Following the Flow: Upper Mississippi Approaches to Watershed Management

A report by Kelsey Willardson with support from Kate Hansen
Center for Rural Affairs

Center for Rural Affairs

Following the Flow: Upper Mississippi Approaches to Watershed Management

Kelsey Willardson

Policy Associate,
Center for Rural Affairs

with support from

Kate Hansen

Senior Policy Associate,
Center for Rural Affairs

May 2023

Following the flow:
Upper Mississippi approaches to watershed management

By:
Kelsey Willardson, policy associate, Center for Rural Affairs
with support from
Kate Hansen, senior policy associate, Center for Rural Affairs.

Center for Rural Affairs
145 Main Street
PO Box 136
Lyons, NE 68038
402.687.2100
info@cfra.org
cfra.org

Photos by Kelsey Willardson, Rhea Landholm, and Kylie Kai.

Report editing by:
Teresa Hoffman, senior communications associate;
Rhea Landholm, communications manager;
Catharine Huddle, communications consultant;
and Liz Stewart, communications consultant.

Design by:
Kylie Kai, senior communications associate.

Contents

Figures and tables

The source of the Mississippi River is a small lake in Minnesota called Lake Itasca. The Mississippi flows 2,340 miles from Lake Itasca to the Gulf of Mexico.

I. Introduction

In Iowa and the Midwest region, agricultural excellence, robust soils, and ample outdoor recreation are points of pride. All of these elements relate to water and depend upon healthy watersheds. To ensure they are protected and preserved, proper watershed management is essential.

We all live in a watershed. As defined by the U.S. Geological Survey (USGS), a watershed is "an area of land that drains all the streams and rainfall to a common outlet such as the outflow of a reservoir, mouth of a bay, or any point along a stream channel."[1] Watersheds can be very small, including only small streams, or extremely large, including tributaries into big bodies of water.[2] The word watershed may sometimes be used interchangeably with drainage basin or catchment.[3]

Iowa falls within the Mississippi River Drainage Basin, the third-largest in the world. All or a portion of 31 states and parts of Canada make up the basin, which covers more than 1,245,000 square miles.[4] As Iowa is entirely situated within the basin, its water is ultimately destined for the Mississippi River and beyond.

The Mississippi flows 2,340 miles, making it the third-longest river system in the world if the length of the Missouri and Ohio rivers are added to its main stem.[5] Its source is an unassuming glacial lake in Minnesota—Lake Itasca, which is approximately 1.8 square miles in area.[6]

Within the Mississippi River Drainage Basin is a smaller watershed: the Upper Mississippi River Basin. The majority of Iowa lies within the Upper Mississippi, along with Lake Itasca and portions of Minnesota, Wisconsin, Illinois, Missouri, and Indiana. The region is rich in forests and lakes

1 "Watersheds and Drainage Basins." U.S. Geological Survey, June 8, 2019, usgs.gov/special-topics/water-science-school/science/watersheds-and-drainage-basins. Accessed March 2023.

2 "Watershed." National Geographic, May 20, 2022, education.nationalgeographic.org/resource/watershed. Accessed February 2023.

3 "Watersheds and Drainage Basins." U.S. Geological Survey, June 8, 2019, usgs.gov/special-topics/water-science-school/science/watersheds-and-drainage-basins. Accessed March 2023.

4 "The Mississippi Drainage Basin." U.S. Army Corps of Engineers, mvn.usace.army.mil/Missions/Mississippi-River-Flood-Control/Mississippi-River-Tributaries/Mississippi-Drainage-Basin. Accessed March 2023.

5 "Mississippi River Facts." National Parks Service, U.S. Department of the Interior, Feb. 10, 2022, nps.gov/miss/riverfacts.htm. Accessed March 2023.

6 "Information about the Upper Mississippi River System." Wisconsin Department of Natural Resources, dnr.wisconsin.gov/topic/Watersheds/basins/mississippi/aboutMississippi.html. Accessed March 2023.

in its northern parts, and productive agricultural land in its southern areas.[7]

Within the Upper Mississippi River Basin are even smaller watersheds, the size of which are determined by a classification system. USGS created a hierarchical system for defining watersheds by using Hydrologic Unit Codes (HUC). Larger HUC numbers correspond to smaller watersheds, and vice versa. For example, the Upper Mississippi River Drainage Basin's code is HUC-2, whereas smaller local watersheds may be classified as HUC-10 or HUC-12. Smaller watersheds within the classification system are nestled within larger watersheds.[8]

Proper watershed management has the potential to benefit all living within the area, as well as those downstream. Watershed management describes the process of implementing land use and water management practices to improve the watershed—on the basis of water quality, flood resiliency, natural resources, conservation efforts, and other factors. Often, it is a comprehensive process directed by a watershed management plan.

Watersheds observe natural, rather than political boundaries. While water connects multiple states, each state's approach to funding and management differentiates it.

Watershed management efforts are underway in Iowa, but the potential to bolster these efforts with new strategies remains. This report will compare Iowa's watershed management activities, particularly those relating to Watershed Management Authorities (WMA), with neighboring states within the Mississippi River Drainage Basin—Minnesota and Wisconsin—to glean best practices.

II. Watershed management in Iowa

In Iowa, conservation and water-quality efforts within watersheds are spread out among multiple agencies and partners. Both the Iowa Department of Natural Resources (DNR) and Iowa Department of Agriculture and Land Stewardship (IDALS) conduct efforts relating to point source and nonpoint source pollution. Point source pollution refers to a type of water pollution with a definite site where contaminants are fed into waterways.[9] Nonpoint source refers to diffuse sources without a single origin. For example, runoff is caused by rain or snow melt carrying natural or manmade pollutants into nearby water sources.[10]

The Iowa DNR works to enhance and protect water quality in the state and carry out state and federal laws regarding natural resources.[11] Many of the DNR's efforts focus on point source pollution, although watershed work focused on nonpoint source pollution is funded by Environmental Protection Agency (EPA) Section 319. Established by amendments to the Clean Water Act in 1987, Section 319 focuses on nonpoint source management, and grants are available for states, territories, and tribes for a wide variety of activities.[12]

IDALS conducts a number of watershed protection and water-quality efforts, with nonpoint source pollution top of mind. A large part of IDALS' strategy is the Iowa Water Quality Initiative, which implements a nonpoint source program focused on both agricultural and urban projects, as well as a point source program focused on water and drinking water discharges.[13] Funding for the Water Quality Initiative traces back to 2018, when the Iowa Legislature and Gov. Kim Reynolds passed Senate File 512. The legislation allocated more than $270 million for state water-quality efforts through 2029.[14] Lawmakers approved a 10-year extension with an additional $320 million in funding in 2021.[15]

7 "Upper Mississippi River Basin." America's Watershed Initiative, americaswatershed.org/upper-mississippi-river-basin. Accessed March 2023.

8 "Fact Sheet: Watershed Management Authorities in Iowa." Center For Rural Affairs, Jan. 13, 2020, cfra.org/publications/watershed-management-authorities-iowa. Accessed March 2023.

9 "Point Source and Nonpoint Sources of Pollution." National Geographic, Oct. 21, 2022, education.nationalgeographic.org/resource/point-source-and-nonpoint-sources-pollution. Accessed March 2023.

10 "What We Do." Iowa Department of Agriculture and Land Stewardship, 2023, iowaagriculture.gov/administrative/what-we-do. Accessed March 2023.

11 "About DNR." Iowa Department of Natural Resources, iowadnr.gov/About-DNR. Accessed March 2023.

12 "319 Grant Program for States and Territories." U.S. Environmental Protection Agency, July 18, 2022, epa.gov/nps/319-grant-program-states-and-territories. Accessed March 2023.

13 Vasto, Alicia. "Water Quality Monitoring and the Water Quality Initiative." Iowa Environmental Council, July 2022, iaenvironment.org/webres/File/Water%20Quality%20Monitoring%20and%20the%20Water%20Quality%20Initiative_June%202022(1).pdf. Accessed March 2023.

14 Ibid.

15 Ibid.

Watersheds observe natural, rather than political boundaries. While water connects multiple states, each state's approach to funding and management is different.

Iowa's WMAs work alongside these agencies to advance Iowa's water-quality goals, as well as flood resiliency. They are unique in their approach, as each WMA is focused exclusively on a single watershed, and are collaborative entities made up of local leaders representing cities, counties, and soil and water conservation districts.

WMAs can be formed in watersheds classified HUC-8 or smaller by a Chapter 28E cooperative agreement. The agreement allows for efficient joint use of governmental and agency powers to provide facilities and services to mutual advantage.[16]

WMAs were established by the Iowa Legislature in 2010 in the wake of historic flooding. Lawmakers gave them the ability to:

- Assess and reduce flood risk.
- Assess and improve water quality.
- Monitor federal flood risk planning and activities.
- Educate residents about flood risks and water quality.
- Allocate funds made available to the authority for addressing water quality and flood mitigation.[17]

Iowa has 27 WMAs, covering 40% of the state. In a 2023 survey of Iowa's WMAs completed by the Center for Rural Affairs, 92% of respondents had a comprehensive watershed management plan or were in the process of developing one.[18] This plan

16 "Iowa Code 2023, Chapter 28E (35, 0)." Iowa Legislature, Dec. 29, 2022, legis.iowa.gov/docs/ico/chapter/28E.pdf. Accessed March 2023.

17 Hansen, Kate. "From the Source: A Look at Iowa's Watershed Management Authorities." Center for Rural Affairs, February 2023, cfra.org/publications/watershed-management-authorities-iowa. Accessed March 2023.

18 Ibid.

outlines long-term priorities, watershed conditions, and future project implementation. Of the 26 WMAs that took the survey, 21 had a plan on file. An additional three were in the development stage—often a process that takes a year or more and involves the investment of tens or hundreds of thousands of dollars.[19]

These plans also touch on other goals important to their constituencies, such as outdoor recreation. The time and resources invested in watershed management planning by the WMAs provide them with a robust analysis of their watersheds, and a roadmap for future project implementation.

To accomplish the goals of their watershed plans, WMAs must secure funding from a variety of sources including federal and state grants, local contributions, and other sources, such as nonprofits and private institutions.

Starting in 2016, nine WMAs received funding from the U.S. Department of Housing and Urban Development for the Iowa Watershed Approach, a project totaling nearly $97 million. The project targeted watersheds affected by floods from 2011 to 2013, and created hydrologic assessments to measure, monitor, and predict flood waters, implemented projects to decrease the severity of downstream flooding, and addressed water-quality concerns.[20] It provided stable funding for watershed planning, project implementation, and staffing for six years. Together, the WMAs built nearly 700 structures, including terraces, ponds, grassed waterways, buffer strips, prairie strips, sediment control basins, channel bank stabilizations, stormwater detention basins, oxbow restorations, floodplain restorations, and more.[21]

The Iowa Watershed Approach was arguably the single largest project in WMA history, but it occurred concurrently with many others. In total, Iowa's WMAs have implemented more than 2,600 conservation practices since their creation in 2010.[22]

WMA leaders report the continued need for more projects. There is demand from willing local farmers and landowners to implement more water-quality efforts.

Still, the lack of consistent funding sources—especially for staffing—leaves WMAs in a tenuous position. Nearly all of their funding models are dependent on temporary grants, including the Iowa Watershed Approach, which sunsetted in 2022, resulting in the loss of essential staff people.

Similar challenges are playing out across the state. In a recent survey, seven WMAs reported losing significant staffing capacity in 2022 alone, and two more are at risk to follow suit in 2023. Along a similar timeline, the number of WMAs with full-time watershed coordinators has shrunk from 13 to 7. A coordinator is an essential boots-on-the-ground staff person managing and implementing projects, building local relationships, and actively seeking funding to continue the WMA's work. Losing this capacity puts WMAs in vulnerable positions.

Addressing Iowa's water concerns will depend on an all-hands-on-deck approach, in which collaborators from all corners of the state contribute. Iowa DNR and IDALS are skilled and effective in their respective projects and approaches. The WMAs are unique in their individual watershed focus, deep community roots, and demonstrated success in planning and executing projects at the local scale.

These factors, and the amount of work that remains to be done to address water-quality and flooding concerns across the state, show that Iowa could benefit from new ideas and funding strategies.

III. Approaches in select neighboring states

Approaches to watershed management vary by state. As such, there is ample opportunity to exchange ideas and learn best practices among them, including for Iowa decision-makers and the WMAs.

The following sections highlight strategies and approaches to watershed management in Wisconsin and Minnesota. Like Iowa, a majority of each state falls within the Upper Mississippi River Basin. This overview does not capture every concurrent effort relating to water, but rather highlights strategies that may present learning opportunities.

19 Ibid.

20 "Iowa Watershed Approach." Iowa Flood Center, University of Iowa, iowafloodcenter.org/projects/iowa-watershed-approach-hydrologic-network-4. Accessed March 2023.

21 Personal communication, Kate Giannini, Program Manager, IIHR—Hydroscience & Engineering, Iowa Flood Center, University of Iowa, Dec. 16, 2022.

22 Hansen, Kate. "From the Source: A Look at Iowa's Watershed Management Authorities." Center for Rural Affairs, February 2023, cfra.org/publications/watershed-management-authorities-iowa. Accessed March 2023.

A. Wisconsin

Wisconsin has more than 85,000 miles of shoreline along rivers and lakes, many of which are within the Mississippi River Basin.[23] These waters play an essential role in the lives of Wisconsinites, providing for their water needs and fueling outdoor recreational activities. Hunting and fishing alone generate $1.5 billion of economic spending annually. Statewide surveys have shown the vast majority of voters care about protecting and preserving the state's water resources.[24]

Wisconsin's water and wetlands are protected by the state DNR in accordance with the Legislature. To protect and restore watersheds and encourage cooperation among DNR staff, local governments, and private partners, the state is divided into 24 water management units. These water management units are formed around the state's watersheds and help bring area stakeholders together.[25]

The state takes several approaches to address water quality, including recognizing the impact of agricultural practices and implementing related programming. This includes the Producer-Led Watershed Protection Grants. Led by the Wisconsin Department of Agriculture, Trade and Consumer Protection, funding is provided to agricultural producers to participate in local watershed efforts, such as cost-share programs for conservation projects, on-farm demonstrations and research, and implementing innovative practices and conservation.[26] This funding has increased the adoption of strip tillage, cover crops, low-disturbance manure injection, and more. By engaging and collaborating with farmers, these efforts are more successful than other top-down government approaches.[27]

In 2023, $1 million in grants was awarded to 43 farmer-led groups through the Producer-Led Watershed Protection Grants. The money was used for conservation projects and education. In its eighth year, the program has seen considerable success.[28] Jake Kaderly, a Wisconsin agronomist and farmer whose producer group, Farmers of the Sugar River, received a grant in 2022, said the grant gives his group the opportunity to share its knowledge by hosting local events, speakers, in-field demonstrations, and their philosophy that soil health comes first.[29]

Wisconsin has also started a new program to prevent water pollution, called the Healthy Watersheds, High-Quality Waters initiative. This initiative takes a different approach than most water-quality programs, focusing solely on maintaining healthy watersheds rather than restoring polluted watersheds. Developed in 2021, the initiative's goals are to increase the utilization of program funding, technical assistance capacity, and awareness of priority areas and activities.[30] This program signifies the state's commitment to long-term protection and restoration and provides funding for maintenance even after watersheds are no longer considered high-risk or high-priority. This strategy assures that Wisconsin's waters will be continually guarded, not only addressed during times of struggle.

23 "The Wonderful Waters of Wisconsin." Wisconsin Department of Natural Resources, dnr.wisconsin.gov/sites/default/files/topic/SurfaceWater/HWHQWInputSummary_20211020.pdf. Accessed March 2023.

24 Ibid.

25 Kent, Paul G., and Tamara A. Dudiak. "Wisconsin Water Law: A Guide to Water Rights and Regulations." University of Wisconsin-Extension, Cooperative Extension, University of Wisconsin-Stevens Point, 2001, uwsp.edu/cnr-ap/UWEXLakes/Documents/resources/bookstore/Wisconsin%20Water%20Law-Edition2-G3622.pdf. Accessed March 2023.

26 "Producer-Led Watershed Protection Grants." State of Wisconsin Department of Agriculture, Trade and Consumer Protection, datcp.wi.gov/Pages/Programs_Services/ProducerLedProjects.aspx. Accessed March 2023.

27 Rao, Amulya, and Rebecca Power. "Successful Watershed Management in the Midwest: Getting to Scale." University of Wisconsin-Madison and North Central Region Water Network, February 2019, docslib.org/doc/10257506/successful-watershed-management-in-the-midwest-getting-to-scale. Accessed March 2023.

28 "Dept. of Agriculture, Trade and Consumer Protection: Awards $1 million in producer-led watershed protection grants to 43 groups." WisPolitics, Dec. 6, 2022, wispolitics.com/2022/dept-or-agriculture-trade-and-consumer-protection-awards-1-million-in-producer-led-watershed-protection-grants-to-43-groups. Accessed March 2023.

29 Jahnke, Pam. "Producer-Led Watershed Protection Grants Awarded." The Mid-West Farm Report, Feb. 3, 2022, midwestfarmreport.com/2022/02/03/producer-led-watershed-protection-grants-awarded. Accessed March 2023.

30 "The Wonderful Waters of Wisconsin." Wisconsin Department of Natural Resources, dnr.wisconsin.gov/sites/default/files/topic/SurfaceWater/HWHQWInputSummary_20211020.pdf. Accessed March 2023.

Funding for Wisconsin's watershed programs comes from competitive grants from the DNR and private organizations.[31] Most commonly, funds are provided through loans issued from EPA Section 319 grants and the State Revolving Fund. The State Revolving Fund includes the Clean Water Fund Program and the Safe Drinking Water Loan Program, which provide low-interest and subsidized loans to municipalities for pollution reduction and infrastructure development or upgrades.[32]

According to the DNR, Wisconsin's approach has resulted in 82% of the state's waters being classified as healthy and 22 being removed from the impaired waters list in 2022.[33] Wisconsin has taken unique approaches to address its individual water-quality needs. This has helped the state create and maintain healthy waters for its residents, visitors, and environment.

B. Minnesota

More than 20,000 square miles of Minnesota are in the Upper Mississippi River Basin.[34] Often referred to as the land of 10,000 lakes, water is no doubt important to Minnesota. The actual number of lakes tops 11,000, with water covering 6% of the state, the highest percentage in the country.[35]

Minnesota has a longer-than-average history of addressing water quality. In 1955, the Minnesota Legislature passed the Watershed Act and authorized a system of watershed districts.[36] Today, the state's 42 districts are run by a board of managers appointed by county commissioners within the watershed and citizen advisory committees.[37]

As with Iowa's WMAs, watershed districts in Minnesota address management across political boundaries within a single watershed.

When specific watershed projects arise, districts outside of major metropolitan areas have the option to create Water Management Districts in accordance with Minnesota Statute on Water Management Districts.[38] Once established, Water Management Districts then have the authority to establish fee structures to collect funds from counties and private vendors to implement projects.[39]

Unique requirements and expectations for watershed districts fall within Minnesota's seven-county Twin Cities Metropolitan Area. These districts cooperate together as Watershed Management Organizations, in accordance with the Metropolitan Area Surface Water Act passed by the Minnesota Legislature in 1982.[40] This requires these Watershed Management Organizations to prepare and implement surface water management together in the metro.[41] See Table 1 on page 7.

Districts have a range of tools to protect and improve their local watersheds. This includes the ability to "adopt rules with the power of law to regulate, conserve, and control the use of water resources within the district."[42] They are able to con-

31 "Department Grant Programs." Wisconsin Department of Natural Resources, dnr.wisconsin.gov/aid/Grants.html. Accessed March 2023.

32 "Environmental Loans: Clean Water & Drinking Water State Revolving Funds." Wisconsin Department of Natural Resources, dnr.wisconsin.gov/aid/EIF.html. Accessed March 2023.

33 "Wisconsin's Water Quality Report to Congress." Wisconsin Department of Natural Resources, dnr.wisconsin.gov/topic/SurfaceWater/Congress.html. Accessed March 2023.

34 Bosch, Anna. "Our Upper Mississippi River." Minnesota Pollution Control Agency, June 2017, pca.state.mn.us/sites/default/files/wq-ws4-38b.pdf. Accessed March 2023.

35 "Minnesota Water Facts." Minnesota Department of Natural Resources, 2010, files.dnr.state.mn.us/education_safety/education/minnaqua/leadersguide/appendix_1/7_5_water_facts.pdf. Accessed March 2023.

36 "Minnesota's Local Watershed Government Entities: Who We Are. What We Do." Minnesota Watersheds, static1.squarespace.com/static/63cef2bc9f5cb05c854c12d4/t/63e676439111ff3fc88964c2/1676047940708/2023-02+What+are+WMOs+and+WDs.pdf. Accessed March 2023.

37 Ibid.

38 "2022 Minnesota Statutes, 103D.729 Water Management District." Minnesota Legislature, 2022, revisor.mn.gov/statutes/cite/103D.729. Accessed March 2023.

39 "Water Management Districts." Minnesota Board of Water and Soil Resources, bwsr.state.mn.us/water-management-districts. Accessed March 2023.

40 "2022 Minnesota Statutes, 103D.201 to 255 Metropolitan Water Management Program; Purpose." Minnesota Legislature, mn.gov/statutes/cite/103B.201. Accessed March 2023.

41 Ibid.

42 "Water Management Districts." Minnesota Board of Water and Soil Resources, bwsr.state.mn.us/water-management-districts. Accessed March 2023.

Table 1. Minnesota watershed entities

Watershed district	Authorities comprised of a board of managers appointed by county board of commissioners within the given watershed, and a citizen advisory committee. Able to regulate land use planning, flood control measures, and conservation projects.
Watershed Management District	Optional mechanism for funding specific watershed projects outside of metropolitan areas. Creates the authority to establish a fee structure to raise funds.
Watershed Management Organizations	Required organization for watershed districts in the seven-county Metro Area. Consists of a board of members appointed by the involved municipalities, and citizen and technical advisory committees. Has the authority to prepare and implement surface water management along watershed borders.

duct projects to address water quality and hire staff, contractors, and consultants. In regard to finances, they are permitted to accept grants, and they are able to levy taxes to finance their work.

Aside from local fees collected, funding for watershed districts, Water Management Districts, and Watershed Management Organizations in Minnesota is coordinated through the Minnesota Pollution Control Agency.[43] The Minnesota Pollution Control Agency is dedicated to preventing and reducing air and water pollution and protecting the state's natural resources.[44] The agency has access to both federal and state dollars for new and continued water-quality projects. The Minnesota Pollution Control Agency offers both competitive and noncompetitive funding options.[45]

Competitive options include funding from the EPA's Section 319 grants to address nonpoint source pollution.[46] Competitive low-interest loans are also available to governments and water districts. This includes Clean Water Partnership Loans, which can be used to address non-point source solutions, build green infrastructure, and enhance stream and wetland restoration projects.[47]

In addition, Minnesota watershed districts have access to noncompetitive funding through the Clean Water Fund.[48] This fund was established in 2008 through a ballot measure. Minnesota voters passed the Clean Water, Land, and Legacy Amendment, which increased the state sales and use tax rate starting in 2009 and running until 2034. The added sales tax is less than half a percent and provides funds to watershed districts throughout the state to protect, monitor, and restore Minnesota's waterways.[49] Watershed districts do not have to worry about losing base funding from year to year, thanks to this program.

How these funds are distributed has changed as the program has grown. In 2017, the Minnesota Board of Water and Soil Resources began a pilot program called One Watershed, One Plan to distribute its noncompetitive Clean Water Funds.[50] Watershed districts with comprehensive plans received watershed-based funding to address priority concerns on a long-term basis, rather than the traditional project-to-project approach. This ensures sustainable funding so organizers can focus on improving their watersheds rather than securing short-term funding every year, which has created considerable success. The pilot program validated the Board of Water and Soil Resources' ability to provide funds equitably to water districts based on state assessments and reports. Thanks to the success of the pilot program, this strategy is being adopted throughout the state and is helping watershed districts focus on their areas of concern with consistent funding.[51]

43 "Watershed Project Funding." Minnesota Pollution Control Agency, pca.state.mn.us/business-with-us/watershed-project-funding. Accessed March 2023.

44 "About Us." Minnesota Pollution Control Agency, pca.state.mn.us. Accessed March 2023.

45 Ibid.

46 "Section 319 Small Watersheds Focus." Minnesota Pollution Control Agency, pca.state.mn.us/business-with-us/section-319-small-watersheds-focus. Accessed March 2023.

47 "Clean Water Partnership loans." Minnesota Pollution Control Agency, pca.state.mn.us/grants-and-loans/clean-water-partnership-loans. Accessed March 2023.

48 "Clean Water Fund." Minnesota Pollution Control Agency, pca.state.mn.us/air-water-land-climate/clean-water-fund. Accessed March 2023.

49 "About the Funds." Minnesota's Legacy, legacy.mn.gov/about-funds. Accessed March 2023.

50 "Watershed-Based Implementation Funding Allocation Formula White Paper." Minnesota Board of Water and Soil Resources, bwsr.state.mn.us/sites/default/files/2019-09/Watershed-Based%20Implementation%20Funding%20Allocation%20Formula%20White%20Paper.pdf. Accessed March 2023.

51 Ibid.

Minnesota's approach to watershed management has been effective. In 2022, 66 lakes and streams were removed from the impaired waters list, more than 3,600 grants to protect and restore water resources were distributed, more than 750 septic systems that posed imminent health risks were repaired, and 48 municipal wastewater treatment facilities were upgraded, reducing phosphorus discharges by more than 250,000 pounds annually.[52] The state's rigorous approach to water quality and dedication to providing equitable and sustainable funding has enabled these successes.

IV. Discussion

Watershed management is essential in all states, as safe, clean water is a necessity for all life. This management requires consistent and significant funding to be successful. In the Upper Mississippi River Basin, Iowa, Minnesota, and Wisconsin each approach watershed management differently. Iowa and the WMAs stand to benefit from lessons learned in its neighboring states.

In Iowa, significant efforts are underway by multiple entities to address water concerns, particularly water quality. They are collectively informed by the Iowa Nutrient Reduction Strategy (NRS).

Released in 2013 and adopted by the state Legislature in 2018, the NRS is a statewide framework designed to reduce nutrient loads in surface water.[53] Specifically, its goal is to achieve a 45% reduction in nitrogen and phosphorus losses.[54] Annual progress reports on the strategy are published by Iowa State University in collaboration with IDALS and Iowa DNR.

These reports indicate that, while progress has been made, there is still much work to be done. For example, NCS1—one of the eight scenarios laid out by the NRS to achieve its goals—calls for 60% of acres in cover crops (or approximately 12.6 million of the roughly 21 million acres of corn-corn and corn-soybean rotation).[55] Yet, 2022 reports indicate the state is approaching 3 million total acres of cover crops.[56] Other practices outlined in the NRS require similar progress.

IDALS and Iowa DNR report notable progress toward these goals. For example, in 2022 alone, 730,000 cover crop acres were approved to receive Water Quality Initiative funds and more than 150 saturated buffers and bioreactors were under development.[57]

More work undoubtedly lies ahead, and WMAs can play their part in the process. In addition to the more than 2,600 practices implemented by WMAs, their leaders report potential to advance these efforts even further. In recent surveys, 92% of WMAs had a watershed management plan on file or in production, and therefore a charted path toward next steps for watershed improvement.[58] Importantly, WMAs also report continued demand for conservation practices from farmers and landowners.[59] This unmet demand translates to tangible opportunities for new projects and next steps to advance the NRS. Finally, WMAs are uniquely positioned to tackle flooding concerns that have long burdened the state. These efforts can be both collaborative and complementary.

Despite these encouraging factors, WMAs lack a consistent source of funding and must continually apply for competitive grants. This has limited their effectiveness around the state and lessened their ability to address water-quality issues—leaving potential untapped.

Minnesota passed a ballot measure 15 years ago that increased the state sales tax to fund water-quality measures. This continued source of funding, as well as Minnesota's watershed-focused approach,

52 "Clean Water Fund: Performance Report." Minnesota Pollution Control Agency, pca.state.mn.us/air-water-land-climate/clean-water-fund. Accessed March 2023.

53 2018 Iowa Acts, ch. 1001, §20, Iowa Legislature.

54 "Iowa Nutrient Reduction Strategy." Iowa Department of Agriculture and Land Stewardship, Iowa Department of Natural Resources, Iowa State University College of Agriculture and Life Sciences, December 2017, nutrientstrategy.iastate.edu/sites/default/files/documents/2017%20INRS%20Complete_Revised%202017_12_11.pdf. Accessed January 2023.

55 Ibid.

56 "2022 Annual Report, Iowa Water Quality Initiative: Iowa's Nutrient Reduction Strategy In Action." Iowa Department of Agriculture & Land Stewardship, 2022, static1.squarespace.com/static/586bfd13be65947270902ac5/t/63c8210a9a15164851ddcd3c/1674060044352/2022+WQI+Annual+Report+FINAL.pdf. Accessed March 2023.

57 Ibid.

58 Hansen, Kate. "From the Source: A Look at Iowa's Watershed Management Authorities." Center for Rural Affairs, February 2023, cfra.org/publications/source-look-iowas-watershed-management-authorities. Accessed March 2023.

59 Ibid.

has improved water quality throughout the state. Minnesota has seen significant improvements thanks to its statewide investment in watershed management. The state fund has provided watershed districts with reliable, non-competitive funding.

By not making watershed management districts compete annually for funding, the state has allowed them to focus on watershed management and retention of staff to achieve water-quality goals, and implement long-term solutions as they are assured to be funded in the future. In contrast, WMAs in Iowa must focus on shorter-term projects, shadowed by long-term uncertainty about staff retention.

Iowa could have similar success with a state fund. In fact, Iowans have already laid the groundwork to do so. In 2010, 63% of voters passed a constitutional amendment to create the Natural Resources and Outdoors Recreation Trust Fund, also known as IWILL. The trust would be a permanent funding source for efforts relating to water quality, conservation, outdoor recreation, and more. It was designed to accumulate funding from a three-eighths of a cent increase in the state sales tax.[60] This percentage is equal to the share of Minnesota's successful program.

Despite the support of Iowans more than a decade ago, the fund continues to sit empty, as the Iowa Legislature has not raised the sales tax. Due to this inaction, conservation efforts have lost out on more than $1 billion in potential funding.[61]

By funding the trust, lawmakers have the ability to support WMAs—as well as many other programs and facets of conservation—and provide for sustainable success.

Wisconsin focuses on all of the state's watersheds, and with an intentionally preventive approach in place, this serves as a reminder that the ultimate goal is clean waters for all. Such strategies have resulted in an impressive 82% of waters being classified as healthy.

Iowa has the potential to play a similar role by investing in the expansion of WMAs across the state, as well as charting opportunities for protection and restoration projects, similar to those in the Healthy Watersheds, High-Quality Waters Initiative. Results from Wisconsin suggest that prevention of pollution is an efficient use of state funds, as it is cheaper to protect waterways than restore them.

V. Conclusion

Efforts are underway in Iowa to address water concerns, particularly those relating to water quality. While robust, they must make more progress ahead. Iowa's approach to watershed management—specifically as it relates to WMAs—stands to benefit from lessons learned from other states.

Neighboring states in the Upper Mississippi River Basin have had growing success in protecting and restoring their waterways. Wisconsin's statewide approach provides funding for protecting healthy waters in addition to addressing polluted waterways.

Minnesota has created and maintained watershed management districts that continue to make significant strides toward their state's water-quality goals. They are able to do this through reliable non-competitive funding provided by a trust funded by the sales tax.

Iowa voters have spoken with their approval of the Natural Resources and Outdoor Recreation Trust Fund. Lawmakers should keep their word to Iowa voters, and enact legislation that would fund IWILL, an investment that would benefit all Iowans for years to come.

60 "About Fund the Trust." Fund the Trust, 2023, fundthetrust.org/about-fund-the-trust. Accessed March 2023.

61 Smith, Cody. "Iowa's Path to Clean Water and Flood Resilient Communities." Center for Rural Affairs, October 2020, cfra.org/publications/iowas-path-clean-water-and-flood-resilient-communities. Accessed March 2023.

About the Center for Rural Affairs

Established in 1973, the Center for Rural Affairs is a private, nonprofit organization with a mission to establish strong rural communities, social and economic justice, environmental stewardship, and genuine opportunity for all while engaging people in decisions that affect the quality of their lives and the future of their communities.