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### Implications for Interstate Compacts, with an Emphasis on the Colorado River Basin

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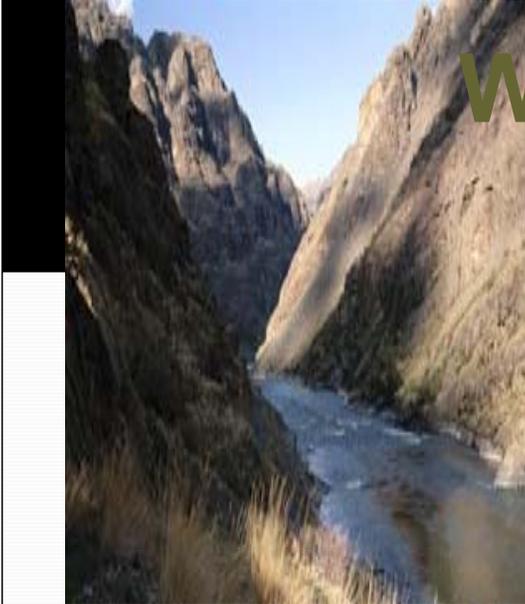
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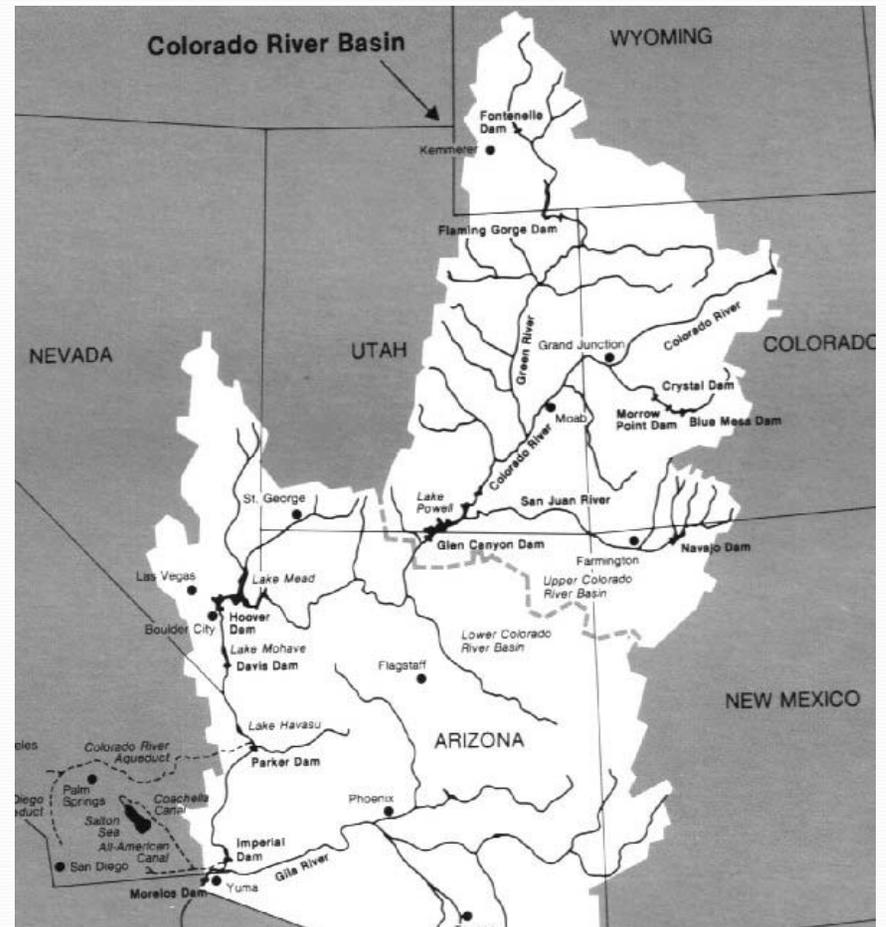
# Water, Climate and Uncertainty

Implications for Interstate Compacts,  
with an Emphasis on the  
Colorado River Basin.

24th Conference of the Natural Resources Law Center  
University of Colorado  
June 11-13, 2003

*Presented by*  
James S. Lochhead  
Brownstein Hyatt & Farber, P.C.

# Map of the Colorado River Basin



## Comparison of Consumptive Uses, Losses, and Water Supply - 1922 vs. Present Colorado River Mainstem



(Values in Million Acre-Feet per Year)

	1922	Present
Reconstructed average virgin flow at Lee Ferry	17.5	15.0
Long term reconstructed average		13.5
Lowest reconstructed ten-year period		9.7
Lowest ten-year period of record		11.8
Lower Basin tributary inflow	3.0	1.4
<b>Total available water supply (Mainstem)</b>	<b>20.5</b>	<b>11.1-16.4</b>
Upper Basin Uses	2.5	4.2
Upper Basin Reservoir Evaporation	---	0.5
<b>Total Upper Basin Uses</b>	<b>2.5</b>	<b>4.7</b>
Lower Basin Mainstem Uses	2.6	8.0
Lower Basin Reservoir Evaporation	---	1.8
<b>Total Lower Basin Mainstem Uses</b>	<b>2.6</b>	<b>9.8</b>
Delivery to Mexico and Welton-Mohawk bypass		1.6
<b>Total Mainstem Uses</b>	<b>6.1</b>	<b>16.1</b>

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Implications for Interstate Compacts, with an Emphasis on the Colorado River  
Basin

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James S. Lochhead  
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- I. The Law of Interstate Apportionment of Water
  - a. Congress. Congress may allocate water between states in order to serve the national interest and may supersede state law in order to do so. *Arizona v. California*, 373 U.S. 546 (1963).
  - b. U.S. Supreme Court. Water may be judicially divided between states on the basis of equitable apportionment. *Kansas v. Colorado*, 206 U.S. 46 (1907); *Nebraska v. Wyoming*, 325 U.S. 589 (1945); *Wyoming v. Colorado*, 259 U.S. 419 (1922).
  - c. States.
    - i. Congressional consent is required for states to enter into a compact, which may be conditioned upon the states' compliance with specified terms. U.S. CONST. Art. I, §10, cl. 3 – "No State shall, without the Consent of Congress, lay any Duty of Tonnage, keep Troops, or Ships of War in time of Peace, enter into any Agreement or Compact with another State, or with a foreign Power, or engage in War, unless actually invaded, or in such imminent Danger as will not admit of delay."
    - ii. States can agree to apportion water by interstate compact, and even a preexisting water right, which is a property right, can be limited by the terms of such a compact. A compact can delegate power to the states to appoint the members of the commission or other controlling entity created by the compact. Also, water can be apportioned, and the use of water limited, by interstate compact consented to by Congress. In *Hinderlider v. La Plata River & Cherry Creek Ditch Co.*, 304 U.S. 92 (1937), the Court said: "The compact – the legislative means – adopts to our union of sovereign states the age old treaty making power of independent sovereign nations . . . . Whether the apportionment of the water of an interstate stream be made by compact between the upper and lower states with the consent of Congress, or by decree of the Court, the apportionment is binding upon the citizens of each state and all water claimants, even where the state had granted the rights before it entered into the compact." *Id.* at 104-06.

- d. Enforcement of Interstate Compacts and Apportionments
  - i. Once approved by Congress, an interstate compact is transformed into federal law. The compact then is immune to certain constitutional objections, including commerce clause objections. A state may not amend or withdraw from a compact without congressional consent. In *West Virginia v. Sims*, 341 U.S. 22, 28 (1951), the Court said: “But a compact is after all a legal document. Though the circumstances of its drafting are likely to assure great care and deliberation, all avoidance of disputes as to scope and meaning is not within human gift. Just as this Court has power to settle disputes between States where there is no compact, it must have final power to pass upon the meaning and validity of compacts. It requires no elaborate argument to reject the suggestion that an agreement solemnly entered into between States by those who alone have political authority to speak for a State can be unilaterally nullified, or given final meaning by an organ of one of the contracting States. A State cannot be its own ultimate judge in a controversy with a sister State.”
  - ii. The state is ultimately liable for violation, even by individuals within the state. In *Wisconsin v. Illinois*, 289 U.S. 395, 406 (1933), Illinois tried to avoid responsibility by claiming a sanitation district was responsible for the wrongful acts in Lake Michigan. However, the Court found that “the State of Illinois by virtue of its status and authority as a state is the primary and responsible defendant. While the sanitation district is the immediate instrumentality of the wrong found to have been committed . . . by the diversion of water from Lake Michigan, that instrumentality was created and has continuously been maintained by the State of Illinois.”
  - iii. The Supreme Court has broad authority to fashion a remedy for violation of its orders. Potential remedies could include additional, more specific injunctive relief, a contempt order and associated sanctions, or an order requiring repayment in water or money
    - 1. Injunction. In *Texas v. New Mexico*, 482 U.S. 124, 133 (1987), the Court enjoined New Mexico to meet its obligation of water deliveries to Texas as required under the Pecos River Compact. The injunction was more clearly described by the Court in the amended decree included in its opinion in *Texas v. New Mexico*, 485 U.S. 388 (1988).
    - 2. Monetary Judgments. Relying in part on the Court's 1987 opinion in *Texas v. New Mexico*, the Special Master in *Kansas v. Colorado*, No. 105 Original, recommended that the Court require Colorado to pay money damages, including prejudgment interest, for its violations of the Arkansas River Compact. Third Report of Special Master, August 2000.

## II. Compact and Equitable Apportionment Strategies

### a. Flows

- i. Big Blue River Compact (Nebraska and Kansas). “During the period, May 1-September 30, the state of Nebraska shall regulate diversions from natural flow of streams in the Little Blue and Big Blue river basins by

- water appropriators junior to November 1, 1968, in order to maintain minimum mean daily flows at the state-line gaging stations.” Article 5.2 (b).
- ii. South Platte River Compact (Colorado and Nebraska). “Between the first day of April and the fifteenth day of October of each year, Colorado shall not permit diversions from the Lower Section of the river, to supply Colorado appropriations having adjudicated dates of priority subsequent to the fourteenth day of June, 1897, to an extent that will diminish the flow of the river at the Interstate Station, on any day, below a mean flow of 120 cubic feet of water per second of time . . .” Article IV (2).
- b. Interstate administration
    - i. Bear River Compact (Idaho, Utah and Wyoming). Establishes an interstate administrative agency to enforce the compact, and adjust allocations based on water emergencies.
    - ii. Amended Costilla Creek Compact (Colorado and New Mexico). Provides for interstate administration of priorities between Colorado and New Mexico.
    - iii. Arkansas River Compact (Colorado and Kansas). Provides for storage account in John Martin Reservoir in Colorado for the benefit of Kansas, administration of priorities in Colorado to assure John Martin fill, and delivery of usable state line flows.
  - c. Hydrologic Based Apportionments
    - i. Republican River Compact (Colorado, Kansas and Nebraska). Allocates specific quantities of water to each state (Colorado, Nebraska and Wyoming), but provides for adjustment of the allocation if the computed virgin water supply varies more than 10 percent from the calculation upon which the allocation is based.
    - ii. Pecos River Compact (New Mexico and Texas). New Mexico “shall not deplete by man’s activities the flow of the Pecos River at the New Mexico-Texas state line below an amount which will give to Texas a quantity of water equivalent to that available to Texas under the 1947 condition.” Article III (a). Enforced by the U.S. Supreme Court decree in *Texas v. New Mexico*, 485 U.S. 388 (1987).
- III. The Law of the Colorado River – combination of annual flow delivery, interstate administration, long-term delivery and hydrologic based apportionments.
- a. Mexican Water Treaty – Creates “first call” on the River of 1.5 maf/yr., delivered at the international boundary
    - i. Article 10 (b) – “In the event of extraordinary drought . . . thereby making it difficult for the United States to deliver the guaranteed quantity of 1,500,000 acre-feet . . . a year, the water allotted to Mexico . . . will be reduced in the same proportion as consumptive uses in the United States are reduced.”
    - ii. Colorado River Compact, Article III (c) – “If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any waters of the Colorado River system, such waters shall be supplied first from the waters which are

surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and if such surplus shall prove insufficient for this purpose, then the burden of such deficiency shall be equally borne by the upper basin and the lower basin, and whenever necessary the States of the upper division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d).”

1. Lower Basin View – Upper Basin shares one-half of the burden
  2. Upper Basin View – Lower Basin bears entire burden
- b. Present Perfected Rights
- i. Colorado River Compact, Article VIII – “Present perfected rights to the beneficial use of water of the Colorado River System are unimpaired by this compact.”
  - ii. Defined as “Rights in existence prior to June 25, 1929, the effective date of the Boulder Canyon Project Act.” *Arizona v. California*, 376 U.S. 340, 341 (1963).
  - iii. Quantified in *Arizona v. California*, 439 U.S. 419 (1979). Total more than 4 maf.
- c. Lower Basin Apportionment
- i. Colorado River Compact, Article III (a) and (b) – Apportions right to *consumptive use* of the waters of the Colorado River Basin, 8.5 maf to Lower Basin (including Lower Basin Tributaries)
  - ii. Colorado River Compact, Article III (d) – Upper Basin may not deplete the flow of the Colorado River Mainstem below 75 maf in any 10-year period
  - iii. Colorado River Compact, Article III (e) – “The States of the upper division shall not withhold water, and the States of the lower division shall not require the delivery of water, which cannot reasonably be applied to domestic and agricultural uses.”
  - iv. Apportionment within the Lower Basin, 1928 Boulder Canyon Project Act, 45 Stat. 1057, and *Arizona v. California*, 373 U.S. 340 (1964).
    1. California – 4.4 maf, further divided by the Seven Party Agreement
      - a. Palo Verde, the Yuma Project (Reservation Division), Imperial Irrigation District and Coachella Valley Water District – 1st three priorities -- 3.85 maf
      - b. Metropolitan Water District of Southern California -- 4th and 5th priorities – 1.212 maf
      - c. Imperial Irrigation District, Coachella Valley Water District and Palo Verde – 6th Priority – 0.3 maf
      - d. Remaining land in Imperial Irrigation District – 7th Priority
    2. Arizona – 2.8 maf
    3. Nevada – 0.3 maf
- d. Upper Basin Apportionment
- i. 1948 Upper Basin Compact – Divides the consumptive use available to the Upper Basin, between the states on a percentage basis
    1. Colorado – 51.75%

2. New Mexico – 11.25%
  3. Utah – 23.00%
  4. Wyoming – 14.00%
  5. Arizona – 50,000 AF
- ii. Upper Basin Commission makes factual findings as to consumptive uses and losses.
- e. River Operational Rules
    - i. 1970 Coordinated Long-Range Operating Criteria
      1. Secretary to determine 602(a) storage by Sept. 30 of each year<sup>1</sup>
      2. Objective release from Powell to be minimum of 8.23 maf if:
        - a. Upper Basin Storage Reservoirs active storage forecast is less than the 602(a) storage determined by the Secretary for that year, or
        - b. Lake Powell active storage forecast for that date is less than the Lake Mead active storage forecast for that date.
      3. Lake Mead Operation
        - a. Normal – annual pumping and release from Lake Mead will be sufficient to satisfy 7.5 maf of annual consumptive use in accordance w/the Decree in *Arizona v. California*
        - b. Surplus – apportioned 50% California, 46% Arizona, and 4% Nevada. Secretary to determine “from time to time” when greater quantities are available pursuant to Article II (B)(2) of *Arizona v. California*, after consideration of relevant factors, including:
          - i. Requirements of Art. III (1) of Operating Criteria
          - ii. Requests for water
          - iii. Actual and forecast quantities of active storage in Mead and the Upper Basin Storage Reservoirs
          - iv. Estimated net inflow to Mead
        - c. Shortage – Secretary to determine “from time to time” when insufficient mainstream water is available to satisfy 7.5 maf, after consideration of relevant factors
          - i. Requirements of Art. III (1) of Operating Criteria
          - ii. Storage in Mead
          - iii. Net inflow to Mead
          - iv. Historic streamflows
          - v. Priorities in Art. II (a) in *Arizona v. California*
          - vi. Purposes in Art. I (1) of Operating Criteria
- IV. The implications of drought and long-term climate change
- a. Basis for the Compact – an overly optimistic assumption of long-term water supply (see attached chart).
  - b. Other challenges not foreseen by the Compact negotiators
    - i. Unresolved issues

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<sup>1</sup> The 1968 Colorado River Basin Project Act, P.L. 90-537, Sec. 602(a)(1) and (2) requires that water be storage of water to supply one-half of the Mexican Treaty delivery, if any such delivery is chargeable to the Upper Basin, and to comply with the Upper Basin Compact delivery requirement.

1. Allocation of the Mexican Treaty delivery obligation between Upper and Lower Basins
2. Reserved Rights
  - ii. The emergence of urban demands and tourist/second home developments, ski areas and golf courses
  - iii. Recreational and environmental values
- c. The Colorado River basin has total storage capacity of more than four times the average annual flow in the basin, theoretically offering an array of management options to meet the needs imposed by drought and climate change
- d. Despite the fact that the Upper Basin is not using its entire apportionment, all the water in the Basin has been allocated. There is no “surplus.” Therefore, dedicating water to a new use will take water away from an existing use.
- e. Effects of drought and long-term climate change
  - i. See, generally, *Severe Sustained Drought, Managing the Colorado River in Times of Water Shortage*, Powell Consortium Issue No. 1, 1995 (Arizona Water Resources Research Center, 350 N. Campbell, University of Arizona, Tucson, AZ 85721) – discusses impacts of severe sustained drought in the Colorado River Basin, and alternative policy responses, based on modeling of a 500-year drought, of a 38 year duration.
  - ii. Results under existing operating rules
    1. Lake Powell will be drained, and remain empty for several years.
    2. Lake Mead will be low, but not drained
    3. Consumptive uses in the Lower Basin will be largely unaffected, with the largest effect to the Metropolitan Water District of Southern California
    4. Consumptive uses in the Upper Basin would suffer major losses
    5. Instream or nonconsumptive losses, such as hydroelectric revenue, water-based recreation, environmental protection and salinity control, would be significant
- f. Responses to changes in the assumptions upon which the Law of the River is based
  - i. Status quo (see above)
  - ii. Changes in reservoir operating rules – balancing new effects today against drought protection in the future
    1. Rule curve or reverse equalization
    2. Proportional sharing of shortages
  - iii. Interstate and Intrastate water marketing
  - iv. Monitoring the response in the real world – The California Plan
  - v. Responses in Colorado in the drought of 2002 – modifying the prior appropriation doctrine

**COMPARISON OF CONSUMPTIVE USES, LOSSES, AND WATER SUPPLY  
1922 VS. PRESENT  
COLORADO RIVER MAINSTEM  
(Values in Million Acre-Feet per Year)**

	<b>1922</b>	<b>Present</b>
Reconstructed average virgin flow at Lee Ferry	17.5 <sup>1</sup>	15.0 <sup>2</sup>
Long term reconstructed average		13.5 <sup>4</sup>
Lowest reconstructed ten-year period		9.7 <sup>4</sup>
Lowest ten-year period of record		11.8 <sup>3</sup>
Lower Basin tributary inflow	3.0 <sup>1</sup>	1.4 <sup>5</sup>
<b>Total available water supply (Mainstem)</b>	<b>20.5<sup>1</sup></b>	<b>11.1-16.4</b>
Upper Basin Uses	2.5 <sup>6</sup>	4.2 <sup>7</sup>
Upper Basin Reservoir Evaporation	---	0.5 <sup>7</sup>
<b>Total Upper Basin Uses</b>	<b>2.5</b>	<b>4.7</b>
Lower Basin Mainstem Uses	2.6 <sup>8</sup>	8.0 <sup>9</sup>
Lower Basin Reservoir Evaporation	---	1.8 <sup>10</sup>
<b>Total Lower Basin Mainstem Uses</b>	<b>2.6</b>	<b>9.8</b>
Delivery to Mexico and Welton-Mohawk bypass		1.6
<b>Total Mainstem Uses</b>	<b>6.1</b>	<b>16.1</b>

**Notes**

1. For the period 1903-1922. This was the amount reported by Delph E. Carpenter in his Historical Memorandum In Re Colorado River, and Brief of Law of Interstate Compacts, June 4, 1921 at hearing on H.R. 6821, Judiciary Committee, Colorado House of Representatives. In his Comments to Congress on the Colorado River Compact, Commissioner of Reclamation Arthur Powell Davis estimated the reconstructed flow at 18.1 maf/yr. Cong. Rec., January 30, 1923, pp. 2713-2717.
2. Long term average for the period 1906-1999. Fifty-First Annual Report, Upper Colorado River Commission, Salt Lake City, UT, September 30, 1999.
3. Critical ten-year averages for the periods 1931-1940 and 1954-1963. For the twelve-year period 1953-64, the average annual virgin flow at Lee Ferry was only 11.6 maf. *Id.*
4. Tree ring analysis, The Lowest ten-year reconstructed record was for the period 1584-1593. Meko, Stockton and Boggess, The Tree-Ring Record of Severe Sustained Drought, *Water Resources Bulletin, American Water Resources Association*, Vol. 31, No. 5, Oct. 1995.
5. As used by the Lower Colorado Region, Bureau of Reclamation, informal communication.
6. Report of Delph E. Carpenter, December 15, 1922.
7. Upper Colorado River States Depletion Schedule, 2000. Upper Colorado River Commission.
8. Comments to Congress on the Colorado River Compact, Commissioner of Reclamation Arthur Powell Davis, Cong. Rec., January 30, 1923, pp. 2713-2717.
9. Estimate of 1997 Colorado Water Use, U.S. Bureau of Reclamation, April 30, 1997. However, 1997 is a year of declared surplus. Under a normal year, Lower Basin mainstem uses are limited to 7.5 maf/yr.
10. The Bureau of Reclamation Consumptive Uses and Losses Report, 1981-1985, shows total Lower Basin reservoir evaporation of about 1.0 maf/yr. However, current accounting of the Lower Colorado Region of the Bureau of Reclamation estimates 1.8 maf/yr., informal communication.

Source: James S. Lochhead, *An Upper Basin Perspective on California's Claims to Water From the Colorado River - Part I: The Law of the River*, 4 U. DENV. WATER L. REV. 290 (2001)