

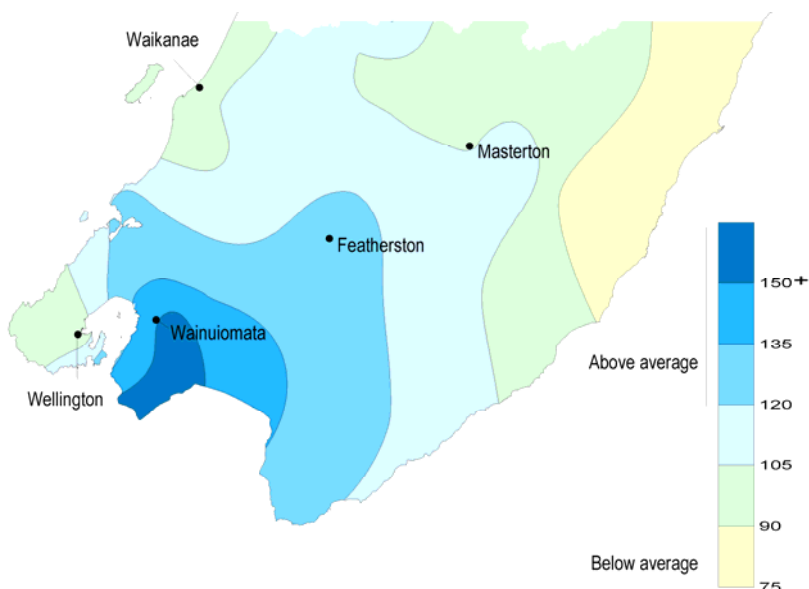


# June 2008 hydrological summary

Environmental Monitoring and Investigations Department

## Rainfall during June

Although the weather of June 2008 was dominated by stronger westerlies than usual, the rainfall pattern for the month was influenced by southerly events (see map). Rainfall was above average in Wainuiomata, the Hutt Valley, and southern Wairarapa, and about average in Wellington City and Masterton. Due to sheltering effects from southerly rainfall the Kapiti Coast and north eastern Wairarapa were drier than average during June.



Rainfall during June 2008 as a percentage of the long-term average for the month

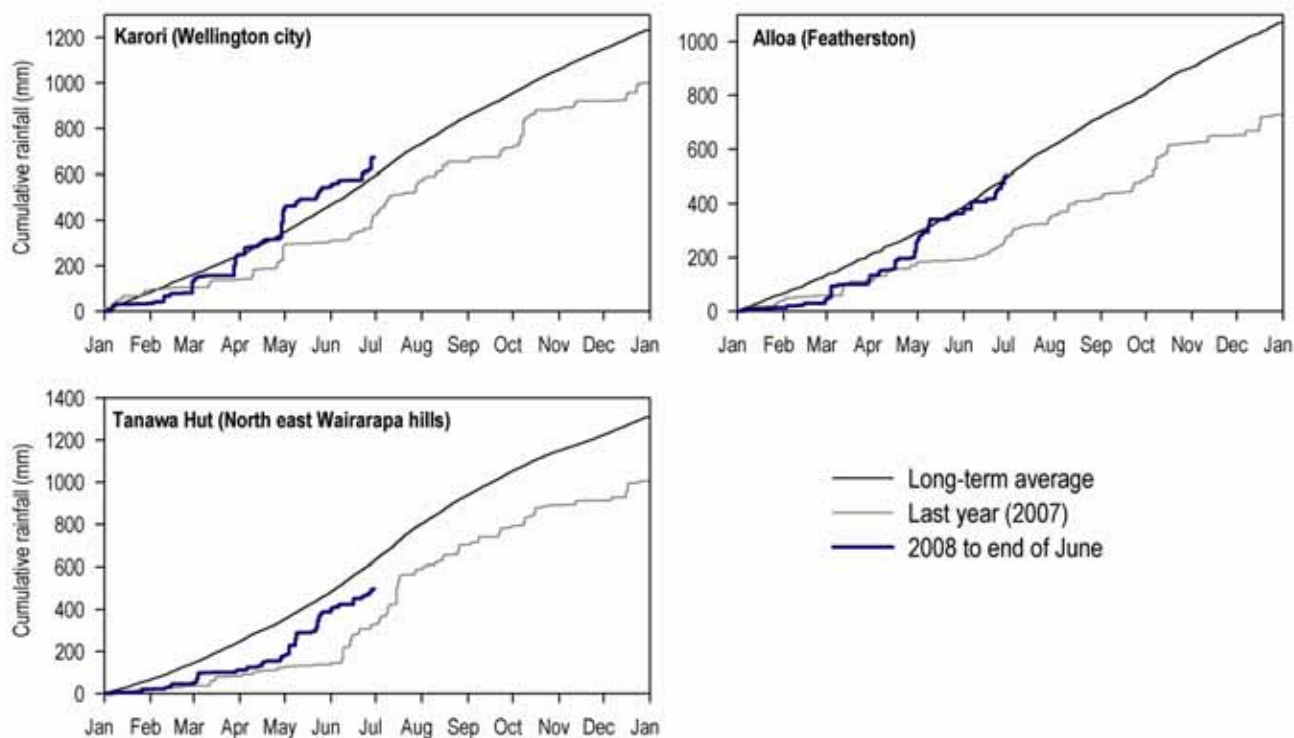
Of note, a southerly storm at the end of June brought heavy rainfall to Wellington City, the Hutt Valley, Wainuiomata and southern Wairarapa. Lower Hutt had about 100 mm of rainfall on 29 June, and Wainuiomata had 144 mm. This is the most rainfall in one day for these places since October 2006. A northwesterly event on 7 June 2008 resulted in heavy rain in the Tararua Range, particularly on the Wairarapa side of the range. Comments on the resulting river flows from these events are made later in this report.

## Snapshot of rainfall in the year to date

Despite the very dry summer, most places in the Wellington region have received enough rainfall in autumn and the beginning of winter to bring the totals for the year to date up to average (see table below and graphs overleaf). The southern Wairarapa plains (indicated by Alloa) received a significant amount of rainfall during May and June, increasing rainfall from 50-60% of average at the end of March up to average by the end of June. The southerly rains of June represent about 40% of the total rain received at Wainuiomata during 2008 to date. The rainfall for the year is now significantly higher than at the same time last year.

## Year-to-date rainfall statistics for key monitoring sites in the Wellington region

	Rainfall for June at monitoring site (mm)	Rainfall for 2008 to end of June (mm)	Percentage of long-term average for year to date
Waikanae	130	632	112%
Karori	127	671	114%
Kaitoke	268	840	79%
Wainuiomata	328.5	873	96%
Featherston ('Alloa')	138	502	100%
NE Wairarapa ('Tanawa Hut')	108.5	498	84%
Tararua Range ('Angle Knob')	660	2203	72%



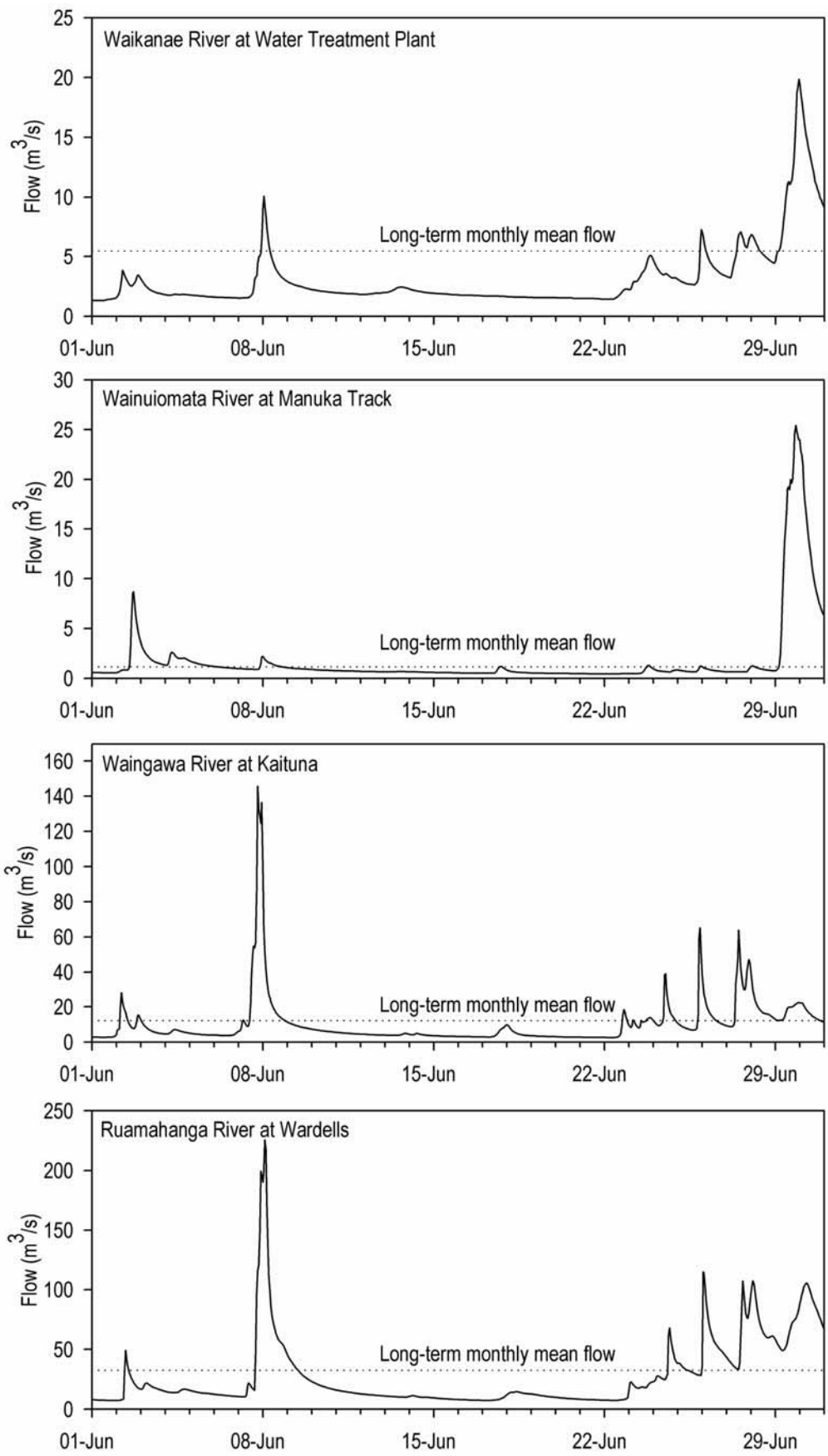
Cumulative annual rainfall at selected sites in the Wellington region

### River flows during June

Overall, river flows during June were slightly below average for the time of the year, due to low baseflows at the start of the month and a period of stable flows in the middle of the month. There were two river flow events of note during June 2008. The first was on 7-8 June when heavy rainfall in the eastern Tararua Ranges resulted in a relatively large 'fresh' through the Ruamahanga River and its western tributaries, causing the initial flood warning threshold at Waihenga to be reached. The second event of note was high river flows in the southerly-influenced catchments, during the storm of 29 June. Flood warning alarms were triggered for the Huangarua River (east of Martinborough), the Waiwhetu Stream and the Wainuiomata River. The peak flow at Wainuiomata River at Manuka Track ( $26 \text{ m}^3/\text{s}$ ) was approximately a 2-year return period flood, and was the largest flood in that river since October 2006.

### River flow statistics for June 2008 at some of Greater Wellington's flow monitoring locations

	Average river flow for June	Percentage of long-term average	Lowest 1-day flow during June (raw data)	Highest flow during May (raw data)
Waikanae River at Water Treatment Plant	$3.2 \text{ m}^3/\text{s}$	58%	$1.4 \text{ m}^3/\text{s}$ on 1/6	$21 \text{ m}^3/\text{s}$ on 29/6
Akatarawa River at Cemetery	$4.8 \text{ m}^3/\text{s}$	78%	$1.5 \text{ m}^3/\text{s}$ on 1/6	$39 \text{ m}^3/\text{s}$ on 29/6
Mangaroa River at Te Marua	$3.8 \text{ m}^3/\text{s}$	82%	$1.0 \text{ m}^3/\text{s}$ on 21/6	$50 \text{ m}^3/\text{s}$ on 29/6
Hutt River at Taita Gorge	$26.0 \text{ m}^3/\text{s}$	89%	$7.6 \text{ m}^3/\text{s}$ on 21/6	$230 \text{ m}^3/\text{s}$ on 29/6
Wainuiomata River at Manuka Track	$1.8 \text{ m}^3/\text{s}$	155%	$0.44 \text{ m}^3/\text{s}$ on 21/6	$26 \text{ m}^3/\text{s}$ on 29/6
Waingawa River at Kaituna	$10.5 \text{ m}^3/\text{s}$	86%	$2.5 \text{ m}^3/\text{s}$ on 21/6	$161 \text{ m}^3/\text{s}$ on 7/6
Waiohine River at Gorge	$26.8 \text{ m}^3/\text{s}$	94%	$6.3 \text{ m}^3/\text{s}$ on 21/6	$354 \text{ m}^3/\text{s}$ on 7/6
Ruamahanga River at Wardells	$28.1 \text{ m}^3/\text{s}$	86%	$2.0 \text{ m}^3/\text{s}$ on 21/6	$200 \text{ m}^3/\text{s}$ on 7/6
Ruamahanga River at Waihenga	$92.0 \text{ m}^3/\text{s}$	81%	$27.7 \text{ m}^3/\text{s}$ on 22/6	$639 \text{ m}^3/\text{s}$ on 8/6



River flows recorded during June 2008 at selected Greater Wellington monitoring locations

## Groundwater levels

Groundwater levels across the region are recovering following the onset of winter recharge. However, the drier than average summer and start to autumn may have an effect on the extent of groundwater level recovery this winter in some parts of the region. If groundwater levels fail to recover to average winter levels, lower than average levels may be encountered in some of the region's aquifers during next summer.

### Hutt

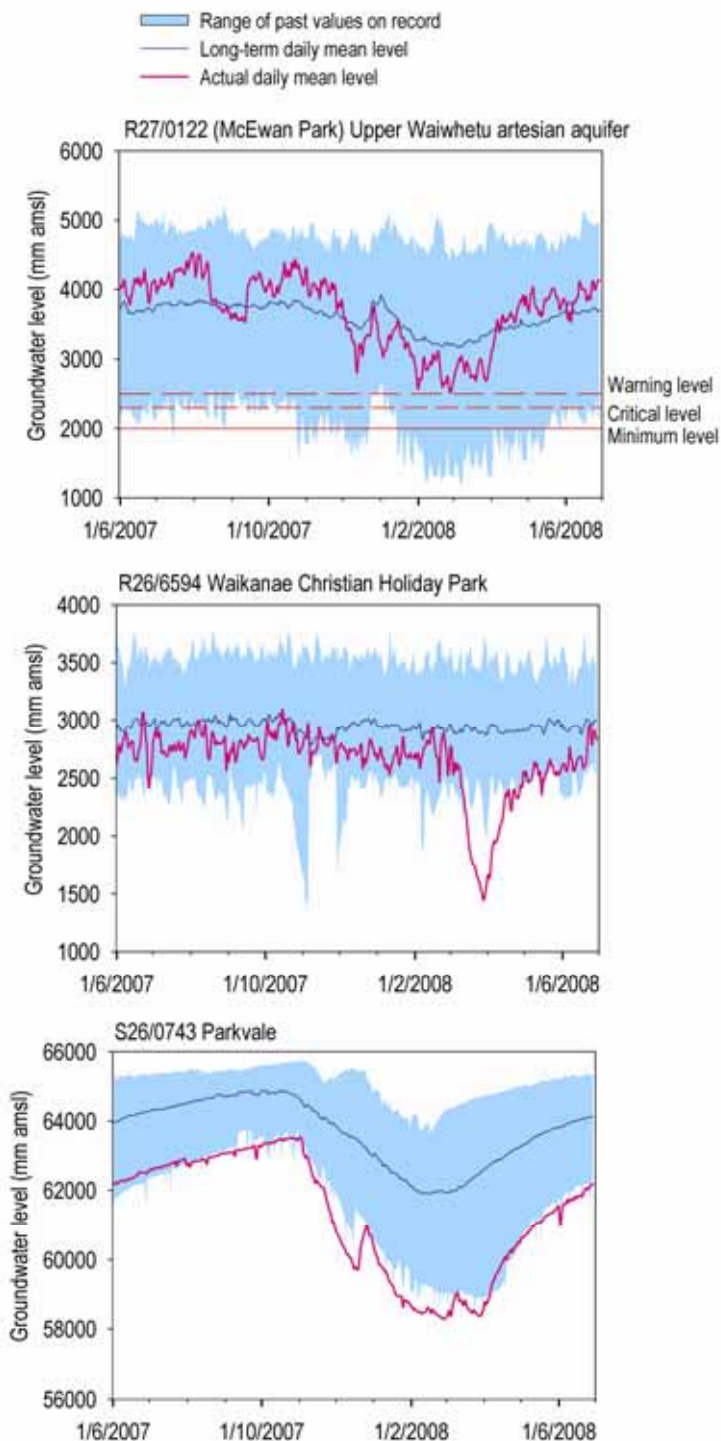
Groundwater levels in the artesian Waiwhetu Aquifer during June were above average for this time of year.

### Waikanae

Groundwater levels in the Waikanae Aquifer were below average for the start of June and returned to average conditions in about the middle of the month. The recovery in groundwater levels can be linked to increased recharge to the system due to flows in the Waikanae River, which increased significantly compared to river flows during May.

### Wairarapa

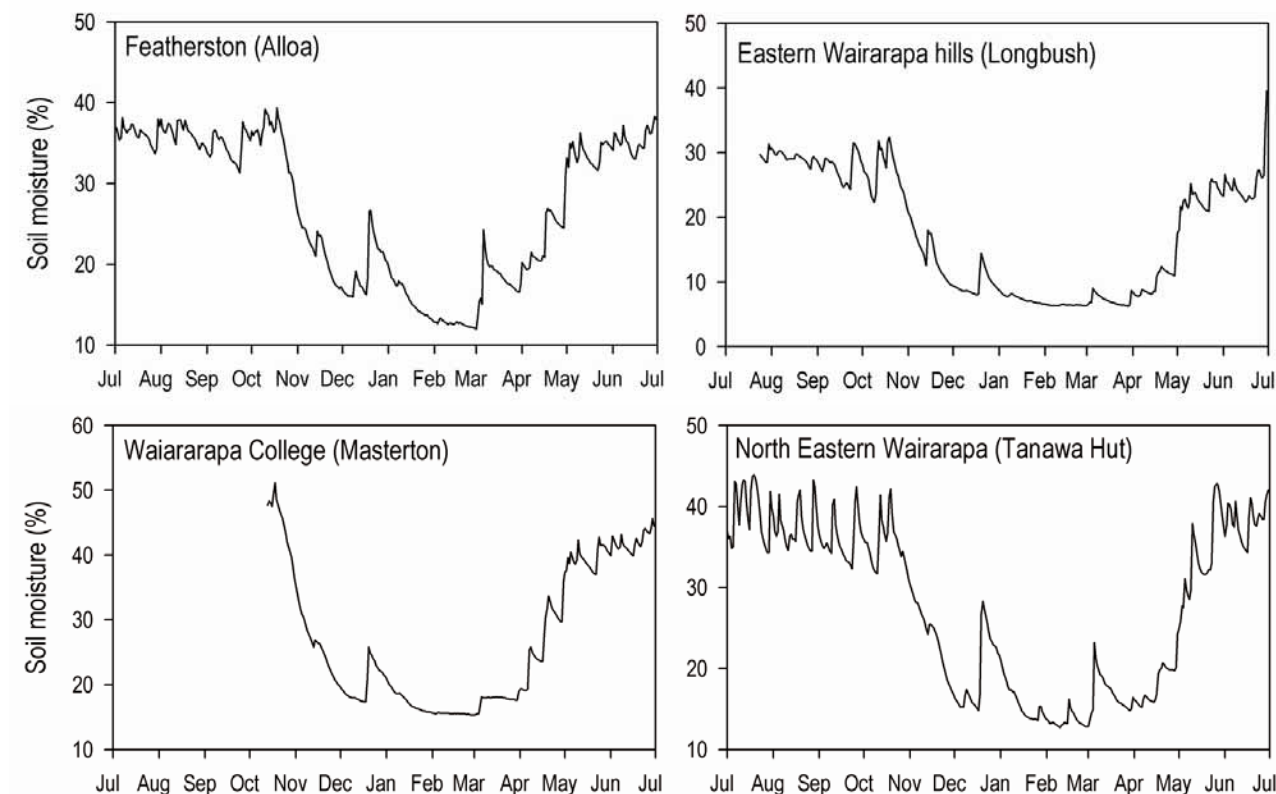
Groundwater levels in many of the Wairarapa aquifers are recovering following the onset of winter recharge. However, many of the aquifers continue to track at or below long-term minimum levels, as shown by the graph for borehole S26/0743 in the confined Parkvale Aquifer. This could be due to both the particularly dry summer on the Wairarapa plains, and increased abstraction for irrigation.



Groundwater levels over the last year recorded at representative Greater Wellington monitoring locations

## Soil moisture

During June, Wairarapa soil moisture levels remained about stable or slightly increased. Despite being very low from November through until March, soil moisture is now at about pre-summer levels and is about normal for the time of the year at our key monitoring locations (as shown in the graphs below).



Soil moisture content at Greater Wellington monitoring locations, over the 2007/08 growing year (from 1 July to 30 June)

## Climate outlook

The La Nina weather pattern, which brought dry conditions to the Wairarapa and Wellington over summer, has now ended. Global climate models show that in the near future the El Nino Southern Oscillation is likely to remain neutral, i.e., not favouring either La Nina or El Nino. The NIWA climate outlook for July to September 2008 (Salinger & McKerchar, 2008 see [http://www.niwa.co.nz/ncc/seasonal\\_climate\\_outlook](http://www.niwa.co.nz/ncc/seasonal_climate_outlook)) predicts about normal rainfall in the Wellington region for the three-month period.

## More information

This summary is based on data from selected monitoring locations in the Wellington region. Greater Wellington monitors rainfall, river flows, groundwater levels and soil moisture at many locations that may not be mentioned in this summary report. Maps of site locations and up-to-date data can be found at [www.gw.govt.nz/monitoring](http://www.gw.govt.nz/monitoring)

**Disclaimer:** This report is based on data that have not yet been quality checked. In particular, flow data may be subject to change following adjustment of rating curves. Greater Wellington accepts no responsibility for any interpretation or use of the provisional data in this report.