REVISITING THE COLORADO RIVER COMPACT: TIME FOR A CHANGE?

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I. INTRODUCTION

More than three quarters of a century ago, at Bishop's Lodge in Santa Fe, New Mexico, representatives of the seven Colorado River basin states met with Secretary of Commerce Herbert Hoover to negotiate allocation of water from the Colorado River, a lifeline of liquid wealth that was—and still is—viewed as critical to the economic development and prosperity of those states.[1] The meetings culminated in the 1922 Colorado River Compact (hereinafter "the compact"),[2] the first interstate compact designed to allocate an interstate river.[3] Although the compact itself is quite brief,[4] its ratification and implementation generated one sub-basin interstate compact,[5] and thousands of pages of statutes,[6] regulations,[7]

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[1] *See generally* NORRIS HUNDLEY, WATER AND THE WEST: THE COLORADO RIVER COMPACT AND THE POLITICS OF WATER IN THE AMERICAN WEST (1975).

[2] The Colorado River Compact is published at multiple locations, *e.g.*, UTAH CODE ANN. § 73-12a-2 (2007); COLO. REV. STAT. ANN. § 37-61-101 (2007); BUREAU OF RECLAMATION, COLORADO RIVER COMPACT OF 1922, http://www.usbr.gov/lc/region/g1000/pdfiles/crcompct.pdf.

[3] HUNDLEY, *supra* note 1, at 3, 76-78. Since that time, states have negotiated and ratified a number of additional interstate water compacts, *e.g.*, The Rio Grande River Compact ratified in 1938 between New Mexico, Texas, and Colorado ensuring equal apportionment of the waters of the Rio Grande River. COLO. REV. STAT. ANN. § 37-66-101 (2007); The South Platt River Compact ratified in 1923 between Colorado and Nebraska to resolve conflicts surrounding the South Platte River. COLO. REV. STAT. ANN. § 37-65-101(2007); The Arkansas River Compact ratified in 1948 between Colorado and Kansas to settle disputes over the use of Arkansas river water for irrigation purposes. COLO. REV. STAT. ANN. § 37-69-101 (2007).

[4] *See* UTAH CODE ANN. § 73-12a-2 (2007).

[5] Upper Colorado River Compact, UTAH CODE ANN. § 73-13-10 (2007).

[6] *E.g.*, Boulder Canyon Project Act, 43 U.S.C. § 617 (2006); Colorado River Storage Project Act, 43 U.S.C. § 620 (2006); Colorado River Basin Project Act, 43 U.S.C. § 1501 (2006).

administrative policies,[8] U.S. Supreme Court opinions,[9] lower court decisions,[10] and other documents collectively known as the "Law of the River."[11]

Scholars have debated whether an interstate compact is more like a statute or more like a contract for purposes of efforts to change the agreement.[12] Contracts can be changed, either by mutual consent or, more rarely, judicial decree, when circumstances make it desirable to do so.[13] Federal statutes, of course, can be amended by Congress, if signed by the president. But the Colorado River Compact could be viewed more like the Bible, or at least the bible of Colorado River water law, to be defended in its current form with almost crusade-like fervor.

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[7] *E.g.*, General Regulations for sale of power generated at the Boulder Canyon Project, 10 C.F.R. § 904.1-904.14 (2007); Offstream storage of Colorado River water development and release of intentionally created unused apportionment in lower division states, 43 C.F.R. § 414.1-414.6 (2007); Procedural Methods for Implementing Colorado River Water Conservation Measures with Lower Basin Contractors and Others, 43 C.F.R. § 417 (2007).

[8] *E.g.*, Bureau of Reclamation, *Reclamation: Managing Water in the West, Annual Operating Plan for Colorado River Reservoirs* (Oct. 28, 2007) http://www.usbr.gov/uc/water/rsvrs/ops/aop/aop07_final.pdf (visited Oct. 10, 2007).

[9] Arizona v. California, 373 U.S. 546 (1963).

[10] *E.g.*, Badoni v. Higginson, 638 F.2d 172 (10th Cir. 1980); Envtl. Defense Fund v. Higginson, 655 F.2d 1244 (D.C. Cir 1981); Envtl. Defense Fund v. Costle, 657 F.2d 275 (D.C. Cir. 1981).

[11] Different sources identify this compilation of legal authorities in different ways, *see e.g.*, RAY L. WILBUR AND NORTHCUTT ELY, THE HOOVER DAM DOCUMENTS, H.R. Doc. No. 717 (1948); DALE PONTIUS, COLORADO RIVER BASIN STUDY, REPORT TO THE WESTERN WATER POLICY REVIEW ADVISORY COMMISSION (1997). Those who use or study other river systems, or even live outside the Colorado River region, may be bemused by the term "Law of *the* River" (emphasis added), as if it is the only one, or so clearly the most important.

[12] *E.g.*, David H. Getches, *Competing Demands for the Colorado River*, 56 U. COLO. L. REV. 413, 425 n.32 (1985), (citing RESTATEMENT (SECOND) OF CONTRACTS § 152. "Interstate compacts are not only statutes; they are also contracts. This means that the substantive law of contracts is applicable to them"); F. ZIMMERMAN & M. WENDELL, THE LAW AND USE OF INTERSTATE COMPACTS, 2 (1961); *see also* West Virginia ex rel. Dyer v. Sims, 341 U.S. 22 (1951); Green v. Biddle, 21 U.S. (8 Wheat) 1 (1823) (Supreme Court considered interstate compacts to be "contracts" within the meaning of the Art. I, § 10 cl. 2 prohibition on laws impairing the obligation of contract); Felix Frankfurter and James M. Landis, *The Compact Clause of the Constitution – A Study in Interstate Adjustments*, 34 YALE L. J. 685 (1925); *See also*, Oklahoma v. New Mexico, 501 U.S. 221, 236 (1991) ("a congressionally approved compact is both a contract and a statute"). The Compact Clause of the Constitution itself provides: "No State shall, without the Consent of Congress . . . enter into any Agreement or Compact with another State . . . ." U.S. CONST., ART. I, SEC. 10, CL. 3.

[13] *See* 17 AM. JUR. 2D *Contracts* § 507 (2007); 76 C.J.S. *Reformation of Instruments* § 2 (2007).

I take a middle ground and argue that the compact has a legal and rhetorical status and resistance to change similar to that of a constitution.[14] It is not only brief, but written in terms designed to resolve only the broadest of issues,[15] with implementation and other details to follow in later documents.[16] Because of the compact's sometimes ambiguous language, interpretation of its text remains open to significant conflicting interpretations.[17] In format, it is organized into articles and sections, and establishes a core organizational structure and fundamental principles of governance.[18] The compact implicitly allows some changes but imposes significant barriers to amendment, relative to most constitutions, and preserves water rights issued under the compact even if the agreement is terminated.[19] Most important, through the eyes of its supporters, implementers, and commentators, it is viewed as a document whose stature and significance defies even the serious suggestion of change, at least to the compact itself as opposed to its many implementing documents and institutions.[20]

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[14] *See* David Jenkins, *From Unwritten to Written: Transformation in the British Common Law*, 36 VAND. J. TRANSNAT'L L. 863, 908-37 (2003) (discussing the nature of different types of constitutions).

[15] For example, rather than apportioning water among each of the seven Colorado River Basin states, the compact merely entitles the upper and lower basins to 7.5 million acre feet (maf) a year of beneficial consumptive use (and allows the lower basin to develop an addition one maf), with further allocations within basins left to later resolution. Colorado River Compact, *supra* note 2, art. III(a), (b). Yet the compact did not even define the term "beneficial consumptive use," leaving the basins to dispute the meaning of the term. *See* HUNDLEY, *supra* note 1, at 312-13.

[16] *See supra* notes 4-11.

[17] *E.g.*, Charles J. Meyer, *The Colorado River*, 19 STAN. L. REV. 1, 12, 14 (1966); *see also*, David H. Getches, *Competing Demands for the Colorado River*, 56 U. COLO. L. REV. 413, 414 (1985).

[18] For example, Article II of the compact divides the basin into an upper basin and a lower basin on hydrological grounds for purposes of apportioning water, *see* UTAH CODE ANN. § 73-12a-2 art. III(a)-(b), and into an upper division and a lower division for purposes of implementing the agreement and enforcing its obligations. *Id.* at art. III. (d), (e). The compact provides for further allocations of water among states, additional appointment of commissioners and approval mechanisms, implementation obligations, dispute resolution procedures, and termination provisions. *Id*. at art. III (f), (g); art. V, art. VI, art. X.

[19] Although there is no express provision regarding amendments as there is, for example, in Article V of the U.S. Constitution, nothing in the compact expressly prohibits amendments. Moreover, the compact allows further apportionments of water, UTAH CODE ANN. § 73-12a-2 art. III (f), (g), despite that nothing in the compact appears to envision that the states would change the initial apportionments set forth in Article II (a) and (b). Regarding the preservation of rights on termination, Article X provides: "This compact may be terminated at any time by the unanimous agreement of the signatory States. In the event of such termination all rights established under it shall continue unimpaired." *Id.* at Art. X.

[20] *E.g.*, Greg Hobbs, *Colorado River Entitlements, Clearing up Misconceptions*, 28 J. LAND RESOURCES & ENVTL L. 98.

But the constitution-like character of the compact cannot justify the concept of complete *rigidity* in the face of significant changes in circumstances since it was signed.[21] After all, we have amended the U.S. Constitution seventeen times in the past 216 years (not including the original ten amendments in the Bill of Rights, which were adopted at the same time as the Constitution).[22] The Colorado River Compact has *never* been amended in 85 years, despite significant changes in the population, economy, culture, and environment of the Colorado River Basin.

So unless you subscribe to the biblical model, the real issue is whether circumstances have changed sufficiently over the past 85 years to justify rethinking the compact's provisions. The Southwest is a very different place than it was in 1922. The region's population and economy have grown dramatically, and shifted from largely rural to predominantly urban.[23] Recreational and other instream water uses now compete more heavily with traditional offstream uses such as farming, ranching and mining. We know more about the river's hydrology—in particular its variability—than when the compact was drafted. We understand more about the environmental impacts of dams and water diversions; the public generally places a higher value on environmental protection; and a litany of laws and regulations now govern what can and cannot be done in the name of water development.[24]

These changes and pressures cast some doubt on the permanence of the compact. Is it etched in stone? Can it be changed at will? Or is it something in between? What conditions and circumstances—if any—justify changing a document that has been so important to the law and development of the Southwest for so long? Is the compact resilient enough to address those changes, or is it ripe for reconsideration? In this article, I argue that significant changes in circumstances, new information, and problems and omissions in the original agreement suggest that it is time to reconsider some key provisions of the compact. In Part II, I set forth the main arguments in favor of the compact's resilience. In Part III, I articulate the principal reasons why the compact may not contain sufficient flexibility to address the magnitude of changes in scientific knowledge and understanding, social and political views and forces, and physical circumstances that have occurred since 1922. In Part IV, I conclude that any inherent flexibility in compact implementation is not sufficient to address the magnitude and significance of the changed circumstances in the basin. I also suggest that it would be wiser to anticipate those problems and to reconsider the compact before a crisis situation arises that might have to be resolved through protracted or difficult litigation, or through a messy and contentious political battle. A workable future for the Colorado River must take into account in some

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[21] *See* Douglas L. Grant, *Interstate Water Allocation Compacts: When the Virtue of Permanence Becomes the Vice of Inflexibility*, 74 U. COLO. L. REV. 105, 115-20 (2003).

[22] U.S. CONST. amend. XI-XXVII.

[23] ROBERT W. ADLER, RESTORING COLORADO ECOSYSTEMS: A TROUBLED SENSE OF IMMENSITY 245 (2007).

[24] *Eg*., National Environmental Policy Act, 42 U.S.C.A. §§ 4331-4370f ; Endangered Species Act, 16 U.S.C.A. §§ 1531-1544.

reasonable way all of the legitimate uses and interests in the river and its related resources.

II. ARGUMENTS IN FAVOR OF COMPACT RESILIENCE

There are several compelling arguments in favor of the "resilience" of the Colorado River Compact, that is, in favor of retaining the compact in its current form and addressing any problems through changes in other components of the Law of the River designed to implement the compact. First, to say that renegotiating the compact would be difficult is undoubtedly a severe understatement. Despite powerful incentives on the part of all of the basin states to reach an amicable agreement in 1922, the negotiations nearly failed, and succeeded only through a last-minute compromise that achieved the original intended goals only in part.[25] Although representatives of all seven basin states signed the compact in Santa Fe, it took seven years for the legislatures of six of the seven states to actually ratify the agreement.[26] The seventh state, Arizona, did not ratify the Compact until 1944, following a series of failed efforts by that state to undermine it in the U.S. Supreme Court and elsewhere.[27] Given that fragile history, it is arguably foolish and perhaps futile to reopen the compact now.

Moreover, as difficult as it was to negotiate a compact between the seven basin states with the assistance of the United States government, renegotiating the compact now likely would bring to the table a range of additional interests not included in 1922, such as environmental groups, Native American tribes, power generators and users, and Mexico. Of course, as explained further below,[28] the opportunity to address issues and interests omitted from the original negotiations

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[25] HUNDLEY, s*upra* note 1, at 213 (explaining that none of the drafters got everything they wanted. Utah and the other upper basin states settled on the delivery of more water to the lower basin than they hoped, and California, "who had resolved to make the compact subject to completion of a Boulder Canyon dam, had settled for much less."). Moreover, rather than allocating specific water rights to each of the seven basin states, the compact only divided larger shares of water among the two sub-basins. *See id.* at 146, 154 (indicating that the commissioners initially sought to allocate by state, but later abandoned that goal).

[26] *See id.* at 281. (The draft of the compact was written in 1922 and in 1929, six of the seven states signed and ratified the compact).

[27] *Id.* at 295; *see also* Arizona v. California, 283 U.S. 423 (1931) (Arizona filed suit in 1930 claiming the Boulder Canyon Project Act, which authorized the building of Hoover, half of which was in Arizona, was unconstitutional because its justification was to improve navigation and the river was not navigable); Arizona v. California et al., 292 U.S. 341 (1934) (The Supreme Court rejected Arizona's effort to perpetuate testimony on the meaning and intent of the compact, finding it irrelevant to any subsequent interpretation of the Boulder Canyon Project Act); Arizona v. California et al. 298 U.S. 558 (1936) (Arizona brought another complaint to the Supreme Court naming the other basin states as defendants, asking the Court to determine their equitable share of water. The Court denied their request.).

[28] *See infra* Parts III and IV.

is one main argument in *favor* of compact reconsideration. Nevertheless, it would be disingenuous to the ignore the difficulty of achieving a successful and amicable renegotiation in a manner that satisfactorily balances the many competing interests at stake.

Second, if compact renegotiation was not feasible for political or other reasons, the significant time and effort spent in the renegotiation would detract from efforts to address the same or similar concerns in less drastic ways. It is possible that any necessary remedies could be accomplished more easily through changes to other components of the Law of the River. Indeed, the very constitutional nature of the compact, which allows for diverse interpretations, may provide sufficient flexibility in implementation to avoid the need for a contentious and protracted reconsideration of the underlying compact text.

Third, the fact that compact implementation has required such a lengthy and complex statutory, regulatory, administrative, contractual and judicial appendix suggests that redrafting the compact itself in any fundamental way would generate immense ripple effects through virtually every other component of the Law of the River. It would not be possible to revise the compact significantly without rethinking and revising much of the rest of that intricate body of law, which has taken many decades to develop. Undoubtedly that would generate a massive business boom for water lawyers, and probably a barrage of associated litigation. For those who must implement the Law of the River on a day-to-day basis, however, and many others, it could cause an administrative and judicial nightmare.

For example, the Upper Colorado River Basin Compact builds upon the platform of the Colorado River Compact, especially in its assumptions about how much water is allocated to the upper basin, which the upper basin states then allocated among themselves.[29] Congress adopted implementing statutes such as the Boulder Canyon Project Act, the Colorado River Basin Project Act and the Colorado River Storage Project Act[30] in ways that reflect and build on the basic requirements of the Colorado River Compact. Similarly, administrative documents such as the Long Range Operating Plan for Glen Canyon and Hoover Dams as well as annual operating plans for those systems[31] and various Department of Interior regulations[32] are designed to implement the two compacts and the various statutes. The Supreme Court and lower courts further construed this body of law in the decision and decrees in *Arizona v. California*,[33] and in various lower court decisions.[34] That does not even include the tremendous litany of water delivery

[29] UPPER COLORADO RIVER BASIN COMPACT, UTAH CODE ANN. §73-13-10 (2007).

[30] *See* 43 U.S.C. § 617 (2006); 43 U.S.C. § 620 (2006); 43 U.S.C. § 1501 (2006).

[31] U.S. Dep't of the Interior, Criteria for Coordinated Long Range Operation of Colorado River Reservoirs Pursuant to the Colorado River Basin Project Act of Sept. 30, 1968 (P.S. 90-537), 35 Fed. Reg. 8951 (1970); *see also, e.g.,* U.S. Dep't of the Interior, Bureau of Reclamation, Annual Operating Plan for Colorado River Reservoirs (2006).

[32] *See, e.g.*, 33 C.F.R. § 162.220; 43 C.F.R. § 414.1-414.6; 43 C.F.R. § 417.

[33] 373 U.S. 546 (1963).

[34] *See, e.g.,* Defenders of Wildlife et al. v. Norton, 257 F.Supp.2d 53 (D.D.C. 2003).

contracts, inter-jurisdictional agreements, and other transactional arrangements built upon the statutory, administrative and judicial framework of the Law of the River.

Fourth, and perhaps most importantly, the compact and its associated body of implementing documents and principles has generated such substantial *reliance* on the part of so many public and private parties that any major change will prompt cries of significant unfairness and adverse economic and other consequences. Current and future water users from Denver to San Diego rely on the agreements reached in the 1922 compact to plan and sustain farms, ranches, urban development, extractive industries, and other economic endeavors. To the extent that any change in the compact or in compact implementation affects vested existing water rights, owners of those rights might raise takings claims.[35] Even potential future users of Colorado River water may argue that they have relied on the promise that additional water rights would be available in making investment and other decisions, at both the private and state levels.

Most significantly, in the fundamental "deal" engineered by the compact's architects, states in the upper Colorado River basin agreed to allow states in the lower basin (primarily California) to continue to divert significant amounts of Colorado River water to the Imperial Valley and elsewhere, and opened the way for construction of the Hoover Dam and the All-American Canal.[36] In return, the lower basin states agreed that the upper basin could defer the full use of its compact allocation into the future without fear that it would lose that water under the prior appropriation doctrine of western water law.[37] A significant change in compact terms could upset the basic understanding under which water law and development has proceeded in the southwest for decades.

In my book, *Restoring Colorado River Ecosystems: A Troubled Sense of Immensity*, I illustrate this concept by comparing two seemingly unrelated events.[38] On July 1, 1999, Interior Secretary Bruce Babbitt, the Governor of Maine, and thousands of observers watched from the shores of the Kennebec River as workers breached the Edwards Dam, a structure that had stood for 163 years. The goal was to restore one of Maine's long-lost runs of Atlantic salmon.[39]

Two years to the day earlier, the sun finally set on the British Empire as troops from the People's Republic of China marched into Hong Kong, and a peaceful modern invasion transferred sovereignty from the colonialists to the communists. After intensive negotiations, China agreed to keep Hong Kong's

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[35] *See* Joseph L. Sax, *The Constitution, Property Rights and the Future of Water Law*, 61 U. COLO. L. REV. 257 (1990). The viability of takings claims for Colorado River water rights is beyond the scope of this essay.

[36] Charles J. Meyers & Richard L. Noble, *The Colorado River: The Treaty With Mexico*, 19 STAN. L. REV. 1, 367 (1966); HUNDLEY, *supra* note 1, at 108.

[37] ADLER, *supra* note 23, at 21.

[38] *Id.* at 17-19.

[39] *See generally* John McPhee, *Farewell to the Nineteenth Century, The Breaching of Edwards Dam*, THE NEW YORKER, Sept. 27, 1999 at 44.

capitalist economy, to guarantee some political autonomy for another half century, and to maintain private property rights and the political freedoms.[40]

So what do these two unrelated events have in common, and what do they have to do with the Colorado River? Both represent examples of how societies deal with changes in settled expectations. Both reflect how difficult it is to anticipate the long-term impacts of current actions and policies. When Imperial China signed treaties granting Great Britain ninety percent of what is now known as Hong Kong, neither party knew how much the world would change over the next century. Britain believed it would remain a world power with the military and political might to keep Hong Kong after the treaty term expired. Neither party predicted that this small trading post for British merchant vessels would become a global economic powerhouse. Neither side predicted that the nascent ideas of Karl Marx would create an international schism, and that Hong Kong would later be transferred from one side of the geopolitical fence to the other. So the British built a whole society in Hong Kong premised on the assumption of stability.

Likewise, when Edwards Dam was built in 1836, no one knew that bountiful Atlantic salmon populations would plummet throughout the eastern seaboard. No one knew very much about the environmental impacts of a single dam, much less the huge systems of dams we would build on America's rivers. No one knew that the ideas of John Muir and Aldo Leopold and Rachel Carson would change American values and environmental politics so profoundly, or that laws like the National Environmental Policy Act[41] and the Endangered Species Act[42] would follow those shifts. We built dams on the premise that the law would provide stability, and that investments would be protected.

The same ideas apply to the Colorado River Compact. But to grasp this, we need to understand what the compact does and how it works. The compact allocates water usage among the "upper basin" and the "lower basin."[43] The artificial dividing line is at Lee Ferry, approximately sixteen miles below Glen Canyon Dam. But they are not really separate river basins. Lee Ferry is roughly

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[40] ADLER, *supra* note 23 at 18 and n. 33.

[41] 42 U.S.C. § 4321–4347 (2006).

[42] 16 U.S.C. §§ 1531–1544 (2000).

[43] The compact defines the "upper basin" as those parts of the basin states of Colorado, Utah, Wyoming, New Mexico and Arizona drained by the Colorado River system above Lee Ferry, as well as areas served by water diverted above Lee Ferry. UTAH CODE ANN. § 73-12a-2 art. II(f). The "lower basin" consists of those parts of the basin states of California, Arizona, Nevada, Utah, and New Mexico drained by the Colorado River system below Lee Ferry, as well as areas served by water diverted below Lees Ferry. *Id*. at art. II(g). The compact apportioned "in perpetuity" 7.5 maf of beneficial consumptive use to each basin, and allowed the lower basin to increase its beneficial consumptive use by an additional 1 maf. *Id*. at art. III(a), (b). However, because these hydrological units do not match geopolitical boundaries precisely, for purposes of imposing legal obligations the compact also defines the "upper division" as the states of Colorado, New Mexico, Utah and Wyoming, and the "lower division" as the states of Arizona, California and Nevada. *Id.* Art. II(c), II(d).

halfway between the river's origins and its terminus, and it was a logical place to measure water flows between the two sub-basins.

By the second decade of the twentieth century, the lower basin states, especially California, were far ahead in the race to secure Colorado River water rights[44] under the prior appropriation doctrine of western water law: "first in time, first in right." Under this principle, those who divert water for a legally recognized "beneficial use" obtain a water right with a "priority date" based on the time of first diversion and use. In times of shortage, those with earlier priority dates ("senior" right holders) can withdraw all of their water before latecomers ("junior" right holders) receive any.[45]

In 1922, the Supreme Court ruled that prior appropriation applied to water disputes among states that adhered to that doctrine.[46] Ongoing water diversion and use in California, therefore, especially in the rapidly growing agricultural mecca in the Imperial Valley, suggested that California could acquire rights to Colorado River water senior to those in other basin states, which were slower to develop.[47] California, however, lacked the money needed to build dams and canals to store and transport more Colorado River water, or to protect its low-lying farms and communities when the river overflowed. Congress viewed an agreement between the basin states as a prerequisite to investing in those structures.[48]

So California and the rest of the lower basin agreed to reserve a large percentage of the river's flow to the upper basin states. This paved the way for federal financing and construction of Hoover Dam, and a major new canal to the Imperial Valley. California secured more liquid water, flood control and hydroelectric power to fuel urban growth in Southern California. The upper basin states received guaranteed *future* rights to water whenever development did occur (creating a major exception to prior appropriation law).

According to the most basic reading of the compact, each basin has the right to the beneficial consumptive use of 7.5 million acre-feet (maf)[49] of water a year, with the lower basin entitled to develop an additional million acre-feet as well.[50] In return for its deferred development rights, the upper basin agreed to deliver enough water to fulfill the lower basin's entitlements, by guaranteeing a flow at Lee Ferry of no less than 75 maf of water every ten years as a "rolling average,"[51] plus half of the U.S. treaty obligation to Mexico,[52] which was later fixed at 1.5

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[44] *See* HUNDLEY, *supra* note 1, at 17-21, 96, 104.

[45] *See, e.g.*, Coffin v. Left Hand Ditch Co., 6 Colo. 443, 447 (Colo. 1882); Shilling v. Rominger, 4 Colo. 100, 103 (Colo. 1878).

[46] Wyoming v. Colorado, 309 U.S. 572, 579 (1940).

[47] Arizona v. California, 373 U.S. 546, 554-56 (1963).

[48] *See id.* at 553-55.

[49] UTAH CODE ANN. § 73-12a-2 art. III(a). An acre-foot is (logically enough) the amount of water needed to cover an acre of land to one foot deep, or 326,000 gallons. WEBSTERS COLLEGE DICTIONARY 12 (2d ed. 1998).

[50] UTAH CODE ANN. § 73-12a-2 art. III(b) (2007). Getches, *supra* note 12, at 417.

[51] UTAH CODE ANN. § 73-12a-2 art. III(d) (2007). Getches, *supra* note 12, at 417-18.

[52] UTAH CODE ANN. § 73-12a-2 art. III(c) (2007). Getches, *supra* note 12, at 417-18.

maf/year.[53] In total, then, the compact allocates 16.5 maf of water a year, or 17.5 maf including the supplemental lower basin entitlement.

Understanding what this really means requires a better understanding of the inherent *uncertainty* in the river's annual flow. Annual virgin river flows vary dramatically, according to historical records from a low of 4.4 maf to a high of over 24 maf per year.[54] During years in which river flows are high, the upper basin can easily satisfy its delivery obligation. But what happens during dry years? If the upper basin states were required to deliver half of all *available* water to the lower basin, that would have divided the risk of drought equally. By requiring the upper basin to deliver the entire lower basin share, during protracted droughts the compact can deny the upper basin part or even all of its share of water. This placed the risk of drought squarely on the upper basin states, *unless* enough water is stored in reservoirs during wet years so that the upper basin can meet its delivery obligations and still have enough water for its own use during the dry ones.

That, in a nutshell, was the main purpose for Glen Canyon Dam, which sits much too far down river to serve most upper basin water use needs. Indeed, very little water is actually diverted from Lake Powell for purposes of water supply, although at least one proposal to do so is pending.[55] The dam and reservoir also provide hydropower, recreation, and other benefits,[56] but its primary function is to serve as a hedge against drought for the upper basin, and to provide the lower basin with physical as opposed to legal certainty that its share of water is delivered.

Any fundamental change in the terms of the compact to address new issues or changes since compact ratification could upset these settled expectations. For example, reserving water specifically to protect instream flows for recreational or environmental purposes (such as protecting or recovering threatened or endangered species) could impair the ability of the basin states to use their full compact apportionments. Similarly, although the compact provides that allocations to tribes be taken out of the state apportionment in the state of tribal

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[53] Treaty for the Utilization of Waters of the Colorado, Tijuana and Rio Grande Rivers, Feb. 13, 1944, U.S.-Mex., art. 10, 59 Stat. 1219; Charles J. Meyer, *The Colorado River: The Treaty with Mexico*, 19 STANFORD L. REV. 367 (1967); Getches, *supra* note 12, at 417.

[54] Getches, *supra* note 12, at 419.

[55] Currently, a small amount of water from Lake Powell is used for the Navajo Generating Plant, a coal-fired electric power plant in Page. Communities currently propose a pipeline to transport part of Utah's Colorado River apportionment to fuel growth in southwestern Utah, but even that proposal involves only 70,000 acre-feet of water a year. *See* Glen Canyon Institute, *Citizens' Environmental Assessment on the Decommissioning of the Glen Canyon Dam, Report on Initial Studies* 13 (Dec. 2000), http://www.glencanyon.org/library/ceareport.pdf; *see also* Lake Powell Pipeline, The Project, http://www.lakepowellpipeline.org (last visited Oct. 13, 2007).

[56] *Id*.

use,[57] it seems clear that the states did not envision nearly as much allocation to tribes as has occurred since 1962, much less the even higher amounts various tribes are seeking now.

Moreover, such changes in expectations potentially favor the lower basin states over the upper basin states, because it is much easier politically to reallocate water rights that have not yet been put to use. The lower basin (especially California) used more than its full share of compact water for many years, taking advantage of unused or "surplus" water flowing downstream from the upper basin.[58] Even now that persistent drought conditions in the basin have eliminated "surplus" flows, the majority of lower basin water is used for urban and agricultural uses relied on by millions of people. This does not mean that water efficiency improvements, replacement supplies, or other means could not be used to reallocate some of that water.[59] It would clearly be easier, however, at least in the short term, to reallocate any unused water from the upper basin apportionment. Such an uneven basis for reallocating water to uses not addressed in the compact would be opposed vigorously by the upper basin states.

So what is wrong with this picture from a twenty-first century perspective? The compromise reflected in the compact seems perfectly reasonable. Each basin got something valuable, which is usually the mark of a good deal. But there are several significant reasons why the compact may not suffice to address all of the changes that have occurred or may occur in the Colorado River Basin, or that were not considered or addressed in the original agreement and in subsequent components of the Law of the River. Those limitations are addressed in Part III.

III. ARGUMENTS FOR RECONSIDERING THE COMPACT

As suggested in Part I, any effort to reconsider an agreement with such a venerable history as the Colorado River Compact requires very significant justification. The compact has stood the test of time, maintained relative peace among the basin states and stability of water rights and expectations, and served as the platform for a huge body of related laws, regulations, and other legal documents and arrangements. Nevertheless, even legal documents of constitutional dimension sometimes warrant amendment in the face of sufficiently significant changed circumstances or understanding, including major shifts in public values or preferences. The following factors all potentially justify efforts to reconsider various aspects of the Colorado River Compact, and should be evaluated from that overall perspective. Individually or collectively, do these considerations rise to the level of significance necessary to re-open a body of law on which so much reliance has been placed by so many public and private entities?

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[57] UTAH CODE ANN. § 73-12a-2 arts. VII, VIII (2007).

[58] ADLER, *supra* note 23, at 245.

[59] *See, e.g.*, BRENT M. HADAD, RIVERS OF GOLD: DESIGNING MARKETS TO ALLOCATE WATER IN CALIFORNIA (2000).

A. The Basin States Negotiated the Compact Based On an Inadequate Hydrologic Record

When they negotiated the agreement, the compact commissioners considered and relied on significantly higher estimates of water than would have been apparent based on a longer-term record and a broader base of scientific information. The negotiators relied on the hydrological record from 1899 to 1920, when flows averaged almost 16.5 maf, in addition to an estimated flow from the Gila at Yuma of another 1 maf, from which they believed that they could safely dole out at least 16.5 maf per year.[60] There is some controversy about the precise figures relied on by the commissioners, and how well they understood the potential flaws in those data:

> Some analysts argue that the 16 maf assumption was the product of a scientific "error," indeed, that "[i]t was a very costly error for the West." Others claim that the commissioners were "well aware" of the risk of drought when they negotiated the compact, and took that into account as they allocated the associated risks. Still others assert that negotiators knew that the information they used omitted data from the drought that had occurred around the turn of the century, but ignored that information in negotiating the agreement. There is even some indication that the upper basin states were intentionally given false, or at best, misleading, scientific information to induce them to agree to the deal. At best, scientists at the time were well aware that the available hydrological record was not entirely reliable, and did not represent a complete cycle of climate in the Southwest.[61]

Regardless of the precise historical explanation, however, the rest of the twentieth century turned out to be much drier. The average flow from 1896 to 2004 was less than 15 maf.[62] The average annual flow from 1922 to 1982 was just over 14 maf.[63] Severe drought conditions that have persisted since 1999 highlight the risks of future shortages. From 2000-2007, annual flows were below average (sometimes considerably so, as low as 25% of average in 2002) every year except 2006, when flows were slightly above average (105% of normal).[64] In an analysis

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[60] HUNDLEY, *supra* note 1, at 193.

[61] ADLER, *supra* note 23, at 118. *See also* sources cited in *id.* at 118 n.24.

[62] *Id*. at 117. *See also* Getches, *supra* note 12, at 419 n.13 (average flow from 1933 to 1983 less than 15 maf.).

[63] Getches, *supra* note 12, at 419 n.13.

[64] U.S. Bureau of Reclamation, *Drought Conditions in the West, Upper Colorado River Basin*, available at http://www.usbr.gov/uc/feature/drought.html (last visited Oct. 29, 2007).

conducted for drought management negotiations, the Bureau of Reclamation predicted that Lakes Powell and Mead may never again be full.[65]

For the relatively young field of hydrology, two decades of data may have seemed luxurious. Now we know that a couple of decades is a blip in hydrological time, and that such a small record can mask much larger, longer-term fluctuations in climate and river flows. Based on tree ring records, scientists have identified periods of longer and more severe drought in the basin than anything we saw in the twentieth century, and predict that even lower average flows are possible in the future.[66] If those predictions are accurate, the upper basin states may never be able to use their complete compact apportionments, and even less water may be available to sustain ecological systems, including the Colorado River Delta in Mexico.

Some analysts argue that the commissioners were aware of the risk of drought when they negotiated the compact, and took that risk into account.[67] Moreover, compact negotiators were—or at least should have been—aware of serious droughts that had occurred in the Colorado River Basin in the not too distant past, in fact, just in the previous decade.[68] Alternatively, one might argue that legal agreements often rely on scientific principles or information which can change as knowledge and understanding evolve. The certainty provided by contract law, property law, and other basic legal foundations of our social and economic structure would be vulnerable if we did not accept the premise that negotiators bear the risk of such scientific change when they reach any number of important agreements.

But the stakes were monumentally high when the Colorado River Compact was negotiated. The delegates sought a solution that would stand the test of time even as circumstances and conditions changed. When taking a calculated risk, sometimes what we do not know is more important than what we do, especially when adopting a water "constitution" with an indefinite life span. This underscores the perils of making decisions that will affect the fates of millions of people across a huge region based on incomplete and uncertain science, or without taking that uncertainty into account.[69] As a result, other commentators have suggested that the compact negotiations were inherently flawed, and could even be reconsidered under the fundamental mistake doctrine of contract law.[70] At a minimum, it is reasonable to argue that this was no simple contract between two private entities, in which society at large has no presumptive preference for which

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[65] U.S. Bureau of Reclamation, *Annual Operating Plan for 2007* (Oct. 28, 2006), http://www.usbr.gov/uc/water/rsvrs/ops/aop/aop07_final.pdf.

[66] NATIONAL RESEARCH COUNCIL, COLORADO RIVER BASIN WATER MANAGEMENT: EVALUATING AND ADJUSTING TO HYDROCLIMATIC VARIABILITY 108-09 (2007); *see also* David M. Meko et al., *Medieval Drought in the Upper Colorado River Basin*, 34 GEOPHYSICAL RESEARCH LETTERS, L10705, May 24, 2007.

[67] Hobbs, *supra* note 20, at 6-8.

[68] *Id*.

[69] *See generally* HENRY POLLACK, UNCERTAIN SCIENCE, UNCERTAIN WORLD (2003).

[70] Getches, *supra* note 12, at 425.

side should suffer the risk of a change in scientific understanding. Where the change affects the well-being of millions of residents, the economy of the entire Southwest, international relations with Mexico, and the health of ecosystems throughout the Colorado River basin, the case for revisiting the compact is significantly stronger.

B. Global Warming May Further Reduce Basin Water Supplies

According to the most recent scientific models, global warming is likely to exacerbate shortages in basin water supplies, potentially in catastrophic ways relative to current supplies and uses. Models designed to predict the precise environmental impacts of global warming are generally less well developed than those developed to predict changes in global temperature.[71] Nevertheless, some scientists suggest we are already beginning to experience a correlation between global warming and declines in annual snow packs in the west.[72] Although different models generate different predictions, as is usually the case with predictive models used to address complex systems with large numbers of variables and uncertainties, available models predict that we can expect more rain and less snow in the basin, earlier melting of snowpacks, decreased base flow of ground water, and increased water demands by plants. This will result in decreased snowpack storage, increased rates of evapotranspiration and less runoff into reservoirs, and therefore lower overall water storage the basin's extensive system of reservoirs.[73] The National Academy of Sciences issued a report recently suggesting that, although the specific predictions generated by available models vary somewhat, climate change is likely to exacerbate water shortages in the basin; and recent models predict twenty-five percent declines in streamflow by 2030, a forty-five percent decline by 2060, and flows insufficient to meet even current consumptive water demands in the basin in as little as twenty years.[74]

Reduced water storage in reservoirs due to global warming will exacerbate the problem highlighted in section III.B, *supra*. Because of the manner in which the compact allocates risk among the two basins, absent compact renegotiation the

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[71] NATIONAL RESEARCH COUNCIL, s*upra* note 66, at 3-4.

[72] Philip W. Mote et al., *Declining Mountain Snowpack in Western North America*, J. AM. METEROLOGICAL SOC. 39 (Jan. 2005); Niklas S. Christensen et al., *The Effects of Climate Change on the Hydrology and Water Resources of the Colorado River Basin*, 62 CLIMATIC CHANGE 337-38 (2004); Kenneth Strzepek and David N. Yates, *Assessing the Effects of Climate Change on the Water Resources of the Western United States*, in WATER AND CLIMATE IN THE WESTERN UNITED STATES 93-106 (WILLIAM M. LEWIS, JR., ED. 2003). *See also* Jon Gertner, *The Future is Drying Up*, NEW YORK TIMES MAGAZINE, Oct. 21, 2007, at 70.

[73] NATIONAL RESEARCH COUNCIL, s*upra* note 66, at 3, 88; Martin Hoerling & Jon Eischeid, *Past Peak Water in the Southwest*, SOUTHWEST HYDROLOGY, Jan./Feb. 2007, at 18.

[74] NATIONAL RESEARCH COUNCIL, *supra* note 66, at 88-92.

upper basin is likely to bear the larger impact from reduced runoff from the Rockies. Assuming the provisions of the compact are enforced strictly, the lower basin will only experience reduced flows if reservoir levels are so low that the upper basin cannot physically deliver the minimum amounts specified by the compact. Lower water levels also could reduce power generation from the hydroelectric facilities built into the Glen Canyon and Hoover Dams and elsewhere in the basin. That could increase electricity prices for consumers in the basin depending on the costs of replacement power, or in extreme circumstances, cause power shortages in some areas if additional sources of replacement power are not planned and implemented. The Department of the Interior and the basin states recently adopted an agreement to allocate shortages among the basin states and Mexico in the event of continued shortages.[75] However, that agreement can only manage shortages as best they can within the constraints of the existing Law of the River. They cannot manufacture more water.

The fact that global warming may significantly reduce runoff and storage in the Colorado River Basin offers an even more compelling reason to reconsider the Colorado River Compact than the fact that the negotiators based their 1922 analysis on what turned out to be incomplete and misleading hydrological records at the time. The compact commissioners were at least aware of the risk of droughts due to natural variability within the region, and how those conditions might affect the obligations of the various basin states under the compact. It would be decades before scientists first began to form preliminary hypotheses about the impacts of human industrial activity on the global climate, much less the potential effects of those changes on regional hydrology. There was simply no way that the commissioners should have or could have anticipated global climate change during their deliberations.

Any experienced negotiator knows that they and their counterparts bear the risk of unforeseen circumstances. In most cases, however, future risks are at least sufficiently understood in that prudent representatives of various interests can take them into account. For example, in negotiating the price of coastal or riparian property, a negotiator may not be able to predict the exact frequency and magnitude of future floods, or the precise impacts on the property in question. They can, however, look at past records and seek expert advice on probable future risks to inform a rational decision about whether to purchase the land, and at what price. The same is not true of scientific phenomena that have not even been experienced or detected at the time of the negotiations.

Moreover, there is usually no presumptive basis to shift the risks of scientific uncertainties from one private party to another. In the case of the Colorado River Compact negotiations in 1922, by contrast, the then unknown and unknowable implications of global warming may affect important public issues, including the

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[75] *See* U.S. Bureau of Reclamation, Record of Decision, Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead (Dec. 2007), *available at* http://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf (last visited Mar. 13, 2008).

environmental health of an international river ecosystem and the economic welfare and development rights of entire states and regions. The combination of the unpredictable nature of global warming in 1922 and the consequences of the changes it might bring strongly suggest that compact renegotiation is warranted.

C. The Compact Negotiations Excluded Mexico and Indian Tribes

Uncertainties about water uses in the basin, as well as raw politics, led the commissioners to ignore the needs and interests of two key water users altogether when they negotiated the compact. As a result, neither Mexico nor U.S. Indian tribes had a seat at the compact negotiating table in Santa Fe. Whether or not those exclusions were legitimate at the time, two questions bear closer examination through a twenty-first century lens. First, did those users receive adequate consideration through later opportunities to procure rights to Colorado River shares? Second, do remaining questions about water needs for those political bodies leave sufficient uncertainties to justify efforts to modify those rights and to embody them directly into the compact?

1. Mexico

Despite Mexico's claims to water for irrigation and other uses and its specific requests that it be included in the process, the commissioners denied Mexico a seat at the table, arguing that the negotiations involved a purely domestic matter. Secretary of Commerce and Commission Chair Hoover believed that Mexico was legally entitled to nothing.[76] That philosophy had its roots in the so-called "Harmon Doctrine," in which U.S. Attorney General Harmon had declared in 1895 that the United States' sole responsibility was to ensure that the needs and interests of its own citizens were met, and that it bore no legal obligation to provide water to its riparian neighbor to the south.[77]

Although Mexico was excluded from the compact negotiations, the commissioners did address Mexican water needs nominally by providing that if water was guaranteed to Mexico by later treaty, it would be supplied equally out of the allocations to each basin.[78] In 1944, for somewhat complex reasons related in some ways to disputes regarding the Rio Grande River and in others to foreign

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[76] HUNDLEY, *supra* note 1, at 204.

[77] Letter from Hon. Judson Harmon to Secretary of State (Dec. 12, 1895), *in* XXI OFFICIAL OPINIONS OF THE ATTORNEY GENERAL 374, 282 (E.C. Brandenburg ed., 1898).

[78] UTAH CODE ANN. § 73-12a-2 art. III (2007); *see also* Meyers, *supra* note 36, at 17 (explaining legal uncertainty about the delivery point of the Upper Basin's share to Mexico. The issue is whether the Upper Basin must satisfy delivery of one-half of the deficiency at Lee Ferry or whether it's required to deliver enough water at Lee Ferry to satisfy one-half of the obligation at the Mexican border. "The difference is substantial because of heavy channel and reservoir evaporation losses between Lee Ferry and the border.").

policy during World War II,[79] the United States entered into a treaty that guaranteed Mexico 1.5 maf per year, plus a small amount of additional surplus when available.[80] This duty to Mexico thus adds 750,000 acre-feet to the upper basin's annual delivery obligations.

Whether it negotiated and signed the treaty with Mexico for altruistic or entirely pragmatic reasons, in doing so the United States formally abandoned the dubious Harmon Doctrine. But it drove a rather hard bargain in the process. The minimum delivery promise of 1.5 maf is about one tenth of the average annual flows at the border under natural conditions, and about forty percent of the 3.6 maf Mexico sought in the treaty negotiations.[81] Although this amount was based in part on contemporaneous uses within Mexico, that left no room for future growth, in contrast to future apportionments for U.S. states under the compact (especially in the upper basin). As shown below, this amount is not sufficient to meet both irrigation and environmental needs south of the border.[82]

Based on this history, it could be argued that whatever inequity was inflicted by excluding Mexico from the compact negotiations was redressed in the 1944 treaty. Even if Mexico had no seat at the table in 1922, it participated in an arm's-length, bilateral treaty negotiation in the 1940s, and left that bargaining table sufficiently satisfied to sign the agreement. Under this view, the fact that Mexico was excluded from the original compact negotiations does not support an argument for revisiting the compact now. The fact that Mexico *might have* been entitled to more than it actually received arguably is not sufficient, taken alone, to justify re-opening a deal it found acceptable at the time. Under that theory, any treaty or other negotiated agreement can be re-opened at any time by a party who believes they are entitled to a better deal than they struck at the time.

On the other hand, in addition to the substantive issues discussed above regarding the adequacy of the water the United States agreed to deliver to Mexico, arguably the opportunity provided to Mexico in 1944 was too late to be effective. The U.S. position in 1922 that the Colorado River Compact negotiation was a "purely domestic" matter apparently was premised on the concept that the purpose of that discussion was to divide whatever portion of the river would remain within the U.S. share of the international pie, and not necessarily to determine the

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[79] Charles J. Meyers & Richard L. Noble, *supra* note 36, at 368 (Mexico believed it could strike a better bargain if water apportionment of the Rio Grande River and the Colorado were discussed together, and it wouldn't discuss one without the other); EVAN R. WARD, BORDER OASIS: WATER AND THE POLITICAL ECOLOGY OF THE COLORADO RIVER DELTA, 1945-1975 31 (2003) (during WWII, the prospects for a Mexico treaty for Colorado River water improved because President Franklin D. Roosevelt and top officials at the U.S. State Department wanted to create a hemispheric alliance, and a bi-national water treaty could accomplish this goal).

[80] Treaty for the Utilization of Waters of the Colorado, Tijuana and Rio Grande Rivers, Feb. 13, 1944, U.S.-Mex., art. 10, 59 Stat. 1219; *see also* Getches, *supra* note 12, at 421.

[81] Charles J. Meyers & Richard L. Noble, *supra* note 36, at 368.

[82] Part III.D, *infra*.

appropriate international split. That position is borne out by the compact provision leaving open the issue of Mexico's fair share, and providing that the upper and lower basins would have to cede some of their water to meet whatever delivery obligation to Mexico the federal government ultimately might negotiate.

However, the upper and lower basin states made their respective cases in 1922 based on their existing and predicted future water needs. One reason the federal government had to be so stingy in its negotiations with Mexico two decades later arguably was that the 1922 compact had already divided up so much of the pie, and left the basin states with such significant expectations. Under this view, Mexico was excluded from the main event in 1922, and relegated to a negotiation for the leftovers later on. Now that the economic and environmental ramifications of this posture are more fully understood, an effort to revisit the international treaty as part of a comprehensive compact review is warranted.

Moreover, events since 1944 make clear that the treaty with Mexico did not fully resolve our international disputes regarding allocation and management of the Colorado River. In the 1960s and the 1970s, the United States and Mexico negotiated minutes (additions) to the 1944 treaty to resolve lingering disputes over the quality of water the United States was sending across the border to satisfy the quantitative obligations set forth in the treaty.[83] However, the United States may have to begin operation of a massive desalination plant at Yuma, Arizona, just north of the Mexican border, to meet those negotiated quality goals. If so, deliveries of water to critical wetlands in Mexico may shift dramatically, causing additional disputes.[84] Thus, although the two countries have signed agreements recently agreeing to cooperate over future issues involving the river, it is clear that the 1944 treaty alone did not address nearly all of the international issues regarding management of the river between the two nations.

2. Indian Tribes

Compact negotiators gave U.S. Indian tribes even less consideration during the negotiations, not even acknowledging the possibility that they should be represented at the table. Tribes had long been recognized under U.S. law as independent sovereigns, existing in tandem with the federal and state governments.[85] Thus, from a purely structural perspective, tribes along the Colorado River arguably deserved similar status in the compact process as did the states. Of course, at the time racial bigotry toward Native Americans tribes was acute, and tribes lacked the degree of political organization and power, legal representation, and stature in the eyes of other governmental bodies and interest

[83] Meyers & Noble, *supra* note 36, at 409-10.

[84] ADLER, *supra* note 23, at 223-24 (explaining that if the United States needs to use the Yuma desalinization plant to meet water quality obligations to Mexico, waste water flows that currently feed the Cienega de Santa Clara wetlands complex might be diverted to the main channel of the river).

[85] Cherokee Nation v. Georgia, 30 U.S. (5 Pet.) 1, 16 (1831); *see also* 41 AM. JUR. 2D INDIANS § 7 (2007).

groups that they have now. The Bureau of Indian Affairs theoretically was charged with representing tribal interests in pursuance of the federal government's trust obligation to the tribes,[86] but apparently failed to recognize or fulfill that trust duty during the negotiations.

Omission of tribal interests or representation from the compact deliberations cannot be justified on the same grounds as the commissioners used to exclude Mexico, because any tribal water uses would compete directly with those within the United States. Moreover, state representatives to the compact commission, who included several astute water lawyers, should have recognized that potential Indian water rights might compete with those of the states. Fifteen years before the compact was signed, the U.S. Supreme Court ruled in *Winters v. United States* that in setting aside reservations to support tribes, the federal government impliedly "reserved" sufficient water to meet the needs of those communities.[87] This created a major exception to the prior appropriation doctrine in western water law, and one that should have been recognized and accounted for by the states. Among other notable differences from appropriative water rights, federal reserved rights have priority dates defined as the date at which the reservation was established, as opposed to the time that water is put to beneficial use.[88] Moreover, because reserved water rights remain inherent until quantified in some later proceeding or settlement, their implications for other water users can remain uncertain for long periods of time.

Yet despite the presence of the large number of Indian tribes along the Colorado River, the commissioners made no effort to evaluate tribal needs. Instead, they left the matter largely open by providing: "Nothing in this compact shall be construed as affecting the rights of Indian tribes."[89] Indeed, with a rather strong dose of apparent racism, Secretary Hoover dismissively and derisively referred to these provisions as "the wild Indian article."[90]

This casual treatment of tribal water rights came back to haunt the states in 1962, when the Supreme Court ruled in *Arizona v. California* that some tribes along the river were entitled to nearly a million acre-feet of water a year under the federal reserved rights doctrine.[91] Since then, settlements of tribal water rights in the basin have doled out nearly another million acre-feet of water.[92] More tribal water may be allocated in the wake of a pending lawsuit filed by the Navajo

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[86] Seminole Nation v. United States, 316 U.S. 286, 297 (1942); HUNDLEY, *supra* note 1, at 80 (the federal government "had an obligation to protect the water rights of the Indians and to help them reclaim some of the 26 million acres embraced by their reservations."); *see also* HUNDLEY, *supra* note 1, at 80 n.46.

[87] 207 U.S. 564, 576-77 (1908).

[88] *Id.* at 577.

[89] UTAH CODE ANN. § 73-12a-2 art. VII (2007).

[90] HUNDLEY, *supra* note 1, at 212.

[91] 373 U.S. 546, 595-602 (1963).

[92] DALE PONTIUS, COLORADO RIVER BASIN STUDY 73 (Western Water Policy Review Advisory Commission August 1997) (the addition of the settlement figures from the chart equal nearly a million acre feet of water).

Nation to force the federal government to recognize and consider its Colorado River water rights in a range of federal decisions regarding Colorado River management.[93] According to some analysts, outstanding tribal claims could amount to nearly another three million acre-feet.[94] The real rub in terms of the stability of the compact, however, is that tribal rights come out of the individual states' compact allocations, leaving less for other in-state water users.

None of those factors, of course, necessarily suggest that the compact must be reconsidered to address or to effectuate tribal water rights. Although the compact's savings provision regarding tribal rights is terse, all of the signatories understood that they bore the accompanying risk that those rights would be significant to their later apportionments. Moreover, because tribal rights are reserved under principles independent of the compact, no renegotiation of the compact could alter those rights absent consent by the tribes themselves. The federal government, the states, and the tribes could continue to address tribal water needs through a case-by-case quantification of federal reserved rights, through either litigation or negotiation.

Nevertheless, it is clear that the compact commissioners gave inadequate consideration to tribal water rights when they negotiated the compact, and it is equally clear that the *distribution* of tribal water rights falls disproportionately on certain states in the basin—especially Arizona. Thus, the fact that tribal water comes out of state allocations arguably alters the basic "bargains" reflected in the compact and in other components of the Law of the River (such as the upper basin compact and the Boulder Canyon Project Act, as interpreted and implemented by the decision and decrees in *Arizona v. California*). It is true, of course, that much tribal water use will be in-state, and that downstream users in that state still may be able to rely on downstream return flows from those uses.[95] However, there is also considerable debate over whether tribes might be able to sell their Colorado River reserved rights to others in the basin, in which case the water might be transferred physically either within or even outside of the basis.[96]

The goal of certainty alone could justify re-opening the compact in ways designed to address remaining tribal water claims. As noted above, the nature of federal reserved water rights leaves other water users with considerable uncertainty about how much water they might lose, and when. Given the

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[93] Navajo Nation v. United States Dep't of the Interior, Civil No. 03-CV-507 (Dist. Ariz. 2003) (filed Mar. 14, 2003).

[94] PONTIUS, *supra* note 92, at 74 (the addition of the outstanding Indian water claims from the chart total over 3 million acre feet of water).

[95] *See e.g.*, Estate of Steed v. New Escalante Irrigation Co., 846 P.2d 1223 (Utah 1992) (explaining that return flows may be appropriated and used by downstream users once returned to the original stream).

[96] PONTIUS, *supra* note 92, at 81 (explaining that there is significant controversy surrounding the ability of the tribes to lease their water rights to users outside of the state. "States and water users...argue that tribal water rights that are leased for out of state use deprive the state of its full apportionment under the Compact." At the time of this report there had been no approval of interstate leasing of tribal water rights).

magnitude of those claims, tribes might be willing to settle for somewhat smaller allocations in return for improved certainty in those rights, and perhaps assistance in developing those rights. Likewise, the basin states might be more willing to negotiate known (*i.e.*, fixed quantity) tribal water rights as a way to resolve the existing uncertainty hanging over the heads of all other basin water users. Indeed, that approach underlies past settlements of Colorado River water claims for some tribes in the basin.

D. The Compact Does Not Address Environmental Needs

Instream water needs for environmental purposes create potentially an even larger degree of legal uncertainty about future water needs and allocations, and certainly the one that was not considered at all during the compact negotiations. By this, I do not necessarily mean that environmental needs will affect the largest volume of water, especially given the large amounts at issue in the case of federal reserved water rights for Native American tribes. However, the uncertainty with respect to environmental needs may exceed that for tribes because the legal basis for tribal water rights at least was known and could have been anticipated during the compact negotiations. At the time, there was little or no precedent for reserving water for instream environmental needs under the traditional prior appropriation doctrine that applied in the Colorado River Basin.[97] Therefore, while tribal rights were at least discussed if not addressed quantitatively, there is no reason to believe that the compact commissioners even remotely considered environmental issues, and no evidence that they did so.

In 1922, we viewed the Colorado River mainly as a supply of water and power, to a much lesser extent a source of food[98] and navigation,[99] and otherwise as a menace to human development in the river's fertile flood plains.[100] Over the course of the Twentieth Century, however, as Americans increasingly looked to

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[97] Reed D. Benson, *A Watershed Issue: The Role of Streamflow Protection in Northwest River Basin Management*, 26 ENVTL. L. 175, 199 (1996). There was considerable precedent for protection of natural instream flows under the riparian rights doctrine applicable in the eastern states, and to a limited degree in California. *See* HUNDLEY, *supra* note 1, at 66 (citing Calif. Stats. 219 (Apr. 13, 1850)); *see also* Lux. v. Haggin, 69 Calif. 255 (1886) (announcing that riparian doctrine was paramount in California). Prior appropriation law has evolved to provide limited recognition of instream flow rights for environmental, recreational, and other purposes, but only in recent decades. *See* Stan Bradshaw, *Streamflow as a Component of Water Quality: Potential Strategies for Montana*, *on file with the author*.

[98] *See* ADLER, *supra* note 23, at 28-29 (describing subsistence and commercial fishing for Colorado River pikeminnow in the early to mid-twentieth century).

[99] *See id.* at 59-60 (describing steamboat trade on the lower Colorado River during the late nineteenth century).

[100] *See id*. at 172-75 (describing efforts to control flooding along lower Colorado River); *see also* U.S. Dept. of the Interior, Bureau of Reclamation, *The Colorado River: A Natural Menace Becomes a Natural Resource*, Project Planning Report No. 34-8-1 (1945).

the outdoors as a source of recreation and solitude, river runners and others began to view the magnificent canyons of the Colorado Plateau as a place to go.[101] Those users began to value the canyons, the river, and the water itself for what they were and not for what they could produce.

Later still, but not too long after Glen Canyon Dam and other projects were completed, scientists and others began to understand the adverse ecological effects of dams, water diversions, levees, and other physical changes to the river and its environment.[102] The Colorado River once hosted the largest percentage of endemic fish (species found nowhere else on the planet) of any river system in the world.[103] Some of those species are now extinct or extirpated from portions of their prior range, and many more species of fish, birds, amphibians, reptiles and mammals are threatened or endangered.[104] While habitat loss, introduced species, and many other factors contribute to those problems, water is one key to restoring species and their habitats. The public expressed this new set of preferences through new laws and in other ways, none of which were—or likely could have been—anticipated when the compact was signed.

The most pointed pressure to reserve Colorado River water for instream environmental needs involves the extensive ongoing efforts to recover endangered fish and other aquatic and aquatic-dependent species under the Endangered Species Act,[105] although related statutory imperatives include the National Environmental Policy Act, the Grand Canyon Protection Act, and the Clean Water Act.[106] Although a full analysis of the water supply and allocation implications are beyond the scope of this article, a range of federal and state agencies are designing and implementing programs throughout the basin to recover species and to restore their habitats under the auspices of the ESA and other relevant laws and regulations. The Upper Colorado River Endangered Fishes Recovery Program (also known as the Recovery Implementation Program-Recovery Action Plan or "RIP-RAP") seeks to restore habitat and improve species populations in the Green River and the upper Colorado River (above Glen Canyon Dam), as does a similar effort in the San Juan River.[107] The Glen Canyon Dam Adaptive Management Program (GCDAMP) is designed to evaluate and implement ways to modify

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[101] *See* RODERICK NASH, WILDERNESS AND THE AMERICAN MIND 330-39 (Yale Univ. Press 3d ed. 1982) (1967).

[102] *E.g.*, Robert Dolan et al., *Man's Impact on the Colorado River in the Grand Canyon*, 62 AMERICAN SCIENTIST, 392, 396-99 (1974).

[103] Robert Rush Miller, *Origin and Affinities of the Freshwater Fish Fauna of Western North America*, *in* ZOOGEOGRAPHY (Carl L. Hubbs ed.), AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE PUBLICATION NO. 51 (1958).

[104] *See* ADLER, *supra* note 23, at 5-6.

[105] Endangered Species Act, 16 U.S.C. § 1531 (2006).

[106] National Environmental Policy Act, 42 U.S.C. § 4321 (2006); Grand Canyon Protection Act, Pub. L. No.102-575 (1992); Clean Water Act, 33 U.S.C. §1251 (2006).

[107] *See* FISH AND WILDLIFE SERV., U.S. DEP'T OF THE INTERIOR, RECOVERY IMPLEMENTATION PROGRAM FOR ENDANGERED FISH SPECIES IN THE UPPER COLORADO RIVER BASIN (rev. Mar. 8, 2000).

operation of Glen Canyon Dam and other river management practices to promote species recovery, and otherwise to restore and protect ecosystem resources in Marble Canyon and Grand Canyon downstream from the dam.[108] The Lower Colorado River Multi-species Conservation Program (LCRMSCP) reflects a large, cooperative effort to restore habitats for a wide range of threatened, endangered, and other imperiled species along the lower river corridor.[109] Other efforts to restore species and their habitats are conducted under the guidance of environmental impact statements prepared to evaluate changes in dam operation, as recently occurred for the Flaming Gorge Dam.[110]

In many ways, efforts such as the RIP-RAP, GCDAMP, and LCRMSCP do not affect Colorado River Compact allocations, at least not directly or significantly. For example, revised dam operation to better simulate the seasonal flow patterns that occurred under pre-dam hydrological conditions may affect the timing but not the annual volumes of water flowing past a given point in the river, and therefore available to various users at those locations. Likewise, some aspects of the recovery programs involve purchase, protection, or physical restoration of flood plain and other riparian habitats to benefit fish spawning and rearing or nesting birds. Indeed, part of the very strategy of existing restoration efforts is not to rock the boat, *i.e.*, to comply with minimum ESA obligations, or at least to dodge any ESA litigation risks, without upsetting the fundamental deals reflected in the Law of the River.[111]

Even existing restoration efforts, although designed to be entirely compatible with the current water law regime for the Colorado River, could affect water volumes in more subtle ways than we have anticipated. For example, changes in the timing and intensity of dam releases could alter rates of evaporation or transpiration along the river by moving water to warmer downstream storage facilities (for example, Lake Powell to Lake Mead). Conversely, holding water back in reservoirs to use for restoration flows later in the year could—under conditions of scarcity—reduce water available to junior appropriators. Those kinds of effects have not been measured because we have not *yet* reached the tipping point at which water demands in the basin exceed available supplies.

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[108] Lara M. Schmit, Steven P. Gloss, & Christopher N. Updike, *Overview in* THE STATE OF THE COLORADO RIVER ECOSYSTEM IN GRAND CANYON: A REPORT OF THE GRAND CANYON MONITORING AND RESEARCH CENTER 1991-2004 5-9 (Steven P. Gloss ed., 2005); *see also* U.S. Dep't of the Interior, *Strategic Plan, Glen Canyon Dam Adaptive Management Program, Final Draft* (Aug. 17, 2001), *available at* http://www.usbr.gov/uc/rm/amp/strategic_plan.html (last visited Nov. 7, 2007).

[109] BUREAU OF RECLAMATION, LOWER COLORADO RIVER MULTI-SPECIES CONSERVATION PROGRAM: FINAL IMPLEMENTATION REPORT (2007), http://www.lcrmscp.gov/workplans/Implementation2007.pdf.

[110] BUREAU OF RECLAMATION, OPERATION OF FLAMING GORGE FINAL ENVIRONMENTAL IMPACT STATEMENT (2005), *available at* http://www.usbr.gov/uc/envdocs/eis/fgFEIS/index.html (last visited Nov. 7, 2007).

[111] ADLER, *supra* note 23, at 224-26; *see generally* Nat'l Ass'n of Home Builders v. Defenders of Wildlife, 127 S.Ct. 2518 (2007).

More important, however, as I argue in *Restoring Colorado River Ecosystems*, the current programs to recover species and to restore ecological habitats along the Colorado River and its tributaries, for the most part, are not working well. They are narrowly tailored to meet specific ESA goals rather than broader ecosystem restoration and protection objectives.[112] Species populations continue to decline, or at least to remain at precarious levels; only small patches of flood plains and other habitats have been restored or protected; and preserving riparian backwater habitats may produce no real ecological benefits unless more water is available to flood them during spring spawning and rearing seasons.[113] More water may be needed to supply the natural cues relied on by native fish for natural spawning and migration patterns. Particularly along the lower river corridor within the United States and further downriver to the Colorado River Delta in Mexico, existing flows are woefully inadequate to restore floodplains and other habitats. Scientists have called for additional water to meet those ecological needs, but have not yet quantified additional flows necessary to restore the salinity balance and other characteristics of the estuary necessary to restore species in the Gulf of California. [114]

Those kinds of more aggressive environmental restoration efforts are more likely to affect water allocations under the Colorado River Compact, but were not even recognized—much less considered—when the compact was negotiated. How much water is needed to satisfy those needs is the subject of considerable uncertainty. The important point is that no one has quantified the amount of water needed to meet various environmental restoration needs, when and where it will be needed, and what constraints that will impose on other uses.

This kind of entirely unforeseen set of issues provides a particularly compelling reason to reconsider the settled expectations of a prior generation, particularly when they are grounded in a fundamental shift in public values and preferences. That assertion does not require that all parties agree that instream environmental needs should trump existing water rights and uses, and indeed views are likely to vary dramatically on that point. It does, however, suggest that the negotiating table ought to be laid so that those factors can be considered properly and balanced against the existing set of rights and needs for Colorado River water.

The argument to reconsider the Colorado River Compact on political rather than purely legal grounds is also strengthened by recent case law that might significantly impede our ability to redress environmental harm under existing environmental statutes. Under the ESA, federal agencies are required to consult with the Secretary of the Interior or the Secretary of Commerce to ensure that any federal action does not jeopardize the continued existence of a threatened or endangered species or destroy or adversely modify its habitat.[115] Especially in the

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[112] *See* ADLER, *supra* note 23, at 121-24, 179-86.
[113] *Id.* at 240-41.
[114] *Id.* at 206-10.
[115] 16 U.S.C. §§ 1532(15), 1536(a)(2) (2006).

Colorado River Basin, however, recently federal agencies have argued with success that the consultation obligation only applies to discretionary actions, and not to fixed legal obligations such as those established under the compact and other aspects of the Law of the River.[116]

Those cases, if correct as a matter of statutory interpretation, might suggest that these matters are closed, *i.e.*, that Congress, through the language of the ESA as interpreted by the courts, decided that the stability of existing legal obligations is a sufficiently important principle to insulate them from further scrutiny under the ESA. That would reflect a political decision to sacrifice endangered species where revisions to longstanding law and policy would upset such expectations. Although there appears to be no legislative history or other indications that Congress considered that set of issues so clearly in the ESA and its later amendments,[117] it suggests that any reconsideration of the political balance now struck between human and environmental water needs in the Colorado River basin should occur at a level higher than that of administrative agencies, either by Congress or through a broader political review of the compact and its accompanying suite of implementing documents.

E. Growth Patterns Have Shifted Significantly Since 1922

Some locations and patterns of growth in and near the Colorado River Basin were probably reasonably predictable when the compact was negotiated, and many of the judgments in the agreement reflected those forecasts. It undoubtedly seemed obvious, for example, that rapid growth would continue along the coast of Southern California, although perhaps not to the remarkable degree that has actually occurred. Other growth patterns in the basin, however, such as the subsequent urban booms in Southern Nevada, Southern Arizona, and along Utah's Wasatch Front, could not have been anticipated so easily. I highlighted the importance of this phenomenon in another metaphor presented in *Restoring Colorado River Ecosystems*.[118]

A display in the lobby of the Southern Nevada Water Authority provides a brief history of water use in the region. Spanish explorers arrived in 1776 at what was later named Las Vegas Springs, but ancient campsites show use by Pueblo Indians over three thousand years ago. Settlers pioneered the "Spanish Trail" from New Mexico to California in 1829 and 1830, and named the area Las Vegas, "the meadows." For more than a century, the springs supported travelers and small settlements. The first permanent settlement was established in 1867; the first water rights to the spring were filed in 1872; and the original Las Vegas town site was

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[116] *See generally Defenders of Wildlife*, 127 S.Ct. 2518; Southwest Ctr. for Biological Diversity v. Bureau of Reclamation, 143 F.3d 515 (9th Cir. 1998).

[117] *See generally Defenders of Wildlife*, 127 S.Ct. 2518 (citing no legislative history in analyzing the relationship between the ESA and other federal statutory or other requirements).

[118] The following text borrows heavily from ADLER, *supra* note 23, at 244-45.

established in 1905. But water was available only for town residents, so smaller water companies drilled hundreds of private wells. This pumping war apparently did not provide adequate warning of the shortages to come. When Nevada ratified the Colorado River Compact knowing that it would receive a paltry 300,000 acre-feet of river water, little did anyone know what a thirsty metropolis would grow around this modest spring. By 1947, the water basin was overdrawn. Yet one of the nation's fastest-growing cities remains bound by a deal made when it was a small desert byway.

Now, to compensate for those shortcomings, Southern Nevada is searching for water from other sources, such as ground water from basins shared by Utah and Nevada, and in ways that are generating significant political and ecological controversies.[119]

Not far to the southeast of Las Vegas is Pipe Springs National Monument, in the "Arizona Strip" region north of the Grand Canyon. The journals of the Dominguez-Escalante expedition recorded this site as "the hill that seeped water," and Mormon settlers began to use these springs beginning in the 1860s. The springs used to flow at ten to thirty gallons per minute, but now they are dry. While the reason is not clear, the National Park Service speculates that the cause was an earthquake with its epicenter in Southern California. In the book, I somewhat flippantly quipped that an earthquake occurs in Southern California, and Arizona loses water.

For many years California has used as much as a million acre-feet more than its apportioned share of Colorado River water. This overuse was possible because Arizona and other states were not using all of their compact apportionments. Arizona currently cannot use all of its Colorado River water, Nevada faces shortages, and California continues to benefit from the surplus. While California is now taking steps to eliminate this excess use,[120] Arizona and Nevada recently devised a somewhat complicated "water banking" plan to alleviate some of the constraints they faced under the Law of the River.[121] In essence, Arizona will withdraw its full apportionment of water every year. But because it cannot put all of that water to immediate use, it will "bank" that water by storing it in aquifers.

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[119] *See, e.g.*, Joe Baird, *Snake Valley Groundwater: Utah, Nevada Dialogue May Soon be Picking Up*, SALT LAKE TRIB., Jan. 12, 2007, at B1; Ed Koch, *Utah Turns Spigot Off for Nevada Lawmakers: State not Ready to Sign Away Water Rights*, LAS VEGAS SUN, Feb. 14, 2007, at A1.

[120] California's agreement to limit its use over time to 4.4 maf of Colorado River water out of the lower basin's initial 7.5 maf allocation is reflected in an intricate series of legal agreements between the basin states and the federal government, as well as among various entities within California. The most basic of those agreements, from which other implementing documents are tiered, is known as the Quantification Settlement Agreement (QSA). *See* U.S. DEPT. OF THE INTERIOR, COLORADO RIVER WATER DELIVERY AGREEMENT: FEDERAL QUANTIFICATION SETTLEMENT AGREEMENT (2003), http://www.iid.com/Media/Colorado-River-Water-Delivery-Agreement.pdf.

[121] *See* ARIZONA WATER BANKING AUTHORITY, ANNUAL REPORT 2006 (2007), http://www.azwaterbank.gov/awba/documents/2006/2006_Annual_Report_Final.pdf.

Arizona can withdraw some of this liquid currency in future years, when its demand for water increases or during times of drought. That way, Arizona benefits more fully from its lawful apportionment, rather than ceding some of its entitlement to its thirsty neighbor to the west. Nevada agreed to help pay for the water bank in return for rights to use some of the stored water as its needs increase.

These institutional changes are being designed not necessarily to meet existing water needs, but to maneuver for maximum future advantage within the artificial constraints of the Law of the River. One interpretation of this sequence of events is that the artificial legal construct has become more important than real needs and current economic or ecological realities. Another is that it reflects the fact that the compact commissioners did not and probably could not have predicted such dramatic shifts in the basin's urban growth patterns, or even the fact that growth and water demand would shift so significantly from agricultural to urban needs.

One valid argument regarding these unpredicted needs and development patterns is that all economically-driven negotiations require parties to make educated guesses about the future, and that parties simply must live by their best predictions.[122] Otherwise, the stability inherent in basic principles of contract law would be lost.[123] In lay terms, "a deal is a deal." It is one thing, however, to apply that principle to private economic actors in an arm's-length commercial transaction. It is quite another to take that view for decisions made by one generation of decision makers on behalf future generations across an entire region. Interstate agreements with profound implications for growth and development as well as ecological health and societal welfare across seven states should not be revisited lightly, but neither should they be viewed as entirely off limits to reconsideration under appropriate circumstances.

F. The Upper Basin States Have Not Used Their Full Apportionments

All of the above factors would suggest strongly that it is time to revisit the 1922 Colorado River Compact even if all of the basin states had fully developed their compact apportionments. Those considerations are further underscored, however, by the fact that the upper basin has yet to develop its full share of

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[122] One expert in negotiation theory explained that negotiations made in the face of uncertainty succeed when the parties' "predictions about the future (expressed or unexpressed) overlap sufficiently for them to reach an agreement." E-mail from Linda Smith, Professor of Law, Univ. of Utah, to the author (Aug. 24, 2007) (on file with author).

[123] *But see* Spaulding v. Zimmerman, 116 N.W.2d 704 (Minn. 1962) (affirming order vacating a settlement of an injury case involving a minor, where defendant did not disclose that the injured party was suffering from a more severe injury). This article does not address the more technical doctrine of contract law that contracts might be reopened in the event of a significant mistake or misinformation when the contract was negotiated. *See generally* Getches, *supra* note 12. That issue may be the subject of a later analysis.

compact water.[124] That consideration, of course, is in a way entirely different from the arguments presented above, because the compact commissioners clearly envisioned that upper basin development would occur over a long period of time. This is exactly what was *supposed* to occur.

The looming question, however, is what happens when we try to withdraw all of the compact allocations, *and* meet our treaty obligations to Mexico, *and* meet tribal rights, *and* try to restore the river's endangered ecosystems, *and* meet needs in growing urban areas throughout the basin, all when there may be less water to go around than we thought when the compact was signed. The combination of unforeseen developments and considerations when the compact was negotiated ultimately will impose far more risk on the upper basin states than envisioned, and unravel the basic deal in which upper basin states were freed from the constraints of prior appropriation law and allowed to grow at a more natural pace. Such a fundamental change to a negotiated understanding strongly suggests that some rethinking of this arrangement is in order.

IV. CONCLUSION: TOWARD A NEW FUTURE FOR THE COLORADO RIVER

As explained above, a litany of new, changed, and in some cases entirely unforeseen circumstances suggests strongly that the 1922 Colorado River Compact and related components of the Law of the River should be reconsidered. Perhaps the most compelling of those changes is the increasing likelihood that reduced runoff caused by global warming will exacerbate the already serious gap between available water resources and resource needs under the compact as written and for legitimate needs not addressed fully in the compact, such as tribal water rights and environmental restoration and protection. That scenario suggests that all water users within the Colorado River Basin, as well as regions outside of the basin that rely heavily on Colorado River water (including the Colorado Front Range, Utah's Wasatch Front, Southern Arizona, and Southern California), face a looming water resource crisis.[125]

Although the 1922 compact negotiations and ensuing debates over implementing legislation and other issues were difficult, they were limited largely to issues of resource allocation. Negotiators viewed the Colorado River as a giant bucket of water and other resources (especially electric power potential) to allocate among various large and growing appetites. A new set of Colorado River negotiations will implicate a broader, more complex set of tradeoffs between offstream and instream uses, international rather than purely domestic relations, economic versus environmental needs, and private versus public uses and values.

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[124] *See* PONTIUS, *supra* note 92**,** at 14 (table of water use), and 43 (discussion of upper basin use)**;** *see also* Don A. Ostler, *Upper Colorado River Commission, Do the Upper Basin States Have Enough Water to Grow?* (PowerPoint presentation), *available at* http://wwa.colorado.edu/resources/colorado_river/hard_times_conference/Ostler_NRLCpresentation.pdf (last visited Oct. 29, 2007).

[125] *See generally* Gertner, supra note 72.

The imminence and complexity of these conflicts suggests that two related reactions are appropriate.

First, the 1922 negotiations excluded several key players who deserve a seat at a twenty-first century Colorado River negotiating table, and whose interest must be addressed adequately in order for a reasonable and workable revised Law of the River to be forged. Those interests include, at a minimum, Native American users, environmental restoration needs, and Mexico. If excluded from future negotiations, those important interests will remain as a destabilizing force that will render even apparent accord illusory, and come back to haunt any apparent agreement much as they did with respect to the existing Law of the River. Similarly, no revised arrangement is likely to succeed unless all legitimate needs and interests are satisfied in some way, even if that means that no single interest gets as much as they would prefer.

Second, negotiations are more likely to succeed if they anticipate rather than wait for the impending crisis. If the federal government, the basin states, tribes, environmental groups, Mexico, and other players wait for water conflicts to become even more acute, the likely response will be litigation or divisive battles in a highly charged political arena. A fairer and more reasoned agreement is far more likely if we address the future of the Colorado River sooner rather than later.