



Calvert County Joins the Maryland Biodiversity Project!

Calvert County Public Schools and CHESPAX are very excited to begin work with the Maryland Biodiversity Project! The Maryland Biodiversity Project is a non-profit organization focused on cataloging all the living things of Maryland. Their goal is to promote education and conservation by helping to build a vibrant nature study community.

8th grade students in Calvert County will study biodiversity with activities including: Stream Surveys through leaf packs, Schoolyard Biodiversity, and Global Biodiversity. Our citizen scientists will collect, analyze, and contribute data from Calvert County to larger projects. Ultimately, students will develop a deep understanding of biodiversity and its importance in our community and our world.

Stream Surveys

Stream surveys are a way to evaluate the health of a stream. The insects and other invertebrates (macroinvertebrates) that live in streams can be indicators of its overall condition. Many of these animals naturally congregate in "leaf packs" that collect behind logs and beneath tree roots within the flowing water.

Two aspects of a stream survey are assessing the overall biodiversity within the habitat; as well as the types of macroinvertebrates found. Certain species are very tolerant of pollution. If these organisms are abundant it is an indication that the stream is stressed. Other species are sensitive to pollution. If a variety of these are found, it indicates the stream is healthy and relatively free of pollution.

For our 8th grade classes, we have created our own leaf packs using 30 grams of dry leaf material, onion mesh bags, cable ties, and some string. Bags were deployed in streams connecting to Hunting Creek and Cocktown Creek in Calvert County. After 4-6 weeks, we remove them and bring them to classrooms to investigate! Students sift through the leaves to find and sort the macroinvertebrates. Using a data table and rating system, the health of our streams can be evaluated.



Leaf packs in stream behind Calvert Middle School

8th Grade In School Field Trips

During the months of November and December, the CHESPAX staff went into every 8th grade classroom to do this hands on biodiversity lab using the leaf packs. Students had the opportunity to dig through leaf packs from the stream to investigate what benthic macroinvertebrates had made their home in there. Students had a great time making discoveries about the health of our Calvert County Streams. Using the variety of critters found and a rating system for tolerance to pollution, students were able to determine the overall health of our streams.

The outcome of this project was varied. The stream where we deployed bags behind Huntingtown Elementary proved unusable due to sediment. This stream is part of the Cocktown Creek watershed, where our 7th grade students collect SAV and water samples.

Upon initial collection, we noticed that the leaf bags were buried deeply within the sediment at the bottom of the stream. Within the few weeks these bags were in the stream, huge volumes of dirt must have washed into the stream and covered the leaf packs. This falls right in line with what our 7th graders were finding this fall while canoeing on Cocktown Creek; the water is highly turbid. Sediment is an issue for SAV, and we were now looking at its impact on the biodiversity of macroinvertebrates in the stream.

Ms. Megonigal's 2nd period class was able to discover the impact of sediment on overall stream health. Immediately it was noted that there was not an abundance of life in these samples, and some lab groups turned up no macroinvertebrates. On the whole, biodiversity was very low, and the species that were found fell primarily into the 'tolerant' category on the assessment surveys. This indicates a high level of pollution and puts this stream with a 'poor' biological water quality rating. What this 8th grade class

reported is very important. The SAV health in Cocktown Creek has declined, and the leaf pack surveys provide additional evidence of stress within the waterway.

Interesting Finds

While one stream turned out to be too dirty to work with, others proved to have a decent variety of life! Our first group at Calvert Middle School reported the first Hellgrammite to the Maryland Biodiversity Project. Crane flies and scuds, which are both less sensitive to pollution, topped the list of frequent finds. Also, Stoneflies that are sensitive to pollution were often found. Other macroinvertebrates that rounded out our stream were Riffle Beetles, Damselflies, Caddisflies, Aquatic Sowbugs, Aquatic Worms, Midge Flies, and Leeches! On rare occasion, we also found salamanders and a couple fish! A few of our favorite finds are pictured below!



Hellgrammite



Damselfly



Case-maker Caddisfly



Net spinning Caddisfly



Salamanders