



THE SECRETARY OF THE INTERIOR  
WASHINGTON

ORDER NO. 3344

Subject: Actions to Address Effects of Historic Drought on Colorado River Water Supplies

**Sec. 1 Purpose.** The Department of the Interior (Department), through the Bureau of Reclamation (Reclamation) has many responsibilities for managing the water resources of the Colorado River Basin. In particular, the Secretary of the Interior has a unique water management and contracting role, founded in the Boulder Canyon Project Act of 1928 and confirmed by the U.S. Supreme Court, in the Lower Basin of the Colorado River, serving areas in Arizona, California and Nevada.

The Colorado River is shared by two countries – the United States and Mexico, and flows through nine states – seven in the United States (Colorado, New Mexico, Utah, Wyoming, Arizona, California, and Nevada) and two in Mexico (Sonora and Baja California). The Colorado River is the single most important water resource in the Southwestern United States and Northwestern Mexico – supplying water to an estimated 40 million people and over 5 million acres of irrigated agriculture.

Within the United States, the Colorado River also serves federally recognized Indian tribes in the 7 basin states, dozens of military installations, flows through 11 National Park Service units and supports unique riparian, environmental and recreational values. The region is visited by tens of millions of recreational visitors every year, adding to the economic importance of this unique and limited resource.

As further described in Section 3 of this Order, the Colorado River is experiencing an extended period of historic drought. The basin is currently in the worst 17-year period of drought in modern recorded history, and one of the very worst in the last 1,200 years, as established by reconstructed paleohydrology.

The ongoing drought and current hydrologic conditions increase the prospect for destabilizing “shortages” on the River. There is a strong probability that, for the first time, the Lower Basin will face water reductions from the Colorado River, perhaps as soon as January 1, 2018, and it is possible that shortage conditions may persist for an extended period of time. Current management rules in place for operation of Hoover Dam (Lake Mead) and Glen Canyon Dam (Lake Powell), while important in minimizing the prospects for litigation in the short-term, may prove insufficient to prevent Lake Mead from declining to critical elevations that would threaten catastrophic reductions to water service in broad areas of the Lower Basin.

In response to these increasing risks, and building upon previous collaborative efforts, the Department has been working intensively with representatives in the Colorado River Basin States and the Republic of Mexico to advance efforts to adopt an integrated set of drought response actions, including:

- a) a Lower Basin “Drought Contingency Plan (DCP)” (of which provisional, conceptual agreements have been reached among lower basin representatives addressing federal

- operations, conservation and water storage actions by the states and water users, and proposed investments in support of key actions);
- b) an intra-Arizona agreement to conserve additional water in Lake Mead between 2017 and 2019 (referred to as the DCP+ Plan);
- c) a long-term agreement with Mexico (commonly referred to as “Minute 32x”) to provide operational certainty regarding deliveries to Mexico (including reductions and water savings at specific elevations), investment to conserve Colorado River water supplies and enhance environmental and riparian resources (final draft Minute developed in 2016 by a binational minute negotiating group subject to completion of required implementing domestic agreements); and,
- d) an Upper Basin Drought Memoranda of Agreement (Upper Basin MOA) (designed to ensure effective operation of Glen Canyon Dam (Lake Powell) to protect water delivery and hydropower production in coming years).

Collectively these efforts – referred to as the “Drought Response Actions” in this Order – and other ongoing and complementary efforts are designed to proactively address hydrologic challenges, reduce the risk and severity of shortage conditions impacting a wide-spectrum of water users, improve the prospects for protecting Indian treaty rights and water rights, maintain and improve environmental conditions in the basin, maintain significant hydropower production and associated financial support for critical environmental programs, and minimize the risk of conflict between states, water users, and Mexico over the next 9 years.

Each of these above-mentioned efforts is close to completion, but critically important work – involving entities from each of the seven Colorado River Basin States – remains to finalize each one of these initiatives. Consistent with the successful efforts across administrations in the past two decades, this Order facilitates the continued integration and prioritization of State and Federal efforts to support completing these Drought Response Actions in a timely manner during 2017 *prior to* a potential shortage declaration in 2018. Specifically, the Order directs the Department, through Reclamation, to continue to support efforts to complete each of the Drought Response Actions in collaboration with U.S. (local, tribal, state) officials, representatives of Mexico, and other interested stakeholders. In the highly undesirable event that these matters cannot ultimately be completed (and thus fail to achieve timely implementation), this Order also seeks to ensure that Departmental staff will promptly prepare options for the next Secretary of the Interior to consider so there is no undue delay if the Secretary determines the need to implement other approaches or programs that would reduce the risk of continued declines in the critical water supplies of the Colorado River System.

**Sec. 2 Authorities.** This Order is issued under authority that includes, but is not limited to, the body of law commonly referred to as “The Law of the Colorado River”; the Reclamation Laws (Act of June 17, 1902, and all acts amendatory thereof and supplementary thereto); the Colorado River Compact of 1922 (45 Stat. 1057); the Upper Colorado River Basin Compact of 1948 (63 Stat. 31); the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, Treaty Between the United States of America and Mexico (Treaty Series 994, 59 Stat. 1219); the Consolidated Decree entered by the Supreme Court of the United States in *Arizona v. California* (547 U.S. 150 (2006)); the Boulder Canyon Project Act (45 Stat. 1057; 43 U.S.C. 617); the Boulder Canyon Project Adjustment Act (54 Stat. 774; 43 U.S.C. 618a); the Colorado River Storage Project Act (70 Stat. 105; 43 U.S.C. 620); the Colorado River Basin Project Act (82 Stat. 885; 43 U.S.C. 1501); the Colorado River Basin Salinity Control Act (88 Stat. 266; 43 U.S.C. 1951); the Act of March 30, 2009 (123 Stat. 991), known as the Omnibus Public Land

Management Act; the Act of December 16, 2014 (128 Stat. 2130, Sec. 206), known as the Consolidated and Further Continuing Appropriations Act, 2015; and authority provided by Section 2 of Reorganization Plan No. 3 of 1950 (64 Stat. 1262), as amended.

### **Sec. 3 Background.**

#### **a. Existing Collaborative Efforts**

During the past two decades, through the leadership of multiple administrations, a series of programs, decisions, and agreements were developed with extraordinary levels of Federal, tribal, state, and local cooperation and negotiation. Through these efforts, various challenges with the Basin have been addressed through consensus-based negotiations in contrast to destabilizing litigation that has often been a hallmark of water management in the Western United States. The collaborative efforts to address water resource challenges in the basin include, but are not limited to:

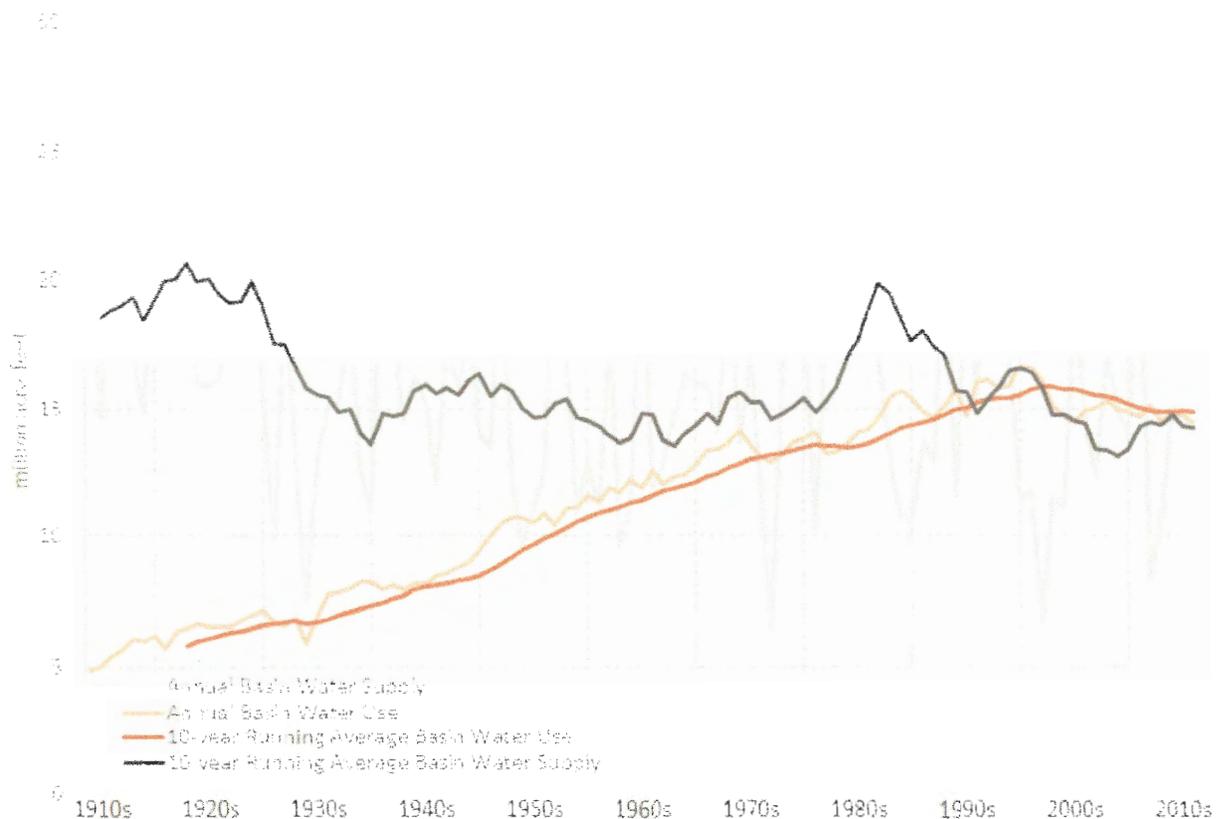
- Upper Colorado River Endangered Fish Recovery Program
- San Juan River Basin Recovery Implementation Program
- 2001 Colorado River Interim Surplus Guidelines (2001)
- 2003 Colorado River Water Delivery Agreement (Federal QSA)
- 2005 Lower Colorado River Basin Multi-Species Conservation Program (MSCP)
- 2007 Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead
- 2010 US/Mexico Minutes 316, 317, 318 regarding Colorado River Cooperation
- 2011 Memorandum of Agreement Concerning the Upper Colorado River Basin Fund
- 2012 US/Mexico Minute 319 regarding Interim International Cooperative Measures In The Colorado River Basin Through 2017
- 2014 Agreement For A Pilot Program For Funding The Creation Of Colorado River System Water Through Voluntary Water Conservation And Reductions In Use (System Conservation Pilot Agreement)
- 2014 Memorandum Of Understanding For Pilot Drought Response Actions (Lower Basin MOU)
- 2016 Memorandum Of Understanding By And Between The United States Department Of The Interior And The State Of California Natural Resources Agency Regarding The Coordination Of Activities To Manage The Salton Sea
- 2016 Record of Decision – Glen Canyon Dam Long Term Experimental and Management Plan; and,
- Indian Water Rights Settlements in the Colorado River Basin since 2000:
  - Ak-Chin Indian Community Act (amended 2000); Colorado Ute Indian Water Rights Settlement Act (amended 2000); Shivwits Band of the Paiute Indian Tribe of Utah Water Rights Settlement Act of 2000; Zuni Indian Tribe Water Rights Settlement Act of 2003; Gila River Indian Community Water Rights Settlement Act of 2004; Southern Arizona Water Rights Settlement Act (Papago Tribe or Tohono O’odham Nation) (amended 2004); San Carlos Apache Tribe Water Rights Settlement Act (amended 2004); Soboba Band of Luiseno Indians Settlement Act (2008); Navajo-Gallup Water Supply Project and Navajo Nation Water Rights (2009); White Mountain Apache Tribe Water Rights Quantification Act of 2010; Pechanga Band of Luiseño Mission Indians Water Rights

Settlement Act of 2016; San Luis Rey Indian Water Rights Settlement Act (amended 2016).

It should be noted, particularly given the timing of this Order, that several of the successful initiatives just listed (e.g. Federal QSA, MSCP, and US/Mexico cooperative efforts) were developed over the course of successive administrations.

b. Hydrology

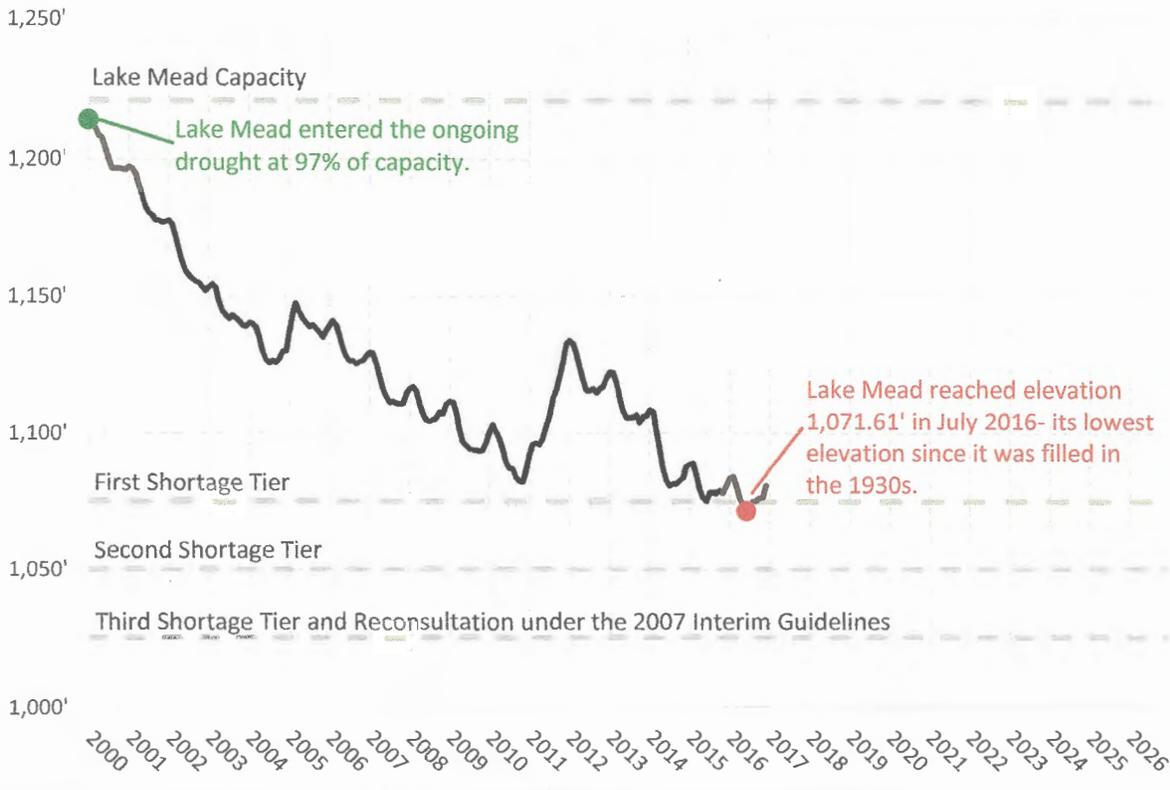
In 2016 the Colorado River Basin continued to experience drought conditions, making 2000 through 2016 the lowest seventeen-year period in over a century of record keeping. Since 2000, there have been just three years with above average inflow; moreover the average inflow over the period is approximately 16 percent below the long-term average. Although the duration of this ongoing, historic drought is unknown, inflows into the Basin on average have been declining over the historical record while water use has grown (Figure 1).



**Figure 1 – Historical Annual and 10-Year Running Average Colorado River Basin Water Supply and Use 1914-2016 (Colorado River Basin Supply and Demand Study – Bureau of Reclamation, 2012; updated January 2017)**

Colorado River system reservoir storage has declined by roughly 50 percent over this period with significant reductions occurring in the 5-year period between 2000 and 2005. Figure 2 illustrates the declining Lake Mead elevations throughout this period. As a result of the drought and declining reservoir levels, in July 2016 Lake Mead reached its lowest elevation since the reservoir initially began filling in the 1930s. Lake Mead is currently at elevation 1,083 ft. When the projected beginning-of-calendar-year Lake Mead elevation is at or below 1,075 ft, the first

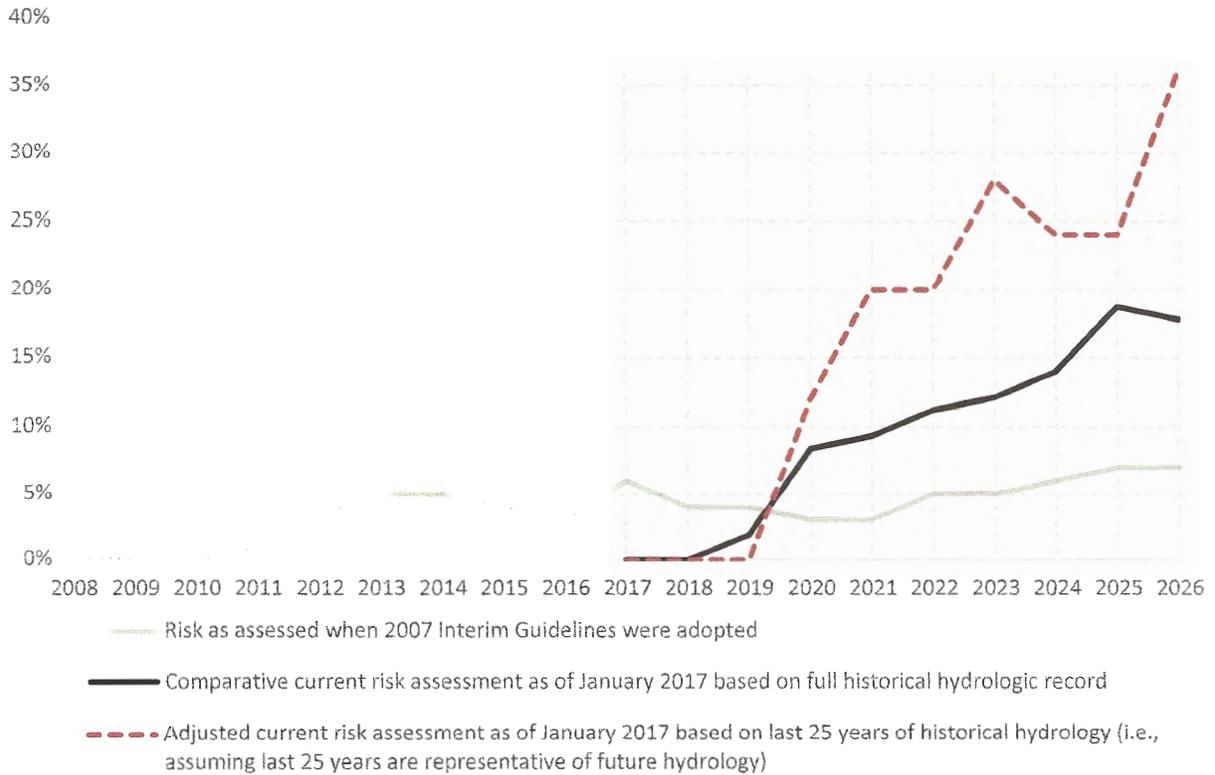
ever shortage condition in the Lower Basin will be triggered, resulting in required reductions in water allocated to Arizona and Nevada. This may occur as early as 2018.



**Figure 2 – Lake Mead Historical Elevations (Bureau of Reclamation – Lower Colorado Region, 2017)**

Five years into the current drought, in 2005 the Department initiated a public process to develop additional operational guidelines and tools to meet the challenges of drought in the Basin. This process culminated with the adoption of specific interim guidelines for Lower Basin shortages and coordinated operations of Lake Powell and Lake Mead in 2007. A key element of the 2007 Interim Guidelines requires specific reductions in water deliveries to entities in Arizona and Nevada at specified elevations of Lake Mead (*See Figure 2 – First, Second and Third Shortage Tiers*). Given current levels of water use and recent basin water supply, the graduated, increasing reductions in water delivery that are required at Lake Mead elevations 1075', 1050' and 1025' will not be sufficient to prevent Lake Mead from declining to critically low elevations, perhaps approaching dead pool. While the 2007 Interim Guidelines were developed using the best available science at the time, the magnitude and duration of the drought that continued to unfold over the next decade has been unprecedented in modern history, and therefore, the significant declines in hydrology had not been fully factored into the analysis supporting the 2007 decision.

As depicted in Figure 3, the additional years of drought experienced since the 2007 Interim Guidelines were adopted has resulted in an increased risk of reaching critically low elevations in Lake Mead over the term of the guidelines, i.e., through 2026. The risk increases even more dramatically if the last two decades are considered representative of the hydrologic conditions the Basin can expect as a growing scientific consensus indicates.

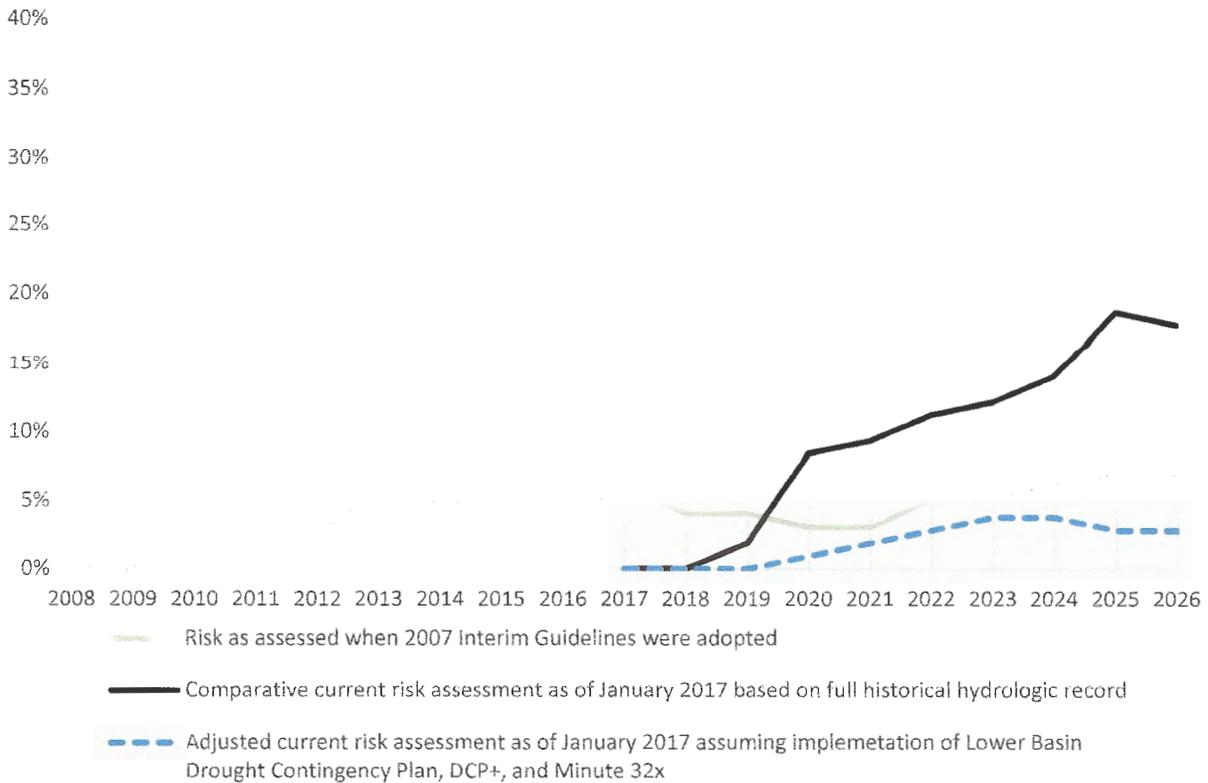


**Figure 3 – Risk of Lake Mead Reaching Critically Low Elevations (1,025 ft) (Bureau of Reclamation – Lower Colorado Region, 2017)**

Notably, if adopted and implemented promptly, the current framework for the DCP and Minute 32x are projected to significantly reduce the risk of Lake Mead declining to critically low elevations (as depicted in Figure 4).

It is also important to note that in order to proceed with the DCP, Arizona officials are leading efforts to form a complementary agreement within the state to further reduce the use of water from the Colorado River and enhance water conservation and storage in Lake Mead. This effort is currently referred to as the DCP Plus (DCP+) Plan. The DCP+ Plan is proposed as a 3-year (2017-2019) effort that Arizona has established as a required pre-condition action in order to create the proper circumstances to enable a broad agricultural, municipal and tribal consensus, thereby facilitating Arizona’s participation in the comprehensive DCP. The DCP+ Plan is an innovative partnership between the State of Arizona, Federal representatives, tribes, municipal water providers, and agricultural water users in Arizona that is designed to retain approximately 1.25 million acre-feet of water in Lake Mead. The benefits to risk reduction from Minute 32x, DCP and DCP+ are identified in Figure 4.

Significantly, with implementation of the Drought Response Actions as currently structured, the risk of Lake Mead declining to critically low elevations could potentially be reduced to a level below what was projected when the interim guidelines were adopted in 2007, thus helping to ensure the enhanced sustainability of the limited water resources of the Colorado River System and avoiding possible destabilizing interstate and inter-basin conflict in the Basin. See Figure 4 – Change in Risk of Lake Mead Reaching Critically Low Elevations (1,025 ft) from Implementation of Lower Basin Drought Contingency Plan and Minute 32x.



**Figure 4 – Change in Risk of Lake Mead Reaching Critically Low Elevations (1,025 ft) from Implementation of Lower Basin Drought Contingency Plan, DCP+, and Minute 32x (Bureau of Reclamation – Lower Colorado Region, 2017)**

#### Sec. 4 Directives.

Through the collaborative efforts set forth in Section 3, water management in the Colorado River basin has been enhanced through the certainty provided through the various agreements, settlements, and programs already established. One specific benefit of these actions has been the active implementation of numerous water conservation and savings projects and actions over the past decade. Since 2008, approximately 1.7 million acre-feet of water has been saved as intentionally created surplus (2007 Guidelines), intentionally created Mexican allocation (Minutes 318-319), and system conservation water (2014 System Conservation Pilot Agreement) by numerous entities in the basin. This water has greatly assisted in increasing the elevation of Lake Mead which has resulted in avoiding the imposition of shortages in the lower basin under the 2007 Guidelines (i.e., projected elevation < 1075' as of January 1<sup>st</sup> of any year). Not all of these supplies remain in Colorado River reservoirs; however, as the ongoing drought conditions necessitated some of that conserved water being delivered back to the entities responsible for its creation, and in this respect, the conserved water provided an important supplemental supply. Nonetheless, nearly a million acre-feet of additional water remains in Lake Mead, adding approximately 12 to 13 feet in elevation, which is helping to protect against future shortages.

Notwithstanding these substantial conservation efforts, the discussion and figures in Section 3 clearly demonstrate the impact of this last 17-year period on the River and the ongoing substantial risk of Lake Mead reaching critically low elevations. It should also be noted that Minute 319, the current agreement with Mexico, expires as of December 31, 2017. Figure 4 shows that completing and implementing the Drought Response Actions identified in Section 1

of this Order would have a significant positive impact in reducing the risk of Lake Mead falling below the critical elevation of 1025'. Clearly, it is critically important that the progress made towards finalizing the DCP (including the DCP+ Plan), Minute 32x, and the Upper Basin Drought MOA be maintained so that the agreements can be completed and the anticipated synergistic benefits realized as soon as possible. Given the importance of these actions, and the stability they will bring to the long-term management of the Colorado River for the benefit of all parties, as well as the environment, specific actions are being taken concurrent with this Order in support of the Drought Response Actions. In addition, Reclamation is directed to carry out several more actions in support of these efforts:

a. Actions Taken Concurrent with this Order

(1) Reclamation is finalizing an agreement with the Gila River Indian Community ("DCP+ Principles Agreement between the Gila River Indian Community and the United States") to conserve substantial amounts of water within Lake Mead in order to decrease the risk of shortages in the in the next 3 years and to support efforts by the State of Arizona to finalize its DCP+ Plan. As part of this agreement, Reclamation is providing \$6M of FY 2017 funding to immediately acquire system water in furtherance of the ongoing collaboration with other Arizona entities. This activity is consistent with the commitments made by Reclamation in the 2014 Lower Basin MOU.

(2) The Department is signing an addendum to its 2016 Memorandum of Understanding (MOU) by and between the Department and the California Natural Resources Agency (CNRA) Regarding the Coordination of Activities to Manage the Salton Sea. The addendum will strengthen coordinated efforts by CNRA and the Department to address anticipated changes in the Salton Sea's elevation in the face of a changing climate, resource constraints, and the need to build resiliency and certainty in affected tribal and regional communities. These issues are of critical importance to Southern California entities who are key partners in developing, finalizing, and implementing the DCP.

b. Direction to Continue Ongoing Actions

(1) Reclamation will continue its work in support of the ongoing efforts of the Governors' Representatives of the Seven Basin states and the key principals of several water management agencies to finalize the DCP, the framework of which has already been established through ongoing negotiations. That framework addresses key aspects of Reclamation's operation of Lower Colorado River basin facilities, conservation and water storage actions by Arizona, California, and Nevada, and proposed investments by a number of parties. Reclamation's work should include participating in remaining negotiations and actions necessary to finalize agreements and provide information in support of any legislation necessary to implement the final agreements among the parties. In furtherance of this activity, Reclamation will also continue to work with the State of Arizona, affected Indian Tribes and other entities in support of ongoing DCP+ Plan efforts within the State of Arizona;

(2) Reclamation will continue to work with the U.S. and Mexican sections of the International Boundary and Water Commission (IBWC), representatives of the Seven Basin States, and non-governmental organizations to finalize and adopt the suite of actions and agreements that are necessary for finalization of Minute 32x, as developed by the binational minute negotiating group;

(3) Reclamation will continue to work in support of the ongoing efforts of the Governors' Representatives of the seven basin states, the key principals of several water management agencies and other interested stakeholders to develop an Upper Basin MOA; and,

(4) Reclamation will continue to consult with affected Indian tribes in the basin as efforts to complete the Drought Response Actions proceed.

c. Actions in the Event Drought Response Actions Are Not Finalized

Given the significant progress that has already occurred, and the commitment of the seven basin states and other key leaders to finalize the drought response actions, there is a very high probability that this work will be completed in the first half of 2017. If, however, due to unforeseen circumstances, efforts to complete the DCP, DCP+ Plan, Minute 32X, and an Upper Basin MOA are at significant risk of not being completed during this time frame, Reclamation, will prepare for the next Secretary of the Interior, by a date no later than June 30, 2017:

(1) a status report on the state of each of the Drought Response Actions and the prospects for completing in 2017;

(2) an updated assessment of hydrology and the projected risk of reaching critical elevations in Lake Powell and Lake Mead during the 2018-2026 time period, and thereafter recognizing the potential for additional depletions in the Upper Basin in coming decades; and,

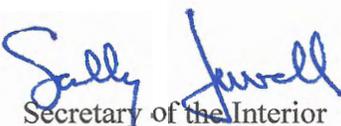
(3) an evaluation of options of specific Federal actions that could be initiated or implemented, at the Secretary's discretion, to minimize the risk of reaching critical elevations at Lake Mead and Lake Powell including, but not limited to: (i) Working with the IBWC to engage Mexico on discussions that will ensure that comparable actions are being taken on both sides of the border should it be likely that the Lower Colorado River Basin will be in a shortage situation on or after January 1, 2018; (ii) engaging specific parties to collaboratively increase and prioritize investments in voluntary conservation under existing MOUs in the Upper and Lower Basins and/or related efforts such as the operation of the Yuma Desalting Plant to enhance system water; (iii) undertaking a review of the Secretary's authorities under the Law of the River to implement policies that will reduce depletions in the Lower Basin; (iv) formally initiating a process under the 2007 Interim Guidelines to assess and engage the public in evaluating the risk of reaching critical elevation levels in Lake Mead and Lake Powell and evaluate the alternatives to minimize that risk; and (v) any other appropriate options developed by Reclamation in consultation with the Seven Basin States and other parties in the Basin.

**Sec. 5 Implementation:** The Assistant Secretary – Water and Science and the Commissioner, Bureau of Reclamation, are responsible for ensuring implementation of this Order.

**Sec. 6 Expiration:** This Order is effective immediately. It shall remain in effect until its provisions are completed, amended, superseded, or revoked, whichever comes first. In the absence of the foregoing actions, it will terminate on August 1, 2017.

Date:

JAN 18 2017



Secretary of the Interior