Mississippi River Flooding

Natural Solutions for an Unnatural Disaster

A Blueprint for Strengthening Nature's Defenses to better Protect People and Communities along the Mississippi River

As the catastrophic Mississippi River flooding unfolds like a slow-motion train wreck, the first priorities of the federal, state, and local government are to prevent loss of life, minimize property damage and assist those in need with all resources possible. When the waters recede, it will be important to ask some tough questions. Was this truly a natural disaster or one that was caused (or at least exacerbated) by government policies? What pragmatic steps can be taken now and in the years ahead to better prepare and protect people and communities from future storms and floods?

The National Wildlife Federation has identified five ways government policies and practices are contributing to the extraordinary flooding and resulting impacts, as well as five specific recommendations to help policymakers avoid and minimize catastrophes like this. Each of our recommendations has one thing in common – they promote the protection and restoration of *natural defenses* that are so critical to a safe, affordable and sustainable flood protection system. We recognize that levees, dams and other structural solutions will continue to play a role in flood protection and navigation, but the time has come for a more balanced approach that recognizes and utilizes the natural defenses afforded by healthy wetlands, floodplains and even farmland

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 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.

The Mississippi River once had a 100-mile wide floodplain where floodwaters provided all of these essential services for people and wildlife. However, 20th-century policymakers chose to confine the River with levees, floodwalls and dams to facilitate development. These structures create higher flood levels and faster flows, as well as an illusion of flood protection that puts River communities at unnecessary risk. Structural flood protections also prevent the River from

nourishing its 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 United States needs a new approach to floods, 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. Restoring our natural defenses will reduce flood threats to communities, improve opportunities for commercial uses of the Mississippi River and save the American taxpayers billions in the long run.

Top 5 Activities That Exacerbate Flood Damages and Risks

1. Poor Federal Planning and Management. The U.S. Army Corps of Engineers (Corps), charged by statute with flood protection and navigation on the Mississippi, constructs and operates projects throughout the basin that have significantly reduced natural flood protections and encouraged development in high-risk areas. The Corps' navigation structures have raised flood heights in the Middle Mississippi River by up to 15 feet in some locations, its levees have raised floods by up to 3-4 feet, and its poorly timed releases from upstream federal reservoirs and destructive upstream projects can add to the significant flood risks to River communities.[i]

2. Wetlands and Stream Destruction. Actions by the Supreme Court, the Corps, and the Environmental Protection Agency (EPA) since 2001, undermine the Clean Water Act's ability to prevent destruction of many wetlands and small streams by developers and others. Similarly, lax enforcement of the Farm Bill's Swampbuster restrictions has exacerbated wetlands loss. The Upper Mississippi River Basin states of Illinois, Indiana, Ohio, Iowa, and Missouri have each lost 85-90 percent of their wetlands and countless headwater streams.[ii] Just a 1 percent loss of a watershed's wetlands can increase total flood volume by almost 7 percent.[iii]

3. Floodplain Development. The Federal Emergency Management Agency, which operates the National Flood Insurance Program (NFIP), encourages floodplain development by providing taxpayer-subsidized flood insurance. While the NFIP was designed to use market forces to push development away from high-risk areas, the program's failure to charge market-based rates has actually subsidized floodplain development. Today, there are more than six million buildings located in the mapped 100-year floodplain, which have a 26 percent chance of experiencing a 100-year or greater flood over a typical 30-year mortgage.[iv]

4. Poor Agricultural Practices. The U.S. Department of Agriculture fails to halt agricultural wetland drainage and supports the placement of millions of miles of drain tiles under fields to speed the delivery of 'excess' water into rivers and streams. Similarly, its federally-subsidized

crop insurance gives farmers incentives to convert forests and prairies into agriculture fields by removing their risk and all but guaranteeing a profit. Ironically, practices that help reduce farm runoff, like cover cropping, are not eligible for crop insurance, giving farmers less incentive to reduce their field's impact on flooding.

5. Failure to Regulate Carbon Pollution. In the simplest terms, warmer air holds more moisture. When the moist air collides with a cold front, heavy rains rapidly release large amounts of water into the Mississippi River and other watersheds, which causes more frequent and more destructive flooding. No single weather event can be attributed to global warming, but carbon pollution is loading the dice, making extreme weather events, including flooding, more likely. 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.[v]

Top 5 Recommendations to Protect Communities and Reduce Flood Damages

1. Modernize Federal Water Policy Guidelines. The Administration is poised to release new water resources planning guidelines. To revitalize communities and avoid unnecessary flood damage, the guidelines must require the Corps and other federal agencies to employ natural solutions in managing the Mississippi River and federal reservoirs and in constructing new water projects.

2. Protect Wetlands and Streams from Development. The Administration has put forth new guidance and announced its intention to issue a rulemaking to reinstate crucial Clean Water Act protections for wetlands and streams. It must follow through on this commitment. A single acre of wetland can store 1-1.5 million gallons of flood water.[vi] The Administration also could help conserve these natural defenses by better enforcing the Farm Bill's Swampbuster restrictions and expanding funding for the Wetland Reserve Program.

3. Reform the National Flood Insurance Program (NFIP). Congress should pass legislation to ensure that the NFIP charges market-based rates to help property owners understand their risk and encourage responsible development. Lawmakers should also work to: develop floodplain maps that accurately reflect hydrology, risk and account for sea-level rise and increased weather events, and encourage flood damage mitigation by protecting and restoring natural defenses.

4. Modernize Farming Practices and Policies. The U.S. Department of Agriculture and other agencies spending federal dollars on agriculture should discourage the use of tile drains and destruction of native forests and grasslands by farmers. Instead, they should encourage use of cover crops to improve the land's natural capacity to hold water. Bare soil holds 1.7 inches of water, while a cover cropped soil holds 4.2 inches of water.[vii]

5. Reduce Carbon Pollution. To avoid increased damage from heavy intense rainfall events and other impacts of human-caused climate change, Americans must begin taking steps to reduce carbon pollution. The EPA must follow through on its efforts to regulate carbon pollution and all sectors must accelerate development and deployment of innovative clean energy solutions.

Conclusion: We are at a critical juncture that calls for charting a new path forward. In the aftermath of this flood, we can no longer afford to do business as usual. We cannot continue to pour money into an 80-year-old precarious levee and spillway scheme that is just one levee break away from catastrophe. We cannot keep draining our precious wetlands and developing our communities in harm's way. Instead, we can and must choose a better way that will build a system that over time begins to reconnect the Mississippi River with its floodplain, implement better agricultural practices, modernize federal policies and programs and reduce carbon pollution in the atmosphere. In other words, we should commit to restoring our natural defenses. This would reduce the pressure on levees and the risk to communities while sustaining and renewing the River's floodplain, re-building the delta's wetlands, and improving the health of the entire Mississippi River Basin for our generation and generations to come.

For more information, please visit www.nwf.org/water.

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