Bathymetric Mapping Program

James Decker

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Basics of Bathymetry

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

Echosounder
(Depth)
(z)

Data Collection Software
(Hypack®)

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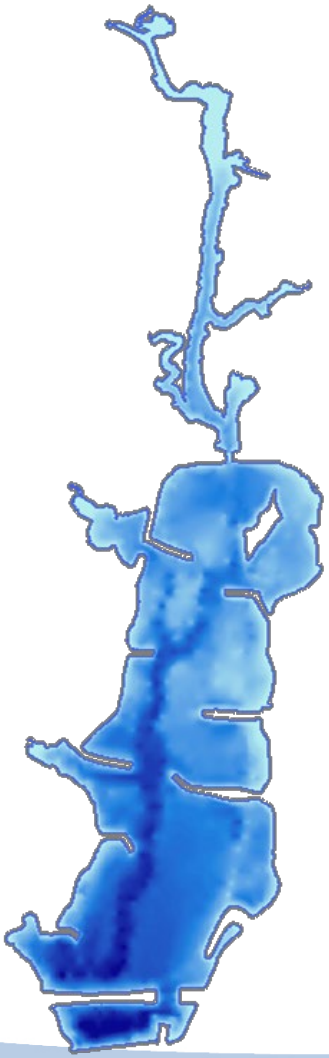
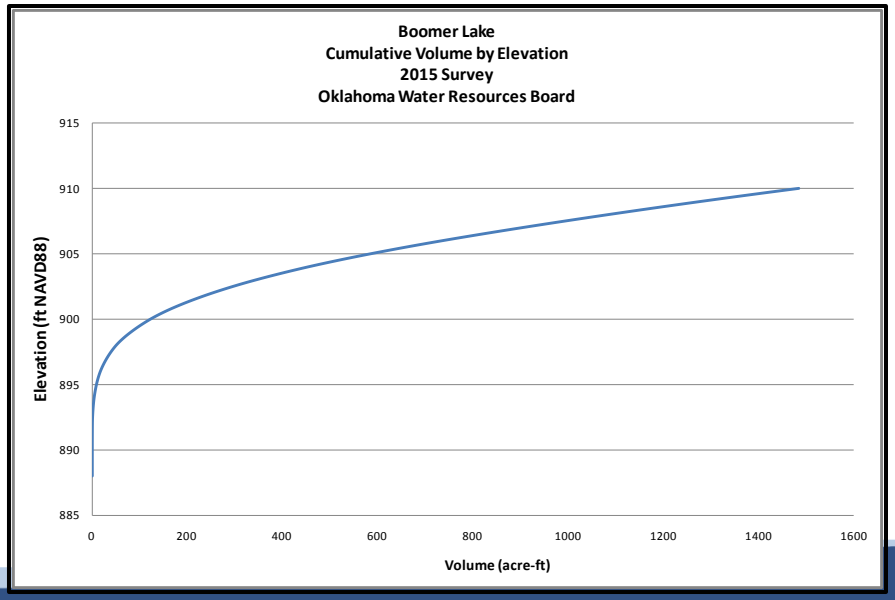
Results

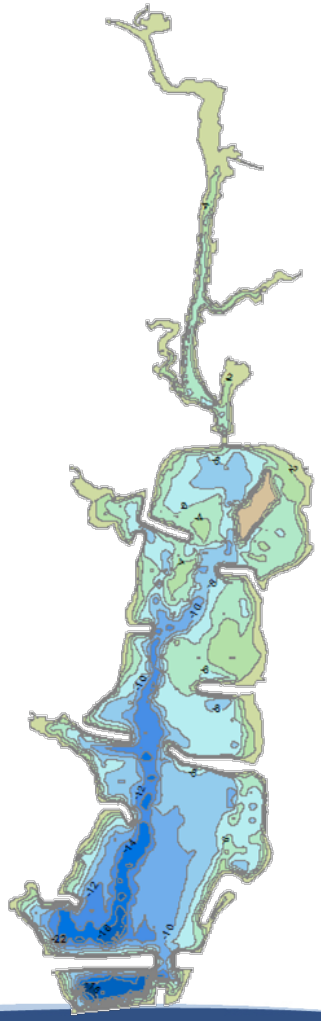
Shaded Relief



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



2 ft Contours



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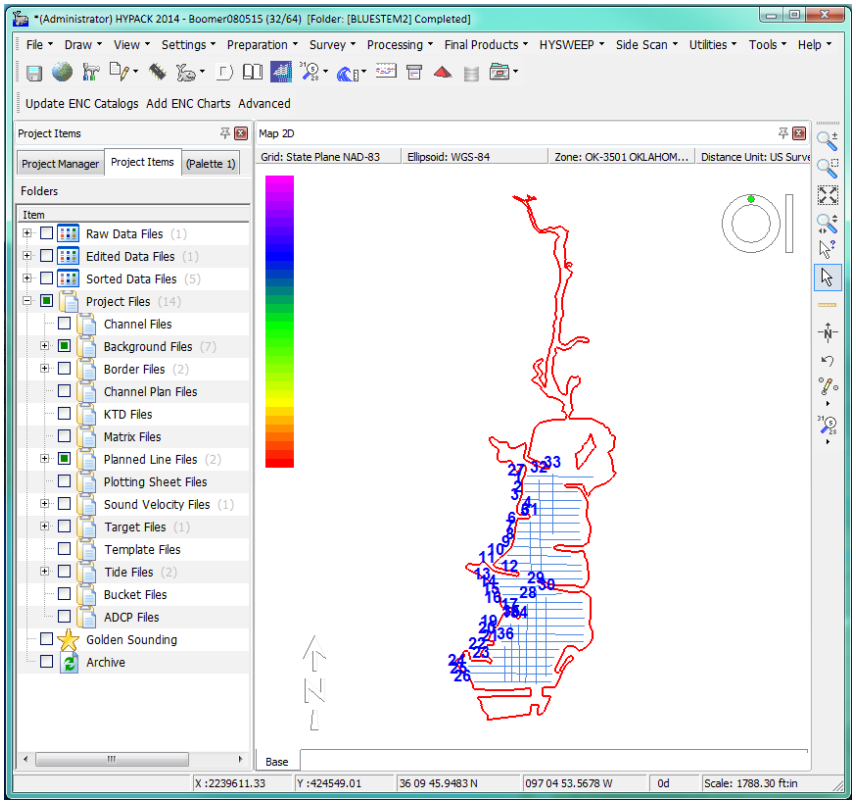
Our Process

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

Pre Survey Planning



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

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Field Surveying

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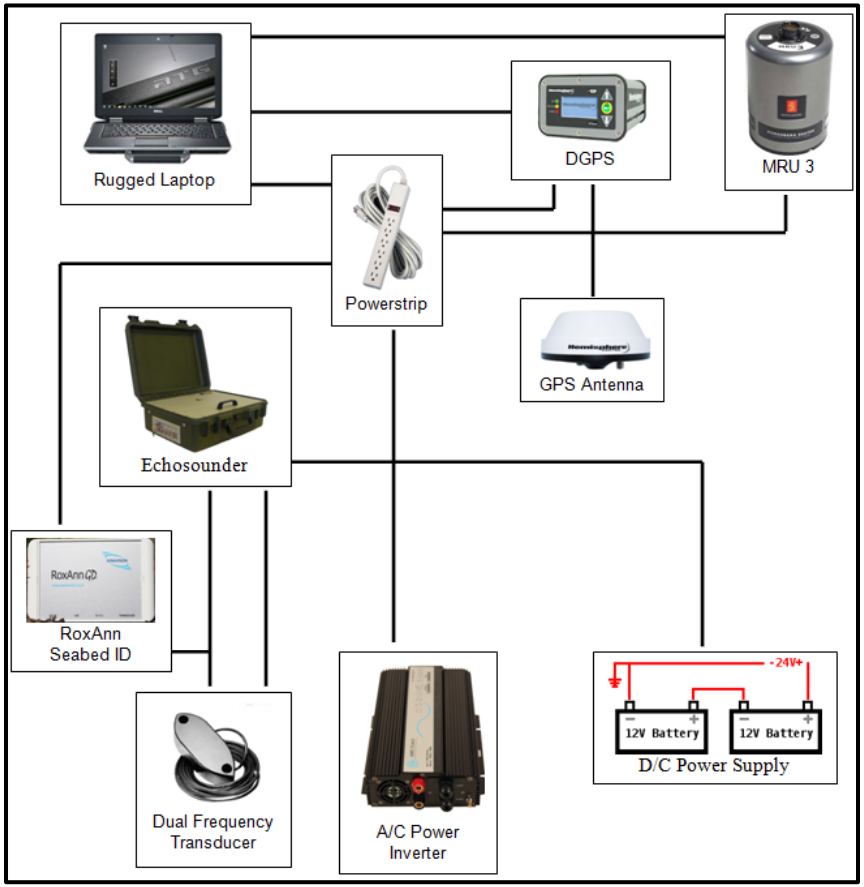
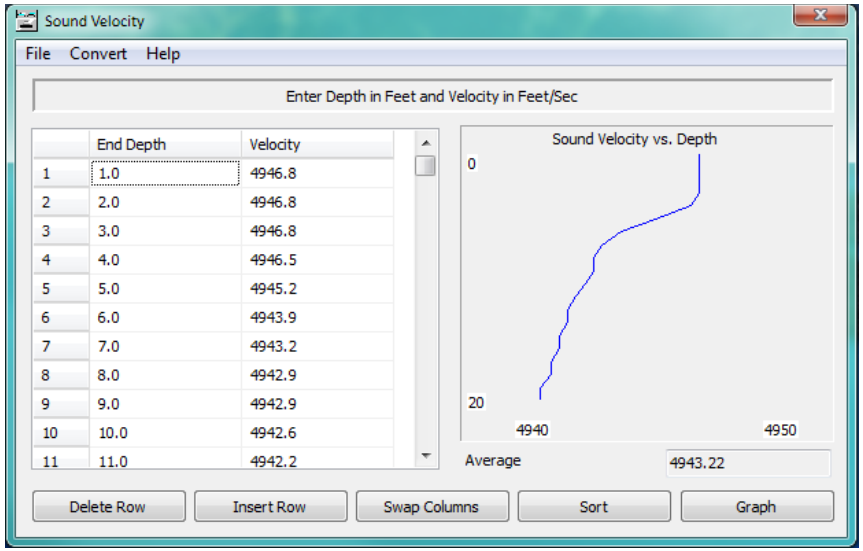
Equipment Setup



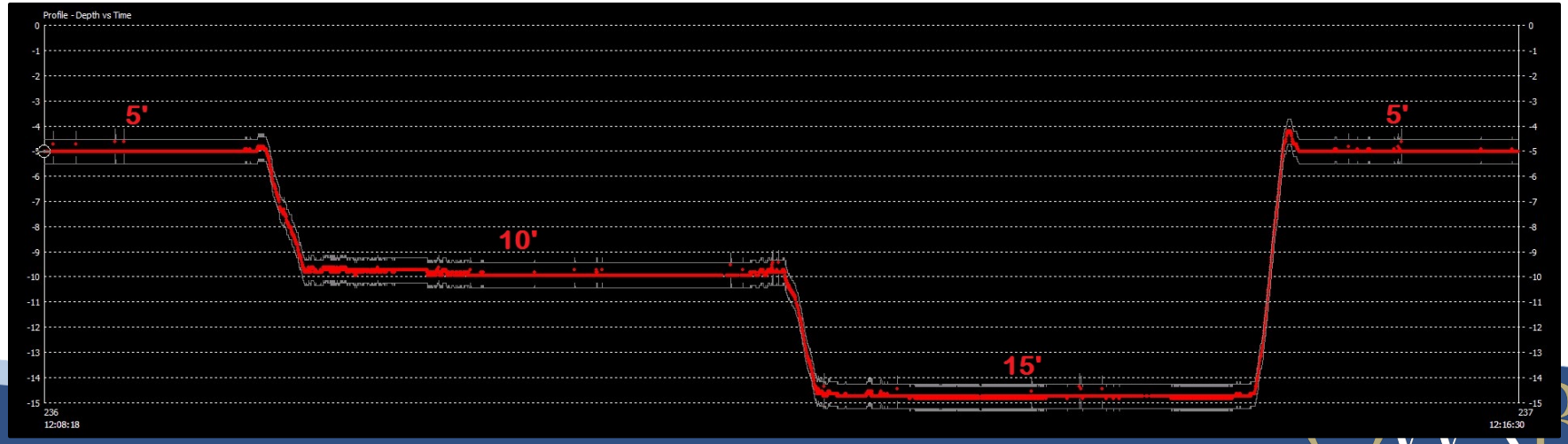
- Survey Vessel
- Differential GPS
- Echosounder
- Transducer
  - Dual/Single Frequency
  - Sidescan
- Onboard Computer
- Profiling Sound Velocimeter

Equipment Calibration

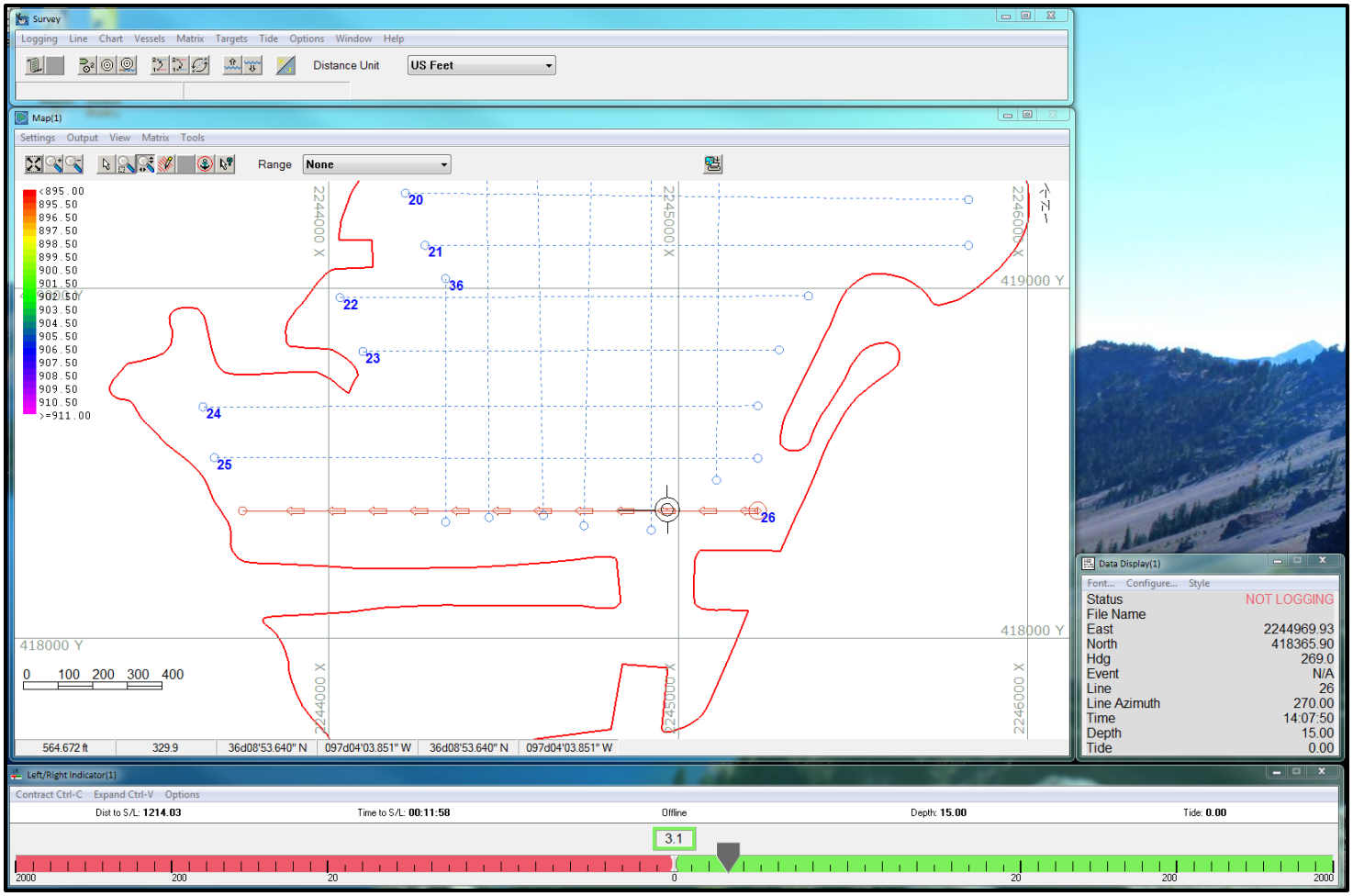


	End Depth	Velocity
1	1.0	4946.8
2	2.0	4946.8
3	3.0	4946.8
4	4.0	4946.5
5	5.0	4945.2
6	6.0	4943.9
7	7.0	4943.2
8	8.0	4942.9
9	9.0	4942.9
10	10.0	4942.6
11	11.0	4942.2

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



Data Collection



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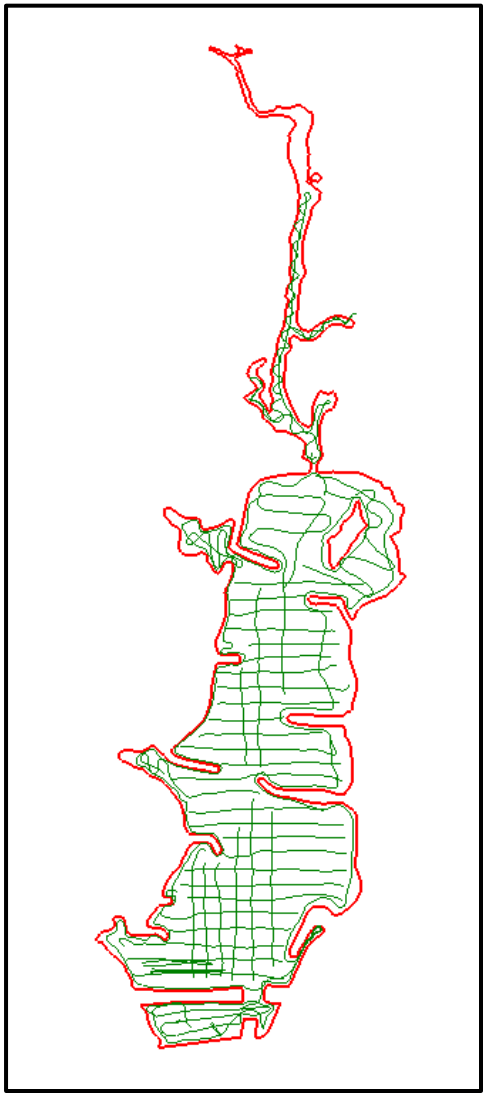
Collected Data and Coverage



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

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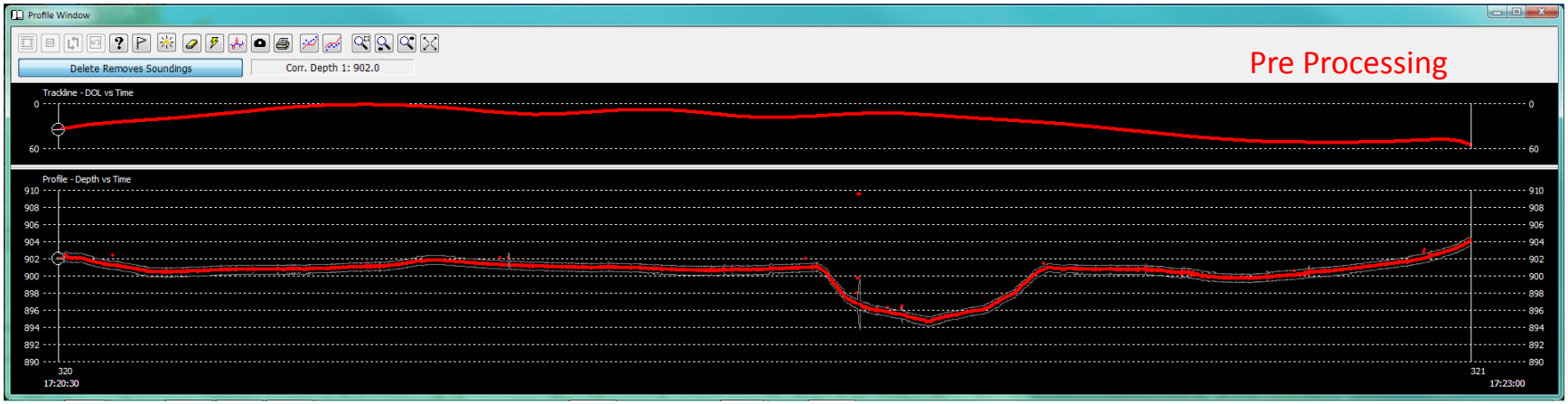
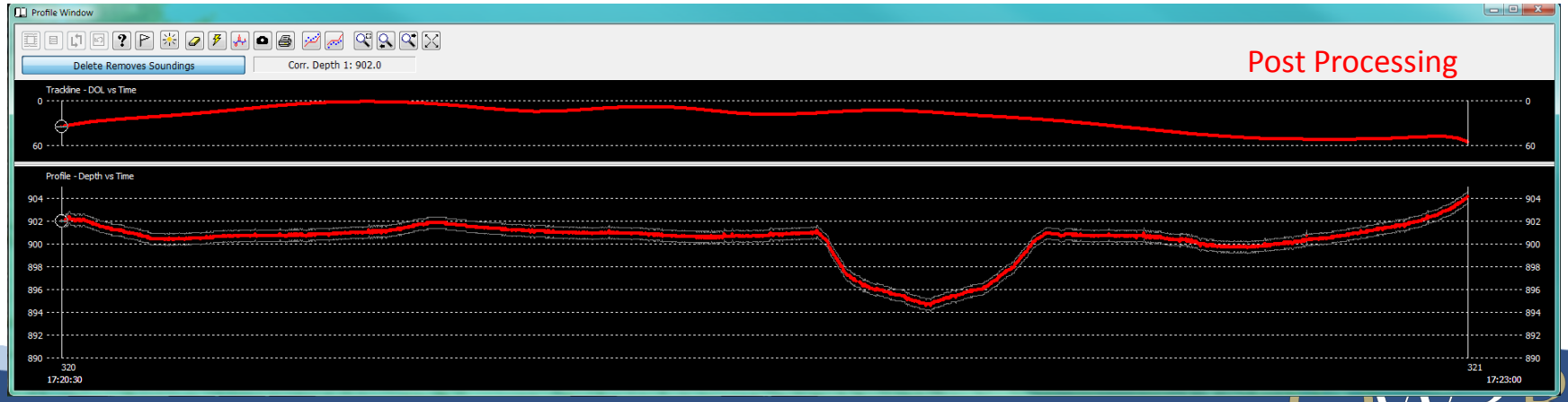
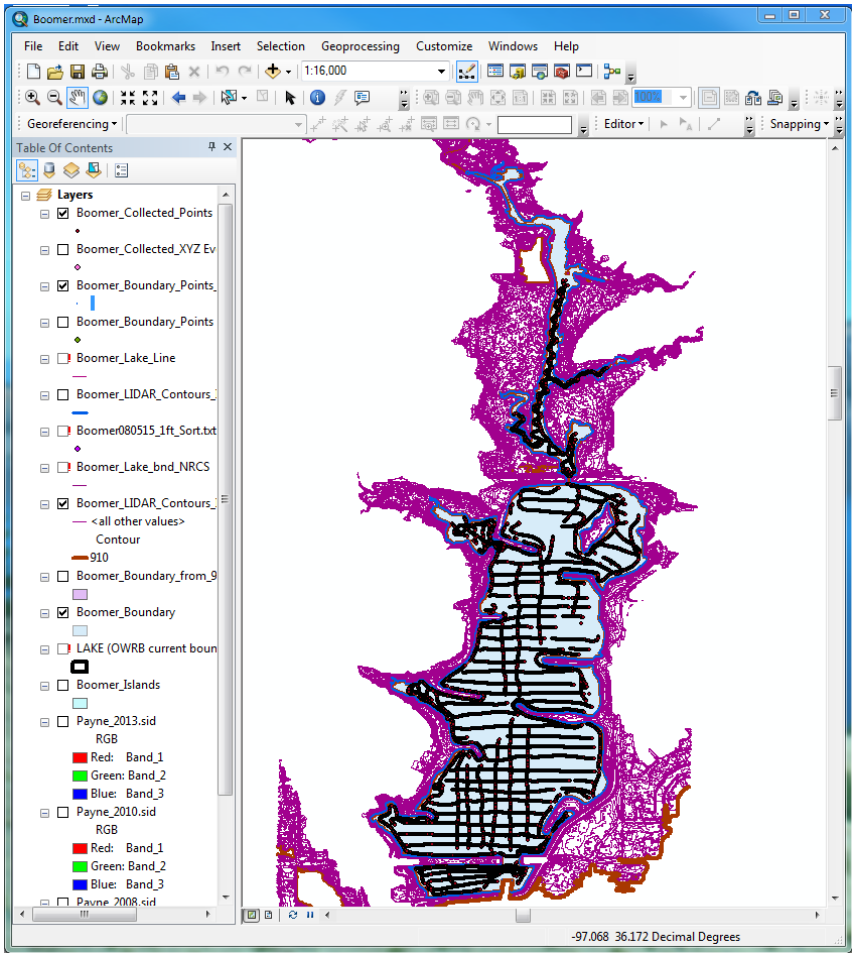
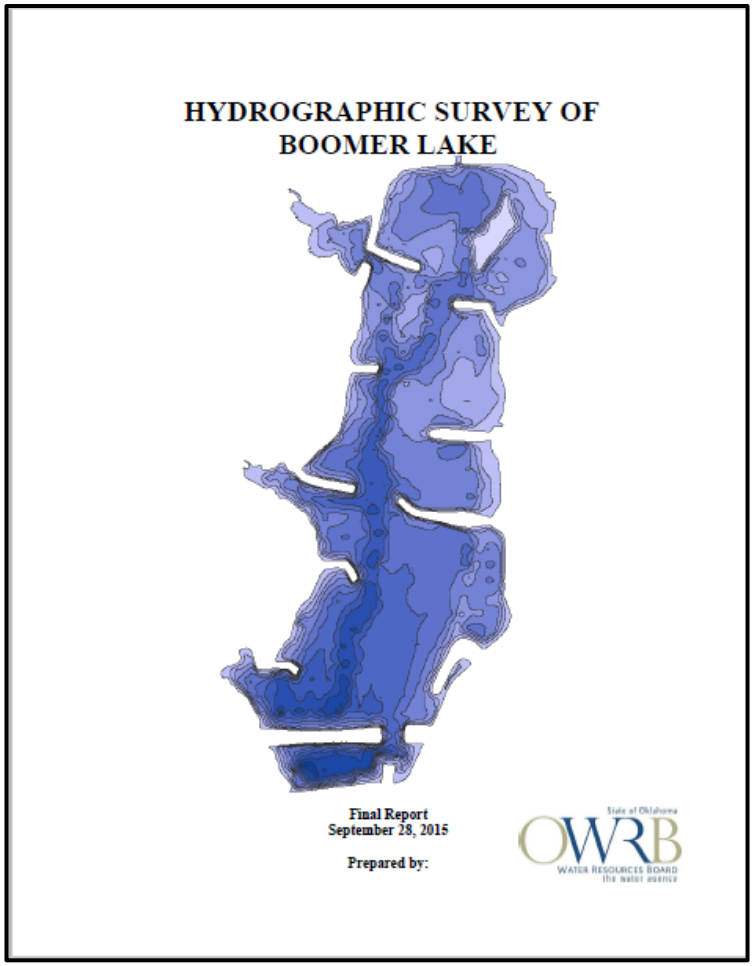
Post Processing





GIS Application and Reporting





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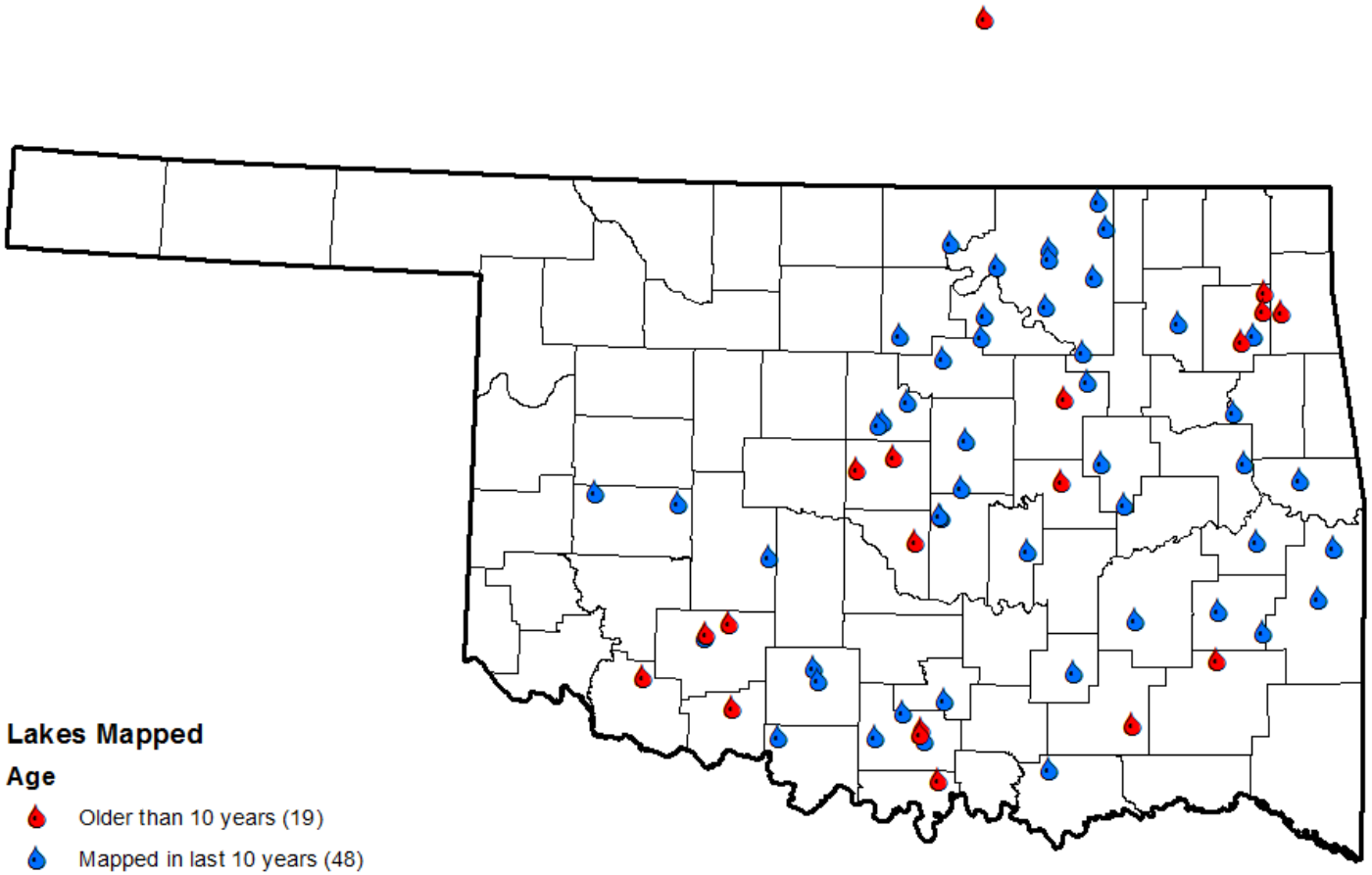
Recent Projects

- ODEQ DO Mitigation Project
  - Clinton (2017)
  - Crowder (2017)
  - Fairfax (2017)
  - Greenleaf, Shell, and Brushy Creek (2018)
  - Duncan, Clear Creek, and Wewoka (Current)
- Waurika Dredge Project (WLMCD)
  - Pre Dredge Volume
  - Post Dredge Volume
- GRDA Grand Lake Shoreline Project
  - Sidescan
  - Seabed Classification

Bathymetric Surveys Through 2019



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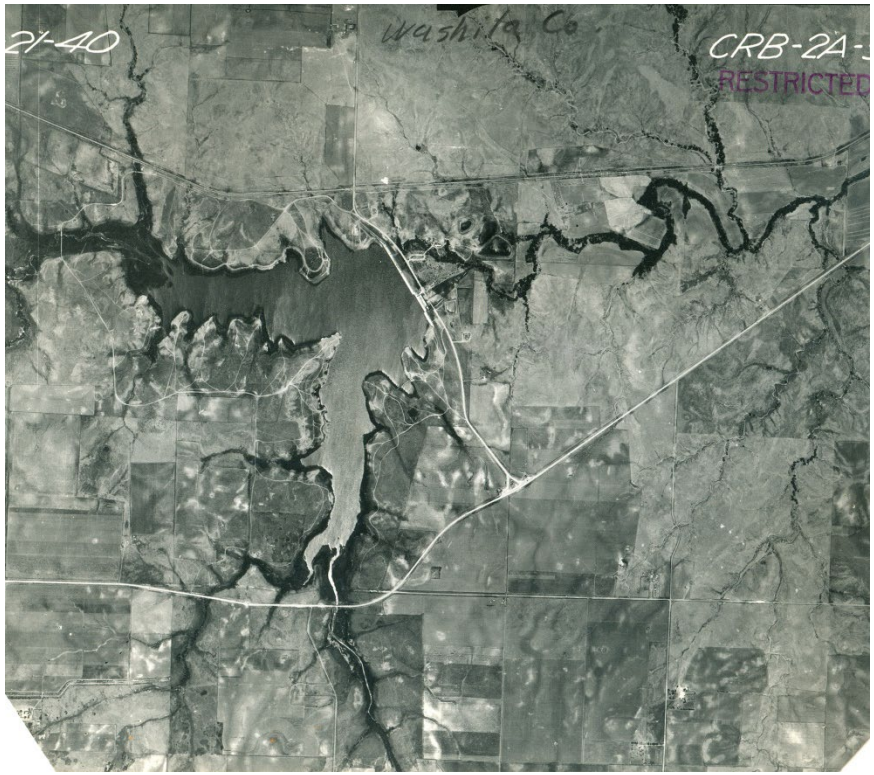
Who uses our data?

- Data Users
  - Federal and State Agencies
  - Municipalities
  - Universities
  - Lake and fisheries managers
  - **Citizens**
- Data Uses
  - Assessments
  - Management
  - Research
  - Modeling
  - Recreation

- Uses include DO assessments, firm yields, models for indirect potable reuse, sedimentation analysis, dam safety, permitting, and publications

WHY IS THIS IMPORTANT



1957 Aerial Image of Clinton Lake

2018 Aerial Image of Clinton Lake

Approximate Loss of 30% Volume?

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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:

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