Missouri Wetland Program Plan

2023 – 2028

Marsh Wetlands along the Missouri River Source: USGS

Prepared by:

Missouri Department of Natural Resources

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Introduction

Missouri's wetlands are as diverse as the benefits they provide. They occur as marshes along the major rivers or as tiny fens in the rugged Ozark hills. Tracts of bottomland forests are widespread and scrub-shrub swamps can be found along certain Missouri streams. Economic, environmental, and social benefits of wetlands provide flood water retention, water quality improvement, sediment retention, and wildlife habitat. Wetlands can provide places to enjoy natural settings for plants and animals adapted to these unique conditions. Wetlands also provide recreational areas for bird watching, photography, and hunting. Unfortunately, wetlands are not as numerous as they were before settlement of the country. Most wetlands in Missouri have been drained or filled. The remaining wetlands in Missouri occur both on public and private lands. Sometimes little is known about the functions that occur in these unique ecosystems. Many times they face the threat of destruction by filling or draining due to urbanization, construction, and agriculture making it important to promote the further understanding and protection of wetlands.

Those persons concerned with managing and protecting wetland resources are also diverse. Federal and state agencies, academia, and private interests are all involved in protecting, managing, and studying Missouri's wetland resources. Some of these agencies regulate impacts to wetlands to protect habitats and aquatic resource functions through avoidance, minimization, and mitigation of permanent impacts. Universities and other agencies help monitor and promote scientific knowledge about wetlands and their rare or endangered inhabitants. Other entities, both private and governmental, provide incentives and assistance for restoring wetlands.

The Department of Natural Resources prepared this plan pursuant to the U.S. Environmental Protection Agency's Wetland Program Development Grant. This grant assists state, tribal, local government agencies and interstate/intertribal entities in building programs to protect, manage and restore wetlands. The goal of this document is to provide a coherent and concise collection of wetland education, management, monitoring, restoration, and protection activities planned for the State of Missouri. This document addresses the U.S. Environmental Protection Agency's (EPA) four core elements of a state wetland program plan and an additional core element titled Education. The core elements of this plan include: 1) Monitoring and Assessment; 2) Regulation; 3) Voluntary Restoration and Protection; 4) Water Quality Standards; and 5) Education. Outlined below are the actions and timeframes provided by those entities that have contributed to the Missouri Wetland Program Plan.

Wetland Action Plan Timeframe

This wetland program plan includes the years 2023-2028 with reviews and updates anticipated.

Contacts/Agency

Questions or comments on this Wetland Program Plan may be sent to the Missouri Department of Natural Resources' Water Protection Program by mail at P.O. Box 176, 1101 Riverside Drive, Jefferson City, MO 65102, by phone at 800-361-4827, or email at WQS@dnr.mo.gov.

Planning Process

Missouri has been collaborating with EPA, Region 7 since 1988 on wetland research and protection projects. In recent years, EPA has been approaching states on the need for more focus and better use of resources to enhance wetland protection and restoration efforts. EPA, Region 7 is providing the department and other resource agencies support in developing a state action plan to assist in focusing wetland resources and increasing collaboration amongst public and private wetland resource agencies. The State of Missouri has no specific wetland protection statutes, nor does it have state-specific permitting rules or penalties to control or promote protection or restoration of wetland activities. However, wetland protection and restoration activities have been achieved by resource agencies and private entities on their respective properties. Additionally, the U.S. Department of Agriculture-Natural Resource Conservation Service's (USDA-NRCS) conservation programs as well as other programs throughout the state have had success in protecting and restoring many acres of frequently flooded wetlands.

The department has sought wetland protection and enhancement through research and education and actively seeks collaborators to promote wetland science and education.

This plan was made possible by the cooperation and consultation of the contributors listed below.

List of Contributors

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List of Acronyms and Abbreviations

ACEP	Agricultural Conservation Easement Program
ACWA	Association of Clean Water Administrators
ASFM	Association of State Floodplain Managers
BDA	Beaver Dam Analogs
BRAT	Beaver Restoration Assessment Tool
CAFNR	(MU) College of Agriculture, Food and Natural Resources
CCS	Comprehensive Conservation Strategy
CHI	Community Health Indices
DU	Ducks Unlimited
EDH	Elevation Derived Hydrography
EPA	U.S. Environmental Protection Agency
ESP	Environmental Services Program
EWPP – FPE	Emergency Watershed Protection Program – Floodplain Easement Option
GIS	Geographic Information System
IBI	Index of Biological Integrity
IRT	Interagency Review Team
LLF	Land Learning Foundation
MARC	Mid-America Regional Council
MCHF	Missouri Conservation Heritage Foundation
MDC	Missouri Department of Conservation
MoDOT	Missouri Department of Transportation
MSTU	Missouri Stream Teams United
MU	University of Missouri – Columbia
MWI	Missouri Waters Initiative
NAWM	National Association of Wetland Managers
NGO	Non-Governmental Organization

NHD	National Hydrography Dataset
NPS	Nonpoint Source
NPSMP	Nonpoint Source Management Plan
NRCS	Natural Resources Conservation Service
NRDAR	Natural Resource Damage Assessment and Restoration
NWI	National Wetland Inventory
PAL	Post-Assisted Log Structures
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SWCP	Soil and Water Conservation Program
TMDL	Total Maximum Daily Load
TNC	The Nature Conservancy
UCM	University of Central Missouri
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WRE(P)	Wetland Reserve Easement (Program)
WRP	Wetland Reserve Program

Core Element: Monitoring and Assessment

Goal: Develop a monitoring and assessment strategy that provides state resource managers with information to conserve and promote wetland resources in Missouri.

Action (a): Identify program decisions and long-term environmental outcomes that will benefit from a wetlands monitoring and assessment program.						
Activity	2023	2024	2025	2026	2027	2028
The department's Water Protection Program will continue to maintain a webpage dedicated to the promotion of wetland resources, wetland research, and collaborative projects.	X	X	X	X	X	X
The department participates in National Association of Wetland Managers (NAWM) educational sessions, and other related webinars to share wetland information and to support EPA's mission to promote and protect wetland resources.	X	X	X	X	X	X
The department's Water Resources Center participates in planning and sampling for EPA's National Wetland Condition Assessment [Section 106(b) of the Clean Water Act].				X		
Missouri Department of Conservation (MDC) and other federal, state, and local agencies will systematically work on identified watersheds to incrementally develop an elevation derived hydrography (EDH) dataset to update and replace the National Hydrography Dataset (NHD) that has become a static product. This will be incorporated in the United States Geological Survey 3D Hydrography Program (USGS 3DHP) and be tied into the National Map of geospatial datasets used for flood modeling, natural resource planning, and risk assessment.	X	X	X	X	X	X
MDC and other federal, state, and local agencies will systematically work on identified watersheds to incrementally develop an update to the National Wetlands Inventory (NWI) following the development of EDH to increase data handling efficiencies. This update will create a new baseline in the distribution and type of wetlands that exist in Missouri, which is a current information gap.	X	X	X	X	X	X

MDC will use the developed EDH and NWI layers in conjunction with other geospatial data to incrementally run the Beaver Restoration Assessment Tool (BRAT) to assess the potential opportunities for beaver as a stream conservation and restoration agent, along with potential risks and constraints by considering existing resources and proximity to infrastructure.		X	X	X	X	
MDC, University of Missouri (MU), and other federal and state partners will work to develop community health indices (CHI) of different wetland natural communities. This will include karst fens, prairie swales, marshes, and bottomland forests.	X	X	X	X	X	
USGS, in cooperation with the department, MDC, and other federal, state, and local agencies will continue to monitor streamflow conditions throughout Missouri that influence wetland hydrology and provide access to real-time hydrologic data.	X	X	X	X	X	X

Action (b): Cooperation between state agencies and universities on joint research to advance wetland knowledge.						
Activity	2023	2024	2025	2026	2027	2028
The department and MU will continue to collaborate on the ways in which Geographic Information System (GIS) analyses can provide solutions for wetland protection and enhancement, and account for their role in flood mitigation —including connectivity, water quality, and the identification of sites that warrant special protection or may be most suitable as mitigation locations.	X	X	X	X	X	X
The department and MU researchers will continue to explore different research projects to advance knowledge of wetland conditions in Missouri.	X	X	X	X	X	X
MDC and university researchers will continue to explore different research projects to advance knowledge of the relationships between wetland habitats, the role they play for wetland-dependent species, and people.	X	X	X	X	X	X
MU College of Agriculture, Food and Natural Resources (CAFNR) will partner with MDC and the Missouri Conservation Heritage Foundation (MCHF) to launch the Johnny Morris Institute of Fisheries, Wetlands and Aquatic Systems. The	X	X	X	X	X	X

Institute will support cultivating conservation professionals through workforce development, research and public policy.						

Action (c): Urban planning efforts to restore and conserve wetlands.						
Activity	2023	2024	2025	2026	2027	2028
In the greater Kansas City metropolitan area (counties of Cass, Clay, Jackson, Platte and Ray), the Mid-America Regional Council (MARC) will support an update of high-resolution land cover data to continue to catalyze the following actions: establish natural area and corridor targets for restoration and conservation prioritization, identify strategic transportation mitigation opportunities, assess ecosystem services provided by existing and enhanced green infrastructure, locate urban areas underserved by green infrastructure and conduct impervious cover assessments. MARC will assist communities to access resources to integrate green infrastructure in their revitalization efforts, in part through urban heat island reduction program and related climate resilience efforts.	X	X	X	X	X	X
MARC will encourage regional planning efforts that lead to protection and restoration of riparian and wetland acres, including development and implementation of green infrastructure plans, stream setback ordinances and investments in trails and greenways. Additionally, MARC is leading regional revisions and updates to stormwater management engineering standards and the best management practices manual to protect water quality.	X	X	X	X	X	X
MDC will advocate, provide guidance, and assist where possible for private landowners, counties, and municipalities to utilize nature-based solutions to improve water quality, improve wetland diversity, and enhance quality of life within urban areas. This may include an array of stormwater management solutions or engineered biofilters, such as blueways, detention ponds, water treatment impoundments, propagation and management of shoreline plants in pond or lake fringes, or deployment and maintenance of floating wetland islands.	X	X	X	X	X	X
The Nature Conservancy (TNC) will work to expand successful urban programs that use nature-based solutions for stormwater management, such as green schoolyard conversions.	X	X	X	X	X	X

TNC will identify opportunities to use existing floodplain planning tools, partner coordination at the watershed level, and existing studies and plans to support floodplain and wetland improvements in the Meramec River watershed.	X	X	X	X	X	X

Core Element: Regulation

Goal: To preserve, enhance and restore the quantity and quality of Missouri's Wetlands while avoiding, minimizing and mitigating for impacts.

Action (a): Improve 401 Water Quality Certification regulations, policies, and guidance.						
Activity	2023	2024	2025	2026	2027	2028
The department will review requests for Clean Water Act Section 401 Water Quality Certifications.	X	X	X	X	X	X
The department will review and/or update the Administrative Rule for Water Quality Certifications at Title 10, Division 20, Chapter 6.060 of Missouri's Code of State Regulation per direction from the Missouri Clean Water Commission (https://www.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-6.pdf).		X	X	X	X	X
Agency coordination with the U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), EPA, and MDC through the public notice process of Clean Water Act Section 404 Department of the Army Permit applications and Section 401 Water Quality Certification requests, pre-application, and post-public comment period site visits, and/or partnering meetings.	X	X	X	X	X	X
Establish a memorandum of agreement between USACE and the department, which will institute a uniform protocol for processing Clean Water Act Section 404 Department of the Army Permits and Section 401 Water Quality Certifications.		X	X	X	X	X
The department will actively participate with each USACE District and other partners, such as MDC and USFWS, during the Nationwide Permit renewal process, including development of nationwide and regional conditions. The Nationwide Permits were last approved March 15, 2021, and February 25, 2022.			X	X	X	

The department will develop appropriate conditions for pre-certifying certain Nationwide Permits through a public participation process that includes at least a public comment period.			X	X	X	
Coordinate authorizations for gravel mining permitting variance requests through USACE, USFWS, MDC, and department programs. Also help operators avoid wetland disturbance for access roads and staging areas.	X	X	X	X	X	X
The department will create and manage a Section 401 webpage informing the public of permitting and certification requirements, instructions/guidance/educational documents, information on compensatory stream and wetland mitigation, and access to relevant statutes/regulations.	X	X	X	X	X	X

Action (b): Provide education and outreach about wetland protection and regulatory process.						
Activity	2023	2024	2025	2026	2027	2028
Citizen education on wetland importance and the Section 401 process (the department).	X	X	X	X	X	X
Update the department's website for online information about the Section 401 process.	X	X	X	X	X	X
Make educational brochure with summary points outlining the Section 401 process for handouts at meetings and conferences (the department).	X	X	X	X	X	X

Action (c): Provide wetland protection, mitigation and restoration.						
Activity	2023	2024	2025	2026	2027	2028
The 2018 Farm Bill (The Agriculture Improvement Act of 2018) kept certain authorizations from the 1985 Food Security Act intact involving the "Swampbuster" provision of which provides guidance and policy to the USDA. This provision discouraged the conversion of wetlands into non-wetland areas. The "Swampbuster" provision denied federal farm program benefits to producers who converted wetlands to non-wetland areas after December 23, 1985. Later Farm Bills strengthen this provision by making violators ineligible for farm program benefits.	X					

The department supports Natural Resource Damage Assessment and Restoration (NRDAR) wetland restoration activities.	X	X	X	X	X	X
The department's NRDAR program along with USFWS support the Land Learning Foundation (LLF), TNC, Midwest Waters Initiative (MWI), Riverlaw.org, and Missouri Stream Teams United (MSTU) in implementing streambank stabilization and wetland restoration at the confluence of Hickory and Shoal Creeks (https://shoalcreekwatershed.org).	X	X	X	X	X	X
The Missouri Department of Transportation (MoDOT) manages created, restored, or enhanced wetlands that serve as mitigation for roadway projects. MoDOT currently has five wetland banks, as well as many other smaller site-specific wetland mitigation areas. These wetland banks/sites are minimally managed and may be advertised for sale, once they have met the necessary regulatory monitoring requirements and have the proper legal instruments recorded for protection.	X	X	X	X	X	X
MoDOT contracts with commercial mitigation providers to provide permittee-responsible mitigation. MoDOT will work with these commercial providers to ensure that sites are designed and placed to maximize ecological function while meeting regulatory requirements to offset adverse effects to wetlands	X	X	X	X	X	X

Action (d): Improve the quantity and quality of compensatory wetland mitigation sites as a member of the Interagency Review Team (IRT).						
Activity	2023	2024	2025	2026	2027	2028
The department will participate in, and facilitate, the review and approval of wetland mitigation banking and in-lieu fee program instruments; including, review and approval of new wetland mitigation plans for each additional site once instrument is established.	X	X	X	X	X	X
The department will participate in the review of annual monitoring reports, credit releases requests, mitigation plan modifications, and other documentation	X	X	X	X	X	X

The department will participate in IRT discussions and aid in revisions of the Missouri Stream Mitigation Method, which establishes procedures for calculating impacts (debits) and improvements (credits) for both riparian and in-stream work. Most recent version approved May 29, 2013.	X	X	X	X	X	
The department will participate in IRT discussions and aid in development of the Missouri Wetland Mitigation Method, which establishes procedures for calculating impacts (debits) and improvements (credits) for both wetland and buffer work. Most recent version approved November 17, 2017.	X	X	X	X	X	X
The department will participate in IRT discussions and aid in development of the Mitigation Banking Instrument Outline for Proposed Mitigation Banks Within the State of Missouri (February 2015), which establishes procedures and expectations to assist prospective sponsors in preparing and providing adequate documentation required in the 4-phase approach to establishing a mitigation banking and in-lieu fee program instrument and mitigation site plan.		X	X	X	X	X

Core Element: Voluntary Wetland Restoration and Protection

Goals: Restore, increase, maintain, and protect wetland ecosystems by voluntary means.

Action (a): The department will work with state and federal agencies to advocate restoration projects and voluntary protection.						
Activity						2028
The department will fund eligible Section 319 Nonpoint Source (§319 NPS) Program grant projects for wetlands, floodplain, and riparian needs. Missouri's 2020-2025 Nonpoint Source Management Plan (NPSMP) includes prioritization of wetland projects as a best management practice for reducing NPS water pollution and improving aquatic life use. Similarly, dam/stream obstruction, removal, and riparian protection and restoration are among the NPSMP top	X	X	X	X	X	X

priorities. Preference may be provided to priority watersheds and NPS impaired waters or total maximum daily loads (TMDLs). Funding eligibility of projects will be determined by federal guidance, the Clean Water Act, the Missouri NPSMPS, and department priorities. Wetland protection and restoration are recognized as priorities of the §319 NPS Program due to their multiple environmental and ecological benefits, including substantial NPS pollutant load reduction potential.						
The department will partner with Natural Resources Conservation Service (NRCS) to promote the Mississippi River Basin Healthy Watershed Initiative (MRBI) and the National Water Quality Initiative (NWQI) coordination effort with other federal and state agencies, Soil and Water Conservation Districts, and local citizens to prioritize and focus financial assistance in selected watersheds with the goal of reducing nitrogen, phosphorous, sediment, and pathogen contributions from agricultural land.	X	X	X	X	X	X
The department will help facilitate EPA's Five Star and Urban Waters Restoration Grant Program for communities and municipalities seeking to restore wetland, floodplain, and riparian areas.	X	X	X	X	X	X
Educational activities that promote §319 projects (the department). Efforts in the §319 grants help to educate professionals and local citizens on best management practices they can implement to help improve the water quality in their watershed. The §319 projects vary on project focus and watershed location so educational efforts are occurring throughout the state.	X	X	X	X	X	X
The department's Division of State Parks continues to protect and manage wetlands located in all state parks.	X	X	X	X	X	X
The department's §319 NPS Program continues to support efforts in Pershing State Park to help clean out logs and sediment in Locust Creek which will decrease impacts from sedimentation on the prairie wetlands.	X	X				
The department's §319 NPS Program works with and supports various watershed groups and municipalities to implement wetland programs including: Deer Creek Watershed Alliance planning the restoration of a constructed wetland; and Brentwood Bound, a project of the city of Brentwood, is implementing restoration of a wetland at the confluence of Deer and Black creeks.	X	X	X			

The department's Soil and Water Conservation Program (SWCP) partners with MDC to develop a cost-share practice to construct wetland treatment cells for agricultural runoff or provide buffer incentives to protect sensitive wetland areas.	X	X				
The department partners with USACE and MDC on the Grand River Feasibility Study to increase quality and quantity of bottomland forest, in-stream aquatic habitat, wet prairie, and other wetlands in the Lower Grand River Basin for at least the next 50 years, pending future funding.		X	X	X	X	X
MDC will advocate for the use wetlands to benefit water quality within watersheds and assist where possible to integrate water management plans and use engineered wetlands and engineered biofilters (rain gardens, stormwater detention basins, etc.) to enhance processes that input, transport, assimilate, and output organic matter, sediments, and nutrients, within stream-floodplain-watershed systems.	X	X	X	X	X	X
MDC will work to maintain or expand riparian corridors based upon Watershed and Stream Management Guidelines for Land and Waters Managed by MDC	X	X	X	X	X	X
MDC will explore opportunities to use beaver dam analogs (BDAs) (https://lowtechpbr.restoration.usu.edu/resources/recipes/Beaver/bda.html) or post-assisted log structures (PALs) (https://lowtechpbr.restoration.usu.edu/resources/recipes/Wood/pals.html) to increase ecological benefits to degraded streams within upland drainage ways by increasing water table height, saturating adjacent soils, slowing water velocity, increasing biotic diversity, increasing channel complexity thereby increasing habitat, aggrading incised stream channels, and/or preventing head-cuts.	X	X	X	X	X	X

Action (b): NRCS facilitates voluntary restoration and protection of wetlands on private lands with federal funding.						
Activity	2023	2024	2025	2026	2027	2028
The 2018 Farm Bill (The Agricultural Act of 2018) rescinded the authorities for Wetland Reserve Program (WRP) and replaced the popular wetland program with the Agricultural Conservation Easement Program (ACEP). Within ACEP is a Wetland Reserve Easements program (WRE) very similar to the 2008 Farm Bill's WRP. WRE still offers enrollment of lands into permanent and 30-year easements.	X	X	X	X	X	X

WRE has changed from being an "acreage based program" with an acreage base not to exceed to a "dollars based program" with $2.03 billion available to secure easements from 2018-2023. WRE is a volunteer program where private landowners offer property they own for the purpose of protecting, restoring, and enhancing wetlands. As of October 2023, there are 1,142 easements totaling over 162,090 acres in Missouri; these are a combination of ACEP–WRE and Emergency Watershed Protection Program – Floodplain Easement Option (EWPP–FPE) easements. Typically, restoration occurs on previously farmed fields where water holding already exists naturally. Infrastructure is established to enhance these areas and native seed banks are used to fully restore these wetlands back to their original state. This work will continue, beyond the currently authorized activities set to expire in 2023, if future farm bills include and/or reauthorize this or similar programs. Initiated in 2011, an updated policy (Circular 21) was developed that initiated a monitoring effort on all easements nationwide. The condition of each easement is to be reported annually. Each easement is checked to see if the terms and conditions of the warranty easement deed are being upheld either on-site or by remote monitoring. Biological aspects of vegetative progression and habitats created for threatened and endangered species are reviewed during the monitoring process.						
MDC will work with NRCS in implementing the WRE program.	X	X	X	X	X	X

Action (c): MDC plans wetland restoration and enhancement on state managed lands.						
Activity	2023	2024	2025	2026	2027	2028
MDC will continue to manage wetland habitats to provide diverse hydrologic regimes, floristic quality, and plant structure within and across years throughout Missouri, depending upon infrastructure capabilities, degree of intact hydrologic function/connectivity, and public use emphasis.	X	X	X	X	X	X

MDC will explore opportunities to restore wetlands across Missouri to meet the life history needs of wetland-dependent plants and animals, support a variety of recreational experiences, and provide key ecological services beneficial to society.						
MDC will explore opportunities to modify wetland infrastructure for flood resiliency and support partner efforts to restore stream-floodplain-watershed system functions that lessen localized flood damage to communities, homes, farms, and other infrastructure.	X	X	X	X	X	X

Action (d): Cooperative efforts between government and private entities for wetland enhancement and restoration.						
Activity	2023	2024	2025	2026	2027	2028
Mississippi and Missouri Rivers Confluence Focus Area – Ducks Unlimited (DU) Easement Program to protect wetlands on private lands.	X					
Missouri Agricultural Wetlands Initiative (MAWI) partnership between USDA, MDC, DU, and USFWS that promotes compatibility between wetlands and agriculture.	X	X	X	X	X	X
DU plans for future wetland restoration work at Swan Lake National Wildlife Refuge, Schell Osage Conservation Area, and Truman Reservoir lands.	X	X				
DU and USFWS have partnered to install pumps to bring a consistent water supply to portions of Loess Bluffs National Wildlife Refuge. The next phase involves construction of a berm across the north side of Eagle Pool.	X					
MDC will strategically coordinate wetland conservation with partners using the Comprehensive Conservation Strategy (CCS) framework. This tool will help communicate with partners and implement landscape-scale conservation, by maintaining, enhancing, and restoring healthy natural systems, while not overlooking the value of site-level conservation.	X	X	X	X	X	X
The department, MDC, USACE, and USFWS will explore opportunities to leverage existing programs and ongoing study efforts along the Missouri and Mississippi rivers (Upper Mississippi River Restoration Program, Navigation and Ecosystem Sustainability Program, Lower Missouri River Flood Risk and Resiliency Study) to promote wetland enhancement, rehabilitation, and restoration.	X	X	X	X	X	X

Core Element: Water Quality Standards for Wetlands

Goals: Improve and protect the water quality of Missouri wetlands in accordance with the Clean Water Act and the department's Water Protection Program recommendations.

Action (a): The department works to develop a classification and water quality standards system.						
Activity	2023	2024	2025	2026	2027	2028
Establish reference wetlands for Missouri:	X	X	X	X	X	X
-Identify candidate reference wetlands.	X	X				
-Develop habitat metrics for wetlands.		X	X			
-Develop methodology for determining reference wetland conditions.		X	X			
-Begin establishment of statewide reference wetland dataset.			X	X	X	X
Develop a macroinvertebrate index of biological integrity (IBI) for wetlands, which is intended to follow the collection of water quality and biological data, and the identification of reference wetlands for Missouri. The IBI quantifies the invertebrate community with respect to its overall tolerance to pollution by summing the tolerances of individual taxon. The goal of establishing an IBI is to provide a tool for characterizing wetland function and condition, and to ultimately establish numeric water quality criteria.				X	X	X
The department's Environmental Services Program (ESP) will collect wetland-specific water quality data to aid in the establishment of water quality standards.	X	X	X	X	X	X
Establish and revise designated uses for wetland water quality.				X	X	X
Develop wetland-specific narrative criteria.				X	X	X
Develop wetland-specific numeric criteria.				X	X	X
Develop wetland classification system to distinguish wetland type for assignment of wetland designated uses.				X	X	X
Develop wetland anti-degradation policy.				X	X	X
Classify wetlands that meet the definition as Class W.				X	X	X

Resource agency, state/federal/local, and non-governmental organization (NGO) partners will participate in the triennial review of Water Quality Standards rule.		X			X	

Core Element: Education

Goal: Develop educational strategies that provide state resource managers and citizens with information to conserve and promote wetland resources in Missouri.

Action (a): Participate in meetings, workshops and outreach activities with interested parties to promote wetland resources.						
Activity	2023	2024	2025	2026	2027	2028
The department participates in webinars hosted by NAWM, NRCS, TNC, USFWS, and other entities for continuing education and training in wetland sciences and issues.	X	X	X	X	X	X
Various agencies may provide training on regulatory topics (i.e., delineation, stream geomorphology).	X	X	X	X	X	X
Resource specific training through EPA, Association of Clean Water Administrators (ACWA), Association of State Floodplain Managers (ASFM), NAWM, universities and other resource organizations by webinar and classroom (the department and MDC).	X	X	X	X	X	X
Conduct wetland education and outreach as part of the Missouri Wetland Program Plan development process and grant.	X	X	X			
MDC will work to maintain or increase the number of Missouri citizens and communities that have a strong connection to wetlands using outreach and education programs, media, and publications. It will also look to explore new and non-traditional activities to connect with other groups. This could include, but is not limited to, photography, kayaking, wild foraging, etc.	X	X	X	X	X	X
MoDOT Environmental Specialists offer Introduction to Clean Water Act training to employees twice per year. This training provides an overview of regulations related to wetlands, as well as why wetlands are important for biodiversity, recreation, and other functional benefits. MoDOT Environmental Specialists also	X	X	X	X	X	X

serve as guest lecturers for classes at MU, other colleges and universities in the state, Master Naturalists, and occasionally K-12 classes where the importance of wetlands is presented to students.

Additional Resources

Missouri Department of Natural Resources https://dnr.mo.gov/water/hows-water/state/wetlands and https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/section-401-water-quality

Core Elements of an Effective State and Tribal Wetlands Program Framework, U.S. Environmental Protection Agency webpage https://www.epa.gov/wetlands/developing-state-or-tribal-wetland-program-plan

Wetland Program Plans, National Association of Wetland Managers webpage https://www.nawm.org/wetland-programs/wetland-program-plans

Wetland Program Plans Handbook, National Association of Wetland Managers webpage https://www.nawm.org/pdf_lib/wetland_program_plans_handbook.pdf