

# Green County Water WELLness 2025



Center for Watershed Science and Education  
College of Natural Resources  
**University of Wisconsin-Stevens Point**



**Extension**  
UNIVERSITY OF WISCONSIN-MADISON

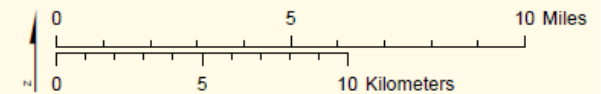
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# Green County

March 2025



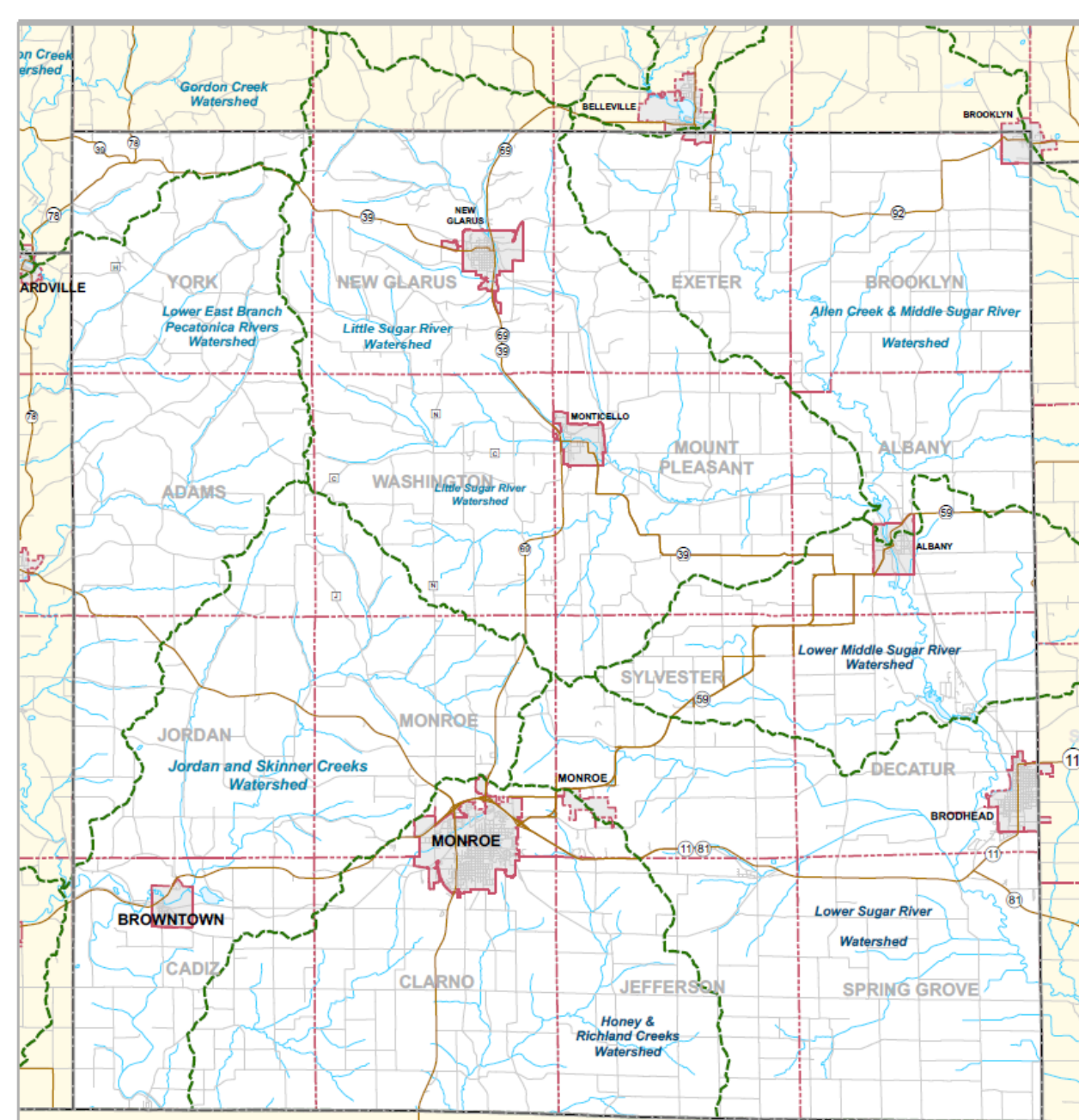
- Watershed Boundary
- Streams
- Lakes/Reservoirs
- Wetlands
- State/US Highways
- Other Roads
- Town Boundaries
- Municipalities



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March 2025





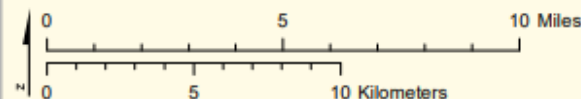
# Green County

2013 - 2023



## SAMPLE DISTRIBUTION

NUMBER OF SAMPLES  
per 1/4 1/4 SECTION



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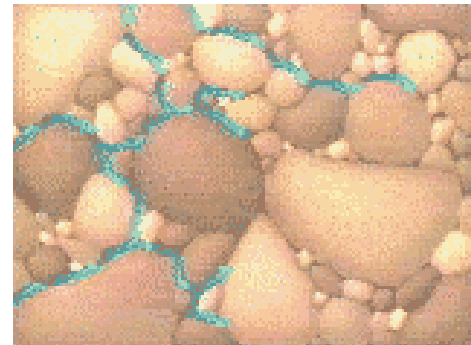
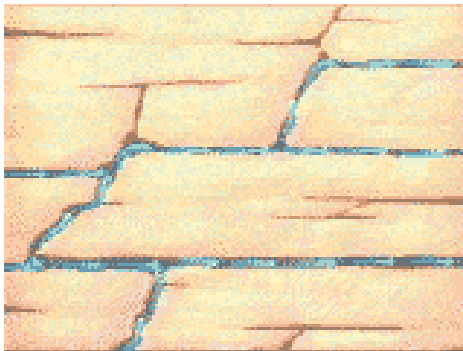
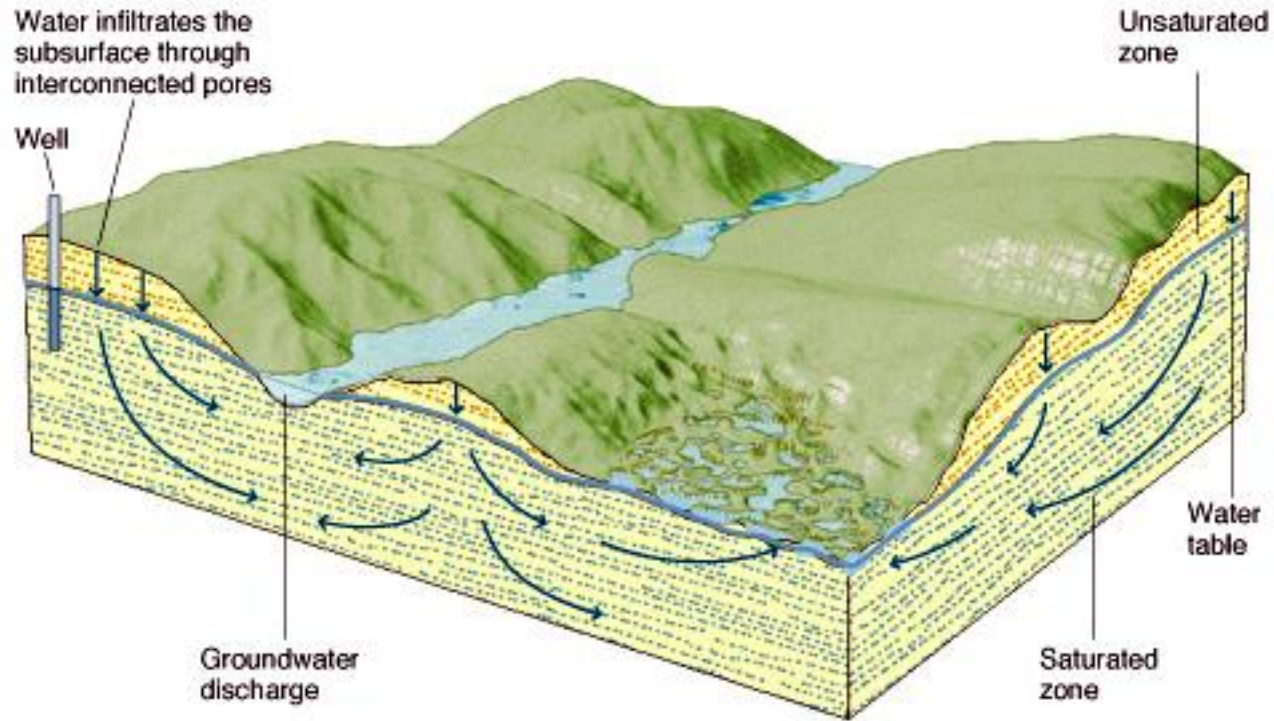


# Today's presentation

- Groundwater Basics: Where does my water come from
- Well Construction
- What do my individual test results mean?
- General groundwater quality in Green County
  - Water WELLness Testing
  - Green County Trend Monitoring
- Improving your water quality



# Groundwater Movement

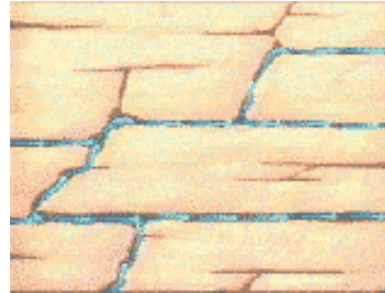


# Aquifers: Our groundwater storage units

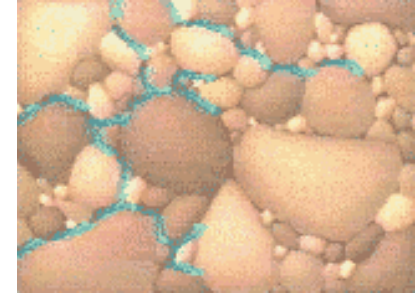
Aquifers are geologic formations that store and transmit groundwater.

The aquifer properties determine how quickly groundwater flows, how much water an aquifer can hold and how easily groundwater can become contaminated. Some aquifers may also contain naturally occurring elements that make water unsafe.

Wisconsin's geology is like a layered cake. Underneath all of Wisconsin lies the Crystalline bedrock which does not hold much water. Think of this layer like the foundation of your house. All groundwater sits on top of this foundation. Groundwater is stored in the various **sandstone**, **dolomite** and **sand/gravel** aquifers above the **crystalline bedrock** layer. The layers are arranged in the order which they formed, oldest on the bottom and youngest on top.



Water and contaminants can move quickly through cracks and fractures.



Water moving through tiny spaces in between sand particles or sandstone moves slower and allows for filtration of some contaminants.

Learn more about Wisconsin's geologic past by clicking the aquifer names

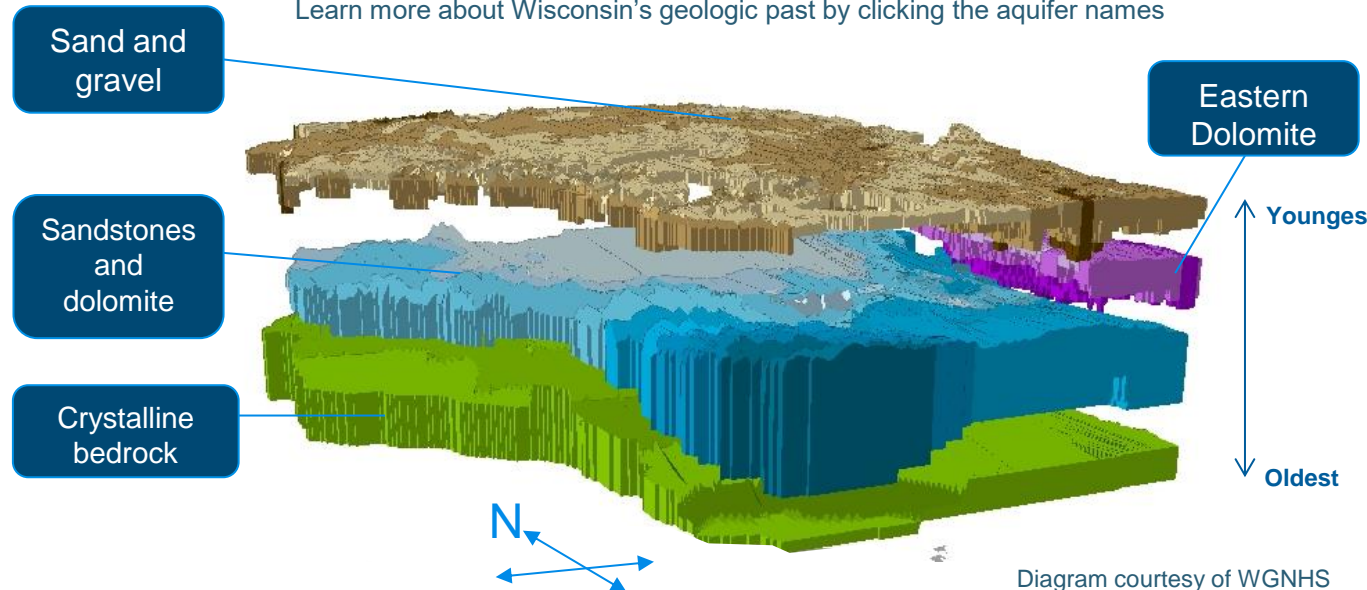
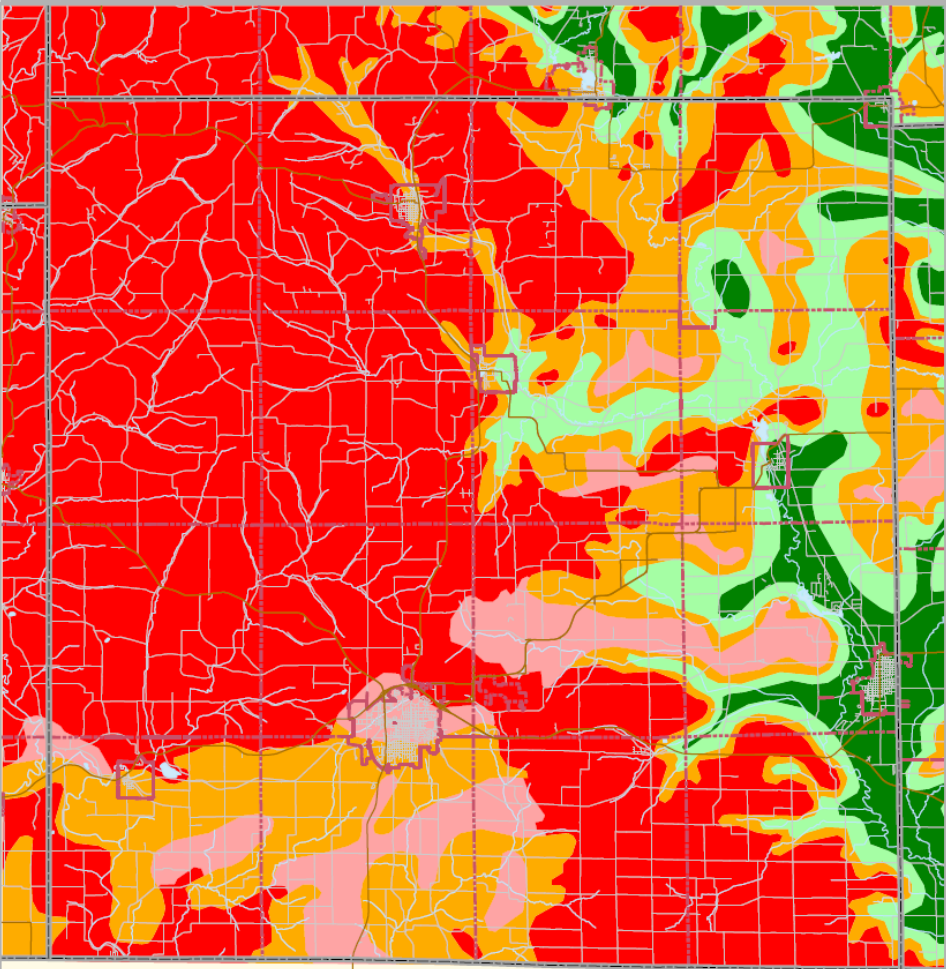
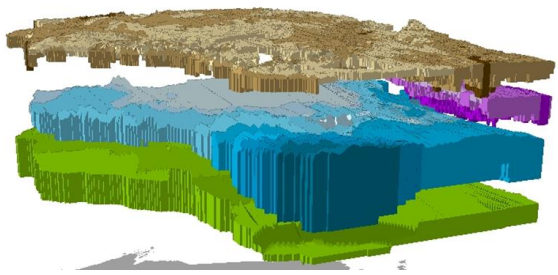


Diagram courtesy of WGNHS



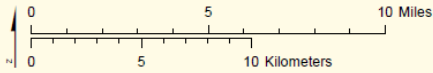
# Depth of unconsolidated materials (i.e. soil, sand, gravel)



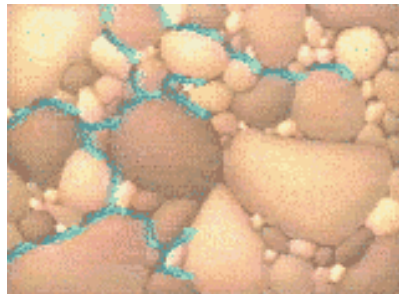
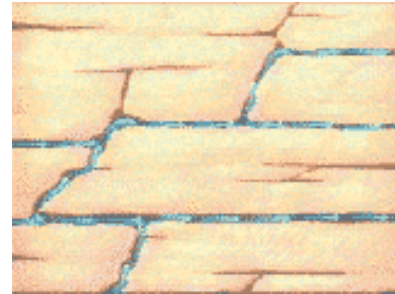
**Green County**  
March 2025



- Depth to Bedrock:**
- within 5 ft - more than 70% of area
  - within 5 ft - 35 to 70% of area
  - 5 to 50 ft
  - 50 to 100 ft
  - greater than 100 ft



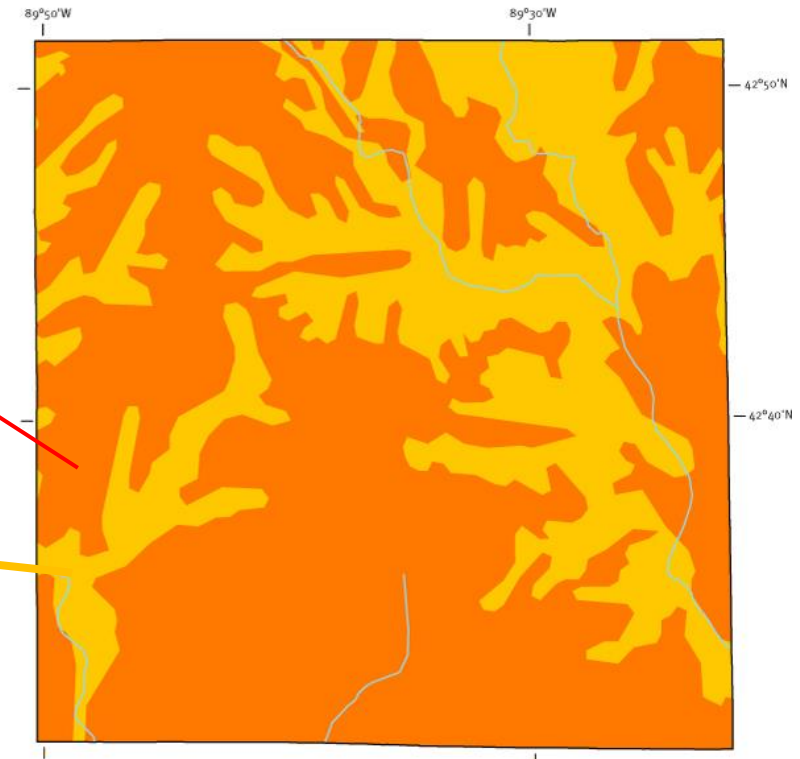
# Green County Geology



- EXPLANATION**
- Bedrock Type**
- Carbonate
  - Sandstone
  - Igneous/metamorphic
  - Shale
- Water
- Stream
- County boundary

0 5 MILES  
0 5 KILOMETERS

Green County – Bedrock Type



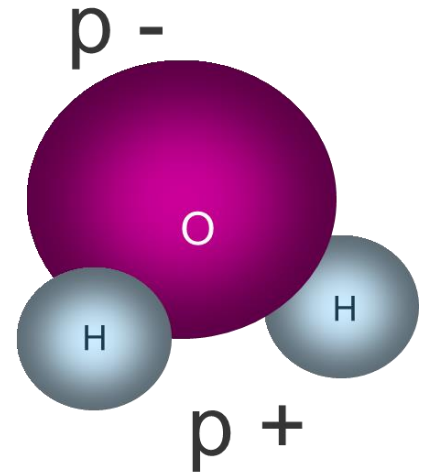
This resource characteristic map was derived from generalized statewide information at small scales, and cannot be used for any site-specific purposes.

Map source: Schmidt, R.R., 1987, Groundwater contamination susceptibility map and evaluation: Wisconsin Department of Natural Resources, Wisconsin's Groundwater Management Plan Report 5, PUBL-WR-177-87, 27 p.

Figure created for the "Protecting Wisconsin's Groundwater Through Comprehensive Planning" web site, 2007, <http://wi.water.usgs.gov/gwcomp/>

# water basics

- “Universal Solvent”
- Naturally has “stuff” dissolved in it.
  - Impurities depend on rocks, minerals, land-use, plumbing, packaging, and other materials that water comes in contact with.
- Can also treat water to take “stuff” out





# Interpreting Drinking Water Test Results

## Tests important to health:

- Bacteria
- Sodium
- Nitrate
- Copper
- Lead
- Manganese
- Triazine (DACT Screen)
- Zinc
- Sulfate
- Arsenic

## Tests for aesthetic (taste,color,odor) problems:

- Hardness
- Iron
- Manganese
- Chloride

## Other important indicator tests:

- Saturation Index
- Alkalinity
- Conductivity
- Potassium

**Red** = human-influenced    **Blue** = naturally found

# Health Concern Categories

## Acute Effects

- Usually seen within a short time after exposure to a particular contaminant or substance.

(ex. Bacteria or viral contamination which may cause intestinal disease)

## Chronic Effects

- Result from exposure to a substance over a long period of time.
- Increase risk of developing health complications later in life.

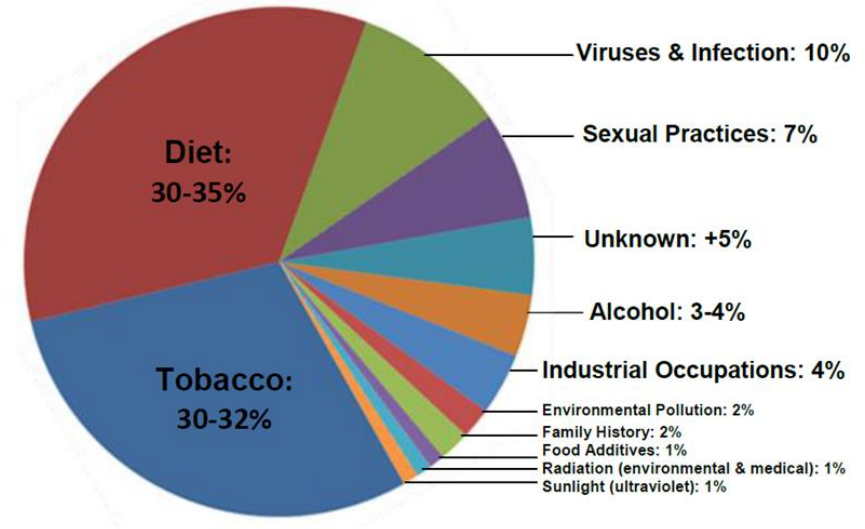
(ex. Arsenic or pesticides can increase the risk of developing certain cancers)



# Chronic related health concerns are generally about risk management

## National Cancer Risk Factors with Percentages

*Adapted from Everyone's Guide to Cancer Therapy*



Being struck by lightning	0.16 in 1,000 chance.
0.010 mg/L of arsenic in drinking water.	3 out of 1,000 people likely to develop cancer.
2 pCi of indoor radon level.	4 out of 1,000 people likely to develop lung cancer. <sup>1</sup>
2 pCi of indoor radon combined with smoking.	32 out of 1,000 people could develop lung cancer. <sup>1</sup>

Drinking water quality is only one part of an individual's total risk.

<sup>1</sup><http://www.epa.gov/radon/healthrisks.html>



# Private vs. Public Water Supplies

## Public Water Supplies

- Regularly tested and regulated by drinking water standards.



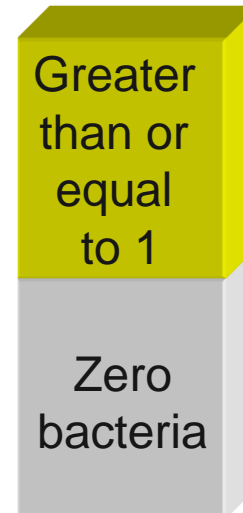
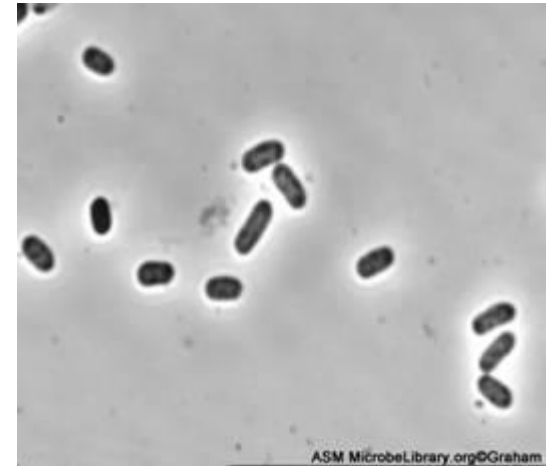
## Private Wells

- Not required to be regularly tested.
- Not required to take corrective action
- Owners must take special precautions to ensure safe drinking water.



# 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



Present = Unsafe

Absent = Safe

# If coliform bacteria was detected, we also checked for e.coli bacteria test

- Confirmation that bacteria originated from a human or animal fecal source.
- E. coli are often present with harmful bacteria, viruses and parasites that can cause serious gastrointestinal illnesses.
- Any detectable level of E.coli means your water is unsafe to drink.

Information Sources: United States Department of Health and Human Services – Centers for Disease Control and Prevention ([www.cdc.gov](http://www.cdc.gov)) and United States Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))

Contaminants	Sources	Symptoms
<b>BACTERIA</b>		
<i>Escherichia coliform (E. coli)</i> <i>Salmonella</i> <i>Campylobacter</i> <i>E. coli</i> 0157 (Requires a special water test for detection. Causes similar, but more serious illness than other E.coli strains. Requires medical treatment.)	<ul style="list-style-type: none"> <li>• Infected human and animal feces</li> <li>• Manure</li> <li>• Septic systems</li> <li>• Sewage</li> </ul>	<ul style="list-style-type: none"> <li>• Gastrointestinal illness</li> <li>• Low-grade fever</li> <li>• Begins 12 hrs - 7 days after exposure</li> </ul>
<i>Leptosporidia</i>	<ul style="list-style-type: none"> <li>• Urine of livestock, dogs and wildlife</li> <li>• Manure</li> </ul>	<ul style="list-style-type: none"> <li>• High fever, severe headache and red eyes</li> <li>• Gastrointestinal illness</li> <li>• Begins 2-28 days after exposure</li> </ul>
<b>MICROSCOPIC PARASITES</b>		
<i>Cryptosporidia</i> <i>Giardia</i>	<ul style="list-style-type: none"> <li>• Infected human and animal feces</li> <li>• Manure</li> <li>• Septic systems</li> <li>• Sewage</li> </ul>	<ul style="list-style-type: none"> <li>• Gastrointestinal illness</li> <li>• Begins 2-14 days after exposure</li> </ul>
<b>VIRUSES</b>		
Norovirus	<ul style="list-style-type: none"> <li>• Infected human feces and vomit</li> <li>• Septic systems</li> <li>• Sewage</li> </ul>	<ul style="list-style-type: none"> <li>• Gastrointestinal illness</li> <li>• Low-grade fever &amp; headache</li> <li>• Begins 12-48 hrs after exposure</li> </ul>
<b>CHEMICALS</b>		
Nitrate	<ul style="list-style-type: none"> <li>• Fertilizers</li> <li>• Manure</li> <li>• Bio-solids</li> <li>• Septic systems</li> </ul>	Methemoglobinemia or "Blue Baby Syndrome" – No documented cases in Door County, but elevated nitrate levels in well water may indicate risk of contamination by additional pathogens.
Atrazine (trade-name herbicide for control of broadleaf and grassy weeds)	Estimated to be most heavily used herbicide in the U.S. in 1987/89, with its most extensive use for corn and soybeans in the Midwest, including WI. In 1993, it became a restricted-use herbicide nationally. U.S. EPA set a max. contaminant level (MCL) at 3 parts per billion for safe drinking water.	Short-term exposure above the MCL may cause: congestion of heart, lungs and kidneys; low blood pressure; muscle spasms; weight loss; damage to adrenal glands.  Long-term exposure above MCL may cause: weight loss, cardiovascular damage, retinal and some muscle degeneration; cancer.



# Well Construction Defects



- Is the well cap or casing cracked?

# Well Construction Defects



- Does your well have a vermin-proof cap?





# Other Well Construction Defects



Photos courtesy of: Matt Zoschke

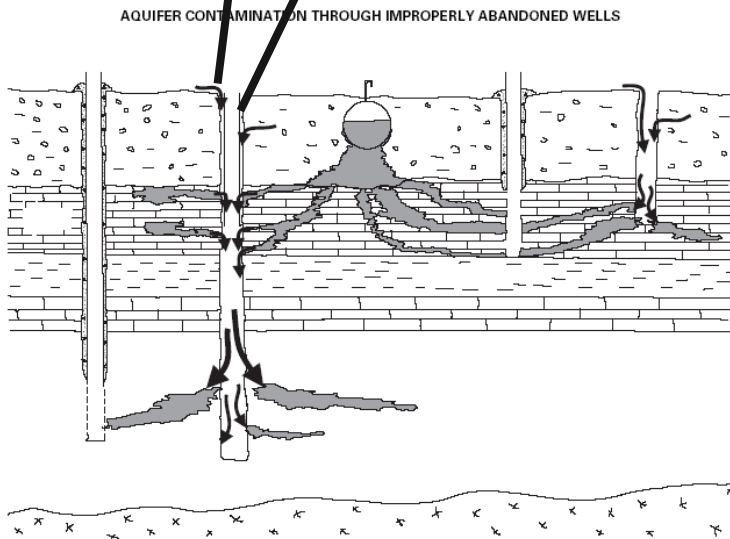


- Don't leash pets within 10 feet of the well
- Pay attention to runoff from rooftops and driveways
- Avoid bird feeders and other decorations directly above the well

# Well Construction Defects



- Are there old wells on the property?
  - Wells are a direct conduit to groundwater
  - Consider having them properly filled and sealed



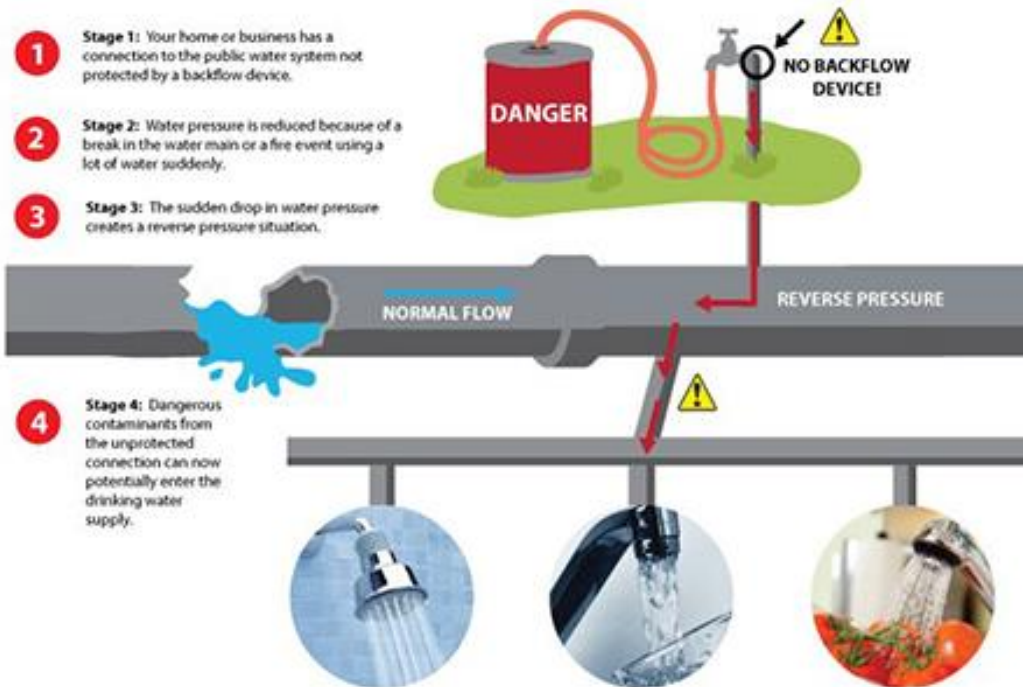


# Well Construction Defects

- Do yard hydrants, livestock waterers, and service to outbuildings have proper backflow prevention?



## HOW BACKFLOW CAN HAPPEN



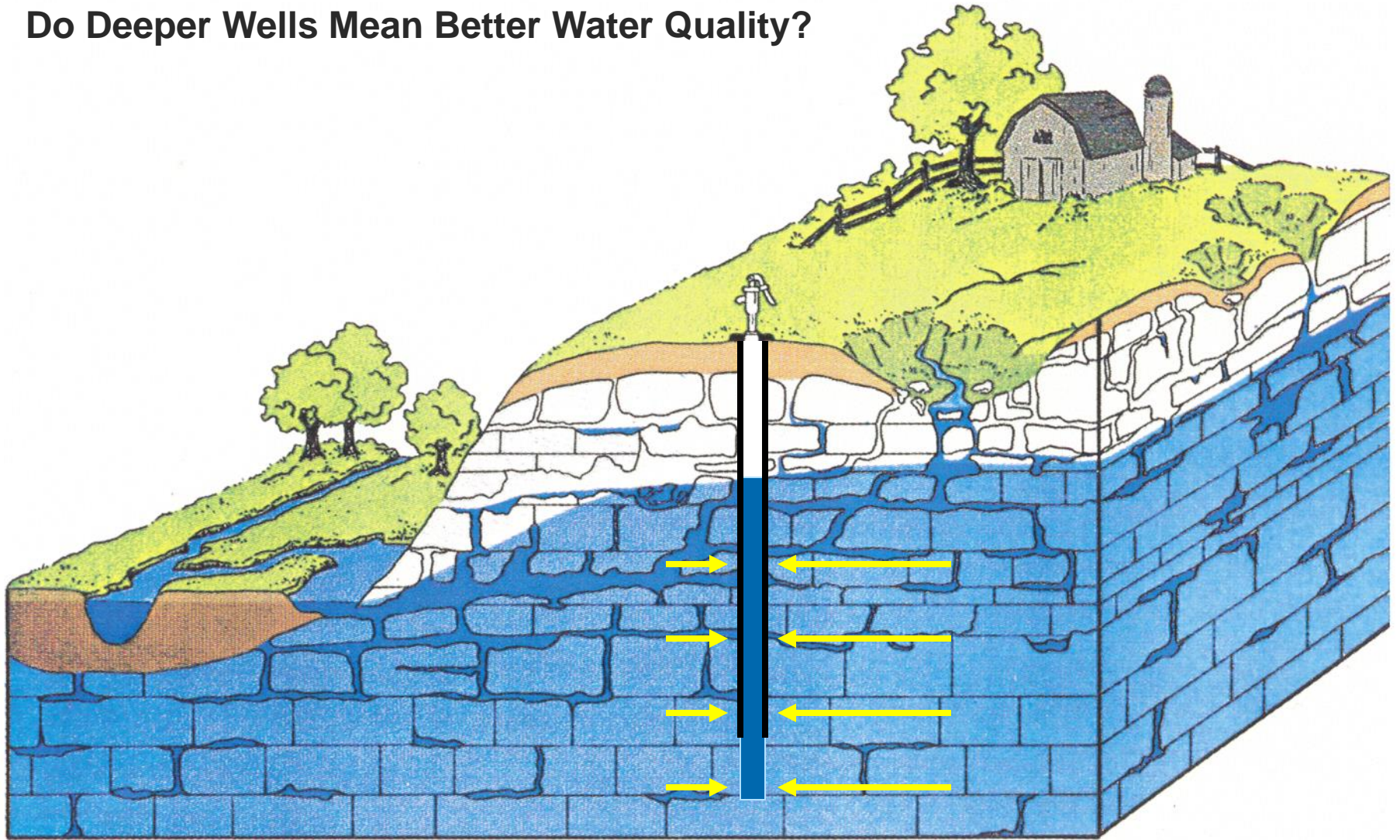
# What makes a good well....



- Vermin proof cap
- Casing extends at least 12" above grade
- Area around well free and clear of debris or other obstructions
- Down spouts or runoff from driveways/other surfaces not directed towards the well



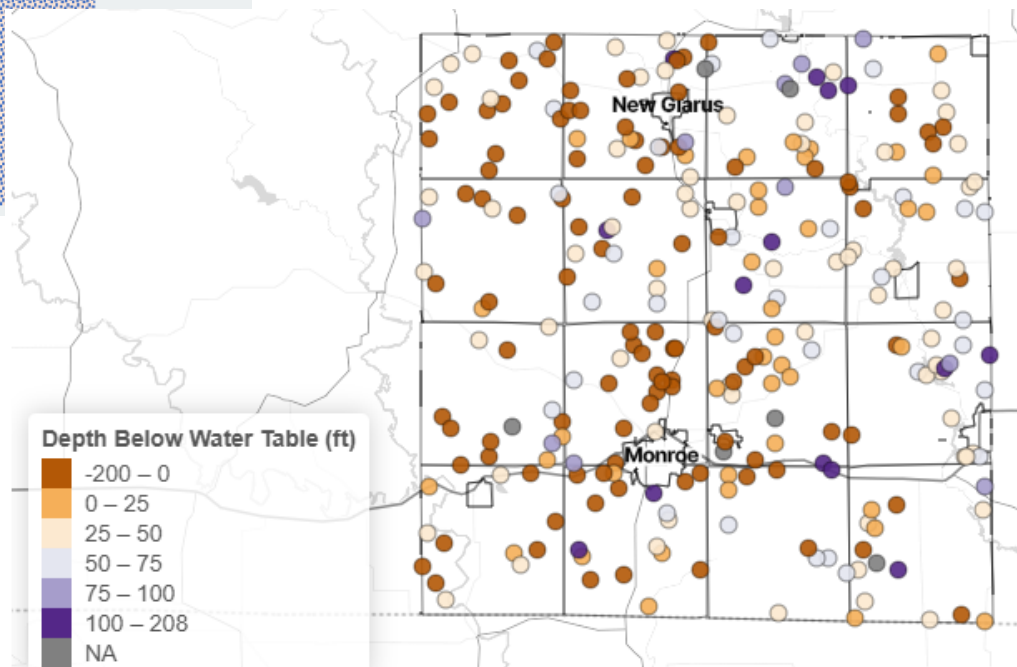
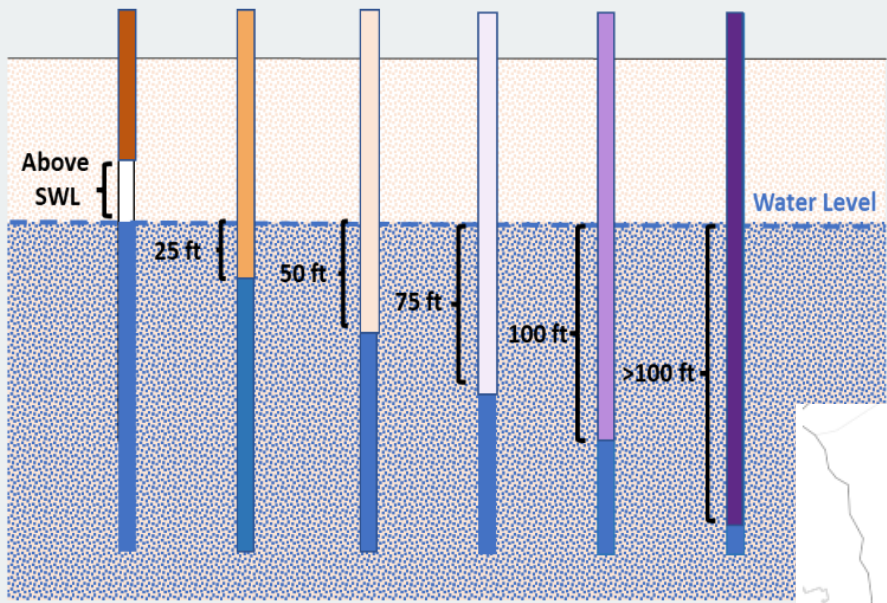
## Do Deeper Wells Mean Better Water Quality?



# Green County Casing Depth Below the Water Table

## Casing depth below the water table (feet)

Diagram below illustrates the role of casing depth in reference to the water table. Colors correspond to map legend for the variable 'Casing depth below water table'.





# What should I do if coliform bacteria was present?

1. Use alternative source of water for drinking
2. Retest using a bacteria count
3. Try to identify any sanitary defects
  - Loose or non-existent well cap
  - Well construction faults
  - A nearby unused well or pit
  - Inadequate filtration by soil
4. Disinfect the well
5. Retest to ensure well is bacteria free.

➤ *For reoccurring bacteria problems the best solution may be a new well or if new well is unlikely to remedy the problem because of geology, may seek approval for treatment.*

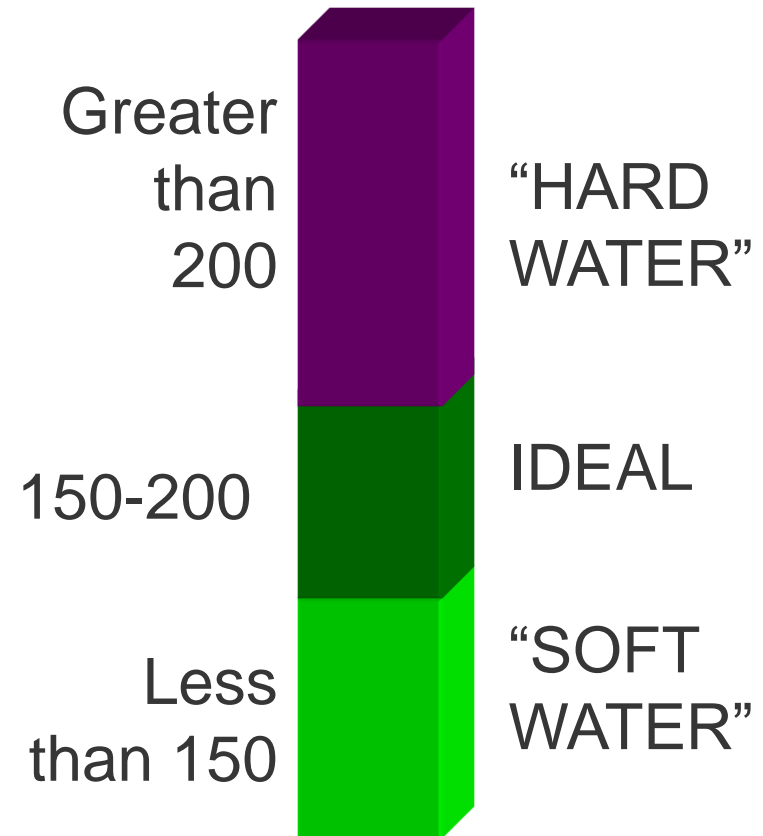


# **Rock and Soil Impacts on Water Quality**

# Tests for Aesthetic Problems

## Hardness

- Natural (rocks and soils)
- Primarily calcium and magnesium
- Problems: scaling, scum, use more detergent, decrease water heater efficiency





# Green County

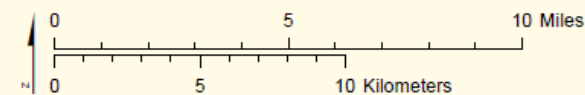
March 2025



## TOTAL HARDNESS (ppm CaCO<sub>3</sub>)

<b>A</b>	... 50	9	10 %
<b>B</b>	51 - 100	1	1 %
<b>C</b>	101 - 200	2	2 %
<b>D</b>	201 - 300	11	12 %
<b>E</b>	301 - 400	58	63 %
<b>F</b>	401 ...	11	12 %

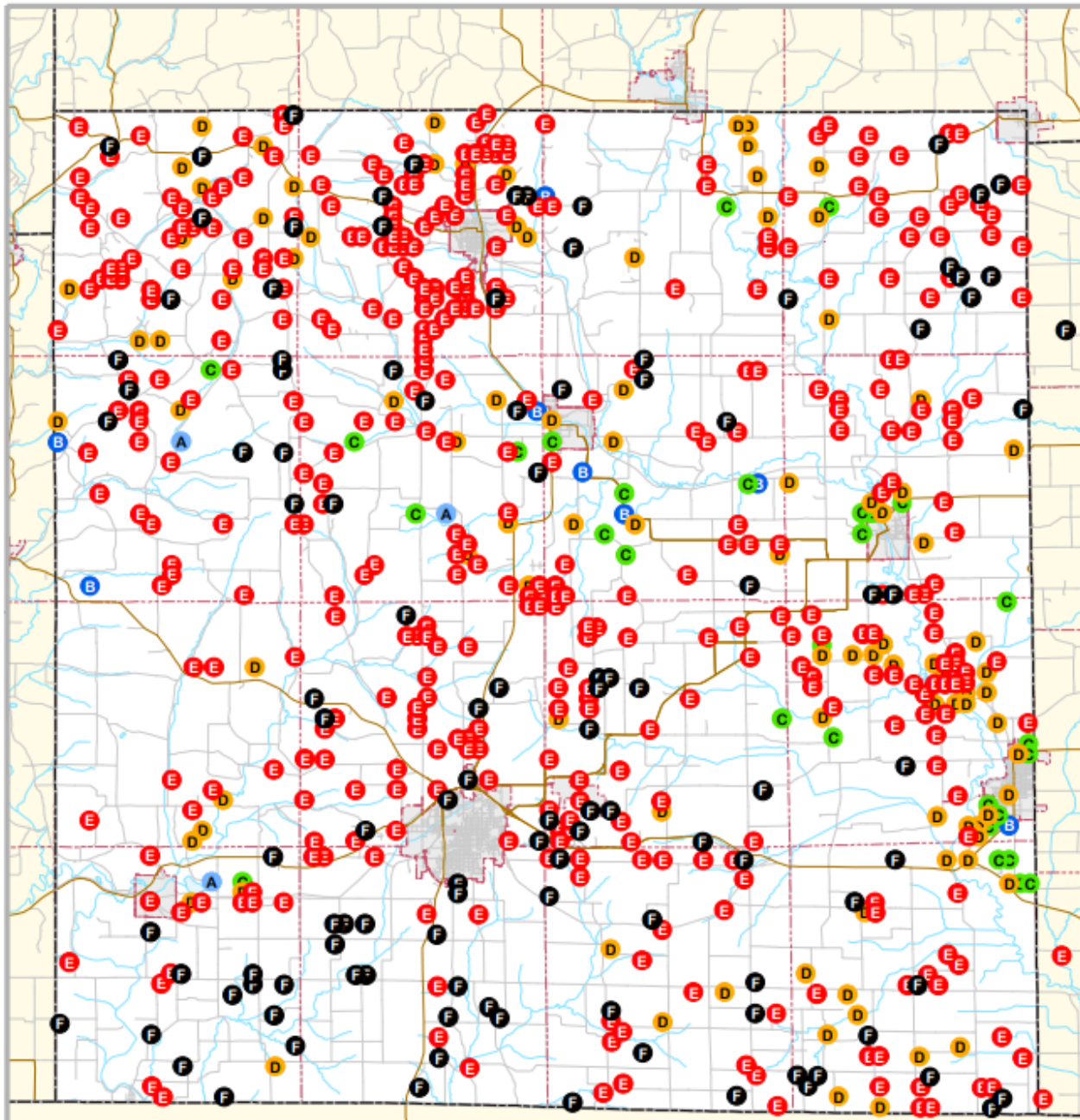
Mapped value is the average for the 1/4 1/4 section  
Treated samples not mapped





# Green County

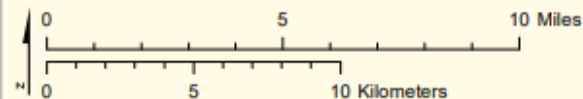
2013 - 2023



## TOTAL HARDNESS (ppm CaCO<sub>3</sub>)

A ... 50	161	13%
B 51 - 100	21	2%
C 101 - 200	72	6%
D 201 - 300	173	14%
E 301 - 400	608	51%
F 401 ...	163	14%

Mapped value is the average for the 1/4 1/4 section  
Treated samples not mapped

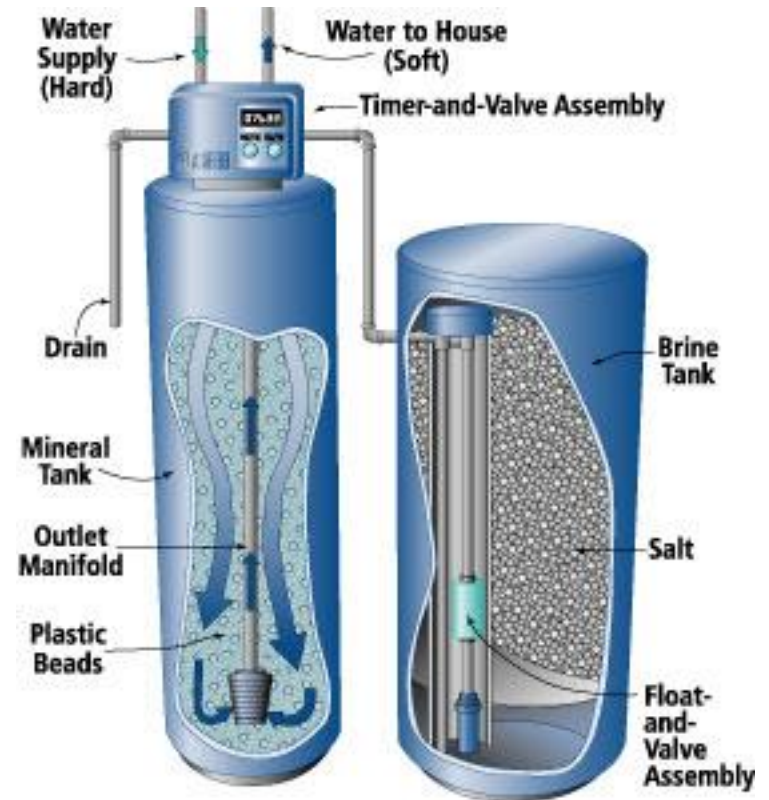


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# Water Softening

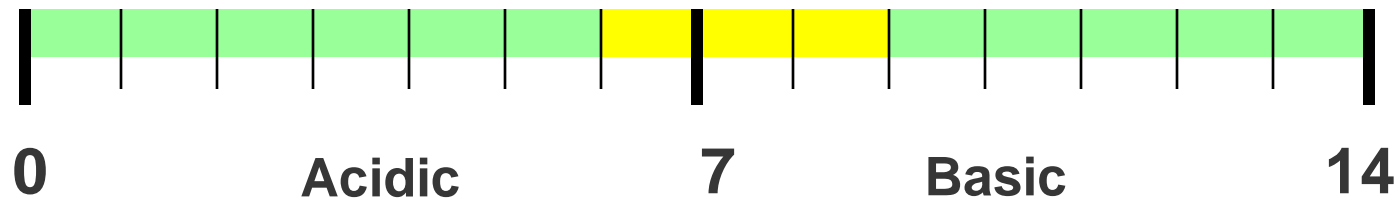
Water softeners remove calcium and magnesium which cause scaling and exchange it for sodium (or potassium).

- Negative: Increases sodium content of water.
- Suggestions:
  - Bypass your drinking water faucet.
  - Do not soften water for outdoor faucets.
  - If you are concerned about sodium levels – use potassium chloride softener salt.



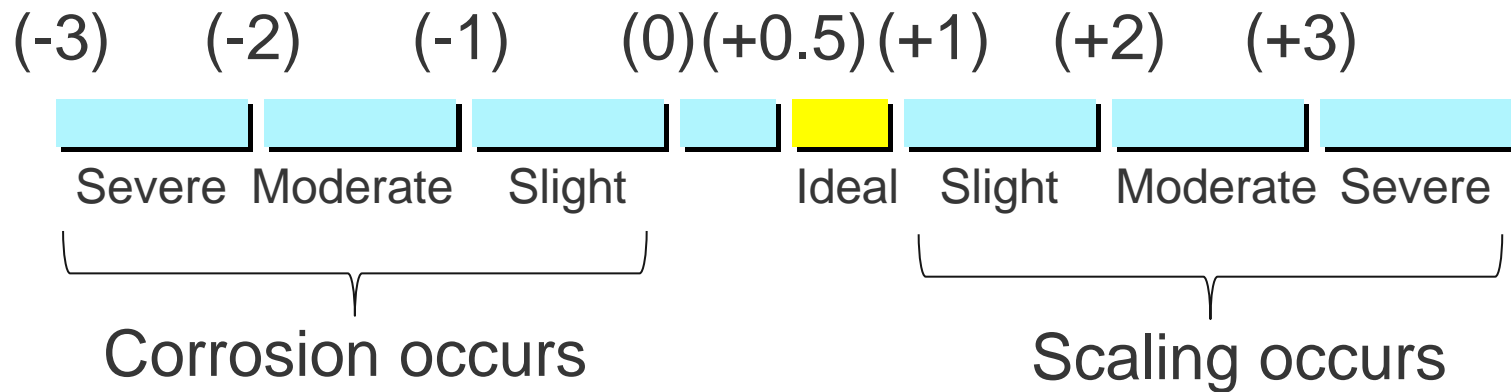
# Tests for Overall Water Quality

- **Alkalinity** – ability to neutralize acid
- **Conductivity** –
  - Measure of total ions
  - can be used to indicate presence of contaminants (~ twice the hardness)
- **pH** – Indicates water's acidity and helps determine if water will corrode plumbing



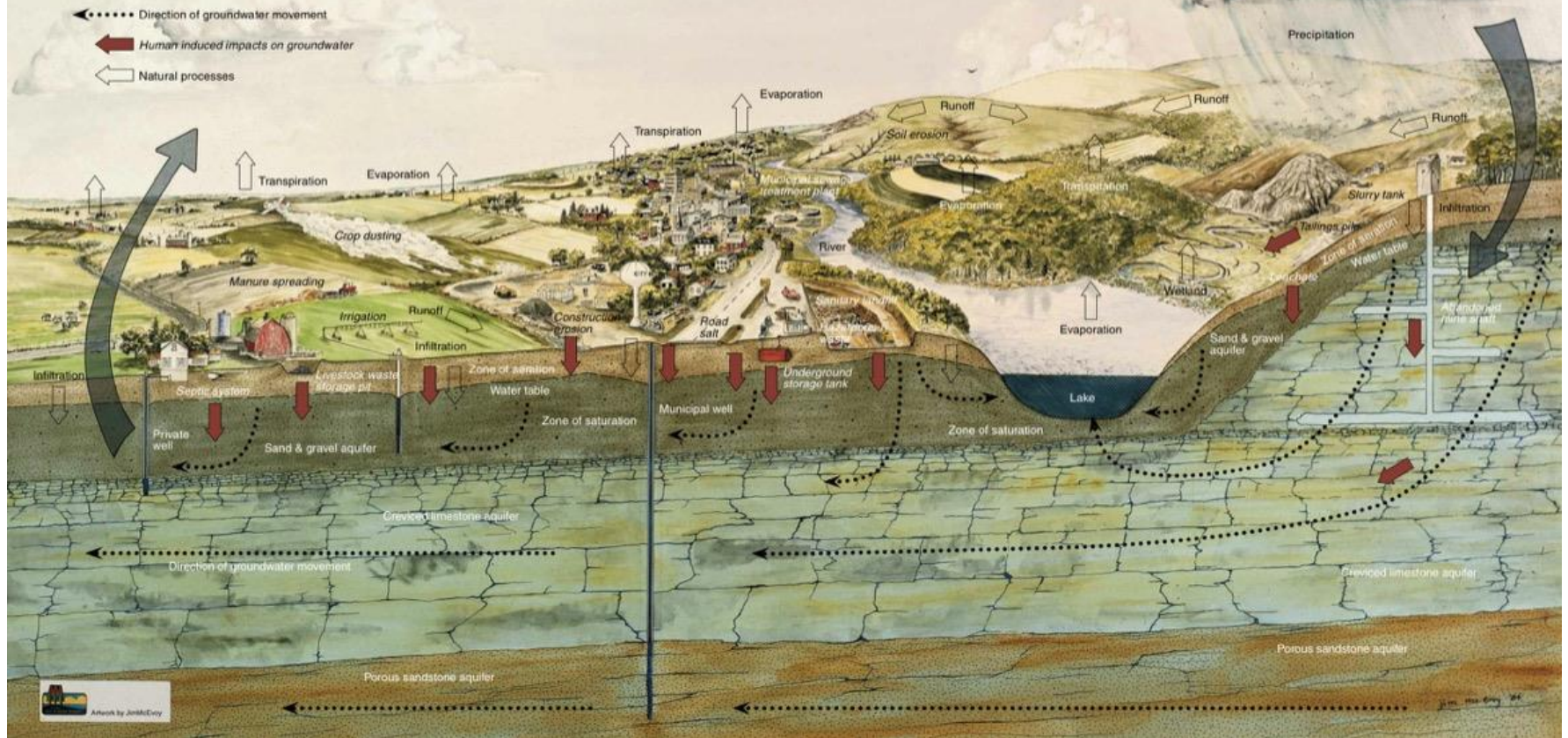
# Tests for Overall Water Quality

## Saturation Index





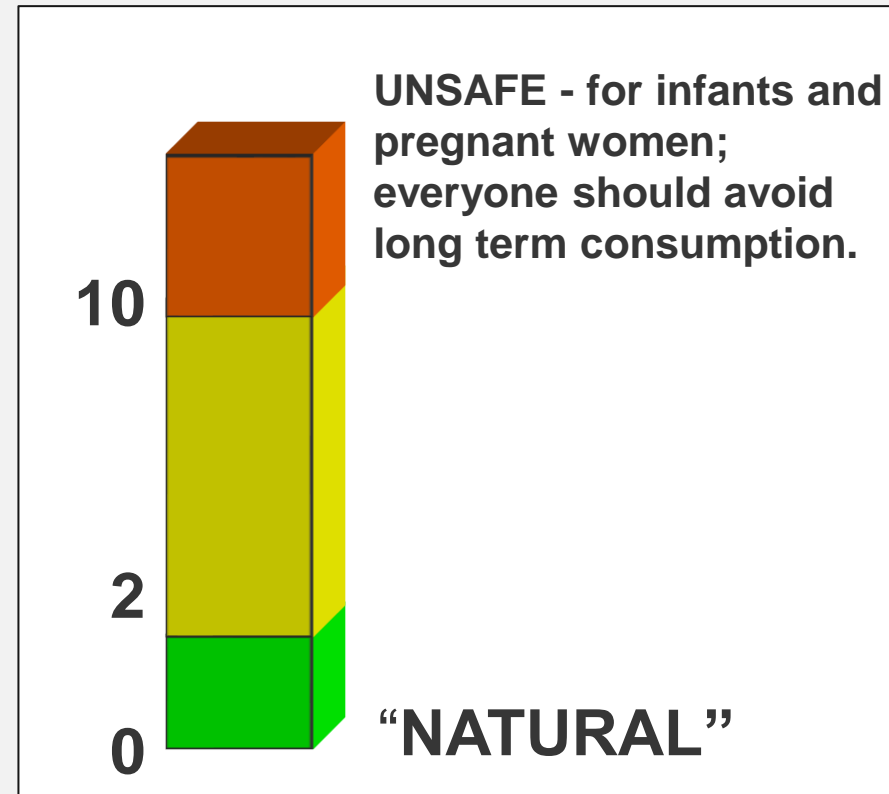
# Groundwater and land use in the water cycle



# Test Important to Health

## Nitrate Nitrogen

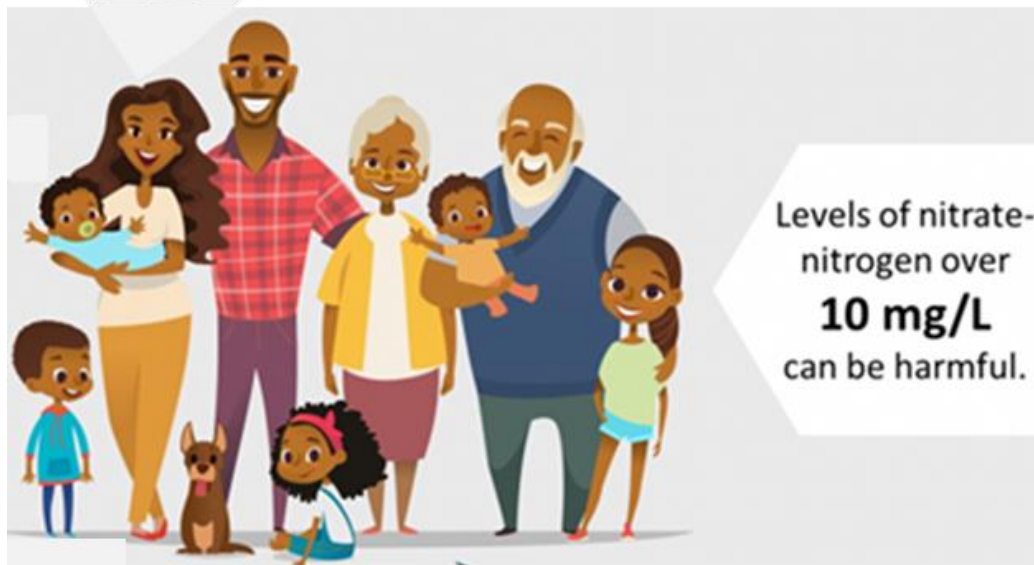
- **Greater than 10 mg/L**  
*Exceeds State and Federal Limits for Drinking Water*
- **Between 2 and 10 mg/L**  
*Some Human Impact*
- **Less than 2.0 mg/L**  
*“Transitional”*
- **Less than 0.2 mg/L**  
*“Natural”*



# Nitrate-Nitrogen

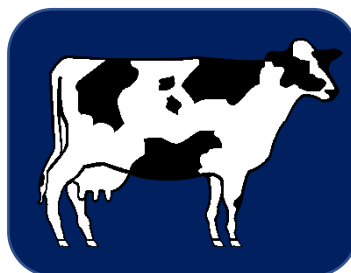
## Health Effects:

- **Infants Less than 6 months:**
  - Methemoglobinemia (blue baby disease)
- **Women who are or may become pregnant:**
  - Possible links to birth defects and miscarriages (humans and livestock)
- **Everyone:**
  - Thyroid disease
  - Increase risk of certain types of cancers



## Sources:

Agricultural fertilizer / Animal Waste or other bio-solids / Septic Systems / Lawn fertilizer





# Green County

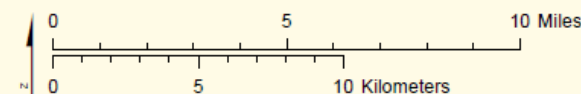
March 2025



## NITRATE-NITRITE (ppm N)

<b>A</b>	<b>None Detected</b>	<b>13</b>	<b>14 %</b>
<b>B</b>	<b>... 2.0</b>	<b>28</b>	<b>30 %</b>
<b>C</b>	<b>2.1 - 5.0</b>	<b>31</b>	<b>34 %</b>
<b>D</b>	<b>5.1 - 10.0</b>	<b>14</b>	<b>15 %</b>
<b>E</b>	<b>10.1 - 20.0</b>	<b>6</b>	<b>7 %</b>
<b>F</b>	<b>20.1 ...</b>	<b>0</b>	<b>0 %</b>

Mapped value is the average for the 1/4 1/4 section  
Treated samples not mapped





# Green County

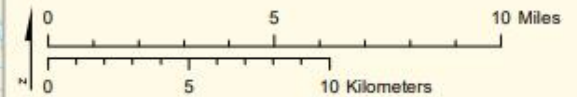
2013 - 2023



## NITRATE-NITRITE (ppm N)

<b>A</b>	<b>None Detected</b>	<b>124</b>	<b>10 %</b>
<b>B</b>	<b>... 2.0</b>	<b>211</b>	<b>17 %</b>
<b>C</b>	<b>2.1 - 5.0</b>	<b>289</b>	<b>23 %</b>
<b>D</b>	<b>5.1 - 10.0</b>	<b>386</b>	<b>31 %</b>
<b>E</b>	<b>10.1 - 20.0</b>	<b>212</b>	<b>17 %</b>
<b>F</b>	<b>20.1 ...</b>	<b>15</b>	<b>1 %</b>

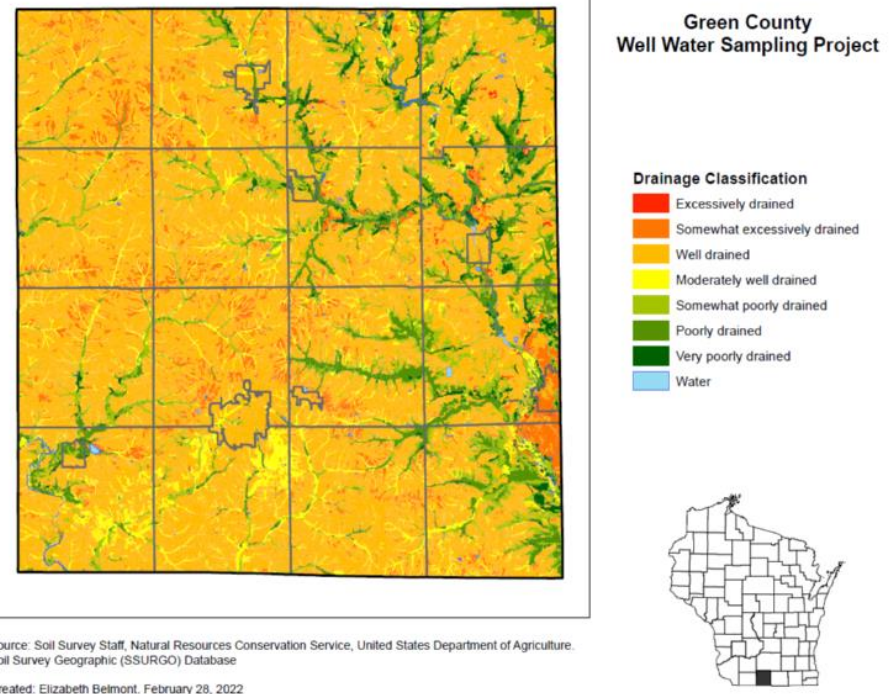
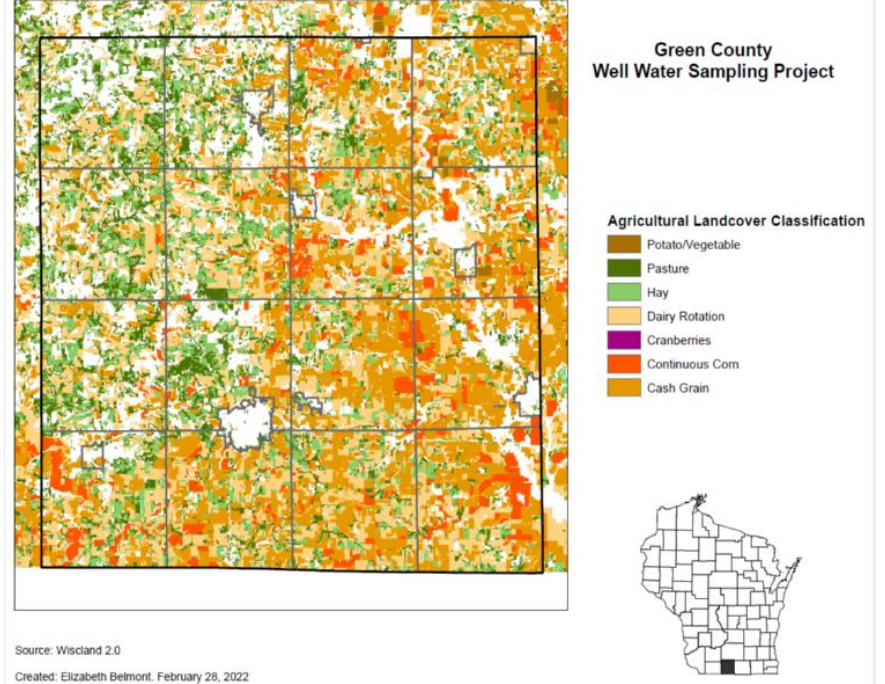
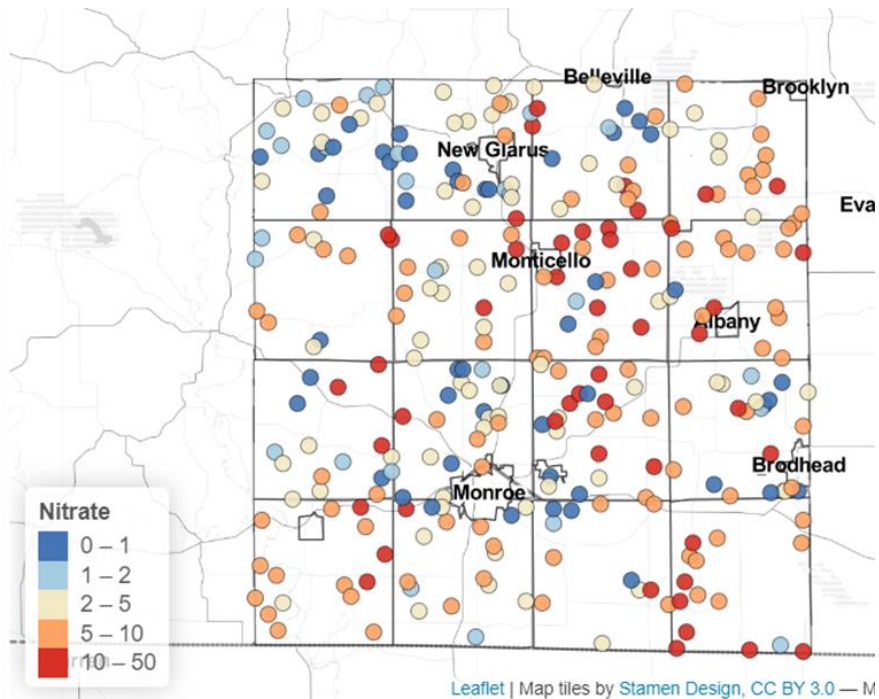
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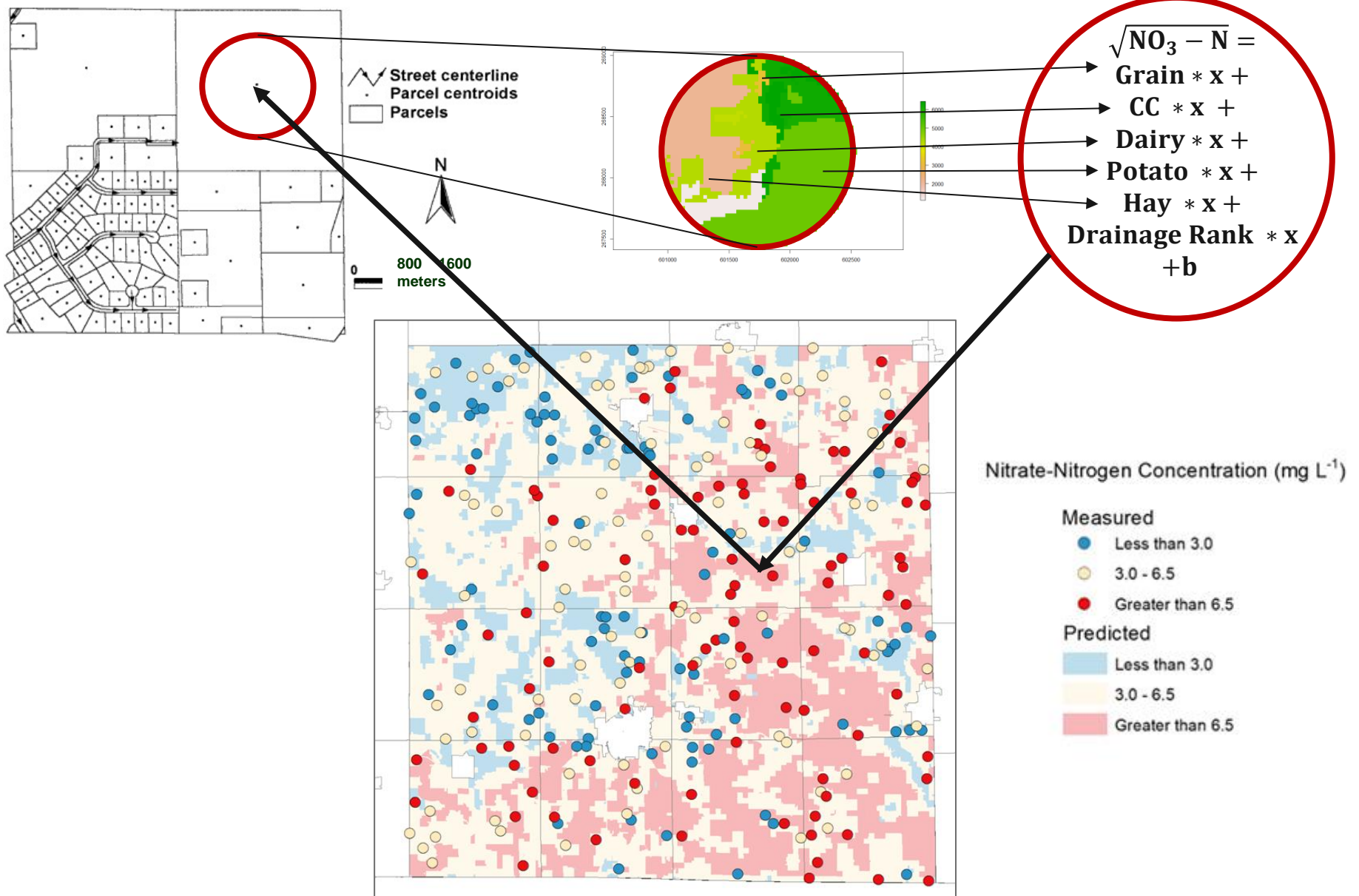
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# Modeling of Nitrate Risk



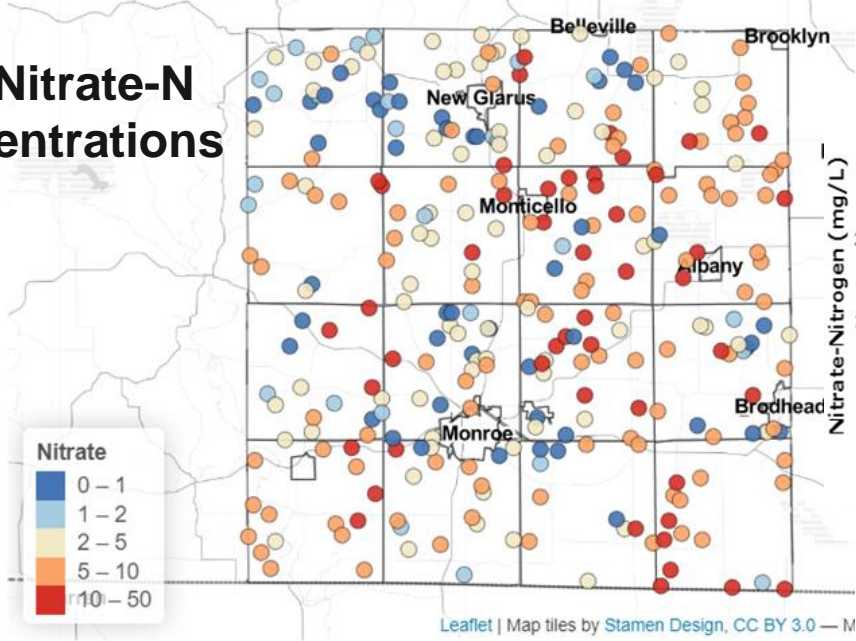
# Applying that model to Green County



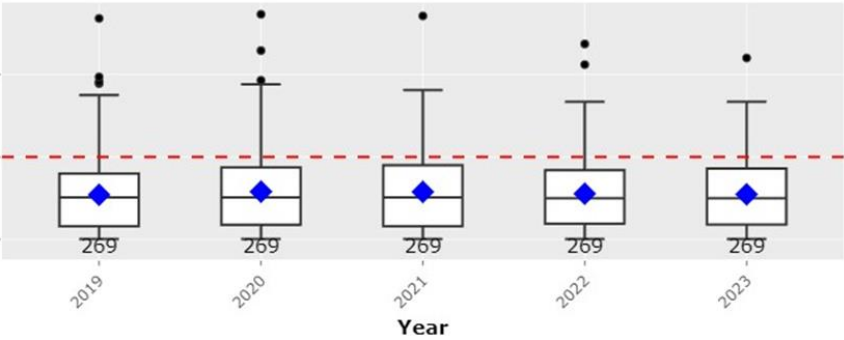


# Green County Trend Monitoring Results

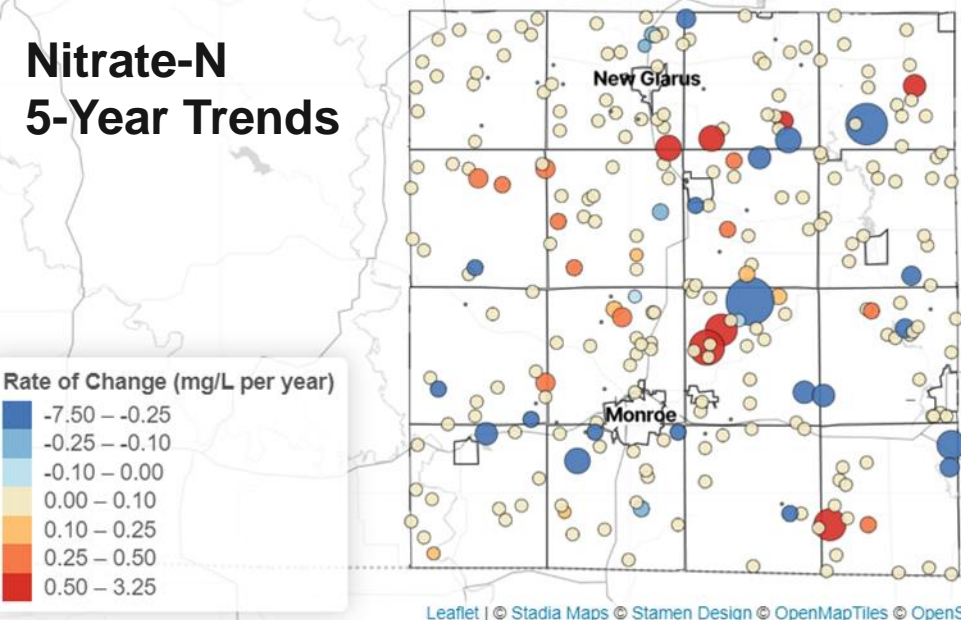
## 2023 Nitrate-N Concentrations



Summary of Countywide Nitrate-Nitrogen Concentrations



## Nitrate-N 5-Year Trends

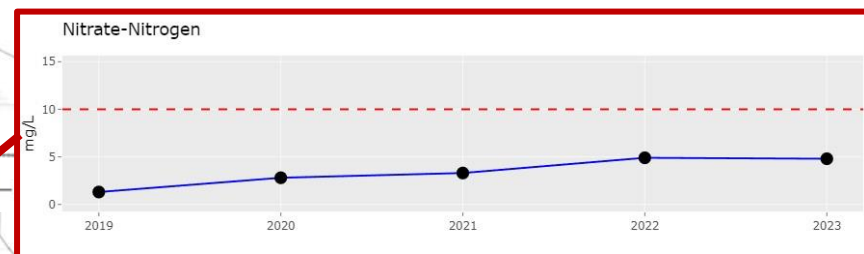
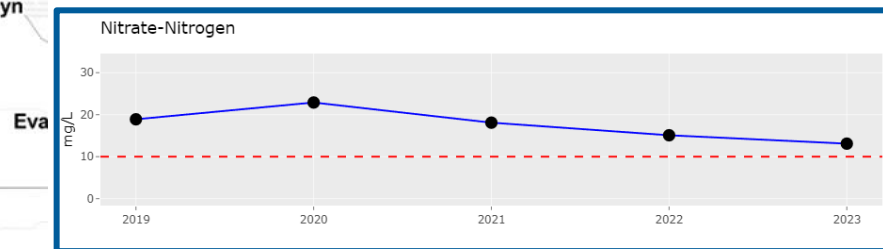
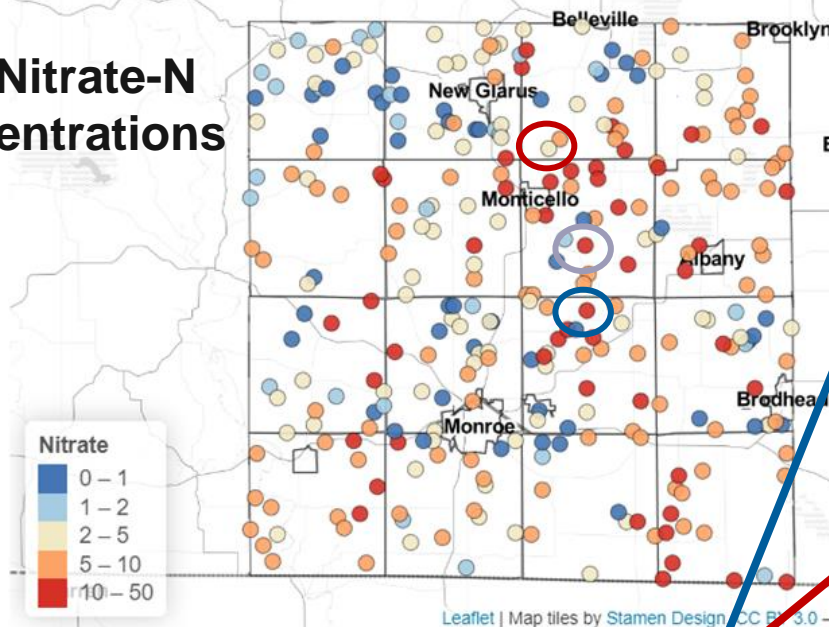


5 Year Trends		
Trend	# Wells	%
Decrease	26	10
No trend	219	81
Increase	24	9

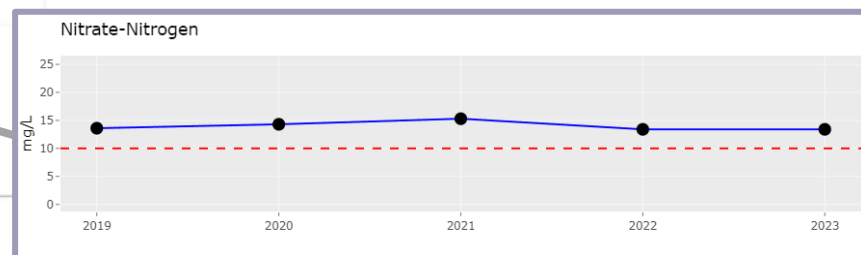
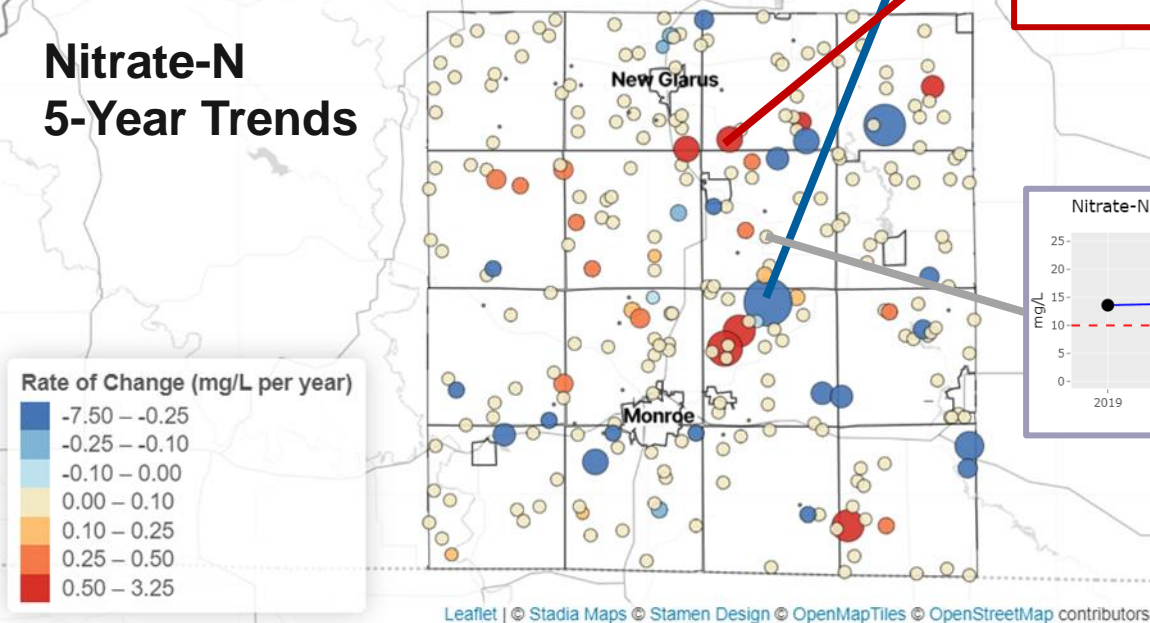


# Nitrate-Nitrogen Results

## 2023 Nitrate-N Concentrations

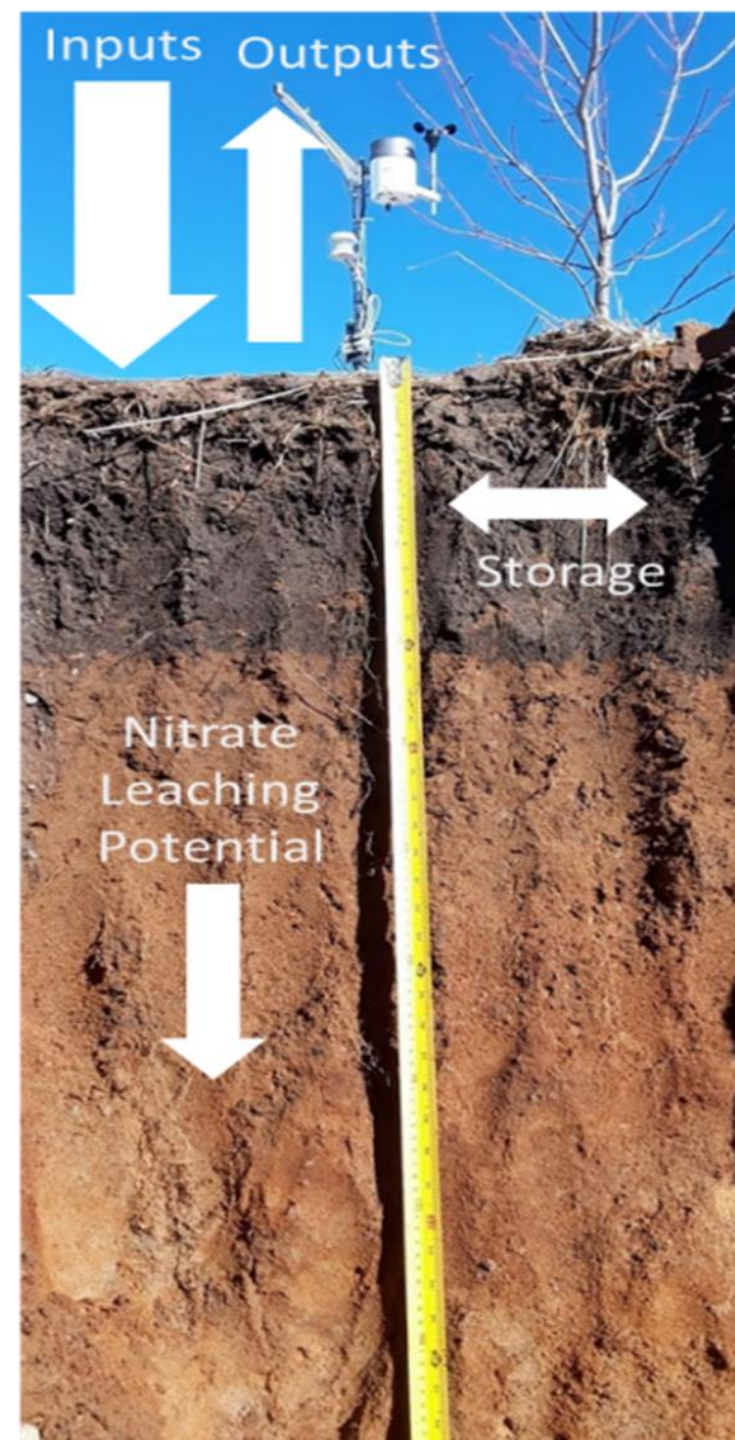


## Nitrate-N 5-Year Trends



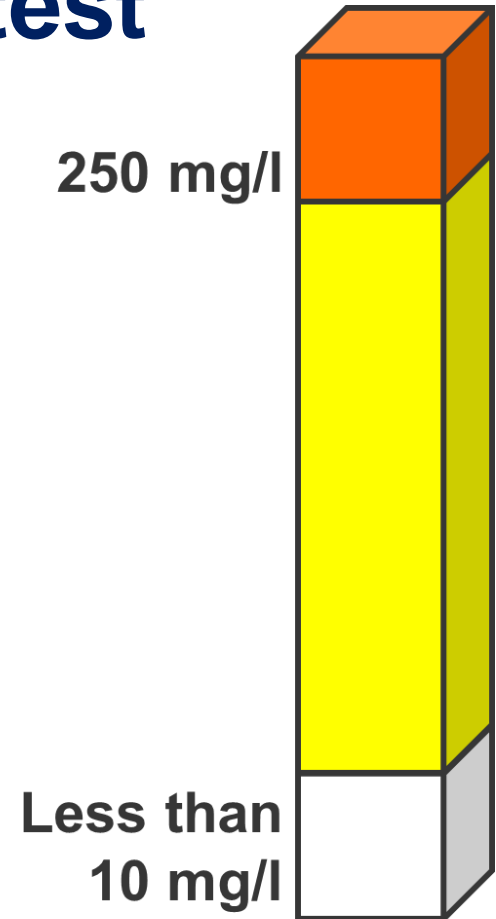
# Strategies to reduce nitrate in groundwater

- Applying fertilizer at the right rate, time, source, place will maximize profitability and minimize excessive losses of nitrogen to groundwater; additional practices may be needed to improve water quality in areas with susceptible soils and geology
- You may not need as much nitrogen fertilizer as you think, **conduct your own on-farm rate trials to develop customized fertilizer response curves for your farm**
- Utilize conservation incentive programs to **take marginal land or underperforming parts of fields out of production**
- **Diversify cropping systems** to include less nitrogen intensive crops in the rotation
- Explore and **experiment with the use of cover crops, perennial cropping systems, or managed grazing** to reduce nitrate losses to groundwater



# Interpreting your chloride test

- Greater than 250 mg/l
  - No direct effects on health
  - Salty taste
  - Exceeds recommended level
- Greater than 10 mg/l may indicate human impact
- Less than 10 mg/l considered “natural” in much of WI

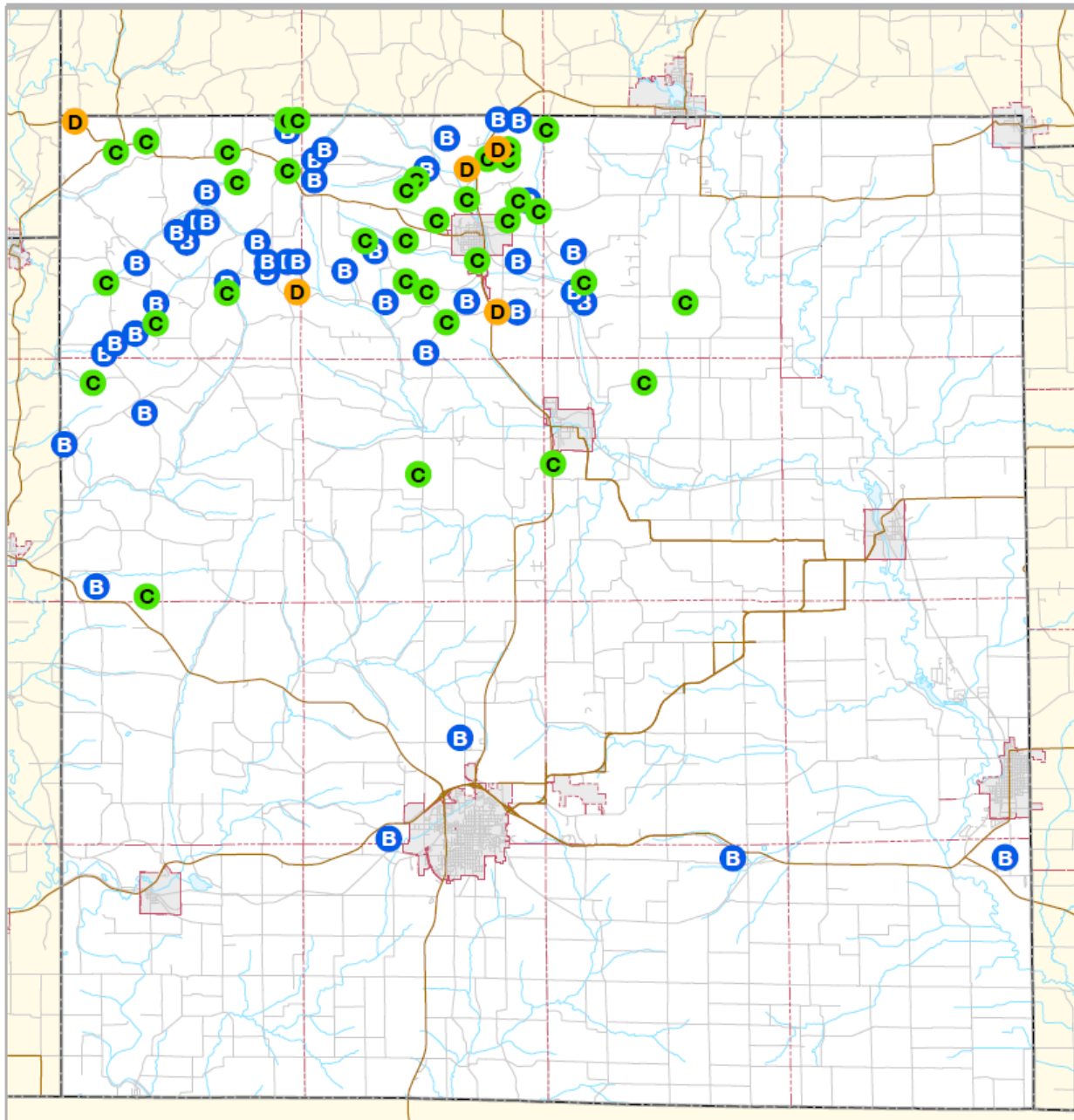


## Sources:

Fertilizers / Septic Systems / Road Salt







# Green County

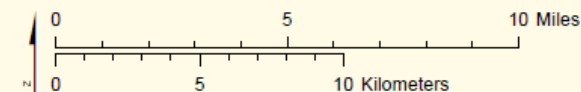
March 2025



## CHLORIDE (ppm)

<b>A</b>	None Detected	0	0 %
<b>B</b>	... 10	49	53 %
<b>C</b>	11 - 50	37	40 %
<b>D</b>	51 - 100	6	7 %
<b>E</b>	101 - 200	0	0 %
<b>F</b>	201 ...	0	0 %

Mapped value is the average for the 1/4 1/4 section  
Treated samples not mapped



# Green County

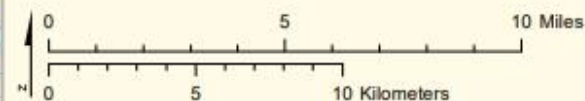
2013 - 2023



## CHLORIDE (ppm)

A	None Detected	2	<1 %
B	... 10	437	36 %
C	11 - 50	644	54 %
D	51 - 100	101	8 %
E	101 - 200	17	1 %
F	201 ...	0	0 %

Mapped value is the average for the 1/4 1/4 section  
Treated samples not mapped

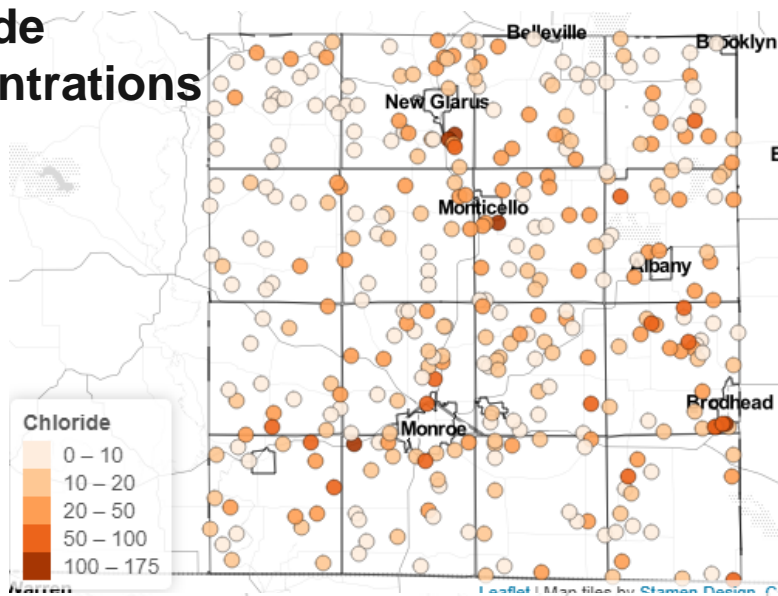


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# Green County Chloride Results

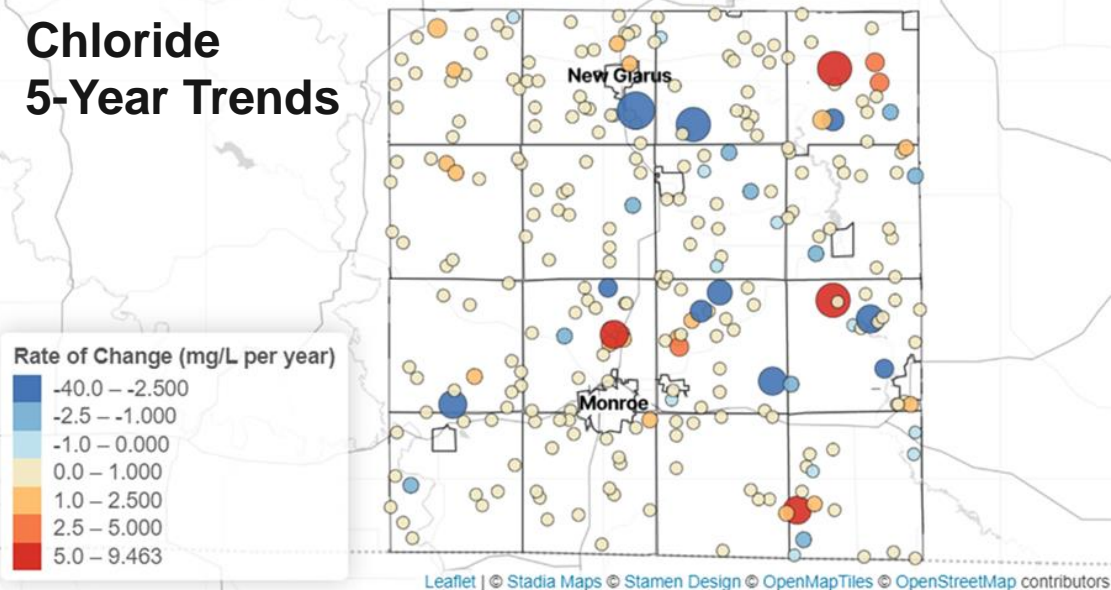
## Chloride Concentrations



## Chloride Summary

- <1% of wells tested greater than 100 mg/L
- 35% of wells tested less than 10 mg/L
- **Average:** 19.1 mg/L
- **Median:** 14.6 mg/L
- **Maximum:** 125 mg/L
- **Minimum:** 0.9 mg/L

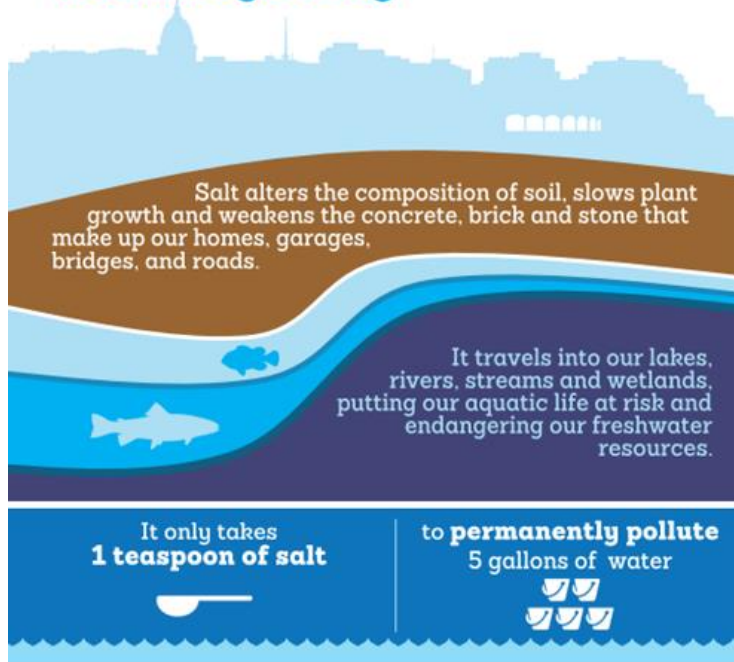
## Chloride 5-Year Trends





# WI Salt Wise Recommendations

Once you put salt down,  
it doesn't go away



Every year, we use about...



... of salt on our roads

This doesn't include what we use on sidewalks, driveways, and parking lots.

Reduce your salt use to help  
protect our lakes, streams, and  
drinking water.

## 1. Shovel



Clear walkways and other areas before the snow turns to ice. The more snow you remove manually, the less salt you will have to use and the more effective it will be.

## 2. Scatter



If you use salt, scatter it so that there is space between the grains. Believe it or not, a coffee mug of salt is enough to treat an entire 20-foot driveway or 10 sidewalk squares.

## 3. Switch



When pavement temperatures drop below 15 degrees, salt won't work. Switch to sand for traction or a different ice melter that works at lower temperatures.

## 4. Select a Certified Applicator



Encourage your maintenance professional to get certified through the City of Madison's Winter Salt Certification Program and ask businesses in your community to do the same.

## 5. Love the Lines



Stripes on roads before a storm are anti-icing. They show that your professional maintenance crew is concerned about safety and is saving money, time and protecting our environment!

## 6. Be Salt Wise All Year



Water softener salt ends up in local freshwater bodies. If your household softener uses more than 1 bag of salt per month, have a professional tune it up or replace it with a high-efficiency model.

# Test Important to Health

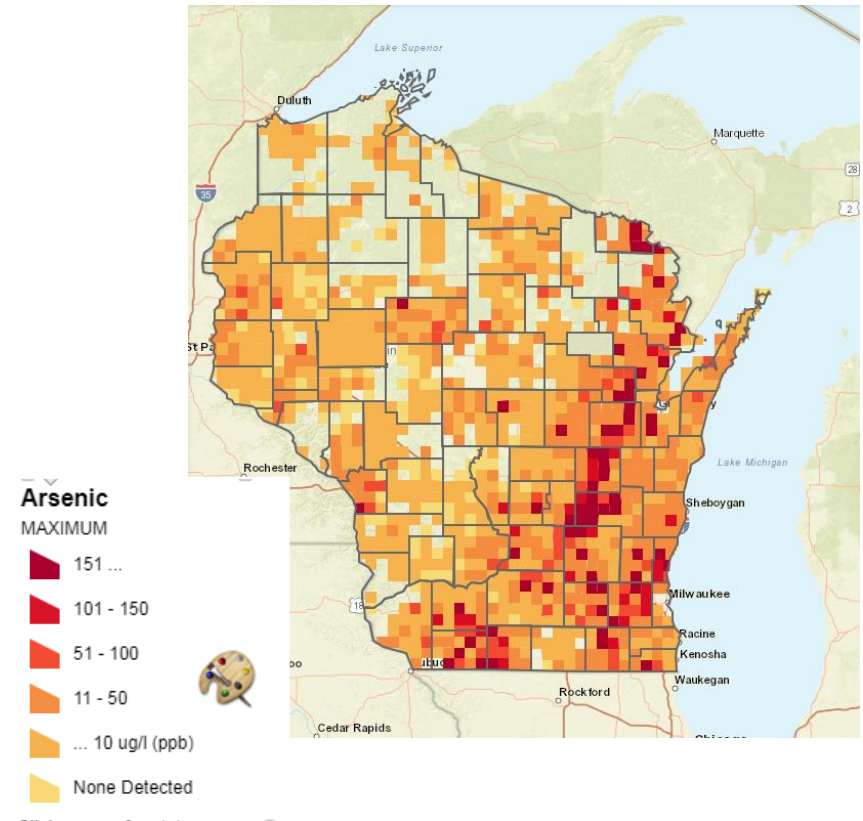
## Arsenic

**Sources:** Naturally occurring in mineral deposits

**Standard:** 0.010 mg/L (10 ppb)

### Health Effects:

- Increased risk of skin cancers as well as lung, liver, bladder, kidney, and colon cancers.
- Circulatory disorders
- Stomach pain, nausea, diarrhea
- Unusual skin pigmentation



# Green County

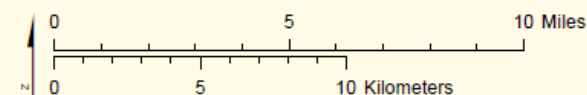
March 2025



## ARSENIC (mg/l)

<b>A</b>	<b>None Detected</b>	<b>75</b>	<b>100 %</b>
<b>B</b>	<b>... 0.010</b>	<b>0</b>	<b>0 %</b>
<b>C</b>	<b>0.011 - 0.050</b>	<b>0</b>	<b>0 %</b>
<b>D</b>	<b>0.051 - 0.100</b>	<b>0</b>	<b>0 %</b>
<b>E</b>	<b>0.101 - 0.150</b>	<b>0</b>	<b>0 %</b>
<b>F</b>	<b>0.151 ...</b>	<b>0</b>	<b>0 %</b>

Mapped value is the maximum for the 1/4 1/4 section  
Treated samples not mapped





# Green County

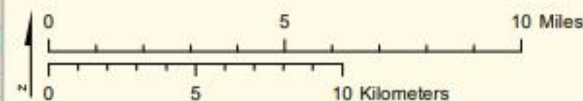
2013 - 2023



## ARSENIC (mg/l)

A	None Detected	390	61 %
B	... 0.010	243	38 %
C	0.011 - 0.050	6	<1 %
D	0.051 - 0.100	0	0 %
E	0.101 - 0.150	0	0 %
F	0.151 ...	0	0 %

Mapped value is the average for the 1/4 1/4 section  
Treated samples not mapped



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# Tests for Aesthetic Problems

## Iron

- Natural (rocks and soils)
- May benefit health
- Red and yellow stains on clothing, fixtures
- If iron present, increases potential for iron bacteria
  - Slime, odor, oily film



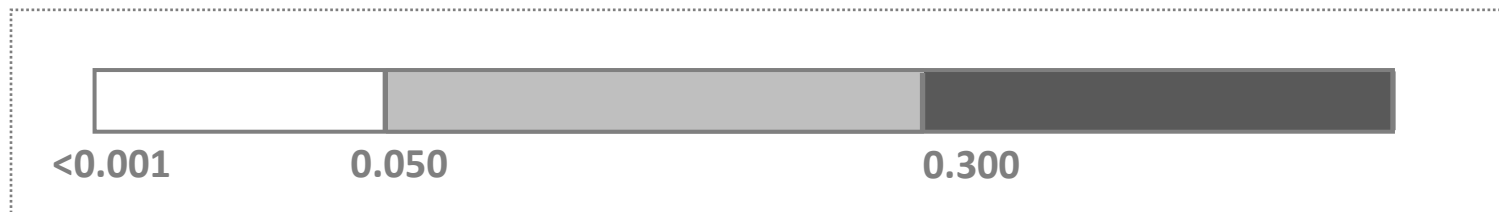
**Greater  
than 0.3  
mg/L**

**Aesthetic  
problems  
likely**

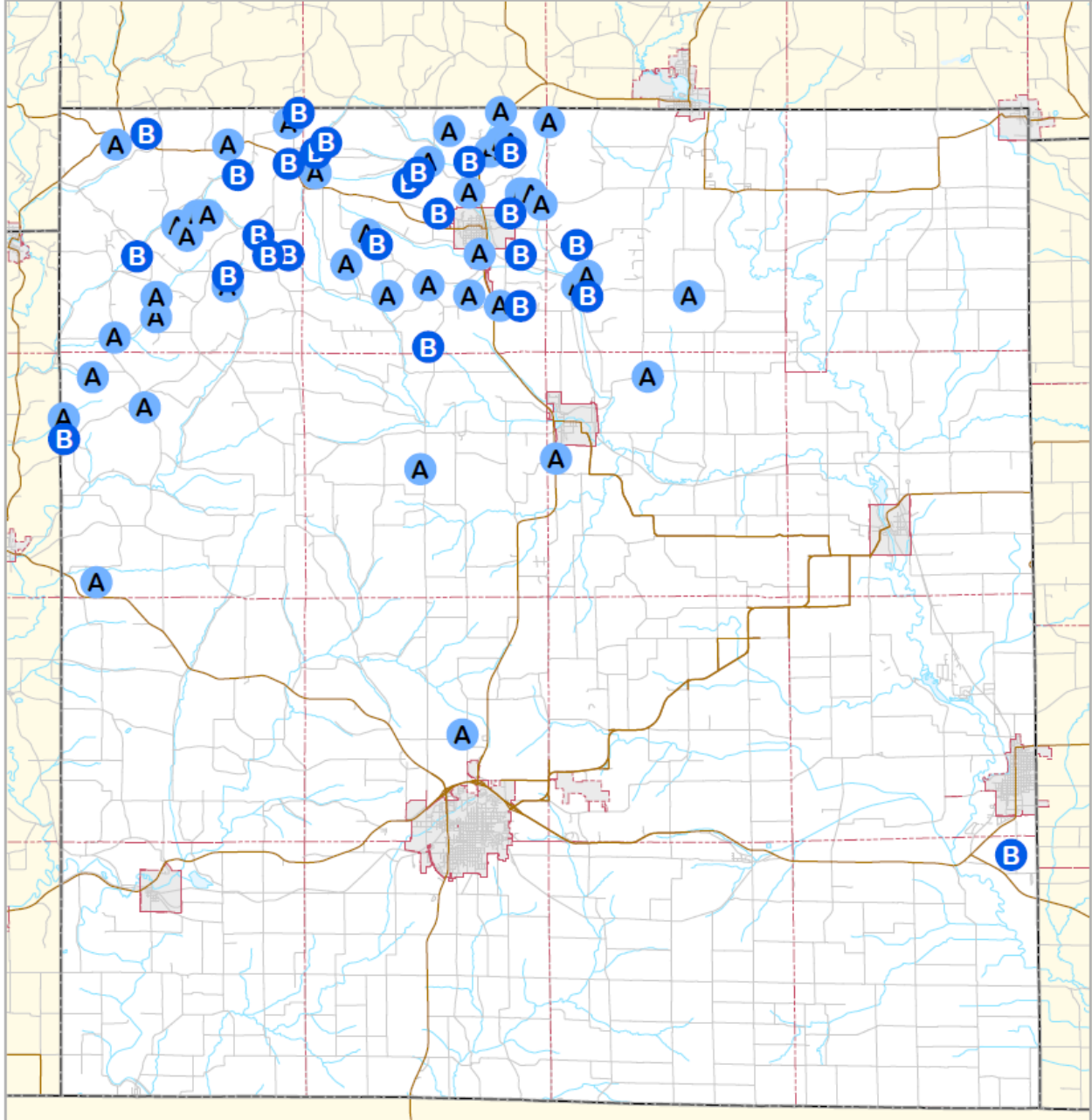
**Less  
than 0.3 mg/L**

# Manganese

- Naturally occurring
- Aesthetic Level: 0.050 mg/L
  - Causes black/brown precipitate and possible staining on fixtures
- Health Advisory Level: 0.300 mg/L
  - Long-term exposure may harm the nervous system







# Green County

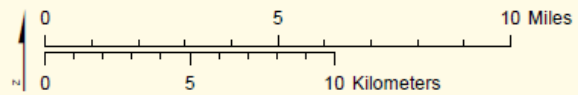
March 2025



## MANGANESE (mg/l)

A	None Detected	48	64 %
B	... 0.050	27	36 %
C	0.051 - 0.300	0	0 %
D	0.301 - 0.500	0	0 %
E	0.501 - 1.000	0	0 %
F	1.001 ...	0	0 %

Mapped value is the average for the 1/4 1/4 section  
Treated samples not mapped



# Green County

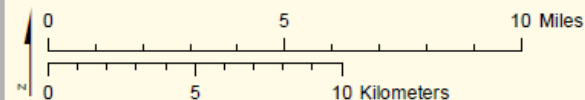
2014 - 2023



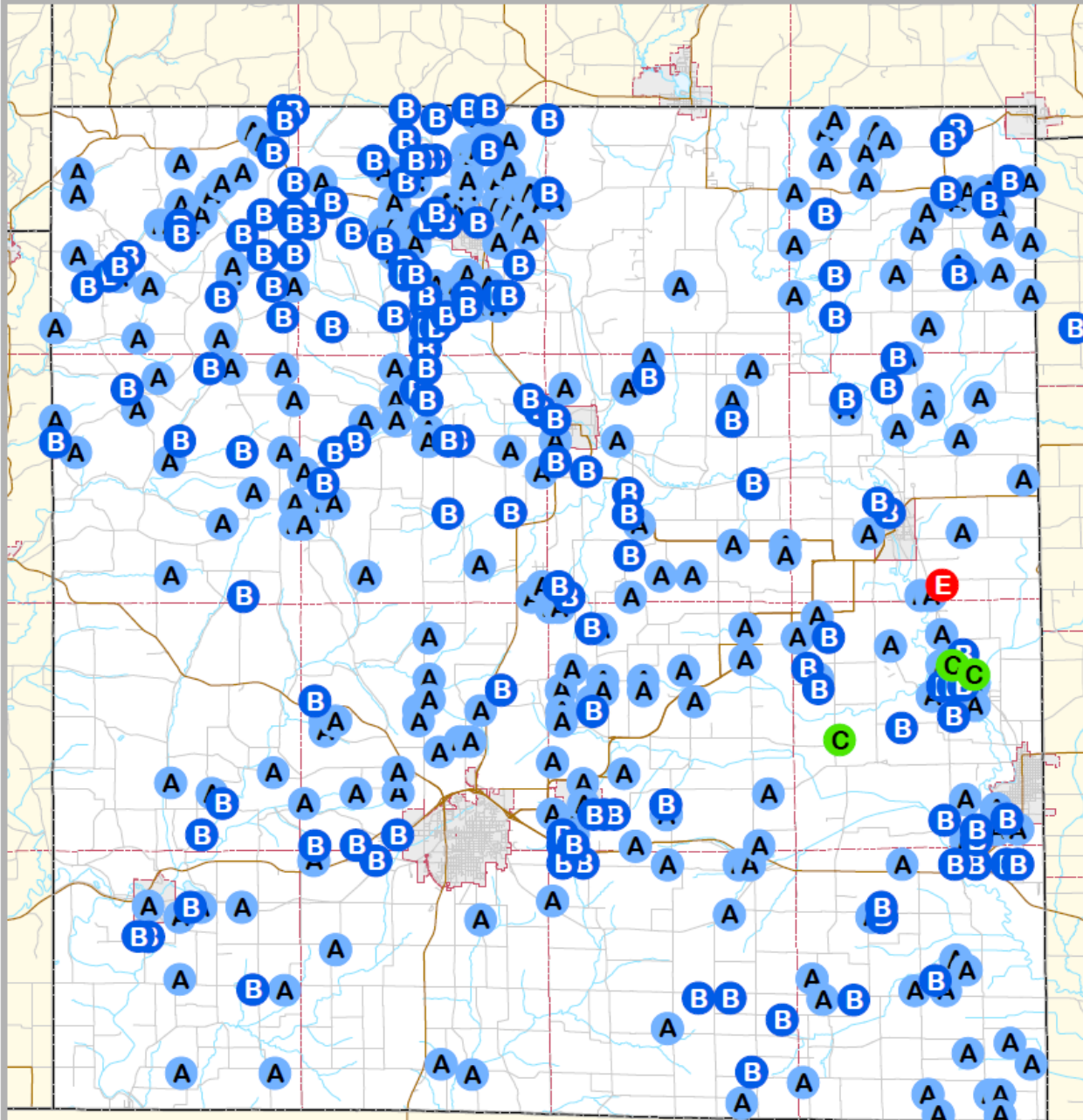
## MANGANESE (mg/l)

A	None Detected	350	68 %
B	... 0.050	163	31 %
C	0.051 - 0.300	4	<1 %
D	0.301 - 0.500	0	0 %
E	0.501 - 1.000	1	<1 %
F	1.001 ...	0	0 %

Mapped value is the average for the 1/4 1/4 section  
Treated samples not mapped



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# Test Important to Health

## Copper

- **Sources:** Copper water pipes
- **Standard:** Less than 1.3 mg/L is suitable for drinking



### Health Effects:

- Some copper is needed for good health
- Too much may cause problems:
  - Stomach cramps, diarrhea,
  - vomiting, nausea
  - Formula intolerance in infants



# Test Important to Health

## Lead

**Sources:** Lead solder joining copper pipes (pre-1985) or brass fixtures

**Standard:** 0.015 mg/L (15 ppb)

### Health Effects:

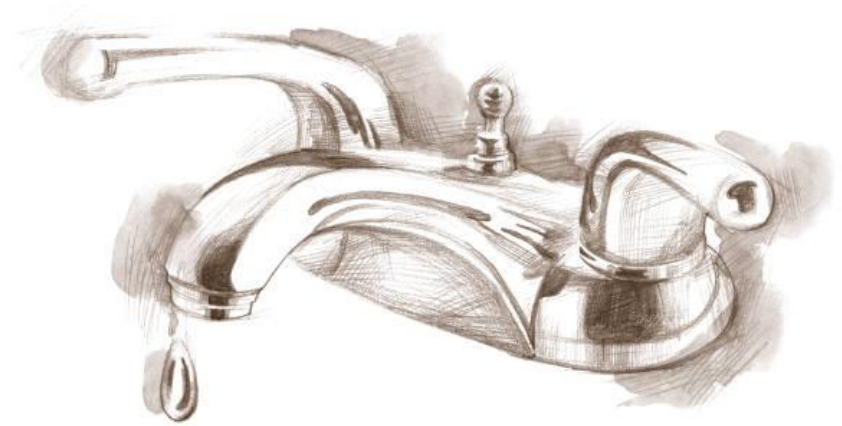
- Young children, infants and unborn children are particularly vulnerable.
- Lead may damage the brain, kidneys, nervous system, red blood cells, reproductive system.



# Lead and Copper

## Solutions:

- Allow water to run for a minute or two before using for drinking or cooking
- Clean out faucet screen or aerator occ
- Use a treatment device, but generally not necessary



# Pesticides in Drinking Water

- Pesticides include: insecticides, herbicides, fungicides and other substances used to control pests.
- Health standards usually only account for parent compound.
- Parent compounds breakdown over time.
- Little research into health effects from the combination of chemicals..
- **Most frequently detected pesticides in Wisconsin:**
  - Alachlor\* and its chemical breakdown products
  - Metolachlor and its chemical breakdown products
  - Atrazine\*\* and its chemical breakdown products
  - Metribuzin
  - Cyanazine and its chemical breakdown products.





# Tests Important to Health

## DACT Screen

**Sources:** Triazine pesticides (mainly atrazine used on corn crops)

**DACT Screen:** Only measures the diaminochlorotriazine (DACT) residue levels of triazine type pesticides (atrazine, simazine, propazine, cyanazine, etc)

Specific to diaminochlorotriazine (DACT), does not account for parent compound or other breakdown components

Drinking water limit:

- **3 ppb of total atrazine** (*atrazine + the 3 breakdown components*)



# Green County

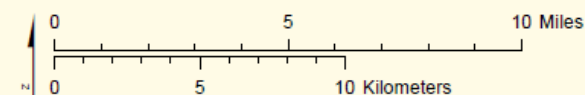
March 2025



## DACT (ug/l)

<b>A</b>	<b>None Detected</b>	<b>60</b>	<b>82 %</b>
<b>B</b>	<b>... 0.3</b>	<b>8</b>	<b>11 %</b>
<b>C</b>	<b>0.4 - 1.0</b>	<b>5</b>	<b>7 %</b>
<b>D</b>	<b>1.1 - 2.0</b>	<b>0</b>	<b>0 %</b>
<b>E</b>	<b>2.1 - 3.0</b>	<b>0</b>	<b>0 %</b>
<b>F</b>	<b>3.1 ...</b>	<b>0</b>	<b>0 %</b>

Mapped value is the maximum for the 1/4 1/4 section  
Treated samples not mapped



# Green County

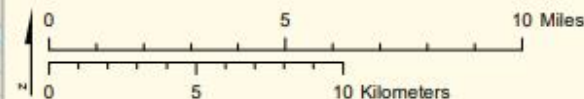
2013 - 2023



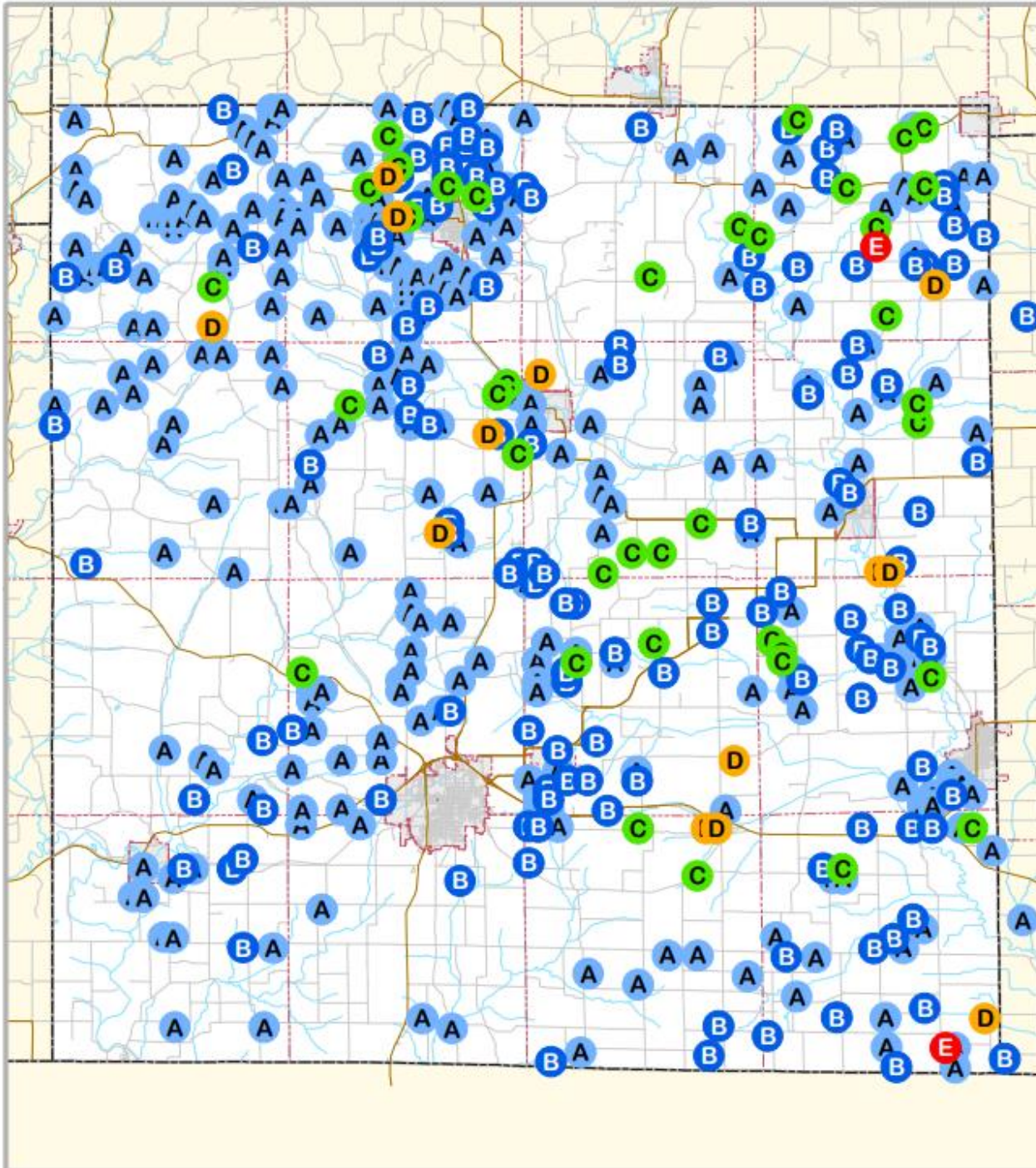
## DACT (ug/l)

A	None Detected	368	62 %
B	... 0.3	165	28 %
C	0.4 - 1.0	48	8 %
D	1.1 - 2.0	13	2 %
E	2.1 - 3.0	2	<1 %
F	3.1 ...	0	0 %

Mapped value is the maximum for the 1/4 1/4 section  
Treated samples not mapped



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# Improving water quality

## ➤ Long-term improvements




- Eliminate sources of contamination

## ➤ Short-term improvements

- Repair or replace existing well
- Connect to public water supply or develop community water system
- Purchase bottled water for drinking and cooking
- Install a water treatment device
  - Often the most convenient and cost effective solution



This table lists the devices certified to remove the contaminants commonly found in Wisconsin private wells.

	 Carbon filtration	 Reverse osmosis	 Water softener
Arsenic		✓	
Atrazine	✓		
Copper		✓	
Fluoride		✓	
Lead	✓	✓	
Manganese			✓
Nitrate		✓	
Per- and polyfluoroalkyl substances (PFAS)	✓	✓	
Trichloroethylene (TCE)	✓		
To reduce levels, look for products with:	NSF/ANSI 53 certification	NSF/ANSI 58 certification	NSF/ANSI 44 certification



**All treatment devices require regular maintenance.**

For devices that are connected to your home's plumbing, test the treated water after it is installed to make sure the device is working to remove the contaminants.

For all devices, follow the instructions for proper cleaning and maintenance – this may be replacing filters or membranes or adding softener salt. Devices that are not properly maintained lose their effectiveness over time and can even make water quality worse.

# Where do you go from here:

## Recommended next steps

- Test well annually for bacteria, or if water changes color or clarity.
- Consider testing annually for nitrate, particularly if your levels are approaching 10 mg/L.
- If your nitrate level was greater than 5 mg/L consider testing for pesticides
- If you haven't checked for arsenic or manganese consider testing at least once

## Why Should I Join?

- Understand your well water trends or changes over time.
- Access trainings, e-newsletters, technical assistance, and other resources to help manage your private well.
- Contribute to the baseline knowledge of water quality in Green County

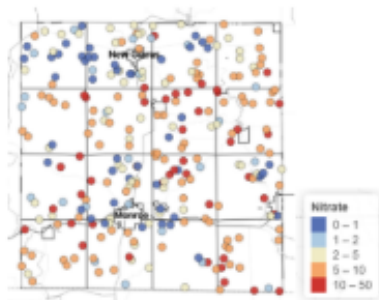


## How Does It Work?

- Private well owners interested in participating will subscribe and receive an email confirming continued participation every August.
- The baseline kit will be \$70 and will include nitrate-nitrogen, chloride, alkalinity, total hardness, pH, and conductivity. Participants will easily pay online.
- A water test kit and pre-paid mailer will be sent to you during the months of September - October. Collect the sample and mail back at your earliest convenience.
- Individual well data is confidential! Only the well owner and the lab will have access to that well's specific data.
- Visit this link to view the results maps of previous years: <https://tinyurl.com/8xar5sbw>

## Sign Up Now!

- Participation is completely up to you.
- To enroll, please visit: <https://go.wisc.edu/5tvxqi> or use the QR code above to access the participation form.



Above: Nitrate-nitrogen map results from 2023

## Questions?

- Contact Olivia Roth, Extension Office Specialist at [olivia.roth@wisc.edu](mailto:olivia.roth@wisc.edu) or (608) 328-9440.



Join now!



<https://go.wisc.edu/5tvxqi>

**Better Understand Your Well Water  
Join the Green County  
Groundwater Quality  
Trend Data Grassroots  
Program!**



# Operating your private water utility:

- ***Periodically inspect and maintain*** the area around your well
- ***Test your water regularly*** to evaluate common water quality concerns
- ***If necessary, take corrective actions\****



\*Know when to call a licensed well driller or pump installer

Contact Info:

**Kevin Masarik**  
**800 Reserve St.**  
**Stevens Point, WI 54481**  
**715-346-4276**  
[kmasarik@uwsp.edu](mailto:kmasarik@uwsp.edu)

[www.uwsp.edu/cnr/watersheds](http://www.uwsp.edu/cnr/watersheds)

**Thanks to you and the following for  
helping promote and sponsor this  
program:**

- **Green County Extension**
- **Green County Land and Water  
Conservation Department**
- **Towns of Adams, New Glarus,  
Washington and York**



Center for Watershed Science and Education  
College of Natural Resources  
**University of Wisconsin - Stevens Point**



**Extension**

UNIVERSITY OF WISCONSIN-MADISON