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## **Predicting water quality responses to a changing climate: building an integrated modelling framework**

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**Abstract** The future management of freshwater resources for human and environmental needs requires an integrated set of tools for predicting the relationship between climate change, water quality and ecological responses. In this paper, we present the early phases of a project for building a Bayesian network (BN) based framework to link ecological and water quality responses to features of the flow regime in the Molonglo and Yass rivers in southeastern Australia. At this stage, the objective is to conceptualize the modelling components and define causal links. Expert elicitation was used to identify important drivers and interactions which influence water quality attributes and related ecological responses.

**Key words** Bayesian network models; water quality; prediction; climate change; integrated modelling