



Project 3.2 Implementation of IWM for stream ecosystem protection

This project continues (and builds on) the Little Stringybark Creek (LSC) and Dobsons Creek projects, to test and demonstrate the effectiveness of dispersed, catchment-scale stormwater retention, treatment and harvesting. However, the project is now expanding from consideration only of the retrofit interventions of the LSC and Dobsons catchments to scoping a new experiment associated with IWM plans to protect Jacksons and Emu Creeks, and their tributaries, from proposed greenfield developments east of Sunbury, northwest of Melbourne.

Project aims

A primary focus of this project is to publish a series of publications reporting on the findings and implications of the experiments in LSC and Dobsons Creek. Additionally, the project will aim to:

- a) submit a proposal for ARC funding to continue work in the streams of the LSC/Dobsons experiment to answer questions arising from the experiment concerning response lags; and
- b) develop a proposal for a monitoring and evaluation monitoring program of streams in the Sunbury area, that will provide a world-first opportunity to retain sufficient stormwater runoff (through harvesting) to truly mimic pre-urban hydrology—an outcome that has been elusive in LSC/Dobsons because of a lack of harvesting demand.

Research methods

In parallel with the primary task of reporting on the LSC and Dobsons experiment to date, the project will

develop, in consultation with the relevant stakeholders, an experimental design and monitoring and evaluation program for the Sunbury IWM project. In the first instance, ecological and hydrologic sampling stations will be identified on Jacksons and Emu Creeks, and on multiple small tributaries that will be protected by proposed stormwater control measures downstream of the proposed Sunbury development.



Figure 1. An example of the stormwater infiltration systems installed as part of the Little Stringybark Creek project.

The potential for manipulating flows from these wetlands provides an unprecedented opportunity for manipulative experiments to determine critical flow regime components for protection of waterways—an aim of partnership project 2.5, with which this project will link closely. The Sunbury IWM project also has strong potential for linkages with theme 5 of the partnership, which aims to use Sunbury as a case study for social factors of IWM.

Outcomes to date

The project has gathered a large, diverse set of data and evidence that provide critical information for Melbourne Water, for the State Government, and for urban water managers internationally to assess the effectiveness (ecological and cost) of alternative approaches to stormwater management for stream protection.

Additionally, the LSC project has been influential in terms of both policy and science. For example, it has resulted in a pilot “Environmental Significance Overlay” for stormwater management, developed as a partnership between Yarra Ranges Council, the then DPCD, and Melbourne Water. It has also informed work done in developing a new set of Best Practice Environmental Management Guidelines for Urban Stormwater in Victoria. It has also influenced policy through revision of the SEPP for Waters of Victoria.

Internationally the project has received substantial attention, including 2 invited keynote presentations to international conferences in 2014, and another in 2015. The project has also been invited to become an International Demonstration Site under the UNESCO Ecohydrology Programme. Nine peer-reviewed journal papers were published on the project in 2015 alone.

Locally, the project is creating a new awareness of stormwater management, for example through its incorporation in a new secondary school Geography textbooks.

Project team

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Figure 2. An example of the weirs used to measure the creek’s hydrology (reference stream).