

Interrogating and optimising the waterways long-term water quality monitoring network

project summary

Melbourne
Waterway
Research
Practice
Partnership

Project C7

This project will review the ability of Melbourne Water's water quality monitoring network to deliver on key network uses and identify gaps where the current network may not adequately support the key uses.

Expected outputs & impacts

Develop techniques to analyse and interpret data collected through the network. *Develop an evidence-based approach to the future network design.* Improved regulatory reporting to meet requirements under the Water Act. *Increased confidence in reporting on the Healthy Waterways Strategy performance objectives and setting of water quality metrics and targets in future waterways strategies.* Long term trend detection for research, future strategy development and other purposes.

Background and aims

The waterways long-term ambient WQ monitoring network (the network) has been operated by Melbourne Water for many years to detect long-term trends across the Melbourne region. Since establishment, the design and uses of the network have changed in many ways, as have many contextual factors.

A number of reviews of the network identified that it provides a valuable tool for management of the waterways of the Melbourne region, however, there are opportunities to significantly increase the benefits to Melbourne Water and other key stakeholders. Consequently, a framework has been developed to review and update the network.

This project will implement part of the framework, reviewing the ability of the network to deliver on key network uses and identifying gaps where the current network may not adequately support the key uses.

Methods

This work will require detailed interrogation of the existing data set, and the collection and analysis of additional waterways WQ samples and/or further modelling where required. The core activities include:

- Assess the ability of the current network to provide the data needed to meet current and potential future network uses.
- Use the historical data set to explore how the network may answer questions such as how waterway water quality is affected by climate change, urbanisation, catchment land use etc.
- Recommend potential changes to the network to improve performance within current and future potential delivery scenarios (optimization)

The project also aspires to:

- Explore relationships between waterway ambient water quality, catchment characteristics and stream condition.
- Develop a methodology to predict water quality in waterways where there is no routine water quality monitoring.
- Propose water quality condition metrics appropriate for the Melbourne region to focus monitoring effort and support future target setting
- Develop clear methodologies or tools for analysis and interpretation of data collected through the network.

Project Team:

University of Melbourne:

Tim Fletcher
Belinda Hatt
Kate Smith-Miles

Melbourne Water:

Vaughn Grey (project lead)
Rhys Coleman