

A Geomorphological Response Model for predicting sediment-related habitat change in ephemeral rivers

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Abstract Protection of aquatic ecosystems is a legal requirement emanating from the water laws of many countries globally. Methods to assess environmental flows are being developed and applied throughout the world, with an emphasis on perennial rivers. In South Africa, scientists are addressing environmental flow needs for ephemeral rivers by developing a Geomorphological Response Model that integrates expert knowledge into a decision support system, based on mathematically defined response curves. Geomorphologists play a key role in predicting the long-term change in ecosystem structure following water-related developments. In this paper we explain the process whereby we are developing geomorphic response curves that can be used to predict habitat related channel change in rivers for which there are limited hydrological or geomorphological data.

Key words Environmental flows; non-perennial rivers; sediment processes; habitat change; ecosystem structure; decision support system