Environment - Environmental Science; Jackson School of Geosciences Researchers Publish New Studies and Findings in the Area of Environmental Science (Multidecadal drought impacts on the Lower Colorado Basin with implications for future management)

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2025 APR 11 (VerticalNews) -- By a News Reporter-Staff News Editor at Ecology, Environment & Conservation -- New research on environmental science is the subject of a new report. According to news reporting originating from the Jackson School of Geosciences by VerticalNews correspondents, research stated, "Overallocation of Colorado River water and groundwater alongside multidecadal drought underscore the need to understand water-resource dynamics."

Funders for this research include Jackson School Endowment, Jackson School of Geosciences, Univ. of Texas At Austin Fisher Endowed Chair, Jackson School of Geosciences, Univ. of Texas At Austin.

Our news editors obtained a quote from the research from Jackson School of Geosciences: "Here we assess water-storage variations using satellites, regional modeling, and monitoring to inform future management. Total water storage loss from Gravity Recovery and Climate Experiment (GRACE) satellites was dominated by Lower Basin declines (80% of total), exceeding Lake Mead capacity by 40%. These Lower Basin storage declines were dominated by groundwater depletion (60% of total), with cumulative depletion hotspots 11 m (2002-2023) and subsidence 1 m (2010-2024). Regional groundwater modeling shows intensive depletion (1940s-1970s) followed by partial recovery since the early 1980s from irrigation reduction, wet climate cycles (early 1980s-1990s), and Colorado River water transfers to Central Arizona. Managed aquifer recharge and incidental recharge from imported surface-water irrigation led to a 3-m average groundwater-level rise in Central Arizona Active Management Areas (2000-2023). Projected declines in Colorado River water transfers to Central Arizona could lead to further depletion and subsidence."

According to the news editors, the research concluded: "Water transfers from agricultural to municipal/industrial sectors would improve future management. Understanding system dynamics related to climate and human drivers is essential for developing future conjunctive surface-water and groundwater management strategies."

For more information on this research see: Multidecadal drought impacts on the Lower Colorado Basin with implications for future management. Communications Earth & Environment, 2025,6(1):1-13. The publisher for Communications Earth & Environment is Nature Portfolio.

A free version of this journal article is available at https://doi.org/10.1038/s43247-025-02149-9.

Our news journalists report that additional information may be obtained by contacting Bridget R. Scanlon, **Bureau of Economic Geology**, Jackson School of Geosciences, Univ. of Texas at Austin. Additional authors for this research include Donald R. Pool, Ashraf Rateb, Brian Conway, Kathryn Sorensen, Bradley Udall, Robert C. Reedy.

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