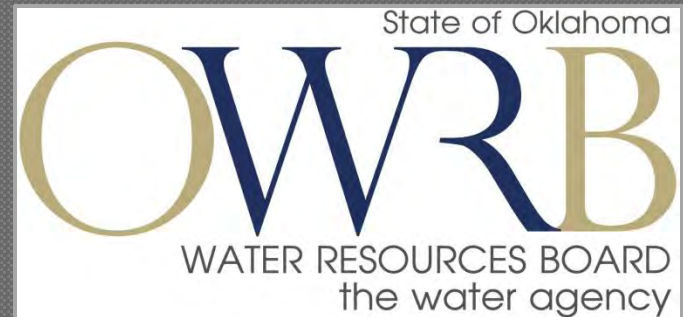


OWRB Bathymetric Mapping Update



OCLWA 2016



Basics of Bathymetry

GPS
(Lat. and Long.)
(x and y)

Echosounder
(Depth)
(z)

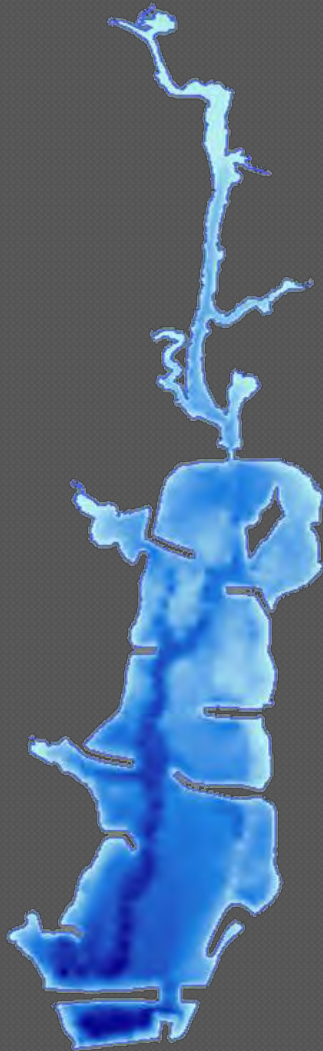
Data Collection
Software
(Hypack®)

```
graph TD; GPS[GPS (Lat. and Long.) (x and y)] --> Hypack[Data Collection Software (Hypack®)]; Echosounder[Echosounder (Depth) (z)] --> Hypack;
```

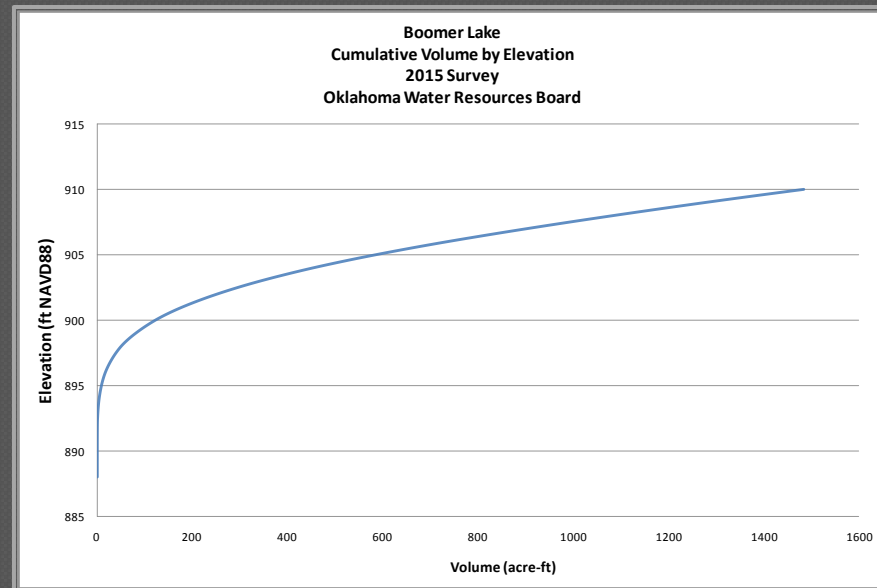
The diagram illustrates the data flow for bathymetry. Two input boxes at the top, 'GPS (Lat. and Long.) (x and y)' on the left and 'Echosounder (Depth) (z)' on the right, both have large blue arrows pointing down to a central box labeled 'Data Collection Software (Hypack®)'. The background is a dark gray with a subtle grid pattern.

Results

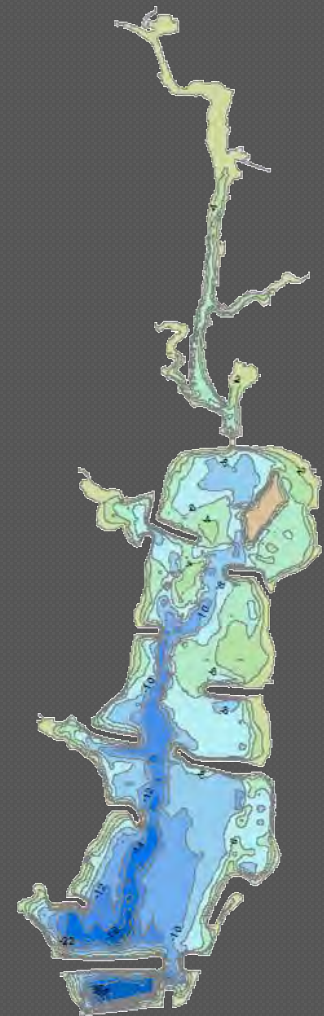
Shaded Relief



- 3 dimensional data sets allow us to visualize the data in many ways
- Maps
- Tables and Graphs



2 ft Contours

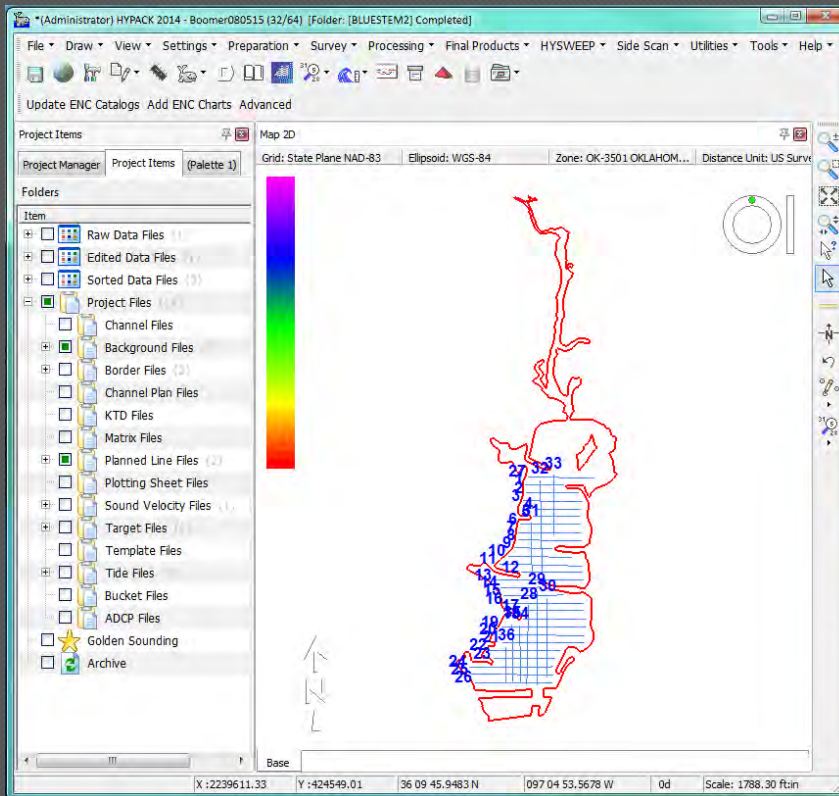


Our Process

- Pre Survey Planning
- Surveying
- Post Processing
- GIS Application and Reporting

Pre Survey Planning

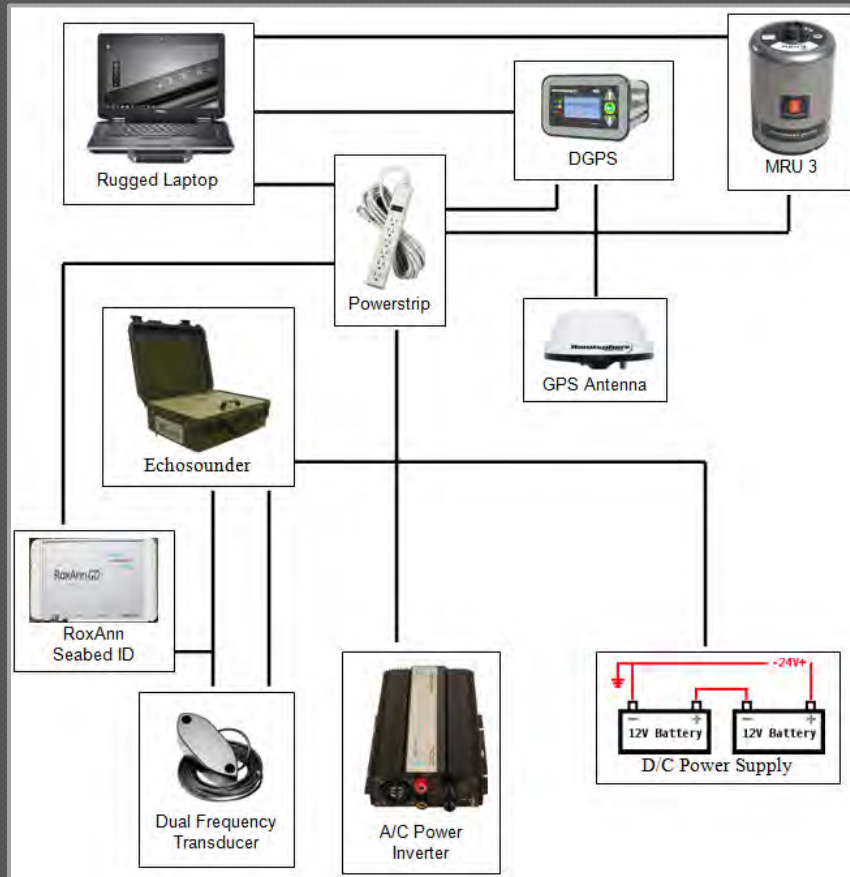
- Boundary File
 - Digitized
 - Lidar
- Planned Lines
 - Transects
 - QC



Field Surveying

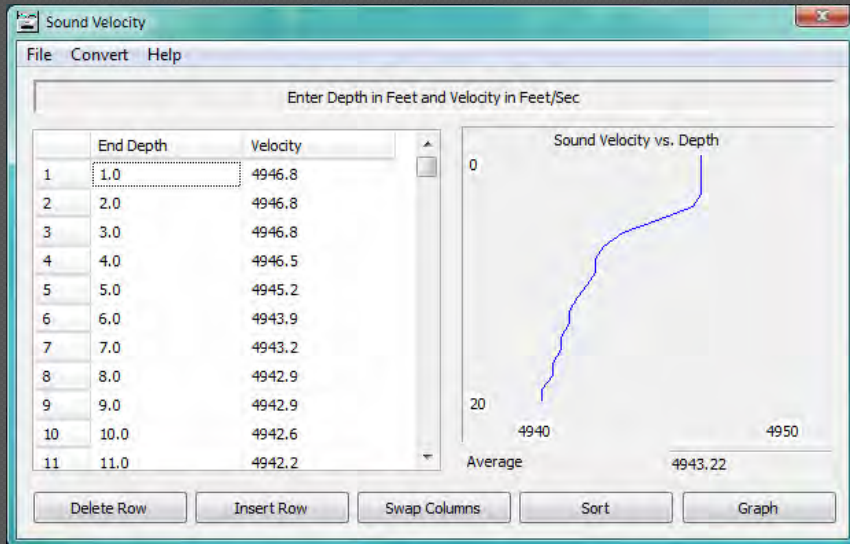


Equipment Setup

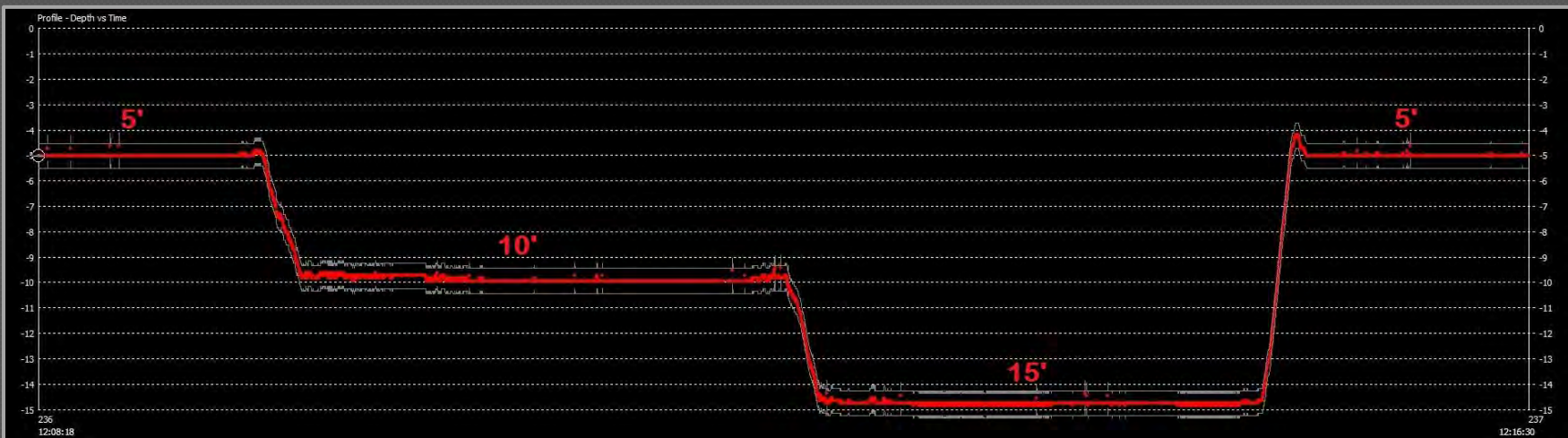


- Survey Vessel
- Differential GPS
- Echosounder
- Transducer
 - Dual/Single Frequency
 - Sidescan
- Onboard Computer
- RoxAnn (Seabed ID)
- MRU
- Profiling Sound Velocimeter

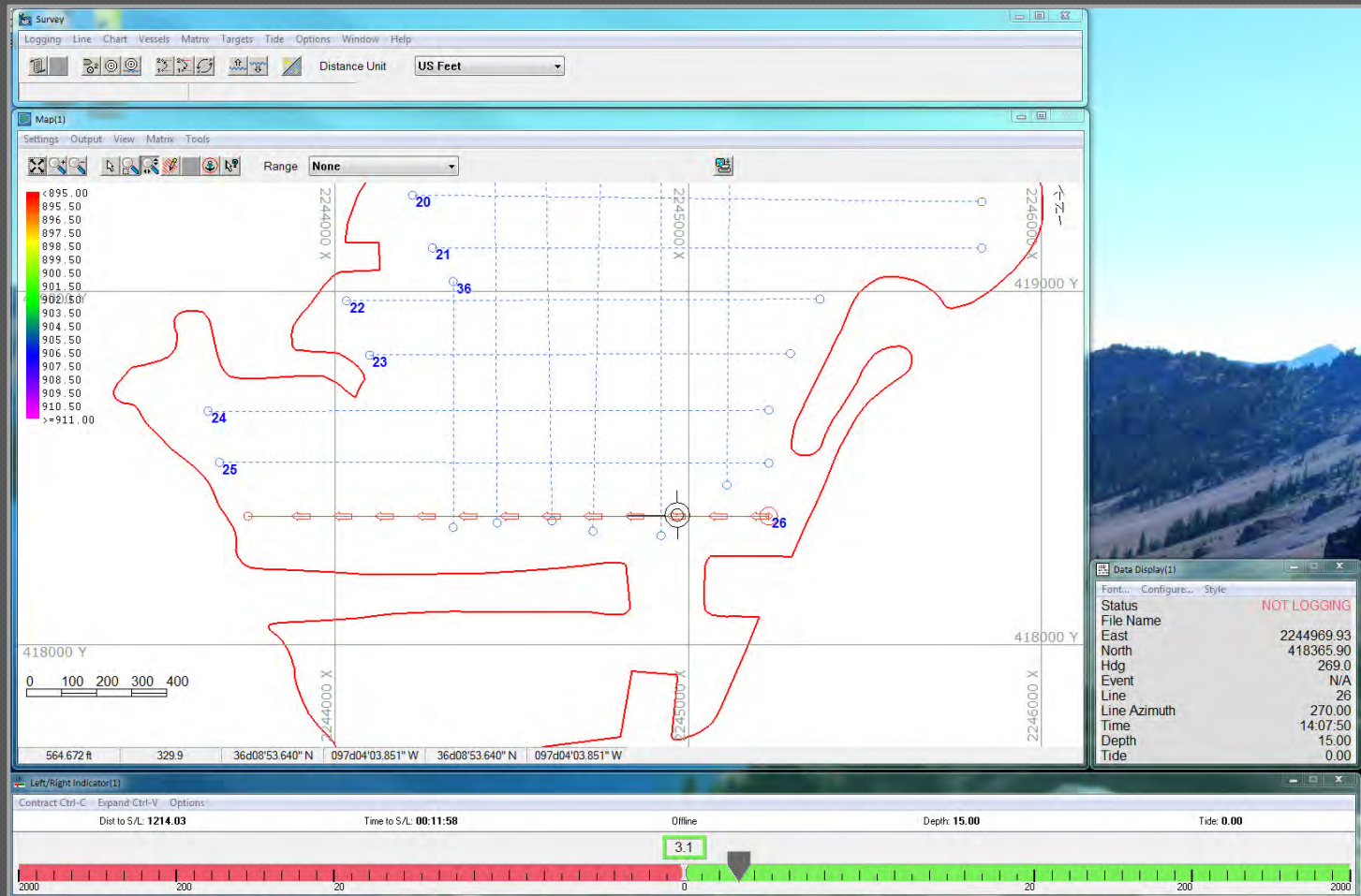
Equipment Calibration



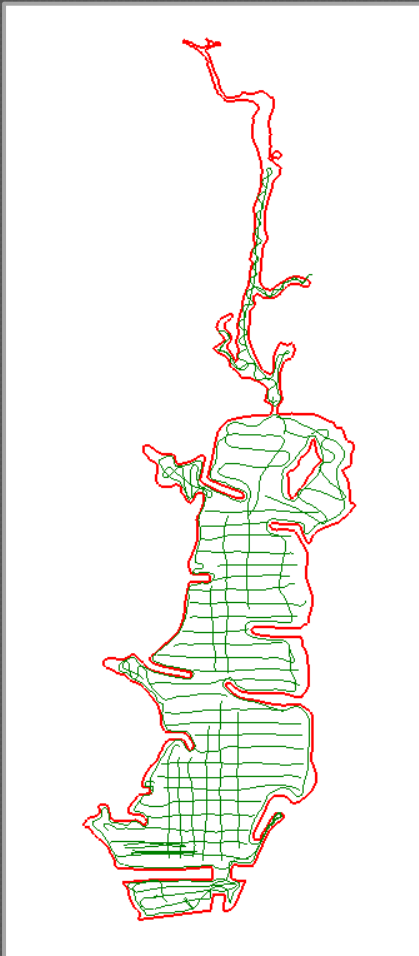
- Lake Elevation
- Sound Velocity Profile
- Barcheck
- Latency
- Connection Test
- Dynamic draft



Data Collection

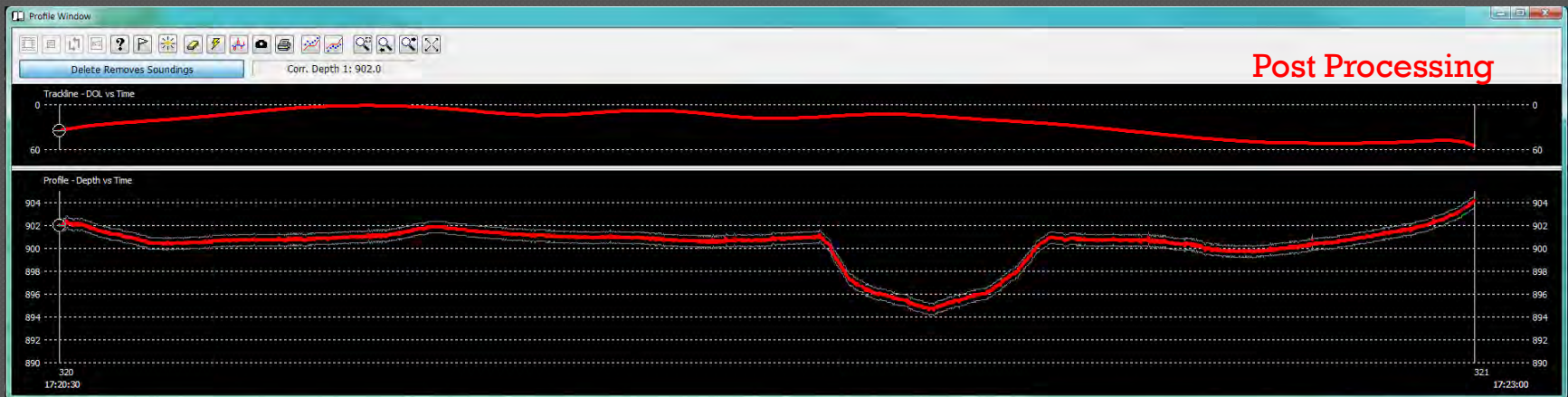
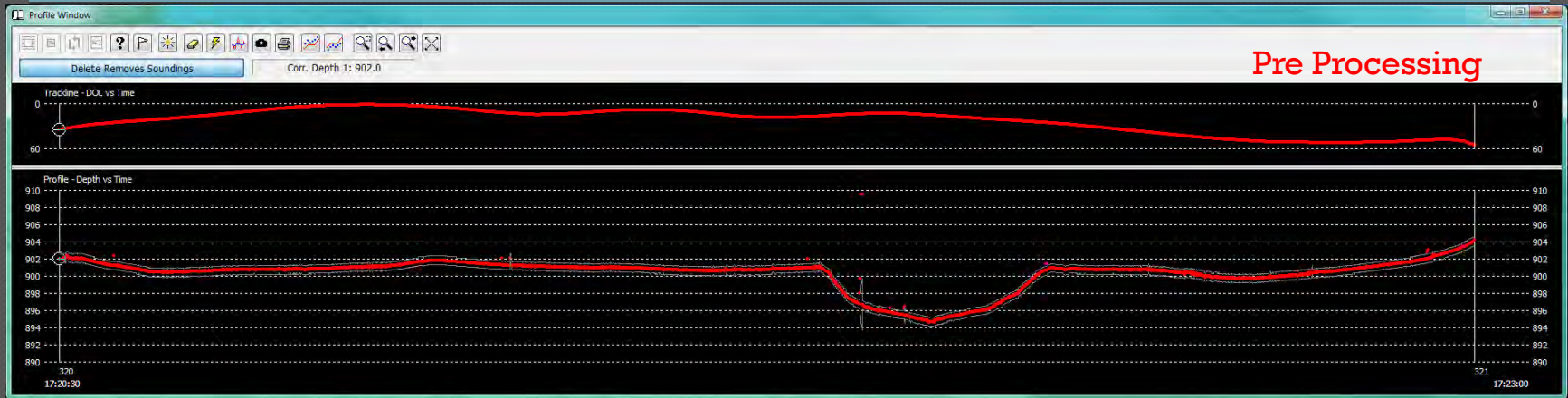


Collected Data and Coverage

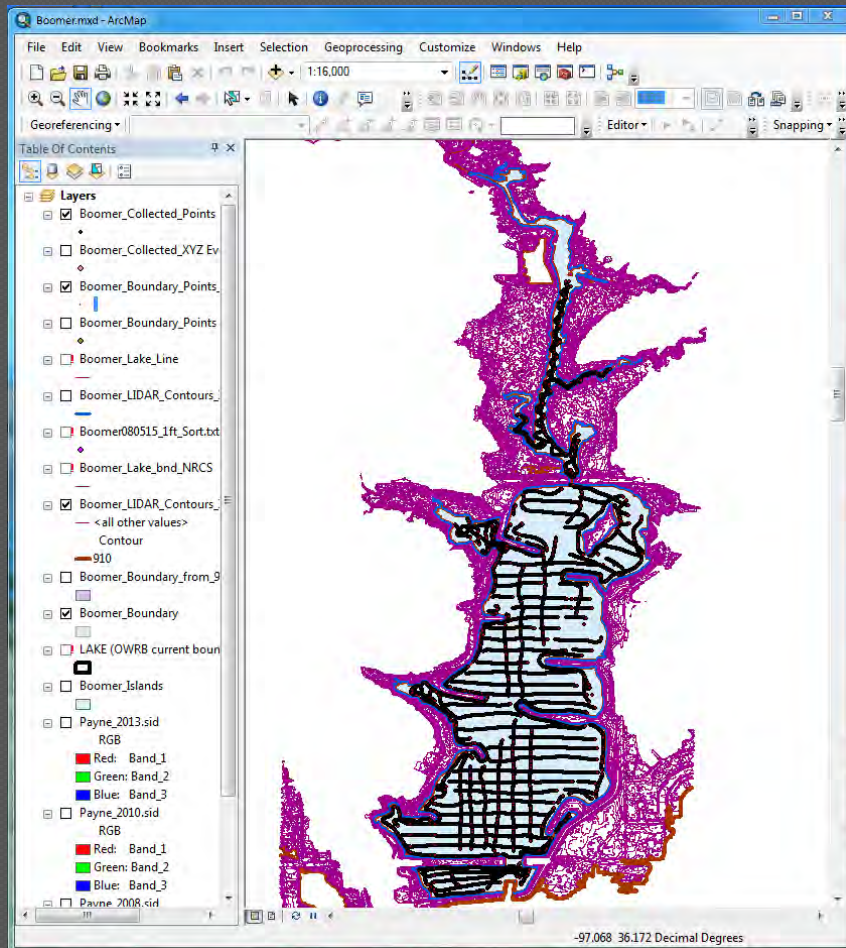


- Shoreline Data
- Transects
- QC Lines
- Shallow areas
- Lake arms
- Riverine sections

Post Processing



GIS Application and Reporting



HYDROGRAPHIC SURVEY OF BOOMER LAKE



Final Report
September 28, 2015

Prepared by:



Current Projects

- ODEQ DO Mitigation Project
 - Boomer(2015)
 - Okmulgee(2015)
 - Elmer Thomas(2016)
 - Lake of the Arbuckles(2016)
 - John Wells(2016)
 - Hominy Municipal(2016)
- Waurika Dredge Project (WLMCD)
- GRDA Grand Lake Shoreline Project
 - Sidescan
 - Seabed Classification

Opportunities

- **Bathymetric Surveys**

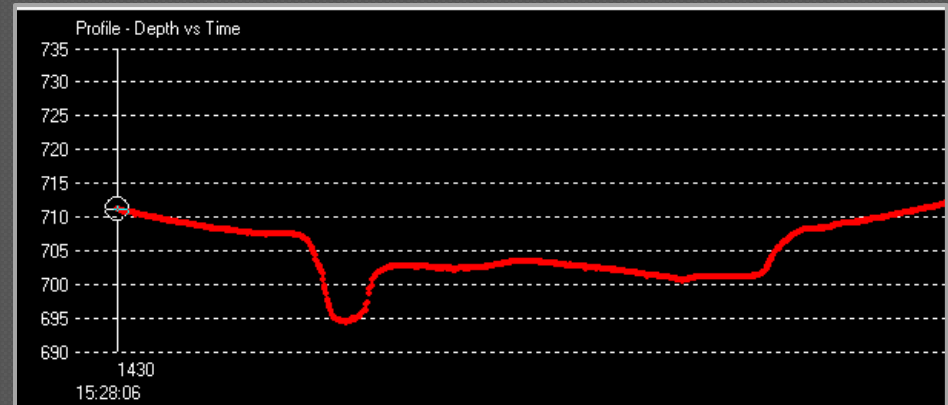
- Deep and shallow water
- Large or small water bodies
- Capacity calculations
- Calculate sedimentation rates
- Dredge volume calculations
- Vegetation Coverage

- **Sidescan**

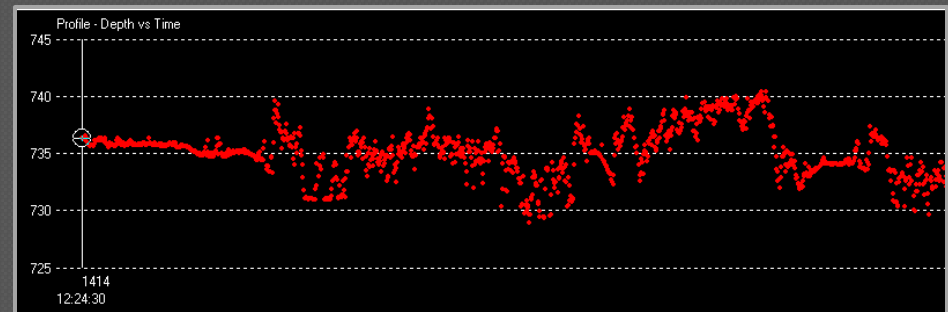
- Shoreline/Seabed imagery
- Dam inspection

- **Seabed Classification**

Soundings indicating absence of *Hydrilla*

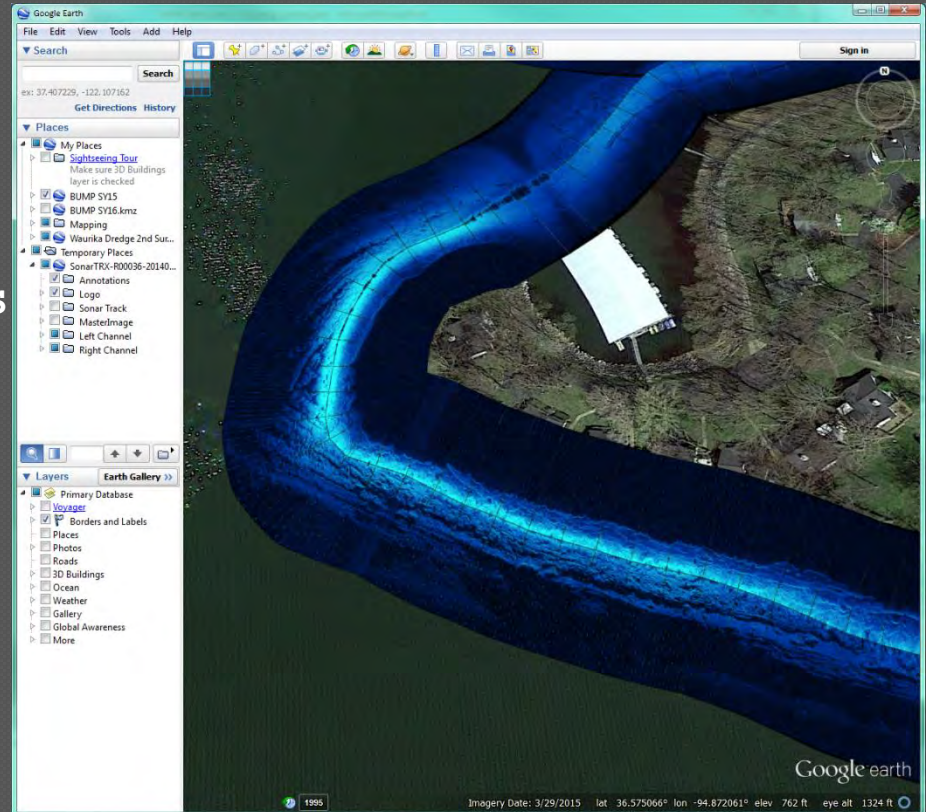


Soundings indicating presence of *Hydrilla*



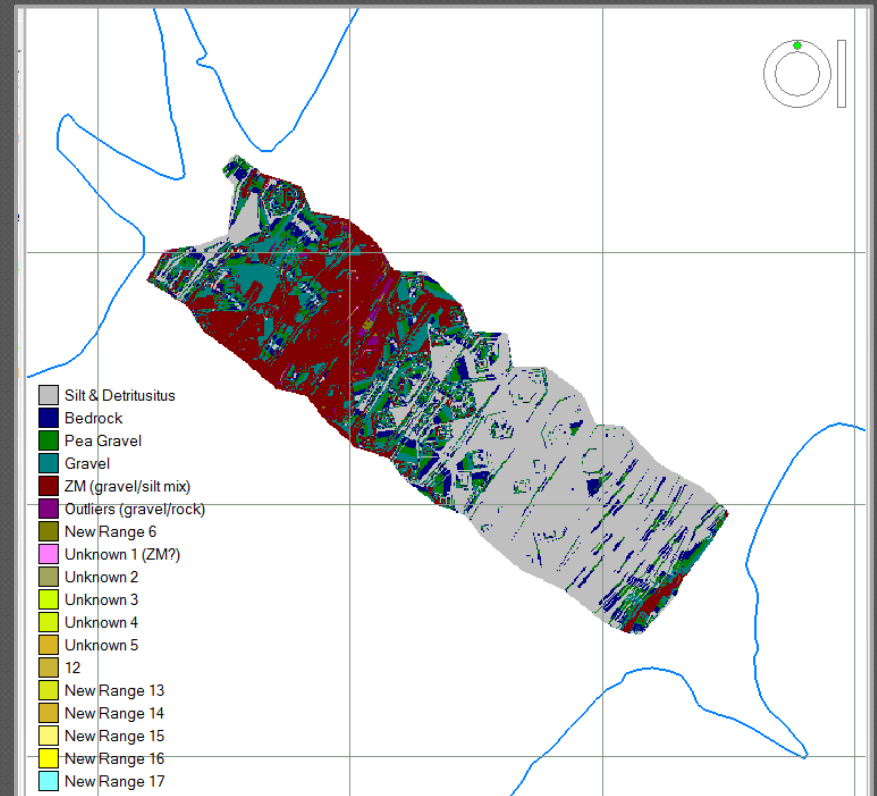
Opportunities

- Bathymetric Surveys
 - Deep and shallow water
 - Large or small water bodies
 - Capacity calculations
 - Calculate sedimentation rates
 - Dredge volume calculations
 - Vegetation Coverage
- Sidescan
 - Shoreline/Seabed imagery
 - Dam inspection
- Seabed Classification



Opportunities

- **Bathymetric Surveys**
 - Deep and shallow water
 - Large or small water bodies
 - Capacity calculations
 - Calculate sedimentation rates
 - Dredge volume calculations
 - Vegetation Coverage
- **Sidescan**
 - Shoreline/Seabed imagery
 - Dam inspection
- **Seabed Classification**



Reports and Contact Info

- All reports are made available online at:
 - http://www.owrb.ok.gov/maps/pmg/owrbdata_Bathy.html
- Any further questions or inquiries can be directed to me at:

James Decker

Oklahoma Water Resources Board

Office: 405.530.8800

Fax: 405.530.8900

Email: James.Decker@owrb.ok.gov

