Bathymetric Mapping

OWRB FACT SHEET

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

For many Oklahoma reservoirs, the only available storage volume determinations are the 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 along a preplanned path of transect lines, the echo sounder gathers depths from the lake bottom at regular intervals. These depth readings and the positional data generated are recorded by the on-board computer.

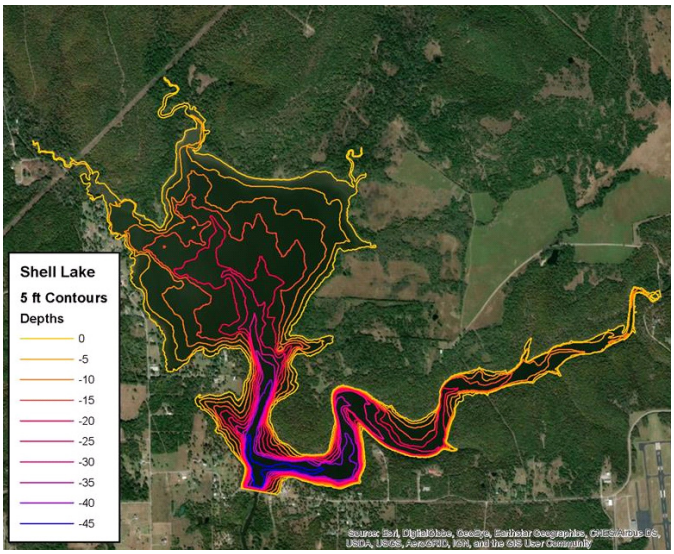
Using all the points collected and boundaries for any above-water elevations, a three-dimensional model can be built, allowing for accurate estimates of both area and capacity of the waterbody.

How are Survey Results Used?

Bathymetric survey data are utilized by various entities for a wide number of 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 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 decisions, chemical rehabilitation projects, and vegetation control.
- Anglers are interested in locating sunken points, drop-offs, mud flats, and other features.



A list of lakes with completed maps and studies, GIS datasets, and other information can be found on the OWRB website under Data & Maps.

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