

# CRMWA/Lake Meredith/Ogallala Aquifer Facts

## Canadian River Municipal Water Authority (CRMWA)

- Eleven cities in the Texas Panhandle and South Plains initiated efforts to research/build a water supply lake in the 1940's. They later lobbied the State of Texas to create the CRMWA in 1953. These cities became the "Member Cities" that make up CRMWA and their goal was to:
  - Develop a water supply storage reservoir (Sanford Dam that created Meredith)
  - Build the associated water delivery system (322-mile pipeline system currently providing water to ½ million people)
  - Operate & maintain the dam and water delivery system
- In 2001, CRMWA expanded its water supply to include groundwater
- CRMWA Member Cities currently combine to pay \$36 million per year for their share of CRMWA's lake & ground water supplies. Annual costs break down as follows:
  - \$20 million for debt repayment (dam, pipelines, & groundwater project)
  - \$10 million for pumping energy
  - \$6 million for operation & maintenance

## Lake Meredith

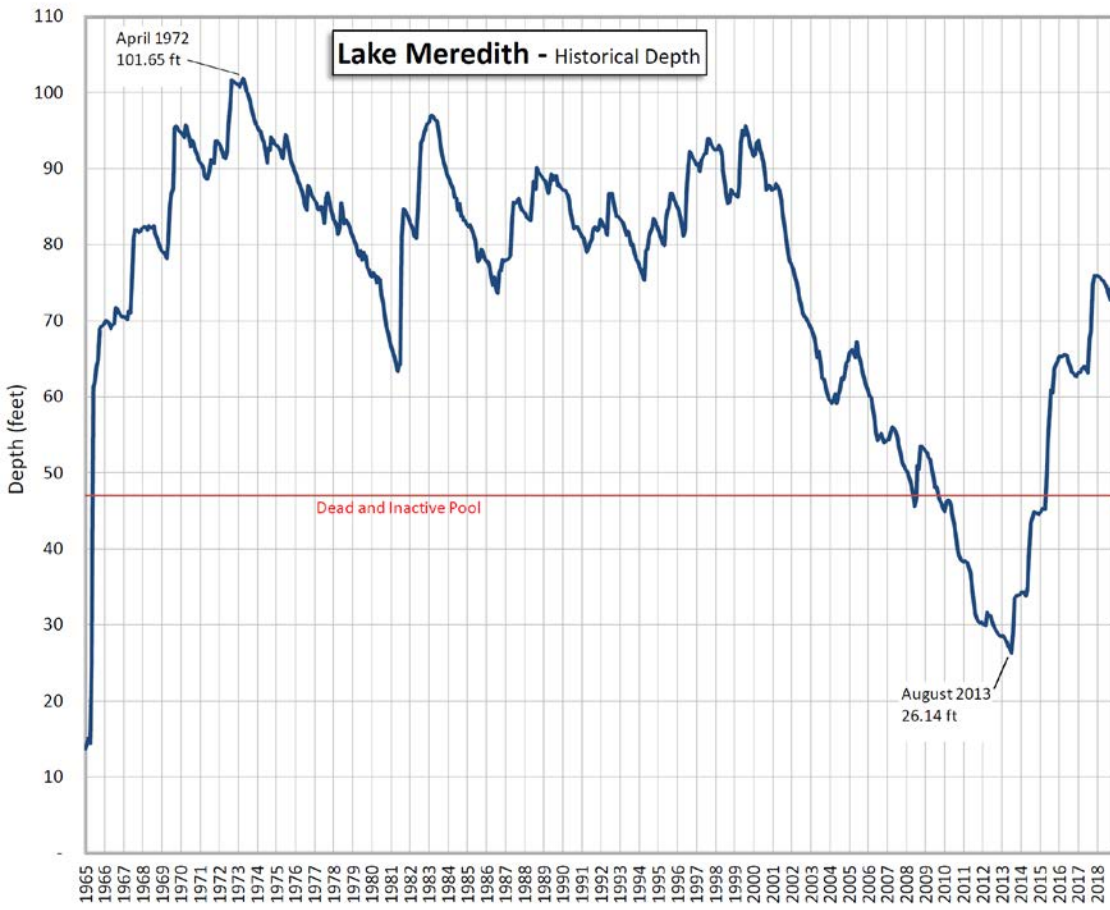
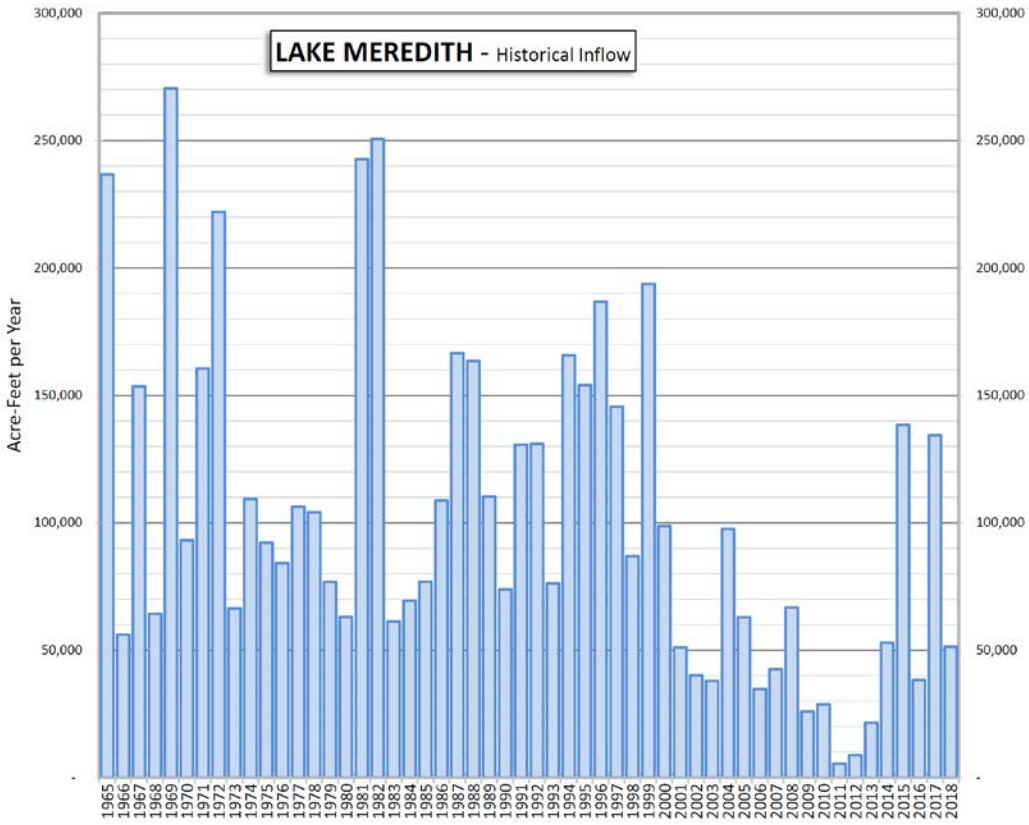
- Like all water supply storage reservoirs, Lake Meredith was built so that a water supply would be available during both wet and dry cycles.
- Meredith has supplied nearly 1 trillion gallons of water to our Member Cities. A trillion gallons is the equivalent of a football field over 500-miles deep. This water would have otherwise been pumped from groundwater, which has very little recharge and is essentially a finite resource.
- The current drought is the longest in the Lake's history and has produced by far the lowest river inflows. (see attached graph)
- To help minimize the impact of the drought, CRMWA has expended significant effort to reduce the amount of salt cedar along the Canadian River between Ute Reservoir and Meredith. Channel improvements have also been beneficial and CRMWA will continue these and other efforts as needed.
- The National Park Service manages the recreational uses of Lake Meredith. Recreation was made available by the existence of Sanford Dam and is a secondary benefit.
- Recreational users sometimes pay small fees that support policing and maintenance & improvements to National Park Service owned visitor facilities.

## Pumping from Lake Meredith

- State Secondary Drinking Water Standards allow for a maximum of 300 mg/L chlorides. We blend high quality groundwater with the lake water to achieve that standard. As Lake Meredith quality improves with new inflow, CRMWA will be able to blend more lake water with less groundwater and still meet that standard. Lake levels and therefore quality will be constantly changing. This means our pumping blend is a moving target.
- In a typical year, evaporation lowers the lake about 6-feet regardless of the depth. The volume that evaporates does change as the level/surface area changes.
- Salts (that concentrate as only the pure water evaporates) are only removed by pumping. Had the lake never been pumped, salt levels would be over twice as high as they are currently.

## How Pumping Affects the Ogallala Aquifer

- Studies show that the Ogallala in this area recharges as a rate of about  $\frac{1}{4}$ " per year.
- Studies also show that rain falling today might take thousands of years to get to the Ogallala.
- Removing 1 acre-foot of water from below 1 acre of land would cause nearly 6' of drawdown because the Ogallala is mostly sand and gravel holding only about 17% water.
- CRMWA plans to take up to 69,000 acre-feet of groundwater this year.
- Although CRMWA owns over 440,000 acres of water rights, our wellfield covers about 50,000 surface acres. This means that without lateral movement of water, we would have over 8' of drawdown this year in our wellfield. Remember, it is believed that the Ogallala recharges at a rate of  $\frac{1}{4}$ " per year.



### CRMWA Member Cities - Historical Usage

