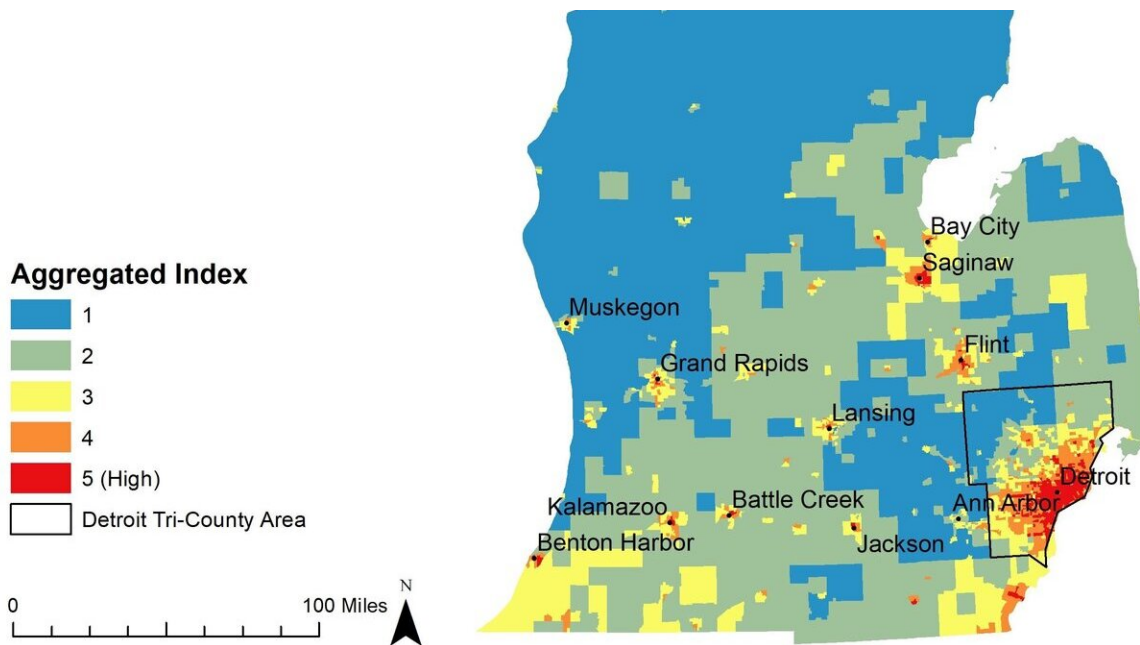


Maps highlight Michigan cities, groups that will bear brunt of climate change effects

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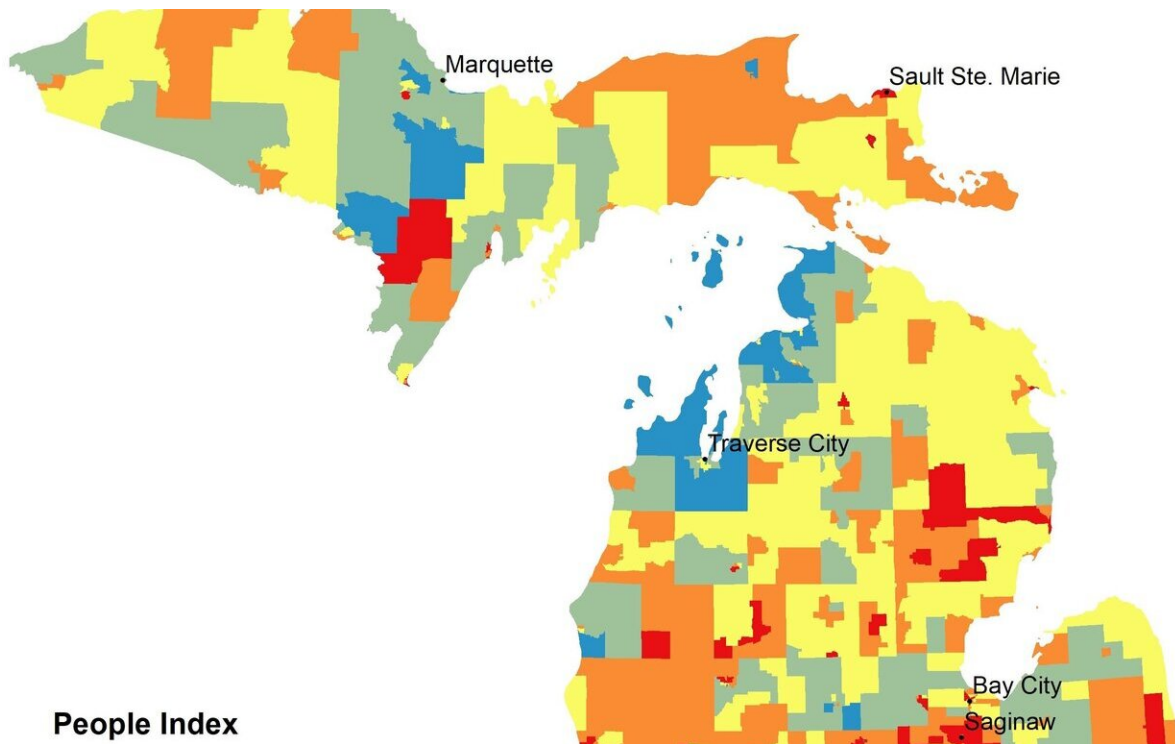
Most of the cities in Michigan will be dealing with harsh consequences of climate change, and vulnerable groups who are disproportionately affected by it will continue to do so now and into the future, according to a new University of Michigan study.

U-M researchers looked at future temperature projections, tree canopy and hard surface data, as well as location of [vulnerable populations](#), to create heat vulnerability maps for the state.

The maps—available online as an interactive tool, The Mi-Environmental Project—will help policymakers and community organizations focus their efforts on strategies that help cushion the blow of changing climate, said Trish Koman, research investigator at UM's School of Public Health and first author of the study published in *Health and Place*.

"Climate change often feels very far away. Some people think it's in the future and that it's something happening to other people in other parts of the world," she said. "Having a map of your own state and your own community can make that information seem closer to you because you can see areas you know that are having special vulnerabilities.

"We want to target resources to get started on projects to reduce this vulnerability. We would want to be sure that anything that we're doing is helping the most vulnerable in the community to address some of these climate justice issues."



People Index

Credit: University of Michigan

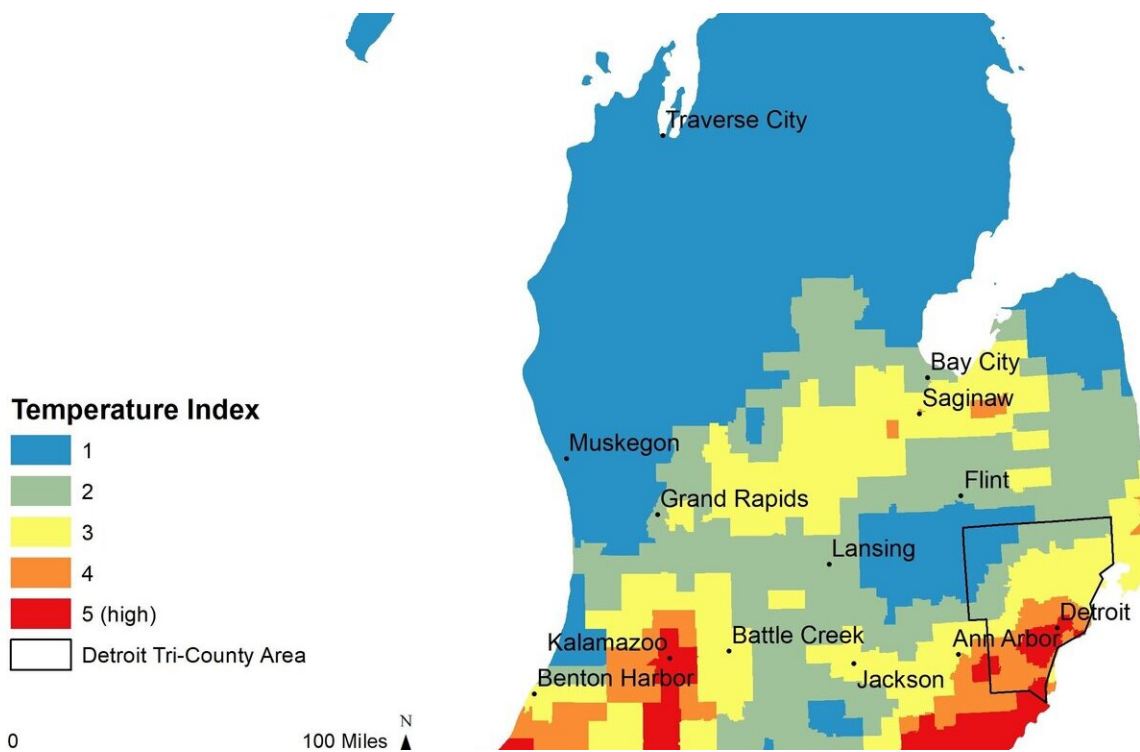
The U-M researchers worked with Michigan community leaders, including the Michigan Lifestage Environmental Exposures and Disease, Community Engagement Core and Detroiters Working for Environmental Justice, to ensure they included their questions in their visualization tools.

Then, using a technique adapted from California, researchers used publicly available data to create heat stress vulnerability indices, including data about tree canopy coverage, impervious surfaces (roads, sidewalks, and other artificial structures that are water resistant), locations of future climatic temperature increases, and location of populations vulnerable to heat stress.

Also included was age-adjusted obesity prevalence, children and poverty geospatial data, and all factors that might contribute to susceptibility and vulnerability to heat stress.

"Heat stress vulnerability is something that we can plan for," Koman said. "If you think about the 1995 Chicago heat wave, or more recently in Paris, we know that these heat waves occur. There are actions that communities can take in terms of their land use decisions, paving and tree cover, programs for building social cohesion among at-risk populations like the elderly, and a number of those sorts of things."

Koman said a similar tool in California, called Cal EnviroScreen (which is authorized under state law), was used to allocate funding to vulnerable communities seeking to mitigate the impact.



Credit: University of Michigan

In a separate effort, Koman and colleagues surveyed Michigan local public health authorities that have not made [climate change](#) preparedness a priority.

"The timing of this research is ideal to help inform planning in Detroit around its affordable housing stock," said Guy Williams, president and CEO of Detroiters Working for Environmental Justice. "We are working with the Office of Sustainability and other organizations in the city to advise the strategy for new housing guidelines. The safety and energy efficiency of all housing in the city is crucial to address."

In addition to Koman, authors included Gabriela Mentz, Ricardo de Majo, Mary O'Neill, and Amy Schultz, all of U-M's School of Public Health; Natalie Samson of UM-Dearborn's Department of Health & Human Services; Frank Romo and Peter Swinton of U-M's Taubman College of Architecture and Urban Planning; Michael Battaglia of the Michigan Tech Research Institute; and Kimberly Hill-Knott and Guy Williams of Detroiters Working for Environmental Justice.

More information: Patricia D. Koman et al. MI-Environment: Geospatial patterns and inequality of relative heat stress vulnerability in Michigan, *Health & Place* (2019). [DOI: 10.1016/j.healthplace.2019.102228](#)

Provided by University of Michigan

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