

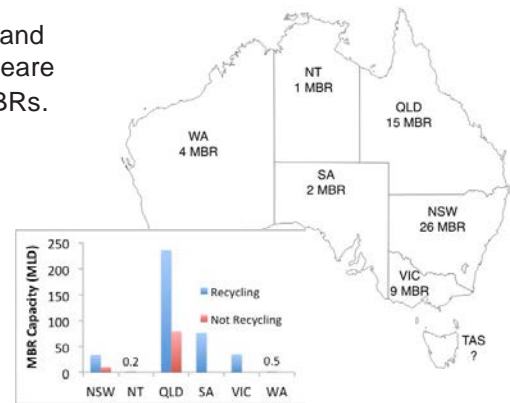
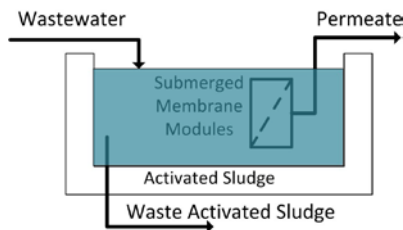
Research is being conducted to address the major barriers preventing streamlined implementation of membrane bioreactors (MBRs) in water recycling schemes. As a result, appropriate, transparent and informed validation protocols will be developed for MBRs in Australia.



## Membrane bioreactors in water recycling

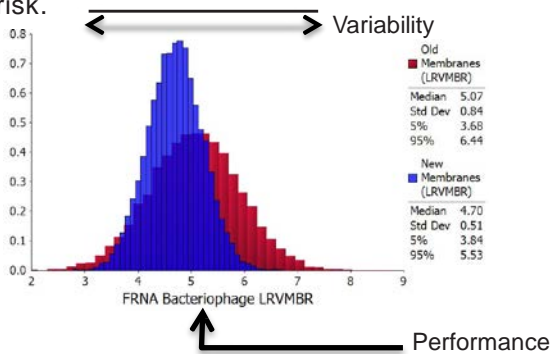
### 1 Correlate operating parameters with pathogen removal

Limited studies have adequately assessed the impact of design and commonly monitored parameter on pathogen removal mechanisms. We are conducting sampling, analysis and data collection at over 10 full scale MBRs.



### 2 Monte Carlo simulation to quantify performance and variability

All treatment processes display variability. Using Monte Carlo simulation, we quantify both typical performance and potential variability to permit robust assessment of health risk.



### 3 Assess resilience to ageing, cleaning and damage

Studies have been conducted to measure changes in MBR log removal value after cleaning cycles, hazardous events and long term aging.



Heating of cut fibres by internal plugging

## Correlation of online monitoring with log removal value

Investigation of conventional turbidity and fluorescence spectroscopy as critical control points for membrane bioreactors

