

Drought Contingency Plans for the Colorado River Basin

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The Colorado River Basin is a critical source of water and power supplies for seven western states and Mexico. The basin is in the midst of a long-term drought. Water levels at the basin's two largest reservoirs, Lake Mead and Lake Powell, could reach critically low levels. Building on prior agreements, the basin states and the Bureau of Reclamation (Reclamation) recently announced [drought contingency plans](#) (DCPs) that aim to decrease the likelihood of major water and power supply curtailments for users.

Colorado River Basin in Context

The Colorado River Basin ([Figure 1](#)) covers approximately 246,000 square miles, 97% of which are in the United States. It includes the Colorado River and its tributaries, which cross the United States border into Mexico before discharging into the Gulf of California. Pursuant to federal law, multiple federal facilities (e.g., [Hoover Dam](#)) store and convey water from the river and its tributaries and generate hydropower for the southwestern United States. The primary federal agency with jurisdiction over the river is Reclamation, an agency within the Department of the Interior (DOI).

Figure 1. Colorado River Basin and Major Facilities



Source: [Bureau of Reclamation](#).

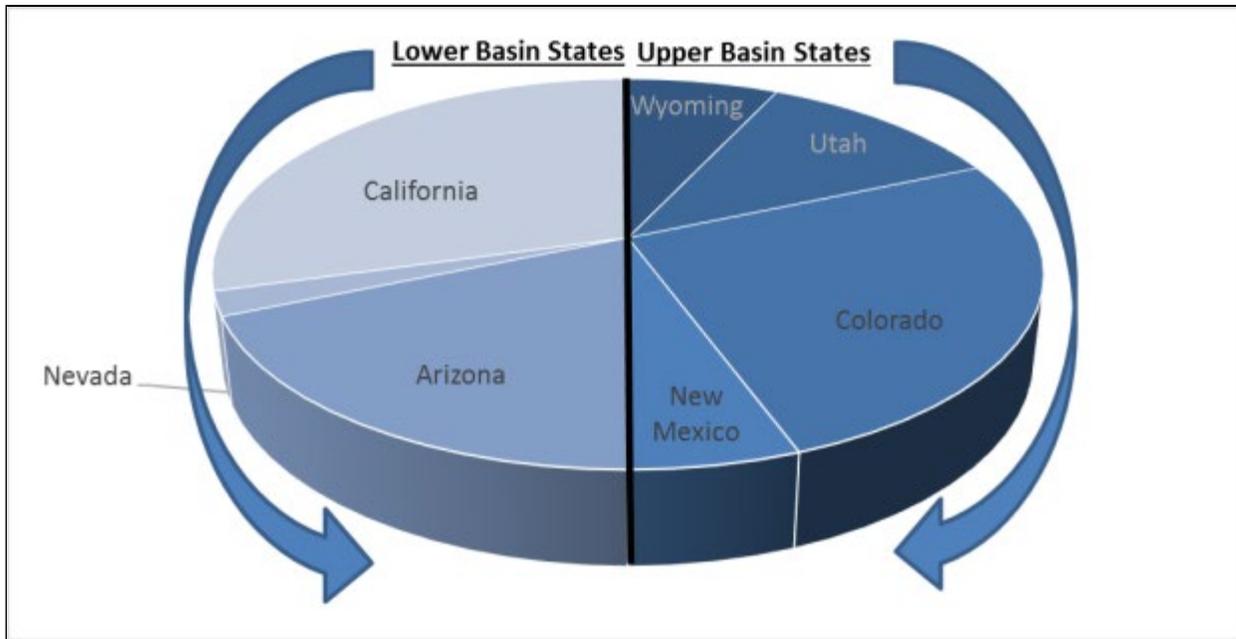
Based on [observed data](#), average natural Colorado River flows in the 20th century were about 15 million acre-feet (maf) annually. Flows have dipped during an ongoing, long-term drought dating from 2000; Reclamation [estimated](#) that from 2008 to 2018, flows averaged 12.9 maf.

Colorado River Compact

The [Colorado River Compact of 1922](#), agreed to by the basin states and the federal government, is the foundation of the "Law of the River," which governs water management. Under the compact, water supplies are divided equally between

the Upper Basin and the Lower Basin, with the dividing line at Lee's Ferry, AZ (near the Utah Border). Each basin was apportioned 7.5 maf annually. Congress approved the compact in the [Boulder Canyon Project Act of 1928](#). Multiple other compacts, federal laws, court decisions, and regulatory guidelines have since been added to the [Law of the River](#). State-level apportionments were established by documents approved subsequent to the Colorado River Compact. Pursuant to a [1944 treaty with Mexico](#), an additional 1.5 maf per year was reserved for flows to Mexico.

Figure 2. U.S. Colorado River Apportionments by State



Sources: Colorado River Compact of 1922, Boulder Canyon Project Act (43 U.S.C. 617), and the Upper Colorado River Basin Compact of 1948.

Notes: Assumes Colorado River Compact apportionment of 15 maf (7.5 maf to each basin). Does not reflect 1.5 maf to Mexico under the Mexican Water Treaty of 1944.

Supply/Demand Imbalance

Consumptive use in the basin typically exceeds natural flows, and [studies](#) project this trend will lead to a long-term imbalance in basin supply and demand. The basin has thus far avoided major impacts on supplies due in large part to its significant storage (60 maf), coupled with the fact that Upper Basin states have not fully developed their entitlement. However, less water is in storage as a result of the drought. Additional supply/demand imbalance could result from projected population increases and the development of [tribal water rights](#), among other things.

Drought Contingency Plans

In October 2018, after several years of negotiations, draft [DCPs](#) were announced for the Upper and Lower Basins. The DCPs aim to decrease the likelihood of major supply curtailments and other basin impacts. They build on a series of prior agreements:

- **2003 [Quantification Settlement Agreement \(QSA\)](#).** California agreed to reduce water use to adhere to its Colorado River water allocation and committed to a path for restoration of the [Salton Sea](#) in Southern California.
- **2007 [Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead](#).** These guidelines included criteria for "balancing" releases from Lakes Mead and Powell and a mechanism for storing conserved water in Lake Mead. They also included a schedule of Lower Basin curtailments in Arizona and Nevada if Lake Mead drops to an elevation of 1,075 feet or less (i.e., a "shortage

condition"). As of January 2019, there was a [69% chance](#) of a shortage condition beginning in 2020.

- **2014 [Pilot System Conservation Program](#)**. This DOI-led effort provided cost-shared funding for projects to conserve water supplies in the Lower Basin.
- **2017 [Minute 323 agreement with Mexico](#)**. This agreement extended and replaced the previous Minute 319 agreement (2012) with Mexico. It included increased U.S. storage opportunities for Mexico and a binational plan that would commit Mexico to new delivery curtailments parallel to those in the Lower Basin DCP.

The Upper Basin DCP would establish a Demand Management Program for the Upper Basin by authorizing storage of conserved water in Lake Powell. It also would establish 3,525 feet as the target operational level for Lake Powell. Together, these efforts would decrease the risk of Lake Powell's elevation falling below 3,490 feet, at which point reduced hydropower generation and cutbacks to water users are possible.

The Lower Basin DCP would require that when Lake Mead reaches predetermined elevations, Lower Basin states would forgo deliveries beyond previously agreed-upon levels. It would further incentivize voluntary conservation of water to be stored in Lake Mead and commit DOI to conserving 100,000 acre-feet of water that will be left in the system. The agreement aims to avoid Lake Mead elevations falling below 1,020 feet.

DCP implementation requires approval by basin states and stakeholders of the DCPs and a number of related intrastate agreements. Federal actions in the DCPs also require authorization by Congress. On February 1, 2019, Reclamation Commissioner Brenda Burman [announced](#) that basin states had not completed all of the required steps to approve the DCPs by a previously established January 31 deadline. Thus, the bureau published a [Federal Register notice](#) requesting input from basin state governors regarding how DOI might reduce the risk of drought in the basin. If the DCPs are completed by March 4, the notice would be rescinded and the DCPs could be finalized with congressional authorization. If they are not completed, DOI may use its authority to make unilateral water delivery cutbacks in the basin.