



Banyule Swamp, my neighbour, will you give me a glass of water?

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Biography:

Cintia is a senior engineer at the Integrated Stormwater Management team at Water Technology. Cintia joined Water Technology in 2015, previously working for the CRC for Water Sensitive Cities for 3 years. Prior to this, Cintia completed her PhD in Civil Engineering at Monash University. Cintia has over 10 years of experience in urban water projects in Australia and overseas. Her day-to-day work consists of WSUD investigations and design, water quality projects and options analysis to deliver cost-effective solutions for stormwater management in a range of scale and applications. *Having a strong passion for exploring the water nexus with a range of other environmental fields, she investigates innovative IWM solutions to deliver multi-benefits and create multi-functional spaces, under current and future environmental drivers and constraints, and has been involved in a number of multidisciplinary projects looking into cutting-edge stormwater solutions for a range of projects across Australia.*

The Banyule Billabong has been identified as one of the priority billabongs within the Yarra catchment currently suffering the impacts from flow regulation, urbanization and changing climate. Previous studies concluded that the frequency and duration of inundation is insufficient to protect the billabong ecological health, prompting Melbourne Water and Banyule City Council to conduct a successful watering trial in 2016 with help from Victorian Environmental Water Holder. Water was pumped from the Yarra River into the billabong to protect its marsh and meadow zones. Council and Melbourne Water are now looking to develop a long-term solution. Previous studies identified that excess water from Banyule Swamp - located north of the billabong - may be re-directed towards Banyule Billabong, to allow more frequent inundations of the billabong. The main concerns around this option are centred around timing of the water delivery, potential impact on Banyule Swamp and quality of the water, which may be high in nutrients. The aim of this study is to understand possible interaction between existing water regime, water quality and vegetation in the Banyule Swamp to develop a long-term solution to both improve the ecological health of the Banyule Billabong and encourage wader habitat in Banyule Swamp, as Latham's Snipe visits the site. A monitoring program was thus initiated to gain understanding of the water quality and level fluctuations in Banyule Swamp. Preliminary catchment analysis identified the main sources of water to the Swamp and bathymetric characteristics of the Swamp. The results suggest that levels may fluctuate significantly during prolonged drought period. This will need to be considered when considering Banyule Swamp as a potential source of water for Banyule Billabong. Hydraulic modelling was undertaken to identify key overland flow paths and estimate the trigger points above which Banyule Swamp received overland flows from adjacent creeks. This ultimately informed the water balance analysis - validated against data from the monitoring program - used to understand the hydrological regime of Banyule Swamp and its suitability as a back-up source for Banyule Billabong.