

Climate Change Impacts in Connecticut

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



Sea-level rise endangers sandy beaches like this one at Griswald Point in Old Lyme, Connecticut, putting in peril many species that rely on this habitat for survival, including the Piping plover and Least tern. © Harold E. Maide

Increases in carbon dioxide and other greenhouse gases in the atmosphere have caused global temperatures to rise 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 regionally, it's clear that almost every place on the planet will be affected.

WHAT CONNECTICUT CAN EXPECT

- Loss of critical habitats and property from sea-level rise and flooding
- Further degradation in air quality
- Shifting forest habitat and more forest fires
- Probable increased prevalence and spread of Lyme disease and West Nile virus
- Decline in coldwater species including lobster and striped bass

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.

Connecticut's citizens have made substantial investments to protect critical natural resources throughout the state. The lower Connecticut River and several tributaries are home to internationally recognized tidal marsh communities that provide habitat to bald eagles, Atlantic salmon and six kinds of plants and animals that are rare or endangered worldwide. State and federal governments have preserved critical coastal sites along the length of Long Island Sound. The state has worked with communities and organizations around Connecticut to assemble exemplary large forest blocks. Climate change puts these investments and the species that depend on them at significant risk from sea-level rise and increases in temperature.

Following is a summary of some of the ways climate change will affect Connecticut:

Sea-level Rise

Given the current and projected rates of climate change, by 2080, sea level will rise between 1 and



Connecticut's forests like this forest in Devil's Den will incur added stresses due to climate change.
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4 feet from Bridgeport to New London. A 6-22% increase in flooding is predicted to occur associated with storms and hurricanes. Increased flooding and sea-level rise will erode low-lying properties and critical coastal habitat such as beaches and dunes, while salt water infiltrates freshwater wetlands. All commercial activities, from fishing to tourism, will be affected. Existing coastal development will impede low-lying ecosystems from migrating further inland as the water level rises, meaning a substantial loss of coastal habitat for shorebirds, salmon and other species is likely.

Economic Impacts

Sea-level rise will lead to larger storm surges, more intense storm activity, and thus greater storm damage. According to the U.S. EPA, the cost of protecting Connecticut's coastline from a 20-inch sea-level rise may be as much as \$3 billion by the end of this century. Connecticut's insurance industry, which contributed \$12.8 billion to (or 7 percent of) the state's Gross State Product in 2003, will incur a significant financial burden due to climate change-related impacts. In particular, the cost of storm-related damage is expected to rise as these storms become more intense due to higher sea levels and warmer waters.

Degrading Air Quality

Over the last century, average temperatures in Connecticut have increased by 1.7° F, and

over the same period average temperatures in the state's coastal areas have increased by almost 3.5° F. Climate models predict that by 2100, the average annual temperatures will increase by an additional 5-9° F in the Northeast, leading to an increase in the number of days above 90° F from the current 13 days a year to a projected 16-32 days.

Connecticut has the worst incidence of ground-level ozone pollution in New England, and higher temperatures, especially in the summer, are expected to exacerbate air pollution. Degraded air quality will contribute to higher incidences of respiratory disease, premature death and higher health-care costs. Recent studies have shown that populations in northern cities are more likely to have higher heat-related deaths due to the vulnerability of urban populations, which are less able to take actions to lessen the impacts of extreme heat than are populations in other U.S. cities.

Forest Impacts

We know that Connecticut's forests will be very different in the next century than the ones we know today. As temperatures rise, the sugar maple and paper birch will migrate northwards, eventually leaving Connecticut permanently. The disappearance of these tree species from Connecticut will be exacerbated by other stresses to forests such as increased disease, pest infestations and fire that are also expected to increase due to climate change.

With increased summertime temperatures, Connecticut and other northeastern states are projected to experience a 10-20% increase in the risk of forest fires. Wildfires put human life and property at risk and can cause severe damage to wildlife habitats.

Public Health and Tourism

Elevated average temperatures are expected to increase the prevalence of disease-carrying pests, especially mosquitoes and ticks and increase the spread of these pests to new areas. In 2000, Connecticut reported the highest rate of Lyme disease infection in New England at 110 per 100,000 people.

The increased risk of exposure to Lyme disease and other illnesses such as mosquito-transmitted West Nile virus is likely to have an adverse effect on outdoor recreation.

Fisheries Impacts

Inland and offshore waters are jeopardized by the rising temperatures that are already leading to habitat loss for some species as temperatures go beyond the tolerable range. American lobster die-offs in recent years have been caused by waters warming above 77°F in coastal Connecticut and Long Island Sound, the southernmost part of the lobster's range.

Striped bass are also expected to experience a major loss in habitat particularly affecting Connecticut's waters as ocean temperatures rise.

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 Connecticut 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.

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

Sources: Environmental Defense (2004); US EPA (1997); US Dept of Commerce (2003); Association of British Insurers (2005); US Global Change Research Program (2000); US EPA (1999); Chestnut L.G. et al. (1998); Iverson, L.R., A.M. Prasad (2002); Flanagan, M.D. et al. (2000); CT Dept of Public Health (2000); Coutant, C.C. (1990).