



Cox Bay North Lake water treatment trial (2024)

The Department of Water and Environmental Regulation will be conducting a water treatment trial at Cox Bay North Lake between February and May 2024.



HT-clay application in the Serpentine River



Where is the trial?

Cox Bay North Lake is in a residential estate in Falcon, about 8 kilometres south-west of Mandurah.

Why do a treatment trial?

Cox Bay North Lake is sustained by groundwater and receives runoff from residential areas and surrounding parks. It has extremely high nitrogen and phosphorus concentrations and is prone to severe and persistent harmful algal blooms. These high nutrient concentrations can accelerate algal growth, leading to problems such as toxic algal blooms, nuisance odours, reduced visual appeal and, in some cases, fish kills.

By adding phosphorus-binding clay to waterbodies polluted with nutrients, we can improve water quality and reduce harmful algal blooms. This trial is part of a series of trials in south-west Western Australia of a new phosphorus-binding clay product called hydrotalcite clay (HT-clay). It will contribute to building our evidence base about its effectiveness in treating high phosphorus concentrations in our waterways.

When is the trial?

We plan to conduct this trial in 2–3 separate applications between February and May 2024.

The first application is scheduled for **Monday 12 to Wednesday 14 February 2024 between 7.00am and 7.00pm**. Nearby residents will be advised of further applications once they are scheduled.

Each application will take three days: one day to set up the equipment, one day to apply the clay, and one day to remove all equipment from site.



What to expect during the trial

We will park a tanker truck containing the HT-clay slurry on Lot 40 Governor Drive and set up a pump station next to it. Through a series of pipes, the pump will deliver the clay slurry to the application boat which will spray the clay slurry as it moves around the lake.

Nearby residents can expect some noise from generators between the hours of 7.00am and 7.00pm on the day when the clay is applied (13 February in the first instance).

Department staff and contractors will be on site during the trial to apply the clay and take water quality measurements. We will measure the water quality in the lake before and after the trial, and more intensively during clay application to evaluate the immediate and longer-term effects of HT-clay. We will also conduct a study on macroinvertebrates in the lake during the trial.

While we apply HT-clay, there will be increased turbidity (cloudiness) in the water which we expect will settle out within a few hours.

The City of Mandurah will turn off the aerators in the lake at the end of January 2024 so they do not affect the trial results. The aerators should not be needed during the trial because the clay is expected to improve conditions; however, this will be monitored closely. The aerators will be reactivated two weeks after the trial ends.

More information

Visit estuaries.dwer.wa.gov.au/htclay

Please send us an email at estuary@dwer.wa.gov.au with any questions

This trial is funded by the Bindjareb Djilba Protection Plan and Healthy Estuaries WA – State Government initiatives that aim to improve the health of our waterways.

We thank the City of Mandurah for assisting with the trial.

What is being applied to the lake?

HT-clay is a natural bentonite clay that is modified with hydrotalcite: a phosphorus-binding mineral. When HT-clay is applied to water, it binds phosphorus as it mixes and settles, making it unavailable to algae. It can also cause algae to form clumps and sink to the bottom. At the bottom of the lake, HT-clay forms a thin protective layer on top of nutrient-rich sediments, reducing phosphorus release from the sediments to the overlying water.

The clay consists of non-toxic materials, so is not expected to adversely impact wildlife, including waterbirds. However, when we use it in our waterways, we still monitor and test the treated water to ensure it does not harm the environment.

Between 2016 and 2018, we trialled HT-clay in the Lower Vasse River and it reduced phosphorus concentrations below our targets and reduced algal blooms in the longer term. We also found the clay did not affect the small aquatic animals – such as worms, shrimps, and crabs – that live in or close to the sediments (known as benthic macroinvertebrates).

Additionally, early results from our water treatment trial in 2023 show that HT-clay successfully bound up to 95 per cent of phosphorus when applied to Gull Road Drain which flows into the Serpentine River.

