



River and stream health 2007/08

Key points:

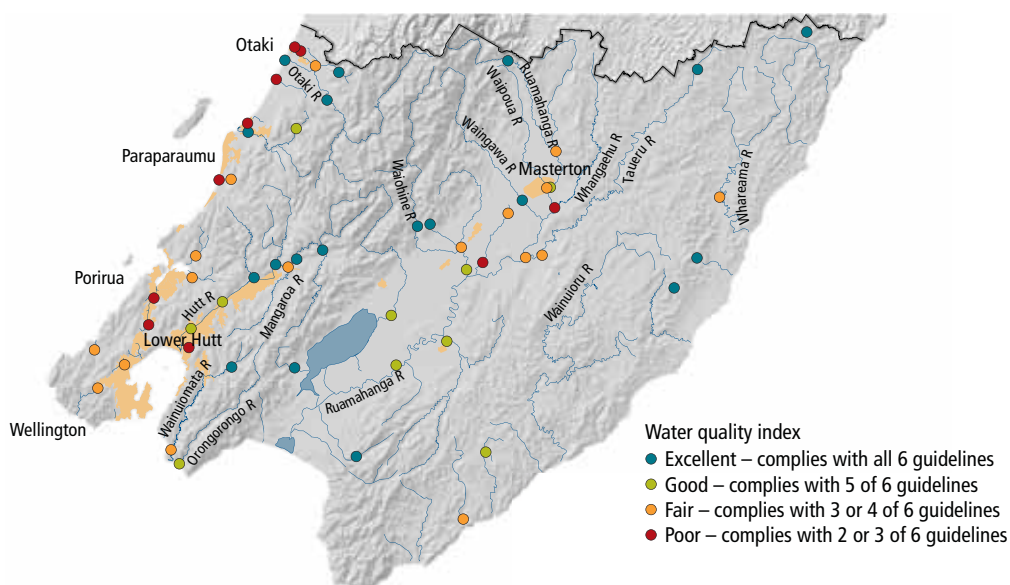
- Twenty-nine of the 56 river and stream sites monitored over 2007/08 had excellent or good water quality, with the remainder having fair or poor water quality.
- Water quality is typically poorest in urban streams and in the lower reaches of rivers and streams draining intensive agricultural catchments. Smaller streams tend to be affected the most by intensive land use.
- Riparian rehabilitation along three pilot project stream reaches has improved aesthetic values and, in some cases, aspects of habitat and water quality.

What happened in 2007/08?

Water quality monitoring

Monitoring during 2007/08 showed that 19 of the 56 river and stream monitoring sites had excellent water quality and complied with all six guidelines we use to measure overall stream health. A further 10 sites failed just one of the guidelines and are classed as having good water quality. Rivers and streams with excellent or good water quality are all located in catchments where the land cover is predominantly indigenous forest and human influences are minimal. These sites are typically on rivers and streams flowing out of the Aorangi, Tararua and Rimutaka ranges and include the Hutt, Otaki, Waikanae, Waiohine, Waingawa and Tauherenikau rivers and the upper reaches of the Waitohu, Wainuiomata and Ruamahanga rivers.

Water quality declines rapidly once rivers and streams flow out of the ranges and land cover changes from indigenous forest to urban and agricultural uses. Almost half of the river and stream sites monitored exceeded two or more guidelines and were classed as having fair or poor water quality, reflecting the large proportion of the region that is in agricultural, and to a lesser extent urban, land use. The water quality variable that exceeded guidelines at the most sites was dissolved reactive phosphorus (24 sites), followed closely by *E. coli* bacteria (22 sites) and water clarity (22 sites). Rivers and streams with poor water quality include the Whangaehu River and the Mangaone, Mangapouri, Ngarara and Porirua streams. These waterways have catchments heavily influenced by either intensive agricultural or urban land use, or a combination of the two.



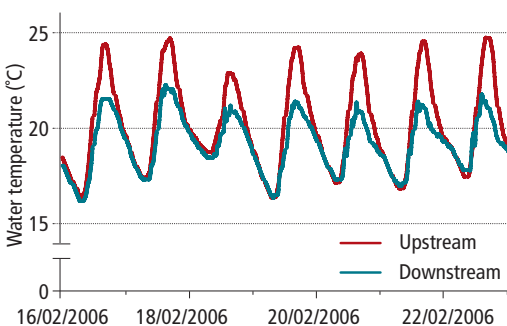
The level of compliance with guidelines for six key water quality variables (water clarity, dissolved oxygen, dissolved reactive phosphorus, nitrite-nitrate nitrogen, ammoniacal nitrogen and *E. coli*) gives us an overall picture of water quality in the region's rivers and streams. The water quality index ratings shown here are based on a comparison of median values from monthly data collected between July 2007 and June 2008 against national guideline values.

Riparian rehabilitation monitoring

Greater Wellington has been monitoring water quality and stream health in three catchments undergoing riparian rehabilitation since 2002. A recent report on the 2002-2007 monitoring results concluded that while the riparian vegetation is still of a relatively young age, some improvements are already apparent. Benefits observed so far include improved aesthetic values, increased vegetation cover and streambed shade, increased bank stability, improved aquatic habitat and reduced water temperatures. Further benefits are expected as riparian vegetation matures. However, it is also apparent that improvements at all three study streams are being limited by contaminants from agricultural and urban land use entering the streams above the rehabilitation areas.



Riparian rehabilitation along a reach of the Karori Stream in Wellington City has improved the aesthetic value of the area, and further benefits may occur as riparian plants mature and produce more streambed shade. However, stormwater inputs and runoff from the predominantly urban upstream catchment will probably limit some of the ecological benefits that can be expected to occur from riparian rehabilitation.



Daily variation in water temperatures upstream and downstream of a planted reach of the Enaki Stream, Carterton, for a week during February 2006. Maximum water temperatures are generally two to three degrees cooler in the planted section (downstream) than the unplanted section (upstream). This is important as many fish and stream invertebrate species can't tolerate warm water.

Urban stream classification

Our monitoring shows that urban streams have some of the poorest water quality in the region. We are classifying the region's urban streams according to their ecological health. The classification is based on fish and invertebrate life and will provide a basis for stronger protection of existing urban stream values as well as identification of those streams that will benefit most from restoration.

An example of an urban stream with high ecological value is the Kaiwharawhara Stream (pictured). Invertebrates collected from seven out of eight stream sampling sites in the Kaiwharawhara catchment indicated good or excellent invertebrate health relative to other urban streams. This stream also supports a high diversity of native fish with eight species recorded in recent years including shortjaw kokopu, giant kokopu, koaro and redfin bully (pictured).



The Kaiwharawhara Stream in Wellington City boasts relatively high ecological values, including a range of native fish (redfin bully pictured).

What is Greater Wellington doing?

- Monitoring stream and river health at 56 sites around the region.
- Investigating poor water quality in selected catchments and monitoring the ecological benefits of stream riparian planting projects.
- Helping Biosecurity NZ monitor selected river sites for the presence of the invasive freshwater alga, didymo (*Didymosphenia geminata*). To date no didymo has been detected in the region.
- Providing advice to landowners about streamside management. In 12 high quality catchments we provide plants to landowners who have fenced off streams. Email riparian@gw.govt.nz or visit www.gw.govt.nz/streams if you'd like to know more.
- Supporting 25 care groups working on improving streamside and wetland environments across the region. New groups to start in 2007/08 were the Albemarle Stream, Makoura Stream, Waipahihi Stream and Whangaehu care groups.

What can you do?

- Keep stock, especially cattle and deer, out of rivers and streams.
- Don't pour paint, chemicals or any other waste into stormwater drains, rivers or streams.
- Join Greater Wellington's "Be the Difference" programme and learn some easy steps to help the environment for generations to come, with cleaner streams and less waste. Sign up on-line at www.bethedifference.gw.govt.nz

More information

Some of the information on this card is a summary of the 2007/08 annual freshwater quality monitoring report which is available on our website at www.gw.govt.nz/envreports

If you would like to know more about river and stream health, visit our website or contact:

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