



Upper Mississippi River Basin Association

180th Quarterly Meeting

October 13, 2026

Bettendorf, Iowa

Agenda with
Background and Supporting Materials

Agenda
October 13, 2026

Time	Topic	Page	Presenter
10:00 a.m.	Call to Order and Introductions		Chris Wieberg, Missouri DNR <i>UMRBA Board Chair</i>
10:05	Approval of Minutes of August 4, 2026 Meeting	A1-8	
10:10	Executive Director's Report	B1-15	Kirsten Wallace, UMRBA
10:15	FEWscapes Scenarios for Policy and Management	C1-7	Eric Booth, University of Wisconsin-Madison
10:45	Agricultural Conservation for Aquatic Habitat Tool (Ag-CAB)	D1	Bryan Piazza, The Nature Conservancy
11:10	NIDIS National and Midwest Strategic Plans	E1-13	Molly Woloszyn, NOAA
11:40	MARAD Strategic Marine Highway Network Initiative	F1-2	Tim Pickering, MARAD
12:00 noon	Lunch		
1:15 p.m.	UMR Master Plan: 45 Year Reflection	G1-10	Kirsten Wallace, UMRBA
1:45	UMRBA Strategic Planning: Partner Perspectives		Kirsten Wallace, UMRBA and Liz Scherber, Minnesota DNR
2:15	Administrative Issues — Future Meeting Schedule	H1-8	Chris Wieberg, Missouri DNR
2:30 p.m.	Adjourn		

Upper Mississippi River Quarterly Meetings

Attachment A

Minutes

Page Number	Document Title
A-1 to A-8	Draft Minutes of the August 4, 2026 UMRBA Quarterly Meeting

**Draft Minutes of the
179th Quarterly Meeting of the
Upper Mississippi River Basin Association**

**August 4, 2026
St. Louis, MO**

Chris Wieberg called the meeting to order at 9:00 a.m. on August 4, 2026.

Participants were as follows:

UMRBA Representatives and Alternates

Rick Pohlman	Illinois Department of Natural Resources
Kirk Hansen	Iowa Department of Natural Resources
Jake Hansen	Iowa Department of Agriculture and Land Stewardship
Grant Wilson	Minnesota Department of Natural Resources
Patrick Phenow	Minnesota Department of Transportation
Chris Wieberg	Missouri Department of Natural Resources
Chris Klenklen	Missouri Department of Agriculture
Vanessa Perry	Wisconsin Department of Natural Resources [On behalf of Wade Strickland]

Federal UMRBA Liaisons:

Col. Andy Pannier	U.S. Army Corps of Engineers, MVD
Sabrina Chandler	U.S. Fish and Wildlife Service
Jim Fischer	U.S. Geological Survey, Midcontinent Region [On behalf of JC Nelson]
Travis Black	U.S. Department of Transportation, MARAD

Others In Attendance:

Nicole Vidales	Illinois Environmental Protection Agency
Chad Craycraft	Illinois Department of Natural Resources
Wei Han	Illinois Department of Natural Resources
Neil Rude	Minnesota Department of Natural Resources
Liz Scherber	Minnesota Department of Natural Resources
Nick Schlessler	Minnesota Department of Natural Resources
Nick Heredia	Minnesota Department of Natural Resources
Robert Voss	Missouri Department of Natural Resources
Sammi Boyd	Wisconsin Department of Natural Resources
Shawn Giblin	Wisconsin Department of Natural Resources
Kat McCain	U.S. Army Corps of Engineers, MVD

Brian Thatch	U.S. Army Corps of Engineers, MVD
Thatch Shepard	U.S. Army Corps of Engineers, MVD
Kelly Keefe	U.S. Army Corps of Engineers, MVD
Jim Cole	U.S. Army Corps of Engineers, MVD
LeeAnn Riggs	U.S. Army Corps of Engineers, MVD
Samantha Thompson	U.S. Army Corps of Engineers, MVD
Brian Johnson	U.S. Army Corps of Engineers, RPDN, MVS
Karl Jansen	U.S. Army Corps of Engineers, MVP
Dan Reburn	U.S. Army Corps of Engineers, MVP
Marshall Plumley	U.S. Army Corps of Engineers, MVR
Marisa Lack	U.S. Army Corps of Engineers, MVR
Davi Michl	U.S. Army Corps of Engineers, MVR
Greg Kohler	U.S. Army Corps of Engineers, MVS
Jasen Brown	U.S. Army Corps of Engineers, MVS
Kraig McPeck	U.S. Fish and Wildlife Service, Ecological Services
Sara Schmuecker	U.S. Fish and Wildlife Service, Ecological Services
Matt Mangan	U.S. Fish and Wildlife Service, Ecological Services
Jon Amberg	U.S. Geological Survey, UMESC
Jeff Houser	U.S. Geological Survey, UMESC
Jim Fischer	U.S. Geological Survey, UMESC
Jennifer Dieck	U.S. Geological Survey, UMESC
Tim Elkins	U.S. Environmental Protection Agency, Region 5
Emily Pierce	U.S. Environmental Protection Agency, Region 5
Michelle Woods	U.S. Environmental Protection Agency, Region 5
David Pratt	U.S. Environmental Protection Agency, Region 7
Jared Schmalstieg	U.S. Environmental Protection Agency, Region 7
Madeleine Castle	Senator Josh Hawley Office
Tara Hohman	Audubon
Alicia Vasto	Audubon
Brent Hoerr	Corn Belt Ports
Casey Bergthold	Ducks Unlimited
Jill Crafton	Izaak Walton League of America
Marc Schultz	Lake Onalaska Protection and Rehabilitation District
Michael Anderson	Lake Pepin Legacy Alliance
Carolyn Mahlum-Jenkins	League of Women Voters, Upper Mississippi River
Chuck Camillo	Midwest Flood Control Association
Nancy Guyton	Neighbors of the Mississippi
Charlie Williamson	Neighbors of the Mississippi
Olivia Dorothy	One Mississippi
Christine Favilla	Sierra Club
Andrew Stephenson	The Nature Conservancy
Aaron Field	Theodore Roosevelt Conservation Partnership
John Sabo	Tulane University
Melissa Kenney	University of Minnesota, Institute on the Environment
Paul Rohde	Waterways Council
Kirsten Wallace	Upper Mississippi River Basin Association
Brian Stenquist	Upper Mississippi River Basin Association

Mark Ellis	Upper Mississippi River Basin Association
Tyler Leske	Upper Mississippi River Basin Association
Natalie Lenzen	Upper Mississippi River Basin Association
Josh Wolf	Upper Mississippi River Basin Association

Minutes

Rick Pohlman moved and Kirk Hansen seconded a motion to approve the draft minutes of the May 20, 2026 meeting. The motion carried unanimously.

Executive Director's Report

Kirsten Wallace pointed to the Executive Director's report in the agenda packet for a summary of the Association's work efforts since the May 2026 meeting.

Wallace highlighted the UMRBA water availability project technical advisors workshop on July 21-23, 2026 at the UMRBA office. The purpose was to review initial results of an analysis by the University of Minnesota of basin-scale water flows including in relation to water use. The hope is for the analysis to inform an interstate framework for sustainable water use. Wallace thanked the state agency personnel who participated in the workshop as well as Sadie Nueman and Brian Stenquist for designing and convening the workshop.

Wallace also pointed to the various engagements convened by stakeholders in the summer, and applauded their work to host discussions about important water policy and planning topics.

Wallace provided background context on the UMRBA Board's evaluation of options for the state dues and water quality assessment levels in FYs 2028 and 2029. With that context, Grant Wilson moved and Rick Pohlman seconded a motion to set UMRBA dues for FYs 2026 and 2027 at \$70,350 annually per state and to set the water quality assessment for FYs 2026 and 2027 at \$22,680 annually per state. These amounts reflect stable levels consistent with current dues and water quality assessments.

Wallace pointed to the UMRBA financial statements for April 2026 through June 2026 as provided on pages B-4 to B-12 of the agenda packet. Hansen moved and Vanessa Perry seconded the motion to accept the Association's budget report and balance sheet as included in the agenda packet. The motion was approved unanimously.

Interstate Collaboration in Nutrient Loss Reduction

Josh Wolf explained that the state nutrient coordinators in the Upper Mississippi River Basin States have been working together over the past year to shape opportunities for interstate collaboration in reducing nutrient loss from the watershed to the Mississippi River. The UMRBA Water Quality Executive Council established a Nutrient Committee to formalize interstate coordination related to nutrient reduction.

The Nutrient Committee was first tasked with a) highlighting and amplifying the individual state nutrient loss strategies and b) identifying interstate collaborative actions that can enhance support for the state strategies. Wolf presented the states' shared priorities, or areas of consensus, that will center interstate collaborations, as follows:

1. Establish a regional pilot program to support the consensus strategies involving cover crops, conservation tillage, wetland restoration and conservation, and edge-of-field best management practices
2. Maintain interstate and multi-organization collaborations, including to support cross-jurisdiction data collection and management

Wolf previewed next steps for the report review process.

Chris Wieberg asked if there are examples of interstate collaboration on nutrient reduction projects or strategies. Wolf pointed out that there are HUC-8 watersheds that transcend state boundaries, and where states are interested in sharing resources and illuminating priorities for investing in projects. In response to a question from Vanessa Perry, Wolf explained that the states have focused so far on the solutions in the state nutrient reduction strategies that have been vetted and generally approved through the states' respective public participation processes. There would need to be consideration of potential friction points or opposing forces as these topical areas are further refined into partnership and project opportunities.

In response to a question from Jill Crafton, Wolf welcomed people to contact him if they want to be sure to receive a review request of the draft report. Chris Wieberg requested that NRCS be involved in the review process and asked about the agency's abilities to partner in the recommended work.

Illinois River Integrated Water Basin

Heather Krampa presented a progress update of the USGS Illinois River Integrated Water Science Basin Program. The purpose of the USGS Integrated Water Science Basins is to improve the nation's water quantity and quality in surface and groundwater sources and over space and time. The Illinois River project started in 2021 and has a 10-year project timeline, scheduled to end in 2031.

USGS has completed phase I, which involved massive data collection and original research on focus topics. USGS is anticipating publishing a capstone report on Phase I in 2027. Phase II, which will encompass the remainder of the project duration, involves network modernization and a water availability assessment.

The focus topics for the Illinois River Basin research projects include: 1) how excess nutrients are affecting water availability (groundwater and surface water) and 2) the drivers of riverine HABs formation, persistence, and transport, and how HABs effects on water availability might be forecasted and most efficiently managed. Krampa elaborated on the methods of these research projects and shared initial research findings.

In response to a question from Chris Wieberg, Krampa underscored the value of satellite imagery to detect HAB occurrences. The current limiting factor of the technology is the frequency of its overpasses, which is between five to seven days, and then additional time for processing.

Navigation and Ecosystem Sustainability Program

Reach Planning

Jesse Ray reviewed the authorizing elements of the Navigation and Ecosystem Sustainability Program's (NESP's) ecosystem investments, providing the framework for a system-scale adaptive management

approach for sustaining the integrity of the river's ecological integrity. Ray explained that NESP is currently employing a reach planning process, through with the interagency partnership will illuminate the ecological needs for the full UMRS system and the four geomorphic reaches: Upper Impounded, Lower Impounded, Illinois River, and Open River Reaches.

Ray reported that NESP developed a system scale adaptive management structure, created a supporting GIS portal, and implemented a round of reach based planning. Next steps will include developing the process for project selection and success criteria at various spatial scales. NESP will review the adaptive management conceptual plan as insights are gained through the reach planning, project selection, and monitoring processes.

In response to questions from Brian Stenquist, Ray confirmed that USACE will request review from the interagency teams asking if the reach plan reports reflect the collaborative planning and what else might be missing. The review request will likely be disseminated in mid September.

Systemic Mitigation

Marshall Plumley generally stated the purpose of NESP systemic mitigation and recalled that USACE finalized a draft Systemic Mitigation Plan in 2023. Plumley anticipates that the plan will be renewed with information from the NESP Ecological Reach Plans.

Plumley affirmed that USACE intends to meet the obligations for systemic mitigation. With four years of construction funding, in addition to the plan, USACE has completed Moore's Towhead and anticipates completing construction of Pool 4 Island 4 this fall.

In response to a question, Plumley affirmed that systemic mitigation is cost-shared by the Inland Waterways Trust Fund. In response to some discussion about progress rate, Plumley explained that Congress in appropriations or the Administration in work plans allocates the spending into specific work packages. For a variety of factors, systemic mitigation has received minimal and inconsistent funding.

Chris Wieberg recognized the important voice of stakeholders to communicate to Congress and the Administration the value and costs associated with systemic mitigation.

L&D 25 Construction Project

Kate Leese reported on the progress of constructing the new 1,200-foot lock chamber at L&D 25. USACE has advanced five major construction contracts to-date for separate phases. USACE completed design work of the lock chamber on June 11 and leadership approved the project Acquisition Plan and Source Selection Plan. That set up USACE to issue a solicitation for a construction bid in July 2026.

USACE plans to structure the construction contract for the 1,200-foot chamber with one base award and four option awards. The plan is to open bids this November and issue the award next summer.

Mississippi River Watershed Partnership

Sierra Schuchard provided background on the Mississippi River Water Partnership, and reported on a workshop convened by the Partnership in May 2026 – River Connections Workshop. In conclusion, the main takeaways from the River Connections Workshop are that 1) collaboration is a catalyst for

watershed-scale impact, 2) science and communication must be aligned and integrated, and 3) the Mississippi River Watershed Partnership has an important role in connecting people, information, and action.

Schuchard announced that the Mississippi River Watershed Partnership has established a Leadership Council involving 30 individuals representing different sectors, regions, and organization type.

Schuchard explained that participants at the River Connections Workshop supported the establishment of a federal program to provide long-term coordinated investment is needed to achieve watershed-scale outcomes. Next steps for the Mississippi River Watershed Partnership are to summarize the framework for the proposed federal program, share the white paper with partners for review and feedback, and use stakeholder input to strengthen and refine the proposal before moving forward.

Schuchard explained that the Mississippi River Watershed Partnership is supporting the Mississippi River Water Action Collaborative (MRWAC), which is arranged to mobilize private sector funding and partnerships to implement conservation practices. The MRWAC has the potential to help advance the Mississippi River Watershed Partnership's basin-wide priorities into measurable, on-the-ground outcomes.

Chris Wieberg asked if any input has been requested from the Lower Mississippi River States and what, if any, has been their feedback. Schuchard said stakeholders from the Lower Mississippi River region have been actively involved in the Mississippi River Watershed Partnership's efforts.

Matt Vitello applauded the Mississippi River Watershed Partnership's efforts to achieve broad representation from a wide variety of people engaged in the conversations.

Mississippi River Science Center Proposal

John Sabo, Tulane University, and Melissa Kenney, University of Minnesota, shared the origins, background, and collaborative process in their partnership to support the establishment of a Mississippi River Science Center. Funding to pilot the Science Center is recommended in the House FY 2027 interior and environment spending bill. The intent is to demonstrate the potential values and scalability of the Science Center and expand financial support for non-federal sources.

The Science Center is supported by a coalition, named the Mississippi River Adaptation and Restoration Coalition Headwaters-to-Delta (MARCH). Its core focus is to coordinate resilience and restoration science for the Mississippi River, and its mission is to create basin-wide participation in science-based, basin-scale to water. The goal for the Science Center would help to create connectivity across the watershed, convene diverse stakeholders across the basin, and mobilize capital from diverse non-federal sources (e.g., by crafting multi-benefit frameworks). Kenney and Sabo propose that the core focus areas for the Science Center would be economic security, infrastructure innovation, measuring trade-offs in the same currency, and communities.

In conclusion, Kenney and Sabo asked UMRBA: 1) What are your needs that would close knowledge gaps and help improve river management? And, 2) What partnership opportunities could be enhanced by this research center?

In response to a question from Matt Vitello about allocating funds, Kenney said the Congressional language does not speak to a framework but anticipates USGS would structure financing similarly to a

consortium and that the consortium would be arranged and supported to serve the entire Mississippi River Basin. A model could align with the major sub-basins with satellite partners in each basin. Sabo clarified that the Science Center language in the appropriations bill is not associated with MRRRI, but pointed to the Great Lakes Restoration Initiative as the most parallel federal program. Kenney also explained that federal consortiums transitioned about a decade ago to expanding partnerships to organizations like UMRBA, pointing to the tremendous benefits that provides to addressing the kinds of complex management questions facing practitioners and decision makers.

Chris Wieberg suggested focusing on standardization early on in the development of the Science Center in order to employ meaningful research as the bill suggests. In response to a question from Alicia Vasto, Sabo and Kenney explained that the geographic scope of the Science Center is undecided.

Wieberg asked the UMRBA Board to consider their position on the Science Center proposal. Wieberg stated his position that the basin does need more science and research to support management initiative, but also noted the large geographic scope that makes the discussions inherently challenging. Wieberg also invited the Kenney and Sabo to connect back with UMRBA as work continues on the Science Center.

Lower Cache River Comprehensive Ecosystem Restoration Plan

Elisa Royce presented on the USACE Lower Cache River Comprehensive Ecosystem Restoration Plan, as developed in partnership with the Illinois Department of Natural Resources. Royce described the watershed area's ecological value and the problems facing the ecosystem, particularly resulting from multiple significant hydraulic alternations to the Lower Cache River and its tributaries. Interest from partners in restoring this area prompted the partnership to explore possible restoration through the USACE Planning Assistance to States (PAS) Program.

The connection of the Lower Cache River to the Upper Mississippi River and the extent of public lands allows for an important opportunity to utilize the Upper Mississippi River Restoration (UMRR) Program and Navigation and Ecosystem Sustainability Program (NESP). Royce pointed to the UMRR Illinois Bayou Habitat Rehabilitation and Enhancement Project (HREP).

Bryan Hopkins underscored the opportunity to restore the Lower Cache River given its importance to the Mississippi and Ohio Rivers.

Administrative Matters

Future Meeting Schedule

October 2026 in the Quad Cities

- UMRBA Quarterly Meeting – October 13
- UMRR Coordinating Committee Quarterly Meeting – October 14
- NESP Coordinating Committee Quarterly Meeting – October 14

February 2027 to be held virtually

- UMRBA Quarterly Meeting – February 16
- UMRR Coordinating Committee Quarterly Meeting – February 17

— NESP Coordinating Committee Quarterly Meeting – February 17

May 2027 in the Twin Cities Metro Area

— UMRBA Quarterly Meeting – May 18

— UMRR Coordinating Committee Quarterly Meeting – May 19-20

— NESP Coordinating Committee Quarterly Meeting – May 19-20

August 2027 in St. Louis

— UMRBA Quarterly Meeting – August 4

— UMRR Coordinating Committee Quarterly Meeting – August 5

With no further business, the meeting adjourned at 2:40 p.m.

Upper Mississippi River Quarterly Meetings

Attachment B

Executive Director's Report

Page Number	Document Title
B-1 to B-3	Executive Director's Quarterly Report
B-4 to B-5	UMRBA FY 2028 USACE Budget Priorities Request Letter (8-26-2026)
B-6	UMRBA FY 2028 Gulf Hypoxia Program Budget Priorities Request Letter (8-26-2026)
B-7	Treasurer's Quarterly Statement (will be included soon)
B-8 to B-10	FY 2026 Profit and Loss Statement (9/29/2026)
B-11 to B-13	FY 2027 Profit and Loss Statement (9/29/2026)
B-14 to B-15	Balance Sheet (9/29/2026)



Executive Director's Report August 2026

Advocacy

Appropriations

On August 26, 2026, UMRBA submitted letters to the Administration requesting inclusion of several USACE programs and projects as well as the Gulf Hypoxia Program. The letters are provided on B-4 to B-6 of the agenda packet.

Ecosystem Health

Policy and Programmatic Interagency Coordination

UMRR Coordinating Committee Meeting

The UMRR Coordinating Committee met on August 5, 2026 in Bloomington, Minnesota. The agenda involved programmatic briefings regarding accomplishments and progress related to habitat rehabilitation and enhancement projects (HREPs), long term resource monitoring, and communications. The Committee also discussed the 2025-2035 Strategic Plan and reconvening the Communications and Outreach Team.

NESP Coordinating Committee Meetings

The Navigation and Ecosystem Sustainability Program (NESP) Coordinating Committee convened a quarterly meeting on July 19, 2026. The meeting was held virtually. The quarterly meeting included reports on routine program management as well as a focused briefing on risk-informed planning for individual NESP projects.

Hazardous Spills Emergency Management

Oil Pollution Act (OPA) Planning and Mapping

UMRBA continues to update the Inland Sensitivity Atlas (ISA), currently working on updating data for Illinois. UMRBA incorporated updates that it developed for Wisconsin into the regional database, as well as updates received from the Great Lakes Commission (GLC) for Michigan and Ohio. The updated geodatabase was submitted to USEPA on August 13, 2026.

Staff participated in monthly Mapping Group meetings on September 14 and October 5, 2026.

In light of the Spills Group Strategic Plan, the USGS Upper Midwest Environmental Sciences Center secured funding from the U.S. Department of the Interior to develop a new data of upper and lower water level thresholds for boat ramp usage. The resulting data layer will allow emergency responders to check water level conditions at each boat ramp and the reference threshold information about whether the ramp is accessible for emergency access. USGS is allocating \$6,120 to UMRBA to support technical review on the process of determining the high and low water thresholds and assisting in the process of integrating the new data layer into the Inland Sensitivity Atlas.

Upper Mississippi River Hazardous Spills Coordination Group (UMR Spills Group)

UMRBA participated virtually in the Regional Response Team 7 meeting on August 26, 2026.

The UMR Spills Group has been inactive while awaiting continuation of funding for field activities. With renewed funding anticipated, UMRBA is planning the next Spills Group meeting to occur in the fall, possibly paired with the Greater Saint Louis Sub-area meeting on November 10.

The Group's next scheduled planning project is to develop spill response strategies for UMR Pool 17, near Muscatine, Iowa.

Water Quality

Interstate Water Quality Monitoring Program

UMRBA is coordinating a one-year project to implement the fixed site monitoring component of its UMR Interstate Water Quality Monitoring Plan. Monthly sampling began in October 2025. UMRBA is convening regular planning sessions among the state agency staff involved in implementing the fixed site monitoring.

Integrated River Projects

Water Resources Database Development

Per resources from the USEPA Exchange Network grant, UMRBA continues to develop a water resources database to house water quantity and water quality data that will support interstate collaboration efforts. The two central purposes of the project are to build the infrastructure needed to house UMRBA's water resource datasets and to increase the Association's future capacity for supporting interstate data collection and data sharing efforts. UMRBA staff are currently working with the contractor to build out the database as well as a web-based app to support the states' input of water quality monitoring data.

Communications and Partnership Collaboration

Meetings, Events, and Partnership Collaborations

UMRBA staff participated in national and regional collaborations through the following forums:

- National Waterways Conference on August 25-26
- The Natural Capital Alliance: The Earth-Economy Modelers (NatCap TEEMs) Annual Meeting on September 29
- National Integrated Drought Information Systems Midwest Drought Assessment Workshop on September 16-19
- UMRR McGregor Lake Habitat Rehabilitation and Enhancement Project Ribbon Cutting Ceremony on September 22
- Midwest Climate Adaptation Sciences Center (CASC) Training Series for Natural Resource Managers on September 24

Financial and Administrative Report

UMRBA Financial Report

Attached as page B-7 is UMRBA Treasurer Jason Tidemann's statement regarding his review of UMRBA's financial statement for the period of July 1, 2026 to August 31, 2026

Attached as pages B-6 to B-15 are UMRBA's 2026 and 2027 budget reports and balance sheet. As of September 29, 2026, ordinary income for FY 2027 totaled \$367,807.01 and expenses totaled \$261,214.21 for net ordinary income of \$106,592.80. As of this date, UMRBA's cash assets totaled \$143,639.33.



August 26, 2026

Mr. Adam Telle
Assistant Secretary of the Army (Civil Works)
108 Army Pentagon
Room 3E446
Washington, D.C. 20310-0108

Dear Secretary Telle:

As the Administration develops its FY 2028 budget recommendation for the U.S. Army Corps of Engineers (USACE), I am writing on behalf of the Upper Mississippi River Basin Association (UMRBA) to respectfully request the inclusion of navigation, ecosystem, and flood risk management programs and projects on the Upper Mississippi River System as listed below.

By way of background, UMRBA is the Governor-established forum for interstate water resource planning and management on the Upper Mississippi River System, representing its member states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin. Formed in 1981, UMRBA represents its member states' common water resource interests and works collaboratively with Upper Mississippi federal and state agencies as well as other non-federal partners. UMRBA and USACE as well as other federal agency partners enjoy a long history and strong partnership in our shared commitment to multi-use management of the Upper Mississippi River System.

The UMRBA FY 2028 programs and projects are:

- The Upper Mississippi River Restoration Program (UMRR)
- The Navigation and Ecosystem Sustainability Program (NESP)
- The Upper Mississippi River System Flow Frequency Study
- The Upper Mississippi River System Flood Risk Reduction and Resiliency Study
- Lock rehabilitation and maintenance
- Navigation channel maintenance and management

UMRBA commends USACE's commitment to excellence in managing the Upper Mississippi River System. We believe strongly that USACE in the St. Paul, Rock Island, and St. Louis Districts exemplify the principles of the "Building Infrastructure, Not Paperwork" initiative. Projects are largely executed on or under budget and on or ahead of schedule, and with positive outcomes that are supported by partners. The Upper Mississippi River System is a highly valuable national resources, and therefore, we would strongly encourage allocating the personnel resources to maintain USACE's ability to execute projects efficiently and effectively.

7900 West 78th Street, Suite 380
Edina, MN 55439
651-224-2880
www.umrba.org

Page 2

August 26, 2026

We appreciate your consideration of this request. Please contact me at 651-224-2880 or kwallace@umrba.org if you have any questions about the USACE work in the Upper Mississippi River Basin. We will also follow up with your team to arrange a meeting to discuss our request in more detail.

Sincerely,

A handwritten signature in blue ink, appearing to read "K. Wallace", with a light blue horizontal line underneath.

Kirsten Wallace
Executive Director
Upper Mississippi River Basin Association

cc: Upper Mississippi River Congressional Delegation
U.S. Army Corps of Engineers, Headquarters



August 26, 2026

The Honorable Lee Zeldin
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Dear Administrator Zeldin:

As you develop the Administration's FY 2028 budget recommendation for the U.S. Environmental Protection Agency, I am writing on behalf of the Upper Mississippi River Basin Association (UMRBA) to respectfully request the inclusion of funding for the Gulf Hypoxia Program.

By way of background, UMRBA is the Governor-established organization to promote the common interests of the states regarding the management of the Upper Mississippi River Basin, especially in relation to federal management of actions affecting the river. This remains the work of UMRBA today. UMRBA, in partnership with the federal government, share a continuing and abiding responsibility to maintain and enhance all aspects of the Upper Mississippi River Basin's water resources.

As member states of the Mississippi River/Gulf of America Watershed Nutrient Task Force (herein referred to as the Hypoxia Task Force), we strongly value our partnership with USPEA and believe the Hypoxia Task Force is a model of good government, focusing on collaboration among state governments as well as landowners, commodity groups, land-grant universities, conservation interests, and the private sector. These partnerships are fundamental to achieving the nation's goals for reductions in nutrient loading.

We recognize and appreciate the ongoing financial and technical support from various federal programs. And, at the same time, we acknowledge the tremendous value associated with dedicated funding to states to implement the nutrient reduction strategies. States have used the dedicated funding in a variety of ways, unique to each state's ability to accelerate the adoption of agricultural practices and other measures that reduce nutrient loading in the basin's lakes and rivers.

We appreciate your consideration of this request. Please contact me at 651-224-2880 or kwallace@umrba.org to arrange an opportunity to discuss our request in more detail.

Sincerely,

Kirsten Wallace, Executive Director
Upper Mississippi River Basin Association

cc: Upper Mississippi River Congressional Delegation

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Upper Mississippi River Basin Association

FY 2026 Profit & Loss Budget Overview

July 2025 - June 2026

	TOTAL		
	ACTUAL	BUDGET	OVER BUDGET
Revenue			
4000 State Dues			
Illinois Dues	70,350.00	70,350.00	0.00
Iowa Dues	70,350.00	70,350.00	0.00
Minnesota Dues	70,350.00	70,350.00	0.00
Missouri Dues	70,350.00	70,350.00	0.00
Wisconsin Dues	70,350.00	70,350.00	0.00
WQ Assessment	90,720.00	113,400.00	-22,680.00
Total 4000 State Dues	442,470.00	465,150.00	-22,680.00
4100 Contracts and Grants			
Exchange Network Grant (IL)	93,043.02	102,000.00	-8,956.98
Interstate Monitoring (Multi)	69,153.50	65,600.00	3,553.50
Interstate WQ Pilot	9,837.92	9,838.00	-0.08
UMN CIROH	196,650.42	190,000.00	6,650.42
USACE (NESP)	148,848.06	186,458.30	-37,610.24
USACE (UMRR)	87,311.13	113,512.57	-26,201.44
USEPA (HTF)	133,543.11	140,000.00	-6,456.89
USEPA (OPA)	181,005.44	177,147.00	3,858.44
Total 4100 Contracts and Grants	919,392.60	984,555.87	-65,163.27
4200 Interest Income			
Short Term Interest			
Short Term (Brokerage Account)	10,819.48	8,000.00	2,819.48
Short Term (CD)	1,700.46	2,400.00	-699.54
Short Term (Checking)	706.77	900.00	-193.23
Short Term (Sweep)	30.84	35.00	-4.16
Total Short Term Interest	13,257.55	11,335.00	1,922.55
Total 4200 Interest Income	13,257.55	11,335.00	1,922.55
4300 Other Income			
Meeting Meals Income	114.67	115.00	-0.33
Total 4300 Other Income	114.67	115.00	-0.33
Total Revenue	\$1,375,234.82	\$1,461,155.87	\$ -85,921.05
GROSS PROFIT	\$1,375,234.82	\$1,461,155.87	\$ -85,921.05
Expenditures			
5001 Payroll Expenses			
Accrued Vacation	-3,187.84		-3,187.84
Accrued Vacation FICA	-243.89		-243.89
Benefits	-454.94		-454.94
ICHRA	16,988.50		16,988.50
Salary	944,682.94	977,373.91	-32,690.97
SocSec Company	-150.81		-150.81
Taxes	75,986.21	77,080.00	-1,093.79
Total 5001 Payroll Expenses	1,033,620.17	1,054,453.91	-20,833.74

Upper Mississippi River Basin Association

FY 2026 Profit & Loss Budget Overview

July 2025 - June 2026

	TOTAL		
	ACTUAL	BUDGET	OVER BUDGET
5002 Benefits Administration	1,970.00	1,970.00	0.00
5100 Space Rental			
Office Rental	68,280.02	68,275.00	5.02
Total 5100 Space Rental	68,280.02	68,275.00	5.02
5101 Legal and Financial			
Bank Charges		25.00	-25.00
Insurance	9,660.26	8,000.00	1,660.26
Legal and Tax Services	2,745.00	2,770.00	-25.00
Total 5101 Legal and Financial	12,405.26	10,795.00	1,610.26
5102 IT Network	12,124.26	11,700.00	424.26
5103 Communications	64,888.00	63,500.00	1,388.00
5104 Equipment			
Equipment (Maint./Rental)	4,367.28	4,500.00	-132.72
Total 5104 Equipment	4,367.28	4,500.00	-132.72
5105 Supplies	3,469.04	3,400.00	69.04
5106 Postage	88.40	90.00	-1.60
5107 Other Services	4,500.00	4,500.00	0.00
5200 Meeting Expenses	7,140.65	7,005.00	135.65
5201 Travel	15,957.39	15,000.00	957.39
5202 State Travel Reimbursement			
Illinois	4,087.61	5,000.00	-912.39
Iowa		5,000.00	-5,000.00
Minnesota		5,000.00	-5,000.00
Missouri	3,701.99	5,000.00	-1,298.01
State WQ Travel		3,500.00	-3,500.00
Wisconsin		5,000.00	-5,000.00
Total 5202 State Travel Reimbursement	7,789.60	28,500.00	-20,710.40
5300 OPA Expenses			
Equipment (Maint./Rental) OPA	500.00	500.00	0.00
Other OPA	450.00	450.00	0.00
Travel OPA	196.63	200.00	-3.37
Total 5300 OPA Expenses	1,146.63	1,150.00	-3.37
5304 USEPA Gulf Hypoxia			
Contractual	13,650.00	13,500.00	150.00
Supplies		0.00	0.00
Travel	7,927.70	8,725.00	-797.30
Total 5304 USEPA Gulf Hypoxia	21,577.70	22,225.00	-647.30
5305 USACE NESP			
Other NESP	21,900.00	21,000.00	900.00
Travel	10,851.64	9,850.00	1,001.64
Total 5305 USACE NESP	32,751.64	30,850.00	1,901.64
5306 CIROH UMRS			

Upper Mississippi River Basin Association

FY 2026 Profit & Loss Budget Overview

July 2025 - June 2026

		TOTAL	
	ACTUAL	BUDGET	OVER BUDGET
Contractual	32,720.43	33,100.00	-379.57
Other CIROH		0.00	0.00
Supplies		0.00	0.00
Travel	6,452.78	7,205.00	-752.22
Total 5306 CIROH UMRS	39,173.21	40,305.00	-1,131.79
5307 Exchange Network			
Contractual	61,963.28	75,640.00	-13,676.72
Supplies		0.00	0.00
Travel	173.52	175.00	-1.48
Total 5307 Exchange Network	62,136.80	75,815.00	-13,678.20
5308 Interstate WQ Monitoring			
Communications	3,600.00	1,950.00	1,650.00
Shipping	26,865.42	24,464.00	2,401.42
Supplies	1,201.33	1,910.00	-708.67
Total 5308 Interstate WQ Monitoring	31,666.75	28,324.00	3,342.75
5999 Miscellaneous Expense	0.00		0.00
Total Expenditures	\$1,425,052.80	\$1,472,357.91	\$ -47,305.11
NET OPERATING REVENUE	\$ -49,817.98	\$ -11,202.04	\$ -38,615.94
NET REVENUE	\$ -49,817.98	\$ -11,202.04	\$ -38,615.94

Upper Mississippi River Basin Association

FY 2027 Profit & Loss Budget

July 2026 - June 2027

	TOTAL		
	ACTUAL	BUDGET	OVER BUDGET
Revenue			
4000 State Dues			
Illinois Dues	70,350.00	70,350.00	0.00
Iowa Dues	49,245.00	70,350.00	-21,105.00
Minnesota Dues	35,175.00	70,350.00	-35,175.00
Missouri Dues	62,611.50	70,350.00	-7,738.50
Wisconsin Dues	70,350.00	70,350.00	0.00
WQ Assessment	68,040.00	113,400.00	-45,360.00
Total 4000 State Dues	355,771.50	465,150.00	-109,378.50
4100 Contracts and Grants			
Exchange Network Grant (IL)	0.00	58,617.00	-58,617.00
Interstate Monitoring (Multi)	0.00	62,597.00	-62,597.00
NASA Nutrients DSS		43,000.00	-43,000.00
NASA S2S		40,000.00	-40,000.00
UMN CIROH	0.00	200,000.00	-200,000.00
USACE (NESP)		148,000.00	-148,000.00
USACE (UMRR)	0.00	145,000.00	-145,000.00
USEPA (HTF)	11,521.52	60,000.00	-48,478.48
USEPA (OPA)	0.00	175,000.00	-175,000.00
Total 4100 Contracts and Grants	11,521.52	932,214.00	-920,692.48
4200 Interest Income			
Short Term Interest			
Short Term (Brokerage Account)		10,000.00	-10,000.00
Short Term (CD)	2.23	1,200.00	-1,197.77
Short Term (Checking)	276.75	900.00	-623.25
Short Term (Sweep)	235.01		235.01
Total Short Term Interest	513.99	12,100.00	-11,586.01
Total 4200 Interest Income	513.99	12,100.00	-11,586.01
Total Revenue	\$367,807.01	\$1,409,464.00	\$ -1,041,656.99
GROSS PROFIT	\$367,807.01	\$1,409,464.00	\$ -1,041,656.99
Expenditures			
5000 Depreciation		10,348.00	-10,348.00
5001 Payroll Expenses			
Benefits	-9,528.99		-9,528.99
ICHRA	965.34		965.34
Salary	166,435.92	897,634.00	-731,198.08
SocSec Company	-3,158.86		-3,158.86
Taxes	15,844.38	74,000.00	-58,155.62
Total 5001 Payroll Expenses	170,557.79	971,634.00	-801,076.21
5002 Benefits Administration	330.00	1,970.00	-1,640.00
5100 Space Rental			
Office Rental	20,867.92	68,000.00	-47,132.08

Upper Mississippi River Basin Association

FY 2027 Profit & Loss Budget

July 2026 - June 2027

	TOTAL		
	ACTUAL	BUDGET	OVER BUDGET
Total 5100 Space Rental	20,867.92	68,000.00	-47,132.08
5101 Legal and Financial			
Bank Charges		25.00	-25.00
Insurance	4,031.00	8,000.00	-3,969.00
Legal and Tax Services		19,500.00	-19,500.00
Total 5101 Legal and Financial	4,031.00	27,525.00	-23,494.00
5102 IT Network	6,250.39	11,700.00	-5,449.61
5103 Communications	-1,091.00	65,000.00	-66,091.00
5104 Equipment			
Equipment (Maint./Rental)	631.99	4,500.00	-3,868.01
Total 5104 Equipment	631.99	4,500.00	-3,868.01
5105 Supplies	163.39	3,000.00	-2,836.61
5106 Postage		90.00	-90.00
5107 Other Services	4,500.00	4,500.00	0.00
5200 Meeting Expenses	5,427.59	15,000.00	-9,572.41
5201 Travel	4,635.70	30,000.00	-25,364.30
5202 State Travel Reimbursement			
Illinois	265.50	5,000.00	-4,734.50
Iowa		5,000.00	-5,000.00
Minnesota		5,000.00	-5,000.00
Missouri	460.76	5,000.00	-4,539.24
State WQ Travel		3,500.00	-3,500.00
Wisconsin		5,000.00	-5,000.00
Total 5202 State Travel Reimbursement	726.26	28,500.00	-27,773.74
5300 OPA Expenses			
Equipment (Maint./Rental) OPA		500.00	-500.00
Other OPA		450.00	-450.00
Travel OPA		200.00	-200.00
Total 5300 OPA Expenses		1,150.00	-1,150.00
5304 USEPA Gulf Hypoxia			
Contractual	4,650.00	7,500.00	-2,850.00
Other Gulf Hypoxia	695.00		695.00
Supplies		500.00	-500.00
Travel	2,875.98	7,500.00	-4,624.02
Total 5304 USEPA Gulf Hypoxia	8,220.98	15,500.00	-7,279.02
5305 USACE NESP			
Other NESP	7,500.00	6,000.00	1,500.00
Travel		3,000.00	-3,000.00
Total 5305 USACE NESP	7,500.00	9,000.00	-1,500.00
5306 CIROH UMRS			
Contractual	10,050.00	15,000.00	-4,950.00
Other CIROH	395.56	0.00	395.56

Upper Mississippi River Basin Association

FY 2027 Profit & Loss Budget

July 2026 - June 2027

	TOTAL		
	ACTUAL	BUDGET	OVER BUDGET
Supplies	403.28	1,000.00	-596.72
Travel	3,436.61	7,500.00	-4,063.39
Total 5306 CIROH UMRS	14,285.45	23,500.00	-9,214.55
5307 Exchange Network			
Contractual	4,005.94	4,920.00	-914.06
Supplies		500.00	-500.00
Travel		1,200.00	-1,200.00
Total 5307 Exchange Network	4,005.94	6,620.00	-2,614.06
5308 Interstate WQ Monitoring			
Communications	2,700.00	7,500.00	-4,800.00
Shipping	6,720.81	24,464.00	-17,743.19
Supplies		500.00	-500.00
Total 5308 Interstate WQ Monitoring	9,420.81	32,464.00	-23,043.19
5309 NASA Nutrient DSS			
Catering		5,000.00	-5,000.00
Contractual/Other	450.00	6,500.00	-6,050.00
Facility Rental		1,000.00	-1,000.00
Supplies		500.00	-500.00
Travel		4,500.00	-4,500.00
Total 5309 NASA Nutrient DSS	450.00	17,500.00	-17,050.00
5310 NASA S2S			
Catering		5,000.00	-5,000.00
Contractual/Other	300.00	2,500.00	-2,200.00
Facility Rental		10,000.00	-10,000.00
Supplies		500.00	-500.00
Travel		1,600.00	-1,600.00
Total 5310 NASA S2S	300.00	19,600.00	-19,300.00
Total Expenditures	\$261,214.21	\$1,367,101.00	\$ -1,105,886.79
NET OPERATING REVENUE	\$106,592.80	\$42,363.00	\$64,229.80
NET REVENUE	\$106,592.80	\$42,363.00	\$64,229.80

Upper Mississippi River Basin Association

Balance Sheet

As of September 29, 2026

	TOTAL
ASSETS	
Current Assets	
Bank Accounts	
Checking HT 2732	143,639.33
Investment	
Brokerage Account	220,377.71
CD HT	75,000.00
CD_2 HT	54,241.85
Sweep HT 5401	77,779.99
Total Investment	427,399.55
Total Bank Accounts	\$571,038.88
Accounts Receivable	
Contract/grants	0.00
Invoiced/Billable	74,793.60
Total Contract/grants	74,793.60
Total Accounts Receivable	\$74,793.60
Other Current Assets	
Payroll Corrections	-172.75
Payroll Refunds	1.33
Prepaid Expense	8.00
Office Rental Prepaid Expense	-3,876.01
Total Prepaid Expense	-3,868.01
QuickBooks Tax Holding Account	9,723.84
Total Other Current Assets	\$5,684.41
Total Current Assets	\$651,516.89
Fixed Assets	
604(b) Equipment	3,683.12
Accum. Deprec. 604(b)	-1,520.51
Accum. Deprec. OPA	-25,793.48
Accum. Deprec. STC	-3,885.00
Accum. Deprec. UMRBA	-11,180.66
Accum. Deprec. WQ	-1,290.00
OPA Equipment	27,744.64
STC Equipment	4,332.67
UMRBA Equipment	47,575.08
WQ Equipment	1,290.00
Total Fixed Assets	\$40,955.86
TOTAL ASSETS	\$692,472.75

Upper Mississippi River Basin Association

Balance Sheet

As of September 29, 2026

	TOTAL
LIABILITIES AND EQUITY	
Liabilities	
Current Liabilities	
Credit Cards	
Visa Chase 5294	2,474.42
Total Credit Cards	\$2,474.42
Other Current Liabilities	
Deferred MO DoC (WLM) Revenue	4,206.05
Office Expense Liabilities	0.00
Travel Expense	1,619.60
Total Office Expense Liabilities	1,619.60
Payroll Liabilities	0.00
Accrued Vacation	77,681.33
Accrued Vacation FICA	5,942.61
Federal Taxes (941/943/944)	8,217.20
Federal Withholding	189.00
Medicare	
Medicare Company	39.17
Medicare Employee	39.17
Total Medicare	78.34
MN Income Tax	2,712.81
MN Paid Family and Medical Leave SUI	2,850.54
MN Unemployment Taxes	-1,351.65
Social Security	
SocSec Company	167.50
SocSec Employee	167.50
Total Social Security	335.00
SUTA (Minnesota UC)	325.51
Workforce Enhancement Fee	334.97
Total Payroll Liabilities	97,315.66
Total Other Current Liabilities	\$103,141.31
Total Current Liabilities	\$105,615.73
Total Liabilities	\$105,615.73
Equity	
Retained Earnings	479,879.78
Net Revenue	106,977.24
Total Equity	\$586,857.02
TOTAL LIABILITIES AND EQUITY	\$692,472.75

Upper Mississippi River Quarterly Meetings

Attachment C

FEWscapes Scenarios

Page Number	Document Title
C-1 to C-3	Executive Summary Excerpt (August 2026)
C-4 to C-7	Implications of the Scenarios for Policy and Management (August 2026)
Hyperlink	Full Report: https://fewscapes.wisc.edu/wp-content/uploads/sites/367/2026/08/FEWscapes-scenarios-report-08-2026.pdf
Hyperlink	Blog: https://fewscapes.wisc.edu/blog/key-implications-of-the-fewscapes-scenarios-for-policy-and-management/
Hyperlink	Scenarios: https://fewscapes.wisc.edu/scenarios/
Hyperlink	Publications: https://fewscapes.wisc.edu/publications/

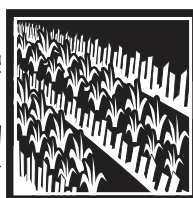
Executive Summary

The ultimate purpose of the FEWscapes scenarios is to help illuminate what landscape changes may be necessary to achieve ambitious goals for food, energy, water, and ecosystem security in the Upper Mississippi River Basin *simultaneously*. That last word is central to this inquiry. Although food, energy, water, and ecosystems are interconnected, policies and programs designed to support these systems are often not. Sustaining these systems, particularly in a changing climate, may require more holistic management.

The FEWscapes scenarios are a set of four hypothetical pathways for landscape change in the Basin to the year 2050. Each consists of a narrative describing one pathway and a set of projected future outcomes, or model results, for food production, biofuel production, water quality, and ecosystem quality, which are based on the changes that occur in the narrative. Since the scenarios are aspirational, each narrative explores potential causes and consequences of land-use solutions for nutrient runoff in the Basin. Together, the scenarios are intended to highlight promising opportunities and potential threats to achieving future targets for food, energy, water, and ecosystems.

A research team at the University of Wisconsin–Madison developed the scenarios in partnership with agriculture and natural resources practitioners from across the Upper Mississippi River Basin. Through a technique called “backcasting,” they identified future food, energy, water, and ecosystem goals the scenarios could aim for and potential solutions for achieving those goals. The goals were based on existing targets for food production, low-carbon energy production, water quality, and land conservation that had been established by U.S. federal government agencies at the time of this research. The four resulting scenarios reflect syntheses of the practitioners’ ideas.

The Scenarios



Cropland Conservation

In 2050, almost all agriculture is conservation agriculture.



America's Pasture

In 2050, more than half of all farmland is grazing land.



Restoration Agriculture

In 2050, farmers tend not just crops, but also restored forests, wetlands, and prairies.



Hotspots for Transformation

In 2050, a mix of conservation agriculture practices, restored ecosystems, and perennial grazing land are strategically placed to maximize environmental benefit.

Two overarching implications of the FEWscapes scenarios are that (1) while some changes can happen fast, ecosystem responses to those changes can happen much more slowly; and (2) achieving goals for food, energy, water, and ecosystems is going to require transformative land-use change. None of the scenarios fully reaches the targets for food, energy, water, and ecosystems. These results demonstrate that planning for a future based on today's status quo will be inadequate.

Other implications include the following:

- Water quality improvements will take a long time, even despite transformational changes to land use, due to legacy phosphorus and nitrogen in the system.
- Dietary choices at the societal level will ultimately dictate whether food production goals can be achieved.
- Sustaining biofuel production will limit how much progress can be made toward goals for improving water quality, food production, and biodiversity.
- There are many solutions for improving habitats into the future, regardless of future climate.

Overall, our results indicate that decision-makers and practitioners may need to consider even more profound transformations than the ambitious scenarios we developed.

Implications of the Scenarios for Policy and Management

While the FEWscapes scenarios are hypothetical visions for ways land use and climate change could unfold over the next few decades, they provide real implications for policy and management decisions today. The following are some of the major implications identified by the research team.

► Change Can Happen Fast, and Transformative Change is Necessary

Two overarching implications of the FEWscapes scenarios are that (1) while some changes can happen fast, ecosystem responses to those changes can happen much more slowly; and (2) achieving goals for food, energy, water, and ecosystems is going to require transformative land-use change.

The FEWscapes scenarios demonstrate that planning for a future based on today's status quo will be inadequate. Accounting for changes—whether gradual or sudden—in policies and management strategies is necessary to navigate the path toward a desirable future.

Moreover, despite the significant landscape and societal changes that occur in the scenarios, none of the scenarios hit the targets for food production, low-carbon energy, water quality, and ecosystem health that guided our scenario development process. However, a few came close for certain targets.

- America's Pasture achieves a 36.6% increase in food production in a wetter climate with less warming, which is just shy of the 40% increase target established by the U.S. Department of Agriculture.
- Cropland Conservation in a drier and hotter climate gets the closest to the 45% nutrient loss reduction target set by the U.S. Environmental Protection Agency for the Mississippi River Basin. It achieves a 39% reduction in nitrate concentration and 36.2% reduction in nitrate leaching.
- All scenarios, and especially Restoration Agriculture, have significant increases in perennial biomass, a proxy for increased habitat, which indicates multiple approaches can make progress toward the target to conserve 30% of land for biodiversity.

Achieving the goals will also require averting the worst-case climate projections through climate mitigation strategies. Our model results illustrate that it will be difficult to adapt to climate change and achieve goals for food, energy, water, and ecosystems through land-use change alone.

Overall, our results indicate that, if decision-makers and practitioners want to achieve the targets by 2050, they may need to consider even more profound transformations than the ambitious scenarios we developed.

► Water Quality Improvements Will Take a Long Time

Legacy nutrients are nutrients that have built up over decades and centuries in our soils, and they are slow to disappear. Our model results confirm the persistence of phosphorus and nitrogen in the system, even despite transformational changes.

In fact, only one scenario, Restoration Agriculture, reduces phosphorus runoff at all.

The story is similar for nitrogen. Only one scenario, Cropland Conservation, makes significant improvements in reducing nitrogen loss.

It may be surprising that the natural vegetation and perennial agriculture in America's Pasture and Restoration Agriculture do not reduce nitrogen loss as quickly as may be expected for these land uses. A reason for the slowed progress is these land-use conversions took place on former cropland with an abundance of legacy nitrogen. The model results demonstrate that, even with this conversion, it will take a while for systems with perennial and natural vegetation to remove this excess legacy nitrogen.

The drawdown of nitrogen happens more quickly in Cropland Conservation because cover crops and saturated buffers are a quicker fix for this nutrient, and these practices are applied to more of the landscape in a relatively short period of time, compared to the other scenarios. So, the pace and scale of practice adoption play key roles. That said, beyond 2050, the other scenarios start catching up with Cropland Conservation.

Overall, the model results showcase the need for diverse and aggressive strategies to draw down both phosphorus and nitrogen levels. Each nutrient requires a different set of approaches.

► Dietary Choices Will Ultimately Dictate Future Food Production

The Upper Mississippi River Basin is capable of producing a lot of food and biofuel, and it will be up to current and future generations to determine what crops to prioritize.

In the scenarios, dietary preferences and patterns largely dictate what foods farmers produce, which drives future food production. Changing diets are connected to the changes that occur on the landscape.

For example, in Restoration Agriculture, while there is less agricultural land by 2050, Americans consume less meat and dairy, which means food production is relatively unchanged between 2020 and 2050.

Changes in temperature and precipitation patterns will also impact food production. A more extreme climate trajectory will make it harder to achieve food production goals, no matter the changes that happen on the landscape. But if there is less warming in the future, it is possible to increase food production and make progress on the other goals.

For instance, in America's Pasture, where the transformation is a shift toward grazing agriculture, if the climate is wetter but with less warming, food production increases the most of all the scenarios. This scenario with this climate also sees notable improvements in carbon storage in the ecosystem, perennial biomass for biodiversity, and sediment runoff reductions.

► Sustaining Biofuel Energy Production Means Food, Water, and Ecosystem Tradeoffs

Perhaps not surprisingly, whether corn ethanol remains a significant part of the national energy portfolio determines how much biofuel can be produced into the future. It has a bit of an “on/off switch” effect—if society continues to prioritize biofuel, farmland can grow it.

However, the future of biofuel production will influence how much progress can be made toward goals for improving water quality, food production, and biodiversity.

Farmland continues to grow corn ethanol in two scenarios, Cropland Conservation and Hotspots for Transformation, due to demand for sustainable aviation fuel. But these scenarios see less improvement in food production, sediment loss, and phosphorus runoff than the other two. Cropland Conservation also has the smallest improvement in perennial biomass, a proxy for habitat, since so much farmland is used for producing corn ethanol.

Moreover, biofuel production cannot escape future climate impacts. The model results for Cropland Conservation show that, if the climate trends toward the hotter and drier end of the spectrum, biofuel production will not be as high as it could be under a less hot, but wetter climate.

► We Can Improve Habitat, Regardless of the Climate

Perennial biomass served as a proxy indicator for habitat in the FEWscapes scenarios. Perennial biomass refers to the amount of perennial vegetation—often in the form of intact prairies, forests, or wetlands—on the landscape that can support a variety of plant and animal species.

All scenarios make big gains in perennial biomass, regardless of climate. In Cropland Conservation, the worst scenario for perennial biomass, its total quantity still increases by at least 40 percent from today.

This overall improvement for habitat across the scenarios is driven in part by the increase in atmospheric carbon, due to climate change, which increases the speed at which natural vegetation grows.

The bottom line of the perennial biomass model results is multiple approaches can make progress toward goals for improving biodiversity.

Upper Mississippi River Quarterly Meetings

Attachment D

Agricultural Conservation for Aquatic Habitat Tool (Ag-CAB)

Page Number	Document Title
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D-1	Online Interactive Tool Introduction
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Hyperlink	Technical Document: https://www.maps.tnc.org/ag-cab-tool/Technical%20Documentation.pdf
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Agricultural Conservation for Aquatic Benefits Tool

(Ag-CAB Tool)

Project Overview | The Conservation Effects Assessment Project (CEAP) is a multi-agency initiative led by USDA's Natural Resources Conservation Service (NRCS). Its mission is to quantify the environmental benefits of conservation practices across the nation's working lands. CEAP provides science-based insights to guide conservation planning and policy, helping producers, landowners, and partners make informed decisions that support sustainable agriculture and resilient ecosystems. [nrcs.usda.gov]

Assessment Objective | This tool supports a CEAP wildlife assessment across the Upper Mississippi River Basin (UMRB). The goal is to expand the scale and impact of conservation efforts for a diverse set of stakeholders—including landowners, conservation planners, researchers, and policymakers—by providing access to data-driven scenarios and outcomes.

Intended Audience | This tool is designed for:

- Conservation professionals and planners
- Agricultural producers and landowners
- Natural resource managers
- Researchers and scientists
- Policy makers and program administrators

Whether you're making land management decisions or evaluating conservation strategies, this tool offers valuable insights tailored to your needs.

Modeling Framework | The assessment is powered by the NAM SWAT+ model, developed collaboratively by Texas A&M University (TAMU) and the USDA Agricultural

Upper Mississippi River Quarterly Meetings

Attachment E

Midwest Drought Early Warning System Strategic Plan (2026)

Page Number	Document Title
E-1	Emerging Issues Leading to Monitoring and Management Challenges
E-2 to E-13	Strategic Goals, Outcomes, Objectives, and Performance Metrics
Hyperlink	Full plan: https://www.drought.gov/sites/default/files/2026-08/NIDIS Midwest DEWS Strategic Plan 2026 0.pdf

Emerging Issues Leading to Monitoring and Management Challenges

In recent years, Midwest DEWS partners have discussed emerging drought-related issues that have led to monitoring and management challenges. In addition to the “weather whiplash” phenomenon and flash droughts, other emerging issues include:



The Hidden Deficit. Longer-term precipitation deficits have accumulated over the Midwest since 2020 or 2021, leading to persistent hydrological impacts such as low groundwater and streamflow, depleted subsoil moisture, and low reservoir levels. Entering each warm season with these moisture deficits increases vulnerability to rapid-onset drought. Limited rainfall and high temperatures can quickly deplete available surface moisture, forcing greater reliance on deeper soil moisture and groundwater reserves that may already be diminished. A key challenge for Midwest DEWS partners is assessing and communicating drought when short-term conditions differ from longer-term trends, and when conditions are rapidly deteriorating.



Recurring Seasonal Drought. Because of the “weather whiplash” phenomenon, many areas experience drought in the summer and fall months with some recovery in the winter and spring, but drought emerges again the following summer. For agricultural producers, back-to-back summer droughts—even with some recovery in between—can feel like a multi-year drought because water availability has not fully recovered (e.g., soil moisture and groundwater depletion).



Runoff vs. Recharge. The Midwest is seeing more intense rainfall events (Baule et al., 2022). High-intensity events (i.e., high rainfall totals within a short time window) increase runoff at the expense of recharge to soil or groundwater, thus reducing moisture available for ecosystems and stream baseflow. This increase in intensity limits how effectively precipitation relieves drought and heightens economic and environmental impacts. Drought monitoring and assessment in the U.S. currently lacks actionable measures of precipitation effectiveness, making it difficult to assess true drought relief.



Water Demand. The Midwest is facing increasing strain on its water resources, particularly its vital groundwater aquifers, driven by competing high-volume demands. There is the influx of water-cooled data centers, residential and commercial developments, local demands from industrial municipal users, and traditional agricultural irrigation. Because groundwater is often treated as a shared, invisible pool, these overlapping sectors pump water out faster than nature can replenish it. This accelerating depletion threatens the long-term viability of water supply in the Midwest.



Flooding in a soybean field after a heavy rain. Photo credit: JJ Gouin/Adobe Stock.



Aerial view of a wind farm beneath approaching storm clouds over Antwerp, Ohio. Photo credit: Grindstone Media/Adobe Stock.

Strategic Goals, Outcomes and Objectives

PURPOSE AND DEVELOPMENT OF THE STRATEGIC PLAN

This Strategic Plan outlines strategic goals, outcomes, and objectives for the Midwest DEWS, developed in consultation with federal, Tribal, state, and local partners across multiple sectors in the region. Its overarching aim is to strengthen drought early warning and preparedness across the region. The Plan will guide Midwest DEWS efforts and programmatic investments over the next five years and, in consultation with regional partners, is intended to be an adaptable living document to address emerging challenges.

Authors developed the first draft of this Plan through engagement with regional partners over several years, building on the 2021–2024 Plan and key insights from the [August 2024 Midwest DEWS Partners Meeting](#). Partners across the region (listed in the Acknowledgements) reviewed and provided feedback during virtual engagements in spring 2025. Authors finalized the plan after collecting this feedback.

STRATEGIC GOALS, OUTCOMES, AND OBJECTIVES

Based on recent and emerging drought issues and identified challenges, gaps, and regional experiences in the Midwest, authors identified the following **Strategic Goals**³ as priorities to strengthen drought resilience in the Midwest. **Outcomes** for each Goal will describe the expected long-term change the Midwest DEWS plans to achieve in accomplishing the Strategic Goals. These outcomes will be the basis for evaluation. **Objectives** for each Goal define measurable actions to achieve the Goals and to ensure resulting outcomes over the next 5 years. Each goal also lists **Performance Metrics** NIDIS will track to measure the outcome of these actions on drought early warning and preparedness across the Midwest.



STRATEGIC GOALS guide regional activities over the next 5 years in collaboration with regional partners and in alignment with the NIDIS Public Law.



OUTCOMES for each Goal describe the expected long-term change the Midwest DEWS plans to achieve in accomplishing the Strategic Goals. These outcomes will be used as the basis for evaluation.



OBJECTIVES for each Goal defines measurable actions to accomplish to achieve the Goals and to ensure resulting outcomes over the next 5 years.



PERFORMANCE METRICS for each Goal will measure the outcome of these actions on drought early warning and preparedness.



Confluence of the Mississippi and Ohio Rivers below Cairo, IL with Fort Defiance State Park. Photo credit: MarekPhotoDesign/Adobe Stock.

³ The Strategic Goals are not listed in ranked order of importance.

Table 1. Overview of the Midwest DEWS Strategic Goals

OVERVIEW OF THE MIDWEST DEWS STRATEGIC GOALS	
GOAL 1	COORDINATION
	Strengthen coordination, collaboration, and communication among federal, tribal, state, and local agencies, academic institutions, and other entities responding to drought and mitigating its impacts across the Midwest.
GOAL 2	INFORMATION DELIVERY
	Enhance delivery of timely, relevant, and actionable drought information to communities and decision-makers across the Midwest.
GOAL 3	CASCADING IMPACTS
	Advance understanding of the cascading impacts of drought across the Midwest and enhance drought impact monitoring to enable earlier warning and more proactive planning.
GOAL 4	DATA AND INDICATORS
	Strengthen the availability, comprehension, and effective application of critical data and indicators to support drought monitoring and preparedness across the Midwest.
GOAL 5	RESEARCH
	Advance and integrate interdisciplinary research to address emerging issues and challenges related to monitoring, predicting, and managing drought in the Midwest.

1

STRATEGIC GOAL 1: COORDINATION

Strengthen coordination, collaboration, and communication among federal, tribal, state, and local agencies, academic institutions, and other entities responding to drought and mitigating its impacts across the Midwest.



Outcomes

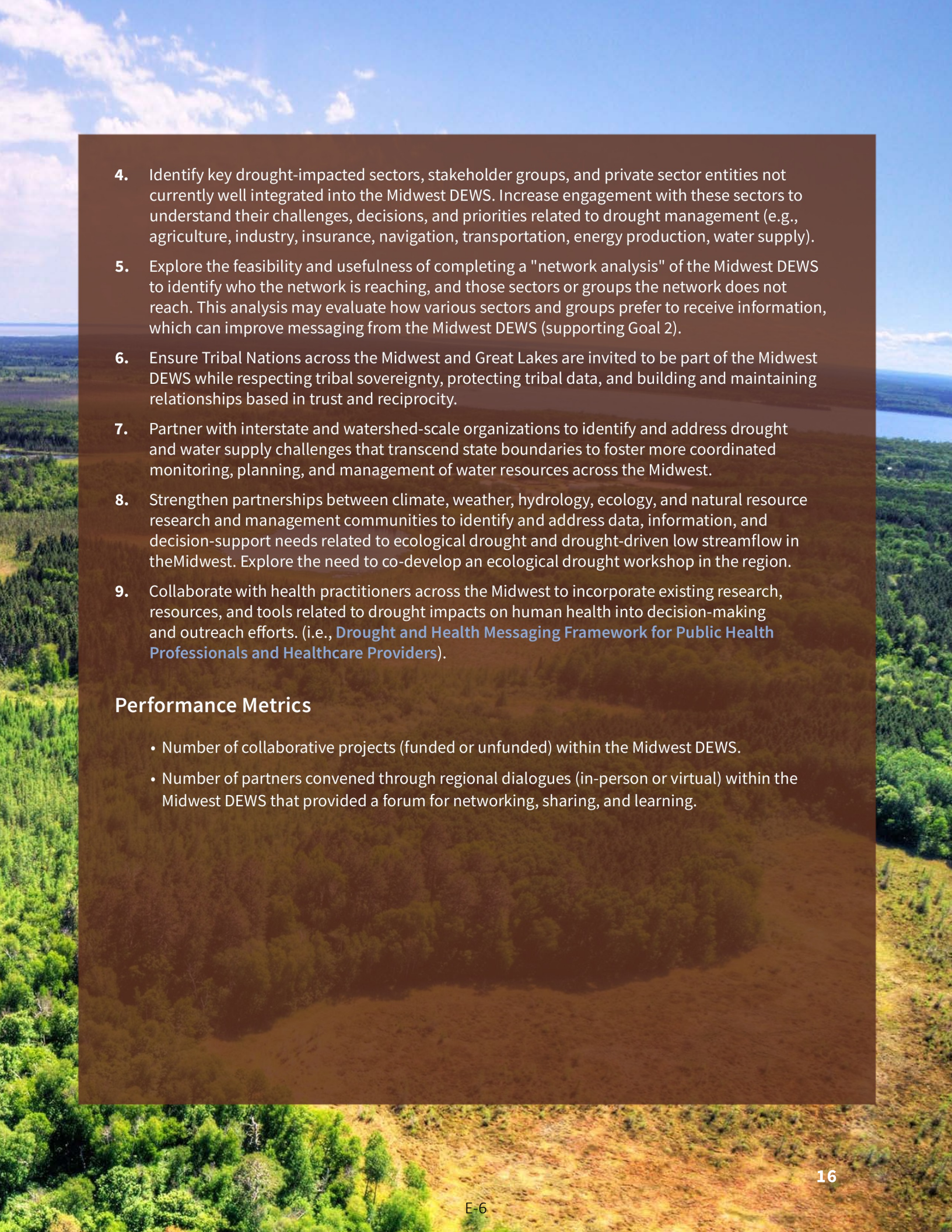
Strengthened drought early warning and preparedness across the Midwest through collective action within the regional DEWS network.

Expanded partnerships within the Midwest DEWS include critical sectors across the region and targeted focus areas, such as ecological drought, strengthening cross-sector collaboration and regional drought response capacity.

Objectives

1. Provide forums to engage (virtual and/or in-person), bringing together drought stakeholders and decision-makers across the Midwest working at various scales (regional to local). In these discussions, share ongoing drought-related activities, explore emerging issues and opportunities, and identify collaborations to advance drought early warning and preparedness in the Midwest. These virtual or in-person forums are opportunities for peer-to-peer learning and could focus on a specific topic or sector for more targeted discussions.
2. Foster a trusted and collaborative network that strengthens relationships, encourages knowledge sharing, navigates conflict constructively, and supports collective action.
3. Improve federal government coordination on drought activities in the Midwest across NOAA line offices and with other federal agencies.

Lake Winnibigoshi, Minnesota within the Chippewa National Forest.
Photo credit: Jacob/Adobe Stock.

- 
4. Identify key drought-impacted sectors, stakeholder groups, and private sector entities not currently well integrated into the Midwest DEWS. Increase engagement with these sectors to understand their challenges, decisions, and priorities related to drought management (e.g., agriculture, industry, insurance, navigation, transportation, energy production, water supply).
 5. Explore the feasibility and usefulness of completing a "network analysis" of the Midwest DEWS to identify who the network is reaching, and those sectors or groups the network does not reach. This analysis may evaluate how various sectors and groups prefer to receive information, which can improve messaging from the Midwest DEWS (supporting Goal 2).
 6. Ensure Tribal Nations across the Midwest and Great Lakes are invited to be part of the Midwest DEWS while respecting tribal sovereignty, protecting tribal data, and building and maintaining relationships based in trust and reciprocity.
 7. Partner with interstate and watershed-scale organizations to identify and address drought and water supply challenges that transcend state boundaries to foster more coordinated monitoring, planning, and management of water resources across the Midwest.
 8. Strengthen partnerships between climate, weather, hydrology, ecology, and natural resource research and management communities to identify and address data, information, and decision-support needs related to ecological drought and drought-driven low streamflow in the Midwest. Explore the need to co-develop an ecological drought workshop in the region.
 9. Collaborate with health practitioners across the Midwest to incorporate existing research, resources, and tools related to drought impacts on human health into decision-making and outreach efforts. (i.e., [Drought and Health Messaging Framework for Public Health Professionals and Healthcare Providers](#)).

Performance Metrics

- Number of collaborative projects (funded or unfunded) within the Midwest DEWS.
- Number of partners convened through regional dialogues (in-person or virtual) within the Midwest DEWS that provided a forum for networking, sharing, and learning.

2

STRATEGIC GOAL 2: INFORMATION DELIVERY

Enhance delivery of timely, relevant, and actionable drought information to communities and decision-makers across the Midwest.



Outcomes

The Midwest DEWS network reaches a broad and diverse audience through its information delivery efforts.

Decision-makers and communities across the Midwest have access to actionable information for quick drought response and proactive planning.

Objectives

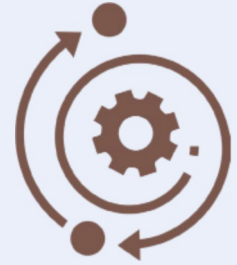
1. Provide real-time drought conditions, impacts, and outlook information through Drought Status Updates, Drought.gov, webinars, social media, and other communication methods. Leverage the networks of Midwest DEWS partners (e.g., National Weather Service, MRCC, state climate offices, and others) to amplify message reach.
2. Provide updated and relevant resources for drought monitoring, prediction, planning, and communication through the state and regional Midwest DEWS page on the U.S. Drought Portal ([Drought.gov](https://drought.gov)).
3. Improve understanding of drought-related decisions across sectors at regional, state, and local scales to inform more targeted and actionable messaging.
4. Develop effective and action-based communication materials to convey drought conditions, impacts, risks, outlook information (including uncertainty), and recommend mitigation or preparedness actions. Leverage findings from social science research and best practices from entities across the region or other regions. In addition, build on the drought risk communication efforts with the Natural Hazards Center.
5. Support Tribal Nations and state and local agencies updating drought and related plans with technical guidance about indicators and drought impact assessments. Ensure connections to other entities to share lessons learned and best management practices.
6. Better integrate news media into the Midwest DEWS communication efforts. Explore establishing a network of broadcast meteorologists within the Midwest DEWS and providing drought-related training.

Performance Metrics

- Number of views for drought status updates, webinars, and newsletters that convey regional drought conditions, impacts, and outlooks and/or drought-related resources.
- Representation from different economic sectors and type of entity (e.g., Federal, tribal, private sector) within the Midwest DEWS.

3 STRATEGIC GOAL 3: CASCADING IMPACTS

Advance understanding of the cascading impacts of drought across the Midwest and enhance drought impact monitoring to enable earlier warning and more proactive planning.



Outcomes

Improved understanding of drought impacts across the region enables more proactive planning and earlier identification of emerging drought conditions.

Improved system-specific drought impact monitoring across the Midwest, resulting in greater understanding of how drought affects interconnected systems and integration of those impacts into monitoring efforts.



Dried, cracked soil in a wheat field.

Photo credit: Alex Milan/Adobe Stock.

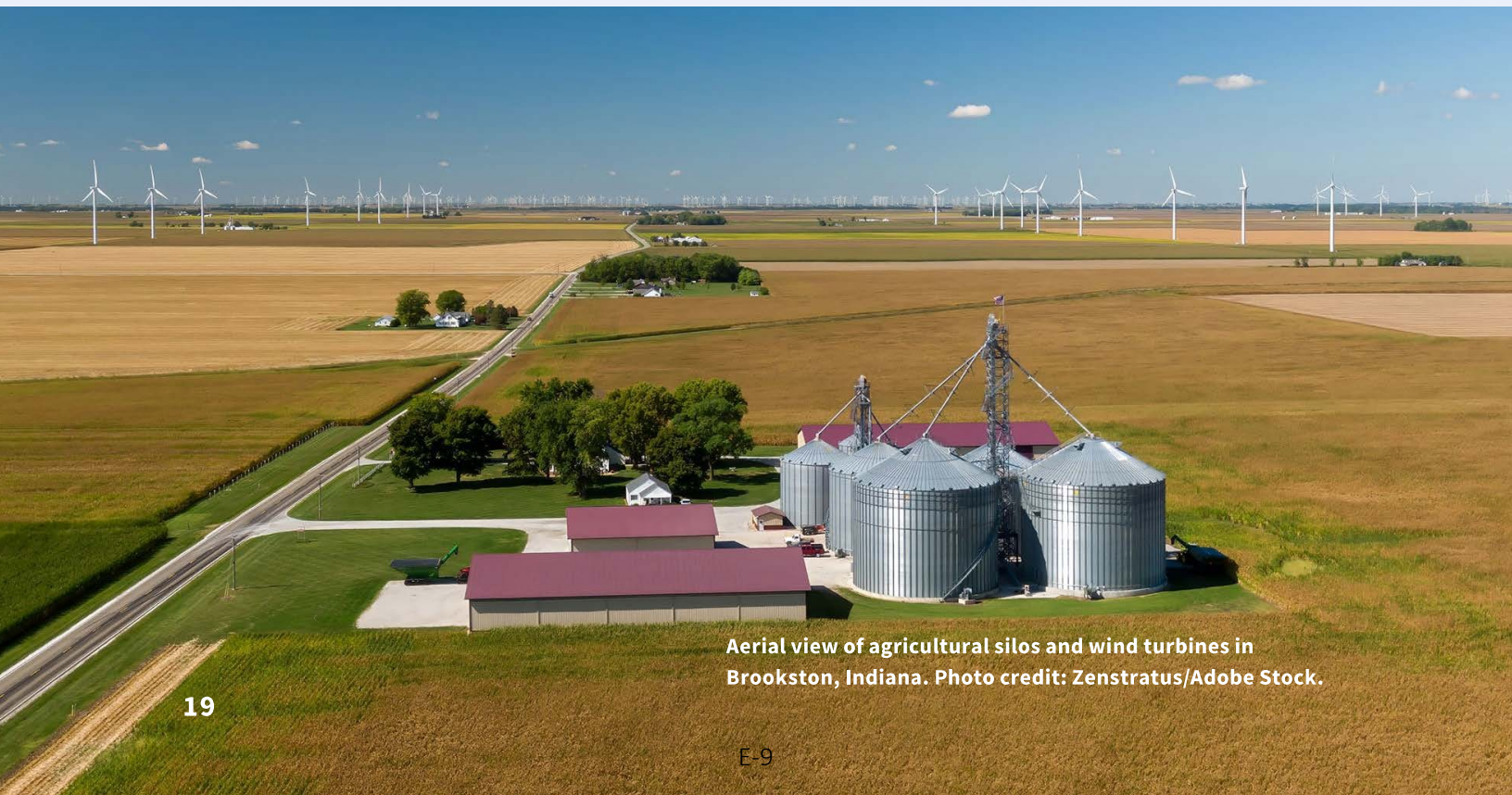
Objectives

1. Increase on-the-ground reports through systems like Condition Monitoring Observer Reports (CMOR) and CoCoRaHS Condition Monitoring to improve statewide monitoring and validate drought indicator's depiction of drought. Provide regional CMOR training opportunities and share successful models to gather more on-the-ground reports. Incorporate findings from social science studies on factors that motivate participation in community science.
2. Harness emerging technologies (e.g., machine learning) to analyze patterns of drought data and/or impacts in the Midwest.
3. Identify sector-based impacts of flash drought in the Midwest by time of year and location. Use this information to improve messages to decision makers about the risks associated with flash drought.
4. Develop drought assessments that evaluate and document the economic impact of both short- and long-term drought across a broad range of drought-impacted sectors in the region (e.g., public health, agriculture, navigation, energy production, ecosystems, recreation/tourism, water supply, infrastructure).
5. Identify sector-based impacts resulting from the rapid transition between precipitation extremes (from too much to too little water) and the time of year when this rapid shift creates the most negative impacts on sectors across the region.

6. Convene a regional working group with drought management experts from across the Midwest to develop a proactive drought management framework that addresses rapid shifts between precipitation extremes, acknowledges tradeoffs in managing different weather extremes, integrates effective flash drought response, and identifies multi-hazard mitigation actions to include in a shared database to assist drought mitigation, planning, and response across the region.
7. Improve understanding of the cascading effects of drought and/or low streamflows on ecosystems across the Midwest, including the impact of flash drought. Document regional sources of ecological data (e.g., fish or wildlife population, tree health, bird surveys, invasive species) to analyze the connection between drought and ecosystem impacts.
8. Assess, on an annual basis, the previous year's ecological drought impacts across the Midwest, in partnership with the U.S. Geological Survey Midwest Climate Adaptation Science Center (CASC). Consider identifying "representative species" for various types of ecosystems in the Midwest to routinely track and assess the impact of drought in the region.
9. Improve understanding of the characteristics and risks of wildland fire in the Midwest and its intersection with drought. Bridge this understanding and effort with NIDIS's Drought and Wildland Fire Nexus (NDAWN) Strategy.

Performance Metrics

- Volume and geographic distribution of condition monitoring reports through CMOR (Condition Monitoring Observer Reports) and CoCoRaHS.
- Development of new methodologies to "quantify and monetize" drought impacts on non-traditional sectors like public health and ecosystem services.



Aerial view of agricultural silos and wind turbines in Brookston, Indiana. Photo credit: Zenstratus/Adobe Stock.

4

STRATEGIC GOAL 4: DATA AND INDICATORS

Strengthen the availability, comprehension, and effective application of critical data and indicators to support drought monitoring and preparedness across the Midwest.



Outcomes

Improved drought monitoring and assessment in the Midwest allows for more effective, proactive preparedness, and targeted relief and response efforts.

Drought plans across the Midwest use the most relevant, region-specific indicators to improve monitoring and guide timely response and mitigation efforts.

Midwest stakeholders have access to high-quality, real-time soil moisture, evapotranspiration, streamflow, and groundwater data, which were identified by the Midwest DEWS as crucial data gaps for drought monitoring in the region.

Drought along the Mississippi River by the confluence with the Missouri River. Photo credit: Rob Sheppard/Danita Delimont/Adobe Stock.

Objectives

1. Identify seasonal, sectoral, and geographical applications for drought indicators and indices in the Midwest.
2. Identify the most appropriate indicators, timescales, and products to monitor flash drought development and its evolution in the Midwest.
3. Identify drought indicators, triggers, and thresholds that work well for ecological drought monitoring in the Midwest, and how we can use these to anticipate impacts on ecosystems and species.
4. Provide training and technical assistance for users across the Midwest to incorporate various drought data, indicators, and tools into work flows and state or local planning to inform better management.
5. Support expanded state mesonets in the Midwest to monitor crucial variables like precipitation, soil moisture, temperature, and evaporation, and improve access to this data. Leverage national initiatives (e.g., National Mesonet Program) to aid this effort. Utilize the Midwest DEWS network to showcase successful state network expansions and new research showing the value of soil moisture data through the Upper Missouri River Basin Soil Moisture and Plains Snow Data Value Study.
6. Champion efforts to improve soil moisture products (including communication of soil moisture data), in coordination with the National Coordinated Soil Moisture Monitoring Network. Additionally, through research and/or experience, identify the most representative soil moisture products for the Midwest.
7. Improve collection and delivery of shallow groundwater data and/or aquifer data across the Midwest.
8. Identify means to access real-time evapotranspiration data in a format useful for drought monitoring (e.g., comparison to normal). Explore opportunities and collaboration with NASA's third phase of the North American Land Data Assimilation System version 3 (NLDAS-3) and the OpenET platform.

Performance Metrics

- Improved access (e.g., improved quantity, quality, and/or delivery) to value-added products for key drought monitoring datasets, such as soil moisture, evapotranspiration, and groundwater.
- Number of plans informed by NIDIS-supported research and information, or through interaction and/or technical support with the Midwest DEWS.

5

STRATEGIC GOAL 5: RESEARCH

Advance and integrate interdisciplinary research to address emerging issues and challenges related to monitoring, predicting, and managing drought in the Midwest.



Outcomes

Decision-makers have the best available science to inform and improve short- and long-term drought risk assessment, decision-based applications, and actions.

Natural resource managers have access to the data and information they need to make short- and long-term decisions around ecological drought and/or low flow conditions.

Objectives

1. Support research that uncovers a more holistic understanding of the physical and social (e.g., development, industry shifts) drivers of drought in the region, identify potential sources of additional predictability for drought, and learn these may change in a nonstationary climate.
2. Support Indigenous-led collaborative research with Indigenous communities to integrate Indigenous Knowledge and Traditional Ecological Knowledge into drought monitoring, assessment, and resilience efforts to holistically address emerging drought challenges across the Midwest.
3. Improve indicators and datasets to better assess precipitation effectiveness, which current drought metrics do not accurately capture. As the Midwest trends toward heavier precipitation events, it is increasingly important to account for the greater proportion of rainfall lost to runoff, rather than contributing to root zone moisture, groundwater recharge, and stream baseflow.

Aerial view of a narrow strip of the Mississippi River.
Photo Credit: kustvideo/Adobe Stock.

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4. Improve understanding of shifts in drought behavior and impacts in the Midwest for various temporal and spatial scales of drought. Possible questions may include: Has the seasonality of drought shifted? How are critical windows in various sectors like agriculture affected by these possible shifts? How does wind contribute to drought development in the region?
 5. Improve understanding of future drought risk and potential shifting characteristics (including the whiplash between too much and too little water) in the Midwest in a nonstationary climate.
 6. Conduct a literature review about the impact of drought and drought-driven low flow to ecosystems across the Midwest and synthesize results for Midwest stakeholders.
 7. Analyze the multi-layered impacts of long-term drought and rising water temperatures on the Great Lakes ecosystem. Evaluate how these climate stressors interact to drive hazards (such as algal blooms), disrupt ice cover dynamics, accelerate evaporation, and create navigation hazards in shallower basins due to wind-induced water level drops.

Performance Metrics

- The number of multidisciplinary research projects and/or publications (e.g., studies co-authored by diverse fields) funded or facilitated by the Midwest DEWS.

**Upper Mississippi River
Quarterly Meetings**

Attachment F

Marine Highway Routes

Page Number	Document Title
F-1	Map of Existing Marine Highway Routes (February 2026)
F-2	Map of Proposed Strategic Marine Highway Network (June 2025)



United States Marine Highway Routes

February 2026





Upper Mississippi River Quarterly Meetings

Attachment G

Upper Mississippi River System Master Plan

Page Number	Document Title
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G-1 to G-10	Recommendations
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Master Plan Recommendations

THAT CONGRESS IMMEDIATELY AUTHORIZE THE ENGINEERING, DESIGN, AND CONSTRUCTION OF A SECOND CHAMBER, 600 FEET IN LENGTH, AT LOCK AND DAM 26.

Alternative navigation improvement scenarios for the Upper Mississippi River System were evaluated with respect to economic costs, transportation rate savings, and environmental considerations. System scenarios were evaluated, some of which included a second chamber at Lock and Dam 26. Two separate methods of capacity expansion evaluation were used and were further subjected to three sensitivity analyses. In all cases the analysis showed an excess of benefits over costs for both a 600 and 1200 foot second chamber. Annual net benefits ranged from \$20-\$117 million for a 600-foot chamber and from \$16-\$112

million for a 1200-foot chamber. (Depending on which evaluation method is used.) The net benefits for the 1200-foot lock are limited by constraints at other locks within the system. Physical capacity at Locks and Dam 26 with the new 600-foot chamber is estimated to be 179 million tons while unconstrained traffic in 2040 is projected to reach 172 million tons at Lock 26, given nominal growth rates in the post 2010 period. Thus Locks 26 with the 600 foot second chamber is expected to be sufficient to accommodate the unconstrained projected traffic.

THAT CONGRESS EXEMPT THE CONSTRUCTION OF A SECOND CHAMBER AT LOCK AND DAM 26 FROM FURTHER ACTION UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (P.L. 91-190).

This Master Plan recommends Congressional authorization of immediate construction of a second lock chamber at Locks and Dam 26 at Alton, Illinois. This recommendation for action reflects the Commission's intent to comply with perceived Congressional desires to have the Master Plan recommend action now instead of additional studies.

Based on projections used herein, the capacity of the already authorized 1200-foot lock will not be exceeded until 1990-1993. Thus, we have a decade of lead time to anticipate any systemic effects of the additional capacity provided by the second chamber. To propose a project EIS, one must consider lost time waiting for authorization and funding, mobilization time, the need for methodology and data to be widely accepted, the desirability of studying both high-and low-flow periods, and the need to produce a document able to

withstand the inevitable legal challenges. If beyond the studies completed to date, an additional EIS able to withstand legal challenges is required, additional economic studies would by that time also be appropriate to re-affirm the economic justification of the project, including optimizing its size. A formal EIS now would be based on the information contained in this Master Plan and would serve to be of procedural value only. Recommendations leading only to further study would indicate the Master Plan process was of questionable value. The Commission recognizes that time does not stand still while we continue to study, hence the recommendations for actions now.

In order to realize the full benefits of the addition of a second chamber at Lock and Dam 26, some additional steps should be taken to increase the ability of the remainder of the system to handle

increased demand. These additional measures should enable the system to accommodate traffic through the late 1990's, at which time other locks may

become constraining. Additional chambers at locks other than Lock 26 may be justified at such a future time.

IMMEDIATE ACTION SHOULD BE TAKEN TO REDUCE EROSION RATES TO TOLERABLE LEVELS TO HELP PRESERVE THE INTEGRITY OF ALL RESOURCE VALUES ON THE UMRS.

The most pervasive and damaging problem for the Upper Mississippi River System as a diverse, vital natural ecosystem is excessive sedimentation from upland and streambank erosion in the watershed. Eroded material settles in the river backwaters, sloughs, and marshes. The natural erosion process has been intensified by agricultural practices and other land surface modifications; the riverine sedimentation process has been intensified by the placement of navigation system locks and dams and wing dikes in the river corridor. Thus, a total approach to river management, as called for in the Master Plan legislation, must extend into the upland areas adjacent to the river corridors.

While programs to significantly reduce the serious environmental impacts of this accelerated erosion and sedimentation in the UMRS have been recommended in earlier studies, e.g., the GREAT and Upper Mississippi River Main Stem Level B studies, the problem is so fundamental to the overall health and character of the rivers that it must be identified and dealt with in the context of the other major recommended actions in this plan for multi-purpose river management and uses.

The GREAT sediment rate studies performed in the upper reaches of the Mississippi River indicate that the life expectancy of many of the large river pools created by the navigation dams is very short. It is expected that unless upland soil conservation practices are

greatly intensified and expanded beginning immediately, major segments of the rich, diverse, accessible fish and wildlife habitats, including national refuges, and recreation areas will become shallow marshes, mudflats, or even dry land within only 50 to 250 years. Streambank and tributary bedload control may also help reduce navigation channel maintenance dredging requirements. The relationship between dredging and sediment inputs is difficult to determine and correlation can be overshadowed by other factors.

In addition to the well-known benefits of retaining irreplaceable topsoil for food and fiber production and prolonging the life of the UMRS as a multi-purpose river system, the reduction in sedimentation proposed by this plan will have a positive effect on water quality, floodplain management, energy fuel consumption by farmers who convert to conservation tillage farming, and highly-regarded scenic areas. GREAT I and II studies include detailed recommendations which are incorporated herein concerning implementation of pilot watershed projects, tributary stream sediment monitoring and bank erosion control measures, and expansion of existing soil conservation programs to reduce soil loss and sedimentation by one-third in the critical sediment source areas in each river segment (18.5 million acres in GREAT I and II segments). Ongoing programs in GREAT III, Illinois, and Kaskaskia River drainage areas should be accelerated as necessary to reduce erosion in critical sediment source areas.

CONGRESS IMMEDIATELY AUTHORIZE A HABITAT REHABILITATION AND ENHANCEMENT PROGRAM TO PLAN, CONSTRUCT, AND EVALUATE PROJECTS TO PROTECT, ENHANCE, OR REHABILITATE AQUATIC AND TERRESTRIAL HABITATS LOST OR THREATENED AS A RESULT OF MAN-INDUCED ACTIVITIES OR NATURAL FACTORS.

Existing data and studies completed under the Master Plan conclude that the natural environment of the UMRS is degrading at a rapid rate as a result of a combination of man-induced and natural forces, including past and existing operation and maintenance activities of the navigation system. These studies have further concluded that the degradation of the system is being hastened by the effects of commercial navigation.

In order to provide for the reasonable development and use of the system for commercial navigation without destroying the valuable environment which is unique to the system, a program of environmental protection and preservation should be immediately undertaken.

The Habitat Rehabilitation and Enhancement Program would consist of numerous enhancement efforts aimed at the implementation of techniques to preserve, protect, and restore habitat that is deteriorating due to natural and man-induced activities. The enhancement effort would extend for a ten-year period in order to adequately evaluate and understand the effectiveness of techniques and measures being applied to protect, enhance, or rehabilitate habitat. In addition to direct protection and enhancement of habitat, the results of the effort will also provide a better understanding of the various impacts on habitat, both natural and man-induced.

In addition to direct protection and enhancement of habitat, the results of the effort will provide a better understanding of the various natural and man-induced effects on habitat integrity. This knowledge will be useful in addressing future UMRS multi-purpose management decisions.

The Habitat Rehabilitation and Enhancement Program would consist of three basic program elements: planning, construction or non-structural equivalent, and evaluation.

Planning - The Upper Mississippi River System is extremely diverse in terms of habitat type, susceptibility to impact, and type of enhancement technique applicable. Therefore, separate plans are recommended for the following reaches:

- Pools 1-10 and navigable tributaries
- Pools 11-19
- Pools 20-27
- Open River above Cairo
- Illinois River
- Kaskaskia River

Rehabilitation and enhancement plans for each reach would identify refuge lands, natural areas, and critical habitat. In addition, areas would be identified where physical and biological impacts are occurring or are likely to occur including specific problem areas identified in the GREAT studies.

Plans will then locate, describe, and prioritize enhancement features (structural and non-structural) for implementation for each river reach. A primary source of this information would be the Mitigation and Enhancement Handbook.

This strategy of combining and relating baseline resource data, impact relationships, and enhancement techniques was initiated in the Master Plan studies. A sample rehabilitation and enhancement plan was prepared for the Weaver Bottoms area in Pool 5 of the upper river. Similar plans for each river reach would

be developed and specific sites chosen within each reach to initiate the plan by instituting pilot projects.

The last step in the planning effort would be to develop detailed schedules and budgets for the implementation of each rehabilitation and enhancement plan in accordance with the established priorities.

Construction or Non-Structural Equivalent
- It is recommended that a phased implementation of the habitat rehabilitation and enhancement plans be followed. Construction or non-structural equivalent activity would follow the priorities, schedule, and budget outlined in each of the Habitat Rehabilitation and Enhancement Plans prepared in the planning phase and would be further refined based on the evaluation of the pilot projects. Examples of potential rehabilitation and enhancement techniques include:

Backwater/Side Channels/Tributaries

- provide upland erosion control
- provide bank stabilization
- provide flow deflectors
- realignment of navigation channel
- improve delineation of channel limits
- speed and timing restrictions near side channel openings
- install water control structures
- open side channels by dredging
- notch wing dikes or closing structures

Bank Erosion (Main channel, main channel border and tributaries)

- provide bank stabilization
- navigation channel alignment
- artificial island creation
- improve dredging practices
- speed and timing restrictions in narrow channels, tight turns

Water Quality

- reduce non-point discharges of hazardous or toxic material
- improved land treatment to reduce turbidity
- improve sediment flushing in the system so toxics do not persist

Fish and Wildlife

- manage pool level fluctuations

Evaluation - The Habitat Rehabilitation and Enhancement Program should be monitored and evaluated on a continuous basis. This will serve to:

- (1) continuously monitor and evaluate impacts from natural and man-induced causes on habitat, and
- (2) describe and analyze the effectiveness of various enhancement features in preserving, protecting, and restoring habitat areas.

As a result of the evaluation phase individual enhancement measures can be further refined to better accomplish their enhancement objective. Future enhancement activities will be designed based on the results of these evaluations. In addition, the evaluation phase will identify proven techniques that may be implemented to mitigate any adverse impacts of increased navigation in the system in the short-term as well as for evaluating any long-term navigation improvement considerations and thus provide a basis for future updates of the Mitigation and Enhancement Handbook.

CONGRESS IMMEDIATELY AUTHORIZE IMPLEMENTATION OF A LONG-TERM
RESOURCE MONITORING PROGRAM.

In addition to immediate implementation of projects to rehabilitate and enhance habitat areas, the evaluation phase of those projects and the ability to understand complex and dynamic system relationships depends on continued monitoring. A long-term resource monitoring program (LTRM) is needed to enable decision-makers to measure ecological impacts attributable to a combination of natural and man-induced forces. Included in that program are specific actions to further our understanding of the physical, chemical, and biological relationships in the system. The program would improve the understanding of future multi-purpose management needs and help determine equitable management actions.

Data have been collected over the years on many aspects of the environment of the UMRS. Differences in sampling methods, assessment instruments and analysis have made systemwide comparisons difficult. The implementation of this recommendation would provide a consistent, standardized resource monitoring program.

The Master Plan studies have identified the environmental variables to be monitored with respect to fish and wildlife, water quality, wilderness, and

public recreational opportunities of the UMRS. Such variables include but are not limited to:

- Land use changes with respect to agriculture, commercial, industrial, urban, forest, transportation, and flood control.
- Habitat changes for aquatic and terrestrial organisms due to natural forces and man's actions.
- Species composition and relationships with habitat types.
- Rates, sources, and causes of sedimentation, sediment deposition, and resuspension.
- Recreational uses including temporal and spatial variations.

It is anticipated that a period of five years will be required to fully implement the LTRM program. Once fully in operation the LTRM could be an integral part of the management of the UMRS. The success of the Long-Term Resource Monitoring Program depends on the development of a computerized analytical inventory and analysis system for data storage, retrieval, and comparison.

CONGRESS IMMEDIATELY AUTHORIZE IMPLEMENTATION OF A COMPUTERIZED
INVENTORY AND ANALYSIS SYSTEM FOR DATA STORAGE AND RETRIEVAL, AND
FOR USE IN THE LONG-TERM RESOURCE MONITORING PROGRAM.

Alternative levels of computerized information systems were evaluated in the context of UMRS systemic management needs as identified by all components of the Master Plan. The needs for centralized, consistent, comprehensive, and current data identified in the navigation, natural resource and recreation recommendations is recognized as critical for future multi-purpose resource management decisions in the UMRS.

The Commission recognized that a fully operational centralized data repository and processing center requires a sequential development of the major components of the system. The Computerized Inventory and Analysis System should be developed according to the following steps, and be operational by 1987:

- 1) Continue utilization of the Minnesota Land Management

Information Center or similar system to maintain and update information gathered during the Master Plan process.

2) Develop an information transfer service to provide for identification and transfer of information and technology while evaluating and improving the system. This phase should provide full service in the storage and distribution of data being developed and analyzed in the programs outlined in both the environmental and transportation recommendations.

3) Develop a management briefing system to provide support information to resource management entities of the UMRS.

4) Establish a geographic information center to serve as a centralized pro-

cessing and repository center for system-wide information. All data from the distribution process network would be centralized for utilization by all participating entities.

A Geobased Information System (GIS) would provide an effective mechanism for the evaluation and analysis of the impacts associated with alternative multi-purpose river resource management proposals. Such a system is an essential component of a Long-Term Resource Monitoring Program. It would enhance the effectiveness of such a monitoring program because it would provide the capability of entry and retrieval of data, statistical analysis, modeling, spatial data manipulation, and interface with other systems.

CONGRESS IMMEDIATELY AUTHORIZE THE IMPLEMENTATION OF A PROGRAM OF RECREATIONAL PROJECTS AND THE CONDUCT OF AN ASSESSMENT OF THE ECONOMIC BENEFITS GENERATED BY RECREATIONAL ACTIVITIES IN THE UMRS.

GREAT studies and SCORP (State Comprehensive Outdoor Recreation Plan) programs have identified the need for the development of river-oriented recreation projects to meet growing demands. In addition, the Corps of Engineers and the U.S. Fish and Wildlife Service are coordinating their efforts to develop recreation resource management plans for Federally-owned lands in the UMRS. The Commission recommends that recreational development projects be implemented at Federal expense on a priority basis as determined by the institutional arrangement recommended in the Master Plan. Funding should be provided through this program only for those projects not funded from other sources. Selection of projects should be based upon coordination with State and Federal agencies under whose management the program depends.

Although recreational use has been inventoried on portions of the UMRS by various studies including GREAT, the long-term resource monitoring program would complete and continuously update

these inventories on a systemwide basis. In addition, preliminary estimates have been made which suggest that recreational activities and commercial fishing and trapping contribute substantially to the economic health of the region. However, the specific economic value of this resource has never been fully understood. Recreation on the UMRS supports hundreds of marinas, restaurants, sporting goods stores, motels, etc. The recreation industry and investments are a vital part of the economy of many local communities. However, the ramifications of fluctuations in the recreation industry on the local, regional, and national economy are not well understood. In addition, the value of the natural resources (wildlife habitat, beaches, and scenery) to the recreation industry and thus the economy is not fully understood. Therefore, an assessment of the economic aspects of recreational activity and resources should be undertaken. Data obtained should be provided as input to the Long-Term Resource Monitoring Program.

AS PART OF A TOTAL NAVIGATION IMPROVEMENT PLAN, STEPS BE UNDERTAKEN TO INCREASE THE CAPACITY OF SPECIFIC LOCKS THROUGHOUT THE SYSTEM BY EMPLOYING CERTAIN NON-STRUCTURAL MEASURES AND MAKING MINOR STRUCTURAL IMPROVEMENTS.

In order to realize the full benefits of the addition of a second chamber at Lock and Dam 26, some additional steps should be taken to increase the ability of the remainder of the system to handle increased demand. These additional measures should enable the system to accommodate traffic through the late 1990's, at which time other locks may become constraining. Additional chambers at locks other than Lock 26 may be justified at such a future time.

Table VI -1 displays the lock-by-lock non-structural and minor structural improvements that are to be considered as part of the navigation improvement plan. The dates in parentheses indicate the estimated time at which either kevels or switchboats/helper boats would come on line. The most environmentally acceptable, cost-effective, and efficient measures at the discretion of the Chief of Engineers should be implemented.



Table VI-1. Recommended Navigation Improvement Plan¹

Lock 1	
Lock 2	
Lock 3	
Lock 4	
Lock 5	
Lock 5A	- Auxiliary discharge outlet
Lock 6	- Upper mooring cells
Lock 7	- Upper mooring cells
Lock 8	- Angle upper guard wall
Lock 9	- Upper and lower mooring cells
Lock 10	
Lock 11	
Lock 12	
Lock 13	
Lock 14	
Lock 15	- Lower mooring cells, auxiliary discharge outlet
Lock 16	- Extension of upper guidewall, kevels/switchboats/helper boats (1990-95)
Lock 17	- Kevels/switchboats/helper boats (1990-95)
Lock 18	- Kevels/switchboats/helper boats (1990-95)
Lock 19	- Correct filling valve
Lock 20	- Lock staffing night shift, kevels/switchboats/helper boats (1990)
Lock 21	- Lock staffing night shift, kevels/switchboats/helper boats (1990)
Lock 22	- Lock staffing night shift, kevels/switchboats/helper boats (1990)
Lock 24	- Lock staffing night shift, kevels/switchboats/helper boats (1990)
Lock 25	- Auxiliary discharge outlet, lock staffing night shift, kevels/switchboats/helper boats (1990)
Lock 26	- (600 foot second chamber as recommend)
Lock 27	
Lockport	- Auxiliary discharge outlet, trash racks
Brandon Road	- Auxiliary discharge outlet, trash racks, relieve air entrainment in culverts
Dresden Island	- Relieve air entrainment in culverts, kevels/switchboats/helper boats (1990-98)
Marseilles	- Widen upper canal, auxiliary discharge outlet, relieve air entrainment, trash racks, kevels/switchboats/helper boats (1990)
Starved Rock	- Kevels/switchboats/helper boats (1990)
Peoria	- Kevels/switchboats/helper boats (1990-93)
La Grange	

¹/ N-up/N-down Lockage Policy at all Locks as appropriate

TRAFFIC MOVEMENTS ON THE NAVIGATION SYSTEM BE MONITORED TO UPDATE TRAFFIC PROJECTIONS, VERIFY LOCK CAPACITIES, AND REFINE ECONOMIC JUSTIFICATIONS AND IMPLEMENTATION DATES FOR FUTURE CAPACITY EXPANSION.

The economic evaluations and modeling activities undertaken in the navigation studies were based on a system approach to capacity analysis. Such an approach is particularly sensitive to traffic projections, lock capacity estimates, tow sizes, and rate data.

The ability to maintain accurate traffic, rate, and system simulation data is important for two reasons. The set of structural and non-structural measures recommended by lock (Table VI-1) provides a framework for navigation improvements in the near term. The choice between keel systems and switchboats or helper boats at certain sites in the system would need to be made at some future time. Such a decision should be based on an ongoing evaluation of system needs, site applicability, and future investment strategies. It is recognized that

appropriate timing and sequencing of such improvements depends on an accurate systems assessment.

In addition, it is recognized that prior to the year 2000 decisions regarding future capacity expansion will be necessary. Although the economic evaluations conducted as part of the Master Plan indicate that in the future, improvements may be warranted at as many as twelve additional locks, continued monitoring is necessary to refine the evaluation. Accurate timing, sequencing, and sizing of potential future improvements is critical for sound system planning. Economic justification of future capacity expansion depends on the ability to accurately forecast future conditions and simulate system operations.

CONTINUE CURRENT DISPOSAL PRACTICES INCLUDING THOSE DETAILED IN THE GREAT CHANNEL MAINTENANCE PROGRAMS IN THOSE AREAS WHERE THEY HAVE BEEN DEVELOPED. THE MASTER PLAN DREDGED MATERIAL DISPOSAL MATRIX PROCESS MAY BE USED AS A TOOL IN THE SITE EVALUATION.

The results of the dredged material disposal study were evaluated with respect to both environmental and economic costs and benefits. The results were considered in full recognition that each dredging area in the river system has a unique setting in terms of disposal site availability and site characteristics. Based on this evaluation the studies concluded that dredged material disposal

out of the floodplain as a general rule is not warranted. Disposal should be evaluated on a site by site basis.

Dredged material disposal requirements have been addressed in the GREAT I and II studies. These results and dredged material disposal requirements in the remaining areas of the UMRS should be enhanced through the use of disposal

impacts assessment methodology produced in the Master Plan. In addition, those GREAT recommendations on increasing disposal capability should be included. The Dredged Material Disposal Matrix presented in Chapter V provides a systematic tool for considering economic, environmental, and social parameters related to alternative disposal methods. This tool will provide a common basis to assist participants in making dredged material disposal decisions throughout the UMRS.

In those reaches of the UMRS where GREAT studies have not had the opportunity to evaluate dredged material disposal needs, the Dredged Material Disposal Matrix may be used to select disposal methods. In reaches where GREAT recommendations are available full consideration should be given to them. The Matrix can be used in conjunction with GREAT recommendations to verify and update disposal decisions on a case by case basis.

A PROGRAM FOR COORDINATING WITH POTENTIAL USERS SHOULD BE DEVELOPED BY THE CONCERNED STATES IN COORDINATION WITH THE CORPS OF ENGINEERS, UTILIZING AND UPDATING EXISTING DEMAND INFORMATION, AS WELL AS THE COLLECTION OF EMPIRICAL DATA TO FACILITATE ECONOMICALLY FEASIBLE PRODUCTIVE USES OF DREDGED MATERIAL.

The productive use studies have identified potential users of dredged material if it could be made available by the Corps of Engineers. Information to date indicates that productive use may be

the best option in some situations. Additional information might generate productive uses that are feasible under future conditions.

THE STATES OF THE UMRS SHOULD ESTABLISH A COOPERATIVE ARRANGEMENT
TO MAINTAIN COORDINATIVE AND MANAGEMENT ACTIVITIES FOR WATER AND
RELATED LAND RESOURCES WITHIN THE UMRS.

During the Alternative Institutional Arrangements study several optional arrangements were identified and evaluated. Early evaluation was related to identified system objectives and perceived management needs. This provided a preliminary screening of available alternatives for consideration in the formulation of the Master Plan.

While initial study analysis was oriented toward decision-making for the system, the studies led to the conclusion that certain political decisions could not be made by any regional entity. Therefore, use of existing coordinating authorities is satisfactory.

In developing the recommendations of the Master Plan, extensive consideration was given to the institutional requirements for implementation. Implementation activities were identified for State, Federal, and regional entities. Evaluation of these implementation needs was conducted with respect to existing State, Federal, and regional authorities. As displayed and discussed in the following implementation chapter, agencies to implement are currently in existence.

Each agency when undertaking the implementation of the Master Plan recom-

mendation has the authority to provide activities to coordinate with the States and agencies of the UMRS. Using these capabilities will ensure that the various recommendations will be implemented in such a manner that the economic, environmental, and recreational objectives of the UMRS will be taken into account where appropriate.

It was also recognized that the resource management actions contained in the Master Plan do not constitute all projects and programs which will occur in the UMRS for water and related land resources. In evaluating possible systemic management needs related to these projects a main conclusion was drawn. That is, communication and coordination among States of the UMRS would be beneficial to aid in the future resource management of the system. Those projects or programs affecting two or more States of the system or the entire system would constitute the main agenda for the State coordination body's agenda. Coordination arrangements and joint State positions could be fostered by the States in this arrangement. Once these positions are identified, the coordinative arrangement should, on an annual basis and in coordination with the appropriate lead agency(ies)/states, seek to carry out those projects and programs.

Upper Mississippi River Quarterly Meetings

Attachment H

Additional Items

Page Number	Document Title
H-1	Future Meeting Schedule
H-2 to H-8	Frequently Used Acronyms (4-29-2022)

QUARTERLY MEETINGS FUTURE MEETING SCHEDULE

FEBRUARY 2027	
<u>Virtual</u>	
February 16	UMRBA Quarterly Meeting
February 17	UMRR Coordinating Committee Quarterly Meeting

MAY 2027	
<u>Minneapolis-St. Paul Metro</u>	
May 18	UMRBA Quarterly Meeting
May 19	UMRR Coordinating Committee Quarterly Meeting

AUGUST 2027	
<u>St. Louis, MO</u>	
August 10	UMRBA Quarterly Meeting
August 11	UMRR Coordinating Committee Quarterly Meeting

Acronyms Frequently Used on the Upper Mississippi River System

AAR	After Action Report
A&E	Architecture and Engineering
ACRCC	Asian Carp Regional Coordinating Committee
AFB	Alternative Formulation Briefing
AHAG	Aquatic Habitat Appraisal Guide
AHRI	American Heritage Rivers Initiative
AIS	Aquatic Invasive Species
ALC	American Lands Conservancy
ALDU	Aquatic Life Designated Use(s)
AM	Adaptive Management
ANS	Aquatic Nuisance Species
AP	Advisory Panel
APE	Additional Program Element
ARRA	American Recovery and Reinvestment Act
ASA(CW)	Assistant Secretary of the Army for Civil Works
A-Team	Analysis Team
ATR	Agency Technical Review
AWI	America's Watershed Initiative
AWO	American Waterways Operators
AWQMN	Ambient Water Quality Monitoring Network
BA	Biological Assessment
BATIC	Build America Transportation Investment Center
BCOES	Bid-ability, Constructability, Operability, Environmental, Sustainability
BCR	Benefit-Cost Ratio
BMPs	Best Management Practices
BO	Biological Opinion
CAP	Continuing Authorities Program
CAWS	Chicago Area Waterways System
CCC	Commodity Credit Corporation
CCP	Comprehensive Conservation Plan
CEICA	Cost Effectiveness Incremental Cost Analysis
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CFS	Cubic Feet Per Second
CG	Construction General
CIA	Computerized Inventory and Analysis
CMMP	Channel Maintenance Management Plan
COE	Corps of Engineers
COPT	Captain of the Port
CPUE	Catch Per Unit Effort
CRA	Continuing Resolution Authority
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program

CSP	Conservation Security Program
CUA	Cooperative Use Agreement
CWA	Clean Water Act
CY	Cubic Yards
DALS	Department of Agriculture and Land Stewardship
DED	Department of Economic Development
DEM	Digital Elevation Model
DET	District Ecological Team
DEWS	Drought Early Warning System
DMMP	Dredged Material Management Plan
DNR	Department of Natural Resources
DO	Dissolved Oxygen
DOA	Department of Agriculture
DOC	Department of Conservation
DOER	Dredging Operations and Environmental Research
DOT	Department of Transportation
DPR	Definite Project Report
DQC	District Quality Control/Quality Assurance
DSS	Decision Support System
EA	Environmental Assessment
ECC	Economics Coordinating Committee
EEC	Essential Ecosystem Characteristic
EIS	Environmental Impact Statement
EMAP	Environmental Monitoring and Assessment Program
EMAP-GRE	Environmental Monitoring and Assessment Program-Great Rivers Ecosystem
EMP	Environmental Management Program [Note: Former name of Upper Mississippi River Restoration Program.]
EMP-CC	Environmental Management Program Coordinating Committee
EO	Executive Order
EPA	Environmental Protection Agency
EPM	Environmental Pool Management
EPR	External Peer Review
EQIP	Environmental Quality Incentives Program
ER	Engineering Regulation
ERDC	Engineering Research & Development Center
ESA	Endangered Species Act
EWMN	Early Warning Monitoring Network
EWP	Emergency Watershed Protection Program
FACA	Federal Advisory Committee Act
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FDR	Flood Damage Reduction
FFS	Flow Frequency Study
FMG	Forest Management Geodatabase
FONSI	Finding of No Significant Impact
FRM	Flood Risk Management

FRST	Floodplain Restoration System Team
FSA	Farm Services Agency
FTE	Full Time Equivalent
FWCA	Fish & Wildlife Coordination Act
FWIC	Fish and Wildlife Interagency Committee
FWS	Fish and Wildlife Service
FWWG	Fish and Wildlife Work Group
FY	Fiscal Year
GAO	Government Accountability Office
GEIS	Generic Environmental Impact Statement
GI	General Investigations
GIS	Geographic Information System
GLC	Governors Liaison Committee
GLC	Great Lakes Commission
GLMRIS	Great Lakes and Mississippi River Interbasin Study
GPS	Global Positioning System
GREAT	Great River Environmental Action Team
GRP	Geographic Response Plan
H&H	Hydrology and Hydraulics
HAB	Harmful Algal Bloom
HEC-EFM	Hydrologic Engineering Center Ecosystems Function Model
HEC-RAS	Hydrologic Engineering Center River Analysis System
HEL	Highly Erodible Land
HEP	Habitat Evaluation Procedure
HNA	Habitat Needs Assessment
HPSF	HREP Planning and Sequencing Framework
HQUSACE	Headquarters, USACE
H.R.	House of Representatives
HREP	Habitat Rehabilitation and Enhancement Project
HSI	Habitat Suitability Index
HU	Habitat Unit
HUC	Hydrologic Unit Code
IBA	Important Bird Area
IBI	Index of Biological (Biotic) Integrity
IC	Incident Commander
ICS	Incident Command System
ICWP	Interstate Council on Water Policy
IDIQ	Indefinite Delivery/Indefinite Quantity
IEPR	Independent External Peer Review
IGE	Independent Government Estimate
IIA	Implementation Issues Assessment
IIFO	Illinois-Iowa Field Office (formerly RIFO - Rock Island Field Office)
ILP	Integrated License Process
IMTS	Inland Marine Transportation System
IPR	In-Progress Review
IRCC	Illinois River Coordinating Council

IRPT	Inland Rivers, Ports & Terminals
IRTC	Implementation Report to Congress
IRWG	Illinois River Work Group
ISA	Inland Sensitivity Atlas
IWR	Institute for Water Resources
IWRM	Integrated Water Resources Management
IWS	Integrated Water Science
IWTF	Inland Waterways Trust Fund
IWUB	Inland Waterways Users Board
IWW	Illinois Waterway
L&D	Lock(s) and Dam
LC/LU	Land Cover/Land Use
LDB	Left Descending Bank
LERRD	Lands, Easements, Rights-of-Way, Relocation of Utilities or Other Existing Structures, and Disposal Areas
LiDAR	Light Detection and Ranging
LMR	Lower Mississippi River
LMRCC	Lower Mississippi River Conservation Committee
LOI	Letter of Intent
LTRM	Long Term Resource Monitoring
M-35	Marine Highway 35
MAFC	Mid-America Freight Coalition
MARAD	U.S. Maritime Administration
MARC 2000	Midwest Area River Coalition 2000
MCAT	Mussel Community Assessment Tool
MICRA	Mississippi Interstate Cooperative Resource Association
MDM	Major subordinate command Decision Milestone
MIPR	Military Interdepartmental Purchase Request
MMR	Middle Mississippi River
MMRP	Middle Mississippi River Partnership
MNRG	Midwest Natural Resources Group
MOA	Memorandum of Agreement
MoRAST	Missouri River Association of States and Tribes
MOU	Memorandum of Understanding
MRAPS	Missouri River Authorized Purposes Study
MRBI	Mississippi River Basin (Healthy Watersheds) Initiative
MRC	Mississippi River Commission
MRCC	Mississippi River Connections Collaborative
MRCTI	Mississippi River Cities and Towns Initiative
MRRC	Mississippi River Research Consortium
MR&T	Mississippi River and Tributaries (project)
MSP	Minimum Sustainable Program
MVD	Mississippi Valley Division
MVP	St. Paul District
MVR	Rock Island District
MVS	St. Louis District

NAS	National Academies of Science
NAWQA	National Water Quality Assessment
NCP	National Contingency Plan
NIDIS	National Integrated Drought Information System (NOAA)
NEBA	Net Environmental Benefit Analysis
NECC	Navigation Environmental Coordination Committee
NED	National Economic Development
NEPA	National Environmental Policy Act
NESP	Navigation and Ecosystem Sustainability Program
NETS	Navigation Economic Technologies Program
NGO	Non-Governmental Organization
NGRREC	National Great Rivers Research and Education Center
NGWOS	Next Generation Water Observing System
NICC	Navigation Interests Coordinating Committee
NPDES	National Pollution Discharge Elimination System
NPS	Non-Point Source
NPS	National Park Service
NRC	National Research Council
NRCS	Natural Resources Conservation Service
NRDAR	Natural Resources Damage Assessment and Restoration
NRT	National Response Team
NSIP	National Streamflow Information Program
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
O&M	Operation and Maintenance
OHWM	Ordinary High Water Mark
OMB	Office of Management and Budget
OMRR&R	Operation, Maintenance, Repair, Rehabilitation, and Replacement
OPA	Oil Pollution Act of 1990
ORSANCO	Ohio River Valley Water Sanitation Commission
OSC	On-Scene Coordinator
OSE	Other Social Effects
OSIT	On Site Inspection Team
P3	Public-Private Partnerships
PA	Programmatic Agreement
PAS	Planning Assistance to States
P&G	Principles and Guidelines
P&R	Principles and Requirements
P&S	Plans and Specifications
P&S	Principles and Standards
PCA	Pollution Control Agency
PCA	Project Cooperation Agreement
PCX	Planning Center of Expertise
PDT	Project Delivery Team
PED	Preconstruction Engineering and Design
PgMP	Program Management Plan

PILT	Payments In Lieu of Taxes
PIR	Project Implementation Report
PL	Public Law
PMP	Project Management Plan
PORT	Public Outreach Team
PPA	Project Partnership Agreement
PPT	Program Planning Team
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RCP	Regional Contingency Plan
RCPP	Regional Conservation Partnership Program
RDB	Right Descending Bank
RED	Regional Economic Development
RIFO	Rock Island Field Office (now IIFO - Illinois-Iowa Field Office)
RM	River Mile
RP	Responsible Party
RPEDN	Regional Planning and Environment Division North
RPT	Reach Planning Team
RRAT	River Resources Action Team
RRCT	River Resources Coordinating Team
RRF	River Resources Forum
RRT	Regional Response Team
RST	Regional Support Team
RTC	Report to Congress
S.	Senate
SAV	Submersed Aquatic Vegetation
SDWA	Safe Drinking Water Act
SEMA	State Emergency Management Agency
SET	System Ecological Team
SMART	Specific, Measurable, Attainable, Risk Informed, Timely
SONS	Spill of National Significance
SOW	Scope of Work
SRF	State Revolving Fund
SWCD	Soil and Water Conservation District
T&E	Threatened and Endangered
TEUs	twenty-foot equivalent units
TIGER	Transportation Investment Generating Economic Recovery
TLP	Traditional License Process
TMDL	Total Maximum Daily Load
TNC	The Nature Conservancy
TSP	Tentatively selected plan
TSS	Total Suspended Solids
TVA	Tennessee Valley Authority
TWG	Technical Work Group
UMESC	Upper Midwest Environmental Sciences Center

UMIMRA	Upper Mississippi, Illinois, and Missouri Rivers Association
UMR	Upper Mississippi River
UMRBA	Upper Mississippi River Basin Association
UMRBC	Upper Mississippi River Basin Commission
UMRCC	Upper Mississippi River Conservation Committee
UMRCP	Upper Mississippi River Comprehensive Plan
UMR-IWW	Upper Mississippi River-Illinois Waterway
UMRNWFR	Upper Mississippi River National Wildlife and Fish Refuge
UMRR	Upper Mississippi River Restoration Program [Note: Formerly known as Environmental Management Program.]
UMRR CC	Upper Mississippi River Restoration Program Coordinating Committee
UMRS	Upper Mississippi River System
UMWA	Upper Mississippi Waterway Association
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VTC	Video Teleconference
WCI	Waterways Council, Inc.
WES	Waterways Experiment Station (replaced by ERDC)
WHAG	Wildlife Habitat Appraisal Guide
WHIP	Wildlife Habitat Incentives Program
WIIN	Water Infrastructure Improvements for the Nation Act
WLM	Water Level Management
WLMTF	Water Level Management Task Force
WQ	Water Quality
WQEC	Water Quality Executive Committee
WQTF	Water Quality Task Force
WQS	Water Quality Standard
WRDA	Water Resources Development Act
WRP	Wetlands Reserve Program
WRRDA	Water Resources Reform and Development Act