

# Reservoir Drawdown in 2024: Are We on Track to Recover Storage?

By Jack Schmidt | October 22, 2024

Unfortunately, water use between now and next April is on track to exceed the inflows of the snowmelt season, resulting in a net loss of reservoir storage. The persistent decrease in runoff is severely challenging the quest to rebuild reservoir storage.

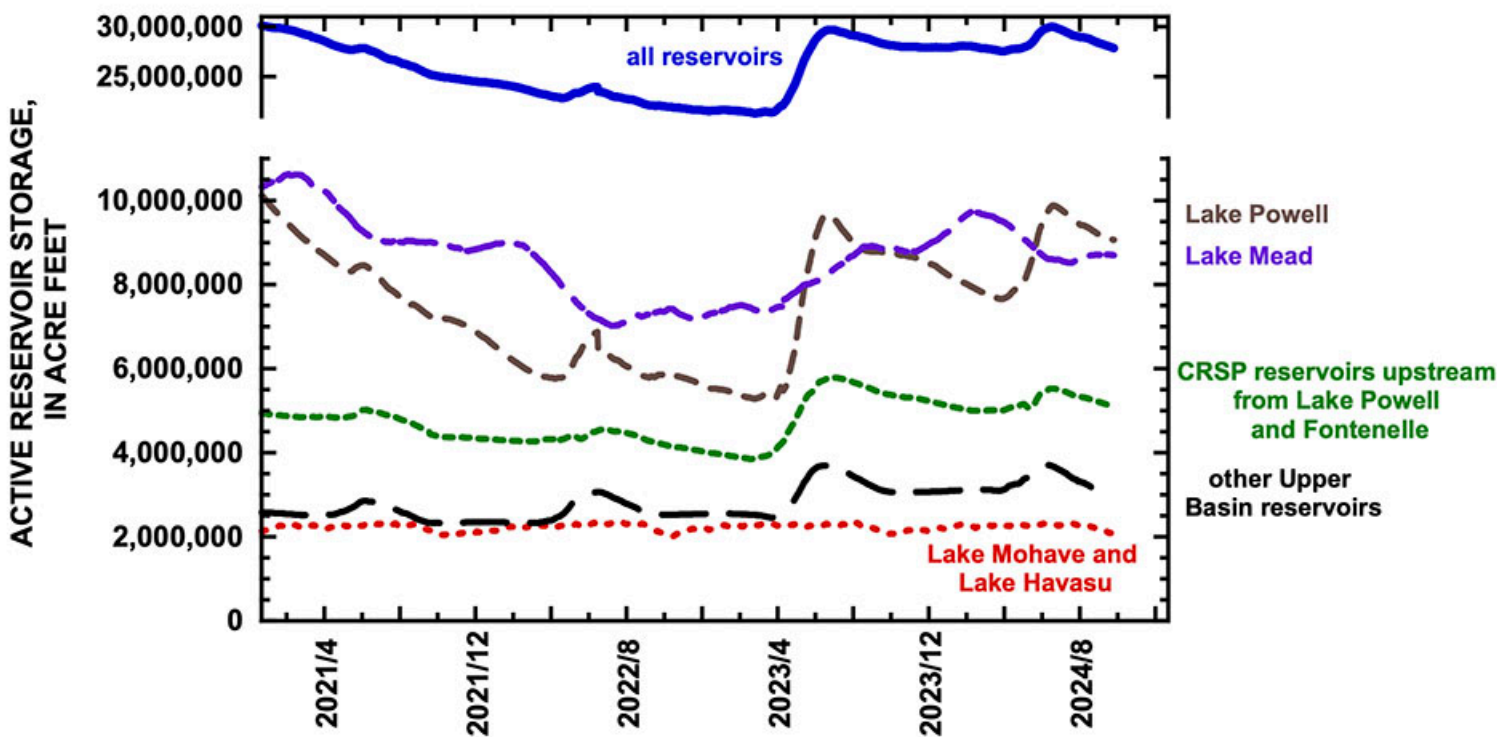
## Summary

Reservoir storage in the Colorado River basin is now approximately equal to two year’s average annual consumptive use. In the three months since reservoir storage peaked in July 2024, drawdown of those reservoirs lost more than 80% of the increase accomplished by the 2024 snowmelt inflow season, which had increased basin reservoir storage by only 2.5 million acre feet despite the Upper Basin snowpack having peaked at a snow water equivalent that was 13.5% greater than the long-term average<sup>1</sup>. If this rate-of-use continues for the next six months, there will be a net loss in basin reservoir storage. Water supply reliability and security for Colorado River water users can only be accomplished if we replenish the amount of water stored in reservoirs and not further deplete the declining supply.

## Details

On 15 October 2024, total contents of the reservoirs of the Colorado River Basin upstream from the Gila River were 27.8 million af (acre feet). This amount of reservoir storage would support two years of consumptive use of the Colorado River<sup>2</sup>, assuming that basin consumptive uses remain approximately 13 million af/yr, the average between 2021 and 2023. Reservoir storage today is comparable to conditions in mid-June 2021 (Fig. 1) when there was increasing concern among the basin’s water managers about the security and reliability of water supplies provided by the Colorado River. Today, we should be just as concerned as we were in 2021.

Figure 1. Graph showing total basin reservoir storage (blue line), and storage in different parts of the Colorado River watershed between 1 January 2021 and 15 October 2024. CRSP reservoirs are those authorized by the Colorado River Storage Project Act.



The only way to increase the security and reliability of the water supply is to increase reservoir storage, and we are not doing a very good job of achieving that goal. There is no doubt that the large reservoir inflows of 2023 benefitted the basin water supply, allowing us to take a step back from the edge of the cliff of crisis. Basin reservoirs in mid-March 2023 were the lowest they had been (21.3 million af) since late May 1965, when the Colorado River Storage Project’s reservoirs were just beginning to fill and other reservoirs had yet to be built. Snowmelt runoff in 2023 recovered 8.4 million af of reservoir storage, nearly a 40% increase from the March 2023 low point (Fig. 2).

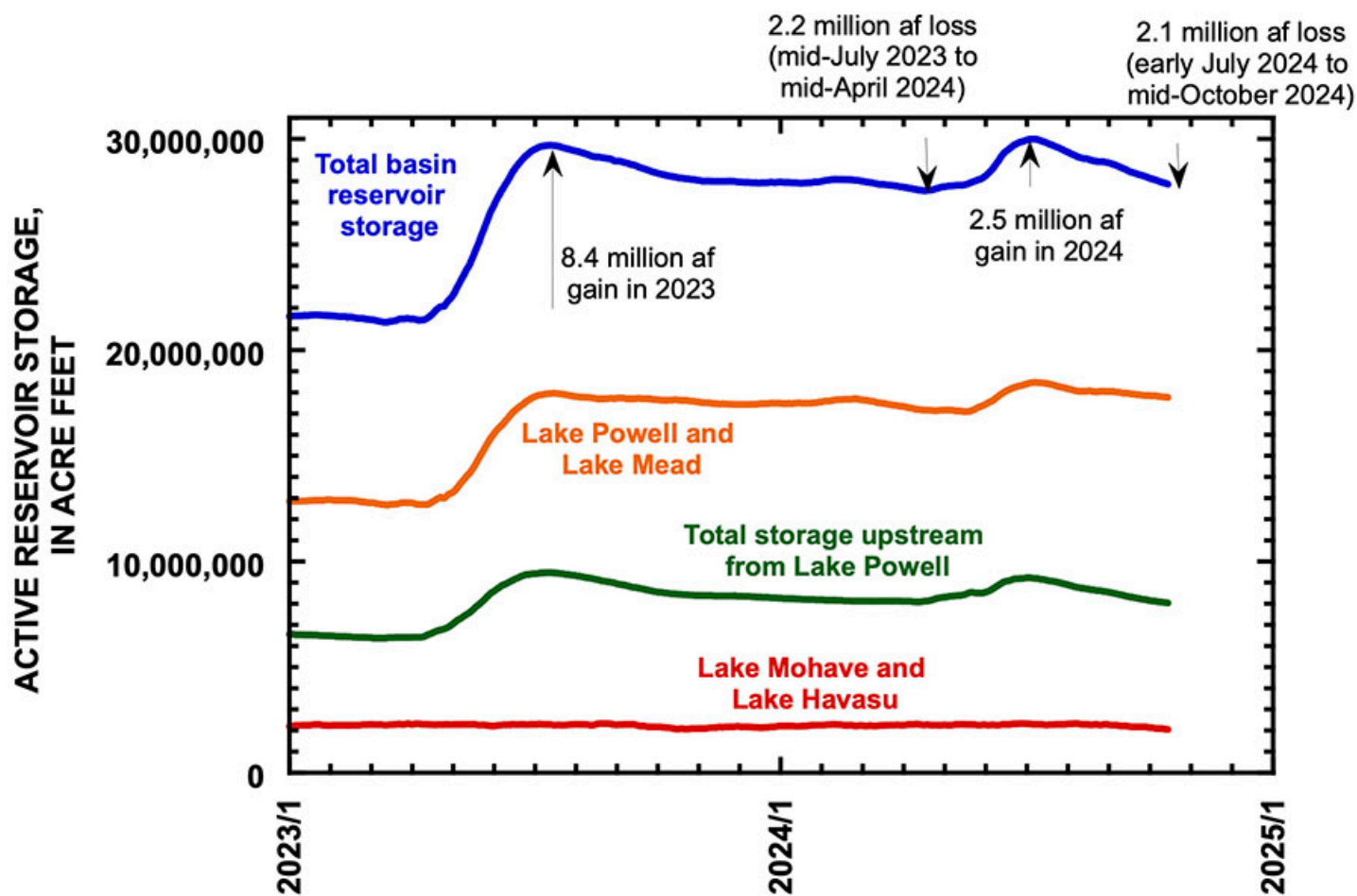


Figure 2. Graph showing reservoir storage between 1 January 2023 and 15 October 2024, highlighting the amount of reservoir recovery during each snowmelt season and the amount of reservoir drawdown during intervening periods.

However, little additional progress in reservoir recovery was made in 2024. We were encouraged that reservoir drawdown during the nine months immediately following the 2023 inflow season was remarkably small, only 2.15 million af and only 26% of the preceding gain in storage. However, snowmelt inflow only resulted in 2.5 million af of gain in reservoir storage in 2024 (Fig. 2).

In contrast to last year, basin uses and losses are much greater this year. In the first three months following the 2024 inflow season that ended in mid-July, reservoir drawdown has been 2.14 million af, more than 80% of the gain of the preceding inflow season (Table 1). Slightly more than half of the drawdown during the last three months has been from the 42 reservoirs upstream from Lake Powell. Those releases supported the needs of mid- and late summer irrigated agriculture, were exported out of the basin, or flowed into Lake Powell. It is likely that the drawdown from these reservoirs will decrease during winter. Slightly more than 30% of the drawdown has been from the combined contents of Lake Mead and Lake Powell. Recent agreements to decrease diversions in the Lower Basin hopefully will reduce drawdown from Mead-Powell combined storage during the next six months. The continued drawdown from Mead-Powell storage will be a robust test of the effectiveness of recent drought management measures.

Table 1. Reservoir drawdown during the first three months following the 2024 snowmelt compared to the total drawdown during the nine months following the 2023 snowmelt season.

	Reservoir drawdown between early July 2024 and mid-October 2024 <sup>3</sup> (3 months), in million acre feet	Reservoir drawdown between mid-July 2023 and mid-April 2024 <sup>4</sup> (9 months), in million acre feet
Total watershed <sup>5</sup>	2.14	2.15
All reservoirs upstream from Lake Powell	1.19	1.35
Lake Powell and Lake Mead	0.722	0.798

Basin water use between now and April 2025 is on track to exceed the inflows of the 2024 snowmelt season, resulting in a net loss of reservoir storage since the bounty of 2023. The persistent decrease in runoff in the 21<sup>st</sup> century is severely challenging the quest to rebuild reservoir storage. We desperately need to accomplish that goal to avoid another water supply crisis such as occurred between 2020 and 2022.

The only way to replenish the amount of water stored in reservoirs is to decrease reservoir drawdown to match or exceed each year's gains that occur during the inflow season. For the next six months, that is our goal.

1. Based on data from the Natural Resources Conservation Service snow water equivalent for the Upper Colorado Region for 2024 and for 1991-2020. [https://nwcc-apps.sc.egov.usda.gov/awdb/basin-plots/POR/WTEQ/assocHUC2/14\\_Upper\\_Colorado\\_Region.html](https://nwcc-apps.sc.egov.usda.gov/awdb/basin-plots/POR/WTEQ/assocHUC2/14_Upper_Colorado_Region.html)

- 2. Also including losses from reservoir evaporation.
- 3. Between 6 July and 15 October 2024
- 4. Between 13 July 2023 and 17 April 2024.
- 5. Includes drawdown of Lake Mohave and Lake Havasu.

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