

Grappling with Climate Change

Rutgers rolls out online tools for climate resilience planning

John Gattuso, *NJ Climate Change Resource Center, Rutgers University*

The effects of climate change are being felt around the world, and New Jersey is no exception. Residents of the Garden State are experiencing heavier rains, warmer temperatures, and more frequent and intense coastal flooding, and scientists expect these trends to escalate through the 21st century.

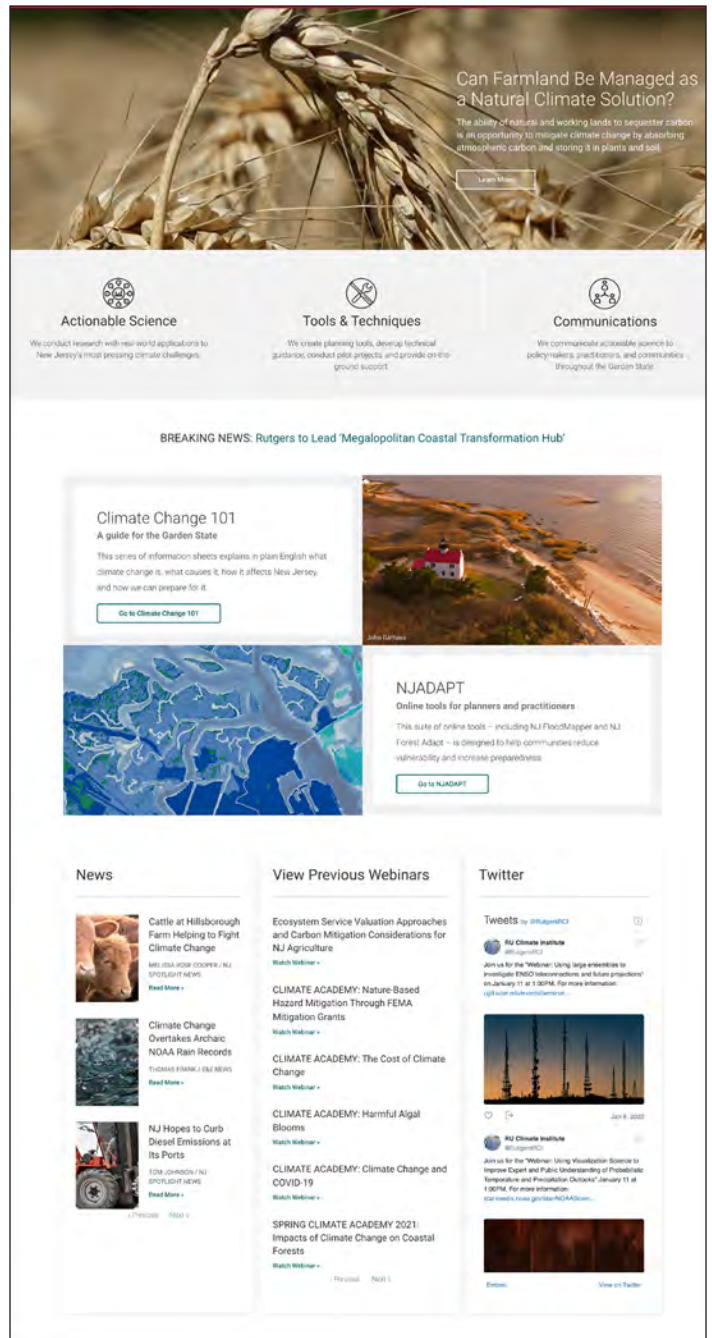
According to the NJDEP’s 2020 Scientific Report on Climate Change, “the Northeastern United States will be especially vulnerable to impacts of climate change and the potential ecological, economic, and public health impacts could be devastating.”

Understanding municipal climate risk

For municipalities grappling with the implications of climate change, and especially for those working toward plan endorsement, understanding their community’s climate risk is an essential first step. To address this need, a team at Rutgers University working under the umbrella of the New Jersey Climate Change Resource Center (NJCCRC) has developed a suite of online mapping tools to visualize climate risk at scales ranging from neighborhoods to the entire state.

Established by statute in January 2020, and co-directed at Rutgers by Marjorie Kaplan and Jeanne Herb, the New Jersey Climate Change Resource Center (<https://njclimateresourcecenter.rutgers.edu>) is tasked with a mission to conduct and communicate research with real-world applications to New Jersey’s most pressing climate-related challenges, and to create planning tools to help policymakers, planners, and the public prepare for, and mitigate, climate change impacts.

“One of the Center’s key objectives,” explained Kaplan, “is to use the resources of the academic community to help leaders, practitioners, and the public make informed, science-based decisions about how to address climate change in their communities and throughout the state.”



The NJ Climate Change Resource Center, <https://njclimateresourcecenter.rutgers.edu/>



NJ FloodMapper sample map.

“Building resilience isn’t just about raising houses or building bridges differently. It’s about the needs of communities and people. This program allows our students to understand how people react to risk and how to work with decision-makers to use science to inform their actions.”

A baseline analysis typically includes flood hazard exposures and an assessment of socially vulnerable populations. More specialized analyses focus on areas

Climate Corps

For a select few municipalities in need of hands-on assistance, the Resource Center offers its Climate Corps, a cross-disciplinary team of graduate students providing technical assistance to towns engaged in climate resilience work.

“The concept is to have our students become the coastal climate risk problem solvers that we need here in New Jersey,” said CCRC co-director Jeanne Herb.



Rutgers grad students discuss Monmouth County Master Plan. Photo by Lisa Auermuller

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NJADAPT Free Tools

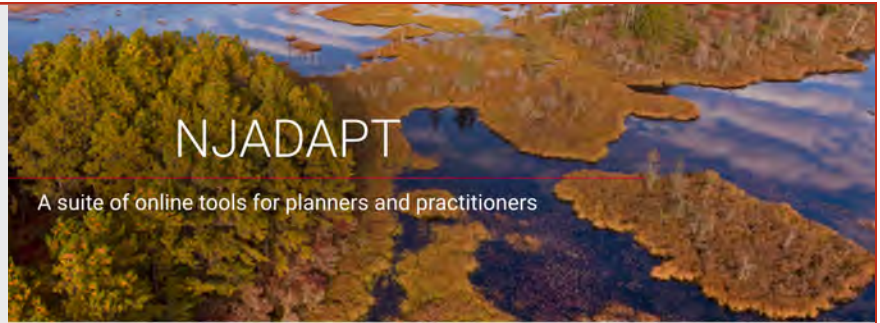
The Center's online planning tools are known collectively as NJADAPT and are accessible at no charge at the NJCCRC website. Three tools are currently available:

- **NJ FloodMapper** focuses on issues related to flooding impacts in New Jersey's 239 coastal municipalities. Interactive flood exposure maps are based on the best available science for sea-level rise and numerous other parameters, including total water levels, hurricane surge, FEMA flood zones, and Hurricane Sandy surge. Additional map layers depict infrastructure, environmental hazards, marsh and open space, social vulnerability, flood insurance payments for property loss, and land use.

- **NJ Forest Adapt** enables users to visualize data over multiple timelines and climate change scenarios and provides municipal forestry snapshots for each town in the state. Users can explore changes in plant hardiness and heat zones, species distribution, daily minimum and maximum temperatures, heating and cooling degree days, and precipitation. Additional map layers include forest carbon density, canopy cover, impervious surfaces, forest types, pests and diseases, and wildfire fuel hazard.

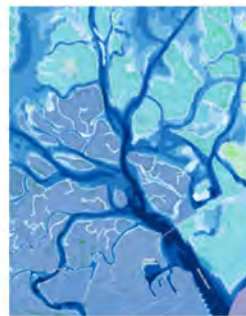
- **Municipal Snapshots** summarize climate risks by municipality. Snapshots provide easy access to information about the people, places, and assets at risk from climate impacts in each of New Jersey's municipalities, with reports on built infrastructure, critical assets, natural and working lands, public health, vulnerable populations, and more.

Several new tools are in development and will be rolled out in the coming months, including a NJ Climate Dashboard with historical climate data and future projections for seasonal precipitation, minimum/maximum daily mean temperature, heating and cooling degree days, and other parameters.



ONLINE TOOLS

NJADAPT is a suite of online tools designed to provide data to planners, decision-makers, practitioners, and others addressing climate change in New Jersey. Presently, NJADAPT contains three tools – [NJ FloodMapper](#), [Municipal Snapshots](#), and [NJ Forest Adapt](#).



NJ FloodMapper

Flood exposure mapping tool

NJ FloodMapper is an interactive mapping tool that allows users to conduct flood exposure analysis based on the best available science for sea-level rise and numerous other parameters, including total water levels, hurricane surge, FEMA flood zones, and Hurricane Sandy surge. Additional map layers depict infrastructure, environmental hazards, marsh and open space, social vulnerability, flood insurance payments for property loss, and land use.

[Go to NJ FloodMapper](#)

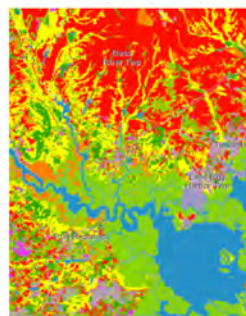


Municipal Snapshots

Climate risks summarized by municipality

Adapting to climate change requires an understanding of potential hazards and exposure. These Municipal Snapshots provide easy access to information about the people, places, and assets that are at risk from climate impacts in each of New Jersey's municipalities. Snapshots include reports on built infrastructure, critical assets, natural and working lands, public health, and vulnerable populations.

[Go to Municipal Snapshots](#)

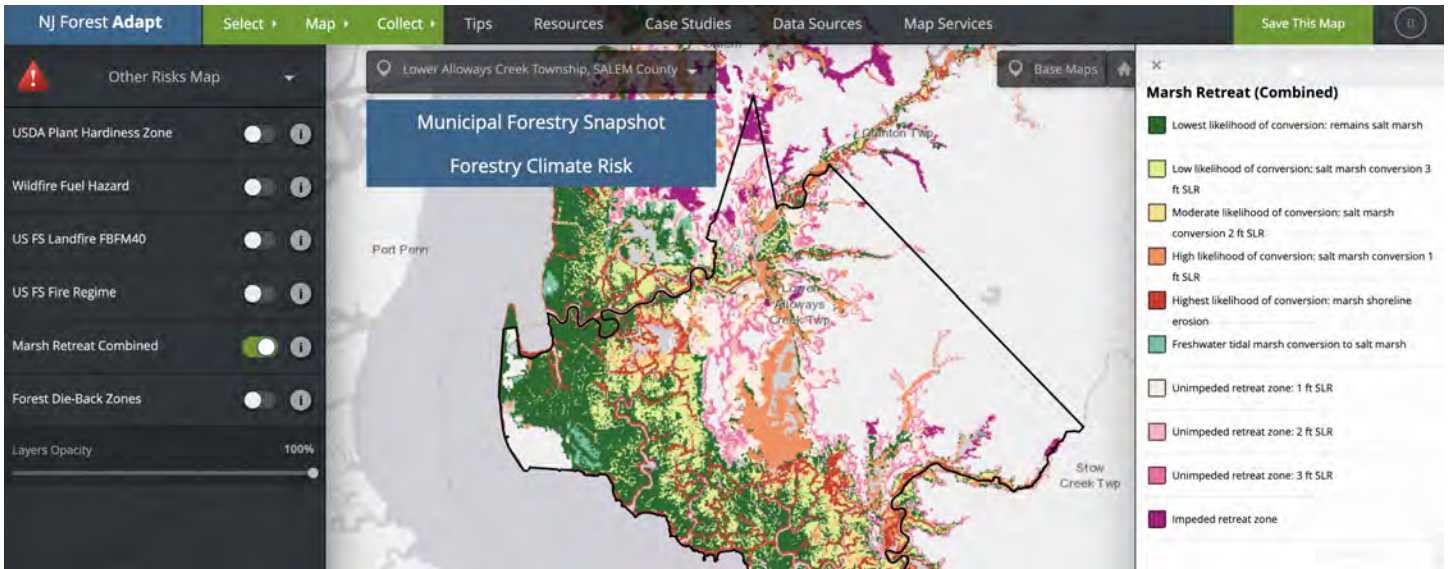


NJ Forest Adapt

Forest management tool

This mapping tool enables users to visualize data over multiple timelines and climate change scenarios. Users can explore changes in plant hardiness and heat zones, species distribution, daily minimum and maximum temperatures, heating and cooling degree days, and precipitation. Additional map layers include forest carbon density, canopy cover, impervious surfaces, forest types, pest and disease, wildfire fuel hazard, and more.

[Go to NJ Forest Adapt](#)



NJ Forest Adapt sample map.

of special concern to the municipality like natural resources, historic properties, infrastructure, or certain vulnerable segments of the population.

Ed Striedl, Construction Code Official, Flood Plain Manager, and Zoning Officer in Keansburg described the students as

“phenomenal. They had a lot of energy, a lot of questions. They thought outside the box, which for my involvement was great.” And, Striedl pointed out, the cost “was just our time,” making the service a “bonanza” for municipalities with limited resources

Visit the CCRC website and join the email list for updates on new planning tools. While you’re there, peruse dozens of recorded webinars, videos, reports, and information sheets as well as a roundup of New Jersey’s latest climate news. 🇯🇵

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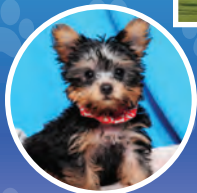
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