

# OHIO WATER RESOURCES CENTER



## 2021-2022 ANNUAL REPORT





# EXECUTIVE SUMMARY

The Ohio Water Resources Center (Ohio WRC) is the federally authorized and state-designated Water Resources Research Institute for the State of Ohio. Our mission is to enable and conduct state-relevant water-related research; foster collaboration among academic investigators, governmental bodies and water professionals; train the next generation of water scientists; and educate the public on water resources issues in Ohio. With evidence-based scientific information, we form links between water researchers and those who manage and use water.



## ADVISORY BOARD

The distinguished members of our advisory board provide critical expertise and guidance for advancing our work across all areas.

**Kathryn Bartter**  
Executive Director  
OSU, Sustainability  
Institute

**Tiffani Kavalec**  
Division Chief  
Ohio EPA, Division of  
Surface Water

**David Straub**  
Associate Director  
USGS, Ohio-Kentucky-  
Indiana Water  
Science Center

**Sandy Eberts**  
Director  
Earth Systems  
Processes Division,  
USGS

**Amy Jo Klei**  
Division Chief  
Ohio EPA, Division of  
Drinking and  
Ground Water

**Janet Weisenberger**  
Senior Associate  
Vice President  
OSU, Office of  
Research

**Ken Heigel**  
Executive Director  
Ohio Water  
Development Authority

**Gregory Nageotte**  
Watershed Program  
Administrator  
Ohio Department of  
Agriculture

**Christopher Winslow**  
Director  
Ohio Sea Grant



## By the Numbers 2017 to 2022

The Ohio WRC funded research across Ohio with **37 projects at 13 Ohio Universities**



For every federal dollar invested **\$67** was leveraged from other sources



The Ohio WRC leveraged its influence by devoting **1,120 hours on boards & committees**

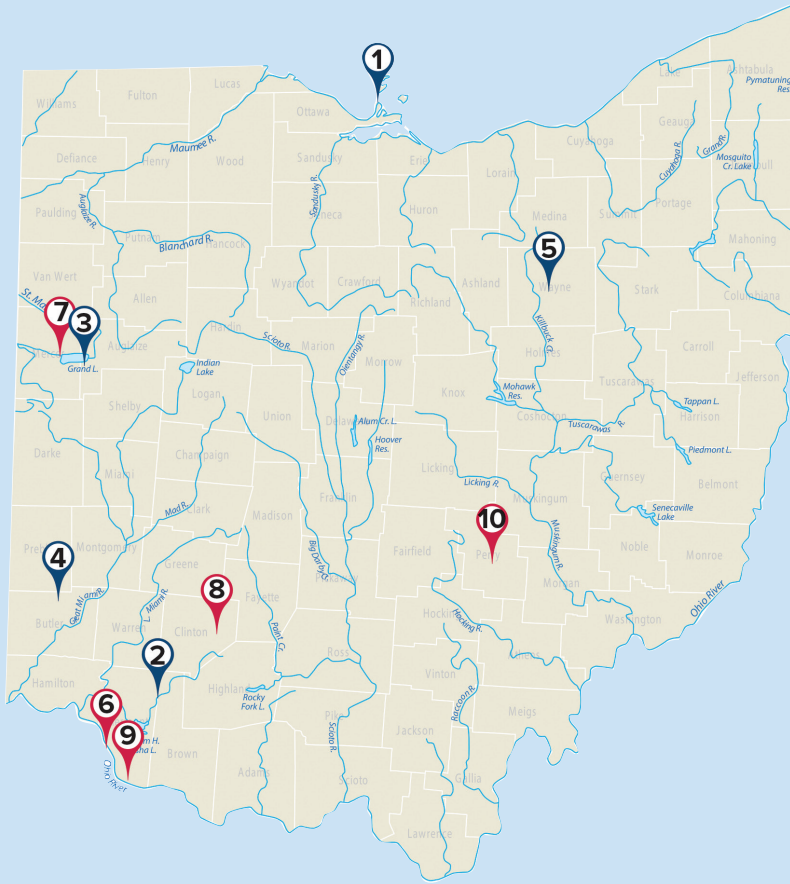


Ohio WRC research has produced **147 publications, theses, & presentations**





# 2021-2022 ACTIVITIES



<https://tinyurl.com/2p8mx6ay>

## Water Quality Sample Ohio WRC Projects

- 1 **Dr. Rachel Gabor, OSU**, is exploring how different forms of carbon relate to the severity and toxicity of algal blooms.
- 2 **Dr. Michael Booth, UC**, is investigating the effectiveness of large woody debris structures as a low-cost means to improve urban stream water quality.
- 3 **Dr. Zelalem Bedaso, UD**, is identifying and quantifying nitrate from different sources going into Grand Lake St. Mary's.
- 4 **Dr. Reza Soltanian, UC**, is investigating how groundwater and surface water exchange controls the fate and transport of 1,4-dioxane, an emerging contaminant.
- 5 **Dr. Kennedy Doro, UT**, is characterizing the impact of subsurface tile drainage and drainage water management on nutrient loading to freshwater systems.



## Water Technology Sample Ohio WRC Projects

- 6 **Dr. Tao Li, UC**, is developing and testing a low-cost, battery-powered, miniature wireless sensor module for the non-invasive detection of water flow through pipes in premise plumbing systems.
- 7 **Dr. Natalie Hull, OSU**, is analyzing and optimizing the biodegradation of microcystin in water treatment residuals to levels suitable for land application.
- 8 **Drs. Weavers and Bohrerova, OSU**, are investigating whether ultrasound, an emerging chemical-free technology, will suppress algal blooms threatening drinking water reservoirs.
- 9 **Dr. Soryong Chae, UC**, is evaluating a new treatment system for removing emerging PFAS contaminants (also known as "forever chemicals") in water by using electrically heatable carbon nanotube (CNT)-assisted membrane distillations.
- 10 **Dr. John Lenhart, OSU**, investigates processes that produce acid mine drainage with high rare earth element content.



# Impactful Connections with Stakeholders

Included in the 2021 Bipartisan Infrastructure bill, the reauthorization of the Water Resources Research Act (WRRRA) through the fiscal year 2025 allows the Ohio WRC to continue providing support for long-term water planning, policy development and resource management.

- Established network to monitor wastewater from 70 Ohio communities, covering 49% of the population, for SARS-CoV-2. The results provide the state with needed information in order to strategically target resources to areas demonstrating increasing COVID-19 trends.
- Continuing to improve water treatment design standards to increase the acceptance and improve the affordability of emerging technologies for drinking water treatment.
- Water for All – contributing to the dialog about water affordability in Ohio.



## By the Numbers 2017 to 2022

# 86

Students trained for  
a water resources  
profession



# 9,300

People-hours engaged  
in events

# 13 MILLION

Individuals reached  
through online and  
printed media



<http://wrc.osu.edu>

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