



2020 Annual Impact Report

Great Lakes Observing System

A letter from our chief executive officer

Though we'll all remember 2020 as the year COVID-19 turned everything inside out, at the Great Lakes Observing System, we'll also remember 2020 as a year of exciting change and innovation, in spite of everything.

This spring, we were welcoming new team members, planning development of a new IT platform, and recruiting leadership for the Smart Great Lakes Initiative. And then the pandemic arrived.

We began to hear from partners who were having to delay or scrap plans to deploy buoys or maintenance weather stations. Critical meetings and conferences were being postponed or retrofitted for the screen. As the pace of everything slowed down, we wondered if we'd lose too much momentum or if we would even see observing systems in the water this year.

Despite these challenges, our staff and partners reimagined how to collaborate virtually, work around limitations, and maintain access to critical data.

One effort, in particular, that is progressing in spite of everything is the Smart Great Lakes Initiative (SGLi). Since the spring, we've seen a cohort of binational, cross-sector leaders engage with and support the vision. I'm encouraged and inspired by the commitment and energy our colleagues are putting into this initiative. As I write this they're writing a common strategy and beginning to spark key conversations on how we can use technology to better understand, use, and manage these lakes. (You can learn more at smartgreatlakes.org.)

It's impressive how much has been accomplished, in spite of everything, and I am so grateful for your perseverance and commitment to the Great Lakes.

Take care,

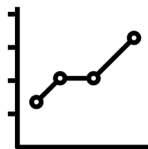
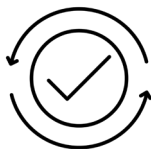


Kelli Paige, Chief Executive Officer
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Building an information technology platform for the Great Lakes

Millions of decisions each year depend on up-to-date, accurate information on the lakes, but accessing such information can be out of reach for many who don't have quick access to live data from computer models, buoys, weather stations, and more.

For many, devices like buoys and sensors are still too expensive to maintain. And for others, it's often too cumbersome to share data with others. The result is that many, including researchers, water treatment managers, boaters, and beachgoers go without data that could help them make better decisions.



This year, GLOS took a big step toward solving this problem by kicking off development of a new information technology platform called Seagull. This system will make it simple for professionals and community scientists to upload data from

sensors, models, or other sources and publish that data live so everyone can see it, analyze trends, receive alerts, and stay on top of what's going on in the water, making in-water technology investments go further and have a wider impact. And because Seagull is a platform, it will be open to other applications and able to scale with the region's needs.

As more devices go into the water, the platform will also simplify critical data management and quality control tasks to help ensure information is accurate and actionable. Intended to be the software infrastructure needed to support the Smart Great Lakes vision, Seagull will be a catalyst for a new chapter in our public understanding of the lakes and smart decision-making.



Seagull will go live in 2021.
Learn more at glos.org/seagull.

GLOS expands in-house observing technology leadership

In order to maintain and expand the observing network, GLOS brought on two new, observing-focused staffers: Ana Sirviente, PhD, as chief technology officer and Shelby Brunner, PhD, as observing technology manager.

Ana oversees the existing observing system, sets priorities, and leads adoption of new technologies, while Shelby focuses on directly supporting partners as they deploy, service, and build in-water hardware like buoys, gliders, and other data collection platforms.

Learn more at glos.org/staff-board.



Hired in 2020, the “obs team” is composed of Ana Sirviente, PhD and Shelby Brunner, PhD.

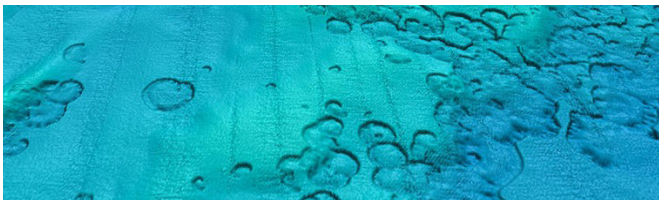


GLOS leads an effort to map the Great Lakes in detail

Great Lakes bathymetry data is severely limited. In many areas, it is difficult to understand changing lake levels and wildlife habitat, do accurate modeling and analysis, and measure underwater processes.

In response, GLOS is helping lead a grassroots movement to map the entire Great Lakes by 2030. GLOS staffers are coordinating an ultra-high resolution survey in the Detroit River, helping to lead the Great Lakes Bottom Mapping Working Group’s campaign to pinpoint high-priority areas for future mapping, and co-leading the Lakebed 2030 effort. Lakebed 2030 is currently crafting a strategy for regional lakefloor mapping, generating public awareness, and fundraising.

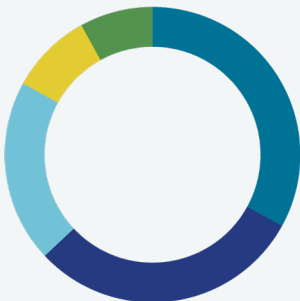
Learn more at lakebed2030.org.



Two images show the lake floor of Thunder Bay in Lake Huron: (Above) An image created using bathymetry data. Photo by Ocean Exploration Trust/NOAA. (Below) The wreck of the EB Allen. Photo by NOAA.

Financials

Program Revenue:
\$2,197,284



Expense Breakdown:

- Observing Activities.....33%
- Manage and Build GLOS.....30%
- Data Management.....20%
- Models, Apps and Tools.....9%
- Outreach and Communications.....8%

2020 Hardware Upgrades



2 Gliders



2 Temperature Sensor Strings



2 Data Transmitters



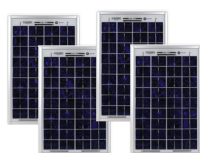
3 Wave Sensors



2 Blue-green Algae Sensors



2 Turbidity Sensors



4 Solar Panels



15 Data Loggers



6 4G Modems



2 Weather Stations



1 pH Sensor



2 Buoys



2 Water Quality Sondes

Cover Photo by Sofar Ocean | Slocum G3 glider, Photo by Teledyne Webb Research | NextSens TS201 temperature sensor string | aquaHub II data transmitter, Photo by Innovasea | Seaview wave sensor SVS-603 | Aquameasure POD blue-green algae sensor, Photo by Innovasea | YSI EXO Turbidity sensor | Amereco Solar J-Type | NextSens X2 data logger | Sierra Wireless RV50 4G modem | Lufft WS600 weather station | YSI EXO Unguarded pH sensor | Spotter V2 buoy, Photo by Sofar Ocean, Nextsens CB-650 | YSI EXO2 water quality sondes.

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Ana Sirviente, Chief Technology Officer

Becky Pearson, Chief Operations Officer

Tim Kearns, Chief Information Officer

Katie Rousseau, Smart Great Lakes Liaison

Shelby Brunner, Observing Technology Manager

Sneha Bhadbhade, Data Services Manager

Linden Brinks, Data Coordinator

David Fitch, Communications Specialist



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



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