Hydrology Update Spring 2025

Report prepared by Charlotte Tomlinson, 19th December 2025.

Data from the Marlborough District Council's Environmental Monitoring network was primarily used in preparing this report and supplemented with data from the Marlborough Research Centre, MetService, NIWA, and FENZ.

Executive Summary

Spring 2025 can be described as dry, warm, sunny and windier than usual. In Blenheim this was the warmest spring on record – the average temperature of 15.1°C is 2°C above the long-term average. September and October were windier than average.

Spring rainfall in Blenheim totalled 116 mm, 74% of the long-term average. September recorded just 15 mm of rainfall, while October and November rainfall was closer to average. Blenheim has recorded 250 mm of rainfall since 1 July 2025. Spring 2025 had a total evapotranspiration of 370 mm, which is the highest since records began in 1996. Evapotranspiration was higher than average due to the warm temperatures and increased wind.

In the south-east coastal areas of Marlborough, spring was very dry, receiving between 50-60% of average spring rainfall. Rainfall was close to average in the upper Wairau catchment and areas further to the north.

River flows have been below average across the region during spring. Spring mean flow in the Awatere at Awapiri was 10 m^3/s, which is 58% of the long-term average. There have been several days with restrictions for Class C permit holders in the Awatere, beginning in October. This is unusually early for restriction flows to be reached and wouldn't occur until mid-December in an average year.

The soil in Blenheim began to dry out from mid-September onwards. Average soil moisture for spring was 21.6%, which is the lowest spring average soil moisture in 24 years of data collection.

Groundwater levels in the recharge reach of the Wairau Aquifer have declined by approximately 3 metres since the flood-induced high levels seen in July. Groundwater level has been in the lower quartile since late August. The long-term declining trend in water level is the primary cause of the lower-than-average water level, as the Wairau River itself has had reasonable flows throughout winter and spring this year. A pumping-induced decline in water level has been observed in the Riverlands Aquifer, as occurs every year during the irrigation season (October to April).

The present moderate La Niña conditions are likely to weaken over summer, with a return to neutral conditions possible by late summer. High pressure from mid-December could bring dry conditions in the New Year. There is an elevated risk of heavy rainfall events in the coming months due to several factors, including the La Niña conditions and continued marine heatwaves around the country.

Climate

Spring 2025 has been warm, sunny, windy and drier compared to an average year. Highlights include:

- Spring 2025 is the warmest spring on record in Blenheim, with an average temperature of 15.1°C (2°C above the long-term average).
- 764 sunshine hours were recorded over the spring months, which is 114% of the long-term average.
- September and October were windier than average, while November was less windy than average. Overall, spring has been windier than usual.

Rainfall

Spring was drier than average with 116 mm of rain in Blenheim over the three months, 74% of the long-term average. September was very dry with just 15 mm of rainfall, compared to the monthly average of 52 mm. Rainfall in October and November was close to average.

Evapotranspiration was high throughout spring, with every month recording higher than average total evapotranspiration. This was due the combination of higher-than-average temperatures and high wind-run. The total 3-month evapotranspiration was 370 mm, which is 123% of the average, and the highest spring evapotranspiration since records began in 1996.

Monthly rainfall totals along with monthly evapotranspiration from July 2025 onwards can be seen in Figure 1 below.

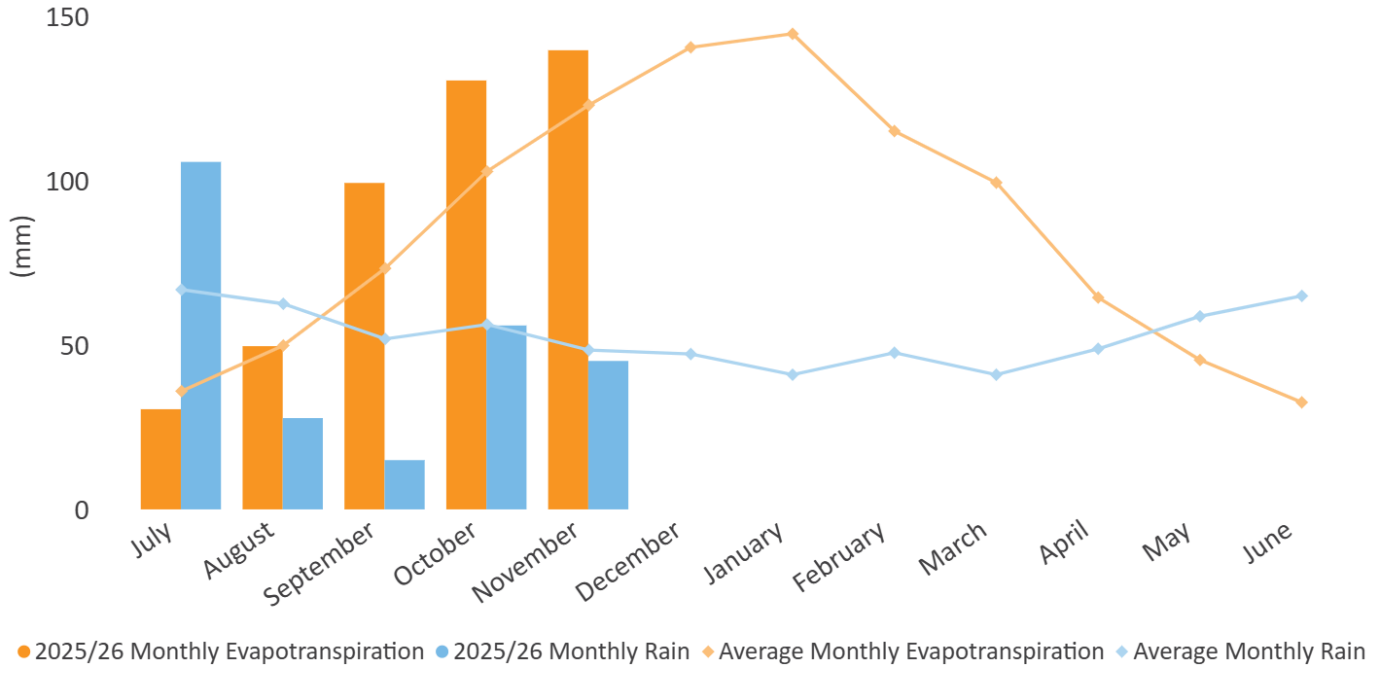

Figure 1. Monthly rainfall and evapotranspiration in Blenheim (Marlborough Research Centre) for the 2025-26 hydrological year, compared to average monthly totals.

Blenheim at the Marlborough Research Centre has recorded 250 mm of rainfall in the hydrological year to date (1 July to 30 November). This is 87% of the long-term average rainfall accumulation (see Figure 2 below).

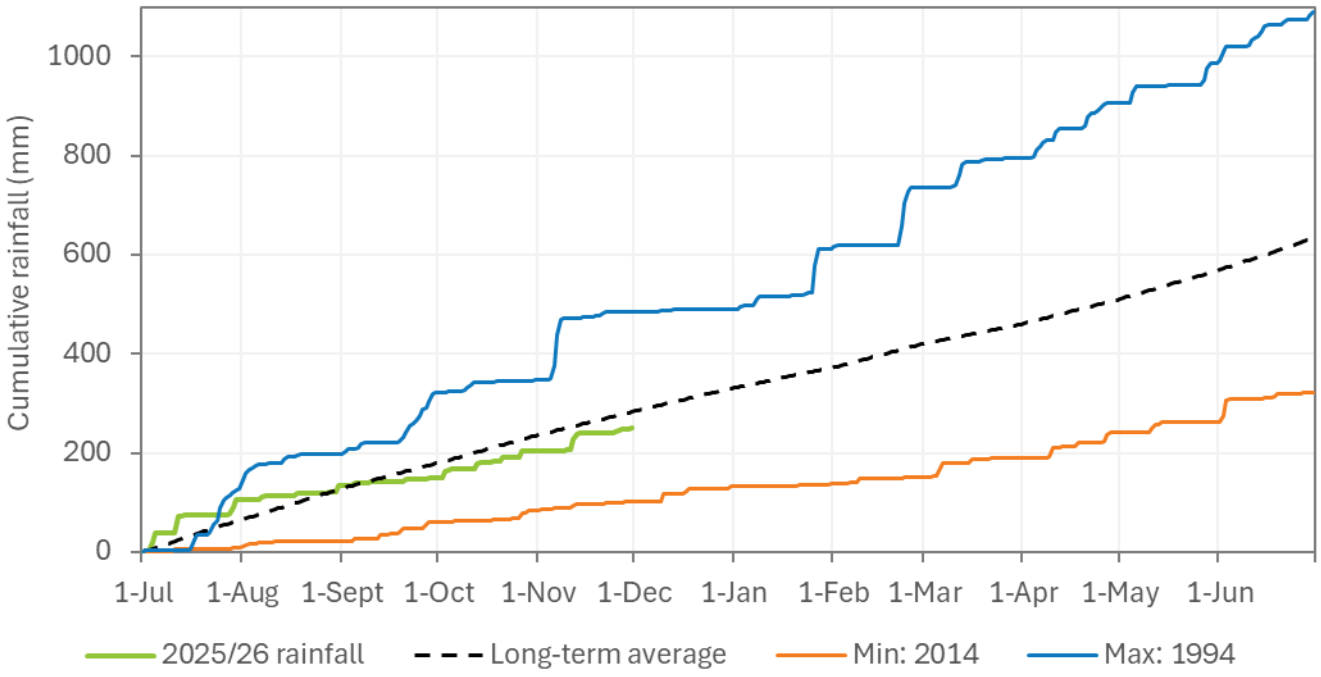

Figure 2. Cumulative rainfall (mm) for the 2025/26 hydrological year in Blenheim (Marlborough Research Centre), compared to the long-term average rainfall accumulation. Also shown are the minimum and maximum rainfall years.

Figure 3 shows monthly rainfall for sites in South Marlborough compared to average rainfall. July had elevated rainfall due to a storm event mid-month, but August and September were dry, especially in the coastal areas. Flaxbourne recorded just 60% of average spring rainfall, while the Te Rapa site in the lower Waima catchment (not shown in Figure 3) received less than 50% of the average spring rainfall - 100 mm compared to an average of 216 mm. At Te Rapa, this is the driest spring in 17 years (since the site was established). Rainfall was closer to average in the upper Wairau catchment, for example the lower Branch rainfall site received 97% of average spring rainfall.

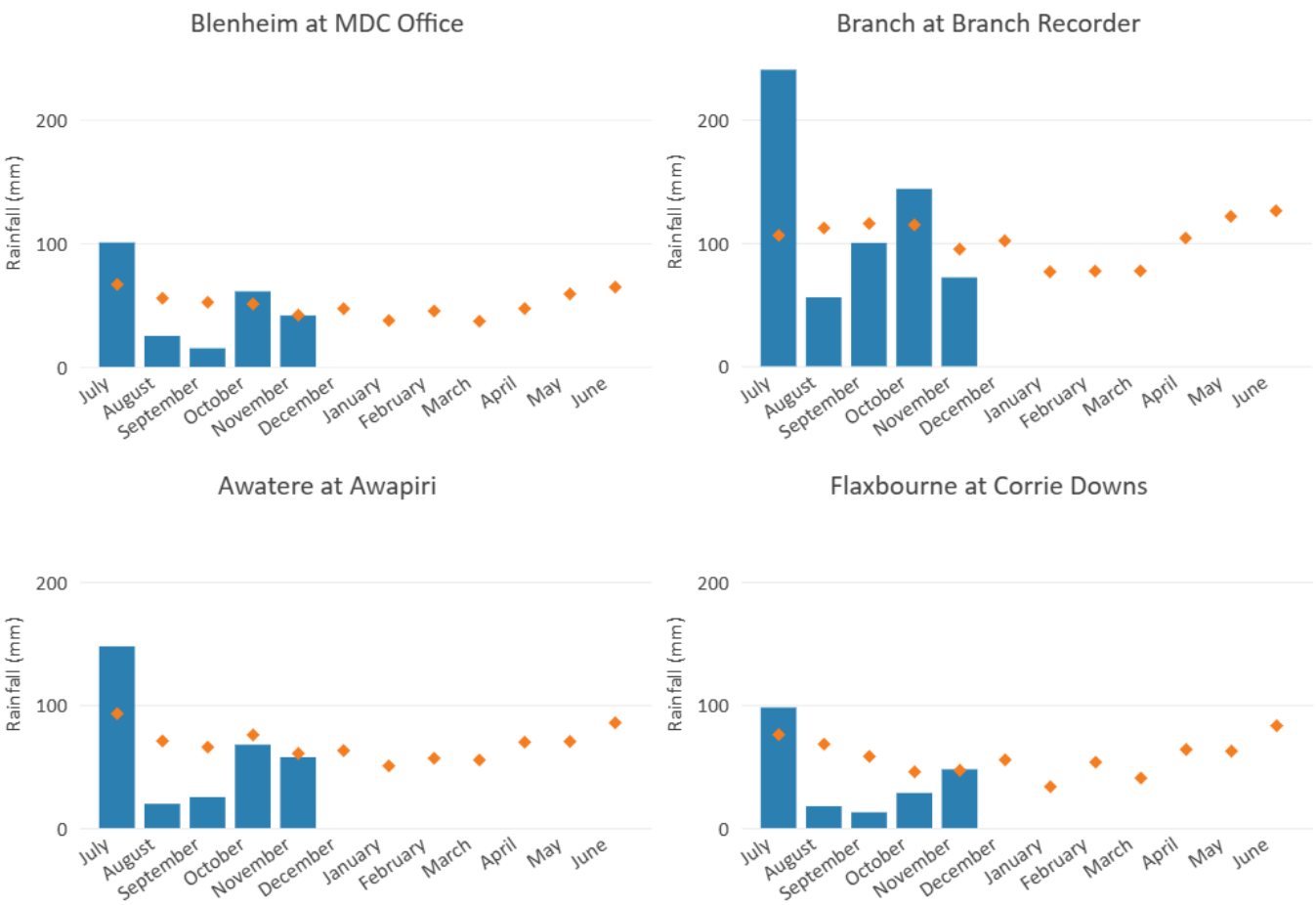

Figure 3. Monthly rainfall (mm) for the 2025/26 hydrological year at 4 sites in South Marlborough, compared to the average monthly rainfall.

Figure 4 shows monthly rainfall for sites in North Marlborough compared to average rainfall. After higher-than-average rainfall in July, late winter/early spring was drier than average across northern Marlborough. However overall, spring rainfall was between 95-100% of the average at most sites. For example, at Top Valley (Wairau catchment northbank), spring rainfall was 408 mm, 95% of the long-term average.

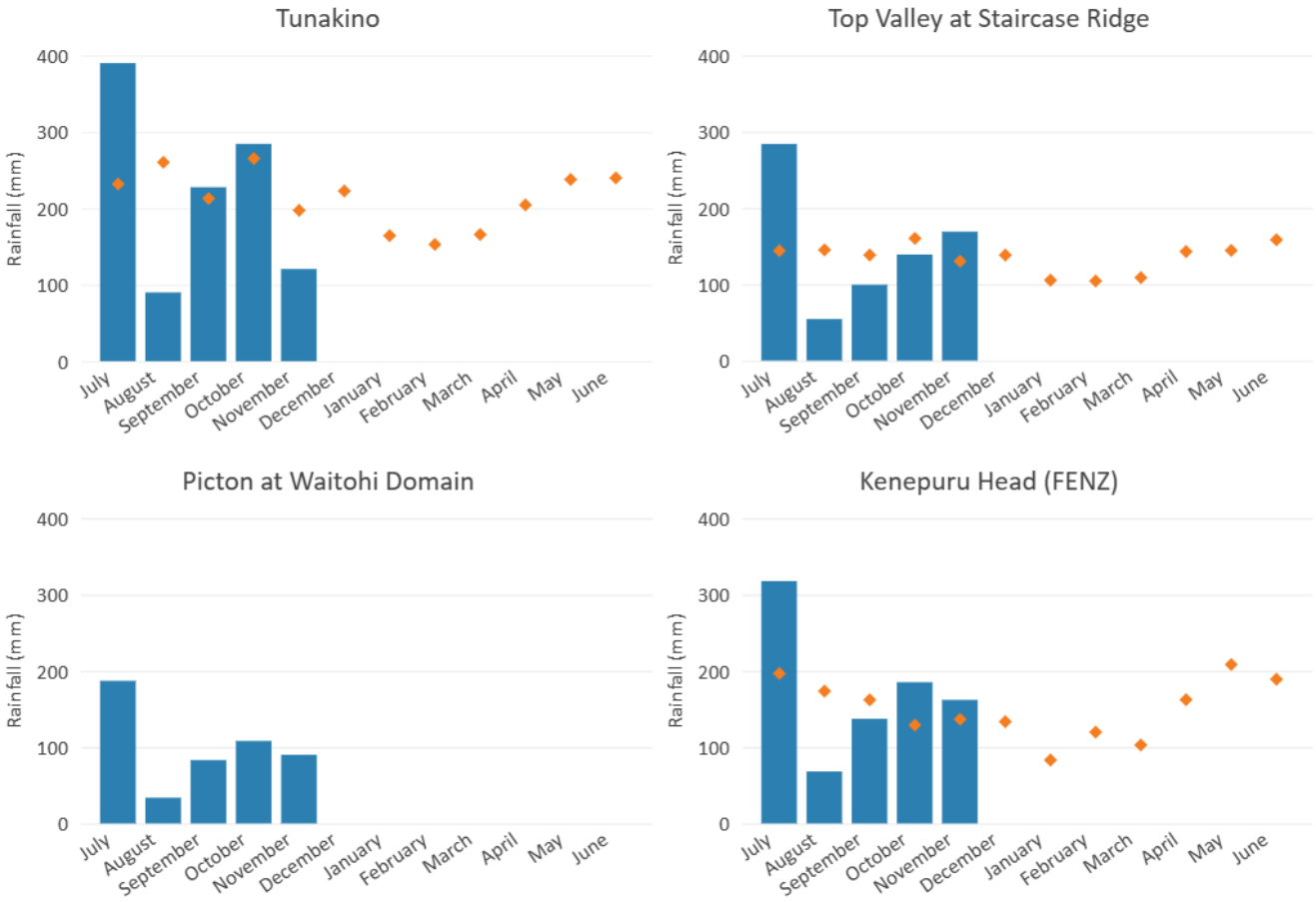

Figure 4. Monthly rainfall (mm) for the 2025/26 hydrological year at 4 sites in North Marlborough, compared to the average monthly rainfall.

A full list of monthly rainfall totals for the 2025/26 hydrological year at all rainfall monitoring sites can be found in the appendix, Table 1.

River Flows

Mean river flow over spring was 10 m^3/s at Awapiri, which is just 58% of the long-term average. Baseflow at Awatere at Awapiri has been in the lower quartile since mid-September. There have been several days where Class C water permit holders in the Awatere have faced restrictions, from early October onwards (on and off). In an average year, Class C restrictions generally come into force for the first time in mid-December, showing how the low rainfall over late winter/early spring 2025 is affecting river flows in the catchment.

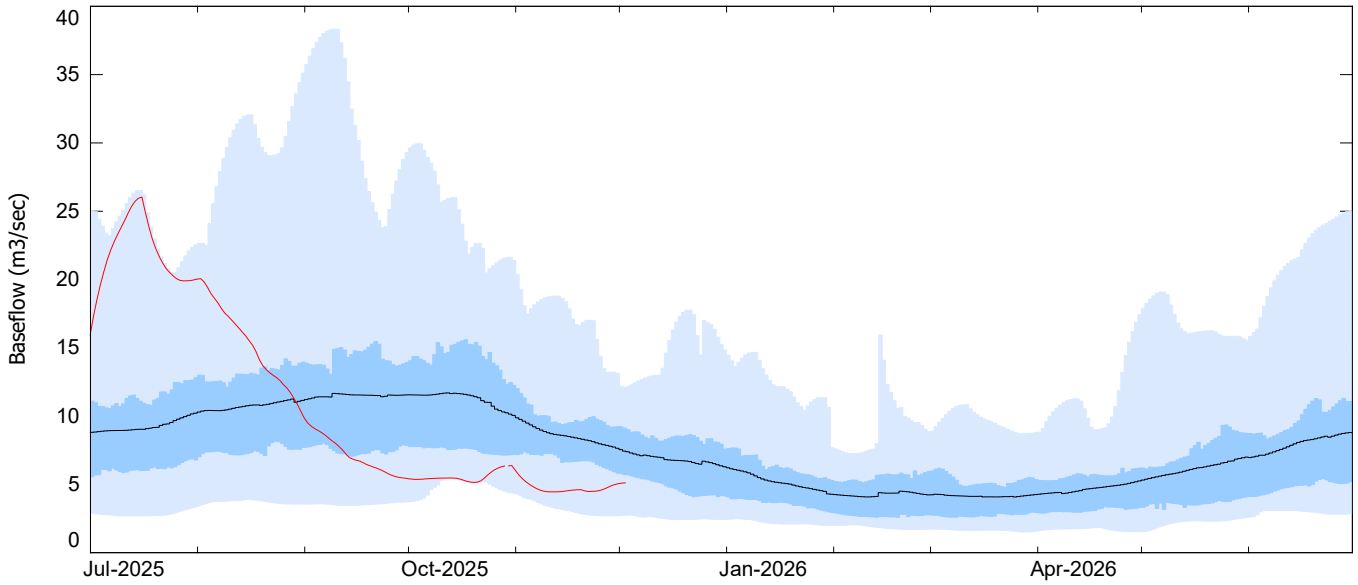

Figure 5. Awatere River at Awapiri baseflow, from 1 July 2025 to 30 June 2026. The black line is average baseflow and the red line is the 2025/26 baseflow. The dark blue shows the middle 50% of data and the light blue shows the upper and lower quartiles.

Waihopai at Craiglochart baseflow has been below average since mid-August. The spring mean flow at Craiglochart was 9.8 m^3/s, 53% of the long-term average.

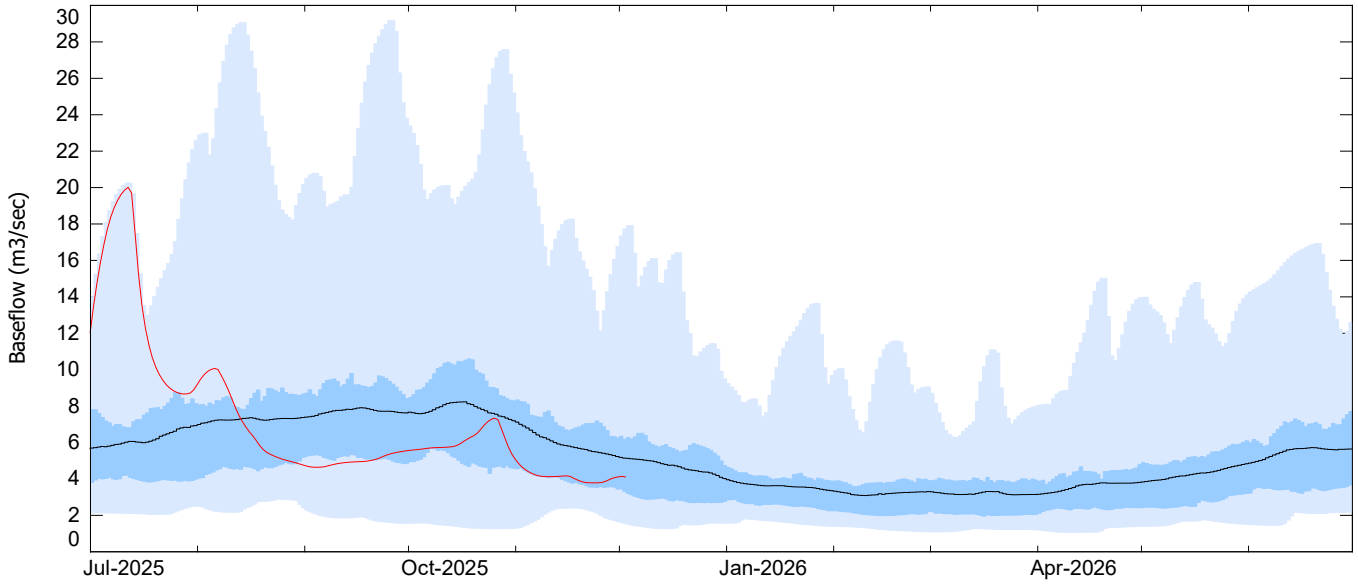

Figure 6. Waihopai River at Craiglochart baseflow, from 1 July 2025 to 30 June 2026. The black line is average baseflow and the red line is the 2025/26 baseflow. The dark blue shows the middle 50% of data and the light blue shows the upper and lower quartiles.

Baseflow in the Wairau River at Tuamarina has been slightly below average over the spring months, although flows were briefly raised by a fresh (smaller than an annual occurrence flood) in mid-October. Mean flow for November was 69 m^3/s, which is 58% of the long-term average.

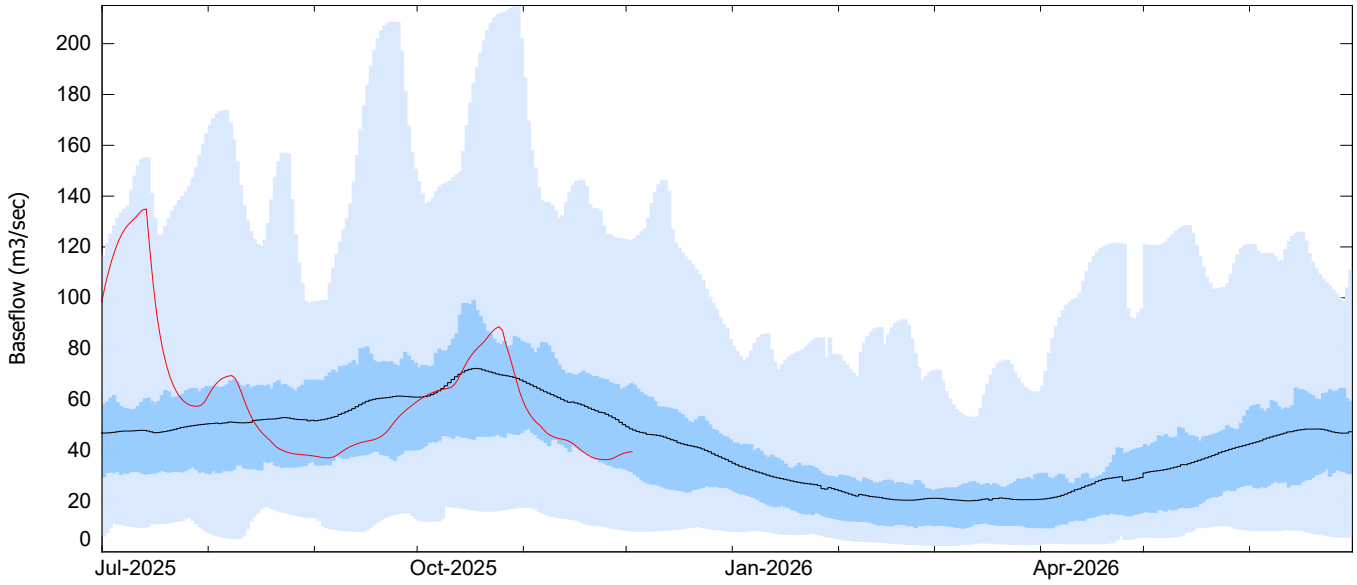

Figure 7. Wairau River at Tuamarina baseflow, from 1 July 2025 to 30 June 2026. The black line is average baseflow and the red line is the 2025/26 baseflow. The dark blue shows the middle 50% of data and the light blue shows the upper and lower quartiles.

Mean flow in the Rai River was 9.5 m^3/s over the spring months, which is 67% of the long-term average. Baseflow was in the lower quartile in early September, before rising to the upper quartile following the mid-October rainfall. As of the end of November, baseflow is slightly below average.

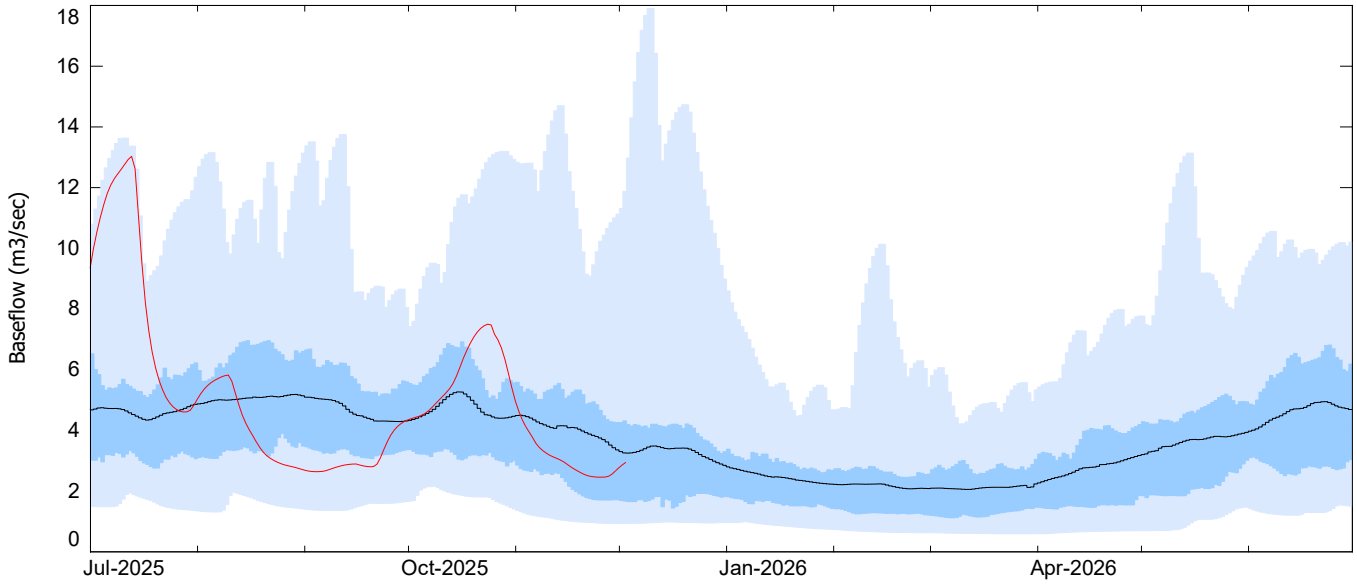

Figure 8. Rai River at Rai Falls baseflow, from 1 July 2025 to 30 June 2026. The black line is average baseflow and the red line is the 2025/26 baseflow. The dark blue shows the middle 50% of data and the light blue shows the upper and lower quartiles.

Soil Moisture

Soil moisture in Blenheim has been in the lower 10th percentile for much of the 2025/26 hydrological year. With low rainfall, the soil began to dry out from mid-September onwards. Soil moisture fell below wilting point in early November before a small top up from rain mid-month. Spring 2025 had an average soil moisture of 21.6%, which is the lowest in 24 years of soil moisture data collection. Figure 9 below shows soil moisture for Blenheim over the 2025/26 hydrological year.

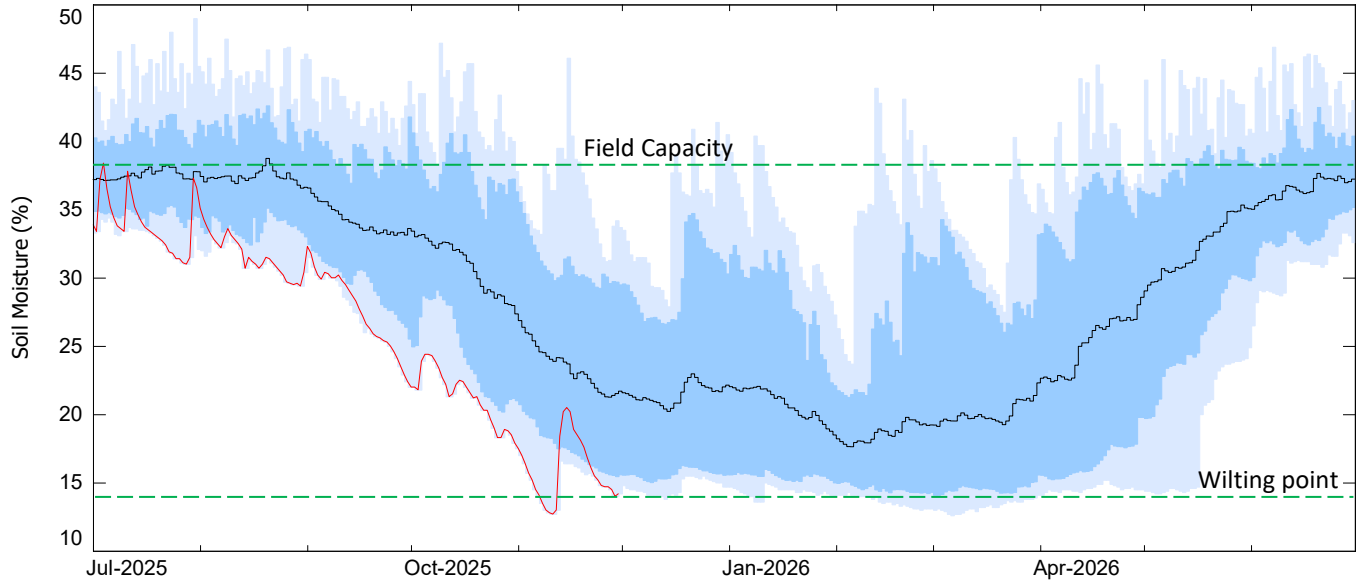

Figure 9. Shallow soil moisture at the Marlborough Research Centre (Blenheim) from the 1st of July 2025 to the 30th of June 2026. The red line shows this year's soil moisture, while the black line shows average soil moisture based on 20 years of data. The light blue shows the upper and lower 10% of the data and the dark blue shows the middle 80% of data.

Groundwater

Water level in the Wairau Aquifer at Conders has declined by approximately 3 metres since early July. Groundwater levels were high due to June/July flooding and have since declined to reach the lower quartile by late August. The aquifer has a mean residence time of approximately 3 months, relying on consistent inputs from the Wairau River. The long-term declining trend in groundwater level is the primary cause of the lower-than-average water level, as the Wairau River itself has had reasonable flows throughout winter and spring this year.

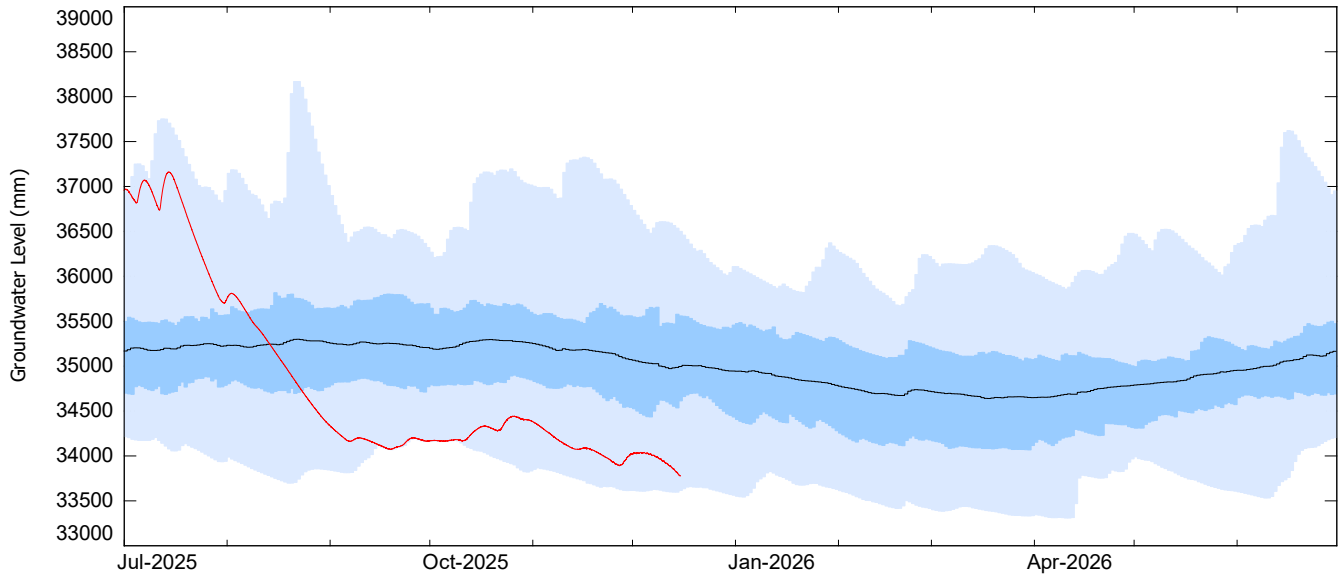

Figure 10. Wairau Aquifer at Conders well water level, from 1 July 2025 to 30 June 2026. The black line is the long-term average groundwater level, and the red line is the 2024/25 groundwater level. The dark blue shows the middle 50% of data and the light blue shows the upper and lower quartiles.

The Riverlands Aquifer is showing a pumping-induced decline in water level, as occurs each year over the irrigation season (see Figure 11 below).

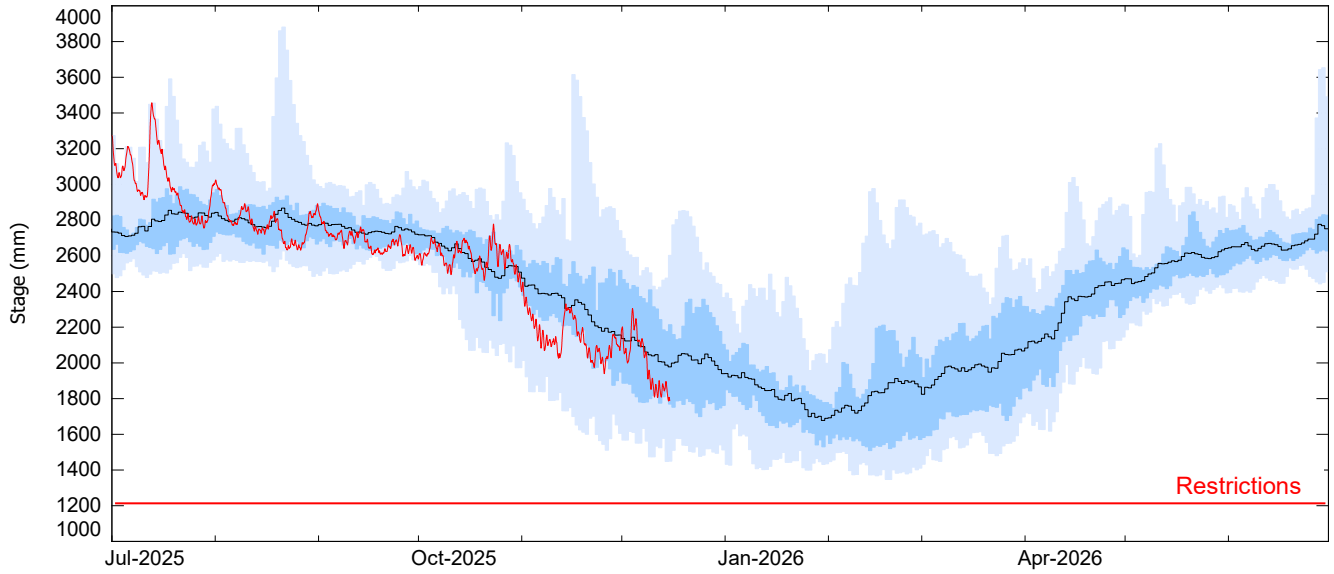

Figure 11. Lagoon Well (10346) water level, from 1 July 2025 to 30 June 2026. The black line is the long-term average groundwater level, and the red line is the 2025/26 groundwater level. The dark blue shows the middle 50% of data and the light blue shows the upper and lower quartiles.

Climate Outlook December to February:

- La Niña conditions (currently moderate) are set to weaken over summer, with a 50% likelihood of a return to neutral conditions by late summer.
- High pressure is likely to dominate from mid-December, bringing the possibility of dry conditions in late December and into January.
- In late summer high pressure may settle further south, resulting in more easterly winds and increased humidity.
- The risk of heavy rain events is elevated, particularly during late summer, due to La Niña-like weather patterns and continuing marine heatwaves around the country.
- The 5-week rainfall forecast for Marlborough shows it is likely to be drier than average for most of the region through to mid-January (see Figure 12 below).
- The NIWA drought forecasting dashboard shows the area of Marlborough considered as 'dry' expanding over the next 5 weeks to cover much of the region. There is little risk of drought conditions in this period. https://shiny.niwa.co.nz/drought-forecast/.

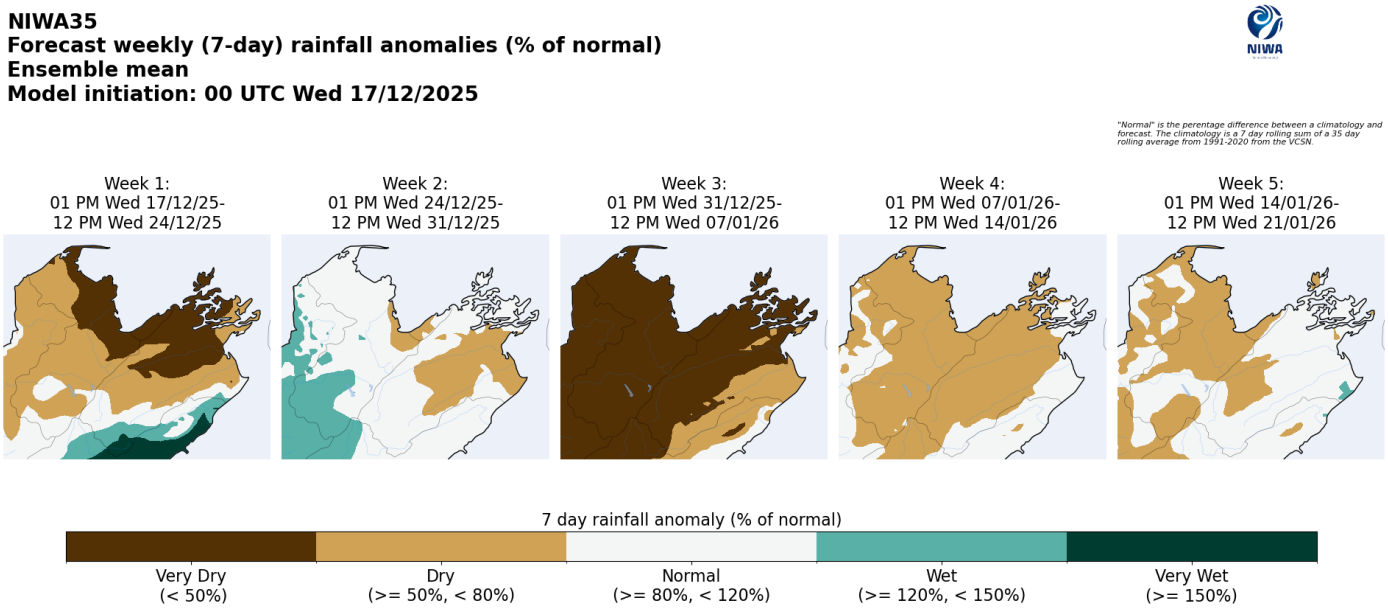

Figure 12. Weekly forecasted rainfall anomalies for Marlborough/Nelson/Tasman, from the 17th of December 2025 to the 21st of January 2026. Retrieved from NIWA on the 19th of December 2025.

The predictions for Marlborough/Tasman from December to February are:

Temperature:	above average
Rainfall:	near average or below average
Soil Moisture:	near average
River Flows:	near average

Appendix

Table 1. Monthly rainfall totals (mm) for the 2025-26 hydrological year at monitoring sites in Marlborough.

Site	July	August	September	October	November
Awatere at Awapiri	148	20	25	68	58
Awatere Glenbrae NRFA	79	19	16	52	45
Beneagle at Farm Stream	108	18	21	56	32
Blenheim at MDC Office	101	25	15	61	42
Branch at Branch Recorder	240	56	100	144	72
Branch at Mt Morris	243	43	170	313	112
Flaxbourne at Corrie Downs	98	18	13	29	48
Kaituna Rainfall at Higgins Bridge	208	52	108	113	111
Kenepuru Head NRFA	318	68	137	185	162
Koromiko NRFA	203	45	93	113	116
Lake Elterwater Climate	92	24	10	28	43
Lansdowne NRFA	165	18	33	70	76
Malings	93	56	313	522	154
Mid Awatere Valley NRFA	118	13	21	79	39
Molesworth NRFA	93	25	46	79	64
Omaka at Ramshead Saddle	154	20	24	80	64
Onamalutu at Bartletts Creek Saddle	289	48	99	136	172
Onamalutu at Hilltop Road NRFA	247	59	148	173	175
Picton Climate at Waitohi Domain	187	34	83	108	90
Pudding Hill NRFA	70	21	68	129	52
Rai at Rai Falls	348	89	192	230	183
Rai Valley NRFA	269	79	163	194	115
Rarangi at Driving Range	155	34	33	67	94
Red Hills	271	45	153	135	83
St Arnaud NRFA	140	61	224	283	94
Taylor at Taylor Pass Landfill	109	20	23	56	36
Taylor at Tinpot	169	43	30	76	67
Te Rapa	112	25	8	28	64
Top Valley at Staircase Ridge	284	55	100	139	169
Tunakino	390	90	228	284	121
Upper Clarence NRFA	56	31	11	49	32

Table 1. (continued).

Site	July	August	September	October	November
Waihopai at Craiglochart	138	26	17	50	56
Waihopai at Spray Confluence	175	22	55	115	59
Waikakaho	171	54	39	94	77
Waikawa at Boons Valley	213	53	69	103	87
Wairau Valley at Southwold	222	23	28	57	68
Wakamarina at Twin Falls	258	84	154	239	146
Ward NRFA	105	23	9	33	45
Wye at Charlies Rest	162	30	62	113	64