

Elbow River Water Quality Data Report



> A southeast facing view a beaver lodge situated on a bank of the Elbow River at Weaselhead Flats

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 Calgary's Elbow River 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 their funding support, and to all of our dedicated volunteers who have made this sampling season possible – we couldn't have done it without you!

Elbow River By-the-Numbers

	2023	2022	2021
Number of Sampling Events	20	9	11
Number of Data Points	118	66	83
Number of Sampling Hours	9	4.4	14

Analysis

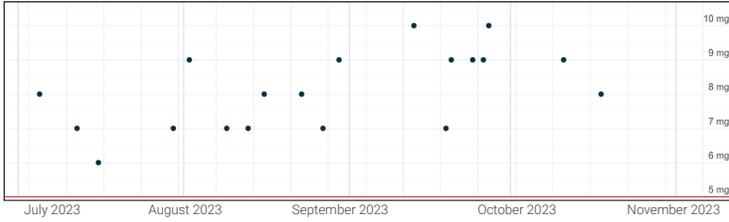
This years report shows a significant increase and sampling events, hours, and data points generated by CreekWatch volunteers. Based on median values, warmer water temperatures were observed despite an improvement to dissolved oxygen concentrations. Many other parameters remained unchanged.

Elbow River Water Quality Data

Parameter	Median Value		
	2023	2022	2021
Dissolved Oxygen (mg/L)	8.0	6.1	9.0
Water Temperature (°C)	16.7	11.5	8.0
Turbidity (NTU)	10	10	10
pH	7.6	7.6	8.2
Ammonia Nitrogen (mg/L)	0.25	0.25	0.10
Phosphorus (mg/L)	0	0	0.02
Chloride (mg/L)	15	15	15

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

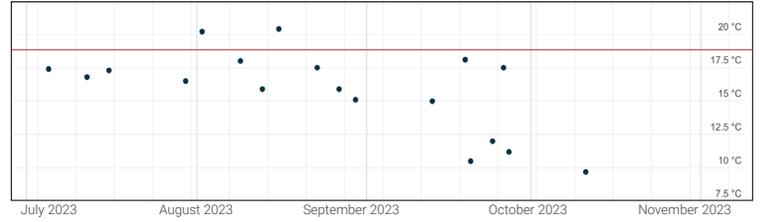
Dissolved Oxygen (mg/L)



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 (short-term) values.

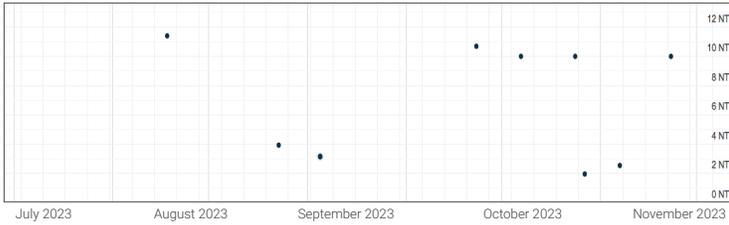
Water Temperature (°C)



Median 17

Water temperatures are measured using a 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 7-day mean of 18°. Higher values may cause stress on aquatic life.

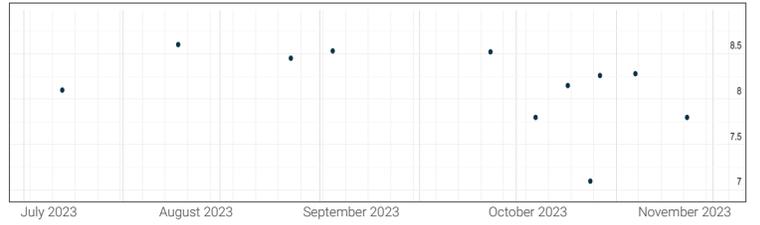
Turbidity (NTU)



Median 10

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

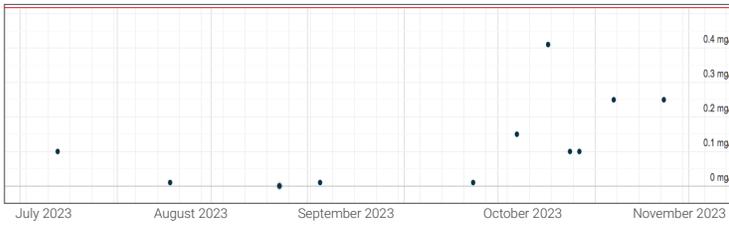
pH



Median 7.9

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.

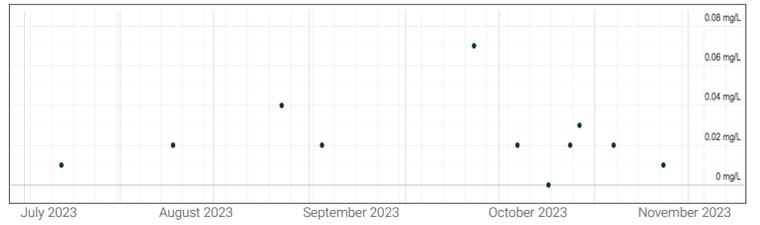
Ammonia Nitrogen (mg/L)



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.

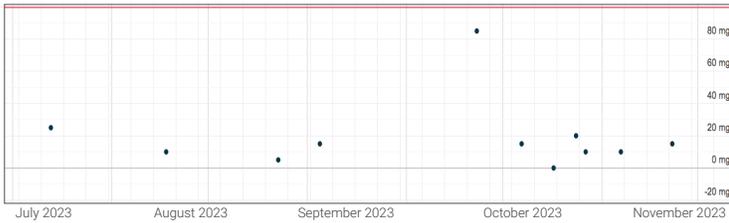
Phosphorus (mg/L)



Median 0

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

Chloride (mg/L)



Median 15

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.

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