

FAUNTLEROY CREEK BENTHIC STUDY

OUR LADY OF GUADALUPE SCHOOL, OCT. 22, 2019 Sarah Nadalin, teacher

OBJECTIVES

Sixth-grade science students from Our Lady of Guadalupe School sampled sites in upper and lower Fauntleroy Creek for benthic macroinvertebrates (BMIs) and their findings suggested the degree of pollution in the water, as defined by the EPA-approved Biotic Index of Water Quality. They gained experience in

- employing teamwork to execute an established scientific protocol
- making site observations
- documenting their work
- posing and answering questions based on their findings
- presenting a summary to watershed, school, and city representatives
- evaluating the experience with an eye toward improvements.

METHODOLOGY

With their teacher, chaperones, and watershed volunteers, the students followed scientific protocol to collect BMIs using a Surber sampler. Collection teams took two samples in the upper creek (at the church/YMCA) and two in the lower creek (several yards upstream of the fish ladder). The upper site is directly downstream of where all creek tributaries come together to form the main stem.

One sample at each location was the official one, taken in a riffle using the Surber and stirring the gravel in the frame for one minute. The unofficial sample was for comparison, consisting of a grab sample of decaying leaves and wood taken from the creek channel; these unofficial samples are referenced below.

The sorting team separated sample elements into shallow trays, then the identification team used a dichotomous key to identify and record the macroinvertebrates they saw, using naked eye and hand-held magnifying glasses. The site-description team documented weather conditions and features of each site. The documentation team took photos of the sites and of the teams at work.

Students created a PowerPoint to report their research to guests Steve Damm, a habitat ecologist with Seattle Public Utilities, and Fauntleroy Watershed Council members Pete Draughon, Judy Pickens, and Phil Sweetland.

FINDINGS

SITE CONDITIONS

	Upper Creek	Lower Creek
Air temperature	20.0° C	20.0° C
Water temperature	11.0° C	12.0° C
Water depth	8.0 cm	11.0 cm
Weather conditions	Showery	Showery

Students found stonefly larvae in both unofficial samples, four in the upper creek and one in the lower creek. They also found a blackfly larva in the upper creek. Following are results from official samples:

MACROINVERTEBRATES - OFFICIAL SAMPLES

	2013		2014		2015		2016		2018		2019	
	Upper Creek	Lower Creek	Upper Creek	Lower Creek	Upper Creek	Lower Creek	Upper Creek	Lower Creek	Upper Creek	Lower Creek	Upper Creek	Lower Creek
Stonefly larvae	1	1	1	2		2			1		2	2
Mayfly larvae				1	1	5				1		
Caddis fly larvae				1	1	19						
Aquatic worms		1	2	2	1	5	1	7	1	2	2	
Black fly larvae			1									
Midge fly larvae												
Water penny			2									
Beetle larvae			1									
Riffle beetle			1									
Snail						4				1		
Too small to ID or unable to ID		3			2				1	3		
Total	1	5	8	6	3	35	1	7	3	7	4	2

STUDY CONCLUSIONS

- We found proof that macroinvertebrates are in the creek, meaning that salmon have food there. Had we not found any, the creek would not be a suitable environment for salmon.
- We found about the same number of macroinvertebrates as the class last year but not as much diversity.
- We found additional species in our unofficial grab samples.

QUESTIONS FOR FURTHER STUDY

- Does lower water depth lead to a smaller population of insects?
- Should we sample at additional locations and in different weather conditions?

RECOMMENDATIONS FOR NEXT YEAR

- Take samples in areas with lots of gravel and with strong water flow.
- Try not to step around too much in the water so as not to disturb the macroinvertebrates.
- Look through samples twice before discarding anything, making sure plenty of water is in the tray and that debris is carefully separated from possible insects.
- Take very detailed notes and make details drawings.