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## **Changes in benthic community structure and function in an Australian regulated upland stream following wildfire**

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**Abstract** The effects of fire on stream ecosystems are mostly indirect and can be attributed to post-fire floods, enhanced sediment and nutrient influxes, and channel morphology changes. Flow regulation will modify water and sediment regimes and thus can be expected to influence the nature and trajectory of post-fire changes in regulated streams. Despite this, few studies have examined how fire-related disturbances interact with flow regulation. This study draws on the results of several previous projects to generate multiple lines of evidence to explore pre- and post-fire benthic metabolism and benthic macroinvertebrate assemblages in an Australian regulated upland stream affected by wildfire during the austral summer of 2003. The benthic metabolism results show increased autotrophy following the fire, probably due to higher nutrient influxes and light availability because of reduced shading in conjunction with reduced respiration due to changes in the quality of carbon inputs and reduced interaction with the hyporheos associated with bed armouring.

**Key words** macroinvertebrates; benthic metabolism; flow regulation; wildfire