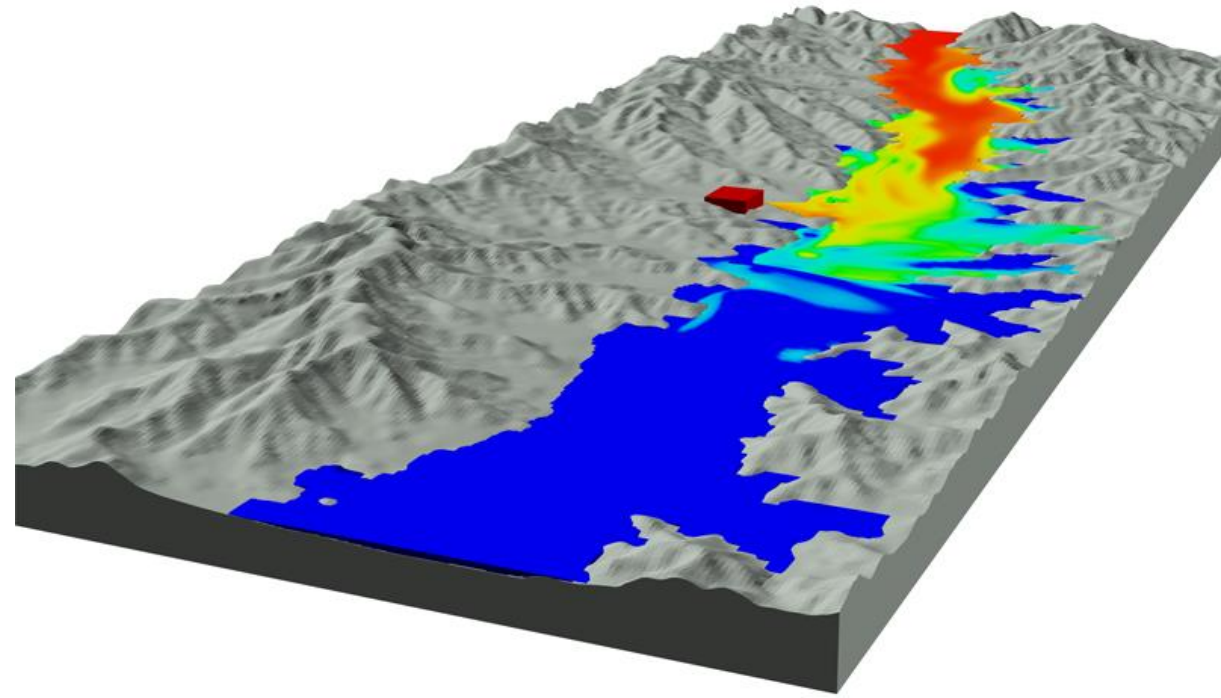


Integrated Data Collection Around the U.S.

Today's presentation

- What is Integrated Data Collection?
 - Why does it matter?
 - How do we collect it?
- Who is doing this work?
- Let's look at some data!

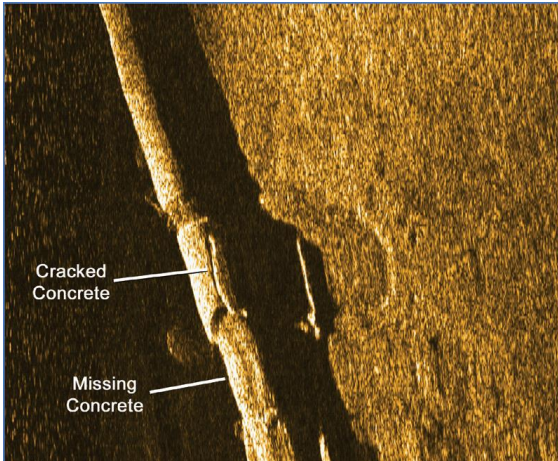


What is Integrated Data Collection?



Collecting two or more of the following at the same time:

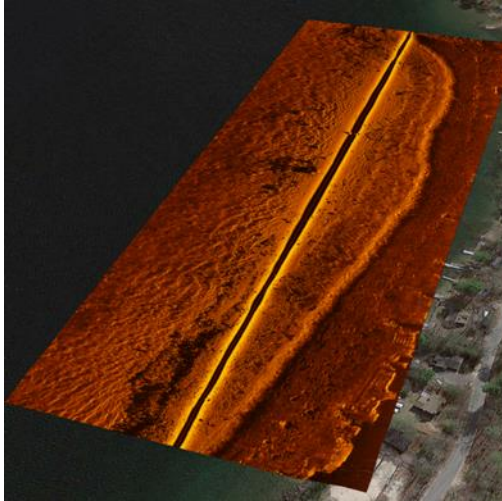
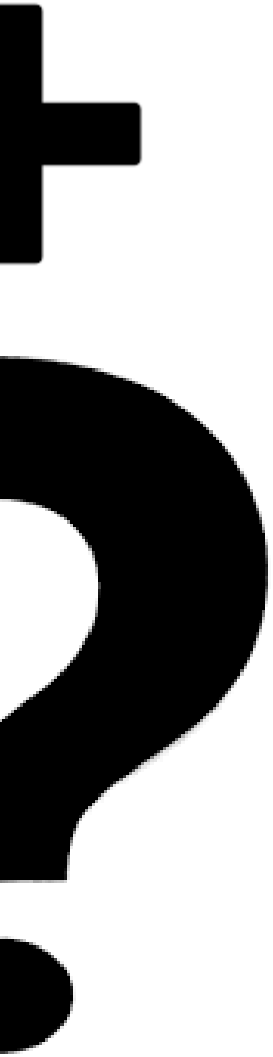
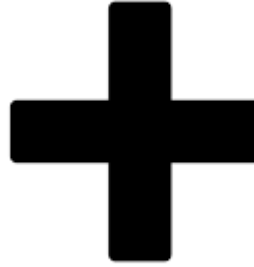
- Quality information
- Velocity information
- Bed material information
- Contour information
- Pictures
- Etc.



Why does it matter?



How do we collect it?



EcoMapper AUV



Baseline Monitoring

- Detailed data on horizontal and vertical planes
- Reduce number of personnel on the water
- Reduce costs to run monitoring program
- Simultaneous bathymetric, water quality and current mapping, sonar imaging

Source Water Mapping

- Improve knowledge of raw water quality
- Early warning of algal blooms and low DO events
- Map sediment level and reservoir volume
- Reduce water treatment operating costs

Coastal & Ocean Research

- Surf-zone turbulence
- Benthic boundary layer studies
- Coral reef ecology
- Tidal inlet studies
- Fisheries research
- Physical-biological interaction

Bottom Mapping

- Depth sensor and acoustic sounder standard
- Side-scan sonar optional
- Requires < 1 m water depth

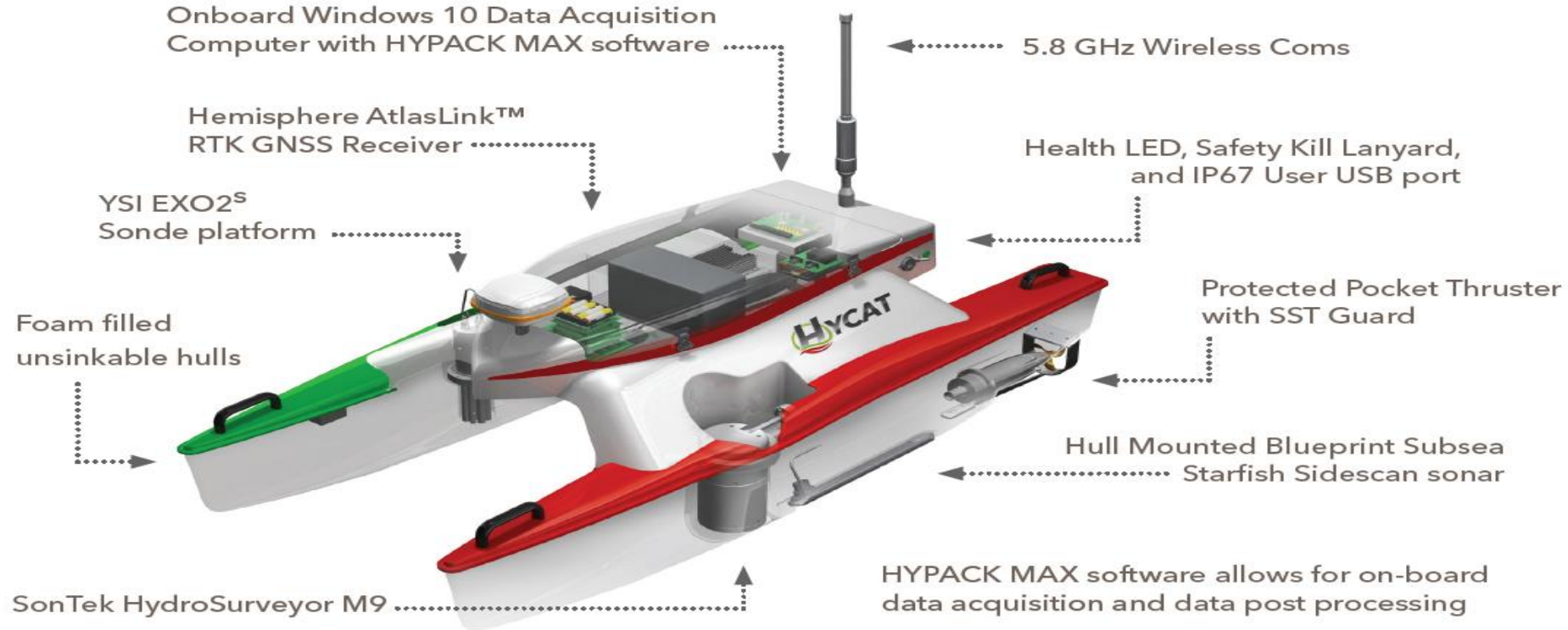
Point Source and Non-point Source Mapping

- Generate high-resolution map of plume
- Track movement of point source
- Map non-point source impacts to environment
- Monitor impacts by industry or development



HYCAT – Autonomous Surface Vehicle (ASV)

Overview



Xylem Brands:



a xylem brand



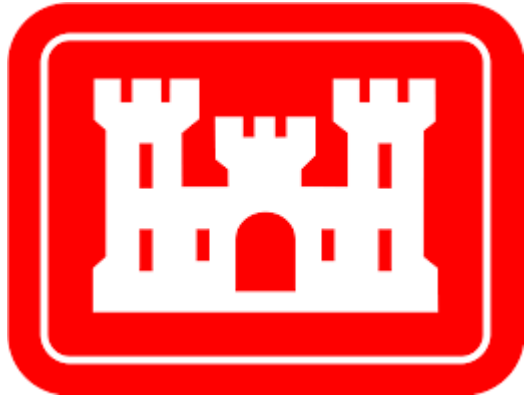
HYCAT – Autonomous Surface Vehicle (ASV)

Performance



Specifications	
LOA (in)	71
Beam (in)	24
Draft (in)	6
Weight	120
Max Speed (kts)	ASV 8 knots (Surveying 4 knots)
Endurance (hrs)	
@ 2 knots	8
@ 3 knots	6
@ 4 knots	2.7

Who is doing this work?



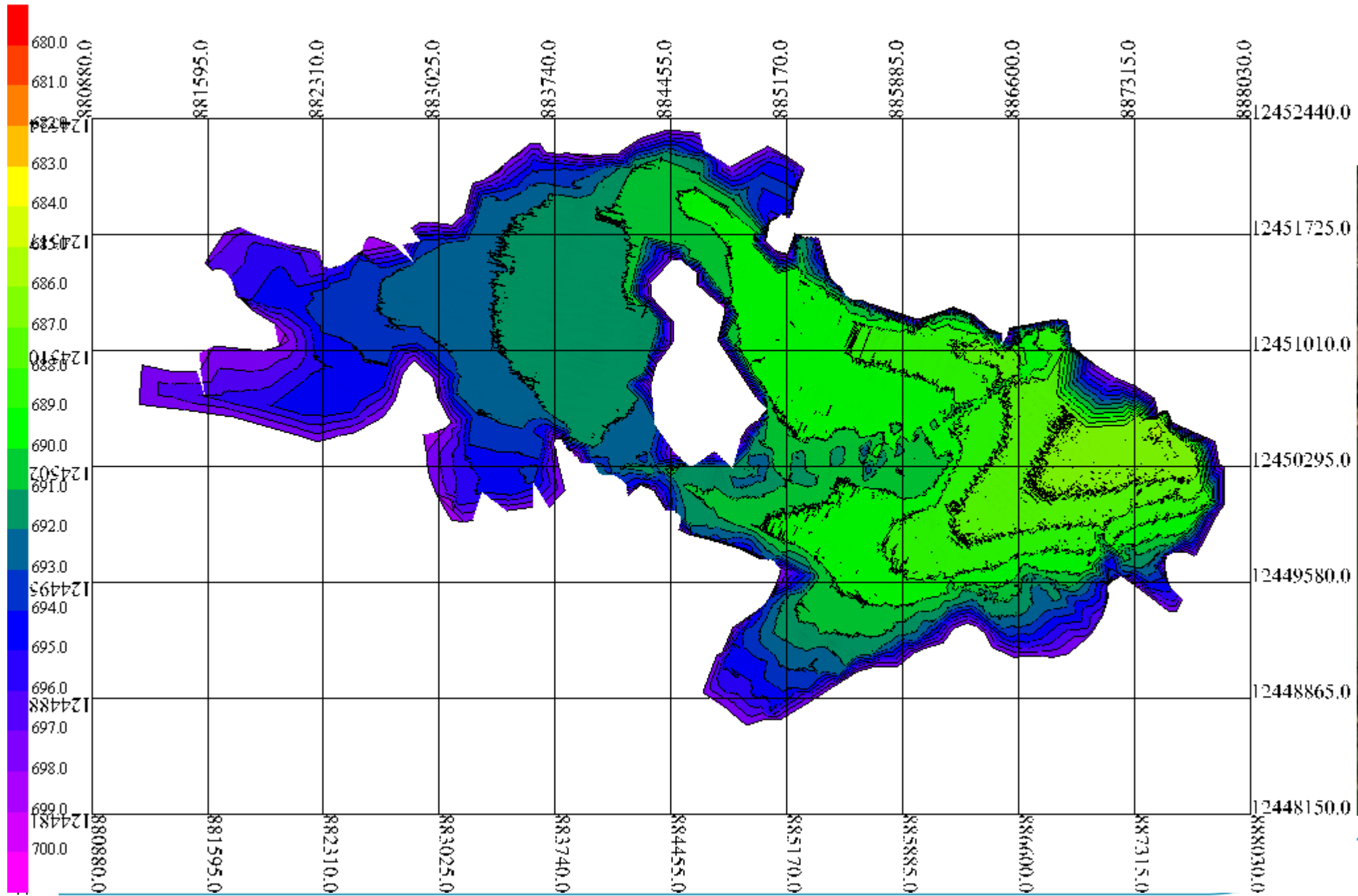
You!



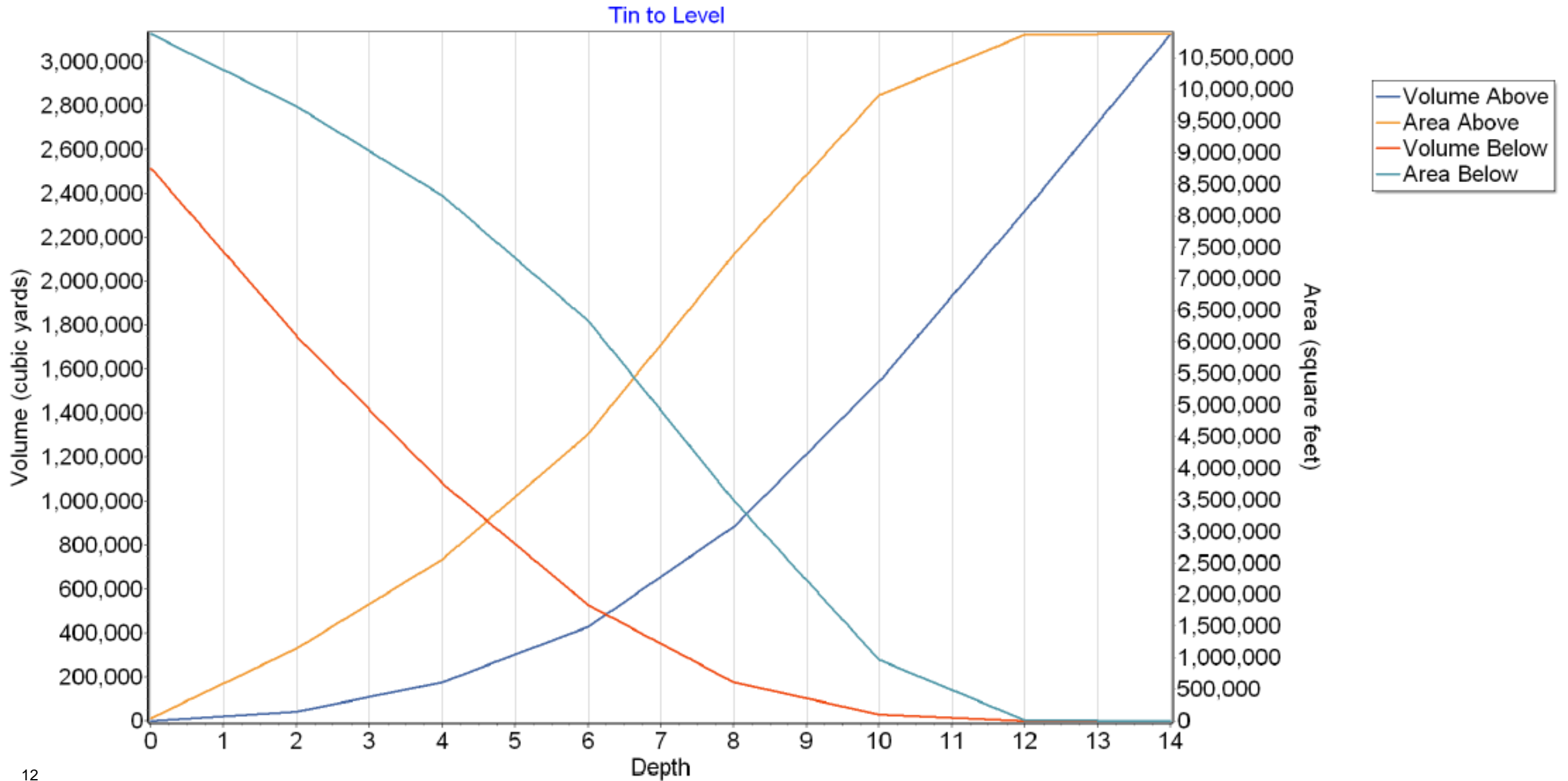
xylem

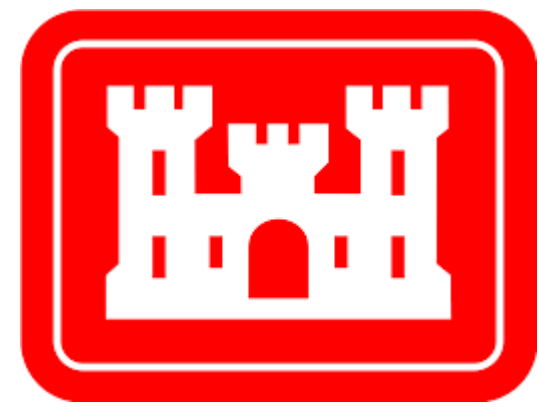


Let's look at some projects/data!

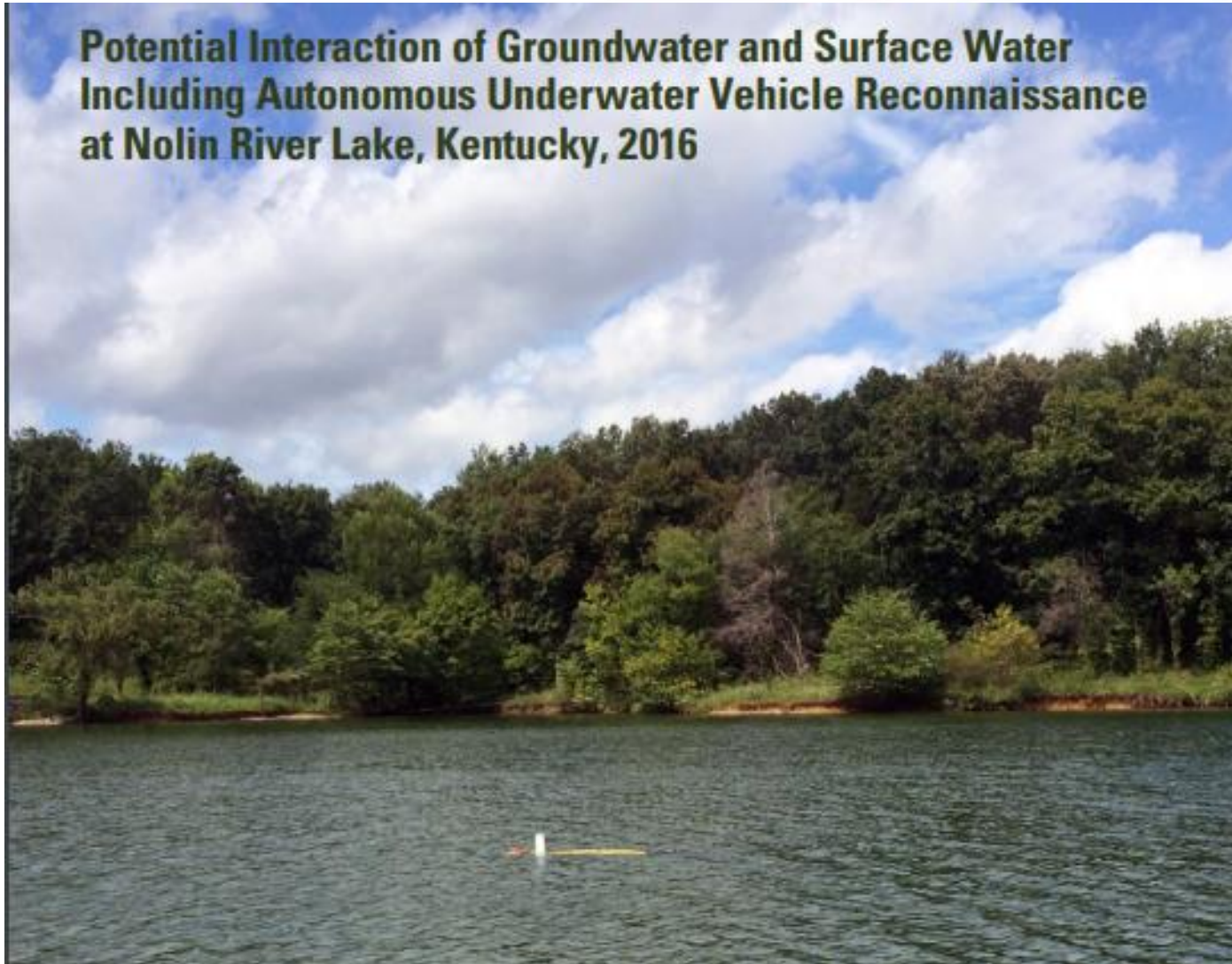


Reservoir 51 Continued

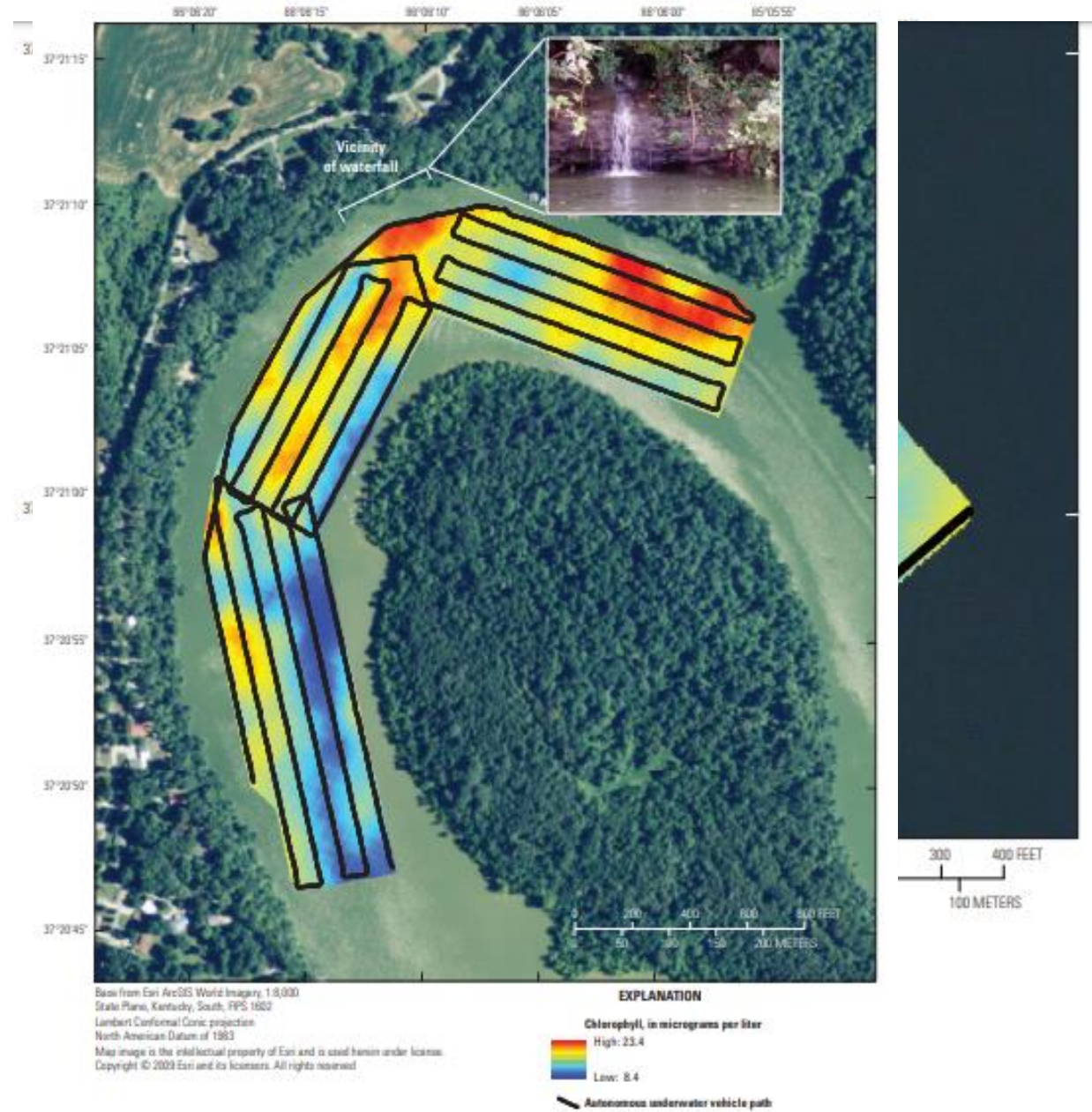




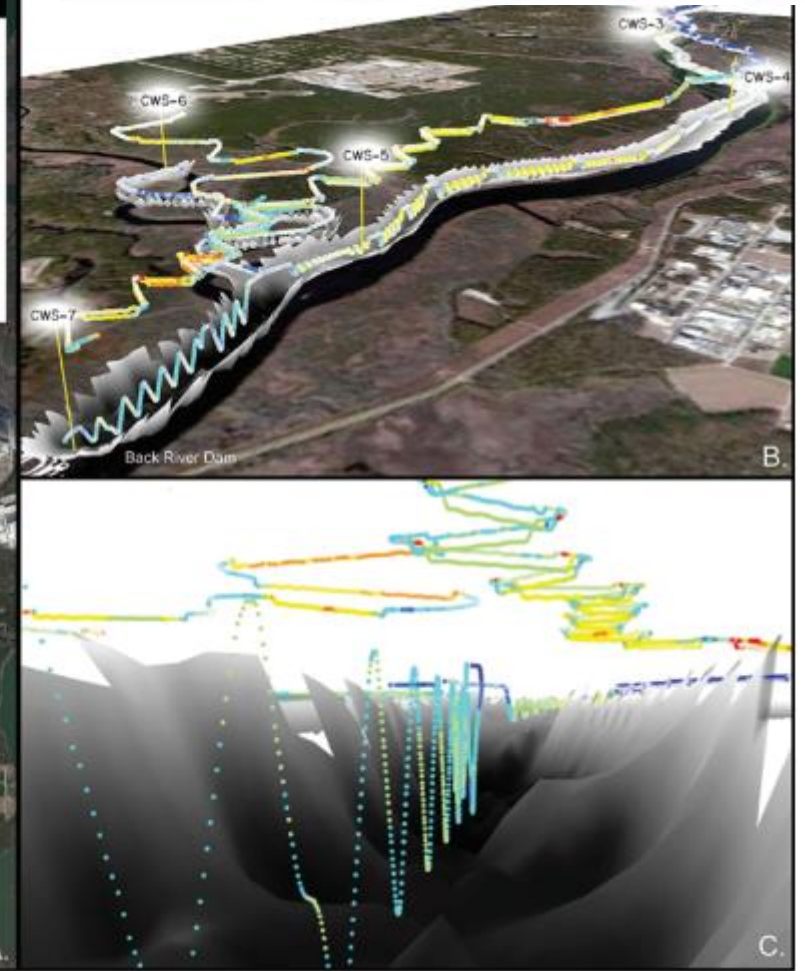
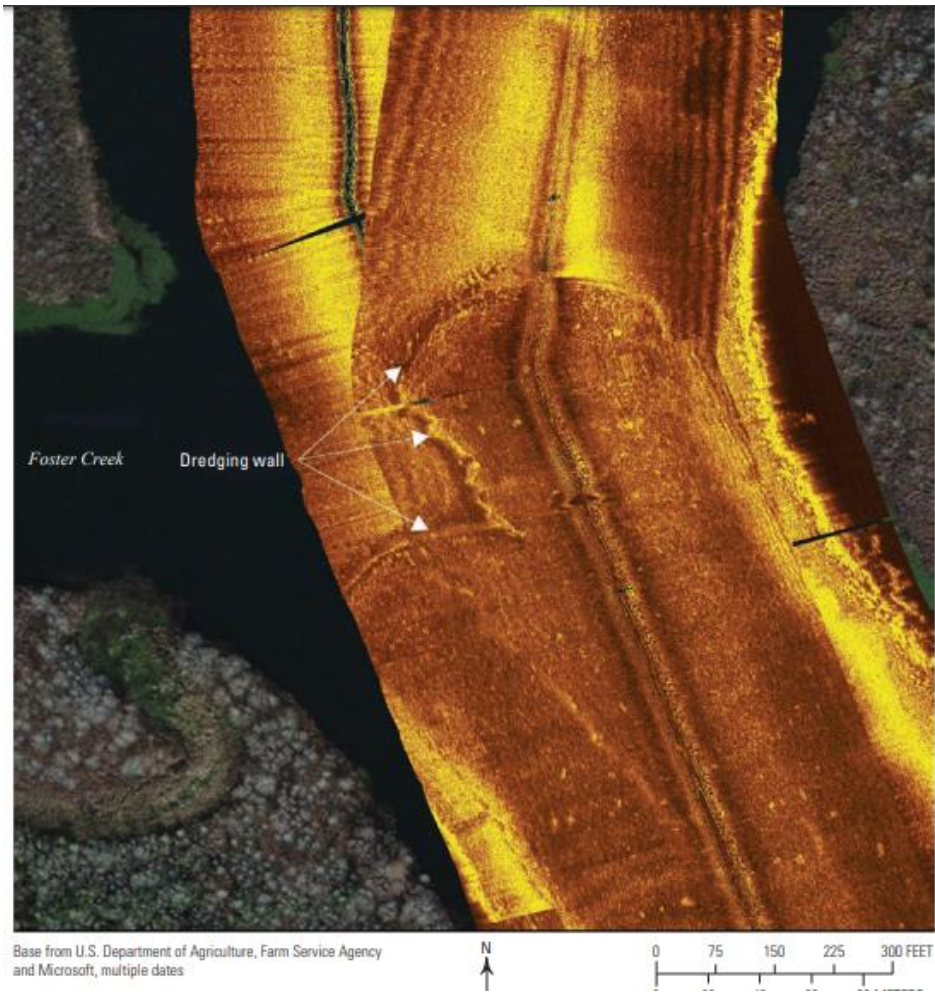
**Potential Interaction of Groundwater and Surface Water
Including Autonomous Underwater Vehicle Reconnaissance
at Nolin River Lake, Kentucky, 2016**



Nolin River Lake, KY



Bushy Park Reservoir, Charleston, SC

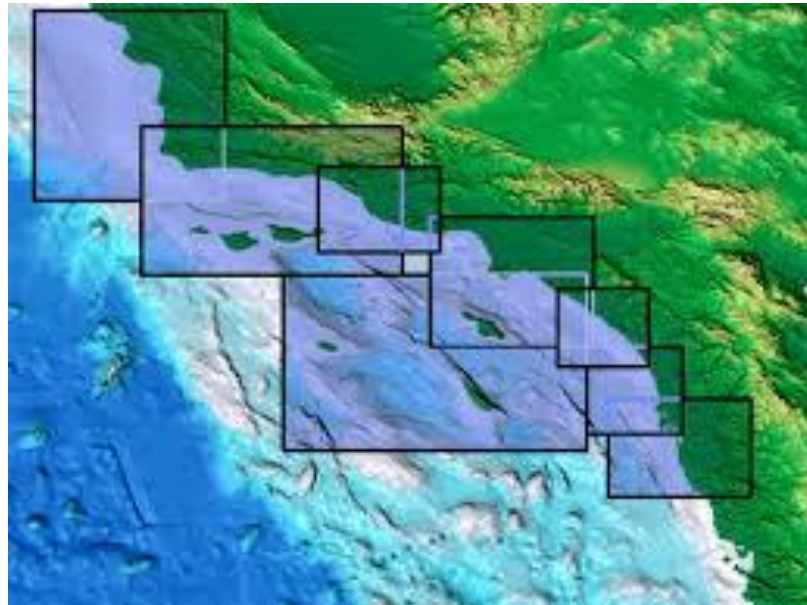


California State University, Long Beach



EcoMapper file photo

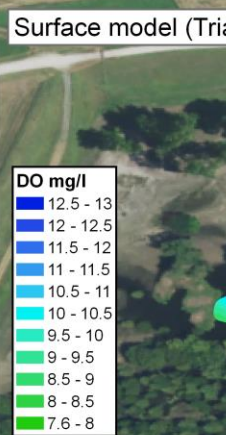
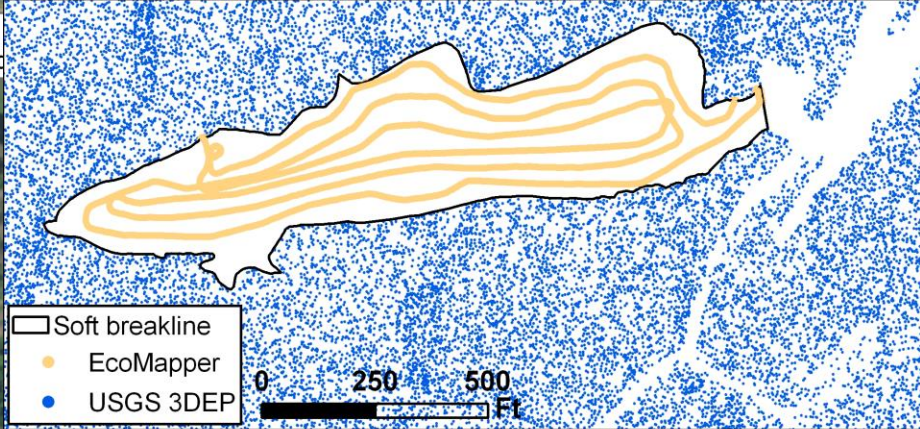
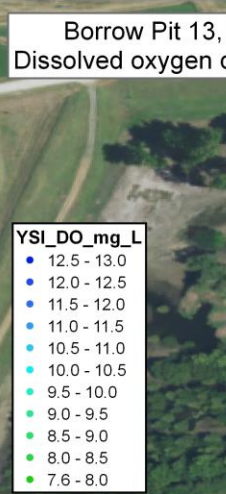
CSU, LB Continued



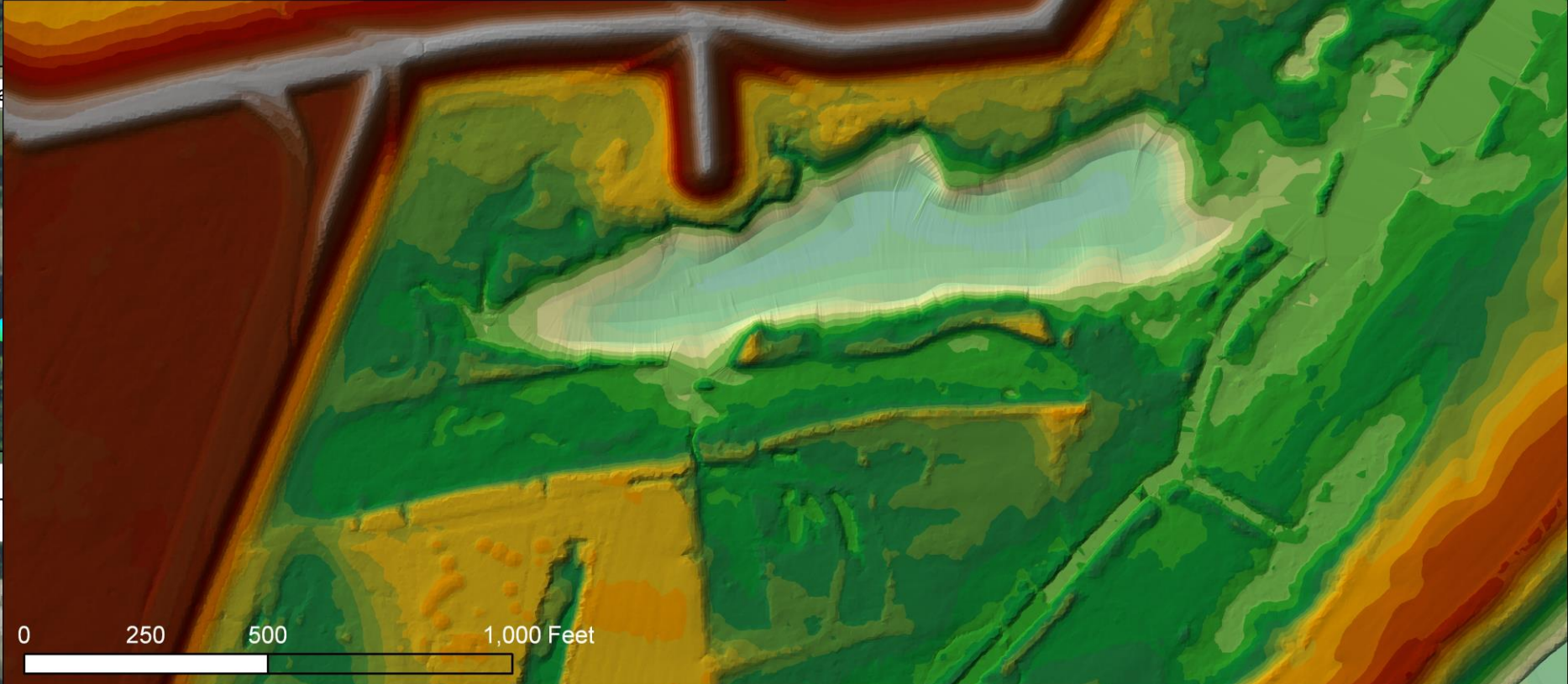
Bonne Carre Spillway, LA (USACE Vicksburg)



Borrow Pits



Dissolved oxygen
2.4 acres greater th
5.3 acres less than



Map created in ArcGIS 10.6
ESRI by Amanda Oliver Jaya/ERDC.
BP13 elevation collected
using i3XO EcoMapper AUV - YSI
Elevation data from
USGS 2017 3D Elevation Program

Questions?

Mark.Lynch@xyleminc.com

Kyle.Waits@xyleminc.com

Kevin.Labbe@xyleminc.com

