Study to evaluate chances of Lake Powell receding too far, find ways of avoiding that

In April of 2012, Lake Powell's water level was 3,636 feet. On April 7 of this year, the water level was listed at 3,591 feet, a drop of 45 feet. Hydropower operations at Glen Canyon Dam depend on the lake's level remaining above 3,525 feet above sea level.

By Dennis Webb

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The Colorado River District is leading a study to evaluate how likely it is that Lake Powell water levels would drop perilously low under various water supply and demand scenarios, and what kind of cutbacks in usage in Colorado would be required to keep that from happening.

The $52,000 study is intended to put a focus on the need to keep Powell's water levels above 3,525 feet above sea level. Any lower than that, and crucial hydropower operations at the Glen Canyon Dam would be jeopardized, as would deliveries of water to Lower Colorado River Basin states under the 1922 interstate compact governing water allocation in the basin.

The study is being conducted in response to concerns that came up during the drafting of Colorado's newly adopted water plan regarding the degree to which further development of water in the Colorado River basin could jeopardize existing water users. Failure of Upper Basin states to meet their water delivery obligations to Lower Basin states could result in a curtailment of water uses in the Upper Basin.

The river district is contributing $10,000 to the study, as is the Southwestern Water Conservation District. The Colorado Water Conservation Board recently committed another $8,000 apiece out of the accounts of the Colorado, Yampa/White, Gunnison and Southwest basin roundtables in western Colorado, following approval of those financial commitments by each roundtable.

The need for the study reflects different viewpoints even in western Colorado when it comes to the idea of further instate development of Colorado River basin water. The Gunnison Basin roundtable is of the view that any more development creates a risk for current users, while the Yampa/White roundtable is interested in further development.

The question also was addressed in a seven-point framework of the state water plan that is intended to govern conversations of any more transmountain diversions, or TMDs, of Colorado River water to the Front Range. The fourth principle says, "A collaborative program that protects against involuntary curtailment is needed for existing uses and some reasonable increment of future development in the Colorado River System, but it will not cover a new TMD."

Said Chris Treese, external affairs manager for the Colorado River District, "I think that there is a tension within all the basins on the Western Slope and certainly the East Slope about managing (the compact curtailment) risk of overdevelopment of the Colorado River."

Upper Basin states are required by compact to deliver what amounts to an average of 7.5 million acre-feet of water a year to Lower Basin states.

They're also separately obligated to deliver another three-quarters of a million acre-feet for Mexico.

Powell's level was 3,594 feet above sea level at the end of February, and it was 46 percent full, the U.S. Bureau of Reclamation says.

It was 94 percent full at the start of 2000, but since then has suffered from a number of below-average years of precipitation in the Upper Basin.

Treese said that if the water level falls below 3,525 feet, power production at the dam starts to become jeopardized because of a lack of proper water pressure for spinning turbines. Also, oxygen mixing with the water can cause what's called cavitation, posing a threat of damage to the turbines.

Lost power production would mean an associated loss of revenues that pay for programs like salinity control in the river basin, recovery of endangered fish, and management of flows through the Grand Canyon for rafting and other purposes, Treese said.

Meanwhile, if there's not enough water to release through the power plant and it only can be released through bypass tubes, those tubes aren't large enough to accommodate all the downstream water delivery that's required, Treese said.

The river district study comes on the heels of a recently released report by the Bureau of

Reclamation calling climate change a growing risk to water management in the West because of rising temperatures and changes in precipitation and in the timing and quality of streamflow.

It predicts a decrease for almost all snowpack as measured April 1 each year, a drop in precipitation in the Southwest and south-central regions along with increased precipitation to the north; and falling April-to-July streamflows in basins including the Colorado and Rio Grande.

The Colorado basin is expected to see reductions in spring and early summer runoff that "could translate into a drop in water supply for meeting irrigation demands and adversely impact hydropower operations at reservoirs," the Interior Department said in a news release.