

Appendix Y

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- Y.1 February 7, 2006, Arizona Republic, Colorado River States Add Historic Chapter in Water Use**

News Clip:

Call it the most significant Colorado River agreement since the 1922 compact that set specific water allocations for Arizona and six other western states.

Pressured by a six-year-long drought and Interior Secretary Gale Norton, the seven states crafted a thoughtful and reasonable plan last week on how the river should be managed in times of drought.

This was no easy task.

Western water wars are legendary, and the fact that Arizona, California and Nevada in the Lower Basin and Colorado, New Mexico, Utah and Wyoming in the Upper Basin could avoid protracted and costly litigation is a testament to their desire to work through differences.

"It truly merits the term historic to get all seven states on the same page endorsing concepts to deal with some really tough issues," said George Renner, a member of the board that oversees the Central Arizona Project.

From Arizona's standpoint, the toughest challenge in achieving an agreement has been its junior status.

Junior status was the price Arizona paid in 1968 for congressional approval of the CAP: in times of shortage, the CAP's annual supply of 1.5 million acre-feet of Colorado River water would take the first hit.

The pact doesn't change that. But it does try to ensure that any shortage declaration will have, in Renner's term, a "soft landing" and Arizona will have sufficient advance warning.

This measure of protection is achieved by establishing guidelines pegged to water elevation levels at Lake Mead, which stand at 1,140 feet above sea level. If the lake dips to 1,075 feet, water deliveries would drop by 400,000 acre-feet.

If the levels were to fall to 1,025 feet, the hit would be 600,000 acre-feet, the amount that about 1.5 million people use in a year. Any drop below that floor would trigger discussions with the secretary of the Interior to find more common ground.

Arizona would bear the brunt of the shortage, about 70 percent, with Nevada and Mexico shouldering the rest. It's important to keep in mind that drought modeling puts the probability of any shortage over the next 20 years at only 5 percent.

It's also important to understand that were a shortage declared, the likelihood of cutbacks of CAP deliveries to cities is remote.

Delivery reductions to agriculture, which could compensate by pumping groundwater, and halting the state's groundwater recharge program would come first; not municipal customers.

The plan also modifies the way reservoirs Lake Mead and Lake Powell are managed. This flexibility gives a measure of protection to the Upper Basin states, which in dry years may not have to release to the Lower Basin states the required 8.23 million acre-feet out of Lake Powell.

Also suggested are conservation plans and water augmentation programs, such as lining canals, cloud seeding and desalinization, in an effort to increase supplies and, importantly, further delay the day that shortages on the river are declared.

The states have done their part, and they have done it well. But this is just the first step.

Explosive growth in the West and persistent drought conditions are creating new demands on the Colorado River.

The 1922 compact divvied up an annual flow of 15 million acre-feet, and a subsequent treaty with Mexico sent 1.5 million acre-feet south of the border. Experts now don't believe there are sufficient flows to meet those obligations.

In short, the Colorado River likely is overallocated.

It was essential that the states sharing the Colorado River work out their differences through give-and-take and leave parochialism at the door. This they have done, and we applaud them.

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- Y.2 February 2, 2006, Las Vegas Sun, Hope Arises for Future Proposal May End Years of Conflicts Among States Sharing the Colorado River**

News Clip:

After four years of extreme drought in Nevada and throughout the West, the Interior Department in 2003 introduced a program called "Water 2025." The department, under Secretary Gale Norton, feared the long-term consequences of a double calamity: prolonged lack of precipitation and prolonged population growth. Both are continuing today, particularly in Nevada and the six other states that share water from the Colorado River.

By injecting funds and federal water experts into the West's growing problem, the Interior Department hoped that regional crises and conflicts among the states could be avoided. A major strategy under the program was to assure the states that the federal government would listen to any proposals they brought to the table. Another strategy was to encourage -- and if that didn't work, pressure -- the states to begin collaborating with each other to produce the proposals. This strategy appears to have been successful for Nevada and the other Colorado River states. They were warned by the Interior Department that a plan to manage the drought would be in place by the end of 2007 -- with or without their input. As meetings began among the states' water managers, they were all wary of each other and divisions arose. But not wanting a federal plan imposed upon them, they continued with regular meetings. On Tuesday the officials emerged from a meeting in Las Vegas with the news that all seven states had agreed to a proposal. This means the Interior Department, which has the final say on drought management, will be able to start with a document that reflects local concerns.

For Nevada, the proposal means an investment of about \$80 million toward infrastructure improvements that will lead to more water in the Colorado

River system, and more water for state residents and businesses. Altogether, the agreements under the proposal add up to a lot more water for Nevada, nearly double its current allotment from the river.

All of the states' water officials and the Interior Department deserve credit for improving the water outlook. But the whole agreement depends upon a healthy Colorado River. If the proposal is accepted, those who will ultimately deserve the most credit will be those who continue to conserve.

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News Articles

- Y.3 February 2, 2006, Rocky Mountain News, 'Peace for 25 Years' Tentative Agreement Reached on Drought Plan for Colorado River, by Jerd Smith**

News Clip:

Colorado and six other Western states have reached a tentative agreement on a drought plan for the Colorado River, breaking a 10-month deadlock that threatened to erupt in an epic water war.

"We've bought ourselves a measure of peace for the next 25 years," said Jim Lochhead, a water attorney who helped negotiate the agreement and who represents some of Colorado's largest water utilities.

"There will certainly be public debate about this proposal," Lochhead said, but he called it a "historic milestone" comparable to the original 1922 Colorado River Compact and the agreements that led to the construction of Lake Powell and Lake Mead.

The tentative deal provides more protection for Colorado's share of the river and for Lake Powell during dry years, Lochhead said, and gives all the states more flexibility in managing their own supplies.

"No one is in a position to declare victory," Lochhead said. "But it is a victory for everyone, because we continued to work, as opposed to engaging in parochial infighting and litigation. We were very close to potential litigation."

The river, which starts high in Rocky Mountain National Park, provides more than half the water used on Colorado's Front Range and supplies about 25 million people throughout the West.

The new proposal includes commitments to reduce water use in dry years, to manage Lake Powell and Lake Mead jointly, to rebuild delivery systems below Lake Mead to minimize water lost to evaporation, and for the states to

consult with one another before filing lawsuits.

Last April, the states missed a deadline set by U.S. Secretary of Interior Gale Norton to craft a water-sharing plan for the river.

Norton then launched her own effort to develop a federal plan, something that's never been done before.

Experts said the seven-state agreement reached late Tuesday will likely serve as an important template for the federal process.

"I am pleased that the basin states have a preliminary recommendation that they can provide us," Norton said in a written statement.

"I appreciate their dedication to working on a long-term solution, and recognize that it took much time and effort."

Under the 1922 compact, 15 million acre-feet of the river's yearly runoff is divided among the Upper Basin states of Colorado, Wyoming, Utah and New Mexico and the Lower Basin states, Nevada, Arizona and California.

A subsequent treaty provides 1.5 million acre-feet of water to Mexico.

Other agreements bring the total to more than 17 million acre-feet of water that should legally come out of the river most years.

But experts now believe it doesn't have that much to give.

Modern stream flow records indicate the river is generating less water than the compact envisioned, perhaps just 14 million to 15 million acre-feet.

In the five years since the recent drought began, populations have continued to soar, and it's become clear that the river can't sustain the relentless demands on its system without new drought guidelines.

Under the terms of the tentative agreement:

- Nevada, Arizona and California have agreed to reduce water use in dry years when Lake Powell and Lake Mead drop to dangerous lows.
- Colorado, Utah, Wyoming and New Mexico have agreed to cope with slightly lower levels in Lake Powell in normal years in exchange for being able to keep more water in Powell during droughts, a move that protects Colorado and its neighbors from demands for more water from such cities as Las Vegas and Phoenix.

- New operating rules will protect water levels needed to generate power and to protect recreational facilities at Lake Powell and Lake Mead.

- Nevada, Arizona and California - already forecasting shortages - have agreed to look for ways to boost the river's water supplies, including building desalination plants on the Mexican border, building better delivery systems below Lake Mead to reduce water waste, and financing more cloud seeding programs to boost mountain snowpacks.

- And all seven states have agreed to pause to consult with one another before initiating lawsuits. Negotiators warn that much work remains to be done in coming weeks to make sure the states' proposal is finalized and that critical technical issues are resolved. Federal water officials hope to have a draft environmental impact statement ready for public review this fall. Norton wants the final drought plan ready by the end of 2007.

Highlights of proposal:

- Colorado, Utah, Wyoming and New Mexico agree to slightly lower levels in Lake Powell in normal runoff years in exchange for being able to keep more water in Powell during droughts. This protects the states against demands for more water from downstream cities such as Phoenix and Las Vegas.
- Joint operating rules will protect water levels needed to generate power and to protect recreational facilities at Lake Powell and Lake Mead.
- Nevada, Arizona and California agree to look for ways to boost the river's water supplies, including building desalination plants on the Mexican border, building better delivery systems below Lake Mead, and financing more cloud seeding programs to boost mountain snowpacks.
- Nevada, Arizona and California agree to reduce water use in dry years.

By Jerd Smith

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News Articles

- Y.4 February 1, 2006, Salt Lake Tribune, Utah, 6 Other States OK Drought Plan for Colorado River; Water Sharing: Among Other Things, the Deal Dictates the Water Level of Lake Powell and Lake Mead During Shortages, by Joe Baird**

2006 | 02 | Utah, 6 other states OK drought plan for Colorado River; Water
01 sharing: Among other things, the deal dictates the water level of
Lake Powell and Lake Mead during shortages
Salt Lake Tribune

News Clip:

The seven Colorado River Basin states Tuesday apparently overcame a final intramural feud and will send a letter to Interior Secretary Gale Norton this week indicating that they have reached a basic agreement on how the river will be managed under drought conditions.

Some details remain to be worked out. But Upper Basin states Utah, Wyoming, Colorado and New Mexico, and California, Arizona and Nevada in the Lower Basin agreed to forward a document to Norton that will allow the Bureau of Reclamation to proceed with an ongoing environmental study of how future water shortages on the river will be dealt with. Norton had given the states a Feb. 1 deadline to have their proposal included in the study.

The seven states have been meeting regularly since December 2004 to try to reach an agreement. The absence of a deal, all sides agree, probably would lead to expensive and prolonged litigation that could endanger future water projects, such as Utah's proposed Lake Powell pipeline.

Larry Anderson, director of the Utah Division of Water Resources, said he and other water officials representing the basin states believed they had a tentative agreement earlier this month after two days of meetings in Las Vegas. But it took another round of meetings in Vegas on Monday and Tuesday to resolve a battle pitting Arizona against fellow Lower Basin states Nevada and California. The three states met for several hours Monday, and by Tuesday had apparently resolved enough issues to sign on to the letter and document sent to Norton.

"I don't think they've resolved everything to everybody's satisfaction," said Anderson. "But they have resolved a lot of it. Otherwise we wouldn't have come this far."

Arizona has sought changes to the 40-year-old river management agreement that has left it as the junior partner in the Lower Basin, putting it first in line to absorb water shortages in future droughts.

"Arizona cannot accept a seven-states alternative that has within it any harm to us, that would increase the chances for a shortage," Herb Guenther, director of the Arizona Department of Water Resources, told the Arizona Republic prior to this week's meetings.

Under the proposed agreement going to Norton, water delivery to the Lower Basin from Lake Powell will be reduced by 400,000 acre-feet annually when the water elevation at Lake Mead drops to 1,075 feet. That shortage will increase by another 100,000 acre-feet at 1,050 and 1,025 feet, respectively. And the Interior secretary will be called in for what Anderson calls "reconsultation" if Mead's elevation falls below 1,000 feet.

The agreement also will modify and coordinate the operation of Powell and Mead, the basin's two largest reservoirs, to ensure that neither suffers at the expense of the other.

What's next The Department of Interior will go ahead with an environmental study that will include the plan to allocate Colorado River Basin water in times of drought. Utah plans to pursue a pipeline to carry Lake Powell water to the St. George area.

By Joe Baird, staff writer

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News Articles

- Y.5 January 30, 2006, Arizona Republic, River Drought Plan in Peril – Ariz., Calif. At Odds Over Allotment of Colo. Supply, by Shaun McKinnon**

News Clip:

Seven states share the Colorado River, but a final agreement about how to manage the waterway in times of drought may turn on a truce between just two of them: Arizona and California.

A rift between the neighboring states, which have battled over the Colorado since before Arizona joined the union, nearly derailed work on a drought plan agreeable to all seven states. Representatives from the states continue meeting today in Las Vegas to take one last shot at producing such a plan.

If they fail, the Interior Department will move ahead and impose its own water-use guidelines on the states by the end of 2007. That's a best-case situation. The worst case is the one the states fear most, a courtroom standoff that could drag on for years, putting water supplies at risk if drought returns. The original Arizona vs. California case, which began in 1931 and set the river allocations for Arizona, California and Nevada, still reverberates in water discussions.

"If we don't have a plan to address shortages and we get to shortages, then we have chaos," said Jeffrey Kightlinger, general counsel for the Metropolitan Water District of Southern California. "That's not good for any state. I don't think there's an immediate risk . . . but shame on us if we can't get a plan together when there's no crisis."

Arizona and California settled several key issues late last week about how the river's major reservoirs will be operated but were forced to abandon talks on other points, said Herb Guenther, director of the Arizona Department of Water Resources. That means the final plan will cover less ground than the states hoped.

The crux of the disputes, the one between Arizona and California and the ones that reach across the river basin, is who should suffer most if drought leaves the Colorado unable to supply full allotments. The law offers only one concrete answer: Arizona, which agreed nearly 40 years ago to give up senior status to more than half its share in exchange for the Central Arizona Project canal.

California has resisted Arizona's attempts to change that law, arguing that a deal is a deal. Other states have been willing to talk about ways to postpone declaring a shortage as long as possible, thus protecting Arizona, but only until low water levels put them at risk.

The states on the upper river - Colorado, Utah, Wyoming and New Mexico - also want to begin using more of their allotments to help handle growing demands. They want assurances that their supplies will be protected from the three lower-river states: Arizona, California and Nevada.

But before the full-river issues can be addressed, the lower-basin states must reach an accord. Their issues differ widely.

Arizona

With the risk of losing billions of gallons of water from the CAP canal, which supplies Phoenix, Tucson and Pinal County, Arizona is focused squarely on avoiding any official shortage declaration. Shortages would be triggered by specific water levels in Lake Mead, which means the key to Arizona's plans is keeping water in Mead.

"Arizona cannot join a seven-states alternative that has within it any harm to us, that would increase the chances of a shortage," Guenther said. "We haven't asked for anything new in all this, but we don't want to be diminished."

Attempts to rewrite the law have failed in the face of hard-line opposition by California. In the event of a water shortage, California does not want to give up any of its water until Arizona first meets its legal obligations to give up all of its CAP water. California's proposal to store unused water in Lake Mead from one year to the next has further rankled Arizona.

"They wanted to keep water in Lake Mead with their name on it and then take it out when they don't have enough from their in-state water project," said Sid Wilson, Central Arizona Project general manager. "That's not consistent with the rules, and it works to Arizona's disadvantage. It gives California a super-priority for the water. The reservoir is brought down based on their

call."

If California is able to draw water in a dry year and, in effect, use more than its allocation that year, it could trigger a shortage, Wilson said. Under the law, if water isn't used in a given year, it belongs to the entire system, he said, a law California took advantage of when Arizona wasn't using its entire allocation.

"Our position is, there is no way, no way, that Arizona is going to be subject to greater risk just to assure California that they will never take a cut or that they get an advantage for storing water in the system that they could have taken," Wilson said.

Arizona officials have also lobbied hard for an array of schemes to augment the river's flow or cut losses due to waste. The ideas proposed range from cloud-seeding in the high Rocky Mountains to adding reservoirs at the end of the river, capturing water lost to inefficient management.

California

From the other side of the river, California officials view their proposals as more than reasonable. California worked hard for years to develop an in-state plan that limits its use of the Colorado River to its legal allocation of 4.4 million acre-feet. The state not only met that goal early, but it has also passed up opportunities to take extra water in recent years.

"We just made one tremendous hurdle," said Kightlinger of the Metropolitan Water District. "We're not saying 'no shortage,' but we do expect the other lower-basin states to show the ability to work within the 1968 law and work within the shortage guidelines."

The 1968 law assigned the lowest priority for water to the CAP Canal and any other user who received an allotment after 1968. Kightlinger said asking Arizona to comply with the law is no different than when "the other six states were beating up on us" over California's excessive water use.

California water agencies spent a lot of time and money developing the in-state plan, and they want to protect it, he said. The other states should see value in that plan because if it collapses within California, the effects could ripple all the way up the river, creating new conflicts.

Storing unused water in Lake Mead, California officials argue, is nothing more than good water management.

"We would like to see a little more flexibility in the system," Kightlinger said. "If you get X amount in one year and can't use it, you just end up moving it from one storage reservoir to another. Maybe it makes sense to store some in the system."

Nevada

Nevada holds the wild card. Metropolitan Las Vegas relies on the Colorado River for about 90 percent of its water supply and has nearly exhausted its small share of the river. Southern Nevada officials have agreed to share shortages with Arizona, but they also have offered to pay for a new storage reservoir that could help California.

One of the state's newest plans could find some support across the basin. Southern Nevada plans to import groundwater from rural areas to the north to supplement its Colorado River supply.

Because almost all the wastewater and runoff from the Las Vegas area drains into Lake Mead through a single wash, that groundwater will wind up in the lake.

Nevada wants to be able to take the water back out of the reservoir, using a system of return-flow credits that allow the state to reuse treated river water.

"It's something the original drafters of the compact and the later decrees never envisioned," said Patricia Mulroy, general manager of the Southern Nevada Water Authority. "But the system benefits."

In exchange for the groundwater-return plan, Nevada would agree to postpone plans to take water from the Virgin River, a tributary of the Colorado. Upper-river states objected to that plan and threatened to take the issue to court, a dispute that could also cost Arizona the water it takes from Colorado tributaries.

Avoiding a war

Mulroy believes the states should consider any plan that would avoid a court battle.

"For any one of the states to go to the Supreme Court is a declaration of war," she said. "Once you do that, it shuts down the talks and the resulting damage takes decades to overcome. We're still not over Arizona vs. California. All the creative solutions won't get any kind of airing if the

lawyers are at each other's throats in a court."

A seven-state proposal is due to the Interior Department this week. The Bureau of Reclamation plans to begin developing a range of alternatives for a shortage-sharing plan almost immediately, with a goal of releasing a first draft by March.

"Those alternatives have to be very specific," said Bob Johnson, director of the bureau's Lower Colorado division. "We're going to listen to what the basin states tell us and formulate the alternatives. If they haven't given us enough detail, we'll put the detail in ourselves. We have to move on."

There's no guarantee the bureau will accept the seven-states' plan verbatim even if it arrives on time, Johnson said, though the agency would prefer a proposal with ample detail and strong, unanimous support.

Arizona's Guenther believes a full-basin plan can be finished this week if the critical lower-basin issues are resolved. But he said it's also possible that more than one proposal could be forwarded.

"If we don't get agreement from the states, you might see an upper-basin plan and maybe one from the lower basin or from all the states down here," Guenther said.

"If that happens, I know you'll have an Arizona alternative. Arizona must not be harmed in any way."

Shaun McKinnon

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News Articles

- Y.6 December 28, 2005, Salt Lake Tribune, Colorado River Users Anticipate Compromise; January Meeting: Will the Upper and Lower Basins Agree?, by Joe Baird**

2005 | 12 | 28 | COLORADO RIVER SUPPLY: Colorado River users anticipate compromise; January meeting: Will the upper and lower basins agree?
Salt Lake Tribune

News Clip:

A small group of water officials from seven Western states will gather in a meeting room at a Las Vegas hotel next month to thrash out the details of what could be a precedent-setting agreement determining how Colorado River water will be shared during times of drought.

Whether they will actually pull it off, though, remains to be seen.

Water officials from the seven Colorado River Basin states - Wyoming, Utah, Colorado and New Mexico in the upper basin; Nevada, Arizona and California in the lower - were publicly hopeful, even optimistic that they would strike a deal following the recent Colorado River Water Users conference, also held in Las Vegas.

"I'll be surprised if we don't reach an agreement," says Larry Anderson, director of the Utah Division of Water Resources. "I don't know that we'll have a formal deal, but we should be close enough that we can go back to our states and present it for approval.

"There are many reasons for both the upper basin and lower basin states to support this and get it done."

If an accord is reached, it will be forwarded to the Interior Department as part of a federal environmental impact study that will determine future shortage criteria for the river. It is widely assumed that the Interior will take the states' agreement and use it as a template for the EIS, which is scheduled to be finished by the end of 2007.

Failure to forge an agreement, however, would almost certainly result in litigation. Interior officials have vowed to implement new shortage criteria by 2007 regardless of whether the states are on board. Water officials believe such an outcome would spawn upper versus lower basin lawsuits, costing millions of dollars and stalling ongoing and future water projects indefinitely.

Such a bleak scenario is not without an upside.

"The threat of litigation in and of itself is driving a lot of the solutions," says Assistant Interior Secretary Mark Limbaugh.

Yet, there still are some significant hurdles to be cleared before a state-brokered settlement can be placed in the hands of Limbaugh's boss, Interior Secretary Gale Norton, by the February deadline. Left to be resolved:

- How to make any new agreement reasonably binding, short of amending the 1922 Colorado Compact or creating new federal legislation, alternatives the states would rather not pursue.
- How large a water reduction Arizona will accept under shortage conditions as the junior partner in the lower basin. Computer models of low-reservoir conditions run by the Bureau of Reclamation have narrowed the options and Arizona has presented a proposal. But as of the conference meeting in Vegas, it still had not been accepted.
- How to jointly manage and balance water storage in the Colorado River's two largest reservoirs - Lake Powell in the upper basin and Lake Mead in the lower basin. Powell drains more quickly during a drought, but also rises faster when snowpack is plentiful. Mead tends to drain and replenish more slowly. The basin states are closing in on a formula, but still need to finalize it.
- Sorting out how southern Nevada, which has just about tapped out its Colorado River allotment, will tide itself over during the next six or seven years while projects to tap groundwater resources elsewhere in the state are being developed.

That's not all.

Upper basin officials want assurances from the lower basin counterparts that they won't demand a full allocation - 8.23 million acre-feet - that would result in a reduction of their own water supply. The upper basin is also seeking lower basin support for their future water development projects, such as Utah's planned Lake Powell pipeline, which must snake through Arizona between the reservoir and its St. George destination. The lower

basin is already considered to be fully developed.

The basin states are also wrestling with the thorny issue of tributary use. Nevada, for instance, wants to take water from the Virgin River to supplement its Colorado River allocation, but has run into opposition from upper basin states. Utah has been an exception here, because of its own use of that tributary.

And all of the basin states are trying to coordinate strategy for augmenting Colorado River water through additional storage capacity and techniques such as cloud seeding, desalinization and the lining of canals to minimize seepage. Battling water-sucking invasive plant species, such as tamarisk and Russian olive, is also part of that agenda.

Finally, California would like a little flexibility in drawing down its annual allotment of 4.4 million acre-feet from Lake Mead. Jeff Kightlinger, general counsel for the Metropolitan Water District of Southern California, says the state, under the current agreement, must lap up its entire allotment by the end of the year, whether it's all needed or not.

"We're pumping until midnight on Dec. 31. It doesn't make any sense," Kightlinger said. "It draws down Mead and it stresses the system. It's a use-it-or-lose-it approach. Why not leave it in there until the following summer? But right now, the rules don't allow for that."

Limbaugh, the assistant Interior secretary, says the basin states have some things going for them.

First, he noted, both Powell and Mead were essentially full when the five-year drought arrived in 1999. Second, the seven states were able to rely on newly adopted interim guidelines to determine how much surplus water use would be reduced in the lower basin during bountiful water years - a formula that provided a model for the current negotiations.

But federal officials also believe it is crucial for the states to agree on shortage conditions now.

Even though the 2005 water year provided above-average precipitation - way above average in the lower basin - Limbaugh notes that "we don't know if we're at the end of a five-year drought or in the middle of a 15-year drought."

Like other water officials, Limbaugh says he is optimistic the states will forge an agreement, based upon what he witnessed during upper and lower

basin meetings during the Colorado River Water Users conference.

But he also says the Interior is prepared to move on even if there is no agreement.

"In order to stay on schedule with [the environmental study], we need to see all the plans in February," he said. "If it's not there, we'll be disappointed, and the alternatives will be analyzed. But that remains to be seen. I'm very encouraged the states will be able to submit a plan at the proper time."

By Joe Baird, staff writer

Appendix Y

News Articles

- Y.7** September 30, 2005, Casa Grande Valley Newspapers, States Facing Complexity of Demands on Colorado River Water Usage; Like Dat Ol' Man River, Talks on the Future of the Colorado River and Who Gets How Much Water Keep on Rollin' Along, by Harold Kitching

2005 | 09 COLORADO RIVER SUPPLY: States facing complexity of demands
| 30 on Colorado River water usage; Like Dat Ol' Man River, talks on
the future of the Colorado River and who gets how much water
keep on rollin' along
Casa Grande Valley Newspapers (Arizona)

News Clip:

"This is very, very intense for the department right now," Karen Smith, deputy director of the Arizona Department of Water Resources, told this month's meeting of the area Groundwater Users Advisory Council. "Our director, Herb Guenther, is very engaged in our efforts to protect Arizona's allocation of the Colorado River.

"You can't pick up the newspaper, I think perhaps once every other week there's a story on the Colorado River and the tensions among the seven basin states. That has not abated.

"Week to week," Smith continued, "it seems to me that our director and our staff working on this are in telephone conversations with Nevada, with California, with the Upper Basin states, and so I would just simply share with you we are working very hard. I'm confident that at the end of the day we'll prevail and that we will have some kind of a working agreement among the seven Basin states, but we are preparing for any eventuality."

The Colorado River Basin was divided into the Upper Basin - Colorado, New Mexico, Utah and Wyoming - and Lower Basin - Arizona, Nevada and California.

The talks and negotiations among the states are especially important to the Casa Grande Valley because of the 7.5 million acre-feet of water available to the Lower Basin, the Central Arizona Project has the most junior priority. If water supplies are below normal, Arizona must curtail use of its 1.5 million

acre-foot CAP entitlement first.

The seven Basin states are meeting every other month, Smith said.

"There is a proposal that the secretary of Interior needs to receive about how the states are going to share the shortages on the Colorado River," she continued. "So that is the immediate issue before the seven Basin states that's really driving all these conversations about the law of the river.

"Hopefully, the seven Basin states will come to some agreement on how that shortage will be shared, as well as who owns the delivery to Mexico."

The Basin states last month sent a joint letter to Gale A. Norton, the Interior secretary, outlining some of the strategies being developed for operating Lake Powell and Lake Mead under low reservoir conditions.

The states said the letter was in response to Norton's letter in early May saying that Interior would develop Lower Basin shortage guidelines (expected sometime next year) and discuss management options for lakes Powell and Mead.

For more than a year, the letter to Norton said, the Basin states, the Bureau of Reclamation and others have discussed a variety of possible options to combat the drought throughout the Basin while minimizing the extent and duration of shortages in the Lower Basin and maximizing the protection that Lake Powell gives to the Upper Basin.

Along with that would be guidelines for proportionate sharing of shortages by Mexico, covered by the Mexican Treaty of 1945.

"In addition," the letter to Norton said, "the Basin states are exploring a larger, more comprehensive management arrangement. This arrangement would avoid political and legal confrontation over the meaning of fundamental aspects of the Law of the River; supplement the supply of Colorado River water; develop acceptable interim shortage guidelines for the Lower Basin; and realize a common goal to implement management strategies that might allow more efficient, flexible, responsive and reliable operation of the system reservoirs for the benefit of the states of both the Upper and Lower Basin.

"The states regard such an arrangement as important to the continued development and use of the Colorado River resource in both the Upper and Lower Basins. The secretary (Norton) should recognize that the coordinated management and shortage strategy outlined in this letter is recommended only on the condition that the other aspects of that more comprehensive

management arrangement can be finally agreed upon and implemented by the states and the secretary."

The states proposed that any reservoir strategy developed by Norton be on an interim basis only.

"The interim operations should be tied to the implementation of additional measures that will accomplish the dual objectives of supplementing the supply of the Colorado River, and operating the existing infrastructure in the system more efficiently," the letter said.

"The elements set forth in this letter are interrelated and represent an integrated strategy for managing the Colorado River into the future. Therefore, all of the elements of this strategy will need to be implemented. In addition, practical resolution of differences among the Basin states regarding mainstream and tributary development will be required."

That strategy proposed by the states is three- part:

-- The first is coordinated reservoir management and Lower Basin shortages.

"After consultation with water users and completion of the analyses," the letter said, "the Basin states will recommend conditions under which (Norton) may declare that insufficient water will be available for release from Lake Mead to satisfy 7.5 million acre-feet of use from the main stream in the Lower Basin, and a delivery of 1.5 million acre-feet to Mexico.

"The Basin states will also recommend reductions in deliveries that can be reasonably managed by the states and water users during the interim period. A plan to manage the shortage condition and to allocate reductions among water users within the Lower Basin will be developed and recommended to the secretary.

"Acceptance of the recommendations is an essential condition for the success of an integrated strategy for the operation of the Colorado River."

-- The second part is system efficiency and management.

That would include beginning a program to eradicate high-water-use tamarisk trees throughout the basin, developing storage in All- American Canal Drop 2, dredging sediment from behind Laguna Dam, developing storage at Wellton- Mohawk and having full utilization of Senator Wash Reservoir.

"Additionally," the letter said, "the states are discussing measures to better

coordinate daily system operations and water orders of contractors in the Lower Basin to prevent the loss of water. It will be necessary for the Interior Department to take all necessary actions to account for and replace water that has been released to Mexico through the bypass drain since 2004, and continue to implement measures that minimize the over-deliveries of water to Mexico.

"It will also be necessary for the Interior Department to aggressively pursue elimination of unauthorized uses of Colorado River Water in the Lower Basin."

-- The last part is augmentation of water supply.

That would include working with the Interior Department on a cloud-seeding program in both the Upper and Lower basins and to again look at desalinization technology.

"The states are discussing programs under which states may provide, and get the benefit of individual supply augmentation," the letter said, "including desalination; groundwater developed and conveyed to add to the Colorado River system; tributary water that has been used for irrigation that is retired to permit its flow into the river; temporary consumptive use of additional water from Lake Mead; and wastewater that is generated by the direct use of any water and that is permitted to flow into the river. The basin states will work with (Norton) to explore additional methods of augmentation."

By Harold Kitching, Staff Writer

Appendix Y

News Articles

**Y.8 September 20, 2005, Las Vegas Sun, States Meet Over Colorado River, by
Launce Rake**

News Clip:

The tough task of managing the Colorado River by committee continued with a Monday morning meeting of representatives from the seven states that use the river resource.

'A mid-year review of the annual operating plan of the Colorado River' might sound boring even for a collection of river-policy wonks, but the issues facing the group, which met at McCarran International Airport, could affect the critical issue of how much water is available for Las Vegas and its neighbors. Discussion focused on how much water to send to Lake Mead, which stores water for California, Arizona and Nevada.

Representatives from California and Arizona suggested striking the language calling for the mid-year review from the annual river plan. Their counterparts from the federal Bureau of Reclamation, the Department of Interior agency that actually oversees river management, and the four upper basin states, want to keep the review in the annual document.

The conversation comes as various parties, among them the four upper-basin states -- Colorado, Wyoming, Utah and New Mexico -- plus Arizona and Nevada have threatened legal actions to protect their water supplies. The upper basin states fear that the trio of lower basin states, Arizona, Nevada and California, could, under an existing interpretation of river law, demand 8.23 million acre-feet of water be delivered, regardless of river conditions.

Such a demand could mean cuts to the amount of water available to upper basin users. Last year the upper basin states wanted Interior Secretary Gale Norton to use the mid-year review to cut the annual operating plan's scheduled delivery of water from the upper reservoir, Lake Powell, to Lake Mead. Norton did not reduce the water deliveries last year, but Larry Dozier,

deputy general manager of the Central Arizona Project, which brings Colorado River water to consumers in Phoenix, worries that the mid-year review could open the door to another effort by the upper basin states to reduce the releases from Lake Powell.

Dozier noted that the states and Interior Department officials are simultaneously working on rules that would govern how much the states would get from the river if drought further diminishes reserves from both lakes Mead and Powell. Dozier said those discussions should produce any rules for cutting the amount released from Powell to Mead.

'We're corrupting the process,' he said. 'Certainly, if we had extreme hydrologic events between now and next spring, we'll take a second look at things. We can initiate discussions with the secretary of Interior.'

Ultimately Norton and the Interior Department will decide whether to include the mid-year review of the annual operating plan. Nevada representatives to the group discussions, which have become more frequent and more important as drought threatens the river, said they don't want to tangle with the secretary. 'We recognize the secretary's authority,' said Ke Albright, Southern Nevada Water Authority resource director.

Another man who recognizes the secretary's authority is Robert Johnson, who as Bureau of Reclamation regional director, works for Norton. He said Norton, with or without a mid-year review, can cut the amount of water flowing from Powell if it is necessary to protect supplies or power production in the upper reservoir.

'The secretary made it clear in her letter to the basin states (last spring) that she does have the authority to do a mid-year review, to reduce the 8.23 (million acre-feet),' Johnson said. 'We've made it clear we think we can do it.'

Johnson said federal officials would continue to take suggestions from the states on how to modify the plan through November. The states and federal officials also will meet again in November to discuss rules on how to handle potential cuts because of the drought.

The annual operating plan is finished before the end of the year.

Launce Rake

Appendix Y

News Articles

Y.9 August 25, 2005, Arizona Republic, Arizona Braces for Water War: \$1.5 Million Sought to Fight Colorado River Lawsuits, by Shaun McKinnon

2005 | 08 | 25 Arizona braces for water war: \$1.5 million sought to fight
Colorado River lawsuits
The Arizona Republic

News Clip:

Arizona has created a legal defense fund to protect its Colorado River allocation in the event a simmering dispute among other states flares into a regional water war.

The state hopes to raise at least \$1.5 million in the coming months to prepare for possible lawsuits, though officials admit costs could climb many times higher if the dispute spills into a courtroom.

At stake is Arizona's ability to grow. A worst-case loss in court could force the state to give up half of the water that flows through the Central Arizona Project Canal and leave it in reservoirs to benefit upstream users or satisfy a treaty with Mexico. Most of that water is now reserved for cities in Maricopa, Pima and Pinal counties or set aside to settle claims with Indian tribes.

Representatives from all seven Colorado River states will meet today in San Diego to consider a plan that might solve some of the issues without legal action. The plan is aimed at wringing every possible drop from the river even if it means punching holes in clouds.

The states hope to submit their proposals to Interior Secretary Gale Norton next week as part of a larger effort to create a long-term drought plan for the Colorado. Drought and growth have pushed the river past its limits and renewed tensions among the states, whose bickering dates back decades.

Without a workable plan, "litigation is inevitable at some point," said Herb Guenther, director of the state Department of Water Resources. "We've been staring at it for a long time. But we're trying to avoid the head-on

collision and see if we can't work together on these issues."

Guenther's agency ponied up the first \$200,000 for the defense fund, and the state will ask boards governing the CAP and Salt River Project to contribute similar amounts. Guenther said a fund-raising committee will then seek donations from others with a stake in the river, including cities and home builders.

The state has also retained a lawyer who specializes in water to help with legal research and planning.

The decision to begin raising money for legal action pushes Arizona further into a battle that it had largely avoided in recent years, though the state is certainly no stranger to river wars. Arizona vs. California, a landmark case that helped define the way the Colorado is managed, grew out of Arizona's refusal to ratify the original river compact.

"The Colorado River is extremely important to the state of Arizona," said John Sullivan, associate general manager of SRP's water group and a member of the fund-raising committee. "When other states begin to make noises about threatening Arizona's supply, I think the whole state needs to get involved."

The threat stems from arguments over how the river and its tributaries are divided among users. In states along the upper river, which include Colorado, Wyoming, New Mexico and Utah, water taken from tributaries is counted against the states' shares.

In states on the lower river - Arizona, Nevada and California - tributaries are not included in the accounting. That means Arizona, the primary beneficiary to the difference in rules, can use water from the Salt and Verde rivers, for example, and still take its full share of the Colorado.

Arizona won the tributary issue during negotiations over the original Colorado River compact, the set of laws and agreements that governs the river. But, in recent years, Colorado and other upper river states have argued that the lower river states have abused the rule and, as a result, take more than they should.

What may force the argument to the table is a plan by Nevada to divert water from the Virgin River to thirsty Las Vegas, which has exhausted its Colorado River allocation. The Virgin flows into the Colorado at Lake Mead.

Officials from Colorado and Wyoming protested the proposal, telling federal

regulators it would rob the Colorado River of a significant amount of water. Those states say that, because the Virgin flows into the Colorado, any water taken from it should be counted against Nevada's share.

Arizona officials fear that, if the dispute over the Virgin River lands in court, the upper river states could demand that other states account for water taken from their tributaries. In addition, the upper river states could ask the court to force the lower river states to deliver all the water that Mexico gets from the Colorado, an obligation all seven states now share.

State officials believe as much as 750,000 acre-feet could be lost. Because the CAP holds the most junior rights to the river, the water would be taken from the canal, leaving it at half-strength. (An acre-foot covers an acre to the depth of 1 foot, or 325,851 gallons. It would meet the needs of a family of five for a year.)

CAP officials believe the seven states can forge an agreement and avoid court, but they acknowledge the risk.

"We all have something at risk when we litigate," said Sid Wilson, the CAP's general manager. "If we could work together on a program of management, we could all be winners for a good long while."

The plan under consideration today would focus on augmenting the river's flow, adding water by seeding clouds, removing non-native vegetation such as salt cedar, adding storage on the lower river and simply managing the water more efficiently.

Wilson said he is confident such an approach could add 1 million acre-feet of water or more per year, easing the pressure on the lower river states.

Pat Mulroy, general manager of the Southern Nevada Water Authority, said what is happening now could be "a lot of saber-rattling," but she said Nevada can't just do nothing.

"It would show a real failure on everyone's part if we end up in court," she said. "If we're pushed, we may not have a choice. Given what our resource picture is, we have no choice but to be dogged."

Colorado created its own legal fund earlier this year and staked out its position that the lower river states, Arizona in particular, have taken more than their share of Colorado River water. Officials there have softened their public stance and have pledged to work on a cooperative plan.

"We believe that we water professionals should be able to do a better job of managing the river than leaving it up to a judge or a court," said Scott Balcomb, Colorado's representative on the Upper Colorado River Commission. "Our thrust right now is to attempt to get some kind of a seven-states agreement in place"

"(Still), I don't blame Arizona for being concerned about the situation that is unfolding," he said.

"My boss was quoted in the Colorado papers indicating that if we needed to, we would have our own legal defense fund ready. Being ready to litigate, if that turns out to be the only option, is only prudent. None of us is gambling on an agreement."

Shaun McKinnon

Appendix Y

News Articles

- Y.10 June 9, 2005, The Vail Trail, A Colorado River Tug-of-War; Norton Ruled in Favor of Lower Basin States, but More Problems are Sure to Come, by Matt Jenkins**

2005 | 06 | 09 | COLORADO RIVER SUPPLY: A Colorado River tug-of-war; Norton ruled in favor of lower basin states, but more problems are sure to come
The Vail Trail (Colorado)

News Clip:

In the 83 years since representatives of the seven Colorado River Basin states first divvied up the river's water, there's always been enough to meet the states' needs. Not anymore. A relatively wet winter has done little to offset five years of the worst drought in the region's recorded history, and Lake Powell and Lake Mead, the river system's "backup batteries," are at less than half of their combined capacity.

Representatives from the seven states are squinting hard at the fine print in the 1922 Colorado River Compact and arguing about what, exactly, will happen when there's not enough water to go around.

A lot is at stake: Twenty-five million people depend on water stored behind the Colorado River dams, which are operated by the federal Bureau of Reclamation. If water levels drop low enough, U.S. Secretary of the Interior Gale Norton will declare a "shortage" on the river. The Central Arizona Project, which supplies water to Phoenix and Tucson, and Las Vegas, Nev., will be the first to lose their shares. If the drought deepens, Denver and its suburbs, which draw water from the Colorado River across the Continental Divide, may not be far behind.

Last December, Secretary Norton directed the seven states to come up with a plan for weathering a continuing drought. She warned that, without agreement among the states, she would be forced to impose new federal rules that would reduce water deliveries. That ultimatum touched off a series of meetings between the states this spring. But at the end of April, the talks ended in stalemate.

All eyes turned to Norton, who did something no one expected: She blinked.

Low-flow negotiations

At the center of the struggle is Lake Powell, the uppermost of the two reservoirs. The Upper Basin states - Colorado, Utah, Wyoming and New Mexico - use the reservoir to meet water-delivery requirements to the Lower Basin states - California, Arizona and Nevada - and Mexico during dry years, rather than cutting off their own users.

During the meetings this spring, Colorado and Arizona, which under the complex calculus of the law of the river have the most at stake, fought a tug-of-war over how much water should be released from Lake Powell.

Traditionally, the Bureau of Reclamation releases 8.23 million acre-feet of water every year from Lake Powell downstream to Lake Mead. (One acre-foot of water is about 326,000 gallons, a year's supply for a family of four.)

But in response to the drought, late last year Norton pledged to review the water conditions this April and determine how much water to release through the end of September.

The Upper Basin states, citing a long-standing difference in interpretation of how the river should be "operated," argued that Norton should reduce releases below 8.23 million acre-feet. They pointed out that the Lower Basin is already getting plenty of water, thanks to the first wet year since the drought began, which pumped twice as much as normal into Lower Basin tributaries.

"The release of 8.23 million acre-feet is not a number required in the compact," says Don Ostler, the director of the Upper Colorado River Commission. "It's just a number that the Bureau developed ... in about 1970." Upper Basin states maintain it's simply a rough average that includes an ample cushion to ensure that downstream users won't be shorted.

But Arizona and the other Lower Basin states argued for the standard 8.23 million acre-feet release. That would make more water available to Arizona, which could "bank" much of its share in underground aquifers for use in the future, as well as ensuring that Las Vegas' water intakes in Lake Mead actually stay below the water.

The meetings between the various state representatives this spring only hardened their differences. Arizona Department of Water Resources director Herb Guenther says that, at one point, "We were going to hire a

plane and tow a banner that said '8.23 or Bust' over Hoover Dam." "Discretion," he says, dictated otherwise; he simply showed up at the meeting brandishing a gag "8.23" sign.

Betting against the future

Finally in late April, after the states failed to come up with a plan, they turned to Secretary Norton. On May 2, citing the slightly above-average snowpack this winter, Norton announced that the Bureau of Reclamation would deliver the full 8.23 million acre-feet this year.

The wet winter has, indeed, pushed the risk of a shortage declaration off to at least 2008. But long-term river flow models based on tree-ring studies show that the likelihood of continued, severe drought is fairly high. While nobody will be shorted water this year, Norton's decision has placed the Upper Basin states at greater risk in the future by eroding more of their drought hedge in Lake Powell.

By Matt Jenkins, a High Country News (HCN)

Appendix Y

News Articles

- Y.11 April 28, 2005, Salt Lake Tribune, Norton Holds Tap on Lake Powell; States Still at Odds: Interior Secretary to Decide Flow of Colorado River, by Joe Baird**

2005 | 04 | 28 Norton holds tap on Lake Powell; States still at odds:
Interior secretary to decide flow of Colorado River
Salt Lake Tribune

News Clip:

The water is in Gale Norton's hands now.

Ending weeks of mostly fruitless discussions, the seven states along the Colorado River have reached a stalemate over how the river should be managed in the midst of a drought. Specifically, the upper- and lower - basin states are at odds over how much water should be released downstream from Lake Powell this year and have left it to the Interior secretary to make the call - which she is expected to do by Friday.

"We finally agreed that we could not come to a consensus," Larry Anderson, the director of Utah's Division of Water resources, said Wednesday.

"We're all friends," he added. "But they know and we know that these are tough decisions, and because of the drought, we're going to have to resolve them."

The upper-basin states - Colorado, Wyoming, Utah and New Mexico - have asked for a reduction in the 8.23 million acre-foot allotment of water they deliver annually to Nevada, Arizona and California in the lower basin, citing the chance to begin refilling Lake Powell after six years of drought. Snowmelt into the upper basin of the Colorado is forecast to be 107 percent of normal this year.

But the lower-basin states have balked, arguing that because of the generous snowpack, there is more than enough water for a normal release. Any reduction would short Lake Mead, their largest source for water storage. And that could ultimately lead to a legal challenge.

The seven states - which formed the Colorado Compact in 1922 - have been meeting regularly since last December, when Norton ordered them to devise their own drought management plans for the river. But little headway has been made, and after no agreement was forged during Tuesday's final gathering in Las Vegas, the states officially handed off the issue to the feds.

"The idea was that the states would develop some middle ground," Tom Werner, an assistant secretary with the Department of Interior, told the Rocky Mountain News.

"We clearly didn't get there."

Anderson says the upper-basin states have never formally asked that a specific amount of Lake Powell water be held back. But Bureau of Reclamation officials provided two possible scenarios in Las Vegas - one in which the upper basin keeps an extra 200,000 acre-feet, another in which 500,000 acre-feet is withheld.

If Norton were to adopt the smaller figure, Anderson says, Powell would rise an additional two feet above the 45 to 50 feet it is projected to climb this year. Adopting the larger figure, the reservoir would go up an additional five feet. Powell is currently filled at just 33 percent of capacity.

"We've got an opportunity here," said Anderson. "All we're asking is that the secretary leave a little extra water in Powell, just in case this is a wet year in a continuing drought cycle. It would give us a little more security; help ensure we don't drop below the power [intakes] at Lake Powell. We think the drought justifies it."

But that opinion is not shared below the Glen Canyon Dam. At least not now.

"If the drought had worsened, we were open to a lower release. But we had a wetter-than-average year and [Powell and Mead] will refill to almost an identical capacity," said Vince Alberta, spokesman for the Southern Nevada Water Authority. "Our view is we don't need to do this right now. This is not the right time to make a change how the reservoirs are operated."

Alberta downplayed the possibility of a legal challenge should Norton rule in favor of the upper basin. But he didn't rule it out, either.

"Let's get there and then see what happens," he said. Water issues

The Colorado River's four upper basin states (Colorado, Wyoming, Utah and Arizona) have called for a reduction in the amount of water released from

Lake Powell to Nevada, Arizona and California in the lower basin because of water losses incurred during the drought.

The lower basin states have balked at the proposal, citing above-average precipitation during the winter months.

Interior Secretary Gale Norton will make a decision about the Powell release by the end of the week, perhaps igniting a legal challenge.

By Joe Baird, staff writer

Appendix Y

News Articles

Y.12 December 31, 2004, Denver Post, Right Move on West's Water

News Clip:

Interior Secretary Gale Norton has taken a much-needed step to prevent chaos if the drought that's haunted the West for five years doesn't loosen its grip. She and her top aides recently told the seven states that use the Colorado River to come up with a shared drought response plan by April, or else the federal government will write one.

For Colorado, the stakes are high. Even in years when the West gets normal rain and snowfall, there isn't enough water in the Colorado River to meet all the demand. Major problems have been avoided because a 1922 legal agreement, called the Colorado River Interstate Compact, allocates the stream's water among four upper basin states, Colorado, Wyoming, Utah and New Mexico; and three lower basin states, Nevada, Arizona and California. The pact has worked largely because, even during past droughts, the lower basin could get its full allocation by drawing down water in Lake Mead and Lake Powell.

That system is now at risk. Water levels in Powell and Mead are historically low, yet the lower basin states - and Mexico, too, which also taps into the Colorado River - are still taking water at pre-drought rates. The annual difference between how much water is being drained and how much is needed to refill Lake Mead, for example, is about a million acre-feet, or three times what Denver uses in an average year. At that pace, even if the West gets normal rain and snow in coming years, Mead will never return to its previous levels.

If the water continues to drop, the hydropower station at Hoover Dam may stop making electricity, and Las Vegas won't be able to use its existing intake pipe to bring water to its citizens.

In such an extreme situation, the lower basin could issue a "call" on the river, demanding that the upper basin let more water flow downstream.

That could mean Colorado would have to stop diverting water east over the Continental Divide, a move that could severely reduce supplies to Denver, Aurora, Colorado Springs and other communities that pump from the Colorado River's tributaries. Lake Dillon and other Front Range reservoirs might be particularly at risk because they were built after the 1922 compact was signed.

Colorado leaders vow they'd fight such a call. They believe that even under the 1922 agreement, the federal government can't order a user like Denver to shut down parts of its water system, because the compact gives the interior secretary clout only over water use in the lower basin.

It's a nice legal theory, but it'd be better if it never had to be tested. A legal fight would be long, costly and bitter, and there's always a risk that Colorado and the upper basin might lose.

The key to avoiding a crisis is to reduce the rate at which lakes Mead and Powell are being depleted. All states should have trimmed use years ago. But while Colorado cities such as Denver and Aurora imposed water use restrictions long ago, the lower basin states by and large have not. Arizona has been particularly profligate.

Norton clearly wants to avoid chaos in Western water use. During 2002's record drought, she ordered California to stop using more than its legal share of Colorado River water. She also brokered a deal among feuding California water users. Then, about a year ago, she told the lower basin states to come up with a plan to maintain water levels at Mead and Powell. They didn't.

So now, Norton has given the lower basin the April deadline to craft a drought strategy or else she'll impose one on them. The order is designed to get an action plan in place before the arrival of another summer and maximum demand on the Colorado River. Her move may be the only way to make the lower basin face reality.

Appendix Y

News Articles

**Y.13 December 11, 2004, Rocky Mountain News, State Preparing for Water Battle,
by Jerd Smith**

News Clip:

Colorado will spend as much as \$2 million in the next two years to build a legal war chest shoring up its rights to the drought-plagued Colorado River.

The new initiative comes as Lake Powell and Lake Mead - the river's giant storage ponds - have reached historic lows, triggering anxiety over future supplies from Los Angeles to Denver.

"About a year ago the people at the Colorado Water Conservation Board began sounding the alarm, saying we need to move to protect ourselves, and I agreed," said Russell George, executive director of the Colorado Division of Natural Resources. "Essentially we're building the best legal case that Colorado can have so that we presumably prevail when it comes down to making decisions.

"I think we have a couple of years (before the river's supplies could drop low enough to trigger a demand for more water for Nevada, Arizona and California). But we can't waste time."

The money is being spent on new computer models detailing how the river's supplies will be affected by ongoing drought and on creating a computerized historic archive documenting Colorado's use of the river under the 1922 Colorado River Compact. It also will pay for new legal research to help guide the state in the unlikely event that the lingering drought prompts new claims to Colorado's share of the river's supplies, George said.

In all, seven states have rights to its waters. How much each state gets is outlined in the 1922 Colorado River Compact, a hard-fought document that envisioned plenty for all.

Next week at the annual meeting of all the river's users in Las Vegas, Colorado plans to push to open new talks over long-standing problems on the river surfacing because of the drought and the West's population boom.

"The last 20 years have been a positive period for coming up with imaginative solutions on the river," said Jim Lochhead, a water attorney who advises Colorado cities on river compact issues and a former executive director of the Colorado Division of Natural Resources. "The next 20 years, though, may produce more difficult challenges if we continue to be in a dry cycle and the system continues to go down."

Colorado's destiny is intimately tied to the river whose birthplace lies high in the Never Summer Mountains in Rocky Mountain National Park. It supplies roughly half the drinking water 3.6 million Front Range residents use annually, provides water for snowmaking from Winter Park to Vail and irrigates the peach and apple orchards that dot the Western Slope.

All told, roughly 25 million people in the West depend on its liquid bounty.

Nearly a century ago, before computer models could track snowmelt and streamflows, most believed the river's largesse was boundless.

The compact assumed, for instance, the river generated about 20 million acre-feet of water annually. Compact writers divided up 16 million acre-feet of its supplies among the seven states, saying they could argue over the rest later, according to Lochhead.

Experts now believe that surplus never existed and that the river generates 13 million to 13.5 million acre-feet (maf), on average. An acre-foot equals 326,000 gallons, enough to serve up to two urban families for one year.

The seven basin states rely on excess water generated in exceptionally wet years to make up the difference between the 13.5 maf and the 16 maf, with Lake Powell and Lake Mead acting as liquid bank accounts.

But the past five years have been harsh and dry, robbing Powell and Mead of their surpluses, threatening critical electric generating stations, endangering fish and drinking supplies.

How to deal with shortages has never been detailed before, George said. He and others believe all the basin states must move deliberately and calmly to decide how the water will be shared should the drought and the population boom continue.

"Ultimately the goal is to have an understanding among the seven states that everybody is cutting back and not wasting water so that we don't have to get to a true shortage that forces us back into our corners. That's never occurred, but we think it would get really ugly," he said.

In Colorado that means Front Range cities and Western Slope ski towns must begin planning now for potential cutbacks in their share of the river's supplies, George said.

The state's new water models are designed to help them determine what would happen under a number of different cutback scenarios, with spring snowmelt being the wild card.

For utilities with large storage reservoirs, such as Denver Water and the Northern Colorado Conservancy District, it will likely mean pushing hard to refill their own drought-stressed systems and to safeguard supplies until it's clear that Powell and Mead are beginning to refill, several water officials said.

"Maybe we have three years to accumulate a reserve," said Eric Wilkinson, manager of the Northern Colorado District. The district serves several Front Range cities including Fort Collins, Boulder and Broomfield. "That means we'll want to build an absolutely full (storage system) in case there is a call (for water from the Lower Basin states.)"

In the meantime, Colorado wants three key issues resolved:

* Under the 1922 compact, Mexico is entitled to 1.5 million acre-feet of water, to be delivered from surplus supplies. The Upper Basin was to contribute only in times of shortage. But since 1970, 750,000 acre-feet has been delivered from Lake Powell annually. That means, in Colorado's view, that the Upper Basin has delivered too much water. "That's a fundamental issue that has to be resolved," Lochhead said.

* Colorado also has asked U.S. Secretary of Interior Gale Norton to reduce the historic outflow from Lake Powell, in light of the drought. Reducing the flows from Powell would mean the Upper Basin states could maintain a stronger buffer against a possible demand for extra water from Nevada, Arizona and California.

* And Colorado also wants Arizona to stop storing river water it doesn't need in aquifers, further draining the two giant storage ponds. "We're very concerned about that. We would like to see it fixed right away," George said.

Even if snows come through this winter, most experts believe it will take Powell and Mead years to recover, leaving Colorado and other Upper Basin states vulnerable to demands for more water, particularly if a state of chronic, low-grade drought develops.

John Keys, commissioner of the U.S. Bureau of Reclamation, hopes his agency can forestall those demands by carefully evaluating the river's supplies and asking each state to figure out ways to live with less.

"Our biggest fear," Keys said, "is that when this drought breaks, we'll still be short of water."

By Jerd Smith, staff writer

Appendix Y

News Articles

Y.14 October 8, 2004, Reuters, Drought in the West Might Get Worse, by Maggie Fox

News Clip:

WASHINGTON - The U.S. West, already suffering from a long drought, could be in for worse if past patterns hold up, experts said Thursday.

A study of tree rings showed that a 400-year- long drought dating back 1,000 years occurred during a time when the planet was warmer than usual - like now.

If the pattern holds up, it could mean a cruel drought, the researchers write in this week's issue of the journal *Science*.

"The western United States is experiencing a severe multiyear drought that is unprecedented in some hydro-climatic records," the researchers, led by Edward Cook of the Lamont- Doherty Earth Observatory in New York, wrote.

"Using gridded drought reconstructions that cover most of the western United States over the past 1,200 years, we show that this drought pales in comparison to an earlier period of elevated aridity and epic drought in AD 900- 1300, an interval broadly consistent with the 'Medieval Warm Period,' " they added.

"If elevated aridity in the western United States is a natural response to climate warming, then any trend toward warmer temperatures in the future could lead to a serious long-term increase in aridity over western North America."

The journal article is ominous news for places like Orange County, which has received below- average rainfall for two of the past three years, raising the danger of wildfire. The county also hasn't received an inch or more of rain from a single storm since Feb. 26.

Cook, an expert in tree rings and climate, said the culprit seems to be a weather pattern called La Niña.

It is marked by an upwelling of cold water from the bottom of the Pacific Ocean in eastern tropical waters.

Climate models show this reduces rainfall in the U.S. West.

"Modeling results now suggest the same thing may have happened during the so-called Medieval Warm Period 800 to 1,000 years ago," Cook said in a telephone interview.

During that time the world was a little warmer than average.

"It looks like the long period of elevated aridity in the western United States that has been reconstructed from my tree rings could very well be associated with prolonged La Niña-like conditions," Cook said.

Cook said he did not know how long it would last.

"This says nothing about what the future is going to be.

"But if warming increases in the future, we ought to at least consider the possibility that we are going into a more drought-prone period than we have seen over the last few hundred years," he said.

By Maggie Fox, staff writer

Appendix Y

News Articles

Y.15 August 16, 2004, San Diego Union-Tribune, Drought's Grip Has the West by Throat, by Michael Gardner

News Clip:

SACRAMENTO - Struggling Utah farmers sacrificed water to save a school on the verge of shutting down because its well ran dry. Montana ranchers are selling off their herds. In Arizona, the Marines pitched in to help build watering holes to keep rare sheep from dying of thirst.

A persistent drought has upset lives and livelihoods from Montana to New Mexico, drawing comparisons to the Dust Bowl days. Fields have been left unplanted. Homeowners are being paid to tear out lawns. Hydropower generation is threatened. Ducks are disappearing and forests are becoming kindling.

"The drought threatens to change the very fabric of Montana's rural communities and landscape, placing the birthright of descendants of pioneer families on the auction block," Gov. Judy Martz said in a recent speech.

Although Mother Nature has punished the West for several years in a row, the developing crisis also can be traced to other factors: growth, resistance to tough conservation, global warming and an overly optimistic estimate of the Colorado River's ability to deliver water.

The spine of the West - fused by the Colorado River and the Rockies - has been hit the hardest. Although supplies of water have been squeezed along the coast, from Seattle to San Diego, the pain there is not as widespread or as deep.

Urban water purveyors across California, while nervous, say there is no need for rationing this year because of average-sized snowpacks in the north and adequate storage.

For now, climate experts can offer only hope that relief will arrive.

"I don't think we can discount the possibility of a recovery, but the likelihood is one out of four, maybe one out of five, for a really wet year," said Dan Cayan, a climatologist at Scripps Institution of Oceanography in La Jolla.

Scarier still is this emerging question: What if stubborn dry spells are the norm and the traditional cycle of normal-to-wet bounty is the exception? Tree ring records and other data suggest the West may be in for longer, drier periods in the coming decades, some experts say.

Scramble for water

This latest string of dry years has hit states dependent on the Colorado River basin, at one time a seemingly eternal well for 25 million people, millions of acres of farmland and an assortment of endangered and other animals.

Lakes Powell and Mead, the two massive reservoirs that catch the Colorado, are less than half full, exposing long-submerged landscapes to direct sunlight for the first time in decades. It could take a 10-year run of average rain and snow to refill the reservoirs.

Lake Powell, which straddles the Utah-Arizona border, is at a historic low level. Nevada's Lake Mead has been lower only twice before, counting the period when Lake Powell was filled for the first time.

"We are at a critical juncture in the history of the Colorado River, a river we all depend on for our lives," said Jack August, an Arizona historian who studies water trends.

California draws enough water out of the Colorado for more than 1 million households a year. Seventy percent of San Diego County's drinking water comes from the river.

The frantic hunt for more supplies has states pondering expensive options. Colorado and Nevada are scouting pipeline routes to ship water to parched regions. Some farmers may be paid far more than their crops are worth to leave fields unplanted. Las Vegas home builders have been banned from planting grass in front yards.

California plans to increase the size of a handful of reservoirs, but squabbles over who should pay for the work have slowed progress.

Shrinking Colorado River flows sent Metropolitan Water District, the Los Angeles-based wholesaler for most of Southern California, scurrying to secure more water from Lake Oroville, north of Sacramento.

In Colorado, reservoirs remain about half full. New Mexico's largest lake, Elephant Butte, is critically low. In Oregon, southeastern farmlands are in dire straits. Wyoming's thirst is the worst it's been in 110 years.

"My cattle are gone," lamented Montana rancher Bob Redfield, forced to sell 100 head because there was no water for hay.

Said Utah farmer Charlie Holmgren: "We always thought we were invincible." That mood has darkened with each day of blue skies. His water source, Bear Lake, "is pretty well gone."

"It will force some people out of agriculture in this valley," Holmgren said. "We're hanging on - this year."

Farther south, farmers in Blanding, Utah, decided to put classrooms before crops. When the school's well ran dry, they gave up water to keep kids from being bused out of town, Mayor Toni Turk said. Power generators and water purveyors grow more nervous as Lake Powell evaporates.

The coal-fired Navajo Generating Station in northern Arizona may be forced to spend millions to extend a water line that draws cooling water from Lake Powell.

"Without that water, a major coal-fired plant goes down," warned Sid Wilson, general manager of the Central Arizona Project, the state's major water supplier.

The facility generates the power to pump water throughout Arizona and helps keep the lights on in Los Angeles, Las Vegas and Tucson.

The Western Area Power Administration, which delivers energy to 15 states, has for the first time formed a drought emergency planning team. It has spent \$500 million over the past few years on outside power, much of it in response to drought-imposed limits on hydropower generation.

Outside Las Vegas, Lake Mead, which stores water for Southern California households and Imperial Valley farms, is circled by bathtub rings. If the lake's level continues to drop, even power out of mighty Hoover Dam could be at risk.

Recreation tourism, a large part of the West's economy, may suffer if the drought persists. Rivers without rapids are no fun to run and shriveled streams are no lure to fish.

"If you own a vacation cabin in Bear Lake you used to have waterfront property. Now you have beachfront property," said Larry Anderson, Utah's director of water resources.

In California, docked boats already have been ordered out of Folsom Lake. In Page, Ariz., the National Park Service has spent \$5 million to extend boat ramps to Lake Powell and its 145 miles of shore. Ramps are open, but "launch at own risk" signs are posted in some spots.

Looking on the sunny side, National Parks Service official Char Obergh said, "I don't say it's bad. The lake looks different. People who have never been here don't realize it's low."

Wildlife concerns

Wildlife is suffering, too. Resource managers are working to save bighorn sheep in the Cabeza Prieta refuge in Arizona, prairie chicken along the eastern plains of New Mexico and silvery minnow in the Middle Rio Grande.

"The effects are going to be tougher on wildlife than I've ever seen," said Dale Hall, southwest regional director for the U.S. Fish and Wildlife Service. Conservation groups report dramatic reductions in the number of fish and ducks in some areas. The Dolores River, which runs 250 miles through Colorado and Utah, has lost 75 percent of its trout.

Anxious federal fish and wildlife officials are mapping plans to net rare fish and hold them in captivity, a distasteful but perhaps necessary step to preserve some species.

Duck numbers are down 11 percent nationally, pressuring officials to scale back season and bag limits.

Water development has almost always clashed with the environment. If the drought deepens, so, too, will that rift.

In Las Vegas, for example, plans to drill wells could deplete groundwater needed for a nature refuge. Environmentalists worry about Metropolitan Water District's bid to acquire more water from Northern California.

"The big question is how much water can you divert without the environment

going to hell," said Tom Graff, an attorney with Environmental Defense, a nonprofit organization.

MWD officials insist there are adequate safeguards for fish and wildlife.

Elsewhere, bark beetles have overrun trees weakened by drought. Subsequent infernos devour forests and the firefight consumes billions of gallons of water.

"The precious water we did have was being used to put out fires" during a miserable 2002, said Dawn Taylor Owens of the Colorado Department of Water Resources.

Pressured by shortages and the U.S. Interior Department, water managers along the Colorado River basin for the first time are scrambling to map emergency responses. They are negotiating deals to clear historic legal and political barriers to water sharing and storage. Farmers across the West will likely be pressured to sell more of their water.

Closed-door talks have been "animated" and "at times, intense," said Bennett Raley, the Bush administration's lead negotiator on water issues. "The history of the Colorado River is, if the states fail to solve issues, the federal government steps in."

Environmentalists and water managers say the drought is more than just a lack of rain and snow over the past five years. Some cities were slow to impose restrictions. Financial woes and environmental foes have stalled storage projects. And experts say pollution may be accelerating a warming trend, reducing the number and intensity of storms.

Yet lingering dry spells are nothing new. Some believe the West has been blind to the Colorado's limits, relying on overly optimistic projections for more than 80 years. Original calculations done in 1922 to divide the river were based on a wet year.

"Demand is far more than the river can deliver," said Owen Lammers, executive director of Living Rivers, a Utah environmental group.

Population pressures

Growth is exploding in areas more suited for saguaros than subdivisions.

Nevada's population increased from 500,000 in 1970 to nearly 2 million in 2000. During that same period, Arizona grew from 1.8 million to 5.1 million

people, Utah increased from 1 million to 2.2 million residents and Colorado's population nearly doubled, topping 4.3 million.

Sprawl also has exacerbated problems in California. As more families migrated to inland from the coast or to the Central Valley from San Jose, outdoor water use has skyrocketed to keep lawns lush and pools filled.

There are nearly 36 million Californians, compared with 20 million three decades ago. Riverside County's population more than tripled to 1.5 million during that period. San Bernardino County had 700,000 residents in 1970. Now it has 1.7 million.

Previous droughts have inflicted harsh lessons on the Southern California, forcing strict conservation. Residents use less water today than they did in 1990, according to the Metropolitan Water District. The MWD also spent \$2 billion to build an 800,000 acre-foot reservoir near Hemet in Riverside County that could supply more than 1 million households if needed.

"Conservation has become a way of life," said Dennis Underwood, an MWD vice president.

The past winter and spring delivered some relief in a few states, but not enough snow fell to refill depleted lakes and groundwater basins. A warm spring accelerated the melting of snow, making it difficult in some areas to capture flows.

California's outlook remains tenuous after a hot, dry spring. The state's fortunes seemed to be looking up in February, said Maurice Roos, California's chief hydrologist.

"Things looked pretty bright," he said. "Then the bottom fell out."

By Michael Gardner, staff writer, Copley News Service
