# U.S. lakes in communities of color are monitored less for water quality

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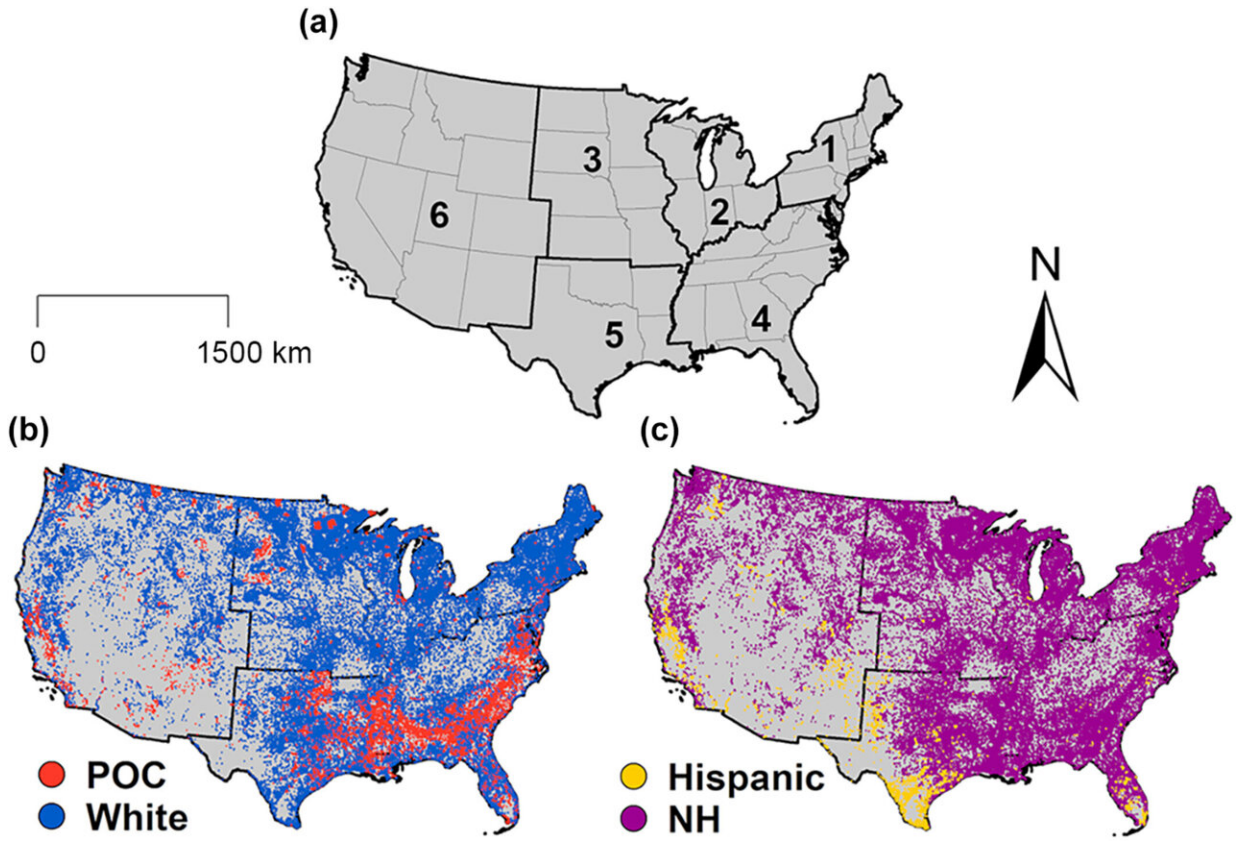


Maps of the US showing (a) the six regions used in our study: (1) Northeast (CT, ME, MA, NH, NJ, NY, PA, RI, VT), (2) Midwest East (IL, IN, MI, OH, WI), (3) Midwest West (IA, KS, MN, MO, NE, ND, SD), (4) Southeast (AL, DE, FL, GA, KY, MD, MS, NC, SC, TN, VA, WV, DC), (5) South Central (AR, LA, OK, TX), and (6) West (AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY); (b and c) all lakes in our database in (b) people of color (POC) or White communities and (c) Hispanic or non-Hispanic (NH) communities. Credit: *Frontiers in Ecology and the Environment* (2024). DOI: 10.1002/fee.2803

Lakes provide drinking water, food, recreation and mental health benefits to people who use them or live nearby. Regular monitoring of water quality is essential to collect information to track lake health. Without this information, people who use the lakes may be at a higher risk if water quality is poor. Furthermore, some people—based on their race or ethnicity—may be at greater risk than others.

A team of Michigan State University researchers has found that lakes in communities of color were three times less likely to be sampled at least once than lakes in white communities. The disparity was even larger when taking into account lakes that have been monitored for 15 years or more. Lakes in communities of color were seven times less likely to have long-term monitoring data than lakes in white communities. The researchers found similar disparities in lake monitoring in Hispanic communities compared to non-Hispanic communities.

The study is published in the journal *Frontiers in Ecology and the Environment*.

The project was led by a former MSU undergraduate student, Jessica Díaz Vázquez, now a 2024 Maryland Sea Grant Program John A. Knauss Marine Policy Fellow in the Office of the Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator. She conducted this study while working in the joint laboratory of Patricia Soranno, a professor in the College of Natural Science, and Kendra Spence Cheruvelil, a professor in Lyman Briggs College, both of whom have partial appointments in the College of Agriculture and Natural Resources.

"To the best of our knowledge, our study is the first to examine the availability of lake water quality monitoring data at the national scale

from an environmental justice perspective," said Soranno. "Although the current environmental justice literature shows that marginalized communities live with more polluted air and land, few studies focus on fresh waters."

For Díaz Vázquez, her passion for ecology alongside her personal experience growing up in a predominantly Latinx, low-income community faced by environmental injustices in Houston, Texas, shaped the way she wanted to study this topic.

"I set out to create a research project that focused on who lives near lakes and the monitoring data that identifies the health of those lakes," said Díaz Vázquez. "Our primary objective was to see whether the likelihood of lakes being sampled differed by the race and ethnicity of the people living nearby."

The team of researchers, including Ian McCullough, a former postdoctoral researcher, and Maggie Haite, a former student in the College of Agriculture and Natural Resources who now works in the Department of Fisheries and Wildlife, used data from the LAGOS-US research platform. LAGOS-US is a publicly available database created by a team led by Soranno and Cheruvelil that provides information on hundreds of different characteristics for all 500,000 lakes in the lower 48 states of the U.S., including whether the lakes are sampled for water quality or not. For this project, Díaz Vázquez combined data from LAGOS-US with data from the U.S. Census to classify lakes according to the communities around them based on race and ethnicity.

"These data disparities make it impossible to assess the water quality of lakes in communities of color and Hispanic communities," said Cheruvelil. "We encourage local, state or regional environmental monitoring programs to include equity in their sampling designs by selecting which lakes to sample based not only on natural features (such

as lake size or land use) but also on social features such as race and ethnicity of the nearby communities."

**More information:** Jessica Díaz Vázquez et al, US lakes are monitored disproportionately less in communities of color, *Frontiers in Ecology and the Environment* (2024). DOI: 10.1002/fee.2803

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