

INCREASED HEAVY RAINFALL DECREASES WATER QUALITY

Increased flooding and runoff contribute to water quality hazards in northeastern Ohio.



PHOTO COURTESY OF NORTHEAST OHIO REGIONAL SEWER DISTRICT



PHOTO COURTESY OF CHAGRIN RIVER WATERSHED PARTNERS

A February 2011 heavy rainfall event resulted in flooded communities and stormwater runoff into streams.

Northeastern Ohio. Lake Erie is a drinking-water source for 11 million people as well as a major tourist and recreational destination. However, the health of this resource is being challenged by the increasing impacts of heavy rainfall events. During these events, stormwater runoff and floodwaters flow over impervious surfaces and sometimes frozen, impermeable ground, overwhelming the area's sewer infrastructure, pouring into local waterways, and ultimately disturbing the lake's ecosystem and water quality.

Over the past 50 years, the Midwest and Great Lakes region has experienced a 31 percent increase in heavy precipitation events, according to the U.S. Global Change Research Program. Several "100-year" precipitation events have struck northeastern Ohio in the past decade. These events add complication to the area's combined sewer infrastructure, which handles both raw sewage and untreated stormwater. When overwhelmed, it is designed to release untreated stormwater and sewage directly into the waterways through combined sewer overflows (CSOs).

In February 2011, heavy rainfall, combined with snowmelt, resulted in violations of the Clean Water Act when hundreds of millions of gallons of untreated or partially treated stormwater was released into streams, Lake Erie, and the Cuyahoga River. Water contamination poses well-documented human health risks. Incidents of contamination also negatively affect the area's economic health in lost tourism revenue, beach advisories, the costs of treating waterborne illnesses, and other problems.



PHOTO COURTESY OF NORTHEAST OHIO REGIONAL SEWER DISTRICT



PHOTO COURTESY OF CUYAHOGA COUNTY BOARD OF HEALTH

A rain garden at Cleveland's Metroparks Zoo and water quality advisory signs are two measures put in place to counter the effects of heavy rains.

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The Response

Various projects have been implemented or are underway to help local communities manage stormwater and adhere to the Clean Water Act. The Northeast Ohio Regional Sewer District (NEORS) is taking steps to address flooding, erosion, and water quality problems caused by stormwater management issues, as well as water quality impacts related to CSOs.

The sewer district plans to construct seven new combined sewer storage tunnels, which will add storage capacity to the current sewer infrastructure network while also reducing the untreated overflow volume. The NEORS is also implementing an aggressive green infrastructure program to control stormwater at its source and before it enters the combined sewer system. The NEORS will implement projects to limit stormwater volume and will further control stormwater by adding neighborhood amenities and utilizing vacant lots.

The NEORS is also implementing a regional stormwater management program that will assess fees based on impervious surface area and will include credits and incentives that encourage residents to manage stormwater on their properties by using rain gardens, rain barrels, pervious surfaces, and other stormwater control measures.

To learn about additional stormwater activities:

- Northeast Ohio Regional Sewer District
www.neorsd.org/stormwaterprogram.php, www.neorsd.org/projectcleanlake.php
- City of Cleveland Office of Sustainability
www.city.cleveland.oh.us/CityofCleveland/Home/Government/CityAgencies/PublicUtilities/Sustainability/StormWater
- Chagrin River Watershed Partners, Inc.
www.crwpp.org/LID/low_impact_development.htm
- Cuyahoga County Board of Health restoration projects
www.ccbh.net
- Cuyahoga Soil and Water Conservation District projects
www.cuyahogawcd.org