2015 Christchurch surface water quality assessment

Each year, the Council puts together a ***surface water quality monitoring report**. This is needed for resource consent requirements, and to assess how we are tracking against the work we are doing on improving waterway health, such as reducing contaminants being discharged into waterways and enhancing stream ecology.

During 2015 more than 7000 samples were analysed from 43 waterway sites. A range of parameters were analysed, including:

- metals
- pH
- conductivity (the capacity of water to conduct electrical current, which may indicate whether water is contaminated or not)
- suspended solids
- turbidity (how murky the water is)
- dissolved oxygen
- temperature
- ammonia
- nitrogen
- phosphorus
- *Escherichia coli* (an indicator of pathogens)

Assessment results

Ninety eight per cent of sites did not meet guideline levels for at least one parameter. Of particular concern are the high levels of nitrogen, phosphorus, *E. coli* and sediment.

As was also recorded in the previous year's report, the Heathcote River catchment did not meet many of the water quality standards in 2015 and recorded the poorest water quality of all the catchments. The Ōtūkaikino River catchment met most water quality standards and recorded the best water quality out of the catchments.

The results of assessments between 2007 and 2015 show that the majority of water quality parameters for all monitoring sites have remained steady over time with some degradation, and some improvements at particular sites.

Basically, we are holding our own. These results are benchmarks that show us the areas we need to improve – it will take time and everyone working together to make a positive difference. The main focus will be reducing sediment, heavy metals, nutrients (nitrogen and phosphorus) and bacteria in waterways.

Urban Stream Syndrome

This water quality result aligns with the Urban Stream Syndrome, where internationally, lower water quality is recorded in urban (particularly industrial) areas (for example, the Avon and Heathcote river catchments) and better water quality is generally recorded in rural areas (for example, the Ōtūkaikino River catchment).

Haytons Stream and Curletts Road Stream (in the Heathcote River catchment) recorded the poorest water quality out of all waterways, and the best water quality was recorded within the Ōtūkaikino River at the Groynes.

The surface water resources of Christchurch and Banks Peninsula support the social, cultural, economic and environmental wellbeing of residents. We need to manage these wisely for future generations.

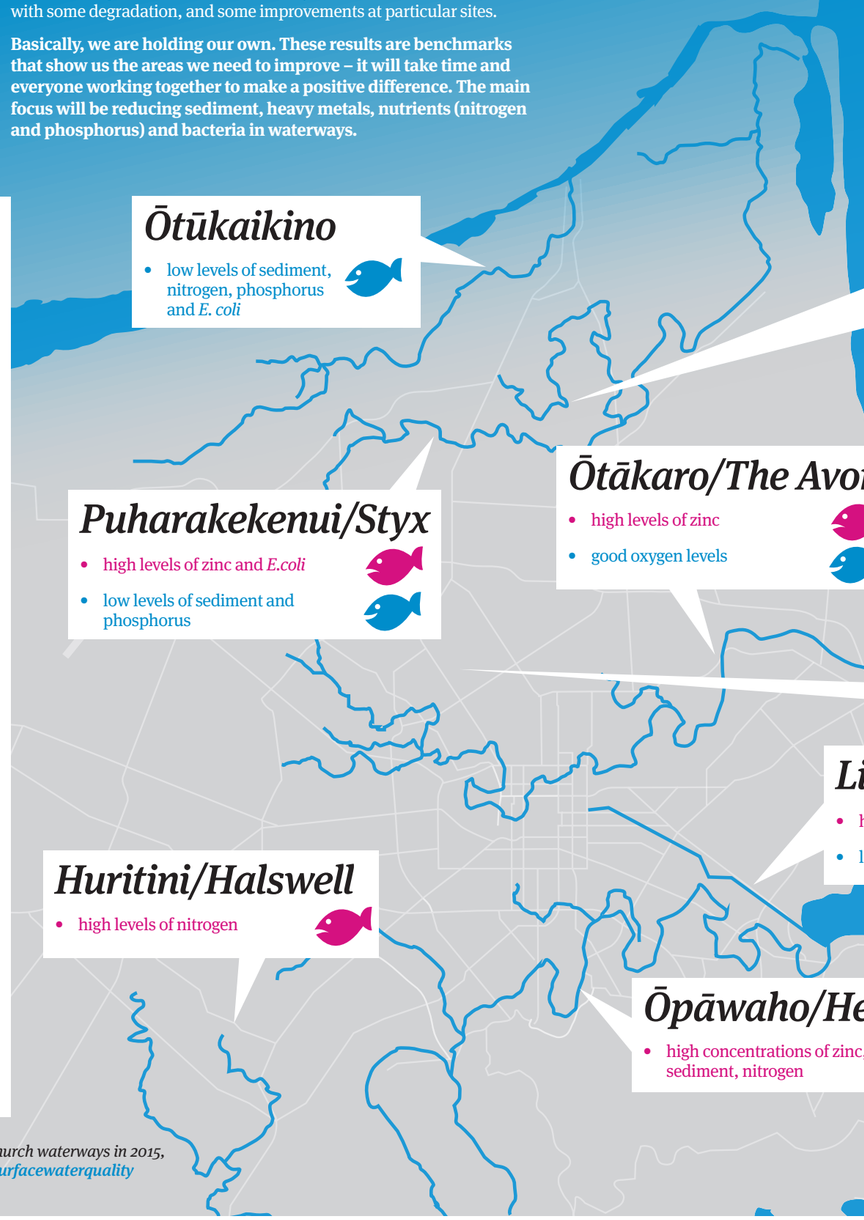
Christchurch and Banks Peninsula are characterised by a network of surface water bodies — our waterways. These range from large lakes and rivers, to narrow tributaries and drains with intermittent flows.

What the Council is doing for waterway health

- Ensuring better treatment of residential, industrial and commercial discharges into our stormwater network.
- Catchment management plans and projects to reduce contaminants at source.
- Erosion and sediment monitoring of building sites.
- Planting of waterway margins.
- Planting of erosion prone gullies on the Port Hills.
- Stream restoration.
- Working collaboratively with Environment Canterbury.

What our communities are doing for waterway health

- River and estuary rubbish clean-ups.
- Community education.
- Collaborating with the Council on waterway restoration projects, to improve water quality and ecological values.



* *A detailed assessment of the surface water quality of Christchurch waterways in 2015, shown as the 2016 report, can be viewed at www.ccc.govt.nz/surfacewaterquality*

A holistic look at a waterway

Water that is safe for humans to swim in isn't the only measure of a healthy waterway. We also need to make sure that the water is safe for fish and invertebrates, who have different needs to us, and that aquatic plants and algae don't take over and choke stream channels, which can affect the ecology of waterways and increase flooding risk.

Giant Bully

Kōura/Freshwater Crayfish

Kā Pūtahi/Kaputone Creek. A Council-led initiative with NZ Transport Agency to realign the waterway to prevent piping of the channel.

Photo credit Fiona Greig

Papanui Stream restoration.

Make a positive difference to the health of our waterways

Waterways can recover – it will take a sustained effort over many years, but working together we can make a positive difference to their health. Every bit helps and even small things make a difference.

What you can do

The source of many contaminants comes from the things we do every day, like washing our cars and walking our dogs.

Out and about

- Pick up dog poo – tie a bag to your dog's lead before you go out for your walk and when you get home, put the poo in the red bin (if you're pooper-scooping your lawn, it goes in the red bin too).
- Waterfowl (ducks and canadian geese) poo are a major source of contamination in our waterways. Instead of feeding waterfowl , try feeding eels instead – they like raw meat.

Planning your new build

- Unpainted galvanised roofs are the biggest source of zinc in stormwater that then reaches our waterways. Consider using roofing materials that don't contaminate our waterways – non-metal or prepainted steel is best. If you have a metal roof, make sure it's painted and the paint is in good condition. Avoid copper spouting, downpipes and roofs. These are a source of copper in stormwater. **Zinc and copper are toxic to streamlife.**
- Make sure there are good erosion and sediment control measures in place to stop sediment washing off your property into the stormwater system and then ultimately into our waterways. **Sediment smothers habitat and food for streamlife. It can be toxic to streamlife and affects water clarity.**
- The margins of our waterways (setbacks) often have plants that absorb contaminants in stormwater runoff before they reach the waterway. They also contribute to the overall ecological health of waterways by providing shade and habitat. You may need consent from the Council to build (including decks and sometimes fences) or carry out earthworks (including naturalisation/restoration work) in these setback areas. Any queries, please contact the Council on 941 8999 and ask to speak with the Duty Planner.

Home and garden

- Wash your car on your lawn and not on a paved area – detergent and oil will drain into the soil and not the stormwater network.
- If you are doing some DIY painting, wash your paint brushes in the laundry tub (which is connected to the wastewater system) so the wash water doesn't go through the stormwater drains and into our waterways.
- When doing improvements around your home and garden, consider things like permeable (with holes) paving, rain gardens or rain tanks to help reduce stormwater runoff from your property.
- Periodically remove any leaf litter or other organic material from the street channel in front of your property.
- Next time your car needs new brakepads, ask for copper-free ones.

The Council's **Streamside Planting Guide** will help you know what to plant where, and what existing vegetation to maintain.

Christchurch City Council

Christchurch's waterways – water quality

Improving the quality of the city's waterways – making them cleaner and safer – is a priority for the community and Christchurch City Council, and is closely linked with a healthy city and the wellbeing of its people

Christchurch City Council
53 Hereford Street, PO Box 73013
Christchurch 8154
Phone: (03) 941 8999
ccc.govt.nz

Sept 2016. GT3029

Our precious waterways

As our city grows, our precious waterways come under pressure from things like increasing traffic, new housing and industrial developments, and industrial waste. Our waterways are also affected by things like waterfowl and dog poo — which are a major source of bacteria in the water and can make it unswimmable.

The earthquakes also damaged waterways and land drainage infrastructure, such as pipes and channels. The Council is working to improve floodplain management by repairing and enhancing infrastructure while also looking to improve water quality where possible.

Poor water quality of urban waterways is an issue facing many regions and cities in New Zealand and overseas.

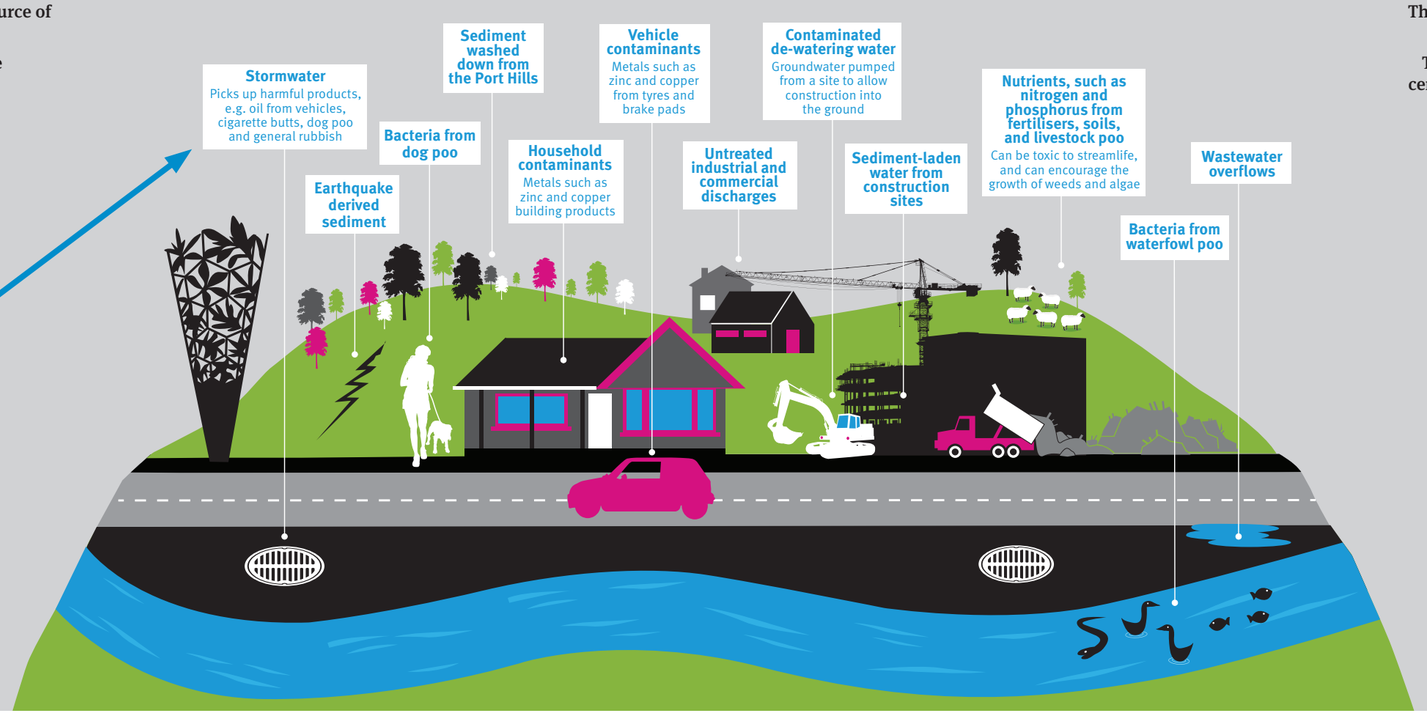
Why is our stormwater network important?

When rainwater falls onto hard, sealed surfaces like roofs, roads and driveways, it cannot soak into the ground. Instead it runs off the surface – this run-off water is called stormwater.

It flows into gutters and drains and into a network of underground pipes and open waterways – our stormwater network.

Key things that can contribute towards poor water quality

These things can have short and long-term adverse effects on the plants and animals that live in our waterways. They can be toxic to streamlife, encourage the growth of unwanted aquatic plants and/or algae, increase the risk to our health from contact through water sports and recreation, and affect water clarity and the appearance of our waterways.



Our urban legacy

Much of Christchurch City is built on a swamp. After more than 100 years of extensive urban development, many of the city's waterways and natural ponding and flooding areas have been built across or altered. This, combined with the legacy of many decades of contaminants going into our waterways, has put them under stress.

The stormwater network was borne out of necessity more than a century ago to transform an unpromising swamp into a habitable, healthy city. This network was wrestled from the swamp – it was an immense task over many decades and was the primary focus of work for the Christchurch Land Drainage Board, who managed Christchurch's waterways from 1875 to 1989 when it amalgamated with Christchurch City Council.

Nowadays we focus on a multi-value and multi-agency approach to the management of our waterways with an emphasis on six core values.

Waterways management core values:

- ecology
- drainage
- culture
- heritage
- landscape
- recreation

These values are the drivers for improved sustainable management of our waterways.