DAMMED IF YOU DON'T: WHAT THE BUREAU OF RECLAMATION CAN DO TO ADDRESS A DRYING COLORADO RIVER

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INTRODUCTION

The Colorado River provides critical water supplies to nearly forty million people and irrigates more than five million acres of land.[1] It spans seven American states, two Mexican states, and thirty Native American tribal reservations.[2] Even those without direct access to the Colorado River still benefit from its output—farmers use about 80% of the available water from the river to produce and deliver crops to the entire United States.[3] Today, in a proclaimed "climate emergency,"[4] this vast resource is threatened by a persistent megadrought, the worst drought in 1,200 years.[5] The resulting water loss due to drier winters and evaporation means that the states and tribes are finding that there is less water to go around.[6] As the American Southwest continues to see rapid population growth,[7] it is faced with an emergency of its own as it contemplates how to deliver a dwindling resource to growing demand.

Due to its tremendous size, the Colorado River has long required a measure of federal oversight. Beginning in the eighteenth and nineteenth centuries after a boom in westward expansion, explorers began recognizing the need for federal intervention and regulation of the hugely important resource.[8] Early in the twentieth century, Congress formed the Department of the Interior's Bureau of Reclamation (Reclamation) to "manage[],

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1. BUREAU OF RECLAMATION, NEAR-TERM COLORADO RIVER OPERATIONS, REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT 1-1 (Oct. 2023) [hereinafter OCTOBER 2023 SEIS].

2. *Id.*; *Colorado River Basin Map*, U.S. GEOLOGICAL SURV. (Nov. 3, 2016), https://www.usgs.gov/media/images/colorado-river-basin-map.

3. Abrahm Lustgarten, *As Colorado River Dries, the U.S. Teeters on the Brink of Larger Water Crisis*, PROPUBLICA (Aug. 25, 2022, 5:00 AM), https://www.propublica.org/article/colorado-river-water-shortage-jay-famiglietti.

4. United Nations, *UN Secretary-General on the Launch of the Third IPCC Report*, YOUTUBE (Apr. 4, 2022), https://www.youtube.com/watch?v=2E9Lfkw27sg.

5. Chelsea Harvey, *Western "Megadrought" is the Worst in 1,200 Years*, SCI. AM. (Feb. 15, 2022), https://www.scientificamerican.com/article/western-megadrought-is-the-worst-in-1-200-years/.

6. P.C.D. Milly & K.A. Dunne, *Colorado River Flow Dwindles as Warming-Driven Loss of Reflective Snow Energizes Evaporation*, 367 SCI. 1252 (2020).

7. *See* Press Release, U.S. Census Bureau, The South is Home to 10 of the 15 Fastest-Growing Large Cities (May 25, 2017), https://www.census.gov/newsroom/press-releases/2017/cb17-81-population-estimates-subcounty.html (indicating that western cities are among the fastest-growing cities in the country).

8. *See* Mary C. Rabbitt, *John Wesley Powell: Pioneer Statesman of Federal Science*, in THE COLORADO RIVER REGION AND JOHN WESLEY POWELL 1, 8–10 (U.S. Gov't Printing Off. 1969) (detailing the early westward expeditions).

develop[], and protect[]" water resources across the country.[9] Reclamation's first projects included large-scale irrigation plans, as well as other water developments to allow for proper storage and diversion of the Colorado River so the river could reach the states' populations.[10] Although Reclamation has clearly defined authorities to this end, it has tended to defer to individual states' rights over water in the years since its founding.[11]

This deference to states' rights has created a vacuum in the Western United States regarding what authority dictates water allocation—a void that has since been filled with interstate litigation and heated debate.[12] Over time, a complex patchwork of compacts, federal laws, regulatory guidelines, contracts, and an international treaty sprouted up to govern the adjudication of claims to water rights—known collectively as the "Law of the River."[13] The cornerstone of the Law of the River is the Colorado River Compact of 1922 (the Compact).[14] The Compact defines the relationship between the Colorado River's Upper Basin states (Wyoming, Utah, Colorado, and New Mexico) and Lower Basin states (California, Arizona, and Nevada), apportioning the Colorado River water equitably between the two basins.[15] Since the adoption of the Compact, and as the western United States grew in size and population, these seven basin states continue to litigate and negotiate water usage amongst themselves.[16]

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9. *About Us – Fact Sheet*, BUREAU OF RECLAMATION (Jan. 19, 2024), https://www.usbr.gov/main/about/fact.html.

10. *See* Arthur W. Page, *The Real Conquest of the West: The Work of the United States Reclamation Service*, 15 WORLD'S WORK 9,691, 9,695 (1907) (describing how early Bureau of Reclamation (Reclamation) projects directly contributed to the development of entire towns).

11. *See* Arizona v. California, 373 U.S. 546, 590 (1963) (holding that "the Secretary's power must be construed to permit him, within the boundaries set down in the [Boulder Canyon Project] Act, to allocate and distribute the waters of the mainstream of the Colorado River"); Joe Gelt, *Sharing Colorado River Water: History, Public Policy and the Colorado River Compact*, ARROYO (Aug. 1, 1997), https://wrrc.arizona.edu/publication/sharing-colorado-river-water-history-public-policy-and-colorado-river-compact.

12. For background on early development of law governing the Colorado River, *see infra* Part A.

13. *Lower Colorado Region – Law of the River*, BUREAU OF RECLAMATION, https://www.usbr.gov/lc/region/pao/lawofrvr.html (last updated June 30, 2015). *See infra* Part A for detailed discussion on the legal underpinnings of the Law of the River.

14. Colorado River Compact of 1922, COLO. REV. STAT. § 37-61-101 (2023).

15. *Id.* art. II(b)–(d).

16. *See, e.g.*, *Arizona v. California*, 373 U.S. 546 (ending a thirty-year dispute over water allocation in the Lower Basin); COLO. REV. STAT. § 37-61-101, art. III (apportioning the Colorado River's water allotment among the Upper and Lower Basin states); Act of Apr. 6, 1949, Pub. L. No. 81-37, ch. 48, 63 Stat. 31 (granting congressional approval of the Upper

Despite Reclamation continuing to fund and manage water storage and diversion projects in the states,[17] it has never waded into these interstate disputes nor wielded its authority to ensure the fair, equitable, and reasonable water division among the Colorado River's many beneficiaries.[18] Amid today's megadrought in the region, this longstanding deference to states has created a more dire call to action.[19] While Reclamation has issued operational guidelines in the intervening years to manage drought,[20] it has not meaningfully addressed shortages in the river basin that have surfaced as more significant structural issues.[21] Because of this, many have called on the federal government to weigh in more firmly and regulate the consumption of several states amid dwindling resources.[22] Reclamation's current operating guidelines are set to expire at the end of 2026,[23] and it has already initiated the formal process to develop post-2026 guidelines.[24] Thus,

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Colorado River Basin Compact).

17. *See generally A Very Brief History*, BUREAU OF RECLAMATION (Aug. 15, 2018), https://www.usbr.gov/history/borhist.html (detailing early Reclamation projects in Western states).

18. Jennifer Yachnin, *Clock Ticks Down on Colorado River Cuts. What Will Feds Do?*, E&E NEWS (Aug. 11, 2022, 1:22 PM) [hereinafter Yachnin, *Clock Ticks Down on Colorado River Cuts*], https://www.eenews.net/articles/clock-ticks-down-on-colorado-river-cuts-what-will-feds-do/.

19. *See, e.g.*, Abrahm Lustgarten, *A Water War is Brewing Over the Dwindling Colorado River*, PROPUBLICA (Dec. 22, 2022, 7:00 AM), https://www.propublica.org/article/colorado-river-water-uncompahgre-california-arizona.

20. *See* U.S. DEP'T OF THE INTERIOR, RECORD OF DECISION, COLORADO RIVER INTERIM GUIDELINES FOR LOWER BASIN SHORTAGES AND COORDINATED OPERATIONS FOR LAKE POWELL AND LAKE MEAD 1 (Dec. 2007) [hereinafter INTERIM GUIDELINES] (providing one of the first substantive guidelines for drought management in the Colorado River).

21. *Drought in the Colorado River Basin*, U.S. GEOLOGICAL SURV., https://labs.waterdata.usgs.gov/visualizations/OWDI-drought/en/index.html (last visited May 10, 2024).

22. *See, e.g.*, Julia Jacobo, *How Will the West Solve a Water Crisis if Climate Change Continues to Get Worse?*, ABC NEWS (July 12, 2021, 5:17 AM), https://abcnews.go.com/%20US/west-solve-water-crisis-climate-change-continues-worse/story?id=78566068 (arguing that water management actions like the ones the federal government has taken so far may be the best solution to the crisis); Suman Naishadham, *Western States Will Not Lose as Much Colorado River Water in 2024, Despite Long-Term Challenges*, ASSOCIATED PRESS (Aug. 15, 2023, 5:01 PM), https://apnews.com/article/colorado-river-drought-federal-water-cuts-64f0ccddd6b8bf4669b79dfaded63ed5 (noting that despite a wetter 2023, the government is still focused on conserving water to manage future climate effects).

23. INTERIM GUIDELINES, *supra* note 20, at 58.

24. *See* BUREAU OF RECLAMATION, SCOPING REPORT FOR POST-2026 COLORADO RIVER RESERVOIR OPERATIONS 1 (2023) [hereinafter SCOPING REPORT FOR POST-2026

Reclamation has an opportunity to regulate the allocation of the Colorado River firmly to account for enduring water shortages.

Reclamation must take a more proactive role to ensure fair, equitable, and reasonable water division in the West. Part I of this Comment outlines the history of water rights, apportionment among the Colorado River beneficiaries, and Reclamation's early role in the process. Part II discusses the ongoing federal and state collaboration and occasional conflict in regulating the Colorado River and the foundational operating guidelines that have supported federal regulation over the river to date, including the 2007 agreement set to expire in 2026 and Reclamation's most recent suggestions to address water shortages. Part III recommends Reclamation account for its deficient scientific data before any post-2026 operational planning and proposes that Reclamation amend its statutory interpretation of what beneficial use of water entails in an era of extreme shortages. If Reclamation does not pursue this course, or if further action is required to preserve water, Reclamation should decommission the Glen Canyon Dam altogether.

I. WATER ALLOCATION AND FEDERAL OVERSIGHT

A. The "Law of the River"

Much of the western United States relies heavily on the Colorado River to support life, energy, agriculture, and development.[25] Arizona, for example, receives about 40% of its water from the Colorado River[26] and uses

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COLORADO RIVER], https://www.usbr.gov/ColoradoRiverBasin/documents/post2026/scoping/Post2026Operations_ScopingReport_October2023_508.pdf (summarizing public input on future Colorado River system operation).

25. BUREAU OF RECLAMATION, U.S. DEP'T OF THE INTERIOR, COLORADO RIVER BASIN WATER SUPPLY AND DEMAND SUPPLY (2012), https://www.usbr.gov/watersmart/bsp/docs/finalreport/ColoradoRiver/CRBS_Executive_Summary_FINAL.pdf. Although the Colorado River is a vital source of water for the region, the states also utilize groundwater to supplement their demand. Water Science School, *Groundwater Use in the United States*, U.S. GEOLOGICAL SURV. (June 18, 2018), https://www.usgs.gov/special-topics/water-science-school/science/groundwater-use-united-states#overview. However, low levels in the Colorado River have led to an increased reliance on groundwater, taxing its supply and creating a parallel worry that groundwater will also run dry. *See* Eric Hand, *Western U.S. States Using Up Ground Water at an Alarming Rate*, SCI. (July 24, 2014), https://www.science.org/content/article/western-us-states-using-ground-water-alarming-rate ("[G]round water in the basin is being depleted six times faster than surface water . . . [and] take[s] thousands of years to be recharged naturally.").

26. Andrew Nicla, *As States Gather to Sign Colorado River Drought Plan, Focus Turns to What's Next*, ARIZ. CENT. (May 20, 2019, 8:49 AM), https://www.azcentral.com/story/news/local/arizona-environment/2019/05/20/drought-contingency-plan-done-now-what/3477317002.

upwards of six billion gallons daily—significantly more than New York City despite a smaller population.[27] With naturally dry landscapes, the American West is especially feeling the impacts of climate change.[28] A decades-long megadrought, worsening effects of climate change, and increasing population growth make the situation particularly dire.[29]

Claims to Colorado River water are adjudicated under the "Law of the River," devised in the early twentieth century following westward expansion.[30] Anxiety surfaced early on among the Western states regarding the means of regulating water disputes as population growth increased.[31] Concern only worsened after the 1922 Supreme Court decision, *Wyoming v. Colorado*,[32] held that the law of prior appropriation—that is, whoever first appropriates the water and applies it to beneficial use has the first right to the water—applied regardless of state lines.[33] This decision signaled that a fast-growing state, such as California, could establish senior water rights over the Colorado River before the slower-growing states could. This concept of seniority means that in the event there is not enough water—for example, in a drought year—those with more senior rights to that body of water would

27. *Arizona Water Factsheet—Maricopa County*, U. ARIZ. WATER RES. RSCH. CTR. (Dec. 17, 2021), https://wrrc.arizona.edu/sites/wrrc.arizona.edu/files/2024-01/Maricopa_Fact-sheet_01_2024.pdf; *New York Water Fact Sheet*, U.S. ENV'T PROT. AGENCY (June 2010), https://www.epa.gov/sites/default/files/2017-02/documents/ws-ourwater-new-york-state-fact-sheet.pdf; *Arizona*, U.S. CENSUS BUREAU, https://data.census.gov/profile/Arizona?g=040XX00US04 (last visited May 10, 2024).

28. *See Climate Change Impacts*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Aug. 13, 2021), https://www.noaa.gov/education/resource-collections/climate/climate-change-impacts (arguing that the West is finding drought more common, due partly to their relative lack of precipitation).

29. *See generally* BUREAU OF RECLAMATION, U.S. DEP'T OF THE INTERIOR, WATER RELIABILITY IN THE WEST—2021 SECURE WATER ACT REPORT 9 (2021), https://www.usbr.gov/climate/secure/docs/2021secure/2021SECUREReport.pdf ("With drought conditions remaining unabated and the likelihood of continued population growth in the Southwest, the challenges of maintaining a reliable water supply for 35 to 40 million people and meeting future needs in this over-stressed and highly variable basin are compounded.").

30. *Lower Colorado Region – Law of the River*, *supra* note 13. The Law of the River is rooted in constitutional law, which provides both state and federal jurisdiction over water rights through the Tenth Amendment and the Commerce Clause, respectively. U.S. CONST. art. I, § 8, cl. 3; U.S. CONST. amend. X; *see also* Frank J. Trelease, *Federal Limitations on State Water Law*, 10 BUFF. L. REV. 399, 399–401 (1961) (detailing state and federal constitutional water rights).

31. Gelt, *supra* note 11.

32. 259 U.S. 419 (1922).

33. *Id.* at 469–70; *Water Rights*, COLO. DIV. WATER RES., https://dwr.colorado.gov/services/water-administration/water-rights (last visited May 10, 2024).

receive their water allotment first, and if there is too little water, the junior rights holders could find themselves shut off entirely.[34]

Concern about the future of water appropriation after the *Wyoming* decision led to the coordinated effort of the seven Colorado River states in 1922 to adopt the Compact, an integral piece of the Law of the River.[35] The Compact geographically divided the seven states and apportioned Colorado River water between the Upper Basin states and the Lower Basin states.[36] The dividing point for the basins lies near the Utah-Arizona border at Lee Ferry, approximately fifteen miles downstream from the Glen Canyon Dam at Lake Powell.[37] The Compact aimed to determine individual states' rights to the Colorado River water more granularly.[38] Both basins received equal quantities of water under the Compact—7.5 million acre-feet[39] (maf) per year in perpetuity—and then had to decide for themselves further apportionment between the individual states.[40] The Compact additionally required the Upper Basin states to ensure that 7.5 maf per year remains in the river at Lee Ferry to prevent the Upper Basin from using too much water and depriving the Lower Basin of what it is owed.[41] This requirement, also referenced as the "compact call" mechanism, has been satisfied to date.[42]

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34. *See* D. Craig Bell & Norman K. Johnson, *State Water Laws and Federal Water Uses: The History of Conflict, the Prospects for Accommodation*, 21 ENV'T L. 1, 5 (1991) (characterizing the benefits of having senior water rights).

35. Colorado River Compact of 1922, COLO. REV. STAT. § 37-61-101 (2023); *see also Lower Colorado Region – Law of the River*, *supra* note 13.

36. COLO. REV. STAT. §§ 37-61-101, art. II(b)–(d).

37. COLO. REV. STAT. §§ 37-61-101, art. II(e)–(g); Bruce Lytle, *Where is Lee Ferry and Why is it Important?*, LYTLE WATER SOLS., LLC (Nov. 17, 2020), https://www.lytlewater.com/blog/2020/11/16/where-is-lee-ferry-and-why-is-it-important.

38. Gelt, *supra* note 11; *see* COLO. REV. STAT. § 37-61-101, art. III (dividing the Colorado River between the Upper and Lower Basins).

39. One acre-foot equals about as much water required to cover an acre of land to the depth of one foot. *Acre Foot*, WATER EDUC. FOUND., https://www.watereducation.org/aquapedia/acre-foot (last visited May 10, 2024). An acre-foot of water is roughly equivalent to the amount of water that two households use in a year. *Id.*

40. COLO. REV. STAT. § 37-61-101, art. III(a); Gelt, *supra* note 11.

41. COLO. REV. STAT. § 37-61-101, art. III(d). *See also* CHARLES V. STERN, PERVAZE A. SHEIKH & KRISTEN HITE, CONG. RSCH. SERV., R45546, MANAGEMENT OF THE COLORADO RIVER: WATER ALLOCATIONS DROUGHT, AND THE FEDERAL ROLE 4 (2023) (clarifying that the 1922 Colorado River Compact (Compact) requires the Upper Basin not to cause the river to deplete more than 75 million acre-feet (maf) over a ten-year period, allowing for averaging over time depending on annual water flows).

42. Anne Castle & John Fleck, The Risk of Curtailment Under the Colorado River Compact 9 (Nov. 8, 2019) (unpublished manuscript), https://dx.doi.org/10.2139/ssrn.3483654; *see also* Jason Anthony Robinson, *The Colorado River Revisited*, 88 U. COLO. L.

However, the Compact drafters calculated the equal 7.5 maf quantities apportioned to each basin using errant data that did not account for annual fluctuations in water flows.[43]

During Compact negotiations, the states aimed to lay to rest any anxiety regarding the applicability of the law of prior appropriation after the *Wyoming* decision.[44] Arizona, for example, sought language in the Compact that would allocate water directly to the states rather than to the basins out of concern that it would lose a fight with the rapidly growing state of California under the law of prior appropriation if applied within the Lower Basin.[45] Ultimately, however, the Compact established that the law of prior appropriation would not apply *between* the basins but could still be enforced *within* the basins, as *Wyoming* dictated.[46] Under the framework of the Compact, therefore, Lower Basin states could not claim rights to water within the boundaries of the Upper Basin, even if they were the first to put that water to beneficial use.[47] The Compact was silent on inter-basin disputes, which meant that the law of prior appropriation still governed seniority rights between individual states in their respective basins.[48] Therefore, scarcity and competition are baked into the Compact, setting up many of the enduring battles over the Colorado River.

The Compact excluded two major Colorado River beneficiaries—Native American tribes and Mexico.[49] When the Compact was signed in 1922, Native Americans were not considered United States citizens[50] and were,

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REV. 475, 527–33 (2017) (outlining how a compact call works and how the Upper Basin has avoided it so far).

43. Gelt, *supra* note 11; *see also infra* Part B.

44. Gelt, *supra* note 11; *see also infra* Part B.

45. *See* Gelt, *supra* note 11 (describing Arizona as the only holdout during Compact negotiations).

46. COLO. REV. STAT. § 37-61-101, art. VIII.

47. *Id.*

48. Gelt, *supra* note 11.

49. *See* COLO. REV. STAT. § 37-61-101, arts. III, VII (mentioning both Mexico and Native American tribes but not affirmatively allocating any Colorado River water to either entity).

50. *See* Indian Citizenship Act of 1924, Pub. L. No. 68-175, 43 Stat. 253 (conferring a right of United States citizenship to Native Americans for the first time). Later decades saw a push for Indian tribal sovereignty, see for example, Amy Cordalis & Daniel Cordalis, *Indian Water Rights: How* Arizona v. California *Left an Unwanted Cloud Over the Colorado River Basin*, 5 ARIZ. J. ENV'T L. & POL'Y 333, 352–53 (2014), but due to the United States policy of assimilation at the time of the Compact, Native communities were forced to rely on the federal government to represent their interests in water negotiations, which the government ultimately failed to do. *Id.* at 342.

therefore, left out of negotiations, even though they had relied on the river for millennia.[51] Similarly, although the Colorado River flows through northwestern Mexico before depositing into the Gulf of California, at the time of the Compact, there was no framework assuring Colorado River water delivery to the country.[52] Such lack of acknowledgment in the Compact left these issues unresolved for decades.

Allocation of water from the Colorado River to Mexico was eventually established in the so-called 1944 Water Treaty.[53] Under the Water Treaty, Mexico is allotted 1.5 maf of water from the Colorado River annually.[54] However, tribal water rights are less defined. The Supreme Court first addressed Native American water rights in 1908.[55] In *Winters v. United States*,[56] the Court held that by setting aside land for a tribal reservation, the federal government inherently reserved water for the tribe on that land.[57] Despite the landmark ruling, the Court's decision did not afford sufficient time to cement itself as integral to Colorado River negotiations.[58] Thus, tribes were largely ignored in the 1922 Compact, save for one clause.[59] This clause ended up leaving the question of tribal water rights unresolved for the ensuing decades.[60]

B. The Bureau of Reclamation

Given the many complexities in allocating western water, Congress saw

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51. *See id.* at 342–43 ("The lack of attention to Indian water rights was no mere oversight. It was intentional."). *But see* Winters v. United States, 207 U.S. 564, 577 (1908) (recognizing that tribes have "reserve[d]" water rights in the Milk River without further defining the contours of that right); COLO. REV. STAT. § 37-61-101, art. VII (2023) (mentioning that the United States had an obligation to tribes but not articulating what this obligation entailed).

52. *See generally* NICOLE T. CARTER, STEPHEN P. MULLIGAN & CHARLES V. STERN, CONG. RSCH. SERV., R45430, SHARING THE COLORADO RIVER AND THE RIO GRANDE: COOPERATION AND CONFLICT WITH MEXICO (2018) (showing no United States obligation to allocate Colorado River water to Mexico until 1944).

53. Treaty on Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, Mex.-U.S., Feb. 3, 1944, 59 Stat. 1219.

54. *Id.* art. 10.

55. *See* Norris Hundley, Jr., *The "Winters" Decision and Indian Water Rights: A Mystery Reexamined*, 13 W. HIST. Q. 17, 17 (1982).

56. 207 U.S. 564 (1908).

57. *Id.* at 576–77.

58. *Id.*; *see* Cordalis & Cordalis, *supra* note 50, at 342.

59. Cordalis & Cordalis, *supra* note 50, at 342–43; Colorado River Compact of 1922, COLO. REV. STAT. § 37-61-101, art. VII (2023).

60. *See infra* note 152 and accompanying text (describing Supreme Court battles as recent as June 2023 over how much water is due to tribes).

the need early on to establish a federal agency to further assist in addressing water disputes and allocation in the western United States.[61] Interest in federal intervention in the West stemmed from geologic expeditions to the region in the mid- to late-nineteenth century.[62] Explorers saw economic potential in the area, but the development of the arid landscape was only feasible with federally-funded irrigation and damming projects.[63] In 1902, the Reclamation Act established Reclamation, and the Bureau was set up as an agency under the Department of the Interior (Interior) in 1907.[64] The Reclamation Act empowered the Secretary of the Interior to build and maintain reclamation projects in the western United States.[65] Early Reclamation projects focused on developing an irrigation network and other infrastructure to supply water to the Western states and utilize hydraulic power.[66] In the early years, Reclamation encountered significant hurdles in adequately developing its projects, many stemming from a hostile land environment and financial problems.[67] To address Reclamation's shortcomings, in 1910, Congress began injecting federal funds into the Bureau, gradually building up the resources needed to function effectively.[68] Larger, more significant appropriations reached Reclamation in 1928 after Congress authorized the Boulder Canyon Project Act.[69] This congressional

61. *See, e.g.*, Gregory Harwood, *Forfeiture of Rights to Federal Reclamation Project Waters: A Threat to the Bureau of Reclamation*, 29 IDAHO L. REV. 153, 157 (1992) (illustrating how public pressure led to Congress codifying the Reclamation Act); *A Very Brief History*, *supra* note 17 (contextualizing how the Reclamation Act allowed for the creation of further government oversight of the Colorado River).

62. *See* Rabbitt, *supra* note 8, at 10 (documenting pioneers' calls for irrigation upon finding that annual rainfall was insufficient to support an economy); CHARLES V. STERN & ANNA E. NORMAND, CONG. RSCH. SERV., R46303, BUREAU OF RECLAMATION: HISTORY, AUTHORITIES, AND ISSUES FOR CONGRESS 2 (2020).

63. Rabbitt, *supra* note 8.

64. *Reclamation History: 120 Years of Managing Water in the West*, BUREAU OF RECLAMATION, https://www.usbr.gov/history/index.html (Sept. 11, 2023).

65. Reclamation Act of 1902, Pub. L. No. 57-161, 32 Stat. 388. The Secretary has since redelegated these functions to the Reclamation Commissioner. 16 U.S.C § 590z-11.

66. WILLIAM D. ROWLEY, U.S. DEP'T OF THE INTERIOR, THE BUREAU OF RECLAMATION: ORIGINS AND GROWTH TO 1945 129–31 (2006), https://www.usbr.gov/history/OriginsandGrowths/Volume1.pdf.

67. *A Very Brief History*, *supra* note 17.

68. *See generally* STERN & NORMAND, *supra* note 62, at 3–5 (outlining congressional support for Reclamation from the Department of the Interior's inception until the mid-twentieth century).

69. For discussion on the Compact and interstate litigation regarding water allocation, a debate about public versus private power that preceded the Boulder Canyon Project Act (BCPA), *see id.* at 5 and *supra* Part A.

action, subsequent developments, and litigation carved out considerable authority for Reclamation to continue in its mission to manage, develop, and protect water and water resources in the western United States.[70]

While Reclamation has broad powers in regulating the Colorado River, historically, the states' rights are honored if disputes arise.[71] Section 8 of the Reclamation Act states that the Act should not "be construed as affecting or intended to affect or to in any way interfere with the laws of any State or Territory relating to the control, appropriation, use, or distribution of water used in irrigation, or any vested right acquired thereunder," and further states that "the Secretary of the Interior, in carrying out the provisions of this Act, shall proceed in conformity with such laws, and nothing herein shall in any way affect any right of any State or of the Federal Government."[72] Early interpretations of § 8 suggested that the statute required federal deference to state water laws.[73] The Supreme Court confirmed this reading in later jurisprudence by examining legislative intent.[74] The Court in *California v. United States*[75] found that state law governs western water rights in two aspects: first, the Secretary must "appropriate, purchase, or condemn" water rights strictly under that state's law, and second, once the waters leave a federal dam, state law controls individual rights to that water.[76] Thus, § 8 upholds state control over water rights in non-navigable streams within its borders—for example, irrigation.[77] Therefore, while the Secretary of the Interior has the authority to regulate the water in the Colorado River, the states own the

70. *See infra* Part A for background on how the BCPA spurred more argument on future water allocation in the Lower Basin.

71. While there has been considerable argument regarding whether federal or state law controls the use of the Colorado River, *see supra* Part I, Congress tends to avoid wading into the issue and instead responds, if at all, with ambiguity. *See* John D. Leshy, *The Interaction of U.S. Public Lands, Water, and State Sovereignty in the West: A Reassessment and Celebration*, 41 PUB. LAND & RES. L. REV. 1, 16 (2019) (suggesting it is politically advantageous for Congress to avoid taking a side).

72. 43 U.S.C. § 383.

73. *See* 35 CONG. REC. 6670 (1902) (remarks of Rep. Robinson); STERN & NORMAND, *supra* note 62, at 3.

74. *See, e.g.*, California v. United States, 438 U.S. 645, 665–70 (1978) (finding that the legislative history of the Reclamation Act clearly indicated that state law was meant to control water appropriation in the West); Nevada v. United States, 463 U.S. 110, 121–26 (1983) (affirming that § 8 preserves states' water rights).

75. 438 U.S. 645 (1978).

76. *Id.* at 665–67.

77. *Id.* at 669–70; STERN & NORMAND, *supra* note 62, at 2–3 ("[M]ost Reclamation project water rights must be appropriated under state law and are subject to state adjudication and administration.").

rights to it.[78]

Apart from the legal obligations, there is a practical benefit to deferring to the states in water management. The federal government has long deferred to the states due to the sheer fact that states are better able to regulate water usage within their borders, and historically, states have been able to agree to water sharing without federal intervention.[79]

II. FEDERAL/STATE COLLABORATION AND COMPETITION

A. Early Reclamation Diversion Projects and Conflicts

In 1922, with the Compact in place, basin states began efforts to divert water towards irrigation and development projects.[80] The 1928 Boulder Canyon Project Act (BCPA) authorized the Secretary of the Interior to construct a dam (later named the Hoover Dam) downstream of Lake Mead along the Nevada-Arizona border.[81] This dam would connect the Imperial and Coachella Valleys of California with the Colorado River and divide the allocated Lower Basin waters among the three Lower Basin states.[82] Arizona strongly disagreed with the proposed construction of the Hoover Dam, worried that the resulting water diversion would favor California and leave Arizona with fewer resources.[83] This division began a decades-long legal battle between Arizona and California over how much water each Lower Basin state had a legal right to use out of the 7.5 maf Lower Basin allocation in the Compact.[84]

The Supreme Court took up the issue in *Arizona v. California*,[85] where the Justices contemplated the meaning and scope of the BCPA.[86] The Court

78. Trelease, *supra* note 30, at 403–04.

79. Kristen Kennedy, *A Drying River: The Federal Response to Decreasing Water Levels in the Colorado River*, U. DENV. WATER L. REV. BLOG (May 18, 2022), https://www.duwaterlawreview.com/a-drying-river-the-federal-response-to-decreasing-water-levels-in-the-colorado-river; Emily Halvorsen, *A History of Collaboration: Twenty Years of Drought Response in the Management of the Colorado River*, 25 U. DENV. WATER L. REV. 271, 273–74 (2022).

80. 43 U.S.C. § 617.

81. *Id.*; *Colorado River Basin Map*, *supra* note 2.

82. 43 U.S.C. § 617; Discover our Shared Heritage Travel Itinerary Series, *Nevada and Arizona: Hoover Dam*, NAT'L PARK SERV. (Nov. 7, 2018), https://www.nps.gov/articles/nevada-and-arizona-hoover-dam.htm.

83. Charles J. Meyers, *The Colorado River*, 19 STAN. L. REV. 1, 38–40 (1966).

84. *Id.* at 38–46.

85. 373 U.S. 546 (1963).

86. *Id.* at 551–52. Before the 1963 decision, Arizona litigated the issue before the Supreme Court for more than thirty years. The original decision, *Arizona v. California*, 283 U.S. 423 (1931), after twenty-two hours of oral argument over two separate Supreme Court

determined that, through the BCPA, Congress had created a comprehensive plan to apportion the Lower Basin's share of the Colorado River flow and firmly apportioned the allotted 7.5 maf of water between the three states—with California receiving 4.4 maf per year, Arizona receiving 2.8 maf per year, and Nevada receiving 300,000 acre-feet per year.[87] While this decision was desirable in many respects, with Arizona gaining many of the advantages it previously sought,[88] it opened the door to federal interference.[89] The Court interpreted the BCPA as empowering the Secretary of the Interior to step in to regulate water among the states as it had done, designating the Secretary the "water master" of the Lower Basin.[90] The authority as water master includes the ability to mitigate future water shortages.[91] Further, the Court's decision more firmly established tribal water rights over the Colorado River, affirming its previous decision in *Winters* and finding that the tribes' rights were vested at the creation of their reservations—long before the enactment of the BCPA.[92] Ultimately, the Court awarded one maf of water to the tribes.[93]

While the Upper Basin states had largely avoided federal intervention by negotiating amongst themselves,[94] the *Arizona* decision proved that federal action was feasible.[95] Combined with the Compact's provisions, Interior is mandated to regulate the Upper and Lower Basins. Despite this, Interior has never overridden state negotiations and adjudicated significant

terms, specified the amount of water apportioned to Arizona under the Compact. 283 U.S. at 460–63; JACK L. AUGUST, JR., DIVIDING WESTERN WATERS: MARK WILMER AND ARIZONA V. CALIFORNIA 88 (2007). Relitigation ensued, with Arizona claiming in two succeeding cases that California was using more water than it was entitled to. *See* Arizona v. California, 292 U.S. 341 (1934); Arizona v. California, 298 U.S. 558 (1936); *see also* Meyers, *supra* note 83, at 38–40 (detailing the basis for each of the disputes at issue in the *Arizona v. California* saga).

87. Gelt, *supra* note 11.

88. *See supra* Part A, at 11–12 (detailing how, during Compact negotiations, Arizona wanted specificity over how much water was allocated to each state so that it could protect its water rights against California's more senior rights).

89. 373 U.S. at 580.

90. STERN ET AL., *supra* note 41, at 1.

91. 373 U.S. at 593.

92. Cordalis & Cordalis, *supra* note 50, at 350–51.

93. 373 U.S. at 596.

94. *See* Act of Apr. 6, 1949, Pub. L. No. 81-37, ch. 48, 63 Stat. 31 (1949) (outlining the agreement, separately reached and congressionally approved, that the Upper Basin states reached regarding water allocation); Gelt, *supra* note 11.

95. 373 U.S. at 594 ("[W]e leave in the hands of the Secretary . . . full power to control, manage, and operate the Government's Colorado River works.").

disputes.[96] For decades after *Arizona v. California*, Reclamation continued its development of water diversion and usage infrastructure, while the basin states appropriated water amongst themselves using the *Arizona* framework.[97] It was not until 1990 that the Lower Basin used its full 7.5 maf allotment for the year.[98] However, the following years brought worsening climate and rapid population growth, signaling that more dire challenges were to come.[99] A drought at the turn of the twenty-first century—then, the worst the region had seen—spurred Reclamation to seek mitigation measures and respond to water shortages.[100]

B. The 2007 Interim Guidelines

In 2007, Reclamation published the Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead (Interim Guidelines).[101] Drafters intended the Interim Guidelines to provide operational standards to address the drought while the federal government continued working with states to find an enduring solution to growing climate change concerns.[102] The framework sought to address ongoing drought conditions by coordinating water released from Lake Powell to the Lower Basin based on water levels at Lake Mead—the express purpose of doing so was to ensure that the provisions of the Compact were fulfilled and the Upper Basin met its water delivery obligations.[103] Additionally, the Interim Guidelines created (for the first time) a shortage-sharing strategy for the Lower Basin states in the event of continuing drought, with Arizona and Nevada sharing water shortages and California not taking any shortages.[104] Under the plan, shortages would first occur in

96. Yachnin, *Clock Ticks Down on Colorado River Cuts*, *supra* note 18.

97. Gelt, *supra* note 11.

98. *Id.*

99. *See, e.g.*, U.N. Secretary-General, *Progress Achieved in the Implementation of Resolution 44/207 on Protection of Global Climate for Present and Future Generations of Mankind*, ¶¶ 1–9, at 4–5, U.N. Doc. A/45/696/Add. 1 (Nov. 8, 1990).

100. INTERIM GUIDELINES, *supra* note 20, at 1.

101. *Id.*

102. *Id.* at 2 (stating that the Interim Guidelines were intended to "implement operational rules for a long—*but not permanent*—period in order to gain valuable operating experience") (emphasis in original); *see also* Douglas L. Grant, *Collaborative Solutions to Colorado River Water Shortages: The Basin States' Proposal and Beyond*, 8 NEV. L.J. 964, 980 (2008) (clarifying that Reclamation intended a return to pre-2007 operations once the Interim Guidelines expire in 2026).

103. Halvorsen, *supra* note 79, at 280.

104. *Id.* at 281.

the Lower Basin if Lake Mead's water levels dropped to 1,075 feet, triggering a decrease of about 11% in Arizona's annual water apportionment while Nevada's apportionment would be cut by about 3.7%.[105] If Lake Mead continued to drop below 1,050 feet and then 1,025 feet, both Arizona and Nevada would take additional cuts.[106] In any of these scenarios, California would still receive its full 4.4 maf allotment under the law of prior appropriation.[107] This means that, ostensibly, if climate change worsens and water continues to deplete, Arizona and Nevada could lose all their water apportionments before California loses any of its apportionment.[108] Lastly, the Interim Guidelines incentivized Lower Basin states to enact further conservation measures by building an "Intentionally Created Surplus" and allowing states to conserve water for future use to maintain present Lake Mead water levels.[109] Due to their nonpermanent nature, the Interim Guidelines require the Secretary to initiate a formal review of their effectiveness by the end of 2020, and they ultimately expire at the end of 2026, allowing almost two decades for the parties to gain experience in managing water distribution under drought conditions.[110]

C. Post Interim Guidelines Challenges in Managing Drought

Prior to the 2020-required re-consultation, Reclamation learned that the Interim Guidelines were insufficient in offsetting the effects of the persistent drought that continued beyond 2007.[111] Part of this inadequacy was due to the states' reluctance to be managed; although the Interim Guidelines set a firm plan for water conservation once Lake Mead reached the 1,075 trigger point, the states did not want those federally-mandated water restrictions to go into effect.[112] After negotiations began again in 2013, Reclamation

105. INTERIM GUIDELINES, *supra* note 20, at 36–37.

106. *Id.*

107. *Id.*; *see also* Arizona v. California, 376 U.S. 340, 342 (1964), *enforcing* 373 U.S. 546 (1963) (finding that California is senior to Arizona and Nevada in water allocation priority).

108. Grant, *supra* note 102, at 971.

109. INTERIM GUIDELINES, *supra* note 20, at 38–43.

110. *Id.* at 56–57.

111. BUREAU OF RECLAMATION, REVIEW OF THE COLORADO RIVER INTERIM GUIDELINES FOR LOWER BASIN SHORTAGES AND COORDINATED OPERATIONS FOR LAKE POWELL AND LAKE MEAD 44 (2020), https://www.usbr.gov/ColoradoRiverBasin/documents/7d/7.D.Review_FinalReport_12-18-2020.pdf ("The increasing severity of the drought necessitated additional action . . . . This led to the adoption of the [Drought Contingency Plans] and other voluntary adaptive actions.").

112. Halvorsen, *supra* note 79, at 281; John Schwartz, *Amid 19-Year Drought, States Sign Deal to Conserve Colorado River Water*, N.Y. TIMES (Mar. 19, 2019),

worked with the states to secure a series of piecemeal actions to account for drought and low-runoff conditions and allow the states to make voluntary conservation efforts.[113] In 2014, Reclamation signed a Memorandum of Understanding with major municipal water providers in both basins to establish a program to fund water creation in the Colorado River through voluntary reductions in consumptive use.[114] In 2017, the Secretary directed Reclamation and the basin states to negotiate drought contingency plans for voluntary water use reductions and conservation measures.[115] The basin states signed the Drought Contingency Plans (DCPs) in 2019.[116] The states designed the DCPs not to prevent water shortages but to help states cope with water losses and prevent Lakes Mead and Powell from falling to critically low levels.[117] The Upper Basin DCP targets Lake Powell and serves to slow its ongoing depletion while also helping ensure compliance with the

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https://www.nytimes.com/2019/03/19/climate/colorado-river-water.html.

113. *See* Halvorsen, *supra* note 79, at 281–82 (outlining the negotiations related to drought response in the years following the Interim Guidelines).

114. 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, Bureau of Reclamation (July 30, 2014), https://www.usbr.gov/lc/region/programs/PilotSysConsProg/PilotSCPFundingAgreement7-30-2014.pdf.

115. U.S. DEP'T INTERIOR, ORD. NO. 3344, ACTIONS TO ADDRESS EFFECTS OF HISTORIC DROUGHT ON COLORADO RIVER WATER SUPPLIES (2017).

116. Lower Basin Drought Contingency Plan Agreement, Attachment B to the Agreement Concerning Colorado River Drought Contingency Management and Operations, Bureau of Reclamation (May 20, 2019), https://www.usbr.gov/dcp/docs/final/Attachment-B-LB-DCP-Agreement-Final.pdf; Agreement for Drought Response Operations at the Initial Units of the Colorado River Storage Project Act, Attachment A1 to the Agreement Concerning Colorado River Drought Contingency Management and Operations, Bureau of Reclamation (May 20, 2019), https://www.usbr.gov/dcp/docs/final/Attachment-A1-Drought-Response%20Operations-Agreement-Final.pdf; Agreement Regarding Storage at Colorado River Storage Project Act Reservoirs Under an Upper Basin Demand Management Program, Attachment A2 to the Agreement Concerning Colorado River Drought Contingency Management and Operations, Bureau of Reclamation (May 20, 2019), https://www.usbr.gov/dcp/docs/final/Attachment-A2-Drought-Managment-Storage-Agreement-Final.pdf. The Upper Basin Drought Contingency Plan (DCP) is comprised of the Drought Response Operations Agreement (DROA) and the Demand Management Storage Agreement (DMSA).

117. *Colorado River Basin: Drought Contingency Plans*, BUREAU OF RECLAMATION (July 5, 2023), https://www.usbr.gov/ColoradoRiverBasin/dcp/index.html.

Colorado River Compact.[118] The Lower Basin DCP requires additional conservation measures—beyond the Interim Guidelines—to maintain at least 1,020 feet of water in Lake Mead.[119] For the first time, under the Lower Basin DCP, California must assume some water shortages if Lake Mead drops below 1,045 feet.[120]

While the basin states engaged in drought contingency planning, parallel discussions occurred between the United States and Mexico. In 2017, the International Boundary and Water Commission (IBWC) implemented Minute 323 to update the 1944 Water Treaty.[121] Minute 323 adopts the Binational Water Scarcity Contingency Plan (BWSCP) to address shortages as they affect Mexico.[122] Under the BWSCP, Mexico will align its water conservation with that of the Lower Basin states under their DCP, at the specified elevations in Lake Mead.[123]

Importantly, the Lower Basin DCP requires that the Lower Basin states collaborate with Reclamation on an ongoing basis to determine what additional measures are available to conserve water and avoid further decreases in water levels, building in Reclamation's role in future Colorado River negotiations.[124] Reclamation acted on this responsibility a couple of years later, rolling out four additional drought response actions in 2021 and 2022 to further mitigate shortages.[125] In August 2022, Reclamation set the operating conditions for Lakes Powell and Mead for 2023, including reductions in the downstream releases to states to maintain safe lake water levels and applied shortage reductions across the Lower Basin states.[126] Reclamation further pledged to take administrative action to authorize reductions in water releases while working with states and stakeholders on voluntary conservation measures.[127] Ultimately, the states

118. *Id.*

119. Halvorsen, *supra* note 79, at 284.

120. *Id.*

121. Extension of Cooperative Measures and Adoption of a Binational Water Scarcity Contingency Plan in the Colorado River Basin, Minute No. 323, Mex.-U.S., at 1, Sept. 21, 2017, T.I.A.S. No. 17-927.1.

122. *Id.*

123. *Id.* at 6–8.

124. Halvorsen, *supra* note 79, at 284–85.

125. *See generally* OCTOBER 2023 SEIS, *supra* note 1, at 1-6 (detailing the emergency drought actions and water cuts Reclamation took in recent years).

126. Press Release, U.S. Dep't of the Interior, Interior Department Announces Actions to Protect Colorado River System, Sets 2023 Operating Conditions for Lake Powell and Mead (Aug. 16, 2022), https://www.doi.gov/pressreleases/interior-department-announces-actions-protect-colorado-river-system-sets-2023.

127. *Id.*

failed to agree on voluntary conservation measures despite the dangerously low reservoir levels.[128] This disagreement spurred a more urgent call to the states to reach a consensus or risk unprecedented federal action.[129]

Reclamation's actions collectively intended to preserve the ability to renew operational planning post-2026 without engaging in crisis planning.[130] The megadrought continued, however, and anticipating that water levels would continue to decline at alarming rates, Reclamation sought to modify operating guidelines once again to provide the requisite operational tools to bridge the 2023–2026 gap.[131]

D. The October 2023 Revised Draft Supplemental Environmental Impact Statement

In April 2023, Reclamation published a draft Supplemental Environmental Impact Statement (SEIS) that proposed modifying the Interim Guidelines to address the potential for future drought conditions in the Colorado River Basin between 2023 and 2026.[132] The document laid out specific actions that, if taken, would result in the Lower Basin states facing deep cuts to their water supplies and could challenge existing water priority rights.[133] However, the states, anticipating changes to the current operating status that could result in reduced water allocation, acted preemptively before the April SEIS to protect their water rights.[134] Upon the announcement of the April SEIS, the seven basin states again began

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128. *See, e.g.*, *As the Climate Dries the American West Faces Power and Water Shortages, Experts Warn*, U.N. ENV'T PROGRAMME (Aug. 2, 2022), https://www.unep.org/news-and-stories/story/climate-dries-american-west-faces-power-and-water-shortages-experts-warn (elaborating that water levels are receding to a point where they might fall below where the water could reach the intake valves that control the flow of water and could interfere with the hydroelectric turbines).

129. *See* Christopher Flavelle, *A Breakthrough Deal to Keep the Colorado River from Going Dry, for Now*, N.Y. TIMES (May 22, 2023), https://www.nytimes.com/2023/05/22/climate/colorado-river-deal.html?searchResultPosition=1 ("[T]he Interior Department said last month that it might disregard the century-old rules governing which states should bear the brunt of cuts and instead come up with a different formula.").

130. OCTOBER 2023 SEIS, *supra* note 1, at 1-7.

131. *Id.* at 1-8.

132. *Id.*; STERN ET AL., *supra* note 41, at 25–26; *see generally* BUREAU OF RECLAMATION, NEAR-TERM COLORADO RIVER OPERATIONS, DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT 1-1 (Apr. 2023) [*hereinafter* APRIL 2023 SEIS]. These modifications build off the Interim Guidelines and DCPs and would be enacted on top of those existing conservation measures.

133. *See* OCTOBER 2023 SEIS, *supra* note 1, at 2-3 to -7, app. C-1 to -10 (outlining the No Action Alternative, Action Alternative 1, and Action Alternative 2 from the April 2023 SEIS).

134. *See infra* Part E for discussion on the state's action.

negotiating amongst themselves.[135] In May 2023, the Lower Basin states agreed to conserve at least an additional three maf of water by the end of calendar year 2026—which amounts to a 13% reduction of total water use in the Lower Basin.[136] These conservation efforts are in addition to the agreed tier-based reductions in the Interim Guidelines and DCPs, meaning that, in all, Arizona assumed the largest water cuts.[137] All seven states urged the adoption of this framework in lieu of the April 2023 SEIS,[138] which the White House and Interior approved.[139]

The states' agreement highlighted federal and state collaboration, as the federal government agreed to pay just over one billion dollars to cities and Native American tribes in the Lower Basin states under the 2022 Inflation Reduction Act to finance conservation systems in the states and protect water volumes in the Colorado River.[140] The trade-off is that the Lower Basin states must further negotiate additional cuts amounting to 700,000 acre-feet of water that the federal government will not compensate.[141] In total, this

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135. *See, e.g.*, Press Release, Colorado River Bd. of California, California Responds to U.S. Bureau of Reclamation's Draft SEIS (Apr. 11, 2023), https://crb.ca.gov/2023/04/california-responds-to-reclamations-draft-seis/ ("California remains committed to developing a seven-state consensus . . . [and] looks forward to closely coordinating and collaborating with our partners in the other Basin States[.]"); Press Release, Arizona Gov. Katie Hobbs, Arizona Responds to U.S. Bureau of Reclamation's Draft SEIS (Apr. 11, 2023), https://azgovernor.gov/office-arizona-governor/news/2023/04/arizona-responds-us-bureau-reclamations-draft-seis ("Outcomes that decimate the water supply of our population centers or that force the Basin into a courtroom are unacceptable—and we will continue to double down our efforts to find a consensus path forward.").

136. Letter from The Colorado River Basin States Representatives of Arizona, California, and Nevada to Camille Calimlim Touton, Comm'r, U.S. Bureau of Reclamation (May 22, 2023) [hereinafter Lower Basin Plan Letter], https://new.azwater.gov/sites/default/files/media/Lower_Basin_Plan_Letter_FINAL_5222023.pdf; Flavelle, *supra* note 129.

137. *See generally* Lower Basin Plan Letter, *supra* note 136, at 2.

138. Letter from Colorado River Basin States Representatives of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming to Hon. Camille Calimlim Touton, Comm'r, U.S. Bureau of Reclamation (May 22, 2023), https://www.doi.gov/sites/doi.gov/files/seven-states-letter-5-22-2023.pdf.

139. Press Release, U.S. Dep't of the Interior, Biden-Harris Administration Announces Historic Consensus System Conservation Proposal (May 22, 2023) [hereinafter Biden-Harris Announcement], https://www.doi.gov/pressreleases/biden-harris-administration-announces-historic-consensus-system-conservation-proposal.

140. *Id.*; Flavelle, *supra* note 129.

141. Biden-Harris Announcement, *supra* note 139; Ella Nilsen, *States Reach Landmark Deal on Water Cuts to Stave Off a Crisis on the Colorado River*, CNN (May 22, 2023, 4:23 PM), https://www.cnn.com/2023/05/22/us/colorado-river-lake-mead-water-deal-climate/index.html.

agreement is one of the most aggressive water reductions in the region.[142]

To reflect this action by the states, Reclamation published an updated SEIS in October 2023.[143] The October 2023 SEIS incorporates the states' agreement, referred to in the SEIS as the Proposed Action, and thoroughly analyzes how these water savings would impact the overall health of the river system in the interim period leading up to the lapse of the Interim Guidelines.[144] Ultimately, the October SEIS found the Proposed Action sufficient to maintain water levels before the implementation of lasting guidelines in 2026.[145] While the April 2023 SEIS had advocated for more drastic measures that decreased the quantity of water released to the Lower Basin states,[146] the issue was moot by October, due in large part to a wetter winter[147] coupled with the states' newfound agreement. In the October 2023 SEIS, Reclamation compared the Proposed Action to the No Action Alternative, which outlines the consequences of continued operation under the existing agreements, including the Interim Guidelines and DCPs, without supplementing efforts through additional government action.[148] Reclamation all but concedes that opting for the No Action Alternative would create the potential for "dead pool" at Lakes Powell and Mead, a

142. Flavelle, *supra* note 129.

143. *See generally* OCTOBER 2023 SEIS, *supra* note 1.

144. *Id.* ("Dear Reader" statement).

145. *Id.* ("Dear Reader" statement).

146. *See id.* at 2-17 to -18 (outlining the actions previously analyzed in the April 2023 SEIS). The recommended actions in the April 2023 SEIS—Action Alternatives 1 and 2—similarly reduced water release from the Glen Canyon and Hoover Dams. *Id.* However, if additional reductions are required, Action Alternative 1 would make those reductions based on which state has superior water rights. *Id.* Action Alternative 2 would distribute percentage-based reductions equally among the Lower Basin states, disregarding historical water priority rights and crucially departing from previous federal actions. *Id.*; *see also, e.g.*, Katelyn Reinhart, *Colorado River Water Q&A: ASU Experts Say White House Proposal Tries to Push States to Consensus*, ARIZ. ST. U.: ASU NEWS (Apr. 12, 2023), https://news.asu.edu/20230412-colorado-river-water-qa-asu-experts-say-white-house-proposal-tries-push-states-consensus (stating that Action Alternative 2 acts against precedent and signals to senior priority users that they should re-evaluate taking voluntary cuts).

147. *Compare* OCTOBER 2023 SEIS, *supra* note 1, at 1-7 ("Although hydrology improved in 2023, it is foreseeable that without appropriate responsive actions and under a continuation of poor hydrologic trends, major Colorado River reservoirs *could* continue to decline to [critically low levels] in the coming years.") (emphasis added), *with* APRIL 2023 SEIS, *supra* note 132, at 1-7 ("Absent a meaningful and unexpected change in hydrologic conditions and trends, . . . Colorado River reservoirs *will* continue to decline to critically low elevations.") (emphasis added).

148. OCTOBER 2023 SEIS, *supra* note 1, at 2-4.

catastrophic outcome[149] that positions the Proposed Action as the only acceptable one.

The SEIS notably reserves the ability for Reclamation to take additional steps to mitigate water shortages if needed, including further reductions in downstream releases.[150] Additionally, the SEIS does not propose any changes to water delivery to Mexico;[151] however, it acknowledges that tribes in the region would be affected to varying degrees depending on water shortages.[152] Furthermore, the SEIS considers how the Proposed Action and No Action Alternative will affect the environment if either is enacted and examines potential environmental consequences, such as limited hydraulic resources and socioeconomic concerns.[153]

Apart from analyzing the Proposed Action and No Action Alternative, the SEIS also noted recommendations received through the notice-and-comment process but ultimately eliminated from detailed analysis.[154] These alternative recommendations encompass a common theme: Reclamation should focus on saving one lake or dam, even if doing so is to the detriment of the other lake or dam.[155] In letters that Reclamation received in

149. *Id.* at 2-7, 3-31. Dead pool occurs when the amount of lake water is so low that it can no longer flow downstream, and dead pool in Lakes Powell and Mead would prevent water from flowing through the Glen Canyon and Hoover Dams and to the Lower Basin states. *Id.* at 1-7.

150. *Id.* at 2-7 to -8.

151. *Id.* at 3-60. Minute 323 of the 1944 Water Treaty extended Mexico's water allocation through 2026. *See id.*; Extension of Cooperative Measures and Adoption of a Binational Water Scarcity Contingency Plan in the Colorado River Basin, Minute No. 323, Mex.-U.S., at 1, Sept. 21, 2017, T.I.A.S. No. 17-927.1. This means that obligations to Mexico will similarly need to be addressed post-2026.

152. *See* OCTOBER 2023 SEIS, *supra* note 1, at 2-35. While many tribes have settled water rights after the *Arizona v. California* decision, *see supra* notes 86–93, some tribal water rights are still uncertain due to challenges in obtaining a legal settlement quantifying such rights. STERN ET AL., *supra* note 41, at 15; Cordalis & Cordalis, *supra* note 50, at 352–54. Reclamation estimated in December 2020 that tribes held rights to about 3.4 maf annually of water from the Colorado River. STERN ET AL., *supra* note 41, at 16. However, other studies added that just over half of these quantified rights were being used. *Id.* In June 2023, the Supreme Court held that the United States has no affirmative duty under an 1868 treaty to help effect these reserved water rights for a Colorado River Basin tribe. Arizona v. Navajo Nation, 143 S. Ct. 1804, 1810 (2023). *But see id.* at 1825 (Gorsuch, J., dissenting) ("[The United States] exercises control over many possible sources of water in which the Tribe may have rights, including the mainstream of the Colorado River. Accordingly, the government owes the Tribe a duty to manage the water it holds for the Tribe in a legally responsible manner.").

153. OCTOBER 2023 SEIS, *supra* note 1, at 3-1 to -3, 3-275.

154. *Id.* at 2-13 to -14.

155. *Id.* at 2-13 to -15.

contemplation of the SEIS, stakeholders argued that to meet the downstream obligations in the Colorado River Compact, it does not make practical sense to maintain both dams because doing so would require reduced releases and, therefore, less water to the Lower Basin.[156] Keeping both dams, they argue, would increase the risk of dead pool in one or both dams and would shrink the downstream flow of water.[157] Several recommendations aimed to remedy this include urging Reclamation to "fill Lake Mead first" to a higher elevation before filling Lake Powell or "decommission Glen Canyon Dam" to allow water to flow freely to the Lower Basin.[158]

In the October 2023 SEIS, Reclamation discarded these recommendations as nonviable, stating that they did not comport with the purpose and need of the SEIS: to maintain operations and address historic drought impacting both the Glen Canyon Dam and Hoover Dam.[159] Decommissioning the Glen Canyon Dam would not meet that goal.[160] Furthermore, Reclamation stated that its proposed range of alternatives already covered these new recommendations, or they were otherwise incompatible with Colorado River operations' policy objectives.[161] Specifically, regarding the recommendation to decommission the Glen Canyon Dam, Reclamation stated that Congress established the Glen Canyon Dam for a particular purpose that cannot be met if the dam is decommissioned.[162] Additionally, if the Glen Canyon Dam were decommissioned, it would drastically change the water release requirements for the Colorado River, which could run afoul of the Law of the River and the Interim Guidelines.[163] Nevertheless, it would seem that while these recommendations were outside the scope of the October 2023 SEIS, they could potentially be further explored in post-2026 planning, particularly if Congress takes action to strengthen Reclamation's authority in the basin.[164]

Despite wholly analyzing the Proposed Action and finding the No Action Alternative untenable, Reclamation did not name a preferred course of

156. *Id.*; *see also* SCOPING REPORT FOR POST-2026 COLORADO RIVER, *supra* note 24, at 1, app. E at E-30 (providing an example of comments received during the public scoping process).

157. SCOPING REPORT FOR POST-2026 COLORADO RIVER, *supra* note 24, app. E at E-30; *see* OCTOBER 2023 SEIS, *supra* note 1, at 2-13 to -15.

158. *Id.*

159. *Id.* at 2-14.

160. *Id.* at 2-14 to -15 (maintaining that it is Congress's clear intent that Reclamation operates the Glen Canyon Dam).

161. *Id.* at 2-13.

162. *Id.* at 2-14.

163. *Id.* at 2-14 to -15.

164. *See infra* Part A for discussion on proposed congressional action.

action in the SEIS, deferring judgment until the final SEIS is published.[165] While the ultimate agreement will expire at the end of 2026, the states and Reclamation have already begun negotiations on a formal replacement for the Interim Guidelines, and the October 2023 SEIS may ultimately inform these negotiations.[166]

E. State Interest in Self-Managing

Despite Reclamation's amendments to the Interim Guidelines, including the DCPs and other drought mitigation efforts,[167] the federal government has not enforced restrictions on water allocation in the Colorado River.[168] States have worked in the intervening years to stave off intervention through internal negotiations, primarily amongst the Lower Basin states, and thus have never hit the benchmarks established by Reclamation upon which federal action would kick in.[169] For example, in June 2022, the Reclamation Commissioner announced in a Senate hearing that states must conserve between two and four maf of water in 2023 and 2024 or face unilateral action by Reclamation.[170] When the states made no significant commitments to that end, Reclamation announced its intent to revise the Interim Guidelines for 2023 operations.[171] Finally, on January 31, 2023, six of the seven basin

165. OCTOBER 2023 SEIS, *supra* note 1, at 2-2.

166. Annie Snider & Camille von Kaenel, *Western States are Brawling Over the Colorado River. That Could Spell Trouble for Biden*, POLITICO (Dec. 15, 2023, 4:41 PM), https://www.politico.com/news/2023/12/15/western-states-are-brawling-over-the-colorado-river-that-could-spell-trouble-for-biden-00132108; OCTOBER 2023 SEIS, *supra* note 1, at 1-8.

167. *See supra* Part A–D.

168. Schwartz, *supra* note 112.

169. *See supra* Part C (arguing that a reason for the post-2007 drought management measures was the states' reluctance for federal management); *see, e.g.*, *Colorado River Shortage FAQs*, CENT. ARIZ. PROJECT (Nov. 2022), https://library.cap-az.com/documents/departments/planning/colorado-river-programs/2022-11-colorado-river-shortage-faq.pdf ("In 2022, Arizona reduced Colorado River water use by approximately 800,000 acre-feet—more than a quarter of its annual apportionment.").

170. *Short and Long Term Solutions To Extreme Drought In The Western U.S.*: *Hearing Before the S. Comm. on Energy and Nat. Res.*, 117th Cong. (2022) [hereinafter *Hearing*] (testimony of Hon. Camille Touton, Comm'r of the Bureau of Reclamation).

171. *See generally* Letter from Charles Cullom, Dir., Upper Colorado River Comm'n, to Camille Touton, Comm'r, U.S. Bureau of Reclamation (July 18, 2022), http://www.ucrcommission.com/wp-content/uploads/2022/07/2022-July-18-Letter-to-Reclamation.pdf (making no commitment to specific cutbacks); 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

states (excluding California) submitted a combined proposal to phase in water reductions to account for evaporation and drought for the next two years; California submitted a separate proposal.[172] Ultimately, Reclamation deemed both proposals inadequate since the six states proposed reductions that would be proportionally greater for California than Arizona or Nevada, and California proposed reductions that would be proportionally greater for Arizona and Nevada than for itself.[173] While the states collectively came to an agreement in May 2023,[174] this example highlights the sometimes antagonistic nature of interstate collaboration, particularly in the Lower Basin.[175] The Lower Basin presents a power imbalance due to California's superior water rights to those of Arizona and Nevada.[176] Because of this, California has been less willing to voluntarily make cuts to its water consumption, while Arizona and Nevada are more eager for an equitable distribution of shortages so that they do not feel the bulk of the burden.[177]

While the Lower Basin states are historically litigious,[178] attention has primarily been kept off of the Upper Basin states due to their smaller population and needs relative to those of the Lower Basin states.[179] This is due in no small part to the Upper Basin wholly fulfilling its obligation to date under the Compact to preserve 7.5 maf of water annually so that the Lower

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Operations For Lake Powell and Lake Mead, 87 Fed. Reg. 69,042 (Nov. 17, 2022).

172. Letter from Colorado River Basin State Representatives of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming to Tanya Trujillo, Assistant Sec'y of Water & Sci., U.S. Dep't of the Interior (Jan. 31, 2023) [hereinafter Six State Proposal]; Letter from Colorado River Board of California to Tommy Beaudreau, Deputy Interior Sec'y, U.S. Dep't of the Interior (Jan. 31, 2023) [hereinafter California Proposal].

173. Six State Proposal, *supra* note 172; California Proposal, *supra* note 172.

174. Biden-Harris Announcement, *supra* note 139; *see also supra* Part D.

175. *See* Jennifer Yachnin, *'The Crisis Has Arrived': An Elder Statesman Unpacks the Battle Over the West's Water*, POLITICO (Dec. 13, 2023, 2:00 PM), https://www.politico.com/news/2023/12/13/bruce-babbitt-colorado-river-q-a-00131576 (arguing that the largest issue today is in ensuring proportionality between California and Arizona, meaning the states are incurring water shortages in proportion to the overall amount of water they are taking from the Colorado River).

176. Arizona v. California, 376 U.S. 340, 342 (1964), *enforcing* 373 U.S. 546 (1963).

177. Reinhart, *supra* note 146; Nicla, *supra* note 26.

178. *See supra* note 86 and accompanying text.

179. *See, e.g.*, *City and Town Population Totals: 2020-2022*, U.S. CENSUS BUREAU (June 13, 2023), https://www.census.gov/data/tables/time-series/demo/popest/2020s-total-cities-and-towns.html#v2022 (providing that the largest city in the Upper Basin, Denver, Colorado, has a population of 713,252, paling in comparison to the largest city in the Lower Basin, Los Angeles, California, with a population of nearly four million).

Basin actually receives the water allocated to it.[180] However, in a drought year, fulfilling this obligation means that if the Colorado River Basin falls below 15 maf total, the Upper Basin faces steep cuts to its equitable 7.5 maf, as promised under the Compact.[181] While the Lower Basin has used its total apportionment each year since the 1990s, the Upper Basin has used only between four and 4.5 maf in recent years.[182] As the effects of climate change worsen and water levels continue to deplete, there is growing frustration among the Upper Basin states over this need to deliver water to the Lower Basin to their own detriment.[183] Ultimately, this discontent may lead to the need to depart from past practices to ensure that water shortages are split equitably between both basins.[184]

Reclamation has indicated that it intends to consolidate states' proposals and comments received during public scoping into a draft environmental impact statement (DEIS) by the end of 2024.[185] This DEIS will be available for public review and further input from stakeholders before drafters begin work on the formal replacement to the Interim Guidelines upon their lapse.[186] This timeline allows for further federal-state collaboration and consideration of more radical alternatives prior to a more permanent replacement of the Interim Guidelines.

III. RECOMMENDATIONS

In the face of long-term drought and a climate crisis that has already arrived, Reclamation must take a stronger stance and set its own hardline rules for managing water allocation in the West rather than allowing the basin states to lead the conversation. First, Reclamation should broaden its interpretation of "beneficial use" to better allocate water to the states during

180. Castle & Fleck, *supra* note 42, at 9–10.

181. *See* ERIC KUHN & JOHN FLECK, SCIENCE BE DAMMED: HOW IGNORING INCONVENIENT SCIENCE DRAINED THE COLORADO RIVER 202–05 (2019) (suggesting that in the absence of an ability to conjure up water in response to heightened demand and reduced supply, there needs to be a continued dialogue of preservation between the two basins).

182. *Id.*

183. *See, e.g.*, Lustgarten, *supra* note 19 (illustrating a growing sentiment among Upper Basin states that the Lower Basin is "taking from [them]" the water they are owed).

184. *See, e.g.*, Kevin G. Wheeler, Brad Udall, Jian Wang, Eric Kuhn, Homa Salehabadi & John C. Schmidt, *What Will it Take to Stabilize the Colorado River?*, 377 SCI. 373, 375 (2022) (offering a drastic solution to stabilize the Colorado River reservoirs that includes the Lower Basin and Mexico, increasing their maximum water cuts by an additional 45%).

185. Colorado River Reservoir Operations: Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead, 88 Fed. Reg. 72,535 (Oct. 20, 2023).

186. *Id.*

a climate crisis. Reclamation must also update the scientific data it relies upon to estimate water levels in the Colorado River before taking any step forward. Lastly, Reclamation should formally consider decommissioning Glen Canyon Dam.

A. Amend the Interpretation of "Beneficial Use" to Expressly Expand Federal Authority

Returning to Reclamation's rulemaking authority,[187] the Bureau should tap into additional congressional actions that strengthen its ability to regulate the Colorado River. Namely, § 417 of the Federal Code grants Reclamation the authority to limit the amount of water delivered to the Lower Basin states to the amount "reasonably required for beneficial use."[188] The "beneficial use" requirement stems from historic water scarcity in the region and the recognition that water use should not be wasteful.[189] While "beneficial use" is a vague term, it has historically been a judgment centered on activities such as irrigation, hydraulics, recreation, or other domestic or municipal needs.[190] However, there is no universal test for what constitutes beneficial use, nor a definition for wasteful practices.[191] Because of this, there is no meaningful limitation on the use of valuable water.[192]

Given the current Colorado River shortages, Reclamation should formally amend its interpretation of what "beneficial use" entails.[193] Former

187. *See e.g.*, 43 U.S.C. § 617 (authorizing federal action in constructing the Hoover Dam); Arizona v. California, 373 U.S. 546 (1963) (finding that Reclamation has the authority to regulate the Colorado River Basin); STERN ET AL., *supra* note 41, at 1 (describing Reclamation's role and authorities as the water master for the Lower Basin).

188. 43 C.F.R. § 417.2 (1972). Apart from its use in regulating the Colorado River Basin, "beneficial use" is also a common notion in the law of prior appropriation and water law writ large. *See* Janet Neuman, *Beneficial Use, Waste, and Forfeiture: the Inefficient Search of Efficiency in Western Water Use*, 28 ENV'T L. 919, 920 (1998).

189. *See* David N. Cassuto & Romulo S. R. Sampaio, *Water Law in the United States and Brazil – Climate Change & Two Approaches to Emerging Water Poverty*, 35 WM & MARY ENV'T L. & POL'Y REV. 371, 384 (2011) (explaining the beneficial use rule).

190. *Id.*; Jennifer Yachnin, *Babbitt: Interior Can Close Colorado River Spigots to Farmers*, POLITICOPRO (Apr. 10, 2023, 1:55 PM) [hereinafter Yachnin, *Babbitt: Interior Can Close Colorado River*], https://subscriber.politicopro.com/article/eenews/2023/04/10/babbitt-interior-can-close-colorado-river-spigots-to-farmers-00091150.

191. *See e.g.*, Caleb Hall, *Water, Water, Nowhere: Adapting Water Rights for a Changing Climate*, 16 SUSTAINABLE DEV. L. & POL'Y 25, 27 (2015) (noting uncertainties in the beneficial use doctrine).

192. *See e.g.*, Cassuto & Sampaio, *supra* note 189, at 384–85 (noting the variability in the beneficial use doctrine).

193. Amending its interpretation of what is meant by "reasonably required for beneficial

Secretary of the Interior Bruce Babbitt has stressed that what is reasonable to meet these activities and needs in normal years may be unreasonable in extreme drought years.[194] Because of this, Reclamation should be afforded greater discretionary authority to reimagine "beneficial use" by evaluating a host of current factors, including location, climate, agriculture, and existing infrastructure.[195] A formal review of reasonableness and "beneficial use" in the basin states under § 417, similar to the public SEIS process, would additionally give Reclamation further authority in post-2026 planning. Secretary Babbitt argues that this process should result in reducing water allocations to fairly and equitably share the burden of shortages among the states.[196] Doing so (or threatening to do so) could give Reclamation leverage over the basin states in negotiations by forcing the states to reassess how they distribute their water and across which sectors.

Members of Congress have recently shown similar support in strengthening Reclamation's authority to address the historic drought.[197] This proposed congressional action could make more drastic measures, such as decommissioning Glen Canyon Dam, viable if the drought worsens.[198] Overall, a plethora of federal authorities offer Reclamation the ability to enact a more conclusive plan to address future shortages in the Colorado River.

B. Obtain Reliable Scientific Data for Future Colorado River Operational Planning

Regardless of what avenue Reclamation takes in drafting operating guidelines post-2026, it must first update its science. Reclamation's proposals to date have been based on the numbers in the Compact that allocated 7.5 maf to each basin. However, these numbers were based on Colorado River

use," 43 C.F.R. § 417.2, is entirely within the Reclamation Commissioner's prerogative, as it was then-Commissioner A.P. Davis who first articulated this standard in the 1920s. Meyers, *supra* note 83, at 21.

194. Bruce Babbitt, *Department of Interior Needs to Review Agricultural Use of Water Amid Negotiations for Colorado River Cuts*, NEV. INDEP. (Jan. 11, 2023, 2:00 AM), https://thenevadaindependent.com/article/department-of-interior-needs-to-review-agricultural-use-of-water-amid-negotiations-for-colorado-river-cuts.

195. Yachnin, *Babbitt: Interior Can Close Colorado River*, *supra* note 190.

196. *See* Babbitt, *supra* note 194.

197. Drought Resiliency and Water Supply Infrastructure Act, S. 1932, 116th Cong. (2019) (authorizing Reclamation to issue grants to support water storage in the West); FUTURE Western Water Infrastructure and Drought Resiliency Act, H.R. 3404, 117th Cong. (2021) (permitting funding for infrastructure to address drought).

198. *See supra* Part D for discussion on how Reclamation argues that congressional action and intent frustrate decommissioning the dam.

flow estimates available at the time—in 1922.[199] At that time, Reclamation estimated annual river flow at Lee Ferry to be 16.4 maf, however, this data collection occurred during an unusually wet period.[200] Aggregate data from the past three centuries indicates an average yearly flow of about 13.5 maf, and flows fluctuate depending on rainfall and snowpack.[201] Under the averaged data, the Colorado River has been over-allocated through the Compact, and thus, meeting the equitable split of 7.5 maf annually per basin becomes impossible.[202] Additionally, the Compact roughly assumes losses in evaporation rather than scientifically measuring water lost to evaporation, further ensuring that the estimates in the Compact are incorrect.[203] Despite this and although recognizing recent fluctuations in hydrology, the October 2023 SEIS relies on this inaccurate data[204] even though more recent and accurate figures are available.[205] Today's estimates indicate that average levels at Lee Ferry over a twenty-year period stand at about thirteen maf per year—a 20% reduction from the Compact's assumptions.[206] Such a discrepancy between the assumed water availability and actual water delivery must be addressed before the introduction of new operating guidelines in 2026.

C. Decommission the Glen Canyon Dam or Operate it for Run of the River

There has been a growing call, particularly among environmentalists, for Reclamation to revisit the "decommission Glen Canyon Dam" solution as a viable alternative to those recommendations laid out in the October 2023

199. *See generally* KUHN & FLECK, *supra* note 181, at 36–56 (detailing a confusion in the early twentieth century over how much water the Colorado River has and how scientists and Compact drafters misconstrued the available data).

200. Lytle, *supra* note 37; *see also Colorado River: The Beating Heart of the American Southwest*, AM. RIVERS, https://www.americanrivers.org/river/colorado-river-2/ (last visited May 10, 2024) ("The Colorado River Water Compact . . . was based on analysis of one of the wettest 10-year periods in history, establishing a permanent deficit.").

201. Gelt, *supra* note 11; Lytle, *supra* note 37.

202. *The Compact and Lees Ferry*, TREEFLOW, https://www.treeflow.info/content/compact-and-lees-ferry (last visited May 10, 2024). The overallocation of the Colorado River has yet to be addressed by federal provision since the Upper Basin has historically used less than its full allotment of water and thus has met its duty to deliver water to the Lower Basin. *Id.*

203. Shemin Ge, Joann Silverstein, James Eklund, Patricia Limerick & David Stewart, *Fixing the Flawed Colorado River Compact*, EOS (June 16, 2023), https://eos.org/features/fixing-the-flawed-colorado-river-compact.

204. OCTOBER 2023 SEIS, *supra* note 1, at 3-56 to -60.

205. Ge et al., *supra* note 203.

206. *Id.*

SEIS.[207] This recommendation does not advocate for the Glen Canyon Dam to be destroyed or removed but rather that it should be re-engineered so that the Colorado River can run freely past it into Lake Mead.[208] Proponents argue that, because of the low water levels at both lakes, it would be more beneficial for the states to decommission Lake Powell and only operate Lake Mead, filling it up to a higher level.[209] Filling one reservoir would limit evaporative losses since keeping water in two lakes increases the overall surface area of water exposed to the sun.[210] Bypassing Glen Canyon and Lake Powell would thus lead to overall water savings at Lake Mead.[211]

The Glen Canyon Dam already carries a significant structural risk, mainly due to its large volumes of silt.[212] The Colorado River deposits huge sediment loads into Lake Powell each day.[213] This sediment has accumulated over time at the bottom of Lake Powell to reduce the lake's overall storage capability[214] before continuing to move downstream to fill the dam

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207. *See supra* Part D for discussion on decommissioning the Glen Canyon Dam as mentioned in the October 2023 SEIS; *see also* Ian James, *As Colorado River Shrinks, California Farmers Urge 'One-Dam Solution'*, L.A. TIMES (Sept. 5, 2023 3:00 AM), https://www.latimes.com/environment/story/2023-09-05/california-farmers-urge-one-dam-solution-for-colorado-river ("Now, as climate change increases the strains on the river, this controversial proposal is receiving support from some surprising new allies: influential farmers in California's Imperial Valley.").

208. *Frequently Asked Questions – Restoration of Glen Canyon*, GLEN CANYON INST., https://www.glencanyon.org/faq/ (last visited May 10, 2024).

209. Abrahm Lustgarten, *Drought be Dammed*, PROPUBLICA (May 20, 2016, 8:00 AM), https://www.propublica.org/article/drought-provokes-debate-on-unplugging-great-dams-of-american-west.

210. Limiting evaporative losses would also likely assuage Lower Basin–Upper Basin tensions, *see supra* Part E, because water lost to evaporation is borne by the Upper Basin states while the Lower Basin's water is never cut due to the Upper Basin's obligation under the Compact to deliver 7.5 maf per year. *See* Nick Cahill, *Upper Colorado River States Add Muscle as Decisions Loom on the Shrinking River's Future*, WATER EDUC. FOUND. (Apr. 21, 2023), https://www.watereducation.org/western-water/upper-colorado-river-states-add-muscle-decisions-loom-shrinking-rivers-future.

211. *See* Lustgarten, *supra* note 209 ("More than 160 billion gallons of water evaporate off of Lake Powell's surface every year, enough to lower the reservoir by four inches each month.").

212. *All Dams are Temporary—Sedimentation*, GLEN CANYON INST., [hereinafter *All Dams are Temporary*] https://www.glencanyon.org/all-dams-are-temporary-sedimentation/ (last visited May 10, 2024).

213. *The One-Dam Solution*, LIVING RIVERS: COLO. RIVERKEEPER 4 (July 2005), http://www.livingrivers.org/pdfs/TheOne-DamSolution.pdf.

214. *Id.*

steadily.[215] The large amount of silt poses an additional threat to the health of the dam since it may one day plug the dam entirely and prevent water from flowing to the Lower Basin states.[216] To manage the sediment, federal and state governments must mechanically remove it, creating another significant undertaking and cost.[217] The aging dam is already experiencing significant damage due to prolonged periods where large volumes of water and sediment move through its lowest exit points, an issue that requires considerable repair and is wholly a result of chronic overuse of the infrastructure.[218] Decommissioning the Glen Canyon Dam and allowing the water and sediment to continue downstream to Lake Mead would remove at least one roadblock in delivering water to the Lower Basin while ensuring that the dam does not create additional problems. [219]

In one instance to date, environmental advocacy organizations have filed a lawsuit advocating, in part, for Reclamation to decommission the Glen Canyon Dam to address the impacts of climate change on the Colorado

215. *See All Dams are Temporary*, *supra* note 212 (noting that 100 million tons of sediment have been filling up the Glen Canyon Dam annually); Dave Haskell, *Creating a Sustainable Future*, GRAND CANYON RIVER GUIDES (Sept. 28, 2009), https://web.archive.org/web/20090928111503/http://www.gcrg.org/bqr/16-1/future.html (stating that the sedimentation problem in Lake Powell and Glen Canyon Dam was a known fact since the dam's inception).

216. Dale Maharidge, *The Colorado River is Running Dry, but Nobody Wants to Talk About the Mud*, N.Y. TIMES (Mar. 20, 2023), https://www.nytimes.com/2023/03/20/opinion/colorado-river-lake-powell-glen-canyon-dam.html?action=click&module=RelatedLinks&pgtype=Article.

217. *See The One-Dam Solution*, *supra* note 213, at 12.

218. *See, e.g.*, Jennifer Yachnin, *Reclamation Slows Flows Through Glen Canyon Dam to Address Damage*, E&E NEWS (Apr. 8, 2024, 4:17 PM), https://subscriber-politicopro-com.eu1.proxy.openathens.net/article/eenews/2024/04/08/reclamation-slows-flows-through-glen-canyon-dam-to-address-damage-00151133 (reporting that Reclamation officials found never-before-seen cavitation damage to the Glen Canyon Dam as a result of operating the dam at low water elevations); Bureau of Reclamation, Technical Decision Memorandum on Establishment of Interim Operating Guidance for Glen Canyon Dam During Low Reservoir Levels at Lake Powell 1–2 (Mar. 26, 2024), https://www.usbr.gov/uc/DocLibrary/Memos/20240326-EstablishmentInterimOperatingGuidanceGlenCanyonDamLowReservoirLevels-TechnicalDecisionMemo-508-TSC.pdf (directing the Glen Canyon Dam facility operators to limit the amount of water it allows to flow through the pipes in order to minimize the risk of structural damage).

219. *See The One-Dam Solution*, *supra* note 213, at 12 (arguing that sediment removal at Lake Mead, rather than Lake Powell or the Glen Canyon Dam, may be preferred due to superior location and access to transport systems and disposal sites).

River.[220] The plaintiffs in *Save the Colorado v. U.S. Department of the Interior*[221] argued that Reclamation's failure to consider decommissioning the Glen Canyon Dam, among other alternatives, in the face of significant climate change concerns violates the Administrative Procedure Act and National Environmental Policy Act (NEPA).[222] In the complaint, the plaintiffs asserted that decommissioning the dam would return the river to its natural state and that this would, in turn, address many of the alleged injuries, including inhibited access to recreation and the diminished ecological health of species in the area.[223] Using language similar to that of the October 2023 SEIS, the federal government responded that the plaintiffs failed to explain how decommissioning the dam and other alternatives would comport with the Law of the River or congressional intent.[224] Ultimately, the United States District Court for the District of Arizona held in favor of Reclamation and granted the government's motion for summary judgment.[225]

In its analysis, the Court reasoned that the plaintiffs' proposed alternatives were adequately considered and rightfully dismissed by the government in compliance with federal law.[226] The Court additionally articulated that interpreting NEPA as requiring Reclamation to closely scrutinize alternatives inconsistent with its policy objectives and further proposals could run afoul of additional statutory requirements.[227] Furthermore, as it pertains specifically to decommissioning the Glen Canyon Dam, the Court found sufficient the government's claims that would run afoul of water delivery requirements, including under the Interim Guidelines and the Law of the River writ large.[228]

Following the initial complaint in *Save the Colorado* in October 2019,[229]

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220. Save the Colorado Complaint ¶ 5, Save the Colo. v. U.S. Dep't of the Interior, No. 3:19-cv-08285-MTL, 2022 WL 18859975 (D. Ariz. Dec. 23, 2022).

221. No. CV-19-08282-PCT-MTL, 2022 WL 18859975 (D. Ariz. Dec. 23, 2022).

222. Save the Colorado Complaint, *supra* note 220, ¶ 4. This lawsuit challenges Reclamation's operating plan for Glen Canyon Dam, titled Glen Canyon Dam Long-Term Experimental Management Plan. *Id.*

223. *Id.* ¶¶ 9–20.

224. *Save the Colo.*, 2022 WL 18859975, at *28.

225. *Id.* at *30–32.

226. *Id.* at *30–31.

227. *Id.* at *30.

228. *Id.* at *31 (quoting Native Ecosystems Council v. U.S. Forest Serv., 428 F.3d 1233, 1246 (9th Cir. 2005)) (stating that the National Environmental Policy Act (NEPA) only requires Reclamation to consider "all reasonable alternatives" and provide an appropriate explanation as to why the alternative is eliminated).

229. *Id.* at *1.

notwithstanding a wetter winter,[230] Lake Powell has continued to shrink, dropping to and remaining at less than 36% of its total capacity.[231] Although Reclamation similarly dismissed decommissioning Glen Canyon Dam as a viable alternative in the October 2023 SEIS,[232] it signaled a willingness to depart from precedent and existing priority rights in the SEIS and public statements.[233] In addition to growing calls to reconsider decommissioning the dam and increasing concerns about the impacts of climate change on older dams,[234] Reclamation's past flexibility creates room for it to revisit its analysis of the Glen Canyon Dam for post-2026 operational planning. While Reclamation has already issued a notice-and-comment requesting general input for post-2026 planning, it could additionally solicit specific feedback from relevant stakeholders on the plan's viability to decommission Glen Canyon Dam.[235]

CONCLUSION

Reclamation has the authority to take sweeping action to fairly, equitably, and reasonably apportion the Colorado River Basin among its beneficiaries.

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230. Ella Nilsen, *Did This Winter Solve the Colorado River Crisis? No—but It Took Some Pressure Off, for Now*, CNN (Apr. 10, 2023, 12:17 PM), https://www.cnn.com/2023/04/10/us/colorado-river-water-cuts-winter-snow-climate/index.html.

231. *Lake Powell Water Database*, WATER-DATA, https://lakepowell.water-data.com (last visited May 10, 2024) (exhibiting through frequent measurement that Lake Powell's water elevation is steadily decreasing and continues to decrease by content to about 31% of full pool level at time of publication).

232. OCTOBER 2023 SEIS, *supra* note 1. *See, e.g.*, Maharidge, *supra* note 216 (theorizing that Reclamation is adamant on keeping the Glen Canyon Dam for its hydropower capabilities).

233. *See supra* note 146 and accompanying text (articulating how Action Alternative 2, from the April 2023 SEIS, presented by Reclamation as feasible, significantly departs from precedent); *Hearing*, *supra* note 170 (testimony of Hon. Camille Calimlim Touton, Comm'r, U.S. Bureau of Reclamation) (answering in the affirmative when asked by Arizona Senator Mark Kelly if Reclamation was prepared to impose restrictions "without regard to river priority").

234. *See, e.g.*, Josh Klemm & Isabella Winkler, *Which of the World's Hundreds of Thousands of Aging Dams Will Be the Next to Burst?*, N.Y. TIMES (Sept. 17, 2023), https://www.nytimes.com/2023/09/17/opinion/libya-floods-dams.html (arguing that climate change has made extreme weather conditions more regular, which will, in turn, pose a particular concern to the structural integrity of decades-old dams).

235. *See* Notice of Intent to Prepare an Environmental Impact Statement and Notice to Solicit Comments and Hold Public Scoping Meetings on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead, 88 Fed. Reg. 39,455 (June 16, 2023).

Taken together, Reclamation has the mandate under the 1928 Boulder Canyon Project Act and the 1963 *Arizona v. California* decision to serve as the water master for the Lower Basin and apportion surpluses and shortages amid and amongst the states.[236] Additionally, through the compact call mechanism in the 1922 Colorado River Compact, Reclamation has express authority to regulate the Upper Basin's water usage to ensure that sufficient water reaches downstream users.[237] All told, Reclamation's authority to regulate both basins has largely gone untapped. It is likely that, amid this climate crisis and with states competing for control over water, there is no ideal solution that comes from ongoing state negotiations. Reclamation, therefore, must wield its authority and enact more robust measures in post-2026 operational planning to combat the dire consequences of continued climate change and drought. While the draft SEIS offers insight into what actions Reclamation is prepared to take,[238] it is inadequate to fully address this water crisis and particularly fails to address the changes in both water levels and the use of the Colorado River since the early twentieth century. Despite improved hydrology resulting in the optimistic October SEIS, the Colorado River will continue to shrink in the coming decades.[239] Reclamation has an opportunity in this interim period to take the lead in federal-state negotiations and find creative solutions to formulate a scientifically sound post-2026 operating policy that could eliminate the need for additional piecemeal regulations if drought conditions persist.

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236. *See* 43 U.S.C. § 617 ("[T]he Secretary of the Interior . . . is authorized to construct operate, and maintain dam and incidental works in the main stream of the Colorado River . . . ."); Arizona v. California, 373 U.S. 546, 594 (1963) ("[W]e leave in the hands of the Secretary . . . full power to control, manage, and operate the Government's Colorado River works . . . ."); STERN ET AL., *supra* note 41, at 1 ("Reclamation . . . serves as water master on behalf of the Secretary of the Interior.") (emphasis omitted).

237. Colorado River Compact of 1922, COLO. REV. STAT. § 37-61-101, art. III(d) (2023).

238. *See* OCTOBER 2023 SEIS, *supra* note 1, at 2-3 to -13 (analyzing the feasibility of the No Action Alternative, and the Proposed Action); *see also* APRIL 2023 SEIS, *supra* note 132, at 2-7 to -16 (analyzing Action Alternatives 1 and 2 from the April 2023 SEIS, which indicate Reclamation's willingness to consider measures that depart from water priority rights).

239. *Statement from Great Basin Water Network and Living Rivers on the Bureau's Revised SEIS for Short-Term Management at Lakes Powell and Mead*, GREAT BASIN WATER NETWORK (Oct. 25, 2023), https://greatbasinwater.org/statement-from-great-basin-water-network-and-living-rivers-on-the-bureaus-revised-seis-for-short-term-management-at-lakes-powell-and-mead/.