

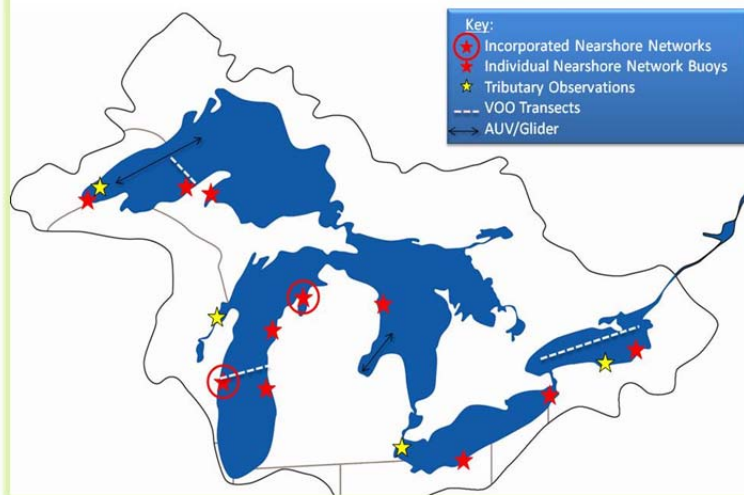
INTRODUCTION

In preparation for submitting an observing systems proposal to US EPA's GLRI solicitation in January 2010, the GLOS OBS Team drafted a five-year plan to develop enhanced tributary and nearshore monitoring and improve the collection, integration, and delivery of data for use in managing and decision-making in the Great Lakes for priority Areas of Concern identified in the GLRI Action Plan.

PROJECT GOAL

Expand, enhance, and coordinate the Great Lakes network of monitoring and observing systems to provide a comprehensive assessment of the Great Lakes ecosystem for use in monitoring Beneficial Use Impairments in high priority Areas of Concern.

Figure 1: Near-shore Network & Tributary Observation Network



MAJOR ELEMENTS:

Location	Platforms (number)	Observations
St. Louis River/Estuary	Shore-based monitoring stations (3)	Currents, turbidity, temperature, and fluorometric measurements will allow assessment concentrations of cyanobacteria, CDOM (Colored Dissolved Organic Matter) and Chlorophyll-A.
Green Bay	AUV missions	Mapping wide spread hypoxic conditions including parameters such as phosphate, oxygen, turbidity, thermal structure, and currents
	Buoy (1)	Nutrients, carbon, persistent toxics (PCBs)
Saginaw Bay	AUV missions	Benthic habitat and algal growth, turbidity, dissolved oxygen, temperature, conductivity, Chlorophyll-A, CDOM and phycocyanin. Spatial surveys for source contributions, fate and transport of benthic muck using side-scan sonar and underwater video. Mapping water quality and water chemistry, producing full three-dimensional maps of the physical, chemical and biological structure of the Bay waters.
	BathyBoat-Autonomous survey vessel	Larval fish counts and sizes using fishery acoustics.
Maumee River	Moored station (1)	Continuous real-time observations of dissolved reactive phosphorus concentrations, light intensity, turbidity, chlorophyll, phycocyanin, CDOM, dissolved oxygen, temperature, and conductivity.
	Field data	Along with conductivity, temp, depth (CTD) profiles at each sample site, field samples will be analyzed for TP, SRP, TSS, chlorophyll, phycocyanin, dissolved organic carbon, Microcystis abundance, and microcystin concentration.
Genesee/Rochester	Shore based (hut/pump) system (1)	Basic water quality parameters and real time phosphate and nitrate sensors.
	Buoy (1)	Thermistor string, along with epilimnetic sensors for conductivity, turbidity, and chlorophyll, meteorological data, monitor the movement of water, surface water plume and the resulting plunging of the Genesee River.
	AUV missions	Map the outflow of the river in regards to the spring thermal bar and the resulting spread of the plume, monitor for <i>Cladophora</i> distribution.
All Locations	Remote sensing	Synoptic maps of lake chlorophyll (chl), dissolved organic carbon (doc), suspended sediment (sm) values offshore of the AOCs, monthly average of optical attenuation, weekly ice cover maps, daily surface wind speeds, and mapping of harmful algae blooms (HABs).

PROJECT TIMELINE

- November 2010: GLOS was awarded \$1.4 million dollars through EPA's GLRI funding.
- January 2011: Planning meeting to coordinate observing activities and equipment purchase.
- April: Kick-off Webinar for interested partners and stakeholders to provide project information and identify opportunities for coordination.
- Spring-Fall: Deploy, operate, and maintain equipment.
- Oct-Nov: Review project results and develop recommendations for expansion/next steps.