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SUMMARY

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# Management of the Colorado River: Water Allocations, Drought, and the Federal Role

The Colorado River Basin covers more than 246,000 square miles in seven U.S. states (Wyoming, Colorado, Utah, New Mexico, Arizona, Nevada, and California) and Mexico. Pursuant to federal law, the Bureau of Reclamation (Reclamation, part of the Department of the Interior) manages much of the basin's water supplies. Colorado River water is used primarily for agricultural irrigation and municipal and industrial (M&I) purposes; it is also important for tribal uses, hydropower production, fish and wildlife, and recreational uses. Dating to the early 2000s, reservoir storage levels throughout the basin have fallen. Pursuant to existing authorities, the Secretary of the Interior, through Reclamation, is currently leading a process analyzing potential "long-term" (post-2026) operational changes to the Colorado River system.

## River Management

A collection of compacts, treaties, statutes, and other authorities govern Colorado River allocations and apportionments. The foundational management document, the Colorado River Compact of 1922, established a framework to apportion water supplies between the river's Upper and Lower Basins, divided at Lee Ferry, AZ. The compact allocated 7.5 million acre-feet (MAF) annually to each basin, and a 1944 treaty made an additional 1.5 MAF in annual flows available to Mexico. A Supreme Court case and related decrees inform the Secretary of the Interior's management of the delivery of all water below Hoover Dam.

Consumptive use plus other water losses (e.g., evaporation) on the Colorado River typically exceed the basin's flows. This imbalance, coupled with a long-term drought dating to 2000, has stressed basin water supplies. Reclamation closely tracks the status of two large reservoirs—Lake Powell in the Upper Basin and Lake Mead in the Lower Basin—as indicators of basin storage conditions. Since the onset of dry conditions in the early 2000s, storage levels at these reservoirs have fallen. To alleviate these trends, water releases from both lakes have been tied to specific water storage levels. Since 2020, Reclamation has conserved Lower Basin storage in Lake Mead through reduced water deliveries to Arizona, Nevada, and Mexico. In the Upper Basin, dwindling supplies in Lake Powell could jeopardize hydropower generation and Lower Basin releases from Glen Canyon Dam. As a result, Reclamation has transferred water from upstream reservoirs to Lake Powell while also reducing releases to the Lower Basin.

## Efforts to Address Drought

The federal government has led multiple efforts to improve the basin's water supply outlook, resulting in collaborative agreements in 2003, 2007, 2019, and 2024 that reduced water use and increased operational flexibilities, among other things. In the most recent agreement, the three Lower Basin states (Arizona, California, and Nevada) agreed to "near-term" (i.e., 2023-2026) conservation of 3.0 MAF, with 2.3 MAF of these reductions compensated with federal drought mitigation funds approved by Congress in P.L. 117-169 (commonly referred to as the Inflation Reduction Act). Despite these efforts, storage levels throughout the basin have continued to fall and pose widespread concerns among observers and stakeholders.

With previous agreements set to expire at the end of 2026, Reclamation is currently leading an effort to study and implement post-2026 operations that account for the realities of the basin's hydrology. Upper and Lower Basin state leaders proposed their own long-term actions in 2024, but have yet to agree on a basin-wide approach. In January 2026, Reclamation published a draft environmental impact statement (DEIS) with four potential action alternatives for post-2026 operations, and plans to identify a preferred alternative in the summer of 2026. Three of the four DEIS alternatives require action by Congress for implementation, and all of the action alternatives would reduce water supplies beyond current levels (and without compensation). In May 2025, Lower Basin states submitted a short-term operations proposal as an alternative to the DEIS.

## Congressional Role

Congress funds and oversees management of the basin's federal water and hydropower facilities, and has previously approved legislation affecting water supplies and authorizing water shortage plans and drought mitigation funding. In considering basin operations, Congress may weigh whether or not to act on secretarial requests for new or modified authorities, or whether to issue other authorities and/or directives for river management. If the Secretary recommends an operations option that relies on congressional enactment of new or modified authorities and Congress does not act, the Secretary may be forced to limit post-2026 activities to those available under existing authorities and funding.

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# Introduction

From its headwaters in Colorado and Wyoming to its terminus in the Gulf of California, the Colorado River Basin covers more than 246,000 square miles. The basin spans seven U.S. states (Wyoming, Colorado, Utah, New Mexico, Arizona, Nevada, and California) and two countries (the United States and Mexico). Pursuant to federal law, the Bureau of Reclamation (Reclamation), a component of the Department of the Interior (DOI), plays a prominent role in the management of the basin's waters. In the Lower Basin (i.e., Arizona, Nevada, and California), The Secretary of the Interior (Secretary), acting through Reclamation, also serves as *water master*, a role that elevates the status of the federal government in basin water management.[1] The federal role in managing Colorado River water is magnified by the multiple federally owned and operated water storage and conveyance facilities in the basin, which provide low-cost water and hydropower supplies, as well as the basin's numerous federally recognized tribes.

Since the onset of dry conditions in the early 2000s, storage levels at the basin's federal reservoirs have fallen. Despite efforts to conserve water, storage levels throughout the basin have continued to fall and most of the current agreements to conserve supplies expire in 2026. The Secretary is poised to act in 2026 on future basin operations, including through a supplemental environmental impact statement (EIS) to support a decision on how to proceed. The 119th Congress may have a critical role to play in shaping the basin's water operations given that most operational options being assessed by the Department of the Interior are dependent on congressional action on new department authorities and conservation funding.

While Reclamation has stated its preference for basin interests to come to a consensus on these post-2026 operational terms, it has also indicated that the Secretary plans to act unilaterally if no agreement is reached.[2] Reclamation could do so through existing authorities (e.g., Lower Basin water master authority and other components of the *Law of the River*),[3] and the Secretary may also seek new authorities from Congress. The 119th Congress may consider whether or not to act on requests by the Secretary for new or modified authorities, or whether to issue other authorities and/or directives for river management. If the Secretary prefers an operations option in the EIS that relies on congressional enactment of new or modified authorities and Congress does *not* act, the Secretary may be forced to limit post-2026 activities to existing authorities and funding. Apart from these considerations, Congress may also be asked to approve additional funding for the basin, including but not limited to funding to mitigate the effect of water delivery reductions on users.

Reclamation has stated that in order to provide certainty for water users, a final EIS and resulting decision regarding operations after 2026 are planned to be released prior to October 1, 2026—the

[1] As discussed later in "Boulder Canyon Project Act," the Boulder Canyon Project Act of 1928 made the Secretary of the Interior responsible for the distribution (via contract) of all Colorado River water delivered below Hoover Dam (i.e., the Lower Basin), and authorized such regulations as necessary to enter into these contracts. Subsequent court decisions confirmed the Secretary's power to apportion surpluses and shortages among and within Lower Basin states; this forms the basis for the designation Lower Basin *water master*. No similar authorities or designations have been provided for the Upper Basin.

[2] U.S. Bureau of Reclamation (Reclamation), "Interior Department Moves Forward on Guidelines for Colorado River Absent Full State Consensus," press release, February 14, 2026, https://www.usbr.gov/newsroom/news-release/5283.

[3] The *Law of the River* is the shorthand for the body of compacts, federal laws, court decisions and decrees, contracts, and regulatory guidelines that govern management of the Colorado River. For more information, see Reclamation, "Law of the River," https://www.usbr.gov/lc/region/pao/lawofrvr.html.

start of the 2027 water year.[4] Thus, there is a limited window for Congress to act on new and/or extended authorities prior to the expiration of existing agreements at the end of calendar year 2026.

This report provides background on management of the Colorado River, with a focus on recent developments. It also discusses the congressional role in the management of basin waters, including current and potentially forthcoming issues facing Congress.

## Basin Background

Colorado River water is used primarily for agricultural irrigation and municipal and industrial (M&I) purposes. The river's flow and stored water also are important for hydropower production, fish and wildlife, and recreation, among other uses. A majority of basin water supplies (70%) are used to irrigate 5.5 million acres of land; basin waters also provide M&I water supplies to nearly 40 million people.[5] Some of the area that depends on the river for its water supplies is outside of the drainage area of the Colorado River Basin. Storage and conveyance facilities on the Colorado River provide trans-basin diversions that serve areas such as Cheyenne, WY; multiple cities in Colorado's Front Range (e.g., Fort Collins, Denver, Boulder, and Colorado Springs, CO); Provo, UT; Albuquerque and Santa Fe, NM; and Los Angeles, San Diego, and the Imperial Valley in Southern California (**Figure 1**). Colorado River hydropower facilities can provide up to 4,200 megawatts of electrical power per year.[6] The river also provides habitat for a wide range of species, including several species listed under the federal Endangered Species Act (ESA; 87 Stat. 884, 16 U.S.C. §§1531-1544). It flows through seven national wildlife refuges and 11 National Park Service (NPS) units; these and other areas of the river support important recreational opportunities.[7]

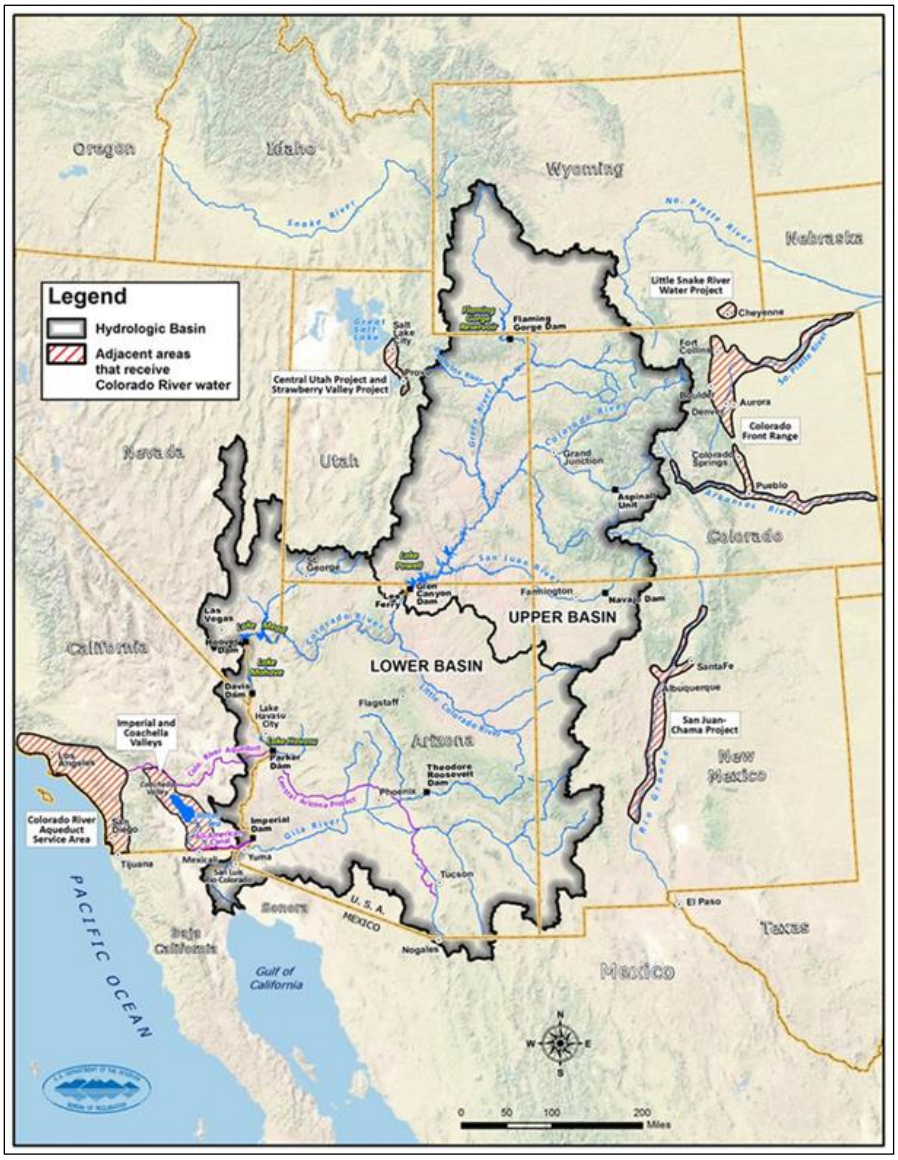
[4] Water year refers to the period from October 1 through September 30 that is used for monitoring climate and generally accords with the supply and demand cycle for the river. Reclamation, "Reclamation Releases Draft Environmental Review for Post-2026 Colorado River Operations," press release, January 9, 2026, https://www.usbr.gov/newsroom/news-release/5263.

[5] Reclamation, *Colorado River Basin Water Supply and Demand Study*, December 2012, p. 4, https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/index.html.

[6] Reclamation, *Colorado River Basin Water Supply and Demand Study*, p. 3.

[7] Reclamation, *Colorado River Basin Water Supply and Demand Study*.

**Figure 1. Colorado River Basin and U.S. Areas That Import Colorado River Water**




**Source:** Bureau of Reclamation, *Colorado River Basin Water Supply and Demand Study*, 2012.

Precipitation and runoff in the basin are highly variable. Water conditions on the river depend largely on snowmelt in the basin's northern areas. From 1906 to 2024, natural flows in the Colorado River Basin averaged about 14.6 million acre-feet (MAF) annually.[8] Flows have dipped significantly since 2000; annual natural flows from 2000 to 2024 averaged approximately 12.4 MAF per year.[9] According to Reclamation, the 23-year period from 2000 to 2022 was the driest 23-year period in more than 100 years of Colorado River record keeping, and among the driest periods in the past 1,200 years.[10] Climate change impacts, including warmer temperatures and

[8] CRS analysis of Reclamation, "Provisional Natural Flow Data, 1906-2024," https://www.usbr.gov/lc/region/g4000/NaturalFlow/LFnatFlow1906-2024.2024.9.12.xlsx. Hereinafter, "Reclamation Flow Data."

[9] CRS Analysis of Reclamation Flow Data.

[10] Reclamation, "Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for (continued...)

altered precipitation patterns, may further increase the likelihood of prolonged dry conditions in the basin.[11] In most years, consumptive use of basin waters is considerably more than flows, resulting in drawdown of basin storage.

Congress plays a prominent role in the management of the Colorado River. Congress created Reclamation's unique Colorado River authorities, and authorizes, funds, and oversees Reclamation's management of Colorado River Basin facilities (including facility operations and programs to protect and restore endangered and threatened species). Congress also approved and continues to consider Indian water rights settlements involving Colorado River waters, and development of new and expanded water storage in the basin. Congress has also approved funding in addition to annual appropriations to mitigate drought and stretch basin water supplies, and added new authorities for Reclamation to combat the basin's dry conditions and enter into agreements with Colorado River water users (i.e., contractors).

The Law of the River refers to a collection of compacts, treaties, statutes, and other authorities that govern Colorado River allocations and apportionments.[12] In the latter part of the 19th century, interested parties in the Colorado River Basin began to recognize that local interests alone could not solve the challenges associated with development of the Colorado River. Plans conceived by parties in California's Imperial Valley to divert water from the mainstream of the Colorado River were thwarted because these proposals were subject to the sovereignty of both the United States and Mexico.[13] The river also presented engineering challenges, such as deep canyons and erratic water flows, and economic hurdles that prevented local or state groups from building the necessary storage facilities and canals to provide an adequate water supply. In part because local or state groups could not resolve these "national problems," Congress considered options to control the Colorado River and resolve potential conflicts between the states.[14] In an effort to resolve these conflicts and avoid litigation, Congress gave its consent for the basin states to enter into an agreement to apportion Colorado River water supplies between the river's Upper and Lower Basins in 1921.[15]

The below sections discuss the resulting agreement, the Colorado River Compact, as well as key statutory authorities, the Supreme Court's decision in *Arizona v. California*, and other documents and agreements that form the basis of the Law of the River.

Lake Powell and Lake Mead Under Historically Low Reservoir Conditions," 87 *Federal Register* 37884, June 24, 2022. For additional discussion on historic drought in the Colorado River, see Subhrendu Gangopadhyay et al., "Tree Rings Reveal Unmatched 2nd Century Drought in the Colorado River Basin," *Geophysical Research Letters*, vol. 49, no. 11 (June 2022).

[11] Bradley Udall and Jonathan Overpeck, "The Twenty-First Century Colorado River Hot Drought and Implications for the Future," *Water Resources Research*, vol. 53, no. 3 (March 2017), pp. 2404-2418.

[12] For an example of how courts characterize the Law of the River, see Navajo Nation v. Dep't of the Interior, 26 F.4th 794, 800 (9th Cir. 2022), *rev'd on other grounds*, Arizona v. Navajo Nation, 599 U.S. 555 (2023).

[13] Arizona v. California, 373 U.S. 546 (1963).

[14] S. Doc. No. 67-142 (1922). For example, the states in the Upper Basin (Colorado, Wyoming, Utah, and New Mexico), where the majority of the river's runoff originates, feared that a storage facility making water available downstream might form a basis for claims to priority access to basin waters by Lower Basin states before Upper Basin states could develop means to access their share.

[15] Ch. 72, 42 Stat. 171 (1921). In lieu of litigation, interstate compacts have historically been a preferred means of allocating water among competing uses. Pursuant to the U.S. Constitution, Article I, Section 10, Clause 3, no such compacts can be entered into without the consent of Congress. In 2024, the Supreme Court ruled that litigation involving an interstate compact in which the United States intervenes with particular claims cannot be settled without the United States' consent. Texas v. New Mexico, 602 U.S. 943 (2024).

## Colorado River Compact

The Colorado River Compact of 1922, negotiated by the seven basin states and the federal government, was initially signed by all but one basin state (Arizona).[16] Under the compact, the states established a framework to apportion the water supplies between the Upper Basin and the Lower Basin, with the dividing line between the two basins located at Lee Ferry, AZ,[17] below the confluence of the Colorado and Paria Rivers near the Utah border.[18] Each basin was apportioned 7.5 MAF annually for beneficial consumptive use, and the Lower Basin was given the right to increase its beneficial consumptive use by an additional 1 MAF annually. The agreement also required that Upper Basin states release (i.e., not deplete) at least 75 MAF to the Lower Basin over any 10-year period, thus allowing for averaging over time to make up for low-flow years.[19] The compact did not address allocations within states, or between states (i.e., inter- or intrastate allocations of water, which it left to future agreements and legislation), nor did it address tribal rights or other rights that existed at the time the compact was finalized.[20] The compact also contemplated how the basins could share the burden of provisioning water to Mexico, the river's natural terminus, the details of which were addressed in subsequent international agreements.[21] The compact was not to become binding until it had been approved by the legislatures of each of the signatory states and by Congress.

## Boulder Canyon Project Act

Congress approved and modified the Colorado River Compact in the Boulder Canyon Project Act (BCPA) of 1928.[22] The BCPA ratified the compact, and authorized the construction of a federal facility to impound water in the Lower Basin (Boulder Dam, later renamed Hoover Dam) and of related facilities to deliver water in Southern California (e.g., the All-American Canal, which delivers Colorado River water to California's Imperial Valley). The BCPA apportioned the Lower Basin's 7.5 MAF per year among the three Lower Basin states: 4.4 MAF per year to California, 2.8 MAF to Arizona, and 300,000 acre-feet (AF) to Nevada, with the states to divide any surplus waters among them. It also directed the Secretary of the Interior to serve as the sole contracting authority for Colorado River water use in the Lower Basin and authorized several storage projects for study in the Upper Basin.

Congress's approval of the compact in the BCPA was conditioned on a number of factors, including ratification of the compact by California and five other states (thereby allowing the

[16] Because the Colorado River Compact of 1922 did not specify the apportionments for individual states, Arizona initially refused to sign and ratify the agreement out of concern that rapidly growing California would lay claim to most of the Lower Basin's share of water. Arizona signed and ratified the compact in 1944.

[17] *Lee Ferry* is the dividing line between basins designated in the compact. *Lees Ferry* (or *Lee's Ferry*), approximately 1 mile upstream from that point, is the location of the USGS streamgage that has measured flows dating to 1921. After the compact was signed, the Lees Ferry streamgage, along with a gage on the Paria River, became the measurements used to determine compliance with the compact.

[18] Arizona receives water under both the Upper and the Lower Basin apportionments, because parts of the state are in both basins.

[19] Pursuant to later agreements (i.e., the U.S. Mexico Water Treaty) and operating criteria (the Long-Term River Operating Criteria, or LROC), the Upper Basin currently must release water to the Lower Basin at a rate of 8.23 million acre-feet (MAF) per year under most circumstances. For more information, see below section, "Colorado River Basin Project Act of 1968."

[20] Boulder Canyon Project Act (BCPA), 45 Stat. 64-65, as codified in 43 U.S.C. §617l-q; cf. Boulder Canyon Project Adjustment Act, 54 Stat. 799, as codified in 43 U.S.C. §618m (containing similar savings clause language).

[21] Colorado River Compact Art. III(c). See below section, "1944 U.S.-Mexico Water Treaty."

[22] BCPA, Ch. 42, 45 Stat. 1057 (1928), codified as amended at 43 U.S.C. §617.

compact to become effective without Arizona's concurrence), and California agreeing by act of its legislature to limit its water use to 4.4 MAF per year and not more than half of any surplus waters. California met this requirement by passing the California Limitation Act of March 4, 1929, and the compact became effective on that date.[23]

## 1944 U.S.-Mexico Water Treaty[24]

In 1944, the United States signed a water treaty with Mexico (1944 U.S.-Mexico Water Treaty) to guide how the two countries share the waters of the Colorado River, among other purposes.[25] The treaty established water allocations for the two countries and created a governance framework (i.e., the International Boundary and Water Commission) to resolve disputes arising from the treaty's execution. The treaty requires the United States to provide Mexico with 1.5 MAF of Colorado River water annually, plus an additional 200,000 AF when a surplus is declared. During drought, the United States may reduce deliveries to Mexico in similar proportion to reductions of U.S. consumptive uses. The treaty has been supplemented by additional agreements between the United States and Mexico, known as *minutes*, regarding matters related to the treaty's execution and interpretation.[26]

## Arizona v. California

Arizona ratified the Colorado River Compact in 1944, at which time the state began to pursue a federal project (later named the Central Arizona Project, or CAP) to bring Colorado River water to its primary population centers in Phoenix and Tucson. California opposed the project, claiming it had senior water rights based on its "first in time" use under the doctrine of prior appropriation and that any diversions from Colorado River *tributaries* should be included in Arizona's allotted 2.8 MAF under the Colorado River Compact.[27] In 1952, Arizona filed suit against California in the U.S. Supreme Court to settle these and other issues.[28]

[23] The Department of the Interior (DOI) also requested that California prioritize its Colorado River rights among users before the Colorado River Compact became effective; the state established priority among these users for water in both "normal" and "surplus" years in the California Seven-Party Agreement, signed in August 1931.

[24] For more information on the 1944 U.S.-Mexico Water Treaty and Colorado River water sharing issues with Mexico, see CRS In Focus IF12976, *1944 U.S.-Mexico Water Treaty: Issues in the 119th Congress*, by Elena H. Humphreys, Nicole T. Carter, and Charles V. Stern (2026).

[25] The treaty also included water-sharing provisions relating to the Lower Rio Grande and Tijuana Rivers. See Treaty Between the United States of America and Mexico Respecting Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, U.S.-Mex., February 3, 1944, 59 Stat. 1219, https://www.ibwc.gov/Treaties_Minutes/treaties.html. Mexico ratified it on October 16, 1945, and the United States ratified the treaty on November 1, 1945. It became effective on November 8, 1945.

[26] International Boundary and Water Commission (IBWC), "Minutes Between the United States and Mexican Sections of the IBWC," https://www.ibwc.gov/Treaties_Minutes/Minutes.html. For more information on recent minutes, see section, "Agreements with Mexico."

[27] Historically, water in the western United States (versus riparian rights in the eastern portion) has been governed by some form of the *rule of prior appropriation*. Under this rule, the party that first appropriates water and puts it to *beneficial use* thereby acquires a vested right to continue to divert and use that quantity of water against claimants junior in time.

[28] Article III of the Constitution states that in all cases in which a state shall be a party, the Supreme Court has original jurisdiction. U.S. Constitution, Article III, §2, cl. 2. In original jurisdiction cases, the Supreme Court issues detailed decrees that are more akin to trial court judgments than the Supreme Court's usual appellate decisions.

Eleven years later, in the 1963 *Arizona v. California* decision, the Supreme Court ruled in favor of Arizona.[29] The ruling was notable in forgoing typical Reclamation deference to state law under the Reclamation Act of 1902 and formed the basis for the Secretary of the Interior's role as *water master* for the Lower Basin.[30] The Court determined that the BCPA serves as the framework for apportioning the Lower Basin's share of the mainstream waters of the Colorado River, neither the BCPA nor water contracts require any specific formula for apportioning shortages, and the Secretary of the Interior exercises considerable control in managing the delivery of water from Lake Mead to the Lower Basin. The Court determined that the Colorado River Compact guides resolution of disputes regarding allocations between basins, that statutory authority—in this case the BCPA—guides Lower Basin water allocations originating from the mainstream of the river, and that tributary allocations are reserved to the states.[31] Although California argued its historical use of the river trumped Arizona's rights to the Arizona allotment, the Court rejected this argument because Congress had spoken definitively to the contrary.[32]

A key element of the suit concerned the extent to which Arizona's Gila River diversions should count toward its allocation in the Colorado River Compact and BCPA. The Supreme Court concluded that the BCPA and compact's 7.5 MAF allocations within and between basins apply only to the mainstream of the Colorado River.[33] Tributary allocations, such as from Arizona's diversion of water from the Gila River, are governed under separate authorities.[34]

As detailed in the Supreme Court's opinion, Congress granted the Secretary of the Interior the exclusive authority to enter into contracts with Lower Basin users to apportion stored water pursuant to BCPA Section 5.[35] The resulting contracts determine how mainstream water is delivered to Lower Basin users. In the event of shortages, the Secretary of the Interior has discretion to determine how to divide the burden of shortages in the Lower Basin among the three states, within the parameters of the BCPA and water contracts.[36] The Court clarified that DOI is not bound by a single approach to addressing shortages and acknowledged that one valid option could be to reduce Lower Basin deliveries proportionally to statutory allocations of the first 7.5

[29] The 1963 Supreme Court decision in *Arizona v. California* is the first in a line of Supreme Court decisions and orders in the same litigation that address water allocation disputes within the Lower Basin. 373 U.S. 546, 601 (1963), 376 U.S. 340 (1964) (order issued), 383 U.S. 268 (1966) (amending judgment), 466 U.S. 144 (1984) (amending order), 530 U.S. 392 (2000) (subsequent determination), 531 U.S. 1 (2000) (supplemented), 547 U.S. 150 (2006) (consolidated decree); cf. California v. United States, 438 U.S. 645 (1978).

[30] Pursuant to Section 8 of the Reclamation Act of 1902 (32 Stat. 388), Reclamation is not to interfere with state laws "relating to the control, appropriation, use, or distribution of water used in irrigation," and "the Secretary of the Interior, in carrying out provisions of the Act, shall proceed in conformance with such laws." However, the Court in *Arizona v. California* noted that the Secretary must be able to manage the projects of the Colorado River Basin without being subject to "the varying, possibly inconsistent, commands of the different state legislatures." The Court therefore construed the Secretary's authority "to permit him, within the boundaries set down in the Act, to allocate and distribute the waters of the mainstream of the Colorado River." Arizona v. California, 373 U.S. at 587, 589-590 (1963).

[31] Arizona v. California, 373 U.S. at 564-165 (1963).

[32] Arizona v. California, 373 U.S. at 593 (1963).

[33] Arizona v. California, 547 U.S. at 161-166 (2006).

[34] Arizona v. California, 547 U.S. at 161-166 (2006). In addition to the Central Arizona Project legislation discussed in the next section, *Arizona v. California* also addressed Gila River disputes between Arizona and New Mexico prior to reaching the mainstream, which are beyond the scope of this report.

[35] 43 U.S.C. §617(d) and Arizona v. California, 373 U.S. at 593-594 (1963). As the Court explained, §5 of BCPA, which provides that "no person shall have or be entitled to have the use for any purpose of the water stored as aforesaid except by contract made as herein stated," serves as the basis for DOI's authority over all Lower Basin water deliveries.

[36] Arizona v. California, 373 U.S. at 594 (1963) (allowing the Secretary, "in case of shortage," to "adopt a method of proration" and to consider "priority of use, local laws and customs, or any other factors that might be helpful in reaching an informed judgment in harmony with the Act, the best interests of the Basin States, and the welfare of the Nation").

MAF (California 4.4/7.5, Arizona 2.8/7.5, and Nevada 0.3/7.5). DOI also has the authority and discretion to elect an alternate basis for apportioning shortages, subject to statutory constraints.[37] These constraints include the congressionally directed priorities for uses of the dam and reservoir, as well as limitations reflected in statute or the Colorado River Compact.[38]

In 1964, the Supreme Court issued a decree implementing its opinion in *Arizona v. California*.[39] The decree has been updated multiple times since, most recently in 2006.[40] The decree requires the United States to follow specific priorities for managing water flows from federal structures based on the BCPA.[41] In the event flows are insufficient to provide 7.5 MAF per year to the Lower Basin, the decree instructs DOI to account for *present perfected rights* (i.e., water rights already in place at the time the Colorado River Compact became effective) in order of their priority dates.[42] Additionally, the decree quantified water rights for five tribes, although it did not address any rights or priorities of any additional Indian reservation.[43] After consulting with states and "major" contracting parties, DOI has the authority to apportion flows pursuant to the BCPA and other statutes based on the following priority use order: (1) river regulation, navigation improvements, and flood control; (2) irrigation and domestic uses, including the satisfaction of present perfected rights; and (3) hydroelectric power.[44] The decree also identifies specific quantities of present perfected rights and their date of recognition.[45]

*Arizona v. California* continues to play a significant role in Colorado River allocations. Multiple federal statutes pertaining to Colorado River Basin management refer to the *Arizona v. California*

[37] Arizona v. California, 373 U.S. at 592-593 (1963).

[38] Arizona v. California, 373 U.S. at 584 (1963) (referencing BCPA contract authority limitations including that irrigation and domestic uses are for "permanent service," that nothing should disrupt compact-designated allocations between basins, and that reclamation law provisions generally apply unless Congress explicitly provides otherwise); cf. BCPA, see footnote 22.

[39] Arizona v. California, 376 U.S. 340 (1964). The 1964 decree determined, among other things, that all water in the mainstream of the Colorado River below Lee Ferry and within the United States would be "water controlled by the United States" and that the Secretary would release water under only three types of designations for a year: "normal, surplus, and shortage."

[40] The Supreme Court supplemented the 1964 decree in 1966, 1979, 1984, and 2000; in 2006 it issued a consolidated decree incorporating the 1964 decree and supplements. See footnote 29. Among other things, the decrees set forth tribal water rights and present perfected rights of various parties in the Lower Basin.

[41] Arizona v. California, 376 U.S. 340 (1964); 547 U.S. 150 (2006) (allowing for Colorado River water releases to satisfy Mexico treaty obligations "without regard" to the priorities specified in the BCPA as referenced in subdivision II(A) of the decree).

[42] Arizona v. California, 547 U.S. 150 (2006), 154-155, 166. Present perfected rights are those existing as of June 25, 1929, in accordance with state law and exercised by actually diverting a specific quantity of water and/or reservation of water rights for federal use. Arizona v. California, 547 U.S. at 154.

[43] Arizona v. California. 373 U.S. at 598-602. Indian reserved water rights were first recognized by the Supreme Court in Winters v. United States, 207 U.S. 564, 575-577 (1908). Under the Winters doctrine, when Congress reserves land (i.e., for an Indian reservation), it implicitly reserves water sufficient to fulfill the purpose of the reservation. Because the establishment of Indian reservations (and, therefore, of Indian water rights) generally predated large-scale development of water resources for non-Indian users, the water rights of tribes often are senior to those of non-Indian water rights. For more information on the resulting settlements, see below section, "Tribal Water Rights" and CRS Report R44148, *Indian Water Rights Settlements*, by Charles V. Stern and Mariel J. Murray (2025).

[44] Arizona v. California, 547 U.S. 150 at 154-156 (2006). The Court did not clarify what a constituted "major delivery contract." Arizona v. California, 547 U.S. at 155.

[45] Arizona v. California, 547 U.S. at 167-181 (2006). In sum, California, including tribal uses within the state, is entitled to approximately 3 MAF based on present perfected rights. Present perfected rights total approximately 1.05 MAF in Arizona and .000013 MAF in Nevada. California's rights include Imperial Irrigation District rights to 2.6 MAF (priority date of 1901), Palo Verde Irrigation District rights to 0.2 MAF (priority date of 1877), tribal rights totaling approximately 0.16 MAF with priority dates ranging from 1873 to 1903, and an additional 0.04 MAF from other uses.

decree and codify its requirements.[46] Following the decree, Arizona sought congressional authorization of a new project to access and convey its Colorado River supplies as provided for in the Supreme Court's decree. Congress authorized that project in 1968, on the condition that California's and Nevada's water deliveries receive priority over Arizona's during times of drought (see below, "Colorado River Basin Project Act of 1968").

## Upper Basin Compact and Colorado River Storage Project Authorizations

Congress did not allow projects originally authorized for study in the Upper Basin under BCPA to move forward with federally funded construction until the Upper Basin states determined their individual water allocations, which occurred under the Upper Colorado River Basin Compact of 1948 (ratified by Congress in 1949).[47] Because there was some uncertainty as to the exact amount of water that would remain in the system after Lower Basin obligations were met, the Upper Basin Compact established state allocations in terms of percentage: Colorado (where the largest share of runoff to the river originates) is the largest entitlement holder in the Upper Basin, with rights to 51.75% of any Upper Basin flows after Colorado River Compact obligations to the Lower Basin have been met. Other states also received percentage-based allocations, including Wyoming (14%), New Mexico (11.25%), and Utah (23%). Arizona was allocated 50,000 AF in addition to its Lower Basin apportionment, in recognition of the portion of the state in the Upper Basin. **Figure 2** shows basin allocations by state following approval of the Upper Basin Compact (i.e., the allocations that generally guide current water deliveries). The Upper Basin Compact also established the Upper Colorado River Commission, an interstate administrative water agency composed of representatives from the Upper Division states and a federal appointee, which is charged with administering the provisions of the Upper Basin Compact.[48]

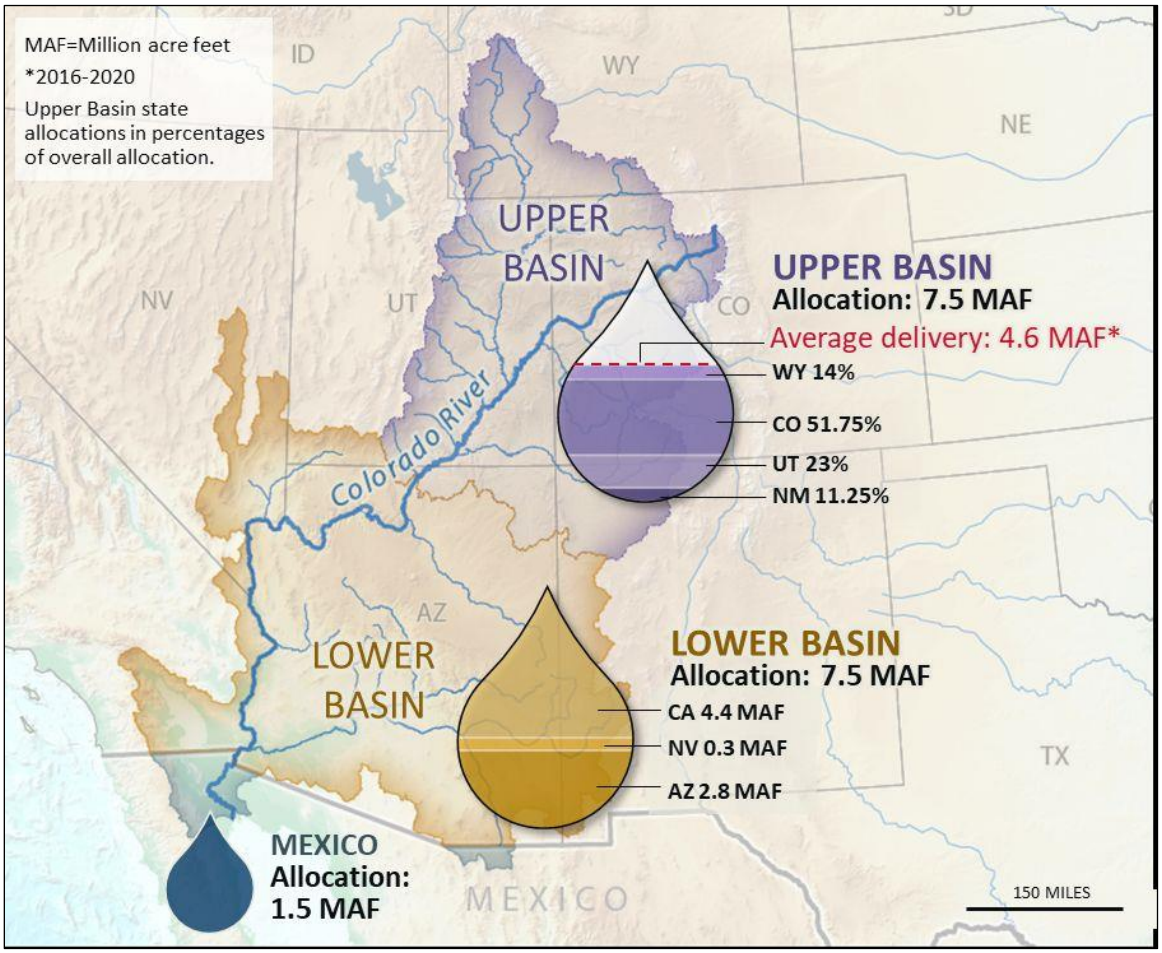
[46] See, for example, 43 U.S.C. §§1521, 1525.

[47] Upper Colorado River Basin Compact, 1948. 63 Stat. 31 (April 6, 1949).

[48] For more information, see Upper Colorado River Commission, "About the UCRC," http://www.ucrcommission.com/about-us/.

**Figure 2. Colorado River Basin Allocations**

(shown as percentage of allocation or million acre-feet [MAF])




**Source:** CRS, using data from U.S. Geological Survey Esri Data & Maps, 2017, Central Arizona Project, and Esri World Shaded Relief Map.

**Notes:** Due to uncertainty about how much water would remain after meeting obligations to the Lower Basin and Mexico, most Upper Basin compact apportionments are in terms of percentages.

Subsequent federal legislation paved the way for development of Upper Basin waters. The Colorado River Storage Project (CRSP) Act of 1956 authorized CRSP *initial unit* facilities of Glen Canyon, Flaming Gorge, Navajo, and Aspinall in the Upper Basin. The act also established the Upper Colorado River Basin Fund (Upper Basin Fund), which receives revenues collected in connection with the projects, to be made available for defraying project costs for operation, maintenance, and emergency expenditures.

## Colorado River Basin Project Act of 1968

The Colorado River Basin Project Act (CRBPA), enacted in 1968, authorized additional projects in both the Upper and Lower Basins and made other changes to basin management. In the CRBPA, Congress authorized a major new water conveyance project in Arizona, the Central

Arizona Project (CAP),[49] as well as several other Upper Basin projects (e.g., the Animas La Plata and Central Utah projects). The CRBPA also established funding mechanisms for revenues from power generation from relevant Upper and Lower Basin facilities to be used to fund specific expenses in each respective basin, and provided direction on how to address shortages in the Lower Basin when the Colorado River cannot supply annual consumptive use of 7.5 MAF in Arizona, California, and Nevada.

The CRBPA represented a legislative compromise between the interests of California and Arizona. The act authorized the CAP but provides that, in the event of shortage conditions, California's 4.4 MAF allocation would have priority over CAP water supplies.[50] Specifically, when there are shortages, the CRBPA directs that diversions to the CAP are to be limited to ensure sufficient consumptive use for certain California and Nevada users whose water rights predate the CAP, consistent with the 1964 *Arizona v. California* decree.[51]

The CRBPA directed the Secretary of the Interior to develop a plan for meeting future water needs, develop criteria for operating federally authorized reservoirs in the basin to ensure that the reservoirs satisfy existing needs and legal obligations, and report annually on implementation of the plan.[52] Specifically, Section 602 of the CRBPA directed the Secretary of the Interior to consultatively develop operational criteria—known as *Long-Range Operating Criteria* (LROC)—for federally authorized Colorado River reservoirs in the following order of priority: (1) treaty obligations to Mexico, (2) the Colorado River Compact requirement for the Upper Basin to not deplete more than 75 MAF to Lower Basin states over any 10-year period, and (3) carryover storage to meet these needs.[53] The Secretary of the Interior may modify the criteria based on "actual operating experience or unforeseen circumstances" after correspondence and consultation with representatives of the basin states.[54] The Secretary of the Interior first adopted LROC in 1970 and last amended the criteria in 2005.[55] The LROC provided for coordinated Lake Mead and Lake Powell operations and, among other things, required that the Upper Basin release waters to the Lower Basin at an annual rate of at least 8.25 MAF under most circumstances (i.e., 7.5 MAF for the compact's nondepletion obligation, plus 750,000 AF [50%] for the Upper Basin's portion

[49] See 43 U.S.C. §§1501-1556. The Central Arizona Project was authorized in 43 U.S.C. §1521. Some portions of the Colorado River Basin Project Act (CRBPA) were codified as amendments to the CRSP Act. 43 U.S.C. §§620a, 620a-1.

[50] 43 U.S.C. §1521.

[51] See 43 U.S.C. §1525 (allowing for limitations to Arizona supplies sufficient to enable 4.4 MAF of annual consumption "by holders of present perfected rights, by other users in the State of California served under existing contracts with the United States by diversion works heretofore constructed, and by other existing Federal reservations in that State, and by users of the same character in Arizona and Nevada"). The legislation references Section II(B)(1) of the *Arizona v. California* 1964 Supreme Court decree, 376 U.S. 340, which is associated with the 1963 opinion Section III, Apportionment and Contracts in Time of Shortage, 373 U.S. 546, 592-594. See also 43 U.S.C. §1521(b) (allowing modifications to Central Arizona Project diversions).

[52] 43 U.S.C. §§1501(b), 1552.

[53] 43 U.S.C. §1552(a)-(b). The Grand Canyon Protection Act (P.L. 102-575) directs DOI to operate Glen Canyon Dam in a specific manner. In addition to compliance with laws governing Colorado River water apportionment, DOI must adopt criteria and operating plans separate from and in addition to the ones specified in Section 602 of the CRBPA consistent with Grand Canyon National Park values. However, the legislation states that the provisions are not intended to affect state water rights to Colorado River allocations that have been secured by "any compact, law, or decree." P.L. 102-575, §1802, 106 Stat. 4669 (1992). The CRBPA provides that if the federal government fails to comply with applicable law in operating Glen Canyon Dam, any affected state can sue to enforce its provisions in the Supreme Court. 43 U.S.C. §1551(c).

[54] 43 U.S.C. §1552(b).

[55] Operating Criteria, 70 *Federal Register* 15873 (March 29, 2005); Colorado River Reservoirs, Coordinated Long-Range Operations, 35 *Federal Register* 8951 (June 10, 1970). Through later legislation, Congress required that, in preparing the LROC and Annual Operating Plan, the Secretary of the Interior must consult the governors of the basin states and with the public, see Grand Canyon Protection Act of 1992, P.L. 102-575, §1804(c)(3), 106 Stat. 4669.

of U.S.-Mexico Water Treaty obligations). The LROC did not provide specific guidelines for annual operations; Reclamation eventually pursued these criteria in the 2007 Interim Guidelines. As discussed below, the 2007 guidelines and related supplemental agreements are set to expire at the end of 2026.[56]

# Federal Water Storage and Operations

The Colorado River Basin's large surface water storage projects can store as much as 60 MAF, or about four times the Colorado River's annual flows, to help insulate water users from annual variability in flows. Thus, storage and operations in the basin receive considerable attention, particularly at the basin's two largest dams and their storage reservoirs: Glen Canyon Dam/Lake Powell in the Upper Basin (26.2 MAF of storage capacity) and Hoover Dam/Lake Mead in the Lower Basin (26.1 MAF of storage capacity). Reclamation and interested stakeholders closely monitor the status of these projects as an indicator of basin water supplies.

Reclamation's Glen Canyon Dam, completed in 1963 at the southern end of the Upper Basin, serves as the linchpin for Upper Basin storage and regulates flows from the Upper Basin to the Lower Basin, pursuant to the Colorado River Compact. From 2000 to 2020, it generated an average of approximately 3.8 billion kilowatt-hours (kWh) of electricity per year, which the Western Area Power Administration (WAPA) supplies to 5.8 million customers in Upper Basin states.[57] Other significant federal storage in the Upper Basin includes Reclamation's *initial units*: the Aspinall Unit in Colorado (including Blue Mesa, Crystal, and Morrow Point dams on the Gunnison River, with combined storage capacity of more than 1 MAF),[58] the Flaming Gorge Unit in Utah (including Flaming Gorge Dam on the Green River, with a capacity of 3.8 MAF), and the Navajo Unit in New Mexico (including Navajo Dam on the San Juan River, with a capacity of 1 MAF). The Upper Basin also contains 16 active *participating projects.* These reclamation projects were authorized under CRSP and subsequent legislation, and were developed to use Colorado River Basin water for irrigation, M&I uses, and other purposes. Pursuant to the CRBPA, they also receive access to balances in the Upper Basin Fund to help defray the costs of project features that are beyond the ability of users to pay, and receive access to low-cost hydropower generated elsewhere in the Upper Basin.[59]

Reclamation's Hoover Dam, completed in 1936, provides the majority of the Lower Basin's storage and generates on average about 4 billion kWh of electricity per year for customers in California, Arizona, and Nevada.[60] Also important for Lower Basin operations are Davis Dam/Lake Mohave, which regulates flows to Mexico under the 1944 Treaty, and Parker Dam/Lake Havasu, which impounds water for diversion into the Colorado River Aqueduct

[56] See below section, "Recent Developments and Agreements."

[57] Statement of Reclamation Commissioner Camille Calimlim Touton in U.S. Congress, Senate Committee on Energy and Natural Resources, Subcommittee on Water and Power, 117th Cong., 2nd sess., May 25, 2022. For a more detailed discussion of the effects of long-term drought on Glen Canyon Dam, see CRS Report R47497, *Long-Term Drought and Glen Canyon Dam: Potential Effects on Water Deliveries and Hydropower*, by Charles V. Stern and Ashley J. Lawson (2023).

[58] The Curecanti Unit was renamed the Aspinall Unit in 1980 in honor of U.S. Representative Wayne N. Aspinall of Colorado.

[59] In total, 16 of the 22 Upper Basin projects authorized as part of CRSP have been developed. (Of the six remaining projects, five were determined by Reclamation to be infeasible, and Congress deauthorized the Pine River Extension Project.) For a complete list of projects, see Reclamation, "Colorado River Storage Project," https://www.usbr.gov/uc/rm/crsp/.

[60] Reclamation, "Hoover Dam Frequently Asked Questions and Answers," accessed October 30, 2023, https://www.usbr.gov/lc/hooverdam/faqs/powerfaq.html.

(thereby allowing for deliveries to urban areas in Southern California) and CAP (allowing for diversion to users in central Arizona). Further downstream on the Arizona/California border, Imperial Dam (a diversion dam) diverts Colorado River water to the All-American Canal for use in some of the basin's largest agricultural areas in California's Imperial and Coachella Valleys.

Groundwater storage in the Colorado River Basin is generally regulated by individual basin states and constitutes an important related source of water often drawn upon by users as a complement or alternative to surface water supplies. Groundwater accounts for 40% of basin water supply, and reliance on the source is expected to increase with surface water storage declines.[61] Recent studies have indicated that groundwater storage levels in the basin have been declining more rapidly than levels of surface water and may further jeopardize the basin's water supply outlook.[62]

## Annual Operations

Reclamation monitors Colorado River reservoir levels and projects them 24 months into the future in monthly studies (called *24-month studies*).[63] The studies take into account forecasted hydrology, reservoir operations, and diversion and consumptive use schedules to model a single scenario of reservoir conditions. The studies inform operating decisions by Reclamation looking one to two years into the future. They express water storage conditions at Lake Mead and Lake Powell in terms of elevation, as feet above mean sea level.

In addition to the 24-month studies, the CRBPA requires the Secretary of the Interior to transmit to Congress and the governors of the basin states, by January 1 of each year, an *Annual Operating Plan* (AOP). In the AOP, Reclamation describes the actual operation for the preceding operating year and the projected operation for the coming year.[64] The AOP's projected January 1 water conditions for the upcoming calendar year establish a baseline for future annual operations.[65]

Since the adoption of operational guidelines in 2007 (see section, "2007 Interim Guidelines/Coordinated Operations for Lake Powell and Lake Mead"), Reclamation has tied operations of Hoover and Glen Canyon Dams to specific pool elevations at Lake Mead and Lake Powell. For Lake Mead, Reclamation determines the first level of shortage (i.e., *Tier One Shortage Condition*) if Lake Mead's storage pool elevation falls below 1,075 feet. At this point, Reclamation curtails Arizona and Nevada water deliveries below contracted levels (along with releases to Mexico). For Lake Powell, releases to the Lower Basin are based on storage levels in both Lake Powell and Lake Mead, with reductions to Lower Basin releases when Lake Powell storage drops. Drought contingency plans (DCPs) for the Upper and Lower Basins, enacted in 2019,[66] made additional changes to these efforts, overlaying a new *Tier Zero* shortage at higher Lake Mead elevations (i.e., up to 1,090 feet) and implementing additional curtailments for other

[61] Reclamation, *Colorado River Basin Water Supply and Demand Study*, December 2012, https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Study%20Report/StudyReport_FINAL_Dec2012.pdf.

[62] For example, see Karem Abdelmohsen et al., "Declining Freshwater Availability in the Colorado River Basin Threatens Sustainability of Its Critical Groundwater Supplies," *Geophysical Research Letters*, vol. 52, no. 10 (May 2025), https://doi.org/10.1029/2025GL115593.

[63] Current 24-month studies, as well as two- and five-year probable projections of Lakes Mead and Powell elevations, are available at Reclamation, "Colorado River System Projections Overview," https://www.usbr.gov/lc/region/g4000/riverops/coriver-projections.html.

[64] The operating year for Glen Canyon Dam runs from October 1 through September 30; the operating year for Hoover Dam runs from January 1 through December 31.

[65] Current and historical AOPs are available at Reclamation, "Annual Operating Plan for Colorado River Reservoirs," https://www.usbr.gov/uc/water/rsvrs/ops/aop/.

[66] See below section, "2019 Drought Contingency Plans."

existing tiers (e.g., *Tier Two*).[67] For Lake Powell, the Upper Basin's DCP incorporated a Drought Response Operations Agreement (DROA) intended to protect a target lake elevation of 3,525 feet. This agreement allowed for altered Lower Basin releases from Glen Canyon Dam, and Upper Basin releases from upstream reservoirs, to protect Lake Powell from falling below an elevation that would no longer produce hydropower. All of these efforts are discussed more in the below section "Recent Developments and Agreements."

## Recent Conditions

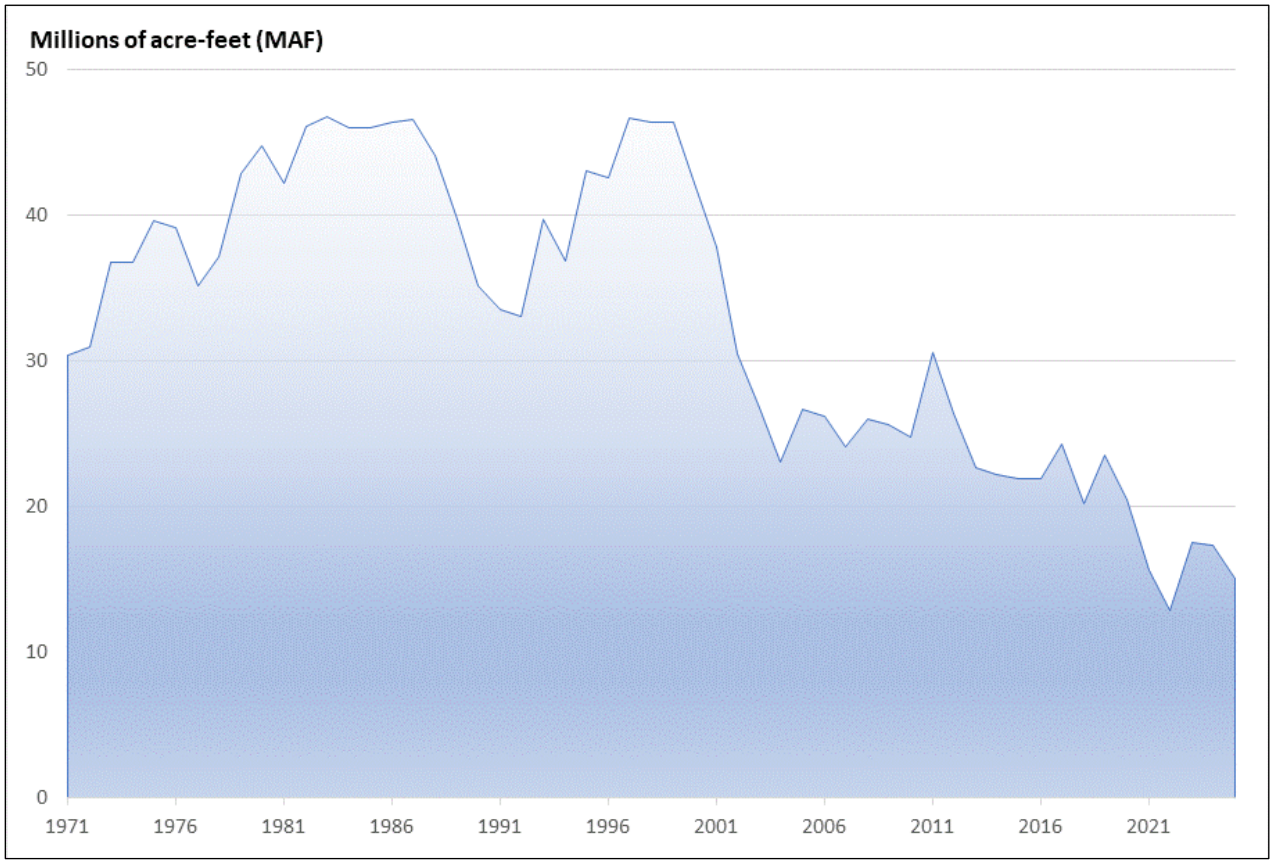
Since 2000, combined storage at Lake Mead and Lake Powell has dropped significantly (**Figure 3**). In 2020, storage levels in Lake Mead resulted in Reclamation implementing the first-ever delivery curtailments for Arizona and Nevada users in the Lower Basin, in accordance with previous plans (for more information, see below section "Recent Developments and Agreements"). The first Lower Basin delivery reductions were Tier Zero reductions, as agreed to in the 2019 DCPs. Since then, Reclamation has operated Lakes Mead and Powell under Tier Zero conditions in 2021; operated under Tier One Shortage Conditions in 2022, 2024, and 2025; and implemented operations under Tier Two during historically low water conditions in 2023.[68] These reductions coincided with Lake Powell falling below the elevation of 3,525 feet in 2022 and 2023, which had not occurred since the late 1960s.[69]

[67] For more details, see below section, "Lower Basin Drought Contingency Plan."

[68] Reclamation, "Interior Department Announces Actions to Protect Colorado River System, Sets 2023 Operating Conditions for Lake Powell and Lake Mead," press release, August 16, 2022, https://www.usbr.gov/newsroom/news-release/4294.

[69] Reclamation, "Lake Powell to Temporarily Decline Below 3,525 Feet," press release, March 4, 2022, https://www.usbr.gov/newsroom/#/news-release/4117; 3,525 feet is established as a target because it is 35 feet above 3,490 feet, the level at which power production would cease.

**Figure 3. Combined Storage at Lakes Mead and Powell, 1971-2025**




**Source:** Congressional Research Service, using Bureau of Reclamation data at https://data.usbr.gov/visualizations/reservoir-conditions/.

As of early 2026, under its 2026 Annual Plan, Reclamation was operating Lake Mead under Tier One shortage conditions (**Figure 4**), and Lake Powell releases in the Mid-Elevation Release Tier (**Figure 5**), although both conditions may change based on hydrology. While the combination of delivery reductions, conservation, and operational flexibilities implemented in recent years has reduced demand in the basin, declining storage levels in Lakes Mead and Powell were expected to continue based on the dry winter of 2025/2026.[70] Reclamation has stated that absent major interventions in the form of 660,000 AF-1 MAF in additional releases from Flaming Gorge Reservoir and 1.48 MAF in reduced releases to the Lower Basin from Glen Canyon Dam, Lake Powell would fall below "minimum power pool" (i.e., 3,490 feet, or the minimum elevation needed to run the dam's hydroelectric plant) by August 2026.[71] The reduced releases to the Lower Basin could cause the Upper Basin to fall short of compact release requirements, potentially triggering the basin's first ever *compact call* (a term referring to enforcement of compact

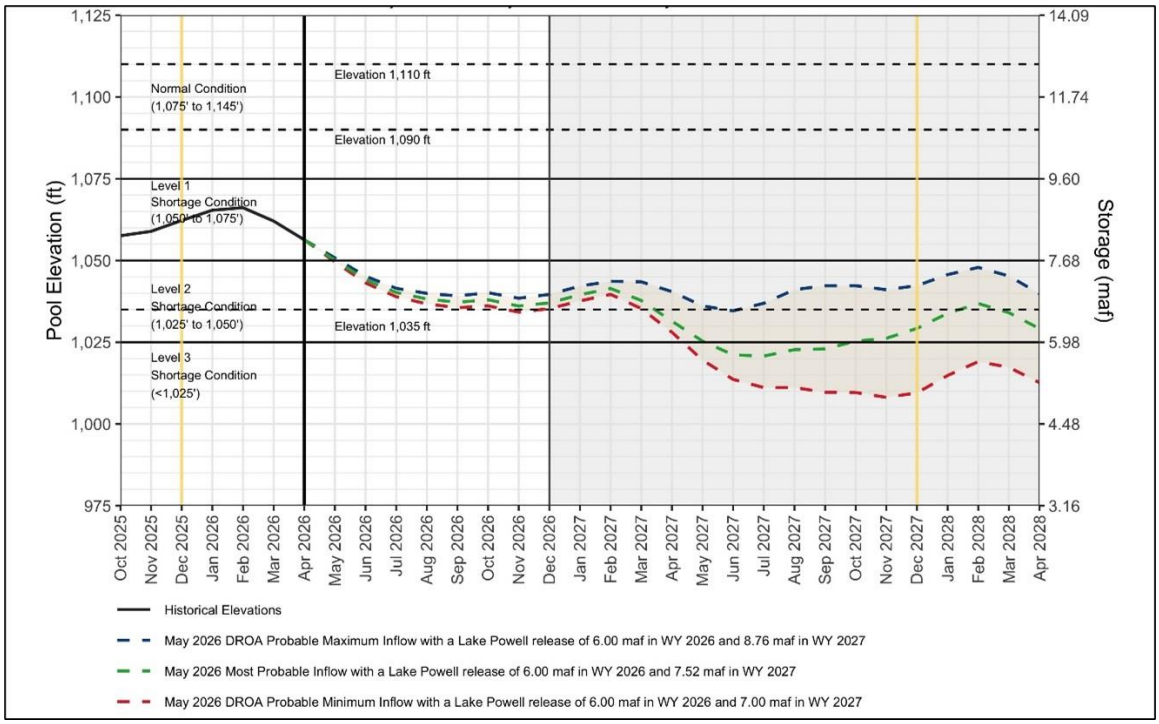
[70] National Integrated Drought Information System, "Snow Drought Current Conditions and Impacts in the West," March 12, 2026, https://www.drought.gov/drought-status-updates/snow-drought-current-conditions-and-impacts-west-2026-03-12#snow-drought.

[71] Reclamation, "Reclamation Acts to Protect Colorado River System During Historic Drought," press release, April 17, 2026, https://www.usbr.gov/newsroom/news-release/5326.

requirements by which the Lower Basin states attempt to force deliveries of Colorado River water by Upper Basin states pursuant to compact terms).[72]

**Figure 4. Lake Mead End-of-Month Elevation Projections**

(May 2026 24-month study inflow scenarios)



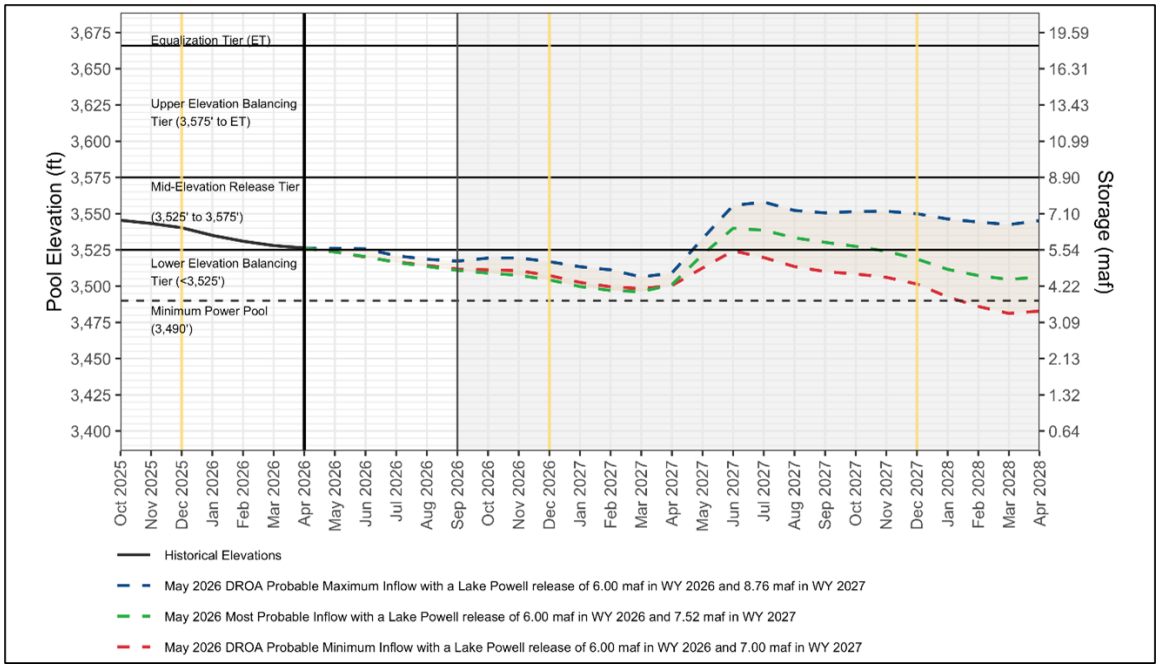

**Source:** Bureau of Reclamation, "24-Month Study Projections," https://www.usbr.gov/lc/region/g4000/riverops/24ms-projections.html.

**Notes:** WY = Water Year; maf = million acre-feet; DROA= Drought Response Operations Agreement.

[72] For a more detailed discussion of a potential compact call, see Anne Castle and John Fleck, "The Risk of Curtailment Under the Colorado River Compact," November 20, 2019, https://ssrn.com/abstract=3483654; Save the Colorado v. Semonite, No. 18-CV-03258-CMA, 2024 WL 4519201, at *14&n24 (D. Colo. Oct. 16, 2024).

**Figure 5. Lake Powell End-of-Month Elevation Projections**

(May 2026 24-month study inflow scenarios)




**Source:** Bureau of Reclamation, "24-Month Study Projections," https://www.usbr.gov/lc/region/g4000/riverops/24ms-projections.html.

**Notes:** WY = Water Year; maf = million acre-feet; DROA=Drought Response Operations Agreement.

# Mitigating the Environmental Effects of Colorado River Basin Development

Construction of most of the Colorado River's water supply infrastructure predated major federal environmental protection statutes, such as the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. §§4321 et seq.) and the ESA. Thus, many of the environmental impacts associated with the development of basin resources were not originally taken into account. Over time, multiple efforts have been initiated to mitigate these effects. Some of the highest-profile efforts have been associated with water quality (in particular, salinity control) and the effects of facility operations on endangered and threatened species. These efforts are discussed below.

## Salinity Control

Salinity and water quality are long-standing issues in the Colorado River Basin. Parts of the Upper Basin are covered by salt-bearing shale (which increases salt content of the river's inflows), and salinity content increases as the river flows downstream due to both natural leaching and return flows from agricultural irrigation. The 1944 U.S.-Mexico Water Treaty did not set water quality or salinity standards in the Colorado River Basin. After years of dispute between the United States and Mexico regarding the salinity of the water reaching Mexico's border, the two countries reached an agreement on August 30, 1973, with the signing of Minute

242 of the International Boundary and Water Commission.[73] The agreement guarantees Mexico that the average salinity of its treaty deliveries will be no more than 115 parts per million higher than the salinity content of the water diverted to the All-American Canal at Imperial Dam in Southern California. To control the salinity of Colorado River water in accordance with this agreement, Congress passed the Colorado River Basin Salinity Control Act of 1974, which authorized desalting and salinity control facilities to improve Colorado River water quality. The most prominent of these facilities is the Yuma Desalting Plant, which was largely completed in 1992 but has never operated at capacity due to cost and other factors.[74] In 1974, the seven basin states also established water quality standards for salinity through the Colorado River Basin Salinity Control Forum.[75]

## Endangered Species Efforts and Habitat Improvements

Congress enacted the ESA in 1973. As the federal government listed some basin species under ESA in accordance with the act,[76] federal agencies and nonfederal stakeholders consulted with the U.S. Fish and Wildlife Service (FWS) to address the conservation of the listed species. As a result of these consultations, several major programs have been developed to protect and restore listed fish species on the Colorado River and its tributaries. Summaries of some of the key programs are below.

### Upper Colorado Endangered Fish Recovery Program

The Upper Colorado Endangered Fish Recovery Program was established in 1988 to assist in the recovery of four species of endangered fish in the Upper Colorado River Basin.[77] Congress formally authorized this program in 2000.[78] The program is implemented through several stakeholders under a cooperative agreement signed by the governors of Colorado, Utah, and Wyoming; the Secretary of the Interior; and the Administrator of WAPA. The recovery goals of the program are to reduce threats to species and improve their status so they are eventually delisted from the ESA. Some of the actions taken in the past include providing adequate instream flows for fish and their habitat, restoring habitat, reducing nonnative fish, augmenting fish

[73] See International Boundary and Water Commission, *Minute 242, Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River*, August 30, 1973, https://www.ibwc.gov/Treaties_Minutes/Minutes.html.

[74] The Yuma Desalting Plant's limited operations have been partly due to the cost of its operations (desalination can require considerable electricity to operate) and surplus flows in the Colorado River during some years. In lieu of operating the plant, high-salinity irrigation water has been separated from the United States' required deliveries to Mexico and disposed of through a canal that enters Mexico and discharges into wetlands called the Ciénega de Santa Clara, near the Gulf of California. Whether and how the plant should be operated and how the impacts on the Ciénega de Santa Clara from the untreated irrigation runoff should be managed remain topics of some debate in the basin and between Mexico and the United States.

[75] Additional information about the forum and related salinity control efforts is available at Colorado River Basin, "Salinity Control Forum," https://www.coloradoriversalinity.org/.

[76] Several listed species are found throughout the Colorado River Basin. Some are specifically found in the Colorado River, such as the razorback sucker (*Xyrauchen texanus*), bonytail chub (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus Lucius*), and humpback chub (*Gila cypha*). Consultation about an agency action's effects on these species is required by 16 U.S.C. §1536(a).

[77] The fish species are the humpback chub, bonytail chub, Colorado pikeminnow, and razorback sucker. For more information, see Upper Colorado River Endangered Fish Recovery Program at http://www.coloradoriverrecovery.org/uc. For general background information on the Endangered Species Act (87 Stat. 884, 16 U.S.C. §§1531-1544), see CRS Report R46677, *The Endangered Species Act: Overview and Implementation*, by Pervaze A. Sheikh and Erin H. Ward (2021).

[78] P.L. 106-392.

populations with stocked fish, and conducting research and monitoring. Reclamation is the lead federal agency for the program and provides the majority of federal funds for implementation. Other funding includes a portion of Upper Basin hydropower revenues from WAPA and funding from FWS; the states of Colorado, Wyoming, and Utah; and water users, among others.

## San Juan River Basin Recovery Implementation Program

The San Juan River Basin Recovery Implementation Program was established in 1992 to assist in the recovery of ESA-listed fish species on the San Juan River, the Colorado's largest tributary.[79] The program is a partnership implemented under a cooperative agreement between DOI and the states of Colorado and New Mexico, the Jicarilla Apache Nation, the Navajo Nation, the Southern Ute Indian Tribe, and the Ute Mountain Ute Indian Tribe.[80] It is concerned with the recovery of the razorback sucker (*Xyrauchen texanus*) and Colorado pikeminnow (*Ptychocheilus Lucius*). Congress authorized this program with the aim to protect the genetic integrity and population of listed species, conserve and restore habitat (including water quality), reduce nonnative species, and monitor species. The program is coordinated by FWS, and Reclamation is responsible for operating the Animas-La Plata Project and Navajo Dam on the San Juan River in a way that reduces effects on the fish populations. The program is funded by a portion of revenues from hydropower revenues from WAPA in the Upper Basin, Reclamation, the Bureau of Indian Affairs, and participating states. Recovery efforts for listed fish are coordinated with the Upper Colorado Endangered Fish Recovery Program.

## Glen Canyon Dam Adaptive Management Program

The Glen Canyon Dam Adaptive Management Program was established in 1997 in response to a directive from Congress under the Grand Canyon Protection Act of 1992 to operate Glen Canyon Dam "in such a manner as to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established."[81] This program uses experiments to determine how water flows affect natural resources south of the dam. Reclamation is in charge of modifying flows for experiments, and the U.S. Geological Survey conducts monitoring and other studies to evaluate the effects of the flows.[82] The results are expected to better inform managers how to provide water deliveries and conserve species.

## Lower Colorado Multi-Species Conservation Program

The Multi-Species Conservation Program (MSCP) is a multistakeholder initiative to conserve 27 species (8 listed under ESA) along the Lower Colorado River while maintaining water and power supplies for farmers, tribes, industries, and urban residents.[83] The MSCP began in 2005 and is

[79] For more information, see U.S. Fish and Wildlife Service, "San Juan River Basin Recovery Implementation Program," https://www.fws.gov/southwest/sjrip/.

[80] It also includes participation by water development interests in Colorado and New Mexico.

[81] For more information, see Reclamation, Glen Canyon Dam Adaptive Management Program, "Glen Canyon Dam High Flow Experimental Release," https://www.usbr.gov/uc/progact/amp/ltemp.html.

[82] Regardless of the status and results of flow experiments, the total annual volume of water released from Glen Canyon Dam remains dictated by the Law of the River, as described above.

[83] The stakeholders include six federal and state agencies, six tribes, and 36 cities and water and power authorities. Stakeholders serve more than 20 million residents in the region, and irrigate 2 million acres of farmland. For more information, see Lower Colorado River Multi-Species Conservation Program at https://www.lcrmscp.gov/.

planned to last for at least 50 years.[84] The MSCP was created through consultation under ESA. To achieve compliance under ESA, federal entities involved in managing water supplies in the Lower Colorado River Basin met with resource agencies from Arizona, California, and Nevada; Native American tribes; environmental groups; and recreation interests to develop a program to conserve species along a portion of the Colorado River. A biological opinion (BiOp) issued by the FWS in 1997 covers operations and maintenance activities conducted by Reclamation along the Colorado River from Lake Mead to the Southerly International Boundary; consultation was reinitiated in 2002, and a new BiOp was issued later that year.[85] Nonfederal stakeholders also applied and received an incidental take permit under Section 10(a) of the ESA for their activities.[86] This resulted in a habitat conservation plan for the MSCP that formed the basis for the program.[87] A Lower Colorado River Multi-Species Conservation Program Implementing Agreement integrated the federal and nonfederal activities in the MSCP and was signed by stakeholders in 2005.[88]

The objective of the MSCP is to create habitat for listed species, augment the populations of species listed under ESA, maintain current and future water diversions and power production, and abide by the incidental take authorizations for listed species under the ESA. In 2003, the estimated total cost of the program over its lifetime was approximately $626 million, split evenly between Reclamation (50%) and the states of California, Nevada, and Arizona (who collectively fund the remaining 50%). The management and implementation of the MSCP is the responsibility of Reclamation, in consultation with a steering committee of stakeholders.

### Hydropower Revenues Funding Colorado River Basin Activities

Hydropower revenues finance a number of activities throughout the Colorado River Basin. In the Lower Basin, the Colorado River Dam Fund uses power revenues generated by the Boulder Canyon Project (i.e., Hoover Dam) to fund operational and construction costs for related Reclamation facilities. A separate fund, the Lower Colorado River Basin Development Fund, collects revenues from the Central Arizona Project (CAP), as well as from a surcharge on revenues from the Boulder Canyon and Parker-Davis Projects that was enacted under the Hoover Power Plant Act of 1984 (P.L. 98-381). These revenues are available without further appropriation toward defraying CAP operation and maintenance costs, salinity control efforts, and funding for Indian water rights settlements identified under the Arizona Water Settlements Act of 2004 (i.e., funding for water systems of the Gila River Indian Community and the Tohono O'odham Nation, among others). In the Upper Basin, the Upper Colorado River Basin Fund collects revenues from the initial units of the Colorado River Storage Project and funds operation and maintenance expenses, salinity control, the Glen Canyon Dam Adaptive Management Program, and endangered fish studies on the Colorado and San Juan rivers, among other things.

**Source:** Department of the Interior, *Department of the Interior Budget Appendix, FY2026 Budget Request.*

[84] The program was authorized under Subtitle E of Title IX of P.L. 111-11.

[85] U.S. Fish and Wildlife Service, *Reinitiation of Formal Section 7 Consultation on Lower Colorado River Operations and Maintenance - Lake Mead to Southerly International Boundary, Arizona, California and Nevada*, April 30, 2002, https://www.usbr.gov/lc/region/g2000/BO2002operations.pdf.

[86] The incidental take permit is valid for 50 years from its date of issuance and covers the implementation of the Lower Colorado River Multi-Species Conservation Program, diversions of water from the river, demand for and receipt of hydropower, and flow and nonflow actions along the Colorado River with the geographic scope of the permit.

[87] Lower Colorado River Multi-Species Conservation Program, *Final Lower Colorado River Multi-Species Conservation Program Volume II: Habitat Conservation Plan*, December 17, 2004, https://lcrmscp.gov/lcrm-prod/lcrm-prod/pdfs/hcp_volii_2004.pdf.

[88] Lower Colorado River Multi-Species Conservation Program, *Implementing Agreement*, April 4, 2005, https://lcrmscp.gov/lcrm-prod/lcrm-prod/pdfs/imp_agr_2005.pdf.

# Tribal Water Rights

Tribal water rights are often senior to other uses on the Colorado River.[89] In the basin, tribal water diversions based on these rights typically come out of individual state allocations. There are 30 federally recognized tribes in the Colorado River Basin, many of whom have settled or unresolved (i.e., currently claimed for use but unsettled) tribal water rights.[90] As of early 2026, 11 basin tribes had reserved (i.e., held for future use) water rights claims that have not been quantified and settled; the total potential amount of these claims is unknown.[91] According to Reclamation, as of December 2020 tribes held diversion rights to approximately 3.4 MAF per year of Colorado River water.[92] Previous studies noted that these tribes were using just over half of their quantified rights.[93] In 2023, the Supreme Court held that the United States government does not have an affirmative duty to quantify or otherwise secure reserved rights beyond what is required under treaty; however, tribes could otherwise pursue claims and litigation to quantify such claims.[94]

Because of the magnitude and seniority of tribal water rights, future decisions about the settlement and development of tribal water rights in the Colorado River Basin are likely to influence the availability of basin water resources for various uses. Increased consumptive water use by tribes with existing quantified and settled water rights, and/or future settlement of claims and additional consumptive use of basin waters by tribes with reserved rights, would exacerbate competition for basin water resources. At the same time, some tribes have entered into arrangements to conserve water or lease their waters to other users; new agreements along these lines have the potential to secure water supplies for some nontribal users without other viable alternative sources of water.

# Long-Term Drought and the Supply/Demand Imbalance

Current water allocation issues in the Colorado River Basin stem from a well-documented imbalance between available water supplies and demand. Lower and Upper Basin allocations in the Colorado River Compact were based on the assumption (formed by the available record at the

[89] Tribal water rights claims typically arise out of the right of many tribes to water resources dating to treaties establishing their reservations. These water rights are often senior to those of non-Indian water rights holders because they date to the creation of the reservation (i.e., prior to the awarding of most state water rights). For more information on Indian water rights settlements, see CRS Report R44148, *Indian Water Rights Settlements* (2025).

[90] For a list of the tribes, see Reclamation, "Colorado River Basin," https://www.usbr.gov/ColoradoRiverBasin/.

[91] CRS analysis of enacted Indian water rights settlements and Reclamation, *Colorado River Basin Water Supply and Demand Study*, Technical Report C- Water Demand Assessment, Appendix C9, Tribal Water Demand Scenario Quantification, Dec. 2012, pp. C9-33–C9-34. Tribes with claims yet to be fully adjudicated or quantified as of early 2023 include the Navajo Nation; the Ute Indian Tribe of the Uintah and Ouray Reservation; the Havasupai Tribe; the Hopi Tribe; the Kaibab Band of Paiute Indians; the Pascua Yaqui Tribe; San Carlos Apache Tribe; the San Juan Southern Paiute Tribe; the Tohono O'odham Nation; Tonto Apache Tribe; and the Yavapai Apache Nation.

[92] Reclamation, *Review of the Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead*, December 2020, p. 14, https://www.usbr.gov/ColoradoRiverBasin/documents/7d/7.D.Review_FinalReport_12-18-2020.pdf.

[93] Colorado River Research Group, *Tribes and Water in the Colorado River Basin*, June 2016. According to this study, tribal consumptive use in 2015 (including leasing of tribal water to non-tribal entities) totaled 1.7 MAF of the 2.9 MAF in recognized diversion rights at that time.

[94] Arizona v. Navajo Nation, 599 U.S. 555, 568-70 (2023).

time) that average annual flows on the river were 16.4 MAF per year.[95] However, actual flows over time have been less than that (approximately 14.6 MAF from 1906 to 2024) and have dropped further in recent years (12.43 MAF from 2000 to 2024).[96]

Consumptive use of basin waters has generally decreased from peak levels in the 1990s and early 2000s, but in most years still exceeds flows. This condition, in which direct and indirect depletion of basin waters exceeds available supplies and draws on basin storage, is typically referred to as the Colorado River Basin's *structural deficit*. According to Reclamation reporting, consumptive use in the basin has decreased in recent years due to basin-wide conservation efforts (see below section, "Near-Term Operations: 2024 Supplemental Environmental Impact Statement"). According to Reclamation, consumptive use fell from 13.8 MAF in 2021 to 13.3 MAF in 2024.[97] Flows over this same period averaged approximately 11.9 MAF, meaning that despite recent conservation efforts, the basin continues to operate in a structural deficit.[98]

The majority of Colorado River Basin water diversions are for agricultural irrigation. A 2024 study estimated that from 2000 to 2019, an average of 52% of basin waters were consumed each year for agricultural irrigation purposes throughout the basin. Another 18% was used for M&I or commercial purposes, with remaining basin water consumptive uses accounted for by indirect uses in the form of evaporation from reservoirs (11%) and other sources (19%).[99] Of the subset of waters consumed directly by human users (i.e., agriculture and M&I uses), the same estimates attributed 47% to irrigated agriculture in the form of cattle-feed crops (i.e., alfalfa and other hays); the 2024 study estimated that these crops account for 60% of direct consumptive use in the Upper Basin and 42% of consumptive use in the Lower Basin.[100] M&I waters accounted for 22% and 28% Upper Basin and Lower Basin consumption, respectively.[101]

Most observers agree that that if current trends hold, substantial additional reductions will be needed to sustain reservoirs at their current levels and sustain the current system. A 2023 study estimated that a 13%-20% reduction in basin-wide use, or 2.4-3.2 MAF per year below historical consumption levels as of 2020, was needed to stabilize and restore basin reservoir levels.[102]

## Colorado River Accounting

A key difference between Upper and Lower Basin reporting involves how each basin accounts for consumptive use. In accordance with Articles I and V of the *Arizona v. California* decree,[103] a Lower Basin Water Accounting Report (published annually) reports only on *diversions from the system for consumptive use*. Conversely, the comparable Upper Basin accounting—the Upper Basin Consumptive Use and Losses Report (published every five years)—is prepared in response

[95] National Research Council, Committee on the Scientific Bases of Colorado River Basin Water Management, Water Science and Technology Board, *Colorado River Basin Water Management: Evaluating and Adjusting to Hydroclimatic Variability*, 2007, https://www.nap.edu/read/11857/chapter/1.

[96] CRS analysis of Reclamation flow data.

[97] Reclamation, *Colorado River Accounting and Water Use Report: Arizona, California, and Nevada, Calendar Year 2024*, https://www.usbr.gov/lc/region/g4000/4200Rpts/DecreeRpt/2024/2024.pdf. Hereinafter, "Reclamation, *2024 Water Accounting Report*."

[98] CRS analysis of Reclamation flow data.

[99] Richter et al. (2024), p. 7.

[100] Richter et al. (2024), p. 5.

[101] Richter et al. (2024), p. 5.

[102] John C. Schmidt et al., "The Colorado River Water Crisis: Its Origin and the Future," *WIREs Water*, vol. 2, no. 1672 (2023), https://doi.org/10.1002/wat2.1672.

[103] See footnote 29.

to congressional direction in the CRBPA, which directed "a detailed breakdown of the beneficial consumptive use of water on a State-by-State basis."[104] Reclamation defines *beneficial consumptive use* to include *any removal from the system for beneficial consumptive use*, which Reclamation defines to include both diversions and losses from mainstream reservoir evaporation that occur prior to diversions.[105] Thus, even though Lower Basin reported consumptive use has recently been below the compact threshold of 7.5 MAF, the total amount of system losses (i.e., losses including indirect use, such as evaporation) nonetheless exceeds this threshold.[106]

# Recent Developments and Agreements

Long-term drought conditions throughout the basin over the past several decades have raised concerns about potential negative impacts on water supplies and the sustainability of the Colorado River operating regime. Concerns have centered on what sort of operational changes should be implemented, and how (or if) their results should be mitigated. The potential for a compact call in the future has in recent years added additional uncertainty to the basin's water supply outlook.[107]

Drought and other uncertainties related to water rights priorities (e.g., potential tribal water rights claims) spurred the development of several efforts that generally attempted to relieve pressure on basin water supplies, stabilize storage levels, and provide assurances of available water supplies. Some of the most prominent developments since the year 2000 (a common marker for the beginning of the basin's long-term drought) are discussed below.

## 2003 California Quantification Settlement Agreement

Prior to the 2003 finalization of the Quantification Settlement Agreement (QSA), California had been using approximately 5.2 MAF of Colorado River on average each year (with most of its excess water use attributed to urban areas). Under the QSA, which is an agreement between several California water districts and DOI, California agreed to reduce its use to the required 4.4 MAF under the Law of the River.[108] It sought to accomplish this aim by quantifying Colorado River entitlement levels of several California water contractors; authorizing efforts to conserve additional water supplies (e.g., the lining of the All-American Canal); and providing for several large-scale, long-term agriculture-to-urban water transfers in California. The QSA also committed the state to a path toward environmental restoration and mitigation related to the Salton Sea in Southern California.[109]

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[104] 43 U.S.C. §1551.

[105] See Reclamation, *Upper Colorado River Basin Consumptive Uses and Losses Report, 2016-2020*, February 2022, p. 6.

[106] For example, from 2017 to 2021, Reclamation estimated that total Lower Basin mainstream evaporation and riparian evapotranspiration losses averaged 1.3 MAF per year. See Reclamation, *Lower Colorado River Mainstream Evaporation and Riparian Evapotranspiration Losses Report*, December 2023, https://www.usbr.gov/lc/region/g4000/4200Rpts/LCRBEvapReport/LCRBEvapReport.pdf.

[107] See footnote 72.

[108] California Quantification Settlement Agreement by and Among Imperial Irrigation District, the Metropolitan Water District of Southern California, and Coachella Valley Water District, October 10, 2003.

[109] The Salton Sea is an inland water body in Southern California that was historically sustained by Colorado River irrigation runoff from the Imperial and Coachella Valleys, but is shrinking. Toxic dust from exposed seabed is a major concern for surrounding areas. For more information on the Salton Sea, see CRS Report R43211, *Overview of Management and Restoration Activities in the Salton Sea*, by Pervaze A. Sheikh and Charles V. Stern (2013).

A related agreement between Reclamation and the Lower Basin states, the Inadvertent Overrun and Payback Policy (IOPP), went into effect concurrently with the QSA in 2004.[110] IOPP is an administrative mechanism that provides an accounting of inadvertent overruns in consumptive use compared to the annual entitlements of water users in the Lower Basin. These overruns must be "paid back" in the calendar year following the overruns, and the paybacks must be made only from "extraordinary conservation measures" above and beyond normal consumptive use.[111]

## 2004 Arizona Water Settlements Act

The 2004 Arizona Water Settlements Act (AWSA) altered the allocation of CAP water in Arizona. It ratified three water rights settlements (one in each title) between the federal government and the State of Arizona, the Gila River Indian Community (GRIC), and the Tohono O'odham Nation, respectively.[112] For the state and its CAP water users, the settlement resolved a final repayment cost for CAP by reducing the water users' reimbursable repayment obligation from about $2.3 billion to $1.7 billion. Additionally, Arizona agreed to new tribal and nontribal allocations of CAP water so that approximately half of CAP's annual allotment would be available to Native American tribes in Arizona, at a higher priority than most other uses. The tribal communities were authorized to lease the water, so long as the water remains within the state via the state's water banking authority. The act authorized funds to cover the cost of infrastructure required to deliver the water to the Indian communities, with much of it derived from power receipts accruing to the Lower Colorado River Basin Development Fund. It also authorized funding for the study of a potential New Mexico Unit of CAP.

## 2007 Interim Guidelines/Coordinated Operations for Lake Powell and Lake Mead

Another major development in the basin was the 2007 adoption of the Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead (2007 Interim Guidelines). DOI developed the guidelines to implement the LROC, through issuance of the *Annual Operating Plan for Colorado River Reservoirs* (AOP), as directed by the 1968 CRBPA.[113] Development of the guidelines began in 2005, when, in response to drought and declining reservoir levels, Reclamation developed coordinated strategies for Colorado River operations during drought or shortages.[114] The resulting agreement included criteria for releases from Lake Powell determined by "trigger levels" in both reservoirs (**Figure 6**), as well as a schedule of Lower Basin water delivery curtailments tied to different operational tiers based on Lake Mead elevation. For Lake Powell, preset inflow measurements, combined with Lake Mead levels, determine the reservoir's annual operational "balancing" tier and resulting releases to Lake

[110] Reclamation, *Record of Decision for the Colorado River Water Delivery Agreement*, October 10, 2003, pp. 16-19.

[111] Reclamation, *Record of Decision for the Colorado River Water Delivery Agreement*, October 10, 2003, pp. 16-19.

[112] Congress passed the Colorado River Basin Project Act of 1968 and authorized construction of CAP despite significant uncertainty related to tribal water rights related to the Colorado River. The Gila River, Arizona's largest tributary of the Colorado River, runs directly through the Gila River Indian Community, which encompasses approximately 372,000 acres south of and adjacent to Phoenix. Additionally, the Tohono O'odham Nation possessed reserved water rights near Tucson with the potential to disrupt that city's water supplies.

[113] Secretary of the Interior, *Record of Decision: Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead*, December 2007, p. 4, https://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf.

[114] Prior to this time, the Secretary of the Interior had the authority to declare a shortage, but no shortage criteria had been publicly announced or published. (Criteria for surplus operations were put in place in 2001.)

Mead. In the Lower Basin, the guidelines stipulated that Arizona and Nevada water deliveries be reduced if Lake Mead elevations dropped below 1,075 feet.

**Figure 6. 2007 Interim Guidelines: Lake Powell Operational Tiers**

| Lake Powell Elevation (feet) | Lake Powell Operational Tier | Lake Powell Active Storage (maf) |
|---|---|---|
| 3,700 | | 24.32 |
| | Equalization Tier<br>equalize, avoid spills or release 8.23 maf | |
| 3,636 – 3,666 | | 15.54 – 19.29 |
| | Upper Elevation Balancing Tier<br>release 8.23 maf;<br>if Lake Mead < 1,075 feet,<br>balance contents with a min/max release of<br>7.0 and 9.0 maf | |
| 3,575 | | 9.52 |
| | Mid-Elevation Release Tier<br>release 7.48 maf;<br>if Lake Mead < 1,025 feet,<br>release 8.23 maf | |
| 3,525 | | 5.93 |
| | Lower Elevation Balancing Tier<br>balance contents with a min/max release of<br>7.0 and 9.5 maf | |
| 3,370 | | 0 |

**Source:** Bureau of Reclamation, "Record of Decision, Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead," December 2007, https://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf.

**Note:** Releases are subject to April adjustments/mid-year modifications.

The 2007 agreement also included for the first time a mechanism by which parties in the Lower Basin were able to store conserved water in Lake Mead, known as *intentionally created surplus* (ICS), for future withdrawals. Reclamation accounts for this water annually, and the users storing the water may access the surplus in future years, in accordance with the Law of the River. As of the end of calendar year 2024, the portion of Lake Mead water in storage that was classified as ICS was 3.33 MAF.[115] That is, as of the end of the 2024, approximately one-third of the water stored in Lake Mead was previously conserved ICS volume.

The 2007 guidelines are considered "interim" because they were scheduled to expire in 20 years (i.e., at the end of 2026). Thus, Reclamation began coordinating a review on the effectiveness of the 2007 guidelines in 2020, and in 2022, formally initiated a review process for post-2026 operations.[116] This review is discussed further in the below section, "Long-Term/Post-2026 Operations."

[115] Reclamation, *2024 Water Accounting Report*.

[116] Reclamation, "Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions," 87 *Federal Register* 37884-37888, June 24, 2022.

## System Conservation Program

In 2014, Reclamation and several major basin water supply agencies executed a memorandum of understanding to provide federal funding for voluntary conservation projects and reductions of water use, with this new *system water* to be stored in Lake Mead or Lake Powell.[117] The initial term of this agreement was through the end of 2019.[118] Congress formally authorized federal participation in these efforts, initially known as the Pilot System Conservation Program, in the Energy and Water Development and Related Agencies Appropriations Act, 2015 (P.L. 113-235, Division D). Congress subsequently amended and extended the authority in 2019 (P.L. 115-244, Division A) and 2022 (P.L. 117-328), and the program continued to compensate users for conservation until its expiration at the end of FY2024.[119] Reclamation estimated that as of the end of 2024, cumulative reservoir protection volumes in the Lower Basin, including compensated ICS water, totaled 2.031 MAF in Lake Mead.[120] The Upper Colorado River Basin Commission carried out similar System Conservation Program projects in the Upper Basin as a pilot program from 2015 to 2018, and these projects were reinitiated in 2023 and 2024.[121]

## Agreements with Mexico[122]

The United States, through the International Boundary and Water Commission (IBWC), has entered into multiple binding agreements (*minutes*) with Mexico in recent years to implement the 1944 water treaty and aid in basin conservation efforts. Some of these agreements specifically address Colorado River water flows in times of drought. For example, in 2017, the United States and Mexico signed Minute 323, which includes, among other things, options for Mexico to hold water in reserve in U.S. reservoirs for emergencies and water conservation efforts, as well as U.S. commitments for flows to support the ecological health of the Colorado River Delta.[123] It also extended certain Mexican reduction commitments made in 2012 under Minute 319 (which were similar in structure to the 2007 reductions negotiated for Lower Basin states) and established a Binational Water Scarcity Contingency Plan that included additional reductions that would be triggered if DCPs are approved by U.S. basin states (see the following section, "2019 Drought Contingency Plans"). Minute 330, agreed to in April 2024, contained commitments for Mexico to undertake conservation projects generating an additional 400,000 acre-feet of system water and

[117] *System water* refers to water that is provided to increase water supplies as a whole, without being directed toward additional consumptive use for specific contractors or water users.

[118] See "Agreement Among the United States of America, Through the Department of the Interior, Bureau of Reclamation, the Central Arizona Water Conservation District, the Metropolitan Water District of Southern California, Denver Water, and the Southern Nevada Water Authority, for a Pilot Program for Funding the Creation of Colorado River System Water Through Voluntary Water Conservation and Reductions in Use," Agreement No. 14-XX-30-W0574, July 30, 2014, https://www.usbr.gov/lc/region/programs/PilotSysConsProg/PilotSCPFundingAgreement7-30-2014.pdf.

[119] 43 U.S.C. §620 note.

[120] Reclamation, *2024 Water Accounting Report*, Table 25.

[121] Upper Colorado River Commission, *Sixty-Seventh Annual Report*, September 30, 2024, http://www.ucrcommission.com/wp-content/uploads/2025/07/UCRC-WY2024-Annual-Report.pdf.

[122] For more information on the 1944 U.S.-Mexico Water Treaty and Colorado River water sharing issues with Mexico, see CRS Report R45430, *Sharing the Colorado River and the Rio Grande: Cooperation and Conflict with Mexico*, by Nicole T. Carter and Charles V. Stern (2018).

[123] International Boundary & Water Commission, "Minutes Between the United States and Mexican Sections of the IBWC," https://www.ibwc.gov/Treaties_Minutes/Minutes.html. Minute 223 extended and replaced elements of a previous agreement signed in 2012—Minute 319—related to implementation of the 1944 U.S.-Mexico Water Treaty.

for Mexico's Water Reserve in Lake Mead, funded in part with $65 million in U.S. funding through the IBWC.[124]

## 2019 Drought Contingency Plans

Ongoing drought conditions and the potential for water supply shortages prompted discussions and negotiations focused on how to conserve additional basin water supplies. After several years of negotiations, on March 19, 2019, Reclamation and the Colorado River Basin states finalized DCPs for both the Upper Basin and the Lower Basin. These plans, which are an overlay of the 2007 Interim Guidelines discussed above, required final authorization by Congress to be implemented. Congress authorized federal participation in the plans on April 16, 2019, in the Colorado River Drought Contingency Plan Authorization Act (P.L. 116-14). Similar to the 2007 guidelines, these plans are scheduled to be in place through 2026. At the time of their enactment, the combined efforts represented by the DCPs were expected to cut the risk of Colorado River reservoirs reaching critically low elevations by approximately 50%.[125] Each of the basin-level DCPs is discussed below in more detail.

### Upper Basin Drought Contingency Plan

The Upper Basin DCP aims to protect against Lake Powell reaching critically low elevations through coordinated Upper Basin reservoir operations. It also authorizes storage of conserved water in the Upper Basin that would serve as the foundation for a water use reduction effort (i.e., a *Demand Management Program*) that may be developed in the future.[126]

Under the Upper Basin DCP's Drought Response Operations Agreement (DROA), the Upper Basin states agreed to operate system units to keep the surface of Lake Powell above 3,525 feet, which is 35 feet above minimum power pool. Under the DROA, the two main mechanisms to do this are altering the timing of releases from Glen Canyon Dam and operating initial unit reservoirs on the mainstream of the Colorado River (e.g., Navajo Reservoir, Blue Mesa Reservoir, and Flaming Gorge Reservoir) to protect Lake Powell elevations, potentially through storage drawdown. Operational changes may occur either through the DROA's emergency provisions, which allow the Secretary of the Interior to make supplemental water deliveries at his or her discretion (after consultation with basin states), or through a planning process establishing formal triggers for Upper Basin water deliveries to Lake Powell, based on agreed-upon hydrological targets. Pursuant to the DROA, these releases may be subsequently "recovered."

The other primary component of the Upper Basin DCP, the Upper Basin DCP Demand Management Program, has not been formally established. It would entail willing seller/buyer agreements allowing for temporary paid reductions in water use that would provide for more storage volume in Lake Powell. As noted, the Upper Colorado River Commission operated an Upper Basin System Conservation Pilot Program from 2015 to 2018; that program compensated water users for temporary, voluntary efforts that resulted in additional water conserved in Lake

[124] International Boundary & Water Commission, "U.S. and Mexico Sign Agreement to Expand Colorado River Temporary Measures," press release, April 18, 2024.

[125] U.S. Congress, House Committee on Natural Resources, Subcommittee on Water, Oceans, and Wildlife, *Oversight Hearing on the Colorado River Drought Contingency Plan*, 116th Cong., 1st sess., March 28, 2019, H.Hrg. 116-10 (GPO, 2019).

[126] While such a mechanism exists for the Lower Basin, a comparable program has not been developed in the Upper Basin.

Powell. A future Upper Basin DCP Demand Management Program may expand on some of those efforts.

Due to dry conditions and falling lake levels in Lake Powell, Reclamation implemented DROA releases from Flaming Gorge Reservoir in 2021 and 2022.[127] These releases totaled 588,000 AF, all of which were recovered in 2023 and 2024.[128] Reclamation also released 36,000 AF from Blue Mesa Reservoir in 2021 and recovered them in 2023.[129] Separately, Reclamation also approved its long-term plan for the *Drought Response Operations Plan* under the DROA in 2022.[130] DROA releases may once again be required in 2026 to mitigate the potential for Lake Powell dropping to minimum power pool. If Lake Powell drops below minimum power pool, it could affect the operation of Colorado River flows and Glen Canyon Dam hydropower generation.[131]

## Lower Basin Drought Contingency Plan

The Lower Basin DCP requires Arizona, California, and Nevada to curtail deliveries and contribute additional water to Lake Mead storage at predetermined "trigger" elevations. It also created additional flexibilities to incentivize voluntary conservation of water to be stored in Lake Mead, thereby increasing those lake levels. Under the DCP, Nevada and Arizona (which were already set to have their supplies curtailed beginning at 1,075 feet under the 2007 Interim Guidelines) committed to additional cutbacks beyond those previous commitments. DCP delivery reductions begin at a higher elevation than prior agreements (1,090 feet), and overlay additional volumes at elevations down to 1,025 feet.

The Lower Basin DCP included the first ever delivery reductions for California. These curtailments begin with an annual delivery reduction of 200,000 AF per year at Lake Mead elevations between 1,040 and 1,045 feet and would increase by 50,000 AF for each additional 5-foot drop in Lake Mead elevation below 1,040 feet, to as much as 350,000 AF at elevations of 1,025 feet or lower. The curtailments are categorized in terms of tiers (also sometimes referred to as levels), with Tier One shortage conditions the term adopted for elevations from 1,050 to 1,075 feet, and Tier Two shortage conditions the term for elevations between 1,025 feet and 1,050 feet.

The curtailments in the Lower Basin DCP were in addition to those agreed to under the 2007 Interim Guidelines and under Minute 323 with Mexico. In addition to the state-level reductions, under the Lower Basin DCP Reclamation also agreed to pursue efforts to add 100,000 AF or more of system water within the basin. Some of the largest and most controversial reductions under the Lower Basin DCP were committed to by Arizona, where pursuant to previous changes under the 2004 AWSA, a large group of agricultural users were already facing major reductions to their CAP water supplies prior to the enactment of the DCP.

In 2019, at the time of the passage of the Colorado River Drought Contingency Plan Authorization Act, Reclamation asserted that the Lower Basin DCP would significantly reduce

[127] For example, in 2021, 180,000 acre-feet (AF) was transferred to Lake Powell from Flaming Gorge Reservoir (125,000 AF), Blue Mesa Reservoir (36,000 AF), and Navajo Reservoir (20,000 AF).

[128] Reclamation, Drought Response Operations Summary Sheet, March 15, 2024, https://www.usbr.gov/ColoradoRiverBasin//documents/dcp/DROA/DROSummarySheet.pdf. Hereinafter "DROA Operations Summary."

[129] DROA Operations Summary.

[130] For more information, see Reclamation, Colorado River Basin Drought Contingency Plans, "Drought Response Operations Agreement," https://www.usbr.gov/dcp/droa.html.

[131] For more on these conditions, see CRS Report R47497, *Long-Term Drought and Glen Canyon Dam: Potential Effects on Water Deliveries and Hydropower*, by Charles V. Stern and Ashley J. Lawson (2023).

the risk of Lake Mead elevations falling below critical elevation of 1,020 feet.[132] Despite those efforts, Lake Mead continued to decline. These developments triggered another round of additional Lower Basin conservation efforts, which are discussed below.

## Near-Term Operations: 2024 Supplemental Environmental Impact Statement

Ongoing declines in Lakes Mead and Powell highlighted the need for additional "near-term" operational changes prior to the expiration of existing agreements in 2026. At a June 14, 2022, Senate hearing, the Commissioner of the Bureau of Reclamation announced that basin states would need to conserve an additional 2-4 MAF per year beyond current levels to protect Lake Mead and Lake Powell storage volumes over the 2023-2026 period.[133] The Commissioner noted that if the targets were not met with voluntary actions by the states by August 2022, DOI was prepared to act unilaterally.[134] No major water savings commitments were announced in response to Reclamation's June 2022 statement.[135]

In October 2022, Reclamation announced its intent to revise the 2007 Interim Guidelines in 2023 and 2024 (i.e., prior to post-2026 operational changes to the guidelines, which are proceeding separately) to address continued low runoff conditions in the basin. As part of this process, Reclamation published in the *Federal Register* its notice of intent to prepare a supplemental environmental impact statement (SEIS) for changes to the 2007 Interim Guidelines in three areas: Lake Mead operations during shortage conditions, coordinated operation of Lake Powell and Lake Mead, and midyear review for implementation of the operational guidelines.[136] As part of this process, Reclamation solicited proposals in these areas from the basin states, with a preference for "consensus" proposals.

On January 31, 2023, all of the basin states except California responded to Reclamation's notice with a combined proposal (the *Six State Proposal*),[137] while California submitted its own proposal (the *California Proposal*) separately.[138] The Six State Proposal requested that Reclamation model

[132] U.S. Congress, House Committee on Natural Resources, Subcommittee on Water, Oceans, and Wildlife, *Oversight Hearing on the Colorado River Drought Contingency Plan*, 116th Cong., 1st sess., March 28, 2019, H.Hrg. 116-10 (GPO, 2019).

[133] Statement of the Honorable Camille Touton in U.S. Congress, Senate Committee on Energy and Natural Resources, *Short and Long Term Solutions to Extreme Drought in the Western U.S.*, 117th Cong., 2nd sess., June 14, 2022. These amounts were based on a 2022 Reclamation analysis. See Reclamation, "Colorado River System Mid Term Projections," June 16, 2022, https://www.usbr.gov/ColoradoRiverBasin/documents/20220616-ColoradoRiverSystemMid-termProjections-Presentation.pdf.

[134] Statement of the Honorable Camille Touton in U.S. Congress, Senate Committee on Energy and Natural Resources, *Short and Long Term Solutions to Extreme Drought in the Western U.S.*, 117th Cong., 2nd sess., June 14, 2022.

[135] In a July 18, 2022, letter to Reclamation, the Upper Colorado River Commission declined to contribute a specific volume of reductions to these efforts, and instead laid out a five-point plan as the basis for its water conservation efforts. Letter from Charles Cullom, Director, Upper Colorado River Commission, to Camille Touton, Commissioner, U.S. Bureau of Reclamation, July 18, 2022, http://www.ucrcommission.com/wp-content/uploads/2022/07/2022-July-18-Letter-to-Reclamation.pdf.

[136] Reclamation, "Notice of Intent to Prepare a Supplemental Environmental Impact Statement for December 2007 Record of Decision Entitled Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead," 87 *Federal Register* 69042, November 17, 2022.

[137] Letter from Colorado River Basin State Representatives of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming to Tanya Trujillo, Assistant Secretary, Water & Science, U.S. Department of the Interior, January 31, 2023. Hereinafter, Six State Proposal.

[138] Letter from Colorado River Board of California to Deputy Interior Secretary Tommy Beaudreau et al., U.S. Department of the Interior, January 31, 2023.

in its SEIS 1.5-1.9 MAF per year in new delivery reductions on Lower Colorado River Basin contractors, to be implemented through two mechanisms. First, reductions to account for 1.543 MAF of evaporative losses would be allocated among Lower Basin contractors and Mexico, and would be assessed at most Lake Mead elevations based on stream reach (i.e., position in the basin relative to bodies of water affected by evaporation) and recent consumptive use levels.[139] Second, additional operational tier changes and delivery reductions would be tied to Lake Mead elevations of 1,050 feet and lower.[140] For its part, the California Proposal would have included 1.0-2.0 MAF per year in new delivery reductions for Lower Basin contractors (i.e., not based on evaporation), depending on Lake Mead elevations. Both state proposals also suggested changes to Lake Powell's operational tiers to allow more water to be left in that reservoir, although they would have done so in different ways.

Reclamation released multiple iterations of its draft SEIS in 2023. In April 2023, it released a draft with modeling for a "no action" alternative and two action alternatives, both of which would have imposed new reductions tied to Lake Mead elevations.[141] The primary difference was the approach for apportioning reductions; one alternative assumed reductions based on water rights priorities (i.e., large curtailments [in terms of percentage] for Arizona and Nevada), whereas the other assumed percentage-based delivery reductions on all Lower Basin users, without regard to water rights.[142]

On May 22, 2023, DOI announced a consensus-based proposal in which the three Lower Basin states would conserve a total of 3.0 MAF prior to 2026, with 2.3 MAF of these reductions compensated by the federal government via $4.0 billion in previously provided funds in budget reconciliation legislation commonly referred to as the Inflation Reduction Act (IRA; P.L. 117-169).[143] This proposal included total curtailments of at least 3.0 MAF in water years 2023 through 2026, on top of existing contributions. The proposal also allowed reduced releases from Glen Canyon Dam if elevations at Lake Powell drop below 3,500 feet (6.0 MAF, in lieu of the previously agreed to 7.0 MAF under the 2007 Interim Agreements). The Secretary of the Interior formally adopted the consensus-based alternative for near-term operations on March 5, 2024.[144] **Table 1** compares Lower Basin state-level curtailment commitments before and after the SEIS.

[139] This amount also assumes the assessment of evaporative losses on Mexico.

[140] Six State Proposal. These reductions would move the current Tier Three reduction schedule (which begins at 1,025 feet) up to a Lake Mead elevation of 1,050 feet and would institute additional delivery reductions at Lake Mead elevations of 1,030 feet or lower.

[141] Reclamation, *Near Term Colorado River Operations: Draft Supplemental Environmental Impact Statement*, April 2023, https://www.usbr.gov/ColoradoRiverBasin/SEIS.html.

[142] The Supreme Court has determined the Secretary of the Interior is not bound by a single approach to addressing Colorado River supply shortages in the Lower Basin. See Arizona v. California, 373 U.S. at 593 (1963). The Court stated that the Secretary may consider reducing Lower Basin deliveries proportionally to statutory allocations of the first 7.5 MAF (California 4.4/7.5, Arizona 2.8/7.5, and Nevada 0.3/7.5), but the Secretary also has the authority and discretion to elect an alternate basis for apportioning shortages, subject to statutory constraints. Arizona v. California, 373 U.S. at 592-593 (1963).

[143] DOI, "Biden-Harris Administration Announces Historic Consensus System Conservation Proposal to Protect the Colorado River Basin," press release, May 22, 2023, https://www.doi.gov/pressreleases/biden-harris-administration-announces-historic-consensus-system-conservation-proposal. These funds are discussed further in the below section "Issues for Congress." See CRS In Focus IF12437, *Bureau of Reclamation Funding in the Inflation Reduction Act (P.L. 117-169)*, by Charles V. Stern and Anna E. Normand (2024).

[144] Reclamation, *Final Supplemental Environmental Impact Statement for Near-Term Colorado River Operations*, March 2024, https://www.usbr.gov/ColoradoRiverBasin/documents/NearTermColoradoRiverOperations/20240300-Near-termColoradoRiverOperations-FinalSEIS-508.pdf.

**Table 1. Comparison of Colorado River Delivery Curtailments Before and After 2024 SEIS for Near-Term Operations**

(curtailment amounts in thousand acre-feet)

| Lake Mead Elevation (Feet) | Pre-2024 Curtailments (2007 ROD, 2019 DCP) | | | | 2024 SEIS (2007 ROD, 2019 DCP, 2023 Lower Division Proposal) | | | |
|---|---|---|---|---|---|---|---|---|
| | AZ | NV | CA | Total | AZ | NV | CA | Total |
| 1,090 - >1,075 | 192 | 8 | — | 200 | 472 | 78 | 400 | 950 |
| 1,075 - >1,050 | 512 | 21 | — | 533 | 792 | 91 | 400 | 1,283 |
| 1,050 - >1,045 | 592 | 25 | — | 617 | 872 | 95 | 400 | 1,367 |
| 1,045 - >1,040 | 640 | 27 | 200 | 867 | 920 | 97 | 600 | 1,617 |
| 1,040 - >1,035 | 640 | 27 | 250 | 917 | 920 | 97 | 650 | 1,667 |
| 1,035 - >1,030 | 640 | 27 | 300 | 967 | 920 | 97 | 700 | 1,717 |
| 1,030 - 1,025 | 640 | 27 | 350 | 1,017 | 920 | 97 | 750 | 1,767 |
| <1,025 | 640 | 27 | 350 | 1,100 | 1,000 | 100 | 750 | 1,850 |

**Source:** Bureau of Reclamation, *Final Supplemental Environmental Impact Statement for Near-Term Colorado River Operations*, March 2024, https://www.usbr.gov/ColoradoRiverBasin/documents/NearTermColoradoRiverOperations/20240300-Near-termColoradoRiverOperations-FinalSEIS-508.pdf.

**Notes:** SEIS = supplemental environmental impact statement; 2007 ROD = Record of Decision for 2007 Interim Shortage Guidelines; 2019 DCP = 2019 Drought Contingency Plan for Lower Colorado River Basin; Lower Division Proposal = April 2023 Consensus Proposal by Lower Colorado River Basin States. State commitments in 2024 SEIS may vary such that collectively a total of 3.0 MAF of SEIS conservation would occur through 2026.

# Long-Term/Post-2026 Operations

As previously noted, the underlying authority for the 2007 Interim Guidelines and their supplementary agreements (i.e., the 2019 DCP and the 2023 near-term operational changes) stems from the CRBPA, and these agreements are all scheduled to expire at the end of calendar year 2026. Therefore, in 2022 Reclamation initiated an EIS process to study *long-term* (post-2026) federal operational alternatives for the Colorado River.[145] This post-2026 operational planning process aims to identify a range of alternatives to be employed in Colorado River management for decades into the future and to finalize a preferred alternative. Reclamation, acting on behalf of the Secretary, is proposing adoption of specific guidelines and coordinated reservoir management strategies to address operations of Lake Powell and Lake Mead, as part of the Secretary's requirement under the CRBPA to adopt criteria for coordinated long-range operation of the Colorado River system. The potential adoption of new guidance and management strategies is

[145] More information on Reclamation's process for post-2026 operational planning is available here: Reclamation, "Colorado River Post 2026 Operations," January 17, 2025, https://www.usbr.gov/ColoradoRiverBasin/post2026/index.html.

being considered as a major federal action that requires an environmental impact statement pursuant to NEPA.

While Reclamation has stated its preference for basin interests to come to a consensus on these post-2026 operational terms, it has also indicated that the Secretary plans to act unilaterally if no agreement is reached.[146] Reclamation would do so through a combination of existing authorities (e.g., the Secretary's Lower Basin water master authority and other components of the Law of the River),[147] and the Secretary may seek new authorities from Congress. Congress may consider whether or not to act on requests by the Secretary for new or modified authorities, or whether to issue other authorities and/or directives for river management. If the Secretary selects an operations option that relies on congressional enactment of new or modified authorities and Congress does *not* act, the Secretary may be forced to limit post-2026 activities to existing authorities and funding.

Reclamation has stated that in order to provide certainty for water users, a final EIS and resulting decision regarding operations after 2026 are planned to be released prior to October 1, 2026—the start of the 2027 water year.[148] Thus, there is a limited window for Congress to act on new and/or extended authorities prior to the expiration of existing agreements at the end of calendar year 2026.

## State Operations Proposals

Despite lengthy negotiations dating back to at least 2022, Upper and Lower Basin states were unable to agree on a consensus-based plan for post-2026 operations. Thus, in March 2024, the two basins submitted separate post-2026 operational plans with significant differences to Reclamation. These proposals, along with others from interested basin stakeholders, have reportedly influenced Reclamation's draft environmental impact statement (DEIS) alternatives.[149] The biggest differences between Upper and Lower Basin state proposals are the approach toward mandated Lower Basin reductions and Lake Powell operations/Glen Canyon Dam releases.

The Lower Basin's plan, among other things, proposed total basin-wide *system storage* (i.e., Lake Mead, Lake Powell, and initial unit storage) as the basis for water delivery cuts, with cuts for the Lower Basin under most average and dry conditions, and cuts shared between the Upper and Lower Basins under the driest conditions.[150] Lower Basin state delivery reductions under most dry conditions (system contents of 58% to 38%) would be 1.25 MAF (with Arizona responsible for approximately 50% of these reductions and California and Nevada responsible for the

[146] Reclamation, "Interior Department Moves Forward on Guidelines for Colorado River Absent Full State Consensus," press release, February 14, 2026, https://www.usbr.gov/newsroom/news-release/5283.

[147] The Boulder Canyon Project Act of 1928 made the Secretary of the Interior responsible for the distribution (via contract) of all Colorado River water delivered below Hoover Dam (i.e., the Lower Basin), and authorized such regulations as necessary to enter into these contracts. Subsequent court decisions, including *Arizona v. Colorado*, have confirmed the Secretary's power to apportion surpluses and shortages among and within Lower Basin states; this authority is sometimes referred to as the Secretary's *water master* authority. There is no comparable federal authority for the Upper Basin, and the limits of federal authority for Upper Basin operations are a subject of ongoing debate.

[148] Reclamation, "Reclamation Releases Draft Environmental Review for Post-2026 Colorado River Operations," press release, January 9, 2026, https://www.usbr.gov/newsroom/news-release/5263.

[149] For a full listing of submitted proposals, see Reclamation, "Alternatives Development," January 17, 2025, https://www.usbr.gov/ColoradoRiverBasin/post2026/alternatives/index.html.

[150] Letter from the Colorado River Basin States Representatives of Arizona, California, and Nevada to the Honorable Camille Calimlim Touton, Commissioner, Bureau of Reclamation, March 6, 2024, https://www.usbr.gov/ColoradoRiverBasin/documents/post2026/alternatives/2024-03-06_Lower_Basin_Alternative_Letter_Submittal_508.pdf. Hereinafter, "Lower Basin Post-2026 Operations Proposal."

remainder).[151] Under the driest conditions (system contents of 38% down to 23%), the next 2.4 MAF per year in cuts (i.e., total cuts of up to 3.9 MAF per year) would be a "systemwide reduction zone" shared equally between the Lower Basin (plus Mexico) and the Upper Basin.[152] Glen Canyon Dam releases under the Lower Basin's plan would be based on a combination of system contents and Upper Basin depletions in the prior three years. These releases would be authorized to fall as low as 6.0 MAF when system storage is extremely low (i.e., 20% of system storage).[153]

The Upper Basin states submitted their own proposal to Reclamation in March 2024.[154] The Upper Basin proposed a plan for Lower Basin delivery reductions limited to Lower Basin users only, based on combined Lake Mead and Lake Powell live storage, minus a threshold volume in the reservoirs.[155] Similar to the Lower Basin's plan, at most storage volumes under the current baseline, Lower Basin delivery reductions would be a static 1.5 MAF/year (the Upper Basin did not recommend a distribution of specific cuts). At less than 20% storage, there could be as much as 3.0 MAF in reductions, and this amount would only come from Lower Basin users.[156] Glen Canyon Dam releases would be based on Lake Powell storage conditions only, with a linear rule curve allowing for releases of 8.1 MAF/year to 6.0 MAF/year from elevations of 3,670-3,510 feet.[157]

## Reclamation DEIS Alternatives

After receiving initial public input, Reclamation released five preliminary alternative concepts for public review in November 2024.[158] Reclamation supplemented this information with a more detailed alternatives report on January 17, 2025 (near the end of the Biden Administration).[159] After receiving input on these options, in January 2026 Reclamation released a draft EIS (DEIS) with five new alternatives (but with no preferred alternative):[160]

- No Action Alternative;
- Basic Coordination Alternative;
- Enhanced Coordination Alternative;

[151] The Lower Basin Post-2026 Proposal also assumes reductions for Mexico, which are not reflected in these totals.

[152] Lower Basin Post-2026 Operations Proposal, p. 2.

[153] Lower Basin Post-2026 Operations Proposal, p. 7.

[154] Letter from the Colorado River Upper Division State Representatives of Colorado, New Mexico, Utah, and Wyoming to the Honorable Camille Calimlim Touton, Commissioner, Bureau of Reclamation, March 5, 2024, https://www.usbr.gov/ColoradoRiverBasin/documents/post2026/alternatives/2024-03-05_UDS_Alternative_Submittal_508.pdf. Hereinafter, "Upper Basin Post-2026 Operations Proposal."

[155] Upper Basin Post-2026 Operations Proposal, p. 3.

[156] Upper Basin Post-2026 Operations Proposal, p. 3.

[157] Upper Basin Post-2026 Operations Proposal.

[158] Reclamation, *Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Narrative of National Environmental Policy Act Alternatives*, https://www.usbr.gov/ColoradoRiverBasin/documents/post2026/alternatives/Post-2026_Colorado_River_Operations_EISNarrative_of_Alternatives_20241120_508.pdf.

[159] Reclamation, *Alternatives Report, Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead*, January 2025, https://www.usbr.gov/ColoradoRiverBasin/documents/post2026/alternatives/Post-2026_Alternatives_Report_20250117_508.pdf.

[160] Reclamation, *Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead*, Draft Environmental Impact Statement, January 2026, https://www.usbr.gov/ColoradoRiverBasin/post2026/draft-eis/index.html. Hereinafter "Reclamation, *Post-2026 DEIS*."

- Maximum Operational Flexibility Alternative; and
- Supply-Driven Alternative.

Outside of the No Action Alternative (included as a requirement under NEPA), each action alternative is based on assumptions related to Reclamation's operational approach and authorities (including potentially modified authorities or new authorities).[161] According to Reclamation, only the Basic Coordination Alternative assumes no new authorities or agreements; it serves as a compliance option that could be implemented beginning in water year 2027.[162] The other alternatives appear to rely on Congress establishing new authorities to varying extents to carry out their plans, although Reclamation did not delineate the extent of those needs in the DEIS. Reclamation characterized the Enhanced Coordination Alternative as based on concepts from proposals by basin tribes and other federal agencies, while the Maximum Operational Flexibility alternative was based on a proposal from a consortium of conservation organizations.[163] According to Reclamation, the Supply-Driven Alternative reportedly incorporated concepts from the aforementioned 2024 Upper and Lower Basin state proposals.[164]

The primary operational changes in the DEIS action alternatives fall into four areas: Lower Basin shortage guidelines (i.e., Lower Basin delivery reductions), coordinated reservoir operations (i.e., releases from Glen Canyon Dam), storage and delivery of conserved system and nonsystem water (i.e., concepts similar to current system conservation and ICS water, respectively), and "additional activities" above Lake Powell (i.e., Upper Basin conservation). The alternatives also include actions related to water operations in the event of a shift to wet hydrology and water "surplus" conditions.

All of the alternatives would impose new Lower Basin delivery reductions in excess of current levels and alter the basis and range of Lake Powell releases, among other things. However, the alternatives differ in their operational triggers and the magnitude/distribution of reduced deliveries and releases. While none of the alternatives propose mandatory Upper Basin delivery reductions, three of the alternatives assume Upper Basin water conservation in their modeling, and all four action alternatives presume some ability to move water from Upper Basin initial units to provide flexibility for Lake Powell releases. For storage and delivery of conserved system and nonsystem water, three of the four alternatives propose major changes, several of which may require new agreements and/or authorities.

A summary of some of the primary differences in the approaches of the four action alternatives in each of the aforementioned operational areas is provided below.

## Lower Basin Shortage Guidelines

All of the DEIS action alternatives propose "shortage guidelines" (i.e., reduced deliveries to Lower Basin users based on differing operational triggers). Proposed maximum reductions would range from 1.5 MAF per year under the Basic Coordination Alternative to 4.0 MAF per year under the Maximum Operational Flexibility Alternative. A summary of each action alternative's approach is included below:

[161] Reclamation, *Post-2026 DEIS*, p. 2-5.

[162] Reclamation, *Post-2026 DEIS*, p. ES-8. Reclamation noted that the Secretary would have limited ability to make system changes using existing authorities, such as the Secretary's Lower Basin water master authority and Upper Basin authorizing statutes/records of decision (e.g., CRSP Act).

[163] Reclamation, *Post-2026 DEIS*, p. ES-8.

[164] Reclamation, *Post-2026 DEIS*, p. ES-8.

- The Basic Coordination Alternative would reduce Lower Basin deliveries based on Lake Mead storage levels and according to water rights priority, beginning at Lake Mead elevation of 1,160 feet, and increasing linearly to a maximum volume of 1.48 MAF per year at an elevation of 1,110 feet or lower.[165]
- The Enhanced Coordination Alternative would implement delivery reductions based on Lake Mead and Lake Powell combined storage, on a pro rata basis among users.[166] These reductions would begin with 1.5 MAF per year of reductions at 60% of Lakes Mead/Powell storage capacity and increase linearly, reaching a maximum of 3.0 MAF per year at 30% of Lakes Mead/Powell storage capacity.
- The Maximum Operational Flexibility Alternative would implement delivery reductions on a priority basis based on a "dual indicator" of basin-wide reservoir storage (defined as a percentage of system storage capacity) and hydrology (defined as three-year average natural flows).[167] At higher reservoir levels, only system storage would inform water delivery cuts, which would begin at 80% of system storage and increase linearly to 1.0 MAF per year when storage falls to 60% of system capacity. From 60% to 50% of system capacity, reductions would increase from 1.0 to 3.0 MAF per year, depending on hydrological conditions. At below 50% of capacity, reductions would increase to a maximum of 4.0 MAF per year, depending on hydrological conditions.
- The Supply-Driven Alternative would determine shortages based on Lake Mead elevation, with delivery reductions at different elevation levels.[168] Reclamation modeled this approach on both a priority and pro rata basis. From Lake Mead elevation levels of 1,145 feet to 1,125 feet, reductions would increase linearly, to a maximum of 1.5 MAF per year at 1,125 feet. That reduction would be maintained down to a Lake Mead elevation of 1,050 feet. From Lake Mead elevations from 1,050 feet down to 1,000 feet, reductions would increase linearly to a maximum of 2.1 MAF per year, and below 1,000 feet the maximum reduction for Lower Basin users would peak at 2.1 MAF per year.

While all action alternatives would impose significant water delivery reductions on Lower Basin users, reductions for the Lower Basin would be comparatively less under the Basic Coordination and Supply-Driven alternatives. The maximum reduction of 1.48 MAF per year under the Basic Coordination Alternative would occur under most conditions comparable to current levels, and would be greater than Upper and Lower Basin-proposed amounts (especially at higher Lake Mead levels) and greater than current reductions (a significant portion of which are compensated).[169] However, the amount is also significantly less than the 2.4-3.2 MAF per year that some have estimated is necessary to stabilize the system in the long run.[170] The Enhanced

[165] Reclamation, *Post-2026 DEIS*, pp. 2-6 to 2-8.

[166] Reclamation, *Post-2026 DEIS*, pp. 2-17 to 2-18.

[167] Reclamation, *Post-2026 DEIS*, pp. 2-24 to 2-26.

[168] Reclamation, *Post-2026 DEIS*, pp. 2-30 to 2-32.

[169] International Boundary and Water Commission, United States and Mexico, "2026 Colorado River Water Allocations Announced for the United States and Mexico," press release, August 15, 2025, https://www.ibwc.gov/wp-content/uploads/2025/08/2026-COLORADO-RIVER-WATER-ALLOCATIONS-ANNOUNCED-FOR-THE-UNITED-STATES-AND-MEXICO.pdf.

[170] John C. Schmidt et al., "The Colorado River Water Crisis: Its Origin and the Future," *WIREs Water*, vol. 2, no. 1672 (2023), https://doi.org/10.1002/wat2.1672.

Coordination and Maximum Operational Flexibility Alternatives would both impose more significant reductions (maximum reductions of 3.0 and 4.0 MAF per year, respectively).

In addition to the triggers themselves, the basis for assessing delivery reductions would also heavily influence the magnitude of the effects on individual states and contractors. For instance, the water rights priority-based distribution of shortages that was modeled for the Basic Coordination Alternative would result in 77% of reductions accruing to Arizona users, 6% to Nevada users, 17% to Mexico, and no reductions for California users.[171] On the other hand, a pro rata (i.e., equitably distributed) reduction,[172] as was modeled for the Enhanced Coordination Alternative, would result in 31% of reductions accruing to Arizona users, 49% for California users, 3% for Nevada users, and 17% for Mexico.[173] The latter approach would require additional agreements and/or congressional changes to existing law in order for the Secretary to implement it.

The economic effects of cuts pursuant to any of the alternatives compared to current delivery reductions would be magnified if users are not compensated for lost water (i.e., the approach for some of the conservation under the Near-Term EIS). Water deliveries to Arizona would be comparatively hard hit under several of the proposed alternatives. For example, under the Basic Coordination alternatives, the early-2026 Lake Mead elevation of 1,220 feet would result in hypothetical cuts of 1.1 MAF per year for Arizona, or considerably more than the 792,000 AF cut under existing agreements (which is partially compensated with federal funds).

## Coordinated Reservoir Operations/Releases from Glen Canyon Dam

All of the proposed action alternatives for the DEIS include alterations to coordinated reservoir operation at Lakes Mead and Powell. Currently, pursuant to the 2007 Interim Guidelines, as amended, in most years Lake Powell releases are based on a combination of both reservoirs' storage elevations, with annual releases typically ranging from 7.0 to 9.5 MAF. A summary of each action alternative's approach is included below:

- The Basic Coordination Alternative would base its approach to coordinated operations on a "flexible interpretation" of the LROC (authorized under the CRBPA),[174] and provide for releases of 7.0 to 9.5 MAF, depending on Lake Powell elevations. The lowest releases would occur at or below a Lake Powell elevation of 3,525 feet.
- The Enhanced Coordination Alternative would not target specific releases, but would schedule them so to distribute storage equitably between the reservoirs, with marginally more water in Lake Powell than Lake Mead when combined storage in the two reservoirs is at levels less than 63%.[175] At combined storage levels above 63%, more water would be stored in Lake Mead than Lake Powell.
- The Maximum Operational Flexibility Alternative would approach coordinated reservoir operations based on CRSP basin-wide reservoir storage at higher

[171] Reclamation, *Post-2026 DEIS*, p. 2-8. The DEIS included assumptions related to Mexico's sharing of basin shortages and incorporated these shortages into its modeling, but noted that actions related to international agreements with Mexico are outside of Reclamation's authority and the scope of the DEIS. See Reclamation, *Post-2026 DEIS*, p. ES-12.

[172] Reclamation states in its DEIS that additional authority would be needed to implement pro rata delivery reductions. See Reclamation, *Post-2026 DEIS*, p. 2-16.

[173] Reclamation, *Post-2026 DEIS*, p. 2-12.

[174] Reclamation, *Post-2026 DEIS*, p. 2-14.

[175] Reclamation, *Post-2026 DEIS*, pp. 2-19 to 2-20.

storage levels (i.e., above 70% of system capacity), hydrology (defined as three-year average natural flows at Lees Ferry, AZ) at medium levels (i.e., 70% to 50% of CRSP storage), and hydrology at lower levels (i.e., at or below 50% of system capacity).[176]

- The Supply-Driven Alternative assumes that coordinated operations are based on Lake Powell releases as a fixed percentage (65%) of three-year natural flows at Lees Ferry, with upper and lower bounds of 12.0 and 4.7 MAF, respectively.[177]

Each alternative has distinct implications for the distribution of waters within the Colorado River Basin. Each of the alternatives appears to depart from the recent approach of coordinated reservoir releases, in which balancing reservoir storage is the chief aim under the LROC and the 2007 Interim Guidelines. Most of the proposed action alternatives in the DEIS have the potential to hold back more water in Lake Powell compared to the current baseline, and would decrease deliveries to the Lower Basin under the driest conditions. For instance, under the Basic Coordination Alternative, if the October 1 Lake Powell elevation is 3,525 feet or below (i.e., slightly below early 2026 levels), it would trigger releases of 7.0 MAF/year. Using 2026 storage levels appears to result in hypothetical releases of 7.0 MAF per year under the Maximum Operational Flexibility Alternative, but greater levels of 8.6 MAF per year under the Supply-Driven Alternative.[178]

## Storage and Delivery of Conserved System and Nonsystem Water

Storage of conserved water in Lakes Mead and Powell would continue under some, but not all, of the action alternatives under consideration in the DEIS. Since the Basic Coordination Alternative assumes that no new agreements will be in place under the new operational plan, it assumes that existing agreements that allow for the storage of *new* ICS water will lapse, and will no longer be available (however, access to *previous* ICS water would continue). The other alternatives include variations on new and existing mechanisms that may require additional agreements and/or congressional action to be implemented. A summary of each action alternative's approach is included below.

- The Basic Coordination alternative assumes lapse of available mechanisms to conserve and/or access conserved water, but previously stored ICS (i.e., pre-2027 ICS) would continue to be available pursuant to earlier agreements.[179]
- The Enhanced Coordination Alternative would allow for conservation of both consumptively used water and unused (but quantified) tribal waters, and assumes that conservation will take place in three separate "pools."[180] This includes a Lake Powell pool of up to 2.0 MAF available for delivery and inter- and intrastate transactions from Upper Basin users that, under certain dry conditions, also would be available to partially offset Lower Basin shortages; a Lake Mead pool of up to 5.0 MAF available for delivery and inter- and intrastate transactions from Lower Basin users that, under certain dry conditions, also would be used to partially offset Lower Basin shortages; and a Lake Mead protection pool (i.e., similar to the current system conservation water) of up to 2.0 MAF controlled by

[176] Reclamation, *Post-2026 DEIS*, pp. 2-26 to 2-27.

[177] Reclamation, *Post-2026 DEIS*, pp. 2-32 to 2-33.

[178] These calculations do not take into account 2025 and 2026 flows.

[179] Reclamation, *Post-2026 DEIS*, pp. 2-15 to 2-16.

[180] Reclamation, *Post-2026 DEIS*, pp. 2-21 to 2-23.

Reclamation, to be acquired through various means (e.g., compensated conservation, system efficiency projects, etc.).

- The Maximum Operational Flexibility Alternative would create a basin-wide Conservation Reserve Pool of 8.0 MAF (5.0 MAF for Lower Basin users and 3.0 MAF for Upper Basin users) to be stored throughout the basin and distributed strategically to protect basin resources.[181] It would include maximum annual contribution and delivery limits on users.
- The Supply-Driven Alternative would create both a Lake Powell Mechanism of up to 3.0 MAF, available for delivery and inter- and intrastate transactions from Upper Basin users, and a Lake Mead Mechanism of up to 8.0 MAF (including pre-2027 ICS) available for delivery and inter- and intrastate transactions from Lower Basin users.[182]

The last three action alternatives propose expansion of the existing ability of Lower Basin users to store conserved water, in the form of ICS. The availability of water under some of these alternatives for intrastate transactions within the Upper and Lower Basins would further incentivize future ICS-type actions, and would constitute a major new flexibility in the Law of the River. Similarly, the Enhanced Coordination Alternative's proposed granting to tribes of the ability to store and sell unused (but quantified) tribal waters would also constitute a major development. These flexibilities would require congressional approval of new or extended authorities to implement.

## Additional Activities Above Lake Powell

Activities above Lake Powell considered in the DEIS include releases from Upper Basin initial units to protect Glen Canyon Dam infrastructure, as well as Upper Basin conservation. A summary of each action alternative's approach is included below:

- The Basic Coordination Alternative does not assume any Upper Basin conservation, which Reclamation notes would require agreements outside of its control.[183] However, Reclamation contends that this alternative could allow for hydrology-dependent releases from the initial units to protect Lake Powell from falling below 3,525 feet. It assumes this water would be recovered (as is the case under current DROA agreements).
- The Enhanced Coordination Alternative assumes phased-in Upper Basin conservation of 200,000 AF per year beginning in 2027, reaching a maximum of 350,000 AF per year after 2036.[184] It assumes that no initial unit releases will be necessary due to other operational activities protecting Lake Powell (i.e., lowered Glen Canyon Dam releases), but reserves the authority to make these releases.
- The Maximum Operational Flexibility Alternative assumes Upper Basin conservation of up to 500,000 AF per year, but averaging 200,000 AF per year.[185] It assumes that no initial unit releases will be necessary due to other operational

[181] Reclamation, *Post-2026 DEIS*, pp. 2-29 to 2-30.

[182] Reclamation, *Post-2026 DEIS*, pp. 2-33 to 2-34.

[183] Reclamation, *Post-2026 DEIS*, p. 2-16.

[184] Reclamation, *Post-2026 DEIS*, p. 2-23.

[185] Reclamation, *Post-2026 DEIS*, p. 2-30.

activities protecting Lake Powell (i.e., lowered Glen Canyon Dam releases), but reserves its authority to make these releases.

- The Supply-Driven Alternative assumes Upper Basin conservation of up to 200,000 AF per year, and initial unit releases of up to 500,000 AF per year depending on hydrology, with these amounts to be recovered over time.[186]

All alternatives assume some level of Upper Basin activities to "protect" infrastructure at Glen Canyon Dam (i.e., keep water levels above hydropower intakes to avoid potential for dam failure), generally in the form of initial unit releases to protect Glen Canyon Dam infrastructure and/or actual Upper Basin conservation contributions. Under each of the alternatives, Reclamation refers to its possession of existing authority for initial unit releases. However, it does not assume any unrecovered Upper Basin conservation activities under its Basic Coordination alternative. The other action alternatives all assume Upper Basin conservation ranging from 200,000-500,000 AF per year, and all maintain the option for the Secretary to employ initial unit releases as needed (two alternatives assume no such releases would be needed). While Reclamation maintains that it has the authority under the CRBPA to require initial unit releases, it does not contend within the DEIS that it has authority to mandate Upper Basin conservation, including for the purposes of compact compliance in the form of releases to the Lower Basin.[187]

## Reaction to DEIS

Reclamation reported receiving more than 18,000 comments on the DEIS, including comments from federal agencies, state and local governments, tribes, NGOs, academics, elected officials, and business interests.[188] Generally, most stakeholders agreed that the river is overallocated and that flexible, science-based management should guide post-2026 operations. Stakeholders also agreed that the new operational regime must assume a drier future. However, there was considerable disagreement as to which uses to prioritize (e.g., competition among irrigation, M&I water, ecosystem flows, and tribal uses), how to distribute shortages (and in what magnitude), and what hydrologic triggers should guide future operations.

The DEIS alternatives were heavily criticized in the comments by both Upper and Lower Basin states, but for differing reasons. One of the Lower Basin states' primary concerns with the DEIS was the lack of alternatives prioritizing Upper Basin releases to the Lower Basin to adhere to the compact.[189] While most of the proposed alternatives allowed for releases from initial units to raise the level of Lake Powell so as to protect Glen Canyon Dam infrastructure, these releases generally appear to be recoverable, and were not proposed to also help meet compact-required releases. Similarly, the Lower Basin states criticized the lack of mandatory Upper Basin water

[186] Reclamation, *Post-2026 DEIS*, p. 2-35.

[187] Reclamation noted that while the Secretary will "consider and prioritize operations at these facilities that are consistent with existing RODs, the Secretary retains the authority to operate outside those RODs if necessary." See Reclamation, *Post-2026 DEIS*, p. ES-6.

[188] Reclamation, "Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead, Draft EIS Public Review and Comment Process," https://www.usbr.gov/ColoradoRiverBasin/post2026/draft-eis/Public-Review-Comment-Process.html.

[189] See, for example, Arizona Department of Water Resources, "State of Arizona Comments on the Post-2026 Colorado River Reservoir Operations Draft Environmental Impact Statement (EIS Number 20250184)," March 2, 2026; Colorado River Board of California, "Comments on the Draft Environmental Impact Statement for Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead," March 2, 2026 (hereinafter, "California DEIS Comments"); and Southern Nevada Water Authority and Colorado River Commission of Nevada, "State of Nevada's Comments on the Colorado River Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead Draft Environmental Impact Statement," March 2, 2026 (Hereinafter, "Nevada DEIS comments.")

conservation to account for dry hydrology (i.e., cuts similar to those included for the Lower Basin) and noted that the DEIS approach "shifts the full burden of drought response on the Lower Basin."[190] Lower Basin states also argued that limiting efforts to protect Glen Canyon Dam infrastructure to reducing releases from Lake Powell (rather than also considering structural modifications to the dam itself that allow for releases at lower lake levels) is "shortsighted" and results in "major cuts" to Lower Basin deliveries.[191] Some Lower Basin state Members of Congress also weighed in to express their dissatisfaction with the DEIS.[192]

For their part, Upper Basin states also criticized the DEIS.[193] They argued that all of the alternatives "violate" the Law of the River by prioritizing Lower Basin uses, and fail to sustain the system by not requiring sufficient Lower Basin cuts. The Upper Basin states also argued that the DEIS alternatives rely on actions that exceed the Secretary's authority (which the Upper Basin states argue only extends from Lake Powell to the international border with Mexico). The Upper Basin states noted that only one of the alternatives (the Basic Coordination Alternative) could be implemented without significant new congressionally approved authorities and other agreements.

## Lower Basin 2026-2028 Short-Term Operations Proposal

On May 1, 2026, the Lower Basin states transmitted to DOI a new short-term 2026-2028 operations proposal.[194] Under the proposal, the Lower Basin states would contribute reductions of 1.25 MAF/year and Mexico would contribute 250,000 AF/year (i.e., similar to amounts proposed by the states in 2024 in the aforementioned Lower Basin post-2026 proposal but less than what would be implemented under most of the DEIS action alternatives) in 2027 and 2028. This would be coupled with a new 700,000 AF (through 2028) Lower Basin conservation program that would be funded by an unspecified federal/state cost-share. The combined efforts are projected to result in 3.2 MAF in water savings through 2028.[195] The proposal contains a number of other operational assumptions, and does not specify how much new federal funding would be needed to implement the conservation program. For its part, the Upper Basin issued its own statement

[190] California DEIS Comments, p. 2.

[191] Nevada DEIS, Comments, p. 2.

[192] See for example, Letter from Andy Biggs, Member of Congress, Paul A. Gosar, D.D.S., Member of Congress, and Juan Ciscomani, Member of Congress, et al. to The Honorable Doug Burgum, Secretary of the Interior, March 2, 2026, https://biggs.house.gov/sites/evo-subsites/biggs.house.gov/files/evo-media-document/biggs-laz-gop-delegation-letter-to-sec-burgum-re-doi-bor-deis-comment-letter.pdf; and letter from Mark Kelly, United States Senator, Ruben Gallego, United States Senator, and Greg Stanton, Member of Congress, et al. to The Honorable Doug Burgum, Secretary of the Interior, March 2, 2026, https://www.kelly.senate.gov/wp-content/uploads/2026/03/2026.03.02-Congressional-Delegation-Comment-Letter-on-Jan-16-2026-DEIS.pdf.

[193] See, for example, Colorado Department of Natural Resources, "The State of Colorado's Comments on the Draft Environmental Impact Statement for Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead, 91 Fed. Reg. 2131 (Jan 16, 2026)," March 2, 2026; New Mexico Interstate Stream Commission, "State of New Mexico's comments on the Draft Environmental Impact Statement for Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead Wyoming State Engineer's Office," March 2, 2026; Colorado River Authority of Utah, "Utah's Comments on the Draft Environmental Impact Statement for Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead," March 2, 2026; Wyoming State Engineer's Office, "The State of Wyoming's Comments on the Draft Environmental Impact Statement for Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead (January 16, 2026)," March 2, 2026.

[194] Email from John Entsminger to Andrea Travnicek, Lower Division States' Proposal for 2026–2028 Colorado River Operations. Hereinafter, "Lower Division States' 2026-2028 Proposal."

[195] Lower Division States' 2026-2028 Proposal, p. 4.

opposing efforts that do not reflect a basin-wide consensus, and reiterated its previous call for basin-wide mediation.[196]

# Issues for Congress

For many years, the principal role of Congress related to the Colorado River Basin has focused on approval, funding, and oversight of basin water storage facilities and programs. This has included funding and oversight of Upper and Lower Basin facility construction and operations (including tribal water settlements), as well as programs to protect and restore listed species (e.g., the Glen Canyon Dam Adaptive Management Program and the Upper Colorado River Endangered Fish Program) and tribal water settlements. Congressional funding in support of these projects and programs typically has accounted for a portion of project budgets, with funds also coming from power revenues (made available without further appropriation through multiple funds) and nonfederal partners.

The 2019 DCPs and the 2022 IRA evidenced a new dimension in the congressional role: consideration of drought-related authorities and funding. The 119th Congress may consider whether or not to act on requests by the Secretary for new or modified authorities, or whether to issue other authorities and/or directives for river management. If the Secretary selects an operations option that relies on congressional enactment of new or modified authorities and Congress does *not* act, the Secretary may be forced to limit post-2026 activities to existing authorities and funding.

## Federal Efforts to Mitigate Long-Term Drought

As dry conditions have worsened the basin's hydrological outlook, Congress has addressed Colorado River funding outside of the regular appropriations process and approved authorities to support federal efforts to deal with reduced water supplies. In Section 50233 of the IRA, Congress provided $4.0 billion for projects to mitigate drought in the 17 arid and semiarid *reclamation states* in the West,[197] with priority given to Colorado River Basin activities. Reclamation announced initial plans for this funding on October 12, 2022, in the form of a new program, the *Lower Colorado River Basin System Conservation and Efficiency Program*.[198] As developed by Reclamation, the program has three components:

- Under the first component (1a), Colorado River water delivery contractors or entitlement holders submitted proposals resulting in water remaining in Lake Mead at a set price of $330 per acre-foot for a one-year agreement, $365 per acre-foot per year for a two-year agreement, and $400 per acre-foot per year for a three-year agreement. These proposals were due in November 2022.
- For the second component (1b), Reclamation accepted proposals for additional water conservation and efficiency projects that could involve a variety of pricing options as proposed by Colorado River water delivery contractors or entitlement holders. These proposals were due in November 2022.

[196] Letter from Chuck Collum, Upper Colorado River Commission to Andrea Travnicek, Assistant Secretary for Water and Science, U.S. Department of the Interior, May 1, 2026.

[197] *Reclamation states* refers to the 17 states designated by Congress to be in the Reclamation service area, pursuant to the Reclamation Act of 1902, as amended. 34 Stat. 259.

[198] Reclamation, "Biden-Harris Administration Announces New Steps for Drought Mitigation Funding from Inflation Reduction Act," press release, October 12, 2022, https://www.usbr.gov/newsroom/news-release/4353.

- For the third component (2), Reclamation accepted proposals for long-term system efficiency improvements that would result in multiyear system conservation. These proposals were due in August 2023.

In addition to the aforementioned new program being implemented with IRA funding, Reclamation also previously announced that $250 million of the act's funding would go toward Salton Sea restoration activities in California over the 2022-2026 timeframe.[199] Restoration of the sea is a priority of the Imperial Irrigation District, a major irrigation district in Southern California, one of the largest water rights holders on the Colorado River.[200] The DOI inspector general's office published a 2026 audit noting a lack of public transparency associated with these funds. The report pointed out that Reclamation's practice of releasing these funds through water-related contracts meant that Reclamation was not subject to typical federal accounting standards for financial assistance awards.[201]

A question for Congress is the extent to which it weighs in on programs and operational authorities that facilitate (or direct) Reclamation's approach to post-2026 operations in the basin. Assuming Reclamation selects a preferred alternative for post-2026 operations, it may request that Congress legislate on certain new or amended operational authorities to support these plans. Congress may consider whether or not to act on these requests, or whether to issue its own authorities and/or directives for river management. If the Secretary selects an operations option that relies on congressional enactment of modified or new authorities and Congress does *not* act, the Secretary may be forced to limit post-2026 activities to existing authorities and funding.

Some in in the 119th Congress have already introduced legislation intended to guide or support future Colorado River operations. For instance, H.R. 7078 would amend the CRBPA so as to remove the existing subordination of Central Arizona Project water deliveries to other users, and would instead direct that Lower Basin shortages be implemented on a pro rata basis. Other legislation, such as H.R. 231 and S. 154, would extend authority for the System Conservation Program, which has been a key source of funding for basin water conservation efforts, and is assumed to continue in various forms in three of the four action alternatives in the post-2026 operations DEIS.

Reclamation has stated that in order to provide certainty for water users, a final EIS and resulting decision regarding operations after 2026 are planned to be released prior to October 1, 2026—the start of the 2027 water year.[202] Thus, there is a limited window for Congress to act on new and/or extended authorities prior to the expiration of existing agreements at the end of calendar year 2026.

Depending on the preferred alternative in the final EIS for post-2026 operations, states and/or users may also request federal funding similar to that which Congress approved in the IRA to mitigate the effect of major delivery reductions in the basin.

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[199] Reclamation, "Inflation Reduction Act Funds Landmark Agreements to Accelerate Salton Sea Restoration," press release, November 28, 2022, https://www.usbr.gov/newsroom/news-release/4380.

[200] For more on Salton Sea restoration, see CRS In Focus IF11104, *Salton Sea Management and Restoration Efforts*, by Pervaze A. Sheikh and Charles V. Stern (2019). For more on Imperial Irrigation District's position on the Salton Sea, see Imperial Irrigation District, "Salton Sea," https://www.iid.com/water/salton-sea.

[201] U.S. Department of the Interior, Office of the Inspector General, *The Bureau of Reclamation Should Improve Transparency in Inflation Reduction Act-Funded Drought Mitigation Agreements and Check to Ensure Funds Are Not Awarded to Excluded Parties*, Report No. 2023-WR-035, April 2026, https://www.doioig.gov/sites/default/files/2021-migration/Final-Audit-Report_BOR-Should-Improve-Transparency-In-IRA-Funded-Drought-Mitigation.pdf.

[202] Reclamation, "Reclamation Releases Draft Environmental Review for Post-2026 Colorado River Operations," press release, January 9, 2026, https://www.usbr.gov/newsroom/news-release/5263.

## Tribal Water Rights Settlements and Ecosystem Programs

Many tribal water rights are senior to other water rights in the basin, and thus are likely to play an important role in the future of the Colorado River. The extent to which tribes develop their water rights, or are willing and able to market their water to other users, has ramifications for water availability for other users in the basin. As previously noted, Congress has approved Indian water rights settlements associated with more than 2.5 MAF per year of tribal diversion rights on the Colorado River (these rights are a subset of the water allocations per state in which they are located); a portion of this water has been developed to date. Congress may be asked to fund new or upgraded infrastructure to develop existing tribal water rights, as well as to consider new settlements that would add to the existing tribal diversions. Any potential additional tribal diversions along these lines could result in reduced availability for other users.

In the 119th Congress, S. 953 and H.R. 2025 both would authorize a major potential settlement of Colorado River Basin water rights claims of the Navajo Nation, the Hopi Tribe, and the San Juan Southern Paiute Tribe (who occupy lands within the Navajo Reservation in Arizona and Utah but do not have a reservation of their own) for the waters of the Little Colorado River and the Colorado River in the state of Arizona. The bills would authorize federal contributions of $5.0 billion to the tribes, with $1.7 billion dedicated to a major pipeline project that Reclamation would be required to complete by the year 2040.[203] The bills also would set allocations of Colorado River water for each tribe: the allocation for the Navajo Nation in Arizona under the settlement would be 44,700 AF per year, plus 2,300 AF per year for the Hopi; both of these amounts would be derived from Arizona's Upper Colorado River Basin allocation. The settlement also would award rights for Lower Colorado River Basin water (3,600 AF per year of Lower Basin water) and all water from the mainstream and tributaries of the Little Colorado River (itself a tributary of the Colorado River) that reach both reservations, along with rights to washes and groundwater below the reservations.

In addition to proposed new tribal water settlements, an issue under consideration in the post-2026 operations EIS process is the extent to which tribes are able to receive conservation credits and/or have the ability to market their reserved water rights that have been settled, but not developed.[204] As discussed above, one of the 2026 DEIS alternatives would include changes in tribal water accounting for certain water conservation programs.

Separately, Congress may consider the status of ongoing restoration programs in the basin. For instance, H.R. 831 and S. 291 both propose amendments to and extension of the Lower Colorado River Multi-Species Conservation Program. Both bills would establish an interest-bearing account in the Treasury for nonfederal contributions to the program.

[203] Up to $1.715 billion of the authorized funding would go toward a pipeline to divert Upper Colorado River water from Lake Powell to the tribal areas covered in the settlement. The pipeline would have a capacity of up to 7,100 acre-feet per year (AFY) of potable Colorado River Water to the Navajo Nation (for use in delivering up to 6,750 AFY to serve Navajo communities and up to 350 AFY to serve the San Juan Southern Paiute Southern Area), and up to 3,076 AFY of potable Colorado River Water to the Hopi Tribe.

[204] Letter from Melvin Baker, Chairman, Southern Ute Tribe, Corrina Bow, Chairwoman, Paiute Indian Tribe of Utah, and Martin Harvier, President, Salt River Pima-Maricopa Indian Community, et al. to Camille Calimlim Touton, Commissioner, Bureau of Reclamation, May 16, 2024, https://www.usbr.gov/ColoradoRiverBasin/documents/post2026/alternatives/2024-05-17_Joint_Letter_re_Tribal_Principles_508.pdf.

## Infrastructure Alterations and New Facilities

Congress may consider the status of congressionally authorized infrastructure on the Colorado River, in particular Glen Canyon Dam. Should water levels continue to fall near or below the hydropower intakes at the dam, it could affect releases to the Lower Basin.[205] Some have proposed consideration of options that would allow for greater Lower Basin releases below the intakes, thereby allowing for compact-required releases at lower Lake Powell elevations. Lower Basin state representatives have previously asked that Reclamation consider post-2026 operational alternatives to not only include reduced Lower Basin releases to protect a Lake Powell elevation of 3,490 feet, but also include Glen Canyon Dam infrastructure modifications that would allow for releases below this level.[206] Reclamation has previously undertaken accelerated maintenance actions at the dam to determine the reliability of using the dam's river bypass tubes to enable Lower Basin releases at storage levels below minimum power pool, and determined a range of releases through the river outlet works at low storage levels.[207] Reclamation is also studying the efficacy of physical modifications to Glen Canyon Dam to allow for additional releases below critical elevations.[208] Reclamation would require congressional authorization prior to pursuing significant alterations to Glen Canyon Dam and related facilities.

Some states may pursue further development of their unused Colorado River water (rather than cutting their use). For example, one project that would develop Upper Basin waters, the proposed Lake Powell Pipeline (LPP), would direct approximately 86,000 AF per year of Utah's Upper Basin Colorado River Basin annual apportionment from Lake Powell to Washington County, UT (i.e., the St. George, UT, area, which is technically located within the Lower Basin drainage area).[209] The pipeline would begin near Glen Canyon Dam in Arizona and would run through Arizona and Utah to Sand Hollow Reservoir near St. George, UT. While this would be a nonfederal project, Reclamation is the lead agency for the project in regard to NEPA and is coordinating an EIS for the most recently proposed version of the project.[210]

[205] For more information, see CRS Report R47497, *Long-Term Drought and Glen Canyon Dam: Potential Effects on Water Deliveries and Hydropower*, by Charles V. Stern and Ashley J. Lawson (2023).

[206] Letter from Colorado River Basin States Representatives of Arizona, Colorado, and Nevada to the Honorable Doug Burgum, Secretary of the Interior, February 13, 2025.

[207] Richard LaFond, *Establishment of Interim Operating Guidance for Glen Canyon Dam during Low Reservoir Levels at Lake Powell*, Bureau of Reclamation, Technical Decision Memorandum, March 26, 2024, https://usbr.gov/uc/DocLibrary/Memos/20240326-EstablishmentInterimOperatingGuidanceGlenCanyonDamLowReservoirLevels-TechnicalDecisionMemo-508-TSC.pdf.

[208] Reclamation, "Glen Canyon Dam Put to the Test," *UC Today Newsletter*, Winter 2023, https://www.usbr.gov/uc/special/20230100-UCToday.html.

[209] While St. George, UT, is technically within the Lower Colorado River Basin's drainage, Utah's state allocation comes out of waters available to the Upper Basin. Thus, the LPP would transport Upper Basin waters.

[210] For project NEPA documents and studies, see Reclamation, "Lake Powell Pipeline Project Environmental Impact Study," https://www.usbr.gov/uc/DocLibrary/EnvironmentalImpactStatements/LakePowellPipeline/index.html#intro.

The debate over the LPP is illustrative of the issues future water development proposals may face in the basin. Supporters argue that the pipeline is needed to provide a secondary water source for the St. George area (in addition to its primary water source from the Virgin River). However, environmental groups have argued that the proposed development and diversion of additional Upper Basin waters is ill-advised in light of climate change and the basin's over-allocation.[211] The six other Colorado River Basin states have raised concerns related to the proposed LPP's "legal and operational issues," and have criticized the use of the LPP NEPA process as a de facto forum for resolving a conflict among basin states. The six states previously requested that Reclamation refrain from issuing a final EIS until these issues can be resolved on a consensus basis.[212]

# Concluding Observations

There is wide acknowledgement that the existing federal operational regime for the Colorado River Basin is not aligned with available basin water supplies and uses. As a result, major reductions in water use and alterations to facility operations are likely necessary in the near future. The original basis for the Colorado River Compact and development of the river's infrastructure assumed more water than has typically been available, and long-term aridification in the basin has exacerbated this issue. Although recent agreements have conserved water relative to previous baselines, inflows have also decreased and have regularly fallen short of forecasted levels.[213] The resulting rapid drawdown of basin storage threatens water deliveries, hydropower production, and the basin's many other uses. Long-term flow projections anticipate available supplies continuing to decrease, while population growth and other uses create intense competition for scarce resources.

Despite agreement that significant water delivery reductions are necessary, there remain considerable differences of opinion as to precisely what form these actions should take. The EIS process for post-2026 operations is currently the primary forum for these debates. The question of which basins, states, and contractors would be subject to water delivery reductions, and in what amount, as well as what (if any) mitigation should accompany these efforts, takes on an added level of urgency due to the river's economic importance to many areas and their populations, industries, and agricultural operations. The relative priority of water rights in the basin, compared to priority for health, safety, and other uses, is a central issue facing congressional decisionmakers and others charged with the allocation of the basin's scarce water resources. Related questions, including alterations to basin infrastructure and accounting, are also likely to figure prominently in ongoing basin negotiations. Due to its unique authorities in the basin, the federal government, including Congress, is involved in these discussions.

[211] Letter from Utah Rivers Council et al. to Rick Baxter, Program Manager, Bureau of Reclamation Provo Area Office, September 8, 2020.

[212] Letter from Colorado River Basin States Representatives of Arizona, California, Colorado, Nevada, New Mexico, and Wyoming to David Bernhardt, Secretary of the Interior, September 8, 2020.

[213] Jian Wang et al., "Evaluating the Accuracy of Reclamation's 24-Month Study Lake Powell Projections," Center for Colorado River Studies, February 18, 2022.

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