International Water Resources Association

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GROUNDWATER INITIATIVE FOR POLICY AND PRACTICE

Groundwater Success Stories
Webinar #3

Case 2

USA: Mega Schemes for Interstate Water Transfer and Managed Aquifer Recharge in Southwestern USA

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Arizona—the Grand Canyon State

Central Arizona is not particularly vulnerable to natural disasters

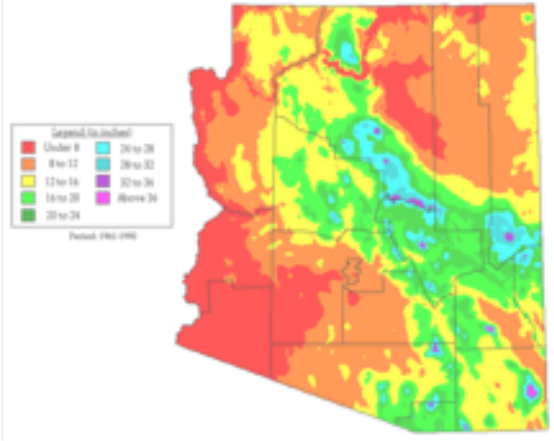
- No earthquakes, tornados, hurricanes, volcanos, few floods, no blizzards
- **But it is very hot and always dry**

Mega-droughts occur in our watersheds that literally decimate civilizations

Desert communities know the value of water

Water certainty is necessary for investment and industry

Therefore, Central Arizona is built to withstand drought



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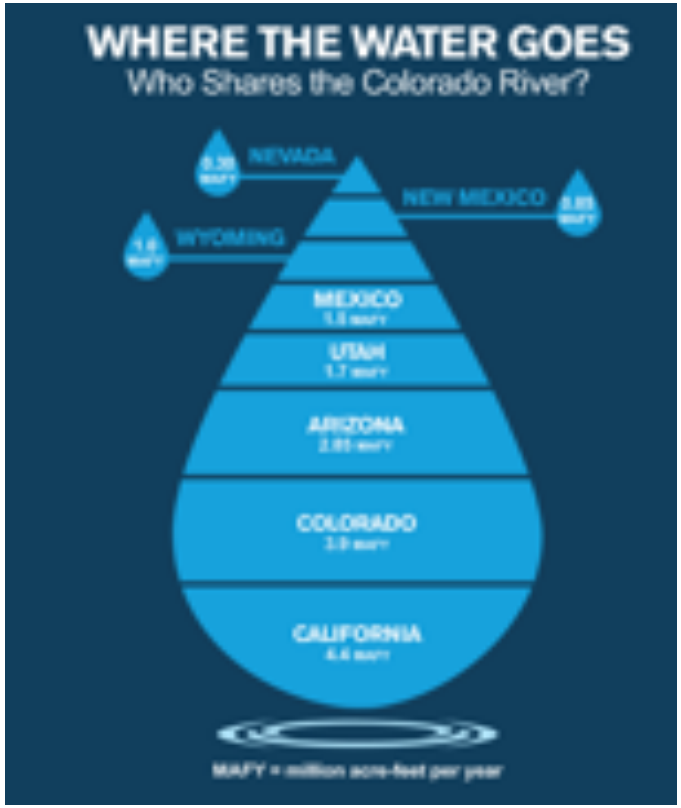
Water Transfer & Managed Aquifer Recharge in Central Arizona



~half of Arizona's Colorado River water is used for agriculture in Western Arizona
~half of Arizona's Colorado River water is imported into Central Arizona

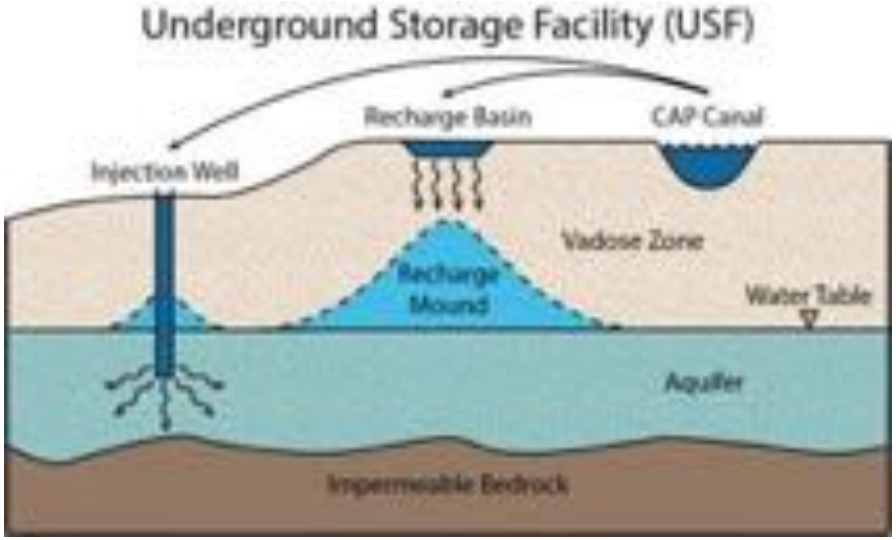
1M AF = 1,233,481,837 cubic meters

The Arizona Water Banking Authority

1986 – The Arizona legislature established the Underground Water Storage and Recovery Program to allow entities to store surface water underground and recover (pump) it at a later time.
Aquifer recharge creates a groundwater pump right called a *long-term storage credit* that can be used (pumped), sold, or exchanged.

1996 – The Arizona legislature established the Arizona Water Banking Authority.

A primary objective is to store Colorado River water underground in Central Arizona and make that water available to municipal, industrial, and tribal enterprises during future times of surface water shortage.



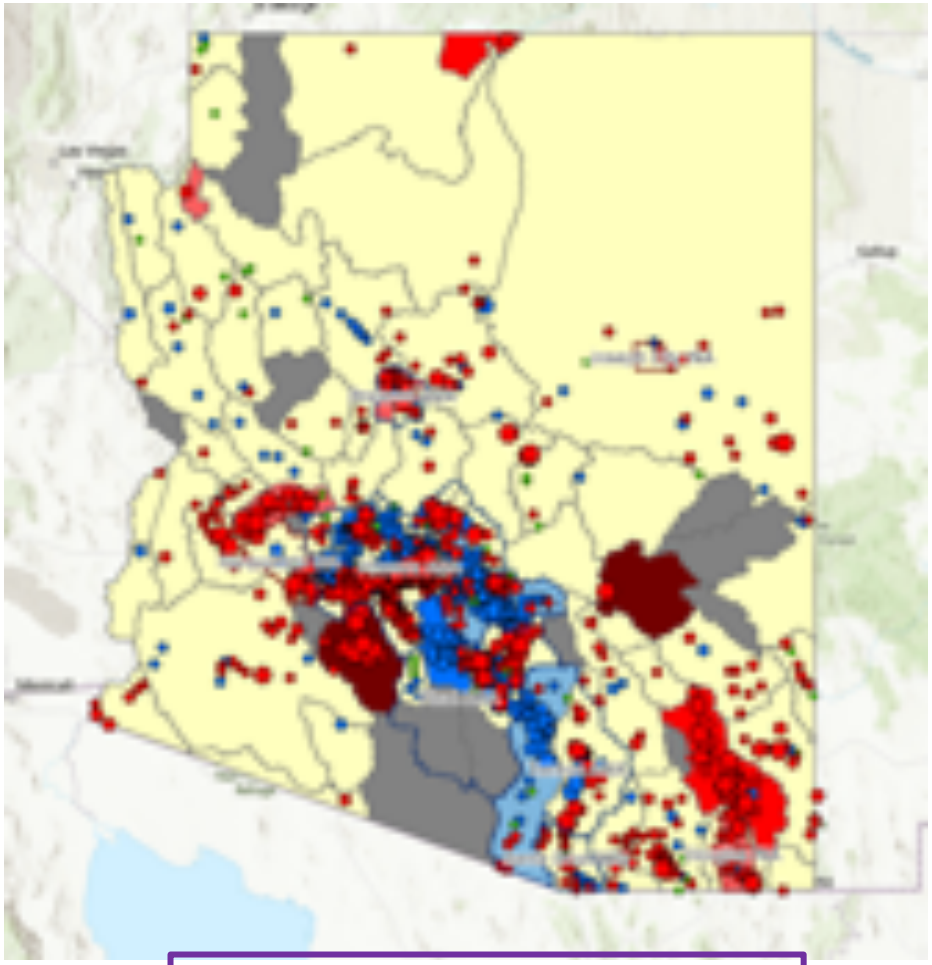
Water Transfer & Managed Aquifer Recharge in Central Arizona

Arizona Water Bank

$430M collected

4.4M Acre-feet of water stored underground (5.4B m3)

Stabilization or improvement of the water table in large areas of Central Arizona



https://azwaterblueprint.asu.edu/

Sharing a river that is in decline

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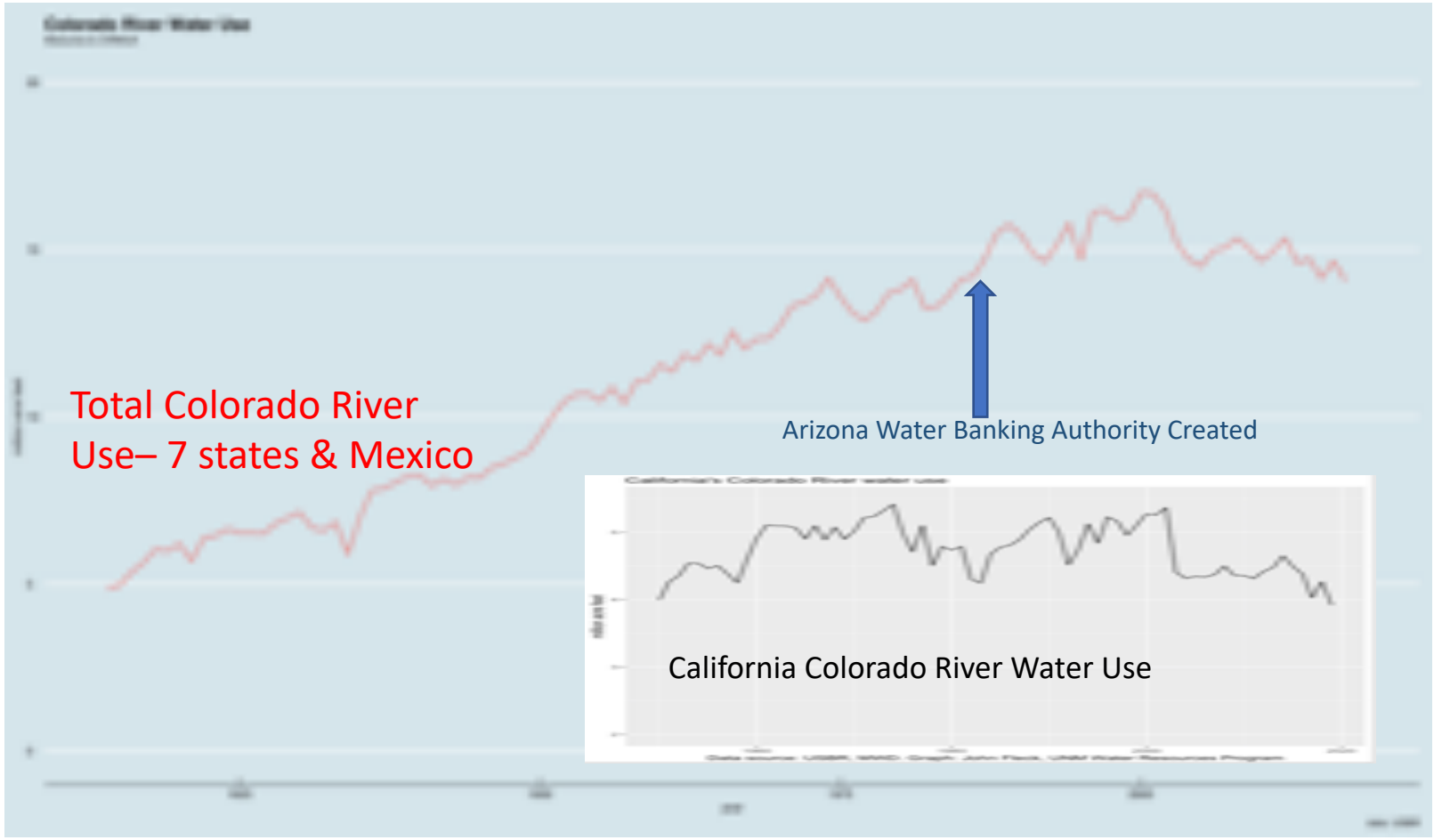
The Hardest Working River in the West



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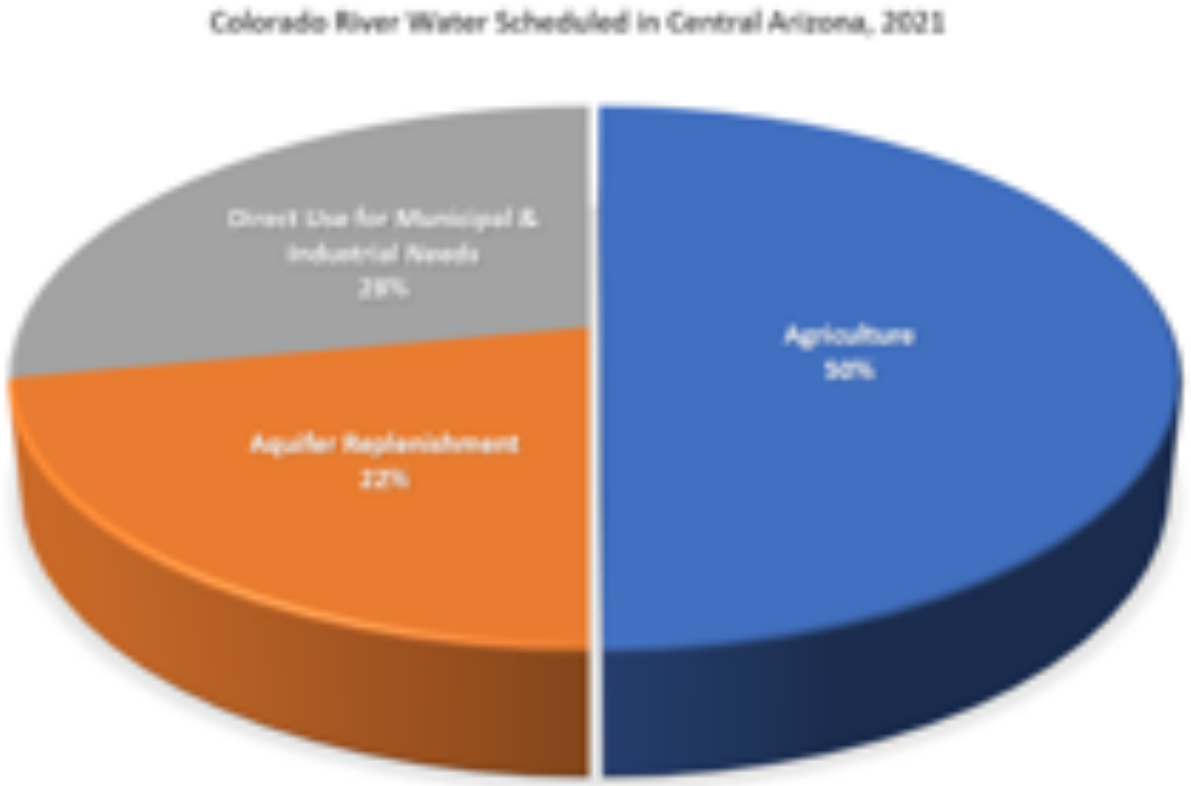
Reservoir levels dropping

Source: CNN.com, Drew Kann

Water Transfer & Managed Aquifer Recharge in Central Arizona

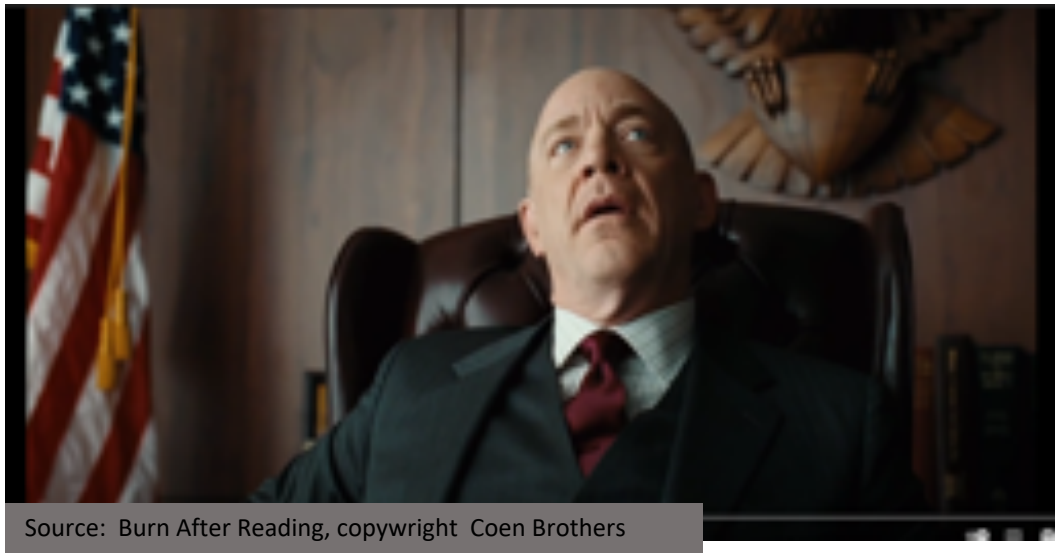


What have we learned here?

Water transfers will continue as population, industrial, and agricultural centers change and evolve—humans have been moving water for thousands of years and we are pretty good at it.

Storing surface water underground in a place to which it would not otherwise have flowed provides local benefits but also interrupts the hydrologic cycle—sometimes with regional consequences.

Water transfer combined with managed aquifer recharge has benefitted Arizona, but has also exacerbated regional challenges on the Colorado River



Source: Burn After Reading, copywright Coen Brothers

Looking forward to interesting times…

Arizona must continue to recharge its fossil aquifers or opportunities for future generations will be foreclosed.

Colorado River flows will be scarcer and less available for this purpose

Remaining tools include demand management, agricultural-to-urban transactions (transfers, fallowing programs, etc), reclaimed water, brackish water desalination, watershed restoration, and regional collaboration (leases, exchanges, shared infrastructure, etc)