

Agency Graphs & Data for Agricultural Degradation of Water Quality

**Subcommittee on Water Policy
November 14, 2023**

*Testimony reference materials from
Lori D. Cox - Roots Return Heritage Farm LLC
Carver County, MN*

MDA – Pesticide and Fertilizer Management Authority

No standard compliance checks, enforcement in farming. Actions, practices voluntary:

- [Minnesota Nitrogen Fertilizer Management Plan | Minnesota Department of Agriculture \(state.mn.us\)](https://www.state.mn.us/da/nitrogen/)
- [Manure Conservation Practices | Minnesota Department of Agriculture \(state.mn.us\)](https://www.state.mn.us/da/manure/)
- [Pesticide Management Plan Status Report 2022 \(mn.gov\)](https://www.mn.gov/pesticide/)

[Minnesota Agricultural Water Quality Certification Program | Minnesota Department of Agriculture \(state.mn.us\)](https://www.state.mn.us/da/certification/)

1M acres, 10+ years, \$50M+ Clean Water Funds = ~2% of all MN ag acres deemed ‘certified’ for improving or restoring water quality. No monitoring data from MDA on surface waters or groundwaters utilized for advisory board or guide for program. Statistics published are tool estimates, not measured on-the-ground outcomes.

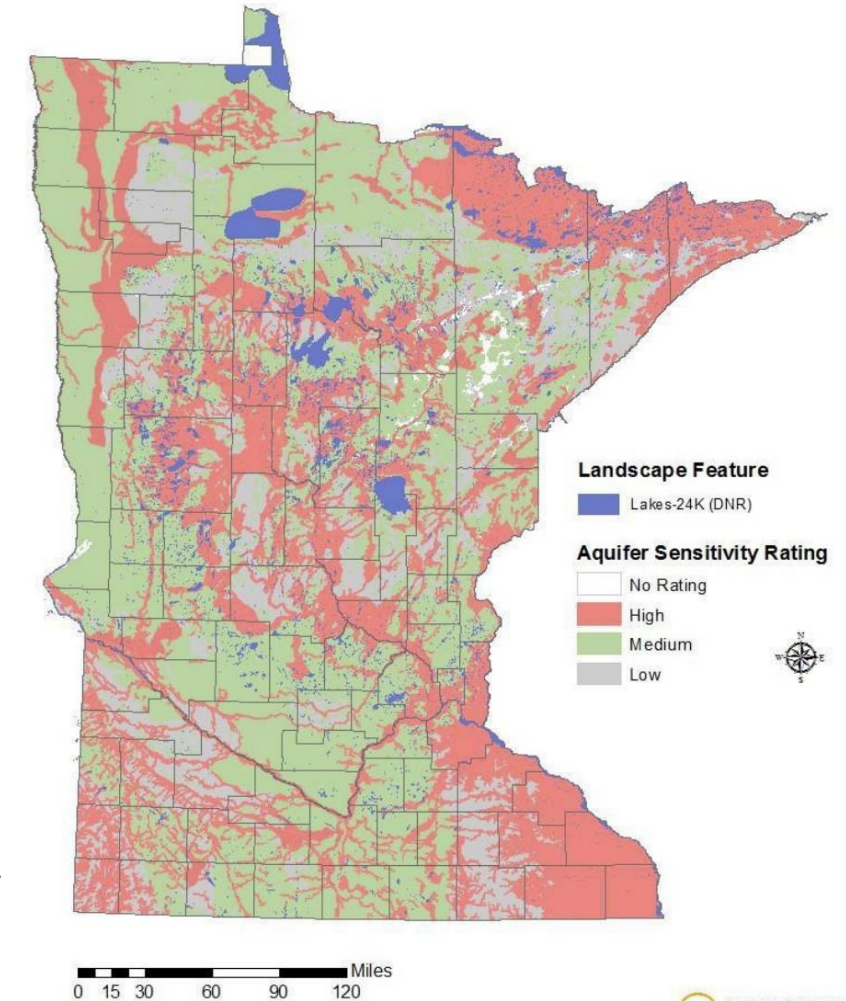
‘Approved’ practices vary widely, do not fully eliminate capability for surface waters or groundwater to become contaminated with fertilizer or chemical pollutants, even in more vulnerable areas.

MDA chooses not to implement more restrictive measures or reduction plans using their own or partner agency data. Leaves health of Minnesotans, environment at risk. Voluntary measures available for decades.

[EPAs response letter to agencies](#) was the answer Minnesotans needed

- *“EPA expects Minnesota to hold sources of nitrate accountable using all available tools to reduce the amount of nitrate they release to ground water.”*
- A new ag property tax would help pay for mitigations and effected households. MDA has the smallest budget of any state agency.

Figure 22. Water table sensitivity

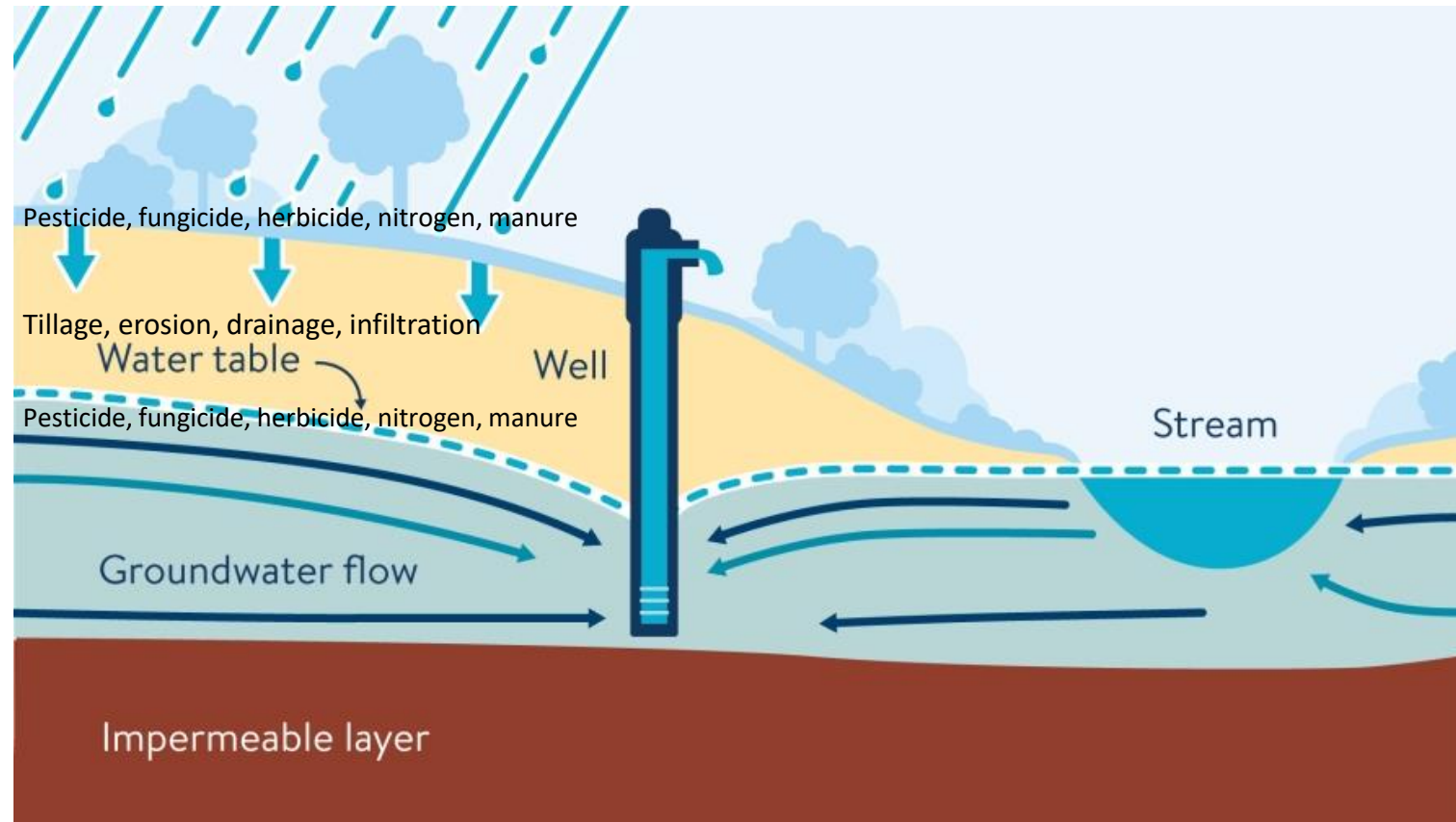


0 15 30 60 90 120 Miles

Prepared by the Minnesota Department of Agriculture 2012

MPCA – Regulatory, Feedlot Permits

- Groundwater is the source of drinking water for about 75% of all Minnesotans and provides almost all of the water used to irrigate crops. **Groundwater in parts of the central and southwestern regions of the state is contaminated with high nitrate concentrations from agriculture and, to a lesser extent, failing septic systems. Nitrate levels are higher in groundwater under agricultural land than water below urban areas.** Groundwater availability in Minnesota varies by region.
- **Current regulations and voluntary best management practices will not be sufficient to maintain healthy groundwater and shield contaminated wells and aquifers from additional pollution.** Even if all existing laws were followed to the letter, groundwater would still be subject to unacceptable levels of nutrients and other contaminants. **Targeted action will be required to cut off unregulated sources of pollution.**
- **Nitrate pollution: Most of the sand and gravel aquifers in southern Minnesota have nitrate concentrations that exceed EPA guidelines for human health.**



DNR – Irrigation Permits

- [WATER QUALITY - Health Scores | Minnesota DNR \(state.mn.us\)](#)

WATER QUALITY - Non-Point Sources

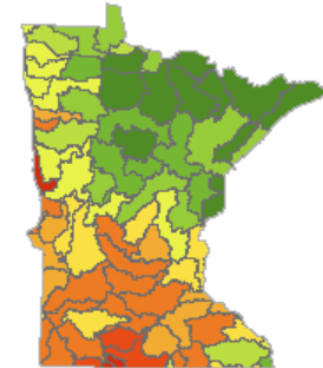
How intense is the use of agricultural chemicals? How much impervious surface exists near streams?

Why is this important for water quality?

Waters are vulnerable to runoff of chemical contaminants from adjacent lands. These chemicals are often applied at low concentrations, but become pollutants and cause damage when carried to streams, rivers, wetlands, and lakes via rainfall, irrigation runoff or subsurface flow. Deposition of pollutants from the atmosphere and urban runoff containing contaminants are other non-point sources that may end up in surface water after being routed by impervious surfaces.

There are thousands of studies showing the connection between disbursed chemical application or deposition and reduced water quality, degraded water resources, or damage to biotic communities. Water quality measured by nutrients and contaminants has been shown to decline with higher agricultural or urban development (Allan et al. 1997, Welch et al. 1998, Goetz et al. 2003, Moore et al. 2007, Schiff and Benoit 2007, Zampella et al. 2007, Lussier et al. 2008). Contaminants, such as nitrogen and phosphorus, were at higher concentrations in water with both higher rates per unit area and application to a larger proportion of surrounding landscapes (Johnes et al 1996, Townsend et al 2004, Nangia et al. 2008). Moore (2007) found measureable impacts, such as excess algal growth and reduced plant diversity; additionally, Smith et al., (2007), and Wang et al., (2007, 2008) found low biotic integrity and diversity for fish and invertebrate communities related to non-point pollution.

Non-Point Source Health Scores



Click map to enlarge and explore Watershed Health Assessments.



EPA – Regulatory – (exemptions for nonpoint sources)

- **Agricultural operations can have significant effects on water quality, due to the extent of farm activities on the landscape, the soil-disturbing nature of those activities, and associated impacts from sediment, nutrients, pesticides, and herbicides.** The National Water Quality Assessment shows that **agricultural runoff is the leading cause of water quality impacts to rivers and streams, the third leading source for lakes, and the second largest source of impairments to wetlands.** About a half million tons of pesticides, 12 million tons of nitrogen, and 4 million tons of phosphorus fertilizer are applied annually to crops in the continental United States. Soil erosion, nutrient loss, bacteria from livestock manure, and pesticides constitute the primary stressors to water quality.
- **Pollutants from agricultural operations can also enter groundwater and degrade sources of drinking water. Human health impacts might occur as a result. More than 13 million U.S. households obtain their drinking water from private wells. Pollution from pesticides, fertilizers, and animal manure can enter groundwater depending upon local land use and geologic conditions.**
- **EPA's National Water Quality Inventory (2016) under Section 305b of the Clean Water Act (CWA):**
 - Rivers and streams: According to the National Rivers and Streams Assessment 2008-09, **46% of river and stream miles are in poor biological condition; phosphorus and nitrogen are the most widespread of the chemical stressors assessed.**
 - Lakes, ponds and reservoirs: The National Lakes Assessment 2012 finds that that **21% of the nation's lakes are hypereutrophic (i.e., with the highest levels of nutrients, algae and plants). Phosphorus and nitrogen are the most widespread stressors in lakes**
 - Coastal waters: According to the National Coastal Condition Assessment 2010, 18% of the nation's coastal and Great Lakes waters are in poor biological condition and **14% are rated poor based on a water quality index. Phosphorus is the leading stressor contributing to the poor water quality index rating.**
 - Wetlands: The National Wetland Condition Assessment 2011 finds that **32% of the nation's wetland area is in poor biological condition, with leading stressors including surface hardening (soil compaction) and vegetation removal.**
 - Using targeted, site-specific monitoring needed to support local management decisions, states identified a wide range of assessed waters as **not fully supporting at least one of their designated uses.** This report represents a snapshot of the state submissions as of July 2016.
 - Mercury (primarily in fish tissue), pathogens, **nutrients, PCBs, sediment, and organic enrichment/oxygen depletion were all cited as leading causes of impairment in assessed waters.**
 - Leading known sources included atmospheric deposition and **agricultural activities**

Rep. Jacob Newsletter Oct 18th



Hello from St. Paul,

Last month, I alerted you to the news that a number of environmental organizations – including Land Stewardship Project - have petitioned the U.S. Environmental Protection Agency (EPA) and asked it to mandate moratoriums on concentrated animal feeding operations (CAFOs) in our area.

If successful, it would devastate animal agriculture in southeastern Minnesota. Not only do the petitioners want the EPA to prohibit the expansion of CAFOs, they also want to prohibit any modifications to their operations. They also ask the EPA to, once it decides who should be blamed for nitrate contamination, require those responsible to supply free, clean drinking water to owners of area private wells, and require CAFOs and other farms using nitrogen fertilizers to change their practices.

On October 3, the Subcommittee on Minnesota Water Policy held a meeting on the EPA request. The only “farmer” who testified at the hearing raises herbs and flowers, is not from southeastern Minnesota, and spoke in favor of the EPA request.

The subcommittee agreed to continue the hearing and take further testimony on the EPA topic on November 14th at 9:00 a.m. If you wish to testify before the committee and share your thoughts on this potential action, I urge you to contact Jim Stark, LCC Subcommittee on Water Policy, as soon as you can by email at Jim.stark@Lcc.mn.gov, or call 651-284-6431 and let him know you would like to speak. If you want to watch the proceedings, you will be able to see it online at www.lcc.mn.gov/smwp/Meetings_2023.html.

In my opinion, the petition is a scheme to circumvent the local process and shut down animal agriculture, specifically dairy farms. I have always been a strong advocate for environmental issues, but giving government control over family farms is not the way to go about it. I encourage anyone interested in the EPA topic to please make time to either watch the hearing on November 14, or better yet, sign up to directly share your feelings.

Talk to you soon,

Steve