

In Taranaki water is taken from our rivers for a range of purposes, including public supply, hydroelectric power generation and industrial manufacturing and processing. The Council's role is to ensure the water we use provides for the needs of both freshwater ecosystems and people.

Data from our river flow monitoring network helps us understand how river flows change in response to natural stream processes, changes in climate and water use. This enables us to assess the likely impacts of current and future water takes on our waterways and the environmental, social and cultural values they support. To protect these values, we set limits on how much water can be taken from rivers, streams and lakes, and the rate at which it can be abstracted. We manage the use of water through policies, regional rules and resource consents issued to water users.

The Council monitors river flows and levels at 41 locations across the region, with an additional three sites monitored and maintained by NIWA. We also monitor water usage to ensure water use is managed in line with the requirements of each resource consent.

This section provides an overview of the current state of surface water and the changes in the amount of water allocated for use in the region.

River flow and levels monitored at **44** locations

**116** surface water take consents as at 1 July 2020

**96%** of consented surface water is used for hydro-electric generation

Water demand has increased **3%** since 2013

## What we know

### River flows

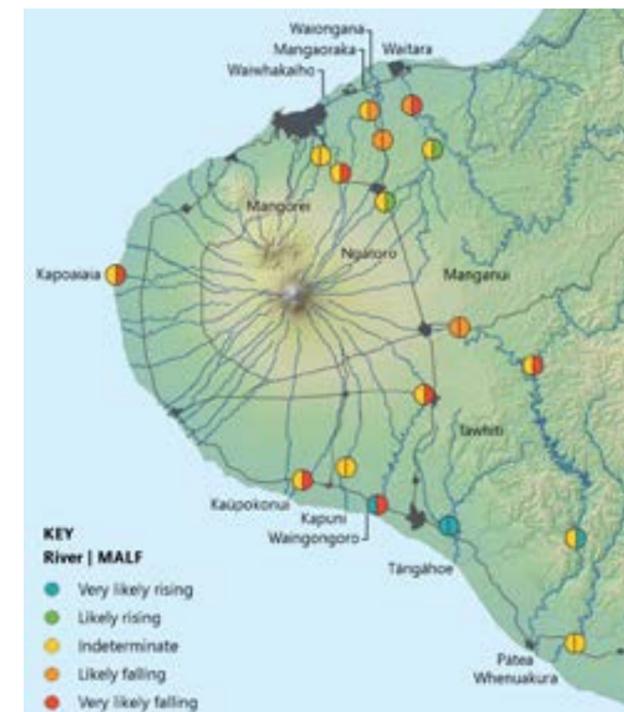
For water management purposes we describe river flows using statistics known as the mean flow and the mean annual low flow (MALF). Mean annual low flow is the minimum flow recorded each year, averaged across the entire data record for a site, and generally the minimum flow needed to maintain a catchment's natural character and ecosystem health. It helps us set minimum flow thresholds for rivers and streams, the point at which consent holders need to reduce or cease taking water to protect the health of the waterway.

Low river flow conditions often occur in summer during prolonged periods of dry weather or drought. The annual mean flow of monitored rivers indicates how their flow might be changing over time. Being an annual average, the mean flow statistic incorporates the full range of flows experienced at a site over the course of a year. This accounts for flow variability across seasons, including low flows and floods.

Of the 41 sites where we monitor river flows, 17 have been monitored for at least 20 years. Data from these sites have been used to identify any trends in river flow and MALF over time. There was no clear evidence of a trend in mean river flow at 12 of the 17 monitored sites (71%). Two sites showed an increase in flow over time (12%), while flows were reducing at a further three sites (18%). Ten sites (59%) have seen reductions in their MALF over time (i.e. lower low flows), while four sites (24%) show an increase (i.e. higher low flows). While the drivers of these changes are uncertain, a mixture of land and stream modification, water use and a changing climate are all potential factors.

### Water use

In Taranaki, the use of small amounts of freshwater for domestic purposes or stock or dairy farm use is generally permitted under the Regional Freshwater Plan (RFP). In most catchments, a resource consent is not required if water take



Trends in river flow and mean annual low flow (MALF) at sites with 20 years or more of flow data available.

is taken at a rate of less than 1.5L/s, is less than 25% of the total stream flow and the volume does not exceed 50 cubic metres a day. There are however, exceptions in particular catchments, so it pays to check with the Council in advance if unsure of the rules.

To take water for any other purpose and/or at greater volumes, a resource consent is required. In most cases these consents will have a set minimum flow limit, at which point the take must reduce or cease to ensure that ecosystem health is protected. There are some exceptions to this for specific activities, like providing water for stock drinking purposes or for firefighting.

As of 1 July 2020, there were 116 resource consents issued for water takes, allowing up to 502,478m<sup>3</sup> of water to be taken per day. Demand for water has not changed significantly in the past decade, increasing just 3% from 2013 when the total allocated volume was 489,104 m<sup>3</sup> per day. This increasing demand has mainly been for water from smaller catchments and predominantly for pasture irrigation.

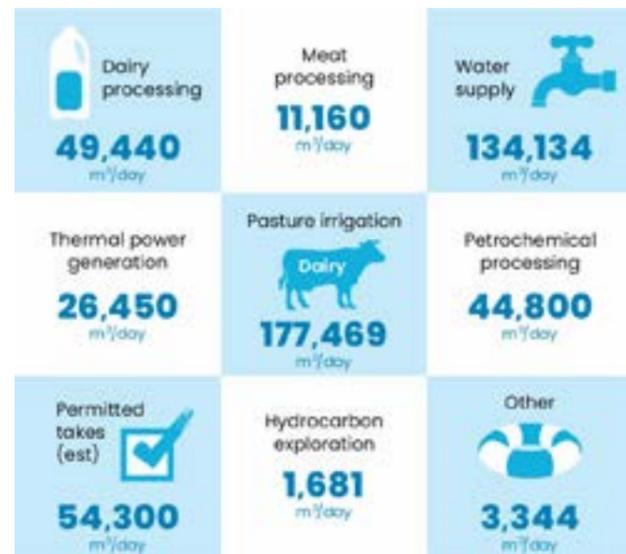
YEAR	1999	2003	2008	2013	2020
VOLUME (TWh)	321	442	474	489	502

The amount of water allocated for consumptive uses in Taranaki.

Total surface water allocation, including hydroelectric schemes, is 11,694,698m<sup>3</sup> per day. Approximately 96% of this is used for hydroelectric power generation and is considered non-consumptive, as the water is returned at or near the point of abstraction. The remaining 4% of allocated surface water is used for consumptive purposes.

When water taken for hydroelectric generation purposes is excluded, pasture irrigation accounts for 35% of all consented surface water use, while public water supply accounts for 27%. Dairy and meat processing combined account for 12%, while hydrocarbon exploration and petrochemical processing account for 9%. Other uses such as horticulture, swimming pools and quarries make up the remaining 6%.

It is estimated that 54,300m<sup>3</sup> (11%) of water is taken per day for permitted activities, which do not require a resource consent under the RFP. This is primarily used for domestic and farm water supply.



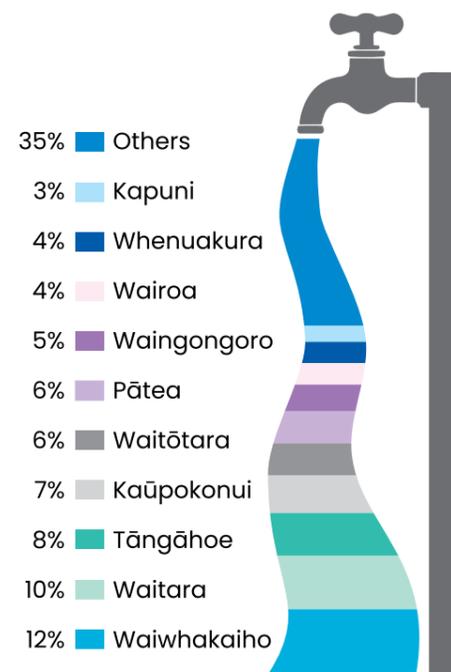
The amount of water allocated by various activity types in Taranaki, as at 2020.

### Allocation by catchment

There are 217 river catchments in Taranaki, including 31 originating within Te Papakura o Taranaki. As of June 2020, consents to take water were issued in 46 catchments across Taranaki, with the largest volumes in the Waiwhakaiho, Waitara, Tāngāhoe, Kaūpokonui, Waitōtara and Pātea Rivers. These six catchments provide 49% of all the surface water consented for consumptive use.

Since 2008, the number of catchments where more than 20% of MALF has been allocated for use has dropped from 31 to 20, and the number where more than 30% of MALF has been allocated has dropped from 19 to 13.

To assess the pressure on rivers and streams as the result of water use, the amount of water allocated for use is compared with the median and the MALF. Overall, only 5% of total median flow has been allocated for use in Taranaki, up slightly from 4.8% in 2015. The proportion of water allocated is higher when compared to MALF, but even then, allocation is still low at only 15%.



The amount of water allocated by river catchment as a proportion of the total amount allocated across the region, as of 2020.

## What we're doing

The Council has developed compliance programmes for all water take consents. These generally include regular inspections along with the collection of data to ensure compliance with consent conditions. Additional flow monitoring sites are installed, when required, to assess low flow consent conditions; such as those requiring consent holders to reduce or cease taking water. If a consent holder is found to be in breach of their consent conditions, enforcement action will likely occur and may even require the consent holder to cease their activities until they can comply completely with all consent conditions. If they fail to do so, further enforcement action would follow. Fortunately, the need to pursue enforcement actions relating to breaches of water take consents is rare. Over the 2020-2021 year, 97% of water users achieved either a 'high' or 'good' rating for consent compliance and environmental performance through their compliance monitoring programmes.

## Where we're heading

### Developing limits

To give effect to new requirements under the National Policy Statement for Freshwater Management 2020 (NPS-FM), the Council must develop environmental flow limits in consultation with our community. These include limits placed on how much water can be taken from rivers, streams and lakes, and the flow at which these takes must cease (the minimum flow). These limits will need to provide for the freshwater values identified by the community and place the health and wellbeing of freshwater first – before meeting the needs of people.

We'll also consider how we manage catchments where the amount of water currently allocated for use exceeds these revised limits and how we make sure water is being used in the most efficient manner possible. Any new water take consents issued by the Council are now also required to include environmental flow limits, regardless of the activity. The Council will be in discussion with water users,

stakeholders, iwi/hapū and the wider community as we work together to design this new management approach.

### Understanding the future impacts of climate change

Under the NPS-FM, the Council must also consider the effects of climate change on freshwater, and ensure this is factored into our new policy and planning framework, including limit setting.

The Council recently commissioned a report by NIWA to assess climate change projections for Taranaki to the end of this century. Findings suggest that mean annual river flows will remain largely unchanged to mid-century (2036-2056), and with a slight increase for some coastal areas, particularly in the north and west by late century (2086-2099). The remainder of the region is expected to remain the same.

The report suggests that by mid and late-century we may experience decreases in MALF by up to 50% throughout much of the region. The exception is southern parts of South Taranaki, where a smaller increase of 5-10% is projected. This would mean that, particularly during summer, water users are likely to experience more frequent and extended periods where water takes need to be reduced or ceased.

### Measuring environmental flows

Regulations for the Measurement and Reporting of Water Takes (amended 2020) require that all water takes greater than five litres per second record measurements of the amount of water taken at 15 minute intervals and provide that data electronically to the Council by the end of the next day. These requirements will be phased in incrementally through to 3 September 2026. For takes over 20 litres, these requirements must be met by 3 September 2022.

The Council has contacted all water take consent holders to advise them of these requirements and where they can access support to ensure they comply. Council officers are also available to answer questions and provide advice as required.