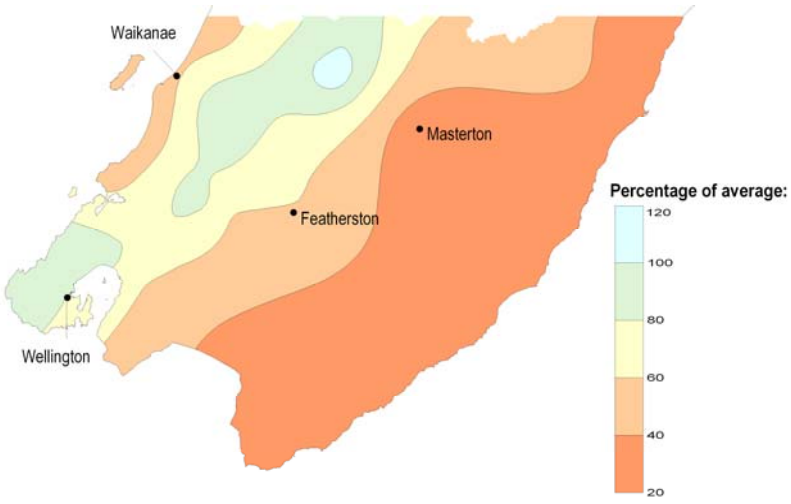
November 2008 hydrological summary

Environmental Monitoring and Investigations Department

Rainfall during November

Following a relatively wet October, November 2008 had extremely low rainfall in some parts of the Wellington region. The Kapiti Coast and Wairarapa had less than half the long-term average November rainfall. Of note, there was only 13 mm of rainfall in Martinborough, and 14 mm of rainfall in Masterton and at Ngawi. It was the driest November in Masterton in the last 20 years and the second driest in the eastern Wairarapa hills. The coastal plains of the Kapiti Coast also had very low rainfall – it was the third driest November in Otaki in the last 20 years. However, rainfall in the Tararua Range was about average for the month. A strong northwesterly flow brought brief heavy rainfall to the western range on 1 November but because the storm was short-lived it did not cause any significant floods. Northwesterly rainfall also occurred on 4-5 November, 17 November, and 24-25 November.



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

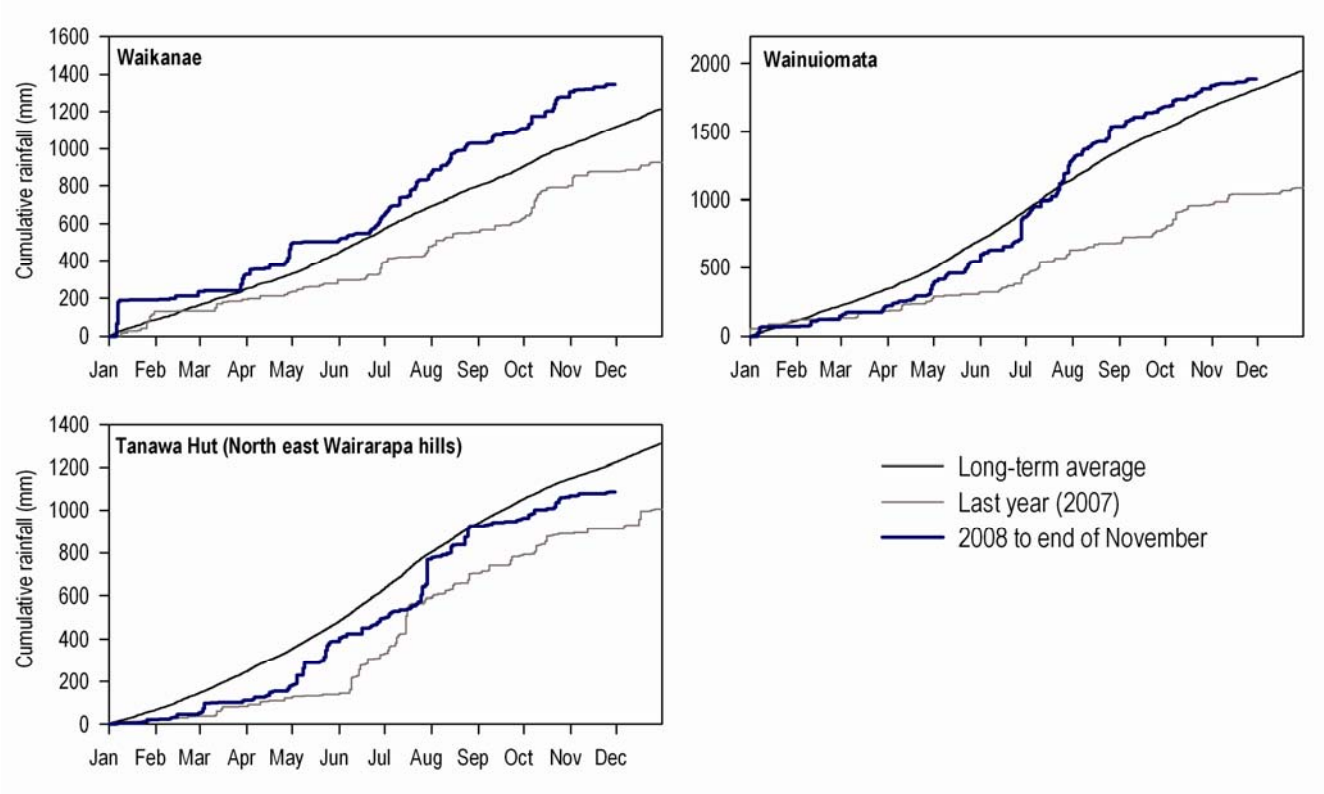
The generally settled weather of November was a result of frequent anticyclones to the east of New Zealand, extending ridges of high pressure over northern parts of the country (see NIWA's climate summary for November at http://www.niwa.co.nz/ncc/cs/monthly/mclimsum_08_11). There were stronger than normal westerly and northwesterly winds – exacerbating the dry conditions in the east.

Snapshot of rainfall in the year to date

Throughout the region we have generally received about, or more than, average rainfall for the year to the end of November (see table and graphs below). The exception is eastern Wairarapa, where a dry spring has led to rainfall remaining at about 90% of average overall. On the Kapiti Coast and in Wellington City rainfall has been 20-30% higher than average for the year to the end of November. We have had more rainfall than at this time last year.

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

	Rainfall for November at monitoring site (mm)	Rainfall for 2008 to end of November (mm)	Percentage of long-term average for year to date
Waikanae	68	1346	120%
Karori	100	1479	128%
Kaitoke	157	2260	107%
Wainuiomata	71	1890	105%
Featherston ('Alloa')	51	1080	109%
NE Wairarapa ('Tanawa Hut')	24	1087	89%
Tararua Range ('Angle Knob')	738	6400	101%



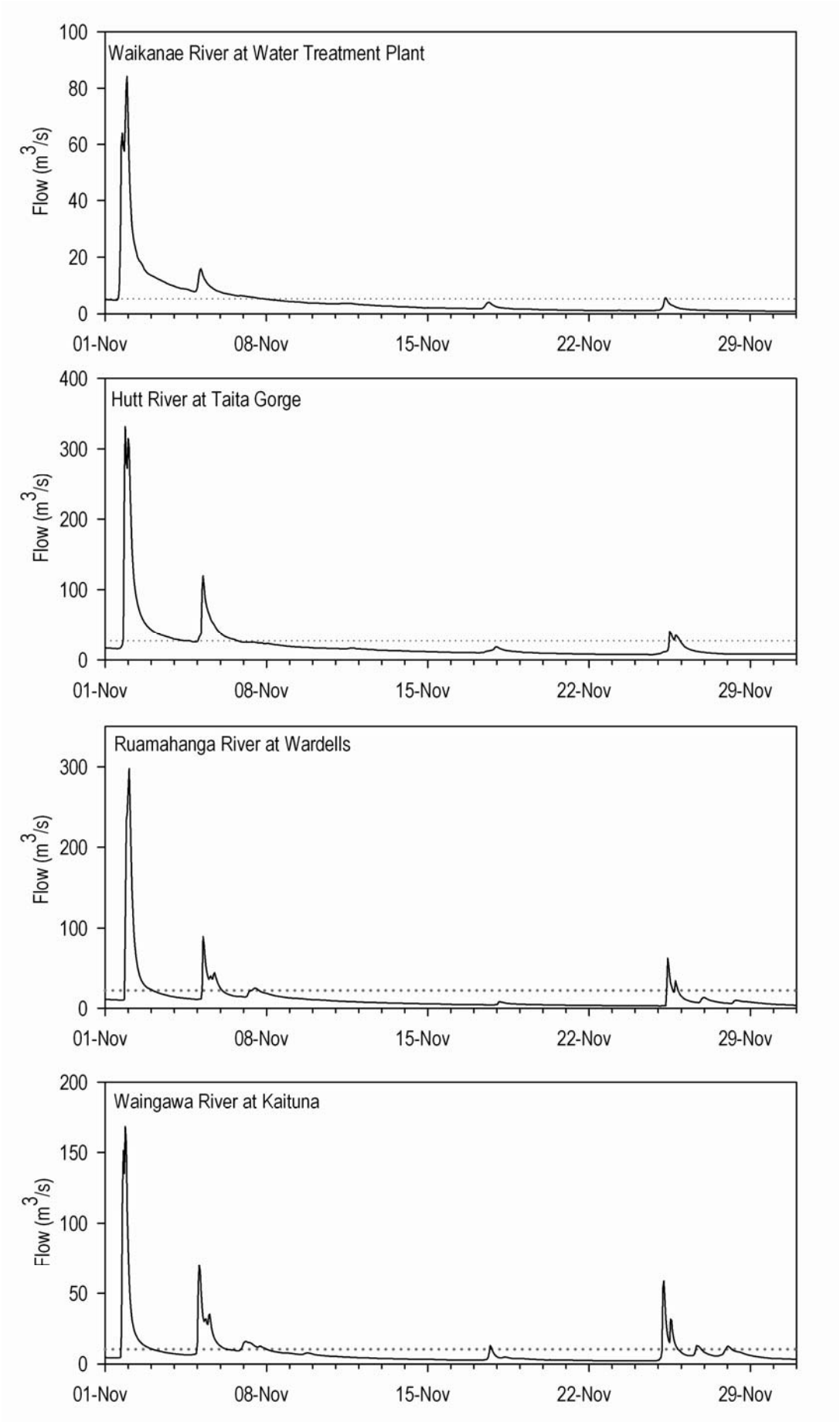
Cumulative annual rainfall at selected sites in the Wellington region

River flows during November

Flows in the major rivers of the Wellington region were below average for November, due to the low rainfall throughout the region. The highest flows of the month occurred following brief heavy rainfall in the Tararua Range on 1 November, but there were no significant floods. Although flows were low by the end of November, they remained above water take restriction levels.

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

	Average river flow for November 2008	Percentage of long-term average	Lowest 1-day flow during November (raw data)	Highest flow during November (raw data)
Waikanae River at Water Treatment Plant	4.7 m^3/s	89%	0.92 m^3/s on 30 Nov	89 m^3/s on 1 Nov
Akatarawa River at Cemetery	5.3 m^3/s	90%	1.63 m^3/s on 30 Nov	121 m^3/s on 1 Nov
Mangaroa River at Te Marua	1.8 m^3/s	54%	0.69 m^3/s on 30 Nov	14 m^3/s on 1 Nov
Hutt River at Taita Gorge	20.6 m^3/s	75%	7.9 m^3/s on 23 Nov	349 m^3/s on 1 Nov
Wainuiomata River at Manuka Track	0.74 m^3/s	81%	0.38 m^3/s on 30 Nov	5 m^3/s on 1 Nov
Waingawa River at Kaituna	8.4 m^3/s	81%	2.1 m^3/s on 23 Nov	185 m^3/s on 1 Nov
Waiohine River at Gorge	23.2 m^3/s	84%	6.0 m^3/s on 23 Nov	684 m^3/s on 1 Nov
Ruamahanga River at Wardells	12.7 m^3/s	59%	2.8 m^3/s on 24 Nov	302 m^3/s on 2 Nov
Ruamahanga River at Waihenga	54 m^3/s	70%	39 m^3/s on 24 Nov	690 m^3/s on 2 Nov



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

Groundwater levels

Groundwater levels across the region declined throughout November. Water levels decline in spring due to reduced aquifer recharge from lower rainfall and reduced soil moisture. The observed decreases in water level during November were generally greater than normal due to the very low rainfall – particularly in the Wairarapa where abstraction for irrigation has exacerbated the water level declines.

Groundwater levels region-wide have receded to average or below average conditions. This is in contrast to the above average conditions recorded in some of the aquifers following the wet winter of 2008.

Hutt

Groundwater levels in the artesian Waiwhetu aquifer dropped below average during November. However, water levels remain well above the saline intrusion warning level set at the Petone foreshore.

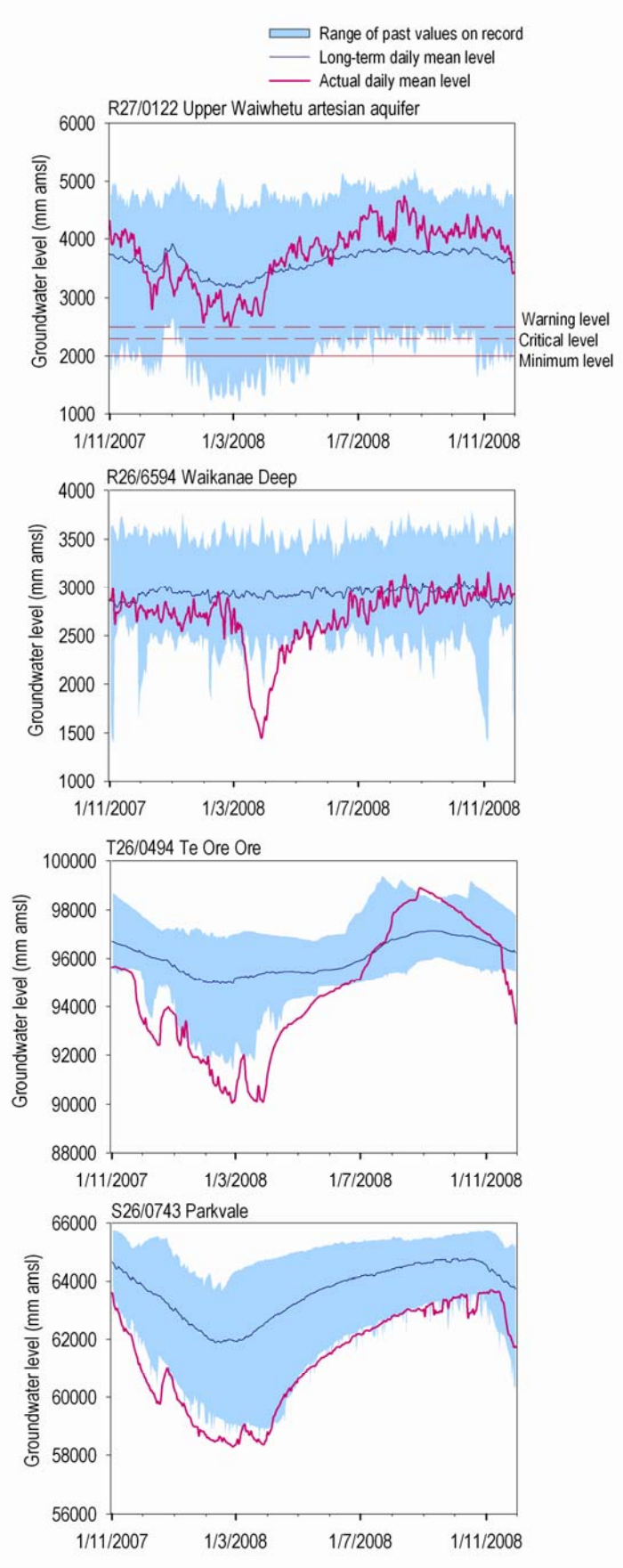
Waikanae

Groundwater levels recorded in the deep Waikanae aquifer remained around average throughout most of November. Unconfined (shallow) aquifer groundwater levels in Kapiti are tracking around average conditions for this time of year. Groundwater declines during November were not as extreme on the Kapiti Coast as in the Wairarapa.

Wairarapa

Rapid declines have been recorded in a large number of monitoring sites across the Wairarapa. This can be seen in both the Te Ore Ore and Parkvale graphs to the right. The rapid declines are a result of the drier than average November conditions combined with the onset of abstraction for irrigation. Many rainfall and river fed unconfined aquifers are now tracking below average for this time of year.

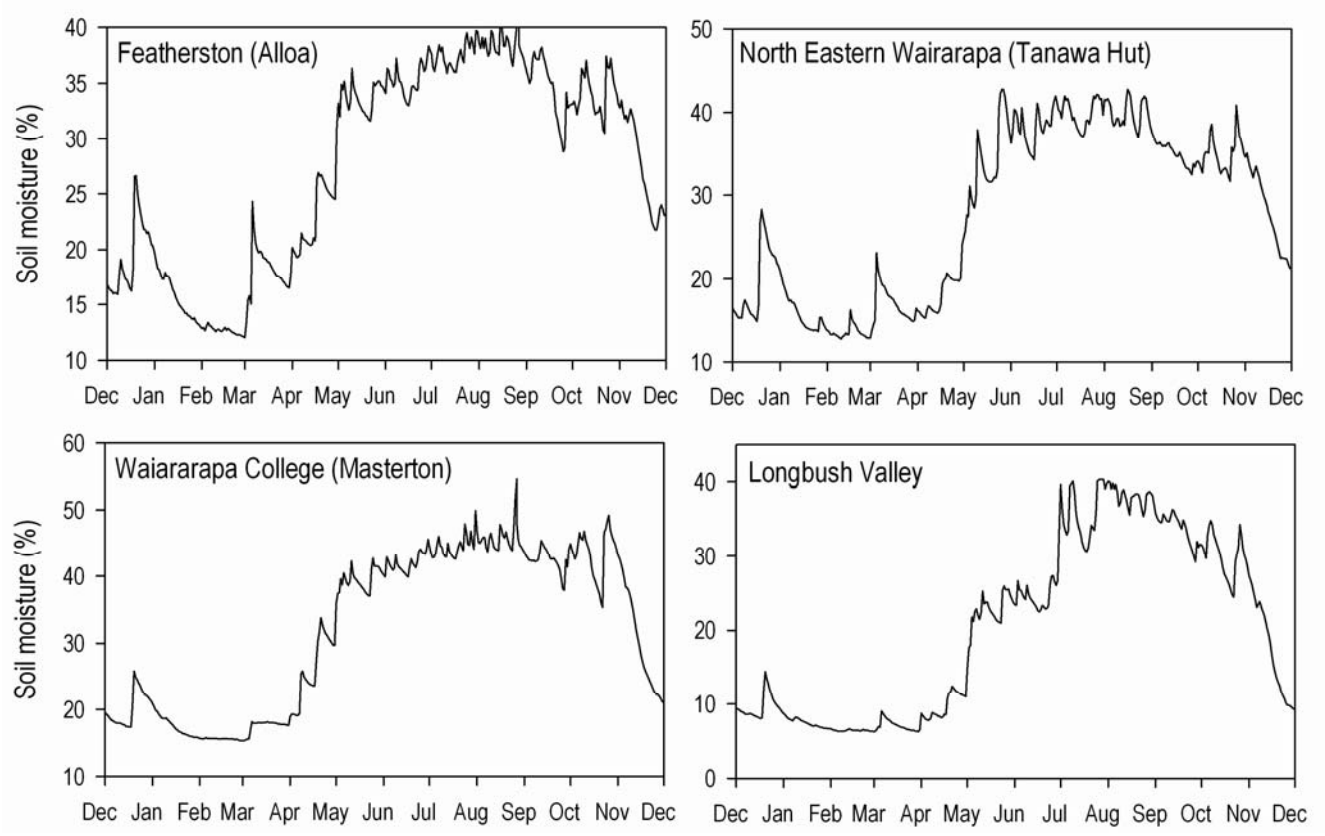
Deeper confined aquifers across the valley continue to experience water levels around long term minimum levels.



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

Soil moisture

During November, soil moisture levels in the Wairarapa declined steadily due to the very low rainfall. By the end of November the soil moisture was only slightly higher than at the same time last year. Irrigation has commenced in agricultural areas of the Kapiti Coast and Wairarapa.



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

Climate outlook

NIWA's climate outlook for December 2008 to February 2009 favours above average temperatures throughout the Wellington region and normal rainfall in Wellington and the Wairarapa (see http://www.niwa.co.nz/ncc/seasonal_climate_outlook). Soil moisture may remain below average. Currently the El Nino Southern Oscillation is neutral, indicating that neither El Nino nor La Nina conditions exist. Neutral conditions are likely to remain throughout summer 2008/09, although NIWA report a small possibility of a weak La Nina developing.

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.