

*Back To The Future
Bathymetry – In 3D!*

Using ArcGIS Pro for Visualization of
Oklahoma Lakes

State Geographic Information Council
October 6, 2017

Bathymetric survey data can be used for many purposes.

State and Federal Agencies

Determine TMDLs, dam breach analysis, watershed monitoring and management

Municipalities

Help determine amount of water a lake can yield in the driest of times (reliable yield), aid in assessing future needs

Universities

Research projects

Fisheries Managers

Help determine fish stocking quotas, provide an estimate of lake volume for chemical rehabilitation projects and vegetation control, and to calculate potential yield of fish in lakes

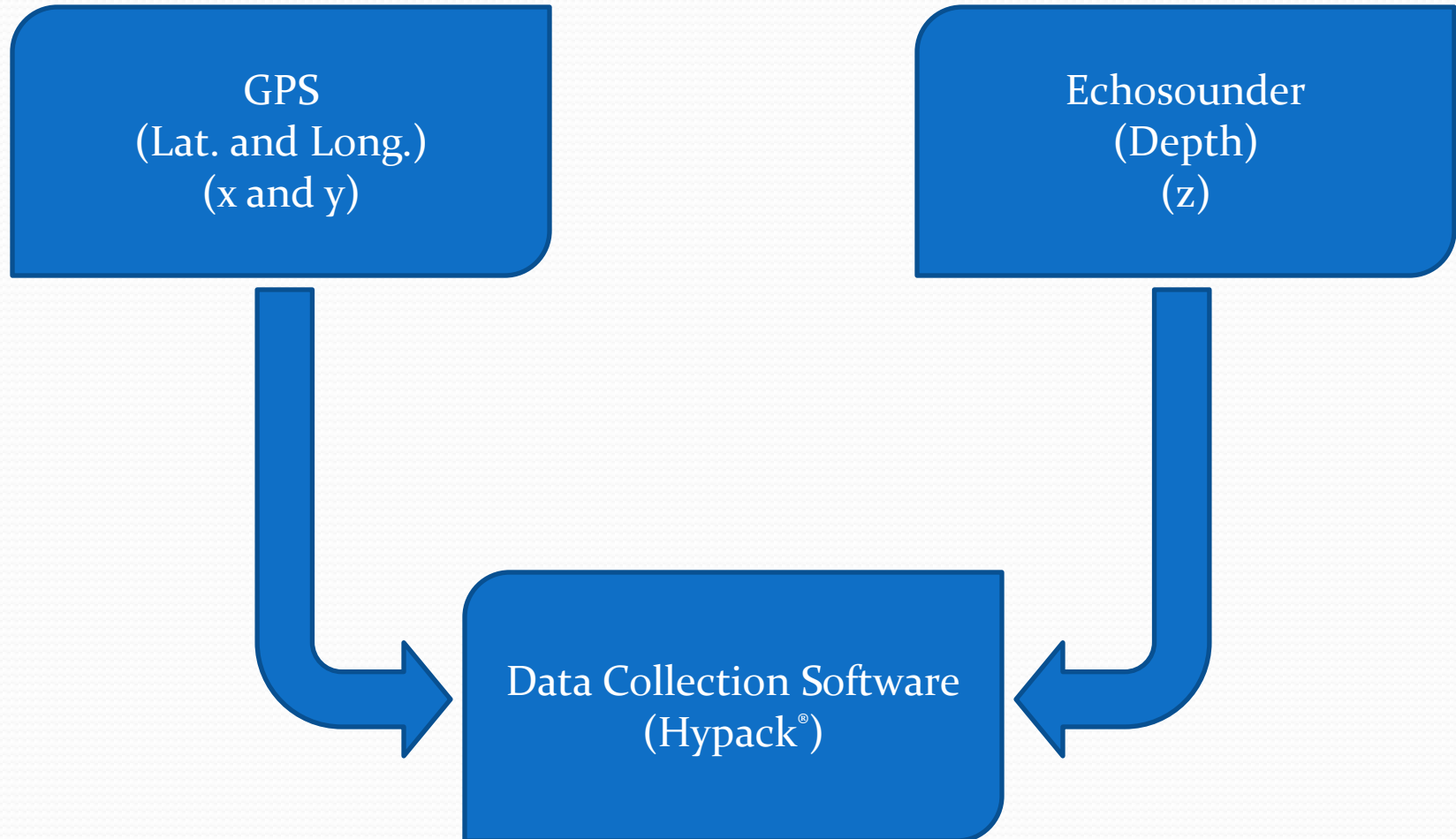
Anglers

Find sunken points, drop-offs, mud flats, and other features within the lake

Hunters

Find points and passes for waterfowl hunting

Basics of Bathymetry



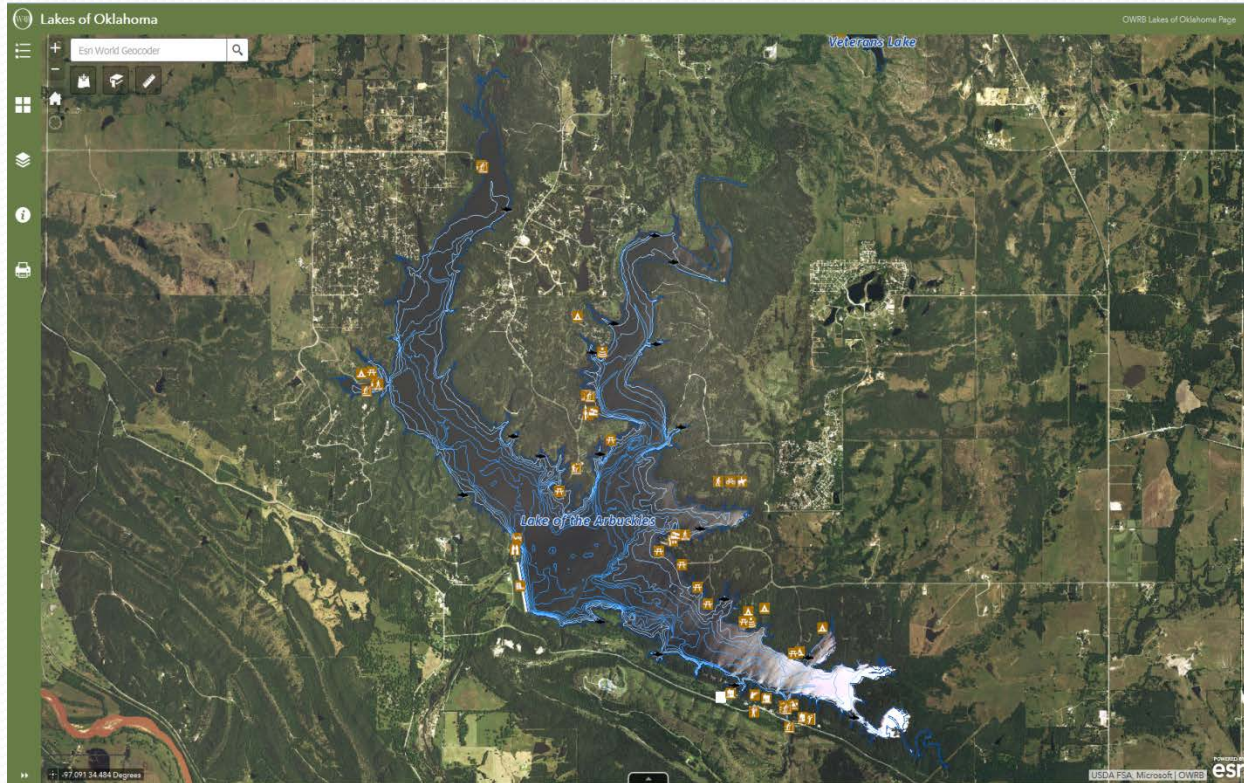
One of two boats OWRB uses to gather bathymetric data



Lakes of Oklahoma

Viewer




<http://owrb.maps.arcgis.com/apps/webappviewer/index.html?id=340b1bb5ef5c4326a83770215303cc1c>



Bathymetric Mapping Data

<http://www.owrb.ok.gov/studies/surface/bathymetry.php>

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Program Home Hydrologic Investigations **Bathymetric Mapping** Lake Restoration

Bathymetric Mapping

The OWRB's bathymetric mapping program utilizes GIS and related technology to provide accurate determinations of the current storage capacities in the state's reservoirs. Geographic Positioning System (GPS) and acoustic depth sounding instruments are incorporated into hydrographic survey vessels. Contour maps are then derived from the collected data points and digital lake bottom surface models.

Obtaining accurate storage volumes for lakes is an integral tool for water resources management. The valuable information that a bathymetric survey produces can be used by State and Federal Agencies for determining TMDLs, dam breach analysis, and watershed monitoring and management; municipalities to help determine the amount of water a lake can yield in the driest of times (reliable yield); fisheries managers to help determine fish stocking quotas, provide an estimate of lake volume for chemical rehabilitation projects and vegetation control, and calculate potential yield of fish; and anglers to find sunken points, drop-offs, mud flats, and other features.

[Bathymetric Mapping Fact Sheet](#)
[Lakes of Oklahoma Interactive Map](#)
[Other Surface Water Data](#)

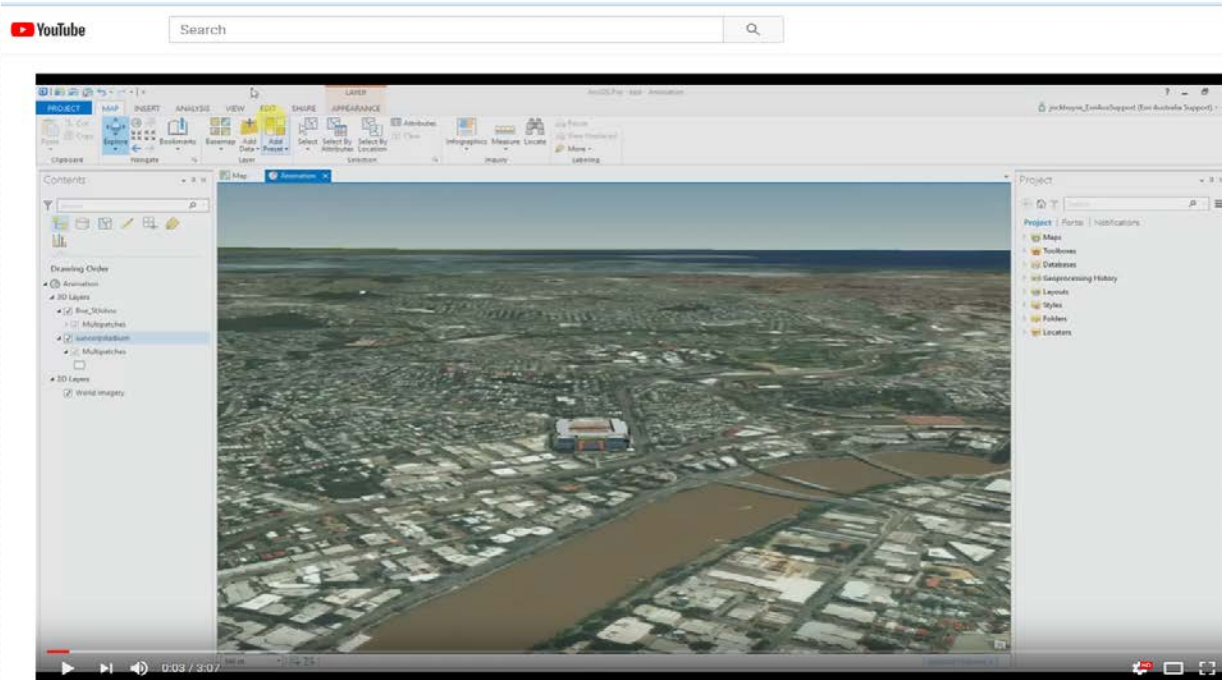
Lake	Year	KMZ	GIS	Metadata	Report
Arbuckle	2016				
Arcadia	2007				
Ardmore City	2013				
Atoka	2000				
Bluestem	2011				
Boomer	2015				
Carl Albert	2010				
Chandler	2011				
Chickasha	2011				

ArcGIS Pro

- TINs created for area and volume calculations can be brought into ArcGIS Pro Scene to visualize a lake in three dimensions.
- Georeferenced historical aerial photos can be added to the project to facilitate 3D visualization of the approximate topography of the area before the lake was constructed.

YouTube tutorial for creating a 3D flight-through in ArcGIS Pro

https://www.youtube.com/watch?v=1xl7GXM7S_4



Creating a 3D Flight through in ArcGIS Pro

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