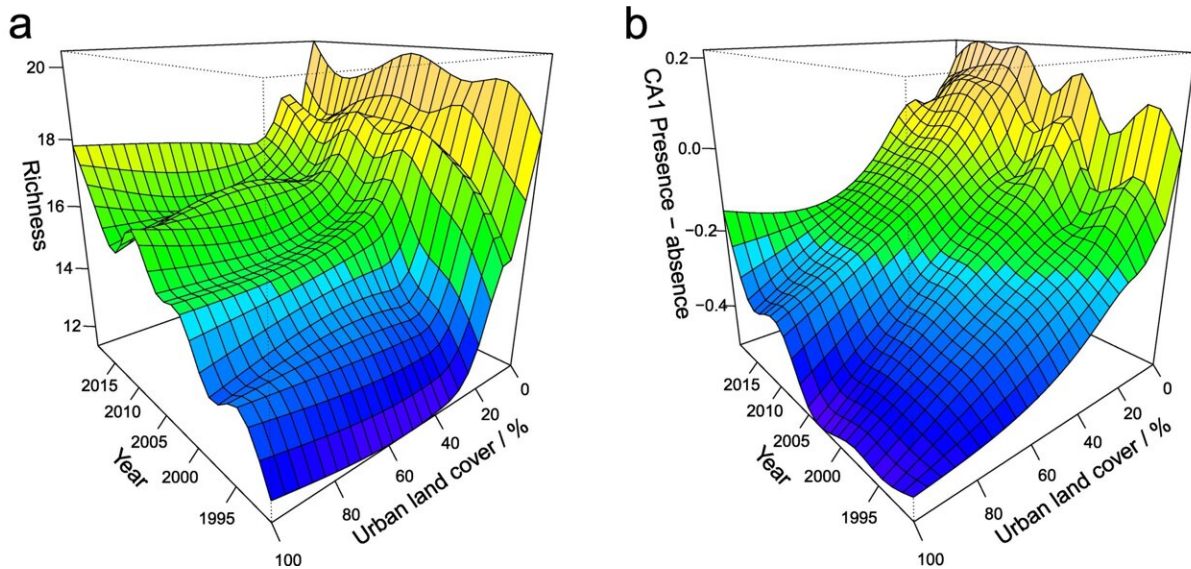


River pollution recovery slows down in the UK

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Smoothed temporal trends in (a) invertebrate taxonomic richness, and (b) CA1_{PA} across a gradient of catchment urbanization. Credit: *Science of The Total Environment* (2023). DOI: 10.1016/j.scitotenv.2023.163107

New research has found that rivers in England and Wales have recovered biologically from pollution since the early 1990s, but improvements appear to have slowed in recent years.

Researchers from Cardiff University's School of Biosciences investigated invertebrates that live on river beds across England and

Wales. They analyzed data from nearly 50,000 invertebrate samples collected from around 4,000 streams and rivers.

Emma Pharaoh, Ph.D. researcher from Cardiff University's School of Biosciences, said, "Invertebrates are important indicators of river health, reflecting pollution and other human impacts. By looking at the types of invertebrates living on the river bed, we can get a good picture of river health.

"Up to 2018, the number of invertebrate families in our rivers increased by nearly 10% and communities were comprised of more pollution-sensitive invertebrates. We also found that despite urban rivers historically being the most polluted, they showed the greatest improvements—taking them closer in quality to rural rivers."

The research showed some improvements in rivers in England and Wales appear to have slowed, possibly reflecting the effects of emerging [water quality](#) problems from combined sewer overflows, agriculture, [climate change](#) and new forms of pollution—such as microplastics or pharmaceuticals.

Dr. Ian Vaughan, Cardiff University's School of Biosciences, said, "These results represent a positive story about rivers, against a background of often bad news. With ongoing issues, including water quality and climate change, rivers face many challenges. These results highlight how biodiversity can recover if environmental quality is improved."

The study used data from the Environment Agency and Natural Resources Wales and updated an analysis from 10 years ago also by Cardiff University, allowing the researchers to investigate trends over decades and across countries.

"Data collected by [regulatory bodies](#) like the Environment Agency and Natural Resources Wales are a hugely valuable resource for researchers. They provide invaluable insights into how river biodiversity has changed, for better or worse, over time. Insights which can be used to help inform policy and conservation management," added Emma Pharaoh.

Ceri Davies, Executive Director of Evidence, Policy and Planning at NRW said, "While we have made good progress in protecting and enhancing our waters over recent decades, this study is a stark reminder that there is still a long way to go. The challenges facing our rivers may evolve with time, but the need for concerted and collaborative action to conserve them remains."

"Now is a pivotal time for change, not complacency, and an opportunity to once again accelerate improvements to our rivers."

"In Wales we are working in partnership through Nutrient Management Boards to conserve our most precious Special Area of Conservation rivers, restoring other iconic rivers through our flagship Four Rivers for LIFE project and tackling wastewater pollution through the Wales Better River Quality Taskforce. We must all pull together and rise to the challenges—both old and new—that are facing our rivers and our wildlife if we want to save them for future generations."

Professor Steve Ormerod, Cardiff University's School of Biosciences and Deputy Chairman of Natural Resources Wales, added, "Urban river improvements since the early 1990s reflect the combined effects of industrial decline, improved regulation and investment in wastewater treatment."

"But hints of a more recent slowdown show how we need further action—especially from regulators, water companies and agriculture—to regain and maintain the positive trends."

The research, "Evidence of biological recovery from gross pollution in English and Welsh [rivers](#) over three decades," is published in *Science of the Total Environment*.

More information: Emma Pharaoh et al, Evidence of biological recovery from gross pollution in English and Welsh rivers over three decades, *Science of The Total Environment* (2023). [DOI: 10.1016/j.scitotenv.2023.163107](#)

Provided by Cardiff University

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