

Recreational water quality Annual monitoring summary

December 2015 to March 2016



Key points

Of the swimming spots monitored weekly during the 2015/16 bathing season, lake and river water quality was suitable for swimming on all sampling occasions at Lake Hawea, Lake Wanaka, Lake Wakatipu, Lake Hayes, Manuherikia River at Shaky Bridge, Waikouaiti at Bucklands and the Taieri at Outram.

Of the coastal sites monitored weekly Hampden Beach, the Waikouaiti Estuary (at Wharf), Macandrew Bay, Otakia Creek and Kaka Point were suitable for swimming on all sampling occasions. Water quality was mostly unsuitable for swimming during and shortly after rain.

How can you tell whether or not it's safe to swim?

ORC uses the national microbiological water quality guidelines to let people know whether water is suitable for swimming, surfing, and other recreational activities.

Table 1

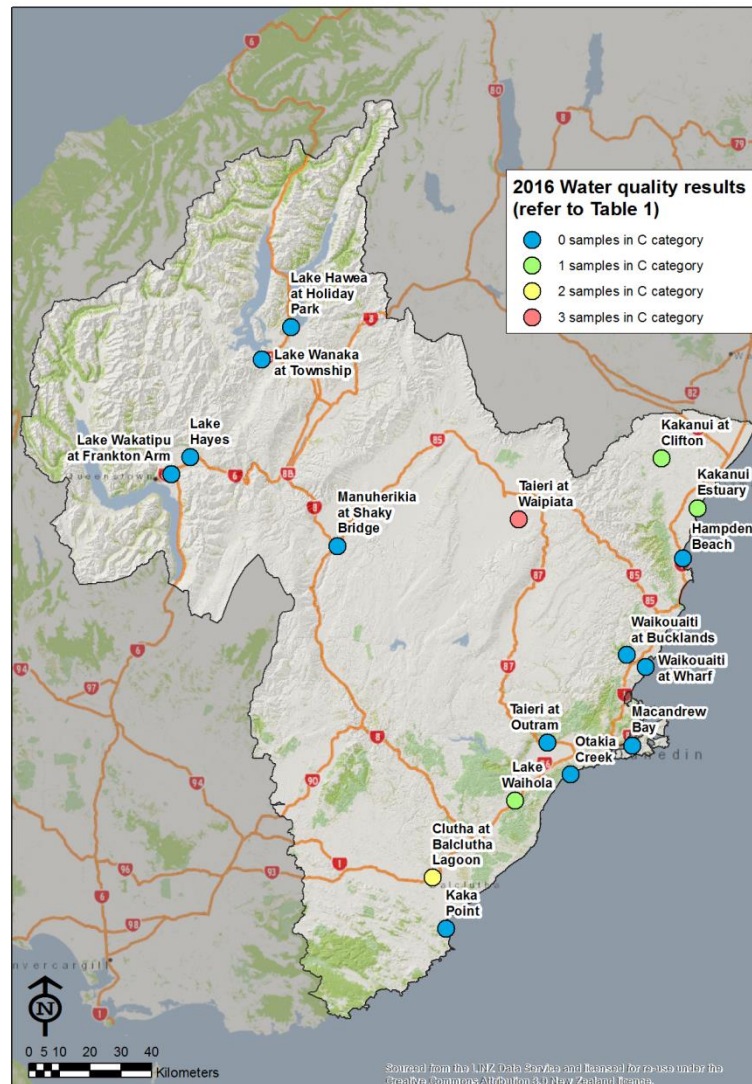
| | Freshwater (<i>E.coli</i> /100ml) | Marine water (Enterococci /100ml) |
|---|---------------------------------------|---------------------------------------|
| A | Result less than 260 | Result less than 140 |
| B | Result between 261 and 550 | Result between 141 and 280 |
| C | Result more than 550 | Two consecutive samples more than 280 |

- **Green** for go – sampling indicates a low health risk.
- **Amber** for caution – sampling indicates the health risk has increased, but is still within an acceptable range.
- **Red** for stop – sampling indicates that the water poses an unacceptable health risk.

What happened in 2015/16

ORC monitors the water quality at popular marine and freshwater bathing sites each summer between December and March.

Water samples were taken once a week during the 2015-16 summer from late November to the end of March. A total of 187 samples were taken from the freshwater sites and 102 from coastal sites. The samples were tested for the concentration of indicator bacteria (*Escherichia coli* in freshwater and *Enterococci* in salty water). These bacteria, while generally not harmful in themselves, indicate the presence of faecal material and potential disease-causing organisms.



Otago recreational water quality monitoring 2015/2016. The map shows how many times each bathing site exceeded the 'action' (red) level of the national microbiological water quality guidelines for coastal and freshwater recreational areas.

Coastal waters

With the exception of the Kakanui Estuary that recorded a single exceedance on the 14/12/2015, all other estuarine and marine monitoring sites recorded no 'red band' or 'action' level exceedances of the national recreational water quality guidelines for indicator bacteria (280 enterococci/100 mL; Table 1). This compares favourably to the previous year's (2014/15) bathing season that recorded 4 exceedances in the Kakanui Estuary and one exceedance in the Otago Harbour (Macandrew Bay).

Of the one occasion that the Kakanui Estuary exceeded the 'action' level it appeared the elevated bacteria concentrations were unrelated to rainfall, as there was very little rain in the catchment preceding this date and river flows were low. It is possible the high bacteria result was due to waterfowl present in the estuary that were observed at the time of sampling.

Rivers and lakes

Lake Hawea, Lake Wanaka, Lake Wakatipu, Lake Hayes, Manuherikia River at Shaky Bridge, Waikouaiti at Bucklands and the Taieri at Outram did not exceed the 'action' level of the national recreational water quality guidelines for indicator bacteria (550 *E. coli*/100 mL; Table 1). Of the other sites the following exceedances occurred: The Taieri at Waipiata (exceeded three times); the Clutha at Balclutha Lagoon (twice); the Kakanui at Clifton and Lake Waihola (once each). This is a total of seven exceedances recorded across freshwater monitoring sites and is a marked reduction on the number of exceedances recorded in the previous summer of 2014/15. Thirteen exceedances were recorded over this period.

For the summer of 2015/16, of the seven occasions that freshwater sites exceeded the 'action' level, three samples were taken when at least 10 mm of rainfall had fallen in the three days before sampling. Rainfall causes bacteria to be washed into rivers and streams via urban and agricultural runoff, and also stirs up bacteria attached to streambed sediments. A single exceedance occurred at each of the Taieri at Waipiata, the Clutha at Balclutha Lagoon, the Kakanui at Clifton and Lake Waihola that did not appear to be rainfall related and reflect localised contamination of faecal material. Possible sources would include both livestock and waterfowl.

For the Kakanui at Clifton there is an upstream gull colony that has been known to cause elevated bacteria concentrations. The Lake Waihola and Clutha at Balclutha Lagoon exceedance, in all likelihood, would have been caused by waterfowl. The Taieri at Waipiata has in times past had elevated bacteria sourced from irrigation by-wash. The number of exceedances for this summer was comparable to last summer and was a marked improvement from the years previous to this.

Why we monitor water quality

Micro-organisms such as viruses, bacteria, and protozoa, are present in all natural water bodies. Water contaminated by faecal micro-organisms may pose a human health hazard, particularly if swallowed. Anybody can be affected, but small children, the elderly, and people already weakened by illness or fatigue are more likely to become ill from exposure to contaminated water.

The most common illnesses arising from exposure to contaminated water occur in the gastric-intestinal system, leading to symptoms like diarrhoea or vomiting, and infections of the eye, ear, nose, and throat. However, there are other potentially more harmful diseases such as giardiasis, cryptosporidiosis, campylobacteriosis, and salmonellosis. Hepatitis A can be contracted from contaminants in the water and can lead to long-term health problems. Testing the water regularly for indicator bacteria and posting results on the ORC website helps the public make informed decisions about where it is safe to go swimming.

Toxic algae

Although swimming spots in rivers were mostly safe from high levels of bacteria, some Otago rivers are affected during summer by widespread toxic algae (cyanobacteria) growth. Signs warning of the potential presence of cyanobacteria were put up along the Silver Stream, Kakanui River, Shag River, Waianakarua River and Manuherikia River.

What is Otago Regional Council doing?

Together with the city and public health agencies, Otago Regional Council reports or advises on the suitability of water quality for recreation at eight freshwater sites and five coastal sites around the region.

Water is sampled weekly during the 'Otago bathing season' (from 1 December to the end of March) and the results are assessed against the national recreational water quality guidelines.

This helps the public make informed decisions about where it is safe to go swimming or participate in other forms of contact recreation (from a public health perspective).

What can you do?

- Avoid swimming during and shortly after rain
- Don't let your dog foul near rivers or beaches
- Keep stock, especially cattle and deer, out of rivers and streams to prevent them fouling the water.

More Information

If you would like to know more about recreational water quality, monitoring visit our website at www.orc.govt.nz



Kaka Point. This site was suitable for swimming on all sampling occasions last summer.