Open Water Sampling Season
Calgary 2023

CreekWatch
Tributary Stormwater Monitoring

Nose Creek Water Quality Data Report

> A beautiful northeast-facing view of Nose Creek at 15th St on a summer evening

Photo: Nose Creek Preservation Society

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 Nose 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!

Nose Creek By-the-Numbers

	2023	2022	2021
Number of Sampling Events	26	2	35
Number of Data Points	264	19	323
Number of Sampling Hours	24	0.5	25

Analysis

This year's report shows a significant increase in the number of sampling events and data points generated by volunteers and technicians, and an increase in sampling hours. Based on median values, temperature and chloride readings have increased although improvements were observed in dissolved oxygen concentrations.

Nose Creek Water Quality Data

Parameter	Median Value		
	2023	2022	2021
Dissolved Oxygen (mg/L)	8.0	6.5	9.4
Water Temperature (°C)	19.7	17.4	12.6
Turbidity (NTU)	18.5	18.9	18.5
pH	8.2	8.4	8.4
Ammonia Nitrogen (mg/L)	0.10	0.13	0.10
Phosphorus (mg/L)	0	0.24	0.08
Chloride (mg/L)	175	102.5	135

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

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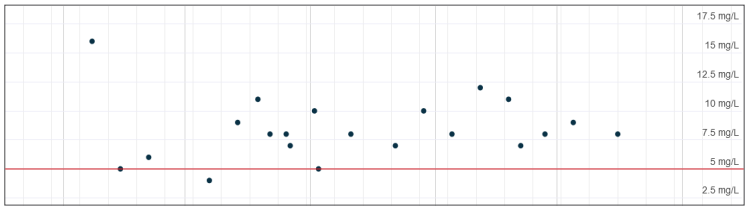
The Calgary Awards 2019

EMERALD AWARDS 2018 Recipient

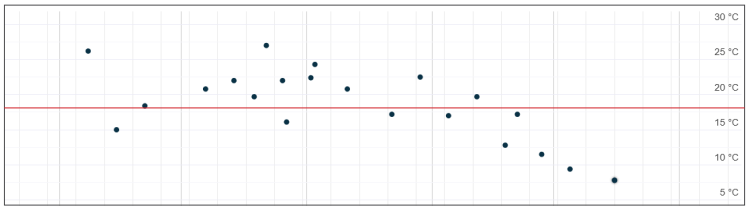
Dissolved Oxygen (mg/L)



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.

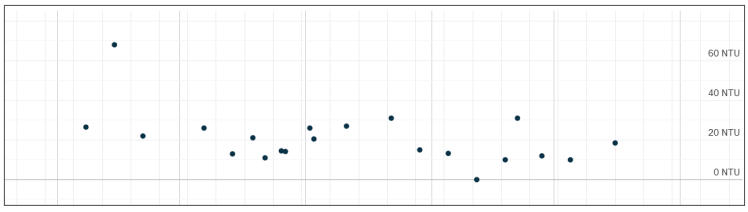
Water Temperature (°C)



Median **19.7**

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.

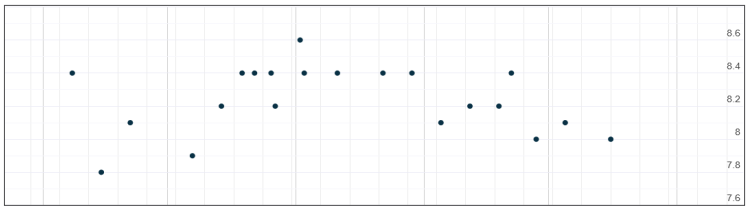
Turbidity (NTU)



Median **18.5**

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

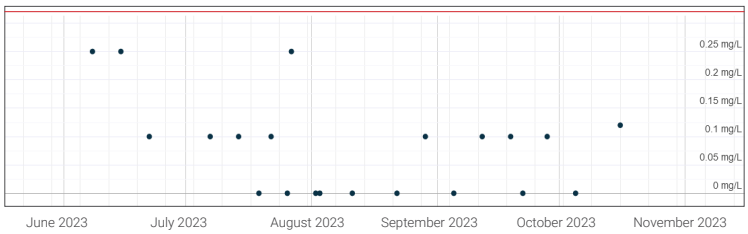
pH



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.

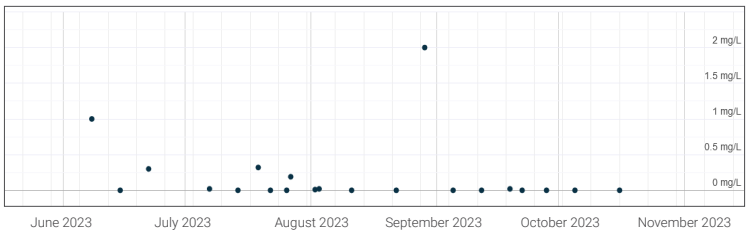
Ammonia Nitrogen (mg/L)



Median **0.10**

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.

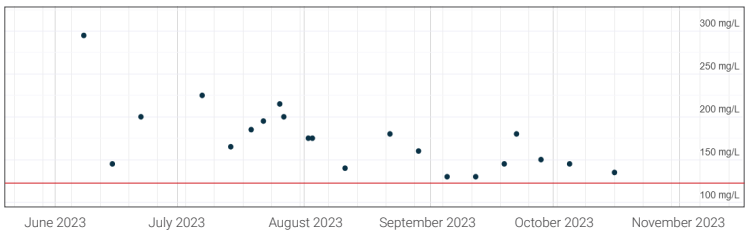
Phosphorus (mg/L)



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 **175**

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

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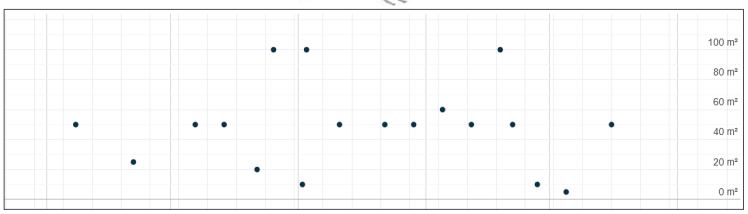
Aquatic Invertebrates

Benthic or bottom-hiding aquatic insects are dislodged when volunteers and technicians use their boots to kick-up a square meter of creek gravel. The organisms become suspended in the flowing water and are captured by a kick-net.

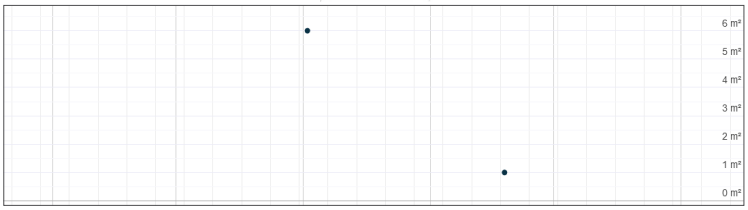
Pollution Sensitive Aquatic Invertebrates

Mayfly Nymph (m²)



Median 50

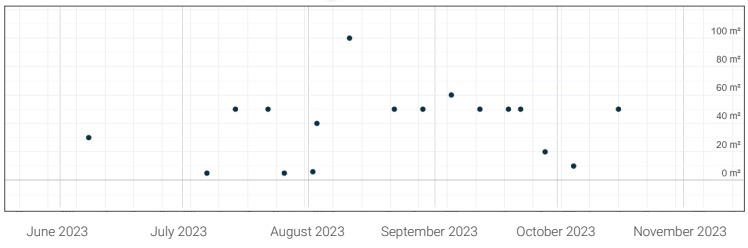
Stoneyfly Nymph (m²)



Median 4

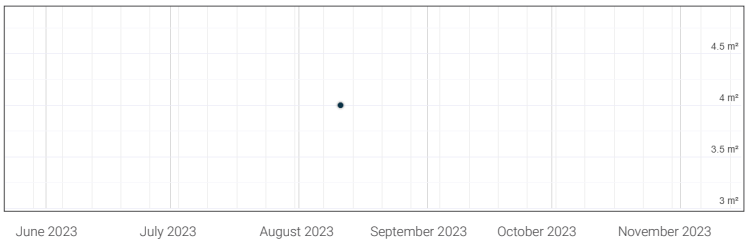
Moderately Pollution Tolerant Aquatic Invertebrates

Caddisfly Larva (m²)



Median 50

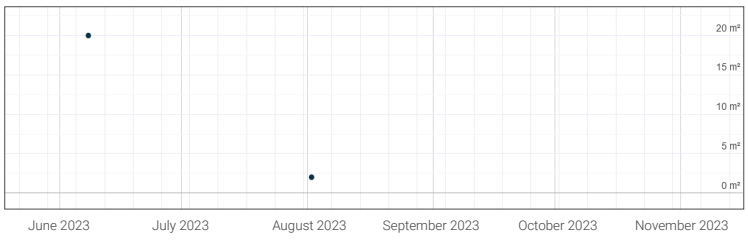
Cranefly Larva (m²)



Median 4

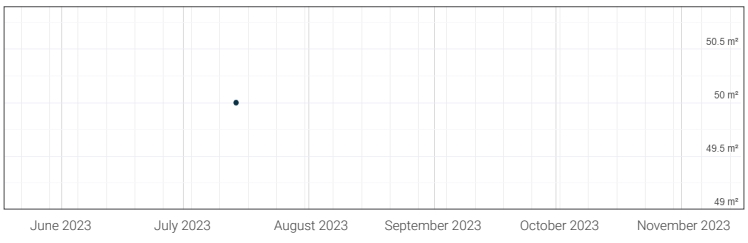
Pollution Tolerant Aquatic Invertebrates

Midge Larva (m²)



Median 11

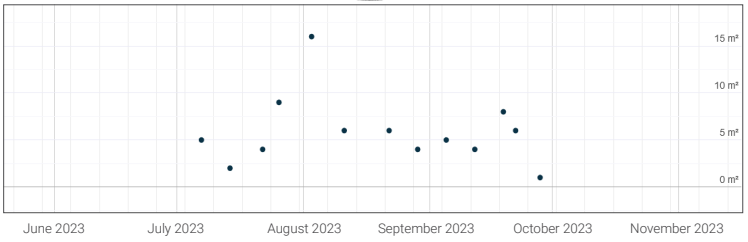
Blackfly Larva (m²)



Median 50

Invasive Aquatic Invertebrates

Northern Crayfish (m²)



Median 5

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