

The Oklahoma Water Resources Board's bathymetric mapping program has been surveying the states surface waters since the late 1990s, utilizing modern techniques and technology. The program provides accurate determinations of current storage capacities in state reservoirs, which equips managing authorities with information to handle critical water management issues.

For many Oklahoma reservoirs, the only available storage volumes are the original estimates made at the time of construction. Because of sediment deposition, the volume of reservoirs can be significantly reduced over time.

What is a Bathymetric Survey?

"Bathymetry" is derived from Greek words meaning "deep" and "measure." It is the study and mapping of lake floors and underwater depths. A bathymetric map or chart usually shows floor relief or terrain as contour lines called depth contours.

The process of surveying a lake employs a Geographic Positioning System (GPS) and acoustic depth sounding instruments (echo sounders) incorporated into a hydrographic survey vessel. Survey vessels can vary from an 18-foot boat to an inflatable kayak or even a small radio-controlled boat.

As the vessel travels across the lake's surface following a preplanned path of transect lines, the echo sounder gathers depths at regular intervals from the lake bottom. These depth readings along with the positional data generated are recorded by the on-board computer.

Using all the points collected and boundaries for any above water elevations, a three dimensional model can be built allowing for accurate estimates of both area and capacity of the waterbody.

How are Survey Results Used?

Bathymetric survey data are utilized by a variety of entities for multiple purposes:

- State and Federal agencies use the data to inform assessments, determine TMDLs, create dam breach analyses, and monitor and manage reservoirs.
- Municipalities use the data to help determine the amount of water a lake can yield in the driest of times (reliable yield), allowing them to assess future needs and prepare for periods of both flood and drought.
- Universities and research facilities are interested in the surveys for developing and advancing research.
- Fisheries managers look at volume determinations to help

with stocking, chemical rehabilitation projects, and vegetation control.

- Anglers are interested in locating sunken points, drop-offs, mud flats, and other features.

More information can be found on the OWRB website:

www.owrb.ok.gov/bathymetry

