

Ensuring Arizona's Future Today: The Lower Basin Drought Contingency Plan and its Implementation in Arizona

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I. INTRODUCTION

The Colorado River provides water to over 40 million people and to nearly 5.5 million acres of farmland in seven states, and more than 4,200 megawatts of electrical generating capacity from hydroelectric facilities, before providing water to approximately 2.8 million people in Mexico and irrigating around 207,000 hectares (over 511,000 acres).¹ The river is vital to the economies of the southwestern United States and Mexico and has become one of the most regulated and managed rivers in the United States.² The Colorado River Basin is divided into two basins: the Upper Basin (consisting of areas of Arizona, Colorado, New Mexico, Utah, and Wyoming) and the Lower Basin (consisting of areas of Arizona, California, and Nevada).³

The Colorado River was allocated in the first half of the twentieth century, during one of the highest-flow periods in its known history. Since that time, it has become apparent that the Colorado River is overallocated. Additionally, the River is a highly variable system, subject to dramatic change in runoff from year to year.⁴ Based on tree ring studies, the period from 2000 to 2015 ranks as the fifth driest 16-year period in the last 1,200 years.⁵ Recognizing the gravity of the situation, representatives from the Lower Basin States and the Bureau of Reclamation (Reclamation) have been working on plans to avoid and mitigate shortage since the early 2000s.⁶ Although the 2007 Interim Guidelines helped to

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¹ U.S. Department of the Interior, Bureau of Reclamation, *Colorado River Basin Water Supply and Demand Study*, Executive Summary at 3 (Dec. 2012), <https://www.usbr.gov/lc/region/programs/crbstudy.html>; Email from Lori Kuczumanski, Public Affairs Officer, International Boundary and Water Commission, to Nicole D. Klobas, Deputy Chief Counsel, Arizona Department of Water Resources (Mar. 29, 2018) (on file with author).

² R. M. HIRSCH, J. F. WALKER, J. C. DAY, AND R. KOLLIO, THE INFLUENCE OF MAN ON HYDROLOGIC SYSTEMS, *SURFACE WATER HYDROLOGY: GEOLOGIC SOCIETY OF AMERICA DECADE OF NORTH AMERICAN GEOLOGY*, Vol. 0-1 at 329-359 (M. G. Wolman and H. C. Riggs eds., 1990).

³ Katherine Ott Verburg, U.S. Department of the Interior, Bureau of Reclamation, *THE COLORADO RIVER DOCUMENTS 2008* at xxxix (Sep. 2010) (citing the Colorado River Compact, 70 Cong. Rec. 324, 324-23 (1928)).

⁴ See Section II, *infra*.

⁵ U.S. Department of Interior, *Open Water Data Initiative*, <https://www.doi.gov/water/owdi.cr.drought/treeringdata/index.html> (last visited Mar. 23, 2018).

⁶ See, e.g., Sue McClurg, *Facing the Future: Modifying Management of the Colorado River*, *WESTERN WATER* at 4-5 (Jan./Feb. 2006) (describing the seven-state proposal forwarded to then-Secretary Gale

coordinate operations of Lake Powell and Lake Mead and provided tools to conserve and augment supplies on the river, by 2013 there was broad recognition additional work remained to be done.⁷

Due to the junior priority of much of its Colorado River allocation, Arizona has been preparing for shortages for decades.⁸ For many Arizona users, the greater threat has been deeper shortages that could be catastrophic.⁹ The Colorado River supplies approximately 38% of Arizona's water needs.¹⁰ If a shortage is declared on the Colorado River, Arizona bears the brunt of the reductions, with the Central Arizona Project (CAP) water users taking most of the reductions.¹¹

Collective efforts to conserve water in Lake Mead have been hugely successful and have been instrumental in avoiding shortages since 2015.¹² The proposed Lower Basin Drought Contingency Plan (LBDCP) would continue these conservation efforts through additional reductions to all three Lower Basin States, along with conservation by Reclamation, into 2026, with a goal of reducing the risk of Lake Mead elevation falling to 1020 feet. Mexico has already agreed to participate in corresponding additional reductions, should the LBDCP become effective in the U.S.¹³ Arizona's future, economic and otherwise, depends on the ability of its water users to come together and agree to the LBDCP through one voice.

II. COLORADO RIVER HYDROLOGY

The natural flow of the Colorado River is highly variable from year to year. Fortunately, however, the system of dams and reservoirs has ensured greater certainty for Colorado River water users, particularly those in the Lower Basin. As knowledge about hydrology

Norton in February 2005 that included “a long list of new programs and projects designed to augment the river's flow and help meet long-term water supplies for growing cities.”).

⁷ In December 2012, the Bureau of Reclamation published its “Colorado River Basin Water Supply and Demand Study,” confirming the conventional wisdom that projected Colorado River supplies would be insufficient to meet the growing long-term demands on the river. U.S. Department of the Interior, Bureau of Reclamation, *Colorado River Basin Water Supply and Demand Study*, Executive Summary at 9-10 (Dec. 2012), <https://www.usbr.gov/lc/region/programs/crbstudy.html>.

⁸ See, e.g., Thomas Buschatzke, Director, Arizona Department of Water Resources, Testimony to Committee on Energy and Natural Resources, Subcommittee on Water and Power, United States Senate at 3-4 (Aug. 2, 2017), https://www.energy.senate.gov/public/index.cfm/files/serve?File_id=1D1A6469-F015-46DA-84F4-C0B2591B831E.

⁹ *Id.* at 4.

¹⁰ Arizona Department of Water Resources, 2017 Data, <http://www.arizonawaterfacts.com/water-your-facts> (last visited Mar. 23, 2018)

¹¹ Buschatzke, *supra* note 8, at 4.

¹² U.S. Bureau of Reclamation, Colorado River Basin Update on Hydrology and Operations, presented at Basin States Meeting in Santa Fe, New Mexico (Sept. 26, 2017) (on file with author).

¹³ Minute 323, Extension of Cooperative Measures and Adoption of a Binational Water Scarcity Contingency Plan in the Colorado River Basin (Sept. 21, 2017).

on the Colorado River has increased, water managers have applied it to River operations to increase certainty.

On average, annual flow of the River has steadily declined. For the period between 1906, the year when the United States Geological Survey (USGS) began taking stream gage measurements at the Lees Ferry Gaging Station in Arizona until 2015, the average annual flow of the River has been 14.41 million acre-feet (MAF)¹⁴. The Colorado River Compact negotiators relied on the highest long-term annual flow volume in the 20th century, averaging 16.1 MAF at Lee’s Ferry for the period 1905-1922.¹⁵ Conversely, the annual average natural flow measured at Lees Ferry between 2000-2015 was 12.4 MAF.¹⁶ The period 2000-2015 was the driest 16-year period in the past 100 years and one of the driest 16-year periods in the past 1,200 years.¹⁷

III. THE LAW OF THE RIVER

Colorado River water is apportioned, regulated, and managed among the seven basin states (Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming) and the Republic of Mexico through compacts, treaties, federal laws, court decisions, decrees, contracts, regulatory guidelines, and other documents, collectively known as the “Law of the River.”¹⁸ This paper only describes the documents of the Law of the River that are most relevant to drought contingency efforts in the Lower Basin.

A. Colorado River Compact of 1922

In 1922, Commissioners from the seven States of the Colorado River Basin reached an agreement, known as the Colorado River Compact (1922 Compact), to divide the Colorado River Basin into two parts: the Upper Basin (consisting of portions of the States of Arizona, Colorado, New Mexico, Utah, Wyoming, and a portion of Arizona) and the Lower Basin (consisting of portions of the States of Arizona, California and Nevada).¹⁹

¹⁴ U.S. Department of Interior, Open Water Data Initiative (OWDI), <https://www.doi.gov/water/owdi.cr.drought/treeringdata/index.html> (last visited Mar. 23, 2018).

¹⁵ United States Geological Survey, *Climatic Fluctuations, Drought and Flow in the Colorado River Basin* (Aug. 2004), https://pubs.usgs.gov/fs/2004/3062/pdf/fs2004-3062_version2.pdf.

¹⁶ Generated from data provided by the U.S. Bureau of Reclamation – Upper Colorado River Region and Colorado Basin River Forecast Center, <https://www.usbr.gov/lc/region/g4000/NaturalFlow/current.html> (last visited Mar. 23, 2018).

¹⁷ U.S. Department of Interior, *supra* note 15.

¹⁸ *See, e.g.*, U.S. Department of the Interior, Bureau of Reclamation, Upper Colorado Region, and National Park Service, Intermountain Region, *Glen Canyon Dam Long-Term Experimental and Management Plan Final Environmental Impact Statement*, Vol. 1 at 1-32 (Oct. 2016) (referring to Table 1-2, “Selected Documents Included in the Law of the River”).

¹⁹ Colorado River Compact, 70 Cong. Rec. 324, 324-23 (1928), <https://www.usbr.gov/lc/region/g1000/pdfiles/crcompct.pdf> [hereinafter 1922 Compact] The 1922 Compact defines both the term “Upper Basin” and “Lower Basin.” *Id.* at art. II(f)-(g). Additionally, the 1922 Compact defines the term “States of the Upper Division” to mean “the States of Colorado, New Mexico, Utah, and Wyoming,” and “States of the Lower Division” to mean “the states of Arizona, California, and Nevada.” *Id.* at art. II(c)-(d).

Lees Ferry in northern Arizona, just downstream from what is now Lake Powell, serves as the point of division between the Upper Basin and the Lower Basin.²⁰ The 1922 Compact allocates 7.5 MAF to the Upper Basin and 7.5 MAF to the Lower Basin.²¹ In particular, the 1922 Compact requires that the Upper Basin deliver to Lee Ferry 75 MAF over every 10-year period, plus half of any obligation to Mexico.²²

Six of the seven Basin States ratified the 1922 Compact in 1923.²³ Arizona, however, was concerned that the failure to apportion water among the Lower Basin States and the law of prior appropriation would allow California to use the entire Lower Basin apportionment before Arizona could.²⁴ Arizona also sought to protect its use of water from the Gila River.²⁵ Therefore, the Arizona Legislature refused to ratify the 1922 Compact.²⁶

B. Boulder Canyon Project Act of 1928

To overcome Arizona's refusal to ratify the 1922 Compact, Congress enacted the Boulder Canyon Project Act (BCPA) on December 21, 1928.²⁷ The BCPA provided that the 1922 Compact would become effective upon ratification by six of the seven Basin States, if California agreed to limit its use of Colorado River water to no more than 4.4 MAF per year.²⁸ California enacted the California Limitation Act in March 1929,²⁹ which incorporated the 4.4 MAF per year condition, and the 1922 Compact became effective in 1929.³⁰

The BCPA authorized The States of Arizona, California, and Nevada to enter a Lower Basin compact apportioning 2.8 MAF per year to Arizona, 4.4 MAF per year to California, and 300,000 acre-feet per year to Nevada.³¹ The BCPA also provided for the construction of Hoover Dam at Lake Mead and authorized the Secretary to enter contracts in the Lower Basin for storage and delivery of water from the reservoir.³² Although a Lower Basin compact was never reached, the Secretary entered contracts with Arizona, Nevada, and water users in California for the apportionments identified in the BCPA.³³

²⁰ 1922 Compact at art. III(d).

²¹ *Id.* at art. III(a).

²² *Id.* at art. III(c)-(d).

²³ United States Department of the Interior, *Updating the Hoover Dam Documents*, 4-5 (1978).

²⁴ *Arizona v. California*, 373 U.S. 546, 558 (1963).

²⁵ *Id.*

²⁶ *Id.*

²⁷ Boulder Canyon Project Act of 1928, Pub. L. No. 642 (codified as amended in U.S.C.A. § 617).

²⁸ *Id.* at § 4(a); *Arizona v. California*, 373 U.S. at 560.

²⁹ California Limitation Act, CAL. STAT., ch. 16, 38-39 (1929).

³⁰ *Arizona v. California*, 373 U.S. at 560.

³¹ Boulder Canyon Project Act, *supra* note 27, at § 4(a).

³² *Id.* at § 5.

³³ *Arizona v. California*, 373 U.S. at 562.

A. 1944 US- Mexico Water Treaty

In 1944, the United States and Mexico ratified the United States-Mexico Treaty on Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande (1944 Water Treaty). The 1944 Water Treaty apportioned 1.5 MAF per year of Colorado River water to Mexico during normal years, and provided that Mexico would share proportionately in times of surplus and in reductions due to “extraordinary drought.”³⁴ The 1944 Water Treaty also designated the International Boundary and Water Commission (IBWC), a binational commission, as the entity responsible for implementing the treaty provisions.³⁵

B. Arizona’s 1944 Contract

On February 9, 1944, the Secretary of the Interior entered a water delivery contract with the State of Arizona, pursuant to the BCPA. The 1944 Contract, which was ratified by the Arizona Legislature,³⁶ provides that the United State will deliver “and Arizona, or agencies or water users therein, will accept under this contract... so much [Colorado River] water as may be necessary for the beneficial consumptive use for irrigation and domestic uses in Arizona of a maximum of” 2.8 MAF per year.³⁷ Any deliveries to entities within Arizona constitute “a discharge pro tanto of the obligations of” the 1944 Contract.³⁸

C. *Arizona v. California*

Amid continuing concern in Arizona about the apportionment of Colorado River water in the Lower Basin, Arizona filed suit in the United States Supreme Court in 1952 seeking a determination of its apportionment.³⁹ In 1963, the Supreme Court issued its decision in *Arizona v. California*, effectively affirming the Lower Basin apportionments in the BCPA: 2.8 MAF per year to Arizona, 4.4 MAF per year to California, and 300,000 acre-feet per year to Nevada.⁴⁰ The Supreme Court agreed with Arizona’s position that those apportionments do not include the tributaries below Lee Ferry or any diversions above Lake Mead.⁴¹

The Supreme Court’s decision in *Arizona v. California* effectively established the Secretary as the “water master” in the Lower Basin, based on the broad authorities and discretion provided to the Secretary in the BCPA.⁴² The Supreme Court noted certain

³⁴ 1944 Water Treaty, art. 10.

³⁵ *Id.* at art. 1.

³⁶ A.R.S. § 45-1301.

³⁷ 1944 Contract, § 7(a).

³⁸ *Id.* at § 7(l).

³⁹ *Arizona v. California*, 373 U.S. at 550-51.

⁴⁰ *Id.* at 564-65; *see also* 376 U.S. 340 (1963) for the original Decree in *Arizona v. California*.

⁴¹ *Arizona v. California*, 373 U.S. at 567.

⁴² *Id.* at 589-90.

limitations on the Secretary's discretion.⁴³ For example, in years when less than 7.5 MAF is available for apportionment among the three Lower Basin States, the Secretary has broad discretion to apportion shortage reductions but may not apportion more than 4.4 MAF to California during shortage years.⁴⁴ Additionally, the Supreme Court held that surplus waters must be distributed in proportion to each State's normal year apportionment: 46% to Arizona, 50% to California, and 4% to Nevada.⁴⁵

The Supreme Court issued its Decree in *Arizona v. California* in 1964.⁴⁶ The Decree (and later, supplemental decrees) identified the apportionments to each of the States, including present-perfected rights and federal reserved rights for federal land reservations. In 2006, the Supreme Court issued a Consolidated Decree, which incorporated all previous entitlements for present-perfected rights and federal reserved rights, as well as the legal framework under which the Secretary must apportion, deliver, and account for consumptive uses of Colorado River water in the Lower Basin.⁴⁷

D. Colorado River Basin Project Act of 1968

The water supply certainty that Arizona achieved in *Arizona v. California* paved the way for the construction of the Central Arizona Project (CAP) to deliver water from the Colorado River Mainstream to lands in Central Arizona. After more than two decades of controversy, Congress authorized the Secretary to construct the CAP on September 30, 1968, through enactment of the Colorado River Basin Project Act (CRBPA).⁴⁸

The CAP would come at a high cost to Arizona, however. Subsection 301(b) of the CRBPA provides that in any year when the Secretary determines a shortage, CAP diversions shall be limited to ensure the delivery of 4.4 MAF for the satisfaction of present perfected rights and other then-existing uses in California, as well as sufficient water to satisfy present perfected rights and then-existing uses in Arizona and Nevada.⁴⁹ Effectively, this provision created a junior priority in the Lower Basin for CAP water and for any new Arizona contracts entered after 1968.

E. 2007 Interim Guidelines

As discussed above, beginning in 2000, the Colorado River Basin experienced some of the worst drought conditions in over a century of continuous recordkeeping.

⁴³ *Id.* at 583, (“In particular, the Secretary is bound to observe the Act’s limitation of 4,400,000 acre-feet on California’s consumptive uses out of the first 7,500,000 acre-feet of mainstream water.”), 590 (“We are satisfied that the Secretary’s power must be construed to permit him, *within the boundaries set down in the Act*, to allocate and distribute the waters of the mainstream of the Colorado River.”) (emphasis added).

⁴⁴ *Id.* at 593-94 (discussing the Secretary’s broad discretion); Decree, 376 U.S. 340, art. II(B)(3) (1963).

⁴⁵ Decree, 376 U.S. 340, art. II(B)(2).

⁴⁶ *Arizona v. California*, 376 U.S. 340 (1963)

⁴⁷ *Arizona v. California*, 547 U.S. 150 (2006) [hereinafter Consolidated Decree].

⁴⁸ Colorado River Basin Project Act, of 1968, Pub. L. No. 90-537 (codified as amended in 43 U.S.C.A. § 1501).

⁴⁹ 43 U.S.C.A. § 1521(b).

Against the background of historic reservoir declines, the Secretary invited the seven Basin States to propose a framework for action.⁵⁰ After more than two years of unprecedented collaboration, the Basin States agreed to set aside their differences through 2026 (the Interim Period) and submitted the Seven Basin States' Proposal.⁵¹

That Proposal was the foundation for the Secretary's adoption in December 2007 of the Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead.⁵² The 2007 Interim Guidelines created a novel approach to Colorado River operations that incentivized conservation and augmentation through the creation of Intentionally Created Surplus (ICS), defined the criteria for shortages in the Lower Basin based on elevations in Lake Mead, implemented closer coordination of operations of Lake Powell and Lake Mead, and preserved flexibility to deal with further challenges such as climate change and deepening drought.⁵³ The provisions of the 2007 Interim Guidelines are discussed in further detail in Section IV, *infra*.

F. Minutes 318, 319 and 323

After the adoption of the 2007 Interim Guidelines, the Basin States and Reclamation turned attention to Mexico and sought to reach agreement regarding Mexico's participation in Lower Basin shortages, as well as potential cooperation on conservation and augmentation projects for binational benefit. The Basin States and Reclamation worked closely with the IBWC to develop a process for a voluntary agreement.⁵⁴ The primary goal was the execution of a minute to the 1944 Water Treaty – an agreement that is supplemental to the treaty without modifying its substantive terms.⁵⁵

In 2010, an earthquake in the Mexicali valley damaged great portions of Irrigation District 014's infrastructure, disrupting Mexico's ability to deliver and use its full 1.5 MAF annual allocation of Colorado River water.⁵⁶ Consequently, in the same year, in consultation with Reclamation and the Basin States, the IBWC executed Minute 318, allowing Mexico to store its unused water in the United States for delivery in a subsequent year.⁵⁷ The maximum amount authorized to be stored was 260,000 acre-feet through

⁵⁰ Colorado River Reservoir Operations: Development of Management Strategies for Lake Powell and Lake Mead Under Low Reservoir Conditions, 70 Fed. Reg. 34794 (June 15, 2005).

⁵¹ Letter from the Governors' Representatives of the States of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming to Secretary Gale A. Norton, Secretary of the U.S. Department of the Interior (Feb. 3, 2006) (on file with authors).

⁵² Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, 73 Fed. Reg. 19873 (Apr. 11, 2008) [hereinafter 2007 Interim Guidelines].

⁵³ *Id.*; see generally Sue McClurg, *supra* note 6, at 4.

⁵⁴ Minute 317, Conceptual Framework for U.S. – Mexico Discussions on Colorado River Cooperative Actions, (June 17, 2010).

⁵⁵ See, e.g., 1944 Water Treaty.

⁵⁶ Minute 318, Adjustment of Delivery Schedules for Water Allotted to Mexico for the Years 2010 through 2013 as a Result of Infrastructure Damage in Irrigation District 014, Rio Colorado, Caused by the April 2010 Earthquake in the Mexicali Valley, Baja California (Dec. 17, 2010).

⁵⁷ *Id.*

2013.⁵⁸ Minute 318 was Mexico’s first experience with storing its unused water for later use and generated new interest on Mexico’s part in the storage concept, laying the groundwork for another comprehensive, short-term agreement.

The United States and Mexico signed Minute 319 to the 1944 Mexican Water Treaty in November 2012, effective for a five-year period, expiring on December 31, 2017.⁵⁹ Minute 319 extended and expanded on the provisions of Minute 318 allowing for the storage of Mexico’s unused water in the United States, thus providing additional protection against shortage for water users in both the U.S. and Mexico.⁶⁰ In addition, Minute 319 provided a framework for the development of joint binational water augmentation and conservation projects, binational environmental projects including resources contributed by non-governmental organizations, and Mexico’s agreement to reduce its water deliveries when Lower Basin water users are subject to shortage under the 2007 Interim Guidelines.⁶¹

In September 2017, prior to the expiration of Minute 319’s five-year term, the U.S. and Mexico executed Minute 323, extending the provisions of Minute 319 through the Interim Period.⁶² Minute 323 also expands on several provisions in Minute 319, including additional binational conservation projects to make water available to funding entities in the U.S. as well as Mexico.⁶³ Most significantly, Minute 323 includes a commitment by Mexico, contingent on the effectiveness of the LBDCP, to participate in actions commensurate with those of the Lower Division States, including defined water contributions at specific elevations in Lake Mead.⁶⁴ This is known as the “Binational Water Scarcity Contingency Plan.”⁶⁵

IV. 2007 INTERIM GUIDELINES

As discussed above, the Secretary adopted the 2007 Interim Guidelines based on a proposal developed by the Basin States to address declining reservoir levels.⁶⁶ The 2007 Interim Guidelines established a shortage framework for the Lower Basin, incentivized storage of water in Lake Mead (known as Intentionally Created Surplus or ICS), and

⁵⁸ *Id.*

⁵⁹ Minute 319, Interim International Cooperative Measures in the Colorado River Basin Through 2017 and Extension of Minute 318 Cooperative Measures to Address the Continued Effects of the April 2010 Earthquake in the Mexicali Valley, Baja California (Nov. 20, 2012).

⁶⁰ *Id.* at §§ III.1, III.4.

⁶¹ *Id.* at §§ III.3, III.6, III.7.

⁶² Minute 323, Extension of Cooperative Measures and Adoption of a Binational Water Scarcity Contingency Plan in the Colorado River Basin (Sept. 21, 2017).

⁶³ *Id.* at IX.

⁶⁴ *Id.* at § IV.

⁶⁵ *Id.*

⁶⁶ Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, 73 Fed. Reg. 19873 (Apr. 11, 2008) [hereinafter 2007 Interim Guidelines].; *see also* Part III(E), *infra*, nn. 50-53.

coordinated operations of Lake Powell and Lake Mead. Reservoir operating decisions under the 2007 Interim Guidelines are in effect through 2026.⁶⁷

Among other things, the 2007 Interim Guidelines provide direction to Reclamation on operations of Glen Canyon Dam (which impounds Lake Powell) to better ‘equalize’ the contents of Lake Powell and Lake Mead.⁶⁸ The Interim Guidelines also specify how the Secretary will operate Lake Mead during surplus, normal, and shortage conditions.⁶⁹ Reclamation has been operating Glen Canyon Dam (Lake Powell) and Hoover Dam (Lake Mead) in accordance with the Guidelines since their adoption in 2007.

Each month, Reclamation runs a computer model (the 24-Month Study) that projects out operations of the Colorado River reservoirs 2 years based on current runoff (or inflow) forecasts from the Colorado Basin River Forecast Center.⁷⁰ The projected January 1st elevations for Lake Powell and Lake Mead are derived from the August 24-Month Study.⁷¹ These elevations are used to determine the initial operating tier and annual release from Lake Powell and the operating level for Lake Mead for the upcoming year.⁷² Adjustments to the annual release from Lake Powell can be made based on results of the April 24-Month Study.⁷³

Releases from Lake Powell⁷⁴ may vary between 7 MAF and 9.5 MAF or more in a year and the methodology is complex, but the “typical” annual release, assuming both reservoirs are relatively balanced, is 8.23 MAF. In Water Year 2011, based on unusually beneficial hydrology during the previous calendar year, the release was 12.52 MAF.⁷⁵ In Water Year 2014, poor hydrologic conditions led to a release of 7.48 MAF per year, the lowest in the reservoir’s history.⁷⁶ In the Water Years since 2015, as Lake Mead has declined even in years of “good” hydrology, 9 MAF per year have been released.

A. Intentionally Created Surplus Provisions

Section 3 of the 2007 Interim Guidelines describes the conditions for creation, delivery, and accounting for ICS. Water that is added to or conserved in Lake Mead in one year under the conditions specified in the 2007 Interim Guidelines (including forbearance) is

⁶⁷ 2007 Interim Guidelines at § 8.A.

⁶⁸ *Id.* at § 6.

⁶⁹ *Id.* at § 2.

⁷⁰ See Reclamation: Managing Water in the West, *Upper Colorado Region*, <https://www.usbr.gov/uc/water/crsp/studies/> (last visited Mar. 28, 2018).

⁷¹ See 2007 Interim Guidelines at §§ 2, 6.

⁷² *Id.*

⁷³ *Id.* at § 7.C.

⁷⁴ Releases from Lake Powell occur during the “Water Year,” defined as “October 1 through September 30.” 2007 Interim Guidelines at §§ 6, XI.F.27.

⁷⁵ U.S. Bureau Of Reclamation, *2012 Annual Operating Plan for Colorado River Reservoirs* at 24, <https://www.usbr.gov/uc/water/rsrvs/ops/aop/index.html> (last visited Mar. 27, 2018).

⁷⁶ U.S. Bureau Of Reclamation, *2015 Annual Operating Plan for Colorado River Reservoirs* at 17, <https://www.usbr.gov/uc/water/rsrvs/ops/aop/index.html> (last visited Mar. 27, 2018).

ICS, and may be released in a subsequent year, subject to a system benefit reduction and annual evaporation losses. ICS delivery is only available during surplus or normal years, and not during shortage years (largely to prevent the release of more than 4.4 MAF to California during a shortage, which would be contrary to the Consolidated Decree, the BCPA, and the California Limitation Act).⁷⁷ A special mechanism during shortage declarations, Developed Shortage Supply (DSS), was created to allow Nevada to use imported or tributary augmentation in the same year it is added to the Colorado River System.⁷⁸

ICS may only be created by a conservation project that results in a reduction of consumptive use or an augmentation project that increases the water in the Mainstream, and that project must be specifically recognized in a forbearance agreement.⁷⁹ The forbearance agreement must be executed by the Director (Director) of the Arizona Department of Water Resources (Department) (as authorized by the Arizona Legislature), the Southern Nevada Water Authority, the Colorado River Commission of Nevada, the Palo Verde Irrigation District, the Imperial Irrigation District, the Coachella Valley Water District, The Metropolitan Water District of Southern California, and the City of Needles.⁸⁰

B. Lower Basin Shortages

Section 2 of the 2007 Interim Guidelines addresses Lake Mead's operation during the Interim Period. In each year, the Secretary uses projected Lake Mead elevations (projected elevations on January 1 of the following year based on the August 24-Month Study) to determine whether there is a surplus, normal, or shortage condition for water deliveries to the Lower Basin in the following year.⁸¹

The 2007 Interim Guidelines established three shortage tiers based on Lake Mead elevations.⁸² At each elevation, both Arizona and Nevada are subject to reductions.⁸³ The volumes were agreed upon by the Basin States based on analysis of hydrologic data and negotiations between Arizona and Nevada.⁸⁴ Originally, the Basin States included reductions in deliveries to Mexico in the calculations, but because the U.S. intended to

⁷⁷ 2007 Interim Guidelines at §§ 2.B.5., 3.C.2.

⁷⁸ 2007 Interim Guidelines at § 4.

⁷⁹ 2007 Interim Guidelines at § 3.C.3.; *see also* XI.A., discussing forbearance as a condition of implementation. In this context, those parties having rights to surplus Colorado River water agree to forgo, or not exercise, their rights to request delivery of a portion of the ICS (or intentionally created *surplus*) under Article II(B)(2) and II(B)(6) of the Consolidated Decree. Contemporaneously with the Secretary's Record of Decision adopting the 2007 Interim Guidelines, the necessary parties in the Lower Basin, including the Director of the Arizona Department of Water Resources on behalf of the State of Arizona, executed the Lower Colorado River Basin Intentionally Created Surplus Forbearance Agreement. The forbearing parties executed similar agreements associated with "Binational ICS," contemporaneously with the execution of Minute 319 in 2012 and Minute 323 in 2017.

⁸⁰ 2007 Interim Guidelines at XI.A., 70 Fed. Reg. 19883-84.

⁸¹ 2007 Interim Guidelines at § 2.

⁸² 2007 Interim Guidelines at § 2.D.

⁸³ *Id.*

⁸⁴ *See* Arizona-Nevada Shortage-Sharing Agreement (Feb. 9, 2007) (on file with author).

consult separately with Mexico, the Secretary’s Record of Decision reduced the volumes to exclude the portions associated with Mexico’s assumed participation.⁸⁵ As discussed above, Mexico later agreed to voluntarily reduce deliveries at specific Lake Mead elevations, consistent with shortage reductions in Arizona and Nevada under the 2007 Interim Guidelines.⁸⁶ The shortage reductions in acre-feet (AF) for Arizona, Nevada, and Mexico are provided in Table 1.

Lake Mead Jan 1, Elevation*	Shortage Tier	Arizona Reduction	Nevada Reduction	Mexico Reduction
1075’	1	320,000 AF	13,000 AF	50,000 AF
1050’	2	400,000 AF	17,000 AF	70,000 AF
1025’	3	480,000 AF	20,000 AF	125,000 AF

Table 1- Projected Jan. 1 Elevation from August 24-Month Study

V. SHORTAGE IN ARIZONA

To date, the Secretary has never determined a shortage condition in the Lower Basin pursuant to the 2007 Interim Guidelines. If a shortage is declared on the Colorado River, Arizona would bear the largest volumes of shortage reductions.

A. Arizona’s Colorado River Priority System

Arizona’s 2.8 MAF Colorado River allocation will be administered according to a priority system during shortages. The system is based primarily on the Supreme Court’s decisions in *Arizona v. California* and the Consolidated Decree, described in Section III(D) above.⁸⁷ During a shortage determination, Arizona’s lower priority users would be reduced first. There are six priority classifications.

First Priority – Present Perfected Rights: Present perfected rights are water rights that were established under state law prior to June 25, 1929, the effective date of the Boulder Canyon Project Act, and water rights created by the reservation of mainstream water for the use of federal establishments under federal law prior to June 25, 1929. These rights are identified in the Consolidated Decree.

Second Priority – Federal Reservations and Rights Established Prior to 1968: Second priority users are federal rights established prior to September 30, 1968 (the effective date of the CRBPA, which established a junior priority for CAP and other rights or contracts

⁸⁵ See 2007 Interim Guidelines at XI.C.

⁸⁶ Minute 319 at § III.3; Minute 323 at § III.

⁸⁷ The Arizona priority system for Colorado River entitlements is also set forth in Appendix A to the Department’s Substantive Policy Statement No. CR9, *Policy and Procedure for Transferring an Entitlement of Colorado River Water* (Jan. 29, 2018), <https://new.azwater.gov/laws-rules-policies/substantive-policy-statements>).

established after that date) that do not qualify as present perfected rights and state-based rights perfected prior to September 30, 1968 that do not qualify as present perfected rights.

Third Priority – Contracts established Before 1968: Third priority users are those users that executed contracts with United States on or before September 30, 1968. The second and third priorities are effectively co-equal.

Fourth Priority – Contracts Established After 1968: Fourth priority users include contracts, secretarial reservations, and other arrangements between the United States and Arizona water users entered or established after September 30, 1968, as well as CAP water. All fourth priority entitlements are coequal (subject to priorities of CAP water, discussed in the section below).

Fifth Priority – Unused Entitlements: Fifth priority users have contracts for any unused entitlement water. This water is available on a yearly basis, only after the Secretary has determined that mainstream water is available.

Sixth Priority – Surplus Water: Sixth priority users have contracts for any surplus water. This water is only available after the Secretary has determined a surplus condition for that year.

Fifth and Sixth priority entitlements would not be offered water if a shortage is determined. Fourth priority users would be the first users to receive reductions. As part of the 2007 Interim Guidelines, the Director held a stakeholder process to negotiate a shortage-sharing agreement among Fourth priority on-river users and the Central Arizona Water Conservation District (CAWCD), whereby Fourth priority on-river users would receive reductions based on their entitlements, rather than their average consumptive use.⁸⁸ Since most fourth priority on-river users do not have alternate supplies, the agreement allows them the opportunity to develop other supplies and grow into their entitlements. In the early years, CAP water users would bear the majority, if not all, of Arizona’s shortages. The Director of the Department submitted the shortage-sharing agreement as a recommendation to the Secretary through Reclamation.⁸⁹ Reclamation has responded positively to the recommendation.⁹⁰

B. CAP Priority

A series of settlements have established four priority “pools” of CAP water.⁹¹ These priority pools have been incorporated into the subcontracts for CAP water and provide for the distribution of water under shortage conditions.

⁸⁸ Director’s Shortage Sharing Workgroup Recommendation (Oct. 24, 2006) (on file with author).

⁸⁹ See Letter from Terrance J. Fulp, Ph.D., Regional Director, U.S. Bureau of Reclamation Lower Colorado Regional Office, to Sandra A. Fabritz-Whitney, Director, Arizona Department of Water Resources (Nov. 13, 2013).

⁹⁰ *Id.*

⁹¹ See Central Arizona Project (CAP), Arizona; Water Allocations, 71 Fed. Reg. 50449, 50450-51 (Aug. 25, 2006) (summarizing the history of CAP allocation decisions and settlement agreements).

The first pool, Priority 3 Indian Water Rights Settlement Water, has the highest priority in the CAP system.⁹² This pool would *not* be reduced during the shortages defined in the 2007 Interim Guidelines.

The next pool is the CAP Priority 4 water allocated to Indian and municipal and industrial (M&I) subcontractors, which have co-equal priority deliveries.⁹³ The Indian and M&I priority pool would be the last to be reduced during a shortage under the 2007 Interim Guidelines.

The third pool, the non-Indian agricultural “relinquished water” pool (NIA priority pool) was created as part of the Arizona Water Settlements Act (AWSA), when CAP non-Indian agricultural contractors relinquished their NIA priority water subcontracts (due to its high cost) for a pool of less costly CAP water.⁹⁴ The NIA priority pool would be reduced during a shortage after all excess water (discussed below) is reduced to zero.

The fourth pool, the excess pool, is the remaining CAP supply. The excess pool is further divided into separate priorities:

1. Non-Indian Agriculture Settlement water, also known as the agricultural pool, is the subsidized water for agricultural users who relinquished NIA priority subcontracts under the AWSA. The agricultural pool decreases per the following schedule:
Through 2016: 400,000 AF per year
2017-2023: 300,000 AF per year
2024-2030: 225,000 AF per year
After 2030: 0 AF per year
2. Water for the Central Arizona Groundwater Replenishment District (CAGRDR) replenishment obligations is determined based on the resources available to CAGRDR in its water supply portfolio to meet annual replenishment obligations; if those resources are insufficient, CAGRDR may access the excess water pool up to a certain limit (up to 35,000 AF from 2015 through 2019).
3. Water for the Arizona Water Banking Authority (AWBA) and the CAGRDR replenishment reserve (co-equal priority) is determined on an annual basis. This volume varies from year to year because it is dependent on the anticipated supply of CAP water and on the demand of the higher priority users (as well as on the volume of water that CAWCD elects to conserve in Lake Mead in that year). CAWCD may also make this pool available to the United States for Indian firming.

⁹² See *Maricopa-Stanfield Irr. And Drainage Dist. V. U.S.*, 147 F.3d 1168, 1171 (9th Cir. 1998).

⁹³ *Id.*

⁹⁴ Central Arizona Project (CAP), Arizona; Water Allocations, 71 Fed. Reg. 50449, 50450-51 (Aug. 25, 2006).

4. Other excess water deliveries (i.e., short term contracts) were previously available after all other pools were satisfied. CAWCD has not offered excess water contracts since 2012 and has not delivered excess water since 2014, electing instead to allocate all water available after the satisfaction of the Priority 3, Priority 4, NIA priority, and Agricultural pools to the CAGR and the AWBA for replenishment and storage.⁹⁵

The CAGR, the AWBA, and agricultural users would see the first reductions during a shortage, followed by the NIA priority users.

VI. LOWER BASIN DROUGHT CONTINGENCY EFFORTS

A. The Structural Deficit

Given the framework for releases from Lake Powell, basic apportionments in the Lower Basin, the allotment to Mexico, and evaporation losses, Lake Mead annual outflow is about 1.2 MAF more than the annual inflow. The result is an imbalance that causes Lake Mead to drop by 12 feet or more every year when there is a “normal” release of 8.23 MAF from Lake Powell (See Section III(E) above). This imbalance is referred to as the “structural deficit.” Lake Mead elevation has fallen approximately 134 feet from 2000 to the end of 2016, bringing it closer to elevations critical to a shortage determination.

Water Budget at Lake Mead	
Inflow (Release from Lake Powell + side inflows)	9.0 MAF
Outflow (AZ, CA, NV and Mexico delivery + downstream regulation and gains/losses)	-9.6 MAF
Lake Mead evaporation losses	-0.6 MAF
Balance	-1.2 MAF
On average, Lake Mead storage declines about 12 feet each year	

Table 2- Water Budget at Lake Mead

B. Increasing Risks

⁹⁵ Central Arizona Water Conservation District, *Procedure for distributing excess CAP water for the Period of 2015 through 2019*, (Mar. 6, 2014), <https://www.cap-az.com/documents/departments/water-operations/CAWCD-Procedure-Excess-Water-2015-2019.pdf>.

In 2013 the Colorado River basin experienced another bad year of hydrology, exacerbating the ongoing drought conditions and triggering a 7.48 MAF release from Lake Powell in Water Year 2014.⁹⁶ Recognizing the potential for an increased chance of Lake Powell and Lake Mead falling below critical elevations as early as 2016 and 2017,⁹⁷ representatives of the seven Basin States and Reclamation initiated a scenario planning process. These scenarios when modeled, decreased the probability of Lake Mead falling into tier 1 shortage by half and had the ability to bend the curve of declining Lake Mead elevations.⁹⁸

By 2014, the probability of a shortage in the Lower Basin between 2015 and 2019 had risen to approximately 70%.⁹⁹ Representatives of the Lower Basin States and Reclamation began analyzing immediate actions to prevent or delay reaching critical elevations in Lake Mead.¹⁰⁰ The technical staff determined that once Lake Mead falls to elevation 1,020', Lake Mead storage would be reduced to just 5.66 MAF (far less than the annual releases and evaporation losses, even with current shortage reductions), and the fall to 1,000' elevation would be swift.¹⁰¹ At 1,000' elevation, Lake Mead storage is reduced to four MAF.¹⁰²

Hydrology	Lake Mead Elevation 1,020'			Lake Mead Elevation 1,000'		
	Maximum in any year*	First year that maximum occurs	Average through 2026	Maximum in any year	First year that maximum occurs	Average through 2026
Observed	2.1	2019	0.74	1.9	2019	0.49
Climate Change	6.1	2025	1.7	6.0	2025	1.8
Combined	6.1	2025	1.5	6.0	2025	1.6

Table 3- 2014 Summary of Findings (*Quantities are expressed in MAF)

⁹⁶ U.S. Bureau of Reclamation, *Upper Basin Hydrology and Projected Operations, Water Years 2014 and 2015*, Adaptive Management Work Group Presentation (Aug. 27-28, 2014), https://www.usbr.gov/uc/rm/amp/amwg/mtgs/14aug27/Attach_02a.pdf.

⁹⁷ Arizona Department of Water Resources, presentation to the Colorado River Advisory Council Meeting (Oct. 28, 2013) (on file with author).

⁹⁸ Arizona Department of Water Resources, *supra* note 94.

⁹⁹ U.S. Bureau of Reclamation, August 2014 CRSS projections (on file with author).

¹⁰⁰ Although initially the seven Basin States worked jointly, it became clear that the differences between the operations in the Upper Basin and Lower Basin called for separate measures. Consequently, by 2014 the Upper Division States and the Lower Division States began separate discussions, both with support from Reclamation staff.

¹⁰¹ U.S. Bureau of Reclamation, 2009 Lake Mead Area and Capacity Tables (Sept. 2011), https://www.usbr.gov/lc/region/g4000/LM_AreaCapacityTables2009.pdf.

¹⁰² *Id.*

Table 3 summarizes the additional volumes of water that would need to be saved in the system, above the amounts taken under the Interim Guidelines shortage tiers, in order to keep Lake Mead above 1,020' and 1,000'.¹⁰³ This analysis showed the need for proactive, measured reductions in advance of hitting these low reservoir elevations to avoid enormous reductions, likely over a very short period of months. Through 2026, as much as 6.1 MAF in a single year could be required to be reduced to keep Lake Mead above 1,020'.¹⁰⁴

C. The Lower Basin Drought Contingency Plan

As a result of this risk assessment, in the summer of 2015, principal representatives of the Lower Basin States and Reclamation began negotiations to develop a proposal to avoid catastrophic reductions in the Lower Basin. The principal representatives have developed the Lower Basin Drought Contingency Plan (LBDCP) to ensure long-term sustainability of the system by incentivizing storage through increased flexibility.¹⁰⁵ Modeling by Reclamation has shown that implementation of the LBDCP would significantly reduce the probability of Lake Mead falling below elevation 1,020' during the Interim Period.

The LBDCP will require agreement by the United States, California Contractors, the Southern Nevada Water Authority, the Colorado River Commission of Nevada, and the Director of the Department with authorization from the Arizona Legislature. Because certain provisions of the LBDCP will modify the Law of the River, including provisions of the Consolidated Decree, Congressional authorization will also be necessary.¹⁰⁶

The goal of the LBDCP is to protect Lake Mead from declining to elevation 1020' through additional reductions and conservation by Arizona, California, Nevada, and the United States. The LBDCP is intended to supplement the 2007 Interim Guidelines (replacing provisions where necessary) and would be in place through the year 2026, when the 2007 Interim Guidelines expire.

¹⁰³ Arizona Department of Water Resources, *supra* note 97.

¹⁰⁴ *Id.*

¹⁰⁵ The LBDCP agreement is still subject to negotiation, but the contours described herein are based on a draft of key terms. Version 20 (Jan. 1, 2018) (on file with authors). Because the key terms draft will likely be converted into a different format with different numbering, individual citations are not provided for the remainder of this section.

¹⁰⁶ In the Agreement Regarding Notice from the Secretary of the Interior for the Purpose of Implementing Section IV of Minute No. 323, executed by the seven Basin States and the Secretary contemporaneously with and in support of Minute No. 323 on September 21, 2017, the Basin States agreed “to work together to seek consensus in finalizing both an LBDCP and [an Upper Basin Drought Contingency Plan]” and to work together to seek federal legislation directing the Secretary to implement the LBDCP. The collaborative efforts of the seven Basin States, like the negotiations among the Lower Division States and within each State, are ongoing.

Lake Mead Elevation	Arizona			Nevada			California			BOR	Mexico			Total
	2007	Plan	Total	2007	Plan	Total	2007	Plan	Total		Min 323	Plan	Total	
≤1090 and >1075	0	192	192	0	8	8	0	0	0	100	0	41	41	341
≤1075 and >1050	320	192	512	13	8	21	0	0	0	100	50	30	80	713
≤1050 and >1045	400	192	592	17	8	25	0	0	0	100	70	34	104	821
≤1045 and >1040	400	240	640	17	10	27	0	200	200	100	70	76	146	1,113
≤1040 and >1035	400	240	640	17	10	27	0	250	250	100	70	84	154	1,171
≤1035 and >1030	400	240	640	17	10	27	0	300	300	100	70	92	162	1,229
≤1030 and >1025	400	240	640	17	10	27	0	350	350	100	70	101	171	1,288
≤1025	480	240	720	20	10	30	0	350	350	100	125	150	275	1,475

Table 4- Quantities are shown in thousand acre-feet.

1. Voluntary Water Contributions

One of the most significant components of the LBDCP is an agreement by California to contribute water when Lake Mead is below elevation 1,045'.¹⁰⁷ As mentioned earlier, California is not required to take any reductions under the 2007 Interim Guidelines. Additional reductions by Arizona and Nevada, above those contemplated in the 2007 Interim Guidelines are another primary component of the LBDCP. In addition, the United States would take actions to conserve 100,000 AF per year or more in Lake Mead.

An outline of proposed LBDCP reductions in combination with existing shortage volumes, including commitments by Mexico in Minute 323, is shown in Table 4.

2. Absolute Protection of Elevation 1,020'

Another critical component of the LBDCP is a commitment by the United States and the Lower Basin States to absolutely protect Lake Mead from falling below elevation 1020'. Specifically, whenever any August 24-Month Study projects the elevation of Lake Mead to fall below 1030' during the subsequent two years, the Lower Basin States and the United States would consult to determine what additional measures are required to protect Lake Mead from falling below elevation 1020'. This would be the first time the Lower Division States and Reclamation have agreed to protect a specific elevation in Lake Mead.

¹⁰⁷ These water contributions are a voluntary commitment, in the sense that each party must voluntarily agree to the LBDCP. However, upon execution and Congressional authorization, these water contributions will become mandatory. Implementation will vary by State, but to date, Arizona stakeholders have presumed implementation through the same mechanisms as any shortage reduction. Meanwhile, California parties intend to implement DCP Contributions through the creation of ICS in advance of the time such contributions are required.

3. ICS

The LBDCP also proposes greater flexibility in the provisions governing ICS. Under the 2007 Interim guidelines, ICS cannot be released when Lake Mead is below elevation 1075'. The LBDCP would authorize the release of ICS at lower Lake Mead elevations. ICS, including that existing as of the effective date of the LBDCP, may be released above elevation 1,025' under certain conditions. ICS could not be recovered below elevation 1,025'.

Under the 2007 Interim Guidelines, ICS is subject to a 5% system assessment upon creation, and a 3% evaporative loss each year it remains in Lake Mead. To incentivize continued storage in Lake Mead, ICS created after the LBDCP takes effect would be subject to a one-time 10% assessment. Any ICS created at least three years prior to the effective date would no longer be assessed evaporation losses. ICS created less than three years prior would be assessed the difference between 10% and the volume already assessed.

The LBDCP would also increase the maximum limit on the quantity of ICS that may be accumulated in each State's ICS account at any time. Arizona's limit would increase to 500,000 AF; Nevada's limit would increase to 500,000 AF; and California's limit would increase to 1.7 MAF.¹⁰⁸ The LBDCP also would authorize the Lower Basin States to use available annual ICS creation capacity from another State by agreement.

4. DCP ICS

As described above, the LBDCP would require water contributions by each Lower Basin State at certain trigger elevations. All LBDCP water contributions achieved through activities that qualify as Extraordinary Conservation ICS would be accounted for as DCP ICS and will only be available for delivery when Lake Mead recovers to elevation 1110'.¹⁰⁹

VII. ARIZONA IMPLEMENTATION OF THE LBDCP: A COLORADO RIVER CONSERVATION PROGRAM FOR ARIZONA

The LBDCP would be implemented within Arizona according to the priority systems described in Section V, *supra*. Thus, the LBDCP reductions would primarily affect the Other Excess Pool (for CAGR and the AWBA), the Agricultural pool and the NIA priority pool, while the long-term benefits of the LBDCP would primarily accrue to the higher-priority entitlement holders. The agricultural pool users will not see long-term benefits because that pool will expire in 2030, soon after the end of the Interim Period. NIA priority pool users have permanent entitlements and anticipate reductions, but the probability that the pool will be reduced is significantly increased under the LBDCP. Therefore, an

¹⁰⁸ Arizona's representatives negotiated this provision to allow for the creation of ICS by Arizona tribal communities.

¹⁰⁹ Although DCP ICS would not be available for delivery, there are certain conditions under which a Contractor could "borrow" a portion of its DCP ICS on a short-term basis with the obligation to "repay" it in a subsequent year. This additional flexibility is intended to allow California Contractors to better manage potential droughts within the California State Water Project.

equitable implementation plan is necessary to partially mitigate the negative impacts to these lower priority pools. After extensive discussions with stakeholders since August 2016, the Department has developed a concept for such: the Colorado River Conservation Program for Arizona.

A. The Proposal: A Colorado River Conservation Program for Arizona

The primary message from key stakeholders – those with lower priority contracts for water delivered through the CAP system – was a desire to avoid the first tier of shortage if the LBDCP is implemented. The initial reduction of 192,000 AF to Arizona would begin immediately, as Lake Mead’s elevation is currently well below 1,090’. However, this reduction has been achieved in recent years through a combination of funded and unfunded system conservation and potential creation of ICS.¹¹⁰ Adding to that volume the 320,000 AF reduction that Arizona will face under the first tier of shortage, however, will effectively eliminate any water for the Agricultural pool and potentially reduce NIA-priority supplies as well. Therefore, the Department’s proposal focuses primarily on voluntary efforts to avoid the first tier of shortage throughout the Interim Period. This would be achieved through a combination of system conservation projects and the creation of ICS by Arizona water users.

Moreover, the Department would manage a statewide program to allow public consideration of conservation projects that may be eligible for system conservation funding and for ICS, prior to their implementation. The Department would develop a policy for determining the potential for reduction in consumptive use to ensure that each project conserves water that would have otherwise been beneficially used, while considering the various factors that can affect consumptive use accounting by a specific Contractor. Once a project is “approved” by the Department, it is eligible for implementation as a system conservation project or an ICS project in future years, subject to the applicable regulations.

To maximize the State’s flexibility to create ICS throughout the Interim Period, Arizona would offer a single, statewide exhibit for approval by Contractors¹¹¹ in California and Nevada. This single exhibit would describe the different categories of ICS programs that Arizona Contractors might implement to create ICS but would allow any Arizona Contractor to participate in a particular year. This flexibility allows Contractors to create ICS when it works within their business models, without requiring separate exhibits to be approved by Contractors in other states for similar projects.

¹¹⁰ U.S. Bureau of Reclamation, *Colorado River Basin Update on Hydrology and Operations*, presented at Basin States Meeting in Santa Fe, New Mexico (Sept. 26, 2017) (on file with author).

¹¹¹ Only Contractors are eligible to create ICS. See 2007 Interim Guidelines at § 3.A.1. (“A Contractor may create Extraordinary Conservation ICS...”). The 2007 Interim Guidelines define a “Contractor” as, “an entity holding an entitlement to Mainstream water under (a) the Consolidated Decree, (b) a water delivery contract with the United States through the Secretary, or (c) a reservation of water by the Secretary, whether the entitlement is obtained under (a), (b) or (c) before or after the adoption of these Guidelines.” XI.F.9. The Department understands, and Reclamation staff has confirmed that this definition includes tribes and Indian communities that have a congressionally authorized settlement including an entitlement to Mainstream water to be delivered through the CAP.

The Department would operate as an ICS administrator for the State of Arizona, collaborating with Contractors seeking to create ICS each year to prepare a single ICS creation plan for the State and a single ICS certification report at the end of each year. This would simplify the process for each Contractor, while ensuring that Reclamation receives accurate information in a universal format. Additionally, the Department would use the information from the ICS creation plans of each Arizona Contractor to inform its target elevation and conservation goal for the coming year.

1. Targeted Elevation of 1,080' in Lake Mead

The Department's approach employs a rolling, five-year adaptive management program relying on hydrologic updates to assess tier 1 shortage probabilities and potential usage of conservation volumes over the next five years. The foundational idea is to save enough water in Lake Mead that not only achieves an end-of-year Lake Mead elevation above 1,075' but also starts to reduce shortage probabilities, by gradually targeting an elevation of 1,080' in Lake Mead. A five-year outlook allows the Department to plan before shortages are unavoidable. Another highlight of the approach is an adaptive management framework, under which the Department will continually assess the changing hydrology, the conservation efforts in other Lower Basin States and Mexico, and the changing opportunities to conserve water in Arizona.

Based on Reclamation's August 24-month study, the Department will determine the amount of conservation within Arizona necessary to achieve an end-of-year elevation of 1,080' in Lake Mead. While any eligible Contractor may choose to create ICS under the terms of the 2007 Interim Guidelines, with any applicable modifications in the LBDGP, the target elevation will guide the system conservation efforts within Arizona.

2. Compensated System Conservation

A critical component of the Department's proposal is the establishment of a conservation program to provide local and federal funding for system conservation efforts in Arizona. As discussed previously, funded system conservation efforts have proven successful at protecting elevations in Lake Mead. There has been increasing interest from Arizona stakeholders in partnering with Reclamation to fund system conservation within Arizona. Some projects might be short-term, even one-time fallowing efforts to conserve water in a single year. Other projects could involve funding systemic improvements to conserve water in the longer term. The opportunity to pair Arizona dollars with federal dollars to maximize the investment in Arizona conservation is too good to miss.

3. Arizona ICS, Including Tribal ICS

Funded conservation cannot and should not be the only tool Arizona has to protect Lake Mead elevations. Arizona tribes have expressed interest in creating ICS during the Interim Period. The creation of ICS would not be compensated, but a tribe that creates ICS can later recover the ICS or transfer it to another water user within Arizona.¹¹² ICS could

¹¹² ICS cannot be transferred to a water user in another State. *See* 2007 Interim Guidelines at § 3.B.8. ("Extraordinary Conservation ICS from a project within a state may only be credited to the ICS Account of

only be created through a program approved in an exhibit to a forbearance agreement. ICS would be subject to the applicable provisions in the 2007 Interim Guidelines and the LBDCP. A tribe with an entitlement to CAP water through a settlement will likely have the necessary Congressional authorization to transfer ICS for use off-reservation. A tribe with a Mainstream entitlement would require Congressional authorization before ICS can be transferred for use off-reservation.¹¹³

4. The Role of the Arizona Department of Water Resources

In addition to coordinating a public process to review conservation projects and serving as the ICS administrator for Arizona, the Department would also provide forbearance on behalf of the State of Arizona for water to be conserved either as system conservation or as ICS and for ICS deliveries. Currently, only CAWCD offers forbearance among all Arizona Contractors. However, numerous other Arizona Contractors have entitlements to Fifth Priority (unused Arizona entitlement) and Sixth Priority (surplus) Colorado River water. While those Contractors' demands do not yet exceed their Fourth Priority contract entitlements, in the future those entitlements could threaten the creation of system conservation or ICS within Arizona.

It is appropriate for the Director of the Department to forbear on behalf of Arizona Contractors because the Director serves as the Governor's representative on Colorado River issues on behalf of the State of Arizona and plays a significant role in the State's management of Colorado River water.¹¹⁴ In addition, the Legislature has previously authorized the Director, on behalf of the State, to forbear the delivery of ICS to Contractors

a Contractor within that state that has funded or implemented the project creating ICS, or to the ICS Account of a Contractor within the same state as the funding entity and project and with written agreement of the funding entity.”)

¹¹³ See 25 U.S.C. § 177 (“No purchase, grant, lease, or other conveyance of lands, or of any title or claim thereto, from any Indian nation or tribe of Indians, shall be of any validity in law or equity, unless the same be made by treaty or convention entered into pursuant to the Constitution.”); see also *Fed. Power Comm'n v. Tuscarora Indian Nation*, 362 U.S. 99, 119 (1960) (“The obvious purpose of that statute is to prevent unfair, improvident or improper disposition by Indians of lands owned or possessed by them to other parties, except the United States, without the consent of Congress, and to enable the Government, acting as *parens patriae* for the Indians, to vacate any disposition of their lands made without its consent.”). Although no court appears to have expressly addressed whether the statute applies to the sale or lease of an Indian tribe's water rights, several court opinions appear to assume that it does. See, e.g., *In re Gen. Adjudication of All Rights to Use Water In Gila River Sys. & Source*, 212 Ariz. 64, 78–79, 127 P.3d 882, 896–97 (2006).

¹¹⁴ The Department is the agency designated under state law to prosecute and defend all rights, claims, and privileges of the State of Arizona regarding the Colorado River. A.R.S. 45-105(A)(9). The Department is responsible for formulating plans and programs for the development, management, conservation, and use of surface water, including Colorado River water, in Arizona. A.R.S. 45-105(A)(1). The Department is authorized by statute to consult, advise, and cooperate with the Secretary of the Interior on behalf of the State with respect to the exercise of the Secretary's authority over Colorado River water and with respect to interstate agreements regarding Colorado River water, and the Department reviews and make recommendations to the Secretary regarding proposed allocations, transfers, and assignments of Colorado River water, including Central Arizona Project water, within Arizona. A.R.S. 45-107. With the approval of the Legislature, the Director may enter into agreements involving Arizona's sovereign rights to Colorado River water. A.R.S. 45-106.

in California and Nevada.¹¹⁵ Moreover, such an authorization would not violate any Arizona Contractors' rights, because all Arizona contracts with the Secretary for Colorado River water are subject to the terms of Arizona's 1944 Contract with the Secretary and subject to Arizona law.¹¹⁶ The State of Arizona retains its authority to forbear a portion of the 2.8 MAF per year to which Arizona is entitled, and the Legislature may authorize the Director to exercise that authority on behalf of Contractors seeking to conserve water in Lake Mead.

5. The Need for a Statewide Program

A statewide Colorado River Conservation Program will allow the public to understand how water is saved and accounted for and encourage more participation in ICS programs, ultimately creating more flexibility for Arizona in the future. The Colorado River Conservation Program, as proposed by the Department, will allow the State of Arizona greater control of its water future by creating additional tools for statewide management of Colorado River water.

Although interstate conservation efforts have been successful at delaying shortages to date, little information is shared regarding the reductions in consumptive uses achieved by individual projects. There is currently no process for providing notice to the public of projects under consideration or an opportunity to comment on calculations of potential conservation volumes. Allowing an opportunity for public review and comment on conservation projects will ensure that a full variety of factors are considered when approving conservation projects in Arizona. Moreover, a public process will allow other water users to understand the factors that influence calculations of water saved and potentially improve their own conservation efforts.

Expanded participation in ICS by Arizona Contractors would also expand water management flexibility in Arizona. Given that under the proposed LBDCP reductions, CAWCD will not likely have the capacity to create new ICS, allowing other Arizona Contractors to create ICS would allow Arizona to take advantage of the new ICS flexibility. Arizona tribes and Indian communities, in particular, hold entitlements to as much as half of Arizona's 2.8 MAF per year of Colorado River water at a variety of priority tiers, and may be better suited to create ICS under LBDCP reductions. In addition to developing new, collaborative partnerships, Tribal ICS would diversify Arizona's firming portfolio.

In recent years, we have seen that obtaining approval of new ICS exhibits is more difficult. Creating a single, statewide program for Arizona will provide the best opportunity

¹¹⁵ House Joint Resolution 2001, 48th Leg., 1st Reg. Sess. (Ariz. 2007); Arizona House Joint Resolution 2002, 50th Leg., 2nd Reg. Sess. (Ariz. 2012); House Joint Resolution 2002, 53rd Leg., 1st Reg. Sess. (Ariz. 2017).

¹¹⁶ CAWCD's 1988 Master Repayment Contract with the Secretary specifies that water deliveries are subject to the availability of water under Arizona's 1944 Contract. *See* § 8.3(a)(1). In a court-approved stipulation, CAWCD and the Secretary agreed that its contract provisions therein "are subject tot Federal law, State of Arizona law, and such rules and regulations as the Secretary may deem appropriate, as those laws and rules and regulations may be amended." *CAWCD v. U.S.*, No. CIV 95-09625-09-TUC-WDB (EHC) AND CIV 95-1720-PHX-EHC, ¶ 11 (Nov. 20, 2007) (Consolidated) (Stipulation for Judgment).

for Arizona Contractors to create ICS when they have the resources to do so. In subsequent years, the ICS created could be converted to DCP ICS to fulfill Arizona's contribution, or it could be delivered to firm water supplies subject to reductions under the LBDCP and shortages.

B. Opposition to the Proposal

While most water users have expressed agreement with the Department's proposed Colorado River Conservation Program in Arizona, we have not yet achieved consensus. Agricultural pool users have expressed concern that efforts to prevent or delay a tier 1 shortage will be insufficient and have insisted on "insurance" to mitigate their lost water if a tier 1 shortage occurs during the Interim Period. Developers relying on the CAGRDR are also concerned about the potential for rising costs of replenishment, although the CAGRDR does not require excess water in the remainder of the Interim Period.¹¹⁷ CAWCD has objected to the State's role in managing Colorado River supplies, arguing that as the junior Contractor in Arizona, CAWCD alone should have authority to decide how much water is conserved and how much ICS is created in Arizona.

VIII. CONCLUSION

The real question about LBDCP is not whether Arizona should agree to it, but when, and how to implement it most fairly within Arizona. California is facing similar deliberations. However, given the risk to the entire Colorado River Basin and the millions of people who depend on the River every year, we must take action. Arizona must continue our best efforts to conserve what we can until we can come together and speak with one voice in favor of the LBDCP.

¹¹⁷ Central Arizona Groundwater Replenishment District, *2015 Plan of Operation*, Figure 4.1, 4-17, <http://www.cagrdr.com/operations/plan-of-operation/current-plan> (last visited Mar. 28, 2018).