



# Underlying Science

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## Intensifying Rainfall and Flooding in New Jersey

- Higher temperatures increase the energy in storms and allow the atmosphere to hold more water, which increases the potential for more intense precipitation and flooding
  - By the end of the 21st century, heavy storm events are projected to occur 200 to 500% more often and with more intensity than in the 20th century
  - Major flood events hit New Jersey in 2000, 2004, 2005, 2006, 2007, 2010, 2011, 2012, 2016, and 2021
- NJDEP and the Northeast Regional Climate Center, a National Oceanic and Atmospheric Administration (NOAA) partner, released [two New Jersey-specific studies](#) in November 2021:
  - Confirming increases in precipitation across New Jersey over the last 20 years
  - Projecting further increases in precipitation intensity over the coming decades
- The data presently used to analyze flood potential in waterways and in the design of stormwater infrastructure is outdated—it includes data only through 1999
  - The precipitation expectations that presently guide state policy, planning and development criteria, and which rely upon data obtained through 1999, do not accurately reflect current precipitation intensity conditions

## Highest Observed and Projected Precipitation Change

■ Observed Precipitation Change Since 1999  
■ Projected Precipitation Change Under a Moderate Emissions Scenario for 2050-2099

More Intense Rain =  
More Stormwater Runoff



More Runoff =  
Increased Riverine Flow



More Flow =  
Higher Flood Elevations



## Highest observed and projected extreme precipitation percent changes in New

**Jersey.** For a 24-hour storm, the highest percent change of the analyzed NJ stations from 1950-1999 to 1950-2019 is displayed in blue bars for recurrence intervals (2-year, 10-year, 100-year). The green bars display the highest NJ county projected percent change at the upper likelihood for each recurrence interval under a moderate emissions scenario from 1950-1999 to 2050-2099.

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Last Update: July 28th, 2022