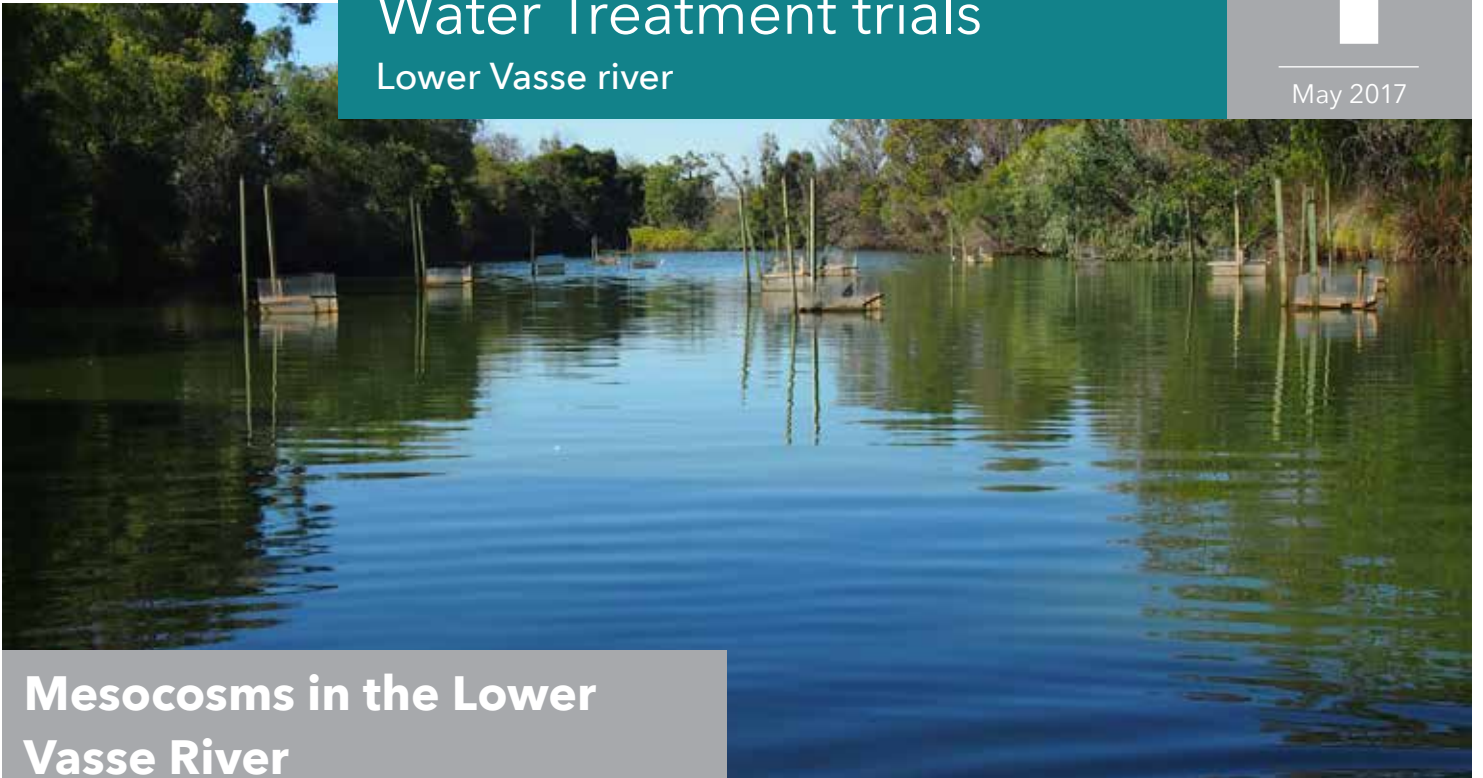


Water Treatment trials

Lower Vasse river



Mesocosms in the Lower Vasse River

An innovative Water Treatment Trial is currently being undertaken in the Lower Vasse River as part of the Revitalising Geographe Waterways program, that aims to improve water quality, waterway health and management of Geographe waterways. One of the treatments being investigated under this project is the use of a newly developed phosphorus-binding hydrotalcite-clay as a means of reducing algal blooms. The clay works by removing phosphorus from the water column whilst also preventing phosphorus release from the sediments. This project is also part of the Regional Estuaries Initiative.

Why are we doing this?

The Lower Vasse River meanders through the township of Busselton and is a focus and concern for the local community. The river experiences poor water quality over summer with blue-green algal blooms and nuisance odours caused by low flows, high water temperatures and high nutrient concentrations, particularly phosphorus.

Nutrients enter the river from groundwater and surface water flows from the catchment, and are released from river sediments especially during periods of low oxygen. *The Vasse-Wonnerup wetlands and Geographe Bay water quality improvement plan* estimated a 70 per cent reduction in phosphorus and nitrogen is required to reduce algal blooms in the Lower Vasse River.

To complement actions being undertaken in the catchment to reduce nutrients, the Department of Water is investigating options to improve the visual appearance and water quality in the Lower Vasse River in the short-term.

The Water Treatment Trial project will investigate the effectiveness and cost of a range of products and techniques to improve water quality in the Lower Vasse River over summer months.

Mesocosm is the term used for any outdoor controlled environment experiment system.



Mesocosm before deployment

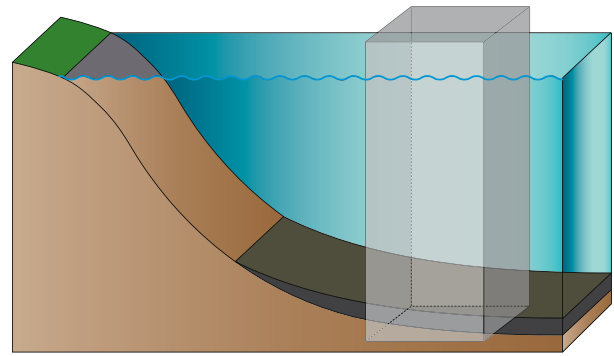
What are we doing?

The Department of Water has established a trial of phosphorus-binding clay in the Lower Vasse River upstream of the Causeway Road bridge over the 2016/17 summer. Fifteen mesocosm tanks have been embedded in the river sediments to isolate the water column and sediments in the river. Different amounts of the clay have been added to the mesocosms to test the effectiveness of the clay at reducing algal growth.

The trial will answer the following questions:

1. Can the new clay product prevent or reduce algal blooms in the Lower Vasse River?
2. How much clay do we need to use?
3. How much phosphorus is released from the sediments?

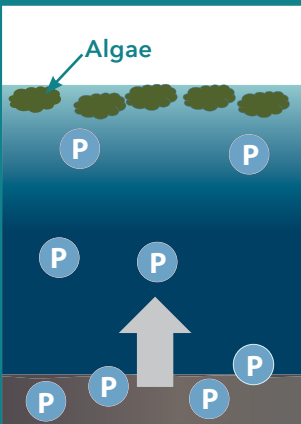
Early results from the trial are promising demonstrating much lower total phosphorous levels and improved visual amenity in the mesocosm tanks where the clay has been added.



The mesocosm tanks are open to the bottom and are embedded within the river sediments.

How the clay works?

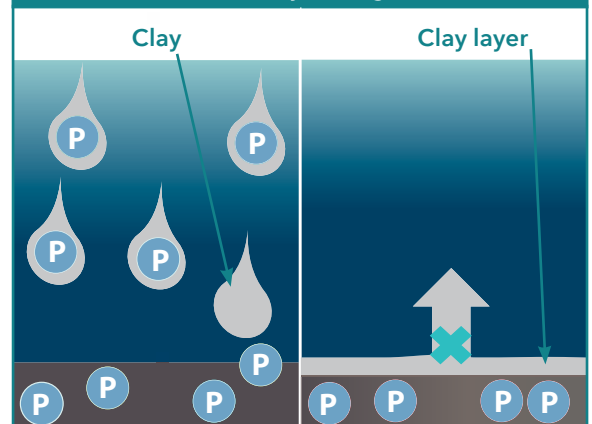
Without clay dosing:



The hydrotalcite clay binds to phosphorus particles making it unavailable to algae. It removes the phosphorus as it settles through the water column and it also forms a protective layer on the sediments preventing phosphorus release.

P = phosphorus

With clay dosing:



Where to next

The first stage of the clay trial will conclude in autumn 2017. If the hydrotalcite clay is shown to be effective the trial will be expanded to larger sections of the Lower Vasse River in 2018. The Department of Water will also trial other phosphorus-binding materials and other innovative algal treatments over the 2017/18 summer. Results from these trials will inform the Lower Vasse River Management Plan being developed by the City of Busselton.



GeoCatch

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Revitalising Geographe
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