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Upper Mississippi River

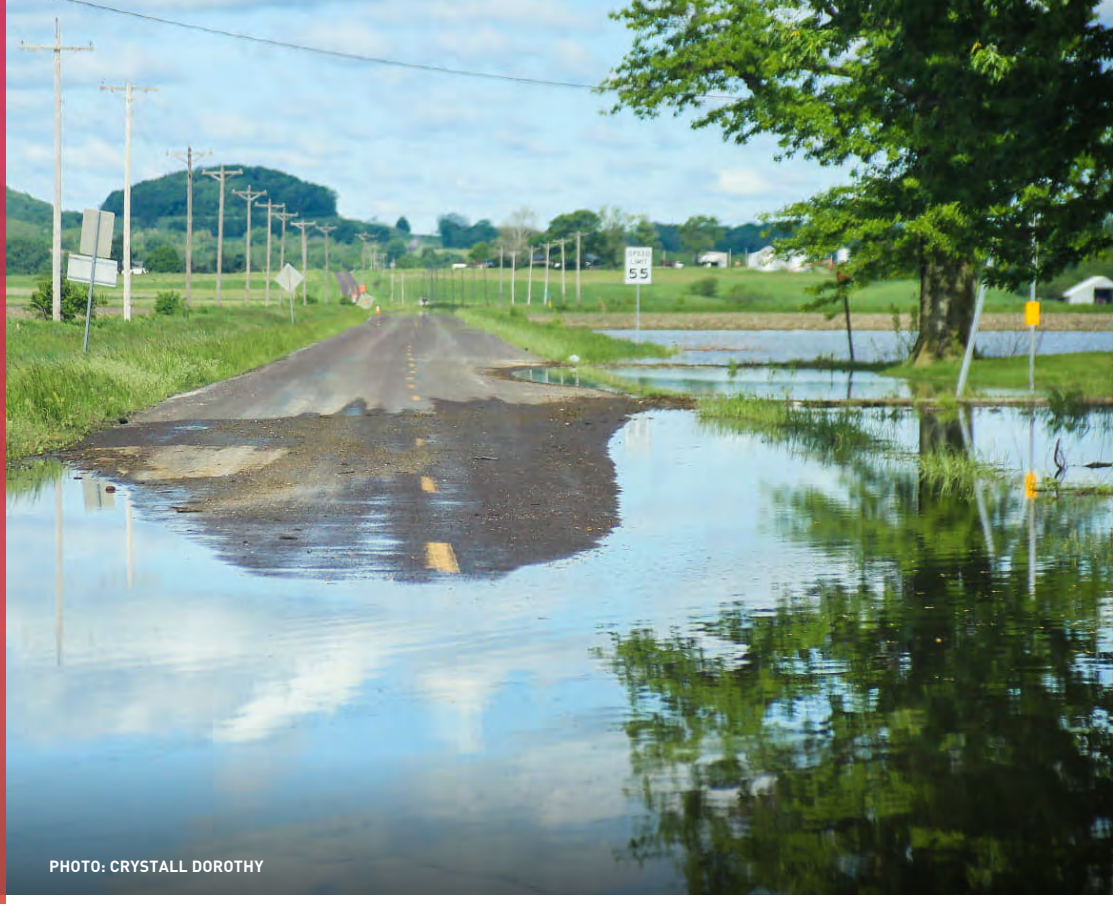

PHOTO: CRYSTALL DOROTHY

STATES: Illinois, Iowa, Minnesota, Missouri, Wisconsin

THREAT: Climate change, poor floodplain and watershed management

AT RISK: Public safety and biodiversity

SUMMARY

The upper Mississippi River is critical to the nation's economy and is a globally significant ecosystem. However, climate change is driving more intense rain storms, leading to more frequent and prolonged flooding in the Upper Midwest. This new reality puts people, habitat and infrastructure at risk — and communities along the upper Mississippi are dangerously unprepared. These risks are greatly exacerbated by two centuries of shortsighted floodplain- and watershed-development decisions that have cut the river off from hundreds of thousands of acres of its floodplain, dangerously constricted the upper Mississippi River, and degraded vital fish and wildlife habitat.

Fortunately, extensive opportunities exist to restore the river so that it can safeguard communities and critical infrastructure. State and federal agencies should take full advantage of these opportunities by developing a basin-wide water management framework that coordinates river and watershed management actions, ensures vulnerable communities are involved in the decision-making process, accounts for climate change, gives rivers room to flood safely and restores lost habitat.

THE RIVER

The Mississippi River has been the lifeblood of many cultures. Located near modern-day East St. Louis, Illinois, Cahokia was the largest pre-Columbian settlement north of Mexico and was once home to as many as 20,000 people. The Mdewakanton Dakota continue to live along the river's banks near Red Wing, Minnesota. Today, our Upper Mississippi River cities and towns are located on Sioux and Algonquin land.

Since Europeans settled the Upper Midwest, the Upper Mississippi River's rich resources have served as a lifeblood for communities. Now, the river generates $345 billion annually, provides over 643 million gallons of water per day for domestic and industrial uses along its 133-county corridor, and supports a $673 million shipping industry. But so much industry comes at a cost.

The broad and rich Upper Mississippi River floodplain lands have been heavily developed to support agriculture and people. Loss of the region's natural floodplains — lands flanking the river — and diverse river habitats is a major contributor to the decline of numerous federally protected species, including the pallid sturgeon, rufa red knot, piping plover, whooping crane, Indiana bat, decurrent false aster, eastern prairie fringe orchid, and several types of mussels, that rely on the complex aquatic habitat provided in natural floodplains.

Even with this damage, the Upper Mississippi's natural resources are able to support a vibrant economy. Tourism and outdoor recreation along the river generate roughly $25 billion annually and support more than 420,000 jobs. People are drawn to the Upper Mississippi River for its scenic vistas and wildlife experiences. The Mississippi is a globally significant flyway used by hundreds of species of birds and provides unique habitat for fish, mussels, reptiles, amphibians and mammals.

THE THREAT

The Upper Mississippi River is threatened by climate change, shortsighted floodplain and watershed development, and river engineering that threatens public safety and degrades the natural ecosystem. The 2019 flood along the Upper Mississippi River broke records, not only in

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Upper Mississippi River

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terms of flood levels, but also in duration — homes, farms, roads and businesses were underwater for more than 100 days. The flood came on the heels of three consecutive years of record-breaking rains across the country, and is in line with climate scientists' projections that extreme downpours in the U.S. could increase by 400 percent by the end of this century.

The magnitude of major flood events in the Mississippi basin has increased by 20 percent over the past 500 years. Much of that increase has been caused by the combination of river engineering and climate change. Throughout the basin, 40 to 90 percent of the land has been developed and almost every river has been dammed, leveed and/or constricted, including the Upper Mississippi itself. .

Almost the entire Upper Mississippi River watershed has also been developed to enhance agricultural productivity including extensive use of drainage systems used to move water off the landscape as quickly as possible. This development exacerbates flood damages by preventing the landscape from naturally retaining and slowing the release of rainfall.

As the disconnection and degradation of floodplain ecosystems has contributed to the decline of many native species-restoration efforts do exist. Unfortunately, development and pollution continues to degrade habitat up to four times faster than it can be rehabilitated. This impacts the river's ability to filter pollution, such as nitrogen and phosphorus. Poor water quality can seriously harm drinking water supplies, and can make fishing, swimming and boating dangerous.

Urbanized areas, including those located behind levees, are at particular risk. These risks often fall disproportionately on communities of color and/or low-income due to ongoing institutional injustices, like redlining. Even today, the most effective flood risk reduction solutions, like home buyouts, are not offered to communities of color at the same rates enjoyed by the white population.

Flood management decisions throughout the basin are made in a piecemeal and siloed manner. Individuals, cities, counties, drainage districts and states all act in near isolation to protect themselves during flood events, with little to no regard for the possible impacts on their neighbors.

WHAT MUST BE DONE

The Upper Mississippi River needs a water management plan that coordinates river and watershed management actions, ensures vulnerable communities are involved in the decision-making process, accounts for climate change, gives rivers room to flood safely, and restores lost habitat.

Water management planning is not a novel idea. Since the 1920s, management of the lower river has been carried out through the Mississippi River and Tributaries Project. But when that project was designed in the 1920s, engineers and scientists did not understand how vital healthy floodplains are to river ecosystems. As a result, extensive loss of living floodplains has degraded habitat. Conversely, the California Central Valley Flood Protection Plan and Conservation Strategy is an example of a plan in which nature-based flood risk reduction projects will deliver multiple benefits — from flood safety and improved water quality to habitat and public parks.

A process is already underway that could lead to the development of an environmentally sound and economically sustainable Upper Mississippi River water management plan. Last year, the Upper Mississippi River states and the U.S. Army Corps of Engineers initiated the *Upper Mississippi River Flood Risk, Sediment and Drought Management Study*, which is intended to build a more sustainable and cooperative river management system to evaluate flood risk, sedimentation and drought hazards in the Upper Mississippi River Basin. The largest attempt by any federal or state entity to respond to the economic and public safety threats posed by climate change, the study could integrate watershed and river programs and produce multi-benefit, climate-adaptive projects that protect public safety and restore river health. Adequately funded and supported by the public and Congress, the study would transform how the United States manages its rivers and floodplains.

Unfortunately, efforts to develop the watershed study and flood risk management plan are already threatened by lack of public engagement, lack of adequate funding and levee engineers who wish to maintain the status quo. The public must urge decision-makers to support an integrated water management plan that will prioritize natural and nature-based solutions to protect communities from flooding and deliver a wide range of benefits.

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TAKE ACTION:

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