



Great Lakes Observing System

Annual Impact Report

2018

The Great Lakes Observing System
coordinates Great Lakes data collection,
management, and sharing

From Our Executive Director

Kelli Paige

Thinking Strategically, Getting Smarter

Big data means bigger decisions.

It means gathering a huge amount of data and being able to leverage it into useful information. In the Great Lakes, we hear a common complaint that while there is an overwhelming amount of data, it's just not easily accessible or being used to its fullest potential. That said, the trend is changing. We continue to see increasing energy in the Great Lakes around improving the way we collaboratively collect, manage, share, and translate data into actionable information.

The GLOS network understood the value of big data before it was trendy, and right now, we're asking how GLOS can best position itself to support the evolving information needs for our partners across the basin. How can we help advance the use of big data and innovations in technology to support "smarter" Great Lakes management and policy?

Right now, we are preparing to update our strategic plan. Through reviewing surveys, usage data, focus group insights, and other

metrics, we're working to steer GLOS toward providing the maximum value to our stakeholders. In cooperation with the full consortium of regional partners, GLOS can help the region capitalize on the opportunities created by big data and can realize a smart Great Lakes.

As a member of the GLOS network, your input is critical in shaping our future. Thank you for your ongoing support and commitment to data sharing and applied science. I hope you'll take full advantage of the opportunities we make to give your feedback and insight to support our future planning so we can better support your future endeavors. And of course, feel free to reach out to me directly anytime.



A stylized, handwritten signature of Kelli Paige in white ink.

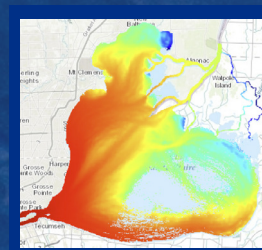
Kelli Paige
Executive Director
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Featured Projects

- Buoy 45029, Port Sheldon
- Huron-Erie Corridor
- Toledo, Ohio

Huron-Erie Corridor safer with new spill modeling tool



An industrial and shipping hotspot, home to multiple refineries and factories, the Huron-Erie Corridor is an area especially vulnerable to pollution from chemical spills. Helping resource managers understand how a toxin can spread through the waterway is crucial in keeping communities safe.

As part of ongoing work by GLOS/NOAA Great Lakes Research Lab to simulate spill scenarios, this project expanded spill modeling to include downstream Lake St. Clair and the Detroit River, developing geospatial model results and creating a user-friendly interface as part of the GLOS Data Portal.

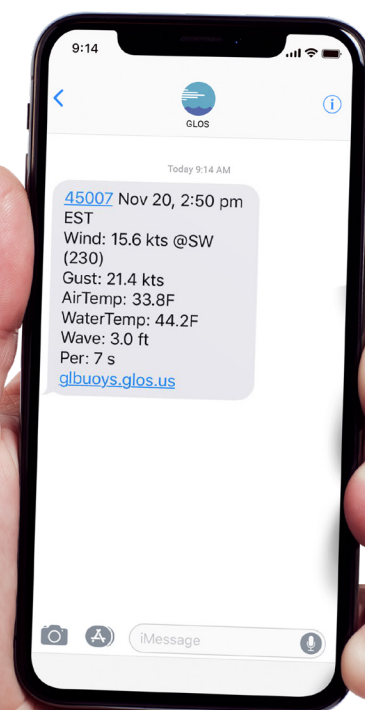
Lake-lovers get data they need **via text**

Access live buoy data right from your phone.

Live conditions from buoys are now available via text for any user with a single bar of cell service. Funded by GLOS, LimnoTech, an environmental science and research firm, built a messaging service that lets users text a buoy number, like 45007, to 866-218-9973 and get an immediate text back with up-to-date information like water and air temperatures, wind speeds, and wave heights.

The service gets users immediate access to conditions without opening a web browser. The feature earned a large following in the wake of an article published on Cleveland-based blog, Rock the Lake.

In 2018, users texted buoys over **208,340** times and texted the most popular buoy, 45029 in Port Sheldon, MI, over **36,630** times.



Stay up-to-date, access real-time and historical data, or get in touch at **www.glos.us**

Ocean Technology Transition:

Building a harmful algal bloom early warning system in Lake Erie



Thanks to the IOOS Ocean Technology Transition (OTT), a federal project designed to speed technology from research and development into operation, western Lake Erie will soon have a better way to anticipate harmful algal blooms (HABs). As residents of the region know well, this can mean keeping toxic microcystin out of municipal water supplies. This year, GLOS kicked off work developing an early warning system (EWS) that utilizes environmental sample processors (ESPs) to monitor water conditions and relay this data to water managers in near real-time.

Enabled by a \$2.1 million grant, this EWS will help to address what is increasingly becoming a global health and safety concern. In Lake Erie, HABs often begin as nutrient-rich river water drains into the warm lake triggering the growth of a type of blue-green algae that creates a toxin called microcystin. In the late summer of 2014, microcystin levels in Toledo tap water exceeded what is recommended by the World Health Organization, triggering a roughly three-day "Do Not Drink" advisory.

When our project is completed, equipped with live data from ESPs positioned throughout areas of concern, western Lake Erie water managers will be able to anticipate outbreaks of harmful algae and react accordingly to ensure that toxic water never makes it to people's taps. In addition, this project will integrate this new data into GLOS' Lake Erie HABs Data Portal, allowing wider access to this crucial dataset.

GLOS is working directly with NOAA's Great Lakes Environmental Research Lab and National Centers for Coastal Ocean Science, LimnoTech, Ohio Sea Grant, and the Cleveland Water Alliance.

Other partners include University of Toledo, Heidelberg University, Bowling Green University, U.S. Geological Survey Great Lakes Science Center, National Weather Service, Environmental Protection Agency, drinking water treatment plants in the cities of Toledo and Cleveland, and other Lake Erie drinking water treatment plants.



GLERL's ESP Niagara test deployment, June 2016.

Credit: NOAA Great Lakes Environmental Research Laboratory.

Year One

- + Engaged stakeholders
- + Purchased and tested ESPs
- + Secured core observing assets

Year Two

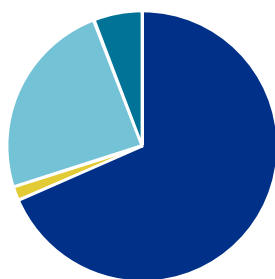
- + Refine Early Warning System definition
- + Add assets
- + Begin design of user interface

Year Three

- + Launch and implement the early warning system

2018 Financials

GLOS is funded primarily
by U.S. IOOS



Revenues:

IOOS Program - General.....	68%
IOOS Ocean Tech Transfer.....	24%
USGS.....	6%
Adopt a Buoy - Cleveland.....	2%



Expenses:

\$2,918,000.00

Observing Activities.....	27%
Data Management.....	27%
Manage and Build GLOS.....	26%
Models, Apps and Tools.....	11%
Outreach & Communications.....	9%

Thank you to our annual meeting sponsors



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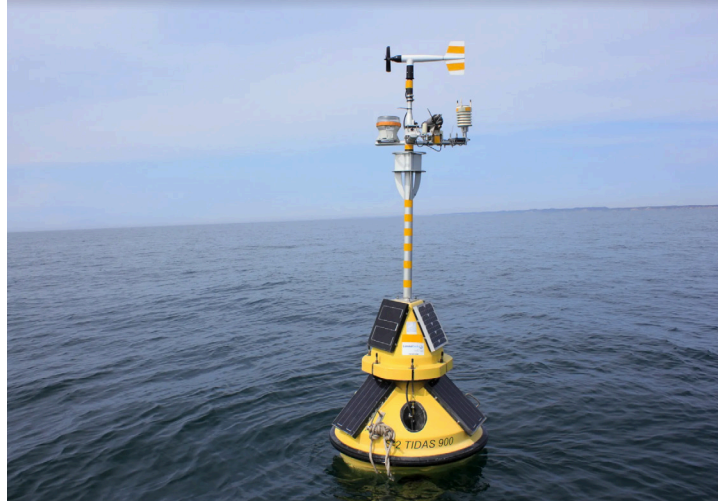
Data Services Manager

David Fitch

Communications Specialist

www.glos.us

2018 Numbers



Buoy 45029 floats outside Port Sheldon, Michigan.

Credit: E. Verhamme, LimnoTech



**75 observing
stations**



**200,000 new users
in 2018**



**41,000 users in
6 days (July 22-28)**



**17.8 feet reached
by tallest wave**



**36,632 texts received
by buoy 45029**



**208,340 texts
received by buoys**



**84,000 people
viewed buoy 45029**



GLOS is the Great Lakes entity of the Integrated Ocean Observing System (U.S. IOOS). IOOS works with regional partners to provide new tools and forecasts to improve safety, enhance the economy, and protect our environment by ensuring compatible and consistent ocean and coastal data collection, management, and information product production across the nation.



The IOOS Association is a non-profit organization formed by the Regional Associations (RAs) for Coastal and Ocean Observing in support of the U.S. IOOS. It works with the 11 RAs, the U.S. IOOS Program Office in NOAA, and other partners to address the nation's need for coastal observing and information.

Oh buoy! Stay Connected!

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