

Freshwater monthly snapshot

Summer/Autumn 2018

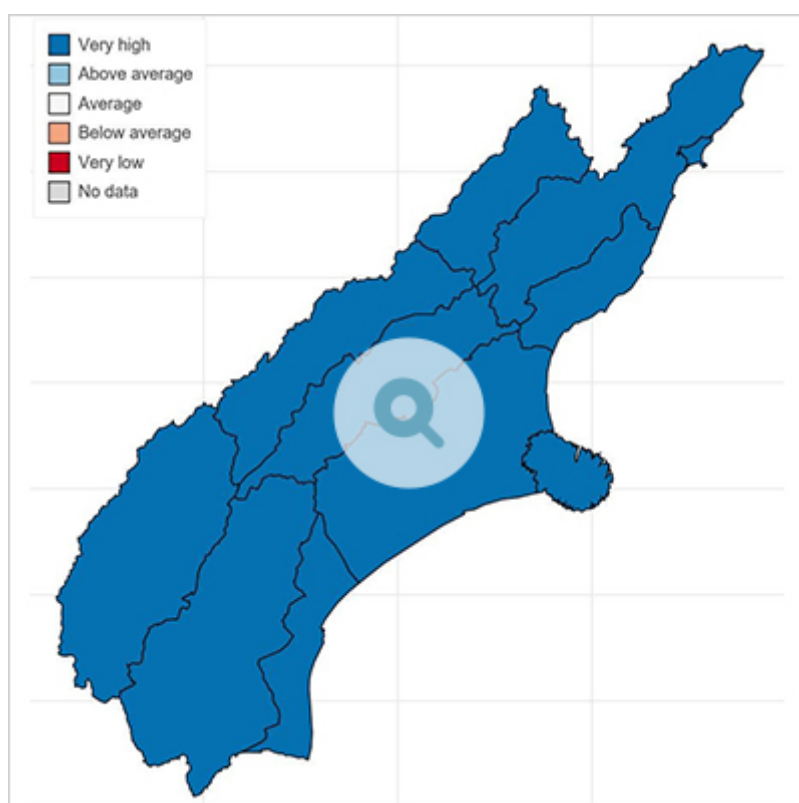
A report for Environment Canterbury Councillors. This report is prepared monthly and looks back and forward at significant freshwater management issues.

Monthly snapshots for February:

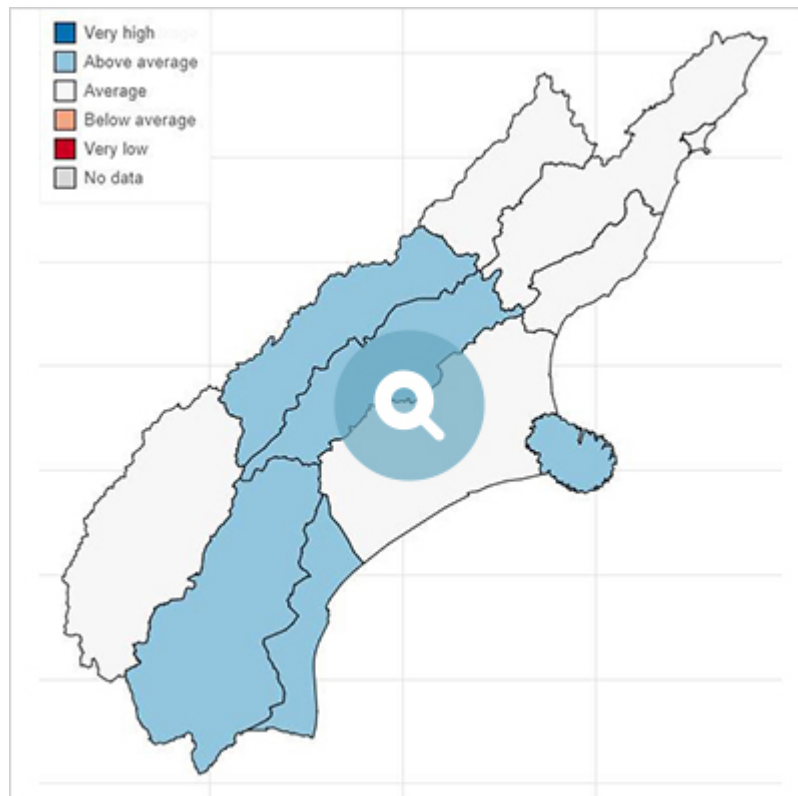
The maps below summarise rainfall, surface water flow, and groundwater levels. They are based on amalgamated data and give a good approximation of conditions across the region, measured on a five-point scale based on standard deviations.

The rainfall and surface water flow maps are based on geographic and topographic conditions. The groundwater map reports by Canterbury Water Management Strategy zone.

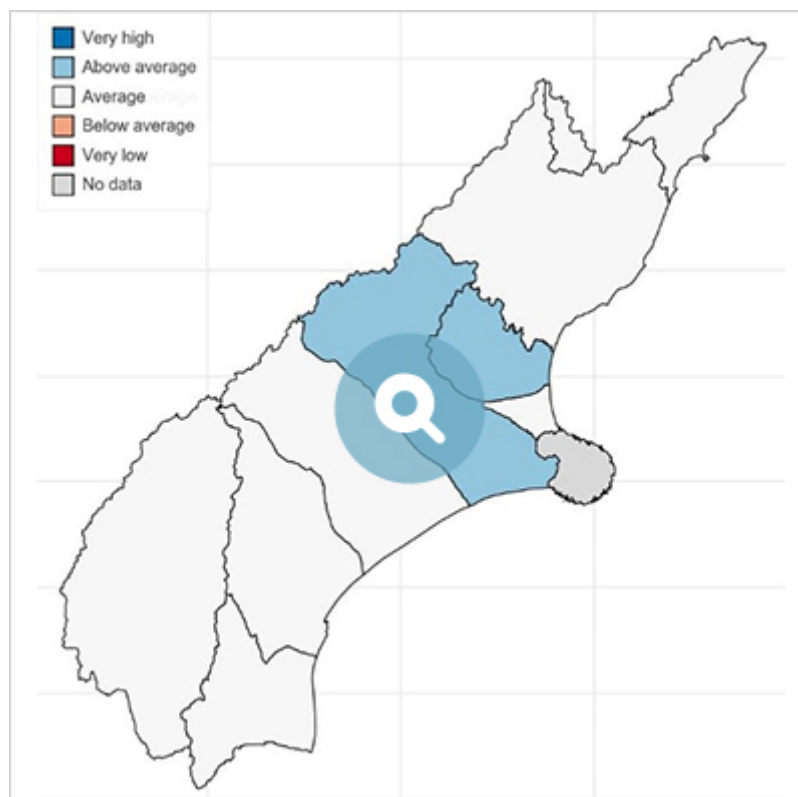
Precipitation index



Surface water flow index



Groundwater level



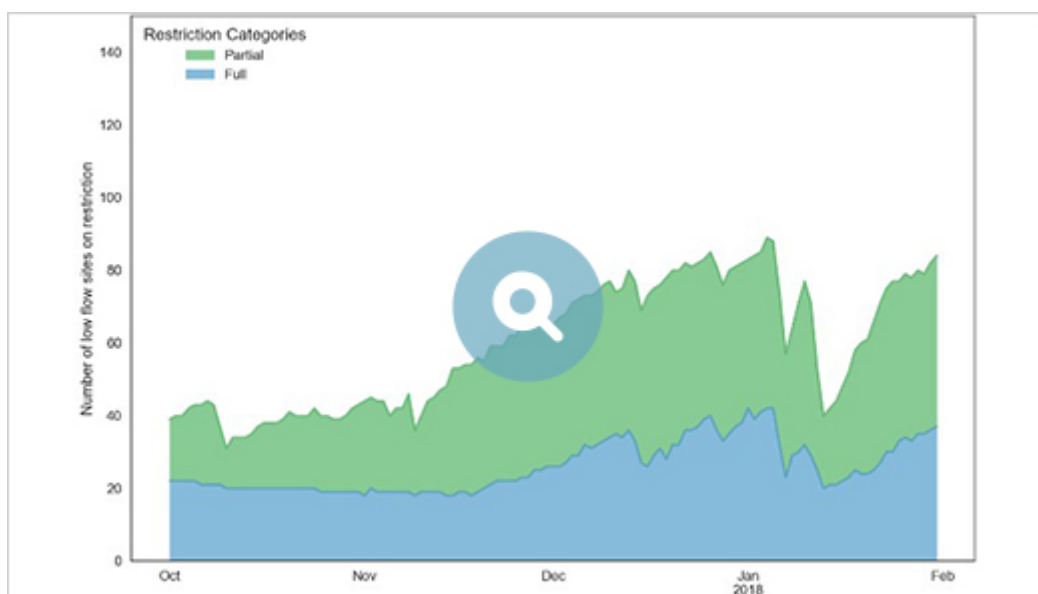
Niwa forecast for March-May 2018

- Temperature is likely to be above average
- Rainfall is likely to be above average or average
- River flows are likely to be above average
- Soil moisture is likely to be above average

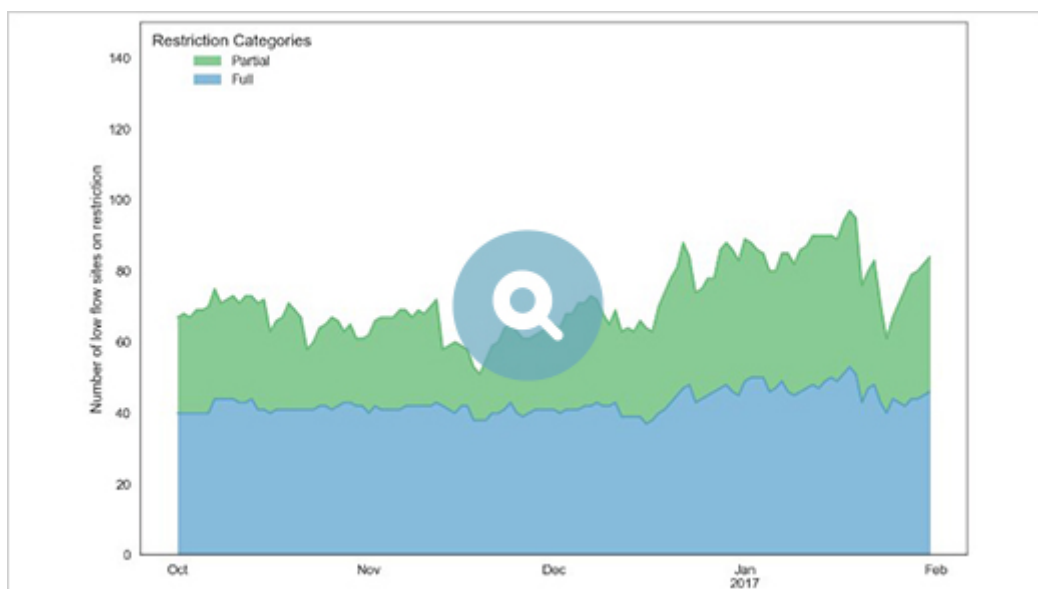
Surface take restrictions for irrigation

Irrigation restrictions varied over summer months in response to weather patterns. In comparison with last year, there were fewer restrictions on water takes, particularly at the beginning of the irrigation season (based on telemetered and gauged data).

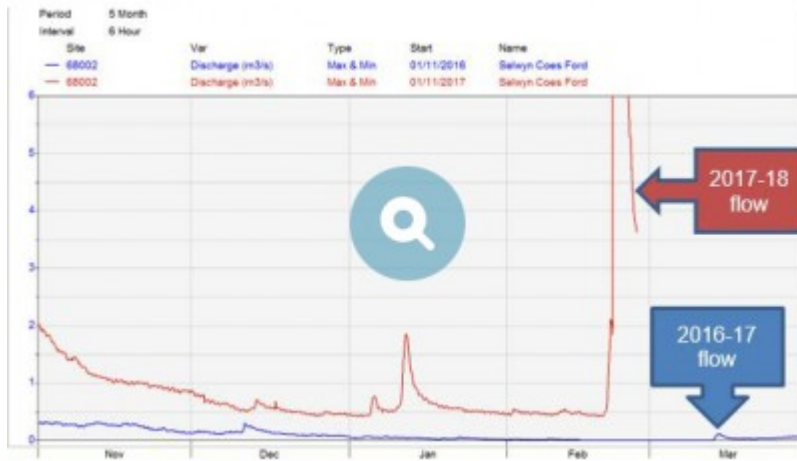
Rivers on restriction 2017-18



Rivers on restriction 2016-17



Selwyn River/Waikirikiriri flows



The Selwyn River has held up well this summer with sustained flows .

This confirms the Environment Canterbury advice that a winter of high rainfall would recharge groundwater and maintain flows in the following summer.

Also of note is that the river reconnected across the plains after the rainfall from Cyclone Gita giving a rapid rise from around 0.5 to 90 cumecs that caught out a camper van parked at Coes Ford (against advice).

Waimakariri high country lakes fish rash

In November 2017 Fish & Game closed six high country lakes in the Craigieburn-Cass area for fishing because of a red rash on fish. The concern was over a red rash being found on fish taken from the lakes and that it could be a new virus or caused by an invasive species. Testing of the fish by MPI found nothing, despite concerns it could be a new virus or invasive species.

In December Environment Canterbury staff (particularly Dr Adrian Meredith) worked with F&G to catch fish and measure environmental variables in the lakes. The results are inconclusive but the most likely stress was from high water temperatures.

The long period of hot and still weather from November to January raised lake temperatures to above 20°C which is known to cause stress in trout. January measurements of lake temperatures showed temperatures as high as 24°C.

The latest round of monitoring (23 February) shows temperatures are significantly lower, averaging around 15°C, because of rainfall and stormy weather.

Lindavia in Canterbury lakes



Lindavia mucus at Lake Tekapo power station

Lindavia (commonly referred to as “lake snow”) has recently been found in Lake Lyndon. It has now been established in Lakes: Aviemore, Benmore, Ohau, Tekapo, Coleridge, Lyndon, and Sumner and is likely to be in more lakes.

The discoveries of Lindavia in most of our big lakes suggest that it has become entrenched in Canterbury. Current research is focused on whether this means a significant shift in lake ecosystems.

Lindavia (an invasive species of diatom) has caused concern for water supply and hydroelectricity generation in Otago and Canterbury lakes. Lindavia produces a mucus that can clog up filters in water intakes and fouls fishing lines. It is this mucus that is referred to as “lake snow”. In Lake Wanaka it has been observed to produce rafts of floating lake snow.

Manaaki Whenua-Landcare Research is running an MBIE “Smart Ideas” research programme looking at detection tools and finding other information on Lindavia. Environment Canterbury is well linked into this research programme and is also funding work (jointly with Otago and Southland regional councils) by the University of Otago on coring southern lakes sediment to find when Lindavia reached the lakes.

Groundwater levels and forecast



Groundwater levels are healthy because of last year's wet winter. Additional rain in spring/summer also helped by reducing irrigation demand.

Levels have dropped, as per normal, over the spring and summer, when growing plants and evaporation prevent most rainwater from reaching groundwater. Even so, there were moderate increases in groundwater levels after heavy rain events in January and February.

Groundwater levels in February 2018 were generally average to above average across the region. This is much better than this time last year when 64% of our monitoring wells had low or very low water levels. The monitoring well (shown right) is provided as an example of seasonal groundwater levels since 2011.

ZIP Delivery: progress in farming to limits

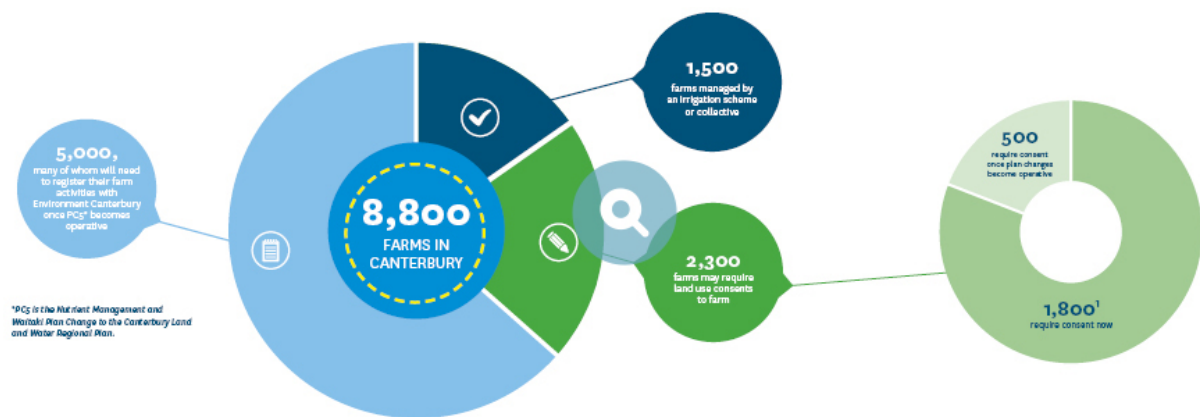
Of the ~8800 farms in Canterbury:

- ~1500 are managed by consents via schemes or a collective
- ~5000 are expected to be permitted and will not need a land-use consent once the nutrient management plan change (PC5) becomes operative

Of the ~2300 farms that are likely to require a land-use consent to farm under the LWRP:

- ~1800 require a consent now
- ~500 will require a consent as plan changes become operative

During 2017 the zone teams targeted ~1000 farms with more than 50ha of irrigation to check whether they, in fact, needed a land-use consent. In November we reported that 92% of this group were either permitted, already had a consent or were on track to gain a consent (with many on a nutrient budget wait-list which is a requirement for a land-use consent to farm). The remaining 8% were followed up directly over summer by the zone teams and received warning letters and a visit from a resource management officer.



Water measuring compliance

97% of water allocated (by total water volume) in Canterbury is currently measured.

The table below shows progress in implementing the three-volume classes under the national regulations: 20ltr/s and above; 10 ltr/s and less than 20ltr/s; and 5ltr/s and less than 10ltr/s.

The 5ltr/s volume class has only become a focus in the last year consistent with the national regulations.

VOLUME	NUMBER OF TAKES	NUMBER CONSENTS	TEMPORARY WAIVERS	METERED TAKES	% OF TAKES METERED	NUMBER OF TAKES VERIFIED	% OF TAKES VERIFIED
greater than or equal to 20 l/s	6619	3536	523	5766	95%	4678	77%
greater than or equal to 10 and < 20 l/s	908	767	70	740	88%	583	70%
greater than or equal to 5 l/s and < 10 l/s	780	739	3	216	28%	116	15%
TOTALS	8307	5042	596	6722	87%	5377	70%

A water use monitoring campaign was run over summer looking at compliance with water use restrictions and consent conditions. 53 high-risk consents (in all zones) were identified and we found zero non-compliance. The increased visibility of Environment Canterbury officers in the field was a positive for consent holders and landholders.

- [Read the previous Canterbury Freshwater Quarterly Report - Spring-Summer 2017-18](#)
- [Read the previous Canterbury Freshwater Quarterly Report - Winter /Spring 2017](#)

Find out more

View the [water quality in our monitored rivers and streams](#) reporting back page.