

Water Supply Management in Minnesota: Moving Toward Sustainability

A 2030 Water Demand and Supply Analysis

October 2006

Introduction

Adequate supplies of clean water provide the foundation for a healthy 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 gathered from adding together DNR permitted water usage with estimates of unpermitted household use.



Sustainable Water Supply

Five distinctly unique methods are used to estimate sustainable water supply. Each considers inputs and outputs to 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

Early comparisons show commonality in the five methods. The variability is only 14% on a statewide level, though more pronounced at the county level. These five methods have been compared to another study looking at recharge of surficial aquifers. The recharge study has a different goal, and is not meant to define sustainable water appropriations, but does provide us with a reference range. The five sustainable supply methods being evaluated fall in the middle of the recharge range, again providing reassurance in the supply data. 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