Great Lakes HABs Collaboratory

Linking Science and Management to Reduce Harmful Algal Blooms

www.glc.org/work/habs-collaboratory

great lakes observing system

Kelli Paige

January 23, 2019

great lakes observing system

Supporting a **Smart** Lake Erie

Kelli Paige
Executive Director

Outline

- Overview of GLOS
- Our work in Lake Erie
- Future Plans @ GLOS

GLOS was established to support
data collection, data management, and data sharing
in the Great Lakes.

IOOS
Integrated Ocean Observing System

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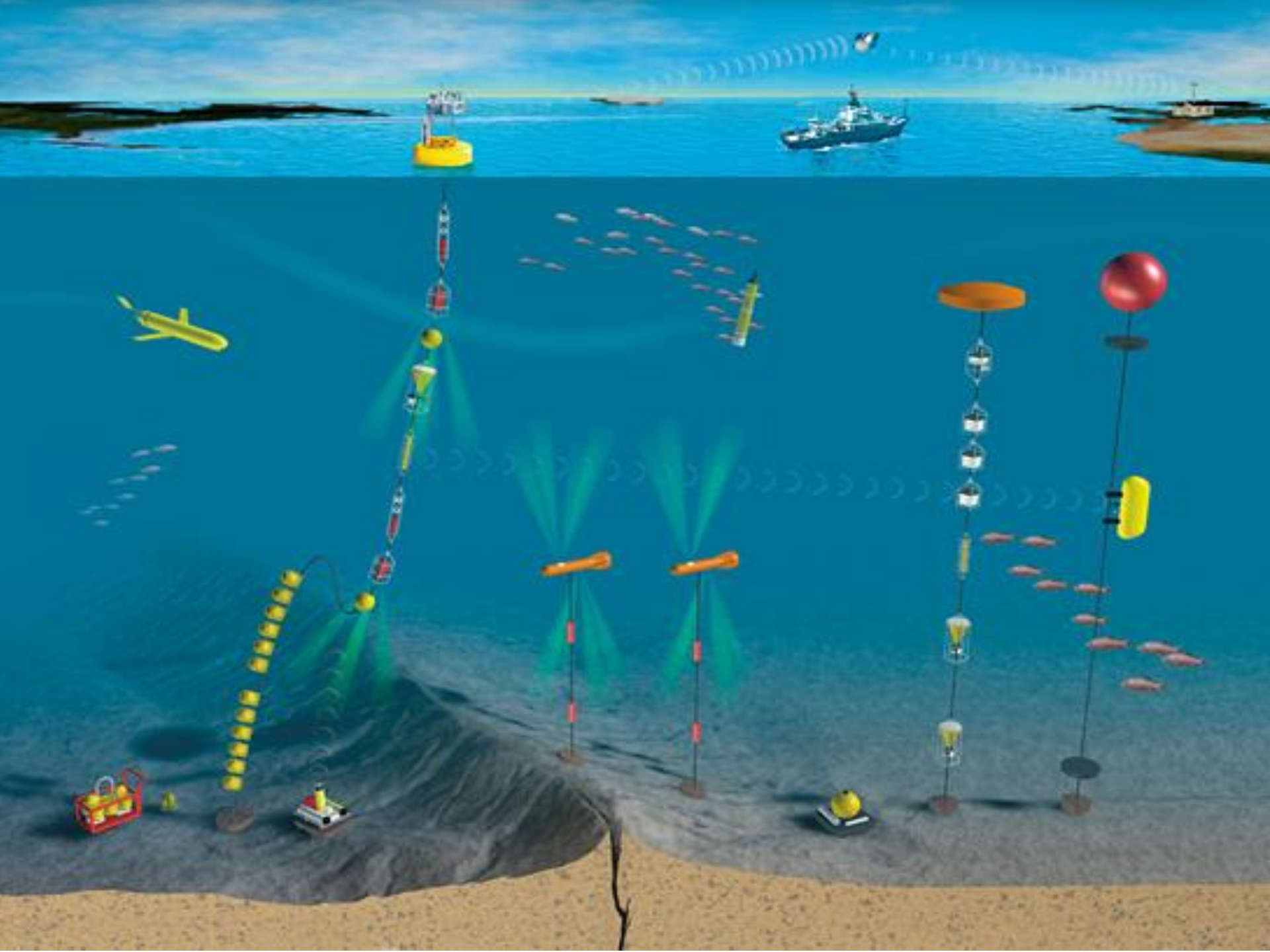
- 501c3 non-profit
- 1 of 11 IOOS regions
- bi-national



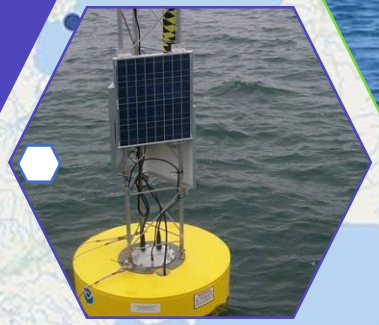
Support @ Scale

Superior

Huron

Michigan

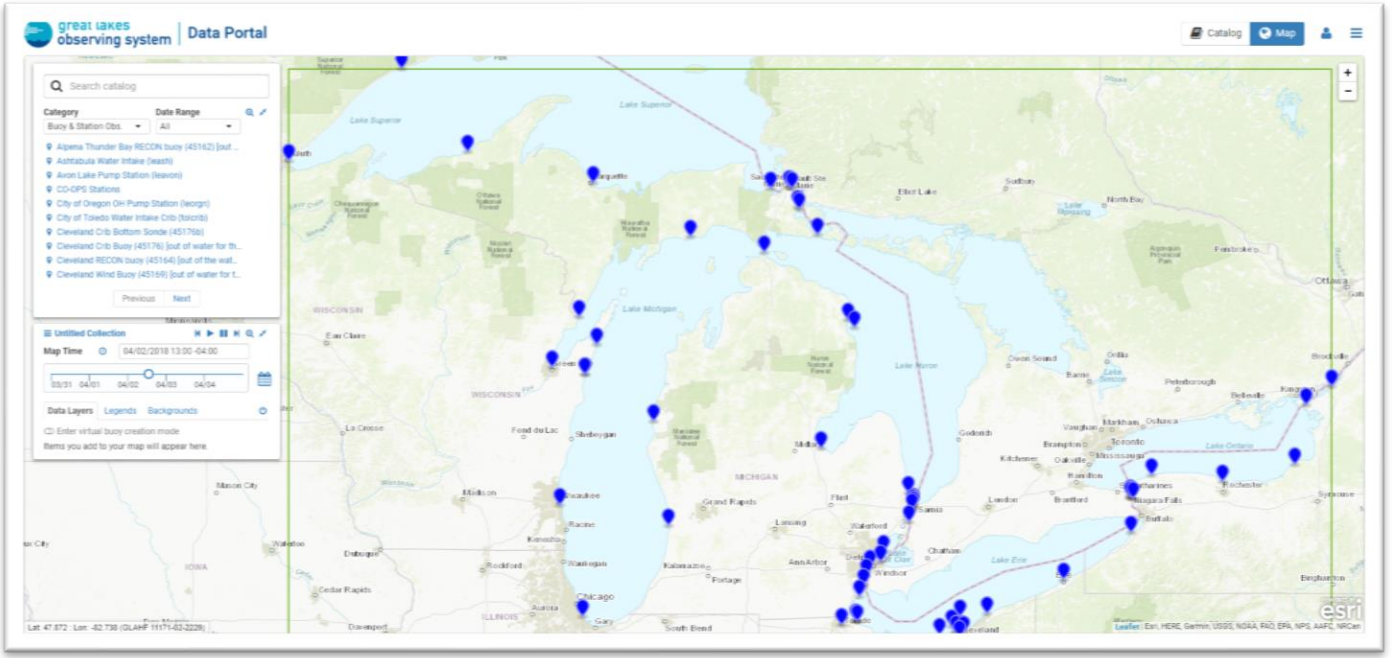
Erie

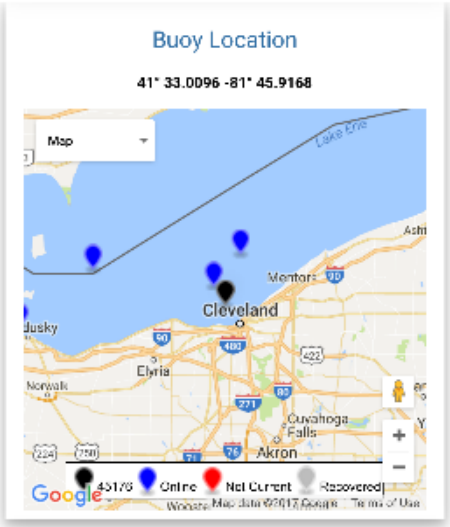


Ontario

Open data, added value

portal.glos.us





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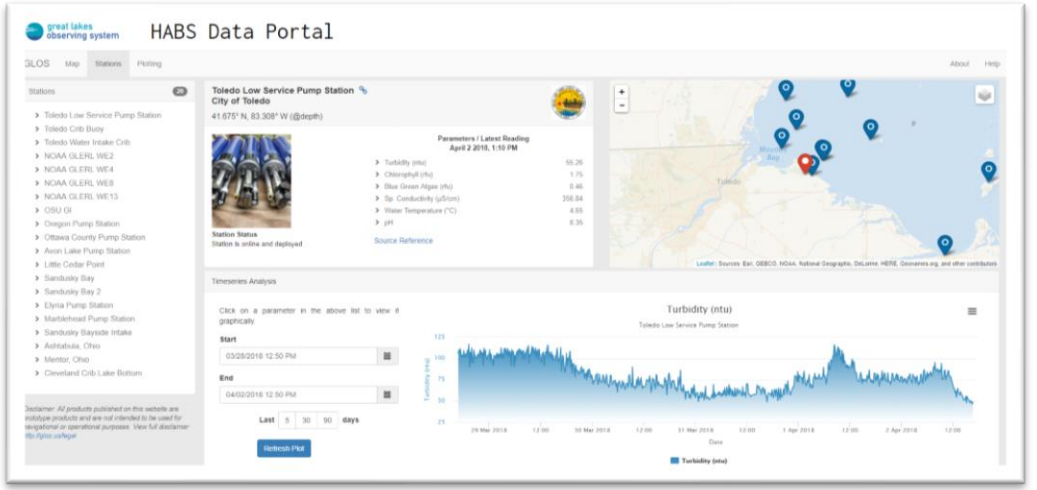

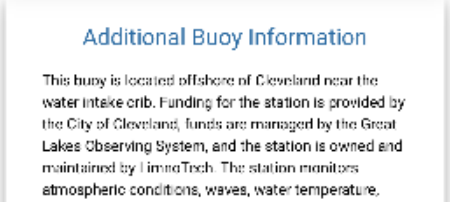

glbuoys.glos.us

GLOS in Lake Erie

Funding for data management support (UT) and capitalizing new monitoring assets (Cleveland Buoy)

Real-time HABs data for 13 Water Treatment Plants from Toledo to Cleveland

NOAA Ocean Technology Transition (OTT) grant to fortify and sustain observing assets & DMAC indefinitely

Support for NOAA CO-OPS/NCCOS hypoxia forecasting products

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Parameters

- Temperature
- pH & ORP
- Conductivity
- Turbidity
- Dissolved Oxygen
- Chlorophyll
- Phycocyanin

Monroe
Toledo
Oregon
Port Clinton
Marblehead
Sandusky
Elyria
Avon Lake
Cleveland
Mentor
Painesville
Ashtabula
Akron
Alliance

Organization

- Bowling Green State U.
- NOAA GLERL
- Stone Lab-OSU
- Univ of Toledo
- LimnoTech/Water Plants

0 15 30 60 Miles

THE UNIVERSITY OF TOLEDO
THE OHIO STATE UNIVERSITY
BGSU Bowling Green State University
GLERL Great Lakes Environmental Research Laboratory
LimnoTech

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HABS Data Portal

GLOS | Map | Stations | Plotting | About | Help

Stations 20

- Toledo Low Service Pump Station
- Toledo Crib Buoy
- Toledo Water Intake Crib
- NOAA GLERL WE2
- NOAA GLERL WE4
- NOAA GLERL WE8
- NOAA GLERL WE13
- OSU GI
- Oregon Pump Station
- Ottawa County Pump Station
- Avon Lake Pump Station
- Little Cedar Point
- Sandusky Bay
- Sandusky Bay 2
- Elyria Pump Station
- Marblehead Pump Station
- Sandusky Bayside

Toledo Low Service Pump Station
City of Toledo
41.675° N, 83.308° W (@depth)

Station Status
Station is online and deployed

Parameters / Latest Reading
December 7 2017, 1:40 PM

Turbidity (ntu)	23.1
Chlorophyll (rfu)	0.38
Blue Green Algae (rfu)	0.3
Sp. Conductivity (µS/cm)	215.58
Water Temperature (°C)	3.96
pH	8.29

Source Reference

Leaflet | Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, HERE, Geonames.org, and other contributors

OTT: Lake Erie HABs Early Warning System to Sustainable Operational Form

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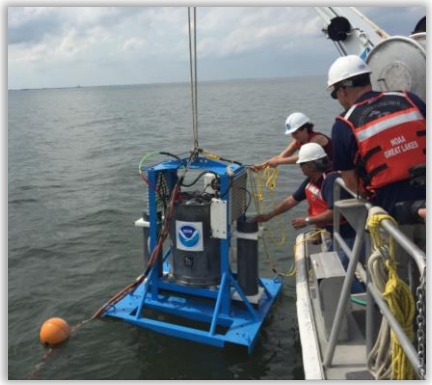
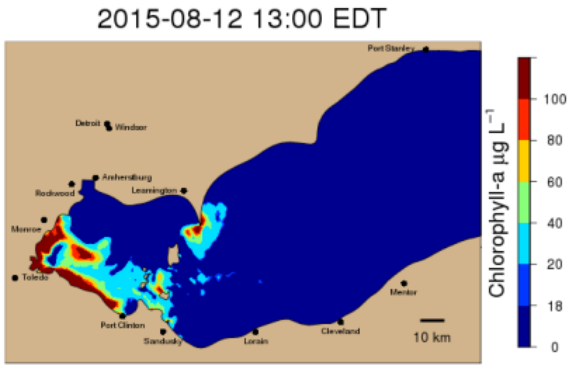
GLERL
Great Lakes Environmental Research Laboratory

LimnoTech

cleveland water alliance





GLERL CILER

Deploy new Environmental Sample Processor and fill local utility monitoring gaps where possible

Improve (user-driven) data management and delivery systems

Engage long-term funding partners

Phase 1: Water Intake Managers

Develop a platform that demonstrates a flow of sensor data to actionable intelligence

Specific use case: *Water Managers*

Goal: *Develop a highly automated data flow and can provide mobile-friendly alerts/notifications as defined by user-set thresholds*

Phase 2: Early Warning System Support

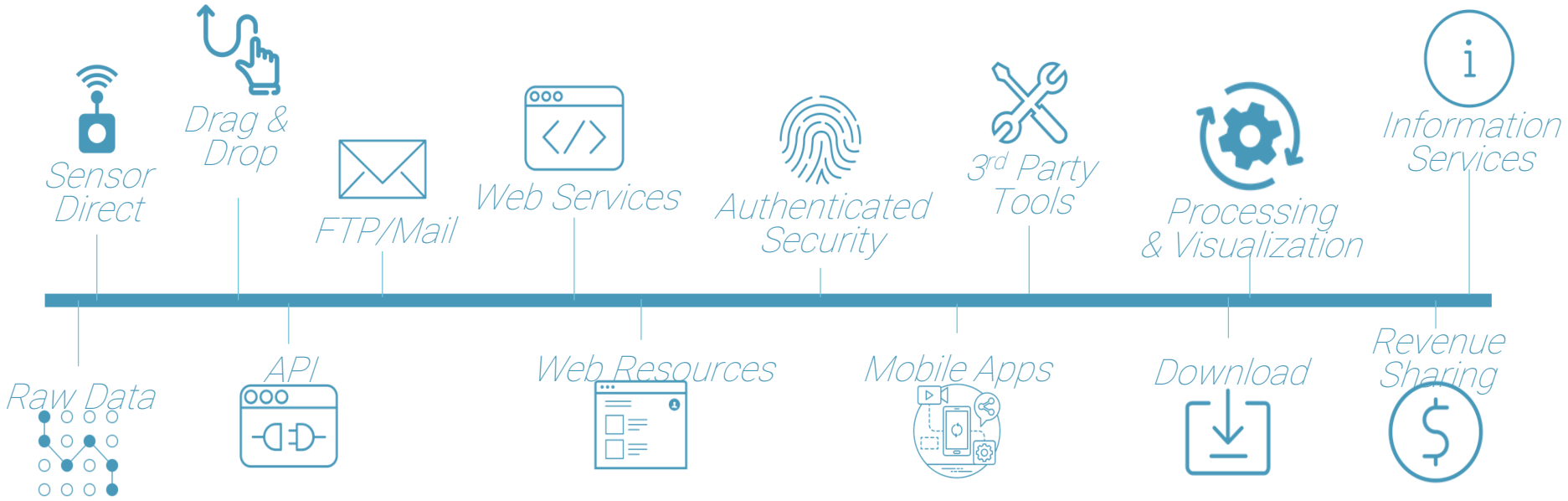
What existing resources serve the broader Lake Erie community as an Early Warning System for HABs?

How can GLOS improve user experience and data delivery, either through existing resources or new?

Where are there opportunities for coordination, collaboration, and/or improved efficiency?

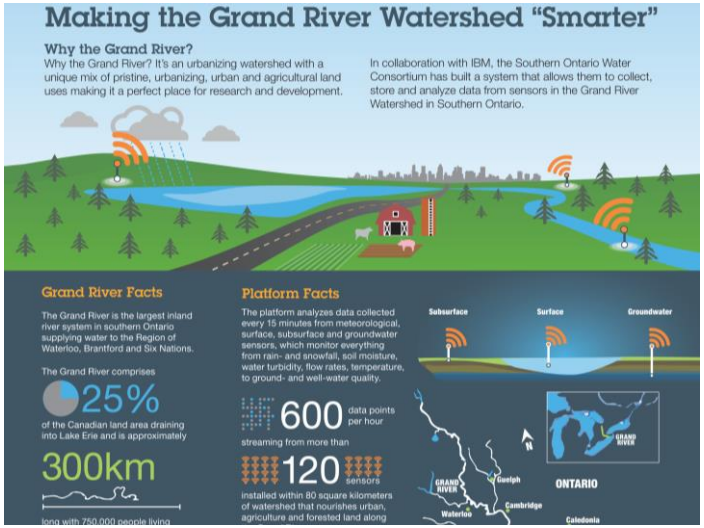
Future Plans: New Technology Platform

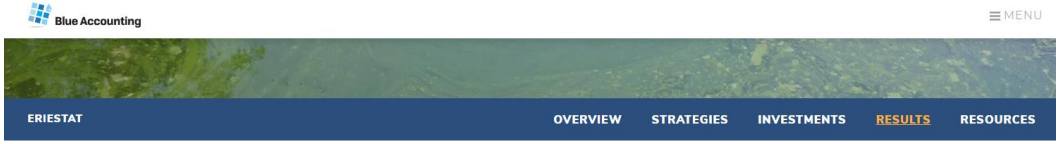
Advances GLOS strategic goals in support of GL partners

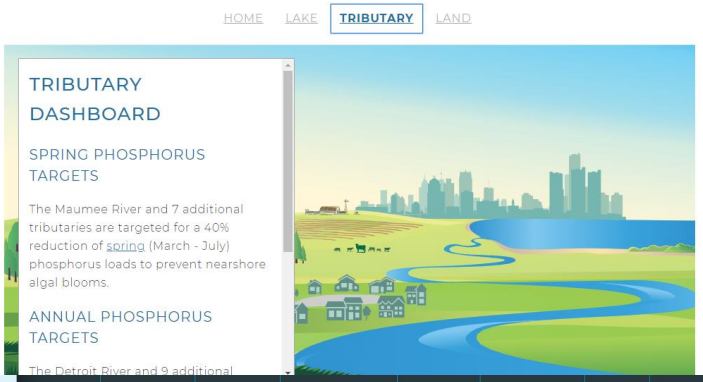


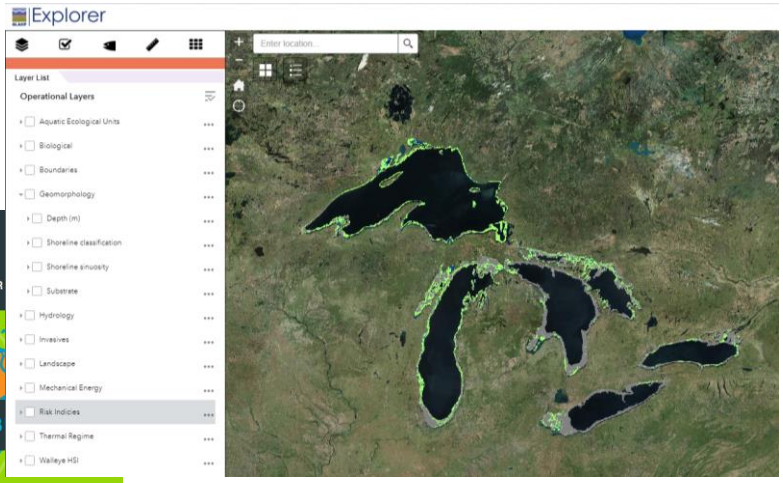
In construction: A flexible and scalable architecture that meets the needs of the "data to information" life cycle

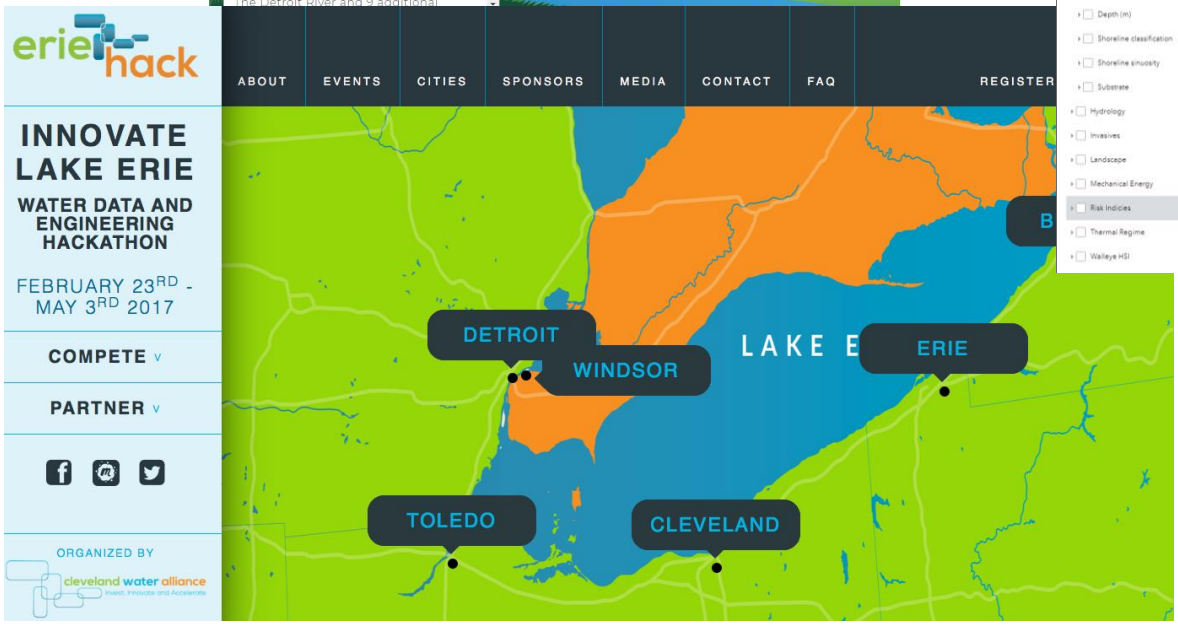
Getting “Smart”











GL 4.0
Internet of Water

Get involved with GLOS

Share data	Need help coordinating or publicizing data?
Use GLOS data mgmt services	Have specific data management needs or grant requirements?
Proposal opportunities	Looking to expand or leverage existing monitoring capacity? Access multiple data streams for modeling or analytics?
Feedback on products and services	Help us help you

Discussion

- What could we be doing better and/or different to more fully engage you with GLOS?
- What current services and/or products should we stop doing (and why); keep doing (and why)?
- How can we improve user experience and data delivery?
- Where are there opportunities for coordination and improved efficiency with partners?


Thank you!
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Thank you!

A recording will be posted at:

http://www.glc.org/work/habs-collaboratory