

## **December 2012 Monthly Flow and Rainfall Report**

### **General**

In contrast to the previous two months, December 2012 was warmer and generally more settled. Southerly quarter winds were infrequent which resulted in the warmer weather. High pressure system brought longer periods of fine weather and in general, the region became quite dry. The occasional rainbearing weather system from the northwest brought some good falls of rain in the west at times and there was a little rain from time to time throughout the region with the driest area being Central Otago. The most significant of these falls were the rainfalls at the start and end of the month.

By the end of December, the whole region had become dry and rivers in some places were low enough that irrigation restrictions were imposed. Rain at the end of the month and early January has eased these dry conditions a little.

### **North Otago**

Rainfall totals were all generally about half the average for December in this area. Total falls at the indicator sites (average monthly totals in brackets) included:

Waikoura	26.6mm (58.1mm)	54% below average
Oamaru Airport	35.4mm (55.5mm)	36% below average
Oamaru Town	33.3mm (63.7mm)	48% below average
Kauru, the Dasher	79.0mm (93.8mm)	16% below average
Islay Downs	42.7mm (84.3mm)	49% below average
Palmerston	37mm (65.3mm)	43% below average

Significant falls included: on 20 December, Oamaru Airport 13.8mm; and on 30 December, Oamaru Town 14.8mm, Ilay Downs 16mm.

Average monthly river flows were well below their long term averages for December. Flows gradually declined throughout the month as the drier weather and occasional windy periods resulted in the area becoming dry and rivers falling to levels at which some irrigation restrictions were imposed. Rain at the end of December and early January 2013 has lifted flows above those restrictions and the rain has been very beneficial to all farmers.

Farmers report the month became dry but growth was good for much of it until the very dry conditions had significant impacts on soil moisture levels. Rain at the end of the month and early January was hugely beneficial but more rain is needed.

### **Central Otago**

Most of this region was very dry in December with little rain occurring from the occasional northwesterly weather systems. The exception was in the Roxburgh and

downstream area where rainfall totals appear to be close to average. Total falls at the indicator sites (average monthly totals in brackets) included:

Lindis Crossing	19.5mm (53.9mm)	68% below average
Cromwell	3.2mm (47.9mm)	93% below average
Alexandra	12.8mm (36.5mm)	65% below average
Hills Creek	27.5mm (54mm)	49% below average
Merino Ridges	23mm (55mm)	58% below average
Ranfurly	19.8mm (58.1mm)	66% below average
Tima	70mm (74mm)	5% below average

Significant falls during the month included 10mm at Lindis Crossing, 10.8mm at Ranfurly and 13.5mm at Hills Creek on 6 December, and 16mm at Tima on 30 December.

Average monthly river flows were well below their long term averages for December. Flows were closer to average for about the first 10 days of December, but steadily declined after that. By the end of the month, flows had fallen to levels where some irrigation restrictions were imposed.

Farmers report that the region has dried out quite quickly with the combination of lack of rain and occasional windy conditions. Rain at the end of December and early January has helped ease the rapidly drying conditions but more rain is needed soon to further ease the dry situation.

### **Lakes Wanaka, Wakatipu and Hawea and Surrounding Areas**

Apart from the headwaters of Lake Wakatipu, this area received most of its rain at the beginning and end of December with the three weeks in between being quite dry. As a result of the dryness, warmth and occasional windy conditions, this region had dried out considerably before the rain occurred at the end of the month. This rain and the rain early in January have eliminated the dry conditions at present. Total falls at the indicator sites (average monthly totals in brackets) included:

Makarora Station	185.9mm (226.9mm)	18% below average
Hunter Valley Station	92.6mm (101mm)	8% below average
Glenfinnan	174.8mm (186mm)	6% below average
Hawea Flat	39mm (58.9mm)	34% below average
Routeburn Station	208.6mm (209mm)	average
Queenstown	68.2mm (66.6mm)	2% above average

Significant falls during the month included: on 1 December, Glenfinnan 23.6mm; on 4-6 December, Makarora 62.5mm, Hunter Valley Station 39.2mm, Glenfinnan 69.8mm, Hawea Flat 23.3mm, Routeburn 35.8mm; on 17 December, Routeburn 35mm; on 29 December, Makarora 37.2mm; and on 31 December, Makarora 40.7mm, Hunter Valley Station 23mm, Glenfinnan 40.3mm, Routeburn 77mm, Queenstown 25.7mm.

Average monthly river flows were below their long term averages for December. Flows were good at the beginning and end of the month but generally in the intervening 3 weeks, flows declined.

Lakes Wanaka and Wakatipu levels began the month at 277.23m and 309.89m, 0.49m and 0.35m below their long term averages for December of 277.72m and 310.24m respectively. Both ended the month at 277.36m and 309.93m, 0.35m and 0.31m below average respectively. During the month, both rose a little and then declined slowly.

Lake Hawea began the month at 343.18m, 0.98m below its December average of 344.16m. This lake steadily rose during the month and ended December at 344.09m, just 0.07m below its December average.

Farmers report that conditions were good at the start of December but dried out quickly during the month. By the end of December, conditions were quite dry but rain at the end of the month and in early January has seen the dry conditions eliminated at present.

### **Strath Taieri, Lower Taieri and Dunedin**

Rainfall totals were generally below or well below average in this area in December. Total falls at the indicator sites (average monthly totals in brackets) included:

Middlemarch	17.6mm (67.2mm)	74% below average
Musselburgh Dunedin	58.6mm (78.4mm)	25% below average
Lee Flat	(76mm)	
Maungatua	67.9mm (82.4mm)	18% below average
Dunedin Airport	14.2mm (72.4mm)	80% below average
Pine Hill	82mm (89mm)	8% below average

Other raingauge totals in this area include: Silverstream Pump (Whare Flat) 67mm, Taieri Depot (near Mosgiel) 35.6mm, Cherry Farm 52.8mm, Sawyers Bay 63mm, Mt Grand (Brockville) 83.4mm, West Taieri (Berwick) 61.6mm.

Significant falls during the month included 23.3mm at Maungatua and 15mm at Pine Hill on 17 December; and 18.2mm at Musselburgh, 23.5mm at Pine Hill, and 20mm at Maungatua on 30 December.

Also notable is the difference in rainfall totals between Dunedin Airport (14.2mm) and Maungatua (67.9mm) with them both being on the Taieri Plains some 4 km apart with the difference being Maungatua is at the base of the Maungatuas while Dunedin Airport is out in the centre of the Taieri Plains.

Average monthly river flows were below their long term averages for December. River flows generally declined through the month and by the end of December, were

low enough that some irrigation restrictions were in force by the end of the month in the Strath Taieri area.

Farmers report the ground was getting quite dry and rain at the end of December and early January was badly needed. Growth was good but had slowed due to the ground drying out. Further rain in January would be welcome.

### **South and West Otago**

Rainfall totals in this area were generally close to or below average for December. Total falls at the indicator sites (average monthly totals in brackets) included:

Tuapeka Mouth	N/A	
Balclutha	69mm (64.8mm)	6% above average
Waikoikoi	66.7mm (89.7mm)	37% below average
Slopedown	74.4mm (114.3mm)	35% below average
Moa Flat	56.5mm (94mm)	40% below average
Clarks Flat	57mm (76mm)	25% below average

Significant falls during the month included: on 1 December, Waikoikoi 18.5mm, Slopedown 24.7mm; on 17 December, Balclutha 14mm, Moa Flat 15.5mm; and on 30 December, Balclutha 20mm, Clarks Flat 12.5mm.

Average monthly river flows were below their long term averages for December. Flows were low at the start of the month, they rose on 6-9 December due to rain during that period, and then generally declined to low flows again during the rest of the month. No particularly low flows occurred.

Farmers report that conditions dried out significantly during December and by the end of the month, rain was badly needed. Fortunately some occurred at the end of December and in early January which has eased the very dry conditions. More rain is needed in January.

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\* Data sources – Private individuals, Dunedin City Council, Otago Regional Council, NIWA