NATURALLY RESILIENT COMMUNITIES

Using Nature to Address Flooding

Communities today face more challenges than ever before. From weather-related disasters and public health crises to needs for economic development, the demands on our communities' limited resources are growing. This is where the work of the Naturally Resilient Communities partnership comes in.

Naturally Resilient Communities is a partnership of county governments, professional engineers, community planners, floodplain managers and conservationists who work with communities to improve their quality of life and economies. The effort is made possible with support from the Kresge Foundation and includes the National Association of Counties, the American Planning Association, the Association of State Floodplain Managers, the American Society of Civil Engineers, Sasaki Associates, and The Nature Conservancy.

A Guide for Naturally Resilient Communities

Together, the partners developed a science-based guide online at NRCSolutions.org to help communities understand how and where cost-effective, nature-based solutions are most likely to help reduce the risks of floods while providing an array of other benefits, like improved water quality and enhanced recreational opportunities and wildlife habitat—all of which can positively impact a community's economy.

The Challenges We Face

Storms are increasing in both frequency and severity, creating a serious toll on lives, property and communities across the U.S. It's become evident too much development in flood-prone areas, which is often coupled with "over-engineered" approaches to flood-risk reduction, has come with a high price tag.

- 96 percent of the total U.S. population lives in counties where federally declared, weather-related disasters have occurred since 2010.
- There have been 38 major floods in the U.S. since 2001.
- Since 2005, five major hurricanes have caused a total of more than 2,200 deaths and some $230 billion in damage.
- Average flood losses in the U.S. have risen steadily to nearly $10 billion annually, driving the National Flood Insurance Program some $24 billion into debt.
- According to the U.S. Environmental Protection Agency, more than two out of three assessed lakes and more than half of the assessed rivers across the nation now have impaired water quality.
- The U.S. lost more than 360,000 acres of coastal wetlands or marshlands between 1998 and 2006.
- Freshwater fish are declining at a rate higher than any other species type because of habitat loss.
- Oyster reefs—which can reduce wave energy and filter and clean water—are the most imperiled marine habitat on Earth; some 85 percent have disappeared over the last two centuries.

The Benefits of Nature-Based Solutions

We need dams, levees and seawalls, but nature can help reduce flood risk and provide multiple other benefits, if we just give it a chance. Some of the many benefits that nature-based solutions provide include:

Healthier Environments. Natural systems and nature-based solutions can reduce flood risks, while improving water quality and enhancing wildlife habitat and recreational opportunities.

Improved Social Ties. With their aesthetic appeal and restorative properties, natural and open spaces draw people together and strengthen community ties.

Healthier Communities. Natural areas and nature-based solutions can promote physical and mental health, clean air and water, and help cool our cities.

Stronger Economies. Economic benefits range from reduced flood damage costs (due to better flood protection) and lower water treatment costs to healthier fisheries, better recreational opportunities, and increased tourism and economic development.

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Examples of Success

NRCSolutions.org features over 20 case studies where communities have successfully used nature-based solutions to reduce flood risk and produce other benefits. Two prime examples are summarized below.

Seaside Park, NJ. In December 1992, a Nor'easter caused significant flooding and erosion along much of the New Jersey coast. That storm caused considerable damage at Seaside Park, much in part because naturally occurring dunes there had been removed years before to improve ocean views and beach access. After the 1992 Nor'easter, the community used "snow fencing" to help rebuild the dunes and then stabilized them by planting dune grasses. By the time Superstorm Sandy hit in 2012, the dunes were 25 feet high and 150 feet wide. During the storm, those dunes were the main reason the community avoided severe damages and flooding along the ocean front. The dunes, rather than homes, businesses and infrastructure, took the brunt of the storm.

Tulsa, OK. On Memorial Day in 1984, a violent storm caused a flood that killed 14 people, injured some 288 and caused damages that reached over $400 million in today's dollars. Much of the severe flooding took place along Mingo Creek. In response, the City of Tulsa developed a comprehensive floodplain management strategy that included the voluntary acquisition and moving of over 900 homes and businesses. The acquisition of these flood-prone properties allowed the area to be converted into greenways with ball fields and trails that help reduce flood risk. The area also includes reconstructed wetlands that provide wildlife habitat. Since the project's creation, property owners in the Mingo Creek area have not experienced any major property losses due to flooding, and residents have received up to 35 percent discount on their insurance premiums because of reduced flood risk.