

# Sustaining wetlands to mitigate disasters and protect people

**H**urricanes, flooding, droughts. Weather-related disasters are dominating news cycles and causing widespread destruction, most recently with Typhoon Mangkhut and Hurricane Florence. The US had the most catastrophic hurricane season on record in 2017, with hundreds of billions of dollars in estimated damages. California is experiencing unprecedented tragedies from widespread wildfires and increased vulnerability to storms. Disasters that were once uncommon appear to be the new norm globally, and evidence suggests the frequency and impacts of extreme events will increase further with climate change.

Wetlands can help protect people and property from some of the impacts of such disasters. These ecosystems play a crucial hydrologic role in relation to growing cities, many of which are situated on coasts, adjacent to rivers, downstream from large dams, or in arid locales. By storing and slowly releasing water downstream, wetlands help to recharge groundwater, decrease flood risks during extreme precipitation events, and delay the onset of drought. Wetlands also buffer wave energy, reducing the increasing extent and impacts of storms in coastal regions.

Society at large has yet to recognize and fully incorporate these disaster-risk reductions or “protective” services of wetlands into natural resource policies and land-use planning. Due in part to the fragmented nature of existing wetland management, the full range of environmental and societal values provided by wetlands, as well as the diversity of wetland types critical in different landscape settings, remain unprotected by current federal and state policies. The US Clean Water Act, which focuses on the water-quality benefits of wetlands, provides insufficient regulatory protection for all wetlands, particularly with the constantly shifting definitions of “Waters of the United States”.

Additionally, wetland mitigation and compensation strategies imply inevitable impacts or loss, and fail to replicate critical watershed and ecosystem functions in landscape locations that make wetlands so valuable. Many wetlands are threatened due to human competition for land and water, which is highest in the very places where the protective services of wetlands are most needed – upstream from, surrounding, and within human communities. For millennia, humans have confined wetlands both spatially and temporally through extensive channelization, levees, dams, dikes, and pipes, or simply drained or filled wetlands, thereby completely removing them from the landscape. More recently, we continue to destroy and degrade wetlands, particularly small and temporary wetlands, which are presumed not to serve much of an ecological role but, in fact, are essential to landscape functioning. These losses have resulted in greater costs to society from disasters. Citizens pay the mounting costs for wetland loss and poor land-use decisions, which may be driven by short-term profits for a few people.

A more comprehensive, proactive, and integrated approach to wetland policy formulation and implementation – one that strategically incorporates wetlands into infrastructure investments and disaster planning, response, and recovery efforts – is needed in the US now. This approach will require coordination between federal, state, tribal, and local agencies that are responsible for, or impact, wetlands. At the federal level, this includes, but is not limited to, the Federal Emergency Management Agency, the Department of Transportation, the Department of Housing and Urban Development, the Department of the Interior (and its Bureau of Reclamation and Bureau of Indian Affairs), the Department of Agriculture, the Army Corps of Engineers, the Environmental Protection Agency, and the National Oceanic and Atmospheric Administration. Through these national-level bodies, extensive networks and working relationships with other governmental entities, non-profits, and private organizations can be mobilized. We believe that a National Interagency Wetlands Commission (NIWC) must be established to serve as a coordinating body among these various entities for large-scale wetland protection, management, and restoration. This commission would be modeled after joint river and lake commissions that have successfully managed transboundary international or interstate watercourses, and would not only facilitate cooperation but would also bring technical expertise and financial resources together in managing wetlands as a common resource.

Innovation in wetlands policy is desperately needed to ensure that society fully benefits from the numerous ecosystem services provided by wetlands, including the protective attributes that can enhance people’s resilience to unprecedented disasters. The creation of a NIWC is a logical starting point to link wetland protection strategically to other societal objectives, such as reducing risk from weather-related disasters. Without such innovation, society will continue to pay a high price – in terms of lost lives and livelihoods, destroyed infrastructure, reduced economic stability, and growing taxpayer-funded disaster bail-outs – with every new storm. It is time to invest in an improved wetlands policy as a way of protecting people and communities from future disasters.



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