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RISING WATER LEVEL OF THE DEVILS LAKE BASIN IN NORTH DAKOTA

HEARING

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

UNITED STATES SENATE

ONE HUNDRED TENTH CONGRESS

SECOND SESSION

SPECIAL HEARING

MARCH 25, 2008—DEVILS LAKE, ND

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RISING WATER LEVEL OF THE DEVILS LAKE BASIN IN NORTH DAKOTA

TUESDAY, MARCH 25, 2008

U.S. SENATE,
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT,
COMMITTEE ON APPROPRIATIONS,
Devils Lake, ND.

The subcommittee met at 10:30 a.m., in the Memorial Building Auditorium, 520 4th Avenue, NE in Devils Lake, ND, Hon. Byron L. Dorgan (chairman) presiding.

Present: Senator Dorgan.

Also present: Representative Pomeroy.

OPENING STATEMENT OF SENATOR BYRON L. DORGAN

Senator DORGAN. Good morning. The hearing will come to order, this morning.

I'm Senator Byron Dorgan, and I'm chairman of the Subcommittee on Energy and Water of the U.S. Senate Appropriations Committee. This is a formal hearing of that subcommittee, convened here in Devils Lake, North Dakota.

I am joined by my colleague Congressman Pomeroy, who is in the State this week, as well, as the House and the U.S. Senate are not in session this week. When I learned that he was going to be in this region, I wanted him to participate, as a courtesy, as a part of our Senate subcommittee.

You should read nothing into this. Congressman Pomeroy is still a Member of the U.S. House. But, he is a tireless advocate, along with Senator Conrad, on these water issues, and I'm pleased to have him with us today.

This hearing will take testimony on the continued flooding challenges and issues here in the Devils Lake Basin. It will consist of two panels.

The first panel will consist of Brigadier General Michael Walsh, Commander of the Mississippi Valley Division of the Army Corps of Engineers; Myra Pearson, chairwoman of the Spirit Lake Nation; Ron Hartl, Assistant Division Administrator of the Federal Highway Administration; and Aldo "Skip" Vecchia, the Statistician of the U.S. Geological Survey.

The second panel will consist of Dale Frink, the State engineer of the North Dakota State Water Commission; Mr. Lonnie Hoffer, who is substituting for Greg Wilz, from the North Dakota Department of Emergency Services; Mr. Joe Belford, commissioner of Ramsey County; and Fred Bott, the mayor of Devils Lake.

I convened this hearing because I think it's important for us to start thinking about what needs to be done to protect people's homes, the infrastructure, the community, the region—and our State, for that matter—if the water levels of Devils Lake continue to rise. We need a strategy in place to deal with these fluctuating water levels. This hearing will gather information that is critical to making sure the right plan is in place and making sure that the revenue needs that are necessary through appropriations, and that I can accomplish in my role as chairman of this appropriations subcommittee, can be made.

DEVILS LAKE

Devils Lake is currently at 1,447 feet. In the past, Devils Lake could drain into Stump Lake, helping stave off flooding; but, now Stump Lake has equalized with Devils Lake. Stump Lake has risen 15 feet in the last 2 years, and Stump Lake is now full. Devils Lake has been at 1,447 to 1,449 in the last couple of years; but, even at—maintaining at that level, the water has moved into Stump Lake, filling Stump Lake. So, there is nowhere, at this point, for water to continue to move.

We are all thankful for the work that the Army Corps of Engineers has taken to protect this community and this region. We have secured about $45 million to construct six pump stations, and 7.7 miles of levee, up to an elevation of 1,460. Additionally, $5 million was provided in last year's emergency supplemental appropriations for the Corps to begin the planning process for the next steps, and they'll begin holding some meetings in the region very soon.

It's estimated that it takes up to 5 years to identify alternatives, determine alignments, complete environmental reviews, acquire real estate, design, and construct, all of those issues. It's very important for us to be well in front of this.

Let me say that Skip, from the U.S. Geological Survey, is going to testify today. I read Skip's testimony, and the U.S. Geological Survey is the agency we rely on to evaluate what might happen in the future. They're saying there's a 7-percent chance that the wet cycle that we are currently in will continue for another 10 years; that's nearly a 40 percent chance it could continue for the next 30 years. If these wet cycles continue—if we're in a continued wet cycle for a decade or 3 decades and water continues to move from this basin down to the Devils Lake region, down to the Devils Lake itself, and there's no place to move over to Stump Lake, what becomes of that water? How high does it go? What's necessary to protect this city and this region? What if the water goes over 1,458 or 1,459 and spills naturally over into the divide? It would meander through 600 miles of river throughout North Dakota and past 40 percent of North Dakota's population. Dissolved-solids and bad-quality water would be provided to 40 percent of North Dakota's population. You see the problem here.

This is a closed basin. I believe there are only two: the Great Salt Lake and Devils Lake. And here, we have chronic flooding, with no inlet and no functional outlet. Mr. Frink will probably mention that we have a State outlet, but it has not been able to be used.

DEVILS LAKE FLOODING

In any event, we have all of these issues that now need to be addressed even more aggressively. Because the water level has been largely fairly stable, between 1,447 and 1,449, I think that there's been some notion of, "Well, things are okay." The reason the water level has been stable is because that water has moved over to fill Stump Lake. Without Stump Lake, Devils Lake would be higher. And without Stump Lake in the future—and it doesn't exist in the future, because it's full—the question is, what happens here? What if this wet cycle continues for one or two or three decades?

The issues are serious. The issues are compelling. It requires us to be well ahead of the curve, and to be planning and thinking and trying to evaluate what we do about all this. What do we do? Much of it will require money and resources. This subcommittee has an allocation, generally, of about $31 billion. When we mark up the subcommittee mark, trying to determine how we spend money, the question is, what's going to be required in this region in order to protect people and property, and in order to respond to this issue of chronic lake flooding?

That's the reason we are here today. We will take testimony. I do want to say that each witness will receive 5 minutes for their testimony. I apologize for the brevity, but we have eight witnesses, and we have to complete this hearing in 2 hours. But, 5 minutes is a pretty good time, and then we'll have an opportunity for questions and answers.

I do want to point out that we are visited today by a ninth-grade social studies and civics class from the Devils Lake High School. Mr. Mike McNeff is the instructor, and this hearing will give them a sense of what a committee hearing might be like.

We are also joined by the Devils Lake Middle School eighth grade social studies class. Mr. Joe Kalash and Mr. Tyler are the instructors, and Bob Gibson is the middle-school principal. We welcome all of them, as well.

Let me call on my colleague Congressman Pomeroy.

STATEMENT OF REPRESENTATIVE EARL POMEROY

Mr. POMEROY. Thank you, Mr. Chairman.

Well, during the 16 years I've represented North Dakota in Congress, we've had an ever greater volume of water into the Devils Lake. It's not just the lake level that's risen. Senator Dorgan's position in the Senate has risen to where, now, as Senate Energy and Water Appropriations Subcommittee Chairman, we couldn't have a better-placed official with such deep personal knowledge as Byron when it comes to evaluating and responding in the future.

During my first year in the Congress in 1993, began such rapid expansion, I remember thinking, "Man, this is one they really don't teach you about in the political textbooks, how you deal with something like a closed-basin lake that continues to grow." Well, we've learned, over the years, you monitor very carefully, you plan for all scenarios, and then you execute, based upon planning for, if not worst-case scenario, near-worst-case scenario. Clearly, we have found, just hoping things work out all right is not the way to deal with this problem of a closed-basin while you're continuing to rise

in the middle of a wet cycle. So, I think that the panel and information that we'll gather this morning is going to be extremely important, in terms of continuing this course of action.

I also think we've learned that you deal with things on a multi-agency cross-jurisdictional basis. The participants today remind me very much of the original members of the task force that was assembled during the Clinton administration to deal with Devils Lake in the 1990s. This lake problem hasn't gone away. The agencies continue to be involved. We're very grateful for that. We appreciate the fact that this hearing once again brings us all together so that we might learn from one another as we develop the scenario planning, going forward.

I also want to just commend some of the local leadership that you'll have a chance to hear from in the second panel. Mayor Fred Bott and Joe Belford, in particular, have been steadfast and nonstop, in terms of trying to shepherd the myriad of local issues that this situation has presented. They continue, even under difficult situations today, and we deeply appreciate their participation at this hearing.

And, Senator Dorgan, I—you know, usually you get a—you have House Members aspiring to participate in the Senate hearings, but it's of a different character; they want to stay there full-time. I'm quite happy just to come over and participate today. Senator Conrad has nothing to worry about. And I'll be happy joining my colleagues back in the House, going forward. But it is something that obviously involves both chambers. Thank you for allowing House participation in today's hearing.

Senator DORGAN. Congressman Pomeroy, thank you very much. We appreciate it.

General Walsh, you're going to be the lead-off witness. Yesterday, I was asked about the Army Corps of Engineers. I said that it has been the most frustrating thing in the entire world, to deal with the Army Corps of Engineers with respect to this mismanagement of the Missouri River. It's almost disgraceful, in my judgment. But, I said, on the other hand, to watch the Corps fight floods is inspiring. I've walked banks with the Corps. I know Congressman Pomeroy has, as well. And the flood-fighting capabilities of the Corps of Engineers are extraordinary. The Corps of Engineers has worked a lot in this region on the flood fight, and I admire the work that the Corps does.

You recently assumed command of the Mississippi Valley Division, you're not responsible for the management of the Missouri River, but if you see somebody that is, would you tell them how displeased I continue to be?

But, in assuming command, General Walsh, of the Mississippi Valley Division, you're involved in these issues in a very significant way, and we appreciate your being here today to discuss Devils Lake issues with us. We wish you well in your new assignment, and my expectation is that you will be acquainted with many of us during your assignment, for as you know from the opening statements, we have very significant issues.

So, General Walsh, thank you for coming to Devils Lake to testify before our hearing.

Let me say, to all of the witnesses, the formal statements will be made a part of the permanent record, and we would encourage all witnesses to summarize.

General Walsh, you may begin.

STATEMENT OF BRIGADIER GENERAL MICHAEL J. WALSH, COMMANDER, MISSISSIPPI VALLEY DIVISION, ARMY CORPS OF ENGINEERS

General WALSH. Yes, good morning, chairman and Mr. Pomeroy.

I did just take command of the Mississippi Valley Division, on February 20; but, prior to that, I was also the commander of the Gulf Region Division, and part of that command was the great folks from the North Dakota National Guard. Colonel Dale Adams was my deputy commander, and we had 60 or 70 folks from the North Dakota Engineer Brigade assigned to my command, and I can tell you how proud I was to lead that bunch of men and women. They did a wonderful job in Iraq.

Also, while I'm new to the Mississippi Valley Division, I'm not new to the Devils Lake issues. Prior to this, I was in command of a unit out in California, and I remember the first conversations that the Assistant Secretary of the Army for Civil Works, Dr. Westfold, had in my office. He rushed past me, grabbed the phone, and was talking to a number of folks on Devils Lake, so I went to the map and went to find it. And that was in 2000.

In 2001–2002, I was the Chief of Staff for the Director of Civil Works, and obviously worked very closely with him and the division commander at that time on Devils Lake. And then General Flowers selected me to be the Chief of Staff for the Corps of Engineers, and I worked very closely with Chief Flowers on what he was doing here at Devils Lake. But, to be frank, the first time I've seen it and had my feet on the ground was last night and this morning. So, I've had my feet on the ground, and have been working the issues, at least from the Washington level, for a number of years.

And certainly, for the past 3 years, during the early summers, Devils Lake has reached an elevation of 1,449 before leveling off during late summer and early fall, as flows made their way to Stump Lake, as you mentioned. Devils Lake is now equalized with Stump Lake, eliminating the available storage for large flood events.

Currently, as you mentioned, both lakes are approximately 1,447 feet, and Public Law 110–28 of the Corps of Engineers, as you mentioned, was allocated $5 million to analyze the next courses of actions, if the lake continues to rise.

Currently, we have public meetings that are going to be scheduled in the early part of April to introduce the next effort in the flood risk management project, and to seek public input. The Corps will continue to update the public and seek input on alternatives as we develop the projects, and move forward.

Part of the plan is to identify trigger points when action would be required. Some initial estimates suggest that the levee raise to protect against the ultimate lake elevation could be a cost of as high as $100 million. These are, of course, a very rough number, for planning purposes only.

We understand that the community is very concerned about being able to afford the local share of such a potentially large project, and may have to explore other alternatives for funding. We'll continue to work with the city to develop the most cost-effective and safe alternatives.

PLAN FOR LEVEES

The $5 million will provide for the development of a plan and design for the city of Devils Lake's levees. It will also allow the Corps to work with other local interests to identify a plan of action for other communities around the lake. Outside the city of Devils Lake, the primary areas are—have been concerned with—is the Minnewaukan, Spirit Lake Nations, and Nelson County.

We're continuing to work with the city on their new water supply system. The Consolidated Appropriations Act of 2008 authorized an addition of North Dakota to the Ohio Environment Infrastructure Section 594 Program, and appropriated $5.9 million for this program. The first project will be with the city of Devils Lake, to complete the development of a well field and construct a new water treatment facility. The city has already constructed 32 miles of the new water supply lines, and plans to complete contract awards for the well field and work not later than June 1, 2008. And the Corps is currently working to sign a partner agreement with the city of Devils Lake for this work.

The current water system was constructed in 1961, and now 6 miles of that transmission line and 10 valves are under the flooded areas of Devils Lake. Some areas are under 40 feet of water, making access to maintenance and repair virtually impossible. Over 7,000 people live in Devils Lake and rely on this water supply system.

We're continuing to work on closing out the project that raised the levees to their current height of 1,460. One element of the project is providing FEMA with a reasonable assurance that the embankments would safely contain the 1-percent flood elevation, as determined by the USGS. This is part of the process to keep the city out of the floodplain, outlined by FEMA flood insurance maps. Currently, we're analyzing the embankments based on actual data collected over the past 8 to 10 years, from gauges and piezometers installed in the embankments.

The Federal Highways Administration is working with Spirit Lake Nation and the North Dakota Department of Transportation to design a permanent fix to the problems of the roads that are acting as dams, that were not designed as dams, and we're pleased to be part of that team, working closely with them on the—providing dam safety design and expertise.

PREPARED STATEMENT

The citizens of this beautiful lake region have had many challenges in the past decade; and, while we all hope for an end to the flooding, the Corps of Engineers will continue to work together in partnership with the State and local agencies as long as our assistance is needed.

Again, thank you for allowing me to testify here today, Mr. Chairman, and this concludes my testimony.

[The statement follows:]

PREPARED STATEMENT OF BRIGADIER GENERAL MICHAEL J. WALSH

Chairman Dorgan and members of the subcommittee, I am honored to appear before you to report on what the Corps of Engineers is doing to address the rising lake levels of Devils Lake. My testimony will address the situation of Devils Lake and how the Corps of Engineers proposes to continue to support the people of this lake region.

For the past 3 years during the early summer, Devils Lake has reached an elevation of over 1,449 feet before leveling off during late summer and early fall as flows made their way to Stump Lake. Devils Lake has now equalized with Stump Lake, eliminating available storage for large flood events. Currently, both lakes are at approximately 1,447 feet. In Public Law 110–28 (U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act), the Corps was allocated $5 Million to analyze the next course of action if the lake continues to rise. Currently, public meetings are being scheduled for the early part of April to introduce this next effort in the Flood Risk Management Project and seek public input. The Corps will continue to update the public and seek feedback on alternatives as they are developed and the project progresses. Part of the plan is to identify trigger points when action would be required. Some initial estimates suggest that a levee raise to protect against the ultimate lake elevation could cost $100 million or more. This was a very rough number for planning purposes only. We understand that the community is very concerned about being able to afford the local share of such a potentially large project and may have to explore other alternatives for funding. We will continue to work with the city to develop the most cost effective, safe alternative.

The funding will provide for the development of a plan and design for the city of Devils Lake levees. It will also allow for the Corps to work with local interests to identify a plan of action for other communities around the lake. Outside the city of Devils Lake, the primary areas of concern have been identified as Minnewaukan, Spirit Lake Nation, and Nelson County.

We are continuing to work with the city on their new water supply system. The Consolidated Appropriations Act, 2008 authorized the addition of North Dakota to the Ohio Environmental Infrastructure section 594 program and appropriated $5.9 million for the program. The first project will be with the city of Devils Lake to complete the development of the well field and construct a new water treatment facility. The city has already constructed 32 miles of new water supply line and plans to award contracts for the well field work not later than June 1, 2008. The Corps is currently developing an agreement to partner with the city of Devils Lake for this work.

The current system was constructed in 1961 and now 6 miles of transmission line and 10 valves are under the flooded areas of Devils Lake. Some areas are under 40 feet of water, making access for maintenance or repair virtually impossible. Over 7,000 people live in Devils Lake and rely upon this water supply system.

We are continuing to work on closing out the project that raised the levees to their current height of 1,460 feet. One element of the project is providing FEMA with reasonable assurance that the embankments would safely contain the 1-percent flood elevation as determined by the United States Geological Survey. This is part of the process to keep the city out of the floodplain outlined on FEMA flood insurance maps. Currently, we are analyzing the embankments based on actual data collected over the past 8–10 years from gauges, or piezometers, installed in the embankments.

The Federal Highway Administration is working with the Spirit Lake Nation and North Dakota Department of Transportation to design a permanent fix to the problem of roads that are acting as dams, but were not designed as dams. We are pleased to be part of the team and to be able to provide dam safety design and expertise.

The citizens of this beautiful lake region have had many challenges in the past decade. And while we all hope for an end to the flooding, the Corps of Engineers will continue to work together in our partnership with State and local agencies as long as our assistance is needed.

Again, thank you for allowing me to testify here today. Mr. Chairman, this concludes my testimony. I would be happy to answer any questions you may have.

Senator DORGAN. General Walsh, thank you very much, we appreciate your testimony.

Next, we will hear from Myra Pearson, the chairperson of the Spirit Lake Nation.

STATEMENT OF MYRA PEARSON, CHAIRWOMAN, SPIRIT LAKE NATION

Ms. PEARSON. Good morning. And I welcome you, Senator Dorgan and Congressman Pomeroy, to the lake region area. And on behalf of the Spirit Lake Nation, I welcome you.

I thank you for this opportunity to speak here this morning. And, as you all know—most of you know—I was part of this team, back in the late 1990s, when I held this same position here for the Spirit Lake Nation, and it hasn't gone away, and it's gotten a little worse. And I remember—I was talking about that out here a few minutes ago, that I've seen this lake—it makes me cry when I see defeat, the day the roads would fall, and I know what it's like. It's an awful feeling. And I cried, that day. But, I said, I've seen this lake defeat us, and we need to abide by those laws of nature—to not only our Federal, our State, and our tribal laws, we need to abide by the laws of nature, and respect her in that way.

And I'd like to go into my testimony. But, as chairwoman for the Spirit Lake Nation, the impact of flooding from the Devils Lake has caused a tremendous strain to the economy, programs, and people of Spirit Lake Reservation. Flooding has caused or compounded financial deficits for many tribal programs, including, but not limited to, housing, roads, emergency management, fish and wildlife, environmental protection, and tribal health. These programs are being forced to divert precious financial resources to respond to issues relating to flooding.

At present, one of the biggest issues threatening the precious resources of the tribe is the flooding of Devils Lake. Primary impacts of ongoing flooding include, but are not limited to, reduction of usable tribal land base and accessibility to tribal buildings and housing. Ongoing flooding will further diminish portions of the tribe's usable land base, thereby impacting local agriculture, property rights, and income from land leases.

Land losses would be at least 745 acres of land on the Spirit Lake Reservation, according to the environmental assessment that was completed in November 2007 by the U.S. Department of Transportation.

Additionally, accessibility to buildings such as the tribal government offices, tribal courts, tribal housing units, at least two recreational centers, and two childcare facilities would be certain.

Negative health implications for tribal members: health implications resulting from poor sewage systems, well seepage, and basement seepage are all directly related to the ongoing flooding. The tribe needs resources to clean up mold, replace or improve sewage systems and wells, and to reduce negative impacts on water-quality standards.

DISASTER RESPONSE

Inadequate disaster response in the event of a dam failure: disaster response is a paramount concern relating to the lake and the "dams as roads" projects. Additional flooding would require the tribe to relocate tribal houses, provide emergency shelter and time-

ly evacuate community members. All of these measures require planning and financial resources which the tribe does not have.

Diminishment of natural resources and sacred sites: the Tribal Fish and Wildlife Department has been stocking waters with fish, and has reported concerns about the impact of flooding on water quality.

Wildlife and other natural resources: these impacts directly interfere with the treaty rights of our tribal members, and also impact our local tourist economy in a very significant way. Additionally, tribal burial grounds and other sacred sites are likely to be negatively impacted by ongoing flooding.

Safety risks for tribal members and travelers along roadways: driving conditions and related road conditions are problematic for many in North Dakota, but factor in the lake and the serious safety hazard is the result. Lives are being lost every year as a result of these hazardous conditions.

Additional resources for the installation of safety devices are needed. Ongoing budgetary cuts for tribal road projects have made it impossible for the tribe to adequately maintain the existing road system.

Our road system is very poor. And this is a little beyond my testimony, Senator. Our roads have taken lives every year because of this water. And if you look back into the histories of the Spirit Lake Nation, you'll know that's true—whether it be native or non-native—but, that's how dangerous the roads are. And, I think, today we need to do something, as far as long-range planning.

And I want to thank you, again. And, in closing, additional financial resources are needed so the tribe can continue efforts on road projects that will minimize irreparable harm to tribal resources and assets.

And I thank you for allowing me to speak here this morning.

[The statement follows:]

PREPARED STATEMENT OF MYRA PEARSON

SPIRIT LAKE TRIBE

The impact of flooding from Devils Lake has caused a tremendous strain to the economy, programs and people of the Spirit Lake Reservation. Flooding has caused or compounded financial deficits for many tribal programs including, but not limited to, housing, roads, emergency management, fish and wildlife, environmental protection and tribal health. These programs are being forced to divert precious financial resources to respond to issues relating to flooding. At present, one of the biggest issues threatening the precious resources of the tribe is the flooding of Devils Lake. Primary impacts of ongoing flooding include, but are not limited to:

Reduction of usable tribal land base and accessibility to tribal buildings and housing

Ongoing flooding will further diminish portions of the tribe's usable land base thereby impacting local agriculture, property rights and income from land leases. Land losses would be at least 745 acres of land on the Spirit Lake Reservation according to the Environmental Assessment that was completed in November 2007 by the U.S. Department of Transportation. Additionally accessibility to buildings such as the tribal government offices, tribal court, tribal housing units, at least two recreational centers and two childcare facilities would be certain.

Negative health implications for tribal members

Health implications resulting from poor sewage systems, well seepage and basement seepage are all directly related to ongoing flooding. The Tribe needs resources to clean up mold, replace or improve sewage systems and wells and to reduce negative impacts on water quality standards.

Inadequate disaster response in the event of a dam failure

Disaster response is a paramount concern relating to the lake and the dams as roads projects. Additional flooding would require the tribe to relocate tribal houses; provide emergency shelter; and timely evacuate community members. All of these measures require planning and financial resources, which the tribe does not have.

Diminishment of natural resources and sacred sites

The Tribal Fish and Wildlife Department has been stocking waters with fish and has reported concerns about the impact of flooding on water quality, wildlife and other natural resources. These impacts directly interfere with the treaty rights of our tribal members and also impact our local tourist economy in a very significant way. Additionally, tribal burial grounds and other sacred sites are likely to be negatively impacted by ongoing flooding.

Safety risks for tribal members and travelers along roadways

Driving conditions and related road conditions are problematic for many in North Dakota but factor in the lake and a serious safety hazard is the result. Lives are being lost every year as a result of these hazardous conditions. Additional resources for the installation of safety devices are needed. Ongoing budgetary cuts for tribal road projects have made it impossible for the tribe to adequately maintain the existing road system.

In closing, additional financial resources are needed so the tribe can continue efforts on roads projects that will minimize irreparable harm to tribal resources and assets.

Senator DORGAN. Thank you very much for your testimony.

Next, we will hear from Ron Hartl of the Federal Highway Administration.

Mr. Hartl, you may proceed.

STATEMENT OF RONNY J. HARTL, ASSISTANT DIVISION ADMINISTRATOR, FEDERAL HIGHWAY ADMINISTRATION , DEPARTMENT OF TRANSPORTATION

Mr. HARTL. Thank you. Thank you for the opportunity to testify today on Federal Highway Administration's involvement in transportation issues in the Devils Lake impact zone.

I was asked to address three topics: first, the FHWA response to disasters in the Devils Lake Basin since 1995; second, implications of rising water in Devils Lake Basin for Federal-aid eligible routes; and, finally, the status of the use of the Federal-aid highway funds for flood control.

Topic one: In 1994, major routes around the perimeter of Devils Lake began to incur significant damage, and Federal Highway provided an initial $19 million in emergency relief, or ER, funding in response to damage that occurred in 1994 and 1995. From 1995 through 2004, Federal Highway has provided a total of approximately $149 million in ER funds for State and county routes in the Devils Lake Basin that were eventually raised, for most highway grades, to approximately 1,455 feet above sea level, and for the structures or bridges to 1,465. Another $38 million in emergency relief funding specifically for federally owned roads, sometimes referred to as ERFO funding, were provided for several BIA routes within the Spirit Lake Nation.

Topic two: Federal Highway works closely with numerous Federal and State/local agencies, most of which are represented here today, on the impacts of roads threatened by future lake rising waters within the basin. Using the current lake elevation—1,447—as a base, and using volumetric information generated by the U.S. Geological Survey, we can determine that the addition of approximately 800,000 acre-feet of water would take the lake elevation to

an elevation of about 1,452. Some segments of one North Dakota DOT route, and a few nearby BIA routes, are very near or just above that 1,452 elevation. These routes will be threatened with overtopping if they are not raised.

Also, with a 3-foot freeboard criteria FHWA has adopted specifically for Devils Lake, many additional miles will likely become eligible for grade raises. According to the North Dakota DOT estimates, the cost to raise State segments with elevations between 1,455 and 1,460 to an elevation of 1,465 is $250 million. The Devils Lake Basin could require, therefore, in a very short span of time, more emergency relief funding than has been invested over a 10-year period in the recent past. This would represent a very challenging delivery of emergency relief funding from a program authorized at $100 million annually for all emergency relief efforts nationwide.

Topic three: Although roads in the Devils Lake area were not constructed to serve as dams, since 1995 certain State and BIA road segments have been functioning as dams, protecting other roadways, land, homes—in two specific areas—from rising waters. SAFETEA–LU provided FHWA with authority for protection of roads in the Devils Lake area, including special ER funding, not to exceed $10 million in expenditures per year. Approximately $7 million of the authorized total cap of $70 million has been spent on phase one, stabilization, and phase two, an environmental study and design phase. These funds were supplemented with $4.8 million in regular FHWA ER funds. The phase one project, the stabilization, was completed in November 2007. An environmental assessment, or EA, for phase two to evaluate alternatives for more permanent measures, including combinations of equalized roadways to act more permanently and embankments separate from roadways, has been completed. The public comment period closed this last January 28. Preliminarily estimates for costs for more permanent solutions are in excess of $280 million for protection from a still-water lake level of 1,460.

PREPARED STATEMENT

FHWA is currently working with our partners to find a practicable solution to this problem. We anticipate that the permanent interim protective measures will be constructed in stages, in response to future lake levels and funding. Current funding provided by SAFETEA–LU, supplemented with other ER funds, will allow design and construction to create permanent impoundment structures up to an embankment elevation of 1,455, protecting the interior to a lake elevation of approximately 1,452.

Senator Dorgan, this concludes my statement, and I thank you, again, for the opportunity to testify. I'll be pleased to answer any questions you may have.

[The statement follows:]

PREPARED STATEMENT OF RONNY J. HARTL

Senator Dorgan, Ranking Member Domenici, and members of the subcommittee, thank you for the opportunity to testify today on the Federal Highway Administration's (FHWA) role in addressing transportation issues on roads eligible for Federal aid within the impact zone of Devils Lake, a closed basin with no outlet for accumulated water other than evaporation.

I was asked to address three general topics: (1) to provide an update on what FHWA has delivered in response to repeated disasters in the Devils Lake Basin from 1995 to the present; (2) the implications of continued rising water in the Devils Lake Basin for routes eligible for Federal funds; and (3) the status of the use of Federal-aid Highway funds for flood control in the Devils Lake area.

BACKGROUND ON FEDERAL-AID FUNDING FOR DEVILS LAKE

The current era of sequential damaging events affecting the Devils Lake area began in 1993 or shortly thereafter, when Devils Lake was at an elevation of about 1,422 feet above sea level. Due to a wet season in 1993 and a deep snow blanket that accumulated in the winter of 1993–1994, major routes around the perimeter of Devils Lake began to incur significant damage early in the summer of 1994. Due to an unprecedented rise in the level of Devils Lake during a relatively short period of time, and the likely long-term loss of use of some major perimeter routes, FHWA provided an initial $19 million in Federal-aid Highways Emergency Relief (ER) funding to address the $23 million in damage that occurred in 1994 and 1995. In total, from 1995 through 2004, FHWA has provided approximately $149 million in ER funds for grade raises to 1,455 feet (1,465 feet on several structures) on numerous State and county routes. Another $38 million in Emergency Relief for Federally Owned Roads (ERFO) funding was provided for stabilization and grade raises to 1,455 feet on several Bureau of Indian Affairs (BIA) routes within the Spirit Lake Nation.

IMPLICATIONS OF CONTINUED RISING WATER IN THE BASIN ON FEDERAL-AID ELIGIBLE ROUTES

FHWA works closely with the Spirit Lake Nation, North Dakota Department of Transportation (NDDOT), BIA, and the United States Army Corps of Engineers, and uses information from the United States Geological Survey (USGS) and the National Weather Service, to monitor near-term and potential longer-term impacts on roads threatened by future rising water levels within the Basin. The current elevation of Devils Lake is approximately 1,447 feet above sea level. Using that as a base and using volumetric information generated by the USGS, we know that the addition of approximately 800,000 acre-feet of water to Devils Lake would take the lake to an elevation of 1,452 feet. While 800,000 acre-feet of water is a huge volume, one must consider that the average yearly total inflow to Devils Lake over the period from 1993 to 2004 was 265,000 acre feet. This excludes evaporation losses which fluctuate annually but in some years can have a substantial impact on the lake rise. Of even more concern is a comparison of 800,000 acre-feet to the Devils Lake inflow in 1997 which was 540,000 acre-feet.

The significance of the elevation 1,452 is that North Dakota (ND) Route 20 in some locations and some BIA routes within Spirit Lake Nation are very near or just above 1,452 feet. Thus, with an additional 800,000 acre-feet of water, these routes will be threatened with overtopping if they are not raised. The second important fact about the elevation 1,452 is that once this mark is passed, with the 3-foot freeboard criteria FHWA has adopted specifically for Devils Lake, many miles of several key routes that are currently at elevation 1,455 would likely become eligible for grade raises. These routes include State Routes ND 19, ND 20, ND 57 as well as U.S. 2 and U.S. 281 and BIA routes 1, 2, 4, 5, 6, 9, 15, 16, and some additional county routes. NDDOT has provided FHWA with estimates for routes under its jurisdiction (19, 20, 57, 2 and 281) to reflect costs if construction were to take place in 2009. The cost to raise segments with elevations currently between 1,455 and 1,460 to an elevation of 1,465 is estimated to be over $250 million. With the addition of 800,000 acre-feet, the Devils Lake Basin could require, in a very short span of time, as much ER funding as has been invested over a 10-year period in the past. This would represent a very challenging delivery of ER funding from a program authorized at $100 million annually for all emergency relief efforts nationwide.

USE OF FEDERAL-AID HIGHWAYS FOR FLOOD CONTROL IN THE DEVILS LAKE BASIN

Although roads in the Devils Lake flood area were not constructed to serve as dams, since 1995 certain State and BIA road segments have been functioning as dams. These segments are protecting other roadways, land, and homes in two specific areas from the rising water of Devils Lake. One of these segments surrounds the St. Michael interior area on the Spirit Lake Reservation and the other is near Camp Grafton, a National Guard installation. The lake has risen 13 feet since 1995, increasing the risk of road failure and hastening the need for a solution.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA–LU) provided FHWA with authority for protection of roads in the

Devils Lake area, including special ER funding not to exceed $10 million in expenditures per year specifically for work not previously eligible for Federal-aid highway funding. To date, approximately $7 million of the total of $70 million authorized in special funding has been spent on the Phase 1 stabilization and Phase 2 environmental study and design. These funds were supplemented with $4.8 million in regular FHWA ER funds. Most of the funds were used to design and construct the Phase 1 project, which was a $9.6 million contract funded by FHWA and administered by the BIA and the Spirit Lake Nation, to stabilize for the short-term some of the roads acting as dams and embankments protecting roads. The project was completed in November 2007.

With critical roadways temporarily stabilized, an Environmental Assessment (see attached Figure for Project Area), developed by a team led by the Central Federal Lands Highway Division of FHWA, evaluated alternatives to address more permanent protective measures. The Environmental Assessment for the Phase 2 project has been completed and the public comment period closed January 28, 2008. FHWA is currently working with the Spirit Lake Nation, BIA, and NDDOT to address concerns regarding the proposed alternatives in an attempt to find a practicable solution. Recently revised preliminary estimates for more permanent solutions, including combinations of equalized roadways, roadways acting as dams, and embankments separate from roads that impound water, are in excess of $280 million for protection from the ultimate, still water, lake level of 1,460 feet. These new estimates, bolstered to reflect safety standards for long-term water retention to meet current and higher lake elevations, are substantially higher than those referenced for the last 5 to 6 years.

We anticipate that the permanent interim protective measures will be constructed in stages in response to future Lake levels and funding. Current funding provided by section 1937 of SAFETEA–LU (Public Law 109–59; 119 Stat. 1144, 1510), and

supplemented with FHWA ER funds, will allow design and construction to create permanent impoundment structures or otherwise relieve the danger of unplanned inundation up to an embankment elevation of 1,455 feet, providing protection of the roadway network up to a Lake elevation of approximately 1,452 feet.

CONCLUSION

Senator Dorgan, thank you again for this opportunity to testify. I will be pleased to answer any questions you may have.

Senator DORGAN. Mr. Hartl, thank you very much for your testimony.

Finally, on this panel, we will hear from Aldo "Skip"—is it "Veshia?" Am I pronouncing that——

Mr. VECCHIA. "Vecchia."

Senator DORGAN. Aldo "Skip" Vecchia—I'm sorry for the mispronunciation——

Mr. VECCHIA. Oh, that's fine.

Senator DORGAN [continuing]. Who is with the U.S. Geological Survey.

Mr. Vecchia, you may proceed.

STATEMENT OF ALDO "SKIP" VECCHIA, STATISTICIAN, U.S. GEOLOGICAL SURVEY, DEPARTMENT OF THE INTERIOR

Mr. VECCHIA. Thank you.

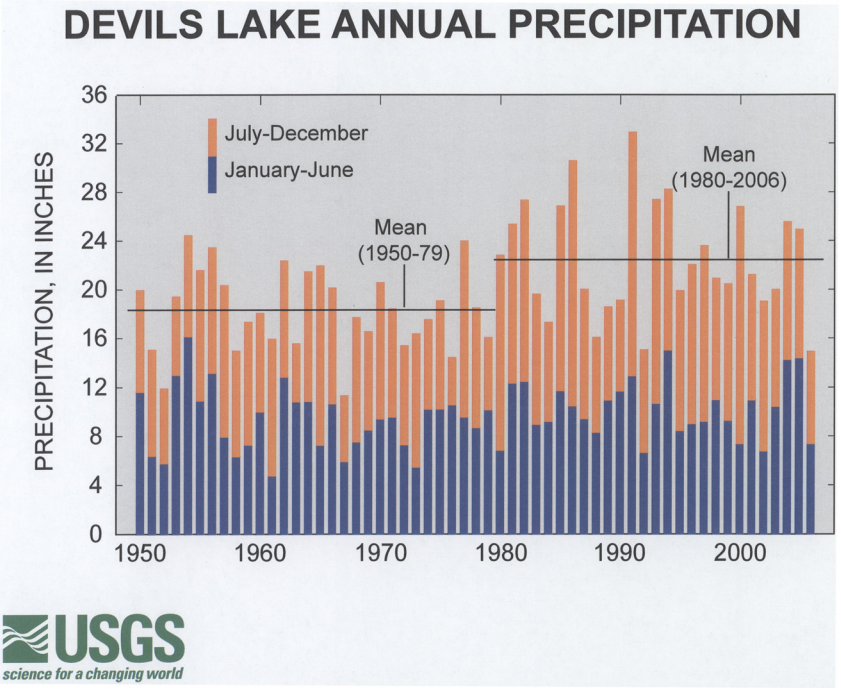
Chairman Dorgan and Representative Pomeroy, thank you for the opportunity to summarize some of my recent research on flood risk analysis for Devils Lake.

This testimony is based on a USGS report which was prepared in cooperation with FEMA. The report can be accessed online, or a printed copy can be requested from me.

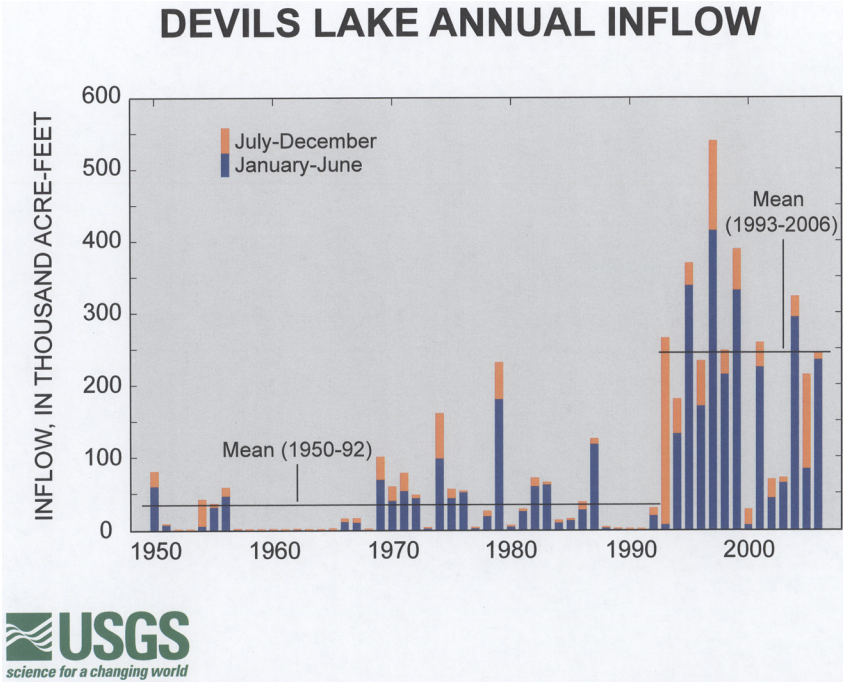
Since 1992, Devils Lake has risen more than 25 feet, filling Stump Lake and reaching its highest level in more than 100 years. Devils Lake could continue to rise, causing extensive additional flood damage in the basin and, in the event of an uncontrolled natural spill, downstream in the Red River of the North Basin.

Today, I will describe the cause of the recent flooding, present some findings regarding probable future climatic conditions in the Devils Lake Basin, and evaluate the probability of continued lake-level rises in future years.

If I could refer you to this poster showing annual precipitation—as shown in this figure, the Devils Lake Basin is currently in a wet cycle that began in about 1980. Precipitation averaged about 4 more inches per year during 1980 to 2006 than during 1950 to 1979, due to an increase in the frequency of summer and fall rainstorms during the latter period.



If I could refer you to this next poster, showing annual inflows—as shown in this figure, the increased precipitation resulted in a dramatic increase in inflows to Devils Lake beginning in 1993.



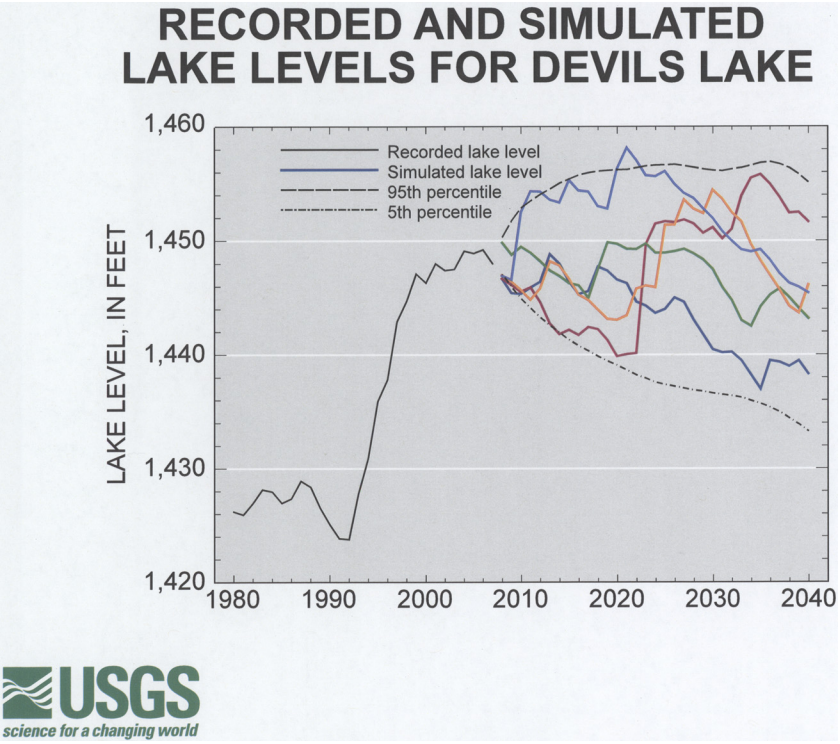
There was a long lag between the onset of wetter conditions and the more than sevenfold increase in inflow, because much of the increase in precipitation during 1980 to 1993 went toward filling soil moisture deficits, the upstream chain of lakes, and the thousands of smaller lakes and wetlands in the upper basin. Thus, little of the precipitation reached Devils Lake as runoff.

FLOOD OF 1993

Then, following the summer flood of 1993, most of the lakes and wetlands in the upper basin were full, and inflow to Devils Lake increased dramatically. Because the Devils Lake Basin is so large, a small amount of precipitation runoff corresponds to a large volume of water reaching Devils Lake. The total inflow to Devils Lake and Stump Lake during 1993 to 2006 was 3.7 million acre-feet, which, when spread out over the entire basin, averaged only about 1.4 inches of runoff per year. Inflow during that period exceeded net lake evaporation by 2.3 million acre-feet, causing the extensive flooding.

The recent wet period is not unusual, from a long-term perspective. Geologic evidence suggests that wet periods similar to the current one have occurred in the Devils Lake Basin many times during the past 2,000 years. In fact, our research indicates that climate in the basin in the distant past and the near future may consist of two equilibrium states: a dry state, similar to 1950 to 1979, and a wet state, similar to 1980 to 2006. Transitions from wet to dry, or dry to wet, occur abruptly, and precipitation during wet states is more variable from year to year than during dry states.

The remaining length of the current wet period will have a profound effect on future lake levels. When the basin returns to normal or pre-1980 conditions, Devils Lake will probably begin a long decline, lasting many decades. However, if wet conditions continue, future inflows and lake levels will be highly uncertain because of high inter-annual variability in the amount, timing, and spacial distribution of future rainfall. As an example, if I could refer you to this poster, showing, just, some simulated traces of lake levels, potential simulated traces for the future.

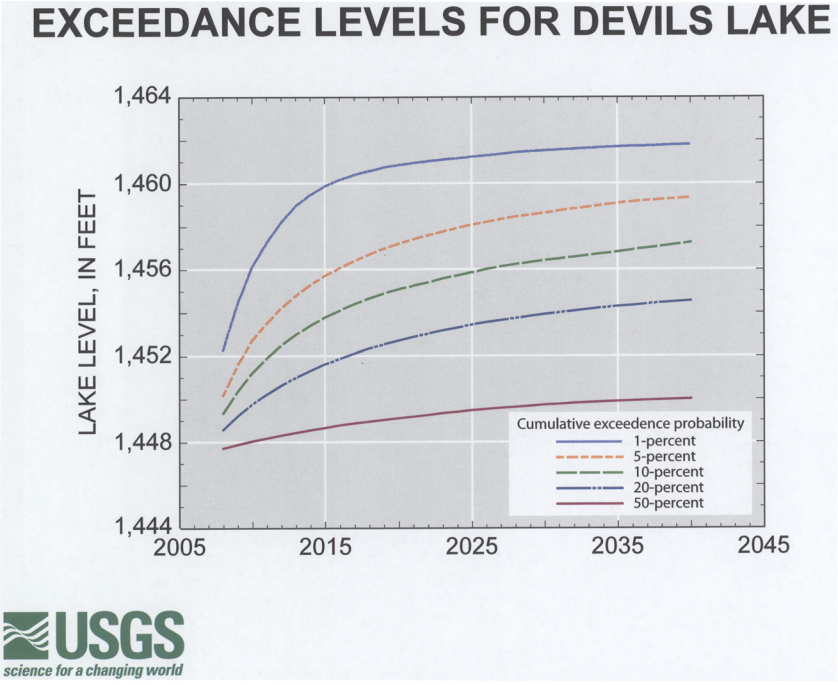


This figure shows several, out of an infinite number of possible future, lake-level traces, assuming the wet period lasts another 30 years. In this case, both lake-level increases and decreases of 10 feet or more could easily occur in the coming decades.

How much longer the current wet cycle will last is completely random and unpredictable. However, our research shows it is not likely the current wet conditions will end anytime soon. For example, there is a 72-percent chance the wet cycle will last at least another 10 years, and a 37-percent chance it will last at least another 30 years.

To account for uncertainty in future climatic conditions, we estimated probabilities of future lake-level increases using a Devils Lake statistical simulation model. And if I could refer you to this next poster—as shown in this figure, our model indicates a relatively high risk of further lake-level increases occurring in future years. For example, there is about a 1 percent chance of exceeding

1,452 feet this year, a 10 percent chance of exceeding 1,452 feet by 2012, and a 20 percent chance of exceeding that level by 2016. Also, there is a 1 percent chance of exceeding the existing spill elevation to the Sheyenne River by 2013, and a 5 percent chance of exceeding the spill elevation by 2034.



PREPARED STATEMENT

Thanks, once again, for the opportunity to testify. I'll be happy to answer any questions you may have.

[The statement follows:]

PREPARED STATEMENT OF ALDO "SKIP" VECCHIA

OPENING REMARKS

Thank you for the opportunity and privilege to summarize some of my recent research on flood risk analysis for Devils Lake. This statement is based on U.S. Geological Survey Scientific Investigations Report 2008–5011, "Climate Simulation and Flood Risk Analysis for 2008–40 for Devils Lake, North Dakota," which was authored by me and prepared in cooperation with the Federal Emergency Management Agency. Detailed scientific justification for this statement is provided in the report and citations therein. The report can be accessed online (http://pubs.usgs.gov/sir/2008/5011) or a printed copy can be requested by e-mail (avecchia@usgs.gov).

INTRODUCTION

Since 1992, Devils Lake has risen more than 25 feet, filling Stump Lake and reaching its highest level in more than 100 years (fig. 1). Devils Lake and Stump Lake currently consist of one water body with an elevation of 1,447.1 feet, about 3 feet below the existing base flood elevation established by FEMA (1,450 feet) and about 12 feet below the outlet elevation to the Sheyenne River (1,459 feet). Devils Lake could continue to rise, causing extensive additional flood damages in the basin and, in the event of an uncontrolled natural spill, downstream in the Red River of

the North Basin. The purpose of this testimony is to describe the cause of the recent flooding, present some findings regarding long-term climatic variability in the Devils Lake Basin, and evaluate the probability of continued lake level rises in future years.

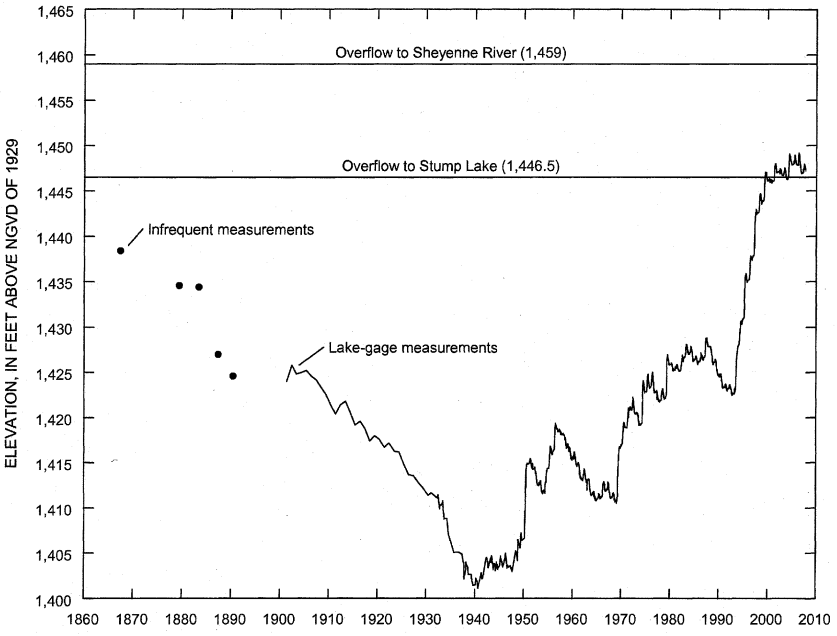


Figure 1. Recorded elevations of Devils Lake for 1868–2007.

CAUSE FOR RECENT FLOODING

The Devils Lake Basin is currently in a wet cycle that began in about 1980. Precipitation averaged about 4 more inches per year during 1980–2006 than during 1950–1979 (fig. 2). The increase occurred primarily in July–December when there tended to be a much higher frequency of summer and fall rainstorms during 1980–2006 than during 1950–1979. The increased precipitation resulted in a dramatic increase in inflows to Devils Lake beginning in 1993 (fig. 3). The long lag between the onset of wetter conditions in about 1980 and the more than sevenfold increase in inflow during 1993–2006 can be attributed to the unusual hydrologic conditions of the Devils Lake Basin. Much of the increase in precipitation during 1980–1993 went toward filling soil moisture deficits, the upstream chain of lakes, and the thousands of smaller lakes and wetlands in the upper basin; thus little of the precipitation reached Devils Lake as runoff. Following the summer flood of 1993, most of the lakes and wetlands in the upper basin were full and inflow to Devils Lake increased dramatically. Because the Devils Lake Basin is so large (about 3,800 square miles), a small amount of precipitation runoff corresponds to a large volume of water reaching Devils Lake. Total inflow to Devils Lake and Stump Lake during 1993–2006 was 3.7 million acre-feet, which when spread out over the entire basin averaged only about 1.4 inches of runoff per year. Net lake evaporation (evaporation from the lake minus precipitation that fell on the lake) during 1993–2006 was only 1.4 million acre-feet. Therefore, inflow exceeded net lake evaporation by 2.3 million acre-feet, causing Devils Lake to rise more than 25 feet and fill Stump Lake.

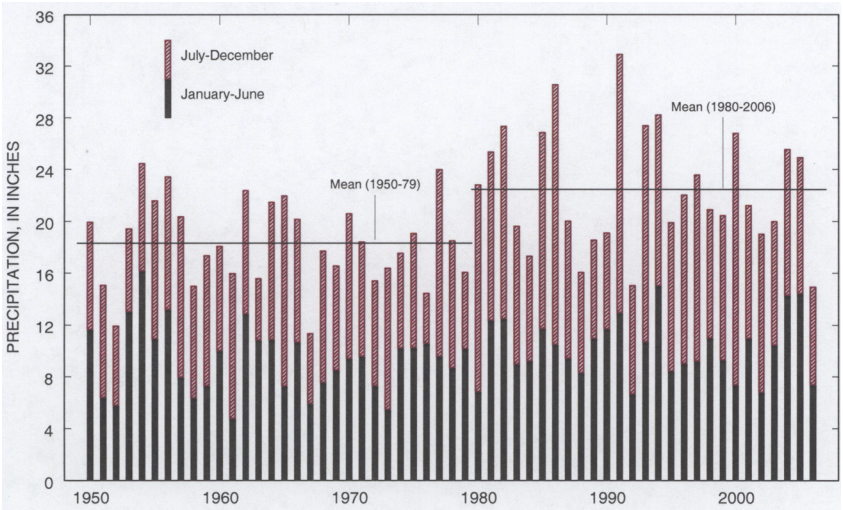


Figure 2. Estimated annual precipitation for Devils Lake for 1950–2006.

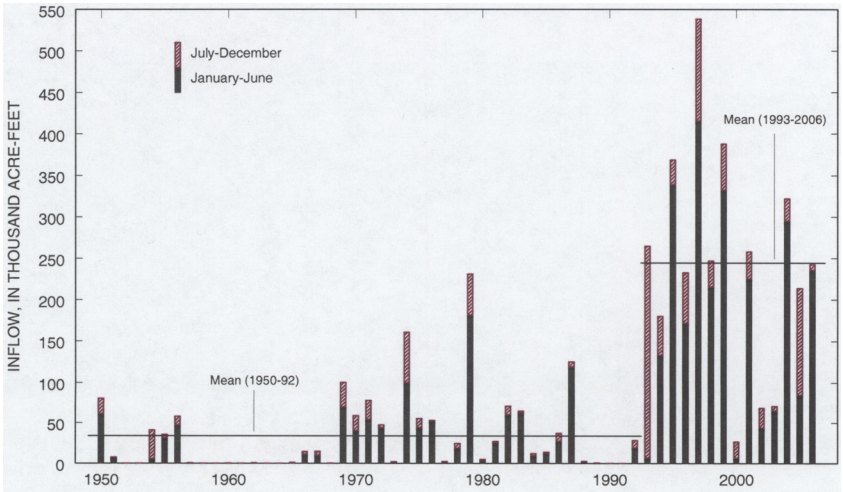


Figure 3. Estimated annual inflow for Devils Lake for 1950–2006.

PAST AND PROBABLE FUTURE CLIMATIC CONDITIONS IN THE DEVILS LAKE BASIN

The recent wet period is not unusual from a long-term perspective. Climate reconstructions based on tree rings and lake sediments indicate that wet periods similar to the current one occurred in the Devils Lake Basin many times during the past 2,000 years. In fact, our research indicates that climatic conditions in the Devils Lake Basin from the past 5,000 years may have consisted of two equilibrium climate states: a dry state similar to 1950–1979 and a wet state similar to 1980–2006. Unless future rainfall patterns are altered significantly because of climate change, the occurrence of any intermediate states, or more extreme dry or wet states, is unlikely. Transitions from wet to dry or dry to wet occur abruptly and precipitation during wet states is more variable from year to year than during dry states.

We developed a simulation model, called a two-state climate transition model, to simulate long-term precipitation in the Devils Lake Basin and provide information

for determining what precipitation might be like in coming decades. These simulations do not take into account significant departures from historical trends due to climate change or other factors. Some of the simulated data are shown in fig. 4. There are 10 distinct wet periods and 10 distinct dry periods during the 1,500-year simulation period. The average duration of the wet periods is 30 years and the average duration of the dry periods is 120 years. However, the actual lengths of the individual periods are highly variable—wet periods ranged from 3 to 80 years in duration and the dry periods from 15 to 367 years in duration.

The remaining length of the current wet period will have a profound effect on future lake levels. To illustrate this, we used a Devils Lake statistical simulation model developed by the USGS to generate potential future realizations, or traces, of lake levels for Devils Lake, given existing conditions on October 1, 2007. Two sets of simulation runs were generated by assuming a fixed duration for the wet period of 2 more years for the first set and 30 more years for the second set. Each trace was based on randomly generated possible future precipitation, evaporation, and inflow data that were consistent with the assumed duration of the wet period. The recorded annual maximum lake levels for 1980–2007, along with examples of 5 future lake-level traces for 2008–2040, are shown in figs. 5 and 6. The 5th and 95th percentiles of the generated lake levels for each year, computed from 1,000 simulated traces, also are shown. For the simulations with the wet period lasting 2 more years (fig. 5), simulated lake levels generally decline after the wet period ends. For the simulations with the wet period lasting 30 more years (fig. 6), the simulated lake levels are highly variable and in 2040, most of the traces are between about 1,434 and 1,456 feet. Thus, if wet conditions continue, both lake-level increases and decreases of 10 feet or more could easily occur in the coming decades.

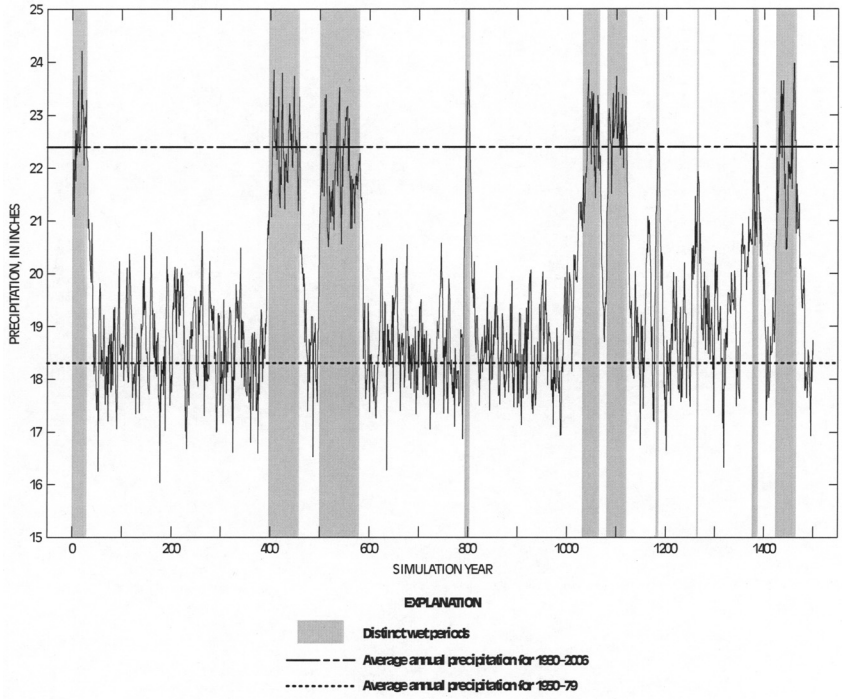


Figure 4. Five-year moving average of annual precipitation for 1,500 years generated from the climate transition model with 30-year average duration of wet periods (similar to 1980–2006) and 120-year average duration of the dry periods (similar to 1950–79).

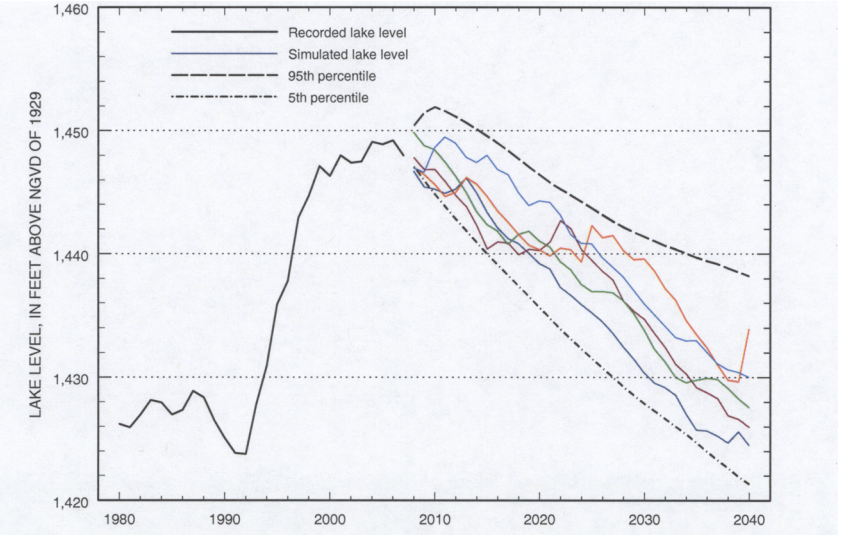


Figure 5. Historical and generated annual maximum lake levels for Devils Lake for 1980–2040, assuming the current wet period lasts until 2010.

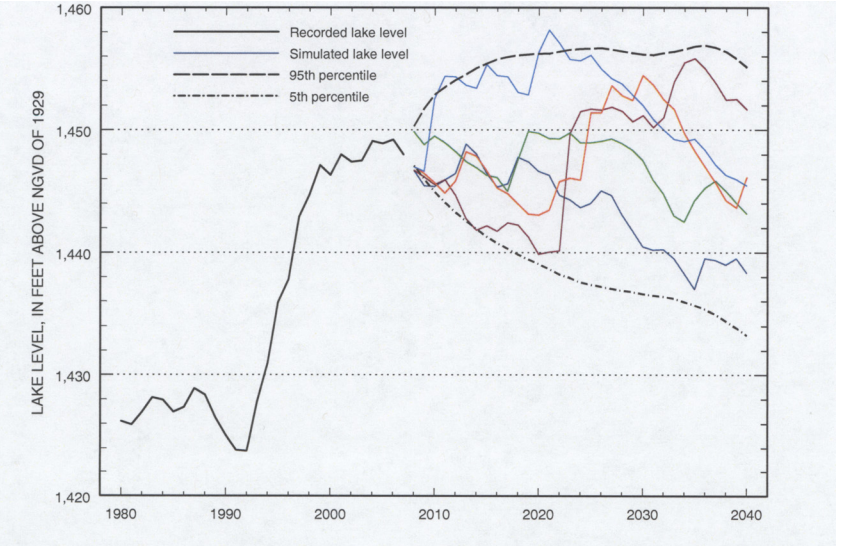


Figure 6. Historical and generated annual maximum lake levels for Devils Lake for 1980–2040, assuming the current wet period lasts until 2038.

FUTURE FLOOD RISK FOR DEVILS LAKE

It is impossible to predict exactly how much longer the current wet conditions will last. However, we can use the climate transition model to estimate the probability that wet conditions will continue for any given length of time. The model indicates that it is not likely the current wet cycle will end any time soon. For example, there is a 72-percent chance the current wet cycle will last at least another 10 years, a

37-percent chance it will last at least another 30 years, and a 14-percent chance it will last at least another 60 years.

Because it was impossible to predict exactly how long the current wet cycle will continue, a total of 10,000 simulated traces were generated from the statistical model as described previously, but for each trace the duration for the current wet period was generated at random using the climate transition model. Probabilities of future lake-level increases for Devils Lake were computed using the set of 10,000 simulated traces (Table 1 and fig. 7). Each column in Table 1 shows the lake level that has a certain chance of being exceeded sometime between now and a specified future year.

As indicated by Table 1, there is a relatively high risk of further lake level increases occurring in future years. For example, there is a 1-percent chance that Devils Lake will exceed the existing spill elevation to the Sheyenne River (1,459 feet) by 2013 and a 5 percent chance Devils Lake will exceed the spill elevation by 2034. An uncontrolled spill could have serious water quality and flooding consequences downstream in the Sheyenne River and the Red River of the North. There is a 10 percent chance of exceeding 1,454.1 feet (7 feet above the current elevation) by 2016 and a 20 percent chance of exceeding 1,454.1 feet by 2032. If that happens, the existing levee protecting Devils Lake could be threatened and many roads and buildings in the basin would be flooded.

Although there is a relatively high risk of future lake level increases, the lake is by no means certain to rise more than a foot or two above the historical record level of 1,449.2 feet set in 2006. For example, judging by the last column of Table 1, there is about a 50-percent chance the lake will not exceed 1,450 feet any time between 2008 and 2040.

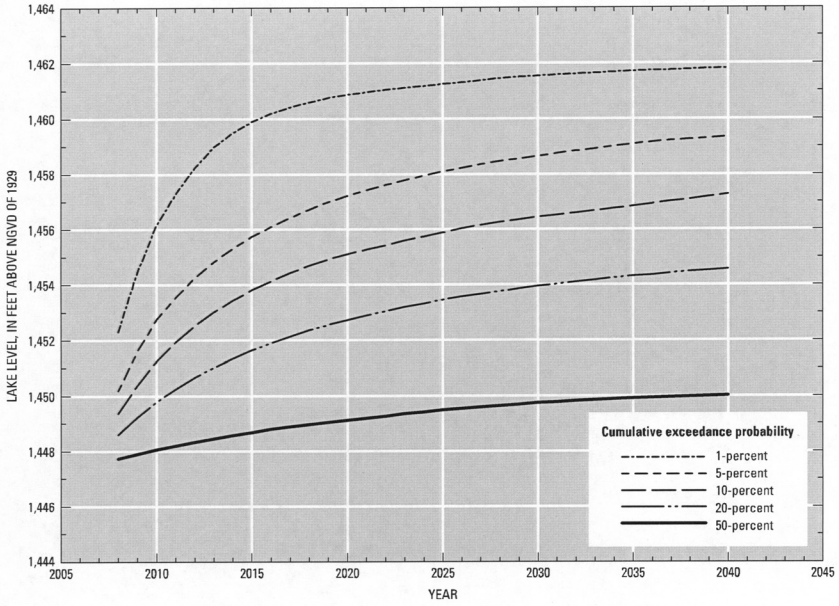


Figure 7. Exceedance elevations for Devils Lake for 2008–40, computed by using 10,000 traces from the Devils Lake stochastic simulation model (exceedance elevations are for calm conditions and open water).

TABLE 1.—CUMULATIVE FLOOD ELEVATIONS FOR DEVILS LAKE FOR 2008–2040

[Flood elevations are for calm conditions and open water]

Year	Cumulative exceedance probability, in percent				
	1	5	10	20	50
2008	1,452.3	1,450.2	1,449.4	1,448.6	1,447.7

TABLE 1.—CUMULATIVE FLOOD ELEVATIONS FOR DEVILS LAKE FOR 2008–2040—Continued

[Flood elevations are for calm conditions and open water]

Year	Cumulative exceedance probability, in percent				
	1	5	10	20	50
2009	1,454.4	1,451.6	1,450.4	1,449.2	1,447.9
2010	1,456.2	1,452.8	1,451.2	1,449.8	1,448.0
2011	1,457.3	1,453.5	1,451.9	1,450.2	1,448.2
2012	1,458.2	1,454.2	1,452.5	1,450.7	1,448.3
2013	1,459.0	1,454.8	1,453.0	1,451.0	1,448.4
2014	1,459.5	1,455.3	1,453.4	1,451.3	1,448.6
2015	1,459.9	1,455.7	1,453.8	1,451.6	1,448.7
2016	1,460.2	1,456.1	1,454.1	1,451.9	1,448.8
2017	1,460.4	1,456.4	1,454.4	1,452.1	1,448.9
2018	1,460.6	1,456.7	1,454.7	1,452.4	1,449.0
2019	1,460.7	1,457.0	1,454.9	1,452.6	1,449.0
2020	1,460.8	1,457.2	1,455.1	1,452.7	1,449.1
2021	1,461.0	1,457.4	1,455.3	1,452.9	1,449.2
2022	1,461.0	1,457.6	1,455.4	1,453.0	1,449.3
2023	1,461.1	1,457.8	1,455.6	1,453.2	1,449.4
2024	1,461.2	1,457.9	1,455.7	1,453.3	1,449.4
2025	1,461.2	1,458.1	1,455.9	1,453.4	1,449.5
2026	1,461.3	1,458.2	1,456.0	1,453.6	1,449.6
2027	1,461.4	1,458.4	1,456.2	1,453.7	1,449.6
2028	1,461.4	1,458.5	1,456.3	1,453.8	1,449.6
2029	1,461.5	1,458.6	1,456.4	1,453.8	1,449.7
2030	1,461.5	1,458.6	1,456.4	1,453.9	1,449.7
2031	1,461.6	1,458.7	1,456.5	1,454.0	1,449.8
2032	1,461.6	1,458.8	1,456.6	1,454.1	1,449.8
2033	1,461.6	1,458.9	1,456.7	1,454.2	1,449.8
2034	1,461.7	1,459.0	1,456.8	1,454.2	1,449.9
2035	1,461.7	1,459.1	1,456.8	1,454.3	1,449.9
2036	1,461.7	1,459.2	1,456.9	1,454.4	1,449.9
2037	1,461.7	1,459.2	1,457.0	1,454.4	1,450.0
2038	1,461.8	1,459.2	1,457.1	1,454.5	1,450.0
2039	1,461.8	1,459.3	1,457.2	1,454.5	1,450.0
2040	1,461.8	1,459.3	1,457.3	1,454.6	1,450.0

Senator DORGAN. Mr. Vecchia, thank you very much.

I was going to stop and ask questions of the first panel, but what I'd like to do is put everything on the record and then have an extended period of time for questions. And so, I'm going to go to the second panel, get your testimony, and then Congressman Pomeroy and I will be able to ask questions of both panels.

Let me begin the second panel with Mr. Dale Frink, the North Dakota State Water Commission.

Mr. Frink, thank you for being here. And, as I indicated to the first panel, your entire statement will be a part of the permanent record, and you may summarize.

STATEMENT OF DALE L. FRINK, STATE ENGINEER, NORTH DAKOTA STATE WATER COMMISSION

Mr. FRINK. Okay. Thank you, Senator Dorgan, Congressman Pomeroy. It's nice to—always—get Roger up here in North Dakota, but thank you for the opportunity and privilege to summarize the impacts of the ongoing flooding around Devils Lake and the State of North Dakota's response to the flooding.

When I say "Devils Lake," I am including Stump Lake, as well as the lakes to the north and to the west of the main body of Devils Lake that have been inundated.

Since 1992, Devils Lake has risen over 25 feet and its surface has increased by approximately 91,000 acres, from 49,000 to 140,000. We estimate that over $500 million has been spent fighting the Devils Lake flood. The city of Churches Ferry has been bought out by FEMA. Hundreds of our homes have been destroyed. Roads, dikes have been raised, re-raised and re-routed, and, in some cases, have been abandoned, and utilities have been relocated. The counties of Benson, Nelson, and Ramsey have lost thousands of acres of productive cropland, as well as much of the property tax generated by that land.

Since May 1999, when Devils Lake began spilling into Stump Lake, the level of Devils Lake has varied from between 1,446 and 1,449. Today, Devils Lake is at an elevation of approximately 1,447; however, the volume has increased by over 460,000 acre-feet due to the filling of Stump Lake. This volume increase clearly indicates that the wet cycle has not ended.

The State of North Dakota, along with the local entities, the Spirit Lake Nation, and the Federal Government, has taken a three-prong approach to responding to the flooding to Devils Lake. Infrastructure has been protected, modified by raising and re-raising roads, buildings, and dikes. Waterlines have been relocated, and homes that have been flooded and are purchased for flood insurance and other FEMA programs. In-basin water management efforts include the Extended-Storage Acreage Program, which pays landowners to store water in the basin, and the Devils Lake Irrigation Test Project which uses water in the basin to irrigate crops and increase the evaporation of water in the basin; and also, storing additional water in some of the upper lakes, like Sweetwater/Morrison Lakes. The State Emergency Outlet has been completed and will discharge the maximum amount of water in 2008 allowed by the permits governing the operation. And, Mr. Chairman, I might add that the outlet is operational. We did pump, last year, for a small amount. We're certainly not pumping as much as we would like, but we still remain optimistic that we'll be able to use that outlet in the future.

DEVILS LAKE OUTLOOK

The National Weather Service outlook for Devils Lake does provide hope that no major damages will be suffered in 2008. The outlook estimates that there is a 50 percent chance of Devils Lake reaching 1,447.8, and a 10 percent chance at Devils Lake of reaching 1,448.6. These elevations are equivalent to the volume increase of 113,000 and 232,000 acre-feet, respectively.

It is interesting to note how perspectives have changed. We now think of a volume increase of 113,000 acre-feet as a good year. But, in the 42 years between 1950 and 1992, an inflow of 113,000 acre-feet was only exceeded three times.

While the outlook in 2008 for Devils Lake is encouraging, the long-term outlook is much more discouraging. As long as we are in a wet cycle, there is a danger of flooding around Devils Lake.

The USGS report that Dr. Vecchia discussed describes the wet period that we have been in since 1980. Unfortunately, the 27-year duration of the current wet period has no influence on the remaining length of the wet period. The USGS report states that there is

a 72 percent chance that the wet cycle will last another 10 years. Dr. Vecchia stated that there is a 1 percent chance that the lake will exceed 1,458 by 2012. In an elevation of 1,458, Devils Lake would cover an area of 260,000 acres, which is approximately 120,000 acres more than it does today.

At an elevation of 1,458, Highway 2 would be impacted in a number of areas, as would the Burlington Northern Railroad and Amtrak, which uses its railroad parallel to Highway 2. In addition to Highway 2, other roads would need to be raised, rerouted, or abandoned. Many homes and a number of recreation areas would be impacted, and utility lines would have to be rerouted. Although the risks of a 1 percent chance may seem low, plans must be made to alleviate the damages that will occur.

The State Water Commission staff has been working with the city of Devils Lake and the Army Corps of Engineers and your staff on plans for the levee raised for Devils Lake. We need to find a solution that will not only be able to protect the city of Devils Lake, but will also be affordable. We also need to work with the city of Minnewaukan and the counties and other entities to develop contingency plans for the unprotected areas around the lake.

Mr. Chairman, again, thank you for the opportunity to testify.

[The statement follows:]

PREPARED STATEMENT OF DALE L. FRINK

Senator and Chairman Dorgan and members of the subcommittee, thank you for the opportunity and privilege to summarize the impacts of the ongoing flooding around Devils Lake and the State of North Dakota's response to the flooding. When I say Devils Lake, I am including Stump Lake as well as the lakes to the north and to the west of the main body of Devils Lake that have been inundated.

Since 1992, Devils Lake has risen over 25 feet and its surface area has increased by approximately 91,000 acres from about 49,000 acres to approximately 140,000 acres. We estimate that over $500 million has been spent fighting the Devils Lake flood. The city of Churchs Ferry has been bought out by the Federal Emergency Management Agency (FEMA), hundreds of other homes have been destroyed, roads and dikes have been raised, re-raised, re-routed and, in some cases, abandoned, and utilities have been re-routed. The counties of Benson, Nelson and Ramsey have lost thousands of acres of productive cropland as well as much of the property tax generated by that land.

Since May 1999 when Devils Lake began spilling into Stump Lake, the level of Devils Lake has varied between 1,446 and 1,449 feet msl. Today, Devils Lake is at an elevation of approximately 1,447 feet msl, however, the volume has increased by over 462,000 acre-feet filling Stump Lake. This volume increase clearly illustrates that the wet cycle has not ended.

The State of North Dakota, along with the local entities, the Spirit Lake Nation, and the Federal Government have taken a three-prong approach for responding to the flooding in the Devils Lake basin. Infrastructure has been protected or modified by raising and re-routing roads, buildings and raising levees, re-routing power and water lines, and homes that have been flooded have been purchased with flood insurance and other FEMA programs. In-basin water management efforts include the Extended Storage Acreage Program (ESAP), which pays landowners to store water in the basin; the irrigation test project, which uses water in the basin to irrigate crops and increase the evaporation of water in the basin reducing the inflow to Devils Lake; and, storing additional water in Sweetwater and Morrison Lakes. The State's emergency outlet has been completed and will discharge the maximum amount of water allowed by the permits governing its operation.

The National Weather Service outlook for Devils Lake in 2008 does provide hope that no major damages will be suffered. The outlook estimates there is a 50 percent chance of Devils Lake reaching 1,447.8 feet msl, and a 10 percent chance of Devils Lake reaching 1,448.6 feet msl. These elevations are equivalent to a volume increase of 113,000 and 232,000 acre-feet, respectively. It is interesting to note how perspective has changed—we now think a volume increase of 113,000 acre-feet is a good

year. Between the years of 1950 and 1992, the inflow to Devils Lake exceeded this amount only three times.

While the outlook in 2008 for Devils Lake is encouraging, the long-term outlook is much more discouraging. As long as we are in the wet cycle, there is danger of flooding around Devils Lake. The United States Geological Survey (USGS) report that Dr. Vecchia discussed describes the wet period that we have been in since 1980. Unfortunately, the 27-year duration of the current wet period has no influence on the remaining length of the wet period. The USGS report states that there is a 72 percent chance that the wet cycle will last another 10 years.

As Dr. Vecchia stated, there is a 1 percent chance that the lake will exceed 1,458 feet msl by 2012. At an elevation of 1,458 feet msl, Devils Lake would cover an area of over 260,000 acres, which is approximately 120,000 acres more than it does today. At an elevation of 1,458 feet msl, Highway 2 would be impacted in a number of areas as would the BNSF railroad and Amtrak, which uses its railroad parallel to Highway 2. In addition to Highway 2, other roads would have to be raised, re-routed, or abandoned. Many homes and a number of recreation areas would be impacted and utility lines would have to be re-routed.

Although the risk of 1 percent may seem low, plans must be made to alleviate the damages that will occur. The North Dakota State Water Commission staff has been working with the city of Devils Lake, the U.S. Army Corps of Engineers, and your staff on plans for the next levee raise for the city. We need to find a solution that will not only be able to protect the city of Devils Lake but will also be affordable. We also need to work with the city of Minnewaukan, the counties, and other entities to develop contingency plans for unprotected areas around the lake.

Thank you, again, for the opportunity to testify today.

Senator DORGAN. Mr. Frink, thank you very much.

Next, we will hear from Mr. Lonnie Hoffer, from the North Dakota Department of Emergency Services.

Mr. Hoffer, you may proceed.

STATEMENT OF LONNIE HOFFER, DISASTER RECOVERY CHIEF, NORTH DAKOTA DEPARTMENT OF EMERGENCY SERVICES

Mr. HOFFER. Chairman Dorgan and Congressman Pomeroy, on behalf of Greg Wilz, I appreciate the opportunity to present information concerning the North Dakota Department of Emergency Services' involvement in issues impacting the Devils Lake Basin.

Since 1993, the department has managed the public assistance and the hazard mitigation grant programs, providing in excess of $37 million in disaster funding to the Devils Lake Basin. The Department of Emergency Services will continue to coordinate preparedness mitigation, response and recovery efforts in support of the jurisdictions in the Devils Lake Basin.

My remarks today will focus on the planning for "roads acting as dams," evacuation and sheltering plans, as well as a Devils Lake Risk Assessment Project.

In 2005, the department employed the services of several Department of Transportation contractors, and they developed the emergency action plan for the Devils Lake roads and dikes. The plan reviews probable scenarios, and also explores the various circumstances that will affect the residents, and provides a summary of the suggested actions.

Participants in that plan were the Ramsey/Benson Counties, Spirit Lake Nation, Department of Transportation, State Water Commission, North Dakota National Guard, National Weather Service, and the U.S. Corps of Engineers.

The emergency plan is a part of the "roads as dikes" solution to the Federal Highway Administration's package to receive $70 million extending for the next 5 years. Our department has evaluated the evacuation and sheltering plans provided by the jurisdictions,

and found them compliant with the established guidelines. And we continue our endeavors to complete the mass-care planning, as ongoing.

In 2000, the department received Hazard Mitigation Grant funding for the Devils Lake Risk Assessment. That risk assessment is on the North Dakota State hub. And the purpose of that is to identify structure—infrastructure and properties impacted as the lake rises. Currently, FEMA is updating that risk assessment because of the new structures being put into service, and other structures that have been removed.

We—I wish to thank the committee for supporting our disaster funding. It has been the single most critical factor in helping jurisdictions recovering from the 22 presidential disasters incurred for the last 15 years. I ask for your continued support for the Hazard Mitigation Grant funding, and encourage members to sustain funding for FEMA to maintain an aggressive mapping program for the Devils Lake Basin.

Thank you.

[The statement follows:]

PREPARED STATEMENT OF GREG WILZ, DIRECTOR, DIVISION OF HOMELAND SECURITY, NORTH DAKOTA DEPARTMENT OF EMERGENCY SERVICES

Chairman Dorgan and members of the committee, I appreciate the opportunity to present information concerning the North Dakota Department of Emergency Service's (NDDES) involvement with issues impacting the Devils Lake Basin. Since 1993 NDDES has managed Public Assistance and Hazard Mitigation Grant Program funding in excess of $37 million for the region. The department will continue to coordinate preparedness, mitigation, response, and recovery efforts in support of jurisdictions in the Basin. My remarks today will focus on planning for roads acting as dams, evacuation, and sheltering as well as the Devils Lake Risk Assessment Project.

In 2005, the department employed the services of two North Dakota Department of Transportation (NDDOT) contractors who developed the emergency plan for Devils Lake Area Roads Acting as Dams. It specifically reviews the probable emergency scenarios, explores how various circumstances will affect local residents and property, and presents a summary of suggested actions or concerns that may be appropriate in mitigating the effects of road dike failures. The plan serves as a guide for Spirit Lake Nation as well as Benson and Ramsey Counties. In April 2005, a tabletop exercise was conducted to validate the Devils Lake Area Roads Acting as Dams Action Plan and provided an opportunity for county and tribal governments to evaluate their local emergency operations plans. Participants included representatives from Ramsey and Benson Counties, Spirit Lake Nation, NDDES, NDOT, ND State Water Commission, ND National Guard, National Weather Service, and U.S. Corps of Engineers, St. Paul District.

The Emergency Action Plan as part of the "Roads Acting as Dams" solution is required by the Federal Highway Administration in order to receive a $70 million funding package extending through the next 5 years. DES planners are working in concert with the NDDOT to certify local plans and are assisting Benson County, Ramsey County and Sprit Lake Nation officials in cross-walking their current plans to ensure compliance. A State functional/full scale exercise is scheduled for September 2008. The after action report will identify gaps and concerns to be addressed in future planning and execution efforts.

DES evaluated evacuation and sheltering plans submitted by each of the three jurisdictions and found them compliant with established guidelines. Endeavors to complete mass care planning are ongoing. Further enhancements will be completed based upon outcomes from the September exercise.

In 2000 the department received Hazard Mitigation Program funding for the Devils Lake Basin Risk Assessment. The project was completed and placed on the North Dakota GIS Hub. This mapping data is used to identify infrastructure and property impacted by specific lake levels. It enables emergency personnel to accurately predict damages, implement mitigation measures to prevent loss of life and property damage, and accomplish more effective floodplain management. Due to new and re-

moved structures, the information is outdated. This year the Federal Emergency Management Agency (FEMA) intends to undertake a mapping project that will provide more current data delivered in a more user friendly format.

I thank the committee for supporting disaster funding; it has been the single most critical factor in helping jurisdictions recover from the 22 presidential disasters incurred in the last 15 years. I ask for your continued support of Hazard Mitigation Grant funding and encourage members to sustain funding for FEMA to maintain an aggressive mapping program for the Devils Lake Basin to promote future decisionmaking based upon current and precise data.

Senator DORGAN. Mr. Hoffer, thank you very much.

Next, we will hear from Joe Belford, Ramsey County Commissioner. And I know that there are many county commissioners in the room. Mr. Belford will testify on behalf of county commissioners.

But, Mr. Belford, also, I know that your family has suffered a recent tragedy, and I know you know this community and all here embrace you and extend our sympathies to you. And we appreciate your being here today under those conditions, our sympathies to you.

STATEMENT OF JOE BELFORD, COMMISSIONER, RAMSEY COUNTY

Mr. BELFORD. Thank you, Senator and Representative Pomeroy.

I'm representing the interests of the entire Devils Lake Basin and the region and downstream, all the way to Lake Winnipeg, as it relates to the flooding issue and the Devils Lake outlet. I also run a local business in the city of Devils Lake.

I am here before this subcommittee today to provide testimony regarding the impact of Devils Lake's rise of over 25 feet over the past 15 years has had on the community of the basin and region. I also want to highlight some of the critical issues that we around the basin will face in the years to come if the lake rise continues.

Through my experiences, having lived through this crisis in Devils Lake, having been an elected official for over 30 years, I am compelled to relate what I know to you, in the hope that you will see fit to continue the vital assistance that we have been receiving from the various Federal-agency entities since this issue came to the forefront, in 1993.

To start, it is important that we give full credit to both the State and Federal governments, which, through hard work, long hours, and likely more than a little sweat, have come to our aid time and time again. Truly, without such help, our community would have been a loss a long time ago.

It is difficult to fully express the gratitude that we feel for the assistance that you and the country have provided. Every time I see the levees that protect our homes and businesses, or the roads that provide for commerce, it reminds me of substantial support that we have received.

In 1993, Devils Lake began its inexorable rise, taking with it homes, private and public lands, roads, utilities, and livelihoods. The lake's rise has been fought valiantly on many fronts; but, slowly and surely, the lake has crept higher, eventually covering almost 140,000 acres, with a volume of 2.3 million acre-feet, and rising to 1,449.19 above sea level. Stump Lake's rise was delayed; but, eventually, Devils Lake reached an elevation sufficient to overflow into it, and in 2007 the lakes' elevations were equalized. This gave Stump Lake an area of 14,800 acres and a volume of 494,000 acre-

feet. Now that Stump is at the same elevation as Devils Lake, there is nothing to prevent the lakes from rising together in the future.

The rise of Devils Lake and Stump Lake has been much like a slow-motion accident, where we in the community know what is happening, and can, in fact, watch it occur, but are unable to affect the relentless march of events. I have often said that the flooding we have experienced is, in many ways, worse than the flooding around a river. With a river, the flood peaks quickly, and then the water recedes, leaving devastation behind, but allowing the people to reclaim their lives. Although the water began its most recent rise around Devils Lake 15 years ago, we, today, have a lake that has not receded appreciably in all of that time.

NEGATIVE EFFECTS OF FLOODING

Of negative effects that the lake has had both many and varied, I will touch on four broad areas of impact—human, agricultural, economic, and regional—in the hopes of providing you with a comprehensive view of impacts of the Devils Lake flooding. Last, I will touch on what we have found to be one of the main positives to come to our community as a result of the lake's rise.

The lake's rise has had an undeniable effect upon those that live around it. Since 1993, the lake's ever-expanded waters have, in fits and starts, swallowed up homes, roads, private/public land, and utilities. Losing one home is a tragedy. And, sadly, hundreds of homes have been lost, relocated, or burned to prevent the hazards in the lake. Roads which once might have been passable have either been raised, to great expense, relocated, or abandoned entirely, forcing people to traverse many extra miles in order to reach their jobs, fields, family, and places of commerce. In recent years, the people of the city of Devils Lake have been fearful of losing their water supply, as the pipeline that brought the city its water was submerged under the lake, making a threat of a pipe breach an insurmountable obstacle. Parks, such as Shelvers Grove and Grahams Island, that have benefited the community, the State, and the travelers from far and wide, have either been inundated or required repeatedly road-raises to preserve access.

Last, one cannot minimize the specter of the fear that affects those citizens whose homes lay beneath the lake's current elevation, behind the existing dike, a thin strip of rock and dirt, life beneath the levee causes one to always be aware that they may be living at risk.

The Devils Lake region has long been known for the productivity of its soils. Its wheat, durum, sunflowers, canola, alfalfa, and many other crops that feed the Nation have been growing here since the settlement days. However, with the lake's rise, thousands upon thousands of acres of land lie beneath the waves. In early days, much of the land consumed was pasture; and, in recent years—and if the lake continues to rise, primary cultural land will be lost.

It is not only the farmers who have grown the world's food since the pioneer days who have been affected; agriculture is the lifeblood of the region, and every acre of land lost means less business to the implement dealers, chemical suppliers, stores, and banks. Roads to market have been moved to avoid the lake, means more

money out of the farmers' pocket to transport seed, fertilizer, fuel, and other crops that they produce.

Inevitably, the lake's rise is a significant impact that has been felt in the pocketbooks of the region's citizens. For every one of the hundreds of families that have had to abandon or move their homes to escape the inexorable creep of a lake, the costs have been exceedingly high, in dollars and in irreplaceable memories and dreams of the future.

Even if their homes were not lost, the region's citizens are realizing that the levee that protects them may not be recertified, requiring them to purchase expensive flood insurance. The loss of Shelvers Grove has been a blow to the region's economic development. Repeated threats of accessing the immensely popular Grahams Island State Park have depressed development, which has been a profitable and highly utilized facility for fishing, boating, and camping. The relocation of the grain terminal at Churchs Ferry is another cost borne by the community.

ECONOMIC IMPACTS OF FLOODING

Another economic drain has been in the steadily increasing operation and maintenance expenses, to keep the critical infrastructure that has been built to deal with the lake's rise, functioning. The threat of the loss of the National Guard camp at Camp Grafton training facility is another area of real concern. It provides the community with good citizens to fill our homes and a corresponding impact to the local economy.

The city of Minnewaukan is faced with a terrible choice, to come up with an insurmountable sum of money to build and maintain a levee around the community, move the city out of the flood's path, at a great cost, or abandon their homes and memories forever.

And while the lake has certainly been a boon to the fishing and recreational industry, uncertainty about whether structures around the lake will be above the water in the future has depressed investments that would otherwise have occurred.

A major financial strain felt by the lake's community is in the local cost-share that is required in order to match the Government funds for raising levees, roads, and relocating water-supply pipelines. The value of that help cannot be expressed fully, but it would be a understatement to say that after meeting the local match on so many projects, so many times, it is becoming increasingly difficult and burdensome for the community to dig deeper into their pockets. This raises taxes on our citizens and discourages investments in new businesses.

The community around Devils Lake has been most affected by the lake's climb up till now, but it will be the entire State and region that stands to lose the most if the water continues to rise. If Devils Lake reaches the 1,459 foot mark, there are many serious threats that will present themselves. A major transcontinental U.S. highway will have to be relocated many miles to the north. A major railroad that provides a conduit for travel and commerce will be lost. Those trains will have to travel a far different, and already congested, route. One of the main electrical transmission lines that transfers electricity along this Nation's already stressed power

grid, will have to be relocated at great expense. If conditions around the lake continue to worsen, it will require even more hard work and assistance to prevent what has been a slow-motion catastrophe from affecting more than the people immediately around the lake.

While the lake's spread has many negative impacts, it has not been without its benefits, as well. It is without question that the booming $40 million fishery has been a great boon to the region, bringing many dollars into our communities and businesses, even though people who chose to make their homes here, as well. Recreation is a growth industry around Devils Lake, and while the great unknown is where the lake will be in 20 years, we are very grateful that there has been a silver lining to this situation.

To conclude, the rise of this lake and Stump Lake, unprecedented since settlement, has affected this community at every level, and that shows no signs of stopping, but costs in dollars to deal in the new and increasing problems will run into hundreds of millions. The help that the Federal Government has provided must continue in the future if we are to survive as a community.

Thank you for giving me the opportunity to address you on this very important issue.

[The statement follows:]

PREPARED STATEMENT OF JOE BELFORD

My name is Joe Belford. I represent the interests of the Devils Lake basin in the region and downstream all the way to Lake Winnipeg, as it relates to the flooding issue and the Devils Lake outlet. I also run a local business, Joe's Corner Mart, a gas station in the city of Devils Lake. I am here before this subcommittee today, to provide testimony regarding the impact that Devils Lake's rise of over 25 feet over the past 15 years has had on the communities of the basin, and the region. I also want to highlight some of the critical issues that we in the basin will face in the years to come, if the lake's rise continues. Through my experiences of having lived through this crisis in Devils Lake, and having been an elected official for over 30 years, I am compelled to relate what I know to you, in the hope that you will see fit to continue the vital assistance that we have been receiving from many various Federal entities since this issue came to the forefront in 1993.

To start, it is important that I give full credit to both the State and Federal governments, which through hard work, long hours, and likely more than a little sweat, have come to our aid, time and time again. Truly, without such help our community would have been lost a long time ago. It is difficult to fully express the gratitude that we feel for the assistance that you and the country have provided. Every time I see the levee that protects our homes and businesses, or the roads that provide for commerce, it reminds me of the substantial support that we have received.

In 1993, Devils Lake began its inexorable rise, taking with it, homes, private and public land, roads, utilities, and livelihoods. The lake's rise has been fought valiantly on many fronts, but slowly and surely, the lake has crept higher, eventually covering almost 140,000 acres, with a volume of 2.7 million acre-feet, and rising to 1,449.19 feet above mean sea level (amsl). Stump Lake's rise was delayed, but eventually Devils Lake reached an elevation sufficient to overflow into it, and in 2007, the lake's elevations were equalized. This gave Stump Lake an area of 14,800 acres, and a volume of 494,000 acre-feet. Now that Stump Lake is at the same elevation as Devils Lake, there is nothing to prevent the lakes from rising together in the future.

The rise of Devils and Stump lakes has been much like a slow motion accident, where we in the community know what is happening, and can in fact watch it occur, but are unable to affect the relentless march of events. I have often said that the flooding we have experienced is in many ways worse than flooding around a river; with a river, the flood peaks quickly, and then the waters recede, leaving devastation behind, but allowing people to reclaim their lives. Although the water began its most recent rise around Devils Lake 15 years ago, we today have a lake that has not receded appreciably in all of that time.

The negative effects that the lake has had are both many and varied. I will touch on four broad areas of impact; human, agricultural, economic, and regional in the hopes of providing you with a comprehensive view of the impacts of Devils Lake's flooding. Last, I will touch on what we have been found to be one of the main positives to come to our community as a result of the lake's rise.

The lake's rise has had an undeniable effect upon those that live around it. Since 1993, the lake's ever-expanding waters have, in fits and starts, swallowed up homes, roads, private and public land, and utilities. Losing one's home is a tragedy, and sadly, hundreds of homes have been lost, relocated, or burned to prevent hazards in the lake. Roads which once might have been passable, have either been raised at great expense, relocated, or abandoned entirely, forcing people to traverse many extra miles in order to reach their jobs, fields, family, or places of commerce. In recent years, the people of the city of Devils Lake have been fearful of losing their water supply, as the pipeline that brought the city its water was submerged under the lake, making the threat of a pipe breach an insurmountable obstacle. Parks such as Shelvers Grover and Grahams Island that have benefited the community, the State, and travelers from far and wide, have either been inundated, or required repeated road raises to preserve access. Lastly, one cannot minimize the specter of fear that afflicts those citizens whose homes lay beneath the lake's current elevation, behind the existing dike, a thin strip of rock and dirt. Life beneath the levy causes one to always be aware that they live at risk.

The Devils Lake region has been long known for the productivity of its soils. Wheat, durum, sunflowers, canola, alfalfa, and many other crops that feed the Nation, have been grown here since settlement days. However, with the lake's rise, thousands upon thousands of acres of agricultural land lie beneath the waves. In the early days, most of the land consumed was pasture, but in recent years, and if the lake continues to rise, prime agricultural land will be lost. It is not only the farmers who have grown the world's food since the pioneer days who have been affected. Agriculture is the life-blood of the region, and every acre of land lost, means less business for the implement dealers, chemical suppliers, stores, and banks. Roads to market that have been moved to avoid the lake mean more money out of the farmer's pocket to transport seed, fuel, fertilizer, and the crops that they produce.

Inevitably, with the lake's rise, a significant impact has been felt in the pocketbooks of the region's citizens. For every one of the hundreds of families that have had to abandon or move their home to escape the inexorable creep of the lake, the costs have been exceedingly high, in dollars, and in irreplaceable memories and dreams for the future. Even if their homes were not lost, the region's citizens are realizing that the levy that protects them may not be recertified, requiring them to purchase expensive flood insurance. The loss of Shelvers Grove has been a blow to the regions economic development. Repeated threats to accessing the immensely popular Grahams Island State Park have depressed development of what has been a profitable and highly utilized facility for fishing, boating, and camping. The relocation of regional grain terminals at Churchs Ferry are another cost born by the community. Another economic drain has been in the steadily increasing operation and maintenance expenses, to keep the critical infrastructure that has been built to deal with the lake's rise, functioning. The threat of the loss of the National Guard's Camp Grafton training facility is another area of real concern. It provides the community with good citizens to fill our homes, and a corresponding impact to the local economy. The city of Minnewaukan is faced with a terrible choice; come up with an insurmountable sum of money to build and maintain a levee around their community, move the city out of the flood's path at a great cost, or abandon their homes and memories forever. And while the lake has certainly been a boon to the fishing and recreation industry, uncertainty about whether structures around the lake will be above the water in the future, has depressed investments that would otherwise have occurred. A major financial strain felt by the lake community, is in the local cost-share that is required in order to match Government funds for raising levees and roads or relocating water supply pipelines. The value of that help cannot be expressed fully, but it would be an understatement to say that after meeting the local match on so many projects, so many times, it is becoming increasingly difficult and burdensome for the community to dig deeper into their pockets. This raises taxes on our citizens, and discourages new investments and businesses.

The community around Devils Lake has been the most affected by the lake's climb up until now, but it will be the entire State and region that stands to lose the most if the waters continue to rise. If Devils Lake reaches 1,459 feet amsl, there are many serious threats that will present themselves. A major transcontinental U.S. highway will have to be rerouted many miles to the north. A major railway, that provides a conduit for travel and commerce, will be lost, and those trains will have

to travel a far different, and already congested route. One of the main electrical transmission lines, that transfers electricity along this Nation's already stressed power grid, will have to be relocated at a great expense. If conditions around the lake continue to worsen, it will require even more hard work and assistance to prevent what has been a slow-motion catastrophe from afflicting more than the people immediately around the lake.

While the lake's spread has had many negative impacts, it has not been without its benefits as well. It is without question that the booming $40 million fishery has been a great boon to the region, bringing many dollars into our businesses, and even people who are choosing to make their homes here. Recreation is a growth industry around Devils Lake, and while the great unknown is where the lake will be in 20 years, we are very grateful that there has been a silver lining to this situation.

To conclude, the rise of this lake, unprecedented since settlement, has affected this community at every level, and it shows no sign of stopping. The costs in dollars to deal with new and increasing problems will run into the hundreds of millions. The help that the Federal Government has provided must continue into the future if we are survive as a community.

Thank you for giving me the opportunity to address you on this very important subject.

Senator DORGAN. Mr. Belford, thank you very much.

And, finally, we will hear from the mayor of Devils Lake, Mayor Fred Bott.

Mayor Bott, you've been at this a long time. Thank you for being a teacher, first; and, second, thank you for your service to Devils Lake. You may proceed.

STATEMENT OF FRED BOTT, MAYOR, DEVILS LAKE

Mr. BOTT. Thank you, Senator Dorgan, and good morning, to you, Senator Dorgan and Congressman Pomeroy. I'd like to thank you for the opportunity to speak with you today regarding the current challenges facing the city of Devils Lake and the potential implications relating to rising water levels within the lake.

First of all, I would like to thank you for the ongoing support you've provided to our community throughout the years of flooding. The dike protecting the city, the roads leading to our great community, and the vast amounts of infrastructure protection measures that have been taken would not have been possible without your unrelenting support.

As you're aware, the city of Devils Lake has faced a multitude of challenges resulting from fluctuating lake levels. Today, I'd like to discuss three items: the importance of our city within the area, our ongoing drinking water supply project, and the Devils Lake levee system.

DEVILS LAKE COMMUNITY

Devils Lake is the eleventh largest city in North Dakota. Our regional airport had more than 3,500 departures last year. We are the home to Lake Region State College, a comprehensive 2 year college and vocational school, serving approximately 1,700 students, and the North Dakota State School for the Deaf. Five miles to the south of Devils Lake is our neighbor, the Spirit Lake Nation, which is home to approximately 6,300 people. Spirit Lake relies, to a great extent, on the city of Devils Lake for its retail needs. Also just to the south of the city is Camp Grafton, a National Guard training facility which employs 220 people year-round. Camp Grafton is in the process of implementing tens of millions of dollars worth of improvements, and relies heavily on the local airport for transportation of students.

With the closest regional center being 90 miles away, the city of Devils Lake plays a vital role in the local economy. North Dakota State sales tax reports show Devils Lake to have the sixth-highest taxable sales per capita in the State.

EMERGENCY WATER PROJECT

The city of Devils Lake continues to proceed with the development of our Emergency Water Replacement Project. Any failure within the inundated portion of the pipeline would leave the city without an adequate drinking-water supply.

In 2007, the city completed installation of 32 miles of pipeline to connect the city to our new water source. The $8 million thus far spent on the water supply project has been funded through EPA grants, North Dakota State Water Commission, and local funds. Remaining portions of the project include completion of the well field development and construction of a water treatment facility. It is envisioned that construction of both of these projects will be initiated this year, at an estimated cost of nearly $10 million. With your help, Senator, the city has secured nearly $6 million toward this phase of the project.

And finally, the levee, my personal file, which is labeled "Corps and Dike Project" has a beginning date of February 17, 1994 and the lake elevation at that time was 1,428 feet, the first document in that file on that date is a copy of the letter sent by you, Senator Dorgan, to Colonel James T. Scott, district engineer, St. Paul District. The letter concerned potential spring flooding. The second document within the file is dated March 3, and is a reply to your letter from the division engineer, Omaha District, also concerning spring flooding.

Another of the documents in my file is the city's letter to then-Governor Shafer, asking him to secure assistance from the U.S. Army Corps of Engineers to raise and extend the existing flood protection levee for the city of Devils Lake; the letter, dated June 21, 1996. Our hope was that this would be our only request. We never expected that, nearly 12 years later, we would be making yet another request to extend protection measures to protect the city from the flood emergency caused by the waters of Devils Lake.

It appears the existing wet cycle is expected to continue, and there is significant chance that the lake will continue to rise. This is of great concern to the city, because the existing levee, with a top of elevation of 1,460 feet, is already near the fringe for meeting Corps dam-safety criteria and FEMA floodplain regulations. Increasing lake levels will exacerbate this problem and ultimately require additional protection measures to be implemented.

LEVEE SYSTEM

Approximately $54 million has been invested in the current levee system protecting our area. Preliminary estimates for future levee work range to the amount of $100 million. This amount will make it extremely difficult to fund at the local level, and I hope we are able to work with the Corps to find a cost-effective alternative, should the lake continue to rise.

Again, I thank you for the opportunity to speak today. We very much appreciate that you continue to understand the great chal-

lenges that lie ahead of us. And we hope that we are able to work together to find workable solutions.

[The statement follows:]

PREPARED STATEMENT OF FRED BOTT

Senator Dorgan and committee members, thank you for the opportunity to speak with you today regarding the current challenges facing the city of Devils Lake and the potential implications related to rising water levels within the lake. My name is Fred Bott. I am the president of the Devils Lake City Commission.

First and foremost, I would like to thank you for the ongoing support you have provided to our community throughout the years of flooding. The dike protecting the city, the roads leading to our great community, and the vast amounts of infrastructure protection measures that have been taken would not have been possible without your unrelenting support.

As you are aware, the city of Devils Lake has faced a multitude of challenges resulting from fluctuating lake levels. Today I would like to discuss three items with you: the importance of our city within the area; our ongoing drinking water supply project; and the Devils Lake levee system.

CITY'S REGIONAL IMPORTANCE

Devils Lake is the 11th largest city in North Dakota. The city's 2000 Census population was 7,222 residents. Our public schools have nearly 1,700 students. Our private elementary school has 140 students. Our medical facilities consist of two clinics, which saw a total of 56,000 patients last year. Mercy Hospital, our local hospital, had 1,715 patients last year, and its emergency room saw 11,047 patients. We have three nursing and retirement homes. Our regional airport had 3,548 departures last year. Lake Region State College, a comprehensive 2-year college and vocational school serving approximately 1,700 students, and the North Dakota School for the Deaf are also located in Devils Lake. Finally, the size of the work force in Devils Lake, for which data is available, numbered 5,422.

Five miles to the south of Devils Lake is the Spirit Lake Nation, which is home to approximately 6,300 people. Spirit Lake relies almost entirely on the city of Devils Lake for its retail needs. Also just to the south of the city is Camp Grafton, a National Guard training facility, which employs 220 people year round. Camp Grafton is in the process of implementing tens of millions of dollars worth of improvements and relies heavily on the local airport for transportation of students.

With the closest regional center being 90 miles away, the city of Devils Lake plays a vital role in the local economy. North Dakota State Sales tax reports show Devils Lake to have the sixth highest taxable sales per capita in the State. This indicates a strong regional shopping presence in the city. It would be an extreme hardship if area residents, including the Spirit Lake Tribe, had to travel 90 miles for shopping access.

DRINKING WATER SUPPLY PROJECT

The city of Devils Lake continues to proceed with the development of our Emergency Water Source Replacement Project. The project was initiated several years ago to address the precarious situation created by the lake inundating 6 miles of our existing supply line that has been in service 47 years. A failure within the inundated portion of the pipeline could leave the city without an adequate drinking water supply. The project will also allow the city to comply with new Safe Drinking Water Act (SDWA) standards for arsenic. The city supply is nearly 3.5 times the allowable limit and we are currently operating under a 3 year arsenic exemption status granted to us by the ND Department of Health. The exemption period ends in January 2009, and based on our population, the city is not eligible for an extension past this date.

In 2007 the city completed installation of 32.5 miles of pipeline to connect the city to our new water source. The $8 million thus far spent on the water supply project has been funded through EPA grants totaling $1.6 million, $3.7 million from the ND State Water Commission, and $2.7 million in local funds.

Remaining portions of the project include completion of the wellfield development and construction of a water treatment facility. It is envisioned that construction of both of these projects will be initiated this year, at an estimated cost of near $10 million. With your help, Senator, the city has secured nearly $6 million toward this phase of the project. In an effort to ensure water rates remain affordable to city residents, we have requested an additional $1.6 million in funds from your office to aid in completing this much-needed project. Any additional aid you can provide will de-

crease the local share required and the community will see a direct benefit in lower water bills.

LEVEE PROJECT

My personal file labeled "Corps and Dike Project" has a beginning date of February 17, 1994. The lake elevation at that time was 1,428 feet. The first document in that file on that date is a copy of a letter sent by Senator Byron Dorgan to Colonel James T. Scott, District Engineer, St. Paul District. The letter concerned potential spring flooding. The second document within the file is dated March 3, 1994, and is a reply to Senator Dorgan from Colonel John Schaufelberger, Division Engineer, Omaha District, concerning spring flooding. Two other documents within the file include the city's Emergency Declaration dated June 17, 1996, and the city's letter to Governor Shafer asking him to secure assistance from the U.S. Army Corps of Engineers to raise and extend the existing flood protection levee for the city of Devils Lake dated June 21, 1996. Our hope was that this would be our only request. We never expected that nearly 12 years later, we would be making yet another request to extend protection measures to protect the city from the flood emergency caused by the waters of Devils Lake.

As you will hear today from representatives of the U.S. Geological Survey, it appears the existing wet cycle is expected to continue, and there is a significant chance the lake will continue to rise. This is of great concern to the city because the existing levee, with a top elevation of 1,460 feet, is already near the fringe for meeting Corps dam safety criteria and FEMA floodplain regulations. Increasing lake levels will exacerbate this problem and ultimately require additional protection measures to be implemented. Local officials have met several times with representatives from the Corps regarding this issue and the Corps has initiated the planning process for potential measures to be taken to address increasing lake elevations.

Currently, approximately $54 million has been invested in the current levee system protecting our area. Preliminary estimates for future levee work range in excess of $100 million. This amount will make it extremely difficult to fund at the local level and I hope we are able to work with the Corps to find a cost effective alternative should the lake continue to rise. In the coming months I suspect a preferred protection alternative will be chosen that will have cost implications. I ask that you continue to support measures necessary to protect the city of Devils Lake.

Again, thank you for the opportunity to speak today. We appreciate that you continue to understand the great challenges that lie ahead of us, and we hope that we are able to work together to find workable solutions.

Senator DORGAN. Mayor, thank you very much for your testimony. It reminded me again, and I was just mentioning this to Congressman Pomeroy, that this is a little like the movie Groundhog Day, where you wake up at 6 o'clock every morning, and it just starts over again, the same day.

Because, 14 years later, we're still talking about exactly the same things in the Devils Lake region.

I want to do a couple of things, and then begin asking a series of questions.

JOINT WATER RESOURCES BOARD

First, I want to include a statement for the record by the Devils Lake Basin Joint Water Resource Board and Mike O'Connor. That Resource Board includes a board of directors from Benson County, Eddy County, Mike Tweed; Pierce County, Duane Hawk; Rolette County, Ronald Heinz; Walsh County, Robert Shirek; Cavalier, Larry Gellner; Nelson, Mike Donohue; Ramsey, Duane Ash; Towner, Dale Anderson; and Mike Connor is the manager. I thank them for their contribution.

[The statement follows:]

PREPARED STATEMENT OF MICHAEL CONNOR, DEVILS LAKE BASIN JOINT WATER RESOURCE BOARD

DEVILS LAKE UPPER BASIN WATER UTILIZATION PROJECT

The Devils Lake Basin

Devils Lake is located on the southern edge of a 3,819 square mile sub-basin of the Red River of the north basin. Run-off water within the Devils Lake Basin ultimately ends up in Devils Lake. When Devils Lake reaches elevation 1,460 feet msl, it will discharge through a natural outlet to the Sheyenne River. During 2005, the lake reached an elevation of 1,449 feet msl and would have to rise approximately 11 more feet before it begins to overflow to the Sheyenne River. Devils Lake is the largest natural lake in North Dakota. The lake has risen over 26 feet since 1993 and has expanded from 40,000 acres to over 130,000 acres. With the exception of a levee to protect the city of Devils Lake, the lake has been allowed to expand freely as the elevation increases. This causes flooding to cropland, pasture/hay land, residential developments, farmsteads, parks/refuges and other natural or developed land features.

Previous Actions

During the fall of 2001, the Devils Lake Basin Joint Water Resource Board started an initiative to explore ways in which the excess surface waters in the upper Devils Lake Basin could be put to beneficial use within the basin. After researching some alternatives and reviewing previous work completed by State, local and Federal agencies, the Joint Board retained the services of an engineer to perform a reconnaissance level study.

The results of the reconnaissance study, which was completed in August 2002, indicated that the potential exists for water to be utilized through the evapotranspiration of growing agricultural crops. This enhanced evapotranspiration would alleviate a portion of the excess surface water found in the upper Devils Lake Basin.

Although the primary analysis and calculations looked promising, it was apparent that additional research work would be necessary before such a monumental project could be developed.

It was decided that the most reactive way to produce the results necessary for a full water utilization project was to develop three individual projects each depending on the information derived from the proceeding projects.

—Test Project.
—Pilot Project.
—Full Water Utilization Project.

Test Project

The Test Project is the construction, development and observation of water utilization on a small scale using scattered sites throughout the Devils Lake Basin. In 2004, 10 sites were selected to participate in the Test Project. Each site consisted of different soils found throughout the Basin. A majority of the soils found at the selected sites were soils that are typically conditional or marginal irrigable soils. The Test Project needed to find if a majority of the soils in the Basin could be irrigated, even during wetter than normal conditions.

In 2005, the infrastructure, including the pivots, pipelines, intakes, and pumps, was installed by the approved contractor. Also in 2005, the technical consultant, North Dakota State University (NDSU), began installing testing equipment that will be used to monitor the soil and water conditions throughout the life of the Project.

The primary objective of the Test Project is to further secure answers to a number of questions related to the project in a real world working environment.

—How much additional water could be applied to crops in this area to maximize water utilization?
—Will the use of basin surface water result in a detrimental application of salts to the soil?
—What crop rotation would be most beneficial?
—How could ultimate management of a larger project involving several producers and thousands of acres be implemented?
—How does the project affect local surface water bodies?
—How can water application and water use through this application method be maximized?'

In 2006, nearly 8 inches of water was applied to the 10 sites and in 2007 nearly 3 inches were applied. The difference in application amounts in 2006 and 2007 was due to the fact the Basin received nearly double the precipitation in 2007 as compared to 2006, which was drier than normal.

It is a goal of the Project that NDSU will be able to answer these questions, and possibly more, once the Test Project is completed in the fall of 2008. After the information is gathered and analyzed, NDSU will make recommendations to the Joint Board on how to proceed with the next phase of the Project, which has been named the Pilot Project.

Pilot Project

Now that the Devils Lake Upper Basin Water Utilization Test Project for 2005–2008 is underway and nearly complete, the planning for the development of the Pilot Project is another step in the overall project. The approximate size of the Pilot Project would be 4,000 acres total, with 3,000 acres coming from 25–30 new sites, and 1,000 acres coming from the continuation of the 10 sites already participating in the on-going Test Project.

The majority of the details for the Pilot Project would be developed though the analysis of the operations and results from the on-going Test Project. Coordination with NDSU, the technical consultant on the Test Project, will be an important element of the preparation of the Pilot Project. Much of this preliminary work needs to be completed on the Pilot Project prior to the completion of the Test Project.

The primary goals of the Pilot Project would be to develop, implement and refine a system of operations for water utilization in the Devils Lake Upper Basin. Some of the critical elements that need to be scoped prior to the construction of the Pilot Project include:

—Identifying and redefining the soils in the Devils Lake Basin that maximize water utilization and are conductive to long term irrigation.
  —Review and update information found in the reconnaissance level investigation.
  —Analyze data from the Test Project with assistance from NDSU.
  —Establish a GIS data base.
—Landowner/Producer Cooperation.
  —Solicit applications for potential project involvement.
  —Hire a soil classifying consulting firm to assist in reviewing landowner applications for the project and assist in finalizing the sites selected.
  —Hold public scoping meetings.
—Maximization of crop yields and overall project economics.
  —Analyze data from the Test Project.
  —Set a goal to have 2,000 acres of traditionally irrigable soils involved and another 2,000 acres consisting of conditionally irrigable and conditionally non-irrigable soils to secure expanded economic data. The soil classifications and explanations are available in the May 5, 2004, "Devils Lake Upper Basin Water Utilization Study" prepared by HPC, Inc.
  —Consult with the Test Project farm management consultant and/or a consulting firm for developing an expanded data gathering system for existing and new acreage. This information will then be used to determine ways to maximize the crop yields and project economics.
—Water source quality and quantity.
  —Determine possible water sources by utilizing the GIS database. The Pilot Project sites should be located near sources of water with a quality that is conducive to irrigating the soils found within the Basin.
  —Gather existing data sets from Federal and State agencies.
  —Gather new data from water sources through field testing.
—System operation and maintenance procedures and costs.
  —Analyze data from the Test Project.
  —Consult with NDSU and vendors for recommendations on potential irrigation equipment for use on the Pilot Project. Joint Board should utilize data and experiences gained from the Test Project.
  —Possible formation of a basin wide irrigation district with special consideration being given to the possibility of expanding an existing irrigation district near or in the Devils Lake Basin.
—Crop rotations.
  —Analyze data from the Test Project.
  —Consult with NDSU Agriculture Extension Area Agronomists and County Extension Agents in the involved basin areas, as well as the Test Project Farm Management consultant.

The total time needed to prepare and develop for a Pilot Project is in the range of 15 to 18 months. As the necessary information is being assembled for the Pilot Project, additional data from the Test Project will also become available. If data from the Test Project demonstrates that expanding to the Pilot Project is feasible, it is vital that the Devils Lake Basin Joint Water Resource Board, along with its

local, State and Federal partners plan for the expansion at this time so that momentum on the overall project is not lost.

PILOT PROJECT PRELIMINARY BUDGET

Item	Budget Amount
Review initial Test Project results	$40,000
Feasibility study	75,000
Determining funding support	25,000
Operations and monitoring	65,000
Final site selection	50,000
Pre-construction	50,000
Development plans/specifications	25,000
Bid process	10,000
Construction	4,000,000
Project Administration	10,000
Total	4,350,000

In 2006, the Congressional Delegation through Senator Dorgan's office, secured $350,000 for the continued work on the Devils Lake Upper Basin Water Utilization Project, with emphasis on the Pilot Project. At this time, some of the planning for the Pilot Project has begun, including the Joint Board soliciting land site applications from the landowners in the Devils Lake Basin. These applications are being entered into a GIS database which will assist in selecting the sites for the Pilot Project. Additional information that is gathered from the Test Project will be entered into the database as soon as NDSU provides the data.

The money already secured for the Pilot Project will be adequate to keep the planning and the momentum of the overall Project going, but it will not be enough to construct any of the infrastructure needed for the next phase. Additional funding will be needed for actual construction (Item No. 9 from preliminary budget). The total amount of Federal, State, and local funds needed for construction of the Pilot Project will not be known until after the bids are received, but preliminary estimates are approximately $4.0 million.

The planning for the Devils Lake Basin Water Utilization Pilot Project will be mostly completed by 2008–2009, with construction and operations taking place after that. If the data collected from the Pilot Project and subsequent analysis provides sufficient evidence that water utilization in the upper basin is an effective tool for upper basin water management, then the appropriate parties should continue to move forward with the full scale Water Utilization Project. The size of the full scale project will be highly dependent upon the level of funding from Federal and State governments. The original reconnaissance level study made mention of a possible 20,000 acres of irrigation in the Basin. At this level, the Devils Lake Upper Basin Water Utilization Project will not only become an important water management tool, but generate an economic boost for the entire Devils Lake Basin.

The Devils Lake Upper Basin Water Utilization Project will have a direct impact not only on the amount of water that flows into Devils Lake from the upper basin, but will also have a significant impact on the economic revitalization of the Devils Lake Basin!

ADDITIONAL SUBMITTED STATEMENTS

Senator DORGAN. I thank them for their contribution.

We weren't able to have everyone testify here today, but I do want to point out that the record will remain open for 15 days, and those wishing to submit testimony to be a part of the permanent record are able to do so. You're welcome to send that testimony to my office, and it'll become a part of the permanent hearing record.

[The statements follow:]

LETTER FROM ODELL FLAAGAN

APRIL 3, 2008.

Senator BYRON L. DORGAN,
Chairman, Energy and Water Appropriations Committee, SH–322, Washington, DC 20510.

DEAR SENATOR DORGAN: The flow of Devils Lake water into Stump Lake has caused a great deal of devastation in Nelson County. Approximately 17 miles of roads have been lost, 3 farmsteads have been flooded and about 21,400 acres of farmland are inundated. The flooded agricultural land has had a negative effect on the County's tax base.

Additional flooding in the Devils Lake/Stump Lake region will surely cost millions of dollars. The cost of raising highways and dikes around Devils Lake is overwhelming. Many people in the region would like to see the lakes stabilized.

The Nelson County Commissioners believe the best solution to these problems is to clean out the Tolna Coulee and build a control structure. History has shown that water has flowed through this natural outlet many times. If needed, a water purification plant could be built at the control structure. A project such as this, we believe, would cost much less than letting the water continue to rise uncontrollably.

The Nelson County Commissioners urge all State and Federal officials to work together to stabilize Devils Lake and Stump Lake by cleaning out the Tolna Coulee and building a control structure to prevent additional flooding.

Sincerely,

ODELL FLAAGAN,
Chairman, Nelson County Commission.

PREPARED STATEMENT OF RICHARD BETTING, SECRETARY, PEOPLE TO SAVE THE SHEYENNE

"Floods are Acts of God; Flood Losses are Largely Acts of Man." National Geographic

North Dakota Senator Byron Dorgan, Chairman of the Subcommittee on Energy and Water Development, held a hearing March 25, 2008, in Devils Lake, North Dakota, to receive testimony about ways of dealing with the potential future rise of the level of Devils Lake. Those who testified wanted the ND State Water Commission and/or the Corps of Engineers to study ways of dealing with the potential problems arising from higher levels of water on the lake, if and when they might occur.

A person representing the U.S. Geological Survey stated that the wet cycle "has continued to the present." He also said that there is a "72 percent chance the lake will continue to rise for another 10 years." There are at least two major problems with these statements. First, since Devils Lake area has not had excessive precipitation since 2000, it's doubtful that the "wet cycle" continues. The same day of the hearing North Dakota newspapers carried stories of the continued drought throughout the State. One headline read: "North Dakota still dampened by drought." Another fact: Devils Lake has dropped more than 2 feet from its all-time high of 1,449.2 feet msl. in 1996 to about 1,447 feet today.

The outlook this spring is dry, with very little snow melt runoff in most of the State. Another current news item indicated that the Souris River has almost no flow this spring. If there is a 5 percent chance Devils Lake will rise 10 feet by 2025, there is a 95 percent chance it won't.

Drought is being used as a main reason for providing Fargo with water when the next drastic drought occurs. It hardly seems reasonable to provide for both a drought and a flood at the same time.

Testimony was also given that Devils Lake rose 25 feet since 1993, from about 1,423 feet msl. to 1,448 feet. This was a misleading set of statistics. If one takes the lake level of 1,428.8, its height in 1987, that is about a 20-foot rise in 20 years, a much less precipitous—and therefore less ominous—rise. The lake also dropped from that 1987 high to its level of 1,423 in 1993.

Another main point is that the potential rising water level on Devils Lake is not an emergency. The process has been going on for, as one can see, many years, depending upon when one wishes to begin counting. Since the situation lacks emergency status, it should be dealt with in a reasonable, long-term manner, as explained below.

As much as the lake has risen, another point to be made is that Devils Lake now is about half full. In order to rise to its point of overflow at 1,459 feet msl., the lake will have to rise another 12 feet and must hold another 2,470,000 acre/feet. That is about as much as the lake has increased in net volume since 1993. However, as the lake rises and its volume increases, so does evaporation from its surface. Each

year approximately 30 to 36 inches, on average, evaporates from the lake. The larger the surface, the more evaporation. At about 250,000 acres the lake would reach equilibrium.

Like a physician who is treating a sick patient—and looking to find the causes of the symptoms of the patient's illness—what those who wish to deal with the problem of rising water on Devils Lake will, ultimately, have to deal with are the root causes of flooding. Some claim the chief culprit is precipitation. Facts don't support this conclusion. Precipitation levels in the Devils Lake basin increased from an average of about 18 inches per year to about 23–24 inches per year from 1993 through 1998. An increase of slightly more than 5 inches per year. Five extra inches on the lake would not have raised the level 2 or 3 feet in a year's time, as happened.

Rather, the primary cause of flooding on Devils Lake has been and continues to be drainage in the upper basin of the lake. U.S. Fish and Wildlife studies conclude that there are over 189,000 acres of drained wetlands in the upper basin of Devils Lake. That's about half of the original wetland acres—commonly known as sloughs. Since the 1950s over 22,700 (North Dakota State Water Commission figures) upper basin sloughs have been drained. More, counting the illegal drains.

The precipitation from these drained wetlands ran off into the Starkweather and Mauvais Coulees, for example, or through Channel A and straight into Devils Lake. That's why a 6-inch upper basin rainfall [from about 189,000 acres] could add a foot of water to the lake [whose size was then less than 100,000 acres]. That's why each and every year from 1993–1998 about 328,000 acre-feet of water flowed into Devils Lake from the upper basin.

Water that would have remained in upper basin wetlands to evaporate had they not been drained.

Drainage Affects Flooding as the following study illustrates.

From the North Dakota Geological Survey (received 2001)

The Effects of Wetlands Drainage on Flooding.—In North Dakota the Fish and Wildlife Service studied the effects of wetland drainage on flooding on the J.Clark Salyer National Wildlife Refuge in the Souris River Basin north of Minot (study dated December 1979). One of the study areas, which included 205 acres of natural, undrained wetland basins, had an inflow of 109 acre-feet, but only 46 acre-feet were measured as outflow. The basins retained all of the runoff from within the 5-square mile block and also reduced stream flow by 53 percent. By contrast, in a drained study area, 46 acre-feet of water entered, but outflow was 74 acre-feet. The storage capacity of wetlands in the second study area was eliminated by artificial drainage and stream flow increased 61 percent. The study concluded that drained wetlands contributed more to streamflow than undrained wetlands, despite some significant differences in other land-use practices. The Fish and Wildlife Service suggested that wetland drainage is the most important land-use practice with a bearing on flooding problems.

In other words, upper basin inflows need to be modified, reduced, controlled.

In fact, upper basin "water management" was part of the original plan to deal with rising water on Devils Lake. The three-legged stool was the metaphor used to describe the ways of dealing with rising water: One leg for infrastructure (on which over $500 million has already been spent); one leg symbolizes the outlet (which has proved to be a false promise); the third leg illustrates upper basin water storage. (Ask the ND State Water Commission how many acres are presently in the water management program.)

One solution to high water on Devils Lake that continues to be suggested includes digging a ditch from Stump Lake to the Sheyenne River. In response to similar proposals in the future here are important remarks dealing with a Tolna Coulee outlet to the Sheyenne River.

Comments from a letter dated August 13, 1999, from Francis Schwindt, Chief, Environmental Section, North Dakota Department of Health, to David A. Sprynczynatyk, State Engineer, State Water Commission in reply to "a preliminary review of the city of Devils Lake's proposed project."

Schwindt wrote, "The project entails the construction of a 7,344-foot channel, from Stump Lake to the Tolna Coulee. There are many important plan details that are not available at the time of this evaluation.

"This project is extremely complex from a water quality perspective. The water quality parameters that are of concern include total dissolved solids, sulfates, chlorides, copper, lead, arsenic, selenium boron, ammonia, and nutrients. The concentration of each of these constituents needs to be determined when blended with the Sheyenne River at the point of discharge, and several locations downstream, including the confluence with the Red River of the North, and at the International

Border. Additionally, biological factors, such as algae, can result in taste and odor problems, and perhaps toxins for municipal water supplies. . .

"A cursory review of historical flows and water quality of the Sheyenne River indicate that a very narrow window of opportunity exists for operating the project at a very minimal flow rate, and that the project's flood control objectives for Devils Lake would not be obtained while meeting water quality standards. Furthermore, designated beneficial uses of the Sheyenne River would not be maintained; these include municipal water supplies, aquatic life, irrigation, industrial water supplies, and recreation.

"For the reasons stated above, this Department urges the city of Devils Lake to seek alternatives to this project. This Department is sympathetic to the desires of residents in the Devils Lake area for meaningful flood control. However, we feel there are viable alternatives to the proposed project, and these alternatives should be vigorously pursued. . . ."

In other words, the North Dakota Department of Health determined long ago that high water on Devils Lake/Stump Lake could not be addressed by a Tolna Coulee drain into the Sheyenne River.

Continuing to study the potential problem of rising water on Devils Lake without taking into consideration the primary cause of higher water on the lake—upper basin drainage—is naïve and unscientific. Without dealing with closing a significant portion of the upper basin drains—in other words, restoring wetlands—no downstream tactics will deal effectively with the symptoms of "flooding" on Devils Lake.

While the storage issue has within it several political and economic difficulties, those have to be met seriously, honestly and forthrightly for long-term action to be meaningful.

People to Save the Sheyenne has a continuing interest in legislation pertaining to actions taken that will impact the Sheyenne River, so please inform our organization whenever pertinent legislation is being considered—by this or other committees. Members of our organization will always be willing to present testimony if notified in a timely manner.

Senator DORGAN. I did not—and should have—introduced Roger Cockrell, who sits behind me, at the start of this hearing. Roger is the staff director, for me, dealing with water issues on the Energy and Water Subcommittee. He knows more about every water project in the United States of America than almost any other person in this country, and he does an outstanding job working with me on all of the water projects across the country.

We have a number of State legislators present. State Representative Arnold Schmidt is here. Arnold, would you wave? Over there. State Representative Curt Hofstad, State Representative Dennis Johnson, and State Senator Dave Elke. We thank all of you for being present. And obviously, the State legislature and State government have a significant role to play, and have played a role, in these issues.

Let me also begin a series of questions. Then I will call on Congressman Pomeroy for a series of questions, as well.

LEVEE DESIGN

First, let me start with you, General Walsh. We refer to these as "levees" around Devils Lake, yet they have water against them 24 hours a days, 7 days a week. The structures, it seems to me, act more like dams. Were these structures designed as levees or designed as dams?

General WALSH. You're right, I think we call them "levees," and that's really a misnomer. They were designed with dam safety criteria, so they do have rock revetments, riprap, they do have——

Senator DORGAN. So, they're designed, essentially, more than levees, they're designed as dams. Let me ask you about the equalization levels between Stump Lake and Devils Lake. And could you

lift that more closely when you respond—perhaps just lift it up and speak into the microphone? How has the equalization of Devils Lake and Stump Lake affected the determination of the 100-year flood elevation for Devils Lake? The reason that's important is that will determine whether people have to buy flood insurance in the future.

General WALSH. Yes, sir, that is very important, and certainly has caused the Federal Government to look at the data. And USGS just reported out on their results. They said that the 1-percent estimate would be at elevation 1,454.6, and we're going to be taking that data and looking at what we have in regard to the embankments, and finish up that analysis and report back to FEMA, and give them a report.

Senator DORGAN. General, your analysis of projects for the city of Devils Lake, I assume, will consider consequences for other areas and regions here in the Devils Lake area, as well. This is like a balloon, in many ways; you squeeze it in one direction, and it moves in another direction. So, I assume you're looking at: (*a*) "How do you protect the larger city?" and (*b*) "What are the consequences—how do you protect other interests in the basin?"—is that correct?

General WALSH. Yes, sir. And that's what we'll be utilizing the $5 million that was appropriated for us to do that.

Senator DORGAN. Do you have plans in place to deal with a catastrophic levee or dam breach, should it occur? And, in general, what are those plans?

General WALSH. Yes, sir. The funding to raise the last levee raise also required us to look at or continue to work with the city on emergency action plans, and we've been doing that. The plan covers notification and evacuation process if there is an overtopping failure, but also if there's a non-flood sunny-day type of failure, as well. And so, we're working with the city on that emergency action plan.

Senator DORGAN. Chairwoman Pearson, how many acres of the Spirit Lake Nation Reservation has the tribe lost to Devils Lake flooding? Do you know about how many acres?

Ms. PEARSON. We discussed that, I think, I believe, a couple of weeks ago, and the acreage just keeps going up and up. And I know out here we've got approximately—according to the environmental assessment—745 acres, but I know it exceeds that, and I can probably get an accurate figure from our realty people.

[The information follows:]

I met with our Tribal & BIA Realty staff to gather the information you requested regarding the flooding experienced at Spirit Lake for the past decade. Though an updated estimate will be completed in February 2009, our records indicate we've lost an estimate of 8,465 acres at an average value of $2,962,750. There was a relocation of 41 homes on trust lands and 7 on fee lands due to the flooding. (Documentation is on file.)

FLOOD INSURANCE

Ms. PEARSON. But, that's a big concern, there, because its trust property, we're not eligible for flood insurance or any of those benefits. So, it's always my concern when the land is flooded, because a lot of the folks there depend on that for their lease income, and livelihood, as well as—a lot of them live on their own land there.

Senator DORGAN. Does the tribe have an evacuation plan in place should there be some sort of levee failure in this region?

Ms. PEARSON. I know somewhere back there in the audience I have our emergency manager, and I believe they're in the last stages of finalizing that plan.

Senator DORGAN. All right.

Mr. Hartl, you say that a permanent solution for the roads in this region, in the event that we see this continued flooding, could exceed $280 million. Is that correct?

ROADS

Mr. HARTL. The $280 million I referred to is the maximum range of alternatives for the "roads as dams" issue alone. The impacts of rising waters to other roads in the Devils Lake area, even those that are at the next major point of threat—1,455 is the level we've raised many, many routes to in this area when they are threatened—to raise those routes that have elevations between 1,455 and 1,460, to raise those to, say, 1,465, to be out of the impact of Devils Lake, is at least another $250 million.

Senator DORGAN. So, you're talking about probably a half a billion dollars, at least, and the issue of dealing with these roads if, if you don't deal with them, you just cut off a major part of the economy. I mean, you can't leave a region stranded, without arteries of transportation opportunity. So, I mean, those are staggering numbers. Tell me, what would the normal cost-share be for State and local governments with respect to these kinds of programs?

Mr. HARTL. Typically, in an emergency event, those very near-term things that are dealt with in the first 180 days after a serious flood event, are at 100 percent for the ER funding. But by far most of these types of activities take a lot longer than that to happen, because the projects require huge volumes of materials and they are reimbursed at an 80–20 rate after that first 180 days.

Senator DORGAN. So, 20 percent of that could be, presumably, local share——

Mr. HARTL. Yes, sir——

Senator DORGAN [continuing]. And——

Mr. HARTL [continuing]. Except for the federally owned roads, which are dealt with with the ERFO funds at 100 percent.

Senator DORGAN. So, taking your larger number, of a half a billion dollars, that's a $100 million local share. Is that local, or local and State?

Mr. HARTL. Local and State.

Senator DORGAN. Local and State share of $100 million.

Mr. Vecchia, you indicated that your models do not take into account any global climate-change issues. What if they did? What's your assessment there?

CLIMATE CHANGE IMPACTS

Mr. VECCHIA. Well, you're correct, we've dealt with climate variability, not necessarily change. In this part of the country, especially with respect to precipitation, the global climate models are very indeterminate and really haven't seen any agreement on what might happen to precipitation, when that's what governs the system, es-

sentially. So, certainly, climate change could affect things in the future, but we really have no idea, at this time.

Senator DORGAN. Mr. Vecchia, you gave us some pretty ominous testimony. You said there's a 72 percent chance, I believe, that the wet cycle would continue another decade, and a, I believe, 37-percent likelihood it will continue for three additional decades. The consequences of that are that with this region already affected with soaked ground because of a wet cycle that has lasted a couple of decades; a wet cycle means runoff, it means additional flooding in Devils Lake, and it means consequences for the region. You are the Federal agency that we rely on to give estimates, but I think you've indicated in your testimony, you don't know what's going to happen; all you can do is use science as the best indicator of what you think will happen. Tell me about your level of confidence that a dry cycle won't start next year. How confident are you with respect to these estimates?

Mr. VECCHIA. I'm pretty confident in our research and the probabilities, for instance, that there's a high likelihood it'll go at least 10 more years. It's very unlikely it'll end this year or next. Another issue is, we could have 3 or 4—it's highly variable during this wet period, so we could have 3 or 4 dry years, which we did in 1988 through 1990; 3 or 4 very dry years doesn't mean we're out of this wet cycle. So, we won't really know, until, maybe, 5, 10 years in, that we've actually cycled back out.

Senator DORGAN. So, you actually know when you see it in the rearview mirror——

Mr. VECCHIA. That's essentially——

Senator DORGAN [continuing]. And look back a decade or two or three or four or five, and say, "Here's what happened."

Mr. VECCHIA. Yes. It's not very satisfying, but—just because of the variability of the system, it's——

Senator DORGAN. Let me observe that in your briefing material, Mr. Vecchia, you describe fairly well into the start of a new wet cycle, a period of time when there was formed a committee to preserve Devils Lake, because it was dropping precipitously. Even at that moment, on your charts, we were 8 years into a wet cycle, and you described that as an anomaly, because the ground was parched and dry, and it took most of that early moisture to soak the ground before it really came all the way down from the basin. Well, I appreciate your estimates, even if they're a bit discouraging.

FLOOD MITIGATION

Mr. Frink, you see the estimates of cost here. The next flood mitigation steps, if we are, in fact, in a longer-term wet cycle, will exceed previous costs, by far, and, I expect, when I ask the mayor and the commissioner, will far exceed the ability of local government to pay for it, because this local government has largely spent the money it has to try to protect itself from the flood. What is your advice, and what kinds of counsel are you offering to the State government, and especially the legislative branch, who will be likely having to appropriate substantial funds for the local share, that I assume is not going to be available locally?

Mr. FRINK. Well, I really haven't thought so much about Devils Lake. I mean, I have thought a great deal about the water—total

water load for the State of North Dakota. Clearly, the State of North Dakota, in the last several years, has spent a lot of money in water. We've got $52 million into Grand Forks, we've pledged $100 million for the Red River Valley Water Supply Project, and we're looking at upping that, as you know. And we've got needs, significant needs, all over.

Clearly, the State is going to be asked to contribute to the costs at Devils Lake. We don't have real good numbers, as far as, you know, what the total cost would be, but clearly we'll do what we can, and there is a tremendous need, statewide, and we have to look at all of those—the whole package.

OUTLET

Senator DORGAN. The outlet that was built, you indicate you still have some hopes that that will be usable. At this point, what has caused it not to be usable? And will those issues, you think, be resolved in the future?

WATER QUALITY

Mr. FRINK. I think the main reason we haven't used it as much as we anticipate is that the water quality in the Sheyenne River is less. We actually had a pretty good handle on the water quality in Devils Lake, but the water quality in the Sheyenne River is actually less and we need some of that pressure water in the Sheyenne for mixing. I think, as Devils Lake rises, however, the water quality will improve, and we are looking at ways to potentially improve the water quality.

Senator DORGAN. Is the water quality on the east side of Devils Lake worse than or more degraded than the water quality, for example, on the west side, which I understand is quite good?

Mr. FRINK. The water quality on the east side of Devils Lake is much worse than the water quality in the west. And I think it's a factor of three, four, or five. So, probably the biggest problem that you have is that we have a boundary-waters treaty that we have to comply with, and that makes it very restrictive. And so, if you would look at the east side, and try and comply with that treaty, I think it would be very, very difficult.

INFRASTRUCTURE

Senator DORGAN. Let me ask Commissioner Belford and Mayor Bott, as well. You hear the testimony here about roads and levees and issues that might have to be resolved and addressed, and I hear from you, from time to time, about the financial situation. You've already exhausted most of any discretionary funds that are available to fight the flood. Tell me about the financial situation of both the county and the city, to begin in the next 2, 4, 6, 8 years, to address a potential of half a billion dollars for roads and levees and so on.

Mr. BOTT. Well, Senator, obviously this is uppermost, doing something with the levee, but we talked about other infrastructure, and, within the city and within the county there are many other infrastructure needs. Unfortunately, some of them are infrastructure needs that haven't be met, because of the needs to do some-

thing with the levees, so in the event that more local funding is needed, we're going to have to look at cutting back on infrastructure costs, and certainly infrastructure improvements, to the very least, and I'm not sure what that would be to protect the community, protect the residents in their own Devils Lake. That's the main priority, and if we need to cut back on everything else, then obviously that's what we're going to have to do.

Mr. BELFORD. And along with that, Senator—and I'll use the example, Highway 57, we lost that in 1997 and 1998, which handles about 5,000 cars a day. Use the example of my own business. We dropped 35 to 40 percent. And many of the other ones in town did, as well, and then, also Highway 19 going under. So, there is a definite impact. And also, in my business I happen to have the U-Haul franchise, so I see what's going on in our area, coming and going. And it is very traumatic. And, of course, with the county, we've spent a fair amount of money, and, as you know, Federal Highway dollars are tightening up. Hopefully be at that hearing, as Senator Conrad—or Conrad in Minot. But, it's affecting us, it's affecting our tax base. We're used to—all of the land that's flooded in Ramsey County down to wasteland taxes—same way with the homes that were moved off the lake that—they were fairly high-value taxes that we lost. So, it has been a financial distress to the county, as well.

Senator DORGAN. General, I know that this is your first trip here in your current position, but I think you get a full flavor of the potential, having heard from the Federal Highway Administration, USGS, from the Spirit Lake Nation, and State and local officials. I mean, this is a real dilemma. It's been going on for years. It may go on long past our service. But, your term is how long, General Walsh? How long are you expected to be in this position?

General WALSH. Two, 3, 4 years, whenever the chief engineer says it's time to move on.

Senator DORGAN. All right. Well, let me say this to you. Hang in there. Okay?

We need some continuity. And so, just hang in there. And we're going to need your help, a lot of help.

Odell Flaagen, who's in the audience, took me out to the Talnacooli—what is that, 5 years ago, Odell, probably?—and said——

Yes, I made a couple of trips, but the first one is 5 years ago. So, Odell says, "Well, here's something we need to do. We need to knock down that elevation over at the Talnacooli." That was some years ago. Now I see that, in the Corps of Engineers newsletter of March 2008, they're going to talk about five things in some of the regional areas. One is to lower the existing elevation for the current overflow of the Talnacooli.

So, when I talk about Groundhog Day, I mean, things just keeping coming round and round. There are a lot of folks here—a lot of folks in this audience serving on county commissions, serving on water boards, or just interested people, that know a lot about this region and have a lot of interesting, thoughtful ideas, many of which are just dismissed by others. But, I think a deep reservoir of common sense and knowledge exists here about how to begin the ideas of addressing this issue. It's going to take a lot of resources,

a lot of patience, a lot of time. So, General, I appreciate your coming up.

I want to turn over to Congressman Pomeroy for a series of questions.

And I want to, again, thank all of the witnesses for answering questions.

I'm going to be submitting—I'll probably ask a question or two following Congressman Pomeroy, then I'm going to submit a series of questions to each of the witnesses, as well, so that we get a full flavor of issues dealt with at the hearing.

I did not introduce Jim Hand, who is here on behalf of Senator Conrad. Jim is right over here. Senator Conrad was unable to be here today.

Congressman Pomeroy?

Mr. POMEROY. Thank you, Mr. Chairman. And I'll be brief. This will trigger some follow up from my office to various agencies, as well, following the hearing, but I know we're under some time pressure to wrap this up.

General, we know that—your prior assignment, on behalf of the United States Government, boots-on-the-ground in Iraq, and we're thankful for your service.

General WALSH. Thank you, sir.

LOCAL LEADERSHIP

Mr. POMEROY. We thank you, your boots-in-the-water up here in Devils Lake, learning firsthand, even as you assume the command based in Mississippi, what we're dealing with up here. It's a unique problem, and I think you've got to see it to really begin to understand it. I'm glad you had the chance to work with some North Dakotans in Dale, especially as the deputy commander there. You've come to know that North Dakotans, we like to solve problems. In fact, we've had very good synergies with the St. Paul office of the Corps, I've come to know them as great problem-solvers, and we've had no end of problems to try and solve, but, this one, while we can try and manage the circumstances, the emergency du jour that the lake presents, it is not a problem that has been solvable in the global, long-term we're-done-with-that-one sense. So, there's a lot of frustration, in terms of trying to deal with a problem like this.

I think that a couple of things you could find in a problem like this are fatigue of local leadership and complacency of a broader political environment for a problem that goes on and on, and doesn't go away. I'm very proud of our local leaders, because in the face of as frustrating an issue as you could deal with, they are absolutely steadfast. And the testimony today, especially Joe's, shows just how completely dedicated they are, and the kind of stubborn persistence that you've got in local leadership, that we're going to continue to provide, really, proactive, farsighted, deeply knowledgeable leadership on this problem. I think you'd have a lot of people just walking away, saying, "This is someone else's turn." Not local leadership here and it's really to be commended.

As to complacency, I am worried about this one. We haven't heard about dramatic increases in lake levels for a couple of years, and people may be thinking, "Well, that seems to have settled

down." Of course, the harsh reality is that it's just been filling up Stump Lake, volumes ever greater, ever greater.

I really thought, Skip, your testimony was terrific today, in terms of giving us a picture of the tremendous volume increases we have sustained. So, starting back in 1980, when we had the parched soils that could take a lot, to now, when—with Stump Lake full to the brim, is it a fair statement, Skip, that this—by way of an analogy, if this was a bathtub, the bathtub sits full to the brim—is that right? You got any other place we can put some——

Mr. VECCHIA. The—basin——

Mr. POMEROY [continuing]. You got any other place——

Mr. VECCHIA. Yes.

Mr. POMEROY [continuing]. We can put water?

Mr. VECCHIA. Yes. There really isn't much more place for water to go.

Mr. POMEROY. You know, upstream is full, soil is saturated; Stump Lake topped; this is full. And as you assess risk probabilities, the most significant of that, then, is you've got an additional inflow, you hit another spurt in the wet cycle, we're dealing with fairly—you know, a likelihood of elevation increases of a character that's going to require a very expensive disaster response. Is that correct?

Mr. VECCHIA. That's correct.

COST ESTIMATES

Mr. POMEROY. Dale, given your long work with this at the commission, is it your evaluation that every response—as we hit trigger points going north of here—and I know that's the Corps' plan, not the State's plan—but, for all the money that's been spent—and I know Federal Highway says they've put in $266 million, to date—it quickly becomes, by a magnitude, more expensive, going to higher elevation protection response, from here, is that correct?

Mr. FRINK. Yes, absolutely. You know, our numbers are showing when you add everything up, we're well over $500 million, and that's at $266 million. It's like the Devils Lake waterline, it's the outlet, and it's the dike around Devils Lake. And the dike around Devils Lake is going to be—the next raise is going to be, I think, more expensive than the first—and were two or three different raises. And so, I think the next raise is going to probably be more expensive than all the others put together, just because of the length of it and the height and everything that we have to deal with. So, yes, it's just getting more and more expensive.

Another huge impact that we have to consider—and that's over in that map—right now, that Devils Lake is about where that mob color is, and the green is where it gets to 1,458, 1,459. And if you look at that northwest sector, that is good farmland. And that's not even covered in these costs that we're looking at. So, we've got some huge, huge issues here.

Mr. POMEROY. It looks like a lake increase of about another 40 percent or so.

Mr. FRINK. It is. I think it's, like, 140,000–150,000 acres today, and that green covers 260,000. And a lot of that green is really good farmland.

Mr. POMEROY. The——

Senator DORGAN. Earl, could I just ask——

Mr. POMEROY. Yes.

IMPACTS ON FARMLAND

Senator DORGAN. I'm sorry to interrupt you on that, but can I ask a question on that point?

There are a lot of folks that have lost farmland due to this lake, and my understanding is that at some point, the loss of that land from the person that is owning or farming that land, the title goes to State government. Is that correct?

Mr. FRINK. Senator Dorgan, it's a temporary type of thing. Essentially, because Devils Lake is a navigable body of water, when the State ends up owning the bed that's under water, however, as the lake recedes, then it goes back. So, we only own the water—the land under the water. And we will lose that land as soon as it—well, when the lake recedes. And it will, at some point in time.

Senator DORGAN. But, they may be dead by then. I mean, this——

Mr. FRINK. Oh, it's going to take a long time for it to go down.

Senator DORGAN [continuing]. This inundation could last decades. And my question—the reason I ask the question is, if a private landowner loses land because of inundation to the lake—I understand the State needs to, and is legally required to control the lake bed—but, has there been any discussion or recommendations to the State legislature to provide some assistance or recompense to those whose property is inundated and is now reverted to State control or ownership—or control, I should say?

Mr. FRINK. Senator Dorgan, I'm not aware of anything that would, say, compensate those landowners.

Senator DORGAN. Do you think it would be useful to consider that? And—if, in fact, at some point, three or four decades from now, that land will go back to the landowner, that landowner may long be gone. But, I'm wondering if there shouldn't be some mechanism in State law. This is obviously something for the State legislators to consider. If private land goes into State ownership with no recompense at all to the landowner, I'm wondering whether there shouldn't be some mechanism by which that landowner is reimbursed for that.

Mr. FRINK. Well, that is something for the legislature to take a look at, but at this point—and the $500 million does not count any of those types of lands. And so, it is a huge loss to a lot of people.

CONCLUSIONS

Mr. POMEROY. I guess I would just sum up with the conclusions I've drawn from this morning's hearing. And, Senator Dorgan, I've found the hearing to be a very helpful update, so many perspectives coming together.

And the basin is full, there is a high probability the wet cycle is not over, and further response is going to be more expensive and difficult for them. Clearly, there's a dual track we have to go from here, and that is, certainly, that the planning for difficult scenarios needs to really, really barrel along. If there is some easing up within the agencies, based on lake elevation, that's completely missing the picture up here. We've been filling this lake right along, and

there's a strong chance we're going to have to be moving into areas we never wanted to move into, in terms of disaster response. We've got to have the plans. We've got to be offset.

A second track is one that I'll accept, as a Representative of North Dakota in Congress, and that is, we've got to begin conditioning our colleagues that this is, as Joe Belford said, a slow-moving accident, a slow-motion accident, and it continues. We've had a fair amount of national press. Nothing for a year or two, but, that doesn't mean we're not about to be requiring substantial commitment of additional Federal resources here, and we should probably wage a major educational campaign this year in anticipation of having to come back earnestly for serious dollars down the road.

Is there any response to these observations before I yield back? Yes?

GROUNDWATER

General WALSH. Senator and Congressman, there's one area that we've not talked about today that I have a lot of great concern for. And as the lake continues to grow, if it does—the groundwater issue. And my home in the basin is at 1,457, and I'm running three sump pumps. And we have all seen what has happened around the area. And if the pressure on that lake bed—and I don't know a whole lot about that kind of hydrology, but I know that the more pressure that goes on that lake bed, the bigger it gets, it's going to start—more groundwater. And if that starts, I'm not sure what we do. And so, it's so important that we either find a way to move some water out of here, whether it's on the east end, more on the west end, treatment plant, whatever, we have to look at all the options, because soon it's going to consume us, one way or the other.

Mr. POMEROY. Well, we remember, in the earlier going, the hydrostatic pressure virtually busting up basement floors.

General WALSH. That's correct. And I know a person right now that's trying to market their home that lives out by the levee, and their floor is heaving, and they're having trouble getting people even interested in it.

Mr. POMEROY. At the same time, Joe, I want to note—and I think it's a useful thing in the record, you put in—the fishing is better than ever, and there is an economic opportunity this region is capturing aggressively to make the best of a bad situation. There's an example that just sticks vividly in my mind. Minnewaukan, which used to be 7 miles from lake's end, General, had a little hairstyling salon you'd see on 281, driving up. Well, for many years now, that has been a bait and tackle shop as the water is now at the edge of that facility, and—just an example of the local adaptation of the economy, which I think is, again, trying to make the best of a bad situation.

Joe?

IMPACTS ON INVESTMENT

Mr. BELFORD. One other concept that—I also serve on the board of Devils Lake, the economic development board, and it's very, very tough for us to bring anything in of any size because of the problems that are facing us with the lake. A major investment is almost unheard of.

Mr. POMEROY. You made that point in infrastructure. Even while we responded to recreational opportunity to boat ramps, for example, where do you put them, and how—you don't—we're really chasing a moving target here. So, permanent infrastructure that's going to seize even the fishing opportunity has been tricky.

Mr. BELFORD. Well, that's correct. But, there is a movement ahead—forward—as a result of the task force that Bob is chairing, and it's been turned over to Rick Anderson planning now. And I don't know if all the resolutions are in for the countries and the tribe yet, but to form some kind of an authority to start to put together a recreational potential around the lake, for ramps and RV parks and those kinds of things, which are very much needed if we're going to continue to make this a choice recreational area.

Mr. POMEROY. Yes. I mean, it—the two faces of the problem. You're planning a levee raise, and planning the new RV area——

Mr. BELFORD. That's right.

Mr. POMEROY [continuing]. All at the same time. This is a community that has not shrunk from a very difficult challenge. I couldn't be prouder of the leadership here, and the—basically, reflecting the, I think, strength of character of the people who live in Devils Lake. They're not moving away, they're dealing with this issue, and we want to be full partners.

And, Senator Dorgan, thank you, again, for holding this hearing.

Senator DORGAN. Congressman Pomeroy, thank you very much.

General Walsh, I have written to President Bush, about 1½ months ago, asking him to designate a lead agency to deal with these issues. And by that I mean not just through the end of this year, through this administration, but we need a lead Federal agency that says, "Here, we're bringing together and coordinating all of the Federal efforts." We have, here at the table, Federal Highway Administration, Geological Survey, FEMA—we have a lot of Federal agencies that come to bear on these issues, and I hope that I'll get information from the administration about a lead agency.

But, I think it is the case that what we hear now, and what we know now, is that the worst isn't behind us, the worst might yet be ahead of us if we continue to see a decade or two or three of additional wet-cycle activities here. And so, the question is: What do we have to do to prepare for that, to mitigate the damages, to deal with all the consequences? And the testimony today suggests that's going to be very expensive.

One of the reasons that I want to be attentive to this is, in my subcommittee, where we fund the Corps of Engineers, we're going to have to provide the funding that is necessary for you to do your work here and to be aggressive and in front of the curve. And so, we have a lot to think about, it seems to me.

STUMP LAKE

I guess one final question. This will be the first year in which Stump Lake is now full. Right? Stump Lake, I think, rose 15 feet in 2 years. It quickly filled up. Had it not filled up, I don't know exactly what would have happened to Devils Lake, but Devils Lake would be higher than it is now. Instead, the water went into Stump, and Stump is now full. So, we come into a spring and sum-

mer season for the first time with Stump Lake full, and it likely will mean an increased elevation in Devils Lake.

Mr. Vecchia, tell us, again, what you sense might happen this year with respect to an increased elevation.

Mr. VECCHIA. Well, the Weather Service for this year, they do a short-range prediction, and I'm not sure what they predict. But, as far as what we found, there's a 1 percent chance of reaching 1,452, which is, you know, 5 feet, which is a tremendous volume of water. I think that's about 800,000 acre-feet of inflow. So, there's a chance that we could see several feet. Not a high chance, but a relatively high risk. Let me put it that way.

Senator DORGAN. You would expect the water level to increase, however.

Mr. VECCHIA. It should increase some, but with what's in the basin right now, I don't think the outlook is for——

Senator DORGAN. I understand.

Mr. VECCHIA [continuing]. Large increases.

Senator DORGAN. Well, I want to thank all of you for being here and providing information and testimony. I think it, once again, puts all the spotlights on one spot and that is this issue of chronic flooding.

The dilemma that Congressman Pomeroy, Senator Conrad, I, the Governor, others, have had with this issue is the local folks understand it's happening, because they live with it every day, but, the news of Devils Lake, when you have chronic lake flooding, is different than the news of a river flood. A river flood is a raging flood, and you hear it, you see it, it takes houses and cars and destroys property quickly, and then all of a sudden it subsides and there's this calm. You see both sides of that on the television news.

CHRONIC FLOODING

This is a flood that's different. Lake flood is different. It comes, and it stays. And this has been chronic flooding. And it appears at least the likelihood is that it will get better before—I should say, it'll get worse. It appears, based on the testimony of Mr. Vecchia, that we are in for more runoff and a wet cycle, and that we will have more challenges to try to respond to it in the coming, perhaps, 10 years. So, this is not something where you snap your finger and say, "Here's a solution, we'll fix it," and, as of next Wednesday, it's done. That's not what this region faces.

But, I think what we do need—we've put together this task force—Bob Vellue and my staff has been heading up a task force—but, what we do need to convene is a task force that has a lead Federal agency, and has, obviously, the State and local governments, and all of us working together. We've had a lot of cooperation from everybody for a long period of time. My purpose in convening this hearing is to try to understand better what we face, because a substantial portion of what we face will have to be financed, and that's going to take a lot of money, at some point.

I'd like to mention two other points. I'm going to recess the hearing in a moment, and there are two other items of business—not subcommittee business; but, my understanding is that the Joint Water Resource Board wishes to make a presentation. And if you'd all stay for just a moment, Mike Connors, I think, is going to want

to make a presentation. Bob Vellue, of my staff, is retiring. He's about 94 years old or so.

He doesn't get around much anymore, his wife retired last year, Bob has announced he's retiring from public—from Federal service. And so, I believe that Mike and the Joint Water Board wishes to make a presentation to Bob Vellue. I should just say, Bob Vellue has been an unbelievably important resource for me, for our State, and for the Devils Lake region. I personally very much appreciate his great work.

Following that, I want to make a presentation to a veteran. It'll just take a moment.

But, if you will stay seated just for a moment, I'm going to adjourn the hearing, call Mike forward for the first presentation, after which I'll make the second presentation.

CONCLUSION OF HEARING

This hearing is recessed.

[Whereupon, at 12:15 p.m., Tuesday, March 25, the hearing was concluded, and the subcommittee was recessed, to reconvene subject to the call of the Chair.]

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