



Warren-Donnelly Water Update

October 2019

Welcome to the October 2019 issue of the *Water Update* newsletter for Warren-Donnelly landholders and licensees.

The Department of Water and Environmental Regulation (DWER) undertakes licensing, planning and measurement activities in the Warren and Donnelly River catchments to support the equitable and sustainable distribution of water to support commercial, domestic, public water supply and environmental needs. The Department does this with input from the Warren Donnelly Water Advisory Committee. This second newsletter address' some common questions raised by licensees and the community.

Just how much is a Gigalitre?

We often talk about water as gigalitres (GL) or megalitres (ML) as a volume of measure of water availability, streamflow or dam capacity. A gigalitre is a billion litres (or 1,000,000,000 litres) made up of 1,000 megalitres (or 1,000 x 1,000,000 litres).

When you try and visualise that 1 gigalitre is roughly equivalent to 500 Olympic sized (50m) swimming pools, with around two megalitres filling a single Olympic sized swimming pool.



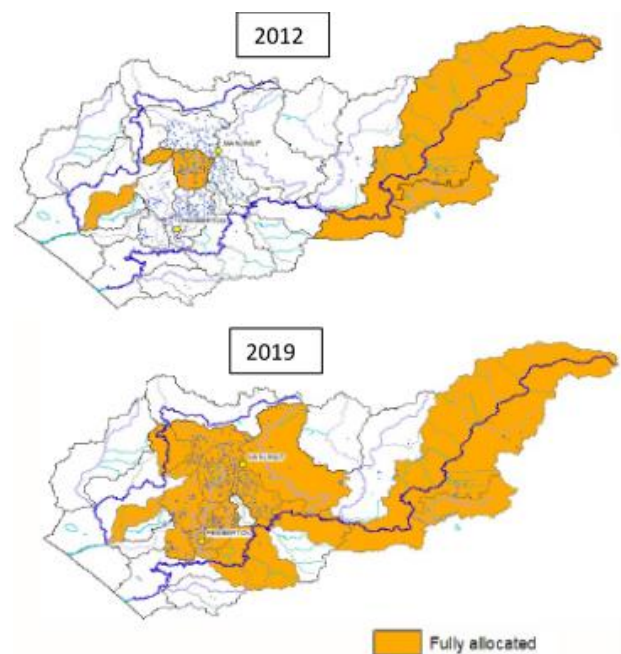
In the *Warren-Donnelly surface water allocation plan* (2012) there is 73GL per annum of water considered for allocation against general licensing, public water supply and unlicensed use.

Changes in water availability

The availability of water for self-supply has become less as new and existing licensees seek water to support their needs. At the time of the release of the *Warren Donnelly surface water allocation plan* ("Plan", 2012) of the almost 69 gigalitres (GL or billion litres) available for self-supply, only 37.5GL or 55% was allocated. Even as recently as January 2016, only 42.8GL or 62% of available water was allocated.

Today, a total of 62GL has been allocated for self-supply representing 83% of all water available for licensing. In addition there was ~10GL of water allocated under variable take licenses.

This has resulted in an increase in subareas where water is no longer available. In the 2012 plan only two of the nine subareas in the Donnelly River catchment and three of the sixteen subareas in the Warren River catchment were fully allocated or had no water available. As of today, the number of resources with no water available has doubled in the Donnelly (four subareas) and tripled in the Warren (9 subareas). Six of





these sub areas have previously had additional water licensed under variable take to make water available to self-supply users in high flow years.

You can monitor the availability of water, and find licensee information for subareas through the Water Register which can be found at <http://www.water.wa.gov.au/maps-and-data/maps/water-register>

“Over allocated”



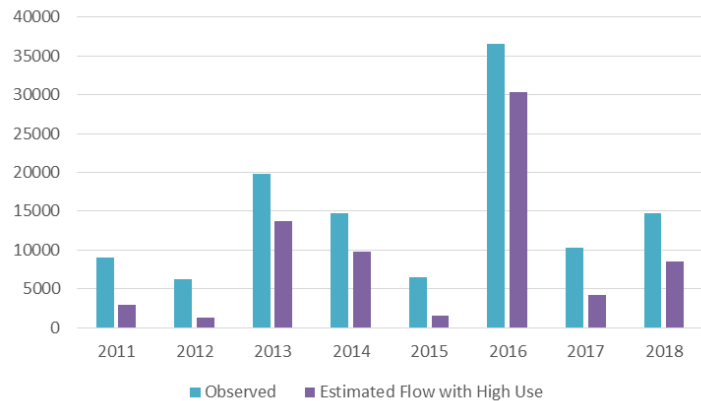
Yes – we have seen the sign. We understand the perception people may have that there are large volumes of water available or being preferentially made available to the environment instead of being made available for self-supply. Its important to remember that the Plan identifies that allocation limits are based on a benchmark dry year for each subarea (the year of lowest streamflow for the period 1975-2007, generally 1987 in the Warren and 2001 in the Donnelly) as this low flow year provided secure water supply (for high reliability licenses) and acceptable risk to the environment in all years in the historical

record when setting allocation limits in the plan. In years when flows are above this level or where entitlements are not being used, water is not allocated to the environment (as some have commented), but may be used by the environment or provide increased reliability of supply for downstream self-supply users. This water would also be potentially used by self-supply users through any future variable take licensing regime. It should be noted that Warren-Donnelly has experienced at least three years with less flows than 1987 stream flows – 2010, 2012 & 2015.

As an example, let’s consider the Manjimup Brook/Yanmah-Dixvale subarea from 2011-2018.

- Minimum Flow 6,199ML; Maximum Flow 36,520ML.
- Licensed amount: General 7.1GL/yr; Variable Take 1.150GL/yr
- Estimated Current Usage is 2.13GL/yr
- Estimated discharge in lowest flow year (2012) with high use (80%): 1,226ML (15% of flow)
- Estimated discharge in highest flow year (2016) with high use and variable take: 28,265ML (77% of flow)

Manjimup Brook
Observed Flows Vs Estimated flows



What this shows is that in a low flow year like 2012, there is enough water to provide for

high use (80%) of all entitlements with only 1.2GL or 15% of the total flow left in the system of which 0.43 GL is needed to meet stock and domestic, riparian and exempt spring use, with the balance (0.77GL) available to the environment. This means that in 2012, the environment would receive only 6% of total flow. However, underuse of entitlements meant that a further 5GL of water that was allocated to self-supply users was available for use by the environment and others.

In those years where more rain and streamflow occurs, that water has the potential to be used by self-supply under potential future variable take entitlements as it is only available in years where flows exceed the low flow years. While variable take is currently unavailable, that water is otherwise going downstream where it can be used by the environment or others (rather than being ‘allocated’ to the environment).

So why isn’t variable take still available?

The Department ran a variable take trial from 2013 to 2015 to trial options to access lower reliability water in the Warren-Donnelly catchments. Following the trial, the Department introduced variable take licensing to six sub-areas within the Warren and Donnelly river catchments, developed assessment criteria for applications and determined what circumstances variable take would be considered for introduction into other sub-areas.



The Department's review of the *Warren-Donnelly surface water allocation plan 2012* (the 'Plan') in October 2017 highlighted several risks with the implementation of the variable take licensing. The initial uptake of variable take licensing was high and rapid, resulting in the granting of instruments totaling ~10GL. Potential associated risks were identified to the water resource objectives of the Plan around managing a flow regime that met environmental and social values, and maintaining a flow regime that supplies (high reliability) licensed entitlements in almost all years. In order to mitigate further potential impacts to the reliability of supply to existing users and the environment, the Department established allocation limits for all variable take resources, as of 16 November 2017. The establishment of allocation limits was communicated through Public Notices on 20 December 2017.

Further modelling undertaken by the Department in June 2018 identified further potential risks to reliability of supply to existing licensed and exempt users and the environment, streamflow at the catchment outlet and minimum flow thresholds.

The Department is now undertaking further work to verify these risks and potentially make changes to existing variable take licensing to ensure high reliability licenses and other users are not impacted.

This involves a number of steps to determine whether, and under what circumstances, variable take could be re-introduced in previous variable take sub-areas and new sub-areas in the future. These steps include:

- reviewing existing variable take licensing decisions to ensure consistency and accuracy of information in the model;
- evaluating existing and new variable take bypass infrastructure for measurement against modelled outcomes;
- preparing guidelines and background information on variable take in the Warren and Donnelly catchments;
- updating of the model with new flow information and surveyed dam volumes to improve accuracy; and
- determining any increase of unregulated take from the resource since 2012 (stock and domestic, riparian, spring exemptions).

Licensees and the community will be updated on progress of these steps through future *Warren-Donnelly Water Update* newsletter and workshops as required.

We acknowledge demand for water in fully allocated areas and encourage landowners to utilise existing provisions for the trading and movement of water under agreements to activate this under-utilised water while the review and evaluation of variable take is undertaken.

Why is a Winter Take Period specified on my licence?

A *Winter Take Period* has been identified on surface water licenses in the Warren-Donnelly since at least 2011 and supported by local policy described in the Plan. The Department recognises that dates were being applied inconsistently, and in January 2016 the 15 June to 15 October *Winter Take Period* was formally applied on all new and renewed licenses.

The dates of 15 June to 15 October associated with the *Winter Take Period* came from a scientific investigation undertaken in 2008. The Department has been undertaking a review of the *Winter Take Period* to provide the relevance of the 15 June to 15 October dates in a contemporary streamflow context. In undertaking the review the Department is required to be consistent with the objectives of the *Rights in Water and Irrigation Act 1914* with regard to the sustainable use and development of water resources in meeting the needs of current and future users, as well as protecting the water resource ecosystems and associated environments. In doing so, a number of alternative dates (including extended and 'summer' dates) and gauged catchments were investigated to determine whether these outcomes could be achieved.

The investigation identified that;

- Streamflow records from the past decade are significantly more confined than the previous extended period, starting later (mid-June) and ceasing earlier (early November rather than late November – mid-December).
- The majority of flow occurs across all areas in July to September, followed by transitional flows from early June and late October and into November.



- Flow generated during the *Winter Take Period* since 2000 was sufficient to meet the general and public water supply components of the allocation limits in the assessed subareas. Flows during this period are at least 25% greater than full potential entitlements for the resource. More so, the *Winter Take Period* likely reduces the incidence of licensees drawing more water than their entitlements due to concurrent irrigation.
- As an example in the Upper Lefroy subarea these licensable components were equivalent to 72% of total flow during the *Winter Take Period* and only 15% of the total annual flow occurred outside this period.

The establishment of a consistent *Winter Take Period* has resulted in an equitable approach for all licensees which allows them to take their general entitlements reliably but also allows the Department to assist licensees and other users in resolving stream disputes.

The Department acknowledges the practical limitations of older dams to bypass flows outside the *Winter Take Period* with more recent dams, and amendments to existing dams required to demonstrate their ability to do so. As a consequence the Department will take a practical and reasonable approach to determine compliance against this condition for these older dams with audits likely to be undertaken applying a risk-based approach to the management of the resource, in response to complaints, or during visits related to other purposes.

The Department considers the review now complete and will continue progressive implementation of the existing *Winter Take Period*.

Do we need more gauging stations?

The Department makes use of fit-for-purpose hydrological modelling that is calibrated to streamflow data collected at both long-term and temporary gauging stations in supporting allocation and licensing decisions. The technical selection of sites and the scientific rigor applied in the collection of data provides a high level of confidence in the inputs into the hydraulic modelling undertaken. The Department operates 14 long-term gauging stations across the Warren-Donnelly waterways, with some in place since the 1950s. A further 25 temporary monitoring locations have been established to operate at various times to gather additional information on stream flows. These include five temporary gauging stations established in recent years to support data collection in highly-developed subareas. With more than 25 tributaries across 6,100 square kilometres of the Warren-Donnelly region, the Department reviews gauging stations and prioritises monitoring sites to best inform science, management and stakeholder needs.

It is not unexpected that in fully allocated areas where new entitlements for water are generally unavailable the integrity of the measurement of water flows has been questioned as an avenue to suggest more water be made available. The number of gauging stations and other measurement sites in the catchment, along with the data these supply, are reviewed and assessed by a high-level steering group and have been deemed suitable for the management of those resources.

The hydrological model that was recently applied by the Department for the Donnelly River catchment and for the Variable Take sub-catchments (within both the Warren River and the Donnelly River catchments) was developed by experts in the field of numerical modelling and independently peer-reviewed by national experts in accordance with best-practice for hydraulic modelling. Both Government-employed and consultant engineers have declared the model and its calibration suitable for water management decisions in the Warren-Donnelly catchment.



Manjimup Brook outlet temporary gauging station - 100mm PVC slotted housing with pressure probe (for water level) recording instrument



However, the Department is responding to community and industry interest is currently upgrading the temporary gauging site at the outflow of the Manjimup Brook to a permanent station with the intent of it being ready for the 2020 winter flow period. This upgrade is necessary to ensure a high accuracy of data collection at both high and low flows not provided for by the temporary gauges. We are also looking at other sites for consideration for upgrading to improve data collection.

Where can I find streamflow information?

Stream gauging refers to the continual collection of water flow data at a specific point in the watercourse, which is used with regular cross-section and survey measurements to establish flow volumes in that watercourse. All of the Department’s publically available stream gauged data (see table below) can be found at; <https://kumina.water.wa.gov.au/waterinformation/telem/stage.cfm>.

You can also access streamflow data, including closed gauging stations and temporary probe monitoring of flows, as it is processed through the online portal: <http://water.wa.gov.au/maps-and-data/monitoring/water-information-reporting>

Reference No.	Location	Name
607002	Lefroy Brook	Channybearup
607003	Warren River	Wheatley Farm
607004	Perup River	Quabicup Hill
607007	Tone River	Bullilup
607013	Lefroy Brook	Rainbow Trail
607022	Lefroy Brook	Cascades
607027	Tone River	Hillier Rd
607144	Wilgarup River	Quintarrup
607155	Dombakup Brook	Malimup Track
607220	Warren River	Barker Rd Crossing
608002	Carey Brook	Staircase Rd
608013	Lake Jasper	South End Boat Ramp
608151	Donnelly River	Strickland
608171	Fly Brook	Boat Landing Road



Right: Channybearup Gauging Station with fully telemetered floatwell system

Just how dry has it been this year?

To date Manjimup has received just over 600mm of rain, about 130mm or about 18% less than this time last year, and about 300mm or 33% down on the long-term average. The steamflow gauging at Strickland (on the Donnelly River) and Rainbow Trail (on the Lefroy Brook) are both identifying, at this stage that cumulative flows (bold red line) will be close to or below the mininium flow year (between 1975 and 2007) as used in the *Warren-Donnelly surface water allocation plan* on which allocation limits are based, and well below flow from 2018 (bold purple line). Please note that flows in 2010, 2012 and 2015 were below this minimum flow for both stations. Please find these graphs at the back of this newsletter.



What happened about water licensing fees?

On 3 May 2019, the Minister for Water announced that user-pay fees that currently apply to the mining and public water supply sectors would not be extended to agriculture and other sectors. This followed consultation with communities across the state, including the Warren-Donnelly in late October 2018. The report on the consultation is available from the department's site at <https://www.dwer.wa.gov.au/consultation/costrecovery>

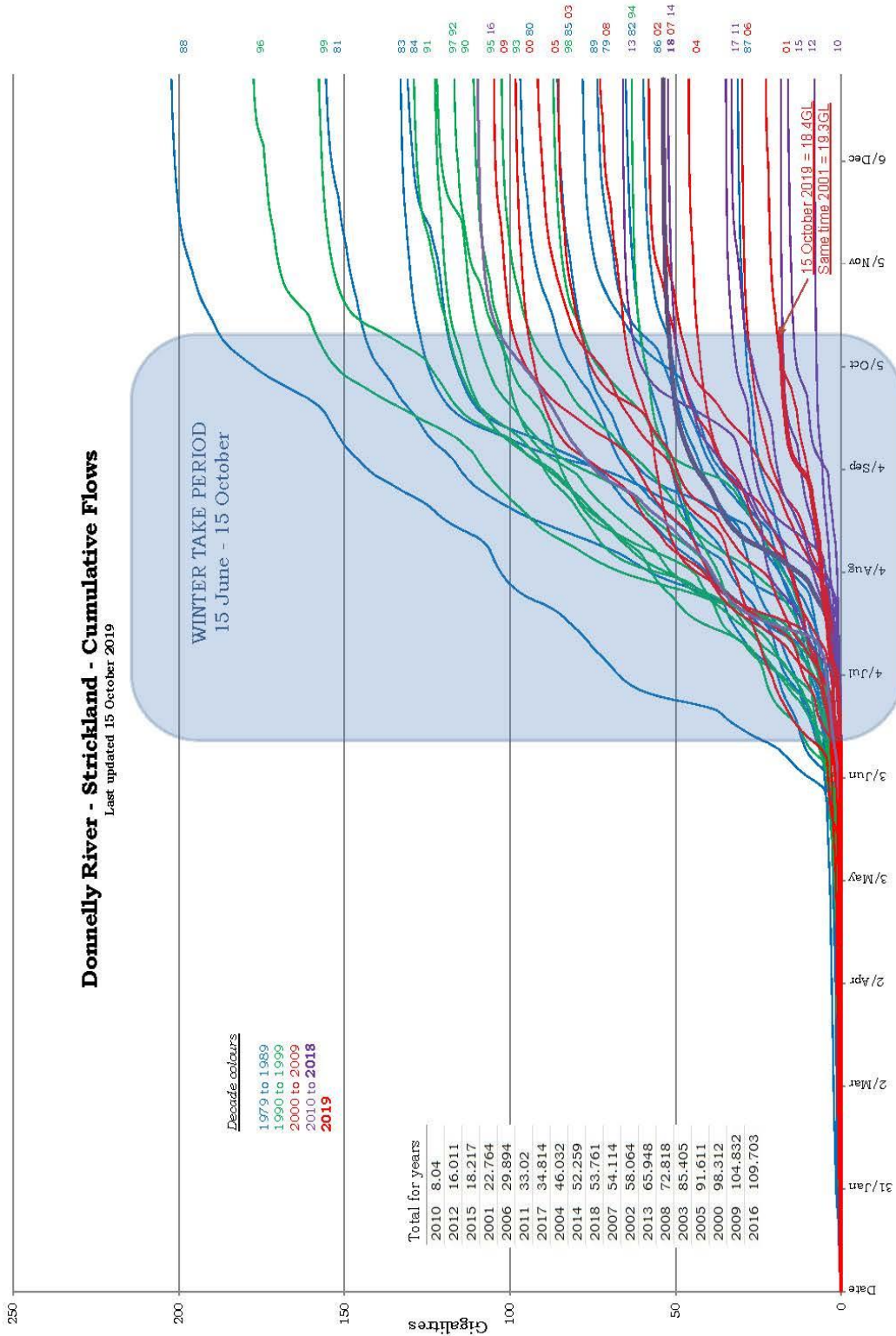
More information

We will continue to keep licensees informed of developments as they occur through future *Water Updates*. In the meantime, if you have any questions, please contact;

- For general licensing matters – please contact the DWER office in Manjimup on (08) 6364 7925, or Bunbury office on (08) 9726 4111.
- For contact details of members of the Warren-Donnelly Water Advisory Committee, please contact DWER in Bunbury on (08) 9726 4111.



Strickland Gauging Station – Donnelly River (minimum flow year of 2001)





Rainbow Trail Gauging Station – Lefroy Brook (minimum flow year of 1987)

