Air Resources

Environmental
Fact Sheet

New Hampshire Department of Environmental Services
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Print Version

ARD-23 2005

Global Climate Change and Its Impact on New Hampshire

The Science Is Compelling

In the Northeast, the 1990s were the warmest decade in recorded history. The Northeast's average annual temperature has increased by about 1.8°F since 1899. In the White Mountains, spruce forest abundance has been declining since 1800. Climate records from Hanover show a 3°F increase in yearly temperatures and a 4°F increase in summer temperatures over the past 150 years. Glaciers at mid-latitudes are receding. Average global surface temperatures are approximately 1°F higher than average temperatures in the 19th century. Once just climate anomalies, intense rain and snow events and fewer extremely low minimum temperature events are now becoming more the norm. Undeniably, global climate is changing and potential impacts may be serious.

What is Global Climate Change?

Life on Earth is possible because the sun's energy warms the Earth and its atmosphere. As this warmth radiates back into space, a portion is absorbed by a delicate balance of heat-trapping gases in the atmosphere, creating an insulating layer. The insulating layer, functioning much as a conventional greenhouse, acts to elevate temperatures on Earth. This "greenhouse effect" is a necessary natural global mechanism. Without it, the Earth's climate would be hostile to human life. Human contributions to greenhouse gases have led to an "enhanced greenhouse effect," often referred to as climate change or global warming. Today's atmospheric concentrations of carbon dioxide (CO_2), the primary greenhouse gas, are 30 percent above the pre-industrial levels of 200 years ago. At present rates, they may double as early as 2050.

Potential Climate Change Impacts On New Hampshire

New Hampshire's social and economic health is predicated in part upon the health of its lakes and rivers, oceans and beaches, mountains, scenic towns, and natural areas. Natural features and aesthetic beauty contribute significantly to New Hampshire's fiber. Global climate change will affect the climate of New Hampshire. Doubling CO_2 from pre-industrial levels is predicted to raise global average temperatures between 1.8°F and 6.3°F. Parts of New Hampshire could experience even slightly warmer trends. Higher temperatures may increase extreme events, and we may experience periods of winter thaw followed by intense cold; spring and summer drought; and summer heat stress. Serious impacts to New Hampshire may include:

Impacts on New Hampshire Ski Industry

- Loss of 10 - 20 percent of ski season days, representing a loss of $42 million to $84 million in direct and indirect spending in New Hampshire.

Impacts on New Hampshire Forests

- Ecological collapse for several tree species, including beech, maple, and hemlock (an important species for deer during the winter).
- Widespread tree mortality, including spruce and others; decreases in vegetation density of 25 - 75 percent; extensive wildfires; large increases in pest and pathogen outbreaks; and a lag in the establishment of new forests for several decades.
- Northern movement of other local tree species from 100 - 300 miles.
- Potential large-scale die-offs of sugar maple, on average a $3 - $3.5 million dollar industry.

Impacts on New Hampshire Coasts

- Sea level rise of 12 - 20 inches, causing large scale alteration of Great Bay, reduction of coastal estuaries and flooding of rivers, as well as potentially large revenue losses from coastal tourism, a $484 million generator for New Hampshire.
- Huge infrastructure investments to erect dikes and dredge channels to "stem the tide."

Impacts on New Hampshire Foliage

- Dulling and browning of foliage season due to tree die-offs, species substitution, and "climate stressed" unhealthy trees. New Hampshire foliage travelers on average spend a total of $292 million annually.

Impacts on New Hampshire Fishing

- Loss of cold water fishing: 50 - 100 percent eradication of rainbow, brook, and brown trout fishing, a $150 million New Hampshire industry.

What We All Can Do

Many different strategies can be used in combination to mitigate human-caused emissions of carbon dioxide and other greenhouse gases caused primarily by the burning of fossil fuels. The following are often mentioned at the international and national level. Several of these we can adopt at the local level:

- *Use less fossil fuels by:*
  - Driving less and putting high efficiency vehicles into use.
  - Where possible, using renewable energy sources such as solar, wind, and biomass.
  - Buying and using energy efficient products.
  - Switching from coal and oil to natural gas.
- Plant trees, which absorb CO_2, the major greenhouse gas.
- Encourage elected officials to encourage developing countries to control greenhouse gases.

For More Information

For more information on climate change and what is being done at the international and national levels, or to find out what you can do to reduce

greenhouse gas emissions, visit www.des.state.nh.us/ard/climatechange/ or contact the DES Air Resources Division at 1-800-498-6868.