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FACT SHEET: What Climate Change Means for Massachusetts and the Northeast



Today, the Obama Administration released the third U.S. National Climate Assessment – the most comprehensive scientific assessment ever generated of climate change and its impacts across every region of America and major sectors of the U.S. economy. The findings in this National Climate Assessment underscore the need for urgent action to combat the threats from climate change, protect American citizens and communities today, and build a sustainable future for our kids and grandkids.

The National Climate Assessment is a key deliverable of President Obama’s Climate Action Plan to cut carbon pollution, prepare America’s communities for climate-change impacts, and lead international efforts to address this global challenge. Importantly, the plan acknowledges that even as we act to reduce the greenhouse-gas pollution that is driving climate change, we must also empower the Nation’s states, communities, businesses, and decision makers with the information they need prepare for climate impacts already underway.

The Obama Administration has already taken a number of steps to deliver on that commitment to states, regions, and communities across America. In the past year alone, these efforts have included: establishing a Task Force of State, Local, and Tribal Leaders on Climate Preparedness and Resilience to advise the Administration on how the Federal Government can respond to the needs of communities nationwide that are dealing with the impacts of climate change; launching a Climate Data Initiative to bring together extensive open government data with strong commitments from the private and philanthropic sectors to develop planning and resilience tools for communities; and establishing seven new “climate hubs” across the country to help farmers and ranchers adapt their operations to a changing climate.

MASSACHUSETTS is part of the U.S. National Climate Assessment U.S. Northeast Region. The regional phenomena identified by the Assessment may not occur in every state that is part of a particular region. According to the third U.S. National Climate Assessment Highlights report:

“Sixty-four million people are concentrated in the Northeast. The high-density urban coastal corridor from Washington, D.C., north to Boston is one of the most developed environments in the world. It contains a massive, complex, and long-standing network of supporting infrastructure. The Northeast also has a vital rural component, including large expanses of sparsely populated but ecologically and agriculturally important areas.

Although urban and rural regions in the Northeast are profoundly different, they both include populations that are highly vulnerable to climate hazards and other stresses. The region depends on aging infrastructure that has already been stressed by climate hazards including

heat waves and heavy downpours. The Northeast has experienced a greater recent increase in extreme precipitation than any other region in the U.S.; between 1958 and 2010, the Northeast saw more than a 70% percent increase in the amount of precipitation falling in very heavy events (defined as the heaviest 1% of all daily events). This increase, combined with coastal and riverine flooding due to sea level rise and storm surge, creates increased risks. For all of these reasons, public health, agriculture, transportation, communications, and energy systems in the Northeast all face climate-related challenges.” (NCA Highlights, p. 70)

Regional Findings of the Third U.S. National Climate Assessment: NORTHEAST

- “Heat waves, coastal flooding, and river flooding will pose a growing challenge to the region’s environmental, social, and economic systems. This will increase the vulnerability of the region’s residents, especially its most disadvantaged populations.
- Infrastructure will be increasingly compromised by climate-related hazards, including sea level rise, coastal flooding, and intense precipitation events.
- Agriculture, fisheries, and ecosystems will be increasingly compromised over the next century by climate change impacts. Farmers can explore new crop options, but these adaptations are not cost- or risk-free. Moreover, inequities exist in adaptive capacity, which could be overwhelmed by changing climate.
- While a majority of states and a rapidly growing number of municipalities have begun to incorporate the risk of climate change into their planning activities, implementation of adaptation measures is still at early stages.” (NCA, Ch. 16: Northeast)

Selected Findings and Information from the Third U.S. National Climate Assessment Relevant to MASSACHUSETTS

- **Urban:** “Urban residents have unique and multifaceted vulnerabilities to heat extremes. Northeastern cities, with their abundance of concrete and asphalt and relative lack of vegetation, tend to have higher temperatures than surrounding regions (the “urban heat island” effect). Many Northeastern cities, including New York, Boston, and Philadelphia, are served by combined sewer systems that collect and treat both stormwater and municipal wastewater. During heavy rain events, combined systems can be overwhelmed and untreated water may be released into local water bodies.” (NCA, Ch. 16: Northeast)
- **Health:** “Since the hottest days in the Northeast are often associated with high concentrations of ground-level ozone and other pollutants, the combination of heat stress and poor air quality can pose a major health risk to vulnerable groups: young children, the elderly, and those with pre-existing health conditions including asthma.” (NCA, Ch. 16: Northeast)
- **Coastal:** “The northern states, including Massachusetts, Rhode Island, and Connecticut, have less land area exposed to a high inundation risk because of a lower relative sea level rise and because of their relatively steep coastal terrain. Still, low-lying coastal metropolitan areas in New England have considerable infrastructure at risk. In Boston alone, cumulative damage to buildings, building contents, and associated emergency costs could potentially

be as high as \$94 billion between 2000 and 2100, depending on the sea level rise scenario and which adaptive actions are taken.”(NCA, Ch. 16: Northeast)

- **Fisheries:** “Long-term monitoring of bottom dwelling fish communities in New England revealed that the abundance of warm-water species increased, while cool-water species decreased. A recent study suggests that many species in this community have shifted their geographic distributions northward by up to 200 miles since 1968, though substantial variability among species also exists. The northward shifts of these species are reflected in the fishery as well: landings and landed value of these species have shifted towards northern states such as Massachusetts and Maine, while southern states have seen declines.” (NCA, Ch. 24: Oceans)

Examples of Efforts Underway in MASSACHUSETTS to Address Climate Change

In MASSACHUSETTS, many efforts are already underway to mitigate and respond to the impacts of climate change, including:

Preparing Communities for the Consequences of Climate Change:

Many important preparedness, resilience, and adaptation efforts are already being led by local, state, and regional entities across the country. Mechanisms being used by local governments to prepare for climate change include: land-use planning; provisions to protect infrastructure and ecosystems; regulations related to the design and construction of buildings, road, and bridges; and preparation for emergency response and recovery. These local adaptation planning and actions are unfolding in municipalities of different sizes, and regional agencies and regional aggregations of governments are also taking actions. And States have also become important actors in efforts related to climate change.

Cutting Carbon Pollution in MASSACHUSETTS:

In 2012, power plants and major industrial facilities in Massachusetts emitted more than 16 million metric tons of carbon pollution – that’s equal to the yearly pollution from more than 3 million cars. Through the Climate Action Plan and state initiatives, there are many efforts already underway to mitigate and respond to the impacts of climate change in Massachusetts, including

- ***Investing in Clean Energy:*** Since President Obama took office, the U.S. increased solar-electricity generation by more than ten-fold and tripled electricity production from wind power. In Massachusetts, renewable energy generation from wind, solar, and geothermal sources increased more than 50 percent. Since 2009, the Administration has supported tens of thousands of renewable energy projects throughout the country, including 3,143 in Massachusetts, generating enough energy to power more than 45,000 homes and helping Massachusetts meet its own goal of adding 15 percent electricity generation from renewable energy sources by 2020, and another 1 percent each year after.
- ***Improving Efficiency:*** Using less energy to power our homes, businesses and vehicles is critical to building a clean and secure energy future. President Obama has made essential

investments in research and development for energy efficiency advances, and set new standards to make the things we use every day – from cars to microwaves – more efficient.

- President Obama established the toughest fuel economy standards for passenger vehicles in U.S. history. These standards will double the fuel efficiency of our cars and trucks by 2025, saving the average driver more than \$8,000 over the lifetime of a 2025 vehicle and cutting carbon pollution.
- Since October 2009, the Department of Energy and the Department of Housing and Urban Development have jointly completed energy upgrades nearly two million homes across the country, saving many families more than \$400 on their heating and cooling bills in the first year alone.
- As part of the President's Better Buildings Challenge, the commonwealth of Massachusetts committed to reducing energy intensity 20 percent by 2020 in 65 million square feet of its buildings. Massachusetts has already achieved 8 percent improvement in energy performance. The cities of Boston and Medford committed to the same goal in a combined 17.37 million square feet of city buildings. Worcester pledged to reduce energy intensity 20 percent in just three years. To date, Medford and Worcester have achieved energy intensity reductions of 13 percent and 7 percent respectively. The New Bedford Housing Authority committed to 20 percent reduction in energy intensity within 10 years in 2.67 million square feet of the buildings within its authority.

For more information about the third U.S. National Climate Assessment, please visit www.globalchange.gov or contact engagement@usgcrp.gov.

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