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# Short-term effects of restoration on the hydrology of shallow blanket peatlands in the South West UK

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The Exmoor/Dartmoor Mires Project is a peatland restoration project on the blanket bogs of the south-west UK. The restoration undertaken aims to enhance multiple ecosystem services including; water storage/quality, biodiversity and carbon storage in these degraded/drained and geo-climatically marginal peatlands. A fully spatially distributed hydrological monitoring array has been implemented across three headwater catchments incorporating water table depth, temperature, conductivity and pH measurements. Additional data collected include channel flow, DOC, POC, colour and a full suite of meteorological variables. Over 250 individual measurements are collected at a high temporal resolution (15 minute time step) via sensors integrated within a GPRS/VHF telemetry system, and sent directly to a dedicated server. All three catchments were scheduled for restoration prior to the implementation of hydrological monitoring in 2010/2011, and two of the three catchments monitored have already undergone restoration after ca.3 years of pre-restoration monitoring.

This paper presents preliminary results from before and (initially) following restoration of one of the monitored headwater catchments. Data captured during restoration demonstrate an instantaneous increase in water table across catchment scales. However, over longer (monthly) time scales, water table changes indicate a more spatially variable response to restoration interventions designed to initiate rewetting of the peat mass. Interpretation of these data using modelled surface flow pathways derived from high resolution digital elevation models, suggests that changes in the hydrological connectivity of the catchments, following restoration, may be affecting the rewetting potential of some areas of the peat. Whilst no significant restoration effect was observed in terms of DOC concentrations/loads, the significant reductions in storm-flow generated for equivalent rainfall events, post-restoration, result in lower DOC fluxes across catchment scales.