

Climate and Health in Iowa

Science shows that climate change is affecting human health in a variety of ways, right in our backyards. People in the Hawkeye State are vulnerable to climate-health threats—from worsening air quality, extreme heat, extreme precipitation and flooding, and greater exposure to dangerous diseases. We must take action now to ensure a healthy climate for our children and grandchildren.

Earlier this year the U.S. Environmental Protection Agency (EPA) proposed the Clean Power Plan, a historic effort to limit the carbon pollution emitted by power plants—the biggest driver of climate change—and protect public health. The plan deserves strong support as one of the biggest steps forward to tackle climate change and reduce its associated health risks. Climate change is expected to affect the health of Iowans in the following ways:

1. Extreme Heat and Heat Waves Lead to Increased Illness and Death

As temperatures reach more frequent and hotter highs, death and illnesses occurring from heat stress, heatstroke, cardiovascular disease, kidney disease, and other causes often increase.¹ Nationally, heat extremes are projected to become more common, with highs that ranked among the hottest 5 percent in 1950–1979 occurring at least 70 percent of the time by 2035–2064.² Iowa can expect to see the frequent high temperatures of 2011 become common summer occurrences in the next 70 years.³ Polk County experienced an abnormally high 53 days over 90 degrees F in 2011; under a scenario in which carbon pollution increases, 64 such days are projected for 2084.

2. Climate Change Worsens Air Pollution that Threatens Our Health

Rising temperatures, along with greater air stagnation and other climate effects, increase ground-level ozone smog.⁴ The 378,000 people with asthma or chronic respiratory disease in Iowa are especially vulnerable to the harmful health effects of ozone smog, which makes it harder to get a lungful of air.⁵ Last year alone there were 11,700 asthma-related emergency room visits in Iowa.⁶

3. Allergen Risks Rise


Elevated carbon dioxide and higher temperatures associated with climate change are already altering the range of plants' occurrence and the timing of bloom, leaf, fruit, and pollen production.⁷ More pollen produced over longer pollen seasons can worsen allergic symptoms and trigger asthma attacks, especially when combined with other air pollution.⁸ Within the Midwest, the northward shifts of certain plant species and an extended growing season are expected to lead to greater allergy and asthma risks, particularly for ragweed.⁹ Iowa may also face large increases in allergenic tree pollen.¹⁰

4. Storms and Floods Become Extreme

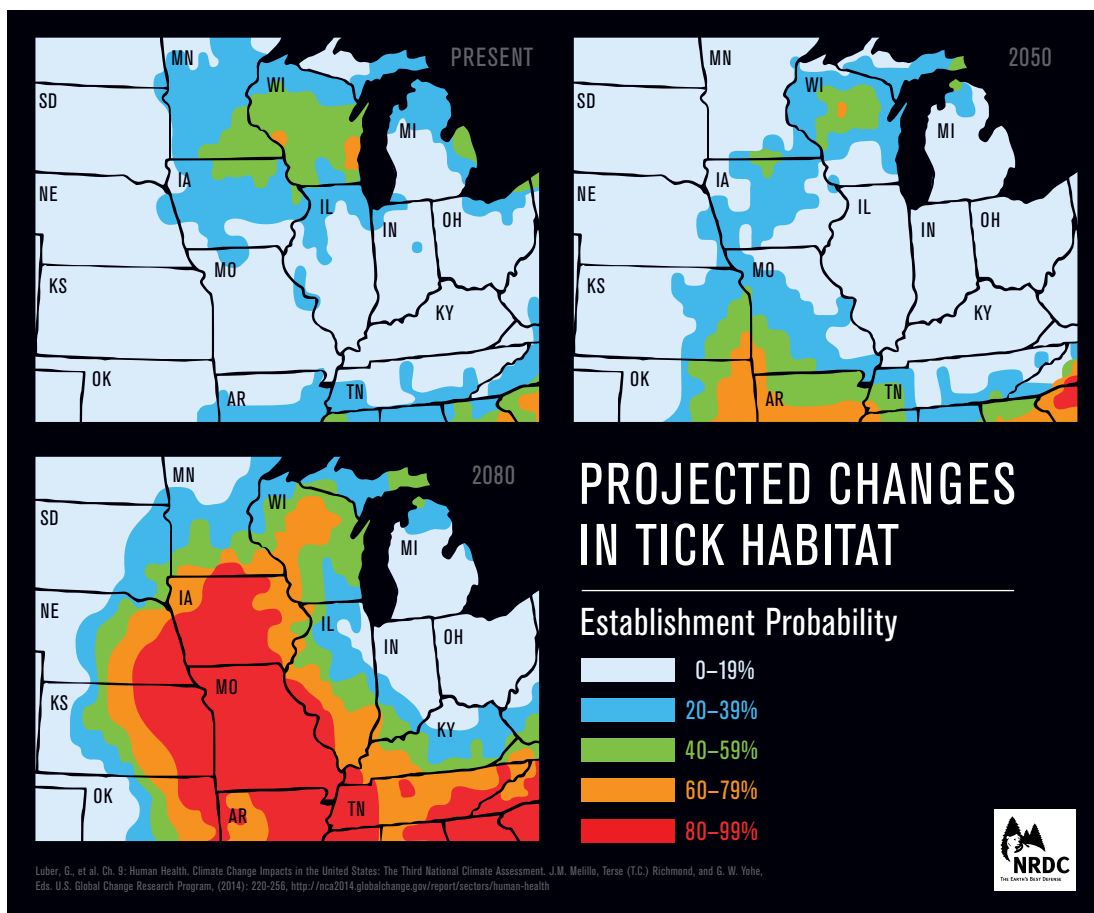
Heavy precipitation events are already on the rise in the United States, and their frequency and magnitude are expected to increase in the years to come.¹¹ Extreme rainfall events have become 35 percent more frequent in Iowa over the past 60 years.¹² These heavy rains not only increase the risk of flooding, the second-deadliest of all weather-related hazards in the nation, but can also lead to drinking water contamination and disease outbreaks.^{13,14}



For more
information,
please
contact:

Aliya Haq
ahaq@nrdc.org
 switchboard.nrdc.org/
blogs/ahaq

www.nrdc.org/policy
www.facebook.com/nrdc.org
www.twitter.com/nrdc



Like many states in the Midwest, several Iowa cities use combined sewer systems, which handle both sewage and rainwater in a single pipe system. These can overflow during high precipitation, sending untreated sewage and disease-causing pathogens into local water supplies. These overflows are projected to occur more often as extreme precipitation grows more common.¹⁵

In the past century, annual average precipitation in Iowa has increased by 4.2 inches—the second-highest increase in the Midwest region.¹⁶ The Iowa Climate Change Impacts Committee predicts a warmer, more humid climate with more extreme precipitation that can wash chemicals and sewage into waterways. The 2008 floods provided several examples of what Iowans face in the future: Floodwaters uncovered long-buried 55-gallon drums of toxic waste, and the Cedar Rapids wastewater treatment plant discharged raw sewage that found its way into flooded homes, leaving residents facing extensive mold growth and chemical and microbial pollutants.¹⁷

5. Insect-Borne Infectious Diseases Spread

Climate change is among the factors affecting the population and habitat of disease-carrying insects. Short- and long-term climate changes can expand the range of these insects.¹⁸

One of the mosquito species that transmit West Nile virus and the La Crosse virus was discovered for the first time in Iowa among specimens collected in 2007 and 2008.¹⁹ Since 2004 Iowa has reported 231 cases of West Nile virus from mosquitoes and 905 cases of Lyme disease from ticks.²⁰

6. Elderly, Young, and Low-Income Populations Are Especially Vulnerable

The elderly, children, and people in poverty face particularly acute risks from these climate-related health threats. The number of people age 65 and older is especially high in Iowa, topping 470,000, according to recent state data.²¹ In 2010 the state was ranked fifth highest nationally, with 14.9 percent of the populace 65 and older; the national average is 13 percent.²² There are also more than 700,000 children and 375,000 low-income people in the state.²³ Protecting the health of these hundreds of thousands of Iowans makes it all the more important to take action now to limit climate change's effects.

The Natural Resources Defense Council strongly supports the EPA's Clean Power Plan, which will reduce carbon pollution driving climate change by at least 30 percent by 2030. It is important for states to create state implementation plans that put the goals of the Clean Power Plan into action. We owe it to our children—and our children's children—to tackle climate change now.

ENDNOTES

- 1 Knowlton, Kim, et al. "The 2006 California Heat Wave: Impacts on Hospitalizations and Emergency Department Visits." *Environ Health Perspect* 117.1 (2009): 61-67.
- 2 Duffy, P.B., and C. Tebaldi. "Increasing Prevalence of Extreme Summer Temperatures in the U.S." *Climate Change* 111 (2012): 487-495.
- 3 Based on a comparison of historical and future projected days over 90 across all Iowa counties, using data from the Centers for Disease Control and Prevention, "Tracking Climate Change," April 17, 2012, <http://ephracking.cdc.gov/showClimateChangeTracking.action>.
- 4 Bell, M.L., et al. "Climate Change, Ambient Ozone, and Health in 50 US Cities." *Climatic Change* 82 (2007): 61-67.
- 5 American Lung Association. "State of the Air 2014, Report Card: Iowa," 2014, <http://www.stateoftheair.org/2014/states/iowa/>.
- 6 Iowa Department of Public Health, Asthma Emergency Department, "State Time Trend," <https://pht.idph.state.ia.us/healtheffects/asthma/Dashboards/Asthma%20Emergency%20Department/State%20Time%20Trend.aspx>.
- 7 Reid, C.E., and J.L. Gamble. "Aeroallergens, Allergic Disease, and Climate Change: Impacts and Adaptation." *Ecohealth* 6 (2009): 458-470.
- 8 Staudt, A., et al. "Extreme Allergies and Global Warming." National Wildlife Federation and Asthma and Allergy Foundation of America, 2010, http://www.nwf.org/~media/PDFs/Global-Warming/Reports/NWF_AllergiesFinal.ashx.
- 9 Ziska, L., et al. "Recent Warming by Latitude Associated with Increased Length of Ragweed Pollen Season in Central North America." *Proceedings of the National Academy of Sciences* 108 (2011): 4248-4251, <http://www.pnas.org/content/108/10/4248.long>.
- 10 Staudt et al., "Extreme Allergies."
- 11 Intergovernmental Panel on Climate Change. *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change*. C.B. Field et al., eds. (New York; Cambridge University Press, 2012), http://ipcc-wg2.gov/SREX/images/uploads/SREX-AII_FINAL.pdf.
- 12 Madsen, T., and N. Willcox. *When It Rains It Pours: Global Warming and the Increase in Extreme Precipitation from 1948 to 2011*. Environment America Research and Policy Center, 2012.
- 13 Ashley, S.T., and W.S. Ashley. "Flood Fatalities in the United States." *Journal of Applied Meteorology and Climatology* 47 (2008): 805-818, <http://journals.ametsoc.org/doi/pdf/10.1175/2007JAMC1611.1>.
- 14 Curriero, F.C., et al. "The Association Between Extreme Precipitation and Waterborne Disease Outbreaks in the United States, 1948-1994." *American Journal of Public Health* 91 (2001): 1194-1199.
- 15 Patz, J.A., et al. "Climate Change and Waterborne Disease Risk in the Great Lakes Region of the U.S." *American Journal of Preventive Medicine* 35 (2008): 451-458, [http://www.ajpmonline.org/article/S0749-3797\(08\)00702-2/fulltext](http://www.ajpmonline.org/article/S0749-3797(08)00702-2/fulltext).
- 16 Midwestern Regional Climate Center, "Climate Change and Variability in the Midwest," 2014, http://mrcc.isws.illinois.edu/mw_climate/climateChange.jsp#.
- 17 Osterberg, D., and P.S. Thorne. "Climate Change Consequences for Public Health in Iowa," report to governor and Iowa General Assembly, 2011, 23.
- 18 Lafferty, K.D. "The Ecology of Climate Change and Infectious Diseases." *Ecology* 90 (2009): 888-900.
- 19 Dunphy, B.M., et al. "Arrival and Establishment of *Aedes japonicus japonicus* (Diptera: Culicidae) in Iowa." *Journal of Medical Entomology* 46 (2009): 1282-1289.
- 20 Centers for Disease Control and Prevention, "Reported Cases of Lyme Disease by State or Locality, 2004-2013," http://www.cdc.gov/lyme/stats/chartstables/reportedcases_statelocality.html. Centers for Disease Control and Prevention, "West Nile Virus Disease Cases Reported to CDC by State, 1999-2013," http://www.cdc.gov/westnile/resources/pdfs/cummulative/99_2013_cummulativeHumanCases.pdf.
- 21 State Data Center of Iowa and the Iowa Department on Aging. "Older Iowans: 2014," May 2014, <http://www.iowadatatcenter.org/Publications/older2014.pdf>.
- 22 West, L.A., et al. *65+ in the United States, 2010*. U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau, June 2014, <http://www.census.gov/content/dam/Census/library/publications/2014/demo/p23-212.pdf>.
- 23 American Lung Association, "State of the Air 2014, Report Card: Iowa," 2014, <http://www.stateoftheair.org/2014/states/iowa/>.