



# Environmental Health Policy Fact Sheet

## Climate Change, Extreme Precipitation, and Health

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The Detroit Climate Action Collaborative (DCAC) is a group of businesses, universities, community-based organizations, government representatives and community residents working together to reduce the burden of climate change.

*This fact sheet was developed by DCAC in collaboration with the Community Outreach & Engagement Core (COEC) of the University of Michigan Lifestage Environmental Exposure & Disease (M-LEEaD) Center\**

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- Solid Waste
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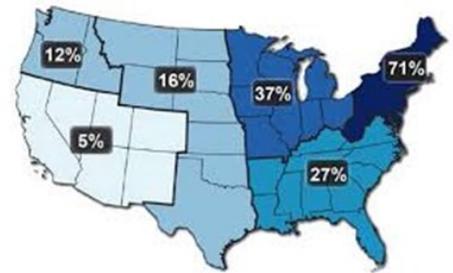
### Why is Climate Change Important to Public Health?

Climate change is altering weather and climate patterns. These changes could affect human health in direct and indirect ways, sometimes severely.<sup>3,5</sup>

The American Public Health Association and World Health Organization call climate change **'one of the most serious public health threats'** facing us today.<sup>1,2</sup>

### How is Climate Change & Extreme Precipitation Impacting Michigan?

Temperatures are rising. Heat waves are becoming more frequent. Detroit could experience as many as 65 days per summer with high temperatures above 90° toward the end of the century.<sup>3,5</sup>



Extreme rainfall events are becoming more frequent, especially in winter and spring; however, overall the region will be drier with increasing periods of drought. Frequency and intensity of all types of severe storms will likely continue to increase.

*The Midwest has seen a 31% increase in the heaviest 1% of precipitation events from 1958 to 2007.*

Source: Great Lakes Integrated Sciences Assessments (GLISA)



Brian Gilbow/Flickr

*President Obama declared a federal disaster in September 2014, allowing residents to apply for FEMA funds.*

On August 11, 2014, Metro Detroit experienced record breaking rainfall—more than 6" in 4 hours. As a result, severe flooding occurred. The Southeast Michigan Flood Recovery Group estimated repairs to infrastructure and household damages to cost \$13,945,148. The Michigan Department of Community Health quickly warned residents that mold could begin growing within a flooded home within 2 days and urged quick clean up to prevent health issues.<sup>7,8</sup>

County/City	Total Registrants	Total Owners	Total Renters	Uninsured	Access and Functional Needs (self-identified)	Member of Household Over 65	Minor in Household Under 18
Macomb County	11,130	7,913	3,168	3,649	174	1,621	4,921
Oakland County	19,035	15,267	3,683	3,737	224	3,672	6,309
Wayne County	99,056	58,859	39,562	66,626	3,285	13,740	44,510
<b>TRI-COUNTY TOTALS</b>	<b>129,221</b>	<b>82,039</b>	<b>46,413</b>	<b>74,012</b>	<b>3,683</b>	<b>19,033</b>	<b>55,740</b>
City of Detroit	74,848	41,967	32,441	56,335	2,790	10,440	33,014

Data provided by FEMA as of 10/5/2015

Source: Southeast Michigan Flood Recovery Group

## What Precipitation-Related Health Effects Can We Expect for Detroit?

- **Mold:** Mold is likely to occur in houses that have been flooded, which if exposed to, can lead to asthma or cardiovascular diseases.<sup>4</sup>
- **Asthma:** Household flooding may lead to increased mold. Mold exposure is likely to exacerbate asthma symptoms. This is particularly problematic in Detroit, where asthma hospitalization rates are 3x higher than the state of Michigan.<sup>7</sup>
- **Respiratory Diseases:** Exposure to water-borne illnesses, such as Legionella, may increase.<sup>4</sup>
- **Diseases from Raw Sewage:** In the event of a massive flood, it is possible for storm water drains to be blocked, resulting in an overflow of raw sewage. This could lead to the exposure of multiple bacteria in the raw sewage.<sup>6</sup>
- **Toxins from Harmful Algal Blooms (HAB):** Increased extreme precipitation events may lead to more nutrients running off into the Detroit River and Lake Erie. These increased nutrients lead to HABs, which can contaminate drinking water supplies, as seen in Ohio in August 2014. HABs produce toxins, which when ingested can result in sickness, even death.<sup>4</sup>

Source: greatlakes.org



Combined Sewer Overflows (CSO), in the event of extreme rainfall, can overflow, sending raw sewage to a river or lake.

### What Does this Mean For Me and My Community?

Here are some steps you can take to prevent stormwater overflow and water pollution in your neighborhood:

- Use less water when possible—take shorter showers and look for leaks in your home. Especially on days when our communities experience heavy rainfalls, consider using less water by refraining from doing laundry, for instance.
- If you live in a home where your downspouts are connected directly to the sewer, disconnect them so that excess water can be captured by vegetation or in a rain barrel.
- Use rain barrels to collect rainfall. A special barrel is not needed—even a garbage bag can work.
- Build a rain garden. A rain garden is built with a small depression in the ground to trap rainwater and prevent flooding.



Judy Dobrosky/Flickr

Citations available at: [ehscc.umich.edu/wp-content/uploads/Extreme-Precipitation-Fact-Sheet\\_citations.pdf](http://ehscc.umich.edu/wp-content/uploads/Extreme-Precipitation-Fact-Sheet_citations.pdf)



\*Developed in collaboration with the Community Outreach & Engagement Core (COEC) at the Michigan Lifestage Environmental Exposures & Disease (M-LEEAD) Center, which promotes multi-directional communication among UM environmental health researchers, public health decision makers, and communities. Researchers work together to advance knowledge of environmental health issues that affect community members in Detroit and Southeast Michigan. More information can be found at [www.ehsc.umich.edu](http://www.ehsc.umich.edu), or by contacting Carol Gray, Project Coordinator, at (734) 764-8632 or [ccbgray@umich.edu](mailto:ccbgray@umich.edu). Special thanks to Sarah Bellaire and Jessica Doan, who developed this fact sheet.

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