CFAES

OHIO SEA GRANT AND STONE LABORATORY

OUTREACH

Stone Lab Oversees Water Testing to Keep Lake Erie Island Residents' Drinking Water Safe

Impact Statement 2020

INVESTIGATOR

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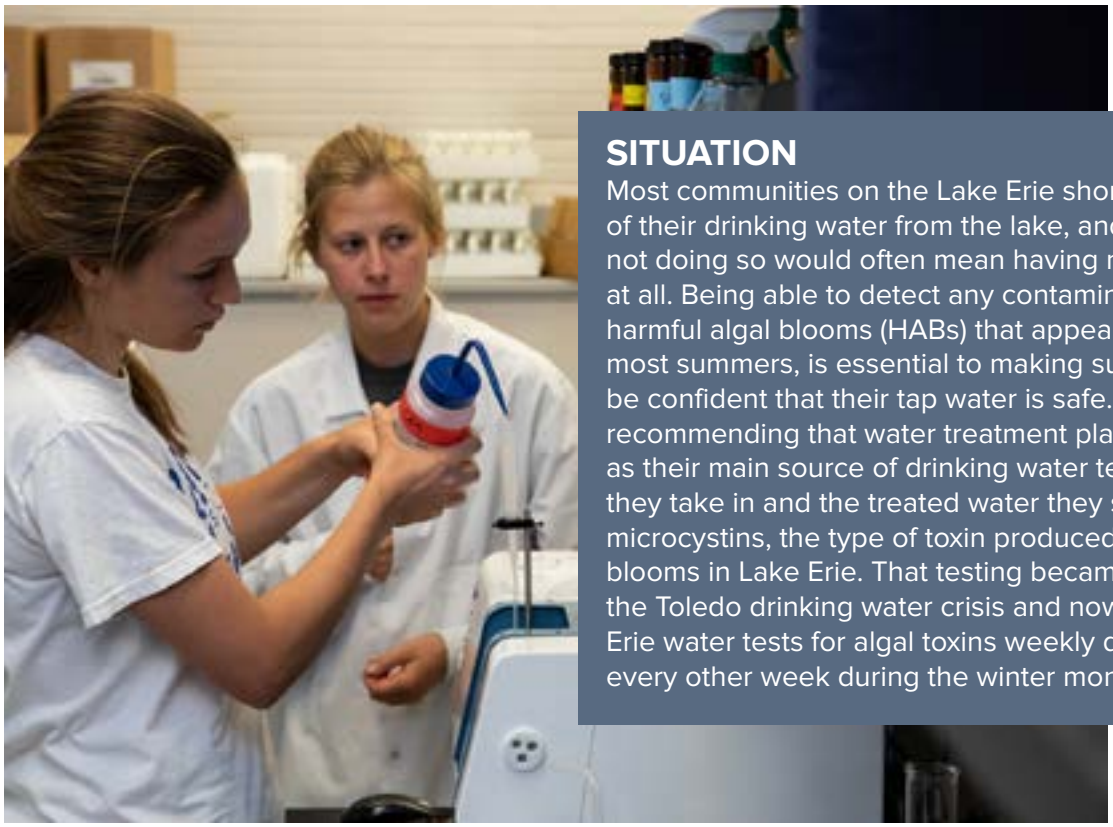
SUMMARY

Since the Toledo water crisis in 2014, Stone Laboratory has worked with the Ohio Environmental Protection Agency (OEPA) to provide weekly water testing for its Lake Erie island neighbors to keep drinking water safe from harmful algal bloom toxins for these Ohio residents.



SITUATION

Most communities on the Lake Erie shoreline draw at least some of their drinking water from the lake, and for the Lake Erie islands, not doing so would often mean having no easily accessible water at all. Being able to detect any contamination, such as toxins from harmful algal blooms (HABs) that appear in western Lake Erie most summers, is essential to making sure island residents can be confident that their tap water is safe. In 2014, OEPA began recommending that water treatment plants that use surface water as their main source of drinking water test both the raw water they take in and the treated water they send out to customers for microcystins, the type of toxin produced by most harmful algal blooms in Lake Erie. That testing became mandatory soon after the Toledo drinking water crisis and now any plant drawing Lake Erie water tests for algal toxins weekly during the summer and every other week during the winter months.

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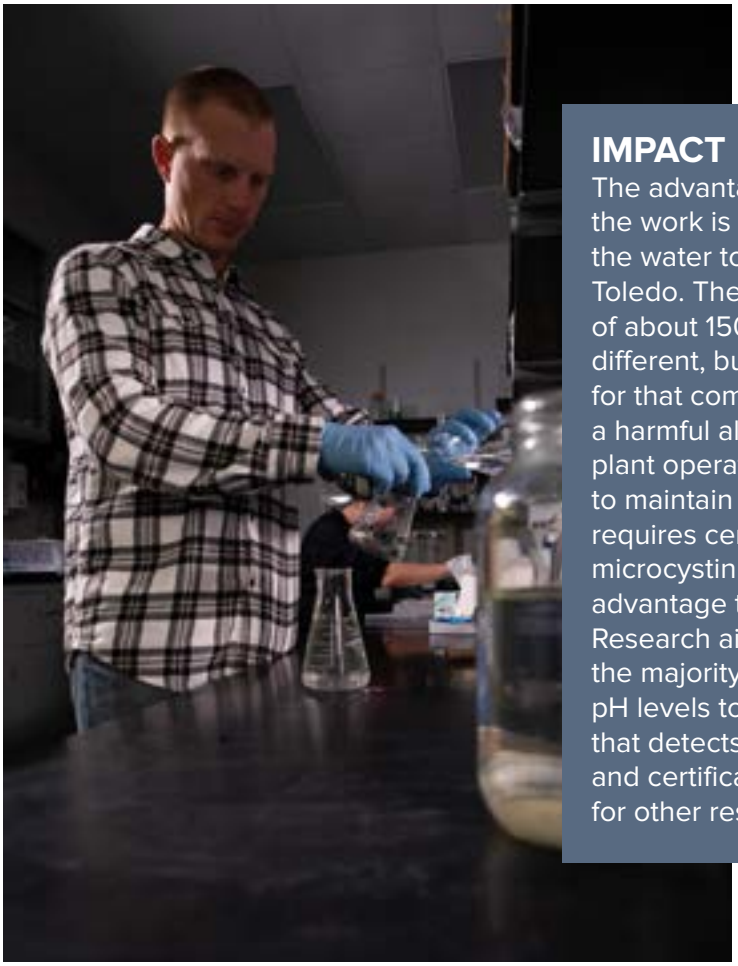
RESPONSE

Because smaller water treatment plants like those on the Lake Erie islands aren't set up to run the required tests themselves, they have to find a lab to provide them with this important safety information. That's where Stone Lab's Algal and Water Quality Lab comes in. The lab on South Bass Island, right by downtown Put-in-Bay, offers microcystin testing to anyone who needs it. The lab performs testing for four water treatment plants on South Bass, Middle Bass and Kelleys Islands. Research coordinator Dr. Justin Chaffin and his team receive samples for analysis every Monday during the summer, with data sent back to the treatment plants and OEPA.



IMPACT

The advantage of having samples tested at Stone Lab is that the work is kept right on the islands, instead of having to send the water to a lab on the mainland, such as to Columbus or Toledo. The main toxins of concern are microcystins, a collection of about 150 types of harmful algal bloom toxins that are all slightly different, but share a common general structure. The test looks for that commonality, measuring the total microcystins produced by a harmful algal bloom. This information is critical to water treatment plant operators who may need to adjust their treatment processes to maintain safe drinking water for area residents. Because OEPA requires certification for both the labs and the staff performing the microcystin tests, having them done at Stone Lab adds another advantage to larger commercial labs: professional development. Research aides, who are usually recent college graduates, perform the majority of the testing during the summer, from chlorine and pH levels to the enzyme-linked immunosorbent assay (ELISA) test that detects any microcystins in the water samples. That training and certification always looks good on a resume when they apply for other research lab positions in the future.

CONTACT

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