness are needed surrounding all aspects of groundwater data and modeling. Our conversations with water users were dominated by complaints, both valid and inaccurate, about the WWAT, how it is used to determine use limits, and the process through which one can submit groundwater data to EGLE to dispute it. A general increase in the transparency and accessibility of information related to the WWAT coupled with responsive and

plain-language communication will help reduce the destructive power of misinformation and build trust. Documents currently on the Water Use Program website such as the "Checklist for Complete Alternative Submittals to Site-Specific Reviews under Section 32706c" and the "Aquifer Performance Test Guidance" are good examples of agency transparency. These documents should be updated to also include information about how the guidelines were determined (*i.e.*, by law, or by a committee of named experts) and what the process is for changing them (*i.e.*, changing the law, submitting a request to review specific criteria). If data is submitted that fails to meet these established criteria, a clear explanation of the denial should be communicated to applicants and well owners in a timely fashion.

Provide support to encourage the creation of water user committees. Offering small grants to support the formation and functioning of water user committees, and providing facilitation services and technical expertise with short turnaround times to support their operation are concrete ways of reducing the burden on water users while signaling that the state desires to work *with* water users, helping them to sustainably manage their resources at the watershed level .

Potential Applications, Benefits, and Impacts

This project began a much needed and difficult conversation among diverse stakeholders about local collaborative management of water use in Michigan. We have highlighted potential engagement strategies for communication and building trust between the state and water users and laid out a process through which collaborative decisions can be made.

SECTION C. OUTPUTS

This project entailed a great deal of outreach, which came in many different forms. Private conversations and small meetings were held by project team members and individual water users, MSU Extension agents, state agency representatives, Stakeholder Advisory Board members, representatives of tribal governments, key stakeholders not on the advisory board, and other

researchers. More formal meetings were organized and held in each of the potential case study areas. Public presentations were given to the WUAC and two academic conferences (International Association for Society and Natural Resources: San Jose, Costa Rica, 2022 and Portland, Maine, 2023) about the ongoing results of this research.

The primary outputs of this project are the three guides for a water user committee convener, facilitator, and participant. Because of considerable ambiguity in the law and its implementation, many assumptions were made about both process and possible outcomes in the creation of these guides. These assumptions were always based upon the current best practices as identified by scientific research (particularly with regard to group process and decision making). These guides are meant to be updated and refined as more clarity is gained.

The wealth of data, engagement, and experience obtained through this project has resulted in important information and lessons that can be implemented by the state in the future. From our survey of large quantity water users, we identified that Michiganders are not familiar with water user committees and water policy in general. This lack of knowledge exacerbated the misinformation that circulated among water users when we were attempting to conduct the case studies. The participant guide is designed to facilitate conversations around water policies and water user committees. The collaborative process developed for the case studies is in response to the needs and barriers we gathered from water users across the state and is laid out sequentially in the water user committee guides.

Our survey data also showed that the necessary time commitment was a major barrier for water users' participation in water user committees, and past research has detailed the amount of time and effort it takes to effectively manage resources. Therefore, we developed separate

convener and facilitator guides to reduce the burden currently placed on water users to organize and lead a water user committee.

In addition, one online article was written about this project by MSU's Water Alliance: MSU researchers create guide for Water User Committees | Water Alliance. This award also supported the culmination of Brockton Feltman's doctoral degree from the Department of Community Sustainability, MSU.

SECTION D. Data Management Plan Form: Completion Phase

This project did not generate any environmental data. All survey data has been deidentified and will remain stored on PI-Zwickle's password protected computer.

Works Cited

Christensen, Tom, and Per Laegreid. 2005. "Trust In Government: The Relative Importance of Service Satisfaction, Political Factors, and Demography." *Public Performance & Management Review* 28 (4): 487–511. https://doi.org/10.1080/15309576.2005.11051848.

Cooper, Christopher A., H. Gibbs Knotts, and Kathleen M. Brennan. 2008. "The Importance of Trust in Government for Public Administration: The Case of Zoning." *Public Administration Review* 68 (3): 459–68. https://doi.org/10.1111/j.1540-6210.2008.00882.x.

Dillman, Don A., Jolene D. Smyth, and Leah Melani Christian. 2009. *Internet, Mail, and Mixed-Mode Surveys : The Tailored Design Method*. Hoboken, N.J.: Wiley & Sons.

Emerson, Kirk, Tina Nabatchi, and Stephen Balogh. 2012. "An Integrative Framework for Collaborative Governance." *Journal of Public Administration Research and Theory* 22 (1): 1–29. https://doi.org/10.1093/jopart/mur011.

Hammond, J. S., R. L. Keeney, and H. Raiffa. 1999. *Smart Choices: A Practical Guide to Making Better Life Decisions*. Harvard Business School Press.

Schmitt Olabisi, Laura, Stuart Blythe, Ralph Levine, Lorraine Cameron, and Michael Beaulac. 2016. "Participatory, Dynamic Models: A Tool for Dialogue." In *Climate in Context*, 99–116. John Wiley & Sons, Ltd. https://doi.org/10.1002/9781118474785.ch5.

Slovic, Paul. 2016. "Understanding Perceived Risk: 1978–2015." *Environment: Science and Policy for Sustainable Development* 58 (1): 25–29.

Van Fossen, Jenna A., Olatayo Bakare, Travis H. Olson, Adam Zwickle, and Joseph A. Hamm. 2025. "The Dynamics of Trust and Trustworthiness Perceptions in a Government Agency: A Longitudinal Perspective." *The American Review of Public Administration* 55 (1): 28–40. https://doi.org/10.1177/02750740241283031.

Wilson, Robyn S., Adam Zwickle, and Hugh Walpole. 2019. "Developing a Broadly Applicable Measure of Risk Perception." *Risk Analysis* 39 (4): 777–91. https://doi.org/10.1111/risa.13207.

Zwickle, Adam, Brockton Chandler Feltman, Allyson Jane Brady, Anthony D. Kendall, and David W. Hyndman. 2021. "Sustainable Irrigation through Local Collaborative Governance: Evidence for a Structural Fix in Kansas." *Environmental Science & Policy* 124 (October):517–26. https://doi.org/10.1016/j.envsci.2021.07.021.