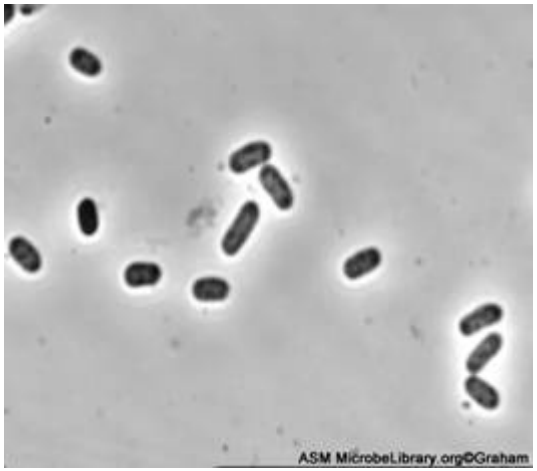
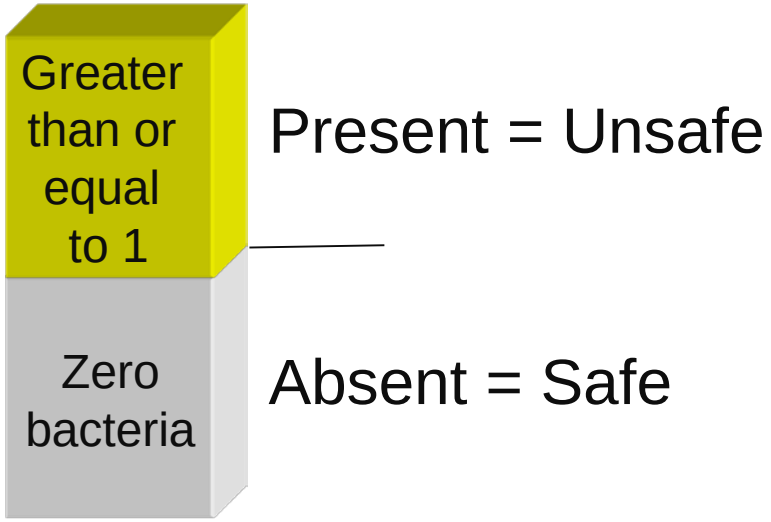
Tests Important to Health

Contaminant	Which wells should be tested?	Frequency
Coliform Bacteria	Every well	Annually
Nitrate	• All wells • Pregnant women/infants • Levels close to 10 ppm	• Test at least once • Test before pregnancy • Test annually
Pesticides	Within ¼ mile of agricultural fields	Consider testing at least once every 5-10 years
Lead	Homes with brass fixtures or copper plumbing installed before 1985	Consider one time test
Copper	Homes with copper plumbing	Consider one time test
Arsenic	All wells	Consider one time test

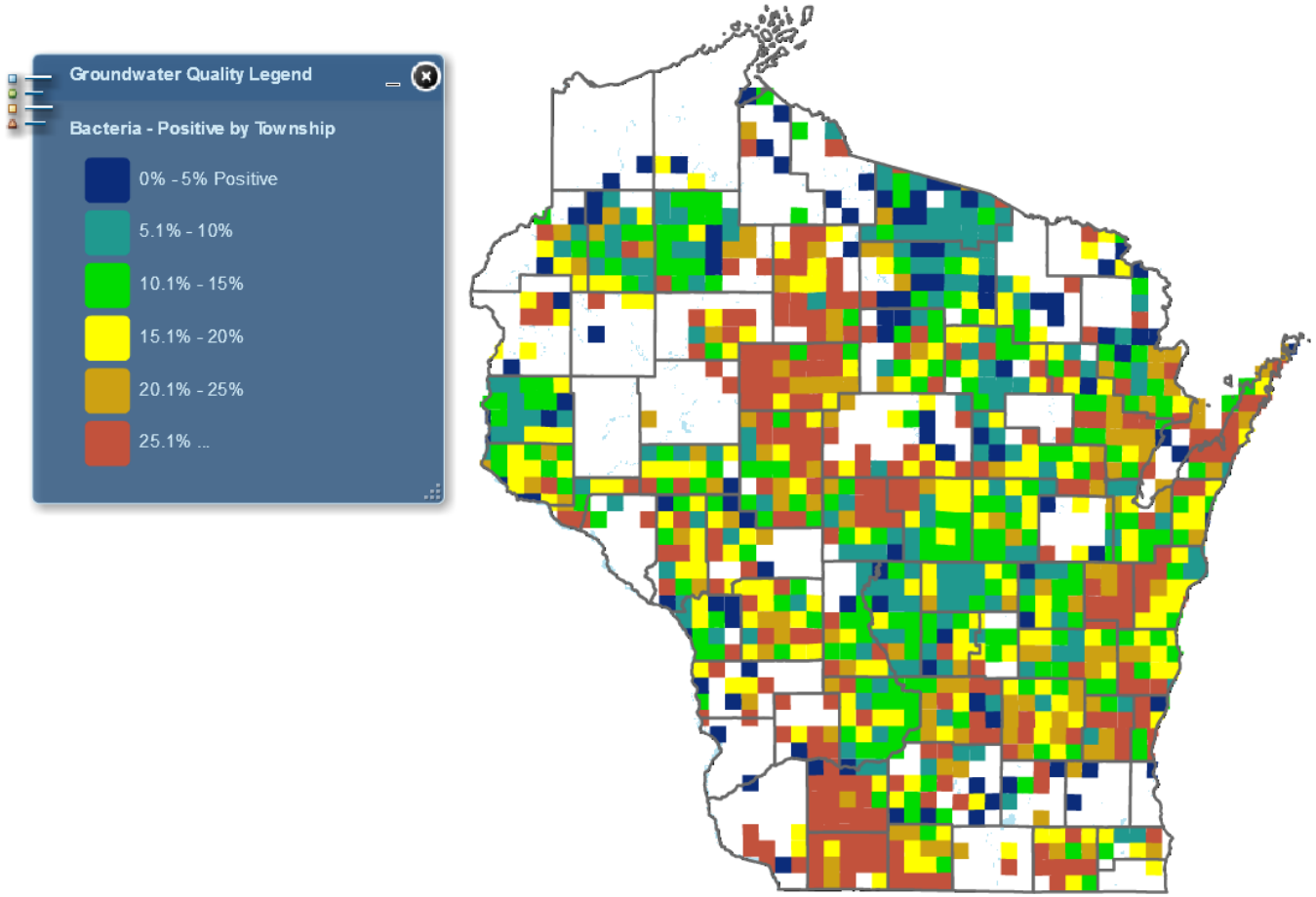
Coliform bacteria

- Generally do not cause illness, but indicate a pathway for potentially harmful microorganisms to enter your water supply.
  - Harmful bacteria and viruses can cause gastrointestinal disease, cholera, hepatitis
- Well Code: “Properly constructed well should be able to provide bacteria free water continuously without the need for treatment”
- Recommend using an alternative source of water until a test indicates your well is absent of coliform bacteria
- Sources:
  - Live in soils and on vegetation
  - Human and animal waste
  - Sampling error





Coliform Bacteria
% Positive by Township

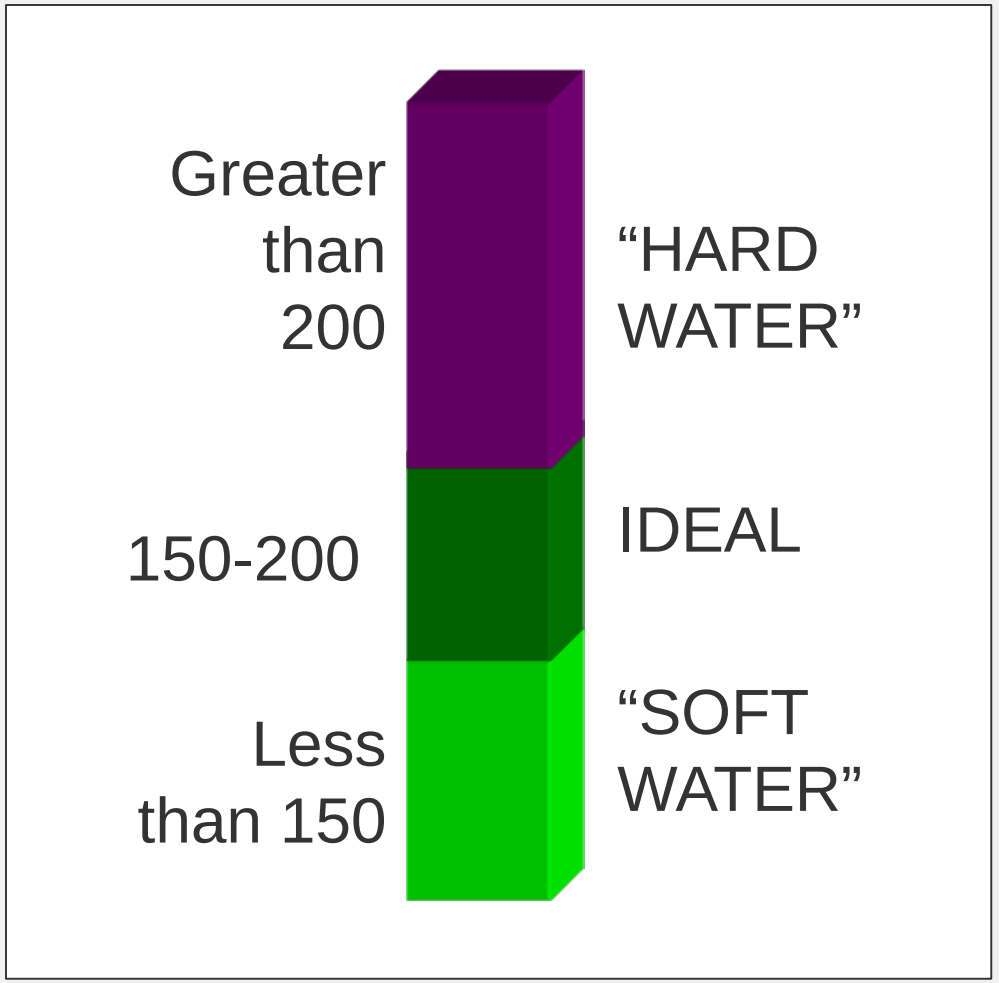


Tests for Aesthetic Problems

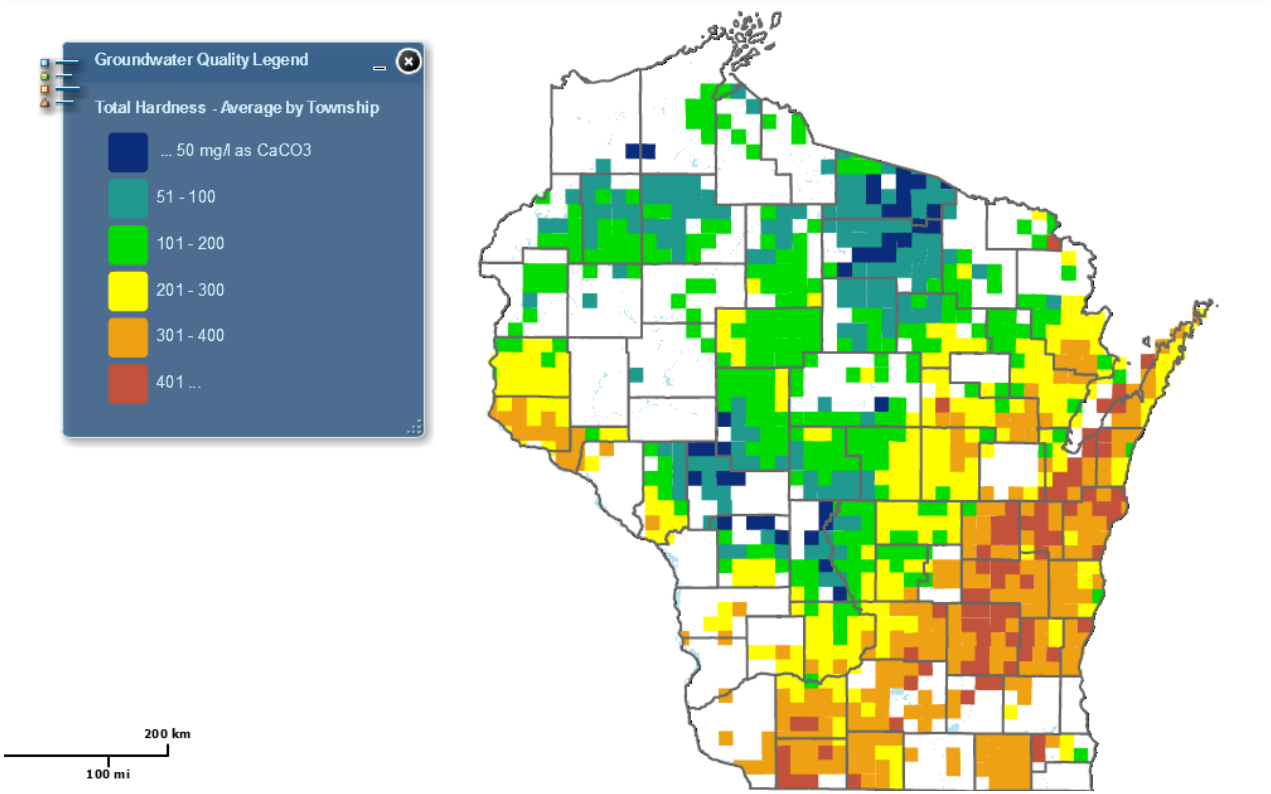
Hardness

- Natural (rocks and soils)
- Primarily calcium and magnesium

- Problems: scaling, scum, use more detergent, decrease water heater efficiency



Total Hardness: Calcium and Magnesium



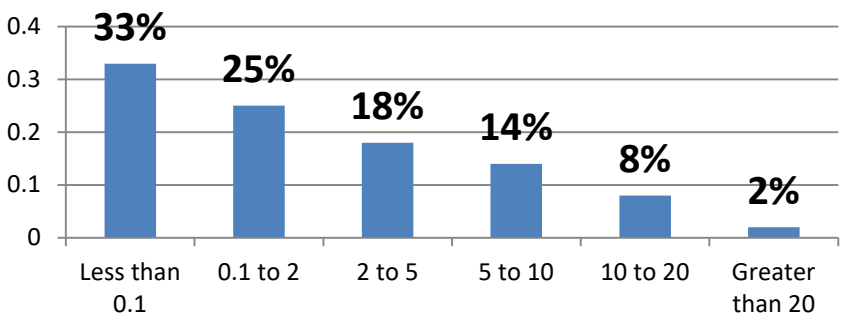
Private Well Nitrate-Nitrogen Concentrations

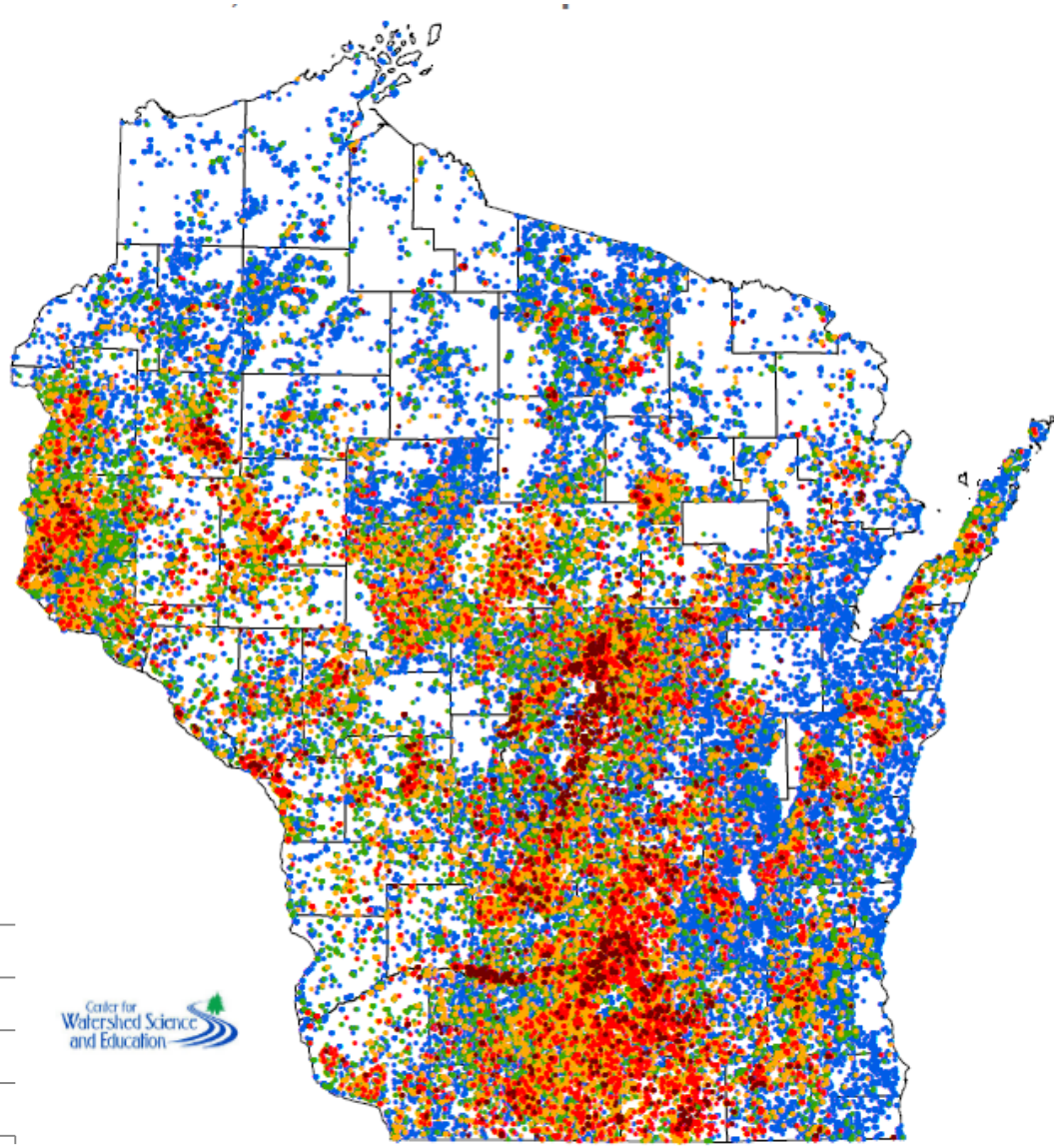
Nitrate-N Concentration (mg/L)*

- Less than 2
- 2 - 5
- 5 - 10
- 10 - 20
- Greater than 20

*Maximum displayed where overlapping values occur.

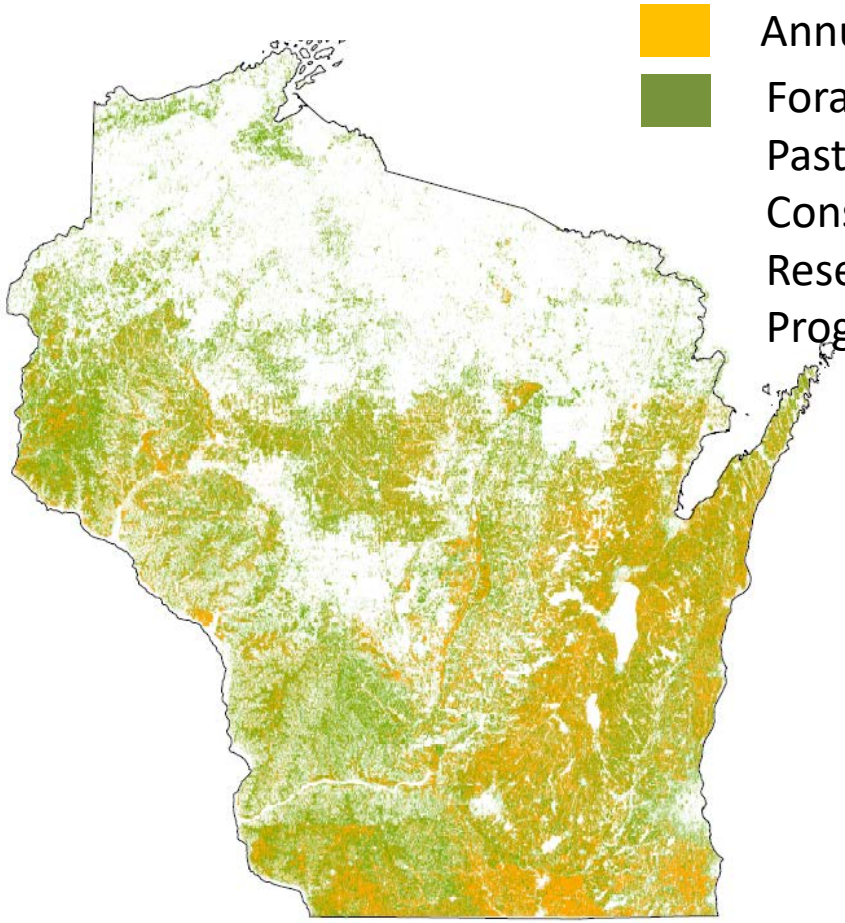
Multiply by 4.23 to convert to NO3-





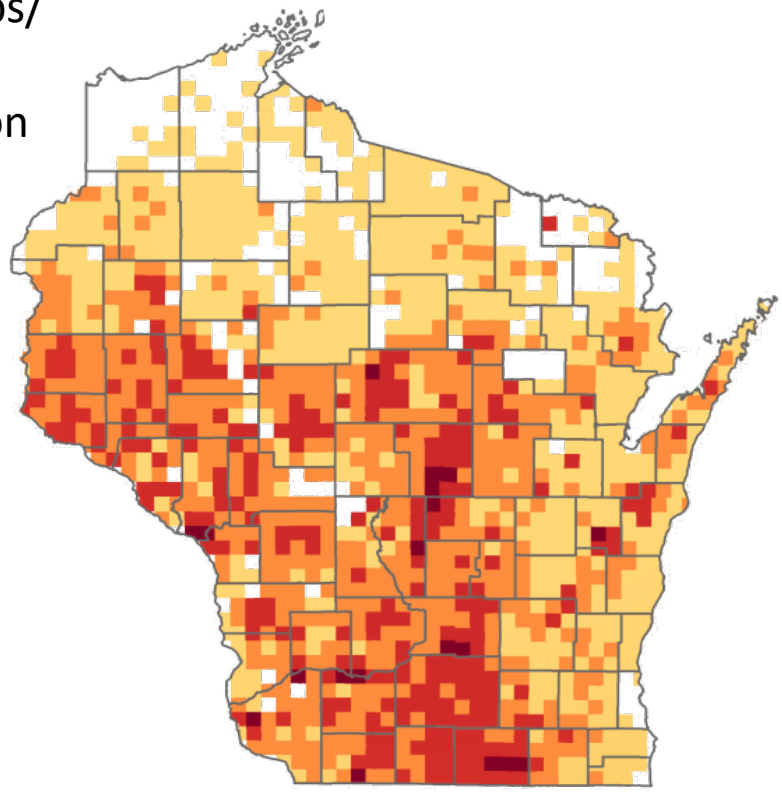
Disclaimer: This map represents well water data in the Center for Watershed Science and Education database, WI DNR Groundwater Retrieval Network. It does not represent all known private wells.

Agricultural Lands of Wisconsin



Annual Row Crops

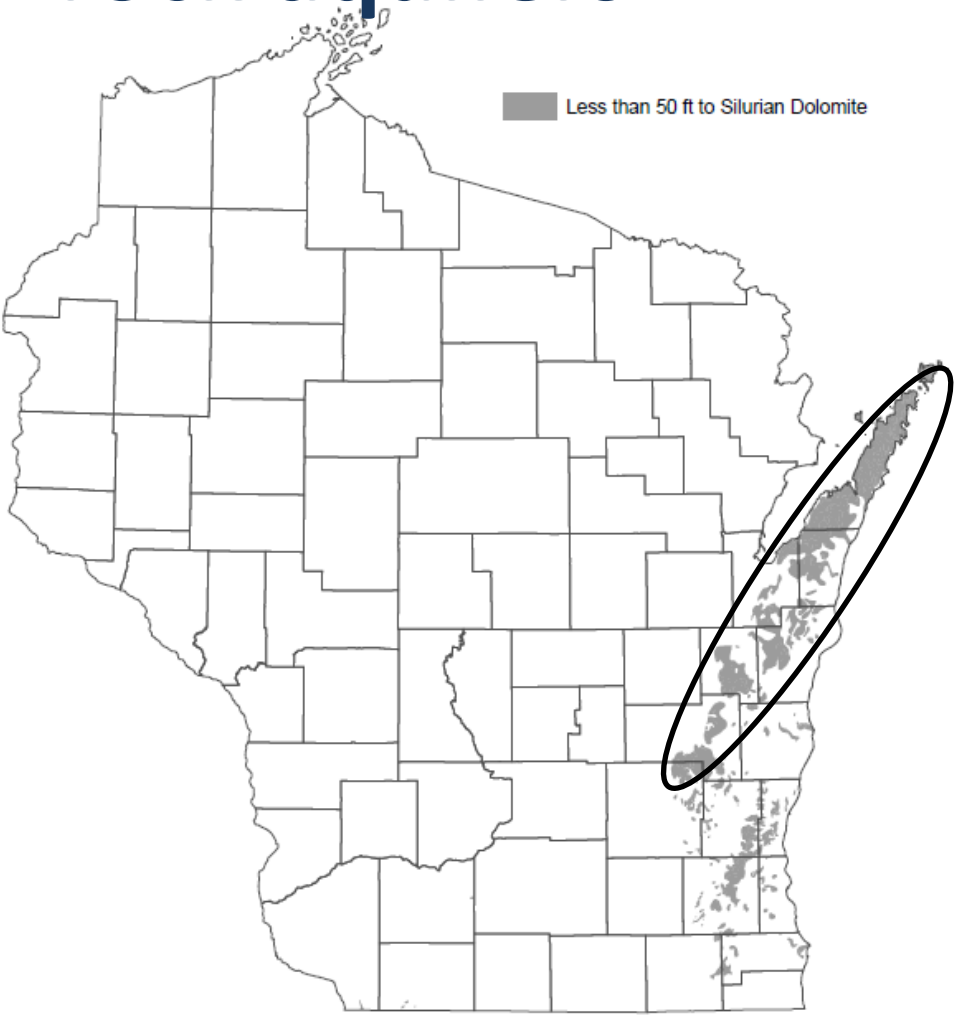
Forage Crops/ Pasture/ Conservation Reserve Program



Maps produced using WISCLAND Data Coverage. 2002. WiDNR/EDM

[Well Water Viewer, 2016]

Shallow carbonate rock aquifers



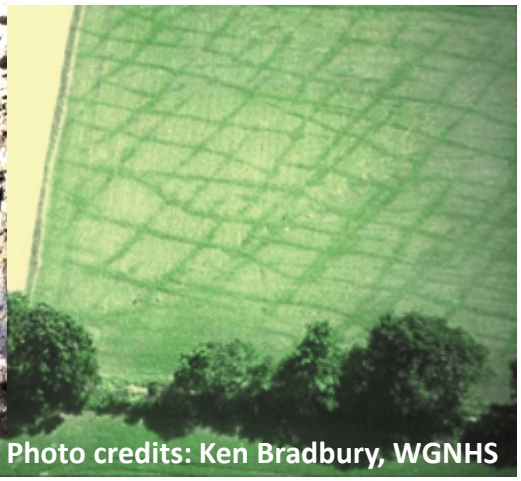
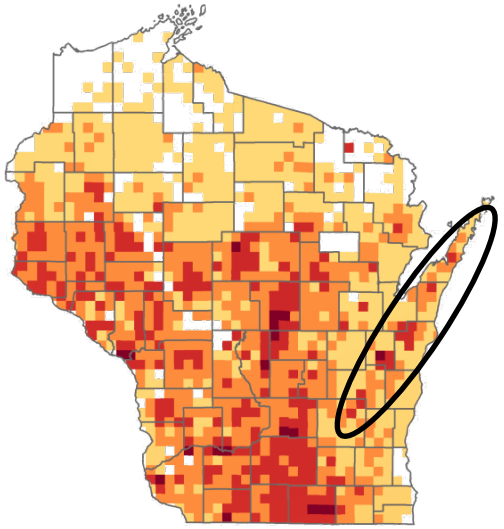
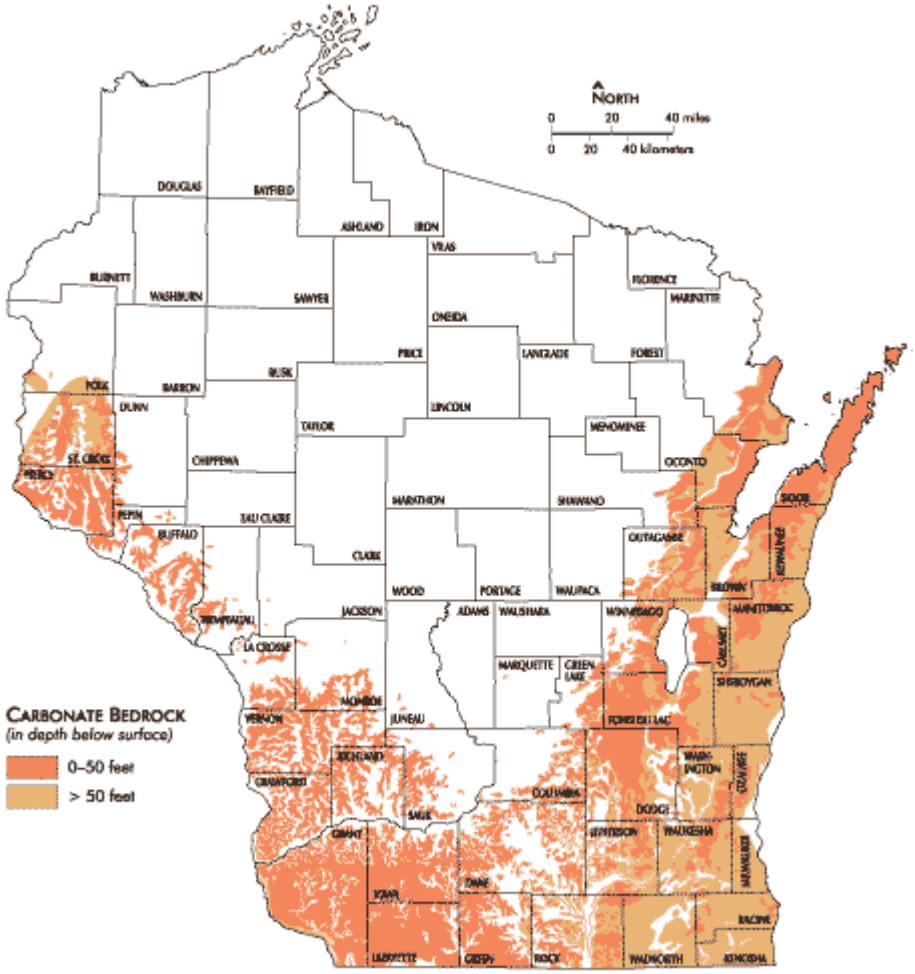
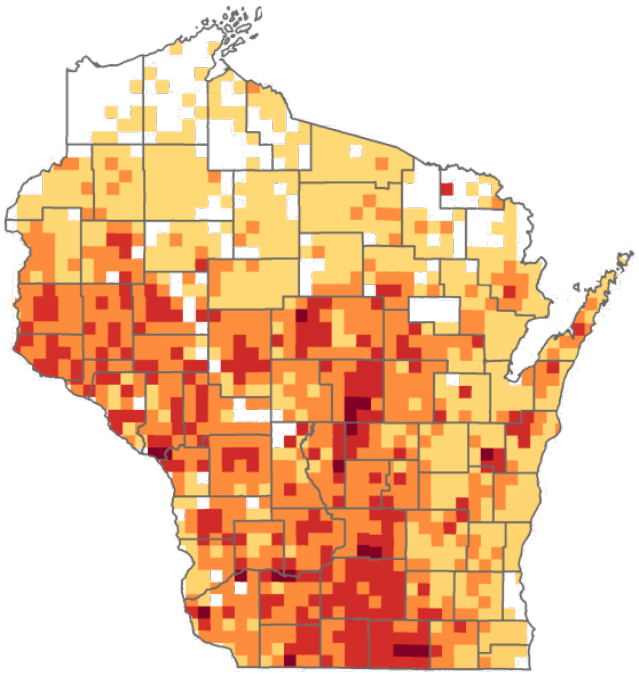


Photo credits: Ken Bradbury, WGNHS



Other areas of karst potential

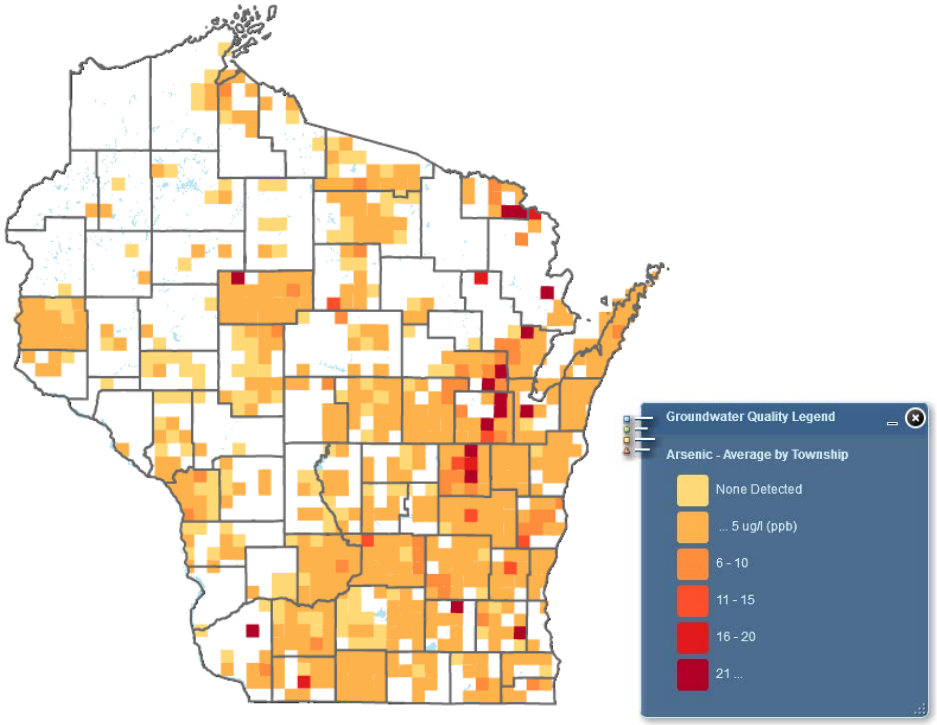


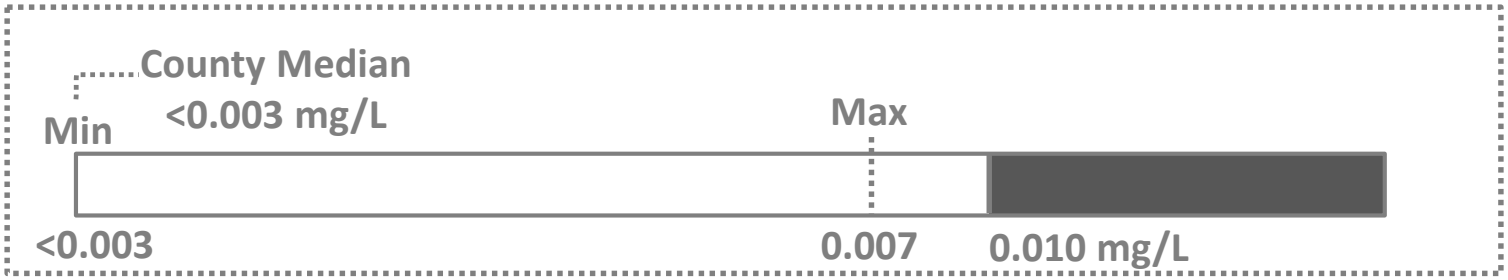


https://wgnhs.uwex.edu/water-environment/karst-sinkholes/

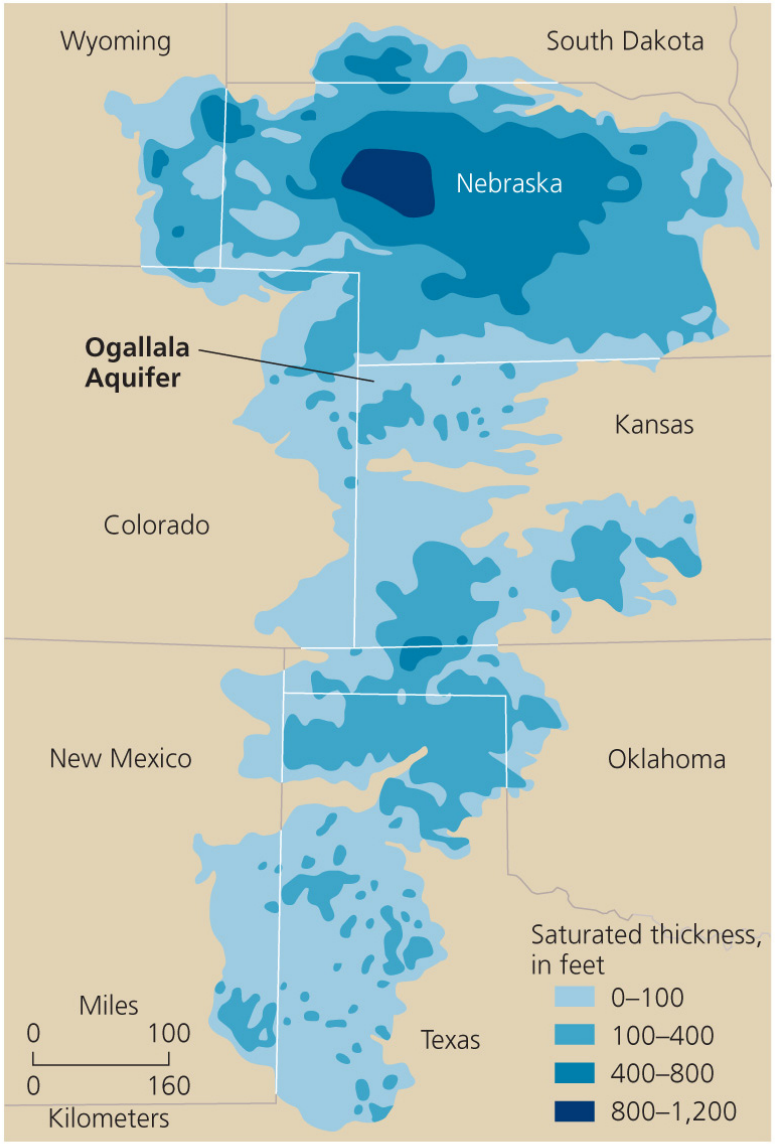
Arsenic

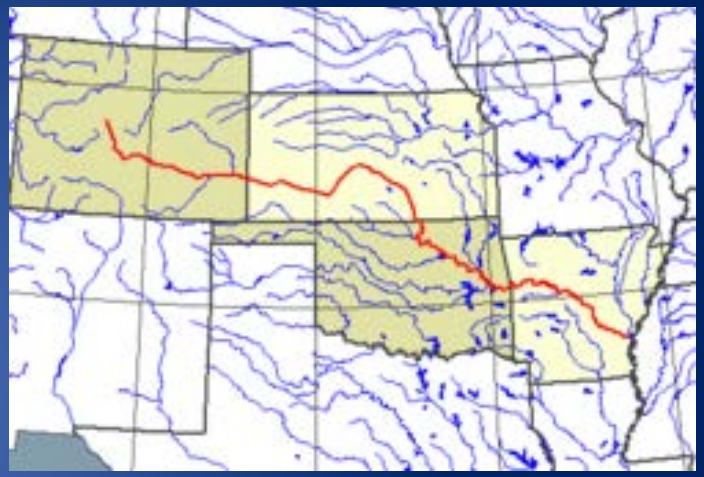
- Naturally occurring in soils or other geologic materials
- Health Standard: 0.010 mg/L
  - Long-term consumption may increase the risk of certain cancers
- Treatment: Reverse osmosis, distillation (drinking water)





Groundwater Depletion (a cautionary tale)



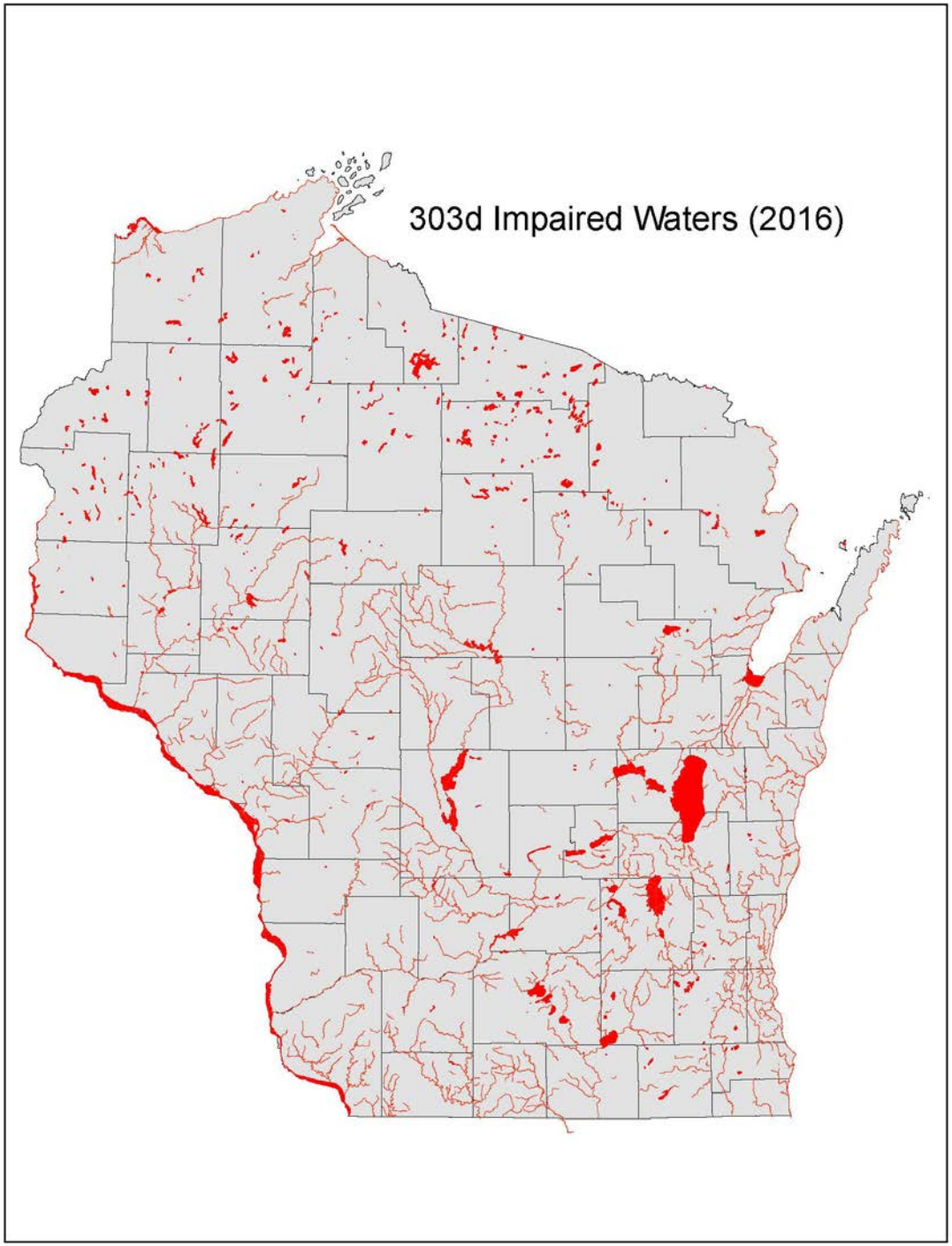


Arkansas River

Groundwater Depletion (a cautionary tale)

- There are also many issues with **surface water**

- 2016 Impaired Waters List (DNR) shows many local rivers and lakes are not meeting water quality standards



https://dnrmaps.wi.gov/H5/?Viewer=SWDV

Surface Water Data Viewer (SW... | Wisconsin DNR

Surface Water Data Viewer

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Layers

All Available Layers

- [ ] Surface Water
- [ ] Watershed Boundaries
- [ ] Monitoring Sites & Data
- [ ] Boat Landings & Access
- [ ] Dams & Floodplains
- [ ] National Flood Hazard Layer
- [ ] Clean Water Act Standards & Uses
- [x] Assessments & Impairments
  - [ ] Assessed Waterbodies
  - [x] 303(d) Listed Impaired Waters
  - [ ] Pending 303(d) Changes
  - [ ] Delisted 303(d) Waters
  - [ ] Impaired Waters Category
  - [ ] Impaired Waters Status
  - [ ] Nonpoint Source (NPS) Waterbody Ra···
  - [ ] TMDL Priority
    - [ ] Watershed Plans
    - [ ] Wisconsin Buffer Initiative Waters···
- [ ] Priority Navigable Waterways (PNW,···
- [ ] Fisheries Management

Home | Layers

Deer Park, Ridgeland, New Auburn, Dunn County, Bloomer, Downing, Glenwood City, Boyceville, Baldwin, Wilson, Hammond, Woodville, Knapp, Menomonie, Lake Hallie, Eau Claire, Elmwood, Pierce County, 4mi

Wisconsin DNR | WiDNR, USGS, and other data | WI Dept. of Natural Resources, Water Quality...

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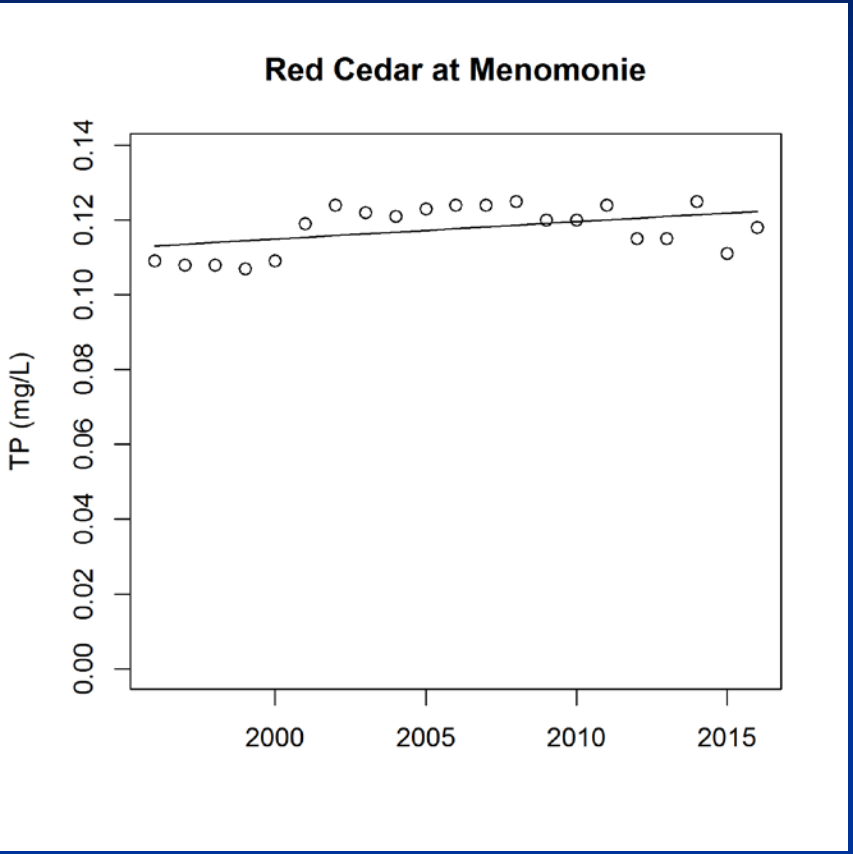
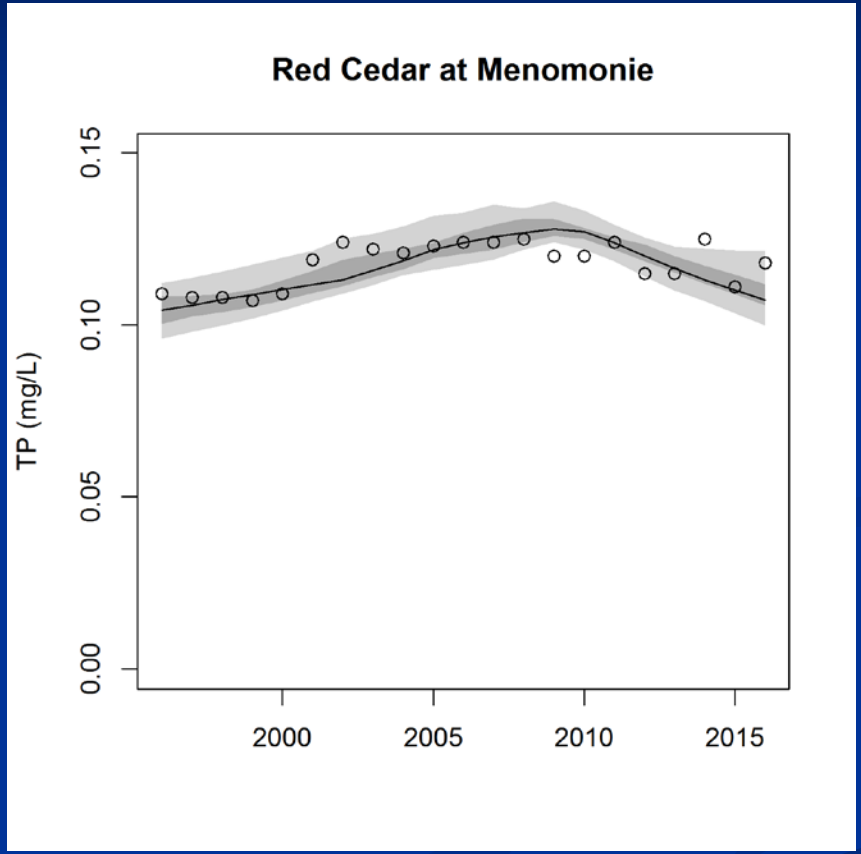
Phosphorus Monitoring



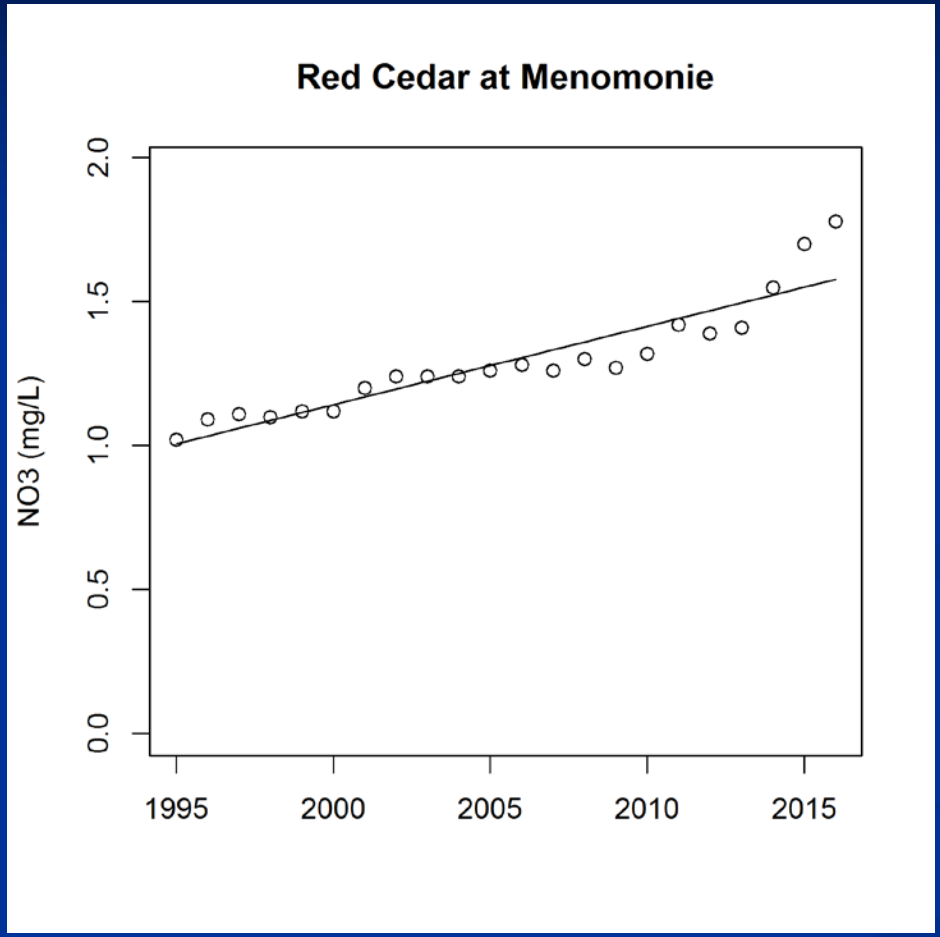
Total Phosphorus



Total Phosphorus normalized for flow

(data from DNR)

Nitrate Monitoring



Nitrate

(data from DNR)

Daniel Zerr
Natural Resources Educator
UW-Extension
daniel.zerr@ces.uwex.edu
715-836-5513

University of Wisconsin-Extension