JOINT HEARING ON THE SIERRA CLUB'S PROPOSAL TO DRAIN LAKE POWELL OR REDUCE ITS WATER STORAGE CAPABILITY

JOINT HEARING

BEFORE THE

SUBCOMMITTEE ON NATIONAL PARKS AND PUBLIC LANDS

AND

SUBCOMMITTEE ON WATER AND POWER

OF THE

COMMITTEE ON RESOURCES
HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTH CONGRESS

FIRST SESSION

TUESDAY, SEPTEMBER 24, 1997, WASHINGTON, DC

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JOINT HEARING ON THE SIERRA CLUB'S PROPOSAL TO DRAIN LAKE POWELL OR REDUCE ITS WATER STORAGE CAPABILITY

TUESDAY, SEPTEMBER 24, 1997

HOUSE OF REPRESENTATIVES, SUBCOMMITTEE ON NATIONAL PARKS AND PUBLIC LANDS AND THE SUBCOMMITTEE ON WATER AND POWER, COMMITTEE ON RESOURCES, *Washington, DC.*

The Subcommittees met, pursuant to notice, at 10 a.m. in room 1324, Longworth House Office Building, Hon. James V. Hansen [chairman of the Subcommittee on National Parks and Public Lands] and Hon. John Doolittle [chairman of the Subcommittee on Water and Power] presiding.

Mr. HANSEN. This meeting will come to order. Good morning. The Subcommittee on National Parks and Public Lands and the Subcommittee on Water and Power will come to order.

John Doolittle of California is the Chairman of the Committee of Water and Power and is sitting to my right. And together we will conduct this hearing.

I ask unanimous consent that all of the testimony from Members of Congress and Senate be allowed in the record. Is there objection? Hearing none, so ordered.

STATEMENT OF HON. JAMES V. HANSEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF UTAH

Mr. HANSEN. We are conducting this joint oversight hearing to explore the proposal of draining Lake Powell as passed unanimously by the Sierra Club Board of Directors on November 16, 1996. Any discussion of the issue brings some disbelief from some observers. However, we have with us today Mr. Adam Werbach, President of the Sierra Club, who is a strong proponent of the idea. We expected to have Mr. David Brower with us today, but, unfortunately, his wife is ill, and he is unable to attend. Our best wishes go out to the Browers and we hope everything is fine.

We look forward to the testimony this morning. There will be many questions asked. And I hope that the witnesses can provide answers for the serious consequences this proposal would bring. There are concerns from the States of Utah, Wyoming, Colorado, New Mexico, Arizona, Nevada, and California. Millions of people could potentially be affected with water shortages, electric power outages, and loss of millions of hours of recreational enjoyment.

There is a long history behind the development of the Colorado River. And the Glen Canyon Dam provides perhaps the most interesting history. This Nation's urge to move West spawned the

taming of the Colorado River and turned this one unpredictable resource into a water energy and recreation source for millions of people.

Mr. Brower played an important role in the policy to build Glen Canyon. I was hopeful we could hear some of that history today. However, Congress and the President made the policy decision in 1956 to build this dam. And millions of people now utilize the resources Glen Canyon provides.

Today, over 2.5 million people visit Lake Powell each year. Prior to the filling of the lake, only a few hundred people had ever seen Rainbow Bridge. Now tens of thousands of people visit Rainbow Bridge annually, see Hole-in-the-Rock, and thousands of other spectacular views from Lake Powell.

I have to admit I boat Lake Powell and have since its first year it was allowed and been going back ever since. I've witnessed a change from an isolated desert lake to one of the most popular national park units in the Nation. Thus, I have to say I am personally somewhat concerned about Lake Powell, but I'm also concerned about the people who enjoy its recreation, people who use the power it generates, and the people who need the water that it stores.

Now, 40 years later, the Sierra Club proposes to turn back the clock and drain the lake in an attempt to restore Glen Canyon. This would be a complete reversal of the policy path this country chose many years ago.

This hearing is designed to put all the facts on the table and analyze the potential impacts of such a proposal. Everyone is entitled to their opinion, and we respect that. And I have nothing but respect for the Sierra Club and their members. We simply want to explore fully this idea so that Congress, the public, and the media understand the consequences such a policy change would have on the Colorado River and the States that benefit from his resource.

There are three agencies in the Federal Government here to testify this morning. Furthermore, the Executive Directors of Natural Resources for two States and the Navajo Nation will testify on the need for Glen Canyon Dam and Lake Powell for the well-being of the people they represent.

And, finally, we will hear from the board an array of users of the power, water, and recreation this reservoir provides to millions of people.

I look forward to the testimony we will receive this morning and to the statements and questions of my colleagues. Due to the numbers of Members that I think will be dribbling in that we will have here today, I think we will have to stay strictly to the 5-minute rule for opening statements, testimony of witnesses, and followup round of questions.

I would, before recognizing my colleague, Mr. Doolittle of California, I would somewhat like to just outline how we are going to do this today. We would urge our colleagues to be brief in their opening statements, if they would be. Keep in mind the respect we have for everyone here in the room. And then I understand there is a possibility of, possibly, a couple of Senators coming over. We will insert them when they come over.

Then, we will go to panel one, which will be Commissioner of the Bureau of Reclamation, Dennis Galvin of the National Park Service, and Mr. Hacskaylo, Acting Director of the Western Area Power Administration.

On panel two, we were going to have Mr. David Brower. We will have on panel two Mr. Adam Werbach, the President of the Sierra Club; Mr. Ted Stewart, Executive Director of Utah Department of Natural Resources; Rita P. Pearson, Director of Arizona Department of Water Resources; and Mark Whitlock, Executive Director of FAME.

And then we will go to panel three, Jim Lochhead, Executive Director of Colorado Department of Natural Resources; Melvin Bautista, Executive Director of the Navajo Nation Division of Natural Resources; Larry E. Tarp, Chairman of Friends of Lake Powell.

Then we will go to panel four: Robert Elliot, Arizona Raft Adventures; Joseph Hunter, Executive Director, Colorado River Energy Distribution Association; and David Wegner, Ecosystem Management International.

We may mix you up a little bit. So if that is all right with everyone, we will try to work this out so that it is fair and reasonable for all people concerned.

Mr. Doolittle.

[The prepared statement of Mr. Hansen follows:]

STATEMENT OF HON. JAMES V. HANSEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF UTAH

Good Morning. The Subcommittee on National Parks and Public Lands and the Subcommittee on Water and Power will come to order.

We are conducting this joint oversight hearing to explore the proposal of draining Lake Powell as passed unanimously by the Sierra Club Board of Directors on November 16, 1996. Any discussion of this issue brings disbelief from many observers, however, we have with us today Mr. Adam Werbach, President of the Sierra Club who is a strong proponent of this idea. We expected to have Mr. David Brower with us today but unfortunately his wife is ill and he is unable to attend. Our best wishes go out to the Brower's and we hope everything is fine.

We look forward to the testimony this morning. There will be many questions asked, and I hope that the witnesses can provide sensible answers for the serious consequences this proposal would bring. There are concerns not only from my State of Utah, but Wyoming, Colorado, New Mexico, Arizona, Nevada, and California. Millions of people could potentially be affected with water shortages, electric power outages and loss of millions of hours of recreational enjoyment.

There is a long history behind the development of the Colorado River, and the Glen Canyon Dam provides perhaps the most interesting history. This Nation's urge to move West spawned the taming of the Colorado River and turned this once unpredictable resource into a water, energy, and recreation resource for millions of people. Mr. Brower played an important role in the policy to build Glen Canyon dam and I was hopeful we could hear some of that history today. However, Congress and the President made the policy decision in 1956 to build this dam and millions of people now utilize the resources Glen Canyon dam provides. Today, over 2.5 million people visit Lake Powell each year. Prior to the filling of the lake, only a few hundred people had ever seen Rainbow Bridge. Now, tens of thousands of people visit Rainbow Bridge annually, see Hole-in-the-Rock, and thousands of other spectacular views from Lake Powell. I boated on Lake Powell the first year it was allowed and have been going back ever since. I have witnessed the change from an isolated desert lake to one of the most popular National Park units in the Nation. Thus, I am personally very concerned about Lake Powell, but am also concerned about the people who enjoy its recreation, people who use the power it generates and the people who need the water it stores.

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There are three agencies of the Federal Government here to testify this morning. Furthermore, the Executive Directors of Natural Resources for two states and the Navajo Nation will testify on the need for Glen Canyon Dam and Lake Powell for the well-being of the people they represent. And finally, we will hear from a broad array of users of the power, water, and recreation this reservoir provides to millions of people.

I look forward to the testimony we will receive this morning and to the statements and questions of my colleagues. Due to the number of Members and witnesses we have here today, I will strictly adhere to the five minute rule for opening statements, testimony from witnesses, and follow-up rounds of questions.

I recognize my colleague, Mr. Doolittle of California, Chairman of the Subcommittee on Water and Power for his opening remarks.

STATEMENT OF HON. JOHN T. DOOLITTLE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. DOOLITTLE. Thank you. We will hear today many facts and figures concerning Glen Canyon Dam and Lake Powell. All are important as a part of the discussion. But I want to add my own personal sense of the importance of Lake Powell. Standing on the shore of the lake or gliding quietly over the surface of the water deep in one of the many canyons or flying over the majestic reach of Lake Powell, you have an opportunity to experience a unique natural resource. From the quiet canyons to secluded vistas to remote beaches, Lake Powell provides one of life's truly refreshing pleasures.

I, along with tens of millions of others, have had the chance to experience this beauty and grandeur. It would not exist and could not be enjoyed if we had not had the foresight and courage to create this wonder. I, for one, would not support any step to destroy this beautiful gem that has meant so much to so many people.

Beyond its scenic and recreational qualities, Lake Powell is a source of both clean hydropower as well as water storage. Draining Lake Powell would have negative environmental impacts, eliminate water stored for millions of people throughout the Southwest, and destroy the delicate balance of water rights between the upper and the lower Colorado River basins. It would eliminate a renewable power source serving businesses and residences all over the Western United States.

Among all sources of electric power today, hydropower provides an unusual ability to enhance the reliability of our electric system. And the hydropower lost would be replaced by burning fossil fuels at a time when the Federal Government is looking to use our resources efficiently and to reduce our deficit. Draining Lake Powell would result in lost revenues measured in the billions of dollars.

For decades, the water laws governing the Colorado River have evolved to meet the competing needs of the Western States. Those laws are based in the existence of Lake Powell as a major water storage resource. Elimination of this foundational piece in the interlocking water puzzle would throw the entire Colorado River system into chaos.

The decision to build Glen Canyon Dam and create Lake Powell was made after many years of review, years when informed people on many sides of the debate had an opportunity to weigh the choices.

When that process was finished, huge commitments of time, money and resources were made. History recorded a decision. People, States, businesses, populations all relied on that decision. To those who did not like that decision who wish to rewrite that history, we can only say there is a time when all of us must let go.

Glen Canyon Dam was built. The beautiful and serene Lake Powell was formed. It fulfills the diverse needs of millions of Americans. Let us make the best use of this magnificent resource. It is a decision we can live with.

[The prepared statement of Mr. Doolittle follows:]

STATEMENT OF HON. JOHN T. DOOLITTLE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

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Beyond its scenic and recreational qualities, Lake Powell is a source of both clean hydropower as well as water storage. Draining Lake Powell would have negative environmental impacts, eliminate water stored for millions of people throughout the southwest, and destroy the delicate balance of water rights between the upper and lower Colorado River basins. It would eliminate a renewable power source serving businesses and residences all over the western United States. Among all sources of electric power today, hydropower provides an unusual ability to enhance the reliability of our electric system. And the hydropower lost would be replaced by burning fossil fuels. At a time when the Federal Government is looking to use our resources efficiently and to reduce our deficit, draining Lake Powell would result in lost revenues measured in the billions of dollars.

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Mr. HANSEN. Thank you. The gentleman from Michigan, Mr. Kildee.

Mr. KILDEE. Mr. Chairman, for the sake of time, I will not have an opening statement and look forward to listening to the witnesses.

Mr. HANSEN. Thank you. The gentleman from Utah, Mr. Cannon.

STATEMENT OF HON. CHRIS CANNON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF UTAH

Mr. CANNON. Thank you, Mr. Chairman. As you know, my district contains the entire Utah portion of Lake Powell. Today, you will hear several witnesses testify as to the logical reasons for preserving the integrity of the lake.

As the Committee will hear, Lake Powell provides substantial power, drinking and irrigation water, and protection from ravenous floods for millions of people, people whose lives now depend upon the lake's existence. Not to mention the fact that Lake Powell is incomparable in scale and quality to any other recreational area in America, providing world renowned water recreation to some 3 million people every year.

Chairman, draining the lake is a ridiculous idea. I remember the debate before Glen Canyon Dam was built. The environmental effects were discussed. Frankly, I was offended at the idea that we would build a dam there and destroy what I think was a wonderful area, even though I was quite young at the time. The damage to the canyon was acknowledged at that time. The decision to go forward was made. It is too late to change that now simply because some have grown sentimental for Glen Canyon.

What existed then could never be restored. To suggest otherwise is silly. I dare say this could be the silliest proposal discussed in the 105th Congress.

Mr. Chairman, I have seen environmental proposals in my district that can only be described as dumb, some monumentally dumb. But now, Mr. Chairman, we have dumb and dumber. In that spirit, I would like to introduce my top 10 environmental ideas that might be even dumber than draining Lake Powell.

Number 10, remove the Statute of Liberty and reclaim Liberty Island. Number 9, return New Orleans and Southern Louisiana to its natural wetlands state. Number 8, dismantle all white houses cluttering our Nation's shorelines. Number 7, return Mount Rushmore to its pristine state. Number 6, repack Manhattan's linking tunnel. Number 5, remove the Golden Gate Bridge from the San Francisco Bay. Number 4, rip up the interstate highways that litter our landscape. Number 3, fill in Lake Erie Canal. Number 2, return Washington to its original and swampy wetlands, a proposal that might well be received around the country. And Number 1, designate a 1.7-million-acre national monument in Southern Utah without any hearings. Thank you.

Mr. HANSEN. I caution the gentleman here that everyone's entitled to their viewpoint, and we'll treat everybody with respect.

The gentleman from Arizona.

STATEMENT OF HON. JOHN SHADEGG, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

Mr. SHADEGG. Thank you, Mr. Chairman. Let me first say that I have grave reservations about this hearing. I did not hear, nor did my staff learn of this hearing until a little over a week ago. And I did not have a chance to invite witnesses until all of the witnesses from Arizona had been invited. I was not afforded that opportunity until last Thursday.

So I have grave concern that those of us who are in opposition to this idea have not had sufficient time to prepare and, with that, may at some point want to request a future hearing. But with that, let me give you my opening statement.

We will hear testimony today about how some people think it would be wonderful to turn back the clock. And, indeed, sometimes, we would perhaps all like to do so. At times, we all wish we could do things differently in retrospect. But it cannot happen. Time moves in only one direction.

The wishful thinking and the ill-conceived proposal which brings us here today calls to mind the lines from Edward Fitzgerald's "Rubiyat of Omar Khayyam:" "The moving finger writes; and having writ, moves on: Nor all your piety nor wit shall lure it back to cancel half a line, nor all your tears wash out a word of it."

Time moves in one direction, and that is how God intended it. In this life, each of us is called to look forward, not backward.

We will hear testimony today claiming that one of God's creation has been destroyed by man and one of man's creations. No one here is so arrogant as to say that man's works can replace those of God. But I am here to stand foursquare in favor of Lake Powell and Glen Canyon Dam as beautiful and functional works, albeit man-made. Let us not forget as we consider this issue that man is one of God's creations and that man's creations often honor his God.

Ultimately, why is this issue before us? It is certainly within the purview of Congress to right wrongs. And there will be testimony claiming that the dam and the lake are wrong. The Sierra Club President has called the dam a horrible mistake of humanity and an arrogant symbol of technology. Though, in my mind, technology has raised humanity to extraordinary heights.

There also will be testimony as to how right the dam and lake are, from solving water and power needs in seven Western States, to the beauty and recreational opportunities afforded to all citizens. I can assure you firsthand they are a wonder. I have spent more than two dozen nights on Lake Powell and explored every canyon from Wahweap to Bullfrog.

One man who will testify here takes credit for raising the issue to national prominence. He has said that he virtually alone is responsible for Glen Canyon Dam and that he has suffered 40 years of guilt over it.

One organization, the Sierra Club, has acknowledged that it is suffering from decline in younger membership and believe this is the kind of high profile litmus test issue that will boost its youthful membership.

Another man, who will not testify here today, but who has founded an institute to study the issue and provide reliable data says, and I quote, "At its heart, this is a religious issue."

We will hear testimony from others which will provide hard facts and scientific data upon which we may draw valid conclusions. But I submit to you, Mr. Chairman, this issue is before us for the most spurious of reasons. This issue is driven by ego, sentimentality, guilt, and a desire for profit. That is hardly a good basis on which to build public policy.

I am hopeful that a meaningful discussion of issues regarding dam safety, long-term siltation studies, the future of remediation

and mitigation will be raised and discussed here. But I state as unequivocally as I possibly can, Lake Powell should not be drained. It is an ill-conceived proposal that appears to be advanced for personal and institutional gain, and I will oppose it with every ounce of energy I have.

Even a Utah Chapter of the Sierra Club, arguably the chapter most affected by this plan, acknowledge that time has rendered the issue moot. Ann Wechshler, leader of the Utah Chapter said, and I quote, "We were not consulted. We do not support the draining."

Current habitats both above and below the dam are stable, thriving and providing for the rebound of such endangered species as the peregrine falcon and bald eagle. Lees's Ferry in my State is home to a world class trout fishery.

Flow controls from the dam in last year's simulated flood has shown the Grand Canyon can be maintained as a thriving ecosystem. The amount and variety of wildlife supported by Lake Powell has been cataloged and studied to ensure its success. Were the lake to be drained, all that would be lost. The lack of scouring floods through the Grand Canyon has allowed a rich variety of plant and animal life to make a home there. It is true that the habitats have changed, but that does not make them worse. And by most accounts, they are better.

There are many problems that must be resolved in this debate. For instance, the sediment contained in Lake Powell likely contains toxic concentrations of heavy metals and uranium that could destroy the Grand Canyon as well as Lake Mead if we were to drain Lake Powell as proposed.

Of greater concern than that, however, is the silt not carried away in the water, but which dries out and becomes airborne in many violent storms within the region. As many as 12 times a year, the dry Owens Lake in California is whipped by winds that cut visibility to zero and put 25 times the EPA maximum amount of particulates into the air.

Do we drain Lake Powell only to visually obscure the Grand Canyon and other surrounding national parks? Do we drain Lake Powell only to expose hundreds of thousands of citizens to toxic dust?

Proponents attempt to counter the enormous economic loss that draining Lake Powell would cause, from lost power generation, water storage, tourism, and more, by stating that one million acre feet of water evaporate from the lake each year. What they don't say is that those million acre feet are the result of storage, not wasted flows.

The Colorado is already fully used, fully apportioned. Eliminating the dam will not cause one more gallon of water to flow. It will simply cause water hardships in dry years and water waste in wet years.

The total loss by evaporation which they claim, if the figures are even accurate, is a mere 4 percent of Lake Powell's capacity. And of course, water lost to evaporation is not lost at all. Even school children know it rises to form clouds and fall as rain somewhere else.

Mr. Chairman, we are a Nation built on the principle that to look forward is to grow and to thrive. To dwell in the past is to wither and die. Not all change is perfect and good and true, but change

is inevitable. And to learn from our mistakes is noble and right. To turn our backs on progress for the sake of sentimental wishing is suicide, indeed.

The Sierra Club's board of directors, without consulting its membership, has embraced an irresponsible proposal that is not only economically disastrous, but environmentally dangerous. I thank you, Mr. Chairman.

[The prepared statement of Mr. Shadegg follows:]

STATEMENT OF HON. JOHN B. SHADEGG, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

Mr. Chairman,

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But it cannot happen. Time moves in only *one direction.*

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Let us not forget, as we consider this issue, that *man* is one of God's creations and that man's creations often honor his God.

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- One organization, the Sierra Club, suffering from a decline in younger membership believes this is the kind of high-profile "litmus test" issue that will boost its youthful membership.
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I am hopeful that a meaningful discussion of issues regarding dam safety, long-term siltation studies, and future remediation and mitigation will be raised and discussed here. But, and I state this as unequivocally as I possibly can: *Lake Powell should not be drained. It is an ill-conceived proposal that appears to be advanced for personal and institutional gain and I will oppose it with every ounce of energy I have.*

Even the Utah Chapter of the Sierra Club—arguably the Chapter most affected by this plan—acknowledges that time has rendered this a moot issue. Ann Wechshler, leader of the Utah Chapter, said: "We were not consulted. We don't support the draining."

Current habitats, both above and below the dam, are stable, thriving and providing for the rebound of such endangered species as the peregrine falcon and bald eagle. Lee's Ferry is home to a world-class trout fishery. Flow controls from the dam

and last year's simulated flood have shown that the Grand Canyon can be maintained as a thriving ecosystem. The amount and variety of wildlife supported by Lake Powell has been cataloged and studied to ensure its success. Were the lake to be drained, all that would be lost. The lack of scouring floods through Grand Canyon has allowed a rich variety of plant and animal life to make a home there. It is true that the habitats have changed, but that does not make them worse. And by most accounts, they are better.

There are many problems that must be resolved in this debate. For instance, the sediment contained in Lake Powell likely contains toxic concentrations of heavy metals and uranium that could destroy the Grand Canyon as well as Lake Mead if we were to drain Lake Powell as proposed. Of greater concern than that, however, is the silt that is not carried away, but which dries out and becomes airborne in the many violent storms within this region. As many as 12 times a year, the dry Owens Lake in California is whipped by winds that cut visibility to zero and put 25 times the EPA maximum amount of particulates into the air. Do we drain Lake Powell only to visually obscure the Grand Canyon and other surrounding National Parks? Do we drain Lake Powell only to expose hundreds of thousands of citizens to toxic dust?

Proponents attempt to counter the enormous economic loss that draining Lake Powell would cause, from lost power generation, water storage, tourism and more, by stating that one million acre feet of water evaporate from the lake each year. What they don't say is that those million acre feet are the result of storage, not wasted flows.

The Colorado is already fully used, fully apportioned. Eliminating the dam will not cause one more gallon of water to flow. It will simply cause water hardships in dry years and water waste in wet years. And, of course, water lost to evaporation is not "lost" at all. Even school children know that it rises to form clouds and falls as rain elsewhere.

Mr. Chairman, we are a nation built on the principle that to look forward is to grow and thrive; to dwell in the past is to wither and die. Not all change is perfect, good and true; but change is inevitable and to learn from our mistakes is noble and right. To turn our backs on progress for the sake of sentimental wishing is suicide, indeed. The Sierra Club's board of directors, without consulting its membership has embraced an irresponsible proposal that is not only economically disastrous but is environmentally dangerous.

Mr. HANSEN. I thank the gentleman from Arizona. I am always embarrassed to see you folks standing over there. We won't be using this lower tier. You are welcome to come up and sit here, if you would like. And I instruct the clerk to pick up these packets, if they would. If you folks would like to come up and sit down. I would hate to see you stand through this. It is going to be a long hearing. If you plan to stay the entire hearing, you are going to pass out; I hope not from boredom.

Senator Campbell, it is a pleasure to have you, sir. We will take Senator Campbell and then go to Congressman Hefley, Congresswoman Helen Chenowith and Congressman Jim Gibbons in that order.

I ask unanimous consent that the testimony of Senator Campbell be included in the record. Without objection, so ordered.

[The information referred to follows:]

Mr. HANSEN. Senator Campbell, it is always a pleasure to see you. I hope that a lot of you folks realize it wasn't too many years ago that Senator Campbell was sitting here with us in this room. I will turn the time to you, sir.

STATEMENT OF HON. BEN NIGHTHORSE CAMPBELL, A SENATOR IN CONGRESS FROM THE STATE OF COLORADO

Senator CAMPBELL. Thank you, Mr. Chairman. And I remember those days very well in which we fought many a battle that is fought in the so-called debate over the new West versus the old West. And I certainly thank you for holding this very important

hearing and allowing me the opportunity to make a brief comment on the Sierra Club's proposal to drain Lake Powell.

We are in a series of votes over on the Senate side now, so I won't stay long. But I did talk to several other Western Senators before I came over to kind of get their ideas about how they felt. And I'm sure you can imagine how many of them felt.

You, I am sure, are going to have many witnesses today, who will have much more expertise and knowledge from a technical standpoint than I have when they speak about this water project. Some of them will be able to tell you how many cubic feet of water is stored, how much goes to different States and how important it is to a great many Western people.

Some will be able to tell you specifically how many kilowatts of power are generated every day and the demand on power in the Los Angeles basin and the other places where it supplys. And certainly we all know that it has provided a reasonable quality of life for the people that get that rather inexpensive power.

Well, I am certainly not here to try to speak from a technical standpoint. But I am here, I think, to voice the opinions of millions of westerners, some who sit on this Committee, in proclaiming it to be a certifiable nut idea.

It is true that Lake Powell, when it was built, forever changed an incredibly beautiful place. But so did building New York City on Long Island. And we simply can't go back in time and undo all of the projects that have been built.

Now, in fact, I think it would just plain be silly to even contemplate it, but I don't mean that to disparage the remarks that may come later in favor of it. It is just my personal opinion.

When I first heard about it, in fact, I thought it was a joke, as many westerners did when we read it in the paper. But then, on the other hand, after I realized the Sierra Club was supporting it, I knew they were serious because I know that it was no joke when they reduced the timber industry's ability to harvest resources. And, in fact, in the name of environmental purism, they have made great strides in reducing most of our land-based industries while making us more dependent on foreign resources, particularly energy.

And if there is anybody on that panel that doesn't know what that war in Kuwait was about, let me enlighten them. It was about energy. There is no question about it.

There are just too many good reasons to keep that lake and not enough to destroy it. The Glen Canyon Lake has produced tens of thousands of jobs, first of all, not only in construction, but in the current maintenance of it, too, and the recreational services it provides in energy and water-related activities.

It has also produced a great deal of clean energy. To my understanding, the Sierra Club is very concerned about global warming. It factors no contribution, to my knowledge, of global warming, and no air pollution, either one, as there is coming from the eastern coal-fired plants or the Northern coal-fired plants. Therefore, it reduces demand for strip money to get the coal, which they also claim they dislike.

Now, I haven't seen a nuclear project that produces power that they support. I haven't seen a coal-fired project that they support.

And there is no question in my mind that, if we did something as crazy as this sounds to me, the cost of power would skyrocket.

It also provides an awful lot of water for all of our folks that live out in our area. I come from the Four Corners area, as you know, Mr. Chairman. And you also know coming from our neighboring State of Utah in the West, we store 85 to 90 percent of our yearly water needs, unlike here in the East where it rains so much that they only have to store about 15 percent of the water needs.

But your State, mine, as well as Arizona, Nevada, and Southern California simply won't have available options if we cutoff both the power and the water, or reduce both the power and water, except one, and that is they will be moving to your State and mine.

So we end up, I think, if we follow the Sierra Club's line of thinking to tear down that dam and drain the lake, we would put another set of circumstances in place that is going to make it difficult when you have a huge inward migration into the mountain States, which currently does have a lot of water.

I live down near the cliff dwellings, as you know, Mr. Chairman, Mesa Verde it's called. And most historians will tell you that the reason they moved down river a thousand years ago wasn't from massive social upheaval. It was simply because they droughted out. They had no way of storing water when they went through years of drought, and they had to leave.

The Sierra Club also, I think, betrays a basic underlying elitism. It wants to drain Lake Powell so the spectacular Glen Canyon is once again accessible, as I understand it. But who would it be accessible to, a few thousand hikers that can go in there. Certainly they wouldn't support wheelchairs going in there. They never have for our wilderness areas. And it would certainly cutoff the elderly, the people that can visit it by boat, the thousands of recreational tourists that go there now.

I think also the consequences of the Grand Canyon also need to be measured. Without flood control provided by the dam, the Grand Canyon would be subject to dangerous torrential flash floods much of the year. Year-round rafting and hiking would simply be out of the question. Access to the canyon would be reduced. And the risks associated with flooding would also be increased. And only the wealthiest of Americans would be able to appreciate that area.

As you know, there are many tragedies in those canyons and during flood season. In fact, just recently, several hikers were killed in a flash flood. Imagine what the Colorado would do to all communities downstream during raging spring floods that have been built since the canyon was damned and the flood waters have been controlled. To simply tear that down and release torrential floods of water downstream to small communities all the way down to the ocean, I think, is absolutely nonsense.

I also would like to just say in closing, Mr. Chairman, that, if this were to go forward, and I have a hunch it is going nowhere, but if it were to go forward, what would be the next project? Would it be Hoover Dam or any of the dams in the West, all the dams in the West? Would we then talk about maybe returning the Utah project and the Arizona project back to its former natural environment? Would we talk about tearing down Hetch Hetchy, there was

kind of a joke made about that a few years ago, which supplies water and power to the city of San Francisco.

This project, when people hear all the testimony for and against, I would hope that they will realize it is something absolutely ridiculous to contemplate. With that, I thank you, Mr. Chairman.

Mr. HANSEN. Thank you, Senator Campbell. It is always a pleasure to see you. And I appreciate you coming over. We are going to be quite busy this morning. So instead of giving questions to Senator Campbell, you are welcome to join us if you are so inclined. I know you are very busy.

Senator CAMPBELL. I appreciate it, Mr. Chairman. We are on the floor, too. Thank you.

Mr. HANSEN. The gentleman from Colorado, Mr. Hefley.

Senator CAMPBELL. May I also just maybe mention one thing? I have on our side, I have asked Senator Murkowski of the full Committee on Energy if he would hold similar hearings to this, too. So we are not trying to simply lock people out on the Senate side. Those westerners who—we believe debate is healthy. But we want you to know that we have asked Senator Murkowski to hold a hearing.

Mr. HANSEN. I may add to what you just said. If this idea goes forward with some of our Members of Congress, as I have told the Congressman from Arizona, we truly intend to hold additional meetings and hearings, possibly out in the West. The gentleman from—did you want to have him yield to you?

Mr. SHADEGG. If he would yield for just a moment.

Mr. HEFLEY. Surely.

Mr. SHADEGG. Mr. Chairman, I simply want to thank Senator Campbell. I reached out to him this weekend to assure that he would be here. I think his testimony adds greatly to this hearing, and I want to express my personal appreciation for his attendance. I yield back.

Mr. HEFLEY. Mr. Chairman, I believe Mrs. Chenowith was here before I was.

Mr. HANSEN. If I made that mistake, I surely apologize to both of you.

Mrs. CHENOWITH. Mr. Chairman, I would be happy to yield to seniority. Thank you.

Mr. HANSEN. I apologize. I was just going by my sheet here. And we had you down. I want you all to see this, because I don't want to do that purposely.

STATEMENT OF HON. JOEL HEFLEY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO

Mr. HEFLEY. Mr. Chairman, I don't have a prepared statement. I would like to just say a few things. I guess I am surprised that the Committee is taking time with a nutty idea like this. I don't know anyone that really takes it seriously. I suppose we will hear some testimony today from some folks that do. But it kind of ranks in my mind with the idea that came out a few years ago of taking the whole plains of the West and Midwest and turning them back into a buffalo preserve, because that is what they were originally, and move people out of those areas. And that would be many,

many States. Maybe we will have hearings on that as well. It is kind of a similar idea.

I don't need to educate you, Mr. Chairman, on Western water, because you are the expert on it. I think Senator Campbell and others have pointed that out. Our water comes in the form of snow in the wintertime. And if we don't capture that water and store it for use throughout the year out there in the West, we just simply don't have water. And maybe it becomes a buffalo preserve. Maybe we do move everybody off the land, because there is simply no water there for us to live on or to support the populations that are out there.

Now, it might have been—might have been nice if we could have had a Garden of Eden type setting in the world and that man didn't disturb that setting, but when you have populations that we do, you do make changes. And we do have technology. And just like I think that canyon is God-given, I think our ability to use technology is God-given as well. And I think we have used it rather well with Lake Powell.

I am a little surprised, I guess, at the Sierra Club. I don't know if they realize what this does to their credibility. Because there are—I would hope all of us consider ourselves environmentalists, but there are responsible environmental groups, and there is the nutty fringe of environmental groups. There is the fringe that always has to buildup straw men to fight against in order to get their donations so they can stay in business. I never thought of the Sierra Club as being in the nutty fringe. But with this idea, I begin to wonder, Mr. Chairman.

And I guess it is OK for us to have these hearings and to hear the viewpoints. I would hope this idea goes absolutely nowhere. And I hope this Committee would not spend its time on these kinds of craziness in the future, because this is something that is not going to happen. We are not going to drain Lake Powell. And we can discuss it. You can raise money with it. But we are not going to do it. It simply isn't going to happen, because the West cannot afford that kind of activity. Thank you, Mr. Chairman.

Mr. HANSEN. As the Senator, my friend from Colorado, said, beauty is in the eye of the beholder.

Mrs. Chenowith.

STATEMENT OF HON. HELEN CHENOWITH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IDAHO+

Mrs. CHENOWITH. Thank you, Mr. Chairman. You know, sometimes those of us who work in this body find the most audacious and arrogant ideas coming in front of us; but I will tell you, this one takes the cake. The fact that we would even start with the hearing on draining Lake Powell and then move on into other areas that have impoundment facilities and working activity on our rivers, which has been historic from the beginning of the founding of this country, to even start pulling the plug on America's commerce with these kinds of visions is unthinkable.

However, when groups like the Sierra Club, who, by the way, has become very powerful in the U.S. Congress, very, very powerful, and I am going to begin to make an appeal, Mr. Chairman, to those corporate entities who support these ideas, and appeal to them to

look to America first, because what is happening with the beginning of the pulling of the plug at Lake Powell, there is also, right next to that, the pulling of the plug of several dams on the Colombia River which—and the Snake River which affect my district very, very directly.

Yes, this is audacious, arrogant, and very self-centered on the part of an organization who wants to make sure that they have an issue that takes on national proportions that will help them with their fund-raising capabilities.

Lake Powell was built around 1922, and it contains $.2 billion worth or stimulates $.2 billion worth of agriculture industry stretching across seven States.

It produces a thousand megawatts, utilized by 20 million residents in California, Arizona, and Nevada. And it is worth $800 million industry annually.

The Navajo project, as part of the Glen Canyon system, provides power for 3 million customers and employs 2,000 people. For recreation, the Glen Canyon National Recreation area has almost 3 million visitors annually, which brings in $500 million annually to the regions of 42,000 people who also annually float the river below Glen Canyon. Thirty thousand anglers enjoy the blue ribbon trout fishery.

And one of the most important items, Mr. Chairman, is that Glen Canyon Dam was built also for the purpose of flood control on a river that experiences runoff flows up to 400,000 cubic feet per second. That can be very devastating.

We have already dealt with the environmental issues. But I would ask these members who are making these proposals who—and this type of proposal will devastate the income ability of thousands and hundreds of thousands of people, take away their lifestyle, and change the face of the commercial activity and the environment drastically. What is going to happen to your healthy wages? What is going to happen to your steady employment, those members of the Sierra Club who are dreaming up these ideas?

Unfortunately, their vision is not—we don't really count in their vision. I am not sure what their vision is, but I don't believe that it is healthy for America. Thank you, Mr. Chairman.

Mr. HANSEN. Thank you.

The gentlelady from the Virgin Islands.

Ms. CHRISTIAN-GREEN. No questions or comments, Mr. Chairman. Thank you.

Mr. HANSEN. Thank you. The gentleman from Nevada, Mr. Gibbons.

STATEMENT OF HON. JIM GIBBONS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEVADA

Mr. GIBBONS. Thank you, Mr. Chairman. And I first want to applaud you for your interest and your effort here today to hold this hearing and your leadership on this issue.

It seems that, seldom in the history of Congress, indeed perhaps even seldom in the history of mankind, do we have an opportunity to hear extreme proposals like this one. And, in fact, this is an extremely bad proposal.

This Nation, years ago, went through considerable or great lengths and a considerable amount of money to construct the Glen Canyon Dam and for good reasons. But this proposal to drain Lake Powell fails even in the very simplest of terms to understand that the issues that Lake Powell provide for the humanity in Southwestern United States is at stake with this extreme proposal.

Lake Powell is an issue of storage. And it was constructed for the issue of storage. Storage, which includes municipal and agricultural uses, maybe not directly from Lake Powell, but for downstream users. Millions of people reside in Nevada, Arizona, California, and Utah.

Sensitive ecosystems along the banks and riverways of the Colorado River will be at stake and at risk without the storage and the flood prevention and flood control efforts of the Lake Powell Dam.

This is just totally unacceptable to have a group propose such an extreme position without taking into consideration the needs of both the environment and humanity along the way. And I am not even speaking yet of the resource of recreation that is provided to millions of Americans every year.

Mr. Chairman, this proposal, at first glance, seems to be so far out on a limb that it should not even be considered as part of our hearing today. But, indeed, it runs the risk that, if we fail to address this issue, we have failed to do our job in terms of the future of America. And I thank you for your leadership on this issue.

Mr. HANSEN. I thank the gentleman from Nevada.

The gentleman from Virginia, Mr. Pickett.

STATEMENT OF HON. OWEN B. PICKETT, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF VIRGINIA

Mr. PICKETT. Thank you, Mr. Chairman. And while this project is considerably removed from my district, I share the sentiments that have been expressed here today about the need to preserve it.

I say it is impossible today and in the future to build any kind of major infrastructure project in our country. And to come here and talk about beginning to dismantle the ones that our forbearers had the good sense and vision to create is absolute nonsense. And I just hope that you will conduct this hearing with that in mind. Thank you.

Mr. HANSEN. Thank you. I previously read the number of witnesses that were here. And I am sure you heard your name. It is the policy of the Chairman of the full Committee to swear in people on oversight hearings, so why don't, instead of doing that one panel at a time, could I ask you all to stand, and we will just do this right now.

[Witnesses sworn.]

Mr. HANSEN. Our first panel is Eluid L. Martinez, Commissioner of Bureau of Reclamation, accompanied by Dennis Galvin of the National Park Service and Mr. Michael Hacskaylo, Acting Administrator, Western Area Power Administration, Department of Energy.

We are grateful for all you folks being here. As has been evident by the opening statements, there is some diversity of thought on this particular issue. But keep in mind, there is on about every issue that comes around here. So that is the way we do our business.

Again, before you start, let me point out that, if you folks standing—we have still got some chairs up here in the lower tier if you would like to use them. You are more than free to do it. We just won't let you talk is all.

OK. We will start with Mr. Martinez. And we are grateful for you being here.

Mr. MARTINEZ. Thank you.

Mr. HANSEN. Let me point out, Mr. Martinez is accompanied by Charles Calhoon, Regional Director of Upper Colorado, Regional Director of the Bureau of Reclamation. Mr. Calhoon, we appreciate you being here.

Mr. Martinez, the floor is yours. Let me ask you, can everybody do it in 5 minutes? That is kind of our rules. And if you have just got a burning desire to go over, I am not going to stop you. But if you watch the little things in front of you there, it is just like a traffic light, you know, when you drive your car. Just do the same thing. Mr. Martinez.

STATEMENT OF ELUID L. MARTINEZ, COMMISSIONER, BUREAU OF RECLAMATION

Mr. MARTINEZ. Mr. Chairman, Members of the Subcommittee, thank you for the invitation to be here today in this oversight hearing. I have submitted my written statement for the record. And if appropriate, I would like to summarize that statement.

Mr. Chairman, the Department of Interior is committed to a management process at Glen Canyon Dam that implements the 1996 record of decision, which resulted from the environmental impact statement on the operation of Glen Canyon Dam developed pursuant to the Grand Canyon Protection Act of 1992. I might state that the level of public participation and development of that document was unprecedented.

Two weeks ago today, the adapted management group, which is a Federal advisory committee to the Department concerning management and scientific applications in the Grand Canyon, began its work. The management group includes a full spectrum of public interest, including the seven basin States, tribal governments, and the Federal agencies.

The Glen Canyon National Recreation area was established by Congress in 1972 to encompass Lake Powell and surrounding lands, encompassing some 1.2 million acres that was established to provide for public outdoor recreation use and to preserve State, scientific, and historic features of the area.

Information provided by the National Park Service estimates that, this past year, the recreation area drew 2.5 million visitors and that the annual recreational economic value of Lake Powell exceeds $400 million.

The city of Page and much of northern Arizona and southern Utah are dependent in some way on the recreation area for economic well-being. Lake Powell and Glen Canyon Dam are key units in the water infrastructure that has evolved in the seven basin States.

Mr. Chairman, recognizing the numerous interrelated factors, laws, and histories concerning Glen Canyon Dam, the law of the

Colorado River, and the 1922 Colorado River Compact, draining or reducing the storage capacity of Lake Powell is unrealistic.

Acting Deputy Director, Mr. Denis Galvin from the National Park Service and Reclamation Lower Colorado Regional Director, Mr. Charles Calhoon, are here with me to assist me in answering any questions you might have. And I took 2 minutes, Mr. Chairman.

[The prepared statement of Mr. Martinez may be found at end of hearing.]

Mr. HANSEN. Well, Mr. Martinez, you just set a record in here. And I want you to know how much I appreciate that.

Denis, you've been before us many times. It is always good to see you. Does the National Park Service have a statement?

Mr. GALVIN. No. Our perspectives in the opening statement are incorporated into Mr. Martinez's statement, Mr. Chairman. I am simply here to answer questions if the Subcommittee has them.

Mr. HANSEN. I appreciate that. Mr. Hacskaylo, I turn the time to you, sir.

STATEMENT OF MICHAEL S. HACSKAYLO, ACTING ADMINISTRATOR, WESTERN AREA POWER ADMINISTRATION, DEPARTMENT OF ENERGY

Mr. HACSKAYLO. Good morning, Mr. Chairman and members of the Subcommittees. My name is Michael Hacskaylo. I'm Acting Administrator, Western Area Power Administration. And I appreciate the opportunity to appear before you today to discuss the power-related impacts of draining Lake Powell. I have submitted a written statement for the record. If I may, I will summarize my comments.

The power plant at——

Mr. HANSEN. Hold that mike just a little closer to you, please, sir. We would appreciate it.

Mr. HACSKAYLO. Yes, sir. The power plant at Glen Canyon Dam has a maximum operating capability of 1,356 megawatts. That is approximately 75 percent of the total electric capacity of the Colorado River Storage Project.

Western Area Power Administration markets that power to over 100 municipalities, rural electric cooperatives, irrigation districts, and Federal and State agencies in the States of Utah, Colorado, New Mexico, Arizona, Nevada, and Wyoming.

In fiscal year 1996, of the $126 million of total power revenues from the Colorado River Storage Project, Rio Grande Project and Collbran Project (known collectively as the Salt Lake City Area Integrated Projects) we have received about $93 million of that amount from sales of Glen Canyon Dam power. If the Glen Canyon power plant is no longer available, it is highly likely that the capacity that is lost would be replaced by fossil-fired power plants. Certainly, conservation might help in reducing some of that lost capacity, but additional fossil-fired generation capacity would need to be utilized, we believe.

If the Glen Canyon power plant is no longer available, there would be adverse financial impacts on our power customers. There would be rate increases, we believe, because of the replacement of the Glen Canyon Dam power with what we expect would be higher

cost power. Those rate impacts would vary considerably depending on how much power our customers buy from Western Area Power Administration and the cost of replacement power.

There also would be impacts to the Federal Treasury if the power plant is no longer available. Through fiscal year 1996, power revenues have repaid $537 million of the cost allocated to power for the Colorado River Storage Project.

Right now, we have $503 million left to repay. In addition, there is $801 million of cost allocated to irrigation. Without revenues from the power plant, we would have a very, very difficult time in ensuring repayment.

In closing, we estimate that over the next 50 years, if the power plant is not available, if we are not able to sell that power, there would be a loss of $1.3 billion from power revenues not collected, not available to the Federal Treasury.

That is the end of my summarized statement. I would be happy to answer any questions.

[The prepared statement of Mr. Hacskaylo may be found at end of hearing.]

Mr. HANSEN. Thank you, Mr. Hacskaylo. We appreciate the statement. This is a very brief panel here.

Mr. Doolittle, questions for the panel. We will limit the Members to 5 minutes in their questioning.

Mr. DOOLITTLE. Were you passing over your——

Mr. HANSEN. No, I was going to be the clean-up batter here.

Mr. DOOLITTLE. That is fine. Thank you, Mr. Chairman.

Commissioner, are you aware of any instance where a dam has been torn down by the government or authorized to be torn down? Isn't there such a dam in the State of Washington?

Mr. MARTINEZ. I am not aware of any dam that's been torn down, but there is a proposal for Elwa Dam in the State of Washington, for a small structure.

Mr. DOOLITTLE. I've heard a number of the Members express surprise at the absurdity of this idea of tearing down dams, but at a hearing we held with our Subcommittee in Mrs. Chenowith's district, why the engineer for the Corps of Engineers indeed admitted in testimony that they're actively studying the proposal involving five dams to return the river level. I believe it is the Snake River, to its natural level by bypassing, not one, but five dams.

So these ideas are very strange, but I think one has to treat them seriously, especially when an agency of our government, not the Bureau in this case—in fact, I don't know. Is the Bureau involved in that study, Commissioner?

Mr. MARTINEZ. On the Snake River dams? No, we are not. That is a Corps of Engineer's study, as I understand it.

Mr. DOOLITTLE. Right. Are you familiar with the Navajo generating station.

Mr. MARTINEZ. Yes, I am.

Mr. DOOLITTLE. Let me just ask you to recall as best you can. It was my understanding that the Navajo generating station was built as the result of another compromise, just like we heard about Glen Canyon was a compromise. That was a happy compromise as far as I am concerned. But the Navajo generating station im-

pressed me, when I viewed this area, as being completely incongruous for the area. These enormous smokestacks rise.

And when we toured the facility, we went to the 20th story and got out and walked on the roof. And we looked up, and the towers, the tops of the towers were 57 stories above our heads even at the 20th story level. And there are three of these. And thanks to the new scrubbers that are being built, there are now six smokestacks. I guess we will tear down the other three when the new ones are completed.

But the thing that struck me as interesting about this was that this was itself, in fact, compelled by some of these environmental groups, perhaps not the Sierra Club in this case. I don't remember which one it was. But that Navajo generating station was built to replace the power that would have been generated by two dams to have been constructed downstream of Glen Canyon. Is that your recollection?

Mr. MARTINEZ. Mr. Chairman, and if I'm wrong, I'll have Mr. Calhoon correct me, but my understanding is that the power that was contemplated to be generated by dams on the Colorado River was to drive principally the water delivery mechanisms to the central Arizona project as well as provide some electricity to that part of the United States.

In the absence of those two other dams you're referring to, there was this power plant constructed. The Bureau of Reclamation owns part of that facility. And we use power to drive the pumps on the central Arizona project. But directly to answer, yes, it was built as a way of delivering power that was originally contemplated as being produced by, I believe, two other dams on the Grand Canyon.

Mr. DOOLITTLE. So when the committees of Congress hear testimony later on, which I am sure we will hear in the next few years, about how detrimental the air quality of the Navajo generating station is and how it's necessary to remove it as a blight in the environment, we can thank the very environmental groups themselves for giving us that taxpayer expense. Of course, the Navajo generating station in its 77-story tall towers and daily consumption of something like 20,000 tons of coal per day. A special railway was built to make sure that the coal could be delivered day after day, plus a number of trucks that bring it in.

So I just want to confirm with you your understanding of how that got built. And I think this is a lot of unintended consequences sometimes. Because no one who visits that beautiful area would, I think, be pleased to see this huge coal-fired plant sitting there. But the dams that would have produced the clean hydroelectric power were nixed by the environmental groups. So I thank you for your testimony, and I yield back my time, Mr. Chairman.

Mr. HANSEN. The gentlelady from the Virgin Islands, Ms. Green.

Ms. CHRISTIAN-GREEN. Thank you, Mr. Chairman. I have a question for Mr. Martinez. And I would like to welcome all of the panelists this morning.

Mr. Martinez, you said in your testimony that proposals to drain Lake Powell are unrealistic. Has the Bureau of Reclamation done any analysis of the costs and benefits of these proposals? And is there any reason that private citizens shouldn't do such an analysis?

Mr. MARTINEZ. Mr. Chairman, Madam, we have not seen specific proposals, and we have not done any studies of those proposals.

Ms. CHRISTIAN-GREEN. OK. Another—those who propose lowering Lake Powell argue that the current evaporation losses from the reservoir are about 1 million acre feet per year. Is that about accurate?

Mr. MARTINEZ. Mr. Chairman, Madam, any structure, any dam results in evaporation. A lot of it is dependent on the location of the reservoir. There is approximately 800,000 acre feet of evaporation that occurs at this reservoir. And that is not unusual for the area and was anticipated.

Ms. CHRISTIAN GREEN. OK. A question for Mr. Hacskaylo.

Mr. HACSKAYLO. Hacskaylo.

Ms. CHRISTIAN-GREEN. Hacskaylo. I'm sorry. In your testimony, you referred to payment of irrigation assistance by Glen Canyon Power customers as a benefit from Glen Canyon Dam. Can you tell us in what year that irrigation assistance payment might be made and what is the present value of a payment.

Mr. HACSKAYLO. I do not have that information available. We would be happy to work with the Bureau of Reclamation and supply it for the record.

[The information follows:]

IRRIGATION ASSISTANCE PAYMENTS

The $801 million of unpaid irrigation assistance as of the end of fiscal year 1996 that is an obligation of Colorado River Storage Project power customers is projected to be paid over many years. The fiscal year 1996 power repayment study for the Colorado River Storage Project projects that the vast majority of the payments will occur between the years 2010 and 2023. The present value of these payments as of September 30, 1996, is $203 million using a 7 percent discount rate.

Ms. CHRISTIAN-GREEN. Thank you. And one other question. You gave the total amount of power generated from Glen Canyon Dam in fiscal year 1996. Was that a higher than average water year? And what is the average amount of power generated each year from Glen Canyon Dam?

Mr. HACSKAYLO. I can provide that information for the record.

AVERAGE ANNUAL GLEN CANYON DAM POWER GENERATION

The average amount of power generated annually at Glen Canyon Dam since Lake Powell filled in 1981 is 5.2 billion kilowatt-hours (KWhs). Therefore, the 5.5 billion KWhs generated at Glen Canyon in 1996 is above average.

Ms. CHRISTIAN-GREEN. Thank you. Thank you,

Mr. Chairman.

Mr. HANSEN. Thank you. The gentleman from Utah, Mr. Cannon.

Mr. CANNON. Thank you, Mr. Chairman. Mr. Martinez, in his written statement, Mr. Brower has asserted that Glen Canyon Dam nearly failed in 1983, and this could happen in the future as a result of poor engineering, flood lands, flood, landslide, earthquake, or human intent. Do you agree with Mr. Brower about the vulnerability of Glen Canyon Dam?

Mr. MARTINEZ. Mr. Chairman, Congressman, to the extent that that question implies that the dam is unsafe, I do not agree with it. It is a safe structure. However, we did experience, in 1983, some

problems with our spillways. We had sustained some cavitation. We have corrected those problems and don't anticipate any future problems with the spillways.

Mr. CANNON. I thank you. Mr. Brower also talks about the dam nearly being filled with sedimentation over time. What is the current projected life of the reservoir behind the dam?

Mr. MARTINEZ. Chairman, Congressman, the Glen Canyon Institute estimates that it will be completely full within 250 to 350 years. Bureau of Reclamation estimates indicate a life-span from 5 to 700 years.

Mr. CANNON. So recreation and power generation will be effective for that kind of period of time.

Mr. MARTINEZ. If these—you know, one thing about figures, depending on which expert you talk to, he'll give you different opinions. But our belief from the Bureau of Reclamation is that that facility will be functioning from a siltation standpoint for several hundred years.

Mr. CANNON. My understanding is the Department of Interior spent about $100 million since 1982 on studies on the Glen Canyon. Now, is that about right?

Mr. MARTINEZ. Mr. Chairman, Congressman, if you're referring to the studies conducted for the EIS for Glen Canyon operation, there was approximately $100 million spent for that.

Mr. CANNON. Have you had a chance to look at the citizen-led environmental assessment that Mr. Brower refers to?

Mr. MARTINEZ. I have not.

Mr. CANNON. Thank you. Mr. Galvin, how many visitor days a year do we have at Glen Canyon Dam?

Mr. GALVIN. We have—in 1996, we had over 2½ million visits. An important subtext there is that Glen Canyon has the second most overnight visits in the entire system. Of those 2½ million visits, 2 million visitors spend at least one night in Glen Canyon. So in that respect, it's one of the most heavily visited areas in the system.

Mr. CANNON. What are the other opportunities in the area for flat water recreation that are now served in by Lake Powell?

Mr. GALVIN. In that general area, while there are 8 or 10 other national park areas, there is very little in terms of flat water recreation.

Mr. CANNON. If Lake Powell ceased to exist, what would the impact be on Lake Mead and its resources that are now served by Lake Powell for recreation and other things?

Mr. GALVIN. I am not absolutely certain how the two dams interact. Perhaps one of my colleagues would have a better idea. But we have obviously similar facilities at Lake Mead. And if we experienced higher water levels at the recreation area, we would have to do a considerable amount of reconstruction of the infrastructure there, which is quite—its marinas and that kind of thing.

Mr. CANNON. Do you know how many people visit Lake Mead per year?

Mr. GALVIN. I don't. But it is on the same order of magnitude or more than Glen Canyon. But not as many overnight visits.

Mr. CANNON. Would it be possible for all those people who now use Lake Powell to go down to Lake Mead?

Mr. GALVIN. Not with our present capacity, no question about it.

Mr. CANNON. Mr. Hacskaylo, Mr. Brower asserts in his written statement that we can replace the power currently generated at Glen Canyon Dam through reduced demand. Is that realistic in your assessment?

Mr. HACSKAYLO. Mr. Chairman and Mr. Cannon, the Glen Canyon environmental impact statement assessed the impact of conservation and saving electricity. And the estimates range from zero percent savings to, best case, of 20 percent savings based on the assumptions used. So there could be some conservation savings. But we do not believe that the capacity and the energy generated at Glen Canyon Dam could be replaced in its entirety by conservation.

Mr. CANNON. When was that study done?

Mr. HACSKAYLO. In 1994, as part of the Glen Canyon EIS.

Mr. CANNON. Do you happen to know what has happened to our power usage since that study in America?

Mr. HACSKAYLO. Not in the general area of the Glen Canyon Dam, in that part of the United States. Power usage has increased slightly. Demand has increased.

Mr. CANNON. Isn't it likely this lost generation would have to be replaced with some form of fossil fuel generation? And has anyone calculated the air quality impacts of a replacement for the dam with fossil fuel generation?

Mr. HACSKAYLO. It is likely that fossil fuel generation would be utilized to replace the lost capacity at Glen Canyon Dam. And I'm not aware of any studies as to air impacts.

Mr. CANNON. Great. Thank you. And——

Mr. HANSEN. Will the gentleman yield for just one moment?

Mr. CANNON. Absolutely.

Mr. HANSEN. Mr. Hacskaylo, how many tons of coal would it take to replace the power that is generated by the hydropower on the dam?

Mr. HACSKAYLO. Our best estimate, based on the entire replacement of all the capacity of Glen Canyon Dam, is one million tons of coal annually.

Mr. HANSEN. Thank you.

The gentleman from Arizona, Mr. Shadegg.

Mr. SHADEGG. Thank you, Mr. Chairman. Mr. Martinez, let me begin with you. Let me followup on a point made on the other side. Your written statement does, in fact, have you saying that the proposals to drain Lake Powell are unrealistic. I note that word because, in the July issue of National Geographic, which contains a thorough evaluation of the Grand Canyon, and touches extensively on this issue, Wayne Cooke of the Upper Colorado River Commission is quoted as saying: If Powell goes, growth in the upper basin States from a water standpoint is over. There would be no storage for our obligations under the Compact.

It then goes on to say: Secretary Babbitt, referring to Secretary of Interior, Bruce Babbitt, agrees in self-arguing that Lake Powell is, quote, "essential to the economies of those States, and that draining the reservoir is unrealistic."

I guess I would like to put into the record those statements from Secretary Babbitt from this article, Mr. Chairman. And I would

like to have Mr. Martinez confirm to us that is, in fact, the Secretary's position and the administration's position.

Mr. MARTINEZ. Mr. Chairman, I am aware of that article. I have not specifically discussed this issue with the Secretary, but I am aware of that article where he was quoted. And I was present at a budget hearing earlier this spring where the Secretary basically stated the same position.

Mr. SHADEGG. OK. Could I request that, if that is not the Secretary's position, the President's position, the administration's position, that you advise the Committee within two weeks.

Mr. MARTINEZ. I'll pass that on to the Secretary.

Mr. SHADEGG. Let me move to some other statements that I would like to focus on. In his seminal paper on this issue, and I regret that Mr. Brower is not going to be here. A paper entitled, "Let the River Run Through It," Mr. Brower makes a series of factual assertions which I find stunning, some of which I find not sustainable.

With regard to water, which I consider to be your focus, in the fourth paragraph of the article, he states, and I quote: "Lake Mead's Hoover Dam can control the Colorado River without Lake Powell."

Let me ask you, it certainly could not control the Colorado River if we did not create some flood storage capacity at the top of Lake Mead. That is, we would have to drain some portion of Lake Mead, would we not?

Mr. MARTINEZ. The—it gets somewhat complicated, but let me put it this way: If what you're saying is, in order for flood control, we would have to hold a greater pool for flood storage at Lake Mead, that would be the case.

Mr. SHADEGG. Thank you.

Mr. MARTINEZ. Which would make less water available for downstream uses.

Mr. SHADEGG. So as a result of that, we would not only lose the water stored for future use in the event of a drought, which we have in Lake Powell, but we would also lose some of the water currently stored at the top of Lake Mead, because Lake Mead is nearly full; is it not?

Mr. MARTINEZ. You would lose the ability at Lake Mead to store more water for purposes other than flood control.

Mr. SHADEGG. And also lose the storage we have at Lake Powell.

Mr. MARTINEZ. That's correct.

Mr. SHADEGG. He also makes a statement toward the end of his article, and again I will quote, because I think there is a stunning statement that may persuade people who are not paying attention or thinking the issue through: "Draining Lake Powell means more water for the Colorado River States and Mexico, especially Colorado and Utah."

It is beyond me how draining Lake Powell could possibly mean more water. Can you explain his statement, or do you have an understanding of it?

Mr. MARTINEZ. It would appear to me, for the short term, it would appear as a high flow. It could probably provide more water in terms of volume. But over time, it would appear to me that storage would provide the opportunity to capture more of that flow and

provide it to the system. In other words, the storage, as was indicated earlier this year in the Southwest—or earlier today, in the Southwest, is necessary in order to make better use of high spring runoff.

Mr. SHADEGG. There is no question, but that we created Lake Powell to store water in the event of droughts. It seems to me there's also no question but that we experience droughts in the West, and that to empty it could not create more water.

And insofar as he is addressing the evaporation issue, which I think is, quite frankly, the issue on which turned the minds of the board of directors, it seems to me that Lake Powell is an insurance policy against a future drought and that, just as when you purchase an insurance policy, it is—there is a price so that you have that insurance pool there in the event of a catastrophe. Evaporation and bank storage, which Mr. Brower seems deeply concerned about, is the price we pay so that we will have a storage reservoir there. And I guess there are more points.

I see I am running short on time, but I would like to ask Mr. Hacskaylo a question. Mr. Brower also makes a statement in his paper that Lake Mead's Hoover Dam can produce more power if Powell's water is stored behind it. How could it be that storing Lake Powell water behind Lake Mead, which is already full, could produce more power than the combination of Lake Mead and Lake Powell?

Mr. HACSKAYLO. I do not know, sir.

Mr. SHADEGG. It simply doesn't make sense, does it?

Mr. HACSKAYLO. Not to me.

Mr. SHADEGG. Let me ask a second question. Proponents of this idea say point blank that we could reengineer Navajo generating station, which is also essential for the economies of the Southwestern United States, so that the tubes, which now take the cooling water out at a level of about 250 feet above the river, could take them out at river level. Given that the river fluctuated dramatically and had very low flow in the wintertime, does that idea appear realistic to you?

Mr. HACSKAYLO. Sir, I would have to defer to the Commissioner of Reclamation on that question.

Mr. SHADEGG. Two other quick questions, if I might. There's been some reference to conservation here and that we might save some of the power lost by shutting down Glen Canyon Dam by conservation. Would we not be better off to use that conservation to defer the construction of future dirty coal or oil or natural gas firedpower plants?

Mr. HACSKAYLO. That certainly is an option for the policymakers to consider.

Mr. SHADEGG. I guess the last point I would like to make, Mr. Duncan goes back to you, with regard to how fast the lake will fill up. I understand the Lake Powell Institute says it's only 100 year—one or 200 years. I simply want to note that Bill Duncan of the Bureau of Reclamation, who is the engineer that manages the dam, has said that sedimentation in the lake is very slow. And he said, and I quote, "At current rates," he predicted "dredging would be needed to clear the tubes for the turbine intake pipes in about 500 years" He's saying not that the lake will be full in 500 or 700

years, but that dredging won't even be necessary to clear the intake tubes for 500 years. He's on the site. It would seem to me he would make a pretty good estimate of what's required, wouldn't you agree?

Mr. MARTINEZ. Mr. Chairman, I've been around this business long enough. Like I said, different folks will give you different figures. It's my feeling that, or at least for the next three to four or 500 years, we will not have siltation unless the climate of the world changes to a point where it causes chaotic problems. But that structure, from my best information I have available, will not get into a siltation problem at least for 4 or 500 years.

Mr. SHADEGG. I thank you each for your testimony and I thank the Chair for his indulgence.

Mr. HANSEN. Mr. Martinez, let me quickly insert a question. I started, as we were flying in here, I read in a report from one of the river runners magazines, that if not one more drop came into Lake Powell, that it could sustain the flow on the other end for 4 years. Do you agree with that?

Mr. MARTINEZ. My understanding that both Lake Mead and Lake Powell are capable of impounding the average flow of the Colorado River for about 4 to 5 years.

Mr. HANSEN. So together you could keep it going for 4 or 5 years. So there's that much water stored behind those two reservoirs; would that be correct, Mr. Calhoon?

Mr. CALHOON. Yes, Mr. Chairman. Approximately 26 million acre feet of water are presently stored in Lake Powell. And the average inflow to Lake Powell is something on the order of 12, 13 million acre feet. So it wouldn't be quite the 4 years, it would be more like 2 years.

Mr. HANSEN. Quite an insurance policy that the gentleman from Arizona talked about.

The gentlelady from Idaho, Mrs. Chenowith.

Mrs. CHENOWITH. Thank you, Mr. Chairman. For the record, I would like to make a correction to my opening statement if it wasn't clear. It's my understanding that in 1922, the Colorado Lower Basin Water Compact and Colorado River storage projects were established out of that. Eventually, in the fifties came the construction of the Grand Canyon Dam and the culmination of the substantial construction of the recreational facilities in the seventies. And I hope the record will reflect these changes.

I'm very interested, Commissioner, in knowing what effect draining Lake Powell would have on our ability to live up to our obligations to deliver water to the lower basin and to Mexico?

Mr. MARTINEZ. It is my understanding that the deliveries to the lower basin States, except for periods of extensive drought, could be met without Lake Powell being in place. However, if there is extended drought, the deliveries could not. What is more important, from my perspective, is that, without Lake Powell, the upper basin States would not be able to develop their entitlement.

Mrs. CHENOWITH. Would not——

Mr. MARTINEZ. There is two answers to that question. One is, in periods of extensive drought, Lake Powell would be needed to meet deliveries to the lower States. In other situations, without Lake

Powell, the upper basin States would not be able to develop their water that they're entitled to under the Colorado River Compact.

Mrs. CHENOWITH. The ability to deliver water to Mexico, is that a higher right than the right to deliver water for irrigation and hydropower flood control?

Mr. MARTINEZ. Mr. Chairman, I would defer to the attorneys on that issue, but that is an international treaty. And we have obligations under the international treaty to deliver water.

Mrs. CHENOWITH. So what I'm asking you, Commissioner, is there is only so much storage capacity without Lake Powell. And within that storage capacity, there is the capability of delivering for previous filing water rights, such as for energy or for agriculture or flood control.

Are you saying that, under international treaty, that the filling of a water interbasin or international water, transfer of water comes as a higher priority in the first in time, first in right doctrine established in the West if we have less storage capability without Lake Powell?

Mr. MARTINEZ. If you have a stream system that's overallocated, especially in the West, first in time, first in right, the question I—the issue I raise is I would defer to the attorneys. That if we have an international treaty in place, whether the international treaty would go first in terms of water shortage, I believe that it would. But I think, going back to the question that was asked, was that——

Mrs. CHENOWITH. If the gentleman would yield, you believe that the international treaty would require a higher and more senior right, is that correct, above irrigation rights filed previously?

Mr. MARTINEZ. The water rights in the West are apportioned by prior priority.

Mrs. CHENOWETH. Right.

Mr. MARTINEZ. Prior priority.

Mrs. CHENOWETH. Right.

Mr. MARTINEZ. Prior rights get first crack at limited water supplies. The point I am raising is that, if you have an international treaty, that's why I say I would defer to the attorneys in the audience, but it would appear to me that, if you have an international treaty, you have international obligations, which might require that water to go downstream. But I would be glad to provide that direct answer for the record.

Mrs. CHENOWETH. I would appreciate that, Commissioner. I would be very interested in seeing what your legal analysis on that would be with regards to seniority and rights.

[The information referred to may be found at end of hearing.]

Mrs. CHENOWETH. A very interesting question was asked earlier about whether the Bureau had done a cost benefit ratio analysis on draining Lake Powell. Your answer didn't surprise me. But I thought it was a very interesting question in that I wanted to followup and ask you: Does an agency have an obligation to do a cost-benefit analysis or an environmental impact statement or any other of those costly studies when an outside organization is requiring an action such as this?

Mr. MARTINEZ. To my knowledge, the Bureau of Reclamation has not undertaken any studies on evacuation of reservoirs across the

West as a course of business. Or if Congress so directs, we shall undertake such study.

Mrs. CHENOWETH. So you would say your obligation comes from Congress?

Mr. MARTINEZ. I—the Bureau of Reclamation will do what Congress tells us to do.

Mrs. CHENOWETH. Mr. Commissioner, I would like to submit that question in writing. I see my light is on. And so with regards to the obligation of the Bureau, I will submit that in writing. Thank you very much.

Mr. HANSEN. I thank the gentlelady. The gentleman from Nevada, Mr. Gibbons.

Mr. GIBBONS. Thank you very much, Mr. Chairman.

Mr. Martinez, continuing on the same line, I noticed in the previous testimony that a million acre feet of evaporation is one of the considerations for draining Lake Powell. In other words, the waste of that water through evaporation. Would you agree or would you disagree that evaporation should be a consideration in the draining of a water storage area?

Mr. MARTINEZ. It could be, but to the extent that you're going to replace that storage someplace else, you have the same problem. And if it's the storage occurs downstream at Lake Mead, the evaporation rates would be even higher. Mr. Chairman, what I said earlier on, Congressman, was that any structure across the West and in ponds of water suffers evaporation. That's part of the physical process.

Mr. DOOLITTLE. Would the gentleman yield for just a minute?

Mr. GIBBONS. I'd be glad to yield.

Mr. DOOLITTLE. Commissioner, this figure of a million came from the Sierra Club. Do you accept that it's a million? Is that the Bureau's estimate of the amount of evaporation? Is it a million acre feet?

Mr. CALHOON. Mr. Chairman, the million acre feet a year is a high figure. We feel like it's less than that. The total loss of water from Lake Powell for evaporation and bank storage is less than a million. It's something on the order of 950,000 acre feet a year.

Mr. DOOLITTLE. Oh, so then your testimony is—that's different than what I understood, then. It nearly is a million.

Mr. CALHOON. For bank storage and evaporation. Evaporation is on the order of a little under 600,000 acre feet a year. Bank storage is another 350,000 acre feet a year.

Mr. DOOLITTLE. OK. But the bank storage, you believe, comes back as the level of the reservoir drops.

Mr. CALHOON. That is essentially correct.

Mr. DOOLITTLE. So then it wouldn't be fair to say that we're losing banks—I apologize to Mr. Gibbons. Can we give him a couple extra minutes.

Mr. HANSEN. Without objection, we will just give him two additional minutes.

Mr. DOOLITTLE. OK. Let me just get the rest of the answer. So the bank storage, if we set aside the bank storage, what is the loss, then, due to evaporation?

Mr. CALHOON. In 1996, the evaporation loss for Lake Powell was computed at, I believe, 585,000 acre feet.

Mr. DOOLITTLE. OK. Thank you. I thank the gentleman.

Mr. HANSEN. The Secretary will give two additional minutes to the gentleman from Nevada.

Mr. GIBBONS. I appreciate that, Mr. Chairman. Hopefully, I won't take that long. If the evaporation rates are a condition of consideration for removal of a water storage area, is there a criteria upon which the amount of the evaporation is a determining factor in making a recommendation to eliminate a water storage area? Is there a percentage or a criteria in that area?

Mr. MARTINEZ. Mr. Chairman, Congressman, I think that—I'm not aware of evaporation being considered as a criteria for removing the structure or evacuating a structure. It is criteria that is considered at the time you construct the structure.

It would appear to me that, if the evaporation rate is so great, you would not construct the structure in the first place. So those issues from an engineering perspective should have been addressed at the time the dam was constructed and designed.

Mr. GIBBONS. Sure. I understand that. And it's based on the size of the impoundment area, whether it's wide and thin or wide and shallow versus deep?

Mr. MARTINEZ. It's based on the——

Mr. GIBBONS. Total quality of water versus the evaporation rate would be under consideration?

Mr. MARTINEZ. Mr. Chairman, it's based on the exposed surface area and the location of the structure. For a given area, the evaporation rates would be higher at Lake Mead than they would be at Glen Canyon Dam.

Mr. GIBBONS. OK. Mr. Galvin, how many units of the national park system would be impacted by this proposal?

Mr. GALVIN. Well, we startup in canyon lands, so there are—and Lake Mead, of course—well, let's just go up—let's go up the river. We have Lake Mead National Recreation area, Grand Canyon National Park, Glen Canyon National Recreation area, and Canyon Lands.

Now, that covers the length of the river. But there are other—there are other units that are on these drainages, Capital Reef and Dinosaur upstream, although that is not—I mean, theoretically, because the water flows change, they could be somehow impacted.

Mr. GIBBONS. So the national park system has a very, very active participatory interest in this hearing today?

Mr. GALVIN. Yeah. We've—you know, we manage recreation on the Colorado River for a very significant length of that and on the tributaries of the Colorado River.

Mr. GIBBONS. Now, you were requested by the Committee to appear here today, were you not?

Mr. GALVIN. Yes.

Mr. GIBBONS. And, originally, you intended just to submit a written statement. Did you have any discussions with the Department of Interior about your appearance here today?

Mr. GALVIN. The committee invited the National Park Service to appear as an expert witness. And, originally, in preparing for the hearing, we prepared two separate statements. It was the decision of the Department of Interior simply to incorporate the perspectives of the National Park Service under Mr. Martinez's statement.

Because of schedules, we did have some discussion about who the witness would be. And I was the witness, then I wasn't the witness. Then we discussed with the Subcommittee. And they wanted a high-ranking management official, so I agreed I would be the witness.

But it was largely a consideration of schedules that was—there was no direction from the Department one way or the other.

Mr. GIBBONS. Has the National Park Service an interest in the endangered species that exist along the Colorado River?

Mr. GALVIN. Yes. In fact, we were a participant on the environmental impact statement on the management of the river that was referred to in previous testimony.

Mr. GIBBONS. Are there a number of endangered species that exist upstream but not downstream or vice versa because of the existence of Glen Canyon Dam?

Mr. GALVIN. I am aware of endangered species downstream because the environmental impact statement principally covered the management of the Colorado River below the dam. And an important—the endangered species thing sort of cuts both ways, because the temperature of the water is influenced, obviously, by the dam. But there are clearly endangered species downstream of the dam that would—that would become more endangered if the canyon was drained. On the other hand, there are some that perhaps would benefit from warm water.

Mr. GIBBONS. Thank you, Mr. Chairman.

Mr. HANSEN. The gentleman from Nevada, Mr. Ensign.

Mr. ENSIGN. Thank you, Mr. Chairman. Mr. Martinez, the part that you raised about extensive drought, could you just give me your definition of what extensive drought would be.

Mr. MARTINEZ. I refer to Mr. Calhoon.

Mr. CALHOON. Mr. Chairman, Congressman, we've experienced several significant droughts. The droughts in the thirties are of historical record. And the droughts of the fifties were very significant. More recently, we experienced a 6-year drought on the Colorado River beginning in 1986 in which we realized approximately two-thirds of the normal runoff during that 6-year period.

Mr. ENSIGN. And you're saying that that is a significant enough drought period to have an effect on the lower basin States on the supply of water that they would get.

Mr. CALHOON. Mr. Chairman, particularly the earlier droughts of the thirties and fifties, the drought—if the 6-year drought in the eighties had gone on longer, I am sure that would have been the case then also.

Mr. ENSIGN. So am I safe in saying that, with a reasonable degree of certainty, the drainage of Lake Powell will have, within the next 30 or 40 years, almost assuredly based on at least the last hundred years, will have a severe affect on the lower basin States?

Mr. CALHOON. Mr. Chairman, experience would indicate that would be the case.

Mr. ENSIGN. Thank you. Also, can you address why Lake Mead's evaporation rate is greater. We're saying, you know, if you drain Lake Powell, Lake Mead has a greater evaporation rate.

Mr. CALHOON. Mr. Chairman, Lake Mead is at a lower elevation and experiences a much higher temperature year-round. And that would be the primary reason for the higher evaporation loss.

Mr. ENSIGN. So you're saying that, by draining Lake Powell and putting the water into Lake Mead, because of the increased temperature and the lower elevation, then we increase even more evaporation. So some of the benefit that the Sierra Club seems to think by draining Lake Powell is actually negated because of the increased evaporation rates in Lake Mead; is that correct?

Mr. CALHOON. Mr. Chairman, that is correct.

Mr. ENSIGN. Have you seen anything put out by the Sierra Club that would address that issue, that would—in other words, that they address that maybe counter—counters the argument against that.

Mr. CALHOON. Mr. Chairman, no, I have not.

Mr. ENSIGN. OK, thank you.

Mr. DOOLITTLE. Would the gentleman yield?

Mr. ENSIGN. Yes.

Mr. DOOLITTLE. I just want to understand this. Lake Mead is, I think, the largest reservoir in the country, right?

Mr. CALHOON. Mr. Chairman, that is correct.

Mr. DOOLITTLE. OK. And that's, what, twenties—if Powell is 27 million, what is Lake Mead?

Mr. CALHOON. It's slightly more than 27. It's larger.

Mr. DOOLITTLE. OK. I'm just wondering how are you going to put all that—and assume Lake Mead is full. How are you going to put another 27 million acre feet of water in Lake Mead?

Mr. CALHOON. Mr. Chairman, that would be physically impossible. Additional water supplies, when Lake Mead is full, would flow through the system over the spillway.

Mr. DOOLITTLE. I mean, there is no way you could do it, right? So you would be cutting, I don't know what it would be, but you would be making a dramatic cut in your obviously 27 million acre foot cut in your reservoir storage capacity. But, I mean, you couldn't just—you just can't add water into Lake Mead beyond what it can hold, right?

Mr. CALHOON. That is correct.

Mr. DOOLITTLE. I mean, theoretically, you shouldn't be able to add another drop beyond its 27 million acre feet of storage, is that right, without flooding something or causing some damage?

Mr. CALHOON. Mr. Chairman, that is essentially correct. Of course, Lake Mead is not completely full all of the time.

Mr. DOOLITTLE. Right. But I mean the point is that you're going to lose, I don't know, if you took an average, I mean, how much is typically available for added storage in Lake Mead when it's not—let's say it's not full all the time, like if it's 80 percent full or what percentage would it be normally?

Mr. CALHOON. Mr. Chairman, we could supply that for the record. I don't have that information.

Mr. DOOLITTLE. OK. I just think it's important for the Committee to understand that it's not like you can just get rid of Lake Powell and have it all in Lake Mead, and we're all just fat, dumb, and happy. Thank you.

Mr. HANSEN. We're pleased to have J.D. Hayworth, past Member of our Committee and Member of Congress and a gentleman from Arizona. Do you have any comments to make?

Mr. HAYWORTH. Mr. Chairman, only to say that I hope the description of my colleague from California won't be used for me because I'm a little bit nutritionally challenged from time to time. And there are those that would say the same thing about my intellectual capacities. But I thank you for the chance to be here with you. And I'm sure my colleague from California was not referring to me.

Mr. HANSEN. We'll accept that. Mr. Galvin, I didn't get it straight when somebody asked you the question. Does the National Park Service and this administration have a position on this proposal?

Mr. GALVIN. Well, Mr. Martinez used the word "unrealistic." And Mr. Shadegg quoted the National Geographics article. I believe that is, to the extent that we offer positions at an oversight hearing, that's our position.

Mr. HANSEN. You stated earlier the amount of visitation, and you used overnight figures. Did I hear you correctly that you said it was one of the highest or second highest?

Mr. GALVIN. It is actually second to Yosemite National Park in terms of overnight stays. And I suspect, this year, because of the fewer facilities at Yosemite, it will be the highest number of overnight stays in the national park system.

Mr. HANSEN. You say it will be the highest of the entire Park Service?

Mr. GALVIN. Yes.

Mr. HANSEN. All 375 units, huh?

Mr. GALVIN. Right. And that is because of the nature of the visitation. It's not—unlike Lake Mead, which is primarily day use, near major metropolitan areas, people come to Glen Canyon and stay overnight. They take the house boats down the lake, as you know. So they tend to be overnight—there are 456 hotel rooms. There are 600 camp sites.

Mr. HANSEN. Last time I was there, I talked to the superintendent, and he indicated to me that about 400,000 people launched boats there last year. Is that a correct statement?

Mr. GALVIN. If the superintendent said that, it's undoubtedly true, Mr. Chairman.

Mr. HANSEN. OK. Never cross the superintendent, do you?

Mr. GALVIN. Well, I wouldn't say that.

Mr. HANSEN. Mr. Hacskaylo, which areas are specifically treated with power? Would you identify those that receive this hydropower?

Mr. HACSKAYLO. Yes, sir. From the Glen Canyon Dam and the Colorado River Storage Project, our customers are located in Utah, Colorado, Wyoming—a few in Wyoming, a few in New Mexico, Arizona, and I believe one customer in Nevada. We do have a map which we'd be happy to provide for the record showing the locations of our customers.

Mr. HANSEN. We previously asked the question as to how many tons of coal would have to make up for the loss. How many generating plants do you think would have to be created in order to fill

the gap that we would lose from the hydropower? How many kilowatts, sir? Would you have any——

Mr. HACSKAYLO. Right now, the maximum operating capability of Glen Canyon power plant is 1,356 megawatts. I'm sure the consulting engineers could give any sort of variations on what would be needed to replace that lost capacity. I do not have an answer for that.

Mr. HANSEN. And you would assume that would have to be done by fossil fuels or coal——

Mr. HACSKAYLO. This is correct.

Mr. HANSEN. [continuing] or nuclear?

Mr. HACSKAYLO. That would be a reasonable assumption, yes, sir.

Mr. HANSEN. I see.

Mr. Shadegg had one more comment he wanted to make. We'll give him a minute to do that.

Mr. SHADEGG. Thank you, Mr. Chairman. I just noticed that there was some significant discussion here about the issue of bank storage and the Bureau of Reclamation claiming that some of that can be regained. And I simply want to make a couple of points.

I noted earlier that I was not able to get the witnesses here as a result of the short timing of this hearing that I thought ought to be here. One of the witnesses I think deserves to be here is the representative of the Hopi tribe. Congressman Stump, who represents the Hopis, is not a member of the this Committee, but is deeply concerned about this issue.

And I want to make this point: Again, in his seminal paper on this issue, "Let The River Run Through It," Mr. Brower, the principal proponent or leading proponent of this idea, diminishes the idea of bank storage by saying, quote: "All too likely, the region's downward slanting geological strata are leading some of Powell's waters into the dark unknown," close quote.

I believe were there a Hopi witness here, he would tell you or she would tell you that, in point of fact, the dark unknown is a very viable aquifer that underlies the Hopi reservation and which is currently supplying water to the Hopi. And the Hopi are greatly concerned, as I know Congressman Hayworth knows, about the loss of that water, and have indeed come to the Congress and said, not only are we worried about the depletion of that aquifer over time, but we would like it supplemented by a pipeline from Lake Powell.

And I would suggest very strongly that the dark unknown that Mr. Brower refers to is, in fact, an aquifer underlying the Hopi and Navajo reservations and is important to their lives and economies. And I look forward to asking the representatives of the Navajo nation here if they share that concern about damage to that aquifer were the lake drained. Thank you, Mr. Chairman.

[The prepared statement of Mr. Stump follows:]

STATEMENT OF HON. BOB STUMP, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

Chairman Hansen, Chairman Doolittle, distinguished members of the Resources Committee, panelists and interested parties,

Lake Powell, while not a natural lake, has a very positive presence in Northern Arizona and in Southern Utah. World renowned for its outstanding scenic beauty and extraordinary recreational opportunities, the Lake also serves as an important

water storage body, whose Glen Canyon Dam is an essential generator of critically needed electrical power.

Draining Lake Powell to "restore" the Colorado River is simply destruction for destruction's sake that would irreparably harm fish and wildlife that today accept Lake Powell as their home. It would also have grave consequences for river towns whose economies depend upon recreational tourism. The uncertain water supplies brought on by draining would harm downstream users and would create unnecessary spikes in electrical generation and distribution costs, all without giving U.S. taxpayers one sound reason for the need to do so.

Aren't taxpayers sick enough of costly, ill-advised government initiatives? As a Member of Congress, I urge my colleagues here at this oversight hearing to let taxpayers know that Congress has heard their pleas. I will stand with you in telling taxpayers that Congress will not pull the plug on Lake Powell.

Mr. HANSEN. Thank you. We'll excuse this panel. Thank you so much for being here.

[The prepared statement of Mr. Brower may be found at end of hearing.]

Mr. HANSEN. Our next witnesses are Mr. Adam Werbach, President of the Sierra Club; Mr. Ted Stewart, Executive Director of the Utah Department of Natural Resources; Rita P. Pearson, Director of Arizona Department of Water Resources; Mark Whitlock, Executive Director of FAME. And David Wegner was asked by Mr. Werbach if he could sit with him. I have no objection to that if you want to bring him up.

Mr. DOOLITTLE. Mr. Chairman, are you going to ask unanimous consent to bring up Mr. Wegner, because I intend to object.

Mr. HANSEN. Well, I'll tell you what, we'll have him sit there, and we won't call upon him to testify until the third panel. Is that all right?

Mr. DOOLITTLE. Or even the fourth panel.

Mr. HANSEN. Mr. Wegner, if you would like to sit up there, we won't call upon you to testify until the third panel.

You all realize that in this setting there is some strong feelings on both sides of every issue. And they are most of the time in this area. So Mr. Werbach, we're pleased that you could join us today. And we'll turn the time to you for your testimony, sir.

STATEMENT OF ADAM WERBACH, PRESIDENT, SIERRA CLUB

Mr. WERBACH. Thank you very much, Mr. Chairman. Mr. Chairman and members of the Subcommittee, my name is Adam Werbach, and I am the President of the Sierra Club. I thank you for the opportunity to appear before you today.

I represent the Sierra Club's 600,000 members across America in supporting the restoration of one of the most special places on earth, Glen Canyon, for our families and for our future.

Last November, the Sierra Club's national board of directors voted unanimously to advocate the draining of the Lake Powell Reservoir. This might have surprised some people, but it was a natural decision for the Sierra Club.

The Sierra Club has been protecting unique natural resources throughout the Colorado River basin for the last 50 years. Throughout our history, we have urged protection of the Green and Yampa Rivers and Dinosaur National Monument, the Animas River in Colorado. And we have always stood for the river canyons along the Colorado.

Flooding Glen Canyon was never a good idea. And the Sierra Club never thought that it was. But we had no idea how wrong it was at the time it was proposed. David Brower, who could not be here today because of health problems with his wife, Anne, called Glen Canyon the place that no one knew.

While the canyons of Dinosaur National Monuments were world famous, only a few people had experienced the transcendent natural majesty of Glen Canyon. Few people had rafted its waters. Few people had explored its mysterious side canyons. Few people experienced Glen Canyon's quite soulful magic.

Those who did experience Glen Canyon were lucky. I regret that I was born too late to see one of God's masterpieces. I hope my children will have that chance.

The sense of remorse spreads beyond the Sierra Club. Former Senator Barry Goldwater recently reflected in the PBS documentary "Cadillac Desert" that, quote, "I'd vote against it. I have become convinced that, while water is important, it's just not that important," end quote.

We are simply not being good stewards of the river. By inundating Glen Canyon, we have eliminated some of the most productive habitat for native Colorado fish, many of which have been smothered forever from the face of this earth. The remaining species hang on as isolated and aging populations in only a few places along the river.

The Colorado River Compact promises more water to the basin States and to Mexico than what nature provides. And most of that water goes to water plants, not people. Many of these plants, like cotton, are not native to the desert, are heavy water users, and would not be grown at all if their cultivation was not supported by a complex web of tax breaks, subsidies, and Federal price supports.

Perhaps most appalling is that the Grand Canyon is suffering from the effects of Glen Canyon Dam. This dam has turned its water—its warm water native fish habitats cold, cutoff the supply of sediments needed to rebuild its beaches and shorelines, and prevented the cleansing seasonal floods.

We have only a short window of time to act to protect the native species of the Grand Canyon that are on the verge of extinction. Let us not be known as the generation that sacrificed the Grand Canyon.

In the not-too-distant future, Lake Powell, like all reservoirs, will be rendered useless for water storage and power by incoming silt. Between seepage into the canyon walls around Lake Powell and evaporation from this vast, flat high-elevation reservoir located in one of the driest areas in the country, water loss is estimated at almost one million acre feet of water per year according to the Bureau of Reclamation, enough for a city the size of Los Angeles. This is no way to run a river. And it's not the legacy to leave for our children.

Now, there is good news. Changes are possible without massive shortfalls in water or power. I would like to submit to the hearing record a study just completed by the Environmental Defense Fund entitled, "The Effect of Draining Lake Powell on Water Supply and Electricity Production."

Now, EDF used the Bureau of Reclamation's own hydrologic model for managing the Colorado River to assess the impacts of the river system with and without Lake Powell and even assumed growth in water use through the year 2050. The analysis shows that, quote: "On average, the drained Lake Powell scenario reduces deliveries to the lower basin by only 91,000 acre feet per year, approximately 1.15 percent of all lower basin deliveries. The Colorado River's ability to meet upper basin obligations does not depend on whether Lake Powell is drained."

Regarding hydropower, EDF finds that most, quote, "most power users in the Southwest would not be affected," end quote. And the estimated cost to all Americans of restoring Glen Canyon by foregoing power revenues from the dam is only 37 cents a piece per year, a bargain for what we would get back.

EDF concludes that, quote: "A comprehensive study of all effects of the proposal to drain Lake Powell is clearly warranted."

We believe that these preliminary analyses show that draining Lake Powell is possible without major dislocations, that it's affordable, and that it's not too late to consider this option.

The power generation loss from Glen Canyon Dam can be replaced by natural gas or conservation elsewhere. And the cost spread over the rate base of the western power grade should not be prohibitive.

Today, society is reevaluating our past fascination with dams. Congress has directed that the Elwa Dam in Washington State be removed to restore the rivers. Reservoirs in the Colombia and Snake River basins are being proposed for drawdown to restore salmon runs. Glen Canyon Dam itself has been re-regulated by 1992 legislation.

The Sierra Club supports evaluating the tradeoffs and opportunities of draining Lake Powell through an environment assessment. We urge the administration to undertake this review. Regardless of where you stand on this issue, it clearly makes sense to examine the facts. The fate of the Grand Canyons is at stake. Our goal is to make the place no one knew the place that everyone knows about. We believe that the American public would choose in favor of Glen Canyon. Thank you, Mr. Chairman, for beginning this conversation.

[The prepared statement of Mr. Werbach may be found at end of hearing.]

Mr. HANSEN. Thank you, Mr. Werbach.

Mr. VENTO. Mr. Chairman, apparently the EDF study I would ask unanimous consent to be included in the record.

Mr. HANSEN. Without objection, so ordered.

[The information referred to may be found at end of hearing.]

Mr. HANSEN. Ted Stewart, Executive Director, Department of Natural Resources, State of Utah. Mr. Stewart, we'll recognize you, sir.

STATEMENT OF TED STEWART, EXECUTIVE DIRECTOR, UTAH DEPARTMENT OF NATURAL RESOURCES

Mr. STEWART. Thank you, Mr. Chairman. In 1922, the Colorado River Compact was entered into between the seven States most af-

fected by the Colorado River. An equitable apportionment of that river was agreed to after considerable and painful debate.

The Colorado River is divided into two basins, the upper and the lower. The upper basin consists of the States of Utah, Wyoming, Colorado, and New Mexico. The lower basin States are Arizona, Nevada, and California.

That Compact requires that, in any 10-year period of time, 75 million acre-feet of water be delivered by the upper basin States at Lees Ferry, which is immediately below Glen Canyon Dam. And that is, if you will, the highest priority on the river, except perhaps the Mexican treaty obligation that has already been discussed here.

Unfortunately, the river does not work on averages, which apparently the EDF study is based on. The flow at Glen Canyon or, excuse me, Lees Ferry can vary from 5.8 million acre feet a year to over 24 million acre feet a year. Yet, the obligation to deliver 75 million acre feet in any 10-year period remains.

The storage in Lake Powell is absolutely essential for the ability of the upper basin States to meet that obligation to the lower basin States. If Lake Powell were drained, water would be taken from the taps along the Wasatch Front and Salt Lake City, because the Central Utah Project brings water from the Colorado River basin to the Wasatch Front.

The State of Utah cannot rely on its ability to—with the other upper basin states—meet that obligation to the lower basin States without Lake Powell storage. It is that simple.

In addition to the Central Utah Project, obligations to Native American tribes in the Uintah Basin and the eastern part of the State of Utah would be at risk. And, in addition, current plans to bring water to southwestern Utah, one of the fastest growing areas in the entire country, is dependent to a large extent on a proposed pipeline from Lake Powell to Washington County and other areas in Southwest Utah.

So, again, there is an absolute obligation to meet that 75 million acre-feet to the lower basin States. And it cannot be met without storage in Lake Powell.

Besides the water storage, secondary benefits have already been mentioned—the hydropower, the recreation. The State of Utah, along with the other Western States, are always told we have to free ourselves from this historical "Old West" mentality of being dependent upon natural resource jobs. Forget about mining. It's a historical oddity. Forget about grazing cattle and sheep. It's evil. Let's get rid of all of this oil and gas production, become dependent, or at least more dependent, on tourism.

Well, people in this part of the State of Utah have become dependent on tourism. They have accepted that challenge. And in excess of $400 million a year is generated by those millions of visitors that come to Lake Powell. Are we now going to remove that option for the people in Southern Utah as a way of sustaining an economic base?

Lake Powell (Glen Canyon Dam) is a natural resource, but it is also a public resource. It belongs to every one of us. And when any group, especially a group with the reputation and the influence of the Sierra Club, comes forward and makes a proposal, they have an obligation to answer certain questions, I believe.

One of those questions has to be: "Where will Utah and the other upper basin States get its water if Lake Powell storage is removed?" The population in the State of Utah is booming. We're currently slightly over 2 million people. In the next 20 years, it is estimated we will add another million people. Where will water come from if we are not allowed to develop our full Colorado River allocation?

It has been stated that we can put the water in Lake Mead. The Bureau of Reclamation just a few minutes ago indicated what a foolish notion that was. But if I may point out this, earlier this year, environmentalists brought a lawsuit to stop the increased storage at Lake Mead because of its impact on the Southwest willow flycatcher, an endangered species.

Lake Mead is currently rising because the Colorado River has begun to flow at heavier levels than it has over the last 6 or 7 years. The natural increase was going to destroy willow habitat. Environmentalists brought a lawsuit to require the Bureau of Reclamation to not allow that increased storage to happen.

The second question that I think needs to be answered is, "Why is the recreation that may be available to an additional 15,000 to 20,000 people, which is what is estimated will be allowed to use Glen Canyon if it is restored, be superior to or a higher priority than that recreation that is currently available to about 3 million Americans?"

Additionally, "Where will the replacement power come from?" "Where will the repayments to the Federal Treasury for the dam come from?" " Who will pay for the cost of restoration? Where will the millions and millions of tons of silt and other materials that are found in Lake Powell be moved to? And who will move them? At what cost to taxpayers or others?"

These are legitimate questions. And, again, my assertion is, before anyone comes and starts talking about the use, or the change in use, of any public resource, they have an obligation to answer these legitimate questions. And I believe those answers have not been forthcoming to this point. Thank you, Mr. Chairman.

[The prepared statement of Mr. Stewart may be found at end of hearing.]

Mr. HANSEN. Thank you, Mr. Stewart.

Rita Pearson. I turn the time to you, madam.

STATEMENT OF RITA PEARSON, DIRECTOR, ARIZONA DEPARTMENT OF WATER RESOURCES

Ms. PEARSON. Good morning, Chairman Hansen and members of the joint Subcommittees. My name is Rita Pearson, and I am the Director of the Arizona Department of Water Resources.

Thank you for the opportunity to speak on behalf of the State of Arizona. My testimony today will focus on Arizona's primary concerns with the draining of Lake Powell, a proposal which we adamantly oppose. I've submitted written testimony that provides additional details. And I will refer to it periodically during my testimony.

I would also like to acknowledge the submission of testimony from Governor Jane Hull, Arizona's Governor, on behalf of the State of Arizona as well.

Draining Lake Powell cannot be seriously considered for many reasons. But the principal reason is because life as we know it here in the West would be impossible without Lake Powell Reservoir. It is one of the keystone facilities used in managing the Colorado River basin system and the hydroelectric power resources generated from it.

Draining Lake Powell would have serious impacts on water supplies in the lower basin States, Arizona, California, and Nevada, as well as creating environmental and economic hardships, specifically in the State of Arizona.

As has been mentioned a number of times this morning, Lake Powell can store 25 million acre feet or more of Colorado River water. That's 42 percent of the storage capacity of the entire Colorado River system.

Lake Powell is the upper basin's insurance policy, because with it, the upper basin cannot guarantee annual deliveries to the lower basin of 7½ million acre feet pursuant to the 1922 Interstate Compact.

The Colorado River is one of the most erratically flowing rivers in the United States. It has flows as high as 23 million acre feet in 1 year and as low as 5 million acre feet in another.

With my testimony today, I submitted a chart which shows annual inflows into the Colorado River above Glen Canyon Dam. You will see that it's a roller coaster. No 2 years are alike. In fact, talking about averages as we have heard today from the Sierra Club is absolutely meaningless without a reservoir system. And because of this, if the storage capabilities of Glen Canyon Dam and Lake Powell are eliminated, future Colorado water supplies in the lower basin States will be critically jeopardized. It will be a water resource feast or famine.

Seventy percent of the natural inflows flowing into Lake Powell occur during the months of May, June, and July. The only way we can capture the runoff is through reservoir storage. Without Lake Powell, the Bureau of Reclamation's modeling indicates that shortages in the lower basin could occur as early as the year 2006, almost 20 years earlier than had been projected. And I note, we are projecting shortages today without the elimination of Lake Powell. But eliminating that storage capacity reduces supplies and makes shortage a possibility much sooner.

Arizona is particularly vulnerable to shortage. As a result of the 1968 Colorado River Basin Project Act, the water supply through the central Arizona project into central and southern Arizona is the lowest priority water in the lower basin.

During such a shortage, as a result of Lake Powell drainage, the CAP could see diversions reduced to zero as early as 2051. Without Lake Powell, as I mentioned, as early as 2006, the probability of shortage jumps to 25 percent or once in every 4 years. By 2051, shortages could occur one-third of the time.

We have noted that 600,000 acre feet of evaporative storage disappears every year from Lake Powell. That is a cost—that's the insurance premium that we buy in order to guarantee 27 million acre feet of storage. That is a very important storage capacity for the lower basin system.

To give you an idea of how important the CAP is to Arizona, it provides water to Maricopa, Pinal, and Pima Counties where 3½ million acre people live. More than 2.4 million people live in Maricopa County alone, which is the home to Phoenix, Arizona, the sixth largest city in the United States.

Currently, the majority of our water is delivered to agriculture, but with each passing year, more and more of that water is delivered to cities, cities that do not have the flexibility of retiring ag. land. There is an ongoing demand that does not cease regardless of drought conditions.

I would also point out, the Southern Nevada Water Authority would be greatly jeopardized as well. Their intake pump is set at 7.3 million acre feet of storage in Lake Mead. If all of the demand is drawn off of Lake Mead, we would have serious shortages in both Southern California and Southern Nevada.

The drought referred to earlier between 1986 and 1993 took 20 million acre feet of storage out of the system. If that was borne solely by Lake Mead, Nevada's intake pumps would have been left high and dry. Twenty million people are served by supplies in the lower basin by water from the Colorado River.

In addition to drainage problems from Lake Powell, that would also cause problems from Lake Mead. Annual storage in Lake Mead would be reduced as well. And you would have to manage the system either for a drought condition or for a flood condition. In other words, if you're managing for a drought, you have to maximize the storage in Lake Mead. But when the flood hits, you have nowhere to put the water. It goes down streams. And downstream communities like Yuma, Bull Head City, Lake Havasu City would be greatly jeopardized.

In addition to that, you have more than 30 years of sediment trapped behind Glen Canyon Dam. The estimates are that between 65,000 and 100,000 cubic yards of sediment are annually gathered behind Glen Canyon Dam.

When Lake Powell dries out, the sediment will evaporate. It will move into the air. We will have air quality problems throughout the West as well as water quality problems from the selenium and heavy metals in the sediment.

Three years ago, the lower basin States entered into a multistate State habitat conservation plan. That plan is designed to protect over 100 plant and wildlife species dependent upon the lower Colorado.

Our ability to protect those species is directly dependent upon the water supply. If we lose Lake Powell, all of our flexibility in the system is managed off of Lake Mead. We will be unable to protect those species as we have planned to in joint agreements with the Interior Department, environmental groups, and Indian tribes as well. Mr. Chairman, I see I am out of time. I have a bit more testimony, but I would be happy to stop.

Mr. HANSEN. How much time do you need?

Ms. PEARSON. Probably another 2 minutes.

Mr. HANSEN. I'll give you an additional 2 minutes.

Ms. PEARSON. Thank you, Mr. Chairman. Let me briefly touch upon the visitation at the Glen Canyon recreational area, including Lake Powell. We've talked about 3 million people a year visiting

there. The canyon is now open in a way it never was before. As has been talked about by the previous panel, it has the second largest number of overnight stays of any park in the national system. Forty-two thousand people annually float the river. Seventy thousand now visit Rainbow Bridge, a national monument that was not readily accessible because it was 6 miles into very difficult territory.

The annual economic impact to the tiny Arizona communities like Marble Canyon and Vermillion Cliffs that are associated with the Lees Ferry fishery are estimated to be $5 million alone. Draining Lake Powell would shut down the blue ribbon trout fishery known as Lees Ferry. And 8,000 people reside in Page, Arizona, where tourism and the Navajo Generating Station are the principal types of employment there.

Mr. Chairman, I could go on and on about the impacts of draining Lake Powell. But let me first and finally point out that there is an old saying that they use in the West, that water is just around the corner. It is just over the next hill. That is no longer the case in the West. We have identified and quantified all of the available supplies of water. We are facing shortages today without the draining of Lake Powell. To exacerbate it would be irresponsible. I would like to suggest that we use history as a guidepost, not a hitching post. Thank you.

[The preparerd statement of Ms. Pearson may be found at end of hearing.]

Mr. HANSEN. Thank you very much. Our next witness is Mark Whitlock. He's accompanied by Shelia Reed, Project Manager, Environment Protection Department of FAME Renaissance. Mr. Whitlock.

STATEMENT OF MARK WHITLOCK, EXECUTIVE DIRECTOR, FAME RENAISSANCE

Mr. WHITLOCK. Mr. Chairman, members of the Subcommittee, ladies and gentlemen, we appreciate the opportunity to be here today to share some of our concerns we have regarding the Sierra Club and the Glen Canyon Institute's proposal to drain Lake Powell.

My name is Mark Whitlock. And I serve as a minister of First A.M.E. Church led by Dr. Cecil L. Murray. We have some 14,000 members. And we are all on one accord with this issue.

We believe that water is important. We believe it sustains life, offers new life, provides a preservation of life. Thus, we believe we must retain Lake Powell. Certainly, as the city of Los Angeles grows by some 210,000 people per year, and possibly by the year 2020, we will have some 21.5 million people in the city of Los Angeles, State of California.

We're concerned that if there is not enough water available, then we will have to go out and spend an enormous amount of money finding the supplies for them. Clearly, Lake Powell provides that surplus, that water needed to sustain life.

If we have to spend more money on new water supplies, then there will be a cost incurred for that research, that new project. And that cost, unfortunately, reflects back on our ratepayers or our community, our constituents, whose water bills will increase.

Well, that's where the rubber meets the road for us. Clearly, in south central Los Angeles, where we suffer from the poverty of money, an unemployment rate of anywhere from 16 percent, in some areas of our community as high as 50 percent, a poverty rate in our community of 25 percent. So any increase in water, any increase in bills takes food out of the mouths of our children. So we—we clearly believe water is important. Thus, Lake Powell is important.

Why not look at another program? Why not look at another way to provide resources to continue working within the system? We support a project that we work closely on with the Metropolitan Water District and other agencies within the city of Los Angeles. That project, we call it a water conservation program.

Most toilets, shower heads in the city of Los Angeles are rather antiquated. One flush could result in a loss of 9 to as much as 16 gallons of water. Clearly, if you take a piece of tissue and put it down the drain, 16 gallons of water gone.

Well, a partnership with the Metropolitan Water District results in a savings of water. Five years ago, they offered us the opportunity to exchange the old guzzler, 9 to 16 gallons per flush for a new guzzler, 1.6 gallons of water per flush.

We thought it was a bit strange to offer that program to First A.M.E. Church, an organization that has allowed certainly minister—allowed Martin Luther King to come over our pulpit, Mandela, even President Clinton has offered a few words over our pulpit. We thought it a bit strange to talk about toilets over the pulpit at First A.M.E. Church.

Well, we did support the program. And they paid a small fee for that program. And out of that program, we were able to hire men, women who were unemployed or underemployed, some 30 of them, to be exact. And they started exchanging toilets.

The agency wanted just 100 a week. These men, women started exchanging toilets to the tune of a thousand a week. And within a 2½-year period, we exchanged some 84,000 toilets, resulting in a savings of 68,710 acre feet of water. They saved some billions of gallons of water. A program that works, a program that works within the system, certainly not the extreme of eliminating Lake Powell.

So, today, we support the retention of Lake Powell for all the right reasons. And we challenge, certainly, other agencies to develop a partnership, a partnership that saves water, a partnership that creates jobs, lowers water bills, and at the same time, preserves the Colorado River and certainly supports the continuation of Lake Powell.

We thank you for the opportunity to be here today. We certainly welcome any questions that you may have, Shelia Reed and I. I'm Mark Whitlock. Thank you so much.

[The prepared statement of Mr. Whitlock may be found at end of hearing.]

Mr. HANSEN. Thank you, Mr. Whitlock. I appreciate the testimony of all of our witnesses. We'll now go to the Committee for questions of the witnesses. I would like to hold you to the 5 minutes, if I could. We'll start out with Mr. Doolittle.

Mr. DOOLITTLE. Ms. Pearson, I would like to refer to your—the graph you supplied with your testimony. If we were to drain Lake Powell and thus Hoover Dam and Lake Mead would become the main regulating reservoir in the Colorado River system, I'm just wondering, looking at this, it looks like in 1979 that you had 17 million acre feet. And yet, in 1980, there were 5 million acre feet for a difference of 12 million. And then you go into, it looks like, 1981, you had 8 million; and then 1982, you had 23 million for a difference of 15. I just can't imagine how would you ever purport to manage this—your manager would have to be wrong at least half the time, I would think.

Ms. PEARSON. That's correct, Congressman. There is no perfect predictor out there. And so that's why we have the reservoir system. That is the only way we can manage this system.

Mr. DOOLITTLE. Well, that would be a very substantial drawback, even for those who are arguing that this is a desirable to go to one. Certainly, this would seem to be irrefutable evidence that there would be no way you could ever manage. And if—I assume flood control would get the highest priority amongst the multiple uses. And if that's the case, then you're going to create plenty of flood reservation storage in case you get a year of 23 million acre feet flowing in as opposed to 5 million like the year before. Let me ask Mr.—is it Werbach? Is that——

Mr. WERBACH. Werbach.

Mr. DOOLITTLE. Werbach. Thank you. Mr. Werbach, how do you react to this chart?

Mr. WERBACH. Well, right now what we're asking for is solely an environmental assessment of this proposal. And all these things would need to be looked at very carefully. What this would require would be the Bureau to be a more effective manager of those water resources.

Mr. DOOLITTLE. So you're saying—I'm sorry. I was distracted. But you're indicating you're just calling for the study rather than making a claim that we can live with this?

Mr. WERBACH. The Sierra Club advocates the draining of the lake. But we believe right now we need to look at a lot of the facts that a lot of the other witnesses raised right here, to look into the issue and to examine them and to begin a conversation with society to see where we come out.

We believe that, after looking at the facts, people will believe this is the right course of action. But we wouldn't be so bold to say that all those facts are already in hand.

Mr. DOOLITTLE. Well, given the testimony you've heard today, which I guess you could say we've begun the conversation, does this concern you, the ability to properly manage the river when you tear down the—one of the main reservoirs on it and have this kind of annual fluctuation like history shows we've had?

Mr. WERBACH. That would certainly be one of the issues that we'd look into.

Mr. DOOLITTLE. OK. You state in your testimony in the not too distant future Lake Powell, like all the reservoirs, would be rendered useless for water storage and power by incoming silt. What do you mean when you say "the not too distant future?"

Mr. WERBACH. Well, if we use the Bureau's figures of 700 years for total filling of the silt of the dam, in about 250 years the outlet tubes would be inundated. And at that point, the dam's effective use as a power generation plant would be essentially useless.

Mr. DOOLITTLE. So you had in mind, then, their figures of say 250 to 500 years.

Mr. WERBACH. If we use those figures. There are other figures that suggest that those numbers would be between 70 and 125 years.

Mr. DOOLITTLE. All right. But, I mean, I'd say that 250 years is a fair way into the future.

Mr. WERBACH. Well, it depends on what your level of horizon is. Two hundred fifty years for the destruction of one of the canyons that took millions of years to create is really not that long. In a geologic sense, 250 years is really nothing.

Mr. DOOLITTLE. Well, that is longer than we've been a country. It's long for Americans. Maybe it's not long for Europeans. Let me ask you this: If we do tear it down so that we have to have more storage, then, would the Sierra Club support the inundation of additional river miles that are currently upstream of Lake Mead in order to compensate for the loss of storage behind Glen Canyon Dam?

Mr. WERBACH. Well, we don't believe that you should fill up Lake Mead to an extraordinary level that would be unsafe. We wouldn't suggest that. And let me clarify one thing. The Sierra Club is not suggesting that we tear down Glen Canyon Dam. We are only suggesting that we bypass it.

Mr. DOOLITTLE. OK. Bypass it. That is true. Well, then, you've heard the testimony that it has to go somewhere. Wouldn't that be a necessary consequence of bypassing Glen Canyon Dam that you would have to store more water in Lake Mead?

Mr. WERBACH. Well, some of the water would be used to fulfill our treaty obligations to Mexico. The water would flow through.

Mr. DOOLITTLE. Well, our treaty obligation to Mexico is, what, 1½ million acre feet? So I mean, out of the total number of acre feet in this system, that's relatively small. So we're going to have to put the water someplace. And I guess I'm just trying to see if the Sierra Club is going to advocate this, and if we were to act on it, then what would your complete proposal be? How would we provide for the storage needs? I mean, would you support the construction of a dam someplace else to store it?

Mr. WERBACH. Let me refer back to the EDF study that I have quoted. Let me read a paragraph from it. Let me use something that I cutoff from my testimony because I was running a little long. Information prepared by the Bureau of Reclamation itself in July 1997 addresses the issue of draining Lake Powell and says that the difference between the average annual inflow to the reservoir and current upper basin use is, quote, enough to satisfy the Colorado River Compact obligation of 75 million acre feet for 10 years to the lower basin without needing the storage of Lake Powell.

In addition, recovered evaporation losses from Lake Powell would help to meet any potential deficiency in the Mexican treaty obligation. That's in this document that was prepared by the Bureau of Reclamation.

Mr. DOOLITTLE. My question to you is—can I have a couple extra minutes?

Mr. HANSEN. The gentleman is recognized for two additional minutes.

Mr. DOOLITTLE. Thank you. How are we—since—I mean, yes, an average is just a theoretical number given the way the Colorado River actually works, as demonstrated by this chart. But how would we practically manage the river for flood control, water supply, power generation, to name three important things, not to mention the recreation and environmental aspects, but how would you manage those three things without having more storage?

Mr. WERBACH. It is a river, and rivers flow. It's only our obstructions on the river that have stopped and made those impoundments. Now, as I said, you would be able to have enough water to fulfill the Compact obligations, but it would be letting more water flow through the river.

Mr. DOOLITTLE. Well, yes, it's a river, and rivers flow. I think we'll all stipulate to that. The problem is sometimes they flow very slowly, and sometimes they flow in raging torrents. And the Colorado River is an extreme example from that. And it can go from one extreme in 1 year literally to the other in the next year.

So how do the river managers manage this river in such a way to meet the power and the water and the flood control needs? I don't see how they could possibly do it without having more reservoir storage?

Mr. WERBACH. There is plenty of water. The question is who gets it and how much they pay for it.

Mr. DOOLITTLE. Well, sometimes there's too much water. Sometimes there's not enough. You heard testimony from Mr. Stewart that the upper basin will be without water in a sustained period of drought, which happens every few years. I think we heard testimony there was a 6-year drought for a while. Now, we've got El Nino hitting us in the West this year.

So I just—I don't want to be argumentative with you, but I mean rivers flow. That's exactly the point. That's why we have—you're going to tear down—not tear down. You're going to bypass the second largest reservoir on this Colorado River system. And when you do that, you're going to tremendously limit the flexibility to manage for all these other important values.

So telling somebody that has lost his house that, while rivers flow, or somebody that's, you know, on water rationing because they have flowed out trying to have enough reservation for flood storage, it turned out to be a miscalculation, I mean, that doesn't really satisfy for us.

I think you're going to—before you can move your idea, you're going to really have to come up with some answers for what you do when you eliminate essentially 27 million acre feet of storage that we presently have behind Glen Canyon Dam. Thank you, Mr. Chairman.

Mr. HANSEN. The gentleman from Minnesota.

Mr. VENTO. Thank you, Mr. Chairman. I was not here earlier. I just wanted to make the observation that I think that this hearing sort of underlines the importance of land use decisions we make on

the Committee. And that, very often, they are almost irreversible in terms of the consequences they have.

In this instance, as I look at the witness, the list of witnesses, both in recreation and economic and other factors, I mean, really, this dam has set down a land use pattern—a land use pattern in terms of population and use that is very difficult to change.

So it's one thing to look at the physical geography of this and the changed view of an individual, Mr. Brower, and then others to try and talk about how this is going to be or could be accomplished, because it makes it very difficult in terms of turning that away.

Of course I visited this site, realized tremendous recreation park designations have gone on based on the fact there is a reservoir there. It's one of those things we designate, I guess, parks for recreation purposes for certain.

So I think, though, as we look ahead, I mean, there may be physical or other problems that do exist with this. I realize there is some points about—I mean, it is an efficient use. This water isn't going to be running into the ocean. It goes someplace before. And, as you said, for safety or for other reasons, if you were just doing this for safety reasons, you probably would have a much different type of facility than you have. And a lot of it is lost, as they point out through, evaporation. And the argument here is whether it's a million or half million acre feet that are lost and treaty obligations and other issues.

But I think it's useful to have the hearing in the sense that—and further review of the issue. I don't know what—if, in fact, there is a real interest in doing an environmental impact statement or a study. I note that there is a volunteer group that is going to go ahead and move with that.

In fact, we have begun to modify in 1992 the policy path for the—for how the water levels in Glen Canyon were, in fact, managed, to look at the restoration of some of the beaches and some of the other. Because, you know, it dramatically has changed the whole system, the geography and the ecosystems down river. And I don't know the answers to this. It's pretty much if you just say you're going to bypass it and go without it, you left behind millions of people or more—millions of people and rate users and others that have obviously a vested interest. They have come to depend upon this. And so you clearly cannot move, you know, in that direction without—without considering what the consequences are.

And I think, at this point, just as when Don Hodel, Secretary of Interior, I think was Secretary, then came in and said, let us take Hetch Hetchy down or bypass it or drain it. It was another question.

But I think there is a growing realization of some of the consequences of these type of structures of an age—I don't know what the age is on this one. I know that, looking at Elwa Dam, which had been there for—since the thirties, 50, 60 years, it looks like it would stand there another 100 to me the way it looked. It looked like it was in pretty good shape. Yet we're not using it. That's a much smaller scale problem than the problem that is clearly being presented here, a much different purpose, a much different use.

But these are expensive to maintain. They represent some serious problems in terms of what the consequences are as we look

today. So, you know, one of our jobs is to get new information, to get new knowledge, and to translate it into public policy. That's what we do here. That's what we're supposed to do.

And, obviously this—there is certain—you know, recognizing our errors, and we all make them, I guess. If we pass perfect laws, we wouldn't have to be meeting here every year. But we know that they're imperfect.

But I think it's a viable question to raise. Everyone raises questions about what happens to the population of the West if you do this. This is a legitimate concern for certain as much as they might think that we're—you know, most of us are concerned about that. We want to do reasonable and cognitive things.

So I think that's the spirit in which I take this. I understand that, right now, there are all sorts of technical questions we could ask about Glen Canyon, whether California is overappropriating water, whether Colorado is overappropriating water, whether there are treaty problems with Mexico. I think the answer to those are all yes.

So this is going to be an ongoing issue in terms of where we go, and the physical condition of this dam, whether it could meet the expectations and all the goals that it has. But we ought to be looking at alternatives. And certainly, you know, one of them may be looking at what—how we can better manage this to address some of the concerns and what we're going to do in the future in terms of this infrastructure as it ages. It won't happen—I don't know if it's going to be 250 years. I would say more like 50 years. So I'm really scaring Mr. Doolittle.

Mr. HANSEN. Thank you, Mr. Vento.

Mr. VENTO. Thank you, Mr. Chairman.

Mr. HANSEN. The gentleman from Utah, Mr. Cannon.

Mr. CANNON. Thank you, Mr. Chairman.

Mr. Werbach, you suggested or said very clearly that the Sierra Club advocates the draining of Lake Powell and that your purpose now is to start a dialog. It seems to me that the chart that Mr. Doolittle is talking about which shows the annual variation in runoff in the Colorado River above Glen Canyon Dam is one of the most significant elements in any kind of decision to change the usage of the dam or eliminate the dam.

And my normal course is to ask short questions and add to a record. What I would really like to do is give you some time to talk about that chart, those variations in yearly flow, and how, in this very complicated set of issues, you expect that to sort itself out.

I've truly been trying to understand what your position is. I've made a list of the various goals that you would like to change or balances that you would like to change. But it seems to me that, in the end, you come down to how you control the water that runs through it and what you do.

Would you mind just taking a few minutes? What I would like to do is give you the time to advocate that position. Whether this discussion goes on any further really is going to turn on that, I think.

Mr. WERBACH. I appreciate the opportunity. Once again, you know, there are very serious environmental issues at stake here. The fate of the Grand Canyon is at stake here. And we have issues

that we need to talk about. What we're advocating now is that we look into these issues through an environmental assessment and examine what's happening. What I would like to do is turn it over to Dave Wegner, who is more familiar with these issues specifically to respond to your question. Dave.

Mr. CANNON. That would be fine, but let me just point out that you're advocating draining the lake. That's what the position of the Sierra Club is and that's what you voted on. And so I would very much like to hear from Mr. Wegner what—how the control of the extreme flows fits into the purposes that you're trying to accomplish here.

Mr. WEGNER. Well, Mr. Congressman, my name is Dave Wegner, and I am from Flagstaff, Arizona. And I'm a member, Vice President of the Glen Canyon Institute. And I'm here today to help with some of the technical issues——

Mr. DOOLITTLE. Mr. Chairman——

Mr. WEGNER. [continuing] that was just referred to.

Mr. DOOLITTLE. Mr. Chairman, I do not wish to offend feelings here. I thought Mr.—he was on the fourth panel. Is he now going to join the second panel?

Mr. HANSEN. Mr. Doolittle had objected to Mr. Wegner coming on to the second panel. And I allowed him to sit there if Mr. Werbach needed some information from him. No one objected to your objection, so I respectfully point out that you can respond to that in the following panel, third and fourth panel. I apologize. We don't want to offend you in any way. We do want to hear your testimony.

Mr. CANNON. Thank you. I'll look forward to that. If I can just then redirect my question to Mr. Werbach. You may just take the time to set forth, not the emotion behind this, but how the various factors that you're concerned about fit together. Let me just list them for you.

You're concerned about evaporation. The water presumably could be used to go into the Sea of Cortez. Concern about the danger of dam failure. The esthetics of the canyon are a major issue here, and I think may be the most important issue. And I'm not sure. I would like you to tell me that.

The concern with what is happening with the Sea of Cortez on the other side, this water is not likely to make it to the Sea of Cortez anyway except in those years when we have dramatic runoff. And the lost habitat versus some of the gained habitat that you have there, those are issues that I would like to hear you address for a few minutes.

Mr. WERBACH. Mr. Congressman, what I would like to say to you is that I am not an expert on the specifics of all these issues. That is why we do have a staff at the Sierra Club who works on the issues as well as experts who are on the other panels for you.

Mr. CANNON. But I'm not asking technical questions. We can get back to Mr. Werbach—I'm sorry, Mr. Wegner, when he is on. What I would like from you—what I want to do is just give you the opportunity to make—to present just a few more points, make a cogent case as to why we should actually begin the dialog that you're asking for.

Mr. WERBACH. Absolutely. Well, let's speak about, first, the native fish populations in the Grand Canyon. We're already seeing

die-off of isolated and aging populations, species like the humpback chub and the sucker fish that are in the Grand Canyon. The cold water that comes from Lake Powell, about 47 degrees, is too cold to support those fish. Now we need to figure out some way too deal with that.

A few years back, we tried a controlled release into the Grand Canyon to simulate a flood. Well, now our experience is that this was largely not a long-term success. We did not succeed in restoring the Grand Canyon, its beaches, and its native fish habitat. So we need to look at other options.

And when the EIS was done, when the EIS was completed for the Glen Canyon Dam, it really didn't look at the option of draining the lake. It didn't look at the option there because it was deemed infeasible at the time.

But with new information that we see, both in terms of the evaporation rates, which would seem to portend that, if there is more water available if you did not have this dam, then it would seem likely that we should take the chance to look at this issue and reflect and talk about it as a society and see what we come up with.

The Sierra Club has its position. But I understand that it will take longer for people to look at this and see the science and make these determinations on their own.

Mr. CANNON. Mr. Chairman, my time is almost up. Can I ask unanimous consent for additional minutes?

Mr. HANSEN. The gentleman is recognized for two additional minutes.

Mr. CANNON. Thank you.

Mr. HANSEN. You're welcome.

Mr. CANNON. What I would like to hear, and maybe Mr. Wegner later can do this or someone else may ask. I have asked sort of the general question, why should we continue the dialog? And what I've heard is that there are a couple of endangered species. This is the opportunity. This is the public forum for you to have the opportunity to say why.

I think the issues are much, much broader than that, especially when you consider that it's pretty clear now that the humpback chub is stable. The squaw fish was not common, even before the dam was in place. You have many other fish, as you alluded to. So but I think studies show that they're not dwindling particularly. On the other hand, you now have some endangered species that are thriving in the current habitat.

So I would just, as a plea, I'm sitting here trying to understand this. Now, I used some strong language earlier. Before the dam was done, I was very young, but it was a matter of grave concern because I love those canyons. Now many people get to see those canyons. They do it in boats instead of hiking, but they do see the beauty of those canyons, and it's a thrilling, wonderful experience.

I'm really trying to understand why we should have a dialog on the issue. And I hope that in the future, as others will ask questions, you will take the opportunity to sort of give me the broader picture on how it balances together. Thank you, Mr. Chairman.

Mr. HANSEN. The gentlelady from the Virgin Islands.

Ms. CHRISTIAN-GREEN. Thank you, Mr. Chairman. I first would like to thank the panelists for their testimony. And I would like to

commend the First A.M.E. Church for the programs that they have undertaken on behalf of their congregation and the community.

Mr. Werbach, both your testimony and the written testimony of Mr. Brower points to a frightening picture of what could happen in the area served by Lake Powell and the dam. You also say in your testimony that we're not being good stewards of this resource. Do you see that we can avoid some of these untoward outcomes by being better stewards rather than by draining the lake?

Mr. WERBACH. Well, I think the consequence of being better stewards is draining the lake. And at first blush, it may seem like a strange idea. But the thing was not actually evaluated. There was not—the dam was built before NEPA, before the National Environmental Policy Act. So an environmental review was not done for the dam. In fact, the NEPA review was just nonexistent.

So what we need to do was to look back and see it right now. Just because a mistake was made in the past and it would be difficult to change, I don't believe that's reason enough to say, well, let's ignore it. It would be difficult to do so, we should not look at this.

Ms. CHRISTIAN-GREEN. Thank you. You've partly answered my second question, and you've really answered it several times in responding to several other questions from other members from the Committee and Subcommittee.

But I did come here thinking—and as I listened to the earlier testimony, I thought we were talking about the Sierra Club having voted to drain the lake. But it's become increasingly clear, and I think it's an important distinction to make that what the Sierra Club actually did ask for was an environmental assessment; is that correct?

Mr. WERBACH. The Sierra Club did vote to advocate the draining of the lake, because we felt that was the way to began the conversation and to put it on people's radars. But right now what we're asking people to do is look at the issue, to begin an environmental assessment.

I understand the Glen Canyon Institute is interested in performing it if the administration is not.

Ms. CHRISTIAN-GREEN. I'm sorry, so you say the club is willing to do the environmental assessment themselves?

Mr. WERBACH. The Glen Canyon Institute is busy trying to raise some funds to do such an assessment. But of course, we would prefer if the administration were willing to pay for it and would feel more comfortable with the numbers and the science that would come out of it.

Ms. CHRISTIAN-GREEN. Thank you for your answers. Are any of the other panelists objecting? Do you oppose having the environmental assessment done? I understand that you may oppose the draining of the lake, but are you also in opposition to the environmental assessment?

Mr. WHITLOCK. Congresswoman Green, we feel that, clearly, we must leave Lake Powell alone. But as we examine Lake Powell and the efficacy, efficiency of draining or not draining, I think we would like to remind the panel and certainly our committee that there are innovative programs that are available, practical water conservation programs that deal with resource management.

And I think if we focus time and certainly our dollars at resource management, then we don't have to go to the extreme of considering draining the beautiful Lake Powell. Our water conservation program creates jobs. But at the same time, it saves the Colorado River. And that's the real goal here I think. And I end with that.

Ms. CHRISTIAN-GREEN. Would anyone else like to respond?

Ms. PEARSON. Congresswoman, I would have to agree with Mr. Whitlock and add that we live in a time of very, very many priorities. And unless we hear a proposal that has merit, why spend taxpayer dollars on something that has not yet been justified. I think the burden is on them. And if a private organization wants to fund the study, they're welcome to do so. But as a taxpayer, I would not appreciate having my money spent that way.

I think we know enough and we are capable of modifying the system and protecting endangered species today without conducting an additional study and a proposal that can go nowhere and cost millions.

Ms. CHRISTIAN-GREEN. I thank you for your answers.

Mr. HANSEN. Thank you. Mr. Shadegg from Arizona.

Mr. SHADEGG. Thank you, Mr. Chairman. I'll try not to be too intense about this. But I find what happened here is rather shocking. Let me begin by thanking Rita Pearson for her thoughtful testimony and for all of her work and to ask unanimous consent that the photographs of Lake Powell which she brought and the other material which she has brought here which show the beauty of that lake and which reveal, quite frankly, that a tremendous amount of the beauty of Glen Canyon is, in fact, not only not inundated, but as seen now by between somewhere between 3 and 4 million people per year and that it is a tremendous asset that those all be included in the record with unanimous consent.

Mr. HANSEN. Without objection.

[The information referred to may be found at end of hearing.]

Mr. SHADEGG. Mr. Werbach, I have to tell you that I am stunned by this proposal. I am stunned by some of the remarks that you make. And I'm a little concerned about what's happening here today.

Your testimony concludes with what I consider to be a kind of a reasonable proposal. "The Sierra Club supports evaluating the tradeoffs and opportunities and through an environmental assessment." Perhaps no one could disagree with that. But I want the record precisely clear that the board of directors of the Sierra Club voted not to study, but rather to drain Lake Powell. That's correct, isn't it?

Mr. WERBACH. To advocate the draining; that's correct.

Mr. SHADEGG. And the mission statement of the Glen Canyon Institute specifically proposes draining, not studying, draining Lake Powell; is that correct?

Mr. WERBACH. I can't speak to the mission statement.

Mr. SHADEGG. It does. And I would like to put it in the record without objection, Mr. Chairman.

Mr. HANSEN. Is there objection? Hearing none, so ordered.

[The information referred to may be found at end of hearing.]

Mr. SHADEGG. I also would like to point out that the Sierra Club did not, in fact, though your testimony suggest you represent their

600,000 members, did not, in fact, survey its members before taking this involvement. In point of fact, the President of the Utah chapter unequivocally stated in the press that she opposes this idea and that she was not consulted. Are you aware of that, and do you acknowledge it?

Mr. WERBACH. The board of directors of the Sierra Club represents the membership of the Sierra Club. We're elected by the membership in an annual election. And the Utah Chapter of the Sierra Club advocates the studying of this issue as well.

Mr. SHADEGG. You answered neither of my questions. Are you aware that she said she opposes it and the chapter opposes it? And you, I believe, just did concede that the membership did not vote on the issue.

Mr. WERBACH. No, the membership did not vote on this issue.

Mr. SHADEGG. Let me turn quickly to the point that Mr. Doolittle brought out. I would just simply say, with regard to your comment and your testimony, which I've read in many other places in the press, that in the not too distant future, Lake Powell will be filled and useless is, quite frankly, I think misleading the American people who read those comments in the press because, by your own admission, not to distant future is, in the early estimates, 250 years. By the long estimates of the Bureau, it's 700 years; and by the gentleman who manages the dam, it will be 500 years before you will even have to dredge to open up the intake tubes.

Let me turn to another comment. In the Salt Lake City paper in this year, you were quoted as saying in an article in the Salt Lake Tribune on Sunday, August 3rd: If the Club succeeded, succeeded in draining Lake Powell, it would, quote, "take 10 years for the lake to drain and another 25 years for Glen Canyon to be cleaned up and restored to its former beauty."

What basis do you have for the claim that it would be completely restored or would be restored to its former beauty in just 25 years?

Mr. WERBACH. Well, in 1992, there was a significant drawdown of the lake. And what we did see was that a lot of the natural features of Glen Canyon actually came forward again. There was a bathtub ring, as some people call it, around it. But I have every faith in the world that America would have jumped into the idea of supporting this amazing restoration project.

Mr. SHADEGG. I was on the lake in 1992 and saw the bathtub ring. I have spent many, many days there. Do you have a scientific study that establishes that it would all be restored in 25 years?

Mr. WERBACH. What we are doing is assessing this at this point.

Mr. SHADEGG. OK. I apologize for being rude, but I've got a lot of ground to cover here. The answer is you do not have a study that establishes that.

Mr. WERBACH. Not that I know of.

Mr. SHADEGG. OK. In another article published in—actually repeated in a number of places, you say that proposing to drain Lake Powell is the perfect test of someone's true colors, and I quote, quote, "it is the job of the Sierra Club to show what being green really means."

Rob Elliot from my State, a noted environmentalist himself, is here to testify strongly against this proposal. Are you saying—is

the Sierra Club saying that anyone who opposes this is not, quote-unquote, "really green?"

Mr. WERBACH. I would not tend to say—I would not make calls on people's environmentalness. I don't do that.

Mr. SHADEGG. Let me turn to some other comments. In an article in Outside Magazine, written by Bill Donohue this year, April 1997, you say: "We are going to do the science." I take it that means that, when the Sierra Club board voted, you had not, in fact, already done the science; is that correct?

Mr. WERBACH. That is correct. We are advocating environmental assessment.

Mr. SHADEGG. Well, that's not what your resolution said. It didn't say that. Your statement here today says you're doing that. But the vote of your board was to drain Lake Powell.

Mr. WERBACH. Because we believe that is the best way to advocate the draining of Lake Powell, because we believe the science will bear us out.

Mr. SHADEGG. Yeah, well, I guess maybe that then fits with the title of your forthcoming book, which is mentioned in another article that we found, which says that your forthcoming book is going to be titled: "Act First and Apologize Later." I suggest you don't think that Congress should act first and apologize later.

Mr. WERBACH. The idea is that sometime when ideas are controversial, they're hard to look at, they're hard to swallow. Sometimes society needs to take a moment and move forward. Sometimes we need to assess things that may seem unpopular, that may seem controversial because these issues are critical to our future.

Mr. SHADEGG. Mr. Chairman, may I request, since this is an important topic——

Mr. HANSEN. Is there an objection? Hearing none, the gentleman is recognized for two additional minutes.

Mr. SHADEGG. Thank you very much.

In that same article in Outside Magazine by Mr. Donohue, the question was raised as to why the Sierra Club is really doing this. And Mr. Donahue asks you point-blank, he says: "One logical answer is that the Sierra Club is simply genuflecting before its aging Arch Druid," I can't pronounce that word, "David Brower."

You respond: "That's a huge part of it." Do you think that we ought to drain Lake Powell as a—in order to pay respect to Mr. Brower for which he reports draining Lake Powell is somewhat of a grail?

Mr. WERBACH. Congressman, I have great respect for those people who are older than me, as there are many of them.

Mr. SHADEGG. Including me.

Mr. WERBACH. Say again?

Mr. SHADEGG. Including me.

Mr. WERBACH. I rely on their advice to move forward. Now, Mr. Brower fought this battle during this time. And he knew the issues. And many times he corrected the Bureau of Reclamation, which was wrong on a lot of figures. They admit that now. There are many times when he was right and they were wrong.

Now he says his action was a mistake at the time. And it would seem strange not to take the advice of someone who has such sage

wisdom and who has helped protect so many fabulous places in America.

Mr. SHADEGG. As a matter of fact, he's gone around the Nation saying that he has worn sack cloth and ashes for 40 years. And it seems to me that that may be his perspective. That's not a good comment on public policy. I think he's dead wrong now.

Let me—the one last point I want to make out of this article goes to the question of what's going on here. And I raised this in my opening statement. Mr. Donahue says the real motive, they say, these are critics of the Sierra Club, is that the Sierra Club, who's average membership is now about 45, is desperately trying to appear fresh and hip.

According to Mark Dowy, author of "Losing Ground," a Pulitzer Prize nominated study on U.S. environmentalism, the Club's board feels that the best way to attract more youthful supporters is to enhance this kind of blind idealism.

You wouldn't agree with that assessment and you wouldn't suggest we make public policy on that basis, would you?

Mr. WERBACH. The Sierra board of directors did not look at this issue at all when it was considering this issue in any way. I will mention, though, that there is extremely high support of this among young people. Young people do understand that they have not had the chance to see those canyons. And the Congressman to your left said that he has had a chance. Frankly, I'm jealous. I've seen Cataract Canyon. I was able to raft it twice this summer. And I, one day, would like to be able to raft Glen Canyon as well.

Mr. SHADEGG. You can see Glen Canyon if you go there today.

Mr. HANSEN. I thank the gentleman from Arizona.

The gentlelady from Idaho, Mrs. Chenowith.

Mrs. CHENOWETH. I join the gentleman from Arizona and the gentleman from Utah in still trying to understand your specific reasons. As I understand the reasons why you would like to see Lake Powell drained, first of all, you propose that we drain the lake, but leave the impoundment facility there, right?

Mr. WERBACH. That's correct.

Mrs. CHENOWETH. And then there would be about 15,000 people who would be hiking or floating the river in its natural state?

Mr. WERBACH. I'm not quite sure where you get that number. If you look at places like Moab, Utah, you see incredible amounts of recreational activities taking place in canyons.

Mrs. CHENOWETH. You also indicated that one of the reasons why you would recommend or the Club recommended that we drain Lake Powell was because of the humpback chub and the sucker fish; is that correct?

Mr. WERBACH. I'm sorry. Can you ask that question again?

Mrs. CHENOWETH. Another reason that you suggested that we should drain Lake Powell is because of the humpback chub fish and a sucker fish; is that correct?

Mr. WERBACH. Yes. We believe that destroying species that God created is not something that humanity should be doing.

Mrs. CHENOWETH. And then finally we heard testimony about being able to view the bathtub ring; is that correct?

Mr. WERBACH. Being able to view it?

Mrs. CHENOWETH. The bathtub ring.

Mr. WERBACH. Yes. We believe that there would be a bathtub ring for all of the garbage and crud that's been thrown out of those houseboats for all these years.

Mrs. CHENOWETH. Golly, I just find that amazing. I mean, you want what's natural but you're willing to drain the lake and leave the impoundment facility standing there. Absolutely amazing.

Right now, they have an outstanding trout fishery because the water is cooler. And so with the water warming up, there would be the greater stripe bass population, which, in turn preys, on the chub and the sucker. And I'm sorry, sir, but your logic just doesn't add up. But I find your testimony and your proposal very interesting. And believe me, I take it seriously.

I want to ask Mr. Stewart, do you believe that this particular proposal threatens the law of the river?

Mr. STEWART. I think the only way that the obligations could be met by the upper basin States to the lower basin States would be by changing the Law of the River, which is an extraordinarily complicated, delicate compromise which has been worked out for that equitable apportionment. And the potential for warfare between States would be significant.

And one of the things that I try to keep in mind is the fact that, as I count up the number—the numbers of the Members of the U.S. House of Representatives plus the U.S. Senate representing the upper basin States versus those of the lower basin States, we lose by, as I recall, about a 3 to 1 margin. And that's not a real comforting thought for those of us in the upper basin States.

Mrs. CHENOWETH. What would be the, in your opinion, the environmental impact of this proposal for wildlife and vegetation in Utah that are dependent upon the reservoir?

Mr. STEWART. Clearly, the habitats that have been established since the reservoir was created would be destroyed. And the impacts on a number of species would be great. But I would indicate this further. In order for the State of Utah to meet its water needs that would be lost because of the draining of Lake Powell, we would end up damming other rivers elsewhere in the State. Other habitats would be destroyed.

And, again, I ask the question—I asked the question earlier where why is the right of 15,000 or 20,000 people to enjoy a hike or a river run through Glen Canyon superior for the 3 million who may enjoy the flat water? Why would the destruction of additional river habitats in northern Utah to meet our water supply be less of a loss than a potential or questionable restoration of a habitat in southern Utah? Those are value judgments that are very difficult for me to accept.

Mrs. CHENOWETH. Thank you, Mr. Stewart.

Ms. Pearson, the work that you do in your capacity as director is admirable.

Ms. PEARSON. Thank you.

Mrs. CHENOWETH. And I have learned a lot from all of those of you who have testified. But you mentioned in your testimony that, without the insurance of water that Lake Powell does provide, that property values downstream could go down.

Could you, to the degree we have time, expound on this and expand on this? And, in your opinion, if we drain Lake Powell, and

the property values go down, wouldn't this require that the U.S. compensate, under the constitutional requirements, compensate for that loss?

Ms. PEARSON. Thank you, Congresswoman. There would be very local impacts. And in my testimony, I talked about the immediate impact to Page and surrounding communities that rely on tourism as a major source of income to those communities. The property values, obviously, adjacent to Lake Powell would be dramatically impacted. There would be no resource base on which to stimulate the economy. Those taxes, of course, support the infrastructure. You would have impacts on schools, medical care, et cetera. It's a very local impact.

On a regional basis, in particular, Arizona, we have a program known as 100-year assured water supply program which applies to all the major urban areas of the State. And what that does is guarantee to families, businesses that come into our area, that before they can develop, there has to be a 100-year assured water supply, a committed stable affordable water supply of high quality water available to them.

We are assuming that we have the Colorado River entitlement available to us to meet that demand. Without it, we would be forced to go back on groundwater. Groundwater is a finite source of water. We would lose that supply of water in a very short period of time. We would have inadequate amounts of water to meet the long-term demand in our communities. That would have a dramatic impact on property values. Obviously, we could not sustain our current population. Similar concerns, I think, can be expressed both in southern Nevada as well as southern California.

Mrs. CHENOWETH. Thank you. And, Mr. Chairman, I want to commend Mr. Mark Whitlock on his testimony and on the program that he has led in embarking on the installation of water-efficient shower heads and toilets. And believe me, your testimony was refreshing to hear. Keep up the good work. Thank you.

Mr. HANSEN. Thank you for the testimony of all the folks.

Mr. VENTO. Mr. Chairman, may I take my 2 minutes now? I'll take 2 minutes if I can have unanimous consent.

Mr. HANSEN. The gentleman from Minnesota.

Mr. VENTO. I don't quite share the sense of shock of my colleagues. I feel like it's a scene out of Casablanca here. They're shocked that the Sierra Club would be in favor. Frankly, I mean, in terms of some of that idealism, while I don't think, you know, that we're quite ready to act on this particular proposal I think is a good quality. And I hope that the Sierra Club and other groups that are involved from both—whatever view maintain that.

As far as studies are concerned, I think we spend a lot of money, at least we should be spending dollars on this important resource. I think there are a lot of questions raised by this in terms of what happens with the soils and the accumulation of sediments that—I heard some talk about various types of heavy metals and other things that are accumulating there.

And these, frankly, represent like some of the questions dealing with nuclear waste, you know, it's almost a problem from the mining to the disposal of the high-level waste.

And I think these dams and some of the other water structures that we're involved with in the West have some of the same sort of questions that are being raised. So as far as environmental assessment, which is a—I would expect that the Bureau of Reclamation and other authorities there are almost on a constant basis looking at the nature of the reservoir and the angle of repose, the other soils and the rate at which it's filling and other questions that are important. You know, there is a blue ribbon trout stream downstream. A lot of us who fish, we like that particular quality.

So we have dramatically changed this area. There are some positives to it, I guess, and a lot of other aspects that are not. But as we get new information, we have to be willing to look at it. I understand the position of the Sierra Club in this area, but I don't think that we should be opposed to obviously getting adequate information concerning this. Thank you, Mr. Chairman.

Mr. HANSEN. Thank you. Mr. Stewart, in your testimony, maybe I got this wrong, but you said, in Lake Mead, as it was drawing down, that a certain amount of willows were created, and this became a habitat for willow flycatchers; is that right?

Mr. STEWART. Southwest willow flycatcher, yes.

Mr. HANSEN. And now one of the proposals we have in front of us is to fill up Lake Mead with the water from Lake Powell. But you also stated that there was an environmental group that had filed a lawsuit to prohibit Lake Mead from coming up, as it would destroy that habitat; is that correct?

Mr. STEWART. That's correct.

Mr. HANSEN. Is the Sierra Club enjoined in that lawsuit, Mr. Werbach?

Mr. WERBACH. I am not sure. I will check with my staff and get that into the record.

Mr. HANSEN. Kind of a little paradox there. On one hand, you know, if you say that we want to a fill Lake Mead with Lake Powell; yet, we're in a lawsuit to prevent the flycatcher's habitat. It would be just a tad of a paradox or maybe an inconsistency. I don't mean to make a big deal out of that. But it strikes me rather odd that the environmental community who would advocate draining Lake Powell and putting the water into Lake Mead would also become an area that is something that could not occur.

Mr. Werbach, you had a very powerful organization. The Sierra Club is known nationwide, has a lot of power. It's been reported in Salt Lake papers that you folks are prepared to come up with a half million to $3 million to push this proposal. Is that correct?

Mr. WERBACH. No, that is not correct.

Mr. HANSEN. What is correct, may I ask?

Mr. WERBACH. The Sierra Club is not—the proposal to advocate the draining of the lake or the environment assessment?

Mr. HANSEN. One or both.

Mr. WERBACH. We have no budget, per se, for the proposal to advocate the draining of the lake. Our first goal right now is to complete this environmental assessment and that—the Sierra Club is not proposing to conduct that. We're proposing to help the Glen Canyon Institute. We're hoping that, with your help, the administration will undertake that review.

Mr. HANSEN. If you accept what Mr. Shadegg said about draining the lake and you folks are serious about it, if I understand how that would have to go, it would go through Congress, and Congress would pass legislation. This place is a rumor mill, we all know that, and it's a big sieve anyway. It's like the Pentagon. There are no secrets at all over there.

Anyway, having said that, we keep hearing you have a sponsor to—I've asked. Is anybody a sponsor? It's none of my business, I guess. You don't have to answer that. But do you have a sponsor on draining Lake Powell or proposing this legislation?

Mr. WERBACH. We have not seeked a sponsor for this.

Mr. HANSEN. You're not to that point yet of talking to someone; is that right?

Mr. WERBACH. No.

Mr. HANSEN. I assume you do have some Members of Congress who find this an interesting idea, though; is that correct?

Mr. WERBACH. Frankly, we haven't had conversations with the Members of Congress on this yet. This is our first opportunity to do that. And we're not really looking for it. Right now what we're trying to do is to begin this assessment so that we'll have the facts to answer many of the good questions that you're asking right now.

Mr. HANSEN. If you were to put this in a category of importance of the many things that the Sierra Club is interested in, where would you put this?

Mr. WERBACH. I would put this of critical importance to the Sierra Club.

Mr. HANSEN. It is critical importance?

Mr. WERBACH. Uh-huh.

Mr. HANSEN. Top five maybe.

Mr. WERBACH. It's critically important to the Sierra Club.

Mr. HANSEN. Critically important to the Sierra Club. Well, I appreciate that. I appreciate your candor.

We have kept you folks here quite a while. We'll excuse this panel. Excuse me, Mr. Shadegg had an additional 2 minutes he wanted to take.

Mr. SHADEGG. Mr. Chairman, I hope not to take 2 minutes. But since Mr. Brower was to be on this panel, there are, although many quotes I might want to ask him about, there are at least three that I think are critical. And I would like to put them in the record and make a case for why I think they are important.

Mr. HANSEN. Is there an objection? Hearing none, so ordered.

Mr. SHADEGG. It's pretty clear that Mr. Brower is the single most dominant advocate of this idea. If you look at the history of the political struggles within the Sierra Club, he's been on the board and off the board. He was the executive director when the lake was built and wears sack cloth and ashes as he is quoted as saying, and he wants to now right this. His piece, "Let the River Run Through It" is the seminal piece on why this ought to happen.

There are, as I said, three quotes that have been published and attributed to him which I find shocking and which I would like him to respond to. The first appears in "Environmental Overkill" published in 1993 by Dixie Lee Ray. And by the way, in none of these quotes have I found—ever have I found a statement by Mr. Brower disavowing them.

The first quote is: "While the death of young men in war is unfortunate, it is no more serious than the touching of mountains and wilderness areas by human kind."

The second quote is found in Dixie Lee Ray's book, "Trashing the Planet." It is based on a subsequent book noted in—or a prior book noted in her footnote. And this quote is: "Childbearing should be a punishable crime against society unless the parents hold a government license. All potential parents should be required to use contraceptive chemicals, the government issuing antidotes to citizens chosen for childbearing."

And the third quote—and I thought it would be impossible to trump the first two until I found this one. The third one is, quote, by Mr. Brower, the advocate of this idea: "Loggers losing their jobs because of spotted owl legislation is, in my eyes," Mr. Brower says, "no different than people being out of work after the furnaces of Dachau are shut down." That also appears in Dixie Lee Ray's book, "Environmental Overkill," published in 1993, and was never disavowed by Mr. Brower. I think those are important quotes to get into the record. And I would like——

Mr. DOOLITTLE. Would the gentleman yield?

Mr. SHADEGG. Certainly.

Mr. DOOLITTLE. I would just like to ask Mr. Werbach if you agree with those quotes or which one do you disagree with, if any.

Mr. WERBACH. First of all, let me state my great offense at the suggestion David Brower would suggest those things. No, I do not agree with those things. I do not suggest that we take Dixie Lee Ray's view on the environment as gospel.

I will mention that David Brower served in a mountaineering unit in World War II along with former Senator Bob Dole, served our country well, and does not deserve to be slandered in that way.

Mr. SHADEGG. No, reclaiming my time, these are all quotes that appear on the Internet attributed to Mr. Brower and have been there since 1990 and 1993, respectively. We have thoroughly, as you might tell at this point in this hearing, we searched this issue and Mr. Brower and found not a single occasion where he has disavowed any of them. So if this is an opportunity for him to do so, I call upon him to do so.

Mr. HANSEN. The gentleman's time has expired. We appreciate the panel being with us. Mr. Werbach, Mr. Wegner, if you would stay there.

The next panel is Jim Lochhead, Executive Director of the Colorado Department of Natural Resources. We have Melvin Bautista, Executive Director of the Division of Natural Resources of the Navajo Nation. And we have Larry E. Tarp, Chairman of Friends of Lake Powell.

We appreciate the panel being with us. You know all the rules. You can stay within 5 minutes. Thank you very much. Mr. Lochhead, Executive Director of the Colorado Department of Natural Resources, you have the floor, as we say in our business. We recognize you for 5 minutes.

STATEMENT OF JIM LOCHHEAD, EXECUTIVE DIRECTOR, COLORADO DEPARTMENT OF NATURAL RESOURCES

Mr. LOCHHEAD. Thank you, Mr. Chairman and members of the Subcommittees. I would ask the Chair's indulgence. Given the late time that I had for notice of this hearing, I wasn't able to prepare written testimony, and I would request to be able to do so after the hearing.

The purpose of my testimony today, Mr. Chairman, is to help express from an upper Colorado River basin perspective our grave concerns as to the effects of draining Lake Powell. To fully appreciate these concerns, Members of Congress should understand that this proposal is not just about one dam. Glen Canyon Dam was built and is operated as a key component of a complex framework of laws passed by Congress known as the law of the river.

These laws were born out of the necessity to provide secure water supplies. They are the product of two interstate Compacts, a U.S. Supreme Court decree, and a treaty with Mexico allocating the river's water.

They reflect the fact that for over a hundred years, the financial strength and national authority of the U.S. Congress has been absolutely necessary to avoid interstate disputes and to secure economic stability for the Colorado River basin.

Floods in the lower Colorado River in the first years of this century caused extensive damage and created the Salton Sea, bringing urgency to the desires of California irrigators for an all-American canal and a dam that would regulate the river. The California interests sought financial support for these projects from Congress.

The upper basin States were wary that the lower basin would develop at the expense of the upper basin, and successfully blocked these efforts in Congress. The upper and lower basins resolved their differences in 1922 when they signed the Colorado River Basin Compact.

The Compact divides the river's water between the basins and also sets a requirement that the upper basin not deplete the flow of the river below 75 million acre feet over any 10-year period.

Because of the erratic nature of the river (you heard the testimony on that previously) from year to year, the negotiators of the Compact in 1922 knew that the upper basin could not meet its burden without the comprehensive development throughout the basin of storage reservoirs.

The Boulder Canyon Project Act of 1928, by which Congress ratified the Compact, also directed the Secretary of Interior to develop a report to Congress, "formulating a comprehensive scheme of control in the improvement and utilization of the waters of the Colorado water and its tributaries."

The depression and World War II intervened, but in 1946, the Bureau of Reclamation completed its report. The Upper Basin Compact of 1948 allowed for Congress to implement that plan.

In the 1956 Colorado River Basin Project Act, Congress authorized the construction of so-called holdover reservoirs which would assure that the upper basin could meet its compact obligations. Lake Powell is the cornerstone of that system, supported by units at Flaming Gorge, Aspinall, and Navajo.

In the 1968 Colorado River Basin Project Act, Congress provided for the comprehensive operation of Lake Powell and the major facilities in conjunction with Lake Mead. This regulatory framework was implemented in the coordinating operating criteria by the Secretary of the Interior in 1970.

Without the ability to properly regulate river flow as provided by these facilities, Colorado and other upper basin States would face the prospect of a Compact call, which would entail the massive curtailment of water use by millions of people.

Throughout the development of this series of laws, Congress has also worked closely with the basin States and has explicitly recognized and affirmed the water allocations established under the law of the river.

In the Grand Canyon Protection Act of 1992, Congress directed that operations of the power plant in Glen Canyon Dam take into account downstream impacts. Those operations were the result of a $100 million environmental impact study that was alluded to earlier.

But that law also affirmed the critical role Lake Powell plays in meeting interstate water allocation needs. The Act makes operations for downstream purposes subject to the dam's primary water allocation function.

The Senate Energy Committee Report describes Lake Powell as follows: "Glen Canyon Dam is the keystone of the Colorado River Storage Project, CRSP, and CRSP is the central vehicle for implementation of the congressionally approved Colorado River Compact. The Compact is in turn the basis for allocation of Colorado River water among the seven Colorado River Basin States."

By storing water in the upper reservoirs at Flaming Gorge, Aspinall, and Navajo, regulating the water through Lake Powell, and delivering the water to Lake Mead, the Bureau of Reclamation has the facilities and operational flexibility to meet the needs first envisioned over 100 years ago. These facilities ensure a secure water supply for over 20 million people, and a hydroelectric and recreational resource.

As illustrated by the Grand Canyon Protection Act, the Bureau also has the ability to manage water to meet environmental goals. For example, the upper basin States, Bureau of Reclamation, Fish and Wildlife Service, and others have developed a recovery plan for four endangered fish species in the Colorado River Basin.

The plan is designed to recover these endangered species while allowing the upper basin States to fully develop our compact shares. Under this plan, the operation of these upper basin storage units has been changed to more closely approximate the natural hydrograph. Without Lake Powell, this reregulating flexibility would not be possible.

Other aspects of this recovery plan, including habitat acquisition, fish ladders, and stocking programs will need to be funded through a combination of hydropower revenues, congressional appropriations, and State and local funds. We need the help of Congress now more than ever to meet these national priorities of Colorado River management.

By directing the draining of Lake Powell, Congress would completely reverse its field from a direction in which it has steadily en-

gaged for nearly 100 years. We believe that any proposal to drain the lake should take these concerns into consideration. Thank you, Mr. Chairman.

Mr. HANSEN. Thank you, Mr. Lochhead. We appreciate it. Mr. Bautista, we'll turn the time to you, sir.

STATEMENT OF MELVIN F. BAUTISTA, EXECUTIVE DIRECTOR, NAVAJO NATION DIVISION OF NATURAL RESOURCES

Mr. BAUTISTA. Thank you. Good afternoon. My name is Melvin Bautista. I'm the Executive Director of the Division of Natural Resources for the Navajo Nation and also a member of the Navajo Nation. I would like to thank Chairman Doolittle of the Subcommittee on Water and Power and Chairman Hansen on the Subcommittee on National Parks, Public Alliance, as well as other distinguished Congressmen for extending an invitation for Navajo Nation to testify at this hearing.

We are gathered here to discuss Mr. Brower's and the Sierra Club's proposal to drain Lake Powell. To abide by the recommendation of the Sierra Club as articulated would wreak disaster upon the economic and social welfare of the Navajo Nation. It would also detrimentally and fundamentally alter a water preservation, delivery, and supply system crafted by many decades of planning and social compromise for the sake of a myopic, selfish, impractical environmental deal.

In short, the Sierra Club's proposal does not address all of the complexities of water administration under the upper compact and lower compact States. It also does not address the adverse impacts on Navajo water rights, Navajo economic development concerns, or Navajo social welfare.

Water is life in the western region of the Continental United States. Water considerations affect land and economic development plans and opportunities for all those who live here, including the Navajo Nation.

The Colorado River is a primary water supply and ground water resource in the Colorado Basin States. The Navajo nation has reserved water rights with a priority to date that relates back to creation of our reservation by the Federal Government.

The Navajo Nation entered into two treaties with the United States in 1850 and 1868. It set aside an exclusive reservation exclusive for the Navajo Nation.

Navajo water rights, however, must be quantified by a court of competent jurisdiction as part of a general stream adjudication unless the Nation authorizes a settlement approved by Congress. Thus the Navajo, like other water users in the region, is currently engaged in the general stream adjudication for a number of rivers and basins on or near the Navajo Nation, including the Colorado River.

In Arizona versus California, the Supreme Court adjudicated water rights of five Indian tribes. The Navajo Nation, however, was excluded from this litigation.

Two theories have been postulated to explain the exclusion of Navajo water rights. The first suggests that the Special Master limited his consideration of water rights on the main stream of the rivers below Lake Mead. The second envisions the surrender of

Navajo water rights in exchange for monetary consideration and a promise of beneficial economic developments which made possible a construction of a Navajo generating station. Without Lake Powell, the Navajo generating station would not exist.

Moreover, in 1958, Congress authorized exchange of Navajo reservation lands for public domain lands occupied by Navajos. Glen Canyon Dam is located on former Navajo reservation lands.

The Navajo Nation still owns the mineral estate under Lake Powell. Lake Powell flooded Navajo religious and cultural sites forever destroying their use by Navajo people. The Navajo Nation has been deprived of its minerals and culture without compensation being paid by the Federal Government.

First and foremost, a proposal to drain Lake Powell would create hardship for the Navajo Nation securing any readily accessible water supply. The proposal, if it is accepted, would literally destroy mining and agri-business concerns that provide most of the financial resources the Navajo Nation expends to provide benefits to members of the Navajo Nation.

Secondly, the Navajo Agricultural Project Enterprise and Navajo Indian Irrigation Project, also referred to as NAPE, and NIIP, would be jeopardized because it is a largely dependent upon water availability from the mainstream of the San Juan River and its tributaries for farming activities.

Water availability for NAPE and NIIP would be reduced foreclosing the possibility about ever completing this project.

Third, the Navajo Nation believes dangerous and toxic concentrations of selenium, salt, and mercury left behind from a drained lake and airborne by wind would detrimentally affect health and safety of Navajo people living near Lake Powell.

Fourth, there would be a significant cost increase for the public by substituting other resources to provide energy and electricity now or in the future by hydroelectric facilities on Lake Powell. More coal may have to be burned to maintain electricity at production levels. This may contribute to increased air pollution in a strictly regulated clean air environment.

Fifth, since many, if not all, of the native species of plant and animal life have already been destroyed or affected by Lake Powell, nonnative species would merely inhabit the vacant space. It would be prohibitively expensive to return the environment to its original habitat. Instead, it has already been drastically affected.

Furthermore, the current endangered species of fish life would have greater risk by encroachment of nonnative fish if Lake Powell was drained.

Lastly, revenues from the tourism industry created by Lake Powell, the Glen Canyon area, and the Navajo Nation would be drastically affected. During the earlier years after the lake was drained, there would be no tourism attraction. Even if the environment were perfectly reclaimed, there would be only limited tourist attraction appeal, since the recreation utility potential of the site would be greatly limited.

Many members of the Navajo Nation sell food, beverages, jewelry to tourists. This accounts for most of their income for each year. Draining Lake Powell would absolutely destroy this means of in-

come for Navajo vendors and enjoyment by those wanting to see and experience Lake Powell.

In conclusion, if Lake Powell is drained, then the Navajo Nation still desires to proceed with settlements of issues with the National Park Service concerning the Navajo Nation's boundary along the Colorado River. The Nation still maintains that the shore line of the river in the vicinity of the Grand Canyon National Park is the northern and western boundary of the Navajo reservation, which includes the center line of the San Juan River as clearly defined in our treaty.

The National Park Service refuses to accept this, even though an Arizona State court made this finding when it dismissed the citation for fishing without a license, State license within the Grand Canyon National Park to a member of the Navajo Nation. He did possess a Navajo Nation permit.

The draining of Lake Powell would do nothing but harm the economic and social welfare of the Navajo Nation. This would greatly complicate and further delay use of Colorado River water by the Navajo Nation. As such, the Navajo Nation respectfully requests that you reject the Sierra Club's proposal. Thank you.

[The prepared statement of Mr. Bautista may be found at end of hearing.]

Mr. HANSEN. Thank you, Mr. Bautista.

Mr. Tarp. We'll turn the time to you. Do you want to pull the mike over there by you, sir.

STATEMENT OF LARRY E. TARP, CHAIRMAN, FRIENDS OF LAKE POWELL

Mr. TARP. Mr. Chairman and members of the Committee, I have submitted my written testimony previously, and I assume it will be part of the record.

As the Chairman of the Friends of Lake Powell, I thank you for allowing me to speak on behalf of the people that support maintaining Lake Powell and Glen Canyon Dam.

This testimony normally would be a trying thing for a layman like myself. But while you cannot see them, I feel I have a million people standing by my side.

To begin, let me paraphrase our mission statement. We support the preservation of Lake Powell and Glen Canyon Dam for the generations. We want to provide the public factual information about social, entertainment, environmental, and the economics. And we'll solicit membership to create maximum public awareness of these issues.

We will fight off any attempts by groups that seek to alter its status. We will support environmental improvements and represent the millions of people who love the area.

Let me tell you some facts about Lake Powell. This is a fact: Lake Powell and the surrounding area is one of the most beautiful places on earth. Lake Powell is in northern Arizona and southern Utah. Ninety percent of the lake is in Utah.

The lake surface is below the surrounding mountains and is the major reason for its extreme beauty. Blue waters contrast the red sandstone cliffs. There is nothing else like it on this planet.

Lake Powell was created by Glen Canyon Dam. Lake Powell was named for Major John Wesley Powell. Lake Powell is within the Glen Canyon national recreation area, which has 1,236,800 acres, the size of Delaware. It preserves 650 million years of history with a mission to preserve the existing scientific, scenic, and historical features, which certainly include the Lake and Dam.

Lake Powell is 186 miles long with 1,960 miles of shore line, more than the entire length of the West Coast of the United States. It has 96 major side canyons.

But before I go on, for the record, I must point out some of the misleading information that proponents of draining Lake Powell have issued. First, evaporation. Claims of one million feet have been voiced, even here today. The official figures are half that. Most importantly, evaporation is not elimination. It is a natural part of weather. All bodies of water evaporate when exposed to atmospheric changes. But the water becomes clouds in the case of Lake Powell, it rains on fields and farms in places East such as Colorado, Kansas, and Nebraska.

The proponents of draining would allow this water to flow into the Sea of Cortez, where it would evaporate also and water Mexico's crops and not our heartland.

They talk about restoring the Canyon walls knowing full well that not all the king's horses and all the king's men can put the iron oxide back in.

The bathtub ring, as it is so-called, seen as the water recedes, extends from top to bottom and all around the lake. We would be left with the biggest, bleached, ugliest white hole on earth. And the proponents of lake draining would be long gone.

Statements have been made claiming the Power Plant and Dam have as little as 100 years or so. You have heard today that Bureau figures indicate 500 years for the Power Plant and up to 700 years for the Lake with a do-nothing policy.

If no superduper sources of power and energy are developed over the next 500 years, I submit to you that dredging is not rocket science.

They say simply pull the plug in Glen Canyon Dam. Impossible. As the diversion tubes are completely filled with concrete and their outlets were redirected to make spillway outlets, draining the Lake and leaving the Dam intact is not possible. Their claims that the Dam is unstable and subject to catastrophic failure are so slanderous, I refuse to discuss them.

Also, for the record, you should know that the Sierra Club's seven-member task force charged with studying this issue were invited by the Bureau of Reclamation, Mr. Bill Duncan, whose name was in the record this morning, to come to the Lake Powell, visit the Dam, and talk to the people, and they refused. Ignorance must be bliss.

Now, let me go on. Glen Canyon Power Plant controls the complete upper CSRP with six other power plants. Lake Powell is the water savings account as you've heard today for the upper basin States and for delivery to the lower basin States.

The Power Plant generates enough electricity for 400,000 people. Lake Powell hosts about 3 million visitors a year. As heard today, over 400,000 people a year come for boating activity.

The Lake now affords access to 325,000 people a year that can reach Rainbow Bridge National Monument. Before, it was about a 16-mile walk to get to that monument.

The lake is also home to about 275 species of birds, 700 species of plants. As mentioned earlier, the Peregrine Falcon is there. And, largely, the lake is the reason its population is being removed from the endangered species list. We have trout fishing. The lake waters supply the Navajo generating station, as was stated earlier.

Electricity is equal to about $100 million a year from Glen Canyon Dam. About a Billion Dollars a year from NGS. And all of these dollars are subject to Federal taxes, State taxes, County taxes, and City taxes.

The local commerce supports human services, hospital, schools, libraries, and other essential services. Nearly 23,000 Native Americans live on nearby reservations. Our public school enrollments are 63 percent Native American.

In closing, let me say that the people involved in daily life, commerce, and the free enterprise system surrounding the area will oppose until their deaths any person or persons that attempt to disrupt our personal rights, freedoms, and opportunities for existence around Lake Powell.

According to the intent of the articles of our Constitution, no one person or group has either the right or the power to impose their belief on others in this the great United States of America. We, the millions of Friends of Lake Powell, are citizens and voters and intend to see that these rights are upheld regardless of time and cost. Thank you for the opportunity to speak to you today.

[The prepared statement of Mr. Tarp may be found at end of hearing.]

Mr. HANSEN. Thank you, Mr. Tarp. The gentleman from California, Mr. Doolittle, for the questions for this panel.

Mr. DOOLITTLE. Mr. Bautista, I appreciated your testimony. And you indicated therein that Lake Powell is basically on your reservation's land. Didn't I read that?

Mr. BAUTISTA. Yes.

Mr. DOOLITTLE. You retain the mineral estate. I guess you've acceded the surface rights, but you have the mineral estate underneath it; isn't that correct?

Mr. BAUTISTA. Yes. When the exchange was done to create the McCrackin Mesa in Utah, the lands were taken from the Lake Powell area where Glen Canyon Dam was built. So, essentially, the subsurface estate still belongs to the Navajo Nation as well as the area. We always had arguments with the National Park Service in terms—the terms are basically saying that Navajo Nation still recognizes their boundary as being the edge of the Colorado River and center line for San Juan River. So that is where a lot of the issues come from. Thank you.

Mr. DOOLITTLE. You have there flooded over Indian burial sites and other heritage and cultural sites, do you not?

Mr. BAUTISTA. Yes, we do.

Mr. DOOLITTLE. And, yet, unlike the Sierra Club, you have not joined in this effort to drain the lake to recover those sites.

Mr. BAUTISTA. Well, the attempts were made to try to educate the Bureau of Reclamation at that time when that was being done.

And they did try to work with us in terms of trying to take many of the items that were down in the canyon area out.

But, unfortunately, we lost some of the areas where basically prayers and offerings were made, so we could not do that anymore. The lake does exist now. And the areas around those places where we used for prayers are still used, but further away from their original site.

Mr. DOOLITTLE. I guess I'm just trying to draw out here, you would have a real vested interest, arguably, in draining the lake because of these sites; and, yet, you have not elected to do so, weighing the pros and the cons of such a drastic action.

Mr. BAUTISTA. We would not be interested in draining the lake, because that has very—it's a source of water supply for both the Navajos and the Hopi tribe. We're currently in litigation involving the lower Colorado River. And this is one area that both Nations have identified as being a source of water supply for our area.

Mr. DOOLITTLE. I noticed from your testimony that, in the litigation involving the lower basin States, the Navajo Nation was excluded from having its rights adjudicated at that point. Is that correct?

Mr. BAUTISTA. That is correct.

Mr. DOOLITTLE. So you're now involved in the negotiation of the—of your own compact, I guess, with the Federal Government? How does that—where are we in those negotiations?

Mr. BAUTISTA. Essentially, we are still involved in terms of trying to settle many of the issues that the Navajo Nation has in terms of water rights, not only the Colorado River, but many of the tributaries that flow into the Colorado River.

And in many cases, the Navajo Nation does have the water rights, but we are trying to work with the various people, government, local governments, the city, the county governments, and whatnot to try to at least work out a way where we can share the water. So that's what we are currently working on now in terms of basically a settlement.

Mr. DOOLITTLE. Does Lake Powell present the Navajo Nation with significant economic opportunities?

Mr. BAUTISTA. Yes, it does. Many of our Navajo vendors who basically don't have jobs—the Navajo Nation is about 45 percent unemployed. And people that live along the lake, that's the only source of employment that they have in terms of selling food, jewelry, and whatever they can use to do that, and also taking people on tours. Additionally, they try to assist in terms of working with people that do come to the area as well. Thank you.

Mr. DOOLITTLE. I also just mention, I noted when I visited the Navajo Generating Station, there were a number of Navajo employees there. And I gather that you depend upon Lake Powell for your water as well as for the livelihood that your people would hope to make in the future.

Mr. BAUTISTA. Yes. That's true. In terms of Lake Powell. And there is no water that comes from Lake Powell. It only goes to the city of Page currently. And we are trying to negotiate in the water litigation, or excuse me, water settlement discussions under the LCR, lower Colorado River, to try and take water out of the lake.

In terms of the Navajo generating station, we are currently negotiating Royalty re-openers with Peabody which supplies coal to the Navajo generating station, as well as Mojave, to allow us to sell more coal to them for revenue generation. But Lake Powell is one of the key ingredients of part of the negotiations.

Mr. DOOLITTLE. Thank you. Mr. Lochhead, could your upper basin States meet the obligation to deliver the 7½ million acre feet to the lower basin States without Lake Powell?

Mr. LOCHHEAD. Mr. Chairman, I don't believe that we could, Congressman. And the testimony of Mr. Bautista, I think, illustrates also that there are a number of uncertainties regarding the regulation and allocation of the river system, the negotiation of tribal reserved rights among them, that we are trying to work on as States with the tribal nations and the Colorado River states. Those uncertainties present further challenges to our ability to re-regulate water for these allocation purposes and additional demands on the system that would need to be addressed.

Mr. DOOLITTLE. Thank you. Mr. Tarp, my time is up. I just wanted to mention I appreciated very much your testimony. I thought you drew out a number of the important values about Lake Powell and Glen Canyon Dam.

Thank you, Mr. Chairman.

Mr. HANSEN. Thank you, Mr. Doolittle.

The gentlelady from the Virgin Islands, Mrs. Green.

Ms. CHRISTIAN–GREEN. Thank you, Mr. Chairman. I wanted to thank you for your testimony, also. I wanted to ask Mr. Werbach, Mr. Bautista in his conclusion of his testimony says that the Sierra Club's proposal views the destruction of Glen Canyon Dam and Lake Powell with justifications that benefit only a few members of the human community. Would you comment on that?

Mr. WERBACH. Well, the Sierra Club pays deference to the Navajo Nation and supports them reaching their treaty obligations and hopes that this Committee will help them do so.

We have spoken to some other Nations in the area, Haulapai, the Havasupai, and the Hopi, all of whom, while not having voted formerly on it, their departments of natural resources supports studying the issue and looking into options. At this time, as we said, there are lots of issues still at hand. And these are very, very important. Native American rights are critical to the success of this plan. Right now we want to do the assessment and take it from there.

Ms. CHRISTIAN–GREEN. Thank you. And thank you, Mr. Chairman, for holding this hearing. It has been very informative. And I can see that there are many difficulties and far-reaching impacts involved with draining—the possibility of draining Lake Powell. But certainly, Mr. Chairman, I think we have an obligation, not only to this generation, but to those to come. And so, while in the end, I may or may not support the draining of the lake, I do support an environmental assessment. Because I believe that the people of Utah, California, Nevada, Colorado, and the other States that are involved do have a right to know. And so I would support Federal funds being used to fund either in part or in whole the environmental assessment. Thank you, Mr. Chairman.

Mr. HANSEN. Thank you very much. Informative and provocative I probably would add to that. The gentleman from Arizona, Mr. Shadegg.

Mr. SHADEGG. Thank you, Mr. Chairman. Mr. Bautista, I want to thank you for taking the time to travel here all the way from Arizona. I appreciate your being here. I made reference in my earlier comments to the fact that both you and the Hopi share an important aquifer which lies under your reservations and which I believe is, in part, as full or has the capacity it currently has because of the existence of Lake Powell.

I note in your testimony that you talk about adverse impact on Navajo water rights, Navajo economic development, Navajo social welfare, and go on to say that, in point of fact, the proposal would create great hardship and would literally destroy mining and agribusiness that provide most of the financial resources of the Navajo Nation.

The Navajo Nation does not have a particularly strong economic base at the present time, does it, Mr. Bautista?

Mr. BAUTISTA. That is correct.

Mr. SHADEGG. What is unemployment on the reservation?

Mr. BAUTISTA. Unemployment runs approximately 45 percent.

Mr. SHADEGG. And if we were to rule out all of the recreation activities which now provide jobs and other associated jobs, the operation of the dam, the operation of the Navajo power plant, all of which or most of which have native American hiring preferences, that would be devastating to your employment base, would it not?

Mr. BAUTISTA. Yes, it would.

Mr. SHADEGG. Let me talk briefly. Peabody Coal has a Black Mesa mine that employes many Native Americans, both Navajo and Hopi, does it not?

Mr. BAUTISTA. Yes, it does.

Mr. SHADEGG. OK. And it is dependent upon the power generated at the Navajo generating station.

Mr. BAUTISTA. Yes.

Mr. SHADEGG. So if we were to lose the Navajo generating station because we had no cooling water, we would literally shut the mine.

Mr. BAUTISTA. Yes, it would.

Mr. SHADEGG. And, also, it is dependent upon the water from the aquifer that I have mentioned. If we were to lose that water, there would be no way to pump the coal and slurry where it is taken to the West; is that right?

Mr. BAUTISTA. That's correct.

Mr. SHADEGG. So we really can lose that mine in two different regards.

I note, and I'm glad you touched upon it, that in your testimony, you talk about the dangerous and toxic concentrations of selenium, salts, and mercury left behind from a drained lake and which the airborne wind would detrimentally affect the health and safety of the Navajo people. Are you familiar with the experience in California with regard to Owens Lake?

Mr. BAUTISTA. Not that familiar with it.

Mr. SHADEGG. Let me just point it out. And I want to ask some of the serious environmentalists who are here to talk to us today

if they have thought through that issue, because, in point of fact, the experience at Owens Lake demonstrates that, were we to dry up Lake Powell, we would leave the sediment with all of these toxins in it, including, perhaps, nuclear toxins in it, which would be blown around by dust. And we can get into Owens lake later, but I appreciate your testimony and appreciate you coming here and thank you for that.

Mr. Tarp, I would like to turn to you. I believe you are familiar with Stan Jones, one of the premier chroniclers of Lake Powell.

Mr. TARP. Yes. He is called Mr. Lake Powell.

Mr. SHADEGG. He is called Mr. Lake Powell. This is one of his many books. I would, Mr. Chairman, like to put this into the record. Because it depicts some of the beauty of Lake Powell. I know that I spoke with Stan Jones for—at length Sunday morning. And I know that Mr. Tarp spoke with him at length. So I would like to put that into the record.

Mr. HANSEN. Without objection, so ordered.

Mr. SHADEGG. He's quite an environmentalist in his own right; is he not?

Mr. TARP. Yes, he is. If I might just read a small statement that he gave me over the phone. He said: "I submit to you that Glen Canyon and its 100 or more side canyons do not need to be restored. Why? Because they were never lost or destroyed by the waters of Lake Powell.

Every canyon is still there and in its full splendor. Yes, there may be 100 or even 200 feet of water on the floors, but when the walls go up, some straight up over 1,000 feet, it actually enhances them. Rather than think of it as spoiling them, think of it as having a reflective base that appears to double their height.

Plus, they are completely accessible by water. And still by land as well or by foot or by pack animal, if you prefer. The water access can make this trip short, full of additional splendor, and very calming.

In a week or two of concentrated boating effort, a person or group could see nearly all 100 of them. Without water access, I doubt a person or group could see them all in a lifetime.

I invite Adam Werbach, his family, and Mr. David Brower to come to Page, and we will personally show them the variety of splendor they never have nor never would see if they had to walk in, ride the river, or come on pack mules.

Mr. SHADEGG. I thank you for that.

Mr. Chairman, when I spoke with Stan Jones on Sunday by phone, he pointed out something to me that I was unaware of, and that is that there was a preinundation study of the lake and of the wildlife, both in the canyon and on Navajo Mountain. That study is, I believe, some 25 pages long. And Mr. Jones could not get it to me in time for this hearing.

He did, however, on Monday fax to me a three-page statement in which he lifts direct quotes from that study, which demonstrate, I think, quite vividly that, in the absence of a constant supply of water, there was really very little wildlife relatively speaking, very few birds in the area. And there are a number of quotes. And without objection, Mr. Chairman, I would like this inserted in the record.

Mr. HANSEN. Hearing no objection, so ordered.

Mr. SHADEGG. Let me just conclude by saying, as I mentioned earlier in my testimony or in my opening statement, I have camped in or explored virtually every canyon on Lake Powell from Wahweap to Bullfrog.

Speaking about Stan Jones' comment about the reflective ability, in the canyon immediately south of Rainbow Bridge on the—what would be the southeast side of the lake, I have explored that canyon all the way up to where the boat we were in, which was 8 feet wide, was touching sandstone on each side.

We went off the front of the boat in a little what would be the kind of raft that you would lie on in a swimming pool and went further up the canyon to where we could touch both sides of the canyon and look. And, at that point, we were floating in water and looking straight up for sandstone cliffs that went 300 to 400 feet above our heads. It is magnificent. I suggest draining it would destroy an incredible natural wondering enjoyed by millions of people annually and makes no sense.

Mr. HANSEN. Thank you very much.

Mr. Tarp, you heard Mr. Werbach say that, in the eyes of the Sierra Club, this proposal was critically important. How important is it to your group?

Mr. TARP. Well, I think a lot has been said today about the water rights and what would happen, and I won't get into that discussion. But I believe the economics of the issue, the enjoyment, the human bonding, I think about a family going out on a houseboat for 3 or 4 days enjoying life together, sitting around the campfire together, which doesn't usually go on in a family home.

Getting back to the economic's side, I recently found out, although I was not able to include it in my testimony, the assessed value in the city of Page today, as of June is $370 million. And I submit to you that, without Lake Powell, the city would be valueless because, A: it has no other water source, and B: obviously they would have no source of revenue without the recreational activities associated with the Lake and Dam.

Mr. HANSEN. It's hard to put that in dollars, isn't it? But yet, as you look at it, the State of Utah claims they bring in $409 million a year because of the dam.

Every time I go down there, I stand at Waheap and look at the slips with just the boats there, for example, and then look out at the boats that are anchored. I've always tried to evaluate how much money is sitting there. Has anyone ever made a guess on that? Between—forgetting Halls Crossing and Bullfrog and Hite and the money sitting at Dangling Rope, what would you estimate that as?

Mr. TARP. Well, I can only estimate. But I would say, on the south end of the lake, between the slip's and the buoy's, there are approximately 1,000 boats. And I would suggest to you that, with all the peripherals, insurance and the other costs, they probably have an average value of $100,000 or more each.

Mr. HANSEN. That's rather expensive, isn't it?

Well, I thank this panel for being with us. And we'll excuse you. And, Mr. Wegner, it's your turn now. We're going to get to you.

Now, Mr. Werbach can give you instructions as you go back and forth there.

Our last panel is Robert Elliot, Arizona Raft Adventurers; Joseph Hunter, Executive Director of Colorado River Energy Distribution Association, CREDA, and David Wegner, Ecosystems Management International.

So we're grateful for you folks for being here. We'll get you all labeled here so we know who you are.

Mr. Elliott, we will start with you and then Mr. Hunter and, Mr. Wegner, you can be the cleanup batter here.

Mr. ELLIOTT. Mr. Chairman, distinguished members of the Committee——

Mr. HANSEN. You know the rules. We would appreciate it if you could stay within your time.

Mr. Elliott, we turn to you, sir.

STATEMENT OF ROBERT ELLIOTT, AMERICA OUTDOORS AND ARIZONA RAFT ADVENTURES

Mr. ELLIOTT. Mr. Chairman and illustrious members of the Subcommittees, thank you kindly for inviting me to testify today.

My name is Rob Elliott. I represent America Outdoors, a national trade association comprised of 600 small businesses which outfit back country trips for the public on lands managed by government agencies across the Nation. I am also the President of Arizona Raft Adventures, a river runner in the Grand Canyon.

Knowing what we know today, and on balance with all the myriad considerations, I am adamantly opposed to the draining of Lake Powell and I will document my position in a few moments.

Spiritually, I grew up in Glen Canyon. I have lived and worked and played on the Colorado plateau most of my adult life, and I have outfitted over 30,000 people on river trips through the Grand Canyon. I have represented the outfitting industry and the transition work group for several years working directly with the Bureau of Reclamation and the dozen or so cooperating agencies in the development of the Glen Canyon Dam EIS.

In the spring of 1962, I was twice blessed when I floated through Glen Canyon with David Brower. Before dawn one morning, I left alone for the 6-mile hike up Aztec Creek to see Rainbow Bridge and upon returning to camp I had an epiphany. I cried out loud and apologized to God for our flooding of Glen Canyon. That experience forever annealed the environmental ethic to my soul.

The second blessing was meeting and coming to know David Brower, a personal hero of mine. David Brower taught me that one person can make a monumental difference in the world.

My first reaction to the notion of draining Lake Powell and freeing the Colorado River to its pre-dammed condition was, wouldn't it be wonderful to turn back the clock? And what a preposterous idea.

My more studied reaction to the proposal to drain Lake Powell is that the riparian habitat in Grand Canyon downstream from the dam is today amazingly vibrant, rich in biodiversity, nonetheless legitimate because it is a highly managed ecosystem. And it is threatened by both the prospect of draining Lake Powell and the

possibility that nature may act first to blow out Glen Canyon Dam, with or without the authorization of Congress.

With the control of annual flooding in Grand Canyon, there has been a dramatic increase in riparian vegetation with a corresponding increase of biodiversity, including supportive habitat for threatened and endangered species. By accident, we have created a refuge for Neotropical birds of regional significance, and the cold clear water below the dam supports a blue ribbon trout fishery. A highly regulated river has produced high biodiversity and new recreational opportunity.

What are the environmental consequences of draining Lake Powell?

With the draining of Lake Powell and the freeing of Glen Canyon from beneath megatons of potentially toxic sediments, restoration would begin immediately and take perhaps a millennium for nature to restore Glen Canyon to, to what? We don't know. But not likely to its original splendor.

Glen Canyon would be an unstable environment for a very long period of time, and the first species to reclaim the land would very likely be invasive, nonnative specious such as tamarisk and camel thorn. Restoration to a natural condition may neither be possible nor desirable. We know very little about the environmental consequences of draining Lake Powell, but we do know some things about river sediments and delta deposits elsewhere.

As river sediments accumulate, various naturally occurring compounds and heavy metals concentrate to toxic levels.

What do the proponents of draining the lake suggest we do with these potentially toxic sediments? The Colorado River flowing into Glen Canyon would carry the same sediments it does today. Upon entering the former Lake Powell, the river would pick up newly exposed lake sediments. At best, the mix of lake sediments with upstream sediments is a black box scientifically.

If the sediments flow through Glen and Grand Canyons, then Lake Meade will fill all the more quickly. And then are we to decommission Hoover Dam as well? Is the only ultimate answer to let the sediments run through to the Sea of Cortez? To use the water, we must remove the sediments. And I admit, that fact poses very tough questions for future generations. It is not too soon to start looking for the answers today.

I am a strong advocate for deepening scientific inquiry at Lake Powell. What is the composition of lake sediments and how fast are they accumulating? Do the lake sediments pose a health and safety concern for our or future generations? How much water is really lost to evaporation percolation? What about meromixis, the accumulation of deep water conditions with high salinity and very low oxygen levels which some day could kill fish and corrode turbines? Scientists can answer these questions and we need to give them all the support and the funding we can reasonably pull together to look at those.

Included in the scope of this hearing is the reduction of water storage capability of Lake Powell. I also would like to urge both Committees to strongly advocate a governmental risk analysis to determine the competency of Glen Canyon Dam and flood control capacity in Lake Powell to withstand a 500-year flood.

How long did the engineers design the dam to last? Was it smart to put it in sandstone in the first place? There is a lot of speculation as to how long the dam will be there. We almost lost it in 1983 when El Nino produced 210 percent of normal snowpack in the early spring and a warm June brought it all down the first 10 days of the month.

Meteorologists tell us the coming El Nino event building off the coast of South America is expected to be the biggest of the century. A 500-year flood run events about—flood event runs about 250,000 cubic feet per second and sedimentologists with the Bureau of Reclamation point to evidence of prehistoric floods of up to 400,000 cubic feet per second. With all tubes and spillways flowing, Glen Canyon Dam can release 270,000 cubic feet per second.

Back in 1983, the dam flowed 93,000 cubic feet per second. So when reviewing these figures, we have a potential 500-year flood event—who knows if El Nino will bring it or not—of 250,000 to 400,000 cubic feet per second. We did pass 93,000 cubic feet per second through the dam in 1983 with some serious, serious corrosive erosion effects to the bypass tubes.

So now we are talking about the possibility of passing 250,000, 270,000 cubic feet per second through the dam in a major flood event for flood control purposes. That is three times the amount of water that we passed through the dam in 1983.

My view is that the Subcommittees can productively focus time and resources on assuring the public that the risk analysis of managing a 500-year flood is addressed. Whether the lake is drained by man or the dam is blown out by nature, the riparian resources in both Glen Canyon and Grand Canyon will recover in a few hundred years. If we fail to accommodate the eventuality of a 500-year flood, we may have created a situation with unacceptable risks to society.

I thank the Committees very much for the opportunity to testify.

Mr. HANSEN. Thank you, Mr. Elliott. We appreciate your testimony.

[The prepared statement of Mr. Elliott may be found at end of hearing.]

Mr. HANSEN. Mr. Hunter.

STATEMENT OF JOSEPH HUNTER, EXECUTIVE DIRECTOR, COLORADO RIVER ENERGY DISTRIBUTION ASSOCIATION (CREDA)

Mr. HUNTER. Thank you, Mr. Chairman. I appreciate the opportunity to appear today on behalf of the Colorado River Energy Distributors Association.

Testimony from several of today's witnesses include references to the hydropower produced at Glen Canyon Dam and the value of that hydropower. CREDA, the organization I represent, represents the more than 100 nonprofit public utilities and rural electric cooperatives who purchase that power from the United States and distribute it to consumers throughout the Colorado River Basin. Clearly, when we are talking about draining Lake Powell we get rather interested.

Over the past several months I have heard a wide-range of opinion as to the impact draining the lake would have on the genera-

tion of electricity. The basic facts are well documented. Glen Canyon Dam is capable of generating more than 1,300 megawatts of hydropower each year. That electricity is sold by the United States at cost-based rates to nonprofit public utilities, government organizations, and Native American utilities. Ultimately, millions of families, farms, and businesses depend upon this clean, relatively economical source of energy.

Appearing today as the representative or a representative of the local utilities and electric co-ops, we are responsible for making sure the lights stay on. I would like to focus primarily on the practical implications of removing Glen Canyon Dam as a hydropower resource.

First, I have heard with some amusement the claims that the generation that would be lost at Glen Canyon Dam could be offset through conservation. Such claims demonstrate a remarkable lack of understanding of the role Glen Canyon Dam plays in the overall scheme of power supply in the West. The importance of hydropower generation goes far beyond the raw number of megawatts it provides. Unlike most conventional generation sources, hydropower is variable. It provides a critical opportunity to generate more or less electricity as demand changes from hour to hour. This load following potential is not something that can be offset through conservation.

While conservation can be an effective tool for reducing the need for base-load generation, it does nothing to reduce the need for peaking resources such as Glen Canyon Dam. If power consumption in the West were cut in half tomorrow, we would still have the same need to adjust generation to meet varying load requirements.

An excellent example of this very fact occurred last summer, during the widespread and widely publicized power outages. Glen Canyon Dam was one of the more critical tools that was available to help restore service to much of Arizona and Southern California. Even the harshest critics of historic dam operations have long agreed that if some type of system failure threatens power supply, Glen Canyon Dam should be available to pick up the slack.

Could this capability be replaced? I suppose it could. Absent Glen Canyon Dam power generation, greater dependence could be placed on other existing hydropower facilities. Each of those dams, however, has its own set of environmental concerns. And I suspect that the potential consequences of using other dams for increased load following would be unacceptable to the same interests who are today advocating the draining of Lake Powell.

The other potential alternatives to Glen Canyon Dam are technologies that are either immature or significantly more costly. And for those who believe that there is currently an abundance of generation available in the Western States, I would suggest they take a look at the projected growth rates in areas today served by Glen Canyon Dam, and would remind them that short-term planning in the electricity business is measured in decades.

Mr. Chairman, many witnesses have told you the ramifications of this proposal for meeting the current and future water needs of an entire region. You have heard of the value of Lake Powell itself as a magnificent recreation and tourism resource. Customers throughout the Colorado River Basin spend more than $100 million

per year—send more than $100 million per year to the United States Treasury for the privilege of using the clean renewable and economical electricity generated with the water that is stored in Lake Powell. Under any scenario, the loss of that power resource would have far-reaching impacts on the electric bills of families, ranchers, and small businesses.

Further, the entities represented at this hearing, along with many others, have just completed a difficult process of environmental study, cooperation and compromise regarding the operation of Glen Canyon Dam. Those studies have consumed more than a decade of time and more than $100 million of electric ratepayers' money. This effort, whether one agrees with the outcome or not, represents one of the most significant environmental programs in the history of this Nation. The draining of Lake Powell would render that effort moot.

In short, the benefits of Glen Canyon Dam and Lake Powell are tremendous and far-reaching. At the same time, we have gone to extraordinary lengths to make these facilities as compatible as possible with the natural and environmental values they impact. To seriously consider sacrificing all of those benefits, imposing so much cost on millions of consumers, and impeding our ability to meet the electric needs of a rapidly growing region, in order to revisit a decision made more than 30 years ago, seems more than a bit absurd.

Surely, we have more pressing items on our environmental "to do" list than draining Lake Powell. Thank you.

Mr. HANSEN. Thank you, Mr. Hunter.

[The prepared statement of Mr. Hunter may be found at end of hearing.]

Mr. HANSEN. Mr. Wegner, we are happy that you have had the patience to stay with us.

Mr. WEGNER. Finally.

Mr. HANSEN. We will turn the time to you now.

STATEMENT OF DAVID WEGNER, ECOSYSTEM MANAGEMENT INTERNATIONAL

Mr. WEGNER. Thank you, Mr. Chairman, and members of the Committee. My name is Dave Wegner. I am here representing the Glen Canyon Institute today. I am also the owner of a small business in Flagstaff, Arizona, called Ecosystem Management International.

I have provided to the Committee my testimony, which again it is here. And also I didn't know it was going to be a show and tell, but we brought a book that you can have, also. So please take it and look at it.

I am going to ad-lib a little bit because of all the comments that I heard today, and I have to commend my fellow panelists here and all the panelists today. I have known of most of these gentlemen and ladies for years. We have worked on many issues together involving the Colorado River and Glen Canyon Dam.

For the past 22 years, I have been privileged to work for the Department of Interior, to look at the issues associated with the Colorado River drainage. It is an area that I have studied extensively. I am a scientist by training. I am not a politician. I am not a busi-

nessman. I am not a bureaucrat. All I am is a simple scientist trying to get to the facts. Those facts, gathered over the last 14 years that Mr. Hunter referred to, is that the Grand Canyon and the Colorado River are in serious need of some restoration. We cannot sustain the environmental resources, the endangered fish and the endangered bird with the present level of effort and the operation of the river system.

Many good questions came out today, and I really commend the panelists and the Committee for asking them. I guess as the author of the primary document, the proposal to develop the citizens' environmental assessment, we are going to use every one of these questions that came up today. They are going to help us frame this whole document.

Let me give you a little brief history of Glen Canyon Institute. We are a volunteer organization. None of us get paid. There is no—none of us get wages to deal with this. We are private citizens. We are scientists. We are environmentalists and boaters, but there is one common thread. We are all concerned about Glen Canyon and the Colorado River.

The proposal to develop the citizens' EA, which flows out of the environmental studies that were done at Glen Canyon Dam over the past 14 years, is our way of trying to document the science, document the information. Today we are here seeking wisdom, we are here in this place of power and trappings to look at how we can move forward with this whole proposal.

Yesterday at 6 p.m., I was on the Animas River, and I wish Senator Campbell was still here. This is a little water from his river. I was there talking to students about the value of our resources, about the value of our endangered species.

Yes, Congressmen, it is all about water. It is about water that supplies not only development, not only power, not only recreation, but this is the lifeblood of the species that depend upon it.

And, yes, we are looking at diminishing species. The Upper Basin in particular is putting millions of dollars into endangered species programs. The single most important thing we could do would be to develop more habitats for these endangered fish. If you develop the habitats, the fish and the birds will use them.

The system, specifically the Colorado River system, is compromised. The heart of the Colorado River, Glen Canyon, has been drowned. It has been drowned for almost 35 years now.

The proposal that the Glen Canyon Institute is putting forth is not developed by a group of bureaucrats. We are not being developed by corporations. None of us own river companies. We are just private people who are concerned about looking at the issues. What we do represent are people who are interested in the river, interested in the canyon, and interested in finding ways not only for this generation but for future generations to protect our rich natural heritage.

We are people who believe in the resources. We are people who believe in the fish. We are people who speak for the birds. We also are asking through this environmental assessment, which we are not asking a dollar from Congress for, to allow us the freedom of free speech that several of the panelists have asked and talked about in the past to explore these issues.

We believe that the United States is founded on a democratic process of asking questions, gathering data, and evaluating the information, and we want to do that successfully. And we invite anybody, anyone on the panels, any citizen, who wants to be involved to join us. Come on, let's talk about it; let's debate it.

Yes, it is all about water. It is all about habitats. It is all about that area and that sense of place called Glen Canyon. And I wish to heck David Brower was here today, because he is much more eloquent at expressing those particular ideas.

We need to—no, let me rephrase that. We must ask the question of what are we going to do with these dams for the future? Not only for us, but for the future generations, our kids, our grandkids, their grandkids? We are committed to the process. We are committed, most importantly, to the resources.

We are not here today asking you for money. We are not here asking you for wisdom. We are not even asking you for validation. All we are asking is for the right to look at it, to look at it with a citizens' environmental assessment and to move forward with the issues for the future.

Thank you.

Mr. HANSEN. Thank you.

[The prepared statement of Mr. Wegner may be found at end of hearing.]

Mr. HANSEN. The gentleman from California, Mr. Doolittle.

Mr. DOOLITTLE. Mr. Wegner, it is my understanding the Sierra Club has called for the use of public funds in certain respects pertaining to the draining of Lake Powell. Do you concur with that request or do you disagree with it?

Mr. WEGNER. We are raising funds independently of the Sierra Club.

Mr. DOOLITTLE. Do you concur with their support for public funds or do you not?

Mr. WEGNER. We would like to get public funds if we could, but I am not—we are not depending upon them and that is why we have initiated on our private level.

Mr. DOOLITTLE. So do you support their suggestion that public funds should be used?

Mr. WEGNER. If you can get it, you bet.

Mr. DOOLITTLE. Mr. Hunter, has anyone actually calculated the cost to decommission a dam the size of Glen Canyon Dam?

Mr. HUNTER. Mr. Chairman, not that I am aware of. I would be happy to check, but I—to my knowledge, a decommissioning of that magnitude has never been seriously contemplated.

Mr. DOOLITTLE. Given that it is a relatively new dam, how much is the outstanding repayment on the dam?

Mr. HUNTER. Mr. Chairman, I am going to have to provide you with exact dollar figures because, as you know, the Colorado River Storage Project itself, of which Glen Canyon Dam is only one piece, is what the repayment is of.

The total repayment of the entire project, and this would be far greater than the dam itself, is well over $1 billion.

Mr. DOOLITTLE. OK. Well, maybe you can supply the answer specifically for the record.

Mr. HUNTER. Certainly.

[The information referred to may be found at end of hearing.]

Mr. DOOLITTLE. How do you—let me just ask you this: How do you think the debt would be handled if the dam were no longer producing power?

Mr. HUNTER. Congressman, as Acting Administrator Hacskaylo said this morning, I don't have an answer for that. Essentially, if you remove Glen Canyon Dam from the system, you are removing the facility that produces 75 percent of the revenues for the entire project, the entire Upper Colorado River Basin. If you simply lift that piece out of it, to me it is inconceivable that you would somehow place the remaining burden, which would still be over $1 billion, on the remainder of the project power facilities. It simply wouldn't work to try to market that power and repay it.

By default, I would have to believe that that burden would fall on the taxpayers, most likely. I don't know who else would pay it.

Mr. DOOLITTLE. Thank you.

Mr. Elliott, do you think that the summer conditions that would exist on the river in the Grand Canyon, without the Glen Canyon Dam, that you described in your testimony, would be appealing to many of your current rafting customers?

Mr. ELLIOTT. I don't think it would be either better or worse, but let me paint the following picture: Both pre-dam and post-dam, at Lee's Ferry, where we embark down the river, in the month of August, for example, we would have—the water temperature would be maybe 80 degrees. It would be perhaps 10 percent mud and we would no longer have the ability to get clean. We would no longer have the ability to help keep our perishable foods cold for another 2 weeks down the river, et cetera.

We happen to think right now that the condition that we have below the dam is a preferred condition both in terms of the richness of the biodiversity of specious, as well as the colder water, the cleaner water, as more suitable for rafting.

Mr. DOOLITTLE. You do get—when you get far enough down the river, even now you get into those muddy kinds of conditions; don't you?

Mr. ELLIOTT. We certainly do, from the inflow from the Paria River and also, especially this time of year, from the inflow from the Little Colorado River. But it is one thing to look out and have a muddy river; it is another thing to dip your arm into it and pull your arm back and have all of your hair follicles completely full of silt. That is an entirely different circumstance.

Mr. DOOLITTLE. Do you know, prior to the time the dam was built, how many people floated down that stretch of the river from, I guess from Lee's Ferry down?

Mr. ELLIOTT. It could be measured in terms of the hundreds as opposed to the tens of thousands. The critical year is about 1968, 1969, where if you look at a curve of all of the use, it was about 1968 or 1969 where as many people went through the canyon—I think it was about 3,000 people in 1969—as had gone in all of history. That is when the use just skyrocketed, after 1969.

Mr. DOOLITTLE. Thank you.

Mr. HANSEN. The gentleman from Arizona, Mr. Shadegg.

Mr. SHADEGG. Thank you, Mr. Chairman.

Let me begin by saying, Mr. Wegner, I certainly acknowledge your expertise in the field. I suppose in all the world you are one of the most renowned experts on the Grand Canyon.

I would comment, based on your testimony, that thanks to the first amendment you don't have to ask us for permission to study this or to research it, and I hope you will research it thoroughly and debate it, and I wish you all the best in that.

Mr. WEGNER. Thank you.

Mr. SHADEGG. With regard to your comment about developing more habitat for native species, I encourage you in that effort as well. I think indeed we have lost some native species. That is indisputable.

My concern is, how many species will we lose that are not native that are still productive and useful and have a great value if we go overboard in trying to restore habitat for native species? So I would urge you to, in looking for ways to restore habitat for native species, figure out a way not to drain Lake Powell.

Mr. Elliott, I want to compliment you. I think your testimony is some of the most thoughtful we have here and I think, in terms of rafting the river, going down the river and taking people down the river, you probably have more expertise than any witness we have had today.

In that regard, I want to walk you through a series of questions. I mentioned earlier today, and I put in the record, this National Geographic issue of July of this year. It has a discussion of this whole issue, and I want to focus in part on some comments about the Grand Canyon Trust, and you served on the board of the Grand Canyon Trust, but I also want to focus on this particular chart which is in the magazine.

As I understand your testimony, it really is much along the lines of my opening remarks, which is that we don't have the option of going back; that we have what we have at this point in time and that the issue isn't, could we snap our fingers and have Lake Powell never have been constructed but rather what can we do now?

I want to just ask you if you have seen this magazine?

Mr. ELLIOTT. No, I haven't.

Mr. SHADEGG. OK. Maybe I can get somebody to bring it to you.

It shows, on the page that I have it open to, a very verdant and vibrant ecosystem in the river now, which in fact supports, albeit different but from what is shown there, more habitat, more wildlife, more plant life than prior to the dam. Is that your understanding of the facts?

Mr. ELLIOTT. That is my understanding of the facts. That is my understanding from talking with scientists, most recently a Larry Stevens in Flagstaff, for a couple of hours last week, who is a foremost biologist having studied the riparian habitat downstream from the dam. It is also my observations from just antidotally.

Mr. SHADEGG. I think the point made in your testimony is well taken and that is, you know, one can argue whether it is better or worse but in point of fact there is more animal and plant life and wildlife now than then, albeit different.

To go to Mr. Wegner's point, it seems to me, if the question is, well, we want to restore the entire Grand Canyon to its, quote/unquote, natural state, if you then posit the only way to do that is

to remove Glen Canyon Dam or the lake, it is hard to argue that point; isn't it?

It is pretty hard to make the point that you can't restore it to its pre-lake condition without absolutely removing the dam or at least allowing the water to completely flow around it, correct?

Mr. ELLIOTT. Not in Glen Canyon. But are you speaking of Glen Canyon now or the Grand Canyon?

Mr. SHADEGG. I am sorry, the Grand Canyon.

Mr. ELLIOTT. OK.

Mr. SHADEGG. In the stretch below the dam, where we now have apparently a more verdant habitat, we could hardly restore that if we didn't do what the Lake Powell Institute advocates?

Mr. ELLIOTT. We get into a debate of whether—of kind of a values debate, is the natural condition preferred over the managed ecosystem that we have today?

We could certainly attempt to restore the natural condition in the Grand Canyon by letting the sediments flow through.

Mr. SHADEGG. Good point.

Mr. ELLIOTT. And we could perhaps get to that condition. It may or may not bring back the endangered fish species, for example, but certainly the spring floods that would be allowed in a run-of-the-river scenario through the dam would again flood the banks, would wipe out a great deal of the vegetation which supports the enrichment of the species' diversity today.

Mr. SHADEGG. We could also try to raise the temperature perhaps by drawing water into the turbines at a higher level or something along that line; could we not?

Mr. ELLIOTT. We can do that.

One of the factors that has caused the enrichment of the biodiversity is the clarity of the water. Light is allowed to penetrate through to the bottom of the river. It supports a plant called cladophera, which in turn supports a tiny little invertebrate, which in turn, supports the food chain right on up the ladder. There is a new abundance in waterfowl. In turn, the peregrine falcon feed on the waterfowl that represents about 80 percent of their diet, et cetera.

So we have a—all starting with clear water and sunlight penetrating through to the bottom of the river, we have a much richer species diversity in that area now. If we return to the sediments, that could theoretically help the—could help the beaches, could help even some of the camping areas. But we would return to less—very likely I think we would return to a reduced biodiversity and species.

Mr. SHADEGG. If I could request 2 additional minutes? I will be brief.

Mr. HANSEN. The gentleman is recognized.

Mr. SHADEGG. I just want to make a couple more quick points. I know you are on the board of the Grand Canyon Trust which is concerned about the ecological health of the Grand Canyon.

Your testimony raises in the most serious way the question of the heavy metals and contamination in the sediment on the bottom of the lake. I just want to point out that in this National Geographic article, Jeff Bernard, President at least at that time of the Grand Canyon Trust, says, draining Lake Powell could also be dan-

gerous. I quote, I think it is important to stake out a vision of a free flowing Colorado River but there are many problems right now.

He does, in fact, go on to address the sediment and the heavy metals and contaminants in that sediment.

To your knowledge—I know the Grand Canyon Trust has not taken a position on this issue. To your knowledge, has the Grand Canyon Trust studied the issue of airborne contaminants were we to drain the lake?

Mr. ELLIOTT. No, they have not. And the—this whole issue has not been debated at the board level. And it is correct, I sit on the board of trustees of the Grand Canyon Trust. They have begun the evaluation in staff discussions to look at it, and I think it is safe to say in terms of the Grand Canyon Trust that they believe very strongly in the science and they would want to look at any scientific evidence that would support the viability of this proposal. They do not have a position at this time.

Mr. SHADEGG. I certainly am not a scientist or an expert, and I don't know the answer but I do know that what little research—what research we have been able to do in the short time for preparing for this hearing gives us concern which I have adverted to having to do with experience of Owens Lake and the dust which rises off of it.

Poor Mr. Wegner is dying to make a comment. I hope you will look at this issue, but let me afford you to make that comment briefly.

Mr. WEGNER. Well, we have, and that whole issue with the sediments is extremely important because we realize the high concentrations of mercury and selenium and a whole bunch of other heavy metals suites that are there. The issue here is—and specifically would be dealt with in the EA—is that as you would draw down the lake, you would start to mobilize those sediments and move them slowly downstream in the manner that the ecosystem could deal with.

We do not and will not propose to leave a whole expanse of drying out sediments there that would become airborne. I am very familiar with Owens Lake and all the issues in Kesterson.

Mr. SHADEGG. Let me just conclude by turning to Mr. Hunter. This whole issue of conservation, I personally believe that conservation is a little bit like the Congress saying we are going to save money. We talk about saving money through waste reduction and we never quite do it. It seems to me that if we can do conservation, we ought to be doing the conservation to avoid building future coal-fired or other power plants.

But I want to make the point about peaking. It seems to me that hydropower is uniquely suited to peaking. Peaking means that we use power at different levels at different times of the day; is that right?

Mr. HUNTER. That is correct.

Mr. SHADEGG. So if you were to conserve peaking power, what you really have to do is say to the people of Phoenix or Yuma or Los Angeles or San Diego, we have this idea; we are going to save peaking power, which means that during the 30 hottest days of the summer, when we need that peaking power, since we no longer

have it, we don't want you to run your air conditioning from 4 p.m. to, say, 7 p.m., the hottest hours of the day. Pretty realistic?

Mr. HUNTER. You are absolutely correct. The only way to conserve peaking load would be to dramatically change behavior.

Mr. SHADEGG. I don't know how we are going to get the earth to make it not hotter between 4 p.m. and 7 p.m. than it is, say, between 4 a.m. and 7 a.m.

Mr. Chairman, I have nothing further.

Mr. HANSEN. Thank you, Mr. Shadegg.

It has been a very interesting hearing. I appreciate the patience of all of you.

Mr. Werbach, you know, if I was head of the Sierra Club, I think I would find a dam that didn't have so much multiple use to it. You have heard all of the things that this dam has.

Have you ever thought of Hetch Hetchy in Yosemite? Now, I could probably go along with that one. I think that probably has some real clout to it.

Of course, you would have 52 Members of the House and 2 from the Senate and the administration, because they are very interested in the political votes there as we saw on something called the Air Logistic Center of McClellan where they violated the law, but Hetch Hetchy, in my mind, would probably be a—I mean, right there in the beautiful Yosemite National Park. I say that somewhat tongue in check, but I still think it was one that the Sierra Club ought to give peripheral thought about. You may find one of great interest there.

You know what, the proposal you have brought up is so critical to the entire southwest part of America, I mean, you have got the Upper and Lower Basin States, this is of utmost importance, and I think we could all see it here today, how it would affect so many, many, literally millions and millions, of people. So we would hope that you would look at it in a very critical way and be very careful on what you propose.

Of course, I don't give you folks instructions. You are perfectly capable of doing that, and you have a perfect right to come up with any proposal you have a bent to do.

I noticed that you were on the South Rim of the Grand Canyon in September 1996 when President Clinton made 1.7 million acres of Utah a monument.

You know, I don't mean to differ with you but respectfully point out that if I have ever seen anybody shoot themselves in the foot, the environmentalists did it at that point, as we have researched that exhaustively. You used the 1916 antiquity law and therefore extinguished wilderness that would come under NEPA, come under the 1964 Wilderness Act, the FLIPMA act, and now it is wide open. And people are coming in there by the hundreds and they are colloquially referring to it now as "toilet paper city." You know, if the President had worked with us on that we could have put in Fifty Mile Ridge and a few other areas and come up with a good piece of legislation.

And when you were there, I noticed that you spent some time with—not that I would want to tell you what you did, but some time with Vice President Gore and President Clinton. Are they—

do they have any interest in this proposal to drain Lake Powell or was that something not considered?

Mr. WERBACH. We have not raised it with the administration.

Mr. HANSEN. I see. I would be curious to know where they are coming from.

Well, not to elaborate on things such as that, we will thank the witnesses. And, Mr. Werbach, we appreciate your patience for coming here and thank you for sitting through three panels. That is very kind of you.

And this hearing is now adjourned.

[Whereupon, at 2:10 p.m., the Subcommittees were adjourned.]

[Additional material submitted for the record follows.]

STATEMENT OF HON. ORRIN G. HATCH, A SENATOR IN CONGRESSS FROM THE STATE OF UTAH

Mr. Chairman, I appreciate the opportunity to submit my views to your Subcommittee on the recent proposal to drain Lake Powell and to decommission the Glen Canyon Dam.

Frankly, Mr. Chairman, in all honesty, this proposal would wreak havoc—environmental as well as economic—in the region. Even if we excluded from the argument the needs of people in the region, such as water, energy, and recreation, it would still be a terrible idea, based solely on the harm it would cause to the environment.

Whatever the ostensible benefits to the environment that could come from draining Lake Powell, they would surely be overpowered by the greater harm this proposal would cause. As it is currently managed, Mr. Chairman, this is one of the world's finest recreation and wildlife areas. As an ecosystem, the canyon has vastly improved since the days before the dam.

We all know the reasons the Glen Canyon Dam was proposed and built. As you know, Mr. Chairman, Utah is the second driest state in the Union; during dry years, there is simply not enough water in the Colorado River to meet our water needs and the needs of the other Colorado River Basin states.

By building the Glen Canyon Dam, we not only secured the necessary water during dry periods for all the basin states, but we created a world-class recreation area and an inexpensive, renewable, and clean source of energy. Revenue from the energy production pays back the cost of building the dam with interest and has helped to provide infrastructure to provide electricity to rural areas. There is no doubt, Mr. Chairman, that building the Glen Canyon Dam has made an impact on the lower Colorado River and on the riparian area within the Grand Canyon. But it is important to understand the delicate balance that is found in the Grand Canyon today, and how today's balance compares to the predam condition of the area.

Before the dam was built, the Colorado River would send gigantic torrents of water through the canyons in the spring. The high flows would leave the area devoid of vegetation and create immense beaches in its wake. In the winter months, the river would subside to a tiny flow. Because the beaches were reformed and redeposited each year, very little wildlife lived in the canyons before the dam. Even if the wildlife could have survived the floods, the lack of vegetation made it difficult to exist. Before the dam, the water was even siltier than today. The excess silt blocked out the sun, so that underwater vegetation was scarce, if it existed at all. Food was hard to come by for underwater life in the predam era.

When the dam was built, new ecological benefits arose. The clearer water allowed for underwater vegetation to thrive below the dam and in shallow areas. This vegetation now breaks off, feeding underwater life for hundreds of miles. This has helped to create a world-class trout fishery in the river. In addition, the beaches have begun producing rich and diverse vegetation. This has attracted many species of wildlife that had previously not existed. The increase in trout and vegetation has attracted bald eagles, herons, ducks, and many other species of birds—some of which are endangered. In fact, the postdam lower Colorado River now hosts more peregrine falcons than anywhere else in the lower forty-eight states. This would not be possible without the stability and vegetation the dam provides for the area. Besides birds and fish, the dam has made the area a favorite of bighorn sheep and other big game.

During the early years of the dam, the water level of the Colorado would go up and down as society's energy needs peaked and fell throughout the day. The steady rise and fall of the river slowly ate away at the beaches. This was problematic on a number of counts. As the beaches shrunk there were fewer back eddies which provided calm shallow areas. These mini marshes were critical to the new insect and amphibious life that had come since the dam was built. The back shallow back eddies were also important spawning grounds for the endangered humpback chub. The fluctuating flows also became the bane of boaters, who would find their camps occasionally flooded or their boats stranded on dry land as the water receded.

Most criticisms of the dam revolve around the fluctuating flows. Yet, this problem has already been fixed. In 1982, the Departmnet of the Interior instituted controls that keep the wide variability out of the flows from the dam. Boaters are no longer stranded, and the erosion of the beaches has been kept to a minimum. Controlled flooding has also been instituted which periodically builds the beaches back up.

However, if the river were restored to its predam state much would be lost for the environment and for the boaters who float down the Grand Canyon. In addition, fewer people could enjoy the experience because the boating season would be cut back sharply due to the low winter flows and the unnavigable spring flows.

Needless to say without the dam we would lose Lake Powell. I consider Lake Powell to be a national treasure. I think any member of this Committee would be hard-pressed to find 2,000 miles of shoreline that are more beautiful. As the second largest man-made lake in the United States, it attracts over 2 million recreationists every year. Mr. Chairman, Lake Powell is as important to Utahns as the Atlantic beaches are to easterners as a therapeutic getaway. I haven't heard anyone suggest closing the Chesapeake Bay Bridge to improve the environment on the Delmarva peninsula. Yet, that idea would be analogous to draining Lake Powell and, of course, equally as ridiculous.

Again, Mr. Chairman, thank you for this opportunity to express my views on this issue.

'O: House Sub-Committee members interested in Glen Canyon "The Place No One Knew", and in helping save the Earth.

FROM: Dave Brower, Sierra Club, Earth Island Institute, Glen Canyon Institute.

I am writing to ask you to support a major effort at restoration that will make history. Last November with ıew data provided by the Glen Canyon Institute, The Sierra Club BOD voted unanimously, with a little ɔersuasion by its oldest director, to drain Lake Powell. There has been some understandably hostile reaction due, I think, to a lack of information. Friends of the Earth and Earth Island Institute are in support (but I founded both ɔf them). I hope that what follows will lead to your helping the information flow farther, and to support the idea hat this issue deserves public debate.

We are not now asking for your endorsement of draining the reservoir, rather solely to ask your support of nitiating an Environmental Assessment of Glen Canyon Dam's environmental impact upon the Colorado River ıystem. If some more of us only knew then what we know now Glen Canyon Dam would never have flooded ɔne of natures finest creations. As Executive Director of the Sierra Club (1952-69) I failed in 1956 to assert nyself when it could well have made a difference and I have been trying to recover ever since. Thanks to a growing number of committed activists, scientists, recreation groups, and political powers, the truth is 'esurfacing.

Glen Canyon Dam was built at a time when we did not face consequences we can no longer ignore. We lid not ask the questions that seem so obvious to us now. We did not factor into our equations at Glen the ıherent vulnerability of concrete, and Navajo sandstone, or the cost, upstream and down, of devastating the Colorado River and delta ecosystems, or the vulnerability of economic catastrophe if Glen Canyon Dam fails.

It was well known when the Colorado River Storage Project began it was primarily a hydropower revenue ɔroducing concept and, not generally known, was proscribed by the Colorado River Compact, which was itself ıncouraged by an exaggerated estimate of the amount of water in the river. It was naively assumed that water vould not flow downhill without a Glen Canyon Dam to help it on its way by wasting and polluting it. The ɔompact could simply have said "the Upper Basin's share may be stored in Lake Mead."

The Colorado River Compact stipulates that the impoundment of water for the generation of electric power 'shall be subservient to the use and consumption of such water for agricultural and domestic purposes and shall ıot intervene with or prevent use for such dominant purposes" (Article IV). It certainly does.

The appropriate state officials, together with the directors of the USBR and USGS "Shall cooperate, ex-ɔfficio: (a) To promote the systematic determination and coordination of the facts as to the flow, appropriation, ɔonsumption, and use of the Colorado River Basin, and the interchange of available information in such matters" Article V). Such coordination is overdue.

Consider these further impacts of Lake Powell on what the 1928 Interstate Compact sought to prevent.

Powell reservoir now loses 8% of the Colorado River's flow to evaporation and so-called bank storage. Ihis approximately one million acre feet of water is enough to supply another Phoenix or rescue the Sea of Cortez. This number will grow when the accumulation of sediment forces the reservoir's increasing average ılevation to spread water out further and lose still more to evaporation and transpiration.

Failure of the dam, as nearly happened in 1983 and could happen because of poor engineering, flood, andslide, earthquake or human intent could bring unprecedented catastrophe to Arizona, Mexico, Nevada, and Southern California. So much vulnerability is not acceptable. Nor is the threat to the majority of species in the Colorado River and the delta. Moreover, the International Treaty with Mexico is violated by the effect of Glen Canyon dam: The one-time Eden of the Sea of Cortez has been destroyed the U.S. over consumption of Colorado River water.

No one knows when the reservoir will finally fill with sediment, but we can be assured it will. At this rate Page Arizona will one day sit alongside a once beautiful canyon filled with sediment and toxic sludge. The Bureau of Reclamation consistently downplays the inevitable consequence. We do know that the accumulated sediment will be sent downstream by the dam's destruction, which will be caused by accident, intention. or time.

Recreation is a boom to Page now, but the two-stroke motors it fuels alone contribute the equivalent of an EXXON Valdez oil spill every four years into Lake Powell The reservoir's existence invites further pollution by heavy metals, and human waste.

From the Rocky Mountain Institute's historic achievements we know that the investment in Negawatts (energy conservation and efficiency) can empower the restoration of Glen Canyon. By replacing power through reduced demand we can generate support for the rehabilitation of the Colorado River watershed, and establishment of the long deferred Escalante National Park.

These are but a few of the compelling reasons the Glen Canyon Institute is urging you to support our efforts to address this issue publicly. We believe the public will ultimately be convinced that the draining of Lake Powell is overdue, is one of the soundest possible investments in restoration for a sustainable future, and that the cost of what we propose is manageable, but the cost of avoiding it is not.

We hope for your endorsement of this vision shared by the Glen Canyon Institute, the Sierra Club, Friends of the Earth, International Rivers Network, and the Earth Island Institute. The Colorado Compact stipulates that there be a determination of facts by the government. The government misled the public on this subject half a century ago and is avoiding its duty now. It is unlikely that Glen Canyon Dam would have been approved had NEPA been in existence in 1956. Therefore we are launching an unprecedented citizen–led Environmental Assessment this fall to present the truth as we see it, and encourage an open discussion of the proposal to drain Lake Powell and let the Colorado River run though Glen Canyon Dam, instead of over it.

It will be no small task to raise the $500,000 needed to initiate the Environmental Assessment, plan the public hearings and to write the final analysis papers, but we are committed to seeing this through and to garnering as much support as possible within the conservation movement.

Please let us know if you are willing to consider this opportunity to re-evaluate water use in the West and, indeed, globally.

Sincerely,

David Ross Brower

POSTSCRIPT

The proposal to drain Lake Powell is discussed in forewords to Canyons of the Colorado, Oregon Rivers, in articles in Sierra, Washington Post Magazine, The Economist, National Geographic Magazine, Boatman's Quarterly Review, the Arizona, Colorado and Utah press, The Los Angeles Times, San Francsico Examiner, the Web Page of the Sierra Club, Earth Island Journal, and International Rivers Review.

The National Geographic's superficial piece of Grand Canyon calls me a "dam–buster" in spite of my protest to the author in advance. I've busted none, have helped block a few, and would like to retire Glen, Hetch Hetchy and maybe myself.

trap. In the first months of the battle for Dinosaur National Monument, I even urged the construction of a higher Glen Canyon dam as a way to save Dinosaur and reduce overall evaporation from the Colorado River Storage Project. Utah river runners straightened me out. But in 1956 the Club directors instructed me, then executive director, to end the club's opposition to the construction of the dam at Glen Canyon if the two dams proposed upstream in Dinosaur were dropped. Instead of flying home immediately and calling for a special meeting, I just sat in Washington and watched the mayhem proceed.

In a 1992 documentary in which I almost tearfully took the blame for Glen Canyon, producer John DeGraff kindly attributed my problem to my not having seen Glen before offering to give it away. I knew better: Wallace Stegner had told me, "Strictly between us, Dinosaur doesn't hold a candle to Glen." I have worn sackcloth and ashes ever since, convinced that I could have saved the place if I had simply got off my duff.

The fact is, though, Glen Canyon is still there. With that thought in mind, I've turned from regret to restoration. In 1995 I debated former Bureau of Reclamation commissioner Floyd Dominy, builder of more dams than anybody, Glen Canyon among them. When I proposed restoring Glen Canyon, Dominy was not ready to concede, but I think the audience was. I pushed the proposal harder in 1996 before 1,600 people gathered at the University of Utah. They gave enthusiastic support. The toughest question I got was about how long it would take the tamarisk, a notoriously invasive exotic, to recover. I fudged the answer: "Twenty-five minutes."

Then on November 16, 1996, an entity that had blocked my opposition to the creation of Lake Powell in 1956, the Sierra Club board, unanimously backed my motion to drain it. I suddenly felt about 30 years younger.

One of the strongest selling points comes from the Bureau of Reclamation itself. In 1996, the Bureau found that almost a million acre-feet, or 8 percent of the river's flow, disappeared between the stations recording the reservoir's inflow and outflow. Almost 600,000 acre-feet were presumed lost to evaporation. Nobody knows for sure about the rest. The Bureau said some of the loss was a gain—being stored in the banks of the reservoir—but it has no idea how much of that gain it will ever get back. Some bank storage is recoverable, but all too likely the region's downward-slanting geological strata are leading some of Powell's waters into the dark unknown. It takes only one drain to empty a bathtub, and we don't know where, when, or how the Powell tub leaks. A million acre-feet could meet the annual domestic needs of 4 million people and at today's prices are worth $435 million in the Salt Lake City area—more than a billion on my hill in Berkeley, California.

But these numbers are moving upward. As Powell rises, fills with sediment, and spreads out across the landscape (it peaked at 88 percent of capacity last year) the losses will be even larger. They could mount to 1.5 million acre-feet per year before *Sierra*'s middle-aged readers are my age (in their 80s), which won't take as long as we'd like. And what is an acre-foot likely to be worth when my grandson David Brower comes of age? When I was his age farmers objected to having to pay $5 an acre-foot. What has happened in the last decade or two is interesting, but what will happen in the next century or two is critical. (Powell is supposed to last at least three centuries, but malpractice in the Colorado's watershed—clearcutting, grazing, and other erosive forces—will shorten its life.)

Whatever the final details of Lake Powell's water losses turn out to be, the draining of the lake simply has to happen. The river and the regions dependent upon it, including Baja California and the Gulf of California, can no longer afford the unconscionable loss of water. We need to get rid immediately of

Continued on page 64

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The fact is, though, Glen Canyon is still there. With that thought in mind, I've turned from regret to restoration. In 1995 I debated former Bureau of Reclamation commissioner Floyd Dominy, builder of more dams than anybody, Glen Canyon among them. When I proposed restoring Glen Canyon, Dominy was not ready to concede, but I think the audience was. I pushed the proposal harder in 1996 before 1,600 people gathered at the University of Utah. They gave enthusiastic support. The toughest question I got was about how long it would take the tamarisk, a notoriously invasive exotic, to recover. I fudged the answer: "Twenty-five minutes."

Then on November 16, 1996, an entity that had blocked my opposition to the creation of Lake Powell in 1956, the Sierra Club board, unanimously backed my motion to drain it. I suddenly felt about 30 years younger.

One of the strongest selling points comes from the Bureau of Reclamation itself. In 1996, the Bureau found that almost a million acre-feet, or 8 percent of the river's flow, disappeared between the stations recording the reservoir's inflow and outflow. Almost 600,000 acre-feet were presumed lost to evaporation. Nobody knows for sure about the rest. The Bureau said some of the loss was a gain—being stored in the banks of the reservoir—but it has no idea how much of that gain it will ever get back. Some bank storage is recoverable, but all too likely the region's downward-slanting geological strata are leading some of Powell's waters into the dark unknown. It takes only one drain to empty a bathtub, and we don't know where, when, or how the Powell tub leaks. A million acre-feet could meet the annual domestic needs of 4 million people and at today's prices are worth $435 million in the Salt Lake City area—more than a billion on my hill in Berkeley, California.

But these numbers are moving upward. As Powell rises, fills with sediment, and spreads out across the landscape (it peaked at 88 percent of capacity last year) the losses will be even larger. They could mount to 1.5 million acre-feet per year before *Sierra*'s middle-aged readers are my age (in their 80s), which won't take as long as we'd like. And what is an acre-foot likely to be worth when my grandson David Brower comes of age? When I was his age farmers objected to having to pay $5 an acre-foot. What has happened in the last decade or two is interesting, but what will happen in the next century or two is critical. (Powell is supposed to last at least three centuries, but malpractice in the Colorado's watershed—clearcutting, grazing, and other erosive forces—will shorten its life.)

Whatever the final details of Lake Powell's water losses turn out to be, the draining of the lake simply has to happen. The river and the regions dependent upon it, including Baja California and the Gulf of California, can no longer afford the unconscionable loss of water. We need to get rid immediately of

Continued on page 64

GLEN CANYON

Continued from page 43

the illusion that the only way to protect water rights is by wasting water in Lake Powell. We can simply let the flow reach Lee's Ferry, Arizona (the dividing point between the Upper and Lower basins), naturally, beautifully, and powered by gravity at no cost.

Draining Lake Powell means more water for the Colorado River states and Mexico, especially Colorado and Utah. The hundreds of millions of dollars now being lost, growing to billions in the future, should be enough to give even Bill Gates pause.

The sooner we begin, the sooner lost paradises will begin to recover—Cathedral in the Desert, Music Temple, Hidden Passage, Dove Canyon, Little Arch, Dungeon, and a hundred others. Glen Canyon itself can probably lose its ugly white sidewalls in two or three decades. The tapestries can re-emerge, along with the desert varnish, the exiled species of plants and animals, the pictographs and other mementos of people long gone. The canyon's music will be known again, and "the sudden poetry of springs," Wallace Stegner's beautiful phrase, will be revealed again below the sculptured walls of Navajo sandstone. The phrase, "as long as the rivers shall run and the grasses grow," will regain its meaning.

The candle conservationists lit to remember the things lost in Glen Canyon can be put back on the shelf, and, let us pledge, be left there. In time, Glen Canyon will reassert itself, through the action of wind and water. And we will learn what Alexander Pope knew: "And finer forms are in the quarry/Than ever Angelo evoked." Once again, for all our time, the river can run through it. ▪

DAVID R. BROWER, *executive director of the Sierra Club from 1952 to 1969, has been a Club member 63 years and on the Sierra Club board of directors a total of 18 years, including this one. "If this plan works, I'll go quietly," he says. He has threatened to put a tachometer on his headstone, however, "to indicate how fast I'm spinning if the Bureau acts up." A longer version of this article is posted on the Sierra Club's Web site at* http://www.sierraclub.org.

▸*The Glen Canyon Institute can provide more information about restoring Glen Canyon, either on its World Wide Web site (*www.glencanyon.org*) or by mail or phone, 476 East South Temple, #154, Salt Lake City, Utah 84111; (801) 322-0064. The Sierra Club's work to revive the canyon is being coordinated through its Colorado River Task Force, c/o Office of Volunteer and Activist Services, 85 Second St., San Francisco, CA 94105-3441; e-mail:* activist.desk @sierraclub.org. *A new 96-page book,* Glen Canyon Before Lake Powell, *offers a pictorial journey of what once was—and what could be. It is available for $25 (paper) or $150 (silk) from Inskeip Ink, 366 East 100 North, Moab, UT 84532; (801) 259-8452. The classic on the topic is* The Place No One Knew *(Sierra Club, 1966).*

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Statement presented by David Ross Brower

Mr. Chairman, members of the Committee, and staff:

Thirty-three years after my first testimony before Congress I was at it again, on behalf of the Arctic National Wildlife Range. Now, ten years later still, this old mountaineer is asked to climb Capitol Hill yet again, to continue what I have tried to do for the past 47 years on behalf of the Colorado River, its canyons, its states, and two of the wonders of the world – the Grand Canyon and now the place we hardly knew, Glen Canyon.

At the moment, I wish to present only a brief summary of the disaster that has befallen Glen Canyon–the great mistake of Lake Powell. I would like to make available to the committee and the media the material I put together in an attempt to prevent the great mistake–three films, hours of congressional testimony, a grand canyon conference, and summaries of what was presented at length to the media, in interview, and at other conferences. This effort was called to a halt in 1956 when, as the Executive Director of the Sierra Club, I was required by its board of directors to cease the club's opposition to the Colorado River Storage Project–opposition which, I am convinced, would otherwise have blocked the project for good reason.

I want to remind the members if I may, of the opportunity your predecessors of both parties seized to protect the earth's wild places, in particular in establishing Wilderness Areas, National Parks, Wildlife Refuges, wild rivers, and National Monuments. Indeed, until the Carter administration, Republicans saved and protected more National Monuments than did the Democrats. I would like to see them rejoin the contest. Since 1969, when I founded the League of Conservation Voters as part of Friends of the Earth, the League had to lean backwards pretty far to find Republicans who revered the environment rather than deplore protecting it.

DAVID ROSS BROWER

Earth Island Institute (Chairman)
Sierra Club (Director)
Glen Canyon Institute (Director)

Statement of
Arizona Department of Water Resources
Director Rita P. Pearson
before the
House Subcommittees on Water and Power
and
National Parks and Public Lands

September 23, 1997

I am here today to address the proposal being promoted by the Sierra Club and the Glen Canyon Institute to drain Lake Powell. Lake Powell is a large storage reservoir located on the Colorado River on the Northern Arizona-Utah border in the heart of some of the West's most arid country. This proposal cannot be seriously considered, particularly in light of the potentially devastating effects to local and regional environments, endangered species, water and electrical power supplies, and local and regional economies.

To begin, I would like to provide the Subcommittee with background on the authorization and construction, nearly 40 years ago, of one of the "keystone" facilities used in managing the Colorado River Basin's water and hydroelectric power resources for the benefit of residents in portions of the Rocky Mountain region and the southwestern United States. I will then briefly address the impacts of eliminating this "keystone" facility on the water supply, environment and economy of the Lower Basin states.

Introduction

On November 24, 1922, representatives of the seven Colorado River Basin states (Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming) and the United States entered into a Congressionally approved interstate compact which apportioned the waters of the Colorado River. Based upon hydrologic records available at the time, the Compact commissioners believed they had approximately 16.5 million acre-feet (maf) to divide. The Basin was divided into upper and lower basins, with Lee Ferry, Arizona, designated as the division point. Each basin was allocated 7.5 maf per year. Additionally, Article III(d) of the Compact obligates the Upper Basin states to ensure that a total of 75 million acre-feet is delivered to the Lower Basin past Lee Ferry for any 10 consecutive years. Another one million acre-feet was reserved for use by the lower basin states, and the Compact acknowledged that Mexico was entitled to some quantity of the flow of the Colorado River. In fact, the 1944 International Treaty with Mexico obligates the United States to annually provide a minimum of 1.5 maf to Mexico, 750,000 acre-feet being provided by each basin. This initial apportionment of the flows of the River led to the passage of the Boulder Canyon Project Act in 1928 authorizing the construction of Hoover Dam and the All-American Canal to the Imperial Valley in California.

Unfortunately, based on current records, the average annual amount of Colorado River flow at Lee Ferry is likely closer to 15.2 maf. Over the 90 year period of record there have been annual flows of more than 23 maf and flows as low as 5 maf. Approximately 70% of the annual natural flow occurs in the months of May, June, and July. The Colorado River is one of the most erratic large flowing rivers in the country. The only way it can be managed is through reservoir storage[1]. Currently, reservoirs in the Colorado River Basin can store approximately 60 maf, or about four times the River's average annual yield. To meet the demands placed upon the Colorado River by the Compact, it has become increasingly necessary to conserve the annual flow in this large reservoir system, so supplies can be regulated for distribution throughout the year, and to ensure an adequate supply during drought years.

On April 11, 1956, Congress passed the Colorado River Storage Project Act (CRSP) authorizing the Secretary of Interior to construct, operate, and maintain CRSP units such as dams, reservoirs, powerplants, and transmission facilities, including Curecanti (now the Aspinall Unit), Flaming Gorge, Navajo, and Glen Canyon. The intended purpose of the CRSP was to provide long-term regulatory storage for the Upper Colorado River Basin States allowing them to meet their obligations under the 1922 Compact while utilizing their Colorado River water apportionments.

At maximum capacity, Lake Powell, the reservoir created by the construction of Glen Canyon Dam, is capable of storing approximately 25 maf, and generating more than 1,000 megawatts of hydroelectric power. The Colorado River water stored in the reservoir is utilized by almost 20 million residents in southern California, central and southern Arizona, and southern Nevada. In the three Lower Basin states, the dam and the reservoir have reduced the need to use groundwater, a finite source of water which when depleted causes serious environmental hardships. Hydroelectric energy from Glen Canyon Dam is utilized by cities, towns, Indian communities, rural electric cooperatives and utility companies in Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming.

While Lake Powell provides enormous benefits to water and power users throughout the Basin, it is also a recreational haven for visitors from around the world. In fact, Page, Arizona is the focal point for millions of tourists annually visiting the myriad of natural and man-made wonders at the national monuments, recreation areas, parks, archeological and historic sites, and other unique features of the Colorado Plateau.

Water Supply Issues

If the storage capabilities of Glen Canyon Dam and Lake Powell are eliminated, future Colorado River water supplies in the Lower Basin states will be severely jeopardized. Without Lake

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[1]See attached graph ***Historic Natural Runoff Above Glen Canyon Dam***.

Powell, future Lower Basin supplies are more susceptible to drought[2]. The reduction in the Upper Basin's ability to store Colorado River water results in a dramatic increase in the likelihood that yearly flows at Lee Ferry will be less than 7.5 maf[3]. Overall, this reduces the amount of water that the Lower Basin can expect to receive each year. A reduction in the yearly reliable supply would result in earlier and more frequent shortages.

Without Lake Powell, modeling indicates shortages in the Lower Basin could occur as early as 2006, almost twenty years earlier than had been projected. Moreover, the annual probability that a shortage will occur between 2020 and 2045 is increased by as much as 10%. If storage behind Glen Canyon Dam is not available, the potential is created for catastrophic shortage in the Lower Basin that is otherwise not projected to occur over the next 100 years.

During a catastrophic shortage, the Central Arizona Project (CAP) could see diversions reduced to zero, occurring as early as 2051[4]. The CAP service area includes most of Maricopa, Pinal and Pima Counties. Currently, more than 2.4 million people reside in Maricopa county alone, which is home to Phoenix, Arizona, the sixth largest city in the United States. More importantly, the probability of such an event will continue to increase yearly. During such a shortage, diversions by Southern Nevada Water Authority could also reach zero and the Metropolitan Water District of Southern California would be required to reduce it's diversions significantly. More than 20 million people live in the combined service areas of these three major water providers.

The amount of water stored in Lake Mead in future years is also likely to be less if Lake Powell is not available. Without Lake Powell, there is no reliable source of water supply to annually replenish Lake Mead. Moreover, the effects of drought periods will be more severe without the mitigating effect of Lake Powell. Draining Lake Powell will decrease the long-term reliability of the Colorado River water supply to meet the needs of the Lower Basin states.

Depending upon annual flows of the Colorado River, 65,000 to 100,000 acre-feet of sediment is deposited behind Glen Canyon Dam in Lake Powell each year. If Lake Powell is drained and no longer traps these sediment inputs, the sediment will continue to travel downstream and ultimately be deposited in Lake Mead. This will increase the current Lake Mead sedimentation rate and drastically decrease the life expectancy of this reservoir. Not only will the yearly sediment production of the Upper Basin be transferred to the Lower Basin, but the sediments that have been trapped behind Glen Canyon Dam for more than 30 years will be eroded and transported

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[2]Water supply statements in this section are based upon modeling results using the U.S. Bureau of Reclamation's CRSSez model. Assumptions include: (1) future Upper and Lower Basin consumptive use demand schedules provided by individual basin states; (2) surplus declarations would only occur during flood control releases; (3) the Yuma Desalting Plant would be required to be operated; and (4) a shortage criteria which protects Lake Mead elevation 1,050 feet above sea level 80% of the time.

[3]See attached graph ***Probability of Yearly Flow at Lee Ferry Being Less Than 7.5 MAF***.

[4]See attached graph ***Probability of Yearly CAP Diversions Being Reduced to Zero.***

downstream. The rapid erosion of these sediments will also increase sedimentation in Lake Mead, further decreasing its life expectancy and reducing water conservation storage space. The overall reduction in Lake Mead's conservation storage space will ultimately contribute to an increased risk of shortage to the Lower Basin states.

Environmental Issues

Draining Lake Powell will undoubtedly cause two significant environmental impacts in the Colorado River Basin. First, draining the reservoir will leave about 250 square miles of rock formations that have been bleached through the leaching of mineral and millions of cubic yards of sand and silt deposits trapped behind the dam. Given the arid climate, these sediments will dry out and likely become airborne, circulating during dust storms and summer monsoon events. These airborne sediments would create poor air quality conditions, and could affect visibility in the Grand Canyon National Park. It is highly likely that the condition of Glen Canyon before the construction of the dam will never be restored.

Additionally, the environmental consequences of replacing Glen Canyon Dam's lost energy generation would be significant. Replacement resources, through construction of additional coal-fired or natural gas turbines, would be required to make up the more than 1,000 megawatts now generated by the Glen Canyon facility. Construction of new power plants, or generating additional energy at existing power plants will not only be significantly more costly for CRSP power customers, but will also have environmental consequences by negatively impacting regional air quality standards.

By removing the dam, warm water flows would be re-established leading to encroachment of non-native aquatic species (i.e., carp, catfish, sunfish, etc.) into the Grand Canyon and Marble Canyon reaches. This would increase predation and competition on the few remaining populations of endangered native fishes. Currently, the last remaining population of humpback chub resides near the confluence of the Little Colorado River and the Colorado River. Biologists are extremely concerned about the potential interactions of the humpback chub population with non-native fishes.

Finally, removing 25 maf from storage in the Basin dramatically hinders the management flexibility for endangered species and sensitive habitats. Three years ago, the Lower Basin States, Tribes, several Interior agencies, and environmental organizations initiated an ecosystem-based multi-species conservation planning effort. The plan is intended to provide benefits for over 100 species residing in aquatic, wetland, riparian, and upland habitats along the lower Colorado River corridor from the tailrace of Glen Canyon Dam to the Southerly International Boundary with Mexico. Management flexibility now exists on the timing of releases out of Hoover Dam and other reservoirs lower in the system which enhance habitat conditions for endangered native fishes and birds such as the Yuma clapper rail and southwestern willow flycatcher. For example, the Bureau of Reclamation and Western Area Power Administration operate the elevation of Lake Mohave in order to provide suitable spawning habitat for the largest population of razorback

suckers in the Colorado River Basin. If 42% of the Basin's storage is permanently removed, Lake Mead will be the sole reservoir available to meet the demands of the Lower Basin states. Consequently, Lake Mead would have less flexibility in meeting the needs of threatened and endangered species and Lower Basin endangered species management could be seriously jeopardized.

Economic Impacts

Recent data released by the National Park Service suggest current visitation at Glen Canyon National Recreation Area, including Lake Powell, is almost 3 million annually, with the second largest number of overnight stays of any National Park Service area. Revenues from the Glen Canyon National Recreation Area total more than $500 million a year which is ultimately spent throughout the Southwest. Additionally, the number of boating days on Lake Powell is approximately 500,000, with 70,000 people annually visiting Rainbow Bridge National Monument by tour-boat. Not only would the areas surrounding Lake Powell and Glen Canyon Dam face detrimental economic hardships, but the areas outside of the Southwest would feel the effects as well. For example, a company in the State of Michigan exclusively constructs houseboats for use on Lake Powell. Like many other businesses, the company that builds the 'Skipper Liner' houseboats would be put out of business.

In the reach of the Colorado River below Glen Canyon Dam and Lees Ferry, approximately 42,000 people annually float the river. The Arizona Game and Fish Department reports about 30,000 angler-days throughout the world class blue-ribbon Lees Ferry trout fishery. The annual economic impact to the tiny Arizona communities of Marble Canyon and Vermillion Cliffs, associated with the Lees Ferry fishery, is estimated to be $5 million. Draining Lake Powell, or removing Glen Canyon Dam, will completely destroy the Lees Ferry trout fishery.

The draining of Lake Powell would seriously jeopardize water supply availability and reliability for irrigated agriculture throughout Arizona. Agricultural areas in Arizona dependent on Colorado River water supplies generate more than $2.2 billion. If production potential drops, as it would without Lake Powell, land values would also deflate, creating a strain on the property tax base used to finance schools and infrastructure in both Arizona and California.

The Navajo Tribe would also feel a significant loss. The Navajo Project, including the Navajo Generating Station, the Kayenta Mine, and the Scrubber Construction Project, could be shut down with a loss of 1,956 jobs. Of those jobs lost, more than 1,600 would be Indian. The cost of closing the Navajo Project would total more than $2.7 billion. The price of closure would cost more than just the Navajo tribe, more than 300 non-Indians work on the Navajo Project. If the Navajo Project was to remain open, significant costly modifications would need to be made. More than 3 million customers receive electricity produced by the Navajo Project. The electricity is delivered to Phoenix, Tucson, Los Angeles and Las Vegas.

Current Mitigation Efforts

The history of Glen Canyon Dam operations and management of Lake Powell have evolved over several distinct stages. First, the reservoir was filled in a 17-year period, from 1963 until 1980. The dam and reservoir were then managed for full or flood control operations for the next decade until about 1990. The Glen Canyon Environmental Studies, initiated a series of research or test flows, that resulted in the adoption of interim operating criteria and the passage of the Grand Canyon Protection Act of 1992.

The Act required completion of an environmental impact statement (EIS) on the operation and management of Glen Canyon Dam. Following substantial public review and comment of the Draft EIS, the Final EIS was released on March 20, 1995. The preferred alternative of the Final EIS requires reduced daily flow fluctuations from the dam, includes periodic habitat maintenance and beach-building flows, implements adaptive management, reduces flood frequency, and establishes a second breeding population of humpback chub. This major EIS was completed after more than a decade of regional and national debate, public involvement and independent scientific peer review. The adaptive management process and long-term monitoring specified in the EIS will ensure that this state-of-the-art science and technological process can be applied to the management of the dam and reservoir. The State of Arizona supports the process which has been implemented since Secretary of Interior's Record of Decision on the Final Glen Canyon Dam EIS.

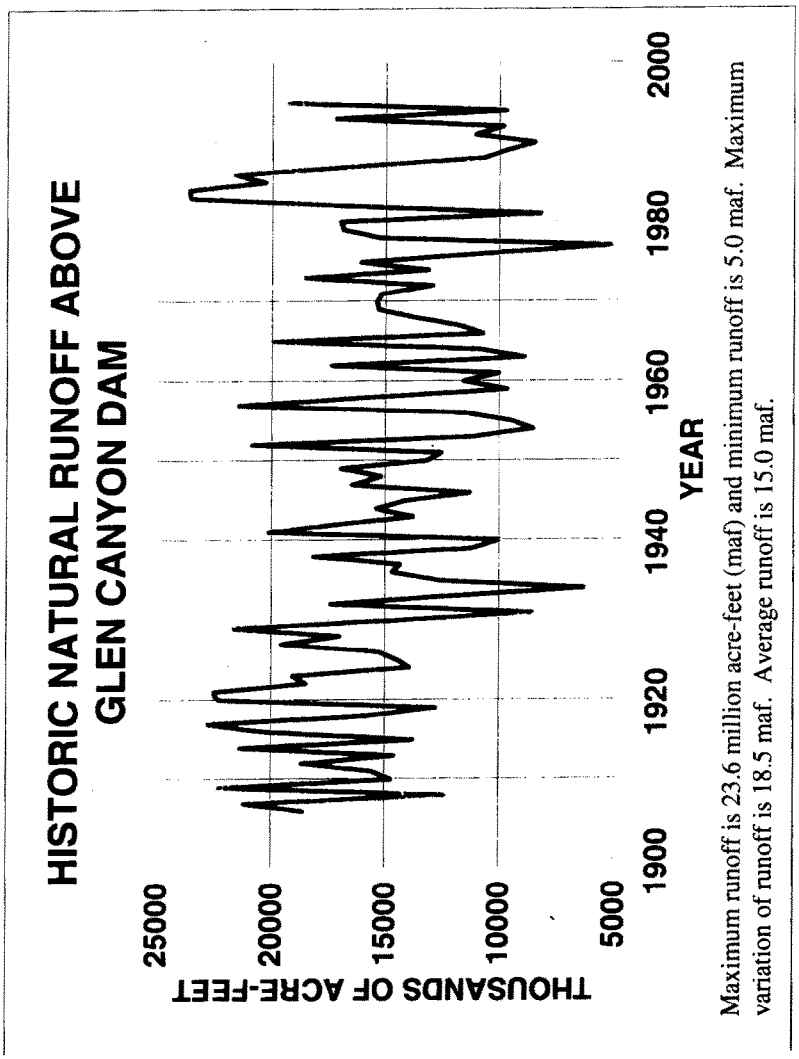
Conclusion

To conclude, draining the Lake Powell Reservoir will result in many needless and harmful impacts on the water supplies of 20 million people. There will be adverse impacts to the environment including endangered species, and local and regional economies dependent on the benefits of the dam and the reservoir.

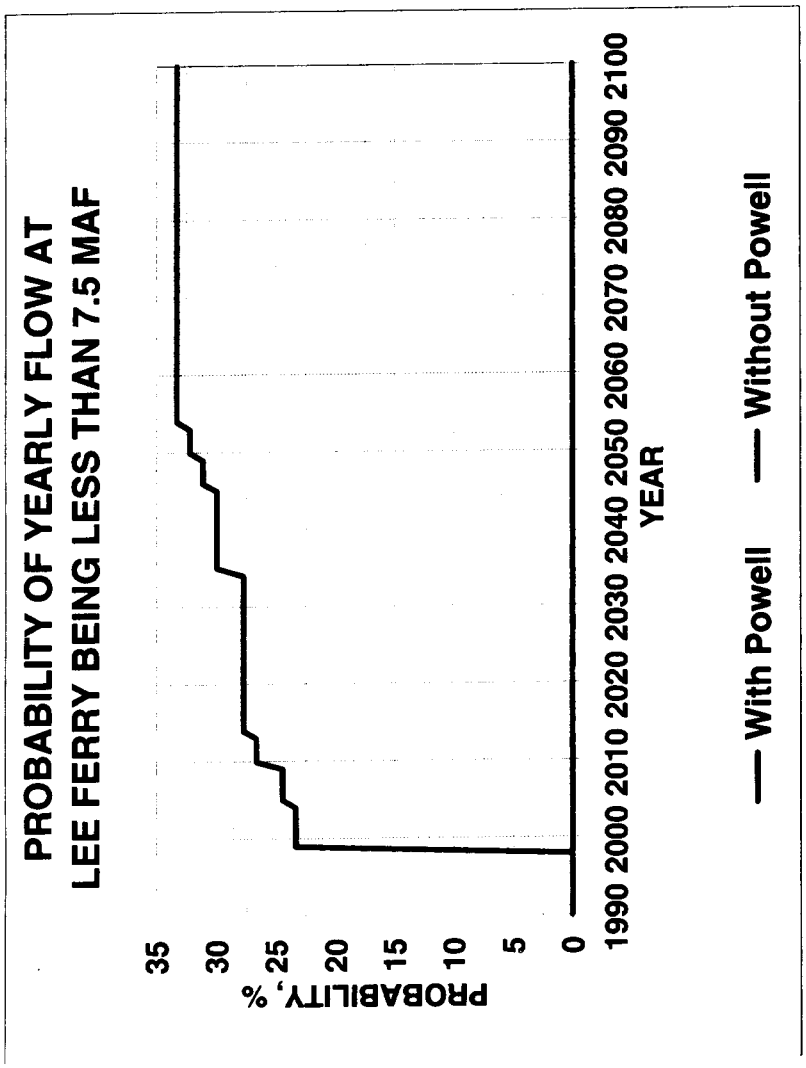
Arizona is a state of diverse interests, and much of its well-being is based upon what has been created historically. When most of the major decisions were made regarding Glen Canyon, the conditions were significantly different from what they are today, and perhaps dramatically different from what they will be tomorrow. We need not look back in time and regret what has been done, but focus on how we can enjoy the beauty we have now. If the original grandeur of Glen Canyon could be restored, and most believe it cannot, significant water supply, environmental and economical impacts would occur. In fact, these impacts would likely be felt across the nation.

As I view it, the challenge now, and that of the future, is to continually re-evaluate Glen Canyon Dam operations by integrating new advances in science and technology, while maintaining a high degree of public and agency involvement in decision-making processes. The key is to manage Glen Canyon Dam and Lake Powell for the benefit of all resources as Congress directed in 1992.

Thank you for the opportunity to address the Joint Subcommittees on Water and Power and National Parks and Public Lands. I would be happy to answer any questions you may have.



Maximum runoff is 23.6 million acre-feet (maf) and minimum runoff is 5.0 maf. Maximum variation of runoff is 18.5 maf. Average runoff is 15.0 maf.


PROBABILITY OF YEARLY FLOW AT
LEE FERRY BEING LESS THAN 7.5 MAF
PROBABILITY, %
35
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25
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YEAR
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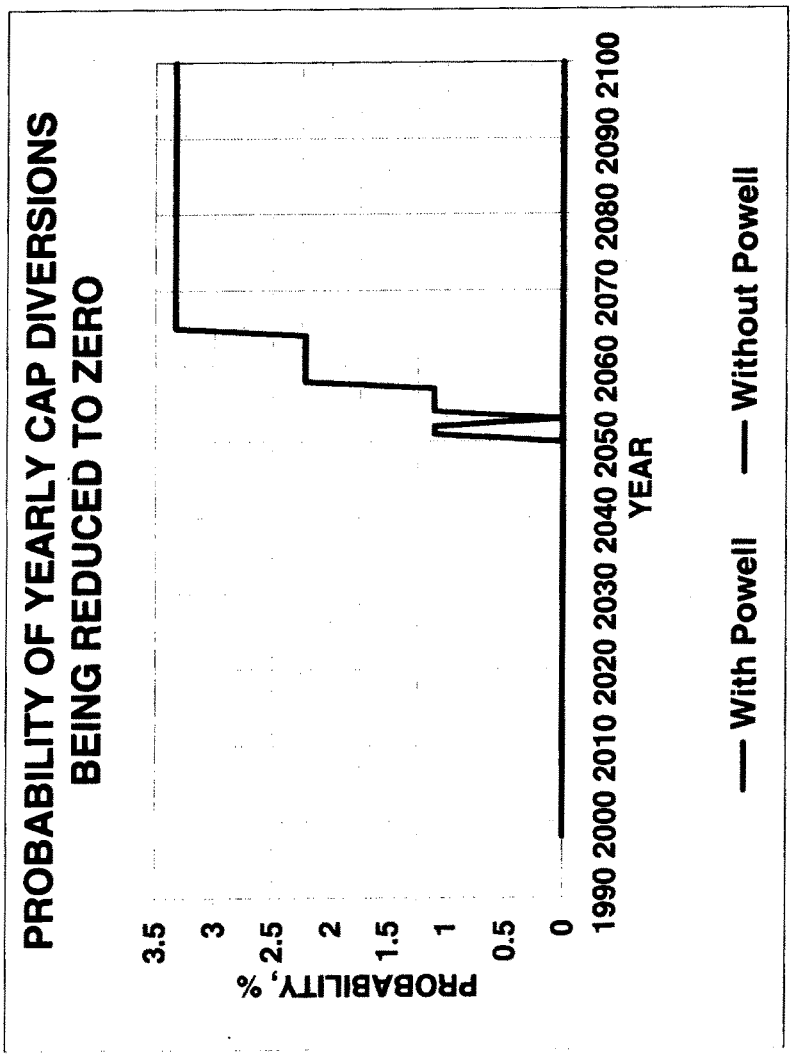
PROBABILITY OF YEARLY CAP DIVERSIONS
BEING REDUCED TO ZERO
PROBABILITY, %
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3
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2
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1990 2000 2010 2020 2030 2040 2050 2060 2070 2080 2090 2100
YEAR
With Powell
Without Powell

Mark Whitlock, Executive Director

WHY WE NEED LAKE POWELL*

Good day ladies and gentlemen, I appreciate the opportunity to be here today to share with you some concerns that I have regarding the Sierra Club and Glen Canyon Institute's proposal to drain Lake Powell. As you are aware, Lake Powell is the reservoir which allows the United States to regulate the flow of the Colorado River to Lake Mead downstream. Water stored in Lake Powell permits the Upper Basin states to meet their obligation to deliver 75 million acre-feet of water to the Lower Basin every 10 years, and to deliver 50 percent of the United States' obligation to Mexico (750,000 acre-feet a year) while continuing to meet the need for water upstream. Implementing a proposal to drain Lake Powell would almost certainly cause the Upper Basin states to take actions which would threaten the supply of Colorado River water to California and the other Lower Basin states.

If the Upper Basin states continued to meet their own growing water needs, less water would be left in the river to flow to Lake Mead, the reservoir from which California and the other Lower Basin states' needs for Colorado River water are met. With less water flowing into Lake Mead, there would be less of a chance that the Secretary of the Interior would continue to make surplus water available to California. While California has been and will continue to do its part to make more efficient use of the Colorado River supplies available to it, reducing the availability of surplus water in the near future would translate into a need to spend significant amounts of money on new supplies, raising water rates. Currently, the water rate in my community is $740 per acre-foot.

I'm concerned about our water rates increasing especially when we are working so hard in our community to make the most efficient use of this resource. The First African Methodist Episcopal Church (FAME) is one of many Community Based Organizations that has helped provide employment for local residents by distributing and installing ultra low flush toilets. The local water purveyors provide funding for these water conservation programs and our community benefits in many ways. To date, our organization has installed over 84,000 ultra low flush toilets which translate to a savings of 68,710 acre-feet over the next 20 years. In Southern California, Community Based Organizations have installed or distributed over 1 million ultra low flush toilets and 3 million low-flow shower heads at a cost of over $120 million. This translates to 775,000 acre-feet saved over the life of the equipment.

The population of Southern California is growing by over 210,000 people each year. By 2020 the population of Southern California is expected to be 21.5 million. Colorado River water plays an important role to support the Southern California coastal region's $475 billion economy and to provide jobs to support the growing population. The total need for water in the Southern California coastal region is expected to grow from 3.5 million to 4.6 million acre-feet per year by that time under normal weather conditions after deducting the effect that conservation measures have on demand.

There has been much discussion recently regarding the need to change the way the Colorado River system is operated. Changing the river's management system should optimize the use of Colorado River water, involving an overall basinwide approach. Draining Lake Powell is not the answer.

We're working hard to conserve water and be efficient in our community. But there are limits to conservation. There are 16 million people and a huge economy in Southern California that depend on Colorado River water and Lake Powell's ability to store this water.

FAME Assistance Corporation, a non-profit 501(c)(3) corporation, was founded by Dr. Cecil L. Murray in 1988 to provide more intensive community services. Many projects have gathered under this umbrella, from health care and homeless assistance to youth and employment and economic development. Our staff of fifty-six (56) with an annual budget of approximately $3,700,000, operates as a team, with close to 25 years of combined staff experience in business management.

As a program within the FAME Assistance Corporation, FAME Renaissance was established August 1, 1992, to enhance business and economic development for the minority community. Through its Executive Director and team of managers, they continue to develop programs that will build a strong and economically empowered community to resolve problems and to improve living standards.

FAME Renaissance promotes profitable expansion of existing businesses and mentor new start-ups, especially those that participate in value added industries. FAME encourages the use of joint ventures and coalitions to acquire the skills or create the scale necessary to compete in these industries.

Some notable facets of FAME's programs include:

- The Used Oil Program reached at least 17,418 DIYers (Do-It-Yourselfers) through an effort of the community used oil collection events.
- The Used Oil Program helped to divert approximately 30,000 gallons of used oil from the landfills and the environment.
- The water conservation program served over 30,000 homes and saved over one billion gallons of water per acre foot.
- The Transportation Program distributes 36,000 bus tokens and taxi vouchers per month via 300 non-profit agencies throughout Los Angeles.
- The Telecommunication Education Program has reached over 35,000 residents.
- The Entrepreneurial Training Program has graduated over 1800 students.
- The Employment Referral Service has placed over 2000 applicants.
- The FAME Revolving Loan Fund has funded over 70 loans.
- The Housing Program house over 300 homeless persons annually during the winter.

Mark Whitlock's
Statement of Ministry

Mark Whitlock received an overwhelming desire to preach and serve God in June 1981, at McCoy Memorial Baptist Church, Rev. R.A. Williams, Pastor. He answered the calling of God by first immersing himself in the choir, street witnessing, volunteerism, and Bible study.

Mark joined the First AME Church, Los Angeles, May 1983, through an association with his future wife; Hermia Shegog, he joined the Unity Choir that same year. Mark's ministry grew rapidly in 1984 through an association with Los Angeles Branch of the NAACP. He served as membership chair. He primarily recruited new NAACP members from First AME Church and the larger church community. That year the Los Angeles Branch of the NAACP received national membership honors.

Pastor Cecil L. Murray nominated Mark to serve as the leader of the men's component of family day in 1987. Mark's committee raised over one hundred thousand dollars for the church. He serves as member of the FAME Steward Board. The Steward Board is the official governing board of the AME Church.

In 1988, Rev. Murray recruited Mark to start an African American men's fellowship organization, The RAMS. The RAMS primary mission is to raise the consciousness of Christian African American Men. We accomplished the mission through monthly fellowships, education, community activities, and Bible study. The group grew from a band of six to three thousand men. The RAMS now has organizations in six states.

In 1992, Mark joined the staff of First AME Church (FAME), as the Executive Director of the FAME Assistance Corporation, a California nonprofit corporation. FAME Assistance Corporation is an affiliate of the First African Methodist Episcopal Church, Los Angeles. Dr. Cecil L. Murray serves as Chairman.

Mark administer the following FAME projects:

Revolving Loan Fund	$4,000,000 fund
Entrepreneurial Training Program	2500 graduates
Business Assistance Center	200 clients
MTA Transportation Program	$5,000,000 budget Serving 60,000 people monthly
Legal Clinic	Fifty volunteer attorneys
Environmental Protection Program	Environmental Education program

In 1994, Mark established the for profit organization, FAME Forever Inc., and serves as President. FAME Forever AKA FAME Personnel Services, offers temporary employment services to Fortune Five Hundred companies and public agencies. FAME Personnel has placed over seven hundred Christian in full time jobs.

FAME Personnel sponsors an annual job fair and market place. Last year over fifty companies offered jobs to over eight thousand job seekers.

Mark Whitlock answered the call to preach in August 1995. He established a men's bible study that continues to meet every Wednesday night. He preached three times at First AME Church that year. Ten people were led to Christ.

In 1997, he has accomplished the following tasks and assignments:

- Attended the Fifth District Annual Conference
- Attended the Quarterly Conference
- Attended First AME Church's Quarterly Conferences
- Enrolled Southern California Conference AME Ministerial Training Classes
- Completed the Black Ecumenical Center's class on the Old Testament
- Street preaching
- Preached three times at First AME Church, Los Angeles
- Preached one time at First AME Church, Allen House
- Preached at Ward AME Church, Los Angeles
- Preached at Mt. Nebo AME Church, Baltimore MD
- Preached at Glendale Baptist Church, Baltimore MD
- Lectured at the Conference on Black Philanthropy, Phil., PA
- Lectured at Harvard University School of Theology
- Lectured at Indiana University School of Religion
- Lectured at USC School of Religion
- Lectured at the Louisville Institute for Religious Study
- Lectured at the Los Angeles Housing Authority
- Participated in the School of Theology at Claremont "Religious Think Tank"
- Participated in FAME Counseling Resource Center
- Participated in round table discussion on the movie "Prince of Egypt

Mark sits on several boards, including The Summer Leadership Institute of Harvard Divinity School, The Walt Disney Goals Foundation, The Autry Museum, The African American Chamber of Commerce, Operation Hope, and First AME Church.

Mark is frequent guest of both television and radio talk shows including Night Line, Good Morning America, The Today Show, CNN News, ABC, CBS, and NBC News and local news affiliates. Mark Co-hosts a local television show on KCOP Los Angeles Channel 13 "Issues Of The Week."

He is married to Attorney Hermia Shegog-Whitlock. The Whitlock's have two lovely sons Mark and Devin.

SHELIA E. REED
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EXPERIENCE

Project Manager — First AME Renaissance
November 1995 - Present — Los Angeles, California

Review and monitor all environmental issues that are presented to the office, prepare and handle all state and city documents that are related to environmental issues, supervise the weekly used oil collection events, and seek out new environmental ventures that are beneficial for the community.

Asbestos Associate — B&D and Associates
January 1995 - November 1995 — Woodland Hills, California

Conducted building surveys and visual inspections, developed cost estimates for asbestos projects, performed air monitoring analysis, assisted in bid proposal preparation, reviewed specifications and performed job walks.

Regional Planner Volunteer — LA County Dept of Regional Planning
July 1994 - October 1994 — Los Angeles, California

Analyzed, prepared, and reviewed; Initial Studies, Negative Declarations, Draft and Final Environmental Impact Reports.

Quality Engineer — Rockwell International
October 1988 - December 1994 — Canoga Park, California

Drafted Unsatisfactory Condition Reports and Failure Mode Effective Analysis/Critical Items List documenting shop floor findings to monitor processes and manufacturing operations. Subsequently, generated Cause and Corrective Actions regarding quality-related issues and Inspection Discrepancy and Correction Records. Reviewed drawings and specifications for electrical test support equipment, contamination control, and quality assurance planning.

Design Engineer — Hughes Aircraft Corporation
April 1987 - July 1988 — El Segundo, California

Initiated procedures to resolve parts problems for the Antenna, Radar Data Processor and Low Voltage Power Supplies. Created specifications, and generated RDW's (Request for Deviation/Waiver), ECR's (Engineering Change Request), EO's (Engineering Order), and CA's (Change Authorization). Representative on the Material Review Board.

EDUCATION

Bachelor of Science - 1980 Loyola Marymount University	Electrical Engineering Los Angeles, California
Master of Science - 1994 West Coast University	Environmental Management Los Angeles, California

Certificates

Hazardous Waste Handling
Asbestos Abatement Contractor/ Supervisor (EPA/AHERA/OSHA)
Building Inspector (EPA/AHERA/OSHA)
Management Planner (EPA/AHERA/OSHA)
Project Designer (EPA/AHERA/OSHA)
Hazardous Waste Operation & Emergency Response Compliance [29 CFR 1910.120(e) & 8 CCR 5192 (e)]
Supervisors' Health & Safety Training [29 CFR 1910.120 (e) & 8 CCR 5192 (e)]

AFFILIATIONS

Los Angeles Council of Black Professional Engineers (LACBPE)
Youth Motivation Task Force (YMTF)

DISCLOSURE REQUIREMENT
Required by House Rule XI, clause 2(g)

1. Name: FAME Assistance Corporation

2. Business Address: 2241 South Hobart Blvd., Los Angeles, CA 90018

3. Business Phone Number: (213) 730-9194

4. Organization you are representing: First A.M.E.

5. Any training or educational certificates, diplomas or degrees which add to your qualifications to testify on or knowledge of the subject matter of the hearing:

40 Hour Training in Hazardous Materials
Master in Environmental Management

6. Any professional licenses or certifications held which add to your qualifications to testify on or knowledge of the subject matter of the hearing:

None

7. Any employment, occupation, ownership in a firm or business, or work related experiences which relate to your qualifications to testify on or knowledge of the subject matter of the hearing:

FAME Assistance Corporation managed a water conservation program for 3 years.

8. Any offices, elected positions, or representational capacity held in the organization on whose behalf you are testifying:

None

9. Any federal grants or contracts (including subgrants or subcontracts) which you have received since October 1, 1994, from the Department of the Interior, the Department of Defense, the Environmental Protection Agency, Department of Agriculture, Department of Commerce, Department of Energy, or the National Science Foundation, the source and the amount of each grant or contract:

FAME Assistance Corporation received a grant from Department of Commerce for 2.1 million

10. Any federal grants or contracts (including subgrants or subcontracts) which were received since October 1, 1994, from the Department of the Interior, the Department of Defense, the Environmental Protection Agency, Department of Agriculture, Department of Commerce, Department of Energy, or the National Science Foundation, by the organization(s) which you represent at this hearing, including the source and amount of each grant or contract:

Department of Commerce - 2.1 million

11. Any other information you wish to convey to the committee which might aid the members of the Committee to better understand the context of your testimony:

None

THE
NAVAJO
NATION
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ALBERT A. HALE
PRESIDENT

THOMAS E. ATCITTY
VICE PRESIDENT

TESTIMONY OF MR. MELVIN F. BAUTISTA, EXECUTIVE DIRECTOR
OF THE DIVISION OF NATURAL RESOURCES OF THE NAVAJO NATION
BEFORE THE UNITED STATES HOUSE OF REPRESENTATIVES
SUBCOMMITTEES ON WATER AND POWER, AND NATIONAL PARKS
AND PUBLIC LANDS

September 23, 1997

My name is Melvin F. Bautista. I am the Executive Director of the Division of Natural Resources of the Navajo Nation, and I am also a member of the Navajo Nation. I thank the House Subcommittees on Water and Power, and National Parks and Public Lands, as well as the leadership of these entities, for kindly extending an invitation to the Navajo Nation to testify at this meeting.

I. INTRODUCTION

We are gathered here to discuss Mr. David R. Brower's and the Sierra Club's proposal to drain Lake Powell to purportedly stop wasting water, for protection of water rights, to provide more water to the States of Colorado and Utah, as well as Mexico, and to recover paradise lost (recover the aesthetic beauty of the Glen Canyon region, protect and strengthen the arts of poetry, and recover native species allegedly destroyed by the creation of Lake Powell).

To abide by the recommendation of the Sierra Club, articulated in 1958, would wreck disaster upon the economic and social welfare of the Navajo Nation. It would also detrimentally and fundamentally alter a water preservation, delivery, and supply system crafted by many decades of planning and social compromise for the sake of a myopic, selfish, impractical, environmental deal. In short, the Sierra Club's proposal does not address all of the complexities of water administration under the upper compact and lower compact states. It also does not address the

adverse impacts on Navajo water rights, Navajo economic development concerns, or Navajo social welfare.

II. Background

Water is life in the western region of the continental United States. Water considerations affect land and economic development plans and opportunities for all who live here, including the Navajo Nation. The Colorado River is the primary water supply and ground water recharge source in the Colorado River Basin States. It begins high in the Rocky Mountains in Wyoming and Colorado and meanders through Wyoming, Colorado, Utah, Nevada, Arizona, and California before reaching Mexico, where it empties into the Gulf of California.

With the need to provide water to settlers and miners, the Federal government set about to implement an ambitious plan to control the water use and development, including the Colorado River, as early as 1866. The Act of 1866 vested the Federal government with great control over rivers and their tributaries. The United States mission is to protect water rights for the public domain, mineral claims, homesteads, and unclaimed land.

In the Colorado River Compact of 1922, the states agreed to an essentially equal division of water between the Upper Basin states (Colorado, Utah, Wyoming, and New Mexico) and the Lower Basin States (Arizona, Nevada and California). In 1948, the Upper Basin states signed a compact dividing shares attributable to the Upper Basin or 7.5 million acre feet of an erroneously presumed 16.5 million acre feet. The Lower Basin States could not agree to a general division of the River's flow. Thus, in 1963, the United States Supreme Court, in *Arizona v. California* 373 U.S. 546 (1963), ruled that the Boulder Canyon Project Act apportioned 2.8 million acre feet of water to Arizona, 4.4 million acre feet to California, and only 300,000 acre feet to Nevada from a flow of approximately 13.5 million acre feet per year. The Compact also acknowledged that Mexico was entitled to some quantity of the flow of the Colorado River.

On April 11, 1956, Congress passed the Colorado River Storage Project Act (hereafter referred to as CRSP) authorizing the Secretary of the Interior to construct, operate and maintain CRSP units such as dams,

reservoirs, powerplants, and transmission facilities, including Glen Canyon. The intended purpose of CRSP was to provide long-term regulatory storage for the Upper Colorado River Basin States allowing them to meet their obligations under the 1922 Compact, while utilizing their Colorado River water apportionments.

Currently, reservoirs in the Colorado River Basin can store approximately 60 million acre feet, or about four times the River's average annual yield. To meet the demands placed upon the Colorado River by the Compact, it has become increasingly necessary to conserve the annual flow in this large reservoir system, so supplies can be regulated for distribution throughout the year, and to ensure an adequate supply during low drought years. Lake Powell ensures that the Lower Compact states receive their allocated water.

The Navajo Nation has reserved water rights, with a priority date that relates back to the creation of our Reservation by the Federal government. The Navajo Nation entered into two treaties with the United States, in 1850 and 1868, that set aside an exclusive reservation for the Navajo Nation. Our water rights, however, must be quantified by a court of competent jurisdiction as part of a general stream adjudication, unless the Nation authorizes a settlement approved by Congress. Thus, the Navajo Nation, like the other water users in the region, is currently engaged in the general stream adjudication for a number of rivers and basins on or near the Navajo Nation, including the Colorado River.

In *Arizona v. California,* the Supreme Court also adjudicated the water rights of five Indian tribes. The Navajo Nation, however, was excluded from this litigation.

Two theories have been postulated to explain the exclusion of Navajo water rights. The first suggests that the Special Master limited his consideration of water rights on the mainstream of the river below Lake Mead. The other envisions the surrender of Navajo water rights in exchange for monetary consideration and the promise of beneficial economic development which made possible the construction of the Navajo Generating Station. Without Lake Powell, the Navajo Generating Station would not exist.

Moreover, in 1958, Congress authorized the exchange of Navajo

Reservation land for public domain lands occupied by Navajo Indians. Glen Canyon Dam is located on former Navajo Reservation lands. The Navajo Nation still owns the mineral estate under Lake Powell. Lake Powell flooded Navajo religious and cultural sites, forever destroying their use by the Navajo people. The Navajo Nation has been deprived of its minerals and culture without compensation being paid by the Federal government.

In any event, Article III (a) of the Colorado River Compact, through it disclaims Indian water rights, appears to assume that Arizona's allocation includes 50,000 acre feet of Navajo water. The Navajo Nation is gathering information and data, but it also appears that 50,000 acre feet is a low-end number, leaving open the possibility that the Navajo Nation could divert its water rights both from the upper and lower compact states' allocations from one or more sites along the river. The Navajo Nation's boundary border rivers in the States of Arizona, New Mexico, Colorado and Utah. Currently, Lake Powell may be the best feasible spot, from a economic and engineering perspective, to divert Navajo water for its own needs or for in-stream marketing elsewhere or both.

Lake Powell is capable of storing approximately 25 million acre feet and generating roughly 1,400 megawatts of hydroelectric power. Lake Powell also provides the Navajo Nation with recreation opportunities and much needed tourism dollars.

III. Issues and Concerns of the Navajo Nation

First and foremost, the proposal to drain Lake Powell would create great hardship for the Navajo Nation in securing a readily accessible water supply. The proposal, if accepted, would literally destroy mining and agri-business concerns that provide most of the financial resources the Navajo Nation expends to provide benefits to the members of the Navajo Nation. This would force the Navajo Nation to develop its ground water resources at little or no profit with the inherent risk that ground water quantity and quality would be irreversibly compromised. The Federal courts have ruled that an Indian nation is entitled to a significant level of water quality. If the Navajo Nation cannot obtain its water for its determined purposes, then, it seems all compact state's rights and private water rights are uncertain, since Congress and the courts have attempted to provide finality and repose to those who possess legitimate water rights. More importantly, the Navajo Nation would be deprived of its most

feasible diversion site on the river.

Secondly, the Navajo Agricultural Product Enterprise and Navajo Indian Irrigation Project (also referred to NAPI/NIIP) would be jeopardized because it is largely dependant upon water availability from the mainstem of the San Juan River and its tributaries for farming activities. Water availability for NAPI/NIIP would be reduced, foreclosing the possibility of ever completing this project. Firm water supplies would not available for Eastern Navajo Agency municipal and industrial water supply projects using water from the San Juan River, such as the proposed Navajo-Gallup Pipeline. Water supplies for the Four-Corners Power Plant would be placed at risk, with direct adverse impacts to BHP's Navajo Mine. This means less revenue to the Navajo Nation, including less royalties, less tax receipts, and fewer jobs. Water supplies for the Navajo Power plant at Page would be lost, with direct adverse impacts to Peabody Western Coal Company's Kayenta Mine. This again, means less revenue to the Navajo Nation, including less royalties, less tax receipts and fewer jobs. The Navajo Nation is solely dependant upon jobs, royalties, and tax revenues generated from these mines and enterprises for its survival. Firm water supplies would not be available for Western Agency municipal and industrial water supply projects using water from Lake Powell. Peabody Western Coal company's Black Mesa Mine currently uses ground water for its coal slurry operation to the Mohave Power Plant. The alternative under consideration of using water from Lake Powell would be foreclosed. This would lead to greater hardship for the Navajo Nation and the Hopi Tribe, because the limited supply of ground water would continue to be used, perhaps eventually being mined (where the rate of use exceeds the rate of recharge). This would lead to greater pollution of the Navajo ground water aquifer, an event that surely would create breach of trust duty and violation of the Clean Water Act, among other environmental protection statutes, by the United States.

Third the Navajo Nation believes dangerous and toxic concentrations of selenium, salts, and mercury left behind from a drained lake and airborne by the wind would detrimentally affect the health and safety of the Navajo people living near Lake Powell.

Fourth there would be a significant cost increase for the public by substituting other resources to provide energy and electricity now or in the future by hydroelectric facilities on Lake Powell. More coal may have

to be burned to maintain electricity at production levels. This may contribute to increased air pollution in a strictly regulated clean air environment.

Fifth since many, if not all, of the native species of plant and animal life have all ready been destroyed or affected by Lake Powell, non-native species would merely inhabit the vacant spaces. It would be prohibitively expensive to return the environment to original habitat, since it has all ready been drastically affected. Furthermore, the current endangered species of fish life would be at greater risk by encroachment of non-native fish if Lake Powell were drained. For that matter, current Federal law protects the levels of in-stream flows so that wildlife, including native and non-native fish, are protected. It should also be noted that Federal environmental statutes provide a greater degree of protection to our natural and human environment than would the draining of Lake Powell. In fact, more life, property and investment-backed expectations would be destroyed and laid waste by draining Lake Powell than could be preserved by maintaining the *status quo.*

Since 1969, the National Environmental Policy Act requires the Federal government to engage in a consultation process among its various agencies and, under specific circumstances, with the public when it proposes to take significant Federal actions affecting the environment. In fact, it must produce an environmental impact statement (EIS) for major Federal actions that significantly affect the quality of the human environment. Thus, Federal statutes must be considered and enforced through this process. The study must also list alternatives to the proposed action. Modern statutes protect man, plants, and animals from unreasonable risks and threats based upon man's use of land and water resources.

Lastly, revenues from the tourism industry created by Lake Powell, the Glen Canyon area, and the Navajo Nation would be drastically affected. During the early years after the Lake is drained, there would be no tourist attraction. Even if the environment were perfectly reclaimed, there would be only limited tourist attraction appeal, since the recreation utility potential of the site would be greatly limited. In fact, even today, potential enjoyment of the resource by poets and writers seems unimpaired. Many members of the Navajo Nation sell food, beverages and jewelry to tourists. This accounts for most of their income each year.

Draining Lake Powell would absolutely destroy this means of income for the Navajo vendors and enjoyment by those wanting to see and experience Lake Powell. More significantly, the larger issues of economic development and the social welfare of the Navajo Nation are completely ignored.

IV. CONCLUSION

On March 20, 1995, the final draft EIS for the Glen Canyon Dam project was released to the public. The preferred alternative required the Bureau of Reclamation to substantially reduce daily fluctuations, included periodic habitat maintenance flows, beach/habitat building flows, adaptive management, flood frequency reduction, and establishment of a second breeding population of the humpback chub. This plan was approved by the public and the Secretary of the Interior.

This plan considers the impacts of uses in a river system that provides water and life to the environment. It carefully considers the needs of the human and animal community. It sincerely attempts to supply water resources to protect and nourish the community. The Sierra Club's proposal, conversely, merely views the destruction of Glen Canyon Dam and Lake Powell with justifications that benefit only a few members of the human community.

If Lake Powell is drained, then the Navajo Nation still desires to proceed with the settlement of issues with the National Park Service concerning the Nation's boundary along the Colorado River. The Nation still maintains that the shore line of the River, in the vicinity of Grand Canyon National Park, is the northern and western boundary of the Navajo Reservation which includes the centerline of the San Juan River as defined by our treaty. The National Park Service refuses to accept this even though an Arizona State Court made this finding when it dismissed a citation for fishing without a state license within Grand Canyon National Park to a member of the Navajo Nation, he did possess a Navajo Nation permit.

The draining of Lake Powell would do nothing but harm the economic and social welfare of the Navajo Nation. This would greatly complicate and further delay use of Colorado River water by the Navajo Nation. As such, the Navajo Nation respectfully requests that you reject the Sierra Club's proposal.

Cover Page

Testimony for the Subcommittee on National Parks & Public Lands and the Subcommittee on Water & Power hearing on the proposal to drain Lake Powell. Hearing scheduled for Tuesday, September 23, 1997 at 10:00 a. m. in Committee Room, 1324 Longworth HOB.

This testimony has been prepared by:

Larry E. Tarp, Chairman
Friends of Lake Powell
P. O. Box 7007
Page, AZ 86040

Friends of Lake Powell
Mission Statement

Friends of Lake Powell supports the preservation of Lake Powell and Glen Canyon Dam for generations to come. To accomplish this objective, Friends of Lake Powell will:

1. Provide the general public with factual information regarding the social, entertainment, environmental and economic benefits this area produces.

2. Solicit membership in this organization in support of our efforts to counter an organization that would seek to drain or alter Lake Powell and/or remove Glen Canyon Dam.

3. Work with local, state and federal governmental agencies to create maximum public awareness of any attempts to alter the future status of Lake Powell and Glen Canyon Dam.

4. Support all efforts to maintain and improve the environmental status of Lake Powell and the surrounding Glen Canyon National Recreation Area.

5. Represent the millions of people that each year enjoy the vast beauty, human values and relaxation provided by Lake Powell.

Dated: September 17, 1997

Testimony for the subcommittee on National Parks & Public Lands and the Subcommittee on Water & Power on the proposal to drain Lake Powell. Hearing to be held Tuesday, September 23, 1997 at 10:00 a.m., Committee Room 1324, Longworth HOB.

This Testimony has been prepared by:

Larry E. Tarp, Chairman
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P. O. Box 7007
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The Facts about Lake Powell

Lake Powell and its surrounding area is one of the most beautiful places on earth. Lake Powell rests in the northern part of Arizona and the southern part of Utah. Approximately 90% of the lake is in Utah. Its surface lays at approximately 3700 feet above sea level, yet is well below the surrounding mountain formations. This difference in elevation is one of the major reasons for its extreme beauty. The sparkling blue waters contrast against the soaring red sandstone cliffs. Once on the lake, you feel as though you have been swallowed by the surrounding grandeur, the towering buttes in the distance, yet you can reach out and touch the canyon walls. You can nose up to one of the thousands of sandy beaches and explore the nearby mountains, plants and animals. There is truly nothing else like it anywhere on the planet.

Lake Powell was created following the construction of Glen Canyon Dam, a decade long project that began in 1956. Lake Powell is named for Major John Wesley Powell, a civil-war veteran and explorer. Lake Powell is now surrounded and protected by Glen Canyon National Recreational Area. GCNRA, operating under the National Park Service, was set aside by congress in 1972. GCNRA covers an area of 1,236,800 acres. This is equal to the size of the state of Delaware, more than 30 times the size of the District of Columbia. These canyons, buttes and desert sands allow one to discover a place that tells stories of nearly 650 million years of the earth's history. The primary mission of GCNRA is to: preserve the scenic, scientific and historical features of Lake Powell and the surrounding area.

Lake Powell is the result of a single dam with a concrete crest that extends nearly one-third of a mile across Glen Canyon itself.

The lake's blue water, more than 500 feet deep in places, is the product of a score of rivers draining from the upper regions of Colorado, Wyoming, Utah and New Mexico. It is roughly 186 miles long, has approximately 1,960 miles of shoreline, more distance than the entire West Coast shoreline of the United States and covers a surface area of 266 square miles, yet by comparison is only 13% of the total land area of the GCNRA. Ninety-six side canyons twist into the main channel of Lake Powell. Each one is unique with many names such as Forbidding, Wiregrass, Mountain Sheep, Antelope, Navajo, Cathedral and Labyrinth. Although the sheer size of this body of water, the Glen Canyon National Recreation Area and the close proximity to a series of seven national parks, seven national monuments and numerous state parks, historical sites, prehistoric Indian ruins, colorful ghost towns and geologic formations that reach from northern Arizona into southern Utah that draws visitors to its shores, it may well be the rugged landscape and the surprising stillness that keeps the people coming back.

It is at this point in the testimony that we must address the 4 or 5 misleading, twisted and factless areas the proponents of draining Lake Powell have issued to the media and that eventually reached the public without the benefit of research or scientific inputs.

First, there have been claims made that the evaporation from Lake Powell is as much as 1 million acre feet a year. Official estimates put that figure at something around half of that amount, considering the average annual lakes' total capacity when netted down to include what would be lost to evaporation during the raging flows of a free flowing Colorado. It must first be understood that evaporation is not, let us repeat, not elimination. Evaporation is a natural part of the cycle of clouds and rains or snows. All water evaporates when exposed to temperature increases by either thermal (from below) or solar (from above), but as the waters change from a liquid state to a gaseous state, they mearly rise up in either the form of fog in times of little temperature change or rise further into the lower atmosphere where they are cooled and become clouds. As the prevailing wind patterns are from west to east and flow somewhat northerly or southerly, depending on the position of the Jet Stream, those waters that gently leave Lake Powell in the form of clouds eventually become so heavily laden with moisture that they produce rain and/or snow for fields and farms, most likely in the Colorado, Kansas and Nebraska areas. With the proponents of draining Lake Powell's proposal, our Colorado River water would be allowed to flow down into the Sea of Cortez, where it would evaporate no differently than it does in any other large body of water, only this time Mexico's crops would benefit from the rainfall, while our Heartland states would be shorted that water.

Second, there is talk among those that would drain Lake Powell about what they think is a bad condition called "Bank Storage". Yes, waters seep into the sandstone surrounding Lake Powell as its levels rise, but again, they are not lost as those same waters run back out of that sandstone as the lake levels decrease. Bank Storage, yes, but not Bank Elimination. Simply think of the sandstone banks as a sponge that holds some water, but can also easily let it run back out.

Third, these lake draining proponents talk about "restoring" the canyon walls after the lake has been drained by the use of volunteers. It must be said, however, that they are now changing their tune a little and suggest that the Army Corps of Engineers or Bureau of Reclamation Engineers could do it (at taxpayer expense). Not all the Kings Horses and all the Kings Men can restore the walls of Glen Canyon. Why, because the waters that have entered and left the sandstone, as in the "Bank Storage" example stated above, have taken out the iron oxide particles that made up the colors within the surface of the stone. Any of you that may have seen pictures of Lake Powell when its levels were lower than normal could see a bleached white ring above the waterline. This is commonly referred to as the "Bathtub Ring". This white area extends from the top of the lake to the bottom and completely around the lake. If the lake were to be drained, there would be nothing left but the biggest bleached white hole on Earth. Perhaps in a thousand centuries there will have been enough sun, rain and wind erosion to partially restore some of the canyons' walls.

Fourth, the pro lake draining groups have issued statements claiming the Powerplant and the lake have a very short lifespan remaining, some have said as little as 30 to 100 additional years. You must be informed that recently completed studies conducted by the Bureau of Reclamation of the United States Government have concluded that the life of the Powerplant is as much as an additional 500 years and the lake an additional 700 years. Those estimates even assume a "do nothing" posture during those periods. If there are no new sources of power and energy developed over the next 500 years, then the lifespan of the lake and Powerplant could be extended by dredging the bottom or other such actions.

Lastly, we want to completely dispel the notions that there are "plugs" that could simple be "pulled" to let the waters run around Glen Canyon Dam. This is simply not true. The original diversion tubes used during early dam construction were completely filled in with concrete from end to end as the dam was filling and a portion of the original outlet areas were redirected to become the spillway outlets. There are no "plugs to pull". Draining the lake and leaving the entire dam in place, as some have advocated, is simply not possible.

The night skies are crystal clear and star gazing is some of the best in the western United States. Lake Powell's shoreline is completely protected from development other than that authorized by the National Park Service and its concessionaires; you will not find hotels, restaurants or other businesses or buildings choking the shorelines and destroying the views.

Glen Canyon Dam and Powerplant is the kingpin in the Colorado River Storage Project (CRSP). Glen Canyon Dam and Powerplant is the centerpiece of the CRSP, which directs the Secretary of the Interior to operate all the project powerplants up stream .. "so as to produce the greatest practicable amount of power and energy that can be sold at firm power and energy rates..." This magnificent structure is 710 feet in height, rises 638 feet above the Colorado River channel, is 300 feet thick at its base, tapering to 35 feet in thickness at its crest. Glen Canyon Dam is the storage reservoir (Water "Savings Account" as it were), which enables the four upper basin states to meet their water commitments to the three lower basin states on an annual basis. The Glen Canyon Dam and Lake Powell guarantees that the lower basin will have water in years of drought or plenty. Without it, in a drought period, it is highly possible that there could be water shortages in Arizona, California and Nevada.

With the construction of Glen Canyon Dam, the upper basin states were free to utilize other waters in their states for the purposes that best served their states. The Central Utah Project is an example. Other upper basin states have similar projects in process or on the drawing board. Because of increased growth in population and water usage, New Mexico completely utilizes its allotted water. Colorado and Utah are near to total use of their water allocations. Wyoming is the only state that has any water surplus, according to the Compact Agreement. Without Glen Canyon Dam, the upper basin states would not be able to use their own water allocations or would have to contrive to build additional dams somewhere in drainage that would meet storage commitments in the lower basin states, per the Compact. In the case of Mexico, it is important to remember, however, that the water that flows down the Colorado River obviously falls to the ground within the U.S. Any water commitment to Mexico is political and gratuitous. President Nixon gave Mexico water from the Colorado River, by treaty, during his administration. Mexico has no legal call on the water except on a good neighbor basis. It should be noted that it is the goal of the Colorado Compact state Water Management Agencies to not allow water to run downstream to the ocean without being put to beneficial use, unless there is a known surplus.

The Glen Canyon Powerplant can produce 1,288,000 kilowatts of electricity. In laymen terms, that is enough to supply the electrical needs of more than 400,000 households a year, even in times of reduced outflows. The sale of electrical power from this operation helps to pay for the construction, operation, maintenance of Glen Canyon Dam and other CRSP water and power development projects. Since 1964, over 4.5 billion kilowatts of electricity have been generated by the Glen Canyon Dam Powerplant. In fact, of the total power generation from the entire CRSP, 75% of the total is generated by Glen Canyon Powerplant. While the employment level at the Powerplant is not great, less than 100 people, the majority of the work force are Native Americans who travel to their jobs from the nearby reservation.

The Carl Hayden Visitor Center, located on the grounds of Glen Canyon Dam, offers an excellent historical perspective of the area, from the adventures of Major John Wesley Powell to the present. As many as 18,000 people per month visit the Visitors Center and partake of the self-guided tour deep inside the workings of the Dam and Powerplant.

The crisp, clear, clean and sparkling blue waters of Lake Powell, 27,000,000 acre feet at full pool, are used to help meet the water needs in both the Upper and Lower Colorado River basin states and Mexico. These water needs and rights are protected under the terms of the 1922 Compact of the Colorado River.

Lake Powell is host to approximately 3,000,000 visitors a year. Families come from all over the world to bask in the sun, play, recreate and yet enjoy the tranquil atmosphere of the area. Water sports abound, from row boating, kayaking, personal water crafting, power boating, water skiing, fishing, houseboating, tour boating to dining under the stars aboard a paddle wheel steamer. Over 400,000 boaters a year find Lake Powell to be their choice for water activities. Lake Powell's marinas are about 50 miles apart and most offer a full range of services necessary for boaters. Arizona has more registered boats per capita than any state in the union.

Lake Powell is also home to some of the best underwater diving of any inland lake because of its sheer underwater cliffs, deep caverns, crystal clear waters and lack of any turbulence.

Backpackers enjoy the tributary canyons, with the best trails on the Escalante River. One area you must walk is Coyote Natural Bridge, located on a tributary of the Escalante River. Visits to this area are increasing in numbers as experienced hikers find its location. Some of the canyons provide excellent geology lessons and are full of history and evidences of prehistoric Indians.

Lake Powell has made access to Rainbow Bridge National Monument such a peaceful boat ride, now more than 325,000 people a year can reach the spectacular monument and marvel at its' beauty and grandeur. Rainbow Bridge is a stone arch spanning 275 feet and rising more than 290 feet from the ground below. Before Lake Powell made access to this natural wonder less than a 2 day walk or 1 day ride on a pack animal, fewer than 15,000 people had ever seen its recorded history.

Thousands of people each year come to the Glen Canyon National Recreation Area to camp on its sandy beaches, bask in the sun, enjoy the relaxation and peacefulness of the area, and bond with family and friends. Campsites are everywhere and are available in many areas by car, so that those who do not have or want to boat have easy access to this spectacular area as well.

Photography is a very popular pastime around this beautiful lake. The contrast between the water and the colorful sandstone mountains that rise above provide endless opportunities for rare and priceless photo shots. I know each of you have seen dozens of pictures of Lake Powell in magazines, books, television programs and in motion pictures such as Maverick, Superman I, II & III, to name but a few.

To further illustrate that Lake Powell and the Glen Canyon Recreation Area are alive and well and recognized by prominent members of the press for its beauty, vastness and recreational opportunities, the following quotes are included in this testimony:

"For others who have secretly wished for a dynamic white water raft trip, but don't have the time or the nerve, Lake Powell offers a down-scaled smooth water raft excursion...Along the way are steep canyon walls and 200 million-year-old petrified sand dunes...Consider taking this Western, wonderful trip during the spring and fall season." Millicent K. Brody, Gannett News Service

"Time was running out on our search for silence when Steve steered his twin outboard into Cathedral Canyon...Gradually, we wound our way deeper and deeper in the canyon until we could touch both walls. A thousand feet overhead in that narrow dark, the moon shines at midday...The ripples from the moving boat spent themselves against the canyon walls, and then the water is still...In our dark retreat, the wind is holding its breath-as are we." Paul Harvey, National radio broadcast and column distributed by the Los Angeles Times Syndicate

"Lake Powell, on the border of Utah and Arizona has some splendid neighbors: the Glen Canyon and the Painted Desert to the south, Zion National Park and Bryce Canyon to the Northwest. But on a four-day houseboating trip last summer, our group of four Washingtonians decided the lake could hold its own against the majesty of the canyons or Bryce's red-rock spires...For us, it offered the chance to touch pink and red canyon walls, wander under precipices of striped sandstone and shale, and explore endlessly changing rock formations, all from the comfortable deck of a rented houseboat." Sabra Chartrand, New York Times

Jodie Foster says "that by far her favorite location is Lake Powell" (during the filming of the movie, Maverick). "We live for weekends. We rent boats, go water-skiing, hang out on these weird little islands."

"Lake Powell and its grandeur may be the ultimate expression of Western boating... This lake is so big, and surrounded by scenery so amazing that it's tough to comprehend it. Yet, for all its size, the lure of Powell lies not in the big picture, but in the details - fjords of sandstone, hidden beaches and bays and multi-colored cliffs of sedimentary strata." Charles Plueddeman and Jim Youngs, Boating Magazine

"The houseboat was our mother ship while we towed three fishing boats behind it... Sure, we could've taken the small boats out on Lake Powell and pitched tents on stretches of deserted shoreline, but getting the gang together to rent a houseboat was the first-class way to go." Bob Hirsch, North American Fisherman Magazine

"They come to fish and camp and climb America's Southwest in all its glory, to enjoy a sun soaked land with names like Butterfly Arch, Cathedral in the Desert, Padre Bay, Castle Rock, Gunsight Butte, Chuckwalla Springs, Tapestry Wall and Lost Eden." Margaret and Eric Anderson, Relax Magazine

"What to see and do: Everything but only if you're into nature and hypnotizing beauty. There are more than a million acres of wilderness in what many consider the ultimate houseboat vacation spot in North America. Lake Powell has been called "A Grand Canyon with enough water", which translates to a water skier's paradise." Robert Stephens, WaterSki Magazine

"Lake Powell, one of the West's most utilized tourist attractions, is a magnet for boaters, hikers, explorers, fisherfolk, archaeologists and those who just enjoy kicking back on a floating home-away-from-home as the sun chases yellow, orange, red, rosy-pink and purple paint-box colors across the lake's startling stone monuments." Susan Bayer Ward, San Francisco Examiner

"There must be more pleasing adventures than a houseboat trip on Lake Powell, but I don't recall any." Barry Burkhart, Arizona Republic

"Not only will massive Castle Rock be identified from that film (Greatest Story Ever Told). From the water today, many of the jutting sandstone pinnacles, mesas, bluffs and mountains (like Navajo at more than 10,000 feet) are a deja-vu. They have been on National Geographic covers, in famous photographers' coffee table books, in movies. Even in "Planet of the Apes." Percy Rowe, Toronto Sunday Sun.

The waters of Lake Powell and the surrounding area have become home to some 275 species of birds, including the endangered Peregrine Falcon, which now breeds in more than 30 aeries (nesting areas) around the lake. The National Park Service has surveyed only about half of the Glen Canyon National Park Area. In that survey, they found as many as 75 occupied territories, meaning the territory contains a breeding pair plus their young. Based on the National Park Service data, it has been estimated that well over 100 breeding pairs exist in the area. A total estimated population of 700 to 800 birds associated with Lake Powell is conceivable.

In point of fact, this bird is about to be removed from the endangered species list because of the population growth provided them by being near the lake. The river from the base of Glen Canyon Dam to Lees Ferry attracts many colorful migrant birds and in winter, water fowl of all types flock to both the lake and the river. The bald eagle is listed as an endangered species. However, its population is recovering internationally and the bird's status may be downgraded to "threatened". We are proud to say the bald eagle is here because he is a fish eater. The major population of these birds centers, initially, on a side stream in the Grand Canyon. where there is a large population of trout. Even the Sierra Club cites an over winter population of as many as 45 individuals in the Glen Canyon National Recreation Area. Annual January surveys by the National Park Service indicate 18 to 20 individuals in an average year. They would not be here without the lake. There is also a large population of trout in this area because of the cool, clear waters being released by Glen Canyon Dam.

What about the golden eagle? Surveys indicate there is a perennial nesting pair on Cathedral Rock in Lake Powell. Lake Powell is very important to both bald and golden eagles during their migration. As many as 11 birds at one time have been seen "stacked-up", riding air currents in the vicinity of the Great Bend in the San Juan arm of Lake Powell. Populations of water fowl such as grebes, gulls, terns and various shore birds have all increased as a result of the water of Lake Powell. The lake is important to migrating water fowl and shore birds. Below the dam, the clear water, being highly productive in terms of plankton and aquatic insects, has become heavily utilized by various duck species. Mallard ducks are now known to be nesting along the river. There is indication that there may also have been nesting attempts by Gadwall. These animals would not be here without Lake Powell and Glen Canyon Dam. Clear, productive water is key. People from all walks of life and from around the world come to marvel at the bird populations and the variety of species.

The bald eagle finds refuge around Lake Powell during its migration. Again, the clear, clean waters of the lake afford the predator birds the opportunity to seek out their prey and continue the chain of life. The soil and moisture allow for vegetation. There have been more than 750 species of plants identified around Glen Canyon and the lake. The vegetation may be hundreds of years old and depends on its present day habitat to maintain itself. To change the growing conditions by removing the water could totally destroy these delicate growths and decide on the life or death of the local plants and animals within in the area. Within the area there are Bobcats, Fox, Black Bears, Coyotes, Mountain Lions, Sheep, Jackrabbits, Ground Squirrels, Beavers, Wood Rats, Badgers, Kangaroo Rats and even Porcupines. Lizards, Snakes and Bats are also common in the area.

The lake is also accessible during winter months. In January, the coldest month, temperatures on the lake can reach into the high 50's, making for year-round activity. The water is so smooth, it is impossible to tell where the cliffs end and the lake waters begin. The fall can sometimes be the most prime season. The weather during the day barely reaches the high 70's and is cool enough for a campfire and cozy sleeping.

The water may be cool for a dip but is refreshing. Lake Powell's waters warm up around the first part of June and stay warm into October. Fishing in Lake Powell is available year around and dozens of different species abound. Lake Powell is home to various sport fishing tournaments traveling here from coast to coast. Record size fish continue to be taken from Lake Powell each year. The best trout fishing is in the 15 miles of river between the boat launch site at Lees Ferry and the base of Glen Canyon Dam. Some shore-fishing is possible the first mile and a half up from Lees Ferry. Otherwise, boats are necessary.

Lake Powell is the jumping off site for many Mountain Biking trails and virgin biking territories as well. Mountain Biking is becoming ever more popular around the lake and new businesses devoted to this recreational activity are springing up in the towns surrounding the area.

A little known fact is that Lake Powell waters are the life blood of one of the largest land based, steam driven, Electrical Generating Powerplants in the country. The Navajo Generating Station is located near Page, Arizona and the shores of Lake Powell and is a major part of the Salt River Project.

This generating station is owned by a consortium of power companies, individuals and includes 24% ownership by the United States government. Navajo Generating Station has 2,250 megawatts of capacity, nearly twice the size of the Glen Canyon Dam Powerplant and bigger than the entire Hoover Dam generating system. It supplies the equivalent of electrical power to no less than 500,000 families of four per year. Navajo Generating Station provides a large employment opportunity for the Native American population from the surrounding reservations. In fact, the NGS employment practices operate on the Native American Preference basis, meaning they must hire qualified Native Americans.

In addition to the human, social, wildlife and environmental values of Lake Powell, Glen Canyon Dam, Glen Canyon Powerplant and the Glen Canyon National recreation Area, there are tremendous economics associated with the goods and services provided by the people, businesses and other enterprises surrounding the area. Sales of electricity from the CRSP dams were more than $130 million in 1996, of which 75% (over $97 million), came from the Glen Canyon Powerplant last year alone. At the conservative retail of $.06/Kwh, the Navajo Generating Station results in revenues for its owners of roughly $1 billion per year. The Navajo Generating Station and their co-owners, Salt River Project, provide up to $8 million a year to the Coconino County, Arizona school tax base. Lake and Recreation Area tourism dollars approximate $350 million per year and an additional estimated $150 million is fed into other areas of the Southwestern United States by these same visitors and vacationers. All of these dollars are subject to State tax, County tax and City taxes, all of which help provide for education, infrastructure, roads, bridges and other tax supported development projects. Ongoing supplies of water supported by the storage capacity of Lake Powell used for agricultural purposes in the states of Arizona, California and Nevada produce crops valued at $1.5 billion per year. These same agricultural activities provide jobs for tens of thousands of people in the Southwestern United States. The little promoted sport of trout fishing below Glen Canyon Dam brings approximately $2 million into the local economies.

The communities of Page, Arizona, Big Water and Kanab, Utah and sites such as Bullfrog, Halls Crossing and Hite, Utah are all dependent on the water, recreation and tourism trades that are provided by the presence of Lake Powell and the surrounding area. These cities and towns comprise more than 300 businesses, of which well over 100 are totally dependent on the lake. The lake concessionaire employs over 800 people in peak periods.

Businesses in nearby towns are involved in boat storage, repair, maintenance, boat management, dry storage, transportation companies, dive shops and boat and engine retail outlets to name a few.

In addition, the lakes' presence enhances businesses such as insurance companies, banks, retail food and clothing outlets. Other providers such as hotels, restaurants and service stations rely almost entirely on tourism to support their investments. The people living and working in these areas along with businesses provide the financial support base for human services such as Page, Arizona's hospital, schools, libraries and other essential services, like emergency medical airlift and ground ambulance providers. Without the financial support provided by the commerce in this area, the nearest medical services would be more than 135 miles away. Cities such as Page, Arizona are experiencing growth rates of up to 6.8% per year.

It should be noted that nearly 23,000 Native Americans live on the Navajo reservation that borders the entire southeastern shore of Lake Powell from Lees Ferry to the Goosenecks on the San Juan River. The Navajo Nation forms the largest segment of population in the Glen Canyon region. These Native Americans can use the present essential services provided because of the financial commerce of the area. Public school enrollments are 63% Native American and they are provided transportation from afar to assure they receive the educational opportunities to which they are entitled.

The future of the city of Page, Arizona is further enhanced by a guarantee with the United States government that provides water supplies from Lake Powell, thus providing for future growth and development without fear of water shortages in a desert environment. The city is the owner of the local electrical distribution system which generates additional revenues payments from the Glen Canyon Powerplant.

While it goes without saying, it should be known to all that the people involved in daily family life, commerce and the free enterprise system provided by this great country of ours will oppose until their deaths any person or persons that would attempt to disrupt their personal rights, freedoms and opportunities for continued existence in the Lake Powell and Glen Canyon National Recreational Area and surrounding communities. According to the intent of the articles of our Constitution, no one person or group has either the right or the power to impose their beliefs on others, in this, the great United States of America. We the millions of "Friends of Lake Powell" as citizens and voters intend to see that these rights are upheld regardless of time or cost.

Thank you.

Larry E. Tarp, Chairman
Friends of Lake Powell

Statement of
Eluid L. Martinez, Commissioner
Bureau of Reclamation
Department of the Interior

before the

House Subcommittee on National Parks and Public Lands
House Subcommittee on Water and Power Resources

September 23, 1997

Mr. Chairmen, and members of the Subcommittees, thank you for the invitation to participate in today's oversight hearing on behalf of the Department of the Interior.

Glen Canyon National Recreation Area was established by Congress on October 27, 1972 to encompass Lake Powell and surrounding lands. The recreation area includes approximately 1,235,000 acres. It was established to provide for public outdoor recreation use and enjoyment of Lake Powell and those lands in the states of Arizona and Utah and to preserve scenic, scientific and historic features of the area.

Each year, millions of visitors come to the area to enjoy the scenery and water activities including boating, water skiing, scuba diving and fishing. Glen Canyon National Recreation Area offers excellent opportunities for water-based and back country recreation.

Glen Canyon generates approximately $400 million for the local and regional economies attracting over 2.5 million national and international visitors to the area annually. Approximately 42,000 visitors float the waters between the Glen Canyon dam and Lees Ferry on concessioner float trips. Lodging accommodations within the recreation area total 456 rooms with an additional 600 campsites for tents and recreational vehicles. Over 700 houseboats and small boats available for rent are typically booked to capacity each summer season. Nearly 2,000 private boats are berthed at Lake Powell and over 1,500 dry storage spaces are available and used at

capacity each summer. Even greater numbers of accommodations and services are provided by communities on the routes to and adjacent to the national recreation area.

Under the current management system of the entire Colorado River, spanning seven states, Glen Canyon Dam and Hoover Dam are the two key units around which the rest of the infrastructure revolves. The Colorado River Storage Project Act of 1956, which authorized Glen Canyon Dam, and the subsequent Colorado River Basin Project Act of 1968, are part of the "Law of the River" which also includes other Federal laws, three Compacts and Agreements, one Treaty, four sets of Criteria and Regulations, and opinions and decrees of the U.S. Supreme Court. In addition, the Grand Canyon Protection Act of 1992 mandates that an environmental management commitment be added to the historic management practices centered upon conservation storage and power generation.

The existing system is one that has essentially worked well. A mix of Federal law, recognizing certain authorities and responsibilities of the Secretary of the Interior, and state water laws have emerged. Lake Powell and Lake Mead provide the mid-point long-term carry-over storage facilities to help ensure that water deliveries pursuant to the 1922 Compact to the Lower Basin States will be made in times of prolonged drought, such as those experienced in the late 1980's, while preserving the Upper Basin States' ability to continue to develop their shares of the river, especially during droughts as we experienced in the late 1980's. The system also facilitates meeting the obligations of the United States to the Republic of Mexico, consistent with the Treaty of 1947.

Even though I recognize that long-time Reclamation supporters like Senator Barry Goldwater now consider building Glen Canyon to have been a mistake, it has been built and Lake

Powell exists. Considering all of the above facts, proposals to drain Lake Powell are unrealistic.

The Department is focusing its efforts on implementing the Record of Decision concerning the Operation of Glen Canyon Dam Environmental Impact Statement (EIS). That Record of Decision was signed not quite one year ago from this hearing date.

That EIS was the most comprehensive study incorporating sciénce-based data to be produced in the history of the Bureau of Reclamation. The level of public participation in development of the document was unprecedented. The mix of interests in the public process was complete, ranging from environmental organizations, including the Sierra Club, Trout Unlimited, and American Rivers to the purchasers of power from Glen Canyon Dam. All interests rolled up their sleeves and accepted the challenge of finding a better way to operate the dam in harmony with the treasured environmental values of the Grand Canyon. Many of those very participants took pride in joining the Commissioner of Reclamation on the podium as the draft EIS was released to the public in January of 1994.

The key to the preferred alternative in the Glen Canyon Dam EIS is a process called "Adaptive Management," by which the best science and the best management practices are blended to produce recommendations to the Secretary on how to protect the resources, meet the obligated storage and delivery responsibilities, as outlined in the Law of the River and comply fully with the Grand Canyon Protection Act of 1992. The recommendations of the Adaptive Management Work Group, which includes the full spectrum of interests plus the seven Basin States, Tribal Governments, and federal agencies, will be crucial to future decisions the Secretary makes. It is the Department's expectation that the committee will set an example that may be applied to other parts of the West.

Mr. Chairman, legislation was enacted in the last Congress through the Recreation Lakes provision of the "Omnibus Parks and Public Lands Management Act of 1996" which directed the President to appoint an advisory commission to review the opportunities for enhanced water-based recreation. One of the tasks of the Commission is to review the current and anticipated demand for recreational opportunities at Federally managed man-made lakes and reservoirs. Lake Powell is one of the lakes being studied by the commission. It would seem prudent that the Congress would permit the Commission to complete its study and hear its recommendations prior to making any further decisions on modifying Lake Powell.

I would be pleased to answer any questions you may have.

MICHAEL S. HACSKAYLO

Mr. Chairmen, and members of the subcommittees, I appreciate the opportunity to appear before you today to discuss the power-related impacts of draining Lake Powell or reducing its water storage capability, and the effect on Federal power revenues.

I will begin by telling you about the agency I represent, and its involvement with Glen Canyon Dam, which created Lake Powell. Glen Canyon Dam is one of several Federal dams on the upper Colorado River and its tributaries that comprise the multi-purpose Federal water project known as the Colorado River Storage Project (CRSP). Western Area Power Administration (Western) is the Federal agency charged with marketing the hydropower generated by the CRSP. Six Federal powerplants are located at CRSP dams, with a total maximum operating capability of 1,801 megawatts (MWs). The largest, by far, is the powerplant at Glen Canyon Dam, with a maximum operating capability of 1,356 MWs.

Western has integrated the power generated by the CRSP powerplants with power from several small hydropower generators on irrigation projects that utilize CRSP water, and with power from the Collbran and Rio Grande Projects (two other Federal water projects in western Colorado and central New Mexico, respectively). Western markets the combined resource as Salt Lake City Area/Integrated Projects (SLIP) power. SLIP power is allocated to over 100 municipal utilities, rural electric cooperatives, irrigation districts, and Federal and state agencies in the states of Utah, Colorado, New Mexico, Arizona, Nevada, and Wyoming. For the most part, CRSP electrical power is supplied to the states' rural areas. A total of 1,314 MWs of SLIP power is allocated for summer use and 1,407 MWs of power for winter use under 15-year contracts

expiring in the year 2004. Western sold 7.2 billion KWhs of firm and nonfirm SLIP power in FY 1996, generating $126 million in revenues. Of these amounts, approximately 5.5 billion KWhs and $93 million can be attributed to Glen Canyon generation.

Draining Lake Powell, or drastically reducing the reservoir's storage capability, would essentially eliminate hydropower generation from Glen Canyon Dam. To meet existing demand for electrical energy, SLIP power customers would need to substitute other resources for their lost power. Studies associated with the environmental impact statement on the operation of Glen Canyon Dam show that energy conservation may be able to replace up to 20% of Glen Canyon Dam generation. The remainder of the lost generation would most likely come from fossil-fired powerplants.

Substituting higher-cost and relatively more polluting fossil-fired generation for clean and inexpensive hydropower has negative consequences. One adverse impact of replacing CRSP hydropower with fossil-fired power generation would be an increase in air pollution. Hydropower creates no air pollution, whereas fossil-fired (especially coal-fired) power generation is a contributor to air emissions. Another consequence of the loss of Glen Canyon power is the likely adverse financial impact on the areas served by the CRSP customers. Retail rate increases would vary considerably among CRSP customers because of differences in how much electrical power they buy from Western and the price they have to pay for power from their other suppliers.

The U.S. Treasury account into which CRSP power revenues are deposited serves as the source of funds for the Grand Canyon Monitoring and Research Center's $7 million annual budget, most of the base funding for the $3 million Upper Colorado Recovery Program for Endangered Fish Species, and such diverse other projects as the Upper Colorado River Basin Salinity Program and the proposed privatization of the Bureau of Reclamation town of Dutch John, Utah. The environmental studies in the Grand Canyon cost over $100 million since 1981 and were financed by this account. Although power customers were responsible for reimbursing only a portion of these costs through their rates, in the absence of power revenues, alternative financing sources will need to be found for several of these programs if Glen Canyon power revenues end, or these programs will have to be sharply curtailed.

Terminating Glen Canyon Dam's hydropower generation would also have impacts on the U.S. Treasury and the Federal government's budget deficit. At present, revenues from the sale of CRSP power repay the Federal government for the expense of generating and transmitting this power, including power's share of the capital cost of the dam itself, and interest on all investments allocated to power. Without generation from Glen Canyon Dam's powerplant, it will be impossible for the remaining CRSP power to be sold at a price that recovers all costs -- leaving U.S. taxpayers unreimbursed for their investment in the dam and its associated power facilities. As of the end of FY 1996, $503 million of in-service CRSP power facilities had yet to be repaid, along with $41 million of construction-work-in-progress investments.

Moreover, CRSP power revenues are responsible for repaying most of the costs of the Federal

investment in CRSP participating irrigation facilities. As of the end of FY 1996, CRSP power revenues are to repay $801 million in irrigation investments which are currently in service. Revenue from the remaining CRSP powerplants will be inadequate to repay the U.S. Treasury for these costs. Therefore, another impact of draining Lake Powell would be the Federal government's failure to recover $801 million of those irrigation projects which are already in service.

In sum, over the next 50 years, the Federal government can expect to undercollect over $1.3 billion, compared to current revenue estimates, from a decision to drain Lake Powell.

This concludes my testimony. I would be happy to respond to any questions you may have.

TESTIMONY OF MR. ADAM WERBACH

Mr. Chairmen, members of the Subcommittees, my name is Adam Werbach and I am the President of the Sierra Club. Today I represent our over half a million members across the country in supporting the restoration of one of the most special places on Earth -- Glen Canyon -- for our families and our future.

Last November the Sierra Club's national Board of Directors voted unanimously to support draining Lake Powell reservoir behind Glen Canyon Dam. This might have surprised some people, but it was a natural decision for the Sierra Club.

The Sierra Club has been trying to protect special places throughout the Colorado River Basin for nearly half a century. Our organization has been and remains committed to saving the crown jewels of the Colorado Plateau for this and future generations. We have a long history of urging protection for such places as the Green and Yampa rivers in Dinosaur National Monument, the Animas River in Colorado and the river canyons along the Colorado River through what today is known as Grand Canyon National Park.

The Sierra Club never thought it was a good idea to flood Glen Canyon, but we had no idea how wrong it was at the time it was first proposed. Glen Canyon was "The Place No One Knew". Few people had experienced its natural majesty. Few people rafted its waters. Few people explored the side canyons. Few people knew the quiet magnificence of this magical place which was lost.

The sense of remorse spreads beyond the Sierra Club. Former Senator Barry Goldwater recently stated in the PBS documentary "Cadillac Desert" that "I'd vote against it. I've become convinced that, while water is important -- particularly for those of us who live in the desert -- it's not that important."

Draining Lake Powell is not just about restoring a place more mysterious than the Grand Canyon, though that alone would be worth it.

It is about facing the reality that we are asking too much of the Colorado River. We are not being good stewards of this resource nor are we providing a safe future for our children in the way we are abusing the river today.

In destroying Glen Canyon we have eliminated some of the most productive habitat for native Colorado River fish, many of which have been smothered forever from the face of the Earth while the remaining species hang on in isolated and aging populations in a few places along the river.

The Colorado River Compact promises more water to the Basin States and to Mexico than nature promises to provide based on what we know now about past river flows.
Most of the river goes to water plants, not people. And many of these plants, such as cotton, are not native to the desert, are heavy water users and would not be grown at all if their farming was not supported by a complex web of tax breaks, subsidies and federal price supports.

The Colorado River system drains a vast area of our country, yet is so depleted by diversions along the way that most years its flow disappears into its riverbed sands miles from its former mouth at the Sea of Cortez. Its death has caused the demise of a fishing industry and communities in neighboring Mexico, and threatens the ecological sanctuary recently established in that country to protect rare porpoises and other endangered creatures in the delta region.

The Grand Canyon just downstream is suffering from the effects of Glen Canyon Dam, which has turned its warm water native fish habitats cold, cut off the major supply of sediments to rebuild its beaches and shorelines, and prevented cleansing seasonal floods. Let us not be known as the generation that destroyed the Grand Canyon.

In the not too distant future, Lake Powell, like all reservoirs, will be rendered useless for water storage and power by incoming silt. Lake Powell represents short-term vision, and those of us who are not old enough to have experienced Glen Canyon pay the price.

Between seepage into the canyon walls around Lake Powell and evaporation from this vast flat water reservoir located at high elevation in one of the driest areas of the country, water loss is estimated at almost 1 million acre feet per year according to the Bureau of Reclamation, enough for a city the size of Los Angeles.

This is no way to run a river, and it's not the legacy to leave for our children.

Information prepared by the Bureau of Reclamation itself in July, 1997 to address the issue of draining Lake Powell says that the difference between the average annual inflow to the reservoir and current Upper Basin use "is enough to satisfy the Colorado River Compact obligation of 75 million acre feet per ten years to the lower basin without needing the storage of Lake Powell. In addition, recovered evaporation losses from Lake Powell would help to meet any potential deficiency in the Mexican Treaty obligation."

We believe these preliminary analyses show that draining Lake Powell is possible without major dislocations, that it's affordable, and that it's not too late to consider this option.

Hoover Dam and Lake Mead can continue to regulate the river and produce power. Glen Canyon Dam doesn't do anything different than Hoover and Mead in that regard, but it does drown a unique natural treasure and destroy an ecosystem which we can still uncover and restore.

The water saved by reduced evaporation and seepage from Lake Powell will add water supply back into the system. The power generation lost from Glen Canyon Dam can be replaced by natural gas or conservation elsewhere, and the cost spread over the rate base of the Western power grid should not be prohibitive.

Today, people are reevaluating at our past fascination with dams. And reviewing and changing dam operations is not without precedent. Congress has directed that the Elwa Dam in Washington State be removed to restore the river. Reservoirs in the Columbia and Snake river basins are being proposed for drawdown to restore salmon runs. Glen Canyon Dam itself has been reregulated by 1992 legislation. The Bureau of Reclamation assumes the economic life of dams is only 75 years. Even former Interior Secretary and now head of the Christian Coalition Don Hodel suggested in 1987 that O'Shaughnessy Dam in Yosemite National Park's Hetch Hetchy Valley be removed.

The Sierra Club supports evaluating the tradeoffs and opportunities of draining Lake Powell through an environmental assessment. We urge the Administration to undertake this review. Such an analysis has never been done because it wasn't required at the time Glen Canyon Dam was built. Regardless of where you stand on this issue, it shouldn't hurt to at least look at the information.

Our goal is to make the "place no one knew" the place everyone knows about. And we believe the American public will choose in favor of Glen Canyon.

Ted Stewart

More than 75 years ago, wise representatives of the seven Colorado River Basin States and the United States government negotiated a marvelous document, the Colorado River Compact of 1922. This Compact provided the foundation for the equitable apportionment of water from the Colorado River among the seven basin states and their water users. These representatives envisioned that significant carryover storage would be required to meet the provisions of providing 1) 7.5 million acre-feet of annual beneficial use for the lower basin (Arizona, California and Nevada), and 2) 7.5 million acre-feet of annual beneficial use for the upper basin (Colorado, New Mexico, Utah and Wyoming). The compact provides that the upper basin shall deliver at Lee Ferry an aggregate of 75 million acre-feet in any 10-year period. With the signing of the Mexican Treaty of 1944, Mexico has a right of 1.5 million acre-feet annually.

Flows at Lee Ferry (just downstream from Glen Canyon Dam) have ranged from a low of 5.8 million acre-feet per year to a high of 24.5 million acre-feet per year. This wide variation in annual flows, coupled with a constant demand, necessitates a large volume of carryover storage. Hence, Glen Canyon Dam in the upper basin needs to release the aggregate of 75 million acre-feet in any 10-year period and still allow the upper basin to develop and use water. Additional hydrologic modeling now indicates the upper basin will only have 6 million acre-feet of depletion available after meeting the release requirements at Lee Ferry. Even this 6 million acre-feet figure assumes all the current storage, of which Lake Powell is the major component, stays in place. Without the carryover storage of Lake Powell, even current levels of water use in the upper basin, which are less than compact allocations, are jeopardized in some years and no additional water can be developed. This was the reason Utah supported the building of Glen Canyon Dam and the filling of Lake Powell when first proposed, and why it insists that its current use and operation continue.

The current major water resource benefit of Lake Powell storage to Utah is the ability to meet lower basin water use while not curtailing upper basin use in dry years. I strongly emphasize that **releases of water stored in Lake Powell allow Utah to use Colorado River water** in dry years when the natural flow is insufficient to meet all the demands on the river. This is why Utah requires that Lake Powell storage continue to be a part of the Colorado River management tools.

Future benefits include allowing Utah to complete the Central Utah Project which will allow part of Utah's Colorado River allocation to serve municipal and industrial water along the populous Wasatch Front, provide water for Indian tribes in the Uintah Basin, meet anticipated industrial uses in the Colorado River Basin area of Utah and provide the water supply for the proposed pipeline from Lake Powell to southwest Utah.

Southwest Utah is one of the fastest growing areas in the country and the local water supply is already over-extended. Local water agencies have incorporated this water source (Lake Powell) as part of their plans for the future. They are already beginning the process, through preliminary design, commencing the environmental evaluation process and acquiring some of the necessary physical assets. Washington County has already applied to the Bureau of Land Management for permits for the proposed pipeline. The loss of water by draining Lake Powell would jeopardize southwest Utah's future water supply. The alternative is to put even more demands on the Virgin River Basin which includes Zion National Park.

While assuring the supply of Colorado River water for Utah (and the other upper basin states of Colorado, New Mexico and Wyoming) is the primary purpose and benefit of Glen Canyon and Lake Powell, secondary benefits have accrued from the existence and operation of Glen Canyon and Lake Powell. These benefits include power production, tourism and recreation.

Clean and renewable hydroelectric power from Glen Canyon produces over 3,500 gigawatt hours yearly and generates power revenue in excess of $80 million yearly. The revenue is used to repay, to the US Treasury, the costs of participating federal projects built under the auspices of the Colorado River Storage Project Act of 1956 and financed by the United States government.

Substantial regional economic benefits are derived from the tourist and recreation industry that has become associated with Lake Powell. For years, southern Utah has struggled to diversify its economic base beyond the traditional natural resource. The Lake Powell recreation industry is a shining example of success in this endeavor. Lake Powell has become a destination for visitors from around the west, the United States and the world. Recent National Park Service estimates put visitor days in excess of 6 million per year to the facilities associated with Lake Powell. As a recreation destination, these visitors spend substantial monies on boat rentals, fuel purchase, supplies and accommodations, as well as incidental expenses. This economic activity is estimated by the Park Service to generate direct revenues in excess of $409 million per year to the local economy. Assuming the replacement of recreation industry currently in place on Lake Powell with a river-based recreation industry similar in magnitude to current in-canyon operations in the Grand Canyon, a direct economic activity of only $15 to $20 million will result. This could amount to a net annual decrease in regional economic activity in excess of $380 million. Therefore, draining Lake Powell would devastate one of the crown jewels of economic diversification in southeast Utah.

The following vital concerns are not addressed in the proposal to drain Lake Powell:

1. How will these current benefits to the region and the nation be replaced?

2. How will the water stored in Lake Powell be replaced?

3. Which water users will have to curtail use when there is not enough water to meet all demands?

4. Where will the replacement power come from?

5. Who will reimburse the federal treasury for the investments that were to be repaid by power revenues from Glen Canyon?

6. How will substantial loss of the tourism/recreation economic benefits be made up?

This proposal has already received more attention than is commensurate with its merits. It is irresponsible to make such a proposal without having done the work necessary to answer the vital questions on how these major impacts on citizens of the Colorado River Basin will be mitigated and compensated.

Utah cannot and will not allow this proposal to proceed. It is contrary to the interest of our future use as well as jeopardizing the present use of water resources in Utah. Utah is prepared and committed to do whatever it takes to defeat this unbelievable and meritless proposal.

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SUMMARY

Lake Powell is vital to allowing Utah to continue to use and develop water resources in the Utah portion of the Colorado River Basin and still meet our compact obligations with the lower basin.

Utah needs Lake Powell for future water supplies in Utah.

Secondary economic benefits of recreation and power production are significant in Utah, and loss of these resources will have a devastating impact on Utah as well as the region. Net annual loss of revenues will exceed $460 million (recreation plus power revenues).

Utah is adamantly opposed to the proposal.