

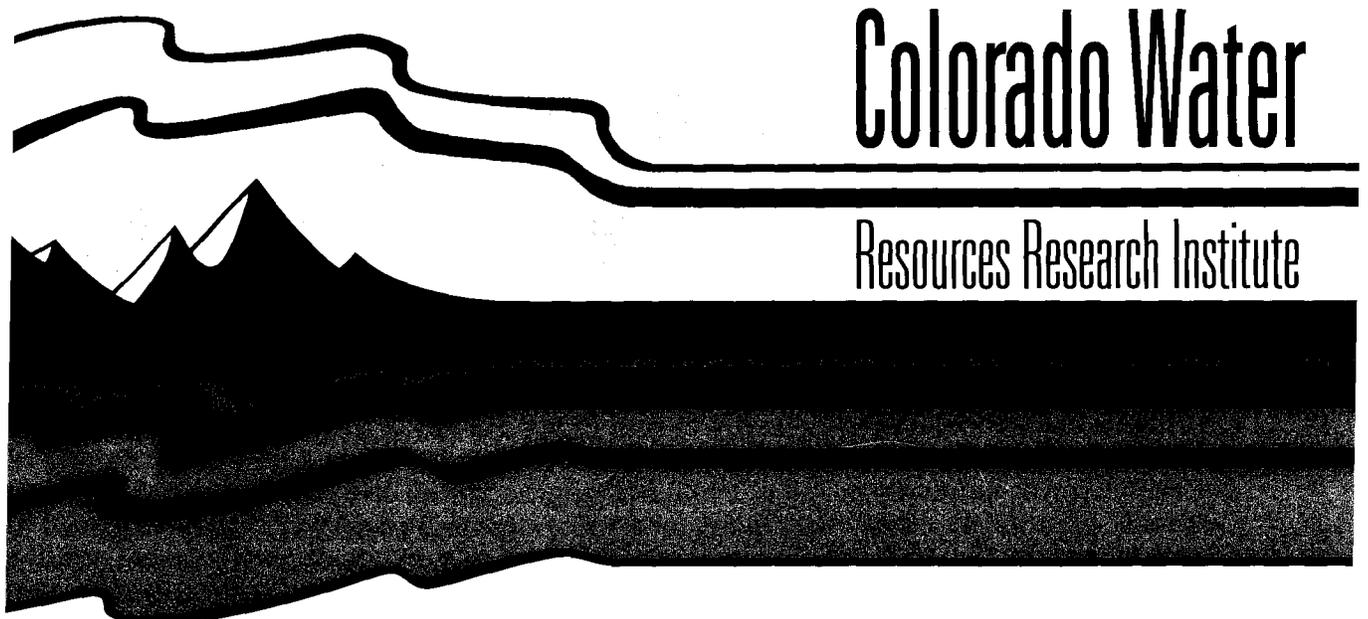
Proceedings:
Colorado Water Workshop

July 22-24, 1992

Showdown on the Colorado River

Presented by
Western State College Foundation
Western State College of Colorado

Information Series No. 75



Colorado Water

Resources Research Institute

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Presented by

Western State College of Colorado
Gunnison, Colorado

Edited by

Jennifer Roberts
Colorado Water Resources Research Institute

SHOWDOWN ON THE COLORADO RIVER

Colorado Water Resources
Research Institute
Colorado State University
Fort Collins, CO 80523
Robert C. Ward, Director

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TABLE OF CONTENTS

The Colorado River Compact: Conflicting Interpretations
 John U. Carlson, Attorney, Carlson, Hammond & Paddock 1

Compacts, Agreements and Institutions Involved in Colorado River Operations
 James S. Lochhead, Upper Colorado River Commission, Colorado Water Conservation Board 10

Is the Law of the River Obsolete?
 Lori Potter, Attorney, Sierra Club Legal Defense Fund 19

Interstate Compacts: Colorado's Guarantee for the Future
 Anthony W. Williams, Attorney, Williams, Turner & Holmes, PC 24

Colorado River Conflicts: Forcing Colorado to Face Reality?
 Carroll E. Multz, Chairman, Upper Colorado River Commission 29

Panel Discussion -- The Law of the River
 Moderator: Paul Frohardt, Administrator, Colorado Water Quality Control Division 34

Native American Water Rights, Interstate Compacts & Water Marketing
 Scott McElroy, Attorney, Greene, Meyer & McElroy 43

The Ten Tribe Colorado River Partnership
 George Arthur, Vice Chairman, Resources Committee, Navajo Nation Council 50

Ute Mountain Ute Tribal Representative
 Jerald Peabody, Ute Mountain Ute Tribe 55

Panel Discussion -- Native American Water Rights
 Moderator: Fred Wetlaufer, Member, Western Colorado Congress . . . 59

Renegotiating Compacts Under the Endangered Species Act
 Patrick Parenteau, Of Counsel, Perkins Cole, Head of the Environmental Resources Practice Group, Portland Office 64

Balancing Endangered Species Protection and Water Development
 Janice Sheftel, Attorney, Maynes, Bradford, Shipps & Sheftel 72

Who Gives A Damn About Some Stupid Fish Anyway?
 Mark Shaffer, Vice President, The Wilderness Society 79

An Endangered Community? Possible Impacts of the Endangered Species Act in the Upper Gunnison Basin
 Bill Trampe, Chairman, Upper Gunnison River Water Conservancy District 87

Panel Discussion -- The Endangered Species Act
 Moderator: Fred Wetlaufer, Member, Western Colorado Congress . . . 93

TABLE OF CONTENTS
(continued)

Meeting California's Urban Needs
 Duane Georgeson, Metropolitan Water District of Southern
 California 96

Water Transfers from Agriculture to Urban Needs: Mitigating
 Impacts on Rural Communities
 Harold McCormick, Senator, State of Colorado 103

The Owens Valley Perspective
 Greg James, Director, Inyo County Water Department,
 California 108

Saving Water, Energy, Money and Conflict with Efficiency
 Jim Dyer, Director, Water and Agricultural Programs, Rocky
 Mountain Institute 114

Panel Discussion -- Meeting Urban Needs
 Moderator: Fred Wetlaufer, Member, Western Colorado Congress . 120

An Interstate Water Bank
 Gerald R. Zimmerman, Executive Director, Colorado River Board,
 California 127

Everybody Wins? An Economic Analysis of an Interstate Water Bank
 James Booker, Department of Agricultural Economics, University
 of Wyoming 134

The Colorado Governor's Proposal
 James Lochhead, Upper Colorado River Commission, Colorado
 Water Conservation Board 139

Panel Discussion -- Water Banking
 Moderator: Richard Tisdell, Tisdell & Hockersmith, Board Member,
 Colorado River Water Conservation District 145

Nevada's Perspective
 Thomas Cahill, Director, Colorado River Commission, Nevada . . . 151

The View from Arizona
 Betsy Rieke, Director, Arizona Department of Water Resources . . 156

Panel Discussion -- Proposals for Changing Institutions in the
 Basin
 Moderator: Richard Tisdell, Tisdell & Hockersmith, Board Member,
 Colorado River Water Conservation District 165

Concluding Panel of Conference Observers
 Mark Obmascik, Columnist, The Denver Post 170
 Sarah Bates, Assistant Director, Natural Resources Law Center,
 University of Colorado 175

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The Colorado River Compact: Conflicting Interpretations

John U. Carlson
Attorney, Carlson, Hammond & Paddock

I remember when Paul Frohardt came to work at the law firm I was presently at. With great pleasure, I remember how he would come into my office, which was right next door, and tell me I was wrong about some point of the Rio Grande Compact. Generally, he was able to convince me that I was wrong and he was right. I have learned that on very few issues is it worthwhile to argue with Paul Frohardt.

I am hoping that he does not know much about the Colorado River Compact, and he will let me talk to you about it today. It has been a topic perceived by the politicians, water users, and economist to be utterly vital in parlance to the State of Colorado. I think this stems from an underlying belief that the waters of the Platte, Rio Grande, and Arkansas Rivers are so poultry by comparison, and so inadequate for the needs of a growing economy that Colorado's destiny lies with securing and using the waters of the Colorado River. There is an enormous use of the Colorado River in Colorado. As you are aware, there are tremendous transmountain diversions. There are vast quantities of irrigation use on the western slope and there are also great industrial uses. Despite those uses and their size, they are small compared to the uses of our downstream rivals, primarily the State of California. They would probably be considered small compared to the potential draft that the state of Arizona is proceeding to make on the river, with the completion of the Central Arizona Project. The uses are also under assault in an economic sense. Much of the consumptive use of the river on the western slope has been for agriculture. I think that it would be fair to say that agriculture is under assault.

At the turn of the century, the people who formulated the Colorado River Compact of 1922 had expectations that have not yet come to fruition. I would like to review some of those expectations and some of the history of the Colorado River Compact. Finally, I will leave you with some paranoid thoughts.

A story occurs to me about the State of Colorado and the Colorado River that I think is helpful to keep in mind. There was a wonderful man named Frank Delaney, who practiced law in Glenwood Springs up until his death. I had the privilege of knowing him and working for him on a couple of cases. I heard a story about his role in the negotiation of the 1956 Act, which led to the construction of the big dams on the higher reaches of the Colorado River. Western Colorado was not sympathetic to some aspects of the bill. Denver apparently had obtained certain concessions, and western Colorado, represented by Frank Delaney, did not approve. Governor Ed Johnson called him into his office in the State Capital and said, "Now Frank, we've come a long way, and we have so much to gain for our state. If you continue to be in the way of this important federal legislation the water will just go down the river to California." Apparently, Frank Delaney looked the governor in the eye and said, "Well, if it goes down the river to California I can wave at it as it goes by."

The social and economic division of the state along the Continental Divide is, in my mind, one of the reasons why the work of these people, in the 1920's, to secure such a portion of the beneficial use of the water, has not come to pass. We have such major societal conflicts within our state that we cannot come to a political, legal, and administrative agreement on the use of the resource.

Let me begin by addressing the river itself. It is said to be some 14,000 miles long. Essentially, it rises in Colorado and Wyoming. It is said to be the only major river that is located entirely in an arid region, and does not have a major city on its banks. It is an international stream. The international treaty between Mexico and the United States guarantees that a certain quantity and quality of water will be provided annually to Mexico. Over 70% of the flow of the river originates in Colorado.

In the early days, Colorado spokesmen, politicians, and leaders fearlessly advocated the view that because Colorado River water originated in Colorado, we, in Colorado, could keep it and use it to our hearts content. Under this view, we did not have any obligation to deliver a drop to the state line. That view bit the dust in a series of United States Supreme Court decisions, in which interstate river compacts, which called for an equitable sharing of the common resource with downstream users, were applied.

The realization that the waters of the Colorado River are subject to judicial division among the seven states [Colorado, Wyoming, Utah, New Mexico, Nevada, Arizona, and California] and Mexico was a compelling fact that led to the negotiation and adoption of the compact. It was compelling from the point of view of the upstream states, like Colorado, New Mexico, Wyoming, and Utah. These upstream states keenly understood that their economies, and their development were primitive compared to what was happening in California. They understood that the rate at which California was growing, and the way in which California eyed the Colorado River, as the economic engine to drive growth in southern California, could negatively impact upstream states. There was a tremendous understanding and realization that the destiny of our region was at stake.

Also at this time, litigation was proceeding between Colorado and Wyoming over the waters of the North Platte, Laramie and those rivers that drained out the northern border of Colorado. This led to a United States Supreme Court decision in 1920, which held that in resolving disputes between states, where both states have the Doctrine of Prior Appropriation [*first in time, first in right*] the courts would look to an interstate system of priority to divide interstate waters. It is highly ironic to me, that Colorado, the most keen and perhaps the most committed of all the western states to the full rigors of the Doctrine of Prior Appropriation, saw, in an interstate system of Prior Appropriation, death, devastation, and destruction. The notion that all of the water in the river would go down the river because of Prior Appropriation drove them crazy.

There was a very canny lawyer located in Greeley, Colorado by the name of Delph Carpenter. He had been consulted by a series of governors on a number of water issues. One winter, while sitting up there in Greeley, he read the United States Constitution. He noticed that in the Constitution there is a provision in Article I regarding

compacts. Essentially, it stated that states can compact with each other only with the consent of the United States Congress. He became convinced that the solution to long-range water supply problems for Colorado and the method to secure a fair share of the Colorado River for Colorado was via an interstate compact. He began this campaign to adopt, or formulate an interstate compact.

Obviously, one lawyer from Greeley, Colorado might not move the United States Congress, or the state of California all by himself, however there were other problems occurring on the Lower river. California had developed great irrigation projects in the Imperial Valley. Their interest was threatened by two things.

First, the means to divert water from the Colorado River into the Imperial Valley involved a canal, and the head works for this canal was located in Old Mexico. This was perceived to be a great threat to the Imperial Valley because there was no assurance that Mexico would not simply shut the gates off one day. There was a tremendous lobby in California for the construction of an All American canal, a canal in which the headworks and the entire length of the canal is within U.S. boundaries.

Secondly, in 1905 and 1906 there had been a periodic wet cycle of tremendous proportion on the Colorado River that nearly caused the river to seek a new channel. The river escaped from its bed, which forms the boundary between Arizona and California, and went towards the Imperial Valley. It created what we know today as the Salton Sea. With emergency efforts, the river was shut off and diverted back into its preexisting channel. Now you might ask yourself, "isn't this what they wanted, the whole river?" At this point, the whole river would have been too much, even for California. The Salton Sea achieved such a size that the entire Imperial Valley could have been inundated before the river found an outlet to the sea.

Therefore, in the Lower Basin, there was a great desire for the construction of flood works, flood control, and the All American canal. At this time, Arizona was very sparsely populated. However, it was extraordinarily well represented in Congress. Carl Hayden, who served in Congress practically forever, involved himself on Arizona's behalf. He was inordinately suspicious of any kind of division. However, with his great misgivings, Congress passed, in 1920 or 1921, a bill authorizing the creation of a Compact Commission, provided for the appointment of a federal representative, and authorized the states, as required by the United States Constitution, to negotiate a compact.

Two other forces contributed to this impetus towards negotiations. It was the era of the rising hydropower development. Entrepreneurs were seeking to build high dams, low dams and dams everywhere they could in order to generate electricity. They were thwarted in their activities by the lack of agreement, and the threat of interstate litigation over who had what rights on the Colorado River. A power right, to the upstream states, was a terrifying prospect. While it makes no great consumptive use of the water, it calls for the entire flow of the river. If a power plant is on a run of the river, you are able to create electricity with whatever quantity of water flows through. There is an economic investment, and a prior right for hydropower generation. What would be left for the upstream states? What future depletion could they possibly make?

All of these things combined to create the climate for negotiation, with Arizona frightened, nervous and standing somewhat apart from the rest.

Incidentally, the history of Arizona in this whole saga of the Colorado River, is worth the attention of about ten books. At one point, when Arizona was threatened by something California was doing, the Governor of Arizona mobilized the Arizona State Navy to go out on the Colorado River and stop California and the United States from constructing Boulder dam. Arizona has had a long history of contrary views, and changed positions, but tremendous success in two things: winning law suites and feeding from the federal trough. I may look at what they have done through the years and think it is crazy as hell, but you cannot be critical of the kinds of successes that they have had.

The federal authorities were anxious as well for centralized development on the Colorado River. The Bureau of Reclamation had been established in 1902 and it was an agency much enamored with central planning, water management, and believed that state and local jurisdictional boundaries were archaic, produced poor economic results, and did not lead to sound management practices. They believed that what was needed was a federal impartial agency that would completely develop the waters of the river for economic uses. It is obvious this philosophy is out-dated because the focus was solely on the economic advancement of the population of the United States and the West.

Mr. Delph Carpenter had a profound suspicion and distrust of centralized federal government. He had a legendary westerners' admiration for people who helped themselves. He was an avid proponent of states' rights and he saw, in the Bureau of Reclamation, evil, unaccountable, centralized planners, who did not give a damn what the citizens who lived here thought. Delph Carpenter, Herbert Hoover and the Arizona State Engineer, Norbiel were the leaders of the compact negotiations. The negotiations continued for eleven months in 1922 and eventually yielded a compact. Hoover was not the type of federal representative that shunted duties off to 37 deputies and second assistants. He personally took a great interest in these negotiations. He was an engineer and essentially, he believed in the same ideas as the Bureau of Reclamation. They believed that there were solutions mankind could develop to deal with the forces of nature, and if one accounted for the vagaries of nature, mankind could conquer nature and run the river to a state of bliss for all concerned. I suspect that some of the internal fighting that occurred in the negotiation of the compact discouraged him, however, I doubt that he was ever driven to despair. He was a force that helped drive the compact that was ultimately adopted.

As a lawyer, I like that the Colorado River Compact is only about two pages long, typed. It does not contain many "whereas's." It is a very tight document. The guts of the Compact are contained in Article III. This is called the Apportionment Article. Within this article, the states were divided into the Upper Basin and the Lower Basin. Colorado, New Mexico, Utah and Wyoming comprise the Upper Basin, and Nevada, Arizona and California are the Lower Basin. The Lower and the Upper Basin were apportioned to receive the exclusive, beneficial consumptive use of 7.5 million acre-feet of water per

annum. This was said to be sufficient to supply all the rights which then existed, as of 1922.

In subparagraph B, as a concession to Arizona, in which the sacred Gila River ran, it was provided that in addition to the equal division, the Lower Basin was given the right to increase its beneficial consumptive use of waters by 1 million acre-feet per annum.

In paragraph C the risk of an international treaty with Mexico is acknowledged. It is recognized that the United States government, in order to avoid international litigation, war or hard feeling might make a division of water with Mexico. A provision for that was made, and it said that any water owed to Mexico will be paid out of the surplus, over and above the water apportioned to the Upper and Lower Basin. This raises a most interesting question concerning the Colorado River Compact. There was a fundamental belief that the average flow in the river was substantially above 16 million acre-feet. They were able to make a compact because they divided equally amongst each other, and reserved, for another era, the division of what was left over. They thought they would wait and see what Mexico did, or what the United States did with respect to Mexico. At this time, they would divide the additional water between the two basins.

That leads to the saddest fact of word or pen. In our experience, since the signing of the compact, there is not 16 million acre-feet of water per annum in the river. Repeatedly, there have been extended periods in excess of ten year averages in which the average flow was as little as 13 million acre-feet. From 1953 - 1964, the average was only 11.5-11.8 million acre-feet. The question then is who bares the shortages?

Subparagraph D also addresses the division between the Upper and the Lower Basin. It says that the states of the Upper Basin will not cause the flow of the river at Lee Ferry, which is a halfway point of division between the Upper and Lower Basin, to be depleted below an aggregate of 75 million acre-feet for any ten consecutive year period. The Lower Basin, Bureau of Reclamation and many, many others, assumed that this means a guarantee to the Lower Basin that no matter what the supply is there will be 75 million acre-feet every ten years for the Lower Basin.

How is this played out? Essentially, the Bureau of Reclamation, in administering the facilities that have been built on the river, passively acquiesced in the interpretation that this is a guarantee. The problem is complicated by the fact that the Upper Basin has not developed at the rate of the Lower Basin. The Upper Basin has not increased its consumptive uses, and at the present time, is able to deliver 75 million acre-feet every ten years, with no shortage to existing development in the Upper Basin. What is at stake, is the uncertainty of our future.

In 1922 there was great unanimity and cohesion in Colorado and in the Upper Basin about what kind of future we wanted. People wanted economic prosperity. I think that today, our wants are more complicated. Some of those wants and desires have to do with the allowing the water to remain in the streams to meet salinity and water quality concerns. In the 70 years from the signing of the Compact, there has been a disintegration in the cohesion which compelled Colorado and the other Upper Basin states to hold out for and obtain what they thought was an equal division of the water.

There are other problems in the Compact. First of all, the Mexican Treaty did come to pass. The United States did promise to deliver over 1.5 million acre-feet to Mexico and that burden has to be born. This led Mr. Parks, our former director of the Water Conservation Board to say that the Upper Basin was facing a future built on left-overs -- what was left-over after Mexico was satisfied, what was left-over after the guarantee, or the so-called guarantee, to the Lower Basin.

There is another problem related to the Mexican Treaty obligation. When the Compact was drafted, it explicitly states that the division is made of the Colorado River and all of its tributaries. There is a large tributary of the Colorado River in Arizona, which rises in New Mexico, flows southwesterly across the state, through Phoenix, through the Salt River Valley -- it is the Gila River System. That river has been fully developed and used, in the economic sense, within Arizona. Arizona did not want that water made a part of the Compact. They refused to sign the Compact because of this provision that I have just referred to. Ultimately, Arizona ratified the Compact twenty-two years after it was signed, stating that it was clear the Gila River was not included in the Compact. This was a most remarkable vote pas because Carl Hayden, their senator, had introduced numerous amendments to the legislation authorizing the United States Congress to remove the Gila River from the language.

Since the time of the Gila River issue, there have been other problems surfacing with regards to the Colorado River. Our nation has changed in many ways. We have a variety of environmental laws. We have a whole panoply of conflicting and overlapping laws, which tend to make development of water for classic beneficial use more and more difficult.

There is another section in the Compact that I want to call to your attention. It is subparagraph E of Article III. It says, "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." This section says that if the water is not being used in Colorado and it flows down the river, anyone can use it, regardless of whether it is within their allotment of the 7.5 million acre-feet or not. California has taken to that with an enthusiasm that I am sure Jim Lochhead will address. I am not sure what the total volume of California uses are these days, but they are surely, substantially in excess of 4.4 million acre-feet per year, which was the cap put on them by litigation in the United States Supreme Court in 1963.

The problem again comes back to this allotment of water, whether it is 7.5 million acre-feet to the Upper Basin, or whether it is 7.5 million acre-feet less the guarantee read into Article III that we are still not using. That means that California under Article E is fully entitled, supposedly, to use the water. They have built an economy in reliance on it. Many profound thinkers wonder how would those uses ever be divested. That has been the focus of Colorado's concern and nervousness for the last twenty years.

There are legitimate questions, it seems to me, that should be asked in Colorado. Is this an academic exercise, or is this just water buffalo thinking? Is it silly to worry about this? Is there a future that we need to protect? Is it realistic to think we can

make substantially greater uses of water than we do today, understanding that every use of water has a degrading affect on the quality? Will we be allowed to make uses that cause these quality degradations? What about the Indian tribes, whose lands are drained by the Colorado River? In many jurisdictions they have been awarded reserved rights to water. The federal government has never advanced funds to the Indian people to allow them to construct means of diversion so they can use their entitlement. Contrary to what 1922 drafters of the Compact thought, the Indian rights turned out to be substantial in quantity. Where all this leaves the basin, in terms of this tug-of-war for who gets what, remains to be seen.

Colorado, as I said before, has over 70% of the origination of the water. Under the various institutional arrangements that have developed since then, Colorado is suppose to receive 51% of the 7.5 million acre-feet allocated to the Upper Basin. Depending on who you talk to, there is at least 500,000 acre-feet, and maybe one-million acre-feet of that allotment to Colorado that has never been developed. The question is whether we have the means, or the ability to develop and use the water. Is it realistic to think so? I want to share with you one personal observation. I think, today, there are millions of people with solutions that are probably snake oil -- there are panaceas, there are get-rich schemes, there are all kinds of proposals circulating for how Colorado can take advantage of those allotments that our predecessors fought so hard to secure. Whether those panaceas will work, remains to be seen. I want to offer one "Nervous Nellie" kind of view. I think our issue, in Colorado, is whether a departure from what was promised as a perpetual commitment and an utterly secure devise to protect our future is up for grabs. I think it is up for grabs in Wyoming. I do not think that it is up for grabs in Utah because they are proceeding to construct a massive project called the Central Utah Project to take their remaining share. I think New Mexico has already developed more than its share of the waters of the river. Colorado is left at the tail end. We do not seem to have a realistic, common agenda amongst our people. We do not have a common goal that we want to attain. We remain extremely divided according to region, social proclivity, environmental perspective, and many other issues. While I do not have any solutions, I would like to suggest to those who feel we should cast aside our compacts -- such an action would be a bit like what Esau did when offered the pottage by Jacob, for his birthright. I remain of the view that we need to work with all possible means to preserve what was promised to us. Whether that is attainable, is not promising.

I would like to share with you how I see the problem. When John Wesley Powell was climbing rocks in his first venture on the Colorado River, in 1869, he found himself in a crevasse, from which he could move neither up nor down. He wrote in his journal that while he was suspended in this crack in the rocks he felt his legs start to quiver. He thought that he would fall several hundred feet to his death. At that point, his climbing mate, a man named Broom, appeared above him and tried to reach down to help him, but he could not reach. Powell wrote that he thought he was a "goner" for sure, until Broom took off his pants, and holding one end swung them down to Powell. Powell was one-armed, and he had to let go with that one arm and grab those pants to extract himself. I am hoping that the efforts Jim Lochhead and

Governor Romer are making will be the equivalent of the pants dropping down, solving the problem, and allowing us all to live happily ever after.

Questions for John U. Carlson

Question: There is a safety clause in the Compact, as I recall, regarding the allocation of the river in the instance of an insufficient supply. We might be approaching that situation, and I was wondering what your thoughts are in terms of how the Secretary of the Interior might deal with that?

Carlson: In different articles they provide for renegotiation. The problem is that the language requires unanimity of all concerned, and no right that has been perfected under this Compact can be affected by that renegotiation. My own feeling, for Colorado, is that I cannot imagine why in the world we would think we could do better in 1992 than we did in 1922. In 1922, the relative quantities of water use in the Upper Basin and the Lower Basin were approximately equal. The tide has turned and the uses in the Lower Basin are enormously larger than those in the Upper Basin. I am concerned about Colorado, and I am concerned about this area. I think we can only expect less if there was to be a renegotiation. That leads to finding other alternatives. In the paper that I wrote, I discussed renegotiation and whether a congressional, remedial activity was realistic. It is hard to imagine that as a plausible solution for Colorado because we do not have the votes. That brings me back to the question of whether the Colorado River Compact was founded on a mistake and could be judicially reformed, or remedied. In the paper I addressed the pros and cons of this. I think the great risk of litigation concerning a compact is that there is no real settled body of law that a court is obliged to apply. It is a matter that is addressed in the United States Supreme Court and they are entitled to do what they think is equitable. I do not know what equity is and I wonder if they do.

John Carlson's remarks have been edited by the staff at the Colorado Water Resources Research Institute. Mr. Carlson passed away on October 17, 1992. Carlson was a highly esteemed figure in the western water arena, who will be greatly missed.

Compacts, Agreements and Institutions Involved in Colorado River Operations

James S. Lochhead
Upper Colorado River Commission,
Colorado Water Conservation Board

Today, I am charged with giving you a background on the Law of the River. That is a lot. It is a very complex framework. Rather than describe the details of each of the laws and how they work, I would like to give a historical perspective. I would also like to convey that the framework and the structure of the Law of the River is a partnership between the seven basin states and the federal government. The partnership involves integrating the operation of the large system of dams and reservoirs to benefit all of the seven states. The law makes it very difficult for any single entity within either the Upper Basin or the Lower Basin to operate on its own.

John gave you an excellent background and feeling for the foundation of the Compact by explaining what the views were in the Upper Basin, what the needs were in the Lower Basin, and how the Compact accommodated those needs.

Colorado has relied on that Compact since 1922 as a perpetual allocation of water. Later in the conference, I will be speaking about a joint resolution passed by the Colorado Senate and House of Representatives this year that further affirms what Colorado's view was in 1922. As John mentioned, it is important that Colorado continue to rely on that entitlement, even now when it is apparent that there is far less water in the river than what was allocated. I think the negotiators of the Compact never contemplated that there could be less water in the river than what they allocated. In fact, when they made the provision for deliveries to Mexico they thought that they had been very conservative and Mexico could be taken care of with surplus water over and above the 16 million acre-feet allocated in the Compact.

There were three fundamental points that related and formed the basis for the framework of the Law of the River.

First, there was a desire on the part of the federal government to initiate and comprehensively develop the river system. Federal employees, commentators, and explorers, such as John Wesley Powell, Richard J. Hinton and Arthur Powell Davis, all spoke of the federal government's need to "tame the River." As early as 1878, there were proponents for federal control over comprehensive development of the river.

Second, the Lower Basin was in need of the All-American Canal and flood control works on the lower river that could prevent the kinds of floods that created the Saltan Sea.

Third, the real motivating factor for the Upper Basin was the decision of the U.S. Supreme Court in Wyoming v. Colorado. The Court basically held that in an interstate dispute between two prior appropriation states, the doctrine of prior appropriation would apply. Delph Carpenter, on behalf of Colorado, and the other interests in the Upper Basin knew that this decision meant the Lower Basin would

develop faster, and could develop senior or preferred water rights through their development.

The federal government struck fear into the hearts of all the states in that case between Wyoming and Colorado. When that case was reargued in 1918, the United States intervened and argued that the United States not only had authority over all unappropriated waters in navigable streams, but even over unnavigable streams throughout the west. Federal agencies had already asserted authority over navigable waters under the Commerce Clause, the War Powers Clause and the power of the United States to undertake international treaties. This assertion of pervasive federal authority created a major motivating force behind the Compact that is similar to one of the driving forces that Colorado faces today. There is a need for the states to work out some of these solutions and allocations for themselves, rather than have solutions imposed by the federal government.

Bolstered by government claims that there was plenty of water in the River for all foreseeable uses, the interests in all the Basin States finally formed a consensus, through a group called The League of the Southwest, to form a development program. The League functioned as a basin wide chamber of commerce. It was the lobbying group that urged Congress to construct the All-American Canal and Hoover Dam. In the face of this imminent development, the Upper Basin became anxious over the potential rate of development in the Lower Basin. Upper Basin interests were also concerned that the water supply forecasts of the federal government were unreasonably optimistic. These concerns led the Upper Basin to propose a Compact which would allow for Upper Basin political support of this development in the Lower Basin, and also provide for a perpetual entitlement, or right of development, to the Upper Basin.

I think it is important to emphasize that the Compact does not apportion water; it apportions the right to consumptively use water. When we speak of Colorado's entitlement, it is not an ownership of water per se, but it is, in the traditional water right sense, a right to develop water for beneficial consumptive use.

Additionally, the Compact explicitly did not deal with the rights of the Indian tribes. In fact, there is a provision that states that the Compact does not affect the obligations of the United States to Indian Tribes.

After the Compact was negotiated, there was discussion, debate, and lobbying over who was going to finance these massive works necessary to develop the Lower Basin. Possible candidates included the federal government, irrigators, power customers, or private entities. The states again worried about the imposition of federal control if the Federal Power Commission got its hands on regulating a private dam on the River. The debate elucidated the fact that the construction and operation of any major facility on the River was too big, and the international and interstate issues were too complex, for any entity, other than the federal government, to undertake.

The federal government did undertake this responsibility, in the 1928 Boulder Canyon Project Act. After the Compact, this is the first document that would be included on a list of documents comprising the Law of the River. The Act authorized the construction of Hoover Dam and the All-American Canal. As the states would later see, when the Supreme Court decided the case of Arizona v. California, the Act

represented a major step by Congress in the imposition of federal authority over the allocation, regulation and operation of the River.

Although the state negotiators agreed on the Compact in 1922, it was required that the pact be ratified by each of the state legislatures and the Congress. That proved to be a monumental undertaking. By the time the Boulder Canyon Project Act was enacted in 1928, only four of the seven states had ratified the Compact. Arizona, California and Utah had not yet ratified the Compact. Arizona was quite adamant in its opposition to the Compact because of the reference to the million acre-feet and tributary water in Arizona.

Congress recognized therefore, that it was not enough to simply authorize construction of a dam. There needed to be an orderly means to carry out the distribution and allocation of water in the Lower Basin without foreclosing the ability of the Upper Basin to develop its share of the River. As a result, and in order to bypass recalcitrant in Arizona, the effectiveness of the Boulder Canyon Act was contingent upon California limiting itself to a total water consumption from the Colorado River of 4.4 million acre-feet per year, and upon ratification of the Compact by any six states, including California.

California, almost immediately thereafter, ratified the Compact and passed the California Limitation Act. This is the third document on the Law of the River list. The California Limitation Act was an irrevocable promise by the California legislature, for the benefit of all the other states, to limit California's use of water from the Colorado River to 4.4 million acre-feet.

In 1931, shortly after the Boulder Canyon Project Act, California entities entered into the California Seven Party Agreement. This would be the fourth document on the list of the Law of the River. This is a mutual agreement among California water users to allocate and prioritize California's uses of Colorado River water, to develop the contract process for the delivery of water from Lake Mead to California water users. Because of the construction of the All-American Canal and the importance of irrigation in Southern California, the Seven Party Agreement ensures that California irrigators in the Palo Verde, Coajella, and Imperial Valleys receive the first three priorities, totalling 3.85 million acre-feet of water out of that 4.4. The Metropolitan Water District of Southern California, which is the major water provider to the urban area on the California coastal plain, receives the fourth and fifth priorities, totalling 1.212 million acre-feet. However, the sum of 3.85 and 1.212 is more than 4.4. One of the larger problems we face on the River is the fact that only 550,000 of Metropolitan's priority of 1.2 million acre-feet is within that 4.4 million acre-feet. The irrigators receive the first 3.85 million acre-feet, Met receives the next 550 thousand acre-feet up to 4.4 million acre-feet, and then the remaining demands of Met are over and above California's allocation of the Law of the River. As we have seen, droughts in California and the Los Angeles area increase the pressure on Met to continue to divert over and above that 4.4 million acre-feet allocation.

The next item on the list of the Law of the River documents would be the Mexican Water Treaty of 1944. The Mexican Water Treaty guaranteed Mexico the delivery of 1.5 million acre-feet per year. That is essentially water off the top of the system. There is a

provision in the Treaty that shortages will be shared by the United States and Mexico in the event of an extraordinary drought, or serious accident to the irrigation system of the United States. However, given our international relations with Mexico, I am not sure that we can find any comfort in that provision.

In 1948, following the treaty and three defeats to California in the United States Supreme Court, Arizona finally came to the table and ratified the Compact. As we proceed, it becomes clear that each of these documents is part of a step by step building on the foundation of the 1922 Compact. These documents provide further operational refinement that build upon that foundation.

The next document would be the Upper Colorado River Basin Compact of 1948. The Upper Basin Compact is based upon the allocation to the Upper Basin under the Colorado River Compact. In 1948, it was recognized that the use of fixed amounts of water could not be allocated. It was not quite as simple as that. By this time, there were differing interpretations of the Colorado River Compact. It was clear that the Upper Basin may not be entitled to 7.5 million acre-feet, or there may not be 7.5 million acre-feet available. Therefore, the Upper Basin states allocated the water on a percentage basis. Colorado gets 51.75%, New Mexico gets 11.25%, Utah gets 23%, Wyoming gets 14%, and for the portion of Arizona in the Upper Basin, Arizona receives the only fixed allocation of 50 thousand acre-feet.

The next important step in the building of the foundation was the U.S. Supreme Court opinion and decree in Arizona v. California. Arizona wanted to begin a project that would divert water from the Colorado River, and had been lobbying for the construction of the Central Arizona Project. In order to develop that Project, Arizona needed the assurance of a water supply. In 1952, Arizona tried for the fourth time to sue California to achieve that assurance. This time Arizona was victorious. The 1963 decision in Arizona v. California contained some strong language about the power and intent of Congress to enact the comprehensive allocation and regulatory scheme set forth in the Boulder Canyon Project Act. The Court recited the modern history of the River, the practical need for coordinated operation of national facilities among the states, and used this as a basis to confirm that Congress had vested the Secretary of Interior with broad discretionary powers.

There is one quote in that opinion that speaks to the Court's view about the broad scope of federal authority in the Lower Basin. The Court said:

"Having undertaken this beneficial project, Congress, in several provisions of the Act, made it clear that no one should use mainstream waters, save in strict compliance with the scheme setup by the Act. These several provisions, even without legislative history, demonstrate that Congress intended the Secretary of Interior, through his Section 5 contracts, both to allocate the waters of the main Colorado River among the Lower Basin states, and to decide which users within each state would receive water."

Therefore, it was made clear that no one in the Lower Basin gets water out of the Colorado River except through a contract with the federal

government. Any use of water in the Lower Basin not through a federal contract is an illegal use. Later development of the Law of the River shows that the Bureau of Reclamation is really the "water master" in allocating and delivering water to the Lower Basin states. California and Arizona, in particular, can take some comfort in not having to face the political difficulties of cutting off illegal users. They are happy to say that it is the Bureau of Reclamation's problem, and not their's.

The decree entered by the Court confirmed the allocation, established by Congress in the Boulder Canyon Project Act, of 4.4 million acre-feet to California, 2.8 million acre-feet to Arizona, and 300 thousand acre-feet to Nevada. There is not a compact per se in the Lower Basin. Rather, it is a congressional allocation of water delivered through federal contracts. The decree also provided guidance to the Secretary of Interior in dealing with shortage and surplus conditions, when there is more or less water than 7.5 million acre-feet available. It is also important to note that the decree in Arizona v. California allocates only mainstream water, and it does not deal with tributary water. The Court specifically declined to interpret the Compact. The opinion is simply an interpretation of the Boulder Canyon Project Act.

Things having been taken care of in the Lower Basin, the Upper Basin states then started to work towards a comprehensive development scheme to allow the Upper Basin states to realize their mandate of the development of their share of the River. The Upper Basin states looked to the federal government for development of that system. Their plan was to have the federal government pay to construct a series of reservoirs that would allow each state to develop its entitlement. In response, in 1956, Congress enacted the Colorado River Storage Project Act which authorized the construction of the Curecanti Unit, Flaming Gorge Dam, Navajo Reservoir, and Glen Canyon Dam. The Act also provided for various "participating projects," within each of the states, to provide irrigation water for the states to directly use in developing their share of the River. The idea behind the units of the Colorado River Storage Project was that they would withhold and provide what was called hold-over storage, or carry-over storage, thus assuring that the Upper Basin has the ability to meet its obligation of delivering to the Lower Basin an average of 75 million acre-feet over each ten year period. The idea in the Act, therefore, was to allow the Upper Basin states to fully develop their entitlements without being subjected to a compact called by the Lower Basin states.

In 1968, as part of the tradeoffs for congressional authorization of the construction of the Central Arizona Project, Congress and the states further affirmed the need for coordinated interstate operation of various facilities, through the adoption of the Colorado River Basin Project Act. The Act assumed, as a national obligation, the provision of water to Mexico under the 1944 Mexican Water Treaty. The Act also authorized the construction of the Central Arizona Project, but at a heavy price to Arizona. The Act required the Secretary of Interior, in administering any shortages among the Lower Division states, to limit diversions from the Colorado River for the Central Arizona Project so as to assure the availability of a total of 4.4 million acre-feet for use in California. It was a bitter pill for

Arizona to swallow, as the Act gave California priority to the first 4.4 million acre-feet of water from the Colorado mainstem. In essence, the Central Arizona Project [and this plays into the current discussions among the states], was designed to be financed on surplus water, i.e., water that was unused in the Upper Basin and by the other states. As other states develop, less water will be available to the CAP.

In exchange for the authorization of the Central Arizona Project, the Secretary of Interior was directed to proceed with the construction of certain Upper Basin "participating projects" that had been authorized in the 1956 Act. However, no money for construction of those projects had been appropriated by Congress. The construction on the participating projects was to start not later than the date of the first delivery of water from the Central Arizona Project. The date of that first delivery of water through the Central Arizona Project has come and gone and, needless to say, not all of those participating projects were constructed.

Finally, the 1968 Act provided several directives to the Secretary of Interior in the coordinated operation of the federal reservoirs on the Colorado River. Congress directed that the Secretary prepare what is called a "Consumptive Uses and Losses" report every five years, which provides a breakdown the consumptive uses on a state by state basis. The Secretary is also required to propose criteria for the coordinated long range operation of federal reservoirs. He is to review those criteria every five years, and report to Congress annually on the operation under those criteria for the proceeding year and the upcoming year.

More importantly, the Secretary was directed, through the criteria, to store water in and release water from Lake Powell in order to preserve the ability of the Upper Basin to meet its delivery obligations under the Mexican Treaty (the Upper Basin disputes that it has any such obligation), and the Colorado River Compact. This is to be done in a way that ensures that the ability of the Upper Basin States to develop their entitlements under the Law of the River is not impaired. In essence, this part of the 1968 Act implemented the terms of Article III.E of the Compact, which states that the Upper Basin will not withhold water if that water is reasonably needed for use in the Lower Basin.

The Act provides that the Secretary will make an annual determination of what is called "602(a) storage." This is the minimum amount of water that is necessary to be in storage for the Upper Basin states to meet the ten year total delivery obligation of 75 million acre-feet. That amount of water is stored in these reservoirs for compact delivery purposes, and cannot be called by the Lower Basin under Article III.E of the Compact. Additionally, the 1968 Act and the criteria contain what are called "equalization provisions" between Lake Powell and Lake Mead. The equalization provisions were enacted for two reasons.

First, the implementation of Article III.E provided protection from water being unnecessarily drained from Lake Powell into Lake Mead through the operation of Article III.E of the Compact. Secondly, the equalization provision balance storage between Upper and Lower Basins, as dictated by the demands of power customers from Lake Powell and Lake Mead to maintain power heads in both of those reservoirs.

The operating criteria provide for minimum release deliveries from Lake Powell of 8.23 million acre-feet per year. That is more than the 75 million acre-feet over ten years referred to in the Compact. Despite disclaimers in the criteria that they are not designed to interpret any obligations under the Compact or the treaties, if the inflows above Lee Ferry and below Lake Powell of about 20,000 acre-feet are added to that total, it just happens to provide for a delivery of 8.25 million acre-feet. This could be interpreted as the Upper Basin's 7.5 million acre-feet per year plus half of the 1.5 million acre-feet that goes to Mexico. Therefore, despite the Upper Basin's objections, the criteria provide that the Upper Basin states are delivering half of the Mexican Treaty obligation, in addition to the 7.5 million acre-feet, annually.

Those of you who have been to Lake Powell have seen that the inflows, in the last six years, have not equalled that minimum release. In fact, Lake Powell is about ninety feet down at this point and time. The Bureau of Reclamation estimates that ten years of average conditions would be necessary to refill Lake Powell.

Another important aspect of the operating criteria acts in the discussions between the states concerning the operations at Lake Mead. Each year the governor, representatives of the states, and the Bureau of Reclamation meet and discuss the annual operating plan for that year. This year the process has been opened up to include environmental organizations, Indian tribes, and other federal agencies, such as the National Park Service and U.S. Fish and Wildlife Service. There are many different concerns that are being addressed at this annual operation planning process. In developing this plan, the secretary makes one of three choices for the allocation of water in the lower river. The secretary can declare a normal condition, meaning that 7.5 million acre-feet are available, i.e., California's 4.4, Arizona's 2.8, and Nevada's 300,000. If the secretary determines, based on storage conditions in the system, that more water is available then a surplus can be declared. That surplus is apportioned according to a formula among the three lower basin states. If there is a drought situation, the secretary determines whether a shortage situation can be declared, which provides that California, Arizona, and Nevada get less than their basic apportionments.

Finally, the criteria and the decree in Arizona versus California, recognized that if one Lower Basin state is not using its basic entitlement, another Lower Basin state can utilize that entitlement. Another state can, in essence, borrow the unused entitlement. Total Lower Basin uses have been creeping ever closer to the magic 7.5 million acre-foot number. California has been borrowing unused water from Arizona and Nevada. California's total use over the last several years has been about 5.2 million acre-feet, annually. As Arizona develops its entitlement through the Central Arizona Project, and booming development in Las Vegas continues, the political and legal pressures of reaching that 7.5 million acre-feet are going to be greater and greater.

That is an overview of each of the important documents in the Law of the River. Again, I think that the message that can be gained from reviewing the history and the development of the Law of the River, is that it is an integrated operation.

Secondly, the Law of the River provides a framework that is based

on historic, political, economic and social needs. When we look at the various alternatives, particularly in Colorado, the ramifications filter throughout that whole framework.

Finally, to reiterate John's point concerning how much water is in the river, the system originally developed based on optimistic estimates. Currently, total consumptive uses in the river, in each of the states, is about 11.5 million acre-feet. When the Mexican Treaty delivery of 1.5 million acre-feet is added the total is 13 million acre-feet. I think we need to be very careful when we consider proposals to lease unused entitlements or give up Colorado's entitlement.

In my next discussion, I will address the importance of knowing exactly what Colorado's entitlement is so that we can have a solid basis for making these decisions.

Questions for James S. Lochhead

Question: You began your presentation with the comment that Colorado has and does rely on the provisions of the Compact as the ultimate basis for preserving the Compact. Could you elaborate on that the nature of that past and present reliance. It seems to me that Mother Nature has simply provided a surplus that hasn't been used. I'm not understanding the reliance to which you relate.

Lochhead: The real consideration for the Upper Basin in entering into the Compact was this perpetual allocations, or the perpetual ability to develop, whether it takes 50 years, 100 years, or 200 years. If you look at the report by Delph Carpenter to the Governor of Colorado when he returned from the Compact negotiations, it is very clear that he viewed the allocations under the Compact as being perpetual and providing a basis for the Upper Basin states to avoid having to develop water projects just for the sake of developing water projects, and to avoid a race to develop water projects. That was really, I think, the essence of what Delph Carpenter was trying to achieve. Colorado did not have to rush towards premature development. I think that one of the basis of Governor Romer's proposal is that Colorado has the luxury of law and history to state that we can take our time to choose when, where, if, and how we develop our waters. That fundamental reliance on the ability to take our time and do it right was reflected in the joint legislative resolution. The resolution affirmed the position of the legislature that the Compact and the Law of the River provides a perpetual allocation to Colorado and Colorado has a right to develop that entitlement, no matter how long it takes.

Is the Law of the River Obsolete?

Lori Potter
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Is the Law of the River obsolete? When I began thinking about it and looked over the program for the conference it seemed to me that this question I am addressing is the topic of the entire conference, and not just my talk. It is a question that all of us will be well qualified to answer on Friday afternoon. I see the speakers to come as providing the pieces of a jig saw puzzle, in which I will try to provide a frame. It will be a new frame. A different frame than the two previous speakers have provided. I think that the evolution of the Law of the River is the topic, not only for the previous two speakers and the next three of us, but for everyone who is speaking here in these 2½ days.

When I was starting to plan my remarks I asked three lawyer colleagues the question, is the Law of the River obsolete? All three of them said the very same thing to me; they said it depends. I decided then and there that I was not going to give you a lawyer's viewpoint of this. Instead, I will give you a mosaic of views of non-lawyers and other people, some of whom, incidentally, happen to be lawyers. I think the answer to this question about Law of the River, curiously enough is not a legal answer. I tried to engage in lateral thinking, which I understand used to be called left-brain thinking and, generally, lawyers are not known for that. So, I had to draw on other sources to put together my remarks and many of those sources are attached to the synopsis I have prepared. I am going to do two things today. First, I want to give a cursory definition of the Law of the River. Secondly, I want to examine the forces that determine how and why the Law of the River has departed substantially from what it was envisioned to be, by the original signers of the 1922 Compact.

I will start by defining the Law of the River in a way that may surprise you. I begin with John Carlson's definition as it appears in the long article he submitted that is in your materials. "The Law of the River is a set of compacts, treaties, statutes, and judicial decisions developed to govern the river and allocate its water along the Colorado Basin states and between the U.S. and Mexico." This definition embraces many things that pick up where Jim Lochhead's outline leaves off, by including statutes and judicial decisions. His handout ends with 1970 and the Bureau of Reclamation's long-range operating criteria. Coincidentally, the 1970's are when environmental legislation began to be passed by Congress. Some of this legislation includes the Clean Water Act, NEPA, the Endangered Species Act, the Wilderness Act, and the Wild and Scenic Rivers Act. I think that Carlson's definition, by including statutes and judicial decisions, is broad enough to embrace all of those laws. It also embraces state in-stream flow laws, and state public interest provisions which have the practical effect of influencing how much water is used, where it is used, when it is used, and how much remains in the stream. Therefore, the definition I am using for the Law of the River includes the modern day environmental statutes and the judicial decisions that

interpret and apply them. To that definition, the economic, social and political forces that underlay those laws, drive the passage of those laws, and influence the judicial decisions interpreting the laws should be included. By using a definition for the Law of the River that includes all of these social, economic, and political forces, and all of the modern environmental legislation that effects water allocation, then my answer to the question, "Is the Law of the River Obsolete?", is no. It is not obsolete, it is evolving. The conference focuses on discovering where it is evolving to, how quickly, and why.

With that definition as my basic assumption, and the Compact of 1922 as a cornerstone, I will go on to explicate what I have listed as eight forces influencing the overall evolution of the Law of the River. Another basic assumption is that there have been some dramatic changes in the world since 1922 when the Compact was signed. The result of these eight forces, laws, and developments is that the seven states involved in the Compact will not neatly use their precise allocation under the Compact. The allocations will not necessarily be used by the states in the manner for which they were intended by the signers of the Compact.

I will focus my remarks on these eight forces. However, the audience might be able to think of others. Eight is not a nice round number. Maybe if you think of a couple more we could have ten. I will focus my look at these eight forces on how they affect whether Colorado will ever develop its remaining Compact share, roughly 800,000 acre-feet, in the traditional consumptive sense. I think these eight factors can be equally well applied to the other states with an unused share. I want to emphasize that I am going to tell you what others think, and not just what I think about whether or not Colorado will use its unused Compact share. Overwhelmingly, the loudest voices are saying, "No, Colorado will not use its unused Compact share." Here are the eight reasons I have been able to distill from reading everything from the Legal Journal to the Popular Press and to the in-house things that we all read as to why these people are saying that Colorado's 800,000 acre-feet will never be consumptively developed first.

Money

A good starting point is money. Money is necessary to build the projects that would store the 800,000 acre-feet. Some simple arithmetic can be used to estimate if there is enough money around. Approximately \$5,000 per acre-foot is a commonly used yardstick for development of a new water project. This totals \$4 billion dollars necessary for development of Colorado's unused share. Where is the state of Colorado going to come up with \$4 billion, given the problems that the state is having raising money for schools, or prisons, or the other things that the legislature meets in special sessions to discuss. Especially in the days when the federal government is removed from the business of funding dam construction and state and local entities are called upon to fund those projects. The prospect of coming up with \$4 billion, or any significant part of it, is pretty dim. This can be illustrated with regards to one of the water projects in the Upper Basin, Animas-La Plata, in which I am currently involved. Some refer to the project as a sacred cow project. There

is some environmental litigation over the project's compliance, or lack of compliance with some of the laws I have mentioned. Despite the project's sacred status, Jeris Danielson and David Walker are quoted in the *Denver Post Article* as saying that they are certain there is not enough money to finish Animas-La Plata, as designed. If the state and local entities cannot come up with the roughly \$200 million to finish a sacred Colorado project, where will Colorado ever come up with \$4 billion dollars to develop the remaining 800,000, of which Animas-La Plata represents only a part?

Dam Sites

Second on my list is dam sites. These eight factors are in no particular order, although money seemed to come first, somehow. Most of the dam sites have been used. Those that remain are in some pretty dicey locations from a water developer's perspective. They are in or above wilderness areas, or proposed wilderness areas where water project development is off-limits. They are above the habitat, or in the habitat of endangered fish, where very severe constraints effect any further depletions. They are above some very valuable stretches of recreational river, where the rafting industry has set down its foot and is likely to be hard to budge. For example, West Water Canyon on the Colorado, just over the Colorado border into Utah is a wonderful stretch of rafting river that is booming with tourist activity and rafting outfitters. This lack of dam sites is the second constraint on consumptive development of Colorado's unused share.

Legal Constraints

The third force, I eluded to earlier, are the legal constraints. The laws, and there are many of them, could be the subject of many more presentations. My point is that the Endangered Species Act, the Clean Water Act, the Wild and Scenic Rivers Act, and the Wilderness Act, are some of the laws which have very real effects on how much water a project is allowed to deplete from a stream, if any, and the conditions and costs that would be placed upon those depletions. The costs and conditions often discourage the ultimate development, or the follow-through on a project.

There are other kinds of legal constraints. For example, reserved rights relates back to wilderness bills. The Arizona Wilderness Bill, a couple of years back, established reserved rights for the very low areas on the Colorado and its tributary explicitly in the legislation.

Another legal constraint determines where water has to be flowing in-streams and how much. There are state acts, and Colorado has one. Most of the western states have in-stream-flow laws that affect this questions of how much water is in the stream and how much can be taken out.

Economics

The fourth constraint is economics. I am referring to economics as the relative value of water left in the stream versus water storage. Tourism, of which rafting and fishing are important components, is a strong force in Colorado's economy. It is closing in on first place in the other Upper Basin states. This has changed people's perspective on how important it is to leave water in the

stream. The value of tourism to the local economy is another factor which will inhibit or prevent Colorado from taking the step of consumptively developing its remaining share.

Public Opinion

A fifth factor is public opinion. Importantly, public opinion about the quality of life. In this light the debate reduces to dams versus free flowing rivers. A collaborator of Mark Twain's, Charles W. Warner, said that "public opinion is stronger than the legislature and almost as strong as the Ten Commandments." I think that we all realize that and see it so often that we are inured to it. Charlie Jordan wrote in today's *Post* "Water Series" that the Denver Water Board stated that new water projects these days require the support of the environmental community in order to continue. I think that the environmental community can be read rather broadly. Many people, probably most people, even President Bush, consider themselves environmentalists. Public opinion on these projects plays an enormous role in whether or not such projects ever leave the conceptual stage. If public opinion and non-traditional players play such an enormous role in determining what the law is going to be, then non-traditional players in the public also play a role in administering it and carrying it out. You have heard references to the fact that for the first time members of the public, and members of the environmental groups are getting involved in some of these Colorado River forums and water advisories groups and so forth. I think it is not a coincidence that all this is happening. It is not a coincidence that ten Indian tribes have joined together to explore jointly marketing their water on the Colorado River. It is not a coincidence that Jim Carrier's story about going up and down the Colorado was so well received and popular in the *Denver Post*. It is not a coincidence that we are here today, talking in one of the many forums about Law of the Colorado River and the public's stake in it, not just the traditional stake in it.

Need

The sixth factor is what I call need. This might be what John Carlson referred to as equity. It is the fact that where the water ends up depends to some extent on who needs it and who is already using it. We all know that possession is 9/10ths of the law. Ken Mitchell, who recently retired from the Denver Water Board, made an interesting statement in a story about the water buffalo days being over. He says, "I think we're going to be lucky to hang on to what we've got right now," referring to Colorado's remaining compact share. "I think Arizona and California already have a major handhold on a piece of Colorado's compact water. I don't think Colorado is going to get it back. They put it to use first and there's no question that California has a lot of political clout to try to keep it." He said that in March.

Tribal Water Marketing

The seventh, which I have already mentioned, is the tribes' desires to market their water and the great demand for water in the Lower Basin. This has a large influence on where Colorado water will end up. You are going to hear a great deal about that. I think there

is an excellent representation of the views of both the tribes and potential water marketers, and water consumers here at the conference. I would only underscore the point that demography and geography seem to be conspiring to keep the water in the Colorado River basin running down into California.

Politics

Eighth, we have, of course, politics. Consider the relative power of the seven basin states, and as John put it, we do not have the votes. The numbers are interesting and revealing. California has 54 votes in the House of Representatives. Colorado has six. Adding the votes of the other five basin states, that is to say Colorado and all of the others except California, and the total comes to 33. This imbalance of power will affect where the water ends up.

Is the Law of the River obsolete? If obsolescence is a continuum somewhere between very new and very old, between unchanged and completely changed, clearly the Law of the River falls somewhere on that continuum. It falls somewhere towards the change, but not necessarily obsolete. It is inconceivable to me that the 1922 signers of the Colorado River Compact envisioned even one-tenth of the social, legal, political, and environmental forces that now determine where Colorado River water is going to end up. Someone asked me during the break whether I thought it is Congress, or the states re-compacting, who can directly affect the Compact. I think that is a one-sided debate. David Getches, for one, believes that Congress can explicitly override, or amend a compact, by a piece of explicit legislation. Others, and I inferred from Jim Lochhead's remarks that he is among them, believe that Congress can affect pieces of legislation, such as the Colorado River Storage Act, or the Basin Act that was interpreted in Arizona versus California, but not override the Compact. That is a debate unto itself. I do not think that it ultimately determines or controls the eight factors that I have talked about today. The real salient aspect of where water ends up depends on those things short of amending the Compact, short of rendering it totally obsolete in a legal sense, or superseding it. I think the real forces are those eight.

It was interesting that 400 years ago that Shakespeare said, "it's a brave new world." Even that was many "new worlds" ago. I think that if one takes a fresh and broad view of what the Law of the River is, what constitutes it in a very broad and sociological sense, you would have to conclude that it is a "brave new world" for the Law of the River. Is it obsolete? I think not. However, I do think that the 1922 Compact signers would scarcely recognize it.

Lori Potter's comments have been edited by the staff at the Colorado Water Resources Research Institute. Ms. Potter has been out of the country and unable to personally edit her remarks.

Interstate Compacts: Colorado's Guarantee For the Future

Anthony W. Williams
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I was pretty nervous coming to Gunnison this morning knowing that I was to follow John Carlson, Jim Lochhead and Lori Potter, and I did not know what they were going to say. I have heard that repetition is the father of memory, and you are about to receive a birth of memory today. Certainly, by the time you leave here, some facts will have been addressed several times.

The question before us at this time in the conference, is whether or not interstate compacts are alive and well. Are they viable as protected measures for Colorado water? Since we are discussing a *Showdown on the Colorado River* we are concentrating on the Colorado River Compact.

There are only two methods that I know of for dealing with controversies between the states.

One of these is an agreement between the states that is called a compact. John referred to the fact that compacts are recognized by the United States Constitution, which contains the caveat that there will be no compacts without the consent of Congress. Colorado has 9 compacts. That maybe a record; I am not sure. Our large number of compacts might be anticipated because we have major rivers flowing out each of our boundaries.

The second way of dealing with interstate controversies is to file an Original Action in the Supreme Court of the United States. For example, when you hear someone refer to the cases of Kansas against Colorado, or Wyoming against Colorado, those were cases that were filed in the Supreme Court by one state to sue another. Colorado has been in four of those cases. The first case was Kansas against Colorado. That was decided in 1907. John talked earlier about *equitable apportionment* which began to evolve in that case. The next case that Colorado was involved in was with Wyoming and the third case was Texas and New Mexico against Colorado. With the last case we have come full circle, and we are back to Kansas against Colorado. This one is still going, as you undoubtedly know. This short reference to available procedures is of value for the purpose of this talk solely to indicate that the methods of dealing with controversies between states are limited.

The Compact recognizes the right of the seven states involved to develop water at their own pace. It divided, between the Upper and Lower Basin, the *exclusive beneficial consumptive use of the waters that were allocated to it*, and the quantities were *guaranteed in perpetuity*. Those words are not my own, they are Compact words. "*Exclusive beneficial consumptive use*" and "*perpetuity*" are words that have plain meaning. Plain meaning is very forceful in interpreting any statute.

I think Lori is the first one to mention the question of whether Congress can change the Compact by a majority vote at any time. That is a debated subject and probably if you counted votes, you would find more that support the view that Congress can change a Compact.

After the Compact was formulated it had not been completely agreed upon, as you know by listening to Jim Lochhead, but Congress then passed a law that approved that Compact. If Congress can pass a law to approve a compact, can they not disapprove of the compact? Have you ever seen Congress pass a law that it does not think it can change? I subscribe to the thought that Congress can, if it so decides, change the Compact. Notwithstanding the fact that the seven states may not agree to any proposed change. We are talking about the legal tower. There are several reasons why Congress is not anxious to undertake redrafting that Compact, even if they do have the power. There is a maze of federal and state legislation which support and enhance the Compact and makes it politically difficult, if not embarrassing, to try to reverse those decisions.

I wonder if many people are aware of the Colorado Statute that was adopted in the days when we were worried about the slurry pipeline. The statute said that if water was going to be exported out of the state an adjudicated water right that stated how much water was going to be exported and to where was necessary. There is nothing unusual about that. That is an extension of our normal adjudication act. The purpose and destination of the water must be stated. The interesting thing is the statute goes on to say that the state to which the water is delivered must count that water in their entitlement. As a matter of fact, if the water just passes through a state, such as a slurry pipeline, or a river flowing through Utah to get to California, it also has to be counted as a credit against Utah's share in addition to the ultimate state. That was adopted in 1977. I do not think it has ever come into play.

I want to indicate how these laws are all entwined and it is not just a simple matter to walk in and say "I want to change the Compact" to Congress. Many things will have to be examined in order to make that work.

Consider the Boulder Canyon Project Act, which is the act that provided for the operation of the Hoover Dam. At that point and time the Compact had not been ratified by very many states. Arizona had not ratified it, and the statute itself required that Arizona recognize the Compact and the divisions made in the Compact. It also said that California would have to ratify the Compact and limit its share to 4.4 million acre-feet. That is when the question of the California Limitation Act came up and the act was adopted. The act required that California take that action *irrevocably* and *unconditionally*. Those are two very plain words, and very plain words are helpful when they are found in a statute. Next, the Upper Colorado River Compact was adopted in 1948. Under that compact the water in the Upper Basin was allocated [words of the statute] "*in perpetuity*" among the Upper Basin states.

Incidentally, it was also provided in Article IV that any use of water by the United States, or its agencies, is chargeable against the state in which the use occurs. This can be of value as the United States gains more prominence within the river basin.

CRSPA was adopted in 1956, the Colorado River Storage Project Act, and that has been addressed. It was adopted to help the Upper Basin meet the commitment to the Lower Basin. Subsequent to the Arizona vs. California case, the Colorado River Basin Project Act of 1968 was adopted and Jim discussed that in depth.

Just as a matter of interest, some litigation that took place in the City of Gunnison last summer, involved both the CRSPA and the River Basin Project Act rather prominently because, as you know, the Aspinall unit is a CRSPA project feature. There were several questions presented to the court in connection with those acts; and the United States was prominent in its participation, both by presentations of evidence by witnesses and by their special counsel. The contention was made that the water stored in those reservoirs was not being beneficially used. There was no valid use. Anyone could take the water out of the reservoirs. That contention has not succeeded to this point. The water judge decided that the water was being validly used and he recognized that the water was partially used by letting it flow down the river to meet the commitments to the Lower Basin. Nonetheless, he recognized the use as valid and the appropriations as valid. It seems to me that sometimes we feel very divorced from these acts, and what is happening on the river. Then you realize when you go down and have dinner at the marina, or drive by there, that the reservoir, Blue Mesa, recently played a somewhat prominent role in litigation.

This analysis of the Colorado River since the 1922 Compact may not be totally exhaustive, but it is illustrative of the fact that state and federal legislation has weaved the apportionment of waters into the Law of the River and indeed the lives of the citizens and states that depend on the river.

As I said, I think Congress can change the Compact if it chooses to do so. I am aware of the political clout and power that is held by California. I am aware that there are many, many other areas in this nation with more political clout than the river basin sans California. Nonetheless, it is not a simple matter to assault this Compact straight on by legislation. While it would be difficult, it would not be impossible for the basin to emerge victorious. That is a risk that Colorado and the basin must live with. However, such an effort to change by legislation does not seem likely in the foreseeable future.

I agree with one facet of Lori's presentation. The greatest threat to the viability of our Compact comes from the Endangered Species Act, salinity problems, the Wild and Scenic Rivers, Wilderness legislation, etc. Section VI consultations relative to the operation of Flaming Gorge have been concluded. It changed the method of operation of that reservoir from its historical past. Consultation is ongoing with respect to Glen Canyon. It is about to start on the Aspinall Unit and the Navajo Dam will follow soon thereafter. I guess it is an irony of living that notwithstanding your right hand's ability to allocate the use of the Colorado River water, your left hand may extract that right of use under the protection of the environment.

No one recognizes more than I the fact that people make laws. We are in a sparsely populated area. However, I do not notice people changing the law of property, and yet the ownership of property is congregated in a small percentage of our population. Therefore, it is not simply a matter of people. There is a matter of the mores of society. There is the matter of law, basic law upon which this entire nation is based. While people change laws, they do not change the Bill of Rights. They do not change that which is sacred to them.

I have heard it said that water is sacred to people in the Colorado River basin. In reality today, the federal government substantially controls the operation of the entire Colorado River with its CRSPA reservoirs. They sit there with their computer, punch buttons and gates open and water flows. They have it right in their hands. Then when it gets to the Glen Canyon, they control it until it reaches Mexico. It is possible that a federal master could be appointed on the rivers at some time, but he actually would not do much more than the Bureau of Reclamation is doing right now. One additional thing that he might do is shepherd water from one state to another, if there was some reason to do so, i.e. if a state was trying to take more than their allocation.

I recognize there is a wide concern that once the Lower Basin starts using water, the Upper Basin is not going to be able to get it back. I do not really believe that. In the negotiations that are now going on, Jim Lochhead can tell you that one of the Governor of California's proposals describes how they intend to cut back to their allotted use. I guess when it comes right down to it we are like the farmer at the head of the ditch. We have a shovel in our hands and when we take that water they are going to have to come to us to get it back. It would be a lot different if the California population was here and we were down at the bottom of this creek. California is going to have to come here to get it. I am suggesting that they are not going to do so in the foreseeable future.

Questions for Anthony W. Williams

Question: We are above California, but how do you handle Denver who is ahead of us?

Williams: I have spent almost all my adult life trying to do that and I have not yet been able to conceive a method.

Colorado River Conflicts: Forcing Colorado to Face Reality?

Carroll E. Multz
Chairman, Upper Colorado River Commission

Despite what the program reflects, the topic that I will address will be "The Federal Role On The Colorado River."

Before delving into that topic, however, I would like my predecessor, the former United States Commissioner and Chairman of the Upper Colorado River Commission, Jack Ross, to stand and be recognized. Jack would you please stand.

At the last meeting of the Commission in Salt Lake City several weeks ago a resolution was passed recognizing and commending Jack for his dedication throughout his many years of service not only for the Commission, but for all of the Western United States.

As the newly appointed Federal representative and Chairman of the Upper Colorado River Commission it is a distinct privilege for me to address the 17th Annual Colorado Water Workshop. An unforeseen conflict prevented the former Colorado State Engineer, Dr. Jeris Danielson from attending today, thus giving me the opportunity to address this body.

The program reflects that Dr. Danielson's remarks would have addressed the topic "Forcing Colorado to Face Reality." Let me emphasize that I will not endeavor to reflect the views that Dr. Danielson might have shared with you. As the Federal representative to a multi-state commission whose budget is sustained by the states, I shall have to leave it to others to talk about forcing Colorado or any of the other upper basin states, for that matter, to face reality. After all, I do know who approves my check.

On the other hand, I thought it might be useful if I did describe at least a part of the reality that those who would seek to market Colorado River water on an interstate basis will face, and that is the unavoidable presence of the Federal government on the Colorado River. The notion of interstate marketing will be addressed by several speakers in the next two days, first by representatives of Native Americans and then on Friday by representatives of several of the seven basin states.

It is not my purpose to engage in the lively debate that is apt to unfold before you on Thursday and again on Friday. Rather, I will only attempt to offer a broad framework within which one can relate to the particulars that subsequent speakers will be addressing. I am, after all, representing the Federal sector and here only to inform.

I find it useful to characterize the federal role on the Colorado River as having three components:

(1) Reservoir operations and administration of water deliveries in accordance with the interstate compacts, Federal statutes, decrees of the United States Supreme Court and the Mexican Water Treaty, which are collectively referred to as the "Law of the River;"

(2) The Secretary of the Interior's trust responsibilities for Native Americans; and

(3) Administration and compliance with Federal environmental regulatory statutes.

Let me address each of these in the order presented.

Reservoir Operations and Administration of Water Deliveries

The Colorado River Compact of 1922, the Upper Colorado River Basin Compact of 1948, the 1964 Decree of the United States Supreme Court case in Arizona v. California, and the 1944 Mexican Water Treaty between the Republic of Mexico and the United States are the four legal instruments which established the basic apportionments of water between the United States and Mexico and, in turn, between the seven states of the Colorado River Basin. Upon this foundation there has been erected a superstructure of major Federal reservoirs and the Federal statutes governing their operation which, along with the United States Supreme Court decision in Arizona v. California, place the Federal government squarely in the middle of all Colorado River matters.

The Secretary of the Interior must prepare an Annual Operating Plan for the Colorado River mainstream reservoirs. The plan is required by Section 602(b) of the 1968 Colorado River Basin Project Act. At the heart of the Annual Operating Plan are five determinations which the Secretary must make with respect to reservoir operations and delivery of water.

The first determination, which is required by 602(a) of the 1968 Act, concerns the amount of water which is to be released from Lake Powell through Glen Canyon Dam. The purpose of these releases is to comply with the pertinent provisions of Article III of the Colorado River Compact. The Compact deliveries from the Upper Division states to the Lower Division states are measured at Lee Ferry, Arizona, which is just a few miles downstream from Glen Canyon Dam.

Secondly, Section 602(a) of the 1968 Act requires the storage of water in Lake Powell to the extent that the Secretary shall find this to be reasonably necessary to assure deliveries under the Colorado River Compact, without impairment of annual consumptive uses in the Upper Division states pursuant to the Compact. This so-called Section 602(a) storage determination is central to deciding how much water can be stored versus released, and whether water is maintained in Lake Powell or moved down to Lake Mead.

Third, pursuant to Article II(B) of the United States Supreme Court decree in Arizona v. California, the Secretary must determine how much water is available each year for annual consumptive use in the three Lower Division states, with the water supply of 7.5 million acre-feet being characterized as normal. If more or less than this amount is available, then the Secretary must make a surplus, or shortage declaration. The 7.5 million acre-feet is the amount of water apportioned by the Supreme Court from the mainstream of the Colorado River to the three Lower Division states with 2.8 million acre-feet being apportioned to Arizona, 4.4 million acre-feet being apportioned to California and, as the prior speakers indicated, 300,000 acre-feet being apportioned for consumption in Nevada.

The fourth determination, which the Secretary must make, is required by Article II(B)(6) of the 1964 United States Supreme Court decree. This Article states that:

"if in any one year water apportioned for consumptive use in a state will not be consumed in that state, whether for the reason that delivery contracts for the full amount of the state's apportionment are not in effect, or the users cannot apply all of such water to beneficial use, or for any other reason, nothing prohibits the Secretary of the Interior from relating such apportioned but unused water during such year for consumptive use in the other states. No rights to the recurrent use of such water shall approve by reason of the use thereof."

Until three years ago, this provision of the decree had not been of particular importance because the combined consumptive use in the three lower division states had never reached 7.5 million acre-feet. However, when the Central Arizona Project began operation a few years ago, Arizona was enabled for the first time to begin using its apportionment from the main stem. Thus, uses in the lower division states have now approached 7.5 million acre-feet per year and the Secretary's determination as to whether there is a deficit, normal, or surplus water supply, and his determination whether one states apportionment will be unused and, therefore, available in another state have become quite important.

The fifth determination which the Secretary must make is required by the Mexican Water Treaty of 1944. That treaty guarantees the minimum annual delivery to Mexico, as John indicated, of 1.5 million acre-feet. The determination which the Secretary must make each year is whether water above and beyond that annual minimum is available for release from Lake Mead and delivery to Mexico.

In addition to the promulgation of the Annual Operating Plan, and the five determinations which it reflects, the second major way in which the Federal government is involved in river operations is through the Secretary of Interior's role as the Water Master of the Lower Colorado River mainstem. This is a role which arises from the aforementioned provisions of the United States Supreme Court decree in Arizona v. California and from Section 5 of the Boulder Canyon Project Act of 1928. The secretary is authorized to execute contracts for the delivery of water from the mainstem of the Colorado River, and to prohibit the use of stored water from Lake Mead by anyone, except by such contract. Contracts have been entered into by the state of Nevada, the state of Arizona, and individual water users in the state of California. There are seven major entities, in this regard.

Under these authorities the Secretary must administer all water deliveries from the lower river, render an annual accounting of water use, and otherwise run the river. Indeed the administration of the Lower Colorado River mainstem has become sufficiently complex. In fact, so much so, that the Bureau of Reclamation is now in the process of developing formal rules and regulations for administration of the river and of uses of water therefrom. These rules and regulations, assuming their adoption, will become the formal expression of the Secretary's ultimate authority as the Water Master of the lower river.

In short, it appears that any of the interstate water marketing, leasing, or banking proposals which are heard in the next two days require the participation, if not the approval of Federal government.

Since any water moving from one state to another must physically pass through facilities owned and operated by the Feds, the presence of the Federal government is unavoidable.

Secretary of the Interior's Trust Responsibilities to Native Americans

The Secretary of the Interior, of course, has trustee responsibilities, for the resources of Native American tribes and communities. Among these resources are Federal reserved water right claims, some of which have been adjudicated or settled, others of which are still pending.

There are numerous unresolved issues concerning the legal characteristics of Indian reserved water rights which will come to play as the discussion of interstate marketing unfolds. Foremost among these is the fact that these water rights are creatures of Federal law and may, some will argue, have attributes that set them apart from other property rights. Secondly, both the Colorado River Compact and the Upper Colorado River Basin Compact provide that: "Nothing in those respective compacts shall be construed as affecting the obligations of the United States of America to Indian tribes." The purpose and the meaning of this provision has long been debated but never resolved.

Ultimately, the Secretary of the Interior, in executing his trust responsibilities, is likely to be called upon to deal with issues such as these. This is but one more reason that the Federal government will have to be dealt with by those who would seek to affect interstate water marketing.

Environmental Regulatory Laws

Traditionally, issues concerning the operation of the Colorado River have been framed and analyzed relative to that body of law, which has been referred to, by the prior speakers, as the "Law of the River." With the enactment of a wide range of Federal environmental regulatory statutes in the past twenty years, it has become apparent that the Federal government has also assumed a new role with respect to Colorado River matters. Foremost among these statutes is the Endangered Species Act. You will be hearing much more about this act tomorrow morning. Section 7(a)(2) of that act provides and I quote, "Each Federal agency shall insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary to be critical." Now in the opinion of the Fish and Wildlife Service, the Federal agency which is responsible for administering that act, with certain exceptions, operations of Federal reservoirs constitute an ongoing Federal agency action. Thus, in the past ten years, the Bureau of Reclamation has entered into consultations with the Fish and Wildlife Service concerning the operation of a number of its reservoirs in the Colorado River Basin. The result has been changes in the operations of reservoirs relative to what they have been. It is reasonable to expect that more changes will be forthcoming as an effort is made to

comply with the requirements of the Endangered Species Act.

Apart from the particulars of the Endangered Species Act, there is, of course, widespread public interest in the environmental impacts which major water resources developments have had over the years. Thus, analysis such as the ongoing Glen Canyon Dam EIS, are being undertaken to address issues concerning adjustments in reservoir operations. Any effort to market water on an interstate basis, since it will necessarily involve the operation of Federal reservoirs, will have to address such concerns to the Federal Government's satisfaction.

As I believe these remarks illustrate, propositions to move water among the states will most assuredly involve the Federal Government. Whether one views that as good or bad, it is nonetheless an inescapable reality.

As populations continue to grow we face the very real prospect that water shortages will become the norm rather than the exception. The days of the status quo are over. Growing demands and shifting priorities will increasingly require our country's best technology and innovation in water resource management.

As the Secretary of the Interior, Manuel Luan Jr. recently stated, the Federal Government is committed to three principles:

(1) The states have the primary responsibility for determining basic water rights and entitlement on the basis of beneficial use;

(2) The Federal agencies must carry out their mission as defined by the statutes and the legal obligations expressed by court orders; and,

(3) These governmental obligations must be carried out in an environmentally sound manner.

Perhaps the most important thing that Secretary Luan stated was that the best way that the difficult policy decisions facing government can be met, as well as the critical challenges ahead, is through cooperation and working partnerships among the Federal Government, the states, water users, and concerned environmental fish and wildlife interests. Partnerships directed toward meeting our resource development, management and protection needs have already demonstrated their usefulness. In the future, the necessity of such partnerships will only become greater.

As we prepare to enter a new century we face new sets of challenges: demographics, environmental considerations, drought and competing interests all presenting a complex series of difficult questions which must be addressed. These challenges are far beyond the bounds of the Federal Government's ability to solve them alone. But together, I have no doubt that we will be successful in passing on to future generations what President Bush calls "*A Better America*".

**The Law of the River
Panel Discussion**

Moderator: Paul Frohardt, Administrator,
Colorado Water Quality Control Commission

Question: Andy Williams suggested that although he does not believe that it is likely that Congress would do so in the near future, Congress does have the authority to change the current results, the current affect of the Compact and impose some different results on the states. I wonder if any of the other speakers would like to comment on that?

John Carlson: The Colorado General Assembly passed a resolution this year stating that Congress did not have that power to modify the Colorado River Compact. My own personal view is very much like Andy's. I think there are a series of Supreme Court decisions that suggest that a federal law, which a compact is, can be modified by Congress. I think the more interesting question is, when are there sufficient political constituencies to change a compact, or change federal laws? Although California has all the votes in the world in the House, they only have two United States Senators. In the Upper Basin states and the sort of forgotten Lower Basin states there are substantially greater numbers of Senators. I think the moral of modern times is that Congress has a hard time passing anything. I do not think our great threat is that Congress is going to repeal, or take away, the benefits of the Compact. It seems to me that a bigger threat to future uses, or future needs, in the Upper Basin is economic power, which maybe concentrated elsewhere. If the Compact and the Law of the River do not withstand some sort of regulatory authority over the operation of market systems then it seems to me that we have worse problems as a state. That is, if people share my view that we are trying to maintain and build a better society here as opposed to San Diego -- maybe the highest aspirations of most Colorado people is to move to San Diego. That I do not know.

Carroll Multz: Maybe, I am riding the fence, but it would appear to me that a lot of legislation, both at the federal level and the state level has been passed in the name of health, safety, and welfare. I can envision a time when it will be very difficult for even Congress to do anything other than to respect the use of water by populated and congested areas and take that water away and reconfigure it, or return it to agricultural or industrial use. I am not saying I agree or disagree with my venerable colleague from Grand Junction. However, I would say that in the sake of humanity it is going to be very difficult to take water glasses out of the mouths of little kids when health, safety and welfare require it.

John Carlson: I think that is probably true. I would like to comment on that. I do not think that is the kind of issue we face in water allocation. California has, thus far, rigidly resisted any kind of market operation within the State of California. Colorado happens to have a highly developed market system with some obvious constraints that the economist would criticize. In California the strategy has

been, historically, to tie up this federal project water and the state project water in defined uses, making it immune from operation of an internal market in California. We dedicate the uses to things that might not withstand market scrutiny and look elsewhere for our basic supplies. If we are dumb enough to count on that for a long term basis then maybe we deserve to die.

James Lochhead: I would like to follow up on that. One prime basis for the proposal that Governor Romer made a year ago was the issue that John was eluding to -- the potential threat of the economic power of the Metropolitan Water District of Southern California, and the need to push California to resolve some of the issues within California and, in fact, develop that market within California. I was speaking at a seminar a couple of weeks ago and was asked the question -- Colorado is the bastion of prior appropriation and free market systems, why then is Colorado so afraid of a prior appropriation doctrine on the Colorado River? I think that was a good question. I think there are two responses.

First is the fact that Colorado early recognized that the prior appropriation system on an interstate basis on the Colorado River would ultimately operate to our detriment.

Secondly, if we are ever going to have such a system, we need to level the playing field. California needs to have a free market system within California before they come looking to the Upper Basin and drying up the Grand Valley in order to provide water for metropolitan Southern California. I think that would only be right.

Carroll Multz: To piggyback from both Jim and John, I think I envision the most difficult job that the Upper Colorado River Commission will face, and Jack you can vouch for this I assume, is the balancing act, the balancing test. How do you balance all of the equities and the interests of seven different states? It is going to be a very difficult thing. If we had the answer, we would be consultants to the government and we would be making the kind of money that Jim Lochhead is making.

Question: Under normal climate conditions I believe evaporative losses in the Lower Colorado Basin are between 1-2 million acre-feet, which is a factor we need to incorporate into the management of Colorado River system. Several speakers had indicated the Lower Basin, including Mexico, has received 9 million acre-feet for several years during the 1980's, while over 20 million acre-feet actually passed Lee's Ferry. Apparently, none of this water entered the Pacific Ocean. My question is where did this roughly 10 million acre-feet go? Secondly, is the real evaporative losses several times the 1-2 million acre-feet estimate? If so, what is an accurate annual evaporative loss for both the Upper Basin and the Lower Basin -- at least educated approximation would be a good starting point? Finally, what are potential evaporative losses under mild, moderate, and worst case global warming conditions for both the Upper Basin and the Lower Basin?

Paul Frohardt: That is a pretty complex series of questions, but I

think those are things we need to be looking at for the 21st century.

John Carlson: I do not disagree that we ought to be looking into that. I do not specifically know any of the answers to the questions proposed. However, I know that evaporation losses are obviously much higher in the Lower Basin, but the accuracy of those figures I have no way of knowing. The people that believe in the market say that it will drive cures, conservation, or methods of controlling evaporation losses. Whether that is true or false, I do not know.

James Lochhead: I do not think that the 1-2 million acre-feet is totally off the mark. I think in the early 1980's, in the flood releases, there was significantly more water that went through the system and, in fact, reached the Gulf of California for the first time since modern development had plugged up the river. Quite a bit of water was spilled, and Gerald Zimmerman, from California, will, I am sure, tell you that California believes that should not be repeated, and the system should be operated more efficiently to capture that water and provide more water for California as a result. I cannot confirm those figures. I think that the issue of global warming is not an issue we should ignore, and I think it plays into the question that we will start addressing over the next couple days, about what we should do about Colorado's or Upper Basin's unused entitlement to water, and I think playing into that is the issue of what really is our unused entitlement. How much water is in the river on a long term basis? Is it 15 million acre-feet, is it 13.5 million acre-feet, or is it, as some have suggested in long term drought scenarios and tree ring studies, more like 9 million acre-feet, or 8 million acre-feet. The suspenders that we are hanging off of get pretty short if that is the case.

Question: This is directed towards Carroll or Jim. What is the quantification of the Indian rights in the Colorado River Basin?

James Lochhead: Not all Indian water rights have been quantified, and those that have been, were quantified in different forums. There was some quantification in the decree of Arizona v. California. There have been quantifications, in Colorado as a result of the water rights settlement agreement in southwestern Colorado. There is litigation ongoing in several states. It is an issue that is being handled on a case by case basis in several different forums. There are significant potential demands from Native American tribes on the Colorado River. There is certainly no doubt about that.

Paul Frohardt: I think we will hear a lot more about that tomorrow morning, as well. Other questions?

Question: Lori, as I understand it, you are of the opinion that we are going to be unable to develop that nearly 800,000 acre-feet of water that runs out of the state on the Colorado River. In your view, in light of A.W.D.I., Fort Lyon, and of agricultural dry up, is the Sierra Club going to support the development in any way or form that 800,000 acre-feet.

Paul Frohardt: I was getting worried, I have never been to a water law conference where the environmental representative was let off the hook. I did not know if there was going to be any questions for Lori or not.

Lori Potter: Jeris Danielson said on that fateful day, and I was there, that he thought Colorado would use its remaining 800,000 acre-feet, but it would use it in the stream. Furthermore, he said that the water was worth more to Colorado left in the stream, flowing out of the state, rather than taken out and developed in the traditional consumptive sense. His comment, at least as reflected in my notes, is that the chance of Colorado developing its remaining share is very slim. After going through the forces and factors I enumerated in my talk I would have to agree with him and agree that we ought to look at the very real possibility that water is worth more to us left in the stream, than it is irrigating some more alfalfa.

Question: You suggested that lack of money is one of the reasons why we were not going to be able to develop this water. I suggest to you that money does not seem to be stopping metropolitan areas from buying up very expensive agricultural water rights and constructing even more expensive ways to deliver them. I have to use the Two Forks example - - money was not the thing that stopped that hundred of thousands of acre-feet from being developed. I see that you are separating the environmental defense piece of Sierra Club from the Sierra Club. I want to know where you are going to be because I hear you, or people of your persuasion, testify before committee hearings that they do not like to see tumbleweeds blowing out in eastern Colorado. They do not like the impacts on school districts and communities of the dry up agriculture. It appears to me that the way you are going to resolve some of that, and I think history speaks well in my case, is by developing some of this water. I want to know if you are going to be behind the development of some of that water, or whether you are just going to dismiss development because of the notions that we cannot get people together, we cannot get money, we do not have the political clout, or whatever the excuse might be. I really would like for you to more specifically address whether the Sierra Club is going to support the development of that water, or not. It is the point I think you are skirting a little bit.

Lori Potter: I would refer you to the story in today's *Post* about water transfers from agriculture to metro-Denver. The environmental community, the Water Board and other project proponents are united on this issue. I would note that your question went, in part, to the monetary costs involved. In fact, it has been the case that buying agricultural water rights from willing sellers has been cheaper than developing new water projects. That is why it is happening, naturally. Transactions of that type, which, as we can see in the article I have indicated, have a broad consensus of people supporting that type of development of water. That is where I think you will see water developers and the environmental community coming together and supporting water projects in the future.

John Carlson: I do not know if it is on the topic, but a thought

occurred to me. It seems to me that we solve yesterday's problems with today's litigation, or social struggles. We are always reaching a resolution today about something that might have been more to the point twenty years ago. I wonder if that is true with regards to some of the thoughts expressed that recreation water usage is the future of Colorado. Perhaps that is the past. That might have been the function of really rich people, and maybe the United States and the people of the United States are no longer really rich. Maybe we cannot afford that kind of thing. Maybe we will have to do different things because we are poor. I would be curious if anyone thinks that is relevant in anyway.

James Lochhead: To me, it goes to the point that Lori mentioned that in 1922 the negotiators of the Compact would hardly have been able to conceive the development of the system of laws, regulations, dams, reservoirs, and everything else we have today. They had some pretty grandiose ideas, but those ideas were primarily based on a perceived need for irrigation in the Colorado River Basin. They certainly did not conceptualize the great recreation economies that would be built. They certainly did not conceptualize Las Vegas. Who could? It seems that a path that says, "We want to preserve the stream flows in Colorado, in perpetuity," or "We want to give up an entitlement to the development of water, in perpetuity," is, in essence, retrenching from the ability to do something with that water, in the future, consumptively. In fact, it says these are today's conditions, and these conditions will be in effect forever -- things will never change and therefore, we are going to give up the entitlement to develop. It seems to me, this should not be our position. I think that, as was the position of the state in 1922, we do not need to spend \$5,000 per acre-foot to build 800,000 acre-feet of storage today. That would be dumb. It would not legally put our water to use under the Compact. It would be a waste of money. The Compact gives us the ability to develop our water; to decide as Upper Basin states, as the people of the State of Colorado, when and how we are going to develop that water. If we do not do it for fifty years, that is fine, that is our right. Glenn Saunders used to speak of the Law of the River and to follow up on Andy Williams point of a social and economic structure, he said our society is built on a system of laws. If we do not have laws, we have anarchy. The Compact does, in fact, give us a foundation. It gives us a future to develop and hopefully, gives us assurance that we do not have to rush into premature decisions. I think it would be premature for us to give up our entitlement. On the other hand, I also think it would be premature for us to decide to build all kinds of storage reservoirs, and capture water in a bunch of buckets that we do not have a present use for. I would not like to see us lock ourselves in.

Anthony Williams: I would just observe that some of the discussion has ignored the fact that our allocation in the Compact is for consumptive use. When you talk about using it in the streams as Jeris did, you are not using much. You can devote the water in the streams to a use, but our allotment is still available because we have not consumed it. We may choose never to, but we have not consumed it. When you talk about the lack of money, what you are talking about is

the lack of need for the water. If your need is within limits, you will fulfill that need, but as Jim just said, we have not been able to find a need. No one is going to pay for something that they do not need.

Question: This is off the subject that we have been discussing, and I realize that it points to what is been scheduled for tomorrow. However, I would like for Ms. Potter to comment. It seems to me that much of the litigation of, not only the Sierra Club, but the entire environmental community is on water projects. The net result seems to be water running out of the state and into the Lower Basin. Are there not endangered species below the Imperial Canal, or is it just coincidence that the emphasis of the Endangered Species Act seems to focus on the Upper Basin with the result that water goes to the Lower Basin?

Lori Potter: I know that there are a great number of endangered species in California. Some very controversial ones were the source of the Wall Street Journal article calling for the repeal of the Act. I think that you chose to bring the debate to the use of the Act for what you might consider an improper purpose. However, I would submit that the Act, which was passed by Congress, is being used for the very purpose it was intended. That purpose is to protect the availability of a broad genetic pool, and to protect our heritage from the past for its possible use in the future. The Act is applied wherever those species are found. We naturally hear more about those species in our part of the world, but endangered fish, for example, are found throughout the Colorado River Basin. The Act applies to them and protects them equally wherever they are found.

Question: I have a concern, rather than a question. We are here discussing water and the problems associated with water. It does not seem to me, by looking over the agenda, that we are addressing the fundamental problem, which creates the problems of water -- that is people. I read an article recently that said the population trend would not reach zero growth for 104 years, and by that time there would be slightly more than the double the current population. My concern is that regardless how much we address water, until we deal with population on an equal basis it is a feudal effort. I think that everyone needs to give that some thought. We can try to save pristine streams and wilderness areas, but until we solve the population problem we are not going to preserve the environment for the long term. I live on a ranch, and in my opinion, that environment is better than the one in downtown Denver. I do not think that ranch is going to be protected, or the environment is going to be protected until we can deal with the population.

Lori Potter: I have to agree and would like to recall the words of Bruce Babbitt, who, since leaving the governorship of Arizona, has taken a very radical and controversial view on this very issue. He speaks of some of the small towns created in the mining boom years, which are now virtually ghost towns. He speaks of them as "wretched little places that have no reason to exist." His point is that many of the locations of cities and small towns of the southwest are more

or less historical accidents. Phoenix is a great example -- here, in the midst of the desert, people water Kentucky bluegrass, fill their swimming pools, and run air conditioners 24 hours a day. Why is that? Is it right that we have huge concentrations of populations in places like Phoenix, Las Vegas and southern California, where there is not the water to support them. I think you are right in two respects. First, we must consider the sheer numbers. Secondly, we must consider where we have chosen, whether by historical accident or economic circumstances, to concentrate those populations.

Question: John, your comment started me thinking. I am an economist, and I think that on one hand we are becoming poor. I would have to exclude water attorneys from that category, of course. However, philosophically speaking, I would rather be very poor but still be able to walk around and appreciate a river. While I cannot afford to fish in it, it is still there and I can appreciate it. I think the equivalent of bankruptcy would be for a city to pipe that water and completely destroy the river. I think that is the difference between being poor and being bankrupt. I also have a question for Carroll. Let me see if I understand you correctly, did you say that you were formulating new rules and regulations that would be a reflection of the Secretary of Interior?

Carroll Multz: No, the Secretary of Interior would be a reflection of the federal view.

Question: But you are creating a new set of rules of regulations, that is correct?

Carroll Multz: That is correct.

Question: Who is doing that?

Carroll Multz: The Department of Interior, Bureau of Reclamation.

Question: That would then be a reflection of the Secretary of Interior's will.

Carroll Multz: Not necessarily, I am saying that the Department of the Interior would have to carry out the policies of the federal administration. In other words, that would currently be the Bush administration.

Question: The next Secretary of Interior would then not be bound to those rules and regulations, correct?

Carroll Multz: That depends on how deeply entrenched we are. If they are like any other agency's rules and regulations, they would be inherited by the next generation.

Question: I do not have a question, but I wanted to advise Carroll that not all projects are federal projects. When the federal government endeavors to create a program that involves private water companies and you ask for a tripartite participation among the

federal, the state, and the water users involved, please remember that we are not Bureau projects. We do not operate that way and we deserve different consideration.

Carroll Multz: Not only do you deserve different considerations, you deserve better consideration. The Bush administration feels the primacy is the state's right to move everything to the states. The instances in which there would be federal intervention would be a result of federal funds, interstate storage, transportation, or anything that would come into exercising interstate commerce. As you know, and from listening to the Secretary of Interiors comments, which reflect the policies and thought processes of the Bush administration, that they want to turn as much over to the states and local government, and more specifically local governments, rather than have the federal government involved. You are correct Ruth, and your comments are good. I agree with them, for whatever that is worth.

Question: We have had two speakers that have told us in one way or the other that the Compact is something that Colorado really does not have to worry about, in terms of putting more water to consumptive use. The first was Jim Lochhead's view that we have the water in perpetuity, and there is no point in building bathtubs right now, if we do not have a use for them. Secondly, Lori Potter has made an argument that the Law of the River, as it is traditionally defined, may become increasingly obsolete and will have to be redefined to include environmental laws. My question, to Jim and John, is if we come back here ten years from now, are we going to mention the Compact only as a footnote to concerns about developing Colorado water for consumptive use, and focus the conference entirely on environmental law? Will the Compact, in fact, have become irrelevant ten years from now.

James Lochhead: I hope I did not give the impression that we do not have to worry about the Compact, or that the Compact is irrelevant. What I was trying to convey is that the Compact, in fact, forms the foundation of the entire complex of laws that have been developed. It is the foundation of Colorado's entitlement. It is something that Colorado is very concerned about and for which Colorado has been fighting since before 1922. I think my point was that it is an entitlement that we have a perpetual right for, and we do not have to rush to premature development to try and accomplish it. That does not mean that there are not threats to the entitlement today that we need to be worried and concerned about. I think that we will come back here ten years from now and the Compact will still be the foundation of operation under the Law of the River.

John Carlson: Just a comment. If we knew what our national economic future held I would feel more comfortable responding. I was playing devils advocate by trying to suggest that as people get hungrier they do different things than when they are rich, fat and sassy. We are still thinking of ourselves as rich, fat and sassy, but maybe we are not that anymore, as a nation, as a people, and as a state. I think that eventually, legal institutions, social institutions, and popular political movements will respond to economic conditions. I would say

to you, that if we are the lowest kind of service economy -- a state of busboys and waitresses -- ten years from now, we may have a different impetus for use and development of water than we do now. I think that the point Jim is making is not so much that the Compact is the be all and the end all, but it is a piece of defense for Colorado, to the extent that we want to better our political, educational, and social standard of living. If we decide that we do not want to, we do not have to rely, utilize, or call on the Compact, in any sense.

Lori Potter: I just wanted to add two points. These points were a little too heretical to make earlier. However, apparently I have not been controversial enough. So, I will make them now. To begin with, I want to discuss the use of this word entitlement. One viewpoint challenges the very foundation of the Compact, or the idea that political entities are entitled to water, and in the amounts that are stated in the Compact. This viewpoint holds that the water belongs to watersheds and the ecosystem. In this viewpoint, states are just, again, accidents of political histories. Their boundaries are drawn arbitrarily, with no regard to the health of the ecosystem, or the things that are found within it, the things that depend upon it. This view suggests that the whole notion upon which the Compact was founded, the notion that states are entitled to water, is completely fallacious and will in the big picture of history, maybe not in ten years, be totally undermined.

Secondly, I wanted to address this number we have been using as the remaining undeveloped Colorado share. I had some questions earlier about whether environmental groups were going to support development of that share. The point is that having written numbers within the Compact gives those numbers a life of their own. For some reason, because 800,000 acre-feet are left undeveloped, many automatically subscribe to the view that it must be developed. I would submit that those numbers are as arbitrary as the political boundaries of the states that have these various shares that some refer to as entitlements. If 800,000 acre-feet was 200,000 acre-feet, we would be talking about ways to use 200,000 acre-feet. Yet, we know, as John's paper discusses in length, and it is a theme of this meeting, that all of the numbers in the Compact are off by some percentage because they were calculated in years when flows in the river were much higher than they are now. Therefore, that the 15 million acre-feet, assumed to be in the river, was possibly a mistake that formed the nucleus of the Compact. I think those are two basic assumptions that we could question if we wanted to get very philosophical. That is not on the agenda this year, but ten years from now it might be.

Paul Frohardt: I have a feeling that those comments could generate another hour or two of discussion, but it is past 5:30 and we should bring this to a close.

Native American Water Rights, Interstate Compacts & Water Marketing

Scott McElroy
Attorney, Green, Meyer & McElroy

I appreciate the opportunity to speak today. As Fred mentioned, I come to this conference with the perspective of an attorney who represents Indian tribes. Obviously, I cannot give you the tribal perspective. That task will fall on George Arthur and Jerald Peabody. What I hope to do today is set the backdrop to the current controversies that are ongoing on the Colorado River as they affect Indian tribes. Much of the discussion at the end of the day yesterday helps to frame what I want to say about the rights of Indian tribes on the Colorado River.

Yesterday, there was a discussion, perhaps a debate, or perhaps even an argument, concerning how Colorado might choose to use its allocation of the waters of the Colorado River. On the one hand, we heard strong advocacy for the idea of leaving Colorado's unused portion of water in the stream. There were many benefits that could be achieved from that. On the other hand, we heard people who contend that development is the way to go, whether for irrigated agriculture or municipal uses.

The point that needs to be understood, with regard to the situation for Indian tribes, is that decisions concerning Indian water, or Indian water rights, need to be made by the tribes themselves. This is where the situation is today. The tribes are the ones who should be controlling how their water is use -- not the state and not the United States.

The idea of tribes as sovereigns and as governmental bodies with regulatory authority is something that is very well-founded in the jurisprudence of our country. In the earliest days of the country, during the time of Chief Justice Marshall on the Supreme Court, there is record of tribes being recognized as sovereigns; "*dependent domestic nations*" is the word that he used. That theme has continued with some ebbs and flows, but continued nevertheless, up to the modern day. The way that it is described most frequently by the Court nowadays is that tribes are sovereigns with control over both their members and their territories. However, the courts today, sometimes stumble and cannot quite get it right; particularly, when dealing with issues affecting regulation of non-Indians on the reservation. When it comes to control over tribal resources, however, the court is quite clear that tribal resources are to be controlled by the tribes. How does that relate to the question of reserved water rights?

In the earliest cases involving Indian water rights, the question of tribal governmental authority was a central issue. The first Supreme Court case that announced the Reserved Rights Doctrine was *Winters versus the United States*, which was decided in 1908. It involved the Ft. Belnap reservation in Montana and the waters of the Milk River. The Court decided that the tribes were not subject to state water law. According to the court, at the time that the reservation was created, sufficient water was reserved for the tribes

to accomplish the purposes of the reservation.

The treaty called for the Tribes to make a the transformation from a nomadic lifestyle to one involving irrigated agriculture and *the arts of civilization*. Water was set aside for these reservation purposes. The right was recognized under federal law, not under state law, and was quite different from state water rights. There was no need for the tribes to put that water to use to establish a priority date, rather the priority date stems from at least as early as the time the reservation was created. That case has been cited many times. I am sure that many of you are familiar with it. We commonly talk about it in the context of how to quantify tribal water rights. But, if you go back and look at the opinion, you find a great deal of discussion by the Supreme Court about how the tribes had "command of the waters." Again, the Court goes back to this notion that tribes were sovereign with control over the resources within their territory, both before and after the treaty. Before the treaty the tribes had control over a large area. When the treaty was passed and the tribes agreed to accept a smaller reservation and make this transformation, the tribes retained control of the water. I think that we will see that the control issue is equally as important as the quantification and treatment of the tribes' entitlement to water rights.

The Winters Doctrine or the Reserved Rights Doctrine has a mixed history from 1908 up into the 1960's. There were numerous cases in which the Reserved Rights Doctrine was recognized. The doctrine was expanded to apply to reservations that were created other than by treaty, i.e. those created by executive order. In general, there was an acknowledgement of the existence of the doctrine, but it remained quite vague.

In 1963, however, the Supreme Court issued its opinion in *Arizona versus California*, which you heard about yesterday. What is important from the tribes' perspective is that in *Arizona versus California*, the United States intervened and asserted water rights on behalf of all 26 tribes in the Lower Colorado River basin. The Court ultimately decided only to address the question of main stem rights, and the Supreme Court awarded nearly one million acre-feet of water to the five tribes along the main stem of the Lower Colorado River basin. That was the first time that the Court addressed a permanent or perpetual quantification of the tribal rights. For those reservations, the Court used a standard which is called the *PIA* standard because it is hard for most people to say *practicably irrigable acreage* with any ease. The idea was that at the time the reservations were established, the tribes were meant to have enough water to irrigate all the *practicably irrigable acreage* on the reservation. There is some dispute about exactly what that means. I think *practicably* means exactly what it sounds like; "*what is reasonable*," economics also plays a role in it. In any event, it was a substantial quantity of water within the Lower Basin.

The focus after *Arizona v. California* has been to find a way to quantify the tribal water rights. Not very much attention is paid to the issue of how are those water rights regulated, who ought to have control of that water, and what opportunities do the tribes really have to put their water to use. Nevertheless, there was law review article written after the *Arizona versus California* decision that anticipated many of the issues that we are talking about today. It

was written by Charles Meyers, who was a distinguished law professor at Stanford and at the time was a clerk helping the Supreme Court Special Master in the decision. I want to ask your indulgence in letting me read to you what he said concerning the topics that we are discussing today, as he is probably less biased than I am. What he said in 1966 following the decision of the Supreme Court, was this:

The Master also sought so far as he might to facilitate the best economic use of Indian water. He noted that his quantification of the Indian water on the basis of irrigable acreage, was not intended to limit the use of water to agriculture. While he did not decide the question of change of use as it was not before him, he at least struck off one shackle that might impede economic maximization. He also suggested that nothing in his proposed decree, forbade the transfer of land and water together, were of the water right alone. By thus inviting attention to two essential characteristics of a marketable property right, freedom of transfer, and freedom of use, and by establishing a third in the recommended decree quantification, the Master opened the door to creation of a market in Indian water rights, if the Indians and Congress so desire.

Looking back, that seems quite insightful because certainly that is not the common perspective concerning the effect of Arizona versus California. His perspective has not been the common approach until very recently, in terms of addressing the issue of Indian water rights.

Turning for just a moment to the question of the Upper Basin, the tribes in the Upper Basin have proceeded in a different fashion than the massive litigation of Arizona vs. California. Each of the tribes in the Upper Basin has had to confront the issue of water rights, how to protect those water rights, and how to put those water rights to use in a different way. In Colorado, as many of you know, there has been a comprehensive settlement of the water rights of the two Ute tribes. The Northern Ute tribe in Utah is currently trying to reach a settlement. There is a pending settlement for the Jicarrilla Apache tribe. I will leave it to George to talk about the Navajo water rights because it is a subject in and of itself, but again they are struggling with the question of both how to protect their rights, and how to take advantage of their rights. I think it is fair to say that the tribes in the Upper Basin probably have claims and control over one million acre-feet of water. This is very similar to the quantities in the Lower Basin, and is a very substantial amount of water.

The question, of course, that we have today is how do these rights fit within the Law of Colorado River, and the two major compacts on the River, i.e. the 1922 Colorado River Compact and the 1948 Upper Basin Compact. My answer to that is quite simple, they do not fit within it, and they are not a part of it. It is true that the decree in Arizona versus California talks about charging tribal uses against the state in which it is used. There is a similar sort of provision within the Upper Basin Compact, but the minutes of the 1922

compact, show that the issue of tribal water rights on the Colorado River was considered relatively shortly after the Winters decision and that the commissioners involved in negotiation of the Colorado River Compact did not know what to do with the tribal rights. Therefore, the solution proposed by Herbert Hoover, the federal representative, was that language be included indicating that the tribal rights were not covered by the compact. As a result, there is an article in the 1922 compact that provides that "*nothing in this compact shall affect the obligations of the United States to Indian tribes.*" There is similar language in the 1948 Upper Colorado River Compact. There is also language in the 1922 compact about the protection of *present perfected rights*. *Present perfected rights* are those rights, of course, that were in effect prior to the time of the 1922 compact. The tribal rights qualify as such rights. To the extent that the tribes were in control of their rights, there is no indication that when the 1922 compact came into existence and the 1948 compact came into existence, there was any intent to bind the tribes to the provisions of the Compact.

It is also true that if you look at the compact, many of the restrictive phrases, particularly in 1922 compact, that control the activities on the River are specifically addressed to the states. For example, Article 3.E, which says the Upper Basin states shall not retain water unless it is needed for domestic and agricultural purposes, and limits the types of calls Lower Basin states can make on the Upper Basin, is directed to the states. Article 3.E does not say anything about the tribes and it does not say anything about the federal government; it is directed to the states. Read together with the minutes of the Compact and Article 7, the escape clause for the tribes, leads me to conclude that, when all is said and done, the Law of the River does not apply to the tribes.

Where does that leave us on the subject of water marketing? Well, when we talk about water marketing, I think it is important that we define what we are talking about. When I use the phrase water marketing, I am really talking about the tribes choosing to allow others to use tribal water off the reservations in return for compensation. I am not talking about increasing the quantity of water to which tribes are entitled because of their ability to market. I am not talking about putting water to use in a way that injures others any differently than if the tribe were to put that water to use on the reservation. To the extent that tribal water rights are not in use today, obviously, putting those rights to use may in many instances cut off other users. That is the necessary result of the Reserved Rights Doctrine as the Supreme Court has interpreted it. In short, we are not talking about having any additional injury above and beyond that which results from other tribal water uses.

The argument in favor of tribal marketing is quite simple. At the time an Indian reservation was created, the tribe in question obtained a vested right to a certain quantity of water and it has command of that water, just as was said in the Winters case. Water itself, of course, has been deemed by the Supreme Court to be an article of commerce and that same reasoning ought to apply to tribal water rights. In addition, there is a long standing federal policy, which we have not talked about here, but is found in many of the tribal fishing rights cases, that says you do not lock the tribes into

historical situation. The federal policy towards Indians and the tribal sovereignty itself allows their institutions and their rights to evolve with time.

Where that all leads me is that in today's situation where tribes are facing tremendous economic pressures, many of the same sorts of concerns that water developers are facing in terms of restrictions on federal funding, and environmental issues, the tribes themselves should be the ones who make the choice about whether to put that water to use right now on the reservation, if they can get the funding, or decide that in the long run the better economic use of that water is leasing in which there is a greater economic return.

The question of whether tribal water marketing ought to go forward has come more and more to the forefront in recent years. In 1983, the Department of Interior endorsed the concept of tribal water marketing, particularly in the context of tribal water settlements of their water rights. In 1983, in a spin off case of Arizona versus California, three of the Supreme Court justices endorsed the idea of tribal water marketing. Although it was an unsolicited and gratuitous comment, it was still three justices of the Supreme Court speaking.

I guess the last question that comes up is what other obstacles might exist in terms of tribal water marketing? The most apparent one is what is known as the Indian Nonintercourse Act. Some of you may know, there is a restriction on the alienation of tribal property. Congress has said that in order for tribal property to be alienated, the tribe needs the approval of Congress. There are a number of ways that Congress has addressed such transfers. In some instances, Congress has given specific authorization for the transfer of particular tribal property. In other cases, such as the tribal oil, gas, or other tribal minerals they have established procedures that must be followed for the tribes to lease or otherwise alienate their property. I think there is a substantial question about the extent to which the Nonintercourse Act applies to the leasing of tribal water. The tribal land leasing statute, 25 U.S.C. 415, authorizes the lease of tribal land and water together. Many would argue that the statute also authorizes the tribes to lease their water separately. Since the restriction in the Nonintercourse statute on the lease of water rights is directed on the alienation of tribal lands, the use of the term "lands" in section 415 ought to be sufficient to allow the lease of water rights.

To conclude, I think that there is a framework in law, in policy, and in equity for the tribes to have the freedom to make the choices that need to be made in terms of how to best use their resources for the benefit of their tribal members. I think those choices are going to be hard for the tribes. George and Jerald can speak to that question far better than I can. I think that accomplishment of this result will require a lot of creative thinking on many different people's part; it may also involve a lot of disagreement. But I think there is a tremendous amount of resolve among the tribal people in the Colorado River basin to deal with this issue and get it resolved.

I will leave you with a good news and bad news story. In another case, I work with an engineer who was born and raised in Africa. He came to this country to go to school, and now works here as an irrigation engineer. He would like very much to return to his home country and work on irrigation projects there. We were eating lunch

one day and he was telling me about a project that he was involved with in Africa. He said that there is some conflict over whether his country can use the water, or who should be allowed to use the water. I said, "that's good, lawyers need work too, not just engineers." He said, "No Scott, this is not going to be resolved by the lawyers, it is going to be resolved by the Generals." I guess the bad news is there might be a lot of lawyers involved in resolving this problem, but the good news is that there is not going to be any Generals.

Questions for Scott McElroy

Question: In light of the recent Wyoming decision, does this cause some kind of set back to what you have just talked about? Or, how long do you think it is going to take the federal courts to reverse that decision?

McElroy: The question was, how does the recent Wyoming Supreme Court decision affect my evaluation of what is going on in terms of tribal control of tribal waters.

That is a good question. The Wyoming decision was wrong, of course, in my view, but I am not on the Supreme Court. In reality, as I read that decision, it is tied very closely, although not very well articulated, to the Wyoming court's earlier decision about the nature of the tribal rights. I think it is a pretty fact-bound situation that they have presented. Their analysis of the law is stated in a very general sense and conflicts with some of what I have said today. I do not think that it is what the U.S. Supreme Court would decide if it was confronted with the same issue. The situation is a very difficult one and the court had a very difficult problem in front of it. The court set out to resolve the problem it was facing in terms of injury from the in-stream flow uses that the tribes wished to have. I do not think you can look at it as a general approach to how the issues ought to be resolved. I think that you have to look at the problem that was there and you have to look at what the Wyoming Supreme Court had said in 1983. The court's decision is really a reinterpretation of what it said before.

The Ten Tribe Colorado River Partnership

George Arthur
Vice Chairman, Resources Committee,
Navajo Nation Council

It is a great pleasure to come before you this morning. I am a member of the Navajo Nation Council and I am here on behalf, not only of the ten tribes, but also on behalf of the Navajo nation. I am not a lawyer. Within our tribes we encourage our young people to go school, learn, and acquire skills and wisdom so that they can and come back to help their peoples, such is the case today. I would like to introduce to you the young lady that is a member of our tribe that has gone off to school and she is my lawyer. Bernadine Martin could you stand?

I was asked to give a twenty-five minute talk, but I was taught by my parents if you do not have anything to say, keep your mouth shut. I do not know if I can say enough to expand over twenty-five minutes, but I will try.

Over the past few months the tribes along the Colorado River have come together and have been talking. This particular discussion, this particular procedure was implemented back in December. California took a position and out of that the Indian tribes gathered and stated that we would need to come together and present a position. We all know that there is a great need for the water in various sectors of our country, especially in the southwest and more so in our homelands along the Colorado River.

Yesterday, there was discussion about the Law of the River. Is it obsolete? We, as Indian people, feel that it was obsolete the day it was written for the fact that we were left out, not because we did not want to talk, not because we did not want to participate, but because we were just left out. Because of that the river faces many problems. Today, we are faced with many problems. In 1922, if we would have sat down together, perhaps these mountainous problems that are facing us today would not be so. However, because of the concerns that were brought out at the session in Las Vegas, Nevada and because of what the Indian people along the river feel is their right, and is their right, we are willing to come to the table and talk and see what we can work out, what we can agree on.

This morning there was a comment made about controversy, why it existed, and how it developed. Controversy, to me, develops because we do not communicate. We do not sit down. We do not talk to each other. How can we understand, how can we know what the other one feels, or what the other one's positions are when we do not sit down and talk it over? As I stated, the ten tribes are willing, individually, to talk and see what they can offer and what they can work out. Yesterday, there was a comment made from this podium that the ten tribes are coming together. Yes, we are coming together, but bear in mind it is very important that we come together with one voice, but with different interests. We are not coming together on the pretense that the ten tribes are under an umbrella and that whatever is agreed upon is the position of the ten tribes. The ten

tribes that are within this partnership in the Upper Basin are Pecuris, Apache, Southern Ute, Northern Ute, Ute Monute, and those in the Lower Basin are Chimawave, Cocapaw, Ft. Mojave, Croacian, and Navajo. The ten tribes have unique geographical boundaries that straddles both the Upper and Lower basin.

We hear discussions and reference to surplus water. In December, the President of the Navajo Nation, Mr. Peterson, after hearing what California's position was, cautioned the states and federal government that the so called surplus water in the Upper Basin was undeveloped water reserved to the tribes. You must bear in mind that although the need maybe in California, the need maybe in Nevada, it cannot be addressed without having those states come to the tribes with their interests.

In respect to the ten tribes partnership, each tribe has one representative. As I stated each should contain complete authority of its own resources. The need for leadership would be determined by the ten tribes who will be responsible for its administrative affairs of the partnership. This position will be rotated among the members of the tribes. Also, out of this, a three person team is created to be the spokesperson and to carry out the discussions concerning the operation and use of the Colorado River. The three people, are myself, the next speaker Mr. Jerald Peabody of the Ute Monute Ute tribe, representing the Upper Basin, and Mr. Fritz Brown of the Croacian tribe, representing the Lower Basin. The three of us are presently scheduled to talk with the state of Nevada. We do so eagerly and with high expectations that out of this we will begin to collate efforts that will address the needs of the states that are supposedly short of water, and address the interests of the Indian tribes from an economic and a legal standpoint.

One of the main issues that is before the ten tribes, as individuals, is the opportunity to market their water. This is a new concept in terms of how Indian people are thinking. Water has been precious to the Native Americans, as well as to the communities, municipalities, and the seven states along the Colorado River. We all know that the various tribes in the southwest are economically disadvantaged. Within the Navajo nation our unemployment rate is as high as 45 to 50%. We have a population that is nearing 250,000. The percentage of youth is the majority. Before us, as a nation, lies the question how do we economically develop? Keep in mind that we are willing to be a contributor to the economy of this nation.

Years ago the great president, Mr. Lincoln was supporting equal opportunities for the blacks, and his position was strong with respect to slavery. As he was saying that, before him was legislation to develop and finance one of the greatest tragedies in the United States and that was to develop Ft. Sumner. The Navajo refer to it as the Great Long Walk. We took that long walk and on the way many of our people died. We were not even given the opportunity to bury them. We came back, and we went to be taught the new lifestyle, to be farmers, to be agriculturiers, to be self-sustaining. Some 700 years later, we have reached that; we are farmers; we are agricultural. We know what we need to do with our water. We have had our water developed with the Navajo by Congress, by law, in accordance with the treaties that we agreed to sign and live by. That law established the water projects and out of these laws and out of Congress came Navajo

Indian Irrigation Project. Today we are farming 60,000 acres. We contribute \$25-30 million dollars to the various municipalities within the states. We permanently employ 350 people. We are learning; we have learned. As I stated earlier, we are willing to sit at the table, discuss, and talk. From 1922 to this day, the Indian people along the river did not move and we are not going to go away. Let's work together and together we will survive.

Yesterday, there was also a discussion about being environmental. Certainly, we know what environmental is. That was our lifestyle. We used what we needed, and now we are faced with shortages in various areas. I sit amongst you wondering how could this happen. Why is it that the cities of California, the cities of Nevada are short of water? Why do people do that? Many years ago, we moved and we followed what we needed to exist on. Perhaps, we need to take a look at that, a basic formula of survival. Like I said, we know what environmentalism is, what the issues are. It is not new to us. For the people who are here in the audience representing the interests of the environment, please work with us. If you would look back in Indian history some of the greatest environmentalists are the Anasazi Indians. Look what happened to them. They are extinct because they forgot about themselves. Let's not be in that situation. We can live with the environment. We can live together.

In closing, the water certainly is the liquid gold that it has been referred to by various news articles to the Native Americans. In the past we have been undermined, or misrepresented, both by our own legal advisors, and by the federal government for resources that are rightfully ours. At this point in time, as I introduced the young lady before you, we do not intend to make that same mistake. We will come before the states that are interested, the entities within the states, the municipalities, the communities, the farmers, the ranchers, whom have you. You all are an important aspect to the survival of this nation. We are a major contributor, a major key to the existence of this great country of ours. With that, I again reiterate that the tribes along the river are willing, are in the position, and are there to talk. We do not necessarily have to go to courts, and do not necessarily have to put stress on the relationship with one another. Certainly, there are disagreements, different methods, and different interests within these ten individual tribes. The bottom line is that we do have rights and the rights that we are talking about address water.

Questions for George Arthur

Question: I was wondering what kind of interests are there among the ten tribes for expanding their own agricultural production besides possible water marketing to other places for other uses?

Arthur: As far as the Utes tribes are presently engaged in developing, they have pretty well accounted for their water rights, in terms of farm development. I believe Mr. Peabody may go into this as well. In the lower valley, I think, as far as the tribes are concerned, there is a limitation of land. They are pretty well maxed in respect to their farm and agricultural activities. There are some alternatives. In reference to the Navajo, the Navajo by law are entitled to 110,000 acres. At the time that the Navajo negotiations were going to be implemented, the San Juan Chama was also to be developed. The San Juan Chama has been built and we are looking at 60,000 acres. Hopefully, the additional 50,000 acres will be developed within the Navajo. Also, Navajos have several other farmable lands that are more or less run individually on small plots along the river. We have two major projects called the Fruitland Project and the Hogback Project. Combined, they are in the neighborhood of 30,000 acres. The Navajos also have lake farms. There are three major lake farms consisting of approximately up to 25,000 acres. We do have lands that we want to develop, but there is some question concerning endangered species.

Question: The question about the initiative, if any, amongst the tribes regarding the young people that you mentioned. How do the Indian nations approach the idea, or concept of the credibility and expertise with regard to dealing with this major water issues problem that we are all involved in? Is there going to be a continuity, a building of expertise within the Indian nations to carry out whatever agreements are reached.

Arthur: From the Navajo standpoint, the nation has now begun to develop within their own people. There is expertise, as they say. Certainly, we are many years behind. As I pointed out, Bernadine is one of the, in fact the only Navajo that has been assigned to this particular resource area. She is valuable to us. We do have individuals within the tribes that are hydrologists, agricultural engineers, agronomists, biologists, and marketers. We do have young people that are all of these, with the exception of lawyers. As far as agriculture development is concerned, the Native American feels that natural resources have been on the back-burner up until recently. Most of the efforts have been towards education, teachers, legal, health representatives, and doctors, but we have just now begun to emphasize natural resources, and the need for careers and expertise in that field.

Question: I just have some comments. Mr. Arthur is right the Anasazi are extinct on the Navajo Reservation. However, I come from one of those bands that migrated out of the Four Corners area a few hundred years ago. Ms. Potter, from the Sierra Club, pointed out yesterday that in order to develop our water resources, money, capital, and

banking institutions are certainly prerequisites. How can we develop these resources when the Indian tribes are faced with very basic needs, such as food, health, and housing? I am involved with our domestic water system at home, which is contaminated by arsenic, boron, manganese, lead, iron, nitrates and sulfides. There is no money for qualified operators to maintain our system. Also, our unemployment rate is well above 60%. Thus, our water rights continue to be whittled away and going downstream to urban centers to water Kentucky bluegrass.

Question: I have a question regarding development of water in the villages and towns on tribal lands. I have frequently observed that citizens have to haul their water within the villages, as well as out into the more rural areas. I am wondering what plans you have for developing water for domestic uses?

Arthur: In reference to the Navajo, you may have read in the news, Anita, that there is a discussion with the City of Gallup to draw some water down. Gallup is situated approximately 100 miles from the irrigation project. There is a discussion that water would be delivered in that direction. Navajos are studying the alternatives, as far as the routes, that are involved. There are many small communities along the way that are being considered from that standpoint. In the northern portion, where I am from, our domestic water is supplied by the City of Farmington. There is tremendous pressure on that system. People within the tribe are now studying alternatives as to where and how they could develop domestic water. It is still not unusual, with the Navajos, to hear of people hauling water many miles. Years ago, we did so by wagon. Now we haul water in the back of shitty trucks.

Ute Mountain Ute Tribal Representative

Jerald Peabody
Ute Mountain Ute Representative

For someone that did not have very much to say, he sure stood up here a long time.

There were many references made in regards to what we were actually going to be doing with some of the partnership's ideas. We are well aware that many of the Native American tribes do not have expertise within their ranks. I think it is one of the ultimate goals of all of the Indian tribes to educate more of our young people so that in the future when we call upon lawyers, there will be Native Americans, also. Right now we have to make do with what we have. I am not putting down Scott, or Dan, or any of the others. They do a good job for the tribes. However, we have to make sure that they do what we want and not what they want.

The Navajo nation, as far as tribes are concerned, is the largest tribe in the southwest, or as far as all of the Native Americans are concerned, they are the largest. Therefore, every time we have negotiating teams, or we have representation, it always come out that the Navajo nation gets their own. You kind of have to watch George and the rest of them, and try to work with them to make sure they do what we are asking, also.

I would like to thank the sponsors and the co-sponsors, as well as Western State College, for giving us the opportunity to come and speak on behalf of Native Americans in the western states. I do appreciate it and it is a great honor for me to stand up here in front of you and share my viewpoints, as one of the younger members of tribal council. There was a question in regards to continuity. I happen to be a product of the second generation of water leaders for the Ute Mountain Ute Tribe. For many years we had Mr. Earnest Howe, Sr., a member of council for the last sixteen years, as our water representative from tribal council. He felt that it was time he give up the reins and give us younger people an opportunity. So, there is continuity, and hopefully, it will continue into the future.

I would like to start off, my name is Gerald Peabody and I live in Towaoc, Colorado, and I am a member of the Ute Mountain Ute Tribe. I am also a member of the tribal counsel and a member of the three person negotiation team representing the Colorado River Tribal Partnership. As a member of the negotiating team, I am responsible for pursuing the water issue discussions with the seven basin states of the Colorado River. These discussions relate to all aspects of water development and preservation on the Colorado River, including environmental protection, development of water resources on the reservations, and the possibilities of leasing water.

My comments, today, set forth the views of one Indian leader as they relate to water resource development and the leasing of the Colorado River.

Indian water rights are an important tribal economic asset. I have lived most of my life on Ute Mountain Indian reservation. On the reservation there are two types of assets, the natural resources

assets and the people assets. The Indian culture and the current tribal policies attempt to maximize both types of assets. We encourage our people to be healthy, restrict their families, and to develop their minds. We encourage our people to work together for our mutual benefit. When it comes to natural assets we also attempt to utilize those to our mutual benefit. The Ute Mountain Ute reservation has thousands of acres of land, that can be cultivated with an ample water supply. The reservation has a temperate climate and an ample growing season. The reservation also contains substantial oil and gas resources. Over time these oil and gas resources will be depleted. In contrast, our lands, our temperate climate and our water supplies are a renewable resource. It is those that we must look to for the development of our economic future. When we develop those resources we are also careful to preserve them as well.

Our environment is unique and very sacred to us. All of our natural resources are sacred, but perhaps water resources are the most significant and the most sacred to the Native American, and the Ute Mountain Ute people. Thanks to the assistance of United States and particularly the state of Colorado, we are now receiving, for the first time in our history, domestic water in the Towaoc pipe line. This water is delivered from the Dolores Project, and treated at a facility near Cortez. In addition the tribe is currently, through its construction corporation, building the \$32 million dollar canal to deliver agriculture water also from the Dolores Project. This water, during the next three or four years, will be used to cultivate 7,500 acres of tribal land. These lands are fertile. They have a temperate growing season, and we feel that with good management this tribal cultivation will provide long term economic benefits to our tribe.

The tribe has other water supplies not secured by the decree of 1986 Colorado-Ute water right settlement agreement. These additional water supplies are from current stream flows and also from allocations from Animas-La Plata project. The Animas-La Plata project is now under planning and initial construction, and baring some of the environmental issues that we have, we hope that we will see it as a reality. The full extent of these additional water supplies cannot be used profitably by the Ute Mountain Ute reservation in the near future. Therefore, we feel that those additional supplies are for leasing consideration. One note I would like to make is that under the tribal partnership that we had formulated, not all the tribes are in the position to lease water. Only those that have quantified water would be the ones that would actually be considering leasing or marketing some of that water. There are other tribes in the partnership that are not that far along. After negotiating with our lawyers we felt we needed to expand and to ensure that all of the other tribes would be considered in this partnership. So, it is not all of us who are considering marketing our water. The Southern Ute and the Ute Mountain Ute are definitely considering that possibility. Some of the others maybe looking at that option in the future.

To continue, Colorado River water leasing is consistent with the Law of the River and the Commerce clause. The availability of water rights for leasing is fully consistent with the tribes continuing need to develop economic independence from its natural resources. The availability for leasing is also, in my opinion, perfectly consistent with their creation as federal reserve water rights. These federal

reserve water rights were established to permit their full development, and in turn benefit the Indians who were to occupy the reservations in the west, and that is in holding with the Winters Doctrine vs. United States in 1908 and also Arizona vs California 373US546 in 1963.

As a member of the negotiating team of the Colorado River Tribal Partnership it will be my goal to assist my tribe as well as other tribes in the leasing of excess water to states and cities which require additional firm supplies. It is my goal to do so in a way that preserves the opportunity for additional development of water resources on my reservation. It is also my goal to do so in a way which preserves the water rights of other users on the Colorado River. I am convinced that if tribes in the states take a fresh look at the supplies of water in the Colorado river, and the needs of each of those holders of water rights they will be able, with assistance from engineering experts, to develop models for water leasing that will increase and not decrease the aggregate welfare and wealth of the Colorado River system. I am convinced that the future of this region requires such a fresh look. A regional approach combining the interests of the Upper and Lower basins and combining the interests of federal water rights and state allocated rights in the Colorado River will work to our mutual benefit. To deny ourselves this opportunity means to remain stuck in an artificial and arbitrary understanding of documents, and concepts that are now about a half a century old, and will, in the long run, hurt all of us.

Many scholars have looked at the Colorado River and have examined the Law of the River. They have examined the Acts of Congress, the compacts, the rules of water use developed by the Secretary of Interior, the intricacies of water law of each of the various states, the emerging quantification, and the control of Indian water rights and have urged that the welfare of all users of the Colorado river be increased by better communication and better coordination. I have found that there is no expressed law or fixed policy preventing of the leasing of Colorado river water. Indeed, some who are advocates of water leasing contend that the ten year old decision of US Supreme Court in Swerhasy vs. Nebraska 45US963 1982 require that states, the Federal government, and the tribes consider the possibility and the benefits of leasing. The Colorado River water is necessarily an interest in an interstate resource. As such there exists significant federal interest, not only in conservation, but also in the fair allocation of water resources and that is also under 458US, on page 953. Under Swerhasy we have a responsibility to assure a present, reasonable, and foreseeable supply of water for collective and beneficial use. However, at the same time, in the absence of any evidence of severe shortages in the Colorado River, we each have a corresponding responsibility in the words of the Supreme Court to "pursue an ideal even-handedness in the regulation and management of this resource," also under 458US, on page 956. Even-handedness means that states may not act favorably or unreasonably for their own citizens in the absence of a shortage of supply. That even-handedness means that any effort to preserve water by the states must be narrowly tailored to conform to the specific needs of the state in question. In my judgement, as a layman, these rulings in Swerhasy make it incumbent upon all of us, with an important interest in the waters of

the Colorado river, to take a fresh look to see whether this bountiful, natural asset can be allocated in an innovative way that benefits all and injures none. Indeed, the rulings in Swerhasy requires us to reach out in the spirit of even-handedness to help any water user on the Colorado River whose citizens are suffering a shortage of supply. The tribes have been informed that at least one state, Nevada, will soon require additional supplies from the Colorado River to avoid scarcity in or about the City of Las Vegas. Nevada is the first state interested in pursuing a lease of Indian water. On behalf of the ten tribes, I intend to pursue this option for the benefit of my tribe, but in doing so I will always require assurances that any leasing of water will not injure the rights of others.

I would like to say that by working for the tribes in the seven basin states, I hope that within a year or ten years from now I can come back here, or to another conference such as this and report that together we achieved an innovative way of looking at this God given resource, and that together we can achieve for each of us a more secure future.

**Native American Water Rights
Panel Discussion**

Moderator: Fred Wetlaufer, Member, Western Colorado Congress

Question: This is a question for anyone on the panel. A very common element in Colorado water law is the dispute between east and west with relation to transmountain diversions. I was intrigued by the description that the so called surplus of Colorado, or the Upper Basin states, is really reserved tribal waters. I was wondering if any of the tribes had given consideration to becoming a player in those court cases involving transmountain diversion and possibly trying to keep the water on this slope so that it could be available for use by the tribes.

Jerald Peabody: I will refer that question to one of the lawyers.

Scott McElroy: We had not thought about it, or pursued that, certainly, in regard to either of the Ute tribes. I think perhaps that is, in part, because we have a fair amount of litigation and a few non-litigation issues on our plate right now, and we are kept pretty busy. Perhaps it is something that we ought to think about.

Jerald Peabody: That, in my mind, would be one of the considerations that we could look at. As far as my speech today is concerned, like I said, I want to be as fair and equitable to everyone, all water users -- non-Indian and Indian, in the spirit of comradery, to ensure that we get our portion. In the future, if that is one of the things that we need to do, then I think the tribes are willing to cooperate, and see if that is possible.

Question: I have a two part question. The first is, what is the posture of the Bureau of Indian Affairs (BIA) on this water leasing off reservation and out of state? The second part of the question is, what posture has the BIA taken on Indian sovereignty with regards to the Endangered Species Act.

Jerald Peabody: I am also, for my tribe, I working on the concept of the delegation of authority of the Bureau of Indian Affairs programs to what we call the lowest level possible. I would rather call it down to the agency level. We are basically under the BIA reorganization task force that you are well aware of; it has been running for the last couple of years. We are starting to take over many of the programs and use the Bureau of Indian Affairs in a more technical sense. We are starting to take the initiative to take over many of the programs. The concept that you referred to, as far as the tribes are concerned, is our most Golden Rule and it is the only way that we, as Native Americans will continue to survive. I am not saying that we are going to use that every time that we find ourselves in trouble, but if we were to give that right up, we would not be Indians, in the way that we are today. So, the Bureau is, in a sense, giving us the opportunities to secure our own future. We, in turn,

are having them help us with the technical expertise, as well as the use of very proficient lawyers, like Scott, Dan and some of the others that we have working for the tribes.

Scott McElroy: On the first question, the Department of the Interior, which BIA is a part of, endorsed the idea of water marketing for tribes in 1983. They did that in conjunction, primarily, with the idea of water settlements. For example, the Colorado Ute Settlement where marketing, or potential marketing was a very definite issue to help generate an income stream for tribes. That has been the only kind of situation where the Interior has been called upon to improve or disapprove the idea of marketing. I think predicting what the Bureau of Indian Affairs position will be is difficult because you are really talking about all of the Department of the Interior. As your second question points out, we know that the different parts of Interior can meet themselves coming and going. Any final resolution of these kinds of questions, winds up with input from the Bureau of Reclamation, and they have a different perspective than BIA. So far, when push has come to shove, the Department of the Interior has sided with the tribes, but the questions, with which they have been confronted, were very specific and related to particular circumstances. We certainly have had discussions with the Bureau about where we are going.

The hope has been, and I am sure that we will get to this later this afternoon, that, at least on the San Juan River, where the Endangered Species Act and the obligations to the tribes have come into conflict that we can find a way in which the federal government's obligations to Indian tribes can be satisfied, while at the same time the federal government meets its obligations under the Endangered Species Act. Somedays, I think that is possible, while other days I think that we have really bitten off much more than anyone could ever chew. So far we have not had to directly determine which of those two competing federal obligations takes priority. It took us a long time to persuade parts of the Interior Department that their obligations to the tribes stood on an at least equal footing with their obligations under the Endangered Species Act. The negotiations that we have had over the last couple of years has firmed that up, at least in terms of the paper description of what is happening. Whether or not, when push comes to shove, those two issues will receive equal treatment remains to be seen.

Question: Mr. Peabody, my understanding of the Animas La-Plata project is that there are no government funds allocated for providing Indian water from that facility, i.e. there are no funds allocated for constructing canals, etc. I am wondering if I really have that straight. If I do, why did the tribe accept that idea? How do you see that project actually delivering water to the Indians in the future?

Jerald Peabody: I am going to get myself in trouble with my tribe, however I will go ahead and answer that question. If that decision had been up to me, or if I had been in the position that I am in today, I would not have accepted that settlement. I would not have accepted it because I feel, as senior water rights users, that it was

the obligation of the United States of America to ensure that the delivery of water was within the settlement. It should have been in black and white that we would receive that. I, at that time, was not in the position that I am today, so we ended up with a piece of paper that I did not feel we should accept.

However, we have to live with that settlement now. Hopefully, in the future some of our water lawyers can go back and try to rectify some of the problems within the settlement itself. Perhaps, within the option of leasing water we may be able to solve some of the problems.

I am concerned with what you have just said and what it is going to cost us to transport water from Animas La-Plata to my reservation, which is over 70 miles away. That will cost a pretty penny, to put a pipe like that across such a difference, and then we must negotiate with private property and people who may not have the same ideals as you, concerning how to transport the water.

Like I said, this is my personal opinion, as a young tribal leader. I would not have signed it the way it was written. However, we have to work with what we have, and be innovative to overcome our obstacles.

Scott McElroy: As Jerald said earlier, I do not represent the Ute Mountain Utes, I am the lawyer for the Southern Utes. The Animas La-Plata Project was a critical aspect of the settlement from the Southern Utes, perspective. It has been something that the Southern Utes have been involved with long before I began to represent them. The statement that the Southern Utes, do not receive water from that project is not an accurate statement. The Southern Utes, under the settlement, are to receive both water and facilities, under what is known as Phase I of the settlement. Phase I includes Ridges Basin Dam and Reservoir, and it also includes some of the irrigation facilities originally set forth in the Definite Plan Report for the Animas La-Plata Project. Southern Utes will get irrigation water from those irrigation facilities that are to be built as part of the project. They will get their M & I water out of Ridges Basin Reservoir, which is also to be built as part of Phase I. In terms of the Southern Utes' perspective, they not only receive water from the project, as the Ute Mountain Utes do, but they also receive delivery facilities associated with Phase I of the project.

Those of you who know about the Endangered Species Act controversies that we have had on the San Juan River, know that we have had problems getting the construction of the project authorized. Currently, the only approval that we have had is to go ahead with construction of Ridges Basin Dam. However, the fact that we only have approval for Ridges Basin Dam does not mean that the second part has been disapproved. That question has been deferred. It is within these situations where we may run into some of the problems that we discussed earlier under the Endangered Species Act. Under the settlement, if the facilities necessary to deliver the water to the Southern Ute tribe was not constructed by the year 2000, then the Tribe can reopen its litigation. The Southern Utes have not given away their ability to get irrigation delivery facilities as part of the settlement at all. The fact that they took their water from Ridges Basin Reservoir rather than Southern Ute Reservoir, which is

another reservoir in which construction has been deferred, actually works to the tribe's benefit. If there is anything that the tribes have learned, is they want their water out of the first facility built on the project, because the last facility does not always get built. So to get their M & I supply out of the first facility makes much more sense, in addition, the water is cheaper out of Ridges Basin Reservoir than it was projected to be out of Southern Ute Reservoir.

Question: If the objective is to lease M & I water, and we assume that the markets are below Lake Powell, what is the purpose of another storage reservoir in southwestern Colorado to facilitate the objective of leasing to whomever -- San Diego, etc.?

Scott McElroy: We have been talking about leasing and tribal water marketing, and ways in which that might be facilitated. I think perhaps my comments were somewhat over-stated. I think that I can fairly say that my clients have told me that their long term objective is to put their water to use on their reservations for the benefit of their tribal members. The problem is, of course, finding the capital to do that. It is also true that when we talk about a water supply, whether we are talking about litigation, in which tribal water rights are quantified, or whether we are talking about a settlement, we are talking about quantifying the needs of the tribes for all time. The fact that there is not a use for that water tomorrow really is not the answer. The dilemma that faces the tribes is figuring out how to put that water to use for the long term on their reservations to benefit their people.

When you ask about Animas La-Plata, yes, I think that there might be an interest in marketing that water for the short term. I think that if you came to the Southern Ute Tribal Council that they would tell you in no uncertain terms (tape end) The settlement that requires the federal government to fund the building of the bathtub, so to speak, is fine. One can look at the articles in the *Denver Post* over the last couple of days and read about federal "subsidies" for irrigation projects. I do not understand the resentment to tribes finally receiving some of "subsidies" so that they can develop their own lands and their own resources.

Jerald Peabody: I would like to add to that. The concept that we are introducing does not mean that any excess water that we have we want to go lease it. The primary consideration is that a majority of the water that we have we want to use on our reservations. We want to use it for what we have there. Whatever is left over, if any, that will be what we consider for leasing. I am not talking in regards to Southern Ute, Navajo nation, any of the Lower Basin states. I am talking in regards to Ute Mountain Ute water. I am not saying that we are going to lease every drop that we are not going to use because, this resource may dry up one day. We must consider our future, and the future of the generations that are not born yet.

Leasing is a concept that we are introducing. It is an idea that we have for the future. It is an attempt to convey to the non-Indian water users that we are willing to work with you. We are willing to give you an opportunity to share some of our water, so that we can have an economic base for our future and our children's future. We

do not have it all worked out; it is not in black and white; it is a concept. That is all it is right now. Like I say, not everyone of the tribes in the partnership is in the position to lease water. Each tribe has many considerations to make.

The primary concern is that when water users discuss excess water, in reality, a majority of the time they are really discussing Indian water. We want to sit at the table with you. We want to have a say in how that water is used. We want you to feel that we cannot be taken advantage of, but we are willing to sit down with you and talk. That is all we are getting at. That is the reason why I bring up this water issue as a marketable resource that we may consider for use in the future.

Question: If a tribe is to market their water, what position will the Ten Tribe Partnership take, with regards to what Mr. McElroy brought out this morning, that Congress, perhaps, is the only one to authorize what position you are to take if anyone of your member tribes is to market excess water. Will the Partnership seek Congressional action, or are you using your right to market without Congressional action? Before you answer, I would like to make a point about the Anastazi, who were mentioned earlier. The gentlemen from Zuni mentioned that we did not disappear. I want to reiterate that we are still here -- Rio Grandes, including Hopis.

Scott McElroy: I think at this stage it is fair to say, in terms of the legal issues, authorization may be among the most critical. I do not think the tribes are coming to the table with a set agenda, which must be accomplished. The tribes' proposal to the states was premised on the idea that it was better to sit down and work together on these kinds of issues. This cooperative effort would permit everyone to go to Congress together to get the necessary authorization. On the other hand, I think it is possible to envision a situation where if the tribes are met with tremendous amount of resistance, on the part of the states, that there could be a test situation, in which we find out whether some of these various statutes that I mentioned could be used in an authorization process. I think the initial proposal that is being put forward is to sit down and try to work our way through those obstacles and come up with a solution that would be capable of being blessed by Congress. This proposal was deemed by everyone to be necessary.

Jerald Peabody: I have a final request for the people that are reporting for the various papers: I would like to have an opportunity to clarify my statements before they are put it in the paper.

Fred Wetlaufer: Wouldn't we all? That concludes this segment.

Renegotiating Compacts Under the Endangered Species Act

Patrick Parenteau
Head of Environmental Resources Practice Group, Perkins Cole

Someone might want to tell those folks out there that I have the solution to the Endangered Species Act problems with the Colorado River and I am only going to say it once!

I bring you Greetings from the great Pacific Northwest. I practice law in Portland, Oregon. As you know, we have solved all of our endangered species problems in the forests and rivers of the Northwest. I am here today to tell you how to do it. If you will all just take your seats and take some notes we can probably wrap this little problem up in fifteen minutes or so.

Seriously folks, I know nothing about Colorado water law. I do not know anything about these projects you are discussing. I do not know anything about the Compact or the Law of the River. I know very little, if anything, about Native American Treaty Rights. So, why am I here?

Well, I have spent eighteen years or so with the Endangered Species Act. The Act is only about twenty years old. It was passed in 1973. I have practiced law in, under and around the Act for many years, on behalf of different clients. Therefore, I might have a few things to share that might conceivably be of some interest or some help in dealing with the problems of allocating, and managing the water and related resources of the Colorado river; but, I do not promise anything.

Just to let you know, when I started out in this field, I had much more hair and many more answers. In fact, for a long time, I felt I had perfect vision. I had the insight. I could see the way the world was supposed to work. I knew what the values we should all agree upon were. I knew how natural resources should be managed. I knew how to build economic systems that respected the natural world with all of its wonderful diversity without, in any way, compromising social, or environmental, or economic interest whatsoever. It was all pretty simple and straight forward. Then a damnable thing happened to me - facts started intruding upon this wonderful vision and intruding upon the world that I had created in my entirely intellectual 25-30-35 year old mind. Now, as I track through all of the different careers I think an environmental lawyer could have, [I was Vice President for the National Wildlife Federation for a number of years, Senior official with the Environmental Protection Agency for a few years, ran a state agency in Vermont for a few years, and now I represent big, bad, polluting, black hat, Darth Vader corporations, out to despoil the world] I realize that I do not know who I am. What do I think now about these issues? I am terribly confused. I have a terrible heart-mind conflict. My heart says let's protect this wonderful, beautiful, natural system we have all been so lucky, fortunate and blessed to inherit. Let's leave it alone, let's enjoy it, walk in it, and just savor the wonder and the beauty of the world that we are so fortunate to live in. Then my mind says, how are you going to make a living? Somehow we are going to have to learn to move

things around to create wealth. How do we move things around without losing all the pieces and destroying the mechanisms? Well, it is a real dilemma; it is not a problem as much as a dilemma. A problem, you learn in school, is something that you can solve. With the right formula, input, and the right data it can be solved. Problems have solutions. What we have is a dilemma; you cannot solve a dilemma. You can only manage and muddle through a dilemma. There is not any clear, single, absolute, a priori value or judgement that drives any of these issues. So my premise for these remarks today is that there is a lot of gray out there and where you stand often depends on where you sit.

I think that the issues are people issues. The idea that the Endangered Species Act is making people endangered is becoming very popular. Why can't people come first, and how can you talk about Sucker Fish and not talk about families? It makes good rhetoric. People do come first. It is a people problem. We are the ones that make the decisions, not the owls, the suckers, the squawfish, and not the tortoises. They do not make any of these choices. They do not make any of these decisions. The ecosystems with which these species are associated -- the old growth forests, the pristine wild rivers -- do not have choices either. We can build economic systems that do not drive species to extinction. We know that. We can do that. We just have to be smart enough to go about the job of doing it. All of the things that we are trying to save, conserve, nurture and steward are all things for people. Sure, you can make pantheistic arguments about how nature is right and good unto itself. That is nice rhetoric also. The reality is that we have to live, work, and use nature for our own benefits. It is at the center of, unquestionably, a people problem; a people dilemma. We created it, we can manage it, and we can do it. However, it ain't going to be easy.

The Endangered Species Act is the subject I was asked to address, and many people are addressing at this conference. It has been on the books for nearly twenty years. It is a very simple statute. It is interesting that it has become a species oriented statute. The opening lines of the Endangered Species Act, the kernel of policy that it was supposed to advance, talks about preserving the ecosystems upon which species depend. It has become a listing exercise, species by species, project by project, action by action, a piecemeal process, despite efforts to broaden the analysis at certain points. It is still a highly fragmented statute in its application and implementation. The goal in the grandest sense of the statute is to preserve what is now popularly called biodiversity, or the interworkings of plants and animals in their natural settings, in their evolved niches. You probably know what the statute does, so I will not bore you with a lawyer's rendition of it, except to tick off the five major elements that are all oriented to what I am going to talk about later.

First is the listing process. This is the process by which species become entitled to the protection of the Endangered Species Act. Associated with that is the critical habitat designation process. You all know that designation of critical habitat is an optional feature of the Endangered Species Act. It is not mandatory, nor for that matter is listing any particular species mandatory, although, there are mechanisms for forcing, by petitioning and by

court action, the listing of species for purposes of protection under the Endangered Species Act. That is how the Northern spotted owl got on the list. I will give you an interesting historical footnote. The spotted owl found a place on the list as a result of a petition filed by three people living in Cambridge, Massachusetts, calling themselves Green World. That is what launched the decade long and still far from resolved debate over the impact of listing the spotted owl on forestry practices in the northwest. Three people in Cambridge.

The recovery process is the second major element that I would like to note. In fact, in my judgement that is the linch pin of the Endangered Species Act. Not the consultation process [the third major element], which everyone focuses on, and which requires consultation between federal action agencies, like the Bureau of Reclamation and federal consulting agencies, like the Fish and Wildlife Service, and requires that action agencies not take any action that is likely to jeopardize listed species. That process receives all the focus. However, the real guts of the Endangered Species Act is, and should be, the recovery process because the goal of listing a species in the first place is to get it off the list. The goal is to pull together the techniques, the necessary actions that are designed to get the species off the list and to remove the need for the protection. It is the recovery process, in my judgement, that has not gotten adequate attention, or funding, or staffing. That is unfortunate, because it is the solution side of the Endangered Species Act. It is where the effort should be made.

The third element, as mentioned, is the consultation process required by Section 7 of the Act. The teeth in this provision is the command that federal agencies not take any "action" -- such as building a dam, or issuing a permit -- that is likely to "jeopardize" a listed species. The term "jeopardize" is defined by Department of Interior regulations to mean an action that would appreciably diminish the likelihood that the species would survive and recover in the wild.

The fourth major element of the act is, of course, the takings prohibitions. In contrast with the Section 7, Consultation/No Jeopardy process, which applies to federal agency actions, the takings prohibition applies to everyone; private, public, state, tribal, everyone is subject to the prohibition on harming and harassing, which are terms defined by regulation, listed species. As you all probably know, the definition of harm under the takings prohibition has been expanded, first by regulatory definition, and second by the gloss put on the regulations by the courts, specifically, the ninth circuit in the Pallila case, out of Hawaii, and the tenth circuit in the Red Cockaded Woodpecker case, out of Texas. The taking prohibition is a very substantial and broad scale prohibition. It is backed up with criminal enforcement. We are seeing criminal indictments in the northwest for cutting owl forests, on private land. It is a very potent weapon in the hands of the federal government.

The fifth major element of the Endangered Species Act is the exemption process. I recently completed a tour of duty as the Fish and Wildlife Service's special counsel in the spotted owl exemption proceedings involving 44 BLM timber sales. I have been involved in the other two exemption proceedings on Tellico and Grayrock's Dam. Therefore, I have the rather unlikely distinction of being the only lawyer in the world that has been involved in all three exemption

proceedings under the Endangered Species Act. The Act is probably the strongest wildlife law in the world. The Supreme Court in the Tellico Dam case, Tennessee Valley Authority vs Hill, said the prohibition on jeopardy admits of no exception. It is such a strong statutory prohibition that courts are without equitable power to weigh and balance competing and offsetting impacts from that total ban on jeopardy. There is no environmental law that strong. None. The courts are powerless to do anything about the prohibition. That sounds very draconian. In fact, however, the act is far more flexible than it sounds, or appears from that characterization that I just gave you. There have been tens of thousands of consultations under the Endangered Species Act. Formal and informal consultations with potential conflict between projects and development involving a variety of listed species. Out of that huge universe, there have been very few jeopardy determinations, to begin with, and even fewer situations where the problems could not be worked out so that the development could continue, albeit with mitigation and adjustments that may be expensive and painful; I do not mean to downplay that. The point is, however, that the Act does not stop development in the way that it has often been characterized. It certainly, theoretically, has the power at any given moment to stop development. That is a great cause for concern and anxiety among people trying to pursue developmental activities where listed species may be impacted. That anxiety, fear, and uncertainty is not to be trivialized. Those are real concerns that have to be addressed. You cannot invest and line up financing to undertake major developmental projects that have great uncertainty as to whether the project will be allowed to continue or not. These latent problems that the prohibition creates have to be dealt with. The premise of the act is strong medicine, by necessity it has to be since we are talking about species that are on the brink of extinction. They are the emergency room patients of the natural world. Extraordinary measures are required if they are going to be saved, conserved, and recovered. Proof that something as strong as the Endangered Species Act is needed can be found in the growing list of threatened, endangered, and candidate species.

There are over three thousand North American species, primarily from the United States, that have been determined to be eligible for listing. They are simply waiting in a queue, a long line, for consideration in the listing process. Many of them could be listed immediately if there were enough resources applied to the task of developing the rule making package that is needed for every listing. Obviously, statutes like NEPA, and the Fish and Wildlife Coordination Act, and many other of these "study it, think about it, consider it and then go ahead with it anyway" statutes are not doing the job of conserving large biological populations of fish, wildlife and plants. Many studies, global as well as North American, show accelerating rates of decline and extinction of natural populations. We are losing species on a global level before we even know what they are or give them names. It is the human-caused acceleration of extinction that is the problem. Extinction in and of itself is not a problem. Extinction is not necessarily bad. It is part of the natural order of things; however, the pace, scale and timing of extinction is an issue in terms of maintaining the health and diversity of ecosystems, and in the end, of the life support systems -- air, land, water --

that humans also depend upon.

What about the Endangered Species Act in the context of the Colorado River? Lots of interesting legal questions arise. Does it trump the Compact? Is the Endangered Species Act the trump card? Is it greater than treaty rights? My God, is it greater than the Constitution? Is it greater than God? After all, it takes a God Squad committee to make exemptions. I do not know whether it trumps the Compact. Any lawyers that tell you they know, hire them, maybe they have something. The point is that the question cannot be answered in the abstract. There are no absolutes in this game. I can not make a legal opinion that the Compact will always control, or that the Endangered Species Act will always control. It is always determined by facts. What are the specific facts of any conflict, or potential conflict, or circumstance involving implementation or enjoyment of rights under the Compact, and the impact on endangered species? As I said, the track record shows that problems can be worked out. Some people are in a hurry and they do not want to spend the time it takes to work problems out. Others do not acknowledge that there is a problem to be worked out. "Hell, I got a water right, I am going to use it, what is the problem?" I can understand that feeling, particularly concerning what were thought to be settled principles, settled law, settled rights, settled schemes, settled projects, and settled plans. Then along comes this thing called the Endangered Species Act to upset the apple cart. Oftentimes it is upsetting. It is also the law for now. The experience in the northwest shows that by not following these laws the result is total chaos, and unimaginable suffering on the behalf of people affected by those who do not follow the laws. One strong message I am going to give you is, like it or not, the agencies and others who are required to follow these laws [ESA, NEPA and all the rest] better do it, and better do it to the letter because if you do not you are going to find yourself in a similar situation to that which exists right now in the forests of the northwest, where every single acre of owl habitat is under court injunction. In fact, under four court injunctions in two different states. Not a stick of timber from the old growth forests of Oregon can be sold now as a result of a pattern and practice of violating the law. Dozens of violations of federal and environmental laws committed by perhaps, well intentioned agencies and people who thought that these laws were bad laws. They may have thought that these procedures are silly, costly, or frustrating and we are not going to do them, or we are going to shortcut them. The result is a situation unimaginably worse then if the laws would have been followed in the first place.

Is the Endangered Species Act part of the Law of the River? Well, whatever the Law of the River is, yes. It is part of that law, there is no getting around it. Agencies must consult the Fish and Wildlife Service when they undertake activities on this river that impact listed species. Even though the law gives the action agencies the final authority on whether or not to proceed with the project, they had better follow the advice that they are given by the Fish and Wildlife Service. If the advice is not followed then the chances of being stopped cold in the midst of project development by a court injunction are greatly increased. Private parties that are undertaking actions that impact listed species should be very careful

in order to avoid severe sanctions and enforcement actions that result from taking of endangered species. Cases out of our Klamath Irrigation project on the border of Oregon and California, involving a cousin of one of your favorites, the Colorado River sucker, illustrates just how dramatic the burden to maintain the populations of listed species can be. In that situation irrigation deliveries were curtailed to conserve habitat of the lost river sucker. The conservation responsibilities remain regardless of the seven year drought situation and even at the expense of hundred-year-old water rights. The Act does have those kinds of teeth. There is no doubt about it.

Is the Endangered Species Act likely to go away? Well, anyone can have fun predicting politics. I say, no. I was interested in reading some of the materials from the National Water Association and their wish list of changes for the Endangered Species Act. Of the ten or so that I saw, I think they may have a chance for maybe two of them. What the NWA is really addressing is the need to improve public participation, economic analysis and the other processes involved. Notions that Section 7 is going to be repealed are natural. However, the demographics of the United States strongly supports preservation at almost any cost. When you look at the urban-rural dynamics, you can see why. The people who are sending the most people to Congress can afford, in many instances, to preserve the rare endangered species of the Colorado River and the Pacific Northwest. The balance of power is decidedly in favor of retaining very strong protection. Is the act untouchable? No, of course not. Will it be amended? Probably. Will it be gutted? Will it be turned into NEPA, a "disclose and destroy" statute? No, it will not.

I do not think it is likely to go away. I think we are going to have to learn to live with it. I am a corporate lawyer, believe it or not. My clients pay me money in order to hear that. I tell them that because it is true. They may not like me for saying it. They may not like to hear it, but it is true. Folks, you are just going to have to learn to live with it. Here are some thoughts on how to live with it.

Attitude

The first ingredient for living with the Endangered Species Act and figuring out how to allocate Colorado water is attitude. What do I mean? Problem solving. Be willing to rethink old approaches, even the great paradigm, *use it or lose it*. Be solution oriented. That is why I emphasize the recovery process. That is where the solutions come from. If you want to get the Endangered Species Act out of your way, get the species off the list. It is just that simple -- at least in concept.

Cooperation

Confrontation will always exist and nothing I say today will stop it. Most people will love to go and fight as soon as they can. I am just saying give peace a chance. Give the cooperative approach a chance every once in awhile, just to sort of vary the menu. It is happening more and more. I do not mean to be totally supercilious, I know that it is happening. Do it more.

Good Science

Everybody loves this one. It is mom and apple pie. What is good science? We pretend to know an awful lot about this natural world of ours, including biodiversity, species requirements and species needs. We don't know squat. We need to learn much more about the life history of the Squawfish before we can be confident of giving a prescription like a doctor would write for a cold. Doctors cannot fix a cold. It is not as simple as taking a prescription and feeling fine in the morning. We cannot fix a species dilemma, either, so we have much more to learn about species, and what constitutes a species and a subspecies.

You think you have problems with the Colorado fishes, try this. The American Fisheries Society says there are over 200 distinct subspecies of salmon that are all in trouble and about one-half of those should probably be listed. Three already have been. There are already three law suits on the books. Get ready folks, we are going to have fun on the Columbia River.

You think you have problems trying to figure out how to allocate your water? Think about this. Consider dismantling the world's largest hydroelectric power complex. How are we going to do that? Some people suggest that it is necessary to restore these fishes. That is just the hydropower complex, never mind the agriculture, navigation, port development and related industries. Be thankful for the problems that you have. The wonderful problems that you have.

Good science, what does it mean? Options for recovery: transplantation, introduction, captive breeding, restoration, how about those for a start? Instead of fighting over the building of a project, which might have some impact on a species, we need to address the underlying problem that we have torn up, ripped up and unraveled much of the ecosystem. Could we go back and restore some of that damage? Could we spend some money to do that? Would that be such an awful and "communist" thing to do? Spending the public money for restoring some habitat might cause the species to begin recovering. For instance, a new storage project might actually benefit species, water fowl, recreation, and a whole variety of other things.

Risk Assessment

The uncertainty that exists in the field of risk assessment always drives the biologists, particularly because their commission is to save the species, towards the most conservative assumptions and conservative approaches. This translates into opposition. The biologist says, "Do not do this because we are not certain what is going to result." However, there are techniques foreseeing risks, or quantifying risks and making judgements that are based on relative risks rather than on absolutes. I submit to you the Jack Ward Thomas committee's efforts on the spotted owl as one of the finest examples of a concentrated, rigorous scientific approach to the problem of risk assessment. People did not like it because it produced a fairly large number in terms of the acres needed to save the owl throughout its range. However, if you examine their process, and the honesty, the integrity, and the rigor that was applied to the process, it is a model for what we are shooting for. The fact that no one was happy with the results was the best indication that it was an honest process.

Equity and Fairness

Equity and fairness are central ingredients for working through these problems.

Treaty rights are solemn obligations of this country. They have to be honored. They have to be respected. They cannot be taken away. They are tantamount to constitutional rights and more than that, they are the highest moral imperative this nation has. Does that mean that one particular scheme for implementing treaty rights is the one that has to be adopted? No. Does that mean that treaty rights must be considered in the beginning of the analysis? Yes. The effort has to be made to accommodate treaty rights as well as the species.

The same could be said about vested water rights. They should not be taken without compensation. The Constitution forbids it in the Fifth Amendment. However, this does not mean the right is absolute. For example, an irrigator does not have the right to flood irrigate a field without concern for improving the water use efficiency. We cannot give absolute rights in that context. Those rights are to use water for beneficial purposes. They are property rights, and they need to be respected. If the law does not deal in fairness, then it is not worth the paper it's written on.

Parity

The ecological values that we have been discussing and the commodity opportunities aspect of water development have to be on a par. We have to move beyond this business of giving lip service to ecological values. The attitude has been study and consider ecological values but let's get on with building the project. We have to start with new beginnings and a new premise for looking at these questions.

Intellectual Power

Another ingredient, which I consider the greatest resource, is the power of people's minds. Consider the ingenuity of the people that settled and formed this nation. We have within our intellectual capability the power to do anything we want, including saving endangered fishes and providing prosperity, wealth and a high standard of living for the people depending on those resources. It can be achieved through a confluence of disciplines, including biology, engineering, economics, and law. We can do it if we commit to doing it. There are alternatives. The whole of environmental law, including the Endangered Species Act, is a search for alternatives. It is a search for better ways of managing resources, developing resources, and using resources. Rethink these paradigms. Nothing is so sacred that it cannot be, at the very least, rethought. Perhaps you will not commit. However, at least be willing to examine every conceivable option. There is not a panacea. No option will fit every situation. However, creative ideas like water banks, or transferable development rights should at least be considered. I read in the *Denver Post* a new approach to spray irrigating gray water from Denver on irrigated crop lands around Denver as a trade off for new water supply needs. The basis being a transfer of water from one use to another, recycling. Those kinds of creative approaches that encourage multiple use of resources, respecting environmental values, and being good stewards of the resource exist; they are out there; they are waiting for us to find them. The solutions are hidden in plain sight.

Balancing Endangered Species Protection and Water Development

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Although the Endangered Species Act has been called the most comprehensive legislation for the preservation of endangered species ever enacted by any nation, it passed in 1973 unanimously in the Senate and almost unanimously in the House. Unfortunately, the Endangered Species Act is broken and needs to be fixed. While failing to achieve its stated goal of preventing the extinction of plants and animals, the Act has been resoundingly successful at significantly delaying or halting, and significantly escalating the cost of, economic development projects, including water projects.

In 1988, the General Accounting Office reported that of the 965 species then listed as threatened and endangered only two had been recovered through efforts credited to the Act. Of the 16 delistings of threatened and endangered species since the Act passed, six species were removed because they became extinct, and five were removed for original data error. Recently, the Interior Department's Inspector General reported that within the last decade 34 species became extinct while awaiting federal protection and that the U.S. Fish and Wildlife Service receives only 0.2% of the funds needed to protect the over 600 threatened and endangered species in the United States. The Inspector General also reported that the Service has failed to produce effective recovery plans for many protected species and that it has done a poor job of managing costs and information related to the endangered species program.¹ Witness the debacle at the Service's Dexter, New Mexico hatchery where nearly as many Colorado Squawfish were killed in 1992 as have been found in the San Juan River. In addition, the President's Council on Environmental Quality asserted that up to 9,000 plants and animals remain at risk, but reviewing their status will take at least 50 years and could cost 4.6 billion dollars.²

The Act fails because it aims at the impossible goal of saving every creature, employs questionable strategies, and is based on limited, and what I shall call "arrogant" biology. The Act uses inexact terms, such as subspecies. It relies on habitat preservation to save endangered species, even when there is insufficient habitat to sustain a viable population. The Act requires the preservation and conservation of threatened and endangered species to take precedence over all other considerations. This goal is binding on all federal agencies and departments.

But our society does cause extinctions. To pretend that we are acting to save every species, I believe, is "intellectually dishonest." I quote from a very exciting article in the January 1992 *Atlantic Monthly*, called the "Butterfly Problem." "[The Act]"turns

¹David Hackett, "Endangered Species Act promises major congressional battle," *Casper Star Tribune*, December 9, 1991.

²Alston Chase, "Reform Flawed Endangered Species Act."

the hard choices over to the forces of litigation and bureaucratic inertia."

Any time that we take a course of action that makes somebody better off, we are judging that whatever the benefits, they are greater than the cost. The present endangered species act fails to balance costs and benefits meaningfully in three areas: 1) the need to save a species against the need for the benefits of a particular economic development project; 2) the saving of certain species, as opposed to the saving of other species; and 3) the saving of certain species as opposed to investing in other national priorities. Because under the law, all species are equal since each is invaluable, the Act explicitly avoids the hard choices that must be faced.

Preserving declining species, however, does not require that the Act be scuttled. Rather it needs reform. Action to implement the Act should be subject to public scrutiny and review. The Endangered Species Act should be implemented like other federal laws to minimize adverse social and economic impacts. The Endangered Species Act is the only major environmental legislation that does not consider economics in arriving at decisions. In fact, cost consciousness may actually allow more protection of endangered species. Since the law does not discriminate among species, the Service's actions are sometimes determined by the latest target on the environmentalists' hit list, rather than by scientific analysis.

Senator Mark Hatfield who offered the 1972 version of the Act, which eventually became the law in 1973, has stated:

I want the Endangered Species Act to survive, but unlike many of my colleagues from urban areas, I also have to deal with the human side of the Act. Unfortunately, the strict application of the Endangered Species Act in the case of the Northern Spotted Owl has put an end for the time being to balanced resource management in the Pacific Northwest.

House speaker Tom Foley has requested a congressional scientific committee to examine the Endangered Species Act and consider whether it should be amended to place a higher priority on the economics of decisions made under the Act. A growing number of other House and Senate members, at least seven Senators and seven Congressmen, have publicly expressed concern about the Act and called for its reform.

According to a 1992 *Times Mirror* magazine's National Environmental Forum survey, public opinion on the subject of endangered species is consistent with the desire to promote both environmental and economic growth. The public favors the principal of weighing costs, while at the same time doing more to protect endangered species. The main-stream view is that while it is extremely important to protect endangered species, costs should be considered while doing so. The poll found support for the idea of weighing both the costs and the benefits of protecting endangered species in all regions of the country, at all income and education levels, among both Democrats and Republicans, and even among active environmentalists. In the *Times Mirror* poll, the most popular argument for saving species was the economic one: direct tangible benefits from promoting and protecting biodiversity. Those surveyed also widely accepted the ecological argument, the idea that the

balance in nature is delicate and can be upset by the loss of an individual species. Nevertheless, the issue of excessive costs is one argument against the protection of endangered species accepted by most people.

The Endangered Species Act is scheduled for reauthorization this year. The major debate, however, is not expected until the next session of Congress because this is an election year. Congress will likely appropriate money for the continued operation of the current Endangered Species Act beyond the October 1992 reauthorization date.

A number of groups are already participating in the debate over the reauthorization, including the Nationwide Public Projects Coalition, People for the West, National Public Lands Conference, the Endangered Species Coordinating Counsel, the ESA Round Table, and the National Endangered Species Act Reform Coalition ("NESARC"). The environmental community has organized the Endangered Species Coalition, led by the World Wildlife Fund, and legislation supported by the environmental community was introduced by Congressman Jerry Studds.

After reading the article, "The Butterfly Problem," in the *Atlantic Monthly*, I realize that balancing any type of economic development, including water development, with endangered species protection raises similar issues. I would like to note several principals for the reform of the Endangered Species Act proposed by the National Water Resources Association ("NWRA"). The first is that the implementation of the Endangered Species Act should not adversely affect the allocation of water among states pursuant to interstate compacts or United States Supreme Court decrees. Implementation of the Act should be consistent with state water rights systems, should assure the use of federal reclamation projects in accordance with their authorized purposes, and should not adversely affect rights under water storage contracts for the allocation for available supplies of water to fulfill these contracts.

Today, I would like focus on two major sections of the Act: the Listing Process and the Section 7 Consultation Process, and review suggestions for their reform. Then I would like to discuss briefly proactive measures which can be taken to keep species from being listed in the first place, the need to enhance the role of state and local governments in the recovery of endangered species, enhancement of the role of stocking in the recovery process, the expansion of the role for recovery plans, citizen suit issues, and the protection of private property rights.

The Listing Process, Section 4 of the Act, directs the Secretary of the Interior to list all species, subspecies, and distinct population groups of wildlife that are endangered or threatened, and to list species and subspecies of plants. The Secretary of Commerce makes listing decisions regarding marine fish and mammals. Species have been listed in each of the fifty states. Listing decisions are to be made solely on the basis of the best scientific and commercial data available. Economics may not be considered in listing decisions.

The story of Colorado River Municipal Water District, which serves one-half million people in the Odessa-Midland-Abilene, Texas area, demonstrates how the Act is based on limited, arrogant and out-dated biology and why the listing process needs to be reformed. When the District was allowed to reactivate a § 404 permit to build a

reservoir, it found that in the meanwhile, in 1988, the U.S. Fish and Wildlife Service had listed the Concho water snake as threatened. That listing was based on three brief studies, which found an insignificant number of snakes. The Service believed, based on this limited data, the Concho snake could not survive in flat water. However, as early as 1988, snakes had been located in existing reservoirs.

To obtain its § 404 permit to build the reservoir, the District had to agree to make downstream water releases, employ a biologist, together with supporting personnel, study the occurrence and life cycle of the snake; and contract with an herpetologist to conduct habitat studies pursuant to a five year contract costing at least \$500,000 dollars. Within four years after the issuance of the § 404 permit, the staff had found at least 4,000 snakes, each of which has been injected with a distinct computer chip. The reservoir was filled in March 1990, and numerous baby snakes have been found, which were born in the new reservoir.

While I believe it would be appropriate to retain the requirement that listings of species be based solely on biology, to ensure the scientific integrity of the species Listing Process and the designation of critical habitat, the Act should be amended to require that data be field tested where feasible, require more detailed findings for listings, require scientific peer review of proposed listing and critical habitat designation decisions, and ensure that the definitions and listing of species and subspecies are based on modern scientific procedures. The listing of a species impacts not just economic development, but also can affect state wildlife management programs. The Colorado Division of Wildlife is spending at least \$750,000 annually on the endangered species in the Colorado River.

Currently, virtually any agency or any private party can petition the U.S. Fish and Wildlife Service to list an species or subspecies. In the future, the Listing Process needs to be more restrictive, including requiring those who propose listing to share with the listing agency the cost of collecting the best scientific data to support listings and critical habitat decisions, and developing verified listing justifications.

One of the key mechanisms implementing the Act is the Section 7 consultation process. We heard earlier from Patrick Parenteau that no federal agency may allow an action funded, authorized, or carried out by the agency to jeopardize a listed species or result in the destruction or adverse modification of critical habitat, unless allowed by the God committee. In the case of Animas-La Plata Project, a Section 7 jeopardy opinion was issued by the U.S. Fish and Wildlife Service just days before the scheduled groundbreaking of the Project in May 1990. The Service perceived a threat to the Colorado Squawfish in the San Juan River from the depletion of flows in that river. The San Juan River, however, was not considered to be significant for the recovery of Colorado Squawfish in its proposed recovery plan until the meeting of the Recovery Plan Team, consisting of both Upper and Lower Basin biologists, one month before the jeopardy opinion was issued. It took nearly one year to get a copy of the minutes of that meeting, and it is my recollection that several of the team members were not present at the meeting, but a decision was made on the importance of

the San Juan River based on the knowledge of those present of the views of their absent colleagues.

The San Juan River Recovery Implementation Program, a complementary feature of the reasonable and prudent alternative for the Animas-La Plata Project, has yet to be finalized, despite a memorandum of understanding, signed by the Secretary of the Interior, covering the scope of the Program. A budget of \$2 million dollars per year is now proposed for the seven year research program under the reasonable and prudent alternative for the Animas-La Plata Project on the endangered fish in the San Juan River.

As another example of arrogant biology and the need to reform the Endangered Species Act, Region II of the Service is seeking to deny Animas-La Plata Project sponsors a right to have a biologist on the Recovery Program's Biology Committee. The biologists have suggested that only those with specific knowledge of the razorback sucker or the Colorado squawfish in the San Juan River may serve on the Biology Committee. This excludes scientists with backgrounds in hydrology, ecology, and water quality, who could also contribute significantly to the recovery process. Further, the Service has argued that the research on the San Juan River should skip over the question of whether the Colorado Squawfish and Razorback Sucker are recoverable in that environment, and focus on the flow releases from Navajo Reservoir that best suit the endangered fish.

The San Juan River Recovery Implementation Program is modeled on the Recovery Implementation Program for the endangered fish species in the Upper Colorado River Basin. The five elements of that program, designed to recover Colorado River endangered fish within a fifteen year time frame, are: (1) water and habitat management; (2) habitat development enhancement and maintenance; (3) stocking of endangered fish species; (4) non-native species and sport fishing management; and (5) a fifteen year research monitoring and data management program. The budget for the program includes a \$10 million dollar Congressional appropriation to acquire water flows, an annual operating budget of about \$2.4 million dollars, and a charge for new water projects based on their estimated average annual depletions.

It was the water users understanding that Upper Colorado River Basin water projects could go forward based on non-jeopardy Section 7 opinions, if sufficient progress were being made basin-wide in all five elements of the program, toward the recovery of the endangered fish. The Service, however, has placed extraordinary emphasis on the water management component of the Recovery Program within each stream segment in the Upper Basin, rather than focusing on overall Basin progress in achieving the five objectives of the program. In addition, issues have now arisen within the Upper Basin program over whether historic depletions included in the Program's base-line must also be reviewed against the sufficient progress standard; and whether projects that have historically depleted water must go through a Section 7 process to determine whether they need to pay the Program's depletion charge.

Other examples of arrogant biology and the need for Section 7 reform include the case of the Glenn-Colusa Irrigation District fish screen in the Central Valley of California and the limitation of diversions in the East Columbia Basin Irrigation District. Although problems about the fish screen have been known since 1974. The Glenn-

Colusa District is now responsible for having a bank account of over \$4 million dollars to fix the fish screen, and the District's water diversions have been greatly curtailed. In the Columbia Basin, because of the newly listed Chinook and Snake River sockeye salmon, the East Columbia Basin Irrigation District is also facing a significant curtailment of diversion. Studies, however, have shown that because of small proportion of the stream the District is diverting, the maximum increase in mortality of juvenile migrant salmon would only be one-half of one percent. I believe the Section 7 Consultation Process must be reformed to recognize other federal authorities and responsibilities, and to provide a single uniform standard to be applied during that process.

I believe that a reform of the Endangered Species Act should look to proactive measures to keep species from being listed. In addition, to balance water development and endangered species protection, incentives should be increased for innovative federal, state and local efforts to conserve species through voluntary, cooperative management agreements, and states should be given delisting responsibilities with appropriate federal funds. Some of these positive steps toward species recovery are now being taken in Colorado. A native fish species recovery workshop was sponsored by the Denver Water Department and the Colorado Division of Wildlife in May to resolve issues pertinent to the interrelationship of water development and management of native aquatic wildlife species. The discussions generated the following conclusions: the workshop group should focus on sensitive fish species and propose or develop programs and activities which would help to manage and recover these species, prior to their being listed as federally threatened or endangered. The Division of Wildlife was encouraged to accelerate the development of a native species data base and the development of management plans for currently identified species of concern in conjunction with surrounding states.

In addition, I would suggest that there be an increased emphasis in the Act on propagation and species population support programs. The Colorado Water Conservation Board, together with a consultant, are just completing a study for an endangered fish hatchery in Colorado. A draft report may be available as early as September. The study group has reviewed all the literature on propagation facilities, developing design criteria, evaluating sites, and examining water quality and supply. I think that this is a very positive step towards balancing development and endangered species protection.

I also think there needs to be a new focus on recovery plans in a reformed Endangered Species Act. The recovery planning process must be strengthened by establishing that process as the focus for formulating management policies to implement the Endangered Species Act. The recovery plan provisions of the Act should be consolidated into a separate management section of the Act, which details Plan requirements separately from the listing of species and the designation of their critical habitat. Recovery plans should fully assess the likelihood of a species recovery and should more fully consider the social-economic impact of the Plan. Recovery plans should evaluate alternatives for species recovery and public hearings should be held in effected counties prior to the selection to a final recovery plan.

I would like to comment briefly on the amendment to the

Endangered Species Act, proposed by Senators Wirth and Metzenbaum, in response to the recent Supreme court case of *Lujan v. Defenders of Wildlife*. The Senators propose that a person with a demonstrated interest in a threatened or endangered species be deemed to have suffered a direct and particularized injury where any person takes or is likely to take action which may harm or adversely affect any species or its habitat. This is a very scary proposal. Too many of the decisions under this Act are already made through litigation rather than through good science.

Several other aspects of the ESA should be reformed to balance economic development, including water resource development, and endangered species. I think we need to eliminate inequities in the Act's implementation that may impose burdensome procedures and stricter standards on private land owners and non-federal parties than those applied to federal agencies. We have to review the definition of "take" under the Act. We need to look at critical habitat to ensure that the Act designates critical habitat only if it is truly critical.

The water community must come together with other regulated communities and the environmental community to reform the Endangered Species Act. We must stop leaving the very hard decisions that our society must make to litigation and to limited arrogant biology. The consequences are too great.

Who Gives a Damn About Some Stupid Fish Anyway?

Mark Shaffer
Vice President, The Wilderness Society

Although the title in the program is pretty good, I want to use this opportunity to talk about issues that are broader than a particular fish. Therefore, I would like to title today's presentation *Endangered Species and Biodiversity - Why We Should Care*.

We have already heard two very good presentations that outline what the Endangered Species Act is all about, and the effect the Act is having on American communities.

Rather than continue the debate about the specifics of the Endangered Species Act, I want to discuss endangered species, and the relationship of endangered species to a word that we are hearing more about, but one I think many people still are not very comfortable or familiar with, namely biodiversity. Then, I would like to talk about why we should fundamentally go through all these gyrations in order to deal with this kind of issue, - and to offer some suggestions about how we can deal with the values that we are trying to sustain, in ways that go beyond the traditional Endangered Species Act.

We have all heard some of the many, different controversies and issues. I have listed some of the famous controversial endangered species that you may not remember as being controversial if you were not paying attention twenty years ago when the Act was passed. There is quite a bit of controversy concerning the American alligator and whether, in fact, it was truly endangered or should be listed. The Bald Eagle is used as a patriotic symbol of the Endangered Species Act. It represents why we need the Act, and why it works. The next three species represent the hard core second phase of the Endangered Species Act controversies. Pat talked about the Spotted Owl this morning. The Desert Tortoise is one that many people in this room, if you are not familiar with yet, may become familiar with. Some people have suggested that the Desert Tortoise will become to grazing what the Spotted Owl is to timbering. I do not know whether that is a true assessment or not, but it certainly remains a controversial issue. Thirdly, the Colorado Squawfish is one of the fish that we are really talking about without naming names when water projects on the Colorado River are proposed. Those are some examples of famous endangered species and the types of controversies they produce.

The first two species listed here, the American Alligator and Bald Eagle, are actually doing pretty well. Questions concerning the status of the American Alligator and Bald Eagle were actually questions of controlling harvests, or questions of controlling the release of pollutants into the environment. We have begun to solve those kinds of issues.

Those last three species, including the Spotted Owl, Desert Tortoise and Colorado Squawfish - are much more difficult to deal with because it is no longer a question of controlling the release of some chemicals into the environment, but rather a question of how to manage land and water. Land and water are so fundamental to this country, its society, and its economy, which is why they are presenting the

toughest controversies for us to come to grips with.

Currently, we are hearing the controversy cast in very simplistic terms. There is a dimension of truth to them, but it is not the whole truth; therefore, we are misguided as to what the issue is all about. The best example I can think of is that of the Spotted Owl in the Pacific Northwest. This is an issue that my organization, the Wilderness Society, has been very involved in. I used to be with U.S. Fish & Wildlife Service, and I worked on the Spotted Owl issue when I was with them. The media focused on the phrase "owls versus jobs." The issue was reduced to either saving the Spotted Owls, or saving timber jobs. However, the reality of the situation is not that simple.

Pat mentioned that we have over two hundred different taxa of salmon in the Pacific Northwest that are in the process of being considered for listing as either threatened or endangered. These salmon spawn in streams that are embedded in forests. Many of these forests are public forests, administered by the BLM or Forest Service. The population of these different stocks of salmon have been drastically reduced in recent decades. There are a number of reasons for this decline. It is not a simple situation. Some of it may come down to harvest, particularly on the high seas where we cannot regulate it. Certainly, some of it is tied up in the fact that the Northwest is in the midst of a drought on the order of five or six years with below normal rainfall. We also believe, and scientific evidence indicates, that the rate at which we are cutting lumber in the Pacific Northwest is also diminishing the utility of the streams to be able to produce salmon. I want to emphasize that the problem is not the fact that we are cutting lumber, but the rate at which we are cutting it. One estimate was made that the salmon industry in the Pacific Northwest, including both the commercial and the recreational segments, employs 60,000 people, and is worth one billion dollars per year. I do not know the accuracy of these figures, but I can assure you that the salmon industry is a very vital component of the economy in the Pacific Northwest. Many communities are dependent on fish, just as other communities are dependent on timber. What I think we need to understand, as a society, is that we are pushing resources to such a limit that we are not just in a situation of whether it is owls or jobs, but whether it is timber jobs or salmon jobs. Who are we going to put out of work? Are we going to put the logger out of work, or the fisherman? It does not reduce to conservationists wanting to put people out of work, or stop development, rather it is a result of the fact that we are utilizing resources in such a way that we are creating friction and dysfunction in the natural world that is the original source of all this wealth.

Recently, the term biodiversity has been used frequently, particularly, in the context of the Earth Summit in Rio. The Endangered Species Act is an American original. We are the first society in the recorded written history to proclaim that the variety of natural living things is of fundamental importance to humanity and should be protected. No other nation has ever done that. We took a leadership role. I spent two years on loan from the U.S. Fish and Wildlife Service to work for the Agency for International Development to stimulate the development of conservation programs in our foreign assistance programs. Congress was directing A.I.D. to pay more

attention to conservation. One of the focal points was to conserve biodiversity. That was from 1985 to 1987. It was very shocking to many people, particularly in the environmental community, that in 1992 the entire world met to address the environmental agenda and the only large, wealthy, developed, western nation that did not sign a convention to work towards maintaining the diversity of the world's living resources was the United States. Obviously, we are in a very confused time. We have invented something, the Endangered Species Act, which the world has not copied verbatim, but has come to understand as signifying the importance of conserving diversity. The rest of the world is willing to move forward with it and we are reluctant.

Where is all the confusion coming from? Isn't it time to reevaluate why we are concerned with these issues? I think to do this we must discuss biodiversity rather than endangered species. I think it is often portrayed that there are a few nature lovers in this country who have learned how to organize and will stop other people from actions that may harm some particular creature that they fancy. The operative word there is fancy. Fancy suggests that it is a discretionary practice, a recreational activity and not necessarily important.

Endangered species are part of a larger issue called biodiversity. Biodiversity simply means the variety of the living world. There are three important levels of variety that we need to be concerned with and try to maintain.

The first is genetic diversity. The promise of genetic engineering has received a lot of media attention recently. People are hopeful that someday we will be able to engineer crops that do not need pesticides, or crops requiring only one-half of the water they currently use. Genetic engineering is a promise that cannot be fulfilled if we destroy the raw material that the engineering needs, namely genes; the genetic variation of living things.

Species diversity is the level of diversity that we are most familiar with. It is the level of diversity that the Endangered Species Act concentrates on. Species form different types of communities. The communities require a variety of habitats, including prairies, forests, marshes, and tundra. Different physical and chemical environments interacting with different species, creates different types of communities. There is an importance in maintaining the variety of natural communities.

Landscapes are a level of diversity that is difficult to explain. The example of cutting forests illustrates landscape diversity. Some species require openings in the forest, and if the forest was completely old growth those species would disappear. However, other species require old forests and if all the old forests were gone, replaced by young forests or clear cuts, those species will disappear. However, in a large enough area, natural dynamics ensures that all different communities are present. The forest develops through phases. After the lumber has been removed, the forest will remain clear cut for some years. Then, perhaps for a century it will be middle aged forests and finally becomes old growth. Landscape diversity is diversity through time and it is a critical component for maintaining natural diversity and healthy ecosystems.

Why do we have a problem? I am trying to convey the

understanding that everything is transient; nothing lasts forever, including species. Survival or extinction are probabilistic phenomenon, and not deterministic phenomenon. The chances of a wild population's survival depends greatly on its abundance and how widespread it is. This is a general rule that varies with the particular circumstances. A species survival also depends on its genetic diversity. Genetic diversity is a function of how abundant and widespread the species is; the larger the population, the more widespread the species, the greater the level of genetic diversity it will generally contain.

The reason that we have a problem, quite literally folks, is that we are running out of room. I know that maybe hard to image or believe. It is particularly hard for me. I am from the east coast. I flew out to Denver yesterday, and rented a car to drive up here. It was a magnificent drive through very beautiful country. I did not see many houses compared to northern Virginia, where I live. However, we are running out of room in this country and in other countries to maintain the full diversity of living things.

I would like to give some examples to illustrate this. By our best estimates, we have reduced our wetlands by 50% since the arrival of our European ancestors to North America. There are approximately one-half the marshes, swamps and potholes today as there were 500 years ago. In our ancient forests, I am defining ancient forests as the very old forests of the Pacific Northwest, the trees are on average somewhere between 250 and 450 years old, though some are much older. There is only 10% of those ancient forests left. I think Ms. Sheftel brought up the point about balance when she referred to Senator Hatfield's column. Senator Hatfield was discussing the Endangered Species Act and the lack of balanced resource management in the Pacific Northwest today. I agree with him. However, I do not agree with the reason he gave us. The problem is not the Endangered Species Act. When 90% of a natural system has been removed, and there is only 10% left, where is the balance? If the 10% that is left is absolutely essential for maintaining that system and all the species that it supports, it seems to me that having given up 90% is pretty good balance. Consider, tall grass prairie, there is less than 1% of the original tall grass prairie left in the United States. Long leaf pine was once an expansive community along the coastal plain from Virginia to the Gulf Coast of Louisiana. Currently, less than one-half of one percent of that original community type is left.

What percentage of the fish fauna of the United States is at risk? When we focus a debate on a specific species we need to understand the broader pattern it represents. Regardless of whether we are discussing the Colorado Squawfish, the Spotted Owl, or the Desert Tortoise, it is a reverberation of the same theme. More and more of our natural world is at risk. The total species diversity of North American fresh water fish is about 790 species and there are many subspecies within that figure. The Nature Conservancy, which I think does the best job of keeping tabs on which species are at risk or are vulnerable to becoming threatened or endangered, lists about 269 of those 790 species in various categories of risk. Currently, the federal government lists only 55 of those species as threatened or endangered. However, by adding in the candidates their figure would be very close to TNC. Therefore, roughly one-third of the fish species diversity in North America is at some level of risk. I do not

think we are talking about isolated problems. I do not think we can afford to question each specific situation.

I want to convey that endangered species are just the tip of a much larger problem. This larger problem is the loss of biological diversity. It is very easy to trivialize the importance of any particular species. The original title for this talk did that in a way. Who cares about some stupid fish? I hope no one thought I was going to tell them that Squawfish are worth \$99.00 per pound. You cannot place a monetary value on these things.

Therefore, when addressing controversial endangered species issues, we must not lose sight of the fact that it is the tip of a much larger problem that we all have to deal with.

It is important to reiterate why we care about these issues. While sentiment and nature appreciation are fine qualities, there are utilitarian reasons to be concerned with endangered species and the loss of biodiversity.

Environmental services

We are all part of an environment which provides our basic life requirements. I do not think many people appreciate that the habitability of this environment is dependent upon the temperature, moisture and oxygen available. Those are the products of a living, physical, chemical system, as well as of living organisms. Prior to the emergence of life on earth the atmosphere was very different. It contained only very small traces of oxygen. Our ability to live here is a property that is not only physical and chemical, but also biological. Many people simplify the system by saying a plant is a plant, an animal is an animal, a microbe is a microbe, and if we lived in a world of rice patties, wood lots and pastures we would still be have enough oxygen. There would still be rainfall. The machinery would keep going. That maybe true, we do not know.

However, ecologists are skeptical that a very simplified world would function well. The reason why is because of something we call ecological services. This theory suggests that not only does every variety of life play a role in maintaining the overall environment, regardless of how significant, they also play a role in the ecology of the community that they are in. A good example are honey bees and pollination. The possibility of African bees migrating into the United States from Mexico is a threat to our apiary industry. Many crops require insect mediated pollination. Without bees those crops are lost. This is only one example. Consider the approximately thirty million species on earth and all their interconnections. There are serious reasons to believe that by diminishing the overall diversity of the system, connections are diminished and the remaining parts are at risk. The ramifications are unknown, but we have to be aware of the possibilities.

Commercial goods

Obviously, all our food comes from living things. By and large, they are cultivated living things. I do not think many people realize that since 1930 there has been a tremendous increase in per unit agricultural productivity in this country. The yield of wheat from an acre, or the yield of potatoes from an acre have dramatically increased. Most people associate those increases with technology and

science. While they are connected with science, and the widespread use of fertilizer and pesticides, it has been estimated that approximately 50% of the increase in productivity is related to genetic improvement of the crops. Many crops did not originate in the United States; e.g., corn came from Mexico, rice from Asia, and wheat from Iraq. Therefore, why do we have to maintain our native biodiversity in the United States in order to maintain genetic resources for agriculture. There are over 200 species of plants that are related to important food crops that are candidates for our domestic list of threatened and endangered species. These plants can be found within the United States or its territories. So, we have practical interests in maintaining the level of genetic variability in our wild plants for their potential use in agriculture.

Humanitarian values

Most of you have heard of the chemical, taxol, derived from the Pacific Yew tree, found in the Pacific Northwest, that is showing promising clinical trials for the ability to increase the chance of remission from certain types of cancer, or to reduce or stabilize tumor growth. That is only one an example. Twenty-five percent of all prescriptions sold in this country contain a plant derivative. In many cases, the plants are wild plants.

There maybe 250,000 species of plants on earth. Approximately 35,000 of those have been screened for anti-tumor properties, meaning that they have been run through a quick test to determine if they have the ability to reduce tumor growth in tissue culture. Consider all the other diseases and disfunctions for which we require medicine. Many of those plants have not been tested for any of these other afflictions. The idea that we know enough to judge the worth of a living thing is a fantasy that we need to rid ourselves of.

Aesthetics and Recreation

I came from a conservative background. I was taught that if something does not have a practical use, do not mess with it. We do not have the luxury to worry about impractical things. Recreating was something one did after the chores were done. In our modern world, the United States is very productive. I understand that we are in a recession, and things are very difficult for some. However, as a nation we are very wealthy. In fact, we are so productive that the importance of services is outstripping the importance of commodities in our economy. Many people relate economic decline, or economic stagnation to the image of a service economy in which people are burger flippers or maids and only with a production economy one can be a member of a union or make a real living. That is an outdated economic view. A service economy includes many professionals; lawyers, doctors, investment counselors, computer software writers, and computer repair people. The way in which we go about making a living in the modern world moves us more and more towards services. I view aesthetics and recreation as a service. It functions to keep us sane. In regards to the dollar, they are also extremely important. There are many areas of rural western United States where current and potential economic value is in recreation and tourism. Regardless of whether your viewpoint is esoteric or pragmatic, aesthetics and recreation are very valuable. We recently conducted a study in the

Yellowstone region and found that mining, timbering, and ranching were declining in relative economic importance to the regional economy compared to the economic activity generated by people coming to the area to recreate or to live. Many people are seeking the quality of the life that open spaces, abundant wildlife and recreational opportunities can offer.

Spiritual Values

America prides itself on being a pluralistic society with the freedom of religion. I think that is a great strength of this country. Some people have a deep spiritual valuation of the natural world, different species, and different communities. Unless we can respect that at some level or in some way, we are not as pluralistic a society as we claim to be. Religious freedom depends on the existence of components central to each of the various persuasions. For example, if a wild place or a particular type of wildlife is no longer available to be appreciated by someone who values it, that person has been fundamentally stripped of that particular value. At a core level, though, we have to be mindful that what we may not value spiritually, maybe valuable to others and they have a right to that.

Species Uniqueness

The final reason why we should care about biodiversity that I will suggest is for the ultimate pragmatist in the audience. I find myself becoming a pragmatist more and more because I have found myself in many situations where my job has been to convey the value of conservation to people whose primary interests were not conservation. I would like to share an analogy I heard concerning why we should value biodiversity and particular species diversity. Suppose it was shown that a species did not contribute anything to the environment, provide any ecological services, and was not known to have any commercial, humanitarian, aesthetic, recreational, or spiritual value. However, it still contained something that the modern world is coming to prize more and more; it contains information. It contains an original set of genetic information that makes it a unique species. While it may be possible to say today that something is worthless, it would be folly to say today that something will be worthless for all time. When we allow something to become extinguished, when we participate in the extinction of an entire species, in essence we are saying, "We are smart enough to know that we are never going to need this." I think that is a premise we need to be extremely cautious of.

In conclusion I want to return to the relationship between endangered species and biodiversity. The Endangered Species Act has generated friction and controversy that we are forced to deal with. I want to return to an analogy used earlier, in which the Endangered Species Act was likened to an emergency room. We are going to have a steady stream of emergency room cases because there is not a hospital nearby. With all the energy, creativity, and desire for change embodied in the dialogue of the Endangered Species Act I hope people do not see surrendering as the solution. I hope they will see that the next step is development of a national program for the conservation of biodiversity that can cut off the flow of endangered species at its source. It has only been two decades since the

Endangered Species Act was created and it took five centuries to get us to this point. With two more decades of work we can have a national biodiversity program that prevents any more species from becoming threatened or endangered and we can recover a fair share of those that have already been threatened or endangered. I think in the process we cannot only maintain a healthy American economy, but we can learn things that will improve our economy by paying respect to the other things with which we share this planet.

**An Endangered Community? Possible Impacts of the Endangered
Species Act in the Upper Gunnison Basin**

Bill Trampe
Chairman, Upper Gunnison River Water Conservancy District

The program acknowledges that I am Chairman of the Board of the Upper Gunnison District. However, I am not speaking on behalf of the board this morning. Rest assured that the views I express are my own. They have developed by many years of playing with this little instrument that I have over here. It is a two piece irrigating shovel. The second piece comes from the fact that the handle can be worn off, replaced and worn some more. My education in water comes from being an irrigator. I am not a legal attorney, hydrologists, engineer, or a scientist, I am an irrigator. I have firsthand experience, so when someone tells me how to irrigate and how to manage my agricultural water I become somewhat offended. That is why some of my remarks may be slightly pointed, but that is the way it is.

As a rancher and an irrigator, my role in my business in this community is to raise forage for livestock consumption which is then consumed by the general public. In this community, in this type of an environment the land is marginal. We are living at a high elevation. We are living with Mother Nature the best we can, and we are producing the best we can, but it is certainly not a high volume, high price crop. Hay, if we are lucky, averages \$60.00 a ton. Irrigated pasture, if we are lucky, might be sold or rented for \$.22 per animal unit a day. As you can see it is not a very profitable business. It is a business we do because we like to do it. As long as people, pressures and stresses leave us alone, I am sure most of us will continue to do it. We do it because we like it. We do not do it because it is profitable.

I sat in the session yesterday and again this morning and I heard various philosophies and views from both sides. I identify myself as somewhere in the middle. Depending upon the particular issue, I might lean one way awhile and then I might lean the other way awhile. I really found myself identifying with an entirely different position as I listened to Mark. Everything he addressed with regards to biodiversity and endangered or threatened species I felt applied to me and my business. Lucy High has titled my discussion "The Endangered Community," and I sincerely feel that way, not only for the agricultural community, but for the entire community. I hope by the time I finish this morning you will better understand where I am coming from. The effects are reaching not only the agricultural community, but our total community. The community we know today may not be here in a few years because of a variety of things happening. Some of them are triggered by a potential Endangered Species Recovery program on the Colorado River.

I would like to describe where our conservancy district, the irrigators and the water users of the community have been; where we are today; and what we are looking towards in the future. As a small boy, I can remember the discussion and turmoil that came about with the consideration and authorization of the Aspinall unit. There was

a great diversity of opinions within our community as to whether or not the project should be built, and then how it should be built.

To better understand the diversity of views, let me take you back thirty years. We had an economy that was largely based on agriculture. A certain degree of the economy was also based on Western State College. I would consider tourism and recreation to be in its infancy. The construction of Blue Mesa Reservoir covered up half a dozen major ranches, and many smaller operations. It also inundated several small family run recreational facilities. We had major stretches of world class fishery on the Gunnison River that we were renowned for. President Eisenhower was known to come here to float and fish the Gunnison River from Gunnison on down to the head of the Black Canyon. That basin was a big winter wildlife habitat area for deer and elk. I can remember, in the late forties, seeing the deer dying during those severe winters. It made an impact in my mind.ate forties. We were also subject to some major water administration issues. Before Blue Mesa Reservoir was constructed we had to live with water administration. When the Gunnison River did not produce enough water to satisfy the downstream senior users the call came up the river. Particularly the agricultural users would have to recognize the call. The division engineer and his commissioners would be administering the river by the first of July. All of a sudden one morning, the ditch would be off or significantly reduced. With our short growing season, that usually happened about half way through the growing season. All of a sudden we would find ourselves without water, or without enough water to irrigate the gravel bars that we try to produce hay on. The only option was to begin haying. I can remember many, many times we had to drag out the haying equipment around the tenth of July to get what we could. Then we would sell cattle and buy hay to try and reach a balance that would allow us to survive another year. We would then hope for a big winter with lots of snow, providing plenty of water for the next summer so that the call did not come up the river again.

That is where we were up until the mid-sixties. Then the Aspinall Unit and Blue Mesa Reservoir were built. Suddenly we found ourselves in a different world. We lost those ranches that were inundated, but we gained the largest body of water in Colorado. Suddenly we had many flat water recreational opportunities. The Park Service developed many recreational amenities and recreational activities, which I feel replaced the small family run operations. We lost all that winter wildlife habitat, but somehow the elk populations continue to increase. There were changes made to mitigate that loss of habitat. For instance, a family ranch was bought and turned over to the Division of Wildlife. Today that ranch is purely wildlife habitat.

In many meetings and conferences, I have heard members of the environmental community talk about boondoggle water projects and how detrimental they are to the environment. However, I would like to give you an example of one that I am not so sure has been detrimental. It is related to Blue Mesa Reservoir. There is a fish hatchery on the East River called the Roaring Judy Hatchery, which was constructed in the sixties around the same time that the Aspinall Unit was built. Now that we had a fish hatchery and a large body of water in Blue Mesa, it was decided that this would be a tremendous place for Cocanee

salmon. Cocanee salmon was introduced into Blue Mesa. Originally, the fish were hatched at the hatchery and then trucked down and dumped into Blue Mesa. When the fish spawned, the spawn would have to be collected from the tributaries and inlets of Blue Mesa, and taken back to the hatchery where they were raised. In order to eliminate transportation costs and the extra work involved, the fish were released from the hatchery and when the salmon were ready to spawn they returned to the hatchery. An interesting side note is that when the Division of Wildlife decided that they wanted to release those fish they requested me, as a diverter from the Gunnison River, to shut my ditch off. I felt that was an infringement upon my rights to use my private property right to irrigate for the benefit of the public.

So, the young fish go to reservoir and four years later they come back to the hatchery to spawn. Guess what all those salmon in the East River have brought about? A great collection of an endangered species; the bald eagle. The eagles migrate through the area in the fall and have a great time surviving on those salmon. The Trampe family owns a piece of property just down stream from the hatchery. We have it closed to the public for a variety of reasons. It is not uncommon in the fall to see 100 eagles. I enjoy them as everyone else does. However, you do not find many eagles on the hatchery property because it is open to the public. You also do not find many eagles on the property just downstream of our property because it is full of homes, fisherman and all kinds of other activities. Three years ago, a Division of Wildlife officer arrived at my back door one evening and said, "Trampe, how come you been killing eagles? Where is the dead cow that is poisoned and is killing all the eagles?" All you can do is take my word for it, but I am certainly not about to do anything like that. It is not the species that bothers me. It is all these other things that bother me. It is these sidelights that bother me, and make it difficult for me to live with the Endangered Species Act and its administration. I am constantly, in the course of the fall and the winter, accused of bothering the eagles. I am constantly accused of not wanting to allow the public to enjoy them. Perhaps I ought to open that property up to the public, and then we would not have them and my life would be much easier. The environmental community keeps telling the ranching industry and the agricultural industry that we are doing a bad job of protecting the environment. If so, why are the eagles there?

Another thing that came about after Blue Mesa was built is what we call in the Gunnison Basin the 1975 Contract. The 1975 Contract arose to help alleviate the water administration problem that we had to deal with in the 1950's and 1960's. I think the first part of the development of this contract was an agreement between the Bureau of Reclamation and the Uncompaghre Water Users that there would be an exchange between Taylor Reservoir and Blue Mesa. This would allow Uncompaghre to call their storage out of Blue Mesa rather than Taylor to decrease the distance and the time of delivery.

As an outgrowth of that, the Upper Gunnison people saw an opportunity to enter the negotiation and better their situation. To make a long story short, the Colorado River Water Conservation District became involved, along with the Bureau of Reclamation and we called it the Four Party Agreement. It allows the Upper Gunnison

District the opportunity to have some say in how the water releases out of Taylor Reservoir are made, and it gives us the opportunity to use those flows for the benefit of recreation, irrigation, and other uses. Since the 1975 agreement was signed we have not had to be subject to calls in the Upper Basin. Therefore, our water supply has been more stable. We have done a better job of irrigating and have had a more stable hay crop production, which has helped stabilize the agricultural economy of our basin. Therefore, even though we lost some things when Blue Mesa was built, other economic and environmental positives have been gained from what people call a boondoggle project.

One of the big things that is overlooked, is how much it did for the recreation industry. It added the flat water on Blue Mesa, and increased the fishery potential in the Taylor River. I am not going to try to quote the Division of Wildlife figures, but I think there has been a threefold or better increase in the fishery production in the Taylor River downstream of the reservoir. The development helped stabilize the water levels in Taylor Reservoir itself, so that Taylor Reservoir is a better fishery today than it was prior to these changes. In my mind, there are many advantages that have occurred as a result of Blue Mesa.

As we enter this realm of what can possibly endanger the future of our community as a result of Endangered Species Recovery program there are mainly gray areas with very little black and white. There is little that we can grasp a hold of and know that we are working with. The Fish and Wildlife Service desires flows downstream of the Aspinall Unit to meet recovery requirements. To me, there are some questions that the Fish and Wildlife Service has not addressed. For example, they have not identified the exact stretches of the Gunnison where they want a habitat flow in, or those where they want the passage of fish. That uncertainty raises many questions for us. The Bureau of Reclamation has shown a willingness to enter into contracts with the Fish and Wildlife Service to provide those flows, whatever the negotiated flows are determined to be. This, the Bureau tells us, will mean that there will be no more releases made in the name of POWER, and water will not be available for diversion by downstream senior users. That specified water will be under contract when it is released and will have to be delivered to where the stretches of endangered habitat are. That means, to me, that the senior right holders will then have to place a call in order to get their rights filled. Therefore, a call is going to right back up through to the reservoir, like I remember thirty years ago. We have gone full circle.

There are proposed remedies. The Bureau of Reclamation has indicated to us that they would be more than willing to enter into water exchange agreements or water service contracts with the Upper Gunnison District for municipal, industrial and agricultural water. That is one potential remedy.

Another potential remedy might be for the Upper Basin to develop their own storage projects.

A third alternative might be for the Upper Basin to try to litigate, legislate or negotiate a condition or a pool of water that sustains the present operation. Let me back up and discuss those three potential remedies quickly.

As far as water service contracts are concerned, I think, our

community has thrown up their hands and said, "Whoa, hold the phone, I don't think so." I know the agricultural community has said "absolutely not." They cannot afford to pay the costs that would be involved. They do not want to buy the water.

Secondly, the agricultural community does not feel they can live up to Reclamation Reform Act requirements. We do not, as producers, that Reclamation Reform Act requirements fit the kind of agriculture we have in this community. The short growing seasons, and low value crop production, does not lend itself to that. The acreage requirements, and the acreage limitation requirements are prohibitive. There has been an outcry from the municipal and industrial users that they find the cost prohibitive, and they do not feel they have any need to participate in water service contracts either. For the present time, that is the consensus of our community. We are not comfortable with water service contracts.

The second alternative involved building new projects. Certainly, if the district, or the people of the Upper Basin are going to build their own projects for augmentation that is a viable alternative. However, it involves all the environmental development conflicts and we are in the midst of the whole big ball game again. This would be a very long term process if the people of this community decide that is the direction they want to take.

Thirdly, we can look towards actively seeking a solution in the political legislative arena. Who knows what that will bring. That is where the people of this community decided they wanted to concert their efforts at the present time. If these efforts fail, we must either purchase a water service contract, or let the call come and deal with it as it is. To be very frank with you, that is what the agricultural community has decided to do. That is frightening to me, and to the community as a whole. Let's say that we decide we are not going to do anything. We are going to let the call come. When the call comes and we have to shut the ditches off, we will go to haying. Particularly those of us on the Gunnison and the East River can only produce a sixty percent hay crop year after year after year. That means that we must support forty percent less cows, but we support those same bills. In my opinion, the agricultural industry is already pretty well stressed. We are competing with all the other uses of public and private lands to try and maintain an existence in a highly recreation and tourism oriented economy. With this pressure on us, you can drive up the East River Valley right now and count real estate signs on ranches today. I will bet you that within one year the number of those signs will more than double.

What does that mean? I think then you are beginning to see the real environmental impacts of endangered species recovery. We are losing one environment to benefit another environment. We are going to lose our agricultural producers. What is going to replace those agricultural producers? In the Gunnison and East River valleys, I would venture to guess it will be development. It will be condominiums, golf courses, ski areas, anything connected with tourism, and anything connected with recreation. At some point so much recreation will have been drawn to this community that this community won't be sold for recreation anymore. There will be so many people and so much activity that no one will want to come here to recreate and relax.

We keep hearing that agricultural producers are bad people because they want to protect their property rights. Let me share something with you. The American public has become accustomed to cheap food. They expect it, they demand it, and they have received it. Therefore, agricultural producers are price takers. We are not price setters. The consumers tell us what they will pay for beef and finally it runs down the chain to me, the low man on the totem pole. I take whatever I can get. However, I am not a price setter on the things that I must purchase. The manufacturer sets the price of what I am going to pay for manufactured goods. Therefore, we are caught in the vice from both ends. Our only source to ride the crests and the pitfalls of the economic roller coaster is the property rights, the value that is invested in those property rights. When times get tough we do not go on strike and ask for a wage increase. When times get tough we cannot go to the trust fund and ask for another \$100.00 or \$1,000.00 a month. When times get tough we have to take that property right to the bank and mortgage it in order to get through the tough times. We have to be able to take that property right and sell it in order to start over somewhere else. That is why we are so very, very careful of what we do with our property rights. That is why agricultural producers are caught in the middle of this debate. We sympathize with the wishes of the environmental community. We also realize that we have to earn a living in the business world.

I think if we are going to work through this whole process, we as agricultural producers, we as water users, we as environmentalists, and we as water developers, and I list myself in all those categories, have to work together. We have to be open, forthright, and we have to work very diligently to negotiate options and remedies to these problems.

I have one more analogy I want to make in closing. It illustrates the zeal with which things get done. While there was not a bad intention in any of it, people wanted to protect the environment, and they wanted to protect a way of life, but as a result I am faced with the consequences. In this situation, Arapahoe County filed on water rights and points of diversion within this basin. The scientists went out, within the basin, to try to identify potential endangered and rare species, things that they felt needed to be identified for protection in case these water diversions came about. There is nothing wrong with that. They found the Boreo Toad at one of the points of diversion. They took that to the Forest Service and said we must protect this site. Well, I happen to be the permittee who runs cattle on that site. So, the Forest Service says to me, "Trampe, you will not congregate cattle at that site." I can handle that except, in this pasture, the site is the first and only place that the cattle can get to the stream. It is two miles inside a fence and the first place in which the cattle can head for the stream, and I am supposed to keep the cattle from congregating there. That is fine, we will handle that. However, there are two outlying factors that arose in dealing with the Forest Service on this issue.

Number one, the biologists tell me that when I use the pasture in September, the toad has already begun hibernation.

Secondly, the site is generally so full of campers and recreational users that the cows do not want anything to do with it.

**Endangered Species Act
Panel Discussion**

Moderator: Fred Wetlaufer, Member, Western Colorado Congress

Question: I have some comments that I would like to make. The first is about the Endangered Species Act. It smacks of totalitarianism to me, in terms of the penalties and the lack of economic consideration. I would submit that if we used incentives as opposed to penalties that we would harness the human potential and that would work wonders in terms of saving species. Secondly, will the Endangered Species Act stop the overall decline of species by itself? I submit that it will not. Patrick said that the problem was the human ability to accelerate the demise of species. Therein lies the problem. I do not hear anyone stressing that basic problem. Population is a terrible term, but we as ranchers we are always faced with the fact that we cannot overgraze, or over utilize our property without consequences and we deal with that. I do not think we are dealing with that. I would submit that humans are an endangered species, not because their numbers are decreasing, but because their numbers are increasing.

Question: I have one question for Bill. Where does all this excess water that Dave Miller talks about come from?

Bill Trampe: Ed, I am not sure.

Question: My name is Jimmy King. I represent the community of Ship Rock, New Mexico, which is located about thirty miles west of Farmington, just downstream from the Navajo dam. Janice mentioned the San Juan River several times. There have been large flows of water from the Navajo Dam released recently that wiped out many of our diversion dams along the San Juan River towards Ship Rock all the way down to Enice, Utah. There are many people in my community who live by cultivating farmlands. Does the Endangered Species Protection Act have any financial assistance available to repair these diversion dams for us so that we can continue irrigating our farmlands? How soon, where and when? Right now the water levels have been high and they wiped these dams out. There is no money available to rebuild them. There are four or five chapters that live near the San Juan River who have passed resolutions stating this problem. We have seen it coming. They still went ahead with it and like Patrick said, it is the law. If it is going to be law, is there money to help rebuild some of these things. That is what I am here for. I want to find out what we can do to keep this from happening again. Are there any plans to rebuild the diversion dams?

Janice Sheftel: Thank you for bringing that problem to our attention. It is not something I had heard about. I realize that there have been increased reservoir releases to determine flows that would be best for the Colorado Squawfish. I was not aware of the conflicts, however, I do not know if the Service has money to help in such matters. We will be glad to investigate what the action of the flows has done. I did not realize there was a problem. I think those who are involved

in the project will look into the problem now that we have been made aware of it.

Mark Shaffer: I would also like to comment on that. It is a good question. I have no idea if the service has any money available for it or not. My suspicion would be no.

This brings up a very important point that I think we all have to be aware of. In 1990 the total appropriation to the Fish and Wildlife program to implement the Endangered Species Act was \$39 million. If you are like me that sounds like a lot of money, in an individual context. Understand that the average cost of paving one mile of four lane interstate highway in an urban area is \$39 million and you begin to get some idea of the relative commitment that Congress and our government has made to make resources available for dealing with some of these contentious issues.

Another analogy that I think is instructive: my organization has worked for a long time on issues of selling public timber from national forests on what we call a below-cost sales basis. These are sales that we think do not recoup to the treasury the actual value of the timber involved. Our estimates, and there is room for debate on these, are that this averages to be about \$250 million per year. The total expenditure by the federal government on the Endangered Species Act throughout the nearly 20 years of its history is \$700 million. Everyone says that we cannot afford the Endangered Species Act. Folks, we could afford it if we would eliminate the below cost timber sales for just three years.

Another analogy is that the U.S. Fish and Wildlife Service, who I used to work for and still respect, spends roughly \$300 million a year for a variety of things that really come down to trying to maintain huntable levels of migratory waterfowl. I enjoy duck hunting as much as the next person, and I am not saying that it is not important and we should not spend the money. However, compare that to the fact that we have hundreds of listed endangered species, thousands of candidates, and we are running into situations where there are some problems that need to be fixed. There is no money available and we are told we cannot afford it. I think that is just bunk. I think that just demonstrates the fact that Congress passed a law that this society was not quite ready to live up to. I think in the twenty years since then, we have come to understand some good reasons to live up to it. We know what it is going to take and we can afford it, but we are not doing it.

Patrick Parenteau: I would only add that in terms of the Endangered Species Act there is no specific fund like you referred to. Maybe there should be. There are private efforts like the Defenders of Wildlife Program for compensating landowners for wolf depredation. These are all in the private or the nonprofit sector and maybe the government could take a lesson from them.

With your problem in particular, I would say this, if in fact the damage that you are talking about was done to private property as a result of flows released from the federal facility to accomplish an endangered species objective you may have a tort claim. In other words, you may have a claim against the government for damage to private property as a result of something that was done negligently.

I do not know whether it was done deliberately or negligently, but either way, if there was property damage resulting from a governmental action there may be some recourse for that. As to the recovery plan, the Act does not specify what recovery plans can do in terms of providing compensation for activities that are carried out. Maybe Margo can enlighten us on that. It would seem to me that the Endangered Species Act does not prohibit the service in establishing a recovery program to establish the kinds of mechanisms to pay people for damage. In the first place, the damage should be avoided. If damage is inevitable then there should be some kind of mechanism for paying for that. As far as I can see, there is nothing in the law that would prevent that.

Margo Zallen: This is not a question. I am Margo Zallen. I am an attorney for the Department of Interior and I would like to get further information on that. There is a federal tort claim act under which claims can be made against the United States and we need to address that and get further information. I wish that anyone who has information on that see me, and we will look into it.

Meeting California's Urban Needs

Duane Georgeson
Metropolitan Water District of Southern California

I would like to begin by touching briefly on the history of water supply development in southern California, for those who are not familiar with it.

The city of Los Angeles, around the turn of the century, went to the Owens Valley, the eastern Sierra and built an aqueduct, originally about 240 miles long, and then later it extended it another 100 miles to the Mono Basin. It tapped some water that prior to its construction, flowed into that saline lake and for many years, from the turn of the century to 1940, that was the primary imported water supply to southern California. During the Depression, the Colorado River Aqueduct was built by The Metropolitan Water District of Southern California -- a wholesale water agency created by Los Angeles and twelve other cities to tap the Colorado River, an aqueduct approximately twice the capacity of the present Los Angeles aqueduct. In the 1960's, the State Water Project was constructed, with approximately half of that aqueduct supply contracted by the Metropolitan Water District.

Presently, the Metropolitan Water District supplies water to most of the people in southern California -- slightly over 15 million people, or roughly half the population of the state of California. Metropolitan's service area extends south to the Mexican border, north almost to Santa Barbara, and inland to the city of Riverside. In addition to those three aqueduct systems, southern California is blessed with very large groundwater basins. However, the rights to those groundwater basins are shared by hundreds of cities, dozens of water districts, and individual pumpers. Nevertheless, it is a very valuable resource and provides between 25% and 30% of the water supply to southern California.

Thirty years ago, those aqueducts were looked upon as firm sources of supply to essentially meet the indefinite future needs of southern California. However, a variety of events have taken place that make all three of those aqueduct systems less reliable than they were thought to be 30 years ago.

The first was the loss suffered by California in the Arizona v. California litigation, concerning rights to Lower Colorado River water. In the view of our agency, Arizona won that litigation. Therefore, Arizona established the right to build the Central Arizona Project (CAP). Metropolitan had looked at its Colorado River aqueduct as being a firm supply of 1.2 million acre-feet per year, instead it was barely a 500,000 acre-foot per year firm supply with the commencement of CAP operation.

Secondly, the State envisioned building a variety of large reservoirs in the northwestern part of the state. This vision was never fulfilled. It was recognized, perhaps 20 years ago, that the State Water Project could only deliver one-half of the water that the State contracted to deliver. Therefore, instead of the 4 million acre-feet to the 30 contractors it was to have provided, barely 2

million acre-feet is available for delivery, which reduces to only 1 million acre-feet for Metropolitan during a repeat of a historic dry period.

More recently, in the last ten to fifteen years, considerable uncertainty has arisen concerning the reliability of the supply to the city of Los Angeles from the Owens Valley and particularly from the Mono Basin as a result of litigation.

To complete the picture of uncertainty, about ten to twelve years ago, California, like many parts of the United States, discovered widespread groundwater contamination, primarily, as a result of industrial solvents used and disposed by the aerospace and other industries in our area.

We had an interesting election in California in 1982. The measure approved by the State Legislature, by almost 70%, to build a canal that would bring water from northern California, around the Sacramento San Joaquin Delta, to firm up the supply of water for the State Water Project was placed on the ballot as a referendum measure. That Delta project or Peripheral Canal became a rallying cry for a whole array of people, primarily in northern California, who saw that project as a threat, not only to the environment, but to the future water supply of their part of the state. That referendum was defeated roughly two to one. It received slightly over 60% of the vote in southern California, but was defeated, in the 50 northern California counties, by an average of more than nine to one against the project. When a referendum is defeated nine to one, you are probably not doing everything right.

In the last ten years, roughly coinciding with the period beginning with the vote on the Peripheral Canal in 1982, we have seen a substantial change in direction by, not only our agency, but many other water agencies in California. Most importantly, there has been a real commitment to more efficient use of the water resources that are available to us.

Four years ago, the urban water agencies in northern California, around the San Francisco Bay Area and those in southern California spent a few years negotiating with six to eight environmental public interest groups, like the Sierra Club, Environmental Defense Fund, League of Women Voters, and others. Eventually, a memorandum of understanding was signed that committed urban water agencies throughout California to a series of best management practices. The agencies agreed to not give lip service to water conservation programs, but to invest substantial sums of money in programs including education, school programs, leak detection, and replacement of higher water using appliances, like shower heads. More recently, we have instituted programs to subsidize the retrofit of toilets with the ultra-low-flush toilets, using only 1.6 gallons per flush. To give you an idea of how that commitment has impacted budgeting in our agency, last year we spent about \$15 million to help our member agencies implement water conservation programs. In the current year, we have \$21 million budgeted. That figure will be rising by roughly 10% per year throughout the remainder of this decade.

Twelve years ago, a program was begun to subsidize our 27 member agencies and their subagencies in the construction of wastewater reclamation projects, primarily for non-potable uses, but also to recharge groundwater supplies in areas where water is pumped from

wells for drinking water supplies. In 1986, a minimum subsidy of \$75.00 per acre-foot was provided. In 1990, we doubled that to a \$154.00 per acre-foot. At this point, southern California is utilizing nearly 300,000 acre-feet of water per year through wastewater reclamation. That is slightly over three times the water used by the city of San Francisco per year. Recently, we approved programs, using the \$154.00 per acre-foot subsidy, that will double the amount of wastewater reclaimed with financial incentives provided by Metropolitan over the next fifteen years.

A third program relates to the use of new technology. The desalting technology of reverse osmosis can help us deal with brackish groundwater basins along the coast, and inland groundwater basins that have been contaminated by agricultural return flows and nitrates. However, desalting the ocean remains very expensive. There are other technologies to deal with the solvent contamination of groundwater basins. That is more expensive technology, therefore we subsidize it at the rate of up to \$250.00 per acre-foot. We expect to achieve on the order of 150,000 acre-feet per year by the turn of the century. However, only about half of the ultimate annual production will be untapped local yield. This is a very important program, not only to preserve our groundwater supply, but to ensure that we can retain the use of our groundwater basins as reservoirs.

The groundwater basins have the potential to be used further as places to store water in wet years, and to draw from in dry years. Metropolitan Water District does not have direct control over any of the groundwater basins, therefore, we have implemented some market mechanisms, if you will, to make more efficient and comprehensive use of these many groundwater basins. A key part of that effort is our seasonal storage pricing program. Every year, generally from October through April, we sell water for groundwater storage at about a 40% discount. The cost is \$203.00 per acre-foot for groundwater storage, instead of \$322.00 per acre-foot, which is our rate for treated, noninterruptible service water. Seasonal storage pricing has the advantage of encouraging member agencies, individual pumpers, cities, private water companies, and the few farmers remaining in our service area to shut off their wells in the winter time and take direct delivery of the lower cost water. About seven percent of the water sold by Metropolitan is for high value agricultural crops. Then, with the money that they are saving, invest in greater groundwater pumping capability, not only to reduce the peaking on our surface water delivery system, but to have year round groundwater pumping capabilities during the dry periods.

Another key part of our program for dealing with the uncertainty of our water supplies, whether from the Owens Valley, the Colorado River, or the State Water Project, is to build a large reservoir. Currently, the Metropolitan Water District has a very small amount of storage, barely thirty days supply. The state water system has three pretty good sized reservoirs, however, combined they can only provide a modest amount of storage in southern California. Our agency has just completed, over a five year period, an environmental impact report for the construction of an 800,000 acre-foot off-stream reservoir. It would provide a place to store imported water in the winter time, and in normal or maybe even dry years, if there is a brief wet period. Particularly, in wet years it would allow us to

move water into our service area and then be able to redirect it into groundwater basins once the winter rains have passed. The heavy rains we had this last winter and spring would have been the perfect opportunity to fill this reservoir because there was a fair amount of water available from the State Water Project, but it was raining in southern California and we had no capacity to store that water in the groundwater basins.

The final part of our strategy deals with water transfers. In 1984, we began to discuss a water conservation program with the Imperial Irrigation District, a very large irrigation district, but a very inefficient one in terms of its water delivery system to its agricultural customers. After a very prolonged period of negotiations, we signed an agreement with that district to fund the costs of modernizing their distribution system and on farm management of water. Over \$120 million is being expended line their canals, build regulating reservoirs, spill interceptor canals, tailwater recovery systems and a control system. These projects along with irrigation water management will allow Imperial to conserve approximately 106,000 acre-feet per year. In return for our investment, our district is receiving the conserved water. The cost of the program is the equivalent of about \$125.00 per acre-foot.

Secondly, Congress has passed a law that permits our agency to line the All American Canal. It is a huge, unlined canal through the sand dunes in the desert of southeastern California. That project would conserve on the order of 70,000 acre-feet per year to 100,000 acre-feet per year when including its Coachella Branch, at a cost of about \$125 million for the All American Canal component and two regulating reservoirs along the canal.

More recently, we have made some significant progress in working with the agricultural agencies, who, incidentally, have rights to use over 80% of the Colorado River water that comes to California. Our agency has rights to barely 20% of that water, and those rights are junior to the agricultural agencies. Six years ago, we began discussing the idea of fallowing a portion of the agricultural land in one of the districts during the dry years, in order to help meet the urban water requirements. Initially, that was a very unpopular idea. However, we continued to talk to the agricultural district, and in the last year we have implemented a program to fallow 25% of the valley agricultural land in the Palo Verde Irrigation District, as a demonstration program over a period of two years. When the idea of fallowing first arose, there was enormous public outcry and great concern about third party impacts. However, crop prices have dropped significantly; the economy is weak throughout California, unemployment is relatively high, even in rural areas, like the Palo Verde Valley; and there have been some problems with agricultural pests, including the whitefly. An idea that was not at all well-received five years ago became relatively easy to put together in 1992.

There is an indication that the Imperial Irrigation District is anxious to implement the same kind of a program. As a matter of fact, a couple of their directors were voted out of office a few of years ago because they mentioned fallowing of some agricultural land in cooperation with Metropolitan Water District, for a pretty good price, I might add. However, during our monthly board meetings in

April, May, and June 1992 two members of the Imperial Irrigation District Board of Directors drove up to our board meeting and explained how anxious they were to come to an understanding on a program. Their original goal was to have one worked out by the summer, similar to the Palo Verde Irrigation District arrangement. Now, we have signed a letter setting forth the principles of an agreement to try to implement a program by January of 1993.

In closing, just a few words about the State Water Project. There continues to be great uncertainty surrounding the water supply from the State Water Project. In addition to the general lack of facilities, we now have endangered species issues starting to impact the State Water Project. The winter run salmon has been listed at the state and federal level as a threatened species. This coming winter could have, depending on how the winter unfolds, a devastating impact on the ability of that Project to supply water. In 1991, the State Water Project was able to deliver only 30% of the water that was ordered. In 1992, despite the late rains, the Project was only able to deliver 45% of the water ordered. Some of the agricultural agencies in the San Joaquin Valley have been mining enormous amounts of water from their groundwater basins to try and keep their land in production.

In 1991, the Governor's water bank helped to bail out the State Water Project. The water bank paid a handsome price of \$125.00 per acre-foot to the farmer for not farming his land. Therefore, if you used three acre-feet per acre on your corn, or wheat, the primary crops that were fallowed, you received \$375.00 per acre for not farming your land. In a relatively short period of time, over 800,000 acre-feet was committed to the Governor's water bank. The success of this endeavor gave us the indication that if you work carefully and considerately with the individuals who are affected an agreement can be reached. Particularly, one must be certain that the water districts are not harmed by the arrangements, whether it is selling groundwater, which some of them did in northern California; selling surface reservoir storage water like Yuba and Placer County Water Districts did; or fallowing agricultural land. The economic well-being of the water district must be assured. These are important strategies in terms of managing California's water resources in the immediate future, because even if we can reach an agreement in terms of building some facilities, it will take ten to fifteen years. Given the fact that 80% of the developed water in California is used by agriculture, and not all of it for high-valued crops, there is an opportunity for the urban and rural areas to work together. Even some of the rural areas within the San Joaquin Valley that grow higher value crops were able to participate in the Governor's Water Bank. As a matter of fact, nearly one-half of the 1991 Water Bank water was purchased by agricultural areas.

In closing, I was reminded, by Judith Jacobson's speech, of a comment made by a gentlemen who worked for a former California Governor, whom you probably saw on television a few months ago promoting his 1-800 number. Jacques Barzaghi said, "Life is not a problem to be solved, it is a mystery to be lived." It strikes me that that statement is not a bad capsulation of the water business.

Questions for Duane Georgeson

Question: How do the negotiations with the Imperial Irrigation District for conserving agricultural water fit in with reclamation laws, reclamation reform and federal subsidies.

Georgeson: It is essentially a non-issue in the Imperial Valley because years ago, the Federal Government determined that the Imperial Irrigation District was not subject to the acreage limitations of reclamation law. We thought it was a pretty innovative finding at the time, but that is the way things stand. I might comment that there is active legislative activity ongoing in Washington in which we are interested regarding what is called the Central Valley Project Reform Act. Roughly one-third of the agricultural water used in California is supplied either through water rights to water rights holders or CVP contractors from the Federal Central Valley Project. Presently, agencies such as ours, or the city of San Francisco have no opportunity to work out voluntary water transfers with Central Valley Project farmers because we're outside the service area. The legislation that has been before Congress, which is now part of the omnibus water legislation, has provisions in both the Senate and the House bill, which would make it possible for our agencies and other agencies, whether urban or agricultural, to buy water from willing farmers, or even M & I sellers within the Central Valley Project service area. Because they supply such a big chunk of the water in California, there is an opportunity with the passage of that law to broaden the area participating in future water banks, and minimize the impact to any particular area.

Question: The first question is regarding the first phase, or our contract with Imperial Irrigation District: have we utilized any of the water?

Georgeson: We have spent roughly half of the capital costs. It is a 35 year arrangement once the projects have been implemented. As we complete the projects we build up to that 106,000 acre-feet. As of January 1, 1993 we will have the right to roughly 50,000 acre-feet. One could speculate that we have not taken any of that water yet because there has been enough unused water, by agricultural agencies in California, or by Arizona and Nevada, that we have not had to call on that water. In 1993, there is a fair probability that we will utilize that 50,000 acre-feet of water because Arizona plans to fill their New Waddell Reservoir in 1993, which creates a high probability that the three Lower Basin states would be over 7.5 million acre-feet. This situation would trigger Metropolitan having to either reduce its use of water, or come up with a method of repayment for overusing water.

None of these water transfer proposals are simple, and none of them are the same. One of the wrinkles in the project to line the All American Canal is that a large amount of the water seeping out of the canal is recharging the groundwater basin in Mexico. While that is water over and above the 1.5 million acre-foot treaty entitlement, they have, needless to say, become dependent, or at least believe they

are dependent on that water. One thought is for the Federal Government to contribute a fairly modest amount of money to enlarge that canal to provide some capacity to wheel or transport some of Mexico's water through the All American Canal, which would provide a better supply of drinking water for the city of Mexicali, and better quality water for the agricultural areas. That project has not begun yet, and it might take another year or two before the details are worked out.

Water Transfers from Agriculture to Urban Needs: Mitigating Impacts on Rural Communities

Harold McCormick
Senator, State of Colorado

It is a pleasure to be here in the new fourth Senate District. The Fourth Senate District is what I call the headwaters counties. The South Platte rises in Park County; the Arkansas in Lake County; the Rio Grande and part of the San Juan rise in Hinsdale County; the Gunnison, thank the good Lord, rises here; the Roaring Fork of the Colorado rises in Pitkin County; and Surface Creek rises in Delta. I do not know that there are other such headwater counties as in this single Senate District. We have eight counties and thirty of the 14,000 foot peaks in Colorado.

In the beginning the work was done in seven biblical days. I wonder though, if it was not about three months later that the Lord got around to the rule of 18 and 33 and another few years before the two issues of reapportionment and redistricting came up.

This year our neighbor, California got seven new congressmen. In California, they have more United States congressmen than they have state senators, maybe that is part of their problem. In Colorado we have a total of six congressmen. In the redistricting that the General Assembly just accomplished for the United States Congress, our rural districts increased in size, while the Denver metro area gained new strength. The rule of 18 and 33 is the rule of mathematics. What is more than the majority? In Colorado, it takes 18 to pass a bill through the Senate and 33 to pass it through the House of Representatives.

Nearly one-third of current representatives from Colorado are not running for reelection. We do not know what the change in membership for the State of Colorado will be. Eighteen senators, of which 17 are not present here today, and 33 of the 65 members of the House, of which none are present today, will decide on the legislation concerning water. The reapportionment included eight rural senators, in the first, second, fourth, fifth, sixth, eighth, fifteenth, and seventeenth district. Eight senators will come from what could be considered rural areas. That comprises 22.85% of the General Assembly. Four senators will come from part metro and part rural depending on how they are counted. Those seats tend to move with the populace parts of those districts. Twenty-three of the 35 state senators serving in the next General Assembly will come from metropolitan districts, including Pueblo and Grand Junction as metropolitan. In the PB, post bishop era of Mesa County, who knows. Put another way, the eight rural and four part metro districts only add to twelve votes in the Senate. As president pro tem in the Senate, I have learned how to at least count up to eighteen. Nineteen is not significant. Eighteen truly is. I have here the final report of the Colorado Reapportionment Commission submitted to Natalie Meyer, Secretary of State, on March 30, 1992. This is the plan, now law, under which only 22.85% represents where virtually all of the water comes from. The remaining four are from part metro,

leaving 65.72% of the Colorado Senate from metropolitan areas. I want to say to you, Colorado, stand up to the downstream users, and to you, California, I am glad that you have a downstream user, Mexico, to worry about. It will teach you some humility, and you need it. But, let me tell you, friends, if we have a continuing civil war between the east and west slope, with these kinds of numbers against counties in this state where the water comes from, we will lose every battle.

I do not know how we are going to overcome that, but we are doing some things about it. The first is Senate Bill 92. Let me read you the title. "Concerning the mitigation of adverse effects resulting from the removal of water from geographic areas" It was signed into law by our Governor on April 16, 1992 and it received a substantial vote in both houses. Briefly, Senate Bill 92 says that if you want to buy and remove water from a county, the water judge can say to you, "Wait a minute, we are not going to start the great American desert with your exportation of water. You may not take any water until you revegetate the land so that it will not become desert." It is not a large Bill. It is not a boulder in the way; however, I guarantee that it is a rock in the shoe of the people who want to walk away with the water. I have listened to the environmentalists speak with such sincerity this morning. This Bill is going to force water raiders to stop the increments of desertification of the Arkansas River and stop the reinstatement of the Great American Desert in southeast Colorado. It is a crime that must not happen.

A long time ago, in 1973, we started the minimum stream flow legislation in Colorado that mandated, in the law, that besides diversion for beneficial use, a stream flow dedicated only through the offices of the Colorado Water Conservation Board is a beneficial use of water in Colorado. This has occurred to the extent that, today, two thousand mountain lakes and seven thousand miles of Colorado streams are protected. If you environmentalists, who like to attack, can attack that then speak up because I am here to defend it. We are doing some positive things. Do not hammer us all the time if we are to be friends.

Since 1983 Colorado has had the finest water management system in the world. We have five hundred stations around the State of Colorado linked by satellite. You can phone the Denver, Colorado Headquarters and find out precisely what the cubic feet per second flow was anywhere within the state fifteen minutes ago. We manage our water. We know to transfer it when the transportation losses are minimized. We have six dozen Snowtell machines in the high mountains, where "*the hand of man has never set foot.*" Those Snowtell machines are big pressure pillows. They convert the snowfall information into water content and send the information to Denver, so that today, in cooperation with the Federal Government, we know more about snow, e.g. when it happens, and how much of it is left, than we ever have before. We use our water well, and we do not let people steal it.

We had a number of water bills passed by the 58th General Assembly. I will briefly share with you what some of those were. The reason I am using some of my precious time to do this is so that you can understand how difficult it is to get water legislation through a hostile General Assembly. The first is Senate Bill 81, which creates the Habitat Partnership Council, and the environmentalists ought to love us for this. It is a magnificent idea, in which host

ranchers are dedicating parts of their ranches for a cooperative use to benefit both the rancher and the people. It is a brand new piece of legislation. I urge your attention and assistance towards it. Senate Bill 92, which I wrote, has already been mentioned. Senate Bill 140 deals with changes in administrative procedures on water allotments to increase income potential from water conservancy districts so that they can run their affairs well. Senate Bill 108 simplifies procedures for issuance of water well permits by placing monitoring and observation wells in a separate category. Now, it is much easier to obtain permits for them. For example, when the County Commissioners want to install monitoring wells at the base of a landfills, they can get the permit just like that. This is important because we need to know the status our landfills, and whether or not they are creating a pollution plume. Perhaps it is only a small Bill, but you have no idea how hard we had to work to get it through. House Bill 1129, by Steve Aquafresca of this district, offers guidelines for ground-based water cloud seeding. This is one of the answers that we have for California. We are now able to more efficiently and productively institute cloud seeding in Colorado under this bill. It will help us optimize, not maximize, but optimize, our winter snowpack. The electronic genius of communicating with the satellite from our Snowtell monitoring pads, allows us to use our cloud seeding to our best advantage. Finally, House Bill 1131 includes changes with regards to dam construction. It gives the State Engineer emergency powers to take remedial action. Incidentally, this ties in with the satellite monitoring system, which gives us the best flood control protection and flood warning system in the world. We are also using this technology to monitor various parameters in the high country, including temperature, humidity, wind velocity and direction, and in the streams, pH content, saline content and turbidity. It gives us new management capabilities that we have never had before.

Finally, I want to address the Kansas lawsuit, as a prelude to California, and how the lawsuit relates to our sources of water. We have spent millions of your dollars fighting a specious claim by the State of Kansas. I use the term specious as my own judgement. I have to note that the Attorney General, who instituted the lawsuit, had high dreams of becoming the Governor of that sovereign state. Although, I do not suppose that would have helped his campaign in Kansas, but he did it anyway. In my opinion, we are winning the lawsuit with Kansas. Currently, it lies before a Federal magistrate, a Federal supervisor in the state of California, and this Master is hearing the case. Colorado's case has been supplemented, immensely, by the satellite stream monitoring system. That technology means that Kansas, and now California, have to accept our stream flow figures, because we are the only ones who know what we are talking about. I think that we are going to win the Kansas suit, and it is going to help us with regards to California.

The importance of the Kansas lawsuit is that if we lose, the Gunnison Basin is next, after that, the Platte, and after that, the Colorado River, itself. That is why we need the precedence in law of winning a major lawsuit. I pray to God that we do, and I think we might.

I have covered many topics, and my subject was water removal. I think that bills to forbid ranchers to sell their land, or to forbid

farmers to sell their land is a "taking." I believe that the Constitution of the United States of America says, no man nor woman shall be deprived of life, liberty, or property without due process of law. A water right is property right. How do you stop water from leaving the ground? To begin with the Senate Bill 92 makes people examine this precious commodity, and what is left after it is removed. How do we keep the threat of an alpine desert from the upper reaches of Gunnison County? We prevent it by keeping the water on the land, in the first place. I hope that the rock in the water developer's shoe of Senate Bill 92 is one means by which we can do that.

More importantly than any single bill, is the fact that we, on the western slope, and those of us with some interest in the eastern slope, must not allow civil war to erupt. I pray that you know who your legislative candidates are before the election, hopefully even before the primary. I pray that you will talk to them about Colorado water, both sides of the fence. Water, you see, is not a classic partisan issue. It is a people issue all the way through. Talk to your candidates for state representative. Talk to your candidates for state senator. Ask them where they come down on the issue of water. What do they know about it and if they do not know about it share your experience and judgement to help them.

In closing I want to share an anecdote and give two final words of advice. A few years ago, I was putting up hay after the second cutting. It was hot, dry work. This old boy pulled his pick 'em up truck off by the road and walked to the fence. Now, that is an invitation to talk. You talk about crops and you talk about the weather. It is rude not to come to the fence and talk. I was ready to quit, anyway. We had a nice conversation. We talked about the price of hay. We talked about the weather, and finally he said, "How much weather do you have, how much moisture do you get in Fremont County in a year?" "Well," I said, "about 13 inches." He said, "That ain't much, is it?" And I said, "No, but you ought to be here the day we get it." And my last two words of advice, dear friends, are register and vote. God bless you.

Questions for Senator McCormick

Question: I am a constituent of yours. I live over in the Arkansas Valley. We pray to God that you take a look at our river, which is technically dead. Something must be done about the heavy metals. We are interested in a clean Arkansas River.

Senator McCormick: An excellent and tremendously important question. Tomorrow, the Commissioner of Reclamation is on the program. On Monday morning, Jeanie and I were in the high country of Lake County, near Gunnison, to take part in the dedication of the Leadville drainage tunnel. The tunnel enters the mountain where, in World War II, all that material was pulled out at the demand of the Federal Government. This also occurred at the Yak Tunnel. The question was excellent because on a growing continuum, since the end of World War II, heavy metals have been in the Arkansas River, but no more. Today, at this hour, those plants are working, and no drop of untreated water from either the Leadville Tunnel or the Yak Tunnel enters the Arkansas River. Those treated waters are going to be free of heavy metal due to a tremendously complex, highly mechanized and beautifully efficient system.

Brown trout die in the Arkansas River after three years, because of the aggregation of heavy metals in their livers. Beginning this year, thank heaven, those fish are going to live their full life span. Incidentally, it is going to help the humans. It will be a blessing to tourism, and it will have a tremendous impact on the Upper Arkansas River Park, from Leadville clear down to the headwaters of the Pueblo Reservoir. Those waters are going to be free of heavy metals. This has to be replicated in mines like Yeoman, which are emptying into the Eagle River. However, we have an answer, it is possible.

Owens Valley Perspective

Greg James
Director, Inyo County Water Department, California

It is a pleasure to be here. It was very good to hear Senator McCormick discuss Senate Bill 92. As you may know, the Owens Valley has long been an area from which water has been transferred. Unfortunately, it has not enjoyed the protection of the guarantee provided by the Senator's bill that the land will be revegetated if the water is to be removed.

I want to describe the history of the Owens Valley, with regard to water, some of the promising developments in terms of a negotiated water management agreement between the City of Los Angeles and the Owens Valley, and some of the current threat to Inyo County's water resources.

The Owens Valley is located in the eastern part of California, approximately 250 miles north of Los Angeles and 200 miles east of San Francisco. It is a county of about 10,000 square miles and it has a population of approximately 18,000. Therefore, in a state of 30,000,000 people, it is extremely rural. The valley is a high desert valley, with an elevation of 4,000 feet. It is 100 miles long, and varies from 10 to 15 miles wide. On the east side of the valley, are the White and Inyo mountains, which rise to about 14,000 feet. On the west side of the valley are the Sierra Nevadas, which also rise to 14,000 feet. It is a geologically active area, in which volcanic activity and earthquakes are fairly prevalent.

The Sierras are a massive wall of granite, and act as a rain barrier. They create a rain shadow from the Pacific storms which move to the east. The average rainfall in the Owens Valley is between 4 and 6 inches, and so it is primarily a high desert environment. However, the runoff from the Sierra Nevada, in the form of snowmelt, creates rather unique environments throughout the valley. The snow in the Sierras can be rather monumental, but currently we are in the midst a six-year drought. The water flows down from the Sierras, across the alluvial fans, and onto the Owens Valley floor. It joins the Owens River. There is a stark contrast between the riparian environments and the predominate high desert environment in the valley area. The runoff creates wetlands, marsh areas and wildlife habitat, while providing water for irrigation, pasture and fish hatcheries.

The valley was inhabited by Piute and Shoshone Indian people before the first Europeans began to arrive in the middle of the eighteenth century. Europeans sold their agricultural products to the mine fields in Nevada, which were closer in proximity than any of the major California markets. One of the first reclamation projects in the United States was proposed for the Owens Valley, following the creation of the Reclamation Service in 1902. However, at about the same time, Los Angeles, recognizing the need to expand their water supply due to their growing population and limited supplies in southern California, also looked to the Owens Valley as a source of water.

In 1905, Los Angeles announced the program to build the first Los

Angeles aqueduct. The reclamation project, which had been conceived to irrigate up to 180,000 acres, was abandoned. The first aqueduct diverted with the Owens River from a location in approximately the middle of the Owens Valley. The aqueduct flows through unlined ditches for a portion of the Owens Valley, enters lined ditches, and traverses the Mojave Desert on its journey to Los Angeles. In all candor, it is an amazing engineering feat, as it was over 250 miles long and completed in 1913. The water falls approximately 3,000 feet and generates energy for Los Angeles on the way to the city.

In the Owens Valley, the consequences of the diversion from the Owens River was that the river ceased to exist for some 53 miles. It was left entirely dry, except for occasional wet year flows and some seepage. By 1924, the hundred square mile Owens Lake was completely dry. Today, the dry lake bed presents a major dust pollution problem affecting some 40,000 people.

When Los Angeles built the first aqueduct, the people in the Owens Valley were told that only water surplus to the needs of the ranchers in the north end of the valley would be taken. However, by 1924, due to drought and increasing population in Los Angeles, and the need for additional water Los Angeles decided to embark on a program to buy up all the irrigated lands in the Owens Valley. As a consequence, many areas were dried up and formerly irrigated lands were left to revegetate as best they could. By the beginning of the 1930's, Los Angeles had acquired over 200,000 acres of land in the Owens Valley, leaving farmers to either move on or lease land from Los Angeles. The land purchases sparked the Owens Valley Water War. The Alabama Gates were dynamited during the 1920's, as was the aqueduct on several different occasions. At one point, Los Angeles had to bring in armed guards to protect the aqueduct from citizens who were angry about their land being purchased and their water being exported to Los Angeles.

At the height of agriculture in the Owens Valley, there was some 75,000 acres under irrigation. The farming economy dramatically declined and it dropped to about 30,000 acres by 1940, and finally down to 12,000 acres, today. Commercial enterprises that lost their farming customers demanded reparations from Los Angeles. Instead of paying reparations, Los Angeles purchased virtually all the commercial property in the valley, as well as a good portion of the residential property. Later in the late 1930's and early 1940's, Los Angeles, under pressure, began to resell some of the commercial and residential property, but retained the water rights. Also, as you might imagine, the tax consequences of a municipality buying huge amounts of a county's land are devastating. California, in 1914, made municipally owned land outside the boundaries of the municipality taxable, however, the loss of the economy, growth, schools, and the communities have continued to impair the region.

By 1940, Los Angeles had completed an aqueduct to the north that linked the Mono Basin and allowed diversions from the tributaries of Mono Lake into the Owens River system. Also, in the 1940's, Long Valley Dam on the upper Owens River was completed. Following World War II, a hydroelectric project was completed. The plants and penstock completely dried up the Owens Gorge, in which the river falls some 3,000 feet from Crowley Lake to the Owens Valley.

In 1963, Los Angeles announced that it planned to expand the

capacity of the existing aqueduct by approximately 50%. This would increase flows from about 450 to 600 cfs. The aqueduct was to be filled by three sources: diversions from Mono Basin, further decreases in irrigated agriculture in the Owens Valley, and increased groundwater pumping from underneath the Owens Valley. Wells had been drilled as early as early 1900 in the Owens Valley, as part of the construction of the aqueduct. Most of these wells were artisan in nature. However, by the 1960's, they had to be replaced by groundwater pumps.

The valley now has several large well fields. As a consequence of groundwater pumping and the increased diversion of agricultural water, more irrigated lands were taken out of production, springs and seeps dried up, trees died, and people in the Owens Valley once again were not happy with Los Angeles.

In 1972, Inyo County became involved in litigation with the City of Los Angeles. The County sued Los Angeles under a new law, the California Environmental Quality Act. Los Angeles completed the aqueduct in June of 1970 and the environmental law went into effect in September of 1970. Nonetheless, Inyo sued, asking the Court to order L.A. to write an Environmental Impact Report and determine mitigation measures for the significant impacts of the water gathering. As a consequence, the Court ruled that although the aqueduct was actually completed before the environmental law was in place, the supply of water to the aqueduct was subject to the environmental law; and therefore, L.A. had to write an E.I.R. Los Angeles has written two separate E.I.R.'s, in 1976 and in 1979, both of these documents were ultimately found by the Court to be inadequate. During this period, the groundwater pumping was limited by Court order to approximately one-half of Los Angeles' available capacity. In the 1976-77 drought, Los Angeles asked to increase groundwater pumping because of the shortage of supply in the City. Inyo objected, asking that L.A. be required to introduce conservation measures, and for the first time, Los Angeles was forced to adopt a conservation ordinance for the entire City. In retaliation, Los Angeles, who had acquired the town water systems in a number of Owens Valley communities, installed water meters and required Valley residents to pay the same rate for water as the customers in Los Angeles, which made the folks in the Valley even more upset with Los Angeles.

In 1980, Inyo County drafted and the voters adopted, by about an 80% margin, a groundwater management ordinance, to control groundwater pumping through a permit procedure and required Los Angeles to pay a groundwater pumping fee. Los Angeles filed a lawsuit to try to block the election stating that the law would be invalid and the voters should not have the right to vote on this measure. This sparked a cry in the Valley during the election campaign. *"First they took the water, then they took the land, and now they want to take your vote."* Things were fairly hot between Los Angeles and Inyo County in the late 1970's.

Believe it or not, despite the hostility during this period, there were settlement discussions between Inyo and L.A. with the hope of trying to resolve their differences. By 1984, after a trial court ruled that the County's groundwater ordinance was invalid and preempted by law, the county and city entered into an interim

agreement. Essentially, this agreement suspended litigation while there was an attempt to draft a long-term groundwater management plan that would protect the Owens Valley, supply Los Angeles with water, and end the litigation. In addition, Los Angeles agreed to implement certain "enhancement mitigation projects," as they were called. Several of these projects have been completed. Under another part of the interim agreement, in 1985, a portion of the 53 miles of the lower Owens River, that had been dried up, were to be rewatered. The river has begun to resemble a river once again, and a riparian system has begun to reestablish in the lower Owens River.

Also, as a part of the interim agreement, impartial scientific studies were conducted by the U.S.G.S. The U.S.G.S. conducted a number of groundwater and vegetation investigations trying to better determine the impact of groundwater pumping on the Owens Valley environment. As a result of the approximately five million dollars worth of studies, the U.S.G.S. has issued several reports on the Owens Valley which helped lead the way to a management agreement.

Beginning in 1987, negotiations began on a long-term management plan. By 1989, Inyo and L.A. had agreed on a very strong long-term groundwater and surface water management plan for the Owens Valley. The agreement provides that groundwater pumping will be managed to protect Owens Valley groundwater dependent vegetation by controlling pumping and monitoring soil moisture. If soil moisture falls below a point where it is projected that there may be an effect on the vegetation, then pumping in the area must be stopped. Protection of wetlands is part of the agreement, as is protection of riparian systems. The agreement provides for maintenance of irrigated agriculture, so that there will be no further reductions in the agricultural areas in the valley. The agreement also provides for protection of endangered species, maintenance of existing springs, and will avoid groundwater mining. Private well owners are also protected, so that wells operated by the City will not impact private wells supplying water for domestic and other uses. Town water systems will be returned to local control, some ditches in the towns that had been abandoned will be reopened, and financing is to be provided to Inyo County at over \$2,000,000 a year to compensate for reduced taxes and to conduct water related activities and monitoring. Land, in limited quantities, will be released for public and private development. Parks, campgrounds and other recreational facilities will be rehabilitated and improved, primarily because the key economic base in the area is recreation. The agreement contains dispute resolution provisions. It is intended to remain in effect regardless of the fact that Los Angeles may experience future water shortages.

Los Angeles, as you might imagine, has not made many friends in the Owens Valley over the years. In fact many people deeply distrust the City. After this groundwater agreement was announced, a recall campaign was started against three of the County's five supervisors. The other two supervisors were already up for reelection, and thus, could not be subject to a recall. There was a very heated campaign that continued for several months. Ultimately, in the election of November 1991, each of the supervisors up for recall remained in office with over 60% of the vote, and two new supervisors were elected who supported the agreement. Everyone has taken this result as a vote of clear support of the water agreement.

The agreement was formally approved in October of 1991, and it was sent to the Court, which still retains jurisdiction over the litigation between Inyo and L.A.. However, because of the litigation, Los Angeles was still required to write an E.I.R. even though an agreement had been reached. Consequently, an E.I.R. was written that addressed everything that had occurred in the Owens Valley since 1970, when the second aqueduct went into operation, and also, what was to happen under this agreement. The E.I.R. was submitted to the Court in October 1991. Since that time, several groups have voiced opposition to the E.I.R. These groups included the Sierra Club, a local environmental group called the Owens Valley Committee, the Owens Valley Indian Water Commission, the California Department of Fish and Game, the California State Lands Commission, and at least one private individual.

At Inyo County's urging these parties commenced negotiations last December, on how to settle the E.I.R. issues. I am glad to report that most of the issues have been tentatively resolved with the Sierra Club, The Owens Valley Committee, the Indian Water Commission, and the individual. Some of the primary settlement issues have had little or nothing to do with the water management agreement, rather, they had to do with issues such as grazing management in the Owens Valley. Another major issue was raised by the State Department of Fish and Game. The agency wants to dictate how the lower Owens River is to be rewatered. In effect, they would like L.A. to turn the keys of the aqueduct over to them, and they would decide what flows need to be in the river, and L.A. can take anything that is left, if there is anything.

The State Lands Commission is an agency in California which administers lands owned by the State. Their primary interest is to see that water runs down the lower Owens River into Owens Lake, to mitigate the dust problem. This is a major endeavor given the fact that this lake is 100 square miles.

Primarily, the settlement that tentatively has been reached with these parties requires supplemental documentation of the E.I.R. and with focus on the impacts in the valley that have occurred since 1970. Los Angeles, for the first time, tentatively has agreed to a comprehensive land management plan, including grazing, recreational use, camping, and everything else that L.A. permits or conducts on its own lands. Despite progress in the settlement talks, a final agreement has not yet been reached. Until a settlement is reached or in its absence, until the court rules Los Angeles' E.I.R. legally adequate, the fate of the Inyo/Los Angeles water agreement remains uncertain.

To the north of the Owens Valley in the Mono Basin, and in the Owens Gorge, there have been significant changes as well. In the Mono Basin, litigation resulted in the establishment of a Public Trust Doctrine on California Water Rights, which subjects all water rights to the test as to whether they are being used in the public trust. This creates uncertainty as to the strength of existing water rights, especially in the face of changing opinions of what the public trust might require. Also, Los Angeles has been required to restore the streams that are tributary to Mono Lake. Consequently, water is flowing again into Mono Lake and is flowing in the streams. California laws to protect fisheries have been applied to the Owens

Gorge and L.A. has recently agreed to release water down the Owens Gorge in a small amount, but with the potential of increasing it, as necessary, to develop a fishery.

After years of fighting these David and Goliath battles that have been depicted in the movies, like Chinatown, we have finally reached a management agreement -- an agreement which will result in reductions in water export. However, the state legislature came along and said that if there is any unused capacity in an aqueduct, the owner has to make it available for the wheeling of water for private water transfers. Consequently, one of L.A.'s largest customers, Anheuser-Busch Company, which has a large brewery in Van Nuys, came to the Owens Valley and bought a water ranch. They proposed to pump groundwater during dry years, or drought periods in L.A., run it down the L.A. aqueduct to themselves so that they would not have to cut their production. Thus, reductions in export caused by the agreement has opened the door to use of the resulting unused capacity in Los Angeles' aqueduct. Inyo County has developed another ordinance against this type of export. Anheuser-Busch has questioned its legality. So far, the brewery has not tried to use any of the water from Inyo County, but it is an issue that is going to be addressed in the near future.

In view of this water transfer law, I think, people in the Owens Valley were happy that Los Angeles had bought up nearly every other available ranch. There is fear that if more of L.A.'s customers cannot buy enough water from Los Angeles, they will come up to the Owens Valley and take the water themselves.

Finally, there is yet another threat to the County's water resources. The City of Las Vegas has decided that to avoid water supply shortages, it wants to pump groundwater from under about one-third of the state of Nevada. Unfortunately for Inyo County, it appears the sole source of water for the eastern side of Inyo County, which includes Death Valley National Monument and some small towns, are springs fed by a carbonate aquifer system that will likely be impacted by the extensive groundwater development proposed by Las Vegas. Therefore, Inyo, with its 18,000 people, is now doing battle in Nevada trying to protect its water against Las Vegas' proposed pumping.

That is where we are today. I do not know where we will be tomorrow, but it seems certain that someone somewhere will want some more water from Inyo County.

Saving Water, Energy, Money, and Conflict with Efficiency

Jim Dyer

Director, Water and Agriculture Programs, Rocky Mountain Institute

I would like to thank all of the organizers, sponsors and all of you for the opportunity to be here today. I would like to share some ideas about water efficiency as a very cost-effective tool that can be used to avoid some of the conflict and help in meeting some of the competing demands on the Colorado River. I would like to discuss what efficiency is, from the Rocky Mountain Institute's perspective, why we should use it, some tips on how to use it, and how it relates to the debate that we have heard for the last few days.

What is efficiency? Conservation is a very curious term. It has many different connotations and definitions. It can mean deprivation. It can mean brown lawns, dribbly showers, and the California type of drought emergency measures that we are exposed to by TV. However, that is not what we are discussing. We are concerned with efficiency, which I will define as providing water-related services using fewer resources. Now, these resources may be the water itself, or it might be the energy that is needed to pump the water, treat it and heat it. These practices involve immense energy consumption, as well as materials, labor, and money.

I would like to begin by discussing residential efficiency, not that it is the most important, but it is the one that we have found easiest to examine first. In residential situations, water can be saved relatively easily. The technology already exists. The saved water can be measured quite readily. It can also be moved to new uses. Residential water is very expensive, partly because it is highly energy intensive.

This slide illustrates what might be called the metabolism of cities. The input includes food, fossil fuels, and water. Output includes air pollution resulting from the fossil fuels, refuse, presumably from the food, and sewage. The bottom line here is that in cities we are using water rather nonconsumptively, primarily as means for conveyance. If we can move things around, whether it is dirt off our bodies, or waste down the sewer, without using as much water, or perhaps using other things, then we are using water more efficiently.

For the majority of indoor residential uses of water, there are devices, technologies, as well lifestyle changes that will reduce the water use. The major exception is baths, unless you look for a body-conforming bathtub it is difficult to reduce that volumetric use. Keep in mind that most of these uses involve an energy component as well. For example, dishwashers, washing machines, faucet aerators, and showers definitely have an energy component that can be saved. The technology is available to save roughly 30% of your indoor water use. It is very cost-effectively and simple to do.

Outside, approximately 30% of your water use can also be trimmed relatively easily without major changes in your landscaping habits. This can be further reduced by using xeriscaping, not zero-scaping, but xeriscaping.

There are many myths about efficiency, and I would like to take this opportunity to debunk some of these myths.

Efficiency means deprivation.

This is an easy one to dissolve. By definition, efficiency does not mean deprivation. Therefore, if something causes deprivation, we are not considering it to be an efficiency measure.

Few fixtures are available.

We have just finished our second edition of a 200-page catalog, with about 136 different showerheads, faucets, toilets, etc. They are in all sorts of price ranges, colors, styles, whatever you want. The technologies are out there.

All efficient fixtures are equal.

They are not all equal. For example, not all low-flow toilets are good; not even all the five-gallon per flush toilets are good, either. There is variability between the fixtures. There is a considerable amount of work that needs to be done to determine what consumers need. We are trying to change the way these fixtures work, by determining what the consumers need, what they like, and coming up with new technologies to meet those needs. Choices between different efficient technologies is a decision best left to the consumers.

People will not use them.

We have millions and millions of people across the country, either through incentives or by mandate, using these efficient fixtures. When given the choice of good technologies and an enlightened energy and water pricing structure, people will use them. We recently completed a report for the EPA, which outlined about 80 case studies around the country of all sorts of efficiency programs in industry, agriculture, and residential sectors. People are taking the initiative, and we have just had a very good review from Duane Georgeson about what is happening in the southern California region. They are far ahead of much of the country in terms of being innovative in their efficiency measures.

Efficiency costs too much.

I would submit that it costs too much to not use water efficiently. A showerhead, which is a simple investment that an individual can make, will pay itself back more than once a year and several times over its lifetime. That is a pretty good investment and a rapid payback.

Why use efficiency?

First of all, it can reduce your present operating costs, whether for the supply or the treatment of water.

Secondly, if your treatment or supply facilities are reaching the end of their useful lifetime, or you need to increase your supply, you

can delay, reduce, or even avoid your need for new facilities through efficiency measures. This avoids financial costs, as well as environment and social costs. We have plenty of examples where energy is saved, as well. We have recently completed a report which outlines how energy utilities, gas and electric, are teaming up with water utilities across the country. In Connecticut, Los Angeles, San Diego, and Seattle, they are going into homes and giving away low-flow showerheads, as well as efficient lights, etc. The energy utilities save money because they do not have to add new supply, and the water utilities save as well. They are recognizing that they can increase efficiency more inexpensively as partners.

The third reason to use water efficiency is to reduce your energy consumption and therefore, the resulting pollution. Even if you are uninterested in saving water, it makes no sense to run excess water through your hot water heater. Run it through something else, but do not run it through your hot water heater. Do not run it through a series of pumps. This, in some situations, may be the bottom line incentive for saving water. We can reduce energy use and the resulting air pollution. If we would install high efficiency showerheads, standard two and one-half gallons per minute models, which many municipalities now require, in all the homes in the United States, we could reduce the carbon dioxide emissions to the atmosphere by about 26,000,000 tons annually and we could avoid 180,000 tons of sulphur oxides. All this at a cost of perhaps \$100 or \$200 per acre foot, which is a pretty good price for a new supply of water. How many of you pay the bill for the heating of the water that goes through your shower? Most of you do. Therefore, you should be interested in this. The cost of heating an acre-foot of water is substantial, approximately \$1,500. In effect, you can gain water through a showerhead retrofit at a negative cost of \$1,000 per acre-foot. Now, chew on that for awhile.

But is technology going to be the answer? A thirty percent reduction in water use is quite readily available. This buys time for us as individuals, organizations, and a society to develop better technologies, better management of our water resources, and more sustainable lifestyles. We are all struggling with how we are going to do this. How are we going to accomplish these changes? The technology will allow us some time. However, it will not happen without a conscious effort.

Next, I would like to share some tips on how to make efficiency work. Our Institute has worked with a basic least-cost end use analysis. This involves deciding what your end use is, and what is the cheapest way to provide for it. What is the end use? Is it water to drink? It may be for water-related services, toilet flushing, washing, etc. It may be for power, political power or financial power. You must figure out what you are doing and why you are doing it. Presumably, you will narrow that down to water-related services, and then find the least cost way of meeting your needs.

Secondly, the long-term costs must be examined. Within the community, it makes no sense for the water supplier to demand that their marketing department sell as much water as possible to pay off the bonds, while, at the same time, the planning department is planning how to float a bond for a new facility, ten to twenty years down the road. We are constrained by our economic system as it is

now, and we need to be taking a long-term view of these things. Whole system costs must be considered, e.g. capital, as well as operating and maintenance expenses throughout the system's lifetime - both for the supply and the use of the water - the treating, the heating, and the re-treating. Those are all costs to be considered.

Thirdly, the incentive approach should be used as much as possible. Sometimes this has to be backed up by regulations. If there is a two and one-half gallon per minute showerhead requirement in a community, as soon as the showerhead installer is gone, that showerhead may also be gone. However, if people are provided with education, a choice of good fixtures, and an enlightened water and energy pricing structure, they will use not only the two and one-half gallon model, but they will change to as low a flow as possible as long as it still provides their basic needs. Socially, incentives are much better. Although, in some cases the changes must be backed by the regulatory "stick".

The next step involves putting the analysis in the context of long-range planning. The planning should not only involve the water supplier, it should involve the community, as a whole, deciding what future it wants. Ultimately, this means we must decide how we want to live as individuals, and as a community. Then we must decide what water-related services are required to achieve that desired future, and what is the most economical way to provide those water services, consistent with the desired future. It will take some time, and it will take long-range planning. Typically, in the water business, we do not do business by looking at the whole community. We need to start doing this more often.

The bottom line is that we need to consider efficiency on an equal footing with other sources of supply. We would like to consider efficiency as source of supply that is right under your home, or under your community. It is already pumped, it is already treated, and we have the infrastructure in place to treat it again. Consider efficiency as a new source of supply. If you practice efficiency, and the least cost analysis, rigorously, you will find that nine times out of ten, efficiency comes out as the winner. It can often be in the neighborhood of three, four, or five times cheaper than supplying the water through a traditional project. That is why we are so excited about it, as well as the added benefits to reduce air pollution, etc.

How does this relate to the Colorado River? There are many competing demands on the river, including agriculture, growing cities, environmental requirements, native American rights, and recreation. Obviously, some of these demands overlap, they are not mutually exclusive. Now, we have all these competing demands, and we have a question of who is going to take water from whom. Who is going to be deprived? We would like to suggest that there is an opportunity with efficiency, in some cases but not all, for a win-win situation. We can move water between the different entities by reducing the demands within each of these sectors of the economy. For example, between farms and cities. We have all heard some discussion about water raids and water ranching, etc. The farms, or the rural areas have the water and the cities have the money. The farms have food and food production capability, and the cities have the people and the votes. I think that we need an understanding that both of these sectors need each other. They need to recognize that they need each other, so that

they can work together. The rural areas have open space and traditional services provided by the city. It is no surprise that tourists from the city would like to come to the green areas along the streams in the western part of Colorado, for example. Why are they green? Largely because of irrigated agriculture. It is not a simple question of merely moving water from one use to another.

What about appropriate transfers? Not in all cases, but in many cases, there can be investments of that available money in the cities, in efficiency improvements on the farm. Again, not on all farms. Even a small amount of efficiency improvement in large amount of water used in agriculture can go a long way in terms of meeting some of our competing demands. We have money moving from the cities to the farms, invested wisely, leaving the farms with a more sustainable system, e.g. lower uses of resources and lower production costs, which are important if we envision, as is likely, that the subsidies for water are going to be decreased considerably. This would leave the farms with a more sustainable situation, leave the cities with cheaper water, and at a more acceptable cost financially, socially, and environmentally. Our Institute promotes the judicious use of free market mechanisms, but I have no hope that an unrestrained free market will restore or protect the environment by itself, or that it will protect the social fabric of our rural areas. That needs some additional help from society, as a whole.

This question oftentimes comes up: Why am I saving water? It is just going to go to the developer across the street. He is going to make a bundle off of that house, so why am I bothering? One of the things that we have been looking at are ways in which water, freed up through efficiency, can go to the environment. Again, a win-win situation. A program that is developing in Oregon allows the entity which saves water to retain the right to that water, with a priority set one minute after the original right, with 25% of that water going to the State of Oregon for instream flow purposes. A very nice idea; it has been difficult to implement, but it is an innovative idea. Washington is also making strides in this area. There was a proposal within a Californian community, while it is no longer pending, that had some promise. The proposal was that one-third of the water freed up through efficiency would go to instream flows, another third to development, especially low-income housing, and the final third would be held in storage against future needs, whether drought or development. That is the sort of a compromise, the sort of a model that a win-win situation can arise from. I have some lingering questions as to whether these programs will ultimately get us where we want to go, and, perhaps, that has to be answered on a case by case basis. We need to determine how much water needs to be returned to the environment in order to restore it to what the society wants. There is a job for the engineers in the audience. We need you to find better ways of measuring saved water and determining third party effects. For the lawyers, we need to determine how we can retain the water for the person who saves it, instead of losing it because it was not used beneficially. Is there a way to retain the right to that water and then market it, therefore, paying for the investment in efficiency? How do we set the priority of the water that is left with the saver and the water used by state for instream flows? Those are some substantial questions that need to be addressed.

Now, this is the kicker. Our future holds an uncertain climate. This map shows some of the basins in the West, in which the annual demand is relatively high compared to the annual supply. The map indicates the variability and general lack of water that we may be faced with. We do not know exactly what is going to happen, if it is going to happen, and we will not know when it has happened for some time afterwards. I am a meteorologist, by trade, so I do not have any problem admitting that we are not going to know until afterwards whether this is happening to us.

We will have, quite likely, an increase in evapotranspiration. As far as the water supply, it could be up or down depending on the region. We do not know what is going to happen. However, as long as we do not develop all of that water freed up through efficiency, if we save some of that in storage, whether that is natural storage or not, efficiency is a way of coping with the possible effects of global warming. If you think about this carefully, considering the energy used and, therefore, wasted, and the carbon dioxide generated by the unwise use of water, those processes may contribute to the very global warming that we are trying to avoid. Efficiency is a very powerful tool. It is important to recognize that, whether the climate is changing in the direction that we think it might or not, it is wise to practice efficiency.

In summary, water efficiency is available now as a tool. As a tool, individuals have to decide where it makes sense to use it. It is a very cost-effective tool, financially, as well as environmentally and socially. It is there to buy us time while we develop better ways of managing our water resources, better lifestyles, and ways to accommodate some of the competing demands on the Colorado River.

**Meeting Urban Needs
Panel Discussion**

Moderator: Fred Wetlaufer, Member, Western Colorado Congress

Question: Let me ask a rather heretical question, which is probably adverse to the interest of some of my clients, but fun to ask anyway. How far should we go to worship the God Alfalfa, and let me explain what I mean by that. Some estimates in the Colorado River Basin suggest that 80% or more of the water is used for agricultural purposes, and furthermore, roughly 80% of that 80% is used for pasture grasses and alfalfa growth. Therefore, roughly two-thirds of the water is used in a for a fairly low value crop. Now, the ranchers, quite correctly, would say that the water goes to foraging, and is used for the growth of beef. Therefore, an increase in water costs would directly increase beef costs. That, perhaps, could be substantially offset by lower import duties on foreign beef. Without entering the national arena, let's discuss how far we should go to protect the growth of alfalfa. Alfalfa is a crop which involves fairly few people, it has a fairly small profit margin, and impacts only a few communities. By simply reducing the growth of pasture grasses and alfalfa, we could make enough water available in the Colorado River Basin to double the population, industrial growth, lawns, gardens, and drinking water usage. Do we have to go to the extreme of legal and regulatory requirements to make water available for all these other uses, including environmental, or can we adjust that simply by reducing the extent to which we worship the God Alfalfa?

Senator McCormick: My comment might be popular with your clients and unpopular with you. I think that we would be as well off trusting Brazil for beef, as we are trusting Saddam for oil. Another side of the question is how far do we go worshipping the God of industrial uses of water? It is all a balancing act. It is also a matter of status quo, and changing the status quos is often very difficult.

Question: While I am not necessarily proposing this, but I did not hear Mr. James mention any of the possible beneficial effects of having water withdrawn from marginal croplands in the Owens Valley and in other places in the west. This fits with the last question, but, perhaps, not in such a radical or extensive way. We have salinity and water problems in the west. Is it beneficial, in some cases, to look at lands that are not as productive or as valuable to us, and to actually outright purchase those lands to eliminate water applications to them?

Greg James: In the Owens Valley, there has been a dramatic decline in the amount of water used in the valley, 75,000 irrigated acres down to 12,000 acres. Frankly, from the City of Los Angeles' point of view, as the owner of 250,000 acres, people that are opposed to the idea of cattle grazing, particularly unregulated cow grazing, because of the impacts to riparian systems and water quality, are going to the City of Los Angeles and saying, "it is not in your long term interest

to own this land in the Owens Valley and to allow it to be used for cattle grazing because of the resulting damage. It is also not in your interest to grow pasture, or alfalfa on your land because it consumes a huge amount of water."

There is still 50,000 to 60,000 acre-feet of water used in the Valley for those purposes, and the quality of the agricultural return water is diminished. Quite frankly, the residents of the Owens Valley are very worried that the quality of life -- the remaining cottonwood trees, willows, riparian areas, streams and the irrigated pastures around the towns, which are important to the people -- might be dried up in the future. That is one of the reasons why they went into a long term agreement with Los Angeles. There is no question that removing some low productive lands is not a bad idea. But there remain 5,000 acres in the Owens Valley which have never revegetated once they were removed from production. These lands have experienced the detrimental effects of blowing dust and soil erosion. For some reason, some of these areas, and we are working hard to find new ways to revegetate them, have never come back. As we said, it is a balancing act, at least in our point of view. I think most people in the Owens Valley, if you ask them what they thought, would say that Los Angeles has been beneficial. They have taken away the agriculture and changed the environment, but what remains is relatively unpolluted, with a massive amount of open space, good air quality, no crime, and the communities are very friendly. Therefore, most people are against growth and most are probably would be opposed to Los Angeles going away now. So, it works both ways.

Question: Mr. Georgeson was commenting that the agreement with the Palo Verde Valley might result in a 25% reduction in the irrigated acreage. What would those crops be?

Duane Georgeson: The question is, in the two-year demonstration fallowing program in the Palo Verde Valley, what kind of crops were reduced? My recollection is that the bulk of the 22,000 acres of fallowed land was alfalfa. I think part of the reason that the fallowing program was popular with many of the farmers this year, was the price of alfalfa, which had been fairly high the last couple of years and dropped this year. Therefore, the temptation to take advantage of being paid to not grow a crop, which had a very low price was high. Alfalfa was also having a problem with the whitefly, adding to the temptation.

Question: I have a question for Senator McCormick. Do you support or oppose the W.A.T.E.R. Amendment that is going to be up for a vote this fall?

Senator McCormick: This amendment, in its original form, was submitted to the General Assembly by Senator Pastore, who has represented this area and now will represent the San Luis Valley and the rest of Pueblo County. When the measure was before the Senate Agriculture Committee, it became very clear, under lengthy testimony, that there were fatal flaws in the amendment. It was drafted with internal conflicts that, even in a statute, would have been difficult to live with, and in an amendment to the State Constitution, would

have been extremely difficult. The amendment then died, and it was interesting that Senator Pastore, himself, withdrew the amendment from further consideration as an initiative measure. He now has before us a W.A.T.E.R. II amendment.

I think that all the legislators are very respectful of the initiative process. If Senator Pastore gets the 50,000 votes necessary to put it on the ballot, and this is his responsibility with the other promoters, it will become one of several different water amendments on the ballot.

It is interesting to note, in the case of Gunnison County, several groups that originally supported the measure now do not support it. I am glad that I voted against the original amendment because it was badly drafted, in my opinion.

From now on, it is up to the people of the State of Colorado, and whether it passes or fails will be deeply respected by the General Assembly. In Gunnison County, there is controversy about it. That is what the election process is all about, in America. We stand and argue the merits and demerits of an amendment, and then let it rise or fall on its own merits. If it passes, I certainly will honor every period, every dot on every i, and every cross on every t.

Question: Senator, would you elaborate on your reasons for being opposed to it, as it was presented to the Senate Agricultural Committee.

Senator McCormick: In the original bill, one had to have a final decree before an election. However, you also had to have an election before you could have a final decree. It was a Catch 22.

Question: I wanted to speak to Mr. Georgeson about the fact that we are going to have to pay around \$5,000 per acre-foot for augmentation water in the southeastern quadrant of Colorado. I would like to know, from your standpoint, why is it that the Colorado River is so terribly important to you, especially considering that your state borders the Pacific Ocean and our's is a landlocked state? I would also like to know how much you are paying for the water that you get from the Colorado River?

Duane Georgeson: The question is, how much does the Metropolitan Water District pay for water from the Colorado River? There are many different numbers, depending upon where you measure the cost. Metropolitan would measure the cost where it is delivered into our treatment plant. In this case, the cost is around \$100 per acre-foot. You mentioned a figure of \$5,000, when I hear a figure of \$5,000, that number frequently means to me that you are buying the right for a quantity of water, in perpetuity. If you amortize \$5,000 per acre-foot of water at 8% it turns out to be about \$400 each year, per acre-foot. Therefore, if it is costing you \$400 an acre-foot, our water from the Colorado River at \$100 an acre-foot is pretty cheap.

We have higher cost sources of supply from the State aqueduct, as we have to pump it over much higher mountains, projects were built with higher value dollars during the 1960's and 1970's, versus the 1930's, and we have to pay for wastewater reclamation, and conservation measures. Therefore, when we sell our water, we sell it

at about \$322 per acre-foot. Our retailers sell it to the average homeowner for about \$500 to \$600 per acre-foot. Desalting ocean water costs about \$2,000 per acre-foot, primarily because it takes a lot of capital costs to get the reverse osmosis or the evaporative machinery in place, and it requires a great deal of energy. The City of Santa Barbara finished their ocean desalting plant just as the winter rains of 1992 filled up their reservoir. They have a reservoir that holds a three-year supply, and it was essentially empty. That is why they went to the expense of building a desalting plant. However, as soon as they finished the desalting plant, they shut it off after they knew it worked because the cost is too great. It costs approximately \$1,000 per acre-foot for the energy to remove the salt. That is the reason that our agency, and most agencies that have an alternative source of supply, are not looking at desalting the ocean water, even though we are near the ocean. We can desalt brackish groundwater, which has approximately 10% as much salt as ocean water, for \$500 to \$600 per acre-foot. It is still rather expensive, but much cheaper than desalting ocean water. Our board has authorized the expenditure of \$30,000,000 to build a demonstration ocean desalting plant, and the idea is to find some new metals, aluminum, rather than stainless steel, the use of concrete, rather than steel for pressure vessels, and a more thermodynamically efficient process. In effect, it is a research project. Very few urban water agencies are investing in ocean desalting plants because of the high cost. A few agencies down on the Florida Keys, and a few isolated places, for example in the Middle East, like Kuwait and Saudi Arabia, rely on ocean desalting. In the Middle East, they have enormous quantities of natural gas that they have free energy. Additionally, if you saw pictures of their desalting plants along the coast, it is our feeling that we could not construct plants with the kind of hardware they built on the coast of Kuwait in our environment along Santa Monica, etc. It is difficult to obtain a permit to build a hot dog stand on the coast of southern California, let along a massive desalting plant.

Question: In the metro Denver area, the water tap fees, I think, run anywhere from \$5,000 to \$10,000 for a residential unit, maybe \$7,000 is a good average, what are the water tap fees in the metro area in California?

Duane Georgeson: The statement was made that to hook up to the Denver Water Department costs \$5,000 to \$10,000, probably depending on the size of the tap. The cost of hooking up to the water system in southern California varies a great deal. We have a large number of retail water agencies. Our agency is in the process of proposing imposition of a wholesale connection fee. The idea is that growth should pay its way. We figured that a fair charge would be about \$1,000 to cover the appropriate capital costs of our facilities. However, we are not optimistic that we will receive legislative authorization for a charge that high because the construction industry is in very serious depression in southern California. Presently, there are very high charges for most communities to hook up to sewers. In some communities, for example the west San Fernando Valley, sewer and water hookups together cost \$15,000. We may have charges similar to that, our particular agency is proposing a connection fee as a

wholesaler. Typically, it is the retailers who levy a connection fee. However, by our agency levying a connection fee, it is a good way of passing the cost of growth along to the people who are causing the growth.

Question: I think that the requirements of the Safe Drinking water act have been neglected in this day's discussions. They are horrendously expensive. I wonder how long we will pray to the great God of Green Lawns in a desert, by putting expensively treated water on them. This a real problem in cost, especially for small communities, but for large communities as well. This practice is going to raise the cost of treated water horrendously, and no one has really addressed that.

Senator McCormick: The learned lady who has asked that question is Hester McNulty of the League of Women Voters. I can tell you that not a minute passes in the Senate Agricultural Committee meetings and she is not there. I say that as a compliment because she always asks important, but tough questions. If it were possible for a modern city to put in potable and not-potable water supply, there would be no problem with that at all. I was talking to our friend from California about the Denver xeriscape program and telling him what a great success it is. I think, Hester, that part of the answer lies in the fact that Denver no longer has a decreasing block water rate. Currently, the more you use, the more you pay. As I spoke to people from the Denver Water Board, and some are here today to speak for themselves, they felt the increasing block water is becoming effective. It costs much more to use that second and third block, and that is helping. Together with the xeriscape program, I think that Denver, which is spending millions of dollars in promoting it, they invented the word and coined the phrase, and they are doing a magnificent job of selling it. The waste of water also includes the City of Denver itself, when the big sprinkler systems come on in the middle of a rainstorm. At home, we answer that problem ourselves. Fortunately, for me, and perhaps fortunately for Denver, I am not on the Denver City Council, so I cannot answer that part of the question. They are trying to shut it down. The fact that it was not touched on in this conference, I suppose, Hester, is largely due to time constraints -- you squeeze as much in thirty minutes as you can.

Question: We have seen a number of innovative approaches to using water which Colorado has not fully employed yet, today, from the gentlemen from California and from Jim Dyer from the Rocky Mountain Institute. It seems to me, and I would like to address this to you Senator McCormick, that Colorado has a long way to go in developing innovative use of its water and getting away from a number of the things, like the so-called Golden Parachute -- the right of a rancher or a farmer to sell their water and basically go out of business, which you passionately defend. You lament the drying up of that land, but as your Senate District moves further into the high country, it seems imperative, to me, that you should encourage other uses, other innovative win - win situations in the urban areas, especially the Front Range of Colorado. Those situations will lessen the demand for diversion of the high country water, which is so important to the

entire state. However, I see, time and again, anything innovative that manages to make it out of the House, dies a death, very quick, or sometimes slow and agonizing, before you and your compadres on the Senate Agricultural Committee. I implore you to look into ways to develop instead of a Golden Parachute, a Golden Airplane that will allow people to continue to farm while they lease their water to municipalities during times of drought or major demands. We all know that you have to design your average municipal system for those peaks, the high use times -- when there is a drought, everyone is watering their lawns, or there are a number of fires, what have you. It seems to me, that there are quite a few opportunities to utilizing some of the agricultural water without having to dry up the land, and lay it fallow forever. I encourage and implore you to explore opportunities like that, should you be re-elected.

Senator McCormick: I think that your question is extremely important. I think that the question of denying people the right of due process is something that is not a Golden Parachute, but a part of the American tradition. It has been a way of life. To say to someone, that because you are a farmer, someone has the right to take away your water, your right, and without your approval is a difficult thing. It might be water this year, and it might be your particular business interest next year. I think that the preservation of Constitutional rights, particularly in the Federal Constitution, has to be contemplated in the long term.

Within that, Colorado has made a great march forward in many areas. I spoke, briefly, of the minimum stream flow. It was one of the toughest bills that I have ever helped to pass in the General Assembly. I think that, while there are arguments -- one of them does involve a short reach of the Colorado River -- by and large, the minimum stream flow and the minimum lake preservation flows have been non-contentious and tremendously beneficial. In this program, the long term good is accrued to the State of Colorado. Interestingly, the critics of the minimum stream flow are critical because they do not wish to go through the process. Under the Colorado law, minimum stream flow can only be created by the Colorado Water Conservation Board, which consists of people from our own district here. Those flows, then, are judged for their long-term benefit and are screened in a way that prevents abuse or commercialization of some particular water flow.

Another example are the low-flow fixtures that have been enacted into Colorado law, and are functioning throughout the state together. It is difficult to make them mandatory, in the first instance, but what is being done to increase the flows of water, using the City of Denver as an example, when a home sells in Denver, it is now mandatory that if that home is non-metered a meter must be installed. There has been no outcry against this whatsoever, and it is already accelerated the numbers of homes that are water-metered in Denver by tens of thousands.

On the farms, there are requirements of ranchers and farmers to take care of their tailwater, prohibitions against the waste of water, and it is monitored, through the satellite stream monitoring stream system, that every acre-foot is put to the most beneficial use, in the least wasteful way possible.

In western Colorado, with particular emphasis to your question, the natural leaching that takes place in many of the reaches of the Colorado River are a real problem. If we line those ditches that pass through some of the more saline sands, we greatly reduce the saline input into the Colorado River. This is very beneficial. As soon as that is done, however, the people, who have been getting that water that has gone into the water table, object to that. This is a difficult problem to solve. I think that we are making great progress. These issues must be addressed on a case by case basis. It is hard to solve these things in a short period of time. As for the Golden Parachute, I think of that in terms of the Lee Iaccoca league, not in terms of water. I do not know any rich farmers who have retired. Most of the farmers in the Lower Arkansas, who have sold their water, have first gone to the bank to pay off the loan against the property, and then they have taken what is left and moved elsewhere.

Question: Perhaps, with some kind of a Golden Airplane, they would not have to do that. All through their younger days, they could have enjoyed that agriculture and not had to borrow so much money if they could have gained revenue from leasing their water during those times of need. The present system more or less requires them to sell and dry it up. Obviously, they do not want to do that because they enjoy the farming life and it is important to them. It is an important part of our economy, as a state, and it is one that we are basically forcing to go down the tubes in many areas because it works better to sell your land because of the water.

Senator McCormick: If we can get into a water banking kind of proposal that will not be deleterious, I would be happy, indeed, to support it. I spoke about the need to draw and draft water legislation using great particularity. That is true, look at the progress that we have made on a single Senate bill, Senate Bill 92 this year, in which it took two years to pass it, and in a greatly diluted form. I think that it will take me at least the next two years to make that legislation mandatory, rather than a choice option with the presiding judge. These are the kind of difficulties that you face, and I am sure that you understand that.

An Interstate Water Bank

Gerald R. Zimmerman
Executive Director, Colorado River Board, California

It is a pleasure to be back in the Upper Basin and to share with you some of my thoughts on the management of the Colorado River. Last night I was trying to determine how I should begin my presentation. First, I thought I could say that I am from California and I am here to help you. However, Carroll Multz is in the audience and he is the Federal representative on the Upper Colorado River Commission. Then I thought that I could say that I am from California and am here to protect your interests in the Colorado River. However, I think that Lori Potter and others here would probably object to that. Finally, I decided that you would believe it if I said that I have a black box here in my hands. This black box contains devious schemes on how to steal your water. However, that statement, besides being totally inaccurate, would be more appropriate coming from Aurora or Denver, since we are here in Gunnison.

Today, I would like to focus on a couple of issues that I believe are important to the Colorado River Basin and the Colorado River Basin states. California has prepared a document entitled *Conceptual Approach for Reaching Basin State Agreement on the Interim Operation of the Colorado River System Reservoirs, California's Use of Water Above its Basic Apportionment, and the Implementation of an Interstate Water Bank*. That document has been reproduced and is included in the packet of materials provided for this Conference. Although the conceptual approach, per se, is not currently being discussed by California and the other basin states in their ongoing discussions, many of the concepts contained within it are viable for further discussion, and California continues to support those concepts.

California, throughout the discussions among the basin states, has stressed improved water management. Commissioner Underwood, this morning covered many of the concepts associated with improved water management. The concepts that Commissioner Underwood covered, California supports and believes are necessary within the Colorado River system to make more water available to each of the basin states.

The major component that California considers necessary for improved management of the water system is optimizing the use of water within the United States. Jim Lochhead is present, so I will not mention the waste of water to Mexico that occurred from 1983 to 1987. During that period 60 million acre feet of water was released from Hoover Dam causing flood damage within the United States, as well as Mexico. Through improved management, more of that water could have been made available for beneficial consumptive use within the United States.

As part of improved water management, California believes that the basin states need to discuss interstate water transfers and that we, as states, need to establish a water bank within the Colorado River system. Furthermore, cooperative joint ventures by the basin states and others should be implemented. Lucy High has given my

presentation the title "Interstate Water Bank." I would like to focus on two issues. The first is the transfer of water, which is related to an interstate water bank. Second, I would like to address water banking on the Colorado River. I am trying to avoid the term interstate water bank because, in California, we believe that banking on the Colorado River is important, whether it is an interstate water bank, a Lower Colorado River Basin water bank, or a water bank for California using the Colorado River system reservoirs.

I would like to begin by addressing water transfers. I am going to cover several of the concepts that have already been mentioned by other speakers at this conference, but I believe they are important to reiterate.

The first involves the use of water. It is important to keep in mind that the use of water, and not the water itself, has been apportioned by the Upper Colorado River Basin Compact to the Upper Basin states, by the Supreme Court decree in Arizona v. California, to the states of Arizona, Nevada, and California and by the 1922 Compact, which apportioned the use of water between the Upper Basin and the Lower Basin.

Secondly, if one state or basin is not using its apportioned water, any unused water is then made available for use by another state or basin. That provision is included in the Colorado River Compact in

Article III(e), in the Upper Basin Compact in Article III(b), and in the decree in Arizona v. California, Article II(B)(6). Those documents also provide that the use of apportioned but unused water by a state does not guarantee the continued use of that water. No right is obtained by the mere use of water. Thus, the phrase *use it or lose it* has no foundation within the existing Law of the River, as it relates to interstate apportionments of water. That statement may not be true within the state of Colorado and to individual water right holders within the state where a water right can be abandoned. But again, it does not apply to the apportionment of water between and among states, where a state cannot lose its water right or apportionment by non-use.

The Law of the River provides protection for each state to develop its right to use water and to develop its full apportionment



of water. It mandates that reasonable and beneficial consumptive use of water be made within the Colorado River system and that the use of water be optimized. The waste of water is prohibited. The Law of the River also provides flexibility in how the reservoir system is operated. Although specific on how the water is to be apportioned among the states and who is entitled to use the water, the Law of the River provides only guidelines on how the management and operation of the reservoir system is to occur. Within those guidelines and within the framework of the Law of the River there is flexibility on how we actually operate the system, use the water, and make it available to each of the basin states.

The existing Law of the River provides needed flexibility to implement innovative approaches to manage the River system. Dennis Underwood, in his presentation this morning, referred to some of the flexibility that the Bureau of Reclamation has provided within California and the Central Valley. Those same type of innovative approaches can be implemented and applied within the Colorado River system. California has been proposing that we implement several of those approaches in the Colorado River Basin.

The Law of the River, as was mentioned earlier, does not explicitly prohibit the interstate transfer of water. Although it does not mandate interstate transfers of water, it does not prohibit them and I believe that they can occur within the existing Law of the River.

I would like to briefly touch on intrastate water transfers, or transfers within a state. California believes that those intrastate transfers should occur based on each individual state's public policy and to the extent that such transfers are consistent with the existing Law of the River. As concerns interstate transfers, California believes that the concepts associated with the interstate transfer of water can no longer be ignored or addressed in a piecemeal fashion. We believe that if the states and other appropriate entities do not jointly address the mechanisms and conditions by which the interstate transfers will occur, they will be decided by the courts or Congress. I think that we, within the Colorado River Basin, can establish a mechanism and conditions to allow interstate transfers that would be more viable and more in synch with the public interest than either the courts or Congress. Thus, we have suggested that the seven Colorado River Basin states, Indian tribes, and other entities jointly establish the process for addressing the interstate transfer of water, and the mechanisms by which such transfers can occur.

In California, Governor Wilson established a water bank to provide water to meet the critical water supply needs of the state during the drought. Within the Governor's water bank, water was provided to meet critical agricultural needs, critical urban needs, critical fish and wildlife needs and to provide carry-over storage for the possibility of the drought continuing into 1992. The drought did continue in 1992 and we are using some of that carry-over storage to meet the critical water supply needs this year. The Governor has continued the operation of his intrastate water bank and is purchasing additional water for the water bank in 1992. Because of the success that California has had with its water bank, Governor Wilson has included in his water policy initiatives, that address California's water needs through the year 2010, a statement that he supports the

ongoing discussions among the Colorado River Basin states' representatives concerning interstate water banking on the Colorado River system.

One of the key aspects in the Governor's water bank and an aspect that I believe should be included in any water bank within the Colorado River Basin, is that it be managed and operated by the states. Interstate water banking and interstate water transfers should be on a state to state basis and not among individual parties. In correspondence between Governor Romer and Governor Wilson, they both agree that any interstate transfer of water should be on a state to state basis. California further believes that any transfer should be based on sound public policy and be within the public interest. The transfers should only occur on a willing seller-willing buyer basis and they should recognize third party and environmental impacts. Furthermore, the means to compensate or mitigate the third party or environmental impacts should be addressed in any water transfers. Governor Wilson, in the establishment of his water bank, has recognized third party impacts. The water transfers that are occurring between the Imperial and the Palo Verde Irrigation Districts and the Metropolitan Water District, that Duane Georgeson mentioned yesterday, are being structured to recognize third party impacts. That is one of the reasons that in the Palo Verde Irrigation District Land Fallowing demonstration program, it was decided that only 25% of a farmer's land could be fallowed. Thereby, the farmer remains in business and in the community, and any third party impacts can be reduced. Also, as part of the Palo Verde demonstration program, a study is being undertaken to assess and quantify the third party impacts, if any. Results from that study will be utilized to guide future land fallowing programs within southern California, in order to effectively address third party impacts.

We believe that any water transfer should be consistent with the Law of the River and that each of the states' rights to develop and use its apportioned water should be protected. That statement was contained in Governor Romer's letter to Governor Wilson, and we concur. Each state's right to develop its apportioned water must be protected.

Furthermore, all transfers should be "wet" water transfers, rather than "paper" water transfers. "Paper" water transfers may be the easiest to negotiate, but they produce the greatest potential for third party impacts. On the other hand, with "wet" water transfers previously consumed water is being transferred. Thus, any impacts associated with the transfer are easier to identify and mitigate.

We believe that mechanisms to allow the interstate transfer of water within the existing Law of River are available. One example is through establishment of interim operating criteria. Within California's conceptual approach, we suggested that interim operating criteria could be developed that would allow the interstate transfer of water, as well as the establishment of the interstate water bank. A second example is a forbearance agreement, or an agreement to not divert water. This type of agreement is effective in facilitating water transfers. In fact, the water being made available through the Palo Verde and Imperial Irrigation Districts programs is being transferred to the Metropolitan Water District through forbearance agreements. Each of the entities that have a right ahead of the

Metropolitan Water District have signed a type of forbearance agreement that states that they will not divert the water that is being made available and conserved through efforts of the Metropolitan Water District. We believe that such a program would also be applicable in any interstate transfer of water.

California believes that each of the states should individually decide the extent to which it would like to participate in interstate water transfers. We do not believe that we should tell Colorado and the people of Colorado that they must participate. However, we believe that the state of Colorado and the people of Colorado should not object to other states that are willing to, and want to, participate in interstate transfers of water provided the other conditions, such as non injury, are present.

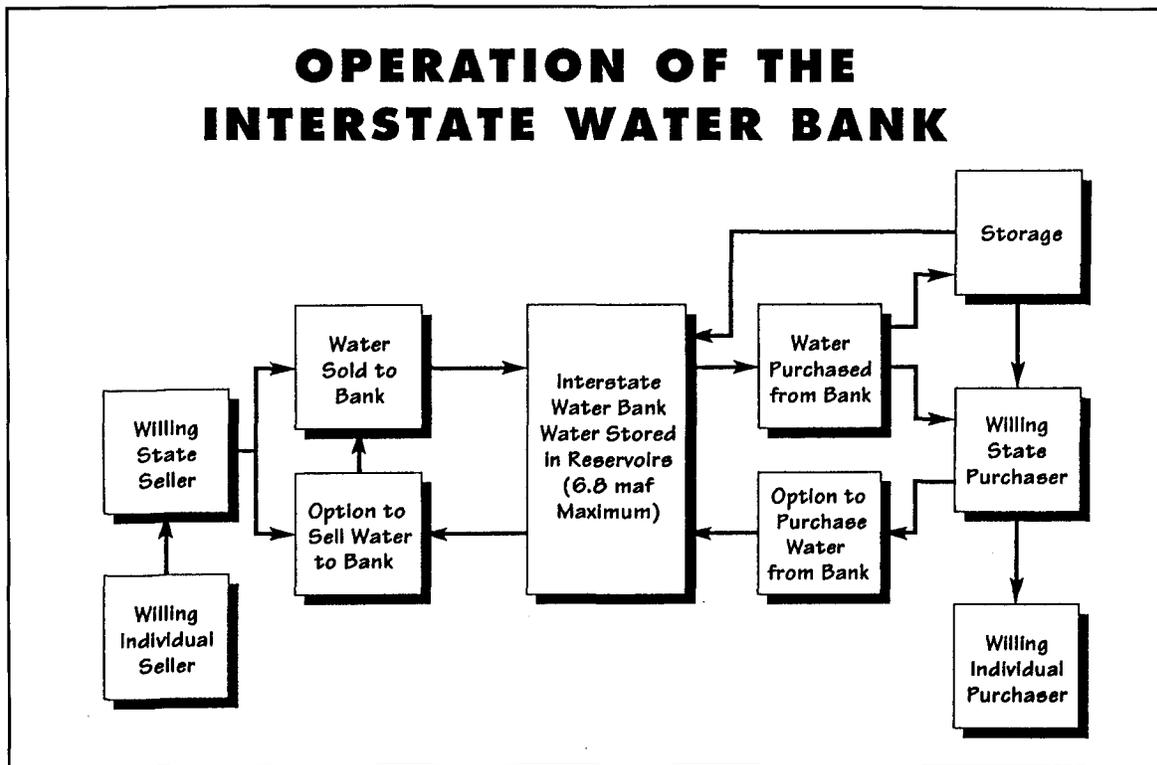
At this time, I would like to briefly discuss the interstate water bank. As I indicated before, when we talk about an interstate water bank from California's perspective, it could be a seven state water bank, a Lower Basin water bank or a bank on the Colorado River System that only California participates in. California sees advantages for all the states to participate in an interstate water bank; but if that cannot be achieved, California desires that the other states do not object to it participating in a water bank using the Colorado River System reservoirs.

Most of the concepts associated with an interstate water bank are similar to those that I have discussed with regard to interstate water transfers. We believe that the operation of the interstate water bank should be among the states, by creating a seven-state forum to operate the interstate water bank. Within California's conceptual approach, we placed limits on the amount of water that could be banked each year. That was only a suggestion. We suggested that one-million acre feet per year would be the maximum allowed to be banked per year. We also suggested a maximum for the amount of water that could be banked at any one time. This value was 6.8 million acre feet. This is not a magic number. We were merely suggesting that there should be a limit on the amount of water that could be banked in the Colorado River System Reservoirs at any one time. We do not want the bank to interfere with the existing operation of the reservoir system or watch anyone else's right to use the water.

We are also suggesting that the banked water float on top of the reservoir. Thus, when there is a wet cycle, the water that is spilled first is the banked water. This prevents any adverse impacts on the system's conservation storage.

I would like to reiterate that California does support investigating the establishment of a water bank using the Colorado River System reservoirs. We believe that such a bank encourages implementation of the best management practices by each of the entities that use Colorado River water. It allows flexibility in the operation of the reservoir system and it provides a means for entities to repay inadvertent overruns in water if they should occur. With California being at its annual apportionment each year, it is important to California that if we use more water than we are entitled to in a year that we have the means by which we can repay that water to the system.

OPERATION OF THE INTERSTATE WATER BANK



Within California, the agricultural agencies, as Duane Georgeson mentioned, have the highest priorities to use Colorado River water. The Metropolitan Water District, who provides a full or supplemental water supply to 15,000,000 people in the Los Angeles and San Diego areas has the fourth priority. When California is limited to 4.4 million acre-feet from the Colorado River, it is the Metropolitan Water District that takes the first shortage. The agricultural agencies in California are not limited to a specific quantity of water that they can divert. Rather, they have a right to divert water to irrigate a set acreage. For example, the Imperial Irrigation District can irrigate 500,000 acres of land. If it requires 3.8 million acre feet of water to irrigate those 500,000 acres of land, it can take that quantity of water under its third priority. For the agricultural agencies to agree to limit their diversions and to agree to a specific quantity of water, they must be able to bank water and have it available to finish their crops during the growing season. They must also have the ability to repay the system when the Secretary of Interior requires that they repay the system for any overuse. Banking, using the Colorado River System reservoirs, allows for repayment of such inadvertent overruns, as well as provides flexibility to each of the agencies within California. I believe it would allow agencies within the other states, to also meet critical water supply needs and to ensure against future shortages.

Water banking on the Colorado River System would allow the intrastate transfer of water to occur more readily within California. For the agricultural agencies to agree to limit their entitlements and

to transfer a portion of their current entitlement to the Metropolitan Water District, they believe that a bank is necessary. Implementation of a water bank on the Colorado River System would allow agencies within California to move forward with more water transfers. Establishment of an interstate water bank could provide a source of water for each of the individual states to accomplish the objectives that they have during critical, emergency, or unique water supply and demand situations. Those objectives could be environmental, recreational, fish and wildlife, urban, agricultural or any others that would enhance the public interest of that state. Governor Wilson's water bank was intended to meet these critical needs during a water supply emergency. We believe that the water bank enhances a state's ability to manage its own resources, and it provides the state with another option to meet its needs.

California has, and will continue to encourage each of the other basin states, the Indian tribes, and others to support, in concept, banking on the Colorado River System. We believe that a water bank could be established to the satisfaction of all of the parties concerned; everyone's interests could be protected, and we could better manage the water within the Colorado River System.

In conclusion, I would like to say that California is of the opinion that comprehensive and innovative approaches to address the long-term issues on the Colorado River System must be considered by each of the basin states and implemented. We believe that there are win-win programs out there. The challenge is to cooperatively find them and bring them to fruition.

As a footnote, I would like to say that I believe the seven-state discussions and the Lower Basin discussions that have occurred during the past year have been very productive and useful. I also believe that through those continued discussions there will be innovative approaches that will be implemented to improve the management of the Colorado River System. I also believe that it has been valuable for the seven basin states and the Lower Basin states to meet separately from the Indian tribes, as well as for the Indian tribes to meet separately. By initially meeting separately, I believe that when we meet in September of this year, we will be able to have a more productive meeting.

An Economic Analysis of an Interstate Water Bank

Dr. James Booker

Department of Agricultural Economics, University of Wyoming

It is a privilege for me to be able to speak to you today. It is not my purpose to be an advocate for or against interstate water banking or other innovative institutional arrangements on the Colorado River, but rather to provide a perspective on the impacts of such arrangements, in terms both resulting water allocations and economic impacts.

It is remarkable, to me, that we are discussing water marketing in such a broad forum. Three years ago, when I began work on the topic of the Colorado River basin, the idea of interstate water marketing was heretical and it seemed to be largely an academic exercise to even examine the possibility. Last summer, with the proposal from California to establish interstate water banking, this topic gained much more attention.

In any significant market not everyone wins, and there are in fact indirect losers. One of the questions to address here is this: are the losses greater or less than the benefits that could occur from the establishment of water banks in the basin? A second question to focus on is whether water banking could be done in such a way that, while there are some individual losers, no entire state suffers a loss.

I would like to address the direct economic benefits that result from water use in the basin, by agricultural, municipal, and industrial sectors. Then I would like to touch on how an interstate water bank can be modeled. Finally, I will give empirical estimates on the impacts such a water bank might produce.

Agriculture in the Colorado River Basin consumes slightly under 80% of the water that is available for use. The Colorado River is actually heavily used for purposes other than irrigation. Typically, in western areas of the United States, irrigation use accounts for approximately 90% of the consumptive use. Municipal use alone is approaching 20% of consumptive use within the Basin, a relatively high percentage compared to western averages. Cooling water used for power production by Basin coal plants adds up to only 2% of the consumptive use within the Basin.

Let me describe how economists go about valuing the benefits received from the direct use of water for agriculture. To use the Imperial Valley as an example, the approach taken is to ask what would be the effect on irrigation profit or the net income of those utilizing the water directly if that water was removed. Using computer models we incrementally remove a certain amount of water and measure the effects. The models of irrigator behavior which are used allow a certain amount of flexibility in response, such as the use of surge irrigation, switching to a more water resistant crop, and, of course, allowing land to be fallowed. These are all responses to less water being available. The impact of this is that irrigator income is reduced. At full water supply levels irrigator income reaches the maximum, but as water is removed, income is reduced. That reduction

represents the economic demand for water in agricultural purposes.

The demand for water by Upper Basin agriculture, such as an irrigated hayfield near Farson, Wyoming is estimated using the same approach. Because of the different crops which are grown, the different irrigation technologies, and the different seasons, we end up with a different water demand function for the Upper Basin.

In municipal use, the economic benefit of water is measured by the willingness of consumers to pay to avoid the consequences of limited supply, such as xeriscaping, for example. The willingness of consumers to pay for avoiding reductions in supplies or to pay for increases in supplies provides an estimate of municipal water demand.

The water supply to meet these economic demands originates in the highest mountains of Wyoming and Colorado, flows down through mountain streams, through the canyons of the southwest, and finally into Mexico. There are a number of costs associated with storage and putting the water to use in the location that we desire. This can involve rather crude irrigation structures, such as a rock diversion dam for the New Fork Irrigation District, at the headwaters of the Green River in Wyoming. This delivery system is inexpensive, with a charge of twenty-five cents per acre-foot covering the maintenance of the District's delivery system. In contrast, much higher costs are incurred in other areas within the Basin to deliver water. For example, the multi-billion dollar Central Arizona Project includes structure such as the Havasu Pumping plant with costs two orders of magnitude larger than those of the New Fork Irrigation District. In modeling what an interstate water bank might do, it is important for us to include the operation and maintenance costs for our delivery structures, and for our reservoirs. The pumping costs of this structure, for example, are very important to balance against the benefits that are received from putting that water to use.

I have discussed what we can control in the supply of water within the basin. Now I will talk about some things that we have less control over, or, perhaps, no control over. Examining the historic record of annual basin flows, measured from 1906, it is almost equally likely that we will have 8 million acre-feet, as 22 million acre-feet, in any give year. This illustrates the immense variability in the system that has been smoothed out by adding approximately four years of annual storage, primarily in Lake Mead and Lake Powell.

A ten-year average, is much more appropriate to consider as a supply relevant for allocation purposes than the annual flow. The choice of a ten-year period is somewhat arbitrary, but corresponds nicely to the Compact requirement of 75 million acre-feet every 10 years from the Upper Basin.

I am going to discuss a water supply scenario that would be considered a moderate drought in the basin. This scenario uses an annual flow of 13 million acre-feet measured at Lee Ferry, compared to the median annual flow of 14.5 million acre-feet. Thus, I am discussing a shortage of approximately 1.5 million acre-feet in this scenario. This corresponds very closely to estimates from tree ring studies which give some insight as to what long-term average flows might be. There is some concern that the historic record may overestimate the supply that is available to us in the Colorado River Basin. It is absolutely clear that during the period in which the Compact was negotiated we were in a particularly high flow period.

In fact, those high flows were an unprecedented event, according to tree ring reconstructions of flows from before 1600. Given this record, the scenario that I am using may in fact not be a drought, or a severe event at all, but rather a very commonplace event. It should also be noted that droughts may have occurred which are much more severe and sustained events than anything we have experienced in this century.

What policy options should be considered in providing an economic analysis of an interstate water bank? As a baseline, we certainly need to start with the Law of the River and how water is currently allocated. That will be the basis for comparison. I will then discuss within-state marketing, or within-state water banks to facilitate transfers between willing buyers and sellers who are within the state lines. Next, I will open the market to interstate transfers, paying no attention to the line at Lee Ferry, that we in the Upper Basin sometimes hold rather sacred. This is similar to California's interstate water banking proposal. Finally, I will offer an even more heretical market structure which allows non-consumptive users to enter this hypothetical market as well. I will let hydropower enter the market, such that the users of hydropower will be able to bid for water above the generating stations, in order to generate additional power. I will also let those who are damaged by salinity enter the market. There are irrigators in the Imperial Valley and elsewhere, and municipal users in southern California who would benefit from lower levels of salinity. I will allow all these interests to enter the hypothetical market in this last scenario.

Let me emphasize what the existing priorities under the Laws of the River are, and why we are concerned about interstate water marketing. The problem is that, through historical fate, the largest metropolitan area in the west happens to, presently, have the most junior water right within the whole system. I am referring to the Metropolitan Water District of Southern California. In addition, Las Vegas has serious concerns for their future. Currently, they are only using slightly less than 200,000 acre-feet of their 300,000 acre-feet allotment. However, future growth threatens to put them in the same situation that Metropolitan is in today. These urban areas with junior rights are the real motivation for all the interest in interstate water marketing.

The reason that maintaining a full pipe to Metropolitan is an issue today is because Lower Basin use of mainstem water is bumping up against the 7.5 million acre-feet that was allocated in the 1922 Compact. This is occurring because the Central Arizona Project which has recently come on line, has a priority which is more senior than 700,000 acre-feet of Metropolitan's water. It is the Central Arizona Project coming on line that is the reason the lower Basin is at the limit of its Compact allocation for the first time in basin history.

Let me present estimates of where the water would flow under these particular policy scenarios. I will begin with the Law of the River. With this particular scenario of an annual flow of 13 million acre-feet at Lee Ferry, I have allowed a very conservative net annual release of 200,000 acre-feet from storage. That is much less than has been occurring in the past several years due to the recent drought in the basin. I assume that the Central Arizona Project is diverting 850,000 acre-feet annually. The evaporation estimate for the Upper

Basin is 600,000 acre-feet, and for the Lower Basin, 1.1 million acre-feet. Given these assumptions, there is a Basin shortage of approximately 250,000 acre-feet. Under the Law of the River this shortage is borne by Metropolitan consumers.

We have a shortage with the Law of the River scenario. If within-state water marketing occurred, the shortage of 250,000 acre-feet is provided by Imperial or Palo Verde. In fact, it is Imperial in this model that provides that water, because its return flows are unavailable for further downstream consumptive use.

If we allow interstate water markets, what happens in this case? Now, the Upper Basin is affected, because Metropolitan can bid for Upper Basin agricultural use. Because we are discussing only wet water, this can only come from existing uses. Colorado's unused apportionment is not relevant here; the water that is in the hayfield outside of town right now is. Of this 250,000 acre-feet shortfall that Metropolitan has to make up, approximately 150,000 acre-feet comes from the Upper Basin, and approximately 100,000 acre-feet from the Lower Basin. Both the Lower and Upper Basin have low valued agriculture.

What are the implications of this idealized water bank? First of all, the buyers look far and wide for the least cost seller and purchase water for very low cost. For the buyer, low valued water can be found in both the Upper and Lower Basin, in roughly equal proportions. Some agriculture would be dried up throughout the Basin. There are also some free riders. For example, hydropower will benefit from Upper Basin water that is no longer consumptively used.

The final scenario involves allowing hydropower and salinity interests to enter the picture as active market players. Imagine what would happen if users of Glen Canyon and Hoover Dam power could bid for water. Now there is a very significant impact on the amount of water consumptively used in the Upper Basin because it is economically efficient for hydropower to purchase very large amounts of Upper Basin consumptive use. The result is significant income losses in Upper Basin Agriculture. Also note that Mexico is the beneficiary of this scenario, as there is more water in the River than can be consumptively used by existing water users in the U.S.

Let me speculate on two issues that the model does not address.

Given an actual interstate water bank, Metropolitan customers would be able to purchase additional supplies at very low costs. However, the costs would likely vary. In particular, transaction costs are likely to increase their overall costs the further away from home that they look.

In my speculation, a within-state water bank will solve all the problems of a relatively small shortage. In this instance, Upper Basin agriculture would not be significantly affected.

In what I call a water resources bank that lets hydropower into the picture, things are very different. In this instance, there is not a very large incentive, or a very large economic benefit from transferring water out of consumptive use in the Upper Basin to the Lower Basin. The consumptive users in the Lower Basin are not large players in the sense that there is excess water, above the 1.5 million acre-feet delivery obligation going straight into Mexico now. Hydropower generates about fifty dollars per acre-foot when valued at 3 1/2 cents a kilowatt hour, a rate appropriate for baseload, but

lower than peaking power values. Therefore, there is over fifty dollars per acre-foot of benefit in hydropower as that water goes down the River. That would have a very, very significant impact on Upper Basin agriculture, if there was a market linking those consumptive and non-consumptive uses.

The Colorado Governor's Proposal

James S. Lochhead
Upper Colorado River Commission
Colorado Water Conservation Board

In conferences, engineers and economists generally use slides and overhead projectors for their presentations. On the other hand, lawyers are presumptuous enough to think that standing up here and droning on for half an hour is entertainment enough. In that tradition, I will not use any slides or overheads.

Jim Booker's presentation brought to mind an interdisciplinary, multi-university study that has been undertaken to analyze the impacts of a long-term drought. It is based on tree ring analyses and the existing structure of the Law of the River, its existing level of development. The study involves estimating what would happen, if today we were experiencing a drought of the magnitude of the 35 year drought which records show occurred during the 15th century. To accomplish this, today's demands and the structure of Law of the River must be accounted for. The study does not project any increased demands, it simply assumes a flat demand on the River. Interestingly enough, some of the preliminary results are showing that Lake Powell would go bone dry and Lake Mead would be drawn down to about 5,000,000 acre-feet before the system finally started to recover, in this scenario. This study and the preliminary results underscore the comments that have been made concerning some of the over-optimistic estimates that are inherent in the historic period of record that we are dealing with.

When discussing Colorado's position on interstate issues on the Colorado River, I think it is important to keep three things in mind. These include: first, the overall framework of the Law of the River; second, the institutional relationships between the states and the Bureau of Reclamation, especially in regards to river operations; and, third, the political, social, economic, and environmental conditions and concerns in each of the Colorado River Basin states.

On the day before yesterday, I spoke to you about the framework of the Law of the River and the importance of maintaining that basic foundation. However, through the course of this conference, I hope that it has also been clear that the law is not rigid. The law has evolved to meet changing circumstances and demands. Today, I would the opportunity to convince each of you that through discussion, cooperation, and agreement, all affected interests on the River can meet the new challenges we face without undermining the fundamental structure of the Law of the River.

The law offers basic protection to the Upper Basin for the potential development of our entitlement. At the same time, the Colorado River is the most developed river in the world. The water can be controlled and regulated to meet a myriad of environmental and recreational needs, while complying with required allocation and delivery demands. The Colorado River can meet the short-term needs of California and Nevada so long as protection is afforded to Arizona and the Upper Basin states. This means that the states and the Bureau

of Reclamation have the ability to adjust operations to meet new concerns and accommodate short-term needs within the individual states. In order for there to be such accommodations, the states must remain absolutely committed to maintaining the integrity of the structure and allocations established under the Law of the River.

Three recent Colorado examples are pertinent in illustrating how open communication and compromise can achieve positive results. The first is the reserved rights settlement in southwestern Colorado. It is a nationwide example of how Indian tribes and state interests can work together to achieve common goals. Hopefully, endangered species concerns and other issues can be resolved to bring this agreement to fruition.

The second example involves Colorado's need to resolve the issue of the dry-up of east slope irrigated agriculture versus the development of additional trans-basin diversion projects as an appropriate means to meet Front Range needs. The Colorado River Water Conservation District, Summit and Grand Counties, and the Summit County ski areas are actively bringing to reality an agreement regarding Wolford Mountain and Clinton Gulch Reservoirs, which will develop more Colorado River water for Denver, while, at the same time, resolve some severe water supply problems in Summit and Grand Counties, and provide additional storage for western slope uses.

Thirdly, the Colorado Water Conservation Board has initiated, and the Colorado legislature has passed an amendment to the Board's statute which will allow, construction fund money to be used for the rehabilitation of existing reservoirs with dam safety problems, and to fund projects that promote water efficiency and management. This amendment will make more money available to further develop Colorado's Compact apportionment without the need to construct new, expensive, and environmentally damaging water storage projects. These examples also illustrate that there is a need for additional consumptive use development of Colorado's entitlement, and that entitlement must be protected.

Discussions between the Colorado River Basin states and the Bureau of Reclamation are undertaken by representatives of each of the governors. In addition, the Upper Colorado River Commission coordinates Upper Basin positions and shares information. One of the most important functions of the governors' representatives is to agree with the Bureau of Reclamation on annual operating plans for the River. However, I think it is also important to note that there is no formal commission or organizational structure for all seven basin states to discuss issues of mutual concern. Against the backdrop of the Law of the River and the institutional relationships between the states and the Federal government, several factors have served to focus the states on fundamental issues. One of the topics of this conference has been, is the Law of the River obsolete? In my view, it is far from being obsolete. In fact the Law of the River has never been tested. It has not yet been enforced, because the water demands of the states have never tested the limits of that law.

We are now entering what I refer to as the third phase in the development of the Law of the River. The first phase was the establishment of the basic allocations of the Colorado River System, beginning with the Colorado River Compact through the entry of the decree in Arizona v. California. The second phase was the

implementation of those allocations, starting with the construction of Hoover Dam, through the adoption of the 1956 and 1968 Acts, the construction and filling of the Upper Basin system of reservoirs, and the adoption of system-wide operating criteria. The third phase will test the limits and enforceability of the Law of the River. As a result, the Law has never been more relevant than it is today, primarily because the Lower Basin states are approaching the full use of their basic allocations, totaling 7.5 million acre-feet.

The Law is the only degree of protection to those states that have not developed their entitlements. Therefore, the Law must be preserved. On the other hand, new realities in water use, economics, and environment are forcing us to reexamine the institutional relationships between the states and some of the old historic mistrusts that have existed. The new realities should lead the states to forge new relationships and foster better communication to improve river operations.

Two examples involve the proposed change in operations at Glen Canyon Dam and the Upper Basin Recovery Plan for endangered fish species. Both of these efforts constitute commitments by the states and the Federal government to improve operations and respond to environmental concerns within the basic framework of the Law of the River.

In February of last year, Governor Romer proposed that the seven states need to cooperatively discuss ways to satisfy competing demands on the River within the Law of the River framework. Over the course of the conference, many of the factors that led to Governor Romer's initiative have been addressed. In summary, some of the more important factors are:

- 1) California has been consuming more than its basic apportionment. Metropolitan's use of water is junior, and therefore Metropolitan is dependent on surplus waters, which in the future, may not be adequate.

- 2) Illustrative of the optimistic nature of the historic period of record, the last six years have been the driest on record in both California and the Upper Basin.

- 3) By 2010, Southern California water demands are projected to increase by one million acre-feet. As a way of comparison, that would amount to approximately three systems the size of Denver's.

- 4) The construction of the Central Arizona Project is nearing completion. However, demand for the project has not reached anticipated levels. Today, many districts in Arizona face the prospect of bankruptcy and Arizona faces similar questions to those that, we, in Colorado, face, as to whether to enter into leasing or other arrangements with California. Additionally, because of California's first priority on the River, Arizona faces severe risks if shortage conditions exist on the River.

- 5) Growth conditions in Las Vegas project that Nevada will exceed its entitlement from the River by the year 2006. Nevada has been very open in expressing a desire to acquire new and permanent Colorado River supplies. The Upper Basin states, particularly Colorado and Wyoming, have not yet developed their full entitlement to the use of Colorado River water.

- 6) Because of the dry river conditions, increased population in southern California, and continued flat water demand in the Upper

Basin and in Arizona, California has argued that changed operating rules of system reservoirs should allow California to take additional water over the next ten to twenty years.

7) Proposals have been made to market water from the Upper Basin to California water users. These proposals have included building dams to release water downstream, as well as proposals to dry up irrigated agriculture for sale to the Lower Basin.

8) Finally, new realities and concerns for the environment and recreation have forced the Bureau of Reclamation to reassess operational patterns at its facilities.

Taking all of these factors into consideration, three things were apparent to Governor Romer. First, continued dependence of the Metropolitan Water District of Southern California upon excess water, over and above California's basic apportionment, is not an acceptable condition. California's total firm annual dependence on Colorado River water must be reduced to its basic apportionment. Moreover, alternatives exist within California to allow Metropolitan's uses to be satisfied within California's basic apportionment. Metropolitan and the Imperial Irrigation District have entered into an historic agreement which would shift agricultural conservation savings to municipal use. Metropolitan has also entered into a land fallowing agreement with the Palo Verde District, which would allow California to bank water in Lake Mead for future use. These and other programs must be pursued and encouraged, and California must continue to reduce its dependence on Colorado River water through an enforceable program over a defined period of time.

Second, it was clear to Governor Romer that the Bureau of Reclamation, the United States Congress, or the United States Supreme Court could ultimately impose solutions on the Colorado River Basin states that would not be acceptable to anyone. It is far preferable for decisions concerning the allocation of this resource to be made directly by the states affected, in representing the vital interests on the River, and such decisions should not be made by a Federal bureaucracy in Washington, D.C., or in the courts. Progress between the states was not being made on these vital issues. The current stalemate was in no one's best interest. Only through direct, frank, and honest discussions between the states could new solutions within the framework of the Law of the River be forged.

Third, Governor Romer was convinced that an unregulated water market between Upper and Lower Basins is contrary to the Law of the River, puts Upper Basin water users at a severe disadvantage, and is not in Colorado's best interest. Such a market that transfers water from irrigated agriculture in the Upper Basin to urban areas within the Lower Basin would not take into account environmental, social, and economic impacts. Moreover, Colorado would be at an immediate disadvantage in any type of a free market on the Colorado River. Colorado's system of water laws is the most unregulated in the west. In contrast, a free market water system of water right allocation and transfer does not exist within California. Although legislation has been proposed in California to allow water rights to be marketed more freely, restrictions on water marketing in California have been a major contributor to Metropolitan's current situation. A free market system of inter-basin transfers on the Colorado River would allow California to take advantage of existing free market systems in

Colorado and place the burden of such transfers on this state.

Therefore, Governor Romer proposed to the other basin states that direct discussions be undertaken on these vital issues. Since that time, the seven states have held a series of meetings, in which California made its water banking proposal and has committed to continue its program to reduce its firm annual dependence on the Colorado River.

Colorado remains firmly committed to the principals articulated by Governor Romer. In the last legislative session, the Colorado legislature passed Senate Joint Resolution 92-8, concerning the Colorado River Compact. The legislature affirmed certain fundamental positions of the state of Colorado, which have been the policy of the state since 1922. The first was that Colorado's right to develop and use water allocated under the Law of the River is a perpetual right. Secondly, it was asserted that the General Assembly does not believe that the Congress has the legal authority to open, revise, or modify the Colorado River Compact or the Upper Basin Compact without the consent of the states. Lastly, Colorado has not abandoned as a matter of fact, and cannot abandon as a matter of law, its entitlement to the development and use of the water of the Colorado River System.

However, this does not mean that Colorado can bury its head in the sand and simply seek refuge within its Compact entitlement. In order to protect our entitlement, the state must proactively move forward in concert and cooperation with the other states, the Bureau of Reclamation, and Colorado River Indian Tribes to forge new solutions to water supply and allocation issues.

At the Western Governors' Association meeting in Jackson, Wyoming on June 23rd of this year, the governors passed a resolution affirming the need of the states to move positively forward in new directions. I would like read some portions of that resolution to you because I think it gives some overall guidance to the directions that, hopefully, the states are pursuing.

The resolution reads, in part, as follows:

The west recognizes that the near gridlock resulting from changing demands for water resources in a period of rapid urban growth, recognition of Indian water rights, need for protection of endangered species, concern for in-stream and other environmental values, lack of support of new water projects, scarce public funds, conflicting and overlapping laws and programs, and polarized positions among competing parties, continues. The west is trying to solve new problems with old mechanisms, mechanisms which do some things very well, but which are not able to meet all of today's needs. Successful problem-solving is occurring around the west, including all affected interests in having flexibility to tailor solutions that are keyed to many of the successes.

We, the governors, recognize that the needs for effective water management are changing, as are the needs for other kinds of natural resources management, and we agree to confer with the full range of interests in development of new approaches. The policy framework should be responsive

to economic, social, and environmental considerations. Authority and accountability should be decentralized within national policy parameters. Negotiation and market-like approaches, as well as performance standards, are preferred over command and control patterns.

We, the governors, offer to work cooperatively with Federal agencies that are also considering reevaluating their roles, specifically to address concerns related to interagency and intergovernmental coordination, improving efficiency, developing new approaches for environmental protection, developing mechanisms for working with tribes and local governments, adopting basin mechanisms, delegating management responsibilities to states on a voluntary basis, and, in general, improving water governance.

The basin states have, in fact, made tremendous strides in seeking new solutions within the framework of the Law of the River. The issues are complex and the outcome is uncertain. However, the Lower Basin states have been meeting to attempt to resolve the issues of California's water use within the Lower Basin. The Lower Basin states have reported to the Upper Basin states, and have sought input into those discussions. Nevada has expressed a desire to work with the other basin states in resolving its long-term water needs. The states have expressed interest in working with the Colorado River Indian Tribes in resolving Indian reserve rights issues and providing the Tribes with a meaningful place at the table in these discussions. Toward that end, as you heard, a meeting between the states and the Tribes is scheduled for early September.

Finally, within Colorado, Governor Romer has affirmed his commitment that water policy in this state be broadly based and openly communicated to all the affected interests. By Executive Order, the Governor established the Colorado River Advisory Council, including representatives of all the major water users organizations, Indian Tribes, and environmental organizations. The Council has met on several occasions and will be asked for input and advice to the Colorado Water Conservation Board in developing policy direction to the state's representatives. In addition, the Colorado legislature provided funding to a joint effort between the Water Conservation Board and the State Engineer's Office to develop a Colorado River Decision Support System. The first step in this process is to develop expertise within the state of Colorado on the computer models used by the Bureau of Reclamation to guide river operations. The program will also evaluate the development of new models, so that public policy decisions can be based upon facts, and not speculation.

These new steps continue to point the west in new directions towards water policy management. At the same time, it is absolutely imperative to maintain that the framework of the Law of the River, in guiding that future policy direction, provides Colorado with its heritage for the future.

**Water Banking
Panel Discussion**

Moderator: Richard Tisdell, Tisdell & Hockersmith,
Board Member, Colorado River Water Conservation District

Question: I have two questions I would like to ask Jim Lochhead. The first is who is on the newly formed Commission that Governor Romer formed on the Advisory Council?

James Lochhead: I do not have a copy of the Executive Order with me, but I know that it includes representatives of the River District, the Southwest District, Southeast District, Denver, Northern, two seats for environmental interests, a seat for each of the Colorado River Indian tribes, and that is all that comes to mind right now. There are around fifteen positions, and there is a provision that the Executive Director of the Department of Natural Resources can provide for additional appointments as well.

Question: The second question is, within agricultural conservation practices, if they become very extensive, who derives the benefit from the water that may no longer be saved by that irrigating entity?

James Lochhead: It seems to me, that is a factual situation, which depends on the particular circumstances. In the context of southern California, exchanges are able to be implemented through agricultural conservation savings, and these savings allow Metropolitan to acquire additional water. You are involved in efforts to achieve conservation bills in Colorado, and it presents different problems given the location of the agricultural water right vis a vis the other water rights in the basin. Therefore, I do not think you can make blanket statement about how that would apply.

Question: I have a question for Mr. Zimmerman. I was wondering, in your proposal for the water banks, in which you were going to do all the horse trading between the states, do you think that there is any problem in keeping the individual out of the individual sales of water, especially given the Nebraska decision, which essentially cast out the export ban statutes.

Gerald Zimmerman: I believe that it would take careful structuring of the mechanism used, but I think that if you use such mechanisms as forbearance agreements that it could work, and it would be within the existing Law of the River. The apportionments have been made by the Compacts and court decrees to the state -- the Upper Basin Compact made the apportionments to the Upper Basin states and Arizona v. California made the apportionments to the Lower Basin states. So, it is the states that received the apportionments, and the states, I believe, can control the use of water within their boundaries. Therefore, if the states are parties to the agreement, I believe that the banking could be provided on an interstate basis. There are attorneys that might disagree with that, but being an engineer and not an attorney, I think that it could be structured to allow it.

Question: Addressing Mr. Booker's comments about representing hydropower in the basin and its ability to be involved in purchasing water, I was wondering about the endangered fish being represented by municipalities. For example, Los Angeles buying water rights for the endangered fish, and at the same time, representing their own interests. One example might be the Grand Valley's fifteen mile reach, where the River is currently dewatered, and water could be saved in the Valley by lining canals. This would return water to the fifteen mile reach for the fish, and, at the same time, if Los Angeles was interested in purchasing the water, it could continue down into the basin. Are there any proposals that demonstrate benefits to both endangered species and municipalities?

James Booker: I am certainly not aware of any. It is certainly clear that, for the most part, increased instream flows for endangered fish protection will be something that is very beneficial to Metropolitan because that water ends up at their intake, by not being consumptively used further up. In the particular case that you cite in the Grand Valley, Met would probably not have a large interest in that water for consumptive use purposes because the water returns to the River at one point or another, regardless. Met might have a salinity interest for reducing the seepage of irrigation water over the Mancos Shale, which increases the salinity in the River.

Question: Currently, Grand Valley wants to protect its water right. It is the water that is going through the bottom of those canals that the Denver Water Board has expressed an interest in being diverted to the eastern slope. Therefore, it seems like that would be in the interest of Los Angeles to see that water stay in the basin.

James Booker: I would agree that if there was some possibility of utilizing that water in the Upper Basin through those efficiency improvements, then Met would have an interest in seeing that it did not happen.

Question: Jim Booker, I thought that your presentation was very interesting. Do you have a booklet on this?

James Booker: Yes, there is a report published by the Colorado Water Resources Research Institute that gives the details of the research. It is Completion Report No. 161, available from the Bulletin Room, Aylesworth Hall, CSU, Fort Collins, CO 80523 for \$7.00.

Question: Why aren't the Indian water rights addressed, I mean, is it not time to finally admit that they have reserved rights and they should be at the very forefront of the senior water right issue?

James Booker: I am absolutely guilty of not dealing with Indian water rights in this report. I might note, in terms of marketing Indian water rights, I see the market for those involving, someplace in the basin, the removal from consumptive use of some currently irrigated land. Because that is the only way in which additional wet water will be generated. The mechanics of that, I have no idea about, but that is the way in which water would be available to downstream users.

Question: I agree with that, and I guess that until you have a shortage, you really do not know who controls the water. I certainly hope that the Indians' time has come, and that the states are more reflective of their interests.

Earlier, a gentleman asked what is the reason and logic behind precluding people from these discussions? I find that a little bit strange. I think there are some people here who are very capable of thinking creatively in terms of water banking and various other things. We come down to the paradox that has been raised here -- we are talking about the fact that Los Angeles needs water and they are in a very junior position. It is very obvious, I think, that there are only three ways for a junior to get water from a senior: (1) steal it, fair and square -- L.A. is pretty good at that; (2) Buy it; or (3) lease it. Then we talk about a less reliant California on Colorado water, but it is California who is adroitly coming forth with the water banking proposal, which makes them more able to utilize that water without any mention of payment. I am simplifying the scenario, but what do you think?

Gerald Zimmerman: I totally agree that we have to have discussions among all the states, and it should not be just the states, or just the states and the tribes. Within Colorado, there has been an advisory group that has formed, within Arizona the same thing has occurred and within California while the conceptual approach was developed, we involved a number of people. I think that we are trying to broaden the discussion among various user groups within each of the states, and bring those people into the ongoing discussions among the states and now the tribes.

Question: I think that is very smart, but how does that make California less reliant and bring their use back down to 4.4 million acre-feet? In other words, aren't you allowing a situation where California will actually be permanently using more than 4.4 million acre-feet? That brings up, why don't we just lease it to them, and, therefore, establish our legal right to the water, in the meantime, they are going to have to pay for it. I think they are willing to do that, and that avoids the Congress and the courts, which is an incredible threat because California has 56 votes and we have very few. It is pretty obvious that if it goes to that political dimension, we are not in very good shape. Does a lease establish and maintain the legal right to the water, and does it also satisfy California with the ability to pay for that water, rather than hoping that we do not have to go to Congress or the courts?

James Lochhead: Well, part of what Governor Romer put on the table a year ago was the idea that recognizing California needs a relatively short-term continued dependence on an over supply from the River -- let me mention that what we are talking about is, in essence, sliding Metropolitan's priority down within California's basic allocation. California does have the right to use more than 4.4 million acre-feet in surplus conditions on the River. In normal years, Metropolitan's yield needs to be firmed up within the basic allocation. California was in a severe drought, the L.A. area was facing severe water restrictions, and Governor Romer put on the table the idea of allowing

Met to continue to take a full pipe over a defined period of time, while California reduces that dependence. That also introduced the idea of California providing some compensation to the other states, be it monetary or otherwise. At the same time, there are a lot of legal and policy concerns about any such arrangement. In essence, the Governor wanted to initiate these discussions so that there could be a free flowing dialogue between the states. He wanted to bring out some issues that, previously, the states have been afraid to put on the table. He realized that they needed to be put on the table, so that we can start coming to grips with some of these issues, and deal with them before it is too late and solutions are imposed on us by Congress or by the Bureau of Reclamation.

Gerald Zimmerman: Just to add a little a bit on to that, Jim has mentioned that by the year 2010, California will increase its demand for water by one-million acre-feet. California has identified programs, within the state of California, that can be implemented to reduce its use or make additional supplies available to California, those programs total 2.2 million acre-feet. Those are the programs that California is currently pursuing and intends to implement to meet its future water supply demands.

Question: This question is for Mr. Booker. The question is perhaps, a request for clarification and expansion. In your conclusion, as you were giving us your prediction of the possible future water bank, you stated, and I am not clear whether it was a conclusion or an assumption, that 50% of the water would come from the Upper Basin and 50% from the Lower Basin. If this was either an assumption or a conclusion, does it mean the economic value of water is the same in both basins, and how do you arrive at that position?

James Booker: I estimated, from the model, that about 150,000 acre-feet would come from the Upper Basin and about 100,000 acre-feet from the Lower Basin. That is arrived at by the marginal economic value - - the least valuable water use in the Upper and the Lower Basin being very much the same. In fact, for that transfer, I am looking at about \$20 per acre-foot, as the value to agricultural users that have sold that water.

Question: Did you identify where that water is coming from -- are those specific crops that you identified as having the least value?

James Booker: That is largely hay production within the model. As for geographical distribution, within the Upper and Lower Basin, I have not identified that.

Question: Mr. Zimmerman, did I understand you correctly to say that the irrigation agencies in the Imperial Valley and other parts of southern California buy their water or allocated their water on the basis of how much acreage they irrigate, rather than on the quantity of water they use?

Gerald Zimmerman: That is correct. The number one priority within California, in accordance with the seven party agreement that divides

California's apportionment of Colorado River water, is Palo Verde Irrigation District. Palo Verde can use all the water it needs to irrigate 104,000 acres. The second priority is Bard Irrigation District and the Zuechan Indian tribe, which can irrigate 25,000 acres. The third priority is the Imperial Irrigation District and Coachello Valley Water District. The Imperial can irrigate 500,000 acres, and Coachello can irrigate 67,000 acres. The only restriction on those first three priorities is that the aggregate must be within 3.85 million acre-feet. Then Metropolitan has the fourth priority for 550,000 acre-feet and the fifth priority for another 612,000 acre-feet. The sixth priority is shared by Imperial, Coachella, and Palo Verde for 300,000 acre-feet. There is also a seventh priority where each of the agencies that have surplus contracts can take surplus water. Metropolitan's total right is about 1.3 million acre-feet. The total contractual right, within California, is 5.362 million acre-feet.

Question: Therefore, the reason we are having this showdown is because, perhaps, one million acres of California are irrigated with no incentive for conservation? I do not see any incentive there.

Gerald Zimmerman: There is incentive for conservation. The State Water Resources Control Board requires that best manager practices be implemented within the agricultural community of California. Also the Bureau of Reclamation, in its Part 417 Regulations, require that conservation programs for each of the districts be submitted annually with its request for water. We are suggesting that this practice also occur within all of the basin states, not only in California where we are restricted in the amount of water that can be used.

James Lochhead: I would like to conduct an audience participation activity. I would be interested to see what the audience thinks about some of these issues. First of all we are throwing out all the complexities of the Law of the River and making the assumption that, regardless of legality, water marketing can be undertaken.

How many people feel that irrigators in the Upper Basin, in Colorado, should be able to dry up their land if they choose to, and market that water to southern California or Nevada?

I noticed that Tom Cahill from Nevada was the first one to raise his hand.

How many people feel that irrigators in the Upper Basin should not be able to do this, and there should be some protection?

It appears, from the show of hands, that the audience is pretty evenly split.

Here are some more questions to consider:

How many people feel that, assuming there is an unused entitlement for Colorado, the Upper Basin, or for Indian tribes, that we, as Coloradans, should be able to lease or sell that unused entitlement -- give that up to the Lower Basin? How many people feel that we should permanently our entitlement up? How many people feel we should not? How many people feel that we should be able to lease the water,

for a short period of time, if we are certain that we can get it back?

Question: I have to ask Gerald, is anyone in California going to purchase that water we are trying to lease?

James Lochhead: In these considerations, I threw out the Law of the River.

Gerald Zimmerman: Currently, our position within California is that we believe that we are entitled to use the water without paying for it. However, under certain circumstances, I think that we would be willing, and we have indicated our willingness, to discuss those type of arrangements. Our policy is to discuss wet water transfers and wet water banking, but we are willing to discuss any proposal that is offered.

Question: I would like to know, from Mr. Zimmerman, how much of this discussion is based on California's thought that the water you receive you intend to continue to use? In other words, along the line of "use it or lose it," if we allow you to use our water, are you then going to say, "We are using it, to heck with you fellows."

Gerald Zimmerman: As I indicated earlier the phrase "use it or lose it" has no foundation when we are talking about the interstate apportionments of water. The assumption that the Governor made in his water policy statement is that California will be limited to 4.4 million acre-feet, at certain times on the River. The Governor and the State is working toward that end. We are trying to implement programs that would reduce our use to the 4.4 million acre-feet, and at the same time provide Metropolitan Water District with a full aqueduct of up to 1.3 million acre-feet. We are assuming, and I think everyone in the discussion is assuming that the Law of the River prevails, and the apportionments prevail. We would like to find a way to meet all of the needs within California in the short term, while we are reducing our demands on the Colorado River to our basic apportionment. However, we do want to continue to enjoy the use of excess and surplus water, when it is available, in accordance with the existing Law of the River.

Nevada's Perspective

Thomas Cahill
Director, Colorado River Commission, Nevada

One of the disadvantages of being scheduled to speak late in the program is that those who have gone before you have said much of what you had intended to say, well, I am going to repeat it anyway.

Over the past year I have gotten to know Jim Lochhead through a number of meetings that we have had. I have found him to be an excellent attorney, who represents Colorado's interests very well. As most attorneys in private practice, he not only deals in water law, but occasionally, he gets involved in probate matters. Attorney in private practice get involved in probate for a couple of reasons: one, they have friends who believe that they are competent and can help them with their estate planning, and, secondly, they have acquaintances who think they can get the job done for nothing. One of Jim's clients happened to be approaching his demise. He was in the hospital and his relatives called Jim to come in to see if there was anything that his client might want to elaborate on before his end. Jim arrived and found his client in bed and he was hooked up to oxygen and all sorts of mechanisms to keep him going. The conversation between the relatives continued, and all of a sudden the client started gesturing madly and waving his arms. He grabbed a piece of paper, wrote down a note, handed it to Jim, and promptly expired. When things settled down, and became calm again, the relatives, who thought perhaps what had been written down on that paper might have some bearing on the client's last wishes, asked Jim what it said. In the commotion, Jim had forgotten the note, so he reached in his pocket and pulled it out. It said, "you are standing on the hose." Now, it is my sincere hope that Nevada has more hoses than Jim has feet.

In 1928, when the Colorado River Compact was acknowledged and ratified by passage of the Boulder Canyon Project Act, the total population of Park County, Nevada was less than 9,000. It was a bare, rocky desert, with low rainfall, low humidity, high temperature, and a high percentage of sunny days. Except for small areas with dependable irrigation water supplies, there was no agricultural production.

By 1940, the population had nearly doubled to a little over 16,000. Construction of Boulder Dam and the related activities had triggered the establishment of Boulder City. The availability of cheap electricity and the inevitable march toward World War II had fueled industrial development. At war's end, the expansion of the gaming industry and the entertainment industry fueled additional growth.

Between 1940 and 1957, the population of Clark County had grown by 100,000 people. At that time, as part of Nevada's exhibits in Arizona vs. California, Nevada projected that by the year 2000, the population of Clark County would grow to 600,000, and by 2060, the population would be 1,800,000.

Those projections were woefully inaccurate and inadequate. In 1990, the population served by the various water purveyors had reached

775,000. By 2000, those same populations are projected to reach 1,100,000. By 2030, they are projected to reach 1,700,000. The 1957 projections were 500,000 short and 30 years late.

Water supplies that were originally projected to be needed in 2030 are now projected to be needed, without conservation, in 2002. Even with a responsible program of water conservation measures, Nevada's present allocation from the mainstream of the Colorado River will only meet demands until 2006.

Under the Boulder Canyon Project Act, Nevada's allocated annual beneficial consumptive use is 300,000 acre-feet of water from the mainstream of the Colorado River. In 1991, Nevada's consumptive uses totaled 187,192 acre-feet. Under contracts executed March 2, 1992, Nevada anticipates diversions amounting to 474,850 acre-feet, annually. Return flows are expected to total 174,850 acre-feet, leaving the consumptive use of 300,000 acre-feet.

As has been mentioned, at present Nevada and Arizona are not using their full allocation or apportionment of mainstream Colorado River water. Under the Boulder Canyon Project Act, California can, and is, using most of the unused apportionments of Arizona and California. As Nevada and Arizona's uses increase, California will be required to find other sources to satisfy its future needs. Mr. Zimmerman and Mr. Georgeson, yesterday, talked about the options that California has and identified a number of within-state options that they have. Unfortunately, Nevada does not have comparable within-state options. Commercial agricultural uses of water from the Colorado River or its tributaries are non-existent in Nevada.

At the present time, the Nevada Initiative Team, made up of representatives from the Colorado River Commission, the Southern Nevada Water Authority, and the individual purveyor members of the Southern Nevada Water Authority, are busily identifying and evaluating alternative sources of water than can be used to meet Nevada's future needs. These alternatives, which rely on Colorado River water include: first, acquiring existing Colorado River contracts; second, using Nevada's Colorado River tributary water, desalting ocean water for exchange, transferring Colorado River water from other Colorado River basin states, acquiring Colorado River water from weather modification, and, finally, obtaining water from interstate or inter-basin imports into the Colorado River.

The most likely first source of supply will be from two contracts that either expire in the near future, or are presently not being used. The Southern Nevada Water Authority is presently negotiating with those entities and I expect that to come to fruition in the near future. Those transfers can be made without any changes in the existing Law of the River.

The Virgin River is a major Lower Basin tributary of the Colorado River. It's drainage basin covers an area of 1,740 square miles. It flows through parts of Arizona, Nevada, and Utah. Preliminary estimates of the average flows into Lake Mead are approximately 156,000 acre-feet per year. The maximum discharge was estimated to be 440,000 acre-feet in 1983, and the minimum was 62,000 acre-feet in 1934.

The Las Vegas Valley Water District is cooperating with the Bureau of Reclamation in a feasibility study to develop a dual purpose salinity control and water supply project on the Virgin River Basin

in Nevada. The objective of the three-year study is to determine the technical, economic, and environmental feasibility of a project that will divert saline water from the Virgin River somewhere between the Nevada-Arizona state line and Lake Mead, then desalt it and deliver it to the Las Vegas Valley.

Preliminary efforts are underway to determine allocation of available water for use in each of those three states. As a first step, a memorandum of understanding has been entered into by Nevada, Utah, and Arizona. Under it, the three states will undertake a cooperative data collection effort that should identify the extent of the resources and demands that may be asserted by the three states. Although it is not in the present memorandum of understanding, we hope that the data that is collected will then serve as a basis to facilitate an equitable apportionment between Arizona, Nevada, and Utah.

The most economical way to deliver water to the Las Vegas Valley from the Virgin River would be to allow that water to naturally flow into Lake Mead and then have the same amount of water diverted from Lake Mead through the southern Nevada water system. However, the legal ability of Nevada to use the Colorado River system as a means of conveyance may be constrained by the opinion and decree in Arizona vs. California.

We have looked at the potential of desalting. We have had discussions with the Metropolitan Water District and have explored the possibility of Nevada, eventually, participating in a desalting program that would include the Metropolitan Water District. If it is determined to be in Nevada's best interest to cooperate in that desalinization program, arrangements for Nevada to use a portion of California's allocation, in return for the desalted water would have to be structured and implemented. However, inasmuch as the desalted water would be new water in the system, we feel that the regulatory obstacles for making that exchange would be minimal.

Tribal waters were discussed yesterday. The Indians suggest that they have a right to use and develop allocated amounts of water from the Colorado River, and that they can transfer or lease those rights to non-Indians, irrespective of state boundaries and Compact allocations. Some of those tribes may have a desire to market those rights to Nevada. Until we fully understand the positions of the tribes, the water to be transferred and the length of any such transfers, it is impossible to identify the feasibility of those transfers. However, we are exploring the possibility of leasing Indian water rights on a long-term basis to satisfy future needs in southern Nevada.

On the surface, weather modification appears to offer an excellent opportunity for augmenting the water supply of the river. The Bureau of Reclamation estimates that the basin inflows can be increased by one and one-half million acre-feet per year or more through implementation of a large-scale cloud seeding effort. However, weather modification is not a proven technology. Before proceeding with a large-scale effort, a demonstration program is needed to validate, quantify, and transfer cloud seeding technology within the Colorado River Basin. Nevada, together with representatives from the other six basin states, have entered into an agreement with the Bureau of Reclamation to develop a program to

describe the technical basis, activities, and costs of that demonstration program. The program plan is scheduled to be completed by the end of the year.

In the last quarter century, the rates of population and economic growth in the deserts of the southwest have exceeded those in all other areas of our nation. Continuation of that growth is critical to our country's economy and well-being. Yet, development of the southwest is fast approaching the limits that available water resources can support. Something must be done soon to augment those supplies so that the southwest can continue to drive the nation's economy.

In 1968, Congress declared that there was a national obligation to augment the supplies in the Colorado River by one and one-half million acre-feet to offset the Mexican Treaty obligation. The cost of replacing that water through importation was to be paid by the nation, as a whole. Congress took that action in recognition of the fact that the supply of that magnitude had been granted to Mexico at the expense of development in the Basin states, in the interest of promoting international comity.

Nearly one-quarter of a century has passed without any action having been taken to implement Congress' decision to free the seven Colorado River Basin states of the burden of that concession to Mexico. In 1991, the Nevada legislature directed the Colorado River Commission to negotiate with other states, the United States, foreign countries, and non-governmental persons concerning the interstate or international transfer of water to supplement the supply of water in the Colorado River; water, which would then be available for use in Nevada.

The time is now ripe to take a serious look at how that national obligation can be met, and how the seven states can join collectively with the Federal government in a project that will assure the development potentials of the southwest will be realized throughout the foreseeable future.

There has been a lot of talk in the last few days about the Law of the River. The Law of the River is a unique body of law, but it is not a monolith. It consists of two compacts, an international treaty, numerous enactments of Federal and state legislation, numerous judicial decisions and a roomful of regulations that interpret and implement the compacts, the treaty, the statutes, and those judicial decisions.

Depending on your point of view, the Law of the River can be viewed as either static or dynamic. Those who wish to maintain the status quo claim that it is static, and those who wish to make changes view it as dynamic. In reality, it has never been static. From the time of the first settlement in the southwest, the Law of the River has been continually evolving. That evolution has been triggered by competing needs and the continued desire of those using the river to expand and maximize the possibility of obtaining their own particular goals.

In the early years, prior to the negotiation of the 1922 Compact, the Lower Basin states wished to develop the River to meet the needs of a rapidly growing population and economic base. The Upper Basin states, which were growing at a much slower rate, wished to preserve their ability for future growth. The end result was the 1922 Colorado

River Compact. When the Lower Basin states wished to build Boulder Canyon Dam, in order to more readily use the waters of the river, they pushed for enactment of the Boulder Canyon Project Act. When the United States wished to enhance its relationships with Mexico, we entered into an international treaty that guarantees one and one-half million acre-feet to Mexico. Following World War II, when the Upper Basin states wished to accelerate the development of their allocations, they entered into the Upper Colorado River Basin Compact. As they wished to develop their allocated shares, they pushed for and acceded in the enactment of the Colorado River Storage Project Act of 1956. When Congress told Arizona it would not authorize construction of the Central Arizona Project until Arizona showed that it had a firm water supply, Arizona sued California. After 12 years of litigation, the Supreme Court agreed that Arizona had the right to develop 2.8 million acre-feet, in addition to the existing uses on the Gila River and its tributaries. However, California's political influence then required Arizona to subjugate its rights to develop the Central Arizona Project to California's rights to use their full 4.4 million acre-feet entitlement.

Since the early 1960's, environmental concerns have added an additional gloss to the Law of the River. Since its creation in 1935, the Colorado River Commission has been empowered to receive, protect, safeguard, and hold in trust for the state of Nevada all water and water rights held by, or which may accrue to the state of Nevada from the Colorado River. In 1991, the legislature reasserted and broadened the Commission's mandate to represent the state in efforts to obtain water through interstate or international transfers, through weather modification and salinity control, and through better operation of Federal facilities.

We now have been thrust into two marketplaces. The first marketplace is one in which economics will play a major role. The second, and more important marketplace, is a marketplace of ideas. It is in this marketplace that we face our greatest challenges. As we continue to identify and focus on alternatives, our efforts include a concomitant and constant reappraisal of the Law of the River. Some of the alternatives that we are examining may require substantial changes, while others may simply require fine-tuning.

As Nevada continues to explore these alternatives, we will try and focus on those that bring us the most water on a permanent basis with the least amount of change.

The View From Arizona

Betsy Rieke
Director, Arizona Department of Water Resources

I hope that you will not assume that because Arizona is the last of the basin states on the program, we are the last in right on the Colorado River.

I. Introduction

John Gunther once wrote, "touch water in the west and you touch everything." Over the last three days, we have seen just how true that is, and how each touch in the Colorado River Basin produces a passionate response from someone. I am here today to provide insight in to the state of Arizona's perspective on contemporary Colorado River issues. I want to start by reviewing the factors that have shaped our perspective. These include historical events, uncertain legal obligations, hydrologic constraints on the river, the relative political and economic power of the states, and the fact that the Grand Canyon is within the basin, and, moreover within the state of Arizona.

II. Factors that Shape the Arizona Perspective

A. Historical Events

In discussing the historical events, I will necessarily review the Law of the River because it provides the framework, whether obsolete or not, for our current deliberations.

The historical events surrounding the Colorado River have led to a deep-seated antagonism toward, and a suspicion of, our neighbor, California. I would like to think that the open antagonism between those two states is diminishing. However I think all Arizonans retain a healthy suspicion of California.

The history of the Arizona-California relations, with respect to the Colorado river, can be summarized as follows: each state sought to maximize its share of the Colorado River at the other's expense. Arizona opposed all the agreements and projects that might unduly benefit California, and California returned that favor in spades.

1. Colorado Compact of 1922

Let's begin with the Colorado River Compact of 1922. You have heard that the Compact provided a permanent entitlement of 7.5 million acre-feet to each basin, Upper and Lower. However, it did not further apportion the river among the states. Arizona opposed that Compact for years. Arizona finally ratified it in 1944, and then only grudgingly. Because the Compact apportioned the water between the basins, but not among the states, Arizona felt that if it were ratified, it would protect the Upper Basin states against California, but would leave Arizona, essentially, alone to face California. Where

was Nevada when we needed her? Her population, water use, and projected growth were so small at the time that she was not even a player.

Arizona also feared that the principle of prior appropriation might apply among the Lower Basin states, and we all know who would have lost in that situation - Arizona and Nevada. Furthermore, Arizona feared, and rightly so, that the Compact would lead to the construction of Boulder Dam. The dam would reduce the flooding in the Lower Basin, and therefore pave the way for 1) diversion of Colorado River water to southern California and 2) expansion of Mexican agriculture. What would be left for Arizona after the Upper Basin, California, and Mexico received their shares? Not enough.

Arizona had a further problem with the Compact. The Compact apportionment applied to the Colorado River System, which was defined to include the Colorado River and its tributaries. Arizona had a number of tributaries to the Colorado River, most significantly the Gila River, which were then estimated to contribute 2-3 million acre-feet to the river. California tributaries contributed next to nothing. Arizona did not want its tributaries to count against the Lower Basin's 7.5 million acre-feet share. For all these reasons, Arizona opposed the Compact until the 1940's.

2. Boulder Canyon Project Act, Parker Dam and California Aqueduct

The Boulder Canyon Project Act, Parker Dam, and the California aqueduct were all projects in the late 1920's and the 1930's to develop the Lower Colorado River. Arizona opposed each of those projects with vigor and no success. Collectively, these projects allowed Metropolitan Water District to import water to southern California. In 1933, Arizona even sent its Navy to the Colorado River to prevent the construction of Parker Dam. Let me read to you an amusing excerpt from a history of Arizona.

"Because Parker Dam was specifically designed to deliver water to California, [Arizona's] Governor Moeur sent the Arizona National Guard to the east bank of the River and prohibited the [California] construction workers from touching the sacred soil of old Arizona. The guardsmen eagerly set up machine gun emplacements aimed at California. The gesture got the attention of the wary workers and the Secretary of Interior Harold Ickes called a temporary halt to the project.

One night a party of guardsmen borrowed a couple of relic steamboats from a colorful river pilot named Nellie Bush and, under cover of darkness, headed towards the 'enemy' shores of California. Unfortunately, the 'Arizona Navy' got tangled in some cables and had to be rescued by the 'enemy.' The incident made the national newspapers and caused a few red faces among some saber-rattling Arizonans. Shortly thereafter, the U.S. Supreme Court got into the act and ordered Governor Moeur to bring his troops home."

That little contingent was allegedly only six National Guardsmen. Needless to say, it is one of the most embarrassing episodes in

Arizona's long rivalry with the state of California. Ironically, the diversion works for the Central Arizona Project, which allows Arizona to divert its remaining Colorado River entitlement and bring it to central and southern Arizona are located behind Parker Dam, the dam which we so adamantly opposed in the 1930's.

3. Arizona v. California Lawsuit

The next series of events are the Arizona v. California decision, about which you have heard so much and the authorization of the Central Arizona Project. Throughout the 1940's and the early 1950's, California opposed Arizona's efforts to obtain Congressional authorization of the Central Arizona Project on the grounds that Arizona's right to use Colorado River water was not settled. In 1952, Arizona filed suit in the Supreme Court to resolve the issues surrounding its Colorado River water rights. It was a long, expensive, rancorous lawsuit, which lasted until 1963.

Arizona was victorious on two key issues. First, the Supreme Court ruled that the Boulder Canyon Project Act had effected a complete Congressional apportionment of the mainstem water among California, Arizona, and Nevada. It rejected California's contention that the law of prior appropriation and the doctrine of equitable apportionment (which is based on the law of prior appropriation) should apply to the Lower Colorado River. Therefore, instead of *first in time, first in right*, Arizona was given permanent, quantified apportionments that we could put to use over time. This was a critical development in the Lower Basin. As you have heard several times, the apportionments were 4.4 million acre-feet for California, 2.8 million acre-feet for Arizona, 0.3 million acre-feet for Nevada. Those figures are for a normal year. In the case of a surplus, 50% of the excess would go to California, 46% to Arizona, and 4% to Nevada.

The second critical issue concerned the tributaries of the Colorado River. The Supreme Court held that the Boulder Canyon Project Act apportioned only the mainstem of the Colorado River. The tributaries were not included in the apportionment, but remained for the exclusive use of each state. Therefore, Arizona was able to hold on to its precious Gila River water.

Arizona's victory proved to be short-lived. What we had won in court, we promptly lost, in part, in Congress. In 1968, the Congress passed the Colorado River Basin Project Act, which authorized the construction of the long sought after Central Arizona Project. With that authorization, came a bitter pill that has stuck in the throats of many Arizonans. Instead of sharing the shortages with the other Lower Basin users, the bitter pill forced the CAP to be junior to other existing users. CAP became junior to California's entire 4.4 million acre-feet entitlement. The consequence is that CAP will bear the first risk of shortages. California insisted on that provision as its price for Congressional authorization of the CAP. In effect, California succeeded in imposing *first in time, first in right*, the law of prior appropriation, on the Central Arizona Project.

B. Uncertain Legal Obligations

A second key provision in the Colorado River Basin Project Act relates to Arizona's uncertain legal obligations. Congress recognized that the Colorado River system flows were insufficient to satisfy the needs of the Lower and Upper basins, and also satisfy the 1.5 million acre-feet obligation under the 1944 Mexican Water Treaty. Congress concluded, "there can be no lasting solution to the water problems and disputes of the states of the Colorado River without the addition of more water." Twenty-four years later, that sounds like a fairly far-sighted statement.

Congress declared that the "satisfaction of the Mexican Water Treaty from the Colorado River" to be "a national obligation" to be satisfied by augmentation of the Colorado River. However, prior to augmentation, Congress reaffirmed that the satisfaction of that obligation falls on the Upper and Lower basin states, unless there is surplus water available. We have not seen any significant augmentation to date. The burden of the Mexican Treaty obligations contributes to the uncertain future for the Colorado River Basin including Arizona.

C. Hydrologic Constraints

Another factor in forming Arizona's perspective on the Colorado River are the hydrologic constraints. John Carlson's paper, which I commend to all of you, has many innovative legal theories, many of which Arizona would probably not support, but it also has a very fine discussion of the Law of the River, and the places where there are ambiguities, uncertainties, and unresolved issues. As John and others have illustrated, the mathematics of the Law of the River simply have not worked. The Upper Basin is to receive 7.5 million acre-feet; the Lower Basin 7.5 million acre-feet; the Lower Basin an additional 1 million acre-feet; the Mexican Treaty obligation is 1.5 million acre-feet. All of this totals up to 17.5 million acre-feet. As you have heard, the virgin flow at Lee's Ferry dramatically varies: The average flow from 1922 to 1985 was 14.3 million acre-feet; from 1953 - 1964, 11.6 million acre-feet; from 1584 - 1593 (based on tree ring projections) , 9.7 million acre-feet; and from 1130 - 1180 based on the worst drought in the tree ring history.

When you combine the fact that the Law of the River is based on inflated projections of annual flows, with the fact that Arizona is downstream from the Upper Basin, which is the source of most of the river flows, and the fact that CAP is junior to most other Colorado River users in the Lower Basin, Arizona has reason to be concerned. The CAP bears the risk of shortages in the Lower Basin.

D. Relative Political and Economic Power of the Lower Basin States

Another factor in forming Arizona's perspective is the relative power, both economic and political of the Lower Basin states. As a political power, Arizona is in decline. Our heyday was from the 1940's through 1990, when Arizona's Carl Hayden was in Congress longer than anyone has ever been in Congress, and, therefore, by the law of seniority, rose to a significant position of influence. In the past, we also had Barry Goldwater, John Rhodes and Mo Udall, who became the Chairman of the House Interior and Insular Affairs Committee. Today,

Hayden, Goldwater, John Rhodes and Udall are all gone. Udall has been replaced by Californian Congressman, Representative George Miller, who is the Chair of the House Interior and Insular Affairs Committee (newly named House Natural Resources Committee). The solace to Arizona is that he probably dislikes Metropolitan Water District as much as Arizonans do.

As you have heard, the California delegation will grow by seven in 1993. Fortunately, Arizona's delegation will grow by one, but that only brings us to six House members.

Fortunately, the New Jersey Compromise that underlies the United States Constitution and established the United States Senate still prevails, and Arizona, California and all other states have equal representation there. Even more fortunately for Arizona, California may well have two brand new female senators; if so, they will be very junior, and, therefore, without as much influence as the far more senior Arizona senators.

Now let's consider relative economic power. California is the eighth largest economy in the world. It is adding almost enough population to equal a new Phoenix every year. Gerald Zimmerman addressed California's increasing water demand. Nevada is likewise growing at a very rapid pace. Clark County, the home of Las Vegas, has significant dollar resources ready, willing, and able to buy water from willing sellers.

E. Grand Canyon

Let me talk very briefly about the one other factor in forming Arizona's perspective that has been largely omitted from this conference, and that is the Grand Canyon. Arizona is the home of the Grand Canyon. It is clearly a national treasure, and it belongs to all of us. You have all heard about the debates over the Glen Canyon Dam releases; the releases from the dam that forms Lake Powell; the releases that are necessary to provide peaking power to power users around the southwest. The state of Arizona has taken the position that we must revamp those releases from Lake Powell, in order to protect the beaches within the Grand Canyon and the fragile ecosystem within the Grand Canyon. The state supports the establishment of release regimes that will protect the Grand Canyon.

III. Arizona's Perspective

Turning now, to the consequences of these factors. Arizona's perspective (shaped by history, uncertain legal obligations, the hydrologic constraints on the Colorado River, and its relative political and economic power) leads it to be extraordinarily wary and generally resistant to additional use of water from the Colorado River System. Regardless of whether those additional uses are due to 1) changing the circumstances under which a declaration of surplus is issued, 2) interstate banking, which could result in allocation of some of the storage space in Lake Mead to individual states or entities rather than to the three Lower Basin states, or 3) interstate leasing of Colorado River water that would not otherwise be used by the right holder, Arizona is generally resistant to such change.

Each of those proposals is currently being discussed among the

Colorado River Basin states. Does that mean Arizona takes a position that the status quo on the river must be preserved at all costs? No, that would be foolish. The status quo on the river is not going to be preserved, it is going to change. We do take the position that changes must take into account possible damage to Arizona's interests.

Let me illustrate by discussing the ongoing Lower Basin negotiations among Arizona, California, and Nevada, which have been under way since January of this year. The three primary representatives are here today: California's representative is Gerald Zimmerman, Tom Cahill represents Nevada, and I represent Arizona.

In those negotiations, California is seeking additional water for California off the Colorado River through 1) changing the circumstances under which a surplus is declared and 2) interstate banking. California's motivation is a need to keep the California aqueduct to southern California, to Metropolitan Water District's customers, full. The average aqueduct capacity is 1.2 million acre-feet. However, as you have heard, of the 4.4 million acre-feet apportionment to California, in a normal year, Metropolitan Water District has the right to only 0.55 million acre-feet.

To date, California has been able to keep that aqueduct full by using Arizona and Nevada's unused apportionments. In a normal year, Arizona has a right to 2.8 million acre-feet. We have not used more than approximately 2.2 million acre-feet. However, as the CAP comes on line, it is projected that Arizona will eventually move to its 2.8 million acre-feet entitlement. Nevada has a 0.3 million acre-feet entitlement. To date, Nevada has used no more than approximately 0.2 million acre-feet, but it will soon be at 0.3 million acre-feet. At which time, in a normal year, California will no longer be able to rely on the unused apportionments of Arizona and Nevada. As the two other states stairstep up to their full entitlements, California has to stairstep down, in a normal year, to its 4.4 million acre-foot entitlement. The total use in the Lower Basin, the total use by the three states, California, Nevada and Arizona, may not exceed 7.5 million acre-feet in a normal year.

What has California put on the table to deal with these issues? First, it has put on the table a change in the circumstances under which a surplus is declared. Because there is so much water in storage in the Colorado River System now, California says the likelihood of a shortage in the near future is infinitesimal. Therefore, why not declare a surplus more frequently, allow California to take its share of that surplus, which is half, and thereby give California the additional water it needs to keep the aqueduct full? Who bears the risk of the shortages in the Lower Basin if water is released from Lake Mead now, and not saved for the future? Arizona. If we set the precedent of declaring surpluses to provide more water for California now, that may mean less water for Arizona later. There is the risk that the water will not be in Lake Mead when Arizona needs it during a time of shortage.

The response to this dilemma has been a very innovative project that is at the stage of conceptual agreement between California and Arizona. Nevada has also indicated an interest in joining this project. Under the project, the water that Arizona has a right to use from the Colorado River but is not currently using, would be stored in Arizona's aquifers. The Metropolitan Water District would pay to

bring this water through the Central Arizona Project and into Arizona's aquifers. The water can be added to the aquifer either by supplying an irrigation district, that relies on groundwater, with Colorado River water and thereby leaving their normal supply in the aquifer, or by actually artificially recharging the water into the aquifer.

If a declaration of shortage occurs before a declaration of surplus, Arizona receives the right to the stored water. If a declaration of surplus occurs first, and California is quite certain it will occur first, Metropolitan Water District receives the credit for the water stored in Arizona. Metropolitan will be able to exercise those credits by taking at some time in the future a share of Arizona's Colorado River water. It is not feasible for Metropolitan to retrieve that water stored in Arizona aquifers. In essence, Arizona would allow Metropolitan to take some of its Colorado River water, and if Arizona needed additional water in that year, it would turn to the water stored under the project.

This innovative proposal illustrates the types of solutions that can be developed when parties try to understand each other's positions, interests, and concerns. This proposed storage program provides Arizona with risk protection water -- protection against future shortages on the Colorado River.

Another way to provide that same protection would be for California to relieve the Central Arizona Project of the risk of shortages that it imposed, as the price of authorization of the Central Arizona Project. When Arizona suggests this, California just smiles and says very little.

The second California proposal on the table in the Lower Basin states negotiations is interstate banking. Just as a declaration of surplus in average years potentially depletes the amount of stored water available to Arizona in a shortage, so could interstate banking. One approach is to bank the Colorado River water within the existing reservoirs in the system, one of which is Lake Mead. In a shortage situation, Arizona will want all the water in Lake Mead to be Lower Basin states water, not California water, not Metropolitan Water District water. Since Arizona bears the burden of the shortages, it cares who has a right to use the last drop in the reservoir.

We have been at the table since January. Some developments in Arizona will probably take the immediate pressure off of California to seek additional water from the river to keep the California aqueduct full. The total CAP supply available is currently about 1.5 million acre-feet per year. CAP deliveries started in Arizona in 1985. They increased every year until 1990. In 1990, the delivery was approximately 740,000 acre-feet. In 1991, CAP use declined substantially to 420,000 acre-feet. The decline is largely due to the decline in agricultural use, low commodity prices, low yields, high water costs, and pest problems. The decline in cropped acreage is likely to continue and it could worsen, due to individual farmer bankruptcies and potential bankruptcies of entire irrigation districts.

However, in the long run, Arizona, like California and Nevada, is a state with increasing urban growth and Arizona, will put most, if not all, of its CAP supply to use. Arizona has the right to do so over time, because the *use it or lose it* doctrine does not apply to

Colorado River entitlements. Those entitlements are in perpetuity.

What must California do in the long term? It must do exactly what it has committed to do -- solve its problem within California. It must not solve its problem on the backs of other Colorado River Basin states. We have heard that California is doing in increments exactly what we have urged it to do. Some examples of their efforts include the Imperial Irrigation District Agreement, resulting in conservation of water by Imperial Irrigation District; the Palo Verde Irrigation District fallowing program; the Imperial Irrigation District fallowing proposal; and the underground storage program in Arizona.

What is Nevada seeking? You have just heard from Tom Cahill. In negotiations, they are seeking both short-term and long-term water. Short-term water could be a bridge to a longer term supply from another source. Long-term water off the Colorado River, of course, would help solve their long-term growth problem. The Nevada interests believe that their growth, their contribution to the regional economy of the southwest, and their willingness to pay, entitle them to new water. That is the message that has echoed through the discussions with Nevada over the last several months.

Arizona is concerned by Nevada's sense that they are "entitled" to new water. Our response to Nevada is the same as our response to California, which is that they cannot solve their problems on the back of Arizona's Colorado River users. I am sure that you, in Colorado, would say they cannot solve their problem on your backs either.

In addition to the Lower Basin discussions, the discussions among Arizona, California, and Nevada, this fall we expect to see the beginnings of discussions among the seven Colorado River Basin states and a Tribal Partnership of ten Colorado River Basin tribes. Arizona's stance, with respect to those negotiations, is one of wariness. We are concerned that tribal leasing will mean the following: water that otherwise would not have been used, will be put to use. That could result in shortages to CAP. It also could have unintended consequences within Arizona if you play out the consequences of an Upper Basin tribe leasing water to Nevada that otherwise would have remained in the river and become a CAP supply. As a result of the lease, Colorado River use increases and that increased use potentially diminishes the CAP supply. Diminishment of the CAP supply means directly diminishing the CAP agricultural supply, because agriculture users in Arizona, unlike those in California, have the lowest priority. The agriculture users may well, then, rely more heavily on groundwater than they otherwise have done. That could have adverse effects on the groundwater supply of the neighboring tribes in central Arizona, The Gila River Indian Community and the Akchin Indian Community. The Gila River Indian Community has long been in court to seek a court injunction against the groundwater pumping by the irrigation districts that take the largest portion of the CAP agriculture supply.

Arizona's position to date, with respect to interstate leasing, whether by tribes or by anyone else, has been opposition. That opposition rests on our fear that we will be the losers. A task force appointed by the Governor has recently reaffirmed our opposition.

Let me say by way of conclusion: What has Arizona learned from these many years of entanglements over the Colorado River? We have

learned that what we win in the courts, California can take away in Congress. The same may be true of the Indian tribes. We have learned that court decisions tend to produce winners and losers, and we have learned that Congressional acts may do the same thing. Therefore, we prefer negotiated solutions. However, in those negotiations we will come to the table with the same fear we had in 1992, changed only by the addition of new players. We fear that after the needs of the Upper Basin, California, Nevada, the Indian tribes, and Mexico are met, there will not be enough water for Arizona.

**Proposals for Changing Institutions in the Basin
Panel Discussion**

Moderator: Richard Tisdel, Tisdel & Hockersmith,
Board Member, Colorado River Water Conservation District

Richard Tisdel: We have Colorado, California, Wyoming, Nevada and Arizona represented here today. I do not know when we will have the opportunity again for everyone to be on the hot seat at the same time.

California tends to be the villain in everyone's eyes, therefore, I would like to begin by allowing Gerald Zimmerman the opportunity to address some of the issues that have been raised since he last spoke.

Gerald Zimmerman: I would like to echo what Betsy has said, in that I think there has been a great deal of progress in the way in which we address the issues on the Colorado River. There are many positive things that are coming out of these discussions. Betsy mentioned the groundwater banking proposal in Arizona. That is an innovative, win-win program that is being pursued.

James Booker: I would like to mention that I see the opportunity of conjunctive use with the Arizona aquifers and other water users in the basin, such as California as being one of those innovative institutional arrangements that can really help us to stretch out this water as far as it can possibly go.

Question: I am a rural person with a rural perspective. Mr. Cahill indicated that they need to plan for growth. He suggested that growth has fueled the economy in the southwest, as well as the entire United States, and that we need to continue to grow. I have a problem with that because growth is dependent on water, and there is a finite supply of water. Therefore, there is a finite end to growth. I think that we need to plan in order to be economically viable without growth because there will be an end to growth. How soon that end comes, no one can know. As far as long planning is concerned, we need to plan for the end of that growth.

Tom Cahill: I think that we all face the issues involved in planning. I view our role as having the responsibility of giving the inhabitants of the country the opportunity to live where they want to.

Let me put it in a more personal context. About six months ago, my wife and I had the opportunity to move to Las Vegas from Wyoming. We were glad that there was water available to meet our needs. Since we have been there, our daughter, her husband and their two children moved to Las Vegas to seek employment and educational opportunities. Shortly afterwards, our son, his wife and their two children also moved to Las Vegas. My hope is that when they reach their educational goals they can be meaningfully employed and become responsible citizens. I would like for their children and grandchildren to have that same opportunity.

I do not feel the water supply is a deciding factor in location decisions. A common example is Tiajuana, where the city underwent tremendous growth during the 1950's and 1960's when they had possibly

the worst water supply in the world. Planners have the responsibility of being responsive to the needs of the public, and that is what we are trying to do in Nevada. We are trying to give the public options, so that they may do what it is they want to do when the time comes. It is not a goal of Nevada to have 1.5 million people, or 2 million, or whatever. I look at it in the context that we want to allow the inhabitants of the country to have as much freedom as possible when making decisions.

Questions: A viewpoint that has not been expressed at this conference is Utah's. While I am a resident of Utah, I am not speaking on Utah's behalf. I am going to open a hornet's nest with regard to the Virgin River. It is a Lower Basin river that flows in below Lee's Ferry, but most of the water originates in an Upper Basin state. I would like to know what claims Arizona and Nevada have on that river. Secondly, Tom Cahill mentioned the Memorandum of Understanding, and I would like to know what he sees as a settlement to those apportionment problems? Will it be settled by negotiations, some kind of a Compact, or something else?

Tom Cahill: Let me begin with the Memorandum of Understanding that the three states have entered into. It is, essentially, a base data collection agreement. We hope that the data base will include estimated future demands for all three of the states involved. We are optimistic that once the data base is available it can be used as a basis to enter into further negotiations concerning how that resource should be allocated. As to your last question concerning what form that allocation would take, we will address that when the time comes.

In dealing with the state of Utah, we have some ideas as to how water from the Virgin River should be put to use. I am sure that Betsy can tell you that they also have ideas about how that water ought to be put to use in Arizona. I would prefer to resolve those issues by a cooperative effort between the three states, rather than by litigation or flexing of the muscles in Congress.

Betsy Rieke: Let me just add that if we do resolve the potential conflicts among the users in these three states by a compact, well, as you have seen, compacts resolve issues forever.

Gerald Zimmerman: I would like to mention that there is, in fact, more than three states that have interests in tributary flows.

James Lochhead: I was going to mention the same thing. Betsy mentioned the one million acre-feet -- clearly a reference to a limitation on tributary development in the Lower Basin. Any development in the Lower Basin over and above that potentially creates risk to the Upper Basin in meeting Mexican treaty deliveries. Therefore, any discussions in the Lower Basin concerning the Virgin River necessarily influences all the other basin states.

Betsy Rieke: To demonstrate how little agreement there is among the states, when I discussed the tributaries, I said the tributaries are committed to the exclusive use of the Lower Basin states, and I did not mention a one million acre-foot limitation.

Question: I wanted to come back to the question of growth. In the discussions thus far, I have been struck by the similarity between the concepts and issues discussed here with what was discussed at the Environmental Summit in Rio, especially in terms of the relationship between the developed world and the Third world, and many of the fears expressed by the Third world. Being a planner, I was responsive to Mr. Cahill's comments regarding meeting the needs of the public. In terms of providing water and making these transfers, there does not seem to be much discussion concerning the needs are of the communities from which the water is taken to meet commitments elsewhere. I am a little sensitized by states taking water away or make arrangements for water -- that water is coming from someplace and going to another place. The place where it comes from is often left somewhat destitute, in terms of the economic and social activity. I am hoping that the panel might have some answers as to what might be provided to those communities from which the water is drawn.

Betsy Rieke: Last time I was in Colorado, I gave a speech based, in part, on Arizona's nearly ten years worth of experience with intrastate transfers, and the fear that the areas of origin will be left behind. The existing growth might not necessarily be jeopardized, but their future will be jeopardized. If one went back 100 years and looked at the locations of City of Phoenix and the City of Las Vegas, one would have never predicted that they would be there. Part of my resistance to interstate transfers of any kind, whether temporary leasing or long term -- I am afraid that temporary may ripen into long term, is based on Arizona's very rancorous intrastate transfer debates which were resolved in favor of the rural areas. Substantial limitations were placed on the movement of groundwater from rural Arizona to Phoenix, Tucson, and other metropolitan areas.

James Booker: I would like to make one comment on the question of transfers from rural areas to urban. The easy case could perhaps be illustrated by Met's agreement for conservation improvements in the Imperial Valley. I do not know that it addresses the question of future growth that Betsy brings up, but it certainly does nothing whatsoever to harm the present economic activity. In fact, it would almost certainly increase economic activity through improving the infrastructure of the area. Therefore, where there are opportunities for irrigation efficiency improvements, which add additional water to the system there is a real chance that you can have transfers from rural to urban areas that are win-win situations. You would have to look far and wide to find any losers.

Question: My question refers to Tom Cahill's comments concerning the need for your children and your grandchildren to an opportunity for economic advancement. I was wondering if that included the right to have a home on waterfront property that looks like, maybe, Florida? I am asking this question as a resident of an arid area, and I am wondering where in the world is the discussion of conservation? Charter members to the water buffalo communities, such as the Denver Water Board, are very active in conservation. Why is your state looking for additional water, when there has been no discussion about

meeting your needs within your state through more efficient use of the water and conservation?

Tom Cahill: Currently, conservation is one of the major parts of the program within Las Vegas. I have heard that instituting one level of conservation will save us approximately 10%. From talking to the planners and the engineers from the various purveyors, my understanding is that the conservation program was instituted in the Las Vegas Valley within the last two or three years. The results show that the uses have been reduced by approximately 3%. They have tried to take into account all the different variables, including the weather, rainfall, and a number of other things, in order to reach a figure that can be used for comparisons.

Conservation has been incorporated into the projections that we have made for our future needs. I think there is an eventual potential for saving approximately 20%, by adopting more stringent methods. However, even at best, conservation only postpones the eventual need for additional water. We can use it as a way of solving some of our current problems and to mitigate some of our future problems, but assuming the rates of growth that we have been experiencing we still find that we are going to need additional supplies.

Let me also respond to one of Betsy's comments concerning Nevada being entitled to more water from other places. I hope that I will be able to temper that, that by saying we are only looking for voluntary transfers. We are looking for a willing seller, or a willing lessee. I think that there are arrangements that can be made in those leases or agreements to benefit the Las Vegas Valley area, as well as the area of origin. I think that could entail aiding the financing of development for the lessor, such that, at the end of the lease those developments would then be in the ownership of the lessor. Thus, at this time they would be available to satisfy their needs at the end of the lease. As much as we would like to have a permanent water supply from someplace, we are far enough along in the game to know that may not be possible. We are now looking at alternatives, and the best line appears to be finding those who are willing to make some kinds of arrangements, such that we can meet our needs in the long term.

Gerald Zimmerman: In California, water conservation is a part of our ongoing program. We feel that within the urban area by the year 2010, we will reduce the demand for water by approximately 720,000 acre-feet. That will be accomplished through the ongoing conservation programs that are currently being implemented within the urban areas. We are also looking to implement widespread conservation within agricultural areas. Duane Georgeson mentioned Phase One of the Imperial Irrigation District -- MWD Conservation Agreement. They are currently negotiating a second phase of that agreement, in which another 250,000 acre-feet would be conserved. Within California, we are looking at conservation as reducing our future demands for water. That, in part, will be accomplished through ordinances in the cities for all new development that require low-flow showerheads, low-flush toilets, and other water conserving measures.

James Lochhead: Additionally, in response to your question, there is tremendous economic and political pressure to keep the volcano at the Mirage flowing, and to build things like Venetian canals in Casinos. The question I think that we need to face is that we have a public resource that is not just there for a mandate for Las Vegas to develop it for whatever lifestyle they choose. From Colorado's perspective, we should not sacrifice our future in order to allow that lifestyle to continue unabated. In my view, part of the arrangement is going to have to be an enforceable commitment to a conservation program that takes the basin impacts into account.

Concluding Panel of Conference Observers

Mark Obmascik
Columnist, The Denver Post

My name is Mark Obmascik and I am not a lawyer. Well, it worked earlier, so I thought I would try it again. I am a member of the news media. I will leave it up to you to decide who is lower on the food chain. This is the fourth Colorado Water Workshop that I have attended. I have learned a great deal and met many intelligent, interesting and humorous people. It is a great credit to Western State College to put on a Conference like this every year.

Originally, Jim Carrier, another reporter, was scheduled to give this talk. However, he was assigned to cover the Olympics in Barcelona. Jim went to Barcelona, and I came to Gunnison, which has been fine with me because the fishing has been pretty good.

I wondered what I could discuss during this presentation, because everything I know about water I learned from people in this room. Therefore, if I say anything that you disagree with, it is your own fault.

I would like to begin with some overall thoughts concerning the conference. I thought yesterday's luncheon speech by Judith Jacobson was brilliant. It was pretty remarkable to hear the old-time water buffalo on a log with a big belt buckle talking to the young woman, wet behind the ears -- the tree hugger. I thought about the fact that over the 7 years that I have been reporting for the Denver Post, I have heard this conversation millions of times. It is the same dialogue. It is a large conflict that we must deal with. I heard many things in the conference that gave me hope and many things that were discouraging, in terms of crossing this great divide.

Carmine Iadarola, in his remarks at breakfast, said that he thinks the news media thrives on controversy. He is correct. However, we are not making it up. I think there is a great divide out there. There is one vision of the west as a wonderful place to fish, raft, and sightsee on wild rivers. However, there is another vision of the west that is represented by the state's leading water organization, the Colorado Water Congress. Every year, they award the *Wayne Aspinall Water Leader of the Year Award* -- it is almost like the General Sherman Southern Hospitality Award.

I think the west has changed dramatically and there are new values that must be incorporated. We have heard a great deal about that at this conference. To the credit of the State, many of these values are shifting. There is a lot of credit that should go to people like John Porter, of the Dolores District, for accommodating rafting and fishing interests; Larry Simpson, of the Northern District, for working on the Poudre Wild and Scenic Proposal; and Tommy Thompson, of the Southeastern District, for all the work that he has done to help the rafting industry through the Arkansas and making that a state park.

I just finished a few months of reporting on the problems that Colorado faces as water is transferred from irrigated farmlands to cities. One of the biggest frustrations, or one of the biggest

difficulties that I found in trying to put together that series, was trying to get information or numbers that everyone could agree on. I made, naively, what I thought was a simple request. I asked state officials how much water is in the different river basins of the State, how much is being consumed, and who is consuming what.

From what I heard, it took quite a while to put together than information. When I finally received the information, I compared the figures against what the U.S. Geological Survey reported, and there were dramatic differences. For example, U.S.G.S. reported that irrigated agriculture in Colorado was consuming approximately 1 million acre-feet more than what the State Engineer's office reported. There were also dramatic differences in the estimates of the amount being consumed in the Arkansas River Valley. These discrepancies left me to wonder what are the real numbers and what are negotiating postures?

On the first day of the conference, Colorado's 800,000 acre-feet surplus on the Colorado River was discussed. As I understand it, correct me if I am incorrect, the Upper Basin's entitlement is 7.5 million acre-feet, of which Colorado receives 51%. By multiplying those numbers out and subtracting what the State Engineer's office reported as Colorado's use, and I end up with a figure of about 1.6 million acre-feet. Now, there is a huge difference between 1.6 million acre-feet and 800,000 acre-feet. I am uncertain whether the 800,000 acre-feet is a reflection of the amount of water that is really in the River. Does the 800,000 acre-feet figure take into account our treaty requirements with Mexico? I do not know.

From the tribes, we hear that there is no surplus. At this point, it becomes a political question. It is going to require a great deal of work and struggle to resolve that political question. At the very least, I would hope that we could agree on the basic engineering data.

On the first day, I was interested by Lori Potter, from the Sierra Club Legal Defense Fund, who put forth the argument that it will take approximately \$5,000 per acre-foot to develop water supplies on the western slope. Jim Lochhead, the Governor's negotiator, disputed that figure. In essence, he said that \$5,000 per acre-foot to develop water is a lot. The reason that I return to this discussion is that if you look at Two Forks, a \$500,000,000 project, with an 100,000 acre-foot per year yield; that comes out to \$5,000 per acre-foot. The Dolores Project, costing \$567,000,000, with a 98,000 acre-foot per year yield, comes out to slightly over \$5,000 per acre foot. Thornton's water project, transferring 67,000 acre-feet out of northern Colorado's farmland to the metro area, works out to approximately \$6,000 per acre foot. According to the Bureau of Reclamation's documents for Animas La-Plata, Phase One of Animas La-Plata, costing \$486,000,000, gives us a total withdrawal, not a net depletion, but a total withdrawal of 80,000 acre-feet, which, sure enough, works out to approximately \$5,000 per acre foot.

I thought that it was admirable that Janice Sheftel focused on costs, -- the tax expenditures, when she discussed the Endangered Species Act. However, she did not apply the same standard when she discussed the costs of Animas La-Plata. According to the Bureau's documents, irrigators receive \$478,000,000 worth of benefits from Animas La-Plata, and they repay \$20,400,000, which leaves a gap of

approximately \$450,000,000. It is true that the Endangered Species Act does carry economic costs, but we cannot make fair decisions until we see where the costs accrue on both sides, and we ought to be frank about those costs.

I also heard criticism concerning the lack of flexibility in the Endangered Species Act, especially as it relates to endangered fish. Many water developers seem to agree that the situation on the San Juan, in which the U.S. Fish and Wildlife Service came in after the water developers thought that everything was clear, was unfair and a nightmare. On the other hand, I would like to see more flexibility on the part of the water developers, in terms of how the State's rivers are managed. Perhaps, the situation may have been different, if the water development community had said that the Yampa is the last, great, free-flowing river in the Colorado River System, and we do not see a great demand there, so we will set it aside for the fish. Whenever the Fish and Wildlife Service suggests delivering more water to the 15-mile reach on the Colorado River, the water development community scratches and claws. I would like to see both sides more flexible -- flexibility can be a two-way street for the Endangered Species Act. I think, if the water developers make some compromises, everyone will be helped.

I thought the presentation on Inyo County in the Owens Valley was really enlightening. A question occurred to me, in Owens Valley they were dynamiting headgates, shooting each other, and engaging in huge legal battles -- how then, does Colorado end up with 80% of the west's water lawyers? Obviously California has some major struggles with water, so what does California do to take, to a greater extent, the courts out of the equation. Does it save money? Is it more efficient? I do not know, but I think it is worth looking into.

I was also fascinated with Duane Georgeson's talk from the Metropolitan Water District of Southern California's perspective. He said that the District plans to spend \$15,000,000 on conservation this year, \$21,000,000 on conservation next year, and is subsidizing \$154 per acre-foot for effluent reuse. When you consider that with the pretty remarkable changes that are going on at the Denver Water Board, in terms of all the money they are spending on metering every home in the city, encouraging people to install low-flow toilets, and promoting xeriscaping, combined with what the urban sector is doing in the Metropolitan Water District and the Denver Water Board, and I was left wondering what the agricultural sector doing?

Harold McCormick pointed out that Denver waters its parks in the rain. I live in Denver, and I see it all the time -- it makes me mad. We have never seen a farmer irrigate in the rain, have we? Agriculture uses a vast majority of this State's water. It is the foundation upon which the State is based. We need a strong agricultural economy. Again, hard numbers have been tough for me to come by. The U.S.G.S. report that I referred to earlier, reported that irrigation conveyance losses, from leaky ditches and canals, adds up to 3.2 million acre-feet per year in Colorado. That is double the annual flow of the South Platte River. It strikes me that there are great gains to be made through increasing efficiencies, including the types of things that Jim Dyer from the Rocky Mountain Institute discussed.

When we finished this project on irrigated agriculture, I was

very troubled. I do not think that there is anyone in the Metro area who wants to look at a string of 35 acre suburban ranchettes where farmland used to be. I do not think that anyone in the Metro area does not want to be able to take a drive down the Lower Arkansas Valley and see people making a living off the land. I know that I want to eat their food, because Rocky Ford melons are great. Unfortunately, we found that many trends in irrigated agriculture are poor. I think that we must come to grips with that fact.

The State's farm population dropped 23% between 1980 and 1990. There is no such thing as a rich farmer. People are struggling -- it is tough out there. The U.S. Census reported that the average household farm income was \$10,600 a year. That is approximately one-third the income of a typical wage or salary earner in the rest of Colorado. In addition, the trend in the Federal government shows farm subsidies decreasing. George Miller, the head of the Interior Committee, seems to be directing his focus in that direction.

When I went out to rural Colorado, I found it very disturbing to find an increasing number of farmers who have given their lives, made a good livelihood on the farm, and worked hard, but whose children do not want to take it over. This trend is because farmers are having a difficult time making any return. It is sad, and I do not know what the solution is. It all adds up to a diminishing of the agricultural sector. I think that Colorado should be thinking about what we want, and I think that irrigated agriculture should be a strong component of our economy.

When I went to Crowley County, it made me sad to see all the land that had been fallowed. It is ugly, and the farmers will be the first to tell you that. In California, they say, "don't let us become another Owens Valley." In Colorado, we heard "don't let us become another Crowley County." At the same time, it made me a little angry because this land used to be tall grass prairie where the buffalo roamed, and now we cannot even get weeds to grow out there. We have laden the land with so many salts from irrigation and pesticides from eight decades of intensive farming. It makes you wonder if this is the legacy of irrigated agriculture? The Federal government has to bear a great deal of this burden on its shoulders through Federal farm policies that encourage people to plant fencerow to fencerow.

After the series ran, someone sent in a copy of a speech given by Lester Thoreau, who is a native of Livingston, Montana and not a wild-eyed easterner. He is an economist and the Dean of the MIT Business School. He also has a book on the New York Times' Bestseller List. The speech is about the different revolutions that he sees occurring throughout the world. One of these is the revolution that is occurring in what used to be the Communist world. He discusses how those changes are going to affect the Capitalist world. He begins this section by asking who was the largest exporter of farm products in the Nineteenth century? It was not the United States, it was imperial Russia. He then goes on to discuss that because the chains of Communism are off the farmers of the Ukraine he believes that relatively soon, within ten to twenty years, Eastern Europe is going to be converted from a net importer of food to an exporter. From his speech:

"Farmers elsewhere in the world are going to go out of business because of that, and a big part of them are in the United States. If

you take the area in the United States west of the 98th Meridian, about a third of North Dakota is east of the 98th Meridian, and if you go from the 98th Meridian to the Rocky Mountains, essentially that whole area of the United States effectively goes out of the farming business. The soil is worse, the rainfall is worse, and the transportation is worse than you would find in the Ukraine."

I hope that he is wrong.

Let me now discuss some of the solutions that I have found. There was a great deal in this conference that gave me hope. We heard discussions of concepts, for example interruptable supply, in which farmers would be paid by cities to lease their water during a drought. I was also interested when Roland Robison, of the Bureau of Reclamation, in responding to a question, discussed the possibility of changing some of the district boundaries of the water districts that control big irrigation projects, i.e. the Colorado Big Thompson, and the Frying Pan-Arkansas. What struck me about that statement is the fact that these districts have generally acted as though these Federal projects and this cheap Federal water [the average Federal water in the State is delivered to farmers for about 14 or 15 cents on the dollar] are their crown jewels, but it is our future. We do not want anyone to take our future, and they have got a good point. Why should they be penalized because some other place did not plan well, while Northern Colorado did -- Northern Colorado enjoys the benefit of that water.

Thornton, under the cloak of darkness, went into Weld and Larimer counties and bought 17,000 acres of some of northern Colorado's most productive farmland. I wonder if some of that cheap Federal water has been offered to Thornton, would we still have 17,000 acres of productive farmland on the tax rolls of northern Colorado? The Federal water is supplemental water. The same thing could be said about Frying Pan-Arkansas -- if supplemental water had been offered, would Crowley County still be dried up? Perhaps it would be, I do not know. That is a question for economists and sociologists.

I was also encouraged by references to some of the things that Jeris Danielson had said in the past. For example, the fact that the South Platte River Basin has slightly more than 500 reservoirs and only approximately 10 of them are cooperatively managed. Eventually, the Front Range is going to need more buckets, however by doing a better job of managing the buckets that we have, we can increase the system yields. Often, people only pay lip service to cooperation. I would like to see people sit down and really hash out who can help to better manage these structures such that everyone's yield is increased. A good example is the FRICO Proposal, in which the four irrigation districts that control Barr Lake would allow Denver to use their water and the farmers would receive the reuse. Everyone is happy, Denver gets the water and irrigated agriculture is not dried up. These are great solutions.

Finally, I wanted to say that the polls I have seen lately show that the most powerful message moving Americans these days is the call for political change. I think that the Denver Water Board has changed, the Metropolitan Water District of Southern California has changed, and the Bureau of Reclamation has changed. I hope that all the water users begin to hear it.

Sarah Bates
Assistant Director, Natural Resources Law Center,
University of Colorado

I have really enjoyed observing this conference and listening closely to what everyone was saying. It has been really interesting to hear the different views and some converging views, during the course of these three days. That is what I would like to comment on today.

Frank Waters said that the "Colorado River is the greatest single fact within a quarter million square miles." Some of the issues we have discussed during the last three days have verified the truth of that statement. I wonder if we have really been able to draw any lessons from that, other than recognizing the importance of the River and the issues that have arisen.

On the first day of the Conference, I was struck by the focus that the discussion had on compacts, statutes and entitlements. I am a lawyer, like many of the other speakers that we have heard, but I found it to be pretty heavy and I felt that there was something lacking in that discussion. I felt something was lacking because we were not hearing the River discussed as a whole; only pieces of the River were discussed. The topic focused on dividing the River and the rights to the water that comes out of the River. When did we hear about the River itself? We did not discuss the history of human settlement along the River, especially the history of settlement before the Europeans arrived. We did not discuss, until very recently, the nature of the flows that have come down that River, with the exception of the average annual flow, which arose quite often over the last three days. We did not address the human and environmental communities that have grown around shared interests in this River. All of these things are part of the River. I would like to encourage everyone, when you think about the Colorado River, to think about the River -- think about all these different parts of the River that come together to form the backdrop of these controversies, which have been the subject of so much discussion.

We need to recognize that, like the forest, which is far more than timber, a river is far more than the water that is taken from it and put to use. A river includes the fish and the wildlife that depend on the water and on the flows of water at certain times. The river includes the silt that has historically flowed down through the channel and has formed deltas or beaches along the way. The river is the channels and the gorges that separate the water from the land around it, sometimes by a thousand feet or more. And the river is the people -- the people who have been there for a long time and the people who have come recently. The people come to value different parts of the river.

What we are facing today is the high price of taking such a narrow view of the river -- the high price of looking only at applications of the water from the river. When you lose sight of the river, sometimes you lose the river.

We should ask, is the Colorado River lost? It has been divided, sometimes to a point that is almost beyond belief. It no longer flows to the ocean. In fact, it ends ten to twenty miles from the ocean,

except during unusually wet years. As we have heard, many of the fish species, and especially a few fish species in Colorado have become endangered because of the changes to the River. We have been losing beaches because of the way that hydroelectric operations are run.

The River has set the states into intense controversy, both between and within them. We have heard a great deal about the fights between the states -- the "over my dead body" attitude about taking water. But we have also heard about what has been referred to as a civil war within Colorado, provoked by controversies concerning dividing up this River.

Is the Colorado River lost? I hope not. Perhaps, we can look for guidance from the Owens River, about which we heard yesterday. It is probably the best example that we have ever had of a river that people thought was lost. It is a river that is not even running, in a valley that was dried up. However, it sounds as if there is some hope for the future in the agreements that Inyo County has entered into.

During the course of this conference, I heard seeds of hope, and some visions for the future of this River, but I also found the presentations to be a sobering reminder of just how deep the conflicts over the River are.

There were two primary themes that seemed to compete with each other throughout the conference. I saw one theme as the *showdown mentality*. It was suggested by the title of this conference. A showdown -- two people with loaded guns pointed at each other, with the attitude of "one more step and I'll shoot." It is a divided River, and a divided people. Let me share a few examples of what I heard that suggested this *showdown mentality*.

We heard Anthony Williams say, "Colorado's like a farmer at the head of the ditch with a shovel, if California wants to come and get the water, well, come and get it and see what you get." We heard Senator McCormick say that "we use our water well here and we won't let anyone steal it." Today, we heard Betsy Rieke say, "don't solve your problems on our backs."

The irony of this attitude is that the Compact, signed in 1922, and the rest of the Law of the River was intended to prevent and to solve conflicts. I wonder whether the very divisions that were set forth in that Compact are not creating some of the conflicts we are seeing today.

If you follow the *showdown perspective* to its conclusion, it is a pretty bleak future. It is a future filled with litigation, exactly contrary to what Delph Carpenter wanted when he was pushing for this Compact in 1922. The idea was to prevent litigation. It could lead to many projects built out of desperation, trying to hold on to each state's share. Even if they are not built, they are likely to be fought over vigorously and expensively. There could be some very high social, economic, and ecological costs from following this mentality. And what about the River? The River might lose.

Competing with that attitude, the other theme that I observed during these three days, is the attitude that I call *wake up and smell the coffee*. It is an attitude that encourages questioning the historical assumptions. We heard a great deal about historical assumptions. They were not always right. This attitude suggests considering alternative futures, not just based on what has been done

in the past, but trying some new alternatives. It is an attitude which encourages thinking about a common future, a common future in which everyone recognizes that they share this resource -- the River.

Let me give you some examples of where I heard this theme. We heard John Carlson, in the beginning of the Conference, discuss how the Compact did not consider many public values, including water quality, salinity, fisheries, and instream flows. He was suggesting that while those values are important, they were not considered at the time. In other words, he questioned the historical assumptions and realized that they will continue to be questioned. I thought it was terrific when George Arthur pointed out that these are not new values. These values were there all along, but they were not taken into account in 1922. As he put it, "we [Native Americans] know what environmentalism is; that was our lifestyle." Along those same lines, we heard Lori Potter talking about how times are changing; how the Law of the River is evolving, and perhaps, the Law of the River is catching up. Carroll Multz said that the days of the status quo are over. Perhaps it is time to consider alternative futures. It was very much the theme of Roland Robison's talk. He said, "I hope we all join in a commitment to seek resolution, not revolution." Jim Lochhead said that "discussion, innovation, and cooperation are the keys to the future." Betsy Rieke also encouraged discussion among the seven basin states and the tribes, realizing the common future of the River and the people, in some way.

Depending on your perspective, this attitude might be threatening. Change can feel threatening. At the same time, it should feel encouraging. It should feel encouraging because we are trying to reach some kind of consensus between the many different interests that are trying to share the same resource.

Change can be good or bad. You can make it happen, or it can happen to you. The tribes experienced the change that happens to you when they were not included in the 1922 Compact. Now, the tribes are encouraging change, and they want to have some control over what happens to them. I think that we can all take a lesson from that approach and that attitude.

I felt that yesterday's luncheon talk, by Judith Jacobsen, was one of the high points of this conference. She challenged us to realize a vision for the future of western water. And, Jim Dyer's presentation, he confirmed that one of the secrets of making this all work is to have a vision for the community -- to know what you want. A vision has two parts: understanding what you have now; and knowing where you want to be in the future. A vision should be broad and comprehensive. A vision does not consist of a single objective. A vision is not just saying that we are going to meet all the urban water demands that arise, indefinitely. A vision is a way of understanding how we are going to use what we have more wisely in the future. It is seeing what the future looks like, and trying to figure out a way to make it happen.

Do I have the vision? No. I do not think that it is up to an individual to design a vision for the future of a region. Patrick Parenteau pointed out that facts often get in the way when one person tries to accomplish that. However, a community can design a vision for the future. I think that is what being part of a community is all about. A community consists of people who are bound together by

shared interests. A community is the people that have a stake in what happens in the future. Together, a community shares ideas for a vision.

How do we get to a vision for the future? That is the challenge that Judith left us with yesterday. It is a very difficult challenge, but we have heard many clues throughout these three days about how we might reach this vision for the future. Carroll Multz quoted Secretary Lujan, who said that "cooperative, working partnerships between states and Federal government is going to be the key." Patrick Parenteau said that we have to give the cooperative approach a try. Bill Trampe said that we must work together, negotiate, and explore options.

That all sounds pretty good, but how do we encourage cooperation? I thought one of the best statements made in these three days was by George Arthur, who said, "controversy develops because we don't communicate." Patrick Parenteau followed up by saying that the "power of people's minds is one of our most important resources." He also said that "solutions are hidden in plain sight." This is food for thought, in terms of determining our future in western water.

Are we on our way? Are we developing a vision? Are we trying to develop a common future? We have heard a great deal about the future over these past three days. We have heard concerns about holding onto Colorado's share of the entitlement in order to protect our future options. We have the right idea in that we are thinking about the future. We have heard about endangered species and different options in addressing that problem in the future. We have also heard about endangered communities; that is also part of the future. Many different speakers, while not using the word, have discussed the concept of sustainability. That is what the future is about. Sustainability is making use of what you have now in such a way that protects future generations' use of the resource. Sustainability means not compromising the future. I think that there has been a general agreement that sustainability is desirable. It is part of our vision for the future.

What is the secret to reach sustainability? The secret is, as George Arthur said, communication. This conference is the forum for communication. It brings people together to share ideas. I have heard some interesting ideas that should be communicated better. For example, Bill Trampe spoke about how private landowners have a real stake in managing their land wisely. He was proud of the fact that the bald eagles use his land and that he has protected that piece of land. We should discuss that more, and figure out what public agencies and private landowners have to learn from each other. Jim Dyer, from the Rocky Mountain Institute, spoke about technical innovations that are available. We need to hear more about those efficiency technologies. That is a start, and it is the kind of information that we need to be communicating. We heard about the experiences of other areas, like Inyo County. Their effort to restore Owens Valley has overcome political boundaries and might be a model for future restoration efforts.

In a discussion that I had with another conference participant, I learned some very exciting information about what the Zuni Pueblo is doing to find a sustainable use of resources. I encourage anyone who is interested to talk with Jim Enote about the Sustainable

Resource Management Plan that they are currently designing. As part of the plan, they are developing a seed bank to protect the use of traditional crops and encourage the use of those crops in the future. They are also incorporating land rehabilitation and erosion control practices. They have a very sophisticated land use planning system that uses GIS technology. The historical method of using runoff irrigation is perhaps the more sustainable way to farm, and the Zunis are increasing their usage of runoff irrigation. They are also trying to integrate spiritual and community values into resource management.

Another important form of communication involves looking outside your immediate region. For example, we heard about the environmental crisis of the salmon in the Pacific Northwest. They are inventing creative solutions to deal with that crisis. The Pacific Northwest Power Planning Commission is an interstate cooperative effort to overcome state boundary lines, to look at the resources, and to plan for the future. The Pacific Northwest is trying to develop a vision and it would be a good lesson for this basin to follow.

These examples of communication and the ideas that should be communicated suggest to me that next year's workshop should focus on these. It should showcase examples of sustainable development, and offer ideas to move towards sustainable development. It should aid in communicating these ideas and encourage more dialogue, rather than highlighting the differences and divisions. Perhaps we can discuss the third phase of the Law of the River that Jim Lochhead brought up. I find it ironic that we are closer to recognizing a common future globally than we are on the Colorado River. Perhaps we need an Annual Colorado River Basin Conference, in addition to the Colorado Water Workshop.