Approaches for Data Sharing

Lake Superior Environmental Monitoring Collaborative
November 19-20, 2014
Duluth, Minnesota
Outline

- Water Quality Portal
- EnDDaT
- SiGL Mapper
- Science Explorer
NATIONAL WATER QUALITY MONITORING COUNCIL

Water Quality Portal

www.waterqualitydata.us

Search over 150 million water-quality data records from States, Tribal Partners, USEPA, and USGS
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
Sensors are Everywhere

Courtesy: Dr. Mike Botts
EnDDaT

Environmental Data Discovery and Transformation

- Tool for assisting in the construction and operation of nearshore water-quality models
- Formalize common workflows for accessing and preparing environmental data
- Two primary modes:
  - Historical data for model creation (>2 years)
  - Real-time data for model operation
- Based on GLOS Enterprise Architecture
EnDDaT Data Streams

- USGS NWIS Sensor & Stream Discharge
- NWIS Water Quality Data
- STORET Water Quality Data
- NOAA Great Lakes Coastal Forecasting System (GLCFS), NOWCAST
- Radar indicated-rainfall (point or shapefile)
- National Data Buoy Center (NDBC)
Environmental Data Discovery and Transformation (EnDDaT)

Data Discovery
- Great Lakes Coastal Forecasting System (GLCFS)
- Water Quality (USGS)
- 6-hour historic quantitative precipitation archive
- Surface summary of day data (SOD)
- 1-hour historic quantitative precipitation archive

Data Transformation
- NWIS
- Water Quality
- GLCFS
- Weather

Output Options
- Tab delimited
- Web report
- Web Services
- Interactive plot

Data Arrow
- Red Arrow
- Step 1: Drag 'L' marker to left-most beach edge
- Step 2: Drag 'R' marker right-most beach edge
- Step 3: Perpendicular line should be pointed towards the water. If it is not, hit the 'Flip Orientation' button
- Marker Latitude: 44.0264
- Marker Longitude: 87.6613
- Beach orientation: 4.87 degrees from north
What is the SiGL Mapper?

SiGL = Science in the Great Lakes
wim.usgs.gov/SiGL
Purpose of the SiGL Mapper

• Supports strategic Great Lakes data collection and analysis
  – 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 share data

• Built for both large and small datasets
  – Captures smaller datasets that aren’t created using current data standards or may not have access to online data hosting

• Provides metadata and contact info, links to data repositories
The SiGL interface

Contains a variety of additional data layers to enhance data exploration – more layers to come in FY15

Choose from a variety of basemaps
Search SITES

Enter at least one search term.
Parameter type:
Choose parameters...
Parameters:
Choose parameters...
Sampling dates:
from:  to:  
Resource component:
Choose resource...
Media:
Choose media...
Great Lake:
Choose lake...
State/Province:
Choose state...

CLEAR ALL  SEARCH

Search PROJECTS

Search by project name:
Select Individual Project...
Search for projects
Enter at least one search term.
Organization:
Choose a project...
Project objective:
Choose objective...
Project dates:
from:  to:  
Great Lake:
Choose lake...
State/Province:
Choose state/Province...
CLEAR ALL  SEARCH
How to submit data to SiGL

OPTION 1 – submit excel spreadsheet

OPTION 2 – SiGL Data Management System (DMS)

• New online tool
• Edit, update, and submit projects

Your account is pre-populated with your projects

Add project information, contacts, publications, and sites at any time
GLRI Science Explorer

• Tool to allow researchers, managers and the public to explore and find information about USGS GLRI science projects
• Presents project metadata, publications and datasets
• Project information is stored and managed in ScienceBase (USGS Product)
Forecasting Potential Phragmites Coastal Invasion Corridors

Kurt P Kowalski (Principal Investigator), Russell M Strach (Associate Project Chief), USGS Great Lakes Science Center (Cooperator/Partner), and others.

U.S. Geological Survey (USGS) will use remote sensing data to establish a baseline understanding of current distributions of invasive wetland plants and then forecast potential invasion corridors. Alterations to the Great Lakes shoreline or water-level patterns associated with global climate change could have significant impacts on the extent and composition of coastal habitat. Low lake levels can expose fertile wetlandbottomlands to invasive species such as common reed (Phragmites).

Assessment of suitable habitat for Phragmites australis (common reed) in the Great Lakes coastal zone

Carlson Mazur, Martha L. (Author), Kowalski, Kurt P. (Author), Galbraith, David (Author), and others.

In the Laurentian Great Lakes, the invasive form of Phragmites australis (common reed) poses a threat to highly productive coastal wetlands and shorelines by forming impenetrable stands that outcompete native plants. Large, dominant stands can derail efforts to restore wetland ecosystems degraded by other stressors. To be proactive, landscape-level management of Phragmites requires information on the current spatial distribution of the species and a characterization of areas suitable for future colonization. Using a recent basin-scale map of this invasive plant’s distribution in the U.S. coastal zone of the Great Lakes, environmental data (e.g., soils, nutrients, disturbance, climate, topography), and climate predictions, we performed […]

Coastal Corridors Vulnerable Under Reduced Lake Level Scenarios
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