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Application of the River Styles framework as a basis for river management in New South Wales, Australia

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Abstract

If strategies in natural resource management are to 'work with nature', reliable biophysical baseline data on ecosystem structure and function are required. The River Styles framework provides a geomorphic template upon which spatial and temporal linkages of biophysical processes are assessed within a catchment context. River Styles record river character and behaviour. As the capacity for a river reach to adjust varies for each style, so too do management issues and associated rehabilitation programmes. The framework also provides a basis for assessing geomorphic river condition and recovery potential, framed in terms of the evolutionary pathways of differing River Styles in the period since the European settlement of Australia. Within a catchment context, the River Styles framework provides a unified baseline upon which an array of additional information can be applied, thereby providing a consistent framework for management decision-making. The framework was developed as a research tool by geomorphologists working in collaboration with the New South Wales Department of Land and Water Conservation, which has used it for a range of river management applications. Target conditions for rehabilitation programmes are framed within a catchment vision that integrates understanding of the character, behaviour, condition and recovery potential of each reach. A prioritization procedure determines the most cost-effective and efficient strategies that should be implemented to work towards the catchment vision. In addition, the River Styles framework is being used to identify rare or unusual geomorphic features that should be preserved, assess riparian vegetation patterns and habitat availability along river courses, and derive water licensing, environmental flow and water quality policies that are relevant to river needs in each valley. Based on these principles, representative biomonitoring, benchmarking and auditing procedures are being developed to evaluate river health.

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