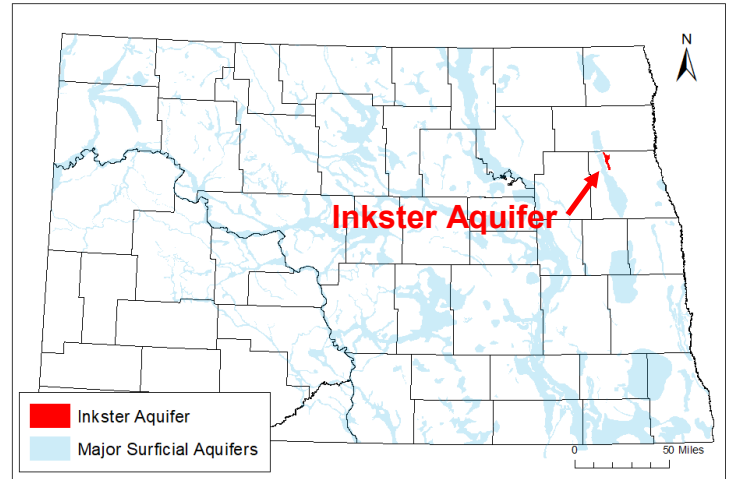


Inkster Aquifer

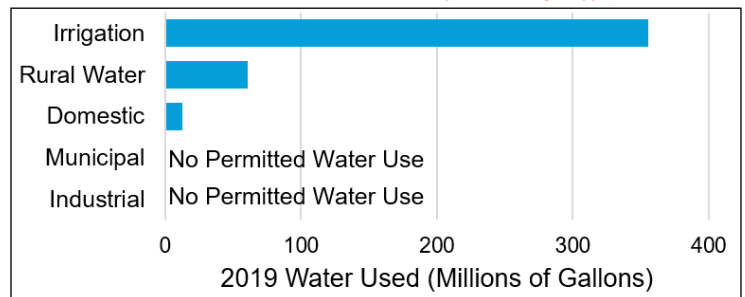
Grand Forks County

Aquifer At-a-Glance	
Area	15.9 square miles
Aquifer Type	Unconfined Surficial
Major Land Uses over Aquifer (percentage of aquifer area covered in 2017) ¹	Crops (78%) Grassland/Pasture (9%)
Depth to Water (2018)*	3-25 feet
Total Unique Wells Sampled	15
Wells Sampled in 2018	11
Samples Collected in 2018	17
Years Sampled	1993, 1998, 2003, 2008, 2013, 2018

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



2019 Inkster aquifer permitted water use (from North Dakota State Water Commission (swc.nd.gov)) ↓



- Aquifer materials consist of fine and coarse sands with interspersed pockets of gravel. Aquifer materials were deposited as part of a delta for a river carrying meltwater away from glaciers during the last ice age.²
- The Inkster aquifer is up to 51 feet thick and averages about 27 feet thick. It thins to the south; southern parts of the aquifer don't provide as large of quantities of water.²
- Irrigation wells are common in the aquifer. A few domestic wells are also installed in the aquifer. Irrigation is concentrated in the northern part of the aquifer.
- The Agassiz Water Users rural water system draws water from the aquifer.
- In North Dakota, permits are required to withdraw large quantities of groundwater. In 2019, 429 million 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).

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.

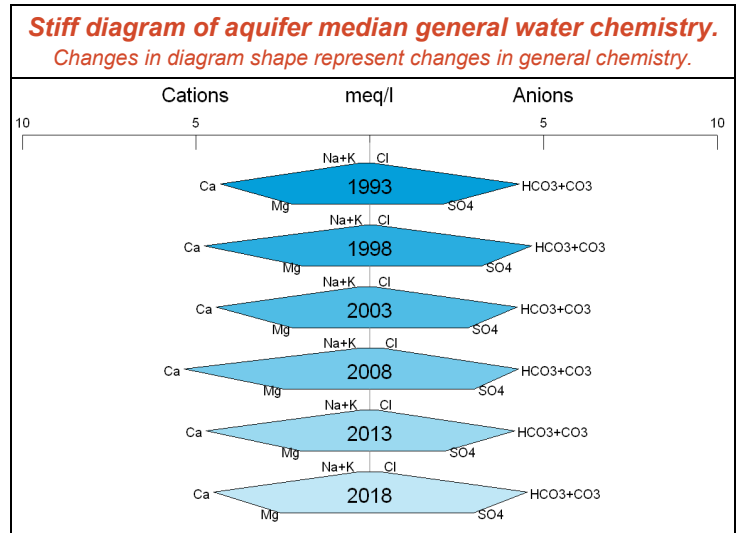
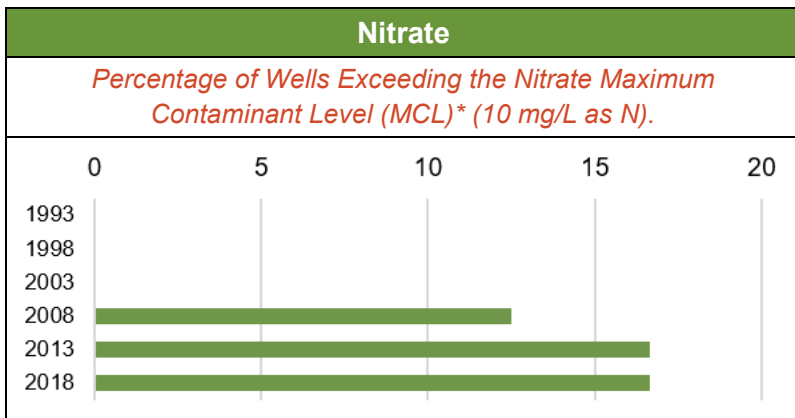
References

- (1) US Department of Agriculture, 2017, National Agricultural Statistics Service Cropland Data Layer.
- (2) Kelly, T.E. & Paulson, Q.F., 1970, Geology and Ground-Water Resources of Grand Forks County, North Dakota, North Dakota State Water Commission County Ground-Water Studies 13-Part 3, North Dakota Geological Survey Bulletin 53.

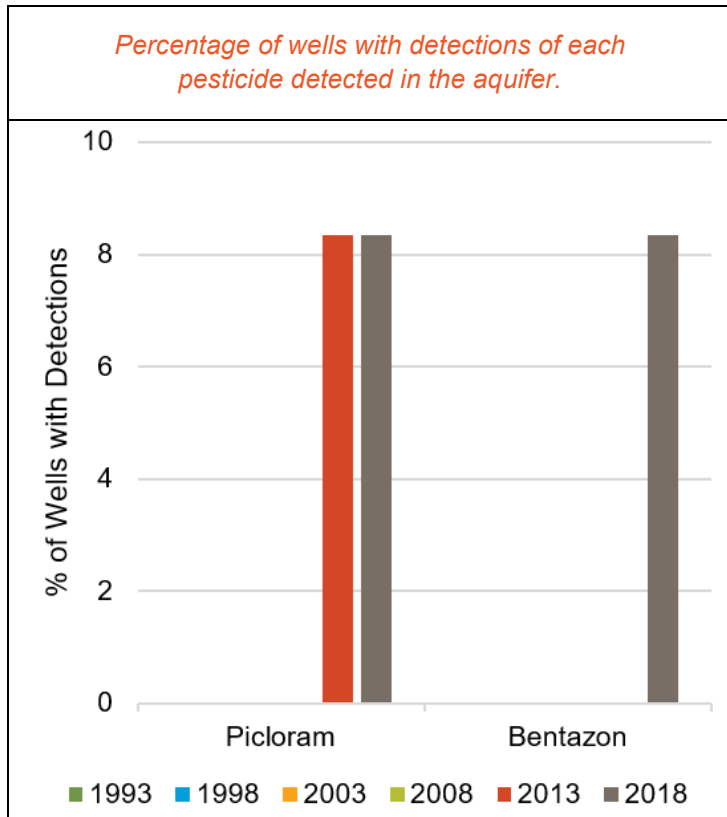
Water Chemistry

Is Aquifer Water High in...?	Analyte	Result	2018 Median Concentration	Potential Effects
	Arsenic	YES	0.014 mg/L	Skin or circulatory system damage, increased cancer risk
	Iron	YES	1.39 mg/L	
	Manganese	YES	0.89 mg/L	Metallic taste/odor, discoloration of surfaces
	Sodium	NO	5.2 mg/L	
	Sulfate	NO	143 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 (deq.nd.gov/wq/1_Groundwater) or visit the US EPA website (epa.gov/ground-water-and-drinking-water).				

Dominant Water Type	Water Hardness
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.	
Prevention Action Level Exceedances	None
MCL or HAL Exceedances	None

Number of Unique Wells with Pesticide Detections since 1993	2
of 15 Total Wells	

2018 Pesticide Detections		
Picloram	1 Well	Herbicide applied to crops and roads/rights-of-way
Bentazon	1 Well	Herbicide applied to crops

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

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