St. Vrain Metro District

Water Quality Testing

Sample Date: 7 May 2026
Report Date: 20 May 2026

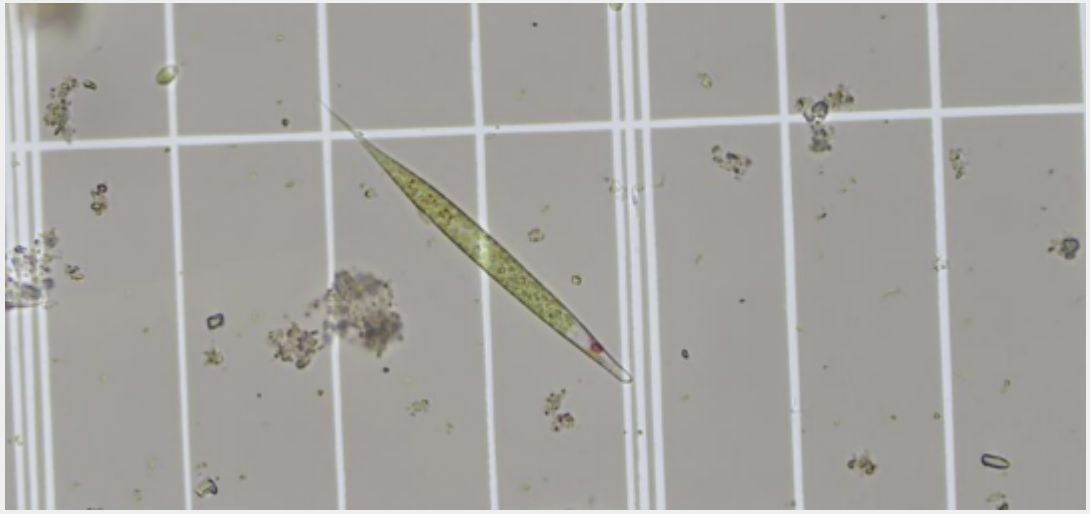
Field Biologist: Ryan Evans

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	**7.6**	**Healthy**
Phosphorus, Total (ppb)	< 30	**383**	**High**
Orthophosphate (ppb)	< 10	**277**	**High**
Conductivity (uS/cm)	< 1,200	**759**	**Healthy**
Alkalinity, Total (ppm)	> 80	**129**	**Healthy**
Turbidity (NTU)	< 5	**15.1**	**High**
Hardness, Total (ppm)	50 - 150	**229**	**High**
Total Nitrogen, (ppb)	< 1,200	**2,540**	**High**
Total Kjeldahl Nitrogen, (ppb)	< 1,200	**960**	**Healthy**
Nitrates + Nitrites (ppb)	< 600	**1,890**	**High**
Ammonia (ppb)	< 100	**123**	**High**
Chlorophyll a (ppb)	< 40	**< 10**	**Healthy**
Total Coliforms (CFU/100mL)	< 2,400	**1,986**	**Healthy**
E. coli (CFU/100mL)	< 800	**3**	**Healthy**

Algae Identification - St. Vrain Metro Station, Creek



Identification:	*Euglena* sp.	*Cyclotella* sp.
Density/Biomass (cells/mL):	< 40	< 40

Dominant algae type(s) in sample

***Euglena* sp.**

- *Euglena* sp. is a euglenoid - unicellular organisms that are photosynthetic. They are most often found in smaller nutrient rich waters, especially during spring and summer.

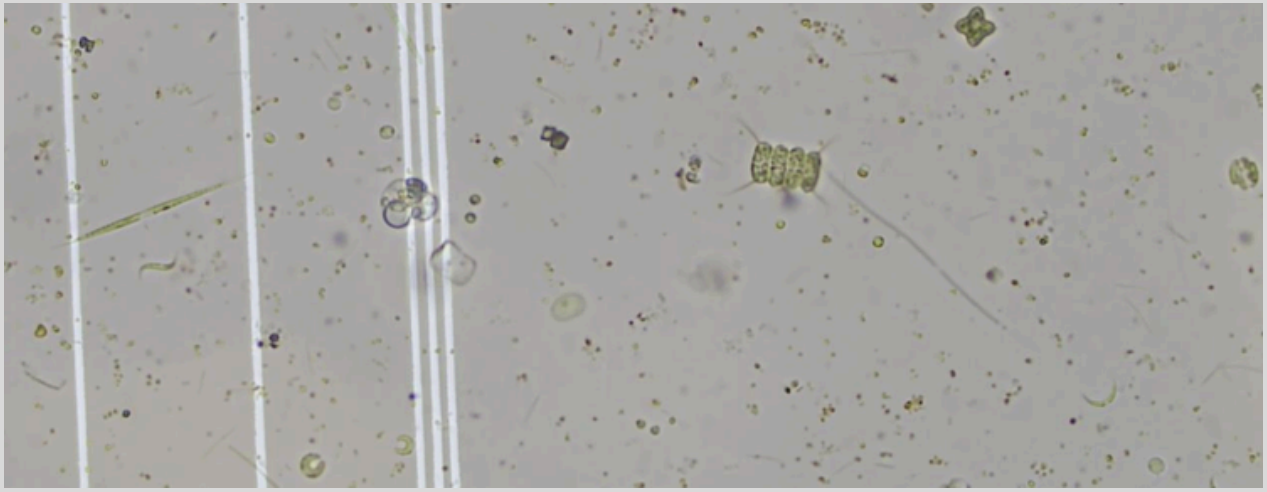
***Cyclotella* sp.**

- *Cyclotella* sp. is a single celled diatom. 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	**8.1**	**8.1**	**8.1**	**Healthy**
Phosphorus, Total (ppb)	< 30	**315**	**300**	**421**	**High**
Orthophosphate (ppb)	< 10	**9**	**9**	**9**	**Healthy**
Conductivity (uS/cm)	< 1,200	**3,517**	**3,492**	**3,560**	**High**
Alkalinity, Total (ppm)	> 80	**227**	**233**	**237**	**Healthy**
Turbidity (NTU)	< 5	**21.7**	**54.7**	**16.8**	**High**
Hardness, Total (ppm)	50 - 150	**1,266**	**1,265**	**1,282**	**High**
Chloride (ppm)	≤ 350	**183**	**116**	**181**	**Healthy**
Total Nitrogen, (ppb)	< 1,200	**1,090**	**410**	**1,810**	**High**
Total Kjeldahl Nitrogen, (ppb)	< 1,200	**1,090**	**410**	**1,810**	**High**
Nitrates + Nitrites (ppb)	< 600	**< 20**	**< 20**	**< 20**	**Healthy**
Ammonia (ppb)	< 100	**59**	**82**	**83**	**Borderline**
Chlorophyll a (ppb)	< 40	**39**	**38**	**38**	**Borderline**
Total Dissolved Solids (ppm)	< 500	**2,350**	**2,460**	**2,400**	**High**
Total Coliforms (CFU/100mL)	< 2,400	**25**	**-**	**-**	**Healthy**
E. coli (CFU/100mL)	< 800	**3**	**-**	**-**	**Healthy**

Algae Identification - St. Vrain Metro District - Barefoot West



***Scenedesmus* sp.**	***Merismopedia* sp.**	***Dictyosphaerium* sp.**	***Monoraphidium* sp.**

Dominant algae type(s) in sample

***Scenedesmus* sp.**

- *Scenedesmus* sp. is a planktonic green algae (chlorophyte). It is commonly found in nutrient rich waters; especially, water bodies with elevated inorganic nitrogen concentrations. Most often it is found growing in very diverse mixed green algae communities.

***Merismopedia* sp.**

- *Merismopedia* sp. is a planktonic blue-green algae (cyanobacteria). This genus is most likely to be found in mesotrophic and eutrophic water bodies. It is common for it to be found in slow moving waters or mixed in with filamentous algae mats. This genus has the potential to produce toxins.

***Dictyosphaerium* sp.**

- *Dictyosphaerium* sp. is a planktonic green algae commonly found in freshwater. This genus is commonly found in mesotrophic to eutrophic waterbodies and can tolerate higher levels of turbidity.

***Monoraphidium* sp.**

- *Monoraphidium* sp. is a single-celled, planktonic green algae. This genus thrives in eutrophic waterbodies where both phosphorus and nitrogen are available for uptake.

Surface

Identification	***Scenedesmus* sp.**	***Merismopedia* sp.**	***Dictyosphaerium* sp.**	***Monoraphidium* sp.**
Density/Biomass (cells/mL)	**14,400**	**7,600**	**3,800**	**2,900**

Middle

Identification	***Scenedesmus* sp.**	***Merismopedia* sp.**	***Monoraphidium* sp.**
Density/Biomass (cells/mL)	**18,000**	**15,200**	**6,100**

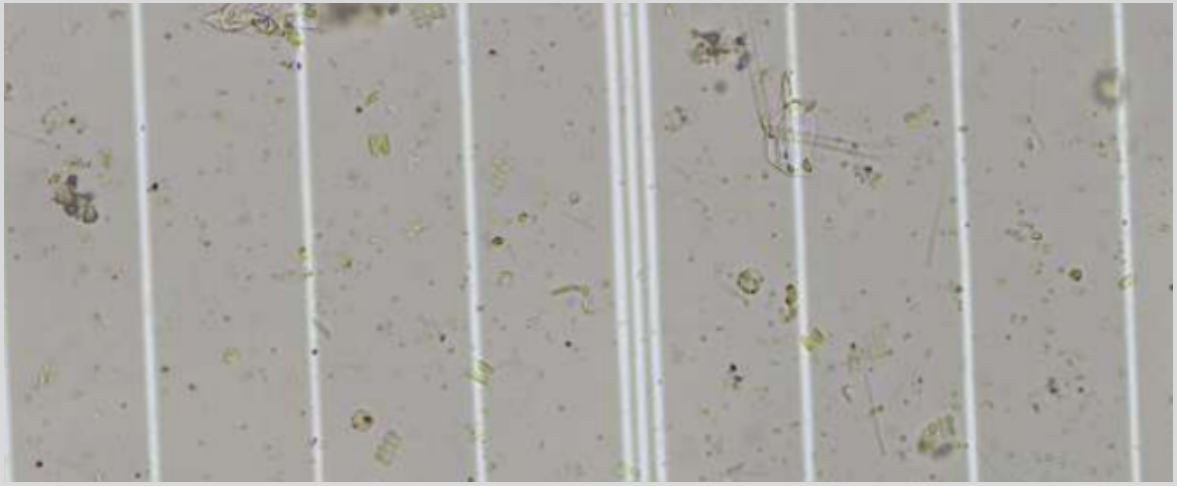
Bottom

Identification	***Scenedesmus* sp.**	***Merismopedia* sp.**	***Monoraphidium* sp.**
Density/Biomass (cells/mL)	**21,200**	**10,800**	**8,300**

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**	**8.1**	**7.8**	**Healthy**
Phosphorus, Total (ppb)	< 30	**214**	**205**	**3,005**	**High**
Orthophosphate (ppb)	< 10	**8**	**9**	**7**	**Healthy**
Conductivity (uS/cm)	< 1,200	**4,114**	**4,154**	**4,141**	**High**
Alkalinity, Total (ppm)	> 80	**331**	**338**	**331**	**Healthy**
Turbidity (NTU)	< 5	**12.4**	**14.2**	**115.4**	**High**
Hardness, Total (ppm)	50 - 150	**1,493**	**1,472**	**1,473**	**High**
Chloride (ppm)	≤ 350	**200**	**201**	**210**	**Healthy**
Total Nitrogen, (ppb)	< 1,200	**2,230**	**810**	**2,190**	**High**
Total Kjeldahl Nitrogen, (ppb)	< 1,200	**2,230**	**810**	**2,150**	**High**
Nitrates + Nitrites (ppb)	< 600	**< 20**	**< 20**	**40**	**Healthy**
Ammonia (ppb)	< 100	**196**	**160**	**172**	**High**
Chlorophyll a (ppb)	< 40	**56**	**40**	**35**	**High**
Total Dissolved Solids (ppm)	< 500	**2,720**	**2,700**	**2,680**	**High**
Total Coliforms (CFU/100mL)	< 2,400	**23**	**-**	**-**	**Healthy**
E. coli (CFU/100mL)	< 800	**< 1**	**-**	**-**	**Healthy**

Algae Identification - St. Vrain Metro District - Barefoot East



***Planktolyngbya* sp.**	***Limnothrix* sp.**	***Merismopedia* sp.**
***Monoraphidium* sp.**	***Desmodesmus* 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.

***Limnothrix* sp.**

- *Limnothrix* sp. is a blue-green algae (cyanobacteria). Many genera among cyanobacteria are capable of nitrogen fixation, turning atmospheric nitrogen into bioavailable nitrogen forms. This genus has the potential to produce toxins.

***Merismopedia* sp.**

- *Merismopedia* sp. is a planktonic blue-green algae (cyanobacteria). This genus is most likely to be found in mesotrophic and eutrophic water bodies. It is common for it to be found in slow moving waters or mixed in with filamentous algae mats. This genus has the potential to produce toxins.

***Monoraphidium* sp.**

- *Monoraphidium* sp. is a single-celled, planktonic green algae. This genus thrives in eutrophic waterbodies where both phosphorus and nitrogen are available for uptake.

***Desmodesmus* sp.**

- *Desmodesmus* sp. is a planktonic green algae. Unless excess growth is seen, this is mostly a sign of a healthy water body and supports fisheries. It is often the goal of lake managers to manipulate water quality to steer algal assemblage dominance away from cyanobacteria (blue-green algae) towards green algae.

Surface

Identification	***Planktolyngbya* sp.**	***Limnothrix* sp.**	***Merismopedia* sp.**	***Monoraphidium* sp.**
Density/Biomass (cells/mL)	**176,000**	**99,500**	**33,600**	**7,400**

Middle

Identification	***Planktolyngbya* sp.**	***Merismopedia* sp.**	***Desmodesmus* sp.**	***Monoraphidium* sp.**
Density/Biomass (cells/mL)	**150,000**	**31,200**	**18,400**	**9,800**

Bottom

Identification	***Merismopedia* sp.**	***Planktolyngbya* sp.**	***Monoraphidium* sp.**	***Desmodesmus* sp.**
Density/Biomass (cells/mL)	**160,000**	**122,200**	**39,000**	**1,600**

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.