

Colorado River Compact Entitlements, Clearing up Misconceptions

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Introduction

I was pleased to speak at the Stegner Symposium in March of 2007 about misconceptions surrounding the Colorado River Compact. This article documents and expands upon my oral presentation at the symposium.

The misconceptions I address include these: (1) the 1922 Colorado River Compact Commissioners based the compact on mistaken hydrology; (2) they did not account for Native American water rights or the Republic of Mexico's use of the river; (3) the compact is in need of revision; and (4) Lake Powell should be decommissioned.

In my view, these misconceptions fail to recognize historical events surrounding the compact's formation. More fundamentally, they ignore the legal context and effect of the compact, as well as the many acts of Congress that implement both the 1922 Colorado River Compact and the 1948 Upper Colorado River Basin Compact.

We do well to remember why the 1922 and 1948 compacts exist and what great accomplishments they continue to be.

They are treaties involving seven states of the Colorado River watershed ratified by Congress under the compact clause of the United States Constitution, Article I, Section 10 (2).

They apportion the beneficial consumptive use of waters of the Colorado River among the seven states for the use of the people of these states. These people include Native Americans and all other citizens of the states of Arizona, California, Nevada, Colorado, New Mexico, Utah, and Wyoming.

They are paradigms of federalism.

I. The Historical and Legal Framework of the 1922 and 1948 Compacts

The negotiation of interstate water compacts grew out of the experience of states in litigating original jurisdiction equitable apportionment cases in the United States Supreme Court.

A. Equitable Apportionment Dilemma

In 1902, Kansas sued Colorado for impeding the flow of the Arkansas River into Kansas. Kansas was a riparian state; Colorado, a prior appropriation state; the United States, the owner of huge federal lands from and through which the vast percentage of western water flowed.¹ In the course of the litigation, which resulted in two opinions,² Kansas claimed its law required Colorado to by-pass all water to it; Colorado claimed its law could keep any water from flowing into Kansas; and the United States claimed that all unappropriated western water had been reserved for development and distribution through the then newly-enacted Reclamation Act.³

The United States Supreme Court rejected all three theories in favor of case-by-case original jurisdiction for the equitable apportionment of waters between states that share an interstate stream system.⁴ The Court held that each state could choose its own water law, could not impose its choice on another state, and the national government's interest in reclamation of arid lands could not supplant state water law selection.⁵

Having failed to establish a reservation of western water for the reclamation program, the United States used its property power over

¹ *Kansas v. Colorado*, 185 U.S. 125, 138 (1902). For a more complete discussion of climate and western water institutions pertinent to the present article, see Gregory J. Hobbs, Jr, *The Role of Climate in Shaping Western Water Institutions*, 7 U. Denv. Water L. Rev. 1-46 (2003).

² *Id.*; *Kansas v. Colorado*, 206 U.S. 46 (1907).

³ 206 U.S. at 85.

⁴ *Id.* at 117–18.

⁵ *Id.* at 92, 97; *accord Simpson v. Highland Irrigation Company*, 917 P.2d 1242, 1247 (Colo. 1996) (referencing and summarizing the U.S. Supreme Court's 1907 decision). The Supreme Court pointed out that section 8 of the Reclamation Act requires the secretary to proceed "in conformity" with state laws. *Kansas v. Colorado*, 206 U.S. at 93.

federal lands to embargo permits for crossing of federal lands necessary to build non-federal water projects upstream of Pathfinder Dam in Wyoming and Elephant Butte Reservoir in New Mexico.⁶ This embargo, and the looming loss to Wyoming in an equitable apportionment case,⁷ spurred Delph Carpenter of Colorado to formulate the “compact idea” resulting in the era of interstate water compact negotiation and ratification.⁸

Professor Daniel Tyler explains in his biography of Carpenter that this water compact brainstorm derived from Carpenter’s understanding of drought and “river culture”:

The culture of rivers and streams is dictated by geographical location. Upstream residents tend to manifest an attitude of superiority. Their connection to reliable water is guaranteed, especially during periods of drought. Their major concern comes from the fact that most western states accept the principle of first in time, first in right. Economic development downstream, where warmer temperatures encourage agriculture and population growth, results in a prior use of water and therefore a potential legal claim to that water in times of scarcity. Downstream residents worry excessively about upstream transfers of water out of the river basin and upstream consumption that diminishes downstream flows at critical times.⁹

Experience with interstate water litigation taught Carpenter three great lessons. When the United States Supreme Court exercises its original jurisdiction to resolve an interstate water dispute, (1) the doctrine of equitable apportionment governs; (2) what is an equitable apportionment in one decade may not be so in

⁶ William A. Paddock, *The Rio Grande Compact of 1938*, 5 U. DENV. WATER L. REV. 1, 13 (2001); see DANIEL TYLER, *SILVER FOX OF THE ROCKIES: DELPHUS E. CARPENTER AND WESTERN WATER COMPACTS* 119, 154, 169, 314 n.58 (2003).

⁷ *Wyoming v. Colorado*, 259 U.S. 419 (1922).

⁸ TYLER at 119.

⁹ *Id.* at 8.

another; and (3) the upstream state can lose to a downstream state whose development occurs first, if not now then later.

Carpenter had two primary fears: California would preempt Colorado by its capacity for early development, and the federal government—through the Bureau of Reclamation—would command all western rivers to the detriment of individual states.¹⁰

By the time the Supreme Court in *Wyoming v. Colorado* recognized Wyoming's interstate Laramie River priority, leaving only 15,500 acre-feet per year for additional Colorado use,¹¹ Carpenter had convinced the powerful League of the Southwest to endorse the compact idea for the Colorado River, and Congress had enacted legislation for a seven-state Colorado River Compact Commission,¹² whose chair became Commerce Secretary Herbert Hoover.

Under a prior appropriation approach to equitable apportionment, Carpenter correctly surmised that the Lower Basin would establish its water uses earlier than the Upper Basin. A particular fear of the Upper Basin was that Lower Basin hydroelectric and agricultural development would exert large river calls senior to Upper Basin water uses. On February 28, 1922, the U.S. Geological Survey sent a letter to Chairman Hoover summarizing this anxiety:

There seems to be at present some fear in the States of Colorado, Wyoming and Utah that injunction suits may be filed to protect priorities in the use of water for generating power in the canyon and for irrigation in Southern California which may result in temporary or permanent legal limitation on agricultural development in those three states.¹³

¹⁰ See James S. Lochhead, *An Upper Basin Perspective on California's Claims to Water from the Colorado River*, 4 U. DENV. WATER L. REV. 290, 291, 299 (2001).

¹¹ *Wyoming v. Colorado*, 259 U.S. at 496.

¹² Lochhead at 294.

¹³ *Letter Dated February 28, 1922*, from George Otis Smith, Director, United States Geological Survey, to Hon. Herbert Hoover, Chairman, Colorado River Commission, Colorado State Archives (copy on file with author).

The U.S.G.S. suggested a fifty year agreement, with unlimited development by either Basin during that time, followed by further data gathering and negotiations. Here is the text of “confidential” stipulation the U.S.G.S presented Chairman Hoover with that letter:

Following is a draft of a general stipulation for development of Colorado River, which it is believed will insure protection to the several interests concerned and also encourage development by the most economical use of water:

It is agreed that for the next 50 years unrestricted development of Colorado river and its tributaries may be permitted; provided that no development shall be made in the States of Colorado, Wyoming, and Utah that will deplete the flow of Colorado River at the Colorado-Utah boundary or of Green River at the Wyoming-Utah boundary or at the mouth to an amount less than 65 percent of the present flow at those places; and provided that no development in the lower basin shall be made that will give a prior right which will deprive Colorado, Wyoming, and Utah of more than 65 percent of such flow.

It is further agreed at the end of 50 years the further use of the waters of Colorado River and its tributaries shall be again considered, and to the end that adequate data may then be available as a basis for a new agreement, it is urged that governmental agencies collect records of stream flow, make topographic, geologic and soil surveys and surveys for the classification of lands, and study the possibilities of development in power, irrigation, and industry.

Observe that the U.S.G.S. was suggesting a race to development—“unrestricted” was its term—with the Upper Basin States passing 65% of the Colorado River to the Lower Basin for its use. It is unimaginable, with a 50 year life for an agreement and the Lower Basin’s much more rapid development which occurred in those years, that the Upper Basin in 1972 would have come out any better than it did in 1922, or that there would have been any Compact agreed to at all.

To Carpenter’s way of thinking, the only way to beat the priority problem of allowing more uses to come into place and to avoid a rush to develop as fast as possible—and he eventually convinced all of the

Commissioners of this—was through a perpetual allocation of the water between the basins by Compact, approved by Congress. Then, the Upper Basin could develop in its own good time.

In *Silver Fox of the Rockies*, Professor Daniel Tyler explains Carpenter's two major break through insights: (1) use of the compact clause of the United States Constitution to guarantee water apportionments between states, and (2) abrogation of prior appropriation as the rule for apportioning the interstate rivers:

In January 1921, at the annual meeting of the Colorado Bar Association in Colorado Springs, Carpenter delivered a lengthy and impassioned speech, summarizing his reasons for believing that compacts on interstate streams were necessary for the preservation of state sovereignty. Each state, he argued, entered the Union on equal footing with all the others. Under the Constitution, some sovereignty had been conceded to the federal government, but the states' treaty-making powers were limited only to the extent congressional consent was required. If states allowed the Supreme Court to determine the allocation of waters that flowed between them, they would be inviting control of their natural resources by a politically motivated federal entity staffed by government employees unfamiliar with western conditions. Their time in office was tied to the patronage of constantly changing administrations. The net result of abandoning conflict resolution to the federal government would be the states' loss of control of natural resources. It could also mean adoption of prior appropriation as an administrative rule for the regulation of western rivers across state lines.¹⁴

Thus, as a matter of state and federal law, the Colorado River Compact of 1922 institutionalized the allocation of Colorado River water.¹⁵ Under the 1922 Compact, the 1928 Boulder Canyon Project Act, and the 1963 decision of the US Supreme Court in *Arizona v. California*,¹⁶ each state's entitlement to Colorado River water helps to satisfy water rights

¹⁴ Tyler at 131.

¹⁵ Colorado River Compact, COLO. REV. STAT. § 37-61-101 (2002).

¹⁶ *Arizona v. California*, 373 U.S. 546 (1963)

operating within its boundaries. Under Article III, section (a) of the 1922 Compact, the apportionments made to the Upper and Lower Basin states authorize “exclusive beneficial consumptive use” depletions of Colorado River water, subject to the 1944 U.S. Mexican Treaty delivery obligation as provided in Article III, section (c) of the Colorado River Compact.

B. The 1922 Compact Commissioners Did Not Ignore Historically Known Droughts; In Fact, They Anticipated That Large Mainstream Storage Reservoirs Would be Needed to Implement Compact Allocations and Operation

In the very first meeting of the Colorado River Compact Commission held on January 26, 1922, the Commissioners recognized that water storage would be necessary for the implementation of any compact that might result and the job of the Commission was to “settle title to the river” before “structures are placed thereon.” As Colorado Commissioner Delph Carpenter said:

The prime object of this Commission is to settle, in advance, those matters which otherwise would be brought into court. . . . The extent to which this Commission may recommend the place and position of water storage and other structures is a matter that some of us feel should be developed later as the case proceeds. The main objective of this conference is to settle title to the river before structures are placed thereon.¹⁷

The negotiators used actual river measurement data from a gauging station on the Colorado River near Yuma, Arizona above the junction of the Gila and Colorado Rivers. The scientific data available were stream gauge results for the period 1899-1920. The lowest year of record was 9,110,000 acre-feet in 1902; the highest was

¹⁷ *Colorado River Commission, Minutes and Record of the Colorado River Commission Negotiating the Colorado River Compact of 1922, 1st Meeting, Jan. 26, 1922, Vol. 1 at 15-16 (Denver Public Library CD, CRB3-1922).* For a script of a play taken from the record of the 1922 negotiations, see Justice Greg Hobbs, *In Praise of Fair Colorado, The Practice of Poetry, History, and Judging* 285-317 (Bradford Publishing Co. 2004).

25,400,000 acre-feet in 1909; the mean for those years was 16,400,000 acre feet. The annual average discharge of the Gila was estimated at 1,070,000 acre-feet.¹⁸

The minutes of the negotiations demonstrate that Delph Carpenter of Colorado paid particular attention to the low flow data. In the 16th Negotiation Session, Commissioner Norviel of Arizona was pressing for a two-part Upper Basin delivery requirement at Lee Ferry, consisting of 82 million acre-feet over a ten year average with a 4 ½ million acre-feet minimum annual flow. Commission Chairman Hoover took up the Arizona suggestion and the following interchange occurred between him and Carpenter:

Mr. Hoover: Supposing I take the onus of a suggestion for the consideration of the upper states, the 82 million ten year block and a minimum flow for one year of 4 ½ million.

Mr. Carpenter: If you crowd us on the minimum we will have to have a protecting clause on precipitation, because we can't control that. Nature will force us into a violation, any possibility of which we should strenuously avoid in our compact, because that would provoke turmoil and strife. . .

Mr. Hoover: You are seeking protection from a shortage on precipitation beyond that heretofore known.

Mr. Carpenter: I think I am correct in saying that, when we come to consider the extreme minimum, a 20 year period is not indicative of that one year extreme minimum. We have heard engineers say it takes a 50 year record to reveal a safe extreme minimum, or likewise a safe extreme maximum, but that for general calculation of averages a 20 year record was safe . . .

¹⁸ Norris Hundley, Jr., *Water and The West, The Colorado River Compact and the Politics of Water in the American West* at 193 (1975)(these measurements were made at Laguna Dam on the Colorado River upstream of its confluence with the Gila River and were assumed to represent conditions at Lee Ferry).

Mr. Hoover: Your worst contemplation on any historic basis is that it works out something over 10 million (acre) feet over the worst three years known in history and the worst one year works out at 9,500,000 (acre) feet.

Mr. Carpenter: That's the record.¹⁹

This dialogue clearly shows that Carpenter alerted the Commission to the problem of low flow years—in particular, the year 1902 registered 6,900,000 acre-feet less than the 16,400,000 average!

The Compact Commission minutes and record demonstrate that Carpenter was able to preserve the Upper Basin's right to continue making beneficial use of the natural flow of the river in low flow years within its 7,500,000 acre-feet annual consumptive use apportionment, so long as it did not cause the flow of the Colorado River at Lee Ferry to be depleted below 75,000,000 acre-feet on a ten year running average.

In the 17th negotiating session, the Commission was dealing with the Upper Basin proposal to have a ten-year average delivery of 65 million acre-feet at Lee Ferry, while the Lower Basin had countered with 82 million acre-feet. Hoover pointed out that the Upper Basin's number would not be enough to cover the expected needs of the Lower Basin. Carpenter responded that the running average would operate as a limitation on the Upper Basin's diversion of Colorado River waters and the number should be set with a margin of safety, so as not to place the Upper Basin in breach of the Compact:

Mr. Hoover: The difficulty that strikes me at the moment in the sixty-five million guaranty is that it does not cover the needs of the southern states. Including the Mexican burden you estimate the needs of the southern states at about seven and a half million, whereas you guarantee six and a half, so that it cannot be said to cover the needs.

¹⁹ *Commission Minutes and Record*, 16th Meeting, Nov. 14, 1922, Vol. 1 at 85-86.

Mr. Carpenter: The underlying thought is that our diversions shall not diminish the flow below a certain point. That is expected as a guaranty. In this way we undertake to do certain things, and failing so to do, we would violate the compact. Any violation would be a breach of the guaranty. The word “guaranty” is unfortunate, but the upper states have no disposition to get so close to the margin line of hazard as to be in danger of a breach. To approach that border line too closely would be to court the very condition we are trying to avoid by this margin of safety which will prevent a breach. It is our desire to have a safe margin so that there never will be any friction. Just as we were debating the minimum the other day, it is not from our desire to pinch down the lower states, it is our desire to avoid the concurrence of an event which would create a breach between the two divisions of the basin.²⁰

Hoover then proposed a compromise of 75 million acre-feet ten-year average. The Commission began to draft language embodying this figure, but the Lower Basin’s demand for a minimum yearly guarantee was still on the table.²¹

In the 21st negotiating session, Chairman Hoover put on his California hat and turned to Carpenter with the following plea for a minimum flow or storage guarantee for protection of those who were already diverting the entire flow of the Colorado River under low water conditions:

Mr. Hoover: Mr. Carpenter, if you will allow me to become a Californian a minute instead of a Chairman, I would like to present one phase of this which we have never considered and it is, I think, the crux of the anxiety of the people in the lower river. At the present moment they are taking the whole of the low water flow of the Colorado River into their diversion. They feel that this pact will destroy any rights which they have for the maintenance of that minimum flow; that pending the period when storage is erected and there is protection for an even flow of water, there is here an inter-

²⁰ *Commission Minutes and Record*, 17th Meeting, Nov. 15, 1922, Vol. 1 at 106.

²¹ *Id.* at 110.

regnum by which they are deprived of any rights they might have as against the Upper Basin to maintain the present flow of water.²²

Preeminent Colorado River Historian Norris Hundley explains that the “crux” of the Lower Basin’s “anxiety” was that, under the 75,000,000 ten-year running average, the Upper Basin could take the entire flow during a dry spell and fulfill the ten-year average with high flows in other years:

During the low-flow season, Hoover explained, the entire river was often diverted by those downstream. But once the compact became effective, those on the lower river would be unable to prevent the upper basin from interfering with the minimum flow. The upper states were merely obligated to supply 75,000,000 acre-feet every ten years; they could, therefore, keep the entire flow during a dry spell and still fulfill their commitment over the ten-year period. This possibility represented the “crux of the anxiety” for those on the lower river, argued Hoover. Only storage would enable them to guard against the loss of water when they needed it most.²³

In the 22nd negotiating session, the Commission settled on a perpetual allocation of beneficial consumptive use annually of 7,500,000 acre-feet of water for each basin. In addition, the Lower Basin was allowed to increase its annual beneficial consumptive use by 1,000,000 acre-feet per year. Apparently, this was for Arizona’s use of the Gila River. Any water guaranteed by treaty with Mexico would come out of surplus water but, if the surplus was insufficient, then the deficiency would be equally apportioned and borne between the two basins.

The Commission agreed to word the 75,000,000 acre-feet ten-year running average as a prohibition against the Upper Basin depleting the flow of the river at Lee Ferry below that amount.²⁴ Finally, the Commission agreed that the Upper Basin cannot withhold

²² *Commission Minutes and Record*, 21st Meeting, Nov. 20, 1922, Vol. 2 at 110.

²³ Hundley at 207.

²⁴ *Commission Minutes and Record*, 24th Meeting, Nov. 23, 1922, Vol. 2 at 239-240.

and the lower basin cannot require the delivery of water that cannot be reasonably applied to domestic and agricultural uses.²⁵ These provisions are contained in Article III of the Compact.

In the 23rd negotiating session, the Commission resolved the minimum delivery demand of the Lower Basin by providing that (1) the first charge on the waters apportioned to each basin would be for “present perfected rights to the beneficial use of waters,” and (2) when storage capacity of 5,000,000 acre-feet of water was constructed for the benefit of the Lower Basin, the lower basin owners of water works would forego any claim to water apportioned to the Upper Basin and, instead, be satisfied by delivery of the stored water.²⁶ This provision is contained in Article VIII of the 1922 Compact.

Thus, the language of the compact, as shown by the record of the Compact Commission, is based on an assumption that the 75,000,000 acre-feet ten-year running average at Lee Ferry would operate by offsetting high flow and low flow years through storage reservoirs.

Importantly, from an Upper Basin perspective, the 1922 Compact does not contain any yearly minimum flow guarantee to the Lower Basin other than the provision that imposed the perfected rights requirement until 5,000,000 acre-feet of storage was available for Lower Basin users and, of course, compliance with the ten-year running average.

C. The 1922 Compact and the Severe 1930s Drought Produced the 1948 Upper Colorado River Basin Compact and the 1956 Colorado River Storage Project Act

Despite the early 21st Century drought, no call has yet been imposed by the Lower Basin States upon the Upper Basin States because Congress, in order to implement the 1922 and 1948 compacts authorized construction and operation of Lake Mead and Lake Powell, backed-up by Flaming Gorge, Navajo, and the Aspinall Unit. As designed, these reservoirs refill in good years and control

²⁵ *Commission Minutes and Record*, 22nd Meeting, Nov. 22, 1922, Vol. 2 at 149-150.

²⁶ *Commission Minutes and Record*, 23rd Meeting, Nov. 22, 1922, Vol. 2 at 174.

floods in huge water years. Surely, the 84 more years of gauging records available since 1922 demonstrate the severe extent of the Colorado River's fluctuation.

From reports of early explorers and hydrologists and the calamitous breach of the Imperial Valley irrigation head works in the early 20th Century, the 1922 Compact negotiators knew that the Colorado has a severely ranging character. While averages are a good planning tool, water placed in storage in better water years for release in the scant years is the most valuable asset providing both basins the benefit of their consumptive use apportionments.

At the first 1922 Compact Commission meeting, Carpenter brought with him a January 7, 1922 map prepared by Colorado State Engineer Meeker showing the proposed Glen Canyon Reservoir at 50,000,000 acre-feet and Boulder Canyon Reservoir at 31,000,000 acre-feet.²⁷

The prolonged 1930s drought proved the necessity for constructing reservoirs in the Upper Basin, in tandem with reservoirs in the Lower Basin, so that the seven Colorado River states could fully utilize their water entitlements. A 1947 report by the Bureau of Reclamation to Congress recognized that the average annual supply of Colorado River—available to the Upper Basin for beneficial consumptive use depletion under the 1922 Compact—would likely be about six million acre feet of water, not the seven and a half million acre feet anticipated by the Compact Commissioners under the prolonged wet period of the early 20th Century.²⁸ Accordingly, the Secretary of the Interior recommended to Congress that it not proceed with authorizing construction of the Upper Basin reservoirs until the Upper Basin States had agreed on a division of their 1922 Compact apportionment.²⁹

²⁷ “Interstate River Systems Heading in Colorado Showing Interstate Character of Large Reservoirs and Principal Irrigation Projects, State of Colorado, R.I. Meeker, Irrigation Engineer, January 7th, 1922”, Colorado State Archives (copy on file with author). Of course, Lake Powell contains only about half of the capacity Carpenter and Meeker estimated as desirable, due to a Congressional provision prohibiting the inundation of Rainbow Bridge.

²⁸ See Bureau of Reclamation, *The Colorado River*, House Document 419, Eightieth Congress, First Session, July 1947.

²⁹ *Id.* at 1.

As a result, the Upper Basin States entered into the 1948 Upper Basin Compact and Congress enacted the Colorado River Storage Project Act of 1956 (CRSPA) that authorized the construction of the Glen Canyon, Flaming Gorge, Aspinall, and Navajo dams.

The operation of these dams is essential to implementing Article III, section (d), of the 1922 compact, which provides that the “states of the Upper Division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75, 000,000 acre feet for any period of ten consecutive years reckoned in continuing progressive series beginning with the first day of October next succeeding the ratification of this compact.”

D. The 1956 Colorado River Storage Project Act and Wilderness Preservation, Counter-Twins

Only by storing water can the Upper Colorado River Basin states “even come close to meeting their allotted annual uses and discharging their Lee Ferry obligations.”³⁰ The proposal to build a dam on the Green River at Echo Park near the Colorado-Utah border—and another at Marble Canyon just east of the main gorge of the Grand Canyon below Lee Ferry—gave birth to the compromise of constructing Glen Canyon Dam and also helped Congress pass the 1964 Wilderness Act to flow forth from Congress.³¹

In late 1955 and early 1956, Howard Zahniser of The Wilderness Society worked unceasingly at trying to insert a proviso into the CRSP that would protect the sanctity of the park system from future reclamation projects. Conservationists also insisted upon a second provision protecting Rainbow Bridge National Monument from the huge reservoir that would be created by the proposed Glen Canyon Dam. After another round of negotiations on Capital Hill, Zahniser gained assurance from Upper Basin leaders like Aspinall and William Dawson of Utah

³⁰ Edward W. Clyde, *Institutional Response to Prolonged Drought*, in *NEW COURSES FOR THE COLORADO RIVER: MAJOR ISSUES FOR THE NEXT CENTURY* 113 (Gary D. Weatherford and F. Lee Brown eds., 1986).

³¹ See NORRIS HUNDLEY, JR., *THE GREAT THIRST, CALIFORNIANS AND WATER, 1770S–1990S*, at 307–309 (1992).

that they would support the provisos in return for the cessation of conservation-organization opposition to the CRSP. At long last, the way seemed clear to passage.³²

Water storage to assist state use of water compact allocations, park protection, and wilderness preservation—these are the three essentials of the CRSP compromise that forged beneficial use and preservation, not just beneficial use, to the maturing western experience. The wilderness movement tapped a resonant core of awe and respect in Americans. Wilderness has fundamentally shaped our American character. Preservation of its remaining vestige is a great national achievement, the argument for which included the water quality and quantity benefits of preserving natural watersheds.

The movement for preservation started with the great nineteenth century western surveyors themselves—and the artists, photographers, botanists, and geologists who accompanied them—but most importantly the citizens of the United States. Congress intended the surveys of George Wheeler, Clarence King, Ferdinand Hayden, and John Wesley Powell to provide the location and resource nexus for settlement of the West.³³ But, the people of the United States through the work of artists, journalists, and popular magazines, such as Harper's Weekly,³⁴ also saw how vast, beautiful,

³² Steven C. SCHULTE, WAYNE ASPINALL AND THE SHAPING OF THE AMERICAN WEST 66 (2002).

³³ Robert W. Karrow, Jr., *George M. Wheeler and The Geographical Surveys West of the 100th Meridian 1869–1879*, in EXPLORATION AND MAPPING OF THE AMERICAN WEST: SELECTED ESSAYS 121–124 (Donna P. Koepf ed., 1986).

³⁴ Harper's Weekly—which modestly called itself “A Journal of Civilization”—described Denver as an oasis community created in the desert a little over 25 years after the 1858 gold strike at the junction of Cherry Creek and the South Platte River:

If the city were less substantial in appearance than it is, if it possessed certain glaring peculiarities, it would be much easier to describe it. But it so belies its age, and seems so much older than it really is, that one falls to taking for granted that which should be surprising. Wide, shaded, and attractive-looking streets, handsome

varied, and stupendous this land is, carved of sporadic, surging rivers and trickling drops; sun; wind; and plenty of parching days.

The paintings of Thomas Moran, the sketches of William Henry Holmes, and the photographs of W.H. Jackson were direct products of the Powell and Hayden surveys. These works led the way for the establishment of those jewels of the park system, including Yellowstone, Grand Canyon, and Mesa Verde National Parks—and with the tremendous added value of John Muir’s hiking, writing, wandering, and advocacy, Yosemite.³⁵

residences surrounded by spacious grounds, noble public buildings, and the many luxuries of city life, tempt one to forget that Denver has gained all these excellencies in less than twenty-five years. Every tree that one sees has been planted and tended; every attractive feature is the result of good judgment and careful industry. Nature gave Denver the mountains which the city looks out upon; but beyond those hills and the bright sky and the limitless plains, she gave nothing to the place which one has only to see to admire. The site originally was a barren waste, dry and hilly. Never was it green, except perchance in early spring, and not a tree grew, save a few low bushes clinging to the banks of the river. Surrounded on the east, south, and north by the extended prairie lands, fast being converted into productive farms, and having on the west the mountains with their treasures of gold, silver, coal, iron, and lead, Denver is the natural concentrator of all the productions of Colorado. From it are sent forth the capital, the machinery, and the thousand and one other necessities of a constantly increasing number of people engaged in developing a new country.

THE WEST: A COLLECTION FROM HARPER’S MAGAZINE 52–53 (1990).

³⁵ See *generally* KEVIN J. FERNLUND, WILLIAM HENRY HOLMES AND THE REDISCOVERY OF THE AMERICAN WEST 102–122 (2000); WILLIAM HENRY JACKSON & JOHN FIELDER, COLORADO 1870–2000 (2000); John Muir, *Our National Parks*, in JOHN MUIR: THE EIGHT WILDERNESS DISCOVERY BOOKS 457–605 (1992); THOMAS J. NOEL & JOHN FIELDER, COLORADO 1870–2000 REVISITED: THE HISTORY BEHIND THE IMAGES (2001); Paul D. Sheats, *After Yosemite: John Muir and the Southern Sierra*, in JOHN MUIR: LIFE AND WORK 245–264 (Sally M. Miller ed., 1993);

San Francisco tapped Muir's beloved Hetch Hetchy Valley for municipal storage. Muir's reaction to what he viewed as a moral outrage sounds a high and clear tone of the liberty bell that Americans can hear—and appreciate—among all the tones we hear from the lyric and rhythm of Nature and its influence on our national character.

That any one would try to destroy such a place seems incredible; but sad experience shows that there are people good enough and bad enough for anything. The proponents of the dam scheme bring forward a lot of bad arguments to prove that the only righteous thing to do with the people's parks is to destroy them bit by bit as they are able. Their arguments are curiously like those of the devil, devised for the destruction of the first garden – so much of the very best Eden fruit going to waste; so much of the best Tuolumne water and Tuolumne scenery going to waste. Few of their statements are even partly true, and all are misleading.

Thus, Hetch Hetchy, they say, is a 'low-lying meadow'. On the contrary, it is a high-lying natural landscape garden.³⁶

Wilderness areas exist in Colorado today, as in other parts of the West, because Coloradoans joined with other citizens of the United States to pass the wilderness acts, starting with the 1964 Act.³⁷ Congressman Wayne Aspinall, as chairman of the House Interior Committee—a procurer of water projects for Colorado and the Upper Basin—played a key if reluctant role.³⁸ Echo Park Dam had been a part of plans for the Colorado River Storage Project, but

DOUGLAS WAITLEY, WILLIAM HENRY JACKSON: FRAMING THE FRONTIER 105–141 (1998); THURMAN WILKINS, THOMAS MORAN: ARTIST OF THE MOUNTAINS 106–135 (2d ed. 1998).

³⁶ John Muir, *The Yosemite*, in THE EIGHT WILDERNESS DISCOVERY BOOKS 715 (1992).

³⁷ 16 U.S.C. §§ 1131–1136 (2002); *Sierra Club v. Yeutter*, 911 F.2d 1405, 1408 (10th Cir. 1990).

³⁸ See RODERICK NASH, WILDERNESS AND THE AMERICAN MIND 215–219 (1967).

Congress removed it from the CRSP because of wilderness advocate opposition in favor of preserving Dinosaur National Monument.³⁹

II. Native Americans and the Republic of Mexico Are Not Overlooked by the Compact

By approving the 1922 compact and the 1948 compact, Congress authorized beneficial consumptive use depletions of the Colorado River by the seven basin states, pursuant to the unique interstate treating making authority of the compact clause of the United States Constitution, Article 1, Section 10(2).

Native Americans share the benefits of these water entitlements through their reserved water rights: “Nothing in this compact shall be construed as affecting the obligations of the United States of America to Indian tribes,” Article VII, Colorado River Compact. The Commissioners knew of the 1908 decision of the U.S. Supreme Court in *Winters v. United States*⁴⁰ that established implied reservation water rights, but, lacking the jurisdiction to quantify those rights, the best they could do was place a marker on their existence, along with state-based rights of use for “the appropriation, use, and distribution of water.” Article IV, Section (c), Colorado River Compact.

In the lower basin states, the water is delivered through contracts with the Secretary of the Interior in fulfillment of Arizona’s, California’s, and Nevada’s apportionments under the 1928 Boulder Canyon Project Act, as construed by the United States Supreme Court’s 1963 *Arizona v. California* decision.

Federal lands within the seven Colorado River states also enjoy the benefit of a Colorado River water supply out of the state-apportioned entitlements, under their U.S. reserved rights and prior appropriation water rights they have obtained under state law. Throughout the seven basin states, the Tribes, the seven States, and the United States are involved in agreements, adjudications, and statutes designed to provide water to the Tribes, in satisfaction of their reserved water rights.

For example, the Navajo Nation has lands within the states of Arizona, New Mexico, and Utah. The Navajo homeland water will

³⁹ *Id.* at 219.

⁴⁰ *Winters v. United States*, 207 U.S. 564, 575 (1908).

come out of the apportioned water entitlements of these states. Because the Navajo Nation has lands in both the upper and lower basins (identified by Article II, sections (f) and(g) of the Colorado River Compact), the seven basin states and the Secretary of Interior will be involved in agreements anticipated by Article VII of the 1922 Compact regarding the water delivery obligations of the United States to the tribe. In Colorado, the Animas-La Plata Project is currently under construction by the Bureau of Reclamation in satisfaction of Southern Ute and Ute Mountain Ute reserved water rights, a compact between Colorado and the tribes approved by Congress,⁴¹ and statutes of Colorado and the United States.

Mexico's annual supply of 1,500,000 acre-feet of water delivered at Morelos dam inside Mexico is the top priority for the Colorado River pursuant to a 1944 treaty between the United States and Mexico. Because only those two governments had the power to enter into an international water treaty, the 1922 compact negotiators provided in Article III, section (c), that the "exclusive beneficial consumptive use" depletions of Colorado River water guaranteed to each state by Article III, Section (a) of the compact were subject to whatever Mexico's treaty entitlement turned out to be.

III. The 1922 Compact Provides for a Revision and/or Termination Process that Requires the Unanimous Consent of the Seven Basin States.

By its approval of the 1948 Upper Colorado River Compact, Congress authorized beneficial consumptive use depletions of Colorado River water by the Upper Basin states for the full utilization of the Upper Basin's 1922 compact apportionment, pursuant to Article III of the Upper Colorado River Compact.

Whether the apportionment of the water of an interstate stream is made by compact between the upper and lower States with the consent of Congress, or by an equitable apportionment decree of the U.S. Supreme Court, the apportionment is binding upon the citizens

⁴¹ Animas-La Plata Project Compact, Public Law 90-537, section 501 (c) (1968); § 37-64-101 (C.R.S. 2006).

of each State and all water claimants, even where the State had granted the water rights before it entered into the compact.⁴²

Each of the seven Colorado River Basin states approved the 1922 compact as a law of each of these states and provided, therein, that the Compact cannot be changed absent consent of all of the signatory Colorado River Basin States. No state, including Colorado, has rescinded its approval of the Compact.

Why not? In my view, it is because the 1922 Compact contains in Article VI a provision for the States to cooperate with each other in resolving disputes about the operation of the Compact, and because the Compact has allowed the orderly development of the seven basin states, because none of the states could get a better arrangement now by backing out of the compact, because the Secretary of Interior has responsibility for the operation of dams and reservoirs that support Compact deliveries, and because the United States Supreme Court, as shown by its recent *Kansas v. Colorado* compact enforcement decisions⁴³ will enforce compacts if the signatory states cannot agree regarding the meaning and operation of compact provisions.

In its early December 2004 decision, following 19 years of Arkansas River Compact litigation between Kansas and Colorado and an award of \$29 million dollars against Colorado for its compact violations, the United States urged the states to settle their future differences between themselves if at all possible. Here is the passage enunciating the hope of the Court as it referred to the Special Master's report:

The Special Master also recommended that experts for the two parties confer, *e.g., id.*, at 91—92, and he expressed the hope that expert discussion, negotiation, and if necessary binding arbitration, would lead to resolution of any remaining disputes. *Id.*, at 135—136. We express that hope as well.

It is a grand day for the Republic when the highest court in the land proclaims its hope that the States will get on with the job that all

⁴² *Hinderlider v. La Plata River & Cherry Creek Ditch Co.*, 304 U.S. 92, 106 (1938).

⁴³ *Kansas v. Colorado*, 514 U.S. 673 (1995); *Kansas v. Colorado*, 534 U.S. 86 (2004).

compacts intend—that the contracting state parties will resolve their disputes among themselves without invoking the original jurisdiction of the United States Supreme Court.

The Colorado River Compact’s framework for interstate discussion—that involves the Secretary of Interior in her role as contracting officer for the Lower Basin apportionment as a result of the Boulder Canyon Project Act⁴⁴ and *Arizona v. California*—has been recently dramatized by the (1) the Quantification Settlement Agreement among California water users providing a mechanism for California to reduce its overuse of Colorado River water and stay within its 4.4 million acre-feet allocation and (2) the shortage criteria for drought conditions agreed upon by the seven basin states and submitted to the Secretary of the Interior. The shortage criteria anticipate co-ordination of Lake Powell and Lake Mead operations.

IV. Glen Canyon Dam and Lake Powell Are Essential to Operation of the 1922 and 1948 Colorado Compacts, as Authorized by Congress

In 1922, Hoover talked openly about the “crux of the anxiety” the Lower Basin was feeling about the Upper Basin resistance to sufficient deliveries at Lee Ferry. Today, because of the early 21st Century drought and diminishing reservoir levels, the Upper Basin is feeling what Carpenter referred to as the “pinch.”

Under the 1948 compact, the Upper Basin States agreed upon a percentage allocation of the Upper Basin’s 1922 compact entitlement. Lake Powell is the primary supply for averting a “compact call” to meet the 10 year 75,000,000 acre-foot running average established at Lee Ferry.

The following graphic illustrates operation of the 1922 and 1948 compacts.⁴⁵

Upper Colorado River Basin Compact of 1948

This compact distributes the consumptive use of Colorado River water among the upper basin states. Subject to interpretation of the compacts and other laws, as well as the amount of water available in

⁴⁴ 43 U.S.C. § 617.

⁴⁵ Gregory J. Hobbs, Jr., *Citizens Guide to Colorado Water Law, Second Edition*, 23 (Colorado Foundation for Water Education 2004).

the river, Colorado's consumptive use rights for Colorado River water can vary.

The following calculation is a way of viewing how the 10-year running average 75 million acre-feet delivery requirement to the lower basin might translate into water available for consumptive use by the upper basin states in an average water year:

Acre-feet per year	Provisions
14,800,000*	Total average annual water production in the Upper Colorado River Basin
Minus 7,500,000	Or the amount to be delivered to the Lower Basin under the current 10-year running average.
Minus 750,000	Mexican Treaty obligations (a disputed point)
Minus 50,000	For portion of Arizona above upper/lower basin dividing point (above Lee Ferry)
= 6,500,000 Total Annual Average Available to Upper Basin	

* Long-term average 1896-2003. Upper Colorado River Comm'n 55th Annual Rpt. (2003)

Within the Upper Basin, the Colorado River is allocated according to the following percentages:

Colorado = 51.75%
 Utah = 23%
 Wyoming = 14%
 New Mexico = 11.25%

The West's increasing population and that population's demand for an immense array of water uses for humans and the environment demands smart conservation, drought planning, and flood planning.

What better alliance than the seven basin states and the United States—in consultation with their citizens—to get on with this progressive work!

Within Colorado, the State Engineer enforces compact delivery requirements, adhering to the terms of the nine interstate compacts to which Colorado is a party and consistent, insofar as possible, with Colorado constitutional and statutory provisions for priority administration. In this manner, citizens of Colorado can partake reliably of the state's compact apportionments through property rights perfected for beneficial use within the state.⁴⁶

Congress authorized the construction of Glen Canyon, Flaming Gorge, Navajo, and the Aspinall dams to assist the Upper Basin states in developing their allocation of water, producing hydropower, and ensuring compact deliveries, among other uses. It approved the construction and operation of these dams and reservoirs for the nonexclusive purposes of: (1) regulating the flow of the Colorado River; (2) storing water for beneficial consumptive use; (3) making it possible for the States of the Upper Basin to utilize, consistent with the provisions of the Colorado River Compact, the apportionments made to and among them in the Colorado River Compact and the Upper Colorado River Basin Compact; and (4) providing for the reclamation of arid and semiarid land, for the control of floods, and for the generation of hydroelectric power, as an incident of the foregoing purposes. Congress also stated that it did not intend for the 1956 Act to impede the Upper Basin's development of the water apportioned to it by the Compact.

The CRSPA reservoirs are part of a plan to allow Colorado to develop and preserve compact apportionment. The water stored in these reservoirs provides Colorado and the other Upper Basin states with an ability to satisfy the compact delivery mandates without eroding other rights decreed to beneficial use in the states. By banking CRSPA water for compact deliveries and using the reservoirs for their other decreed purposes, Colorado and the other Upper Basin states continue development of their water entitlements. The Aspinall Unit holds absolute decrees under Colorado law and a

⁴⁶ *Simpson v. Highland Irrigation Company*, 917 P.2d 1242, 1248 (Colo. 1996).

right to use the water for the decreed purposes—including hydropower generation, recreational, and fish and wildlife uses.⁴⁷

Colorado's interstate water entitlements under the 1922 and 1948 compacts are among the most valuable and protected assets of the people of the State of Colorado.

For example, the Colorado General Assembly has included in the Colorado Water Conservation Board's statute the following duty:

To confer with and appear before the officers, representatives, boards, bureaus, committees, commissions, or other agencies of other states, or of the federal government, for the purpose of protecting and asserting the authority, interests, and rights of the state of Colorado and its citizens with respect to the waters of the interstate streams in this state.⁴⁸

The Colorado General Assembly has also established the Colorado River Water Conservation District for the purpose of securing, for the people of the district and all the people of Colorado, the benefit of the state's entitlements under the 1922 and 1948 compacts:

In the opinion of the general assembly of the state of Colorado, the conservation of the water of the Colorado river in Colorado for storage, irrigation, mining, and manufacturing purposes and the construction of reservoirs, ditches, and works for the purpose of irrigation and reclamation of additional lands not yet irrigated, as well as to furnish a supplemental supply of water for lands now under irrigation, are of vital importance to the growth and development of the entire district and the welfare of all its inhabitants *and that, to promote the health and general welfare of the state of Colorado an appropriate agency for the conservation, use, and development of the water resources of the Colorado river and its principal tributaries should be established and given such powers as may be necessary to safeguard for Colorado, all waters to which the state of*

⁴⁷ County Comm'rs v. Crystal Creek Homeowners' Ass'n, 14 P.3d 325, 334-35 (Colo. 2000).

⁴⁸ § 37-60-106(1)(i), C.R.S. (2006)

*Colorado is equitably **entitled** under the Colorado river compact.*⁴⁹

The General Assembly chose the word “entitled” to describe Colorado’s legal interest in the state’s Colorado River apportionment. Its choice is apt and worthy of honor.

In light of the historic variability of Colorado River water supply, the potential impact of climate change, and the over-appropriated status of much of the state’s water supply, Colorado will need to work cooperatively with the six other basin states and the United States in all matters of Colorado River decision-making, as well as with all other interested persons, governmental organizations, tribes, and environmental groups.

Continued participation in the Upper Basin Endangered Species Recovery Plan—a cornerstone of which is the full development of Colorado’s Colorado River Compact entitlement—will also be necessary.

Ideas for river and delta restoration abound. Those consistent with the apportioned use of the river within the United States, along the joint border of Arizona-Mexico border, and within Mexico’s entitlement offer great hope for the future.

Recent experience in developing interim shortage criteria and participating in the recovery plan is showing that the Colorado River Compact is not in need of any amendment. Should one be necessary, the authority and procedure for making such an amendment is contained in Article VI of the Colorado River Compact, which provides for amendment upon agreement of the seven basin states.

Likely, there will be many years of a lower Lake Powell as the climate varies and the Upper Basin uses its full entitlements. Estimates are that the full reservoir of the 1980s and 1990s will probably become rarer. But reservoirs are designed to fluctuate with flood and drought. Welcome features of a lower Lake Powell are the many multi-colored walls, intriguing side canyons, and revealed arches of Glen Canyon lost to view in higher waters.

⁴⁹ § 37-46-101, C.R.S (2006)(emphasis added).

The Colorado Water Conservation Board has estimated that Colorado may have only 400,000 to 500,000 acre feet of water yet to be utilized under its Colorado River entitlements. Due to anticipated population growth, this water will be needed to serve the people of the state in the future, even with all available water demand management and conservation measures put into place. To assist the open space, social, and economic values of agriculture, its use sooner than later may be advisable, given the current high demand of municipalities to change agricultural water rights to municipal use. It may be expensive to develop, and it may be available only in some years.

Yet, whatever remains unused of Colorado's entitlement belongs to the people of Colorado. It should be carefully preserved for Colorado's perpetual use, as the 1922 and 1948 compacts provide. It is probable that the other six basin states view their Colorado River allocations among the most valuable of state assets.