



H2Ohio Testimony

Senate Agriculture and Natural Resources Committee

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and Stone Laboratory**

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Natural Resources**

Good afternoon, Chairman Schaffer, Vice Chair Koehler, Ranking Member Hicks-Hudson, and members of this Committee. Thank you for the opportunity to testify today about the H2Ohio program, which is essential to sustain conservation efforts across Ohio's watersheds.

My name is Dr. Chris Winslow, and I am the Director of both the Ohio Sea Grant Program and The Ohio State University's Stone Laboratory. Stone Lab is Ohio State's island campus on Lake Erie, it sits within the College of Food, Agricultural, and Environmental Sciences' (CFAES) School of Environment and Natural Resources (SENR), and serves as the research, education, and outreach facility of Ohio Sea Grant. Ohio Sea Grant and Stone Lab are collectively supported by the university (including CFAES, SENR and Ohio State University Extension), the state legislature, and the National Oceanic and Atmospheric Administration's National (NOAA) Sea Grant Program. This federal NOAA Sea Grant Program is a network of 34 coastal-based programs dedicated to the protection and sustainable use of marine and Great Lakes resources.

Water quality is a statewide priority that impacts public health, and economic vitality. Every Ohioan deserves access to clean and safe water at home and in the recreational spaces that bring communities together. Ohio Sea Grant and Stone Laboratory are committed to providing the research, extension, and partnerships needed to help make informed, evidence-based decisions to protect and restore the state's water. Since 2015, for example, Ohio Sea Grant and Stone Lab have managed the Ohio Department of Higher Education's harmful algal bloom (HAB) Research Initiative, a statewide response to the threat of excess nutrients. This initiative was initially intended to help state agencies prevent and manage future algal issues, but is now helping to inform practices supported by the H2Ohio Program. 114 HAB Research Initiative projects have positioned Ohio as a nationwide leader in understanding this emerging global threat.

H2Ohio is one of Ohio's flagship water quality and conservation programs. A large portion of H2Ohio supports agriculture practices such as nutrient management, cover crops, subsurface nutrient placement, and drainage water management. These practices are critical for protecting our watersheds from excess nutrient inputs that drive HABs and ensuring clean,



safe water for every Ohioan. Many of these practices are expensive to deploy and often don't increase a farmer's yield or profit, some take years of deployment before farmers become comfortable with the new approaches and techniques, and some require years before nutrient reductions and yield increases are realized. H2Ohio is helping agriculture address nutrient loss and is engaging farmers who wouldn't be able to deploy practices without assistance, but this program needs more time to realize its full potential. The excess nutrient losses driving Lake Erie's harmful algal blooms, the bulk of which is related to agriculture in the watershed, will take years to address. Each year, funded research efforts running concurrently with the H2Ohio water quality program (e.g., HAB Research Initiative, USDA's research efforts, Great Lakes Restoration Initiative, etc.) inform new practice approaches, address farmers' questions and concerns, and help identify previously unknown nutrient sources. For example, we now know that old phosphorus (nutrients in the soil that were applied many years ago, not in the previous fall or spring) is a large contributor to harmful algal blooms. Research also highlights, more often than not, that acres with high soil phosphorus levels (more nutrients than a crop needs) are statistically more likely to lose nutrients to surrounding waterbodies and could be prioritized for H2Ohio funding. This information, which takes time to collect and analyze, has the potential to inform future updates to H2Ohio's tools and practices. The scientific research necessary to support the H2Ohio water quality program, as well as education and outreach programming with producers, is strong, but is still being developed and improved.

In addition to supporting agricultural practices needed to address nutrient loss associated with growing crops (e.g., rate of nutrient application, timing of application, and method of application), the H2Ohio program is also deploying wetlands to trap nutrient losses and runoff. Ohio Sea Grant was enlisted by the Ohio Department of Natural Resources (ODNR) under H2Ohio to work collaboratively with the Lake Erie and Aquatic Research Network (LEARN)—of which I am the executive director—and researchers from five Ohio universities in assessing the effectiveness and role of implemented and planned wetland restoration projects. The intention of this collaboration is to document the success of wetlands as long-term investments in water quality. Because of H2Ohio investments in wetland monitoring (not just wetland construction) across the state, we have been able to assess the efficiency of numerous designs to ensure that future wetland construction, restoration, and management will maximize the potential of these habitats to reduce nutrient movement downstream. ODNR is now able to improve wetland design, better manage existing wetlands, and efficiently modify existing wetland structures when they are not functioning optimally. These wetlands are young (not at their nutrient storing capacity peak) and the monitoring dataset is not yet robust enough to confidently inform all management decisions. Additional wetland construction and restoration projects and continued LEARN research will optimize ODNR's nutrient management decisions. The ODNR and LEARN wetland monitoring effort has notably cultivated partnerships with landowners, other state agencies, non-profits, and numerous conservation partners. The collaboration has also trained students and early career professionals in natural resource management and science.



The legislature's investment in H2Ohio is an investment in the state's economy as research has shown there is a correlation between healthy environments and healthy economies. The economic and environmental significance of Lake Erie is critical to recognize. For example, the eight counties that border Lake Erie generate more than \$20 billion in tourism dollars (approximately 30% of the entire state's tourism revenue), support 131,000 jobs, and yield approximately \$2.5 billion in taxes to the state. More than 11 million people get their drinking water from Lake Erie. Maintaining the H2Ohio budget is crucial to preserving these economic benefits and our natural resources.

Data collected and analyzed by the Ohio Lake Erie Commission, ODNR, and both the Ohio and U.S. Environmental Protection Agency indicate that nutrient reduction numbers are trending in the right direction. The first downward trend in nutrient inputs to Lake Erie can be seen around 2016, post the Toledo drinking water advisory of 2014. This aligns with when Ohio farmers, following education efforts co-led by OSU Extension, focused on adhering to the "nutrient reduction 4Rs" (i.e., applying nutrients are the right rate, right time, right place, and using the right source). The second downward trend observed in the data has occurred since 2022. This corresponds to H2Ohio agriculture practices making their way onto Maumee River Watershed acres. H2Ohio has facilitated farmers deploying 4R principles, which were hard to deploy in 2015 without incentives to make them affordable. This second downward trend in 2022 also corresponds to the creation and restoration of numerous H2Ohio-funded, DNR-deployed, and LEARN monitored wetlands.

The Ohio State University's College of Food, Agricultural, and Environmental Sciences remains committed to its land-grant and sea-grant missions of serving our state while addressing, through research, education, and Extension, the complex problems and opportunities before us. Together, we can address this challenge with systems thinking and the long-term investment it requires. Thank you for allowing me to speak about the impact of H2Ohio. I'd be happy to answer any questions.