Volume 12 | December 2019

Ohio Water Resources Center Newsletter

From Our Directors

Ohio Governor Mike DeWine recently unveiled the details of H2Ohio, a comprehensive, data driven water quality plan to address concerning water issues that affect our state. This initiative is an investment into targeted solutions to help reduce nutrient runoff and prevent Harmful Algal Blooms (HABs) through applications of sustainable agricultural practices and the creation of additional wetlands. The initiative also aims to improve wastewater infrastructure by replacing failing septic systems and prevent lead contamination in day care centers and schools by replacing lead pipes. As soon as Spring 2020, farmers near the Maumee River will be able to enroll in an economically incentivized program created by H2Ohio which has identified the 10 most effective and cost-efficient practices proven to reduce agricultural nutrient runoff load. This solution aims to minimize phosphorus-rich nutrients from running off into major bodies of water. Minimizing phosphorous input would in time lead to a reduction in the overall quantity and severity of HABs, which has been the topic of many of our funded researcher projects. We, at the Ohio Water Resources Center, are excited for the awareness raised regarding these issues and are hopeful that the H2Ohio Initiative will prove to be a great success in regards to mitigating the severity of HABs issues in Ohio.

Spotlight

Website Improvement Survey :

https://osu.az1.qualtrics.com/jfe/form/SV_a5eAuuuozYX0CIT

The Ohio Water Resources Center is seeking your response to an online survey as a part of an effort to improve our website. The survey should not take more than 5 minutes of your time and it will go a long way to help us serve you better.
The results from the survey will help us to optimize the layout of our website to improve navigation and better cater to the information that you---as a stakeholder---find the most valuable. This process is part of an on-going endeavor to improve the Center's understanding of user needs and how we can best address those needs.

Thank you for your time and consideration! We look forward to seeing your responses.

News Updates

Ohio Agriculture Conservation Initiative puts H2Ohio focus on farm-specific conservation initiatives

Via Ohio's Country Journal and Ohio Ag Net, November 18, 2019

Ohio Sea Grant releases summary of fourth year of ODHE Harmful Algal Bloom Research Initiative

Via The Ohio State University News, November 14, 2019

Gov. Mike DeWine unveils sweeping new program to curb algal blooms, improve water quality
Via Cleveland.com, November 14, 2019

EPA proposes testing methods for five additional kinds of PFAS
Via Star Tribune, November 8, 2019

2019 Lake Erie harmful algal bloom twice as severe as last year's
Via Cleveland.com, November 4, 2019

Columbus City Council approves package of bills aimed at improving water infrastructure
Via abc6, November 4, 2019

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

Ohio WRC Research Highlight

Addressing the Water-Energy Nexus of Fossil Power Generation by Considering Technological, Agro-Ecological, and Economic Options in the Muskingum Watershed

Dr. Bhavik Bakshi, Professor of Chemical and Biomolecular Engineering at the Ohio State University completed an Ohio Water Resources Center project jointly funded through USGS 104(b) and OSU's Office of Energy and Environment sources titled **"Addressing the Water-Energy Nexus of Fossil Power Generation by Considering Technological, Agro-Ecological, and Economic Options in the Muskingum Watershed**". The objectives of this work were to investigate various alternative scenarios to understand the trade-offs between energy, water, and CO_2 flows in the Muskingum River Watershed (MRW), and suggest better watershed management solutions that could be a "win-win" in terms of multiple objectives for watershed sustainability.

Dr. Bakshi's team employed a holistic TES (Techno-Ecological Synergy) assessment approach to examine watershed sustainability. The results showed that the amount of water supply in the MRW is larger than the amount of water demand, which implies that the reduction in the water quantity indicator may not be a huge concern. However, TES metrics for other ecosystem goods and services, such as natural gas, CO_2, and air and water pollutants, show negative values, which indicate unsustainable conditions of activities in the MRW. Since most of the air emissions and natural gas consumption are attributed to thermoelectric power generation, various technological alternatives that include different fossil fuels, cooling technologies, CO_2 conversion technologies, and renewable power generation technologies were examined. It was identified that TES sustainability metrics for carbon sequestration and air quality regulation services can be improved by employing NGCC (Natural Gas-Fired Combined Cycle) power plants with recirculating cooling system and CO_2 conversion to formic acid that uses electricity from wind power generation (Figure 1). The synergistic solution that includes both technological and agroecological alternatives could produce "win-win" outcomes in terms of multiple objectives.

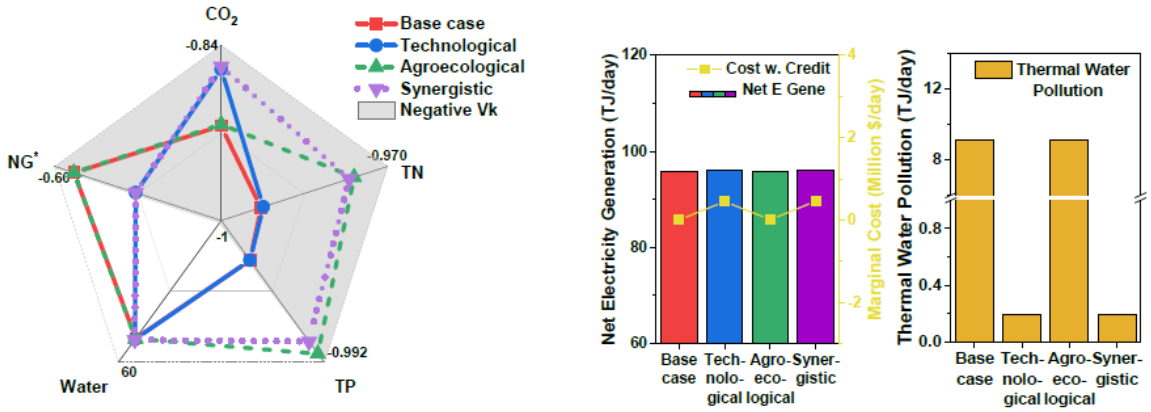

Figure 1 Sustainability indicators for best case scenarios. TES metrics are plotted in radar diagrams. Technological solutions include shale NG-fired combined cycle power plants with recirculating cooling system and 1,000 t/day of CO2 conversion to formic acid with wind power generation. Agroecological solutions include the implementations of no-till practice and the construction of wetlands on available land. The synergistic solution combines both technological and agroecological solutions.

If you'd like to find out more about Dr. Bakshi's research, visit his website. If you'd like to see other Ohio WRC research projects, visit: https://wrc.osu.edu/past.

Opportunities

DE-FOA-0002184 – Environmental System Science

The DOE SC program in Biological and Environmental Research (BER) hereby announces its interest in receiving applications for research in Environmental Systems Science (ESS). This FOA will consider applications that focus on improving the understanding and representation of terrestrial and subsurface environments in ways that advance the sophistication and capabilities of local, regional, and larger scale models. Using new measurements from both field and laboratory experiments along with more sophisticated modeling and/or synthesis studies, this FOA will encompass two topic areas: 1) Terrestrial Ecology, specifically linking above- and belowground processes, as well as methane biogeochemistry; and 2) Integrated Watershed Hydro-biogeochemistry, specifically studying the function and dynamics of subsurface to surface hydro-biogeochemical processes within watersheds. More information.
Pre-Application Due: **December 5, 2019**, at 5:00 pm Eastern Time

---

RFP - NSF Oceanographic Facilities and Equipment Support

Oceanographic facilities and equipment are supported by the Integrative Programs Section (IPS) of the Division of Ocean Sciences (OCE), Directorate for Geosciences (GEO). These awards are made for the procurement, conversion and/or up-grade, enhancement or annual operation of platforms in the ocean, coastal, near-shore and Great Lakes. Awards are generally directed specifically to support facilities that lend themselves to shared use within the broad range of federally-supported research and education programs. Most of these platforms and facilities also receive partial support from federal agencies other than NSF. This includes state and local governments and private sources on a proportional basis usually through a daily rate mechanism. The primary objective of these awards is to ensure the availability of appropriate facilities for federally-funded investigators and educators. More information.
The full proposal target date is **December 16, 2019**.

RFP - Five Star and Urban Waters Restoration Program

The Five Star and Urban Waters Restoration grant program seeks to develop community capacity to sustain local natural resources for future generations by providing modest financial assistance to diverse local partnerships focused on improving water quality, watersheds and the species and habitats they support. More information.
Full Proposal Due Date: **Thursday, January 30** by 11:59 PM Eastern Time.

OAWWA & AWWA Scholarships — deadline to apply Feb. 7

OAWWA Undergraduate Advanced Degree/Continuing Education Scholarship
To encourage water industry related education through scholarship. This scholarship program has been created in an effort to give back to the individuals who support the water industry and the Ohio Section of the American Water Works Association. More information.

OAWWA Graduate/Adult Continuing Education Degree Scholarship
To encourage water industry related education through scholarship. This scholarship program has been created in an effort to give back to the individuals who support the water industry and the Ohio Section of the American Water Works Association. More information.

One AWWA Operator Scholarship
AWWA's The Water Equation Campaign and the Ohio Section will award a One AWWA Operator Scholarship for Water Operator training and education. Scholarship award can be used for certification/licensure, two-year water related associate degree, technical school program, professional training program, books and manuals, and operator related conferences. Each scholarship recipient will receive a one-year AWWA Operator membership. More information.

RFA - Research on PFAS Impacts in Rural Communities and Agricultural Operations Request for Applications

The U.S. Environmental Protection Agency (EPA) announces the release of the Request for Applications (RFA) for its National Priorities: Research on PFAS The focus of the RFA is to solicit research addressing the following areas:

1. Better understanding of PFAS occurrence, fate, and transport in water sources used by rural communities and agricultural operations.
2. Novel or improved PFAS treatment methods in small drinking water systems and typical small wastewater system treatment trains including influents, effluents, and biosolids/residuals.

The close date of this application is **February 11, 2020**. More information.

RFP - Environmental Convergence Opportunities in Chemical, Bioengineering, Environmental, and Transport Systems (ECO-CBET)

The Environmental Convergence Opportunities in Chemical, Bioengineering, Environmental, and Transport Systems (ECO-CBET) solicitation will support activities that confront vexing environmental engineering and sustainability problems by uncovering and incorporating fundamental knowledge to design new processes, materials, and devices from a systems-level perspective. Projects should be compelling and reflect sustained, coordinated efforts from interdisciplinary research teams. A key objective of the solicitation is to encourage conversations and robust collaborations amongst the chemical process, transport phenomena, bioengineering, and environmental and sustainability research communities such that unanticipated solutions may arise. Furthermore, training the future workforce to actively engage and be successful in interdisciplinary research will be necessary to continually innovate given the scope of the environmental problems faced by our global

community. More information.
Preliminary proposals are due **February 12, 2020.** Full proposals are due **April 30, 2020**.

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

Policy Update

Ohio EPA - Ashtabula River Watershed Draft Loading Analysis Plan (2011)

The Ashtabula River watershed was surveyed in 2011 and assessed for aquatic life and recreation beneficial uses. The results from this survey were used to develop a loading analysis plan for the impaired sites in this watershed. A loading analysis plan is the third step in the TMDL development process and lists actions to be taken by the Agency for sampling sites found to be impaired for a beneficial use designation. Please see the following link for a fact sheet describing this notice and the loading analysis plan: https://epa.ohio.gov/dsw/wq. Comments are due by 5:00 p.m. on December 12, 2019.

Ohio EPA - Kokosing River Watershed Draft Loading Analysis Plan (2007)

The Kokosing River watershed was surveyed in 2007 and assessed for aquatic life and recreation beneficial uses. The results from this survey were used to develop a loading analysis plan for the impaired sites in this watershed. A loading analysis plan is the third step in the TMDL development process and lists actions to be taken by the Agency for sampling sites found to be impaired for a beneficial use designation. Please see the following link for a fact sheet describing this notice and the loading analysis plan: https://epa.ohio.gov/dsw/wq. Comments are due by 5:00 p.m. on December 12, 2019.

Upcoming Events

Tinker's Creek Watershed Partners Engineering Professional Development Workshop - December 5, 2019

Tinker's Creek Watershed Partners is hosting an Engineering Professional Development workshop to offer Engineers 3.0 PDH's on December 5, 2019 at the Watershed Stewardship Center in Parma, Ohio.
This day will include presentations from Army Corps of Engineers and Davey Resource Group. Speakers include: Chantelle Carroll, Doug Kapusinski, Judith Mitchell and Greg Snowden. More information.

Inspection and Maintenance Certification for Stormwater Control Measures in Ohio - December 10 - 11, 2019

The Ohio State University Department of Food, Agricultural and Biological Engineering and Summit Soil and Water Conservation District have developed a curriculum based on Ohio maintenance standards and design specifications for Stormwater Control Measures. This course was developed to educate and train a workforce to fill this growing niche. This certifying course will give your employees the required knowledge to confidently identify the SCM, inspect the facility, develop reports, make recommendations to solve common maintenance issues, and carry out the maintenance. More Information.

Ohio EPA - 2020 Recycling & Litter Prevention Grant Information Webinar - January 8, 2020 10:00 am

This webinar discusses Ohio EPA's 2020 Recycling & Litter Prevention Grant application process and those activities targeted by this grant program. The webinar will focus on how this competitive grant program provides opportunities for local governments, schools, businesses and nonprofit organizations to establish and implement recycling & litter prevention programs, recycling market development for manufacturers, expansion of recycling equipment and processing facilities and recycling infrastructure improvements. More information.

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

Email: OhioWRC@osu.edu
Phone: 614-292-2807
Website: https://wrc.osu.edu/
Address: 311 Hitchcock Hall
2070 Neil Avenue
Columbus, OH 43210

WATER RESOURCES CENTER OHIO WRC

THE OHIO STATE UNIVERSITY