



This is a summary of the annual Environment Canterbury Water Resources Report covering ground water and surface water for the current irrigation season.

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Latest October Results

Surface Water

The data show rainfall sites in North Canterbury have had above average rainfall for October. South Canterbury rainfall gauges have had average to below average rainfall. The alpine gauges have had around half of the October average. This high rainfall in North Canterbury is reflected in the river flows. Most of the flows in North Canterbury are now at average October levels. South Canterbury flows are now at average to below average levels for October.

Groundwater

In deep aquifers across the region current groundwater levels are generally higher than those measured in September. The higher groundwater levels are probably due to a combination of two factors: reduced irrigation demand leading to recovery of groundwater levels and/or a continuing background trend of rising water levels since winter. In shallow aquifers, recent rises in groundwater level have been recorded in some areas in response to rainfall/river flow such as the Central Plains, and Pareora-Waihao (where groundwater has risen from low September to average to high October levels). In other areas, there has been little response in shallow groundwater (e.g. Hinds).



Surface water and rainfall summary

Precipitation

For the months May to September the rainfall varied across the region, with below average amounts in North Canterbury and average to above average levels for mid and South Canterbury.

For the months June to September rainfall levels across the region were predominately below average to average. Snow levels as of mid September were at average to above average levels

River flows

The average to above average rainfall in central and South Canterbury were reflected in the river flows. North Canterbury river flows were below average.

Soil Moisture

Soil moisture levels over most of Canterbury were at or above average for the early part of the winter but by the end of September had declined to average to below average levels. The site in Kaikoura was at below average levels for the entire winter.

Prognosis

Climate projections for October to December 2009, prepared by NIWA and the New Zealand Meteorological Service based on the forecast El Niño summer is for the Canterbury foothills and plains to receive normal or below normal rainfall, predicted stream flows to be normal, and for average available soil moisture.

Alpine areas are expected to receive average rainfall and as a result, alpine rivers are expected to have average flows.

Groundwater Summary

Regional

Most recharge to the groundwater system occurred in May 2009, a period of heavy rainfall and sustained river flows. While overall the winter was one of average recharge, the high recharge in May was significant and early enough to provide great benefit to the groundwater system.

Deep groundwater received the most benefit from the early recharge in May. Groundwater levels monitored in inland areas such as Te Pirita and Urrall display remarkable recoveries of up to

10 m since summer 2009. In some wells this recharge occurred on top of higher summer groundwater levels in 2008/09. In other wells the rise has occurred from record low levels. One well at Courtney Road, north of the mid-Selwyn River (L36/0092) with over 50 years of record has recovered to levels not seen since 2002.

Intermediate and shallow depth wells have also shown a rise in groundwater level in May, and again in July 2009 (another month of higher rainfall and river flow). These wells require more sustained recharge to maintain groundwater levels, and have

been declining since July. Most intermediate and shallow depth wells are below average groundwater levels for September.

With a prognosis for a drier than average summer and lower river flows, and an early onset to the irrigation season, groundwater levels in intermediate and shallow wells are predicted to be at average to below average levels this summer. Groundwater levels in deeper wells will depend on the level of irrigation demand, but are starting the 2009/10 irrigation season in the best shape since 2002.

Summary by area

Kaikoura

Groundwater levels were average in September, but higher than in September 2008. They recovered strongly with the winter rainfall and hence recharge events. They are currently displaying a normal summer decline.

Waipara

Lower overall recharge in winter 2009 than in 2008 has led to less recovery of groundwater levels than was seen in 2008. Groundwater levels reflect a variety of aquifers, but generally are at average to below average levels in September. The early onset of irrigation is likely to lead to average to below average summer levels.

Ashley-Waimakariri

Groundwater levels are mostly in the average range for September and generally up to 2 m lower than for the same time in 2008. Winter recharge was more subdued than that seen in 2008. Even with groundwater levels lower than in 2008, they are still in a reasonably healthy state for at least the early part of the coming summer.

Christchurch-West Melton

The unconfined recharge zone (West Melton) has groundwater levels significantly lower than in September 2008, with one well (M35/1110) already at the first trigger level. In the spring zone and confined zone (moving coastwards) groundwater levels are currently average to above average. Groundwater pressures in the Woolston/Heathcote Management Zone continue to be higher than average demonstrating the positive effects of the pumping constraints that have been adopted for that zone.

Central Plains

Groundwater levels are generally average in the Central Plains, and in deeper wells display a significant recovery since summer 2008/09 of up to 5 m. This recovery appears to have broken the downwards trend in groundwater levels observed since 2001. Shallow groundwater associated with the Selwyn River mirror flow in the river, with recharge occurring since elevated flows in winter, but now declining. With a high demand irrigation season predicted, groundwater levels will rapidly decline, however no supply issues are currently anticipated.

Rakaia-Ashburton

Shallow groundwater is generally average to below average. Deep groundwater has displayed a remarkable recovery, with current groundwater levels the best measured in the last 5 years. Deep groundwater has started its seasonal decline with the commencement of irrigation; the extent of decline will depend on irrigation demand.

Ashburton-Rangitata

The effects of the good winter recharge were seen in wells in this area, but groundwater levels have been declining since August. Groundwater is currently at average levels, and the effects of the early start to irrigation are showing in some wells. Low groundwater levels are being recorded at Tinwald and Longbeach monitoring wells.

Rangitata-Levels Plain

Deep groundwater in the Orton area recharged in late February and May 2009, to current average levels. The magnitude of decline in summer will depend on irrigation demand, but previous summer groundwater declines indicate demand has been increasing. Shallow groundwater in the Rangitata and Coopers Creek are is currently below average and has been declining since the last recharge event of July 2009. Shallow groundwater associated with the Orari River is at average levels. In the levels plain, groundwater levels are average, and are expected to rise with recharge from the Levels Plain Irrigation Scheme as they do each summer. In the Fairlie-Ashwick Flat area, groundwater levels were very high in May, and have fallen to current average levels.

Pareora-Otaio-Waihao

Groundwater in the shallow aquifers in these areas is dependent on river flows. Groundwater was very low in early 2009, but was elevated by a succession of recharge events from March to July 2009. Levels were measured in mid-September as generally average (with some below average in the Pareora River area), but they are expected to have risen with recharge events in late September 2009. Deeper aquifers have only been monitored for the last two-four years, so little comparison can be made.

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