

UW-Oshkosh Well Water testing spring 2022

The ERIC lab from UW-Oshkosh has been collecting private well samples in Door County for the past few years. In order to compare data, the samples are all collected within 30 hours and are timed to coincide with either the Spring or Fall ground water turnover. The goal is to get a well test from every section of the county and then collect data over the years to proactively manage any adverse trends.

Jacksonport area joint project

A joint project among SOJ, JWC and CLAA established and manned a drop off site at the Jacksonport Town Hall. We also, along with Jacksonport and Sevastopol townships used Facebook and e-mails to promote the program. Jacksonport Township accounted for 73 of the wells sampled and if you add in those from nearby Sevastopol and Bailey's Harbor our area accounted for 94 of the 260 wells tested in the entire county

We received a total of 65 samples at the Jacksonport drop off site.

Local result Maps

To help orient yourself., Jacksonport Township has been outlined on the ERIC county maps. The portion of Sevastopol along Clark Lake is outlined in indigo.

CLAA has also created expanded maps of the Clark Lake watershed and Jacksonport Township to further expand your view of our area. The gray area is the contributing area to Clark Lake.

Specific property results are private. Results are reported by section .If only one well in a section is "green" then the whole section is green. If there are yellow or orange wells then a dot for each well is added to the section but the location within the section is not specified by the dot. The maps, therefore, can show trends but you need to rely on your specific reports from ERIC.

Door County results

Overall the percentage of wells identified with bacteria fell to 10% with 60% of these in the low category that may be just contamination during sampling. Only 2 wells of the 260 tested had any *E. coli* identified.

Nitrate level distribution was about the same but this year no wells tested above the critical 10 level. The Wisconsin Department of Agriculture, Trade and Consumer Protection has a program to test areas with persistent borderline (over 5 ppm) nitrates for pesticide contamination. This year they are offering to do free testing for up to 100 different pesticides. Letters have been sent to individual homeowners asking permission to test and share the information with the county. The response has been a little low so a second mailing is due in a few days. If you receive this letter please respond.

Arsenic distribution also is about the same with higher levels near the shore. No new studies were discussed.

County-Wide Sampling Efforts

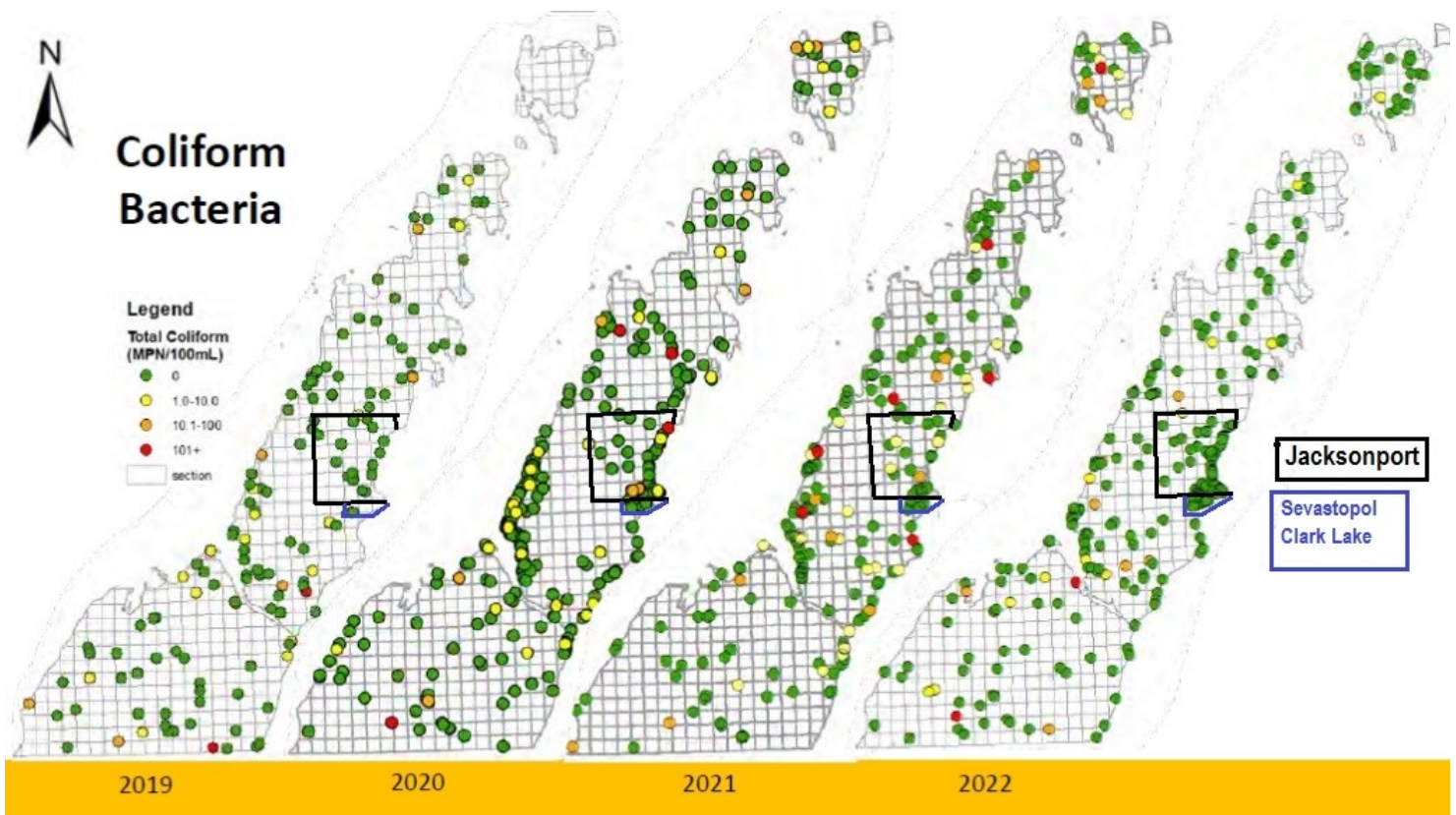
| Percentage Exceeding Safe Water Quality Standards | | | | | | |
|---|---------------------------------|-------------------------------|-------------------------------|-------------------------------|---|-------------|
| Water Quality Standard | Spring 2022 Door County Results | Fall 2021 Door County Results | Fall 2020 Door County Results | Fall 2019 Door County Results | Previous Door County Results* (Average) | Wisconsin** |
| Total Coliform (> 0 MPN/100 ml) | 10% | 24% | 14% | 16% | 18% | 17% |
| <i>E. coli</i> (> 0 MPN/100 ml) | 1% | 2% | 1% | 0% | 6% | 5% |
| Nitrate (> 10 mg/L) | 0% | 2% | 1% | 2% | 2% | 8% |
| Arsenic (> 10 µg/L) | <1% | 1% | <1% | 0% | 3% | 5% |
| *Data derived from UWSP Well Viewer, UWO 2015 (480 samples) & 2016 (392 samples) community program, 2011-2015 UWEx Private Well Program (582 samples) | | | | | | |
| **Data derived from the Wisconsin Groundwater Coordinating Council Report & UWSP Well Viewer | | | | | | |

2022 Coliform Results

Coliform Bacteria

| 2019 | | | 2020 | | | 2021 | | | 2022 | | |
|------------------------------|-----------|-----------|------------------------------|-----------|-----------|------------------------------|-----------|-----------|------------------------------|-----------|-----------|
| Coliform Result (MPN/100 mL) | # Samples | % Samples | Coliform Result (MPN/100 mL) | # Samples | % Samples | Coliform Result (MPN/100 mL) | # Samples | % Samples | Coliform Result (MPN/100 mL) | # Samples | % Samples |
| 0 | 125 | 84 | 0 | 254 | 86 | 0 | 166 | 76 | 0 | 234 | 90 |
| 1-10 | 15 | 10 | 1-10 | 28 | 9 | 1-10 | 30 | 14 | 1-10 | 16 | 6 |
| 10-100 | 6 | 4 | 10-100 | 9 | 3 | 10-100 | 14 | 6 | 10-100 | 8 | 3 |
| 100+ | 2 | 1 | 100+ | 4 | 1 | 100+ | 7 | 3 | 100+ | 2 | 1 |
| n=148 | | | n=295 | | | n=217 | | | n=260 | | |

Potential sampling errors? (Sample faucets must be properly disinfected)

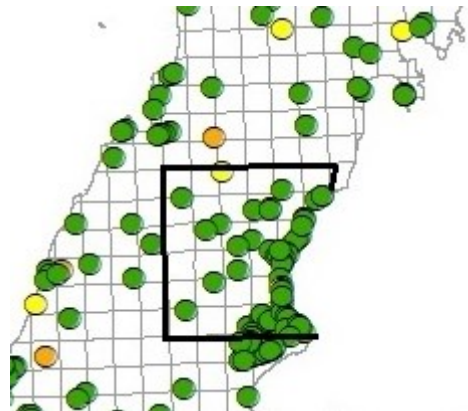
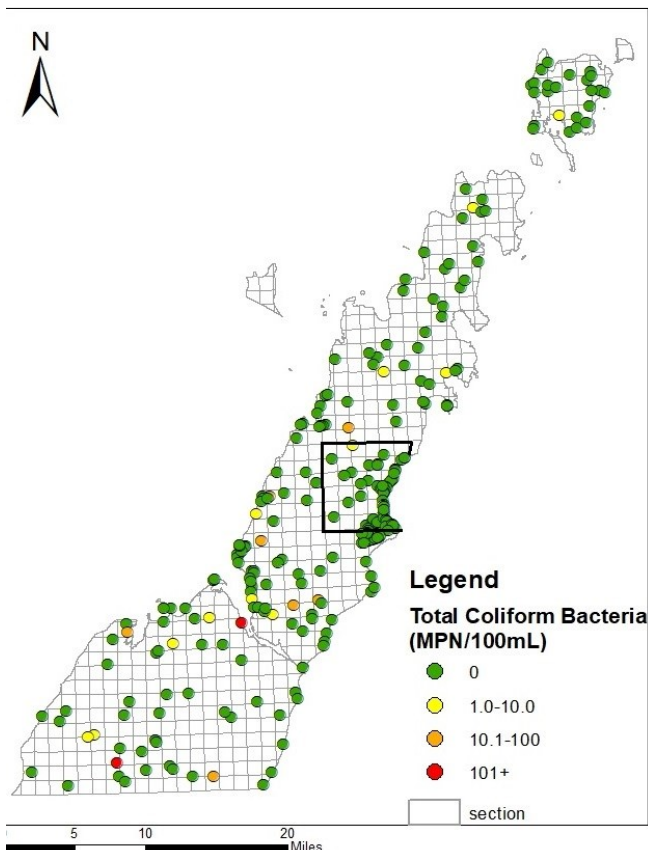


2022 Coliform Results

Percentage of wells in county identified with bacteria fell to about 10% with many in the low category that may be just contamination during sampling.

Only 2 wells had any E. coli identified.

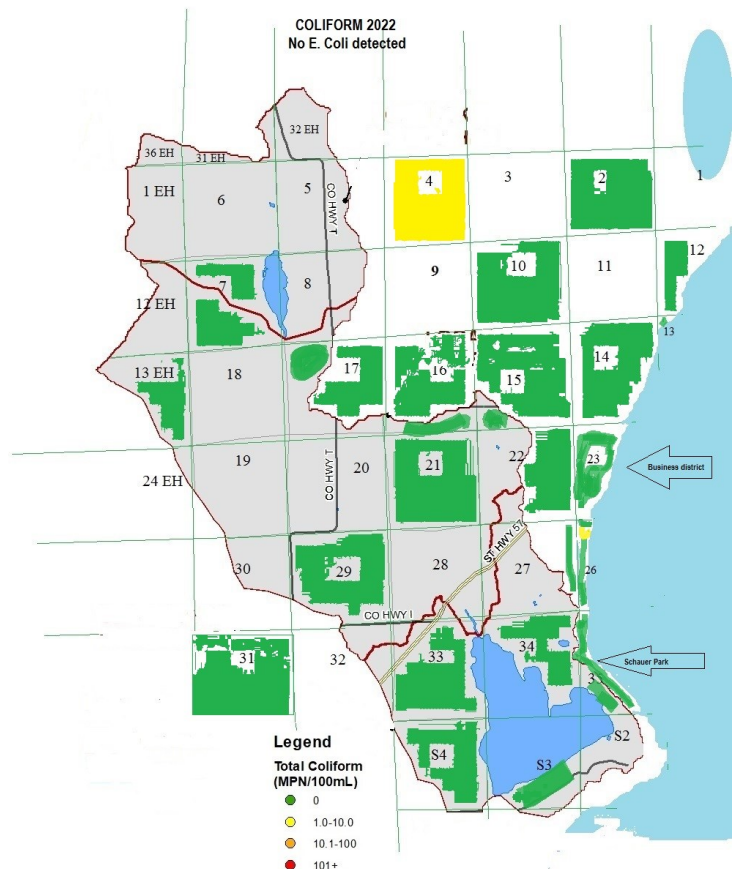
**Door County Total Coliform Results:
Spring 2022**



Only two wells in Jacksonport had a few bacteria.

None of the wells in the Clark Lake area had any contamination.

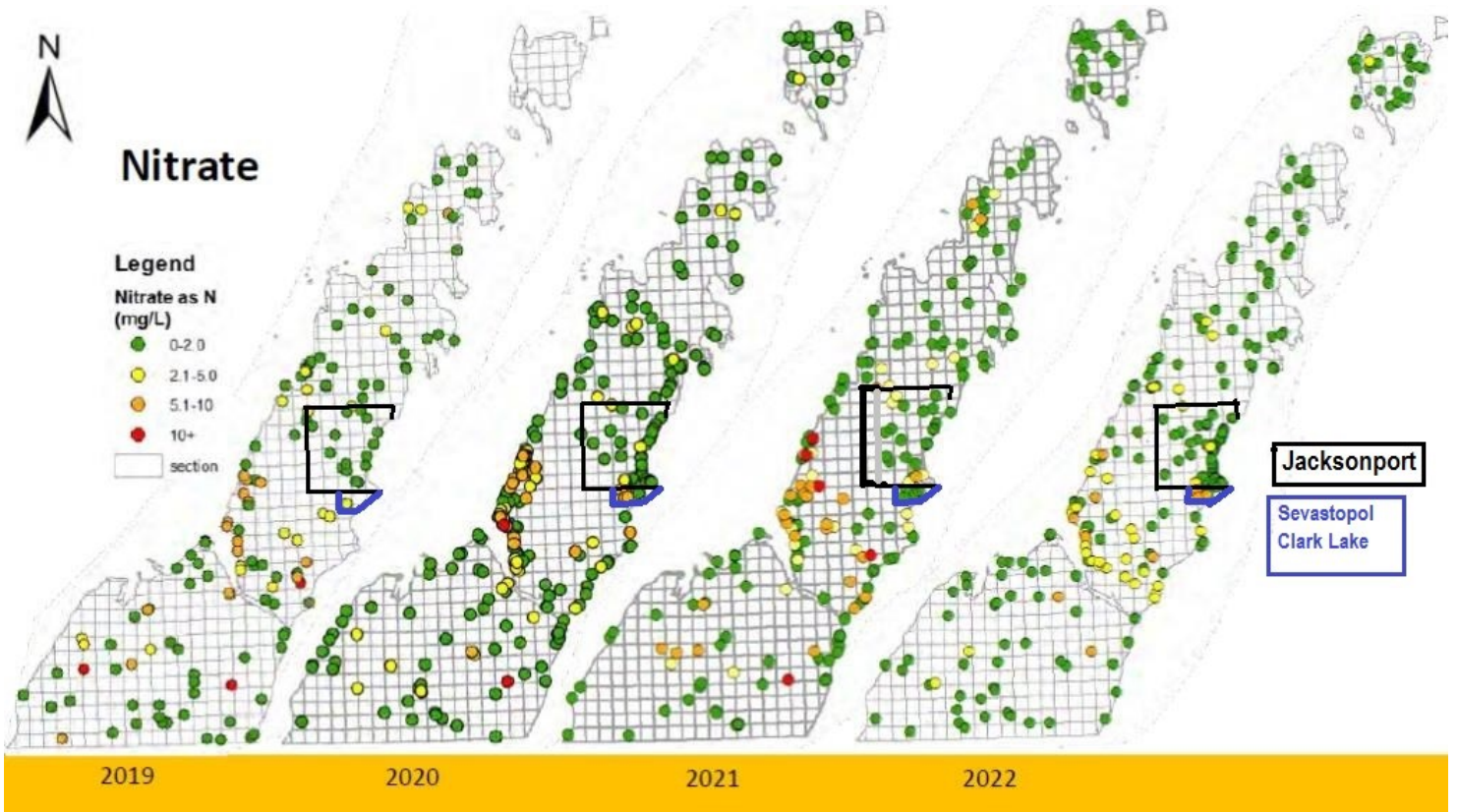
No E.Coli found in Jacksonport in any of the 2019-2022 studies.



Spring 2022 Nitrate Results

Nitrate

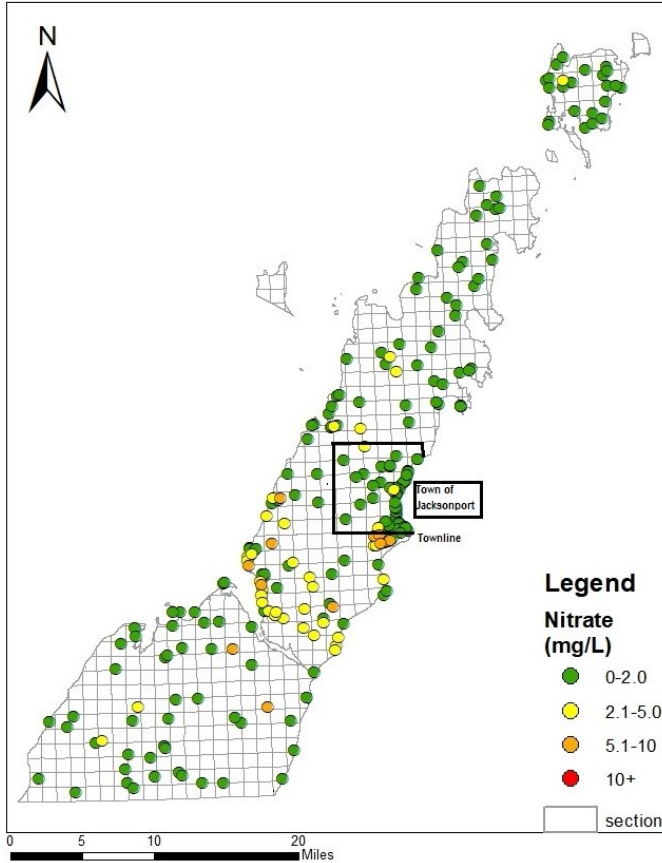
| 2019 | | | 2020 | | | 2021 | | | 2022 | | |
|-----------------------|-----------|-----------|-----------------------|-----------|-----------|-----------------------|-----------|-----------|-----------------------|-----------|-----------|
| Nitrate Result (mg/L) | # Samples | % Samples | Nitrate Result (mg/L) | # Samples | % Samples | Nitrate Result (mg/L) | # Samples | % Samples | Nitrate Result (mg/L) | # Samples | % Samples |
| Less than 2 | 104 | 71 | Less than 2 | 206 | 72 | Less than 2 | 157 | 75 | Less than 2 | 203 | 80 |
| 2-5 | 23 | 16 | 2-5 | 46 | 16 | 2-5 | 23 | 11 | 2-5 | 41 | 16 |
| 5-10 | 16 | 11 | 5-10 | 34 | 12 | 5-10 | 25 | 12 | 5-10 | 11 | 4 |
| 10+ | 3 | 2 | 10+ | 2 | 1 | 10+ | 5 | 2 | 10+ | 0 | 0 |
| n=146 | | | n=288 | | | n=210 | | | n=255 | | |



Spring 2022 Nitrate Results

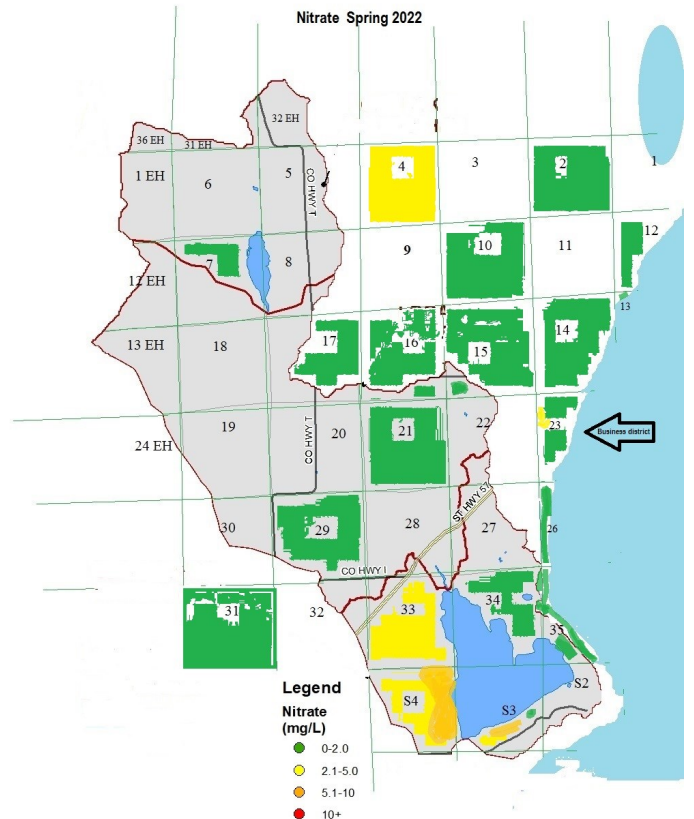
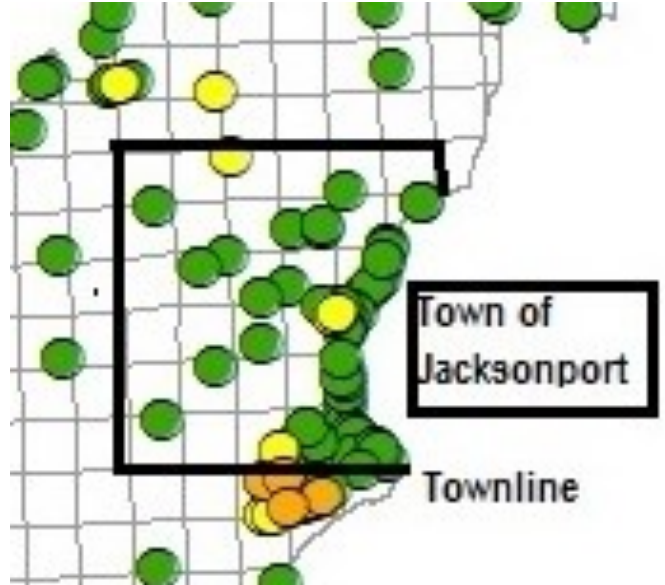
Nitrate level distribution was about the same but this year no wells tested above the critical 10 level.

Door County Nitrate Results: Spring 2022



State is offering a screen for pesticides in wells with persistent slightly elevated nitrates.

Note the nitrate levels along the Southwest portion of the lake.



Door County Spring 2022 Private Well Sampling Results Forum

Ken Potrykus – Hydrogeologist with Environmental Quality Unit

WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION (DATCP)

June 14, 2022

OPPORTUNITY

- Collaborative effort between Door County, University of WI – Oshkosh and DATCP.
- Identify residences that have nitrogen concentrations greater than 5.0 ppm.
- DATCP to offer to sample private wells and analyze for 108 pesticides plus nitrogen (as nitrate and nitrite). Will be conducted as part of DATCP's Targeted Sampling Program.
- No cost.
- As long as granted permission, DATCP will share results with County and UW-O to further delineate groundwater quality.



2022 arsenic results

Arsenic

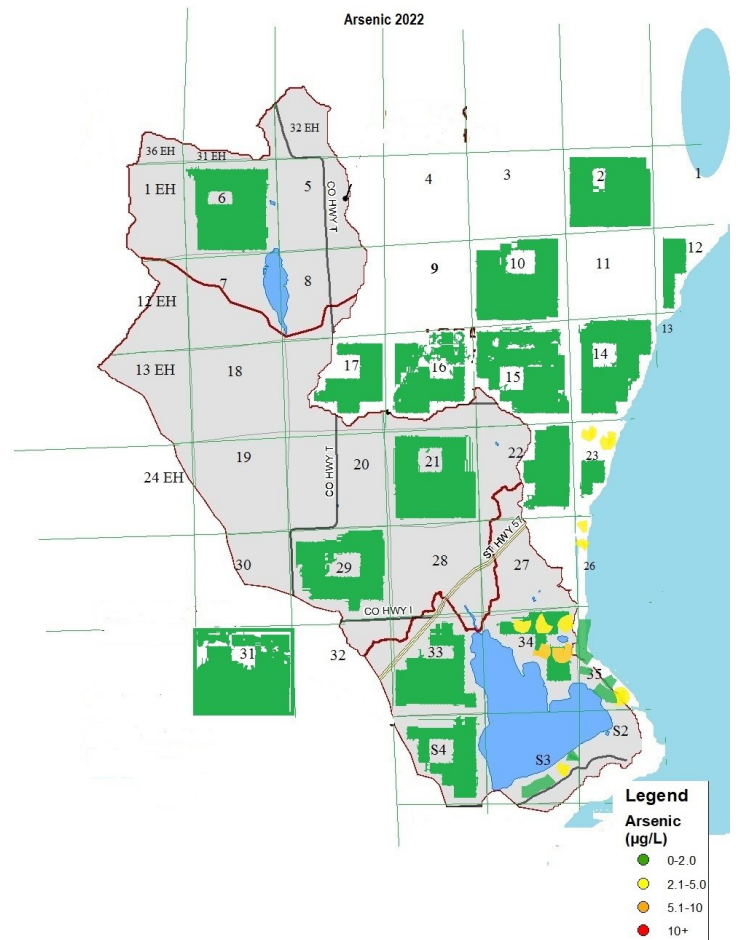
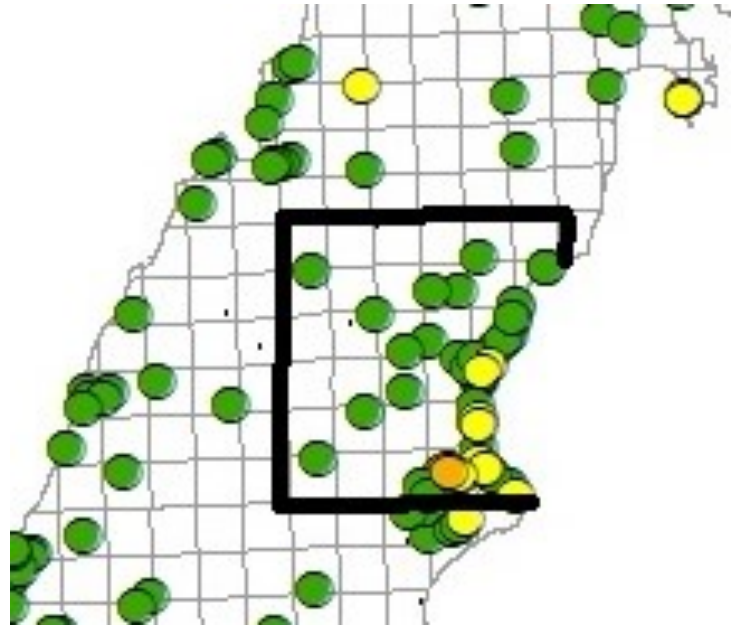
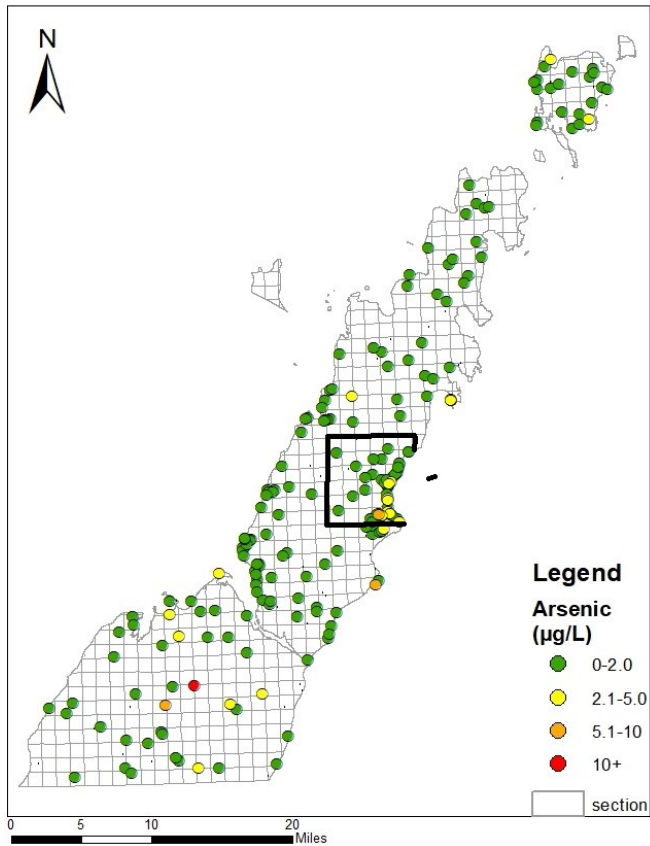
| 2019 | | | 2020 | | | 2021 | | | 2022 | | |
|-----------------------|-----------|-----------|-----------------------|-----------|-----------|-----------------------|-----------|-----------|-----------------------|-----------|-----------|
| Arsenic Result (µg/L) | # Samples | % Samples | Arsenic Result (µg/L) | # Samples | % Samples | Arsenic Result (µg/L) | # Samples | % Samples | Arsenic Result (µg/L) | # Samples | % Samples |
| Less than 2 | 70 | 99 | Less than 2 | 214 | 90 | Less than 2 | 149 | 89 | Less than 2 | 182 | 88 |
| 2-5 | 1 | 1 | 2-5 | 15 | 6 | 2-5 | 15 | 9 | 2-5 | 22 | 11 |
| 5-10 | 0 | 0 | 5-10 | 7 | 3 | 5-10 | 2 | 1 | 5-10 | 3 | 1 |
| 10+ | 0 | 0 | 10+ | 1 | <1 | 10+ | 2 | 1 | 10+ | 1 | 0 |
| n=71 | | | n=237 | | | n=168 | | | n=208 | | |



2022 arsenic results

Arsenic distribution also is about the same with higher levels near the shore . No comments at the meeting about studies.

Door County Arsenic Results:
Spring 2022



Further Research & Plans

- Looking to do a targeted sampling in spring, summer, and/or fall (seasonal)
- Recruiting same volunteers from previous years plus additional wells in other sections across county
- Continuation as a long-term study (ongoing annual program)

Take Home Messages

- Karst geology makes Door County groundwater highly vulnerable to contamination and causes high variability in water quality results
- Sample your well at least annually for bacteria and nitrate, or more often if changes or problems observed (recommended)
- Do not hesitate to use your resources if you have questions or concerns about Door County groundwater quality
 - Wisconsin DNR
 - Door County Soil & Water Conservation Department
 - Door County Public Health