

# FROM A COLORADO RIVER COMPACT CHALLENGE TO THE NEXT ERA OF COOPERATION AMONG THE SEVEN BASIN STATES

W. Patrick Schiffer, Herbert R. Guenther & Thomas G. Carr\*

Imagine a business partner with a \$1.5 million annual partnership debt suddenly announcing to the other partner that he has no obligation to pay his share of the debt, and you can envision the reactions of Arizona, California, and Nevada<sup>1</sup> to a similar statement by Colorado, New Mexico, Utah, and Wyoming.<sup>2</sup> On October 7, 2004, those four States declared: “The Upper Basin has no obligation in this regard,”<sup>3</sup> thereby disavowing their responsibility to share in the 1.5 million acre-feet (“MAF”) annual Colorado River water debt owed to Mexico pursuant to an international treaty and an interstate compact. The seven Colorado River Basin States (“Basin States”) have been working together since to resolve this challenge involving a river compact signed eighty-five years ago.

---

\* W. Patrick Schiffer is the Chief Counsel for the Arizona Department of Water Resources. Herbert R. Guenther is the Director of the Arizona Department of Water Resources. Thomas G. Carr is the Assistant Director, Statewide Water Conservation and Strategic Planning, and advises the Director on Colorado River policy development. This Article is a revised version of a paper originally presented at the Water Law and Policy Conference hosted by the University of Arizona James E. Rogers College of Law in Tucson, Arizona, on October 6–7, 2006. Articles from the Conference are collected in this symposium issue, Volume 49 Number 2, of the *Arizona Law Review*. The authors give special thanks to Deputy Counsel Nicole D. Swindle and Gregg A. Houtz, as well as Legal Extern Alexander B. Smith, Sandra Day O’Connor College of Law, Arizona State University, for the many valuable hours spent reviewing and editing.

1. Arizona, California, and Nevada are all situated in the Lower Colorado River Basin (“Lower Basin”) and are collectively referred to as the “Lower Division States.”

2. Colorado, New Mexico, Utah, and Wyoming are all situated in the Upper Colorado River Basin (“Upper Basin”) and are collectively referred to as the “Upper Division States.”

3. Letter from Scott Balcomb et al., Governors’ Representatives on Colo. River Operations of the States of Colo., Wyo., N.M., & Utah, to Herb Guenther et al., Governors’ Representatives of the States of Ariz., Cal., & Nev. (Oct. 7, 2004) (on file with authors).

## INTRODUCTION

In November 1922, the seven Basin States and the United States signed the Colorado River Compact (“Compact”),<sup>4</sup> which allocated water in the Colorado River between the Upper Division States and the Lower Division States. At that time, the parties assumed that the flows of this interstate stream would be more than sufficient to provide 15 MAF of annual allocations to the seven Basin States, as well as the additional water allocated to Mexico (which would turn out to be 1.5 MAF per year under the Mexican Water Treaty of 1944 (“Mexican Treaty”).<sup>5</sup>

Evidence now demonstrates that average river flows will likely be insufficient to allow for the total 16.5 MAF of annual allocations in the Colorado River Basin without significant shortages. The residents of Las Vegas, Denver, Los Angeles, Phoenix, and other Colorado River-dependent cities, agricultural users, and Indian communities in the Basin will all need a reliable water supply. Due to the severe, Basin-wide drought that has lasted six years already and could continue for many more, longstanding disputes among the seven Basin States over the Law of the River<sup>6</sup> have become more intense, particularly regarding Compact accounting during low flow conditions. These disputes present an array of challenges for Arizona and the other six Basin States.

This Article will focus on only one of the many Colorado River issues facing the seven Basin States at this time: Who is responsible for the annual 1.5 MAF Mexican Treaty obligation? At first glance, the issue appears to involve only a small part of the Colorado River supply, but each drop of water becomes increasingly important as the drought reduces the supply. The issue is when and to what extent must the Upper Division States share in satisfying the Mexican Treaty obligation under the Compact, and the immediate challenge is how to resolve the conflicting views of the Upper and Lower Division States for an interim period, in order to allow enough time to reach a long-term solution.

## I. BACKGROUND

To better understand the importance of this challenge, one must first focus on the broader picture. The Compact apportions Colorado River water between the Upper Division States and the Lower Division States, allocating 7.5 MAF per year of water for beneficial consumptive uses each to the Upper and

---

4. Colorado River Compact, 70 CONG. REC. 324, 324–25 (1928), available at <http://www.usbr.gov/lc/region/g1000/pdfiles/crcompct.pdf> [hereinafter Compact]. The Compact was executed on November 24, 1922 but was not ratified by the Arizona State Legislature until 1944. Colorado River Compact Ratification, 1944 Ariz. Sess. Laws, ch. 5, § 1 (codified at ARIZ. REV. STAT. ANN. § 45-1311 (2006)).

5. Treaty on the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, U.S.–Mex., Feb. 3, 1944, 59 Stat. 1219 [hereinafter Mexican Treaty].

6. The “Law of the River” is comprised of the 1922 Compact, the 1928 Boulder Canyon Project Act, the 1944 Mexican Water Treaty, the 1948 Upper Colorado River Basin Compact, the 1963 Opinion and 2006 Consolidated Decree in *Arizona v. California*, the 1968 Colorado River Basin Project Act and a long list of other statutes, court opinions, federal regulations, operating criteria, guidelines, and contracts. See Bureau of Reclamation, U.S. Dep’t of the Interior, Lower Colorado Region—The Law of the River, available at <http://www.usbr.gov/lc/region/g1000/lawofrvr.html>.

Lower Basins, plus an additional million acre-feet to the Lower Basin. The Compact requires that the Upper Division States deliver 75 MAF of flow every ten years to the Lower Division States at Lee Ferry<sup>7</sup> in northern Arizona, the geographic division between the Upper Basin and Lower Basin. The Upper Division States also must deliver an additional amount of water annually to Lake Mead in order to satisfy at least half of the annual water requirement for the 1944 Treaty with Mexico. Finally, the Compact prohibits the Upper Division States from withholding water from the Lower Division States that is not required for beneficial use in the Upper Division States.<sup>8</sup> Water releases from Upper Division reservoirs (primarily Lake Powell) are required to meet the Compact terms. In the extreme case, not only may the Lower Division States ask for additional releases from Lake Powell, but if Lake Powell storage is insufficient, the Lower Division States may also call for curtailment of uses in the Upper Division States to meet the Compact requirements.<sup>9</sup>

By enacting the 1928 Boulder Canyon Project Act (“BCPA”),<sup>10</sup> Congress approved the Compact. The BCPA—along with the 1963 Supreme Court Opinion<sup>11</sup> and 1964 Decree<sup>12</sup> that interpreted it—prescribe the mainstream allocations among Arizona, California, and Nevada from Lake Mead.<sup>13</sup> If not enough water is available to deliver 7.5 MAF of mainstream Colorado River water from Lake Mead, the Secretary of the Interior (“Secretary”) distributes the shortage among the Lower Division States.<sup>14</sup>

The 1968 Colorado River Basin Project Act (“CRBPA”)<sup>15</sup> provided for the construction of the Central Arizona Project (“CAP”) giving Arizona its long overdue ability to serve Colorado River water to Arizona’s interior. But the CAP came at a high price: Section 1521(b) of the CRBPA directs that the CAP and other post-1968 contractors of Lower Colorado River mainstream water now have

---

7. Lee Ferry is “a point in the main stream of the Colorado River one mile below the mouth of the Paria River.” Compact, *supra* note 4, at art. II(e). It is often mistakenly referred to as “Lees Ferry” or “Lee’s Ferry,” interchangeable terms referring to a different geographic location approximately a mile upstream of Lee Ferry, and above the mouth of the Paria River. *Lee vs. Lees vs. Lee’s Ferry*, SOUTHWEST HYDROLOGY, March/April 2005, at 18.

8. See Compact, *supra* note 4, at art. III(e).

9. See Upper Colorado River Basin Compact of 1948, art. IV, Apr. 16, 1949, 63 Stat. 31; ARIZ. REV. STAT. ANN. § 45-1321 (2006).

10. Pub. L. No. 70-642, 45 Stat. 1057 (codified at 43 U.S.C. § 617 (2000)).

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

12. *Arizona v. California*, 126 S. Ct. 1543 (2006). The Court recently entered this Consolidated Decree, incorporating within the original 1964 Decree, *Arizona v. California*, 376 U.S. 340 (1964), the incremental changes by the Supplemental Decrees of 1979, 1984 and 2000, and the 2006 settlement of the water rights claim of the Quechan Tribe for the Fort Yuma Indian Reservation. The subsequent amendments to the 1964 Decree are not relevant to this Article.

13. Arizona is allocated 2.8 MAF, California 4.4 MAF, and Nevada 0.3 MAF. 43 U.S.C. § 617; *Arizona v. California*, 126 S. Ct. at 1546.

14. 43 U.S.C. § 617(c); *Arizona v. California*, 126 S. Ct. at 1546 (referring to section II(B)(3) of the Decree).

15. 43 U.S.C. §§ 1501–1556 (2000).

junior priority to all pre-1968 contractors with diversion works in place in 1968.<sup>16</sup> This means that the CAP is junior in priority to the entirety of California's 4.4 MAF allocation. Thus, Arizona will be the first of the Lower Division States to suffer a shortage. While Nevada also suffers a small share, Arizona bears more than 90% of the first 1.5 MAF of any Lower Basin shortage. Arizona's Colorado River allocation of 2.8 MAF currently constitutes 34.5% of its total water supply.<sup>17</sup> Therefore, all Colorado River operations and secretarial actions that impact releases to Lake Mead affect the most vital interests of Arizona.

Because Arizona's Colorado River entitlement is crucial to its residents and is so vulnerable in times of drought, Arizona must diligently protect its legal rights under the evolving Law of the River.<sup>18</sup> With this in mind, this Article will first describe the challenge recently presented when the Upper Division States expressed their unwillingness to share in satisfying the annual Mexican Treaty obligation and Arizona's interpretation of the 1922 Compact as it relates to that challenge. It will then explain the path that led to a proposed interim solution. This interim solution would temporarily set aside legal differences between the States in order to conjunctively operate Lake Powell and Lake Mead in a new manner to better avoid both shortages in the Lower Division States and curtailment of uses in the Upper Division States. Finally, the Article will defend the proposed interim solution as a bridge toward augmentation of the water supply to fulfill increasing Colorado River Basin water demands.

## II. THE CHALLENGE

For decades, the Upper Division and Lower Division States have disagreed in their views of the conditions under which Article III(c) of the Compact requires the Upper Division States to share in the annual obligation to deliver 1.5 MAF of mainstream Colorado River water to Mexico. After six years of severe drought on the Colorado River system that could lead to reductions in supply, withholding in Lake Powell by the Upper Division States of all or part of their share of the Mexican Treaty obligation could cause an unnecessary and unjustified shortage in Arizona. The challenge began with the October 7 letter from the Governors' Representatives of the Upper Division States to their counterparts in the Lower Division States claiming no duty to share in the Mexican Treaty obligation.<sup>19</sup>

The Upper Division States asserted that so long as the Lower Division States use more than their total allocation under Articles III(a) and III(b) of the Compact (8.5 MAF), the amount used by the Lower Division States in excess of 8.5 MAF is "surplus" and the Lower Division States are obligated to apply the "surplus" over 8.5 MAF to the Mexican Treaty obligation. In most years, the Lower Division States use 10 MAF or more, including all tributary use, according

---

16. CRBPA § 301(b), 43 U.S.C. § 1521(b).

17. ARIZ. DEP'T OF WATER RES., ARIZONA'S WATER SUPPLIES AND WATER DEMANDS 2, available at <http://www.azwater.gov/dwr/Content/Publications/files/supplydemand.pdf> (last visited Apr. 17, 2007).

18. See *supra* note 6.

19. Mexican Treaty, *supra* note 5, at art. 10.

to Reclamation reports.<sup>20</sup> The Upper Division States thus disavow any responsibility to share in the 1.5 MAF Mexican Treaty obligation. The Upper Division States claim that the Lower Division States simply must reduce their “excessive use” and instead send the extra 1.5 MAF “surplus” to Mexico. The Lower Division States maintain that releases from Lake Powell include the Upper Division share of at least half the Mexican Treaty obligation plus losses.

The challenge, then, is to find an interim resolution of this issue before basin-wide shortages require contentious litigation or congressional action. Before discussing the path to resolution, it is important to understand Arizona’s position regarding the legal obligation of the Upper Division States to release sufficient water from Lake Powell each year to contribute their share of the Mexican Treaty obligation.

***A. Interpreting the 1922 Colorado River Compact: Arizona’s Position Regarding the Upper Division States’ Share of the Mexican Treaty Obligation***

Arizona and the other Lower Division States maintain that the Mexican Treaty obligation is allocated between the Upper Division and Lower Division States according to the volume of water available in the Colorado River each year, rather than the volume of water used in either the Lower Division or the Upper Division. The language in the Compact lays the foundation for the Arizona position. Articles III(a) through (e) provide:

- a) There is hereby apportioned from the Colorado River System in perpetuity to the Upper Basin and to the Lower Basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.
- b) In addition to the apportionment in paragraph (a), the Lower Basin is hereby given the right to increase its beneficial consumptive use of such waters by one million acre-feet per annum.
- c) If, as a matter of international comity, the United States of America shall hereafter recognize in the United

---

20. See, e.g., BUREAU OF RECLAMATION, U.S. DEP’T OF THE INTERIOR, COLORADO RIVER SYSTEM CONSUMPTIVE USES AND LOSSES REPORT 1996–2000 (2004), available at <http://www.usbr.gov/uc/library/envdocs/reports/crs/pdfs/crs962000.pdf> [hereinafter CONSUMPTIVE USES AND LOSSES REPORT]. Arizona disagrees with the quantities reported by Reclamation for reasons not relevant to this Article (e.g., the erroneous inclusion of mined groundwater uses in Arizona). Also, although it is not necessary for discussion in this Article, note that Arizona disagrees with the Upper Division States’ argument that Lower Basin tributary use should be counted against the annual mainstream allocation of 7.5 MAF to the three Lower Division States. See *Arizona v. California*, 373 U.S. 546, 564–69 (1963) (rejecting California’s argument that its 4.4 MAF allocation should include tributary waters from Arizona and Nevada, specifically “leaving each state its tributaries”). It suffices to note that the inclusion of tributary uses would erroneously inflate any report or comment on use of Lower Colorado River *mainstream* allocations.

States of Mexico any right to the use of any waters of the Colorado River System, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and if such surplus shall prove insufficient for this purpose, then, the burden of such deficiency shall be equally borne by the Upper Basin and the Lower Basin, and whenever necessary the States of the Upper Division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d).

- d) The States of the Upper Division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of ten consecutive years reckoned in continuing progressive series beginning with the first day of October next succeeding the ratification of this compact.
- e) The States of the Upper Division shall not withhold water, and the States of the Lower Division shall not require the delivery of water, which cannot reasonably be applied to domestic and agricultural uses.<sup>21</sup>

First, contrary to the Upper Division States' view of Article III(c), the Lower Division States' *use* of Colorado River water is irrelevant to the calculation of surplus or deficiency in Article III(c). Instead, Article III(c) requires a determination of that year's Colorado River system *supply*. If the system supply is greater than the aggregate of the Upper and Lower Division allocations in Articles III(a) and III(b) of the Compact, 16 MAF, the system supply surplus over 16 MAF is first applied to satisfy the Mexican Treaty obligation. If there is any deficiency in meeting the obligation after first applying any surplus supply over 16 MAF in the system that year, the Upper Division and Lower Division States share that deficiency equally.<sup>22</sup>

A second point that has been ignored in the past by the Secretary and by the Upper Colorado River Commission is that the Mexican Treaty obligation is an annual obligation.<sup>23</sup> Therefore, it requires an annual system supply measure and calculation to ascertain the correct amount to release from Lake Powell to satisfy the Upper Division States' share of the obligation that year. Before discussing that calculation and measure in more detail, it is necessary to briefly examine how Lake Powell releases are prioritized and regulated to meet Compact obligations.

---

21. Compact, *supra* note 4, at art. III(a)–(e).  
22. *Id.* at art. III(c).  
23. *Id.* at art. III(a).

***B. How Lake Powell Releases Under the Compact Are Prioritized and Regulated: Section 602(a) of the CRBPA and the LROC***

The Upper Division States' share of the Article III(c) Mexican Treaty obligation is only one of the Upper Division States' Compact requirements. Article III(d) of the Compact also requires that the Upper Division States deliver to Lee Ferry (Lake Mead) at least 75 MAF in every ten consecutive year period. Further, Article III(e) of the Compact prohibits the Upper Division States from withholding any system water that cannot reasonably be used each year in the Upper Division States for irrigation and domestic uses. Irrigation and domestic uses in the Upper Division States are increasing, but the United States Bureau of Reclamation ("Reclamation") reports that the average consumptive use in the Upper Basin from 2001 through 2004, including evaporation, amounted to approximately 4.2 MAF per year.<sup>24</sup> The Lower Division States currently consumptively use the entire Lower Division States' allocation and have sufficient irrigation and domestic demand to use additional flow from the Upper Division States under Article III(e).<sup>25</sup>

The CRBPA and its operating criteria and guidelines explain how the Upper Division States' Compact obligations must be calculated, and when and in what priority the obligations are released from Lake Powell. Section 602(a) of the CRBPA ("Section 602(a)")<sup>26</sup> serves as the operational basis for the conjunctive use of the Colorado River Basin reservoirs in carrying out the provisions of the Compact, the Mexican Treaty obligation, and the Upper Colorado River Basin Compact of 1948.<sup>27</sup> Pursuant to Section 602(a), the Secretary prepared and adopted the Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs ("LROC").<sup>28</sup> Since its adoption in 1970, the LROC has undergone six formal five-year reviews. The criteria have not been substantively changed since adoption,<sup>29</sup>

---

24. BUREAU OF RECLAMATION, U.S. DEP'T OF THE INTERIOR, PROVISIONAL UPPER COLORADO RIVER BASIN CONSUMPTIVE USES AND LOSSES REPORT 2001–2005 (2006), available at <http://www.usbr.gov/uc/library/envdocs/reports/crs/pdfs/cul2001-05.pdf>. Note that the annual uses comprising the 4.2 MAF average varied from 3.8 MAF in 2004 to 4.7 MAF in 2001. *Id.* at iv tbl., 9; see also Eric Kuhn, *Colorado River Supplies: Back to the Future*, SOUTHWEST HYDROLOGY, Mar.–Apr. 2005, at 20 (estimating 2005 use at "about 4.3 MAF," not counting evaporation losses).

25. See CONSUMPTIVE USES AND LOSSES REPORT, *supra* note 20.

26. CRBPA § 602(a), 43 U.S.C. § 1552(a) (2000).

27. Upper Colorado River Basin Compact of 1948, *supra* note 9; ARIZ. REV. STAT. ANN. § 45-1321 (2006).

28. Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs Pursuant to the Colorado River Basin Project Act of September 30, 1968, 35 Fed. Reg. 8951 (June 10, 1970) [hereinafter LROC].

29. Minor changes were made to the LROC in 2005, mainly to eliminate outdated language. Review of Existing Coordinated Long-Range Operating Criteria for Colorado River Reservoirs, 70 Fed. Reg. 15,873 (Mar. 29, 2005).

but the Secretary adopted interim guidelines for the determination of water storage requirements in Lake Powell in 2001<sup>30</sup> and 2004.<sup>31</sup>

Section 602(a) establishes the Upper Division States' share of that year's Mexican Treaty obligation pursuant to Article III(c) of the Compact as the first priority for release from Lake Powell every year.<sup>32</sup> The second priority for release every year is a sufficient amount to meet the Upper Division States' annualized Article III(d) obligation to the Lower Division States to provide at least 75 MAF every ten consecutive years at Lee Ferry.<sup>33</sup> The third priority is storage and release of water in Lake Powell that is not required to satisfy the first two priorities. The third priority storage requirement includes consideration of a list of "relevant factors" and consultation with the seven Basin States in order to allow storage of a reasonable amount of water in Lake Powell to assure future Compact deliveries to the Lower Division States without undue risk of impairment of Upper Division consumptive uses. Further, when active storage at Lake Powell is no less than that of Lake Mead, third priority releases are made to satisfy consumptive demand in the Lower Division States under Article III(e) of the Compact.<sup>34</sup>

The LROC<sup>35</sup> further defines the manner in which the Secretary determines annual storage requirements and releases from Lake Powell, within the priorities set forth in Section 602(a) and in the Compact. The LROC provisions for Lake Powell are intended to provide enough water in storage to ensure that the Upper Division States deliver from Lake Powell the Compact requirements of 75 MAF over ten years and at least one-half of the annual Mexican Treaty obligation during an extended drought on the Colorado River, referred to as the "critical period."<sup>36</sup> If the Secretary determines that Lake Powell has more water in storage than Lake Mead and sufficient water is in storage to meet the Compact and Mexican Treaty obligations during the critical period (often referred to as "602(a) Storage,"), the Secretary releases water from Lake Powell to equalize the storage in both reservoirs.<sup>37</sup> If there is less water in Lake Powell than Lake Mead or if there is insufficient water in Lake Powell to meet the 602(a) Storage requirements, the Secretary may reduce deliveries of water from Lake Powell to the LROC minimum objective release of 8.23 MAF.<sup>38</sup> When only 8.23 MAF is released annually from Lake Powell, the storage in Lake Mead is depleted and Lake Mead elevation drops significantly because releases of 8.23 MAF are insufficient to satisfy the 9 MAF mainstream water allocations of the Lower Division States and Mexico, plus the associated evaporation and other losses.<sup>39</sup> The Interim 602(a)

---

30. Colorado River Interim Surplus Guidelines, 66 Fed. Reg. 7772 (Jan. 25, 2001).

31. Notice of Adoption of an Interim 602(a) Storage Guideline for Management of the Colorado River, 69 Fed. Reg. 28,945 (May 19, 2004).

32. CRBPA § 602(a)(1), 43 U.S.C. § 1552(a)(1) (2000).

33. *Id.* § 602(a)(2), 43 U.S.C. § 1552(a)(2).

34. *Id.* § 602(a)(3), 43 U.S.C. § 1552(a)(3).

35. LROC, *supra* note 28.

36. *Id.* at art. II(1).

37. *Id.* at art. II(3).

38. *Id.* at art. II(2).

39. See Terrance J. Fulp et al., *The Colorado River: New Operational Guidelines for Lake Powell and Lake Mead*, WATER REP., Nov. 15, 2006, at 8, 12.



Storage Guideline adopted in 2004<sup>40</sup> specifies minimum active storage requirements for Lake Powell based on Lake Powell elevation levels. This guideline expires in 2015.<sup>41</sup>

***C. How Much Release From Lake Powell Is Enough: The “8.23” Controversy and Compact Accounting***

Fixing the LROC minimum objective release from Lake Powell in times of drought at 8.23 MAF was a source of controversy and intense disagreement in 1970, and remains so today. Arizona believes, and most commentators agree, that 8.23 MAF was a number arrived at by adding two numbers: first, one-half the 1.5 MAF Mexican Treaty obligation in a normal year, 0.75 MAF, plus the average annual Upper Division obligation under Article III(d) (7.5 MAF). From this figure was deducted the expected annual tributary flow from the Paria River, 0.02 MAF.<sup>42</sup>

The result is that an annual release of 8.23 MAF from Lake Powell is the absolute minimum that must be released, even during a severe drought. Lake Mead already suffers a drop in elevation during a consistent 8.23 MAF annual release schedule. Such declines can quickly result in shortages to current consumptive uses in the Lower Division States. Nevertheless, the Upper Division States have asked for even lower than 8.23 MAF annual release amounts because smaller releases do not deplete storage in Lake Powell as quickly, thereby protecting the Upper Division's power generation and recreation uses.<sup>43</sup> Smaller releases also provide a buffer to allow the Upper Division to more easily meet its Compact obligations to the Lower Division in future years.<sup>44</sup> Arizona's position is supported by the fact that the LROC designated 8.23 MAF as the minimum objective release, for use during times of drought,<sup>45</sup> thus recognizing that more than 8.23 MAF is normally necessary to maintain Lake Mead levels and avoid unnecessary shortage. But this is not the only reason that 8.23 MAF is not enough.

For one thing, the 0.75 MAF portion of the 8.23 MAF minimum objective release is insufficient to satisfy half of the Mexican Treaty obligation during a deficiency. This is because the Mexican Treaty obligation to be shared by the Upper Division States should include not only one-half of the 1.5 MAF of mainstream Colorado River water delivered to Mexico during normal years, but in addition, one-half of the estimated 286,000 AF of losses that occur as the water moves through the Lower Basin to the Mexican border delivery points. The total Upper Division share of the Mexican Treaty obligation should therefore be approximately 0.9 MAF in most deficiency years.

---

40. Interim 602(a) Storage Guideline for Management of the Colorado River, 69 Fed. Reg. 28,945 (May 19, 2004).

41. *Id.*

42. The 0.02 MAF presumed to flow from the Paria River into the Colorado River is subtracted because the tributary enters the river below Glen Canyon Dam near Lee Ferry.

43. See Don A. Ostler, *Upper Colorado River Basin Perspectives On the Drought*, SOUTHWEST HYDROLOGY, Mar.–Apr. 2005, at 18.

44. *Id.*

45. LROC, *supra* note 28, at art. II(2).

An annual Compact accounting (including an accurate system supply calculation for the entire Colorado River Basin) by Reclamation should be the measure to determine whether and to what extent there is a deficiency each year, which would determine the extent of any required first-priority release from Lake Powell of the Upper Division States' one-half of the Mexican Treaty obligation.<sup>46</sup> This Compact accounting has never been done.<sup>47</sup> In addition, the Secretary should release from Lake Powell an additional 7.48 MAF each year to satisfy the ten-year, 75 MAF requirement of Article III(d), for a total release under Section 602(a)(1) and (2) during deficiency years of approximately 8.38 MAF from Lake Powell. Note that this 8.38 MAF release does not include the additional release that may be required by Article III(e) of the Compact or by Section 602(a)(3) of the CRBPA (when Lake Powell has more water in active storage than Lake Mead). Finally, because the first priority for release from Lake Powell is the Upper Division share in the Mexican Treaty obligation under Article III(c) of the Compact, an inadequate release for that purpose could eventually result in the Upper Division States failing to meet their obligation to provide 75 MAF to Lee Ferry every ten years.<sup>48</sup>

Further, Article III(c) of the Compact establishes different obligations in "surplus years" than the obligations described above during a deficiency. In years of high flows, there may be a "surplus" under Article III(c), meaning a Colorado River system supply in excess of 16 MAF. In a year in which there is a system supply of 17.8 MAF or more, there is obviously no "deficiency" or surplus to meet Mexican and U.S. requirements. This does not mean that the Upper Division States are free of any obligation to release water from Lake Powell that year to share in the Mexican Treaty obligation. On the contrary, under Article III(c), the Compact requires the release of *more* than one-half of the Mexican Treaty obligation from Lake Powell in surplus years. For example, if the total system supply in a year is 17.8 MAF, the first priority release from Lake Powell would be the total amount of the Mexican Treaty obligation, 1.8 MAF (including losses), and the second priority release would be 7.48 MAF to satisfy the Article III(d) requirement of the Upper Division States, for a total release of 9.28 MAF. This is, again, in addition to Article III(e) releases under Section 602(a)(3), when Lake Powell has more active storage than Lake Mead.

#### ***D. 602(a) Algorithm Erroneously Prevents Releases From Lake Powell***

A closely related matter also impacts the amount of the annual release from Lake Powell to Lake Mead by the Secretary: the calculation of the "602a Storage" for third-priority use of water in Lake Powell under Section 602(a)(3) of the CRBPA. This provision is meant to allow a quantity of water to stay in storage

---

46. CRBPA § 602(a)(1), 43 U.S.C. § 1552(a)(1) (2000); Compact, *supra* note 4, at art. III(c).

47. See CONSUMPTIVE USES AND LOSSES REPORT, *supra* note 20, at 1.

48. Of the total volume delivered at Lee Ferry each year, the Mexican Treaty obligation is deducted first, leaving the remainder to meet the ten-year 75 MAF requirement. Thus, if less than 8.38 MAF is delivered at Lee Ferry in a given year, the remaining volume would be less than the 7.48 MAF annual release volume necessary to assure satisfaction of the ten-year 75 MAF requirement.

in the Upper Division reservoirs to meet the consumptive (not power generation and recreation) needs of the Upper Division States and to protect against a Compact call for curtailment of Upper Division uses. Note that this is the third priority for use of water in Lake Powell, only after releases of sufficient water to meet the annual Upper Division share of the Mexican Treaty obligation and the annualized Article III(d) requirement, and this storage protection is subject to equalization of active storage levels at Lake Mead and Lake Powell.<sup>49</sup>

Reclamation's current Colorado River System Simulation Model contains an algorithm for calculation of these third-priority releases from Lake Powell ("602(a) Storage algorithm")<sup>50</sup> that could result in protection of Upper Division power generation and Lake Powell recreation uses, even if the Lower Division will suffer a shortage as a result. Protection of these lower priority power generation and recreation uses at the expense of higher priority irrigation and domestic uses in the Lower Division would violate the use priorities in Article IV(b) of the Compact,<sup>51</sup> as well as the release priorities in Section 602(a) of the CRBPA.<sup>52</sup> In November 2005, Arizona sent a letter to Reclamation alerting them to this specific algorithm error and other errors that artificially inflate the sum of the Section 602(a) storage requirement for Lake Powell.<sup>53</sup>

#### *E. Compact Accounting by Arizona*

In early 2005, a representative of the Upper Colorado River Commission indicated that due to the drought, it would be appropriate for the Upper Colorado River Commission to begin accounting to assure full compliance by the Upper Division States with Article III of the Compact.<sup>54</sup> Compact accounting by the Upper Division States is properly a part of the Upper Colorado River Basin Compact of 1948, Article IV,<sup>55</sup> and Arizona agrees the accounting must begin in earnest during this prolonged dry period, including system-wide Compact accounting by Reclamation. Compact accounting is necessary to protect Arizona's vital water interests and rights to Colorado River water.

If at any time in the future, Arizona determines that the Upper Division States have failed to deliver sufficient water at Lee Ferry over a ten year period to

---

49. CRBPA § 602(a)(1)–(3), 43 U.S.C. § 1552(a)(1)–(3). For a discussion of the storage and release priorities, see *supra* notes 32–34 and accompanying text.

50. BUREAU OF RECLAMATION, U.S. DEP'T OF THE INTERIOR, ADOPTION OF AN INTERIM 602(A) STORAGE GUIDELINE: FINAL ENVIRONMENTAL ASSESSMENT attachment B (2004), available at [http://www.usbr.gov/uc/library/envdocs/ea/pdfs/EA\\_602a.pdf](http://www.usbr.gov/uc/library/envdocs/ea/pdfs/EA_602a.pdf) (mathematical expression of the 602(a) storage algorithm). The simulation model is discussed on pages 14–16 of the main report.

51. Compact, *supra* note 4, at art. IV(b).

52. CRBPA § 602(a)(1)–(3), 43 U.S.C. § 1552(a)(1)–(3). For a discussion of the storage and release priorities, see *supra* notes 32–34 and accompanying text.

53. Letter from Herbert R. Guenther, Dir., Ariz. Dep't of Water Res., to Robert Johnson, Reg'l Dir., Bureau of Reclamation (Nov. 28, 2005), available at <http://www.usbr.gov/lc/region/programs/strategies/scopingreport/Appendices/AppW6.pdf>.

54. Ostler, *supra* note 43, at 29. Mr. Ostler is the Executive Director and Secretary of the Upper Colorado River Commission.

55. Upper Colorado River Basin Compact of 1948, *supra* note 9.

meet both the Upper Division's annual Article III(c) share of the Mexican Treaty obligation and its ten-year Article III(d) obligation to deliver 75 MAF, Arizona may ask the Secretary to release the additional amount of water from Lake Powell necessary to bring the Upper Division States into full compliance with Article III of the Compact and Section 602(a) of the CRBPA. No curtailment of Upper Division consumptive uses of Colorado River water would be necessary if such a release from Lake Powell were made.

Article III of the Compact and Section 602(a) of the CRBPA are interpreted differently by Arizona and the Upper Division States regarding the magnitude of releases from Lake Powell necessary to satisfy the Upper Division States' annual share of the Mexican Treaty obligation. This legal disagreement and others like it have slowed, but not stopped, progress toward resolution of this difficult challenge.

### III. THE PATH TO AN INTERIM SOLUTION

The development of policies regarding the management of Colorado River shortages has accelerated in the last three years due to the prolonged and severe drought that began in 2000. Lake Powell elevations tumbled from near full conditions in the late 1990's to the lowest levels since it was first filled in the 1960's. The Upper Division States were concerned that water levels would fall so low that power could not be generated at Lake Powell.<sup>56</sup>

Furthermore, the Upper Division States were concerned that Lake Powell might not provide enough water to meet Compact obligations, including the Mexican Treaty obligation, prompting a concern that the Lower Division States would request a curtailment of Upper Division uses of the tributaries feeding Lake Powell. The Lower Division States were concerned that reduced releases from Lake Powell could cause premature shortages in Lake Mead and in the Lower Division as a whole. During the drought years of 2001–2004, the seven Basin States began informal technical meetings to discuss curtailment issues in the context of technical variations in the conjunctive management of Lake Mead and Lake Powell, rather than focusing on disputed interpretations of the Compact and Law of the River.

Due to the drought and the legal uncertainties raised by the Upper Division States, Arizona began a series of in-state Colorado River Shortage Workshops in 2004 for its water users. The purpose of the workshops was to inform the Arizona Colorado River water users (particularly users in the CAP service area) about the potential for a shortage, the probable impacts to Arizona water supplies if a shortage were declared, and the need to begin planning for shortage conditions.

---

56. See Ostler, *supra* note 43, at 29. For an excellent and more recent discussion of the effect of the drought on reservoir storage, see Fulp et al., *supra* note 39, at 10–12. As of February 20, 2007, Reclamation reported that Lake Powell was at 48% of capacity and Lake Mead was at 56% of capacity. Bureau of Reclamation, U.S. Dep't of the Interior, Data on Water Levels, <http://www.usbr.gov/lc/region/g4000/hourly/levels.html> (last visited Mar. 31, 2007).

In the Fall of 2004, the Secretary included a provision in the 2005 Annual Operating Plan for the Colorado River that required a mid-year review of reservoir conditions for the purpose of possibly modifying the releases from Lake Powell.<sup>57</sup> Shortly thereafter, in October of 2004, the Upper Division States sent the October 7 letter to the Lower Division States requesting that technical discussions be suspended and the Governors' representatives for the Basin States meet to discuss the issues.<sup>58</sup> The October 7 letter stated:

Declining reservoir levels have raised fundamental issues associated with the allocations established under the Colorado River Compact, the Boulder Canyon Project Act as interpreted by the decree in *Arizona v. California*, and the Mexican Treaty.

....

The fundamental issue for the Upper Basin States relates to whether a deficiency exists under Article III(c) of the Compact, which would trigger an obligation of the Upper Basin to share in any such deficiency. As you are aware, it has been our consistent position that because no such deficiency has been shown to exist, the Upper Basin has no obligation in this regard. This position implicates other questions concerning the Law of the River. Because of an abundance of water supply and relative lack of demand, it has not been necessary to address these issues until now.

Technical representatives of the States have been meeting over the last several months to discuss River modeling and efforts to more efficiently use and manage water. However, unresolved legal and policy issues should not be addressed by technical representatives. They are sufficiently important that they should be discussed by the Governors' representatives.

The stage was set for more formal negotiations about the operation of Lake Powell and Lake Mead and criteria for shortage declarations. Over the next six months, the Governors' representatives of the seven Basin States met many times, but made very little progress. Although the group sought creative, technical solutions, it became more and more obvious as time went by that the Basin States were placing too much emphasis on longstanding legal and policy differences between them, even on such small issues as whether a mid-year review of the Annual Operating Plan would be appropriate.

On May 2, 2005, after many meetings between the Basin States and Reclamation, the Secretary issued a letter informing the Governors of the seven Basin States that no mid-year 2005 adjustments to the water releases from Lake Powell were warranted due to the fact that inflow was above average and Lake

---

57. BUREAU OF RECLAMATION, U.S. DEP'T OF THE INTERIOR, ANNUAL OPERATING PLAN FOR COLORADO RIVER RESERVOIRS 2005 (2004), available at [http://www.usbr.gov/lc/region/g4000/aop05\\_final.pdf](http://www.usbr.gov/lc/region/g4000/aop05_final.pdf); see also Article 1(2), LROC, *supra* note 28.

58. Letter from Scott Balcomb et al., *supra* note 3.

Powell levels were rising.<sup>59</sup> However, the Secretary also noted that this hardly indicated the end of the drought and that she intended to issue a formal notice in June 2005 that the United States Department of the Interior would begin work on the development of Lower Basin shortage guidelines and conjunctive management guidelines for the operation of Lake Powell and Lake Mead, with a deadline of December 2007 for formal adoption.<sup>60</sup>

On June 15, 2005 the Secretary published a notice in the Federal Register soliciting comments on management strategies for operation of Lake Powell and Lake Mead under low reservoir conditions, including Lower Basin shortage guidelines, with a submission deadline of August 31, 2005.<sup>61</sup> In the following months, the Colorado River Work Group, with the support of the Basin States' Governors' representatives, made real progress toward a more technical interim solution.

On August 25, 2005, demonstrating that they had begun to move beyond the repetitive conflicts that had been stalling negotiations, the seven Basin States sent comments to the Secretary that emphasized two objectives.<sup>62</sup> First, the States agreed that Colorado River management strategies for operation of the reservoirs should be designed to delay the onset and minimize the extent and duration of shortages in the Lower Basin.<sup>63</sup> Second, they agreed that the management strategies should maximize the protection afforded to the Upper Division States by Lake Powell against calls upon the Upper Division to curtail uses.<sup>64</sup> To meet these objectives, the States proposed the development of an augmentation program, specific shortage guidelines for Lake Mead and coordinated operation of Lakes Powell and Mead to meet these objectives.<sup>65</sup>

On September 30, 2005, the Secretary published a notice in the Federal Register requesting suggested alternatives to be within the scope of the forthcoming environmental impact statement<sup>66</sup> for Colorado River Reservoir Operations: Development of Lower Basin Shortage Guidelines and Coordinated Management Strategies for Lake Powell and Lake Mead Under Low Reservoir Conditions ("Scoping Notice").<sup>67</sup> The seven Basin States met throughout the Fall

---

59. Letter from the Honorable Gale Norton, Sec'y, U.S. Dep't of the Interior, to the Honorable Jon Huntsman, Jr., Governor of Utah (May 2, 2005), *available at* <http://www.usbr.gov/lc/region/programs/strategies/consultation/2005AOPMid-YearReview.pdf>.

60. *Id.*

61. Colorado River Reservoir Operations: Development of Management Strategies for Lake Powell and Lake Mead Under Low Reservoir Conditions, 70 Fed. Reg. 34,794 (June 15, 2005).

62. Letter from Herbert R. Guenther et al., Governors' Representatives of the Seven Colo. River Basin States, to the Honorable Gale Norton, Sec'y, U.S. Dep't of the Interior (Aug. 25, 2005), *available at* <http://www.usbr.gov/lc/region/programs/strategies/scopingreport/Appendices/AppW6.pdf>.

63. *Id.*

64. *Id.*

65. *Id.*

66. National Environmental Policy Act of 1969 § 102, 42 U.S.C. § 4332 (2000) (requiring environmental impact statements).

67. 70 Fed. Reg. 57,322 (Sept. 30, 2005).

of 2005 in technical meetings to finalize the criteria for the conjunctive management of Lakes Powell and Mead and shortage criteria for Lake Mead.

#### IV. THE INTERIM SOLUTION

On February 3, 2006, in response to the Scoping Notice and after months of intense negotiations, the Seven Basin States sent a letter to the Secretary (“February 3 letter”)<sup>68</sup> recommending the adoption of programs described in the Seven Basin States’ Preliminary Proposal Regarding Colorado River Interim Operations (“Preliminary Proposal”).<sup>69</sup> The Preliminary Proposal was submitted unsigned as a draft consensus document and covers many issues beyond this article. It remains subject to further refinement and amendment and, although very close to final, remains unsigned at time of writing this article. The Preliminary Proposal, *inter alia*, proposes a technical solution to the Mexican Treaty obligation issue during an interim period ending on December 31, 2025.

The Preliminary Proposal, if agreed upon by the States and adopted by the Secretary, will change the current method of operating Lake Powell and Lake Mead during the interim period by incorporating a quantified set of conjunctive operating criteria that specify amounts of releases from Lake Powell based on specific Lake Mead and Lake Powell water elevations. The current, more complicated method, based on frequently disputed probability determinations and a minimum objective release of 8.23 MAF, is abandoned for the interim period to instead vary releases from Lake Powell between 7.0 MAF and 9.0 MAF, treating the two reservoirs more like one. The proposed interim reservoir balancing method would seek to keep more water in Lake Powell than in Lake Mead during high reservoir conditions, which is a benefit to the Upper Division States, but would send more than 8.23 MAF to Lake Mead during low reservoir conditions when water levels approach critical shortage trigger levels in the Lower Basin.

The seven Basin States also attached to the February 3 letter a Draft Agreement, subject to modification and also unsigned at the time of writing this article, that will serve as a memorandum of agreement concerning how the seven Basin States will consult, cooperate and utilize the Preliminary Proposal during the interim period (“Draft Agreement”).<sup>70</sup>

---

68. Letter from Herbert R. Guenther et al., Governors’ Representatives of the Seven Colo. River Basin States, to the Honorable Gale Norton, Sec’y, U.S. Dep’t of the Interior (Feb. 3, 2006), *available at* <http://www.usbr.gov/lc/region/programs/strategies/consultation/Feb06BasinStatesTransmittalLetter.pdf>.

69. Seven Basin States’ Preliminary Proposal Regarding Colorado Water Interim Operations (Feb. 3, 2006), *available at* <http://www.usbr.gov/lc/region/programs/strategies/consultation/Feb06SevenBasinStatesPreliminaryProposal.pdf> [hereinafter Preliminary Proposal] (attachment A in the Letter from Herbert R. Guenther et al. to the Honorable Gale Norton, *supra* note 68).

70. Draft Agreement (Feb. 3, 2006), *available at* <http://www.usbr.gov/lc/region/programs/strategies/consultation/Feb06BasinStatesDraftAgreement.pdf> (attachment B in the Letter from Herbert R. Guenther et al. to the Honorable Gale Norton, *supra* note 68).

## V. WHY THE PROPOSED INTERIM SOLUTION BENEFITS ARIZONA

The Preliminary Proposal by the seven Basin States for conjunctive management of the Colorado River reservoirs and the shortage criteria for the Lower Basin, although in most respects limited to an interim period until 2025, offers benefits for Arizona. First, the new method of balancing two reservoirs should be an improvement over the current method of operating the two reservoirs. It is based on years of technical study and modeling of many Colorado River flow scenarios, with a primary goal of reducing the risk and severity of shortage in the Lower Division States, while protecting the Upper Division States from the risk of a Compact call for curtailment of uses.

Second, during the interim period, the proposed reservoir balancing method will replace the 602(a) Storage algorithm currently used to determine the annual amount of the 602(a) Storage requirement for Lake Powell.<sup>71</sup> This will relieve Arizona of the need to challenge the legality of Reclamation's use of the 602(a) Storage algorithm that protects power generation and recreation uses in the Upper Division States.<sup>72</sup> However, Arizona reserves the right to challenge future use of the 602(a) Storage algorithm after expiration of the interim period, if it reappears.<sup>73</sup>

Third, the Preliminary Proposal does not affect Arizona's right to keep its own Compact accounting of deliveries by the Secretary to Lee Ferry from Lake Powell. Arizona remains free to call for additional releases from Lake Powell if the Upper Division States have not released sufficient water from Lake Powell to fully comply with Article III of the Compact and Section 602(a) of the CRBPA in any ten consecutive years.<sup>74</sup>

Fourth, although this Article is intentionally limited to a discussion of only one of the several challenges facing the seven Basin States, several other challenges are also at least temporarily resolved by the Preliminary Proposal. Most importantly for Arizona, the shortage guidelines in the Preliminary Proposal include a stepped-shortage plan originally developed by Colorado River users in Arizona that reduces the severity of initial shortages to Arizona.<sup>75</sup> The Preliminary Proposal also eliminates partial domestic surpluses under the current Interim Surplus Guidelines, which will reduce surplus deliveries from Lake Mead to California and Nevada, thus keeping Lake Mead levels higher and reducing the

---

71. BUREAU OF RECLAMATION, U.S. DEP'T OF THE INTERIOR, *supra* note 50, at attachment B; *see also supra* notes 50–52 and accompanying text.

72. *See* Letter from Herbert R. Guenther to Robert Johnson, *supra* note 53.

73. Draft Agreement, *supra* note 70, at 9.

74. Even during the proposed interim period (2008 through 2026), when it is very unlikely that Arizona would request a deviation from the operation of Lake Powell as set forth in the proposed interim release schedule, it would be important to gauge whether the experimental interim release schedule actually causes less than 75 MAF of flow at Lee Ferry in a ten year period. The potential for a Compact violation could be a factor in adjusting Powell releases during the proposed interim period within the agreed Powell release range, and may demonstrate the need for adjustment of the proposed release schedule after consultation with the Basin States and the Secretary.

75. Preliminary Proposal, *supra* note 69, § 3(F).



risk of shortage to Arizona.<sup>76</sup> In addition, the Preliminary Proposal creates the concept of “intentionally created surplus” (“ICS”), by which the Secretary may deliver surplus water to a Lower Division State from increased water in storage at Lake Mead created through extraordinary conservation or augmentation activities, including fallowing land, lining canals, building terminal reservoirs to capture excess water or desalination. Five percent of all the ICS created remains in Lake Mead and the remainder of ICS may be released by the Secretary to the Lower Division State contractor that created the ICS.<sup>77</sup> In the short term, Lake Mead levels are increased by the ICS program. The proposal will also allow the Lower Division States to create ICS by importing water from areas outside the Colorado River Basin to augment the Lake Mead supply.<sup>78</sup> This concept will initially be used to support Nevada’s quest to supplement its water supply, but may be used by Arizona in the future. Other water supply augmentation projects are also included in the proposal, and the States are currently working with consultants to iron out the details of a multi-state effort to increase Colorado River supply through such methods as desalination and phreatophyte removal.<sup>79</sup> This only touches on the other benefits that the seven Basin States will derive from the Preliminary Proposal, assuming it is finalized by the States and adopted by the Secretary in December 2007.

Upon finalization by the seven Basin States and adoption by the Secretary, the Preliminary Proposal will likely avoid years of contentious litigation and congressional lobbying that would otherwise occur, which would result in harm to all seven Basin States. As ocean desalination costs decrease in relation to the cost of fresh water supplies, we are getting closer to a long term solution to the Colorado River supply problem. The proposed interim solution could serve as a bridge to the increased development of multi-state efforts to conserve and augment the Colorado River supply far beyond 2025. Can a Compact challenge lead to the next era of cooperation among the seven Basin States? Tens of millions of water users in the seven Basin States may depend on it.

---

76. *See id.* § 3(A)(1)(a).

77. *See id.* § 4.

78. *See id.* § 4(E).

79. *See id.* §§ 4(E), 5; *see also* Draft Agreement, *supra* note 70, at 8.

\*\*\*