

# Minnesota Wetland Program Plan:

[Prepared in response to U.S EPA Guidance]

Version 1.0: 2012-2017



May 2012

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With Assistance from:  
The Minnesota Interagency Wetland Group

wq-bwm6-07



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# Minnesota Wetland Program Plan

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**Scope and Purpose:** In November 2009 the U.S. Environmental Protection Agency (USEPA) requested states and tribal governments to voluntarily develop Wetland Program Plans (WPPs). The intent of the wetland program plans is to advance the conservation and protection of wetlands and their associated services and benefits by defining priority state and regional wetland program directions. This will aid USEPA in reviewing wetland program grant proposals and assure that funding is directed toward priority projects. USEPA requested state and tribal wetland program managers to use the USEPA Core Element Framework for developing their wetland program plans.

This WPP provides the Minnesota state natural resource agencies an opportunity to review and forecast future plans for wetland conservation and management in Minnesota. Many Minnesota wetland programs are delivered in partnership with Minnesota local governments, federal agencies and many nongovernmental organizations. However the intent of this plan focuses on Minnesota state natural resource agency actions. Regulatory program components are included in this plan however; the plan is not intended to initiate new wetland regulatory efforts. Rather, it is a multipurpose plan to improve Minnesota's wetland conservation programs. The plan promotes new and enhanced interagency cooperation on several issues. Local units of government play an important role in wetland management, restoration, mitigation and rule implementation in Minnesota. Counties, soil and water conservation districts and watershed districts work with state agencies to meet regional and statewide wetland conservation and management goals. Wetland planning on a watershed scale is one component of this effort and the state agencies will continue to encourage local entities to further develop local and regional wetland planning goals and objectives.

**Background:** Since the beginning of statehood, wetlands have been a resource in transition. Across the state the wetland resource varies greatly in extent, complexity and history. Consequently the state faces different regional challenges with respect to wetlands. For example in northeastern Minnesota 80 percent or greater of the historic wetlands are present today and thus protection or at least wise management is the primary need. In northwestern Minnesota in the Red River valley where greater than 50 percent of the historical wetlands have been developed or drained the major concern is reducing the frequency and effects from floods. Restoration of wetlands in this region is routinely discussed in the context of flood damage reductions. In southern Minnesota, greater than 50 percent and often significantly more of the historic wetlands have been drained, or developed. In this region the need for targeted restoration of wetland and upland complexes bring the promise of improved water quality and wildlife habitat.

Throughout Minnesota the wetland landscape will continue to change. Directing the types of wetland changes and how they occur into the future is an important reason for writing a wetland program plan. Several effective wetland protection, maintenance and restoration (conservation) programs already exist in Minnesota, and are consistent with the USEPA Core Elements Framework. Many of these programs are central to Minnesota's ongoing efforts to protect wetlands and they are anticipated to continue, to the extent allowed by available resources. On the other hand, budget issues are anticipated to be a serious impediment to new or expanding wetland conservation efforts for the foreseeable future. Consequently, Minnesota's WPP emphasizes continuation of existing programs, but in ways that are more efficient and effective, particularly related to maximizing the benefits of wetland restoration and protection efforts.

In Minnesota, the responsibility for wetland conservation delivery at the state level is shared among several agencies, thus development and implementation of this WPP requires support and approval from multiple state agencies. Since the early 1990s to the present, the Minnesota Interagency Wetland Group (IWG) has been an effective coordination and ad hoc wetland policy review forum, principally among state and federal agency partners. Significant input into the content of the WPP was provided by

the IWG as well as review and comments on drafts of the document. This plan was not intended to be a revision or supplement to Minnesota's Wetland Conservation Plan (MWCP 1997), rather a recap of current wetland program efforts and potential areas of improvement. The plan was prepared for submittal to USEPA, and the contents benefit greatly from prior statewide and regional wetland planning efforts, including the MWCP; the Red River Valley Flood Damage Reduction Mediation Agreement (1998); the Minnesota Wetland Assessment, Monitoring, and Mapping Strategy (Gernes and Norris 2006); Great Lakes (2008); Wetlands Restoration Strategy (BWSR 2009); and the Northeast Minnesota Wetland Mitigation Inventory and Assessment Report (Barr 2009). The planning horizon of the WPP is six years (2012–2017), which is the maximum period recommended by USEPA.

## **Minnesota's Wetland Program Plan Goal/Vision**

*To achieve no net loss and increase the quantity, quality and biological diversity of Minnesota's wetlands by continuing effective wetland protection and conservation program implementation while emphasizing regional strategic restoration, protection and enhancement of wetland functions.*

# Existing Program Elements – Based on United States Environmental Protection Agency Core Elements Framework

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In developing Wetland Program Plans USEPA requested states and tribes to utilize the USEPA Core Elements framework. This framework defines the four broad elements of a comprehensive wetland program. The following is a brief review of existing Minnesota wetland conservation actions and programs organized by the four components of the USEPA Core Elements Framework:

1. *monitoring and assessment*
2. *regulatory activities including 401 certification*
3. *voluntary restoration and protection*
4. *water quality standards for wetlands*

## Core Element 1: Monitoring and Assessment

- **Updating the National Wetland Inventory (NWI) in Minnesota:** At a landscape scale, confidently and consistently determining where wetlands are or are not can be challenging, particularly since the current statewide data are nearly 30 years old. With the widespread use of geographic information systems the state wetland data layer is routinely used for planning, permitting, land acquisition and many other land management activities. The Minnesota Department of Natural Resources (DNR) is leading an effort to update the inventory of wetlands in the state (NWI update). The updated inventory will be based on a variety of remote sensing data, including spring high resolution aerial photography acquired specifically for this project, other aerial photography, LiDAR, radar, soils, and local wetland inventories. Imagery interpretation and (digital) map production is being done under contract by private vendors. The final product will include Cowardin et al. (1992) wetland attribute classification, modified HGM (Tiner 2003; LLWW attributes), and Eggers and Reed (1997) wetland plant community classification attributes. The update is being done in phases and is anticipated to be completed statewide by 2020. Map production is currently underway for the 13 counties encompassing the Twin Cities Metro Area. For additional information, visit: [http://www.dnr.state.mn.us/eco/wetlands/nwi\\_proj.html](http://www.dnr.state.mn.us/eco/wetlands/nwi_proj.html).

Funding to update Minnesota's wetland inventory, thus far, has come from the Minnesota Environmental Trust Fund as recommended by the Legislative Citizens Commission on Minnesota Resources.

- **Wetland status and trends monitoring:** Released in 2006, the Minnesota Comprehensive Wetland Assessment, Monitoring, and Mapping Strategy was the result of an examination of existing efforts to assess compliance with Minnesota's no net loss policy. The evaluation found that wetland status and trends data were inadequate and recommended that wetland monitoring efforts be improved. Consequently, Minnesota initiated a comprehensive statewide wetland survey program in 2006 to assess status and trends in wetland quantity and quality. The *quantity* survey employs 4,990 randomly located one square mile sample plots which are sampled in repeated three-year sampling cycles using remote imagery interpretation to detect trends in wetland area overtime. Monitoring reports are prepared following each three-year sampling cycle. For more detail visit: [http://files.dnr.state.mn.us/eco/wetlands/wetland\\_monitoring.pdf](http://files.dnr.state.mn.us/eco/wetlands/wetland_monitoring.pdf).

Statewide wetland *quality* monitoring employs on-the-ground field data collected from randomly selected wetlands identified from the wetland population within the one square mile wetland quantity plots. The wetland quality assessment cycle occurs on a five-year cycle in parallel with the

EPA National Aquatic Resource Assessment Program for wetlands. Minnesota resource agencies are committed to maintaining both statewide wetland monitoring surveys with the intent that they will yield the best statewide and regional estimate of wetland quantity and quality over time. The most recent status report on wetland quantity can be found at:

[http://www.dnr.state.mn.us/eco/wetlands/wstm\\_prog.html](http://www.dnr.state.mn.us/eco/wetlands/wstm_prog.html). The MPCA expects to publish in May 2012, the first statewide status report on Minnesota depressional wetland quality.

## Core Element 2: Regulatory Activities; Including 401 Certification

- **Wetland Conservation Act:** Since 1991 the Minnesota Wetland Conservation Act (WCA) has regulated draining, filling and excavation in most wetlands throughout the state, including most isolated wetlands. The WCA requires that impacts to wetlands be avoided and minimized where possible, and requires compensatory mitigation for unavoidable impacts. The program includes exemptions for various types of small wetland impacts, and wetlands affected by certain agricultural practices. The Minnesota Board of Water and Soil Resources (BWSR) has overall administrative responsibility for the law, while local governments (counties, cities, townships, watershed districts or soil and water conservation districts) implement the WCA rules, including permitting. As administrator of the WCA the BWSR provides oversight and a variety of WCA related training.

The DNR administers WCA for all regulated metallic mineral mining activities affecting wetlands and also regulates impacts to calcareous fens under WCA authority. Enforcement of the law is primarily conducted by DNR conservation officers and may involve issuing cease-and-desist orders or wetland restoration and replacement orders. More information about the WCA is available at:

<http://www.bwsr.state.mn.us/wetlands/index.html>.

Recently BWSR has entered into a memorandum of understanding with the Minnesota State Office of the U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS) to better coordinate wetland certification determinations on agricultural lands in Minnesota. This MOU promises to provide improved coordination of state and federal wetland regulatory requirements, if any, for farmers considering agricultural drainage system improvements. Related information is available at <http://www.bwsr.state.mn.us/wetlands/agbanking/>.

- **DNR Public Waters Permit Program:** The DNR Public Waters Permit Program (Minn. R. Ch 6115) regulates activities occurring below the ordinary high water level in designated public waters. Public waters generally include larger (10 acres or larger in non-municipal areas and 2.5 acres or larger in municipal areas), seasonally flooded to permanently flooded freshwater marsh-type wetlands as well as all lakes and streams. All public waters are identified on county-level maps. Public waters and WCA jurisdictions do not overlap, but between the two programs, nearly all activities occurring in wetlands/waters in Minnesota are covered by a state regulatory authority. Enforcement of the public waters program regulations is provided primarily by DNR area hydrologists and DNR conservation officers. More information about the DNR Public Waters Permit Program is available [http://www.dnr.state.mn.us/waters/watermgmt\\_section/pwpermits/index.html](http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/index.html).
- **Clean Water Act Section 404 dredge and fill:** The St. Paul District of the United States Army Corps of Engineers (USACE) administers the Section 404 program in most of Minnesota. Under Section 404 the USACE regulates discharge of dredged and fill materials in all waters that fall under Clean Water Act (CWA) jurisdiction, including non-isolated wetlands. The St. Paul District has revoked all Section 404 Nationwide Permits in Minnesota, thus the St. Paul district authorizes most Minnesota projects using Letters of Permission or a variety of general permits. Larger projects generally are required to obtain individual permits. Detailed information about the USACE regulatory program in Minnesota is available at: <http://www.mvp.usace.army.mil/regulatory/>.

- **Clean Water Act Section 401 certification:** In accordance with Section 401 of the CWA the MPCA certifies that federal permits (i.e. Section 404) are in compliance with state water quality standards (Minn. R., Ch 7050). The 401 certification is not a regulatory duplication but rather a review to assure water quality protection is met. The USACE project managers carry out enforcement actions as needed for the 404 permit authority as well as any 401 certification conditions included in the 404 permit.
- **Wetland replacement monitoring:** In order to mitigate for approved impacts to wetlands, establishment of a replacement wetland may be required. Both WCA and USACE mitigation rules require annual monitoring of all wetland replacement sites until they have been determined to be successfully established (typically five growing seasons). Annual monitoring is the responsibility of the project sponsor. Long-term monitoring is typically only required for replacement wetlands enrolled in the state's wetland bank. These wetlands are protected by a conservation easement, and the BWSR is required to conduct and report on periodic inspections in perpetuity to ensure long-term compliance with the easement and bank plan agreements. Project-specific wetlands may, in limited cases, be required to conduct long term monitoring or inspections.
- **National Pollutant Discharge Elimination System permits:** The MPCA administers permitting and enforcement actions as a delegated state program by the USEPA for the National Pollutant Discharge Elimination System (NPDES) permits. NPDES permits regulate discharge of treated wastewaters into waters of the state. Permit holders, including industrial and municipal permits are required to meet effluent limits based on state water quality standards (Minn. R. Ch 7050). Municipal and industrial discharges to wetlands are reviewed to assure the effluent limits will be protective of wetland aquatic communities. Included is a review to assure that wetlands will not be permanently inundated by the discharge water.

Construction activities larger than one acre must obtain an NPDES stormwater permit. Many construction projects drain to wetlands which are included in the construction stormwater permit as special resources and are required to install Best Management Practices (BMPs) protective of the wetland during construction activity. Similarly municipal and industrial stormwater permits also include wetlands as special resources and require BMPs to be installed to limit the impacts of stormwater discharges to wetlands.

### Core Element 3: Restoration and Protection

- **RIM, WRP and CRP conservation restoration:** In recent years Minnesota has been very successful in partnering with the US Farm Service Agency, the NRCS and private partners for wetland related conservation and restoration. The state- funded Reinvest in Minnesota (RIM) is the state's main wetland restoration program. In recent years RIM wetland projects have been combined with the NRCS Wetland Reserve Program (WRP) to restore wetlands under a 30-year WRP easement followed by a RIM Reserve perpetual easement. Following annual monitoring during the establishment phase (five years), long-term periodic monitoring is conducted through partnerships to ensure easement and program compliance. From 1986 to 2010 92,367 acres of wetland have been protected by perpetual easements using RIM and leveraging federal and private partners.

- **Red River Valley flood damage reduction projects:** The Red River Valley in northwest Minnesota has a history of significant flooding in large part due to the fact that it flows north. The southern parts of the basin frequently thaw before the northern reaches and southern melt waters get blocked by ice dams in the north. Implementation of a 1998 local, state and federal government interagency mediation agreement has resulted in some 31 flood reduction projects, many of which include wetland characteristics or components. Additional flood reduction projects, some with wetland components are under development. In April 2011 the NRCS announced funding for a special \$10 million WRP initiative for wetland restoration and upland habitat conservation on private lands in the Red River Basin to reduce and mitigate flood damage.
- **Minnesota Clean Water, Land and Legacy Amendment to the state Constitution:** In 2008 Minnesota voters approved the Clean Water, Land and Legacy constitutional amendment, which dedicated a small increase in the state sales tax to fund conservation, outdoor recreation, clean water restoration projects as well as arts and cultural heritage programs. Conservation and outdoor recreation programs receive approximately \$90 million per year from the Outdoor Heritage Fund, which is dedicated to, “restore, protect, and enhance wetlands, prairies, forests, and habitat for fish, game, and wildlife.” Similarly, the Clean Water Fund receives approximately \$90 million in dedicated funding for projects and programs to protect, enhance, and restore water quality in lakes, rivers and streams and to protect groundwater from degradation. Minnesota is well positioned to accomplish significant restoration and environmental protection outcomes, including several thousand acres of wetlands being restored and/or protected by permanent conservation easements each year. These accomplishments are largely due to the constitutionally dedicated funding through 2034, as well as a strong conservation community that is often able to match project funding. Additional information can be found at: <http://www.legacy.leg.mn/>.
- **U.S. Fish and Wildlife Partners for Fish and Wildlife:** The U.S. Fish and Wildlife Service has provided financial and technical assistance to private landowners who are interested in voluntary restoration and habitat improvements on an estimated 42,800 acres of private wetland and upland habitat in Minnesota since the program began in 1987. This has included over 12,600 wetland restorations. This program has been very successful and is expected to continue, pending continued federal funding. <http://www.privatelandownernetwork.org/yellowpages/resource.aspx?id=10442>.
- **State and federal wildlife land acquisition:** Where possible and appropriate both the Minnesota DNR and US Fish and Wildlife Service continue to acquire property through fee title acquisition and restore wetlands on these properties. Traditionally, fee title acquisition has mostly occurred in the agricultural regions of the state. Drained wetlands on these properties are frequently restored.
- **Great Lakes wetland restoration and protection:** Minnesota is one of eight states that share Great Lakes coastlines. Recognizing the vital importance of the Great Lakes to the nation, President Bush issued an executive order in 2004 directing the USEPA to develop a multi-faceted plan to restore and protect the Lakes (Great Lakes Commission 2008). At least three major subcomponents of this plan, termed the Great Lakes Regional Collaboration (GLRC), emphasized wetland protection and restoration as central to the health and integrity of the Lakes. Combined, these three plan components recommend that 1,000,000 or more acres of wetlands be restored or protected in the United States portion of the Great Lakes by 2015. The GLRC, which is the foundation for President Obama’s recent Great Lakes Restoration Initiative directed all federal agencies to support and further these goals. Minnesota participated actively in this effort and supports the goals, funding strategies and policies that maintain, restore and protect wetlands in the approximately 6,200 square miles of the state that drain to Lake Superior.



## Core Element 4: Wetland Water Quality Standards

- **Wetland water quality standards:** The MPCA in 1993 adopted narrative wetland water quality standards into state water quality standards (Minn. R. Ch 7050). The standards codified the following:
  - Defined the term “wetlands” for use in state water quality standards.
  - Confirmed that wetlands are included in the definition of “Waters of the State” within water quality standards jurisdiction.
  - Defined designated uses for wetlands by default use classes and defined narrative requirements for wetland impact avoidance, minimization and compensation actions for projects proposing to physically alter wetlands by: draining, filling, excavating and /or inundating actions. The wetland water quality standards also define narrative biological criteria for wetlands.

Water quality standards are central to guiding Minnesota’s water quality permitting authorities under the delegated NPDES permits. These include industrial and municipal discharges, stormwater discharges, confined animal feedlot operation permits, and Section 401 certification actions in response to discharge of dredge and fill material authorized under Section 404.

# Priority Wetland Program Development

Wetlands have been an important part of Minnesota’s history. As in the past, the state will face many challenges in the future that will affect the water resources and economic vitality in rural Minnesota and urban communities alike. In anticipation of tight state budgets in the next several years, maintaining existing wetland conservation program efforts remains the highest priority. To the extent additional resources, including EPA wetland grant funds, may be available, Minnesota intends to pursue wetland program development within the following areas.

***“Importance” rank should be considered to be relative designations based on existing program needs. “Implementation Strategy” presents brief program efforts for each activity through the 2012 – 2017 Wetland Program Plan period.***

## Core element 1: Monitoring and assessment

Action 1(a): Continue refining and developing Minnesota’s ability to accurately assess the status and trends in wetland quantity and quality				
Activity	Status	Importance	Potential Lead Agency	Implementation Strategy
Complete Minnesota’s wetland inventory (NWI) update	Ongoing	High	DNR	Continue ongoing work; seek funding for future phases; anticipated statewide completion in 2020
Continue statewide survey of wetland quantity and quality status and trends monitoring	Ongoing	High	DNR/MPCA	Ongoing, with quantity reports in 2012, 2015 and quality report in 2012 and 2017
Complete Rapid Floristic Quality Assessment (R-FQA) method development and implementation	Ongoing	High	MPCA	Method and criteria will be finalized in 2012 with implementation and training planned for 2012 - 2013
Improve wetland functional assessment methods -- MnRAM to better meet program needs	Ongoing w/ potential for expansion	High	BWSR/DNR	Adapt the models to account for regional variability; develop web-based interface to improve user access and allow potential cumulative data collection 2013 -2015
Major watershed targeted wetland monitoring	Proposed work	High	MPCA	Pilot work is planned for 2013 and will continue in years without random survey work. Tied to MPCA intensive watershed monitoring strategy 2013 - 2015
Develop monitoring protocols for flood damage reduction projects to assess functional capacity to assimilate nutrients and reduce flood impacts	Ongoing, w/ potential for expansion	High	MPCA	Develop monitoring plan; identify funding needs and potential sources 2012 – 2017
Develop and apply improved tools to assess wetland drainage network and hydrology	Potential new Initiative	Low	BWSR/MDA/MPCA	Develop scope of work; identify funding sources as needed 2014 -2016
Develop and implement civic engagement and/or educational materials to improve effectiveness of wetland regulatory, research and monitoring programs	New initiative	Low	All agencies	Ongoing, program effectiveness monitoring, identify funding needs and sources as necessary 2012 - 2017

**Core element 2: Regulatory activities; including 401 Certification**

Action 2(a): Address regulatory program gaps				
Activity	Status	Importance	Potential Lead Agency	Implementation Strategy
Utilize the Corps of Engineers (USACE) RIBITS database and web portal for reporting wetland banking and mitigation actions	Ongoing	High	BWSR	Continue ongoing use of this database for wetland banking 2012 - 2017
Develop and implement an online wetland permitting system and database	New Initiative	High	BWSR/DNR	Pursue funding via state and/or federal funding sources 2014 - 2016
Long-term monitoring & reporting of wetland bank sites, using appropriate protocols	Ongoing w/ potential for expansion	High	BWSR	Continue ongoing work, seek continued funding 2012 -2017
Long-term monitoring & reporting of project specific replacement wetland sites	Ongoing with potential for expansion	low	BWSR/USACE	Develop monitoring plan; identify funding needs and potential sources 2014-2016
Action 2(b): Improve Regulatory Coordination				
Activity	Status	Importance	Potential Lead Agency	Implementation Strategy
Implement consistent wetland protection programs on agricultural lands between the BWSR; USDA/NRCS and USACE	Ongoing	High	BWSR	MOU between USDA/NRCS and BWSR signed Dec. 2009 to better coordinate WCA and Swampbuster. Continue with implementation and training of local field staff. Ongoing coordination anticipated 2012 - 2017
Improve coordination between BWSR/USACE and MPCA to more effectively incorporate Section 401 certification early in the regulatory process	Ongoing, with potential for initiative	High	MPCA/BWSR/USACE	Draft MOU between MPCA and BWSR. Expand MOU to include USACE. Sign and implement MOU 2012-2013
Improve interagency coordination regarding wetland mitigation strategies, particularly in NE MN	Ongoing	High	All agencies	Ongoing assessment of approaches and practices, identify funding needs and sources as needed 2012 - 2017
Study and assess the consistency and effectiveness between local, state and federal wetland law enforcement practices and make change recommendations as needed	New Initiative	Mod	BWSR/DNR	Develop scope of work; identify State funding sources as needed: 2014 - 2016
Conduct an assessment of wetland statutes, rules, and policies to identify streamlining opportunities while ensuring water quality, habitat and watershed hydrology is protected.	Ongoing	Low	All agencies	Ongoing assessment 2012 – 2013 Pursue any statutory and rule changes as necessary 2014 – 2016

**Core element 3: Restoration and protection**

Action 3(a): Revitalize Minnesota’s Wetland Resources				
Activity	Status	Importance	Potential Lead Agency	Implementation Strategy
Continue to acquire and restore wetland/upland complexes through cooperative easements and fee title agreements	Ongoing w/ potential for expansion	High	BWSR/DNR	Continue to use federal funding as a match to leverage available state and private restoration funds by working through local conservation offices 2012-2017
Continue long-term monitoring of sites enrolled in RIM; LGU is responsible to certify compliance	Ongoing w/ potential for expansion	High	BWSR	Continue ongoing monitoring. 2012 -2017 (no termination)
Improve wetland restoration science and practices <ul style="list-style-type: none"> <li>• Invasive species controls</li> <li>• Plant establishment specifications and standards</li> <li>• Water level management practices for plant establishment and revitalization</li> <li>• Long-term maintenance strategies</li> </ul>	Ongoing, with potential for initiative	High	BWSR/DNR	Continue ongoing efforts, current focus topics include improving methods to: restore wetland hydrology, manage invasive species, establish native vegetation, and maintain the long-term integrity of wetland restoration projects. 2012 – 2017
Maximize the benefits of wetland restoration and protection by: <ul style="list-style-type: none"> <li>• Improving models and tools to prioritize restoration siting, using a watershed context</li> <li>• Conduct training for agency staff and LGUs on tools for prioritizing wetland WQ restoration and protection siting</li> <li>• Integrate restoration prioritization with local water and wetland plans</li> </ul>	Ongoing, with potential for initiative	High	MPCA/BWSR/DNR USFWS	BWSR manages the Ecological Ranking Tool which was developed in partnership with the University of Minnesota to identify high risk erosion, sediment contributing and habitat areas. Initial GIS model work to help prioritize wetland restorations to most benefit WQ, including maintaining integrity of watershed hydrology is under contract between MPCA and the Natural Resource Research Institute. Continue to work with USFWS on an Integrated Conservation Strategy for the Prairie Pothole Region of Minnesota. Identify training needs; seek funding for training, if necessary 2012 – 2017
Develop wetland restoration and management practices aimed at ensuring wetland sustainability in a changing climate	Ongoing	High	DNR	The DNR is currently researching and developing wetland climate change adaptation strategies and practices aimed at sustainably enhancing carbon sequestration in Minnesota wetlands
Expand use of online wetland tracking database to include voluntary restoration and protection tracking (see online permitting database item in Core Element 2 Regulatory Activities)	New Initiative	Moderate	BWSR/DNR	Dependent on success of the permitting database. Seek additional funding as needed 2016 - 2017

Accelerate restoration and protection of wetlands to facilitate pollutant load reductions and watershed restoration in conformance with comprehensive wetland protection and management plans and TMDL implementation plans	Ongoing, potential for expansion	Moderate	DNR/BWSR	Continue ongoing efforts. Evaluate additional funding sources, such as the Outdoor Heritage and Clean water Funds 2012 - 2018
Strategic education and outreach, along with civic engagement on the value and limits of wetland restoration for WQ, flood mitigation and habitat.	New Initiative	Moderate	MPCA/BWSR/DNR	Develop scope of work; identify State funding sources as needed 2014 - 2016

**Core element 4: Wetland water quality standards**

**Action 4(a): Refine wetland water quality standards**

Activity	Status	Importance	Potential Lead Agency	Implementation Strategy
Develop biol. condition gradient tiers and criteria – based on Floristic Quality Assessment	Ongoing	High	MPCA	Finalize criteria 2012 - 2013
Develop management practices and policies to reduce nutrient loads to waters including wetlands while promoting effective ways to treat watershed nutrient losses in engineered treatment systems, including treatment wetlands	New Initiative	Moderate	MPCA/MDA	Policy and management practice development and implementation. Identify funding sources as needed 2014 – 2017.

The actions highlighted here are considered to be the highest priority needs for Minnesota’s wetland conservation programs. To the extent that resources are available, Minnesota environmental and natural resource agencies/departments intend to undertake these priority actions during the effective period of this program plan, 2012-2017.

## Literature Cited

- Barr. 2009. Northeast Minnesota wetland mitigation inventory & assessment; Phase 1; final inventory report. Board of Water and Soil Resources, St. Paul, MN. 102pp.  
[http://www.bwsr.state.mn.us/wetlands/wca/NE\\_Inventory\\_Phase1-Report.pdf](http://www.bwsr.state.mn.us/wetlands/wca/NE_Inventory_Phase1-Report.pdf)
- RRWMB. 1998. Red River basin flood Damage reduction agreement. Red River Watershed Management Board, Detroit Lakes, MN. 30pp. <http://www.rrwmb.org/files/FDRW/FDRAGMT.pdf>.
- BWSR. 2009. Wetlands Restoration Strategy; a framework for prioritization of efforts in Minnesota. Minnesota Board of Water and Soil Resources, St. Paul, Minnesota. 35pp.  
[http://www.bwsr.state.mn.us/wetlands/Restoration\\_Strategy.pdf](http://www.bwsr.state.mn.us/wetlands/Restoration_Strategy.pdf).
- Cowardin, Lewis, Virginia Carter, Francis Golet, and Edward LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 103 pp.
- Eggers, Steve D., and Donald M. Reed. 1997. Wetland plants and communities of Minnesota and Wisconsin. U.S. Army Corps of Engineers, St. Paul District, MN. 263pp.
- Gernes, M. and D.J. Norris. 2006. A Comprehensive Wetland Assessment, Monitoring, and Mapping Strategy for Minnesota. Minnesota Pollution Control Agency and Minnesota Department of Natural Resources, St. Paul, MN. 54 pp.  
[http://files.dnr.state.mn.us/eco/wetlands/wetland\\_monitoring.pdf](http://files.dnr.state.mn.us/eco/wetlands/wetland_monitoring.pdf)
- Great Lakes Commission. 2008. Great Lakes Regional Collaboration Habitat/Wetlands Initiative: A Progress Report and Call to Action. Ann Arbor, MI. 28pp.  
<http://www.glrc.us/documents/CallToAction06-19-2008.pdf>.
- Minnesota Wetlands Conservation Plan (MWCP), Version 1.0, 1997, Minnesota Department of Natural Resources, St. Paul, MN. 108pp. <http://files.dnr.state.mn.us/eco/wetlands/wetland.pdf>.
- Tiner, R.W. 2011. Dichotomous Keys and Mapping Codes for Wetland Landscape Position, Landform, Water Flow Path, and Waterbody Type Descriptors: Version 2.0. U.S. Fish and Wildlife Service, National Wetlands Inventory Program, Northeast Region, Hadley, MA. 51 pp.

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