

**\*\*ABSTRACT NOT FOR CITATION WITHOUT AUTHOR PERMISSION.** The title, authors, and abstract for this completion report are provided below. For a copy of the full completion report, please contact the author via e-mail at [xbtan@egr.msu.edu](mailto:xbtan@egr.msu.edu). Questions? Contact the GLFC via email at [research@glfc.org](mailto:research@glfc.org).

## Automated Water Sampler

Project ID – 2022\_Tan\_791010

by:

**Xiaobo Tan**<sup>1</sup>

<sup>1</sup> Department of Electrical & Computer Engineering, Michigan State University, 428 S. Shaw Lane, Rm. 2120 Engineering Building, East Lansing, MI 48824

August 2023

### **ABSTRACT:**

In this project an automated water sampling device was designed, prototyped, and further refined for collecting water samples from interstitial spaces at the bottom of a water body. In the first phase of the project the design was completed, and seven units were prototyped and deployed for water sample collection at the Buffalo Reef in Lake Superior. Based on the sampling results, the design was further improved to eliminate possible sources of contamination from the device itself, and to simplify the cleansing procedure before deployment. A total of ten sampling units were finally produced, with nine successfully deployed for sample collection at multiple spawning sites for lake trout and lake whitefish at the Buffalo Reef.