Great Lakes Observing System

# 2019 Annual Impact Report

www.glos.org

# Director's Letter

Conversations over the past few years with policy makers, researchers, and stakeholders led us to a realization: **our region has a big opportunity.** Using smart technology, the Great Lakes region has the chance to become more connected than ever, allowing us to understand the entire watershed in new ways.

We're calling this vision Smart Great Lakes. It means advancing technology applications that improve our understanding, management, and use of the Great Lakes. And this year, we launched the Smart Great Lakes Initiative to gather partners who share the vision. Starting now, we will work to strengthen this initiative and develop a technology platform that can enable the flow of data and information to make Smart Great Lakes possible.

And this past year, we worked on projects that move us closer to realizing the vision. We and our partners began to build a better way for water managers to understand harmful algal blooms, tested new, potentially life-saving technology in the Straits of Mackinac, and supported better mapping of the underwater environment.

I hope you will enjoy learning about 2019 and that you will support **Smart Great Lakes in 2020 and beyond.**

**Kelli Paige,** Chief Executive Officer

## Building a harmful algal bloom early warning system in Lake Erie

When harmful algal blooms (HABs) form in western Lake Erie, water treatment managers have to make dozens of critical decisions to keep water safe. To understand the bloom, they must monitor multiple data sources including real-time sensors, field samples, and email forecasts.

This effort, part of the IOOS Ocean Technology Transition (OTT) project, is to create a system that aggregates the data and sends actionable information right to mobile devices so managers and others can better understand a potential bloom and react more effectively.

This year, Great Lakes Observing System (GLOS) and partners worked to:

1. Deploy more sensors at water treatment facilities
2. Complete an early-stage prototype system
3. Survey communities to understand attitudes toward an alert system

A water treatment specialist calibrates sensors used to monitor water quality.

**In 2020 the team will work to move the system toward operational status.**

### Partners and Collaborators

NOAA Great Lakes Environmental Research Laboratory
NOAA National Centers for Coastal Ocean Science
The Ohio State University
LimnoTech
Cleveland Water Alliance
Cooperative Institute for Great Lakes Research
RPS Group

## GLOS supports underwater mapping efforts

For most of the Great Lakes lakefloor, there is no high-resolution map, even though it is a crucial part of understanding the entire lake environment. The Great Lakes Bottom Mapping Workgroup is collaborating to create these continuous, high-resolution maps and datasets covering bathymetry, habitat, maritime cultural resources, and biology.

This year, in partnership with the U.S. Geological Survey, GLOS hired a data coordinator, Linden Brinks, to help facilitate the group's work.

**Find out more at glbottommapping.glos.org**

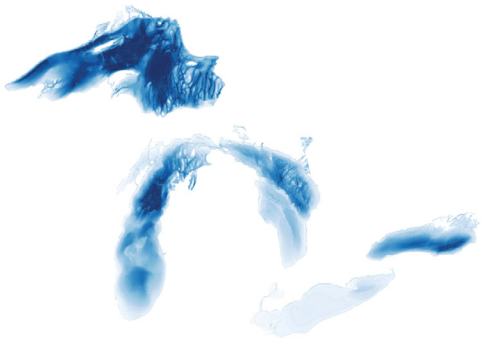


Image courtesy of mapTO.ca | Data sources: NOAA, Natural Earth

Drs. Lorelle and Guy Meadows at the HFR installation site | Photo by Nathan Shaiyan/Michigan Tech

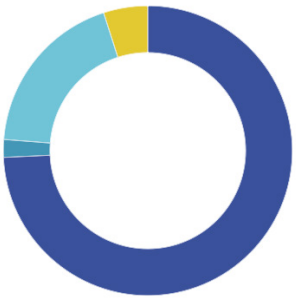
## High-frequency radar comes to the Great Lakes

Soon, high quality surface current information will be available for the Straits of Mackinac thanks to high-frequency radar (HFR), a technology new to the Great Lakes.

Funded by GLOS, Michigan Technological University researchers Guy and Lorelle Meadows are working to test and install the system. Using radio waves, HFR creates a near real-time map of surface currents extending miles from shore.

Once installed, HFR can enable better spill cleanup, navigation, and even search and rescue.

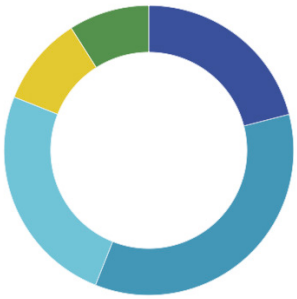
# Financials



Revenues:

**$3,190,000.00**

- IOOS Program: General.....75%
- Adopt a Buoy: Cleveland.....2%
- IOOS Ocean Tech. Transfer.....19%
- USGS.....5%



Expenses:

- Manage and Build GLOS.....21%
- Observing Activities.....35%
- Data Management.....25%
- Models, Apps, and Tools.....10%
- Outreach and Communications.....9%

# 2019 Numbers

**299,000**
GLOS Users

**70,000**
More Users Than in 2018

**10**
New Live Data Devices

**293,000**
Texts Sent to Buoys

**40,000**
Texts received by Buoy 45029

**25**
Water Quality Sensors Maintained




great lakes observing system

## Oh buoy! Stay connected!

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IOOS

**Great Lakes Observing System is the Great Lakes regional association of the Integrated Ocean Observing System (U.S. IOOS). Visit ioos.noaa.gov for more information.**

smart great lakes