DRAFT

STRATEGIC PLAN

FOR THE

MINNESOTA DEPARTMENT OF NATURAL RESOURCES

GROUNDWATER MANAGEMENT PROGRAM

October 2013

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Cover: DNR Public Water Wetland # 5-21W, Benton County, Minnesota – DNR Photo

Prologue

Water is critical to Minnesota's economies and ecosystems. Minnesota has a well-deserved image of having abundant water resources, nevertheless, water is not evenly distributed across the state. Despite our popular image, water is becoming scarce in parts of Minnesota. Unprecedented water use conflicts are arising between businesses, towns, and residents. Periods of drought have accentuated these issues and provided a "wake-up call" for Minnesota. In parts of the state businesses are at risk of shutting down operations in the face of water shortages. Wells are drying up as drought increases competition for scarce water. Water-based recreation and valued ecosystems are being impacted. Nevertheless, in most areas of the state we are not yet in "crisis" mode when it comes to water availability. We have time to address these issues and ensure that Minnesota's economies and ecosystems have adequate water supplies in the future.

During the 2013 legislative session these risks to the state's water future were highlighted and discussed. The legislature responded by appropriating 7 million dollars in new general fund to support enhanced water management programs, and an additional 3 million dollars for statewide mapping and establishment of groundwater management areas. Concurrent with these discussions, the Division of Ecological and Water Resources initiated this strategic planning project to chart a course for addressing these issues of overuse and contamination.

The DNR plays an important role in supporting sustainable groundwater use through its permit programs, information collection and analysis activities, law enforcement responsibilities, education, and technical assistance opportunities. This strategic plan outlines a set of actions that DNR will take in collaboration with other organizations and individuals to ensure groundwater resources are used sustainably and continue to support other important natural resources in Minnesota.

The plan is also consistent with the DNR Mission Statement:

> *"We will work with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life."*

Considerable support and guidance for sustainable use of groundwater resources is seen through documents such as the "Minnesota Water Sustainability Framework" and "Evaluation of Models and Tools for Assessing Groundwater Availability and Sustainability". The plan builds upon these and other critical works and establishes a pathway to groundwater sustainability in Minnesota.

This draft plan represents DNR's perspectives about important strategies and actions to solve water sustainability problems. In the coming months we will invite a critical review from stakeholders and other interested people to help us further refine the strategic plan. In the meantime, we are moving forward with several strategies and expect to adapt as we go.

It's incumbent on all Minnesotans to use groundwater wisely and emphasize water conservation in their personal and professional activities.

Steven Hirsch

Division Director, Ecological and Water Resources

Minnesota's Groundwater Challenge

Sustainable supplies of high quality groundwater are vital to the people of Minnesota, to their communities, economies, and ecology. Minnesota's groundwater resources are at risk from overuse and contamination.

DNR Photo

The Minnesota Department of Natural Resources (DNR) is changing the way it administers its groundwater management program. These changes will better align DNR practices with groundwater sustainability mandates expressed by the people of Minnesota through the Minnesota State Legislature.

DNR shares responsibility for sustaining groundwater resources with partners in local, regional, state, and federal and tribal governments, as well as with individuals, businesses, universities, and institutions in the private sector. Among its suite of public services, DNR is responsible for permitting users of groundwater (those who use over one million gallons per year or 10,000 gallons per day), and for providing technical assistance that supports groundwater use and conservation.

Minnesotans use groundwater to meet domestic, industrial, agricultural, private and public water supply needs (see Appendix A). DNR is committed to assuring that these vital uses can continue sustainably into the future, however, groundwater and groundwater use are not uniformly distributed across Minnesota (see Appendix B). Current use and projected demand is outpacing supply in several areas of the state. Overuse of groundwater can negatively impact other groundwater users and highly valued resources such as trout streams, wetlands, groundwater-connected lakes and rivers, as well as the fish, wildlife, and native plant communities that depend on them.

This draft plan outlines actions DNR proposes to take to improve its groundwater management program and meet its statutory responsibilities. Some changes and improvements to DNR's groundwater management program have already begun. DNR has been developing an electronic permitting and reporting system (MPARS) that will improve permit efficiency and applicant experience; it is scheduled to be available for use by the end of 2013. With the 2013 legislatively-approved funding, DNR and other public partners will begin to collect additional information and engage in new collaborations, for example, groundwater management areas, necessary to support sustainable groundwater management.

Groundwater systems are complex in nature and are largely unseen, unlike lakes and rivers. Also unlike lakes and rivers, water passing through aquifers may travel only inches per day, whereas rivers may travel much faster - on the order of feet per second. Management actions implemented today may take many months or longer in which to see a response. Early attention to signs of unsustainable aquifer use will yield positive results more quickly.

Improving This Draft Document

This plan was developed with the intention of creating a high quality, well informed document that is presented in a way that is concise and is easy to comprehend.

DNR will actively engage and work with stakeholders, partners, and others to discuss, refine, and improve this strategic plan in the coming months through presentations, meetings and other methods.

The expectation is that Minnesotans will assess the plan and respond as to its 'reasonableness'. This may be interpreted as, "given the problems and opportunities with regard to groundwater, is the approach that is suggested in this Strategic Plan logical, wise, judicious and / or equitable?"

The public is invited to become informed about the Strategic Plan for DNR's Groundwater Management Programs and then offer information that may help improve the plan. This can be done through an online survey found on the Groundwater Strategic Plan web site listed below, or by sending an email to GroundWaterPlan.dnr@state.mn.us.

Results from all of the information gathered from the public will shape improvements to the Strategic Plan, which is anticipated to be finalized mid-2014.

DNR is committed to working with stakeholders, partners, and others to conserve and manage groundwater resources to assure our use of groundwater will sustain Minnesotans and their natural resources well into the future.

For more information, find the plan and other resources at:
http://www.dnr.state.mn.us/gwmp/index.html

Draft Strategic Plan for DNR's Groundwater Management Program

DNR'S Groundwater Management Goal:

Ensure that use of groundwater is sustainable and does not harm ecosystems, water quality, or the ability of future generations to meet their needs

DNR'S Groundwater Management Objectives, 2013 – 2018

A. All aquifers are within sustainability thresholds for water levels
B. All appropriators of groundwater have the required permits
C. All permitted groundwater users employ water conservation practices
D. All aquifers are without water use conflicts and well interferences
E. Permitted groundwater appropriations do not adversely impact trout streams, calcareous fens, other groundwater - dependent surface water features, or other groundwater - dependent biological communities
F. Permitted groundwater appropriations do not adversely impact water quality

Lost River Spring Fen Scientific and Natural Area, Koochiching Co. (Calcareous Fen) - *DNR Photo*

DNR'S Groundwater Management Strategies, 2013 – 2018

1. **Heighten the priority given to groundwater management**
   a. Acquire and allocate organizational resources within DNR necessary to achieve the objectives of this plan
   b. Focus attention and allocate workloads within DNR in order to implement the strategies in this plan
   c. Strengthen collaboration among DNR divisions and with other agencies to ensure the objectives of this plan are met
   d. Evaluate progress in achieving the goal and objectives and in implementing the strategies found in this plan
   e. Develop an Implementation Plan for DNR's Groundwater Management Program based on the Strategic Plan for DNR's Groundwater Management Program
   f. Revise DNR's Groundwater Management Strategic Plan by 2018

2. **Improve information available for groundwater management decisions**
   a. Develop better information on Minnesota's groundwater resources including identifying sustainability thresholds for aquifers, developing guidelines for adverse impacts on surface water features and improving the statewide monitoring network
   b. Improve quality and quantity of information on water use by permitted groundwater users
   c. Improve capacity to detect unpermitted (i.e., illegal) groundwater use
   d. Improve technical guidelines on groundwater use and water conservation practices
   e. Partner with Minnesota Pollution Control Agency, Minnesota Department of Agriculture, Minnesota Department of Health, U.S. Geological Survey, Minnesota Geological Survey, Metropolitan Council, tribal councils and the University of Minnesota, as well as others, to share groundwater information and develop specific products that support information on the sustainable management of groundwater resources

When functioning well, ecosystems provide many benefits to Minnesotans – *DNR Photo*

3. **Improve the management of groundwater appropriation permits**
   a. Provide long-term support for Minnesota DNR Permitting and Reporting System (MPARS) to improve applicant and permit holder experience, increase administrative efficiency, enhance management effectiveness and consistency, and provide important information to DNR, institutional partners, and the public
   b. Improve coordination between Minnesota Department of Health well drilling permits and DNR groundwater appropriation permits
   c. Develop a consistent evaluation process for groundwater appropriation permit applications that effectively incorporates recommendations to avoid water use conflicts and well interference, evaluates cumulative impacts, stays within sustainability thresholds for water

levels, addresses ecosystem concerns (e.g., groundwater-dependent biological communities and surface water features) and water quality concerns, and provides water conservation technical guidelines

d. Develop a consistent decision process for groundwater appropriation permit applications that incorporates recommendations from the enhanced evaluation process described in 3.c. above and that meets the time-frames of Governor's Executive Order 11-04 on permit decisions, which is currently 150 days.
e. Develop a consistent process for altering groundwater appropriation permits or permit conditions when concerns arise such as water use conflicts, well interference, cumulative impacts, sustainability thresholds, ecosystem concerns (e.g., groundwater-dependent biological communities and surface water features), water quality, water conservation, drought or in response to an amendment or transfer request
f. Increase the use of water conservation requirements in groundwater appropriations permits and develop means to encourage conservation, water reuse, and other beneficial practices
g. Improve DNR's capacity to engage in the contested case hearing process

4. Improve compliance with groundwater appropriation regulations

a. Ensure that permit holders understand the conditions and geographic context of their permits as well as what actions they must take to maintain permit compliance
b. Increase frequency and consistency of enforcement of groundwater appropriation regulations
c. Examine effectiveness of existing penalties for violations of groundwater-related permit conditions and recommend necessary improvements to the Legislature

5. Improve communication and education for users, stakeholders, partners, and the general public about the importance of groundwater resources and the challenges facing groundwater management

a. Develop and implement a communication plan to increase understanding of groundwater resources and groundwater issues among users, stakeholders, partners, and the public
b. Improve the distribution and utility of County Geologic Atlas information in order to increase understanding of aquifers and hydrogeology among users, stakeholders, partners, and the public
c. Continue to work with partner organizations (e.g., Minnesota Pollution Control Agency, Minnesota Department of Agriculture, Minnesota Department of Health, Board of Water and Soil Resources, Metropolitan Council, tribal councils and others) to develop important information on groundwater and disseminate to users, stakeholders, partners, and the public
d. More actively engage users, stakeholders, partners, and the general public in discussions about Minnesota groundwater resources

Groundwater can flow into and out of lakes and rivers - *DNR Photo*

e. Work with land use authorities and other partners to adopt policies and practices and procedures that preserve groundwater recharge areas, minimize risk of groundwater contamination and that ensure plentiful supplies of high quality groundwater

6. Effectively address groundwater management challenges in areas of high groundwater use and / or limited groundwater supply

a. Partner with local, regional, state federal and tribal governments and individuals, businesses, and institutions in the private sector to address the challenges of groundwater management in the Twin Cities metropolitan area
b. Partner with local, regional, state federal and tribal governments and individuals, businesses, and institutions in the private sector to address groundwater management challenges in other parts of Minnesota
c. Establish at least three pilot Groundwater Management Areas (as authorized in MN Statutes, section 103G.287, subd. 4)

7. Promote the wise use of groundwater and the implementation of water conservation practices

a. Ensure information on state-of-the-art water conservation practices is accessible to permitted groundwater users
b. Incorporate appropriate water conservation practices as a feature of all appropriation permits
c. Communicate the importance and practical benefits of water conservation through public awareness campaigns, workshops, media strategies, websites, and social media

Progress and Performance Measures

The success in achieving sustainable use of our groundwater resources will be measured, in part, by the actions accomplished. The following list represents the most current proposal for performance measures. The Department is interested in further development of these performance measures. Comments and suggested improvements can be offered through the web survey link found on the DNR Groundwater Strategic Plan webpage found at http://www.dnr.state.mn.us/gwmp/index.html. This plan will use the following performance measures to track progress against the plan's six objectives.

A. All aquifers are within sustainability thresholds for water levels

Performance measure: number of downward sloping trends in aquifer water levels

B. All appropriators of groundwater have the required permits

Performance measure: number of appropriators without DNR and MDH permits

C. All permitted groundwater users employ water conservation practices

Performance measure: number of appropriators implementing water conservation practices

D. All aquifers are without water use conflicts and well interferences

Performance measures: number of water use conflicts and well interference events

E. Permitted groundwater appropriations do not adversely impact trout streams, calcareous fens, other groundwater - dependent surface water features, or other groundwater - dependent biological communities

Performance measures: number of identified adverse impacts on target features

Mississippi River and its floodplain habitat. *DNR Photo*

F. Permitted groundwater appropriations do not adversely impact water quality

Performance measures: number of adverse impacts on water quality of aquifers due to appropriations

G. DNR is implementing actions that help ensure that use of groundwater is sustainable and does not harm ecosystems, water quality, or the ability of future generations to meet their needs.

Performance measures: number of projects and activities that have been initiated

Appendix A:

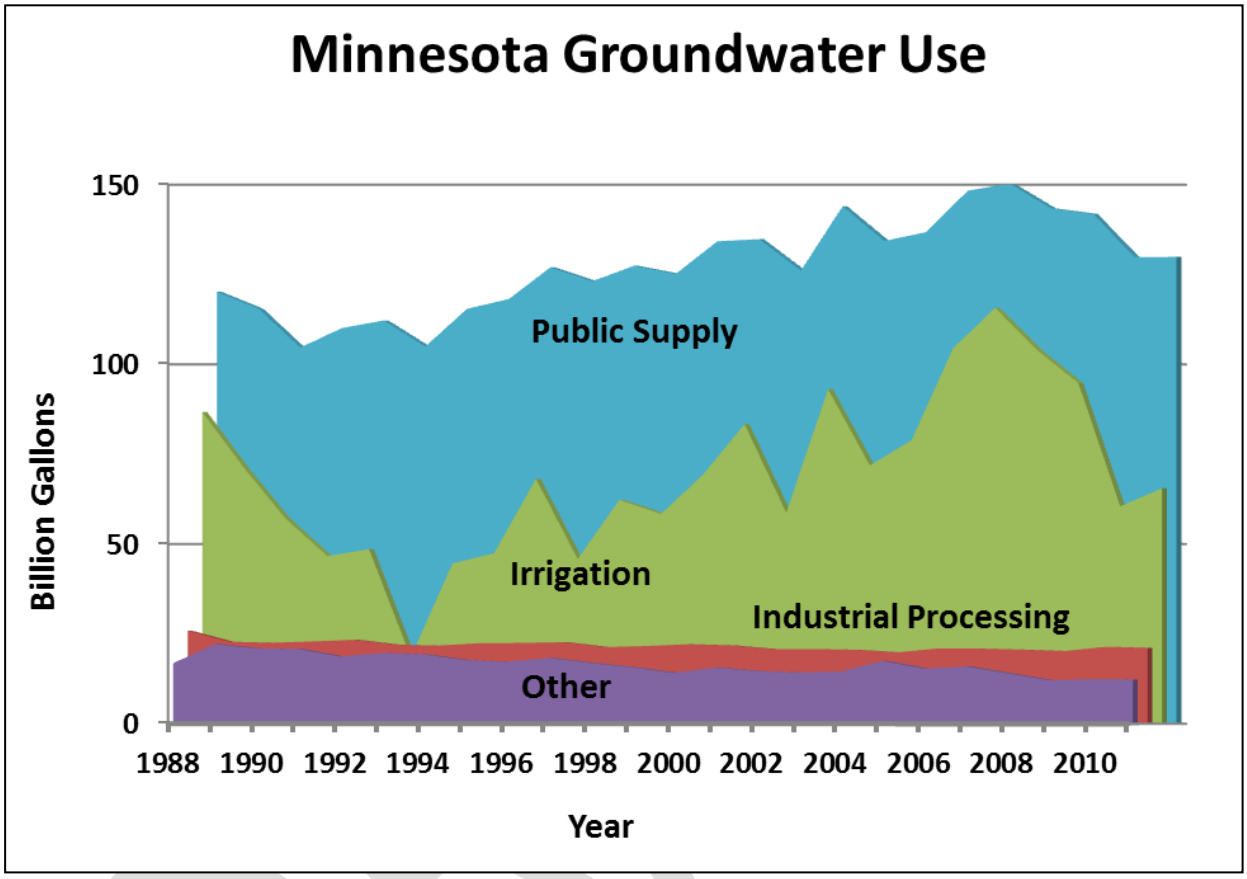

Figure 1 – Minnesota Groundwater Use showing volumes of water permitted under DNR Water Appropriations Permits (>10,000 gallons / day or 1 million gallons / year) with the exception of power generation. Prepared by Minnesota Department of Natural Resources.

Appendix B:

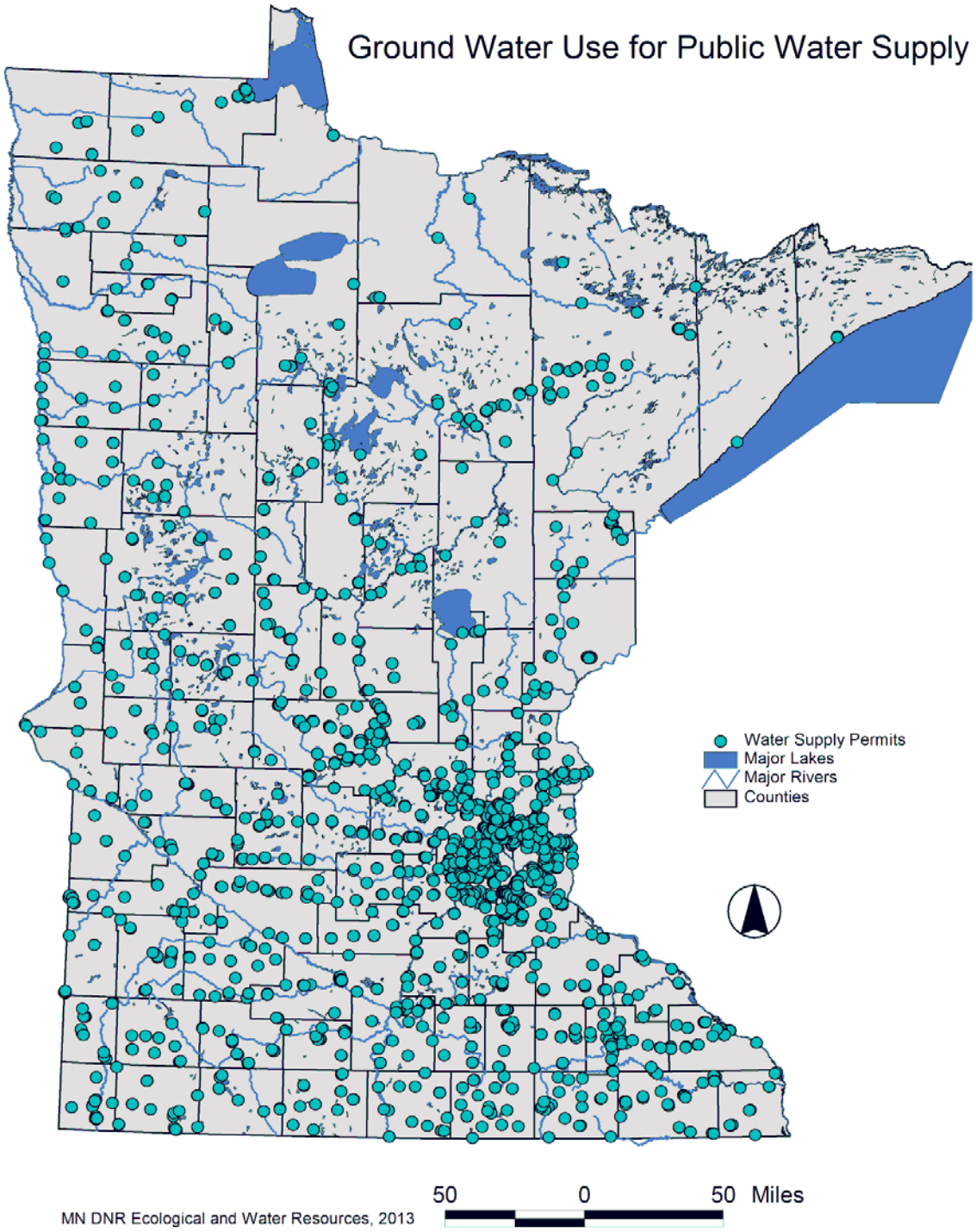

Figure 2 - ***Groundwater Use for Public Water Supply showing high capacity well locations of municipalities and other public water suppliers holding DNR Water Appropriations Permits (>10,000 gallons / day or 1 million gallons / year). Prepared by Minnesota Department of Natural Resources.***

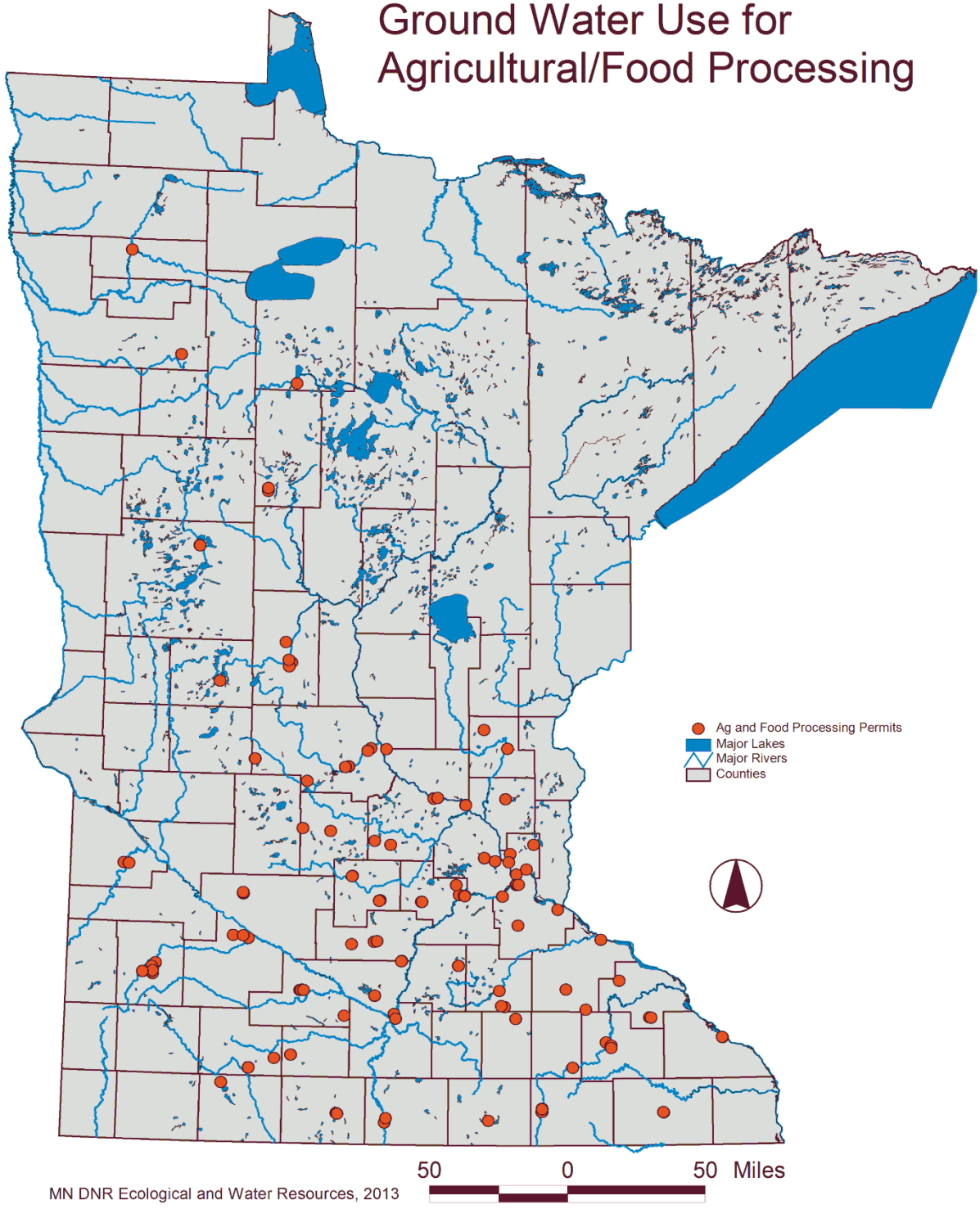

Figure 3 Groundwater Use for Agricultural/Food Processing ***showing high capacity well locations holding DNR Water Appropriations Permits (>10,000 gallons / day or 1 million gallons / year). Prepared by Minnesota Department of Natural Resources.***

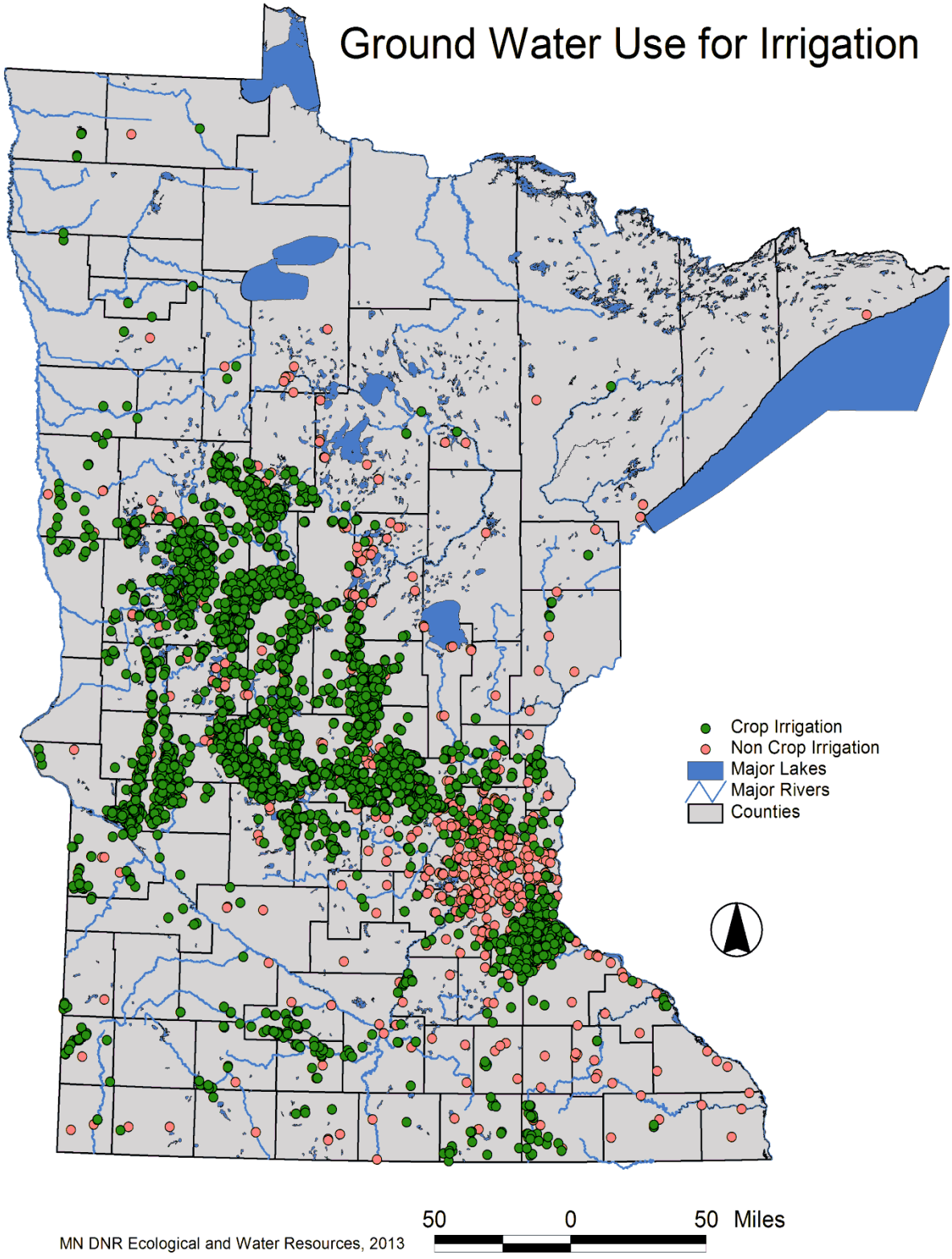

Figure 4 - ***Groundwater Use for Irrigation showing locations of high capacity wells where owners hold a DNR Water Appropriations Permit (>10,000 gallons / day or 1 million gallons / year). Prepared by Minnesota Department of Natural Resources.***

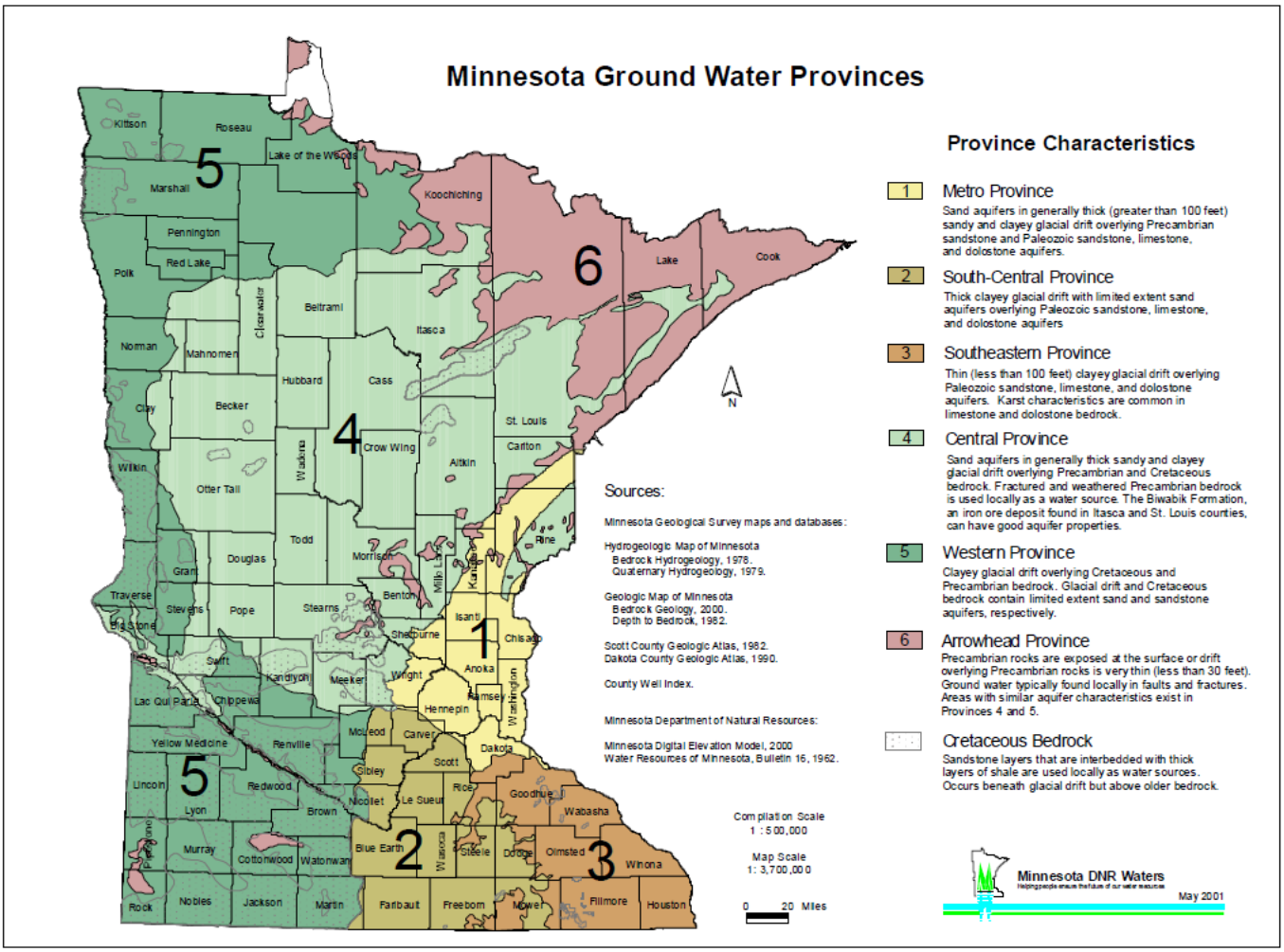

Figure 5 – ***Minnesota Ground Water Provinces illustrating uneven distribution of groundwater resulting from unique geologic and hydrologic conditions. Prepared by Minnesota Department of Natural Resources.***

Strategic Plan for DNR's Groundwater Management Program's Project Team:

Development Team
Peter Buesseler, Barry Stratton, Tom Groshens, Julie Aadland, Janelle Miersch, Darrin Hoverson, Michele Walker, Mike Peloquin, Patty Fowler, Jeanne Ramponi, Dan Lais, Nicola Blake-Bradley, Molly Shodeen, Robb Collett, Skip Wright, Todd Kolander, Ethan Jenzen, Jim Sehl, Dale Homuth, Jim Japs, Jeanette Leete, Greg Kruse, Jay Frischman, Paul Putzier, Ian Chisholm, Dan O'Shea, Doug Norris, Erika Rowe, Brian Nerbonne, Phil Meier

Executive Sponsor
Steve Hirsch

Managing Sponsors
Jason Moeckel, Julie Ekman, Steve Colvin

Project Manager
Mark Hauck

Process and Facilitation Team
Brian Stenquist, Princesa VanBuren Hansen, Tim Crocker

Copies of this report may be obtained at:

Minnesota Department of Natural Resources
500 Lafayette Road
St. Paul, MN 55155-4040

(651) 296-6157
1-888-MINNDNR
(888) 646-6367

www.dnr.state.mn.us

Email: info.dnr@state.mn.us
Or: GroundWaterPlan.dnr@state.mn.us

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