



Got "Bugs"?

A Study of the Terrace Ave. Reconstruction Site

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Abstract

This study was conducted to determine if waterway reconstruction within the NYC Watershed adversely affects the trout in the streams and rivers. Specifically if the reconstruction of the area of Terrace Avenue adjacent to the West Branch of the Delaware River affected the overall health of the river. The study utilized the Leaf Pack experiment method in cooperation with the Stroud Research Center. Three leaf packs were introduced into the river; before, in the middle, and after the area of reconstruction at three different times. The purpose was to determine the quality of the water by counting the benthic macro invertebrates present in each area of the site.

Objectives

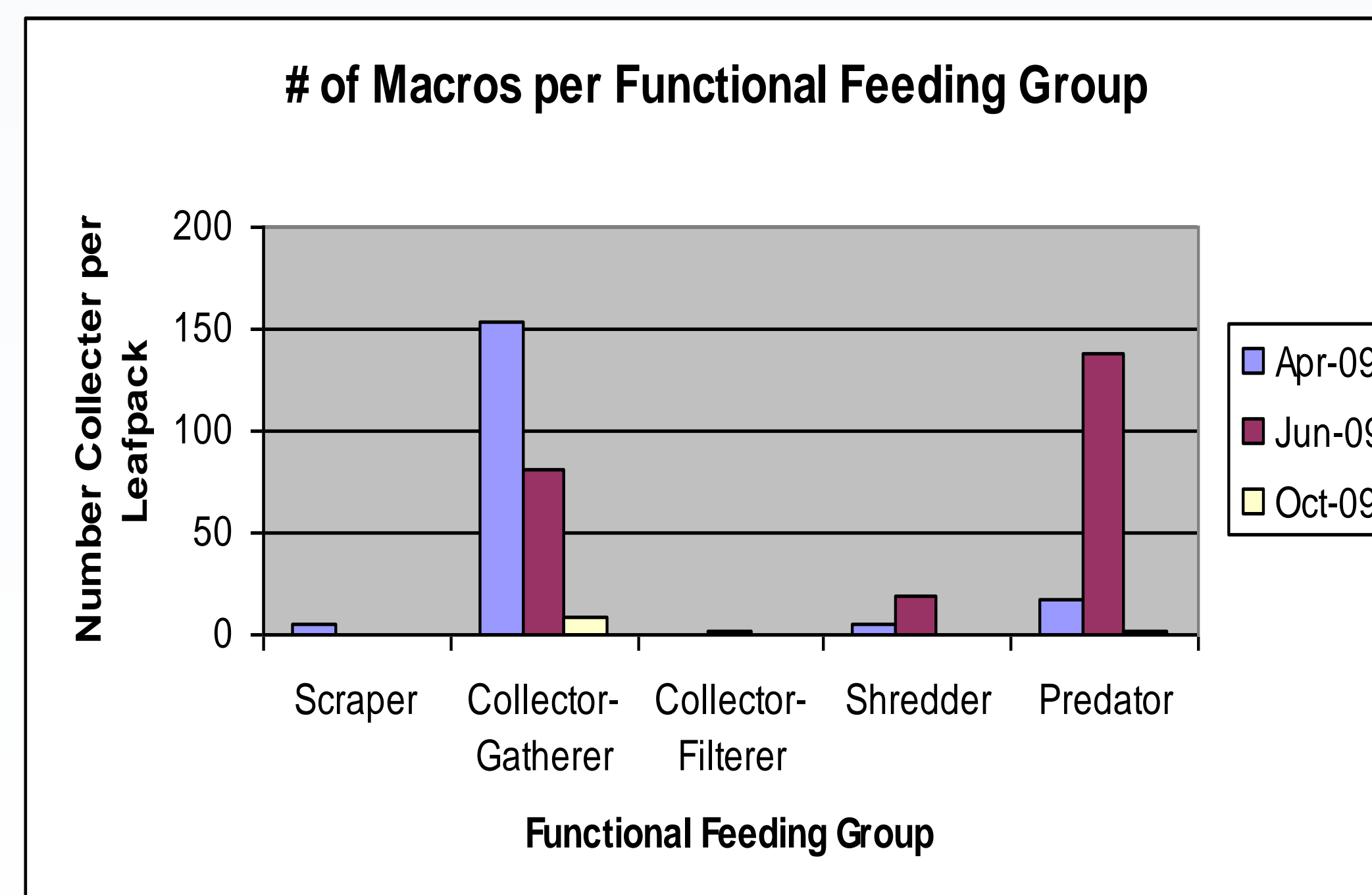
During the Flood of 2006, the West Branch of the Delaware River suffered major damage. The combination of the fast flowing high water and the deluge of water caused the bank of Terrace Ave. to collapse, dumping tons of soil into the stream channel. As the area is renowned for its Trout Fishing, did this construction affect the Benthic Macro Invertebrate (BMI) populations in the area?

Methods

Three Leaf Packs were constructed using the most common leaves in the area of the study. They included Sycamore, Maple and Poplar. They were placed before, in the middle and after the reconstruction area. The packs were placed April 27, 2009 and were collected on May 26, 2009. They were then examined and all macro invertebrates were catalogued.



Leaf Pack Results



Results

The results of this study show an EPT value of 79.0 percent. This is the total number of **E**phemeroptera (mayflies), **P**lecoptera (stoneflies), and **T**richoptera (caddisflies) that were found during the study. EPT values are important as they show the number of pollution sensitive macro invertebrates and they are the positive ones you want to find. The Biotic Index is a comparison of the abundance of taxa and their tolerance to environmental stress. The Biotic Index in the Terrace Avenue area is 3.88 on a scale of 1-10. The EPT and Biotic Index are used to monitor the sensitivity of taxa to pollution. Some insects are more tolerant of pollution than others. Although these pollution tolerant groups, which include certain true flies and worms, can be found in the cleanest streams, their numbers should not dominate the community. On the other hand, the presence of mayflies, stoneflies, and caddisflies – sometimes referred to as the “canaries of the stream” because they are so sensitive to pollution – indicates good water quality.



Conclusion

Although heavy machinery was introduced into the environment and the course of the river itself was altered, the stream health remains consistent. The leaf packs showed a significant number of benthic macro invertebrates at each placement site and those present indicate a water quality capable of supporting aquatic life. The completion of this study was shared with both Stroud’s Water Research Center and the Delaware County Soil and Water Conservation District. This shows that if done responsibly, construction in and around waterways in the NYS Watershed can be accomplished without disrupting the fly-fishing agritourism that is of economic importance to the area.



References

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