

The Relationship between Geomorphic River Structure and Coarse Particulate Organic Matter (CPOM) Storage along the Kangaroo River, New South Wales, Australia

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ABSTRACT

Fluvial landforms provide a physical template upon which to appraise biophysical relationships along river courses. In this study, the spatial pattern of organic matter storage along the Kangaroo River, NSW, is related to geomorphic controls that operate at a range of scales within a nested hierarchy. This snapshot study of CPOM storage found that at the catchment scale the longitudinal pattern of coarse particulate organic matter (CPOM) storage is dependent on the type and downstream pattern of River Styles. At the reach scale, CPOM storage is dependent on the geomorphic unit structure and physical heterogeneity of the river, and associated energy conditions along the reach. At the geomorphic unit scale, CPOM storage capacity is related to the position of geomorphic units relative to the thalweg (i.e. flow characteristics) and associated roughness attributes. At the hydraulic unit scale, CPOM storage capacity is related to local flow velocity and substrate characteristics (clast size and distribution).

KEY WORDS

Coarse particulate organic matter (CPOM); geomorphic template; River Styles; geomorphic units; hydraulic units