Rainfall and river flows 2007/08

Key points:

- La Nina conditions led to a drought in the Wellington region from late spring 2007 through until autumn 2008, with very low rainfall in the Wairarapa, Tararua Range and parts of the Hutt Valley.
- The onset of the drought was unusually early, with particularly low rainfall during November and record-low December river flows in some parts of the region. This led to restrictions on water takes from rivers very early in the summer.
- The drought was one of the worst five droughts of the last 40 years in the Wairarapa and Hutt Valley, in terms of the number of days with a significant soil moisture deficit.

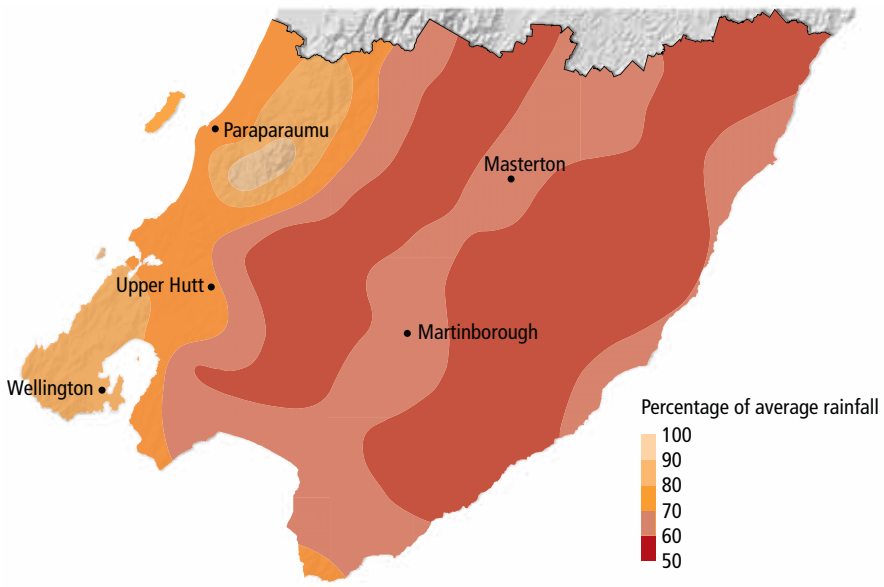
What happened in 2007/08?

La Nina brings a drought

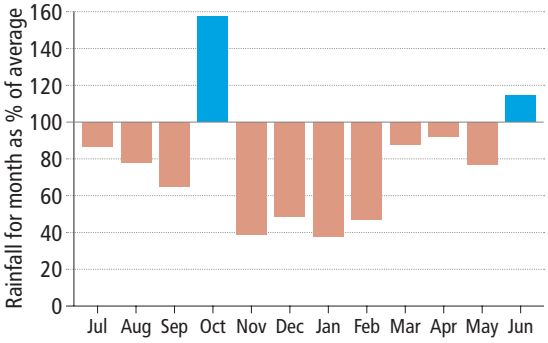
La Nina conditions caused drought in many parts of New Zealand in early 2008, and the Wellington region was no exception. Following an El Nino that caused an autumn drought in 2007, spring was in general drier and more settled than usual as a La Nina episode set in. Rainfall during November 2007 was particularly low – in most parts of the Wairarapa it was the driest November in more than 20 years. By December, river flows and soil moisture were very low for the time of the year throughout the Wellington region.

The areas with the lowest rainfall compared to average were the eastern Wairarapa hills, the Wairarapa plains, the eastern Tararua Range, the Wainuiomata catchment and northern and eastern parts of the Hutt Valley. In these places, rainfall over the period November 2007 to March 2008 was 50-70 per cent of the long-term average. Low river flows were experienced in all the major rivers of the Wellington region.

Due to particularly low rainfall in the eastern Tararua Range the Ruamahanga River had its lowest flow since 1985. The drought was broken by rainfall in many places towards the end of March 2008, although in the eastern Wairarapa hills drought conditions persisted through until May. By June, river flows and soil moisture had returned to about normal levels for the time of the year.



Rainfall during the period November 2007 to March 2008 as a percentage of the long-term average. Rainfall was only about half the long-term average in eastern Wairarapa and in the Wairarapa foothills of the Tararua Range.



Monthly rainfall during 2007/08 at our monitoring station 'Kaitoke Headworks' in the northern Hutt Valley. Blue bars indicate above average rainfall and pink bars indicate below average rainfall. Rainfall at this location was particularly low during November to February – less than half the average for those months.

How bad was the drought?

An analysis of information from NIWA suggests that this year's drought ranks in the worst five droughts of the last 40 years in the Wairarapa and Hutt Valley, in terms of the number of days with a significant soil moisture deficit. However, the drought was not as severe or prolonged as the droughts of 1997/98 in the Wairarapa, 2001 in the Hutt Valley and eastern Wairarapa, and 2002/03 on the Kapiti Coast and Wairarapa plains. The severe effects of the 2007/08 drought on activities such as farming in eastern Wairarapa were partly a result of very low rainfall leading up to summer – reducing the usual spring grass growth.

Severe low flows occurred in some rivers of the Wellington region in summer 2007/08. By late January the Waipoua River upstream of Paierau Road had dried up into a series of pools. It is a natural occurrence for the river to lose flow into the gravels at this location, although it only stops flowing completely during very dry years. The river started flowing again further downstream.

Water take restrictions to protect river flows

Low water flows can place pressure on the aquatic ecosystems of rivers and streams, because the amount of habitat is reduced and water temperatures are increased. In order to protect aquatic life, as well as cultural and recreational values of waterways, Greater Wellington sets minimum flow policies in its Regional Freshwater Plan. The policies mean that abstractions from rivers and streams may be restricted or banned during times of low flow.

During the 2007/08 drought, very low river flows led to Greater Wellington imposing restrictions on direct takes from most of the rivers and streams in the region. Due to the low spring rainfall, the restrictions were implemented very early in the summer – for some rivers there were restrictions in force in December. By January, there was a full ban on direct takes for irrigation from many Wairarapa rivers and streams.

Minimum flows are set at an appropriate level for protecting ecosystem, cultural and recreational values of waterways. During 2007/08, Greater Wellington completed assessments of minimum flow requirements for sustaining these values of the lower Ruamahanga River. During the next year we plan to carry out scientific investigations such as habitat surveys to check the minimum flows for the Waiohine and Waingawa rivers.

Photo courtesy of ONTRACK

A summertime flood: the Kapiti Coast was spared from the worst of the drought, but experienced a flood on 7-8 January. Unusually heavy and persistent rain fell on the coast and in the foothills for more than two days, resulting in very high stream flows. This picture is of the Waitohu Stream, which had its largest flood in more than 10 years. For more information see the *Natural hazards* report card.

What is Greater Wellington doing?

- Monitoring rainfall, river flows and lake levels at more than 70 automatic recording stations across the region. In 2007/08 we installed new rain gauges in Makara, Parkvale, Mauriceville and Kiriwhakapapa. We also installed lake level monitoring equipment in Lake Kohangatera and Lake Kohangapiripiri, to help improve our understanding of the Pencarrow lake system.
- Assessing compliance with resource consents to take water from rivers and streams, and issuing water restrictions when appropriate.
- Operating a flood warning system, which involves monitoring river levels, forecasting flood peaks, and issuing warnings to people who may be affected.

What can you do?

Conserve water by watering your garden deeply once or twice a week during dry spells, rather than watering lightly every day. This encourages deeper-growing roots, making the plants more resistant to drought. You can also check our website to see how much rainfall there has been in your area.

More information

Some of the information in this card is a summary of the more detailed 2007/08 annual hydrology monitoring report which is on our website at **www.gw.govt.nz/envreports**

River flow, lake level, soil moisture and rainfall data, along with other environmental monitoring data, are posted on our website: **www.gw.govt.nz/monitoring**. The information is updated frequently throughout the day.

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