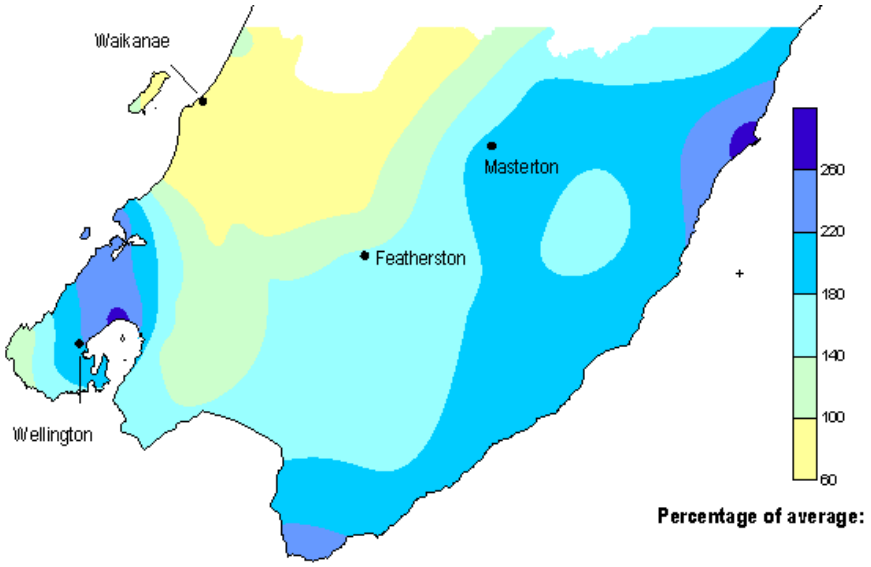
May 2010 hydrological summary

Environmental Monitoring and Investigations Department

Rainfall in May

The first three weeks of May were a continuation of the very dry March and April experienced across much of the region. However, in the last week of the month, a series of fronts associated with a complex low brought bad weather to much of the country and pushed monthly rainfall totals in some parts of the Wellington region up to almost three times the long-term May average. The easterly airflow associated with the low meant the Tararua Range and Kapiti Coast were spared from the heaviest downpours and received below, or about average, rainfall for the month.

Exceptionally wet areas to the east and south of the region included Castlepoint (which recorded its highest May total in 25 years), Ngawihi and the area between Wellington, Lower Hutt and Porirua cites. Monitoring sites in these areas received 75-85% of their total May rainfall in the last week of the month.

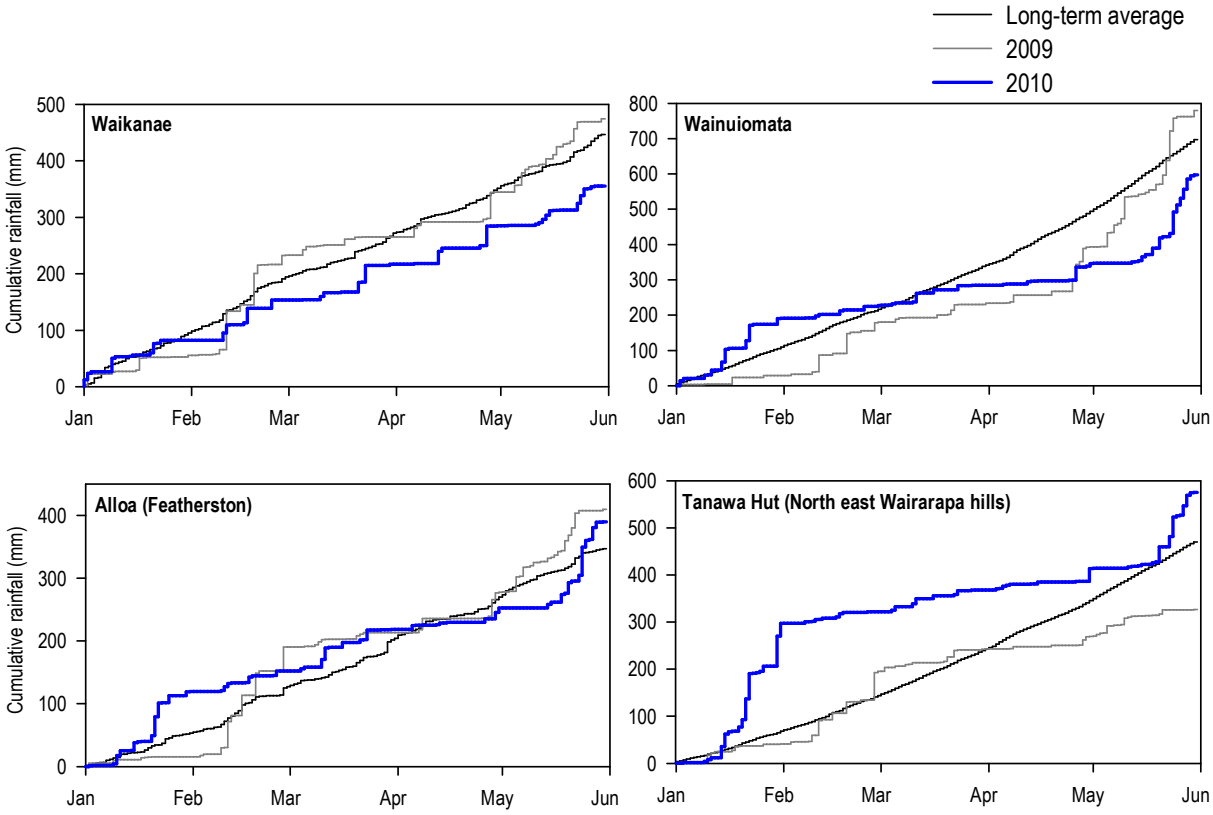


The single wettest day of the month was Tuesday 25 May; e.g., the Greater Wellington monitoring site 'Seton Nossiter', at the head of the Porirua Stream catchment, recorded a 24 hour total of 94 mm (close to a record for this site) and rainfall was exceptionally intense in nearby Tawa where a one hour total of 42 mm was recorded.

Rainfall in the calendar year to date on the Kapiti Coast is well below average as a result of generally settled weather throughout summer and autumn. In other parts of the region, the storm systems in January and late May have resulted in above average rainfall in the year to date (see table below), although there was a very settled period between these two months where rainfall was well below normal levels.

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

	Rainfall for May at monitoring site (mm)	Rainfall for 2010 to end of May (mm)	Percentage of long-term average for year to date
Waikanae	71.0	355.5	77%
Karori	219.2	475.6	103%
Wainuiomata	256.0	597.0	86%
Featherston ('Alloa')	143.8	389.4	109%
North east Wairarapa ('Tanawa Hut')	188.5	575.5	122%
Tararua Range ('Angle Knob')	362.5	2413.5	103%



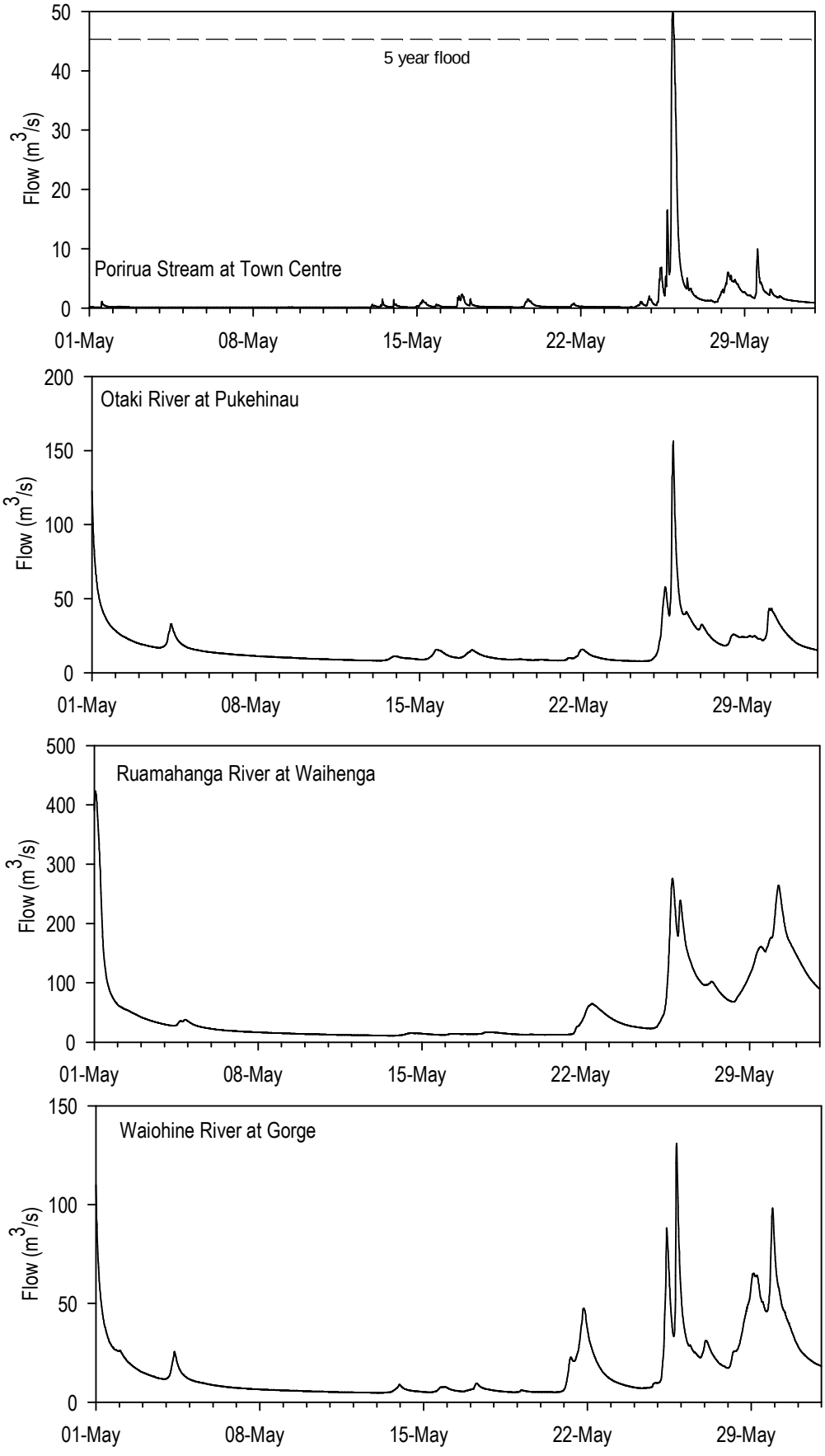
Cumulative rainfall for 2010 to date at selected sites in the Wellington region

River flows during May

River flows at the start of May were in recession from a high flow event at the end of April, and were then fairly stable for the best part of three weeks due to settled weather across the region. As a result, average flows were well below the long term average for May (see table below). Widespread rainfall from about 21 May onwards produced a series of freshes in rivers across the region (see graphs on next page), with peaks occurring late on 25 May. However, these peak flows were generally not as high as those at the end of April and did not cause any significant flooding. The exception was the Porirua Stream, which had a peak flow on 25 May that exceeded the 1 in 5 year flood return period for this watercourse. No significant damage was reported as a result of this event, although there was considerable surface flooding in Tawa.

River flow statistics for May 2010 at some of Greater Wellington's flow monitoring locations

	Average river flow for May 2010	Percentage of long-term May average	Highest flow during May (raw data)
Otaki River at Pukehinau	17.322 m^3/s	65%	156.448 m^3/s on 25 May
Akatarawa River at Cemetery	3.220 m^3/s	64%	34.016 m^3/s on 25 May
Hutt River at Taita Gorge	18.632 m^3/s	79%	168.235 m^3/s on 25 May
Wainuiomata River at Manuka Track	0.899 m^3/s	46%	19.578 m^3/s on 25 May
Waingawa River at Kaituna	7.199 m^3/s	72%	1.329 m^3/s on 25 May
Waiohine River at Gorge	16.754 m^3/s	55%	3.768 m^3/s on 25 May
Ruamahanga River at Wardells	15.468 m^3/s	66%	3.017 m^3/s on 25 May
Ruamahanga River at Waihenga	51.206 m^3/s	61%	8.449 m^3/s on 25 May



River flows recorded during May 2010 at selected Greater Wellington monitoring locations

Groundwater levels from March to May

After a wet start to the start to the summer that provided unseasonal recharge in many places, groundwater levels generally reached their minimum between March and May and were around long-term averages for this period.

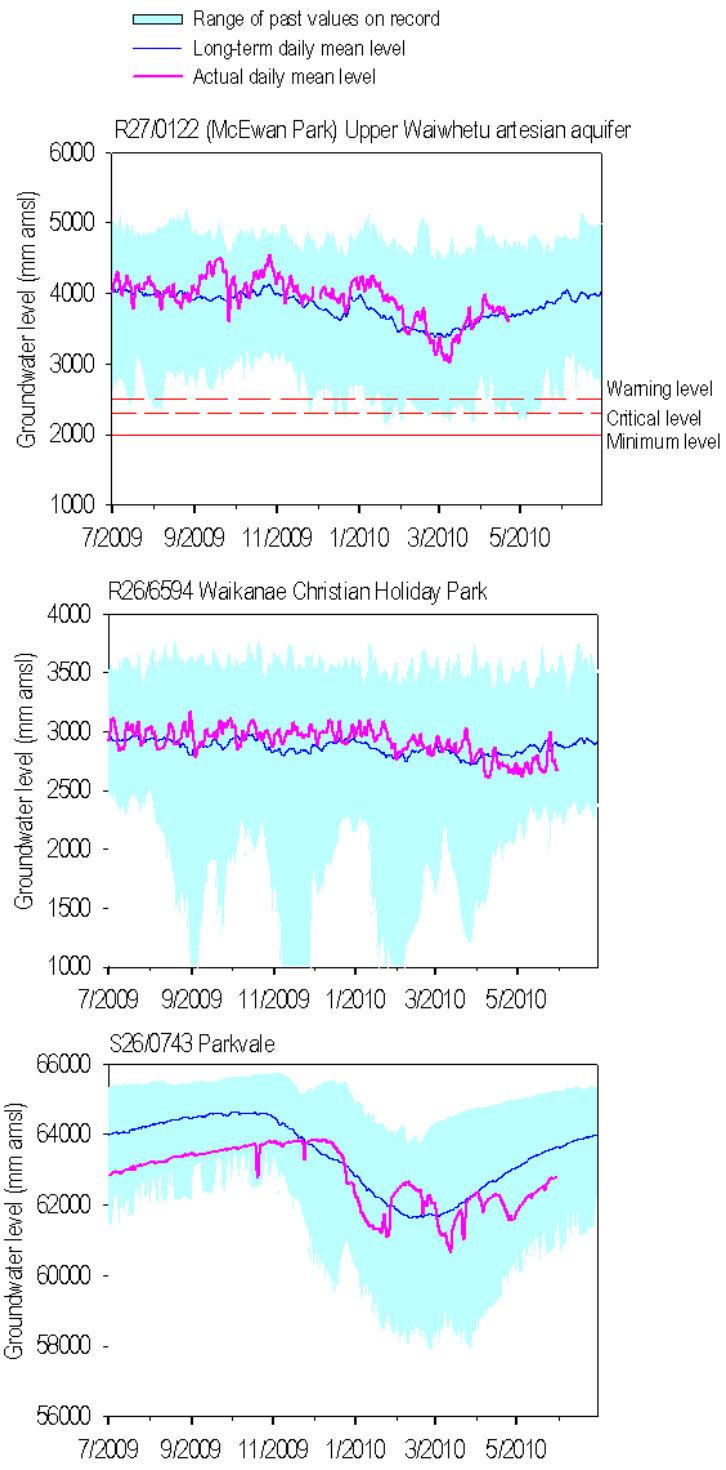
Hutt Valley and Kapiti Coast

Groundwater levels were about average at most sites within the Waiwhetu aquifer in Lower Hutt during the late summer and autumn.

After a summer in which groundwater levels on the Kapiti Coast were relatively high and several record maxima were reached in most aquifer systems, levels fell to around average for the period March to May. Some below average levels were recorded south of the Waikanae River throughout this period although data from late May showed recovery was underway in these aquifers.

Wairarapa

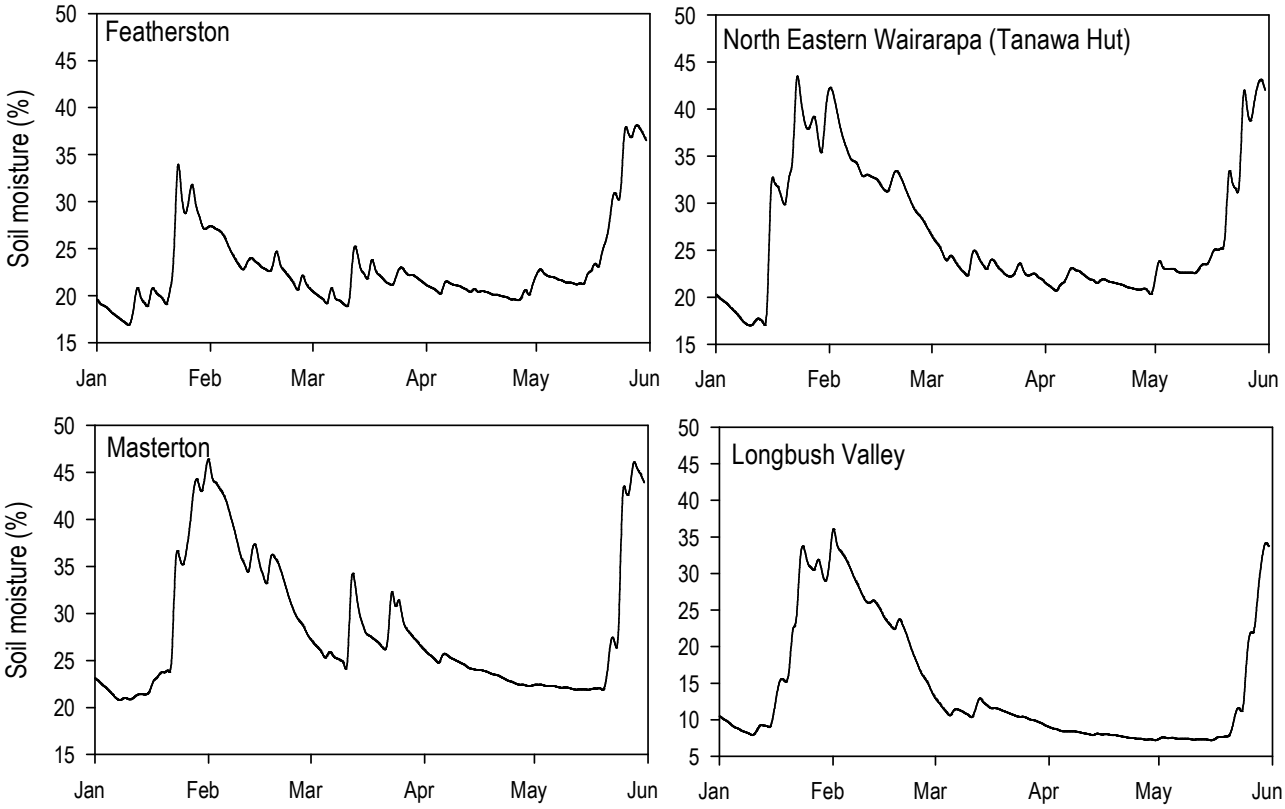
Groundwater levels across the Wairarapa followed a typical summer pattern of general decline in response to reduced rainfall recharge and irrigation pumping. However, exceptionally high rainfall in January provided an unusual summer recharge pulse for some aquifers (visible in the plot for the stressed Parkvale aquifer to the right) and there were few instances of record minima occurring.



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

Soil moisture in May

Soil moisture in May received a small boost in some parts of Wairarapa as a result of rainfall at the end of April. However, it was generally in recession and slightly below the long term average for this month, due to settled and dry weather. Heavy and prolonged rainfall in the last week of May (as described earlier) resulted in soil moisture at all Greater Wellington's monitoring sites climbing back to levels last seen after the very wet January.



Soil moisture content recorded at selected monitoring sites in the Wairarapa to date in 2010

Climate outlook

NIWA's climate outlook for June to August 2010 suggests that mean air temperatures are likely to be above average for the winter across most of the country. Normal, or below normal, rainfall, soil moisture and river flows are likely in the southwest of the North Island, including Wellington, while near normal conditions are likely elsewhere. The El Niño conditions that prevailed since winter 2009 have dissipated, and the equatorial Pacific is now in a neutral state. Recent trends suggest a La Niña could develop by early spring. (see http://www.niwa.co.nz/ncc/seasonal_climate_outlook).

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.

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. Event return periods are early estimations only. Greater Wellington accepts no responsibility for any interpretation or use of the provisional data in this report.