Scientists track the changing colour in one of New Zealand's most polluted lakes

Kelly Hodel/Stuff

Xerra senior scientist Moritz Lehmann on Lake Waikare. Lehmann is part of a project monitoring lake health around the country through satellite images.

Analysing satellite images may help monitor algal blooms in one of New Zealand’s most polluted lakes, a scientist says.

The Eye on Lakes project is a collaboration between regional research institute Xerra, Waikato University, and Cawthron institute, using satellite images to track changes in lake colour in all of New Zealand’s 3800 lakes.

The project is in its third year.

But Waikato lakes are “in a class of their own” for their changeability in colour, Xerra senior scientist Moritz Lehmann said.

Toxic algae and what you need to look out for

Cawthron Institute senior scientist Dr Susie Wood talks about toxic algae in New Zealand rivers, explaining how to stay safe and what you need to look out for.

“The lake’s colour tells us a lot about what’s going on in the water.

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“If you come up to a lake that’s very green you assume there’s a lot of plants in there. If you come up to a lake that’s red then it’s sort of a warning flag.”

Lehmann has recently been doing work at Lake Waikare, the second most polluted lake in the country, he said.

Supplied

A satellite image from Lake Waikare, in Te Kauwhata. The lake has consistently high readings of toxic algae

Results from the end of September showed a non-toxic red algae dominating the lake’s colour for about two weeks, until it reverted back to green.

A 2017 study showed that behind Lake Ellesmere in Canterbury, Waikare was the most heavily degraded lake in New Zealand.

“The lakes have deteriorated by our activities on the surrounding land and this is a heavily farmed and forested

area."

Kelly Hodel/Stuff

The Eye on Lakes project uses a light sensor to analyse the algae in Lake Waikare.

The scientists also use a radiometer on the lakes, which measures light coming out of the water.

"From that we can tell the amount of algae, the type of algae – whether its toxic cyanobacteria or red algae – and the amount of sediments."

Out of nearly 4000 lakes, only 40 are monitored for toxic algae, Lehmann said, and only two or three of those are in the South Island.

Nationwide, lakes are currently under-monitored, he said.

Lehmann said satellite images could be one tool regional councils could use to analyse lake health.

MORITZ LEHMANN/SUPPLIED

A drone image of Lake Waikare's contrasting algal blooms between March and September. A sampling container is visible at the end of a red line.

Analysing water samples is effective but costly and takes time.

"[With satellite images] we can look at the lakes and go backwards and forward in time.

"We can look at an iconic glacial lake like Lake Wakatipu

and say whether it’s getting greener for example.”

Kelly Hodel/Stuff

Lake Waikare is the second most polluted in the country, according to a 2017 study.

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