



# DEFIANCE RESEARCH ALLIANCE

## 2023: A YEAR IN REVIEW

The Defiance Research Alliance is a partnership between Defiance College, the City of Defiance, and Defiance County schools to address water quality issues in the Upper Maumee Watershed. This collaboration harnesses student excellence, and leverages community research and development assets to conduct applied water quality research. Both Defiance College and Defiance County secondary students have the opportunity to be involved in collaborative education, research, and training through this Alliance. The Defiance Research Alliance encompasses and supports both the Maumee River Watershed Research Center and the Maumee River Watershed Council.

### RESEARCH DEVELOPMENT

The Defiance Research Alliance has made significant strides in its first year. A faculty member from Defiance College, Dr. Sabrina Brown, was funded as the Project Director, and lab space was renovated to support research activities. Rowe 106, the existing lab space, was renovated as the Maumee Watershed Research Center in order to functionally support data collection, analysis, interpretation, and dissemination of Defiance Research Alliance research projects. It is now a laboratory at Defiance College that engages both college and secondary students in hands-on experiences and original research focused on water quality issues. These experiences include courses, field excursions, and paid research assistantships.



Hallie Webb sampling plankton in the Maumee River. Photographed by Dr. Sabrina Brown

A location and preliminary plan for research were identified, including a novel demonstration project. Katelyn Smith, hired as a Freshwater Research Technician, helped establish research protocols and partnered with the Defiance Water Treatment Plant. Her research on diatom assemblages was presented at the 2023 Defiance College Symposium.

Hallie Webb, an undergraduate student, was supported as a Water Quality Research Assistant starting January 2023. Hallie participated in field sampling with Defiance College and the City of Defiance and worked on projects investigating how nutrients and chemistry affect algal communities in the Upper Maumee Watershed. Her work was presented at the McMaster Symposium in 2023. Additionally, she analyzed existing data for better management decisions.

In the summer of 2023, two secondary students, Levi Panico and Mikayla Timbrook, also joined as Water Quality Research Assistants. They contributed to field sampling and lab work, helping to understand the diatom communities in the Upper Maumee Watershed. The Defiance Research Alliance shared its goals and early findings through various presentations at conferences and symposiums.



## EDUCATION AND OUTREACH

Through Defiance College, courses on water quality were offered in the Spring and Fall semesters of 2023, engaging students in hands-on learning. Three quarterly newsletters were published to update the community on project progress. A logo and branding materials were developed, along with a dedicated webpage within the Land to Lake website. The alliance also hosted a webinar to introduce the project team, a field trip for high school students from Defiance County, a meeting of the Upper Maumee Watershed Partnership, a Farmer Round Table Meeting, and a Conservation Tour with the Defiance Soil & Water Conservation District.



Secondary Research Assistants, Levi Panico and Mikayla Timbrook, collecting macroinvertebrates in the Maumee River. Photographed by Dr. Sabrina Brown.

## COUNCIL DEVELOPMENT



Kyle Verhoff, Agricultural and Natural Resources Educator for OSU Extension at the UMWP Speaker Series presenting on Ohio Pollinators and Native Plants. Photographed by Jen English.

To support its activities, the Alliance funded Jen English as Project Coordinator. Key activities include the development of a Maumee Watershed Council as a permanent, sustainable group that will pursue collaborative watershed education, research, and development opportunities in the Upper Maumee Watershed. The Council will focus on implementing evidence-based practices in the watershed, as well as communicating water quality information to a variety of diverse audiences.

Regular meetings were held among the Project Leaders Team, Core Working Group Members, and Executive Committee throughout the year. Additionally, there has been implementation of a Water Quality Speaker Series that is co-hosted with the Upper Maumee Watershed Partnership and held in the Maumee Watershed Research Center on Defiance College campus in order to engage the general public.

## FUNDING DEVELOPMENT

Defiance Research Alliance began researching funding opportunities, including submitting a pre-proposal to the Ohio Sea Grant Small Grants Program and a proposal to the Ohio EPA for a planning grant to be pursued further in year two. An NSF Research Experience for Undergraduates grant was submitted with the LEARN. Additionally, the H2Ohio Funding was identified to enhance the project. A funding strategy was created, categorizing future initiatives into outreach (like field trips), education (collaborating with teachers and developing curriculum), communication (through newsletters and social media), and research (focusing on soil health, environmental contaminants, and nutrient reduction).



Algae bloom on the Maumee River. Photographed by Kevin Connor.

