

# Long-Term Protection of the State's Surface Water and Groundwater Resources



# Background

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The purpose of this report is to meet the requirements of Minnesota Session Laws 2009 Chapter 37 Section 4 Subd. 3:

*By January 15, 2010, the commissioner shall submit a report evaluating and recommending options to provide for the long-term protection of the state's surface water and groundwater resources and the funding of programs to provide this protection.*

The long-term protection of the state's surface water and groundwater resources involves every activity where we alter the land or the flow pathway of water moving across it or through it. It therefore involves the land use activities of everyone from individual landowners or managers, to local units of government, state agencies and the federal government. While we have engaged many people and professionals, particularly staff in other state agencies having environmental protection programs, such as the Departments of Agriculture, Pollution Control Agency, and Health, plus the Board of Soil and Water Resources, the Environmental Quality Board, Metropolitan Council, U.S. Geological Survey, Minnesota Geological Survey, University of Minnesota and other professionals, this report is not an exhaustive evaluation on all protection measures or funding required to provide long-term protection of all surface and groundwater resources.

The report delineates the areas that need continued or increased funding to move Minnesota forward toward this goal, and provides detailed recommendations for funding of programs and efforts within our area of expertise. Adoption of the approach outlined here will lead to a greater understanding of hydrology (how water moves across the landscape and in and out of aquifers) that is critically important for the Department of Natural Resources (DNR) and other agencies, governments and land managers in doing their jobs and making informed decisions.

Over the last decade, the DNR has been heavily engaged in the development of our own reports, and reports of other agencies and institutions on water sustainability, water availability, groundwater protection and management, and surface water protection and management. In preparing for this report, we reviewed past reports. The most recent reports: DNR, Plan to Develop a Groundwater Level Monitoring Network for the 11-County Metropolitan Area; EQB, Managing for Water Sustainability; Freshwater Society Report, Water is Life: Protecting a Critical Resource for Future Generations; the work of the Clean Water Council toward the development of surface and groundwater protection strategies; and finally, the work of the University of Minnesota and Freshwater Society, Groundwater Sustainability: Towards a Common Understanding; all contain important content relevant to the charge of this report.

Active engagement and increasing coordination continues between the partners listed above as the DNR works to provide sound guidance to decision-makers on how to manage our lands and waters more sustainably.

In summary the Department recommends the following strategies:

- Encourage and influence local engagement in management, prevention and demonstration efforts.
- Deliver up-to-date protection tools and recommended best management practices.
- Adopt a long-term focus for monitoring and prevention activities.
- Enhance data collection and sharing and simplify public access to data.
- Answer key questions and meet key information needs.
- Approach groundwater and surface water management and protection in a watershed context as a comprehensive hydrologic-ecologic system.
- Provide adequate financial and technical resources at appropriate levels to maximize the effective management and protection of water resources. Well-conceived and competently administered programs will not provide long-term protection if inadequately funded.

Protection of groundwater and surface water resources will require substantial investments from a diversity of funding sources over all levels of government during the next decade. As a part of this effort, a program of mapping, monitoring and managing is necessary to deliver the basic understanding of the hydrologic system for both surface and groundwater.

A summary of the state's water resource management funding needs are as follows:

<b>Table 1: Water Resource Management Investments<sup>1</sup></b>			
<i>Activity</i>	<i>Funding Amounts (10-Year)</i>	<i>Funding Amounts (25-Year)</i>	<i>Outcomes</i>
Mapping Needs	\$81,000,000	\$203,500,000	County Groundwater Atlas completion with technological updates; aquifer characterization studies; watershed hydrology; mining hydrology; County Biological Survey completion and Natural Resource Heritage Database; LiDAR completion
Monitoring Needs	\$70,500,000	\$176,250,000	Surface water - streamflow and lake level/outflows; groundwater water levels; springs and seeps (groundwater/surface water interactions); County Biological Survey and Natural Resource Heritage Database monitoring of status and trends
Managing needs	\$16,500,000	\$32,500,000	Water supply plans; resource protection plans; drainage reform; data management systems; water appropriation permits

Land occupiers have the responsibility to implement practices that conserve soil and water resources of the state (M.S. 103A.206)

DNR is focused on supporting healthy watersheds, which includes sustainable quantities/qualities of water (surface and groundwater, sustainable levels of desired biodiversity, and well functioning ecosystem services.

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<sup>1</sup> Details are provided in Attachment A – Sustainability of Surface and Groundwater Resources

In order to better support the ability of landowners and managers to meet the state mandates and to achieve the state's vision for healthy watersheds, investments should be made in the following areas:

<b>Table 2: Partner Funding Needs</b>				
<i>Strategies-Actions</i>	<i>LGU Funding Needs</i>	<i>Land Occupier Incentives</i>	<i>Other State Agencies Funding Needs</i>	<i>Other Partners *</i>
1. Local management and prevention efforts	Ordinance development & administration Education & outreach	Technical assistance and implementation support	Continued community assistance and regulatory efforts	Education, cost-share, grants
2. Protection tools and recommended BMP's	Plan implementation & technical support of land occupiers	BMP's installation	Continued BMP development	Research and education
3. Long- term monitoring	Status and trends, inspection and compliance monitoring		Technical monitoring QA/QC standard development	
4. Data collection and sharing	Collection and reporting		Oversight of technical data collection and analysis	
5. Key research studies			Interagency research steering committee Develop & design practices for field application	Field scale research and modeling
6. Comprehensive hydrologic- ecological framework	Education, outreach and private land coordination	Technical assistance	Resource protection and management strategies	