

## Droughts could profoundly harm river life, a study warns

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Critically low water levels in many rivers could lead to the partial collapse of food chains that support aquatic life, according to research led by the University of Birmingham published in the journal *Nature Climate Change* today (09 September 12). This is the conclusion of one of the longest experiments on drought ever conducted in freshwaters.

The team periodically lowered water flow in artificial streams, mimicking severe drought conditions in natural running waters. They looked at all species in the river, studying the whole food chain, measuring the growth rate of the animals in all populations.

**Dr Mark Ledger** (</staff/profiles/gees/ledger-mark.aspx>) from the University of Birmingham's School of Geography, Earth and Environmental Sciences, and lead author of the study, said 'We found that drought changed the make-up of the invertebrate life in the stream community and reduced its diversity by around 25%.'

Dr Ledger added many insects, such as mayflies, were severely affected by drought, as were many large predatory invertebrates, which could not escape. He continued: 'Our study demonstrates that the loss of invertebrates limits the flow of food energy through the food chain, with potentially profound consequences for the health of river ecosystems.'

'We discovered that, in particular, drought had negative effects on large bodied invertebrates, an important food source for fish, which has significant implications for fisheries.'

Co-author, **Professor Alexander Milner** (</staff/profiles/gees/milner-alexander.aspx>), from the University of Birmingham, added: 'These findings demonstrate that the future intensification of drought, similar to that seen in the UK earlier this year and ongoing in the central and midwestern states of America, can be expected to have major effects on both biodiversity and ecosystem processes in streams and rivers.'

### Notes to Editors

1. The paper is published in *Nature Climate Change*, Sunday 9 September 1800 hours.
2. The research team also included scientists from Queen Mary University of London (Dr Guy Woodward), the University of Leeds (Dr Lee Brown), and the Centre for Ecology and Hydrology (Dr Francois Edwards).
3. This research was funded by the Natural Environment Research Council and the Freshwater Biological Association.

### For further information

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