The report highlighted in this brochure summarizes the science of climate change and the impacts of climate change on the United States, now and in the future. It focuses on climate change impacts on U.S. regions and various aspects of society and the economy such as energy, water, agriculture, and health. It is an authoritative scientific report written in plain language, with the goal of better informing public and private decision making at all levels.

The full report, along with highlights and other information can be found at:
www.globalchange.gov/usimpacts

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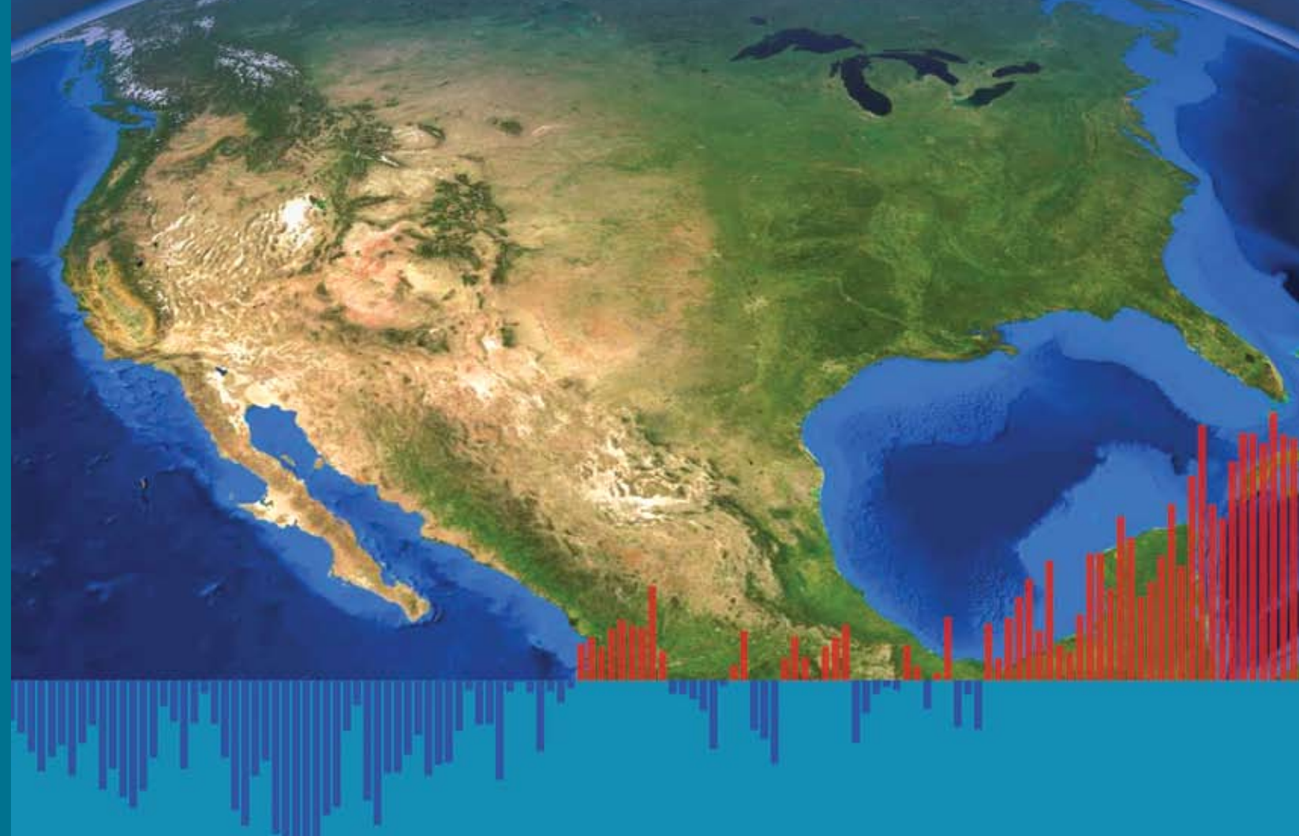
Global Climate Change Impacts in the United States

U.S. Global Change Research Program

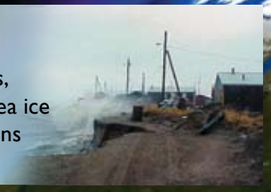


Impacts of Climate Change

Climate change is apparent now across our nation. Trends observed in recent decades include rising temperatures, increasing heavy downpours, rising sea level, longer growing seasons, reductions in snow and ice, and changes in the amounts and timing of river flows. These trends are projected to continue, with larger changes resulting from higher amounts of heat-trapping gas emissions, and smaller changes from lower amounts of these emissions. The observed changes in climate are already causing a wide range of impacts, and these impacts are expected to grow. Select examples follow.

Sea Ice and Permafrost

Risks and costs in Alaska increase as thawing of permafrost damages roads, buildings, and forests, and declining sea ice increases coastal erosion and threatens the existence of some communities.



Heavy Downpours

More rain is already coming in very heavy events, and this trend is projected to increase across the nation. Such events are harmful to transportation infrastructure, agriculture, water quality, and human health.

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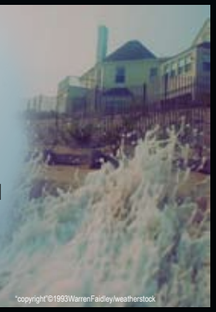
Coastal Communities

Sea-level rise and storm surge will increase threats to homes and infrastructure including water, sewer, transportation, and communication systems. Many barrier islands and coastal marshes that protect the coastline and support healthy ecosystems will be lost.


*copyright©1993WarrenFaidley/weatherstock

Forests

Forest growth is generally projected to increase in much of the East, but decrease in much of the West as water becomes even scarcer. Major shifts in species are expected, such as maple-beech-birch forests being replaced by oak-hickory in the Northeast. Insect infestations and wildfires are projected to increase as warming progresses.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Agriculture

Increasing heat, pests, floods, weeds, and water stress will present increasing challenges for crop and livestock production.

Heat Waves

Heat waves will become more frequent and intense, increasing threats to human health and quality of life, especially in cities.

Water and Energy Interactions

As warming increases competition for water, the energy sector will be strongly affected because power plants require large amounts of water for cooling.

Energy Supply

Warming will decrease demand for heating energy in winter and increase demand for cooling energy in summer. The latter will result in significant increases in electricity use and higher peak demand in most regions.

Coldwater Fish

Salmon, trout, and other coldwater fish will face additional stresses as water temperatures rise and summer streamflows decline. Ecosystems and the tourism and recreation they support will be adversely affected.

Interacting Stresses

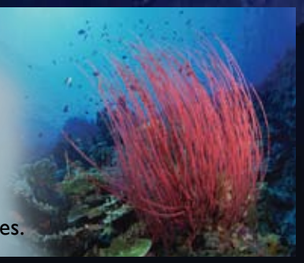
Population shifts and development choices are making more Americans vulnerable to the impacts of climate change. An aging populace and continued population shifts to the Southeast, Southwest, and coastal cities amplify risks associated with extreme heat, sea-level rise, storm surge, and increasing water scarcity in some regions.

Water Supply

Water supplies in the rapidly growing Southwest will become increasingly scarce, calling for difficult trade-offs among competing uses.

Coral Reefs

Rising water temperatures and ocean acidification threaten coral reefs and the rich ecosystems they support. These and other climate-related impacts on coastal and marine ecosystems will have major implications for tourism and fisheries.



Responding to Climate Change

Responses to climate change fall into two major categories. “Mitigation” focuses on reducing emissions of heat-trapping gases or increasing their uptake to reduce the amount and speed of climate change. “Adaptation” refers to changes made to better respond to present or future climate conditions in order to reduce harm or take advantage of opportunities. Both are necessary elements of a comprehensive response strategy.