

Greenhouse gases

Human Health Risk	L
Ecological Risk	M - L*
Socioeconomic Risk	M - L*

Global climate change is a gradual rise in average global temperatures caused by increasing amounts of “greenhouse gases” in the atmosphere. More than 80% are the result of the combustion of fossil fuels, and atmospheric concentrations of carbon dioxide have increased nearly 30% since pre-industrial times. The buildup of heat trapping gases in the atmosphere is linked to a gradual rise in sea level and an increase in intense storm activity.

What’s at risk?

Should the hypothesized effects of climate change materialize, all of New Jersey’s population would be susceptible to health problems related to an increase in heat waves and air pollution. The elderly, infants, and people with cardiovascular or respiratory diseases would be particularly vulnerable. Coastal wetlands and the forested Pine Barrens ecosystems would be most vulnerable to climate change effects. People living in coastal areas would be at a greater risk from the effects of violent storms and flooding. It is impossible to predict the extent of secondary effects related to increases in disease caused by poor water quality or by the northern migration of disease-carrying insects.

What are the human health impacts in New Jersey?

The impacts of global warming are relatively uncertain and long term in nature. There are five major concerns about impacts of global warming on human health:

- (1) increase in heat stroke and heat-related deaths due to hotter summers;
- (2) increase in respiratory diseases due to increase in air pollution;
- (3) increase in deaths from violent storm and flood activity;
- (4) increase in diseases carried by insects (e.g., malaria, and Lyme disease); and
- (5) illness related to poor water or food (e.g., fisheries) quality.

The total state population will be exposed; however, people near flood zones and coastal areas will be more susceptible to deaths from violent storm and flood activity. People in areas of the state that currently experience high levels of ground ozone might be increasingly exposed to respiratory diseases. The segments of the New Jersey population that might be particularly exposed are the elderly, infants and people with cardiovascular or respiratory diseases.

What are the ecological impacts in New Jersey?

Ecological impacts could be severe and irreversible, but they are very uncertain. Should sea levels rise to hypothesized levels, there is a potential for substantial damage to coastal ecosystems from saltwater intrusion and associated large impacts on biodiversity. Climate change may also influence the cycling of mercury in the environment, which would result in increased concentrations of mercury in fish.

What are the socioeconomic impacts in New Jersey?

Assessing the socioeconomic impacts associated with global warming is highly speculative. Should sea level rise as predicted, the economic costs associated with loss of property and tourism in coastal areas would likely be in the billions of dollars. Most people are aware of the potential for climate change impacts and this creates some degree of anxiety. However, major impacts are unlikely to occur within the next five years.

What’s being done?

A treaty on greenhouse gas emissions may result in a slower warming trend, but most scientists agree that reducing emissions will not be enough to stop the increase in the greenhouse effect that will produce warmer temperatures in the coming decades. Impacts can be managed to some extent. Flood damage can be limited by controlling development in flood zones. New Jersey’s existing health care system will, to some extent, be able to contain any major disease outbreaks.

*Note: Despite the potential for significant long-term human health and ecological impacts, the time frame over which such impacts may occur is longer than the five-year time frame encompassed by this comparative risk analysis. Over the shorter time frame of this analysis, few impacts are anticipated.