I4. Future Lake Erie Monitoring and Assessment

Ohio EPA recognizes the need to develop a sustainable, long-term plan to monitor Lake Erie, both to support Ohio's water resource and to support assessment of the lake ecosystem objectives identified in the Great Lakes Water Quality Agreement (GLWQA). Long-term monitoring will need to provide data to evaluate water quality trends, assess the effectiveness of remedial and nutrient reduction programs, measure compliance with jurisdictional regulatory programs, identify emerging problems and support implementation of the remedial action plans in Ohio's four Areas of Concern (more information about Areas of Concern is available in Section C1 of this report).

Ohio EPA is currently evaluating the results of the monitoring effort funded by the Great Lakes Restoration Initiative (GLRI) grant and will use the data to develop a cost-effective and sustainable long-term monitoring strategy. Tracking spring phosphorus and summer chlorophyll concentrations at ambient stations on an annual basis will be one component, as will measuring physical profiles at transect locations used to track hypoxia/anoxia in the hypolimnion of the Central Basin. A schedule for biological monitoring of the shoreline assessment units will need to be developed to measure trends in attainment status for future IRs. Decisions regarding the collection of mayfly, phytoplankton, zooplankton and periphyton samples will also need to be made.

For the assessment of algae impacts and attainment of designated uses related to algae, Ohio EPA will continue collaborating with universities and other agencies to determine appropriate monitoring locations, frequencies and parameters, as well as how that data collection can be sustained.

In 2017, Ohio EPA collaborated with researchers from the University of Toledo, Bowling Green State University and the Ohio State University/Stone Laboratory to develop a pilot sampling program for the Ohio portion of the Lake Erie open waters. The locations of the sampling are illustrated in the blue box outlined sites in Figure I-1. These locations were chosen to supplement data being collected at other sites on the map by other parties to provide a more complete representation of the open water status. The other sites on the map are those where data is collected at least two times per month and include the desired parameters (for example, chlorophyll and microcystins).

The researchers at the Ohio State University/Stone Laboratory, University of Toledo and Bowling Green State University have obtained funding to continue to collect the data at the sites shown in Figure I-1, as well as four sites in the Sandusky Bay, for the next two years. They are working with Ohio EPA to ensure the data is credible level 3, with the expectation that it will be used in conjunction with satellite image products from the National Oceanic and Atmospheric Administration (NOAA) to provide a comprehensive assessment method for algal blooms in the open waters for future 303(d) lists (for example, to include microcystin or other cyanotoxin metrics).

NOAA continues to collect data at seven sites in Ohio water and the Northeast Ohio Regional Sewer District collects data at eight sites in the central basin of the lake. To maximize resources and contribute to a monitoring network that can effectively inform management decisions and provide statistically relevant data, Ohio EPA will continue to collaborate with other state, federal and local partners as well as the universities.

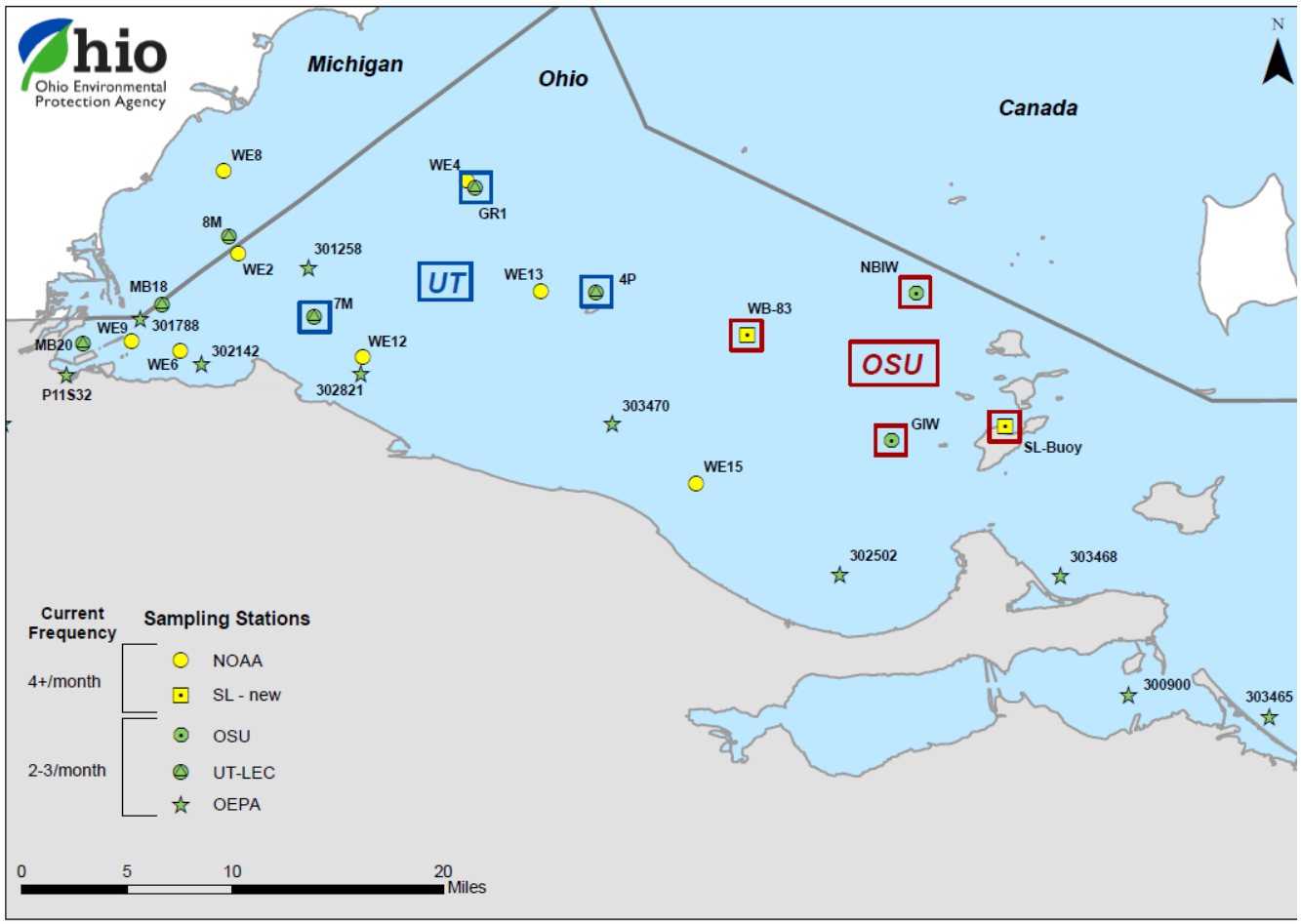

Figure I-1 — Supplemental weekly sampling locations for chlorophyll and microcystin; sampled by University of Toledo and the Ohio State University/Stone Laboratory (boxed sites) researchers in 2017.