

## Harmful Algal Blooms

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Harmful algal blooms (HAB) have been a concern in Lake Erie for decades, and the State of Ohio has a long history of developing solutions to address them. In support of these efforts, State agencies are often presented with new and innovative approaches for addressing HABs and other emerging issues. Since these technologies are typically innovative, proprietary, and span multiple scientific disciplines, state agencies alone are not best positioned to evaluate the efficacy and feasibility of these technologies. To guide the State in addressing HABs in Lake Erie, we are initiating the H2Ohio Technology Assessment Program (TAP) to solicit and evaluate emerging technologies that:



- reduce nutrient loading to rivers, streams, and lakes;
- remove nutrients from rivers, streams, and lakes;
- reduce the intensity or toxicity of algal blooms;
- recover nutrients from manure; and
- improve nutrient removal in wastewater treatment plants.

## H2Ohio Technology Assessment Program

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Through H2Ohio TAP, the state will solicit emerging technologies and, through a public advisory council and third-party technology vendor, seek to evaluate and validate technology proposals and facilitate demonstration projects to determine their effectiveness.

H2Ohio is specifically interested in evaluating technologies that meet at least one the following objectives as part of H2Ohio's water quality technology toolbox:

- **Reduce nutrient loading to rivers, streams, and lakes:** technologies that reduce nutrient loading by intercepting nutrients on land, improving nutrient application, or reducing the mobility of nutrients.
- **Remove nutrients from rivers, streams, and lakes:** technologies that produce a valuable product rather than waste stream, require low energy inputs, or require minimal operational efforts.
- **Reduce the intensity or toxicity of algal blooms:** technologies that can scale to the size of Lake Erie, require minimal operational efforts, or convert HABs into a product.
- **Recover nutrients from manure:** technologies that cost effectively convert manure into a valuable and transportable fertilizer resource, focusing on regional or onsite use of the technology.
- **Improve nutrient removal in wastewater treatment plants:** technologies that produce a valuable product rather than waste stream, or more efficiently remove nutrients than currently used technologies.

## H2Ohio TAP Team

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A public advisory council, under the Ohio Lake Erie Commission, will advise the State in its initial review of technologies. The public advisory council will represent a broad cross section of interests and will include non-governmental organizations, private corporations, and state agencies. Members will have expertise evaluating technologies to reduce nutrient loading, experience addressing HABs in Lake Erie, or experience evaluating other types innovative technologies.

### Technology Selection Process

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Technology suppliers seeking to participate will submit concept proposals in response to a formal request for technologies (RFT), which will be issued in October 2020. Technologies received through the RFT will be narrowed to 10 by the H2Ohio TAP Team, using the following scoring criteria:

- Innovativeness
- Maintenance and operational requirements
- Feasibility
- Scalability and nutrient reduction potential in Lake Erie Basin
- Readiness and implementation lead time
- User receptiveness
- Risk
- Community perception and environmental justice
- Past validation and available data
- Cost
- Adjustment from Vendor: ability to perform review
- Adjustments from H2Ohio

### Third-party evaluation

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The final list of 10 technologies will undergo an independent scientific evaluation led by Tetra Tech. These top 10 technologies will propose demonstration projects and submit more comprehensive information and data under the protection of a non-disclosure agreement. The comprehensive evaluation will then include the following:

- a fatal flaw analysis;
- review of previous implementation of the proposed technologies or similar technologies;
- evaluation of scalability;
- information gap evaluation;
- evaluation of cost including project total and per unit of nutrient reduced/removed;
- feasibility review for the proposed demonstration project;
- feasibility review for full scale implementation; and
- statement of probability of success.

### Time Frames for the Technology Verification Process

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Four virtual meetings, each lasting no longer than two hours, are planned between September 2020 and March 2021. Between meetings, members will review and comment on draft documents and score a subset of the technology proposals received.

### Use of Report and Next Steps

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The goal of the H2Ohio TAP is to facilitate demonstration projects. While specific funding cannot be guaranteed at this time, H2Ohio intends to pursue funding for select projects with appropriate federal, state, and philanthropic funding sources. Selected technologies will undergo a third-party independent review, and applicants will receive a copy of the report to supplement grant applications and marketing materials. Reports will also be made publicly available on the H2Ohio website. Letters of Support, consistent with the results of the final reports, will be provided where appropriate. H2Ohio will also share the final reports with applicable state agencies, as well as provide an opportunity for applicants to present their technologies at an H2Ohio Technology Assessment Program seminar/webinar.

Successful applicants will be given the opportunity to participate in the Cleveland Water Alliance's (CWA) water accelerator program, Cleveland Innovation Project. The CWA is one of the world's leading freshwater Blue Economy Innovation Clusters and focuses on leveraging technology to drive regional economic development.

### Contact Information

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