

St. Vrain Metro District

Water Quality Testing

Sample Date: 30 Jun 2026

Report Date: 14 Jul 2026

Field Biologist: Ryan Evans

Creek	2-3
Barefoot West	4-6
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Glossary	10



SŌLITUDE
LAKE MANAGEMENT

Restoring Balance. Enhancing Beauty.

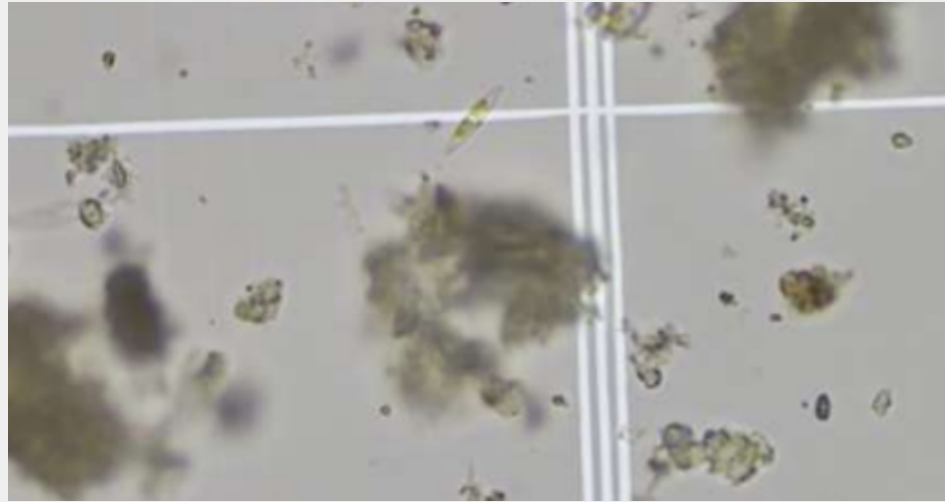


Water Quality Testing - St. Vrain Metro Station, Creek

Test	Desired Range	Result	This lake is
pH Reading	6.5 - 8.5	8.3	Healthy
Phosphorus, Total (ppb)	< 30	538	High
Orthophosphate (ppb)	< 10	216	High
Conductivity (uS/cm)	< 1,200	775	Healthy
Alkalinity, Total (ppm)	> 80	151	Healthy
Turbidity (NTU)	< 5	36.6	High
Hardness, Total (ppm)	50 - 150	298	High
Total Nitrogen, (ppb)	< 1,200	2,500	High
Total Kjeldahl Nitrogen, (ppb)	< 1,200	1,800	High
Nitrates + Nitrites (ppb)	< 600	700	Borderline
Ammonia (ppb)	< 100	84	Borderline
Chlorophyll a (ppb)	< 40	15	Healthy
Total Coliforms (CFU/100mL)	< 2,400	> 2,420	High
E. coli (CFU/100mL)	< 800	32	Healthy
Total Dissolved Solids (ppm)	< 500	599	High
Chloride (ppm)	≤ 350	34	Healthy



Algae Identification - St. Vrain Metro Station, Creek



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

Dominant algae type(s) in sample

Navicula sp. & *Nitzschia* sp.

- *Navicula* sp. and *Nitzschia* 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	8.2	Healthy
Phosphorus, Total (ppb)	< 30	110	119	169	High
Orthophosphate (ppb)	< 10	6	6	6	Healthy
Conductivity (uS/cm)	< 1,200	3,438	3,442	3,439	High
Alkalinity, Total (ppm)	> 80	178	175	179	Healthy
Turbidity (NTU)	< 5	9.4	9.4	40.8	High
Hardness, Total (ppm)	50 - 150	1,253	1,304	1,256	High
Chloride (ppm)	≤ 350	164	164	165	Healthy
Total Nitrogen, (ppb)	< 1,200	2,950	2,410	2,890	High
Total Kjeldahl Nitrogen, (ppb)	< 1,200	2,920	2,380	2,860	High
Nitrates + Nitrites (ppb)	< 600	30	30	30	Healthy
Ammonia (ppb)	< 100	162	128	87	High
Chlorophyll a (ppb)	< 40	54	58	63	High
Total Dissolved Solids (ppm)	< 500	2,530	2,540	2,540	High
Total Coliforms (CFU/100mL)	< 2,400	> 2,420	-	-	High
E. coli (CFU/100mL)	< 800	1	-	-	Healthy
Dissolved Oxygen (ppm)	> 4	7.1	7.0	7.2	Healthy



Algae Identification - St. Vrain Metro District - Barefoot West



Planktolyngbya sp.

Raphidiopsis sp.

Anabaenopsis 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.

***Raphidiopsis* sp.**

- *Raphidiopsis* sp. is a blue-green algae (cyanobacteria). It is typically found in tropical climates. Like many other cyanobacteria this genus has the potential to produce several different types of toxins.

***Anabaenopsis* sp.**

- *Anabaenopsis* sp. is a planktonic blue-green algae (cyanobacteria). This genus is commonly found in eutrophic waterbodies during summertime. This genus has the potential to produce toxins.

***Oocystis* sp.**

- *Oocystis* sp. is a colonial green algae (chlorophyte) typically found in small groups of 2-8 cells. This genus is 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 West

Surface

Identification	<i>Planktolyngbya sp.</i>	<i>Raphidiopsis sp.</i>	<i>Anabaenopsis sp.</i>	<i>Oocystis sp.</i>
Density/Biomass (cells/mL)	1,050,000	288,100	54,900	27,600

Middle

Identification	<i>Planktolyngbya sp.</i>	<i>Raphidiopsis sp.</i>	<i>Oocystis sp.</i>	<i>Anabaenopsis sp.</i>	<i>Prymnesium Parvum</i>
Density/Biomass (cells/mL)	732,700	100,100	29,900	32,600	5,500

Bottom

Identification	<i>Planktolyngbya sp.</i>	<i>Raphidiopsis sp.</i>	<i>Anabaenopsis sp.</i>	<i>Oocystis sp.</i>
Density/Biomass (cells/mL)	139,400,000	138,500	45,000	18,200

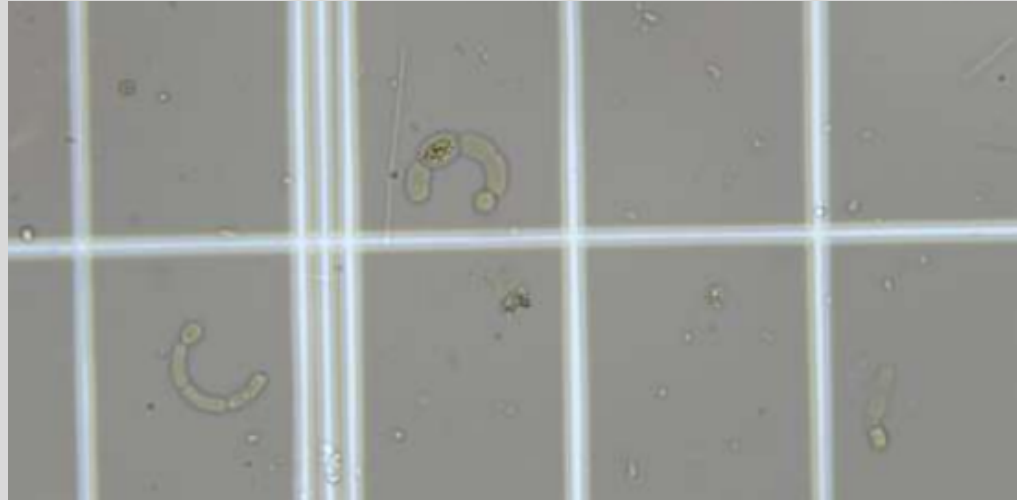


Water Quality Testing - St. Vrain Metro Station, Barefoot East

Test	Desired Range	Surface	Middle	Bottom	This lake is
pH Reading	6.5 - 8.5	8.4	8.4	8.2	Healthy
Phosphorus, Total (ppb)	< 30	84	75	453	High
Orthophosphate (ppb)	< 10	7	6	< 5	Healthy
Conductivity (uS/cm)	< 1,200	4,221	4,207	4,232	High
Alkalinity, Total (ppm)	> 80	269	267	263	Healthy
Turbidity (NTU)	< 5	7.8	7.7	155.6	High
Hardness, Total (ppm)	50 - 150	1,523	1,506	1,535	High
Chloride (ppm)	≤ 350	204	202	203	Healthy
Total Nitrogen, (ppb)	< 1,200	2,340	2,830	4,050	High
Total Kjeldahl Nitrogen, (ppb)	< 1,200	2,310	2,810	4,020	High
Nitrates + Nitrites (ppb)	< 600	30	20	30	Healthy
Ammonia (ppb)	< 100	57	198	78	High
Chlorophyll a (ppb)	< 40	38	35	50	High
Total Dissolved Solids (ppm)	< 500	3,100	2,940	2,880	High
Total Coliforms (CFU/100mL)	< 2,400	> 2,420	-	-	High
E. coli (CFU/100mL)	< 800	< 1	-	-	Healthy
Dissolved Oxygen (ppm)	> 4	7.3	7.0	6.8	Healthy



Algae Identification - St. Vrain Metro District - Barefoot East



Planktolyngbya sp.

Oocystis sp.

Anabaenopsis sp.

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. This genus is often found in nutrient-rich freshwater lakes and ponds.

Anabaenopsis sp.

- *Anabaenopsis sp.* is a planktonic blue-green algae (cyanobacteria). This genus is commonly found in eutrophic waterbodies during summertime. This genus has the potential to produce toxins.



Algae Identification - St. Vrain Metro District - Barefoot East

Surface

Identification	<i>Planktolyngbya sp.</i>	<i>Oocystis sp.</i>	<i>Anabaenopsis sp.</i>
Density/Biomass (cells/mL)	176,400	63,500	28,200

Middle

Identification	<i>Planktolyngbya sp.</i>	<i>Anabaenopsis sp.</i>	<i>Oocystis sp.</i>
Density/Biomass (cells/mL)	199,900	38,700	20,100

Bottom

Identification	<i>Planktolyngbya sp.</i>	<i>Oocystis sp.</i>	<i>Anabaenopsis sp.</i>
Density/Biomass (cells/mL)	101,100	82,500	71,800

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.