TESTIMONY of Buzz Mattelin

Montana Farmer

Before the U.S. Senate Committee on Environment and Public Works

Good morning/afternoon Chairman Boxer, ranking member, Inhofe and other members of the committee. Thank you for the opportunity to share with you my perspective of the Missouri River flood of 2011.

I'm a third generation Montana farmer. I grow high quality, durum wheat and malting barley in rotation with sugar beets, on the Missouri River bottoms in Northeast Montana. For 97 years my family has been living and working along the River, 80 miles downstream of Fort Peck Dam, the first dam of the Missouri River System. In order to achieve this sustainability we've learned to live in harmony with our environment which is harsh and extremely variable. In addition to running the farm business I'm a director of the Montana Wheat and Barley Committee. I also represent irrigation interests on the Missouri River Implementation Committee known as MRRIC.

I had firsthand experience this summer dealing with the flood and watching flood waters drowned my crops. My heart goes out to all of those in the Country that have suffered flood damages especially those who had damages to their homes.

I'm here today to share my view of the conditions that produced the 2011 flood, what could have improved flood response, what worked well in responding to the flood, and some ideas about a way forward.

The flood of 2011 began in the fall of 2010 when ample rain fell across the northern plains. When wet soil freezes, it forms an impermeable layer resulting in maximum runoff from any accumulated snowfall. Much of Montana's plains east of the continental divide had record snowfall. Glasgow National Weather Service, which is near Fort Peck, recorded ten feet of snow or roughly 300% more than normal. As the plains' snow melted Montanans experienced their first flooding. By the end of April the snow had melted leaving saturated soils and filling over half of Fort Peck's annual flood and multiple use storage zone. The spring rain began falling on my farm on May 9 with nearly three inches accumulating by May 11. The soil became so saturated that the normally dry creek that runs through my farm would flow with runoff from only a small shower.

The first big rains came to tributaries of the Yellowstone River which joins the Missouri just across Montana's border with North Dakota. Crow Agency on the Little Big Horn River received 10 inches of rain on May 22 beginning a fateful week for the Missouri River Basin. Record rain continued all week with severe flooding in Billings, Joliet, Lavina, and Ryegate. The rains also fell in the Missouri drainage above Fort Peck with record flooding at Roundup on the Musselshell River and Lewistown on Big Spring Creek and on the Milk River at Glasgow.

By the end of week the situation had worsened. Faced with even higher river flows and a looming mountain snowpack which had reached 141% of normal, projected releases were increased to 150,000 C.F.S. from Garrison and 50,000 C.F.S. from Fort Peck. Fort Peck releases later peaked on June 15 at 65,900 C.F.S. the previous record was 35,000 C.F.S. in 1975.The pool elevation reached 2252.3 on June 16, 2.3 feet above the top of the spillway gates. As we experienced record releases from Fort Peck we also had four to six inches of rain fall in the watersheds that join the River below the dam. The gauging station at Culbertson about 100 miles below Fort Peck exceeded 100,000 C.F.S. in mid June. The National Weather Service lists the probability of exceeding 91,000 C.F.S. at Culbertson as .2%. This reach of the River below Fort Peck has no levees and very little bank stabilization. The high flows resulted in overtopping of high banks and high rates of bank erosion. The damages on my reach of the River look similar to the damages from the levee breaches I saw in Iowa.

I believe the combination of saturated soils prior to freeze up, record plains snowfall, saturated spring soils, record rainfall, above normal mountain snowpack resulted in epic flooding.

What could have improved flood response?

Earlier recognition of the flood. I don't blame the Corps. As a farmer who has watched a hail storm wipe out a years' work and income, I understand what it is like to be at the mercy of nature. The Corps could not have foreseen the record rainfall. It is easy to judge with the benefit of hindsight, but it is easy to work backwards when you know the runoff totals. It is much harder when nature keeps throwing more water your way. The Missouri River master manual states: "The sooner a significant flood event can be recognized and appropriate prereleases of flow scheduled, an improvement in overall flood control can be achieved." Forecasted runoff on April 1 was 33.8 M.A.F., May 1, 44 M.A.F., and mid September, 61 M.A.F. Earlier recognition may have allowed some management flexibility or slightly decreased the maximum releases.

Operational flood tunnels at Fort Peck would have increased the safety during the flood. The two flood tunnels at Fort Peck were not available for use at levels above 5000 C.F.S. due to severe vibration of the gates. Authority has been requested for replacement of the gates, but not approved. At many of the dams spillways were closed for inspection and repair and water was diverted through the flood tunnels, Fort Peck didn't have this option creating a dangerous situation.

Accurate inundation maps would have helped people deal with the flood. Inundation maps for my area were inadequate or non -existent. The only tool we had was county 100 year flood plain maps, which were not accurate.

What part of the flood response worked well?

The mainstem dams and structures performed as designed and the Corps operated the system in accordance with the Master Manual and existing laws. The System afforded downstream residents time to prepare, plan, and remove possessions from harm's way. And the System lessened the severity of the flood.

The Corps established a Joint Information Center and created a daily Riverwatch to ensure timely and coordinated release of accurate information to the public. Accurate information effectively dealt with the misinformation and rumors that run rampant during a crisis.

The National Weather Service River Forecast was extremely helpful. This forecast predicts river stages at gauging stations five days forward.

A way forward

We should not overreact with abrupt changes to the Master Manual. It just doesn't make good sense to manage the system for an event that occurs once in 500 years. The Master Manual is the foundation for long term decisions and investments, both private and public. With the well vetted revision completed in 2003, the Master Manual has provided 50 years of stability in a contentious Basin. The Master Manual provides an equitable path to balance management of the system for flood control, hydropower, navigation, water supply, irrigation, recreation, and wildlife.

I can think of at least two ways to improve flood control in the Basin. First is to provide more space in the reservoirs for flood water. But less stored water would be to the detriment of most of the other authorized purposes that benefit both the upper and lower Basin.

The second and my choice, is to improve recognition of significant events. Whether they are floods or droughts. The Corps' Annual Operating Plan (AOP) begins each new runoff year at a normal or average starting point when we rarely if ever have an average year. The Corps does a good job of incorporating mountain snowpack, plains snowpack, and short term precipitation into the AOP but falls short in using variables like soil moisture and climatic trends. Soil moisture data is readily available in weekly crop reports that rank soil moisture as short, adequate, or surplus. We should also look at El Nino and La Nina events. When you overlay past La Nina events with high runoff years in the Basin, there are definite correlations during the high runoff years in the 70', 90's and this year. Pacific Decadal Oscillation or PDO is another ocean temperature phenomenon that show promise as a predictor of precipitation on the Northern Plains. Incorporation of these types of variables into the AOP could significantly improve flood control.

We need to ensure adequate funding for USGS stream gauges. As federal budgets have tightened the share that non federal partners pay has increased. The USGS gauges are a critical link in flood control and can't be dependent on soft sources of funding.

Several forums are emerging to deal with the things I've mentioned and other 2011 flooding issues. I don't know which forum will be most successful, but my bias is toward a forum that provides the highest degree of collaboration and the most basic level of input.

I would like to close with something that a farmer friend said to me as he was dealing with the effects of the flood. Without any bitterness he said "The River has been good to me for many years, but this year belongs to the River".