

STRATEGIC PLAN



**Collaborative science
for water security
and innovation**

2025 – 2030

water.missouri.edu



College of Engineering
University of Missouri



**College of Agriculture,
Food and Natural Resources**
University of Missouri

Who We Are

The Missouri Water Center (MWC) was established at the University of Missouri in 2022 through the merger of the Missouri Water Resources Research Center and the Center for Watershed Management and Water Quality. A member of the National Institute of Water Resources (NIWR) and the University Council on Water Resources (UCOWR), the MWC unites researchers to foster collaboration and address water challenges important to the state and nation. Guided by an advisory committee of key stakeholders, MWC plays a vital role in enhancing flood control, improving water quality, mitigating water risks, and providing policymakers with objective research.

MWC serves Missouri by providing **research, education, outreach, and data-driven insights** in water management. Specifically, we build capacity for:

- **Research & Collaboration** – We are partnering with communities, agencies, academia, and industry to advance basic and applied interdisciplinary water science.
- **Workforce Development** – We offer and support training programs to prepare professionals for water-related careers.
- **Community Outreach** – We are engaging with Missouri residents on flooding, drought, water supply, water quality, and other water issues.

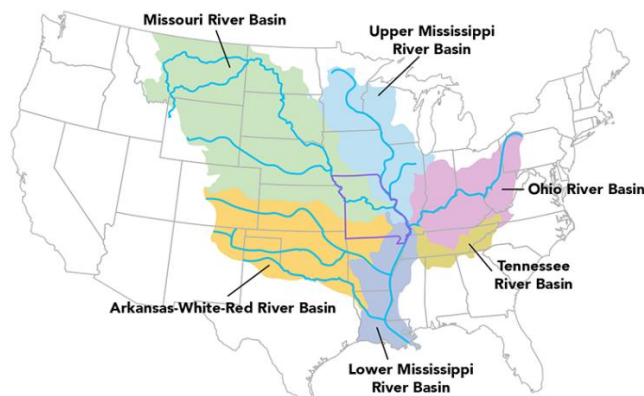


Figure 1. Missouri's location at the intersection of six major river basins increases the potential for transferability of water science findings across state lines. (Image Source: MoDNR)

Our Mission

Advancing water science, policy, and workforce development to create solutions for Missouri's water needs by supporting research and bridging academia, industry, communities, and government.

Our Vision

To be Missouri's trusted source for water science and policy.

Research and Focus Areas

Water Resources Information

This focus area includes efforts to enhance statewide water quantity monitoring and modeling capabilities by expanding real-time river, lake, and soil moisture tracking; developing detailed hydraulic and hydrological models for the Lower Missouri River; and advancing flood and drought forecasting.



Figure 2. Stream gage during flooding event.

Smart Water Quality Monitoring, Mitigation & Management

This focus area includes efforts to advance water quality monitoring and management by improving real-time data collection and predictive tools, innovating water and wastewater treatment methods, and deploying affordable technologies to detect and reduce emerging contaminants.



Figure 3. Dr. Matthias Young's lab is working on improved methods for nitrate sensing in water.

Economic Analysis

This focus area includes efforts to analyze the economic impacts of water challenges by estimating flood damage and flood protection needs, modeling benefit-cost scenarios including ecological, agricultural and community factors, assessing the effects of future water strategies on rural economies, and evaluating public support for water management investments.

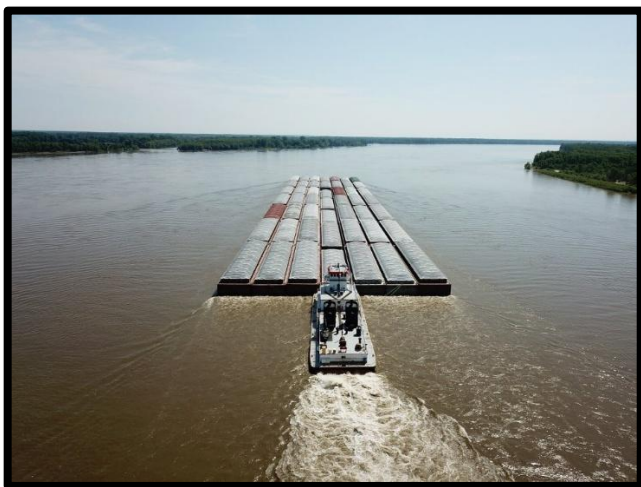


Figure 4. MWC partners at the Food and Agricultural Policy Research Institute (FAPRI) and Missouri University of Science & Technology (MS&T) are developing enhanced cost-benefit calculations that account for flood disruptions to agricultural production and transportation.

Enhancing Stakeholder Voices and Strengthening Partnerships

This focus area includes efforts to strengthen community engagement in water planning by integrating local voices, aligning priorities across agencies and communities, delivering and interpreting relevant science for stakeholders, and using grassroots knowledge to improve coordination and overcome planning challenges.



Figure 5. Dr. Damon Hall and Dr. Angela Catalano engaged residents of Brunswick, Missouri, in conversations about flood resiliency and flood management.

Training Future Water Professionals

This focus area includes efforts to support water-related workforce development by training students through research, coursework, and fellowships, and offering continuing education for professionals via online courses, certificates, and workshops.



Figure 6. Dr. Rebecca North and Dr. Alba Argerich oversee water quality monitoring programs that train numerous students in field measurement techniques.

Three Years of Progress

The MWC is a relatively new organization. Nevertheless, the initial investments by the College of Engineering and College of Agriculture, Food and Natural Resources have enabled a notable increase in research activities in comparison with the two centers that were merged to create the MWC in 2022.

Today, the MWC has approximately 15 active core faculty with a total of about 60 researchers involved in MWC activities over the past three years. More than 23 representatives from 12 organizations have served on the MWC advisory committee. The new MWC has been selected to receive nearly \$30M and awarded more than \$9M in external funding from more than six different organizations since 2022.

A significant portion of this support (\$7.5M) was secured through congressionally directed projects led by Senator Roy Blunt and Congressman Sam Graves with support from University of Missouri administrators, the MWC leadership team and core faculty, the advisory committee, and Missouri's

MWC membership and representation:

- ~15 Core Faculty
- ~60 Researchers
- ~23 Advisory Committee Members
- ~12 Federal, state, and local organizations represented by advisory board members

MWC funding since 2022:

- ~\$30M Funding Selected to Receive
- ~\$9M Funding Awarded
- ~\$7.5M Federal Appropriations
- ~\$1.4M Awarded Seed Grant Support
- 6+ Funding Organizations

agricultural organizations. In addition to securing support for MWC operations, these projects provided seed funding to support faculty research projects and MWC's partnerships with FAPRI and MS&T. These efforts highlight our role as a facilitator and capacity builder for water science through developing connections with established subfield experts.

The \$1,400,000 in seed grants awarded to MWC core and affiliate faculty supported 16 projects and more than 18 student and postdoctoral researchers. In addition, MWC researchers have published more than 25 peer-reviewed articles relevant to MWC priorities and secured more than 10 new major instruments to support long-term lab and field research activities since 2022.

Our Values

In addition to the University of Missouri's core values of Discovery, Excellence, Respect, and Responsibility, the members of the MWC uphold the following values.

SCIENTIFIC INNOVATION

Commit to developing unbiased, evidence-based knowledge and solutions that address urgent water issues and support community priorities.

COLLABORATION

Build interdisciplinary partnerships across academia, government, local communities and industry while enhancing education and workforce development.

RESOURCE STEWARDSHIP

Promote conservation and sustainable water policies.

PUBLIC ACCESSIBILITY

Ensure all persons and organizations can engage in informed decision-making on water issues.

Planning for the future

Our planning process

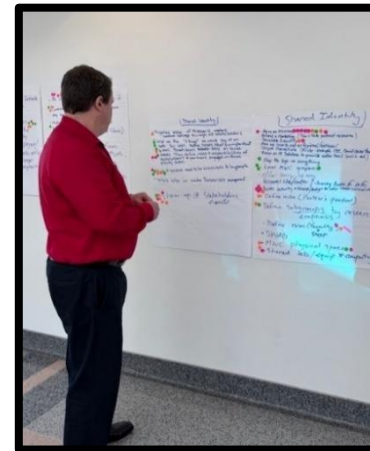
This strategic plan was developed with the goal of fostering a shared identity and inclusive culture, aligning individual and collective goals, and guiding the MWC toward a unified strategic direction.

The strategic plan was developed through a multi-phase process that began with creating a strategic planning faculty working group and reviewing the MWC founding documents to reassess its mission, priorities, and functions. A faculty and advisory committee survey in March 2025 identified current relevance and emerging needs, followed by a May 2025 workshop with over 30 participants to refine the MWC mission, vision, and strategic priorities. The resulting document was created by MWC leadership, reviewed by core faculty, college leadership, and the advisory committee, and revised in response to feedback.

Self-Assessment

Information collected from the survey and workshop provided insight into the perceived strengths and weaknesses of MWC.

MWC faculty and advisory committee members



agree that MWC benefits from broad public and bipartisan support, a strong history of interdisciplinary collaboration, and deep partnerships across Missouri that are anchored by a shared mission to solve urgent water issues.

However, balancing diverse stakeholder needs while maintaining productivity and increasing MWC visibility is a challenge and requires flexibility and clear communication within the organization and with external partners.

While reduced federal funding and the risk of losing focus pose challenges, they also highlight opportunities to sharpen the MWC applied mission, deepen state, local, and private partnerships, and strengthen community-centered, impact-driven research.

Goals

Priority action areas and strategies for achieving the MWC mission and vision emerged from the May 2025 strategic planning workshop. The strategies outlined address the following primary goals identified by MWC faculty and advisory committee members:

- *Increase faculty, agency, and stakeholder participation in MWC activities.*
- *Become the “authority” for Missouri water research needs.*
- *Strengthen partnerships and support local needs, education, and workforce development.*
- *Support the production of innovative, high impact research on urgent water issues.*

Strategic Goals for 2025-2030

PRIORITY 1

CLARIFY THE MISSION & BUILD IDENTITY

Strategy 1: Refine the mission and core focus areas of the MWC to reflect the changing landscape of state, national, and private interests and research support.

Action Items:

- Further identify MWC goals and finalize the mission through a collaborative planning process.
- Define four to five core focus research topics that align with member expertise and stakeholder priorities.

Strategy 2: Enhance organizational structure.

Action Items:

- Establish bylaws defining structure, membership roles, and operations.
- Establish working groups to explore organizational and operational optimization of MWC.

Strategy 3: Increase internal communication activities.

Action Items:

- Publish a biannual newsletter with updates on activities, accomplishments, and opportunities.
- Launch an online reporting system for grants, publications, student milestones, and related outcomes.
- Streamline faculty meetings to focus on updates from working groups.

Metrics of Success:

- Number of faculty and advisory committee members participating in MWC activities.

- Percent of faculty and advisory committee members contributing to newsletters and annual reports.

PRIORITY 2

EXPAND EDUCATION & WORKFORCE DEVELOPMENT

Strategy 1: Develop professional training resources.

Action Items:

- Survey agencies and stakeholders to identify professional training needs in water-related fields.
- Form a working group to propose courses and resources that meet those needs.

Strategy 2: Develop cross-college educational programming.

Action Items:

- Form a working group to survey water-related courses, identify gaps and opportunities, and draft a proposal for a graduate water-resources certificate program.

Metrics of Success:

- Students and professionals trained.
- Completed certifications.
- Number of professional organizations served.

PRIORITY 3

EXPAND & ENSURE CONTINUITY OF FUNDING

Strategy 1: Target urgent and emerging research topics.

Action Items:

- Survey MWC members and advisory committee representatives, connect with federal agencies, and engage with professional organizations to identify urgent and emerging research needs.
- Form working groups to explore funding opportunities and develop proposals in key research areas.

Strategy 2: Diversify funding portfolio.

Action Items:

- Pursue state appropriations and contracts by strengthening agency partnerships.
- Form a working group to identify private and foundation funding.
- Use MWC resources to build member-industry connections.
- Coordinate with the advisory committee to engage state and national commodity checkoff programs.
- Seek funding opportunities within existing University of Missouri programs.

Strategy 3: Facilitate and enhance collaboration.

Action Items:

- Host biannual networking events and additional collaboration workshops as needed to develop teams competitive for large (>\$1M) grants.

Metrics of Success:

- Number of proposals submitted.
- Number of funding organizations.
- Amount of funding awarded.
- Number of publications.

PRIORITY 4

ENHANCE EXTERNAL COMMUNICATION & VISIBILITY

Strategy 1: Upgrade website and social media presence.

Action Items:

- Update the website to reflect current projects, membership, mission, and provide access to reports and accomplishments.
- Regularly update online platforms with news, events, and water science content via the website, LinkedIn, or Facebook.
- Collaborate with MU marketing to create visuals and templates for digital communication.

Strategy 2: Develop water science expertise portal.

Action Items:

- Create a web-based database of members and partners with expertise and availability for collaboration, interviews, and consultations.

Strategy 3: Expand community presence.

Action Items:

- Recruit an MU Extension faculty liaison to help connect the MWC with rural communities.
- Collaborate with MU Journalism to assess content needs and best distribution platforms.
- Participate in rural events, leveraging extension activities and advisory networks.
- Host a statewide Missouri Water Conference to showcase research and innovation.

Metrics of Success:

- Number of interview requests and public news articles.
- Number of attendees at community events and conferences.
- Website traffic and downloads.

Acknowledgements

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