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# Modelling future water resources in interconnected water systems: are catchment scales relevant?

**Gemma Coxon**[1], Anna Murgatroyd[2], Francesca Pianosi[3], Saskia Salwey[1], Doris Wendt[1], and Yanchen Zheng[1]

[1]Geographical Sciences, University of Bristol, United Kingdom (gemma.coxon@bristol.ac.uk)
[2]Environmental Change Institute, University of Oxford, United Kingdom
[3]School of Civil, Aerospace and Design Engineering, University of Bristol, United Kingdom

Freshwater resources are increasingly under threat from climate change and increasing water demand. Catchment-scale hydrological models generate hydrological projections that underpin the management and sustainability of future water resources. Yet, water systems are increasingly interconnected across catchment boundaries through nationally strategic water supply schemes that aim to ensure a reliable supply of water in a changing climate.

In this presentation, we draw on a range of studies from across Great Britain to discuss the challenges and complexities of hydrological modelling for future water resources management from catchment to national scales. We focus on interconnected water systems including catchments impacted by (1) inter-catchment groundwater flows and (2) water transfers via reservoirs, abstractions and wastewater treatment plants. For the human-impacted catchments, we identify where and when representing human interactions are important for robust streamflow projections. As water systems become more interconnected in space and time, we highlight the need to move beyond the catchment scale for future water resources management.