

Ohio Water Resources Center Newsletter

USGS 104(b) RFP Announcement

The Ohio Water Resources Center (WRC) is seeking research pre-proposals to address current water resources issues in the State of Ohio. This annual competition for in-state researchers is made possible through the Water Resources Research Institute 104(b) Program. The aim of these grants is to stimulate water-related research relevant to Ohio to the point where a highly competitive external proposal can be developed.



The Ohio WRC will accept any pre-proposal related to Ohio water resources issues, but expects to give priority to proposals that address algal blooms & nutrients, water & energy nexus issues, and water technology & emerging issues.

The application deadline for Ohio pre-proposals is **4:00 PM, Monday, August 12, 2019**. Pre-proposal decisions and an invitation to submit a full proposal will be announced the week of September 9, 2019. Full proposals will be due October 24, 2019 by 4:00 PM and funding decisions will be made by January 15, 2020. Funding is anticipated to begin on March 1, 2020. Typically, the Ohio WRC will award \$25,000-\$35,000 to grant recipients ([past recipients](#)).

To find more details about how to submit a pre-proposal, visit [our website](#). If you have any questions, feel free to email OhioWRC@osu.edu.

[About Us](#)

[Research](#)

[Outreach](#)

[Publications](#)

[Resources](#)

Spotlight

Stockholm Junior Water Prize

Last month, The Ohio State University hosted the national competition for the 2019 U.S. Stockholm Junior Water Prize (SJWP). Starting this year, the SJWP entered into a three-year contract with Ohio State to host the national competition. This year 53 high-students from 45 states journeyed to the Buckeye State to vie for the opportunity to claim the most prestigious youth award for a water science project, which includes \$10,000 and a trip to Stockholm, Sweden to represent the U.S. at the international competition this August. SJWP National Organizer Brad Lovett says "There's so much passion and energy in these students and a real sense of purpose in their research. Water quality and management issues only become more and more relevant each year, and these students know it."



Prior to the competition, Ohio WRC Co-Director Dr. Weavers delivered an inspiring presentation about the importance of water resources, the urban water cycle, and how Ohio State's many water degree programs make it a great place for students interested in water issues, such as those competing for the SJWP. The students visited the City of

Columbus' Dublin Road Water Plant and Water Quality Assurance Laboratory, where they learned more about the urban water cycle and career opportunities in water resources.



The competition itself featured high-quality projects, many of which featured collegiate level research. Ohio was represented by three students from Dublin Jerome High School (pictured to the left) who created a robot that can circumnavigate a body of water and collect pollution samples from various areas across the lake. While there were a number of projects deserving of the title, judges crowned Sonja Michaluk from Hopewell Valley Central High School in Pennington, New Jersey as the Champion.

Sonja's project, titled "*A Novel Method of Monitoring the Health of our Global Fresh Water Supply using DNA Barcoding of Chironomidae (Diptera)*" highlighted that two-thirds of the U.S. will suffer from water scarcity in the next decade.

Find more information about our other outreach initiatives by visiting [our website](#).

News Updates

[How Ohio Is Reclaiming The Cuyahoga River, 50 Years Later](#)

Via WOSU, June 24th, 2019

[Michigan, Ohio, Ontario to cut Lake Erie phosphorous to stave off algae blooms](#)

Via Michigan Advance, June 17th, 2019

[Senate Amendment may expand PFAS monitoring](#)

Via Water & Wastes Digest, June 17th, 2019

[Ohio Senate targets water quality response](#)

Via The Toledo Blade, June 14th, 2019

[Dublin students invent robot that fights water pollution](#)

Via WOSU, June 13th, 2019

[Ohio State researcher maps groundwater meeting oceans](#)

Via Water & Wastes Digest, June 12th, 2019

[Ohio River pollution control standards changing; Ohio, Kentucky to use federal guidelines](#)

Via Local 12, June 11th, 2019

[ODA announces expansion of Voluntary Nutrient Management Plan Development Program](#)

Via Ohio's Country Journal, June 11th, 2019

[Climate Change sends Great Lakes water levels seesawing](#)

Via Scientific American, June 8th, 2019

[If you drink bottled water you are doubling the microplastic particles in your body, study says](#)

Via WTVR 6, June 5th, 2019

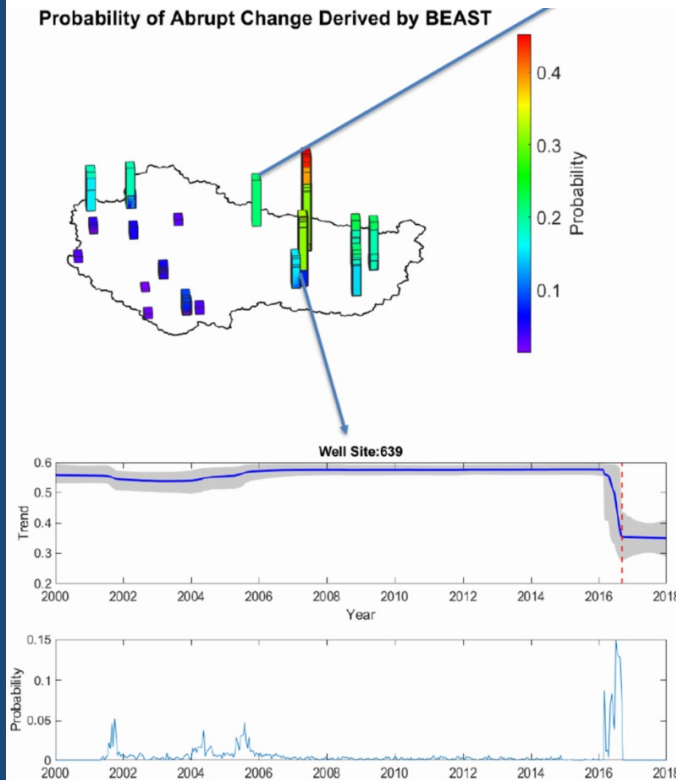
Have a news article you'd like us to feature in our Newsletter? Email us at OhioWRC@osu.edu!

Ohio WRC Research Highlight

Landscape fragmentation and water yield with unconventional shale oil and gas development in Ohio

Development of unconventional shale oil and gas through hydraulic fracturing (HF) has transformed the energy landscape of the United States. However, its environmental impacts remain poorly understood, especially regarding landscape fragmentation and changes to local or regional hydrology. **Dr. Elizabeth Toman**, a Visiting Assistant Professor in the School of Environment and Natural Resources at Ohio State University, and **Dr. Kaiguang Zhao** recently completed an Ohio WRC funded project titled "Landscape fragmentation and water yield with unconventional shale oil and gas development in Ohio". The goal of the project was to clarify how HF operations have been altering land cover and surface hydrology in Ohio.

Probability of Abrupt Change Derived by BEAST



* Abrupt Changes with Probability and Construction Dates for a Well Site

To date, there has been very limited analysis on how HF disturbs the land surface. The biggest challenge for such analysis is that a typical well pad is only about 0.01 to 0.02 km². Disturbance in land cover from activities on such a fine scale might be ignored or too difficult to be captured. Dr. Toman's study focused on a small watershed in Eastern Ohio where 49 well pads have been constructed, and from these pads, 185 horizontal wells have been drilled since 2008. The researchers showed that disturbance of human activities at very fine scales (e.g., 30 m) can be detected by available remote sensing time series (Google Earth Engine) combined with advanced abrupt change detecting algorithms (e.g., BEAST) - see figure to the left. Note, the blue line represents average trends of normalized difference vegetation index on a well site, and the red line indicates the construction date of the well site. In the current study, other human activities were also detected, such as the construction of corridors.

*Source: Zhao, K., M. Wulder, T. Hu, R. Bright, Q. Wu, H. Qin, Y. Lin, E. M. Toman, B. Mallick, X. Zhang, M. Bean. 2019. Detect change-point, trend, and seasonality in satellite time series data to track abrupt changes and nonlinear dynamics: A Bayesian ensemble algorithm. Remote Sensing of Environment.

If you'd like to find out more about Dr. Toman's research, visit her [website](#). If you'd like to see some other Ohio WRC research projects, visit: <https://wrc.osu.edu/past>.

Opportunities

USGS - 104(b) Annual Base Grant

The Ohio Water Resources Center (WRC) at The Ohio State University is seeking research pre-proposals to address current water resources issues in the State of Ohio. This annual competition for in-state researchers is made possible through the Water Resources Research Institute 104(b) Program. While all water resources pre-proposals will be accepted,

priority will be given to proposals that address algal blooms & nutrients, water & energy nexus issues, and water technology & emerging issues. The application deadline for Ohio pre-proposals is **4:00 PM, Monday, August 12, 2019**. Pre-proposal decisions and an invitation to submit a full proposal will be announced the week of September 9, 2019. Typically, the Ohio WRC will fund \$25,000-\$35,000 for grant recipients ([past recipients](#)). Find more details about how to submit a pre-proposal, visit [our website](#).

Ohio EPA - Ohio Environmental Education Fund (OEEF)

The Ohio Environmental Education Fund (OEEF) invites applications for mini grants (\$500 - \$5000) and general grants (\$5,000 - \$50,000) for education projects targeting pre-school through university students and teachers, the general public and the regulated community. The Request for Proposals for the July 2019 grant cycle is now open. Application guidelines are posted at <http://www.epa.ohio.gov/oeef>. Electronic letters of intent to apply must be submitted in the OEEF online grant service no later than **Tuesday, July 9 at 5PM**. Completed proposals must be submitted in the OEEF online grant service no later than **Tuesday, July 16 at 5PM**.

P3 Great Lakes - Green Stormwater Infrastructure Challenge

P3GreatLakes has an open Request for Statement of Interest (RSI) for their Green Stormwater Infrastructure Challenge select two municipalities from the Great Lakes basin states (Minnesota, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania, and New York) to pilot innovative delivery and financing approaches for green stormwater infrastructure. Responses to the RSI are due **Friday, July 12th at 5PM** and can be sent to GreatLakesRSI@ectinc.com. For more information about the project, please visit the [P3GreatLakes website](#).

US EPA - Great Lakes Restoration Initiative 2019 RFAs

Under this RFA, EPA expects to award a total of approximately \$14 million for about 30 nonpoint source projects in 5 categories addressing agricultural nutrients and stormwater runoff. Specifically, EPA is requesting grant applications under the following funding opportunities:

- **Riparian Restoration to Reduce Runoff to Maumee River (EPA-R5-GL2019-RRM)**
 - Approximately \$4 million available for 5 to 10 projects
- **Green Infrastructure to Reduce Stormwater Runoff (EPA-R5-GL2019-GIU)**
 - Approximately \$2 million available for 5 to 8 projects
- **Manure Management to Reduce Nutrient Runoff from Farms (EPA-R5-GL2019-MMF)**
 - Approximately \$2,5 million available for 5 to 8 projects
- **Accelerating Adoption of Nutrient Management through Farmer-led Outreach and Education (EPA-R5-GL2019-ANM)**
 - Approximately \$4 million available for 4 projects
- **Water Quality Trading and Other Market-based Approaches for Nutrient Reduction (EPA-R5-GL2019-WQT)**
 - Approximately \$1.5 million available for 4 projects

Applications are requested for projects within the five categories listed above, each of which has a separate Funding Opportunity Number (FON) and is separately posted on www.grants.gov. Applicants must apply for the specific funding opportunity they are interested in by **Friday, July 12th**. [More information](#).

Upcoming Events

Ohio WRC/WMAO July Luncheon Seminar - July 17th

ORBA, ORSANO, and PAS - Toward a Unified Voice for the Ohio River Basin
Featuring: Dr. Harry Stone, ORSANCO/ORBA PAS Project Manager

In 2009, an Ohio River Basin Summit was held by the ORSANCO, the US Army Corps of Engineers, and the US EPA. The Summit identified a need for a unified voice with respect to priorities and strategies for the Ohio River Basin. Eight goal areas are included in the planning: flood risk reduction; abundant clean water; dependable water transportation; healthy ecosystems; world-class nature based recreation; vibrant economy; knowledge-informed decisions; and resilience. This presentation will describe the Basin-wide collaborative planning initiative that is underway, invite your engagement, and clarify the complexities involved in the process.

The event will be held on **July 17th**, from **11:30AM-1:00PM** at **The Wilma H. Schiermeier Olentangy River Wetland Research Park**, 352 West Dodridge Street, Columbus, Ohio 43202.

[Register](#)

Ohio EPA: Introducing Two-Pronged Approach to Aquatic Like Monitoring in Streams and Rivers - July 10th

Ohio EPA Division of Surface Water is looking for your feedback. They are early in the process of enhancing our water quality monitoring approach and schedule. On July 10th they will introduce the two-pronged approach and provide opportunity for initial comments and questions. In the second part of the event, they will solicit feedback on which project areas to prioritize for sampling and where within project areas have implementation actions been taken to abate pollution or restore streams. **RSVP required by Wednesday, July 3rd.** [More information.](#)

Soil and Water Conservation Society 2019 Annual Conference - July 28th to July 31st

The Soil and Water Conservation Society's 74th International Annual Conference will be held July 28-31 at the Wyndham Grand Pittsburgh Downtown in Pittsburgh, Pennsylvania. The conference includes workshops, breakout sessions, symposia sessions, poster presentations, plenary sessions, and tours designed to raise the awareness of recent developments in the science and art of natural resource conservation and environmental management. [More information.](#)

2019 Ohio Wetlands Association Science Symposium - August 3rd

The Ohio Wetlands Association is teaming up with organizer and presenter Dr. William J. Mitsch, and other wetland scientist presenters for a new and arguably overdue symposium entitled "Wetlands Mitigating Harmful Algal Blooms." The symposium will also serve as OWA's 2019 Science Summit. The symposium will educate the public on the many ways wetlands can be used to treat a range of water quality problems. The day will start with welcomes and introductions, followed by three sessions of talks and a panel discussion, and ending with final remarks on the day's topics. [More information.](#)

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

[About Us](#)

[Research](#)

[Outreach](#)

[Publications](#)

[Resources](#)

Email: OhioWRC@osu.edu

Phone: 614-292-2807

Website: <https://wrc.osu.edu/>

Address: 311 Hitchcock Hall

2070 Neil Avenue

Columbus, OH 43210



THE OHIO STATE UNIVERSITY