



Warren-Donnelly

December 2021

Water update

Welcome to the December 2021 issue of the *Water update* newsletter for Warren-Donnelly landholders and licensees.

The Department of Water and Environmental Regulation (the department) undertakes licensing, planning and measurement activities in the Warren and Donnelly river catchments to support the equitable and sustainable distribution of water for commercial, domestic, public water supply and environmental needs. The department does this with input from the Warren-Donnelly Water Advisory Committee. This newsletter provides an update on some important local water issues and questions raised by licensees and the community.

Warren-Donnelly Water Advisory Committee: update

The Warren Donnelly Water Advisory Committee was established in the 1960s. Today's water resource challenges and issues are very different from the last century when it was first established. The committee is reviewing its role and how it operates so it can provide the best advice to the department and improve communications with stakeholders.

Professor Margaret Seares is working with committee members and the department to update the committee's terms of reference and work plan. As part of this work a protocol for how the committee communicates and engages with the department and stakeholders was also developed.

Invitation to comment on the draft spring exemptions guideline

Section 5(1)(a) of the *Rights in Water and Irrigation Act 1914* (the Act) allows an exemption from regulation for the taking of water from a spring that naturally rises on a property. Identifying a 'spring' and whether local conditions meet the requirements of section 5(1)(a) of the Act can be difficult to determine, especially where the natural landscape has been altered.

The Standing Committee on Public Administration completed an inquiry into [Private property rights: the need for disclosure and fair compensation](#) in September 2020, which considered the spring exemption in the Act. An outcome from the inquiry was to develop a guideline to clarify the process for determining how to apply the spring exemption.

The department has been working with the Warren Donnelly Water Advisory Committee to develop a draft of the spring guideline. It identifies a self-assessment process to help landowners and occupiers of land work through the sometimes complex hydrological and other considerations for deciding whether a section 5(1)(a) spring exemption under the Act applies.



The draft spring guideline is now available for public comment. The department invites all landowners and occupiers of land in the Warren-Donnelly catchment to review the guideline, which can be accessed via the department's [public consultation webpage](#).

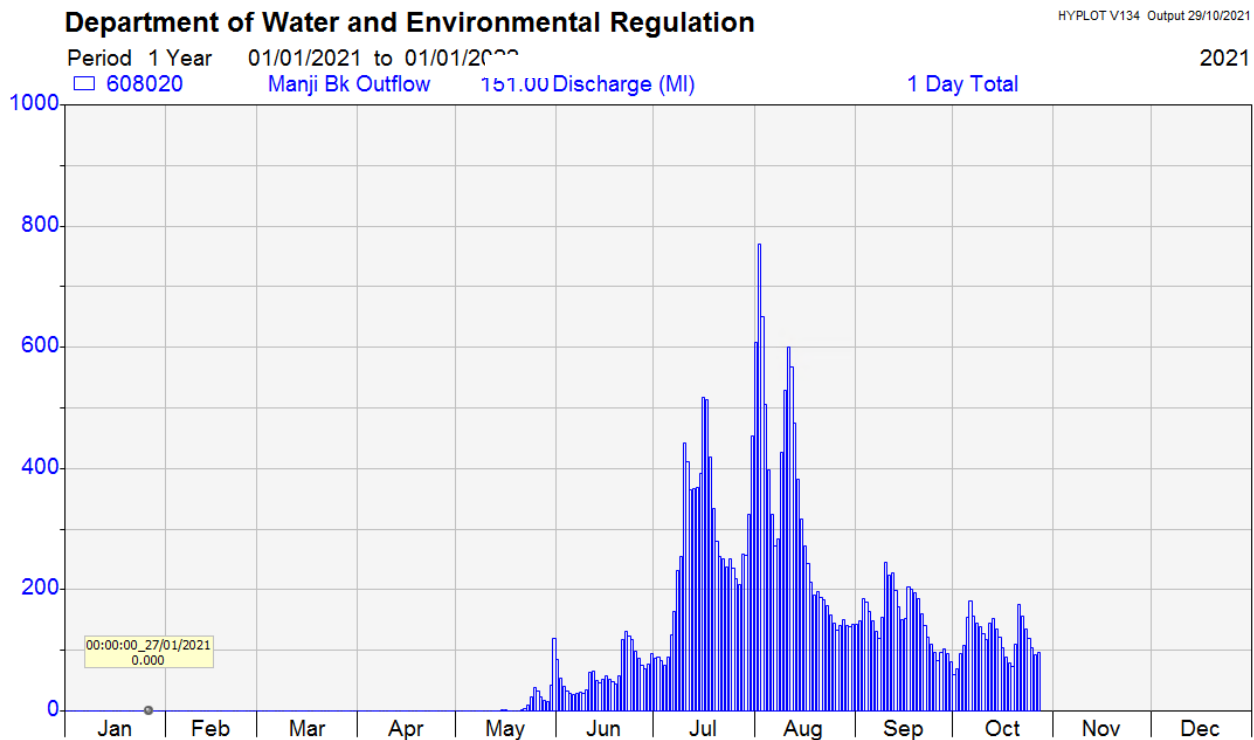
The consultation period will run for three months from 17 December 2021 to 17 March 2022. We welcome all feedback on the draft and all submissions will be considered when finalising the spring guideline.

Manjimup Brook gauging station: update

The new gauging station for Manjimup Brook at the Gregory Road Bridge was completed in May this year. This last phase consisted of the construction and installation of float-well instrument housing and a specifically designed discharge measurement structure (DMS), commonly known as a weir.

Flow measurements recorded over the past winter were substantial, with the peak flow reaching 8.5 cubic meters, or 8,500 litres per second. The hydrograph below charts last winter's flow variability. Measurements taken this winter confirm that the new structure can measure flows to a high level of accuracy. The new gauging station therefore allows the department to capture highly accurate and reliable flow data in real time, for the next 40–50 years.

We will undertake further studies – including those to refine the measurements, particularly in the high flow range – and conduct river health surveys; and new technologies will be trialled to improve the evaluation and effectiveness of the site going forward.





Manjimup gauging station 1 June 2021

Expression of interest: evaluating bypasses

The department are still seeking expressions of interest from licensees to have meters fitted to their piped bypasses, as part of their requirement to bypass a proportion of streamflow downstream during the *Winter Take Period*.

Section 4.5 of the *Warren Donnelly surface water allocation plan* describes the department's aim to ensure farm dam interception of flow does not impact downstream users or the environment. This is achieved through implementing bypasses which allow a set flow volume of water to continue to flow below a dam during the *Winter Take Period*. Additionally it also allows any streamflow, up to the bypass volume, to flow around the dam outside the approved period of capture without management by the licensee.

The bypasses have two important functions and will become more important as climate continues to dry:

- helping ensure reliability of supply is maintained to existing water users
- helping maintain environmental flow requirements in rivers downstream of the dams.

Each bypass has a specific minimum flow volume to meet the downstream reliability of supply for existing licensed and unlicensed (unregulated riparian, stock and domestic) users, and ensure downstream environmental requirements are met.

Implementing bypasses across self-supply farm dam catchments will allow early season flows, which are generally of low volume, to replenish downstream areas following the hot, dry summer period. As well as supporting the environment, allowing early season flows to head downstream also helps replenish





unregulated stock and domestic storages. In recent years, new dams have been required to install bypasses for this purpose, as part of obtaining a licence to take water.

The department is working with licensees to evaluate the effectiveness of existing and new bypass infrastructure in achieving downstream flows, as part of the Variable Take Review. Two bypasses were fitted with telemetered ultrasonic meters at the start of the 2020 *Winter Take Period* to provide real-time data on bypassed volumes to the department during periods of flow. We hope to collect good information over several seasons, through a variety of catchments, to demonstrate they are working as expected.

Any contribution by the licensee related to participating in the program is voluntary and the department covers all costs. We would like to acknowledge and thank our partnering licensees for their assistance.

If you wish to participate in the program, please contact the our Manjimup office on 6364 7925.

Rainfall and streamflow since the plan release

The department has reviewed observed rainfall and streamflow changes since the release of the *Warren Donnelly surface water allocation plan* in 2012.

Rainfall over the region has continued to decline since the mid-1970s. Three notable low rainfall years (2012, 2015 and 2019) have occurred since the plan was released and one notable high rainfall year (2016).

Rainfall is still highly variable from year to year; however, low rainfall years have been more frequent over the last decade.

Average streamflow over the region has also declined. The average annual streamflow since 2012 has been 10–15 per cent lower than the average recorded since 2000 at Rainbow Trail gauging station on Lefroy Brook, and Strickland gauging station on the Donnelly River.

Streamflow in 2019 was the fourth lowest annual streamflow recorded at these sites. Streamflow in 2020 was higher than 2019 but still lower than the recent average from 2000 onwards. To date, streamflow in 2021 has been the second or third highest annual total since 2010, similar to the annual total observed in 2013.

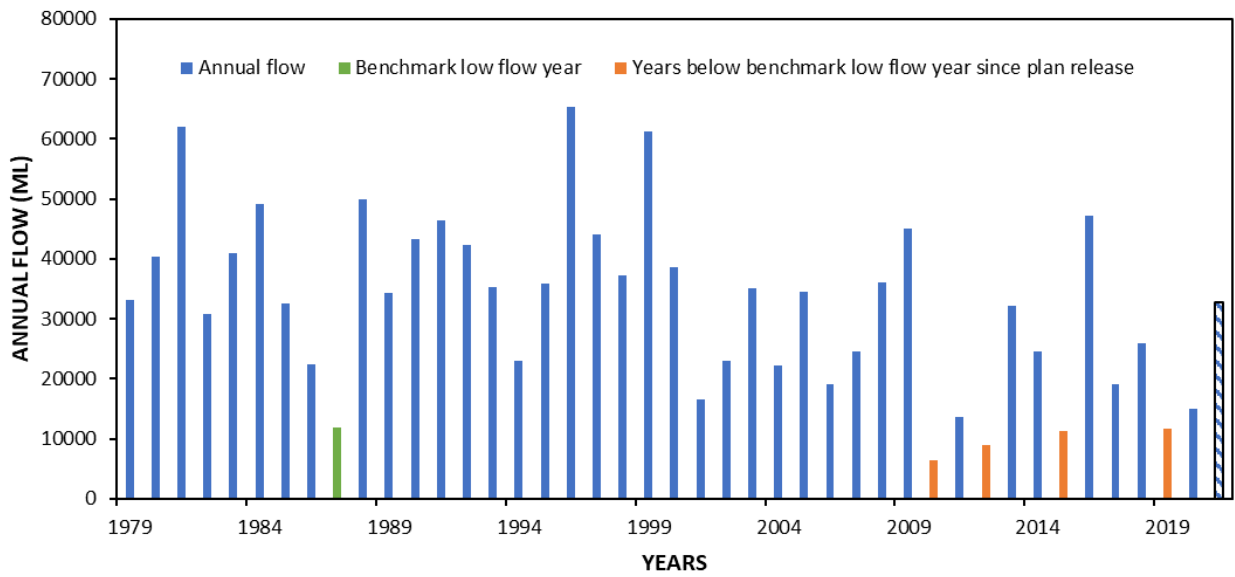
The *Warren Donnelly surface water allocation plan* put in place allocation limits based on the sustainable volume of water that could be captured through self-supply, onstream farm dams. Dams are refilled by streamflow, which varies significantly annually. To ensure reliability of supply to meet current water needs, water allocations in the plan are based on streamflow in a benchmark low-flow year (generally 1987 in the Warren River subareas and 2001 in the Donnelly River subareas).

In years below the benchmark minimum flow years, licensees may be impacted by reduced water in their dams and reduced reliability of supply of their entitlements. The environment is also impacted through reduced flows and a shortened flow season due to dams capturing the water before it can pass downstream. The river environment downstream of the last dam or take point in a subarea is likely to be the most impacted by declining flows.

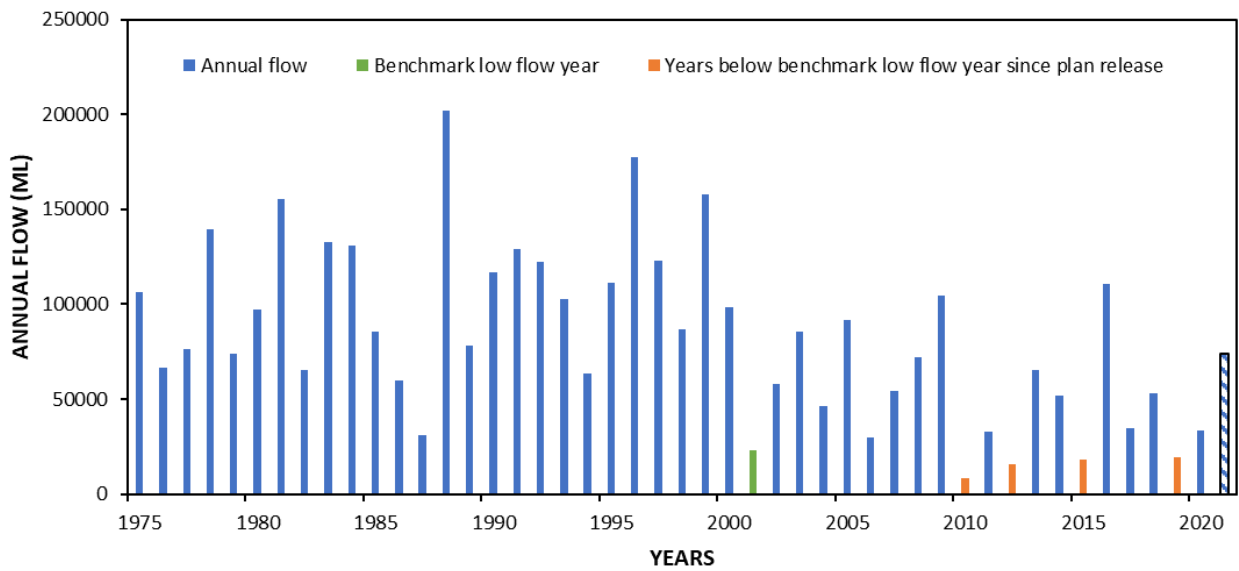
We have compared the number of years streamflow has been lower than the benchmark year used to set allocation limits in the plan. The figures below show that at the Rainbow Trail and Strickland gauging stations, four years have been lower than the benchmark low-flow year.



Lefroy Brook - Rainbow Trail



Donnelly River - Strickland



* 2021 is the total flow up to 24/10/2021



What does a drying climate mean for the Warren and Donnelly catchments?

Rainfall over the Warren Donnelly region has steadily declined since the mid-1970s and there is a scientific consensus that it will continue to decline in the future. In drier years, as climate change continues and rainfall and streamflow decline, there is increased risk to the reliability of water supplies and the environment.

The *Warren Donnelly surface water allocation plan* recognised the risks of a drying climate on water availability. To ensure a high reliability of supply for licensees, allocation limits were based on a benchmark low-flow year. The decision to set these limits was made to ensure that in most years, flow would be sufficient for most onstream dams to fill and spill, providing a reliable source of water, as well as flow to downstream river environments.

Without any bypass or management intervention, onstream farm dams would intercept all runoff from the upstream catchment until storages fill and water is able to continue downstream for the environment or downstream users. As the climate changes, there will be increased risk of onstream farm dams not filling to their full capacity or spilling later in the year. This will impact the volume and timing of water that flows downstream to neighboring properties and the environment, and highlights the importance of bypass infrastructure for dams moving forward.

Climate change will impact individual landholders differently and some will have to address the possibility of reduced reliability sooner than others. The reliability of individual farm dams varies based on their location, size, the density of dams upstream, and the operation of bypass structures or valves.

Since the release of the plan in 2012, annual rainfall has been less than the benchmark year in 2012, 2015 and 2019, highlighting the ongoing risk of declines in reliability. Climate change means annual rainfall is expected to be lower than the benchmark year more often. In addition to reduced rainfall, average temperatures are expected to rise, increasing the evaporation from dam storages and impacting crop water needs. These factors will become important considerations for farmers in years to come, alongside managing the declining availability of reliable water from one year to the next.

Both the department and landholders need to be proactive in acknowledging and managing this risk. The department continues to evaluate the *Warren Donnelly surface water allocation plan* to reflect changes in rainfall and streamflow, and risk to allocation limits as well as reliability of supply to licensees and environment values. Self-supply users in the Warren Donnelly area will need to change management practises, improve water efficiency and understand crop water needs (e.g. soil moisture monitoring), optimise water trades and agreements, and adjust crop types to manage the drying climate and ongoing water security.

Algal blooms in farm dams



Late seasonal rains that carry organic material and nutrients, combined with warming temperatures, can give rise to the risk of algal growth or blooms in farm dams. The risk to irrigation and stock watering depends on the type of algae that develops. Some blue-green algae blooms can be toxic to stock and the associated dam water is not suitable for irrigating directly onto fruit of crops.



The department can provide sampling kits and help identify algae in water collected from farm dams.

The risk of algal blooms occurring in dams can be reduced by preventing stock from having direct access to the dam and associated watercourses, as well as having efficient fertiliser and irrigation management planning.

Further information on dealing with algal blooms in farm dams can be found on the [Department of Primary Industries and Regional Development's website](#).

We have moved

The department's Manjimup office has moved from the Bath Street premises. We are now co-located at the Department of Biodiversity, Conservation and Attractions in Brain Street, Manjimup. The office hours at the new premises are 9am to 4pm, Monday to Friday.

Due to staff leave, we are experiencing a minor disruption to our normal local service in Manjimup. Usual service is expected to resume in January 2022. We apologise for the inconvenience and encourage the public to telephone us using the existing number 6364 7925. Customers can also access our [Water Online](#) business portal 24/7.



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 department's office in Manjimup on (08) 6364 7925, or the Bunbury office on (08) 9726 4111.
- For contact details of members of the Warren-Donnelly Water Advisory Committee, please contact the department in Bunbury on (08) 9726 4111.

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- Alternatively visit us at www.dwer.wa.gov.au.

