



Macroinvertebrates in Shinglemill Watershed

By:

*Sean Robertson, Ellie Jackson, Sophia Krikawa,
Ella Yarkin, Grace Carroll, and Rumor Pollard*

Introduction

In a several year study of invertebrates in streams, ShingleMill Creek stood out as having lower creek health scores than similar island creeks. For the past two years, 6th graders at McMurray middle school have helped scientists learn more about the health of Shinglemill Creek by sorting samples of aquatic invertebrates from two upper tributaries of Shinglemill Creek. Students in 2013 found possible stormwater impacts in Upper Shinglemill.

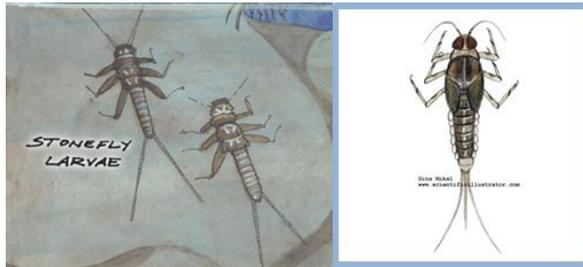
OUR MAIN QUESTIONS :

- How did student results in 2014 compared to 2013 and what are the implications for Shinglemill Creek health?
- How do student results compare to professional lab results?

Methods

- Scientists sample Shinglemill Creek for invertebrates and bring them into class.
- Students work with scientists to sort invertebrates into different taxonomic groups and generate an overall health score for the creek called the Benthic Invertebrate Index of Biotic Integrity (B-IBI).
- Samples sent to lab to verify student results.

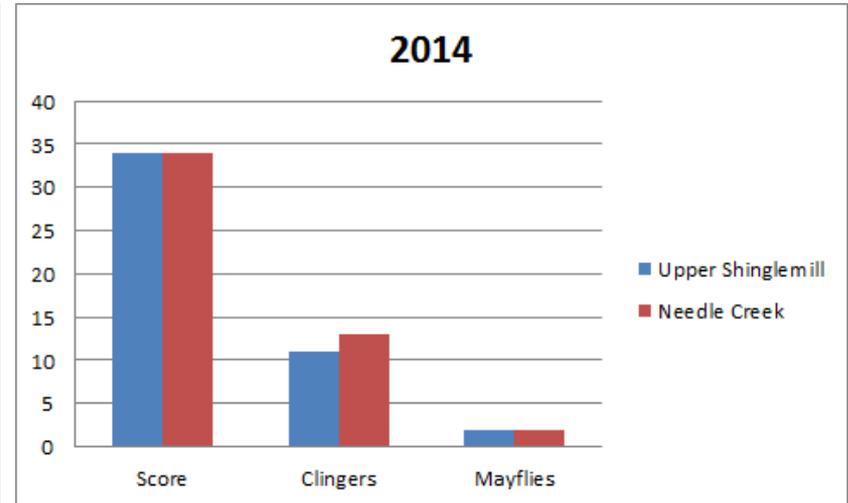
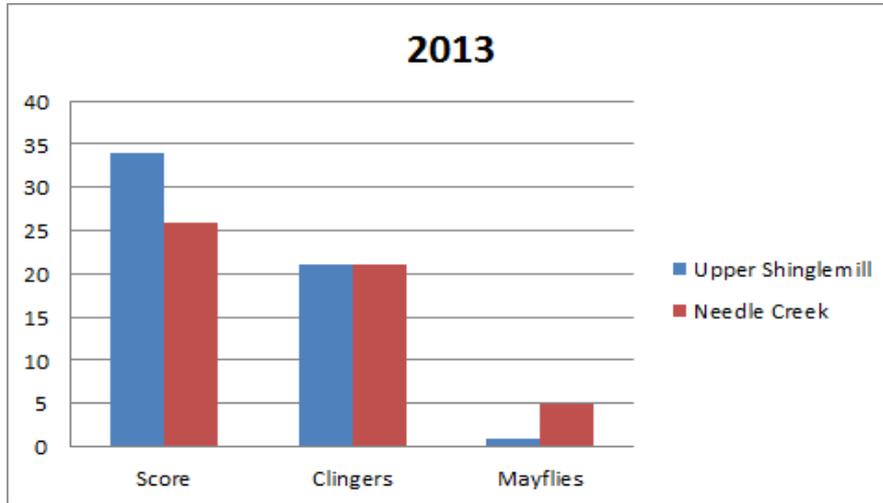
Clingers are sensitive to high flows and sediment-- both aspects of stormwater run-off.



Some mayflies are clingers and some are sensitive to heavy metals- good indicators of stormwater impact.

Results:

Question 1: How do 2013 and 2014 results compare and what are the implications for creek health?



Results:

Question 2: How do student results compare to professional lab results?

Year	Percent of organisms sorted into the correct taxonomic order	B-IBI score (Students) US, NC	B-IBI score (lab) US, NC	Condition rating (students) US,NC	Condition rating (lab) US, NC
2013	98%	32,26	34,26	Fair, poor	Fair, Poor
2014	86%	34,34	34,34	Fair, Fair	Fair, Fair

US is upper shinglemill creek

NC is needle creek

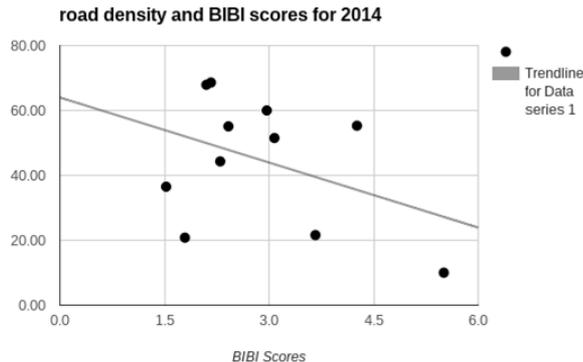
Conclusions

- The data does show that the creek is impacted in part by stormwater runoff.
- The creeks are still showing fair scores.
- Because there's so much change from year to year we need to continue sampling the streams.
- Student results are accurate.



Next Steps

- Use the Puget Sound Stream Benthos Data Base to look for patterns between land use and IBI scores. Example by Grace Carroll below...and to look at more long term data from Shinglemill Creek to try to uncover trends.
- Because of student research there have been changes made to the car wash systems in town. We would like to continue monitoring the creek for improvement.



Acknowledgements

We would like to thank, Ms. Roselle, Mr. Browning, and Bianca Perla, for their outstanding contributions to this project, without you this wouldn't have been possible.

- Sean Robertson, Ellie Jackson, Sophia Krikawa, Grace Carol, Rumor Pollard, and Eleanor Yarkin