



Act Now: Congress Must Protect Our Communities and Natural Resources from the Worst Impacts of Global Warming

Global warming pollution is a serious threat to our health, environment, and natural resources. Rising temperatures could cause a spike in disease, lead to increased floods and droughts, and devastate our wild places, both in the United States and around the world. We must prepare for—and prevent against—the worst impacts of global warming by acting now to protect our communities and natural systems. Fortunately, Congress is on the brink of considering legislation that can guard our natural resources and our health against global warming pollution. NRDC has developed a set of recommendations that can help policy makers put the best systems in place to protect our communities and natural resources.

Global warming, left unchecked, will have serious impacts on four key areas: Human health, water resources, oceans, and lands. In the United States and around the world, communities must begin to adapt to the new reality of life in a changing climate, and at the same time take steps to prevent future climate damage.



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Human Health

Climate change will likely have serious impacts on human health¹:

- The predicted increase in the frequency and duration of heat waves will cause more deaths and illnesses from heatstroke, cardiovascular disease, and kidney disease.
- Rising temperatures will result in greater ozone smog in many areas, an increase in the number of hospital admissions for people with respiratory diseases, and diminished health for people suffering from cardiac or pulmonary disease.
- Higher temperatures and enhanced levels of carbon dioxide may mean that the pollen season will start earlier, last longer, and be more intense; those who suffer from seasonal allergies and asthma will experience worse symptoms.
- Warming temperatures and greater rainfall can augment the transmission of insect-borne diseases, enabling more rapid development of dangerous pathogens within insect carriers and the spread of diseases into new, once cooler regions. Increases in heavy rainfall events will likely result in more frequent outbreaks of water-borne diarrheal diseases caused by parasites that are washed into drinking water supplies.
- Floods, droughts, and more extreme weather events will cause deaths, injuries, and displacement of large numbers of people within and across national borders, with drastic effects on human health.



Water Resources

Climate change will likely damage aquatic ecosystems, infrastructure, and water supplies:

- More frequent heavy rainfall events will overload the capacity of sewer systems and water treatment plants and result in more stormwater runoff, which will intensify water pollution from sediments, nutrients, pathogens, pesticides, and other pollutants.²
- Decreased summer precipitation and drought will diminish the amount of water stored in reservoirs or in the ground.
- Higher water temperature will drastically reduce cold-water habitat for salmon and trout species, threatening populations throughout the United States with extinction.
- Sea-level rise will adversely affect groundwater aquifers by causing an increase in the intrusion of salt water into coastal aquifers and making less freshwater available for human use.

Oceans

From rising sea levels and higher temperatures to more extreme weather events and ocean acidification, global warming pollution presents a serious threat to our already-stressed ocean systems. Treasured oceans and beaches, food staples, recreation, and employment are all at risk in the coming decades.

- Rising sea levels will increase erosion of beaches, promote saltwater intrusion into water supplies, inundate coastal marshes and other important habitats, cause inward migration of estuaries, and make coastal property more vulnerable to storm surges.
- A greater frequency of extreme weather events, including intense rainfall, floods, droughts, and tropical storms, will alter freshwater flows into estuaries and lagoons, exacerbate polluted runoff and water supply problems, and damage coastal habitats and property.
- Higher ocean temperatures will cause extensive coral bleaching, enhance marine diseases, alter species' ranges and population abundances, and stress many valuable fish and shellfish populations.



■ Ocean acidification will result in slower growth rates, fragile shells, and reduced survivability of many forms of marine life, such as corals, and squid.

Lands

The precise nature of how global warming will influence ecosystems, wildlife, regional habitat, and individual microclimates remains uncertain. It is clear, however, that the impacts will be dramatic, unpredictable, and landscape-wide—from worsening droughts to migration of entire plant and animal species.

■ One of global warming's greatest threats will be loss of intact native habitat as ecosystems respond to climate change. Therefore, it is vital that we preserve what remains of our undeveloped wildlands because global warming will only aggravate existing problems like commercial exploitation, urban and suburban expansion, disease, and population fragmentation.

■ Our forests, home to 90 percent of terrestrial plant and animal species, have become more susceptible to invasives and disease. These forests provide critical migration routes, allowing wildlife to move from one safe harbor to another as climactic changes alter landscapes and render habitat unsuitable for threatened and endangered species. Intact, native ecosystems house invaluable genetic material that enables species to adapt to and resist the effect of global warming.

The International Community Must Adapt to Global Warming

Around the world, countries are feeling the impacts of global warming pollution and are trying to adapt to the changing climate. Rising sea levels, floods, and more severe droughts are forcing many people in vulnerable areas to flee their homes. The frequency of these extreme weather patterns is also causing instability. Intelligence reports suggest that the impacts of climate change will be a “threat multiplier” that will lead to future national security hazards.³ Measures to forecast, assess, address, and adapt to these impacts remain inadequate. The most vulnerable countries are also the ones least responsible for causing the pollution. As the world comes together to create a global agreement to address climate change, adaptation

is one of the four main pillars for this agreement. The priority placed on adaptation is also reflected in the United Nations Framework Convention on Climate Change's Bali Action Plan. The United States must support and promote solutions to alleviate the adaptation burden faced by developing countries.

Policy Recommendations for Building Healthy, Resilient Ecosystems and Communities

Scientific studies since the International Panel on Climate Change's 4th assessment report present ever more alarming results. These reports make it clear that U.S. emissions need to be decreased by 80 percent or more by 2050. We have to lessen emissions as soon as possible to avoid the worst risks of global warming pollution; however, impacts are already occurring and will continue even if these reductions take place. Therefore, adaptation measures must be developed and implemented to prepare for the consequences of climate change. Left unchecked, these changes will have profound negative effects. *The best way to safeguard our ecosystems and communities is to make them as healthy and resilient as possible and promote their ability to adapt to ongoing and projected impacts.*

NRDC recommends the following guidelines to help decision makers address the most important climate change threats:

- 1. Direct a portion of emission allowance revenues generated by proposed U.S. federal climate legislation to fund domestic and international adaptation needs.** Financial support will enable the federal government, states, and localities to prepare for the global warming impacts that will occur even with strong emission reduction standards in place. In addition, funding will help the most vulnerable developing countries improve their resilience and adapt to the effects of climate change.
- 2. Develop and implement strategies to maintain and improve the resilience of our natural ecosystems and communities so that they can thrive in the face of changing conditions.** Federal and state agencies should develop and implement resilience strategies



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and supply adequate funding to achieve success. Furthermore, legislation should specify that federal funds provide for the creation of preparedness programs at the federal, state, and local levels, with agencies, such as the Council on Environmental Quality and the Centers for Disease Control and Prevention, taking a coordinating role.

3. Include impacts of global warming pollution in the regulatory decisions of federal agencies. Agencies should be required to take global warming pollution into account in making their regulatory decisions.

4. Establish a federal program to support efforts to perform climate change vulnerability assessments and develop adaptation plans and projects. The federal program should conduct research and provide data and technical assistance to utilities (stormwater, wastewater, and drinking water), federal agencies, and state, local, and tribal governments.

5. Provide funding to restore and enhance environmental and public health monitoring and surveillance systems. These systems should be part of an adaptation program, functioning to evaluate climate-health baseline relationships. The systems should monitor streamflow, water and air quality, infectious pathogens in vector populations, pollen levels, disease outbreaks in wild and domestic animals, food-borne illnesses, and human health status and disease incidence.

6. Fund infrastructure improvements to enhance resilience to climate change. State, local, and tribal governments, as well as drinking water, stormwater, and wastewater utilities should be eligible for funding for technical assistance, vulnerability assessments, and development and implementation of adaptation plans and projects. Funding should also be available for education and training related to implementing adaptation strategies and raising public awareness.

7. Implement policies to discourage development in ecologically vulnerable areas. To prepare for sea-level rise, coastal states and the federal government must take steps to stop development in susceptible areas and support efforts to site structures farther landward of eroding shorelines.

8. Protect the environment from extreme weather events such as heavy downpours and droughts. States and federal agencies must emphasize the protection and restoration of shoreline and streamside riparian vegetation and wetlands, upgrade stormwater management to incorporate green infrastructure and take account of more frequent and heavier rainfall events, and increase water-use efficiency and opportunities for beneficial reuse.

9. Protect our fisheries. We need to restore depleted fisheries as soon as possible, stop overfishing, and protect habitat to enhance fisheries' ability to withstand the additional stresses accompanying global warming and ocean acidification.

10. Provide opportunities for the public to give input on strategies and plans developed by federal and state agencies to adapt to climate change.

11. Incorporate effective environmental criteria into federal and state decision making to ensure that adaptation planning and implementation protect natural systems.

¹ Ebi K.L., J Balbus, and PL Kinney, et al. "Effects of Global Change on Human Health," in *Analyses of the Effects of Global Change on Human Health and Welfare and Human Systems*. A Report by the US Climate Change Science Program and the Subcommittee on Global Change Research [Gamble JL (ed.)]. U.S. EPA, Washington, D.C., 2008, pp.2-1 to 2-78.

² Intergovernmental Panel on Climate Change (IPCC), *Climate Change and Water* (IPCC Technical Paper VI June 2008), <http://www.ipcc.ch/ipccreports/technical-papers.htm>

³ The CNA Corporation, *National Security and the Threat of Climate Change*, 2007, available at <http://securityandclimate.cna.org/>.