# Verifying a stormwater biofiltration model

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## ABSTRACT

Biofilters are a technology being implemented to manage stormwater by reducing stormwater runoff volumes, peak flows, and pollutant levels. In light of their increasing popularity, a model for assessing the performance of stormwater biofilters was previously developed by the authors. This model contains a hydrologic and a water quality component. The objective of this study was to test the hydrologic component against data obtained over an 8-month period between 2010 and 2011 from an operating field system, the Monash University carpark biofilter. We found that the model is able to replicate some of the observed peak flows, but is unable to replicate low flows. The model slightly underestimated the system's hydraulic performance, with the modelled total outflow volumes over the 8-month period being 12 to 32% less than the measured volumes. Further work is required to refine the model by accounting for the spatial and temporal variability of hydraulic conductivity, and by incorporating soil-specific field capacity parameters. However, despite these limitations, the model is a useful design tool as it is able to provide a conservative estimate of biofilter outflow volumes and relatively accurate estimate of peak flow reductions in a quick and easy way.

## KEYWORDS

Biofilter, design, model, soil moisture, water balance