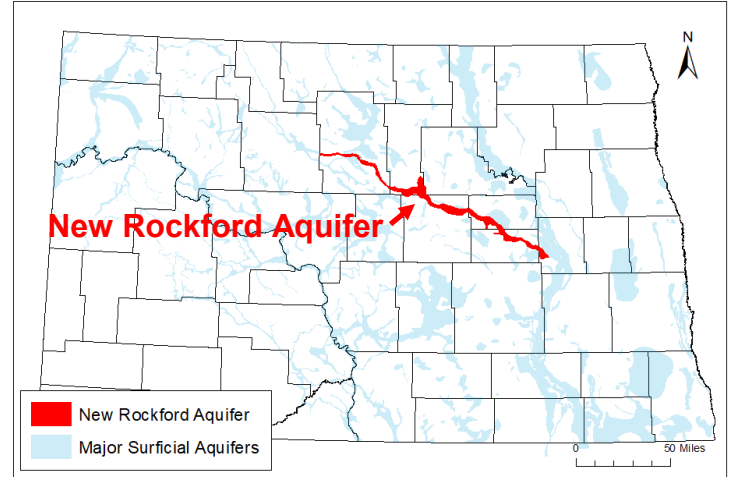


# New Rockford Aquifer

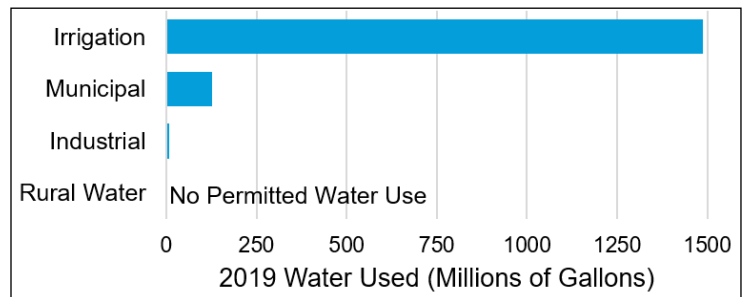
Benson, Eddy, Foster, Griggs, McHenry, Pierce, and Wells Counties

Aquifer At-a-Glance	
Area	380.7 square miles
Aquifer Type	Confined Surficial
Major Land Uses over Aquifer (percentage of aquifer area covered in 2017) <sup>1</sup>	Crops (71%) Grassland/Pasture (14%)
Depth to Water (2018)*	10-60 feet
Total Unique Wells Sampled	14
Wells Sampled in 2018	5
Samples Collected in 2018	6
Years Sampled	1998, 2003, 2008, 2013, 2018

\*Depths to water may vary seasonally, year to year, and across the aquifer



2019 New Rockford aquifer permitted water use (from North Dakota State Water Commission ([swc.nd.gov](http://swc.nd.gov)))↓



- Aquifer materials consist of sands and gravels deposited in an ancient valley by streams carrying water away from glaciers. Almost the entire aquifer was then buried by 50-200 feet of glacially-deposited clay till during the last ice age.<sup>2,3,4</sup>
- On average, the aquifer is between 90 and 120 feet thick. Thicknesses can vary from around 4 feet at the edges to over 250 feet along the filled valley's center.<sup>2,3,4</sup>
- Irrigation, domestic, and stock wells are common in the aquifer. Irrigation is concentrated in the northwestern and southeastern parts of the aquifer.
- The cities of Harvey and New Rockford draw water from the aquifer.
- In North Dakota, permits are required to withdraw large quantities of groundwater. In 2019, 1.6 billion gallons of permitted water were drawn from the aquifer; irrigation use consumed the largest quantity of water. For more information on water use and permits, contact the North Dakota State Water Commission ([swc.nd.gov](http://swc.nd.gov)).

**References**

(1) US Department of Agriculture, 2017, National Agricultural Statistics Service Cropland Data Layer.  
 (2) Buturla, F. Jr., 1970, Geology and Ground Water Resources of Wells County, North Dakota North Dakota State Water Commission County Ground Water Studies 12-Part 3, North Dakota Geological Survey Bulletin 51.  
 (3) Randich, P.G., 1981, Ground-Water Resources of McHenry County, North Dakota, North Dakota State Water Commission County Ground-Water Studies 33-Part 3, North Dakota Geological Survey Bulletin 74.  
 (4) Trapp, H. Jr., 1968, Geology and Groundwater Resources of Eddy and Foster Counties, North Dakota, North Dakota State Water Commission County Ground-Water Studies 5-Part 3, North Dakota Geological Survey Bulletin 44.

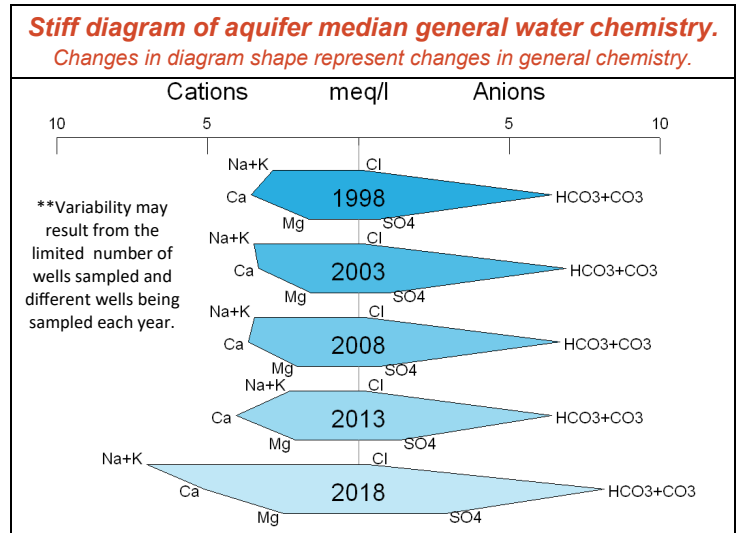
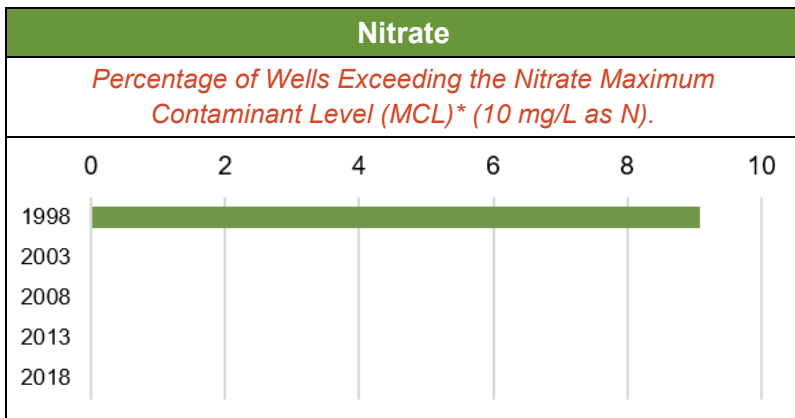
## About the Agricultural Groundwater Monitoring Program

- The North Dakota Department of Environmental Quality monitors a network of wells in approximately 50 surficial aquifers that are at elevated risk of agricultural contamination.
- Aquifers are sampled on a 5-year rotation.
- Monitoring began in 1992.
- The vast majority of these aquifers are located in central and eastern North Dakota.
- Water is tested for 21 general chemistry parameters, eight trace metals, and 64 pesticides.

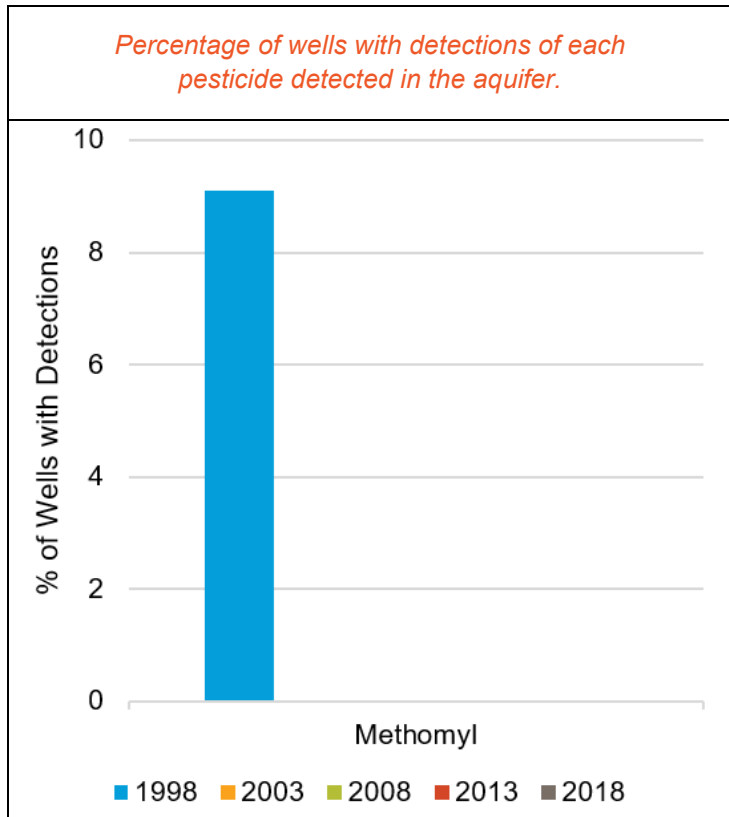
# Water Chemistry

Is Aquifer Water High in...?	Analyte	Result	2018 Median Concentration	Potential Effects
	Arsenic	YES	0.013 mg/L	Skin or circulatory system damage, increased cancer risk
	Iron	YES	1.49 mg/L	
	Manganese	YES	0.44 mg/L	Metallic taste/odor, discoloration of surfaces
	Sodium	YES	157 mg/L	
	Sulfate	NO	139 mg/L	Taste, people with certain health conditions may need to limit intake
For more information about Maximum Contaminant Levels (MCLs), health effects, and treatment options for these contaminants and more, see the NDDEQ's fact sheets ( <a href="http://deq.nd.gov/wq/1_Groundwater">deq.nd.gov/wq/1_Groundwater</a> ) or visit the US EPA website ( <a href="http://epa.gov/ground-water-and-drinking-water">epa.gov/ground-water-and-drinking-water</a> ).				

Dominant Water Type	Water Hardness
Sodium-Calcium-Bicarbonate	Very Hard



# Pesticides



State Pesticide Management Plan	
Agricultural Groundwater Monitoring Program aquifers are monitored as a part of the State Pesticide Management Plan. A Prevention Action Level (PAL) threshold of 25% of the pesticide's Maximum Contaminant Level (MCL)* or Health Advisory Level (HAL) is used to identify whether action is needed to prevent further contamination.	
<b>Prevention Action Level Exceedances</b>	None
<b>MCL or HAL Exceedances</b>	None

<b>Number of Unique Wells with Pesticide Detections since 1998</b>	1
of 14 Total Wells	

2018 Pesticide Detections
No Pesticide Detections

\*Note that MCLs are for public drinking water systems; private wells are not regulated in North Dakota. MCLs still provide guidelines for drinking groundwater.