Approaches for Data Sharing:

Science in the Great Lakes (SiGL) Mapper

Lake Superior Environmental Monitoring Collaborative

March 19-20, 2015

Houghton, Michigan

GLRI Data Delivery Overarching Goal

To create a publicly accessible data network that:

- Seamlessly provides efficient **discovery** of and **access** to multi-disciplinary monitoring data sets to advance Great Lake science
- Enables policy makers to plan and evaluate restoration activities
- Provides flexible products that can accommodate the community's changing needs and integrate with other Great Lakes data applications

Purpose of the SiGL Mapper

- **Supports strategic Great Lakes data collection and analysis**
  - Increases access and visibility of existing efforts
  - Identifies areas and topics that need more study
  - Allows future projects to build on existing data
- **Captures and displays spatial data component**
  - Those without GIS capabilities can display monitoring locations
- **Built for both large and small datasets**
  - Connects with large, enterprise data repositories
  - Captures smaller datasets that aren't documented using current metadata standards or may not have access to online data hosting

Data vs. Metadata

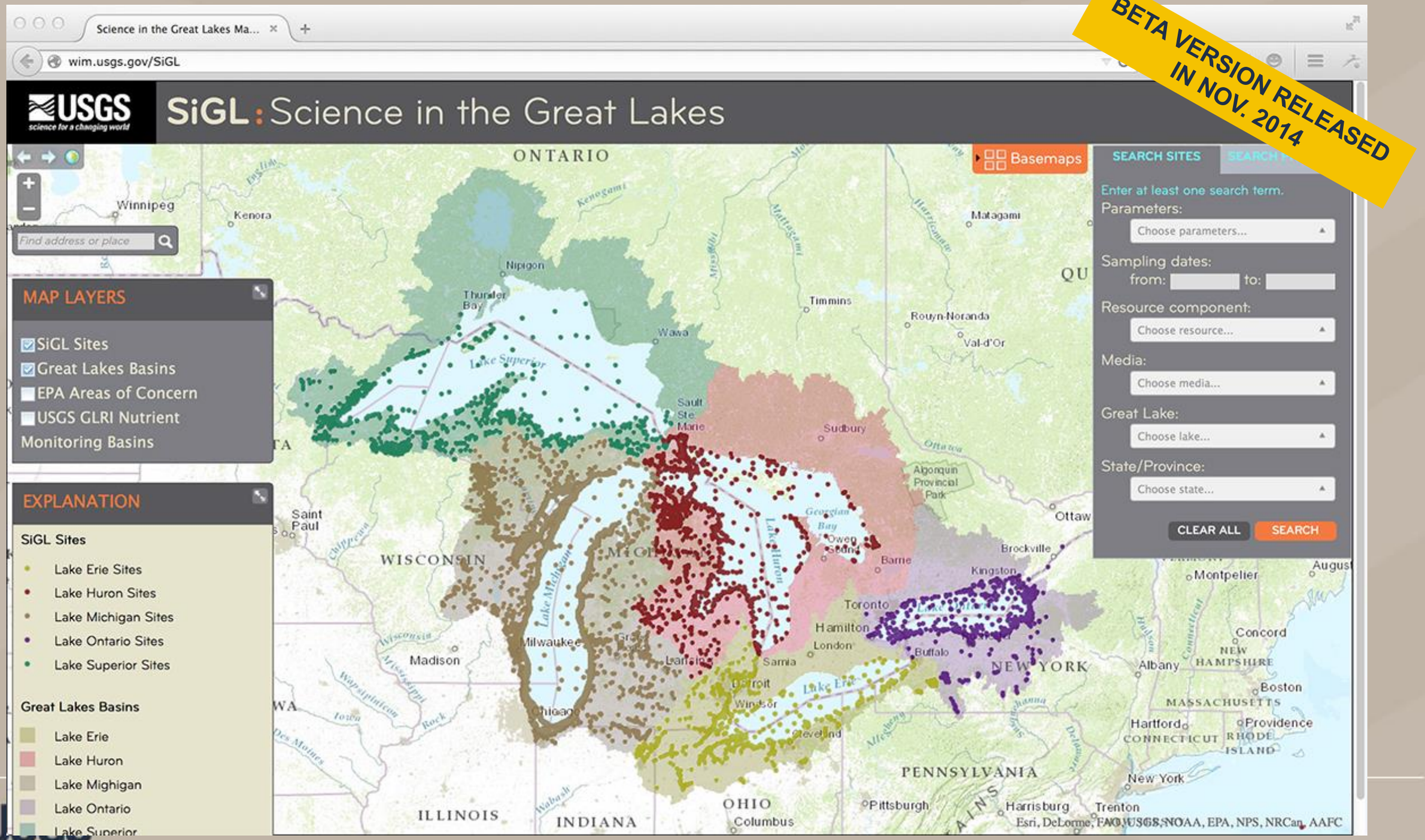
Your science produces data: measurements, values, statistics, results, analysis, etc.

SiGL collects metadata: information about your data

- *Project information*
  - Who, what, where, when, why?
  - Contact/PI details
  - Publications
- *Data information*
  - Sources (what data exists and where it's stored)
  - Site information (what, where, when, and how data was collected)

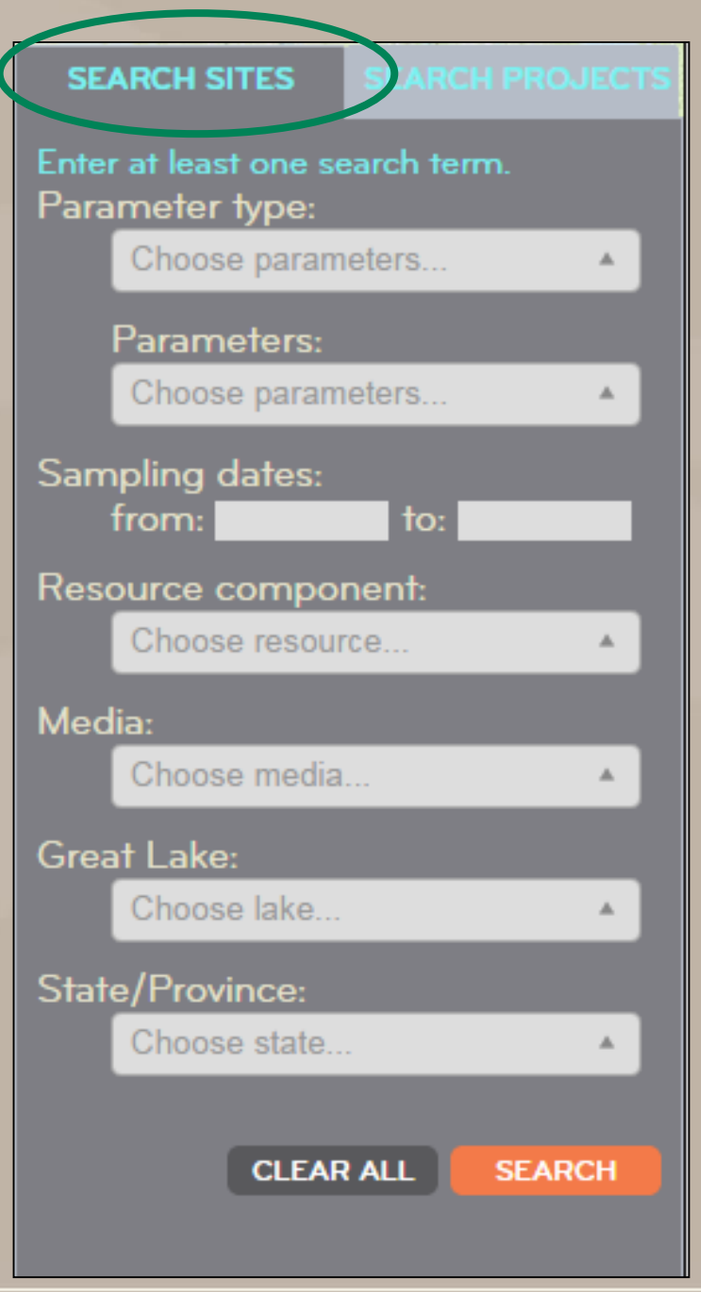
Science in the Great Lakes (SiGL) mapper

wim.usgs.gov/SiGL

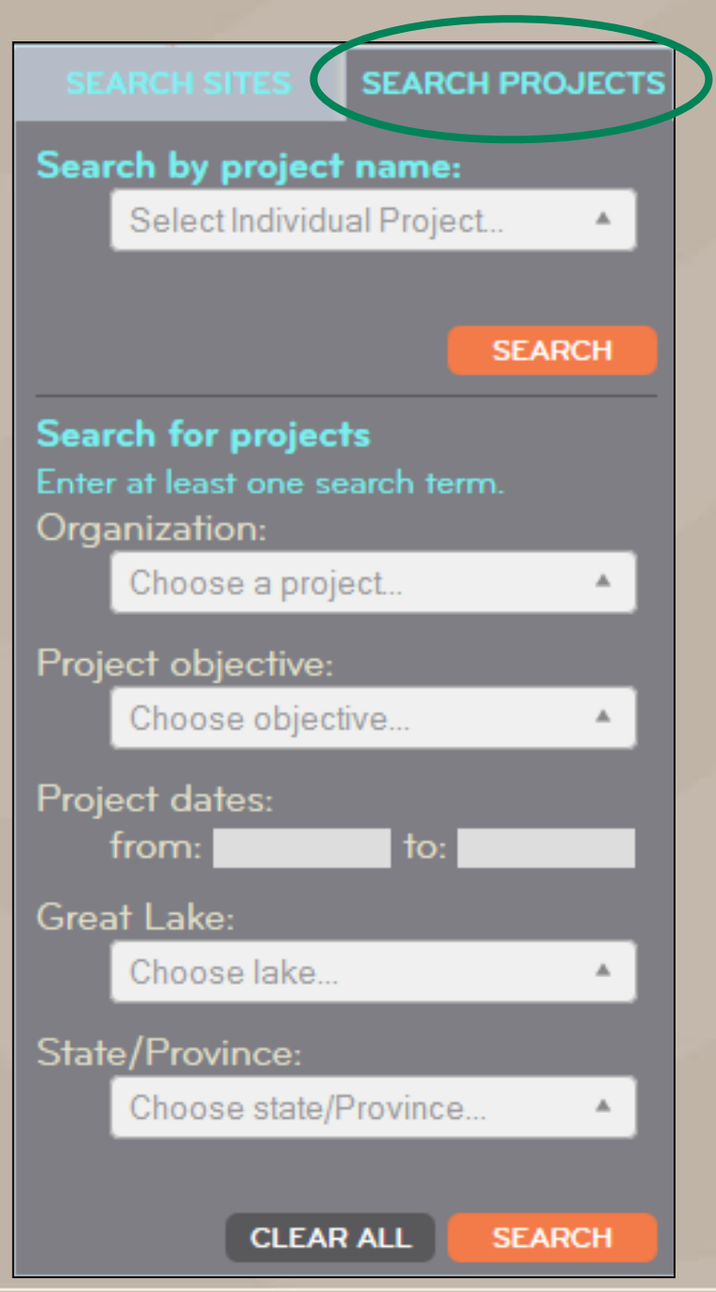


Searchable data

Search SITES



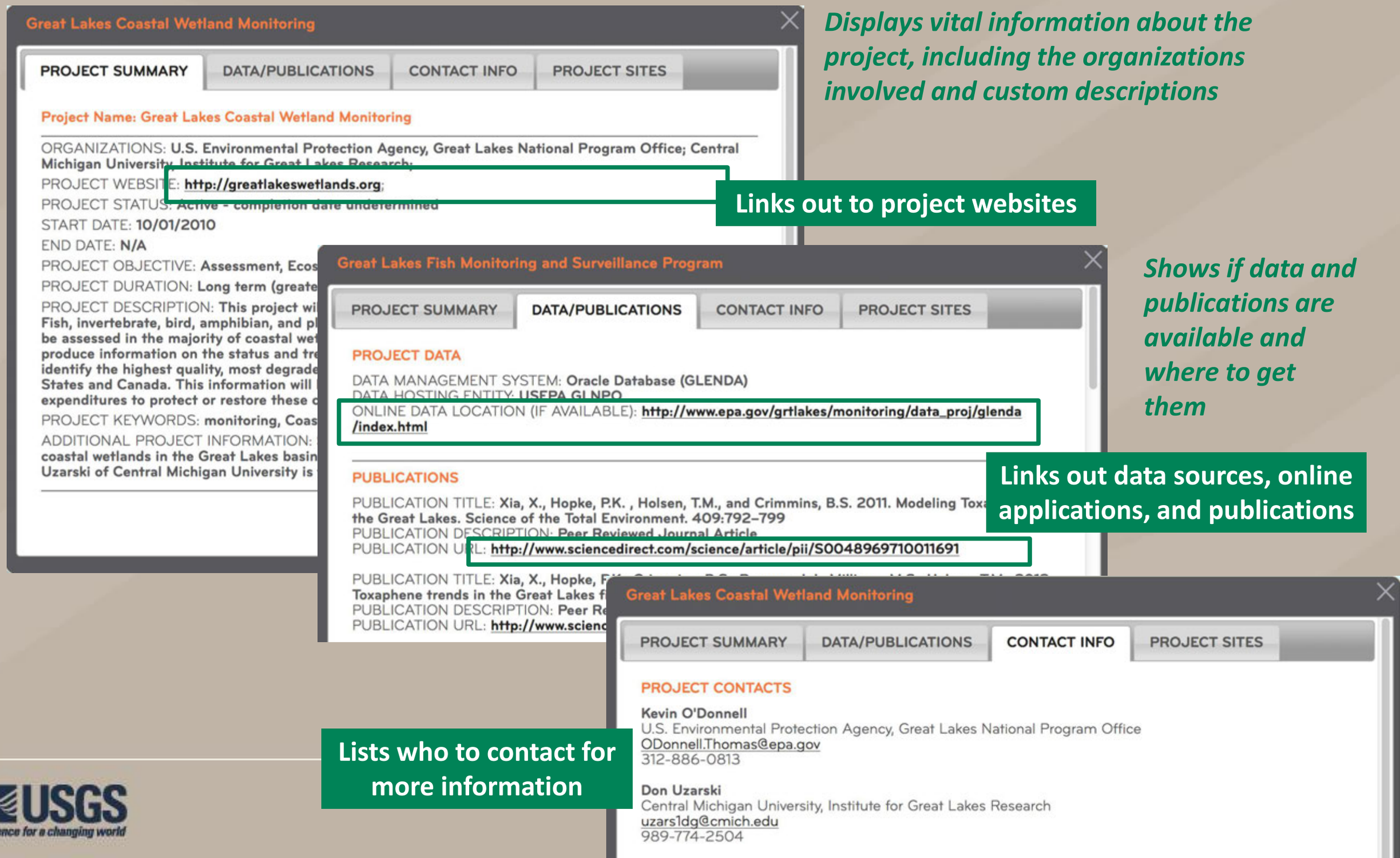
Search PROJECTS



USGS science for a changing world

Information available in SiGL

SiGL pop-up: Project information



Displays vital information about the project, including the organizations involved and custom descriptions

Links out to project websites

Shows if data and publications are available and where to get them

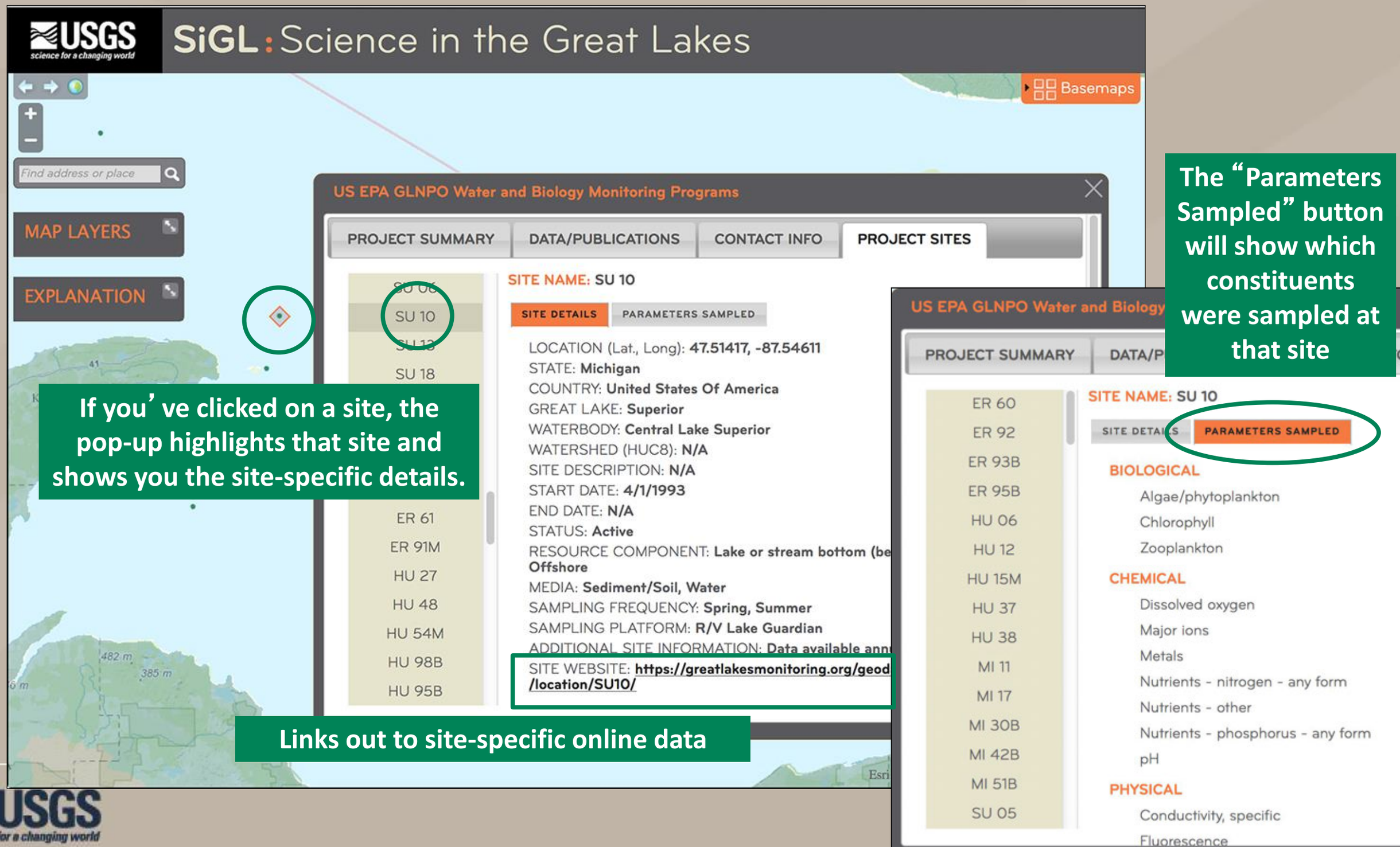
Links out data sources, online applications, and publications

Lists who to contact for more information

USGS
science for a changing world

Information available in SiGL

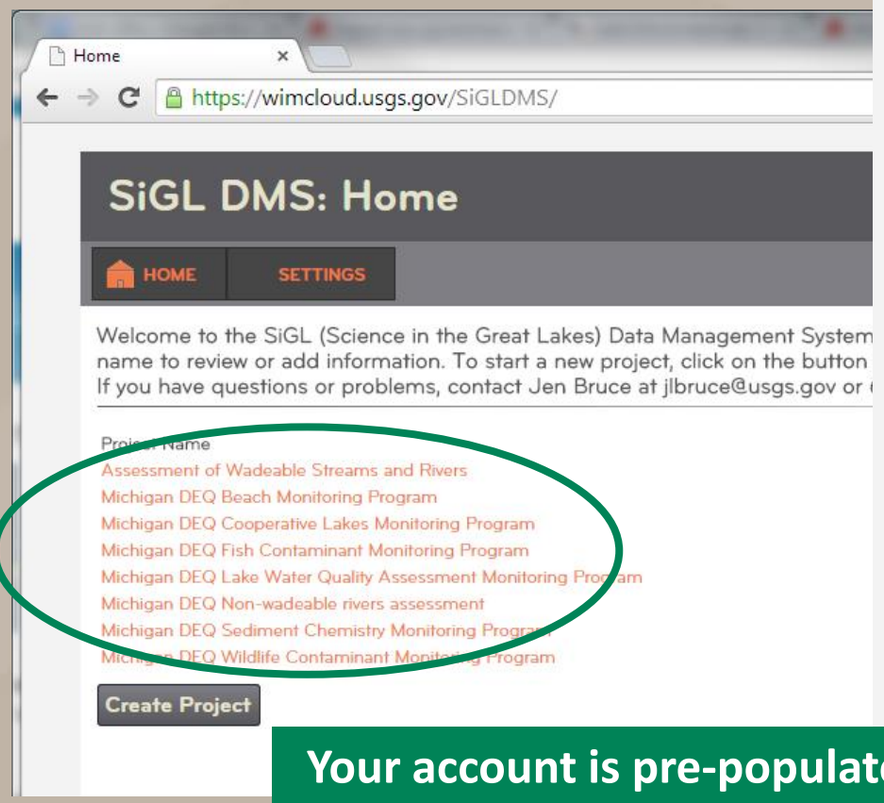
SiGL pop-up: Site information



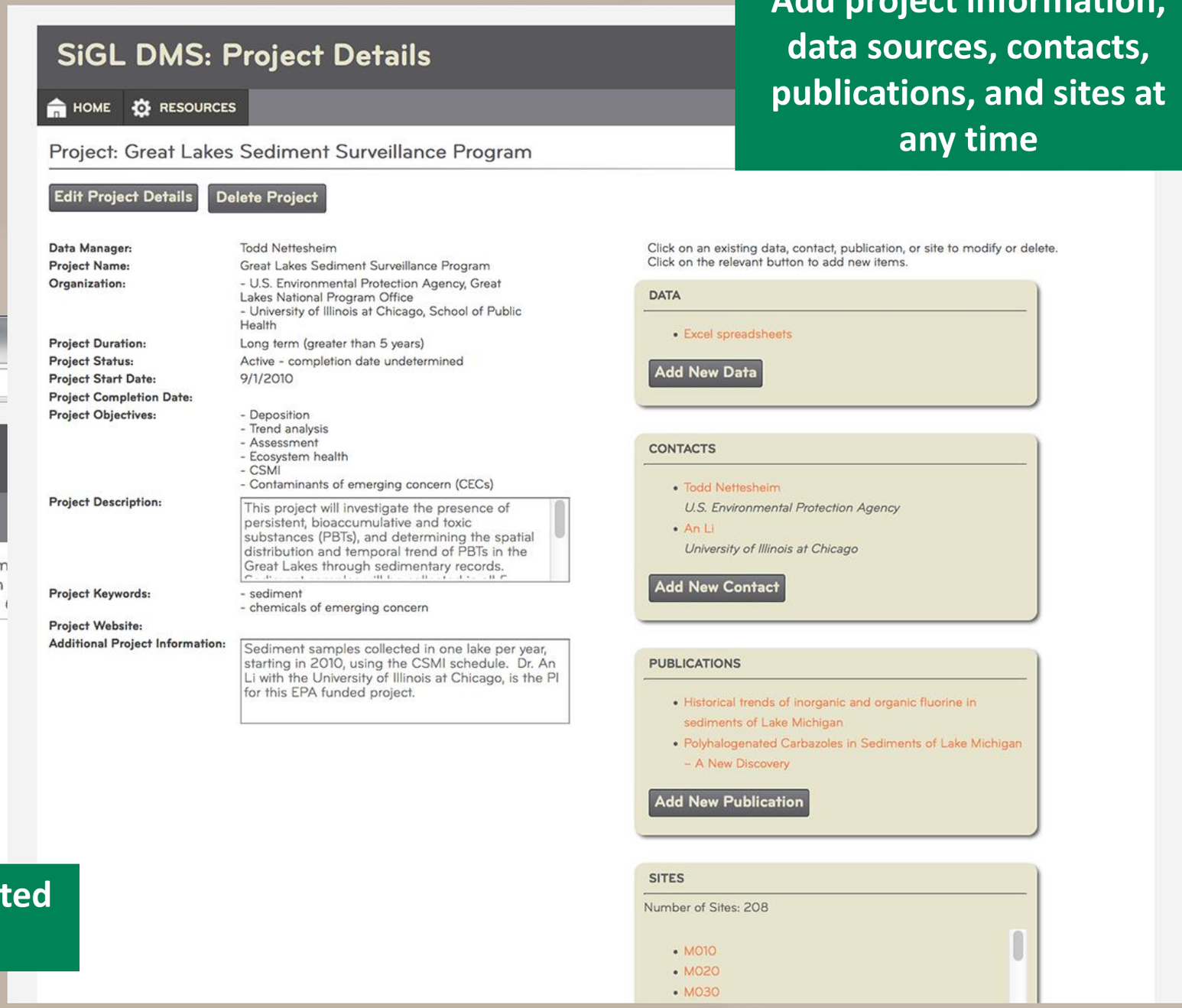
How to submit data to SiGL

OPTION 1 – SiGL Data Management System (DMS)

- New online tool
- Add, edit, and update your projects
- You maintain control of your own data



Your account is pre-populated with your projects



Add project information, data sources, contacts, publications, and sites at any time

USGS science for a changing world

How to submit data to SiGL

OPTION 2 – submit site information via excel spreadsheet

- Best for large numbers of sites
- Links to existing project in SiGL DMS
- Optionally can be used to add sites to existing project information entered through SiGL DMS

SiGLTemplateV6_final_matousekj.xlsm

	A	B	C	D	E	F	G	H	I	J
1	Project Name*	Site Name*	Latitude*	Longitude*	Country*	State/Province*	Lake Name*	Waterbody	Watershed (8-digit HUC)	Site Description
2	Example project 1 - Water Quality of Tributaries	UFOX-1	42.59444800	-87.60278100	United States	Wisconsin	Michigan	Upper Fox River	04030204	offshore of Wis. State line
3	Example project 1 - Water Quality of Tributaries	LFOX-1	42.49444800	-87.70278100	United States	Wisconsin	Michigan	Lower Fox River, Green Bay	04030204	half-mile upstream from Leo Frigo Mer
4	Michigan DEQ Cooperative Lakes Monitoring Program									
5	Michigan DEQ Wildlife Contaminant Monitoring Program									
6	Michigan DEQ Fish Contaminant Monitoring Program									
7	Michigan DEQ Non-wadeable rivers assessment									
8	Michigan DEQ Sediment Chemistry Monitoring Program									
9	Michigan DEQ Lake Water Quality Assessment Monitoring Program									
10	Assessment of Wadeable Streams and Rivers									
11	Michigan DEQ Beach Monitoring Program									
12										

USGS science for a changing world

Future development plans

SiGL functionality:

- Search results will display in list form, allowing projects without sites to be searchable
- Improve selection ability for overlaying sites
- Expand database to allow line and polygon spatial features
- Download a project's information and export your search results
- Improved integration with other Great Lakes data products, especially *greatlakesmonitoring.org*
- Enhance and expand additional data layers

Form SiGL user group:

- Representatives from a variety of organizations and disciplines
- Will help guide SiGL development, identify priorities, and keep system content relevant and consistent
- Once assembled, the user group will undertake a rigorous review of SiGL fields and parameters (ex. PCBs)

Contact SiGL

John Walker, USGS Wisconsin Water Science Center
Center Director
jfwalker@usgs.gov
608-821-3810

Jen Bruce, USGS Wisconsin Water Science Center
SiGL mapper project lead
jlbruce@usgs.gov
608-821-3906

[SiGL Mapper demo]

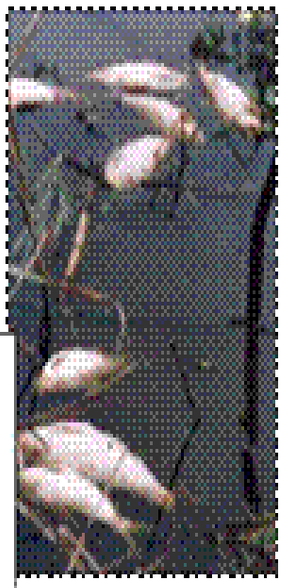
greatlakesmonitoring.org team

- EPA-GLNPO
  - Paul Horvatin, MIRB Branch Chief
  - Program leads – Eric Osantowski and Glenn Warren, Limnology; Beth Murphy Fish Monitoring; Todd Nettesheim, IADN
- NCSA
  - Developers: Luigi Marini, Barbara Minsker, Nick Tenczar, Rob Kooper, Brock Angelo, Eugene Roeder
  - Designer – Lisa Gatzke
- IL – IN Sea Grant
  - Brian Miller, Kristin Tepas

Corpus Christi Bay (CCBay)

Dimensions

N to S ~ 12 mi
E to W ~ 18 mi
Average depth ~ 9 ft
Adjacent bays:
Oso Bay, Laguna Madre, Nueces Bay, Redfish Bay



Hypoxia

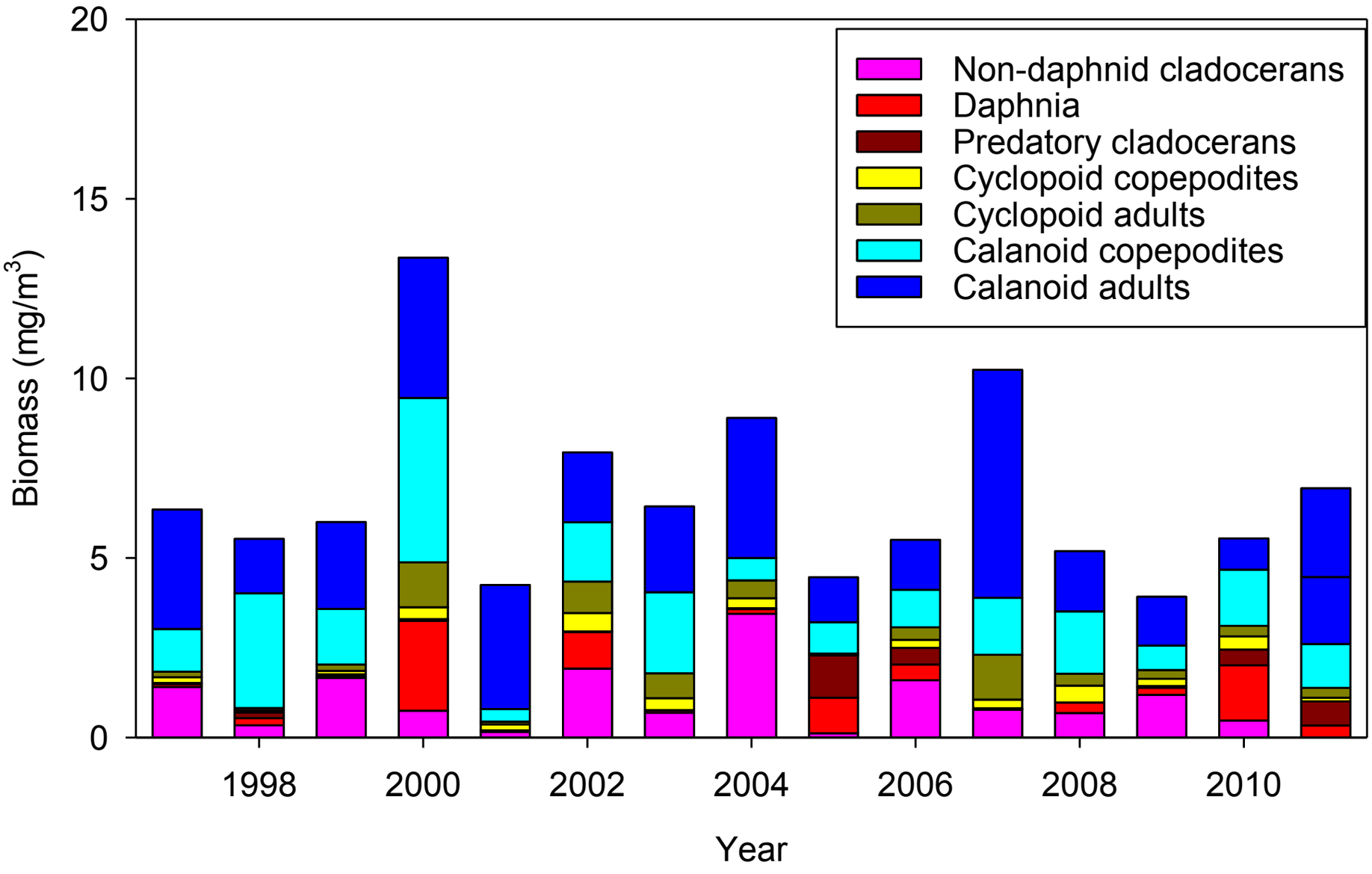
Dissolved oxygen < 30 % saturation (~2mg/L)
Occurs episodically in CCbay during summer months
Results in ten-fold reduction in stock and diversity of benthic organisms.

glm demo

Future steps

- Increase flexibility of data views
- Identify data sets for ingestion:
  - USGS stream gauges
  - NOAA buoy data
  - STORET
- Additional data views:
  - GLNPO Biology program

August crustacean zooplankton biomass
Station SU 10, 1997-2011
153 um mesh, 100 m tows

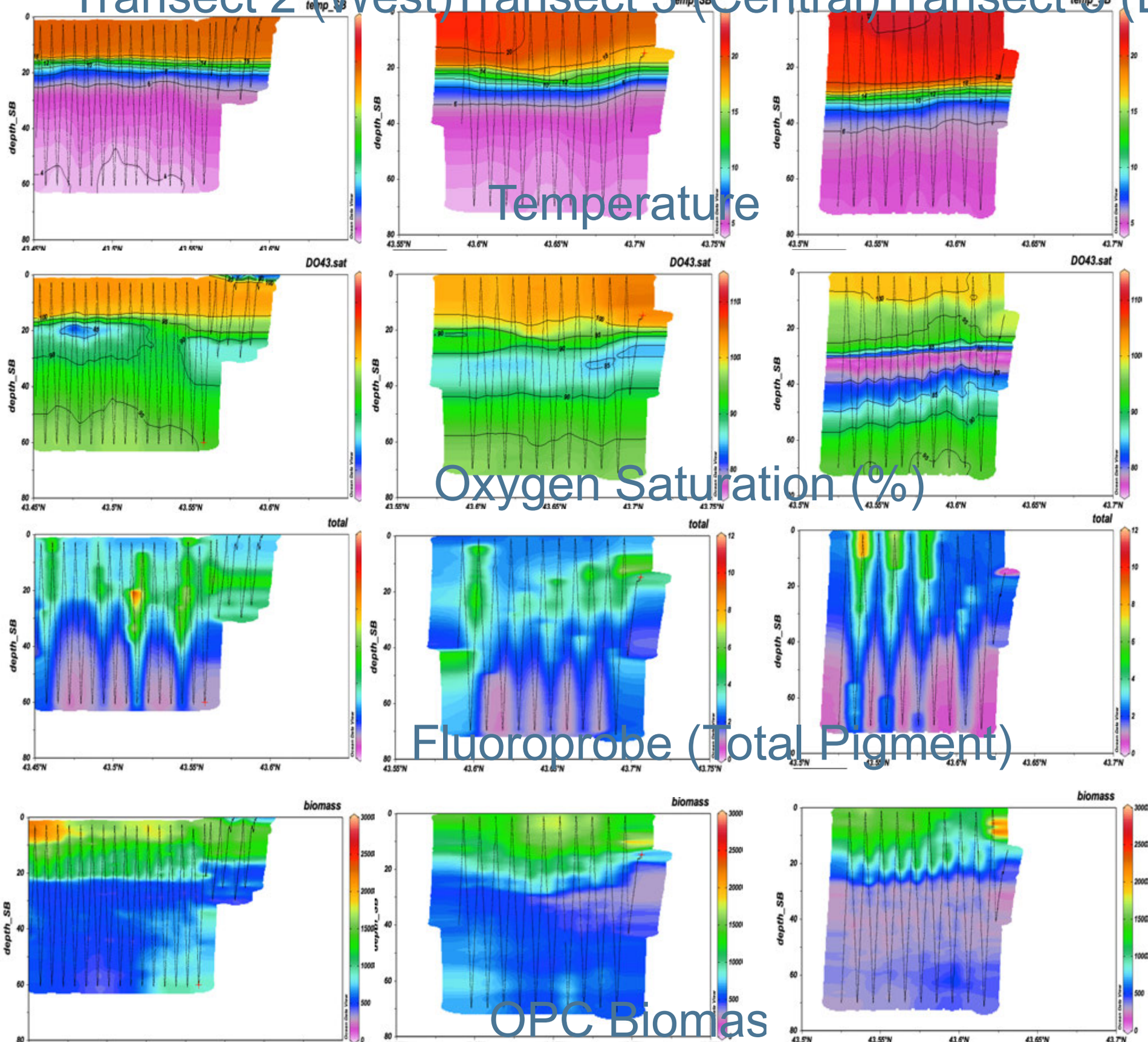


Future steps

- Identify data sets for ingestion:
  - USGS stream gauges
  - NOAA buoy data
  - STORET
- Additional data views:
  - GLNPO Biology program
  - Triaxus and D.O. program

Night Transects

Transect 2 (West)Transect 3 (Central)Transect 5 (East)



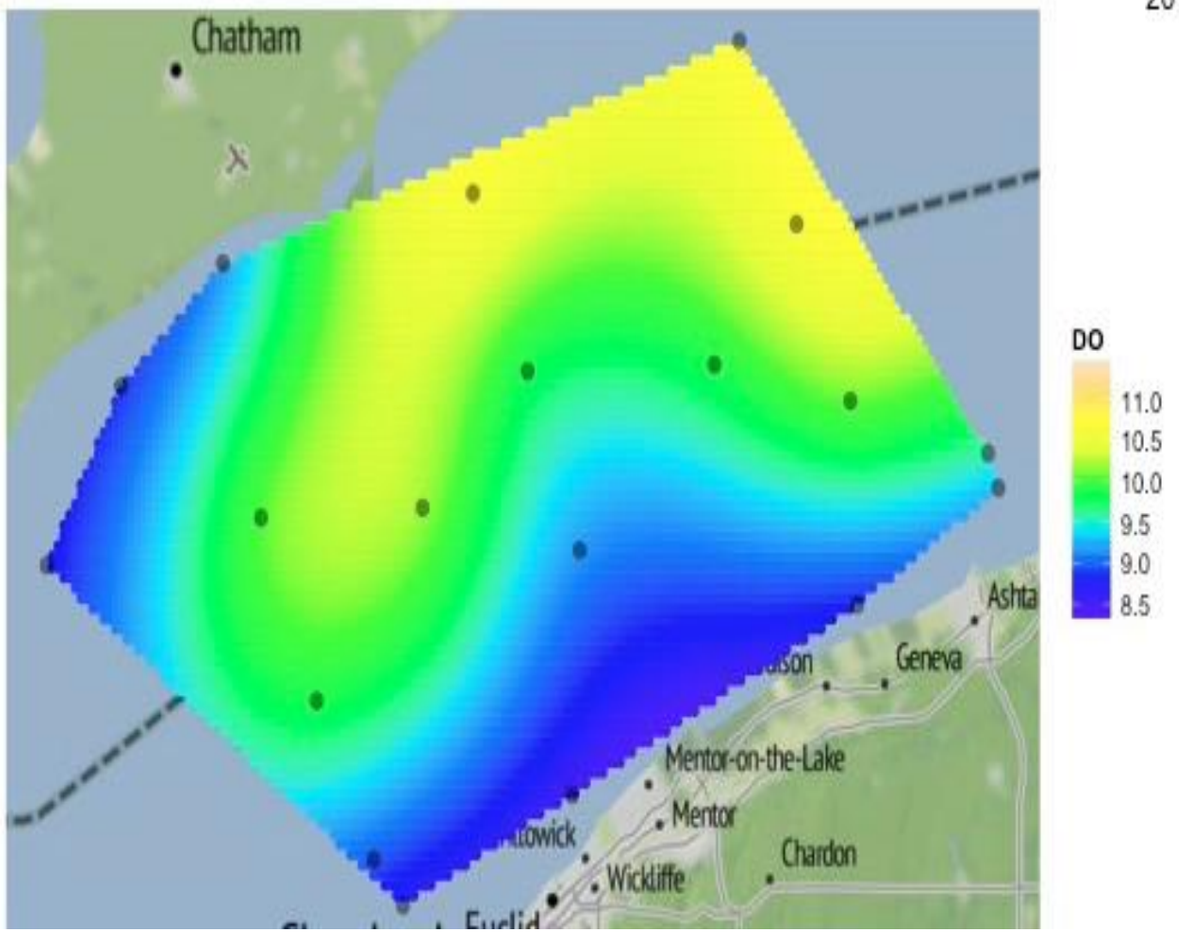
Temperature

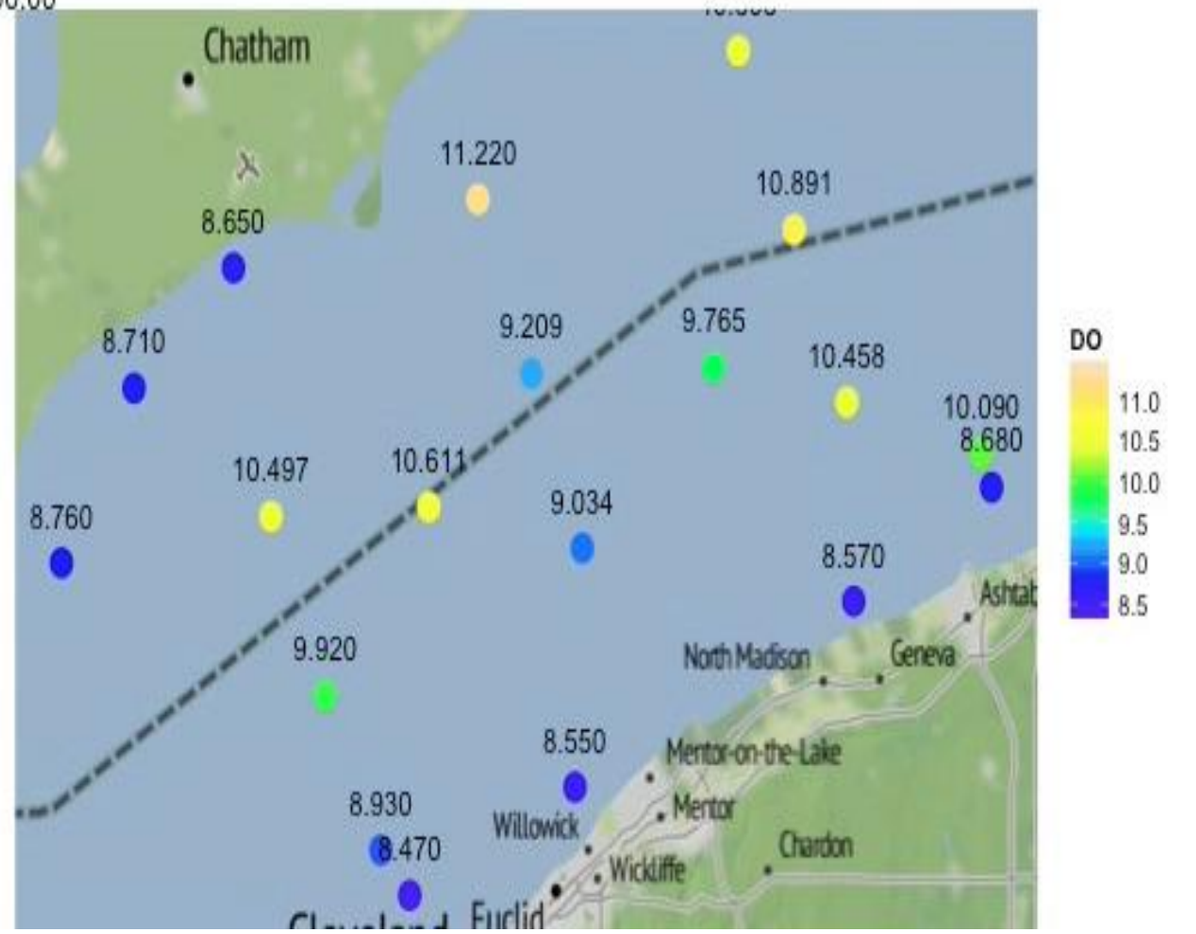
Oxygen Saturation (%)

Fluoroprobe (Total Pigment)

OPC Biomas

2014-06-25 12:00:00





gltg demo


Yellowstone River
Missouri River
Mississippi River
Platte River
Illinois R.
Ohio River
Arkansas River
St Louis
Tennessee River
Red River
Mississippi River
New Orleans
0 200 KILOMETERS
0 200 MILES

Integrating with *GreatLakesMonitoring.org*

Currently:

•Shared SiGL projects and sites individually link out to *GreatLakesMonitoring.org*

Potential integration options:

•Crosswalk sites dynamically with *GreatLakesMonitoring.org* (mappers will sync simultaneously using web services)

•Select multiple sites in SiGL, access data as a group at *GreatLakesMonitoring.org*

•Select sites using geographical area and program areas in *GreatLakesMonitoring.org* and display metadata from SiGL.

•Joint export function – select a site in either application, and have the option to download both the *GreatLakesMonitoring.org* data and SiGL metadata at once

[SiGL DMS demo]