

St. Vrain Metro District

Water Quality Testing

Sample Date: 8 Sept 2026

Report Date: 21 Sept 2026

Field Biologist: Ryan Evans

Creek 2-3

Barefoot West 4-6

Barefoot East 7-9

Glossary 10



SŌLITUDE
LAKE MANAGEMENT

Restoring Balance. Enhancing Beauty.

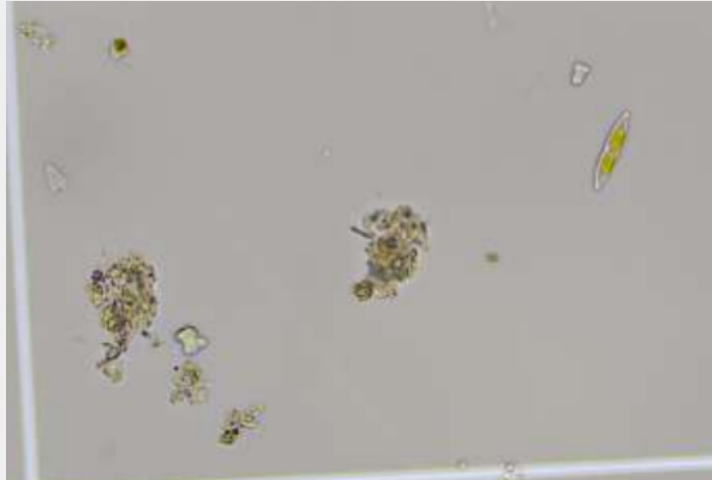


Water Quality Testing - St. Vrain Metro Station, Creek

Test	Desired Range	Result	This lake is
pH Reading	6.5 - 8.5	7.7	Healthy
Phosphorus, Total (ppb)	< 30	371	High
Orthophosphate (ppb)	< 10	154	High
Conductivity (uS/cm)	< 1,200	846	Healthy
Alkalinity, Total (ppm)	> 80	176	Healthy
Turbidity (NTU)	< 5	17.0	High
Hardness, Total (ppm)	50 - 150	301	High
Total Nitrogen, (ppb)	< 1,200	4,980	High
Total Kjeldahl Nitrogen, (ppb)	< 1,200	2,750	High
Nitrates + Nitrites (ppb)	< 600	2,230	High
Ammonia (ppb)	< 100	128	High
Chlorophyll a (ppb)	< 40	25	Healthy
Total Coliforms (CFU/100mL)	< 2,400	> 2,420	High
E. coli (CFU/100mL)	< 800	37.9	Healthy
Total Dissolved Solids (ppm)	< 500	648	High
Chloride (ppm)	≤ 350	52	Healthy
Dissolved Oxygen (ppm)	> 4	7.2	Healthy



Algae Identification - St. Vrain Metro Station, Creek



Identification:	<i>Hydrodictyon</i> sp.	<i>Nitzschia</i> sp.	<i>Ulnaria</i> sp.
Density/Biomass (cells/mL):	< 40	< 40	< 40

Dominant algae type(s) in sample

Hydrodictyon sp.

- *Hydrodictyon* sp. is green algae (chlorophyte) that forms a net-like filamentous web. This genus is most often found in still or quiescent (slow-moving) waters. It can produce nuisance blooms in the form of large floating mats. Extremely large blooms of this genus can cause supersaturation of dissolved oxygen (DO) during the day and large DO crashes overnight.

Nitzschia sp. and *Ulnaria* sp.

- *Nitzschia* sp. and *Ulnaria* sp. are types of diatoms. Diatoms live in both fresh and saltwater ecosystems and are usually specific to certain parameters in a waterbody; such as pH, temperature, and nutrient levels. This makes them valuable as environmental indicators of water quality.

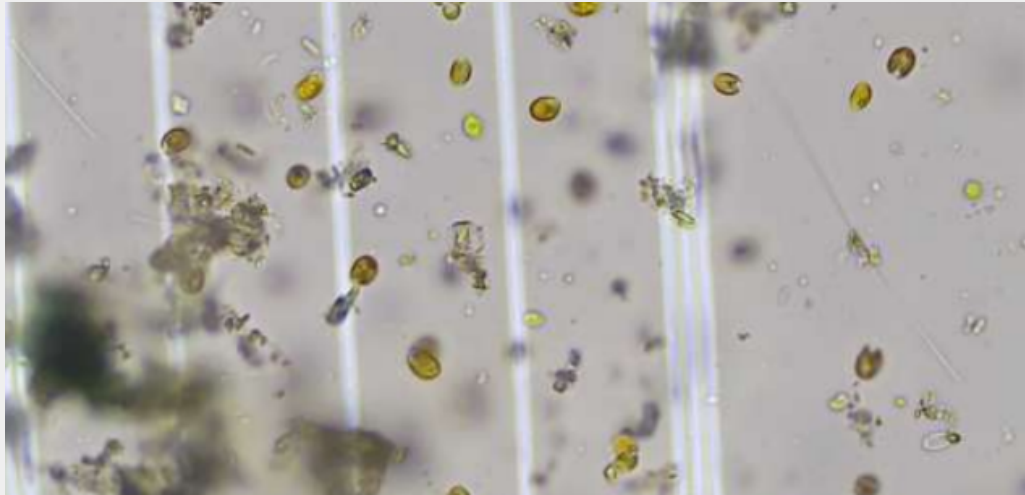


Water Quality Testing - St. Vrain Metro Station, Barefoot West

Test	Desired Range	Surface	Middle	Bottom	This lake is
pH Reading	6.5 - 8.5	8.3	8.2	7.7	Healthy
Phosphorus, Total (ppb)	< 30	140	141	381	High
Orthophosphate (ppb)	< 10	10	10	9	Borderline
Conductivity (uS/cm)	< 1,200	4,064	4,041	4,087	High
Alkalinity, Total (ppm)	> 80	208	209	219	Healthy
Turbidity (NTU)	< 5	9.2	8.6	89.3	High
Hardness, Total (ppm)	50 - 150	915	1,556	1,568	High
Chloride (ppm)	≤ 350	188	189	193	Healthy
Total Nitrogen, (ppb)	< 1,200	3,940	3,520	7,000	High
Total Kjeldahl Nitrogen, (ppb)	< 1,200	3,940	3,520	7,000	High
Nitrates + Nitrites (ppb)	< 600	< 20	< 20	< 20	Healthy
Ammonia (ppb)	< 100	121	208	253	High
Chlorophyll a (ppb)	< 40	136	76	665	High
Total Dissolved Solids (ppm)	< 500	3,050	2,970	3,130	High
Total Coliforms (CFU/100mL)	< 2,400	> 2,420	-	-	High
E. coli (CFU/100mL)	< 800	< 1	-	-	Healthy
Dissolved Oxygen (ppm)	> 4	7.3	7.4	6.9	Healthy



Algae Identification - St. Vrain Metro District - Barefoot West



Identification:

Prymnesium Parvum

Planktothrix sp.

Dominant algae type(s) in sample

Prymnesium parvum

- *Prymnesium parvum*, also known as golden algae, is a single celled planktonic algae. It is commonly found in eutrophic rivers and lakes, as well as brackish waters. In blooms, this algae can produce toxins that specifically affect organisms with gills.

Planktothrix sp.

- *Planktothrix* sp. is a filamentous blue-green algae (cyanobacteria). Most species in this genus are planktonic. *Planktothrix* can adapt to live in low light conditions and very turbid water found in eutrophic water bodies. This genus is capable of producing taste and odor compounds that have a musty smell, as well as some different types of cyanotoxins.



Algae Identification - St. Vrain Metro District - Barefoot West

Surface

Identification	<i>Prymnesium Parvum</i>	<i>Planktothrix sp.</i>
Density/Biomass (cells/mL)	21,600	5,100

Middle

Identification	<i>Prymnesium Parvum</i>	<i>Planktothrix sp.</i>
Density/Biomass (cells/mL)	40,400	3,200

Bottom

Identification	<i>Prymnesium Parvum</i>
Density/Biomass (cells/mL)	102,500

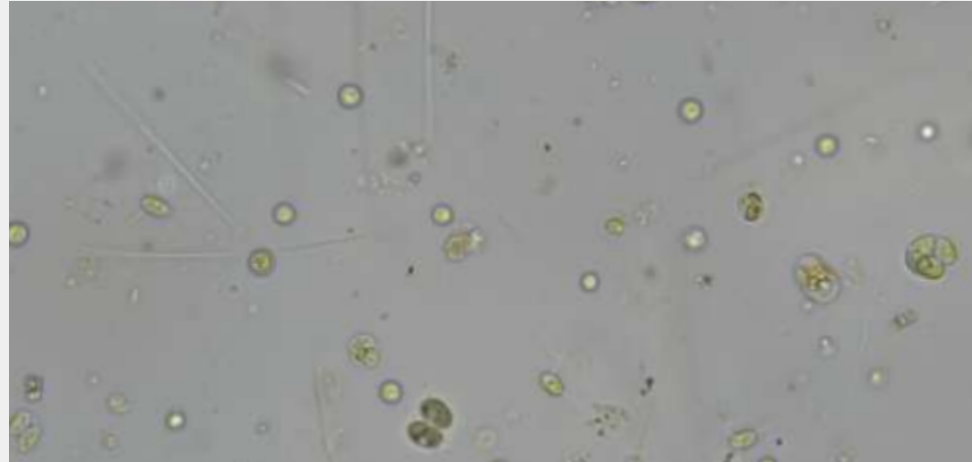


Water Quality Testing - St. Vrain Metro Station, Barefoot East

Test	Desired Range	Surface	Middle	Bottom	This lake is
pH Reading	6.5 - 8.5	8.2	8.2	8.0	Healthy
Phosphorus, Total (ppb)	< 30	71	97	373	High
Orthophosphate (ppb)	< 10	8	8	8	Healthy
Conductivity (uS/cm)	< 1,200	4,452	4,457	4,447	High
Alkalinity, Total (ppm)	> 80	347	291	325	Healthy
Turbidity (NTU)	< 5	6.8	6.8	56.0	High
Hardness, Total (ppm)	50 - 150	930	923	927	High
Chloride (ppm)	≤ 350	209	207	208	Healthy
Total Nitrogen, (ppb)	< 1,200	2,900	3,640	4,280	High
Total Kjeldahl Nitrogen, (ppb)	< 1,200	2,900	3,520	4,280	High
Nitrates + Nitrites (ppb)	< 600	< 20	120	< 20	Healthy
Ammonia (ppb)	< 100	240	383	412	High
Chlorophyll a (ppb)	< 40	41	36	43	Borderline
Total Dissolved Solids (ppm)	< 500	3,340	3,310	3,250	High
Total Coliforms (CFU/100mL)	< 2,400	> 2,420	-	-	High
E. coli (CFU/100mL)	< 800	< 1	-	-	Healthy
Dissolved Oxygen (ppm)	> 4	7.0	7.9	7.5	Healthy



Algae Identification - St. Vrain Metro District - Barefoot East



Identification:

Planktolyngbya sp.

Oocystis sp.

Prymnesium Parvum

Dominant algae type(s) in sample

Planktolyngbya sp.

- *Planktolyngbya sp.* is a blue-green algae (cyanobacteria). It is found in both fresh and marine waters. This genus is free-floating (planktonic) and can form harmful algal blooms. Like many other cyanobacteria, this genus has the potential to produce several different types of toxins.

Oocystis sp.

- *Oocystis sp.* is a colonial green algae (chlorophyte) typically found in small groups of 2-8 cells. They are often found in nutrient-rich freshwater lakes and ponds.

Prymnesium parvum

- *Prymnesium parvum*, also known as golden algae, is a single celled planktonic algae. It is commonly found in eutrophic rivers and lakes, as well as brackish waters. In blooms, this algae can produce toxins that specifically affect organisms with gills.



Algae Identification - St. Vrain Metro District - Barefoot East

Surface

Identification	<i>Planktolyngbya sp.</i>	<i>Oocystis sp.</i>	<i>Prymnesium Parvum</i>
Density/Biomass (cells/mL)	530,100	71,200	5,100

Middle

Identification	<i>Planktolyngbya sp.</i>	<i>Oocystis sp.</i>	<i>Prymnesium Parvum</i>
Density/Biomass (cells/mL)	792,700	322,500	9,900

Bottom

Identification	<i>Planktolyngbya sp.</i>	<i>Oocystis sp.</i>
Density/Biomass (cells/mL)	102,500	39,600

Glossary

Water Quality Parameter	Desired Range	Action Level	Non-normal results may lead to	Common causes of non-normal levels
Phosphorus, total	< 30 ppb	> 100 ppb	Excessive algae growth, muck accumulation, nuisance midge fly population, unbalanced fishery, etc.	Reclaimed water discharge, landscape fertilizer runoff and agricultural drainage, phosphorus laden bottom sediments
Orthophosphate (Free Reactive Phosphorus)	< 10 ppb	> 100 ppb	Excessive algae growth, low dissolved oxygen levels, unbalanced fishery, etc.	Landscape fertilizer runoff and agricultural drainage, sewage, rock erosion, plant and animal decay
Nitrogen, total	< 1,200 ppb	> 2,000 ppb	Excessive algae growth, muck accumulation, nuisance midge fly population, unbalanced fishery, etc.	Reclaimed water discharge, landscape fertilizer runoff and agricultural drainage, organic material input like grass clippings and leaf litter
Ammonia	< 100 ppb	> 250 ppb	May lead to fish and wildlife becoming unhealthy or passing, especially under high pH conditions	Organic decomposition, landscape/fertilizer runoff, and anoxic conditions (low oxygen), excessive waterfowl excrement
Dissolved Oxygen	> 4 ppm	N/A	Leads to nutrient recycling from the sediments (phosphorus), may cause fish kill events, foul odors, etc.	Stratification, higher than normal biological oxygen demand
Temperature	< 4 degree difference	N/A	Often leads to low dissolved oxygen, nutrient recycling, and unbalanced ecosystems	Natural processes
Alkalinity	> 80 ppm	N/A	Drastic pH swings and an unhealthy ecosystem to grow sportfish populations	Low background levels
Conductivity	< 1,200 uS/cm	N/A	Fish kills for salt intolerant species, damage to turf through irrigation, change in algae community (golden algae)	Salt water intrusion, road salt runoff, excessive additions of reclaimed / effluent water
Hardness	50 - 150 ppm	N/A	Buildup of solid material in water systems and an unhealthy environment for fish populations	Leaching of soil and rocks
Turbidity	< 5 NTU	N/A	Loss of clarity in water and in extreme conditions fish kills	Sediment run-off, bottom sediment in suspension, algae blooms, etc.
Secchi Disk	> 4 feet	N/A	Loss of clarity in water	Sediment run-off, bottom sediment in suspension, algae blooms, etc.
pH reading	6.5 - 8.5	N/A	Unbalanced ecosystems and potentially fish kill events	Watershed run-off, pool discharges, algae blooms, etc.

^The above thresholds are general goals that have been determined by decades of lake management experience from our lake management team and a variety of peer reviewed journal studies.