

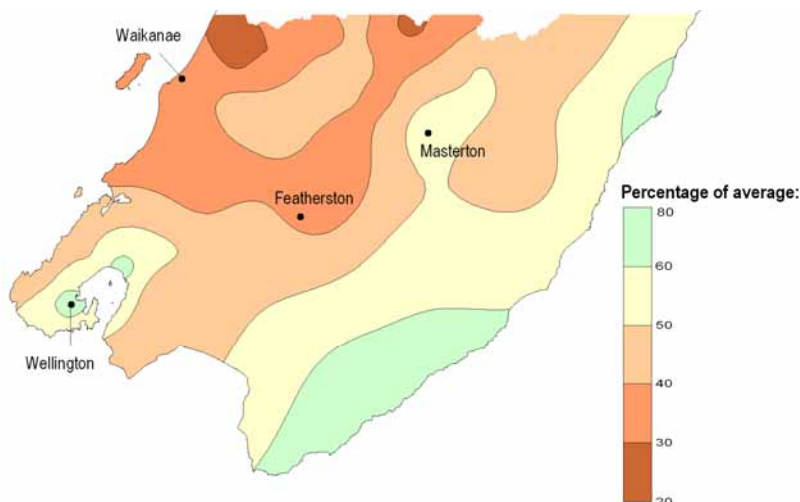


March 2009 hydrological summary

Environmental Monitoring and Investigations Department

Rainfall during March

Following a wet February, with double the average rainfall in many parts of the Wellington region, March 2009 was a relatively dry month. Much of the region had less than half the long-term average rainfall for March, and it was particularly dry on the Kapiti Coast and in the foothills of the Tararua Range. Of note, we recorded only 18 mm of rainfall in Otaki; it was the driest March there in the last 20 years. Similarly, in some parts of the western Tararua Range it was the driest March since records began in 1991.



Rainfall during March 2009 as a percentage of the long-term average for the month

There were no significant storm events during March, and the weather was generally settled following a stormy February. The cool, dry weather of

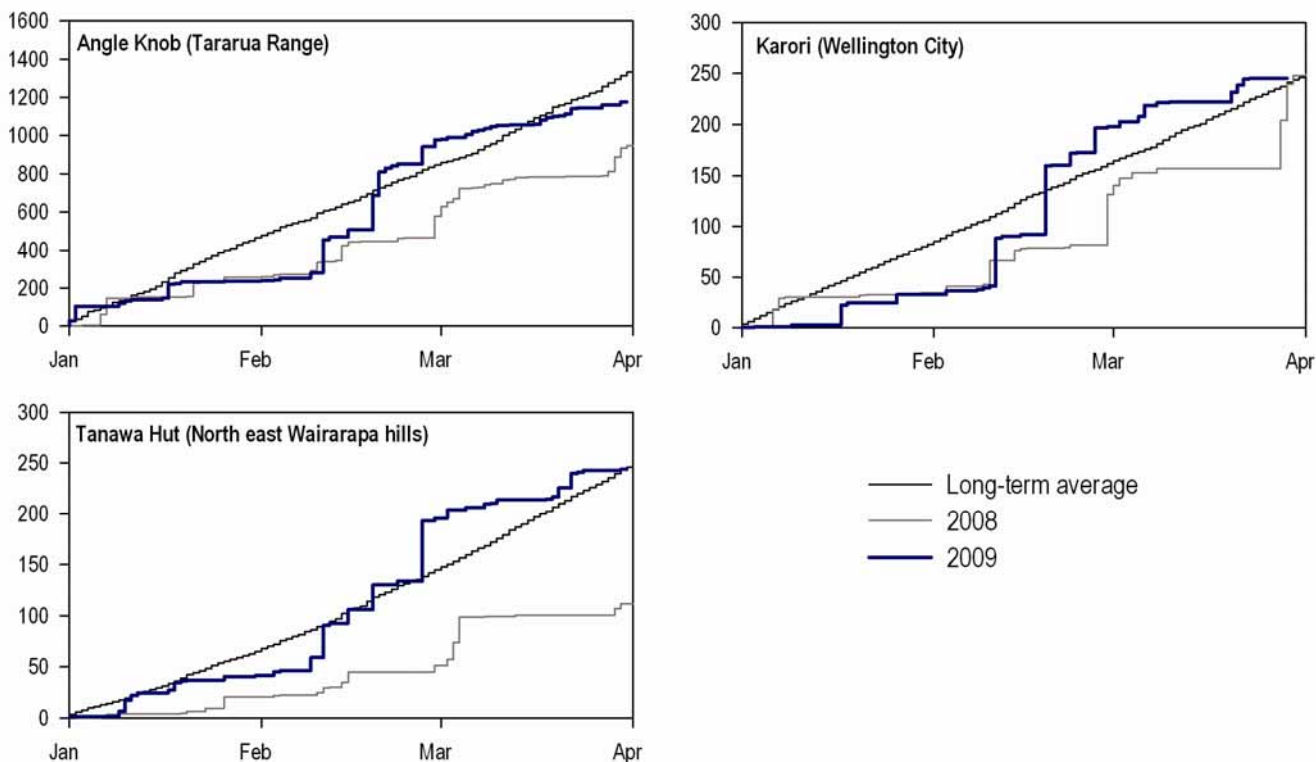
March was due to slow-moving anticyclones stalling over the Tasman Sea resulting in south to south-westerly air flows over New Zealand (see NIWA's National Climate summary for March at www.niwa.co.nz/ncc/cs/monthly/mclimsum_09_03).

Rainfall in the year to date

Despite the very low rainfall during March, to date 2009 has had about average rainfall in many parts of the Wellington region (see table and graphs below). This is due to the high rainfall received in February. However, the Tararua Range, Wainuiomata, and Tararua foothills (e.g. at Kaitoke) had slightly below average rainfall for the first three months of the year. The Wairarapa has had considerably more rainfall than at the same time last year.

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

	Rainfall for March at monitoring site (mm)	Rainfall for 2009 to end of March (mm)	Percentage of long-term average for year to date
Waikanae	32.5	265	107%
Karori	49	245	103%
Kaitoke	56.5	360	83%
Wainuiomata	52.5	230	68%
Featherston ('Alloa')	23	213	100%
NE Wairarapa ('Tanawa Hut')	51	241	100%
Tararua Range ('Angle Knob')	233	1176	89%



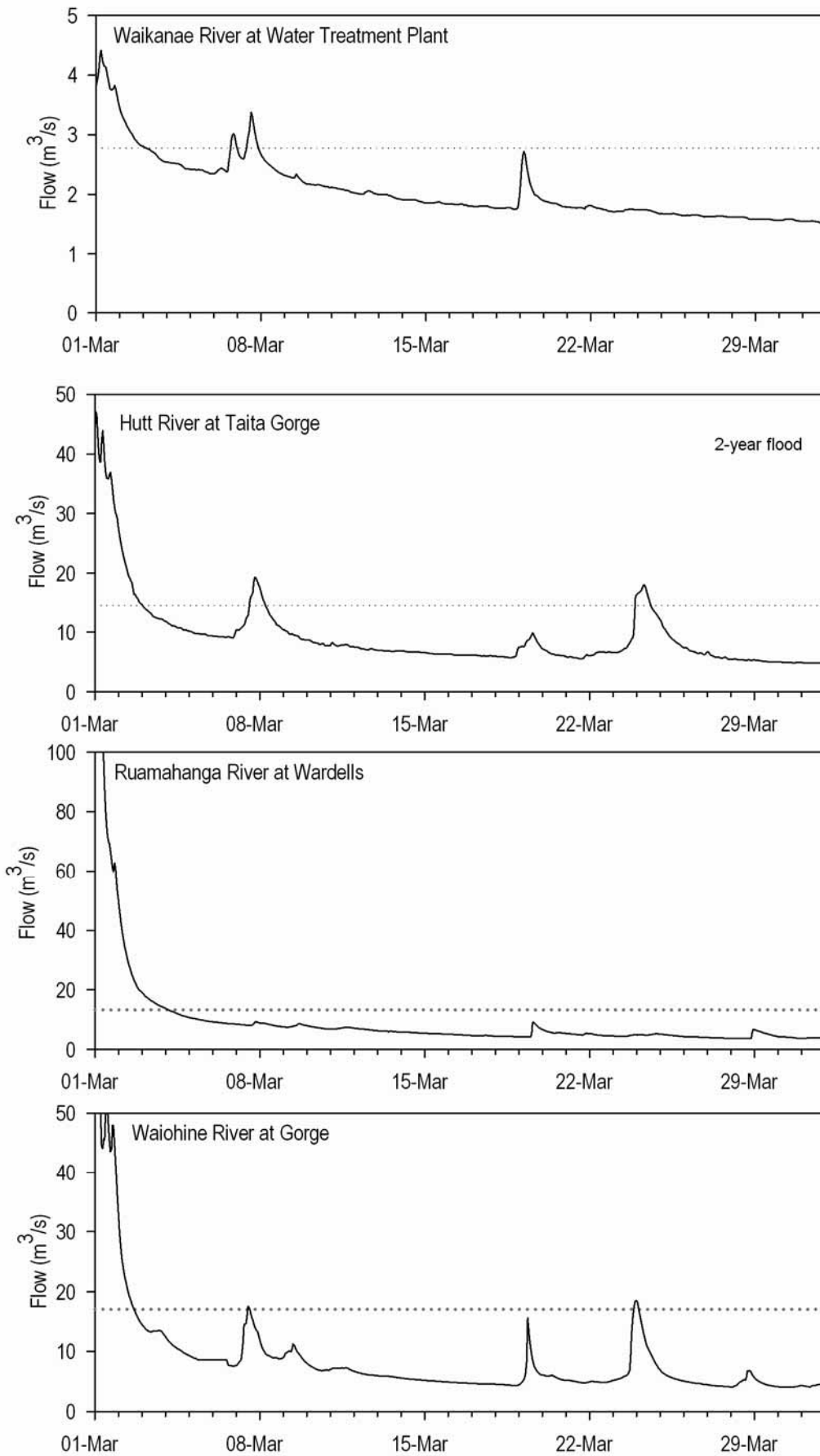
Cumulative annual rainfall at selected sites in the Wellington region

River flows during March

River flows were, overall, well below average for March due to the low rainfall (particularly the low rainfall in the Tararua Range). After a February with several floods, the rivers experienced a flow recession for the entire month of March, interrupted only by a few small freshes following minor rainfall events (as shown by the graphs below). In general the highest river flows of the month occurred on the 1st, following rainfall at the end of February. By the end of March, river flows were low but not as low as those experienced in late January and early February, and were not unusually low for the time of the year.

River flow statistics for March 2009 at some of Greater Wellington's flow monitoring locations

	Average river flow for March 2009	Percentage of long-term average	Highest flow during March (raw data)
Waikanae River at Water Treatment Plant	2.1 m ³ /s	76%	4.5 m ³ /s on 1 Mar
Akatarawa River at Cemetery	1.9 m ³ /s	62%	5.6 m ³ /s on 7 Mar
Mangaroa River at Te Marua	0.97 m ³ /s	72%	6.4 m ³ /s on 1 Mar
Hutt River at Taita Gorge	9.3 m ³ /s	64%	48 m ³ /s on 1 Mar
Wainuiomata River at Manuka Track	0.39 m ³ /s	86%	1.5 m ³ /s on 1 Mar
Waingawa River at Kaituna	4.0 m ³ /s	56%	50 m ³ /s on 1 Mar
Waiohine River at Gorge	8.6 m ³ /s	50%	66 m ³ /s on 1 Mar
Ruamahanga River at Wardells	10.0 m ³ /s	76%	211 m ³ /s on 1 Mar
Ruamahanga River at Waihenga	31.9 m ³ /s	65%	333 m ³ /s on 1 Mar



River flows recorded during March 2009 at selected Greater Wellington monitoring locations

Groundwater levels

Although March was drier than average across the region, groundwater levels in many parts of the region were still high for the time of year compared to long term data. Groundwater levels reflected a delayed response to the wet February. It is also possible many irrigators in the region reduced or ceased groundwater abstraction during February with a resultant increase in groundwater levels earlier in the year than normal.

Groundwater levels tended to drop during the month in response to low rainfall. The monitoring data suggests that further extreme or record-low groundwater levels will not be experienced in region this season.

Hutt

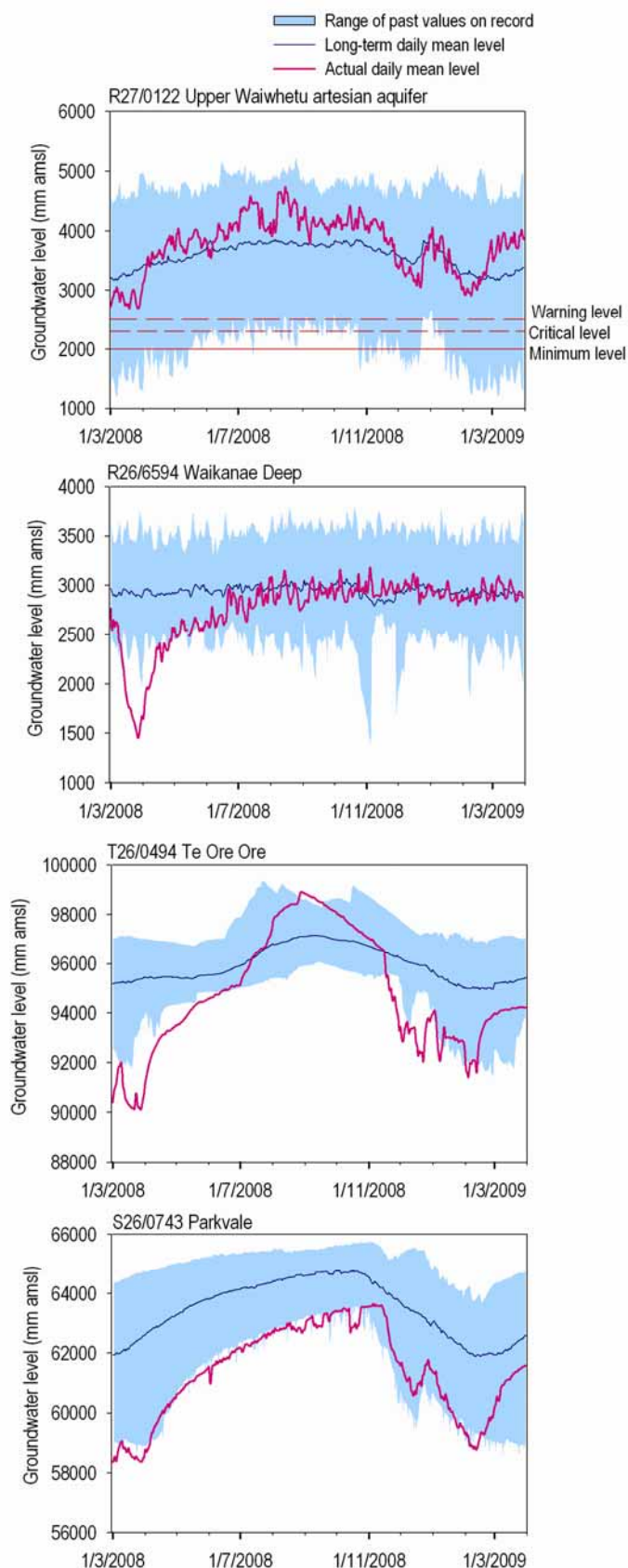
Groundwater levels in the artesian Waiwhetu aquifer increased during the month. Levels at the McEwan Park (R27/0122) monitoring site were well above average for March. Levels at the Somes Island monitoring borehole approached the highest levels on record for the time of the year.

Waikanae

Groundwater levels in Kapiti Coast aquifers remained at average or above average conditions during March, although a small number of sites recorded below average levels. Monitoring sites around Te Hapua and Te Harakeke wetlands are above average for this time of year reflecting a fairly wet end to the summer season.

Wairarapa

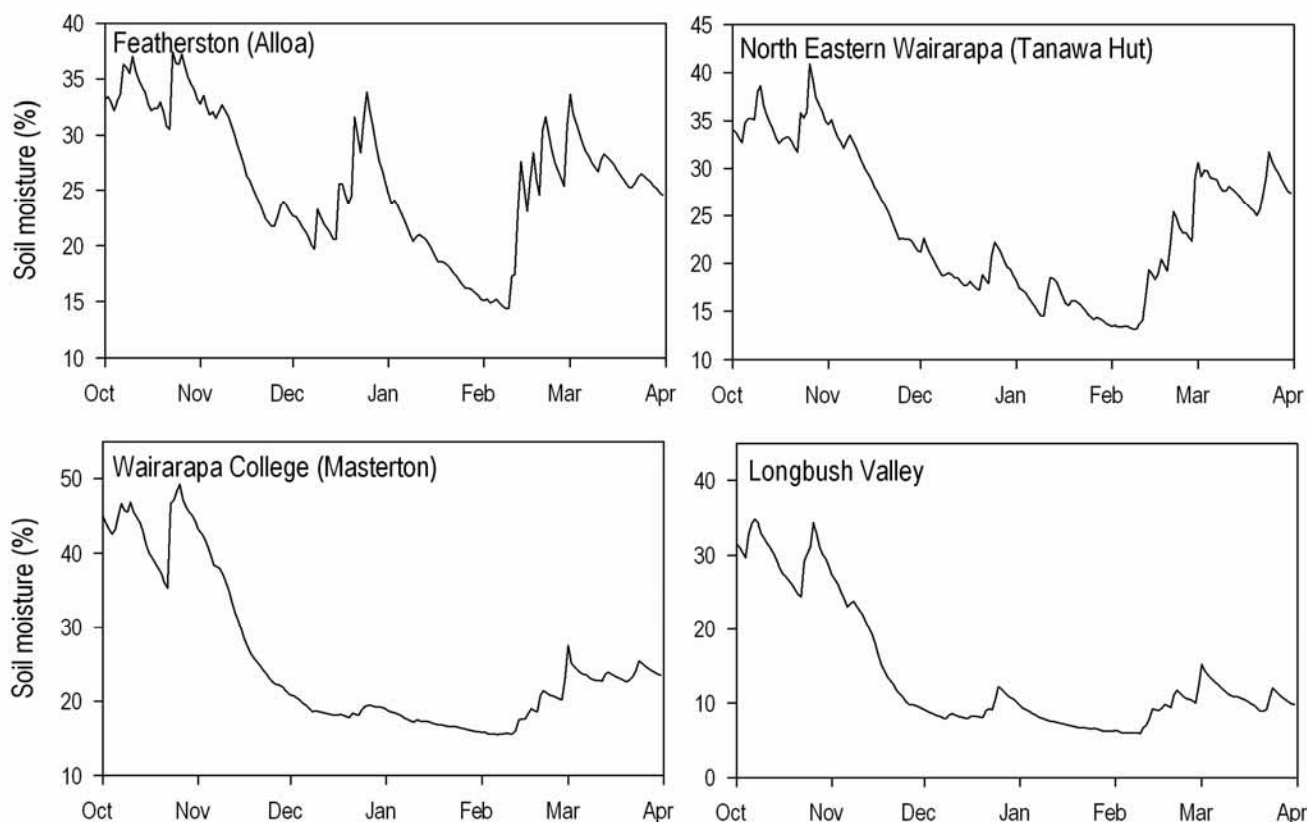
Many groundwater level monitoring sites in the Wairarapa recorded above average conditions for March. However, some sites had water levels below average, particularly in the Masterton and Te Ore Ore areas. Water level in the confined Parkvale aquifer was well above the long term minimum for the first time in several years. This is possibly a result of an early reduction in irrigation abstraction due to the wet February.



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

Soil moisture

Soil moisture in the Wairarapa remained fairly steady during March following the increase in February. It is likely that irrigation has not restarted since the rains of February.



Soil moisture content at Greater Wellington monitoring locations over the last year

Climate outlook

NIWA's climate outlook for April to June 2009 signals a weakening La Nina and a mild start to winter (see http://www.niwa.co.nz/ncc/seasonal_climate_outlook). This favours overall normal rainfall, river flows and soil moisture over 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.

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.