**Factsheet: River water quality - tracking change**

**SUBMITTED BY** LAWA **AUTHOR** LAWA **PUBLISHED DATE** 4 MAY 2018

**In April 2018, Land, Air, Water Aotearoa (LAWA) released the first set of National River Water Quality Trends based on the comprehensive dataset freely available on the LAWA website. This shows trends at a national level for eight water quality parameters. The national trends initiative started after we recognised the opportunity to analyse the thousands of data points we present online, this represents water quality for nearly 1,500 river and lake sites.**

This first set of trends shows positive change in river water quality is possible. Improving trends for water quality were more common than degrading trends for all water quality parameters and this gives cause for optimism. For example water clarity, ammoniacal nitrogen and total phosphorus concentrations showed 11, 8 and 16 times more sites with improving trends than degrading trends, respectively. However, while all parameters show there are more monitored sites with improving trends than degrading trends, there are degrading trends for all parameters. This means that the good work by communities, iwi, land users, businesses, and local and central Government must continue; more positive action is needed to ensure positive change continues.

As time passes and more data is collected, this first release will provide a valuable benchmark. We’ll release updated 10-year trends annually, to give us all an idea of how New Zealand’s waterways are tracking. The trends will be released each September, with the next release set to cover water quality data from 2008 – 2017.  Over time we will be also able to view trends over a 15-year time period.

**Background**

LAWA was launched in 2014 as part of a wider programme to improve environmental monitoring and reporting in New Zealand. Our aim is to connect New Zealanders with the environment, through the sharing of environmental data. This data is collected on your behalf by regional and unitary councils and NIWA science teams. There are now nearly 1,500 freshwater sites on the LAWA website, and as the project has evolved, so have the opportunities to generate and share more information.

This was evident over summer with the launch of ‘Can I swim here?’ - A nationwide information tool designed to show the latest water quality info for your favourite swimming spots. This helped people make informed decisions on where to swim, picnic, and holiday. This is just another example of how LAWA is presenting the information kiwis want to know, to help us all make better decisions.

The same is true for understanding water quality at a national level. LAWA is a supporter of the Ministry for the Environment and Stats NZ’s substantial Environmental Reporting Series and acknowledges that this is a major undertaking. One of the key outcomes from the wider environmental monitoring and reporting programme that underpins LAWA, is to ensure that data collected by regional and unitary councils is more readily available for New Zealand’s Environmental Reporting Series and for the public. As the fresh water report is scheduled for release every 3 years, there’s scope for a set of annual river trends to give us an indication of how we’re tracking. LAWA’s massive dataset provides that opportunity. That’s why you’ll be hearing from LAWA each year with updates on the trends that scientists can generate using the best available information.

Ahead of the next LAWA River Water Quality Trends release, we’ll also be releasing more information and tools on two other vital elements of our environment, Land and Air. We are committed to making New Zealand’s Land, Air, and Water data accessible to the public.

**National River Water Quality Trends Data**

The data analysed to generate the National River Water Quality Trends is available on LAWA thanks to data sharing by all 16 regional and unitary council science teams and NIWA. The data shared comes from monitoring networks that include reference sites covering both catchments with little development and sites where water quality is likely to be affected by human activities.  Cawthron Institute has worked alongside regional councils to verify the processes and methods used for data collection, laboratory analysis of samples collected, and the statistical analysis and interpretation of the results presented.

The parameters that LAWA has generated trends for are widely recognised indicators of water quality. The parameters are water [clarity](https://www.lawa.org.nz/learn/glossary/c/clarity/),[turbidity](https://www.lawa.org.nz/learn/glossary/t/turbidity/), [*E. coli*](https://www.lawa.org.nz/learn/glossary/e/e-coli-escherichia-coli/), [total nitrogen](https://www.lawa.org.nz/learn/glossary/t/total-nitrogen-tn/), [total oxidised nitrogen](https://www.lawa.org.nz/learn/glossary/t/total-oxidised-nitrogen-ton/), [ammoniacal nitrogen](https://www.lawa.org.nz/learn/glossary/a/ammoniacal-nitrogen/), [dissolved reactive phosphorus](https://www.lawa.org.nz/learn/glossary/d/dissolved-reactive-phosphorus-drp/) and[total phosphorus](https://www.lawa.org.nz/learn/glossary/t/total-phosphorus-tp/). We recognise that these water quality indicators provide only part of the picture about the health of river systems.  LAWA also shows the results from [macroinvertebrate](https://www.lawa.org.nz/learn/glossary/m/macroinvertebrates/) sampling, which give us [Macroinvertebrate Community Index](https://www.lawa.org.nz/learn/glossary/m/macroinvertebrate-community-index-mci/) information, providing another part of the picture about the ecological health of our rivers.  There are other measures such as the prevalence of toxic algae ([cyanobacteria](https://www.lawa.org.nz/learn/glossary/c/cyanobacteria/)), [periphyton](https://www.lawa.org.nz/learn/glossary/p/periphyton/), and fish and aquatic plant abundance which collectively can tell us even more about the health of a particular waterway. Many regional and unitary councils have started to monitor these additional variables at some river sites; we will look to make this information available via LAWA in the future.

Environmental monitoring technologies are continuing to evolve.  In the future it might therefore be possible to extract national trends for a wider range of indicators and/or use data collected continuously in ‘real-time’. In the meantime, LAWA will continue to update New Zealand on what we know is happening in our waterways based on the best, and most widely, available information.

**Related links**

[LAWA national river water quality 10-year trends (2007-2016)](https://www.lawa.org.nz/explore-data/river-quality/#/tb-national)

[Factsheet: Calculating water trends](https://www.lawa.org.nz/learn/factsheets/calculating-water-quality-trends/)