

# A Closer Look at the Water Quality at Corsair Bay

---

In October 2022, ECan downgraded the long-term recreational water quality of Corsair Bay to “Poor” and labelled the beach as “unsuitable for swimming”. The public and media interest around this event has been high, with confusion around what the term “unsuitable for swimming” actually means.

We thought it would be useful to take a closer look at the data and methodology used by ECan to derive their long-term water quality grade for Corsair Bay, and have a number of recommendations for improvement. We also thought it would be useful to communicate our findings so that members of the public can make a more informed opinion prior to swimming at Corsair Bay.

The Ministry for the Environment provides the national guidelines for regional councils such as ECan to run water quality testing programmes on local waterways and set long-term grades for recreational use. We have reviewed these national guidelines ([Microbiological Water Quality Guidelines for Marine and Freshwater Recreational Areas](#)) and have reached the following conclusions:

- The 5 year data used to designate Corsair Bay as “unsuitable for swimming” was incorrectly applied.

The national guidelines recommend the long-term grade for beaches is based on 5 years of weekly water samples (testing for enterococci bacteria) and calculating the 95<sup>th</sup> percentile (using the Hazen method). The guidelines also make specific reference to rainfall which is a known source of contamination at Corsair Bay:

*The grading process identifies sources of faecal contamination, such as sewer overflows caused by heavy rainfall, which influence the final Suitability for Recreation Grade. Contamination events may be triggered by specific conditions (e.g. rainfall). Where monitoring agencies can predict such contamination events, they may initiate management interventions to deter use of the site. Where these interventions can be demonstrated to be effective in discouraging use of the recreational site, the initial grade may be modified to reflect the usual water-quality conditions at that site. This is achieved by removing the source of the predictable exceedance events from the catchment assessment.*

Corsair Bay already has in place “management interventions to deter use of the site” following heavy rainfall, such as the CCC / ECan signs on the beach and in the carpark, and LAWA’s “[Can I Swim Here](#)” website for Corsair Bay states “Heavy rain flushes contaminants from urban and rural land into waterways and we advise you not to swim for 2 – 3 days after heavy or prolonged rain.” ALL swimmers we spoke to were aware of the advice to avoid swimming after rain, and local swimming groups also regularly communicate this advice to swimmers to avoid swimming after rain via social media.

Therefore, the data for Corsair Bay should have been analysed with known rain events removed. We performed this calculation, removing rain events of 2-3mm or more from data collected by NIWA. For Corsair Bay, this provides the following outcome (the top line with rain data, the bottom line is without rain affected events):

	<b>Hazen 95<sup>th</sup> percentile result</b>	<b>Number of data points</b>	<b>Long-term grade</b>
ECan weekly data (*) 2017 – 2022	541.5	75	Poor
ECan weekly data (*) 2017 – 2022 with rainfall data removed	99.8	69	Good

(\*) follow-up samples from an alert or action mode response removed, as per national guidelines.

- This clearly shows that the national guidelines would give the water quality at Corsair Bay a long-term rating of “Good” which, according to the national guidelines, means: “Satisfactory for swimming most of the time. Exceptions may include following rainfall.”

Also of note is that out of the 82 water samples in the ECan 5 year data set, 8 tested poor, the majority of which can be attributed to rain events. BUT for ALL 8 of these poor water quality tests, the prior water quality sample was good, and then post event returned to good water quality within an average of 2 days (48 hours).

- In our opinion, this suggests that the water quality at Corsair Bay is good (and suitable for swimming) the majority of the time, and that the public perception that the water at Corsair Bay is now polluted is not actually correct.

Testing data taken from LAWA / ECan also shows that Corsair Bay, one of the most popular swimming beaches in Christchurch, is tested the same number of times (15) as 100 other locations around Canterbury. This includes the Kaiapoi Boat Ramp, which we have never seen anyone swimming at, ever. The national water quality guidelines enables beaches to be prioritized in terms of areas of significance and usage. This provides allowance for focussing resources (e.g. more testing) on these areas. We would argue that Corsair Bay is VERY significant in terms of the city of Christchurch, providing a wonderful and relatively safe natural area for 1000’s of people on an almost daily basis over the course of summer. Furthermore, more regular water testing of Corsair Bay, with timely reporting of the results on the LAWA “[Can I Swim Here](#)” website, would allow members of the public to make more informed real-time decisions about the suitability of swimming at Corsair Bay.

- Therefore, we recommend that ECan increases the frequency of water sampling at Corsair Bay.

#### **How can YOU help make changes ? We ALL have a part to play.**

- ✓ Reduce pollution: ensure human waste and dog waste don’t end up down the drain or in the bay.
- ✓ Write/e-mail/call your local CCC and ECan representative and let them know you value Corsair Bay water quality and you would like the following recommendations to be put in place:

#### **Recommendations for improvement**

- ✓ **Corsair Bay data should be reassessed now and rain affected data removed.**
- ✓ **Corsair Bay (and perhaps Lyttleton / Whakaraupō) should be given ‘significant’ importance and more resources for water testing due to its high community value.**
- ✓ **Testing should be conducted at Corsair Bay more frequently to help provide reassurance for the public and to help identify when pollution occurs, with timely reporting and follow-up.**
- ✓ **Signage should be reviewed to reduce confusion around the term “unsuitable for swimming” and to provide more explicit messaging around avoiding swimming after rainfall, e.g. put signage in the carpark / entrances to the bay. We think this should also include the most recent test result.**
- ✓ **CCC and ECan should review how they communicate important water quality results and how that information is displayed on signage.**

Dan Abel

dan@fitandabel.com

[www.fitandabel.com](http://www.fitandabel.com)