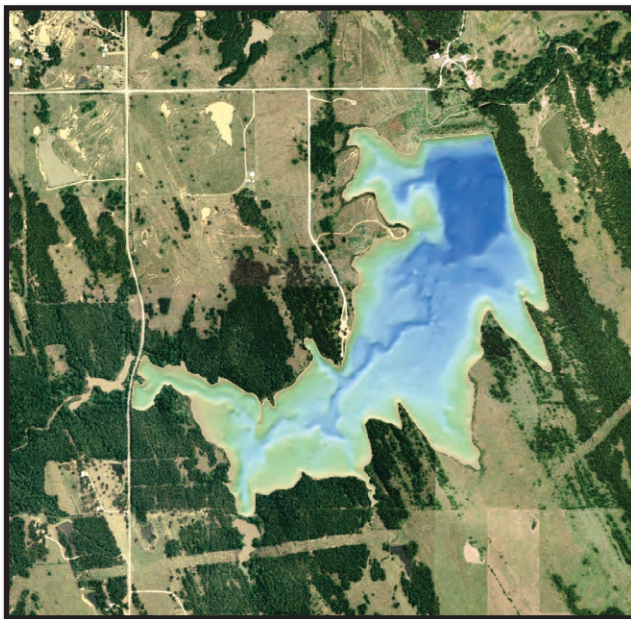


Bathymetric Mapping

OWRB Bathymetric Mapping Program

The Oklahoma Water Resources Board's modern-day bathymetric mapping program, which utilizes the agency's GIS and related technology, began in the late 1990s. Its purpose is to provide accurate determinations of the current storage capacities in the state's reservoirs. Obtaining accurate storage volumes is an integral tool used in the management of the state's water supply. For many reservoirs, the only available storage volumes are those that were estimated when the lake was first constructed. Because of sediment deposition that occurs in the reservoir, the volume of the reservoir can be reduced over time. By conducting a lake bathymetric survey, the managing authority of a reservoir can be better equipped to handle critical water management issues.



Shaded relief map of Ardmore's Scott King Lake

What is a Bathymetric Survey?

Bathymetry is the study of underwater depth of the third dimension of lake floors. In other words, bathymetry is the underwater equivalent to hypsometry (land surface elevations). The name comes from Greek words meaning deep and measure. A bathymetric map or chart usually shows floor relief or terrain as contour lines called depth contours or isobaths.

The process of surveying a lake employs a Geographic Positioning System (GPS) and acoustic depth sounding instruments that are incorporated into a hydrographic survey vessel. The OWRB uses an 18-ft aluminum hull Silverstreak

craft as the survey vessel. The vessel travels across the lake's surface following the GPS path of pre-plotted transect lines, the echo sounder gathers approximately eight readings per second from the lake bottom. These depth readings along with the positional data generated from the GPS receiver are recorded to the on-board computer. Accurate estimates of area-capacity can then be determined for the lake by building a 3-D computerized model.



What Are the Results of the Survey Used For?

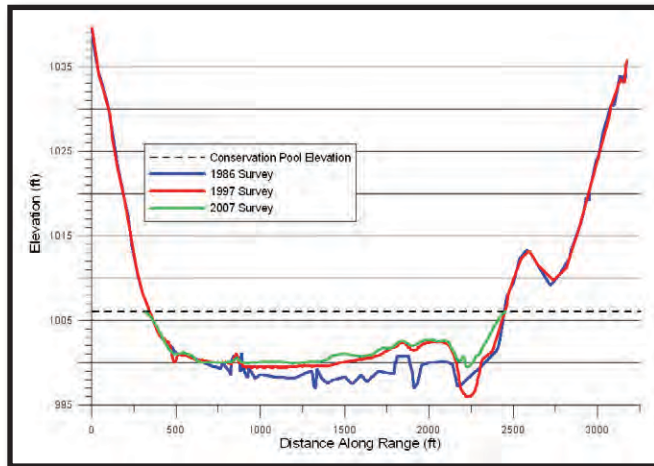
The valuable information that a bathymetric survey produces can be used for many purposes.

- * **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

Who Do I Contact for Information About Surveying My Lake?

Programs are available to provide cost-share assistance for reservoir surveying. If you have questions or are interested in having your reservoir surveyed and would like to learn more about cost-share opportunities, contact Paul Koenig or Sara Ivey of the Oklahoma Water Resources Board at (405) 530-8800. For more information on the program visit

www.owrb.ok.gov/maps



This profile of depth sounding data is one of the tools used by researchers to determine current lake volumes.

Past Partners

- * Bureau of Reclamation
- * Central Oklahoma Master Conservancy District
- * City of Edmond
- * City of Oklahoma City
- * City of Tulsa
- * Grand River Dam Authority
- * U.S. Army Corps of Engineers

Past Projects

- | | |
|------------------|------------------|
| * Arcadia | * Liberty |
| * Atoka | * Lloyd Church |
| * Carl Albert | * Lone Chimney |
| * Claremore | * McGee Creek |
| * Coalgate | * Meeker |
| * Dave Boyer | * Murray |
| * Ellsworth | * New Spiro |
| * Eucha | * Okemah |
| * Frederick | * Overholser |
| * Grand | * Pawnee |
| * Guthrie | * Perry |
| * Healdton | * Ponca |
| * Hefner | * Sardis |
| * Heyburn | * Scott King |
| * Hudson (Mayes) | * Spavinaw |
| * Hugo | * Stanley Draper |
| * Jean Neustadt | * Thunderbird |
| * Lawtonka | * Wister |