OHIO WATER RESOURCES CENTER

2015-2016 ANNUAL REPORT

WATER RESOURCES CENTER OHIO WRC

THE OHIO STATE UNIVERSITY

USGS science for a changing world

NIWR

EXECUTIVE SUMMARY

As a National Institutes for Water Resources (NIWR) institute, the Ohio Water Resources Center (Ohio WRC) is the federally-authorized and state-designated Water Resources Research Institute for the State of Ohio. The Ohio WRC promotes innovative, water-related research, education, and outreach in the State of Ohio.

2015-2016 ACTIVITIES

Water Quality and Sustainable Water Use

Ohio WRC researchers work to ensure that drinking water supplies and wastewater technologies are safe, reliable, and cost-effective. Plentiful drinking water and clean surface water are fundamental needs for all Ohio residents, but they come at a cost. Water treatment membranes clog with biofilms, requiring cleaning and eventual replacement. Water quality and ecosystem responses to restoration projects are not always well documented.

Sample Projects

Linked Geomorphic and Ecological Responses to River Restoration
Mažeika Sullivan, OSU

Water Quality Improvement Potential in Stream Restoration
Anne Jefferson, KSU

Moving Towards Real-Time Distribution System Network Modeling
Dominic Boccelli, UC

Water and Energy

Energy production, especially high-volume hydraulic fracturing, depends on a continuous supply of water. Ohio WRC researchers identify impacts of hydraulic fracturing and shale energy on water supply, quality, and ecosystem health. Simultaneously, electricity generation is the single largest water use category in the state of Ohio. In 2013, 76 percent of reported water withdrawals came from 40 power facilities. Ohio WRC researchers are at the forefront of the water-energy nexus in Ohio.

Sample Projects

Hydraulic Fracturing Impacts on Stream Flows and Water Supply
Suresh Sharma, YSU

Surface Water Quality and Ecosystem Health with Shale Energy
Elizabeth Myers Toman, OSU

Impact of Trace Metal Sources and Mobility from Acid Mine Drainage
David M. Singer, KSU

Developing Integrated Assessments of Water and Energy in Ohio
Jeffery Bielicki, OSU

ALGAL BLOOMS AND NUTRIENTS

Ohio WRC researchers are tracking algal blooms, analyzing potential sources, and creating techniques to reduce nutrients in water bodies. Harmful Algal Blooms (HABs) are becoming increasingly prevalent in Ohio. The 2015 Lake Erie algae bloom was rated as the most severe bloom this century; yet, the bloom failed to produce high levels of toxins as it did when it forced the City of Toledo to shut down its water intake in 2014. Ohio WRC researchers are working on ways to reduce the nutrient loads entering Lake Erie and are poised to determine the factors that control whether or not blooms become toxic.

Sample Projects

Nutrient Removal by Filters Developed from Industrial By-products
Chin-Min Cheng, OSU

Spatial and Temporal Dynamics of Non-Point Source Pollution
Gajan Sivandran, OSU

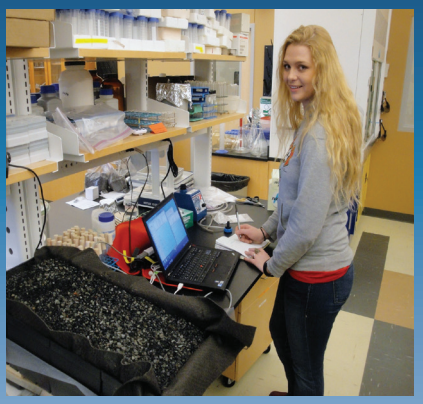
Policy Tools for Reducing Nutrient Loads and Combating HABs
John A. Hoornbeek, KSU

Biochar to Improve Water Runoff Quality from Vegetated Roofs
Ishi Buffam, UC

2015-2016 BY THE NUMBERS

Finances

Ohio WRC leverages Federal dollars. Last year, every federal dollar invested was leveraged with $4.5 from other sources.

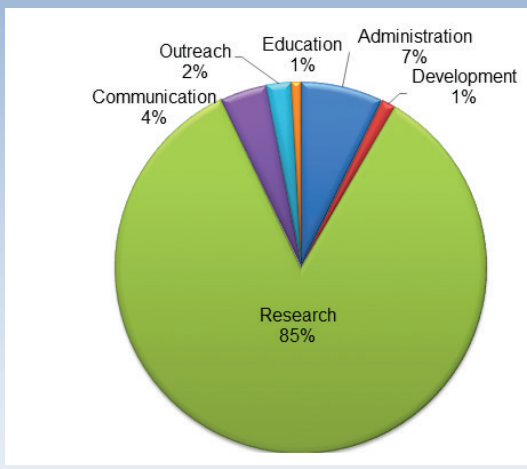


Funding Sources ($)

Federal	92,335
State	110,000
University	297,000

Ohio WRC prioritizes funding for research. Last year, Ohio WRC funds supported training of 26 students, including 17 graduate students, yielding new water professionals.

Breakdown of Expenditures



ADVISORY BOARD

Ohio WRC connects researchers and stakeholders forging key relationships.

Mike Baker
Division Chief, Ohio EPA, Division of Drinking and Ground Water

Kathryn Bartter
Director, OSU, Office of Energy and Environment

Ken Heigel
Chief Engineer, Ohio Water Development Authority

James Morris
Director, US Geological Survey, Michigan and Ohio Water Science Center

Randy Moses
Associate Dean for Research, OSU, College of Engineering

Gregory Nageotte
Program Specialist - Watershed, Ohio Department of Agriculture

Jeffery Reutter
Special Advisor, Ohio Sea Grant

Outreach

Ohio WRC is teaching water professionals, educators, citizens, and the next generation to be water smart. In 2015, we started a collaboration with partner citizens to implement a program for monitoring chemistry and macroinvertebrates in the highly urbanized tributaries of the lower Olentangy River watershed.

Sample Projects

Adopt Your Waterway with the NGO FLOW

Central Ohio Children's Water Festival

Sponsor and Facilitator of Project WET (Water Education for Teachers)

Seminars, workshops and conferences for Water Professionals

FUNDED UNIVERSITIES

Partner Institutions represent a powerful alliance of research capabilities. **By funding researchers early in their careers, Ohio WRC seeds innovative approaches and fosters impactful connections.**

CONTACT INFORMATION

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