great lakes observing system

Great Lakes information in your hands.

GLOS provides end-to-end data services that support science, policy, management, and industry in the U.S. and Canada.

2022 Annual Impact Report

glos.org

Seagull multiplies the value of lake data

Every year, people are getting smarter about interacting with their environment, and that includes using technology to learn about the Great Lakes. They wonder if their drinking water is safe, if their livelihood is now altered due to warming lakes, or simply if lake conditions are favorable for a safe day on the boat.

- This April, we launched Seagull, a new platform for Great Lakes data, built to support the New Blue Economy.
- It handles data from a growing network of 40 organizations that run nearly 200 buoys, sensors, and other real-time monitoring platforms.

This award-winning web app puts the region's observing network into the hands of anybody, for free, in real-time, so they can visualize the data and make better decisions.
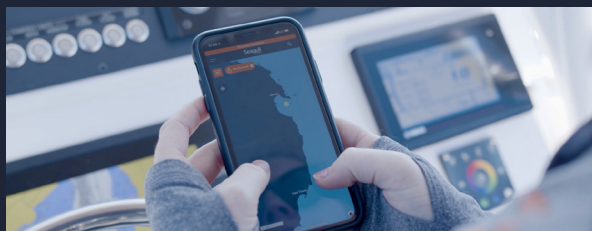

Photo by DIG

Conceived as infrastructure for the public good, Seagull is a cloud-based Internet of Things platform that can scale as the region's observing capacity grows and information needs change.

- Seagull can connect with other data systems so others can build new apps using shared data.
- This shared data is massively valuable. A 2021 study found that the information GLOS serves is worth about $18 million per year. GLOS currently operates on roughly a $3 million budget annually. Read the report at glos.org/2022valuation.
- With the launch of our new Seagull platform, we hope to expand the online observing network to provide even more value to more people across the region.

Try it at seagull.glos.org.

$3M — Approximate Yearly Budget

vs.

$18M — Yearly Value Created

Mini-grants invested in 24 smart, sustainable projects

When we called for Smart Great Lakes mini-grant proposals in 2021, we were overwhelmed with the response.

We were able to support 24 of the more than 90 proposals. The diverse projects involved deploying new buoys, equipping old platforms to share data publicly, connecting platforms from the watershed, and supporting an Indigenous community-led monitoring effort.

Together, these projects are just a sampling of the innovative ways Great Lakes people can address Great Lakes challenges, given the proper funding.

- GLOS invested $1.1 million across 24 projects.
- Many projects were composed of partners from multiple sectors.
- The 43 grantee organizations represented individuals, organizations, and institutions from the U.S., Canada and Indigenous communities.
- Many of the projects have plans to continue after the mini-grant funding ends.
- More than 50 monitoring platforms began sharing data publicly through these grants.

Learn more at smartgreatlakes.org.

Bima'azh Mini Grant Project

The Bima'azh project supported members of the Saugeen Ojibway Nation and researchers as they monitored the behavior of at-risk lake whitefish in Lake Huron. Photo by Mary-Claire Buell

Panther Buoy Mini Grant Project

Panther Buoys are low-cost, open-source monitoring platforms developed at the University of Wisconsin-Milwaukee. Photo by Todd Miller

Lakebed 2030 gets practical about mapping the remaining 85% of the lakebed

Since 2019, Lakebed 2030 has grown from a back-of-napkin concept to a full-fledged initiative with the enthusiastic support of NOAA and the Canadian Hydrographic Service (CHS).

- In 2020, GLOS published "Costs and Approaches for Mapping the Great Lakes," which found that a complete, high-density map of the lakebed is doable with today's technology and would cost $200 million.
- As part of NOAA's Ocean Decade plan, NOAA and CHS are writing a Lakebed 2030 strategic plan, with GLOS' help.
- NOAA Office of Coast Survey is focusing on mapping the Great Lakes, including by bringing the NOAA Ship Thomas Jefferson back to the waters this past summer to map for the first time in decades.
- NOAA Office of Coastal Management awarded GLOS Regional Ocean Partnership funding in 2023 for Lakebed 2030 planning, data management, and survey missions.
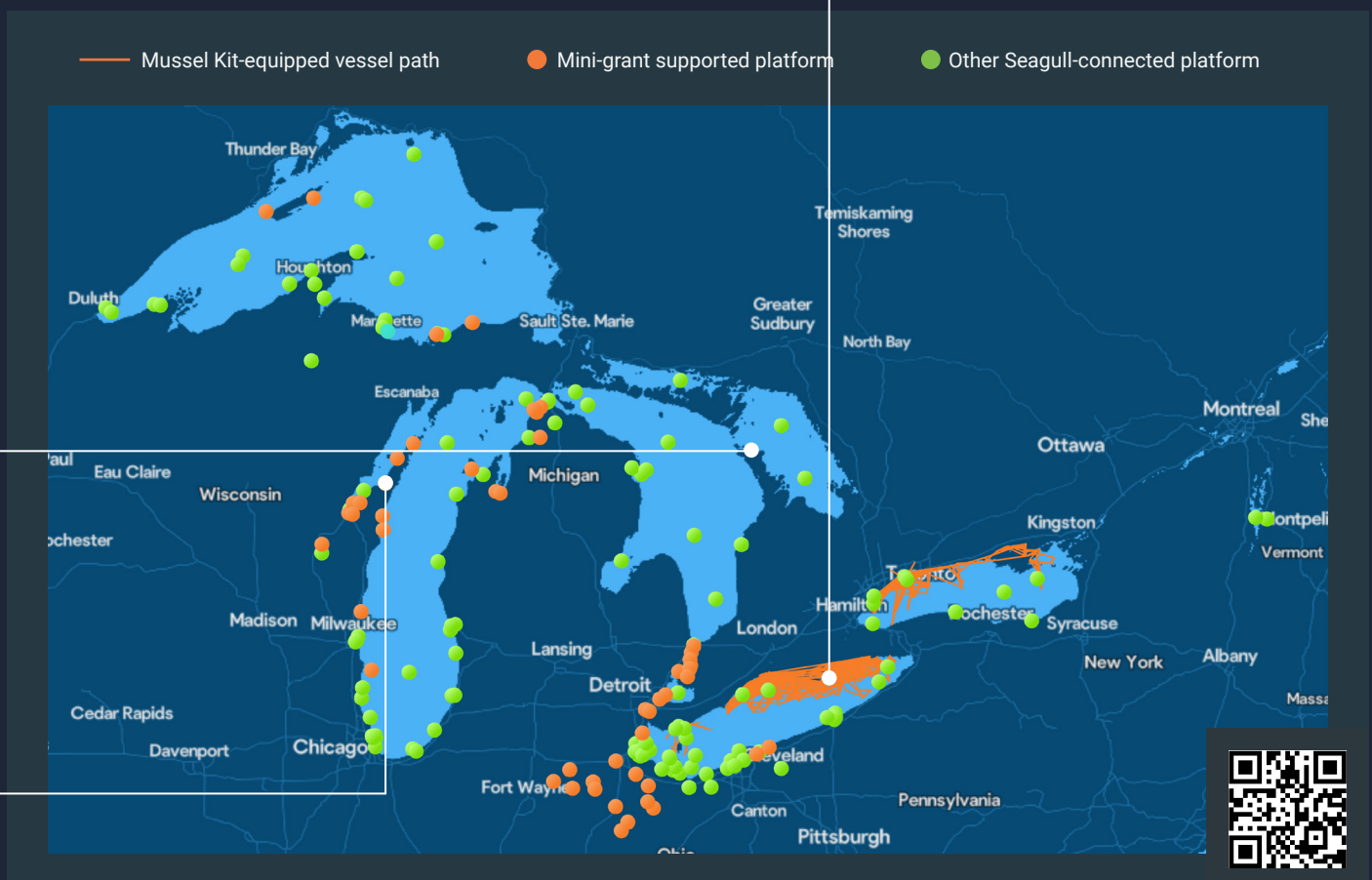
Learn more at lakebed2030.org.

In 2022, the NOAA Ship Thomas Jefferson returned to map in the Great Lakes for the first time in decades.
Photo by NOAA

Mussel Kits Mini Grant Project

Mussel Kits turn fish finders on ordinary vessels into basic lakebed scanners that automatically send depth data to a public database. So far, they have collected data over 13,500 miles.

Mussel Kit-equipped vessel path ● Mini-grant supported platform ● Other Seagull-connected platform

2022-2023 Financials

Program Revenue:

$4,290,100

Expense Breakdown:

- Observing Activities...............................36%
- Manage and Build GLOS........................33%
- Data Management..................................19%
- Outreach and Communications..............12%

Our Board Members

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Smart Great Lakes Liaison

Linden Brinks
Geospatial Analyst

Shelby Brunner
Observing Tech. Manager

Sneha Bhadbhade
Senior Advisor

Our Partners

A sincere thanks to all those across the region who've collaborated with us over the past few years.
We look forward to what's next!

Aqua Ohio
Avon Lake Regional Water
Bowling Green State University
Canadian Integrated Ocean Observing System
Carroll Township
Chicago Park District
Chippewas of Nawash Unceded First Nation
City of Cleveland
City of Defiance
City of Elyria
City of Huron
City of Lorain
City of Oregon
City of Toledo
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Clarkson University
Cleveland Water Alliance
Collective Environmental Consulting
Conservation Ontario
Cooperative Institute for Great Lakes Research
Council of the Great Lakes Region
Current
DataStream
DIG
Environment and Climate Change Canada
Fisheries and Oceans Canada
Flood Dog Company
Florida Atlantic University
Fondriest Environmental, Inc.
Grand Valley State University
Great Lakes Commission
Great Lakes Fishery Commission
Heidelberg University
Illinois-Indiana SeaGrant
International Joint Commission
Lake County Department of Utilities
Limnotech
Little Traverse Bay Bands of Odawa Indians
McMaster University
Michigan Technological University
Mohawk Council of Akwesasne
MWRD Commissioner Kimberly Neely Du Buclet
National Oceanic and Atmospheric Administration (NOAA)
NEW Water
NexSens
NOAA Great Lakes Environmental Research Laboratory

Northeast Midwest Institute
Northern Michigan University
Northwestern Michigan College
Northwestern University
Ontario Ministry of Natural Resources and Forestry
Ontario Ministry of the Environment, Conservation and Parks
Orange Force Marine
Ottawa County
Purdue University
Queens University
Real-Time Aquatic Observing Network
Regional Science Consortium
RPS
Salmon Unlimited Wisconsin
Saugeen Ojibway Nation
Sofar Ocean
Southern University of New York ESF
SpinDance
St. Lawrence River Institute of Environmental Sciences
Superior Watershed Partnership and Land Conservancy
The Ohio State University
Trent University
U.S. Army Corps of Engineers
U.S. FWS Lower Great Lakes Fish and Wildlife Conservation Office
U.S. Geological Survey
University of Illinois
University of Michigan
University of Minnesota-Duluth
University of Toledo
University of Toronto-Scarborough
University of Vermont
University of Wisconsin-Milwaukee
University of Wisconsin-Green Bay
University Prep High School
Upstate Freshwater Institute
USGS Lake Ontario Biological Station
Village of Marblehead
Village of Put-in-Bay
Water Rangers
Wayne State University

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great lakes observing system

IOOS
Integrated Ocean Observing System

GLOS is one of the 11 regional associations that make up the Integrated Ocean Observing System (IOOS). ioos.noaa.gov

Cover photo by Jessica Grow, University of Wisconsin-Milwaukee

Try Seagull!

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