

Billhill Creek Water Quality Data Report



> A west-facing view of Bighill Creek in its naturalized valley near Cochrane, 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-nine years. This 2023 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 Cochrane’s Bighill 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 The City of Calgary, the Land Stewardship Centre’s Watershed Stewardship Grant 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!

Bighill Creek By-the-Numbers

	2023	2022	2021
Number of Sampling Events	21	20	7
Number of Data Points	157	122	57
Number of Sampling Hours	37	17.5	5

Analysis

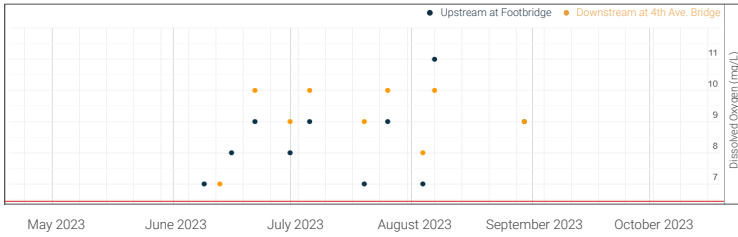
This year’s report shows a similar number of sampling events, and an increase in sampling hours and data points generated by CreekWatch volunteers. Based on median values, improvements were observed in chloride concentrations while many other parameters remained relatively unchanged. Increased water temperature medians are of important consideration.

Bighill Creek Water Quality Data

Parameter	Median Value		
	2023	2022	2021
Dissolved Oxygen (mg/L)	8.8	8.8	10.2
Water Temperature (°C)	17.3	15.6	14.0
Turbidity (NTU)	10	10	10
pH	8.5	8.0	8.5
Ammonia Nitrogen (mg/L)	0.25	0.25	0.10
Phosphorus (mg/L)	0.01	0.01	0.02
Chloride (mg/L)	20	25	30

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

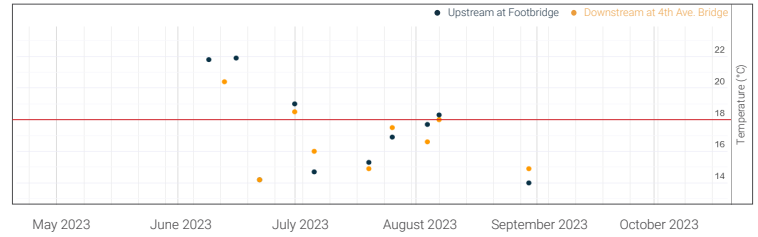
Dissolved Oxygen (mg/L)



Median 8.5 9.0

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 (short-term) values. Data points may overlap.

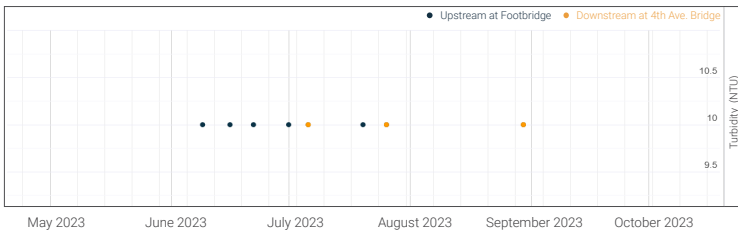
Water Temperature (°C)



Median 17.3 16.6

Water temperatures are measured using an Exotech 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 mean of 18°C over a 7-day period. Higher values may cause stress on aquatic life. Data points may overlap.

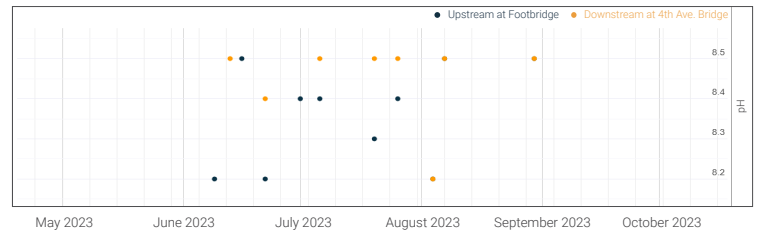
Turbidity (NTU)



Median 10 10

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

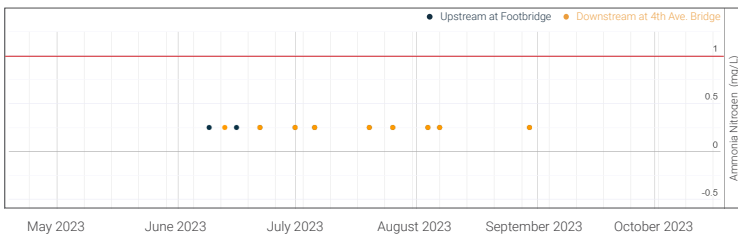
pH



Median 8.4 8.5

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. Data points may overlap.

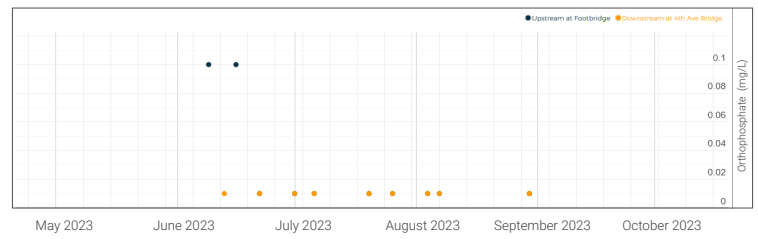
Ammonia Nitrogen (mg/L)



Median 0.25 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. Data points may overlap.

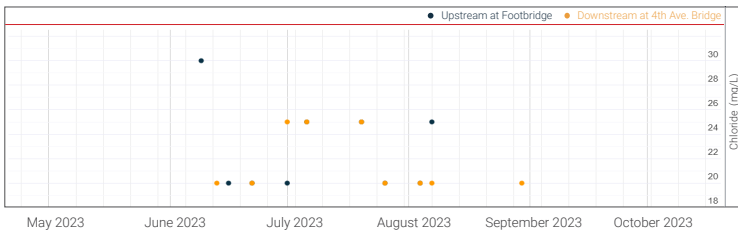
Phosphorus (mg/L)



Median 0.01 0.01

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

Chloride (mg/L)



Median 0.25 0.25

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. Data points may overlap.

To review our data reports, visit creekwatch.ca/creekwatch-reports