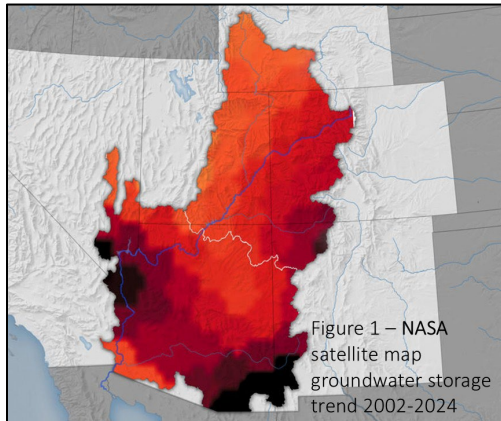


## Water Trades, Groundwater storage, Decentralized Desal, and Data Centers in post-2026 Colorado River Operations Plan



### Summary

All seven states<sup>1</sup> and Mexico own a conjunctive use project making the post-2026 Colorado River Operations Plan sustainable for centuries.

The Plan must address [mega droughts](#) and [reducing snow storage](#) as [unsustainable groundwater pumping](#), Figure 1, creates space for groundwater storage. More than 2 million acre-feet per year (afy) will evaporate from the Colorado River in a warming world.

Fill the Salton Sea with reject brine to improve air quality and address other drying issues. The product

water and reject brine might be from decentralized groundwater desalination owned by [farmers](#) and [data centers](#).

### Desalination source water

1. Decentralized desalting 4 million afy of the 4 billion acre-feet of brackish<sup>2</sup> groundwater estimated to be available in a [2008 Lawrence Livermore National Laboratory study](#). The created groundwater volume can be used for storing Colorado River water. [Farmers](#) are starting to desalt their well water. [Data centers](#) could use single pass cooling. The warmed water requires less energy to desalt.

Or

2. Desalt 4 million afy of Gulf of California Water with reject brine flow into the Salton Sea.

### Direct receivers of desal product water

Figure 2 shows a desalination facility in Mexicali and conveying the product water to Lake Havasu to fill existing canals. Other locations and arrangements may prove more cost-effective.

### Benefits of desalination and groundwater storage with Colorado River water trading

**Municipal and industrial users** – About 20% of Colorado River water use is for municipal and industrial users (near 3 million afy). Municipal and industrial users can pay more for water than can agricultural users. Also, low-cost water for agriculture helps make lower cost food.

**Salton Sea regional air quality** – Desalination can refill the Salton Sea with the reject brine faster than the about 1.3 million afy of evaporation. *Disposing* reject brine is normally a big environmental impact. The project would be *reusing* reject brine to prevent toxic dust clouds, a huge economic and environmental benefit.

**Better long-term water storage** – There will be years of bountiful rain and floods as well as century-long droughts. During wet years, water can be captured by Colorado River dams and sent to groundwater storage. As groundwater, we won't be losing tens of millions of acre-feet during decades of storage.

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<sup>1</sup> Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming

<sup>2</sup> Less than 10 parts per thousand

**Involve more people directly** – Improved groundwater capture and storage can be applied throughout the Colorado River states, even globally, to offset decreasing mountain snow storage. Groundwater management can be improved any of several ways including: [beaver dam analogues](#), beaver dams, [Amunas](#), and [farmers and ranchers managing soil microbes](#).

**Continued agriculture production** – Salt accumulation eventually kills desert soils irrigated for agriculture. The Salton Sea is currently an ill-managed polluted salt and agriculture runoff dump. Reject brine could make it a well-managed salt disposal site for the farmers of California's Imperial Valley.

**Available energy** – The region has ample solar, geothermal, and tidal<sup>3</sup> renewable energy.

**Replace Arizona's 2023 Plans** – Arizona was considering a desalination plant near Puerto Peñasco, Mexico with a pipeline through the Organ Pipe Cactus National Monument. Instead, the pure water from the pictured Desal Facility can be pumped to Lake Havasu for conveyance to Southern California, Arizona, and water trading to all Colorado River States and Mexico.

**Refill Great Salt Lake** – Utah could contribute to the desalination in exchange for more Colorado River water, which may be traded to prevent the drying of their Great Salt Lake<sup>4</sup>.

**Lithium mining** – [New technologies](#) will mine lithium from Salton Sea area geothermal water.

**Salton Sea recreation and property values** – Desal of groundwater near the Salton Sea and/or desal of the Gulf of Californiacan be configured to generate reject brine that is less salty than the Salton Sea<sup>5</sup>.



Figure 2 – Conceptual depiction of desalination options for post-2026 Colorado River operations

<sup>3</sup> The Gulf of California has a significant tidal range.

<sup>4</sup> Great Salt Lake salinity varies from 167 ppt (2022 peak crisis) to 92 ppt (Spring 2024).

<sup>5</sup> In 2024 the saltiest portions were 86 ppt, the least salty portions were 68 ppt. Salinity is increasing.