

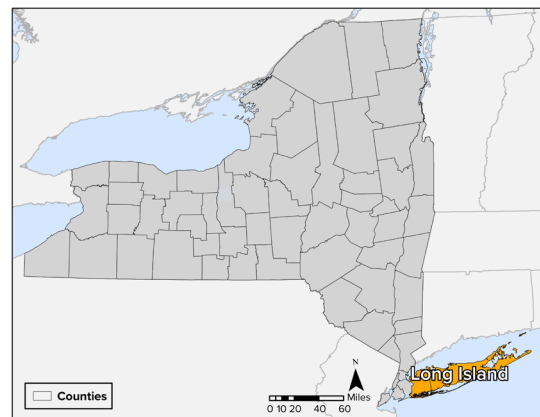
Climate Impact Spotlight: Long Island



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 Long Island and how these changes will affect some of the features that make this region unique.

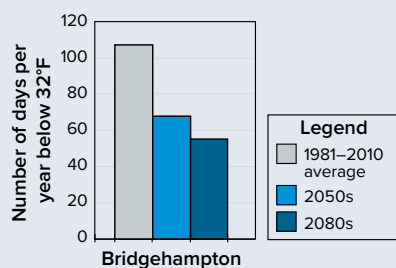
Long Island's Changing Climate

Average temperatures are projected to increase in all seasons across all regions of New York State. Averaged over the entire year, temperatures on Long Island are projected to increase between 3.8°F and 5.8°F by the 2050s and between 5.1°F and 9.5°F by the 2080s, compared with the 1981–2010 average.



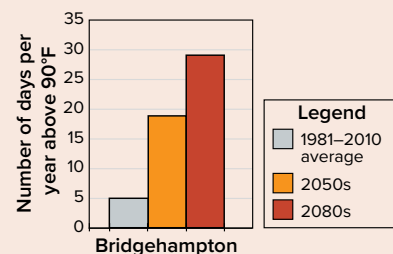
- **Decrease in very cold days.** Bridgehampton—the weather station in this region with the best long-term weather records for this climate assessment—has historically experienced an average of 107 days per year below freezing (32°F). These cold days are expected to become less common. By the middle of this century (the 2050s), Bridgehampton is projected to have only 62 to 83 days per year below freezing, and by the end of this century (the 2080s), it is projected to have only 39 to 68 days per year below freezing.
- **Increase in extremely hot days.** Bridgehampton has historically experienced an average of 5 days per year over 90°F. This number is projected to increase to 15 to 24 days per year by the middle of this century and 19 to 52 days per year by the end of this century.
- **Higher sea surface temperatures.** Sea surface temperature is rising around Long Island, with the largest increases in summer and fall. Marine heat waves, which are periods of several days with water temperatures much higher than normal, have also increased in recent years. Sea surface temperatures are expected to continue to rise in the region.
- **Higher sea levels.** Sea level at Montauk is projected to increase by 15 to 21 inches by the 2050s and by 32 to 54 inches by 2100, compared with a 1995–2014 baseline. Sea level rise is expected to continue to increase the height and frequency of the region's coastal floods in future decades, as well as increase storm surge. While Montauk currently experiences around 4 high-tide floods per year, that number could rise to 50 to 90 days by the 2040s.

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.



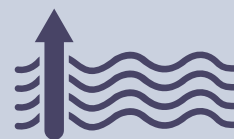
Decrease
in very
cold days

Increase
in very
hot days



Increase
in sea surface temperature

Increase
in sea levels



Example Climate Impacts to Some Important Regional Features

The Many Effects of Sea Level Rise

Higher sea levels lead to more destructive storm surge. Coastal flooding from storm surge made worse by sea level rise can cause power outages; contaminate drinking water; and prevent people from accessing health care, transportation, and other needs.

Sea level rise could also affect agriculture in low-lying areas. Some farms on Long Island have already experienced these effects, with more than 800 acres of farmland flooded with salt water during Superstorm Sandy in 2012.

The lands of the Shinnecock Nation, on Long Island's south shore, are just slightly above sea level. Projected sea level rise could make parts of the Shinnecock's land uninhabitable.

The south shore of Long Island is renowned for its sandy beaches. Sea level rise, along with the impacts of coastal storms, causes beaches to erode. As beaches recede, there is less habitat for birds that nest on beaches, such as the piping plover, which is endangered in New York State. Beaches that are damaged and narrowed by sea level rise and storm-induced erosion may also become less appealing to beachgoers, which in turn could have negative impacts on Long Island's tourism economy. At the same time, warming temperatures could lead to longer beach seasons and positive impacts for tourism.

Sea level rise is also endangering historic sites and landmarks on Long Island, such as the historic Montauk Point Lighthouse. To protect the lighthouse from erosion and coastal storms, the U.S. Army Corps of Engineers recently constructed a stone retaining wall, along with other protective measures.



Rising sea levels could threaten Long Island landmarks such as the Montauk Point Lighthouse.



Blue crab populations are increasing on Long Island, possibly due to warming water temperatures. Photo by Jarek Tuszyński, licensed under [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/).

Warming Ocean Temperatures

Higher water temperatures can have major impacts on marine and coastal ecosystems. Aquatic species are especially sensitive to changes in temperature, and warmer oceans have less oxygen supply than colder waters. Warming water is causing some species, such as the American lobster, to shift their ranges to colder waters, while species historically found south of the state's waters are now being found more often in Long Island Sound. Warming water temperatures along Long Island's coast will likely lead to the decline of some existing fisheries but could also present future opportunities for the region. For example, New York State has historically been the northern boundary for the blue crab's range. A recent survey conducted by the New York State Department of Environmental Conservation has shown that blue crabs are increasing in Long Island's waters. The blue crab may provide a new opportunity for commercial fisheries in the Long Island region, especially as the American lobster's range moves farther north.

Learn More

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

