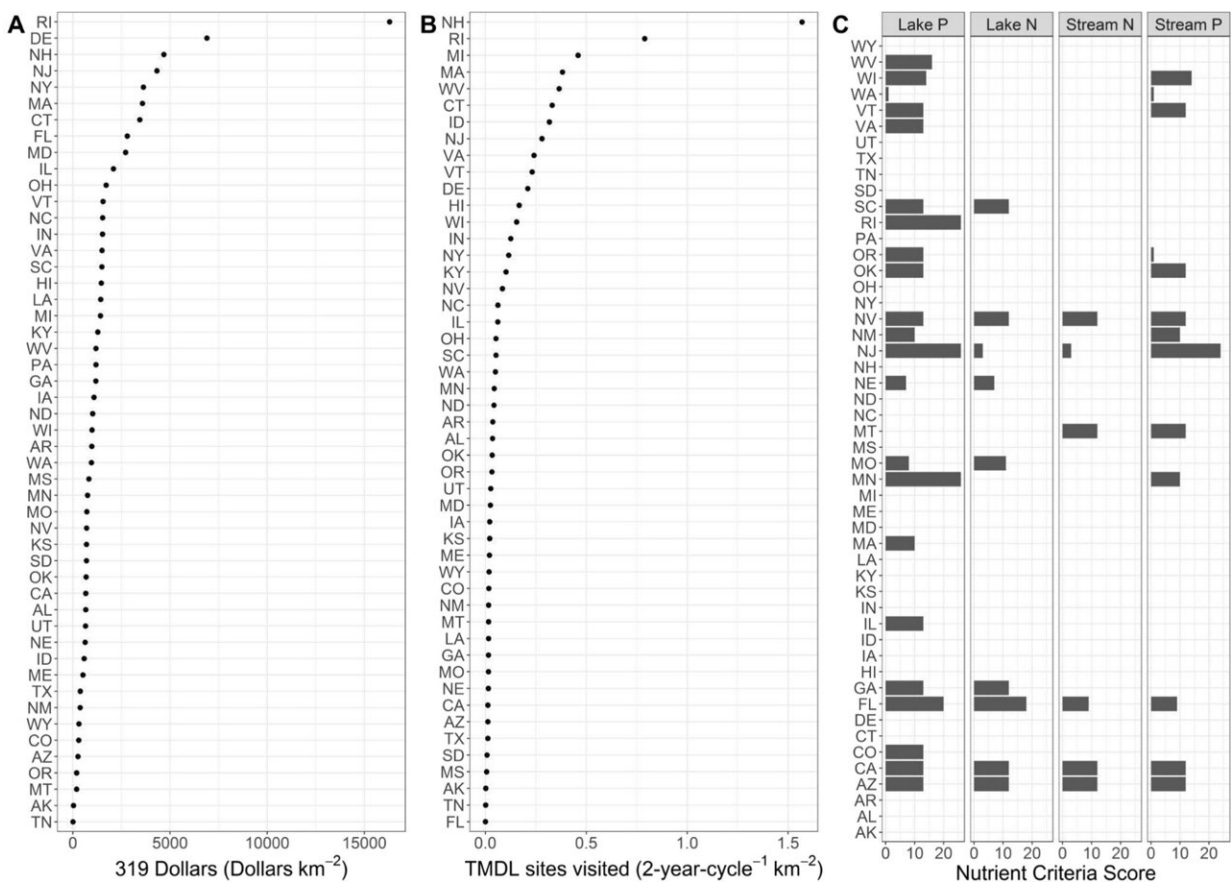


Parts of Clean Water Act not effective in controlling nutrient pollution, research suggests

November 2 2023, by Leigh Beeson



Distribution of total spending under the 319 program (a), number of sites visited as part of the TMDL program (b), and status of nutrient criteria development (c) across the states. Both 319 program spending and TMDL site visits are normalized to the area of state jurisdiction and are presented here on a km⁻² basis. Nutrient criteria scores are an index and reflect the completeness of

guidance (partial vs. statewide) and the duration of time they have been in place. Although Alaska (AK) and Hawaii (HI) are included in this summary figure, they were not included in the policy models due to incomplete coverage by the National Aquatic Resource Surveys during our study period. Credit: *Ambio* (2023). DOI: 10.1007/s13280-023-01869-6

When rivers began catching on fire, the U.S. government knew it was time to act. So Congress passed the Clean Water Act of 1972.

It remains the guiding legislation for regulating America's water quality. But new research from the University of Georgia, published in *Ambio*, suggests parts of it may not be working.

The [study](#) found that Clean Water Act regulations haven't significantly reduced the amount of nonpoint source [nutrient pollution](#) in America's waterways.

Nonpoint source [pollution](#) is a catchall term for contamination that isn't discharged from a pipe.

It's a major type of water pollution and includes things like fertilizer and insecticide runoff from agricultural fields or residential areas, bacteria from pet waste and livestock lots, and chemicals and oil from urban areas.

Rain or snow washes away the contaminants, taking them to waterways and allowing them to penetrate the soil and potentially seep into groundwater. That makes it a particularly difficult type of pollution to contain.

The researchers analyzed 10 years of data from the National Rivers and

Streams Assessment and the National Lakes Assessment to determine changes in nutrient concentrations. They found that the current federal policy is not doing what it set out to do.

"The Clean Water Act set incredibly ambitious goals for water quality improvement in the United States," said Laura Naslund, co-author of the study and a doctoral student in UGA's Odum School of Ecology. "It said that we want all streams and rivers, all waters of the U.S. to be fishable, drinkable and swimmable in a little over a decade. We have failed to meet those goals."

Clean Water Act successful at reducing pollution from point sources

The Clean Water Act has been massively successful at reducing pollution from specific sources.

For example, before the Clean Water Act, counties were dumping raw human waste into waterways with impunity. The passage of the act stopped that and implemented wastewater treatment protocols that have greatly reduced sewage pollution.

But it's been far less effective at managing [nutrient levels](#) from nonpoint source pollution that can make water unusable and undrinkable, said Nathan Tomczyk, corresponding author of the study and a recent doctoral graduate from UGA's Odum School of Ecology.

Previous research has shown that roughly half of America's bodies of water are impaired by excess nutrients, much of which comes from nonpoint source pollution.

The present study looked specifically at concentrations of dissolved

nitrates, like what is commonly used in fertilizers; dissolved ammonium; and total nitrogen and [phosphorus levels](#) in streams, rivers, lakes and reservoirs throughout the U.S. Nitrogen and phosphorus are two of the leading causes of water impairment in the U.S., leading to [algae blooms](#) and decreased [oxygen levels](#) that harm fish and other aquatic life.

The researchers found that average nutrient concentrations increased in waterbodies in 29% of states over the decade they studied. While some states did show decreases in nutrient concentration, further analysis showed that decrease was attributable to one specific nutrient in most cases and did not correspond to a decrease in all nutrients.

About half of the states maintained the same average nutrient concentrations in their waterbodies over the study period.

EPA restricted in regulatory power by Clean Water Act

While the study found current policies aren't having an impact at the state level, the researchers caution against blaming the federal agency for continuing water quality issues.

Under the legislation, the EPA delegates much of the implementation and enforcement of the Clean Water Act to the states. By comparison, the Clean Air Act is more specific on what policies and efforts states must implement to keep America's air quality pristine.

"I think we need to take a serious look at the way that nonpoint source pollution is regulated and the fact that it mostly relies on voluntary measures," Naslund said.

More information: Nathan Tomczyk et al, Nonpoint source pollution

measures in the Clean Water Act have no detectable impact on decadal trends in nutrient concentrations in U.S. inland waters, *Ambio* (2023).
[DOI: 10.1007/s13280-023-01869-6](https://doi.org/10.1007/s13280-023-01869-6)

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