

Britain's urban rivers cleanest in 20 years

June 2 2014



Image: USGS

Scientists from Cardiff University have found that Britain's urban rivers are the cleanest they've been in over two decades.

The 21-year study of over 2,300 rivers measured the presence of clean-river invertebrates - a yardstick for river health – which during the days of heavy industry and poor sewage treatment had declined considerably, but now appear to be making a comeback.

Although climate change has warmed British rivers by around 1-2 degrees over recent decades, the findings suggest that improved [pollution](#) control has managed to offset its damaging effects on river ecosystems. This indicates that society can prevent some undesirable climate change effects on the environment by improving habitat quality.

Dr Ian Vaughan and Professor Steve Ormerod from the University's School of Biosciences analysed changes in the occurrence and spread of insects, snails and other mini-beasts from major rivers between 1991 and 2011. The researchers then asked whether water quality, temperature or river flow best explained the biological changes they observed.

Among 78 types of organisms examined, 40 have become more prevalent in English and Welsh rivers while 19 have declined. Overwhelmingly, these trends were explained by reductions in gross pollution rather than warming or changing flow caused by climate change.

Improving [water quality](#) has allowed some clean-water organisms from upland rivers to return to previously polluted lowland rivers, and may even explain some northwards movement previously attributed to climate-change.

The researchers believe these results to be very encouraging in showing how reductions in pollution can help offset [climate change impacts](#). Dr Ian Vaughan said: "Our analysis showed clearly that many British river invertebrates are sensitive to climate - for example; because they require good supplies of oxygen that decline as rivers warm up. However, it seems that efforts over the last 2-3 decades to clean up pollution from sewage and other sources have allowed many of these sensitive organisms to expand their range despite 1-2 °C warming trends and several periods of drought."

Prof Steve Ormerod added: "These results reveal part of a larger pattern in which organisms dependent on cleaner waters, faster flows and high oxygen concentrations have been progressively recolonizing Britain's urban rivers: Atlantic salmon, mayflies, and Dippers are prime examples. We need to protect these and other river organisms against climate change effects – and solving other problems such as pollution clearly

helps.

"Away from Britain's urban areas, some pollution problems are increasing, and our analysis shows some negative trends among sensitive [organisms](#) such as stoneflies that are typical for rural hill-streams. It's important that our efforts to protect Britain's [rivers](#) against pollution or [climate change](#) are extended to the farmed, rural, upland landscape."

The data were supplied by the Environment Agency and Natural Resources Wales.

More information: Vaughan, I. P. and Ormerod, S. J. (2014), "Linking interdecadal changes in British river ecosystems to water quality and climate dynamics." *Global Change Biology*.
doi: 10.1111/gcb.12616

Provided by Cardiff University

Citation: Britain's urban rivers cleanest in 20 years (2014, June 2) retrieved 20 June 2024 from <https://phys.org/news/2014-06-britain-urban-rivers-cleanest-years.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--