

Optimization To Support Seasonal Environmental Watering Decisions

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Abstract

There is a growing body of research around the optimisation of environmental watering decisions. This research ranges from optimising regulated release patterns from storage, optimising allocations between the environment and consumptive users over the long term, or optimising the decisions around release of environmental entitlements. In all of these instances, the optimisation approach requires a representation of environmental outcomes. One approach adopted is the use of environmental response curves; curves that represent an environmental outcome for each environmental asset relative to different river flows. These curves are difficult to develop and often the optimisation approach is challenged due to the uncertainty associated with these response curves. This paper uses an optimisation model of the Goulburn River system to determine the optimal seasonal release pattern of environmental water with the aim of maximising environmental condition. Each environmental response curve within the model is then individually adjusted to determine the bounds of uncertainty that can be tolerated without the optimal release decision being impacted.