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# Typology approach to assessing the impact of climate change on instream physical habitats

**C.L. Walsh** (1), C.G. Kilsby (1), H.G. Orr (2), A.R.G. Large (3), M.D. Newson (3)

1. School of Civil Engineering and Geosciences, University of Newcastle upon Tyne, UK (Claire.Walsh@ncl.ac.uk/C.G. Kilsby@ncl.ac.uk). 2. Geography Department, Lancaster University, UK (H.G.Orr@lancaster.ac.uk). 3. School of Geography, Politics and Sociology, University of Newcastle upon Tyne (A.R.G.Large@ncl.ac.uk/M.D.Newson@ncl.ac.uk).

The development of a process-based geomorphological typology (to describe channel types), within which local variability in channel morphology and flow variability could be described, is being used to assess climate change impacts on available habitats.

Broad types are defined for a whole catchment (River Eden, Cumbria) based on broad GIS variables augmented with field reconnaissance of biotopes. Typical reaches from each channel type were then subjected to simple 1D hydraulic modelling of different reach types to explore changes in available aquatic habitat by altering time series of flows. Flows time series from a hydrological model were produced according to climatic conditions indicative of the current climate as well as those estimated after applying projected medium-high emissions climate scenarios for the UK produced by UKCIP02. The GIS methodological approach allows prediction of habitat (biotopes) loss/gain and the impact on ecological status under climate change on the catchment scale.

The work will inform the implementation of the EU Water Framework Directive by considering climate change impacts on characterisation and assessment of ecological status through the changes in the hydromorphology of water bodies.