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WATER IN THE WEST

The Colorado River and Arizona's Role in Preserving it for Generations to Come

With 40 million users today and as many as 75 million users by 2060, smart water planning is critical to life and economic prosperity in the American West—our collective futures depend upon it. This paper is the first in a series exploring Arizona's role in creating a sustainable drought contingency plan to ensure a steady supply of Colorado River water is available for generations to come.

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ARIZONA CHAMBER FOUNDATION

WATER

POLICY BRIEF

The Colorado River and Arizona's Role in Preserving it for Generations to Come

"Perhaps no body of water has been more critical to our ongoing prosperity than the Colorado River."

INTRODUCTION

Smart water planning has always been central to life and economic prosperity in the American West. Perhaps no body of water has been more critical to our ongoing prosperity than the Colorado River.

A collection of agreements, laws and court decisions spread over more than a century—collectively known as the *Law of the River*—define how Arizona, California, Colorado, Nevada, New Mexico, Utah, Wyoming and portions of Northern Mexico share the Colorado River,[1] an important source of water for states in the river's watershed.

Now, the increasingly arid conditions of the twenty-first century have harkened a new era of negotiation to forge a seven-state Colorado River *Drought Contingency Plan (DCP)* to prepare for likely reductions in river allocations as soon as January 2020. However, the three Lower Basin states—of which Arizona is one—will come up with their own set of agreements to define by how much each state must reduce its Colorado River water and when. This will culminate in a *Lower Basin Drought Contingency Plan (LBDCP)*. The four Upper Basin states will do the same.

Perhaps the heaviest lift in this effort will happen right here in the desert. Before Arizona can commit to our partner states, Arizona entities with rights to Colorado River water must voluntarily agree to operationalize these reductions within their cities, industries and tribes. These agreements will require sacrifice and collaboration beyond what many have experienced in modern water history.

Lake Mead is approaching historically low water levels and the clock is ticking to reach a key agreement. Broad support from stakeholders is necessary to craft an *LBDCP* and to establish relationships necessary should more severe measures be needed into the future. This paper does not provide recommendations. However, Arizona's water users must find solutions through negotiation. We stress this point: agreement must be found.

To that end, this Policy Brief seeks to educate the business community, policy makers and other Arizonans on this ongoing effort to negotiate the Lower Basin's responsibilities under this plan, how we arrived at this point, and what that means for a wide array of Arizona's Colorado River users.

In 2017, the Arizona Chamber Foundation released a primer on Arizona's water supplies, water history and current supply conditions titled, *Water in Arizona: Our Past, Present and Future*.[2] We hope this resource is useful to anyone who seeks to better understand Arizona's 100-year water experience leading up to the *LBDCP* effort.

WATER ALLOCATIONS AND GOVERNANCE LEADING UP TO THE *DCP*

THE BASICS

A river basin is the area of land where water sources such as runoff and tributaries converge.[3] The Colorado River is divided into two basins identified as the Upper Basin and the Lower Basin. In 1922, the *Colorado River Compact* divided 15 million acre-feet (maf) of river water in half with 7.5 maf allocated to the Upper Basin states (Colorado, New Mexico, Utah, Wyoming) and 7.5 maf to the Lower Basin states (Arizona, California, and Nevada). This agreement between the seven states and the federal government did not anticipate detailed management of drought or low supply. Later, in 1944, the United States allocated another 1.5 maf to Mexico as part of a treaty resolving water allocations from rivers along our shared borders.[4]

COLORADO RIVER COMPACT[5]
LOWER BASIN STATE WATER ALLOCATIONS

ARIZONA	CALIFORNIA	NEVADA
2.8	4.4	.3

(Million Acre-Feet)

Lake Mead, the country's largest reservoir, captures and stores the Lower Basin's share of the Colorado River water, which is primarily fed by Lake Powell, the Upper Basin reservoir. The United States Bureau of Reclamation (USBR) within the Department of the Interior is responsible for planning and operations of these reservoirs and state agreements related to the Colorado River.

"YEARS OF LOW RAINFALL, REDUCED SNOW PACK, INCREASED EVAPORATION, AND GROWING DEMAND WERE TAKING A COMPOUNDING TOLL."

Arizona is junior to California in terms of priority access to the water due to various court settlements, as well as trade-offs to build congressional support to finance the Central Arizona Project (CAP)—the infrastructure necessary to transport and store our share of Colorado River water. Because of our junior status, in times of shortage we take reductions before California, the Lower Basin's biggest user.[6] Because low supply had never before been a serious concern, the amount and timing of those reductions was not memorialized until 2007.

2007 Guidelines: Colorado River's First Drought Plan

The water level in Lake Mead is expressed in "elevations." This is the number of feet above sea level that the lake's water sits. Since 1935, Lake Mead's highest recorded elevation was 1225 in 1983.[7] But by the turn of the century, years of low rainfall, reduced snow pack, increased evaporation, and growing demand were taking a compounding toll.

While periods of drought, including severe drought, are normal in recorded Colorado River history, the onset of the drought cycle that began in 1999 has set numerous records and hastened the depletion of Lake Mead. In 2005, federal and state partners began a public process to develop voluntary agreements to protect Lake Mead by slowing or stopping draws to avoid elevation 1025.

This negotiation led to the *2007 Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead (2007 Guidelines)*. The *2007 Guidelines* was the first agreement to formally define reductions to states in both the Upper and Lower Basins in times of drought and low supply.

The primary provisions of the *2007 Guidelines* and companion documents, which are effect until 2026,[9] are:

- **Defines elevations at which states will start taking reduced allocations** – For Arizona and Nevada, this elevation is 1075.[8] The severity and timing of each state's reductions are relative to previously established priority status in terms of access to Colorado River water.

- **Allows Intentionally Created Surplus (ICS)** – Before the creation of ICS in the *2007 Guidelines*, states had to take their full allocation of river water or lose it. Now, states can store water in Lake Mead that they would have otherwise used in order to keep the elevations in Lake Mead higher. The *2007 Guidelines* define how and when partners can take back their ICS contributions. These voluntary acts of conservation have helped avoid elevation 1075 and the resulting cuts without users losing their rights to the water in the future or taking deeper cuts now.

- **Amends Mexican Water Treaty** – In 2012, Minute 319, an amendment to the Mexican Water Treaty, was adopted and Mexico agreed to accept shortages with the Lower Basin states.[10]

PERSISTENT DROUGHT AND THE EMERGING LOWER BASIN DROUGHT CONTINGENCY PLAN

2007 to Present

In October of 2007, the USBR wrote that the period between 2000 and 2007 was the driest eight-year period in the Colorado River's historical record.[11]

By 2015, the severity of the drought was better understood. Modern modeling practices demonstrated a low probability that the ongoing drought would relent in the near future and that the risk of Lake Mead dropping to elevation 1025 by 2026 was **two to six times** more likely than originally calculated for the *2007 Guidelines*.

The USBR and the Basin states agreed that the need for additional action was imminent and that more had to be done to keep Lake Mead from reaching critically low levels.[12]

In general terms, critically low levels are those elevations at which Lake Mead will no longer drain by simple force of gravity in order for users to access their water, a concept known as "deadpool"; or the lake is too diminished for hydropower, a major source of renewable energy fueled by the force of falling water.[13]

Water planners at both the state and federal levels have agreed that every precaution must be utilized to keep Lake Mead above elevation 1020, hence the effort to protect elevation 1025.[14]

This has been the driving force behind efforts since 2015 to develop a *LBDCP* to augment the *2007 Guidelines*.

Representatives from the Arizona Department of Water Resources (ADWR) and the Central Arizona Water Conservation District (CAWCD), which is the governance structure for the CAP, began negotiating in earnest with the USBR, California and Nevada on the *LBDCP*. In June 2018, ADWR and CAWCD released the following description of the effort:[15]

> The *LBDCP* is a plan developed by Arizona, California, Nevada and the United States. It has several major components, including:
>
> - Forbearance agreements – states agree to not take water they otherwise have a right to.
> - Additional contributions of ICS to Lake Mead and incentives for this additional storage.
> - A commitment to protect elevation 1020 through consultation (versus litigation) if and when the above strategies are no longer enough.
>
> Arizona's first reduction is at elevation 1090. (Lake Mead currently sits at elevation 1082).

The Upper Basin states have begun similar efforts and Mexico has again agreed to participate in conservation once *LBDCP* is finalized. These terms are noted in Minute 323 to the *Binational Water Scarcity Contingency Plan*.[16] Participants hope to complete this basin-wide approach by December 2018.[17]

Proposed Reduced Water Allocation

PROJECTED LAKE MEAD ELEVATION *(Feet msl)*	ARIZONA	NEVADA	CALIFORNIA *(Thousand Acre-Feet)*	**TOTAL**
At or below 1,090 and above 1,075*	192	8	0	200
At or below 1,075 and at or above 1,050	512	21	0	533
Below 1,050 and above 1,045	592	25	0	617
At or below 1,045 and above 1,040	640	27	200	867
At or below 1,040 and above 1,035	640	27	250	917
At or below 1,035 and above 1,030	640	27	300	967
At or below 1,030 and at or above 1,025	640	27	350	1,017
Below 1,025	720	30	350	1,100

Source: Agreement Concerning Colorado River Drought Contingency Management and Operations, Final Review Draft. October 5, 2018.[18]
**Estimated Lake Mead water level on Jan 1, 2020.*

Final agreements will not be signed until:

- Each state's authorizing agencies have indicated they will sign the *LBDCP*; and
- Each state has forged agreements with their in-state constituents who have rights to Colorado River water to voluntarily take earlier reductions or larger reductions than outlined in the *2007 Guidelines*.

These two conditions are inter-dependent, as most authorizing agencies cannot commit to the *LBDCP* until it is better understood how the plan would be operationalized within each state and how impacted constituencies will manage their reductions. Because the 1922 water-sharing compact did not define reductions in time of shortage, this voluntary and collaborative approach avoids the unwanted alternative—letting the courts sort out how and if water is allocated in times of drought.

For Arizona, this collaboration of in-state partners is happening through the *LBDCP* Steering Committee.

"THIS VOLUNTARY AND COLLABORATIVE APPROACH AVOIDS THE UNWANTED ALTERNATIVE—LETTING THE COURTS SORT OUT HOW AND IF WATER IS ALLOCATED IN TIMES OF DROUGHT."

LBDCP Steering Committee

Arizona's formal in-state negotiations occur primarily through the *LBDCP* Steering Committee announced in June of 2018. The Committee is convened by ADWR and CAWCD and consists of urban and rural Arizona entities with rights to the Colorado River as well as other stakeholders impacted by reductions, or total loss, of this particular water source. This includes, tribes, cities, farmers, agricultural districts and power providers, multiple industries, and the largest transporters of Arizona's water supplies.

Of the three states that need to sign on to the *LBDCP*, only Arizona needs legislative approval. Therefore, a bipartisan contingent of state legislators is also represented on the Steering Committee. (See Appendix for a complete list of members.)

For both practical as well as political considerations, Arizona's water agencies have outlined "tools" to build support at the Steering Committee and Legislature for signing the *LBDCP*, to help stakeholders manage reductions, and to use in-state partnerships to slow the elevation declines in Lake Mead.[19] These tools include:

- **Mitigation for impacted entities** – best defined as easing the transition off Colorado River water, particularly for agriculture and other users with existing rights to the water.
- **Arizona ICS Framework** – efforts to make tribal and non-tribal ICS contributions a reality.
- **Arizona Conservation Plan** – conservation strategies agreed to by various parties, to reduce water use and drawdowns from the Lake.[20]
- **Excess Water** – Central Arizona Groundwater Replenishment District (CAGRD) has historically bought Colorado River water that priority users did not use or bank by the end of each year. This water is used to replace groundwater pumped by CAGRD members, primarily developers.[21] With most users facing reductions, these collections of "excess" water will diminish or disappear. CAGRD seeks options.

Mitigation: The Key to Agreement

Arizona's in-state Colorado River users have ranked priority access to the water. Under the *2007 Guidelines*, the lowest priority entities have reduced access to Colorado River water beginning at elevation 1075. Under *LBDCP*, it is at elevation 1090.

Agriculture in central Arizona is one of the largest users to lose access to CAP deliveries of Colorado River water early on under *LBDCP* tiered reductions. While some farmers in low priority regions are beginning to fallow their farms and sell their land for development (which uses less water than farming), farming interests have requested mitigation to buffer the reductions, and potential loss of all river water as soon as 2026. Representatives of impacted farmers and irrigation districts are working within the Steering Committee process to attempt to shift a share of the reductions to higher priority users; to identify financial resources to enable them to build a transport system to use their groundwater supplies instead; and to find financial support to transition the land use from farming to some other economically viable use.

The Final Stretch

As Arizona's broad array of Colorado River water users work diligently to reach agreement by December 2018, the USBR released its annual projections of Colorado River flows and Lake Mead elevations.

The annual estimates of each reservoir's elevations are provided in rolling 24-month studies updated every August.[22] The USBR reports that current Lake Mead water levels are at elevation 1082, and projects the lake to reach elevation 1075 by 2020—the level at which the 2007 Guidelines require Arizona's first reductions. In the draft *LBDCP*, water users must make cuts at elevation 1090, effectively requiring water reductions upon signing.

Unfortunately, once that milestone is reached, lower elevation reductions to states could hit in quick successive waves.[23] In order to avoid multiple adjustments to water reductions in a short time frame, CAP has already left 192,000 acre-feet in Lake Mead in anticipation of this first *LBDCP* cut back at elevation 1090.

Because the USBR dictates the availability of water, and the states and Mexico have concurred with the agency's projections and recommendations for water cutbacks, the Steering Committee's work with Arizona's impacted entities is the most challenging stage in finalizing a viable *LBDCP* by December 2018. Not only will this process hopefully cement political support, but it will lay the groundwork for future efforts should the megadrought, a multi-decade drought, persist.

If the seven states sign the full *DCP* by year's end and emerge with a united front, the federally required approvals—including Congressional approval—should proceed with relative alacrity. If not, our future becomes ever more uncertain.

Conclusion

With 40 million users today and as many as 75 million users by 2060, the water futures of the seven American states and the portions of Northern Mexico that share Colorado River water are inextricably linked.[24] Of equal consequence are the agreements Arizonans are able to forge with each other.

While periods of drought should be expected, the Colorado River has just seen its driest 19-year stretch in recorded 100-year history. It will take an untold number of hours, and deep wells of patience from hundreds of partners across Arizona to plan our way through this.

A collaboratively built and broadly supported *Lower Basin Drought Contingency Plan* is worth the effort to preserve the way of life that has drawn millions to Arizona and the American West and to ensure that we do not take more from the mighty Colorado than it can give.

APPENDIX

LOWER BASIN DROUGHT CONTINGENCY PLAN STEERING COMMITTEE

Co-Chairs
Tom Buschatzke, Arizona Department of Water Resources
Ted Cooke, Central Arizona Project

Governor's Office
Kirk Adams, Governor's Office
Hunter Moore, Governor's Office

United States Bureau of Reclamation
Leslie Meyers, US Bureau of Reclamation (Lisa Lance)

Legislative Leadership
Sen. Gail Griffin, Arizona State Senate, Legislative District #14 (Jeff Kros)
Sen. Lisa Otondo, Arizona State Senate, Legislative District # 4 (Sen. Andrea Dalessandro)
Rep. Rusty Bowers, Arizona House of Representatives, Legislative District #25 (Rep. David Cook)
Rep. Rosanna Gabaldon, Arizona State House of Representatives, Legislative District #2 (Rep. Kirsten Engel)

Central Arizona Project Board Champions
Lisa Atkins, Board President, Central Arizona Water Conservation District (Jim Holway, Vice President)
Karen Cesare, Central Arizona Water Conservation District Pima County (Mark Taylor)

Tribes
Chairman Dennis Patch, Colorado River Indian Tribes (Vice Chairman Keith Moses)
Chairman Edward Manuel, Tohono O'odham Nation
Gov. Stephen Roe Lewis, Gila River Indian Community

NGO
Ted Kowalski, Walton Family Foundation (Kevin Moran)

Agriculture

Paul Orme, Pinal County Agriculture
Wade Noble, Yuma Agriculture (Meghan Scott)
Shane Leonard, Maricopa County Agriculture/Roosevelt Water Conservation District (Richard Strader)
Jay Whetten, Arizona Cattlemen's Association (Bas Aja)
Stefanie Smallhouse, Arizona Farm Bureau (Chelsea McGuire)
Brian Wong, Pima County Agriculture/ Southern Arizona Water Users Association (John Kmiec)

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David Godlewski, Southern Arizona Home Builders Association
Cheryl Lombard, Valley Partnership (John Graham)
Ted Maxwell, Southern Arizona Leadership Council (Kip Volpe)
Glenn Hamer, Arizona Chamber of Commerce and Industry (Courtney McKinstry)

Industrial

Sandra Fabritz, Freeport-McMoRan (Richard Bark)

Miscellaneous

David Roberts, Salt River Project (Chuck Podolak)
Virginia O'Connell, Arizona Water Banking Authority (Terri Sue Rossi)
Laura Grignano, Central Arizona Groundwater Replenishment District (Perri Benemelis)

Municipal

Kathryn Sorensen, City of Phoenix Water (Cynthia Campbell)
Timothy Thomure, City of Tucson Water (Andrew Greenhill)
Brian Biesemeyer, City of Scottsdale Water (Kathy Rall)
Javier Setovich, City of Goodyear Public Works (Dan Cotterman)
Joe Gysel, EPCOR Water US (Troy Day)
William Garfield, Arizona Water Company (Fred Schneider)
Joseph Olsen, Metropolitan Domestic Water Improvement District (Wally Wilson)
Lois Wakimoto, Mohave County (Jamie Kelley)

WATER TERMS

- 2007 Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead (2007 Guidelines)
- Arizona Department of Water Resources (ADWR)
- Active Management Areas (AMAs)
- Central Arizona Groundwater Replenishment District (CAGRD)
- Central Arizona Project (CAP)
- Central Arizona Water Conservation District (CAWCD)
- Drought Contingency Plan (DCP)
- Intentionally Created Surplus (ICS)
- Lower Basin Drought Contingency Plan (LBDCP)
- Million acre-feet (maf)
- United States Bureau of Reclamation (USBR)

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Prepared by Arizona Chamber Foundation staff

ARIZONA CHAMBER FOUNDATION

The Arizona Chamber Foundation is a non-profit, objective educational and research foundation. We are committed to a non-partisan, research-driven approach that analyzes the issues impacting Arizona's economy.

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