

Ohio Water Resources Center Newsletter

From Our Directors

Last month, a group of researchers provided expertise on Ohio's water resources to the House Finance Subcommittee on Agriculture, Development and Natural Resources, which is seeking input on water-related topics under consideration by Governor DeWine. The committee heard from professors from Ohio State University, Heidelberg University, Bowling Green State University, and University of Toledo.



Drs. John Fulton, Jay Martin, John Lenhart, Audrey Sawyer, Aaron Wilson, and Robyn Wilson from OSU, along with Drs. Laura Johnson (Heidelberg), Tim Davis (BGSU), and Thomas Bridgeman (UT) provided testimony to the legislators and demonstrated the important role Ohio's educational institutions have in solving water resources challenges. Committee Chairman Jim Hoops closed his hearing stating that "this was just the beginning" of the dialogue about *H2Ohio* and how much he valued the input from Ohio's research universities. These leaders in academia effectively projected the importance of collaboration among institutions of higher education.

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Spotlight



On **Wednesday, May 15th**, fifth-grade students from a number of schools across Franklin County will attend the 12th annual Central Ohio Children's Water Festival at Franklin Park in Columbus, Ohio. The Festival promotes environmental awareness of our valuable water resources through interactive displays and hands-on workshops – and, fun presentations about drinking water, storm water and wastewater.

Throughout the day, students will rotate through activities – learning about the irreplaceable resource of water and its characteristics. The Ohio WRC will lead one of the 25 minute workshops teaching the attendees about buoyancy. The Central Ohio Children's Water Festival happens because of a volunteer effort from Ohio EPA, City of Columbus, OSU, and local consulting companies.

News Updates

[E.P.A. Proposes Weaker Standards on Chemicals Contaminating Drinking Water](#)

Via The New York Times, April 25th, 2019

[Designing water infrastructure for climate uncertainty](#)

Via MIT News, April 22nd, 2019

[Interdisciplinary research project on water and agriculture launches website](#)

Via Penn State News, April 18th, 2019

[Cuyahoga named 'River of the Year' 50 years after it caught fire](#)

Via Akron Beacon Journal, April 18th, 2019

[Scientists identify opportunities to better understand oilfield wastewater](#)

Via Environmental Defense Fund, April 17th, 2109

[Oil-Eating Bacteria Found In Mariana Trench Could Be Key To Removing Ocean Pollutants](#)

Via Tech Times, April 13th, 2019

[Ohio's Ag Director talking about water quality in Allen County](#)

Via Hometown Stations, April 12th, 2019

[Hancock County farm researches nutrient runoff solutions](#)

Via 24 News, April 12th, 2019

[Pre-apprenticeship program developed for water/wastewater workforce](#)

Via Hometown Stations, April 9th, 2019

[Manure From Unregulated Factory Farms Fuels Lake Erie's Toxic Algae Blooms](#)

Via AgMag, April 9th, 2019

[Improving Water Resources Management with Satellite Data](#)

Via Earth & Space Science News, April 8th, 2019

[ODNR Director Mary Mertz outlines plans for improving water quality, restoring wetlands](#)

Via Cleveland.com, April 6th, 2019

Have a news article you'd like us to feature in our Newsletter? Email us at OhioWRC@osu.edu!

Ohio WRC Research Highlight

[Design of a self-cleaning membrane-assisted bioreactor for enhanced removal of nutrients from wastewater](#)

Dr. Soryong Chae, Assistant Professor at the Department of Chemical and Environmental Engineering at the University of Cincinnati, completed an Ohio WRC funded project titled "*Design of a self-cleaning membrane-assisted*

bioreactor for enhanced removal of nutrients from wastewater” which aimed to fabricate a self-cleaning membrane for efficient use in wastewater treatment.



Dr. Chae and students built a bench-scale membrane bioreactor (MBR) that utilizes a self-cleaning carbon nanotube (CNT) membrane. They fed the MBR with synthetic wastewater to investigate organic compound, total nitrogen and total phosphorous removal. They also evaluated membrane durability and fouling potential when heating is used for membrane cleaning. The CNT composite membrane was able to treat wastewater for 9-10 days without cleaning, while a commercial polytetrafluoroethylene (PTFE) membrane in the same setting could be operated only for 6-7 days before cleaning/replacement. Furthermore, the membrane effectively recovered from fouling when subjected to electric heating. During this period, any physical damage of the CNT composite membrane was not found to be caused by the electric heating. The results allow for the development of novel engineering solutions for the mitigation of membrane fouling and/or recovery from membrane fouling that increases the performance of MBR systems and by reducing nutrient release reduces the potential risks to public health and the environment from the development of harmful algal blooms.

Find out more about Dr. Chae's research by visiting his [website](#). If you'd like to find out more about other Ohio WRC research projects, visit: <https://wrc.osu.edu/past>.

Opportunities

Department of Energy - American Made Challenges: Waves to Water

The Water Power Technologies Office (WPTO) at the U.S. Department of Energy (DOE) will be launching a new prize, aligned with the recently announced Water Security Grand Challenge. The Waves to Water prize will provide up to \$2.5 million in cash prizes, engage a wide variety of competitors, and accelerate early stage technologies through a series of contests to demonstrate small, modular, cost-competitive desalination systems that use the power of ocean waves to provide potable drinking water to remote and coastal communities. The prize will advance the emerging community of problem solvers and technologists working to pair wave power technology with water systems, as well provide new technology options to solve water security challenges. [More information](#).

The Water Research Foundation - Enhancement of Resilience to Extreme Weather and Climate Events: Proactive Flood Management

Project Objectives:

- To develop a synthesized, easy-to-use pocket guide for enhancement of wastewater and stormwater utility resilience to extreme weather and climate events by focusing on proactive risk assessment and management of flooding due to extreme rainfall;
- To build on the previous WRF projects Water/Wastewater Utilities and Extreme Climate

and Weather Events (WERF et al. 2014) and Water Quality Impacts of Extreme Weather-Related Events (Stanford et al. 2014) by reflecting the latest trends and best practices, including technological advances on proactive wet weather and flood management;

- To connect with the WRF project Managing Heavy Precipitation, Water Quality, and Flooding in Urban Environments: An Urban Stormwater and Wastewater Planning Workshop.

Proposals are due June 4th, 2019. [More Information.](#)

The Water Research Foundation - Expanding the Use of Wastewater Epidemiology Tools to Improve Water Quality, Identify Service Populations under Stress, and Promote One Water Goals for a Thriving City

Project Objectives:

- To advance our understanding of and the use of existing wastewater epidemiology tools within the context of recent drug use and abuse crises in service areas of various utilities in the U.S.
- To identify specific opioid compounds of interest (e.g., hydrocodone, tramadol, oxycodone, methadone, codeine, dihydrocodeine, nicocodeine) and build upon existing surveillance and monitoring systems with feedback loops to improve water quality and social outcomes.
- To leverage data and water quality controls in the wastewater sector to help cities achieve the interrelated goals of One Water management (environmental, social, and economic).

Proposals are due June 4th, 2019. [More Information.](#)

To find more resources offered by Ohio WRC, please visit: <https://wrc.osu.edu/resources>

Upcoming Events

Stockholm Junior Water Prize National Competition at Ohio State - June 13 to June 16

The Water Environment Federation, with support from Xylem Inc., is proud to host the 2019 U.S. Stockholm Junior Water Prize at The Ohio State University (OSU). Ranked as one of the top three largest public universities in the United States, OSU is home to Ohio Water Resources Center, which is the federally-authorized and state-designated Water Resources Research Institute for the state of Ohio. It is only fitting that the US SJWP national competition will be held at this great setting! Students will enjoy a taste of college life while they connect, share, enhance their knowledge of water-science, meet other young scientists with like-minded interests, and make life-long friends! [More information.](#)

2019 Ohio Stormwater Conference - May 8 to May 10

The 2019 Conference is once again presented by the Tinker's Creek Watershed Partners and the Ohio Stormwater Association. The 2019 Conference is expected to be the biggest one yet with over 95 exhibitors and 90 speakers over seven tracks of concurrent sessions. The Ohio Stormwater Conference will provide up to 11 hours of continuing education credit as well as opportunities to earn more hours through the pre-conference tours. [More information.](#)

WestFest: West Campus Sustainability & Outreach Festival - May 18

Join us on the West Campus of The Ohio State University for a free public event

showcasing sustainability and outreach at OSU and beyond! This event is open to people of all ages, from children to seniors. In addition to displays and hands-on activities highlighting research at Ohio State, there will be tours of the Arabidopsis Biological Resource Center and Byrd Polar and Climate Research Center (available on a first come, first served basis). [More information.](#)

Flood Fest 2019: The Mitigation & Resilience Tour - May 19 to May 23

Flood-risk professionals from all over the world attend the Association of State Floodplain Managers' annual floodplain management conference. Our 43rd conference will be held May 19-23, 2019 at the Huntington Convention Center in Cleveland, Ohio. Join 1,000+ other attendees to network with local, state, regional, tribal and federal officials, industry leaders, consultants and a wide variety of subject matter experts from diverse fields who will give presentations relevant to our theme, "Flood Fest 2019: The Mitigation and Resilience Tour." The conference is conducted by the ASFPM, the world's leading voice for sound floodplain management, with 18,000+ practitioners, 10,000 Certified Floodplain Managers, 37 chapters and 79 corporate and agency partners worldwide. [More information.](#)

Northern Olentangy Watershed Festival - June 22

The 6th Annual NOW Festival, hosted by the City of Delaware Public Utilities Department, is set for June 22nd at Mingo Park! The festival is designed to engage and educate residents about land and water stewardship, especially within the Northern Olentangy Watershed limits. New this year will be a guided nature walk, an interactive scavenger hunt that can be completed for a prize, and a raffle for a tandem kayak! There will be information booths from several environmental organizations, food trucks, a rain barrel raffle (cash only ticket sales), a duck race, and more! In the event of rain, the festival will be moved into the gymnasium at Mingo. [More information.](#)

Have an event you'd like us to feature in our Newsletter? Email us at OhioWRC@osu.edu!

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