THE MISSOURI RIVER FLOOD: AN ASSESSMENT OF THE RIVER MANAGEMENT IN 2011 AND OPERATIONAL PLANS FOR THE FUTURE

(112–62)

HEARING

BEFORE THE

SUBCOMMITTEE ON
WATER RESOURCES AND ENVIRONMENT

OF THE

COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED TWELFTH CONGRESS

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(Ex Officio)

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ADDITIONS TO THE RECORD

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[1] Representatives Jenkins, Hartzler, and Fortenberry did not submit written statements.

U.S. House of Representatives
Committee on Transportation and Infrastructure

John L. Mica
Chairman

James W. Coon II, Chief of Staff

Washington, DC 20515

November 23, 2011

Nick J. Rahall, II
Ranking Member

James H. Zoia, Democrat Chief of Staff

MEMORANDUM

TO: Members of the Subcommittee on Water Resources and Environment

FR: Bob Gibbs, Subcommittee Chairman

RE: The Missouri River Flood: An Assessment of the River Management in 2011 and Operational Plans for the Future

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PURPOSE OF HEARING

The Water Resources and Environment Subcommittee is scheduled to meet on Wednesday, November 30, 2011, at 11:00 a.m. in 2167 Rayburn House Office Building, to receive testimony from Members of Congress, the United States Army Corps of Engineers and Missouri River basin stakeholders on "The Missouri River Flood: An Assessment of the River Management in 2011 and Operational Plans for the Future."

BACKGROUND

The Missouri River Basin

The Missouri River is the longest river in the United States, extending 2,619 miles from it headwaters in southwestern Montana. The Missouri River flows generally east and south to join the Mississippi River just upstream from St. Louis, Missouri. The Missouri River basin has a total drainage area of 529,350 square miles, including 9,700 square miles in the Canadian provinces of Alberta and Saskatchewan. That part within the United States extends over one-

sixth of the nation's area, exclusive of Alaska and Hawaii. It includes all of Nebraska; most of Montana, Wyoming, North Dakota, and South Dakota; about half of Kansas and Missouri; and smaller parts of Iowa, Colorado, and Minnesota.

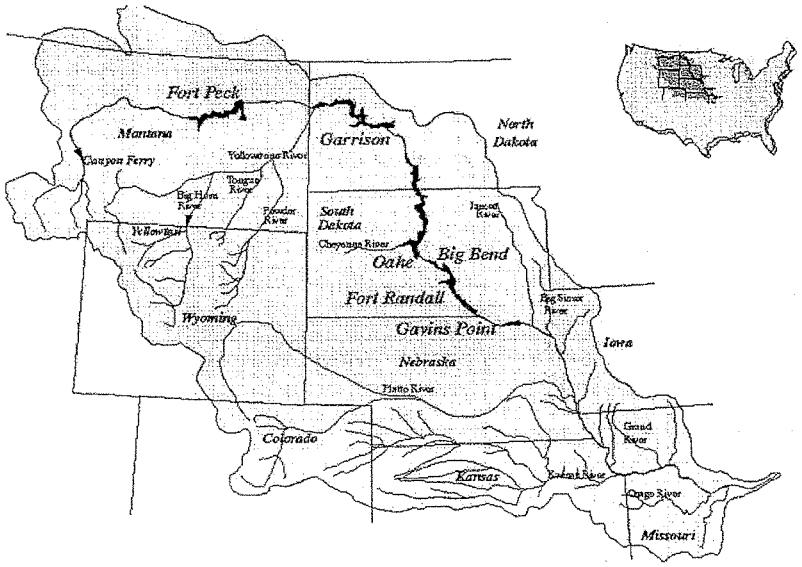
The broad range in latitude, longitude, and elevation of the Missouri River basin and its location near the geographical center of the North American continent, provide wide variations in climatic conditions. As is typical of a continental-interior plains area, the variations from normal climatic conditions, from season to season and from year to year, are very great. The outstanding climatic aberration in the basin during the 20th Century was the severe plains area drought of the 1930's when excessive summer temperatures and subnormal precipitation continued for more than a decade.

Prolonged droughts of several years' duration and frequent shorter periods of deficient moisture, interspersed with periods of abundant to excessive precipitation, are characteristic of the Great Plains. The Missouri River basin experiences large temperature fluctuations and extremes. Winters are relatively cloudy and cold over much of the basin, while summers are fair and hot.

Most floods experienced in the upper basin have occurred in the March-July season, with snowmelt as an important flood component. In the lower Missouri River basin, floods have tended to follow the same seasonal pattern observed in the upper basin; however, damaging floods have occasionally occurred prior to or following the normal March-July flood season, due mainly to rainfall over the downstream drainage areas.

Average flows, in general, increase from January to June and then gradually decrease through December. Although the general pattern of summer flows being higher than winter flows still prevails, System regulation serves to reduce summer flows in most years and to use the water stored to increase flows during the low-water periods of fall and winter.

The Missouri River basin's total land area in the United States totals about 328 million acres. Agriculture accounts for 95 percent of this area, while the remainder is devoted to recreation, fish and wildlife, transportation, and urban uses. Well over half of the total, 180 million acres, is pasture and range grassland devoted primarily to grazing. Cropland comprises nearly 104 million acres, or 32 percent of all lands basin wide, but the proportion ranges from as high as 71 percent in eastern Nebraska and western Iowa to as low as 7 percent in the Yellowstone River basin. Irrigated lands in the basin comprise 7.4 million acres, with about 6.9 million acres intensively cropped and about ½ million acres in irrigated pasture. Forest and woodland areas, most of which are grazed, total about 28 million acres, which is about 9 percent of the basin area. Transportation, urban development, and related uses now consist of 8 million acres of land. Water areas cover 3.9 million acres. Although they represent only 1.2 percent of the total basin area, the rivers, lakes, reservoirs, farm ponds, and other bodies of water are extremely important to the basin's overall economy.



Development of the System

History of water resources development in the Missouri River Basin dates back to approximately 1650 when irrigation is thought to have been started by the Taos Tribe along Ladder Creek in northern Scott County, Kansas.

The United States acquired the land that forms the Missouri River basin by a treaty signed on April 30, 1803. At more than 800,000 square miles in size, the Louisiana Territory was purchased for $15,000,000 from France and is commonly called the Louisiana Purchase.

The first federal exploration of the Missouri River basin was made in 1804-1806 by two Army officers, Captains Meriwether Lewis and William Clark. The first steamboat entered the river in 1819, and traffic developed rapidly to meet the needs of the expanding West. The first federal development was initiated when Congress appropriated funds to the United States Army Corps of Engineers to begin a program of snag removal to enhance navigation in 1824. Navigation of the Missouri River by steamboat reached a peak in about 1880 but had severely dwindled by about 1890 because of the coming of the railroads.

In 1912, Congress authorized a 6-foot navigation channel for the Missouri River from the mouth of the Missouri River near St. Louis to Kansas City, Missouri. Several subsequent Congressional acts modified this navigation project, the latest being the Rivers and Harbors Act 1945, which provided for works to secure a 9-foot-deep by 300-foot-wide channel from the mouth to Sioux City, Iowa.

The Corps of Engineers undertook the first comprehensive investigation and study ever made of the water resources and associated challenges of the Missouri River basin starting in 1927. The entire river system was examined to determine the water resources and the prospects of its development for flood control, navigation, irrigation, and power. This comprehensive investigation and its reports identified many projects that did not appear to be feasible at that time or within the scope of national policy for federal development but were subsequently adopted by the Corps and the Bureau of Reclamation (USBR) as integral parts of the Missouri Basin Plan.

The construction of Fort Peck Dam was commenced under Executive Order in October 1933 with funds provided by Congress for the relief of unemployment. The Fort Peck project was unique in that it did not go through the typical Congressional authorization process. Rather, it was begun in 1933 under the authority of President Franklin D. Roosevelt and the National Industrial Recovery Act to provide jobs in an area of high unemployment and severe economic depression.

Fort Peck was the first large dam across the mainstem Missouri River and was located far upstream in the headwaters of Montana, 1,878 miles from the mouth of the river. While the immediate purpose of the project was to provide jobs, its long-term purpose was to assure navigation in the 795 miles of river channel below Sioux City, Iowa. At the time of construction, irrigation was not a purpose of the project, even though the region was suffering from a prolonged drought. The Fort Peck Power Act of 1938 authorized construction of the power facilities.

Subsequent to construction of Fort Peck, both the Corps and the USBR prepared plans for the multiple-purpose water resource management throughout the Missouri River basin.

The Corps' then Missouri River Division Engineer, Colonel Lewis A. Pick, developed the Pick Plan, emphasizing navigation and flood control purposes. Three types of projects were proposed in the Pick Plan. These were 1,500 miles of levees along both sides of the Missouri River from Sioux City to the mouth, many small reservoirs located on the tributaries, and five additional mainstem dams.

William G. Sloan, Assistant Regional Director of the USBR's Upper Missouri Region, developed the Sloan Plan, emphasizing irrigation for economic stability and hydroelectric power for economic growth. Rivalry existed between the Corps and USBR over which of the two plans should be followed. A coordinated plan, developed by the Corps and USBR, was part of the Flood Control Act of 1944, which approved the coordinated plan and authorized appropriations to each of the two agencies for initial construction.

Much of the current system today finds its origins in the Flood Control Act of 1944. Under this Act, the Corps was given the responsibility for development of projects on the mainstem of the Missouri River. Under the 1944 Act, approximately 100 tributary reservoirs were authorized in addition to the Garrison, Oahe, Big Bend, Fort Randall, and Gavins Point projects on the main stem of the Missouri River. The Act incorporated the Fort Peck project into the multi-purpose mainstem reservoir system.

The Missouri River Basin Project envisioned a comprehensive system of flood control, navigation improvement, irrigation, municipal and industrial water supply, and hydroelectric generation facilities for the 10 States in the Missouri River basin. As originally planned, the project was to include 213 single and multiple-use projects, providing 1.1 million kilowatts of hydroelectric capacity and irrigation for 5.3 million acres of farmland. While the Pick-Sloan Plan was only partially completed, it completely changed land and water resources development in the basin.

In its natural state, the Missouri River transported a large sediment load. With the construction of each of the System and tributary dams, the reservoirs have acted as catchments for the tremendous load of sediment carried by the Missouri River and its tributaries.

Due to this sediment, the loss of reservoir storage capacity is currently approaching 5 percent of the original total System storage. All six System reservoirs have large deltas that have formed in their headwaters. These large sediment deposits continue to grow, although they are confined to the upper reaches of each reservoir and its major tributary arms.

Regulation of flows provided by the System, augmented by upstream tributary reservoir storage, has virtually eliminated significant flood flows on the Missouri River in this reach. Still, the System has not created a flood-free zone along the Missouri River for all conditions.

Facilities of the System

Fort Peck Dam – Fort Peck Lake. Fort Peck Dam is located on the Missouri River in northeastern Montana, 17 miles southeast of Glasgow, Montana and 9 miles south of Nashua. Construction of the Fort Peck project was initiated in 1933, and the embankment closure was completed in 1937. The project was regulated for the authorized purposes of navigation and flood control in 1938. The Fort Peck Dam embankment is nearly 4 miles long (excluding the spillway) and rises over 250 feet above the original streambed. Fort Peck Dam remains the largest dam embankment in the United States (126 million cubic yards of fill), the second largest volume embankment in the world, and the largest "hydraulic fill" dam in the world. Fort Peck Lake is the third largest Corps reservoir in the United States. When full, the reservoir is 134 miles long. The concrete spillway is over 1 mile long. Completion of the first powerplant occurred in 1951. Construction of a second powerplant began in the late 1950's and the two units of this plant became operational in 1961. Generally, it has remained filled from that time with the exception of the droughts of 1987 to 1993 and 1999 to date. Exclusive flood control storage space was first used in 1969, and then again in 1970, 1975, 1976, 1979, 1996, and 1997.

Garrison Dam – Lake Sakakawea. Garrison Dam is located in central North Dakota on the Missouri River about 75 river miles northwest of Bismarck, North Dakota and 11 miles south of the town of Garrison, North Dakota. Construction of the project was initiated in 1946, closure was made in April 1953, and the navigation and flood control functions of the project were placed in operation in 1955. Garrison Dam is currently the fifth largest earthen dam in the world. The first power unit of the project went on the line in January 1956, followed by the second and third units in March and August of the same year. Power units 4 and 5 were placed in operation

in October 1960. Generally, it remained filled from that time through 2002, except for the two drought periods to date. Exclusive flood control storage space was used in 1969, 1975, 1995 and 1997. Lake Sakakawea is the largest Corps reservoir. When full, the reservoir is 178 miles long and up to 6 miles wide. The reservoir contains almost a third of the total storage capacity of the System, nearly 24 million acre feet, which is enough water to cover the State of North Dakota to a depth of 6 inches.

Oahe Dam – Lake Oahe. The Oahe Dam is located on the Missouri River 6 miles northwest of Pierre, South Dakota. Construction of Oahe Dam was initiated in September 1948. Closure of the dam was completed in 1958, and deliberate accumulation of storage was begun in late 1961, just before the first power unit came on line in April 1962. The last of the seven power units became operational in July 1966. The Exclusive Flood Control Zone in Lake Oahe was used in 1975, 1984, 1986, 1995, 1996, 1997, and 1999. Lake Oahe is the second largest Corps reservoir, with just over 23 MAF of storage capability. When full, the reservoir is 231 miles long, with 2,250 miles of shoreline.

Big Bend Dam - Lake Sharp. Big Bend Dam is located on the Missouri River near Fort Thompson, South Dakota and about 20 miles upstream from Chamberlain, South Dakota. Lake Sharpe extends 80 miles upstream to the vicinity of the Oahe Dam. The project is basically a run-of-the-river power development with regulation of flows limited almost entirely to daily and weekly power pondage operations. Construction began in 1959, with closure in July 1963. The first power unit was placed on line in October 1964, and the last of the eight units began operation during July 1966.

Fort Randall Dam – Lake Francis Case. Fort Randall Dam is located on the Missouri River about 6 miles south of Lake Andes, South Dakota. Lake Frances Case extends to Big Bend Dam. Construction of the project was initiated in August 1946, closure was made in July 1952, initial power generation began in March 1954, and the project was completed in January 1956.

Gavins Point Dam – Lewis and Clark Lake. Gavins Point Dam is located on the Missouri River on the Nebraska-South Dakota border, 4 miles west of Yankton, South Dakota. Lewis and Clark Lake extends 37 miles to the vicinity of Niobrara, Nebraska. Construction was initiated in 1952, and closure was made in July 1955, with initial power generation beginning in September 1956. The third and final unit of the installation came into service in January 1957.

Master Manual for a Complex System with Competing Purposes

The Missouri River Mainstem Reservoir System Master Water Control Manual is based on the Flood Control Act of 1944 and outlines priorities for water use within the basin and the operating requirements for the mainstem dams and reservoirs. A Master Manual is required, not just because of the sheer size of the System, but also because the System consists of integrated operation of multiple projects, each of which also has its own water control manual. Runoff varies in terms of the geographic distribution and seasonal fluctuation of the inflows. The distribution of streamflow in combination with extreme seasonal variation results in significant change. This variability requires a System water control plan that is very flexible to allow the

Corps to meet the water resources mission and regulate this large and complex System to meet the operational objectives.

The Master Manual provides guidance for developing annual operating plans and for making daily operations decisions. The Master Manual was first prepared in 1960 through Corps of Engineers coordination with other federal agencies and basin States. The most recent update of the Master Manual was initially requested by basin governors in 1989 but these revisions were not completed until 2006. The Corps of Engineers is responsible for operating the System for 8 different, and sometimes competing, purposes.

Flood control

Periodic floods are a regular occurrence throughout the Missouri River Basin. Resulting from storms, snowmelt and even ice jams, floods significantly impact the people, communities, infrastructure, farms and businesses in the Basin. Periodic floods are a regular occurrence throughout the Missouri River Basin. Resulting from storms, snowmelt and even ice jams, floods significantly impact the people, communities, infrastructure, farms and businesses in the Basin. Historically, the Missouri River overflowed its banks nearly every year, and major floods were recorded in 1844, 1881, 1903, 1915, 1926 and 1934.

In 1943, floods in the Midwest were unusually severe. America was at war and flood waters impeded the military effort. Federal projects, such as dams and levees, were built to protect flood-prone areas. While the 1993 flood ranks among the nation's most costly, flood control measures resulting from the Flood Control Act of 1944 prevented even more damage. Measures now in place are estimated to have prevented billions of dollars in damages to homes, businesses, public facilities, farms, and infrastructure.

Water supply

The Missouri River has long been a source of drinking water and water for industrial, domestic, and farm uses for the people living along its banks. The drought of the 1930s was a reminder of the importance, and potential scarcity, of water resources.

Today, the Missouri River continues to be a major source of water for cities, towns, rural water systems, industry, agriculture and domestic use. Missouri River water is withdrawn through intakes at about 25 power plant facilities and nearly 60 municipal water supply facilities. Millions of people rely on the municipal facilities along the Missouri River for their drinking water.

Water level is a critical factor for these intakes. In the past decade, multi-year droughts in the Missouri River Basin have reduced water levels to the point that some intakes have had to be lowered. At times, water suppliers on the Missouri River have had difficulty accessing water and some have modified their intakes, installed emergency pumps, or have taken other emergency measures to meet their needs.

Navigation

The Missouri River supports navigation from Sioux City, Iowa to the confluence with the Mississippi River, near St. Louis, Missouri. Flows from the Missouri River also contribute to navigation on the Mississippi River from St. Louis to New Orleans, Louisiana. Drought and low water on the Missouri River have limited barge traffic in recent years.

Today, the Corps maintains the Missouri River channel. Its smooth bends are set in place by navigation structures which concentrate the Missouri River so that the water flow helps maintain the channel. The navigation project and it associated bank stabilization activities has safeguarded numerous cities and communities from destructive river erosion and channel migration for many decades.

The navigation channel provides an economical system of moving products, primarily agricultural products, to market.

Water Quality

Today, Tribal, local, State and federal stakeholders monitor water quality in the Missouri River for numerous physical, chemical, and biological constituents. The Missouri River provides water to many rural communities and cities that are relying less on local aquifers with water quality issues. The reliability and importance of Missouri River water quality is essential to the future of many communities in the Basin.

Numerous power plants draw cooling water from the Missouri River. Low river flows affect power plants' ability to withdraw and discharge heated water into the Missouri River while staying within water quality standards.

Irrigation

Millions of acres in the arid and semi-arid portions of the Missouri River Basin were planned to be irrigated by the Pick-Sloan Plan. Irrigated lands were envisioned to help settle those parts of the Basin and provide increased agricultural production. Planners also hoped to provide homesteads and employment for returning World War II veterans. As time passed, changing national economic and environmental priorities substantially altered the original plans for irrigation.

Today, water from the System irrigates approximately 550,000 acres throughout the arid and semi-arid portions of the Missouri River Basin. Around 400,000 of those irrigated acres receive water from gravity-fed ditches from water impounded for irrigation in the tributaries of the Missouri River. The remaining 150,000 acres receive water pumped with hydroelectric power from the Missouri River and its tributaries. The duration of the irrigation season and amount of water needed depends on rainfall and snowmelt.

Recent extended drought experience has occasionally forced difficult decisions on irrigation water use and alternatives. However, irrigation has benefited rural communities in the

arid portions of the Missouri River Basin by providing a stable supply of water for a variety of irrigated crops.

Recreation

The approximately 2,600 miles of the Missouri River can be divided into three "reaches;" a free-flowing upper reach, a middle reach with multiple dams, and a channelized lower reach. The Missouri River is fed by many tributaries, some of which are free flowing, and others like the Missouri River, are dammed. Recreational users in all three reaches and on the tributaries share many water-based outdoor experiences, though the recreational activities may look different based on the reach or tributary they are using.

Impounding and channelizing the Missouri River brought dramatic changes to the ways people used the River for both industry and enjoyment. People adjusted to these changes, and many Missouri River users and local and regional economies came to depend on stable and predictable recreational access. Today's Missouri River affords fishing, boating, floating, hunting, hiking, camping, sightseeing, swimming, and many other outdoor activities.

Sport fishing is a primary component of recreation on the main stem reservoir system, lower river, and tributaries. A diverse community of coldwater, coolwater, and warmwater sport fish inhabit the Missouri River Basin. The main stem reservoirs have been stocked with coolwater and coldwater game and forage species to take advantage of the cold water retained in the deeper water of the reservoirs. Fishing for walleye and salmon is particularly popular on the main stem reservoirs.

Hydropower

The six mainstem dams of the Missouri River support 36 hydropower units capable of using the force of moving water to generate approximately 2,500 megawatts, enough power to serve millions of households. Hydropower generation returns significant revenues to the Federal Treasury.

Power generation output is generally dependent upon seasonal patterns of water flow in the Missouri River. If possible, adjustments are made to provide more energy during winter and summer when demand is higher. Once the power is generated, it is turned over to Western Area Power Administration that sells power to customers including Tribes, communities, rural electric cooperatives, public utility and irrigation districts, Federal and State agencies, investor-owned utilities, and power marketers. They, in turn, provide electric services to millions of consumers in Iowa, Minnesota, Wyoming, North Dakota, South Dakota, Colorado, Kansas, Montana and Nebraska.

Fish and Wildlife

Fish and wildlife are important components of the Missouri River ecosystem. Historically, the shape of the lower river was very different than what we see today, with a shifting, braided channel and abundant sandbars, islands, wetlands and bottomland forests.

These habitats supported many birds, mammals, amphibians and reptiles. Flocks of ducks, geese, pelicans, and cranes used the Missouri River during the spring and fall migrations. Birds like the piping plover and the least tern relied on exposed sandbars for nesting and raising young.

The creation of the reservoirs and the regulation of flows have substantially changed water depth, sediment loads, temperature, and nutrients in the Missouri River. Islands and sandbars have been lost or reduced. Many of the chutes, backwaters and wetlands, important breeding and nursery grounds for fish, have been eliminated or were cut off from the main channel.

These changes to the Missouri River have impacted native fish and wildlife. For example, the numbers of individuals for many species have declined, including aquatic insects, a key link in the food chain. Most of the main channel native fish species are listed as rare, uncommon or decreasing in their native range. Still, the overall diversity of species remains stable and migratory birds continue to use the Missouri River.

Several Corps of Engineers efforts are addressing the need for improving habitat for fish and wildlife. The Missouri River Ecosystem Restoration Plan and the Missouri River Recovery Program are working to restore aquatic and terrestrial habitat and to recover populations of three threatened and endangered species negatively affected by the changes to the Missouri River. The three species are the piping plover, least tern and the pallid sturgeon. The Corps is working in partnership with the U.S. Fish and Wildlife Service and many other agencies and organizations to restore some of the Missouri River's natural form and function, creating an ecosystem in which native river species will thrive in conjunction with human needs and uses.

2011 Flood Event

2011 was an extraordinary year regarding flooding in the Missouri River Basin. Between plains snowpack, mountain snowpack, and precipitation, it is estimated as of September 2011 the Basin will receive 61.8 million acre feet of water into a System that has a storage capacity of 73 million acre feet. Since records were kept beginning in approximately 1887, this runoff into the System easily exceeded the previous record of approximately 49 million acre feet set in the 1997.

Unprecedented runoff occurred in the Basin in the months of May, June, and July 2011. May was the third wettest single month on record, with 10.5 million acre feet of runoff, surpassing the previous May record of 7.2 million acre feet set in 1995. June was the single wettest month on record with 13.8 million acre feet of runoff, surpassing the previous record of 13.2 million acre feet set in 1952. And July was the fifth wettest single month on record with 10 million acre feet of runoff. The combined three months of 34.3 million acre feet of runoff in 2011 is higher than the total annual runoff in 102 of 113 years in the period of record.

The full economic impact of the 2011 Missouri River flood event has not yet been realized, but preliminary estimates put the costs at well over $2 billion. According to the National Climate Data Center (NCDC), an estimated 11,000 people were forced to evacuate Minot, North Dakota where 4,000 homes were flooded. The flooding also stretched into part of

Canada, where property and agriculture losses were expected to surpass $1 billion. The NCDC has found 5 confirmed instances of loss of life due to the flood.

Some have expressed concern with the Corps of Engineers and other federal agencies regarding their response to the 2011 flood event. For instance, in some areas inundation maps were inadequate or non-existent. In some cases, the only tool municipalities had to use were 100-year floodplain maps, many of which were inaccurate.

Many residents in the Missouri River basin have suggested the Corps of Engineers provide more space in the reservoirs for flood waters. But, this would impact most of the other authorized purposes of the Missouri River system and likely impact other flood damage reduction efforts throughout the system, especially further downstream.

The Corps of Engineers annual operating plans for the Missouri River system begins each new runoff year at a normal or average starting point. But, the Missouri River basin is subjected to extreme droughts or extreme wet cycles, making predictions difficult. In addition, when the Corps of Engineers develops its annual operating plans, it is not a forecast for the coming year. The annual operating plan provides a range of alternatives of potential runoff scenarios which cover 80% of the historical record. There is still a 10% chance that runoff could be above this range and a 10% chance that runoff could be below this range.

Starting on October 24, 2011 and ending on November 3, 2011, the Corps of Engineers hosted of public meetings throughout the Missouri River basin to discuss its development of the draft 2012 annual operating plan. The Corps expects to release a final 2012 annual operating plan by mid-December 2011 based on the feedback it has received at those public meetings.

Witnesses

Members of Congress

Brigadier General John McMahon
Commander and Division Engineer
United States Army Corps of Engineers
Northwestern Division

The Honorable Jim Suttle
Mayor
City of Omaha, Nebraska

Mr. Tom Waters
President
Missouri Levee and Drainage District Association

Brad Lawrence
Director of Public Works
City of Fort Pierre, South Dakota

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Ms. Kathy Kunkel
County Clerk
Holt County, Missouri

Richard Oswald
Langdon, Missouri

THE MISSOURI RIVER FLOOD: AN ASSESSMENT OF THE RIVER MANAGEMENT IN 2011 AND OPERATIONAL PLANS FOR THE FUTURE

WEDNESDAY, NOVEMBER 30, 2011

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met, pursuant to notice, at 11:06 a.m. in Room 2167, Rayburn House Office Building, Hon. Bob Gibbs (Chairman of the subcommittee) presiding.

Mr. GIBBS. The subcommittee hearing of Water Resources and Environment will come to order. Thank you for being here today. I will start with my opening statement, and we will move on to the ranking majority's opening statement.

This hearing is for the Missouri River flood. It is an assessment of river management in 2011 and operational plans for the future. I would like to welcome everyone today in hearing the Missouri River flood and assessment, as I just said, and the operational plans for the future.

At the dedication ceremony of the Oahe Dam in South Dakota in 1962, President Kennedy made the following statement: "We take for granted these miracles of engineering. And too often we see no connection between this dam right here and our Nation's security and our leadership all around the world. The facts of the matter are that this dam and many more like it are essential to the expansion and growth of the American economy as a measure that Congress is now considering. And this dam and others like it are essential to our national strength and security, as any military alliance or missile complex."

I believe President Kennedy and his generation understood that public infrastructure is important to our economy, and a strong economy is vital to our national security. As we go through these difficult economic times, we must not forget that some Federal investments are valuable.

I would like to remind members of the subcommittee and those in the audience that in November 2011 we marked the 25th anniversary of the 1986 Water Resources Development Act. This landmark law has provided the Nation with a new paradigm for the development of water resource projects. WRDA 86 required that most projects be planned and constructed with a non-Federal partner

that would share in the cost. With local public entities taking a bigger role in projects, we have been able to leverage the Federal dollars and build projects that better fit the local needs.

In spite of the fact that non-Federal partners now are paying a significant portion of the project cost, we have not taken steps to recapitalize the water resources infrastructure that previous generations have entrusted to us. Investing some of our limited Federal dollars in flood protection and navigation infrastructure not only provides jobs during the construction period, but also provides economic benefits that save more jobs once the project is completed.

One needs only to look at the national, regional, and local economic benefits that have flowed from the water resources project on the Missouri River to appreciate the value of the Corps projects. Given the significant economic benefits that come from investing in flood protection and navigation infrastructure, I believe the Federal Government should focus its Corps of Engineers dollars on those activities and halt, for a while, investing in environmental restoration projects that do not provide the long-term jobs we so desperately need right now.

This concern has been made even acute by the fact that the damages to levees and other flood protection infrastructure caused by the Missouri River flood, Hurricane Irene, and other disasters this year must be quickly repaired to prevent damages next year. And currently, the Corps has to pay for these repairs by taking money from other projects. The Corps should not have to be deciding which projects to rob to pay for levee repairs. We in Congress and the President have to do a better job of getting the Corps the money they need for these important life and property-saving projects.

The Missouri River Basin is the world's third largest watershed, and drains 41 percent of the United States. There are six main stem reservoirs, many miles of levees, and other control structures that the Corps of Engineers uses to manage the river for eight separate—and many times competing—purposes. In managing the Missouri River system, the Corps has to balance its operations to address the needs of flood protection, navigation, municipal water supply, irrigation, fish and wildlife, recreation, and hydropower. The Corps has a master manual to guide its decisions, and they develop annual operational plans that reflect expected runoff for the season.

Since records were kept beginning in 1887, the estimated 2011 runoff of 61 million acre feet into the system easily exceeded the previous record of approximately 49 million acre feet set in 1997. Unprecedented runoff occurred in the basin in the months of May, June, and July of this year. The combined runoff from these 3 months of 34.3 million acre feet is higher than the total annual runoff in 102 of 113 years in the period of record.

The floods of 2011 damaged critical transportation infrastructure like roads, highways, bridges, airports, and rail lines. For instance, logistical problems caused by 2011 floods caused a Class I railroad, Burlington Northern Southern Santa Fe, to re-route up to 460 trains per day for the duration of the floods. Worse still, thousands of Americans were flooded, some of them who lost their homes. Mil-

lions have been impacted by these floods and, sadly, some have lost their lives.

The system that was authorized in 1944 and completed in the early 1960s has provided flood control and other important benefits for many in the Missouri River Basin. Still, the system has not created a flood-free zone along the Missouri River. We have seen in the Gulf region what can happen when hurricane and flood protection infrastructure is inadequate or fails to perform. And now we have seen this type of event in the Missouri River, the Mississippi River, and the Ohio River.

I believe the answers to these issues will come from a partnership between Federal and non-Federal public entities. I believe we should recapitalize the Nation's flood damage reduction infrastructure, and believe we need to make policy changes to be sure that we are making the best investment of taxpayer dollars.

At the same time, I believe local governments have got to make wise land use decisions in their communities that will keep homes and businesses out of harm's way.

I would like to thank the panel members for being here today and we examine the flood of 2011 and how the Corps is preparing for the future.

At this time, I would also ask unanimous consent that the documents are put in the record from the Missouri Farm Bureau Federation, the American Society of Civil Engineers, American Rivers, the Honorable Lee Terry.

[No response.]

Mr. GIBBS. Hearing no objection, that will be so ordered.

[Hon. Lee Terry's statement is featured with the other witnesses' statements—please refer to the "Prepared Statements Submitted by Witnesses" section of the table of contents. The other information follows:]

MISSOURI FARM BUREAU FEDERATION
P.O. Box 658, 701 South Country Club Drive, Jefferson City, MO 65102 / (573) 893-1400

November 29, 2011

The Honorable Bob Gibbs
U.S. House of Representatives
329 Cannon HOB
Washington, DC 20515

Dear Chairman Gibbs:

Thank you for holding this morning's hearing and inviting my fellow Missourians to share their thoughts on the Flood of 2011.

This has been a difficult year for many Missourians. In addition to tornados and widespread drought, flooding along both the Missouri and Mississippi Rivers caused extensive damage to homes, farms, businesses and infrastructure. Approximately 330,000 acres of crop land was flooded in Missouri this year.

As your committee reviews the Flood of 2011, I hope you will encourage federal officials to use information gained this year and incorporate it into future management plans. Now is the time to analyze and implement management changes that reduce the risk of flooding in the future.

It is important the U.S. Army Corps of Engineers make repairing the Missouri River levee system its top priority. Damage assessments must be completed, funding committed without delay and as much on-site work done as possible before next spring. New bureaucracy must be avoided and, under no circumstances, should any public agency attempt to use this year's flood as an opportunity to acquire more land.

Recovery will not be easy or quick but our state is committed to pursuing changes that reduce the risk of a similar event in the future.

Sincerely,

Blake Hurst
President

AMERICAN SOCIETY OF CIVIL ENGINEERS

Washington Office
101 Constitution Ave., N.W.
Suite 375 East
Washington, D.C. 20001
(202) 789-7850
Fax: (202) 789-7859
Web: http://www.asce.org

STATEMENT OF
THE AMERICAN SOCIETY OF CIVIL ENGINEERS
BEFORE THE
HOUSE TRANSPORTATION AND INFRASTRUCTURE COMMITTEE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
THE MISSOURI RIVER FLOOD:
AN ASSESSMENT OF THE RIVER MANAGEMENT IN 2011
AND OPERATIONAL PLANS FOR THE FUTURE
NOVEMBER 30, 2011

Mr. Chairman and Members of the Subcommittee:

The American Society of Civil Engineers (ASCE) is pleased to provide this statement for the record on the Missouri River flood of 2011 and the condition of the nation's flood-control systems.

I. Flooding Remains America's Most Common Natural Disaster

Floods remain the most common form of natural disaster in the United States.[1] Determining the extent of flood damage in the U.S. remains an inexact science, however.

> The available records of historical flood damage are inadequate for policy evaluation, scientific analysis, and disaster mitigation planning. There are no uniform guidelines for estimating flood losses, and there is no central clearinghouse to collect, evaluate, and report flood damage.[2]

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[1] Xiong Yu and Yuewen Huang, *Sustainable Flood Risk Management: Lesson from Recent Cases, in* GEORISK 2011, 728 (American Society of Civil Engineers 2011).

[2] Roger A. Pielke Jr. et al., *Flood Damage in the United States-2003: a Reanalysis of National Weather Service Estimates* 1 (2002), http://www.flooddamagedata.org/full_report.html (accessed Oct. 18, 2011).

Nevertheless, some estimates are available. "[D]espite extensive investment in flood-protection infrastructure, flood damage continues to increase. Flooding was estimated to have caused approximately $50 billion [in damages] to the U.S. in the 1990s."[3]

The trend has continued in the 21st century. According to the White House Web site, President Obama issued 154 disaster declarations between January and October 2011, almost all of them related to flood events of one kind or another. Several states suffered from repeated flooding this year and were the subject of more than one disaster declaration, sometimes within days or weeks of each other.[4]

The U.S. Army Corps of Engineers (USACE) has been combating floods for more than 80 years. Responding to the Great Flood of 1927, Congress directed the Corps in 1928 to undertake construction of the Mississippi River and Tributary (MR&T) flood-control project. To date, the project has cost $10 billion, according to a USACE video.[5] "Levees remain the system's backbone," says the video.

In April-May 2011 the Mississippi River experienced some of the greatest flooding since the 1920s and 1930s. In 2011, the Corps estimates that the flooding runoff in the Missouri River basin exceeded normal annual flood levels by 117 percent to 491 percent.[6]

II. Floodplain Management

ASCE supports protection of natural floodplains and the concept of building disaster resistant communities consistent with sustainable development and holding paramount the public's safety, health, and welfare. ASCE urges governments at all levels to adopt proactive floodplain management policies, particularly in vulnerable coastal lowlands and river bottoms, and supports creative partnering between federal, state and local governments to adopt floodplain management policies and to fund the design and implementation of floodplain management policies and flood mitigation projects in a timely manner.

ASCE urges federal, state, and local governments to inform residents of communities in floodplains of the hazards associated with the development or major redevelopment of communities below sea level or in high-risk, flood-prone areas. Such development is

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[3] Yu and Huang, *supra* note 1, at 728 (quoting National Weather Service data).

[4] White House, Search: Disaster Declaration 2011 (accessed Oct. 17, 2011). Missouri, Kansas, New York State, and Maryland, to name a few, all received multiple federal disaster declarations for flooding in 2011, for example. http://www.whitehouse.gov/search/site/disaster%20declaration. The president issued 140 disaster declarations for all of 2010 and 93 in 2009.

[5] U.S. Army Corps of Engineers, STEMMING THE CHOCOLATE TIDE (undated video) (viewed Nov. 28, 2011), http://www.youtube.com/watch?v=5-P_lVLoDCs&feature=youtu.be.

[6] USACE, Operation Mighty Mo 1 (August 2011).

inherently unsustainable and puts the public at significant risk of loss of life and property. The multiple-use of flood prone areas and flood mitigation facilities should be pursued, including river restoration, wetland restoration, aquifer recharge, improvements in habitat, ecosystems, and water quality, recreation and open space use, and incorporation of floodplains into comprehensive watershed management programs.

Development and associated infrastructure in flood prone areas has increased rapidly as people are attracted to historically fertile floodplains and coastal areas. Even though the benefits of preserving the natural floodplains as flood storage areas and wildlife habitat have been recognized, the floodplains continue to be developed and new inhabitants are subjected to periodic flooding and related devastation, as shown by Hurricanes Katrina and Rita. People living and working in flood prone areas often have developed a false sense of security. Once a flood occurs, residents and businesses often expect government to reduce or eliminate the risk of flooding through large capital projects. These populations need the protection of an efficient floodplain management program implemented before the flood occurs. By recognizing the likelihood of future flooding and the beneficial aspects of the natural floodplain, areas can be protected and communities can become disaster resistant.

Floodplain management includes the operation of an overall program of corrective and preventive measures for reducing flood damage, including, but not limited to, emergency preparedness plans, flood control works, and floodplain management regulations. Methods for evaluating the benefits and costs of mixed systems allow for the consideration of both tangible and intangible benefits and costs and should permit formulating programs, including both structural and nonstructural elements, which provide the greatest return on society's investment.

III. Levee Safety

Because levees remain the major engineering tool in the fight against flooding and despite the lessons learned following massive levee failures in the wake of Hurricane Katrina in 2005, ASCE supports the enactment of federal and state legislation and regulations to protect the health and welfare of citizens from the catastrophic effects of levee failures. Congress should enact legislation to establish a national levee safety program that is modeled on the successful National Dam Safety Program.

The federal government must accept the responsibility for the safety of all federally funded and regulated levees. Similarly, state governments must enact legislation authorizing an appropriate entity to undertake a program of levee safety for non-federal levees. The act should require the federal and state governments to conduct mandatory safety inspections for all levees and establish a national inventory of levees. The National Flood Insurance Program should map all areas potentially flooded by a levee breach and identify these as special flood areas to better communicate risks and encourage affected property owners to seek appropriate protection.

There is no national safety program for federal or state levees. Many privately built levees are deeded to local governments or associations who do not maintain them or even

recognize the risks. There is no dependable catalog of the location, ownership, condition, or hazard potential of levees in the United States. Flooding from Hurricane Katrina, which devastated the city of New Orleans in August 2005, demonstrated the need for consistent, up-to-date standards for levees based upon reliable engineering data on their location, function, and condition.

The nation must use all the tools available to reduce damages from hurricanes and major storms. This means the use of structural methods, such as levees, floodwalls, and dams, but also non-structural approaches, such as flood-resistant design, voluntary relocation of homes and businesses from flood-prone areas, the revitalization of wetlands for storage, and the use of natural barriers to storm surges.

IV. Federal Investments Remain Below the Demonstrated Need

The Corps' civil works program remains chronically underfunded. Earlier this year, ASCE recommended a minimum appropriation of $5 billion for the Corps of Engineers in FY 2012 to reverse the budget trajectory to ensure safe infrastructure and a sound economy. But the president proposed a budget of $4.6 billion for all civil works programs, the House approved a budget of approximately $4.3 billion and the Senate approved $4.8 billion. These totals are inadequate and must be increased. Congress must augment civil works funding in FY 2012 and future years.

We are told the administration proposal would fund the operation and maintenance of more than 600 flood and storm damage reduction projects, 143 commercial coastal navigation projects, and 51 commercial navigation projects on the inland waterways, according to USACE statements. It also would fund construction of 90 projects where construction is already under way as well as two new construction starts.

The budget would fund 58 studies already under way and studies for four new starts. It will enable the Corps to process approximately 70,000 permit requests and to operate 75 hydropower plants with 350 generating units that produce about 24,000 megawatts per year. The budget will enable about 370 million outdoor recreational visits to Corps projects and will provide water supply storage for about 14 percent of the nation's municipal water needs.

Nevertheless, the president and Congress propose to reduce spending on critical Corps of Engineers infrastructure programs in FY 2012. The presidential budget and House and Senate levels are well below the enacted amount of $5.445 billion in FY 2010, and they are approximately six percent below the FY 2011 budget level. These budget cuts must be reversed to ensure safe infrastructure and a sound economy.

In 2005, Hurricane Katrina vividly demonstrated the perils of relying upon poorly funded infrastructure to protect lives and property. An ASCE investigation (conducted on behalf of the Corps of Engineers) reported in 2007 that chronic under funding was one of the principal causes of the levee failures after Katrina.

Because of the congressional budgeting process, the stream of funding for the New Orleans hurricane protection system was irregular at best. If a project was not sufficiently funded, the USACE was often required to delay implementation or to scale back the project.

This push-pull mechanism for the funding of critical life-safety structures such as the New Orleans hurricane protection system is essentially flawed. The process creates a disconnect between those responsible for design and construction decisions and those responsible for managing the purse-strings. Inevitably, the pressure for tradeoffs and low-cost solutions compromised quality, safety, and reliability.

The project-by-project approach—in which projects are built over time based on the availability of funding—resulted in the hurricane protection system being constructed piecemeal with an overall lack of attention to "system" issues. The project-by-project approach appears to be associated with congressional limitations. The USACE was forced into a "reductionist's" way of thinking: reduce the problem into one that can be solved within the given authority and budget. Focus only on the primary problem to be solved, inevitably making the issues of risk, redundancy, and resilience a lower priority.[7]

It is not clear how federal agencies like the Corps will continue to pay for essential infrastructure systems with greatly reduced appropriations. Enabling the eventual failure of the nation's essential public infrastructure through arbitrary budget-cutting is deeply troubling. "Doing more with less" is a slogan that allows drastic budget cuts or the complete elimination of funding for critical flood-control programs, leaving the nation vulnerable to future catastrophic flooding.

For further information, please contact:

Michael Charles
Senior Manager, Government Relations
American Society of Civil Engineers
101 Constitution Avenue NW, Suite 375 East
Washington, D.C. 20001
(202) 789-7844 DIRECT
(202) 789-7859 FAX
mcharles@asce.org

[7] American Society of Civil Engineers, the New Orleans Hurricane Protection System 71-72 (2007).

November 29, 2011

The Honorable Bob Gibbs
Chairman, Subcommittee on Water Resources and Environment
Committee on Transportation and Infrastructure
Washington, DC 20515

The Honorable Tim Bishop
Ranking Member, Subcommittee on Water Resources and Environment
Committee on Transportation and Infrastructure
Washington, DC 20515

RE: The Missouri River Flood: An Assessment of River Management in 2011 and Operational Plans for the Future

Dear Chairman Gibbs and Ranking Member Bishop:

On behalf of American Rivers' members and supporters across the nation, thank you for holding a hearing on the Missouri River flooding of 2011 and operational plans for the future. American Rivers is the leading organization working to protect and restore the nation's rivers and streams. American Rivers works to protect our "natural defenses" - our wetlands, rivers, floodplains, and upland and coastal areas – to safeguard communities and the environment.

The 2011 Missouri River Flooding

Given that it has been a little over one month since the Corps of Engineers officially declared the Missouri River flooding to be over, now is the time to reflect on lessons learned and opportunities for better management in the future.[1] 2011 has been an extreme year for flooding events across the nation. However, a few key factors made the Missouri River different from the flooding in other parts of the nation. First, the combination of massive spring rains on top of a late thaw of heavy snowpack approximately doubled the historic record for water flows.[2]

Second, conflicting purposes of the Missouri River Mainstem Dam Reservoir System create additional management challenges. The Flood Control Act (FCA) of 1944 established eight authorized Missouri River project purposes including:

(1) Flood Control
(2) Navigation
(3) Hydropower
(4) Irrigation
(5) Water Supply
(6) Water Quality
(7) Recreation

[1] *See* http://www.nwo.usace.army.mil/html/pa/pahm/NewsReleases11/NR101711-FloodOfficialEnd.pdf
[2] The combined May through July runoff of 34.3 million acre-feet (MAF) made 2011 an historic year of record for reservoir water storage along the Missouri River. Prior to 2011 record runoff in the system was 49 MAF. Average is about 24.3 MAF. Projected runoff in 2011 is 60.8 MAF. http://www.nwo.usace.army.mil/html/pa/pahm/NewsReleases11/NR111011b.pdf

(8) Fish and Wildlife, including Endangered Species

While the Corps of Engineers ("the Corps") lowered the reservoir levels on the Missouri River for flood control, they were unable to hold the additional flow that came with the spring rains. The Corps was forced to open gates that had not been utilized for 50 years passing huge amounts of flow downstream contributing to the flood damages and levee failure in downstream communities. The base flood control storage in the reservoirs at the start of March provided 16 million acre-feet (MAF) of flood storage. However, an additional 10-30 MAF of storage or more would have conceivably been needed to be made available to handle the flood of record (2011). This Missouri River Mainstem Dam Reservoir System cannot be managed to meet all purposes without conflict.

The Corps' Master Manual for operating the mainstem dam reservoir system outlines the annual cycle for releases for all purposes and it's important to note the role that all purposes play in this cycle. For instance, for barges to travel on the river during the dry summer months, spring runoff must be held in the reservoirs and released during periods of low flows. Those who argue that management of the system for endangered species contributed to flooding simply ignore the facts of how the system is managed. The Corps has developed criteria for "spring pulse" releases that benefit some species and schedules these releases ahead of time, but no water is stored to conduct a spring pulse. In 2011 the spring pulses were cancelled because high runoff required even higher releases than the criteria call for.[3] If Congress is questioning the role of one authorized purpose, it must take an honest look at all of them.

While damaged levees that protect communities must be repaired as soon as possible, it's important to keep in mind that funding spent on restoration of the Missouri River Basin also has flood risk management benefits. For instance, in the 1980's Congress authorized the Missouri River Bank Stabilization and Navigation Mitigation Project to restore habitat and connectivity damages that had resulted from the navigation projects. Restoration projects under this authorization include chute construction and allowing the river to widen. Projects of this type actually help to increase flood storage and reduce flood heights.

As Corps Brig. Gen. John McMahon outlined in an editorial on Oct. 20, 2011,

> *"Flood risk can be mitigated beyond creating more space in the existing system. Designating floodways, establishing flood corridor easements, applying new building codes, exercising emergency response plans, stockpiling materials and emergency supplies, improving maintenance and inspections, applying technology to assess best and highest use of the land—that is, uses in the floodplain that are compatible with risk of periodic flooding-- buying flood insurance, changing local zoning ordinances, changing existing levee alignments or setting back levees to allow more room for the river are all examples of alternatives, both structural and non-structural, that should be considered. As they are, we must work closely with landowners, levee sponsors—who decide-- and local communities, states, Tribes, federal agencies and others—who support--- to ensure wise investment of scarce public funds is made."*[4]

Decision makers in the region and in Congress should take this advice and look at all options for reducing flood risk in the future.

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[3] *See* Prairie Fire's "The Missouri River Flood of 2011: New Report Examines Causes" September 2011. http://www.prairiefirenewspaper.com/2011/09/the-missouri-river-flood-of-2011-new-report-examines-causes

[4] Brig. Gen. John McMahon, Northwestern Division Commander, U.S. Army Corps of Engineers. "Past lessons can help shape flood plain management". Oct. 20, 2011. http://www.nwo.usace.army.mil/html/pa/pahm/NewsReleases11/NR20111019-OpEdFloodPlainMgt.pdf

As the Missouri River Basin recovers from the 2011 floods, a priority must be placed on keeping people safe in 2012 while levees are repaired and the area recovers. But as we look towards the future, Congress should have an honest debate about how to reduce flood risk and to manage the Missouri River Mainstem Dam Reservoir System. This debate must address all the purposes of the Mainstem Dam Reservoir System and be based on science and current data. The region must be prepared for more extreme floods and droughts in the future and our nation cannot afford to pay for recovery and rebuilding year after year.

Potential for compromise in the future

While we will need to continue to manage for the multiple authorized purposes, moving forward we need a balanced compromise to meet many of the needs while ensuring reduction in flood risk. A compromise solution would include the following:

(1) **Fully fund the Missouri River Authorized Purposes Study (MRAPS).** Changes to the Missouri River Authorized Purposes should result from up to date science and stakeholder involvement, rather than as a knee-jerk reaction. Congress authorized the Missouri River Authorized Purposes Study in the Omnibus Appropriations Act of 2009 in order to determine if the eight authorized purposes from 1944 still meet the current and future needs of the Missouri River Basin. The Missouri River Basin has changed since 1944 and management of the Basin should reflect the priorities of the region and nation now and in the future. MRAPS will allow for deliberate and thorough public process to assess how conditions have changed and if the authorized purposes should change. In recent years funding for MRAPS has been stripped from Energy and Water Appropriations bills by opponents who seek to maintain the status quo which favors navigation. However funding MRAPS is a smart investment because it will streamline future Corps operational expenses, save taxpayer dollars and bring Missouri River management into the 21st century.

(2) **Strategically invest in comprehensive flood mitigation measures that make room for water to be stored in the floodplain.** A comprehensive plan ought to find strategic places to set levees back, remove river training structures, create bypasses, and implement permanent floodplain easements. The recent report by the National Academies supports this notion.[5, 6] Allowing a river to utilize its floodplain is a flood risk management strategy that is gaining more and more support among politicians, national environmental organizations, and flood management experts. As the St. Louis Post-Dispatch editorialized this summer both American Rivers and former Missouri Senator Christopher "Kit" Bond agreed this was a smart approach:

> *"In an interview, Mr. Bond agreed that one strategy that would improve flood management and renew the river's resources would be to allow it to widen outside its channelized banks in certain rural areas.*[7]

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[5] National Academy of Sciences. 2011. Missouri River Planning: Recognizing and Incorporating Sediment Management. The National Academies Press. Washington, D.C. http://www.nap.edu/catalog.php?record_id=13019. The report finds that the Corps' restoration projects have been implemented and monitored with limited strategic guidance and with effectiveness. The report suggests: removing riverbank stabilization structures, dredging, bypassing sediment around dams in the main stem of the river, removing dams, and increasing sediment from tributaries

[6] As of December 2008, the Corps has acquired 55,847 acres through the Mitigation Project, or approximately 34 percent of the 166,250 acres the Corps is currently authorized to acquire in Missouri, Kansas, Iowa and Nebraska "providing valuable benefits including clean water and flood storage and conveyance."

[7] *See* St. Louis Post-Dispatch Editorial Board "Widening Missouri River, reducing risk, key to flood control" July 4, 2011: http://www.stltoday.com/news/opinion/columns/the-platform/article_ff5f3a3a-7713-56ed-aa53-43d8a7303ff2.html

(3) **Revisit the management of Missouri River for navigation from Ponca, Nebraska, to Kansas City, Missouri.** The navigation channel from Ponca, Nebraska to Kansas City, Missouri is the least utilized by the barge industry, as well as being the most floodprone. Widening this reach will lower future flood heights and will ensure that upstream reservoirs do not need to be drawn down too low to guarantee flood control for the lower valley. Of the total commodity tonnage shipped on the Missouri river, sand and gravel accounted for 84 percent of the total and roughly 54 percent was transported 1 mile or less.[8] Evidence indicates that the navigation channel here is not economically justifiable[9] Yet approximately $10 million per year is spent by the U.S. taxpayers to subsidize maintenance of the Missouri River navigation project.[10] In fact, the lower Mississippi River is the only waterway in the nation right now that generates more revenue than it costs to operate.[11]

(4) **Invest in and strategically target agricultural conservation programs.** The agricultural conservation programs are a wise investment that can play a key role in storing more water on the land naturally while also investing in farmers who own sensitive lands that flood time and time again. Ensuring robust funding for key programs is critical to reducing flood risk on the Missouri River. Some key conservation programs include the Emergency Watershed Protection funds for strategically based floodplain conservation easements, for the Wetlands Reserve Program (WRP) to aid in flood mitigation efforts, and for the Conservation Reserve Enhancement Funding (CREP) to aid and assist producers implement wetlands in that have long since been altered or cut off from the river itself.

Lessons learned

We know that flooding is becoming more frequent and more severe and flood losses continue to increase. Extreme flooding events are saddling communities with the challenges of larger and more frequent floods. We must be prepared to address climate extremes and adjust our flood and drought policies as if it is the new norm.

When it comes to managing our water resources, the past should not be the sole guide for the future. While levees, dams, and other structures will continue to play a role in flood management, they must be the last line of defense, not the only one. Levees do not eliminate the risk of flooding, they reduce flood risk and when they fail, the damage can be catastrophic.

Perhaps the most important lesson of the 2011 Missouri River flooding is that we learned yet again that rivers must be managed as entire systems based on the most scientific and up to date

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[8] United States Government Accountability Office. January 15, 2009. *Missouri River Navigation: Data on Commodity Shipments for Four States Served by the Missouri River and Two States Served by Both the Missouri and Mississippi Rivers.* Note that between 1994 and 2006, more than 108 million tons of commodities were transported on the Missouri River.

[9] Baumel, C. Phillip. July 2003. *Past and Future Grain Traffic on the Missouri River.* Institute for Agriculture and Trade Policy Minneapolis, Minnesota. http://www.iatp.org/files/Past_and_Future_Grain_Traffic_on_the_Missouri_.pdf. Note that the cost of barging on the Missouri River is about 55 percent higher than on the Upper Mississippi River due to the small number of barges per tow on the Missouri, long distances to the mouth of the Missouri River and high fuel consumption of Missouri River towboats.

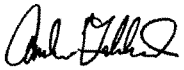
[10] Congressional Research Service. Stern, C.V. July 14, 2011. Inland Waterways: Recent Proposals and Issues for Congress. 7-5700. www.crs.gov.R41430. Note that the average appropriation over the past 12 years was, in fact, $9.46 million.

[11] Congressional Research Service. Stern, C.V. July 14, 2011. *Inland Waterways: Recent Proposals and Issues for Congress.* 7-5700. www.crs.gov.R41430. *See* Figure 5. Fuel Tax Receipts Relative to O&M Expenditures, Ton-Miles at p. 15. This graph shows that the Missouri River Navigation project has generated virtually no diesel fuel tax receipts between 2000 – 2008. The graph verifies that there have been, an average, only about 100 million-ton miles of commodities per year moved on the Missouri R. waterway. Compare this with ~29 billion ton-miles per year on the Upper Mississippi River and 129 billion on lower Mississippi River or one third of one percent of the level of Upper Mississippi River traffic.

information, not by individual decisions or by individual interests. Allowing MRAPS to be completed will ensure that the management of the Missouri River is guided by public involvement and the most recent and comprehensive data and is based on science.

In summary
As communities continue to struggle towards recovering before the next flood, we applaud your leadership in assessing the record breaking 2011 Missouri River flooding. We look forward to working with you on legislative proposals that will protect communities and the rivers they depend upon.

Sincerely,



Andrew Fahlund
Senior Vice President for Conservation

Mr. GIBBS. Also, I would like unanimous consent that committee members Sam Graves, Bill Long, and Leonard Boswell, who are not on the subcommittee but are on the T&I Committee, be allowed to sit and ask questions during this hearing.

[No response.]

Mr. GIBBS. Hearing no objections, so ordered.

At this time I welcome Mr. Carnahan as the ranking member for this hearing.

Mr. CARNAHAN. Thank you, Mr. Chairman. And I want to acknowledge our ranking member, Mr. Bishop—sitting in for him briefly today—for holding this hearing. This is an issue that has been of critical importance to my constituents in the St. Louis region that live and work along the Mississippi River. I originally sent a letter to the committee requesting this hearing on May 5th. I am very thankful that the committee is convened here today to further investigate this issue.

We also organized a briefing for colleagues on this very issue back in July. But it is important that the committee is here today, taking this formal action to investigate the flooding and to help plan for future events.

I also want to thank you for inviting Richard Oswald, who will testify here today. He is from Atchison County, Missouri, in northwest Missouri. He will be able to give his personal account of the devastation brought on by these floods. And Mr. Oswald's home, the one built by his parents, has flooded for the third time in his life because of the failure of our levee and reservoir system. This year Mr. Oswald could not return to his farm for months. His crop was ruined. The economy of his 1,200-person town, devastated. And his story is repeated countless times across the State.

I also want to acknowledge some other Missourians that will be with us here on the later panel: Kathy Kunkel, the county clerk of Holt County, Missouri; and Tom Waters, chairman of the Missouri Levee and Drainage District Association. And it is great to have three of our colleagues from Missouri: Congresswoman Hartzler, Congressmen Luetkemeyer and Cleaver.

This issue is bipartisan, it covers many States and regions, and it is very important, I think, we are here today doing this.

I also want to ask unanimous consent to submit two other testimonies for the record for witnesses that could not be with us today. The first is the testimony of the Osage Nation. Levee breaches destroyed their sacred sites and spread human Native American remains over huge areas. And the tribulations experienced by the tribe help to remind us of the myriad effects of these floods, and the many factors that must be weighed when we deal with this in the future.

I also want to submit the testimony of the Southeast Missouri Regional Port Authority, detailing the issues they faced covering these floods.

Mr. GIBBS. And that is so ordered.

[The information follows:]

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John D. Red Eagle
Principal Chief

Osage Nation
Office of the Principal Chief

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Scott N. BigHorse
Assistant Principal Chief

Date: **November 30, 2011**

RE: **Testimony Respectfully Submitted to the United States Transportation and Infrastructure Committee Subcommittee on Water Resources & Environment for the Hearing "The Missouri River Flood: An Assessment of River Management in 2011 and Operational Plans for the Future"**

Chairman of the Subcommittee on Water Resources and the Environment, Rep. Robert Gibbs
Ranking Member of the Subcommittee on Water Resources and the Environment, Rep. Tim Bishop
Committee on Transportation and Infrastructure
Room 2165 Rayburn House Office Building
Washington, D.C. 20515

Dear Representatives,

The Osage Nation Historic Preservation Office has prepared the enclosed written testimony respectfully submitted for the United States Transportation and Infrastructure Committee Subcommittee on Water Resources & Environment Hearing entitled "The Missouri River Flood: An Assessment of River Management in 2011 and Operational Plans for the Future" to be held on November 30, 2011.

The Osage Nation has vital interests in protecting its historic and ancestral cultural resources. Should you have any questions or need any additional information please feel free to contact me at the number listed below.

Scott N. BigHorse
Scott N. BigHorse
Assistant Principal Chief- Osage Nation

627 Grandview * P.O. Box 779 * Pawhuska, Oklahoma 74056
Telephone 918-287-5555 * Fax 918-287-5562

Written Statement of

Dr. Andrea A. Hunter
Director of the Osage Nation Historic Preservation Office

Submitted to
United States House Transportation and Infrastructure Committee
Subcommittee on Water Resources & Environment

Hearing on
"The Missouri River Flood: An Assessment of River Management in 2011 and Operational Plans for the Future"

November 30, 2011

Submitted By
Osage Nation Historic Preservation Office
627 Grandview
Pawhuska, OK 74056
Tel: (918) 287-5328
Fax: (918) 287-5376

Chairman Mica, Ranking Member Rahall, Subcommittee Chairman Gibbs, Subcommittee Ranking Member Bishop and distinguished members of the Committee, the Osage Nation Historic Preservation Office (ONHPO) thanks you for the opportunity to present testimony on behalf of the people of the Osage Nation concerning the impacts upon cultural and heritage resources and graves resulting from the 2011 Missouri River Flood. The ONHPO has been in existence since 2007, representing the people of the Osage Nation through consultations, investigations, and planning efforts in relation to the following: the National Historic Preservation Act (NHPA), the National Environmental Policy Act, the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, numerous state statutes protecting human remains and cultural resources, and Osage laws concerning archaeological and heritage resources. The ONHPO assists in the identification, documentation, and protection of Osage archaeological and historic properties within the current geographical boundaries of the Osage Nation and throughout Osage ancestral lands in Oklahoma, Missouri, Kansas, Arkansas, Illinois, Texas, Louisiana, Colorado, Indiana, Kentucky, Ohio, Pennsylvania, and West Virginia.

The Osage Nation is a federally-recognized tribe in the United States headquartered in Pawhuska in north-central Oklahoma. The Dhegiha-Siouan speaking peoples (the Osage, the Omaha, the Ponca, the Kaw, and the Quapaw) believe that in the past, they lived together as one group. Our ancestors originated in the upper Ohio River valley and migrated into the area where the Ohio and the Mississippi join. The Quapaw left first, moving down the Mississippi River. The Osage, Kaw, Omaha, and Ponca continued up the Mississippi to the Missouri River where the Omaha and Ponca continued northward, and the Kaw westward leaving the Osage in the vicinity of what is now St. Louis. We moved to the area around the Osage River in western Missouri by 1673. There, European explorers first encountered the Osage. Treaties made between 1808 and 1872 reduced the size of the Osage territory to what is now known as Osage County in Oklahoma.

The Osage people lived along the Mississippi and Missouri Rivers for hundreds if not thousands of years. Many of our most significant cultural, heritage, and religious sites can be found along their banks. These sites still possess an almost indescribable significance, although as a people we no longer live in these areas. The ONHPO works diligently within the existing laws to identify and protect these sites.

It was in this capacity that the ONHPO was first contacted by representatives of the United States Army Corps of Engineers (USACE) with regard to the activation of the New Madrid Floodway. We were informed that the Floodway would be activated and that regulations requiring the consideration of historic properties during planning and implementation of activities conducted by the USACE would be suspended. It was our belief at that time, and is our firm conviction now, that the USACE should accept responsibility for identifying and mitigating the effects the activation had upon historic properties and graves now that the emergency has past.

Two months after the Floodway was activated, amidst continuing consultation, we were informed that the floodwaters caused the destruction of a significant site at Bird's Point in southeastern Missouri. Floodwaters displaced what may have been over a dozen of the graves of our ancestors. Scattered over several acres of ruined farmland, the remains were exposed to the elements for 51 days before they were partially collected at the insistence of the Assistant Chief of the Osage Nation, Scott Bighorse, during our visit to the site on June 22nd. I have no doubt that had we not visited the site, the remains would have laid on the ground for at least another 30 days as the USACE representatives were unwilling to take responsibility for collecting the remains. Our ancestors deserved, but were not afforded, proper and respectful treatment particularly in light of the horrifying manner in which they had been disturbed. In my experiences, I have seen such horrible indecencies committed against the remains of my ancestors and the ancestors of other tribes. I have never seen anything as reprehensible as what greeted me that day. The repugnant sight we witnessed that day will remain with me the rest of my life.

Though it may be unreasonable to fault the USACE for not previously identifying the site as it was located beneath a decades-old levee, an appropriate method of activating the Floodway would have protected the site and left our people undisturbed. Further, no formal protocol for addressing incidents such as what occurred at Bird's Point had been established prior to the breaching of the levee. An unwillingness or inability to care for the remains of human beings and a total lack of preparedness complicated an already extremely difficult situation.

Additionally, the Osage Nation Historic Preservation Office has witnessed extreme resistance on the part of the USACE to identify and assess the impacts the activation of the Floodway may

have had on sites across the Floodway, both known and unknown. Only recently has the USACE stated that it will remotely evaluate the damage inflicted upon known sites of significance. We contend that the USACE is responsible for mitigating the damage done to all significant sites and graves, known and unknown.

The Osage Nation clearly has serious concerns regarding compliance with Section 106 of the NHPA by the Memphis District of the USACE with respect to the activation of the New Madrid Floodway on May 2, 2011 and the draft Programmatic Agreement (PA) for compliance and tribal consultation under Section 106 of the NHPA within the Floodway, currently under review.

It is our belief that the suspension of Section 106 under emergency situations does not exempt the USACE from identifying, and potentially mitigating, the effects that the emergency undertaking had upon historic properties after the fact. Although an agreement, considered by the USACE to satisfy their responsibilities under the NHPA, was in effect at the time of the activation of the Floodway, the Osage Nation asserts that the agreement failed to contain "specific provisions for dealing with historic properties in emergency situations" as required by § 800.12(b)(1) and was therefore ineffective.

There were no stipulations within the agreement regarding resurvey of properties after an appropriate period of time, evaluation or assessment of damages resulting from the activation of the Floodway, protocols for dealing with inadvertent discoveries of either historic properties or human remains, considerations for Traditional Cultural Properties or Sacred Sites, or consultation with Tribes with concerns for the area. It is a fact that the USACE possessed a PA (1996) that was considered by its signatories to satisfy their responsibilities under Section 106, but we contend that the document was insufficient in considering the effects of the activation of the Floodway on significant sites and graves and failed to provide specific protocols for dealing with those effects.

The Osage Nation has requested, on several occasions, that the effects of the activation of the Floodway be assessed and reported and that the new agreement currently under review contain stipulations requiring the USACE to assess the effects of future activations of the Floodway. The USACE has stated that it has no responsibility with respect to historic properties located on private lands and will not conduct a pedestrian survey of the damages that the activation of the Floodway may have had on historic properties, graves, or sacred and/or significant sites. Further,

the USACE refuses to include stipulations in the current draft PA requiring damage assessments following future activations.

The United States government is making a concerted effort to prepare for the potential effects of a changing climate. Increasingly erratic weather patterns that may result in increased rainfall will lead to an increased frequency of flooding events such as what was seen this spring. The United States government must, therefore, expect, rather than simply prepare for floods of the magnitude seen in 2011. In any case, future activation of the Floodway has the potential to destroy or expose additional graves and significant sites. Should the Floodway be allowed to flood in a more natural manner, with less force, the devastation to graves and sites would be mitigated significantly.

The 2011 Missouri River Flood was a devastating natural occurrence. It is not known how many graves and sites have been damaged as a result of the activation of the New Madrid Floodway. The USACE exacerbated the impacts of the event through its antiquated operational procedures and unwillingness to accept responsibility for its actions. Though the USACE is ultimately responsible for breaching the levees, they maintain that they are not responsible for the impacts that the activation has upon graves or sites of significance.

In the past, the USACE clearly believed that they were responsible for impacts to cultural sites caused by the activation of the New Madrid Floodway and expected that the activation of the Floodway would have an adverse effect upon historic properties and sought to mitigate these properties when they signed the 1996 PA and conducted the extensive fieldwork required by that PA. Recently, representatives of the USACE, however, have repeatedly stated that they do not have the authority to conduct this work as the properties are located on private property. There are no exemptions with respect to private land either within the PA or the NHPA. The USACE, therefore, has the responsibility to conduct Section 106 with respect to any unmitigated historic properties within the Floodway and to assess the damage to historic properties throughout the Floodway resulting from its activation.

We submit that the devastating effects to cultural and archaeological sites and graves have been a direct result of an antiquated method for activating the Floodway and a refusal to follow the spirit, if not the letter, of existing federal legislation. We request that the USACE complete a full damage assessment of the Floodway including historic property identification efforts and

subsequent NRHP eligibility determinations and mitigation should they be required. We further request that the programmatic agreement currently under review by USACE Memphis District contain stipulations providing for resurvey of properties should it become necessary, protocols for the inadvertent discovery of historic properties and graves, an increased level of tribal involvement including tribal monitoring, and the mitigation of damaged sites within the Floodway. Finally, we request that the USACE seriously reconsider the current operational plan for the activation of the New Madrid Floodway as it is evident that it is outdated and extremely destructive.

Thank you for considering this testimony. We welcome any and all opportunities to work with and support the House Committee on Transportation & Infrastructure. We ask that you draw upon our work as you seek to assess the management of the 2011 Missouri River Flood and in the development of future operational plans.

Testimony of Daniel Overbey
Executive Director
Southeast Missouri Regional Port Authority

Before the Committee on Transportation and Infrastructure
United States House of Representatives

Flood Damage to the Ports located on the Mississippi River

Monday, November 28, 2011

Chairman Mica and Members of the Committee, my name is Daniel Overbey and I am the Executive Director of the Southeast Missouri Regional Port Authority and the Semo Port Railroad.

On behalf of our Board of Commissioners at the Port, I appreciate your convening this hearing and providing me the opportunity to testify before the Committee about the flooding that occurred over the Spring/Summer of 2011 along the Mississippi River.

The Semo Port is a joint effort of Cape Girardeau and Scott Counties in Southeast Missouri. We have a general cargo dock as well as terminals that handle dry bulk materials, liquid fertilizer, and grain. The Port owns and operates the Semo Port Railroad, which connects with both the Union Pacific Railroad and the Burlington Northern Santa Fe Railroad.

The flood season of 2011 was a particularly bad one. We had some damage but most of it was covered by FEMA funding for clean up and repairs. We have had debris removal from those portions of the Port and our railroad right of way, and also had some cleaning of mud silt from our steel railroad bridges (so the mud doesn't sit there and accelerate rusting of the bridge parts). We had 4 inclinometers replaced and others repaired around the harbor -- those are "wells" with plastic backbone-like inserts which can be used to measure ground movement at depths below surface, allowing monitoring of ground shifts by the harbor.

Generally, as a fairly new port, our facilities are designed (where possible) to be above 500-year flood or else tolerate occasional flooding. This is not true of our switching railroad's north end, which was built in 1929-1930, but we have done what we can to protect it by adding riprap and so forth.

Our public terminal cargo dock was closed for two weeks, and our railroad's north end was out for about 3-4 weeks (as was the BNSF main line). To the south, we are above flood elevation on our line from the Port to the UP.

Perhaps more important from the economic recovery aspect has been the funds available through EDA. SEMO RPC is working with us on three projects funded with 2008 EDA flood recovery funds: (1) bank stabilization of a former dredge basin, which will become industrial sites; (2) construction of three railroad spur tracks, to serve the corn mill and other customers; and (3) an upgrade of our railroad's main line, which will include a substantial number of tie replacements and other track work (particularly in the area subject to flooding). We will raise some portions of the track -- not enough to get above flood, which would be extremely expensive, but to raise them enough so they drain better and are slightly less prone to flooding. At any time funds such as these are available, we can put them to work on improvement projects which help provide future protection, grow the Port, and grow the local economy.

Mr. GIBBS. Mr. Cravaack—oh, sorry.

Mr. CARNAHAN. And just—if I may continue, Mr. Chairman—the Mississippi and Missouri River floods in April and May this year were among the deadliest and most damaging recorded along the waterway in the past century. Two major storm systems deposited record levels of rainfall on the Mississippi River and its tributaries, was contributed with springtime snow melt, causing water levels to rise to unprecedented levels.

During the past half of May, the upper Missouri River Basin received nearly a year's worth of rainfall. The flooding caused evacuations of thousands of people, swamping river towns and as many as 3 million acres of farmland in Mississippi, Tennessee, and Arkansas, alone. In May the Army Corps of Engineers blew up a section of the Birds Point Levee in Missouri, submerging about 130,000 acres of farmland to ease the flood threat to Kentucky and Illinois river towns. Damages from these floods are estimated to be at $2 billion, thus far. And many of these areas are still in the process of drying out.

In St. Genevieve County, the oldest continuously operated ferry based on the Mississippi River established in 1798, essential to the lives of many, has been out of operation. Southern Jefferson County construction projects delayed. From Joplin to Tuscaloosa, our Nation has experienced its share of natural disasters in these past months.

While we can't predict a tornado, we can predict floods. We need to reach out to local officials to offer help where we can, both in relief efforts but also future preventative measures.

Because of time, I am going to submit the rest of my testimony for the record. I look forward to hearing the panel and the experts that have assembled here today to be sure we are prepared, that we plan properly, and that we revisit our planning, based on these recent events, to be sure that we can minimize this kind of devastation again. I yield back my time.

Mr. GIBBS. Mr. Cravaack, you have an opening statement?

Mr. CRAVAACK. Thank you, Chairman, but I will pass and look forward to the testimony of my colleagues and the visitors today.

Mr. GIBBS. OK. Mr. Boswell?

Mr. BOSWELL. Well, thank you very much. And I would like to make a statement for the record, if I could.

Mr. GIBBS. So ordered.

Mr. BOSWELL. Thank you so much. Well, first I want to thank you, Chairman Gibbs and Ranking Member Bishop, and today Mr. Carnahan, for holding this important hearing. As a Member of Congress representing a State bordering the Missouri River, I can attest to the validity of this hearing.

Mr. Chairman, from time to time I believe circumstances require us all to re-evaluate plans and concepts that we thought were sufficient to deal with certain events. I believe sometimes circumstances require us to re-evaluate priorities to deal with changing realities. There is nothing wrong with acknowledging this; in fact, I believe it should be encouraged.

However, it does seem that, on occasion, Government gets in the way of this acknowledgment. And when it does, the machinery of Government often times does not have the flexibility to change and

adapt in a timely manner. This does not always happen. Yet, when it does, it can bring long-lasting impacts on affected communities.

The size and scope of the Missouri River flooding that we witnessed this year, I believe, is an event that requires us to re-evaluate our priorities and adapt and alter programs and responses to deal with the changing realities. The length of time that we witnessed historic flood waters was something I think no one was really prepared to deal with.

For example, temporary levees were constructed to protect farmland and communities. According to conversations I have had with people in the southwestern part of Iowa, local officials are being told to deconstruct those temporary levees. Why? Well, a little investigation. They were required to agree to dismantle as soon as the water receded, or they wouldn't get the temporary levee. And flood water was on the way.

According to that, we do not yet know—again, we do not yet know—what type of winter we are going to witness now, and what type of runoff we are going to have in the spring, as a result. So why must we spend money to deconstruct something that is doing nothing but protecting communities when we do not know yet whether or not we are going to have to spend money on rebuilding it in a few months? Or next spring?

Is the answer because it is not in a master plan, that recent events are proven to be outdated? That simply makes no sense to me. But it is those types of actions that drive up costs and, frankly, drives up the blood pressure of local citizens who have to deal with these changing realities.

Furthermore, the scope of flooding events across the country should call into question spending priorities on how we can better focus national resources when it comes to flood protection, conservation, recreation, and so on. Personally, I do believe in conservation. However, we must not sacrifice flood protection and the protection of lives and property for the sake of conservation. If we do, there will simply be nothing left to conserve, as the flood waters wash away natural habitats and communities in their path.

If there should be tough budgetary decision—and at this time I believe we all agree that there must be—then we must prioritize flood protection and mitigation above others. However, over the last decade or so funding levels of flood protection in the Missouri River States have steadily declined, where funding levels for environmental works have steadily increased. This is not to say that there is not a time and place for environmental work, for there are. But we, our leaders, simply—we, as leaders, simply cannot sacrifice entire communities by continually short-changing flood protection.

So it is my sincere hope that this hearing will provide the committee with the information needed to make an informed decision on how best to move forward. And once again, I thank the chairman and ranking member for calling this hearing to order. Appreciate your effort. Thank you very much.

Mr. GIBBS. OK. We have two more opening statements. Mr. Duncan?

Mr. DUNCAN. Well, thank you very much, Mr. Chairman. This is a very important hearing. The river covers 2,600 miles. Certainly

it is not—I am not as directly affected as most of the Members here, but I am concerned about this.

I am particularly concerned about the testimony of two later witnesses, Tom Waters of the Missouri Levee and Drainage District Association, who has a section of his testimony entitled, "The Corps is Not Listening," and the testimony—a similar testimony from another witness, Brad Lawrence, the public works director of Fort Pierre, South Dakota, in which they basically describe either an arrogant or a don't-care attitude by the Army Corps that they are going to do whatever they want to do, regardless of how the people feel.

And then I also noted the testimony of Kathy Kunkel, the county clerk of Holt County, Missouri, and she talks about the fish and wildlife service dictatorially demanding that 160,000 acres in her county be purchased. This—of course we have already heard they were talking about maybe millions of acres that needed to be purchased throughout these different States.

The Federal Government already owns far too much land already, about 30 percent of the land of this country. And State and local governments own another 20 percent. And at the same time that the police and fire and teachers and everybody keeps coming to local and State governments and the Federal Government wanting more money, Government at all levels keeps taking more and more land off the tax rolls. Those things just are in conflict. And the sooner we realize that private property is not only a very important part of our freedom, but a vital part of our prosperity, the better off this country is going to be.

And then we get into the endangered species part about the sturgeon. And some of this flooding may have been caused by the Federal Government in the first place, trying to protect the sturgeon.

And I remember years ago in my home area of east Tennessee, we got into a battle for years over the snail darter. And the experts all told us that the snail darter—that that was the only place where you could find snail darters. And then, after we go through hundreds of millions of dollars and cases going all the way to the U.S. Supreme Court, and then the Congress overruling the fish and wildlife service and the Federal bureaucrats, they then—surprise, surprise—find that there are snail darters all over the place, Oregon and everyplace else.

So, this is a very important hearing. I am sorry that I won't be able to stay for a lot of it. But I appreciate your calling this hearing, and thank you for letting me say a few words at this time.

Mr. GIBBS. Mr. Graves?

Mr. GRAVES. Thank you, Chairman Gibbs and Ranking Member, for holding this obviously very important hearing.

Flooding on the Missouri River has become such a regular occurrence, it is really kind of hard to keep up with. But this year, 2011, was actually one for the record books. You know, we don't know what the full cost of this is going to end up being, but it is probably going to be several billion dollars. And that includes agriculture losses, it includes business interruption, infrastructure damage, individual and public assistance. And, tragically, we did have the loss of life as a result of this.

In northwest Missouri, there are thousands of acres of farmland that are utterly devastated. And many of those acres are never going to see a crop again. Road closures have cost businesses revenue. That includes gas stations, restaurants, and retailers. And ultimately, it cost local jurisdictions a lot of revenue. States, counties, cities, and a lot of other local entities are going to continue to have to spend money they simply don't have for critical infrastructure repairs.

The BNSF Railroad, which is a major economic generator in the Midwest and nationwide has spent literally hundreds of millions of dollars as a result of this year's flood. And when you include rerouting trains, delays, increased fuel and labor, the dollar amount continues to go up. The domino effect on small businesses that depend on the timely delivery of goods is enormous, and yet another headache they have to deal with during this time of economic uncertainty.

It is very important that we hear from our witnesses today about what the devastation of this flood has caused. But it is just as important to hear what we think the future needs to be when it comes to managing the river. And I believe, personally, that we are asking the Corps of Engineers to juggle too many priorities. And I think we have to make clear, once and for all, that prevention of flooding has to be the number one priority. And we also need to strip away a lot of other less important priorities.

I have introduced legislation that would make flood control the priority of the Corps in managing the river, and remove fish and wildlife as an authorized purpose. We have to get our spending in order. From Gavins Point Dam to the mouth of the Missouri River, we are slated to spend $73 million on wildlife reclamation and habitat creation, and we are only slated to spend $6 million on levee maintenance in that same stretch of river. I pointed this out on the floor of the House earlier this year. That is 12 times more money on birds and fish than it is on levee maintenance.

My colleague from Iowa, Congressman Steve King, has also introduced legislation that will require the Corps to take into consideration the new data points established by this year's flood. And I doubt anyone contends these actions alone would obviously entirely mitigate the possibility of future flooding, but I strongly believe it is a huge step in the right direction.

And the fact of the matter is when you have years like we have had this year, with record snow melt, there should be some adjustments made for the consideration of people's lives.

And with that, Mr. Chairman, again I appreciate the opportunity to be here, and I look forward to hearing from all of our witnesses on their testimony.

Mr. GIBBS. OK. Today we have two panels. Our first panel is Members of Congress, and our second panel is the Corps and some other stakeholder people involved in this policy of how we regulate the Missouri River.

But first of all, our first panelists, we are doing this by the order you came in, so we are trying to be fair. And the plan is not to ask Members of Congress questions, so we can get on to the second panel. So this will be just making your testimony.

And, as the first Member, I welcome Mr. Latham.

TESTIMONY OF HON. TOM LATHAM, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IOWA; HON. RICK BERG, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NORTH DAKOTA; HON. STEVE KING, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IOWA; HON. LYNN JENKINS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF KANSAS; HON. VICKY HARTZLER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MISSOURI; HON. KRISTI L. NOEM, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF SOUTH DAKOTA; HON. EMANUEL CLEAVER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MISSOURI; HON. BLAINE LUETKEMEYER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MISSOURI; HON. JEFF FORTENBERRY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEBRASKA; AND HON. LEE TERRY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEBRASKA

Mr. LATHAM. I thank the chairman and the ranking member of the subcommittee for having this hearing. I'd like to ask unanimous consent to have placed in record comments of General Derek Hill, the chairman of Governor Branstad's Iowa Missouri River Recovery Coordination Task Force.

Mr. GIBBS. So ordered.

[The information follows:]

TERRY E. BRANSTAD
GOVERNOR

OFFICE OF THE GOVERNOR

KIM REYNOLDS
LT. GOVERNOR

November 29, 2011

Dear Members of the United States House of Representatives Transportation and Infrastructure Committee:

Enclosed please find a submission from the State of Iowa regarding Missouri River management and priorities related to 2011 flood recovery efforts.

We appreciate the opportunity to provide input into your considerations and thank you for your leadership in helping to expedite flood recovery efforts and improve the focus on flood control in Missouri River management.

Thank you for your time and consideration.

Sincerely,

J. Derek Hill
Chair, Iowa Missouri River Recovery Coordination Task Force

cc: Members of the Iowa Congressional Delegation

State of Iowa Input: Missouri River Management and Flood Recovery Efforts
November 29, 2011

Introduction
Thank you for the opportunity to contribute comments for the record, on the Missouri River Flood to the United States House of Representatives Transportation and Infrastructure Committee. The impacts of this year's flooding in Western Iowa continue to be felt by many families and businesses located along the Missouri River. This year's historic flooding event resulted in the longest period of continuous flooding ever on the Missouri River. Over 350 homes met FEMA's definition of destroyed or major damage. For most people, the River did not retreat until early October. For some entities, water continues to prevent damage assessments to this day. The devastating impacts of the Missouri River flooding in 2011 continue to reverberate through Southwest Iowa and will continue well into the future, even as citizens, towns, and businesses move forward with strong resolve and commitment to re-build their communities and their livelihoods.

The information that follows incorporates input from the Iowa Department of Homeland Security and Emergency Management (HSEMD) and the State of Iowa Missouri River Management Authority (SIMRA), which is composed of representatives from the Governor's Office, Iowa Department of Agriculture and Land Stewardship (IDALS), Iowa Department of Transportation (IDOT), Iowa Department of Natural Resources (IDNR), Iowa Utilities Board (IUB), and Iowa Economic Development Authority (IEDA). In response to the 2011 Missouri River flooding, Governor Terry E. Branstad established the Missouri River Recovery Coordination Task Force (MRRCTF) to ensure enterprise coordination and management of state agencies' resources and personnel. The Task Force is chaired by Brigadier General J. Derek Hill. SIMRA and the MRRCTF have provided outreach to citizens, businesses and communities to ensure their concerns and questions are answered, follow-up is coordinated on recovery-related actions, and worked to ensure that open and transparent communication within the State's government is a priority. In addition, Governor Branstad has directly engaged Federal officials and governors from other states through various avenues, including the Missouri River Governors' Working Group.

Some examples of flood related damages and devastation can be found on the IUB website at: http://iub.iowa.gov. The pictures were taken on October 26, 2011, and show damaged levees, homes, businesses, farms, agricultural structures, and roads.

As Iowa moves forward with its Missouri River Flood recovery, there are several concerns directly related to the management of the Missouri River that have immediate

and long term impacts for citizens along the River. State leaders have remained focused on expediting flood recovery efforts. Our two major and immediate priorities are the restoration of flood control facilities and increased prioritization of flood control in the management of the Missouri River. We are optimistic that Federal leaders will adequately prioritize flood recovery efforts over lower priority items, for instance, repurposing funds related for recreational and environmental uses to flood-recovery-related uses. We are encouraged by the US Army Corps of Engineers' (Corps) willingness to more aggressively lower reservoir levels for much needed flood control capacity next spring. This is especially important given the weakened state of the levee system; delays in the Corps making levee repairs to pre-disaster condition; and, per information from the National Oceanic and Atmospheric Administration (NOAA), higher than normal current soil moisture conditions and a high probability for colder and wetter than average conditions in the upper basin of the Missouri River. Federal policy makers have an opportunity to act decisively to ensure that flood control is the clear top priority for management of the Missouri River and to prioritize resources for flood recovery efforts.

Levee Repairs

Levees on the Iowa side of the River experienced extensive damage, including breaches, with estimated Iowa levee repair costs for the Corps of $140 million. The Corps is moving ahead to make the repairs it can with available funds, but has indicated that they do not have adequate funds to implement needed repairs prior to next year's flood season. Key repairs are focused on repairing the breaches that occurred in Levee 575 (L-575), in Fremont County, Iowa, and extends south into the State of Missouri. The Corps has indicated that the short-term repairs to L-575 will only provide a 25-year level of flood protection. For the Iowans that live, work, and farm behind L-575, they will remain in harm's way until repairs can be made to return the levee to pre-disaster condition. The Corps has recently stated that it may cost up to $120 million dollars to rebuild just the Iowa portion of L-575 levee to pre-flood conditions. While this cost is significant, this levee can provide protection to significant assets in Iowa and Missouri including valuable farmland and transportation resources, such as road and rail infrastructure. We also want to ensure that short-term levee repairs planned by the Corps meet the quality requirements Iowans deserve. For example, it is important to have clay caps over sand levees to further stabilize the levee system.

Damage to levees unfortunately goes beyond breaches. The overall levee infrastructure was severely stressed and weakened, as many levees were undercut, severely eroded, and structurally altered, due to the flooding that was historic in both length and magnitude. It is entirely reasonable to expect additional levee failures to occur if the Missouri River were to flood before repairs are completed. Based on current Corps levee repair projections, the system will remain at higher-risk through next year's flood season. The weakened levees threaten regional economic competitiveness due to the ongoing flood risk. The State of Iowa encourages more transparency in levee repair decision making and recommends a review of the funding level for repairs and communication of an overall levee repair plan.

The Corps has estimated that it may require up to $2 billion to completely restore damaged levees on the Missouri and Mississippi rivers to pre-disaster conditions. Given the tough Federal fiscal environment, we want to contribute to the dialogue rather than just ask for more Federal funding by suggesting reprioritization/reprogramming of current funding streams. According to a 2008 Corps estimate, taxpayers will spend approximately $3 billion over the next 30 years on the Missouri River Recovery Program to implement Endangered Species Act (ESA) compliance programs or on Bank Stabilization and Navigation Program (BSNP) Mitigation projects. One fact that is often overlooked from the devastating 2011 flooding is the negative environmental impact it had on down-river states. For example, 950,000 trees could die from over-exposure to flood waters, according to Iowa Department of Natural Resources estimates. We respectfully ask Congress to reapportion some of that funding allocated for ESA compliance programs and BSNP projects to 2011 flood recovery efforts, including levee repairs.

In specific areas where local levee districts approve utilizing a "setback" from the original levee location, due to a breach or significant erosion, we recommend that associated costs should be largely borne by ecosystem recovery program funds. In cases where more land is given to the River, with support of local landowners and levee districts, it would seem that this would be a win-win investment. In the event that this programmatic change cannot be justified, we would urge the temporary shifting of some ecosystem recovery program funds to disaster recovery efforts and programs. The re-allocation of these existing funds would also greatly reduce the need for additional disaster relief appropriations.

Iowa utilities have extensive facilities that are protected by these levees and that are now inadequately protected. Utilities are concerned about how they will serve their customers in Southwest Iowa and are also concerned that many customers may not come back due to ongoing flood risk.

Nimble River Management and Effective Coordination by the Corps

As we move toward next spring, we have seen the Corps actively review their River management strategies in preparation for potential flooding. The Corps has recently committed to a more "flexible posture" as water is evacuated out of the basin and to a more "aggressive stance" with winter and spring releases. These proactive steps by Corps officials are welcomed, but concerns remain that despite the more aggressive flood control language, there were no specific targets stated in the November 4, 2011, Corps announcement. At a minimum, the March 1, 2011, target of 56.8 million acre feet (MAF) of storage in the total system needs to be reduced, at least temporarily, to allow for additional flood storage capacity. For calendar year 2012, an amount greater than the normal 16.3 MAF reserved for flood control should be incorporated into the operational plan.

In addition, we encourage the Corps to be more proactive in the sharing of flood-related forecasts and projections. The proactive outreach to join a recent NOAA forecast webinar was much appreciated. While the Corps has made progress in

communications and coordination recently, there remains room for improvement to proactively disseminate information to all impacted partners at the local and state level to allow for a better coordinated response. Given that the levees will not be fully restored prior to the 2012 flood season, it is extremely important that the Corps provide regular and easily accessible communication on the following items: levee damage assessments, progress of repairs (and to what flood protection level), winter river flow plans, early and frequently-updated river projections, and contingency plans if flooding reoccurs in 2012. In addition, as the Corps and other Federal agencies conduct their own studies of the river course and bottom profile, the results should be shared with stakeholders.

With the conditions currently outlined in the upper basin and the severe damage to the levees of the lower basin, we feel it would simply be irresponsible for the Corps to operate over the next year as though the system were normal.

Disaster Recovery for Agricultural Lands

Many Iowans must also address the recovery of their farmland. According to Iowa Farm Bureau estimates, flooding caused an estimated $207 million in lost crop sales and related economic activity as over 280,000 farm acres were impacted. Most farmers in the affected area would prefer to restore their farms into full production. Restoration of farmland is also essential for maintaining a strong tax base for impacted counties. The impact to farmland varies, but many fields were severely impacted by deposits of sand, silt, and debris, sinkholes, and alteration to soil chemistry from long-term flooding. There are many areas where the soil itself is buried under several feet of sand. For many farmers it will be a several-year process to return the land to productive status. Sand needs to be removed before beginning the process of returning the soil to pre-disaster condition. The Federal programs typically utilized to address the recovery of agricultural lands are administered by the United States Department of Agriculture (USDA). The Emergency Conservation Program (ECP) is administered by the Farm Service Agency (FSA) while the Emergency Watershed Protection Program (EWP) is administered by the Natural Resources Conservation Service (NRCS). Another potentially relevant program is the Wetlands Reserve Program (WRP) which is also administered by the NRCS.

The FSA's Emergency Conservation Program (ECP) has proven to be an effective tool in the restoration of farmlands. There is an immediate need to remove extensive deposits of sand and gravel from impacted lands before production can return to normal. The Iowa Farm Service Agency has initially estimated damages and we support adequate funding to effectively implement this program for flood-recovery efforts.

We encourage prioritization within the EWP program for flood recovery and further reprioritization of funding. This year's flood event will place high-demand on this program, as the flexibility of the EWP program to assist in a broad array of recovery alternatives makes this program a valuable tool.

The Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation (DSC) has $369,000 available to help repair conservation practices damaged by storm events during the 2011 crop year. The maximum cost share rate for repairing practices will be 75%. Soil and Water Conservation Districts offer this funding on a first come first serve basis. The deadline to apply for repair funding is December 30, 2011, and all repairs must be completed by June 30, 2012.

The Agriculture Working Group of Missouri River Flood Task Force has developed four fact sheets (Conservation Reserve Program, Wetland Reserve Program, Missouri River Acquisition Program, and Flood Recovery Options for Agriculture Land) that can be referenced for further information. There will also be a webinar to be held December 14 or 15, 2011, that will share information on flood recovery with interested stakeholders.

We are confident that the USDA and other Federal agencies will provide important recovery support in the months ahead. For some farmlands, the recovery will take years.

Restoration of Damaged Transportation Infrastructure

There was an immense impact on Iowa's transportation system as nearly 250 miles of road were impacted, including damage to interstate highways 29 and 680, US Highway 2, and Iowa Highway 175. We are proud of our initial successes in getting traffic moving again by putting safety first, leveraging emergency contracting processes, accelerating business approaches, driving accountability, keeping the public informed, and working closely with our Federal, local, and private sector partners. The hard work and ingenuity of the highway and bridge construction industry and the IDOT staff to reopen closed sections of the roadways cannot be overemphasized. The team used aerial photography to assist in damage assessment while sections were still inaccessible, utilized Light Detection and Ranging (LIDAR) as opposed to conventional survey to reduce development time, and implemented innovative changes in our contracting procedures. However, one of the most important tools was the development of a design concept called "limited-design" for the reconstruction of I-680. The limited-design concept focused on providing just the essential information for the contractor to bid, and begin construction of the project. We then worked with the contractor and their consultant to supplement and provide additional information that was needed as worked progressed. We are transitioning lessons learned from flood repairs to other roadway improvement applications as we seek ways to stretch limited resources and drive effective project management.

As we continue with the recovery of our transportation system we will focus on cleaning and restoring ditches, removing approximately 5,500 dead and dying trees impacting the Iowa transportation system, assessing areas for replanting, and actively engage Federal, state, and local partners regarding the management of the Missouri River.

We appreciate Congress' commitment to helping ensure there is adequate funding to ensure that Emergency Relief (ER) Program funds are available in a timely manner to reimburse states for the cost of flood recovery projects. We are grateful that the

Federal Fiscal Year 2012 appropriation bill provided substantial ER funding. If reimbursement is not timely, states have to adjust their transportation improvement program to compensate for the unexpected expenditure and the delay in reimbursement. We remain hopeful that we will not have to front the costs to allow for adequate cash-flow. As of November 28, 2011, the State of Iowa has spent nearly $43.8 million to repair Federal Highway roads and has been reimbursed for $6.3 million. The Federal Highway Administration (FHWA), which has been a good partner thus far, has indicated that most costs will be reimbursed in December 2011, which is welcomed news.

We encourage the FHWA to examine the definition of the term "betterment" in relation to reimbursable costs for disaster events. In particular, when a change or modification is incorporated into the repair project that is designed to protect or minimize the damage to that roadway or bridge from future events, that change should not necessarily be considered a betterment and therefore ineligible for 100 percent reimbursement. For example, a levee failure contributed to the scour hole at the abutment and one of the piers of a major river crossing, which required a road closure. Recognizing the levee would not be repaired prior to potential flooding next spring, the Iowa DOT included a wing dike to help protect the structure; however, the FHWA considered the wing dike a betterment and therefore ineligible for 100 percent reimbursement. Since the wing dike was constructed to compensate for the unrepaired levee it should not be considered betterment.

We recognize the challenge presented to local agencies to finance repair of the secondary and city road system and the impact to future road repairs. To help alleviate the local burden, the Iowa Economic Development Authority (IEDA) will provide up to $1 million for the required local match portion that affected cities or counties will need to provide in order to acquire the Federal funding offered through FEMA's Hazard Mitigation Grant Program, which should help lessen the stress of matching requirements for other Federal programs, including those for secondary roads.

In an event like the Missouri River flood, there were many inaccessible areas 100 days after the declaration. Completing damage assessment and repairs in the remaining 80 days became a significant challenge. This is an important issue as only work completed within 180 days of an event is eligible for 100 percent Federal reimbursement. Consideration should be given to amending the start of the 180 days during flood events to begin either once the flood waters have peaked, or until the return to normal levels. Consideration should also be given to suspension of the 180 day period when it coincides with winter weather conditions; in states like Iowa, construction activity tends to cease from November through March.

Both BNSF Railway (BNSF) and Union Pacific (UP) have major East-West rail routes traversing the Missouri River that carry significant volumes of goods, including substantial amounts of coal from the Powder River Basin and other western sources to the Eastern United States. Both railroads undertook significant engineering and construction activities to successfully keep those routes open throughout much of the

flooding. In addition, BNSF, UP, and Canadian National Railway (CN) had lighter density routes that were taken out of service. All three railroads in the area of the flooding experienced significant infrastructure costs, intermittent or long term closures, detours, loss of service to some local customers, and loss of income due to damages, inefficiencies and lost business. Shipment of goods via rail is very important to the Iowa economy and mitigating future flooding risks for this part of our transportation system should be a top priority to avoid increased shipping and energy costs and corresponding economic disadvantages.

Long-Term Floodplain Management

All levels of government have a responsibility to be transparent with our citizens, including communicating the risks and alternatives related to the floodplain. Communities and landowners need to have necessary tools, such as floodplain development plans and stakeholder coordination plans to ensure adequate involvement and coordination of various perspectives and maximization of scarce public sector resources. State of Iowa personnel remain committed to providing technical expertise to individuals and local entities.

In the longer term, there may be specific opportunities for buy-outs or easements on lands that may no longer be suitable for productive farming, as determined by the directly impacted farmers. When these opportunities arise it will be imperative that funds be available to provide better protection for residents of the area and to attain certain environmental goals established for the River. Although, most landowners have expressed a desire to once again have productive agricultural land, landowners who have experienced significant damage should be given nonstructural alternatives that allow them to sell or place under easement farmland that has been extensively damaged. However, individual landowners should make this choice, not government officials. Because of the large cost that would be associated with nonstructural alternatives, a significant Federal presence is necessary in the form of USDA EWP program funds, US Fish and Wildlife Service funds, or Army Corps of Engineer funds. Though most landowners would prefer to bring the land back into production, some damage is so severe to fields and entire farms that productive use may no longer be the most cost effective alternative. In other cases, realignment of levees and other structural changes may necessitate land acquisition in coordination with landowners and levee districts. Landowners should have the opportunity to choose what is best for their individual situation from a set of alternatives.

Finally, in areas where local entities, including landowners, levee districts, drainage districts, county officials, and small towns, are supportive, the following actions should be considered: restoring riparian habitats and side channels, selectively reducing wing dams, and widening the channel.

Summary

While we are heartened by some initial progress in flood recovery efforts, much work remains. We look forward to our Federal partners making significant progress in repairing levees to bring them to pre-disaster condition. Expediting repairs to the flood-

weakened levee system is vital to prevent future flooding and protect against further economic damages, including repeat damages to recently repaired roadways. In addition, we welcome a heightened focus on flood control in Missouri River management and a more nimble approach to the Corps' operations. Finally, adequate funding for the repair of levees and recovery of agricultural lands will be important to expedite a full recovery in Western Iowa.

Mr. LATHAM. Thank you. Just a couple points. I have got an appropriations meeting going on right now, for which—I am going to have to leave, but I think it is important to note that, even with all the devastation brought by this flood, to the citizens, the towns, the communities, farms and businesses, and all the attendant economic costs, we still don't know the full extent of damage, because there are areas we still can't get in to evaluate.

As is the case with other States, the two major priorities in Iowa are the restoration of flood control facilities and increased prioritization of flood control and the management of the Missouri River. In short, the residents must be protected, which means we have to focus on repairing the flood control infrastructure like levees, and getting those levees back to pre-disaster conditions.

The levee damage is not just from the breaches. The entire levee infrastructure is weakened and eroded. And the state of affairs—this must be addressed now, before spring.

As to the river management, the Corps has made some encouraging comments about flexibility. But I think we need more than promising comments about the management of the river flow. We need to take active steps ahead of the next flood season.

Just one more point on the Iowa transportation roadways. Close to 250 miles of roads were impacted. In my State, the Iowa DOT staff has done an absolutely great job. There is still an awful lot more work to be done. But I think it is important for this committee, Transportation and Infrastructure, to look at the highway emergency repair funding regime, as our experience in Iowa suggests that some changes really need to be made to the statute.

With that, I appreciate being here very much. I will have a more extensive statement for the record. But thank you very much, Mr. Chairman.

Mr. GIBBS. Thank you.

Mr. Berg from North Dakota.

Mr. BERG. Chairman Gibbs and Ranking Member Carnahan and the rest of the subcommittee, I want to thank you for allowing us to speak today regarding the management of the Missouri River, and also the operational plans for the future.

Today's hearing is focused on the 2011 flood events along the Missouri River. As you know, North Dakota was devastated by this year's unprecedented flooding throughout the State. The damage is significant, with thousands of homes damaged, tens of thousands of North Dakotans displaced, hundreds of thousands of acres of farmland flooded, and severe damage to infrastructure.

I firmly believe that flooding along the Missouri River was both natural and manmade. North Dakotans are frustrated with the experience they had this past year, and rightly concerned about the potential for 2012 flooding. Many questions still need to be answered regarding what went wrong and what actions should be taken to prevent a similar flood in the future.

Specifically, questions have been raised about the management of the reservoir system by the U.S. Army Corps of Engineers. We need to know more about the information that the Corps used in its decisionmaking process. It has been noted by the subcommittee inundation maps used by the Corps and other Federal agencies

were inadequate and non-existent. In some cases, the only tools available were 100-year flood plain maps. Many were inaccurate.

Further, the Corps needs to better explain the timing of the decisions, and why they were made when they were made. Those decisions led to tremendous devastation. And the residents of all our States deserve answers.

I look forward to hearing from those responsible, and what the plan is to ensure that similar flooding does not occur in the future.

Regardless, we can't look ahead to a long-term management solution while we are still fighting flooding next year. I have and will continue to urge the Corps to first focus on the immediate planning for the 2012 flood season before implementing a long-term strategy. Specifically, the Corps needs to address what actions are prudent for them to take next year to prevent a repeat of the disaster for 2012.

I fear the Corps has been operating under an assumption that this year's flood was a singular historic event. I think this is naive and short-sighted. Currently the National Weather Service is forecasting a La Nina climate pattern for this winter, with long-term outlooks predicting a fourth consecutive year with in-flows above normal into the Missouri River system. The Corps must take into account both current wet conditions in the upper basin and forecasts in their operating plan and management decisions.

Recently, Governor Dalrymple and the North Dakota State Water Commission asked the Corps to lower Lake Sakakawea, our major reservoir, by 2½ feet to provide more storage capacity and additional flood protection for this upcoming spring. The Corps dismissed this request, a decision I strongly opposed. I am cautiously optimistic about the Corps' recent announcement that they will take a more flexible approach to managing the river system, and will be more aggressive in managing water releases during the winter and spring. And I appreciate the Corps' stated commitment to provide more frequent communications with the State, local, and county officials.

But as we await this final version of the Corps' annual operating plan this December, I believe it is in the best interest of the Corps to support a cautionary approach to the management of the Missouri River system. Going forward, the Corps must consider flood protection above all else in managing the Missouri River system. We are aware of the congressionally authorized purposes associated with the Missouri River system, purposes such as recreation, hydropower, irrigation, fishing, wildlife, water supply, and water quality. All remain important. However, all of those purposes are secondary to the need for dependable flood control.

The clear consensus from seven out of eight States that were affected by the 2011 flooding event is that flood control must be the highest priority. I will continue to pressure the Corps to make flood protection the top priority in managing the river system. I will demand greater transparency in forecasting, and more meaningful public meetings regarding its management.

I would ask to submit my entire statement for the record, and I would like to submit a more detailed article about the infrastructure damage experienced by the BNSF Railway. And also, I would

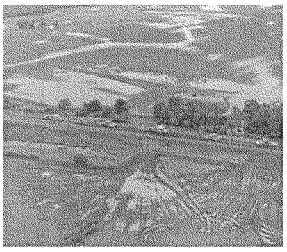
ask that testimony by our Governor, Jack Dalrymple, on November 1st also be submitted for the record.

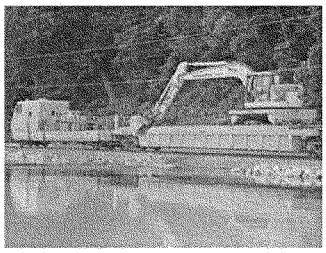
Mr. GIBBS. So ordered.

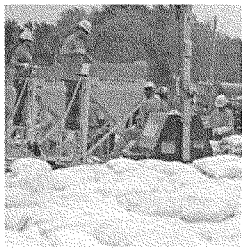
[Hon. Rick Berg's statement is featured with the other witnesses' statements—please refer to the "Prepared Statements Submitted by Witnesses" section of the table of contents. The other information follows:]

2011 Flood

BNSF fights the







WATER is essential for all of life. But sometimes there can be too much of a good thing. This spring, water – starting with lingering snowmelt, followed by heavy rains across the Northern Plains – caused tributaries to rise to record levels.

With track paralleling much of the affected Missouri, Mississippi and Souris rivers, BNSF has dealt with flooding many times before, including catastrophic floods on parts of the network in 2008 and 1993. But the 2011 flood is described as the most severe in BNSF's recent history because of the length of time significant portions of the network were out of service.

"We've had difficult years before, but this flooding was different in two respects. First is the duration," explains Sam Sexhus, vice president, Engineering. "The other is the breadth. It's been over a large portion of our railroad for a long, long time."

The trouble actually started last winter with record snows falling on already saturated ground. By early spring, heavy snowpack began to melt about the time unrelenting rains began – up to 8 inches in less than two weeks. The combination created the highest runoff in the Missouri River Basin since 1889, according to the U.S. Army Corps of Engineers.

Damaging Missouri River floodwaters swiftly began to rise on BNSF's Northern Region in portions of Montana, North Dakota and South Dakota, and then pushed downstream into BNSF's Central Region, impacting portions of Iowa, Nebraska and Missouri. Meanwhile, the rising Mississippi River would periodically affect sections of the railroad as well.

To complicate an already difficult situation, the Corps of Engineers opened – and then reopened – dams to protect nearby communities. Then, in late June, the floods of 2011 were compounded when the Souris River in North Dakota broke 100-year levels. (See sidebar.)

From the front lines

Well before the waters rose, flood preparations had begun in earnest. Command centers were established in Minneapolis, Fargo, N.D., and, later, Lincoln, Neb. From these locations, teams mobilized crews, materials and machinery.

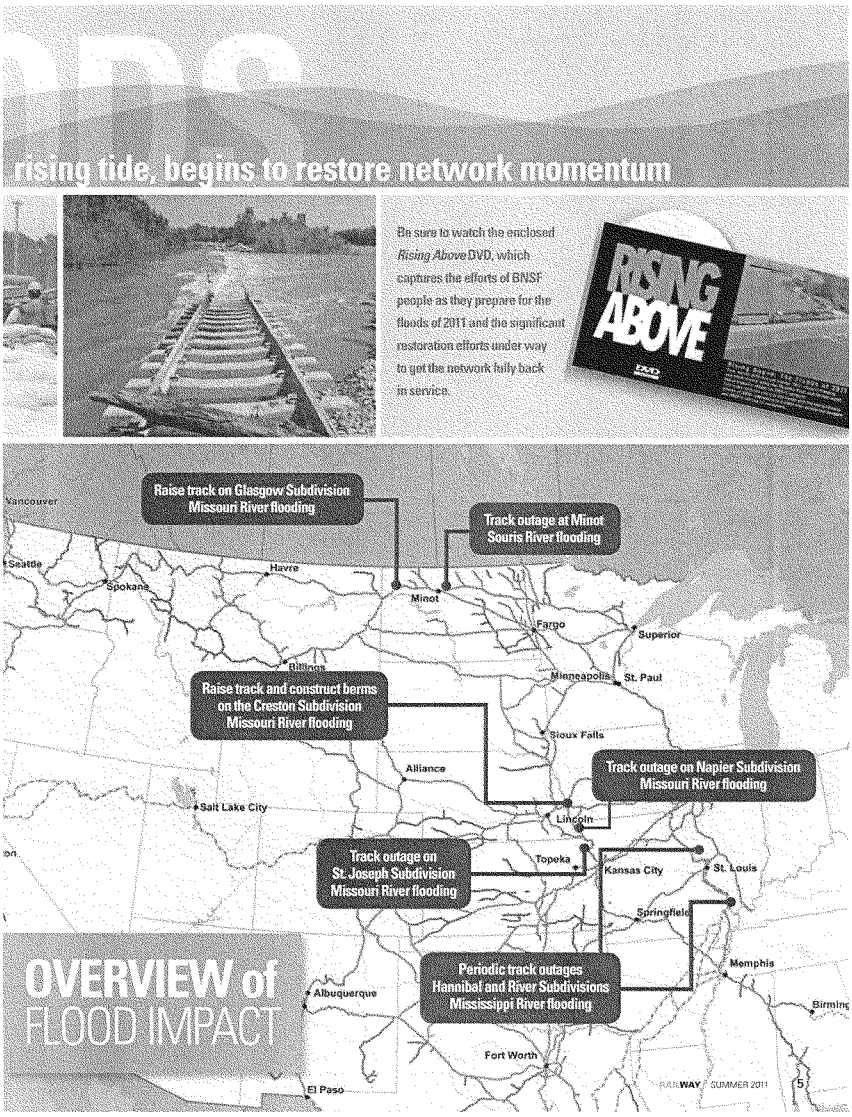
On the frontlines was Engineering, charged with preparing and protecting track where possible, and repairing and rebuilding track and bridges where flooding was unavoidable. Employees and contractors worked around the clock to move ton after ton of dirt to raise and fortify track and build protective berms and levees. In all, some 20,000 carloads of rip rap and ballast were ordered, and hundreds of thousands of sandbags were filled.

"It takes an amazing amount of communication and coordination with a project of this scope. The various work groups came together, sometimes in unfamiliar surroundings, using massive-sized equipment in flowing water, snow, storms – all kinds of difficult environments," says Sexhus. "And they did it safely. That's the most important thing."

But the water was relentless, threatening not only BNSF tracks but nearby communities. To help protect the city of Omaha, Neb., BNSF took a portion of the Omaha Subdivision out of service so a levee could be built over the tracks.

That was only the beginning of flood

Continued on page 6


rising tide, begins to restore network momentum
Be sure to watch the enclosed *Rising Above* DVD, which captures the efforts of BNSF people as they prepare for the floods of 2011 and the significant restoration efforts under way to get the network fully back in service.
RISING ABOVE
DVD
Raise track on Glasgow Subdivision Missouri River flooding
Track outage at Minot Souris River flooding
Raise track and construct berms on the Creston Subdivision Missouri River flooding
Track outage on Napier Subdivision Missouri River flooding
Track outage on St. Joseph Subdivision Missouri River flooding
Periodic track outages Hannibal and River Subdivisions Mississippi River flooding
Vancouver
Seattle
Spokane
Havre
Minot
Fargo
Superior
Billings
Minneapolis
St. Paul
Sioux Falls
Alliance
Salt Lake City
Lincoln
Topeka
Kansas City
St. Louis
Springfield
Memphis
Albuquerque
Fort Worth
El Paso
OVERVIEW of FLOOD IMPACT
RAILWAY SUMMER 2011 5

Continued from page 4

countermeasures on the Missouri River.

Starting in early June, on the Creston (Iowa) Subdivision, crews gathered from a four-state area to build levees and raise track. BNSF was able to stay ahead of the rising water, eventually raising five miles of track up to 8 feet near Pacific Junction, Iowa, using a track-lifting undercutter that raises track 12 inches at a time (vs. most machines that raise track just a few inches at a time).

In addition, bridges were raised and seven miles of 6-foot-high berms were built to protect the main line. The effort kept the Creston Subdivision -- a main east-west artery that has as many as 50 trains a day operating between Chicago and Denver -- open and customer shipments moving. The Creston Subdivision was an especially

critical line to save, because of its crucial role in moving coal from the Powder River Basin to points further east.

The strategic decision to keep the Creston Sub open paid off when on June 13 levee breaks took out first the Napier (Mo.) Subdivision and then the St. Joseph (Mo.) Subdivision. As a result, all through-freight traffic that would normally run between Lincoln and Kansas City, Mo. -- about 50 trains a day -- was diverted. Both subdivisions would remain out of service for more than two months, with the St. Joseph Sub opening first in early September.

Counterattack

With water taking out many parts of the BNSF system, multiple plans to counteract service interruptions went into effect.

Service Design and Performance teams charted multiple rerouting options, depending on train type and destination, and additional train crews were needed at reroute locations. At the peak of flooding, about 500 Transportation employees at affected areas temporarily transferred to reroute locations.

"We had a staggering number of places where we had to move people in and respond

FLOODS TAKE MINOT OUT— but not down for long

Minot, N.D., is a railroad town, founded in the late 1800s during the construction of the Great Northern Railway. Today, it continues to be an important rail hub, especially with nearby Bakken Shale activity driving carloads through the city. (See related story on page 8.)

In anticipation of flooding in June, BNSF moved operations from downtown Minot to the east of town, and Engineering protected vital facilities with temporary levees. As much traffic as possible was handled over the main line at Minot, even as floodwaters rose to the levels of the ties. Plans were in place to reroute customer traffic once the line closed.

Then, the Army Corps of Engineers and other authorities asked about 10,000 residents – a quarter of the population – and businesses to evacuate, expecting that the floodwaters would rise to a level not seen in more than 100 years. On June 25, the Souris River that runs through Minot reached nearly 4 feet higher than the all-time high set in 1881.

For nearly two weeks, both main lines through Minot were submerged. To keep traffic moving, traffic normally handled through Minot was rerouted.

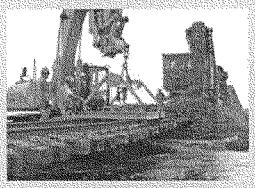
By early July, floodwaters receded enough to allow mainline traffic to resume some operations through Minot.

Of the BNSF employees who live in Minot, one out of three was personally affected by the floodwaters. Those who didn't have access to alternate shelter were provided temporary housing at BNSF's lodging facility.

The BNSF Hardship Program also helped by providing monetary grants to affected employees. By calling a toll-free number, employees could receive limited assistance to help with immediate needs, such as food, shelter and clothing.

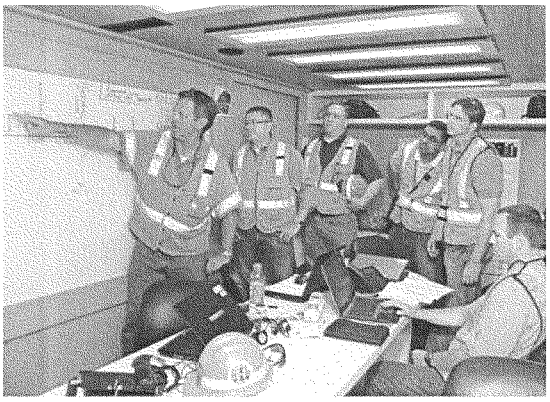
In addition, BNSF teamed with Berkshire Hathaway Company Clayton Homes to offer preferred pricing on Schult Homes, a brand of Clayton Homes and available at Liechty Homes of Minot, to employees there affected by the flood. BNSF also purchased 25 pumps to loan to employees for a week at a time to aid in cleanup of their homes.

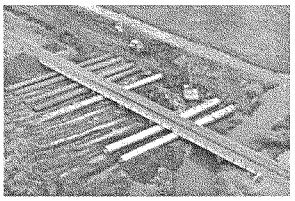
To help the community, the BNSF Foundation contributed $100,000 to the



Minot Area Community Foundation, which launched a recovery fund to support flood relief and restoration throughout the greater Minot and surrounding areas. Additionally, the BNSF Foundation provided grants to the Salvation Army and the Red Cross to aid in the flood fight and recovery in Minot and Bismarck, N.D.

"Many of our Minot employees were faced with fighting the flood at home and then when they came to work. Yet, they did their jobs safely and they worked hard to protect BNSF assets," says General Manager Tom Albanese, Twin Cities Division. "We know that rebuilding and repairing homes will take a long time and will take a toll on employees and their families. We've committed to helping with the variety of programs and services we have made available."





and make some sort of a change to the operation, while we were also dealing with the damage," says Dave Freeman, vice president, Transportation. "Our crews recognize that, whether it's coal, ag, intermodal or merchandise, every one of the cars we move is part of a customer's supply chain. We have to keep all of them moving to some degree, because if we slow down some segment or some corridor, it's going to have a significant impact."

Mechanical also played a role in keeping trains moving. Because rerouting took trains hundreds of miles out of their normal route, thus decreasing velocity, more locomotives and cars were needed to haul the same amount of freight. Mechanical teams quickly moved railcars and locomotives out of storage and back into service.

Mechanical employees were also positioned on line to help with increased traffic due to the rerouting. "These are our 'rapid responders' – individuals from various crafts, responsible for either freight cars or locomotives. They're out in vehicles and able to respond to a train when they're notified that there is a service interruption," explains Chris Roberts, vice president, Mechanical.

Signal crews played a big role, too, raising control houses and bungalows above the anticipated flood levels or moving them from along the right of way.

Throughout the floods, Marketing worked closely with customers, notifying them of embargoed traffic and reroutes.

Restoring network momentum

Typically, BNSF has about 1,500 trains on the network on a normal day. At the height of the floods, about one-third of these trains were affected by reroutes.

By mid-August, as floodwaters receded and more areas became fully operational, fewer than 20 percent of BNSF trains were being rerouted, but the effects were still being felt. For example, on the St. Joseph Subdivision, trains – about 80 percent of them carrying coal – were being rerouted south, from Wyoming through Denver to Amarillo, Texas, adding hundreds of miles to the route. The rerouted trains led to congestion on track and at terminals not designed to handle these volumes.

"The floods have had a devastating impact on our service and our velocity across our network. Our customers understand that impact, but many are frankly struggling with the duration, and they're telling us, as they should, 'You've got to restore service. You've got to restore velocity.' And that's what we owe our customers," says Greg Fox, executive vice president, Operations. "We have not performed to our customers' expectations or to our own standards. I think our challenge now is that we take the same energy we put into addressing the crisis into restoring service and velocity across our network."

To help in the restoration, BNSF increased capital spending by about $300 million, a portion of which is going toward restoring the network. That includes extending and building five bridges in the Big Lake area on the St. Joseph Subdivision. The bridge construction will raise track high enough to restore service and reduce the risk of future flooding. And while no one wants to see flooding of this degree, BNSF has taken advantage of service outages to accelerate the pace for other capital projects, such as undercutting and positive train control-related Signal work, in Nebraska and North Dakota.

Once the St. Joseph Subdivision is back in early September, Fox believes that the network will begin to get back to normal, but improvements will be in a "step-level" fashion.

"This is a momentum-based business, and it will take time for us to restore momentum," he says. "That won't happen like a light switch, but as we've told our customers, it *will* get better, and they can count on BNSF people to make it happen."

Testimony for the U.S. Army Corps of Engineers Public Scoping Meeting on the Missouri River Annual Operating Plan
November 1, 2011
Bismarck, ND

Good evening, I am Jack Dalrymple, the Governor of North Dakota. I appreciate the opportunity to comment on the Draft Missouri River Mainstem System 2011-2012 Annual Operating Plan which was released by the U.S. Army Corps of Engineers on October 6, 2011.

The Corps develops a Draft AOP every year, and every year they hold these meetings so that the public has an opportunity to provide input on the river system's management framework for the upcoming operating year. In light of this year's unprecedented flooding along the Missouri River, it is especially important that the Corps carefully consider the public comments they receive at these meetings and that changes to the operation plan be implemented.

As you are aware, this summer's record flooding along the Missouri River caught many communities by surprise. With the Missouri River Mainstem Reservoir System in place, communities as well as state and local agencies have come to rely upon the U.S. Army Corps of Engineers to operate and manage the reservoirs in such a manner that provides dependable security from year to year. In the aftermath of this year's flooding, many questions remain regarding the management of the system and a certain amount of

trust has been lost. To renew confidence in the management of the system, the State of North Dakota strongly believes that states along the Missouri River need better, more timely information about the condition of the watershed and the planned releases; and they need to have a major role in the decision-making process throughout the entire year. It's no longer sufficient for us to just weigh in twice a year at regularly scheduled public meetings.

Since the occurrence of the Missouri River Basin Floods of 2011, the State has been in constant discussion with the Corps on concerns related to: the decisions made leading up to the historic flooding; the need to understand the mechanisms in place that allow for adjustments to the operation of the reservoirs; and the need for significant improvements in predicting snowpack accumulation and annual runoff. A top priority remains on frequent communication between federal and state agencies to allow for direct involvement on management decisions. In April of 2011, pleas from our state water engineer to increase releases early were completely ignored.

The State of North Dakota is aware of the congressionally authorized purposes associated with the Missouri River Mainstem Reservoir System. Purposes such as recreation, hydropower, irrigation, fish and wildlife, water supply, and water quality all remain important to the State. However, above all of these purposes is the need for dependable flood control. There is clear consensus from seven of the eight states affected by the 2011

flooding event, that flood control must be the highest priority in the operation of the Missouri River Mainstem Reservoir System.

The Draft AOP as it stands today does not reflect concerns brought forward by the Governors of the states directly affected by the Missouri River. Specifically, the Draft AOP does not provide any recommendation for additional flood control storage in 2012. Currently, the National Weather Service is forecasting a La Nina climate pattern for this winter. With long-term outlooks predicting a fourth consecutive year with inflows above normal into the Missouri River System, the Corps must take into account both current wet conditions in the upper basin and precipitation forecasts in their operating plan and management decisions.

Therefore, the North Dakota State Engineer has requested that the Corps evacuate additional storage this fall to allow greater flexibility in the operation of the reservoir. Based upon current forecasts and conditions, the State Engineer proposes a target elevation of 1835.0 feet in Lake Sakakawea for the 2011-2012 operational period. The State Engineer has concluded that by lowering Lake Sakakawea another 2.5 feet, flexibility can be gained for managers during the 2012 season. This recommendation applies to the 2011-2012 operating season only; and not to a long-term change in system storage management. Any long-term changes or additional flexibility in operations will require additional analysis and discussion.

As the Governor of North Dakota, and with the full support of six Governors from states along the Missouri River, I am in favor of the State Engineer's recommendation and I believe it is in the best interests of the Corps to also support a cautionary approach to the management of the Missouri River Mainstem Reservoir System for the 2012 operating season. Lowering Lake Sakakawea another 2.5 feet will evacuate an additional 750,000 acre feet, which would be equivalent to releases of 10,000 cubic feet per second for 38 days. This approach would allow for greater flexibility next spring and may prevent potential future damages.

Yesterday, I was very disappointed to be informed by Brigadier General John McMahon that the U.S. Army Corps of Engineers has rejected our proposal to provide additional storage capacity at Garrison Dam. This comes in spite of the fact that 7 of the 8 Missouri River Governors have asked for flood control to be the Corps' top priority. To be fair, Gen. McMahon did say that the Corps will be more aggressive with releases next spring if they see the predicted snow pack accumulating in Montana and North Dakota.

I will continue to communicate to the Corps on a frequent basis the state's desire to exercise caution in estimating the amount of water storage needed to prevent another catastrophe in 2012. I sincerely hope that the Corps will not ignore our input as has been their practice in the past.

Mr. BERG. Again, I thank the chairman and ranking member and committee for granting our request for this hearing, and assisting our bipartisan effort to gain answers from the Corps and work towards long-term flood protection.

Mr. GIBBS. Yes, that is so ordered, the record, your testimony written and the Governor's testimony.

Mr. BERG. Thank you.

Mr. GIBBS. Thank you.

Mr. King from Iowa. Welcome.

Mr. KING. Thank you, Mr. Chairman and Ranking Member Carnahan. I appreciate this hearing today, and I appreciate the testimony of the other Members so far. And I completely agree with what I heard the gentleman from North Dakota testify just ahead of us, and along with the rest of the testimony that I have heard.

I certainly support Congressman Graves's bill that sets some priorities. And I have introduced a piece of legislation, H.R. 2942, that does not change the order of those priorities but does require the Corps of Engineers to recalculate the storage space to protect us from serious downstream flooding.

And I will just touch some of the bases along the way on the scope of this damage. Your opening statement covered most of it, Mr. Chairman. And it is this, that the greatest amount of runoff we had ever experienced, in nearly 61 million acre feet, the discharge at Gavins Point Dam is a key component of this. That is the last valve going into the Missouri River out of the six dams.

The highest discharge we had ever experienced in the past was 70,000 cubic feet per second. We found by midsummer—or I will say by June, about June 14th or 15th—it was kicked up to 160,000, more than twice as much discharge as we had ever seen. That brought about water in the Missouri River bottom that, by the time you get to Sioux City, it is—they had—they saw flooding in Sioux City, just downstream from Sioux City—the river was typically about 1½ miles wide, and that is narrow. A few miles south of there, at Blencoe, 8 miles wide. By the time you got to I–680 north of Omaha, where I cut across the river to go to the airport from the Iowa side, the water was 11 miles wide.

And it came back together through the levees and through Omaha and Council Bluffs, where we had 30,000 people in Council Bluffs living below the water line in the river for 3½ or 4 months, while the water table was at the level it was. And only the levee protected them from becoming another New Orleans, and it had some leaks and some seepages. But downstream from there in Glenwood and south, then the river became 4, 5, and 6 miles wide on down into Missouri, on through Sam Graves's district.

That water wasn't just standing there, as people envision, a normal flood. This water was running 10 to 11 miles an hour in the channel and where it was spread out 11 miles wide it was still 4 to 5 miles an hour, out against the base of the hills. And so what you saw was hundreds of thousands of acres covered by sand that now today, when the water has gone down, it looks like Iraq.

And the loss in crop damage that—just a back of the envelope calculation—that we lost in Iowa and Missouri, not counting Nebraska and Kansas and the Dakotas, but just Iowa and Missouri, the equivalent feed value lost is more than half of the wheat crop

in Montana, for example. I use Montana, because we would like to have them join all the other States affected in wanting to control this discharge to prevent serious downstream flooding.

The Corps of Engineers, in response to much of our pressure that has come, has said initially, "Well, this is—we are not going to change the management of the river. We think this is a 500-year event." I want to emphasize that we have a 150 years of records, and they are declaring a 500-year event. If you had 10,000 years of records and it happened a couple of times a millennia, you might be able to say this is a 500-year event. No mortal can tell you it is a 500-year event. Lord knows why I have had to live through so many 500-year weather events in my short time here on this earth.

And so that is, I think, an arrogant position on the part of the Corps. And to declare that they are going to manage this river—the first slide that they put up is "Congressionally Authorized." And then they decide that they are going to manage the river without the direction of Congress.

I think we have to tell them—even though they have changed their position now to a third position—first one was, "We are not going to change the management because it is a 500-year event;" second one is, "Well, we might because we have heard enough from you that we want to at least pacify those objectors that are there;" third one is, "Now we think we will lower the levels a little more next year," but they don't want to do something permanent. We have to tell them. If we don't tell them, they will slide back to being run by the environmental interests, as opposed to the first priority, which I have heard stated multiple times here: Protect us from the flooding from serious downstream.

And additionally to that—and my bill, H.R. 2942 has the support of most of the Members—it is bipartisan—most of the Members affected by this. And I would think the others may want to take a good look at it again. But it is a very simple bill that does two things. It tells the Corps of Engineers that, "You shall recalculate your storage space to protect us from the greatest runoff ever." That is now 2011 instead of 1881.

I would pose that if we had the runoff in 1881 that we had in 2011, they would have built a Pick-Sloan program to protect us, and we wouldn't have had this event here in this year, because it would have been—the storage would have protected us from it.

So, that is the first thing it tells it to do. And then it says, "You shall reach those targets by March 1st," which is something that is part of their language.

So, then, one more closing point here—and I know that my time has run out—we also have levees that they are not reconstructing back to pre-flood elevations. And that means that in my district—in Sam Graves's district, in particular—they are repairing some of these blown-out levees with sand to the 25-year event, which means that for the last 5 years it would flood anyway. Our people in the river bottom then have to pay triple crop insurance, they can't rebuild, they can't plant anything, and the budgets that they could do interdepartmental transfers on, looking at 2002 by Corps' numbers, 13 percent of their budget was flood control, 13 percent was environmental. 2012 they have 0 percent flood control, 52 per-

cent for environmental. I suggest that no environmental money gets spent until the levees are repaired to pre-flood elevations.

I would conclude that testimony, and thank you for your attention, Mr. Chairman. I yield back.

Mr. GIBBS. Thank you. Ms. Jenkins from Kansas.

Ms. JENKINS. Thank you, Chairman Gibbs and Ranking Member Carnahan for giving us this opportunity to testify on this very important matter today. Due to incredibly heavy snow runoff and spring rainfall, the reservoirs on the upper Missouri River Basin were filled beyond specified capacity this spring. As a result, on June 23rd, the United States Army Corps of Engineers directed the release of water at a record level of 160,000 cubic feet per second from the Gavins Point Dam on the upper Missouri River. This decision by the Corps more than doubled the previous record release of water from Gavins Point and put communities, homeowners, farmers, and critical road and rail transportation routes in Atchison, Doniphan, and Leavenworth Counties in my congressional district in the path of the raging Missouri River.

After touring affected communities, I am convinced that the Corps' management plan can and must be improved to ensure that everything possible is done to prevent flooding of this magnitude in the future. For this reason, Senator Roberts and I have introduced bills in the House and the Senate that will require the Secretary of the Army, acting through the chief of engineers, to take into account all hydrologic data from the events leading up to this year's flooding in conducting Missouri River Basin operations in the future.

Such data would include rainfall, as well as snowpack from the mountains and the plains, and must be included in all plans involving the management of the Missouri River. This data should help limit the risk of future record flood events, and will allow the Corps to ensure that flood mitigation on the Missouri River is the top priority, without directly jeopardizing the river's other functions, such as navigation, recreation, or water and energy supply.

In addition, it will ensure that vital lines of commerce along the river, including railroads which sustained hundreds of millions of dollars of damage during this flood season will not be interrupted by a similar disaster.

I am hopeful that this hearing will help convince the Army Corps of Engineers to consider the lessons of this summer and take the necessary measures to prevent these types of floods from happening in the future.

Again, thank you, Mr. Chairman, for having us. And I would ask that my testimony be included in the record.

Mr. GIBBS. Thank you.

Mrs. Hartzler from Missouri, welcome.

Mrs. HARTZLER. Thank you. Thank you, Mr. Chairman, for having this hearing. Thank you, Ranking Member Carnahan, my other Missouri colleagues, for your leadership on this issue, as well.

There is about 180 miles of the Missouri River that flows through the Fourth District of Missouri, which I represent. This stretch of river is lined by about 35 levees designed to protect some of the best farmland this country has to offer from being ruined by raging floods. This spring and summer every one of these levees

was under constant assault by hundreds of millions of gallons of flood water. Farmers scratched out schedules with their neighbors so that they could hold constant vigil 24 hours a day for months on end.

Now, think about that. During the watches of the night they were on their cell phones, stationed at different places along the levee for months. They gave time away from their families and their businesses to hold vigil over these levees. They were watching for breaks, seepage, sand boils, acting quickly to shore them up, if needed.

Even though almost every one of our levees became saturated and sustained significant damage, they performed remarkably well, as a whole, with only enough overtoppings or failures to count on one hand. But our farmers lost crops due to backed up rainwater that could not flow out to the river. The Food and Agriculture Policy Research Institute at the University of Missouri, also known as FAPRI, estimates that at least 28,000 acres of farmland was flooded in my district due to that backwater, destroying over $23.8 million worth of crops in my district.

Now our levees are in desperate need of repairs before next spring's flood season. Time is of the essence. The months of complete saturation of the levees and high waters have left their toll. The levees are weakened and in need of repair now. Red tape needs to be cut and contracts for repair need to be let now. It is 3 months as of tomorrow before the beginning of March and the rain season again. We need to have these levees repaired.

The National Oceanic and Atmospheric Agency stated earlier this month that there is a high probability of flooding in the Missouri River Basin in 2012. Congress and the Corps of Engineers must make the repair a priority to avoid a similar situation occurring next year, or we could be here again.

Many residents feel that these floods could have been reduced, if not completely avoided, by earlier action and better prioritization of uses by the Army Corps of Engineers.

I look forward to hearing the other testimony today and receiving the Corps' reports on its actions. And my fellow Members and I will continue to press them to make flood control the number one priority of the river system at all times.

I want to echo the comments of my fellow colleagues here and urge them to take into account: one, last year's runoff; two, increased capacity of the reservoir for flood control; and three, act sooner in the event of significant snowfall/rainfall this winter.

Mr. Chairman, I also appreciate your invitation to introduce one of my constituents who will be testifying before you here on today's panel.

Tom Waters is a seventh generation Missouri farmer who lives near Orrick, Missouri, in the Missouri River flood plain, where he produces corn, soybeans, wheat, and alfalfa. Tom serves as chairman of the Missouri Levee and Drainage District Association, where he represents not only the levee and drainage districts, but also the businesses and others interested in the activities surrounding the Missouri River and its tributaries. In addition to holding several other public offices, he serves as president on three

local levee and drainage district boards, which, combined, represent over 21,000 acres of Missouri River bottom land.

He is an articulate spokesperson for the farmers of the Heartland. So please consider what he has to say. Ask him questions. Because he truly is an expert on this issue.

So thank you again, Mr. Chairman, for your courtesy and for your interest in this vitally important topic. Thank you.

Mr. GIBBS. Thank you.

Mrs. Noem from South Dakota, welcome.

Mrs. NOEM. Thank you, Mr. Chairman. Thank you for having this hearing today. And thank you, Representative Carnahan, as well, for being here and bringing attention to the Missouri River system, which experienced devastating flooding this year. Hundreds of homes in South Dakota were damaged and destroyed. Businesses were disrupted. Many were displaced for months.

This was not like most natural disasters. This flood lasted for over 90 days. It began in late May and it ended in late September. The situation began in February as runoff levels into the system from snowpack in the mountains and northern plains began to far exceed normal amounts. As flood storage within the system depleted throughout the spring, releases across the system were not increased to adequately compensate for the risk of future runoffs and rains.

Then came May. With flood storage depleted, torrential rains fell in Montana. On May 23rd, the Corps announced that it was increasing releases to 70,000 cubic feet per second from the Oahe Dam near Pierre, South Dakota. This was 11,000 cfs over the previous record. Residents and communities along the river began to sandbag, constructing berms. Yet 5 days later it was announced that the five lower dams would reach 150,000 cfs, nearly double what the Corps had announced just days earlier. Releases finally peaked at around 160 cfs for the four dams in South Dakota. The result was a slow-moving disaster of epic proportions.

I believe, as others have stated, that this flood was part natural disaster and part manmade disaster. Certainly we cannot discount that some amount of human error did occur. The Corps has repeatedly reiterated that it operated in accordance with the master manual, and that rain in May was a significant contributing factor in the flooding. However, this reasoning does not account for the runoff that occurred from February to April.

While it is likely that some amount of flooding could not have been avoided, given the runoff and the rain flowing into the system, surely something could have been done differently that would have avoided releases that were double and nearly triple previous records.

From all the information that I have seen, I believe the Corps of Engineers carries some responsibility for this disaster. That level of responsibility should be explored during this hearing.

Another area where I disagree with the Corps is on timely notification of residents about the possibility of flooding. This is what I hear the most from people back in South Dakota. Many of those along the river can prepare for higher than normal releases, if given reasonable advanced notice and adequate information. In

fact, that happened in 1997, when we faced historic levels. This year they were afforded neither.

I hope the Corps is committed to more effective notification about runoff, releases, and the risk of flooding in the future. And as we try to rebuild and put this behind us, there are many lingering questions. The biggest one is: Could this ever happen again? And this is of particular concern because the National Weather Service forecasts indicate that we are continuing in a wet cycle with significant precipitation and snowpack predicted for 2012.

We should have learned something from this year's experience to better plan for future wet cycles. The Corps needs flexible management of the river to account for these trends, and still allow for the proper balance between the authorized purposes of the system, with the number one priority being flood control.

Witnessing this disaster and reviewing the management plan going forward have left me with a lot of questions. The first one is: On November 4th the Corps indicated it would change its approach to the 2012 annual operating plan as a result of public forums. What does it intend to change? And how is it going to take a "more aggressive stance," as it said?

What is the Corps doing to promote a more dynamic, real-time decisionmaking in the future, including modifying their forecasting and hydrologic models, and incorporating all of the available data?

Number three, the Corps has both internal and external review panels going on right now. They should be completed by the end of the year. What is the process for modifying their management practices, based on the finding of these panels?

Number four, does the Corps have the flexibility within the manual to more adequately deal with future wet cycles and the type of conditions we experienced this year? The Corps has cost estimates for repairs to the system—finally—caused by the damage this year. But do they have estimates for the total economic cost of the flooding this year?

This flood event and future management questions regarding the Missouri River system are why this hearing is so critically important. I look forward to the testimony of the other witnesses.

And I have my own written statement, Mr. Chairman, I would like to submit for the record. And I also would like to ask that statements provided by Laurie Gill, the mayor of Pierre, Jeff Dooley, manager of the Dakota Dunes Community Improvement District, and Kim Blaeser, a home owner and treasurer of the Rivr-Land Homeowners Association, also be included into the record.

Mr. GIBBS. So ordered.

[Hon. Kristi L. Noem's statement is featured with the other witnesses' statements—please refer to the "Prepared Statements Submitted by Witnesses" section of the table of contents. The other information follows:]

Testimony for the House Transportation and Infrastructure Committee

Water Resources and Environment Subcommittee

Missouri River Flood of 2011

November 30, 2011

Mayor Laurie R. Gill

Pierre, South Dakota

Thank you for the opportunity to provide comments and suggestions that relate to the historic flood events on the Missouri River in 2011.

As you know, four of the six dams on the Missouri River are located within South Dakota, and our residents have given more than any other jurisdiction in its efforts to prevent disastrous flooding. Thousands of acres of our richest farm lands were taken from us to build these structures and entire communities were relocated. Our residents sacrificed much to prevent flooding not only within our state, but to protect residents and businesses all along the Missouri and Mississippi rivers - from South Dakota to the Gulf of Mexico.

Almost ironically, thousands of South Dakota residents are now recovering from a disastrous flood which these dams were designed to prevent. In the wake of this tragedy, one can't help but asking, "How did this happen?"

- Did management or mismanagement of those dams contribute to the flooding?
- What was unique about this year's runoff and subsequent rainfall?
- Did political influences affect the U.S. Army Corps of Engineers' Missouri River Management Plan and did it contribute to this flood?

- Most importantly, what should the Corps do in the future to assure this NEVER, NEVER occurs again?

The City of Pierre was one of several communities significantly impacted throughout the ENTIRE summer by floodwaters from the Missouri River. I was notified of possible flooding on Tuesday, May 24, 2011. The following afternoon, waters from the Missouri River began to rise and were soon spilling out of their banks. Within a few short days, the city was impacted by significant flooding.

Unlike a traditional flood, which crests and then quickly recedes, residents in Pierre and other South Dakota communities endured an entire summer of flooding. In fact, the waters that spilled into our communities on Memorial Day weekend did not begin to recede until Labor Day weekend.

As the Mayor of Pierre, I lived the nightmare. My staff and I worked non-stop throughout the summer to prepare for flooding, combat the flooding and to begin the recovery from the flooding. Continuous challenges were met and addressed including: constructing protective levees with only a few days' notice; plugging storm water sewers to prevent flooding within the levees; pumping every drop of rainwater that fell in Pierre; constantly monitoring and repairing levees; sandbagging and monitoring critical infrastructure including drinking water wells; and the list goes on and on. This was a way of life for more than three months and the recovery will last for years.

Like most people in South Dakota, I have many questions related to this disastrous event. But I have only one wish ... that a flood like this NEVER, NEVER occurs again.

I would like to submit this testimony on behalf of myself and the Pierre City Commission. I believe I echo the thoughts of those residents up and down the Missouri and Mississippi rivers, regardless of their state residency, political affiliation or socio-economic status.

It is easy to blame others when misfortune affects us. This blame is even easier to place when questions go unanswered and common sense management is not readily observed.

The U.S. Army Corps of Engineers has taken a great deal of blame for the summer-long flood that affected Pierre and other communities along the Upper Missouri River Basin. Whether this blame is justified remains to be seen, but people have many questions and they are fearful that similar events will occur in the future if these questions are not answered today.

Throughout the years, Missouri River management has gone through many changes and been the center of many struggles. These struggles have been largely the result of competing interests between upstream and downstream states. These interests include, but are not limited to:

- Recreation
- Hydroelectric power generation
- Domestic water needs
- Navigation
- Irrigation
- Fish and wildlife
- Water quality; and of course
- Flood control

All of these interests were described in the 1944 Flood Control Act. They are as much a part of our political landscape today, as they were those days preceding

World War II, but there is one reality ... the act's primary purpose was flood control.

As time has passed, however, the importance of flood control has become increasingly diluted. Flood control now competes with all of these special interests and the health and welfare of people living along the river's edge is often an after-thought.

Each time the Corps is directed to manage the Missouri River for these special interests, we grow further and further away from protecting upstream and downstream communities. And each time the Corps places a higher importance upon endangered species, a minimally important barge industry or simply political pressure ... we move closer to devastating events like the one we saw this past summer.

Let's talk about flood control and what it means to communities along the Missouri River.

The Oahe Dam is located just five miles upstream from Pierre. This large, earthen structure gave reassurance to those living downstream and most residents were filled with a false sense of security. Among those who placed their faith in the Oahe Dam were lenders and insurance companies who did not require residents along the Missouri River to carry flood insurance. Today, most of the destroyed homes and businesses beneath the dam were not insured for flooding.

The story from Pierre is not unique. Homes, businesses and fertile lands were destroyed from Glasgow, Montana to New Orleans, Louisiana. It is unprecedented that so many communities were impacted by flooding. With this in mind, we must ask ourselves, "Why did this happen? What was different about our river's management and the water flowing through our communities?"

These are things we know:

- The Rocky Mountains received a large amount of snow and run-off was much higher than normal. This is something we knew early in the winter and many expected the basins to fill more quickly. We also know an unprecedented amount of precipitation fell in throughout the Upper Missouri River Basin in May. These figures are available to all of us and I don't believe anyone will challenge the information.

- We also know that Pierre residents were given less than one week to prepare for this unprecedented runoff into the Missouri River. Water from the Missouri River left its banks soon after we were notified of the pending flood.

- We know the projected water elevations and discharge rates changed on a daily basis. In one case, the projected flood elevation changed three times in one day which created significant challenges for those attempting to protect their homes and businesses.

- We know the City of Pierre established a minimum build elevation, based upon information provided by the U.S. Army Corps of Engineers in 1997. This elevation, which was recommended by the Corps, was not high enough.

- We know that a preliminary cost estimate to repair our city's damaged streets, sanitary sewers, storm sewers, water wells, parks, and electrical systems will exceed $16 million. This is only an estimate and costs may be much higher following our winter freeze and thaw.

- We know the flood of 2011 has devastated many of our local businesses. Some of them will never reopen and others will incur losses that may take years to recoup.

- We know the tremendous damages that were inflicted upon more than 300 homes in Pierre. Many residents remain temporarily displaced from their homes and many others will never return.
- We know the tremendous investment our state and communities have made ... and will continue to make ... in preparing for, managing, and now recovering from this terrible event.
- We know the incredible financial, mental and emotional toll inflicted upon residents that fought this flood for more than three months. Many residents were forced to relocate, while others remained and ran sump pumps that are still running today. And still others gave up after many exhaustive weeks of battling this flood and have no means of repairing or replacing their homes.
- We know that our community is weary, frustrated and seeking many answers from the people who manage the Missouri River. While most floods crest and then recede within days, our residents have lived this tragic event for more than three months.
- And finally ... we know that we NEVER, NEVER want to go through this again and we hope the proper steps will be taken to ensure sound, common-sense administration is used in managing the river.

Alternately, there are many things that we do NOT know. For example:

- How did the U.S. Army Corps of Engineers manage the information that was available to them in the days, weeks and months preceding this horrific event?

- How were water elevations and discharge rates managed and adjusted throughout the six main stem dams; and at what time were these management decisions made?
- How will our cities and states finance the cost of repairing and replacing our critical infrastructure?
- How will our residents recover from the financial burden of hastily preparing for this event, abandoning their homes, repairing the damage, and bearing the burden of other flood-related costs?
- How will our business community recover from its losses?
- When will our quality of life be restored ... our park systems, our golf courses, our bike trails, our athletic fields and our river-based recreation?
- When will we reclaim our streets and how will we repair them?
- But most importantly, when can we begin to feel comfortable that similar events will not reoccur ... and when can we return to our homes and businesses and feel safe again? When can we feel that someone in the Corps of Engineers is managing runoff to prevent future flooding?

With all of this in mind, we must now ask ourselves ... how do we move forward from here and ensure this NEVER, NEVER happens again? The City of Pierre respectfully requests the U.S. Army Corps of Engineers consider the following measures to prevent future disasters like the one we experienced this past year:

1. The Corps of Engineers must re-establish flood control as the primary purpose for managing its six main stem dams. All other authorized purposes must be weighed against their impacts on flood control.

2. The Corps must review its procedures that were followed this year to determine how information management at each decision point was evaluated and utilized and what results those decisions had upon this flood.
3. The Corps must reevaluate future releases to prevent this event from EVER occurring again. One example is to schedule higher releases up to 85,000 cfs sooner rather than later. If increased releases are implemented, the COE must also work with potentially affected cities to identify revised maximum water elevations to which future planning for protective measures can be done. This will give city planners the ability to protect infrastructure; and homeowners and businesses will be able to protect their private properties.

4. The COE must reestablish the causeway between the City of Pierre and LaFromboise Island as quickly as possible in 2012. That causeway is the only access to our city's four largest water wells. We cannot maintain and operate those wells until the causeway is reestablished.

We do not have answers to these questions, especially those related to future flood prevention. But we do know that our residents have been severely impacted by this flooding and our people are hurting ... financially, mentally and emotionally. We cannot go through this again.

I appreciate your time and attentiveness to our questions. We must all work together, seek answers to these difficult questions and assure this flood NEVER, NEVER occurs again. Thank you!

The Missouri River corridor experienced extreme flooding during the summer of 2011. The flooding was created by unprecedented releases from all the Dams along the Missouri River Basins operated by the US Army Corps of Engineers. Previous record releases were more than doubled for an extended period of time – from Memorial Day through late August early September. To put it into perspective, the previous record release from Gavin's Point (the southernmost dam) was 70,000 cubic feet per second (cfs). The releases from Gavin's Point Dam, which is the last Dam on the Missouri River System reached peak 160,000 cfs and those releases were sustained for more than a month before they were gradually decreased. This created a 500 year flood event for much of the Missouri River Corridor from Memorial Day through mid to late August.

The Corps has indicated that these high flows were a result of above average snow back in Wyoming and Montana, later than unusual snow melt and above average rains in the upper Missouri Basin (Wyoming and Montana). The Corp acknowledged as early as early January 2011, that the snow pack that feeds the Missouri River was 16 percent above normal. As late as May 10, the Corps indicated to me that, assuming normal runoff moving forward the reservoir system could be managed by slightly above normal releases. However, large amounts of rain in May created a crisis situation. On or about Tuesday, May 24th, the Corps announced releases would go as high as 85,000 cfs. Over the course of the next 7 to 10 days, the Corps announced ever increasing and unprecedented releases from Gavin's Point (along with all other damns on the Missouri). The 85,000 cfs went to 110,000 cfs then to 130,000 cfs then 150,000 and ultimately reached 160,000 cfs. These extreme, rapidly changing and short notice releases made it very difficult to prepare preventive measures and to get people out of harm's way.

My name is Jeff Dooley and I am the Manager of the Dakota Dunes Community Improvement District, which is the local government in Dakota Dunes. Dakota Dunes is a small community (population 2,700) on the extreme southeastern corner of South Dakota. As allot of other communities along the River, Dakota Dunes took extreme preventive measures to save infrastructure, property and lives. Dakota Dunes expects to spend over $15 million in temporary levee construction, levee maintenance storm and sanitary sewer plugging, and pumping not to mention the removal of levees, the repairing of street, sewers and other infrastructure destroyed in the process. While FEMA has been a big part of the recovery process financially, the scope of infrastructure damage goes far beyond those resources and wil continue for years to come.

In addition to the cost of the preventive measures, more than 450 homes in Dakota Dunes had to be evacuated for the summer. While we were successful in maintaining the levee system and keep the river from running through our community, ground water caused by the releases caused untold amount of damage within our community and forced people from their homes for the entire summer.

When you live along a river you can expect some flooding, but when that river is controlled by a series of damns operated by the US Army Corps of Engineers, you might expect a little less

extremity. It has been indicated that these extreme releases were due to series of natural occurrences over the course of 2010 and 2011, but to have to exceed the previous record by 128 percent and have to maintain this flow for two to three months, seems beyond the margin of error that should be allowable.

I am extremely concerned with how the Corps models their release schedule, the priorities under which they are expected to operate within the Corps Operating Manual for the Missouri River System and the data they use for their models and projections. Are they using the most updated topographical information, river cross sections and weather information?

Outside of the recovery of infrastructure, in order to fully recover from this year's events, confidence must be restored in the Corps ability to manage the Missouri River system and to make it clear that flood protection has to be the number one priority. The Corps must become proactive in working with communities and farmers to identify impacts of potential release levels and corresponding improvements so communities and in turn be more proactive in implement mitigation measures and be better prepared for what the Corps has to do to maintain reasonable river levels. Communities must also recognize the commitment they must make to be sure their communities are best prepared for expected levels of releases.

The summer of 2011 will be ingrained in the memory of everyone who lives, works or farms along the Missouri River. This event (500 year event) has changed people's lives forever. My personal property was not damaged by the flood. But, as the Manager of the community, I had to witness the distress caused by this event as my friends and neighbors were asked to leave their homes behind. This cannot happen again. We need to find out if and why these extreme releases were necessary and recognize or admit what could or should have been done to prevent it. Again, in a controlled river system there has to be an expected margin of error, but this year's releases far exceeded any reasonable expectation of those margins.

Respectfully submitted,

Jeffery D. Dooley, Manager
Dakota Dunes Community Improvement district

Date: 11/22/11

Testimony submitted by Kim Blaeser

Homeowner and Treasurer of the Riv-r-Land Homeowners Association

11/27/11

In the late 1960's, the developers of our area had a vision of a 'resort' neighborhood with a canal to provide access to the Missouri River. The neighborhood became known as Riv-r-Land Estates.

Riv-r-Land Estates is a neighborhood of 55 homes consisting of retired folks, empty nesters, young couples and growing families. I live at 17 Edgewater Lane in a home originally built by my father in 1973. This is a middle class neighborhood with many who have lived here over 20 years.

Flooding at Riv-r-Land has not been a real concern over the last 40 years. The Corps of Engineers had done a good job in managing the releases from Gavin's Point Dam. Water levels at Riv-r-Land have seen a continuous drop – the canal has been dredged numerous times to enable us to continue to access the river. Very few of us carried flood insurance either by choice or because our lenders did not require it.

There was no reason for anyone to be concerned that the summer of 2011 would be any different from previous summers. There were few if any news stories of snowpack in Montana or of any concerns regarding the integrity of dams and spillways. There was no indication from the Corps of Engineers that there were any circumstances which could result in such a devastating event.

In April we forwarded a message to our residents from the Missouri River Relief Group out of Columbia, Missouri. They were scheduled to have a Missouri River Research Symposium in Omaha on April 21, 2011. Clean up along the river was set for 4/30 in Omaha and for 5/7 in both Sioux City and Yankton. We did our own annual Riv-r-Land clean up on April 30.

In late May, we started seeing increased flow on the Missouri River. We didn't anticipate any consequences – we had seen high water before and we hadn't heard any warnings from the Corps. On Wednesday May 25 we sent our first email to residents after learning that releases were going to be increased from the current 60,000 to 85,000 by June 2. We understood there would be flooding but the question was how much.

Four days later on May 29, we received information that releases were going from then current 70,000 to 150,000 by June 15. At that point, our beautiful neighborhood became a full war zone of sandbags, dump trucks, pickup trucks and trailers. Everything was accomplished with volunteers, HOA funds and personal contributions. We all struggled to get sandbag walls built and then to move our belongings from our homes. It was chaos - emotional, frightening,

stressful, and exhausting. We just didn't know what to expect – how high would the water get, do we really need to move everything, where do we go? No one could give us these answers. And then five days later on June 3rd, we were all evacuated from our homes.

By June 6th, there were flood waters throughout the neighborhood. The waters continued to rise through the end of July and stayed high well into August before the releases started dropping. The water had been flowing well over the sandbag walls and dirt berms even though we had built them to the expected crest height. Almost 90 percent of the Riv-r-land homes were impacted by the flood waters and had basements and main levels flooded.

We were able to get back into our neighborhood the first of September by walking in with waders. Our homes had been in flood water for a full 3 months. The devastation we found took our breath away – our homes were still standing but they were full of mud, muck and mold. There was debris everywhere. Where to begin?

But we have begun. It is going to be a very long and expensive journey. As of right now, there are over 30 families who are not yet able to live in their homes. The neighborhood is dirty and gray, the trees are dead or dying, and the waterlines on the homes are a sad reminder of what the summer of 2011 has done to Riv-r-Land Estates. I hope that everyone will have the strength and the resources to return in the spring and begin their rebuilding. I hope that the Corps of Engineers will have the strength and the resources to be proactive and diligent in ensuring they are fully focused on their primary responsibility of flood control. The circumstances that allowed this to happen cannot be repeated.

Submitted by Kim Blaeser
11/27/11

Mrs. NOEM. I would like to take an opportunity to quickly introduce one of the witnesses that is going to be on the second panel, if that would be fine with you, Mr. Chairman.

Mr. GIBBS. Proceed.

Mrs. NOEM. Brad Lawrence is the director of public works for the city of Fort Pierre, one of the communities that was devastated by the flooding this year. He has extensive knowledge and experience with the river system. He was one of the very first people to sound the alarm that flooding was going to happen back in February, long before the record rains ever came.

I am pleased he is here today. I would ask that his full written testimony and statement be included in the record, as well.

And thank you, Mr. Chairman, for the opportunity to testify before the committee today, and for holding this hearing. And I certainly yield back any balance of my time.

Mr. GIBBS. Thank you.

Mr. Cleaver from Missouri, welcome.

Mr. CLEAVER. Thank you, Mr. Chairman. Mr. Chairman Gibbs, Mr. Carnahan sitting in for Ranking Member Bishop, and members of the subcommittee, thank you for allowing me to provide testimony on the tragedy that occurred in my home State and throughout the Midwest this past summer.

We need to examine the events and actions that led to this flood and ensure that resources are available to assist Federal agencies, States, and communities with recovery efforts and preparations for 2012. We also must re-examine the way we predict and prepare for floods. Flood control must be the primary purpose of the Missouri River reservoir system.

Kansas City was extremely fortunate to escape, for the most part, the massive devastation that nearby communities upstream endured. But it certainly has not escaped in the past, and may not in the future. Kansas City is particularly vulnerable to flooding, sitting at the convergence of the Kaw, Missouri, and Blue Rivers. As mayor of Kansas City in the 1990s, I had to deal with the devastation and aftermath of the great flood of 1993. That year the Missouri River crested at a record 48.87 feet. Damage to the city's utilities and public infrastructure reached over $17 million.

Currently, eight Federal levees in the metro area—and because they are now rickety and worn through the decades—span 60 miles and protect $15 billion worth of assets. We have been trying to fund and complete projects to improve and repair these levees and other flood control projects since I was mayor.

I would like to highlight a few impacts of this year's flooding of the Missouri River, commonly known as The Big Muddy. By midsummer, all non-Federal levees in Missouri north of Kansas City were breached or overtopped, as well as several others downstream. North of the river, the suburbs of Parkville experienced flooding, including the English Landing Park. Even, Mr. Chairman, areas where levees held, fields experienced damage from seepage and sand boils.

I visited several farms east of Kansas City this summer that had private levee seepage in their fields. The Miami Levee District Number One in Saline County experienced flooded fields from seep water, causing fields to remain unplanted and drowning their

plants. One private levee in the multi-bin bottoms of Saline County was breached in early July. Bottom land farmers in Saline County recorded 128 consecutive days with the river above flood level, and the river in that area did not go below flood stage until September 29th. Clay, Jackson, Ray, Lafayette, and Saline Counties experienced a total of over 31,300 crop land acres flooded, and over $26.6 million in lost market revenue. Fields may take between 3 and 5 years to come back to full production. And perhaps 10 to 15 percent of flooded land will never return to production.

Kansas City is not, as the Nation knows, a professional football powerhouse. However, it is a major warehouse and distribution hub, and a leading agro-business center. The metro area has the second busiest rail yards in the Nation. And it is first in the Nation, in terms of tonnage.

Interstate 29 is a major travel and shipping corridor northward from the city. The prolonged closure of I–29 and resulting damage to the city's commerce was particularly injurious for a city founded by traders in the late 1700s.

Great Plains Energy, the parent company of our local utility, KCP&L, reported a 4-percent drop in third-quarter earnings, particularly and partially due to expenses from the flooding. The placement of several power plants near the river required KCP&L to sandbag, build concrete walls, and other physical preparations to protect the plant, purchase additional power in case the facilities had to shut down, and conserve coal while the railroad service to plants was closed.

As you can see, Mr. Chairman, this photograph is of the plant in June, the end of June. And the next photograph is a few days later, July 8th. Almost everything around it under water. BNSF Railroad had about one-third of their 1,500 trains on the network rerouted daily during the height of the flood.

Congress and the Corps must learn from this tragedy and modify flood control policies to decrease the likelihood of such an event happening again. We also need to understand why increased releases from upstream reservoirs were not occurring earlier in the spring. The National Oceanic and Atmospheric Administration can predict patterns such as La Nina seasons, and provide monthly precipitation forecasts.

Mr. Chairman, we have a very serious problem. It is not going to go away without congressional involvement. It is my hope that, with the Missouri delegation across political lines are coming together saying we need to act, I think most of us support our colleague, Mr. Graves's, legislation, and it is my hope that we can move quickly to get this completed.

Mr. GIBBS. Thank you.

Mr. Luetkemeyer from Missouri, welcome.

Mr. LUETKEMEYER. Thank you, Mr. Chairman. And thank Ranking Member Carnahan as well, for holding what I believe is an extremely important hearing.

There are thousands of people living and working along the 140 miles of the Missouri River that run through my district. It is essential that they have the support needed to protect their lives, businesses, and property from flooding. These people, along with millions living throughout the lower Mississippi River Basin, de-

pend on the steady flow of the Missouri for their power generation, navigation needs, and ability to move goods to both domestic and international market places.

This summer a high Missouri River and full reservoirs served as a prescription for disaster, resulting in a devastating flood that impacted hundreds of families and businesses that call the banks of the river home.

In January, snowpack in the upper basin was 141 percent of normal, and forecasts of the NOAA predicted that runoff this spring would be historically high, and it wound up being even higher than the forecasts. Releases from Gavins Point Dam were pushed to 160,000 cubic feet per second, more than double all previous releases, as has been detailed here already this morning.

Ultimately, hundreds of thousands of acres of farmland were flooded. Some farms were under water for more than 15 weeks, resulting in complete loss of crops for many.

According to a recent study conducted by the University of Missouri, more than 207,000 acres of crop land were destroyed in 24 Missouri counties alone, resulting in nearly $176 million in lost revenue. This translates into a total economic loss in the region of more than $326 million.

To address this levee damage the Corps says they won't have the funding necessary to rebuild the levees to pre-flood levels. However, one can't help but take notice of the significant disparity of funding for habitat restoration and land acquisition, and then the funding dedicated to operations and maintenance. Mr. Graves has a bill that points this out and addresses this issue.

There is a tremendous emphasis right now that has been placed on habitat restoration and compliance with the Endangered Species Act instead of the protection of life and property. We think this needs to be re-prioritized. It is obvious the Corps is juggling too many competing interests. And again, Mr. King has a bill also that addresses this issue.

While the upper and lower basins have historically had different management philosophies, I believe it is time to work together to ensure that the best policies affecting the Missouri River are put in place. After this year's event, it is obvious that planning must change, and management must change, to ensure this event is not allowed to happen again.

Flood control must be the Corps' primary objective in managing the river. And levee repair and reconstruction must be a priority. I urge the committee's consideration of these and all the other Members that are here today, their comments, and to take action.

Mr. Chairman, with that I yield back. Thank you for the opportunity to be here this morning.

Mr. GIBBS. Thank you.

Mr. Fortenberry from Nebraska, welcome.

Mr. FORTENBERRY. Thank you, Mr. Chairman, and thank you for holding this important hearing to examine the impacts of this Missouri flood, and the strategies for potential management reforms that will help mitigate the consequences of such flooding in the future. We really appreciate your time.

This summer, as Congressman King so vividly articulated, I saw for myself the devastation caused by the flooding along the Mis-

souri. In Nebraska, communities from Blair to Brownville, I witnessed the hardships imposed upon families, individuals, communities, farmers.

I saw the efforts of volunteers and city crews armed with sand bags, working day and night to protect home, businesses, parks, and city infrastructure. I saw the successful measures taken at our two nuclear energy power facilities in Brownville and Fort Calhoun, to ensure the flood waters posed no further threat to public safety. Frankly, Mr. Chairman, it was a bit surreal to see a boat tied to a nuclear power plant.

Nebraska, like other States along the Missouri River Basin, was hit very hard. Families' lives were turned upside down. Some Nebraskans lost their homes. Others lost farms and businesses. A recent analysis commissioned by the Nebraska Farm Bureau estimated the total impacts of the flood related to Nebraska agriculture is set at about $190 million. According to the Nebraska Emergency Management Agency, public assistance estimates for damage from the flooding are in excess of $150 million. Individual assistance has exceeded $3.7 million, and small business assistance is more than $3.6 million. Overall projection of damages along the Missouri River totaled more than $2 billion, as we have heard.

I know that many employees of the U.S. Army Corps of Engineers worked very hard during the period of the flooding to keep citizens informed of water levels and threats to public safety, while providing direct and technical assistance. They also remained accessible through various avenues of contact with the public and through Government agencies.

During and after the flooding events, though, many of my constituents questioned river management decisions made by the Corps, and these decisions' impacts on the severity of the flooding. While it is clear that certain areas affecting the Missouri River experienced record amounts of snowmelt and precipitation this year, creating record levels of runoff, it is necessary that we thoroughly examine how existing river management policies have played a role in the flooding and its dramatic impacts.

We must also take this opportunity to consider new strategies for flood control, moving forward. The 2011 flood and its extraordinary consequences necessitate a re-evaluation of river management.

To this end I have joined several of my colleagues here, the Missouri River Basin Members of Congress, in supporting legislative efforts to compel a reassessment of upstream management for the purpose of preventing catastrophic flooding events that negatively impact all Missouri River users.

One of these proposals by Mr. King, H.R. 2942, would direct the chief of the Army Corps of Engineers to revise the Missouri River mainstream reservoir system master water control manual to ensure greater storage capacity to prevent serious downstream flooding. Upstream reservoirs would be required to remain low enough to accommodate high levels of runoff and prevent devastating downstream flooding.

On a related matter, earlier this month I introduced H.R. 3347 to exempt any road, highway, or bridge damaged by a natural disaster, including a flood, from duplicative environmental document

reviews if the road, highway, or bridge is reconstructed in the same location.

We must do all that is possible to help prevent another tragedy. For the sake of public safety, a reassessment of the Corps' Missouri River policies is in order.

It is my hope that today's hearing will be a constructive first step in this regard.

And I thank you, Mr. Chairman, for the time.

Mr. GIBBS. Thank you.

Mr. Terry from Nebraska, welcome.

Mr. TERRY. Thank you, Mr. Chairman. And I appreciate your flexibility in allowing me to come in at the last moment.

Mr. GIBBS. You made it just in time.

Mr. TERRY. We have a markup on farm dust bill occurring and we just broke, so I was able to come over here. But I think it is interesting that while we are dealing with protecting farmers from EPA and dust, any potential dust protection regulations, that many of our farmers were under water this entire summer. And now, since the river has receded to almost normal level, what is left is sand and debris, making farmland unusable for years to come. So, the water has receded, but the issues affecting our farmland and bottom lands have not.

My constituents, as Jeff Fortenberry's constituents, are worried already about next year. And that is why a bill like Steve King's bill is important to discuss, and the role of the Corps of Engineers, going forward. My constituents and I—and discussions with many of our political leaders throughout the State—firmly believe that the Corps of Engineers must return to their basic principles and purpose of the dam system along the Missouri River, which is flood control.

In my discussions with the Corps of Engineers, they have informed me that they have six, seven, eight different criteria that are their priorities. I am sorry, but you can't have eight different items, many of which are in conflict with each other, as your priorities. Pick one, and then try to work the others in where they may. But having pallid sturgeon and piping plovers as the priority one year, and flooding the next, doesn't work.

So, therefore, I would encourage this committee to look forward at creating a priority for the Corps of Engineers, and making that priority flood control—which, again, the whole purpose of the dam system was flood control. Let's get back to the Corps' roots and initial purposes here, and control the floods. Let's make sure what happened this year, will not happen next year.

And I have submitted—and I think it is already in the record—my full statement. So I will yield back the rest of my time. And thank you for this opportunity.

Mr. GIBBS. OK. Thank you. That concludes our first panelists' hearing, the Members. And thank you for your input. This is very valuable, and you are representing your constituents very well.

We will give a minute or two here for our second panel to come up to the front daises. While the next panel is getting situated, Mr. Boswell would like to make another comment. The floor is yours.

Mr. BOSWELL. Thank you, Mr. Chairman. I think I would like to just speak from the heart, just for a second, to the committee, to

you, sir, and the ranking member, and whoever else wants to listen.

You know, I soldiered for a long time, as many others did. I don't believe for a minute that the Corps of Engineers would deliberately do anything to harm anybody. I don't believe that. I think we go through a process, the 14-year plan, which gets vetted through everything we can think of. And then finally, after everybody has massaged it, it gets approved. Sometimes referred to as "The Bible," they go out and they try to put it into action. And I have learned in my life it is pretty hard to please everybody.

But I just want to say, from my point, as I look at those at the table, and as I meet with people out across the country, I doubt if they asked for this job to start with, and we gave it to them, and they bring a lot of expertise to the table. They are dedicated men and women. And I think it is OK for us to—I want to say this—I heard somebody say, "Investigate, investigate." That is not a good word. I think we need to review.

When I think about all the concrete that has been put down across the country and the increased runoff, tiling, and the things we do, it changes things. But one thing that the Corps or you or I or none of us can do is to predict with great accuracy what Mother Nature is going to do. And the 10-inch rain or the heavy snow or the late temperature change and the late runoff and all these prior things that have been talked about by the previous panel was very good, very real. That is what people are faced with.

But I think what a proper term is, you know, if we have had two 500-year floods in the last 10 years, or one, or whatever, it is OK to review. And I think that is what you are doing. And I want to compliment you for having this hearing and going through this discussion. And if I can participate in any way down the way, I would be happy to do that.

Thank you for what you are doing. This is good. I appreciate it.

Mr. GIBBS. Thank you.

Mr. BOSWELL. The panelists are getting ready to appear. Thank you for your service to all these things and our country. Thank you very much.

Mr. GIBBS. Thank you, Representative. I will just quickly comment on your comments there.

I think the intent here is to have discussion, open dialogue. And hopefully everybody will learn something, and we can make better policy. And my guess is one of the Corps' challenges might be there is conflicts in law that is causing problems, because the changes happen back in the demographics and dynamics. So that is—I think we all got the same goal. We will find that out in a few minutes.

But before we get to the second panel, Mr. Carnahan has a procedural issue.

Mr. CARNAHAN. Yes, just a—Mr. Chairman, thank you. And just wanted to ask unanimous consent to submit a statement for the record on behalf of our colleague, Eddie Bernice Johnson.

Mr. GIBBS. So ordered.

[Hon. Eddie Bernice Johnson's statement is featured with the other statements from Members of Congress—please refer to the

"Prepared Statements Submitted by Members of Congress" section in the table of contents.]

Mr. CARNAHAN. And also had a letter from the U.S. Department of Interior Fish and Wildlife Service, which I would just point out makes the point in the letter that the—they did not take the Endangered Species Act into account, did not have an affect on operations in—with regard to this flood in 2011.

I want to submit that for the record and then two others from the National Wildlife Federation and the American Society of Civil Engineers. We would just ask unanimous consent to submit those for the record.

Mr. GIBBS. OK. So ordered.

[The written statement of the American Society of Civil Engineers is featured with Hon. Bob Gibbs's submissions for the record. Please refer to the table of contents for Hon. Gibbs's submissions for the record. The other information follows:]

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

NOV 29 2011

Representative Tim Bishop
Ranking Member
Subcommittee on Water Resources
and the Environment
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Bishop:

Thank you for your letter of November 22, 2011, inquiring about the relationship of fish and wildlife management and the operations of the Missouri River main stem dams during the 2011 runoff season. We understand the Subcommittee will hold a hearing entitled, "Missouri River Flood: An Assessment of River Management in 2011 and Operational Plans for the Future" on November 30, and the Army Corps of Engineers (Corps) will testify on behalf of the Administration.

Operation of the Missouri River Mainstem Reservoir system was not affected or constrained by the requirements of the Endangered Species Act in 2011. The Corps does not store water in the reservoirs for endangered species purposes, and the releases set forth in the Reasonable and Prudent Alternative described in the 2000 and amended 2003 Biological Opinion on project operations were not implemented in 2011. This was due to projected high flows in the Lower River, as well as concerns about downstream flooding. It should also be noted that in years when water is released for endangered species, reservoir flood storage levels are not adjusted.

For your background purposes, the Reasonable and Prudent Alternative in the 2000 and 2003 amended Biological Opinions on the Corps' operations of the Missouri River dams contains two flow elements. The first is a bimodal spring pulse (March and May). This pulse is run when the risk of downstream flooding is minimal, downstream flood control targets are not exceeded, and if the basin is not in a severe drought. The operation of a spring pulse is done within the Corps annual water management activities conducted to meet the system authorized purposes, with flood control and navigation as senior priorities. The amount of water required to provide a spring pulse is very small and in no way changes water storage in the reservoirs or release patterns by the Corps. The master water control manual storage elevations were not altered to facilitate spring pulses. Hydrology models show that with current flooding and storage constraints to meet flood control and navigation, a spring pulse will only occur in 30 percent of the years. Due to conditions each year, the Corps has not been able to provide a single bimodal pulse and has provided three single pulses since the commencement of the Biological Opinion implementation. The Corps manages risk while ensuring that the requirements of flood control and navigation are met.

The second flow component to meet the needs of the Endangered Species Act (ESA) is an increased flow starting in mid-April to ensure that the two listed bird species that nest on sand

bars nest high enough to minimize drowning of eggs and chicks when additional water is released to provide for navigation service as downstream tributary flows decrease. However, due to the high flows already in the river during 2011, there were no additional flows released under this provision.

The Fish and Wildlife Coordination Act (16 U.S.C. 661-667e) does not have a flow component. The only component is to mitigate for lost fish and wildlife habitat outside of the river. Examples include restoring cottonwood forests and wetlands on the floodplain which over time have the potential cumulative effect of reducing flood risk in addition to the other ecosystem services provided.

In conclusion, no water was held in the reservoirs to provide water for fish and wildlife management purposes. When water is released to benefit species listed under the ESA, it is done within the predetermined release pattern established by the Corps and with minimal risk of impacting other authorized purposes, primarily flood control and navigation. No releases to benefit listed species occurred in 2011.

Thank you for your interest in the role of the Service in implementing the ESA and Fish and Wildlife Coordination Act. If you have any additional questions, please contact me or Steve Guertin, Regional Director of our Mountain-Prairie Region, at (303) 236-7920.

Sincerely,

Deputy DIRECTOR

NATIONAL WILDLIFE FEDERATION®
National Advocacy Center
901 E St, N.W., Suite 400
Washington D.C. 20004
202-797-6800
www.nwf.org

November 30, 2011

The Honorable Bob Gibbs
Chairman, Subcommittee on Water Resources and the Environment
Committee on Transportation and Infrastructure
United States House of Representatives
Rayburn House Office Building, Room 2165
Washington, DC 20515

The Honorable Timothy H. Bishop
Ranking Member, Subcommittee on Water Resources and the Environment
Committee on Transportation and Infrastructure
United States House of Representatives
Rayburn House Office Building, Room 2163
Washington, DC 20515

Re: The Missouri River Flood: An Assessment of the River Management in 2011 and Operation Plans for the Future – Recommendations for Improving Flood Protection

Dear Chairman Gibbs and Ranking Member Bishop:

The National Wildlife Federation (NWF) appreciates the opportunity to provide recommendations for improving flood protection in connection with your important hearing on The Missouri River Flood: An Assessment of the River Management in 2011 and Operational Plans for the Future. As the committee evaluates opportunities to reduce future flood damages, NWF urges the committee to pursue reforms to modernize management of federal water projects and promote the protection and restoration of natural defenses that are critical for providing safe, affordable, and sustainable flood protection for communities across the country. Our recommendations for specific reforms are discussed below.

NWF is the nation's largest conservation education and advocacy organization. NWF has more than 4 million members and supporters, and conservation affiliate organizations in forty-eight states and territories. NWF has a long history of working to protect the nation's water resources and improve federal water project planning, and in working in close coordination with hundreds of conservation organizations across the country to achieve these goals.

As you know, the Missouri River Flood of 2011 devastated communities and destroyed homes and businesses. Preliminary estimates place the economic damage from the flood at more than $2 billion. NWF is deeply concerned about the impact that the flooding has had on thousands of people across America's heartland. It is imperative that we learn from the Missouri River flood, and other recent floods, and reform federal policies to minimize future flood disasters.

It is clear that federal policies contributed significantly to this year's extraordinary flooding along the Missouri River and resulting damage, just as those policies contributed to the 2011 Mississippi River flood and countless floods before that. The federal government has spent billions of taxpayer dollars on levees, dams, and floodwalls but flood losses continue to rise. Federal water projects are often managed in ways that increase flood risks; and federal agencies continue to plan and construct new projects that destroy rivers, streams, and wetlands that provide critical and reliable natural flood protection. Other federal programs induce and facilitate development in floodplains, luring people into harm's way.

The nation needs a new approach to flood protection and to the construction and operation of federal water projects. While levees, dams and other structural solutions will continue to play important roles, the time has come for a more balanced approach that recognizes and utilizes the natural defenses afforded by healthy wetlands, floodplains and rivers. Federal agencies, like the U.S. Army Corps of Engineers, must also manage existing projects to ensure the health of rivers, floodplains, and wetlands and the natural flood protection they provide; and to reduce, rather than increase, flood risks.

It is imperative that we act now to implement these much needed changes. Climate research tells us that we need to prepare for even greater volumes of floodwaters in the future. Intense storms that feed floods are increasing all across America, but the largest increases are in the upper Midwest and the Northeast, where big storms that historically would only be seen once every 20 years are projected to happen as often as every four to six years by the end of the 21st century.[1]

Restoring our natural defenses and modernizing management of existing federal water projects will reduce flood threats to communities, improve recreational and economic opportunities, provide vital fish and wildlife habitat, and save the American taxpayers billions in the long run. Specific recommendations for changing a number of key policies are discussed below.

Poor Federal Planning and Management Increase Flood Risks

In a healthy, functioning river system, floods are vital to sustaining the health of human and natural communities. Floods deposit nutrients along floodplains creating fertile soil for farming. Sediment transported by floods form islands and back channels that are home to fish, birds, and other wildlife. By scouring out river channels and riparian areas, floods prevent rivers from becoming overgrown with vegetation. Floods also flush out invasive species and facilitate

[1] U.S. Climate Change Science Program (CCSP). 2008. *Weather and Climate Extremes in a Changing Climate. Regions of Focus: North America, Hawaii, Caribbean, and U.S. Pacific Islands.* A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research. [Thomas R. Karl, et al. (eds.)]. Department of Commerce, NOAA's National Climatic Data Center, Washington, D.C., USA, 164 pp.

breeding and migration for a host of fish species. In the deltas at the mouths of rivers, floods release freshwater and sediment, sustaining and renewing wetlands that protect coastal communities from storms and provide nurseries for multi-billion dollar fisheries.

Like many other large U.S. river systems, however, the Missouri River has been fundamentally altered and the river's morphology, hydrology, and flood dynamics have little resemblance to the river of 100 years ago. The Missouri River is now constrained by six enormous dams; the nation's largest reservoir system; more than 8,000 river training structures constructed to facilitate navigation; and nearly 1,000 miles of federally constructed levees. These structures create higher flood levels, faster flows, and an illusion of flood protection that puts river communities at unnecessary risk. Poorly timed releases from the river's reservoirs can have devastating effects.

The Missouri is not alone in being fundamentally altered. For example, the Mississippi River once had a 100-mile wide floodplain where floodwaters provided essential services for people and wildlife. The construction of levees, floodwalls, and dams to facilitate development and navigation has narrowed the Mississippi to half its natural width and reduced its floodplain to a tenth of its original width. Like the Missouri, the Mississippi River also has thousands of river training structures built by the Corps of Engineers to facilitate barge traffic. These river training structures have raised flood levels by up to 15 feet in broad stretches of the Mississippi River above Cairo, Illinois. Over 40,000 feet of "wing dikes" and "bendway weirs" went into the river during the 3 years prior to the great flood of 1993 contributing to record crests in 1993, 1995, 2008, and again in 2011. Levees along the Mississippi River have raised flood heights by up to 3 to 4 feet, and poorly timed releases from upstream federal reservoirs and destructive upstream projects add to the significant flood risks to Mississippi River communities.[2]

The dams and levees on the Missouri and Mississippi Rivers also prevent those rivers from nourishing the Mississippi River delta with freshwater and sediment. As a result, the Mississippi River Delta is collapsing, sinking and eroding into the Gulf, with devastating implications for public safety, the environment and the economy.

The Nation Needs a New Approach to Flood Protection and Managing Federal Projects

The nation needs a new approach to flood protection, one that utilizes nature's demonstrated capacity to protect people, property and wildlife. Restoring a river's natural flow and meandering channel slows down floodwaters and allows the land and vegetation to protect the communities around it. Freshwater wetlands act as natural sponges, storing and slowly releasing floodwaters. Similarly, coastal wetlands are the first line of defense to buffer against hurricanes and tropical storms.

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[2] Pinter, N., A.A. Jemberie, J.W.F. Remo, R.A. Heine, and B.A. Ickes, 2010. "Empirical modeling of hydrologic response to river engineering, Mississippi and Lower Missouri Rivers." *River Research and Applications*, 26: 546-571.; Pinter, N., 2010. 'Historical discharge measurements on the Middle Mississippi River, USA: No basis for "changing history." *Hydrological Processes*, 24: 1088-1093.; Pinter, N., A.A. Jemberie, J.W.F. Remo, R.A. Heine, and B.S. Ickes. 2008. "Flood trends and river engineering on the Mississippi River system", *Geophysical Research Letters*, 35, L23404, doi:10.1029/2008GL035987.

Operation of federal water projects across the country – including the Missouri River dams – must be updated on a regular basis to help protect and restore our rivers' ability to absorb and convey flood waters and support healthy populations of fish and wildlife, incorporate the most up to date scientific knowledge on changing hydrological conditions, and promote management that accounts for modern needs and priorities. New federal projects must work to restore the Missouri river and the rivers that feed into it, and to restore floodplains, streams, and wetlands across the country. Residents of river communities must better understand flood risks and the federal government should promote the development of strategies for voluntarily moving people out of the floodplain where appropriate. And while levees will remain an important tool, it must be recognized that no levee is infallible, and that all structural protection comes with inescapable "residual risk."

The following policy changes would help achieve these goals and produce benefits that reach far beyond improved flood protection. They would provide vital habitat for fish and wildlife, improve water quality, increase economic and recreational opportunities, and improve the quality of life for millions of Americans.

1. **Require regular reassessment of operations for federal water projects.** The Corps of Engineers (and other federal agencies) continue to operate projects under decades-old operating plans that harm the environment, increase flood risks, and aggravate contentious water quantity conflicts. For example, it took a 1989 request by basin governors, numerous lawsuits, and 17 years for the Corps to produce the most recent update to the Missouri River Master Manual which provides guidance for developing annual operating plans for the integrated operation of the 6 Missouri River dams and reservoirs. That update, which was completed in 2006, is already outdated. Operation of the Mississippi River navigation system has not been comprehensively evaluated since the mid 1970s, and the extensive use of river training structures to facilitate navigation (and their role in increasing flood heights) has never been comprehensively examined. Regular reoperation would ensure that modern science, management approaches, and needs guide the operation of federal water projects. *Congress should require the Corps to evaluate and update operations plans and water control manuals for large-scale Corps projects at least every 10 years.*

2. **Require use of low impact solutions where they will solve water resources problems.** Excessive reliance on structural solutions has produced far too many federal water projects that cause unnecessary harm to the environment and destroy natural flood protection. Corps of Engineers projects are recognized as one of the leading reasons that North America's freshwater species are disappearing five times faster than land based species and as quickly as rainforest species. The Corps of Engineers continues to promote large scale, costly, and destructive structural projects over nonstructural and restoration approaches that could provide better solutions *and* protect the environment. Such approaches would protect the environment and save tax dollars as they typically are less costly and do not require continued maintenance. *Congress should codify what is supposed to be current practice and require the use of nonstructural and restoration measures where they can provide an appropriate level of protection and benefits. Congress should also use its oversight authority*

to ensure that the new water resources planning guidelines currently being developed by the Administration pursuant to the directives in the Water Resources Development Act of 2007 require the Corps and other federal agencies to employ natural solutions in operating and constructing federal water projects.

3. **Incentivize cost effective and environmentally sound flood protection.** Federal law undermines the use of modern, nonstructural and restoration approaches to address flooding problems, leading to flood projects that damage the environment and put communities at risk. As a result, communities continue to request large scale structural projects to address local flooding problems even though such projects increase flooding downstream, induce development in high risk areas, and cause significant environmental harm. Creating incentives for utilizing nonstructural and restoration solutions would increase community safety while improving the environment. *Congress should reduce the local cost share for flood projects that utilize nonstructural or restoration approaches from 35% to 25%, and should establish a programmatic authority for smaller scale flood damage reduction projects that utilize such approaches.*

4. **Modernize emergency flood recovery efforts.** The Flood Control and Coastal Emergency Act (P.L. 84-99) authorizes the federal government to provide 80% to 100% of the cost to restore a publicly-owned flood project damaged by a flood to pre-disaster conditions, but prohibits the use of those funds to modify the project to ensure that it can provide adequate flood protection in the future. Removing this restriction would ensure more effective and cost-efficient rebuilding, increase community safety, save taxpayer dollars, and improve the environment. *Congress should allow the use of P.L. 84-99 funds to modernize publicly-owned flood projects damaged during a flood, including through the use of levee setbacks and nonstructural and restoration measures.*

5. **Reinstate crucial Clean Water Act protections for wetlands and streams.** Actions by the Supreme Court, the Corps of Engineers and the Environmental Protection Agency since 2001 undermine the Clean Water Act's ability to prevent destruction of many wetlands and small streams by developers and others. This has tremendous adverse implications for flood protection, clean water, and fish and wildlife habitat. A single acre of wetland can store 1 to 1.5 million gallons of flood water[3] and just a 1 percent loss of a watershed's wetlands can increase total flood volume by almost 7 percent.[4] The Upper Mississippi River Basin states of Illinois, Indiana, Ohio, Iowa, and Missouri have each lost 85 to 90 percent of their wetlands and countless headwater streams.[5] *Congress should ensure that the Administration can, and does, finalize new guidance and issues a rulemaking to reinstate crucial Clean Water Act protections for wetlands and streams. Congress should also enact legislation to fully restore Clean Water Act protections to the nation's waters.*

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[3] Environmental Protection Agency. (2001), "Functions and Values of Wetlands." EPA 843-F-01-002c. (factsheet).
[4] Demissie, M. and Abdul Khan. 1993. "Influence of Wetlands on Streamflow in Illinois." *Illinois State Water Survey, Contract Report 561*, Champaign, IL, Table 7, pp. 44-45.
[5] Dahl, T.E. 1990. *Wetlands Losses in the Unites States 1780's to 1980.* U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 21pp.

Conclusion

America is at a critical juncture that calls for charting a new path forward for federal water projects and flood protection. In the aftermath of the 2011 floods the nation can no longer afford to do business as usual. Restoring our natural defenses and modernizing management of existing federal water projects will reduce flood threats to communities, improve recreational and economic opportunities, provide vital fish and wildlife habitat, and save the American taxpayers billions in the long run. NWF looks forward to working with the committee to enact needed changes to federal water policy to improve the health of the Missouri River and all the nation's waters for our generation and generations to come.

Respectfully,

Melissa Samet
Senior Water Resources Counsel

Mr. CARNAHAN. Thank you.

Mr. GIBBS. OK. At this time I want to welcome our second panelists. And I will just review quickly.

We have Brigadier General John McMahon. He is the commander and division engineer of the United States Army Corps of Engineers, Northwestern Division.

We have Ms. Kathy Kunkel, who is the county clerk at Holt County, Missouri. I can't see you. That must be you, OK.

Mr. Tom Waters, chairman of the Missouri Levee and Drainage District Association; and Brad Lawrence, director of public works, city of Fort Pierre, South Dakota; and Richard Oswald of Langdon, Missouri.

Welcome. And we will start with the general.

TESTIMONY OF BRIGADIER GENERAL JOHN R. MCMAHON, COMMANDER, NORTHWESTERN DIVISION, UNITED STATES ARMY CORPS OF ENGINEERS; KATHY J. KUNKEL, COUNTY CLERK, HOLT COUNTY, MISSOURI; TOM WATERS, CHAIRMAN, MISSOURI LEVEE AND DRAINAGE DISTRICT ASSOCIATION; BRAD LAWRENCE, DIRECTOR OF PUBLIC WORKS, CITY OF FORT PIERRE, SOUTH DAKOTA; AND RICHARD OSWALD, FIFTH-GENERATION MISSOURI FAMILY FARMER, AND PRESIDENT, MISSOURI FARMERS UNION

General MCMAHON. Mr. Chairman and members of the subcommittee, thank you for this opportunity to discuss the Missouri River flooding of 2011, as well as the ongoing and future activities of the Northwestern Division of the Army Corps of Engineers to respond to the flood. I am John McMahon, commander of the Northwestern Division, and I want to acknowledge upfront that the Corps is fully cognizant of the physical, economic, social, emotional impacts of the many people in the basin due to the flooding this year.

Actions by our Omaha and Kansas City districts during the Missouri River flooding this summer were extremely effective in reducing flood damages. The Corps expended approximately $83 million on fortifying existing levees, building temporary levees, monitoring dam and levee safety and other activities, such as providing flood fight supplies to state of emergency offices within Corps authorities under Public Law 84–99.

For example, in South Dakota the Corps constructed approximately 4 miles of temporary levees in Pierre and Fort Pierre. Temporary measures were also constructed for the Standing Rock Sioux Tribe to mitigate risk to the causeway and the water intake.

The Missouri River main stem reservoir system was operated in 2011 in accordance with the master manual. The water conditions in the Missouri Basin have been extraordinary this year, particularly above Sioux City, Iowa. Compared to the normal 25 million acre feet of runoff, we expected this year's runoff to exceed 60 million acre feet, more than double the average, and the highest on record. Of critical importance is the understanding that May, June, and July of this year were the third, first, and fifth highest months of inflow in the 113-year period of record.

Each year the Corps evacuates flood control space before the spring and summer runoff occurs, and this year was no different.

All of the 2010 flood water had been evacuated by late January of 2011, and we had the entire required 16.3 million acre feet of space available at the start of this year's runoff season. Our computer models demonstrated that since 1898, this storage would have been enough every previous year to adequately capture spring runoff and manage water flow throughout the system.

We witnessed a tremendously different and new hydrologic data point this year. Consequently, we are taking a hard analytical look at what this information may suggest in terms of future operation and alternatives and adjustments.

In addition to the Corps internal review of reservoir operations, we initiated an external review of our operations, which is currently underway and scheduled to conclude in the end of December. And we intend to make the results and outcomes of that available to this committee and the public in early January.

The Corps followed and continues to follow a carefully evaluated water evacuation plan over the past several months. High releases were maintained through mid-August, and then stepped down at a pace that reduced risk to infrastructure, levees, and river banks, and allowed the flood plain to drain. The plan included fall and winter release rates low enough to allow continued inspection and repair of both Federal and non-Federal infrastructure.

The Missouri River Flood of 2011 officially concluded on the 17th of October 2011. The water evacuation plan in place is allowing homeowners, farmers, and businesses to get back on their properties to begin their repair and recovery as quickly as possible. And the objective of our plan is to bring the entire system back to its full annual flood control capacity by the 2012 runoff season. In addition, we are committed to maintaining a flexible posture and aggressive release schedule throughout the winter and spring, if it appears that 2012 will be another high runoff year.

Now that the river is receding, we have begun post-flood actions. These include an assessment to review the water management operation, a technical review of the flood fight response, and a concerted effort to assess and repair infrastructure such as dams, levees, and navigation structures.

Concurrent with these actions, the Corps, the Federal Emergency Management Agency, and the Department of Agriculture are cochairing the Missouri River Flood Task Force. The task force provides a forum for coordination among Federal, tribal, State, stakeholder, and local government partners within the States of Nebraska, Montana, Iowa, South and North Dakota, Wyoming, Kansas, and Missouri on flood recovery and related flood risk management actions and initiatives. The task force will streamline governmental processes and decisionmaking, accelerate necessary assessments, coordinate permitting requirements, and apply agile and critical thinking to the problems that we face.

Since May of 2011, our Assistant Secretary of the Army for Civil Works has exercised her emergency authority provided under Public Law 84–99 to transfer funds from other appropriation accounts to the Flood Control and Coastal Emergency appropriation account to respond to the flooding and to begin addressing repairs from this year's disasters. To date, the Corps has completed five transfers, totaling $282 million. The last two transfers, totaling $207 million,

allowed the Corps to begin addressing a portion of the highest priority life and safety repair requirements, nationwide.

In order to develop the best estimates of repair requirements nationwide, local Corps districts and divisions, including my Northwestern Division, working with non-Federal sponsors, are inspecting damaged projects and preparing assessment reports. The Corps has set up a rigorous process for technical experts to examine the requirements and prioritize those requirements based on risk to life and safety, among other parameters. The Corps is prioritizing projects to leverage its resources to complete assessments and proceed forward with the highest priority repairs. To date, $54.6 million have been used on the Missouri River flood recovery.

We recently concluded eight open house sessions and public meetings in cities throughout the basin to listen to the concerns of our citizens as part of the annual operating plan development for 2012. As part of these meetings, we communicated that the top priority of the division and the Corps is to responsibly prepare for the 2012 runoff season.

A primary concern raised in the public meetings was the Corps strategy to evacuate water from the Missouri reservoir system back to the designated amount of flood control storage. That is the design 16.3 million acre feet, which equates to approximately 22 percent of the storage in the system. Given record runoff, the Corps has initiated a technical analysis to determine whether more reservoir space might be needed to be reserved for flood control purposes in the future.

At this point, the Corps has assumed a more flexible posture, as water is evacuated through the system for the remainder of the fall and early winter. The Corps will also take a more aggressive stance with winter and spring releases. The Corps will communicate more frequently and more broadly as the 2012 runoff season unfolds. We will conduct bimonthly conference calls and during those calls, dialogue will continue with Federal, State, county, and local officials, tribes, emergency management officials, and independent experts, and the press to discuss the conditions on the ground and the current Corps reservoir release plans and forecasts. Audio files of these conference calls will be made widely available.

In summary, the 2011 flooding was the result of an extreme hydrologic event. While much damage occurred in the basin, the system of dams and levees functioned as intended and prevented or provided substantial benefit. Without them, the damages and safety risks would have been much greater. While the system remains vulnerable until the levee repairs are made, no major deficiencies have been identified to date that would preclude normal operation of the dams in the spring of 2012.

This concludes my testimony. Thank you for allowing me to testify about the flooding and the future operation of the Missouri system. And I would be happy to answer questions of the Members here.

Mr. GIBBS. Thank you.

General MCMAHON. Thank you.

Mr. GIBBS. Mr. Waters, welcome.

Mr. WATERS. Mr. Chairman, thank you and thank you for the opportunity to testify today. I have submitted written testimony, and

attached to that testimony is a report from the Food and Agricultural Policy Research Institute, FAPRI, in the University of Missouri. And I would ask that my testimony and that report be entered in the record.

Mr. GIBBS. So ordered.

Mr. WATERS. Thank you. I am looking forward to answering questions, so I will try to be brief and just hit the highlights of that written testimony.

First of all, the 2011 flooding. You know, it is not rocket science, what happened. We had too much snow and too much rain in the upper basin. The system of dams and reservoirs could not handle the runoff. The flood control systems below the dams and between the dams couldn't handle those record releases that we saw. So it is not really a question of what happened, but more of a question of why and, even more importantly, what do we do about it now.

I believe there is not enough flood control storage in the reservoirs. We have these six huge reservoirs in the upper basin, but only 6 percent is dedicated exclusively for flood control. There is another 16 percent that is for flood control and all these other uses. And I believe that 16 percent needs to be used exclusively for flood control also, so we have a full 22 percent that would be dedicated for flood control.

The other thing I see is there is more water entering the river faster. In the written comments I give an example of how the development over the last 20 to 30 years has changed the way that water enters the river. All the concrete and asphalt and roofs that have been developed over the last 20 or 30 years has water coming into the river faster and more of it. And we haven't increased our levee improvements or flood control projects on the Missouri River that help compensate for that development.

That leads me to the Corps budget. The Corps of Engineers budget is very much out of balance. The 2012 budget for the Missouri River recovery program—that is the fish and birds and the endangered species program—was $72.8 million. On the other hand, Operation Maintenance budget is only $6.2 million. And the problem I see is the Corps follows the money. They are seeing that $72.8 million, and they focus on fish and wildlife, and not flood control.

In fact, since 1992, the Corps has spent $616 million on fish and birds. That is well over a half-a-billion dollars. And according to the National Academy of Science, most of that money was wasted because what they have been doing is not working.

You know, we can spend $20 million on a levee project, and it puts people to work, creates jobs, and when we are done we have a levee sitting there that you can physically see that is providing protection to homes, property, and lives. When we spend $20 million on fish and birds, more likely than not we end up with a 200 or 300-page study and a report that sits on a shelf. And then we also get a box of hotel receipts and airline ticket receipts from these bureaucrats and agency employees traveling all over the country for meetings and conferences and seminars. This has got to change.

In my experience, I have only seen two things that changed the Corps' focus. The first one is legal action through the courts, and

that is long and drawn out. The other is legislation. And I believe this committee can start now to force the Corps to focus on flood control.

The third point I would like to make has to do with the levees. Been a lot of talk about the levees and the damage there. And I just want to remind the committee that it is the responsibility of Congress through Public Law 84–99 to fund levee repairs. And it is the responsibility of the Corps of Engineers and the local sponsors to fix those levees.

With the NOAA forecasts for the coming year showing above normal precipitation, these folks are going to be at even greater risk going into next spring. And so the people along the river aren't interested in task force and working groups and committees and these seminars. They are interested in funding the levee repairs, and getting them fixed.

The last point I want to make has to do with alternatives to levee repairs. There has been a lot of talk about not repairing levees. And in my written comments, I stress the importance of the fertile farmland found along our Nation's rivers. You know, even if we took out all the infrastructure, all the roads, businesses, homes, and power lines, et cetera, there is still highly productive farmland left in the river bottoms that deserves and is warranted protection.

With the growing population that we see now and in the future, inexpensive and safe food is a matter of national security. And I think when you take land out of production, that is a threat to our national security.

I see my time is up, and I will yield the microphone and just say thank you again for the invitation. I am really looking forward to answering questions.

Mr. GIBBS. Thank you.

Mr. Lawrence, the floor is yours. Welcome.

Mr. LAWRENCE. Good afternoon, Chairman Gibbs, Ranking Member Carnahan, distinguished committee members. My name is Brad Lawrence. I am a mechanical engineer working as the director of public works for the city of Fort Pierre, South Dakota.

Fort Pierre is situated just 5 miles downstream of the Oahe Project, the third dam of a six-dam system. Thank you for inviting me to testify about the Missouri River Flood of 2011. I intend to discuss two major topics: the U.S. Army Corps of Engineers' response and the impact to the smaller communities along the Missouri River.

There are two major sources of water to the reservoirs, snowpack and rainfall. I have two slides that I will incorporate into my testimony today.

The first one is the snow water equivalent slide, figure number one, for the upper Missouri River Basin. This slide is the basis for my testimony, and covers March 1st through June 30th. The top line in green is the snow water equivalency for the northern Rockies. The second line, in red, is the snow water equivalency for the central Rockies. And the bottom line, in blue, is the snow water equivalency for the plains snowpacks. The rising lines are increased amounts of water and snow that hasn't melted that will eventually run into the basin. The decreasing lines are the melting

and running off of the stored water in the snowpacks. This information comes from the National Weather Service.

In early 2011 it was apparent that the plains snowpack was going to contribute a significant amount of runoff. I wrote a widely disseminated email indicating the risk for flooding was increased by the plains snowpack. While it looks comparatively small, the plains snowpack covers a vast area. Even at only 3 inches of snow water equivalency, the runoff from the plains filled more than 50 percent of the total available flood storage by May 1. The plains snowpack and the snow water equivalency was a visible and quantifiable risk. The accumulation peaked just prior to March 1st, and then melted off by May 1st.

On Fort Peck, by May 1st, approximately 33 percent of the storage available on March 1st was filled by the plains snowpack runoff. On Garrison, the amount was closer to 58 percent of the storage available on March 1st was consumed by this plains snowpack runoff. And on Lake Oahe, nearly 80 percent of the storage available on March 1st was consumed by the plains snowpack runoff.

The next graph is for the Garrison reservoir. The key to take away from this slide is that when the blue line is above the green line, the reservoir is filling. And when the green line is above the blue line, the reservoir is draining. The inflow curves show many aspects of the runoff into the reservoirs. The sharp spikes are from significant increases in the runoff over short periods of time, either from rapid snow melts or rain events, or a combination of the two.

Back on the snow water equivalency chart, you can see that the mountain snowpacks climbed relatively steadily to their maximum values near the 20th of April and began melting around the 1st of May. Please note the sharp drop from May 1st to May 10th. That sharp drop creates a significant amount of water that runs off into the reservoirs.

The sharp rises in the Garrison reservoir, figure two, inflow indicates significant events. You can clearly see the spikes of the inflow from rainfalls and rapid snow melts. While these spikes are significant, they pale in comparison to the large hump that starts in early May and continues to the end of July. That large hump is the overall mountain snowpack runoff.

The notion that the perfect storm rains in Montana caused this major flood just doesn't hold water. You can see for yourself that while the volume of water from those events is significant, it doesn't measure up to the volume contained in the plains or mountain snowpack runoffs, both of which were visible and measurable prior to the perfect storm.

It is also interesting to note that the Corps of Engineers began increasing the flows from Garrison significantly prior to any rain falling in Montana. In fact, they were at near-record releases prior to the rain falling.

While no one could have predicted the heavy rains in Montana in May, everyone could have predicted that the water stored in the snowpacks was going to run off. The failure to determine the risk involved in the water stored in the plains and mountain snowpacks led to a lack of decisive action. The reality is that with this much water stored in the snow, it was inevitable that we would flood.

The lack of preemptive action led to much higher stages on the river, and consequently, more damage.

Nearly 50 percent of the residents of Fort Pierre were evacuated from their homes, many for as many as 100 days. There are still nearly 100 homes that are unoccupied. Our little community is financially devastated after this event. Others downstream are in a similar or worse situation. The duration of this event is unprecedented and is the root cause of the financial hardship.

The most troubling issue for many South Dakotans was a lack of clear communication from the Corps. An early warning of any kind was never issued. Even during initial stages of the event, the communication of anticipated water levels kept changing daily. That made preparation nearly impossible. Greg Powell, the city engineer from the city of Chamberlain, says he is still waiting for a call to warn him that his local reservoir is going up 4 feet over a June weekend.

In closing, I would like to use the words from Jeff Dooley, community manager for Dakota Dunes. He writes, "The summer of 2011 will be ingrained in the memory of everyone who lives, works, or farms along the Missouri River. This event has changed people's lives forever. My personal property was not damaged by the flood, but as the manager of the community I had to witness the distress caused by this event as my friends and neighbors were asked to leave their homes behind. This cannot happen again.

"We need to find out if and why these extreme releases were necessary, and recognize or admit what we could or should have done to prevent it. Again, in a controlled river system there has to be an expected margin of error. But this year's releases far exceeded any reasonable expectation of those margins." I concur with Jeff's findings.

Thank you, Mr. Chairman, for inviting me to speak at this hearing, and I will be available for questions.

Mr. GIBBS. Thank you.

Ms. Kunkel, welcome.

Ms. KUNKEL. Chairman Mica and the members of the committee, I appreciate the opportunity to come before you all and speak today as an elected official of Holt County, Missouri, and I am here to represent those people who live in a vast flood plain who have been devastatingly impacted by this year's floods. I would like to share with you a bit of their story, as well as their overall concerns with the Corps of Engineers and their insistence that they retain the rural way of life that they have had, lived, and managed for over 170 years in my county. And I will be brief on my remarks, so that we can move on to questions.

I do want to reiterate that I most assuredly agree with the congressmen and women who came and sat at this table before me.

There are many issues to discuss related to this flood. Certainly there was snow and rain beyond measure that we have seen in this system before. But certainly there is a shouldered responsibility by the Corps of Engineers for how they looked at that, how they managed it, and how they opened the gates and sent a deluge of water into my county, putting 630 people out of their homes, covering over 120,000 acres of farm ground in 10-foot-deep water with 3-foot waves. It devastated homes that had been built to national flood

insurance protection standards. Those homes had been elevated one 1 above the base flood elevation. But the water came higher than base flood elevation. And it lasted for 106 days.

My county's western border borders Nebraska and Kansas. I have a 52-mile western border that is all leveed. Some of it is non-Federal levee. Some of it is Federal. I have 32 breaches in my county. One of them is a half-a-mile wide. Some of them are 50 feet.

We don't yet have clear estimates on what the money is going to be to fix what is there. And that is extremely frustrating for the people of Holt County, because while the Corps was telling us, "We don't have the money to send people out to take a look at your levees and determine the estimable damage," they were at the courthouse buying land to put into mitigation projects. And that is the problem for the people in Holt County. The Corps has been able to buy 8,000 acres in my county, take it off the tax rolls, take it off the yearly economic annual production that goes with agriculture, creating pallid sturgeon chutes and wetland sites within my county.

I also have an 8,000-acre national wildlife refuge that we hold in high esteem. We very much believe in conservation in our rural area. They brings hunters to the area. They are a big part of our economy. But what we are seeing with what the Corps is doing is creating pallid sturgeon chutes that has put water right up against the levees. Those are the areas where my levee district members had immediate problems as this river came down. The chutes put water into the levees, causing overtopping and degradation of the substructure of the levees.

So, I am going to ask that the Corps be responsible to Congress, once again calling that flood control be the primary purpose of the Corps, and that we take a look at removing some elements of the Endangered Species Act as part of its compliance, so that my county can try to get back on its feet and move forward.

And I will yield my time so that we can move on to questions. Thank you.

Mr. GIBBS. Thank you.

Mr. Oswald, welcome.

Mr. OSWALD. Thank you, Mr. Chairman and members of the committee, for allowing me to share my experience with the U.S. Army Corps of Engineers Missouri River inundation of 2011. I am a fifth generation Missouri farmer from Atchison County, Missouri. I have lived my entire life where I was born in the house built by my parents on our family farm in the Missouri River valley near Langdon.

Since it was built in 1939, our home has been touched by the Missouri River three times. First, when after a few days' advance warning in the spring of 1952, rapid snowmelt caused unavoidable flooding along newly constructed levee L550. That flood did little damage to our farmstead. My parents, my sister, and I returned to our home within 3 weeks. Dad raised a good crop that year. The second was in the summer of 1993, when heavy rains fell across the entire Missouri watershed. Following the late July flood, my wife and I and our daughter returned in mid-August. Most fields and roads were undamaged.

After several weeks' advance notice, levee L550 breached for the third time on June 23, 2011. We were told well ahead of time to expect a flood. The reaction among most of us was that if flooding could be anticipated so far in advance, why wasn't something done to prevent it. The managed, uninterrupted flow of this flood kept us away from our home for more than 100 days until October.

Unlike most homes in the valley today, ours is still habitable. FEMA insurance adjustors have placed the insured damage to our farmstead at over $30,000. That is minor, compared to my neighbor's heavy losses. But the adjuster did tell me that he could adjust more losses if I had had more insurance.

Some of the most productive valued farmland in Missouri is on the river bottom in Atchison County. According to the satellite imagery study by Scott—Dr. Scott Brown of the University of Missouri, at least 47,000 acres of crops were lost there. Local officials on the ground estimated over 60,000 in earlier estimates, due in part to an inundation map circulated by the Corps implying an unprecedented bluff-to-bluff flood from Gavins Point to St. Louis. But really, on our farm, just as on so many others, final determination has not been made because crop insurance adjustors have not visited where much of the area remained inaccessible into November.

About 1,400 acres of contracted seed soybeans and specialty food corn worth over $1 million were lost on our farm. Close to half those acres were under irrigation. Crop insurance based on my 10-year average yield will cover only part of the loss. Dr. Brown estimated in his study that, for most farmers, combined insurance and disaster payments are still insufficient. But no matter what the settlement, as a result of this flood our farm and many others have not grown the food and energy crops that American needs now.

Over the last several years, river management has made life especially difficult for bottom land farmers like me. Damage done by this flood to many productive fields is irreparable. We have huge sand dunes and blowouts. Sandstone chunks from a 60-foot deep crater litter one field. Drainage ditches that should allow flood water to drain back to the main channel are plugged with silt and sand from the river. Fertile fields lay stark and barren.

Repairs to just 4 miles of Highway 136, a major two-lane river crossing in our county, cost over $3 million to perform. Jobs and commerce at the intersection with Interstate 29 were lost for months during the flood, when the highway closed. Many local residents who work across the river just 10 minutes away were faced with 2½-hour one-way commutes. Rural roads like the 7 miles in Langdon's road district were left impassible by washouts and debris.

Work to bring them back to normal continues. FEMA is helping, but only 75 percent of those costs are eligible for aid. The way things stand now, without levee protection, all our work and money spent could be for nothing if the water returns. But the estimated cost to repair levee L550 is $47 million. To date, less than half of that amount is promised.

Land, our most valuable agricultural asset in Missouri, faces lowered tax valuation in flooded areas, placing a strain on basic local government services, including local rural schools. Millions of dollars in farm buildings and homes have been destroyed.

Besides personal property, Missouri County assessors are required to reassess ag land values up or down, as situations change. Our county clerk estimated that, with continued flooding, assessed values on the river bottom land could drop from $4.7 million to just a little over $238,000. That is going to cost local governments thousands in revenue and farmers millions in productivity each year the flooding continues. Property owners and farmers feel it first. But eventually, the entire community takes the hit.

Because of the damaging length and severity of this flood, and lack of funding for maintenance and repair, flooding again in 2012 seems almost certain, unless Congress and the U.S. Army Corps of Engineers can make flood control their number one priority.

Thank you, sir. I appreciate you hearing me.

Mr. GIBBS. Thank you. And good luck in the future. You have got a lot of challenges there to work with.

I will start the first round of questions. And General McMahon, my first question is, we know there is at least eight competing interests, you know, flood control, irrigation, municipal water supply, and so on. How do you balance those competing interests? And is any of them more important than the others?

General MCMAHON. Thank you for the question, Chairman Gibbs. The eight authorized purposes are borne out of the 1944 Flood Control Act and subsequent legislation and judicial rulings that are all now manifest in the master manual, which is the guideline for how we balance the eight authorized purposes. And through that legislation and those judicial rulings, the two predominant purposes are flood control and navigation. And they are very tightly balanced, such that adjustment under the current regime of law and judicial rulings is minimal.

Mr. GIBBS. You just said flood control and navigation should be the core mission. I would agree with that. But how do you answer the amount of dollars going for other projects, environmental stuff and renovation?

And also, we know that the amount of damage out there, the administration and Secretary Darcy has not come to Congress and asked for emergency funding. You are actually having to take funds from other projects to rebuild these levees. I mean how do you balance that?

General MCMAHON. Yes, sir. So, you know, the Corps receives appropriations in different accounts: investigations, construction, and operations and maintenance. And so the numbers that you heard today are only one—they only reflect the Operations and Maintenance account. They don't reflect the Construction and the Investigations account.

When you look at all appropriations across all the business lines in 2011, we had: $72.8 million allocated and spent for flood risk management; $15 million for navigation; $61.4 million for hydropower; $13.3 million for environmental stewardship; $800,000 for water supply; $21.6 million for recreation; and $87 million for environmental restoration. So that was last year's budgeted and spent amount, sir.

Mr. GIBBS. I believe in 2012 the request for ecosystem restoration is $470 million.

General MCMAHON. Well, I am just talking about on the Missouri River.

Mr. GIBBS. Oh, OK, OK.

General MCMAHON. So I think the figure you are citing is across the Corps.

Mr. GIBBS. OK.

General MCMAHON. With respect to the administration's request, as you say, sir, we are involved, through the Secretary's office, of making transfers of money that has been appropriated for other purposes. The wiggle room associated with those is narrowing as each iteration unfolds. And at some point we are going to need new money to continue the very important work that needs to unfold with respect to repair and restoration of the system to get back to its pre-2011——

Mr. GIBBS. Well, I guess that is where I am a little surprised, because our capacity for flood control in this basin is—has not got to a level where—getting ready for next spring, and to do these repairs, I'm thinking the seasonal issue is to get repairs done. I think you got major challenges.

My next question. We heard some testimony from some of the Members. What is your priority in your systems to collect the data, you know, what is going up in the mountains, the head waters, the monitoring of that? How nimble is the Corps to make those adjustments, so they can see that they have got a huge snowpack and they have got—you know, the rainfall starts up in the mountains. Do you have the monitoring data to, you know, make those adjustments in a real-time basis?

General MCMAHON. Yes, sir. I mean, in short, there is an extensive network in the plains and in the mountains for measuring snow. And, of course, we rely on the National Weather Service to make rain forecasts.

Could the system be more extensive and improved? Probably so. And we will get some feedback from the independent external panel that has been chartered to look at how we collect data, how we use it to forecast, how we integrate with the National Weather Service and so on, that may lend itself to improve procedures. So that report, as I said, is due out at the end of December.

But I think, in general, we have state-of-the-art systems to collect and integrate information and make the best water management decisions that are based on the best available information.

Mr. GIBBS. Thank you.

General MCMAHON. It is not perfect, though.

Mr. GIBBS. OK. We will probably get back to that. We heard testimony from some of my colleagues about—can you comment about this—how much red tape there is doing these restoration projects, getting the levees rebuilt? Is there anything that we can do here in Congress to help streamline, make it easier to expedite those projects?

General MCMAHON. There are steps associated with anything the Corps undertakes, as a bureaucratic part of Government. I won't deny that. They are generally necessary, and generally following the process keeps you out of court and lets you get down to business.

And so, there are emergency conditions that allow us to streamline steps in the process, and we are exercising every one of those. And I will add that the Missouri River Flood Task Force is aimed at bringing all the Federal agencies to exercise their authorities, permitting and what not, so that we are—left hand and right hand know what each other are doing, and we are making the best available decisions, and expediting those decisions to minimize the red tape, as you call it, Mr. Chairman.

Mr. GIBBS. OK. My time is up. Mr. Carnahan?

Mr. CARNAHAN. Thank you. And I want to thank all the panel for being here. And again, the folks that traveled all the way here from Missouri, we appreciate you all being here to share your stories.

I want to start with Richard Oswald. You have been out here many times, talking about these issues. And I wanted to specifically get you to focus on what improvements could have been made in communicating with you and communities along the river about the floods and the impacts that they have.

Mr. OSWALD. Well, I think that the decisionmaking that goes into an event like this is opaque to most of us in the country. We aren't familiar with how these decisions are arrived at. But I think that when you involve the entire community in the discussion about decisions that are made, rules that are followed, goals and objectives, then maybe you have a better outcome.

I think it is clear that the needs—the importance of rural America, especially productive areas like northwest Missouri, who are incredibly productive areas that produce all kinds of crops and energy crops that we need, and I think that is ignored a lot of times for other goals. And I think we need to look at the value that rural America offers and consider that in any of these discussions.

Mr. CARNAHAN. And, you know, we heard the general describe some of the efforts that they have had to—have multiple community meetings and to get input from the community in terms of what they are doing. Obviously, we are having this hearing today to learn from what happened.

But do you feel like those are valuable, and do you think they need to be done differently, or there need to be other areas to get that input where it needs to be to decisionmakers?

Mr. OSWALD. Well, I think that this points out the importance of everyone being involved, not just the Corps making these decisions, but Congress needs to be aware of the decisions that are made, and why. And, of course, we rely on our representatives in Congress to look after our best interests always. And so I believe that, for too long, Congress has really not been that involved in this decisionmaking. So I would like to see them do that more.

But I would have to say that, you know, the Corps came to our community and way before this flood occurred, and visited the city water plant that is just across the road from some of the land that we farm, some of our machine storage, some place where we work quite often. And they placed a mark on the side of the building of that Rockport City water plant that was far higher, by at least 8 feet, than either the flood of 1952 or 1993.

And so, a lot of the residents, all of us who had lived there through those other floods, wondered where that mark came from.

We knew where the water levels were in those floods, knew them very well. I even have a mark in one of my farm buildings at home, marked it in 1993. That is where the water level was. And if the water had gone to the level the Corps said that we should prepare for, it would have been at least 8 feet deeper than what we actually experienced in 1952, 1993, and 2011.

And so, a lot of us——

Mr. CARNAHAN. That seems like a gigantic missing the mark here.

Mr. OSWALD. It is puzzling.

Mr. CARNAHAN. Right. General, I want to go to you real quick and I am—with the bit of time I have on this round.

Funding. Obviously, we are in tight budgets here. But you are aware the waterways users have come together over this last year, working with the Corps to increase the—you know, voluntarily say—to raise the diesel fuel taxes that they all pay in navigating the river, and also talking about reforms with the Corps. Talk about the impact of that and how that can help in going forward, in terms of resources.

General MCMAHON. I am aware of the collaboration that has occurred with the navigation industry and the Corps and others to seek a better leveraging of public and private funds, Congressman. I think, as with any such proposal, there are puts and takes to it. There are advantages and disadvantages. I believe that it is working its way through the system. And I think any such arrangement would be helpful.

And I think we need to look at the other authorized purposes, recreation being another example of where money that is brought into the Government can be leveraged with private money, much like what was done with the residential community initiative that the Army and the Air Force and the Navy undertook under special legislation that allowed private money to build housing for soldiers, sailors, airmen, and Marines; quality houses on installations and reap the rent, the basic allowance for quarters that the soldier, sailor, airman, Marine would get. So it was win-win-win. It was quality housing, it was leveraging other people's money, not DOD money, and it paid a dividend, if you will, to the investor. That kind of arrangement we need to think outside the box on, and see how that would apply across all authorized purposes.

Mr. CARNAHAN. Thank you.

Mr. GIBBS. Mr. Cravaack.

Mr. CRAVAACK. Thank you, Mr. Chairman. And first off, General, thank you for your service to our country. I have read your bio. You are a highly decorated officer, and thank you very much for what you are doing. Not only what you are doing now for the Corps, but also what you have done in the past. So thank you for your service, sir.

As a military officer myself, we definitely are painfully aware, from what we are talking about today, of what the problem is. The question I have now is: How do we move forward? What do we need to do next? Can you kind of give us a snapshot?

For example, one of the things that actually affected us up in the Eighth District of Minnesota is that 460 trains per day had to be

rerouted because of flooding. What are we doing to protect something like that from occurring into the future?

And then I have a follow-on, sir.

General MCMAHON. Thank you for the question, Congressman. You know, I think, first and foremost, as you say, and has been suggested here, we need to work together. Because this problem is bigger than any of us. And I think there is clear resonance across the basin for the value and the importance of flood control.

There is existing flexibility to do smart things in the near term. But long term, we are probably going to need to relook at new legislation to authorize and appropriate, for example, a revision of the master manual, as one example.

There is also the Missouri River Authorized Purposes Study, which in some camps is viewed as a conspiracy to do away with the navigation on the Missouri River. In fact, it is designed to look at all eight authorized purposes and review them in the context of current contemporary needs and future needs, looking out 50 years. Well, that wasn't funded.

So, there are things like that in the works that I think we need to dust off and reconsider how we are looking at them, and the useful purposes that might spin out of those kinds of investments. Not that we want to spend too much money and spend too much time studying.

We need to come up with a set of recommendations against making those eight authorized purposes relevant to contemporary and future needs, make a set of recommendations to the Congress, and then have the Congress authorize adjustments across those eight authorized purposes as might be recommended, as an example, sir.

Mr. CRAVAACK. Thank you, sir. And one of the things we are painfully aware of here in Congress is that things take time. What I am hearing today is that we don't have too much time, because we are expecting the same—possibly the same—type of flooding happening next.

For example, in the trains that we were just talking—I just mentioned, I mean, what immediately can be done to help ensure that these 460 trains aren't having to be rerouted, and making sure that we get produce where—you know, materials where they are supposed to be?

And as a follow-on, if I can, being a military officer, like I said, myself, we do answer to civilian authorities. And you kind of alluded to it. Is there anything that would be precluding your ability to combat this flood now or in the future that has been mandated down by civilian authorities that would prevent you from executing your mission?

General MCMAHON. With respect to the various components of infrastructure—railroads, roads, bridges, intakes, water intakes, and so on—there are many examples, a lot of which was damaged as a result of this event, and some of which has been funded for repair, either by private money—in the railroad's case by public money through the Federal Highway Administration is another example. I know Interstate 680 east of Omaha into Iowa has been repaired and opened now since the flood occurred and damaged that very severely.

I know States and localities have undertaken local repairs to local roads and bridges. All that is unfolding, as we speak, now that the water is off of the flood plain and we can see—assess the damage, make estimates, and apply funding to those repairs.

For that infrastructure that the Corps has responsibility for, as we said earlier, we have been moving money around, transferring funds to the tune of about $280 million so far. But it is a very small downpayment on a much larger bill, estimated across the United States—due to not just this flooding event, but Mississippi flooding, hurricanes on the East Coast, and other events—to the tune of over $2 billion, I think Ms. Darcy testified a few months ago. So that money needs to be appropriated for—in my opinion—and the sooner, the better. And I think that is clearly one of the big messages that all of us need to have resonance on.

I am not aware, sir, of any authorities that restrict or constrain what I need to do, with respect to getting the system repaired and restored, other than getting the appropriations in hand so we can move out.

Mr. CRAVAACK. Thank you, sir. I am over time and I yield back.

Mr. GIBBS. Ms. Edwards?

Ms. EDWARDS. Thank you, Mr. Chairman, and to our ranking member. I appreciate being here—and also to our witnesses.

I live in Maryland. And so I don't really have any particular pecuniary interest in what happens along the Missouri, except the fact that the importance of both commercial and other activity along the river have a real impact on people like me, who just want to go to the grocery store and get good food.

And so, that said, I think it means for us, as taxpayers—and those of us who are in Maryland who have other kinds of water interests—that we also share a responsibility for what happens along that river, and then particularly when there are catastrophic events that have a deep impact on the agriculture, commercial viability, you know, enjoyment and recreation and other uses along the river.

One of my observations in listening to the testimony is that I am baffled by why there isn't a more kind of comprehensive management strategy under one authority for the entire river basin. I know that in Maryland, when it comes to the Chesapeake Bay and our ability to protect that, the Nation's largest estuary, and it involves, you know, multiple States and jurisdictions, that we have had to have a more comprehensive management approach to that, because no one individual jurisdiction or interest can possibly meet the responsibility, and because not one of those interests is more important than the other.

And so, I am just a little confused as to why, over this long period of years under which there have been various strategies employed to manage the events that occur in the flood plain, there isn't some more comprehensive single point of authority and coordination for Federal resources and other resources that need to be put into play.

Earlier there was a fair amount of testimony in the earlier panel and some on this one about the particular purpose in fish and wildlife management, including endangered species, and that impact on—you know, as a contributing factor of this devastating event.

And I do note, just in the reading of the testimony and some other resources, that in fact, some of the management strategies that the Corps has used were, in fact, not employed that would have gone to the regular uses and purposes for endangered species and for fish and wildlife and habitat management. And so, I don't really think that has anything to do with what happened here. And I hope that we could get actually beyond singling out one particular purpose, instead of looking at this a little bit more comprehensively.

I also just note—and had to do a little bit of checking—but the study that, General McMahon, you just mentioned, the Missouri River Authorized Purposes Study, MRAPS, was authorized at $25 million. It was appropriated in 2009 and 2010 at $7.3 million. And then it was suspended in 2011.

And as a disinterested party, I am unclear why anyone would not want to look at all of the authorized purposes, look at the reasons that they are authorized, figure out strategies to balance those purposes and impacts, and why we wouldn't fund a study to do that. It would certainly mean to me, as a taxpayer in Maryland, that there would be a better expenditure of funding if I knew how those things could be managed in a more useful way to meet the various needs that are present in the river basin. Again, just an observation.

And then, lastly—I will allow General McMahon to answer this—in a recent op-ed you wrote that, notwithstanding the legitimate calls for preeminence of flood control purpose, there are many other means to the same end that ought to be considered as we go forward. Flood risk can be mitigated beyond creating more space in the existing system. And then you go on to describe other kinds of structural and non-structural things that should be considered.

And I wondered if you could elaborate on that so that we don't just confine the—our questions about what can happen only to these very traditional means of levee and reservoir management. Thank you.

General MCMAHON. Congresswoman, thank you for your observations.

With respect to your question, I think we need to take a comprehensive look at all aspects of this problem and think broadly and deeply about the future, the long-term future of the basin, so that we make wise investment of limited Federal dollars in this very constrained fiscal environment that we are all in, and do smart things with whatever money is ultimately appropriated to this end.

And so, the ideas expressed in that op-ed are not necessarily new ones, but they are ones that came out of the 1994 Galloway Report after the 1993 flood event in the Missouri River Basin, and others that have evolved since then, to think deeply and broadly about this opportunity to seek win-win, synergistic-type solutions that look across all aspects of the problem and apply—and it has been done successfully in places like Rapid City, South Dakota, as an example, on a much smaller scale. But you go there, and you see the benefits of that kind of thinking applied to a much smaller-scale problem, and yet it is a wonderful thing to see that kind of thinking applied to that kind of a problem.

Ms. EDWARDS. Thank you, Mr. Chairman.

Mr. GIBBS. Mr. Long?

Mr. LONG. Thank you, Mr. Chairman. And thank you all for being here today.

General, I have a—in part of Mr. Lawrence's testimony he said the most troubling issue for many South Dakotans was a lack of clear communication from the Corps. An early warning of any kind was never issued, even during the initial stages of the event. Communication of anticipated water levels kept changing daily. That made preparation nearly impossible.

Greg Powell, city engineer of city of Chamberlain says he is still waiting for a call to warn him that his local reservoir was going up 4 feet over the weekend—over a June weekend.

And my part of Missouri—which is not the Missouri River part, I am down in the southwest part of the State, Joplin/Branson/Springfield area—we have Table Rock Lake down there. Earlier in the spring, before the Missouri River problems, we had flooding issues down there. And someone from the Corps—you have Table Rock, of course you have Beaver feeds into Table Rock, feeds into Taneycomo down the line to Bull Shoals, and I guess down at Georgetown. And of course water levels concern everybody through the area.

But the Corps came to the people in Branson, along the banks of Taneycomo, which is below Table Rock Dam, went house to house and said—at 2:00 told them—my cousin happens to have a house there. They told him personally, said, "At 2:00 we are going to start releasing 28,000"—would it be cubic feet a second or a minute? A second? Said, "At 2:00 today we are going to release 28,000 cubic feet per second."

So he did the deciphering, and he said, "All right. Past experience, 28,000 cubic feet a second, it will be about 30, 35 feet from my house." That was at 10:00 in the morning they told him they would do that at 2:00. At 11:30 they started releasing the 72,000—I am doing this from memory, so the numbers might not be—but you get the gist of the story. It was over three times what they said they were going to release, and they released it 2½ hours before they told him. So, instead of 33 feet from my house, we now have 4½ feet of water in his house.

With communication like Mr. Lawrence experienced in South Dakota, and the Army Corps in Branson, how can we work on a better line of communication, when the events like this are going to be thrust upon us?

General MCMAHON. Congressman, I will admit that we probably could have and should have done a better job in communicating what transpired. During that period of mid-May to the end of May, there were successive bouts of rain in Wyoming, Montana, and North and South Dakota that were totally unprecedented, and as has been testified already earlier today, that really threw us for a loop.

And so, over a period of 5 days, we bumped up release announcements from 85,000 cubic feet per second, which is already a record, to 150,000. And I understand why people would be upset, and would wonder what the heck is going on. But it was fundamentally as a result of monitoring actual rain flows, or rainfall, and then

measuring the inflows to our reservoirs that caused us to make those rapid adjustments in a very short period of time.

And we worked with local and State networks of notification. And obviously, it wasn't adequate enough. And that is one of the things that we have identified that we should do better and we will do better, as we enter into the 2012 runoff season with a commitment twice a month to have this big call and bring whoever wants to be in on the call to update them on release schedules, on forecasts, on what we are seeing and why we are seeing, what we are planning to do and why, and to answer questions.

So, we intend to leverage that lesson learned as we go forward here, and hopefully expand the network of notification all the way down to individual farmers. But it is a concerted effort at many levels of Government, sir.

Mr. LONG. The Birds Point levee was blown in Missouri by the Corps. And then the people in that area were told that they—the Corps would not build it back to its pre-flood or pre-whatever it was level, before they blew it, because they didn't have the money to do it.

There is a thinking in our part of the world that if they would have happened to have found a left-handed bluebird that had three yellow dots on its right wing, that that money would have been available.

What—give me your top three things that we—if I said we are going to go to Redskins stadium and let the first 10,000 people or so in that want to kick the Corps around, we would fill it up in 10 minutes. For some reason people like to kick the Corps and pick on the Corps, which—I am not for doing that. I am for figuring out what—how to make this better for everyone, Corps included, ourselves included. We can't make this a perfect world, by any stretch. But to make it a better world in 2012 and going forward, give me your top three things that we, as Members of Congress, can do to help you do your job, which, in essence, helps the American public.

General MCMAHON. I think, first and foremost, is the appropriation. It is, without a doubt, the most important thing. We need the means to achieve the ends of repair and restoration. And of course, you know——

Mr. LONG. Do you have any idea how much money you are talking? I mean to repair what needs to be done to a better state than it was before, what are we talking about? Do you have a number?

General MCMAHON. I am talking about repairing it to its pre-2011 flood condition, which is authorized under the Public Law 84–99. And in the Missouri River Basin alone, it is between $500 million and $1 billion. That number is being refined, as we speak, on the basis of being able to access the levees and get inside the dams and see the damage and make the cost estimates and the scopes of work. So, that work is ongoing, as we speak.

The second thing, I think, is to work with us, as Members of Congress, with the Governors, with local officials, with private entities such as Tom Waters and the Missouri Levee and Drainage District Association. This has got to be a team effort. I mean we are not going to solve this alone.

And there are many different disparate needs here that are at play. And I will leave it at that. And I am not saying that one

should be better than the other, but we have got to figure out, based on what we have learned this year, how to make adjustments to the authorized purposes, to re-balance them and those kinds of things.

And so, I think many of the pieces of legislation that have been suggested here today and have been on the books the last few months are things that we are fundamentally already doing. They are underway. And, as has been noted, take time to conclude. We are undertaking a study to understand how much more flood control space we ought to allocate on the basis of this new data point, as an example. Well, that will take a few months. And by the end of this spring, by the end of March, it should have a good recommendation to put forth for consideration of additional flood control space and the trade-offs association with such a new number.

So those things take time, and they are underway. So we don't necessarily need new legislation to cause us to do that. We are already doing it. It just takes time, and there——

Mr. GIBBS. OK, I——

General MCMAHON. There is many things like that that are happening, sir.

Mr. GIBBS. Thanks. Mrs. Napolitano?

Mrs. NAPOLITANO. Thank you, Mr. Chairman. And hopefully we will have a second round, because I have a ton of questions.

California, as you know, has a great relationship with the Army Corps. They do an excellent job in many of the areas. And as you well know, you talk about—surreal is driving up Highway 5 where there are hundreds of thousands of homes, and looking up in the levees up there, and there is a ship going by. This is surreal.

So we deal with those issues in our State. And of course, Mother Nature has been throwing us many curves, and we think there are going to be many more to come. So working together, as you have indicated, General, is—working together as a team is what is going to help us be able to prepare, and try to help ourselves.

Now, it is always a matter of funding. Do we have enough money? What takes priority? And who sets those? So that brings me to the authorized study that was defunded, if you will, suspended this year. And who voted to suspend those? Do you guys know that?

And why did they do that, knowing that you already have issues—you say in 1983 and 1997 floods, or whatever those years were—that you may be expecting, and now having this one, looking back and saying, OK, we have a history, are we going to get another one this year? What is the next cycle that we are going to be facing the same situation, and how are we going to prepare?

And to that, was that an earmark that has been taken down because of the money factor, not realizing it is going to cost us more in the long run to be able to put the farms back in operating, the levees back up, and the safety of all of that which you deal with on a daily basis? We don't.

So that is just food for thought. But going to the cost of the study, to me that would certainly be part of maybe a solution to bring all the partners to be able to be part of that study, so that everybody feels not left out, but rather, included so that there is more of a wider network, if you will.

A question to you, General. Did the Corps work with the tributary reservoir's control by the Bureau of Reclamation to coordinate the runoff? And can you kind of touch upon what kind of coordination did take effect? And then, listening to the issue of getting communication going, how soon will that be available to coordinate with all the parties that want—not only want to be on it, but the radio stations and others that can immediately put the word out?

General MCMAHON. Thank you for the question, Congresswoman. With respect to coordination with the Bureau of Reclamation, we have a very close relationship with the bureau in the Northwestern Division, and we coordinated very closely as this event unfolded. We have what we call section VII authority. That is space in many of—not all of, but many of—the Bureau of Reclamation reservoirs that is reserved exclusively for and controlled by the Corps of Engineers for flood control.

And so, we worked very closely to leverage that space. And sometimes that space is in the right place. And sometimes, depending on where the rain and the snow melt, and how fast the snow melts, it is in the wrong place. And so we worked very closely with the bureau to optimize the available space under section VII authorities.

The Missouri River Task Force, ma'am, is the place where Federal, State, other agencies—you know, we all come together—the tribes, and we work through this—the four C's, I call it: collaboration, coordination, cooperation, and communication. And so we are going to continue to do that. We had our first meeting back in Denver in October, and we have our next meeting in Kansas City on the 12th of December.

Every week working groups have been formed, and are meeting virtually to work specific problems inside specific lanes. And you know, it is beginning to gain momentum and make a difference. And that work needs to continue as we go. One of those working groups is the strategic communications working group, which will help us disseminate information better as the 2012 season unfolds.

Mrs. NAPOLITANO. The statistics you pointed out earlier, does everybody have those, have the—you shared them with the folks that are here, or to the Members of Congress, so they know specifically the amount of money that went into those different programs?

General MCMAHON. I haven't shared everything with them. They are part of the public record. But I did send a letter to Senator McCaskill and I copied Senator Blunt with these specific numbers in them, among other numbers, going back to fiscal year 2008.

Mrs. NAPOLITANO. Well, I would suggest you communicate that to these folks, so they know——

General MCMAHON. Yes, ma'am.

Mrs. NAPOLITANO [continuing]. What you are actually dealing with.

General MCMAHON. OK.

Mrs. NAPOLITANO. Then, just to—and I am already over my time, but I have one more question. The Missouri River study would have addressed the ranking of priority of the stated operation's objectives, hopefully. What would it take to get this program started up again? Funding for the study? Is it the cooperation of all the

folks involved? What would make this happen, so that you can try to avoid a worse catastrophe in the future?

General MCMAHON. Yes, ma'am. You know, looking at the history of the basin, there has been a tension between the upper basin and the lower basin, a distrust, for many, many years. And that is evaporating as—or has evaporated, I would say, as this 2011 flood event has occurred. Now is the time to strike, while the iron is hot, while people understand the value of flood control, and get people together and rethink how we might leverage the Missouri River Authorized Purposes Study, as just one example of working together to create a better future for the basin.

Mrs. NAPOLITANO. Thank you very much for your testimony, and thank you for your service, sir. To the rest of you, thank you for being here. Thank you, Mr. Chairman.

Mr. GIBBS. Mr. Graves.

Mr. GRAVES. Thank you, Mr. Chairman. And I appreciate all the witnesses being here. And I appreciate, General McMahon, you being here. And I have always showed an openness, I guess, to give the Corps of Engineers the benefit of the doubt in many cases. But I have to be honest with you. There were three things that happened through this process that seriously undermine my confidence in the Corps' decisionmaking process.

The first one was when you all sent that letter out to start buying land in the shadow of this event. Having said that, it—you know, I wonder just exactly what the—you know, the process that goes into that.

The second thing that happened was when your internal emails were made public, and it appeared to me that the Corps was more interested in your image and how it was going to be affected by this event than you were in managing the river. And, having said that, we will move on to the third one.

The third one was your immediate decision—and that has been since modified—to not accept the new data and manage the river based on last year's levels, which, given the fact that—you know, and the frustrating part is the Corps wants to come back and say, you know, "It is not our fault, it is not our fault, we had record rainfall and record snowfall," which is exactly right. You didn't know how much rain was coming. But you did know how much snowfall that you had. And, in fact, your river management office made that statement public, you knew how much—that you had record amounts of snowfall, and you thought you were going to be able to handle it.

Now, moving forward with that—and we have to concentrate on where we are going with this—you know, my first question to you is are we going to be able to make repairs to all of the levees to some degree, to any degree, along the river? Because we have people exposed up there, entire communities that are exposed. And you know that. I know you know that. And homes, and everything else. But are we going to be able to make those repairs before this spring season?

And then I have got follow-ups with that.

General MCMAHON. Yes, sir. Thank you for the question, Congressman Graves. We are going to get as much done as the weather permits and as funding permits. But I can tell you we are not

going to get nearly all of it done before the runoff season of 2012 begins——

Mr. GRAVES. Exactly.

General MCMAHON [continuing]. On the 1st of March.

Mr. GRAVES. So wouldn't it make sense, then, to immediately adopt the position if we are going to have lower levee levels because of the breaks—and in some cases, I don't think any of those breaks—or in some cases I don't think those breaks are going to be able to be repaired in any degree, just based on the ability to get to them—but wouldn't it make sense immediately to go ahead and lower the levels, or increase the capacity?

That doesn't take a study to figure that out, because the flood level now has changed. It is no longer, you know, at the level it is. It is probably 10 to 20 feet lower than it was before. So wouldn't it make sense to immediately adopt that and be open to that, and lower those levels, just based on the fact that we now have a new flood level, because we have exposure out there?

General MCMAHON. Yes, sir. So there are several things to consider in what you are suggesting here. And we have tried to do a very thorough risk-based analysis on the proposal. And we are taking—as we speak, we are evacuating more water than the 16.3 million acre feet. If the weather cooperates in terms of warmer temperatures, which has been to our benefit so far this fall, and less than forecasted runoff or precipitation in the upper basin, if that trend continues, we will have at least 200,000 acre feet additional space of storage created in the system before the freeze sets in. And that is based on today's information. That will change as the cold sets in and as precipitation occurs.

But there are—to evacuate more water would have made the repairs that are underway not possible, because——

Mr. GRAVES. I understand that.

General MCMAHON. Yes, sir. OK.

Mr. GRAVES. And we have talked about that, and I understand the ability to get back in there and bring the water level down too fast. But you can still bring it down more.

And I might suggest too the weather is not going to cooperate. Don't depend on the weather cooperating, because it has not going to.

The bottom line is, though, let me ask you this. What is preventing you—and I would certainly hope there will not be one single dollar spent this coming year on habitat reclamation or on anything—and we go back and forth on the figures, and you are always looking for—you keep saying you need money. But it would appear to me that if a single dollar is spent on any habitat reclamation or restoration or anything, that would be a colossal mismanagement of funds, because we have got serious priorities out there. And when it comes to getting equipment in there and doing this work, I don't think that should happen.

Now, but let me ask you this. And I know there is other issues involved. What is preventing you from using that money right now on repairs? I know you are trying to work through that, and you said that you are trying to move some dollars around. But that ability to navigate is getting less and less and less. And I will come back to the second round of questions, but you might be able to an-

swer that real quick. What is the one thing or two things that are preventing you from doing that right this minute, and finding dollars?

I think you mentioned $86 million in habitat reclamation, there was another $13 million in environmental something or other. But, you know, what is stopping you from doing——

General MCMAHON. Yes, sir. So——

Mr. GRAVES [continuing]. It? Right now, internally.

General MCMAHON. As you know, we are under continuing resolution authority. We don't have an appropriation. So until that process unfolds, you know, we are——

Mr. GRAVES. I understand that. But you will have the money. We will eventually get the money appropriated.

General MCMAHON. Yes, sir. And then, of course, as you know, Congressman, money is appropriated with a specific purpose in mind. We have to go through a process of reprogramming or transferring, and notification of Congress, and those steps. So that is not a constraint for not doing it, but it is part of the process for doing it.

And so, if and when an appropriation comes, and there are opportunities to reprogram funds from recovery program to repairs, I suppose we will take advantage of that opportunity.

Mr. GRAVES. And you can do that internally. You can do that if you jump through all the hoops you just mentioned?

General MCMAHON. Well, there are steps that we have to go through, ultimately leading to notification of the committees that appropriate funds, sir.

Mr. GRAVES. All right. And I will come back—I will go ahead and yield back at this point.

General MCMAHON. Yes, sir.

Mr. GRAVES. And I will come back for a second round.

Mr. GIBBS. OK. We are going to do another round of questioning. Hopefully it will go a little quicker.

General, first question. Talking about the master manual and how that inter-relates with your annual operating, and then on top of that you talked about the internal and external review and how that is going to play in with the 2012 operating.

But what I am kind of wondering, you know, how is this—you said in your one answer to one of the other questions you talked about you might need to open up and revise the master manual. Last time that was done it took about 14 years and about $35 million, so I don't know if that is a good thing or not. What flexibility do you have in the annual operating—for example, in Representative King's bill, his proposal is to force the Corps to recalculate storage capacities.

I mean can you do that now, without opening up the master manual? I don't know what kind of parameters or restrictions you have.

General MCMAHON. Mr. Chairman, we do have discretion to make short-term—read 1-year—adjustments. And, you know, for the right reasons, as, again, it is laid out in law in the master manual, ultimately. So, that discretion exists, and we are exercising it as we perceive the need to exercise it.

The annual operating plan, as contrasted with the master manual—as we said, the master manual lays out how we balance the eight authorized purposes. The annual operating plan is a predictive tool that envisions five different scenarios—a normal scenario, two scenarios above, and two scenarios below normal—that give people who use the river and the water resource that the river bears to navigate or to recreate or to irrigate or to generate hydropower, and so forth.

And so, the five scenarios that are presented in the annual operating plan give people some predictability. If we have a higher-than-normal year up to, say, the 25th upper decile, then we can anticipate this level of service for navigation, as an example, this level of service for hydropower.

So, that is the purpose of the annual operating——

Mr. GIBBS. Now——

General MCMAHON [continuing]. To give users some predictability.

Mr. GIBBS. I hate to interrupt you, I just got a quick question.

General MCMAHON. Yes, sir.

Mr. GIBBS. Mr. Graves makes, I think, an important point. Since levees are damaged and not functioning, and obviously you are not going to get them all repaired for next spring and next summer, do you have the flexibility, the discretion in the operating manual, like he talks about, to actually say the flood level now is at this elevation instead of this elevation, where it was, because of the damage of the levees? And so you could recalculate the storage capacity, as Representative King desires to do? Do you have that discretion?

General MCMAHON. Yes, sir. We do have that discretion.

Mr. GIBBS. OK.

General MCMAHON. There is consequences to evacuating additional water——

Mr. GIBBS. Well, I understand that.

General MCMAHON. Yes, sir.

Mr. GIBBS. But if flood control is the top priority, I know the other things are good too, you have got to balance, and that is the challenge——

General MCMAHON. Yes, sir.

Mr. GIBBS [continuing]. And I think that is the history of this watershed.

General MCMAHON. So I would just like to add that space in the upper reservoir system doesn't guarantee that we will preclude flooding downstream. And as we saw in 2010 and previous years, we had lots of rain below the last reservoir that caused a lot of inflow from the tributaries. Now, we held water back in the upper reservoir system so that water would drain out of the tributaries and out through the main stem. But that is an example of one year and the next year vary.

And so, if we were to create—pick a number—4.6 million additional acre feet in the upper system, that wouldn't necessarily preclude the flooding that occurred in 2010, as an example.

So, we don't want to create false expectations about creating more space as a panacea that will preclude the flooding that occurred in 2010, as an example.

Mr. GIBBS. OK, OK.

General MCMAHON. So there is consequences, and we have got to think holistically about the whole system.

Mr. GIBBS. OK. Ms. Kunkel, I want to ask you a question. In your testimony you talk about the—stated that Corps of Engineers operating mitigation lands—erroneously and negatively impact flood control. Do you believe—who is making the decisions on these lands you are talking about in your county? Is it the Corps? Is it the fish and wildlife services? Who is driving that, those policies?

Ms. KUNKEL. Well, the Corps of Engineers owns the ground. And some of it is under management of Missouri Department of Conservation for the wetland pieces. There—and that is just a partnership that the Corps works out through varying States. DNR has it in Iowa, MDC has it in Missouri. So that is a normal partnership to manage those areas locally.

But our issue with that is that we have non-Federal levees in those areas. So the levees are built to roughly a 25-year standard. They are not as wide at the base. They are not as tall. They don't have hard anodized roads on top of them that help protect them from overtopping, and they are not set back away from the channel, primarily. So in those areas where land reclamation has been done between the levee and the channel, we are seeing a wetland and a pallid sturgeon chute right up next to a substructure levee that just doesn't have the ability to hold off a high water flow.

So, as much as our local levee district makes attempts to stay up to speed with what is happening in that levee, it is not a Pick-Sloan-designed Federal levee. And so it is just set up to fail when we have a situation where the water is this high, and it is running directly at the levee.

Mr. GIBBS. Mr. Waters, did you have any comment on that, or—OK.

Mr. WATERS. Excuse me. I would just add that we have seen areas this year where these mitigation projects have, we feel, increased the damage and maybe caused levees to overtop sooner than they would have. So I think there is a need to look at these mitigation projects, especially where they are right up next to the levee, like she is talking about.

Mr. GIBBS. OK. Mr. Carnahan?

Mr. CARNAHAN. Thank you. I want to start with just, for the record, to point out—and General, I know you are very aware of this, but from fiscal year 2010 to 2011 to 2012, funding overall for the Corps has gone down each year. Correct? So I just wanted to point that out.

And secondly, although we authorized $25 million for the Missouri River study, only about $7 million of that has been provided. And you are really at—you are really stuck right now, in terms of being able to complete that. Is that correct?

General MCMAHON. Yes, sir.

Mr. CARNAHAN. And so, it seems to me the correct way to go about this is to—let's finish the study that—it needs to be deliberate and thorough. And it needs to consider the best science and the most recent data. And in order to complete that—just briefly, that study being completed, how useful a tool is that going to be, going forward?

General MCMAHON. Well, I think the work that has been done to date with the $7 million, we have collected data, we have engaged with the public to understand, you know, the various stakes and stakeholders. We have done some modeling. All that work is on the shelf and still legitimately can be applied to the successful conclusion of the study.

Having said that, we might want to step back from the way the study was originally conceived and scoped, and recast it in the context of the 2011 flooding event, and put an emphasis on making this study relevant to making, for example, flood control the number one priority. So there is probably some adjustment we could and should make to the existing study, the way it is scoped, to shape it so that it is more relevant to the questions at hand, and gives us the kind of set of recommendations that would be useful for consideration by the Congress to then subsequently appropriate for.

Mr. CARNAHAN. I appreciate that, and I would ask for your ideas on ways that that can be better focused and better inclusive of this current data, so we ultimately can get that study done in the best way possible. So that would be very useful.

Finally, to wrap up my time, let's fast forward a few years. Let's pretend that we are all here. And instead of having an excess water event, we are here and it is a drought. We have had historic drought, OK?

And we will start with the general and I want to go down the line and talk about how we would be having this same conversation. And if we make flooding the top priority, then how are we incorporating other priorities in different situations, which we all know are likely to happen in the future. So, General, let's start with you and go down the line and talk about how we incorporate a drought scenario into these conversations.

General MCMAHON. Yes, sir. That is an excellent question. And of course, 2007 is when the last drought—just 4 years ago—concluded, and we came out of it with successive bountiful years of rain. And it is very feasible to imagine that we, in the next 5, 10 years or sooner, would be back in a drought cycle. So that is exactly the point of going at this with a very—I won't say slow, but deliberate pace, to make sure that we are thinking broadly, deeply, long-term about all of this, and to understand impacts to other seven authorized purposes by elevating flood control, as an example.

There are consequences. Because, as you know, Congressman, flood control requires empty space. All the other seven authorized purposes require water stored in the system to be flowed on a metered pace to serve those purposes. So that tension is inherent in this problem set, and needs to be addressed as we go forth, very deliberately.

Mr. CARNAHAN. Mr. Waters?

Mr. WATERS. Well, I guess my first thought is the reservoirs were built for flood control. And that is the way—that is—should be the primary purpose.

The other thought is, you know, I don't know what type of drought it would take to create the type of damage we have seen this year from flooding. I don't know if it is possible that a drought

could create the kind of damage that we have seen from this year's flooding. Certainly the land would be put back into production the next year much more quickly.

So, droughts are devastating, yes. We are in a drought this year. We have seen droughts. But they are not as devastating as a flood is. And so I think that is the reason to keep flood control foremost in mind.

Mr. CARNAHAN. Mr. Lawrence?

Mr. LAWRENCE. Yes, Congressman. I think there is—you know, obviously, there is a lot of different various uses that are very important to the different States. In South Dakota, obviously, recreation is one of the more important ones, because of the amount of tax dollars that are brought in through tourism to the State, and that is a very large impact to the State of South Dakota.

There is also another impact, and that is through the Western Area Power Administration during a drought. The only rate payer on the whole system is the customers that get the public power from WAPA. And when we go through droughts, those customers have to pay additional amounts of money for their power. And they are the lone rate payer on the system. So there are impacts to them.

The one thing I would like to recommend is that—obviously, we have had a very impactful event this last year. It is still stinging and we are all hurting. I would suggest that we don't make a kneejerk reaction and swing too far the other direction, and that we need to have a measured response, as the general has recommended, and that we go through some things. There may be some interim, you know, medium ground, if you will, that we could go to, as far as additional storage, and create some additional storage for flooding, but not maybe go—you know, swing the pendulum completely to the other end, and drain the reservoirs just for that purpose.

So I think there is a happy balance, there is a happy medium, and we need to try to approach that cautiously, so that we don't swing the pendulum too far to the other direction and have, you know, unintended consequences.

Mr. CARNAHAN. Great. And Ms. Kunkel?

Ms. KUNKEL. Well, I certainly see the benefits of water quality and the ability to irrigate and to be able to have a regular control of the reservoir system.

But I would echo Tom Waters's remarks that in 1944, when this system was envisioned, it was intended to control the snowmelt and the rain runoff. That was the original purpose of the reservoir systems above the dams. And I think we need to continue to see that that original vision has worked very well until the last change to the master manual. And at the last induction of the changes of the master manual we began seeing different operational procedures. And at that time we have begun seeing successive flooding and problems in the lower basin.

So, in my particular area, I have a very rural population, a couple of small towns. The river, even in a drought situation, runs usually a couple of feet deep. So it is not something that is terribly of concern for me and the communities in my county. But I recognize a much larger regional and national impact of having those

reservoirs too low. But I think this is the time we have got to be having an open mind and looking at is there ability to have additional storage in those lakes, as Congressman King is looking for us to do. Thank you.

Mr. CARNAHAN. Great. And Mr. Oswald?

Mr. OSWALD. Well, when I was young and full of ginger, I worked for our levee district for about 15 years. I was a caretaker, and I even took over the responsibility of mowing 75 miles of levee each year. Part of my job was working with the Corps of Engineers on their annual inspection of Atchison County Levee District Number One.

I became quite friendly with one of those Corps representatives. He was an artillery officer in World War II and he came back home after the war and got his engineering degree and then went to work with the Corps of Engineers on the Missouri River, stabilizing the channel, building the levees. He believed in his mission. And his mission was flood control and navigation. And he was happy that recreation was going to be a side benefit of those two things.

So, things have changed. Fewer people live in the country, more people live in the city. There is different demand for things. But we have to acknowledge that there is climate variation, and that variation has to be compensated for in those reservoirs and on that river.

Mr. CARNAHAN. Great. Thank you all very much.

Mr. GIBBS. Mr. Graves.

Mr. GRAVES. Thank you, Mr. Chairman. Going back to—you know, and there is—what we are trying to do is make—I am trying to make your job easier, General. If we make flood control the number one priority, then that solves a lot of your priority issues. And if down the road we have a drought, then flood control is obviously not going to be an issue, and it doesn't have to be a priority. We are just trying to make sure it is the number one priority consideration. And it doesn't have to be considered if there is a drought.

But I want to go back to the exposure that we have right now. And I don't expect you to know—you may know what—if the levees are all intact, let's say Rulo, or at Brownville, you know. Do you know what the difference between if the levees are intact—and I imagine Kathy does, she can probably tell me. In fact, tell me what—Kathy, we will just go to you, because I know that you know. If the levees are intact, what is the flood level? And right now what is the flood level with the levees open?

Ms. KUNKEL. The Rulo, Nebraska, gauge flood level is 17-foot at this point in time. At 19-foot the holes are taking on water out into my flood plain.

Mr. GRAVES. OK. So at 19 foot, water starts running out.

Ms. KUNKEL. Yes, sir.

Mr. GRAVES. OK. What were they with the——

Ms. KUNKEL. Were 24 foot——

Mr. GRAVES. Twenty-four foot——

Ms. KUNKEL [continuing]. Was the projected level for a 25-year flood plain——

Mr. GRAVES. OK. Is that close? I mean, General, is that—do you agree with that? Whatever—what I am trying to get at is let's say it is 10 feet or 20 feet. I don't know what it is. But right now we

have exposure out there, and we are not going to be able to fix that. And we keep talking about going slow, being deliberate with these decisions, not jumping to conclusions, not going too far, don't let Congress do something that is going to hamstring us in the future. But what we are talking about is this year, right now. We have got people out there that are exposed. And the flood level is lower than it is going to be, because we are not going to get those repairs done.

Is it in your capacity, the Corps' capacity, can you make that determination to go ahead and lower the level, you know, in case the weather doesn't cooperate, whatever the case, can you go ahead and lower that level in expectation that flooding is going to occur much, much quicker because we don't have openings? Can you guys do that now, going through—and you talk about the process, procedure, notifying the committees, all that kind of stuff—can you do that?

General MCMAHON. Yes, sir. We have the discretion to do that. But time is running out on us, because the river is going to freeze in the northern upper reaches. That is going to limit the amount of water that can be evacuated from those upper reservoirs.

So, you know, the clock has been ticking on us. And you know, we made this call, and we are making adjustments to this call back at the end of July. But it was fundamentally premised on getting the water off the flood plain so people, farmers, businessmen could get back into their homes and start repairs, much like the Corps needs to do to the levees.

And sir, I would add that there is nothing more important than getting the levees repaired, whether to a 25-year level of protection or all the way up to its full pre-flood—there is nothing more important on our priority list than to do that in anticipation of the 2012 runoff season. So that is why we are moving money around, and we have got contracts in place. And you know, we are shoveling dirt out there at L550 and 575.

There is many more places where we got to get on with it, but——

Mr. GRAVES. And I am glad. And I know you guys, your number one priority is that. I do have a quick comment, though, because we keep talking about getting that water off so people can get back in their homes and make repairs. I will be honest with you. If you had a house in the flood plain right now, would you make repairs to it?

General MCMAHON. Maybe not. It depends on where it was and, you know——

Mr. GRAVES. I wouldn't spend the money.

General MCMAHON. Yes, sir——

Mr. GRAVES. I would continue to live—and we got people——

General MCMAHON. Well, I am with you. I mean it——

Mr. GRAVES. We got people living in Atchison County with relatives and in hotels and whatever they got to do. Now their house is open right now, and some of them are back there. But I am not so sure I would spend a whole lot of money doing any repairs to anything, as long as I had exposure.

Now, I am encouraged by the fact that you all can do all of this internally. I am very concerned about the hamstrings with the En-

dangered Species Act, which is a whole other issue. I would hope people would allow for the fact that we have some serious issues out there with people, communities, businesses, you name it, and we want to be able to take care of that and be able to move that money.

And I am encouraged, too, because—and you said you can do that, if you jump through all the hoops you can move that money over. And we need to find you some more money, but you can move that money over for repair. And so I am going to be looking to the Corps, and my constituents are going to be looking to the Corps to get some of this stuff done, and back up the fact that you are making levee repair that number one issue.

We all—you know, I am not going to be—I don't expect—it is just not—we can't get all the levees repaired. But I would expect you all to do everything within your power to lower the level of those reservoirs, just as much as you can, within reason. And I understand the hydrology and what is going on with doing it too fast, also. But we have got to get those water levels lowered, because we have got people exposed. And that flood level is much lower than it was before.

And before I finish up, Mr. Chairman, there is one thing I do want to clear up. Because we have heard—and I have heard this from other people, and I heard this today in the committee about the—that the money that is expended on environmental issues and endangered species had nothing to do with this, and that we shouldn't be attacking other priorities and all.

And Ms. Kunkel, I want you to explain to me some of the things that have been done to the river in regards to shallow water habitat, that sort of thing, and what effect that had on those levee breaks.

Ms. KUNKEL. All right. From the north end of my county to the south there are 52 miles of levee. There are several mitigation sites encompassing 8,000 acres. Those areas have been purchased. The dikes have been notched that were used originally to scour the river channel that kept a deep, navigable channel in my area. By notching all of the dikes, it allows sand siltation to fill in as sand bars behind the notches. It also allows for a lower, slower flow river and siltation.

We know now at the Rulo river gauge we cannot carry the volume or the height of water that we were able to in 1993, because the river channel has widened just above it in Rush Bottoms mitigation area, and it allows the river to spread and drop its silt load. So we don't have a good navigable channel, and we have a wider, low-flow river that tends to spread itself more efficiently.

We have pallid sturgeon chutes, which is an area where the Corps of Engineers contracted to push dirt off into the river to create these low-flow channel areas. Those chutes are essentially just multi-fingerlets of the original channel that allow the water to meander throughout the flood plain area. But in many cases, as the water picked up speed and volume, it went into those chutes and directed itself directly at the levees, creating slides and scour holes on the river side of the levees, or eventually causing the entire levee substructure to fail. Also created sand boils on the exterior portion.

Those are the ongoing issues. And some of those areas we have 60-foot holes now that encompass over 4 acres. That is the equivalent of about 3½ to 4 football fields. They are 60- to 80-foot deep. I have 15 of those in my county. So we are going to have to realign the levee at this point. You cannot fix that. The levee now has to come back and be put out as a realignment away from those areas, rendering those farmers and their land that was near those areas completely useless. Does that explain your——

Mr. GRAVES. Thanks. Mr. Chairman, I don't want to bash this issue any more, but I do want to say I look forward to continuing to work with the Corps, General, in the future. I would encourage you all to be less concerned about your image and be a little more responsible with your emails, because that really aggravated me when I saw it.

But thank you, Mr. Chairman. I appreciate the opportunity to take part in this.

Mr. GIBBS. Part of our last representative's question—I just got a quick question for the general.

During a flood event, that takes priority over anything else like the Endangered Species Act or anything, and you do things. But obviously, not during a flood event—the Endangered Species Act, for example, comes into play and could create challenges. Is that what I am hearing? Is that correct?

General MCMAHON. During a flood event, flood control is preeminent, without a doubt. Endangered Species Act and Clean Water Act and other—NEPA is another environmental law—are the laws of the land. And so, you know, we are compliant with the laws of the land.

And the Missouri River recovery program is a means to an end for us to meet our statutory requirements under ESA, Clean Water Act, NEPA, to do the right thing in accordance with the law of the land. And it allows, then, those eight authorized purposes to unfold to the benefit of the people in the basin. So it is, again, part of the delicate balance that is the Missouri River Basin. And we are not going to get around the need to comply with the law.

Mr. GIBBS. I just wanted to be clear on that.

General MCMAHON. Yes, sir.

Mr. GIBBS. Representative Napolitano.

Mrs. NAPOLITANO. Yes, General. And on that point, in hearing—because I am the ranking member, subcommittee on water and power. So we have had many hearings over the issue of drought and of the rivers and dams, et cetera.

And in California we have had many farmers and businesses testify. And one of the things that was brought to our attention is that many of the farmers in areas that are very productive indicate to us that they need to have that ecological balance, that they need those estuaries, those wetlands to be able to have the filtering of the water that they use for farming.

So, to me—and you are right, this is the law of the land, and it also was put there for a purpose. Balancing that is the question, and not being too far on either side. And that is just a commentary that past experience has taught me.

General, the impact on the non-Federal levees, how does that affect your ability to mitigate your delivery?

General MCMAHON. We have an obligation under Public Law 84–99 to repair non-Federal levees that are in the rehabilitation inspection program. And the difference between a non-Federal levee and a Federal levee is that non-Federal levee repairs are cost-shared with the local sponsor. And that——

Mrs. NAPOLITANO. Well, what is the cost share percentage?

General MCMAHON. I think it is 75 percent Federal and 25 percent non-Federal—OK, I am sorry, 80/20. I stand corrected. Thank you.

Mrs. NAPOLITANO. 80/20. Yet the taxpayer is also paying for those repairs, correct? Who benefits from that? And how are we going to do a more equitable balance?

And I understand some of these areas do not have the ability, financially, to meet with these. But let's understand that is also the rest of the United States paying for those taxes that pay for the repair of those levees, that 80 percent. So to me that is something that—I am not sure whether that will share in the equation, but certainly it brings to light how dependent we are on the funding to be able to mitigate everybody's concerns.

So, while we may be casting aspersions on the Endangered Species Act, certainly—and as I tell people, we too are a species. When will be our turn?

So, going on to another question. Mr. Lawrence, is there a more appropriate way to communicate with the basin? How can we suggest, inform, educate, and reach out to those folks? If they were faced with very quick updated analysis that they didn't have the time to really reach out, what would be the best way to be able to reach out?

Mr. LAWRENCE. Thank you for the question, Congresswoman. I think that the military already has threat system in place. And if you had something similar to that on the Missouri River—in other words, threat condition alpha, there is nothing imminent, there is nothing that is going to happen in the immediate future, we are in good condition, no issues, then you start going on down through the different threat conditions, and then you come up with one that is going to say this is something that is dangerous, something is going to happen, and that would be something that everybody could understand fairly easily, it works very well in the military, and it is something that I think that would work very well——

Mrs. NAPOLITANO. General?

Mr. LAWRENCE [continuing]. Communicate with the public.

General MCMAHON. I am familiar with the system. And you know, I think with any system, Congresswoman, it depends on how much credibility is has with the people that it serves, and how widely it is used.

And so, you know——

Mrs. NAPOLITANO. So you got an education to do——

General MCMAHON. Yes, ma'am.

Mrs. NAPOLITANO [continuing]. The populace. And understanding that Mother Nature is not going to wait for us to be ready for anything, she is going to throw things that we—like Katrina, like some of the fires in California, things that—the drought conditions.

And then, of course, there is WAPA, which I deal with. And the fact that if we go into a drought condition there won't be enough

water to turn the turbines to make the electricity which will cause rolling blackouts and non-delivery of electricity to farms and other cities. So that is a very, very critical issue to me, and one that I will continue to move forward on.

Ms. Kunkel, what would be—what would have been, in your estimation, the impact, had the Corps not been able to do what they did in helping?

Ms. KUNKEL. I appreciate the question. And I do want to clarify that my county has flooded 4 out of the last 5 years. So when I am speaking to you all about flooding conditions and the Endangered Species Act roles and the other elements of land purchase and mitigation, I am not specifically speaking about the Corps' activities in this singular flood event.

And so, because of that nature, ma'am, we recognize in the county that we have got to do better. You know, we have got to come to a compromise with the Corps of Engineers, and we have got to look at developing a Federal levee system from north to south. I only have it in about 18 miles of the county, and those levees did not breach. Those Federal levees held. They have significant damage, but they did hold.

And so, we need to look at a cooperative effort locally to come together and put my varying small non-Federal levee districts together into a larger Federal district, with some of the cost share burden on the local people to recognize that they have got to pay taxes into that system to maintain it and keep it up and keep it moving forward.

Mrs. NAPOLITANO. Well, I did notice that you were testifying that some of the non-Federal levees were not as wide or as deep. And so, consequently, they were more prone to breaching.

Ms. KUNKEL. Absolutely. And we have seen breaches in May of 2007, June of 2008. We had an early flood in April of 2009, and June and July of 2010, and then May through the fall of this——

Mrs. NAPOLITANO. What would have, in your estimate, been the cost had the Army Corps not been able to work as effectively as they did?

Ms. KUNKEL. The cost in our county? Well, I know that they spent over $3 million maintaining L497 for sand boils. In addition, about $4 million maintaining——

Mrs. NAPOLITANO. No, I am talking total overall cost.

Ms. KUNKEL. Total overall in the county? Those are the two levees that we saw the Corps working on this year, so I would anticipate about a $7 million impact and loss of those levees, had they not have come forward and worked on those.

Mrs. NAPOLITANO. Thank you. And thank you, again, for being here. Thank you, Mr. Chair.

Mr. GIBBS. I want to thank the panelists for your perseverance, being here. I think this has been helpful. I think it is always good to have a good communication discussion, because we all want to do the right thing and protect lives and property. And I commend the work you do.

And I know that General McMahon has talked about they have learned some things too, that everybody has learned from this event. And communication is a big part of that. And I think we

move forward—we can work to make the best policy and help get the—get our goals achieved and protect lives and property.

So, that concludes this hearing. Thank you very much.

[Whereupon, at 2:02 p.m., the subcommittee was adjourned.]

W. Todd Akin

Congressman Todd Akin
Submitted Testimony before the Subcommittee on Water Resources and Environment
November 30, 2011

Mr. Chairman, thank you for holding this hearing on the 2011 Missouri River flood. This flood had a devastating impact on families and businesses up and down the Missouri River, and we need to have a clear understanding of what weather events and human actions led to the flooding so that in the future we can reduce the probability of experiencing a similar flood event. We need to ensure that communities are restored and that levees are repaired quickly.

The Missouri River has played a vital role in the life and economy of the Midwest for centuries. The Flood Control Act of 1944 established much of the flood control infrastructure that remains in place today to mitigate flooding as well as to provide a stable water supply in periods of drought.

The 2011 Missouri River flood was a record breaking event. While the full economic impact is not yet understood, the damages in Missouri are stunning. Missouri farmers suffered severe consequences from the flood and will not be able to rebound over night. A number of concerns have been raised with how the Corps of Engineers managed the river during this flood. The fundamental question is did the Corps take appropriate action in trying to prevent flooding? Additionally, there were reports that the Corps offered to buy flooded farmland at depressed prices, which raised the specter of a potential conflict of interest and sent a very bad message to those affected by the flooding. Thus, Congress should determine if there is any evidence that the Corps exaggerated the flooding or failed to minimize it in order to induce landowners along the river to sell out. Much of the farm land along the Missouri River is extremely valuable and highly productive. While the costs of flood protection should not be ignored, a record breaking flood should not be justification for taking land out of production.

Another major area of concern is the lack of funding for levee maintenance and repair. In a time of constrained financial resources, does it make sense to pour millions of dollars into environmental restoration while our levees are not in good condition? Congress should make it clear that protecting the lives and livelihoods of our people is the top priority on the Missouri River.

Our first priority should be the restoration of communities affected by the flooding, which includes full repair of the levees. Congress and the Corps should work together to rapidly repair damaged flood control structures which normally protect the homes, fields, and businesses of those who were affected by this massive flood. Together we should be learning from this flood to reduce the likelihood of future floods, as well as making sure that we provide stable water supply during periods of drought in the region.

I am hopeful that the Congress and the Corps can work together to find a solution that both provides flood control and ensure that the Missouri River is a beneficial resource that balances the needs of the stakeholders throughout the Missouri River Basin.

Thank you again for holding this hearing. I am looking forward to working with you on this issue as we move forward.

Leonard L Boswell
11-30-11

The Honorable Leonard L. Boswell
Subcommittee on Water Resources and Environment Hearing
The Missouri River Flood: An Assessment of the River Management in 2011 and Operational Plans for the Future
November 30, 2011

AND Mr. Chairman

I would first like to thank Chairman Gibbs and Ranking Member Bishop for holding this important hearing. As a Member of Congress representing a state bordering the Missouri River, I can attest to the validity of this hearing.

Mr. Chairman, from time to time, I believe circumstances require us all to reevaluate plans and concepts that we thought were sufficient to deal with certain events. I believe, sometimes, circumstances require us to reevaluate priorities to deal with changing realities. There is nothing wrong with acknowledging this. In fact, I believe it should be encouraged.

However, it does seem that on occasion, government gets in the way of this acknowledgement. And when it does, the machinery of government, oftentimes does not have the flexibility to change and adapt in a timely manner. This does not always happen, yet when it does, it can have long lasting impacts on affected communities.

The size and scope of the Missouri River flooding that we witnessed this year, I believe, is an event that requires us to reevaluate our priorities and adapt and alter programs and responses to deal with changing realities. The length of time that we witnessed historic flood waters was something I think no one was really prepared to deal with.

Temporary levees were constructed to protect farmland and communities. According to conversations I am having with people in the Southwestern part of Iowa, local officials are being told to deconstruct those temporary levees. Why? (1) We do not yet know what type of winter we are going to witness, and what type of runoff we are going to have in the spring as a result.

(1) They were required to agree to deconstruct as soon as the water receded. OR they wouldn't get the temporary levee. AND flood water was ON THE WAY!

So why must we spend money to deconstruct something that is doing nothing but protecting communities when we do not yet know whether or not we are going to have to spend money on rebuilding it in nine or ten months? Is the answer because it is not in a master plan that recent events have proven to be outdated? That simply makes absolutely ZERO sense, but it is those types of actions that drive up costs, and frankly, drives up the blood pressure of local citizens who have to deal with these changing realities.

Furthermore, the scope of flooding events across the country should call into question spending priorities and how we can better focus national resources when it comes to flood protection, conservation, recreation, and so forth. Personally, I do believe in conservation, however, we must not sacrifice flood protection and the protection of lives and property for the sake of conservation. If we do, there simply will be nothing left to conserve as the flood waters wash away natural habitats and communities in their path.

If there should be tough budgetary decisions, and at this time I believe we all agree that there must be, then we ~~should~~ prioritize flood protection and mitigation above all others. However, over the last decade or so, funding levels for flood protection in the Missouri River states have steadily declined, where funding levels for environmental works have steadily increased. This is not to say that there is not a time and place for environmental works, for there are, but we as leaders simply cannot sacrifice entire communities by continually shortchanging flood protection.

It is my sincere hope that this hearing will provide the Committee with the information needed to make an informed decision on how best to move forward. And I once again thank the Chairman and Ranking Member for calling this hearing to order.

Thank you.

TESTIMONY OF

THE HONORABLE RUSS CARNAHAN (MO-03)

U.S. HOUSE OF REPRESENTATIVES

Subcommittee on Water Resources and Environment

Wednesday November 30th, 2011 11:00am

Room 2167 Rayburn House Office Building

"The Missouri River Flood: An Assessment of the River Management in 2011 and Operation Plans for the Future"

Chairman Gibbs and Ranking Member Bishop, thank you for holding this hearing today today on an issue that is critical to my constituents in the third district of Missouri, and Missourians in many parts of the State. I originally sent a letter to the Committee requesting this hearing on May 5th, and I am very thankful that the Committee honored my request and decided to further investigate this critical issue.

I organized a briefing for my colleagues on this very issue in July, but I am grateful that the Committee has decided to take formal action to investigate the flooding and help plan for future events.

I would also like to thank you for inviting Richard Oswald to testify today. Mr. Oswald is from Atchison County, Missouri, and he will be able to give his direct,

personal account of the devastation brought on by these floods. Mr. Oswald's home, the one built by his parents, has flooded for the third time in his life because of the failure of our levee and reservoir system. This year Mr. Oswald could not return to his farm for months and his crop was ruined, and the economy of his 1200 person town is devastated. And his story is repeated countless times across the State.

Mr. Oswald, thank you for coming today and sharing your story with all of us.

I would also like to unanimous consent to submit two other testimonies for the record for witnesses that could not be with us today. The first is testimony of the Osage Tribe of Missouri. Levee breaches destroyed their sacred sites and spread human remains over huge areas, and the tribulations experienced by the tribe helps to remind of the myriad of effects these floods cause, and the many factors that must be weighed when we deal with similar situations in the future.

I also ask to submit testimony on behalf of the Southeast Missouri Regional Port Authority detailing the issues they faced recovering from these floods.

The Mississippi and Missouri River floods in April and May of this year were among the largest and most damaging recorded along the waterway in the past century. Two major storm systems deposited record levels of rainfall on the Mississippi River and its tributaries which combined with springtime snowmelt causing water levels to rise to unprecedented levels. During the last half of May, the upper Missouri River basin received nearly a year's worth of rainfall.

The flooding caused evacuations of thousands of people, swamping river towns and as many as 3 million acres of farmland in Mississippi, Tennessee and Arkansas alone. On May 3, the Army Corps of Engineers blew up a section of the Birds Point levee in Missouri, submerging about 130,000 acres of farmland to ease the flood threat to Kentucky and Illinois River towns.

The damages from these floods is estimated at $2 billion thus far and many of these areas are still in the process of drying out. The people of Missouri are still in the process of rebuilding their lives, with the help of State and Federal Resources.

In St. Genevieve County, the oldest, continuously operating ferry based on the Mississippi river, established in 1798, is an essential part of the daily lives of the people of the county. Due to the flooding the ferry was out of operation for months. This added 50 miles onto many people's commute and cost the Country dearly, the affects of which will be felt for years.

In Southern Jefferson Country construction projects have been delayed, commerce altered, property damaged, marinas and riverfronts ruined, and well and sewage water compromised.

From Joplin to Tuscaloosa, our nation has experienced its share of natural disasters in the past few months. While we can't predict a tornado, we can predict a flood. We need to reach out to local officials to offer any help we can in both the relief effort and also preventative measures.

These floods are some of the largest hydrologic events since 1937 and we should take the opportunity to learn from it. We need to rethink our priorities along the river and how we manage our reservoirs and our levees. We have to learn from these floods and understand whether it was the perfect storm of events or whether it is the precursor of how the system will be responding in a different climate and hydrologic regime.

We must take time to look at the information, do the interviews with the people who were impacted, and determine if there is a better way to manage the river system. We need to take this information and revisit the Missouri River Master Manual and see if it needs revision. And in the case of revision, we must ensure that this is a science and peer reviewed approach.

When conducting the review we should ask:

- Are the target elevations that the ACOE uses to determine the reservoir releases still appropriate based on what we learned in 2011?
- Did the river channel respond to the flood flows as predicted?
- Is there a need to look for the acquisition and development of flood ways and flood plain expansion based on information gained in 2011?

Understandably in today's budget climate, funding the recovery is also an issue we must address. The Army Corp is being forced to come up with the funds to fix

the levees from existing appropriations. Therefore very important construction and maintenance programs are going to be deferred or cancelled.

This is stressing the Army Corp currently, but we also must determine, if this trend in flooding continues, how will the country and Army Corp pay for the repairs? I believe Congress must find a way to ensure these repairs are done properly and not at the expense of other projects.

I would like to thank you again for holding this hearing and for including Mr. Oswald as a witness and accepting written testimony from my other constituents.

I look forward to working with you on these issues in the months ahead.

Statement of Congresswoman Eddie Bernice Johnson

T & I Subcommittee on Water Resources and Environment

Hearing On:

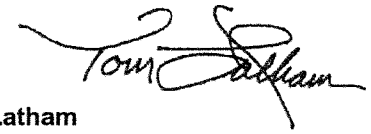
The Missouri River Flood: An Assessment of the River Management in 2011 and Operational Plans for the Future

November 30, 2011, 11:00 a.m.

I commend Subcommittee Chairman Gibbs and Ranking Member Bishop for calling this hearing, and am thankful to my fellow colleagues for their testimonies on behalf of their respective states. As we review the actions taken by the Corps, it is essential that we use the 2011 floods as a means of preventing or curtailing disasters on such a scale.

The 2011 flooding of the Missouri River not only caused untold damage, but also called into question the degree of effectiveness in the ability to anticipate these types of events and to adequately respond to them.

The Army Corps of Engineers has numerous and complex tasks in its management of the Missouri River Basin: to properly irrigate lands and ensure adequate water supply, to account for both flooding and droughts, and to oversee vessels' ability to navigate the waters safely. As we have seen, if not addressed properly, natural disasters of this sort can unnecessarily disrupt commerce, cause devastating damage to homes, cities, and farm land, and unfortunately can result in a tragic loss of life. In evaluating the effectiveness of the response, and the Corps future preparedness, I think it is important to reflect on how adequately funding the Corps will have a direct impact on the ability carry out its core missions. I look forward to us all working together.



Statement of the Hon. Tom Latham

Before the Water Resources and Environment Subcommittee

November 30, 2011

Mr. Chairman, I appreciate the opportunity to come before the Water Resources Subcommittee to discuss the situation regarding the 2011 Missouri River floods, the impacts of of the flooding, and the lessons we can learn as we seek to improve on our Missouri River management plans & practices for the future – especially when it comes to mitigating the impacts of flooding incidents.

Mr. Chairman, in the eyes of the residents of the Missouri River Basin, especially those in Southwest Iowa, we in Washington must do two things: one, fix what is wrong in the River Basin communities now, including repairing the levees and other infrastructure; two, do what we can to ensure that the next time, the 'big' flood is better managed. In order to accomplish the latter, we have to know what actions took place before and after the excessive runoff in the Missouri Basin during Spring and early Summer. In short, we need a 'lessons-learned' summary.

As all of us know, the runoff this year was far in excess of normal which, in turn, forced the Corps to release record levels of water. In the end, many homes and businesses were destroyed, as were thousands of acres of cropland. The damage toll from these losses is well into the multi-millions and, in some cases, still rising. Additional damage done to roads and assorted public infrastructure also totals well into the millions.

Throughout the summer, I saw much of this damage on the numerous trips I made to flood-damaged areas in western and southwestern Iowa. Whether I was meeting with individuals or local officials, the pleas were the same – namely, that there are countless levees and other structures in need of repair, and where do we go from here in terms of future prevention efforts.

The members before you today all represent areas of the Missouri River Basin that are under annual flooding threats. All of us go home on weekends and see the recovery and re-building processes going on.

All of us return to Washington knowing that the flood control infrastructure in our respective communities has been damaged, but must be in a state of repair that allows for protection next year. None of us has the concrete information that we need in order to provide reassuring answers to our constituents.

It is my hope that in this hearing the Corps will outline the following:

- suggestions from the Corps on the most efficient & productive ways to get the levees and other flood protection infrastructure back into pre-flood status – in other words, a state of good repair;
- the level of resources needed by the Corps to accomplish needed repair and restoration of the flood protection infrastructure, and some suggestions about how to divert, internally, the necessary resources to carry out the repairs and, finally,
- some Corps ideas on the management of the Missouri River flows to include what can, or should, be changed in future management applications, & whether or not it is desirable to make changes and if not, why not.

Mr. Chairman, at this point in time, significant numbers of Midwest citizens in the Missouri River Basin, who are currently facing major economic hardships, are also looking at potential future situations in which they could be left with minimal or no protection from future floods, increased insurance risks and the attendant property value impacts.

In summary, all of us know the federal budget situation right now but we, in Washington, must make a concerted effort to address, as a major priority, the flood protection and control circumstances in the Missouri River Basin. Otherwise, this situation will be repeated again – maybe with higher costs the next time.

Thank you for your attention.

Rep. Rick Berg (ND-AL)
Testimony Before the House Transportation and Infrastructure Subcommittee on Water Resources and the Environment
Hearing on the Missouri River Flood: An Assessment of the River Management in 2011 and Operational Plans for the Future
November 30, 2011

Chairman Gibbs, Ranking Member Bishop, and the Members of the subcommittee, thank you for allowing me to speak with you today regarding the management of the Missouri River during the 2011 floods and the river's operational plans for the future.

Today's hearing is focused on the 2011 flood events along the Missouri River. But as you may know, North Dakota was devastated this year by unprecedented flooding events throughout the state. Our capital city of Bismarck and the city of Mandan were affected by flooding along the Missouri River throughout the summer with hundreds evacuated and homes overcome by floodwaters. North of the Missouri River, in Minot, our fourth largest city, the Souris River surpassed a record level set in 1881, overwhelming the city and surrounding communities with floodwaters. The damage is significant, with thousands of homes damaged and 11,000 North Dakotans displaced.

While it has been a very tough spring for North Dakota, many other communities along the Missouri River Basin have been dramatically affected as well. Unprecedented flooding has devastated many communities, leaving property destroyed, thousands without homes, hundreds of thousands of acres of farmland flooded and severe damage to infrastructure.

While progress is being made in the clean-up and recovery efforts following the historic flooding of 2011, North Dakotans are frustrated by the experience they had this past year and are rightly concerned about the potential for a repeat in 2012.

I firmly believe that the flooding along the Missouri river was both a natural and man-made event. Many questions still need to be answered regarding what went wrong and what action should be taken to help prevent similar flooding in the future. Specifically, questions have been raised about the management of the Reservoir System by the U.S. Army Corps of Engineers during the flooding event.

While I appreciate the challenges faced by the Corps during this year's flooding event, it is critical that we know what decisions and events influenced the size and scope of this disaster, and I believe the Corps has a responsibility to provide this information to those who were affected by flooding.

Additionally, we need to know more about the information the Corps had and used in its decision-making process. As has been noted by the subcommittee, inundation maps used by the

Corps and other federal agencies were inadequate or non-existent. In some cases, the only tools available were 100-year flood plain maps, many of which were inaccurate.

Further, the Corps needs to better explain the timing of their decisions, and why they were made when they were. Those decisions led to tremendous devastation. And the residents of all our states deserve answers. I look forward to hearing from those responsible, and what the plan is to ensure that similar flooding does not occur in the future.

However, we can't even look ahead to long-term management if we're still fighting record flooding next year. I have and will continue to urge the Corps to first focus on immediate planning for the 2012 flood season before implementing long-term strategies. Specifically, the Corps needs to address what actions are prudent for them to take next year to prevent a repeat disaster in 2012.

I fear that the corps has been operating under an assumption that this year's flood was a singular historical event. I think this is naïve, and short sighted.

Currently, the National Weather Service is forecasting a La Nina climate pattern for this winter. With long-term outlooks predicting a fourth consecutive year with inflows above normal into the Missouri River System, the Corps must take into account both current wet conditions in the upper basin and precipitation forecasts in their operating plan and management decisions.

Recently, Governor Dalrymple and the North Dakota State Water Commission have asked the Corps to lower Lake Sakakewea by 2.5 feet to provide more storage capacity and additional flood protection during the Corps' 2011-2012 operating season. The Corps dismissed this request, a decision I vehemently disagreed with.

However, the Corps subsequently conducted eight open house sessions and public meetings in cities throughout the basin. I'm pleased to see that as a result of these meetings, the Corps is finally beginning to respond to the many comments and concerns that people have made about the need for more protection from Missouri River flooding.

I am cautiously optimistic about the Corps recent announcement that they will take a more flexible approach to managing the river system and will be more aggressive in managing water releases during the winter and spring. And I appreciate the Corps stated commitment to provide more frequent communication with state, county and local officials

As we await the final version of the Corps' Annual Operating Plan this December, I believe it is in the best interests of the Corps to support a cautionary approach to the management of the Missouri River Mainstem Reservoir System for the 2012 operating season.

Further, it is imperative for the Corps to evaluate the tools that are used to manage the Missouri River System and ensure that all data is used to develop a comprehensive understanding of the

entire basin, so the Corps can make accurate and timely decisions. The Missouri is a very dynamic system. Its operators and managers should be equal to the task.

Going forward, the Corps must consider flood protection above all else in managing the Missouri River system. We are all aware of the congressionally authorized purposes associated with the Missouri River Mainstem Reservoir System. Purposes such as recreation, hydropower, irrigation, fish and wildlife, water supply, and water quality all remain important to the North Dakota. However, all of these purposes are secondary to need for dependable flood control. There is clear consensus from seven of the eight states affected by the 2011 flooding event, that flood control must be the highest priority in the operation of the Missouri River Mainstem Reservoir System.

I will continue to pressure the Corps to make flood protection the top priority in managing the river system and demand greater transparency in forecasting and more meaningful public meetings regarding its management.

Again, I thank the Chairman, Ranking Member and the Committee for granting our request for this hearing and assisting in our bipartisan effort to gain answers from the Corps and work toward long-term flood protection. Learning from this past experience is an essential step as communities along the Missouri River work to rebuild their communities and plan for the future

Rep. Steve King
November 30, 2011
Testimony Before the Subcommittee on Water Resources and Environment
Hearing on 2011 Missouri River Flooding

I want to begin by thanking Chairman Mica, Chairman Gibbs, and the members of the Water Resources and Environment Subcommittee for holding this important hearing and for giving me and other interested members the opportunity to offer testimony.

This year we saw nearly 61 Million Acre Feet of runoff enter the Missouri River system. The previous record for runoff was set in 1997 at 49 Million Acre Feet. The sheer volume of water entering the reservoir system led the the Corps to take drastic measures to evacuate water from the system, eventually leading to record high water releases from Gavins Point Dam of 160,000 cfs, a release rate that more than doubled the previous record of 70,000 also set in 1997. The end result of this was severe flooding that left the affected families, farms, and communities under water for nearly four months. As such, this flooding event is substantially different from most floods in which the water rises quickly and then soon recedes.

As one might imagine, this year's flooding left in its wake incredible amounts of damage up and down the River. In Iowa alone, nearly 1,000 (975) homes were adversely impacted by the flooding, triggering the State of Iowa's request for individual assistance, which was subsequently approved by FEMA. The state's initial estimates suggested the need for more than $10 million ($10,174,832) in federal individual assistance.

In late June, the President issued a major disaster declaration for the State of Iowa, triggering the release of federal funds to help communities recover from flooding. In early June, the state of Iowa requested nearly $13 million ($12,943,002) in federal public assistance to help offset the costs incurred by state and local governments for emergency protective measures taken and debris removal assistance provided during the onset of the flood. This was an early assessment of the Public Assistance needs in the state. It is likely the costs incurred by the state and local governments have increased since the flooding began in June.

The flood also had a significant impact on the economy of western Iowa. While substantial losses were sustained by businesses in the direct path of the flooding, many other businesses were indirectly affected due to their proximity to interstates, highways, and other roads closed due to flooding. Portions of I-29, I-80, and I-680 (major transportation corridors connecting the trucking industry from Chicago to Denver to Kansas City to Winnipeg, Canada) were closed for the entire length of the flood, creating transportation nightmares in this region. The Napier Subdivision of the BNSF railroad was out of service for a period of time. This rail line provides critical economic transportation services to companies operating in southwest Iowa. BNSF was forced to reroute up to 460 trains per day during the worst of the flooding, representing close to one-third of all trains on its 28 state network on a given day. The overall costs borne by BNSF associated with the flooding will well exceed $300 million.

Additionally, the Port Neal Power Plant along with numerous agriculture businesses located with the Port Neal Industrial Complex in Sioux City expended tens of millions of dollars on flood control this year. Companies like Ag Processing along with Terra Industries and CF Industries all experienced time periods of plant shut down as a result of flooding.

The sum total of the economic impact of the flooding in western Iowa can most clearly be seen in the increased rates of unemployment experienced in the affected counties in western Iowa. The unemployment rate in the affected counties increased nearly one full percentage point from 5.03% to 5.98% during this year's flooding. The most significant rise in unemployment in the affected area was in Monona County, where the unemployment rate increased from 6.5% in June to 8.2% in July.

The ag sector of western Iowa's economy was especially hard hit by the rising waters. Over a quarter million acres (255,000) of some of the most productive crop land in the world was flooded. An estimated $82.1 million will be lost in 2011 alone due to damaged or lost crops and unplanted acres. Not only did standing water eliminate the 2011 crop, but it is highly unlikely that farmers will be able to put this ground back into production for the 2012 season and beyond. Much of the topsoil has washed away, and producers will have to contend with large piles of sand, silt, and other debris that's been deposited in their fields.

This summer, as I toured flooded homes, businesses, and farms, and as I observed the severity of this devastating flood from the air, I began to put together the pieces of legislation that would prevent this type of extreme flooding from reoccurring in the future. The result was the introduction of H.R. 2942, a bill I've authored that would require the Army Corps of Engineers to recalculate the total amount of flood control storage space within the Missouri River Reservoir System so that it is sufficient to control the largest flood experienced in the System. The bill would also require the Corps to adjust the System's two flood control storage zones prior to the runoff season each year to ensure that there is adequate space in each to prevent serious downstream flooding.

The total storage capacity of the Missouri River Reservoir System is currently 73.4 Million Acre Feet (MAF), of which 16.3 MAF is currently allocated for flood control purposes. 4.7 MAF of storage is allocated to the Exclusive Flood Control Zone, the storage space of which is used exclusively to help control downstream flooding in the event of extreme flooding. In addition to the storage space allocated to the Exclusive Flood Control Zone, there is 11.6 MAF of storage allocated to the Annual Flood Control and Multiple Use Zone. The storage space of this zone is used for the capture and retention of normal and flood runoff each year. Taken together, the storage capacity of these two zones represents the 16.3 MAF of System storage space in the reservoir system as a whole that is currently allocated for flood control purposes. This legislation would simply require the Corps to increase this number to ensure that it is sufficient to control the runoff experienced during this year's flood. This legislation presents a common sense approach to addressing the record flooding we experienced this year. It is supported by a bi-partisan group of Members representing districts up and down the Missouri River and it has received the backing of several editorial boards in the Missouri River basin.

To put things into perspective, it is important to note that if we'd had the amount of water come down the River in 1881 that we saw this year, this bill would not be needed. According to the Missouri River Master Manual, the current flood control storage allocation of the System is largely based on the vacated space required to control the 1881 flood. Prior to this year's flooding, this made sense, as the 1881 flood was seen as the "high water mark" by which all other floods would be judged. However, given the historic flooding that has taken place this year, it is clear that this year's flooding now represents a new "high water mark", surpassing the flooding of even the 1881 flood. We know this to be the case because, as is mentioned above, the flood control storage space allocation of the System is designed to control an event as large as the 1881 flood. This year's flooding, though, overwhelmed the System's capacity. As such, it is important that the flood control related functions of the System management be adjusted accordingly. To do this, the Corps must recalculate the amount of storage space within the System that is allocated to flood control storage, and it must do so using the model not of the 1881 flood, but of the greatest flood experienced – the flood of 2011.

It is also important to highlight the fact that H.R. 2942 requires the Corps to adjust the System's two flood control storage zones each year prior to the runoff season - in addition to its requirement that the Corps recalculate the total amount of flood control storage space within the Missouri River Reservoir System so that it is sufficient to control the largest flood experienced in the System. It is true that the first important step in this process is to ensure that there is sufficient flood control storage space within the System to control the kind of flooding that was experienced this year. However, equally important is ensuring that this space is actually used each year as necessary. As such, this bill would require the Corps not just to recalculate the amount of storage space within the System that is allocated used for flood control purposes but also to actually manage this storage space each year to prevent serious downstream flooding.

I also want to make certain that I am clear on an important component of the approach I've taken in H.R. 2492. This bill makes no changes to the River's "Authorized Purposes." It merely aims to ensure the Corps has the ability to continue to meet its responsibilities under the System's flood control authority in light of this year's historic flooding.

Some have wondered what increasing the reservoirs flood storage capacity might do to water levels in the reservoirs up stream. A review of the historical data reveals that, on average, since the River Reservoir System became fully operational, on March 1st of each year (the beginning of the runoff season) the water elevations at Ft. Peck, Garrison, and Oahe Dams have been 7.4, 6.7, and 7.1 feet below the bottom of each reservoir's respective flood control pool elevation. The bottom of the flood control pool elevation in each reservoir represents where the Corps currently seeks to set the elevation of each reservoir at the beginning of the runoff season. The Corps has suggested that the King bill would set new reservoir elevation targets that are 6 feet below each reservoir's current flood control pool elevation. The result, when applied against actual historical average elevations, would be a start to the runoff season with water elevations at Ft. Peck, Garrison, and Oahe Dams that are 1.6, 0.9, and 1.3 feet HIGHER than each reservoir's respective historical average (1968 - 2010) reservoir elevation on March 1st.

This fall, the Corps conducted a "listening tour" up and down the Missouri River. At each stop they heard one resounding message: "increase the storage capacity in the reservoirs to prevent

similar flooding in the future." As a result of its listening tour, the Corps has announced that it will continue to evacuate water through the late fall and early winter until the formation of ice on the River prevents it from doing so. This action will allow the Corps to increase the amount of storage space in the reservoirs at the beginning of the 2012 runoff season. The Corps has also said that it will begin its evacuation of the reservoirs earlier in the year going forward. In addition, the Corps has said that it will likely increase the amount of storage space in the reservoir system that is allotted to flood control - thus giving credence to the approach that H.R. 2942 takes to addressing the historic flooding experience this year.

It is unclear, however, exactly how much of an increase in storage capacity the Corps has in mind. If the Corps and the public are now in agreement that the amount of flood control storage space in the reservoirs must be increased to prevent a repeat of this year's flooding, then the amount of the storage space increase should be sufficient to handle a repeat of this year's flooding. It is not enough for the Corps to increase the reservoir system's flood storage capacity by some meaningless amount simply as an effort to address the public's concerns. Any move to increase the system's flood storage capacity should be sufficient to protect us from a repeat of this year's flood. H.R. 2942 would provide the Corps with the clear direction to do so. Without the force of law behind such a directive, it will be too easy to lose sight of the ultimate objective here - to ensure the Corps ability to fulfill the flood control authorized purpose in light of the experience of this year's historic flooding.

Again, I want to thank the Chairmen and the members of the Subcommittee for the opportunity to testify here today. I look forward to answering any questions you may have.

Statement of Congresswoman Kristi Noem
Before the House Transportation & Infrastructure Subcommittee on Water Resources and the Environment
November 30, 2011

Thank you, Chairman Gibbs and Ranking Member Bishop for holding this very important hearing. I know I speak for many South Dakotans when I say we appreciate your interest in what happened along the Missouri River this summer and we thank you for your leadership.

The Missouri River system, which was affected by devastating flooding this year, spans thousands of miles and covers 7 states. In response to the flooding this year, I and 17 of my colleagues formed the House Missouri River Working Group to focus first and foremost on the need for greater flood control on the Missouri River System, but also to highlight the damage these floods have caused to our communities and businesses. Many of the working group members signed a letter to the Chairman requesting this important hearing.

In South Dakota we were also privileged and thankful to have Chairman Mica and Rep. Schuster come to see and hear about the situation firsthand with a tour and public roundtable in Pierre with the Corps of Engineers and other stakeholders, when the river was still well beyond its banks and damaging many homes and businesses. Mayor Laurie Gill of Pierre has prepared written testimony for today's hearing and I would ask that it be included in the record.

Thousands of residents in South Dakota were affected by the flooding and many were uprooted from their homes during the flood event. Worse, some lost their homes and were unable to return after the waters finally subsided.

This disaster of epic proportions revealed the tremendous sense of community that exists in our states, towns and cities. I would like to recognize and commend those affected by the flood for their perseverance and fortitude in the face of this tremendous adversity and also those who volunteered hours and days of their lives helping sandbag, in some cases for people they had never met.

Additionally, I would also like to thank state and local officials, community leaders, and emergency managers for their tireless work on behalf of their citizens during this crisis and their pervasive focus on public safety to ensure loss of life and property was as minimal as possible. Many worked long hours, seven days a week, for months on end. Jeff Dooley, manager of the Dakota Dunes Community Improvement District, and Kim Blaeser, a homeowner and treasurer for Riv-r-Land estates are from communities impacted by the flood and have both prepared written statements for this hearing. I would ask that they be included as part of the record.

Finally, I would also like to extend special recognition and thanks to the South Dakota National Guard, who responded swiftly to help prepare for the looming disaster and were stationed for weeks in communities up and down the river as the flood dragged on.

This was not like most natural disasters. This flood event lasted over 90 days. It began in late May and lasted until September. The situation began in February as runoff levels into the system from snowpack in the mountains and northern plains began to far exceed normal amounts. Then in March and April, runoff amounts skyrocketed compared to normal levels. As flood storage within the system depleted throughout the spring, releases across the system were not increased to adequately compensate for risk of future runoff and subsequent rains. The Corps maintains that there was no need to evacuate water at historic levels before May.

Then came May. With flood storage depleted, torrential rains fell in Montana. On May 23, the Corps announced it was increasing releases to 70,000 cubic feet per second (cfs) from the Oahe Dam near Pierre, SD and 75,000 from Gavin's Point. This was 11,000 cfs over the previous record. Residents and communities along the river began to feverishly prepare by sandbagging and constructing berms, but it didn't end there. Five days later it was announced that the 5 lower dams would reach 150,000 cfs, nearly double what the Corps had announced just days earlier. Releases finally peaked at around 160,000 cfs for the 4 dams in South Dakota. The result was a slow moving disaster of epic proportions as homes and businesses along the river were overwhelmed with water and residents were forced to evacuate. Vast amounts of property was damaged or destroyed.

I believe, as others have stated, that this flood event was part natural disaster and part man-made disaster. Certainly we cannot discount that some amount of human error played a role in this flood event.

The Corps has repeatedly reiterated that it operated in accordance with the master manual and the rain in May was a significant contributing factor in the flooding. However, this reasoning does not account for the runoff that occurred from February to April. While it is likely that some amount of flooding could not be avoided given the runoff and rain flowing into the system, surely something could have been done differently that would have avoided releases that were double and nearly triple previous record releases. From the information I have seen, I believe the Corps of Engineers carries some responsibility for this disaster and their level of responsibility should be explored during this hearing.

Another area where I disagree with the Corps is on timely notification of residents about the risk of possible flooding. This is what I hear most frequently from my constituents. Many of those along the river can prepare for higher than normal releases if given reasonable advance notice and adequate information. They were afforded neither. Those below the mainstem dams saw water release levels escalate so quickly, that just when they thought they had built their sandbag walls to the proper elevation to keep the waters at bay, they were forced to go higher.

Nothing in modern history could be compared to this flood event in terms of the 60 million acre-feet of runoff but I think historical context is helpful to contrast the response of the Corps of Engineers in the face of flooding in the past. The only flood to come close to these levels occurred in 1997 at 50 million acre-feet. The winter of 1996-1997 also saw some of the

heaviest snowfalls in memory in the northern plains and Rocky Mountains. According to news articles and firsthand accounts from residents, beginning in late March of 1997 the Corps dramatically increased releases from Oahe dam to account for the plains and mountain snowpack. Shortly thereafter the Corps notified everyone below the dam in Pierre and Ft. Pierre that releases could increase to as much as 60,000 cfs during May and June. 60,000 cfs peak release seems paltry compared to the 160,300 cfs record set this year. The Corps then advised potentially affected residents to buy flood insurance two months ahead of time, to account for the 30 day waiting period for federal flood insurance, and also helped supply sandbag walls across some riverside lawns. That type of communication was not present during the 2011 flood event.

The Corps has acknowledged that it could have been more effective in notification and has said it is committed to improved communication about runoff levels and releases in the future. I hope they are committed to that statement as those along the river certainly deserve better than what they received this year.

As we try to rebuild and put this behind us there are still many lingering questions. The biggest one is "could this happen again?" The Corps of Engineers recently released their Annual Operating Plan (AOP) for the Missouri River System for 2012 that incorporated minimal changes for operation of the system into 2012. I, like many of my constituents, am concerned that the AOP contained few changes in the wake of this disastrous event. Similarly, it should also be noted that the system is not what it was after this year's flood and infrastructure is in need of repair. I am thankful that the Corps recently decided after eight public forums in communities along the Missouri that it would change its operating approach to be more "aggressive" in the future, but we have yet to find out exactly what "aggressive" means.

This is of particular concern because National Weather Service (NWS) forecasts indicate we may be continuing into a wet cycle with significant precipitation and snowpack for 2012. We should have learned something from this year's experience to better plan for future wet cycles. The Corps needs flexible management of the river to account for these cyclical trends and still allow for proper balance between the authorized purposes of the system, with a priority on flood control. I hope that the Corps' internal review and independent external review of the flood will further this goal.

Witnessing this disaster and reviewing the management plan going forward have left me with many questions. These are some of the questions I have for the Corps:

1. On November 4, the Corps indicated it would change its approach to the 2012 Annual Operating Plan (AOP) as a result of public forums it held this fall. What does it intend to change and how is it going to take a more "aggressive stance"?

2. What is the Corps doing to promote more dynamic, real-time decision making in the future including modifying their forecasting and hydrologic models and incorporating all available data?

3. The Corps has both internal and external review panels expected to be completed by the end of this year. What would be the process for modifying management practices based on the findings of these panels?

4. Does the Corps have the flexibility within the manual to more adequately deal with future wet cycles and the type of conditions we experienced this year?

5. The Corps has cost estimates for repairs to the system caused by the damage this year, but do they have estimates of the total economic cost of the flooding?

The flood event and future management questions regarding the Missouri River System I have just described are why this hearing is so critically important. I look forward to the testimony of the other witnesses and questions from the committee.

I would also like to take a moment to introduce a witness for today's hearing who comes from my home state of South Dakota. Brad Lawrence is the Director of Public Works for the City of Fort Pierre, one of the communities hit hard by the flooding this year. He has extensive knowledge and experience with the river system and was one of the first people to raise concerns about flooding back in early February. I am pleased he is here today and I would ask that his full written statement be included in the record.

Thank you, Mr. Chairman, for the opportunity to testify before the committee today and for holding this hearing.

U.S. Representative Emanuel Cleaver, II
5th District, Missouri
Testimony
House Transportation Subcommittee on Water Resources and the Environment Hearing
Missouri River Flooding 2011
Wednesday, November 30, 2011

Chairman Gibbs, Ranking Member Bishop, Members of the Subcommittee, thank you for inviting me to provide testimony on the tragedy that occurred in my home state and throughout the Midwest this spring and summer. We need to examine the events and actions that led to this flood event and ensure that resources are available to assist federal agencies, states, and communities with recovery efforts and preparations for 2012. We also must re-examine and change the way we predict and prepare for floods. Flood control must be the primary purpose of the Missouri River Reservoir System.

Kansas City was extremely fortunate to escape the massive devastation that other communities upstream endured, but it certainly has not escaped in the past and may not in the future. Kansas City is particularly vulnerable to flooding, sitting at the convergence of the Kansas River and the Missouri River, as well as the Blue River. In 1951, The Missouri and Kansas Rivers flooded, overtopping levees in Kansas City and flooding 11 square miles in the metro area. About 15,000 people were evacuated and the Kansas City stockyards and packing plants were flooded and never fully recovered.

As mayor of Kansas City in the 1990s, I had to deal with the devastation and aftermath of the Great Flood of 1993. That year the Missouri River crested at a record 48.87 feet on July 27th. Though the city's levees held, there were flood damages caused by water seeping up on the other side of the levees and by tributaries flooding. Damages to the City's utilities reached several million dollars, and the City's public infrastructure suffered more than $15 million in damages. Property and businesses were damaged or destroyed in the low-lying areas of the city, including the Kansas City Downtown Airport. Currently, eight federal levees in the metro area are 30-50 years old, span 60 miles, and protect $15 billion worth of assets. We have been trying to fund and complete projects to improve and repair these levees and other flood control projects since I was mayor.

The origins of this year's flooding stem from the snow accumulations in the Upper Missouri River Basin mountains. Normally snowpack accumulation peaks by mid-April. This year, the snowpack was slightly above normal from December through April. Instead of slowing down, it increased dramatically and did not peak until early May at almost 140 percent of normal accumulations. At that time, the Army Corps had enough storage space to accommodate the additional snow runoff. The Missouri River system has six reservoirs with a total of 16.3 million acre feet designated for flood control. Six percent of the total space in the six reservoirs is reserved exclusively for flood control and 16 percent is reserved for annual flood control and other uses.

The Corps says that at the time, based on their forecasts, they had no reason to increase releases beyond historic levels. However, the Upper Missouri River Basin then received record rainfall in mid-May. The May 2011 runoff into the Missouri River Basin above Sioux City was 10.5 million acre feet (MAF); by comparison, the normal May runoff is only 3.3 million acre feet. To provide some perspective, 10.5 million acre feet would be enough water to cover the entire state of Iowa in over 3 inches of water. June was the highest runoff month on record since the Corps began keeping detailed records in 1898.

This increased precipitation, along with the additional late snowpack runoff, filled up the available storage in the reservoirs. In June, the Corps was forced to release massive amounts of water from all the dams as the summer continued to be wet in the upper basin. This released water wreaked havoc in Iowa, Nebraska, and Missouri. Releases from Gavins Point Dam, the southern-most reservoir in the system, were increased to 160,000 cubic feet per second by June 23rd and stayed at high levels through August and into September, ensuring that flooded areas would be inundated for several months.

I would like to highlight a few impacts of this year's flooding of the Missouri River, commonly known as "The Big Muddy". By midsummer, all non-federal levees north of Kansas City were breached or overtopped, as well as several downstream. An overtopped levee is one where the water is high enough to extend over the levee, whereas a breached levee has a section that is weakened to the point at which water breaks through the levee. North of the Missouri River, the community of Parkville experienced flooding in certain areas, including the English Landing Park. Even areas where levees held, fields experienced damage from seepage and sand boils. Seepage occurred because fields were at a lower point than the high waters of the River, so the water flowed to the lower area from the soil underneath the levee. I visited several farms east of Kansas City this summer that had private seepage in their fields. The Miami Levee District No. 1 in Saline County experienced flooded fields from seep water – causing fields to remain unplanted or drowning the plants in other fields. Other levees in the district had erosion eating into the levees, and one private levee in the Malta Bend bottoms of Saline County was breached in early July. Bottomland farmers in Saline County recorded 128 consecutive days with the river above flood level. The river in that area did not go below flood stage until September 29th.

Over 400,000 acres of farmland were flooded up and down the Missouri River system, when many other areas of Missouri and the lower Midwest were already suffering from drought. In Missouri, the total cropland flooded is estimated to be over 207,000 acres, and lost market revenue from those crops is almost $176 million. After taking into account crop insurance and other disaster payments available to producers, there will still be nearly $110 million in losses as a result of the flood. More than 50 percent of total acreage flooded occurred in northwest Missouri, but the Kansas City area and the counties directly east of my district were hit hard as well. Clay, Jackson, Ray, Lafayette, and Saline Counties experienced a total of over 31,300 cropland acres flooded and over $26.6 million in lost market revenue.

Costs to these farmers go beyond lost market revenue from the 2011 crop. Many fields have either large deposits of sand and debris on their fields or erosion from the flowing water. Producers will need significant resources to get their land back to pre-flood condition. In

addition to the physical repair, many farmers will need to stimulate soil microbial and fungal activity in their fields. Symbiotic fungi normally grow on and in plant roots, receiving food from plants and providing nutrients like phosphorus back to the crops. Since no plants were growing in the fields during the flood, the fungi will lose their food source and die. Producers will have to plant cover crops or other plants to promote the recovery of the fungi. Fields may take 3-5 years to come back to full production, and perhaps 10-15 percent of flooded land will never return to production.

Fourteen counties in Missouri were impacted by the Missouri River Flood, not counting other parts of the state already hit with flooding from the Mississippi River and tornadoes in Joplin. There were, at one point, at least 164 road closures in Missouri, and over 50 of those remained closed for two months. Portions of Interstate 29 and US-136 and 159 highways were closed, – requiring a detour of over 100 miles and approximately two hours. Interstate 29 was not reopened until October. All road bridges over the River for over 100 miles in northwest Missouri and southern Iowa were closed for a portion of the summer.

Kansas City is a major warehouse and distribution center and a leading agribusiness center. It ranks high in the nation as a farm distribution center. In addition, the metro area has major industrial activities such as auto and truck assembly and food processing. The Kansas City area has the second busiest rail yards in the nation, and is first in the nation in tonnage. I-29 is a major travel and shipping corridor northward from the city. The prolonged closure damaged the city's commerce, particularly injurious for a city founded by traders in the 1700s.

Great Plains Energy, the parent company of our local power company KCP&L, reported a 4% drop in 3rd quarter earnings, partially due to expenses from the flooding. The placement of several power plants near the river required the company to sandbag, build concrete walls and make other physical preparations to protect the plants, purchase additional power in case plants had to shut down, and conserve coal while the railroad service to the plant was closed.

BNSF Railway had about 1/3 of their 1,500 trains on the network rerouted daily during the height of the flood. The company has increased their capital spending by $400 million due to extra fuel costs to reroute trains and penalties for delayed trains, as well as rebuilding and improving tracks.

The Kansas City District of the Army Corps of Engineers estimates that repairs to more than 50 levees in its district, extending from the Iowa border to central Missouri, will cost about $35 million. To bring the system back to pre-flood conditions would cost $2 billion, according to the Corps. FEMA has yet to obligate any specific funds in Missouri for public disaster assistance for this flood event because floodwater had not receded in the worst-hit areas until about 10-20 days ago, delaying damage assessments by local communities. Questions remain whether the Corps has sufficient resources and time to get ready for next year. The Army Corps' review of the agency's decision-making through the five-month flood event will not be completed until the end of December. Complete restoration of levees will not be possible before the 2012 runoff season.

Congress and the Army Corps must learn from this tragedy and modify flood control policies to decrease the likelihood of such an event happening again. Flood control was the reason that the reservoirs were created and flood control needs to be the primary authorized purpose of the reservoir system. To that end, I have cosponsored a bill, along with other House Members along the River, to direct the Chief of the Army Corps of Engineers to revise the Missouri River Mainstem Reservoir System Master Water Control Manual to ensure greater storage capacity to prevent serious downstream flooding.

We also need to understand why increased releases from upstream reservoirs were not occurring earlier in the spring, and why the Army Corps does not rely more on forecasts from the National Oceanic and Atmospheric Administration (NOAA). NOAA can predict patterns such as La Niña seasons and provide monthly precipitation forecasts. Already, NOAA has released its Winter Outlook for the months of December 2011 and January through February 2012. NOAA expects that La Niña and the Arctic Oscillation could influence weather over the next three months, and that wetter-than-average conditions and below-average temperatures are expected in the Northern Rockies and Northern Plains. This could contribute to above-average precipitation in the 2012 spring flood season. Scientific studies have confirmed, including one just last month, that the surface temperature of the earth is warming. This warmer surface temperature causes warmer air to hold more water vapor, creating record rainfalls and snowfalls in some areas of the country and more droughts in others. We need to take these climate change impacts into consideration, and not just rely on historic data. With the winter and early spring of 2012 still influenced by La Niña, flooding on the Missouri occurring three out of the last four years, and climate change producing more extreme weather events, we need to change the way we predict and prepare for floods.

An equally important piece of the flood control management issue is the maintenance of our flood control structures. How can we manage flooding on the Missouri River and other rivers across the nation, if we do not even know how many levee structures exist and the condition they are in? Federal resources are needed to focus on the completion of the National Levee Database. Knowing what we have will help communities, states, and the federal government manage flood risk. Resources are also needed to fund recovery efforts by communities, states, the Army Corps, and other federal agencies such as FEMA, Housing and Urban Development, and the Department of Agriculture. Repairing homes and levees, helping farmers repair and replant their fields, and helping people get back to their lives should be our top priority. Thank you for allowing me to speak today.

Statement for the Record
Rep. Blaine Luetkemeyer (MO-09)
Committee on Transportation and Infrastructure
Subcommittee on Water Resources and Environment
November 30, 2011

I thank the Subcommittee on Water Resources and Environment for holding this important hearing, and request that my full statement be submitted for the hearing record.

There are thousands of people living and working along the approximately 140 miles of Missouri River that run through the 9th District of Missouri. It is essential that they have the support needed to protect their lives, businesses, and property from flooding events. These people, along with millions living throughout the lower Mississippi River basin, depend on the steady flow of the Missouri for their power generation, navigation needs, and ability to move their goods to both domestic and international marketplaces.

This summer, a high Missouri River and full reservoirs served as a prescription for disaster, resulting in devastating flooding that impacted hundreds of families and businesses that call the banks of the river home. Extreme weather, combined with U.S. Army Corps of Engineers' (Corps) decisions, was to blame for the flooding. Going forward we must ensure that the Corps' water management decisions are designed and are able to protect human life and property.

In January, snowpack in the upper basin was 141 percent of normal, and forecasts from the National Oceanic and Atmospheric Administration (NOAA) predicted that runoff for spring 2011 would be historically high. And while the three month forecasts used by the Corps were dramatically inaccurate, the month-by-month forecasts produced by NOAA (those that were perhaps not fully utilized by the Corps) had a much more realistic prediction of what was to come. We have seen reports on emails demonstrating that, internally, Corps staff had predicted a "flood of biblical proportions" as early as February, 2011. Despite this, it seems that no action was taken by the Corps to immediately amend their management plan because of the numerous conflicting legal mandates.

As a result, releases from Gavins Point Dam were pushed to 160,000 cubic feet per second, more than double all previous releases. We had numerous levee breaches across the basin. Levees that didn't physically breach have had water sitting

against them for months, undoubtedly weakening levees throughout the entire system.

Ultimately more than 400,000 to 500,000 acres of farmland were flooded. Some families and farms were underwater for more than 15 weeks, resulting in a complete loss of crops for many farmers. The costs to agriculture alone are tremendous. According to a recent study conducted by the University of Missouri, more than 207,000 acres of cropland were destroyed in 24 Missouri counties alone, resulting in nearly $176 million in lost agricultural revenue. This translates into a total economic value loss in the region of more than $326 million.

Now the Corps has said they won't have the funding necessary to repair and rebuild the levees to their pre-flood levels. One can't help but take notice of the significant disparity of funding for habitat restoration and land acquisition and funding dedicated to operations and maintenance. The Corps is juggling too many competing interests. A tremendous emphasis has been placed on habitat restoration and compliance with the Endangered Species Act instead of on the protection of life and property.

President Obama, in his Fiscal Year 2012 budget, requested more than $72 million dollars for the Missouri River Recovery Program, which would go primarily toward the funding of environmental restoration projects. This funding dwarfs the insufficient $6.1 million dollars that was requested for the entire operations and maintenance fund that supports the area from Sioux City to the mouth of the Missouri River. It is preposterous to think that environmental projects are more important than the protection of human life.

While the upper and lower basins have historically had different management philosophies, it is time to work together to ensure that the best policies affecting the Missouri River are put into place. That is why this hearing is so important. While we will continue to fight for the interests of our respective constituents, we must also form a cooperative partnership. We must move forward and do our best to ensure that a flood of this proportion is never again seen on the Missouri River. I believe we have the tools necessary to do so. Legislation has been introduced to prioritize flood control over other authorized purposes, and to allow the Corps some of the flexibility needed to control releases. Congress must work with the Administration to ensure that the Corps' priorities are appropriate. We examine the budget and prioritize funding for the protection of human life and property over the protection of habitat.

For much of the spring and summer, the Midwestern United States was thrashed by severe weather that has broken levees, caused damaging floods, and ultimately destroyed American lives not just on the Missouri River but also on the Mississippi. It is time for Congress to take a very serious look at water development funding priorities, and it is time to send a message to the federal entities that manage our waterways.

Thank you to Chairman Gibbs and Ranking Member Bishop for holding today's hearing.

LEE TERRY
NEBRASKA, 2ND DISTRICT

WASHINGTON OFFICE:
2433 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-4155

DISTRICT OFFICE:
11717 BURT STREET, SUITE 108
OMAHA, NE 68154
(402) 397-9944

TAKE.TERRY@MAIL.HOUSE.GOV
WWW.HOUSE.GOV/TERRY

Congress of the United States
House of Representatives

HOUSE COMMITTEE ON ENERGY AND COMMERCE
SUBCOMMITTEES
COMMERCE, TRADE AND CONSUMER PROTECTION
ENVIRONMENT AND HAZARDOUS MATERIALS
COMMUNICATIONS, TECHNOLOGY AND THE INTERNET
REPUBLICAN DEPUTY WHIP
REPUBLICAN POLICY COMMITTEE
REPUBLICAN STEERING COMMITTEE

Opening Statement for November 30, 2011 Hearing on Missouri River Flooding Event of 2011

Mr. Chairman,

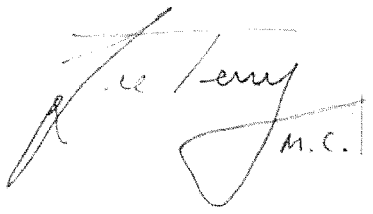
The Missouri River flooding this past spring affected significant area across the Midwest up and down the Missouri river. My district and those of many of our colleagues have experienced substantial disruptions in commerce, damaged infrastructure, and flooded farmland.

As anyone who lives near a powerful body of water knows, flooding is a reality that must be expected and planned for. However, given the vast amount of resources we have dedicated over the last half century to implementing a sophisticated, nationwide flood management system, the recent Missouri river flooding begs the question of whether that system has been properly administered and if its governance and control parameters are in need of review and reform, notwithstanding seasonal snowmelt.

This past spring, I invited Chairman Mica to visit flood affected communities in the eastern Nebraska and southwest Iowa region. This visit was invaluable in determining what contributed to this devastating flooding and what can be done to prevent it in the future.

The Corps must not allow its flood control priority to be watered down by competing demands. Instead, we need to work together to make flood control the top line item. It is critical that we in Congress investigate the flood management activities of the responsible agency, the U.S. Army Corps of Engineers, during the months preceding the flood to ensure the Corps' relevant decisions were consistent with flood prevention at a time when catastrophe could have been avoided.

I look forward to working with my colleagues on both sides of the aisle and both sides of the Missouri River to find out the how and why we got to this point and how to make sure it never happens again. There are lots of questions, and we want to make sure we get the appropriate answers.



DEPARTMENT OF THE ARMY

COMPLETE STATEMENT OF

BRIGADIER GENERAL JOHN R. MCMAHON

COMMANDER

NORTHWESTERN DIVISION U.S. ARMY CORPS OF ENGINEERS

BEFORE

THE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT

UNITED STATES HOUSE OF REPRESENTATIVES

ON

THE MISSOURI RIVER FLOOD: AN ASSESSMENT OF RIVER MANAGEMENT IN 2011 AND OPERATIONAL PLANS FOR THE FUTURE

NOVEMBER 30, 2011

Mr. Chairman and Members of the Subcommittee, thank you for this opportunity to discuss the Missouri River flooding of 2011, as well as the ongoing and future activities of the Northwestern Division of the Army Corps of Engineers (Corps) to respond to the flood. I am Brigadier General John McMahon, Commander of the Northwestern Division of the Corps. The Corps is fully cognizant of the physical, economic, social and emotional impacts to many people in the basin due to the flooding this year.

Actions by the Omaha and Kansas City Districts during the Missouri River flooding this summer were extremely effective in reducing flood damages. The Corps expended approximately $83 million on fortifying existing levees, building temporary levees, monitoring dam and levee safety and other activities, such as providing flood fight supplies to state emergency offices, within Corps authorities under Public Law 84-99. For example, in South Dakota, the Corps constructed approximately four miles of temporary levees at Pierre and Ft. Pierre, and approximately 1.5 miles of temporary levees in the community of Dakota Dunes. Temporary measures were also constructed for the Standing Rock Sioux Tribe to mitigate risk to the causeway and the water intake.

The Missouri River Mainstem Reservoir System was operated in 2011 in accordance with the Master Manual. The water conditions in the Missouri basin have been extraordinary this year, particularly above Sioux City, Iowa. Compared to the normal 25 million acre feet of runoff, we expected this year's runoff to exceed 60 million acre feet, more than double the average and the highest on record. Of critical importance is the understanding that May, June and July were the third, first and fifth highest months of inflow in the 113-year period of record.

Each year, the Corps evacuates flood control space before the spring and summer runoff occurs. This year was no different. All of the 2010 flood water had been evacuated by late January and we had the entire required 16.3 million acre feet of space available at the start of this year's runoff season. Our computer models demonstrate that, since 1898, this storage would have been enough every previous year to adequately capture spring runoff and manage water flow throughout the system.

We witnessed a tremendously different set of data this year. Consequently, we are taking a hard analytical look at what this information may suggest in terms of future operation alternatives and adjustments. In addition to the Corps internal review of reservoir operations, we initiated an external review of our operations, which is currently underway. We anticipate this external review will be completed between mid-December and early January and it will be made available to this Committee and the public at that time.

The Corps followed (and continues to follow) a carefully evaluated water evacuation plan over the past several months. High releases were maintained through mid-August and then stepped down at a pace that reduced risk to infrastructure, levees and river banks and allows the flood plain to drain. The plan includes fall and winter release rates low enough to allow continued inspection and repair of both federal and non-federal

infrastructure. The Missouri River Flood of 2011 officially concluded on October 1, 2011 when flows fell below flood stage at Rulo, Nebraska.

The water evacuation plan in place is allowing homeowners, farmers and businesses back on their properties to begin repair and recovery as quickly as possible. The objective of the plan is to bring the entire system back to its full annual flood control capacity by the 2012 runoff season. In addition, we are committed to maintaining a flexible posture and aggressive release schedule throughout the winter and spring if it appears that 2012 will be another high runoff year.

Now that the river is receding, we are initiating post-flood actions. These include: 1) an assessment to review the water management operation, 2) a technical review of the flood fight response and, 3) a concerted effort to assess and repair infrastructure, such as dams, levees, and navigation structures.

Concurrent with these actions, the Corps, the Federal Emergency Management Agency, and the U.S. Department of Agriculture are co-chairing the Missouri River Flood Task Force (MRFTF). The Task Force provides a forum for coordination among the federal, tribal, state, stakeholder and local governmental partners within the States of Nebraska, Montana, Iowa, South Dakota, North Dakota, Wyoming, Kansas, and Missouri on flood recovery and related flood risk management actions and initiatives. The Task Force will streamline governmental processes and decision making, accelerate necessary assessments, coordinate permitting requirements, and apply agile and critical thinking to the problem set.

Since May, 2011, the Assistant Secretary of the Army (Civil Works) has exercised her emergency authority provided in Public Law 84-99 to transfer funds from other appropriation accounts to the Flood Control and Coastal Emergencies appropriation account to respond to the flooding and to begin addressing repairs from this year's disasters. To date, the Corps has completed five transfers totaling $282 million. The last two transfers, totaling $207 million, allowed the Corps to begin addressing a portion of the highest priority life and safety repair requirements nationwide.

In order to develop the best estimates of repair requirements nationwide, local Corps districts and divisions, including the Northwestern Division, working with non-Federal sponsors, are inspecting damaged projects and preparing assessments reports. The Corps has set up a rigorous process at the Headquarters level for technical experts to examine the requirements and to prioritize those requirements based on risk to life and safety, among other parameters. The Corps is prioritizing projects to leverage its resources to complete assessments and proceed forward with the highest priority repairs. To date, $54.6 million has been used for Missouri River flood recovery.

We recently concluded eight open house sessions and public meetings in cities throughout the basin to listen to the concerns of citizens as part of the Annual Operating Plan development for 2012. As part of the meetings, we communicated that the top priority of the Division is to responsibly prepare for the 2012 runoff season.

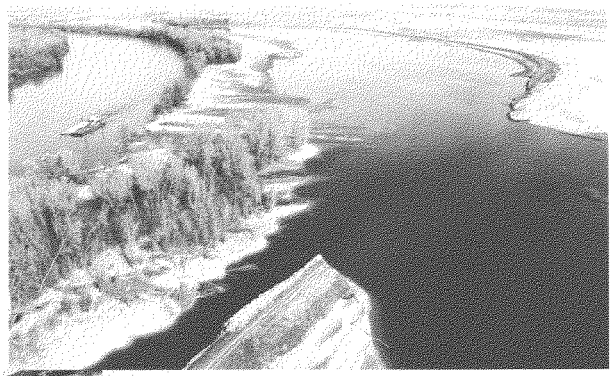
A primary concern raised in the public meetings was the Corps' strategy to only evacuate water from the Missouri River reservoir system back to the designed amount of flood control storage. The reservoir system was designed with 16.3 million acre feet of flood control storage, which equates to approximately 22 percent of the storage in the reservoir system. Given record runoff, the Corps has initiated a technical analysis to determine whether more reservoir space might need to be reserved for flood control purposes.

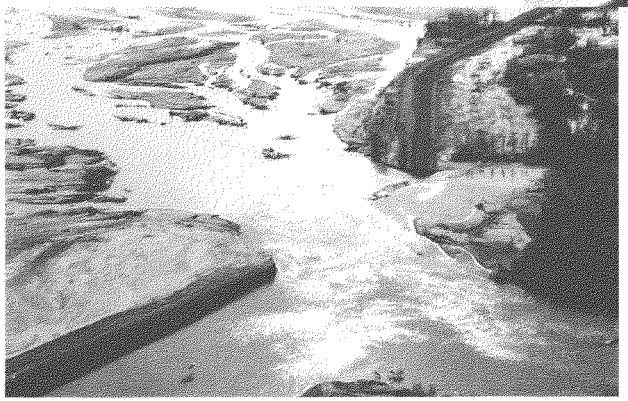
At this point, the Corps plans to assume a more flexible posture as water is evacuated through the system for the remainder of the fall and early winter. =The Corps will also take a more aggressive stance with winter and spring releases. Third, the Corps will communicate more frequently and more broadly as the 2012 season unfolds. We will conduct bi-monthly conference calls and, during those calls, the dialogue will continue with federal, state, county and local officials, Tribes, emergency management officials, independent experts and the press to discuss conditions on the ground and current Corps' reservoir release plans and forecasts. Audio files of the conference calls will be widely available.

In summary, the 2011 flooding was the result of hydrologic events. While much damage in the basin, the system of dams and levees functioned as intended and provided substantial benefit. Without them, the damages and safety risks would have been much greater. While there are important repairs that need attention, no major deficiencies have been identified to date that would preclude normal operation of the dams in spring of 2012.

This concludes my testimony. Thank you for allowing me to testify about the flooding in 2011 and future operation of the Missouri River system. I would be happy to answer any questions you or other Members of the Subcommittee may have.

Missouri River Basin Flood Damage 2011



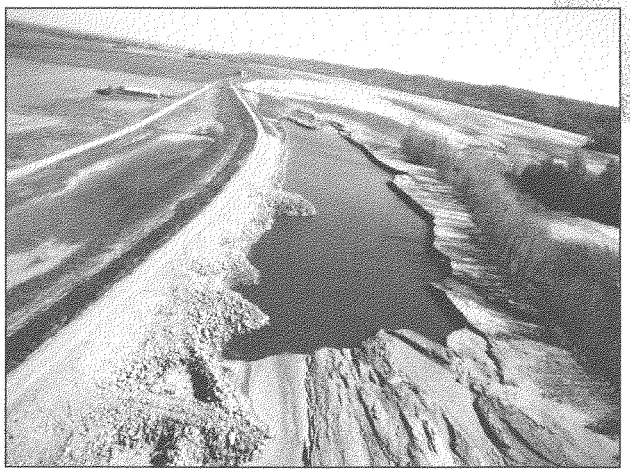


Levee breach:
Levee breach of L575 on the Missouri River seen as waters have receded significantly.
Upper Breach (right)
Middle breach (below)

Levee breach:
The upper levee breach of L550 on Missouri River seen as waters have receded significantly (right).

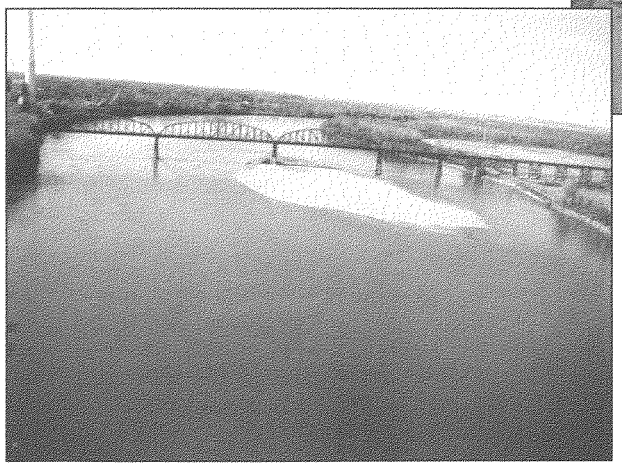
Levee scouring/erosion:
Levee erosion – more than 50 percent of the embankment is missing – at Missouri River Levee L536 (left).

Levee breach:
Damages due to overtopping and breaching of a non-federal Levee at Union Township (right).

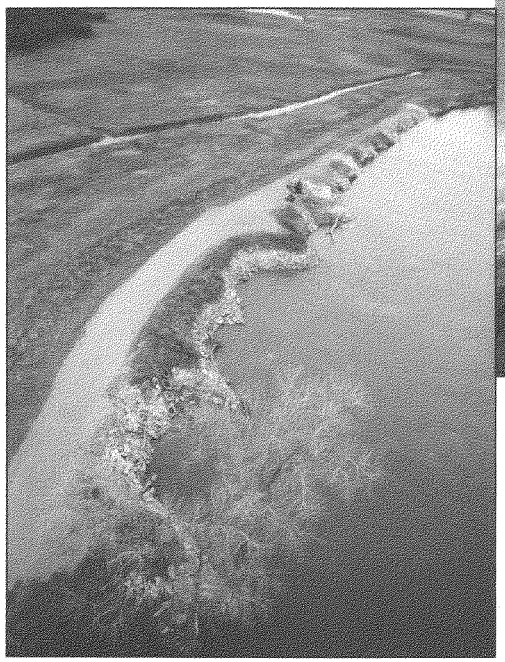


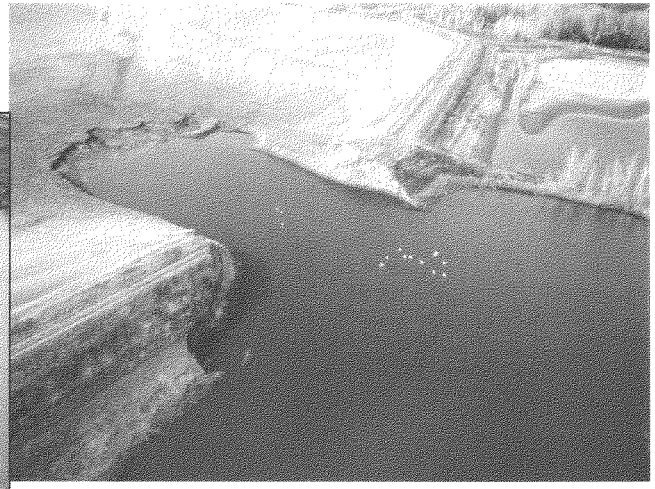
Levee scouring/erosion:
Emergency Rock Placements due to scour at Federal Levee 488-L (left).

Water Intake:
Water Intake for Approx. 400,000 at Non-Federal Levee Wolcott, Section 3 (right).



Sediment Deposits:
At Sibley, Near Non-Federal Levee Egypt (left).

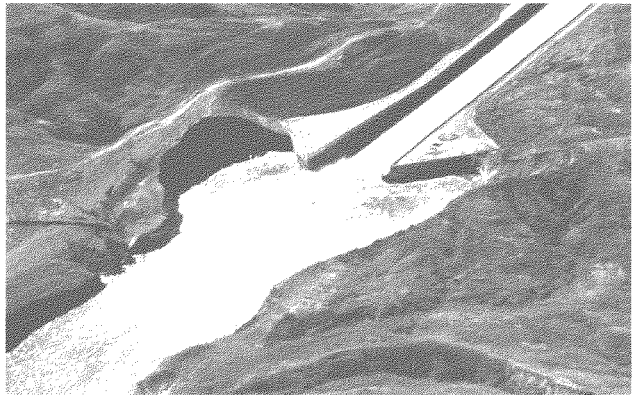




Levee breach:
Damages due to overtopping and breaching of Non-Federal Levee System Wakenda (above).

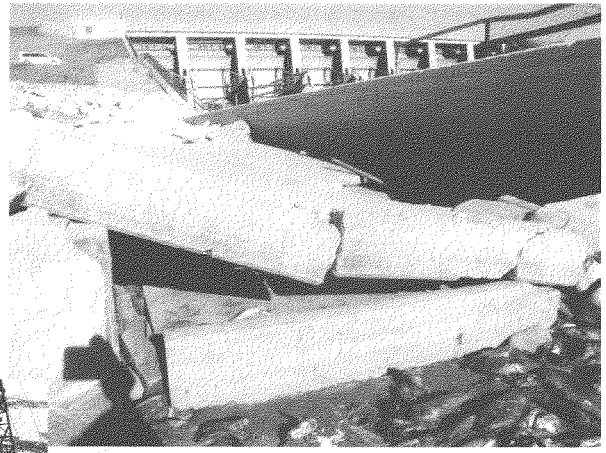
Levee scouring/erosion:
Damages due to scour of Exterior of a Levee for Non-Federal Levee Saline-Lafayette (left).

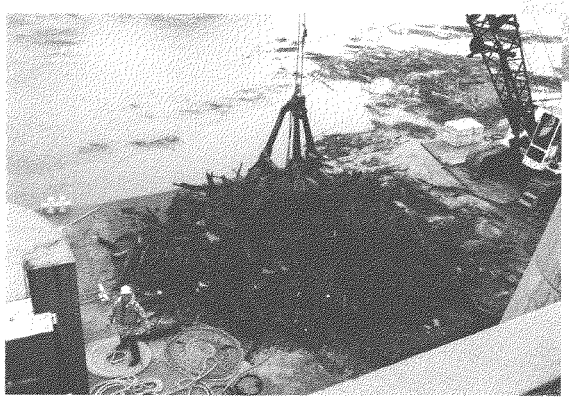
Dams damage/erosion:
Erosion along the spillway plunge pool extending from Fort Peck's spillway in Fort Peck, Montana (right).



Dams damage/erosion:
Erosion at flood tunnel outlet for Oahe outside Fort Pierre, South Dakota (under repair) (left).

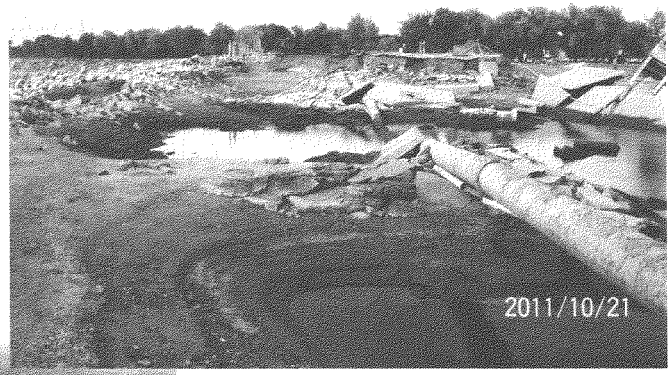
Dams damage/erosion:
Damage due to overtopping of Big Bend spillway in South Dakota (currently under repair) (right).

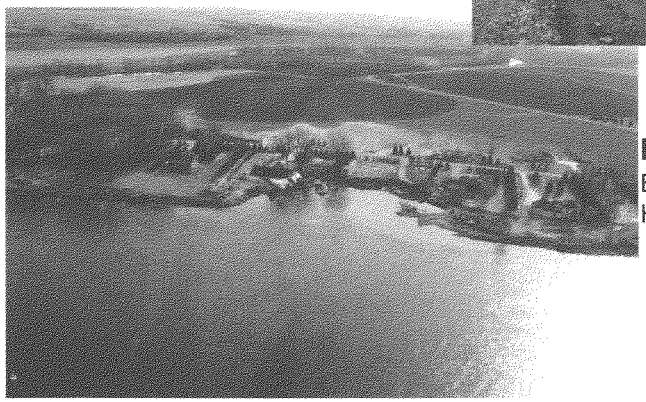




Dams damage/erosion:
Excess debris led to clogging of water intake (under repair) at Hydropower Plant, Gavins Point in South Dakota (left).

Damage/erosion:
City of Pierre waterlines damaged at LaFramboise Island Causeway in Pierre, South Dakota (right).





Erosion:
Erosion along the Section 33 Project at Hogue Island, North Dakota (left).

Kathy J. Kunkel

County Clerk

Holt County, Missouri

102 W. Nodaway St.
P.O. Box 437
Oregon, MO 64473

660-446-3303 - phone
660-446-3353 - fax
holtcoclerk@ofmlive.net

November 30, 2011

WRITTEN TESTIMONY:

UNITED STATES HOUSE OF REPRESENTATIVES

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

COMMITTEE HEARING

THE MISSOURI RIVER FLOODS: AN ASSESSMENT OF RIVER MANAGEMENT IN 2011 AND OPERATIONAL PLANS FOR THE FUTURE

Chairman Mica and members of the United States House Committee on Transportation and Infrastructure:

Thank you for giving me the opportunity to provide testimony today regarding the Missouri River Basin Floods of 2011. As an elected official, I have the privilege to come before this body representing the people of Holt County, Missouri. I am honored to share with you their flood story and the greater concerns of a rural community resolute in maintaining their way of life.

Situated between the urban hubs of Omaha and Kansas City, Holt County is about as rural as it gets. Less than 5,000 people call Holt County home. There are 500 miles of gravel roads and not one single stop light or flashing light in the entire county -including the towns. Everyone knows one another. It's small town America at its best.

Holt County: A Rural Floodplain

Holt County has a wide floodplain, encompassing nearly 40% of the county's 456 square miles. The floodplain is greater than the city of Denver, Colorado. It holds highly productive farmland and five

towns. At its widest point our floodplain stretches 12 miles from bluff to bluff. It is crisscrossed by transportation corridors connecting Missouri with Iowa, Kansas and Nebraska by interstate and rail. It also is home to Squaw Creek National Wildlife Refuge and Big Lake State Park as well as a patchwork quilt of farmland and homesteads dating back to early settlement.

Cause and Effect

Holt County has two federal levees that extend along 18 miles of river; an additional 32 miles of non-federal levee protects the majority of the county's landmass in the floodplain. Two miles of river levee are privately owned but afford protection for an entire watershed area. It is this mix of federal/non-federal and private levee system that sets Holt County apart from many other Missouri River Basin areas. The majority of our levees are not designed to Pick-Sloan Federal Levee standards, they are not set back from the channel consistently and they do not offer protection above the 25-year flood level. However this system design has worked well since its inception in the early 1940s. Holt Countians are no strangers to floods. We recognize and understand the inherent nature of living, working and playing in the floodplain. Landowners accept that on average once every 10 years a flood will occur in the basin. Structures are elevated, drainage systems are in place and protective measures are implemented to minimize the impacts of a naturally occurring flood. These events are typically quick to arrive and exit and leave minimal impact on the land.

But 2011 was not a typical flood. Up to ten feet of water was in our homes and over our land for 106 days with heavy current and waves - rendering our ground useless, destroying our roads and infrastructure, wrecking our homes and grinding our rural economy to a halt. Our green fields of summer took on the look of an endless lake and the smell of an old tackle box. Though excessive rain and snowmelt in the upper basin are significant contributing factors to the 2011 Flood, there is a much broader concern in Holt County. Repetitive flooding in our county has led citizens to question the aims and goals of the United States Army Corps of Engineers. This idea hinges on two prominent activities of the USACE: land acquisition and recent river management practices.

The Biological Opinion

Both areas of concern stem from the US Fish and Wildlife Service's Biological Opinion designed to bring the USACE into compliance with the Endangered Species Act. This opinion calls for reclamation of over 160,000 acres of land between Sioux City and St. Louis and converting that land to a pre-Lewis and Clark, low-water meandering flow. It does not –however – take into consideration land owned by other state and federal agencies meeting the same goals. As the USACE was forced to comply with the mandates of this opinion, they stepped up land acquisition, actively pursuing purchase of land in my county. The impact of this restoration project on Holt County has been overwhelming as over 8,000 acres have been purchased within the county's borders. It is here that Holt County slid into devastation by design.

The USACE purchases land from willing sellers to create pallid sturgeon chutes and sandbar habitat for the piping plover and the least tern. In the early 2000s, land acquisitions were from willing sellers that saw benefit in returning marginal ground to wetland areas, while receiving fair market value for their

property. Some of those properties had been breach areas in previous floods and were not likely to see full agricultural production in the future. This transfer of land to the USACE seemed a wise choice for the landowner. As more pieces of real estate transferred to Corps ownership, it became apparent there was a tax base gap as well as an economic gap being formed. Each acre purchased for restoration meant the yearly agricultural economic impact was diminished. The Payment In Lieu of Taxes (PILT) program paid only pennies on the dollar of previous tax liability to the county, schools, fire districts and so on. The loss of annual wages, sales taxes and dollar turn-over related to agriculture production on the land had a far reaching effect.

By 2010, many family farmers disagreed with selling the ground to the Corps on principle alone. With their family farm ownership stretching back five generations and over 170 years, many saw the action as a "land grab," both detrimental to the local economy and part of a greater plan to take back the floodplain for two birds and a fish. Their belief was underscored in June 2011, while sandbagging on the levees and hastily moving their belongings from the floodplain, letters arrived from the USACE asking if they'd like to sell their ground to help restore habitat for the pallid sturgeon. It was a slap in the face to Americans working hard to make a living on some of the most fertile ground in the United States. But after four-months of ravaging floodwaters and 32 levee breaches, many of these same farmers see no hope but to sell their irrevocably ruined land to the Corps.

Mitigation ground restoration is the cornerstone of the USACE's requirement to meet the Biological Opinion of the US Fish and Wildlife Service. Unfortunately, for landowners there are negative side effects. In our opinion, the creation of pallid sturgeon chutes directly negates the concepts of the Pick-Sloan levee program. In one location in Holt County (L-497), as the water reached historic level this year, a pallid sturgeon chute became a new channel, forcing water directly at the levee, causing a massive scour hole and slide. Lands where mitigation efforts have been utilized were some of the first problem points for levee districts as sand boils and substructure failure was apparent in areas where mitigation grounds were maintained next to the levee's footing. Local knowledge of the Missouri River's naturally occurring habits both pre and post channelization lend credence to the prevailing local thought that the USACE is managing these areas erroneously.

The Spring Rise Experiment

Holt Countians take issue with the USACE not only for management practices on mitigation lands that threaten our way of life and the levee system that protects it, they also see operational changes in the mainstem system working against them. Once again the USACE has an obligation to meet the Biological Opinion, which calls for experimenting with releases from the Gavin's Point Dam, in Yankton, South Dakota, varying the flow in the lower basin section of the river in the spring and early summer to create an artificial spring rise or pulse. This inflated and quick running river is intended to mimic pre-channelization flows in the lower reach, cueing the endangered pallid sturgeon to spawn. It is also timed to allow for nesting piping plovers and least tern to make the most of silted sandbar habitat left after a

"flood-like" flow. Water storage has increased in the reservoir system in recent years to allow for this quick pulse release, leaving little additional flood storage capacity in the upper system. This activity has passed by most communities in the lower basin unnoticed as federal levees provided ample protection for this increased river height and minimal disturbance to the land outside the levee system.

This is not the case in Holt County. The non-federal levees are incapable of holding the increased volume and flow in the Spring Rise. Coupled with localized rainfall events that heightened local tributaries and filled all available drainage systems – this practice formed the basis for repetitive flooding situations in 2007 through 2010. When the Missouri River is above flood stage the local systems simply cannot drain. Flood stage at the Rulo, Nebraska gauge is 17 feet. We have seen a river significantly above flood stage every year since 2007. At 24 foot, levees overtop and flooding is imminent. The Spring Rise has been a source of much frustration in Holt County. Citizens feel they are being singled out as outlet valve for the system. The USACE as well as locals know that this practice has only one outcome - flooding in Holt County. To exacerbate the situation, this science experiment isn't working. In October 2011, an independent science panel reported to the Missouri River Recovery Implementation Committee (MRRIC) in Denver that data collected so far shows zero benefit to the pallid sturgeon's nesting practices related to the Spring Rise. The USACE has decided to embargo the spring rise for 2012. We think that's a good plan and further that it should be stripped from the requirements all together. Most years Mother Nature does a perfectly good job of creating an increased flow in the lower basin without help from the USACE.

Another cause for concern is management practices of the USACE which have contributed to increased siltation of the Missouri River in our region. The gauge at Rulo shows that the river can no longer carry the volume of water as previous years. Dike notching has kept the channel from self-scouring, while the mitigation grounds allow for a low-water, meandering flow, spreading the river and its silt load out. The navigation channel is diminished and needs to be dredged. The overall flow capacity is reduced and siltation is readily apparent causing flooding problems at lesser volume than previously seen in the region. These are aims of the restoration program that have devastating impacts on local agricultural production and the efficient use of the existing levee system.

A Unique Place in History

The 2011 Flood brought a focused spotlight on the management practices of the USACE and their responsibilities to the eight authorized purposes of the Missouri River. Brigadier General John McMahon called us all to learn from the past when making future plans for the Missouri River in his letter dated October 24, 2011. I would certainly agree with Gen. McMahon, that this is the opportune time to assess the damages, learn from our mistakes and forge ahead.

In Holt County, we've come together to explore what alternatives are available to our citizens to once again make our county a thriving place to live, work and do business. We recognize that a non-federal levee system may have outlived its time. We also believe that levees directly on the river channel may need realignments and setbacks to afford the kinds of protections needed to maintain our wide-basin

area. General McMahon expressed a vision of a "green-way" for our floodplain, where the river is allowed to meander without hindrance in a more natural state, where people do not live and work within its boundaries. Whether by intentional design or the perfect storm, Gen. McMahon is getting his wish as people sell their ground to the Corps and leave the floodplain of Holt County. It is an exodus that will have lasting social, cultural and economic impacts on my county for generations to come.

General McMahon asks in his letter when the citizens of the Missouri River Basin will become galvanized behind a central idea for river management. I believe we have. Six of the Basin State's Governors have called on the USACE to make flood control the primary focus of Missouri River mainstem management – not unlike the primary purpose of the Mississippi River. The Missouri River Working Group, made up of Senators and Representatives from the Missouri River states have called for flood control as a priority. It is time the USACE is directed by Congress to make flood control the primary purpose – above all other authorized purposes.

Repair, Rebuild and Renew Relationships

There is a place for river restoration and the benefits to our environment – even in Holt County. We recognize the need for open space and hold our nearly 8,000 acre Squaw Creek National Wildlife Refuge in high regard. Nearly 20% of Holt County's landmass is already owned by a State or Federal agency for wildlife purposes. We've given enough. Holt Countians feel threatened and endangered. The American farmer in our region is fast approaching extinction. The relationship between the USACE and the local citizen must be renewed. Hosting meetings in Denver, 600 miles away from those affected, does not lend itself to open stakeholder involvement. Offering "non-structural alternatives" to rebuilding a damaged levee to benefit endangered species does not sit well with levee board officials. Offering to buy more land for the pallid sturgeon while saying you don't have enough money to even assess the levee damage – let alone repair it – creates wedges in a community. The US Fish and Wildlife Service, along with the USACE must come to the table to have real dialog with landowners and stakeholders in the basin to find common ground in land acquisition, mitigation efforts and management of water storage and releases in the mainstem system.

We believe our area offers unique opportunities to the USACE and USFWS to join with local stakeholders in shaping the future of the floodplain with compromise and a focus on local involvement. It starts by accepting responsibility. We shoulder some of the burden in Holt County with sub-standard levees and a need to unify under the same flagship cause. General McMahon continues to say this year's vast runoff and rainfall event could not be avoided. In Holt County, we strongly disagree. The reservoirs are simply buckets, and this year, they were too full to catch the rain. Years of management adjustments to meet the varying authorized purposes have set up a reservoir system incapable of doing the job for which it was built.

Funding a New Vision

The fact remains that levees throughout the system are in shambles and funding is lacking to make repairs. This is not the time to sidestep obligations to restore our communities affected by natural disaster. This is the time for Congress to act. New funding is essential in the Flood Control and Coastal Emergencies Fund of the USACE to repair levees under Public Law 84-99. We also ask that you consider funding a pilot project in Holt County to develop a consistent and unified levee system to federal standards, with a focus on levee realignments and set-backs, a balanced approach to mitigation site restoration and continued agricultural pursuits. We believe this could be a model project, with pro-active leadership and shared responsibility between Federal, State and Local governments, levee sponsors and landowners – all working on a local level to develop a new vision for the floodplain that benefits us all.

I appreciate your willingness to hear the voice of rural America's citizens today. I would encourage you to look beyond the 2011 Flood to see the bigger picture – change in the Missouri River Basin must come now and with it must be a renewed focus on the *people* utilizing the bounty in the floodplain. In Holt County, we are ready.

Thank you,

Kathy J. Kunkel

Holt County Clerk

MISSOURI LEVEE AND DRAINAGE DISTRICT ASSOCIATION

TOM WATERS, CHAIRMAN
36257 HIGHWAY Z
ORRICK, MISSOURI 64077
(816) 770-5562

LANNY FRAKES, VICE-PRESIDENT
13371 SW ST., RT. KK
RUSHVILLE, MISSOURI 64484
(816) 688-7820

CARL LENSING
CHAIRMAN EMERITUS
447 HIGHWAY 94
RHINELAND, MISSOURI 65049
(573) 236-4577

www.mldda.org

BILL LAY, SECRETARY
ROUTE 3, BOX 119
FAYETTE, MISSOURI 65248
(660) 248-3068

PAUL SEIGFREID, ATTORNEY
108 NORTH JEFFERSON
MEXICO, MISSOURI 65265
(573) 581-8888

November 30, 2011

WRITTEN TESTIMONY:
UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON TRANSPORTATION AND INFRASTRUCUTRE
COMMITTEE HEARING
THE MISSOURI RIVER FLOODS: AN ASSESSMENT OF RIVER MANAGEMENT IN 2011 AND OPERATIONAL PLANS FOR THE FUTURE

Chairman Mica and members of the United States House Committee on Transportation and Infrastructure:

I would like to thank you for this opportunity to provide testimony for the record of your hearing regarding the Missouri River Floods and the assessment of River management in 2011 and the operational plans for the future. As chairman of the Missouri Levee and Drainage District Association, I represent levee and drainage districts, businesses, associations and individuals interested in the activities and issues surrounding the Missouri River and its tributaries. I understand the importance of this committee's work as it relates to flood control and the protection of human lives and property. I am honored to have this opportunity to provide comments on behalf of the levee association's membership and fellow Missourians who have been impacted by flooding this year.

I am a seventh generation Missouri farmer. My family farming operation produces corn, soybeans, wheat and alfalfa in the highly productive bottomlands along the Missouri River. As president of three local levee and drainage districts, I know and understand the importance levees and flood control projects play in protecting the lives and property in my community and communities across our nation.

2011 has been a difficult year for people living and working along the Missouri River. The Missouri River system was overwhelmed by inflows well above any seen before. The U.S. Army Corps of Engineers were tasked with managing 60.4 Million-Acre Feet (MAF) of runoff into the system, which holds 73.4 MAF. The extraordinary runoff proved to be too much for the Army Engineers to handle and the result was major flooding from Montana to Missouri along the River.

The extreme snowfall and heavy rain events in the upper Missouri River Basin have been blamed for the flood event, but I believe there is more to the story that needs to be told. With only 6% of the Missouri River Reservoir System dedicated to exclusive flood control, the system cannot provide adequate flood protection. Sixteen percent of the system's storage is dedicated to multiple uses and flood control, but the Corps allows this storage to fill in the spring. This 16% should be added to the exclusive flood control pool to allow for a full 22% of exclusive storage to protect from future flooding. In addition, the Corps of Engineers should make better use of the Bureau of Reclamation reservoirs in the upper basin. These reservoirs were not properly managed for flood control during this year's flood event.

There is a great need to improve flood control infrastructure along the Missouri River. Levee improvements have not been made over time and the flood control system is suffering from years of neglect, as fish and wildlife

programs have become the focus of Missouri River management. Flood control infrastructure has not kept up with other development in the basin.

More water is reaching the River faster

Let me provide an example: I am sure each congressional district across the country has areas in it like I am about to describe. This area has a four-lane highway running through it. Along the highway you will find fast food restaurants. A McDonalds on the right and a Wendy's may be on the left. In the area you will find several other restaurants, strip malls, and shops. You will likely find a large grocery store chain and Home Depot or Lowes. You might find a Wal-Mart Super Store on one side of the highway and a Target on the other. You know the areas and I'm sure you have them in the communities you serve. Surrounding this shopping area are neighborhoods full of homes, schools, churches and doctor offices. Areas and neighborhoods like I have described have been developed across our country over the past twenty to thirty years. Not just in the bottomland, but also in upland areas with rolling hills. These areas contain a tremendous amount of concrete and pavement.

When rain falls in these areas, the rain hits a roof, parking lot, driveway or roadway and runs to a gutter and quickly into a sewer system, which directs it straight to the River. Thirty years ago that same area was likely rolling pasture or farmland. When rain fell then it soaked into the ground or ran slowly through grass and timber to the river. The result is today water reaches our nations rivers faster and at greater volumes. We have not done anything to compensate for these increased flows coming faster to the rivers and we are seeing the damaging effects now. Communities along the Missouri River have been flooded multiple times in recent years. Many levees that failed in 2010, had not been fully repaired prior to this year's flood event. When the Corps of Engineers was forced to release record levels of water this spring and summer, the flood control system was not ready to handle the flows.

While our flood control system has been falling behind, the nation has spent millions upon millions of dollars on fish and wildlife projects. On the Missouri River, the Corps of Engineers has spent $616 Million since 1992 on the Missouri River Recovery Program and fish and wildlife projects. While spending the equivalent of nickels and dimes on flood control, the Corps has spent over half a billion dollars on fish and birds. This imbalance must be corrected if we are to protect communities and property along the nations waterways.

It is time for the nation to invest in flood control infrastructure across the country. When congress spends $20 Million on a levee or flood control project, the result is a levee or structure that can be seen and provides protection for people and property. On the other hand, when congress spends $20 Million for fish and wildlife the result is, more often than not, 200-300 pages of reports from a study and a stack of hotel receipts from meetings and conferences.

Flood control projects create jobs and protect lives. Reducing spending on fish and wildlife projects is an easy place for congress to trim the budget without harming the nations economy. In today's weakened economy it make sense to make improvements to our nation's flood control systems, which will put people to work and reduce future costly disaster recovery expenses.

The Corps of Engineers is not listening

People throughout the Missouri River basin have been concerned about the failing flood control system for years. Throughout each year the US Army Corps of Engineers holds public meetings, hearings, workshops and listening sessions. Following this year's flood event the public strongly voiced their opinions during two weeks of Annual Operating Plan meetings conducted by the Corps of Engineers. The people of the Missouri River Basin want change. They want to see flood control once again become the Corps of Engineers top priority for river management with less emphasis on fish and wildlife spending.

Following the recent round of meetings, the Corps of Engineers issued a news release saying they have listened to the public and heard their concerns. The release says, "the Corps will assume a more flexible posture as water

is evacuated through the system for the remainder of the fall and winter", and "the Corps will take an aggressive stance with winter and spring releases". The release also said the Corps would communicate more frequently and more broadly as the 2012 season unfolds. What the release did not tell us is what exactly a flexible posture and an aggressive stance are.

The Corps did not tell us they would be making any additional room for flood storage in the system. In fact, it appears the system storage will remain the same as last year. Given recent NOAA forecasts for another wet season in the upper Missouri River basin and numerous damaged levees, which have breached and will not be repaired by spring, The Corps of Engineers should be creating additional room in the system for above normal runoff again this year.

Corps of Engineers decisions for river management are made well before public comments are requested. Hearings, workshops and listening sessions seem to be only an exercise for the Corps. They hold the meetings, and check the box, but no change takes place. In fact, I believe there are only two things that can make the Corps of Engineers place flood control as their top priority, 1) Legislation or 2) Legal Action. Testifying at Corps of Engineers hearings, making phone calls, attending meetings or even pressure from our elected officials seems to have no effect on the Corps of Engineers.

In order for the Corps of Engineers to change their ways, Congress must act. This committee can start to turn things around by adjusting the Corps of Engineers' budget. By funding levee repairs and flood control projects ahead of fish and wildlife projects, Congress can and should direct the Corps of Engineers to focus on flood control. Congress has an opportunity to fund flood control projects, create jobs and make real improvements in our economy. While doing so, the emphasis should be on levees and structural improvements to the Missouri River system.

Damaged Levees are not being repaired

I am very concerned about getting breached and damaged levees repaired. The Kansas City District Corps of Engineers Emergency Management Branch has identified 53 levees, which were breached or damaged during the 2011 flood event. Only 8 of these levees have received funding for repairs. In the Omaha District, only two levees have received partial funding and 20-24 levees have damage but no funding.

It is critical for Missouri River levees to be repaired as soon as possible, yet the administration still has not requested and Congress still has not appropriated funds to repair the levees. The Northwestern Division seems much more concerned with setting up working groups, holding meetings and conference calls and finding ways to not fix the levees. The Division's push for alternatives to levee repairs has caused many of us to question the Corps' true motives during the flood recovery.

The Division's lack of urgency is disturbing at best. Farmers and landowners want to repair their land and put it back into production. Home and business owners want to make repairs and get their lives back in order. Without levee protection, these people are taking incredible risks. Crop insurance rates have tripled in areas with breached levees. This adds even more to the risks of planting without levee protection. Weather forecasts for next spring are also disturbing. NOAA forecasts indicate another year of above normal precipitation in the Missouri River Basin.

Highly productive farmland & national security

The bottomlands along our nation's rivers contain some of the most productive farmland in the world. This valuable land produces a safe and inexpensive food supply for our nation. For every 100,000 acres of river bottom ground, farmers can produce enough Calories to feed 1.046 million people for an entire year. With a projected world population growth from 7.0 billion to 9.3 billion by 2030 (That is equivalent to doubling the population of current China and India), we have a humanitarian imperative to farm the land we currently have in production.

The Food and Agricultural Policy Research Institute and the Department of Agricultural and Applied Economics at the University of Missouri in Columbia, Missouri have just released a report regarding the direct economic loss to Missouri farmers from the Missouri River flooding of 2011. I have attached a copy of the report and with your permission would like to enter it into the record of this hearing. The report estimates 207,200 acres were flooded by the Missouri River in 2011. According to the report, "These acres would have generated nearly $176 Million in revenue had the flood event not occurred. Beyond the direct loss of this market revenue, there are spillover effects to the local economies affected by the flooding. The purchase of tractors, trucks, labor and other inputs does have a ripple effect on the counties. The IMPLAN model is often used to assess the broader economic impacts of a change in the economy (www.implan.com). IMPLAN adds both induced and indirect economic effects to the direct change estimated. In this case, IMPLAN would estimate that the $175.9 million decline in the value of crop production would result in a total economic value decline of $326.5 million".

Keeping our most productive farmland in production is a matter of national security. Agriculture has always been and will remain the backbone of our country. U.S. citizens are spoiled with our abundant and safe food supply. We tend to forget how important agriculture is to our economy and our strength as a world leader. Taking the rich bottomland soils out of production weakens our national security. These soils produce food, fiber and fuel. Safe, plentiful and inexpensive food and renewable fuels produced in the floodplains across this country keep us strong.

In these times of economic hardships, American agriculture remains a shining light of hope and strength. I am not an economist and I don't know if we are headed into a double dip recession or even toward a depression. But I do believe, no matter how bad the economy gets, agriculture will be the industry that leads our country out of its economic woes. It has held true in the past. This is why it is vitally important to keep our best soils in production and this is why we should protect these soils from flooding with levees and flood control structures. Even if we were to remove all infrastructure from the floodplains, (homes, businesses, roads, power lines, pipe lines, bridges and more), the remaining farmland is worth protecting with levees.

The Corps of Engineers' efforts to take land out of production and not repair the flood protection structures is dangerous and a threat to our national security. Flood Control has taken a back seat in discussions relating to our nation's rivers. Endangered species and habitat creation have become the focus of the Corps of Engineers. Congress must refocus the Corps of Engineers priorities and direct their efforts toward flood control and fixing levees. It can all start today with a renewed commitment from Congress to put the Corps back to building and engineering, instead of spending time on studies, meetings, conference calls and senseless science experiments.

Your committee has important work to do. I appreciate your willingness to serve our country and lead us through these difficult financial times. I encourage you to push flood control forward, fund levee repairs and put the economic engine along the Missouri and Mississippi Rivers back into motion. Members of the Missouri Levee and Drainage District Association and my friends and neighbors in Missouri will be looking for you to begin the recovery and rehabilitation process.

Thank you,

Tom Waters, Chairman
Missouri Levee and Drainage District Association
36257 Highway Z
Orrick, Missouri 64077

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The Direct Economic Loss to Missouri Farmers from the Missouri River Flooding of 2011

November 2011

Dr. Scott Brown
Assistant Research Professor
215 Mumford Hall
Columbia, MO 65211
(573) 882 – 3861
brownsc@missouri.edu

Agricultural and Applied Economics
College of Agriculture, Food and Natural Resources

The Direct Economic Loss to Missouri Farmers from the Missouri River Flooding of 2011

Many Missouri farmers felt the direct effects of the massive flooding along the Missouri River in 2011. Farmers that had land within the Missouri River bottom saw a complete loss of crops this year in nearly all cases. Water stayed on many of these fields for months, compounding the flooding effects. This has resulted in millions of dollars in lost crop production in 2011.

Completed at the request of Congressman Sam Graves (MO-6th District), this report quantifies the direct 2011 crop losses endured by Missouri farmers from the 2011 Missouri River flooding. This direct agricultural loss represents only a small piece of the overall losses suffered in 2011 by those living near the Missouri River.

This report does not attempt to estimate losses beyond direct agricultural crop losses. The flooding losses from categories such as building destruction, highway loss, railway loss and lost commerce from highway closings are very large and important to determining overall economic effects from the 2011 Missouri River flooding. However, these losses are beyond the scope of this report.

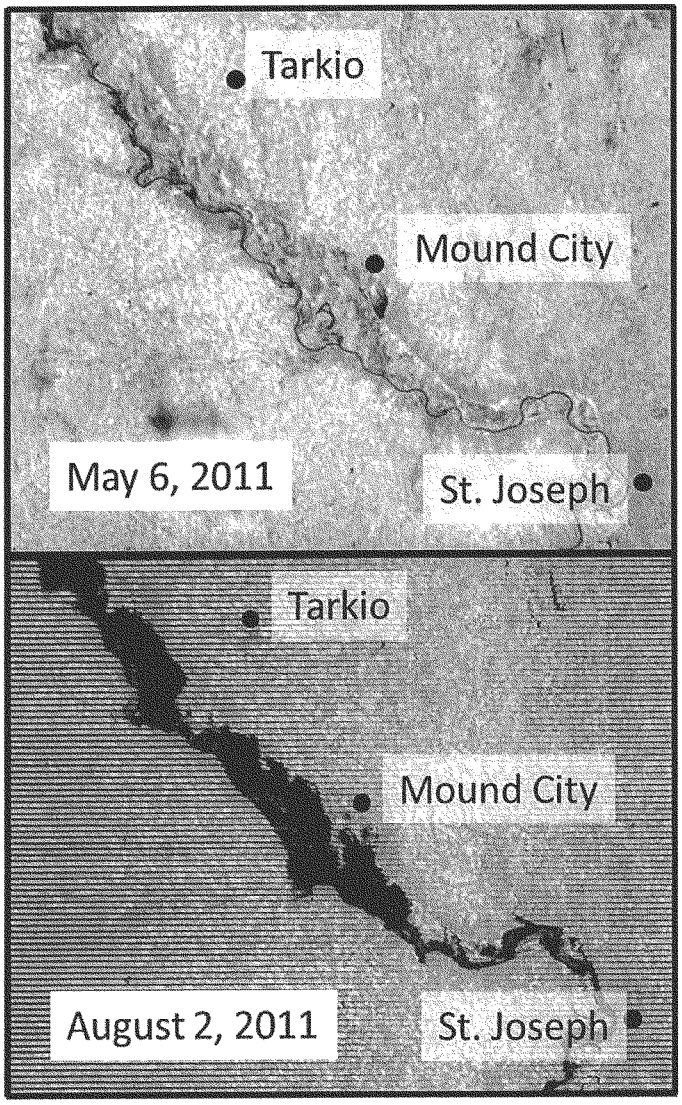
Estimating Cropland Acres Flooded

Deriving the extent of the flooding along the Missouri River in 2011 is a complex exercise. The approach generally followed in this study was to incorporate information from as many sources as possible in determining flooded cropland acres. Available information generated by the individual counties affected by the flooding, satellite imagery available from federal agencies and prevented plantings data available from the Farm Services Agency (FSA) within the U.S. Department of Agriculture (USDA) were all considered.

All of these sources provided a slightly different view of the cropland acres affected by the Missouri River flooding. The primary source used in this report to determine flooded cropland acres along the river was the satellite imagery estimates that were available from different sources within USDA. This data was then compared to prevented planting information and on the ground information from many of the Missouri counties affected to arrive at cropland acres flooded.

Figure one provides a visual observation of the extent of the flooding that occurred in northwest Missouri. Satellite images similar to these were used to help determine acreage impacts discussed in the report. It is important to realize that the use of these satellite images to determine whether an acre

Figure 1. Atchison and Holt Counties Pre and Post Flood Satellite Imagery



Source: http://glovis.usgs.gov

is flooded can be difficult, particularly at the edges of the flooded areas. Although land could have a small amount of water on it, vegetation that had grown prior to the flooding could mask that water in a satellite image and allow for undercounting of flooded acres.

The actual level of cropland acres affected by the flooding will continue to be refined over time as further information becomes available. This report provides an estimate of flooded cropland acres using all available information to date.

Estimating Crop Production and Value

The next step in deriving a loss value estimate is the estimation of normal or average crop yields within the flooded area and the price that would have been received for the crops in question. Historical yield information is available from USDA on a county-level basis. However, obtaining yield information within counties is difficult and many of the flooded acres in question represent better than average land within the affected counties.

After examining Missouri county yields contiguous to the Missouri River, this report assumed average corn yields of 160 bushels per acre, average soybean yields of 46 bushels per acre and average wheat yields of 55 bushels per acre across all flooded acres.

Crop prices used in this analysis were the midpoints of the price ranges predicted by USDA's November World Agricultural Supply and Demand Estimates (WASDE) report. The November WASDE report shows a midpoint of $6.70 per bushel for corn, $12.60 per bushel for soybeans and $7.40 for wheat. These U.S. midpoint price estimates were adjusted to reflect a Missouri price received by farmers. These crop price estimates could change substantially depending on how the 2011/12 crop year unfolds in the coming months.

Another factor to incorporate is the normal crop rotation within the flooded areas. In most cases, the historical data available suggested a traditional corn/soybean rotation. There was also some wheat planted within the flooded area. That information was used in determining crop-specific acreages planted within the flooded areas.

In addition to the estimate of the market value of the crop that was flooded, crop insurance and other disaster payments that will be available to affected producers are estimated in this study. Using information on county-level 2011 crop insurance signup, this report estimates the proceeds available to producers based on the coverage level and insurance type they purchased in the counties contiguous to the Missouri River.

Results

Table one provides the estimate of the crop acres flooded, lost market revenue and crop insurance and disaster payments in the Missouri counties along the Missouri River. The first 11 counties that the Missouri River flows through are shown county by county with the remaining 13 counties combined. It is clear that a large portion of the effects are in Atchison and Holt counties as these two counties represent nearly 50 percent of the total acreage flooded in Missouri.

Table 1. Missouri River Cropland Flooded Acres and Lost Crop Value

County	Cropland Flooded	Lost Market Revenue	Crop Insurance Proceeds and Disaster Payments
	(Acres)	(Million Dollars)	
Atchison	42,400	$36.1	$19.0
Holt	60,000	$50.9	$24.0
Andrew	1,700	$1.4	$0.5
Buchanan	6,600	$5.6	$2.0
Platte	14,700	$12.5	$4.7
Clay	1,300	$1.1	$0.4
Jackson	2,000	$1.7	$0.6
Ray	12,100	$10.3	$1.4
Lafayette	6,700	$5.7	$2.1
Carroll	28,900	$24.5	$4.7
Saline	9,200	$7.8	$1.0
Other 13 Counties	21,600	$18.3	$5.8
Total	207,200	$175.9	$66.3
Loss After Crop Insurance Proceeds and Disaster Payments			$109.6

This analysis estimates that a total of 207,200 acres of cropland was flooded by the Missouri River in 2011. These acres would have generated nearly $176 million in revenue had the flood event not occurred. After taking into account the crop insurance and other disaster payments that will become available to producers, there will still be nearly $110 million in losses as a result of the flood.

Beyond the direct loss of this market revenue, there are spillover effects to the local economies affected by the flooding. The purchase of tractors, trucks, labor and other inputs does have a ripple effect on the

counties. The IMPLAN model is often used to assess the broader economic impacts of a change in the economy (www.implan.com). IMPLAN adds both induced and indirect economic effects to the direct change estimated in Table 1. In this case, IMPLAN would estimate that the $175.9 million decline in the value of crop production would result in a total economic value decline of $326.5 million.

Summary

The 2011 flooding from the record rise in the Missouri River has left many communities along the river reeling. There have been many costs borne by those in the flooded areas. The direct loss to farmers is only one of many losses that are apparent from this year's flooding, and the overall costs from the flooding are certainly much larger than the $176 million of lost crop value estimated here. It will take many years for these flooded areas to recover from the damages they incurred in 2011.

There remains much uncertainty regarding how 2012 will unfold for many farmers within the flooded areas. Water has remained on many of the affected areas for such a long period that it has been impossible to get in and work on many of the repairs that are needed to levees and other infrastructure necessary to produce a crop in 2012. Although this report only estimates the 2011 effects, another repeat of the flooding seen this year in 2012 would lead to an additional burden on the affected counties and farmers.

Congressional Hearing Testimony
The Subcommittee on Water Resources and Environment
November 30, 2011

Good morning Chairman Gibbs and Rep Bishop, distinguished committee members, my name is Brad Lawrence. I am a mechanical engineer working as the Director of Public Works for the City of Fort Pierre, SD. I have thirteen years of experience in that position. Fort Pierre is situated just five miles downstream of the Oahe Project, the third dam in the six dam system. Thank you for inviting me to testify about the Missouri River Flood of 2011.

I intend to discuss two major topics: 1) The US Army Corps of Engineers (Corps) response and 2) the impact to the smaller communities along the Missouri River.

There are two major sources of water to the reservoirs; runoff from snow melt and rainfall. I have two slides that I will incorporate into my testimony today. The first one is the Snow Water Equivalent (SWE) slide (Figure 1) for the Upper Missouri River basin. This slide is the basis for my testimony and covers March 1 to June 30.

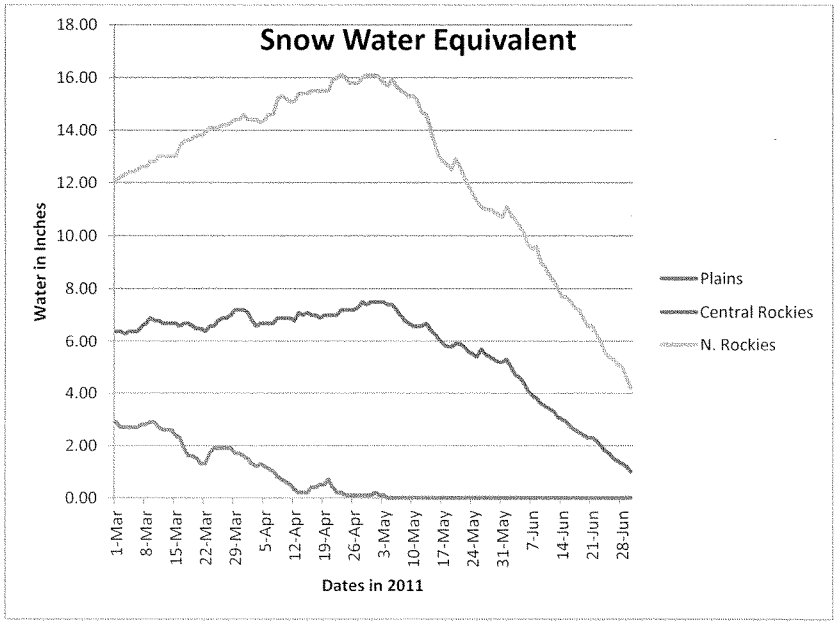


Figure 1

The top line in green is the SWE for the Northern Rockies, the second line in red is the SWE for the Central Rockies and the bottom line in blue is the SWE for the Plains snowpacks. The rising lines are increased amounts of water in snow that hasn't melted that will eventually runoff into the basin. The decreasing lines are the melting and running off of the stored water in the snowpacks. This information comes from the National Weather Service.

In early 2011 it was apparent that the plains snowpack was going to contribute a significant amount of runoff. I wrote a widely disseminated e-mail indicating that the risk for flooding was increased by the plains snowpack. While it looks comparatively small, the Plains Snowpack covers a vast amount of land area. Even at only 3" of SWE, the runoff from the plains filled more than 50% of the total available flood storage on the reservoir system by May 1.

The plains snowpack and its SWE (Figure 1) was a visible and quantifiable risk. The accumulation peaked just prior to March 1 and then melted off by May 1.

On Fort Peck by May 1, approximately 33% of the storage available on March 1 was filled by the plains snowpack runoff. On Garrison the amount was closer to 58% of the storage available on March1 was consumed by the plains snowpack runoff. On Oahe nearly 80% of the storage available on March 1 was consumed by the plains snowpack runoff.

The next graph is for the Garrison Reservoir (Figure 2).

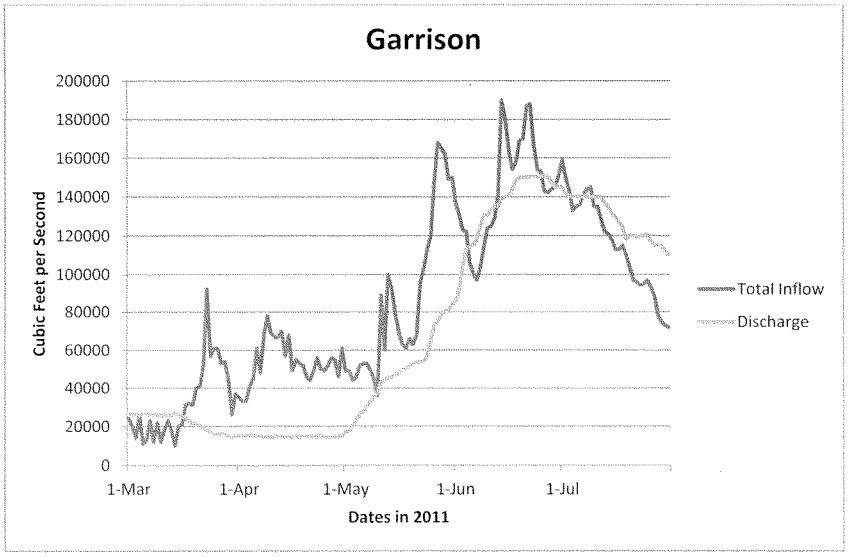


Figure 2

The key item to take away from this slide is that when the blue line is above the green line the reservoir is filling and when the green line is above the blue line the reservoir is draining.

The inflow curves show many aspects of the runoff into the reservoirs. The sharp spikes are from significant increases in the runoff over short periods of time; either from rapid snow melts or rain events or a combination of both.

Back on the SWE chart (Figure 1) you can see that the mountain snowpacks climbed relatively steadily to their maximum values near the 20th of April and began melting around the 1st of May. Please note the sharp drop from May 1 to May 10. That sharp drop creates a significant amount of runoff and therefore flow into the reservoirs.

The sharp rises in the Garrison reservoir (Figure 2) inflow indicates significant events. You can clearly see the spikes in the inflow charts from rainfall and rapid snow melt. While these spikes are significant, they pale in comparison to the large hump that starts in early May and continues to the end of June. That large hump is the overall mountain snowpack runoff.

The notion that the "Perfect Storm" rains in Montana caused this major flood just doesn't hold water! You can see for yourself that while the volume of water from those events is significant, it just doesn't measure up to the volume contained in the plains or mountain snowpacks, both of which were visible and measurable prior to the "Perfect Storm!" It is also interesting to note that the Corps began increasing the flows from Garrison significantly ahead of any rain falling in Montana. In fact they were at near record releases prior to the rain falling.

While no one could have predicted the heavy rains in Montana in May, everyone could have predicted that the water stored in the snowpacks was going to run off. The failure to determine the risk involved in the water stored in the plains and mountain snowpacks led to a lack of decisive action.

The reality is with this much water stored in the snow it was inevitable that we would flood. The lack of preemptive action led to much higher stages on the river and consequently much more damage. Nearly 50 % of the residents of Fort Pierre were evacuated from their homes, many for as many as 100 days. There are still nearly 100 homes that are unoccupied. Our little community is financially devastated after this event. Others downstream are in a similar or worse situation. The duration of the event is unprecedented and is the root cause of the financial hardship.

The most troubling issue for many South Dakotans was the lack of clear communication from the Corps. An early warning of any kind was never issued. Even during the initial stages of the event the communication of anticipated water levels kept changing daily. That made preparation nearly impossible. Greg Powell the City Engineer from the City Chamberlain says he is still waiting for a call to warn him that his local reservoir was going up 4' over a June weekend.

In closing I want to use the words from Jeff Dooley community manager for the Dakota Dunes. He writes:

The summer of 2011 will be ingrained in the memory of everyone who lives, works or farms along the Missouri River. This event has changed people's lives forever. My personal property

was not damaged by the flood. But, as the Manager of the community, I had to witness the distress caused by this event as my friends and neighbors were asked to leave their homes behind. This cannot happen again. We need to find out if and why these extreme releases were necessary and recognize or admit what could or should have been done to prevent it. Again, in a controlled river system there has to be an expected margin of error, but this year's releases far exceeded any reasonable expectation of those margins.

I concur with Jeff's findings.

Thank you Mr. Chairman for inviting me to speak at this hearing.

TESTIMONY OF RICHARD OSWALD
MISSOURI FARMERS UNION

BEFORE THE U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT

TO DISCUSS THE 2011 MISSOURI RIVER FLOOD

NOVEMBER 30, 2011
WASHINGTON, D.C.

Mr. Chairman and members of the committee, thank you for allowing me to share my experience with the US Army Corps of Engineers Missouri River inundation of 2011.

I am a fifth generation Missouri farmer from Atchison County Missouri. I have lived my entire life where I was born in the house built by my parents on our family farm in the Missouri River valley near Langdon.

Since it was built in1939, our home has been touched by the Missouri River 3 times; first, when after a few days advance warning in the spring of 1952 rapid snowmelt caused unavoidable flooding along newly constructed levee L550. That flood did little damage to our farmstead. My parents, my sister, and I returned to our home within 3 weeks. Dad raised a good crop that year.

The second was in the summer of 1993 when heavy rains fell across the entire Missouri watershed. Following the late July flood my wife and I and our daughter returned in mid August; Most fields and roads were undamaged.

After several weeks advance notice, Levee L550 breached for the third time on June 23, 2011. We were told well ahead of time to expect a flood. The reaction among most was that if flooding could be anticipated so far in advance, why wasn't something done to prevent it?

The managed uninterrupted flow of this flood kept us away from home for more than 100 days until October. Unlike most homes in the valley today, ours is still habitable. FEMA insurance adjustors have placed the insured damage to our farmstead at over $30,000. That is minor compared to my neighbors heavy losses.

Some of the most productive, valuable farmland in Missouri is on the river bottom in Atchison County. According to the satellite imagery study by Dr Scott Brown of the University of Missouri, at least 47,000 acres of crops were lost there. Local officials on the ground estimated over 60,000 in earlier estimates, due in part to an inundation map circulated by the Corps implying an unprecedented bluff to bluff flood from Gavin's Point to St Louis. But really, on our farm just as on so many others, final determination has not been made because crop insurance adjusters have not visited where much of the area remained inaccessible into November.

About 1400 acres of contracted seed soybeans and specialty food corn worth over one million dollars were lost on our farm. Close to half those acres were under irrigation.

Crop insurance based on my 10 year average yield will cover only part of my loss. Dr Brown estimated in his study that for most farmers, combined insurance and disaster payments are still insufficient. But no matter what the settlement, as a result of this flood our farm and many others have not grown food and energy crops America needs now.

Over the last several years, river management has made life especially difficult for bottomland farmers like me. Damage done by this flood to many productive fields is

irreparable. We have huge sand dunes and blowouts. Sandstone chunks from a 60 foot deep crater litter one field. Drainage ditches that should allow flood water to drain back to the main channel are plugged with silt and sand from the river; Fertile fields lay stark and barren.

Repairs to just 4 miles of highway 136, a major 2 lane river crossing in our county, cost over $3 million. Jobs and commerce at the intersection with Interstate 29 were lost for months during the flood when the highway closed. Many local residents who work across the river, just 10 minutes away, were faced with 2 1/2 hour one way commutes.

Rural roads like the seven miles in Langdon Special Road District were left impassable by washouts and debris. Work to bring them back to normal continues. FEMA is helping, but only 75% of those costs are eligible for aid. The way things stand now, without levee protection all our work and money spent could be for nothing if the water returns.

But the estimated cost just to repair levee L550 is $47 million. To date, less than half that is promised.

Land, our most valuable agricultural asset in Missouri faces lowered tax valuation in flooded areas placing a strain on basic local government services including rural schools. Millions of dollars in farm buildings and homes have been destroyed. Besides personal property, Missouri county assessors are required to reassess Ag land values up or down as situations change. Our county clerk estimated that with continued flooding, assessed values on river bottom land could drop from $4.7 million to a little over $238,000 costing local government hundreds of thousands in revenue and millions in productivity each year the flooding continues.

Property owners and farmers feel it first, but eventually the entire community takes the hit.

Because of the damaging length and severity of this flood and lack of funding for maintenance and repair, flooding again in 2012 seems certain unless Congress and the US Army Corps of Engineers make flood control their number one priority.

Mr. Chairman, I thank you and the committee for allowing me to be heard.

Richard R. Oswald
Langdon, MO

Appendix I

"View From the Flood Plain" by Richard Oswald
DTN Progressive Farmer, October 26, 2011
http://www.dtnprogressivefarmer.com

It never fails. Whenever I conduct interviews with farmers for DTN's View from the Cab, I learn something. Take last year for instance-

Early in 2010, while interviewing View from the Cab farmer Frank Zweber of Hoven South Dakota, he asked me where I live. "Near Langdon in extreme Northwest Missouri" I told him.

Frank zeroed in on the problem; "Near the river?"

"Within about 2 miles" I said.

Thats when Frank passed along this bit of wisdom; "You're going to have trouble".

Frank was right, because all of us along the river had trouble.

While Frank doesn't live near the Missouri, he spends a good bit of time fishing on the lakes formed by flood control dams in South Dakota. He said he had never seen the lakes so full, and with heavy snows that winter, the lakes could only get fuller.

Up and down the Missouri Valley there was trouble holding back the river in 2010. In 2011 it got worse. In fact, where I live here in Atchison County, the last 4 years have been challenging for farms along the river. Record flows up and down the Missouri have meant flooding, poor drainage, and constant threat of levee failure.

This year proved to be too much.

Flood preparations began here last winter when a Corps of Engineers grant to our levee district was used to build up weakened areas of the 62.5 mile long federal system. Gumbo back roads were improved at Corps expense when they covered them with matting and crushed rock so trucks and heavy equipment could do their work. Crushed rock was hauled and spread on rutted levee tops, and rip rap was placed on eroded slopes.

First built to offer relief from sand boils and blow outs, seep wells were restored to working order, and plastic sheeting weighted with sand bags was laid on freshly worked dirt where new brome grass couldn't grow quickly enough to shield it.

Work was barely completed before the spring rise arrived.

Roads can be muddy from rain or seep water, grain elevators might only be open for regular hours, equipment can break down. Veterans of river floods learn to move grain first because thats what takes the most time. It's slow going without a fleet of trucks and an army of shovelers waiting to help.

By May, most grain stored on land we knew could flood was gone to town.

Warnings began to filter out that the levees could never hold what was coming. So we started looking around the farmstead to see what else there was to move.

Farmers are no strangers to getting dirty, but if you've never cleaned up after a flood, you don't know what dirty is. We chose to clean up what we could...before.

It's interesting the things we all have but never see. Most of us have sheds packed with things we forget we have and never look at. We learned in 1993 to look hard, because the water leaves behind mud and smell and filth. Anything not picked up and moved before the flood weighs twice as much and smells three times as bad after. Feed or seed sacks, cardboard boxes, scrap boards, old tires, all the things people keep but never use--we threw it all away.

All the crops were planted in good time, but not too early. With planting over all eyes turned to the river--and weed control. My son sprayed our soybeans, then it was time to post the corn. Before I left to attend a week of meetings in early June, I suggested to him that he should hold off spending anything on weed control on our bottomland corn. "Save the money" I said, "this time it's going to flood".

When I got home he told me he had sprayed all the corn. I asked why.
"It needed it" he said. If it didn't flood the weeds would take the crop.

He didn't have to worry about that.

By June, water releases from the river's surge tank known as Gavin's Point, were crawling up the sides of levees like ants on the way to a picnic. Neighbors up and down the valley took machinery to high ground where it wasn't unusual to see million dollar rainbows of planters, tractors, combines and grain trucks on colorful hill side parking lots.

Groups of volunteers gathered to lay more plastic sheeting and sand bags. Emergency Management issued daily appeals for sandbaggers and fillers.

News reports and the Corps were calling us "the basin".

An inundation map was released showing potential record flood depths, perhaps exceeding 1952 and 1993 levels by 6 to 8 feet or more. Army Corps of Engineers representatives held meetings in the area.They warned Hamburg IA residents that water would be ten feet deep at the flag pole in the middle of main street. At Rock Port

MO, they informed the town their water wells were in jeopardy. Corps representatives placed a mark on an outside wall of the water plant at 902 feet above sea level, 6 feet deeper than 1993.

A few days later they returned and raised the mark even higher.

Based on the second mark, a friend and I calculated a potential water flow of 550,000 cubic feet per second. That is the about the same amount that emergency tunnels built into the dams release when fully opened. At that rate, the river could be flowing across parts of our land at almost 15 miles per hour.

That much water flowing that fast would probably sweep away everything in it's path; homes, outbuildings, irrigators, grain bins, trees...even the largest federal highway bridges. An op-Ed in the St Louis Post Dispatch warned of impending disaster.

From here it looked like the river might be out of control.

City emergency management called for help and an emergency levee was built at the Rock Port wells using city and county resources and volunteer labor. A group of convicts from the correction facility at Cameron Missouri worked side by side with citizens of Atchison County for weeks. Up in Hamburg, a massive effort to save the town was underway. Eventually a levee was built west of town that would protect it from the river. But with no time to file an environmental impact statement, officials were told the levee violated protocol and would have to be removed by fall.

As of today, it remains in place.

Here at Langdon we decided to clean out our 74 year old house. Flood waters have never touched our ground floor, but if predictions proved correct the house would be in 10 feet of water. Even the second story would be in jeopardy. So in mid-June a friend offered us the use of a 53 foot refer trailer where we could store our furniture for a month or so until flood dangers were past.

In the end our furniture, including my favorite recliner, would be in his trailer for 16 weeks.

This past Sunday we finally unloaded.

A levee west of Hamburg began to leak. The Corps declined further repairs saying flooding was inevitable. A group of farmers made repairs themselves. Before long another breach occurred. This time there was no fixing it.

It's hard to admit, but when a levee breaks north of us we feel relief because someone else is taking the water that might flood our own farms. We felt badly for the people in West Atchison where the break happened, but it dropped our water level, only just for

awhile. After a few days the flood plain filled and water broke through the tributary Nishnabotna River levee where it returned to the main channel.

Our stretch of the river began to rise again.

Flooding north of the Missouri state line in Iowa caused interstate 29 to close at exit 110 on highway 136. Northbound traffic was forced to exit. Travelers were confused. Filling stations and restaurants at the intersection were inundated with people looking for directions on how to get north. It got so bad that businesses printed reams of giveaway maps giving directions out of the area.

In late June the levee began to overtop north of the Brownville bridge on Highway 136. Surprisingly it held for days. A morning ritual for local farmers became a drive to the levee at dawn to see foot and a half deep water cascade over the top. Rapids turned the levees white with foam. From a half mile away it looked like snow.

Rising rivers are high in the middle.
Observers could actually see the river surface above the top of the levee.
There was no let up. Wear began to show.
Levee slopes started slipping under the onslaught.

Even without a breach, flood water was accumulating from overtopping.

On the river bottom, water follows the contour of the land. Along the Missouri we lose about one foot of elevation from north to south in every mile. When the river is high drainage water piles up against levees.

Lowest areas were already flooded because there was nowhere for the water to go.

Missouri Governor Jay Nixon sent the National Guard to protect property and stop unnecessary traffic. When the Corps said additional efforts at sandbagging would be futile, the Missouri Guard commanded by General Steve Danner used their Blackhawk helicopters to place sandbags on the most precarious spots along the levee. A levee in southern Atchison County was saved by Guard helicopter drops. Its stands today.

Farmers protected by that levee were harvesting last week.

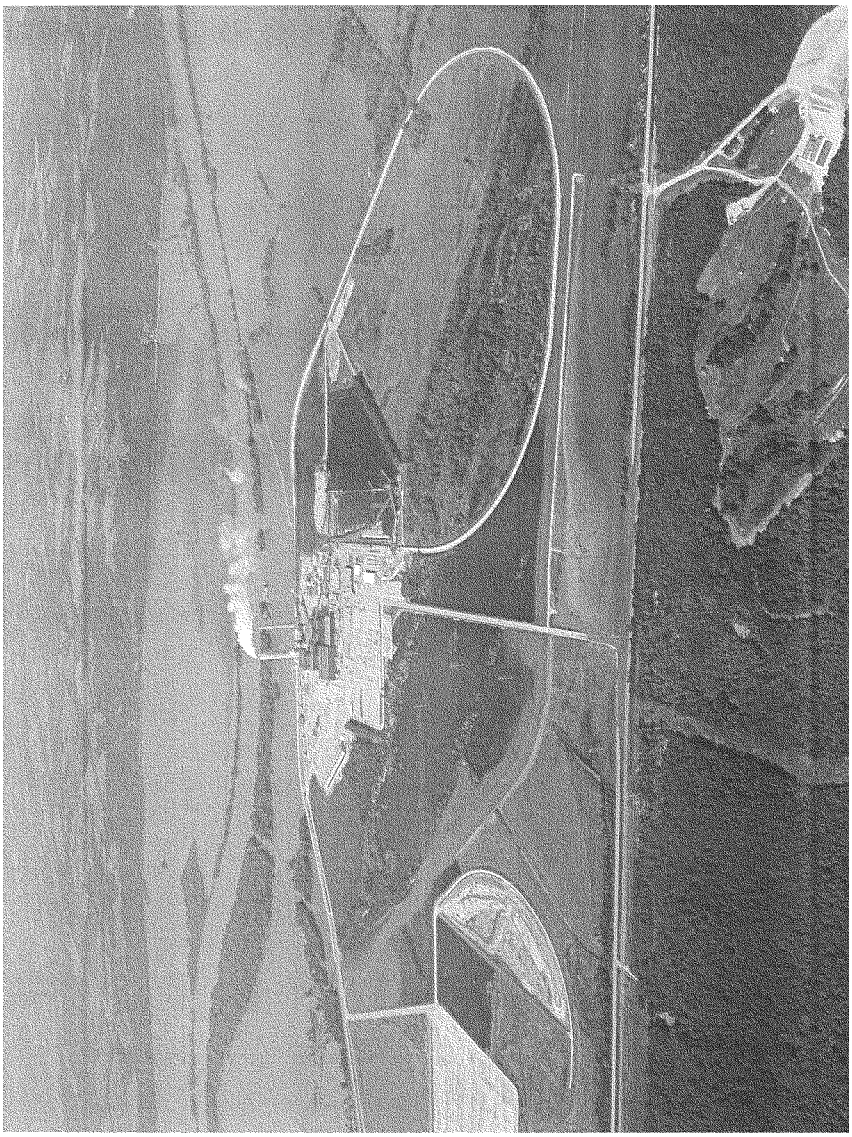
On June 23 a huge portion of levee collapsed west of the village of Watson MO pushing water east and south toward my farm. Evacuation was ordered.

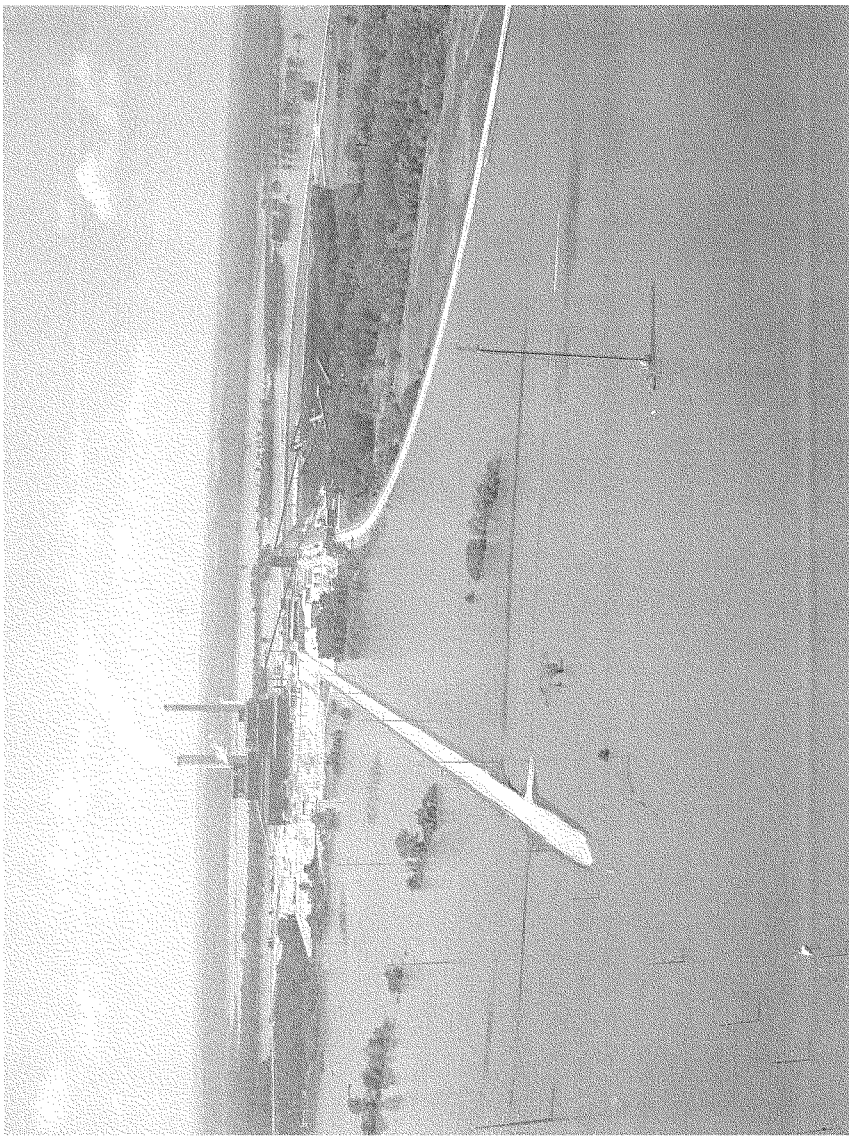
"Second bottom" is accreted soil piled onto alluvial plains by ancient floods. Before the levee system was built, second bottom was generally above the spring runoff. Our home is situated on second bottom. Ordinarily it would take days for any normalflood to reach it.

My wife and daughter returned there a day after the levee breach to rescue flowers from the front yard. When my son couldn't locate them he drove to the farm and found them casually loading flower pots. Upset by what he thought was carelessness on their part, he shouted at them, "Get out of here now". In the short time they had been there water had already covered the last road, their only exit.

As they drove out it was 18 inches deep and rising.
The great flood of 2011 was on.

Richard Oswald is a 61 year old fifth generation Missouri family farmer with over 44 years of farming experience. He lives with his wife Linda and grandson Ryan in the house Richard's parents built, the same house where he was born in the Missouri River valley near Langdon. Richard's crops are specialty corn, seed soybeans, hay, and pasture. Richard is a Missouri Master Farmer and a rural blogger whose writings may be seen at www.DailyYonder.com. He is a special correspondent for DTN/Progressive Farmer. He is the current president of Missouri Farmers Union, and serves on the board of directors of National Farmers Union, and on the board of directors of Organization for Competitive Markets.





The Missouri River Flood of 2011
Narrative by Brad Lawrence

The Missouri River Flood of 2011 will go down in history as one of the most devastating natural disasters of all time. The following narrative depicts the key events that shaped my perception of the flood from a Fort Pierre, SD perspective. I want to provide a little background about the author. I am a graduate Mechanical Engineer from the South Dakota School of Mines and Technology. I have worked in the engineering field for a little more than 17 years. My focus has primarily been pavement, water, sewer and electric infrastructure associated with public works.

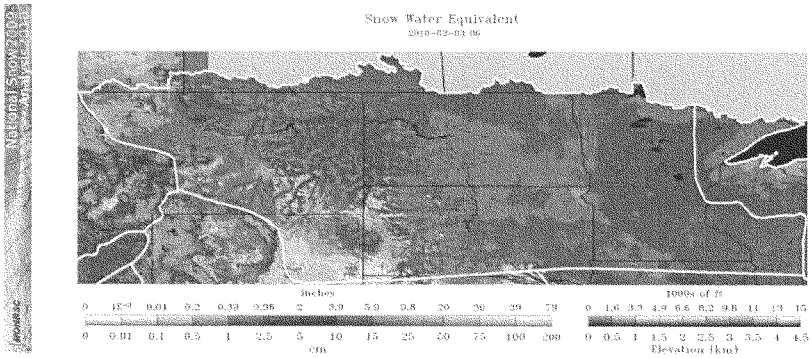
My first exposure to the possible threat that loomed due to the Missouri River came in the spring of 1997 (200% of normal flow year). Heavy plains snowpack had accumulated during the winter as a result of several strong blizzards that plagued the plains states that winter. As a result, the runoff from the plains snowpack filled the main stem reservoirs to near capacity in early April. This caused the US Army Corps of Engineers (Corps) to open one of the powerhouse bypass tubes in the Stilling Basin. Lake Oahe peaked less than two feet from maximum pool that year. The higher than normal discharges ran through the majority of the summer. This led to the observation that the plains snowpack can create a significant amount of runoff.

Since that first exposure, I have monitored and been intrigued by the amount of plains snow that has accumulated and the runoff associated with it. In 2009 I witnessed Lake Oahe rising five feet in seven days. That was an astonishing event considering we were just coming out of a nearly decade long drought. I again watched in 2010 as the combined runoff of the plains and mountain snowpacks converged to fill Lake Oahe to nearly the same elevation as it was in 1997. The very interesting thing about this was that the system had nearly 3 million acre feet (MAF) of carry over drought storage that year that kept the lakes inside their maximum pools.

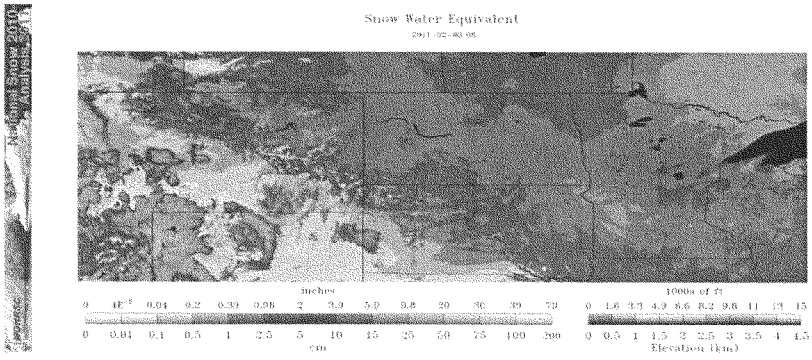
On February 3, 2011 I was asked to speak at the South Dakota Rural Water Managers Meeting in Fort Pierre. At that meeting some questions came up about the amount of snow on the plains and the anticipated runoff. I offered my opinion that the entire upper United States was primed for flooding. This included nearly every major river system east of the Missouri River and I included the Missouri river at that time. The reason was that the Corps had failed up to that point to remove the necessary water to reach the multiple use flood control storage requirement. That storage is required on March 1 the start of the runoff year. At that time, the Corps was 100,000 acre feet shy of the minimum required flood control pool.

On that same day I sent an e-mail (Ref. 1) to Kevin Morely with the American Water Works Association who is the coordinator for the National Water and Waste Water Agency Response Network (NationalWARN) in Washington, DC. In that now infamous e-mail I warned of the increased possibility of (biblical) flooding across the entire upper plains east to the East coast. My intention was to warn the downstream states that the odds of a flood occurring this year were substantially increased. The reason for issuing this warning was to bring attention to the extreme amount of water stored in our plains and

mountain snow packs. At that time, the plains snow pack contained about 3.1" of water. This was according to the National Weather Service's (NWS) National Operational Hydrologic Remote Sensing Center (NOHRSC). This first pictograph shows the plains snow pack in 2010, when the total annual Missouri River runoff was determined to be approximately 150% of normal. The snow water equivalent on February 3, 2010 was listed at 2.4". The key thing to note here is where the higher concentrations of snow fell. The lighter colors of pink indicate more water. The higher concentrations were east of the Missouri River basin.



This second pictograph shows the snow water equivalent for the same date in 2011. As you can see there is much more pink on the western plains and the pink is covering much more of the Missouri River Basin.



I should note that comparing just one day from one year to the next can be misleading since one good snow storm or one good melt might bias the total amounts significantly. I compared day over day for

the entire month of January prior to this date to determine that this was a trend and not an isolated occurrence.

So our 3.1" compared to the 2.4" of snow water equivalent, yields a 129% increase over 2010 which was 150% of normal runoff. If you assume that the 2010 runoff was due to equal parts of mountain and plains snow pack, then the anticipated total annual runoff on February 3, 2011 was 194% of normal or a nearly 50% increase of normal over the previous year.

I also was looking at the two mountain snow packs that contribute runoff to the Missouri River Basin for water content. They were 7.4" in the Northern Rockies in 2010 compared with 9.3" in 2011 on that same date. I also had looked at the trend for these areas and they were consistent. In the Central Rockies it was similar with 3.3" in 2010 and 5.2" in 2011.

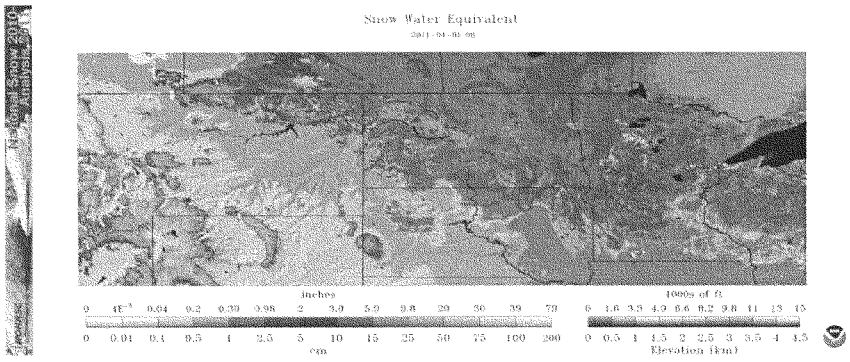
So any way that you look at it, we were in for a substantial increase in the amount of runoff in February of 2011 over the large runoff of 2010.

When I sent this information to Kevin Morely, he disseminated it to two federal agencies, EPA and Homeland Security. The information also was sent to all 50 state WARNs for their use and information. We did not try to hide this information. I did not send this information to the CORPS, as they (should) have a legion of people looking at this same or better information.

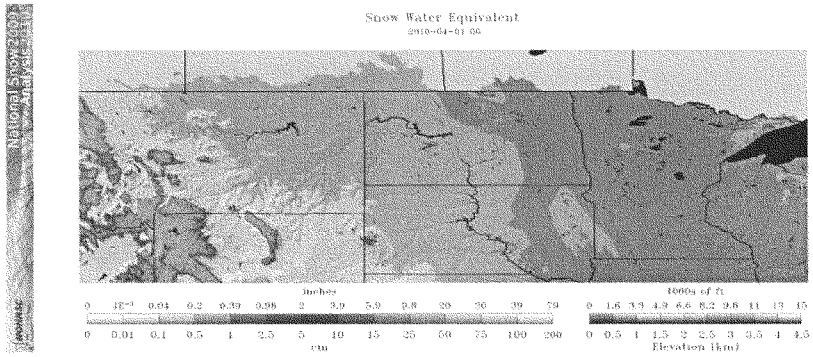
On February 22, 2011 the NWS issued its Spring Flood Risk Forecast. In that forecast the predictions by the NWS mirrored the statements in my February 3, 2011 e-mail. The only difference was the NWS didn't mention any increased risk for the Missouri River at that time.

During the month of February 2011 there was a significant melt that occurred. That melt ran off into the system and reduced the already below standard flood control pool by another 700,000 acre feet by the critical March 1 storage check. That means we entered the runoff year 800,000 acre feet below the required (Master Manual) flood control storage total of 16.3 million acre feet (MAF).

As I tracked the trend in snow water equivalency it increased consistently as we went farther into the spring months. This following pictograph shows the SWE for the plains snowpack on April 1, 2011. This is the date that the Corps chief of the Reservoir Control Center (RCC) claimed that the plains snow pack was overestimated and that the mountain snowpack was "nothing to write home about." The plain's SWE was 1.5" on that date or nearly 50% of the total on the ground on February 3, 2011. Note the significant light pink shades by Lake Sacagawea and just north and east of Fort Peck Reservoir. That water runs off into the Missouri River System.



As you can see from the following pictograph, contrast this to the plains snowpack for 2010.



The SWE totals for the "nothing to write home about" Northern Rockies and Central Rockies snowpacks on April 1, 2011 were 14.4" and 7.1" respectively. On April 1, 2010 those same SWE's were 8.4" and 4.3". I won't even do the math as it is very easy to see the marked difference between 2010, a 150% runoff year, and the 2011 totals. Obviously nothing to write home about!

We prepared in earnest for spring flooding. We sought out sandbag suppliers, faster filling methods and started planning for what appeared to be a long term flood event with a magnitude of around 85,000 to 100,000 cubic feet per second (CFS). It would have been a minor flood and one that would be fought with sand bags and minor storm drain work.

I received a call from Eric Stasch with the Oahe Project office on May 18th. He said that the Corps was anticipating trouble with holding back all the runoff from particularly heavy rains in Montana in the past week. He indicated that the Corps wanted to run the Oahe powerhouse at full capacity and partially open one tube in the Stilling Basin to achieve 60,000 cfs to see if we had any consequences from that

discharge. On Thursday the 19th, the Corps ran Oahe at 65,000 cfs for the entire afternoon. We didn't experience any problems.

On Monday May 23rd we were called to a joint meeting with the Corps, SD Office of Emergency Management personnel and local emergency management officials to include the two cities of Pierre and Fort Pierre. At that meeting the Corps announced that they felt they would need to increase the discharges from Oahe to 85,000 cfs in the near future. While at that meeting I had calculated and written in my notes that we would be at or above 110,000 cfs by June 10. I showed my prediction to Mr. Stasch and he asked how I came up with that number.

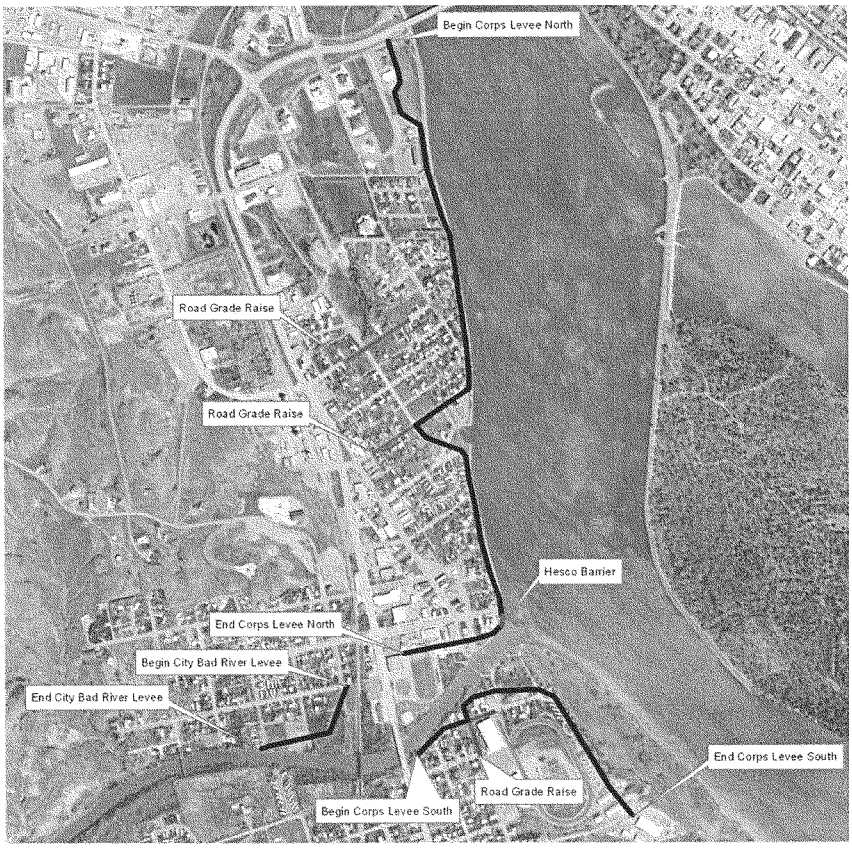
On May 24th at 5 PM we were called back again to another conference call with the Corps. The information they were disseminating was the latest flow prediction of 110,000 cfs. Our 100 year flood plain for the Missouri river was 70,000 cfs and would not have been that big of an event had it occurred. Now with a monster flood on the horizon, all thoughts shifted to how can we save our town.

For the first several days I didn't eat. I couldn't eat. It was all I could do to hold back the gag reflex. You see this was my hometown. This is where I went to school and graduated from high school. I knew early on that this was going to be a dance with the Devil. It would be proven just how difficult a dance it was going to be in a few short days.

On May 27th the Corps awarded a contract to construct protective measures for the cities of Fort Pierre and Pierre. The only issue was they left out all of Fort Pierre north of US Highway 14. The project started in earnest on Saturday May 28. The required completion date was June 1 at midnight. The project proceeded at an absolutely astonishing pace. However on the date of award for the project we got the bad news that the levees would have to be increased another two feet to accommodate the newly anticipated 150,000 cfs discharges from Oahe. That was a cannon ball to the mainsail.

During this time we were working to increase the elevation of some of our roads that were inundated with water already. This effort provided a stable road network for the levee construction. Without the grade raises the task would have fallen short. We were simultaneously creating sandbag sites, providing elevation benchmarks for all areas along the river and providing as much information as possible to the public. There wasn't much sleep during this period, but I finally was able to eat.

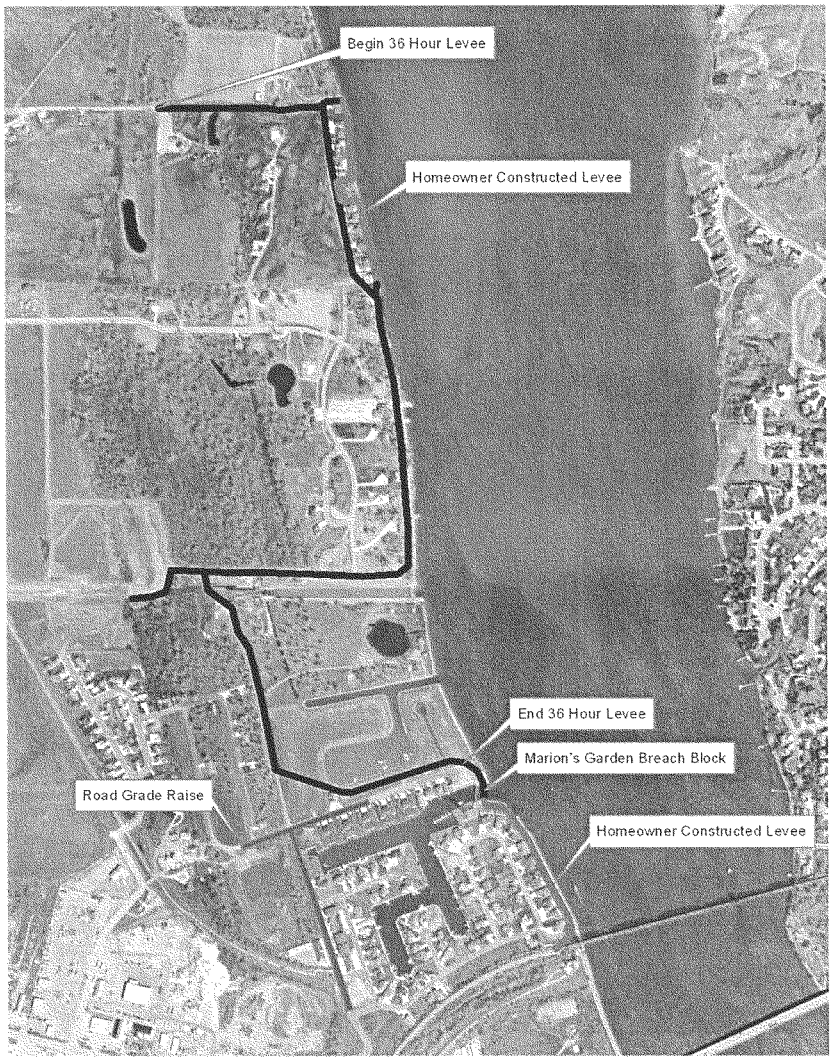
We received an incredible amount of support during these days from all over the US. People were donating food and having the local businesses bring it to us. It was incredible and very a humbling experience. There were days a person would wonder if we were worthy of such selfless and incredible support. We can never repay those that donated other than to pay it forward helping the next area of the nation that is in trouble.



There was one task that was still gnawing at us. That was how to protect the remaining half of the city left unprotected by the Corps levee. The main issue was plugging the three large canal breaches of the riverbank. The southernmost one was over 100' wide and fairly deep.

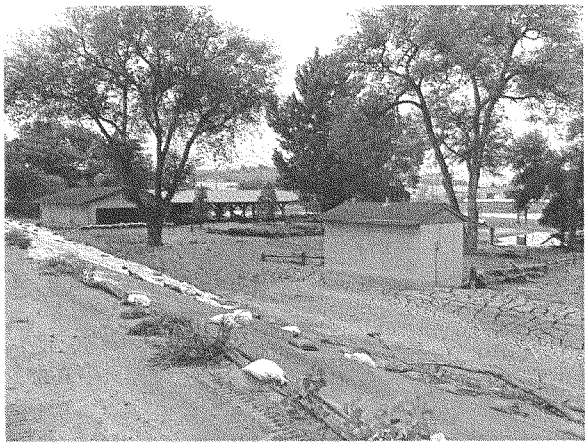
I worked with Scott Schweitzer from Brosz Engineering to devise a plan to capture as much of the northern segment of town as possible. We devised a plan to create a levee that would cover over half of the exposed area north of HWY 14. Simultaneously and unbeknownst to us was a plan being made by the Marion's Garden Homeowner's Association to plug their breach and build a levee along their riverfront. As that plan moved forward, we devised a plan and route to construct another 10,000' of levee. There were just a few issues: we didn't have any plans; we didn't have time to go out for bids; the water elevation was rising now every day and we had to race the water increases to completion.

We completed closure about hour 30 of the construction. It was a grueling task as 3,000' of the levee had to be constructed in sections of ground already underwater. By hour 36 we had made completion and were ahead of the water enough to take a short break. We returned and put a finish on the new levee system over the next few days.



While the levee system was being constructed, a pressing need for storm water pumping supplies and plans were needed. Brosz Engineering provided to us the plan to create 12 runoff basins and several more pumping sites. We used a 2.5" rain over a 24 hour period with high runoff coefficients as our base storm. Our first real test came when over 5" of rain fell in a little over a 70 hour period starting on June 19th; so much for our plan. Our planning saved us by dictating where the largest amount of runoff would concentrate and where we needed to increase our pumping capacity the most. In the end we had 73 pumps and a monthly cost for storm water pumping of $200,000.

That first large event triggered localized flooding due to storm water backup. This was compounded by the fact that not all of our 37+ storm sewers outlets into the river were plugged. We worked feverishly to plug the storm sewers and pump all the runoff from the massive rain out. Then it rained again on June 24th, only this time it was only about 2". This caused the Bad River to reach flood stage and start to leave the banks along the city of Fort Pierre. The river crested a little over bank full in the unprotected areas of Fort Pierre. The flooding left significant amounts of sediment in our park areas by the mouth of the Bad River.



Coincidentally during this same time, the Corps announced on their Friday June 17 5 PM conference call that they were increasing the discharges from Oahe to 155,000 cfs at 8 AM Saturday morning. They were then going to increase the discharge again on Monday morning to 160,000 cfs. This was an attempt to utilize the extra(?) storage available at Fort Randall Dam to keep a foot of free board on Oahe. The significant rains of June 19 through June 24 erased all hope that this tactic would work. The Corps abandoned the plan after only about 72 hours of running at 160,000 cfs.

Then on June 30 the hardest rain I have ever witnessed fell when over 2" of rain came down in less than an hour. For the third time in two weeks we were swamped. I was ready to quit. Between the increased discharges and the relentless rain we were beat. Mercifully the last significant rain fell on July 4th.

Things finally began to become what we termed "Flood Normal". We went about our daily lives working about 12-16 hours a day most of the time just keeping our heads above water. Finally the news came that the water would start to recede in mid August. There was a light at the end of the tunnel.

Since the drawdown began we have been working again at feverish pace. We were in a race with old man winter now. Levee removal is in full swing these days and so is the documentation phase with FEMA.

Many of us city workers were impacted either directly or through family members that were directly impacted by the flood. I had to evacuate my parent's home the week prior to the flood. I could see it coming and there wasn't going to be an opportunity to get their stuff out after the flood started. They came up to my house and lived there until late August when their home was reclaimed from the impact of flooding.

In summary the Corps is predicting a total runoff of around 60 million acre feet (MAF) or 220% of normal. If you take this flow and convert it to a 24 hours a day rate, it comes out to 82,877 cubic feet per second (cfs). What that means is that when winter operations are taken into consideration, we would have had to operate at something around the 120,000 cfs range for a long time to pass that much water. It would be longer than the 90 days we ran at 150/160 kcfs.

The real issue in my mind is that the Corps failed when it came to understanding the amount of risk (water) the snowpacks contained. Additionally, because of that they never communicated what preparations and to what level were needed until it was too late. In reference two I cover the technical aspects of the risk assessment and the Corps attempts to spin the story.

The other thing that is vitally important is that we were going to flood no matter what happened with the "Perfect Storm" in May up in Montana. Did it have an effect? Yes. But at the 160,000 cfs we were ultimately running, that "Perfect Storm" water passed through the system in less than 20 days. That leaves us to wonder what caused the rest of the 90 days of flooding; that was the mountain snowpack.

As I said in my narrative, we (I) were anticipating something in the 85-110 kcfs range for an event. I think the system could have been able to keep it in that range without the heavy rains in Montana. I haven't done any of the math to prove that out, but it seems that if we had that extra 3 to 5 MAF of storage, lost to the "perfect Storm" rains, coming into the mountain snowpack runoff; we could have reduced the peak amount by 25% or about down to 120,000 cfs. That would have put us in the 110,000 cfs range on our stretch of the river.

We also anticipated that the flood would become an issue in mid June rather than late May. The Montana rains did change the time frame for this event by moving it up earlier, increasing the peak flow rate and lengthening the duration of the event.

One other item that the Corps has read into my e-mail when I warned that the Corps would hold back waters due to downstream flooding is that I was talking about Mississippi flooding. In fact I only mention downstream. I did not limit it or otherwise indicate that it was the Mississippi that I was worried about. The Corps has indicated that they did indeed have concerns in the lower Missouri River basin during the time that they should have been increasing discharges to keep pace with the plains snowpack runoff.

In the end we may never know just what improvements could be made to the response. The reason is that the Corps response to the threat of flooding was so poorly conducted that drawing any plausible conclusions may prove impossible.

Respectfully Submitted,

Brad Lawrence
Director of Public Works

Reference #1

I hear ya

Kevin M. Morley
Security & Preparedness Program Manager
American Water Works Association
1300 Eye Street, NW Suite 701W
Washington, DC 20005
O: [redacted]
D: [redacted]
E: [redacted]

Check out the new J100 RAMCAP Standard for Risk and Resilience @ www.awwa.org/j100ramcap

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From: Brad Lawrence [mailto:[redacted]]
Sent: Thursday, February 03, 2011 2:14 PM
To: Kevin Morley
Subject: Re: Monitoring WinterStorm Aftermath

Kevin,

You certainly may. I don't want to be a chicken little and claim that the sky is falling. I want to be a realist and notice that there is a large amount of snow to melt and runoff. I also wanted to point out to the states that missed this big event that they still have their bacon in the fire!

Thanks,

Brad
----- Original Message -----
From: Kevin Morley
To: Brad Lawrence
Sent: Thursday, February 03, 2011 12:59 PM
Subject: RE: Monitoring WinterStorm Aftermath

Excellent points Brad...Mind if I repackage this message while provide full credit to you?

Kevin M. Morley
Security & Preparedness Program Manager
American Water Works Association
1300 Eye Street, NW Suite 701W
Washington, DC 20005
O: [redacted]
D: [redacted]
E: [redacted]

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From: Brad Lawrence [mailto:[redacted]]
Sent: Thursday, February 03, 2011 12:00 PM
To: Kevin Morley
Subject: Re: Monitoring WinterStorm Aftermath

Kevin,

I met this morning with the rural water managers in SD. One item of concern in the coming days/months is sandbagging supplies. I anticipate significant flooding from the Missouri River to the East Coast on nearly every significant river. This may be one for the record books.

I am including the Missouri River in that tally at this time. The Corps of Engineers has failed thus far to evacuate enough water from the main stem reservoirs to meet normal runoff conditions. This year's run off will be anything but normal. This is compounded by the anticipated flooding downstream. The Corps will hold back water to help alleviate the downstream flooding; filling the reservoirs to capacity in the process. Once full, they will pass everything that comes in. In April 2009 the inflow to Oahe was 140,000 cfs. That would be a flood of biblical proportions here and downstream.

I would also anticipate that those states that are downstream and not affected directly by all this moisture will become affected when the runoff reaches them.

I will guarantee that the James River and Big Sioux River in SD will flood. The Red and James in ND along with many tributaries to the Missouri River will flood. Everything in MN including the Mississippi looks like it is primed to flood; especially the Minnesota River.

It looks like this most recent storm went right down the Ohio River Valley. That can't be good for that system.

There are some significant events that could preclude this and those are slow thaws with intermittent freezes and a general lack of precipitation for the rest of February and March.

So I would be working the flood preparation supply chain to see what is available and be ready. It is a high probability that a large scale flooding event(s) will occur this year.

Historic Fort Pierre

Brad Lawrence
Director of Public Works, Chair SDWARN

City of Fort Pierre
08 E 2nd Ave
PO Box 700
Fort Pierre, SD 57532

[redacted]
www.fortpierre.com

tel: [redacted]
fax: [redacted]
mobile: [redacted]

Want to always have my latest info? Want a signature like this?

----- Original Message -----
From: Kevin Morley
To: [redacted]; Alan Barefield ; Andrea Powers ; Arnold, Colleen ; Bieber, Steven ; Biederman, Terry ; Brad Brooks ; Brad Murphy ; Broussard, Don [redacted]; Carr, Bill ; Chaplik, Tom ; Chris Taylerson ; Daniel Rayfield ([redacted]) ; Dougherty, Laurie ; Eric Melcher ; Gerwin, Steve ; Greg McKnight ; Howe, Mike ; Howlett, Rick ; Jacobson, Mike ; Jason Barrett ; Jim Brummer ; John Wiltrout [redacted]; Kelly, Scott ; Kirk Medina ; Lamb, Patti ; Lawrence, Brad ; Leslie Shurtleff ; Luther, Thad ; Lynch, Dan ; Mark Nicely ; Matthew Holmes ; McKenna, Johnna ; Michael Knox ; Michael Richardson ; Montressa 'Monty' Elder [redacted]) ; Morgan, Buddy ; Moulton, Pete ; Pat Credeur ([redacted]) ; Pierson, Dale ; Randy Norden ; Riordan, Raymond ; Robin Halperin ; Schreppel, Connie ; Segal, Martha ; Sharon Williams ; Shaun Fielder ; Smith, Sandy ; Steve Shepard ; Stuhr, Michael ; Talley, Richard ; Ted Corrigan ; Titzmann, Paul ; Warnstaff, Clarence ; Wavra, Greg
Sent: Thursday, February 03, 2011 8:34 AM
Subject: Monitoring WinterStorm Aftermath

I am sure many of you from Texas to Maine have your hands and bucket loaders full in the aftermath of this severe winter event.
I have not seen or been made aware of any specific WARN activations and/or responses. But just remember that there is a big family out here that is poised to provide assistance if called upon.

Please advise if I can be of any assistance in facilitating conference calls or making contact with other agencies to provide status updates etc as we have done in the past.

Kevin M. Morley
Security & Preparedness Program Manager
American Water Works Association
1300 Eye Street, NW Suite 701W
Washington, DC 20005
O: [redacted]
D: [redacted]
E: [redacted]

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This email has been scanned for all viruses by the MessageLabs SkyScan service.

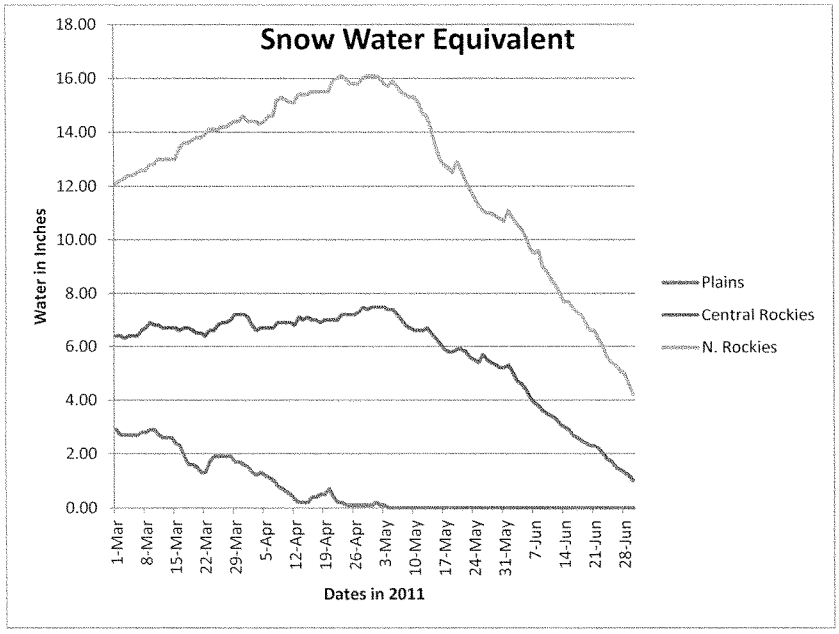
Reference #2

As a person looks at the events that created the Missouri River Flood of 2011 it is obvious that there were several key markers indicating the increased risk of flooding along the way. This treatise will cover those markers and also will refute the claims made by the Corps that it was just a "perfect storm" that caused the entire flood.

As with any incident like this flood where actions by man are involved, there is typically a chain of events where any one of them being changed changes the entire outcome. In some respects that is the case for this year's flooding.

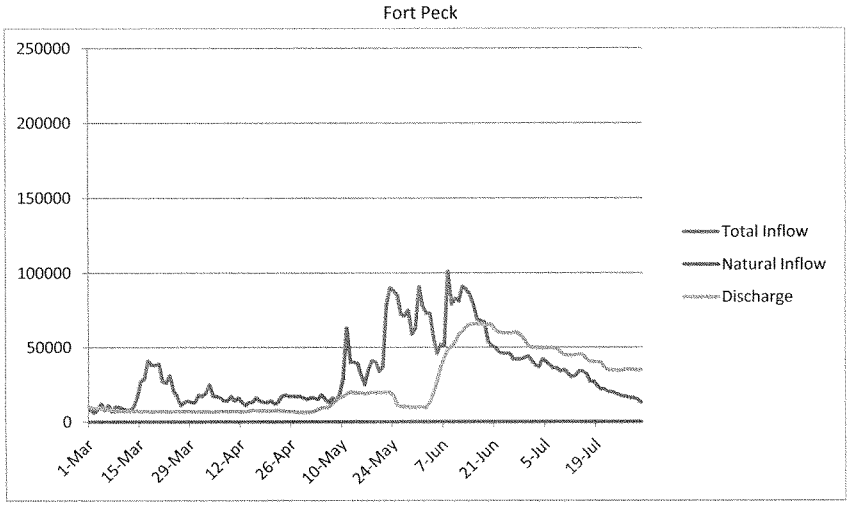
First, let's look at the amount of snow water equivalent (SWE) that was present in the basin during the ramp up to the flood. This following chart shows the SWE from March 1 to July 1. It is very telling. While the plains snowpack does not look like it would be a significant contributor to the runoff scenario, that minimal amount is spread over a vast area. That accounts for the significance.

Snow Water Equivalence



The SWE chart is the basis of all discussions with respect to runoff and the comparative risks involved in the accumulated SWE. If you compare the SWE chart to the flow charts for the respective reservoirs you can see the direct impact that the melting snow had on the runoff.

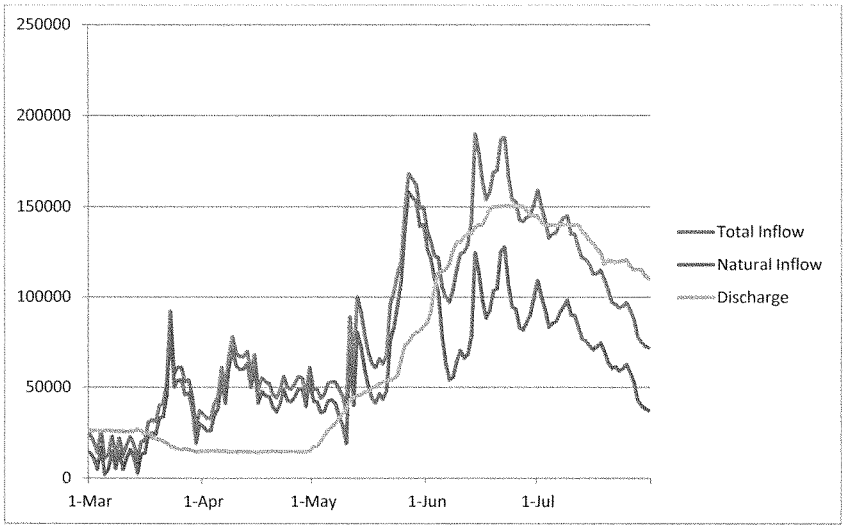
First, you can see quite clearly that from March 1 to May 1 that the plains snowpack runs off. The following reservoir charts depict the impact of that runoff. We will look at Fort Peck first.



As you can see the runoff from the plains snowpack put a considerable amount of water into the reservoir. When the blue line is above the green line the reservoir is filling. When it is below, the reservoir is emptying. The spikes in May are the rains coupled with the early mountain snowpack runoff. The general hump into June and July is the mountain snowpack runoff. It is very obvious that the greatest amount of volume came from the mountain snowpack runoff.

Next we will look at Garrison.

Garrison

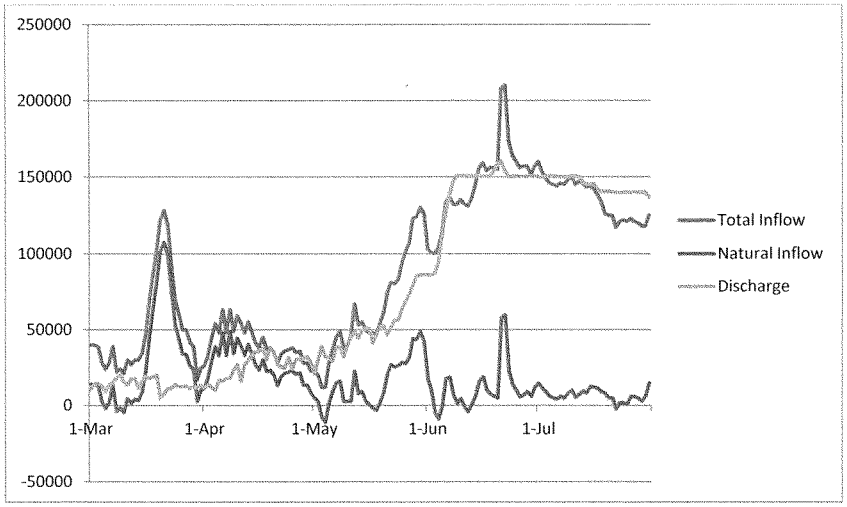


The amount of filling that occurs during the March to May plains snowpack runoff is substantial. In fact, the total runoff from the plains snowpack was nearly equal to 50% of the total flood storage system wide. The Corps shows the total runoff for March 1 through April 30 to be nearly 14 MAF. It should also be noted that the normal discharge is below the 50,000 cfs index line. Again the peaks in the May and June curves are from rain events. It is very obvious again that the while the rain events were significant, they pale in comparison to the mountain snowpack runoff shown by the large hump in the June and July runoff periods.

By May 1 the storage available to capture the remaining runoff was down to less than 46% of the total. As you can see by looking at the SWE chart, the mountain snowpack hadn't started to melt considerably on May 1. So it was the plains snowpack that created the decrease in flood storage available. While this plains snowpack was visible and quantifiable it wasn't considered as a threat to the storage capacity of the system. Hence, no operational changes were made to accommodate the increased runoff from the plains snowpack.

Next we will look at Oahe. It must be noted that Garrison provides the largest amount of flood storage of any individual structure at 35% of the total with Oahe and Peck picking up 50% jointly. The bulk of the remaining 15% comes from Fort Randall.

Oahe



The flood storage on Oahe was consumed by the plains snowpack runoff by late April when it reached the exclusive flood control pool elevation. Shortly thereafter Oahe became merely a flow through device with minimal useful storage to capture additional runoff.

There is one more significant thing to take away from this discussion. If you look closely at the mountain SWE charts and see what happens in the early days of May, you can see a significant runoff by the steepness of the lines. Part of the spike in mid May comes from the rapid melting of the mountain snowpack. This melting increased the height of the spike associated with the "Perfect Storm" rains.

It should also be pointed out that without the rains that the mountain snowpack created inflows in the 100,000 cfs magnitude for more than two months. There was no way to avoid some flooding this year because of the substantial volume of both the plains and mountain snowpacks. Both of which were visible and measureable.

The Corps has been working very hard at spinning this flood event to persuade the public into thinking the cause was only the "Perfect Storm." To that end they are providing documents to support their case with rain charts, snowpack charts and the like. Close inspection of the snowpack charts reveal that the manner that they are presented creates an appearance of close compliance to the normal snowpack accumulation. If those charts were posed like the one I have above with an expanded time scale you would see that the accumulation was significantly above normal much earlier than the May timeframe that the Corps is claiming. Their claim is that there were no indications that there was a problem until

the "Perfect Storm." If that is truly the case, then why did they start increasing the discharges from Garrison significantly on May 1? That was weeks before the "Perfect Storm" rains. Surely they had a good reason. It is hard to make this fit with the storyline that is being put forth.

In conclusion, it is abundantly obvious that there were signs early on in the runoff year that things were not "normal." The fact that February runoff was 217% of normal, March was 231% of normal and April was 267% of normal should have triggered some reaction along the way. Sadly that was not the case. Certainly the fact that system storage was nearing 50% prior to any significant mountain snowpack melt beginning had to raise some concerns.

In the future risk management decisions need to take into account the amount of runoff potential of the plains snowpack. Until now it appears that it was either ignored or not given sufficient weight. This is the root cause of the human error in judgment that occurred this year in my humble opinion.

City of Omaha
Jim Suttle, Mayor

Office of the Mayor
1819 Farnam Street, Suite 300
Omaha, Nebraska 68183-0300
(402) 444-5000
FAX: (402) 444-6059

November 30, 2011

Chairman Bob Gibbs
Subcommittee on Water Resources & Environment
Transportation and Infrastructure Committee
2165 Rayburn House Office Building
Washington, D.C. 20515

RE: The Missouri River Flood: An Assessment of River Management in 2011 and Operational Plans for the Future

Dear Chairman Gibbs:

Thank you for the opportunity to supply testimony on this critical issue. Omaha endured over 100 days above flood stage on the Missouri River this year. Through the combined efforts of city staff, the consultant and contractor communities, and the US Army Corps of Engineers, we won the battle against the Missouri river this summer. However, Omaha and the 13 miles of levees that protect it are badly bruised.

We agree that it is important to review the operational plans for the future and to make adjustments to reduce the likelihood of recurrence of the conditions we experienced this year, but there is another equally important issue. We need to work expediently to repair and restore our levees and flood control structures that were damaged by the floodwaters this year. We estimate that Omaha alone needs $14M in repairs of infrastructure for which the Corps is responsible under the PL 84-99 program but lacks the funding to complete.

We ask that funding be provided to the Corps for infrastructure repair work to restore our levee systems to the condition required to again protect our community from future floodwaters. Please do not hesitate to contact me if you have questions or need additional information.

Sincerely,

Jim Suttle, Mayor
City of Omaha