

Climate Change Impacts in New York

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



A rise in sea level would seriously threaten miles of natural shoreline that provide undisturbed nesting habitat for birds and turtles as well as a refuge for rare beach plants on Shelter Island's Mashomack Preserve. © Carl Heilmann II.

Increases in carbon dioxide and other greenhouse gases in the atmosphere have caused global temperatures to increase by more than 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 YORK CAN EXPECT

- Estimated minimum of 5° F increase in temperature by 2100
- Damage to coastal habitat, property and infrastructure due to sea level rise
- Declining drinking water quality and quantity
- Increased costs to dairy and agricultural farming
- Declining freshwater and saltwater fish populations
- Further degradation in air quality leading to exacerbated unhealthy conditions

New York citizens have made substantial investments in protecting the diverse and critical natural resources throughout New York State, from the estuaries on Long Island to the forests of upstate New York. For example, on Long Island's Peconic and Great South Bay, environmentally and economically important shellfish beds and coastal properties are at risk from sea level rise. On the Tug Hill Plateau, Adirondacks, and Catskills, large tracts of forest with economically and ecologically valuable tree species, like sugar maples and spruce, are likely to be significantly affected by the northward shift in their range.

Although New Yorkers produce more heat trapping gasses than all of Central America and Mexico combined, the State has a tremendous resource in its people, who now have the opportunity to lead the way in finding solutions to climate change and reducing its impact on future generations.

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



Economically important species of trees, such as spruce and maple, could disappear from the Adirondack and other New York forests with increased temperature from climate change. © The Nature Conservancy

Sea-level Rise

Climate change is estimated to cause the sea level along the coast of New York City to rise anywhere from one to three and a half feet by 2080 at a cost of billions of dollars in lost property and assets. Storm surges affecting shoreline properties will also increase by as much as 15 feet in that same timeframe. Wide-spread coastal flooding, accelerated beach erosion, and the disappearance of important barrier and recreational beaches are all predicted to occur as a result of rising sea level.

Drinking Water Quantity and Quality Impacts

The rapid run-off from increased precipitation levels is expected to affect New York City's clean drinking water supply. As the sea-level rises, it will lead to increased saltwater intrusion when the seawater travels up freshwater systems, like the Hudson River, which serves as a backup water supply system. New York City's quest for alternative water supplies is likely to inflict a high economic burden.

Farming Impacts

New York is currently the fifth largest dairy producer in the nation, but main-

taining current yields will cost more in the future. Increasing temperatures will require more air conditioning to maintain existing levels of production, which will in turn cause electricity prices to rise. Furthermore, if the increased electricity used to cool the barns is produced by fossil fuel-generated electricity, it will exacerbate the severity of the impact of climate change.

Falling Lake Levels

The levels of Lake Erie and Lake Ontario are expected to drop due to increased evaporation and lower recharge rates caused by climate change. Lake Erie levels are expected to decrease by as much as five feet by 2100, threatening wildlife and reducing waters supplies for electricity generation.

Forest Impacts

Tree species are expected to migrate north as temperatures increase causing important species such as sugar maple and paper birch to dwindle, eventually disappearing from New York permanently.

With increased temperatures and changes in precipitation, New York and other states in the Northeast are projected to experience a 10-20% increase in the risk of forest fires. Additional damage to the forests will likely occur due to the spread of pests and diseases. These impacts could cause severe damage to wildlife habitats, homes, and public health.

Declining Fish Populations

The greatest dangers to the trout in the freshwater rivers throughout New York are low levels of dissolved oxygen, slow stream velocity, low depth of flow, high water temperature, and high levels of turbidity. All these conditions could occur with increased temperature and increased drought conditions as a result of climate change, leading to the formation of oxygen-poor conditions that will suffocate trout embryos.

Striped bass is expected to experience a major loss in habitat as ocean temperatures rise, especially in the southern part of its range. This could have significant effects on the overall health of bass stocks in New York waters.

Degrading Air Quality

Northern U.S. cities are likely to have more heat related deaths because of insufficient adaptation to extreme heat. Additionally, these higher temperatures will exacerbate the problem of urban air pollution, like ground-level ozone, elevating mortality and asthma rates.

Northeast 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 York for our children and our grandchildren depends on the adoption of practical regulations like the Northeast States' Regional Greenhouse Gas Initiative (RGGI), a market-based proposal to place caps on carbon dioxide emissions from power plants. RGGI will achieve greenhouse gas 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.

for more information, please contact:

Sarah Murdock	David Higby
Senior Policy Advisor	Director, Federal
Global Climate Change	Government Relations
Initiative	New York State Office
The Nature Conservancy	The Nature Conservancy
(617) 542-1908 x204	(518) 690-7850 x 7867
smurdock@tnc.org	dhigby@tnc.org

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

Sources: Gornitz V., et al. (2002); US Global Change Research Program (2000); USDA, Economic Research Service, (2005); Union of Concerned Scientists and The Ecological Society of America (2003); Chao, P. (1999); Iverson, L.R., A. M. Prasad (2002); Flanagan, M.D. et al. (2000); Major, D. and R. Goldberg (2001); Coutant, C.C. (1990); Chestnut L.G., et al. (1998).