

Climate Change Impacts in New Jersey

A summary of the threats that climate change poses to the people, businesses and ecosystems of New Jersey



The Nature Conservancy's Cape May Migratory Bird Refuge attracts 300,000 visitors annually. According to a recent study done by Princeton University, 12-100% of the land area of this refuge and the adjacent Cape May Point State Park is expected to be lost by 2100 due to sea-level rise brought on by global warming. © Damon Noe, TNC.

Increases in carbon dioxide and other greenhouse gases in the atmosphere have caused global temperatures to increase by an average of 1°F over the past century. This global warming has resulted mainly from human activities such as the combustion of fossil fuels and deforestation. Global temperatures are expected to rise more this century as emissions of heat-trapping gases continue to mount. While the impacts of climate change will vary from region to region, it's clear that almost every place on the planet will be affected.

WHAT NEW JERSEY CAN EXPECT

- loss of habitat and property from sea-level rise
- loss of drinking water supplies
- shifting forest habitats and more forest fires
- destruction of 20 to 70 percent of shorebird habitat
- drastically increased public expenditures to protect life and coastal property
- lost tourism

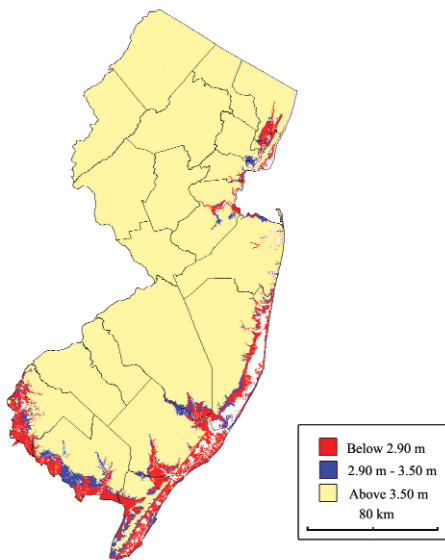
Over the past 50 years, The Nature Conservancy has invested billions of dollars in land acquisition and conservation. These investments, as well as those of state and federal governments, are jeopardized if emissions of heat-trapping gases continue unchecked.

Taxpayers in this country have made a substantial investment in protecting Delaware Bay, a critical stopping point for the second-largest group of migratory shorebirds in North America. Climate change will cause significant damage to the Bayshores in the form of sea-level rise, flooding, beach erosion and increased saltwater intrusion. The impacts of global warming on places like Delaware Bay complicate our conservation challenge to ensure the survival of migratory shorebirds.

Following is a summary of how climate change will affect New Jersey:

Sea-Level Rise Impacts

The population of New Jersey's coastal counties is estimated to climb to more than 6 million by 2020, and property values, currently estimated at more than \$100 billion, will likely rise along with the growth in population. Sea-level rise will make coastal development, infrastructure and resi-



Estimated coastal land area susceptible to episodic flooding applying current 100-year flood water level (2.90 m) and 0.61 m rise in sea level (3.50 m) in New Jersey.

dents more susceptible to inundation, erosion and flooding. An estimated 50,000 to 150,000 acres of New Jersey's coastal areas will be lost due to inundation, and more than 100,000 acres are likely to experience coastal flooding during major storms.

The Delaware Bay is home to the second-largest spring migration of shorebirds in the Western Hemisphere. More than 1 million birds visit the bay each spring. Sea-level rise associated with climate change is projected to destroy 20 to 70 percent of the intertidal shorebird habitat in Delaware Bay. This could devastate migratory shorebird populations, including several threatened species such as the red knot.

Loss of Property

Sea-level rise, increased intensity of storms and flooding events will all lead to greater property loss, especially along the coast. The Association of British Insurers projects that by 2080, if greenhouse gas emissions are not significantly reduced, insurers' capital requirements to cover U.S. hurricanes will increase by 90 percent. As a result, insurance premiums will likely increase by 60 percent. New Jersey's insurance industry contributed \$10.4 billion to the state's Gross State Product in 2003.

Drinking Water Impacts

Due to rising sea levels, the salinity of the Delaware River is likely to increase, and salt water is expected to move farther up rivers. In the event of a drought, it is projected that this highly saline water will recharge water for the Potomac-Raritan-Magothy aquifer (the drinking water source on which more than 200 communities in central and southern New Jersey rely). This could render useless this important drinking water supply.

Forest Impacts

New Jersey's forest composition is expected to change dramatically over the next century due to climate change as species in general will migrate northward and upward. Several models predict that current oak/hickory forests, which are the most prevalent in the state, will recede and be replaced with oak/pine/loblolly pine forests. Species at the southern end of their species range like the maple/beech/birch mix will shift northward, and the brilliant reds, oranges and yellows produced by those species may all but disappear in New Jersey.

With increased temperatures and changes in precipitation, New Jersey and other states in the Northeast are projected to experience a 10 to 20 percent increase in the risk of forest fires. This could cause increased loss of life and severe damage to wildlife habitats and real estate.

Recreation/Tourism Impacts

Sea-level rise and bigger storm surges are expected to degrade or destroy coastal barrier beaches. This will reduce the quality of recreational beaches in New Jersey and will likely result in fewer summer visitors to New Jersey shore resorts. This could profoundly affect New Jersey's tourism industry, the state's second-largest industry after pharmaceuticals.

Rising temperatures are expected to increase the prevalence of disease-carrying pests, especially mosquitoes and ticks,

leading to higher health care costs. The increased risk of exposure is likely to adversely affect outdoor recreation such as hiking and fishing.

New Jersey is also home to a small yet profitable skiing industry. As temperatures increase, a greater amount of winter precipitation is expected to fall as rain instead of snow. Ski areas in relatively low latitudes such as those in New Jersey are likely to be unable to maintain adequate snow pack and thus cease operations.

NORTHEAST STATES' REGIONAL GREENHOUSE GAS INITIATIVE

Americans cannot continue to rely on voluntary approaches to address the threat of climate change. Protecting the last great places in New Jersey for our children and our grandchildren depends on the adoption of practical regulations like the Northeast States' Regional Greenhouse Gas Initiative (RGGI), a nine-state, market-based proposal to place caps on carbon dioxide emissions from power plants. If adopted by the governors of these states, RGGI will achieve real greenhouse gas pollution reductions at the lowest possible cost and will serve as a model for other multi-state and federal efforts.

The Nature Conservancy supports the adoption of RGGI and other pragmatic policies that will reduce emissions causing global climate change.

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<http://nature.org/initiatives/climatechange/>

Sources Cooper, M.J., Beever, M.D., and Oppenheimer, M., Princeton University; NJ Department of Labor; NJ Division of Taxation; NJ Department of Environmental Protection; Galbraith, H.; Association of British Insurers; US Department of Commerce; US Environmental Protection Agency; Iverson, L.R., et al.; Flanagan, M.D. et al.; US Global Change Research Program.