

State of the Environment Report Card 2017

How do our lakes stack up?

What is a healthy lake?

A healthy lake supports wildlife and cultural values, and can be enjoyed by people for activities such as fishing and swimming.

What are the main threats to lake health?

- Excessive levels of **nutrients** can result in nuisance algal blooms, and at high levels nitrate and ammonia can be toxic to freshwater fish and invertebrates.
- **Exotic plants** can take over the shallows of lakes. This can crowd out native plants, which support wildlife, and make it difficult to boat/swim.
- **Viruses and bacteria** that live in the gut of warm-blooded animals (especially sheep and cows) have the potential to reach high levels in lakes. *E. coli* concentrations are used to assess the likelihood of health threatening contamination.
- Potentially toxic **cyanobacteria** (sometimes called blue-green algae) can reach levels which pose a threat to human and animal health.

How do we measure lake quality?

The Trophic Level Index is used throughout New Zealand to describe the potential for nutrients to bring about nuisance algal or cyanobacterial blooms. The potential risks of toxic effects from cyanobacteria (blue-green algae) and nitrate/ammonia toxicity are quantified.

What was the condition of the four lakes monitored?

The Trophic Level Index indicated that water quality was poor for Lake Opouahi, and very poor for lakes Tūtira, Waikōpiro, and Whakakī. While nutrient concentrations were high for all four lakes, summer 2017 weather conditions were favourable for cyanobacteria and algae. The underlying causes are likely to be high levels of nutrients that were washed from the land into the lake. Water quality at Whakakī was so bad that aquatic plants no longer grow in the bottom of the lake.



Can I swim in these lakes?

All four lakes are of excellent quality from a viral or bacterial perspective.

Potentially toxic cyanobacterial blooms may be present at all four lakes, we often advise against swimming for dogs and humans. Please check for signs and media releases.

'Duck Itch' (swimmer's itch) is a reaction that some people get when parasitic flatworms penetrate the skin through contact with fresh water. Where water fowl are found, there may be duck itch.

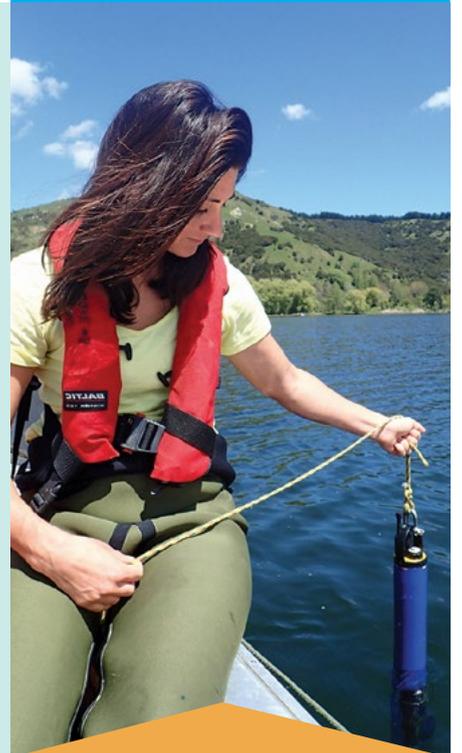


DID YOU KNOW?

There are over **200** lakes in Hawke's Bay

and around **97%** are privately owned

HBRC monitoring is focussed on high value publically accessible lakes



Monitoring sites

HBRC carries out sampling on different types of lakes.

In 2017, one coastal lake and three freshwater lakes were monitored.

All four have water quality problems caused by nutrient enrichment.

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Restoring the mauri of Lakes Tūtira and Waikōpiro

Te Waiū o Tūtira, the milk of Tūtira is a partnership between Hawke's Bay Regional Council and Maungaharuru-Tangitū Trust. The project aims to restore the mauri of Lakes Tūtira and Waikōpiro, making a place that families can happily return to, and where children can swim. It builds on the work of the Tūtira Mai Ngā Iwi Project. The project includes native plantings and the trial installation of an air curtain in Waikōpiro Lake during the spring/summer of 2017.



QUICK FACTS

Algal blooms reduce the value of **Tūtira** for recreation

In the **Auckland region** 10 water supply reservoirs have air curtains

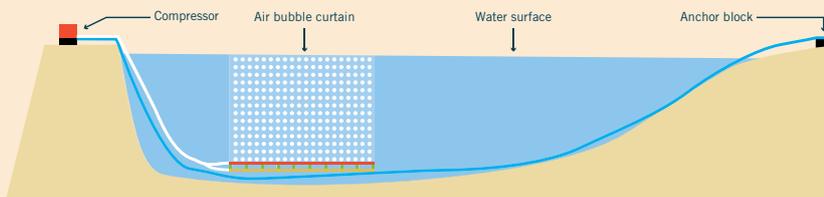
Waikōpiro Lake Air Curtain trial

In September 2017, an air curtain was installed in Waikōpiro Lake as a trial to see if it would improve water quality.

A lack of oxygen and the lake water heating up in hotter months has been a major factor causing algal blooms and the death of fish in summer.

The air curtain is a 50m pipe tethered close to the bottom of the lake, across the deepest part. It has pressurised air pumped through it. This increases oxygen levels at all depths throughout the lake by creating a circulation current, much like bubblers in a fish aquarium.

From a physical point of view, the air curtain has performed well, however an unwelcome consequence has been an increase in the temperature of the whole lake. The air curtain is an experiment and many valuable lessons are being learnt.



Find out more

Hawke's Bay Regional Council monitors our land, water and air.

We use this data to inform our work with communities to improve and protect the environment.

Each year we develop a series of report cards to provide you with a snapshot of how our environment is tracking.

For more details including the full technical reports **visit www.hbrc.govt.nz** (search: report search)

For up to the minute monitoring results from Hawke's Bay and other parts of the country **visit www.lawa.org.nz**

