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Michigan's RAIL Project

By Keith Piccard, Allendale Public Schools

The Michigan Creekers have been receiving a lot of positive news. First

Water Education Grantee, Keith Piccard, from Allendale Public Schools and Grand Valley State University, for his <u>RAIL Project: An Assessment of</u> <u>the Overall Health of Low Order Streams of Ottawa County by Identifying</u> <u>Stream Ecosystem Attributes and Water Quality Index Scores Using</u> <u>Aquatic Macroinvertebrates</u>. The <u>Dan Wolz Clean Water Education Grant</u> was established in 2006 to heighten public awareness of the career opportunities the aquatic ecology and environmental science industries have to offer, and to improve the quality and quantity of Clean Water community education in Michigan's public schools. <u>View the project</u> <u>abstract here.</u>

Another grant that the RAIL Project is a part of is the <u>NOAA B-WET Grant</u>. This year, <u>Grand Valley State University's Groundswell</u> with the RAIL Project was awarded the NOAA B-WET Grant. Funding from this grant will be used to develop a standardized, robust, student-led water quality monitoring program across the Lower Grand River Watershed.

The RAIL Project also is featured by the Michigan Department of Labor and Economic Opportunity and will be used as a case study for the <u>MiSTEM Network Playbook</u> for new and innovative approaches to education using problem-, place-, and project-based learning.

One more bit of Michigan Creeker news that is in the works is that Creek Connections and the RAIL Project will be heading to the museum. Currently, the Grand Rapids Public Museum is taking advantage of fewer visitors to the museum, due to COVID-19, and is in the beginning phases of a museum redesign plan. The museum is looking to develop prototypes that fit in with citizen science and make everything more interactive for museum-goers.

With this news, the museum is working to incorporate resources from the RAIL Project and Creek Connections into their Great Lakes Exhibit. Current museum plans are that, as museum-goers enter the exhibit, they will get an introduction to their water as they see preserved student samples of aquatic micro and macroinvertebrates that are fair representations of each stream order, water quality (Good, Moderate, Poor, etc.), and ecosystem attributes. Goers then will be led into a large exhibit showing the water and energy processes as they move from the smaller drainage basins and work their way into the larger Great Lakes watershed.

As the visitors leave the exhibit, they would then download the <u>RAIL</u> <u>Bizstream app</u>, and use it on their own. In doing so, they can then contribute their data to the interactive kiosk at the museum exhibit that will show real-time data from the RAIL Project, Creek Connections, and



FEATURE CREATURE Can you guess who I am?

By: Bella Petitta, Allegheny College Student

I have dense, glossy, brown fur. I like to eat a variety of insects, especially ones that move around at night. When I eat, I use my body to catch my food. I can catch my meals with my wing or tail. Before I look for meals, I will skim some water to drink. I like to fill up my stomach and usually catch 1,200 insects an hour, but I weigh about 0.30 ounces. I weigh the most before I start my hibernation. You will find me all across Pennsylvania and I can live for up to 30 years. My scientific name is *Myotis lucifugus*. Who am I? (See end of newsletter for answer)



Testing Tip

By: Gretchen Barbera, Allegheny College Student

We understand that it may be a difficult time for sample testing right now. While no physical testing is happening, there are still plenty of ways you can interact with watersheds! Interactive websites are a great way to better understand watersheds in your area or even ones that you wouldn't have access to before. Check out our symposium website during Earth Week to learn more about watersheds, water testing, activities, and other great resources.

Check out some of these online interactive resources now!

- Learn about how human activities can affect watersheds
- Macroinvertebrate identification
- <u>The watershed sleuth challenge</u>
- Learn about estuaries



2021 Virtual Student Research Symposium

By: Kaitlyn Royal, Allegheny College Student

The activities we do today are much different than those we participated in pre-COVID-19, including this year's 2021 Creek Connections Student Research Symposium. We have made the switch to an online symposium because we are unable to host the event in person. Through the online symposium website, we can interact with students and give teachers the materials they need to have students engage in environmental learning and exploration.

Access to the site will be through the Creek Connections website under the <u>Student</u> <u>Research Symposia link</u>. When the site goes live, the overview page will show the icons for each of the four main sections: Student Research Projects, Activities, EcoCareer Exploration, and Environmental Organizations. There will be multiple ways to access each section/subsection: click on the icons, click on the section listed at the top of the banner, or click the drop down arrow beside the section name at the top of the banner to see the subsections. <u>Click here for Creek Chat discussing Symposium plans and website</u> <u>navigation</u>.

Student Research Projects will house all the projects submitted by schools. We welcome projects about any topic! Teachers set the project parameters for their classes. Each project page will include a short description that introduces the main topic of their project; the poster/video/presentation; a Google form to allow students, teachers, environmental professionals, etc. to comment and ask questions about the project; and an embedded spreadsheet with all of the comments and questions. During the time the site is active (Earth Week and maybe beyond), we will monitor the comments and questions as they come in to ensure that they are kind and appropriate.

subpage, there will be activity videos or links to activities for students to complete either in person or online.

EcoCareer Explorations will have videos of environmental professionals talking about themselves and their work for those interested in exploring careers in the environmental field. Careers, such as environmental educator or park ranger, can be viewed as a class or individually.

Environmental Organizations will have links to those organizations who have made Creek Connections, and by extension this symposium, possible. Thank you to all those who contributed through sharing content or distributed grants/donations!

Keynote Speaker: A link above the banner will take you to a recorded presentation made specifically for this year's Student Research Symposium! This year's keynote speaker is William Tolliver Jr., a former Creeker, who is doing amazing work in education at the national level. Will will talk about his time with Creek Connections, his career, and his all-imporant connections with nature.

This year's online symposium allows us to keep connected during a time of great disconnect. Though it is online, remember to stay connected to the outdoors... Go outside, get into nature, and EXPLORE!

Meet a Module



Algae and Plankton

By: Bella Petitta, Allegheny College Student

Students have the ability to learn more about algae, plankton, and aquatic plants with this module! The module is equipped with six different activities. Cattail Checkup allows students to observe, read, and draw cattail adaptations. Competing for Food expresses to students how populations of zooplankton can be affected by food availability and allows them to gain an understanding of carrying capacity. Micro Odyssey uses magnifying glasses, microscopes, and numerous books to allow students to draw microorganisms that they observe in pond water. Sinking Slowly instructs students to design their own plankton models out of various craft supplies and junk and compete to see which design sinks the slowest. Treatment Plants allows students to understand water filtration in wetlands with celery and food coloring. Water Plant Art enables students to learn to identify aquatic plants and create permanent collages with the identified plants. To use this module, check its availability on the <u>Creek Connections website</u> and then complete the online request form.

Current in the Creek



Stream Table Construction

By: Madi Sherman, Allegheny College Student

At Creek Connections, it's all about creeks, watersheds, and streams. We love going outside and exploring, but sometimes we are not able to. Sometimes the weather is cold and wet, so we learn about creeks inside a classroom. But what if, instead of learning about streams through presentations and explanations, we could bring it into the classroom with us? It seems like a wild idea, but here, on the Allegheny College campus, we have a stream table. A stream table is a large tank/pool that is full of sand and sediment. When we run water through it, the erosion and flow patterns mimic the behavior of a real stream! You may have seen the stream table if you have been to Allegheny for a previous symposium or

Lately, the Creekers at Allegheny College have been working hard to empty out the sand from the stream table so it can get a makeover! The sand must be shovelled out, dried on trays, and sifted into two separate size categories. It is hard work, but we have had some fun with it! In order to keep the sand aerated to dry faster, we mix it up periodically by using plastic animals as tools. This project has served as a stress reliever during a challenging semster! We are so excited to see how the stream table will look after the makeover.

Feature Creature Answer: Little Brown Bat Photo Credit: https://www.raritanheadwaters.org/2020/06/16/little-brownbat/

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