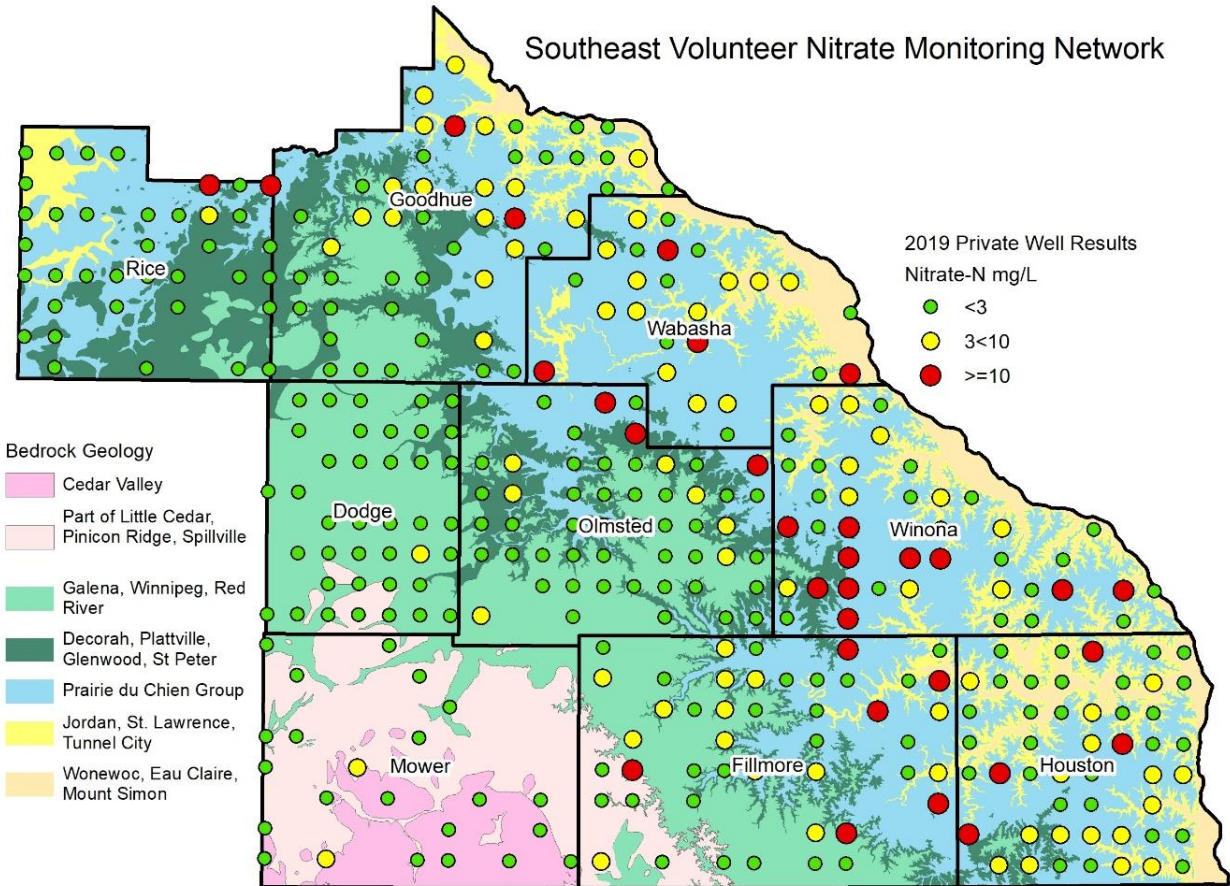
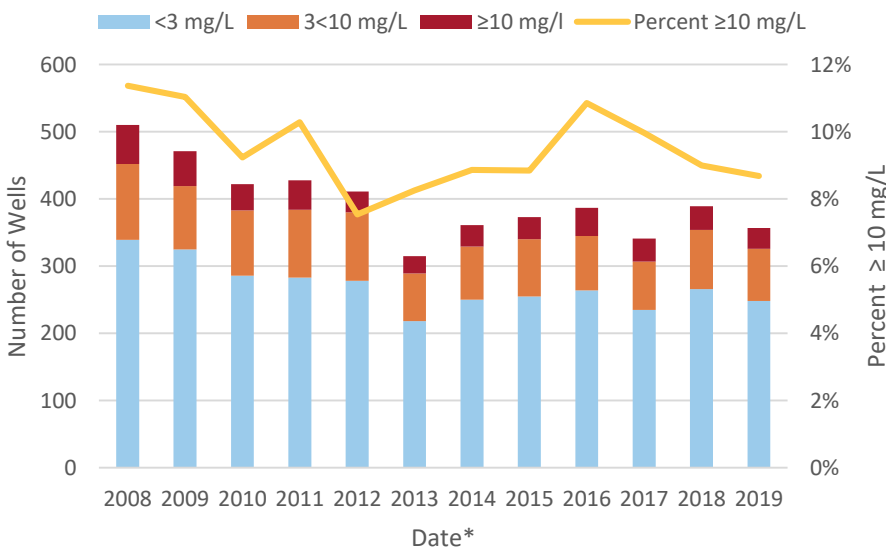


SOUTHEAST MINNESOTA VOLUNTEER NITRATE MONITORING NETWORK 2019 RESULTS

The Southeast Minnesota Volunteer Nitrate Monitoring Network was developed in 2008 in order to determine nitrate trends in private wells in the region. Drinking water high in nitrate can cause serious health effects in infants. The state's Health Risk Limit for nitrate-nitrogen is 10 mg/L.



Southeast Nitrate Over Time



Southeastern Minnesota has karst geology that makes it vulnerable to groundwater contamination. The areas near the edge of the Decorah formation are especially vulnerable to nitrate contamination which is illustrated in the map.

In 2019, 357 private drinking water wells were sampled for nitrate. On a regional scale, 91% of participating wells have water that is below the Health Risk Limit for nitrate-nitrogen.

Results from 2019 are similar to previous years with 69% of nitrate results <3 mg/L, 22% in the 3<10 mg/L range, and 9% are ≥10 mg/L. Varying participation rates have minimal impact on the overall picture as the proportion of wells in each nitrate category remains nearly the same.

*In 2008 and 2009, 2 samples were taken per year. The fall sampling is represented for the purpose of consistency.

2019 NITRATE RESULTS BY COUNTY

Counties	Total Wells	Nitrate-N Summary Statistics					Percentage of Wells		
		Min	Max	Mean	Median	90th	<3 mg/L	3<10 mg/L	≥10 mg/L
		Nitrate-N mg/L or parts per million (ppm)					Percent		
Dodge	39	<0.25	3.5	0.1	0.0	0.0	97.4%	2.6%	0.0%
Fillmore	45	<0.25	18.8	4.0	2.5	11.3	55.6%	31.1%	13.3%
Goodhue	48	<0.25	12.4	2.8	0.7	8.7	60.4%	35.4%	4.2%
Houston	48	<0.25	17.9	3.5	1.1	9.2	62.5%	29.2%	8.3%
Mower	23	<0.25	8.4	0.7	0.0	3.3	91.3%	8.7%	0.0%
Olmsted	51	<0.25	18.8	2.0	0.4	7.0	80.4%	13.7%	5.9%
Rice	37	<0.25	12.2	0.8	0.0	0.2	91.9%	2.7%	5.4%
Wabasha	25	<0.25	27.6	5.7	3.8	12.0	36.0%	48.0%	16.0%
Winona	41	<0.25	28.2	5.8	1.9	17.1	51.2%	24.4%	24.4%
Total	357	<0.25	28.2	2.8	0.0	9.0	69.5%	21.8%	8.7%

Nitrate concentrations varied between counties in the Southeast Minnesota region. Winona County had the highest percentage of wells (24.4%) greater than 10 mg/L. An important aspect of the Southeast Minnesota Volunteer Nitrate Monitoring Network is that it was statistically designed to look at long term trends as a whole region and not on a county by county basis.

Wells with results in the range of 3 to 10 mg/L are considered impacted but safe for drinking; the water is above natural levels of nitrate but below the Health Risk Limit. Groundwater in this range is being impacted by activities on the land surface. Wabasha (48.0%), Goodhue County (35.4%), and Fillmore County (31.1%) have the highest percentage of impacted wells.

The Minnesota Department of Agriculture will continue to offer free nitrate sampling kits to participating well owners on an annual basis. Olmsted County and Olmsted Soil and Water Conservation District, along with local well network coordinators, will continue to provide local coordination for the entire network. A coordinated effort will continue to engage well owners for continued participation and to fill any areas where wells may have dropped out or are missing.

This work could not be done without the help of homeowner volunteers! Thank you for making this program possible. Your participation is helping to protect local groundwater. If you have any questions for MDA, please contact Kimberly Kaiser at kimberly.kaiser@state.mn.us or by phone: 651-201-6280 or you may contact Caitlin Brady the Olmsted County Water Resources Coordinator: 507-328-6396, brady.caitlin@co.olmsted.mn.us

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