

Coastal Storms



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WHAT'S THE PROBLEM?

Coastal storms and resulting flood events have historically been the most destructive natural hazards in northern Ohio. Ohio's 2011 Hazards Mitigation Plan names flooding and coastal flooding as the top two most important hazards impacting the entire state. These hazards are predicted to worsen due to increasingly frequent severe storm events.

ARE COASTAL STORMS BECOMING MORE INTENSE?

The amount of rain falling in very heavy precipitation events (the heaviest 1% of all precipitation events in a given area) has increased over the last 50 years throughout the U.S. Climate scientists project that heavy rain events will continue to become more intense and frequent. These projections can have important implications for coastal zone management, land use planning, and stormwater control.

DOES CLIMATE CHANGE IMPACT COASTAL STORMS?

Climate change does impact the intensity and frequency of coastal storms. Rising atmospheric temperatures lead to increased water temperatures, which can create larger and more frequent storms. More importantly, climate change is increasing the number of the most extreme storm events that cause flooding, erosion and excess runoff. In the Great Lakes region, some climate models predict that by mid-century precipitation in 50-year storms (storms that have a 1 in 50 chance of occurring in any given year) may increase up to 29% from historic levels (d'Orgeville et al., 2014).



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HOW CAN COASTAL STORMS AFFECT ME?

- Flooding can result in loss of property, infrastructure and human life
- Erosion can cause river banks, coastal bluffs and beaches to wear away
- Storm debris can impede transportation routes and damage public utilities
- Stormwater and combined sewer overflows can create serious water pollution problems
- Dangerous currents created by storms can make lake recreation hazardous
- Extreme rain events cause runoff that can contribute to harmful algal blooms

WHAT'S THE DIFFERENCE BETWEEN VULNERABILITY AND RESILIENCE TO COASTAL STORMS?

Vulnerability broadly refers to the potential for loss. For coastal storms this can include loss of property, infrastructure or even human life. *Resilience* refers to the ability of a person or community to “bounce back” after problems such as a severe storm, rather than just reacting to the impacts. Communities and individuals who are the most vulnerable and the least resilient are at greatest risk during coastal storms.

WHO IS MOST VULNERABLE TO COASTAL STORMS?

Understanding vulnerability is important for helping at-risk populations reduce their potential for loss from natural hazards like coastal storms. Several key factors are widely accepted as influencing a person’s vulnerability, including, but not limited to: age, gender, income, race and housing status.

- Age: youth and the elderly can experience difficulties moving out of harm’s way
- Gender: women can find it more difficult to recover from disaster due to employment situation, lower wages, and a larger portion of family care responsibilities than men
- Income: wealth is an indicator of resilience because it helps individuals bounce back from disasters quickly thanks to insurance and social safety nets
- Race: racial disparities relate to vulnerability among minority populations due to a lack of resources, cultural differences, and social, economic, and political marginalization
- Housing status: people that rent often do so because they are transient or cannot afford to buy a home



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HOW CAN MY COMMUNITY INCREASE RESILIENCE TO COASTAL STORMS?

- Update 100-year and 500-year flood maps (maps that depict floods that have a 1 in 100 and 1 in 500 chance of occurring in any given year)
- Install green stormwater management infrastructure
- Assess and strengthen local ordinances, zoning, and building codes
- Conserve land within floodplains and wetlands, and along the coastline
- Improve flooding, high winds, storm surge, and water quality forecasting and warnings
- Develop hazards mitigation, watershed management, and post disaster recovery plans
- Increase storm hazards education and outreach, especially to vulnerable populations

WHERE CAN I FIND MORE INFORMATION ON COASTAL STORMS?

- National Oceanic and Atmospheric Administration Office of Coastal Management: coast.noaa.gov
- Northeast Ohio Regional Sewer District: neorsd.org
- Ohio Department of Natural Resources Office of Coastal Management: coastal.ohiodnr.gov
- Ohio Environmental Protection Agency: epa.ohio.gov
- Ohio Sea Grant College Program: ohioseagrant.osu.edu

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