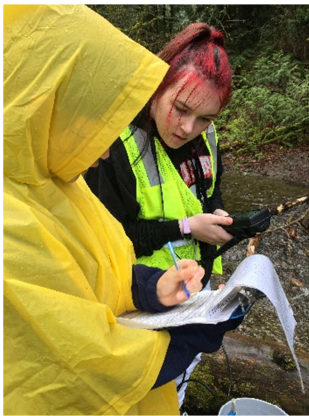




Water Quality Monitoring Summary for 2022/2023 Springbrook & May Creek



Introduction

This paper summarizes the results a year of the water quality monitoring efforts conducted under the Lost Urban Creeks Project with youth interns from the youth-mentoring organization Unleash the Brilliance (UTB). The data provided in this summary cover the wet (Oct to Feb) and dry seasons (Apr to Sep) for 2022 to 2023. During this period, Springbrook creek was sampled quarterly and was compared to quarterly sampling in May Creek (Renton, WA). Our hope is to better understand the challenges for salmon to return to Springbrook Creek and the opportunities and potential for the Springbrook watershed to be restored to achieve fishable, swimmable, and drinkable waters.

Background

Springbrook Creek - Springbrook is a part of the Green-Duwamish River Watershed and is the largest sub-basin of the lower Green River Basin. It is part of Water Resource Inventory Area (WRIA) 9 and drains an area of about 15,763 acres through the cities of Kent and Renton, Washington (Kerwin and Nelson, 2020). Springbrook Creek is on the 303(d) list for water quality violations for high temperatures and low dissolved oxygen levels at multiple locations and in 2021, King County determined that Springbrook is rated as a stream with poor water quality based on its Water Quality Index (King County, 2022a). More information can be found about the larger Green River Basin of which Springbrook is a part at: <https://kingcounty.gov/services/environment/watersheds/green-river.aspx>.

May Creek - May Creek is included in WRIA 8, flowing through the cities of Renton and Newcastle before draining into east Lake Washington. May Creek and its tributaries run for 26 miles and the basin provides drainage for approximately 8,960 acres (Kerwin, 2001). May Creek is on the 303(d) list for water quality violations of fecal coliform bacteria, bioassessment standards, and water temperature. More information on water quality in May Creek can be found on the King County Streams Report Website: [Stream Report - King County](#)

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Methods

Youth interns of the Lost Urban Creek Project were trained by staff at Puget Soundkeeper and the Sno-King Watershed Council to conduct water quality monitoring using methods outlined in our LUC Quality Assurance Program Plan (QAPP) (PSA, 2023). Eight locations were monitored throughout the Springbrook watershed. Monitoring was also initiated at May Creek at six locations. At each site, basic water quality parameter results for water and air temperature, pH, dissolved oxygen, specific conductance, turbidity, total dissolved solids, and salinity were collected as well as *E. coli* bacteria results. We visited sites creeks quarterly (twice in the wet season and twice in the dry seasons).

Site locations are identified using a three-letter code for the name of the creek (e.g., SPR for Springbrook Creek and its tributaries: MIL for Mill Creek, and PAN for Panther Creek, MAY for May Creek and its tributaries: BOR for Boren Creek, and HON for Honey Dew Creek) and a number for the number of river miles the site was located from the mouth of the creek (e.g., SPR1.4 is at Springbrook Creek, 1.4 river miles from the mouth of the creek).

Results

The following table provides an overview of data collected in 2022-2023 for each creek.

	Wet Season Mean (Geomean)*	Wet Season (Min-Max)	Dry Season Mean (Geomean)*	Dry Season (Min-Max)	State Standard (WADOE,2022)	Violation?
Springbrook Creek						
Dissolved Oxygen (mg/L)	7.09	1.07-12.8	4.83	0-11.71	10 mg/L	GAR0.0, MIL0.8, PAN0.0, & PRA1.4 never met the state standard; GAR1.8, MIL5.3, & PAN2.0 did not meet standard in July
pH	7.27	6.78-7.9	7.32	6.67-8.07	6.5-8.5	All sites met state standards, all downstream sites were more acidic than upstream sites
Turbidity (NTU)	0.67	0-15	3.11	0-16.7	5 NTU over the normal background level of turbidity (which for Springbrook Creek should be approximately 10 NTUs)	PAN0.0 did not meet the state standard during the October and July monitoring dates; GAR0.0 did not meet state standards on April or July monitoring dates.
Water Temp. (deg. C)	8.256	5.2-11.1	12.79	8.8-18.7	≤17.5 °C.	MIL0.8, PAN0.0, and SPR1.4 did not meet state standards in July 2023
SPC (µs/cm)	193.8	105.8-253.1	48.78	0-363.1	N/A	N/A
TDS (mg/L)	125.95	69-164	129.83	60-24	N/A	N/A
Precipitation (inches)	-	0-0.3	-	0-0	N/A	N/A
May Creek						
	Wet Season Mean (Geomean)*	Wet Season (Min-Max)	Dry Season Mean (Geomean)*	Dry Season (Min-Max)	State Standard (WADOE,2022)	Violation?
Dissolved Oxygen (mg/L)	11.253	6.85-13.37	5.86	0.26-10.4	10 mg/L	MAY4.2 never met the state standard; May7.7 and BOR0.0 did not meet the

	Wet Season Mean (Geomean)*	Wet Season (Min-Max)	Dry Season Mean (Geomean)*	Dry Season (Min-Max)	State Standard (WADOE,2022)	Violation?
						standard in August, May 0.2 & May 3.0 did not meet the standard in May
pH	7.47	6.6-7.82	7.53	6.4-8.26	6.5-8.5	MAY4.2 dropped just below standard in August; Upstream May Creek sites were slightly more acidic than downstream sites; Boron and Honeydew Creek Sites were more acidic than the nearest upstream May Creek site (MAY4.2)
Turbidity (NTU)	0.74	0-40	0.38	0-55.4	5 NTU over the normal background level of turbidity	MAY0.2 and MAY4.2 did not meet state standards in November 2022
Water Temp. (deg. C)	4.72	1.9-8.2	10.293	0-20.2	≤17.5 °C.	Creek temperatures at BOR0.0, MAY0.2, MAY3.0, and MAY17.6 did not meet state standard in May 2023
SPC (µs/cm)	172.97	125.8-243.5	105.68	0-280.4	N/A	N/A
TDS (mg/L)	105.04	40-158	127.84	97-182	N/A	N/A
Precipitation (inches)	-	Trace-0.2	-	0-0	N/A	N/A

*pH data is presented as the arithmetic mean. Precipitation data comes from the National Weather Service Renton Airport Station. See: <https://www.weather.gov/wrh/climate?wfo=SEW>

For previous results, please refer to our past reports (Puget Soundkeeper Alliance, 2021, 2022, 2023).

Next Steps

The 2023-2024 monitoring year will include continued quarterly monitoring on Springbrook Creek and a return to monitoring on Longfellow Creek. For more information about the Lost Urban Creeks Project, contact LUC@pugetsoundkeeper.org or find us on Instagram at @lost_urban_creeks.

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References

Kerwin, J. and Nelson, T.S. (Eds.). (2020). "Habitat Limiting Factors and Reconnaissance Assessment Report, Green/Duwamish and Central Puget Sound Watersheds (WRIA 9 and Vashon Island)." – Part II, Section 3.3 Springbrook Creek Subbasin. Washington Conservation Commission and the

King County Department of Natural Resources. December 2000. See:
<https://your.kingcounty.gov/dnrp/library/2000/kcr728/vol2/partIIcontinued/no3/Springbrook%20Creek.pdf>

King County (2022a). Water Quality Index for Streams and Rivers: Springbrook Creek/Black River – 0317. See: <https://kingcounty.gov/services/environment/watersheds/streams-data/water-quality-index.aspx>

King County (2022b). Springbrook Creek Water Quality Monitoring. See:
<https://green2.kingcounty.gov/streamsdata/watershedinfo.aspx?locator=0317>

National Oceanic and Atmospheric Administrations (NOAA) (2021). NOAA Online Weather Data for Kent, WA. National Weather Service. See: <https://www.weather.gov/wrh/climate?wfo=SEW>

Puget Soundkeeper Alliance (2021). Springbrook Creek Water Quality Monitoring Summary: 2019/2020 Final Report. February 2021. See: <https://pugetsoundkeeper.org/wp-content/uploads/2021/08/LUC-2019-2020-WQ-Final-Report-rev-Feb2021.pdf>

Puget Soundkeeper Alliance. (2023). LUC Quality Assurance Project Plan - Springbrook Creek: Training the Next Generation of Water Quality Advocates. Jan 2023

United States Geographic Service (USGS) (2021). Daily Streamflow Conditions. USGS Current Water Data for the Nation. See: <https://waterdata.usgs.gov/nwis/rt>

Washington State Department of Ecology (WSDOE). (2022). Water Quality Standards for Surface Waters of the State of Washington, Chapter 173-201A WAC. See:
<https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A>

Washington State Department of Ecology. (2020). Assessment of State Waters 303(d) List. See:
<https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d>

Water Resource Inventory Area (WRIA) 9 - Green/Duwamish and Central Puget Sound Watershed (December 2020).