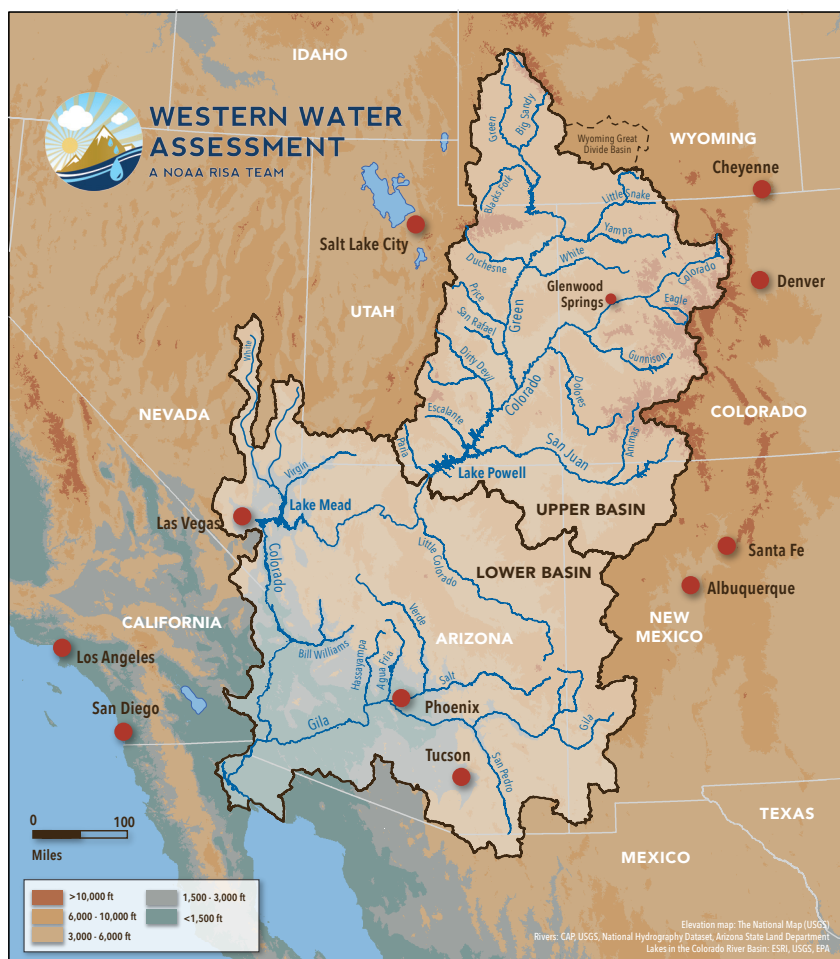


Navigating a river of knowledge

Researchers publish state-of-the-science assessment for Colorado River water resource managers and planners

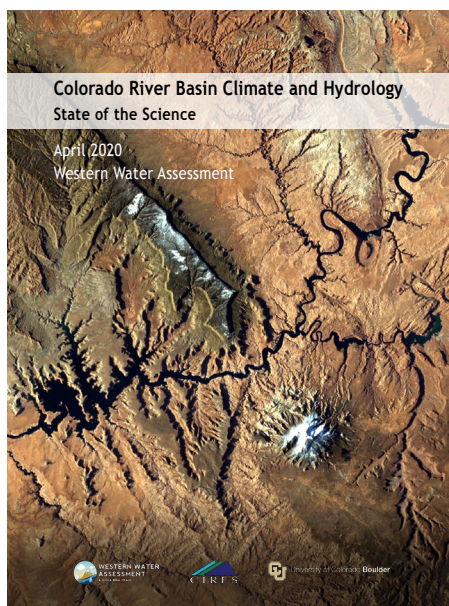
In recent decades, increasing water demand, dry conditions and warming temperatures have impacted the Colorado River, creating greater uncertainty about the future of the basin's water supply. With support and guidance from more than a dozen federal, state and local water agencies, researchers from the University of Colorado Boulder's Western Water Assessment teamed up with leading experts to integrate nearly 800 peer-reviewed studies, agency reports and other sources to assess the state of the science and the technical methods relevant to water resources in the Colorado River Basin.

Colorado River Basin Climate and Hydrology: State of the Science aims to create a shared understanding of the physical setting and the latest data, tools and research underpinning the management of Colorado River water resources. In identifying both challenges and opportunities, the report will guide water resource managers and researchers in efforts to improve the short-term and mid-term forecasts and long-term projections for the basin's water system. By serving as a common knowledge base, the report will help readers navigate the future of the Colorado River Basin—which so critically supports the seven basin states, 29 tribes and Mexico.



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What's in the report

Get a high-level overview with the **Executive Summary**, which features key points, challenges, and opportunities from each chapter—or dive into the full report for comprehensive supporting content.

Current Understanding of the Colorado River Basin Climate and Hydrology

How does the climate and hydrology of the basin vary over space and time, and what are the recent trends and their causes?

Primary Planning Tools

How do Reclamation's operations and planning models translate the many data inputs into forecasts of reservoir levels and other system conditions?

Observations—Weather and Climate

How are climate datasets created from underlying weather observations, and how managers, forecasters, and researchers best use them?

Observations—Hydrology

What are the current and emerging methods used to quantify snowpack, streamflow, soil moisture and evaporation in the basin?

Hydrologic Models

How do hydrologic models—from simple to complex—contribute to our understanding and forecasting of streamflow, and how can these models be improved?

Weather and Climate Forecasting

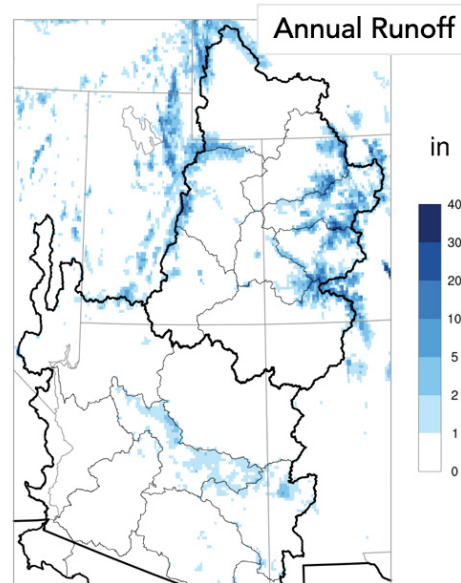
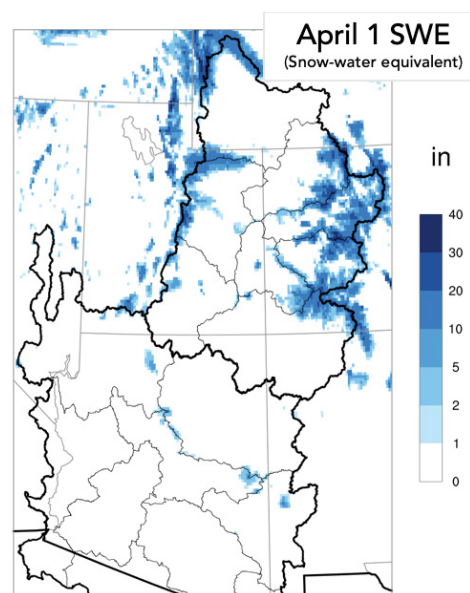
What are the pathways to improving the relatively low skill of seasonal climate forecasts, and how can they be better put to use?

Streamflow Forecasting

Can the seasonal streamflow forecasts be made better by harnessing new data and new approaches?

Historical Hydrology

Given the recent and expected trends in climate and hydrology, how can we harness the historical streamflow record to project the future?



About 85% of the annual runoff in the Colorado River Basin comes from only 15% of the basin's area, in the mountain headwaters where it is cool and wet enough to build a seasonal snowpack (April 1 SWE).

Paleohydrology

What do tree-ring reconstructions of streamflow tell us about the basin's hydrologic variability over the past 1200 years that can inform our expectations of the future?

Climate Change-Informed Hydrology

What do projections based on global climate models add to our understanding of the likely future basin hydrology, and how can we best use them in planning?