

FLOODPLAIN MANAGEMENT AND FLOOD CONTROL

HEARINGS BEFORE THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE ONE HUNDRED THIRD CONGRESS SECOND SESSION

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MAY 26 AND JULY 20, 1994
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FLOODPLAIN MANAGEMENT AND FLOOD CONTROL

THURSDAY, MAY 26, 1994

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 2:20 p.m. in room 406, Dirksen Senate Office Building, Hon. Max Baucus [chairman of the committee] presiding.

Present: Senators Baucus, Reid, Boxer, Chafee, and Warner.

OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Senator BAUCUS. Good afternoon. The hearing will come to order.

We have two matters to conduct this morning. One is the hearing on the matter before us. Second, the committee will conduct a very short business meeting when six Senators are present, and I ask the indulgence of all the witnesses and audience while the committee temporarily recesses the main hearing to move to an executive session to very briefly conduct our business. I do not know when that will occur, except to say that it will occur when six Senators are present.

I first welcome all of today's witnesses, particularly Senator Simon and Senator Bond. I also want to welcome back John Zirschky, who's here to represent the Army Corps of Engineers. Some of you may know that until recently, John was a member of the staff of the committee.

Last year at this time, the flood waters on the Mississippi and Missouri Rivers rose to their highest levels in more than 100 years. Back then, not very many Americans knew much about the Corps of Engineers or about the levees designed to control those rivers. But nature taught us all quite a lot during those months of the great Midwest flood. It taught us about the levees designed to control these mighty rivers. More importantly, the floods taught us about the strength of people determined to save their towns and their farms, and it taught us about the stamina of the communities working together to survive the disaster.

During the flood, we saw a Corps that was up to the job of fighting that disaster. The Corps made sure that a large supply of everyday heroes and a larger supply of sand bags were put to best use. They made a difference to flood survivors. They made sure that all of us who tuned in every night on the TV news were proud.

After the crisis passed and the volunteers went home, the Corps' hardest work began. The Corps must now rebuild some of the lev-

ees and design a flood control system to protect the public from another devastating loss. Last year's floods show us that the old ways of doing things just do not work. We need to find some new approaches. We need to manage floods, not to control them.

Today an interagency task force has delivered to this committee a report that recommends more innovative, environmentally sensitive ways for the Corps to manage floods. I'm glad to say that General Galloway will be here soon to talk about this report. Some people may criticize the report for recommending a bold new approach. I say there are problems, and we should get to the bottom of them—that is, go over the report, roll up our sleeves and start working—because the people in the Midwest can't wait.

The people of the upper and lower Mississippi River Basin are counting on us. We need the Corps to be in top form, not mired in bureaucratic sludge. Because right now the people of the Midwest are knee deep in broken promises, waist deep in red tape, and shoulder deep in flood water.

Senators Bond and Simon are here to tell us about what could be a repeat of last year's disastrous floods. This year our defenses are down. Many levees have not been rebuilt. We could have severe flood damage on our hands if the recent rainfalls in the Midwest continue.

Before people foolishly begin building again on the floodplain, before local communities raise matching funds, before the Corps throws itself back into the levee-building business begun in the last century, I urge the Corps to develop a new strategy, one that will take our economy and our natural resources into the next century. The Corps must protect people from floods and keep barge and port traffic flowing. The Corps must also recognize and value its other missions. The Corps must safeguard the rivers and the fish in them, the wetlands that surround them, and as manager of lakes that last year attracted more than 200 million visitors, the Corps must invest in recreation.

The Water Resources Development Act is about how this Nation manages our water resources, how we balance conflicting demands on those resources. In short, it is about how the Corps does its job. We'll be reexamining how the Corps is performing as we authorize this legislation this year.

The Senate recently passed a bill to improve drinking water for communities throughout the country and made sure that small communities were in better shape and had safer tap water. When we return after this coming recess, we will vote on a bill that turns off water pollution at its source and tackles difficult issues across State lines. Water does not recognize man-made geographic borders.

Why are we changing our laws and holding today's hearing? For one simple reason: Americans care about our water. When asked about environmental issues, 96 percent of the public ranked water quality ahead of toxic waste, ahead of air pollution, and ahead of every other environmental worry. Most people don't think about water as an issue, never want to see water pollution, and we don't want to think twice about whether our drinking water is safe.

This weekend marks the beginning of summer, a time when most Americans will be outside swimming or boating. That's what Amer-

icans think about when they think about water. They think about beaches and lakes and rivers, often managed or maintained by the Corps.

The Corps does not seem to view water the same way. It focuses on building docks and dams, not boat ramps. It tries to control floods to promote navigation instead of harnessing waters to preserve wildlife and recharge groundwaters. Navigation and flood control are important to downriver communities, but they're no more important than recreation and wildlife protection are to upriver communities. Each \$16 million invested in recreation and Corps projects generates \$1 billion to the economy and 18,000 jobs. Protecting property is important, but the Corps also has an obligation to invest in recreation. Two hundred million visitors is a lot of customers. In the spirit of reinventing Government, the Corps needs to listen to all of its customers.

I could tell you what the customers who live in Montana want. They want to get the benefit of their bargain. We gave up more than 167,000 acres of land in six counties to create Fort Peck Dam and Reservoir. In exchange, in the shadow of Fort Peck Dam, President Franklin D. Roosevelt made Montanans a promise that we could share in the economic benefits of the Missouri River system. Now, 56 years later, my constituents are looking for that return on their investment. Senator Simon's constituents and Senator Bond's are looking to the Corps as well.

I believe that all of us stand ready to help the Corps meet its challenge. We must overcome those challenges in a way that will give all our constituents, both upstream and downstream, economic opportunities and environmental protection. The Corps needs to put new technology and new ideas to work, find new means to leverage private investments, and change its worn out ways of doing business. I think the Corps can meet these challenges, and I look forward to the testimony of all witnesses today.

I'd like to now turn to the ranking Member of the committee, Senator Chafee, for any statement he may have.

Senator CHAFEE. Mr. Chairman, thank you. Is it my understanding you wanted to get a quick vote on a matter?

Senator BAUCUS. I do when we have six Senators. We had six briefly but now have five.

**OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S.
SENATOR FROM THE STATE OF RHODE ISLAND**

Senator CHAFEE. Okay. Well, I'll put my statement in the record, Mr. Chairman. Like so many of us, I've got a number of conflicts today, but I do want to particularly welcome Dennis Algiere, a State Senator from Rhode Island who is going to be in the second panel. If I can't be here for that, I'll deeply regret it, because he's one of our real comers in the State. He's on the coastal management group and has done a lot of work in soil erosion on our beaches in Rhode Island.

So I want to welcome you, Senator.

[Senator Chafee's statement follows:]

STATEMENT OF HON. JOHN CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Thank you, Mr. Chairman, for scheduling this hearing today. I would also like to thank our colleagues, Senator Bond and Senator Simon for taking the time out of their busy schedules to update the Committee on the flood situations in their states. Their appearance is obviously well-timed, as the Administration's Floodplain Management Review Committee has this morning released a draft of their findings.

I see John Zirschky here again and certainly welcome him back to the Environment and Public Works Committee, where he served so ably as a staff member. John is taking some bold steps over at the Pentagon. I fully support these initiatives to better focus the Corps mission and am eager to work closely with he and his staff in the coming months on a 1994 Water Resources bill.

Also with us today is Rhode Island State Senator Dennis Algieri, from Westerly. Dennis is making people take notice up in Rhode Island—due in large part to his exceptional work on natural resource protection matters similar to the ones we will discuss this afternoon. He serves on the Coastal Resources Management Council in the State and has spent an extraordinary amount of time on a beach erosion problem at Misquamicut Beach along our south shore. It is my hope that we can find a solution to the erosion there which threatens our treasured coastline. am glad to see him again and am eager for the Committee to hear his testimony.

Mr. Chairman, the Committee meets today to discuss our very serious commitment to completing action on legislation for the Army Corps of Engineers civil works program. We have done so every two years since 1986. As you are aware, Mr. Chairman, the 1970's and early 1980's saw a departure from the previous practice of approving omnibus authorization bills and predictable appropriations for the construction of water projects. In 1986, however, we broke the logjam. After years of legislative and executive policy confrontations over the role of the Federal government in water policy, the 99th Congress approved the Water Resources Development Act of 1986 ("WRDA").

The 1986 Act was landmark legislation because we finally instituted a reasonable framework for local costsharing of Army Corps of Engineer projects. I'll say modestly that this was a huge step in the right direction. authored those cost-sharing elements because there was a real need to recognize our limited Federal resources and the financial responsibility of local project sponsors. John Zirschky's statement tells us that the Corps finds the cost-sharing framework to be, and I'll use his words, "... an eminently successful policy."

As we move forward to enact legislation this year, we must remain faithful to the provisions of the 1986 Act. After reviewing the Administration's proposed language for reauthorization, I can see that the Administration shares this view.

Finally, Mr. Chairman, I want to take this opportunity to encourage the Corps to look closely at their environmental and recreation missions. I have some concerns, as do others on the Committee, which must be addressed if we are to fully benefit from the law's intent.

The Committee, of course, needs to review the Administration's proposal more closely, but this is a good starting point. Again, Mr. Chairman, thank you for getting this hearing in today. I look forward to the testimony.

Senator BAUCUS. Thank you. Any other statements?

Senator Reid?

Senator REID. I have no formal statement, Mr. Chairman, but I am interested to hear what the witnesses have to say.

Senator BAUCUS. Thank you Senator Reid.

Senator Warner?

OPENING STATEMENT OF HON. JOHN W. WARNER, U.S. SENATOR FROM THE COMMONWEALTH OF VIRGINIA

Senator WARNER. Mr. Chairman, I just want to make a short observation. You were talking about your constituents in your State, and I had an unusual experience last year, I'd say to my two distinguished colleagues from Illinois and Missouri. We had an unexpected tornado hit in two places in my State, and I went down with the various Federal agencies to look at what could be done. The damage wasn't great in terms of total dollars, but in terms of the people who lost their homes and storefronts and everything else, it

was very substantial. Well, we fell through the cracks. No matter how hard I worked, we simply could not get Federal dollars to take care of our problem.

Then my constituents read that the California freeway was put up in record time, rebuilt, rebuilt, rebuilt, earthquake after earthquake. Then I pointed out a Florida military base wiped out by hurricanes three times went back and rebuilt. Now we see the flood that devastated your area time and time again historically, and today we're going to discuss going back and rebuilding.

Now, it's every American taxpayer reaching into his or her pocket to pay for these repeat construction jobs where Mother Nature, for reasons best known by others, strikes over and over again. Should we at some point in time say to ourselves, "Look, we've got to accept that nature has a certain pattern, and we just cannot take taxpayer dollars and continue to hedge against earthquakes, hurricanes, floods, and the like"?

I've got to answer those tough questions of how other parts of America are restored from a natural disaster, and my own people can't get one nickel.

Thank you.

Senator BAUCUS. Senator Boxer?

**OPENING STATEMENT OF HON. BARBARA BOXER, U.S.
SENATOR FROM THE STATE OF CALIFORNIA**

Senator BOXER. Mr. Chairman, thank you very much. I'd ask unanimous consent that my full statement be submitted for the record.

Senator BAUCUS. Without objection, your prepared statement will appear in the record.

Senator BOXER. I would just like to say that I completely agree that we have to look at ways to avoid recurrences of disaster aftermaths. We're not going to be able to stop a disaster, but we certainly shouldn't have the same problem recur. I agree with that. And, if it means realigning a freeway or it means rebuilding somewhere else or perhaps not building at all, I think that ought to be looked at.

I have to say to my friend and colleague that the good news arising out of the earthquake is that every single freeway, every single overpass that has been retrofitted seismically has withstood earthquake damage. So, sometimes, we can be wise about what we do.

Now, if we were to rebuild these things exactly the way they were before, the Senator would be entirely correct. But everything that's being rebuilt is being seismically upgraded.

Mr. Chairman, just one more point that I make in my written—

Senator WARNER. If I might interrupt, my understanding was that this freeway that was just rebuilt in record time had been examined and had incorporated some seismic technology in it, and yet it failed.

Senator BOXER. Let me tell you what the Federal law was prior to a recent law that this committee passed, and I so appreciate your support. The States couldn't get any money for seismic upgrade unless there was something else wrong with the structure. Until this corrective legislation came through recently, we couldn't

do it. We didn't have the funds. Now we're able to say, "Yes, we need funding just to seismically upgrade."

So you're exactly right, many of our freeways did not have the seismic work done. There's been a change, and in our State, they are moving very rapidly. As a matter of fact, I'm going to discuss with the Chairman a way to make sure it goes even quicker, because when we know that something is seismically unsafe, it seems to me we are remiss if we don't move quickly.

Mr. Chairman, I just wanted to thank the Corps for a number of things today, but in particular a decision that was made to turn around a Bush Administration decision to close the California Office of the Corps and move it to Oregon. It didn't make any sense, because the vast majority—75 percent—of the projects were in California. Now this order has been rescinded, and as Dr. Zirschky has said, and I'm quoting here, "We're going to try to change how we do business, not necessarily where we do business." I think that is crucial, so I'm very pleased with the Corps on that.

That concludes my remarks.

[Senator Boxer's statement follows:]

STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM THE STATE OF CALIFORNIA

Thank you, Mr. Chairman, for this opening hearing on the committee's consideration of the Water Resources and Development Act of 1994 and to hear from our colleagues and the Corps on its response to the Midwest Floods. My colleagues know how much I have shared their pain when natural disasters bring such destruction and torment to the States and people they represent. This past year has been particularly destructive to our respective States.

I am also interested in hearing the views from the Corps and our witnesses about how we can approach the Corps' missions from the broader context of watershed management. Witnesses today will speak to the threats to our rivers from current management policies. The group American Rivers has recently listed the Los Angeles River, where the Corps has undertaken a major flood control project, as one of 30 endangered or threatened rivers in the nation.

We should find a way to protect and enhance the 13 miles of the River's course that remain of the last riparian habitat in the county.

On another subject, Mr. Chairman, I would like to say how pleased I am that the White House officially withdrew the Bush Administration's 1992 reorganization plan earlier this month. The Clinton Administration has released the Corps from the provisions of the National Performance Review which had adopted the previous plan.

For 18 months, I have worked to inform the Administration of that this reorganization was the wrong approach and would have serious effects on California. I was pleased that the Energy and Water Appropriations Subcommittee at my request included language in their fiscal year 1994 report urging the Defense Secretary to consider proximity of a division headquarters to workload and areas impacted by natural disasters in assessing the reorganization plan.

I am pleased that Dr. Zirschky has announced that the reorganization plan has been replaced by a new process of "restructuring" the Corps and that it will not begin with the assumption that any Division or District office must close. Any decision to close an office will be undertaken in order to comply with the President's personnel reduction goals. Zirschky's statement to the members of the Corps that "we are going to try to change how we do business, not where we do business" is the right approach.

Particularly concerning the effect on the South Pacific Division headquarters in San Francisco, this decision is a great victory of common sense over politics. The reorganization plan had called for consolidating the Corps' South Pacific Division headquarters with a new West Division in Portland, Oregon, as part of the effort to reduce the number of Corps divisions from 10 to 6 nationwide.

This plan failed to fulfill the principles of "Reinventing Government." Instead of decentralizing government and aiding "customer" access, the plan centralized bureaucracies, in some cases in remote locations. A regional presence is critical to the Corps mission.

It is inappropriate to move divisional supervision away from where the majority of dollars will be spent and where the greatest amount of work will be done. The workload in the South Pacific Division is 10 times that of its counterpart.

I was particularly concerned about the danger to the health and safety of California residents by removing a key element of the region's interagency emergency response team. The Southern California earthquake on Jan. 17, was just the latest evidence of the importance of having the expertise of the Corps' emergency operations team located in the South Division. Division staff were present for the first post-earthquake emergency relief meeting with the Federal Emergency Management Agency within hours of the quake. More than 800 Corps personnel participated in the earthquake emergency operations at the South Division.

State officials have praised the professionalism and expertise of the Corps' response and the trust and cooperation that has developed between the Division and FEMA's regional office in San Francisco have paid off time and again. The loss of the South Pacific Division would have meant the loss of an additional 300 jobs in the Bay Area, which is already bearing the burden of numerous military base closures.

I would also like to commend Dr. Zirschky for his willingness to listen—at all times—to the Corps' rank and file regarding the reorganization and the coming restructuring of the Corps. We know personnel cuts are still coming in the Corps nationwide, but fostering a close relationship with the employees as you have will make that job much easier. I am pleased as well with Dr. Zirschky's willingness to keep members of Congress informed of the restructuring process and to allow members or their staffs to observe the actual process and attend meetings.

I have written Dr. Zirschky recently to say that I concur with his plan to keep the Corps decentralized in order to establish accountability and to maximize efficiency. The best way to create those desired effects in California is to maintain our local division.

Thank you.

Senator BAUCUS. Any other statements?

[No response.]

Senator BAUCUS. Senator Simon, we're honored to have you here.

STATEMENT OF HON. PAUL SIMON, U.S. SENATOR FROM THE STATE OF ILLINOIS

Senator SIMON. Thank you very much, Mr. Chairman, and I will be very brief, because as soon as you get six, I know I'm going to get cut off anyway.

I would like to enter my statement into the record.

Senator BAUCUS. Without objection, your prepared statement will appear in the record.

Senator SIMON. Senator Bond and I are here because many of our constituents have been flooded a second time, as you pointed out in your statement, in a very short time. Down in Cairo, IL, for example, at the southern tip of Illinois, some of the areas are eight feet higher than they were in the earlier floods, because the Ohio River flooded in addition to the Mississippi.

But Senator Warner's point, I think, is an important one, and there are areas where we shouldn't rebuild. There are some communities, like Valmeyer, IL, that are relocating. But the most important thing we lack in the upper Mississippi where your committee can help—I would like to quote from General Galloway's statement, and I understand he'll be testifying here shortly. He says, "There is an absence of a coordinated strategy for effective management of the water resources of upper Mississippi River Basin. Responsibility for integrated navigation, flood damage reduction, and ecosystem management is divided among several Federal activities."

That's even an understatement, because you have some areas where you have one Federal agency, another with a different agen-

cy, then a State government responsible, then you have a drainage district or a levee district. The lower Mississippi, the overall charge is with the Corps of Engineers, and there we have a coordinated system. The upper Mississippi is a series of band-aids.

What we need is a comprehensive look at the upper Mississippi so we can plan what we ought to do, and then the Corps of Engineers, working with us, can say, "The State of Illinois has this responsibility, Iowa and Missouri have this responsibility, Minnesota and Wisconsin have that responsibility," however we put it together. But we need a coordinated look at the upper Mississippi. We do not have that now. And until that happens, frankly, a year from now, Kit Bond and I will probably be coming back testifying again. You know, it just doesn't make sense.

We really have to take a look at the overall picture, and that's really my plea to this committee.

[Senator Simon's statement follows:]

STATEMENT OF HON. PAUL SIMON, U.S. SENATOR FROM THE STATE OF ILLINOIS

Mr. Chairman, last year the Midwest suffered the worst flooding in a century. The total damages as a result of this flood are in excess of \$10 billion, and recovery is still in progress. Last spring, well *before* the great flood, I was working with the Army Corps of Engineers, local floodplain managers, and my colleagues from Illinois, Missouri, and Iowa to address some existing problems related to the maintenance and structural integrity of the levees along the Upper Mississippi River north of Cairo, Illinois. Before we could arrive at any solutions to the problem of eroding levees and jurisdictional discrepancy, the Upper Mississippi River basin was deluged with heavy rains—resulting in the Great Midwest Flood of 1993. The impact of this flood dramatically demonstrated the many underlying problems of the region.

As the flood waters rose, I travelled around the stricken areas. Mr. Chairman, the ruin was far-reaching. When the river swept through, it took with it homes and farms, precious possessions and family pets, life-long businesses, community infrastructure, history, and even life itself. What I saw was heartbreaking. It impressed on me the need for change in the way we prepare for and prevent flood-related disasters.

This precedent-setting disaster should not overshadow the smaller, more frequent flooding that, year after year, causes locally severe economic and social dislocation, and human suffering along the Upper Mississippi River.

In my home State of Illinois, many of the people who were just beginning to put their lives back in order after the mammoth flooding of 1993 are being flooded-out again right now. The magnitude of the spring flooding of 1994, which followed on the heels of the great flood of the summer of 1993 by only a few months, compounds the problems of recovery from yearly flooding.

Earlier this spring, Governor Edgar declared the entire State of Illinois a disaster area as a result of wide-spread flooding. At the request of the Governor, President Clinton has approved 17 Illinois counties for Individual and Public Disaster Assistance under the Stafford Act. Already this year over two thousand Illinois families have registered for help from different FEMA disaster programs.

For some of the poorest counties in Illinois, this spring's 1994 flooding has brought even larger amounts of flood waters than during the summer flood of 1993. In Cairo, Illinois,—which lies in one of the top 150 poorest counties in the nation—the recent flood levels were as high as eight feet *above* the levels reached last summer.

Last fall I was assured by the Army Corps of Engineers that they would do all they could to provide minimal levee protection to as many sites as possible, placing priority on those areas that protect human life. I know the Corps has worked hard toward that goal. I have had good feedback from Governor Edgar on their progress. But I have heard of a few problems from the some residents and local officials.

In Monroe County approximately 100 farms and 30 residences flooded for a second time. According to residents, there is a break in the north part of the levee, along the Fountain Creek, that has not yet been repaired by the Corps. Neither have the pumps been repaired or replaced. Residents of the area feel that the Corps of Engineers' general operational practices and red-tape contracting procedures delayed repairs to the levee. Some of the repaired areas along that levee are still very

weak. We don't really know what level of protection those living close to this levee have or what they should be doing with regard to repairs to their homes and farm operations.

Mr. Chairman, many levees that were breached last year have only been temporarily repaired and consequently the excessive pumping costs by the drainage districts continue for a second year.

The Fayville levee in Alexander County will have to be replaced after a section failed only hours after repairs were pronounced completed. The section that collapsed was a ring levee built around a massive hole carved into the Fayville levee by last summer's flood. As a result of the breach this spring, people in Miller City had to be evacuated from their homes by helicopter in the middle of the night. Thankfully, Mr. Chairman, there were no injuries in that evacuation.

Mr. Chairman, we must improve and coordinate the efforts of Federal, State, and local governments, individuals, and the private sector to better manage the floodplain along the Mississippi. Now is the time to modify our existing floodplain and watershed management policies and programs to protect lives, property and businesses from yearly flooding, as well as from those rare, but massively destructive disasters such as the great flood of 1993.

There is no *one* magic solution. Moving everyone out of the floodplain is not the solution. In fact, about 50 percent of the homes damaged in the 1993 flood existed *outside* of the floodplain. Building a 500-year levee from the top of Minnesota to the bottom of Illinois is certainly not the answer, either. The Administration needs to work with Congress to develop some blend of structural and non-structural solutions to our floodrelated problems nationwide—and specifically in the Upper Mississippi River region.

I look forward to working with my colleagues on this committee, as well as on any other relevant senate committee, to create reasonable and effective policies for better management of the Mississippi River floodplain.

Today the President's Floodplain Management Taskforce, under the direction of General Gerry Galloway, released the draft of its report—*Sharing the Challenge: Floodplain Management into the 21st Century*. I commend General Galloway for his leadership and hard work in organizing this effort. I hope that we can take their recommendations and use them as a “jumping-off-point” for developing new policy to help prevent danger to human life, extensive property damage, and unnecessary burden to the Federal budget. I don't have all of the answers, but I am certain that changes must be made—*soon*.

I am asking this committee to make a commitment to me, Senator Bond, and our colleagues and constituents from along the upper Mississippi River, that specific goals and deadlines will be set for developing and enacting legislation to reform the current haphazard, non-systematic method of managing the Upper Mississippi River floodplain. We simply cannot continue to limp along with the current system of divided responsibility on the part of Federal, State and local governments, private citizens, and locally organized interest groups—a system that has badly failed the midwest twice within the past 10 months.

Senator CHAFEE. Are you through, Senator?

Senator SIMON. I'm through with my statement.

Senator CHAFEE. Okay. Why doesn't Senator Bond go on and make his statement, and then we'll quite possibly have some questions.

Senator BOND. I would imagine so.

STATEMENT OF HON. CHRISTOPHER S. BOND, U.S. SENATOR FROM THE STATE OF MISSOURI

Senator BOND. Thank you, Senator Chafee and Members of the committee. We very much appreciate the opportunity to come and talk with you today about the unprecedented flood that devastated my State, Senator Simon's State, and several others last year.

I've asked my colleague to hold up several pictures just to give you a quick idea of the flood. This is the Columbia, MO area. That's the Columbia Water Treatment Plant. As you can see, it's oceanfront property in the middle of the flood of 1993. There are many other areas where we can show you the devastation. This is

our State Capitol. The entrance to it was cut off. This is, believe it or not, a highway leading into Kansas City.

As General Galloway set forth in the summary—and I've only had an opportunity to review the summary, but it appears that General Galloway did an excellent job—

Senator CHAFEE. Senator, is that the floodplain management review that you're referring to?

Senator BOND. This is the report that just came out today. This is the report by General Galloway to the Interagency Flood Plain Management Task Force, and I assume this is the full text of the remarks he's going to give today. In there, he said, "The Midwest flood of 1993 was a hydrometeorological event unprecedented in recent times," which is a nice way of saying it was a heck of a flood. It was excessive rainfall that occurred throughout a significant section of the upper Mississippi River Basin, and he said it was an occurrence of 500-year flooding on the segment of the Mississippi south from Burlington, IA to St. Louis, MO.

I would say much of the damage in our State was along the Missouri River. These pictures here are Missouri River flooding. The Midwesterners fought the battle. They fought as the river rose, they maintained the levees, the water went down, but it came back up, and that's when disaster struck.

Now, General Galloway has prepared his report. There are some who wanted to put a spin on that report, and the spinmeisters got to the headline writers in the St. Louis Post Dispatch, and they say "Panel's Report Says Floodplain Must Be Cleared." Let me make clear that everybody should read General Galloway's report very carefully, because that's not what he says. He has, I think, attempted to outline a very balanced approach.

Senator REID. What would that mean if he did say that?

Senator BOND. Well, number one, it means in St. Louis—St. Louis is protected by a 300-year flood wall, and as General Galloway cites, that flood wall caused additional flooding upstream. So if the Post Dispatch headline writer had his way, the St. Louis Post Dispatch would be under water. I don't think that anybody advocates that, because development has occurred. People farm, they live. They have built, as you see, municipal facilities in the flood zones. We have highways running through them. But this is what happens in a 500-year flood.

I certainly sympathize with the position that Senator Warner's constituents find themselves in. I, frankly, believe that we ought to be there when disaster strikes, even if it doesn't rise to the level—I've made many requests, as my former gubernatorial colleague, Senator Graham, has made and I assume that Senator Chafee has made, for disaster relief, and there are certain triggers that may have to be reviewed. But where there is an unusual, unforeseeable occurrence, we ought to come to the rescue of the Virginians, certainly of the Californians, and, I think, the people who are hit by floods along the Missouri, Mississippi, and other rivers.

Senator WARNER. I don't know that I understood your response to the Senator. That headline, to me, read "Clear out, abandon it, let it go back to its natural state." Isn't that the implication?

Senator BOND. The story accurately reflects the report—the headline took the spin that certain spindoctors want to put on it

that nobody ought to farm or live or work in the river bottom, we should have no roads or public facilities in the valleys. I think General Galloway stated and is quoted in that article as saying that nothing in the report should interfere with the rebuilding of the levees along the Missouri and Mississippi Rivers. He's quoted in there as saying that.

Senator WARNER. So we go right back the way it was before the flood. Is that correct?

Senator BOND. We do not assume that there will be another 500-year flood.

Senator WARNER. Do we incorporate, as our colleague from California pointed out, some new technology to advance the state of the art of levees so that if you do get another flood like this, it wouldn't wreak so much damage?

Senator BOND. We have floods. We have floods frequently. We have low-lying agricultural levees that are regularly overtopped. When they are overtopped, the flood waters bring new fertility to the ground and make that ground some of the most productive farmland we have in the country.

Senator WARNER. I don't question that.

Senator BOND. We need to take a balanced approach to the valleys. There are portions which should be taken out of development, and that's why we fought hard and, with the help of this committee and others, got additional money for the emergency wetland reserve. We need environmental reserves. People who have come in and developed the property and have the homes, business, and facilities there, they came with the reliance on an express statutory promise by the Congress of the United States in directing the Corps to assist in maintaining levees.

We have a problem right now that the Corps was ordered in September of 1993 to jump through all kinds of hoops. They have delayed and built delays into the system that are totally unconscionable. I note with great satisfaction that the Santa Monica Freeway was rebuilt in 66 days after the earthquake. As a result of directions from Washington, the Kansas City Corps and the people in that area who have been very, very effective and responsive in dealing with these problems now have to go through a 120-day process of paper shuffling before they can turn the first shovel full of dirt.

Mr. Chairman, I notice you're here. Do you want to catch the six Members of your committee, if I could interrupt my testimony?

Senator SIMON. If I could get 30 seconds in, and then I will leave your good company. First, just by way of clarification, because I think there's a lot of misunderstanding, the upper Mississippi—I don't know about the Missouri—over 50 percent of it is not protected by levees right now, and half the homes that were hit by that devastating flood a year ago were not in what is ordinarily considered the floodplain.

But what we need is more than just a series of band-aids. We need to look comprehensively at what we ought to do.

Thank you, Mr. Chairman.

Senator BAUCUS. Thank you. The committee will now turn to executive session.

[Whereupon, the committee proceeded to other business.]

[Whereupon, the committee resumed its hearing.]

Senator BAUCUS. I'll turn now back to Senator Bond.

Senator BOND. Thank you, Mr. Chairman.

Senator CHAFEE. Senator, I'd like to ask you a question, if I might.

Senator BOND. Certainly.

Senator CHAFEE. I have here a report that those floods in 1993 cost the U.S. Government \$6 billion, and the total damages were between \$12 and \$16 billion, the difference presumably being picked up by the local insurance companies, the local communities, the State, and so forth.

You indicated that some lands are now being set aside as floodplains in keeping with part of the report, as I understand it, which is the loss of wetlands and upland cover throughout the basin over the last 150 years dramatically increase runoff, although my summary says it's questionable whether this played a dominant role in 1993. In other words, 1993 was an extraordinary event by any standard.

Senator BOND. Nothing that man did was going to change the unprecedented hydrometeorological event.

Senator CHAFEE. But my question to you is, in your State, has a decision been made that no more building will be permitted and they won't rebuild the houses that were there?

Senator BOND. Well, rebuilding is one thing. Let's set that aside. There is a buyout that we have approved funds, and a number of communities are being bought out, and in some areas this is the best solution.

The United States Senate passed, at the end of March, a flood insurance reform bill, on which I worked very closely with Senator Kerry of Massachusetts, Senator Graham and Senator Mack from Florida, Senator D'Amato, that really encourages flood protecting of structures in the floodplains, provides for mitigation efforts. There are a significant number of steps that are being taken to remove from the floodplain those structures that cannot be protected.

I will show you what happens, however, when the levees are not rebuilt. The spring flash floods this year hit along the Missouri River, and I was flying in on a helicopter when we took this picture of a section of highway just north of Hermann, MO. We had spent \$3 million on rebuilding that and another highway, and you can see the highway trucks trying to protect it.

The reason it was under siege was this hole in the levee had not been rebuilt, and as the Chairman so aptly pointed out, when you don't rebuild the levees, the municipal public structures behind those levees are put at risk, and there are water treatment plants like that one, there are airports, there are highways, there are many other facilities. Our immediate problem is that the Corps of Engineers has a 120-day delay built into repairing them.

And it's not just my views. As of December, only 19 of 500 levees were fixed. That's from the St. Louis Post Dispatch. The Kansas City Star said, "Floods Menace Battered Lands, Bureaucracy Delays Repair of Levees. Money Approved for Levy Repairs, But Agencies Won't Let Go." The Corps of Engineers originally had to complete a two-page form. In September, they were told to complete a 12- to 15-page document, and Colonel Shaufelberger, com-

mander of the Missouri River Division, 2 weeks ago in my office told me that the Corps had to jump through hoops never before required before it could repair levees.

Beyond that, the thing that is of grave concern in our area is that, with the help of the Chairman and the Members of this committee, we appropriated \$50 million to repair levees to the Soil Conservation Service, levees that were not rebuilt by the Corps because the Corps is directed to protect public facilities, and the Soil Conservation Service does construct watershed facilities and other agricultural protections. But now OMB or somebody has directed the Soil Conservation Service that they cannot rebuild levees if they're not in the Corps program.

Mr. Chairman, the particular reason we appropriated the \$50 million to the Soil Conservation Service is so they could apply their criteria to find out whether it is feasible to repair the levees protecting agricultural lands.

And I should add, in talking with community officials, school board officials, and others, when the levees are not repaired, the local governments lose tremendous amounts of their tax base. This valuable agricultural land, if it is taken out of production completely, it destroys the revenue base which funds the schools and local community activities.

These are, I think, just a few of the reasons why it is so important that we cut through the red tape and get the levees rebuilt, looking at a balanced, diversified approach.

There are many lands which should not be protected, that can go into the Emergency Wetlands or the Environmental Easement Program. But I would urge you to remember and I would suggest to General Galloway that the only thing missing from a very balanced summary report is that we need to look at the constitutionally protected property rights of the people who, acting in good faith through many years and with the express statutory direction of the Corps, have begun farming operations, bought farmland, improved it, and provided very valuable agricultural crops, from which they've paid Federal taxes, State taxes, and supported their local governments.

With the Galloway report, I think the choice is that you either move forward and offer viable alternatives, recognize the economic and environmental benefits, the constitutionally protected property rights, or take the view of that headline writer and a few others and say that as a result of an unprecedented 500-year flood, that's an adequate excuse for us, by feat, to drive people out of the river valleys, where they've made their homes and their lives, where they have developed significant property rights.

Unfortunately, there are many people who are neighbors of the Missouri River, who work on it, who utilize it, who have built their lives around it, who think that the Federal Government has decided that they're going to evict them, and I would extend once again the sincere invitation to you, the ranking Member, and the other Members of the committee to come out to the river valleys and have an opportunity to see what is there, what happened, and to hear these people express themselves their concerns and their desire to come up with workable alternatives.

It's an unprecedented disaster, Mr. Chairman, and I, unfortunately, have seen a number of disasters in the time that I have been in public service, but the extent and magnitude of the disaster in this flood is far beyond anything I've ever seen.

I would like to work with the Members of this committee as we develop a balanced approach to maintaining the multiple uses of the river and seeing that, where levees are indeed appropriate and needed, we can get them rebuilt before we have more disasters like the spring floods of 1993 in Hermann, MO, which was flooded again, and all of these other areas that were flooded by flash flood because the levees were not rebuilt.

Senator BAUCUS. Thank you very much, Senator. I think you used the right word when you said "balanced," because the solution here, I think, is going to take, as the Galloway report suggests, both structural and non-structural solutions. Your testimony is very valuable. It helps spur all of us along, and we very much appreciate you taking the time.

Senator BOND. Thank you, Mr. Chairman. Any time you have several days, we'd be happy to discuss it at greater length, and we would very much welcome a visit by you or a hearing, whatever might be suitable. We would welcome the Senator from Virginia to join us as well, and we will be happy to go over some of these problems.

Senator BAUCUS. Thank you very much.

Senator BOND. Thank you, sir.

Senator BAUCUS. Our next witness is the Honorable John Zirschky, who's Acting Assistant Secretary of the Army, Office of Civil Works, for the U.S. Army Corps of Engineers.

I see that Brigadier General Galloway is also here. General, why don't you come up to the table, too.

General Galloway is the Executive Director of the Interagency Flood Plain Management Review Committee, a committee that began its work in January of this year, and today they issued a draft report entitled "Sharing the Challenge: Floodplain Management Into the 21st Century."

I appreciate your work on that report, General, and I particularly appreciate you being available to be with us here today. I know there were a few questions revolving around your presence, and I'm glad that was worked out and that you are here.

Dr. Zirschky, why don't you proceed.

STATEMENT OF HON. JOHN H. ZIRSCHKY, ACTING ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS), ACCOMPANIED BY JAMES BATES, DEPUTY DIRECTOR, OFFICE OF CIVIL WORKS, U.S. ARMY CORPS OF ENGINEERS

Mr. ZIRSCHKY. Thank you, Mr. Chairman. It's a pleasure to be back here with my friends on the committee. I enjoyed working here very much, although my new job has been somewhat interesting. I woke up this morning to find out that I had a new spelling for my last name, a new job, and a promotion in the New York Times. I won't hold the misspelling against them. My own mother-in-law misspelled it on my wedding invitations.

[Laughter.]

Mr. ZIRSCHKY. Given that General Galloway is here, I'm going to be brief and just ask that my statement be placed in the record, and I'll touch on just a number of quick points.

Senator BAUCUS. Without objection, your prepared statement will appear in the record.

Mr. ZIRSCHKY. About the floods, there seems to be a perception that the Corps has not done all that it could, and I don't think that's exactly a fair statement. Even though the flood ended in the fall of 1993, many of the sites were not accessible until the winter of 1993 or 1994. We couldn't get there because of the mud conditions and the standing water to see how much repairs were needed. We couldn't start the repairs before the soil conditions had dried, because if you put the dirt you use to build levees on top of mud, you get more mud.

Basically, we have 71 percent of the levees fixed or the repairs are under way. Back when the flood subsided, we had envisioned it would take us until the end of 1994 to get the flood repairs completed. We're still on schedule there.

I know the problem of which Senator Bond speaks, because my family's hometown is in Missouri and was under 10 feet of water for a good part of that summer. Their bank was flooded, their post office, stores. In fact, they couldn't even get to town on one of the roads because it was under water.

One of the reasons we've had some delay—and we still have, I believe, four that are still held up—is the difficulty in finding a cost-sharing partner. The locals are generally supposed to participate in funding the repair work, and at a few of the sites, we've had difficulty in locating someone to share in the cost.

Recreation, I know, is an issue of an interest to you, and I look forward to going to Montana with you next weekend, I believe.

Senator BAUCUS. Right.

Mr. ZIRSCHKY. Darrell Lewis will testify on the second panel with a number of other Corps employees specifically on some of the actions we're taking on recreation. Generally, many people may not be aware that we're the number two provider of recreation in this country, after the U.S. Department of Agriculture Forest Service. We operate over 4,000 recreation areas that are visited by over 372 million people a year.

Right now we're working on trying to get a mission statement for our recreation program. Past administrations have not been willing to acknowledge that they have a recreation mission. We've narrowed it down to two of the many that were submitted and hope to have that approved by next month.

We're also working on trying to expand the career opportunities for people in our recreation programs. There currently exist real or perceived barriers to career advancement among upper level natural resource management staff.

On the environment, I know that's an issue of concern to you. You've supported the Corps' environmental missions in the past, and we look forward to working with you on this year's Water Resources Development Act to expand that mission.

We have a task force that is under way hiring people from the Corps districts to try and examine our environmental policies, sort of our version of the bottom-up review. Generally, in my experi-

ence, in the Corps districts and divisions, local sponsors want us to get more involved in environmental projects. This administration intends to look at ways that we can do that.

I'll make one comment about the Water Resources Development Act, and then I will stop. Basically, we appreciate your willingness to hold this hearing and to help move the bill. It's important that we keep our commitment to local sponsors to keep their projects under way. We anticipate having 15 feasibility studies and 11 project modifications submitted to this committee by the 1st of July, and I can get you more details on those for the record.

With that, I'll stop.

Senator BAUCUS. Thank you very much, Mr. Zirschky. Again, what's your bottom-line response to those, particularly from the Midwest, who think the Corps is not acting really as quickly as it should. If you cut to the quick, what's going on here?

Mr. ZIRSCHKY. I think our Corps employees have done a great job. Part of the red tape is making sure that the repairs are justified.

Senator BAUCUS. Are there delays?

Mr. ZIRSCHKY. There have been some delays, primarily now due to the fact that we can't find somebody willing to share the cost on a local level. Some people still think that the cost should be 100 percent Federal, and that's not been the policy of any administration, including this one, in recent memory.

Senator BAUCUS. So you're saying even the downstream levees, where the Corps has primary jurisdiction, that local communities want full, 100 percent Federal participation?

Mr. ZIRSCHKY. And oftentimes they want it back in the original alignment, which could cost millions of dollars more than a different alignment than was there in the first place. Sometimes there are scour holes that are created—when there's a flood, the river washes out big holes. Rather than fill those holes in, which would cost money, we try and move the levee to a more economical location. That is at times controversial. Basically, we're trying to save the taxpayers money.

Senator BAUCUS. Now, some in local communities talk about unfunded mandates—that is, if the Corps is going to either have a requirement or provide a project, that Uncle Sam should pay for all of it.

Mr. ZIRSCHKY. Of the levees that we build and maintain, I believe only two of those in the whole system were breached. There's a perception that these were all Corps-built levees that failed. A lot of them were levees in what we call a Corps program, where we agreed to help fix them if people maintained them, but they were not built by us.

Senator BAUCUS. Are there any levees, though, where traditionally there's not been a local match—that is, where a local community is not matching because it feels that there's a Federal policy or a Corps policy or historically that there need not be a match?

Mr. ZIRSCHKY. I believe there are some. There are some people that just basically feel the Federal Government should restore their land the way it was before the flood, but they were not levees that were Corps-built levees.

Senator BAUCUS. I know you haven't had a chance to read this report, but I'm sure you know about it.

Mr. ZIRSCHKY. Yes. We're due to get a copy tomorrow.

Senator BAUCUS. Okay. You probably know a bit about it. Just give me an idea about the general tone of it, what it's driving at. Give me your off-the-top-of-your-head thoughts about all that.

Mr. ZIRSCHKY. I have not read that. As I said, it's due to be released to the agency tomorrow. So I don't know to what extent previous drafts reflected that one. But really I thought it was a fairly good systems approach. There are a few areas that we differed with in earlier drafts, but I thought it was a pretty good effort.

Senator BAUCUS. Do you think there's a need to change long-standing Corps policy to rebuild or repair levees? That is, should there be a non-structural as well as a structural solution?

Mr. ZIRSCHKY. Yes, I do think we should look at non-structural solutions. In fact, that's one of the, as Senator Bond put it, delays in the process, that we're required to do a benefit-cost analysis to determine whether the cheapest way to provide flood protection is to rebuild the levee or to acquire the land, and that takes time to decide. So we support non-structural.

Senator BAUCUS. What kinds of non-structural approaches come to mind besides buyouts?

Mr. ZIRSCHKY. Buyouts are probably the simplest one. If you're going to do broader scale, you can get into things such as watershed planning, trying to control the runoff, putting in other detention areas farther upstream. General Galloway's task force looked at a number of those alternatives.

Senator BAUCUS. Right. In fact, I'll ask him to summarize those later and respond to those, too.

General Williams has said the Corps wants to be the Nation's environmental engineer. In April, 2 years ago, the Corps implemented an environmental engineering initiative, and Congress, in every water resources bill, adds the authority for the Corps to perform environmental work at its projects. I must say that, to date, very little has been accomplished. Why is that? If the Corps wants to be the Nation's environmental engineer, why is it that their environmental record is pretty sketchy?

Mr. ZIRSCHKY. I think the Corps' record, at least from the district and division point of view, is perhaps better than might be indicated, but one of the reasons we've had difficulty doing more environmental work is the issue of cost sharing. We look for local sponsors, and previously there's been no statutory language about what kind of cost sharing we need for environmental projects. This bill, the 1994 Water Resources Development Act, provides that language, that environmental projects would be funded 75 percent federally and 25 percent locally. With that authority, I think we can get a lot more into the environmental area.

Senator BAUCUS. What kinds of new environmental projects do you think make sense? It's a massive water resource that the Corps is managing. It's not just building levees, it's not just dredging, it's not just maintaining a system for flood control and navigation and so forth. A large number of people boat, fish behind Corps dams and Corps projects. I know a lot of people want better access to Corps lakes, et cetera. What about that?

Mr. ZIRSCHKY. On the environmental front, I think there are a number of things we can do. One is ecosystem restoration, such as we're doing now in Florida, trying to put back the environment the way it was before basically we channelized and drained the wetland. I think we can get involved in habitat restoration, such as at our lakes, using some of our flowage easement and some of the lands upstream to convert those to wildlife habitat.

In the drinking water area, we're in the process of scoping out a study to look at the Nation's water resources from a water supply standpoint: Will we have enough water 10, 20, 50 years from now to provide the country for its needs? If not, how do we begin planning now? That has environmental implications because, as you know with the Missouri Master Manual, how the water is allocated can have a big effect on the environment. If we plan ahead so that we know where we're going, every gallon of water isn't accounted for, we could have more flexibility to use the reservoirs for wildlife mitigation and habitat.

Senator BAUCUS. I hear some people say that you're a whole new breath of—not fresh air perhaps—but a different air at the Corps, that you're providing a new vision and new ways for changing things. I'm just curious, what are your goals for Civil Works? What do you want to accomplish? What do you want to be remembered for when you leave?

Mr. ZIRSCHKY. I'd say restoring morale would be probably the first one. The two previous failed attempts at reorganization have left the Corps a bit demoralized. A lot of people in our field, for example, want to do environmental work, and the previous administrations perhaps have not been as supportive as they should have been. So people out there want to do work. They know they're the Nation's engineering firm. They just haven't been given that mission, so I'd like to help them get that mission.

I'd like us to take another look at recreation. I think past administrations have sort of frowned on it. This administration is taking a look at it. As I think the next panel will testify, recreation has enormous economic benefits. When we have 370 million visits to our parks alone—I may be wrong on this number, but each hour that people spend in our parks is worth \$4.35 to the local economy—it has significant effects on the economy.

Senator BAUCUS. So what's the cause of the morale problem, as you see it?

Mr. ZIRSCHKY. Uncertainty about the future, where is the Corps going. Two plans to close division and district offices have left people worried about their jobs. That's still a problem. Given the direction to reduce the Federal workforce by 279,000, we're probably going to have to reduce in size by one for every eight employees, and that's a tremendous amount of uncertainty: Should I get a mortgage? Should I move? Should I look for another job?

To try and help clear up some of those uncertainties, we announced last week that we're going to look at reorganization from the standpoint not of closing offices, but to try and change our business practices, to streamline more. So rather than saying we're going to close the Omaha office, which is the division office closer to you, we're going to see if we can sort of keep it there but find a way to make it more responsive. We're spending too much money

generating reports and studies and not enough doing work on the things that we're good at.

Senator BAUCUS. You mentioned recreation and environmental, that there some on your staff that would like to pursue those areas. Are there other areas where there's a significant staff interest that has not been pursued that perhaps is causing a morale problem?

Mr. ZIRSCHKY. Sir, there's the perception of micromanagement in Washington, that all the authority has been pulled up to Washington. I've had GS-11s tell me that decisions that they used to make are now made in my office, the Secretary's office. We're trying to send that decisionmaking authority back to the field offices. We have people like Colonel Schaufelberger, whom you know well, very capable people. They know more what's going on the regions than I probably ever will.

Senator BAUCUS. He has to retire.

Mr. ZIRSCHKY. Unfortunately, he has a mandatory 30-year retirement.

As I was saying, we are sending more authority to the districts and divisions and that means we'll have to come up with a new role for headquarters. But, as we empower the divisions and districts, we must be careful that we do not give the impression in the field that we don't value our headquarters. I think they have a very important function to play. We have to help them develop more of a supporting role where they're recognized for their talents. A lot of people at headquarters got promoted there because they were among the best. We have to tap into their potential to help them help the field get stuff done.

Senator BAUCUS. To the degree that the general's report is pursued and adopted, how are you going to sensitize Corps employees to those changes in direction? It's been my experience that that's a major challenge.

Mr. ZIRSCHKY. It is a challenge. I'm trying to make some changes in direction. I can't speak for other bureaucracies, but the Corps generally, once they understand the direction, move out. That's one of the good parts of the Corps.

Single-handedly, I can't do it. One of the things I sort of discovered is that for the 34,000 Civil Works employees, there's basically one political appointee, and you can go to other agencies and you probably have one political appointee for every 300 bureaucrats.

So you have to rely on the division and district commanders, the Directors of Civil Works and Military Programs, on up to the Chief of Engineers, and the people. If given a mission that they understand, if I give them clear enough direction and understanding of where we're heading, I think they'll move out and make the changes. So far, I won't say I've done as effective a job of that as I could.

Senator BAUCUS. General Galloway, could you just briefly summarize your report? Just give us a sense of the drift of it.

**STATEMENT OF BRIGADIER GENERAL GERALD E. GALLOWAY,
EXECUTIVE DIRECTOR, INTERAGENCY FLOODPLAIN MAN-
AGEMENT REVIEW COMMITTEE**

General GALLOWAY. Sir, if I could preface that by saying what we have submitted is a draft report, and what we're in the business

right now of doing is seeking comment from the Members of the Congress, from the Governors, and from the people of the Midwest and the Nation concerning our proposals for floodplain management.

It's a two-part report. In the first part, we deal with the first mission given to us, to identify what happened in the flood of 1993. We discuss in the report that the flood event of 1993 was a hydrometeorological event of some great consequence. That was obvious to the people that were out there. It was a very, very unique rainfall event, and it was a flood of great magnitude, with a recurrence interval of from 100 to 500 years, depending on where you were in the basin, and one that caused significant damages.

We recognized that as part of this look at the flood, two of the issues that needed to be addressed were the relationship between the loss of wetlands over the years and the flood and the relationship between levees and the flood. In our report, we identify that the loss of wetlands over the years certainly had some effect on flood storage, but when you have a flood and a rainfall of the magnitude of this last flood, the loss of wetlands certainly did not make significant difference in the flood event. It's questionable whether having more wetlands would have changed the flood of 1993.

In our report, based on some studies we've done, we infer that there's a lot of value to taking care of the wetlands, taking care of upland areas, and restoring watersheds so that in the long run, the more frequent floods can be dampened by the use of this upland and wetland storage. We address that issue.

With reference to the levees, again, the magnitude of the flood was so great that most of the levees overtopped on the Missouri River and on the Mississippi. As a consequence, the flood of 1993 was not really affected by the levees. We recognize that levees can create problems, and we have some specific thoughts in the report that deal with how they should be addressed on a systems basis.

From that, sir, using the flood experience as a basis, we are proposing some recommendations and action in the draft report and hope to get comments back. We focus on the idea that there are no silver bullets in floodplain management. Floodplain management is a business that people have been in for a number of years. In the last 20 years, we've seen the Nation start to turn to more use of non-structural methods. As we visited people in the Midwest, we found that they were willing to accept this non-structural approach. The very fact that over 5,000 people were seeking buyouts, and that many people were seeking to sell land that was in the bottoms—areas that were no longer farmable—meant that there was a revolution in the sense of an awareness that some floodplain areas might not be best for occupancy.

At the same time, we recognized that other tools that have been used in the past—elevating structures, taking flood-proofing measures, and use of levees—still make sense in some locations.

If we put all those methods together, you might ask, "How, then, do you make floodplain management work?" We propose the general strategy of sharing the responsibility among the Federal Government, the State government, the local government, and individual citizens. I think it's important to note that everyone in the business of working with and in the floodplain has a responsibility

for knowing where they are—the risk, and sharing some of the responsibility for mitigating that risk; this strategy becomes a theme in our recommendations.

We also deal in the report with the specific Federal programs that can influence floodplain management. What things we can do to make it easier for the States to do their jobs. We have stated in the report that the fundamental responsibility for floodplain management rests with the States. They're closest to the problem. They know and understand the people, and they're in a better position to act on floodplain management issues. We also look at how we, at the Federal level, modify our programs, those of Dr. Zirschky and the Corps of Engineers—how can we make those programs fit into a long-term approach to provide floodplain management not only for the Mississippi and Missouri Basins, but for the Nation.

Senator BAUCUS. All right. Just get down to the bottom line. What does the draft report say with respect to how the Corps should change its policies with respect to floodplain management?

General GALLOWAY. Sir, it is not a report that tells any agency to change. We've been quoted as saying it tells the Corps to take a new direction. What it says is the Corps needs the ability to be funded for and be given the opportunity to employ some of the techniques that it has known about and has been using for a number of years on a very limited basis.

There are some restrictions on what the Corps can do right now. Dr. Zirschky has mentioned, for example, that when you go out to do a levee restoration and see opportunities to put some environmental enhancements in, there is a cost-sharing responsibility for the locals. The environmental benefit, we note, may not be local. They may be much broader than the local area. Locals may not want to participate in that. We make recommendations concerning different cost-share analyses that would allow non-governmental organizations and State organizations to fund part of these enhancements. This would make them more feasible.

We've found, as Dr. Zirschky has noted, that the Corps of Engineers certainly knows how to do these things. They just received an award for Bendway weirs on the Mississippi River that have both cost savings and environmental benefits. They need to be funded for some of these programs. They've been working in the watershed arena for a number of years, but don't get much funding.

Some of the regulations we have in the Federal Government—especially one called "Principles and Guidelines"—tend to focus on the economics and do not allow the adequate consideration in decisions of the environmental quality and the social goods that would come out of a project. We believe that by modifying those regulations, the Corps could move on many of its projects, as could the Soil Conservation Service—move in many areas where they've been restricted in the past.

We think the talent to do sound floodplain—the knowledge of what to do—is out there. We need to have some of these restrictions removed or refocused so that Federal agencies can apply their talents—

Senator BAUCUS. The restrictions, as you see it, are the inability of communities within the private and public sector both to contribute to environmental enhancements or environmental solutions?

General GALLOWAY. Yes, sir, in part it is a local cost-sharing issue. In part it is the analysis by which projects are generated. There is an apparent bias—we cannot identify it specifically—against non-structural projects.

Senator BAUCUS. What's the cause of that bias?

General GALLOWAY. The bias is that it is focused on the pure economics, the monetized value of the benefits versus the monetized value of the costs. There are some things that you can't put specifically into dollars, like the value of having one of these wetland areas restored.

Senator BAUCUS. I totally agree. So how do you solve that one?

General GALLOWAY. Sir, we believe that the talent exists to assess these factors. It's something that's certainly known. I teach a course in water resources management, and teach that multi-attribute decision models that use more than monetary factors are certainly important and should be used in decisionmaking. We believe that, ultimately, you want to be able to monetize all costs and benefits. But in the meanwhile, you need to be able to identify the non-monetized items and discuss them and have the decision based on the totality of what are the benefits and what are the costs in a particular project.

Senator BAUCUS. Is there a need in the authorizing language to make it clear that sometimes the environmental or public health or moral or aesthetic benefits may outweigh the monetized cost and benefits in the standard cost-benefit analysis?

General GALLOWAY. Sir, we're saying that that is certainly a part of the Principles and Guidelines that's absent now and should be endorsed by the Administration in the Principles and Guidelines. That same sort of philosophy, certainly, on the Hill would have a very profound effect.

Senator BAUCUS. The language I just described is actually in the Safe Drinking Water Act that the Senate just passed, because sometimes it is true that the non-monetized benefits do outweigh the monetized costs. So it's very important.

General GALLOWAY. And, sir, there are many social costs that we still can't put our finger on. We've learned in this particular flood that the elderly and the low-income residents were very affected by the flood. It is difficult to pin down the social well-being value of moving some of those people out of the floodplain or providing protection for them. We think that the new procedures, an adjustment to the procedures, would allow better consideration of those items.

Senator BAUCUS. Okay. But if this draft report is the same report that comes out in final form, what are some of the implications that you see with our reauthorizing statute here? What changes in the statute, if any, might we consider?

General GALLOWAY. Sir, I'm caught a little bit cold, because I've not looked through the report to identify what might be put into the Water Resources Development Act. Certainly, the language you mentioned for the Safe Drinking Water Act, the idea that you must recognize there are benefits beyond those that can be monetized would be important to consider.

I think our goal is certainly to monetize benefits, but that's certainly a form of the art with which we have not had great success yet. So something like that would be in line with what we're recommending for the Administration. This would tell the agencies how to prepare justifications for water projects.

Senator BAUCUS. Dr. Zirschky, now that you've heard a little bit of the summary of the draft report, what are some of your reactions to all of this?

Mr. ZIRSCHKY. I'd like to read it in more detail, but I think it's, like I said, from earlier drafts I've seen, a good report. I agree with his comments particularly about the social issues and the environmental issues. You can't always measure things in dollar terms, and our principles and guidelines tend to focus on economics at the expense sometimes of the environment and social equity.

For example, if a low-income housing area floods, when you try and compute the benefit-cost, the benefit is the dollar value of damages to the low-income housing avoided. Low-income housing isn't worth as much as, say, a high-income area, so it would not be scored the same way. The same number of people may be protected by the levee, but those in a poorer area might not get as high a levee or a levee because their property is not worth as much as a more well-to-do person.

So I do think we need to look at issues such as social equity.

Senator BAUCUS. I found your statement interesting, General Galloway, that the silt and sediment problems created by the flood were not caused by the levees.

General GALLOWAY. Sir, no. I was saying that the flood itself, at the height of the flood, at its ultimate peak, was not caused by levees. Obviously, any time you have a levee, there is some constriction in the river. There's constriction at St. Louis, so there's some height increase in the river. But by the time that the flood reached its peak at St. Louis, most of the levees had been overtopped on the Missouri River, so the water was flowing essentially bank to bank in the Missouri.

There is absolutely no question, sir—I've stood on the land out there in Missouri that's covered with silt and sediment—that where the levees blew out as a result of the overtopping, the blow holes that were created spread sand six feet, eight feet deep. There was certainly a tremendous impact on those sites. We recognize and have made some comments about ways that we ought to try and prevent these blowouts from occurring in the future.

Senator BAUCUS. I saw a study not too long ago that 100 years ago there was approximately two times the amount of wetlands in Missouri, in Illinois, in Iowa, some of the other Midwest States, than there is today. It's a hypothetical question, but let's assume that we didn't have dams and levees, and all those wetlands were still there, so when it rains, they would tend to soak up some of the rainfall. Is there any way of guessing what effect twice as many acres of wetland as we have would have in the dampening the amount of flood that otherwise occurred?

General GALLOWAY. Sir, we struggled with that question. Part of our team was out in Sioux Falls, SD, doing scientific analysis. As a matter of fact, they're out there today trying to finish up the report. It would be very difficult to estimate the impact of more wet-

lands. We have said, though, that it would be questionable, that even if you restored wetlands, given the amount of rainfall in 1993, whether there would have been a big difference in the flood. At some point in time the infiltration of the soil fills all the vacant space in the soil. Then you cover the surface area, and you just have water on the land and everything all rain that lands after that runs off. That was characteristic of the flood of 1993.

Senator BAUCUS. Is there a 10 percent reduction, 20 or 30 percent reduction?

General GALLOWAY. Sir, in the very limited set of studies that we did, we found that in small watersheds for a flood of perhaps the 10- to 20-year variety, one that's much more frequent, you do get a reduction in the runoff. Maybe a 10 percent reduction in the runoff. So there is a benefit. And those are the ones that cause the more frequent problems on the streams down below. So there certainly is a value in having the wetlands.

We went back into history, sir. You can go back to Hernando DeSoto, when he first explored this country. He stood on the banks of the Mississippi River down below Memphis for nearly 80 days waiting for the high water to go down. When you get so much rain, the land just can't absorb it all.

Senator BAUCUS. Just to help all of us here, can you tell us about the Stan Hinnah farm in Glasgow, MO and what that was all about?

General GALLOWAY. One of the times we were out visiting in Missouri, we met with Mr. Hinnah. We were trying to find out what was going right and what was going wrong in disaster recovery, and Mr. Hinnah was very interested in having his property become part of one of the land acquisition programs of the Federal Government. His levee had been destroyed by the flood. It was in a location that, based on his analysis and some of the analysis that he had received from the Federal Government, where it would not be wise to restore the levee. It would probably blow out again the next time high water came along.

Mr. Hinnah had been approached by several Federal and State officials offering him the opportunity to sell his land, but no one had the ability to come directly to the table with money. Each had a slightly different approach. Mr. Hinnah suggested to us that it would be good if the Federal Government could organize and coordinate its land acquisition programs and activate them more quickly. We certainly agree with him that it would be useful. If you are trying to take advantage of the opportunity after a flood to help the people that have been harmed and, at the same time, you want to improve the environment, you need a program that's much more responsive than those we used this time.

Senator BAUCUS. I guess one of the questions I have is, how can we, in the Congress, be assured as much as possible that we are going to pursue a balanced approach—that is, that where the remedies are more levees where appropriate, non-structural provisions, like buyouts and floodplain insurance and so forth, where appropriate? How can we be best assured that a year from now or 2 years from now, when we revisit this question, that we sit here and proudly congratulate ourselves, "Boy, we did the right thing," rather than going back through this same exercise and same process

all over again? What assurances can you give us? Do we have to write legislation to be more constrictive or micromanage the Corps more? How are we going to be assured that we're going to—

General GALLOWAY. Sir, I don't think—and, this is my personal view. I don't think that micromanaging is what the answer is. The answer is to give the people that are willing to work in this arena—and the State floodplain managers, the States themselves, the Federal Government agencies—the opportunity to use the tools that they have and remove some of the restrictions that make it difficult for them to carry out their jobs.

Floodplain management is a partnership. Even though those sound like high-faluting words, it is very important to recognize that there's a large number of State floodplain managers, State organizations, and Governors who are very concerned about floodplain management. The very fact that this year we had the more than 5,000 homeowners come in for relocation and had all this land up for sale represents a remarkable turning point. People now do consider selling their land to the Federal Government and now do look at alternative approaches for floodplain management. We just need to keep this effort moving.

Senator BAUCUS. It's my understanding that your draft report recommends that the Corps be the single coordinator for Federal flood management policy. Is that correct?

General GALLOWAY. No, sir. It recommends that when we build levees, the Corps be the primary levee builder. This year, as a result of a number of things, we had several agencies building levees. We think that that's got some severe engineering and fiscal disadvantages. For the Mississippi Basin, there is a need for some unit of the Corps to develop a systems approach to the management of levees that currently exist in the basin.

You have a very unusual situation in the basin. As Senator Bond has described, there exists an amalgam of local levees, non-Federal levees, Federal levees, and they need to be surveyed and put into some sort of coordinated program. We do recommend that the Corps would be the agency that to do this.

Senator BAUCUS. I generally agree that it's best to delegate and give people more responsibility than micromanage them. That's sometimes hard for Congress to do, but I think it tends to be a better policy. But, in turn, it means probably a more vigorous oversight—that is, where maybe you or other members of the Corps come back before this committee and are held accountable for your actions. Speaking for myself, I think it's safe to say the committee will commend and praise good action and will be critical of mistakes that, in the realms of reasonableness, should not have occurred.

I'm going to have another hearing when this draft report becomes final, and at that time I think we'll be in a better position to more specifically know what direction we should take. I urge you in the interim to be thinking about that, and as I said, we will hold another hearing on this subject.

Could you give me a sense of when you think the report will be final?

General GALLOWAY. Sir, we've asked for the comments from the field and from the Hill to be back to us by the 7th of June. We hope

to take a couple of weeks to work on those comments . We hope to present it to the Administration on or about the 1st of July.

Senator BAUCUS. Okay. We have a lot of witnesses ahead of us, so we're going to have to turn to them now, but I wish you very well, both of you, and particularly you, Dr. Zirschky, as you try to address the morale questions at the Corps. They're probably not much worse than in any agency, but it's a major challenge, and I wish you the very best luck. Thank you.

General GALLOWAY. Thank you, sir.

Mr. ZIRSCHKY. Thank you.

Senator CHAFEE. Mr. Chairman, I just want to say how nice it is to see Dr. Zirschky back here again. He's spent a lot of time on this committee.

Senator BAUCUS. He has.

Senator CHAFEE. Onward and upward.

Mr. ZIRSCHKY. Thank you, sir.

Senator BAUCUS. Okay. Now we'll turn to the next panel: the Honorable Dennis L. Algieri, who we've heard of earlier and will hear of again; Mr. Darrell Lewis, Chief of Natural Resources Management Branch, U.S. Army Corps of Engineers; Mr. John Lamb, Executive Director of Walleyes Unlimited of Montana; Scott Faber, Director of Floodplain Programs for American Rivers in Washington, DC; and Tom Grasso, Chesapeake Bay Commission in Annapolis, MD.

Senator CHAFEE. Once again, Mr. Chairman, I'd like to welcome Senator Algieri from the southern part of our State. I'm very interested in and will stay for his testimony.

Senator BAUCUS. Senator, why don't you proceed.

STATEMENT OF HON. DENNIS L. ALGIERE, A RHODE ISLAND STATE SENATOR

Senator ALGIERE. Thank you. Mr. Chairman, Senator Chafee, it's a pleasure to be here. I'm pleased to testify before you on the very serious problem of beach erosion that we're facing in Rhode Island.

First of all, I'd like to start by complimenting the Army Corps of Engineers, especially the New England Division, for their quick response to our many issues which we face in Rhode Island.

Senator BAUCUS. I might say to all of you that we're under the five-minute rule here, and I would encourage each of you to stay within 5 minutes, and your full testimony will be included in the record.

Senator ALGIERE. I cannot agree more with Dr. Zirschky's statements regarding the recreational policy issues, which I hope the Corps will adopt in the future. Tourism is a major industry in Rhode Island. In 1993, for example, we realized \$1.4 billion in tourist dollars. What makes Rhode Island a tourist attraction is our 420 miles of coastline and beautiful beaches. However, because of the storms we've had over the past few years, especially in 1992 and 1993, our sand dunes and beachfronts have been decimated.

Recently, the Army Corps of Engineers New England Division completed a reconnaissance report for our shore protection and flood damage in Misquamicut Beach in Rhode Island. However, with a benefit-to-cost ratio of .92, the Corps concluded that no eco-

nomically justified project could be identified. It was, therefore, terminated.

The Corps funds and continues to fund beach enhancement projects. These projects are occurring in locations where there is substantial development in hazard-prone areas. Rhode Island, on the other hand, has adopted a progressive and rigorous coastal protection program since 1971 through its Coastal Resource Management Council, of which I'm a member.

An example of the protection that the Coastal Resources Management Council provides is their work to designate 82 percent of our barrier beaches as undeveloped or moderately developed. As an advocate for wise use of beach property, the Coastal Resources Management Council hopes to minimize economic loss due to storm damage and the loss of its beach by prohibiting or controlling development along the barrier beaches.

In Rhode Island, we're susceptible to flood damage and frontal erosion because of our unique geographical location. Storm tracks run parallel with most of the barrier beaches in the eastern United States. However, in our case in Rhode Island, the storm tracks are perpendicular. Therefore, our barrier beaches like Misquamicut take the brunt of violent storms. In addition, Rhode Island's barrier beaches are also in a sediment-starved stage, with no abundant sand supply in the system.

Post-storm response to coastal disasters is also in need of review. As a regulatory agency, the Coastal Resources Management Council in Rhode Island is unable to solely meet the people's needs. FEMA is frequently called in after a storm event to assist local efforts in responding to damage, but all too often they report that not enough financial loss has occurred to warrant Federal repair money.

Unfortunately, Rhode Island has always fallen between the cracks. No money has been received for preventive beach replenishment or post-storm recovery, and as a State with a tourist-based industry as its economic base, each storm carries the potential to severely impact the local and State economy. Recreational beaches in disrepair often present hazardous conditions to tourists and dramatically reduce the size of our beaches.

The Corps of Engineers has focused its efforts narrowly on flood protection, without regard for local tourism enhancement. The Corps puts a 50 percent maximum weight on tourism benefit. This is not enough, and it should be modified. For example, in the Corps' recent report on Misquamicut Beach, the Corps had to look at an area with heaviest development. In order to get a favorable cost ratio, the Corps in its plan had to propose 17- to 18-foot-tall dikes to protect the area from floods. And it was designed for a 100-year storm.

Clearly, this massive project, coupled with condemnation of private real estate along our beaches, did not result in a favorable benefit-to-cost ratio. With the focus by the Corps on flood protection rather than frontal erosion, we receive little benefit.

The Corps should consider protection from smaller, lesser-strength storms, not only of the 100-year variety. It should provide for temporary relief from frontal erosion, not only flood damage. Further, the Corps should prioritize the funding of smaller projects,

not only larger ones. This would benefit all involved by reducing long-term costs and providing for increased beach usage.

The Corps should also recalculate what they are protecting against. In the past years, the Corps funded hard, massive structural projects. They are now turning to beach renourishment projects, and this is very welcomed. However, the Corps has not sufficiently altered its regulations to accommodate this change. Now that the Corps is moving toward beach renourishment, it needs also to get in the mode of maintenance, improvement, and replenishment.

As one of our most valuable natural resources, beaches must be preserved for their critical role in protecting against storm damage and flooding in low-lying uplands, salt marshes, and other coastal elements. States with environmentally sound management practices should be rewarded for effective and responsible zoning on barrier beaches rather than penalized by the benefit-to-cost ratio. It's in my view that the Corps' regulations should benefit replenishment projects with a benefit-to-cost ratio for a lesser storm than a 100-year storm.

In summary, I would like to recommend that the Corps of Engineers be permitted to consider the following regarding Misquamicut Beach in Rhode Island and other beaches in Rhode Island: weighing recreational values—and we've heard that mentioned today by General Galloway as well as Dr. Zirschky; assuring that all recreational values, including tourism, are weighed appropriately in its benefit-to-cost ratio; and considering small-scale beach renourishment projects to deal with frontal erosion.

Additionally, I hope the Congress will reevaluate the benefit-to-cost ratio, particularly as it pertains to benefits that accrue to reduce frontal erosion and benefits that accrue to States that rely heavily upon coastal-related tourism but have been penalized because of their stringent coastal zone regulations.

I appreciate the opportunity to testify before you, Mr. Chairman.

Senator BAUCUS. Thank you very much, Senator. That's very helpful and much appreciated.

Senator CHAFEE. Thank you, Senator, also. It was good testimony.

Senator ALGIERE. Thank you.

Senator BAUCUS. Mr. Lewis?

STATEMENT OF DARRELL E. LEWIS, CHIEF, NATURAL RESOURCES MANAGEMENT BRANCH, U.S. ARMY CORPS OF ENGINEERS, ACCOMPANIED BY DONALD DUNWOODY, CHIEF, NATURAL RESOURCES MANAGEMENT DIVISION, MISSOURI RIVER DIVISION, OMAHA, NE; SCOTT JACKSON, RESEARCH BIOLOGIST, RESOURCE ANALYSIS BRANCH, WATERWAYS EXPERIMENT STATION, VICKSBURG, MI

Mr. LEWIS. Good afternoon, Mr. Chairman and Senator Chafee. I'm Darrell Lewis, Chief of the Natural Resources Management Branch for the Army Corps of Engineers. I was asked to give you an overview of the Corps' recreation program.

With me are Donald Dunwoody, Chief, Natural Resources Management Division, Missouri River Division, Omaha, NE; and Mr. Scott Jackson, Research Biologist, Resource Analysis Branch, Wa-

terways Experiment Station, Vicksburg, Mississippi. They're here to assist me in answering any questions you might have.

The objectives of the Corps' recreation program are to provide outdoor recreation opportunities on Corps-administered land and water on a sustained basis, and to provide a safe and healthful environment for project visitors. The Corps has a large and diverse recreation program consisting of 463 water resource projects in 43 States, 4,300 recreation areas, and 11.5 million acres of land and water. The Corps operates these projects with approximately 1,900 park managers and rangers. Corps facilities include campgrounds, picnic areas, boat ramps, trails, et cetera. Most of our projects are located east of the Rocky Mountains, where almost 80 percent of the Nation's population resides. The majority of these projects are within an hour's drive of major metropolitan areas.

The Corps is the Nation's second largest Federal provider of outdoor recreation, behind the Forest Service, with more than 370 million annual visitors. Over 25 million people, 10 percent of the Nation's population, visit a Corps project at least once a year. The Corps hosts over 30 percent of the recreation and tourism occurring on Federal lands on just 2 percent of the Nation's Federal land base, using less than 9 percent of the Federal funds expended for outdoor recreation. Over the years, the Corps' recreation budget has ranged from \$147 million in 1988 to the current level of \$172 million.

Our visitors mirror the character and diversity of the American public. Increased ethnic diversity, an aging population, and changes in leisure time and activities are all reflected in Corps recreation visitation.

The Corps is in a unique position to optimize the precepts of the National Performance Review regarding the provision of quality customer service. We provide high-quality outdoor recreation opportunities to a large cross-section of America. Our visitors receive immediate and tangible benefits of valuable Government goods and services consistently and reliably across the country. We have the capability to meet the needs of persons with disabilities.

Recent research conducted by the Corps Waterways Experiment Station using IMPLAN, a regional input-output model developed by the Forest Service, indicates that visitors to Corps lakes expend significant amounts of dollars on goods and services and contribute significantly to the national economy. The Corps recreation program is an important part of the U.S. travel and tourism industry, the second largest service industry in the country. The Corps represents 1.4 percent of the direct sales in this important \$600 billion industry.

In 1991, visitors to Corps lakes spent over \$10 billion. The direct and indirect effects of this economic activity resulted in \$12.4 billion in employee income and 617,000 full- and part-time jobs with an average salary of \$18,300. This represents .4 percent of non-Federal employee income and .5 percent of the jobs in the United States. With a current budget of \$170 million, the Corps recreation program expends less than \$300 per job.

Such analyses employing indirect effects tend to overstate the overall economic activity. However, this gives some sense of the value of the Corp's recreation program.

Cooperation among Federal land management agencies, State recreation and tourism agencies, and the research community is increasing significantly. An interagency reservation system evolving in the tourism industry and working on a professional recreation management job series are just a few examples of recent cooperative activities. Another example is the work to expand the understanding and use of the benefits-of-leisure concept in the United States, a concept already in use in other countries, such as Canada.

Public involvement is also increasing significantly through active participation in the management of Corps areas. We anticipate further activity through the Challenge Cost-Share and Contributions Programs, for which we received authorization under the Water Resources Development Act of 1992. The best example of public involvement at the moment is evidenced by our volunteer program, where nearly 75,000 people donate their time and talents at our lakes each year. Increased environmental awareness has resulted in proposals such as the National Lake System, as proposed by the American Recreation Coalition.

When Corps projects were planned, lands were acquired for both current and future recreation development. In 1990, we began the Recreation Partnership Initiative in an effort to obtain additional public recreation facilities at Corps projects without further Federal investment. We're currently reviewing all Corps lands for potential development by the private sector and have identified numerous projects that have this potential, and we will be advertising a number of these areas in 1995.

Senator BAUCUS. I'm going to have to ask you to summarize, Mr. Lewis, as best you can.

Mr. LEWIS. There will be little or no increase in the availability of public lands for outdoor recreation, and we must look to conserve those lands we have.

This concludes my statement. I'd be happy to answer questions.

Senator BAUCUS. Thank you very much.

Mr. Lamb, welcome to Washington, DC.

STATEMENT OF JOHN LAMB, EXECUTIVE DIRECTOR, WALLEYES UNLIMITED OF MONTANA

Mr. LAMB. I'm here, quite quickly, representing Two Rivers Growth, an economic development group out of Glasgow, the Glasgow Chamber of Commerce, and Walleyes Unlimited of Montana, as well as my neighbors. I serve as the Executive Director of Walleyes Unlimited of Montana. I own a small manufacturing business in Glasgow that produces walleye fishing lures. I also own a small farm nine miles outside of Glasgow, and I am a leaseholder of a cottage lot at the Pines area of Fort Peck Lake.

There has been much discussion concerning the value of recreation versus the value of navigation as it relates to the Corps' prioritization of water usage and allocation. The new Missouri River Master Manual attempts to argue against any redistribution of historic water allocation from navigation to the storage reservoirs—i.e. recreational uses. This argument is reflected in the manual's review of cost versus benefit of each of these uses.

Also, the new Missouri River Master Manual would seem to hint that the Corps believes that any attempt to redistribute the exist-

ing allocation would be met with strong opposition from the downstream congressional lobby. Don Pfau, Chairman of the Fort Peck Advisory Council of Montana, testified at this committee's field hearing, which was held in Glendive, MT on October 11, 1993, that available statistics show that the recreation benefit received from the upper river dams amounted to almost \$70 million annually, as compared to the approximate \$14 million benefit received as a result of downstream barge traffic.

The potential for a much larger impact from recreation exists, however, due to the Corps' lack of involvement in the development of recreational infrastructure, the industry is constrained. House of Representatives Majority Deputy Whip Pat Williams has pointed out to Colonel John Schaufelberger that the Missouri River Master Manual fails to factor into consideration the continuing costs for Federal investment in the navigation infrastructure in determining the relative value of recreation versus navigation. The problem here is who's telling the story and how they're telling the story.

I would suggest to you that the Corps are not the appropriate group to be developing an objective evaluation of the cost-benefit ratios of recreation versus navigation. The management of Fort Peck Lake by the Corps has been devastating to the recreational industry in our area. Missouri River country is comprised of eight counties, six of which border Fort Peck Lake. The total population in this area, according to the 1990 Census, is 45,980 people. It has been estimated that there are at least 400 jobs existing today which are directly related to tourism at Fort Peck Lake.

During the 10-year period which ended in April of 1990, the City of Glasgow lost 19 percent of its population, experiencing the fifth largest decline in Montana. Not only has our area endured a 10-year drought, it has also been suffering from an economic drought. Our only hope for the future is the economic benefits which we see the potential for at Fort Peck Lake.

It is hard to imagine why our area has suffered while the State of Montana has experienced a 26 percent rate of growth over a seven-year period in non-residential travel. However, the reality of that increase is that it is occurring in western Montana, not eastern Montana. The State tourism program is willing to invest more marketing dollars in eastern Montana but needs to know that there are adequate facilities and infrastructure in place.

The problem that we are having is the manner in which the Corps is willing to make investment in recreational infrastructure. In the 56 years that the Corps has managed Fort Peck Lake, they have provided only five locations on the lake where drinkable water is available. Up until last year, most of the Corps-managed facilities were without toilets. If you can imagine just for a moment planning a family vacation at the Corps facility located at Bone Trail on Fort Peck Lake, you would first have to drive your family on 60 miles of gravel and dirt road to arrive at a facility that has no water, no toilets, no parking area, no camping area, and if you're unfortunate enough to be there when it rains, you would soon discover that the roads would be impassible, and you would be unable to depart.

I'm not surprised that this area receives little or no use. I don't think the Corps should be surprised either. As a matter of fact, I

don't think they want any use. They have repeatedly demonstrated that they have a vested interest in limiting public use because they have plans for the water and the financial resources downstream.

An example of the Corps' management policies at Fort Peck Lake are best reflected in the problem at Crooked Creek Marina. The operator of Crooked Creek Marina testified at the Glendive field hearing about how he planned for and constructed the marina with the assistance, guidance, and approval of the local Corps resource and recreational manager. Then, because of Corps decisions downstream, the water was removed from Crooked Creek Marina, and it was unable to operate for 5 years. This kind of management not only discourages economic growth, but quite honestly puts hard-working people out of work.

There appears to be no cohesive plan for the Corps' recreational responsibility. They lack a mission statement containing goals, objectives, strategies, and time tables for investment in recreational infrastructure. This is an example of no planning, not poor planning.

They do, however, have a mission that is best reflected in their proposed reorganization. This reorganization has been proposed under the guise of President Clinton's National Performance Review initiative. With this opportunity, the Corps is planning to bury their recreational and natural resource mission under a new level of engineering managers. When I go to the dentist, it does not occur to me to ask him to check under the hood of my truck. I can't imagine asking an engineer to remove my gallbladder, so why would I want him to manage Fort Peck Lake? Would anyone consider putting a hydropower engineer in charge of Yellowstone Park? I don't think so.

The Corps is, as they have already said, the second largest provider of water-based recreation in the United States. They need to be required to take the job seriously. There is something wrong about—

Senator BAUCUS. I'm going to have to ask you to summarize as best you can.

Mr. LAMB. Okay. I'll have to skip quite a bit of this testimony, and I'll submit it to you.

In conclusion, I realize that I brought a very local problem to this committee, which has a responsibility to oversee the interests of the entire Nation. But I believe that if our problem is any indication of how the Corps is fulfilling its responsibility, then it is everybody's problem.

I think the Corps is probably right, now is the time to change and to reorganize; however, not quite how they envision it. If the Corps is to remain in the recreational business, then they need to take the job seriously and develop a mission statement which outlines their goals, their objectives, their strategies, and their time tables for implementation.

Finally, I would ask that this committee address several needs in our area immediately. One is the cost-share management approach. It's killing efforts in poor areas. Forty-five thousand people cannot be expected to raise the millions of dollars necessary to match Federal money. Secondly, we would look for enabling legislation to permit the current cottage leaseholders the opportunity to

purchase their cabin sites. This will allow them to borrow money, make improvements, and build a tax base which will be capable of supporting county maintenance of the roads.

Thank you.

Senator BAUCUS. Thank you, John, very much.

Next we have Scott Faber.

STATEMENT OF SCOTT FABER, DIRECTOR, FLOODPLAIN PROGRAMS, AMERICAN RIVERS

Mr. FABER. Thank you, Mr. Chairman. I appreciate the opportunity to testify today. I'm Scott Faber, Director of Floodplain Programs for American Rivers, and I'm testifying on behalf of American Rivers, the Environmental Defense Fund, and the National Audubon Society.

My comments will address partly some of the findings of General Galloway's task force, but will also address some of the explicit directions that we think the Corps of Engineers should be taking within the context of this Water Resources Development Act.

One of the things I think that General Galloway has discovered and one thing that has been discovered before and has been talked about for many years now is that instead of using floodplains and their associated wetlands to store and slowly convey stormwater, we and the Corps of Engineers, our Federal and State water managers, have instead sought to control flooding with practices designed to drain our watersheds quickly, and then to compensate for increased main-stem flooding by building levees.

This philosophy has focused on a single purpose, which is the removal of water as quickly as possible, and despite the new environmental focus that the Corps of Engineers has begun to take in recent years, it's still the approach used in the vast majority of current and pending Civil Works projects.

Given the number of vulnerable homes and businesses that we've built in our floodplains, there will always be a need for structural flood control solutions. No one is suggesting that we remove the flood wall around St. Louis or Kansas City or that we leave our cities and homes and businesses unprotected. However, we believe that the Corps of Engineers must fundamentally change its flood control focus to begin to address the problems of flooding where they begin, which is in our watersheds, in our catch basins, and begin to use watersheds as catch basins. Currently, we use them much more like funnels.

What we are proposing is a fundamental shift in the way the Corps of Engineers approaches flood control. We are asking you to explicitly direct the Corps of Engineers to adopt a multi-objective watershed approach that controls flooding through the preservation and restoration of natural flood control functions throughout our Nation's river basin and through the relocation of vulnerable homes and businesses.

In the wake of this past flood, Congress acted quickly to make sure that funds were available so that more than 5,000 homes and businesses could be moved out of harm's way throughout the Midwest. We believe that in order to prevent future losses, we must not only react or respond to floods by moving people, but we must be engaged in relocation and the use of non-structural alter-

natives—elevation, flood proofing homes—on a full-time basis. That is not currently the policy of this administration or this Congress.

What we would like is for this committee to give the Corps the authority to engage in practices that reduce the number of vulnerable homes in our floodplains on a voluntary basis, that begin to go back and restore many of the floodplain functions—the wetlands and floodplains that we have destroyed over the past 200 years in an effort to drain our watersheds as quickly as possible. Again, that reflects a radical break from the past. In fact, in a sense, it's turning flood control on its head in many ways.

We think that this new approach should be an unambiguous mission for the Corps and that when the Corps now looks at whether or not to build a levee, it should not longer look at that decision in isolation, but begin to look at that decision within the context of the whole watershed: Where is this water coming from? What is happening elsewhere in the watershed that may be exacerbating flooding problems in a local situation?

Generally what's happening on the local level—and you don't have to go any further than Maryland or Virginia to see this—is that local jurisdictions often transfer their flooding problems downstream. The mayor of a tributary of the Mississippi, a small tributary within a small watershed, has a flooding problem. His job is to hire a stormwater management consulting firm to get that water out as quickly as possible. Where it goes is not his concern. We believe that we need to have the Corps of Engineers now, when it thinks about how to deal with that problem when it inherits it downstream, think about where is that problem originating.

Very briefly, you mentioned earlier some of the problems in getting the Corps to engage in more aquatic ecosystem restoration, and one of the problems that we've identified from our discussions with 1135 managers at the district level around the country is that when the Corps engages in aquatic ecosystem restoration or tries to pursue an 1135 project, it's bound by law that says it has to modify an existing Corps project. That means it has to structurally change the infrastructure of the project.

What we are asking today is for you to give the Corps the authority, first of all, to go and engage in aquatic ecosystem restoration even when it does not modify an existing project and, at a minimum, allow the Corps to engage in these kinds of restoration activities when the river has been impacted by the presence of a Corps project or by the operation of a Corps project. More broadly, what we would like you to do is to direct the Secretary to explicitly examine all Corps of Engineers projects, all current established Corps projects, to see if there is a potential for aquatic ecosystem restoration—a kind of environmental audit.

I realize I'm out of time, so I will just conclude by saying that we realize that the Corps has gained authority over the years to do many of these things. Unfortunately, it hasn't interpreted its authority broadly enough to think on a watershed-wide scale or to think about full-scale aquatic ecosystem restoration, and I think in terms of this Water Resources Development Act, the agency needs additional direction and clarification so it can begin to address some of these problems.

Senator BAUCUS. Thank you, Mr. Faber.

Mr. Grasso?

**STATEMENT OF THOMAS GRASSO, STAFF ATTORNEY,
CHESAPEAKE BAY FOUNDATION**

Mr. GRASSO. Good afternoon, Mr. Chairman. My name is Tom Grasso. I'm a staff attorney with the Chesapeake Bay Foundation. The Chesapeake Bay Foundation is the largest private, non-profit environmental organization dedicated to the protection and restoration of the Chesapeake Bay's natural resources. We have programs in environmental education, land conservation, and environmental advocacy. CBF is involved in all aspects of the Chesapeake Bay cleanup effort, and we have over 87,000 members within the region and nationwide.

On behalf of CBF, I'd like to thank the committee for inviting us to testify here today on ways in which the Army Corps of Engineers Civil Works Program can, should, and does participate in helping to restore the Chesapeake Bay's natural resources.

CBF's philosophy is a simple one: We believe that anyone and everyone who has a mind to do so can help in saving the Bay. In the State of Maryland alone, we have lost 73 percent of our historic wetlands base. The Bay's oyster fishery is at less than 1 percent of its historic level, and the Bay continues to be plagued by an excess of nutrients and toxic pollution. However, there is some good news. We are seeing signs of recovery in our submerged grasses and, most recently, a revival in our striped bass fishery.

It comes as no surprise to this committee that in the past, the mission of the Corps was one in which activities regulated by and undertaken by the Corps have actually contributed to the depletion of the Bay's natural resources. Today we believe that mission has changed for the positive, and I am here to talk today about the future. The following is a brief outline of some of the things that this committee and the Army Corps of Engineers can do to help replenish the Bay's resources.

Because of the expertise and capabilities of the Corps, it is uniquely situated to participate and assist other State and Federal agencies in this effort. Already, the Corps participates in the Tri-State Chesapeake Bay Program, along with other Federal agencies, and should continue to do so. In particular, the Bay program's tributary strategy calls for restoration of wetlands and aquatic habitat. The Corps of Engineers restoration activity should play an integral role in achieving the Bay Program's goal of 40 percent reduction in nitrogen and phosphorous loading to the Bay by the year 2000.

The Corps' regulation of activities in waters and wetlands under section 404 of the Clean Water Act and section 10 of the Rivers and Harbors Act remains an essential responsibility for stemming the tide of wetlands losses and ensuring appropriate mitigation of those losses through creation and restoration of wetlands and aquatic systems. Unfortunately, mitigation efforts by the Corps and State agencies have been plagued by technical difficulties in recreating successful wetlands. Difficulties arising from lack of information on cumulative impacts and the loss of local functions and values of wetlands has added to the sometimes disappointing performance of mitigation efforts to recreate wetlands in the local landscapes.

However, by fostering efforts between the Corps and non-Federal interests with expertise in natural resource protection, this committee can provide the needed impetus to improve restoration performance. One way in which to do so is the committee's inclusion of the Chesapeake Bay Environmental Restoration Program Act, S. 2020, introduced by Senator Sarbanes, in its reauthorization of the Water Resources Development Act. This legislation would authorize a \$30 million pilot project for the Corps to work with other non-Federal agencies to design and construct water-related environmental resources projects on the Chesapeake Bay.

Wetlands restoration projects offer an opportunity for forming partnerships between Federal agencies like the Corps with State, local, and private entities. We foresee that the funding provided in S. 2020 would encourage a widespread effort by the Corps and the Bay Program to involve citizens in restoration efforts.

For instance, CBF is working with the Bay Program's habitat restoration effort to involve citizens and communities in wetlands restoration projects. Some of these citizen-based activities may include planting vegetation, monitoring water quality in biological communities and degraded wetlands and stream restoration areas. These types of projects not only help restore the natural resources, but give citizens who participate a vested interest in the long-term environmental health of their communities.

For example, CBF's Education Program takes over 35,000 school-age children and adults on field trips across the Bay watershed and has found that type of personal interaction with the Bay to be one of the most effective ways to connect people with their environment.

The Corps has also sought to use dredge material in a manner that has the least environmental impacts. Unfortunately, Federal regulations which require the Corps to seek the least-cost alternative for disposal often discourages proposals with the least environmental impacts. A decision that relies too heavily on the short-term least-cost financial alternative will often result in long-term environmental costs.

CBF recognizes that some innovative uses of clean dredge material may result in a net positive for the Bay's resources. To ensure such a result, the planning process should involve all affected environmental interests up front. For example, in the Poplar Island Project, which is an effort to create several types of Bay habitat on an eroding island on the Eastern Shore, the planning process is involving local watermen, environmental scientists, and Federal and State agencies, including the U.S. Fish and Wildlife Service. By building into the planning process early involvement of affected parties, it is anticipated that the end result will yield a project with net positive gain to the resources of the Bay.

Along with wetlands restoration, we would also like to see the Corps' expertise used to assist in the reestablishment of aquatic habitat. The Corps can play a critical role in the Bay-wide effort to provide for fish passage at dams and to remove stream barriers that block migratory movement of fish.

In addition, another important activity is reestablishment of aquatic reef habitat for oysters. This has both economic and eco-

logical implications. The economic benefits of a sustainable oyster fishery in the Bay are fairly obvious.

Senator BAUCUS. I'm going to have to ask you to summarize, Mr. Grasso.

Mr. GRASSO. Yes. However, we must acknowledge the ecological benefits that the oysters provide in improving water quality through filtering of nutrients and sediments.

This is just the beginning of the many possible opportunities for the Corps to engage in collaborative Bay restoration efforts.

Thank you, Mr. Chairman.

Senator BAUCUS. Thank you.

Mr. Lewis, I just wonder if you could tell me how many recreation users the Corps facilities have and how that translates to dollars for the economy. Have you done any analysis of that? Can you give us a little sense of that, please?

Mr. LEWIS. Yes. The overall visitation at Corps lakes is 370 million visitors. That's people who come to visit, no matter what length of time. In terms of the economic impacts that we have, as I mentioned in my testimony, some \$10 billion expenditure of activities generated \$12.4 billion in employee income. Those are salaries. I think that's probably what you're looking for.

Senator BAUCUS. Yes. The main point is whether you've done any analysis that shows that a greater emphasis on recreation, frankly, is going to yield greater economic benefit to the local economies. It's my very strong view, frankly, that the Corps has not done so in any way that is helpful or elucidating, that it basically is stuck in this engineering mentality of just building dams and building levees and channeling the water on downstream and dredging up.

I must say, to be totally honest about it, it's because engineers think that way. Engineers tend not, to be totally candid with you, to be sensitive to other considerations. They're not trained to think about some of these other recreation or environmental or wildlife considerations. That's not their training. They're trained to be engineers. They're the slide rule guys. That's my experience.

I've dealt with lots of people in lots of different circumstances, and the Army Corps of Engineers I think has done a great job in sort of a narrow mission, but times are now changing, and we have to manage the water resources in a much broader, more comprehensive way that pays much more attention not only to flooding, but also to recreation and to environmental concerns and so forth. I'm not sure, frankly, that the Corps has done an analysis which would, if it were to do so, indicate that greater attention to recreation and environmental concerns would yield greater economic benefits, frankly, than not doing so.

Mr. LEWIS. Well, since I'm not an engineer and I have a long professional career in outdoor recreation—

Senator BAUCUS. But do you agree with me?

Mr. LEWIS. I'll draw just short of that, but I think maybe one example that might be helpful to show where we have done this recently—if I could ask Mr. Scott Jackson to describe some of the work that was done on the upper Missouri Master Manual, some of the comparisons that are being done there using some of the modeling activities that we mentioned, the IMPLAN input-output

model that the Forest Service and we use, I think it might be helpful.

So with your permission, I could have him address that somewhat.

Senator BAUCUS. Okay. Yes.

Mr. Jackson, why don't you come up and shed a little light on this for us, please.

Mr. JACKSON. Recent efforts to evaluate the effects of water management alternatives in some of our major river systems, such as the upper Mississippi system, the Missouri, and the Columbia River system, all are evaluating both the national and regional effects of different water management alternatives and those effects on different outputs associated with those systems, including hydropower, navigation, recreation, and flood control.

I don't have the facts in front of me to discuss the specific findings of those studies. However, it is clear that in those cases, recreation was considered in the formulation and evaluation of water management alternatives.

In addition, we are developing tools that will put in the hands of analysts at our district offices the ability to evaluate the regional implications of different recreation and environmental programs.

Senator BAUCUS. I know this is comparing apples and oranges, but let me just give you a few figures here which I think somewhat indicate the scope of the problem. The National Park Service in 1992 had 116 million visitors, and their total budget was \$971 million. The Corps had almost twice as many visitors, 203 million visitors, but with a budget of only \$174 million, roughly one-seventh, almost twice as many visitors. The Forest Service had still more visitors, 288 million, roughly 50 percent more, with a budget of \$230 million.

So whereas the Corps and the Forest Service budgets are much lower than the Forest Service, the point is that the Army Corps of Engineers has a very low budget—I'm talking about recreation budgets here. Let me go through that again so I can get this straight.

The National Park Service, 116 million visitors, recreation budget close to \$1 billion. The Corps, almost twice as many visitors, recreation budget one-seventh that of the Park Service. The Forest Service, close to 300 million visitors, with a budget a bit more than the Corps. Why is that?

Mr. JACKSON. I believe Mr. Lewis is in a better position to respond to that.

Mr. LEWIS. I think I can explain a little bit there. One of the things that, in the brevity of our statement, we didn't get into is the fact that about 40 percent of the recreation opportunities provided at Corps lakes, we've done through various partnerships where we've leased to States or counties or cities, and they're working with us to provide recreation opportunities. So we have considerable leverage that the agencies you mentioned do not use. They use entirely their own workforce, and if you come to some of our lakes, you'll find—

Senator BAUCUS. I know, but if I might say so, Mr. Lewis, that's a problem, because these local communities can't afford it. We don't have partnership with the Park Service, we don't have partnership

with the Forest Service, probably because local communities don't have the bucks. They can't partner. In fact, it's a point to some degree that Mr. Lamb and others have made. Why do we require a partnership with respect to Corps recreation, but no partnership with respect to Park Service and Forest Service recreation?

Mr. LEWIS. It's based primarily on Public Law 89-72.

Senator BAUCUS. No, I'm asking you a public policy question, though. Is there any good public policy reason for that difference? Why shouldn't Congress change the law so we don't need that partnership?

Mr. LEWIS. Other than availability of resources, I have no other answer.

Senator BAUCUS. But I'm just curious, do you see any public policy reason for making that differentiation, other than it's in the statute?

Mr. LEWIS. No, it's been based entirely on the statute.

Senator BAUCUS. Mr. Jackson?

Mr. JACKSON. I would agree with Mr. Lewis.

Senator BAUCUS. I'd just like to give each of the four of you a chance to respond to Mr. Lewis or Mr. Jackson or any comments I've made. Let's go down the line here.

Senator Algieri?

Senator ALGIERE. Yes. I just cannot stress the importance of tourism and the recreational policy issues that I discussed earlier in my testimony and that others testified on. Unfortunately, not enough weight is placed upon tourism and recreation when the Corps is studying its various projects, such as beach renourishment or frontal erosion protection. I can only emphasize that the Corps or the proper regulatory agency revisit this program and the formulas which are used to consider the projects. I think it's important, especially to communities and States such as Rhode Island, which depend heavily upon tourism.

Senator BAUCUS. If I might, before I let the rest of you make a comment, Mr. Lewis, I've heard a refrain or two of concern about this reorganization where engineers are telling the lake managers how to run the lake and so forth. I hear a lot of complaints about that. Shouldn't that be changed?

Mr. LEWIS. Well, I wouldn't speak to whether it should be changed or not. That's a little bit outside of my location in the organization. But what we have is an organization that, because of continued pressure on personnel, is having to take another look at how we organize. You have a situation where the project management process we're developing may or may not have a natural resources person in charge of the project. The problem is the same whether it's hydropower or natural resources. You're going to have somebody that's going to be working as a manager, not as their professional background might indicate. So we are working hard at that, but that's what you run into when resources are constrained.

Senator ALGIERE. I would just like to comment on that as well, Mr. Chairman. The State of Rhode Island, for example, is exploring ways of providing the non-Federal match to continue the study of our beach problems, and we're having serious financial difficulties. We're looking at municipalities as a non-Federal source, we're looking at the State, and it's extremely difficult to come up with

some of the numbers. Some of the alternatives are assessments such as hotel taxes or assessments on various districts in the State to assist in coming up with non-Federal funding. It's a bit analogous to what was discussed regarding lakes.

Senator BAUCUS. Mr. Faber?

Mr. FABER. These cost-sharing problems present problems for 1135 projects as well, and one of the solutions, we think, is sort of getting rid of them altogether, and something we might want to talk about is changing how the Corps defines in-kind contribution. Currently, you've got to cough up the cash or the easements or the land or the right-of-way for an 1135 project. I assume it's fairly similar for a recreation project.

One of the things we would like to see and many 1135 managers at the district level would like to see is a change in how the Corps interprets that definition of local sponsorship to allow in-kind work, like planning, those kinds of functions that local communities can provide, at less of a cost or more easily than regular cash contribution. Currently, the Corps may have that authority, but that may be something that you need to give them some explicit direction on.

Senator BAUCUS. Mr. Lamb?

Mr. LAMB. The whole cost-share thing is a real problem for us up and down the board. The fact is the Corps could spend \$15 million over the last 2 years to change out the pen stocks on the dam. I don't recall anybody getting any money from us to cost share in that particular project. The fact is, even if we had started saving 56 years ago to come up with the millions of dollars that we would need to put on our side of the table to do meaningful infrastructure improvements, we wouldn't have enough money, and our community has only got 45,000 people. It's just ridiculous for us to try and even play around with the idea of coming up with that kind of money.

And I'd say one other thing. When the State of Montana built the Miles City Hatchery, they built it particularly for one reason. They built it to provide walleye for Fort Peck Lake. I don't recall that the Corps spent any money in the construction of that hatchery, nor have they contributed any money to the continuing cost of putting fish in the lake, which is basically necessitated as a result of them drawing down the reservoir and eliminating any potential for natural reproduction.

So it just doesn't work for us.

Senator BAUCUS. Mr. Lewis, any reaction to that?

Mr. LEWIS. Well, it has been difficult, particularly in the last period of economic difficulties around the country, working with our partners. The finances are not available on either side of the coin.

Senator BAUCUS. But what about just the merits of what Mr. Lamb was saying? It sounds kind of one-sided to him, and it does to me, too; \$15 million for the pen stock. It's all Federal. You don't require local cost sharing there. The benefits all go downstream.

Mr. LEWIS. I guess all I can say is it's—

Senator BAUCUS. Then, on the other hand, the walleye Miles City fish hatchery, that's a local project. The State of Montana raised the funds and developed a fish hatchery so the walleye could go to the lake, and the Feds didn't help there.

Mr. LEWIS. I am not familiar with the funding sources for the fish hatchery.

Senator BAUCUS. Mr. Grasso?

Mr. GRASSO. Mr. Chairman, I can't speak specifically to the recreational programs of the Baltimore District and the Norfolk District of the Corps, but what I can say is that the responsibilities and obligations of the Corps in the Bay area are absolutely essential to a healthy recreation industry in the Bay and to a healthy commercial fishery industry. So even bottom line, if they carry out their obligations under existing laws, it's going to help the recreation industry.

Senator BAUCUS. I'll give you all a chance to now comment on anything that you thought—yes, quickly.

Senator ALGIERE. I just have one quick comment on in-kind contribution that was brought up by Mr. Faber. We have a State agency in Rhode Island, Coastal Resources Management Council, who receives Federal funding; they match that Federal funding through in-kind work. So they are, therefore, prevented from using their in-kind contribution for any Army Corps projects. So we're in almost a Catch-22 situation, where we try to use the in-kind, but we're prohibited because we have to use the in-kind to match other Federal programs.

Senator BAUCUS. I want to thank you all very much. Yes, go ahead.

Mr. LAMB. I just wanted to comment on that reorganization thing as it relates to Fort Peck. The only thing that's occurring—and I looked at the reorganization proposal as it relates to the Fort Peck operation—is that the existing lake manager gets another boss. He all of a sudden now goes to work for the hydropower engineering manager that's already existing at that location. I don't see any necessity for him to have to go to work for that person when he already works for a department that supposedly is hard-lined into recreational responsibilities.

Senator BAUCUS. I appreciate that.

Senator Ford has received a number of complaints—in fact, I've heard this issue arise in other contexts—from citizens in Kentucky about fees charged at some lightly developed facilities, such as boat ramps.

My main point I want to make here is that this is really the first start here, I think, of an effort—and it's going to be successful—to bring the Corps into the 1990s and into the next century. It has to be a balanced approach, but it has to be one that looks at the totality of the water resource. It's flood control and flood management, but it's also environmental, recreational, and other aesthetic concerns, which I think the American people very much want. It also means addressing the cost-sharing questions that you've raised.

You've all made very good points, and I urge all of you to work together with all of us as we reauthorize this statute to help bring the Corps into the 1990s and into the next century. It's clear to me the American people want it, and if we can manage the totality of our water resource and the Safe Drinking Water Act, the Clean Water Act, and also the Water Resources Development Act, all this has to be integrated together from a public health and environ-

mental point of view, and also from the point of view of preventing floods as well as we possibly can.

I'm going to heavily emphasize the non-structural side of this. I also emphasize balance. We've got to work this out together in a balanced way. But I urge all of us to work together, not fight it, because it's here. The new era is here. Let's just make sure we make this work as best we possibly can.

You've been very helpful, all of you, and I will hold another hearing when we get the final version of General Galloway's report, and there will be subsequent hearings as well. Thank you very much.

The hearing is adjourned.

[Whereupon, at 4:27 p.m., the committee adjourned, to reconvene at the call of the Chair.]

STATEMENT OF JOHN ZIRSCHKY, ASSISTANT SECRETARY OF THE ARMY FOR CIVIL WORKS

Mr. Chairman and Members of the Committee, I am John Zirschky, Acting Assistant Secretary of the Army for Civil Works. I am pleased to be here today to testify on the Administration's proposal for the Water Resources Development Act of 1994, and other water resources issues, especially those noted in your letter inviting our testimony. Accompanying me is Jimmy Bates, Deputy Director of Civil Works for the Army Corps of Engineers.

The Administration has recently submitted to Congress a legislative proposal as the basis from which to develop a Water Resources Development Act (WRDA) of 1994. Today, I will address the Administration's views on why the nation needs a Water Resources Development Act of 1994, what we believe should be the guiding principles for such legislation, and summarize the content of the Administration's legislative proposal. I will provide an update on our efforts to rebuild the flood control infrastructure following last year's record-setting flood in the Midwest and on the progress of the Interagency Floodplain Management Review Task Force. I will also briefly discuss our experiences on such key issues as Corps emergency management actions, project management, partnerships with non-Federal project sponsors, water resource management and environmental initiatives, implementation of previous water resources development acts, and reorganization of the Corps of Engineers.

WHY WE NEED A WRDA 94

There are three major reasons why a water resources development act is important this year. The first is related to the concept of non-Federal project cost sharing which was at the heart of the compromise reached in 1986 to put the water resources development program back on track after a 16 year stalemate between Congress and the Executive Branch. We believe we have a responsibility to the non-Federal project sponsors who have been doing their part by sharing feasibility study costs and committing to share construction costs. On our part, we must proceed in good faith to seek timely authorization for justified projects. Any perceived reluctance on the part of the Federal government to press for authorization of justified projects would represent a default on the part of the Federal government to fulfill our share of the partnership.

Second, by producing a Water Resources Development Act in 1994, the Administration and the Congress will be reaffirming our commitment to the two-year cycle of authorizing water resources projects and programs. This commitment began with the landmark Water Resources Development Act of 1986 which formed the basis for the succeeding Acts in 1988, 1990, and 1992. The Administration believes that a biennial project authorization process is critical to conducting an orderly and manageable water resources program.

Third, a water resources development act is the best vehicle for obtaining necessary legislation to authorize the water projects which our studies have shown to be good investments of Federal and non-Federal money. Legislation is also necessary to fine tune our programs to make them more effective and efficient, and to provide an opportunity to keep up with changing program demands.

The Administration is willing to work with Congress to develop legislation which is acceptable to Congress and the Administration.

SUMMARY OF THE ADMINISTRATION'S LEGISLATIVE PROPOSAL

The recently submitted legislative proposal does not include any new project authorizations or project modifications. The Administration, however, does propose to submit over the next several months new project authorization and project modification proposals. There are 15 feasibility reports for new projects and reports on 11 project modifications that are currently under review and may be appropriate for consideration for authorization this year. The total cost of these new projects is approximately \$704 million, and the modifications have a total increased cost of \$184 million.

Our recently submitted proposed legislation includes 18 general provisions. Nine of these general provisions were previously in our legislative program for 1992, but were not enacted into law as part of WRDA 92. It is our understanding that cost of these provisions were dropped from WRDA 92 because they would have required review by multiple committees in either the Senate or the House and insufficient time was available for sequential referral. These are still worthwhile provisions and we urge their enactment this year.

There are also 9 new general provisions this year that will enhance the Corps efficiency and effectiveness. The estimated savings to be derived from the 18 general provisions in the current proposed legislation is \$12 million annually. The estimated total cost to implement the present proposal, not including the potential new projects or project modifications is \$6.5 million annually.

Features of the 1994 program include:

- several provisions to enhance our ability to accomplish environmental protection and restoration
- two provisions to enhance research and development technology as it applies to the Corps Civil Works program
- two provisions pertaining to dam safety, one that reauthorizes the Corps national inventory of dams and one that clarifies cost sharing of repair work
- a provision that allows for increasing the authorized power output at a hydropower facility in connection with normal equipment modernization whenever an increase is economically justified and environmentally sound, and other project purposes are not adversely impacted
- a regulatory fees provision
- two provisions pertaining to engineering innovations and interagency and international support.

The proposal includes two provisions necessary to implement the initiatives included in the President's Fiscal Year 1995 budget. Those provisions which support the President's budget are establishing reasonable charges for regulatory activities and reauthorization of appropriations for the national inventory of dams.

PRINCIPLES FOR DEVELOPING A WRDA

As this Committee well knows, there are pressing public demands for water resources development throughout the country. We believe we can meet legitimate needs during these times of fiscal austerity by adhering to the following guiding principles:

Preservation of Cost Sharing

At the heart of the WRDA 86 were the beneficiary pay reforms which included cost sharing. This concept made local sponsors active participants in the water resources development process and revitalized the program. Cost sharing serves as a market test of a project's merits and insures active participation by project sponsors. We have found it to be an eminently successful policy.

Expansion of the Beneficiary Pay Concept

Water resources development bestows substantial economic benefit and in more recent years environmental benefit to some segments of society. It is reasonable and fair therefore to require those beneficiaries to share in the costs of providing the benefits.

Adherence to the Budget

When faced with budget deficits, we must be especially prudent in our decisions to authorize new Federal projects that create a future potential for appropriations. The Nation's water resources infrastructure must be maintained and improved to meet future needs, but in consonance with other national priorities.

Authorization of Justified Projects That Have Completed Administration Review

To justify the authorization of appropriations of constrained Federal dollars, the Government must assure the public that a proposed project has passed a

full technical review and is in accord with the Federal policies established to set priorities for the use of those funds.

Authorization of Projects That Clearly Have a Federal Role

Budgetary constraints and the desire for projects that have the greatest need for Federal assistance to move quickly through the study and construction process have required prioritization of project purposes. The most pressing priorities are for projects that provide for commercial navigation, flood damage reduction, hurricane and storm damage reduction, and ecosystem restoration. Projects for purposes of developing vendible products such as hydropower and water supply should be funded 100 percent by non-Federal interests. We are, however, discussing within the Administration what an appropriate role might be to consider Federal technical assistance in all water resources development areas.

These principles are essential to a stable and responsible water resources development program which will provide to the public the maximum effectiveness and efficiency in the use of its tax dollars. These were our principles as we developed our full legislative program which we have submitted to the Congress. I ask you for your support of these principles and our proposed legislative package.

HIGHLIGHTS OF THE ADMINISTRATION'S WRDA 94 PROPOSAL

The legislative program has many important sections. I will highlight for you what I believe are the highest priority provisions.

Cost Sharing of Environmental Projects

We believe one of the most important provisions is for explicit legislative endorsement for cost sharing requirements for environmental restoration projects. As a matter of policy, we have been requiring this type of cost sharing since 1988. When general cost sharing formulas were developed in 1986, environmental restoration projects were not a part of the Army Civil Works program. However, section 1135 of the Water Resources Development Act of 1986, the first specific environmental restoration program, required cost sharing at 75 percent Federal and 25 percent non-Federal. That program has been modified in each biennial Water Resources Development Act. However, it is limited in scope to modification of projects constructed by the Corps, and the individual project cost and annual appropriations are capped. The Coastal Wetlands Planning, Protection, and Restoration Act, commonly known as the Breaux-Johnston Bill, also recognizes 75 percent cost sharing for wetlands restoration projects. There are other authorities for studies which we have been pursuing for projects which are outside the statutory limits of section 1135 and which fall outside the scope of the Breaux-Johnston Bill authority. In those cases, we would seek individual legislative authority on a project-by-project basis. This approach is analogous in some respects to the continuing authorities program where the Corps has general authority to proceed with small projects up to certain Federal cost limits and seeks specific legislative authority for projects which exceed those cost limits.

We believe that cost sharing is such a powerful tool that we have pursued other environmental restoration projects with 75/25 cost sharing required as a matter of policy. We find that cost sharing is a widely accepted policy principle and that it works every bit as well with environmental projects as it does for navigation and flood control projects. For example, we have voluntary cost sharing environmental restoration projects under way at Bonnet Carre, Caernarvon, and Davis Pond in Louisiana. In addition, we have a cost shared environmental study under way for the Anacostia River, and we anticipate cost shared studies for Reelfoot Lake, Tennessee, and Alexander and Pulaski Counties, Illinois. We strongly urge Congress to adopt this cost sharing provision and to continue to support the Corps' environmental initiatives and programs.

Engineering and Environmental Innovations of National Significance and Inter-agency and International Support

These provisions recognize the critical importance of the ability of the Army Civil Works program to be ready to respond to future needs and demands for environmentally sound engineering solutions or innovative environmental solutions to problems of national significance and to work in interagency and international efforts to provide wise management of the nation's and the world's water resources. Currently there is no clear authority for the Corps to utilize its multifaceted resources to undertake significant preparatory work to respond to such emerging national and international challenges. These provisions will provide that authority and will represent a giant step forward in the Corps' ability to "get ready to be ready" as the country and the world move towards the 21st Century.

We have managed to find existing authorities and funding sources to pursue these kinds of activities in crisis cases, but as the nation moves toward integrating water resources activities into broader environmental considerations, a clear unequivocal authority and funding source are critical to quality and timely support for such activities. Examples of activities where this proposed provision would have been useful include support to the Interagency Panel on Climate Change, support to the State Department on the Middle East Peace Talks (water resources issues) and Bangladesh flooding, and support to Environmental Protection Agency on its Country Studies Initiative. In this last example, we had to decline participation due to a lack of clear authority.

This provision will serve to enhance the Corps ongoing partnering initiatives with other Federal agencies, States, or other non-Federal entities.

Expansion of the Section 1135 Program

This provision expands the authority provided in section 1135 of the Water Resources Development Act of 1986 as amended to allow the Corps to implement small fish and wildlife habitat restoration projects in cooperation with non-Federal interests in those situations where a project constructed by the Corps has contributed to the degradation of the quality of the environment.

We have worked hard to make maximum use of this authority, but have found that interpretations of existing statutory language have limited the Corps' ability to approve some projects which have been nominated. Under current law, the Corps is limited to modifications of existing structures and operations of water resources projects in carrying out a section 1135 project. The proposed provision would allow the Corps to undertake measures for restoration of environmental quality when the Secretary determines that operation of the project has contributed to the degradation of the quality of the environment even if that degradation occurred in areas not immediately in the vicinity of the project structures, and even if the remedy did not involve a direct modification of project structures or operation.

This provision also clarifies that the monetary limit for each section 1135 project is a limitation only on the amount of money the Federal government can expend on a single project.

Regulatory Fees

This provision authorizes the Secretary of the Army to establish and collect fees to the extent provided in appropriations acts, for the evaluation of commercial permit applications and to recover costs associated with the preparation of Environmental Impact Statements required by the National Environmental Policy Act of 1969 and costs associated with wetlands delineations for major developments affecting the waters of the United States, including wetlands. The fees can be established at rates that would allow only for recovery of receipts at amounts as provided for in appropriation Acts.

The fees collected pursuant to this section would be deposited into a special account established in the Treasury of the United States and would be available for appropriation to the Secretary to cover some of the expenses incurred by the Department of the Army in administering laws pertaining to the regulation of the navigable waters of the United States as well as wetlands.

RESPONSE TO THE MIDWEST FLOOD EVENT OF 1993

The Midwest Flood Event of 1993 was one of the worst floods to hit the Midwest. It had its beginnings in the previous winter, with higher than average snowfall and late seasonal melt-off that saturated the ground. In June, an extraordinary shift in the jet stream trapped rain clouds over the region. The resulting rainfall was 1½ to 3 times the normal precipitation, and it fell on already saturated soil. The rain rapidly ran off into streams and rivers, causing massive flooding in the Upper and Middle Mississippi River basin. During the flood event, the Corps performed emergency navigation and flood control operations throughout the Midwest. During the peak, there were 800 to 1000 personnel supporting the Corps mission. This included not only Corps employees from the affected districts, but personnel deployed from other Corps districts and the Bureau of Reclamation. The Corps supplied communities with 31 million sandbags and 400 pumps, and provided emergency water supply where needed, most notably at Des Moines, Iowa, after its water supply became contaminated. The Corps also performed extensive work for the Federal Emergency Management Agency.

Since the flood, the Corps has been involved in assisting local, State and Federal authorities in the rehabilitation of damaged levees. The estimated cost for repairing damaged levees that are eligible for assistance under the Corps program is about \$250 million. As of May 23, repair work had been started or completed on 140 lev-

ees, out of an estimated 198 that the Corps expects to be repaired under its program. This includes 36 levees where expedited procedures were used to begin initial repairs which were needed to provide a minimum level of protection until the more extensive, final repairs can be completed.

As part of the rehabilitation program, the Corps, working with other agencies, developed procedures for consideration of alternatives to levee repair. We wanted to make other Federal programs available that might be more desirable than levee repair in certain situations. We were guided by two principles, first, that consideration of alternatives should not be a time consuming process, inhibiting the timely repair of levees where such repair was appropriate, second, that decisions to choose an alternative to levee repair should be made by the affected populations. Given the budget constraints of other agencies and the short time available for creating and implementing this program, we did not find much opportunity to select alternative solutions. Nonetheless, important principles have been incorporated into our program, specifically that we must take the broadest possible view of floodplain management and develop a common Federal strategy across agencies.

We understood that levee rehabilitation should proceed as quickly as possible, especially given the likelihood that flooding would reoccur this Spring. In addition to the guidance in expedited procedures for initial repairs which we issued in August, we also developed and issued in August a strategy for shortening the advertising/bid process. Other common sense steps were taken without formal guidance. Every effort was made to inspect the levees as soon as physically possible. In some cases, all-terrain vehicles were used since they were the only vehicles that could traverse the saturated lands. Survey crews have fought high water and knee deep mud to gain access to sites, and during the winter, braved sub-zero wind chill factors and below freezing temperatures.

Despite these extensive efforts, it has not been possible to complete all repairs. The primary factor has been the super-saturated soil conditions that have made access to the sites and construction impossible. Not only have many access roads been washed out, but wet conditions at some sites have made even four-wheel drive access impossible. There have been difficulties in some cases in negotiating a cost-sharing agreement with the local levee sponsors and in sponsors obtaining the necessary rights-of-way and borrow areas. Some levee districts have been reluctant to accept changes from the original levee location where we feel that these changes are necessary to provide the most economical replacement and to otherwise protect the Federal interests.

From the beginning we have estimated that it will take until December 1994 to repair levees in the Corps program. The Corps district offices have kept local levee sponsors and congressional interests informed of our progress at individual levee sites. We are committed to completing all rehabilitations as rapidly as possible.

Spring rains this year caused some flooding in a few areas that were flooded last summer. Super-saturated soil conditions continue to plague the entire Midwest and delay the repair work. As part of our plan of action for this spring, we have taken steps to ensure that Corps divisions and districts have sufficient quantities of sandbags and pumps on-hand to respond to new flooding situations that may arise. In addition, internal training and coordination with State and local authorities have been expanded.

INTERAGENCY FLOODPLAIN MANAGEMENT REVIEW TASK FORCE

The damages that resulted from the heavy rainfall and flooding in the Upper Mississippi and Lower Missouri River basins in 1993 were some of the most devastating in the Nation's history. Experience with this flood has caused the Nation to reflect upon the adequacy of our floodplain management policies and infrastructure. In response, the Administration's Floodplain Management Task Force has established the Interagency Floodplain Management Review Committee to undertake a study to examine what happened and why, solicit opinions, and recommend policy changes. The study is focusing on how to more effectively achieve risk reduction, economic efficiency, and environmental enhancement. The committee's final report will include an assessment of the performance of Federal flood control measures, a summary of the concerns of affected parties, and proposals for administrative or legislative change which would enhance the flexibility and effectiveness of floodplain and watershed management. Several Army personnel were assigned to the committee on a full time basis. The study is scheduled for completion in June, 1994. Brigadier General Gerald Galloway, the Executive Director of the Review Committee has provided a copy of the Review Committee's draft report and has briefed the Committee staff. The report has been distributed to Federal agencies, Congressional interest,

State Governors, and others for review and comment. We are presently reviewing the report.

RECENT EXPERIENCES IN THE CIVIL WORKS PROGRAM

I will now report on some of our recent experiences in the Civil Works program and the status of several important initiatives of recent WRDA's.

I am pleased to report that the Army's water resources development program is working well. The reforms made in 1986 continue to lead to high-quality, justified projects with cost sharing partners.

In addition to the traditional flood control storm damage prevention, and navigation programs, we have a number of environmental initiatives which place the Corps in good standing as an agency ready and able to address environmental problems with the same engineering and scientific skills used in the traditional missions of flood control and navigation.

Navigation and Flood Damage Reduction Programs

Navigation and flood damage reduction programs continue to serve the Nation with projects having a replacement value of over \$130 billion. The Army Corps of Engineers operates and maintains 12,000 miles of commercial navigation channels and 271 locks. These waterways together with the 302 deep draft harbors and 635 shallow draft harbors (coastal and inland), provide the network that handles more than 2000 million tons of cargo annually. The 383 major lakes and reservoirs managed and the 8500 miles of levees emplaced by the Corps are part of a flood damage reduction program that prevents \$13.7 billion in average annual damages.

We are all aware that the water resources projects operated by the Corps of Engineers are a vital but aging national resource. The statistics are, to some, stark reminders of our enormous responsibility. The major structures have an average age of over 30 years. Twenty-six of the lock chambers in operation are over 100 years old. By the turn of the century, many of the structures operated by the Corps of Engineers will have reached their design life. As a consequence, major rehabilitation of these Federal public works projects will become an increasingly important subject for this committee, the Administration, and the American public in the future.

Floodplain Management Assessment

In response to a study resolution by the House Public Works and Transportation Committee, the Corps of Engineers recently initiated a study to evaluate floodplain management policies and actions for the upper Mississippi and lower Missouri Rivers and tributaries. The study will be accomplished on a broad, conceptual basis over an 18 month period. In full coordination with the Interagency Floodplain Management Review efforts described above, it will use a systems approach to floodplain management in order to develop a broad array of long term alternative land and water resource actions. This overall assessment of the floodplains will also provide recommendations for any subsequent detailed studies that may be necessary before specific solutions can be implemented.

Emergency Management Actions

In recent years the Corps of Engineers has responded to numerous hurricanes, typhoons, earthquakes, and floods as part of its emergency management mission. Hurricanes Andrew and Iniki, Typhoon Omar, the Midwest Flood Event of 1993, and the Northridge Earthquake are a few of the major emergencies to which the Corps has responded. The Corps operates under two basic emergency authorities to respond to disasters. One allows the Corps to provide flood fight assistance and repair damaged flood protection structures, and the other is the President's authority to respond to requests for assistance under which the Federal Emergency Management Agency (FEMA) tasks the Corps to perform needed response and recovery actions. I am proud to say that not only have the Federal protective structures operated as designed during the hurricanes and floods, but also the plans and procedures for the Corps emergency response to the affected areas have worked very well.

Responding to these natural disasters brought several hundred Corps employees, several thousand other Federal, State, and local agency employees, and several thousand contractor employees together to accomplish the missions. The Corps' excellent working relationship with these entities was vital to the success of its missions.

Environmental Infrastructure

WRDA 92 included a provision for Army Corps of Engineers assistance in environmental infrastructure and resource protection and development projects including waste water treatment and related facilities and water supply treatment and dis-

tribution facilities. Section 219 provided the authority for the Corps to participate, generally on a 75 percent Federal and 25 percent non-Federal basis, in planning and design assistance for specific projects listed in the law. Based on funding for this provision in Fiscal Year 1994, the Corps is contacting potential non-Federal sponsors that have indicated a willingness to participate in the program.

Also, in this fiscal year, funds were provided for a pilot program for design and construction assistance for water related environmental infrastructure and resource protection projects in South Central Pennsylvania under section 313 of WRDA 92. These projects would be cost shared on a 75 percent Federal and 25 percent non-Federal basis. Under section 313, planning is ongoing for water supply improvements in Altoona, Pennsylvania and a sewage treatment facility in Forest Hills, Pennsylvania.

Ability-to-Pay

A continuing issue since enactment of WRDA 86 is the so called "ability-to-pay" principle established by section 103(m) of WRDA 86. The existing rules for determining eligibility for reduction in cost sharing requirements for flood control projects were published in 1989 pursuant to WRDA 86. Congress directed a modified rule in the Water Resources Development Act of 1990 and later halted enactment of the modified rule, giving time to review the issue. The Water Resources Development Act of 1992, directed us to review the existing rule to determine the advisability of modifications that would take into consideration locally prevailing economic conditions, such as those that exist at six project areas specified in the Act. The review report was completed and forwarded to Congress with a recommendation not to modify the rule at this time. However, because of continuing dissatisfaction with the existing rule, we are now reconsidering that recommendation and are beginning the process of revising the regulation.

ECOSYSTEM RESTORATION—SEPARATE AUTHORITIES

Protecting and enhancing the Nation's environmental assets are a central part of all aspects of the Civil Works mission. Even in the traditional areas of infrastructure improvement for flood damage reduction, navigation and other purposes, the Corps is committed to recommending alternatives and implementing projects with full regard for its responsibilities of environmental stewardship.

We continue to place a high priority on ecosystem restoration and preservation of environmental resources. We have four separately authorized activities under way which are especially noteworthy.

Everglades Ecosystem Restoration

The National Performance Review (NPR) cites the promise of improved ecosystem management and calls for the development of a series of model initiatives across the Nation to apply the concept in a variety of settings. In September of 1993, we entered into an interagency agreement with the Departments of Interior, Agriculture, Commerce, Justice, and the Environmental Protection Agency to promote and facilitate coordinated Federal actions to restore the Everglades ecosystem. This endeavor may serve as a valuable case study for the larger initiative proposed in the NPR. The Corps will be a major player because its responsibilities for oversight of the Central and South Florida (C&SF) Project which controls the flow of most of the water in South Florida.

Activities under this effort include the West Palm Beach Canal (C-51) and the Canal 111 (C-111) portions of the C&SF project to allow the Corps to modify its design to increase the amount and quality of water which will be made available to the Everglades ecosystem and to restore more natural flows into Everglades National Park.

In addition, the Corps is conducting a study to evaluate the Central and South Florida Project to determine if other modifications or changes in the project's operation should be made for improving the quality of the environment and protecting the urban water supplies. The two most critical concerns being addressed in the study are the environmental conditions of the Everglades ecosystem including Florida Bay. The reconnaissance phase of the study, which was initiated in June 1993 and is being funded at \$1.8 million, is scheduled to be completed in November 1994.

Another part of the Everglades ecosystem restoration effort is the project to restore the Kissimmee River. During the 1960's, the Corps of Engineers constructed the Kissimmee River flood control project in Central Florida between Orlando and Lake Okeechobee. It consisted of canals and water control structures in the upper chain of lakes, and a canal and five water control structures with locks in the lower basin. Since project construction, interest has grown in returning the basin's hydrologic regime to its natural condition. Presently there is no natural river flow in the

basin and not enough water in the lower basin for wetland restoration. As part of the project, the riverine ecosystem is being restored in the lower basin by backfilling about 30 miles of the canal and removing three structures and locks. The plan includes restoration of the upper lakes that will enable their operation over a wider, more natural range of water levels. In this way, the peripheral wetlands would be enhanced and the natural timing of flows to the lower basin would be restored. Cost sharing for this project is 50-50 with non-Federal interests also paying 100 percent for all additional locally preferred betterments included in the project. Engineering and design work is continuing on this project which, including the upper basin revitalization plan, has a total estimated cost of \$667 million.

Upper Mississippi River System Environmental Management Program (UMRS-EMP)

The UMRS-EMP is a 15-year program with a total funding level of \$290.1 million. The Fiscal Year 1994 appropriation is \$19.455 million. The program's two primary components are the Habitat Rehabilitation and Enhancement Projects and the Long Term Resource Monitoring Program. Habitat projects amount to about 65 percent of the total program costs. About 14,000 acres of fish and wildlife habitat on the upper Mississippi River have already benefited from the completion of 13 projects, construction is ongoing at 5 other sites, and contract awards or construction approval are pending at 11 additional sites. The long term monitoring portion of the UMRSEMP is fully operational with six state-operated field stations and an Environmental Management Technical Center now established by the U.S. Fish and Wildlife Service. My office recently delegated authority to the Corps North Central Division commander for approval of proposed habitat projects that cost \$2 million or less.

Missouri River Fish and Wildlife Mitigation

This project is to mitigate losses to fish and wildlife resulting from construction and operation of the Missouri River Bank Stabilization and Navigation project. The mitigation effort will preserve and/or restore riverine aquatic and bottomland terrestrial habitat in the Missouri River Valley where similar habitat has been depleted as a result of construction and operation actions. Project authorization provides for acquisition and development of 29,000 acres of privately owned land, along with development of an additional 18,200 acres of public land. The project is in the third year of construction, with completion scheduled for 1999.

Anacostia River Wetlands Restoration and Habitat Improvement Project

The wetlands and fish and wildlife habitat along the Anacostia River are being addressed in two Corps initiatives—a feasibility study under General Investigations and a project under authority of section 1135 of WRDA 86. The feasibility study, conducted to address restoration of wetlands and fish and wildlife habitat damaged by the initial flood damage reduction and navigation projects, is scheduled for completion this year. At present, the tentatively selected plan is estimated to cost \$18 million and would include wetlands creation, riparian plantings, removal of barriers to fish passage, and creation of fish habitat. The project's non-Federal partners are the State of Maryland, the District of Columbia, and Prince George's and Montgomery Counties in Maryland. Even though the Administration will not have completed its review of the Corps report by the time WRDA 94 is enacted, we may be willing to support a "conditional authorization". This would allow the Corps to consider programming funds for construction one year earlier than if authorization had to await WRDA 96.

The section 1135 project for the Anacostia River will modify existing Corps structures on the Anacostia River to benefit anadromous fish passage and habitat. The project also addresses improvement of aquatic, riparian, and terrestrial habitats on the Northeast and Northwest Branches of the Anacostia River. The Project Modification Report was approved by my office in February of this year. It will take approximately eight months to complete plans and specifications with an additional nine months for construction after execution of the Project Cooperation Agreement with the non-Federal sponsor.

ECOSYSTEM RESTORATION—PROGRAM AUTHORITIES

The Administration and the Congress have forged new missions for the Corps with new authorities to protect and restore the Nation's environment. Section 1135 of WRDA 86 and section 204 of WRDA 92 create continuing authorities for environmental restoration projects which meet certain criteria. For these projects, the path to construction can be much shorter than for projects authorized separately.

Section 1135

Section 1135 of the Water Resources Development Act of 1986 is entitled Project Modifications for the Improvement of the Environment. It enables the Corps to modify the structures and operations of its projects for the purpose of improving the quality of the environment. A project and program cost limitation exists for this authority. Since initial program funding in 1991, construction has been completed at four projects. As of mid-April 1994, eleven additional project modifications were in either final design or construction and thirty-four projects were in the feasibility study phase. The Corps anticipates recommending several of these for construction approval this year. As part of the Corps initiatives taken after the Midwest flood last year, several potential section 1135 modifications were identified in the flood area and three projects which have committed non-Federal sponsors have been placed on an expedited schedule. Projects that exceed the cost limitation of the section 1135 program may still be pursued under separate authority with appropriate cost sharing.

Section 204

Section 204 of WRDA 92 authorized the Army Corps of Engineers to carry out projects for the protection, restoration, and creation of wetlands and other aquatic habitats, in connection with dredging for construction, operation, or maintenance by the Corps of an authorized navigation project. Construction of these habitat projects would be cost shared on a 75 percent Federal and 25 percent non-Federal basis with non-Federal sponsors. This program has two major benefits. It will serve to restore environmental resources and resolve some historic problems with disposal of dredged material. In addition, the program supports the objectives of the Coastal America partnership, by providing the framework and funding for Corps participation in cooperative projects with the States and other non-Federal interests to restore coastal habitat. I am pleased to report that we have funding to begin implementing section 204 this year. The Corps has issued guidance for implementing this authority and expects initiation of studies in the near future. Potential projects which exceed the cost guidelines of the section 204 program may still be pursued under separate authority with appropriate cost sharing.

Other Authorities

In addition to those authorities under which we have work ongoing or about to be started, there are other authorities worth noting.

Section 306 of WRDA 90 authorizes environmental protection as one of the primary missions of the Corps in its planning designing, constructing, operation, and maintaining water resources projects.

Section 307 of WRDA 90 and its various subsections authorizes the Corps to attempt to achieve the interim goal of no net loss of wetlands and the long term goal of adding to our nations wetland base as part of the water resources program and to develop a plan to achieve said goal; establish a wetlands restoration and demonstration program; and train and certify wetland delineators within the Corps. Both these sections (306 and 307) support the Corps pursuit of opportunities to protect and restore existing ecological resources. In fact the Corps is pursuing these goals through its Regulatory and Research and Development Programs. However, neither section provides a specific new authority to study, construct or implement specific measures as part of our water resources development program. Nevertheless, this does not prevent authorization language being written in such a manner as to reference these sections for examination as part of the normal project authorization process.

Section 312 of WRDA 90 authorizes the Corps to remove as part of normal operations and maintenance, contaminated sediments adjacent to authorized navigation projects for the purposes of compliance with the Clean Water Act. Sediment cleanup may be undertaken for environmental enhancement and water quality improvement if requested by a non-Federal sponsor and a comprehensive plan is developed for the cleanup, including 50 percent non-Federal cost sharing for the removal and 100 percent of the disposal. To date no such requests have been received.

Section 315 of WRDA 90 modifies section 904, WRDA 86 to include preservation and enhancement of the environment as part of those items that shall be considered in the evaluation of all water resources projects. Our planning guidance has been modified to reflect this provision.

Finally, section 216 of the River and Harbor and Flood Control Act of 1970 authorizes the review of the operation of completed projects when found advisable due to significantly changed physical or economic conditions and for improving the quality of the environment in the overall public interest. This is a study authority which can be used to seek specific congressional authorization for project modifications

that would be of a larger scale than those anticipated under either sections 1135 or 204.

There are a number of other provisions in law that provide authority for environmental projects; however, they do not address cost sharing, and as a consequence, have not been implemented by the Corps. These provisions include the mitigation of damages to fish and wildlife resources at existing projects under section 906(b), the enhancement of fish and wildlife resources under section 906(e) and the modification of habitat to improve it for fish and wildlife resources under section 704(b). As I have stated earlier, I am proposing, as part of our legislative program, a provision that would provide the necessary cost sharing element that is absent from these provisions for all environmental projects the Corps may undertake. The cost sharing for environmental projects would be 75 percent Federal and 25 percent non-Federal.

REVIEW OF ENVIRONMENTAL POLICIES

Given the American people's and this Administration's increasing emphasis on environmental values, I believe it is time for the Corps of Engineers to review its environmental policies to determine if changes are justified to better serve the Nation. Therefore, we have begun establishing a Corps task force to review environmental policies of the Civil Works program. The general charge of this task force shall be to determine if the Civil Works program is fulfilling its statutory environmental missions in the best possible fashion. Specifically, the task force will determine if we are meeting our statutory charges. It will review environmental policies currently in place, and recommend any changes that should be made.

Coastal America

The Coastal America partnership provides an excellent model of how Federal agencies can collaborate to achieve the Administration's goal of creating a government that works better and costs less. Coastal America is a unique partnership among Federal, State, and local governments and private alliances to address site-specific coastal environmental problems. More than 20 Federal agencies and more than 100 non-Federal partners are involved in Coastal America projects around the U.S. coastline, restoring wetland habitat and fish passage and protecting critical areas for endangered species and other wildlife. The Administration enthusiastically supports the Coastal America partnership. The Corps currently has the lead on 14 Coastal America projects as well as a supporting role in the other 49 projects.

Wetlands Policy

On August 24, 1993, the White House announced a comprehensive plan for improving the protection of the Nation's wetlands. This plan, which provides for a fair, flexible, and effective approach to wetlands protection, was developed by an inter-agency working group chaired by the White House Office on Environmental Policy. The working group, which included a representative from my office, heard from farmers, environmentalists, developers, scientists, State and local public officials and Members of Congress before developing the wetlands plan. With over 40 initiatives, the wetlands plan will result in substantive improvements in the protection and regulation of these important resources. In particular, many of the initiatives focus on the Department of the Army Regulatory Program administered by the Corps of Engineers. For example, the plan provides additional wetlands protection by closing a loophole in regulations that has allowed certain destructive activities, such as draining of wetlands, to go unregulated. The plan also improves the efficiency of the regulatory program by baking the Soil Conservation Service the lead for making wetland delineations on agricultural lands. Further, the plan establishes permit decision deadlines and calls for an administrative appeals process to allow landowners to challenge a Corps permit denial or wetlands delineation without going to court.

The legislative authority for the wetlands protection is the Clean Water Act which is currently being considered for reauthorization this year. The Administration is working with the Congress to have applicable provisions of the wetlands plan incorporated into the reauthorized Clean Water Act.

Recreation Policy

Corps policy currently severely restricts the use of Army Civil Works resources for implementing recreation-oriented projects. Civil Works funds normally may be used to support development of recreation when recreation benefits are less than 50 percent of total project benefits. In addition, recreation benefits must result from development of recreation potential created by projects formulated for and justified by

other primary purposes. We realize that concern exists with this policy, and we will review it and report our findings to the Committee.

Recreation User Fees

The Omnibus Budget Reconciliation Act of 1993, P.L. 103-66, authorized the Corps to charge fees for the use of many day use facilities at Corps-administered recreation sites. The legislation also ended the requirement for providing a free campground at all projects having camping facilities. This reflects an evolving "user-pay" philosophy and recognizes the increasing problems of the Federal deficit. Fees collected will be used to reduce the cost to the general taxpayer of operating and maintaining existing facilities.

The Army Corps of Engineers will begin collecting recreation user fees for swimming beaches and boat launching ramps at many of its day use areas this year. A fee of one dollar per person, up to three dollars per vehicle, will be charged at developed swimming beaches. A fee of two dollars will be charged for boat launching at ramps that have one or more of the following: restrooms, security lighting, picnic tables, swimming areas, or other recreation facilities. Fees will only be collected at sites which are projected to collect significantly more than the cost of collection.

In addition, an annual pass may be purchased, and Golden Age and Golden Access passports will be honored. There will be no fee for children under twelve years of age. I am aware of the concerns many of you have about this program and I intend to review it after we have completed a recreation season to determine if any modifications would be justified.

Project Management

As you may recall, we adopted a project management system in 1988 to improve our ability to deliver quality projects on time and within budget. The key elements of this system include a Project Manager, a local sponsor, and a multidisciplinary Project Management Team. In addition, a more centralized concurrent review—a review centered on a more responsive resolution of issues—has helped improve the project approval process.

The Project Manager is the primary point of contact with the local sponsor and is the leader of the Project Management Team. The common goal of the team members is to deliver a quality project, on time and within budget, to the local sponsor.

You may be aware of a recent study done by the House Appropriations Subcommittee on Energy and Water Development which strongly endorsed the project management system, but identified shortcomings in Corps implementation of the system. We have already begun to institute changes to make the system more effective and are optimistic those changes will bear fruit in the near future.

Local sponsors are pleased with the Project Manager as a primary point of contact. They have vigorously shouldered their additional roles as partners in project development and as a result are more mindful of their responsibilities. The impacts on project development also have been gratifying.

During the past year, less than 20 percent of construction projects experienced non-inflation cost growth versus 25 percent the previous year and 30 percent the year before that. Before the Project Management System, and our increased emphasis on better cost estimates in feasibility studies, over 50 percent of construction projects experienced schedule slips. This year, less than 30 percent have. In 1978, the General Accounting Office said it took 26 years for us to get a project ready for construction. Since 1988, with the implementation of a number of initiatives including Project Management, we believe we have reduced that time to less than 10 years. In fact, our Baltimore District has moved four flood damage reduction projects from inception to construction in about eight years.

Partnerships

I am convinced that the future of Federal involvement in water resource development lies in continued partnerships with non-Federal entities as envisioned in WRDA 86. We have taken steps to strengthen those relationships.

The local sponsor is involved in all phases of a project, including the development and signing of the Feasibility Cost Sharing Agreement (FCSA) and the Project Cooperation Agreement (PCA) which are binding cost sharing contracts between the Federal government and local sponsors. The FCSA covers activities that will occur during the feasibility study phase of project development prior to authorization of the project for construction. Project sponsors are actively involved in the feasibility studies, providing invaluable field data, and are critical participants in the resolutions of issues. The PCA covers activities that will occur after the project is funded for construction. Much of the discussion with project sponsors is in an effort to promote a mutual understanding of the provisions of these documents. The results have been very gratifying.

In 1993, we signed 14 FCSA's, and another 3 thus far in 1994. This brings to 106 the total number signed since enactment of WRDA 86. The total Federal and non-Federal cost of studies started under these FCSA's is over \$185 million. Also, we signed 32 PCA's for funded new construction starts in 1993 and another 4 thus far in 1994. This brings to over 230 the total number of PCA's signed since enactment of WRDA 86.

The General Accounting Office recently published a report of its investigation of Corps/non-Federal partnerships in projects undertaken since WRDA 86. The report generally commends the Corps for having established clear policy, applied it uniformly, and treated project sponsors equitably. The report also noted some shortcomings that we are working on to continue to improve partnership arrangements.

For example, we have established a task force, in cooperation with the National Association of Flood and Stormwater Management Agencies (NAFSMA), to examine how to strengthen relationships between the Corps and its partners in development and execution of Civil Works flood damage reduction projects. One recent result has been the development with NAFSMA of a model PCA for flood damage reduction projects. We have established a similar relationship with the American Association of Port Authorities in jointly developing a model PCA for navigation projects. And, our relationships with the inland waterways users have been greatly enhanced by the Inland Waterways Users Board established in WRDA 86.

Establishing and nurturing partnerships with our local sponsors are critical parts of our Project Management System. As such, we will be closely examining ways to streamline and improve PCA and other project approval processes. Development and use of the new model PCA's in partnership with the national organizations representing our flood damage reduction and navigation sponsors has been and will continue to be a key part of that process.

While we are pleased with our efforts in these areas, we are determined to do better.

Dredged Material Disposal

One of the most significant challenges the Corps faces in maintaining and improving Federal navigation projects is the placement of dredged material, especially material which fails EPA established criteria for uncontained, open water disposal. There are a number of factors that have contributed to this challenge including increasing concern with the coastal environment and the need to protect and restore it, heavy population shifts to coastal areas and the resulting competition for available land, the increasing needs for navigation project improvements to meet the needs of world trade, and the increasingly tight Federal, State and local budgets. These factors have made open water disposal of some dredged material disposal a very contentious problem.

It is clear that we need to do a better job of planning for the disposal of dredged material. The Corps has recognized this challenge and recently issued guidance on dredged material management planning. Currently, there are dredged material management planning efforts ongoing at a number of locations. Section 216 of WRDA 92 recognized the potential need for changes in Federal law and policy on dredged material disposal and authorized a study to examine potential policy changes. That 18 month study was initiated this year and will provide recommendations on those changes that may be needed in Federal policy. We expect this to be an issue in developing WRDA 94 and pledge to work with you and various stakeholders to forge an equitable national policy.

The challenges we face in the disposal of dredged material cannot be addressed in a vacuum. Cooperative efforts by all involved Federal agencies, the States, port authorities and local governments will be needed. At the Federal level we have made a renewed commitment to address the need for improved coordination and issue resolution. An interagency working group has been formed by the Secretary of Transportation to examine the problems associated with dredging the nation's ports. The interagency group includes, in addition to the Department of Transportation, the Department of the Army, EPA, the Department of Interior represented by the U.S. Fish and Wildlife Service, the Department of Commerce represented by the National Marine Fisheries Service and the Office of Ocean and Coastal Resource Management and the Coast Guard. The group has already had a series of outreach meetings to collect input with a second round of meetings beginning in May to obtain input on options to address the problems identified. The group has an ambitious schedule to produce recommendations on improving the dredging process by mid-1994. We are hopeful that this interagency group can be a catalyst for a unified national commitment to the improvement and maintenance of the nation's ports while preserving environmental resources and improved Federal interagency cooperation to meet that objective.

One of the continuing issues related to disposal of dredged material involves finding beneficial uses for the material. Based on our concerns that dredged material was not being fully used as a resource and to provide authority to remedy that situation, we supported section 204 of WRDA 92. Section 204 provides authority for the Secretary to carry out projects for the protection, restoration, and creation of aquatic and ecologically related habitats, including wetlands, in connection with dredged material disposal. Seventy-five percent of the funds would be Federal. This provision was mentioned earlier as an authorization for ecosystem restoration projects. Implementing guidance on section 204 was issued in February of this year. This provision requires non-Federal interests to provide 25 percent of the incremental costs of construction projects for the beneficial use of dredged material over the cost of traditional disposal, and all costs for operation, maintenance, replacement, and rehabilitation.

HARBOR MAINTENANCE TRUST FUND

Section 1403 of the Water Resources Development Act of 1986 created the Harbor Maintenance Trust Fund (HMTF) in the Treasury. In 1986, the port use fee, which is paid by importers, exporters, and shippers, was based on an ad valorem rate of 0.04 percent of the value of the commercial cargo involved. In 1990, the ad valorem rate was raised to 0.125 percent, a level believed to be sufficient to pay 100 percent of the eligible operation and maintenance cost of those portions of the Saint Lawrence Seaway operated and maintained by the Saint Lawrence Seaway Development Corporation and 100 percent of the eligible operation and maintenance costs assigned to commercial navigation of all harbors and inland harbors within the United States, as well as National Oceanic and Atmospheric Administration (NOAA) activities in support of commercial navigation and administrative costs. However, NOAA has not yet received authority to draw from the fund.

The beginning HMTF balance (surplus), in FY 1994, was \$303 million. This accumulation has occurred primarily for two reasons. First, the authority for NOAA to draw from the fund has not been approved by Congress, and second, the expenditures for operation and maintenance activities assigned to commercial navigation have been less than projected.

This surplus has drawn the attention of the European Community (EC) representatives to the General Agreement on Tariff and Trade or GATT as it is commonly called. Because the surplus is growing, we are working with the Office of Management and Budget to review the ad valorem rate and the uses of the fund in support of commercial navigation.

The President's FY 1995 budget included a proposal to finance from the HMTF the portion of NOAA's nautical charting and marine navigational safety programs that support commercial navigation. The Administration is developing enabling legislation that would authorize this expenditure and will transmit the proposal in the near future. The legislation would help reduce the projected surplus and should improve both the domestic and international credibility of the Trust Fund.

ASSISTING OTHER AGENCIES IN MISSIONS OF NATIONAL SIGNIFICANCE

The Army Corps of Engineers is applying its technical and managerial capabilities to a variety of missions of national significance.

The Corps provides reimbursable assistance to other Federal agencies on selected missions of value to the Nation and the Corps. The National Performance Review affirmed this "Support for Others" Program as Action Item DOD123 which recommends the Executive Branch "maximize the use of the Corps planning, engineering and contract management capabilities in support of other Federal agency programs."

The majority of Corps reimbursable assistance to others involves support to the environmental cleanup efforts of the Environmental Protection Agency, the Department of Energy, and 17 other Federal agencies. Almost every Federal agency benefits from some reimbursable support from the Corps. During the past year the Corps completed building renovations for U.S. Embassies in six former Soviet Union republics and is now working on renovation plans for embassies in four other countries. Also in the former Soviet Union, the Corps is helping the Defense Nuclear Agency implement the Nunn-Lugar/Cooperative Threat Reduction Initiative authorized by Congress. The Corps helped NASA and DOD develop a national plan for world class aeronautical and space facilities. Late last year we entered into an agreement with the Department of Housing and Urban Development to enhance oversight of their public housing modernization and development programs.

With funds Congress provided, the Corps is concluding an effort aimed at developing a Federal Infrastructure Strategy. The effort, done in conjunction with other

Federal and non-Federal interests, with invaluable assistance from the Advisory Commission on Intergovernmental Relations, has devised approaches to improve infrastructure investment and performance. Results already have been used in Executive Branch deliberations and are reflected in recent Executive Orders (EO), including EO 12893 "Principles for Federal Infrastructure Investment", EO 12866 "Regulatory Planning and Review," and EO 12875 "Enhancing the Intergovernmental Partnership."

The Corps also remains prepared to support the Nation's civilian and military leadership on selected overseas missions, if called upon.

CORPS OF ENGINEERS STRUCTURE

The Reorganization Plan developed by the previous Administration and announced in 1992 has been withdrawn. Nevertheless, major changes in programs and workload, and manpower reductions and constraints threaten the Corps ability to produce quality work efficiently. The traditional Civil Works engineering, design and construction workload has declined relative to operations and maintenance. In addition, new missions in the environmental regulation and restoration areas have emerged. As a part of the overall effort by President Clinton to reinvent government, the Corps must implement process changes, reduce management layers, and empower its operational elements in order to avoid becoming an inefficient and ineffective organization.

Mr. Chairman and Members of the Subcommittee, we commend you for your continuing role in structuring sound and sensible water resource programs through the WRDA's of 1986, 1988, 1990 and 1992. We applaud your efforts to continue the two-year authorization cycle and urge you to consider legislation for 1994 which is true to the reforms established by the previous four water resources development acts and the five principles which I outlined earlier. We pledge our total support in working with you and the House of Representatives to develop a supportable bill, and we remain optimistic that our combined efforts will result in a successful outcome.

Mr. Chairman, this concludes my prepared statement. Mr. Bates and I will be pleased to answer any questions you or other Members of the Committee may have.



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108



REPLY TO
ATTENTION OF

01 JUL 1994

Honorable Max S. Baucus
Chairman
Committee on Environment
and Public Works
United States Senate
Washington, D. C. 20510-6175

Dear Mr. Chairman:

I am responding to your letter of June 1, 1994, in which you forwarded questions for me from Senator Metzenbaum. These questions related to the Committee's hearing on May 26, 1994, concerning the Administration's proposal for a Water Resources Development Act of 1994, and other water resources issues. I am pleased to enclose my answers to those questions for your consideration and use in preparing the hearing record.

If I can be of further assistance, please call.

Sincerely,

John H. Zirschky
Acting Assistant Secretary of the Army
(Civil Works)

Enclosure

RESPONSES OF JOHN ZIRSCHKY TO ADDITIONAL QUESTIONS OF SENATOR
METZENBAUM

Question 1. As a Senator from the Great Lakes Region, I am concerned about the Great Lakes water quality. Contaminated sediments in the Great Lakes Region pose one of the greatest threats to water quality and the Corps of Engineers plays a pivotal role in the cleanup of contaminated sediments. Briefly, could you describe what cleanup projects has the Corps undertaken in the Great Lakes Region and what future cleanups are planned in the future.

Answer. The Corps of Engineers provides support to the USEPA at a number of sediment remediation projects around the Great Lakes conducted under Superfund and other US EPA programs and authorities. The Corps' Chicago District provided design and construction oversight support to USEPA Region V for the sediment cleanup at the Superfund site in Waukegan, Illinois and is continuing support to the Region's sediment remediation initiative in Northwest Indiana. The Corps' Detroit District and Waterways Experiment Station are providing technical support to USEPA Region V in relation to the contaminated sediments at the Superfund site in Manistique, Michigan. The District continues to support the Region's contaminated sediment investigations at areas of concern in Southeastern Michigan. The Corps' Buffalo District is providing technical support to USEPA Regions II and V in relation to the contaminated sediments at Superfund sites in Messena, New York and Ashtabula, Ohio.

The Corps' North Central Division has coordinated Corps support to the US EPA Great Lakes National Program Office for the Assessment and Remediation of Contaminated Sediments (ARCS) Program. Corps districts conducted demonstrations of sediment treatment technologies at four Great Lakes areas of concern for this program.

Since 1970, the Corps has removed and confined over 50 million cubic yards of contaminated sediments from Great Lakes harbors and channels for the purpose of maintaining projects at safe depths for navigation. While none of the Corps' dredging has been conducted for environmental remediation purposes, the Chicago District has been working in partnership with the USEPA Region V on plans to link navigation and environmental dredging in the Indiana Harbor and canal. A similar partnership is being formed between the Buffalo District and Region V for the Ashtabula River.

Question 2. What long term management plans has the Corps developed for the Great Lakes Region to address contaminated sediments?

Answer. Dredged Material Management Plans (DMMPs) are currently being developed, or are scheduled to be initiated in FY 1995 for the following navigation projects:

- Chicago River, Illinois
- Duluth-Superior Harbor, MN-WI
- Grand Haven Harbor, Michigan
- Holland Harbor, Michigan
- Indiana Harbor and Canal, Indiana
- Milwaukee Harbor, Wisconsin
- St. Joseph Harbor, Michigan
- Saginaw River, Michigan
- Toledo Harbor, Ohio

The plans provide for long-term management of dredged material, including contaminated sediments, at specific Federal projects.

The Corps' North Central Division has been working closely with USEPA Regions II, III and V in the development of dredged material management guidance for the Great Lakes. The USEPA and Corps intend to release the "Great Lakes Dredged Material Testing and Evaluation Manual" for public review and comment in July 1994. Other guidance documents on dredged material management are being developed jointly by the USEPA and Corps at both National and regional levels.

Question 3. What technological barriers has the Corps of Engineers encountered in cleaning up contaminated sediments?

Answer. The Corps has examined and demonstrated a number of sediment remediation technologies through the Corps dredged material research programs, as part of support to the USEPA's Assessment and Remediation of Contaminated Sediment (ARCS) Program, and in support to other USEPA programs, including Superfund. Numerous technologies currently exist for sediment remediation, although not all are at the same level of development. Technologies for dredging, transport, and confined disposal are well developed with considerable full-scale operating experience. Technologies for containment in-place and sediment pretreatment and treatment

have limited or no operating experience at full-scale and require additional development before they are ready for implementation.

Question 4. I am particularly concerned about the quality of confined disposal facilities in the Great Lakes, especially those facilities that may be creating water quality problems. Can you provide an estimate of how many disposal facilities need immediate attention?

Answer. The Corps has constructed and operated 43 confined disposal facilities (CDFs) around the Great Lakes for maintenance dredging from Federal navigation projects. The discharge of water from a CDF is a dredged material discharge, and regulated under Sections 404 and 401 of the Clean Water Act. All of the CDFs on the Great Lakes are operating in compliance with these sections of the Clean Water Act and therefore not creating any water quality problems. Corps districts continue to take advantage of operating experience and dredged material research to maintain and improve the quality of discharges from these facilities.

Between 1986 and 1989, the USEPA, Corps of Engineers and U.S. Fish and Wildlife Service joined in an interagency working group which examined the long-term ecological impacts of CDFs on the Great Lakes. The working group considered several approaches to measure the loss of contaminants from CDFs, developed predictive models, and prioritized CDFs for study. The USEPA and Corps jointly conducted investigations at the Saginaw Bay CD. The results of this study, which were published in the *Journal of Great Lakes Research*, calculated very minor losses of polychlorinated biphenyls (PCBs) but field measurements showed no discernible impacts on aquatic organisms outside the CDF. Detailed studies of contaminant transport and uptake have also been conducted by the Corps at CDFs in Buffalo and Chicago.

Since the conclusion of the above interagency working group, the US EPA and Corps have continued to work closely on CDF related issues. The USEPA and Corps are currently cooperating on CDF design and performance guidance for highly contaminated sediments.

Question 5. In the 1930's, the Muskingum Conservancy District in Ohio was created to build a series of flood control lakes and dams throughout the Muskingum River Watershed. In 1941, the conservancy transferred the lakes and dams over to the U.S. Army Corps of Engineers. Soon after, land tracts on higher ground within the flood plain were conveyed to private property owners. The Army Corps of Engineers retained a flowage easement on those tracts in the event a flood occurred. Although the Corps of Engineers has held the easements on these properties for the past 40 years, the boundaries of the easements have not been completely delineated.

In 1978, the Corps of Engineers in Washington began to survey the Muskingum Watershed in Ohio with the intention of enforcing existing easement rights. In 1992, the Corps of Engineers commenced ejectment proceedings at Pleasant Hill Lake, notwithstanding the fact that none of the properties in question had ever flooded. Given the lack of a demonstrable threat to these homes, and a failure to enforce these easements for the past 40 years, why has the Corps of Engineers decided to pursue the enforcement of these easements?

Answer. All 14 flood control projects were constructed by the Corps of Engineers during the four year period from 1934 to 1938. A few encroachments developed early on in the 1940's and studies were made on what action to take. Verbal and written warnings were issued, but no general policy existed. Other than these few early encroachments, the projects operated relatively smoothly through the 1960's.

In the early 1970's, as development followed the interstate expansion into the area, mobile home parks were illegally established within the Bolivar Dam pool area, many feet below the spillway elevation. After three years of study, the Corps filed successful litigation to compel removal of the mobile homes. It was agreed in court that the Corps would also remove all remaining encroaching structures in the Muskingum basin that they had a legal right to remove, to assure equal protection and treatment for all those involved. If the mobile homes had not been removed, they would have been under eight feet of water during the record flood at Bolivar in January 1991.

Initial efforts to resolve encroachments were focused on owners of permanent structures in the Bolivar Dam easement area. President Carter received a letter of complaint from one of the affected homeowners. As a result, the Secretary of the Army directed the Corps to delay enforcement work while a study of the issue was accomplished. The two year study concluded in 1980 and directed the Corps to proceed with the program as planned.

In January 1981, under a new administration, the Assistant Secretary of the Army for Civil Works decided to re-study the program. The study was completed in 1982 and a very specific encroachment policy for Bolivar Dam, drafted with Con-

gressional cooperation, was completed. The policy was then applied to all projects in the Muskingum Basin in succession, with implementation beginning in 1982 at the Bolivar Dam. As removal actions began, owners of affected structures continued to contact their Congressional representatives.

As a result of renewed Congressional interest, in June 1992, the Corps self-imposed a moratorium on encroachment resolution in the Basin pending a review of the current encroachment policy. A basin-wide Hydrological/Hydraulics (H&H) Study of the flood frequencies of the projects was accomplished. Based on the results of the policy review and H&H Study, the Assistant Secretary of the Army for Civil Works modified the existing policy to the extent of lowering the policy elevation latitude at three of the 14 projects, resulting in six additional residential structures being eligible to remain below spillway elevation. The moratorium on residential removals was rescinded in April 1993 and implementation of the new policy was initiated.

Senator Metzenbaum introduced language in the Senate Fiscal Year 1994 Energy and Water Development Appropriations Bill directing the Corps to cease in removing or demolishing any residential structure subject to a flowage easement, in the Muskingum River Basin, until the appropriate committees had the opportunity to review and address the policy in the next Water Resources Development Authorization legislation. Although the specific language was removed during conference, the conferees urged the Corps to heed the language. As a result, the Corps has discontinued actions against residential structures which were encroaching prior to implementation of the removal program, until the 103rd Congress has completed its legislative actions.

Question 6. In June 1992, former Assistant Secretary of the Army (Civil Works), Ms. Nancy Dorn modified the encroachment policy as it pertains to Pleasant Hill Lake. This modification saved 12 homes. I continue to be appreciative of Ms. Dorn's help in making this modification. However, the individual homeowners at Pleasant Hill have not been contacted regarding this decision. They have seen nothing in writing. Why have they not been notified?

Answer. The ASA/CW modified the Pleasant Hill Lake policy from 5' below spillway to 13' below on 6 March 1992. The district received notification and direction of this change in early June 1992. Affected landowners were notified by letter immediately thereafter, as follows:

- Ed Gall was notified through his attorney of the policy change by letter dated 24 June 1992 in regard to his dwelling.
- Greg James and Robin Webb have already signed a Consent for their dwelling, effective 6 October 1993.
- Behman Loy refused permission to survey first floor elevation. Notice of policy change and request to survey were sent on 24 June 1992.
- Philip Nolan was mailed a Consent for his dwelling by letter dated 22 September 1992.
- James Drushel was sent a letter informing him that Ms. Dorn was allowing his trailer to be moved to a higher elevation on 12 June 1992.
- Raymond Fast was sent a letter regarding his cottage on 24 June 1992.
- Florence Ramsey, Val Ramsey, and Marcia Ramsey were sent individual letters, dated 25 June 1992, regarding the policy change on their mobile home.
- William Warden was sent a letter dated 25 June 1992, regarding his mobile home.
- In addition, telephonic contracts have continued on this matter as well as site visits.

Question 7. Currently, 54 homeowners at 6 Muskingum, Ohio lakes are identified as encroachers on government easements. Is the Corps currently in the process of formulating a new modified policy on how to deal with these encroachments? If so, please elaborate.

Answer. Under the current modified policy, 56 dwellings are scheduled for removal at nine Muskingum, Ohio lakes.

As a result of renewed Congressional interest in 1992, the Corps conducted a basin-wide Hydrological/Hydraulics (H&H) Study of the flood frequencies of the projects. Based on the results of the H&H Study and a review of the Muskingum Encroachment Removal Policy, the Assistant Secretary of the Army for Civil Works modified the existing policy to the extent of lowering the policy elevation latitude at three of the 14 projects, resulting in six additional residential structures being eligible to remain below spillway elevation.

The Corps restriction against structures being built within a flowage easement area is designed to protect life, property, and the operational integrity of a vital part

of this Nation's flood control system. As history has proven in this basin, there is a strong probability that rapid rises in lake elevations may occur and result in loss of life, inundation of structures and personal property, and blockage of vital egress routes. For these reasons, allowing any habitable structures below previously established elevations is extremely undesirable. The Assistant Secretary of the Army for Civil Works has determined that the current modified policy on encroachment removals in the Muskingum Basin is valid and would continue to be enforced.

Question 8. In 1993, the Corps modified its policy on all 16 Muskingum projects. This new policy sets the consentable elevation at the 1992 policy level or the 150 year flood level, whichever is lower. However, if the pool of record is higher, then the consentable elevation is set at the pool of record. According to your data, twenty-two homes can be saved if the pool of record is adopted as the consentable elevation. As a matter of policy, why shouldn't the consentable elevation be set at the pool of record in all cases?

Answer. Using the pool of record provides an extremely variable policy elevation to work with in comparison to using a standard pool frequency. The pool of record is directly related to rainfall above the project. The larger the rainfall, the higher the lake level. By using pool frequency the Corps has taken into account the variable rainfall factor. If pool of record elevations were used to establish the policy elevation, the policy elevation frequency would vary from lake to lake. The variance for the Muskingum lakes would be from about a 30 year to a 300 year frequency of occurrence. It should also be noted that by using the pool of record, over half of the policy levels would be below the 100 year flood level.

Note: The 1992 Policy referred to is really the 1982 Policy.

Question 9. In the past, I proposed legislation which would require all property owners, currently defined as "encroachers", to enter into a written agreement with the Secretary of the Army in order to save their homes. This agreement would hold the United States harmless for any loss of personal property, real property, injury, or death that is the result of any flooding. If an owner fails to enter into an agreement, the Secretary of the Army may remove or demolish the structure. Would the Department of the Army be willing to consent to such a hold harmless agreement? If not, why?

Answer. The Department of the Army does consent, through written agreements executed by the Army Corps of Engineers and willing landowners, to certain structures being permitted to remain below the spillway elevation, under the current policy. These written consent agreements contain a hold harmless clause similar to the one described, however, it is the owner who is required to remove or demolish the structure if they fail to enter into a consent agreement.

It is the Corps position that any legislation introduced which would allow encroaching structures to remain below established elevations must include a hold harmless clause to protect the Government from liability in the event of any loss of life, personal or real property, and injury.

STATEMENT OF RHODE ISLAND STATE SENATOR DENNIS L. ALGIERE

Mr. Chairman, Senator Chafee and members of the Committee, I am Dennis L. Algieri, State Senator from Westerly, RI. I am pleased to be here today to testify on the very serious problem of beach erosion.

Tourism in Rhode Island has grown by record levels over the last year. In 1993, Rhode Island realized \$1.4 billion in tourism revenue, a 6 percent increase over 1992. Some 24,000 tourism-related jobs also created \$302.5 million in wages in 1993. According to the Rhode Island Department of Economic Development, most of this revenue was generated by non-residents. The Ocean State has enjoyed a remarkable increase in the number of international visitors in particular, which has introduced new money into the United States economy. This industry has helped Rhode Island's economy buffer major cutbacks in defense spending, a source of high skilled jobs upon which Rhode Island and all of New England have long depended.

What makes Rhode Island a major tourist attraction? It is our 420 miles of coastline and beautiful beaches. From Newport to Watch Hill, the entire south shore is an economic system. But it is more than bust a tourist asset, it is also a resource that affects our quality of life. Our coastline provides an important source of natural recreational activity for tourists and native Rhode Islanders.

Over the years, storms have decimated sand dunes and damaged beachfront structures. This continuing beach erosion makes coastal properties extremely vulnerable. In February of 1994, the Army Corps of Engineers, New England Division,

completed a Reconnaissance Report for shore protection and flood damage reduction at Misquamicut Beach in Westerly, Rhode Island.

Misquamicut Beach is located in the far southwestern corner of the State and is part of a narrow, sandy barrier beach that extends from head lands at Watch Hill Point to Weekapaug Point along the south shore that faces Block Island Sound. Senator Lieberman is, I am sure, quite aware that many from Connecticut travel the short journey east to our beautiful oceanfront. We, of course, welcome them warmly!

The Corps' reconnaissance study for Misquamicut Beach was initiated at the request of the Town of Westerly after winter storms damaged the area, most recently in December 1992 and March 1993. Several alternative plans were evaluated for the 16,500 foot stretch of shoreline and adjacent backshore areas. The best plan would have utilized beachfill from land-based borrow sites to create a new 4000 foot long berm at elevation 17.9 feet above mean low water, in conjunction with two flood walls that would flank the Misquamicut community, providing a 100 year level of protection. A pump station would have provided for removal of interior drainage. However, with a benefit to cost ratio of 0.92, the Corps of Engineers concluded that no economically justified project could be identified in the area. The Reconnaissance Report was therefore terminated. The Report did, however, demonstrate that the project is environmentally and technically feasible.

The Corps of Engineers has funded and continues to fund many beach enhancement projects, from Galveston, Texas to Ocean City, Maryland. Some of the projects are occurring in locations where there is substantial development in hazard-prone areas. The Corps of Engineers gives priority to projects involving flood protection in areas where large structures exist.

Rhode Island's Coastal Resources Management Council (CRMC), on which I serve, has had a progressive and rigorous coastal protection program since 1971, one year prior to the passing of the national Coastal Zone Management Act (CZMA). An example of the protection CRMC provides is their work to designate 82 percent of the State's barrier beaches as undeveloped or moderately developed barriers, which has the ultimate effect of preventing expansion of development on these barriers. All development is prohibited on undeveloped barrier beaches, and the Council's goal is to preserve, protect, and where possible, maintain these areas as buffer zones that will protect the salt ponds and the upland from storms and hurricanes. On the moderately developed barrier beaches, only alterations to existing development are permitted under specific regulations. Even on developed barrier beaches, the Council's goal is to minimize the risks of storm damage and erosion for the inhabitants, and prevent alterations that reduce the effectiveness of the beach as a storm buffer.

In addition, the CRMC also has developed a Special Area Management Plan (SAMP) for the Salt Pond Region which affords even greater protection to areas on barrier beaches and the adjacent watershed region. The policies and regulations contained within the SAMP address the concerns of sewage disposal, erosion, and contamination of groundwater, which are amplified in barrier systems due to the dynamic nature of the feature and the proximity of surface water. As an advocate for wise use of beach property, the CRMC hopes to minimize economic loss due to storm damage, and the loss of barrier habitat that is valuable both to wildlife and the State's scenic quality.

In Rhode Island, our beaches are susceptible to flood damage and frontal erosion because of the unique geographical location of our State. Storm tracks run parallel with most of the barrier beaches in the eastern United States. In our case, however, because of Rhode Island's location (i.e. perpendicular to storm tracks), barrier beaches like Misquamicut take the brunt of violent storms. These areas are hit head on.

Our beaches are also narrower and lower in profile than others on the eastern seaboard. In addition, Rhode Island's barrier beaches are in a sediment starved stage, with no abundant sand supply in the system. Thus continuous erosion leaves our beaches in a ragged state, with rocks and boulders exposed. This is not conducive to tourism. There are ways to remedy this condition which are environmentally sound.

In the wake of a series of major storm events in 1991, 1992 and 1993, the CRMC is currently involved in an independent special research project to investigate beach dynamics along the south shore of Rhode Island where the most severe erosion problems exist. Understanding sand migration, the types of forces (both wind and wave) that the area is subjected to, and the impacts of existing structures on sand migration, will help us to better manage the natural resources used by so many people for so many different reasons.

The CRMC is reviewing many new innovative technologies that are attempting to address growing concern with traditional hard structural shoreline protection, as well as the need for increased public education regarding the hazards of development in these high risk areas. The CRMC is encouraging relocation of structures

located precariously seaward, and restricting new construction in hazard-prone areas.

Post-storm response to coastal disasters is also in need of review. On the three occasions that the CRMC has invoked an emergency permit process to handle a huge influx of repair requests, it has issued over 500 permits at no cost to the permit holder. These permits are issued on the spot by staff in the field in order to expedite the normal permit process and post-storm recovery. As a regulatory agency, the CRMC is unable to solely meet the people's needs. FEMA is frequently called in after a storm event to assist local efforts in responding to damage, but all too often they report that not enough of a financial loss has occurred to warrant Federal repair money.

Unfortunately, Rhode Island seems to always fall between the cracks, as far as storm damage assistance is concerned. No money has been received for preventative beach replenishment, or post-storm recovery. As a State with a tourism-based industry as its economic base, each storm carries a potential to severely impact the local and State economy. Recreational beaches in disrepair often present hazardous conditions, and are dramatically reduced in size from erosion. Replenishment and maintenance is clearly necessary so that beach use may continue. The frustration Rhode Islanders feel, as the result of ineligibility under various FEMA and Corps grants and funds, is made worse by the realization that states with less coastal resource protection and rampant coastal development are awarded Federal replenishment projects and Federal repair dollars. It is as though we are punished for our comprehensive management approach, rather than rewarded.

The Corps of Engineers has focused its efforts narrowly on flood protection without commensurate regard for local tourism enhancement. The Corps puts a 50 percent maximum weight on tourism benefit. This is not enough and should be modified. For example, in the recent Corps report on the Misquamicut Beach, the Corps had to look at an area with the heaviest development (this is a small area of beach). In order to get a favorable cost ratio, the Corps proposed 17 to 18 foot tall dikes to protect the area from floods in a plan designed for a 100 year storm. Clearly, this massive project, coupled with condemnation of private real estate, did not result in a favorable benefit to cost ratio. With the focus by the Corps on flood protection rather than frontal erosion, we receive little benefit.

Since that time, Senator John Chafee, Senator Claiborne Pell, Congressman John Reed and Congressman Ronald Machtley and their staffs have been working with Army Corps staff in both Washington and Rhode Island regarding the conclusions reached in the study. They were particularly concerned that the Corps consider all cost-efficient alternatives in completing the project. Congressman Reed particularly expressed concern that both the reconnaissance study and the follow-up feasibility study appropriately consider and weigh all-recreation factors including tourism.

The Corps should consider protection from smaller, lesser strength storms, not only 100 year variety. It should provide for temporary relief from frontal erosion, not only flood damage. Further, the Corps should prioritize the funding of smaller projects, not only large ones. This would benefit all involved by reducing long-term cost and providing for increased beach usage.

The Corps of Engineers must recalculate what they are protecting against. In past years, the Corps funded hard massive structural projects. They now are turning to beach renourishment, and this is welcome. However, the Corps has not sufficiently altered its regulations to accommodate this change. Now that the Corps is moving to beach renourishment, it needs to also get in the mode of maintenance replenishment.

As one of our most valuable natural resources, beaches must be preserved for their critical role in protecting against storm damage and flooding to low-lying uplands, salt marshes, and other coastal elements. States with environmentally sound management practices should be rewarded for effective and responsible zoning on barrier beaches rather than penalized by the benefit to cost ratio. It is my view that Corps' regulations should benefit replenishment projects with a benefit to cost ratio for a 10 year event. Erosion has, and will continue to have, a serious environmental and economic impact on southern coastal towns in Rhode Island. We deserve some help in our efforts to protect our economic interests while providing maximum protection to our coastline.

In summary, I would like to recommend that the U.S. Army Corps of Engineers be permitted or instructed to consider the following with regard to Misquamicut Beach:

1. revisiting the reconnaissance study with an eye to assuring that all recreational values including tourism are weighed appropriately;
2. continuing with the follow-up feasibility study; and

3. considering a small scale beach renourishment project to deal with frontal erosion.

Additionally I would hope that Congress will reevaluate the benefit to cost ratio particularly as it pertains to benefits that accrue to reduce frontal erosion and benefits that accrue to States that heavily rely on coastal-related tourism, but have been penalized because of their stringent coastal zone regulations.

Mr. Chairman, I appreciate the opportunity to provide one local perspective to the Committee. I am certain that if we work together to improve protection and enhancement of our natural resources, cost-effective and long-term benefits will result. I, of course, am pleased to answer any questions that you or other members of the Committee might have.

STATEMENT OF DARRELL E. LEWIS, CHIEF, NATURAL RESOURCES MANAGEMENT
BRANCH, U.S. ARMY CORPS OF ENGINEERS

Good afternoon. I am Darrell E. Lewis, Chief of the Natural Resources Management Branch for the U.S. Army Corps of Engineers. I was asked to give you an overview of the Corps Recreation Program. With me are Mr. Donald Dunwoody, Chief of Natural Resources Management Division, Missouri River Division, Omaha, Nebraska and Mr. Scott Jackson, Research Biologist, Resource Analysis Branch, Waterways Experiment Station, Vicksburg, Mississippi. They are here to assist me in answering any questions you may have. With your permission, I would like to leave my written testimony for the record.

The objectives of the Corps Recreation Program are: to provide outdoor recreation opportunities on Corps administered land and water on a sustained basis; and to provide a safe and healthful environment for project visitors.

The Corps has a large and diverse recreation program consisting of 463 water resource projects in 43 States, 4300 recreation areas, and 11.5 million acres of land and water. The Corps operates these projects with approximately 1,900 park managers and rangers. Corps recreation facilities include campgrounds, picnic areas, boat ramps, trails, etc. Most of our projects are located east of the Rocky Mountains, where almost 80 percent of the nation's population resides. The majority of these projects are within one hour's drive of a major metropolitan area.

The Corps is the nation's second largest Federal provider of outdoor recreation (behind the U.S. Forest Service) with more than 370 million annual visits. Over 25 million people (10 percent of the U.S. population) visit a Corps project at least once each year. The Corps hosts over 30 percent of the recreation/tourism occurring on Federal lands on just 2 percent of the nation's Federal land base, using less than 9 percent of the Federal funds expended for recreation.

Our visitors mirror the character and diversity of the American public. Increased ethnic diversity, an aging population, and changes in leisure time and activities are all reflected in Corps recreation visitation.

The Corps is in a unique position to optimize the precepts of the National Performance Review regarding the provision of quality Customer Service. We provide high quality outdoor recreation opportunities to a large cross-section of America. Our visitors receive the immediate and tangible benefits of valuable Government goods-and services, consistently and reliably across the country. We have the capability to meet the needs of persons with disabilities.

Recent research conducted by the Corps Waterways Experiment Station using IMPLAN, a regional input-output model developed by the U.S. Forest Service, indicates that visitors to Corps lakes expend significant amounts of dollars on goods and services and contribute significantly to the national economy. The Corps recreation program is an important part of the U.S. Travel and Tourism industry, the second largest service industry in the country. The Corps represents over 1.4 percent of the direct sales in this important \$200 billion industry. In 1991, visitors to Corps lakes spent over \$10 billion. The direct and indirect effects of this economic activity resulted in \$12.4 billion in employee income and 617,000 full and part time jobs with an average salary of \$18,300. This represents 0.4 percent of non-Federal employee income and 0.5 percent of the jobs in the United States. With a current budget of \$170 million, the Corps recreation program expends less than \$300 per job. Such analysis employing indirect effects tend to overstate the overall economic activity. However, this gives some sense of the value of the Corps recreation program.

Cooperation among the Federal land management agencies, State recreation and tourism agencies, and the research community is increasing significantly. An inter-agency reservation system, involvement in the tourism industry, and a professional recreation management job series are just a few examples of recent cooperative activities. Another example is the work to expand the understanding and use of the

benefits of leisure in the United States—a concept already in use in other countries such as Canada.

Public involvement is also increasing significantly through active participation in the management of Corps areas. We anticipate further activity through the challenge cost share and contributions programs for which we received authorization under the Water Resources Development Act of 1992. The best example of public involvement is evident in our volunteer program, where nearly 75,000 people donate their time and talents at our lakes each year.

Increased environmental awareness has resulted in proposals such as a National Bikes System as proposed by the American Recreation Coalition.

There will likely be little or no increase in the availability of public lands for outdoor recreation. We must protect the existing finite land and water resources to ensure its availability for future generations.

Mr. Chairman, in your letter of invitation that we received Tuesday evening, you submitted six questions which I have addressed in an attachment to my testimony. Also attached is a detailed description of the Corps recreation program for the record.

Mr. Chairman, this concludes my statement. I will be glad to entertain any questions you may have.

RESPONSES TO QUESTIONS RAISED IN THE LETTER DATED
24 MAY 1994 FROM SENATORS BAUCUS AND CHAFEE
TO DARRELL LEWIS, CHIEF, NATURAL RESOURCES MANAGEMENT BRANCH,
U.S. ARMY CORPS OF ENGINEERS, WASHINGTON, D.C.

Q1. What is the amount of the Corps of Engineers' budget for recreation and natural resources each year since 1986 and how much is that of the total recreation budget for the entire federal government?

A1: Corps recreation and natural resources budget amounts are available from 1988 to the present and are illustrated below. We were unable to obtain complete budget data from all the agencies, however the 1993 budgets for several of the Federal recreation providers are as follows: Corps - \$174 million; Forest Service - \$230 million; National Park Service - \$971 million; Bureau of Land Management - \$49 million. This information was obtained from the Federal Parks and Recreation newsletter.

<u>Year</u>	<u>Recreation</u>	<u>Natural Resources</u>
1988	147,000	40,000
1989	151,000	41,000
1990	154,000	45,000
1991	158,000	44,000
1992	171,000	50,000
1993	174,000	53,000
1994	172,000	58,000

Q2. What is the number of recreation visitor days to Corps lakes and how does that compare to visitor days for other agencies?

A2: Per the 1992 Federal Recreation Fee Report to Congress, the following visitation occurred by agency.

<u>AGENCY</u>	<u>VISITOR DAYS</u>
Corps of Engineers	203 million
Bureau of Land Management	47 million
Bureau of Reclamation	22 million
Forest Service	288 million
National Park Service	116 million
Tennessee Valley Authority	1 million

Q3. What is the potential for development of recreation facilities by the private sector and recent efforts to realize that potential?

A3: When Corps projects were planned, lands were acquired for future recreation development. In 1990, we began the Recreation Partnership Initiative which is an effort to obtain additional public recreation facilities on Corps projects without further federal investment. We are currently reviewing all Corps lands for potential development by the private sector. We have identified numerous projects that have this potential and will be advertising a number of these areas in 1995.

Q4. What is the amount of money spent at Corps recreation areas each year since 1986?

A4: Based on a recent national survey of visitor spending patterns, we estimate that in 1991 over \$6 billion was spent on trip related expenses such as gas, food, and lodging by visitors to Corps projects. In addition, \$4 billion was spent on durable goods such as boats and camping equipment used at Corps projects. Visitor spending statistics are not routinely maintained and are only available for 1991.

Q5. What is the direct and indirect economic output associated with spending by visitors to Corps of Engineer projects?

A5: Using IMPLAN, a regional input-output model developed by the U.S. Forest Service, we have estimated the direct and indirect regional economic effects of visitor spending to Corps projects nationwide. In 1991, the \$10 billion in visitor spending resulted in direct effects of \$2.8 billion in employee income and 180,000 jobs. Indirect effects accounted for an additional \$9.5 billion in employee income and 437,000 jobs.

Q6. How do the direct and indirect recreation economic outputs compare to direct economic benefits from navigation and flood control?

A6: Comparisons between the regional economic effects of recreation and benefits associated with navigation and flood control will require additional time to assemble. We will provide this at a later date for inclusion in the record.

THE U.S. ARMY CORPS OF ENGINEERS OUTDOOR RECREATION PROGRAM

I. BACKGROUND. The Corps of Engineers became involved in outdoor recreation almost as an afterthought to its water resource development projects. There were few provisions for recreation areas or other environmental values at early reservoirs, including major projects such as Bonneville and Fort Peck.

Although the Flood Control Act of 1944, allowed the Corps to include recreation features at reservoir projects, from the 1940's through the 1960's, the Corps was basically the custodian of our projects, i.e. improvising parks at road-ends where people gathered, mowing grass, cleaning restrooms, and collecting garbage. However, in the early 1970's, the Corps started hiring professional managers and rangers; people with degrees in biology, forestry, park management, etc., who manage the resources surrounding the reservoir projects and provide the public with quality outdoor recreation experiences without adversely impacting those resources. Recreation has become the Corps' face to the nation.

The authorities for the Corps outdoor recreation program are attached at TAB A.

II. SIGNIFICANCE OF THE PROGRAM. A visit to any Corps lake on a routine spring or summer weekend will confirm that Corps lakes are extremely popular with the recreating public and tourists.

1. Scope.

- Corps is the Nation's leading provider of water based recreation
- Over 7 million surface acres of water and 4.5 million acres of land located in 43 states
- 4,400 recreation areas at 463 water resource projects
- Second largest Federal recreation program, with more than 370 million annual visits, second to the Forest Service and well ahead of the National Park Service.
- Over 25 million people (10% of the Nation's population) visit at least once each year

- On just 2% of the Nation's Federal land base, the Corps hosts over 30% of the recreation/tourism occurring on Federal lands using 8.7% of the funds expended for recreational resources by Federal agencies.
- Corps facilities include: campgrounds, trails, ramps, picnic areas, swimming beaches, hunting areas, agricultural leases, etc.
- Natural Resource Management Professional Staff
 - Approximately 1900 full or part time staff
 - About 80% have at least a 4 year degree
 - Almost 75% have more than 23 credit hours in a biological science
 - Over 40% have more than 23 credit hours in recreation administration

2. Economics. Recreational visitors and tourists visiting Corps lakes expend significant amounts on goods and services and represent a sizable component of the national economy. The figures below were generated using IMPLAN, a regional input-output model developed by the U.S. Forest Service, and includes indirect effects. Indirect effects tend to overstate economic activity. However, this gives some sense of the value of the Corps recreation program.

- In 1991, recreating visitors to Corps lakes spent over \$10 Billion.
- The direct and indirect effects of the economic activity resulted in:
 - \$12.4 Billion in employee income
 - 617,000 full and part time jobs with an average salary of \$18,300.
- Represents 0.4% of non-Federal employee income and 0.5% of jobs in the U.S.
- With a current budget of \$170 million, the Corps recreation program expends less than \$300 per job associated with the Corps recreation program.

3. Diversity. The Corps outdoor recreation program is complex and diverse.

- Hunting, fishing and wildlife viewing.
- Camping - Primitive to full hookups.
- Interpretation and environmental education - Regional visitor centers to campfire programs
- Fishing - National tournaments to bank fishing. For example, the McDonald's tourney at Sam Rayburn Lake attracts about 7,000 boats with each paying a \$200 entry fee.
- Boating - full service marinas to private boat docks
- Shoreline Management. Policy is to protect and manage shorelines in a manner that promotes safe and healthful use by the public while maintaining environmental safeguards.
 - Objective is to manage in a manner which achieves a balance between permitted private use and resource protection for general public use.
 - 35,740 shoreline permits at 120 projects

4. Location. Corps lakes are located where the people are.

- The majority of Corps resources are located east of the Rockies, where the majority (79%) of the population resides.
- 80% of Corps lakes are within an hour's drive of an urban area.

III. PARTNERING.

1. Volunteers. We have only scratched the surface of the potential for volunteer help to operate and maintain Corps recreation facilities.

- In 1993, 74,000 volunteers contributed services valued at \$4.6 million.
- A more aggressive promotion program to recruit volunteers will increase the contributions from volunteers.

- Recently installed a "800" number for prospective volunteers.
- President Clinton's Americorps program and similar work programs are possible sources of additional resources to assist in the operation and maintenance of Corps recreation areas.

2. **Cooperating Associations.** These non-profit organizations provide services at Corps visitor centers, historical areas, and other locations

- Publish and sell brochures, maps, books, etc. regarding the project and surrounding region.
- A portion of their income from sales is returned to the Corps for use at the project.

3. **States.** We continue work with the various state agencies to explore ways to improve our services to the public and stewardship of natural resources.

- Have leased a significant number of recreation areas to local governments, swapped management responsibilities to increase efficiencies, and shared information with the sole objective of providing optimal service to the public.
- 43% of the 4,400 recreation areas are leased to and run by our non-Federal partners

4. **Other Federal Agencies.** An evolving spirit of communication and cooperation among the Federal land management agencies is contributing to increased efficiency in the provision of public services.

- Interagency recreation fee program coordination
- Uniform contract
- Universal accessibility guidelines
- Campground reservation system
- Memorandum of Understanding with other Federal land management agencies to advance tourism opportunities

5. Challenge Cost Sharing and Contributions

- Authorized in WRDA 92; policy currently under development
- Used very successfully by FS and NPS
- Permits non-Corps interests to donate funds and/or materials in support of Corps recreation and environmental programs

IV. PUBLIC INFORMATION/EDUCATION.

1. Visitor Centers.

- Initiated visitor center program in mid 1970's.
- Provides interpretive information to the visiting public about Corps, mission, visitor safety, and geographic area.

2. Interpretive Services and Outreach Program (ISOP)

- Designed to improve the efficient and effective manner at the first level so as to enhance understanding of both the Corps and the public's roles and responsibilities.
- Goals
 - Achieve management objectives using interpretive techniques
 - Provide environmental education to foster voluntary stewardship of natural, cultural, and created resources.
 - Incorporate Corps Civil Works and military missions and accomplishments into interpretive programming.
 - Improve visitor and employee safety using interpretive techniques.
 - Use outreach to accomplish ISOP goals, including interpreting Corps missions, promoting stewardship, saving lives, and solving management problems. As part of the interpretive process, encourage interest in math and science, including career interest.

- Enhance the visitors' experience and enjoyment by anticipating their needs and providing interpretive resources to meet those needs.

3. **Water Safety.** The Corps is a recognized leader in water safety and has developed an aggressive program to reduce the number of water-related fatalities.

- Fatalities have reduced by over 50 percent since 1971.

4. Opportunities

- While the Corps is in the tourism industry, we have taken a passive role in widely promoting use of facilities.
- A more proactive public information program would inform the public of the recreational opportunities at Corps lakes.
- Increased use would improve occupancy rates of existing facilities at a minimal cost and create a net benefit to the government.

V. CURRENT EMPHASIS.

1. Accessibility.

- The Rehabilitation Act of 1973 required Federal agencies to make reasonable accommodation for persons with disabilities in the provision of Government facilities and services. The Americans With Disabilities Act of 1990 (ADA) legislated the same requirement for state and local governments and private industry.
- Corps is participating on Recreation Access Advisory Committee to advise the Architectural and Transportation Barriers Compliance Board regarding guidelines for accessibility to recreation opportunities.

2. Recreation User Fees.

- Nationwide polls indicate a public willingness to pay reasonable fees for the use of quality recreation facilities, particularly if those fees are returned to the site of the recreation opportunity.
- Reduces the impact of the program on the Federal budget

- **Camping Fees**
 - Average fee of \$8 per night
 - Generate approximately \$20 million in annual receipts
- **Day User Fees**
 - Authorized by Omnibus Budget Reconciliation Act of 1993
 - Initiated in 1994
 - ◆ \$2 per boat launch
 - ◆ \$1 per person for use of swimming beach up to a maximum of \$3 per vehicle
 - ◆ \$25 for annual pass
 - ◆ Estimated 1994 revenues of \$5.6 million

3. **Recreation Partnership Initiative (RPI).** An effort to review all Corps lands for potential development of public recreation opportunities by the private sector.

- Will result in the advertisement for development of a number of sites on Corps lakes in 1995.
 - Has received positive reviews from the private sector, state parks directors, and other Federal land managers.
4. **Tourism.**
- Entered into a Memorandum of Understanding with other Federal land management agencies to advance tourism opportunities
 - Chief of Engineers is a member of the Tourism Policy Council as designated by a 1992 amendment to the National Tourism Act of 1981.
 - Chief of Engineers is an ad hoc member of the board of directors of the National Rural Tourism Development Foundation which was created by Congress in 1990 to assist rural America in tourism development

VI. CONCLUSIONS. The Corps outdoor recreation mission evolved during and after the development of water resource projects. Today, the agency is a major provider of recreation opportunities across the nation. Corps facilities complement the many state, local and private sector-operated and maintained recreation facilities at Corps projects.

Trend data indicates a continuing and growing demand for recreation opportunities at Corps water resources projects in the future.

These factors, taken together, make the Corps outdoor recreation mission equal to, and interrelated with, other purposes at our lakes and other projects. The Corps continuing focus is on providing cost-efficient, quality services and facilities.

TAB A

AUTHORITIES FOR THE CORPS OUTDOOR RECREATION PROGRAM

The Flood Control Act of 1944. Section 4 of this act provides in part that the Chief of Engineers ... is authorized to construct, maintain, and operate public park and recreational facilities in reservoir areas under the control of the War Department, and to permit the construction, maintenance, and operation of such facilities...

The Federal Water Project Recreation Act, Public Law 89-72. This act, passed in 1965, requires a non-Federal local sponsor to pay 50 percent of development costs and assume responsibility for operation, maintenance and replacement of recreation facilities at projects authorized subsequent to its passage. An OMB decision of 19 Dec 1972 requires the Corps to apply the cost-sharing principles of the act to projects completed prior to its passage.

The Land and Water Conservation Fund Act of 1965, Public Law 88-578. This Act provided the Corps authority to collect recreation user fees, for "use of specialized sites, facilities, equipment or services furnished at federal expense." The Act, and its subsequent amendments, legislated the requirements for all Federal land management agencies' recreation entrance and user fee programs, and established special accounts in the Treasury for each agencies' fee receipts.

The 1986 Water Resources Development Act, Public Law 99-662. This act assigned non-Federal interests 50 percent of separable recreation costs for new starts, and prohibited the Corps from requiring recreation cost sharing sponsors from assuming O&M responsibilities on additional Corps managed areas as a condition for cost sharing.

The Water Resources Development Act of 1992, Public Law 102-580. Two sections of the law are particularly significant to the Corps Recreation Program.

a. Section 203 - Voluntary Contributions for Environmental and Recreation Projects. Authorizes acceptance of contributions of cash, funds, material, and services from anyone except project sponsors of water resources projects for environmental protection and restoration or for recreation.

b. Section 225 - Challenge Cost-Sharing Program for the Management of Recreation Facilities. Provides authority to develop and implement a program to accept contributions of funds, materials, and services from non-Federal public and private entities to be utilized in managing recreation facilities and natural resources.

The Omnibus Budget Reconciliation Act of 1993, Public Law 103-66. This act authorized the Corps of Engineers to expand its recreation user fee program by charging user fees for day use facilities. There is no authority for charging entrance fees at Corps operated recreation areas. This act also removed the previously legislated requirement to provide a free campground at all Corps projects where camping facilities are provided.



Chesapeake Bay Foundation

Environmental Defense - Environmental Education - Land Management

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BEFORE THE UNITED STATES SENATE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
ROOM 415
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TESTIMONY OF
THOMAS V. GRASSO
STAFF ATTORNEY
CHESAPEAKE BAY FOUNDATION
164 CONDUIT STREET
ANNAPOLIS, MD 21401

ON THE REAUTHORIZATION WATER RESOURCES
DEVELOPMENT ACT, THE U.S. ARMY CORPS OF
ENGINEERS, CIVIL WORKS PROGRAM AND EFFORTS TO
RESTORE THE CHESAPEAKE BAY.

MAY 26, 1994

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Good afternoon, Mr. Chairman and members of the Committee. My name is Tom Grasso and I am a Staff Attorney for the Chesapeake Bay Foundation. The Chesapeake Bay Foundation (CBF) is the largest private, non-profit environmental organization dedicated to the protection and restoration of the Chesapeake Bay and its resources. With programs in environmental education, land conservation and environmental advocacy, CBF is involved in all aspects of the Chesapeake Bay cleanup effort. We have over 87,000 members, with over 45,000 in Maryland.

On behalf of CBF I want to thank the Committee for inviting us to testify here today on ways in which the Army Corps of Engineers' Civil Works Program can, should, and does participate in helping to restore the Chesapeake Bay's natural resources. CBF's philosophy is a simple one, we believe any one and everyone who has a mind to do so can help in Saving the Bay. In the State of Maryland alone, we have lost over 73% of our historic wetlands base, the Bay's oyster fishery is at less than 1% of its historic level, and the Bay continues to be plagued by an excess of nutrients and toxic pollution. However there is some good news. We are seeing signs of recovery in our submerged grasses and most recently a revival of our striped bass fishery.

It comes as no surprise to this Committee that in the past the mission of the Corps was different. Activities regulated by and undertaken by the Corp of Engineers may have actually contributed to the depletion of the Bay's natural resources. Today, we believe that mission has changed for the positive and, I am here to talk to you about the future. The following is a brief outline of some of the things that this Committee and the Army Corps of Engineers can do to help replenish the Bay's resources. Because of the expertise and capabilities of the Army Corps of Engineers it is uniquely situated to participate and assist other state and federal agencies in this effort.

Already the Corps participates in the tristate Chesapeake Bay Program along with other federal agencies and should continue to do so. In particular, in the Bay Programs' Tributary Strategy's calls for restoration of wetlands and aquatic habitat. The Corps of Engineers restoration activities should play a integral role in achieving the Bay Program's goal of 40% reduction in nitrogen and phosphorus loading to the Bay by the year 2000.

The Corps regulation of activities in waters and wetlands under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act remains an essential strategy responsibility for stemming the tide of wetlands

losses and ensuring appropriate mitigation of those losses through creation and restoration of wetlands and aquatic systems. Unfortunately, mitigation efforts by the Corps and state agencies have been plagued by technical difficulties in recreating successful wetlands. Difficulties arising from the lack of information on cumulative impacts and the loss of local functions and values of wetlands has added to the sometimes disappointing performance of mitigation efforts to recreate wetlands in the local landscapes.

However, by fostering efforts between the Corps and non federal interests with expertise in natural resources protection, this Committee can provide the needed impetus to improve restoration performance. One way to do so is the Committee's inclusion of the Chesapeake Bay Environmental Restoration Program Act S.2020 in its reauthorization of the Water Resources Development Act. This legislation would authorize \$30 Million dollar pilot program for the Corps to work with other non federal agencies to design and construct water related environmental resource projects in the Chesapeake Bay.

Wetland restoration projects offer an opportunity for forming partnerships between federal agencies, like the Corps, state, local and private entities. We foresee that the funding provided in S.2020 would

encourage a wide spread effort by the Corps and the Bay Program to involve citizens in restoration efforts. For instance, the Chesapeake Bay Foundation is working with the Chesapeake Bay Program's Habitat Restoration effort to involve citizens and communities in wetland restoration projects. Some of these citizen based activities may include planting vegetation and monitoring water quality and biological communities in degraded wetlands and streams restoration projects. These types of projects not only help restore the natural resources but give citizens who participate a vested interest in the long term health of their local community environment. CBF's education program, which takes over 35,000 school aged children and adults each year on field trips across the Bay watershed has found that the personal interaction with the Bay to be one of the most effective ways to connect people with their environment.

The Corp has sought to use dredge material in a manner that has the least environmental impacts. Unfortunately federal regulations which require the Corps to seek the least cost alternative for the disposal often discourages proposals with the least environmental impacts. A decision that relies too heavily on a short term, least cost financial alternative will often result in long term environmental costs. CBF recognizes that some innovative uses of clean dredge material may result in a net positive for the

Bay's resources. To ensure such a result, the planning process should involve all affected environmental interests. For example, in the Poplar Island Project which is a effort to create several types of Bay habitat on an eroded island on the Eastern Shore of the Chesapeake Bay, the planning process is involving local watermen, environmental scientists, and federal and state agencies, including the U.S. Fish & Wildlife Service. By building into the planning process early involvement of affected parties it is hope that the end result will yield a project with net positive gain to the resources of the Bay.

Along with wetland restoration, we would also like to see the Corps' expertise used to assist in the reestablishment of aquatic habitat. The Corps can play a critical role in the Bay wide effort to provide for fish passage at dams and to remove stream barriers that block migratory movement of fish. In addition, another important activity is reestablishment of aquatic reef habitat for oysters. This has both economic and ecological implications. The economic benefits of a sustainable oyster fishery in the Bay are fairly obvious. However, we must also acknowledge the ecological benefits that oysters provide in improving water quality through their filtering of nutrients and sediments. This is just the beginning of many possible opportunities for the Corps to engage in collaborative Bay restoration efforts.

Mr. Chairman I'd like to thank you for the opportunity to present this testimony. If I can answer any questions you may have on CBF's efforts to Save the Bay, I'd be happy to do so.

STATEMENT OF JOHN LAMB, EXECUTIVE DIRECTOR, WALLEYES UNLIMITED OF MONTANA

There has been much discussion concerning the value of recreation vs. the value of navigation as it relates to the Corps prioritization of water usage and allocation.

The new "Missouri River Master Manual" attempts to argue against any redistribution of historic water allocation from navigation to the storage reservoirs i.e. recreational uses. This argument is reflected in the manuals review of cost vs. benefit of each of these uses.

Also, the new "Missouri River Master Manual" would seem to hint that the Corps believe that any attempt to redistribute the existing allocation would be met with strong opposition from the downstream congressional lobby.

Don Pfau, Chairman of the Fort Peck Advisory Council testified at this committee's field hearing held in Glendive, Montana, on October 11, 1993, that available statistics show that the recreational benefit recovered from the upper river dams amounted to almost \$70 million dollars annually as compared to the approximate \$14 million dollar benefit received as a result of downstream barge traffic.

The potential for a much larger impact from recreation exists. However, due to the Corps lack of involvement in development of recreational infrastructure, the industry is constrained.

The House of Representatives Majority Deputy Whip, Pat Williams, has pointed out to Col. John Schaufelberger, that the "Missouri River Master Manual" fails to factor into consideration the continuing costs for Federal investment in the navigation infrastructure in determining the relative value of recreation vs. navigation.

The management of Fort Peck lake by the Corps has been devastating to the recreational industry in our area.

"Missouri River Country" is comprised of eight counties, six of which border Fort Peck lake. The total population of this area according to the 1990 census is 45,980. It has been estimated that there are at least 400 jobs existing today which are directly related to tourism of Fort Peck lake.

During the ten year period which ended in April of 1990, the city of Glasgow lost 19 percent of its population, experiencing the 5th largest decline in Montana. Not only has our area endured a ten year drought, it has also been suffering from an economic drought. Our only hope for the future is for the economic benefits which we see the potential for at Fort Peck lake.

It is hard to imagine why our area has suffered while the State of Montana has experienced a 26 percent growth rate over a 7 year period in non-resident travel. However, the reality of that increase is that it is occurring in Western Montana—not Eastern Montana. The State Tourism Program is willing to invest more marketing dollars into Eastern Montana but needs to know that there is adequate facilities and infrastructure in place.

The problem that we are having is the manner in which the Corps is willing to make investments in recreational infrastructure. In the 56 years that the Corps has managed Fort Peck Lake, they have provided only five locations on the Lake (240,000 acres) where drinkable water is available. Up until last year, most of the Corps managed facilities were without toilets.

Can you imagine planning a family vacation at the Corps facility at Bone Trail on Fort Peck Lake. First you must drive your family on 60 miles of gravel/dirt road to arrive at a facility with no water, no toilets, no parking area, no camping area and if you are unfortunate enough to be there when it is raining, you would discover that the roads are quickly rendered so impassible as to make departure impossible. I am not surprised that this area receives little or no use. I don't think the Corps should be surprised either, as a matter of fact, I think they don't want any usage. They have repeatedly demonstrated that they have a vested interest in limiting public use because they have plans for the water and financial resources downstream.

An example of Corps management policies at Fort Peck Lake are best reflected in the problem at Crooked Creek Marina. The operator of Crooked Creek Marina testified at the Glendive field hearing about how he planned for and constructed the Marina with the assistance, guidance and approval from the local Corps resource and recreational manager. Then, because of Corps decisions downstream, this water was removed from Crooked Creek Marina and it was unable to operate for 5 years. This kind of management not only discourages economic growth but quite honestly puts hardworking people out of work.

There appears to be no cohesive plan for the Corps recreational responsibility. They lack a mission statement containing goals, objectives, strategies and timetables for investment in recreational infrastructure. This is an example of no planning—not poor planning.

They do, however, have a mission and it is best reflected in their proposed "reorganization". This reorganization has been proposed under the guise of President Clinton's National Performance Review Initiative. With this opportunity, the Corps is planning to bury their recreation and natural resource mission under a new level of engineering managers.

When I go to the dentist, it does not occur to me to ask him to check under the hood of my truck. I can't imagine asking an engineer to remove my gall bladder, so why would I want an engineer to manage Fort Peck Lake? Would anyone consider putting a hydro-power engineer in charge of Yellowstone Park?

The Corps is the second largest provider of water-based recreation in the United States—they need to be required to take the job seriously!

There is something very wrong about this proposed reorganization and I think that it is best reflected in a letter which was written to Dr. John Zirschky on April 8, 1994, from Donald Dunwoody, Chief of the Natural Resources Management Division for the Missouri River Division.

Under the existing structure, we have a lake manager who has a staff and a budget and the authority that goes along with it. Even without the support from the Corps leadership, he does a good job with the resources he has. I guess he is doing so good a job that the Corps wants to give him another boss—the local hydro-power engineering manager. The question is why? In Montana, we believe that if it's not broke then leave it alone. Engineering management of this national treasure isn't going to solve any of our problems—only serve to quiet things up.

We are missing out on the potential for strong economic recovery in our area because of the Corps lack of commitment to the natural resource and recreational mission at Fort Peck Lake. Fort Peck Lake is a national treasure that deserves much better treatment than it has received under 60 years of Corps stewardship. It is a resource rich in wildlife, clean water and wide open spaces. Montana surrendered 260,000+ acres of farmland in the 30's so that America could put hungry families to work. Montana deserves at least the equivalent of that loss returned in the form of increased recreational opportunities.

The Corps manages this reservoir as if it were their own private holding tank to use as they see fit to satisfy their downstream interests. They have refused to spend any meaningful amount of money in the development of the recreational resource.

A good example of their management plan is the "cost-share dollars" approach. Under this policy, no money will be allocated or spent on recreational infrastructure at Fort Peck Lake unless the State of Montana or my community puts up half of the money. What this amounts to in reality is a very clever way to just say no to investment in recreation infrastructure.

It sounds reasonable enough, unless you ask the question of how are my neighbors and I, all 45,980 of us, going to come up with the millions of dollars that will take to make Fort Peck Lake a point of destination?

The State is still waiting for the Corps to contribute "cost-share" dollars for the Miles City Hatchery which was built specifically to provide fish for Fort Peck Lake. Where is the Corps contribution to the annual planting efforts undertaken by the State on their behalf because the Corps doesn't leave enough water in the lake to permit natural reproduction. Apparently, the Corps don't do fish—I guess it's not in their recreation operating plan, unless of course it's been court-ordered as it was at Lake Koocanusa, where the Corps spent millions of dollars building a fish hatchery and investing in recreational infrastructure.

There is a real problem with the "cost-share" management strategy—and it's because it only applies to recreation. The Corps had no problem spending 15 million dollars replacing the dam's pen-stocks (no cost-share dollars). The Corps had no problem spending 200 million dollars rip-rapping the entire 800 miles from Sioux City to the mouth of the Missouri River (no-cost share dollars).

The "cost-share" dollar management approach is simply a clever way to say maybe when you really mean no!

As if to add insult to injury, the Corps has put into place a plan to charge \$2.00 to launch a boat on Fort Peck Lake. I guess this is their way of punishing us for continuing to use Corps facilities, such as they are. Maybe they need the poor folks in Eastern Montana to help raise the \$500 million dollars necessary to fix the \$30 million dollar channelization screw-up in the Florida Everglades?

We don't deserve this kind of treatment by the people who have been entrusted with this national treasure.

Each year remains much the same as the last—yes, the potential for real progress and economic growth is here, however, we need a steward of the Lake who has a plan, a vision for the future and who will see to it that Montana receives it's fair share of the water and the economic benefits which have flowed downstream for 56 years.

A few numbers:

* Montana receives 6.5 percent of the power contributed from Fort Peck Dam.

*The point here is that billions of dollars of energy have been provided elsewhere. It is estimated that \$10-\$12 billion worth of flood protection has been provided with the assistance of Fort Peck Dam. These are good things—things we can all be proud of, however, let us not forget that maybe some of that economic benefit should be returned to Montana.

Fort Peck Lake and the surrounding Charles M. Russell Game Refuge is a national treasure, every bit as special as any other area. Due to the cooperative work of the people of "Missouri River Country" a good balance has been planned for Fort Peck Lake. The needs of the environment and its wildlife have been carefully balanced with the needs of reasonable recreation and public use and enjoyment of this treasure.

We have taken our responsibilities seriously and it is reflected in the work of the "Fort Peck Advisory Council" and its development of the "Master Plan for Fort Peck Lake". With the help of the local Lake Manager, DNRC, BLM, DFWP, USFWS, six county commissioners and elected officials, a cohesive, comprehensive plan has been developed which minimized the potential for recreational impact, thus preserving for future generations this national treasure.

The problem remains that there is no commitment being made by the leadership of the Corps. The Corps leadership would seem to be in a constant state of turnover—each new commander just wants to maintain the status-quo which if the last 56 years is any example means each year will continue to be much the same as the last.

In conclusion, I realize that I've brought a very local problem to this committee which has a responsibility to oversee the interests of the entire nation. But I believe that if our problem is an indication of how the Corps is fulfilling its responsibilities, then it is everyone's problem.

Perhaps the Corps are right, now is the time to change and reorganize, however, not how they envision that change. If the Corps is to remain in the recreational business, then they need to take the job seriously; develop a mission statement which outlines their goals, objectives, strategies and timetables for implementation. Staff the program with people who are trained and qualified to accomplish the mission. Prepare an annual marketing and budget plan to accomplish the mission. Develop a 5 and 10 year plan for development and marketing strategy.

Those people who are affected by this plan should be included in the planning process. It is, after all, these people who will be helping to protect the resource and ensure that it is available for future generations.

Finally, I would ask this committee to address several things immediately:

- 1) Eliminate the "cost-share" management approach as it is killing the efforts of poorer areas who could never afford to raise the kind of money necessary.
- 2) Provide the enabling legislation to permit the current cottage-lease holders the opportunity to purchase their cabin sites. This will allow them to borrow money, make improvements and build a tax-base which will be capable of supporting county maintenance of the roads.
- 3) Invite me back next year—use Fort Peck Lake as the measure with which to judge progress by the Corps on these issues!

Mr. Chairman, members of the Committee, I appreciate the opportunity to testify today on the Water Resources Development Act of 1994. My name is Scott Faber, and I am Director of Floodplain Programs for American Rivers, a national conservation organization dedicated to the protection and restoration of our nation's rivers and streams. I am testifying today on behalf of American Rivers, the Environmental Defense Fund, and the National Audubon Society.

Our nation's flood control policies are badly in need of reform. For more than two centuries, the Corps of Engineers has relied on structural engineering solutions to control flooding, exchanging heavy environmental costs for uncertain flood control benefits. Despite this multibillion dollar investment in structural flood control, per capita flood losses have more than doubled since 1951, as we continue to build our homes and businesses in flood-prone areas.

Instead of using floodplains and their associated wetlands to store and slowly convey stormwater, the Corps of Engineers has sought to control flooding with practices designed to drain our watersheds quickly and then to compensate for increased mainstem flooding by constructing levees. This philosophy has focused on a single purpose—removal of water—and, despite the Corps' much heralded new "environmental" focus, is still the approach used in the vast majority of current and pending civil works projects.

A New Mission: Watershed Management

Given the number of vulnerable homes and businesses located in our nation's floodplains, there will continue to be a need for thoughtful and appropriate structural flood control projects. But, we must begin to address the problems of the flooding where they begin—in our watersheds. What we are proposing today is a fundamental shift in the way that the Corps of Engineers approaches flood control. The Corps of Engineers should adopt a multi-objective watershed approach that controls flooding through the preservation and restoration of natural flood control functions throughout our nation's river basins, and through relocation and relocation and other non-structural alternatives that reduce the risk of flooding to those currently living in flood-prone areas.

In the wake of the greatest flood of this century, Congress acted quickly to pass the Hazard Mitigation and Relocation Assistance Act of 1993, landmark legislation that will allow more than 5,000 flooded homes and businesses to be relocated from flood-prone areas throughout the Midwest. Congress made certain that non-structural flood control alternatives, like relocation and wetlands restoration, were available. To prevent future flood losses, we must not only continue to move people and property out of harm's way but must also make watershed management and the preservation and restoration of natural flood control functions unambiguous missions for the Corps of Engineers, and make certain that current and pending civil works projects reflect this new approach. We must also recognize that the States, not the Corps of Engineers or the Soil Conservation Service, are our floodplain managers, and that we must tailor our Federal flood control programs to facilitate strong State floodplain and watershed management.

Threats to Rivers

Scientists increasingly tell us that the main threat to America's rivers today comes not from pollution but the physical and biological transformation of rivers and their watersheds. As our rivers are altered to provide water transportation, generate power, reduce flood hazards and provide water for our farms, cities and industries, their natural physical, chemical and biological processes have been damaged or destroyed. The loss of riparian and aquatic habitat has led to the decline or extinction of more than one-third of North America's fish species.

Healthy river systems are incredibly dynamic. As nutrients, sediments and organisms are transported downstream, water and organic materials are constantly added to the mix. Most of these materials come from the surrounding terrestrial system, with the land-water boundary, known as the "riparian zone," acting as a critical valve or filter that regulates the exchange. Riparian zones and their associated wetlands also act as natural sponges, absorbing and filtering polluted floodwaters over time. In places where the banks of streams are cleared, straightened and replaced with rocks or concrete to reduce flood hazards, the natural values of associated wetlands and floodplains—controlling and filtering runoff, providing habitat, and adding nutrients—are eliminated.

Although river flow is highly variable over the course of a year, the seasonal timing of high and low flows is fairly predictable. When rivers flood, they alter the shape of the stream, scouring new channels and inundating riverside land, depositing sediments, and building new banks and beaches. This function is as important to healthy river ecosystems as fire is for maintaining prairies. For many fish species, this flood "pulse," called the "natural hydrograph" by scientists, not only triggers spawning and migration but also allows fish to reach seasonally inundated floodplain nursery and spawning habitat.

Scientists increasingly understand how the destruction of these natural hydrologic cycles have contributed to the destruction of our aquatic ecosystems. And while local communities have taken the lead in adopting cost-effective stormwater, floodplain and water supply management programs that utilize natural hydrologic processes, the Corps of Engineers continues to pursue its primary missions, flood control and navigation, by altering the hydrology and other physical characteristics of rivers and their watersheds.

While environmental restoration has become a part of the Corps' mission, it is almost exclusively through efforts to mitigate for negative environmental impacts.

Our Water Management Systems Are Inefficient

Increasingly, our nation's water management systems are at war with each other, leading to higher flood losses, the loss of aquatic species, and the degradation of our drinking water supplies. The management of our water resources is at the mercy of an uncoordinated collection of Federal, State and local programs for flood control, water quality and pollution control, watershed management, erosion control and groundwater protection. At the Federal level, there are at least 25 subdivisions of

12 departments and agencies that have some responsibility for flood control. At the same time, States administer locally adopted and enforced land-use regulations, and local governments oversee local drainage and stormwater management. A similarly disaggregated hierarchy of agencies are responsible for the protection of our drinking water supplies. Full coordination of the many separate programs that address these water resources functions does not exist within and between these different levels of government, subjecting the overall management of our rivers to the tyranny of small decisions.

These competing water management systems often solve one problem by shifting it elsewhere, creating a disintegrated and inefficient approach to river and watershed management. Increasingly, these tensions are translated into higher costs for taxpayers and rate payers as the deterioration of water quality requires more expensive methods of water treatment.

Reassessing Current Priorities

Many flood control projects currently under construction or review by the Corps of Engineers continue to reflect the faulty flood control policies of the past. Instead of using the natural flood control functions of floodplains and their associated wetlands to store and slowly convey stormwater, the Corps of Engineers continues to propose projects that force our nation's rivers into ever-tighter channels, increasing flood heights, accelerating flows, and creating a false sense of security that actually encourages the development of flood-prone areas.¹

Los Angeles River, California

The Corps of Engineers has proposed, for example, to further alter the Los Angeles River, an urban river that has been channelized and partly buried beneath the city. While only 13 miles of the 55-mile river remain in a natural State, these "living sections" account for most of the remaining riparian habitat in Los Angeles County. The Corps has proposed a 21-mile-long flood control project in a drainage area that already includes five major reservoirs, 22 debris basins, and 470 miles of channel improvements. This project, dubbed "21 miles of urban blight" by local planners, will further degrade economic values in poor communities and will negatively impact several sensitive, endangered or threatened species.

Trinity River, Texas

Past alterations of the Trinity have contributed to the decline of the Paddlefish, a state-listed endangered species. Now, the Corps has proposed to extend the Dallas Floodway, located near the confluence of the Elm Fork and the West Fork of the Trinity, by nine miles. Included in the project is a 22-mile levee and floodway system with a 9.1 mile channel along the Trinity, 4.1 miles of channel improvements along White Rock Creek, and 5.4 miles of channel improvements to divert Five Mile Creek. The new channel would require the clearing of bottomland hardwood forests, critical nesting habitat for the Bald Eagle.

These projects are representative of the kinds of environmentally destructive projects the Corps of Engineers continues to construct. Still other potentially destructive projects that further review: a flood control project on the Big Sioux River in South Dakota; the Seven Oaks Dam in California; the Passaic River tunnel in New Jersey; proposed tidal floodgates on the Saugus River in Massachusetts (see Appendix A).

These and dozens of other projects are indicative of the approach the Corps has taken and continues to take to water resources, a legacy that no longer reflects the broader environmental objectives that Congress has established in the National Environmental Policy Act, the Endangered Species Act, the Clean Water Act and the Safe Drinking Water Act. The construction of these projects actually conflicts with many of the goals Congress has set for other agencies that manage our natural resources. We urge the Committee to take a hard look at current and pending water resources projects to make certain they simultaneously control flooding and meet the nation's broader environmental objectives.

¹ Robert N. Stavins and Adam B. Jaffe, Unintended Impacts of Public Investments on Private Decisions: The Depletion of Forested Wetlands, *The American Economic Review*, 80:337 (1990). Nearly one-third of the wetlands lost in the Mississippi Valley were lost because of private decisions induced by Federal flood control projects. Construction of flood-control and drainage projects caused a higher rate of conversion than would have occurred if the projects had not been built, as Federal projects allowed farming where it could not have otherwise occurred. Of all the factors that landowners considered before draining wetlands, flood protection and drainage provided by Federal projects had the largest impact, generating a negative externality not considered when the decision to build a flood control project is made.

New Directions

The Water Resources Development Act of 1992 gave the Corps of Engineers the authority to adopt a watershed-based approach to ecosystem management, and included site specific authorizations and demonstrations such as the Anacostia River Watershed study. Each of these studies directs the Corps to perform comprehensive watershed planning, management and restoration through wetlands restoration, sediment controls, stormwater management and other conservation and flood control tools. We urge the Committee to direct the Corps to perform comprehensive watershed planning, management and restoration in the Los Angeles River watershed, the Des Plaines River watershed, and the Saugus River watershed.

Stormwater Management

Scientists have increasingly found that within a watershed where lakes and wetlands are preserved or restored, water is released at different rates and reaches the channel at different times. A recent report found for every 1 percent increase in the area of a watershed's wetlands, a flood's peak flow in the streams that drain that watershed is reduced by an average of 3.7 percent.² In the Midwest, where the Great Flood of 1993 left more than 70,000 people homeless, more than 19 million acres of wetlands that once helped to store floodwater and then release it slowly back into the stream have been replaced by flood control and drainage structures designed to move water off the landscape as quickly as possible. Researchers have found that peak flows increase substantially after drainage. One researcher studying the effect of wetlands losses on streamflows in Wisconsin found that flood peaks might be as much as 80 percent lower in basins with significant lake and wetland area.³ Others have come to similar conclusions, finding that the hydrologic detention function of wetlands can reduce the size of flood pulses.⁴ In fact, the Corps of Engineers has already utilized these functions to control flooding in the Charles River watershed in Massachusetts.

As part of these efforts to simultaneously meet the objectives of flood loss reduction and aquatic ecosystem restoration, we believe that Congress should go further and explicitly grant the Corps of Engineers the authority to implement non-structural flood control efforts that limit stormwater runoff. As you know, the 1944 Flood Control Act creates a separation of responsibilities between the Corps of Engineers and the Soil Conservation Service (SCS), instructing the Corps to manage large rivers and the SCS to manage watersheds. That division often prevents the Corps from addressing the causes of flooding—stormwater management practices throughout the watershed. We believe the management practices that have the greatest potential to simultaneously reduce flood losses, improve the quality of our drinking water supplies and protect and restore aquatic habitat are those practices that restore and preserve natural hydrologic detention functions throughout the watershed. The flood control efforts of the Corps of Engineers, currently focused structural solutions to mainstem flooding, should be enlarged to include non-structural measures, including wetlands restoration, that reverse the effects of tributary channelization, and require coordination with SCS and other water management agencies. This enlarged role in stormwater management should require that the Corps of Engineers, working cooperatively with other Federal, State and local agencies, address a variety of water resources needs simultaneously.

Aquatic Ecosystem Restoration

In 1992, Congress included major new provisions and themes reinforcing the Corps of Engineers' emerging environmental mission in the Water Resources Development Act. We now ask the Committee to go further in the Water Resources Development Act of 1994 and to establish aquatic ecosystem restoration as an explicit mission of the Corps of Engineers.

² Misganaw Demissie and Abdul Khan, Influence of Wetlands on Streamflow in Illinois, Illinois State Water Survey for the Illinois Department of Conservation, at 49 (1993).

³ R.P. Novitski, Hydrology of Wisconsin's Wetlands, U.S. Geological Survey, Madison, Wisconsin (1982).

⁴ see generally C.H. Prior and J.H. Hess, Floods In Minnesota, Magnitude and Frequency, Minnesota Department of Conservation (1961). C.T. Haan and H.P. Johnson, Hydraulic Model of Runoff from Depressional Areas, American Society of Cultural Engineers, 11:364-367 (1968). D.W. DeBoer and H.P. Johnson, Simulation of Runoff from Depression Characterized Watersheds, American Society of Agricultural Engineers, 14(4):615-620 (1971). K.L. Campbell and H.P. Johnson, Hydrologic Simulation of Watersheds with Artificial Drainage, Water Resources Research 11(1) :120-126 (1975). I.D. Moore and C.L. Larson, Effects of Drainage Projects on Surface Runoff from Small Depressional Watersheds in the North Central Region, Water Resources Research, Bulletin 99 (1979).

In Sec. 306 of the Water Resources Development Act of 1990, Congress provided that the Corps "shall include environmental protection as one of the primary missions of the Corps of Engineers in planning, designing, constructing, operating and maintaining water resources projects." Section 307 also mandated that the Corps develop an action plan to use its water resources authorities to accomplish net wetland restoration. Despite these authorities, the Corps has generally believed that it could not engage in aquatic ecosystem restoration unless the project involved modifications to existing Corps projects and only if all existing project purposes are kept fully intact. It has typically defined its environmental mission as protection of fish and wildlife habitat, terminology that has resulted in a focus on the direct habitat uses of identifiable species. This interpretation fails to encompass other impacts associated with structural flood control projects, such as negative impacts on drinking water supplies, and focuses project purposes on the construction of nesting areas rather than efforts that might preserve the natural hydrology and biological integrity of whole aquatic systems.

The Corps has been the managing partner in the development of a flood control system that has virtually destroyed the natural values of the Everglades ecosystem from its headwaters near Orlando through the coral reefs of the Florida Keys. The Kissimmee River restoration project, which will partially compensate for the environmentally-destructive channelization that occurred in the 1960s, is without doubt the best example of the Corps of Engineers evolving mission. The construction of the flood control project, coupled with basin development and upland drainage practices, significantly reduced wetland habitat and degraded water quality, causing a precipitous crash in fish and wildlife populations. The environmental restoration project, currently under construction, will allow the river to resume its meandering course south to Lake Okeechobee. Other restoration projects that mitigate for the negative consequences of flood control projects, including the Savannah Harbor project in South Carolina, the Calcasieu River and Pass project in Louisiana, the Fern Ridge Lake project in Oregon and the Homme Lake project in North Dakota, have been completed. Ten additional projects, including a restoration project for the Anacostia River, our nation's most endangered urban river, have been approved for implementation. An additional 34 projects are in the feasibility study phase.

Section 1135 Program

We believe the Committee should use the opportunity of the Water Resources Development Act of 1994 to expand and improve on these significant successes. Section 1135 of the Water Resources Development Act of 1986 gave the Corps of Engineers the authority for a two-year demonstration project to implement changes in the structure and operation of previously constructed projects to improve the environment. The Water Resources Development Act of 1988 extended this program for three years, and the Water Resources Development Act of 1990 made this program permanent with an annual authorization of \$15 million. The Water Resources Development Act of 1992 increased the program's annual authorization to \$25 million. To date, a series of legislative and administrative obstacles have prevented the Corps of Engineers from fully meeting the intent of Congress. The Water Resources Development Act of 1994 creates the opportunity to "fine-tune" this important program so that the Corps can better accomplish its emerging environmental missions.

The Secretary is currently authorized to review the operation of water resources projects constructed by the Corps of Engineers to determine the need for modifications in the structure and operations of such projects for the purpose of improving the quality of the environment. First, we urge the Committee to explicitly direct the Secretary to review the operation of all projects constructed by the Corps to determine the potential for such modifications. Furthermore, we urge the Committee to broaden the Secretary's authority to implement restoration projects that do not modify existing Corps of Engineers projects so that the agency can begin to meet the broader environmental objectives of aquatic ecosystem restoration. At a minimum, we believe that the Secretary should be granted the authority to implement environmental restoration projects in ecosystems impacted by the construction or operation of a Corps of Engineers project.

One obstacle to the full implementation of the 1135 program lies in the requirement that local sponsors provide land and rights of way for both environmental restoration and non-structural flood control projects, and to allow local sponsors to contribute in kind work to meet their cost-sharing obligations. Currently, the non-federal sponsor is required to provide all lands, easements, rights-of-way, including suitable borrow and dredged material disposal areas, and to provide a cash contribution in the amount needed to make its total contribution equal to 25 percent. We believe that in-kind work, especially for the construction and design phases, should be counted towards the local sponsors' contribution.

Another disincentive for the creation of Section 1135 projects is the management of the program itself, as each project requires several levels of review. As you know, the current approval process for 1135 projects requires several cumbersome and timely phases of review, including a study initiation phase which has several levels of review, and a subsequent and equally burdensome feasibility phase. Consistent with the current reorganization of the Corps of Engineers, we urge to Committee to explicitly direct the Secretary to develop a fast-track approach for 1135 projects that do not exceed \$1 million.

With these obstacles removed, the Corps of Engineers could become the engineering and environmental management firm, dispensing planning, design, construction and financial assistance, that Congress envisioned when it passed the Water Resources Development Act of 1992. This expanding "Corps of Environmental Engineers" may indeed become our nation's premier water management, watershed protection and environmental infrastructure agency.

In anticipation of these developments, we urge the Committee to expand the size and scope of this important program by increasing the Corps' annual authorization to \$100 million. Furthermore, American Rivers has identified several environmental restoration projects that are modeled after the Kissimmee River restoration project and which would require Congressional authorization.

Columbia River

Dams on the Columbia and Snake rivers are responsible for the elimination of more than 200 salmon runs and place 76 additional run risks in jeopardy of extinction. These operation of these dams by the Corps of Engineers, the Bonneville Power Administration, and the Bureau of Reclamation, eliminates the spring freshet which flushed young salmon to the sea, greatly increasing the length of time it takes juvenile salmon to migrate to the sea. While ladders have been installed to accommodate the passage of adults travelling upstream, no changes have been made to meet the needs of smolts travelling downstream.

Since 1980, when Congress directed that "flows of sufficient quality and quantity," be provided for salmon through the Federal hydropower system and that fish be given "equitable treatment" with other river uses, Federal dam operators have removed juvenile salmon from the river, and trucked or barged them downstream. Fish runs have continued to decline.

The reservoir behind John Day Dam is the longest on the lower Columbia, slowing salmon migration significantly. According to calculations by the Corps of Engineers, the lowering of John Day Pool would adequately increase flows to meet the needs of juvenile salmon. During dry years, for example, operation at minimum operating pool would 1.8 days from the current 11.2 days it takes water particles to travel through the reservoir.

Although the lowering of the pool would not significantly disrupt navigation or hydroelectric generation, it would require some modifications to existing structures, including the extension of irrigation pump intakes, modification of public and private wells, the extension or reconstruction of some recreational facilities, mitigation for lost wildlife habitat, modification of fish ladders, and minor modifications to locks and dams (See Appendix B).

Upper Mississippi River

The absence of a system-wide approach to the management of the Upper Mississippi River has placed the headwaters of the nation's most-storied river on the verge of ecological collapse. The Environmental Management Program created by the Water Resources Development Act of 1986 has led to the creation of habitat projects but has not addressed many of the river's most basic problems: the loss of backwaters and aquatic vegetation, critical requirements for healthy river systems. An increasing number of river biologists warn that critical ecological thresholds may soon be crossed, which will lead to a rapid, perhaps irreversible loss of biodiversity throughout the system.

The Long Term Resource Monitoring Program, created as part of the Environmental Management Program, should be modified to facilitate development of an ecosystem management plan for the Upper Mississippi River system. Despite the successes of the Environmental Management Program, the Mississippi River continues to decline. Shallow backwater lakes are being filled in with sediments which are constantly resuspended in the water column by river navigation, reducing light penetration needed for the growth of aquatic plants. Submerged vegetation and aquatic insects will soon disappear and, without the vegetation and insects essential for waterfowl and other animals,—the river's ecosystem will collapse. This sequence of events is inevitable whenever a river is impounded, and it is happening to the Mississippi River with increasing speed (See Appendix C).

The Great Confluence

Section 307 of the Water Resources Development Act of 1990 established, as part of the Corps of Engineers' water resources development program, an interim goal of no net loss of the nation's remaining wetlands and a long-term goal to increase the quality and quantity of the nation's wetlands. This section also established a wetlands restoration and enhancement demonstration program, and authorized the construction of a pilot project for Mud Creek, Arkansas to help improve the quality of effluent discharged from a publicly owned treatment works operated by the City of Fayetteville. We believe a wetlands demonstration project at the confluence of the Mississippi, Missouri and Illinois rivers would simultaneously meet the goals set out in Section 307 of the Water Resources Development Act of 1990, restore the health of three rivers, and meet the needs of flood victims. This area remains heavily damaged by the Great Flood of 1993.

Conclusion

The Water Resources Development Act of 1986 was the most comprehensive water resources development legislation enacted by Congress since the New Deal and the was the most environmentally sensitive water resources bill ever developed. Subsequent Water Resources Development Acts have expanded and improved that landmark legislation, moving the Corps of Engineers into watershed management, wastewater reclamation and reuse, and the construction of environmental infrastructure. The Water Resources Development Act of 1992 contained more environmental provisions that the three previous omnibus Corps of Engineers bills, paying particular attention to water quality.

Now, we urge the Committee too address faulty Corps of Engineers engineering practices designed to drain our watersheds quickly. We urge you to require that the Corps of Engineers adopt a multiobjective watershed approach that controls flooding through the preservation and restoration of natural flood control functions throughout all of our nation's river basins and through the use of non-structural alternatives like relocation, used so successfully in the Midwest.

In keeping with this new approach, we urge the Committee to review current and pending civil works projects to make certain that these projects reflect this new mission. Additionally, we urge the Committee to direct the Corps to perform comprehensive watershed planning, management and restoration for the watersheds of the following rivers: the Los Angeles River (CA), the Trinity River (Tx), Duck Creek (OH), the Saugus River (MA), the Mississippi River, the San Lorenzo River (CA), the Santa Ana River (CA), the Big Sandy River (KY), Pond Creek (KY), the Wood River (NE), the Passaic River (NJ), the American River (CA), the Des Plaines River (IL). As part of these efforts to simultaneously meet the objectives of flood loss reduction and aquatic ecosystem restoration, we urge the Committee to explicitly grant to the Corps of Engineers the authority to work cooperatively with other agencies to develop and implement non-structural flood control efforts that manage stormwater runoff.

In order to build on the Corps' emerging environmental mission, we ask the Committee to make aquatic ecosystem restoration an explicit mission of the Corps of Engineers, and urge you to direct the Secretary to the review the operation of all projects constructed by the Corps to determine the potential for environmental improvements. By making aquatic ecosystem restoration an explicit mission of the Corps of Engineers, our de facto river managers, we can better meet our broader water resources management objectives. American Rivers appreciates the opportunity to appear before you today and would be glad to answer any questions or provide further details upon request.

APPENDIX A

Lavisa and Tug Forks of the Big Sandy River and Upper Cumberland River, West Virginia, Virginia and Kentucky

The Corps has begun a \$1 billion flood control project that includes the construction of levees, floodwalls, and a flood control reservoir. The benefit/cost ratio was not computed for the project because the Energy and Water Appropriations Act of 1981 found that benefits were exceeded by their costs. The project is more than half complete, but up to \$442 million can be saved if the project were amended.

Natomas Basin, California

The Corps is studying whether to proceed with a levee project to protect Natomas Basin. The project would allow more than 170,000 people and 80,000 new homes to be built in the basin, where potential flood depths range from 8 to 23 feet. The

project would put more than \$15 billion in private property at risk, increasing the future relief costs to the Federal and State government.

Passaic River Tunnel, New Jersey

The Corps has proposed building a 20.1 mile-long underground tunnel and a shorter tunnel to remove flood waters from 35 towns in the Passaic River Basin and transfer the water to Newark Bay. The project also includes 5.9 miles of channel modifications, 17.6 miles of levees, and 6.2 miles of floodwalls. The project, which is expected to cost \$2 billion, has a benefit/cost ratio of only 1.2 to 1. The State of New Jersey opposes the project.

Saugus River, Massachusetts

The Corps is studying whether to build tidal floodgates across the mouth of the Saugus River, along with the construction of dikes, walls, and stone revetments along the shorefront of Lynn and Revere. The project would ostensibly protect more than 5,000 coastal properties within Revere, Saugus, Malden and Lynn against tidal flooding. The benefit/costs ration of the project, which will cost \$114 million, is only 1.3 to 1.

Brays Bayou, Texas

Brays Bayou drains about 137 square miles in the south-central portion of the Buffalo Bayou watershed. The Corps is considering construction of a flood control project that includes 3 miles of stream improvements, 3 flood detention basins and 7 miles of stream diversions. The estimated cost of the project is \$430 million.

Wallisville Dam, Texas

The \$39 million dam proposed by the Corps for the delta of the Trinity River, where it empties into Galveston Bay, would dramatically impact the Bay's shrimp harvest and the yield of other species. Losses to the shrimp harvest alone are estimated at \$59 million to \$64 million over the life of the project due to salinity increases attributable to the dam.

Duck Creek, Ohio

Despite severe environmental problems, including pollution from nearby industries and Combined Sewage Overflows, the Corps has proposed a \$13.6 million levee and channelization project that would destroy 13 acres of habitat on a degraded urban river.

Big Sioux River, South Dakota

The Corps has proposed large-scale modifications to channel and levee system built nearly 30 years ago, prior to the development of non-structural alternatives and the principles of watershed management. The project would cost \$31.5 million.

San Lorenzo River, California

Increased sedimentation in the watershed of the San Lorenzo River has reduced the carry capacity of the channel. The Corps has proposed to add floodwalls at a cost of \$11.8 million to a levee and channelization project completed in 1959.

Wood River, Nebraska

The Corps has proposed the construction of a \$11.4 million floodway to divert flood flows from the Wood River to the Platte River, interrupting natural flow regimes on both river systems. Several property owners who would lose parcels in the path of projects have expressed strong opposition.

APPENDIX B: COLUMBIA RIVER

The Columbia and Snake rivers, once noted for their legendary runs of salmon and steelhead, now have the dubious distinction of having several species of salmon listed as threatened or endangered under the Endangered Species Act. Before the development of hydropower dams, as many as 16 million adults would enter the river headed for spawning beds as far upstream as Canada and Central Idaho. Today, the number has slipped to 2 million fish, of which only 300,000 are wild salmon. Over 200 Columbia Basin salmon runs are gone forever, and the American Fisheries Society has concluded 76 more are at risk of extinction. While destructive land and water use practices from logging, grazing, mining, and farming have contributed to the decline of Columbia River salmon habitat, the operation of Corps of Engineers dams are said to be responsible for 80 to 90 percent of the human impact on the Columbia's endangered salmon.

Beginning in the 1930's and continuing through the 1970's, nineteen Federal dams were built on the Columbia and Snake Rivers. These dams, operated by the

Corps of Engineers, the Bonneville Power Administration, and the Bureau of Reclamation, have drastically changed the pattern of flow in the system. Most significant, they all but eliminated the spring freshet which flushed young salmon to the sea. In March, a Federal judge ruled that these Federal dam operators must do more to aid salmon recovery. In response to lawsuits brought by American Rivers and other conservation groups, fishing groups, the States of Idaho, Oregon, and Alaska, and Indian tribes, the judge rejected a biological opinion by the National Marine Fisheries Service that found the salmon were placed in "no jeopardy" of extinction by the dams.

For well over a decade, the region's State, Federal, and tribal fishery agencies have recommended improved river flows to mimic the spring freshet that used to flush juvenile salmon to the sea. The dams on the Columbia and Snake rivers have greatly increased the length of time it takes juvenile salmon to migrate to the sea. Before the dams were built, juvenile fish from Central Idaho, for example, were flushed to the ocean in a week or less. Now it takes forty days, or longer in drought years. While ladders have been installed to accommodate the passage of adults travelling upstream, no changes have been made to meet the needs of smolts travelling downstream.

In 1980, Congress passed the Northwest Power Planning Act, which directed that "flows of sufficient quality and quantity, be provided for salmon through the Federal hydropower system and that fish be given "equitable treatment" with other river uses. Since then, in an attempt to avoid improving river flows, the Federal dam operators have removed juvenile salmon from the river, and trucked or barged them downstream. The Federal dam owners have pursued this transportation program for 15 years, despite the continuing decline of fish runs.

The reservoir behind John Day Dam is the longest on the lower Columbia, slowing salmon migration significantly. Currently, John Day Pool can not be drawn down to minimum operating pool. According to calculations by the Corps of Engineers, the lowering of John Day Pool would adequately increase flows to meet the needs of juvenile salmon. During dry years, for example, operation at minimum operating pool would 1.8 days from the current 11.2 days it takes water particles to travel through the reservoir. The Northwest Power Planning Council incorporated the lowering of John Day Pool into its recovery plan.

Although the lowering of the pool would not significantly disrupt navigation or hydroelectric generation, it would require some modifications to existing structures, including the extension of irrigation pump intakes, modification of public and private wells, the extension or reconstruction of some recreational facilities, mitigation for lost wildlife habitat, modification of fish ladders, and minor modifications to locks and dams. The total cost of the project is estimated to be less than \$80 million, a one-time cost that is far less than the cost of the Kissimmee River restoration project.

APPENDIX C: UPPER MISSISSIPPI RIVER

The Water Resources Development Act of 1986 authorized the Corps of Engineers to undertake a program for the planning, construction, and evaluation of measures for fish and wildlife habitat rehabilitation and enhancement, a long-term resource monitoring program, a program of recreational projects and an assessment of recreational benefits. These authorities, contained in Section 1103 of P.L. 99-662 and known as the Environmental Management Program, have been narrowly interpreted by the Corps of Engineers, which has failed to manage the Upper Mississippi River system as a functioning aquatic ecosystem. Habitat projects developed and implemented as part of the Environmental Management Program are not developed within a systemwide, integrated approach, despite language in Section 1103 of the Water Resources Development Act of 1986 that suggests the authority for such an approach.

We believe that the operating plan for the Long Term Resource Monitoring Program should be modified to facilitate development an ecosystem management plan for the Upper Mississippi River system. Despite the successes of the Environmental Management Program, the Mississippi River continues to decline. Shallow backwater lakes are being filled in with sediments which are constantly resuspended in the water column, reducing light penetration needed for the growth of aquatic plants. Submerged vegetation and aquatic insects will soon disappear and, without the vegetation and insects essential for waterfowl and other animals, the river's ecosystem will collapse. This sequence of events is inevitable whenever a river is impounded, and it is happening to the Mississippi River with increasing speed. An increasing number of river biologists warn that critical ecological thresholds may soon

be crossed, which will lead to a rapid, perhaps irreversible loss of biodiversity throughout the system.

A resource as complex as the Mississippi must not be managed by the tyranny of small decisions. One component of the current monitoring program is the development of "alternatives to better manage the Upper Mississippi River." We urge the Committee to explicitly require that the Long Term Resource Monitoring Program work with other State and Federal resource management agencies to develop an aquatic ecosystem restoration and management plan that adopts a watershed focus, and to require that the current navigation study authorized under Section 216 of the 1970 Water Resources Development Act include a similar focus.

Statement of
Lillian C. Liburdi
Director, Port Department

submitted to
The Committee on Environment and Public Works
United States Senate

regarding
The Water Resources Development Act of 1994

May 26, 1994

Mr. Chairman and members of the committee, I am Lillian Liburdi, Director of the Port Department of The Port Authority of New York and New Jersey. I am grateful for the opportunity to submit this statement that outlines both the needs of the Port of New York/New Jersey, particularly with regard to dredging activities, and the concerns that we and others in the public port sector have with respect to the need for a coherent national dredging policy.

In the past dredging of the underwater infrastructure of our ports to a very large extent was taken for granted. People accepted the idea that in ports where natural harbor depths were too shallow for modern cargo ships dredging was not only necessary, but automatic. In the late 1970s, water resource projects, including dredging, no longer were taken for granted. The process by which Congress and the executive branch decided the worth of water resource projects came into question and the contest between persons favoring the status quo and those seeking to reform federal policy to ensure greater consideration of environmental and economic value resulted in governmental gridlock that only ended with the 1986 Water Resources Development Act.

In that landmark law reforms and federal policy improvements were made and the benefits are readily apparent. But eight years have passed and the time has come for Congress to adopt new reforms as a natural follow-up to the good work of 1986. Indeed, in testimony two years ago before this committee's Subcommittee on Water Resources, Transportation, and Infrastructure I stated the need for "a federal policy on dredged material, that includes funding for research, the finding of new disposal sites, and a crack down on sources of contamination."

At that time the Port of New York/New Jersey was two years into a federal permit process that was complicated by the presence of trace amounts of dioxin in berth sediments in Newark Bay. That process which should have taken one year, took a total of three before a permit was issued by the Corps of Engineers. Under the permit requirements a \$1 million maintenance dredging project escalated to \$17 million, not including the cost of litigation in which the Port Authority and the federal government are defendants.

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That litigation, along with our overall experience, has helped illuminate problem areas in federal regulation of dredging activities. Those problems extend beyond the permit process and boil down to the lack of an implementable long-term strategy collaboratively developed and carried out by the Federal and local governments and community interests to ensure that dredged materials will be managed in an economically achievable and environmentally appropriate manner. Our experience in the Port of New York/New Jersey has brought to light the following problems:

- o Applicants for dredging permits have been subject to an interminable permit process that gives little consideration to the flow of time and sediments.
- o The capacity to manage contaminated sediments and the understanding of appropriate responses to contamination have not kept pace with advances in detecting trace amounts of contamination.
- o Although we debated, discussed, and studied options for our harbor over the past decade, until this year Federal agencies have done little to identify and designate a new ocean disposal site despite the clear lack of feasible alternatives over the near term and the long-scheduled expiration of the existing site's designation a few years from now.
- o Certain tests required in the 1991 Green Book have yet to be validated in the field, yet permit applicants must spend from \$150,000 to \$500,000 on laboratory tests that are the basis for judging their permits.
- o Despite a clear need in the region to expeditiously explore technologies for the remediation of sediments and despite two years of appropriations to conduct a demonstration in the port, there was no apparent urgency on the part of federal agencies to act until this year.
- o Under existing policy the federal government would have no role in the cost of constructing a containment facility, even though the federal government dredges more sediments in the Port of New York/New Jersey than all permittees combined.

These problems are also apparent, to one degree or another, in other ports in this country. And it is the absence of a federal policy that recognizes the essential nature of providing for navigational infrastructure--one of the first responsibilities undertaken by the new national government over two hundred years ago--that makes possible the severe problems being experienced in Boston Harbor, New York Harbor and San Francisco Bay. These problems prompted:

- o the White House to tell federal agencies "to get on with it" in the Port of Oakland;

- o Secretary Federico Pena to say that a national "dredging crisis" exists and to convene an Interagency Working Group on the Dredging Process to find ways to improve federal dredging policy;
- o thirty-two national and regional organizations to write to the President calling for "clear policy direction...providing a framework for all interested parties to work together to keep our nation's navigation channels open for trade"; and,
- o the President to acknowledge in his letter to the ports that "dredging, the need for long-term disposal solutions, and disposal of contaminated sediments are a national concern."

The Port Authority of New York and New Jersey has joined with other public port authorities to seek a national dredging policy. Such a policy could be achieved through legislation that would enable dredging and material management to be conducted without sacrificing the safeguards for our environment. Federal regulatory agencies should be given improved time frames in which to act and standards against which to evaluate an application. Clarification is needed as to the roles and responsibility of the agencies involved in the permit process.

Of course the federal government has a role that goes beyond regulation. It has a responsibility to protect the commerce of the United States and to do so in part by improving and maintaining the federal navigational system of channels and anchorages. The government is responsible for dredging those federal projects, yet claims no responsibility for the proper management of those materials if costly facilities are to be required. Clearly, the federal policy should provide for a federal role, in partnership with the local sponsor, to ensure the availability of environmentally appropriate dredged material management facilities.

It is heartening to note that in just the past year or so we have witnessed a measurable improvement in the attention given our concerns by the federal agencies. Under Secretary Pena's leadership the Department of Transportation has become involved in the issue by recognizing that maritime shipping is dependent on the maintenance and improvement of the underwater infrastructure that is the "highway to the sea." The creation of the Interagency Working Group, coordinated by the Maritime Administration, is a significant development and the recommendations that the group is expected to make this summer could be the basis for important reforms. Meanwhile, we have seen the Corps of Engineers and the Environmental Protection Agency work more cooperatively, at the headquarters and regional levels, than ever before in addressing the problems facing our port. Finally, as Acting Assistant Secretary of the Army, Dr. John Zirschky said in his statement to this committee, that the Corps of Engineers understands that dredged material management is "one of the most significant challenges" it faces. With that acknowledgment hopefully will come the resolve to make the necessary policy changes.

I commend to the committee and urge your serious consideration of the proposal for a National Dredging Policy as put forward by the American Association of Port Authorities (AAPA). It is a comprehensive and sound list of legislative proposals that if enacted will bring a rational and reasonable structure to federal dredging activities and relief to the ports. In addition, there are a number of issues relating to the 1986 Act that deserve some attention. They include, among other things, local user fees, the harbor maintenance tax and utility relocation issues that we believe were not adequately considered or resolved.

While a national dredging policy is important to address problems that we face in New York Harbor, there are additional recommendations I would make specifically regarding the Port of New York/New Jersey.

- o The 1986 Act authorized the deepening of the Kill van Kull and Newark Bay channels to 45 feet. I am pleased to say the first phase of that project, to a depth of 40 feet, is nearly complete. However, because of geological conditions not anticipated by the Corps of Engineers in their original survey, we will need new project cost estimates and a revision of the original authorization to enable the completion of the improvement to 45 feet in a second phase. I would ask the committee to encourage the completion of the project.
- o The 1992 Act authorized a project for the decontamination of sediments from the Port of New York/New Jersey. The purpose of the project is to identify technologies that might be employed for the management of certain dredged materials. The original \$5 million authorization has been appropriated and additional amounts are needed. I respectfully ask that the authorization be increased by \$10 million.
- o As efforts continue to identify long-term dredged material management strategies for the Port of New York/New Jersey there are few options readily apparent for the near-term. The most promising is in the use of subaqueous borrow pits. I ask that Congress authorize the Corps of Engineers to proceed with the development of a small-scale borrow pit in Newark Bay to determine the potential to manage contaminated sediments found in that body of water.
- o The EPA's 1984 designation of the Ocean Disposal Site, the Mud Dump, will soon expire. The Environmental Protection Agency, working with the assistance of the Corps of Engineers, must move quickly to identify a new site if the Port of New York/New Jersey is to be kept open to shipping in the years ahead. We ask that the committee encourage the agencies to complete the designation process in a time frame that would enable dredging and dredged material disposal activities in the port to continue unabated.

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- o The 1986 Act authorized a New York Bight study that would provide valuable information that could lead to the location of dredged material management facilities off our shores. That study was expanded in 1992 to include New York Harbor, but additional authorization is required to ensure the modeling work can be completed.
- o In Flushing Bay, New York, the creation of an earthen dike 30 years ago resulted in the development of mud flats that at low tide are exposed. The present condition of Flushing Bay, in part a consequence of federally permitted construction, has resulted in stagnant waters of poor quality. We ask that Congress authorize the environmental dredging of that portion of Flushing Bay for the betterment of the quality of those waters and the nearby community.

Mr. Chairman and members of the committee, I thank you for your time.



STATEMENT OF
RIVERSIDE COUNTY FLOOD CONTROL
& WATER CONSERVATION DISTRICT
REGARDING
WATER RESOURCES DEVELOPMENT
ACT OF 1994

TO: U.S. Senate
Committee on Environmental & Public Works
Subcommittee on Water Resources,
Transportation, Public Buildings & Economic
Development

Honorable Daniel Moynihan
Chairman

LAKE ELSINORE WATER CONSERVATION STUDY

The current Lake Elsinore Outflow Channel project now under construction through the Corps of Engineers Section 205 Small Flood Control Project authority, and the Bureau of Reclamation funded Lake Management plan for the lake limits importation of water to the lake to elevation 1240 MSL. It is desired to be able to store water up to elevation 1249 MSL to 1) maintain a better recreation pool level due to high evaporation that takes place during the summer months when a supply of water to import is not readily available; 2) the higher operating level will cause more frequent outflow through the outlet channel which flushes the lake more frequently; and 3) water can be stored in the lake for extraction for irrigation and agricultural use during the dry summer season.

Lake Elsinore is a closed body of water such that below elevation 1255 MSL, there is no outflow from the lake. High evaporation, 4.5 feet per year, causes a build-up of minerals in the water that can eventually become harmful to aquatic life and recreation use. It is planned to use treated waste water that has been subjected to very high levels of treatment to import to the lake. This water is available only during the normal rainy season when agriculture and domestic irrigation demands are low.

This study will evaluate the feasibility of storing this water at a higher level than 1240 MSL for purposes of improving lake water quality and higher recreation values without compromising flood control benefits.

WATER RESOURCES DEVELOPMENT ACT OF 1994

Lake Elsinore Water Conservation Study, CA

"The addition of joint use water conservation storage is authorized for the Lake Elsinore, CA, flood control project. The Secretary is directed to review the plan for the purpose of water conservation storage up to elevation 1249 MSL and to report with recommendations within 18 months. Non-Federal costs for such storage will be limited to separable water conservation costs and to annual operation and maintenance costs."

SMALL FLOOD CONTROL PROJECTSLAKE ELSINORE FLOOD CONTROL PROJECT

The Lake Elsinore Flood Control project now under construction through the Corps' Section 205 Small Flood Control Project authority had a cost estimate of 6.5 million dollars at the reconnaissance stage in 1985. In the interest of moving expeditiously, it was agreed by the Corps of Engineers, our District and our Congressman to do the project as a Section 205 small project. The Federal limit on small projects was elevated to 5 million dollars in 1986. Detailed project planning and design was completed from 1986 through mid-1988. By 1988, cost escalated to 11.1 million dollars but we were willing to proceed with the small project since under the cost sharing rules our cost would only be slightly in excess of 50 percent. The Corps started preparing plans and specifications for the project in January 1989, with construction expected to start in the Fall of 1989.

During the plan review, Corps higher authority started questioning the benefits of the project and how it was going to be impacted by a Bureau of Reclamation small loan project to improve water supply and recreation in Lake Elsinore itself. This caused a nearly 3 year delay in the project. During this delay real estate costs escalated dramatically as did other construction costs. An LCA has now been signed, but project costs are now established in the LCA to be 15.9 million dollars (although the current estimate for the project is 14.5 million dollars), but the Federal share is still limited to 5 million under the small project authority.

Had we realized in 1986 all of the delays and cost escalations, we would have moved the project through the regular Congressional authorization process whereby our cost share limit would have been 50 percent of project costs. This request, if approved by Congress, would provide cost sharing of this project in accordance with the provisions of the 1986 Water Resources Development Act.

WATER RESOURCES DEVELOPMENT ACT OF 1994

Small Flood Control Projects

Lake Elsinore Flood Control Project, CA

" (1) Maximum Allotment – The maximum amount which may be allotted under Section 205 of the Flood Control Act of 1948 (33 U.S.C. 701s) for the project for flood control, Lake Elsinore, Riverside County, California, shall be 7.5 million dollars instead of 5 million dollars. The Secretary shall revise the local cooperation agreement for such project entered into under Section 221 of the Flood Control Act of 1970 on March 27, 1992, to conform with the increase under this paragraph in the Federal participation in such project.

(2) Cost Sharing – Nothing in this subsection shall be construed as affecting any cost-sharing requirements applicable to the project under the Water Resources Development Act of 1986."

MURRIETA CREEK

The Riverside County Flood Control and Water Conservation District has developed a plan for improvements to Murrieta Creek in Southern Riverside County to control flooding along about 11 miles of the stream as it traverses through the Cities of Murrieta and Temecula. The current flood plain for a 100 year flood event covers about 2,500 acres of land, some currently highly developed in commercial, industrial and residential uses and high value agricultural use such as thoroughbred farms and public properties such as schools. The value of the property within the flood plain is estimated to be in excess of six hundred million dollars.

The floods of January 1993 caused direct damages in excess of four million dollars. The plan as developed provides for several objectives in addition to controlling the 100 year flood. These are:

1. To facilitate bridge crossings of Murrieta Creek and access during emergencies. Storm events now leave citizens completely isolated from emergency services.
2. To provide an outlet for major tributary streams and local drainage facilities.
3. To provide an open space corridor through the communities in concert with the Murrieta Creek element of the proposed Multiple Species Habitat Conservation Plan for Riverside County.
4. To provide for joint use of project rights of way for a continuous 11 mile long trail system including hiking, biking and equestrian uses and as a link to future park sites along the stream.
5. To enhance groundwater recharge by providing a wide unlined channel bottom.

6. To provide a continuous habitat corridor over the 11 mile length of the project.
7. To reduce the peak flows through use of a major detention basin thereby lessening peak flows through Camp Pendleton which suffered disastrous flooding in January 1993.

This project has been developed with very active community input. An original citizens' committee, appointed by the District's Board of Supervisors, worked for 3 years considering alternative project designs.

Because of environmental concerns and desires to incorporate recreation and open space features, another citizens' committee was appointed with representatives from the City of Murrieta, City of Temecula and the unincorporated County area. This committee met several times in noticed public meetings to revise the various options and alternatives to achieve flood control, environmental benefits and recreation and open space benefits. Two joint meetings of the City Councils have been held with the District Member of the Board of Supervisors to receive public input for the plan. There is now broad community support for the plan.

The current estimated cost for the project for construction, lands, easements and rights of way, relocations and highway bridges is estimated to be 45 million dollars.

In an effort to expedite construction to provide cost efficiencies, early flood protection and environmental enhancement through increased open space and habitat corridor, we are seeking an authorization to allow the local sponsor to advance construction of the project. The language we are seeking would authorize the Secretary to review the local sponsor's completed feasibility report to determine the federal interest in participating in the project. Once the report is approved by the Corps, the local sponsor is authorized to proceed to construction with such work qualifying for reimbursement and credit under cost sharing as stipulated by Section 103 of the Water Resources Development Act of 1986. In addition, a limit on Federal participation is placed at 40% of the total project cost.

Thank you for your consideration of our requests.

WATER RESOURCES DEVELOPMENT ACT OF 1984

Murrieta Creek Flood Control Project, CA

"Notwithstanding any other provision of law, the Secretary of the Army is authorized to review the local sponsor, Riverside County Flood Control and Water Conservation District's, completed feasibility study, including identified alternatives, along Murrieta Creek from Temecula to Wildomar, California, to determine Federal interest in participating in a project for flood control. Such feasibility study must meet current Corps criteria, including economic evaluation. Once such feasibility report is certified by the Corps of Engineers, the local sponsor may proceed to construction, and such work will qualify for reimbursement and for credit for lands, easements, rights of way and relocations under cost sharing stipulated by Section 103 of the Water Resources Development Act of 1986, but in no case shall Federal participation exceed 40% of the total project cost."

Santa Clara Valley Water District



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AN AFFIRMATIVE ACTION EMPLOYER

STATEMENT

OF

**Ronald R. Esau
General Manager**

SANTA CLARA VALLEY WATER DISTRICT

July 5, 1994

Before the

**UNITED STATES SENATE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
SUBCOMMITTEE ON WATER RESOURCES, TRANSPORTATION,
PUBLIC BUILDINGS AND ECONOMIC DEVELOPMENT**

**THE HONORABLE DANIEL MOYNIHAN
CHAIRMAN**

Regarding

Water Resources Development Act of 1994

STATEMENT

OF

Ronald R. Esau
General Manager

SANTA CLARA VALLEY WATER DISTRICT

July 5, 1994

On behalf of the Santa Clara Valley Water District, I want to thank the subcommittee for this opportunity to present our testimony. As an active local flood control sponsor with many years experience in planning, designing and constructing local projects and elements of Federal flood control projects, we are now seeking in this legislation a provision to expedite Federal projects by allowing the construction of flood control projects by non-Federal interests.

INTRODUCTION

The Santa Clara Valley Water District (District) is located in San Jose, California, and has responsibilities for both water supply and flood control for all of Santa Clara County. The District was formed in 1929 and currently supplies water to more than one and one-half million residents, numerous businesses, industries, and agricultural interests of Santa Clara County. The highly urbanized northern portion of the County is known as "Silicon Valley" because of the vast computer industry that has developed there and provides employment for over six percent of the state's work force. In contrast, the southern portion of the County is primarily agricultural but is rapidly becoming urbanized and increasing in population.

Flood Control Program

The District has long been involved as a flood control sponsor for Federal projects, and has developed an active local flood control program. The District manages 700 miles of creek channels and levees and owns and maintains 5,000 acres of flood control rights-of-way. It has an ambitious five year construction program involving projects totaling almost \$500 million in total costs. Several of these projects are Federal Corps of Engineers projects for which the District is the local sponsor and has advanced elements of construction through Corps authorities.

It is a point of pride that local District flood control projects undergo extensive planning and design before construction begins. Impacts of the projects on upstream and downstream flows, wildlife and vegetation and nearby homes and businesses are all taken into account and public concerns are evaluated during a lengthy review process. One of the goals of the District Flood

Control Program has been to include principles of watershed planning as it addresses its water resources needs. An integrated approach to addressing our water issues as we plan our water supply, flood control, and environmental protection projects has helped the District in achieving its goals in meeting the needs of the community.

The District is committed to flood control projects that alleviate potential property damage while incorporating recreational uses and making waterways more accessible to surrounding communities. Environmental protection, including the re-establishment and maintenance of streamside habitats, is also a high priority.

Requested Action

What we are seeking is the congressional authority to provide for the study and construction of authorized flood control projects by non-Federal interests with subsequent reimbursement from the Federal government for the Federal share. There is precedent for this type of general authorization in both the 1986 and the 1992 Water Resources Development Acts (WRDA), for advancing both authorized port projects and shoreline protection projects. Our understanding is that these provisions of law are working well and producing the efficiencies and savings that were envisioned at the time of the authorization.

Since the 1986 WRDA, when Congress authorized the new cost-sharing relationship for local flood control sponsors, an important partnership between the Federal government and local sponsors has been developed. As local sponsors realized the enormity of the change for them both financially and in terms of joint study responsibilities and opportunities, they stepped up to meet the challenge. Today millions of dollars of local sponsor contributions drive the nation's flood control program producing many billions in flood protection benefits and peace of mind to local citizens across the country. Not only the dollars are contributed, but local sponsor's time, expertise and valuable work product are an integral part of today's Corps' flood control program. In many parts of this country, local engineers, hydrologists, designers and biologists are doing the work that traditionally has been the purview of the Federal government and they are doing the work, in many cases, cheaper and quicker than the Federal government could.

Our partnership experience has taught us that our technical people are the equals to that of the Corps and other Federal agencies and that duplicating each other's work is not useful nor in the public interest. The Corps has responded to the partnership by fashioning their internal Project Management scheme which, simply put, vests in one Corps field staffer the responsibility for managing the project from the study phase through construction. While generally speaking, Project Management has promoted a more businesslike approach to developing projects, the system still results in overlapping review at various levels, causing inefficiencies and delays in bringing protection to our local communities.

Due to the changes stemming from the 1986 WRDA, local flood control sponsors have been advancing the design and construction of Federal projects on an incremental basis resulting in benefits to taxpayers and sponsors alike. Section 104 of WRDA 1986, which allows local sponsors to advance portions of a flood control project for credit from the Corps, coupled with the Section 215 of the Flood Control Act of 1968 allowing sponsors to advance up to \$3 million (or 1% of total project cost) worth of work for credit or reimbursement, have given sponsors

the experience not only in designing, but in constructing elements of Federal projects. We believe local sponsors are well equipped to take the lead on constructing Federal flood control projects. With proper oversight by the Corps, such an approach can only reduce duplication, save costs and bring earlier protection to our beneficiaries.

The approach we are seeking is based on the earlier precedents and would allow any local sponsor, who has received from the Secretary a favorable recommendation to carry out a project based on completed studies and engineering, to develop and manage the project if a final environmental impact statement has been filed. The Secretary would monitor the project in order to ensure that the project is constructed in accordance with the terms of permits issued. The Secretary is then authorized to reimburse the non-Federal sponsor an amount equal to the estimate of the Federal share of costs. The Secretary remains involved as she must approve the plans after authorization and before construction. In addition, as is currently the case, the Secretary must also find that construction of the project is economically justified and environmentally acceptable. We have included a draft of our legislative approach here for your review.

While you will find that not every local sponsor is equipped to take on these responsibilities, many are and we believe have earned the right to do so. By putting flood control, one of the Corps' primary missions, on equal footing with navigation and shoreline protection, not only are we providing local sponsors the opportunity to control their own destiny, but we are taking advantage of an opportunity to save dollars, reduce overlap and bring earlier protection to taxpayers. In this climate of reducing the size of the Federal government, this approach provides a contribution which is not only timely, but makes sense from both a Federal and local point of view.

We thank you for your consideration of our request and we stand ready to answer any questions you may have.

Enclosure

Sec. _____ **CONSTRUCTION OF FLOOD CONTROL PROJECTS BY NON-FEDERAL INTERESTS**

(a) **AUTHORITY**—Non-Federal interests are authorized to undertake flood control projects, subject to obtaining any permits required pursuant to Federal and State laws in advance of actual construction.

(b) **STUDIES AND ENGINEERING**

(1) **BY NON-FEDERAL INTERESTS**—A non-Federal interest may prepare, for review and approval by the Secretary, the necessary studies and engineering for any construction to be undertaken under subsection (a).

(2) **BY SECRETARY**—Upon request of an appropriate non-Federal interest, the Secretary may undertake all necessary studies and engineering for any construction to be undertaken under subsection (a) and provide technical assistance in obtaining all necessary permits for such construction if the non-Federal interest contracts with the Secretary to furnish the United States funds for the studies and engineering during the period that the studies and engineering will be conducted.

(c) **COMPLETION OF STUDIES**—The Secretary is authorized to complete and transmit to the appropriate non-Federal interests any study for flood control which was initiated before the date of the enactment of this Act or, upon the request of such non-Federal interest, to terminate the study and transmit the partially completed study to the non-Federal interest for completion. Studies subject to this subsection shall be completed without regard to the requirements of subsection (b).

(d) **AUTHORITY TO CARRY OUT IMPROVEMENT**

(1) **IN GENERAL**—Any non-Federal interest which has received from the Secretary pursuant to subsection (b) or (c) a favorable recommendation to carry out a flood control project or separable element thereof, based on the results of completed studies and engineering for the project or element, may carry out the project or element if a final environmental impact statement has been filed for the project or element.

(2) **PERMITS**—Any plan of improvement proposed to be implemented in accordance with the subsection shall be deemed to satisfy the requirements for obtaining the appropriate permits required under the Secretary's authority and such permits shall be granted subject to the non-Federal interest's acceptance of the terms and conditions of such permits if the Secretary determines that the applicable regulatory criteria and procedures have been satisfied.

(3) **MONITORING**—The Secretary shall monitor any project for which permits are granted under this subsection in order to ensure that such project is constructed (and, in those cases where such activities will not be the responsibility of the Secretary, operated and maintained) in accordance with the terms and conditions of such permits.

(e) REIMBURSEMENT

(1) GENERAL RULE—Subject to the enactment of appropriation Acts, the Secretary is authorized to reimburse any non-Federal interest an amount equal to the estimate of the Federal share, without interest, of the cost of any authorized flood control project, or separable element thereof, constructed under this section:

(A) if, after authorization and before initiation of construction of the project or separable element, the Secretary approves the plans for construction of such project by such non-Federal interest; and

(B) if the Secretary finds, after a review of studies and engineering prepared pursuant to this section, that construction of the project or separable element is economically justified and environmentally acceptable.

(2) MATTERS TO BE CONSIDERED IN REVIEWING PLANS—In reviewing plans under this subsection, the Secretary shall consider budgetary and programmatic priorities and other factors that the Secretary deems appropriate.

(3) MONITORING—The Secretary shall regularly monitor and audit any project for flood control constructed under this section by a non-Federal interest in order to ensure that such construction is in compliance with the plans approved by the Secretary and that the costs are reasonable.

SIERRA
CLUB



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Sierra Club Supplemental Statement
to Testimony by American Rivers
for
The Senate Committee on Environment and Public Works
May 26, 1994

"When we try to pick out anything by itself, we find it hitched to everything else in the universe" *John Muir*
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100% POST-CONSUMER, NON CHLORINE BLEACHED RECYCLED PAPER

The Sierra Club welcomes this opportunity to submit testimony concerning future directions in federal flood control policy. We concur with the principles outlined in the statement given by American Rivers, namely:

- that natural features tending to retard flooding should be encouraged to exist throughout our river basins,
- that non-structural alternatives are greatly superior to traditional flood control practices in minimizing the trauma and expense of flooding, and
- that these points taken together will not only lead to superior flood-water management, but also to enhanced environmental quality for humans and wildlife alike.

Twenty-one years ago the middle reaches of the Mississippi River suffered flooding of nearly unprecedented proportions, in spite of decades of federal and other activity to control the floodwaters of the river system. Hydrologists at the time pointed out that this was no surprise, and that the physical constriction of flood waters at any one point of the system would inevitably lead to an increase in the height of the flood crest somewhere else. Put more simply, the most tangible result of an investment of taxpayer dollars to control flooding in location A was a demand for a further investment in location B. Federal flood control policy was a contractor's dream, and a taxpayer's nightmare.

The Corps of Engineers, this Committee, the Congress, and the nation all nodded in agreement that changes were needed -- but few were made.

The result was even worse flooding in 1993, a flood that can justly be called "man-made," since had the lessons of 20 years before been observed and action taken it would largely have been avoided. It is significant that the largest single source of monetary damage in the 1993 flood occurred to commercial property in St. Charles County, Missouri, located behind a levee that had been built since the floods of 1973. Once again the public purse was opened to provide relief for the victims. Once again scientists pointed out the obvious ramifications of past flood control practices. And once again public policy is being reviewed.

The Sierra Club urges this Committee to recognize that the flood control practices of the last 50 years have been an expensive failure, and not just on the Mississippi and Missouri River systems. Throughout the country we have failed to recognize that river flooding is inevitable, and becomes costly only when human activities infringe upon the river's floodplain. The costs of flood damages have greatly increased even as we have spent more and more tax dollars on flood control, simply because we have allowed ever more development in inappropriate areas.

A forward-looking flood control policy should distinguish between the reduction of flooding and the management of flooding. The former requires

examination of the entire watershed, where we find that past practices have aggravated the problem. By draining wetlands, tiling fields, channelizing rivers and allowing unlimited sprawl of pavement we have encouraged more water to move more quickly onto sensitive floodplains. Occasional efforts to remedy the situation through building large structures have been generally ineffective. An example of this was seen in Des Moines, Iowa, where large upstream reservoirs failed to stop major flooding in 1993.

A proper flood reduction policy would instead emphasize natural processes that impede rapid runoff of precipitation and meltwater. These include wetlands preservation and restoration, reforestation, reformed agricultural practices, and minimizing to the extent possible the increase in paved surfaces. It should be noted that in addition to reducing flooding such a policy would result in major environmental benefits such as reduced non-point source pollution, increased wildlife habitat and an improved human quality of life.

In many watersheds, however, periodic flooding is a natural phenomenon, and would occur even in the absence of human alterations to the landscape. Here we have the need for flood management, and we face a simple choice. We can continue to fight our rivers at enormously increasing cost and little likelihood of success, or we can modify our behavior and come to terms with the inevitability of flooding. The former course would not only be an irrational pursuit of failure, but would increase the environmental degradation associated with the current program. It is widely recognized that the components of our flood control efforts -- dams, levees, revetments, artificial channels -- have caused enormous damage throughout the country. It is equally important, but less well known, that the fisheries and other biological elements of the ecosystem are dependent on floods on many river systems. As we have changed the hydrological regimen in order to satisfy competing river priorities such as flood control, hydro-power and navigation we have done great harm to ecological systems throughout the country.

Past practice along most flood-prone watercourses has consisted of an unsystematic series of efforts at providing local protection through such structural works as stream channelization or levee building. As noted above, in most cases this simply shifts the problem elsewhere, generally making it worse at the same time. In contrast, a proper flood management policy would allow the river to flood to as great an extent as possible, which would provide protection for the key areas of human habitation and development where the water must be kept out.

Components of such a policy would include:

- Providing incentives for people to move out of the floodplain;
- Encouraging flood proofing of individual structures as an alternative of building levees for large areas;
- Using the federal flood insurance program to provide a disincentive to floodplain development;
- Ceasing agricultural subsidies that encourage otherwise unprofitable farming of bottomlands;

-- Managing existing rural levees to recognize the inevitability of periodic spring flooding and to encourage maximum biological productivity.

-- Developing natural floodways and greenbelts as an alternative to structural measures in solving certain types of urban flooding.

The Sierra Club is optimistic that the lessons of 1993 will not languish until the next "hundred year flood" strikes yet again in the next decade or two. Changes in approach such as those outlined in this statement can lead to a far more tranquil relationship with not only the Mississippi and Missouri Rivers but with all our nation's rivers that are prone to flooding as well.

FLOODPLAIN MANAGEMENT AND FLOOD CONTROL

WEDNESDAY, JULY 20, 1994

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 2:02 p.m. in room 406, Dirksen Senate Office Building, Hon. Max Baucus [chairman of the committee] presiding.

Present: Senators Baucus and Lautenberg.

OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Senator BAUCUS. The committee will come to order.

The Environment and Public Works Committee is today holding a hearing, essentially, on the floods that occurred last year in the Mississippi River Basin, and this year primarily in Georgia, Alabama, and Florida.

I have a statement that I will give; I will defer, at this time, to the Senator from Georgia. Senator Nunn is here and Senator Coverdell is scheduled to testify. I know that those Senators have very tight schedules. Senator Nunn has asked me if he could speak fairly early on in the hearing because he has another matter which he must attend to.

So I will now turn to you, Senator. We are very honored to have you here. We know how much work you have dedicated to your people in Georgia. Why don't you proceed with your statement, and then when you're finished, I will turn to Senator Coverdell and he can give his statement, as well.

STATEMENT OF HON. SAM NUNN, U.S. SENATOR FROM THE STATE OF GEORGIA

Senator NUNN. Thank you very much, Mr. Chairman. Senator Coverdell and I appreciate very much the opportunity to testify before your committee today on floodplain management and flood control, especially in light of the recent disasters we've had in Georgia—not only Georgia, but also Alabama and Florida—resulting from Tropical Storm Alberto.

I also want to commend you, Mr. Chairman, for helping stimulate this report, "Sharing the Challenge," by the Corps of Engineers. I know it was done in response to the 1993 flood in other parts of the country, but I think there are a lot of things here that are going to be pertinent to our situation. We will all learn from it.

I have not had an opportunity to read the whole report but I look forward to that. I would note that the executive summary says, "People and property remain at risk not only in the floodplains of the upper Mississippi River Basin, but also throughout the Nation. Many of those at risk do not fully understand the nature and potential consequences of that risk, nor do they share fully in the fiscal implications of bearing that risk."

I think that is certainly true in terms of our recent experience. Senator Coverdell and I have been to Georgia six or seven times each in the last 10 days. We have seen the human tragedy and hardship that we could only view on television last year when people in the Mississippi River region were experiencing this. We have much more understanding now of what they went through; all of our people do.

Before I get into any kind of policy analysis I would like, on behalf of the people of Georgia, to thank all of those from other regions who have come to our assistance. Mr. Chairman, we have had Red Cross people—from all over the country. We have had the Mormon Church. We have had the Mennonite Church. They're in there, up to their ears in mud, helping people get out from under this terrible, crushing blow. So when this kind of human tragedy hits—I know, Paul, that you would agree with me—nothing boosts people's spirits more than to know that the Nation is caring and the Nation is helping. I think I would be remiss if I didn't say thank you on behalf of the people of Georgia to everyone who has helped, and to you, Mr. Chairman, and those who are leading this committee and the other committees that are dealing with the consequences of this. You are trying to get out in front of this. With this report and your focus on it, you are trying to prevent these kinds of tragedies from happening in the future, or at least to mitigate them as much as possible, so that we understand how we can reduce the risk and reduce the damage.

The committee report also notes that "only in recent years has the Nation come to appreciate fully the significance of the fragile ecosystems of the upper Mississippi River Basin. Given the tremendous loss of habitat over the last two centuries, many suggest the Nation faces severe ecological consequences."

Mr. Chairman, while I don't believe Georgia has experienced habitat loss as severely, as the upper Mississippi River Basin, the events of the last 2 weeks certainly serve as a reminder that the ecosystems of south Georgia and middle Georgia are fragile. I understand that the ecosystems are not impacted exclusively by agricultural operations—many times it's by urban development. In this case I think a lot of urban development channelled the water, particularly the water flowing down the Ocmulgee River into Macon, and squeezed it so that the force of that water, when it got down to middle Georgia, was much greater than had been the historical pattern. So it's not simply agriculture; it's the combination of agriculture, urban development, and the things that we are doing to ourselves often without realizing it.

The University of Georgia has taken an aggressive leadership role in addressing the relationship between agriculture and the environment. They are, under their Tifton, Georgia Experiment Station, addressing the reduction of agricultural dependence on pes-

ticides which cause environmental and food quality problems; increasing farm diversity through further development of multiple and rotational cropping systems; decreasing animal waste problems through the development of innovative systems that recouple crop and animal production; and also developing management practices that improve ground and surface water quality.

This flood and erosion abatement is, I believe, a large part of what the report is about, so I'm sure the people at the University of Georgia are going to benefit from that, and vice versa.

I would say on behalf of all the Georgia Congressional delegation that none of us expected to have this kind of thing happen. I think the same thing is true with our people in Georgia. The Flint River and the Ocmulgee River are not like the Mississippi River; we weren't expecting this. It hit us by surprise. I was in Montezuma, GA on Monday, talking to people there who are trying to dig out. That whole town was literally under water. We've got a unique problem there, and I don't know that there's an answer. I haven't found one, but if there are any suggestions, Mr. Chairman, that you or others have, we'd welcome them. This is a town where most all the merchants in a small downtown area lost all their inventory as well as the buildings. They're going to have to gut the buildings. They're going to have to start over.

Now, there are Federal programs to help them with loans. Many of them know, though, that they can't pay back the money. There's no way they can pay back the money; they haven't paid for the inventory to begin with, so they're going to be doubling up and the loans are not going to help them. They also made the point to me on Monday—Paul, I haven't had a chance to talk to you about this—that if only 30 or 40 or 50 percent of the merchants in the town borrow the money to go back in business, and the other merchants don't, there's not enough of an economic base to warrant those who do want to borrow the money going back into business.

Newton, GA, has a similar situation. I talked to the Mayor there this morning, and I think we're going to have to look at EDA or some kind of program that would go beyond individuals and see how you save a community. In both cases, I can literally see how the future of the whole town is at stake as to whether it's going to survive.

I would simply close by saying that I think that FEMA, under James Lee Witt, has dramatically improved. I don't ever say that an agency is perfect; I think we've got a way to go with FEMA and with all of our efforts in this, but I think that the leadership of James Lee Witt and the people he has put over there has really changed this agency. They have been much more responsive than I think they have been in the past. They've been there. They've been on the scene. They've been out in the area. They're working very closely with the Georgia Emergency Management Agency—Gary McConnell, and others. They have turned that agency around at the State level, too. So we have the Federal agencies there, they are working, and they are working with our State and local people and we are very grateful for that and for the leadership.

So thank you for having this hearing and we look forward to working with you. I think we're going to have to make a real effort on flood insurance. Lots of people don't know about it; most people

don't know about it. I think there is a real educational effort that has to be made, and probably also some revisions to the program so that the program can be more affordable, and also spreading the risk more so that we can encourage more people to get into flood insurance and spread the risk. But right now, most people don't know about it. Most people don't even know whether they've got coverage until the waters come over the floor. At that stage they start asking and they find out that they don't. I'd say that public officials are no exception to that. I found a lot of people in our State that are in leadership positions that don't know.

So thank you, Mr. Chairman, for giving us this opportunity, and again thank you for your leadership in this critical area, affecting the whole country.

Senator BAUCUS. Thank you very much, Senator. Your tragic experience and the experiences of your constituents are going to help us toward a solution of the problems we are addressing.

Second, I very much agree with your observation about FEMA. Testimony before this committee in response to last year's floods indicated that FEMA was doing a good job then, too. I think FEMA's performance this year and last year is several steps above what it was in prior years in response to other disasters.

Senator NUNN. It's a different agency.

Senator BAUCUS. It is a different agency.

Third, I know you haven't had a chance to read that report fully, but I'd like to get your sense of whether you tend to agree, based upon what you know, with the general direction and general thrust of that report, or not?

Senator NUNN. Based on what I read in the executive summary, the answer is yes.

Senator BAUCUS. I think the Corps has done a good job with that report. It's not going to be easy to change some incentives; it's not going to be easy to exercise more common sense on how we approach Corps projects and where we build levees and where we don't and where we provide the proper incentives for flood insurance and whatnot, but I do think that the time has come, based upon the tragedy this year as well as last year's tragedy, where we do have an opportunity now to think through a little more thoroughly what it is we're trying to accomplish here so that we can minimize these kinds of disasters in the future.

Senator NUNN. Mr. Chairman, I think that's crucial.

The other question is affordability by the taxpayers of the country.

Senator BAUCUS. Right.

Senator NUNN. As tragic as this was, if this had happened in urban areas, if we had had a levee break in Macon, Georgia, a little north of where it broke, it would have flooded the whole downtown of a major city in our State and the cost would have been many times what it's going to be now. Southwest Georgia, as tragic as that has been and continues to be, is one of the least populated areas in our State. In other States—or, God forbid, in Georgia—it could happen again and it could happen in a populated area. The reason it happened in these areas is because that storm was centered and dumping water in one particular area and just stayed dormant over the State for several days without the winds to push

it off. But it could happen somewhere else, and if it happened in a real populated area, instead of talking hundreds of millions or perhaps a few billion in damage, we'd be talking about many, many billion in damage.

Senator BAUCUS. Well, this committee is going to consult with you, Senator, as we authorize this bill and hopefully get it passed this year.

Thank you, Senator.

Senator Coverdell, we are honored to have you here. We know you have been as active as your colleague has been. We thank you very much for the time you're now taking to appear before us.

STATEMENT OF HON. PAUL COVERDELL, U.S. SENATOR FROM THE STATE OF GEORGIA

Senator COVERDELL. Mr. Chairman, I will be brief. I appreciate your allowing this testimony, and I want to echo the sincere thanks that Senator Nunn expressed on the part of our citizens for those who have watched and cared for these thousands of Americans in such a beleaguered situation. One thing that has been positive about it has been the coming together of so many to help these people, and we are all very, very indebted.

As Senator Nunn was speaking, it reminded me of one of the many sessions we had—this in Jonesboro, Georgia, which is just south of Atlanta—at the headwaters of these two river basins, where two feet of water appeared in 24 hours, which is what began the deluge as it moved down across the State. I was speaking with the County Commissioner there and he raised a very important question which I think is pertinent to what you are about here. He said, "As we build this back, shouldn't we be mindful of making it better?"

The question he was raising was, with the matching funds and emergency disaster funds that come in, how much dedication of that will be made toward not just rebuilding that which was not sufficient to deal with this emergency? I couldn't answer his question. I'm sure that much of your work here will begin to take that into account.

I think this County Commissioner and all of those who have been affected in Georgia would hope that one of the good things that might come from it is that it would be a model for the kind of work that you are doing and that it would be analyzed in such a way that it would help people in the future; if not them, then somebody else.

In Montezuma, which was being discussed by Senator Nunn, what we did have there was a very severe break in the levee. The inventories that were lost were lost because there was only 40 minutes to evacuate. The result was that all inventories—the only things that we were able to save, as important as they were, were the lives, but there were none of the assets of the city that were salvageable. When you walk through Montezuma today, it's like walking through a shadow city or a ghost town, something you might have seen in the old west. The outline of the city is there but nothing of the innards of the city that make it work are left. They were all destroyed, all of it.

This takes you to the insurance question. As I walked through the city I came upon a Ford dealership where the owner, after investing 35 years of his life in building the business from being a stock clerk, has his family dipping the parts into kerosene and then into oil and putting them into Zip-lock bags in an effort to save his parts inventory, none of which was insured. Did the levee lead them to believe that the flood of 1948 would never occur again? Was there a false security that we established in the minds of these citizens? I can't answer those questions. But clearly, the awareness that is necessary in a danger zone is far less than what it ought to be, and we have people making decisions that are very expensive to them, their families, and our country, based, I think, on less than effective information.

As you flew over the flood as it was raging through the State, during the height of the uncertainty, one of the lasting images was hundreds, if not thousands, of farm ponds that had been breached. In certain regions of the State, none of them survived. Senator Nunn, as we were in the helicopter flying over, said, "We have no water where it should be and all the water where it shouldn't be." The breach of all these farm ponds dramatically altered the flood stage itself and was adding to the volume and velocity of water as it moved through the State. All you see are empty mud flats and tree stumps.

That leads to the next problem. When we have the dry spell, which will certainly occur, we won't have water for irrigation. Dams—we had over 100 dams breached. We put the managers of these dams, which in my wildest dreams would never have calculated, in a position of acting as God, because they had to determine whether to let the water go. This raised the water levels below them—or hold it, which backed it up and damaged those behind the dam. So on a day-to-day basis people lived with wondering what the decision of the regulator of the dam would be. I'm glad I didn't have to make those decisions at Lake Seminole when we were trying to decide who would make it and who wouldn't make it. I'm sort of curious as to what procedures there may be for making those kinds of decisions.

There is a Natural Disaster Task Force that has been formed in the Senate—ranking is Senator Bond, and I think Senator Byrd is chairman, and I'm a member of that—the primary purpose of which is to deal with cost. But I don't think we can understand how to deal with the management of cost of natural disasters without being interrelated with the work that you and your colleagues are doing in terms of actual planning for flood management.

I think in looking at this particular crisis, perhaps more than the midwest, we see how you can be virtually blindsided. I don't believe that anybody would have ever predicted this type of crisis in this region of our country.

Just to repeat, I would hope that this disaster might be of value in helping you analyze your future work. I think you would find all of the leadership of our State more than willing to be of whatever assistance possible, whether it's the Mayor of Montezuma or the County Commissioner of Jonesboro. How the monies we do invest are utilized in the best manner possible to alleviate the future—we're going to spend a lot of money, and one would hope that it

would not only be part of the rebuilding, but would be part of a redirection, maybe based upon your work.

There are incidental barriers in terms of the management of water that I suspect don't receive the kind of attention that our major dams do, and these are the earthen dams of farm ponds and other irrigation ponds that did play a substantial role in the damage level here. It is obvious that vast numbers of our citizens are not really aware about what their risk is and what they should do about it.

So, Mr. Chairman, as we try to recover from the largest disaster that has ever hit our State since the Civil War, we appreciate the work you are doing and we offer our cooperation and experience to be of whatever use it might, and I appreciate the chance to visit with you about our circumstances.

Senator BAUCUS. Thank you very much, Senator Coverdell.

I wonder if you could give us a general sense—I know it's a bit too early to recommend specifics—but a general sense of what direction not only this committee but other committees—for example, the Banking Committee has jurisdiction over flood insurance, and the Appropriations Committee and so forth—how they might proceed. I'm trying to get an answer to the question that I think you raised earlier. Someone said something to the effect of, "What next? Do we automatically go back and rebuild levees in the way we rebuilt them in the past? Do we provide the disaster assistance and hope there's no Alberto again? Or do we change public policy a little bit in some areas in order to reduce the impact of another disaster which inevitably, somewhere, will recur?"

Your general thoughts. Some people suggest that we, willy-nilly, built levees and channeled water, which tends to force greater volumes down certain rivers and certain channels. They have continued to suggest that in doing this we've not only exacerbated floods, but we're not protecting wetlands, for example. Others suggest that perhaps people should not get disaster assistance because they haven't taken out flood insurance. Some suggest that there has to be much better coordination between State and Federal agencies—say, the Corps and the city and county zoning and State management and so forth, that there are too many State and Federal and local policies working at cross purposes with respect to minimizing the impact of floods.

I'm curious. Based on what you've seen—you've talked to a lot of people and you've seen a lot in the last 10 days—if you've begun to get some ideas and some thoughts have begun to form in your mind as to where you think we should go, perhaps you could share those with us. I'm trying to take advantage of your experience, based on what you've seen. You're an eyewitness to a lot of the problems. You've talked to a lot of people. I'm looking for some general early thoughts that you might have for this committee.

Senator COVERDELL. I would be glad to do that, with the caveat that it is very early and it's a very new subject for me. But I guess one of the things that is important about it, I think it's unfortunately a very new subject for far too many policymakers and citizens.

I am inclined to think that the entire management needs a much broader trust in terms of the financial scope of it, and that's one

of the first things that hits you. When you see the economic ramifications, they are very severe.

It strikes me that much, much more education must occur, beginning at the Federal level in coordination with local communities, as to real risk, and what citizens and/or communities need to do with regard to that. I don't think there is any doubt, even though I have no expertise—but it is clear that the water management tools have not adjusted to the changed conditions that are caused by other water management tools, such as earthen dams on farms; urban runoff, as Senator Nunn alluded to, so they become antiquated. I do think there is little doubt that those affected the force of the water and the damage in certain locales, because the other water management tools were affecting the water itself in its course, and in some cases contributed substantially to the kind of damage that it could do.

I would make this suggestion. When I alluded to using it as a model, I'm serious about that. I think that if we could have an opportunity to exchange thoughts again, even in 30 days or 60 days after our delegation has come out of the field and our policymakers have at least cleaned away the initial debris and we have finished the grieving over the families and communities with such devastating loss of life, that we are going to be in a position to make a fairly serious contribution to the work and the knowledge that you are seeking.

Senator BAUCUS. I appreciate that. The fact is that the flood waters have not receded yet—

Senator COVERDELL. They have not.

Senator BAUCUS. —so it's probably a bit premature. This committee, though, does intend to mark up the Water Resources Development Act this year. That markup will probably not occur for a couple of weeks, and maybe not until after the recess. At least, it will be several weeks down the road. At that time I look forward to ideas that you and the rest of the delegation may have. I'm sure that by that time you are going to hear a lot more from Georgians as to what they think makes sense. We very much look forward to receiving the advice that you might have so that we can more properly write and draft this bill.

Senator COVERDELL. I would welcome the opportunity.

Senator BAUCUS. Thank you very much, Senator.

Senator COVERDELL. Thank you, Mr. Chairman.

Senator BAUCUS. Senator Lautenberg, do you have any points you might want to make to Senator Coverdell or questions you might want to ask?

Senator LAUTENBERG. No, thank you, except to express my sympathy to the people down there. It's hard to believe that water could rise that rapidly; and suddenly, tiny streams became roaring torrents. It's pitiful to see people standing there, watching all their possessions wash away. It's a horrible condition and we sympathize with you, Senator. We hope that we will be able to learn from the experiences of the midwest floods of last year, and now your floods. I hope we can develop a comprehensive way of dealing with this so that when something unusual occurs it won't be of the magnitude that we've seen in Georgia. We hope that your State fares well and that your people do better.

Senator COVERDELL. Thank you very much, Senator. I appreciate the thoughts.

Senator BAUCUS. Thank you, Senator.

Thank you, Senator Coverdell.

**OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR
FROM THE STATE OF MONTANA—Continued**

Senator BAUCUS. Before I call our next panel there are a few words that I would like to state at this point.

I would first like to remind us all that last year at this time the flood waters on the Mississippi and Missouri rose to their highest level in over 100 years. In some towns, records were broken; in fact, science tells us that some of the records in last year's flood were last broken 500 years ago, so in some sense it was a 500-year flood. And the damage last year from the midwest flood was over \$12 billion.

Last week, the floods in Georgia, Florida, and Alabama caused terrific economic damage. So far we have estimates of over \$150 million, but I'm quite certain that's going to increase. When the President visited Georgia last week to assess the damage caused by the flood, I think he hit the nail on the head. He said that in a disaster such as a flood, the biggest tragedy is always the human tragedy. We talk a lot about economic loss; I think it's critical for us to focus even more on the human loss. In last year's midwest floods, 38 people lost their lives. This year, 30 people have lost their lives. The human tragedy must be measured in homes lost and harvest destroyed, incomes crippled, in all the ways that touch individuals in a tragedy like this.

I think the problem, though, is that in the past the Government policies may have somewhat overly-encouraged people to move to floodplains. Levees, many of them built as public works project during the Great Depression, made farming there a great temptation; in many cases, too great a temptation to resist. Cheap flood insurance, sometimes available on only 5 days' notice, made skipping that precaution too easy. Laws have not protected wetlands that act as nature's sponges during a flood. Moreover, Government actions may have made flood losses worse in some areas. Structures built by the Government along river banks have fueled the pace at which the water flows.

The human toll, as well as the financial toll, from our current flood policy and practices is too great. These floods are natural disasters caused by forces beyond our control, but minimizing the loss of lives and property is something we can control. The suffering of the flood victims in Georgia and Florida underscores the need to change the way we approach floods. This does not mean that we do away with levees. This does not mean we do away with other structural solutions. It does mean that levees will not be the automatic, willy-nilly choice for protecting against floods.

Before people foolishly begin building again on the floodplain, before local communities raise matching funds to build levees, before the Government throws itself back into the levee-building business begun in the last century, we need to develop a new strategy, one that will take our economy and our natural resources into the next century. We cannot afford another \$6 billion relief effort; that's

what last year's floods cost the taxpayers. Just last week the President spent another \$60 million on disaster relief in the south.

As a starting point, we need to learn from these disasters so that when the next flood occurs, fewer people will be in harm's way. General Galloway and his Task Force studied last year's flood. They learned that we need to manage floods, not try to control them.

Clearly the time for action is now, before disaster strikes again. Congress still has time to incorporate some of the recommendations of the Flood Task Force into current laws, and we have an obligation to move quickly. I intend to include reform of Federal flood laws in the Water Resources Development Act that the committee will consider shortly. I look forward to this hearing to learn about the areas where we need to act first.

Our intent is not to force farmers to leave their family farms when they do not want to leave. Rather, it is to help those who do want to leave. Last week President Clinton said that the flood in Georgia should not be the reason for more good farmers to leave their land. I disagree. Recurring flooding on their land is a good reason for farmers to consider moving to higher ground. We ought to do all we can to relocate farmers who want to move and provide more incentives for farmers in flood-prone areas to relocate. In the end, we in Congress may need to make tough choices about letting people stay in areas where no amount of flood protection is sufficient or economically feasible.

I believe that we can strike the right balance. This is, after all, just that: a matter of balance and common sense. If we put new technology and new ideas to work, we find new means to leverage private investments, and if we change the current worn-out ways of doing business, I think we can bring the management of this country's floodplains into the 21st century.

I would now like to turn to Senator Lautenberg, if he has an opening statement.

**OPENING STATEMENT OF HON. FRANK R. LAUTENBERG, U.S.
SENATOR FROM THE STATE OF NEW JERSEY**

Senator LAUTENBERG. Thank you, Mr. Chairman, I would like to make a brief statement.

I want to commend you for the timeliness of this hearing and the urgency which you have assigned to getting it done.

I also want to say, Mr. Chairman, that I thought that your comments were thoughtful and valuable in terms of the kinds of decisions we're going to have to make about how we manage floodplains and what we do about property and about decisions of rebuilding. The problem we are here to discuss has happened because we have permitted these areas to be developed. We have encouraged people by our lack of involvement to build their homes in what amounts to precarious places. So this look is a very important one. As we review flood damage and problems that we've had with excesses of flooding and water buildup, we've seen pictures emerge that are almost exclusively rural, western or midwestern. Unfortunately, no part of the country is spared from concerns about flooding and damage from flooding. The fact is that northeast New Jersey has had a terrible flooding history. We have an area called the

Passaic River Basin in north New Jersey. The most severe flood of record in the area occurred in the early 20th century, but more recent floods—1968, 1971, 1972, 1975, and 1984—were devastating enough to warrant Federal flood declarations. The flood of April 5th, 1984 in north New Jersey, was so severe that three people died and there was over \$400 million in damages.

The Passaic River Basin holds 132 municipalities in 10 counties, and it is home to some 2.5 million people and 20,000 homes and places of business. In 1985–1986, the State and FEMA tried to buy some of the 150 properties which were the most frequently flooded in the valley; they were ultimately only able to buy 40 or 50 homes because people simply did not want to sell, or the price that they offered was unacceptable to the homeowners.

I visited with a family that was devastated by the flood. The husband wound up in the hospital and the wife and three or four children were consigned to live with relatives until they could get the mud and the debris out of the house. I met the woman a year later, and at that time she resolved—tearfully—that she would never build on that site again. She had taken flood insurance and, as fate would have it, when we met the second time at a TV broadcast, she talked about rebuilding her home on the same spot. I said, "What are you talking about? You told me last year that you didn't want to see this place anymore." She said, "Yes, but when we looked around and tried to duplicate what we had, we couldn't find it. What we did is, we built a 16-foot foundation, so our living takes place from the second floor on up."

This shows you the attachment that people form with these locations. We can't encourage that kind of rebuilding if we're going to be able to afford to deal with this problem in a sensible way.

As the committee moves ahead, Mr. Chairman, on the issue of floodplain policy, it must also consider the consequences of this change not only on rural areas, but also on the urban areas. Some floodplain areas are the densely populated and have higher property values in relation to their rural counterparts. Any new policy must be flexible enough to allow the States and the affected communities to have a variety of flood mitigation and preparedness alternatives available. While flooding in the northeast has not been in the news of late, it doesn't take much to change that condition. I hope that as the committee moves on we will keep the entire country in mind as we try to develop new Federal floodplain management policy.

Again, my compliments, Mr. Chairman. You're on the right track.

Senator BAUCUS. Thank you very much, Senator, for that thoughtful statement.

I would now like to call our witnesses up to the table. We have several: Brigadier General Gerald Galloway, who is Executive Director of the Executive Office of the President for Interagency Floodplain Management; Mr. Alexander House from Payson, IL; Mr. John Robb, who is Chairman of the Upper Mississippi Flood Control Association, from Gladstone, IL; Mr. Raymond Evans, Missouri Department of Conservation, Jefferson City, MO; Mr. Doug Plasencia, Chairman of the Association of State Floodplain Managers, from Richmond, VA; Mr. Timothy D. Searchinger, Senior At-

torney, Environmental Defense Fund; and Mr. Bruce Mountain for the Iowa Natural Heritage Foundation of Des Moines, IA.

General, why don't you begin?

STATEMENT OF BRIG. GEN. GERALD E. GALLOWAY, JR., EXECUTIVE DIRECTOR, INTERAGENCY FLOODPLAIN MANAGEMENT REVIEW COMMITTEE, EXECUTIVE OFFICE OF THE PRESIDENT

General GALLOWAY. I appreciate the opportunity that you've given me today to testify the committee.

Senator BAUCUS. Before you begin, let me remind all witnesses that your statements will be included in the record. I encourage each of you to get to the heart of the matter and summarize your statements in about 5 minutes. When you see the green light, that means keep going. When you see the orange light, you might think about wrapping up. When you see the red one, put the "pedal to the metal," if you want to wrap up. It's in courtesy and deference to the other witnesses who are waiting. Thank you.

General GALLOWAY. Thank you, sir.

I would like to emphasize that the review committee that produced the report that Senator Nunn showed you a little earlier, represents a group of professionals from several Federal agencies. It is really an interagency committee and no one agency had predominance. It does not represent the views of the agencies with people on the committee and, I would note, we wouldn't want to give the Corps the "good and the bad" that comes out of this report. They certainly endorsed parts of it, but it is an independent review and it does not represent the views of the Administration. It is a report to the Administration. We have submitted our report to the Administration and the Administration is now in the process of determining the actions it will take in response.

As all of you have already discussed, with the flooding of the Mississippi River Basin and the Flint River Basin, the Nation has become well acquainted with the problems of the floodplain. Over the last 30 years the Nation has suffered annual flood damages in excess of \$2 billion each year, somewhere between \$12 billion and \$16 billion last year, alone. This doesn't include the losses of lives and livelihoods, nor the trauma inflicted on the people who live in these floodplains. Unfortunately, much of this impact falls on the poor and the elderly. There is disruption to regional economies and the basic ways of life in these areas. The damages on the Flint River have not yet been totalled, but the situation certainly parallels that on the Mississippi last year.

At the same time that the Nation has become concerned with flood damages, it has also recognized the values of the natural ecosystems and the functions and values of the floodplain—recreation, agriculture, silviculture, and flood storage.

The Review Committee proposes use of all available tools to concurrently reduce the damages in the floodplain while enhancing and preserving the natural functions of the floodplain. We believe these can be accomplished concurrently in a win/win approach.

I should state at the outset that there are no silver bullets, sir, to floodplain management. It requires detailed planning and a lot of hard work. First, we believe that you need to avoid new develop-

ment in the floodplain when that development does not need to be in the floodplain. Sound land use planning at the local level can accomplish this. Homes and businesses that are not built in the floodplain will not suffer damages when the inevitable flood arrives.

We need to reduce the magnitude of flood flows by capturing as much rainfall as possible where it falls. We can accomplish this through wetland restoration, through natural reservoirs, and through improved land treatment. These techniques work best against the more frequent and smaller floods. Gigantic floods like those on the Mississippi are hard to take care of with land treatment and wetland restoration alone. The Nation needs a clear focus on watershed management.

When people and activities remain at risk in the floodplain, we should consider relocating these individuals out of the floodplain on a voluntary basis—and I would repeat, sir, on a voluntary basis. Relocation has been a major success story in the Mississippi Basin, with nearly 5,000 homes in 120 communities being relocated. Senator Lautenberg has pointed out some of the problems, however, in finding adequate housing for those individuals who are relocated because they tend to be the poor and elderly. In addition to the buyout, another success story is the thousands of acres of marginal farmland that have been placed in conservation easements or acquired for natural function purposes.

I would like to quote Leroy Rendleman, Union County Commissioner from Illinois: "Even before the Great Flood of 1993, we had started to realize that some of the areas within our levee should never have been cleared for farming. The events of the last year have driven this point home. Many farmers with marginal and submarginal land are tired of fighting the river and want to find a way to get out from underneath their financial burdens."

There are many innovative approaches to land acquisition and you will hear some of the approaches from Mr. Ray Evans in a few minutes.

Next, where appropriate, we need to floodproof the facilities that are going to remain in the floodplain. There are sound reasons for occupying the floodplain—river-related recreation, ports, agricultural activity that takes advantage of the rich alluvial farmland that produces food and fibre, communities that already exist and need protection, such as St. Louis, Kansas City, and Hannibal. We need to provide an appropriate level of protection for these activities. The level of protection should be determined by the economic, environmental, social, and engineering factors and, especially the hydraulic impact of providing that flood protection.

Many levees did a good job on the Mississippi River. In the flood of 1993, over \$19 billion in potential damages were prevented because of the existence of the reservoirs and some of the levees.

When we cannot prevent damages, we need to mitigate these damages through post-recovery programs which include a heavy reliance on insurance. In this regard we have a long way to go, sir. Only 20 to 30 percent of the people in the Mississippi River Basin had flood insurance, and I am told by Director Witt that the figure is even lower on the Flint River.

In the case of the Mississippi Basin, we need to take specific actions. We believe there is a loose amalgam of Federal, State, and

local levee district flood control structures. In some cases they are acting at odds with each other. We certainly need to move ahead with an approach that leads to a single entity in charge and a systems plan. This needs to be done through a management program that involves the States, local governments, and individual citizens. Everyone must share the responsibility and share the costs.

Sir, if I could conclude, I would like to show you this box. It was given to me by the Secretary of the Missouri Levee and Drainage District Association, Mr. Tom Waters. It is a glass box filled with 100 marbles, and he was using this to illustrate for me the probability of flood occurrence.

Inside this box of 100 marbles there is one black marble. You reach in and pull a marble out. If you pull that black marble, you're going to have a 100-year flood. Unfortunately, when you've had that 100-year flood, you have to put that black marble back into the jar. And the next day or the next year when you pull it out, you are just as subject to pulling it out as you were the time before. So you can in fact have the 100-year flood 5 years in a row. We don't know when floods are going to occur. We have long-term probabilities. Floods will continue to occur. As Senator Lautenberg, Senator Nunn, and yourself have noted, we need better education so that the people of the United States understand that this challenge exists and that we need to be directing our efforts towards solving the problems of the floodplain.

Sir, thank you for the opportunity to appear before your committee.

Thank you, Mr. Chairman.

Senator BAUCUS. Let me ask one question. When you say "long-term," how long is long-term in analyzing whether it's a 100-year reoccurrence or not?

General GALLOWAY. Sir, they've got good records in Egypt, 5,000 years on the Nile River. We're dealing with 50 or 60 or 70 years of records, even records that are 100 years old on the Mississippi and Missouri are suspect because of the methods by which we measure, where they measured, and the changes in the regime of the rivers that have taken place over the years. These changes bring into doubt some of the flooding predictions based on earlier conditions. It is a very difficult situation. We have recommended that the USGS, the Corps, and NOAA get together on flood forecasting in trying to better determine what the levels of floods might be in the future.

Senator BAUCUS. I don't want to take too much time here, but how confident are you in knowing that certain instances of flood are 100-year reoccurrences, or 500, or whatnot?

General GALLOWAY. Sir, every river is subject to the conditions we just saw on the Flint River. We've seen the same thing from Hurricane Agnes, on the Passaic River. When rainfall starts to come, no one can predict how much will be there. There's going to be a thousand-year flood on every river and there's going to be a 500-year flood on every river, and we can't predict when they come. If these were 500 marbles, you'd have that chance of pulling that 500-year marble out every year.

Senator BAUCUS. I have a lot more questions along those lines that I'll ask later.

Next on the list is Mr. House.

STATEMENT OF ALEXANDER HOUSE, FARMER, PAYSON, IL

Mr. HOUSE. Thank you very much, Mr. Chairman. I appreciate the opportunity to share my views with the committee on General Galloway's report.

I am the gentleman that is farming the floodplain. I represent the fifth generation, farming in west central Illinois. We raise corn, soybeans, and wheat, on a rotational basis. We also raise hogs and cattle. We farm in the Sny Island Drainage District, which is the second largest drainage district in the United States of America, and I believe it to be the oldest. It encompasses approximately 125,000 acres. We have a levee, constructed by the Corps of Engineers in 1961 through 1967; that is when the project was completed. That raised the initial levee that was privately built back in 1870 and 1871.

We farm in the hills, and we also farm, down in the floodplain. Last year's experience was unlike perhaps what's happened in Georgia or anywhere else, in New Jersey, in that it lasted so long. Unlike a flash flood, which they've had in Georgia, we fought the river for almost a month. It was really a heart-wrenching experience. Unlike a tornado, where you basically have no warning, or a hurricane where you may perhaps have a few days and then it's over and you get on with your life and clean up, this lasted for an eternity. Every day could be the last.

Having said that, we received a tremendous amount of support from local government officials, churches, Lions Clubs, the Red Cross, to fight the flood. After that, the State moved in—perhaps a week into the flood—with State equipment, trucks, bulldozers. And last but not least, the Federal Government came in at approximately the 15th of July. Now, I know they were there all during, I'm sure, but I personally was on the levee, the lowest and most dangerous part of our levee, all day every day from dawn to dusk, and I saw the first engineer from our Federal Government on the 15th of July.

Having said that, our levee was the last to breach. We breached on the 25th of July. We flooded 45,000 acres. That was the first time that levee had been breached in over 100 years. I think that is excellent testimony to the fact that flood protection does work. We held back a 500-year flood with a 50-year levee, which is a tremendous tribute, I think, the construction of it initially, by the Corps, and also by the tremendous volunteer effort that it took to hold the waters back.

There are three areas in the report that I would like to comment on briefly. One is from an environmental standpoint. I consider myself an active environmentalist. I've been involved with the Nature Conservancy for a number of years and believe that we are stewards of the land as opposed to owners.

A quick trip through the Sny Island Drainage District, I think, would be well worthwhile for members of this committee, especially when it comes to restoring this property to what will commonly be referred to as "wetlands." It is not a wetland now. It has been intensively cultivated for over 100 years; in our case, 130 years. To spend the kind of money that we're talking about on a willing

buyer/seller status, we're talking about a tremendous sum of money—in our case alone, in the Sny, 125,000 acres. The market price is approximately \$2,000 an acre. We're talking \$250 million to acquire one small segment of this floodplain. I compare that to what the Nature Conservancy, in conjunction with Fish & Wildlife, has done in Lower Cache, in southern Illinois. They have preserved 23,000 acres of what is truly a national treasure; it's called the Lower Cache River Basin. There are cypress trees there 1,000 years old; 900 species of plants have been identified. It's a tremendous, tremendous asset to the Nation as a whole. They did this at a cost of approximately \$15 million, compared to \$250 million that it would take for the Sny.

The thought that periodic flooding would not in fact be that bad for the environment, that—well, say it flooded once every 5 years, for example, and then the other 4 years you would have productive economic activity. That's simply not the case. You can't go in and farm land that has been flooded without a tremendous expenditure to get the ditches cleaned out. On our farm alone we hauled over 80 truckloads of rock just so we could get the equipment into the fields. Our local township budgets have just been decimated just to get the roads passable to get equipment in and out.

We're in a situation here in our drainage district where we produce about \$36 million a year in revenue to our immediate economy, that one small area. The city of Quincy is falling over backwards to try to attract jobs and businesses, and to attract a company that had \$36 million in sales would be a tremendous asset.

Thank you for the opportunity to speak.

Senator BAUCUS. Thank you very much, Mr. House. That was very helpful.

Mr. Plasencia?

STATEMENT OF DOUG PLASENCIA, CHAIR, ASSOCIATION OF STATE FLOODPLAIN MANAGERS

Mr. PLASENCIA. Thank you, Mr. Chairman, Senator Lautenberg. My name is Doug Plasencia. I am a professional civil engineer, but I have specialized in floodplain management. For 6 years I was a floodplain manager for a local flood control agency that specialized in flood control projects. For the last 4 years I have headed a State floodplain management program. Today I am testifying to you on behalf of the Association of State Floodplain Managers, which is a professional association representing the local and State floodplain management professionals of the Nation. Our association is dedicated to the reduction of flood losses in the Nation. We've been at this for about 25 years.

The midwest flood, and the southeast floods that are taking place right now, just tend to prove that floods happen. It's a matter that those who choose to live in floodplains will be damaged, regardless of some of the actions we take, when we choose to live that risk. Internationally-renowned geographer Gilbert White in his 1942 dissertation, "Human Adjustment to Floods," said that "floods may be an act of God, but flood damages are an act of man." I think when you look back at the experiences in the midwest, and in Georgia right now, it's a very prophetic statement.

After 60 to 70 years of current flood policies, what we have accomplished is a system where we have provided flood protection in certain locations, but overall, flood damages nationally have doubled. Right now we spend on average \$2.2 billion on flood damages compared to less than \$1 billion 50 years ago, and that's in current dollar terms.

The other thing we've accomplished is that we've managed to destroy numerous aquatic ecosystems in terms of single purpose projects.

The report prepared by the White House Task Force, led by General Galloway, is providing the vision and the next logical step we need in national flood policies. The report itself is neither condemning nor supporting certain actions. What it is pointing out is the fact that we have led with a single purpose flood control policy for too long. We need to integrate the other areas of floodplain management, nonstructural management, resource management, and disaster policies in an integrated fashion. That is what is lacking today in our national flood policy.

The changes called for are not radical. They are in keeping with the thinking of practitioners of floodplain management for many years and what academics, such as Gilbert White or such leaders as Jim Goddard, have said through the 1930s, 1940s, and 1950s. What they are promoting is a vision of sustainability, that in those areas where we need to live and develop, we live and develop those areas wisely; in other areas where we do not need to live and develop, stay out of the floodplain. The report promotes the idea that we need to reduce disaster losses by increasing State and local incentives to make the right decisions. What the report is promoting is that we need a general shift in programs that reflects what has happened as far as a shifting government. No longer can we afford—nor can we rely on—top-down Federal programs. We need to develop State and local partnerships that reflect those realities of today.

Currently, our policies are a non-coordinated strand of water resource policies. We need to interject some coordination back at the Federal level. We need alternatives to flood control. We don't control floods; we just simply move them around.

And finally, we need to develop a comprehensive approach that floodplain management is a coordinated direction for our Federal agencies and a coordinated direction for our State and local programs.

The association has urged the Administration to, first, reinstate a Federal coordinating mechanism, such as the Water Resources Council. That will be very critical to moving this report forward because of the fact that the report itself is a long-term direction. We've gotten to this point in 60 years; we're not going to get out of this point in 1 year. We need to commit the long-term vision in the Water Resources Council, or another Federal coordinating agency can do that.

Second, we have urged the Administration to reissue Executive Order 11988, Floodplain Management.

For the Congress itself, we urge the Congress to follow the report recommendations and develop and pass a Floodplain Management Act that redefines Federal, State and local relationships.

Second, develop a nonstructural project authority. That way, nonstructural flood protection projects will have an ability to get out there in the field without competing with flood control projects, which have dominated for too long.

Third, we need to develop an ethic of multiobjective management within our Federal agencies. There are many very strong partnerships that could take place, but authorities and biases get in the way. We need to promote a more cooperative nature among the agencies.

We need to develop a uniform post-disaster application process and approve mechanisms for agency participation. In the midwest flood recovery itself, there were some very painful early lessons on developing coordination, mainly because of the fact that agencies were delivering the same programs with different rules and different methods of qualification.

In our testimony we do lay out a number of other recommendations. We have 10 recommendations in our testimony for the record, but at this point in time I would like to urge the committee to understand that floods of this magnitude do not happen all the time. Neither do policy changes in flood management happen all the time. We have had roughly four periods of major policy change in flooding since the 1920s; each has followed a major flood. At this point in time what is facing us is the opportunity to bring disaster costs under control and develop an ecosystems management approach that makes sense for the future. If we miss this opportunity, we will wait for another 10 to 25 years, until another chance comes, for us as a Nation to act.

Thank you.

Senator BAUCUS. Thank you very much, Mr. Plasencia.

Next, Mr. Robb?

**STATEMENT OF JOHN ROBB, CHAIR, UPPER MISSISSIPPI
FLOOD CONTROL ASSOCIATION, GLADSTONE, IL**

Mr. ROBB. Yes, sir, thank you very much. My name is John Robb. I am chairman of the Upper Mississippi Flood Control Association. We represent levee and drainage districts from Cairo, Illinois up the Upper Mississippi Valley, and on the Illinois and Missouri Rivers, also. We represent industry, municipalities, and individuals also in our association.

We have certainly had an epic event in the Upper Mississippi Valley in 1993, and we sympathize with the gentlemen from Florida and Georgia and Alabama who have also had an epic event.

As I sit here and hear this testimony and hear how we are planning to approach this, it looks like maybe we may be making policy based on epic events which may not ever occur again. We're talking about 500-year floods. We're talking about two feet of rain in a 24-hour period. I don't know the history of that in America, but that is very rare. So I think we need to keep that in mind.

We also need to keep in mind when we're putting people back on their feet, our forefathers developed this Nation, and our Nation is here because we have taken advantage of our resources and put them to economic value for ourselves. These people who have lost their economic footing, they have paid billions of dollars in taxes over the years, and we deserve to get them back on their feet. This

is not a welfare situation here. We're trying to get our economy back together in a lot of cases.

There are a lot of things that we object to in this report, but I don't want to dwell on those. I would like to say that we'd like to have time later; we haven't been involved in this process very much. We would like to be very involved in it. We would like to testify before this committee every time there's an opportunity when this subject comes up so that we can continue to voice our pluses that we would like to add to this, and our agreements with General Galloway and his staff report, but we would also like to be able to object to things that we don't agree with.

What I would like to bring to the attention of the committee here today is the benefit of flood control to the environment. In the report, we appreciate the statements that pretty well, we think, dispel the idea that wetlands act as sponges to stop flooding. The report actually says that "restoration of wetlands, upland, and bottomland have questionable significant impact on major floods and what could affect minor floods." Minor floods basically are 25-year floods on the navigable portions of the Upper Mississippi, Illinois, and Missouri Rivers, which I am addressing today. A 25-year flood is basically a nonevent.

Now, in the report I would also like to point out that there are 10 million acres in this watershed, in the floodplain. The report says there are 1.4 million acres of that in wetlands now. There are 900,000 acres of that in water, but we have 25 percent of the floodplain that is now wetlands. So we don't have a shortage of wetlands in the floodplain. The wetlands do not work to stop flooding, so why do we need more wetlands? We agree that we need to keep more water up in the watershed to help prevent these floods, but wetlands—when you have a major event like we had in the Upper Mississippi Valley which happens over a long period of time, the wetlands, which do not have a release system except when they're full, they fill out; and when the event takes place, they're not useful anymore. A flood control reservoir recreation dam, on the other hand, you have ability to maintain your excess capacity and affect a flood.

On Monday morning I came through the airport in St. Louis and I noticed on the front page of the St. Louis Post Dispatch—and I'd like to submit this for the record—it is a statement that biologists have done some review on the Upper Mississippi, Illinois, and Missouri Rivers, and it says,

FLOOD DEALT MORTAL BLOW TO TREES

VAST STANDS DEFUNCT; SOME SPECIES WIPED OUT, BIOLOGISTS SAY

Biologists who have surveyed the damage say that some species have been almost wiped out.

To be specific, in the second half of the article,

Entire stands of oak and hickory are leafless. It is really sad when you see a burr oak four feet in diameter, and it is dead; that was a seedling before the Civil War.

As you read this article, Senator, you will see that we are talking about a major environmental disaster here, on the order of the Valdez. I submit to you that the bay up where the Valdez spill was

will be back, very vibrant and healthy, before we have four-foot burr oaks in the Valley.

[The article referred to follows:]

[From the St. Louis Post Dispatch, July 18, 1994]

Flood Dealt Mortal Blow To Trees

Vast Stands Defunct, Some Species Wiped Out, Biologists Say

By Tom Uhlenbrock
Of the Post-Dispatch Staff

Fall colors have arrived early this year in the river bottoms of the Midwest. The yellows and browns represent not the changing of the seasons but the massive death of trees from last summer's flooding.

Biologists who have surveyed the damage say that some species have been almost wiped out. They are trying to determine what the kill will mean to other life on the flood plain.

Russell Beasley is no biologist, but he confirms what the scientists are reporting.

"Lots of trees have died; lots of them are still dying — it's pathetic," said Beasley, who is caretaker for a 1,500-acre private hunting club on the Mississippi River in St. Charles County.

"See that big pin oak that's turning brown? That's just happened in the last couple of weeks," Beasley said. "This maple tree in the front yard, it leafed out pretty this spring — now it's going.

"You look at some angles in the forest, it looks like everything's gone."

John Nelson is a plant specialist with the Illinois Natural History Survey who monitors forests along the Mississippi for the Corps of Engineers. He says that most biologists believed that trees along the river would survive the flooding.

"The typical response was that tree species are adapted to flooding, so it won't be much of a problem — I was one of the biologists writing that," he said. "Wrong! The impact is much more severe than anybody anticipated.

"There are areas where we have 100 percent mortality. If I had to pick an average, I'd say 45 to 55 percent of the trees have died or will die."

The species affected include oak, hackberry, hickory, box elder, sycamore and elm. Pecan, silver maple and cottonwood have fared better.

A drive along Missouri Highway 96 in St. Charles County turned up entire stands of oaks and hickories that were leafless. "It's really sad when you see a burr oak 4 feet in diameter, and it's dead," Nelson said.

No estimates have been made of the acreage involved. Scientists hope to use satellite photos to get a better idea of the magnitude of the die-off.

But biologists in Missouri and Illinois say the kill is in areas that were inundated for months last summer, including the river bottoms along the Upper Mississippi, lower Missouri River and lower 80 miles of the Illinois River.

"We're talking about some tremendous acreage here," Nelson said.

The problem was the duration of the flooding, which came in two waves. The water came up in the spring, and renewed flooding lasted from early summer into the fall.

"The trees were inundated pretty much throughout the entire growing season," Nelson said. "Then there was easily a half a foot to 8 inches of sediment deposited on the flood plain. All that was followed by more flooding this spring."

The standing water and sediment combined to suffocate the trees, cutting off the flow of oxygen and water.

"A tree can be surrounded by water but might as well be in a desert because it cannot take it up unless it has oxygen," Nelson said.

Beneath the dead trees, a new forest of silver maple seedlings is growing. One fear is that the maples will take over, creating a one-species forest, or monoculture, that lacks the diversity normally found in nature.

"The flood-plain forests are extensive and important," Nelson said. "They provide a riparian [near the bank of a river] border that serves as habitat for a lot of animals, and also slow and filter water runoff. A high diversity in the forest means a high diversity of wildlife."

The dead trees will benefit some species that thrive on decaying wood, and dead wood also eventually will be incorporated back into the nutrient cycle. "The insects and woodpeckers are going to have a great time over the next decade," Nelson said.

"But other species may suffer," he added. "Sycamores, for instance, are a very important roosting habitat for heron colonies. Eagles, on the other hand, seem to like large dead trees."

Dan Erickson, a forester with the corps, said the die-off represented an opportunity to restore the bottomland forests. He said that many of the more desirable species had been removed by timber cutting in the past.

"We should be seeing a lot more oak, pecan, cherry," Erickson said. "This gives us an opportunity to maybe experiment with methods of reforestation, basically spiking in the more desirable species."

Mr. ROBB. We have the Interior Department—and I have these exhibits attached to my testimony here—the Interior Department at Lake Odessa and Emiquon, that's a refuge on the Illinois River, are actually building levees to protect the floodplain. The reason they're saying here that they need to keep it separated from these rivers is because flooding damages a habitat for several years. Actually, the new habitat on the Illinois River, the Emiquon National Wildlife Refuge is asking—Fish and Wildlife Service of the Interior Department is asking to build 200-year to 500-year levees. We're doing that in the levee districts. We're protecting the habitat. We believe that the ecosystem doesn't need to be restored; we think it needs to be protected, and we would like to invite you and your committee to come out to the midwest and let you review the situation in our levee drainage districts. We can show you that we have balance in our system out there. It's an economic system. It produces tax revenue. It produces navigation, transportation, and a link to world trade, which is vital to the midwest. Without it we're going to be very, very crippled economically and environmentally.

Thank you very much.

Senator BAUCUS. Thank you, Mr. Robb. We appreciate that.

Mr. Evans?

**STATEMENT OF RAYMOND D. EVANS, MISSOURI DEPARTMENT
OF CONSERVATION, JEFFERSON CITY, MO**

Mr. EVANS. Thank you, Mr. Chairman, for the opportunity to be here. As you noted earlier, I am from the Missouri Department of Conservation, but I also am a landowner and a farmer from one of the Missouri counties affected by the Great Flood of 1993. While my small truck patch doesn't mean much to the world, it certainly means the world to me.

Along the Missouri River Valley, flooded landowners have a number of immediate concerns, like getting the levees repaired. Our delegation did an outstanding job of getting funds made available for these repairs.

Longer-term concerns were that the Government—whoever that is—would declare the flooded lands to be wetlands and make it impossible to ever farm them again or do anything with them; a land grab, if you will, for public purposes without compensation to private landowners. Again the Congress came through with the Emergency Wetland Reserve Program, which allowed qualified landowners to choose to enroll their lands and receive the agreed-upon compensation.

However, problems still exist. Almost 60,000 acres are covered with sand two feet deep or deeper and do not qualify for the Emergency Wetland Reserve Program. And for a number of good reasons, some levees are simply not going to be rebuilt. A number of landowners put part of their land in the Emergency Wetland Reserve. Part of their land is sand-ravaged and not qualified for any kind of relief, and yet they have some undamaged land but not enough left for a farming operation. So they want out of the river bottom.

Land is available for sale from willing sellers, and private and public goals can be achieved through innovative cooperation.

The Missouri Department of Conservation, which I represent here today, believes that the sanity with which we respond to the flood of 1993 will, in the final analysis, be measured by the number of acres that we add to the floodway and the full protection of private property rights that we provide in the process. The present Federal-nonfederal cost share for levee repair and restoration is 75/25, which gives us no increase in the floodway and no improvement in compatible floodplain uses. We propose a similar ratio for land acquisition, and the Missouri Department of Conservation will guarantee the 25 percent nonfederal cost share, up to \$10 million short-term, with discussions for an additional \$10 million over the long term. That first \$10 million has already been appropriated and now awaits some Federal action.

The land to be screened for this acquisition has been tentatively identified by the scientific team of the Galloway committee in approximately 60 polygons containing an estimated 100,000 acres, which represents 13 percent of the floodplain. These lands are recognized as being in high energy discharge areas and critical to addressing the long-term problems of flooding in the Missouri River Valley. These land acquisitions would be from willing sellers only. These lands would remain on the tax rolls, since we continue to pay real estate taxes. This would permit and encourage compatible floodplain uses, including farming and public access and use. This would address the almost 60,000 acres with sand deposits greater than 24 inches and would provide for reestablishment of bottomland forests, and at the same time increase the area of the functioning floodway. In some cases, following purchase, levees may or may not be repaired, or they may be further breached or degraded. Bottomland forests and riparian zones would be restored and side channels could be opened to provide riverine habitat, presently in short supply.

Habitat for a wide variety of wildlife species could be created and enhanced. These acquisitions would aid in implementation of the North American Waterfowl Management Plan, the Missouri River Fish and Wildlife Mitigation Project, and the Administration's commitment to wetland protection, restoration, and ecosystem management on a scale never before possible.

Paramount in these efforts is the constant awareness of the human suffering involved in the flood and the necessity to pursue this public agenda with a strong commitment to protect private property rights. Pursuit of the agenda proposed here is the only proposal that we know of on the table that significantly restores the floodway, reduces the impact of future floods, lowers Federal exposure to future costs while maximizing environmental enhancement, and most importantly, is backed up with nonfederal dollars.

Through this approach, the majority of the bottomland remains in private ownership, as it properly should. Provisions are made for protected farmland as compatible floodway use. The local tax base and agribusiness infrastructure is protected, and significant public policy is pursued while private property rights are protected. Federal funds could be spent on bottomland restoration with long-term benefits instead of levee repairs, land restoration and cleanup which are remedial only. The area, scope and function of the floodway is enhanced.

The flood of 1993 and the damages it wrought provides us with some clarity on the size of the problem and the magnitude of the opportunity presented. We believe that the proposal presented here comes closer than anything on the horizon to being equal to the enormity of the problem and the immensity of the opportunity.

I'm from Missouri, and the Federal Government needs to show us it really is serious about seizing the opportunity. Or, as we say on the Missouri River, it's time to fish or cut bait.

Thank you for the opportunity.

Senator LAUTENBERG [ASSUMING THE CHAIR]. Next we are going to hear from Mr. Mountain.

STATEMENT OF BRUCE MOUNTAIN, DIRECTOR, WETLANDS PROGRAM, IOWA NATURAL HERITAGE FOUNDATION, DES MOINES, IA

Mr. MOUNTAIN. Senators, I appreciate the opportunity to testify today on our Nation's flood management policies. My name is Bruce Mountain. I am the Director of the Wetlands for Iowa Program of the Iowa Natural Heritage Foundation. The Foundation is a statewide land trust founded in 1979, with over 6,000 members.

Nature operated her rivers and streams for tens of thousands of years with no help. She may have used more of the floodplain than absolutely necessary, but then there was no competition for this land. Today there is competition from man for the Nation's floodplains. In a short 200 years, man has attempted to implement his own plan of drained prairie potholes, channelized streams and leveed rivers, but our brash inexperience, shortsightedness, and site-specific planning instead of ecosystem planning have become dramatically evident. The Federal Government has the ability and responsibility to put some balance back into nature's floodplains. It can be done—and it has been done, in partnership with willing landowners in Iowa.

One watershed subject to some of the most severe flood damage in 1993 was the Iowa River Basin. The 2,500-acre Louisa Levee District 8 is located six miles from the Mississippi River. The area is owned by 13 different landowners, with parcels ranging in size from 13 acres to over 1,500 acres.

When the levee broke in 1993, it was the 15th time since 1927. The estimated cost of rebuilding the levees, clearing the drainage ditches, removing sandbars and debris and filling scourholes, was \$2.9 million. This excludes disaster payments, crop insurance payments, and nonrecoverable costs to the landowners.

In October of 1993, the Emergency Wetland Reserve Program was announced. This program provides compensation for severely-damaged crop ground and breaks the cycle of paying for similar damage caused by future floods.

In Louisa Levee District 8, the damage ranged up to \$3,000 per acre. The landowners were tired of fighting the river and were receptive to the easement concept. However, they were not especially warm to the idea of retaining ownership to land that they couldn't farm, which was still subject to county real estate taxes, and they wanted more compensation than just the \$863 per acre, as available through the EWRP program.

The State Office of the Soil Conservation Service Iowa proposed the idea of a buyout. The SCS, in conjunction with the Fish and Wildlife Service and FEMA, agreed to joint their funding capabilities for a buyout if enough of the farmers participated in dissolving the levee district to ensure that future reconstruction costs wouldn't be incurred. This project worked because a public/private partnership of willing landowners, Federal agencies, and nonprofit organizations developed a successful floodplain conversion concept. For about one-half the cost of repairing the flood damage to the levee district, and with a compensation for lost crops in 1993, this project will permanently return Iowa River floodplain to wildlife habitat and flood storage capacity, and allow farmers to relocate to non-floodplain farm acres for a more reliable farming operation.

The Iowa Natural Heritage Foundation was asked to act as facilitator to negotiate the purchases, coordinate the surveys and title searches, and develop other nonprofit funding sources. The National Fish and Wildlife Foundation and The Conservation Fund are providing essential interim financing for the project. The Iowa Natural Heritage Foundation has offers to purchase over 2,500 acres. It is in the midst of closing the land purchases and transferring the property to the Fish and Wildlife Service, to be managed as the Horseshoe Bend Wildlife Refuge. The levee district has been dissolved, and now the river's ecosystem can reacquire some of its natural characteristics for wildlife habitat, water quality, and flood storage capacity.

This unique project provides short-term and long-term savings to the taxpayer. A one-time fair market purchase of flood-prone land is much cheaper than continued, expensive Federal programs to rebuild levees, clean drainage infrastructure, repair land, and pay disaster payments, all interspersed with crop deficiency payments and insurance claims.

The Federal Government still has the responsibility to provide existing protection in certain floodplains. But it also must develop alternatives to trying to control nature, such as relocating willing landowners and returning parts of the floodplain to the river.

To accomplish this we have five recommendations.

First, we urge Congress as an initial step to follow the recommendations of General Galloway's Interagency Floodplain Management Committee.

Second, we request Congress to increase funding to the Wetlands Reserve Program. This program provides incentives to farmers to cease farming marginal wetland areas and protect and restore these areas as a part of an overall floodplain management plan.

Third, the Environmental Easement Program was authorized in the 1990 Farm Bill, but it was not funded. We urge that this program be funded to help protect environmentally sensitive land adjacent to wetland areas.

Fourth, we urge Congress to amend the tax code to allow farmers to defer taxable gains if easement proceeds are reinvested in farm ground within 2 years. The IRS allows homeowners 2 years to reinvest sales proceeds, and there is no reason that family farmers should not be granted equal status.

Last, we recommend that Congress authorize the Corps of Engineers to enlarge and reinforce, the Corps' emergency environmental

mission. The Corps should have the authority and the mandate to engage in aquatic ecosystem, restoration in meeting the challenge of floods, rather than solely controlling and channelizing.

Thank you for this opportunity to comment.

Senator BAUCUS [RESUMING THE CHAIR]. Thank you very much.

Finally, Mr. Tim Searchinger.

**STATEMENT OF TIMOTHY D. SEARCHINGER, SENIOR
ATTORNEY, ENVIRONMENTAL DEFENSE FUND**

Mr. SEARCHINGER. Thank you, Mr. Chairman. I am a senior attorney with the Environmental Defense Fund, and I would like to start off by thanking you for the leadership you showed last fall in making it possible for the Federal Government to respond for the first time to the flood in the Upper Mississippi Basin in creative ways that permitted the relocation of thousands of people from the floodplain. The efforts will assure that those people are not a source of future flood damages and future human suffering. I know that you took an important leadership role in that.

Mr. Plasencia talked about the underlying fact of flood policy in the United States that we've seen an increase per capita in real dollar terms of flood damages. The Galloway report now lists flood damages at \$3 billion per year. The question is, how did we get to this position? The truth is that the vast majority of people do not locate in the floodplain. Left to their own devices, they build elsewhere. Even in the Mississippi and the Missouri River areas that were flooded, if you drive through those areas, there is a clear floodplain; there are clear bluffs. The overwhelming majority of development, historically and now, is on those bluffs. So even though the United States experiences a very high level of flood damages, the fact is that it's a relatively small number of people who have decided to locate activities in the floodplain.

Despite that fact, we have huge levels of damages, they occur despite the expenditure of \$1 billion a year on structural flood control, and despite the fact that we have essentially mortgaged our environmental system to structural flood control. The United States now has only 2 percent of its river miles flowing freely. One third of our aquatic species are now threatened or endangered. This committee has heard testimony on "ecosystems that have gone into crisis": the Everglades, which have lost 90 percent of their wading birds and hold two dozen endangered species; coastal Louisiana, which is disintegrating at 25 square miles a year. The Missouri River lost 80 percent of its commercial fisheries after it was leveed off from its floodplain. It has 34 threatened or endangered species. The Illinois River in a 10-year period lost 95 percent of its commercial fisheries following its being walled off from the floodplain.

Basically, a large river system cannot survive if it is disconnected from the floodplain. That is only one example of what happens when you alter the physical structure and hydrology of an aquatic system. It is in the floodplain that the food supply is produced and that the fish spawn.

Now, how is it that, despite the originally limited development in floodplains and despite all these fiscal and environmental costs, that we have reached a situation in which the country experiences

\$3 billion a year in flood damages? The Galloway report talks about three reasons.

The first reason is that our water management systems are at war with each other. The most pervasive system of water management in the United States is drainage. We are relentlessly draining water from urban areas and agricultural areas into the rivers, where they cause flooding. Senator Nunn and Senator Coverdell pointed this out regarding Georgia. It is a huge problem down there. That was also a problem in the Mississippi and the Missouri. The Corps has assisted this drainage and the Federal Government has assisted this drainage by helping to channelize streams to move water more rapidly downstream. So this country is spending billions of dollars to increase our flooding problems downstream. At the same time the drainage cause water quality problems because when water is directed downstream rapidly, it does not filter through soils and vegetation. The stormwater quality problem that you're addressing right now in the Clean Water Act is largely a result of this drainage problem. The poor quality of stormwater that is now presenting potential retrofit costs of billions of dollars for municipalities is largely the result of the fact that drainage has been based on draining water rapidly downstream. So the fact is that drainage is simultaneously undermining flood control and water quality objectives.

The second reason is that, while structures can prevent flooding from occurring in many places, the magnitude of damage is greater when they fail. When you have a levee, people build behind the levee. More people flood into that area behind the levee; when the levee fails, it unleashes a kind of a tidal wave of flood water at those structures. Even if levees are successful in blocking some floods, as Mr. House talked about, if they do fail the magnitude of damages is much greater than if the levee hadn't been built in the first place.

Finally, and I think perhaps most importantly, we have essentially provided Federal incentives for people to build in floodplains by assuming most of the risk of the cost of building in floodplains. Some 6,000 structures that were damaged in the flood last year were damaged three times between the years 1978 and 1993. They were rebuilt because the Federal Government assumed the cost.

The levees on the Missouri River failed on average once every 5 years. The typical levee on the Missouri River fails once every 5 years and is rebuilt at Federal cost.

The remedies to these problems—which we have sketched in our prepared testimony—are, to some extent, to redo our flood control policy.

First, flood control policy should help municipalities to hold the stormwater on land instead of to direct it downstream and causing flooding.

Second, we have to alter the incentives for people to live in floodplains. We shouldn't be in a position of picking up most of the cost of people living in harm's way. Perhaps the area most in need of reform is the Levee Repair Program, Public Law 84-99, through which the Federal Government essentially provides free insurance to build levees. Under that program, the Government will repair levees whenever they fail. The law requires people to insure their

houses, but we provide them free insurance for levees. Basic economics says they should pay their own costs.

Finally, we have to take advantage of opportunities to accomplish both environmental restoration and flood control.

Thank you, sir.

Senator BAUCUS. Thank you very much, Mr. Searchinger.

Now I would like to go down the recommendations that General Galloway made, then ask all of you to comment on them, just to try to get your reactions on whether you agree or disagree with them.

The first one, basically, is to avoid new development. The point seems to be—perhaps, General, you could state it more succinctly, but as I understand the point, it's that we should avoid new development in floodplains; why make the matter even worse? Is that basically the first point?

General GALLOWAY. Yes, sir. There are some types of development that make extremely good sense. If you're going to build a port, you have to do that in a floodplain. But there are other types of development, as Mr. Searchinger has pointed out, that can go equally well on the top of the hill, on the bluff. If you are undertaking new development, it makes better sense to put it out of harm's way than to put it on the floodplain.

Senator BAUCUS. Okay. I'm going to go right down the table here and get your reactions.

Mr. EVANS. Agreed.

Senator BAUCUS. That's succinct.

Mr. Plasencia? And maybe what kinds of development—maybe you want to refine it a little bit, but just tell me the degree to which you agree and where you might modify it.

Mr. PLASENCIA. Okay. I think basically I agree with the concept of avoidance. I think the thing we need to look at as a Nation so that we don't get into the issue of private property rights is, where is our infrastructure policy going to encourage at-risk development? Water systems, sewers, highways, and things along that line—there is a whole series of incentives and disincentives that need to be looked at as far as this issue of avoidance.

Types of uses that make sense—in there would be very low-density type uses that would not be environmentally harmful if flooded.

Senator BAUCUS. Okay.

Mr. Searchinger?

Mr. SEARCHINGER. I would agree with it. I would add that rather than trying to play God—or play market—and say, "We will say what should be and what shouldn't be," the first job should be to stop creating incentives for people to build in the floodplain.

Senator BAUCUS. For example?

Mr. SEARCHINGER. First, the typical Corps flood control project is based on the presumption that if we build a levee or some other flood control structure, we will allow more intensive use of the floodplain, and this will have economic benefits. So the typical Corps of Engineers flood control project is designed for the purpose of encouraging more intensive use of the floodplain.

The second example is what I mentioned before. We have created an entitlement program for levees. If somebody goes out and builds

a levee—the Federal Government may have nothing to do with it; no environmental review; Congress doesn't endorse it; it does no cost-benefit analysis—but right now if anybody goes out and builds a levee and meets basic engineering standards, the Federal Government will pay to repair it whenever it gets damaged. You build a 5-year levee or a 10-year levee, one of the biggest costs is simply repairing it every 5 years or 10 years when it is designed to be flooded and damaged. The Federal Government right now will pay to repair that. We require people to have insurance on their homes—

Senator BAUCUS. You're talking about Corps-constructed levees? You're not talking about—

Mr. SEARCHINGER. No. There are 8,000 levees in the Upper Mississippi District. Only a couple hundred are Corps-constructed levees. The rest are private levees, levees that the Federal Government had nothing to do with constructing. We have created an entitlement program that says that when they fail, as they are designed to fail every 5 or 10 years, the Federal taxpayer will pay to repair them. It's exactly as though we said, "If you build a house in the floodplain, you don't have to buy insurance. When it floods, we will pay to have it rebuilt."

Senator BAUCUS. Mr. Robb?

Mr. ROBB. First of all, I'd like to address Mr. Searchinger's remarks here on paying and paying and paying. We've been paying and paying and paying, and the money has come up here to Washington and it's gone out to all sorts of things. We have submitted testimony that says—in our statement we have a statement from Iowa State University that agriculture in Iowa and Illinois and Missouri produces \$73 an acre in taxes, \$73 an acre on the \$1.7 million on the areas that we are representing here, the Illinois and Missouri and Mississippi River bottom. That would produce \$1.8 billion worth of taxes in just 15 years, which would raise our levee, clean the backwaters, increase the habitat in the backwaters. Also I have in my testimony that the EMPRI program is doing that now, spending \$250 million to dredge material out of the backwaters to clean up the habitat, but they're not using for a beneficial use. They're putting it out on an island along a bank, where it will wash back into the same hole it came out of. We recommended putting it on the levees.

We pay enough taxes just from agriculture—

Senator BAUCUS. Are you talking about property taxes? Talking about income taxes? This \$73 you mentioned, is that property taxes?

Mr. ROBB. It's all the taxes. It's Federal, State, local, property, sales, all the taxes that go into various forms of government. We have to have local government as well as Federal Government.

That would pay for doing that; 90 percent of the flooding would have been prevented along the Missouri, Illinois, and Mississippi Rivers. Now, also, when we have levees of that type, we have economic development, which we think is good. Our Government now—and hopefully, I know a lot of people up here are involved in this—is trying to develop international trade. International trade is the future of America. If we can't get engaged in international

trade, we're going to continue to diminish in our stature in the world.

Senator BAUCUS. I don't think we have much disagreement there, but I'm trying to get at General Galloway's first recommendation, which is basically "avoid new development."

General GALLOWAY. Avoid use, sir, when it is inappropriate.

Senator BAUCUS. Yes, avoid use when inappropriate.

As a concept, do you agree or disagree with that?

Mr. ROBB. What I'm trying to say is we agree with that if it's inappropriate, but what we're saying—

Senator BAUCUS. What would be appropriate avoidance?

Mr. ROBB. Okay. All right. What is appropriate is to allow us in the upper river bottom to have the same opportunity that is going on in the lower Mississippi Valley, to develop economically so that we can pay taxes and continue to be part of our Government and protect the environment, which we've demonstrated here today is possible and is actually going on.

Senator BAUCUS. But the question is, in floodplains. As a policy, do you think it makes sense for State, local, Federal Government, whatever, to have in place policies which tend to discourage new development in floodplains?

Mr. ROBB. No, we think that's a huge mistake.

Senator BAUCUS. So you disagree with the concept, then?

Mr. ROBB. Yes, sir.

Senator BAUCUS. Okay. And the main reason you disagree is why?

Mr. ROBB. Because flood control, navigation, economic development, and environmental protection—it's been proven that the United States Army Corps of Engineers can handle that mission, and it's been proven already, and we think that if we do that in the upper valley, the whole balanced system—well, everybody at this table will benefit.

Senator BAUCUS. Mr. House?

Mr. HOUSE. I would agree to the extent that the floodplain is a unique area, in the sense that it's the one place in the midwest where water and rail meet. That's why you see a lot of the development that you do along the river.

I would say from a practical standpoint, anything agriculturally related would probably be a good idea. In Quincy, for example, the Quincy Soybean Company just completed a major plant to purify and clarify soybean oil.

Senator BAUCUS. Would it depend upon the value of the land? Some land might be marginal as farmland; other land might be very productive.

Mr. HOUSE. I think that a subdivision would be inappropriate. That type of development, I think, would have no use in a floodplain.

Senator BAUCUS. So you say that it depends?

Mr. HOUSE. I would say it would have to have an economic reason, and agriculture is a good one.

Senator BAUCUS. Okay.

Mr. Mountain?

Mr. MOUNTAIN. I would generally agree that new development should be avoided in the floodplain.

Senator BAUCUS. Should be—

Mr. MOUNTAIN. Avoided.

Senator BAUCUS. Okay.

Next, capture rain where it falls.

General GALLOWAY. Sir, we obviously believe that there's a lot to be done with watershed management in this country. As Mr. Searchinger and Mr. Robb have pointed out, it's a very complex issue. We need to capture the water; we need to hold it, but you can't just hold it without some sort of coordination. You hold water in the watershed and then release it all at once, and you can create the same problem of flooding that you had before.

So we need to take a comprehensive Federal, State, and local approach to watershed management. We are not now doing that, and we recommend that capturing the water is an important job, but it's one that's going to require some effort.

Senator BAUCUS. Give this committee, if you could, a few examples where water is properly captured today, and other examples where it's not captured and where you think it probably should be.

General GALLOWAY. Well, sir, we have programs—specifically those of the Soil Conservation Service—that help farmers capture the water on their land. When the rainfall hits the land it is retarded in its movement downriver. It slows it down so that it does not all peak at the same time at the critical junctures—

Senator BAUCUS. You're talking about SCS?

General GALLOWAY. The SCS Watershed Management Program.

Senator BAUCUS. That's fine. What else?

General GALLOWAY. Sir, there are the Wetland Restoration Programs. They've been a big help. Some of our studies have shown that where wetlands have been restored, they act as natural reservoirs.

Where doesn't it work? It's where you have cleaned the land, where you have tile systems that cause the water to quickly accumulate at critical points. You need to have someone who is looking at how these fit together. It's a match of quality and quantity.

Senator BAUCUS. Mr. Evans?

Mr. EVANS. I think some of the better examples are the upstem reservoirs on the upper Missouri River, where the water is held there until an appropriate time, then fed back into the system in a nonthreatening fashion.

Yes, I think it's appropriate to catch the water where it falls and hold it there until it can be released in a nonthreatening way.

Senator BAUCUS. Mr. Plasencia?

Mr. PLASENCIA. I think some of the examples of what General Galloway was saying regarding watershed management is if you look at examples like the city of Tulsa and some of the western flood control agencies themselves, Maricopa County in Arizona and others, they have developed either one of two systems for development. In Maricopa County-Pima County, Phoenix-Tucson area, for example, when there is new development that takes place, there is a requirement that the new development hold that additional runoff that will be generated by the development on-site, and that is used, either through a community basin or on-site development.

In other areas there is the idea of a stormwater utility where basically the developers pay an impact fee for additional runoff, but then build and pay for regional facilities within that community.

Both are pretty good examples. Both have pros and cons, but those are the types of systems that could be utilized to control some of those impacts.

As far as an overall scheme goes, depending on the region of the country you're in, you may have very good control or not good control, depending on the amount of rainfall. So there are some variables there, but overall it is a good concept.

Senator BAUCUS. How much do you think that capture of water would reduce the kinds of flooding that we saw in Georgia, or like we saw last year on the Missouri? How much is this part of the solution? Would you say 5 percent, 10 percent, 50 percent? I know it's awfully hard to gauge, but what are we talking about?

Mr. PLASENCIA. About the only figure I can give you on that—first of all, when you have a major river basin flood like the Mississippi River Basin, this probably would not have a great impact in that area. But start to look at flood damage and you realize that on an annual basis there are major river floods, and then there are smaller floods within communities themselves. Roughly 30 percent or better of the claims for the flood insurance program, as I recall, for example go to areas outside of mapped floodplains. So these types of flooding issues are a real drain on treasuries.

General GALLOWAY. Sir, I was going to say that in our study we determined that in the Mississippi flood of 1993, this watershed capture would not have made a significant difference because the rainfall amount was so overwhelming in its magnitude. The reservoirs in the basin, as Mr. Evans pointed out, did make a significant difference. They reduced by some four feet the stages at Kansas City and St. Louis, and certainly had a long-term impact. But it's the smaller floods where the watershed—

Senator BAUCUS. Where SCS can make a difference?

General GALLOWAY. Yes, sir.

Mr. SEARCHINGER. I would also like to point out about last year's flood that it was maybe a 500-year flood from the standpoint of its threat at St. Louis, but most of the areas flooded actually received kind of a 25-year flood, or less than a 100-year flood. Most of the damages were not on the mainstem of the Missouri or the Mississippi; they were in the tributaries. The tributaries generally did not suffer a 500-year flood. Maybe a 100-year event or smaller, or a 25-year event. It is in those tributaries where most of the damages occurred, if you add it all up.

Senator BAUCUS. So what do we do?

Mr. SEARCHINGER. Well, it's in those areas where drainage is a major part of the problem and where reversing the drainage and storing the water can be a major part of the solution.

Senator BAUCUS. Mr. Robb?

Mr. ROBB. We really agree very much with this scenario. We believe that flood control has to have two legs. One is to keep more of the water back up in the watershed and the tributaries, and the other is to create a larger floodway. That's where our realignments in some areas and levee setbacks, and higher levees, of course—we're not talking about real high levee increases; we're basically talking about eight feet.

In the report, if I remember my numbers correctly, I believe that the dams on the upper Missouri actually held out 18 million acre

feet of water, 211,000 cubic feet per second that reduced the stage at St. Louis by five feet. That is very significant and I think that demonstrates that we do need some work in the upper watershed.

I went to a State wetland manager's meeting in St. Louis where a gentleman got up and talked about the 36 million beavers that used to be in our country, and I made the point that we can't have 36 million beavers again, but we might have 6 million "SCS beavers." So I think we need to fund the SCS programs and help SCS to continue to hold the silt, the sediment, and the water up where it belongs.

Senator BAUCUS. The Missouri dams aren't going to solve much in Georgia.

Mr. ROBB. No, sir, but—

Senator BAUCUS. What about the Georgia problem?

Mr. ROBB. You understand, Senator, our association is addressing the issue on the navigable portions of the Missouri, Illinois, and Mississippi Rivers.

Senator BAUCUS. I understand, but we're trying to look at it overall, across the country.

Mr. SEARCHINGER. I could comment on the Georgia situation just a little bit.

Senator BAUCUS. Sure.

Mr. SEARCHINGER. Storage and wetlands have a really big effect on flooding when you're dealing with sudden flood bursts. The more sudden the flood event, the more significant storage and wetlands become.

In Georgia, compared to this last flood, many of the areas flooded were very sudden flood bursts. So that is an area where increased wetland storage—it's not just increased wetland storage; it's putting meanders back in formerly channelized streams, putting in detention basins in urban areas. Many of those things that would address the flooding problem in Georgia are exactly the same solutions to addressing the problems of stormwater and nonpoint source pollution that you're addressing in the Clean Water Act.

So we have an opportunity for win-win solutions, addressing flooding, water quality problems, and habitat restoration problems, all through the same act.

Senator BAUCUS. Does anybody disagree with that statement?

Mr. PLASENCIA. One thing to add on the Georgia situation. I have not reviewed much of the data coming in, but just from the news, the thing that strikes me when I see the pictures from Georgia is that there is an awful lot of new construction taking place in the floodplain in Georgia, which goes back to the point that General Galloway made. We need to build local and State capabilities for avoidance in floodplain management. There seems to be a lot of new construction taking place down there, and there's a very low level of flood insurance placement, which tells me that needs to be looked at.

Senator BAUCUS. Okay.

Mr. House?

Mr. HOUSE. I would agree completely. The water should be contained. I think it's only beneficial, especially projects the size of reservoirs where you can have a legitimate long-term impact.

Senator BAUCUS. Good.

Mr. Mountain?

Mr. MOUNTAIN. In Iowa, over 90 percent of our wetlands have been drained by man. I think that two of our recommendations that we made as far as strengthening the Wetland Reserve Program and funding the Environmental Easement Program would go directly to this problem of helping retain water where it falls.

Senator BAUCUS. What do you think of that, more incentives for wetlands restoration?

Mr. MOUNTAIN. Excuse me?

Senator BAUCUS. I'm asking the other panelists for the degree to which they agree or disagree with what you just said.

Mr. ROBB OR MR. HOUSE, you cast some disparaging words on wetlands. I'm just curious what you think.

Mr. HOUSE. No, I guess it's a matter of principle. The thing that I think concerns me more than anything—and I would support and I do support wetlands—the problem that I see is that day by day, this Nation as a whole is becoming less and less competitive with the competition around the world.

Senator BAUCUS. Are you talking about agriculture now?

Mr. HOUSE. I'm talking in general. Here we have a situation where for the most part, some of the most productive land in the world is under cultivation, has been under cultivation in most cases over 100 years. From a practical standpoint we're asking the American people to spend what will undoubtedly be billions of dollars to buy out these properties, taking them out of production. I mean, this is an economic machine that has taken 100 years to hone, and we're taking it out of circulation. As long as everybody realizes what the total impact is going to be, that's a totally different situation.

The University of Missouri, in conjunction with the University of Iowa, just did a study by a gentleman by the name of Dan Cassidy. I have not read the complete study, but I think it is interesting. He states that in the State of Missouri, if the floodplains and the productive property that that represents, if it were taken out of circulation for the benefit of society as a whole, that represents \$96 million a year of production. Taking the total downstream impact on the economy, it's \$200 million and 3,000 jobs.

If that's what we want to invest to protect the wetlands and to prevent any future flooding, then that's fine, but we're talking about a tremendous impact on not only the State of Missouri, but on the region as a whole. You go on up into Iowa or into Illinois, where I live; it's a tremendous impact. There's a total of 1.7 million acres—

Senator BAUCUS. Wwhat about that, Mr. Searchinger? How far do you think the Congress, the Government, our country should go in spending a lot of taxpayers' dollars in buying back some of this property, since it's expensive? And second, it is taking land out of production.

Mr. SEARCHINGER. It seems to me that the first guide should be market principles. We're not saying, go out and buy every part of the floodplain; we wouldn't dream of suggesting that. What we're saying is that if we eliminate some of the special subsidies for floodplain agriculture—particularly, building levees, repairing levees at Federal taxpayer expense, paying disaster relief, all these

things—I'm not saying eliminate all of those, but calculate those; eliminate some of them; make sure that agriculture bears its own costs. What you will find first off, I think, is that the productive agriculture, the stuff that stands the test of the market, will remain.

Secondly, what you will have in many areas is not a shift to wetlands or anything like that, but you will have a shift in the nature of the agriculture. There was always a great deal of agriculture before we started building a lot of levees around. A lot of stuff was in pastureland.

There are also real opportunities—and I think you are probably focused on this, coming from an agricultural State—there is a great deal of interest in agricultural biomass, producing ethanol, producing fast-growing trees, trying to diversify and produce crops other than simply corn. There is an enormous opportunity to produce those in the floodplain, even without a levee.

So I think we have to do three things. One is, try to let the market be a little bit freer so that we can get market-based solutions.

Second, be creative and help, where it makes sense, to encourage agricultural activities that can exist without levee protection, that can make money for the farmer but that can also allow the river to restore itself, use that floodplain storage to protect against downstream flooding.

And third, in areas where farmers on their own determine that it does not make economic sense to engage in certain kinds of intensive agriculture in the floodplain—as, for example, Mr. Evans talked about regarding about 100,000 acres of farmland along the Missouri where farmers appear to be willing to sell that property because it was damaged so heavily during the flood—those, then, are the areas that we should target to buy.

So I think we can have a balanced, market-based approach that utilizes all of these creative opportunities.

Senator BAUCUS. Mr. Robb?

Mr. ROBB. Yes. I believe that we need restoration of wetlands, we need recreation areas and all that, but we don't need to mix that with flood control. It's already been demonstrated in this report that it has very little significance in flood control, even up in the uplands.

If we want to buy wetlands, let's have a program to buy wetlands and not be trying to buy them in the name of flood control.

In the area of the economy, what we're talking about there, these subsidies and unfair economic advantage, the crop insurance program already being instituted is already way out of actuarial soundness. For instance, since 1947 there have been about six or eight broad droughts in the midwest. This report says 55 percent to drought, 2 percent to flood damages on crop insurance. We've already had a ranking of the category of risk to Category 3 where we've had flooding, where we've only had two losses since 1947. We've raised the crop insurance for corn from \$9 an acre to \$32 an acre, and up in the prairies—we won't get an argument with our prairieland fellows; we know that they need to get back on their feet after a disaster, too. But where is the actuarial soundness there?

Senator BAUCUS. I'm curious, how much does crop insurance—or flood insurance, or any other available insurance—make a farmer in Illinois or anywhere else whole after a disaster, after a flooding? Is it 10 percent, 20 percent?

Mr. HOUSE. I can just speak from my own experience. I don't carry crop insurance. If you lived and farmed in our levee district, you probably wouldn't either, in the sense that we had never had a problem in over 100 years. It's like, who would buy car insurance if nobody that you knew had a wreck in 100 years? And that's the truth.

Mr. MOUNTAIN. Sir, I think that in answer to your question, you can buy insurance at different levels. You can buy it at 50, 65, and 75 percent levels of the market price rate that they set at the end of March of each year.

Senator BAUCUS. There's a vote going on, so I'm going to have to really—

Mr. ROBB. I have insurance. Last year I had the maximum amount of insurance that you can—

Senator BAUCUS. Now, what insurance did you have?

Mr. ROBB. Federal crop insurance. I had the maximum amount of Federal crop insurance that you could have.

Senator BAUCUS. Any flood insurance?

Mr. ROBB. No, I didn't have any buildings.

I had one-third soybeans and two-thirds corn on my farm, and it cost me an average of \$7.50 an acre for the Federal crop insurance. This year, I had to take out crop insurance; they recategorized and reassigned the risk value, and I now have 65 percent coverage on just soybeans. That's all I planted this year. That is now \$24 an acre. So I don't have any corn, but if I did, it would be \$32 an acre.

So like I say, we have the worst levee on the Mississippi River, where I live—

Senator BAUCUS. As a principle, do you think that if crop insurance could be made actuarially sound and made sense and the premiums were not out of whack, do you think it would be better for an operator such as yourself to purchase insurance rather than depend upon faster programs?

Mr. ROBB. You know, I said when General Galloway was asking about this issue that I think everybody should have crop insurance. I think everybody should have flood insurance if they're in an area of risk, but we can't get the premiums out of line here like this.

Senator BAUCUS. Right. Right.

Mr. ROBB. I'd like to speak one more second on that, if I could. I lost my thought.

Senator BAUCUS. Quickly, because we have a lot of ground to cover in a short period of time here.

Mr. ROBB. Okay. On insurance, what we're talking about here is a guaranteed loss. With flood control, we're talking about guaranteed protection where there is no loss.

Senator BAUCUS. General Galloway, you also made a point that farmers should be encouraged to relocate voluntarily. You said, "Many farmers are tired of farming on marginal land."

How about that, Mr. House, Mr. Robb? Do you know any farmers who are tired of farming on marginal land?

Mr. HOUSE. I'm not aware.

Senator BAUCUS. As in floodplains?

Mr. HOUSE. It's the richest land, to the best of my knowledge—

Senator BAUCUS. That's where you are. What about other locations?

Mr. HOUSE. Oh, I'm sure there can be some locations where it's not so rich.

Senator BAUCUS. Mr. Robb?

Mr. ROBB. I know Mr. Rendelman. Mr. Rendelman came up with us when we testified before Mr. Bevill's and Mr. Johnson's committees this spring. In the area where he is in southern Illinois, it's very unique; \$300,000 a day is the return to the economy down there because of goose hunting in the fall. It's a big industry there. That's very unique, isolated on the Mississippi. You go all the way from that area to Rock Island, and there's very little of that activity going on. We think above Rock Island there is a lot of recreation, a lot of wildlife. We think that up there it's a different river, and that's a possibility there. But I don't know anyone—I know very few people in the floodplain that are willing to move or are not wanting to farm their land, because it's very, very productive, and in order to buy land that is as productive as this land is, the cost is prohibitive.

Senator BAUCUS. Mr. Mountain, I think you indicated to our staff that people approached you and said that they were unwilling to publicly testify along the these lines in recommending or urging General Galloway's recommendations. Is that true, or is that not true?

Mr. MOUNTAIN. I talked to several farmers to who were involved in the buyout to see if they would come and testify. I was told that it had been indicated to them that their other ag businesses that they operated would probably suffer from a lack of business if they came to testify.

Senator BAUCUS. Mr. Evans?

Mr. MOUNTAIN. Sir, may I add one more thing in regard to relocating voluntarily?

Senator BAUCUS. Certainly.

Mr. MOUNTAIN. In the Government Wetland Reserve Program for which the sign-up was just announced, Iowa had 1,000 people sign intentions for 67,000 acres, of which 39,000 were eligible and accepted for eligibility, but only 5,900 were funded. So there was, I think, an indication of the market for voluntary people to get out of wetland farming.

Senator BAUCUS. Mr. Evans?

Mr. EVANS. Missouri has an unusual history of buying land. The Department of Conservation has purchased over 300,000 acres in the last 17 years, all from willing sellers.

We can go into a meeting room, and everybody speaking will be opposed to land being sold to the Government. But you can sit in the back of the room with your money pouch, and the folks stand in line to sell you their land. We're talking about folks wanting to sell land. We're not talking about forcing anybody off. We have people standing in line in Missouri today, ready to sell land in the Missouri River bottoms today. It's there.

General GALLOWAY. Sir, I just need to emphasize that our report does not say "convert all of the bottomland on the Mississippi and Missouri River Basins to wetlands." It says that where there is an opportunity to do so. It's a win-win situation. I experienced the same thing that Mr. Evans did of people coming to me and saying, "I'd like to do it, but I'm not going to do it publicly. I support this."

There is rich and fertile farmland; the food and fibre that supports this international commerce comes from some of this valuable land, and it has to be protected.

Senator BAUCUS. Mr. Robb?

Mr. ROBB. The Louisa district is very close to my home. One of the things that happened in there, there is a major landowner in there who owns a large percentage of that block; I don't know just what it is, but maybe Mr. Mountain can tell you. But there are a lot of people there who weren't agreeing with that at all. In fact, I can produce you some testimony, some letters, some written testimony—and I'd like to be able to do that—addressing this issue of how agreeable that whole situation was.

I don't believe there's very many more of those that have been identified. In fact, I don't know of any. Maybe someone else can tell me. As a general principle to solve the problem of flood damages along the Mississippi, Illinois and Missouri Rivers, I don't think this is viable at all because I don't think it's there.

Senator BAUCUS. As a general principle, how many of you think we should move more toward flood insurance rather than disaster payments? As a principle, how many agree, that we should encourage flood insurance and crop insurance programs so that disasters are paid for out of, the proceeds from the insurance policy, more than Uncle Sam paying disaster assistance?

Mr. HOUSE. As a general principle, I would certainly agree with that.

Senator BAUCUS. Does anybody disagree with that statement?

[No response.]

Mr. MOUNTAIN. I think a good example is that in Georgia we had two feet of water fall within 24 hours. You cannot evaluate that as a risk; that's a disaster, whereas in a floodplain it can be an evaluated risk.

Mr. HOUSE. Right, but it's also a risk to live along the coast of Florida, where you're going to have a hurricane.

Mr. SEARCHINGER. I think that it's basic economics and basic equity. People voluntarily choose to engage in activities that are sensitive to flood damages. The rest of us shouldn't have to pay, and we're going to get a very efficient use of the floodplain if they bear their own costs.

Senator BAUCUS. I appreciate this. I very much apologize that I'm going to have to leave. There's a vote going on and I have to dash over there. This has been very helpful.

This committee does not have jurisdiction over all the matters that pertain to the question at hand here, but nevertheless with this hearing I hope to stimulate some discussion, so we urge not only this committee but all committees to move up to a more sane policy with respect to flood control.

But we will mark up the Water Resources Bill, and in that bill, at the very least, it would include provisions for—I hate to use this

word "studies"—but encourage at the Corps, for example, to more specifically inventory the levees and the problems, along the lines of the Galloway report. Then probably next year we can address the situation more comprehensively. But at least in the early stages on a step-by-step basis so that we don't get too far ahead of ourselves, I will ask for legislation that we'll report out—and which I think we'll pass this year—asking the Corps to take further steps, encouraging environmental considerations as we decide which levees to build and which levees to repair and what not.

You have all made very good points. You all have a lot to say, and it's good. It's just a matter of working together as much as we possibly can.

Thank you very much for your time.

[Whereupon, at 3:58 p.m., the committee adjourned, to reconvene at the call of the Chair.]

STATEMENT OF BRIGADIER GENERAL G. E. GALLOWAY, EXECUTIVE DIRECTOR,
INTERAGENCY FLOODPLAIN MANAGEMENT REVIEW COMMITTEE

Thank you Senator Baucus for giving me the opportunity to testify today before the Senate Environment and Public Works Committee on the findings and conclusions reached by the Interagency Floodplain Management Review Committee. I would ask that my complete written comments be included in the official hearing record.

Last year, the Midwest was hit by disastrous flooding. The flooding, which caused approximately \$12–16 billion in damages and the loss of at least 38 lives, was one of the most costly events in our nation's history and has led to the question about how we manage our floodplains.

Floodplains are a valuable resource for the nation. They are the location of important human activity and they are the site of many beneficial natural resources and functions.

Floodplains must always be considered in the context of their watershed or basin, and the realities of the flooding that will occur in the floodplains. Water does flow downhill, but the amount and rate that flows is dependent on how we use or treat the land on which rain falls.

Floodplain management deals with the appropriate use of the floodplains. There are places where human activity makes sense—and places where it does not. Over time, we have seen development take place that has fostered the growth and well being of our nation, and development that has placed floodplain occupants at risk. We have also seen changes to upstream and upland activity that has exacerbated the flooding conditions downstream—changes, which in part, gave rise to the 1936 Flood Control Act. Over the last 30 years, average annual riverine flood damages have exceeded \$2 billion. Over the last ten years, they have been over \$3 billion. Between 1988 and 1992, FEMA has spent nearly \$200 million each year in flood recovery operations.

Our stated goal for sound floodplain management is to reduce the vulnerability of the nation to flood damages while concurrently enhancing and preserving the natural and beneficial functions of the floodplain. This goal is not inconsistent with the stated goal of the Unified National Program for Floodplain Management.

The upper Mississippi and Missouri rivers and their tributaries have played a major role in the nation's history. Their existence was critical to the growth of the upper Midwest region of the United States and fostered the development of major cities and a transportation network linking the region to the rest of the world. The floodplains of these rivers provide some of the most productive farmland in the country. They offer diverse recreational opportunities and contain important ecological systems. While development of the region has produced significant benefits, it has not always been conducted in a wise manner. As a result, today the nation faces three major problems:

First, as the Midwest Flood of 1993 has shown, people and property remain at risk, not only in the floodplains of the upper Mississippi River Basin, but also throughout the nation. Many of those at risk do not fully understand the nature and the potential consequences of that risk; nor do they share fully in the fiscal implications of bearing that risk.

Second, only in recent years has the nation come to appreciate fully the significance of the fragile ecosystems of the upper Mississippi River Basin. Given the tremendous loss of habitat over the last two centuries, many suggest that the nation now faces severe ecological consequences.

Third, the division of responsibilities for floodplain management among Federal, State, tribal and local governments needs clear definition. Currently, attention to floodplain management varies widely among and within Federal, State, tribal and local governments.

I represent the Interagency Floodplain Management Review Committee, a team of 31 professionals assembled by the Administration's Floodplain Management Task Force following the 1993 flood. The Review Committee was charged with examining the causes and consequences of the Midwest Flood of 1993, evaluating the performance of existing floodplain management strategies, and making recommendations as to what changes in current policies, programs, or procedures would lessen the vulnerability of the nation to flood damages. The Review Committee included representatives from five Federal agencies—the Department of the Interior, the U.S. Army (Corps of Engineers), the Environmental Protection Agency, the Federal Emergency Management Agency, and the Department of Agriculture and was supported by the staffs of the Council on Environmental Quality, the Council of Economic Advisors, the Department of Commerce, the Department of Justice, and the Tennessee Valley Authority.

The Review Committee conducted its activities from January through June 1994 in Washington and throughout the Midwest. Working through the offices of the governors of the nine flood-affected States, the Review Committee met with State and local officials and visited over 60 locations. The Review Committee also made extensive contacts with Federal agencies, interest groups, members of Congress and their staffs, and numerous private citizens who expressed an interest in the flood. A part of the Review Committee, the Scientific Assessment and Strategy Team, chartered in November 1993 by the White House, conducted its activities at the EROS Data Center in Sioux Falls, South Dakota, where it developed a major data base of flood and basin information.

The Review Committee completed a final draft of its report in late May and circulated it for comment by those agencies, groups, and individuals that had been part of the outreach process in the Spring. The final report, less the section being prepared by our Scientific Assessment and Strategy Team (SAST), has been completed is now being printed. It will be submitted to the Administration Floodplain Management Task Force in early July. Copies of the final report, including the SAST section, will be distributed to members of Congress, Federal agencies, all governors and to approximately 2,000 organizations and individuals.

I want to make clear that the report represents the views of the Review Committee and is based on its research, and on interviews with agency personnel, Governors, State and community representatives, non-governmental organizations, businesses, farmers, and residents of the floodplains. The report does not represent the views of the agencies that are represented on the Review Committee, or the views of the Administration. On receipt, the Administration Task Force will consider the report and determine what actions and recommendations merit implementation or further study and what should be the schedule for any implementation or study.

Over the last 30 years the nation has learned that effective floodplain management can reduce vulnerability to damages and create a balance among natural and human uses of floodplains and their related watersheds to meet the social, economic, and environmental goals of the nation. The nation, however, has not taken full advantage of this capability.

The Interagency Floodplain Management Review Committee proposes a better way to manage the nation's floodplains. The report begins with establishing that all levels of government, all businesses, and all citizens interested in the floodplain should have a stake in properly managing this resource. All of those who support the risk, either directly or indirectly, must share in the management and the costs of reducing the risk. The Federal government must lead by example; State and local governments must manage the floodplains; and individual citizens must adjust their actions to the risk they face.

The Review Committee supports an approach to floodplain management that replaces a focus on structural solutions with a sequential strategy of avoidance, minimization and mitigation. In many cases, by controlling runoff, managing ecosystems for all their benefits, planning the use of the land, and identifying those areas at risk, the hazard can be avoided. Where the risk cannot be avoided, damage minimization approaches, such as elevation and relocation of buildings, and construction of reservoirs or flood protection structures, are carried out only when they can be integrated into an overall systems approach to flood damage reduction in the basin.

When floods occur, damages to individuals and communities can be mitigated with a flood insurance program that obtains its support from those who are protected. Full disaster support for those in the floodplain must be contingent on participation in these self-help mitigation programs. By internalizing these risks, the moral hazard associated with full government support is reduced.

To ensure a long-term, nationwide approach to floodplain management, the Review Committee proposes legislation to develop and fund a national floodplain management program with principal responsibility and accountability at the State level. It also proposes revitalization of the Federal Water Resources Council to better coordinate Federal activities, limited restoration of some basin commissions for basin-wide planning, and reissuance of a Presidential Executive Order requiring adherence to floodplain management principles by Federal agencies and their programs.

The tools, authorities and programs are available at the Federal, State, tribal, and local level to move toward accomplishment of these goals. Many of the nation's past activities in the floodplain make sense, produce desirable results, and should be continued. Others do not and should be stopped. While many aspects of current programs are in need of modification, the problem is not one of lack of understanding of how to manage floodplains and their associated watersheds, it is a problem of will and organization. There are no silver bullets in the floodplain management business, no single actions that will suddenly reduce the vulnerability of those who are currently at risk or stave off placing others in the same position.

If the nation is to move ahead, it must do so in a manner that recognizes the many stakeholders in the floodplain management effort and appropriately divides the responsibilities among them. Many State and local governments have done a great job at floodplain management and the nation can build on that success; others need encouragement; all need support. Operating together with common goals, governments, businesses, and private citizens can make sound floodplain management a reality throughout the nation.

By giving the States and local governments more responsibilities and supporting their efforts, by improving the efficiency of Federal efforts, and by ensuring that individuals recognize and assume their personal responsibilities for floodplain activities, the Federal government can share the challenge of floodplain management and see to its accomplishment.

When I testified in front of this Committee on May 26, the day on which our draft report was distributed, I presented our preliminary findings and recommendations. Since that date, we have had the benefit of comments from over 100 agencies, groups, and individuals and have, where appropriate, adjusted our report accordingly. Let me summarize these findings and recommendations:

COMMITTEE FINDINGS

In conducting its review, the Committee divided its findings into two areas: the Midwest Flood of 1993, and Federal, State, tribal, and local floodplain management.

The Midwest Flood of 1993

In reviewing the Midwest Flood of 1993, the Committee found that:

- The Midwest Flood of 1993 was a hydrometeorological event unprecedented in recent times. It was caused by excessive rainfall that occurred throughout a significant section of the upper Mississippi River Basin. The damaging impacts of this rainfall and related runoff were felt both in upland areas and in the floodplains. Pre-flood rainfall saturated the ground and swelled tributary rivers. Subsequent rains quickly filled surface areas, forcing runoff into the lower lands and creating flood conditions. The recurrence interval of the flood ranged from less than 100 years at many locations to near 500 years on segments of the Mississippi River from Keithsburg, IL, to above St. Louis, MO, and on segments of the Missouri River from Rulo, NE, to above Hermann, MO. At 45 U.S. Geological Survey (USGS) gaging stations, the flow levels exceeded the 100-year mark. The duration of the flood added to its significance. Many areas were under water for months.
- Rainfall and floods like the 1993 event will continue to occur. Floods are natural repetitive phenomena. Considering the nation's short history of hydrologic record-keeping as well as the limited knowledge of long-term weather patterns, flood recurrence intervals are difficult to predict. Activities in the floodplain, even with levee protection, continue to remain at risk.
- The loss of wetlands and upland cover and the modification of the landscape throughout the basin over the last century and a half significantly increased runoff. Most losses occurred prior to 1930, but some are related to more recent drainage, flood damage reduction, and navigation development. Although upland watershed treatment and restoration of upland and bottomland wet-

lands can reduce flood stages in more frequent floods (25 years and less), it is questionable whether they would have significantly altered the 1993 conditions.

- Human activity throughout the basin has caused significant loss of habitat and ecosystem diversity. Flood damage reduction and navigation works and land use practices have altered bottomland habitat adversely.

- The costs to the nation from the flood were extensive. Thirty-eight deaths can be attributed directly to the flood and estimates of fiscal damages range from \$12 billion to \$16 billion. Agriculture accounted for over half of the damages. More than 70 percent of the crop disaster assistance payments were made to counties in upland areas where ground saturation prevented planting or killed the crop. Nearly 50 percent of the approximately 100,000 homes damaged, suffered losses due to groundwater or sewer backup as opposed to riverine flooding. Flood response and recovery operations cost the nation more than \$6 billion. In addition many costs can not yet be quantified. Impacts on businesses in and out of the basin have not been calculated. Tax losses to governments are unknown. The impacts of the flood on the population's physical and mental well being are just being identified and are of concern.

- Flood damage reduction projects and floodplain management programs, where implemented, worked essentially as designed and significantly reduced the damages to population centers, agriculture, and industry. It is estimated that reservoirs and levees built by the U.S. Army Corps of Engineers (USACE), prevented more than \$19 billion in potential damages. Large areas of Kansas City and St. Louis were spared the ravages of the flood, although several suburbs suffered heavy damages. Watershed projects built by the Soil Conservation Service saved an estimated additional \$400 million. Land use controls required by the National Flood Insurance Program (NFIP) and State floodplain management programs reduced the number of structures at risk throughout the basin.

- Many locally constructed levees breached and/or overtopped. Frequently, these events resulted in considerable damage to the land behind the levees through scour and deposition.

- Flooding during the 1993 event would have covered much of the floodplains of the main stem lower Missouri and upper Mississippi rivers whether or not levees were there. Levees can cause problems in some critical reaches by backing water up on other levees or lowlands. Locks and dams and other navigation related structures did not raise flood heights. For more frequent floods—less flow—navigation dikes may cause some minor increase in flood heights.

Federal, State, Tribal and Local Floodplain Management

The Review Committee examined the structure of current Federal programs, relationships among Federal, State, tribal and local governments, the performance of various programs during and after the flood, and the after action reports stemming from these activities. The Review Committee reached the following conclusions:

- The division of responsibilities for floodplain management activities among and between Federal, State, tribal, and local governments needs to be clearly defined. Within the Federal system, water resources activities in general and floodplain management in particular need better coordination. State and local governments must have a fiscal stake in floodplain management; without this stake, few incentives exist for them to be fully involved in floodplain management. State governments must assist local governments in dealing with Federal programs. The Federal government must set the example in floodplain management activities.

- The National Flood Insurance Program (NFIP) needs improvement. Penetration of flood insurance into the target market—floodplain occupants—is very low, 20–30 percent. Communities choosing not to participate in the NFIP continue to receive substantial disaster assistance. Provision of major Federal disaster assistance to those without insurance creates a perception with many floodplain residents that purchase of flood insurance is not a worthwhile investment. The mapping program is underfunded and needs greater accuracy and coverage. Some requirements within the program that vary from disaster to disaster need stabilization.

- The principal Federal water resources planning document, *Principles and Guidelines*, is outdated and does not reflect a balance among the economic, social, and environmental goals of the nation. This lack of balance is exacerbated by a present inability to quantify, in monetary terms, some environmental and social impacts. As a result, these impacts are frequently understated or omitted. Many critics of *Principles and Guidelines* see it as biased against nonstructural approaches.

- Existing Federal programs designed to protect and enhance the floodplain and watershed environment are not as effective as they should be. They lack support, flexibility and funding, and are not well coordinated. As a result, progress in habitat improvement is slow.
- Federal pre-disaster, response, recovery and mitigation programs need streamlining but are making marked progress. The nation clearly recognized the aggressive and caring response of the government to the needs of flood victims, but coordination problems that developed need to be addressed. Buyouts of floodprone homes and damaged lands made considerable inroads in reducing future flood losses.
- The nation needs a coordinated strategy for effective management of the water resources of the upper Mississippi River Basin. Responsibility for integrated navigation, flood damage reduction and ecosystem management is divided among several Federal programs.
- The current flood damage reduction system in the upper Mississippi River Basin represents a loose aggregation of Federal, local, and individual levees and reservoirs. This aggregation does not ensure the desired reduction in the vulnerability of floodplain activities to damages. Many levees are poorly sited and will fail again in the future. Without change in current Federal programs, some of these levees will remain eligible for post-disaster support. Levee restoration programs need greater flexibility to provide for concurrent environmental restoration.
- The nation is not using science and technology to full advantage in gathering and disseminating critical water resources management information. Opportunities exist to provide information needed to better plan the use of the floodplain and to operate during crisis conditions.

COMMITTEE RECOMMENDATIONS

The Review Committee developed recommendations in consonance with the proposed goals:

- To ensure that the floodplain management effort is organized for success, the President should:

Propose enactment of a Floodplain Management Act which establishes a national model for floodplain management, clearly delineates Federal, State, tribal, and local responsibilities, provides fiscal support for State and local floodplain management activities, and recognizes States as the nation's principal floodplain managers;

Issue a revised Executive Order clearly defining the responsibility of Federal agencies to exercise sound judgement in floodplain activities; and

Activate the Water Resources Council to coordinate Federal and Federal-State-tribal activities in water resources; as appropriate, reestablish basin commissions to provide a forum for Federal-State-tribal coordination on regional issues.

- To focus attention on comprehensive evaluation of all Federal water project and program effects, the President should immediately establish environmental quality and national economic development as co-equal objectives of planning conducted under the *Principles and Guidelines*. *Principles and Guidelines* should be revised to accommodate the new objectives and to ensure full consideration of nonstructural alternatives.

- To enhance coordination of project development, to address multiple objective planning, and to increase customer service, the Administration should support collaborative efforts among Federal agencies and across State, tribal, and local governments.

- To ensure continuing State, tribal and local interest in floodplain management success, the Administration should provide for Federal, State, tribal, and/or local cost-sharing in pre-disaster, recovery, response, and mitigation activities.

- To provide for coordination of the multiple Federal programs dealing with watershed management, the Administration should establish an Interagency Task Force to develop a coordination strategy to guide these actions.

- To take full advantage of existing Federal programs which enhance the floodplain environment and provide for natural storage in bottomlands and uplands, the Administration should:

Seek legislative authority to increase post-disaster flexibility in the execution of the land acquisition programs;

Increase environmental attention in Federal operation and maintenance and disaster recovery activities;

Better coordinate the environmentally-related land interest acquisition activities of the Federal government; and

- Fund, through existing authorities, programmatic acquisition of needed lands from willing sellers.
- To enhance the efficiency and effectiveness of the National Flood Insurance Program, the Administration should:

Take vigorous steps to improve the marketing of flood insurance, enforce lender compliance rules, and seek State support of insurance marketing;

Reduce the amount of post-disaster support to those who were eligible to buy insurance but did not to that level needed to provide for immediate health, safety, and welfare; provide a safety net for low income flood victims who were unable to afford flood insurance;

Reduce repetitive loss outlays by adding a surcharge to flood insurance policies following each claim under a policy, providing for mitigation insurance riders, and supporting other mitigation activities;

Require those who are behind levees that provide protection against less than the standard project flood discharge to purchase actuarially based insurance;

Increase the waiting period for activation of flood insurance policies from 5 to 15 days to avoid purchases when flooding is imminent;

Leverage technology to improve the timeliness, coverage, and accuracy of flood insurance maps; support map development by levies on the policy base and from appropriated funds because the general taxpayer benefits from this program; and

Provide for the purchase of mitigation insurance to cover the cost of elevating, demolishing, or relocating substantially damaged buildings.

- To reduce the vulnerability to flood damages of those in the floodplain, the Administration should:

Give full consideration to all possible alternatives for vulnerability reduction, including permanent evacuation of floodprone areas, flood warning, floodproofing of structures remaining in the floodplain, creation of additional natural and artificial storage, and adequately sized and maintained levees and other structures;

Adopt flood damage reduction guidelines based on a revised *Principles and Guidelines* which would give full weight to social, economic, and environmental values and assure that all vulnerability reduction alternatives are given equal consideration; and

Where appropriate, reduce the vulnerability of population centers and critical infrastructure to the standard project flood discharge through use of floodplain management activities and programs.

- To ensure that existing federally constructed water resources projects continue to meet their intended purposes and are reflective of current national social and environmental goals, the Administration should require periodic review of completed projects.

- To provide for efficiency in operations and for consistency of standards, the Administration should assign principal responsibility for repair, rehabilitation, and construction of levees under Federal programs to the U.S. Army Corps of Engineers.

- To ensure the integrity of levees and the environmental and hydraulic efficiencies of the floodplain, States and tribes should ensure proper siting, construction, and maintenance of non-federal levees.

- To capitalize on the successes in Federal, State, tribal, and local pre-disaster, response, recovery, and mitigation efforts during and following the 1993 flood and to streamline future efforts, the Administration should:

Through the NFIP Community Rating System, encourage States and communities to develop and implement floodplain management and hazard mitigation plans;

Provide funding for programmatic buyouts of structures at risk in the floodplain;

Provide States the option of receiving Section 404 Hazard Mitigation Grants as block grants;

Assign the Director of the Federal Emergency Management Agency responsibility for integrating Federal disaster response and recovery operations; and

Encourage Federal agencies to use non-disaster funding to support hazard mitigation activities on a routine basis.

- To provide integrated, hydrologic, hydraulic, and ecosystems management of the upper Mississippi River Basin, the Administration should:

Establish upper Mississippi River Basin and Missouri River Basin commissions to deal with basin-level program coordination;

Assign responsibility, in consultation with the Congress, to the Mississippi River Commission (MRC), for integrated management of flood damage reduction, ecosystem management, and navigation on the upper Mississippi River and tributaries; expand MRC membership to include representation from the Department of the Interior; assign MRC responsibility for development of a plan to provide long-term control and maintenance of sound federally built and federally supported levees along the main stems of the Mississippi and Missouri rivers; this support would be contingent on meeting appropriate engineering, environmental, and social standards.

Seek authorization from the Congress to establish an Upper Mississippi River and Tributaries project for management of the Federal flood damage reduction and navigation activities in the upper Mississippi River Basin;

Establish the upper Mississippi River Basin as an additional national cross-agency Ecosystem Management Demonstration Project; and

Charge the Department of the Interior with conducting an ecosystems needs analysis of the upper Mississippi River Basin.

- To provide timely gathering and dissemination of the critical water resources information needed for floodplain management and disaster operations, the Administration should:

Establish an information clearing house at USGS to provide Federal agencies and State and local activities the information already gathered by the Federal government during and following the 1993 flood and to build on the pioneering nature of this effort; and

Exploit science and technology to support monitoring, analysis, modeling, and the development of decision support systems and geographic information systems for floodplain activities.

Since its release in late May, there has been a lot of media attention paid to the draft report; some accurate, some not so accurate. One headline proclaimed "Panel's Report Says Floodplain Must Be Cleared." The report did not propose clearing of the floodplain, rather it recommended steps to discourage future inappropriate development in the floodplain. Other stories indicated that the report had recommended removal of all levees. The report did not make such a recommendation.

We also received comments or heard from many people who had not seen the report but who had been told what it contained. Most of the time these translations were inaccurate and unnecessarily alarmed the recipients of the information. I encourage anyone interested in this report to read it to get a first hand understanding of the proposed recommendations.

I would like to end with this thought. The Flood of 1993 was an unprecedented hydrometeorological event, but that doesn't mean it can't happen again. Mr. Tom Waters of the Missouri Levee and Drainage District Association gave me a glass box filled with marbles. Inside were 99 clear marbles and one black marble. The black marble represented a 100-year flood event. If you pull a marble out of the box, there exists one chance in a hundred in getting the black marble and a major flood event. Unfortunately, each time you pull a marble out and look at it, you must put it back in the box, maintaining the possibility each time of drawing the black flood marble. Floods will continue to occur. Although we can't predict or stop floods, we can adopt a new approach to floodplain management that will lessen the vulnerability of our nation to the costly damages and expenses that occur during and following floods.

Thank you Mr. Chairman. I am prepared to answer any questions that the Committee might have.

STATEMENT OF ALEXANDER JOHN HOUSE, PAYSON, IL

Mr. Chairman, members of the committee, I am the fifth generation of my family living and farming in Adams County, Illinois. I am an active conservationist who believes that we are stewards of the land as opposed to "owners". We operate farms in the upland areas as well as in the Sny Island Drainage District, located along the east bank of the Mississippi River immediately north of Hannibal, MO. The Sny is the second largest drainage district in America, encompassing approximately 125,000 acres. It was organized in 1871 making it perhaps the first organized drainage district in the nation.

I appreciate the opportunity to share my thoughts on Brigadier General Gerald Galloway's report. I would like to address three main topics:

- 1) Economic considerations for flood protection.
- 2) Risk management and the Federal buy out options.

3) Environmental considerations.

FLOOD PROTECTION

The Corps of Engineers has spent approximately \$8 billion for flood protection, 70 percent of which was spent on the Lower Mississippi and 30 percent on the Upper. The 1993 flood left the Lower Mississippi with only 3 percent of the damage and the remaining 97 percent was suffered by the upper region. This is a clear indication that flood prevention and protection systems can and do work, the record waters that came down both the Missouri and the Mississippi Rivers did not challenge the flood prevention structures of the lower region. These levees are much more massive and substantial structures including spillways and floodways; they easily could and did handle an event like last summer. The Upper Mississippi, on the other hand, faced the flood with much smaller and less substantial levees. Our levee at the Sny (a Federal levee) was designed to hold back a pool elevation of 28 feet of water yet we experienced crests of 32 feet twice. Our levee failed with the second crest, flooding 45,000 acres causing \$40,000,000 in damages. The reach that failed could be elevated to the same strength as the levees in the Lower Mississippi for a one time cost of \$20,000,000. This area produces \$13,000,000 worth of crops annually so a one time payment of \$20,000,000 is an attractive investment especially when one considers what the alternatives really are. Almost without exception, communities that were protected by adequate levees realized a return on investment of benefits exceeding many times the cost of the protection. Hannibal, Missouri recently constructed a flood wall that paid off handsomely in the first year alone. Flood protection measures can and do work when properly sized and maintained. In most cases they are an excellent investment for the community and for our society as a whole.

RISK MANAGEMENT

General Galloway's report suggests that over time and as funds become available, the Federal Government would buy out landowners located within a protected floodplain. Once this was complete, the area could continue to be used on a limited basis by agriculture, but as the river flooded naturally from time to time, this area would be allowed to flood thereby reducing the pressure on the remainder of the system as well as restoring the area to a natural wetlands.

I see three problems with this conclusion. The first is the fact that less than 50 percent of the Upper Mississippi River is protected by any levee at all and the areas that are protected are not large enough to offer any lasting relief for flooding in the remainder of the river system. This has been calculated by The Army Corps of Engineers' hydrologists and confirmed by our experiences last July. When the Sny Levee breached on July 25 during the second 32 foot crest, virtually every drainage district north of Hannibal had already failed. The complete inundation of thousands of square miles upstream from Hannibal, Missouri, provided little or no relief for us.

Secondly, from a cost standpoint this proposed buy out will be an extremely expensive proposition. Not only would the land have to be purchased, but existing infrastructures necessary for commerce like bridges, railroads and highways would have to be elevated above the expected floodstage. Using the Sny as an example for the acquisition cost analysis:

125,000 acres at \$2,000 acre market price =	\$250,000,000
Cost to elevate interstate highway & RR = (est.)	\$ 75,000,000
	Total cost = \$325,000,000

The entire 52 miles of the Sny could be elevated to the same specifications as the Lower Mississippi levees for \$66,000,000. The property would remain on the tax rolls at \$1,500,000 per year and it would continue to produce \$36,000,000 in crops every year.

ENVIRONMENTAL CONSIDERATIONS

Over the past 100 years much of our natural wetlands were regrettably drained. We now recognize that this was perhaps not in our best interest and our government has taken significant and productive steps to curb this practice. The question that we must answer is how much money are we willing to spend to restore the floodplain to its original State? Using the Sny again as an example, is \$325,000,000 a reasonable amount to invest to reclaim the land as a wetland? The Sny is a very small part of the Upper Mississippi floodplain, were this option to be executed systematically, the cost would literally be in the tens of billions of dollars.

If our leading biologists, conservationists, scientific experts and recognized naturalists were asked to compile a wish list of the most important natural area projects

for funding of this magnitude, I do not believe that the restoration of these floodplains would make the list.

Mr. Chairman, I appreciate the opportunity to present my views to this committee. I believe the report makes an excellent case for the need to establish a framework for the future development of our floodplain, but I am convinced that strengthening our existing levee system is an important and integral part of this framework. Purchasing the property in the floodplain considered "at risk" for redevelopment into natural wetlands would constitute one of the largest public works projects imaginable. It is important for us to keep in mind the fact that inevitably there will be natural disasters. How much of our precious resources are we willing to spend to make sure we never suffer the ill effects of a rare natural disaster? I believe it prudent to maximize the protection that we can offer our society against these events. Given the various options, effective flood protection is both the least expensive and the most beneficial option available.

STATEMENT OF DOUG PLASENCIA, ASSOCIATION OF STATE FLOODPLAIN MANAGERS
INC.

INTRODUCTION

The Association of State Floodplain Managers is a professional organization representing the practitioners implementing floodplain management programs at the State and local level of government. The Association has long been a proponent of the need to redirect the nation's flood protection strategies. The need for redirection is based on several factors. First flood damages continue to escalate. Second, the basic relationship between Federal-State-local governments has changed. Third, we now recognize that controlling all flood waters is neither feasible nor desirable. The Interagency Floodplain Management Review led by Brigadier General Gerald Galloway, presents a significant opportunity for our nation to put our flood protection policies on track.

The Great Midwest Flood of '93 was unique for many reasons. But perhaps the most unique feature of this flood was that for the first time a natural disaster occupied the nation's attention as front page news for nearly two months. As a result the flood was the top news story for 1993. Through this process we all witnessed heroic and at time futile sand bagging efforts. We saw houses being ripped from their foundations as levees overtopped, and witnessed human misery balanced by human compassion.

Most important we observed the beginning of an American debate. From those that were flooded to those that watched and contributed from across the country it was no longer assumed that we could simply just "control" the river. Discussions that for years filled the agendas of technical gatherings made it to the media aid to the American people. Discussions that had been absent at the White House since the 1930s were being replayed. As a result we as a nation questioned whether our actions were actually increasing flood heights and flood damages. Citizens were perplexed and angered to find out that we once more were paying disaster dollars for properties flooded in the recent past.

And now one year later, the people of Georgia, Florida, and Alabama are in the midst of another wide spread regional flood. The experiences of the midwest will certainly guide this southeast recovery, but many of the same problems of recovery will arise. In 1942 Gilbert White in his land mark dissertation Human Adjustment to Floods identified a fundamental misconception in flood policy. While not an exact quote White stated in this dissertation that floods may be an act of God, but flood damages are often an act of man.

THE INTERAGENCY REPORT PROVIDES A VISION AND OUTLINE

The commissioning of the Interagency Floodplain Review led by Brigadier General Gerald Galloway, and the development of the report *Sharing the Challenge: Floodplain Management into the 21st Century*, is a logical and essential step in attempting to collate this debate over policy and to recommend a direction for our nation. This report developed with broad interagency representation provides a vision and method that makes sense. The Association of State Floodplain Managers is very enthusiastic with the direction provided by the report. The report provides the next logical steps and is in sync with national needs.

The report also recognizes two key facts. The first is that we have not effectively used all of our floodplain management tools. The second is that current policies are based on a top down model of government that no longer works well.

After 60 plus years of implementing current flood policy, the fact remains that flood damages are escalating. Flood damage data from 1916 to 1985 adjusted for inflation and changes in population show the following trends. From 1916 to 1950, the era which gave birth to many of our current flood policies annual damages were \$902 million. From 1951 to 1985 these damages are 132 percent higher or annual damages of \$2.2 billion.

Similarly, there is well founded concern about the degraded conditions of our river systems. Significant public dollars are being spent to slow or reverse the degrading of river resources. We now realize that loss of habitat and resources not only impacts our quality of life, but adversely impacts regional and national economies.

SUSTAINABILITY: A NEW COMMON GROUND

It is not an issue of the environment or the economy today, rather recognition that the environment is our economy that is beginning to shape new public policies. This is best embodied in the concept of sustainable development. Sustainable development is a vision that recognizes that we as humans, have needs that must be met by the resources at hand. To deny this means denying our human existence. Likewise it recognizes that human excess and abuses leads to increased public costs and to the demise of the resources which sustain us.

The Galloway report provides a long term vision of river uses that can be best described as sustainable. It provides recognition that intense human use of certain floodplain reaches will continue. It also provides recognition that open space and environmental conservation and restoration will be critical to our efforts to reduce flood losses and to restore river systems.

The concept of sustainability is supported by citizens, professionals, and academics alike. Sustainability embraces an ethic at the roots of the conservation efforts of this century. Sustainability, to work must not be artificially constrained by single purpose programs or mandates.

The Galloway report provides a direction that leads towards sustainability. The report does not develop all of the answers but clearly the report addresses several critical issues.

THE ARGUMENTS FOR CHANGE

As the title suggests *Sharing the Challenge . . .*, floodplain management into the next century must be a cooperative exercise within government and the private sector. The title also speaks to, sharing the responsibility, which to date has not been well understood.

The Association of State Floodplain Managers has long vocalized the following:

Federal led, single purpose programs, are increasingly ineffective and potentially damaging. Management issues are increasingly complex at the State and local levels of government. Non-federal cost share dollars are scarce, and increased flexibility is needed to develop projects that deal with multiple rather than single purpose issues. Local and regional governments are tasked with land use planning, ultimately we need to have a system in place where State and Federal government are facilitators and cooperators, with local and regional governments leading the initiatives.

Today State and local governments have little incentive to deal seriously with flooding problems. Projects and disaster programs require little real commitment to avoid new damages or continued mitigation of existing damages. This does not mean we advocate punishing State and local government for lack of current commitment. We do advocate a concentrated effort that would encourage the establishment of a critical level of capability at these levels of government.

Environmental management has been turned into a regulatory response to curb individual actions. This is a losing strategy that needlessly polarizes people. We need to promote planning processes and programs that up front integrates and blends resource and development needs. We need to look to restoration of resources as a critical step in achieving sustainability.

Disaster costs are out of hand. B? instinct we dwell on the individual, but the bulk of public money is being spent on infrastructure. Both in terms of private buildings, and public infrastructure we need to develop policies that discourage at risk development. In developed areas at risk, standards need to be developed more reflective of the risk. The social costs are too high to ignore these areas of risk.

Floodplain management as a strategy is the integration of water resource, disaster, and natural resource policies. Federal policy in these areas lack coordination within and between policy streams. This leads to feeding non-integrated programs to States which adapt the same fragmented appearance. Ultimately, the local practi-

tioner is faced with a legion of programs that lack integration and consistency. The Federal government must restore coordination to its programs and direction.

Our flood protection programs have relied too heavily on flood control as the only solution. Non-structural alternatives such as avoidance and flood proofing are generally not promoted nor understood. There are disparities in the funding, cost share and project justification criteria between structural and non-structural solutions.

THE NEXT STEPS

Based on the findings and recommendations of the Galloway Report, our long standing policy positions, and detailed work captured in Association's policy papers we urge the Clinton Administration and Congress to adopt and to move forward with the implementation of the report. While there are numerous issues in the report, we see two as being critical on which the Administration should immediately act. They are:

1. Reinststate the Water Resources Council. There is a need for a Federal coordinating mechanism. If the Council requires reform to be effective than initiate the reform. Lacking this mechanism, will make pursuit of the report recommendations difficult. While some are vehemently opposed to the Council, remembering their historic power struggles, one must ask if we can continue to pursue disjointed strands in water policy.

2. The Administration should examine and modify Executive Order 11988 Floodplain Management, and affirm its commitment to floodplain management through execution and update of a new order.

These two steps are necessary to provide the background to move the Galloway Report forward, and to communicate the Administration's support of floodplain management policy as proposed in the report.

The Congress likewise should begin to examine various policy areas for adjustment. While there are numerous recommendations the following fall entirely or partially under the purview of this committee.

1. Pass a Floodplain Management Act

An act that delineates Federal, State and local responsibilities; provides fiscal support for the development of State and local capability, and establishes States as being the principal floodplain managers is a critical next step. Floodplain management is as much an act of balancing very disjoint programs as it is concentrating technical knowledge to a problem. States today are in the best position to serve this lead position. This is not a call to usurp very active, trend setting local floodplain management programs since increased capability at the local level is a highly desirable objective.

2. Develop a separate non-structural flood protection authority

Separate authorities for non-structural flood protection projects should be established in the water resource agencies. This would provide higher visibility for cost effective alternatives to flood control. It would provide an incentive for agencies to consider nonstructural measures. And for those communities desirous of a non-structural alternative a path that allows all to focus more clearly on non-structural solutions.

3. Work Towards a Multiobjective Planning and Implementation Authority

A study should be developed that would shape how to implement an over arching authority for multi-objective watershed management. The basis of this legislation would be to allow local and regional governments to develop an integrated management plan for their region that considers the resource and human need components of their region or watershed. Agencies would participate in the development of those components in which they have technical and policy expertise. Agency specific program rules would be set aside in lieu of program rules developed under this integrated planning law. The study would need to shape recommendations reflecting Congressional Committees and structure, and address the issue of how to administer a program that impacts multiple agencies.

4. Develop Uniform Post Disaster Application and Approval Mechanisms for Agency Programs

The midwest flood recovery was highly dependent on people making things happen. Significant State and local frustration was experienced however when disaster appropriations were released with lack of any integrated strategy for application. Agencies attempting to address the same problem operated under different rules and definitions. There is a need to develop authorizing language for an emergency set of rules and a uniform application process that groups similar activities under

the same rules and process. This will stop individuals from shopping for the best bargain, and will help focus agencies on a national strategy for the recovery. In combination with this strategy, block grant mechanisms should be considered that would allow States to combine various Federal disaster moneys into a package consistent with Federal recovery goals.

5. Increase Incentive for State and Local Government to Implement Natural Hazard Mitigation

Cost sharing in the post disaster environment should directly relate to the level of predisaster mitigation activities at the State and local level. First, the level of cost sharing should be reanalyzed to determine if it is meaningful in promoting mitigation at the State and local level. Those State and local communities implementing good mitigation programs should receive a lower non-federal cost share.

6. Make Sure that Federal Programs have a Coordinating Body

Support the efforts of the Administration to re-institute a Federal coordination mechanism such as the Water Resources Council. Modify current authorizations or create new authorities as necessary to assure that we make coordination work.

7. Support Reforms to the National Flood Insurance Program

Support the Conference Report for the National Flood Insurance Reform Act, urge rapid administration approval and implementation.

8. Support FEMA in its Role as Disaster Programs Coordinator

Evaluate how FEMA can better fulfill Congressional expectations of disaster coordination. Provide the agency with resources and authorities that will allow the agency to be more effective in its implementation. Consolidate Congressional oversight of agency.

9. Invest in Basic data

On an annual basis we spend \$2.2 billion on flood losses, yet we lack the basic data from which to track the effectiveness of these programs. For example at this time we do not even know how many structures are at risk from flooding in the nation. Based on a structure count we could predict insurance needs, loss exposure, and whether we are adding to or depleting with time the inventory at risk. We need to seriously evaluate this question of how to acquire and utilize basic management data. The USGS should lead an effort to quantify data needs and develop a cooperative program with all agencies to begin to collect this basic information.

10. Evaluate Project Justification Criteria

We have convinced ourselves that National Economic Development criteria is the best means to justify Federal interest in a project. We have fooled ourselves to believe that it is the most efficient. The Galloway report called for the use of the Standard Project Flood as a design flood for urban areas. At the same time agencies such as the Corps are instituting Risk Based Design Criteria. Risk Based design satisfies a need to develop the best economics for the project. On the other hand the method in all probability will justify the construction of more small projects. The end result is more demands for public works dollars, and establishing the next set of catastrophic disaster areas when the projects designs are exceeded. Objections by agencies of a standard project flood criteria probably have little to do with the rationale of this technical standard, but are founded on a recognition that a standard project flood design would be difficult to justify on economics alone. Project justification should be expanded to consider environmental economies, social impacts, and trends in disaster recovery policy, along with project economics.

CONCLUSION

Sharing the Challenge: Floodplain Management into the 21st Century, is a comprehensive analysis and review of needed change in floodplain management policy. The recommendations as a total represent a vision that can put our national flood protection policies on track. The Flood Control Acts of the 20s and 30s; the National Flood Insurance Act in 1968, the Small Watershed Program and others acts have provided independent pieces of policy that have grown and faded based on agency size, might, and political influence. Gilbert White, recognized in the mid-1930s that we lacked an integrated vision for floodplain management.

General Galloway struck the same theme when he testified that there was no silver bullet to put through the heart of flood losses. The time has come to take multiple independent strands of Federal flood policy and weave them into a comprehensive floodplain management policy. The Interagency report provides a vision of a new partnership with local and State government, and the modifications to existing

policy required to bring forth a national floodplain management policy for the nation. The decision for the Congress and Administration is to act now while we still are paying for the midwest flood and beginning to pay for the floods of the south-east; or we can do nothing and let the Congress and Administration facing a massive regional flood in the next 10-25 years deal with these issues. Faced with annual damages of \$2.2 billion and growing, the Association of State Floodplain Managers believe that the time to act is now.

STATEMENT OF JOHN ROBB, UPPER MISSISSIPPI FLOOD CONTROL ASSOCIATION

Mr. Chairman and members of the committee, my name is John Robb. I am chairman of the Upper Mississippi Flood Control Association. The Association was formed in 1954 by Levee and Drainage Districts and now includes Industry and Municipalities along the Middle and Upper Mississippi, Missouri, and Illinois Rivers. We greatly appreciate the time allowed for our testimony regarding the report on flood plain management prepared by General Galloway and the Interagency Flood Plain Management Review Committee.

The Flood of 1993 was certainly an Epic Event of devastating proportions. The personal tragedy and the billions of dollars, which may never be fully accounted, has had a terrible effect upon our lives and upon our economy. One would be hard pressed to find anyone of reasonable understanding and familiar with the issues who would not agree that something must be done to prevent this loss in the future.

The tremendous effort that the IAFPMRC Report of some 300 pages represents, is a testimony of interest and willingness of the government and many interested parties to find a solution. However, the problem and solution in many cases lies within the eyes of the beholder and is not necessarily based upon obvious facts.

The Report recognizes that the navigable rivers have played an important role in the development of our Nation, but fails to point out the vital role inland waterways must have if we are to be a player in the rapidly developing world trade. The Navigation System will not function at the present efficiency without flood control and a levee system to confine the rivers to a certain course and in front of the lock and dams. Most of the lock and dams on the Mississippi and Illinois are anchored to levees and the adjacent land is 3 to 5 feet lower than normal operating level; without levees the river would flank the dams and wing dams.

The Report states that the majority of damages were in agriculture, with 70 percent of agricultural damage and 50 percent of the home damage in the uplands.

The Report estimates that \$19 Billion of damages were prevented by flood control systems and \$400 Million were prevented by SCS Water Shed Management Projects. Flood control works when properly designed, constructed and maintained.

wetlands upland and bottom land can effect minor floods (25 year), but have questionable significant impact upon major floods. Please, note that a 25 year event on the navigable rivers is a normal spring rise and a minimal threat.

The restoration of wetlands will not reduce flooding, but instead will place the present production and future development under a permanent flood, so that the damage will be a continual burden for our nation. The report does not evaluate the cost of maintaining land converted to wetlands. The report does not evaluate the flood damage to wetlands and wildlife habitat or the value of the environmental damage prevented by the flood control system.

According to the report the flood area flood plain contains 10,282,989 acres of which there are presently 1,435,411 acres in wetlands and 933,085 acres in water. There is certainly not a shortage of wetlands in the floodplain. The majority of these wetlands are protected by levees and enjoy controlled water level fluctuations, but are protected from damaging floods.

The proposal to elevate railroads and highways through the flood plain has not been evaluated for cost nor the amount of material needed compared to a 500 year levee. A railroad bed or levee constructed of clay and exposed to extended periods of saturation will become very soft. A 22 foot levee with 3:1 slopes will hold a 500 year flood, but would not begin to support train traffic during the extended period of a major flood event.

Despite all of this the Report has outlined as its general conclusion that a comprehensive system of flood control/navigation, economic development, and environmental protection is not possible in the Midwest. Instead a patch work of areas of critical infrastructure will be protected some at a level that are sure to fail again and the rest with minimal protection managed by the FWS and the FEMA. The ultimate goal being silva culture, layman's terms pulp wood, mosquitoes, snakes, turtles, and a general incubator of disease.

All of this is based upon the unproven assumptions that engineering and structural means of flood control have been a dismal failure and have had a devastating impact upon the riverine ecosystem. That the balanced system that is now in place should not be improved but should be dismantled.

How long will it take to dismantle the economic future of our Nation laying along the navigable shorelines of the Midwest? The willing sellers are about gone unless the amounts are so great that anyone with a calculator could not refuse. A flood like the Flood of 93 will probably not happen again in our lifetime. The mandates will be resisted and disaster payments will not stop as long as earthquakes and hurricanes continue in California and Florida.

We have and will continue to strongly oppose the IFPMRC Report. If one is in opposition there must be a reason and another solution.

The ecosystem diversity and protected environmental enhancements which are made possible by the levee and drainage districts have not been given a fair consideration.

The Fish & Wildlife Service operates several levee and drainage districts on the Upper Mississippi and Illinois Rivers as Wildlife Sanctuaries. I would like to briefly discuss two FWS sites one is operating and one is being developed.

Lake Odessa is a 6800 acre National Wildlife Refuge located on the Mississippi River above the mouth of the Iowa River and about 15 miles south of Muscatine, Iowa. Attached to this statement as, "Exhibit A", is a proposal by the USDOJ presented in the 1989 USACE Upper Mississippi River System Environmental Management Plan. The USDOJ is requesting \$1,891,000 for "raising and broadening the levee" because "Breaches of the low levee have resulted in impacts lasting several years to aquatic vegetation growth and consequently waterfowl, and the silt-laden flood waters have also negatively affected the fishery."

A manager of Lake Odessa in the Burlington Hawkeye Newspaper, Oct 18, 1994 said the reason there were no ducks or geese in the refuge in the fall of 1993 was because the flood had destroyed the habitat and food supply. The ducks and geese along the Upper Mississippi in the fall of 93 were few and far between because the food supply, primarily corn, had been destroyed. I would also add that the majority of all the nut bearing trees which supported a healthy deer and turkey population in Lake Odessa and all the other levee and drainage districts are also dead.

The levee districts that were designed for the flood in their area and some that were not, some 50 year levees held 500 year flood elevations, have their normal continuing healthy wildlife and ecosystem diversity.

The Emiquon National Wildlife Refuge at Havana, Illinois is a 12,000 acre site on the Illinois River that has been approved for purchase by the USDOJ and is awaiting willing sellers. The Environmental Assessment required for authorization by the Congress is attached as, "Exhibit B". The assessment states on page 28 "Both lakes will remain independent of the Illinois River waters" and on page 47 the method of separation is stated "protected by 200 to 500 year levees."

The USACE is presently engaged in an EMP project, "Exhibit C", on the Upper Mississippi and Illinois rivers which is dredging material from the backwaters to create pot, holes and enhance the backwater habitat. The authorized funding is \$249 million which the Sierra Club is telling the Corps is not nearly enough and the Sierra Club is no doubt trying to get more funding authorized by the Congress. The dredge material is being placed on islands and along the shore line were most of it will eventually wash back into the same hole it came out of.

The Upper Mississippi Flood Control Association has made a proposal that will accomplish the same thing that the IFPMRC Report recommends and the USDOJ is presently doing. This plan is a step forward into the future and the dollars spent will be returned many times over as this Nation adds to our infrastructure and prospers as we enjoy the balance between development and a protected environment.

The plan is to dredge the unwanted material out of the Upper Mississippi River from Cairo to Rock Island, the Illinois River, and the Missouri River to Hamburg, Iowa and place it upon the existing levee system. Add eight (8) feet of elevation, 62 cy/ft, on 2000 miles of existing levees. At a completed cost of \$2.75 cy and a total project cost of \$1.8 billion.

According to Iowa State University, "Exhibit E", the impact of farming upon the economy generates about \$73 an acre in tax revenue. There are approximately 850 tillable acres per mile of levee or 1.7 million acres protected by levees. 1.7 million acres x \$73 x 15 years = \$1.8 billion, the project cost.

The added bonus is savings from future disasters and tax revenues from uninterrupted economic, industrial, and transportation activity. Disaster payments from one flood event will pay for this project, the 93 flood.

The major purposes of the 1850 Swamp Control Act was to develop the land and stop the epidemic of disease caused by insects and slack water. The continent of Africa is continually ravaged by disease much of which is caused by insects from the undeveloped land. Why would we go backwards?

In this country a great effort is made to destroy mosquito breeding places like old tires. Why would we work to establish new breeding sites for the very mobile and prolific Asian tiger mosquito. Representative Pat Schroeder of Colorado has recently requested that EPA release restrictions protecting a possible endangered flower so that hordes of mosquitoes coming from US Government wetlands around Lowry Air Force Base can be sprayed and relieve the misery and threat to her constituents, USA Today June 8, 1994.

The report addresses the need to place Federal Crop Insurance and National Flood Insurance on an actuarial bases. What is actually happening now by bureaucratic mandate is anything but equitable. The levee and drainage districts, with rare exception, along the Upper Mississippi, Missouri, and Illinois have flooded twice since 1947 and have never collected a disaster payment for drought. During this same period there have been several droughts when a large portion of the Midwest collected payments for crop losses.

In the history of FCIC prior to 1993, 55 percent of claims were paid for drought and 2 percent for floods. During the 1993 flood according to the Galloway report the majority of losses were to agriculture and 70 percent of agriculture losses were in the uplands. However, floodplain where levees failed have been reclassified as high risk with unbearable premiums of \$32 an acre for corn but the huge area in the upland were the majority of losses have been since 1947 have not been changed and remain at \$9 per acre.

This inequity also exists in NFIC rates compared to earthquakes and floods. When one considers these facts it is plain to see that the actuarial approach has nothing to do with actuarial soundness, but instead is simply an opportunistic policy to convert tax producing private property into property controlled by the environmentalcrats and supported by the United States tax payer.

The report states in Chapter 9, Mitigating Flood Damage Impacts Through Recovery And Insurance, "Ultimately, flood insurance will reduce disaster payments by internalizing the costs of living in the floodplain and by creating an incentive to move out of harm's way, Insurance does not prevent natural disaster losses to our Nation and its citizens." The money for insurance claims does not fall out of the sky, it must be earned by hard work.

The initial start up cost of this proposal will be several billion dollars with a certainty of billions lost from future floods. But, the real loss to our Nation, which will cost our Nation 100's of billions in the next few decades, will be the failure to take advantage of the opportunity for economic development alongside the only feasible and competitive transportation link to world trade.

The solution for the flood plain and the future of our Nation is not a radical shift to an untried and unproven theory of natural rivers. We must continue the improvement and balance of the present system which provides Flood Control, Navigation, Economic Development, and Environment Protection.

EXHIBIT A

CENCR-PD-R

11 March 1988

UPPER MISSISSIPPI RIVER SYSTEM ENVIRONMENTAL MANAGEMENT PROGRAM
FACT SHEETLAKE ODESSA REHABILITATION AND ENHANCEMENT - PHASE I
POOLS 17-18, IOWA

LOCATION: Lake Odessa is a 6,800 acre backwater complex of open lake, marsh, timbered islands, ponds, and chutes, separated from the Mississippi River by a levee. It is located roughly half above and half below Lock and Dam 17, approximately 15 miles south of Muscatine, Iowa.

RESOURCE PROBLEM: While Lake Odessa has traditionally had high fall duck and geese populations and significant duck production, the existing water control structures limit water level management with regard to drawdown, excess water release, and fall reflooding. Breaches of the low levee have resulted in impacts lasting several years to aquatic vegetation growth and consequently waterfowl, and the silt-laden flood waters have also negatively affected the fishery. Sedimentation has caused a preponderance of shallow water habitat, causing winterkill and reducing the circulation of well oxygenated water.

PROPOSED PROJECT: Phase I of the proposed project would involve raising and broadening the levee with a driveable top width to enable annual maintenance. Existing inlet and outlet structures would be modified to improve control over water levels and an additional inlet structure would be constructed. Later phases would involve creation of new management areas having islands interspersed with open water. A pump would be installed to control water levels. Deep holes would be dredged and new structures located to rehabilitate and enhance the fishery. Clearing and dredging would open areas not currently accessible for management and increase the winter flow of oxygenated water.

PROJECT OUTPUTS: Water level management capabilities for fish and waterfowl would be improved and sedimentation would be reduced. Later phases would improve the flow of well oxygenated water, create new habitat for waterfowl and fish, and increase management opportunities.

FINANCIAL DATA: The general design cost of Phase I is estimated to be \$168,000 with total construction costs estimated at \$1,723,000. The project would be located on lands of the National Wildlife Refuge System and on certain lands acquired for the navigation project that were identified in a General Plan and made available to the States, through Cooperative Agreements between the Corps of Engineers and the Department of Interior (DOI), and between the DOI and each State. These lands were made available "for use in the conservation and management of wildlife resources thereof, and its habitat thereon, in connection with the national migratory bird program." The Cooperative Agreements stipulate that the areas shall be maintained "in accordance with an annual management program . . . submitted to the Service." Under Section 906(e) of the 1986 Water Resources Development Act, the project area is "managed as a national wildlife refuge" and qualifies for 100 percent Federal funding of general design and construction. The Iowa Department of Conservation would be responsible for the required items of local cooperation.

Exhibit C

District: Rock Island
Date: 17 February 1994

PROJECT INFORMATION SHEET
(Construction)

NAME OF PROJECT: UPPER MISS RIVER SYSTEM ENV MGMT PROG, IL, IA, MO, MN & WI

DESCRIPTION OF PROJECT:

The UMRS-EMP provides an institutional framework for the coord. development and enhancement of the UMRS, recognizing its several purposes (nav, f&w, rec, etc.) and provides for immediate actions toward that end. Authorized elements: Habitat Proj.; LTRM; Econ Impacts of Rec; Nav Traffic Monitoring; Rec Proj. (not funded).

Summarized Financial Data:

	<u>Non-Fed \$</u>	<u>Federal \$</u>
Total Project Cost Estimate:	4,272,000	249,978,000
Allocations thru FY 1993	77,000	77,575,000
Allocations for FY 1994	531,000	16,763,000
Budgeted for FY 1995	439,000	19,455,000
Balance after FY 1995	3,225,000	136,185,000

PROJECT SCHEDULE:

Initiate Construction	FY 1988
Complete Construction	FY 2002

MAJOR WORK ITEMS, FY 94

- Habitat Projects: Continue or initiate construction on 11 projects, complete 4 projects, start design on 4 projects, and continue design on 23 projects.
- LTRM: Continue resource monitoring/ecological research on sedimentation, water level changes, & navig. impacts; initiate studies on aquatic plant declines, habitat classification inventory, flood effects, and constructed-island effects; coordinate program with UMRS Nav. Study.

MAJOR WORK ITEMS, FY 95

- Habitat Projects: Continue or initiate constr on 8 projects, complete 5, and continue design on 22 projects.
- LTRM: Continue resource monitoring/ecological research/study of management alternatives.

OTHER INFORMATION:

- Legislative proposal for 100% Non-Federal assumption of O&M costs for projects not on "lands managed as a national wildlife refuge."

Program Mgr - Paul KOWALCZYK, 309/799-5210

EXHIBIT B

AFFECTED ENVIRONMENT (CHAPTER 3)

The zebra mussel can attach itself to almost any surface, including other shellfish. This ability not only fouls water transport equipment, it kills the more desirable and native shellfish. The zebra mussel feeds on phytoplankton (small plants), zooplankton (small animals) and detritus (organic debris) which are the foundation for the food web in our lakes and rivers. In areas where it has become established it has proven to be a fierce competitor with our native shellfish.

* If Thompson Lake and Flag Lake are restored, they could provide a haven for our native fisheries resource. Both lakes will remain independent of the Illinois River waters and should therefore be protected from the invasion of the zebra mussel.

Recreation Resources - There are approximately 36 million acres in Illinois. Only about three percent (1.1 million acres) are publicly managed for conservation and recreation purposes. There are another 200,000 acres in private ownership; however, these lands are not always available to the public.

When considered on a per capita basis, conservation and recreation lands in Illinois are very limited. Most of the public lands that are available are located in southern Illinois yet 60 percent of the population is in the north (Illinois Outdoor Recreation - 1990).

In general, there is a considerable demand for pleasure walking, pleasure driving, picnicking, bicycling, and nature observation (Figure 3-9). These activities account for much of the outdoor recreation activities in Illinois.

ECONOMIC FACTORS:

The U.S. Fish and Wildlife Service (Service) contracted for an economic study of the proposed Emiquon National Wildlife Refuge (Refuge) located in Fulton County, Illinois. When considering an area as a potential national wildlife refuge, a variety of criteria will be considered during the decision making process. The existing and potential biological, economic, and sociological environments were delineated and analyzed to ascertain the overall anticipated impacts of the proposed Refuge.

A comprehensive environmental and economic analysis of the potential impacts associated with establishing the proposed Emiquon Refuge was completed by the Southern Illinois University, Department of Agribusiness Economics (SIU-ABE). The SIU-ABE findings and conclusions were released in a final document titled "Projected Economic Impacts of the Proposed Emiquon National Wildlife Refuge - 1991". Most of the economic information and discussion presented in this document was extracted from the SIU-ABE economic study.

The proposed Emiquon Refuge could involve the acquisition of 11,039 acres of land that is currently in private ownership. The land within the proposed Refuge area is presently used in crop, pasture, timber, or wetland.

The combined impact of establishing the Refuge and efforts to further protect existing wetlands along the Illinois and Spoon Rivers from degradation were evaluated given the existing economic structures of the counties affected. The proposed changes could have potential consequences for employment opportunities, levels of income, provision of public services, and general wealth for this region.

EXHIBIT B

ENVIRONMENTAL CONSEQUENCES (CHAPTER 4)

HYDROLOGICAL IMPACTS: Much of the proposed Emiquon Refuge is protected by a 200 to 500 year levee system. From a hydrological standpoint, it is a self-contained system that is virtually unaffected by the normal hydrology of the Illinois River.

Drainage and Flooding: Implementation of any of the "action" alternative will neither alleviate or contribute to any hydrology problems along the La Grange Pool reach of the Illinois River.

If land is acquired that has an existing drainage system, the Service intends to maintain and repair at our expense the ditch system and its laterals as long as there is a need for drainage by the Service or private property owner. The Service can not impede the discharge of water from private property across Service property through an existing drainage ditch without just compensation. Similarly, the Service can not drain private property without just compensation.

Erosion and Sedimentation: Erosion and sedimentation create the most significant resource problems within the Illinois River watershed. The velocities of sediment laden waters drop as they conform to the gentle grade of the La Grange Pool. Particles in suspension settle to the bottom and can cause blockages of the drainage network and the destruction of valuable wetland habitat. Since each of the "action" alternatives would remain separate from the Illinois River, protected by 200 to 500 year levees, erosion and sedimentation will not be a factor.

Water Quality and Groundwater Recharge: The protection, restoration, and management of the 7,800 (Alternative 2 and Alternative 4) to 9,500 acres (Alternative 3) of bottomland forest, backwater lake, and floodplain wetland habitat will improve water quality and increase the volume of ground water recharge in the vicinity of the proposed refuges or recreation and wildlife area. Both Thompson Lake and

Flag Lake will remain separate from the Illinois River and water quality can be expected to be considerably better. If water is needed, it could be obtained from Sister Creeks located along the northern boundary of the proposed refuges or recreation and wildlife area. The water could be naturally cleansed as it is filtered through a restored wetland complex prior to entering into the restored Thompson Lake and Flag Lake wetland complex.

AGRICULTURAL IMPACTS: Delineation of the Refuge acquisition boundary was primarily influenced by the existing or potential biological significance of the area. Consistent with the Federal Farmland Policy Protection Act, and the Illinois Farmland Preservation Act (Illinois Revised Statute, 1987, Chapter 5, Paragraphs 1301-1308) (7 U.S.C., 4201-4209) an in depth analysis of Federal and State projects must be performed by the Illinois Department of Agricultural when agricultural land is transferred from private to public ownership.

The Illinois Department of Agriculture considers agricultural land to be composed of cropland, hayland, pastureland, and forestland. The proposed refuges or recreation and wildlife area would not cause any appreciable reduction in the overall amount of agricultural land available for production in Fulton County, nor would it reduce the affected land's capability for production.

There could be a shift in the amount of each type of agricultural land when compared to current land uses. The type, quantity, and distribution of agricultural land within the project area would change in support of project objectives.

Loss of Prime Farmland: Based on a detailed evaluation of the study area using the 1991 Fulton County property record cards and the list of Prime Farmland soils, 100 percent of the soils in the study area could be considered

EXHIBIT D

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

University Extension

Department of Economics
468 Heady Hall
Ames, Iowa 50011-1070
515 294-6780
FAX 515 294-1700

March 18, 1994

John Robb, Chairman
Upper Mississippi Flood Control Association
R. R. #1
Gladstone, IL 61437

Dear Mr. Robb:

These are some general comments that we want to pass on to you about your proposal. Dr. Michael Duffy, myself, and Dr. Dan Otto on our staff have reviewed your analysis and conclusions.

First, a few words about the numbers. As I indicated on the phone, we found two typos in the numbers. The soybean yield we were using is 45 bushels per acre rather than 35 bushels. Also, the return on labor and capital is \$117 per acre. The labor and capital returns come from FM 1752, Revised, January 1994, Iowa State University Extension, and are a weighted average of corn and soybeans.

Your multiplier impact at 2.25 looks reasonable when considering the national economic impact. However, Dan Otto feels your tax rate may be a bit high. For Iowa, considering much of the multiplier impact may be in low-wage retail industries, he would feel more comfortable with a tax percentage in the low twenties. This may of course vary by state, depending on state income tax and sales tax levels. My impression is that Illinois and Minnesota tax rates may be a bit higher than in Iowa, although I have no idea about the Missouri, North and South Dakota tax rates. I believe Nebraska's sales tax rate is 6% vs 5% in Iowa, but I am not sure how their income tax rates would compare with ours.

Another point to consider is that part of the labor and capital return on land typically is generated through government deficiency payments. I have calculated a four year average of these (1990-1993 crops) and allocated it to the average acre of cropland, adjusting for non-paid and idle acres. I have also weighted the deficiency payments, based on two-thirds of the acreage being in corn and one-third being in soybeans, and figuring 74% of the cropland is in the farm program. That gives an average deficiency payment per acre of \$22.50 per acre. If this land were taken out of production, those opposing your proposal would likely say that there would be government cost savings from this source, and that therefore it should not be credited to paying for the cost of the levies.

EXHIBIT D

March 18, 1994

Page Two

Taking these changes into consideration, my calculations show the number of years to payoff are as follows for alternative average tax rates:

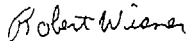
Tax rate:	28%	24%	22%
Years to payoff:	18.1	20.3	23.3

Other reactions to anticipate from opposing groups:

Opposing groups will note that you are comparing only two of several possible alternatives, namely taking the land out of production and converting it to wetlands vs. leaving it in agricultural production and raising the levies. Other possibilities for comparison might include: (1) not repairing the levies but leaving the land in crop production with periodic flood damage, (2) restoring levies to pre-flood levels and condition, (3) raising the levies by a smaller amount than your proposal, and (4) increasing the height on only a portion of the river system. A major research project would be required to provide information on the economics of these and other alternatives. In deciding whether to increase levies and by how much, some would want to look at the change in income stream for each incremental unit of height to the levies versus the cost of each incremental unit of height. Cost savings from reducing or removing the need for federal farm and non-farm disaster programs would be an important part of the economics of these alternatives.

Also, environmental groups will argue that conversion of cropland to wetlands does have some economic value, although it is very difficult to measure. They may want to argue that your proposal assumes zero value for wetlands.

Sincerely,



Robert N. Wisner
Professor of Economics
Iowa State University

EXHIBIT D

COMPUTATIONS FOR TOTAL TAX REVENUES FROM RIVER BOTTOMLAND

Deficiency payment per Acre of cropland : \$22.50
 (Using 1990-93 ave. payment, adjusted for idle and non-payment acres and weighted two-thirds corn and one-third soybeans, which has no deficiency payment)

Return for labor and capital:	\$117 per acre
Less property tax:	- 20
Return with tax excluded	\$ 97

Return with multiplier included:	\$97 x 2.25 = \$218.25
Tax revenue @ 24% (sales tax + state & Fed. tax)	52.90
Less deficiency payment:	-22.50
Plus property tax	+20.00
Tax revenue from one acre of cropland	\$49.90

Annual tax revenues from 1.7 million acres: $\$49.90 \times 1.7 \text{ mil.} = \88.83 million

Years required for payoff at \$1.8 billion: $\$1.8 / .08883 = 20.3 \text{ years}$

The UMFA does not agree with subtracting \$ 22.50 for deficiency payments. There is not going to be a sudden 50% profit reduction in Midwest farming. The Gatt Agreement is supposed to assure a stable transition. In 1994 every available acre is being farmed and we are hoping to avoid a crop failure like 4 of the last 6 years.

John Roll
 Chairman
 UMFA

STATEMENT OF RAYMOND D. EVANS, MISSOURI DEPARTMENT OF CONSERVATION

Thank you Mr. Chairman for the opportunity to be here. I am Ray Evans, a landowner/farmer from one of the Missouri counties affected by the great flood of '93. Flooded landowners had a number of immediate concerns like getting the levees repaired and Senator Bond did an outstanding effort at getting funds made available for these repairs. Longer term concerns were that the government (whoever that is) would declare the flooded land to be wetland and make it impossible to ever farm it again or do anything with it. An underhanded land grab, if you will, for public purposes without compensating the private owners.

Again the Congress came through with the Emergency Wetland Reserve Program (EWRP) and effected and qualified landowners, on a voluntary basis, choose to enroll their land and received the agreed-upon compensation.

However, other problems still exist. 59,000 acres are covered with sand two feet deep and deeper, and do not qualify for EWRP. For a number of reasons, some levees are not going to be rebuilt and a number of landowners who, because part of their land qualifies for EWRP, part of their land is sand-ravaged and qualified for no relief, and they have some undamaged land but not enough for a farming operation, want out of the river bottom. Land is for sale from willing sellers and private and public goals can be achieved through innovative cooperation, and for soon-to-be obvious reasons we have called this cooperative effort "Restoration of the Missouri River Bottomland." The concept of a restored Missouri River bottom contains productive farmland protected by levees, fish and wildlife habitat and land for public recreation, restored forests for forest products including wildlife and a purposefully planned floodway to reduce the crest and damage of future floods.

The Missouri Department of Conservation, whom I represent here today, believes that the sanity with which we respond to the Flood of '93 will be measured, in the final analysis, by the number of acres we add to the floodway and the sensitivity and full measure of protection of private property rights that we, as a society provide, in the process. The Emergency Wetland Reserve Program (EWRP) will certainly add some acres, but many EWRP contracts will be for lands that will remain protected by levees. Substantial floodway acres will still need to be added if we are to meaningfully assist in bottomland recovery, floodway restoration and reduction in damage of future flood events. The Department of Conservation proposes that we accomplish a portion of this by fee title land acquisition within the Missouri River floodplain as part of the "Restoration of the Missouri River Bottomland."

The present federal:non-federal cost-share ratio for levee repair and restoration is 75:25 which provides no increase in the floodways and no improvement in compatible floodplain uses. We propose a similar ratio for land acquisition and the Missouri Department of Conservation would guarantee the 25 percent non-federal match up to \$10 million, short-term, with discussion of an additional \$10 million over the long term. That first \$10 million has already been appropriated and now awaits some Federal action.

A significant portion of the land to be screened for acquisition has been tentatively identified by the Scientific Assessment and Strategy Team (SAST) of the Interagency Floodplain Management Review Committee in approximately 60 polygons containing an estimated 100,000 acres (13 percent) of the floodplain. The Galloway Report recognizes that these lands are in high energy discharge areas and critical to addressing the long-term problems of flooding in the Missouri River valley. These land acquisitions, as part of the Missouri River bottomland restoration, would:

- be from willing sellers;
- permit and encourage compatible floodplain uses, including farming as well as public access and use;
- address the 59,000 acres with sand deposits greater than 24 inches which do not qualify for EWRP. The cost of removing sand one foot deep from an acre is estimated at \$3,200 with no place to deposit the sand;
- provide for re-establishment of bottomland forests.
- increase the area of the functioning floodway;

Following purchase, levees could be realigned and/or altered to achieve the greatest public benefit while protecting, through purchase, landowners rights. Levee breaches could be repaired on the upstream end and levees lowered, in varying elevations, on the downstream end. Such levee alteration would permit future floods to back into the marginally and progressively protected areas with minimum scour and deposition.

In some cases, following purchase, levees would not be repaired or may be further breached or degraded. Bottomland forests and riparian zones would be restored and

side channels could be opened to provide riverine habitat, presently in short supply. Habitat for a wide variety of wildlife species would be created and enhanced for many threatened/endangered species including neotropical migrants, piping plover, least tern, bald eagle, pallid sturgeon and paddlefish. The acquisitions would aid in implementation of the North American Waterfowl Management Plan, the Missouri River Fish and Wildlife Mitigation Project, and the Administration's commitment to wetland protection and restoration and ecosystem management on a scale never before possible.

Paramount in all of these bottomland restoration efforts is the constant awareness of the human suffering involved and a necessity to pursue this public agenda with an unequivocal commitment to protect private property rights by providing compensation when private property rights are converted for public benefits. Pursuit of the agenda proposed here is the only proposal on the table that significantly restores the floodway, reduces the crests and the economic impact of future floods, lowers Federal exposure to future costs while maximizing environmental enhancement and fully protecting private property rights and, most importantly, is backed up with non-federal dollars.

Through this approach:

- The majority of the bottomland remains in private ownership.
- Provisions are made for protected farmland as a compatible floodway use.
- The local tax base and agri-business infrastructure is protected.
- Cogent public policy is pursued while private property rights are protected.
- Federal funds can be spent on bottomland restoration with long-term benefits instead of levee repairs, land restoration and cleanup which are remedial only.
- The area, scope and function of the floodway is enhanced.

The Wetland Reserve Program (WRP), Emergency Wetland Reserve Program (EWRP) and the Environmental Easement Program (EEP) all have potential to help address the need for bottomland restoration, and we propose to increase their attractiveness to producers. Recognizing the need to encourage landowner participation and maximize environmental enhancement and public benefits, we are in the process of purchasing, in fee-title, the residual value of these lands and converting them to public ownership while continuing payments in-lieu of taxes.

The Flood of '93 and the never-before-seen damages it wrought, provides us with some clarity on the size of the problem and the magnitude of the opportunity presented. We believe that the proposal presented here comes closer than anything on the horizon to being equal to the enormity of the problem and the immensity of the opportunity.

Thank you, Mr. Chairman, for the opportunity to be heard.

STATEMENT OF BRUCE MOUNTAIN, DIRECTOR, WETLANDS FOR IOWA PROGRAM
AN ALTERNATIVE FLOODPLAIN MANAGEMENT PLAN THAT WORKED!

Senators—I appreciate the opportunity to testify today on our nation's flood management policies. My name is Bruce Mountain. I am the Director of the Wetlands for Iowa Program of the Iowa Natural Heritage Foundation. The Foundation is a statewide land trust founded in 1979, with over 6,000 members and donors.

About 140 years ago, an engineer was commissioned by Congress to develop the first river management plan for the country. He recommended large areas of the Mississippi River floodplain be used for flood water retention.

However, in 1861, Congress ignored this idea and instead adopted an opposing view to contain the river with levees. This was the brainchild of Captain Andrew Humphrey, and it is certainly not surprising that he was a captain in the U.S. Army—Corp of Engineers, that is. It appears this idea worked because in 1926, the Corp proclaimed in its annual report that "The Mississippi is safe from serious flood damage." Unfortunately, the river did not get a copy of this report, because if it had, the great flood of 1993 wouldn't have occurred.

Nature operated her rivers and streams for tens of thousands of years with no help. She may have used more of the floodplain than absolutely necessary, but then there was no competition for this land.

Today, there is competition from man for the nation's floodplains. In a short 200 years, man has attempted to implement his own plan of drained prairie potholes, channelized streams and leveed rivers. But, our brash inexperience, shortsightedness, and site specific planning instead of ecosystem planning, has become dramatically evident. The Federal government has the ability and responsibility to put some

balance back into nature's floodplains. It can be done, and has been done, in partnership with willing landowners in Iowa.

The great flood of 1993 caused untold damages in Iowa to crop ground flooding millions of acres for weeks at a time. One watershed subject to some of the most severe damage was the Iowa River basin. This river starts in southern Minnesota and runs 366 miles to the Mississippi River in Louisa County, Iowa, draining more than 8 million acres along the way. Six miles from the mouth of the Iowa River there is a large bend which has been leveed since 1927 and is known as Louisa Levee District 8. This district encompasses 2,500 acres, including 2,000 acres of crop ground. The area is owned by 13 different land owners, with parcels ranging in size from 13 acres to over 1,500 acres. One farm is owned by an investor-operator, and another was deeded by President James Polk, under Federal patent to the present owners' great-great grandfather in 1846. One farm was acquired by duck hunters in 1929 and is still operated as a private duck hunting club by the heirs of the original partners. The area contains floodplain forests and several old cut off ox bows known as Spitznogle Lake, Rush Lake, Parsons Lake, Wilson Lake, Hall Lake and Diggins Slough.

When the levee broke in June of 1993, it was the 15th time since 1927. If this had not occurred in conjunction with a national disaster, the opportunity to restore this area would not have been available. The levees would have been rebuilt (\$800,000), the drainage ditches cleared (\$400,000), the sandbars removed, the scour holes filled, and debris removed (\$1,700,000). This estimated \$2.9 million excludes the costs in Federal dollars for disaster payments (\$200,000) and excludes crop insurance payments and the non-recoverable costs of the landowners.

In October of 1993, the Department of Agriculture announced the Emergency Wetland Reserve Program. This is a disaster aid program to provide compensation for severely damaged crop ground, yet break the cycle of paying for similar damage caused by future floods. The Soil Conservation Service staff quickly surveyed the damage in each county and assessed landowner interest in the new EWRP program. In Iowa 180 farmers enrolled 14,000 acres in the program. In Louisa Levee District 8 the damage ranged up to \$3,000 per acre. The landowners of Levee District 8 were tired of fighting the river and were receptive to the easement concept. However, they were used to struggling with the river with the flood prone crop ground, and they knew the Federal government would pay for most of the costs of rebuilding the levee and drainage systems. In addition, they were not especially warm to the idea of retaining ownership to land they couldn't farm and still be subject to county real estate taxes which aggregated over \$27,000 per year. And they wanted more compensation than just the \$683 per acre as available through the EWRP easement.

The SCS Iowa State office proposed the idea of a buy-out of the entire levee district if the district was dissolved to ensure future reconstruction costs wouldn't be incurred. The size of the levee district with its defined boundaries and relatively small number of land owners, made this an ideal pilot project for alternative floodplain management.

This project worked because a public/private partnership of willing landowners, Federal agencies and non-profit organizations developed a successful floodplain conversion concept. For about one-half of the cost of repairing the levee district and paying for flooded crops in 1993, this project will permanently return Iowa river floodplain to wildlife habitat and flood storage capacity, and relocate farmers to non-floodplain farm acres for more reliable farming operations.

The SCS, in conjunction with the Fish and Wildlife Service and FEMA, agreed to join their funding capabilities if enough of the farmers participated so the levee district would be dissolved.

The Iowa Natural Heritage Foundation, one of the nation's leading land trusts, was asked to act as facilitator to negotiate the purchases and coordinate the surveys, the title searches and develop other non-profit funding sources such as Pheasants Forever, Izaak Walton League and Waterfowl USA. The National Fish and Wildlife Foundation and The Conservation Fund provided essential interim financing for the project. The Iowa Natural Heritage Foundation has offers to purchase over 2,500 acres. It is in the midst of closing the land purchases and transferring the property to the Fish and Wildlife Service to be managed as the Horseshoe Bend Division of the Mark Twain Wildlife Refuge. The levee district has been dissolved and now the river's ecosystem can reacquire some of its natural characteristics for wildlife habitat, water quality, and flood water storage capacity.

This unique project is giving the farmers an opportunity to find alternative farm ground to continue farming without fighting the floods. It provides short-term and long-term savings to taxpayers. A one-time fair market purchase of flood-prone land is much cheaper than continued, expensive Federal programs to rebuild levees,

clean drainage districts, repair land and pay disaster payments—all interspersed with crop-deficiency payments and insurance claims.

The Federal government still has the responsibility to provide existing protection in certain floodplains. But it also must develop alternatives to controlling nature such as relocating willing landowners and returning parts of the floodplain to the river.

RECOMMENDATIONS

1. To accomplish this, we urge Congress as an initial step to follow the recommendations of General Galloway's Interagency Floodplain Management Committee.

2. We request Congress increase funding for the Wetlands Reserve Program to allow an ecosystem approach to floodplain management. During the latest sign-up, over 4,000 Iowa farmers have offered 57,000 acres for the program, however, only 17 percent of the eligible acres offered were accepted. This program provides incentives to farmers to cease farming marginal wetland areas and protect and restore these areas as a part of an overall floodplain management plan.

3. The Environmental Easement Program was authorized in the 1990 Farm Bill, but it was not funded. This Program is an essential tool with WRP for river ecosystem management. We urge this program be funded to help protect environmentally sensitive land adjacent to wetland areas and be delegated to the SCS for implementation.

4. We also urge Congress to amend the tax code to allow farmers to defer taxable gain if easement proceeds are reinvested in farm ground within two years. Otherwise, it is very difficult for a farmer to maintain his farming operation if he has to pay taxes before he reinvests in other farm ground. The IRS allows homeowners two years to reinvest sales proceeds and there is no reason family farmers should not be granted equal status.

5. We recommend Congress authorize the Corps of Engineers to enlarge and reinforce the Corps' emergency environmental mission. The Corps should have the authority and the mandate to engage in aquatic ecosystem restoration in meeting the challenge of floods, rather than solely controlling and channelizing. We must look at the whole, not just the parts.

CONCLUSION

The great flood of 1993 taught us some severe lessons. First, we have to expand our mission from just controlling the water that affects our individual properties; and instead, deal with the effects of the water all the way down the river ecosystem.

Second, we have to learn to live with the river system by holding more of the rain water where it falls and by slowing its movement down the system, thereby allowing the river to reestablish some of its checks and balances.

Third, we have to stop just greasing the squeaky wheel, and spread the available Federal funds for floodplain management among the alternatives that benefit the general public. This includes developing a management plan for the entire river system, coordinating pertinent programs and agencies; and, where there are willing landowners, giving some of our natural resources back to nature.

Thank you for this opportunity to comment.

STATEMENT OF TIMOTHY SEARCHINGER, ENVIRONMENTAL DEFENSE FUND

On behalf of the Environmental Defense Fund and American Rivers, I thank the committee for the opportunity to present this testimony. My name is Timothy Searchinger. Both EDF and American Rivers are national not-for-profit environmental advocacy organizations. I am a senior attorney with EDF and specialize in water resource issues.

I. THE CHALLENGE

In deciding what changes are needed in Federal flood control policy it is useful to imagine how private parties and local governments have impacted flood policy over our history when freed of Federal government influence. Their reaction has been a story both of success and failure which demonstrates well how people will act in the face of normal incentives.

First, the success: Although during floods we are exposed to the important exceptions, the truth is that the vast majority of people have, on their own, located their activities and structures out of harm's way unless those activities have a great need to be near the water. That is true even in the Upper Mississippi and lower Missouri

Rivers, which experienced the brunt of last year's flood. If you drive the Upper Mississippi or lower Missouri Rivers, you do not need a map to locate the floodplain. The rivers are bounded by narrow flat floodplains which spread out toward clear bluffs. The overwhelming majority of local development occurs safely on these bluffs. The billions of dollars paid by the Federal government for damaged structures last summer actually went toward a limited number of small towns isolated in the floodplain or houses constructed in low-lying areas of larger towns. The key conclusion: Left to their own devices, the market works. The vast majority of people will live in appropriate places.

Where the actions of people and local governments fail (unless government policies create the wrong incentives) is where people lack an incentive to serve a public good. Specifically, local and private actions have failed in their management of stormwater. The most pervasive system of water management in the United States is not levees, or wastewater treatment, or even irrigation: it is drainage. In developed areas, impervious surfaces block the percolation of water into the soils. Pipes direct water into channelized streams. In agricultural areas, tile pipes drain wetlands into similarly channelized streams. This rapid movement of floodwaters increases flood peaks and therefore flood damages downstream. As the Floodplain Committee stated:

Flooding can be increased significantly by the runoff from land that has been stripped of vegetation or covered with buildings, pavements, and other impervious materials. Historically the approach to such runoff has been to confine and transport that water as quickly as possible. As urbanization spread, this approach contributed significantly to increased magnitude and frequency of downstream flooding and the construction of flood damage reduction structures." (*3Sharing the Challenge*, . . . at 118).

It seems obvious that the Federal government should attempt not to interfere with what localities and private parties do well and should help where they do badly. And there are examples of successful Federal programs. The flood insurance program, although needing improvement, has generally represented a fair quid pro quo in which the Federal government helps those who live in floodplains to help themselves. But the historic role of the Federal government—a role which this committee has been struggling to change now for several years—has been the reverse of this sensible policy. First, Federal policies have meant that Federal taxpayers have assumed most of the cost of development and other intensive land uses in floodplains. In part, this role reflects the inherent sense of compassion of the American people. When disasters occur, Americans are willing to help. The availability of disaster relief in all its many varieties provides a strong incentive for flood-prone activities to occur because Federal taxpayers assume most of the cost. In part, however, water resource policy has had the goal of subsidizing intensive uses of floodplains on the theory that those subsidies contributed to net economic development. Billions have been spent on structural flood control measures to encourage people to live in floodplains or to farm in more intensive ways.

At the same time that Federal programs have encouraged activities in floodplains, other Federal programs have encouraged water to be directed their way. Many water resource projects constructed by the Army Corps of Engineers or the Soil Conservation Service have channelized streams to permit more rapid drainage of local areas.

There are three basic problems inherent in this combination of policies.

Inefficient Water Management Systems

One, this approach is inefficient because it contributes toward a structure of overlaid water management systems that are increasingly at war with each other. One system consists of drainage pipes and local channelized streams that move stormwater rapidly downstream from developed areas and agricultural fields. This drainage system circumvents the naturally slow filtering process of water through soils and plants that provide natural water quality improvement and flood protection. A second flood control system includes levees and dams to protect downstream areas from the floodwaters directed their way. And a third water quality system consists of wastewater systems designed in part to ameliorate the environmental problems caused by the first two systems. That third system has recently included requirements to retrofit stormwater controls to remediate water quality problems: problems directly related to stormwater management that limits contact between stormwater and soils and vegetation.

Increasing Flood Damages

Two, this system has created a pattern of consistently increasing flood damages, both in absolute terms and per capita after adjusting for inflation. The magnitude

is high. As the recent report of the Interagency Floodplain Management Review Committee summarized, over the last thirty years, average riverine flood damages have exceeded \$2 billion, but those damages has grown to \$3 billion over the last ten years. (Interagency Floodplain Management Review Committee, *Sharing the Challenge: Floodplain Management Into the 21st Century* (1994).

Why does the quantity of flood damages continue to increase. One reason is that drainage provides an ever increasing growth in flood peaks. A second major reason is that structural flood protection has an unanticipated flaw: When structures fail—whether because of a larger flood than design or simply unanticipated failure—the amount of flood damages is generally greater than if flood control structures had never been built. That occurs in part because flood control structures encourage development or intensive agriculture in hazardous areas behind structures, such as levees. It also occurs because structures that fail unleash walls of highly destructive floodwaters that crush houses and scour farm lands. (A good example in the last flood were the scour holes that formed immediately behind levees that failed along the Missouri River, releasing large quantities of sand that severely damaged agricultural land.) This indirect increased level of flood damages is virtually never included in cost benefit analyses.

The third reason is that the Federal government has removed much of the risk of living in floodplains that individuals continue to live there and to engage in intensive farming even where they are flooded repeatedly. *Sharing the Challenge* emphasized this point. Although last summer's \$12 billion disaster is often referred to as a "500 year" flood, the truth is that much of the area of flood damage experienced only the size of flood expected to recur every twenty years. Flood records from 1848 also indicate a larger total volume of floodwaters flowing past St. Louis. In recent years, the region as a whole experienced highly destructive floods in 1973 and 1986 and there have been many smaller floods in between. Thus, although the geographic and long period of last year's flood was unusual, the areas flooded had generally seen floods often before. For example, *Sharing the Challenge* identified 5,723 structures damaged in the flooded States an average of 3 times each simply in the fifteen year period of 1978 to 1993. (This figure represented only those structures compensated by flood insurance although only a small percentage of all structures hold flood insurance.) The supporting report by the Strategic Assessment Study Team (SAST) also made a random sample of eleven levees along the Lower Missouri River damaged in last year's flood. This sample found that the average levee had been damaged ten times in the roughly fifty year period since 1942, an average of once every five years not counting last year. Two levees had been damaged five times over the last twelve years.

In general, Federal money went to assist people who had already received Federal assistance many times before in repetitively flooded towns or portions of towns, repetitively breached levees, repetitively flooded agricultural fields. During disasters, Americans' compassion commands that we assist those in need. But the year after a disaster is the time our leaders can insure that unnecessary taxpayer expense and suffering do not continue to recur.

Environmental Damage

The third problem with Federal flood control policy is its contribution to the degradation of many of this country's aquatic systems. Although the problems of aquatic systems seem to be commonly understood by the concept of pollution, scientists today believe that changes in the physical structure and hydrology of aquatic systems cause the most significant degradation. These observations were well summarized by the Natural Resource Council of the National Academy of Sciences in 1992 in their report, *Restoration of Aquatic Ecosystems: Science 1 Technology and Public Policy*. As the report explained, when, how long and how high a river has high water is often critical, as is when, how long and how low a river has low water. It is generally critical that a river remain connected to its floodplain, so that fish can spawn, or take refuge from rushing deep water, and so that the right aquatic vegetation is created for migratory birds. It is generally critical that fresh water continue to mix with salt water in an estuary at the right times so that marine life can spawn. It can be critical that a river discharge its sediment through a marsh rather than into open water to continue to replenish the marsh. On a smaller scale, the timing and volume of stormwater that pulses out of drainage pipes and into local streams will determine whether they can continue to provide the habitat for aquatic life or be scoured into unnatural shapes.

The typical drainage project and the typical flood control project change the hydrology and physical structure of aquatic systems. A levee will cut a river off from its floodplain. A dam will cause a river to pool. Drainage may eliminate the wetlands that contribute the base flow of water to a river during the summer dry sea-

son. And all these changes may have cascading effects in estuaries that provide spawning for almost 80 percent of our commercial fisheries. These changes eliminate natural patterns of flow into estuaries. For this reason, any water resources project that contemplates alterations in the natural structure and hydrology of an aquatic system is likely to have significant environmental effects.

Corps projects have long included specific efforts to mitigate impacts on fish and wildlife. But environmental analysis has not focused on physical structure and hydrology. Instead, environmental consequences of projects are measured by their direct effects on the habitat of species of high public concern, such as waterfowl or sportfish. As a result, planners often determined that specific habitat mitigation projects, such as a specific system of waterfowl impoundments, could offset the environmental consequences of a project.

Yet, Corps projects have themselves demonstrated that aquatic systems are highly complex and that the impacts on alterations tend to go far beyond impacts on a few target species. Only last week, a distinguished international cast of river ecologists gathered in LaCrosse, Wisconsin in a conference on large floodplain rivers. Their summary document of the conference concluded: "Reaction to stresses [from alterations of hydrology and physical structure] is often expressed catastrophically through critical breakpoints that can only be determined retroactively."

Sharing the Challenge summarized the impacts on the Missouri River that have resulted from combined flood control and navigation projects.

"Parts of the Missouri River were well known as a braided river with swift muddy flows. The historic floodplain was a ribbon of islands, chutes, oxbow lakes, backwaters, marshes, grasslands, and forests. . . . Between 1879 and 1954, human actions and natural changes shortened the river by 45.6 miles, reduced river surface area by over 50,000 acres, reduced the number of islands from 24,419 acres to 419 and converted nearly 67,000 of river habitat from public to private ownership, most to agriculture.

Nearly one-third of the Missouri River has been impounded, another one-third channelized, and the hydrologic cycle, including temporal flow volume and sediment transport, has been altered on the remainder. . . . Prior to 1954. . . the river was in a state of equilibrium; net sediment entering a reach replaced an equal amount leaving allowing for ample habitat development and aquatic nutrition. . . . Changes in basin and floodplain physiography and channel morphology (i.e., shape) have reduced commercial fish harvest by more than 80 percent. . . . Thirty-four species of Missouri River Basin stream fish are listed by States as rare, threatened, endangered, or as species of special concern. The pallid sturgeon, piping plover, least tern, and bald eagle are all native Missouri River species listed as endangered by the U.S. Fish & Wildlife Service." (*Sharing the Challenge* at 53-54)

In two cases, Corps projects that led to unexpected declines of major ecosystems have recently resulted in major studies to plan ways to restore those systems by restoring the natural hydrology. One example is the coastal marshes of Louisiana. The Mississippi River naturally flowed into the Gulf of Mexico through extensive coastal marshes—nursery grounds for 20 percent of the United States fisheries. The River contributed sediment to the marshes and regularly switched directions. For navigational purposes, the Corps dredged a permanent channel so the River now directs sediment directly off the Continental shelf. Loss of sediment flow to the marshes has led to their erosion at more than 25 square miles per year.

Another example is the Florida Everglades. There the Army Corps constructed a network of 1,400 miles of canals, levees and large pumps. Believing that environmental needs turned largely on the annual average volume of water delivered to the Everglades, planners projected that the system could be operated to maintain, and even improve, environmental conditions. However, Everglades species turned out to require specific complex and still poorly understood seasonal and geographic patterns of water distribution. Alterations of these patterns of flow have meant a decline in wading bird populations by more than 90 percent, and a status of threatened or endangered by more than two dozen species. Scientists have recently pointed to changes in the pattern of freshwater flows through the Everglades into Florida Bay as the reasons for a recent collapse of the Bay: a collapse that occurred only within the last five years.

In each case, scientists have concluded that the systems are sufficiently complex that only by restoring some more natural patterns of water movement can the ecosystems be saved. The lesson is that water resource projects must attempt to preserve natural hydrology and physical structure whenever possible because humans do not know enough and cannot afford to replicate their functions one by one. Correlatively, where natural hydrology and physical structure are altered, mitigation must focus on restoring those qualities rather than on attempting to build and manage habitat for individual species of concern.

II. THE SOLUTIONS

Sharing the Challenge, . . . , the "Galloway Committee" report, makes several positive recommendations for a more sensible flood abatement policy to achieve multiple purposes of decreased flood damages, decreased Federal taxpayer costs, and greater environmental preservation and restoration. The report provides several guiding principles.

One, those who engage in flood-prone activities in floodplains should bear the risk. This recommendation is sound economically and sound equitably. Only by assuring that those who engage in hazardous activities in floodplains bear costs of the risk can we assure at a minimum that those activities that do occur have an economic justification.

Two, management of floodplains and watersheds must be integrated because the two problems cannot be viewed in isolation. By decreasing the quantities of stormwater directed rapidly downstream through sound agricultural practices, wetland preservation and restoration and other practices, there are opportunities to limit downstream flooding.

Three, access for rivers to their floodplains is a critical component of the health of a river. Without that access, rivers will decline and ultimately collapse.

Four, decisions for flood control policies, floodplain land use, and environmental policy should be integrated. There are opportunities to accomplish both flood abatement and environment enhancement collectively, and sound planning should assure that those opportunities are taken advantage of. Changes must be made in planning documents and institutional planning mechanisms to assure that these policies are coordinated.

Five, we must make efforts to assure that disaster relief does not itself encourage imprudent floodplain activities. Rules designed to assure that individuals purchase insurance, assume cost-sharing responsibilities and conform to sound engineering and land use codes must be tightened and not waived during disaster events.

Building on these principles, we wish to make several specific recommendations for implementing them through the Water Resources Development Act.

1. Authorize the Army Corps of Engineers to help municipalities manage stormwater for downstream flood abatement and habitat restoration.

Stormwater management provides an opportunity to address a variety of water resource needs simultaneously. Instead of draining water rapidly downstream, communities can engage in measures to store this runoff in constructed wetlands or detention basins, or in restored riparian zones and bends and turns of local creeks. Such measures would not only address local drainage problems, but would help communities address their stormwater water quality requirements under the Clean Water Act. They can also provide attractive local amenities. From the standpoint of the broader interests, such measures would help restore the natural habitat characteristics of rivers and streams and could abate flooding downstream.

Communities now do not have incentives to take advantage of these potential multiple objectives. The cheapest manner in which developing communities can avoid local flooding is often to direct stormwater rapidly downstream. That helps the local community but only at the expense of downstream communities. The Clean Water Act reduces the utility of this technique because it imposes water quality requirements that are more likely to be violated by rapid drainage. But the Clean Water Act does not require or provide incentives for communities also to restore habitat or to reduce downstream flooding.

The Corps can assist communities to assure that their drainage and water quality projects also address downstream flood protection and restoration of local habitat. Individual projects should be specifically authorized, but the Corps should be generally authorized to work with municipalities in multipurpose stormwater control projects and to fund 75 percent of the cost of those elements of a project that provide benefits for restoration of habitat and downstream flooding.

2. Establish rules to govern environmental restoration projects.

In Section 306 of the Water Resources Development Act of 1990 Congress provided that environmental enhancement would be a "primary mission" of the Army Corps civil works program. In 1992, after surveying the desperate condition of America's aquatic ecosystems, the National Research Council recommended a broad national commitment to restore those ecosystem. Despite the law and this recommendation, the Army Corps has pursued few environmental projects. Part of the reason has been interpretations of Section 306 that have required a linkage between environmental restoration and an existing Corps project. Perhaps more importantly, the lack of a clear set of rules to govern Corps planning of environmental projects has stymied implementation of Section 306. Unless a Corps mission has a clear set

of rules and implementing manuals, the mission is effectively invisible to Corps planners.

We recommend that Congress amend WRDA to enact specific rules to establish unequivocally that restoration of aquatic ecosystems is a mission of the Corps. We recommend the following principles:

- There should be no linkage requirement to existing Corps projects.
- Corps efforts at aquatic ecosystem restoration should attempt to build on other environmental restoration missions established by Congress. Examples include national estuary plans under the Clean Water Act, recovery plans for endangered species under the Endangered Species Act, and the National Waterfowl Management Plan. To assist in that coordination, the Corps should have generic authority and a budget to participate in reconnaissance studies for projects that mesh with those planning efforts, and projects should receive a favorable approval by the agencies responsible for those other projects before authorization.
- Local sponsors should be able to meet their sponsorship obligations through in-kind contributions. Restoration projects will include costs for land acquisition and costs for moving earth around as part of the effort to restore hydrology and appropriate habitat. But those projects will also include a large quantity of scientific analysis and labor intensive work such as planting of vegetation. Many State and local governments have skills to implement these measures through existing budgets or through special budgets for summer youth labor, for example. For conventional, structural projects, there is no particular reason to believe that local and State governments can provide services in a manner substantially different and more cheaply than the Federal government. But for environmental projects, there is good reason to believe in special benefits from in-kind contributions, and they should be permitted.

The cost share for environmental restoration should be 50 percent generally, but projects of critical Federal importance should be 75 percent Federal.

- Restoration should focus on making natural systems self-sustaining rather than on highly managed projects. Restoration should focus on efforts to restore a more natural hydrology and physical structure to aquatic ecosystems.
3. Amend Section 1135 of the 1986 Water Resources Development Act to make it more meaningful.

Section 1135 authorized \$25 million per year for the Army Corps of Engineers to modify existing projects to enhance the environment. Unfortunately, the Corps has barely utilized this authority, never spending more than a few million dollars per year. In part, the reason is an extraordinarily bureaucratic approval process that requires proposals to move up to headquarters and back to field level three times before a project can be approved. Another critical reason is that the Corps has interpreted Section 1135 as permitting modifications only to the exact structures, i.e., dams and levees, constructed by the Corps. Frequently, the intelligent effort to mitigate the impact of a project is to restore habitat or to make other modifications in other areas impacted by the project. The third critical inability of local sponsors to make cost-share contributions in-kind. We recommend that Congress modify Section 1135 to include projects designed to mitigate or enhance areas impacted by a Corps project. And for the reasons described above, such environmental projects would permit in-kind contributions toward local cost-sharing.

4. Revise the Principles and Guidelines and implementing technical manuals to create an analytic framework for environmental projects and to create a preference for water resource projects that simultaneously accomplish economic and environmental objectives.

The Principles and Guidelines for water resource projects do not contemplate environmental restoration programs. Although they do not prohibit such projects, they provide no guidance for evaluating them. For this reason alone, they need revision.

An additional reason is that the ideal water resources project is a project that simultaneously accomplishes both economic and environmental objectives. There are many such tools available to use natural ecological features to achieve flood control objectives along with environmental enhancement. The P&G's should reflect a preference for projects that accomplish the dual objectives. And along with this revision of the P&G's, implementing manuals should also be revised to assure implementation. Congress should require revision of the P&G's and implementing planning manuals.

5. Reform P.L. 84-99.

Under P.L. 84-99, the Army Corps has authority to repair any flood control structure damaged in a natural disaster. The Corps will repair these structures, such as levees and dams, even if the Federal government played no role in their construction: no Federal financing, of Federal cost-share analysis, no environmental review.

For a levee built to hold only a ten year flood, this program means that the Corps will repair the levee on average once every ten years.

Intended primarily to provide a fund for the Corps to help communities respond to a natural disaster, P.L. 84-99 has effectively become an entitlement program for flood control structures that is distinct from all other activities in floodplains. Those who construct houses in floodplains must purchase flood insurance; under legislation now moving through Congress, farmers in floodplains must purchase crop insurance. Yet, if any person chooses to construct a levee or other flood control structure, the Federal government will assume the cost of repairing it after floods.

The only requirement for participation in the 999 program is that a levee be maintained according to sound engineering practices. That is a good requirement, but it is not sufficient. P.L. 84-99 is unsound for the simple reason that free Federal flood insurance for houses would also be unsound: It imposes a tax on Federal taxpayers to pay for private interests that voluntarily assume risks; and it encourages risky activities in floodplains that would not take place if left to deal with market forces.

The Corps will engage in a primitive cost-benefit analysis before rebuilding a private levee. But this cost-benefit analysis simply compares the cost of rebuilding the levee with the value of the farmland behind it. It makes no effort to anticipate the cost of repairing levees over the long-term, or the high taxpayer costs of paying disaster relief on farmland flooded during levee failure. It also makes no effort to determine that the levee was cost-effective to build in the first place. Essentially, without any Congressional approval, it puts the Federal government in the position of silent partner with any private economic enterprise that chooses on its own to construct a levee.

The Missouri River provides a good example of the unsound and inefficient results from this program because Missouri River levees violate all the basic rules of floodplain management. A basic requirement of the Federal flood insurance is that no development constrict a river within its floodway, the floodway is an area that is typically twice the width of the river that is considered necessary for a river to convey flood flows downstream effectively during a flood. The levees along the Missouri River completely eliminate any floodway. More importantly, the levees constrict the river from itself: they are located in the middle of what was naturally the river.

The history of this novel result began when the Army Corps build rock dams into the river to encourage water to move rapidly and more deeply down a narrower channel for navigation purposes. The area between the dams filled with sand, became forest, and then was cleared for farmland. State law permitted farmers to gain property rights to this new property that formerly had belonged to the river and to the public. Farmers then built levees along the edge of this new farmland. That is the middle of where the river once flowed.

Not surprisingly, these levees fail repeatedly. The SAST demonstrated, moreover, that catastrophic levee failures occurred repeatedly where levees attempted to block what had once been natural side channels. The only reason these levees were built in these locations in the first place is that the Federal government has assumed almost all the cost of repairing the levees after they fail.

Obviously, many levees are sound economic investments warranted by the wealth of farmland protected. But levees, like any other investment, should warrant the test of the market. If they are truly efficient, private parties will build them.

A second problem with the P.L. 84-99 program is that it does not provide flexibility to implement non-structural responses to flood disasters. This committee helped launch a new, sounder era in flood policy last fall when it authorized hundreds of millions of dollars to help towns relocate out of the floodplain. That permitted people to avoid simply rebuilding in the same areas that had repeatedly flooded. The key to making such a policy work is flexibility in disaster funds. When the same funds that would be used to relocate people back in harm's way could be used to relocate them on safer ground, and when those people want to relocate it, it is obvious that those funds should be available to accomplish that purpose. Increased flexibility in disaster assistance is one of the core recommendations of the Galloway report.

We recommend that the private parties who benefit from the P.L. 84-99 program be required to assume the costs. We also recommend that the Corps receive the flexibility to work with other agencies in relocation efforts if relocation is the preference of the local community after a flood.

6. Build on the tools established in Section 1103 of the 1986 Act to establish a joint State/Federal and interagency team to coordinate flood control and ecosystem management in the Upper Mississippi Basin.

An important recommendation of *Sharing the Challenge*, . . . is that one entity be established to coordinate floodplain policy and ecosystem management in the Upper Mississippi basin. The reason is simple: What happens in one part of the

basin has great implications for what happens in other parts of the basin, yet no entity is even responsible for gathering and maintaining information. We agree with this general recommendation and believe that such a function should take advantage of the Federal and multistate effort already established by Section 1103 of the Water Resources Development Act of 1986. That section established an interagency Environmental Management Technical Center to gather information about the Upper Mississippi River. That center has developed sophisticated computer information systems and has become the repository of the sophisticated data base created by SAST regarding the Upper Mississippi Basin. The section also created a planning and coordinating process that includes the Secretary of the Army, the Secretary of Interior and the upper Mississippi basin States. We recommend that the Secretary of Agriculture be added. With this addition, this existing structure provides several advantages for developing a coordinated floodplain and ecosystem management plan for the basin.

- *Sharing the Challenge*, . . . properly recommends that States take the lead in floodplain management in coordination with the relevant Federal agencies. This structure permits that.

- The structure already exists; relationships have already been developed; substantial work has already been done; and States have confidence in the structure. Even if another entity could work successfully, the time spent in establishing it and building trust in it would be long and wasteful.

- This structure already possesses the necessary buildings and computer resources to do the job.

- The Federal budget already includes an annual appropriation of approximately \$20 million that would be adequate to handle the additional tasks. In today's tight budgetary times, it is unlikely that a duplicate structure could be adequately funded.

7. Authorize a Missouri River floodway to be acquired from willing sellers.

Last year's flood revealed the inherent problems with the location of many levees along the Missouri River. It also left behind an unfortunate residue: feet of sand on at least one hundred thousand acres of farmland behind levees that failed. From any disaster, however, we should attempt to derive opportunity. This residue of sand has created the opportunity to create much of the needed floodway necessary to limit future flood damages, and it would be located exactly in the locations where levees make the least sense. At the same time, the same floodway can begin to move the Missouri River back toward ecological health.

Missouri agencies have themselves identified millions of dollars that they can contribute toward the creation of such a floodway. To help restore the Missouri River, to assist impacted farmers, and to save on future flood damages, Congress should authorize establishment of a Missouri floodway from willing sellers.

ATCHISON COUNTY LEVEE DISTRICT NO 1
REPRESENTING THE MISSOURI RIVER BASIN
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WATSON, MISSOURI 64496

United States Senate
Committee of Environment and Public Works
Chairman: Senator Max Baucus

Subj: Sharing the Challenge: Floodplain Mainmentment
into the 21st Century

Senator Baucus,

As farmers, land owners, business men, and representatives of Atchison County Levee District No. 1 from the state of Missouri, we are here today to testify and comment on the 300 page report published by the Interagency Floodplain Management Review Committee, headed by General Galloway. We very much appreciate the opportunity to testify before your committee.

The 300 page draft prepared by the Interagency Floodplain Management Review Committee contains an enormous amount of information to be considered. One of the concerns that we have is the speed at which this "blueprint for change" is being forwarded with hopes of immediate approval, funding, and implementation. Granted the 1993 Flood has prompted a review of the floodplain management plans that are in place and rightfully so. We realize the great flood of 1993 was very costly to the taxpayer. However, one must not only challenge some of the recommendations of the committee, but also some of the statements used by the committee to propel their "blueprint".

The very first paragraph of the Abstract contains information that is not only inaccurate but is also misleading. In most areas of the Midwest, the flood of '93 was not just another of the many that have been seen before and will be seen again. Once or twice in 100 years can hardly be considered often by anyone. The abstract states in the opening paragraph that flood flows similar to those experienced by most of the Midwest will continue to occur. If in fact this was believed to be true, there would be mass exiting occurring by people from the floodplains, without government manipulation. However, it is apparent that the professionals on the committee base their motivation for such radical changes on these opening statements and beliefs contained in the Abstract.

We would like to see measures taken to improve our flood protection rather than see them reduced as mentioned in the report. In the great flood of 1881 which covered a large part of the river basin, there were no levees whatsoever. However, the water level was some 3 feet higher than the water level in 1993. The lowering of, or eliminating our levee systems is not the answer. The most cost effective approach we believe will be to improve upon the floodplain management that is already in place. We also believe that the environment in these areas of study have been and will continue to be improved by decisions and programs that have already been implemented.

In paragraph four, it is stated that flood control, navigation and agricultural activities severely reduced available floodplain habitat and compromised natural functions on which fish and wildlife rely. Can this be quantified? Severely means what?, and compared to what? It could also be said that the building of roads, interstate systems, railroads, towns, communities including the urban sprawl, and other infrastructures that are important to the economic well being of the people has severely reduced available floodplain habitat and compromised natural functions on which fish and wildlife rely. Reducing the amount of habitat by any amount is reduction, but by whose standards and by whose definitions do they become severe.

No one will argue the need to review and better ourselves in floodplain management, not only individually but collectively as a nation. This task is enormously important for everyone and how it is carried out has economic, social, and environmental impacts. The report falls short of giving us those impacts. To suddenly and quickly abandon the system that has been in place based upon the flood of '93 is ludicrous. We would expect the same safeguards from flooding as the earthquake areas. People are not removed from these areas but have learned to improve building structures to withstand a certain magnitude of power from earthquakes. In the same way, buildings on the coasts that experience hurricanes are able to better withstand the forces of wind and water. Buying up beach property and moving people out is not the solution. But regardless of protection, earthquakes and hurricanes will continue!

In paragraph seven of the abstract, it states that "by controlling runoff, managing ecosystems for all their benefits, planning the use of the land and identifying those areas at risk many hazards can be avoided." Much of this is already being done by private citizens and local governments and agencies. To thrust this to a national effort that goes beyond anything other than recognizing the need for improvement will just add to our "more government" is better mentality.

Perhaps the biggest factor in contributing to the magnitude of the '93 floods has not even been mentioned. The population that lives along the rivers have experienced a 30 year invasion that has effected not only themselves but now the nation. That invasion has been the tremendous amount of soil erosion that has taken place in the upland areas of our country. During the past thirty years, production agriculture has been in high gear. Tillage practices removed grasslands and other protective cover from the soil surface in the uplands. Heavy rains then in turn take this soil into the drainage systems, and eventually into the lakes, rivers, and streams, reducing their capacity to carry runoff. Again, this has not occurred overnight or even in a few years, but over 30 years. The good news is that this erosion has been addressed and continues to be addressed. Farmers, along with the Soil Conservation Service, have been very aggressive over the last 10 years in reducing this erosion. Terracing, less tillage, and no-till farming practices have reduced the amount of erosion substantially. The bad news is that this reduction did not occur until a large percentage of our drainage systems that include the Mississippi, Missouri, and Illinois rivers have been silted in by this upland runoff and erosion. Now that this trend is stopped, and given the present flood control structures that are now in place that have worked extremely well, a more cost effective approach could be to clean the drain. The silt removed from this approach could fortify and strengthen the existing structures and increase the flow capacity of the rivers, and thereby decrease the frequency and severity of the floods. This would greatly increase the ability to control runoff, one of the goals the committee mentions in their approach.

We also strongly believe that the environmental issues that need to be addressed, including the management of ecosystems for all their benefits, can be dealt with under the current methods of floodplain management. There are many workable and more cost effective methods to accomplish these long term environmental concerns than what is presented by the committee. A visit to the vast majority of the areas of study will reveal a more natural habitat in the existing environment than many would lead you to believe.

The final paragraph states "the nation knows where to go with floodplain management and how to get there". It goes on to say that "this report provides a map showing the shortest route to success. It now must take the actions required to do so." It is ironic that only after a few short months of floodplain management review, a select group of professionals can boldly say that the "nation knows where to go", and "how to get there".

I am asking for a very serious and perhaps exhausting review and study of the proposed changes that this committee is recommending. To allow this fast track approach without it being contested or reviewed by those "outside" the government is nothing short of a form of government that just collapsed in the Soviet Union. Many of the issues brought up by the committee are worth considering and solving. Let's don't go backwards and try to undo what has been done, but let's go forward and solve collectively the challenges we face. I believe that our representative form of government still works! I also believe that most if not all of the issues and problems that General Galloway and his committee have professionally communicated and researched can and will be resolved, but we need to look at all the alternatives.

In the future we would like to have the opportunity to have input or serve on committees that so drastically effect our livelihood. At local levels, if the committee's recommendations were to be followed, our school systems would be adversely effected by the lowering of property values, tax revenues would decrease as a result of the loss of farmland. Every acre of corn and soybeans produced in the state of Missouri generate \$73.00 in taxes. Our country has a competitive edge in food production in a global economy. The production in these floodplain areas contribute significantly to this advantage.

In closing, again we appreciate the opportunity to ask and encourage you to weigh our concerns about this report. We sincerely invite you and your committee to visit our area and the areas that are affected by floodplain management. The magnitude of the review committee's proposals deserves a closer look. We believe the private sector's views are only beginning to surface and have not been equitably sought.

Respectfully submitted,

Atchison County Levee District No. 1

Richard S. Trout, President

R.R. #4 • Warsaw, IL 62379
Pheasant • Chukar • Quail



John Caldwell

(217) 647-3355

June 25, 1994

To The Upper Mississippi Flood Control Group:

We are the owner's of a hunting preserve business located in the Hunt Drainage District, SW of Warsaw, IL. We had just completed our 5th year in business before the flood of '93.

For those of you who do not know what a hunting preserve is, it is a recreational business. The preserve is located on more than 700 acres with a lodge that overlooks the Mississippi River, where people from more than a dozen states have come to relax and to hunt wildlife that has been managed on this preserve. The business had doubled every year for the first 4 years and tripled the 5th year. The 6th year which was 1993 was zero. Not only was this a terrific financial loss to us, it had to hurt the business community in the local area as well, because our clients were not here to spend money at gas stations, convenience stores, motels, and sporting good stores.

The Great Flood of '93 caused a loss of managed wildlife habitat. Also, a considerable loss of wildlife was experienced. Pheasant, chukar, quail, deer, and wild turkey were lost because of the flood. It is going to take many years to restore habitat and get the wildlife to return to this area with a managed restocking program.

We are totally convinced tht if we had had 500 year levees on the Upper Mississippi River like they have on the Lower Mississippi River we would not have experienced the tremendous financial hardship that this flood caused.

Hoping you will take these comments into consideration.

Respectfully,
THE BREAK HUNTING PRESERVE

John Caldwell
Daphnia S. Caldwell

Hillview Drainage and Levee District

Box 72

Winchester, IL 62694

Commissioners:
Ron York, Sr.
Alan Hallock
Clair Wilson

Bookkeeper:
Christine Montgomery

District Manager:
Darrell Clanton

TESTIMONY

Subcommittee on Environment and Public Works

July 19, 1994

Mr. Chairman and members of the committee, my name is Clair Wilson. I represent the districts on the Illinois River. I am a commissioner on the Hillview Drainage and Levee, the largest district on the Illinois River.

On August 1, 1993, at three-thirty in the morning our levee was overtopped by the backwater from the Missouri River. Our farm was the last flooded on the Illinois River.

My great-grandfather bought the land on which we now live. My grandfather added to it, my father added to it, and my brother and I have added to the base farm.

In 1980, my brother and I started buying the farm the second time. This time from the IRS in the form of inheritance tax. The government took our tax money with open arms. We still have a little to pay, and now we find ourselves faced with a dim future of high crop insurance, inadequate levees, and, if flooding happens now, the possibility of the government having the authority of taking my inheritance.

The insurance rates are at the same level as if we had no levees at all. This was the first time the river levee failed since its conception in 1906. One would think it is prearranged to drive us off our land instead of a national mandatory crop insurance program that was affordable and would work. To me, this is like tearing off the East Wing of the White House because a cherry tree has grown too large and has grown too close to the White House for its own good. We were placed on this earth to have dominion, not to be dominated over by our environment.

Since the flood, I have talked to the older people of our district and asked why our ancestors came to the river bottom to settle. The reason was water and the availability of it. In our case, we have made an investment to irrigate our total farm with an endless amount of pumpable water. Now, this

very water is being used to question our intelligence of what is politically correct for us.

Our navigation levees on the Illinois River have worked for eighty years. They have protected us and our crops but now need to be improved. Our river is so flat thanks to Lock and Dam 26 being raised twice in sixty years and nothing being done to compensate for the increased sedimentation and the now rapid upland water runoff. It is not fair for the people living in the river bottom to carry the whole burden for all of agriculture and industry that depend on the river. Our river must be dredged and the dirt put on the levees to strengthen them.

Our districts already had a well-balanced ecosystem before the Flood of 1993. Because of the flood, all animals and vegetation and even our nut-bearing trees were killed. Before the flood, we had established wetland areas. If we are to be good stewards of this again, we must have adequate levees to do so.

As farmers, we have been ignored completely by the government and agencies from appointments to any of the committees that are deciding our future. I would like to say there is enough room for all interest groups without making a hardship on one segment of the population because of one special interest group's ideas who are completely removed from the area itself.

Please consider what the Mississippi Flood Control Association is proposing, it is for the well-being of our nation.

Submitted by.
Bill Wilson

TESTIMONY
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
July 12, 1994

Mr. Chairman and members of the committee, my name is Bill Lay. I am secretary of the Levee District No. 6 of Howard County a levee which was privately constructed but was enrolled in the Corps of Engineers program. The district lies on the north side of the Missouri River between Glasgow and Boonville, Missouri. We appreciate the time allowed for our testimony regarding the report on flood plan management prepared by General Galloway and the Interagency Flood Plain Management Review Committee.

THE 1993 FLOOD WAS WITHOUT PRECEDENT IN MODERN TIMES.

The flood of 1993 in the Midwest was a hydrometeorological event without precedent in modern times. In terms of precipitation amounts, record river levels, flood duration, area of flooding, and economic losses, it surpassed all-previous floods in the United States. "At 45 U. S. Geological Survey (USGS) streamflow gaging stations, the peak discharge rate (flowrate) exceeded that of the 1-percent annual-chance (100-year) flood value."¹

Flood-peak discharges that exceeded the 10-year recurrence interval were recorded at 154 streamflow-gaging stations in the upper Mississippi River Basin. At 42 streamflow-gaging stations, the peak discharge was greater than the previous maximum known discharge. At 14 additional gaging stations, peak discharges exceeded the previous maximum regulated peak discharge. At 46 gaging stations including all Missouri River gaging stations including and below the Rulo, Nebraska gage, peak discharges exceeded 100-year recurrent intervals.²

In view of the above it is difficult to reach the conclusion that Floods equal to and greater than the flood of 1993 will continue to occur³ and that "*Flood flows similar to those*

¹ Sharing the Challenge (Draft), page 11, note 6 Charles Parrett, Nick B. Meicher, and Robert W. James, Jr., U.S. Geological Survey Circular 1120-A, Flood Discharges in The Upper Mississippi River Basin, 1993, Second printing (with revisions), September 24, 1993.

² U.S. Geological Survey Circular 1120-A, Flood Discharges in the Upper Mississippi River Basin 1993, page 1.

³ Sharing the Challenge (Draft), Conclusion, page 74.

*experienced by most of the Midwest will continue to occur.*⁴ This view appears to be unsupported by the facts.

Near the end of Chapter 3 of the Task Force's report it was stated "... the volume of runoff and flood peaks will increase in the future because of urbanization. ... The streets, parking lots, gutters, drains, and storm sewers accompanying urbanization convey rainfall rapidly to stream channels. Natural channels are often straightened, deepened or lined, transmitting flood waves downstream more quickly. Storm waters can therefore accumulate downstream more quickly than in the natural river systems and produce higher, sharper flood peaks. Unless steps are taken to mitigate the impacts of urbanization, flood volumes and peaks will continue to rise."⁵

If this be true, then why are the heavy burdens being placed upon those farming the bottoms? Why would not measures be adopted to prevent the waters from accumulating downstream more rapidly and reducing the flood peaks? Is it because they do not wish to disturb the urban dweller and simply transfer the cost of their lack of concern and care upon the bottom farmers?

The U.S. Interagency Advisory Committee on Water Data, 1983 explains the concept of 100-year discharges as follows:

"For comparative purposes, flood-peak discharges are referenced to a specific recurrent interval for probability of occurrence. The recurrence interval is the average number of years between occurrences of annual peak discharges that equal or exceed a specified discharge. For example, a discharge that has a 100-year recurrence interval is so large that an equal or greater annual peak discharge is expected, on average, only once in any 100-year period. Because the random nature of flood events, the times between annual peak discharges of a certain magnitude are far from uniform; a large flood in one year does not preclude the occurrence of an even larger flood the next year. In any given year, the annual peak discharge has 1 chance in 100 of equaling or exceeding the 100-year flood ⁶

⁴ Sharing the Challenge (Draft) , Abstract, page 1.

⁵ Sharing the Challenge (Draft) , page 74.

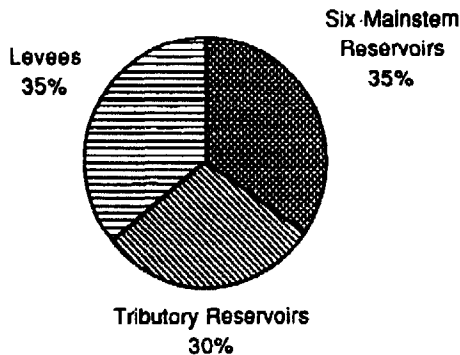
⁶ U.S. Geological Survey Circular 1120-A, Flood Discharges in the Upper Mississippi River Basin 1993, page 2.

The Task Force points out that "What happened in the Midwest in 1993 could happen again in the near future!"⁷ However, it would be just as probable that it might never happen again.

STRUCTURAL BENEFITS WORK

The Task Force report shows that damages prevented by the water control management of flood storage reservoirs amounted to \$11.5 billion in the Missouri River Basin during the 1993 flood; \$4.0 billion by the storage of flood water in the six mainstem reservoirs, \$3.4 billion by dams and reservoirs on the tributaries and \$4.1 billion in damages because of the levee projects.⁸

Prevented damages on Missouri River of \$11.5 billion



THE PICK-SLOAN PLAN

The Task Force report points out that the Pick-Sloan plan was not fully implemented as to the width of the floodplain,⁹ however, fails to point out that only 38 of the 110 reservoirs called for by the Pick-Sloan were constructed.

⁷ Sharing the Challenge (Draft), page 71.

⁸ Sharing the Challenge (Draft), page 27.

⁹ Sharing the Challenge (Draft), page 62.

PICK SLOAN RESERVOIR PROJECTS	Completed	Abandoned	Total
Upper Missouri	4	15	19
Yellowstone	4	23	27
Minor Western	5	10	15
Niobrara, Platte & Kansas River	17	10	27
Missouri River	6	0	6
Lower Missouri	2	5	7
Total	38	63	101

Despite this the report finds that "Although flood damage reduction reservoirs and levees reduce the risk of flooding, they do not eliminate it."¹⁰ This should not come as any shock since the 1993 flood was a much larger flood than had been planned for by Col. Pick and that his plan was far from being fully implemented.

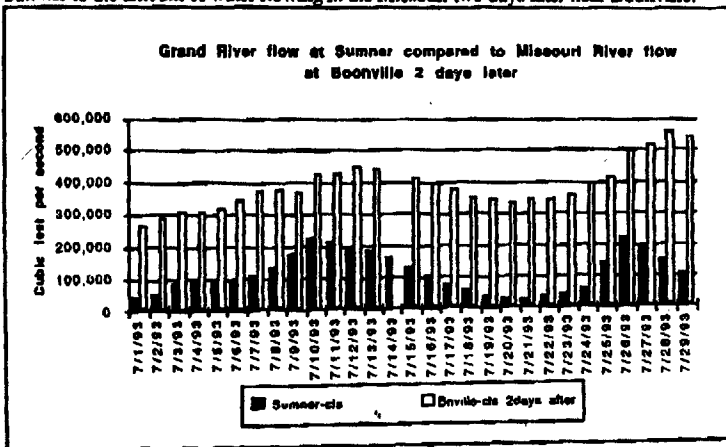
For example in the Grand River basin the Chillicothe Dam and Reservoir project, ... was authorized by the Flood Control Act of 1938 as part of a flood-control plan for the Ohio and lower Mississippi Rivers. The Chillicothe damsite is on the Grand River near Fountain Grove, Missouri, about 455 miles above the mouth of the river. The authorized reservoir would have a capacity of 2,400,000 acre-feet, and would control the runoff from an area of 6,250 square miles, 80 percent of the Grand River basin area. Some 62,000 acres of flood plain land in the Grand River basin below the damsite would receive flood protection from the reservoir operation. The primary objective at the time of preauthorization planning was flood control, and no conservation storage was contemplated."

A report by the U. S. Army Engineers Kansas City office in June of 1963 which recommended that seven (7) smaller dams be substituted for the Chillicothe dam but those were never built. These dams had 4,334,600 acre feet of storage and of which 3,428,500 acre feet were devoted to flood control. These dams were as follows:

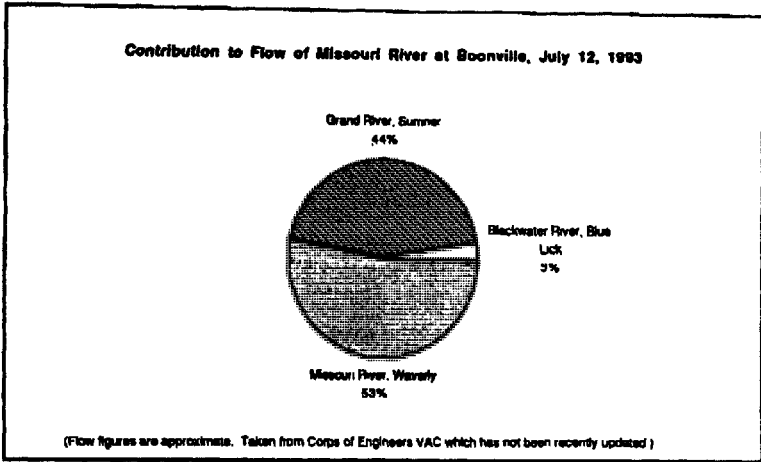
¹⁰ Sharing the Challenge (Draft) , page 52.

	Total Storage	Flood Control
Pattonsburg, Grand River	1,847,000 acre feet	1,430,000 acre feet
Trenton, Thompson River	898,700 acre feet	748,100 acre feet
Mercer, Weldon River	368,400 acre feet	326,000 acre feet
Linneus, Locust creek	445,200 acre feet	407,700 acre feet
Brookfield, West Yellow Creek	137,200 acre feet	117,200 acre feet
Braymer, Shoal Creek	414,300 acre feet	299,500 acre feet
St. Catherine, East Yellow Creek	123,800 acre feet	100,009 acre feet
Total Storage capacity	4,334,600 acre feet	3,428,500 acre feet

Not one of the flood control reservoirs planned for the Grand River was ever constructed. As a result of the failure to implement the plan the flow from the Grand River made a devastating contribution to the 1993 flood on the Missouri River. Water in the Grand River takes two days to flow from Sumner, enter the Missouri River and flow to Boonville. The following chart compares the amount of water flowing in the Grand near Sumner to the amount of water flowing in the Missouri two days later near Boonville.



The following shows the effect from the Grand discharge of 194,700 cfs on the Missouri River at Boonville flow on July 12th 1993.



Apparently, many flood control benefits have been derived from the part of the Pick-Sloan plan which was implemented. Had the plan been fully implemented much of the devastating crest during the summer of 1993 could have been avoided.

The Task Force Report might wish to address what the results of fully implementing the Pick-Sloan plan might be, or what modifications might be made to the Pick-Sloan plan to provide more protection for the flood plain. The 1993 flood clearly showed the value of the flood control structures.

MINIMAL VALUE OF NON-STRUCTURAL APPROACHES

The Task Force reports that 66% of the acreage affected by the 1993 flood is in agricultural production¹¹ and that restored wetlands have only a minimal effect on the flood of 1993.¹² If agriculture were completely driven out of the flood plain by the proposed exorbitant levee restrictions and red tape and by huge crop insurance premiums, everyone would seem to agree that the flood levels would not be significantly reduced.

VICTIMS OF OTHER NATURAL DISASTERS HAVE NOT BEEN SADDLED WITH BURDENS

The 1993 flood was not the largest disaster this nation has ever endured. Both Hurricane Hugo and the December 1992 coastal storm that struck New York, New Jersey,

¹¹ Sharing the Challenge (Draft), page 46 note 2; Soil Conservation Service. Regional Analysis of 11 Major Land Resource Areas, Agriculture Handbook 296. (No Date)

¹² Sharing the Challenge (Draft), page 58 conclusion.

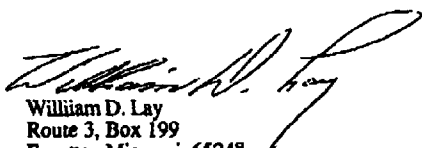
Massachusetts, Delaware and Connecticut were more costly in terms of the National Flood Insurance Program.¹³ Although not a flood insurance problem, no doubt the California earthquake was also most costly.

Why are not those who live in the coastal storm zones, the Hurricane zones and the earthquake zones saddled with restrictions similar to those proposed to be imposed upon the bottom farmers? Were not those disasters costly to the government in the form of relief? Is it because such a suggestions would be considered absurd and highly unfair? Why then should they be proposed to apply to us? If the relief expenses are so high, would it be a good idea for the government to get out of the relief business? Could not the administration expense of the relief be sharply reduced to keep the costs in line? Would not this be a proper subject for further investigation?

THE COSTLY ENVIRONMENTAL EXPERIMENT.

There is a lack of an accurate characterization of the biological effects of environmental changes. Because of their non-market nature, environmental quality, ecosystem health, the existence of endangered species, and other social effects are not easily qualified in monetary values.¹⁴ Why then should extensive benefits be assumed for the nebulous environmental benefits when the flood control and navigation benefits that have been substantiated over the years are ignored. If the flood control and the navigation benefits are to be examined so strictly then the environmental benefits should be examined with the same care.

Respectfully Submitted.



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Fayette, Missouri 65248
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¹³ Sharing the Challenge (Draft) , page 33

¹⁴ Sharing the Challenge (Draft) , page 107, note 28, The Economics Advisory Group pointed out that there exist methods for quantifying and monetizing environmental benefits and costs but these methods frequently cannot be used because of the lack of an accurate characterization of the biological effects of environmental changes.

STATEMENT OF DAVID McMURRAY, UPPER MISSISSIPPI FLOOD CONTROL ASSOCIATION

We wish to express our appreciation to the Committee for the opportunity to express some of our thoughts and concerns regarding the extremely vital issue of flood control in the Upper Mississippi River Basin and the numerous other issues raised by this report.

I am David McMurray, a member of the Board of the Upper Mississippi Flood Control Association, and a manager of a third generation farming enterprise located in the Hunt Drainage District, Hancock County, Illinois.

In this limited time we cannot comment on every finding of fact or every proposed action or vision embodied in this report. We must add that we are more than willing to participate in further discussions on these matters. The issues raised by this report dramatically affect the very heart of every American's legal, economic and cultural way of life.

The report raises a very basic conflict between the concept of stability and growth through flood control, and the concept of severely limiting growth and habitation through flood proofing, mitigation and evacuation. While addressing in particular The Flood of 1993, the issue is being used by special interest groups to attack and limit very basic rights relating to private property and economic freedom. The direct result of the proposals embodied in the report is to effect public control or condemnation of the effective use of millions of acres of private land, without compensation. This could be the greatest taking of private property without military invasion in our modern history.

We appreciate the collection of the data by the Review Committee and agree with many of the facts presented. Clearly excessive, if not historic, rainfall caused major damages to upland agriculture and some communities. The resulting runoff from these conditions created, throughout the Upper Mississippi River Basin, flood events with which we are all familiar.

The findings of fiscal damage estimates of \$12 to \$16 billion is indeed massive. In reviewing these numbers it is important to note that approximately 50 percent (\$6 to \$8 billion) was related to agriculture. 70 percent of this amount, (\$4.2 to \$5.6 billion) was identified as agricultural damages occurring in upland areas. The balance or \$1.8 to \$2.4 billion occurred in areas defined as "floodplain". The report indicates that over 100,000 homes filed for assistance under various programs and that over 20 percent of the registrations for individual disaster assistance in the entire 9 State region were in Cook County, IL. The report finds that approximately \$20 billion in damage was avoided by the benefit of the reservoirs and levees built by the United States Army Corps of Engineers. This benefit from a patchwork system clearly suggests that structural solutions do work.

As an added fact, most structural control assets provide a controlled runoff of excess rainfall into the rivers and provide reduced sedimentation of the natural river beds through retention of most solids within the confines of the respective structures, including levee districts.

The Review Committee further found that a major problem exists under the present system of laws and agency jurisdictional disputes. Flood prevention, flood fighting and damage recovery delivery systems in the Upper Mississippi River Basin are not workable. In essence there is no unified system of flood control, there is less than effective communication and coordination between government agencies seeking influence over the issues and affected areas, there is less than reasonable flexibility in day to day operations, and there is disagreement over where to go from here. We agree with this finding. These issues was raised repeatedly before the 1993 flood and are still a major problem. Conflict exists between Federal agencies, between State agencies, between State and Federal agencies. It is nearly unbearable.

We do disagree with some primary statements of fact. We do not feel it is appropriate to state that:

Flooding during the 1993 event would have covered much of the floodplains of the mainstem lower Missouri and upper Mississippi rivers whether or not levees were there. Levees can cause problems in some critical reaches by backing water up on other levees or lowlands. Locks and dams and other navigation related structures did not raise flood heights.

Most levees that broke were initially topped rather than breached. A significant number of levees did not fail or were not topped. Had a levee system been developed as is in place in the Lower Mississippi Valley, the floodplain damages would have been significantly less, perhaps non-existent. While certainly expressing total support for a viable navigation system, we must

note that nearly any structure in the river, including dams bridges, etc, will affect, to some extent, flood heights above or adjacent to that structure.

It is also important to maintain a perspective on cited facts such as:

Flood damage reduction and navigation works, and land use practices have altered adversely bottomland habitat.

While it cannot be questioned that virtually any human habitation alters a habitat, it does not mean that such alteration to a functioning habitat is an "adverse" or harmful change.

Our Association believes that the facts cited in the Review Committee report do not support such dramatic and untested policies for flood control, or for economic and social controls. We believe the facts, as presented, do not support the general tenor of the report that evacuation is more functional than flood control. In short, the facts do not support the proposed action plan described by the Review Committee.

Yes, there is a problem. The watershed development pattern has and will continue to permit more and faster runoff of rainfall.

We have the problem of a levee system that is not a system. This patchwork condition, as now only partially supported and maintained by the government, is not an acceptable approach to handling the potentially increasing amount and speed of runoff waters.

Flooding is a national problem and therefore is a Federal responsibility requiring Federal solutions. The Review Committee suggests that ultimate evacuation, physically or practically, is

the answer. Should all floodplains be abandoned? Perhaps the best answer is one with questions:

Should all areas affected by hurricanes be vacated?

Should all areas affected by earthquakes be vacated?

Should all irrigation and water control systems be abandoned? Should all interstates that fall into disrepair be abandoned? Should all affected by the savings and loan or bank disasters be abandoned?

Should all neighborhoods be abandoned if crime is high? The list could go on.

The second question: Should we place a band-aid on the problem or should we repair and rebuild based upon our best knowledge of methods to solve the problem.

Unlike many national issues there is a tested and effective solution to this problem. What happened to The Flood of 1993 when its waters reached Cairo, Illinois? It ceased to be a problem.

The Mississippi River and Tributary Act (MR&T), as administered by the Mississippi River Commission (MRC) and Congress, has been functioning successfully for nearly 70 years. The system has provided effective flood control, has permitted and promoted economic development, and has provided a balanced ecosystem. Why try to reinvent the wheel when a proven and effective solution is readily available. We propose that the jurisdiction of the MRC be extended to the Upper Mississippi River Basin and that the applicable MR&T legislation be likewise extended to provide the system Standard Project Flood protection. We do not believe that the composition of the MRC should be changed. The rights of the inhabitants will not be served by a myriad of new governmental agencies and the resultant delays and inefficiencies. Flood control and not government controls should be the issue.

The present system of levees, wing dams, dams and reservoirs, and channel maintenance, if properly modernized and maintained as required by watershed area development, can effectively minimize damage from excess runoff. Such a system does provide stable habitat, does permit economic growth and does permit varied recreational facilities. Proper maintenance of the pool system behind the navigation dams is essential. These areas are filling with sediment and will ultimately ruin both fishing and recreational activities and reduce flood protection.

Area economic vitality and local government funding is clearly at stake in this discussion. The Review Committee, in suggesting a policy revision to Executive Order 11988 that would prevent economic growth, states:

In order to avoid, to the greatest extent possible, the adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative, . . .

The same appendix G of the Review Committee report states that:

The agency should consider all alternatives to avoid development in the floodplain for any activity the agency has determined to, or proposes to, conduct, support, or *allow* (emphasis added) in the floodplain.

The policies and attitudes quoted above do not suggest a blue print for any form of economic, social or political forward motion. Tax revenues will be eliminated or shifted to other people. Local schools, businesses and communities will be impacted at a time when you are seeking ways for rural revitalization in America. We would jeopardize public health, the nations long term food, fibre and fuel supply. We would curtail navigation and relegate the MidAmerica economic infrastructure to the old family album should the recommendations be adopted.

The Report states that all persons in the floodplain shall turn over all authority over levees to the Government. It further provides that people may not seek to reinforce or protect a levee during high water threat without government permission. Can you imagine a government that tells you that you cannot fight the fire burning down your home or business without their permission? While demanding this authority there is no undertaking of responsibility on the part of the government for flood protection. Generally with—granting of authority there is commensurate acceptance of responsibility.

The Report suggests that all is well for the private property owner, or operator, as well as the government, if everyone behind a less than Standard Project Flood levee has crop insurance and flood insurance, and, if behind less than a 100 year levee, also complies with the National Flood Plain Insurance Program. The report also states that all insurance premiums will be based on actuarial rates. It is not difficult to see that many areas will become an economic wasteland based upon present reasonable use potential. The government decides whether you have a standard project levee, or a 50 year levee. The rates are then set higher for nearly all rural areas, based upon the Review Committee -suggestions that rural areas would not generally receive a Standard Project Flood levee. Based upon current numbers, crop insurance premiums for 75 percent coverage of a regular risk, including hail, in our county is \$10.00 per acre of corn. If the area is high risk, the premium is \$32.50. That premium insures only 75 percent of the government rated productive yield for that property. For soybeans the regular rate for 75 percent coverage is approximately \$12.00 versus a high risk of nearly \$60.00 per acre. This rate could be significantly higher in the future, based upon actuarial rates, if the area had levees less than comparable with other areas. The increase in multi-peril crop insurance premium, between regular and high risk, is, on average, an annual increase in cost that is more than 50 per cent of the average rate of return on farm production. This discussion does not even consider the major premium increases associated with actuarial based flood plain insurance coverage. It is suggested by the local counties, as surrogate for FEMA, that such rates could approximate 25 percent of the value of the property. Can you afford a \$50,000.00 annual insurance premium on a \$200,000.00 home? Few can.

In essence the government may force people out of their home or off their farm by, at best, arbitrary levee selection and resulting confiscatory insurance rates under the proposals in question. This would reduce land values, and generally result in an ultimate "taking" of private land for quasi-public purposes.

The general thesis of the report suggests that rural areas of the nation deserve less flood protection than urban areas, that rural areas are a greater threat to habitat and "fragile ecosystems" than are urban areas; that rural areas are more able to afford individual flood insurance and requirements of NFIP than are urban areas. Such assumptions are not valid.

Thank you for your attention to this very critical matter. We urge you to reconsider the whole issue and authorize the necessary studies to implement a proper flood control system.

These issues affect the very soul of America and every American's legal, economic and social rights.

Idealism increases in direct proportion to one's distance from the problem.

—JOHN GALSWORTHY

