

SUGAR CREEK'S STREAM HEALTH EVALUATED THROUGH THE COLLECTION AND ANALYSIS OF THE BIOLOGICAL COMMUNITY

The biological monitoring within a stream which focuses on Benthic Macroinvertebrates is one of several means of evaluating the health of a stream. What are Benthic Macroinvertebrates? Benthic means the bottom of the stream ... Macro means large enough to see ... Invertebrates means that they have no backbones. So, Benthic Macroinvertebrates are creatures such as insects, snails, worms, crayfish and leeches found in streambeds.

An advantage of evaluating Benthic Macroinvertebrates in the stream over studying fish or mussel communities involve the physical limitations of smaller streams that occasionally dry up and lose their water during parts of the year. Fish and mussels may not survive such events and may have a difficult time becoming reestablished. Benthic Macroinvertebrates often times have short lifecycles and can reestablish quickly. Flying insects are able to travel to previously dry locations and lay new batches of eggs. Many eggs and larvae can remain dormant within the mud or sand and await the return of the stream's water.



Streams are considered healthy or unhealthy by evaluating the different types of macroinvertebrates in the stream. Benthic Macroinvertebrates that are able to fly or crawl away from the stream are not assigned a numerical score. However, if Benthic Macroinvertebrates can not leave the stream if conditions become undesirable, then these creatures are given a numerical score. This provides a means of interpreting how healthy a stream is based on the full-time residents of the Benthic Macroinvertebrate community.



Some of the ways to interpret stream health through the evaluation of this community include the following. 1) Total number of different types of Benthic Macroinvertebrate within the stream. This value generally increases with increasing water quality, habitat diversity and habitat suitability. 2) Total number of EPT taxa summarizes the richness of the benthic macroinvertebrate community within the taxa groups that are generally considered pollution sensitive and will generally increase with increasing water quality. This metric is the total number of distinct taxa within the groups of Mayflies, Stoneflies and Caddisflies. 3) The ratio of mayflies, stoneflies and caddisflies to midges reflects good biotic condition if the sensitive groups demonstrate a substantial representation. If the midges have a disproportionately large number of individuals in comparison to the sensitive groups then this situation is indicative of environmental stress.

The Biological Community combined with the evaluation of water chemistry and physical habitat contributes to the understanding of how healthy Sugar Creek is currently. The data will be used in creating a Watershed Management Plan which will provide recommendations for improvements to be made to Sugar Creek and its watershed. This plan will be available in mid-2008. Please contact the Hancock County Soil and Water Conservation District with further questions.