

Climate Impact Spotlight: The Southern Tier Region



The New York State Climate Impacts Assessment provides accessible and relevant information on the impacts of climate change across New York State, helping all New Yorkers make climate-smart decisions. This fact sheet summarizes how the climate is changing in the Southern Tier region and how these changes will affect some of the features that make this region unique.

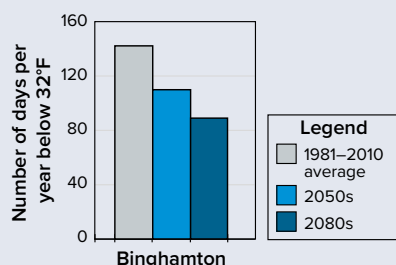
The Southern Tier Region's Changing Climate

Average temperatures are projected to increase in all seasons across all regions of New York State. Averaged over the entire year, temperatures in the Southern Tier region are projected to increase between 4.6°F and 6.4°F by the 2050s and between 5.9°F and 10.4°F by the 2080s, compared with the 1981–2010 average.



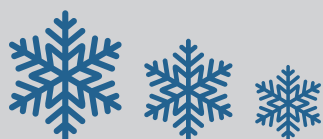
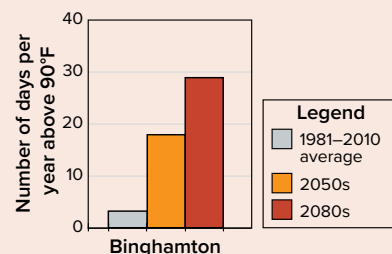
- **Decrease in very cold days.** Binghamton—one of three weather stations in this region with the long-term weather records used in this climate assessment—has historically experienced an average of 142 days per year below freezing (32°F). By the middle of this century (the 2050s), Binghamton is projected to have only 95 to 117 days per year below freezing, and by the end of this century (the 2080s), it is projected to have only 61 to 110 days per year below freezing. Days below 0°F will also decrease.
- **Increase in extremely hot days.** Binghamton has historically experienced an average of 3 days per year over 90°F. This number is projected to increase to 11 to 23 days per year by the middle of this century and to 18 to 48 days per year by the end of this century.
- **Less snow and ice.** Winter precipitation is projected to increase between 6% to 19% by the middle of this century and between 13% to 30% by the end of this century, compared with the 1981–2010 average. Over time, however, more of this precipitation will fall as rain instead of snow due to warmer temperatures.
- **More heavy storms.** Total precipitation in the Southern Tier region is projected to increase between 3% and 10% by the middle of this century and between 7% and 13% by the end of this century, compared with the 1981–2010 average. This precipitation could increasingly come from heavy storms, which can lead to flooding.

Projections of future climate change depend on the world's future emissions of heat-trapping greenhouse gases. Some of the projections discussed here present a range of numbers, based on those future emissions.



Decrease
in very
cold days

Increase
in very
hot days



Decrease
in snow
and ice

Increase
in extreme precipitation
events that can cause flooding



Example Climate Impacts to Some Important Regional Features

Forests and Forestry

The Southern Tier is one of the most forested regions of the state, with nearly two-thirds of its land covered by forests. Forestry is an important contributor to the region's economy, and forests also provide a wealth of recreational opportunities. However, climate change poses risks to the region's logging and forest products industries. As the climate warms, invasive species are expanding their ranges northward. The Southern Tier, on the southern boundary of the state, is at the front line of these invasions. For example, the eastern hemlock is being threatened by an invasive insect, the hemlock woolly adelgid. Very cold winters can suppress woolly adelgid populations, but as winters become warmer, the species has expanded its range, putting trees in the area at risk. Warmer winters and wetter summers may also make logging roads muddy and impassable, leading to reduced access to timber and higher costs for harvesting and trucking.



Eastern hemlocks dying from hemlock woolly adelgid infestation.

Extreme Precipitation and Flooding in the Susquehanna River Basin

The Susquehanna River has historically flooded about once every 15 years along its course in both New York State and Pennsylvania. The projected increase in heavy rainstorms is likely to heighten flood risks along the Susquehanna and its tributary rivers and streams, threatening homes, businesses, and infrastructure located along these waterways and within their floodplains. Making these buildings more resilient is critical for their occupants and the community at large. For example, in 2006, after an extreme rainstorm flooded Binghamton's Our Lady of Lourdes Memorial Hospital, hospital administrators and engineers worked with state and federal agencies to develop a hazard mitigation plan, which included floodgates and a long concrete wall. These measures allowed the hospital to remain fully operational in 2011, when heavy rain from Tropical Storm Lee overwhelmed the Susquehanna River—which Hurricane Irene had already saturated just 10 days before. Wastewater treatment plants located on these rivers and streams are also vulnerable to flooding. One example is the Binghamton–Johnson City wastewater treatment plant, which flooded during Tropical Storm Lee, damaging critical equipment. The plant was not fully rehabilitated until nearly 2019.



A floodwall protected Our Lady of Lourdes Memorial Hospital during Tropical Storm Lee in 2011. Photo by FEMA.

Impacts on Dairy Farms

Dairy is one of the region's most important agricultural products. Heat and humidity can lead to heat stress in dairy cows, reducing the amount of milk they produce and, in severe cases, harming their health. Warmer summers could make heat stress an increasing concern in the region. Dairy farmers can reduce heat stress to cows by improving ventilation and cooling mechanisms, including fans and sprinklers.

Protecting Wildlife Habitat in the Southern Tier

The woodlands, wetlands, and other habitats in the Southern Tier provide important habitat for a wide range of wildlife. Climate change is affecting these habitats. Temperatures could now be too warm, snowfall too infrequent, or storms too intense for a species' continued survival in places

where it had long thrived. In addition, human-made features such as dams, highways, and fences present barriers to animals' movement. Connected habitat is vital in enabling animals to reach new suitable habitat over time as climate conditions change. As climate change increasingly affects ecosystems, conservation efforts in the state are focusing on maintaining and reconnecting wildlife habitat. For example, local and regional organizations have partnered with the Western New York Land Conservancy to create the Western New York Wildway, which connects the forests of northern Pennsylvania and the Southern Tier to the Great Lakes, through to the Finger Lakes and the Adirondacks.

Learn More

Explore the New York State Climate Impacts Assessment at <https://nysclimateimpacts.org>.

