

## National Climate Assessment Report Released

On May 6, 2014, the Government released its U.S. National Climate Assessment Report, "Climate Change Impacts in the United States." The evaluation of climate change impacts in the United States is 841 pages long, but is accompanied by a 148-page "Highlights" and an 11-page "Overview" that summarizes the findings. The assessment is the product of some 300 experts and a 60-member National Climate Assessment and Development Advisory Committee. It draws upon numerous workshops, extensive peer-reviewed research, and technical reports. In addition to the general conclusions, specific assessments relating to impacts upon different regions of the country and different elements of the economic and structural fiber of the country are contained. The full report, highlights and overview can be downloaded from the National Climate Assessment website <http://nca2014.globalchange.gov/downloads>. The overview lists twelve primary findings. Each finding is backed up by substantial scientific justification and an explanation of the anticipated future impacts. The findings are set forth in greater detail in the full report and highlights.

1. Global climate is changing and this is apparent across the United States in a wide range of observations. The global warming of the past 50 years is primarily due to human activities, predominantly the burning of fossil fuels. The most recent decade is the warmest on record. However, because human-induced warming is superimposed on natural, varying climate, rising temperatures are not evenly distributed. The amount of warming projected beyond the next few decades is directly linked to the cumulative global emissions of heat-trapping gases and particles. By the end of this century, a roughly 3° to 5° Fahrenheit rise is projected under the lower emissions scenario, which would require substantial reductions in emissions. A rise of 5° to 10° Fahrenheit is anticipated for a higher emissions scenario, assuming continued increases in emissions (predominantly from fossil fuel combustion).
2. Some extreme weather and climate events have increased in recent decades, and new and stronger evidence confirms that some of these increases are related to human activities. Over the past 50 years, much of the United States has seen an increase in prolonged periods of excessively high temperatures, more heavy downpours, and, in some regions, severe drought.
3. Human-induced climate change is projected to continue, and it will accelerate significantly if global emissions of heat-trapping gases continue to increase. Heat-trapping gases already in the atmosphere have committed us to a hotter future with more climate-related impacts over the next few decades. The magnitude of climate change beyond the next few decades depends primarily on the amount of heat-trapping gases that human activities emit globally, both now and in the future.
4. Impacts related to climate change are already evident in many sectors and are expected to become increasingly disruptive across the nation throughout this century and beyond. There is mounting evidence that harm to the nation will increase substantially in the future unless global emissions of heat-trapping gases are greatly reduced.
5. Climate change threatens human health and well-being in many ways, including through more extreme weather events and wildfire, decreased air quality, and diseases transmitted by insects, food, and water. Large-scale changes in the environment due to climate change and extreme weather events are increasing the risk of the reemergence of health threats that are currently uncommon in the United States.
6. Infrastructure is being damaged by sea level rise, heavy downpours, and extreme heat; damages are projected to increase with continued climate change. In combination with the pattern of continued development in coastal areas, increasing damage to U.S. infrastructure, including roads, buildings, and industrial facilities – along with increasing risks to ports and coastal military installations will occur.

Flooding along rivers, lakes and cities following heavy downpours and a rapidly melting snowpack will exceed the limits of flood protection designed for historic conditions.

7. Water quality and water supply reliability are jeopardized by climate change in a variety of ways that affect ecosystems and livelihoods. Surface and groundwater supplies are stressed by an increasing demand for water, as well as declining runoff and groundwater recharge. Climate change is increasing the likelihood of water shortages, particularly in the southern part of the United States.
8. Climate disruptions to agriculture have been increasing and are projected to become more severe over this century. While some U.S. regions and some types of agricultural production will be relatively resilient to climate change over the next 25 years, others will increasingly suffer from stresses due to extreme heat, drought, disease, and heavy downpours. From mid-century on, climate change is projected to have more negative impacts on crops and livestock.
9. Climate change poses particular threats to Indigenous Peoples' health, wellbeing, and ways of life.
10. Ecosystems and the benefits they provide to society are being affected by climate change. The capacity of ecosystems to buffer the impacts of extreme events like fires, floods, and severe storms is being overwhelmed. Climate change impacts on biodiversity are already being observed in alteration of the timing of critical biological events, such as the spring floodburst and substantial range shifts of many species. In the longer term, there is an increased risk of species extinction.
11. Ocean waters are becoming warmer and more acidic, broadly affecting ocean circulation, chemistry, ecosystems, and marine life. More acidic waters inhibit the formation of shells, skeletons, and coral reefs. Warmer waters alter distribution, abundance, and productivity of many marine species.
12. Planning for adaptation (to address and prepare for impacts) and mitigation (to reduce future climate change, for example by cutting emissions) is becoming more widespread, but current implementation efforts are insufficient to avoid increasingly negative social, environmental, and economic consequences.

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