

FAUNTLEROY CREEK BENTHIC STUDY

LOUISA BOREN STEM K-8, November 1, 2024 Elizabeth Mahrt, teacher

OBJECTIVES

Fourth-grade students from Louise Boren STEM K-8 sampled sites in upper and lower Fauntleroy Creek for benthic macroinvertebrates (BMIs) and reported the findings. A group of 23 students gained experience in

- employing teamwork to execute an established scientific protocol
- making site observations
- recording data
- posing and answering questions based on their findings
- evaluating the experience with an eye toward improvements

NOTE for 2024

Last year, we initiated a pilot program to study lichen growth near the two benthic collection sites on Fauntleroy Creek. One of the reasons we developed this study opportunity was to have a way to split the 4th grade classes in two groups with manageable numbers that both had interesting opportunities for scientific study. This year the STEM teachers offered to have one class go to Longfellow Creek to collect macroinvertebrate samples, while the other class came to Fauntleroy Creek. This would also provide an opportunity for the classes to compare data from the two West Seattle watersheds.

Also of note: Shannon Ninburg (the volunteer educator) had a broken ankle and was in a boot, so was not able to assist with sample collection at Fauntleroy Creek. The teacher, Elizabeth Mahrt, stepped in to lead with sample collection.

METHODOLOGY

With their teacher, chaperones, and watershed volunteer Shannon Ninburg, the students followed scientific protocol to collect BMIs using a Surber sampler. The class took two samples in Fauntleroy Creek. The first one was near the church/YMCA in the upper creek, directly downstream of where all creek tributaries come together to form the main stem. They took the second sample in the spawning reach, several yards upstream of the fish ladder in the lower creek. All samples were taken in a riffle.

At each site, a collection team positioned the Surber sampler and stirred the gravel for one minute. An environmental team noted temperature/ water level/ environmental data. A sorting team separated sample elements into shallow trays and used a dichotomous key to identify the macroinvertebrates they saw with the naked eye and hand-held magnifying glasses.

Prior to the on-site benthic activity, Shannon visited the class in school and gave a short presentation about benthic macroinvertebrates and basic instruction in how the benthic sampling would take place. After collecting the sample in the lower creek and observing/recording the lifeforms we collected, Shannon led a short discussion comparing what we'd found in the two locations, including asking students to hypothesize about why there was a difference.

FINDINGS

SITE CONDITIONS

	Upper Creek	Lower Creek
Air temperature	8.0° C	8.0° C
Water temperature	10.0° C	10.0° C
Water depth	18.0 cm	9.0 cm
Weather conditions	Light rain	Light rain

	2020		2021		2022		2023		2024	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Stonefly larvae		4	1	2	3	1	1	1		3
Mayfly larvae	1		4	1		4	1	3	2	2
Caddis fly larvae				5				2	1	
Aquatic worms		2	1			2	1	1	1	3
Black fly larvae		1			1		1			1
Midge fly larvae						2				
Water penny	1			2						
Beetle larvae										
Riffle beetle										
Snail							1			
Scud				1				1		1
No ID		1		3						
Total	2	8	6	14	4	9	5	8	4	10

CONCLUSIONS

- A variety of BMIs were in samples collected at both sites, many of which require good-quality water.
- BMIs were more abundant and generally larger in size in the lower creek than in the upper creek.
- In a concluding discussion about why there might be a difference between size/numbers of BMIs found in the two locations, we discussed the possible role spawning salmon could play in depositing nutrients in the lower reach, where they spawn. One student also theorized that, since the upper creek was public land and the lower creek private, that might play a role as well.

RECOMMENDATIONS FOR NEXT YEAR

- Splitting the two 4th grade classes into two groups, one doing the benthic study at Fauntleroy Creek and one at Longfellow creek, was like a good way to go, and made class sizes and instruction more manageable.
- Recommend laminating the macroinvertebrate ID sheets and the instructions as they got wet and hard to read in the rain.
- Recommend adding another foam tray or two to observe samples, so students can spread out more.
- Recommend making some minor edits to instructions to help simplify them.