

ASWM State Wetland Program Integration Case Study: Minnesota

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Integration of Groundwater Appropriations Permitting and Surface Water Permits, including Wetlands



Photo Credit: Minnesota DNR

State Wetland Program Information

This case study¹ explores the integration efforts undertaken by the Minnesota Department of Natural Resources Ecological and Water Resources Division. Four sections of the DNR with different units, including the Wetland Program are involved in the project. Other partners include Minnesota Bureau of Soil and Water Resources (BWSR) and local governments, both having regulatory roles with wetlands management within the state. The state has two wetland regulatory programs in the state: 1) DNR's public state permitting law that covers lakes, streams, rivers and large wetlands and 2) the Wetland Conservation Act, which is implemented by BWSR and local government.

Type of Integration Effort²

This project brings together wetland management, state groundwater appropriations and surface water permitting. The effort is designed to better understand and work to integrate the way that

¹ Project Case Study Criteria: The Association of State Wetland Managers (ASWM) conducted interviews with representatives from state wetland programs actively integrating with one or more additional resource management programs operating within their state. Criteria for case study inclusion required eligible programs to demonstrate direct or indirect impacts of integration on watershed-level planning, implementation and/or outcomes documented using formal or informal performance measures. Further consideration was given to integrated programs with the ability to provide cost-benefit insights.

² This section includes summarized text from the Conclusions section of the following report: https://files.dnr.state.mn.us/waters/gwmp/thresholds/gw-thresholds-project_report.pdf

groundwater and surface water permitting programs work together when groundwater appropriations may affect wetlands.

Minnesota has plentiful water supplies. Even so, there are several places around the state where demand for groundwater may be greater than supply. These places tend to be in the drier southwestern areas of the state, in the heavily irrigated central sands, and in the Twin Cities Metropolitan Area. While the state's water management policies, statutes, and rules are strong and conceptually sound, they could be improved.

There is a strong scientific basis for maintaining the natural dynamic patterns of surface water bodies by establishing protected flows for individual streams, protection elevations for individual basins, and target hydrographs for wetlands. Science indicates that Minnesota's streams, basins, and wetlands are vulnerable to undesirable ecosystem change during conditions of low flow, low elevation, or deviation from the target hydrograph, respectively. These conditions will be made worse during regular, periodically occurring severe drought.

The DNR intends to set protected flows, protection elevations, and target hydrographs for water bodies in places where demand for water may be exceeding sustainable supplies. The DNR is currently establishing groundwater management areas in parts of the state experiencing high demand for groundwater. The DNR will set protected flows, protection elevations, and target hydrographs for some surface waters within these groundwater management areas, and potentially in other areas of the state, as described above, in order to manage water appropriations. The project partners have made recommendations to the legislature for statute changes to help support the integrated work.

Specific recommendations to the legislature included:

- 1) Incorporation of a new set of mutually agreed upon set of definitions into Chapter 103G³,
- 2) A "threshold" is the point at which negative impacts occur. The partners recommend specific methods for determining thresholds for streams, lakes, and wetlands.
- 3) Combining many of the standards in two sections (Section 103G.285 establishes limits for withdrawals from surface water bodies (watercourses and basins) and Section 103G.287 establishes standards for groundwater appropriations) into a single "Water Appropriations" section that would recognize the hydrologically connected and interdependent nature of surface and groundwater resources.
- 4) Establishment of a public process in locations where protected flows and/or protection elevations need to be established, involving a range of representative water users to better understand the multiple resource values and tradeoffs that must be considered in setting these limits.

Scale of Integration Effort

Integration has been undertaken at the statewide level.

Integration Goals

The two primary goals of this integration effort are to:

- 1) Ensure that wetlands are protected per state law
- 2) Clarify the roles of groundwater permitting and surface water permitting programs when groundwater appropriations may be affecting wetlands.

Integration Process Timeline

For many years, discussions have taken place in the field around individual permits. Informal discussion between the DNR and BWSR have identified needs around coordinating permitting. This effort informally began in 2015, when the state began working on development of a long-term water quality monitoring program to identify hydrographs. These hydrographs will be used by the state to inform permitting. The state is working to identify “normal” hydrographs for different kinds of wetlands. A report on this issue was published in 2016. Efforts continue to be informal, but has led to informal agreements and the submission of a report to the Legislature. The legislature has recently passed a new law allowing the DNR to temporary drawdown of calcareous fens, which could have a negative outcome. The partners are jointly looking at how to implement that new law with the least impact to wetlands.

Project Leadership

Minnesota DNR has taken the leadership on this initiative, with a variety of DNR staff involved in different ways. The DNR established four technical work groups focused on stream systems, lake systems, wetland systems, and policy and procedures. The technical teams consisted primarily of staff from multiple DNR divisions, but also included experts from the University of Minnesota, other state and federal agencies, and the private sector. A list of all project participants is listed in Appendix D of the report. Technical teams were developed to address specific issues.

Resource Investment

The project has been funded by a combination of government, nonprofit, and private funding, staffing and in-kind supports. These have included both up-front expenses and long-term support.

Impact on Watershed-level Planning, Implementation or Outcomes: How Success Has Been Measured

Outputs:

- The partners, including the interagency units have come to agreement on key definitions
- A series of stakeholder meetings
- A report outlining needs and recommendations

- Findings specific to wetlands were developed for the final project⁴
- The partners were able to compile and make recommendations to the legislature for changes
- Technical teams were created to explore details related to streams, lakes and wetlands.

Outcomes:

- The creation of strategies (listed in the plan) designed to:
 - Improve information about our groundwater resources
 - Reinforce partnerships to provide support for sustainable groundwater use
 - Improve compliance with existing groundwater regulations
 - Assure permits for large water appropriations provide sustainable supplies of groundwater
 - Concentrate actions in areas of high groundwater use and/or limited groundwater supply
- Consideration of specific technical issues related to streams, lakes and wetlands by teams of technical experts to inform decision making.
- Consideration of new definitions by the legislature in the regulation of groundwater.
- The report generated broader consensus that there is a problem (although not everyone agrees on the extent of the problem or has a common vision around what to do about the problem).
- Informally, there is growing discussion among the agencies to begin looking at more formal coordination
- There has been generation of additional awareness that groundwater withdrawals can and do affect wetlands.
- Some permits have been denied to protect calcareous fens (groundwater-driven wetlands), due to the awareness of the potential impact on the wetlands from the proposed activities.

Cost Benefit Insights

Forthcoming

Information about Policy-related Issues

Minnesota's water appropriation statutes were formulated in an era when groundwater resources were viewed as essentially unlimited. Allocating water resources in an environment where those resources may in fact be limited calls for additional research and discussion. Minnesota's statutes and rules may need to be revised to provide better guidance. The DNR is currently researching potential models of water allocation systems used in other states and regions as part of this larger discussion⁵.

Additionally, local governments, through their land use decisions, also play a significant role in determining the number and nature of residential, commercial, and industrial water users. Demand for agricultural irrigation is less affected by, though not disconnected from, local land use decisions. Under Minnesota's riparian water law system, there is no "first in time, first in right" determination and a new

⁴ https://files.dnr.state.mn.us/waters/gwmp/thresholds/gw-thresholds-project_wetlands.pdf

⁵ https://files.dnr.state.mn.us/waters/gwmp/thresholds/gw-thresholds-project_report.pdf, p.34

permit applicant has no greater or lesser priority than an existing permit holder under state statute, assuming both wish to use water for the same purpose. In planning for future development, local governments should carefully consider the sustainability of their water supplies and the extent to which new water-intensive uses should be encouraged or allowed under zoning and other local regulatory controls. A planning process that considers the needs of all existing water users, future needs, and opportunities for water conservation can help to sustainably manage existing and proposed uses⁶.

Challenges & Lessons Learned

Forthcoming

Next Steps

The DNR is working with stakeholders, including permittees, local and regional agencies, legislators, and state water management agencies, to develop and refine potential statutory language. Additional changes to state rules will likely be needed in order to align with the new statutory language and provide more detailed discussion of the process for setting thresholds and sustainable diversion limits. The approaches recommended by the partners for establishing protected flows, protection elevations, and sustainable diversion limits for streams, lakes, and wetlands have not yet been applied in Minnesota. The DNR intends to continue implementing and evaluating these approaches in various settings where surface water resources appear vulnerable to groundwater appropriations. The results of these evaluations may also be valuable in updating and clarifying state rules on water appropriation management.⁷

Transferability

Forthcoming

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Additional Resources

⁶ *ibid*

⁷ https://files.dnr.state.mn.us/waters/gwmp/thresholds/gw-thresholds-project_report.pdf, p. 38

- Report to the Minnesota State Legislature: Definitions and Thresholds for Negative Impacts to Surface Waters https://files.dnr.state.mn.us/waters/gwmp/thresholds/gw-thresholds-project_report.pdf
- Minnesota DNR: Groundwater Webpage: <https://www.lwvumrr.org/blog/groundwater-depletion-balancing-use-to-reduce-conflicts-in-minnesota>
- Minnesota DNR's Draft Groundwater Strategic Plan: <https://www.dnr.state.mn.us/gwmp/planning.html>