# MPCA's Involvement in the NGWMN

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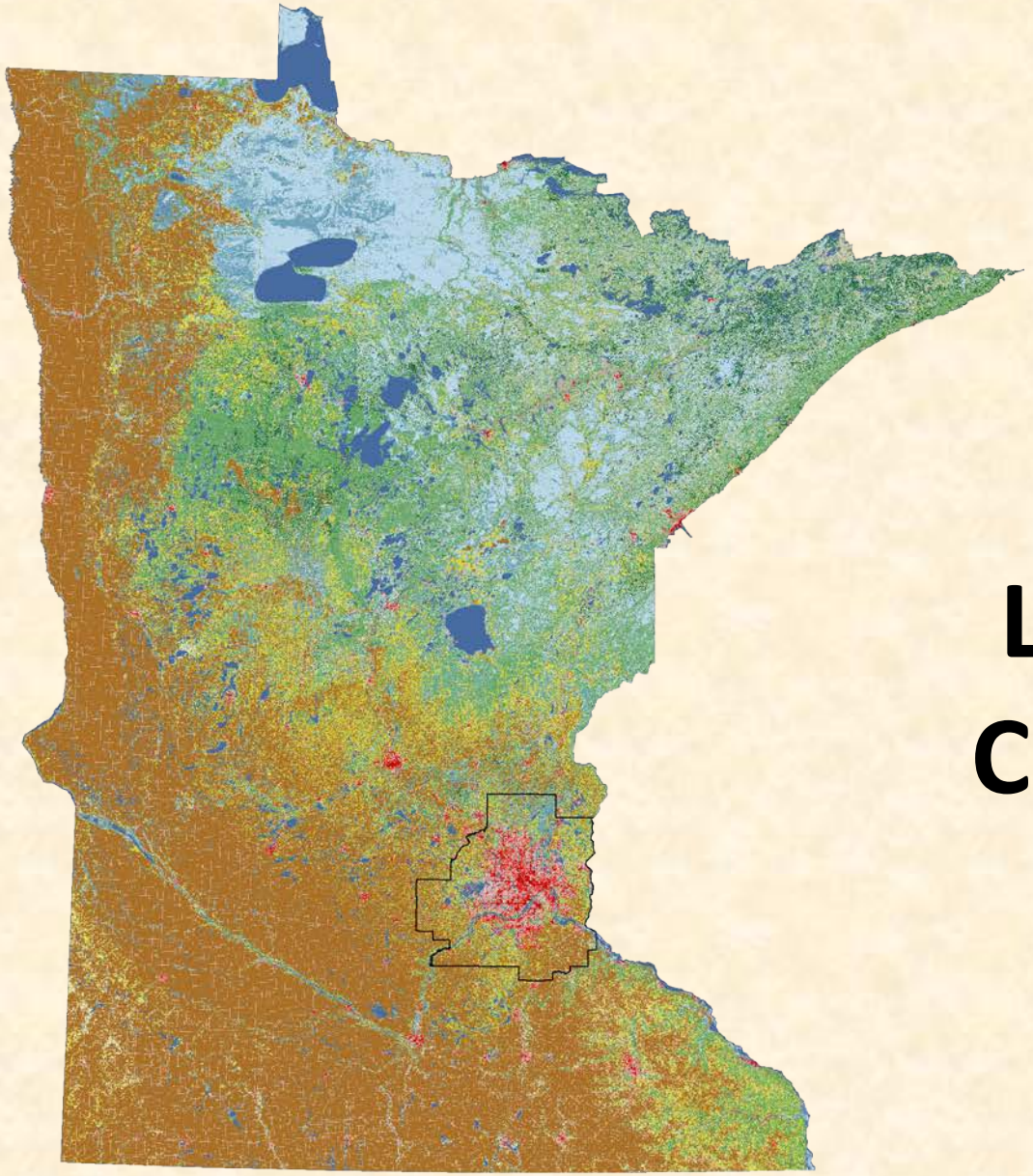
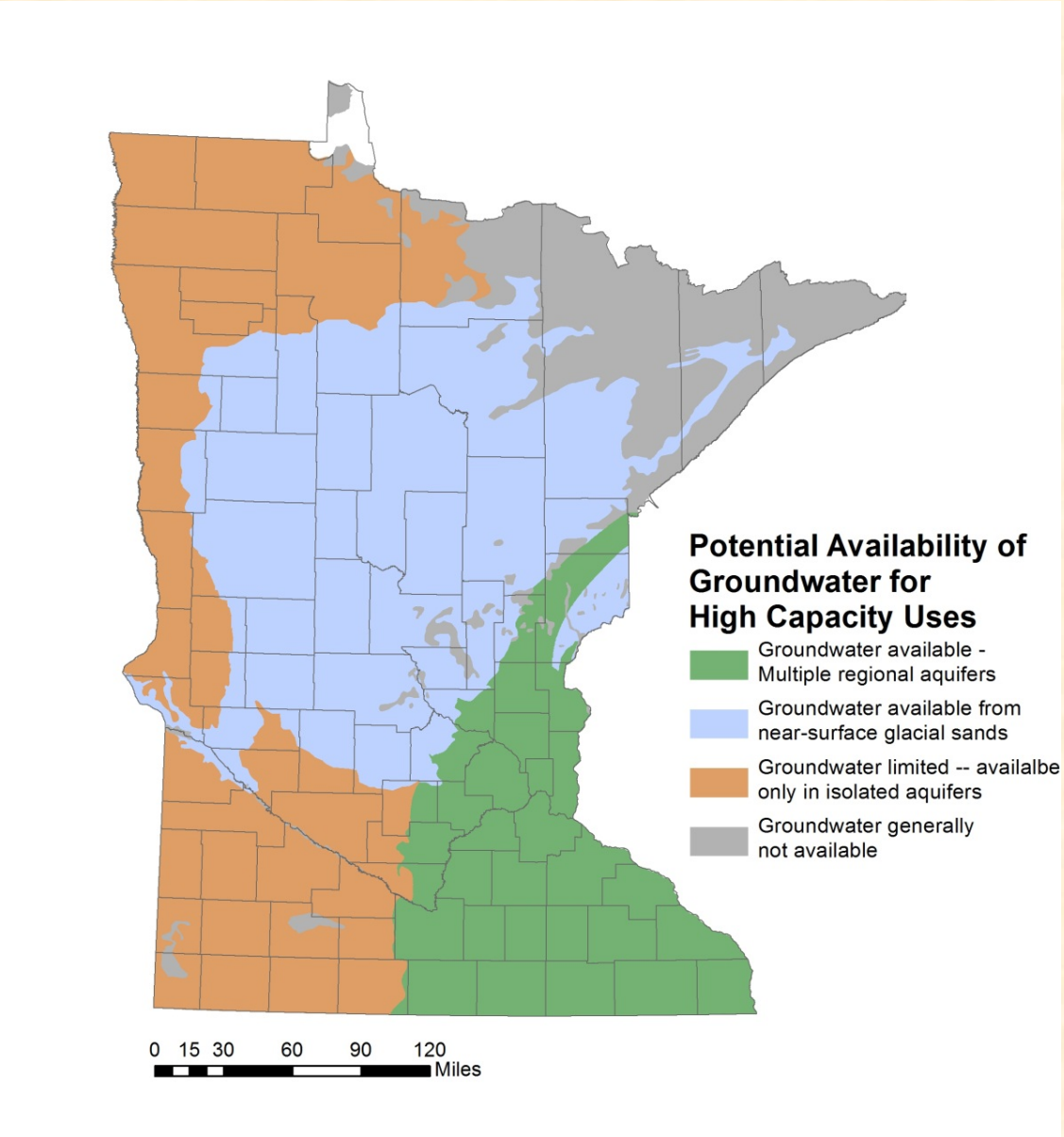
# BACKGROUND

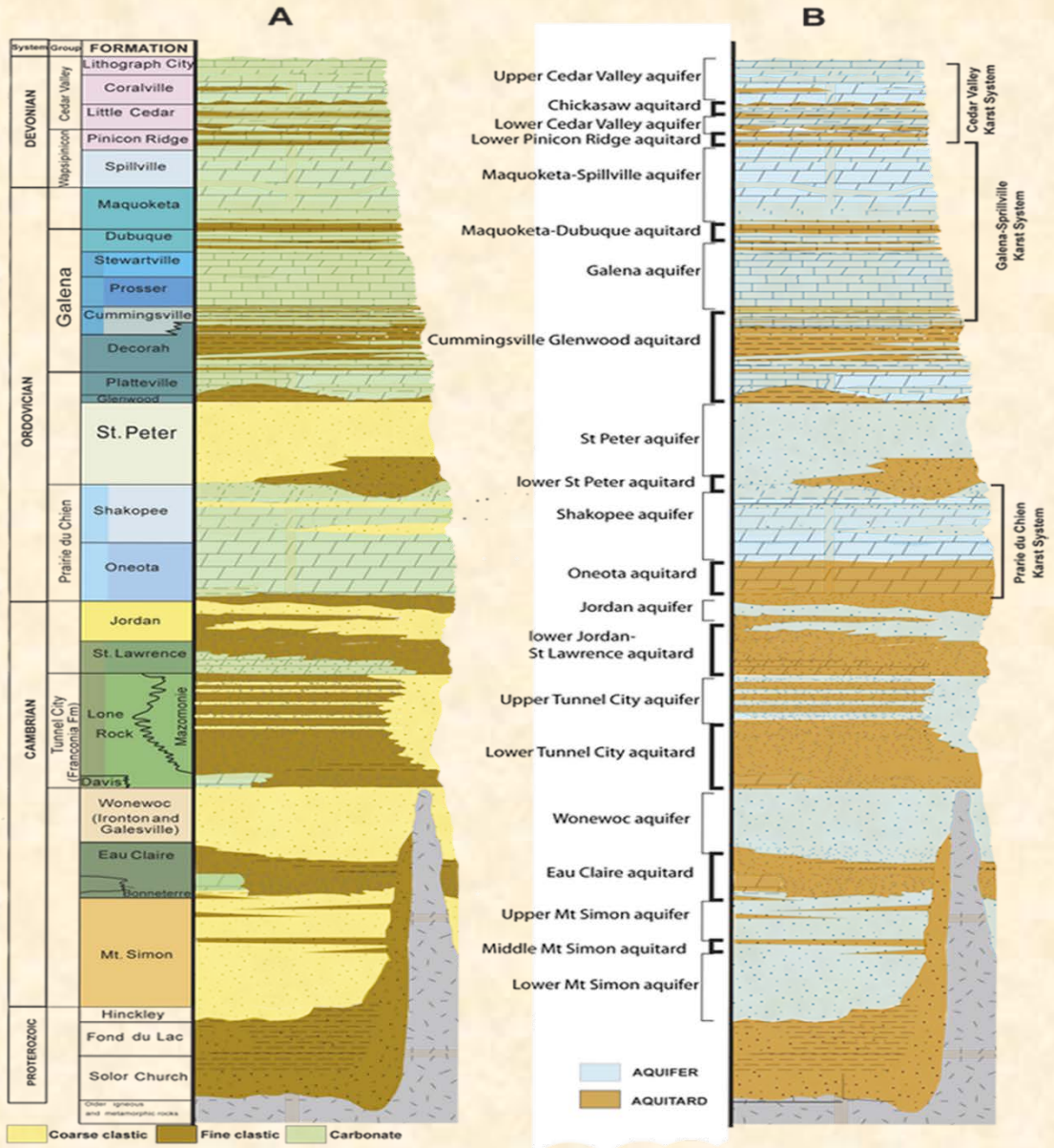


# LAND COVER

- **14 Principal Aquifers**
- **Unevenly distributed**

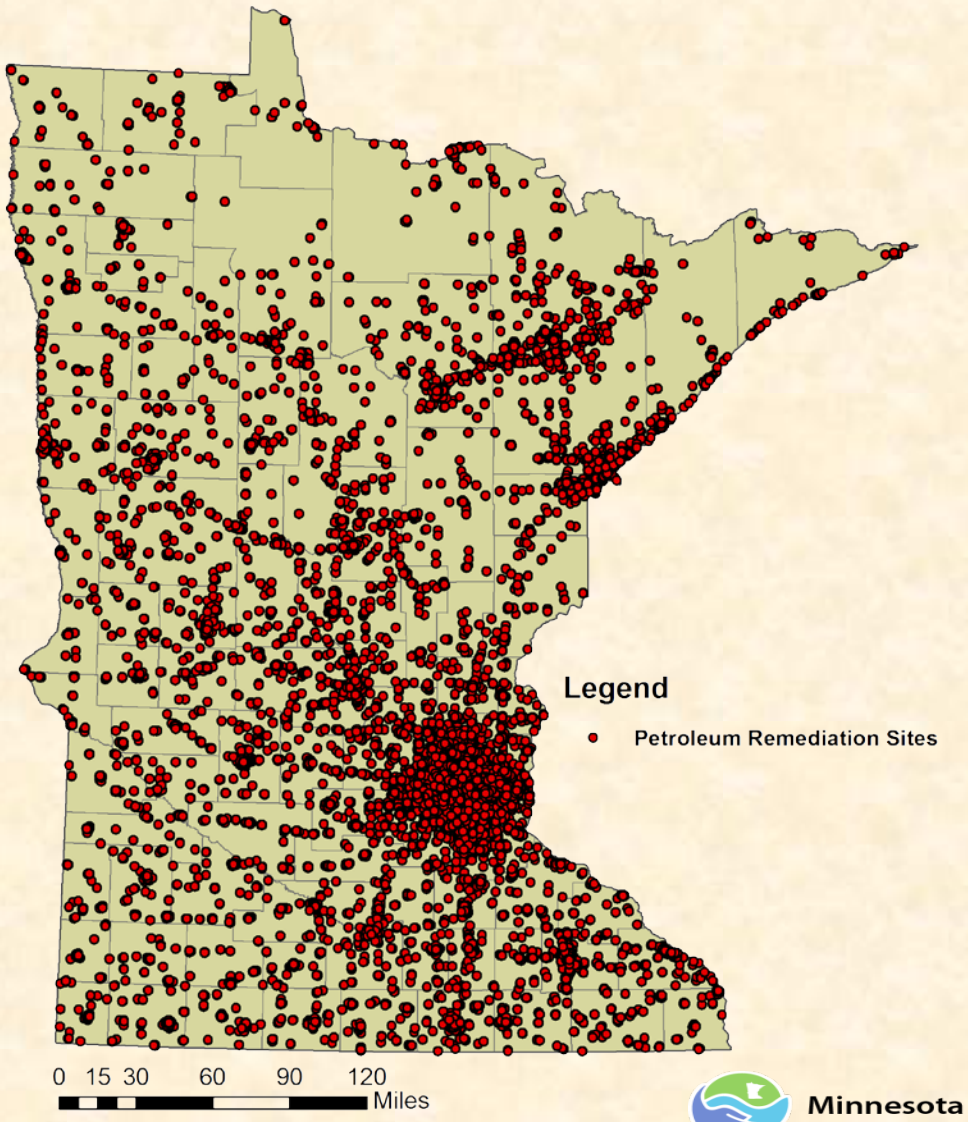


# Bedrock Aquifers Underlying Southeastern Minnesota



# MONITORING

# CHEMICAL SPILLS OR LEAKS

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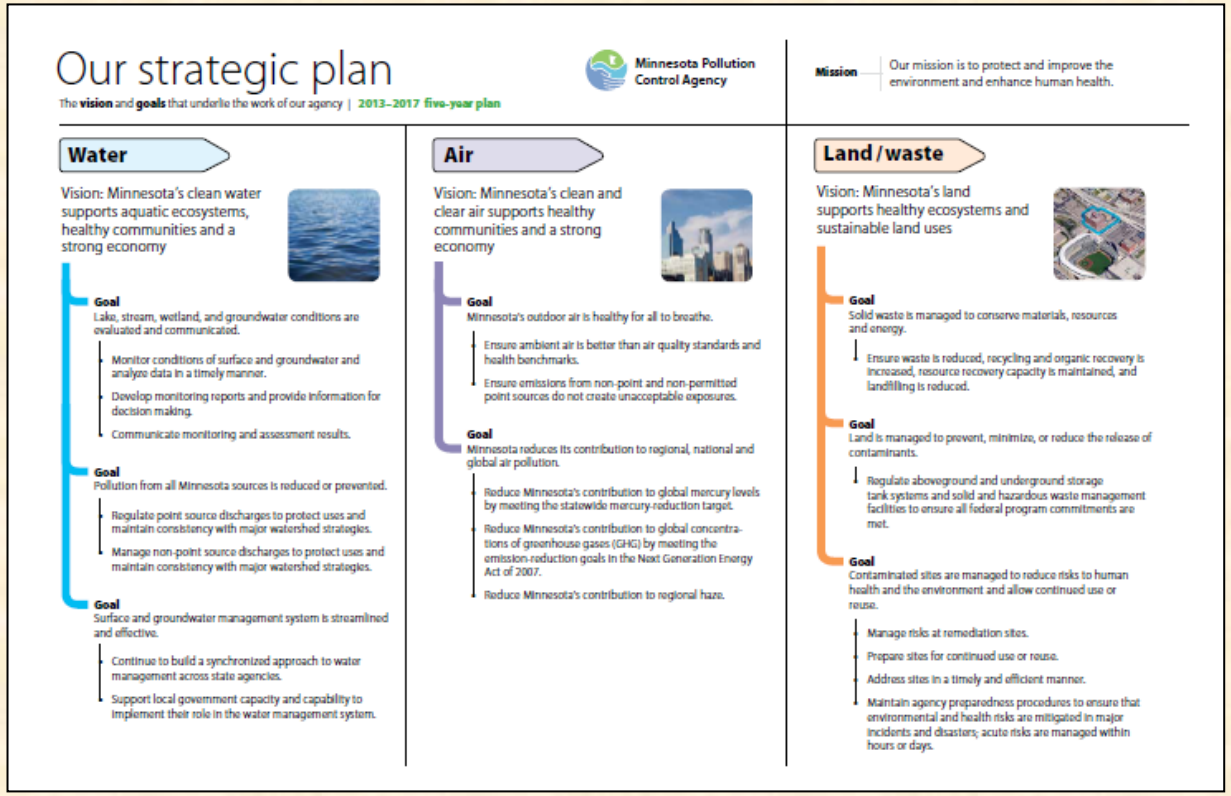
# AMBIENT GW MONITORING

**Determine any needed pollution control measures and their effectiveness**



## Our strategic plan

Minnesota Pollution Control Agency

The **vision** and **goals** that underlie the work of our agency | 2013–2017 five-year plan

**Mission** Our mission is to protect and improve the environment and enhance human health.

### Water

Vision: Minnesota's clean water supports aquatic ecosystems, healthy communities and a strong economy

**Goal**
Lake, stream, wetland, and groundwater conditions are evaluated and communicated.

- Monitor conditions of surface and groundwater and analyze data in a timely manner.
- Develop monitoring reports and provide information for decision making.
- Communicate monitoring and assessment results.

**Goal**
Pollution from all Minnesota sources is reduced or prevented.

- Regulate point source discharges to protect uses and maintain consistency with major watershed strategies.
- Manage non-point source discharges to protect uses and maintain consistency with major watershed strategies.

**Goal**
Surface and groundwater management system is streamlined and effective.

- Continue to build a synchronized approach to water management across state agencies.
- Support local government capacity and capability to implement their role in the water management system.

### Air

Vision: Minnesota's clean and clear air supports healthy communities and a strong economy

**Goal**
Minnesota's outdoor air is healthy for all to breathe.

- Ensure ambient air is better than air quality standards and health benchmarks.
- Ensure emissions from non-point and non-permitted point sources do not create unacceptable exposures.

**Goal**
Minnesota reduces its contribution to regional, national and global air pollution.

- Reduce Minnesota's contribution to global mercury levels by meeting the statewide mercury-reduction target.
- Reduce Minnesota's contribution to global concentrations of greenhouse gases (GHG) by meeting the emission-reduction goals in the Next Generation Energy Act of 2007.
- Reduce Minnesota's contribution to regional haze.

### Land/waste

Vision: Minnesota's land supports healthy ecosystems and sustainable land uses

**Goal**
Solid waste is managed to conserve materials, resources and energy.

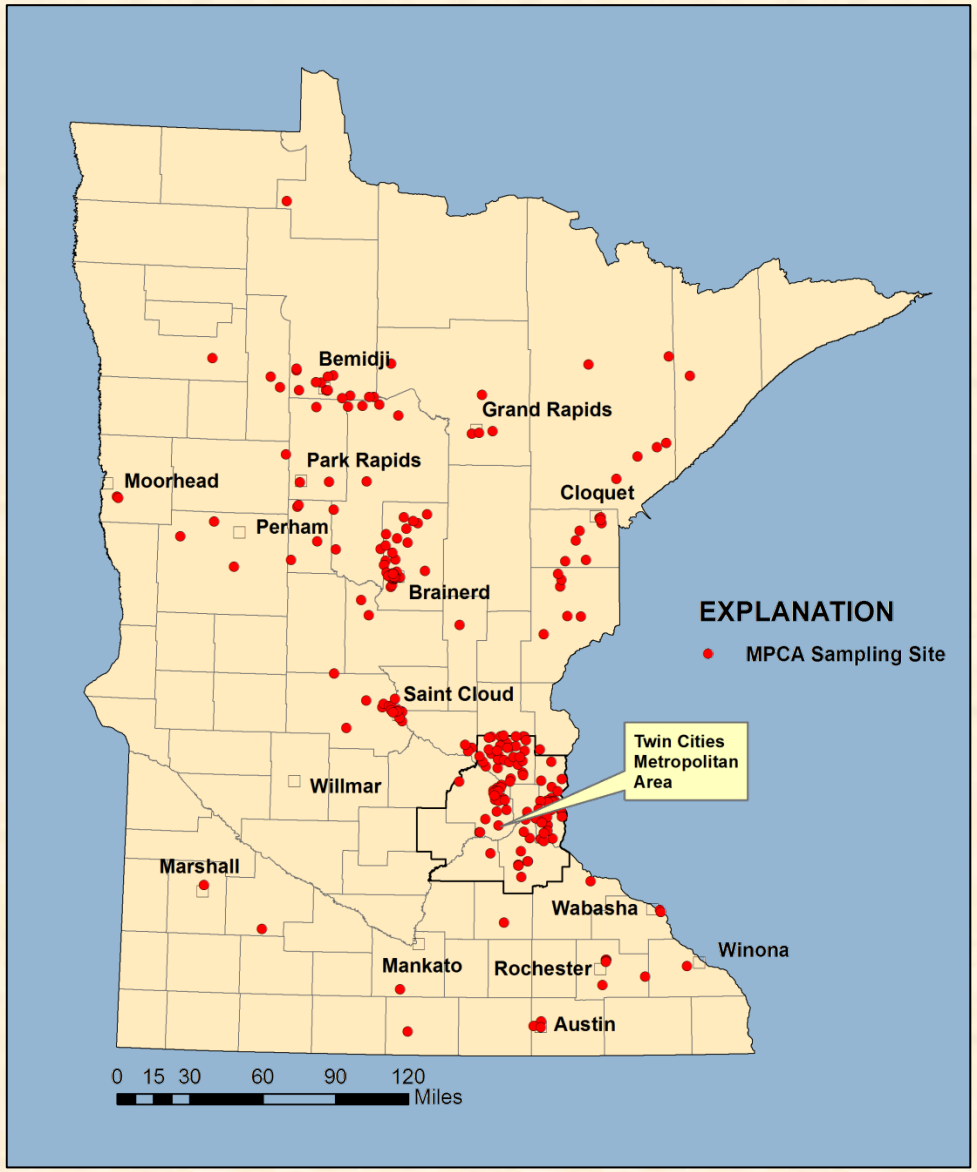
- Ensure waste is reduced, recycling and organic recovery is increased, resource recovery capacity is maintained, and landfilling is reduced.

**Goal**
Land is managed to prevent, minimize, or reduce the release of contaminants.

- Regulate aboveground and underground storage tank systems and solid and hazardous waste management facilities to ensure all federal program commitments are met.

**Goal**
Contaminated sites are managed to reduce risks to human health and the environment and allow continued use or reuse.

- Manage risks at remediation sites.
- Prepare sites for continued use or reuse.
- Address sites in a timely and efficient manner.
- Maintain agency preparedness procedures to ensure that environmental and health risks are mitigated in major incidents and disasters; acute risks are managed within hours or days.




# MPCA's AMBIENT GW MONITORING NETWORK

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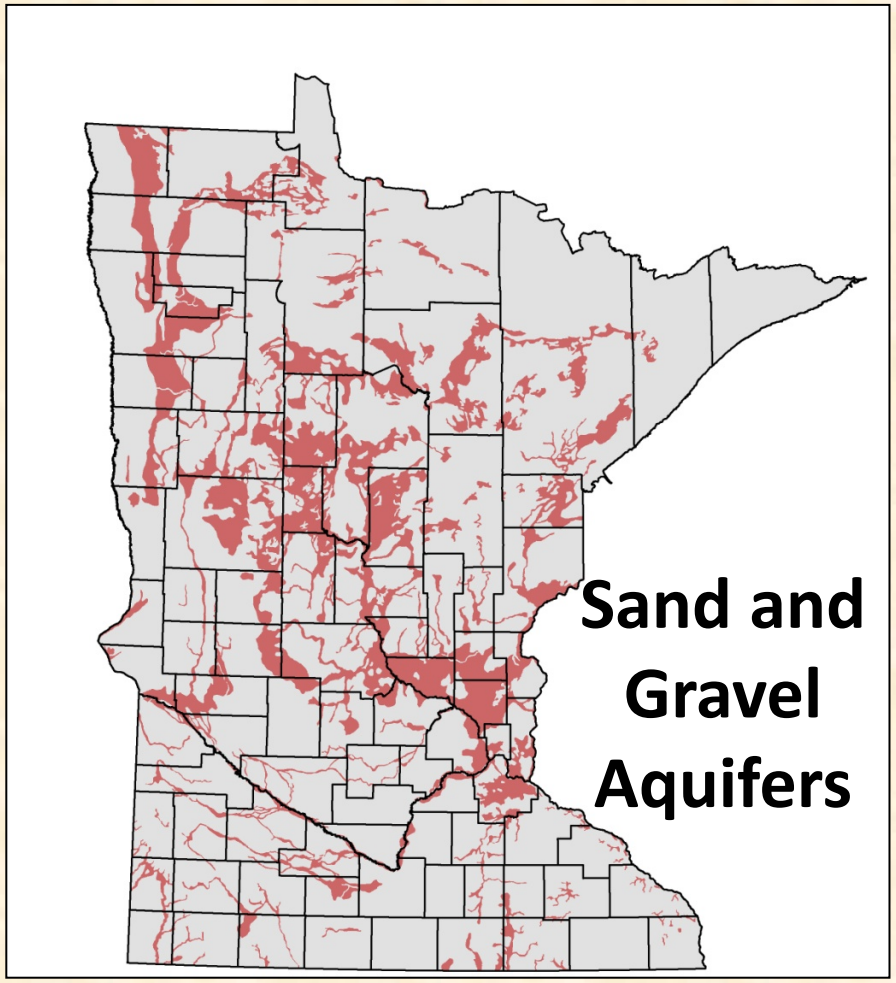
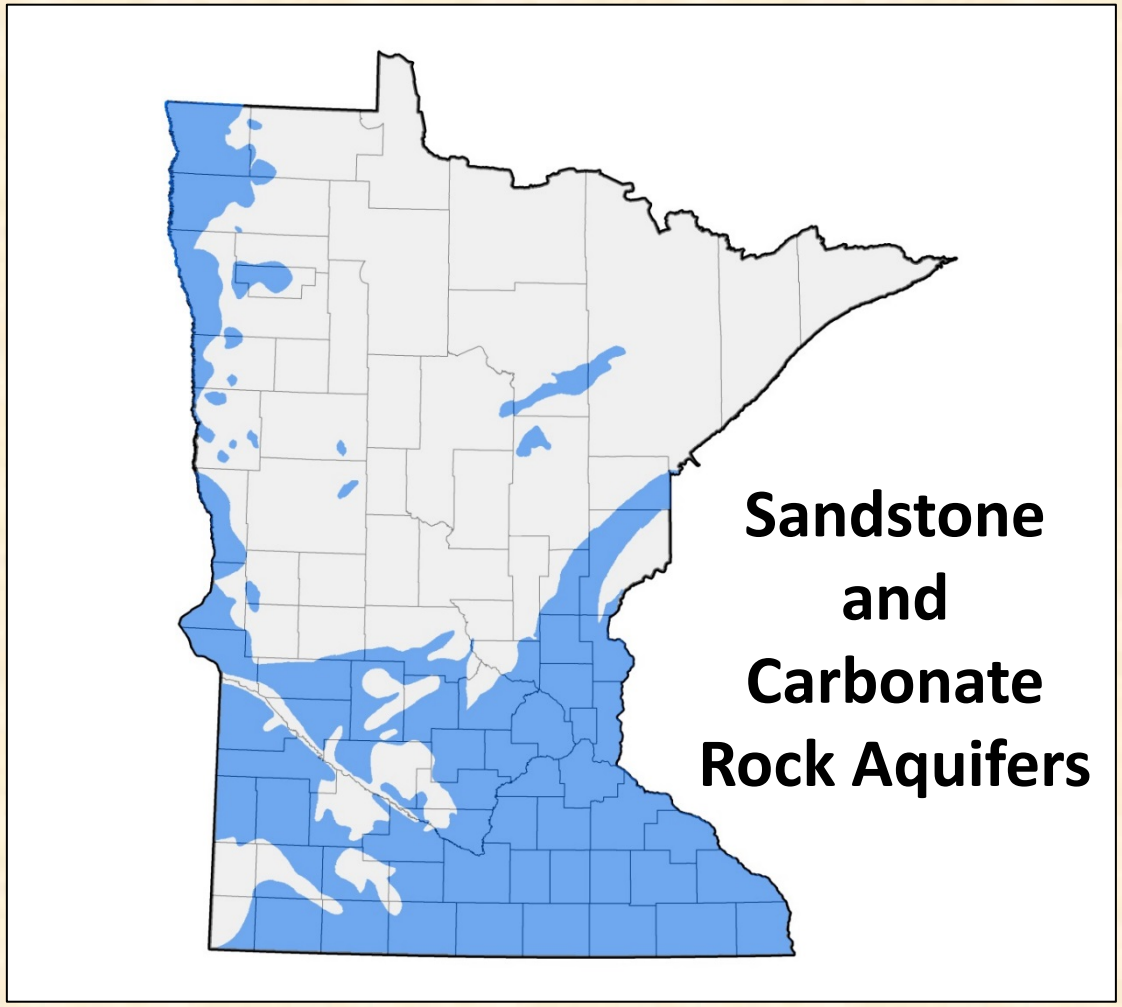
# FOCUS ON VULNERABLE AQUIFERS



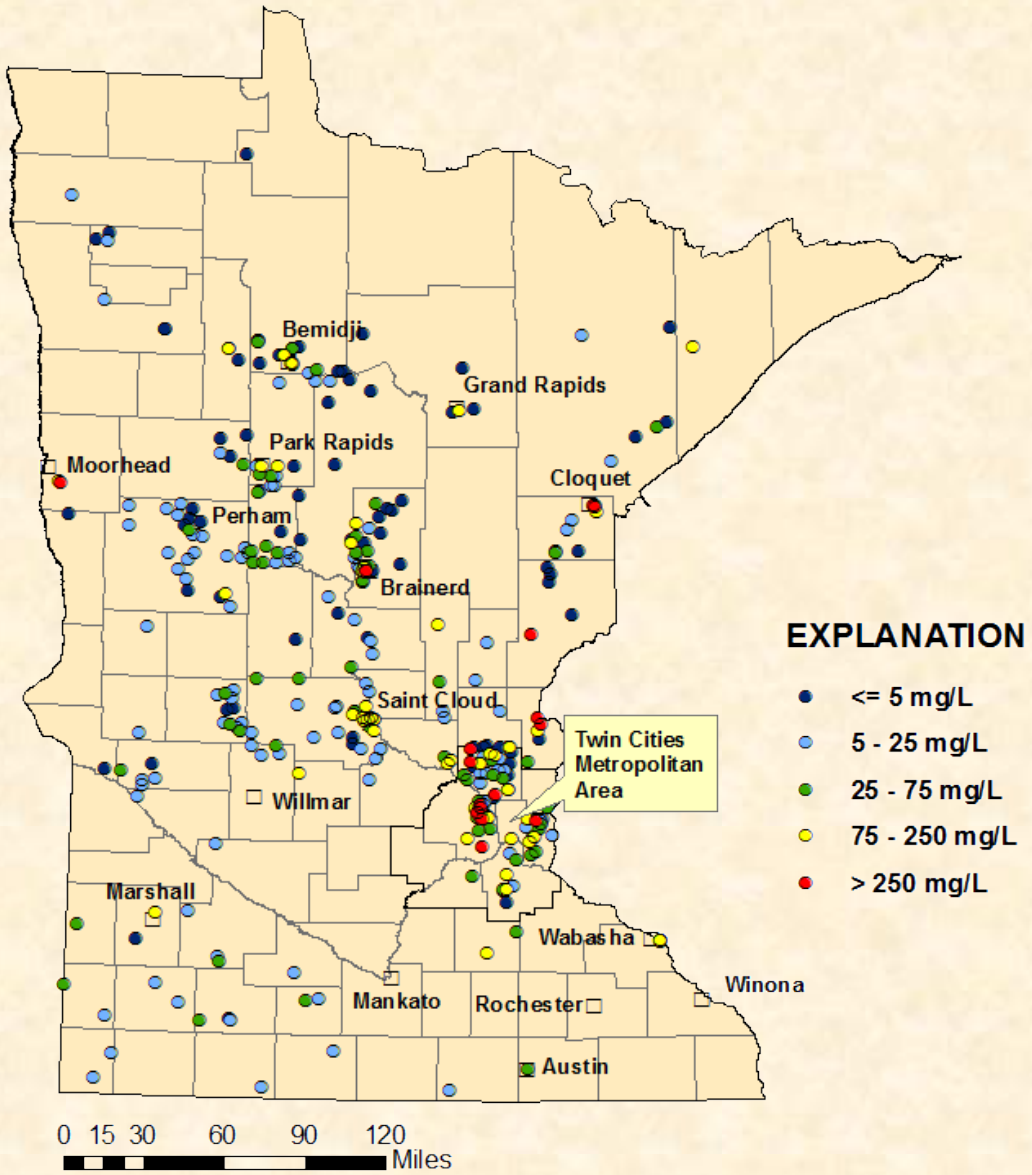



# CHLORIDE



# CHLORIDE CONCENTRATIONS IN MINNESOTA'S SAND AND GRAVEL AQUIFERS

Data from 2010-15

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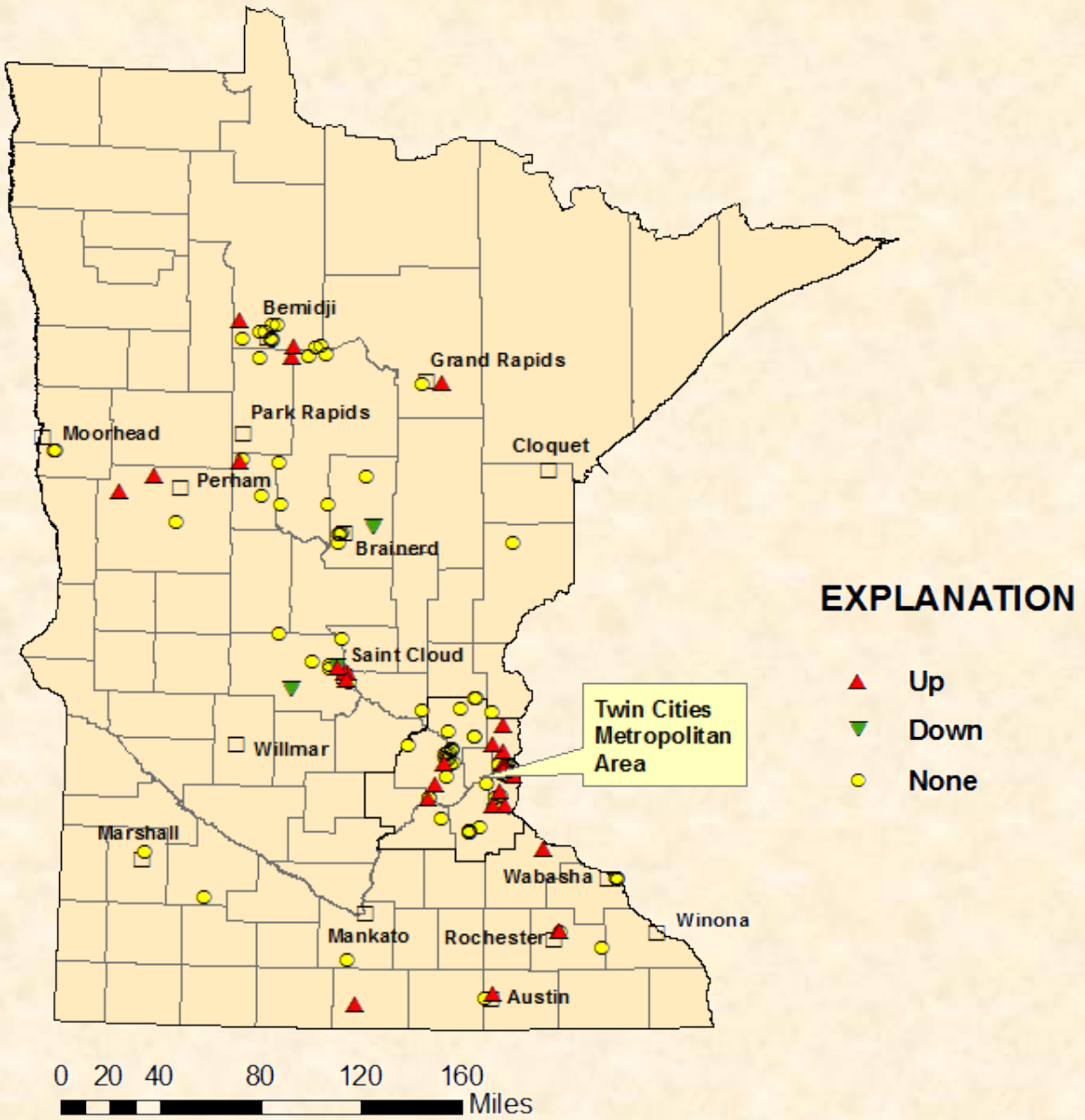
# CHLORIDE CONCENTRATION TRENDS

## Data from 1987-2015

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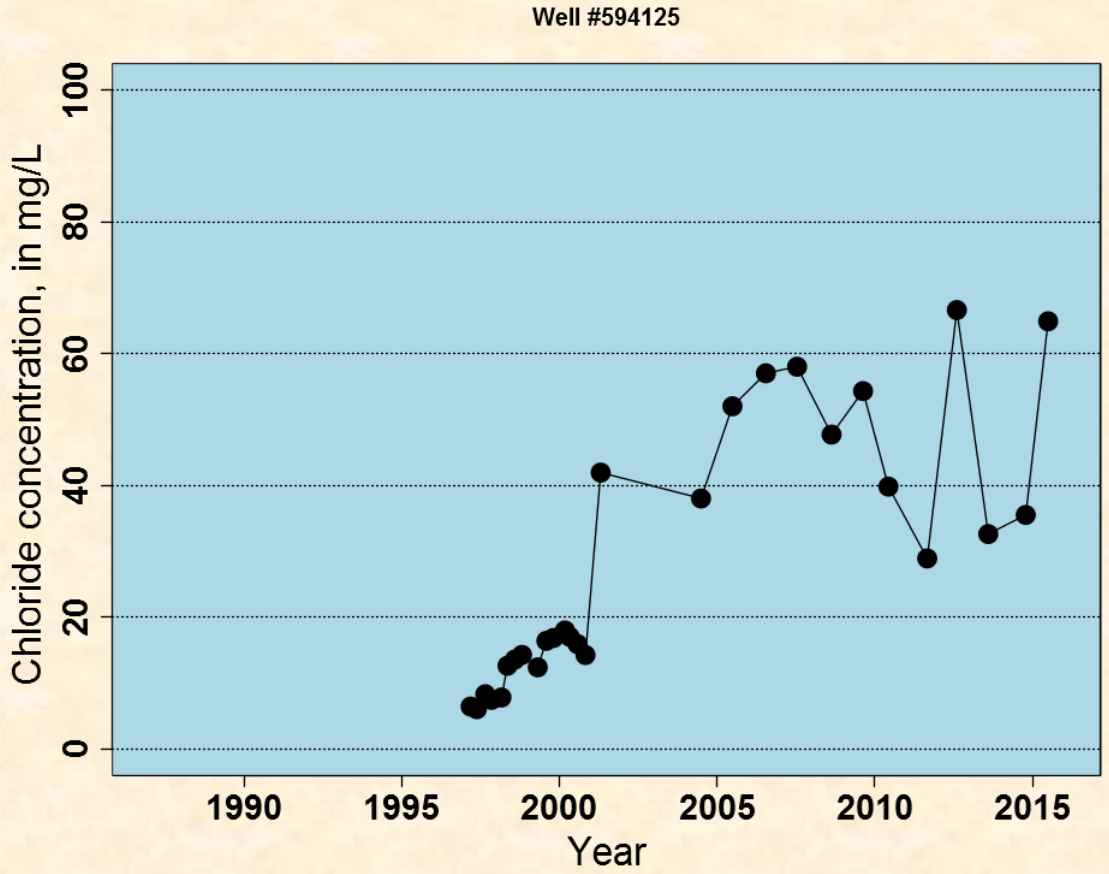
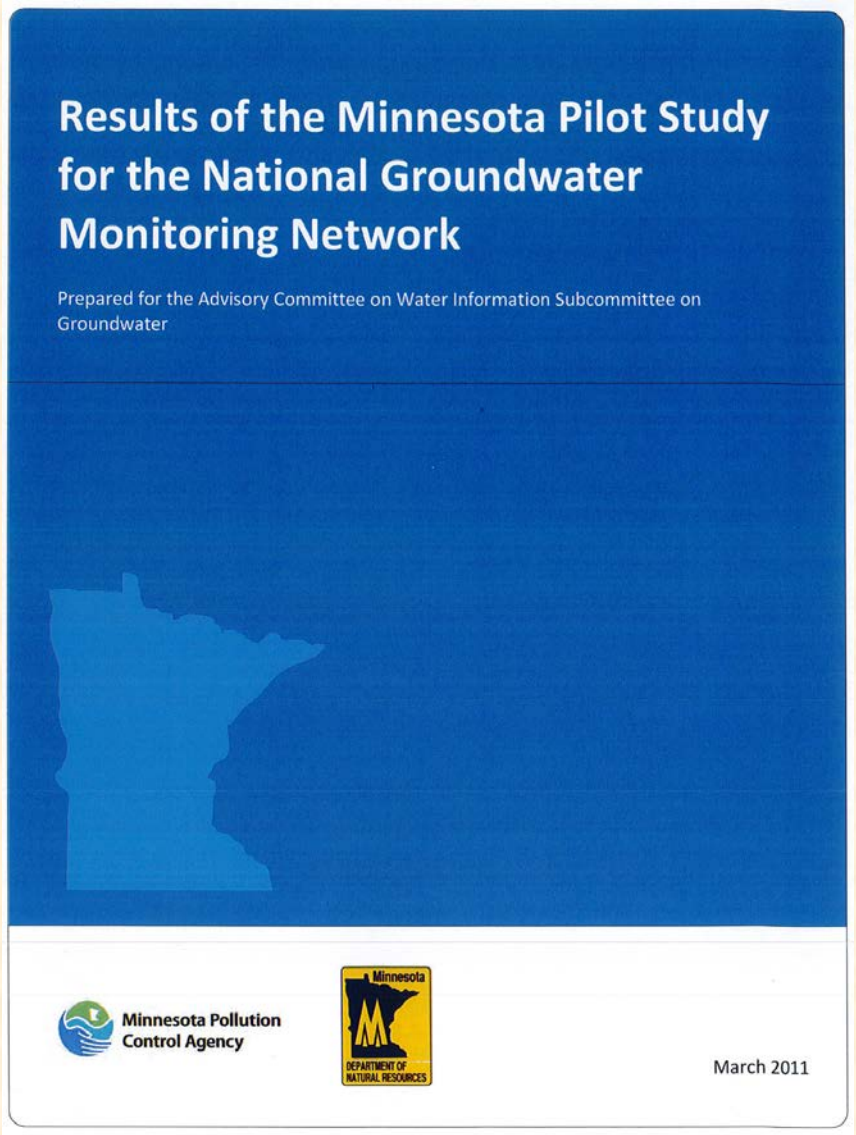
# LAND USE CHANGE EFFECTS





# NGWMN PARTICIPATION

# 2010 Pilot Study



# Pilot Project

- Jointly conducted with the Minnesota Department of Natural Resources
- Focused on one principal aquifer in Southeastern Minnesota
- Information from 37 water-quality wells in the NGWMN portal
- Sample collection method review – generally comparable to the NGWMN protocol

# Big Changes After Pilot Study

- Funding to install an additional 150 wells to its monitoring network
- Changed water quality databases – most data were no longer available to the portal

# Current Project

- Reconnect water-quality data to NGWMN portal
- Add water-quality data from the glacial sand and gravel aquifers and Upper Carbonate Aquifer
- Add well construction and lithology information
- Document field methods and data management

# Site Selection Process

- Reviewed all sites to ensure the minimum data elements were present.
- Reviewed available water-quality data to see if sufficient baseline data was present.
- Selected sites for each aquifer at a ratio of 1 to 5 sites per 1000 square miles.
- Used nitrate, chloride, and bromide data to classify sites into background, suspected changes, and documented changes subnetworks

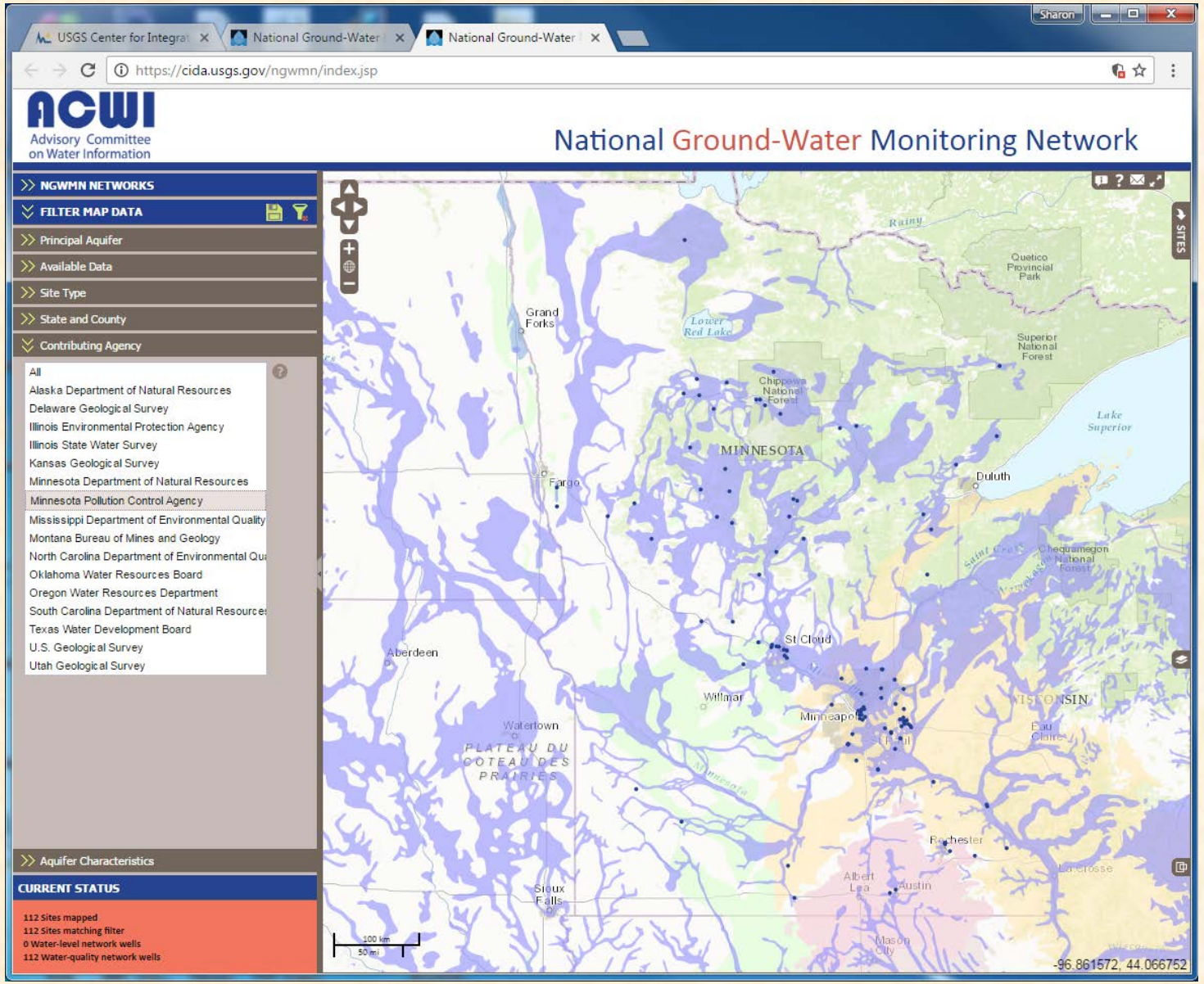
# Site Selection Process

- Background wells- nitrate<1 or chloride<30, and Cl/Br<200
- Documented Changes– nitrate>1, chloride>30, and Cl/Br>200
- Also considered the presence of CECs, VOCs, and trends in chloride concentrations
- Cambrian-Ordovician Aquifer Wells were selected for each of the four major aquifers in this system.

# STATUS

- 112 MPCA water-quality sites now are in the NGWMN portal
- Working with the Minnesota Department of Health and Geological Survey to provide well construction and lithology data to the NGWMN
- Publishing data management and sample collection procedures.

# MPCA Sites Currently in the Portal

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Thank
You!