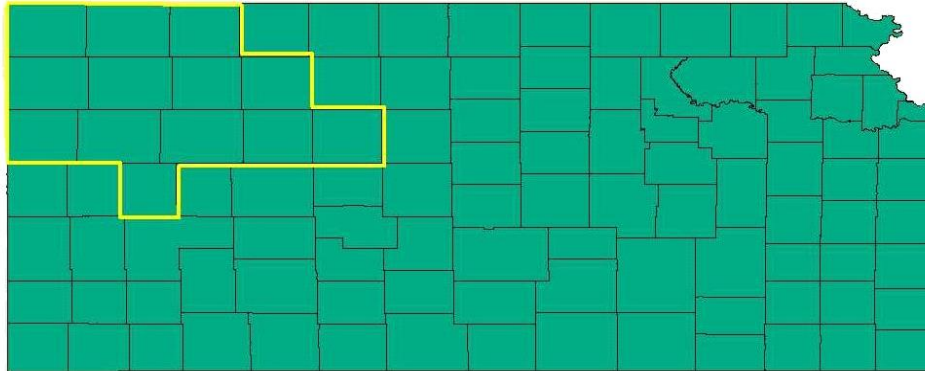


Cedar Bluff District Fisheries

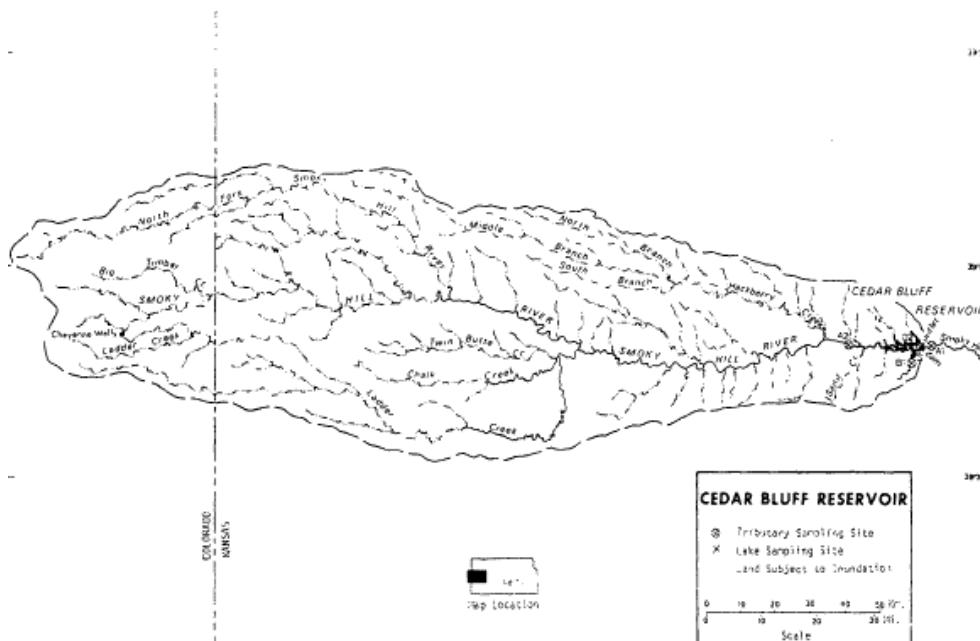
Kansas Department of Wildlife, Parks, and Tourism Fisheries Division
Newsletter Date: September 2019 Volume 9, Issue 2



The above figure shows the 13 counties outlined in yellow that comprise the Cedar Bluff District

Cedar Bluff Reservoir Water Level Increase

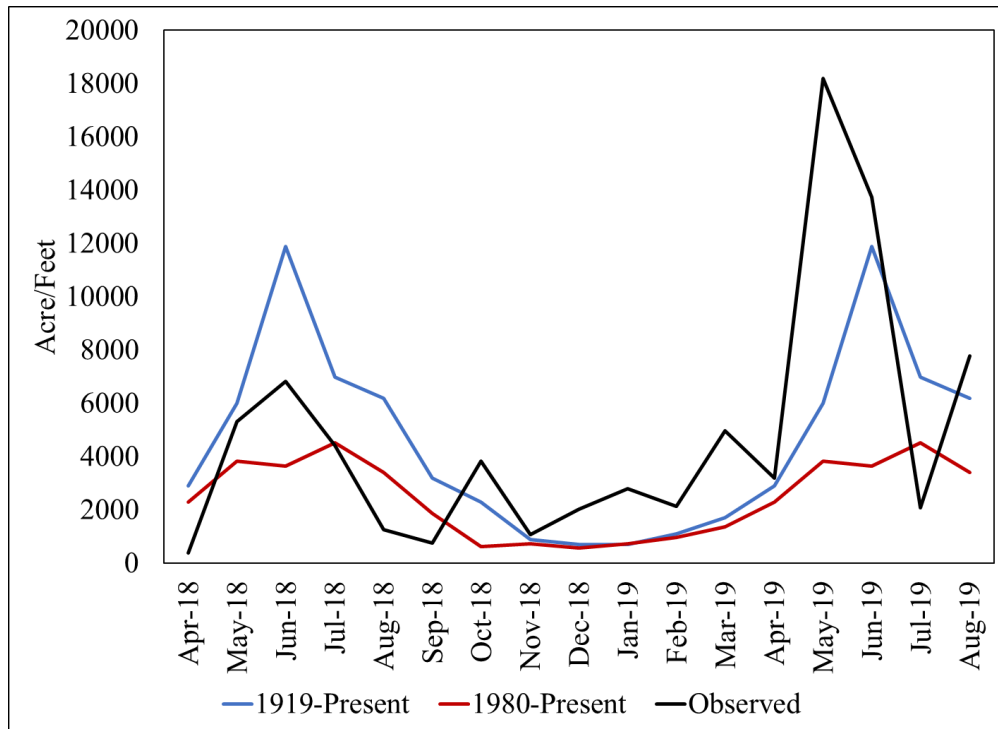
Most reservoirs reflect the characteristics of their respective watersheds and the resulting reservoir characteristics determine the complexion of the fishery. The Smoky Hill River and its tributaries in western Kansas comprise the Cedar Bluff Reservoir watershed. The Smoky Hill River upstream of Cedar Bluff stretches west into eastern Colorado and drains approximately 5,391 miles² of land area that is primarily in agricultural use. Agricultural activities include beef cattle grazing in the rolling rangeland associated with river and tributary corridors. Dryland and irrigated row crops are grown on the relatively flat upland areas.



Map of the Cedar Bluff Reservoir watershed courtesy of U.S. EPA

Water Level continued...

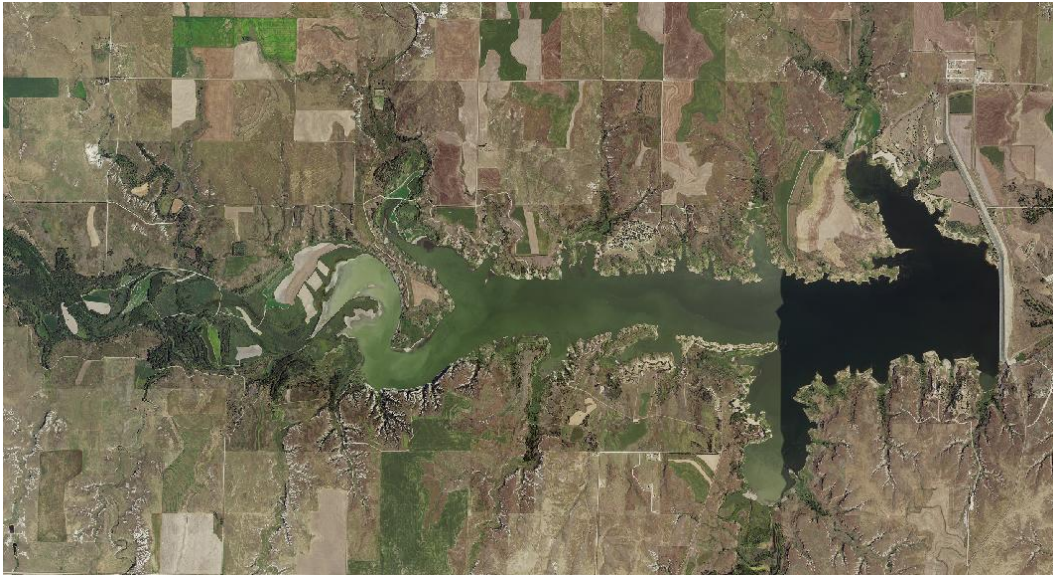
Historically, natural discharge of water from the High Plains Aquifer and precipitation over the watershed combined to maintain inflow into Cedar Bluff. By approximately 1980, proliferation of water withdrawal from the High Plains Aquifer resulted in reduced river flow and increased dependence on run-off from high volume precipitation events.



Average monthly inflow (acre/feet) of water into Cedar Bluff Reservoir from 1919 to present (blue line), 1980 to present (red line), and total monthly inflow observed from April 2018 to August 2019

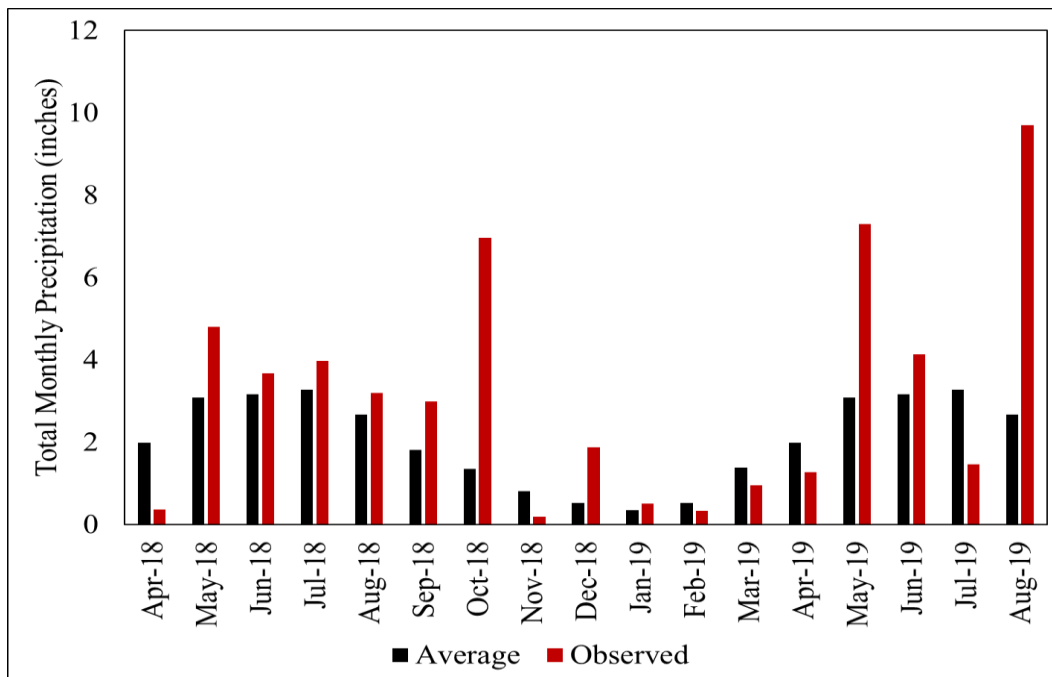
The arid climate prevalent over the Cedar Bluff watershed and reduced river baseflow resulted in a reservoir characterized by a slowly declining pool elevation punctuated by water level increases subject only to abnormally high precipitation events. The magnitude of water level recovery in the reservoir is positively correlated with magnitude and duration of wetter than normal weather. The last time the reservoir water level was at full pool was September of 2001. Since then, seasonally average to dry weather resulted in a generally declining reservoir water level such that pool elevation declined to 27 feet below full pool by May 2018.

Water Level continued...



Cedar Bluff Reservoir in 2017 approximately 27 feet below full pool

At the end of May 2018 rainfall returned to the watershed and monthly precipitation exceeded average from May to October and December 2018. Dry conditions returned January 2019 and continued to April. But a return to generally wetter conditions prevailed from May to August 2019.



Average monthly precipitation (inches) at Cedar Bluff Reservoir (black bars) and monthly precipitation observed from April 2018 to August 2019 (red bars)

Water Level continued...

The protracted duration of wet conditions saturated soil and alluvial aquifers increasing the potential for surface-runoff, translating to inflow into the reservoir. Further, abundant precipitation incurred during late 2018 was trapped as ice, keeping the ground saturated and banking water for release as temperatures warmed with the onset of spring. From April 2018 to the end of August 2019 precipitation at Cedar Bluff was 159% of normal.

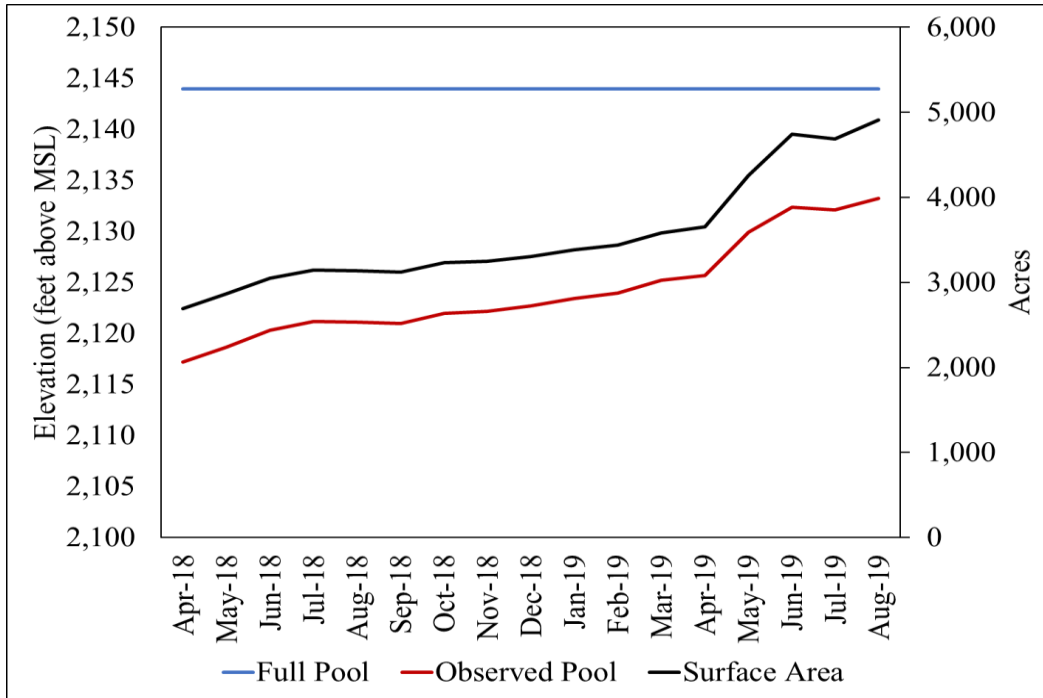
Flow in the Smoky Hill River has been generally elevated since late-May 2018. Inflow into the reservoir exceeded the monthly average observed since 1980, in May and June 2018 and exceeded the monthly average observed since 1919 from October 2018 until June 2019 and in August 2019.



Cedar Bluff Reservoir in 2005 approximately 11 feet below full pool

The Cedar Bluff Reservoir water level has realized a net increase of 16.3 feet bringing the reservoir elevation to 10.7 feet below full pool. With the elevation increase, reservoir surface area increased from 2,767 acres to 4,908 acres. Further, reservoir volume increased from 28.6% to 63.0% of full capacity. The last time the reservoir water level was at this most recent elevation was July 2005.

Water Level continued...



Cedar Bluff Reservoir observed (red line) and full (blue line) pool elevation (feet above mean sea level), and reservoir surface area (acres, black line) from April 2018 to August 2019

The 16 foot water level fluctuation that occurred from 2005 to present allowed terrestrial vegetation to colonize dry areas of the reservoir basin. The recent refilling flooded over 2,200 acres of new fish habitat. This change in habitat characteristics will likely change the composition of the fishery over the next several years.



Hundreds of acres of flooded terrestrial vegetation toward the west end of Cedar Bluff Reservoir

Water Level continued...

During periods of stable to declining water levels, welfare of open-water species such as white bass, wipers, and walleye tend to predominate. However, with inundation of terrestrial vegetation, shoreline-oriented species such as black bass, sunfish, and crappie benefit. Early indications from summertime sampling confirm increased production of largemouth bass and smallmouth bass (black bass), and bluegill (sunfish). Although fall sampling to assess results from this past season has yet to be conducted, it is expected that notable increases in black bass and crappie angling opportunities will be realized over the next few years.

The arid climate characteristic of the Cedar Bluff watershed, coupled with reduced river flow, result in a slowly declining reservoir pool most years. But infrequent occurring, protracted periods of above-average precipitation result in profound, fishery altering water level increases on the order of every 20 to 30 years. Regardless of where the reservoir is at in the water level cycle, good angling opportunities exist most of the time. But water level history dictates sportfish dominance. Given recent history, black bass and crappie are on the rise and should provide the best opportunities in upcoming years.

Cedar Bluff Fishing Dock Maintenance

At Cedar Bluff Reservoir, shoreline fishing opportunities have traditionally been limited. As such, fisheries personnel constructed the floating fishing pier that now resides on Cove 1 in the north shore State Park.



Cedar Bluff fishing dock with old shingled roof

Fishing Dock continued...

The dock has occupied various locations in Cove 1 depending on reservoir water level and has remained in service since 1994, save a few times when it was pulled off the lake for maintenance.



Cedar Bluff fishing dock during roof tear-off, note the habitat barge on the far side of the dock used to contain and transport torn off shingles and tar paper back to the shore for disposal

Maintenance included; repainting, repair to walkway due to storm damage, and replacement of floatation system. The dock's roof had previously been shingled twice. But this past summer crumbling shingles and rotten roof sheeting necessitated roof replacement. To accomplish the maintenance, the dock was left in place on the water, existing shingles and tar paper torn off, rotten sheeting replaced, and new tar paper and roof tin was installed.

Fishing Dock continued...



Cedar Bluff fishing dock with new, metal roof

The new roof should be a long-term upgrade that allows the dock to provide a much-needed shoreline angling access opportunity.