



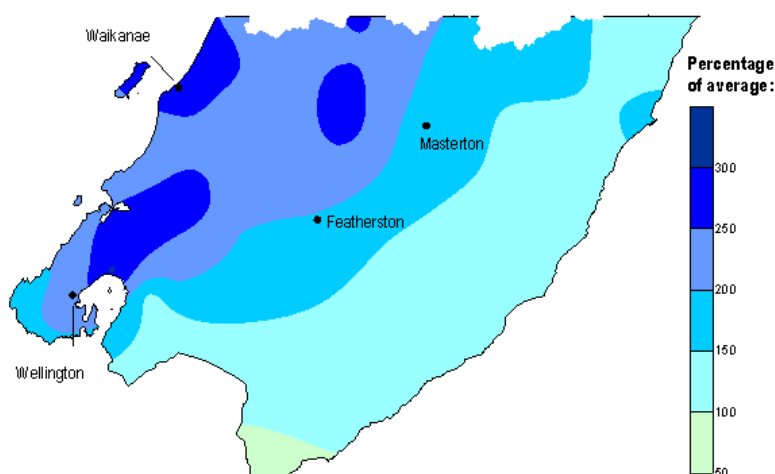
September 2010 hydrological summary

Environmental Monitoring and Investigations Department

Rainfall in September

Rainfall was above average in September everywhere in the Wellington region except for the southern tip of the Wairarapa coast. It was particularly wet in the west with parts of the Kapiti Coast, Hutt Valley and Tararua Range receiving up to three times their monthly average for September. Several Greater Wellington monitoring sites had record high monthly totals, including 'Waikanae at the Water Treatment Plant', 'Mangaone at Transmission Lines' and 'Hutt River at Shandon Golf Club'.

There were two notable storm events in September. The first affected mainly the northern Tararua Range on 5–6 September. A northwesterly front brought heavy rain that was especially significant in the headwaters of the Ruamahanga River; 12-hour duration rainfall recorded at the 'Bannister Basin' monitoring site had an estimated return period of 32 years and was the highest 12 hour total recorded at this site since records began in 1974. The same storm event caused significant flooding in the Manawatu-Wanganui region.



Rainfall in September 2010 as a percentage of the long-term average for this month

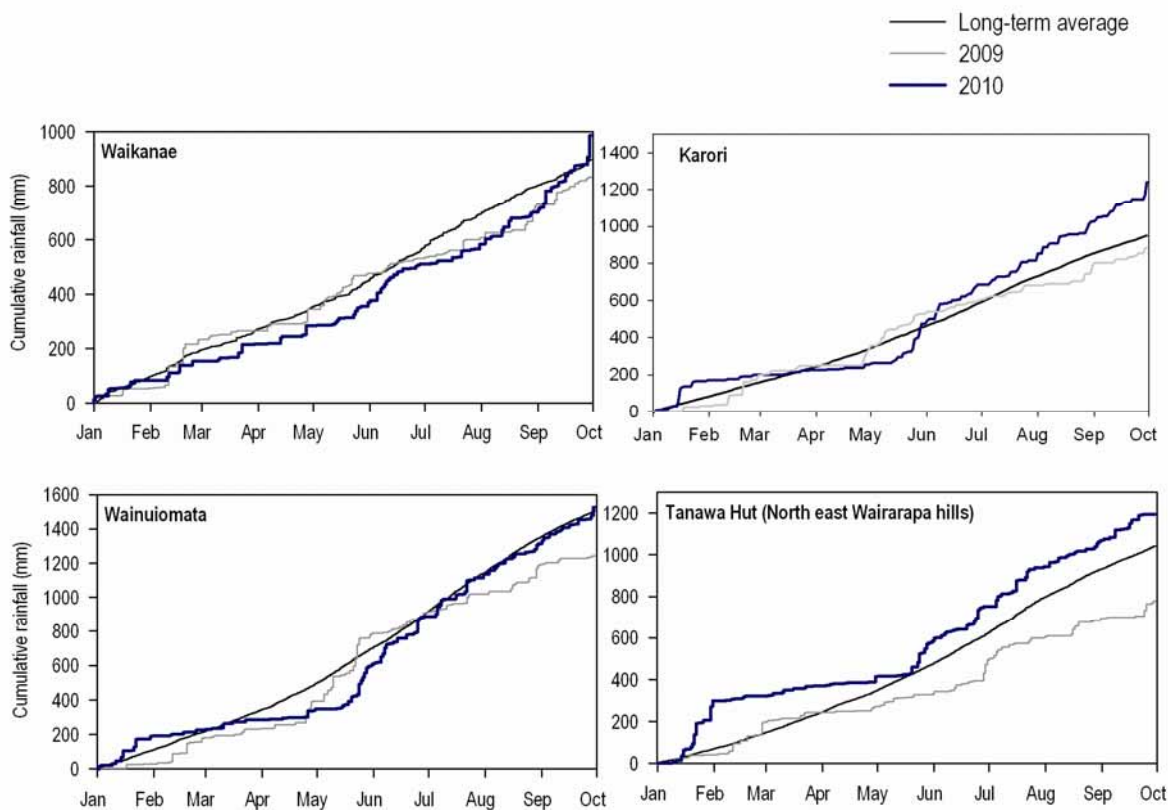
On 30 September, many low-lying areas on the Kapiti Coast and around Wellington City received their highest one-day rainfall totals of the month as a slow moving front passed over. Slips and surface flooding occurred and some significant flow peaks in rivers and streams were recorded (see section 'River Flows in September').

Rainfall in the year to date

Overall, rainfall for the year to date has been higher than average at monitoring sites across the region (see table below and graphs on the next page). While the Wairarapa and Wellington City's south coast have been wetter than average throughout the winter, the high September rainfall was responsible for bringing the year to date totals above the long-term average in the Tararua Range and Kapiti Coast.

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

	Rainfall for September at monitoring site (mm)	Rainfall for 2010 to end of September(mm)	Percentage of long-term average for year to date
Waikanae	282.5	979.5	105%
Karori	215.6	1,244.8	131%
Kaitoke	444.0	1,852.5	109%
Wainuiomata	211.5	1,524.5	101%
Featherston ('Alloa')	169.8	945.2	117%
North east Wairarapa ('Tanawa Hut')	131.0	1,190.5	114%
Tararua Range ('Angle Knob')	1,577	5,707.5	115%



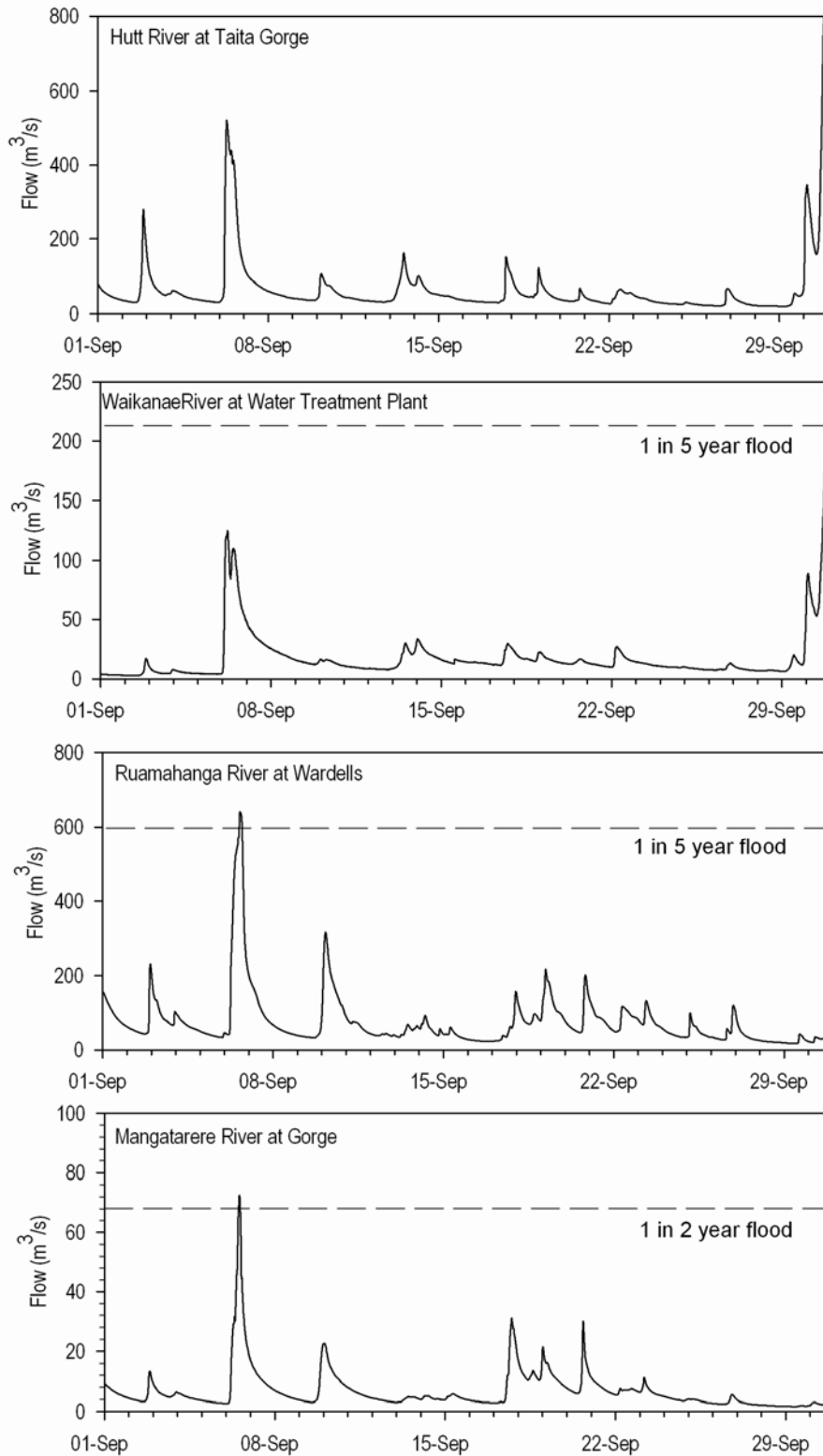
Cumulative rainfall for 2010 to date at selected sites in the Wellington region

River flows during September

Mean river flows were two to three times the long-term average for September at monitoring sites across the region (see table below). The highest mean flows relative to long-term averages were on the Kapiti Coast and in the Hutt Valley, reflecting the particularly high rainfall received in these areas. Peak flows for the month occurred on 6 September in the Wairarapa and on 30 September in western and central areas and were associated with the two frontal systems described earlier. Of particular note was an estimated one in seven year flood event in the lower reaches of the Ruamahanga River (Wardells monitoring site) and close to a one in five year flood event in the Waikanae River (see graphs on the next page). Neither of these floods caused significant damage.

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

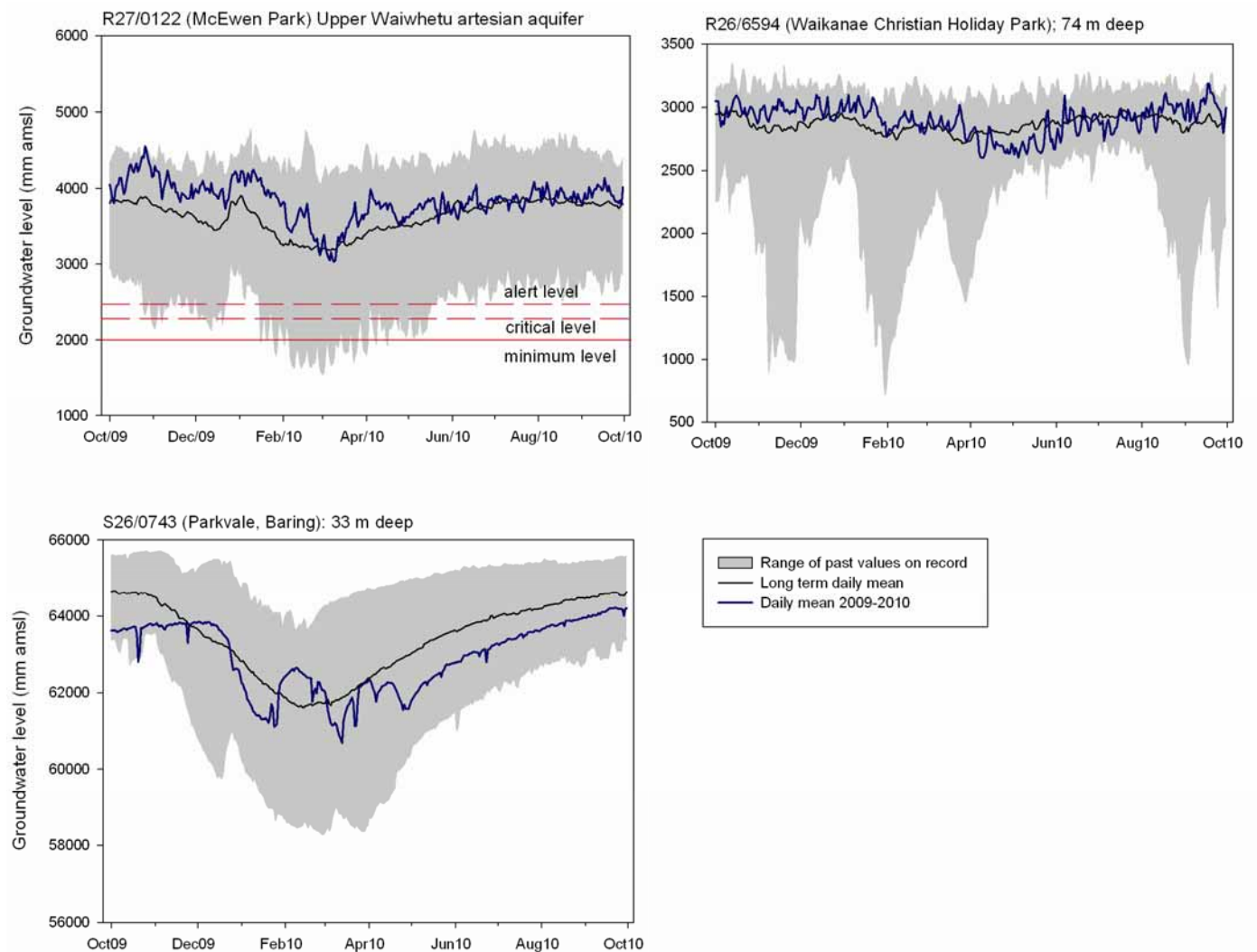
	Average river flow for September 2010 (m ³ /s)	Percentage of long-term September average	Highest flow during September (raw data)
Otaki River at Pukehinau	87.8	260	1,104 on 6 Sept
Akatarawa River at Cemetery	16.3	296	265 on 30 Sept
Hutt River at Taita Gorge	65.3	263	802 on 30 Sept
Wainuiomata River at Manuka Track	1.97	220	13.4 on 30 Sept
Waingawa River at Kaituna	27.3	225	272 on 6 Sept
Waiohine River at Gorge	65.5	242	839 on 6 Sept
Ruamahanga River at Wardells	75.4	257	642 on 6 Sept
Ruamahanga River at Waihenga	215.0	203	1,224 on 6 Sept



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

Groundwater levels

In the three months from July to September 2010, groundwater levels in the Lower Hutt aquifer management zone remained above average, continuing a pattern observed throughout the previous year. Levels were well above alert thresholds for saline intrusion in the Upper Waiwhetu artesian aquifer. Groundwater levels on the Kapiti Coast were also generally at, or above normal over the past three months and have not shown any extreme departures from the long-term average over the past year. In the Wairarapa, the very dry late summer / autumn caused some decline to below normal groundwater levels in many aquifers but the pattern of recovery since then has been consistent with previous years. Many of the shallow water table monitoring bores had above average levels over the past three months.



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

Climate outlook

NIWA's climate outlook for October to December 2010 indicates a moderate to strong La Niña event is presently underway, with further intensification possible this year. La Niña conditions are likely to continue through to at least autumn of 2011. Late spring (October–December) temperatures are likely to be above average across the region. Rainfall, soil moisture and stream flow is likely to be near normal or below normal in the Wairarapa and near normal in the west (see <http://www.niwa.co.nz/our-science/climate/publications/all/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.