

Strawberry Lake Aquifer

McLean County

Aquifer At-a-Glance

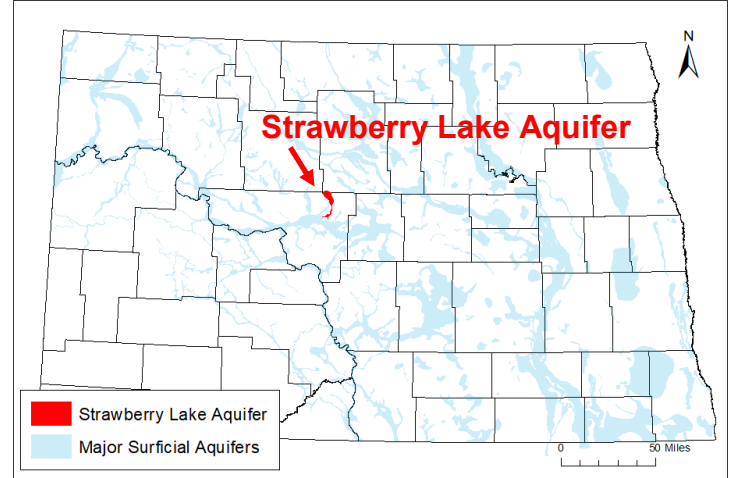
Area	30.8 square miles
Aquifer Type	Unconfined Surficial
Major Land Uses over Aquifer (percentage of aquifer area covered in 2017) ¹	Grassland/Pasture (45%) Crops (32%)
Depth to Water (2021)*	8-68 feet
Total Unique Wells Sampled	28
Wells Sampled in 2021	9
Samples Collected in 2021	11
Years Sampled	1996/1998, 2001/2003, 2006/2008, 2011, 2016, 2021

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

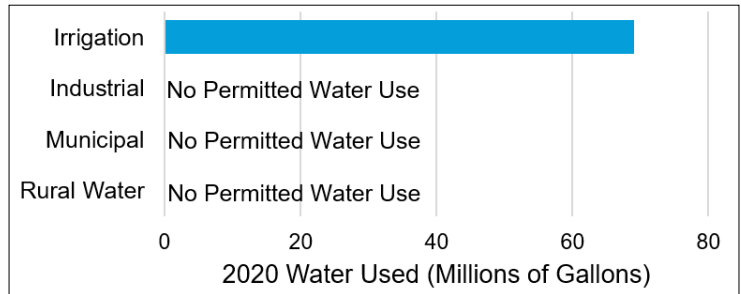
- Aquifer materials consist of sands and gravels that fill an ancient valley which was carved by meltwater from a glacier. The sand and gravel deposits occur in several layers.²
- The aquifer ranges from 23-164 feet thick and averages about 65 feet thick.²
- Domestic, irrigation, and stock wells are installed in the aquifer.
- In North Dakota, permits are required to withdraw large quantities of groundwater. In 2020, 69 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 Department of Water Resources (dwr.nd.gov).

References

- (1) US Department of Agriculture, 2017, National Agricultural Statistics Service Cropland Data Layer.
- (2) Klausning, R.L., 1974, Ground-Water Resources of McLean County, North Dakota. North Dakota State Water Commission County Groundwater Studies 19-Part 3; North Dakota Geological Survey Bulletin 60.



2020 Strawberry Lake aquifer permitted water use (from [North Dakota Department of Water Resources \(dwr.nd.gov\)](http://North Dakota Department of Water Resources (dwr.nd.gov)))↓



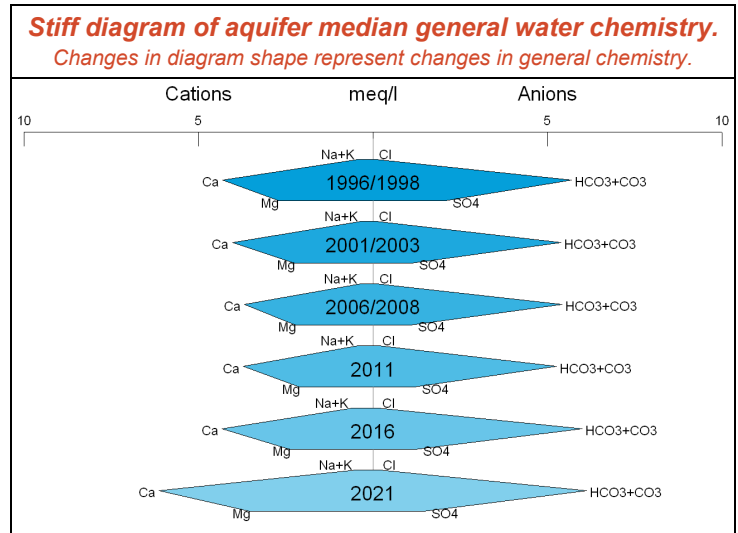
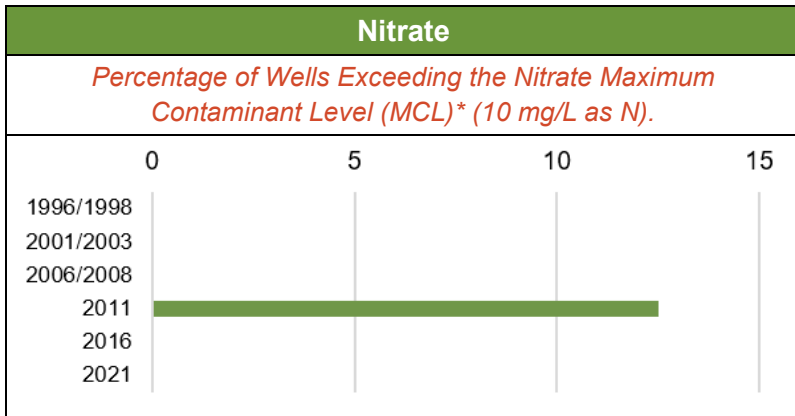
About the Agricultural Groundwater Monitoring Program

- 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.

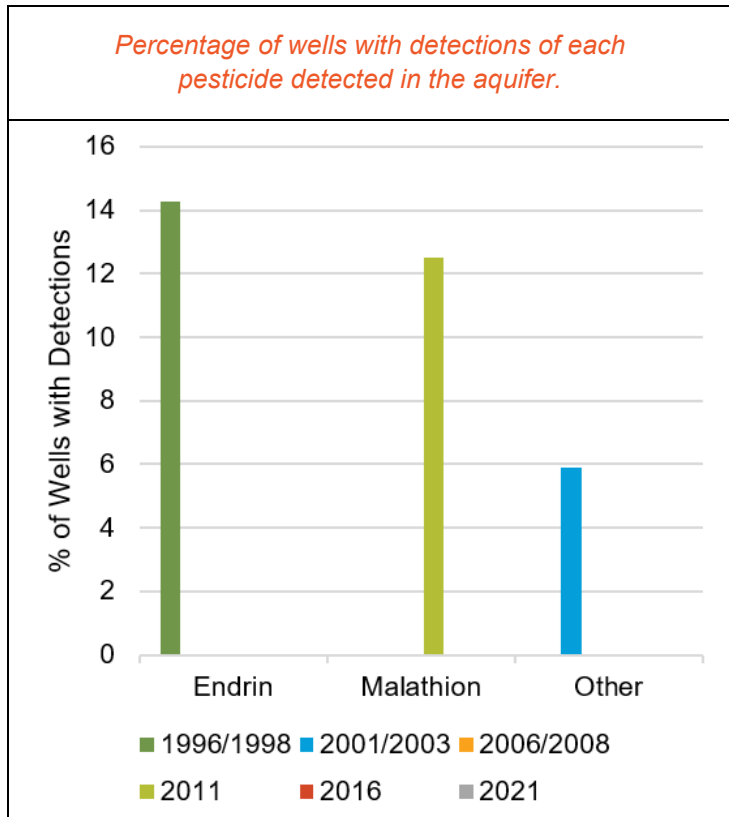
Water Chemistry

Is Aquifer Water High in...?	Analyte	Result	2021 Median Concentration	Potential Effects
	Arsenic	Locally	< 0.005 mg/L	Skin or circulatory system damage, increased cancer risk
	Iron	YES	4.18 mg/L	Metallic taste/odor, discoloration of surfaces
	Manganese	YES	0.55 mg/L	
	Sodium	NO	8.1 mg/L	Taste, people with certain health conditions may need to limit intake
	Sulfate	NO	69.5 mg/L	Taste/odor, laxative effect for people not used to the water
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	Heptachlor epoxide at 115% of MCL in 2001; not detected in 2001 resample or later samples

Number of Unique Wells with Pesticide Detections since 1996	3
of 28 Total Wells	

2021 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.