

# **Water Supply Management in Minnesota: Moving Toward Sustainability**

A 2030 Water Demand and Supply Analysis

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## **Introduction**

Adequate supplies of clean water provide the foundation for a strong Minnesota economy, healthy ecosystems and a high quality of life. We need to understand where water may be sufficient to meet future demands and where it may not. Otherwise, Minnesota's economy, environment and quality of life, generally, may be put at risk in the future.

## **Purpose**

Understand surface and ground water availability and demand to help us manage water supplies for the long term future and to better plan for future development.

## **Benefits**

- Bring attention to what we know and don't know about water supplies
- Help local and state governments make better-educated decisions about water allocation and future development
- Help policy-makers develop laws to manage water on a sustainable basis, and fund their implementation
- Help to understand the need for an EQB 2007-09 priority for statewide water sustainability

## **Water Demand**

Demand calculation methodologies are based on incorporating future population projections with estimates of per capita water usage. Per person demand is determined by combining average DNR permitted water usage from the years 1995 – 2005 with estimates of unpermitted household use.



## **Sustainable Water Supply**

Five approaches are used to estimate sustainable water supply. Each considers inputs to and outputs from surface and ground water systems, with some based upon sophisticated statistical analyses and others simple precipitation-recharge relationships. The goal is to establish a range of estimates of the

amount of water that people could appropriate in a county on a long-term sustainable basis. The study will not address the potential effect of water quality on availability at this time.

### **Preliminary Findings**

The U.S. Geological Survey recently completed a study quantifying recharge of surficial aquifers in Minnesota. The goal of the recharge study is to provide greater information and resolution to aquifer recharge values for modeling purposes and is not meant to define sustainable water appropriations, but does provide us with a reference range. The sustainability analysis uses the three remaining sustainable supply methods, which fall in the middle of the recharge range defined by the USGS study, providing some assurance that the supply estimates are on target. The variability in water supply volumes is only 14% on a statewide level, though more pronounced at the county level. The EQB is continuing work with partners on refining the science and the methods to deliver a credible and concise product.

### **Deliverables**

- Information and maps that highlight areas that may face limits to growth, i.e., where sustainable water use may be at greatest risk, or that require more information before any such judgments can be made
- Recommendations of policy and procedure to eliminate the barriers to routine analysis of water demand and supply
- Elements of an information system for comparing demand and supply, today and in the future
- Scenarios and assumptions for what kind of use might be "sustainable"
- A compilation of what we know and what we don't know about demand and the availability of water supplies