

An investigation of the role of geomorphology in influencing biotope distribution

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Abstract Riffle–pool–point bar sequences provide the template for a number of aquatic habitats. Water flowing over these morphologies generates spatial hydraulic variation over a river's flow regime resulting in a changing mosaic of hydraulic habitats or biotopes. Little attention has been given to the explicit spatial and temporal distribution of biotopes in relation to channel morphology. This study uses terrestrial LiDAR data to map biotope distribution at two discharges. A link was found between the riffle units and key characteristic biotopes. Biotope type change was also broadly consistent over this scale but areal coverage varied between units. It is argued that management options for such river systems targeted at maintaining the gross morphology will succeed in creating a variety of hydraulic biotopes that are consistent in their types across riffles; however, distribution and dominance are likely to be controlled by more local factors such as bed material and channel slope.

Key words hydraulic habitat; biotope; riffle–pool; terrestrial laser scanning; flow regime