

# Water treatment trials

## Lower Vasse River



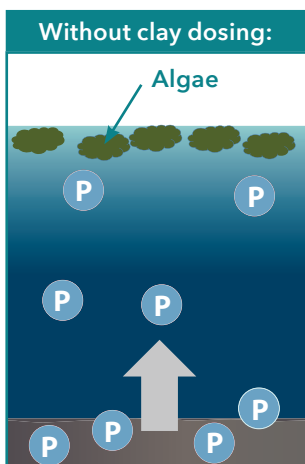
During summer 2017–2018, scientists from the Department of Water and Environmental Regulation (DWER) are investigating the effectiveness of a newly developed clay to reduce algal blooms in the Lower Vasse River.

### Why are we doing this?

Poor water quality over the summer months is a recurring problem in the Lower Vasse River. High nutrient concentrations, particularly phosphorus, contribute to poor water quality fuelling algal blooms.

The blooms reduce the amenity of the Lower Vasse River and can result in nuisance odours. These trials will investigate ways to reduce algal blooms and improve water quality.

### How the clay works?



The hydrotalcite clay binds with phosphorus in the water making it unavailable to algae. It also forms a protective layer on the sediments preventing phosphorus release.

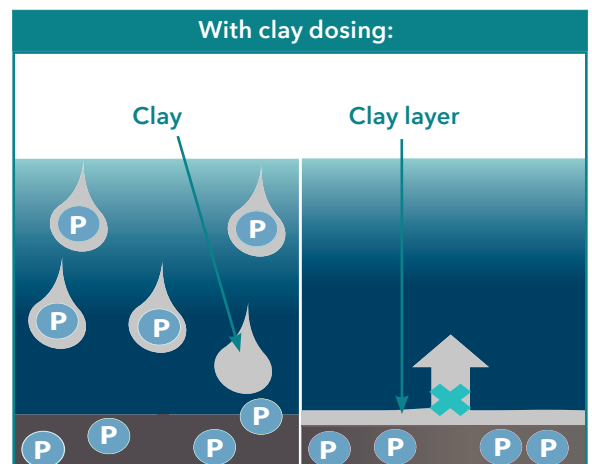
 = phosphorus

### What are we trialling?

The hydrotalcite (HT) clay being trialled consists of a naturally occurring clay that is modified with a mineral coating that binds the phosphorus.

The trial expands on last year's trial (summer 2016–2017) where 15 large bottomless tanks, or mesocosms, were placed in the river upstream of Causeway Bridge.

Clay-treated mesocosms showed improved water quality. This summer we will test the clay application at a larger scale in a more open stretch of river.



## Where and how will this trial take place?

The trial will be set up in the Lower Vasse River south of Bussell Highway bridge, in front of the City of Busselton offices.

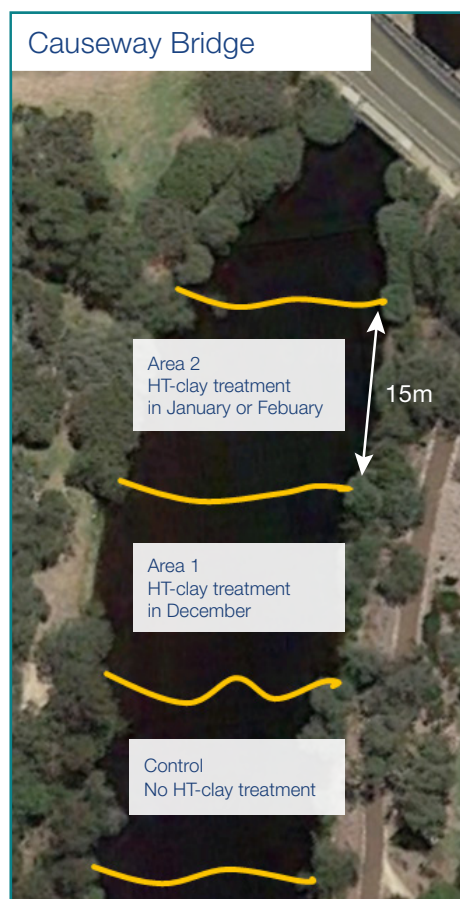
Three trial areas of 15 by 30 metres each will be separated by floating PVC curtains that will be installed across the entire width of the river and reach from the water surface to the river bed. The top is held above the water by floats and the bottom is weighed down by a heavy chain.

The clay will be applied from a boat using a spray boom.

**Area 1** will be treated with the clay in early December before the onset of algal blooms.

**Area 2** will be treated later in summer when an algal bloom is already present. The Control Area, where no clay treatment will occur, is also curtained to mimic conditions of the other two trial areas.

DWER scientists will be regularly monitoring the concentration of nutrients and algal growth in the three trial areas and in the river nearby.



## What do we hope to learn?

This trial in the Lower Vasse River will help answer the following questions:

- Can the new clay product prevent or reduce algal blooms on a large scale?
- How much clay do we need to use and how often?
- Does the clay still work when algae are already present?
- How does the clay affect organisms living in the sediments?

## Where to next?

The trials provide information to help with further research and clay development, including:

- improving the clay manufacturing process;
- best application rates for different environments; and
- undertaking a detailed risk assessment for large-scale clay application.

If these trials are successful, the new clay product may form part of the Lower Vasse River Management Plan being developed by the City of Busselton.

The Regional Estuaries Initiative hopes to demonstrate the benefits of the new clay for drain treatment and treatment of standing water bodies such as the Lower Vasse River to enable a widespread application.