

Pine Creek Water Quality Data Report

Open Water Sampling Season Calgary 2020



> A west-facing view of the mouth of Pine Creek before its confluence with the Bow River in Calgary, Alberta

CreekWatch is a program of the non-profit RiverWatch Institute of Alberta, specializing in community-based environmental monitoring and award-winning citizen science education for twenty-six years. This 2020 Report shares our findings with the public, governments, and water quality professionals to collaboratively work towards the base-line monitoring and improvement of our stormwater creeks in Alberta.

This annual CreekWatch Report examines the state of Calgary’s Pine Creek based on the water quality data collected with the assistance of community-based environmental monitoring groups and water quality technicians. You can view a snapshot of data in the attached graphs generated by the RiverWatch online and responsive [graphing tool](#). Thank you to HSBC and City of Calgary Water Resources for major funding support and to all of our dedicated volunteers who have made this sampling season possible – we couldn’t have done it without you!

Pine Creek By-the-Numbers

	2020	2019
Number of Sampling Events	36	22
Number of Data Points	290	253
Number of Sampling Hours	21	18

Analysis

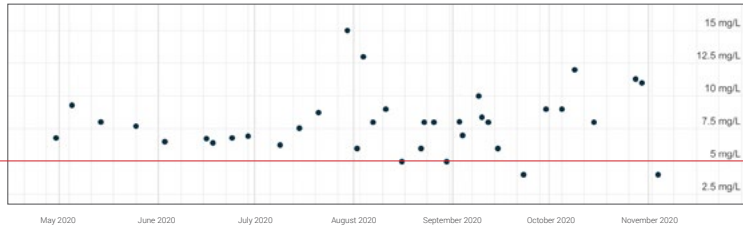
This year’s report shows more sampling events and data points generated by our technicians and about the same sampling hours despite pandemic restrictions. Based on median values, improvements were seen in *E. coli* and phosphorus concentrations.

Pine Creek Water Quality Data

Parameter	Median Value	
	2020	2019
Dissolved Oxygen (mg/L)	8.0	8.0
Water Temperature (°C)	13	12
Turbidity (NTU)	16	12
pH	8.2	8.0
Ammonia Nitrogen (mg/L)	0.25	0.25
Phosphorus (mg/L)	0.04	0.05
Chloride (mg/L)	85	75
<i>E.coli</i> (per 100mL)	0	100

NOTE: All data collected during the open water season of the specified calendar year.

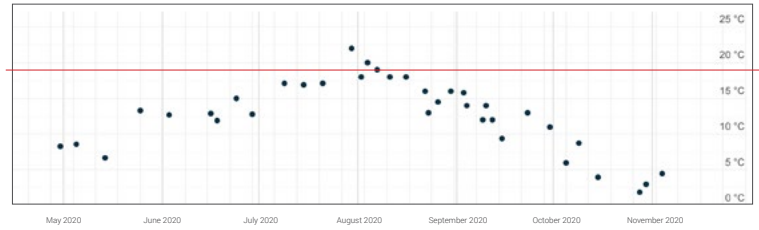
Dissolved Oxygen (mg/L)



Median 8.0

Dissolved oxygen concentrations are measured using either a YSI probe or a Hach kit with a drop-by-drop titration to show a change in water colour until totally clear. Red line indicates the Environmental Quality Guidelines for Alberta Surface Waters (2018) for exceedance is minimum 5 mg/L for instantaneous value.

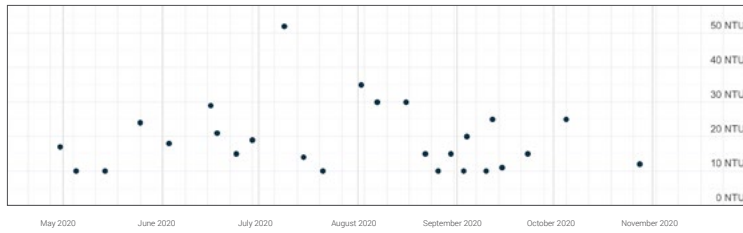
Water Temperature (°C)



Median 13

Water temperatures are measured using a non-mercury glass thermometer or YSI probe placed in flowing, shallow water near shore. Red line indicates the Water Quality Objective identified as an ideal value according to the Bow Basin Watershed Management Plan. Values should not exceed a maximum 18°. Higher values may cause stress on aquatic life.

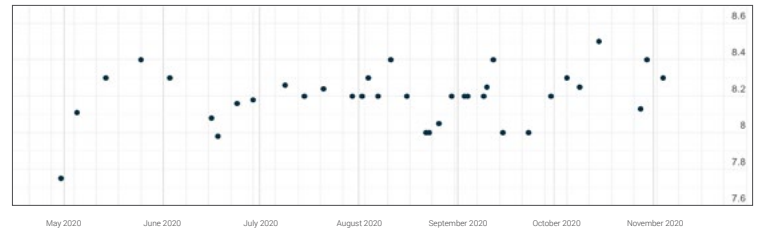
Turbidity (NTU)



Median 16

Turbidity is measured by slowly pouring water into a type of graduated cylinder marked with "Nephelometric Turbidity Units" or NTU's.

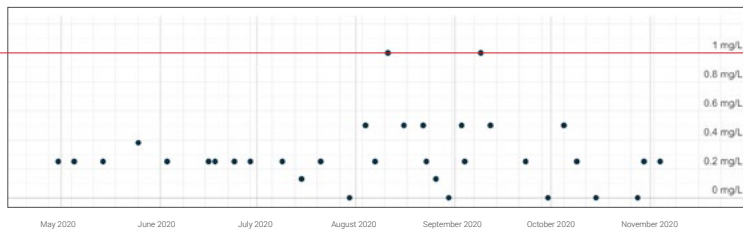
pH



Median 8.2

Creek pH is measured using either a YSI probe or a Hach kit that compare a change in water colour. The Environmental Quality Guidelines for Alberta Surface Waters (2018) for exceedance is a pH value outside the range of 6.5 - 9.

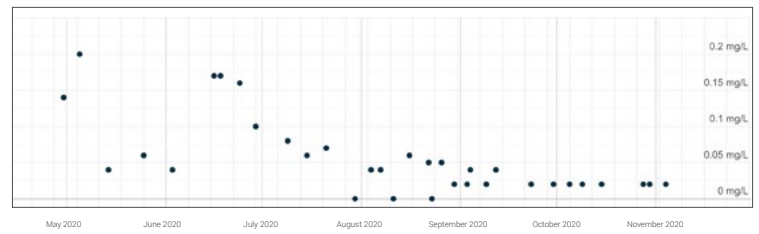
Ammonia Nitrogen (mg/L)



Median 0.25

Ammonia nitrogen concentrations are measured by dipping Hach test strips into water and noting the colour change. Red line indicates the Environmental Quality Guidelines for Alberta Surface Waters (2018) for exceedance is maximum 1.0 mg/L at pH 8.0, 10°C.

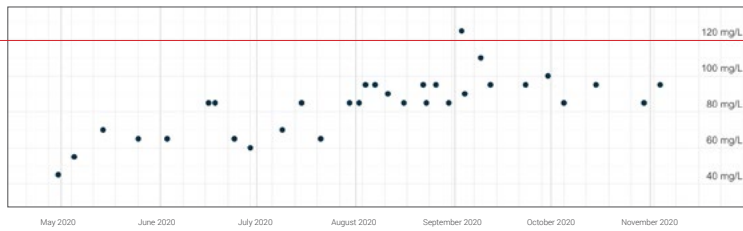
Phosphorus (mg/L)



Median 0.04

Orthophosphate concentrations are measured with either a LaMotte colorimeter or a Hach kit that compare a change in water colour.

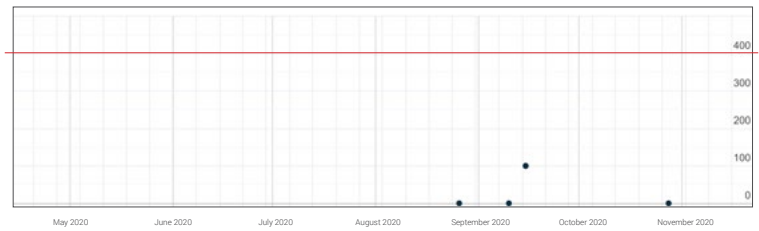
Chloride (mg/L)



Median 85

Chloride concentrations are measured using Hach kits with a drop-by-drop titration to show a change in water colour from yellow to orange. Red line indicates the Environmental Quality Guidelines for Alberta Surface Waters (2018) for exceedance is maximum 120 mg/L.

E.coli (per 100mL)



Median 0

E.coli concentrations are measured using Coliscan Easygel with pretreated petri dishes encouraging growth of E.coli colonies. Red line indicates the CCME (1999) recreational re-sampling guideline for samples exceeding a count of 400 E. coli per 100 mL.