



Warren-Donnelly Water Update

October 2020

Welcome to the October 2020 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 newsletter provides an update to some important local water issues and continues to address some common questions raised by licensees and the community.

Warren Donnelly Water Advisory Committee

The Warren Donnelly Water Advisory Committee held its first introductory meeting on 22 September 2020 after the appointment of community members last month by the Minister for Water. The members of the committee are;

Adam Maskew (DWER)	Di Fry (Community)	John Omodei (Community)	Donelle Buegge (Community)
Kim Skoss (Shire)	Bill Rice (Community)	Alexandra Rey (Community)	Julian Sharp (Warren Catchments Council)
Peta Richards (DPIRD)	Lynn Daubney (Community)		

The committee provides advice to the department about surface water management and allocation in the area. The committee does not make decisions on licence applications or policy. The committee acts to bring community views and knowledge, as well as liaise directly with landowners and licensees.

The department would like to acknowledge the contribution of Harvey Giblett, Travis Luzny, Cliff Winfield and Bob Pessotto as part of their previous service on the Committee

Measuring the take of water

Licensees with licensed entitlements between 10,000 kilolitres(kL) and 49,999 kL were contacted in July 2020 by the department around the last roll-out of the amendments to the *Rights in Water and Irrigation Regulations 2000* that were gazetted on the 20 February 2018. For these licensees it identified circumstances which required the installation of a meter to measure the take of water against their licence by 31 December 2020. For licensees with entitlements greater than 50,000 kL, the Regulations already apply. However, the department recognises that metering of some farm dams may not be suitable to determine the volume taken from the water resource each year. This is because metering the volume drawn from a dam in summer does not reflect how much water is actually captured in the dam over winter. In such cases alternative measurement methods are often applied, where practical, to measure the take of water in winter instead of metering.

Alternative measurement methods may include the requirement to undertake dam surveys, weir gauging, staff gauges or pressure probes. Information associated with these activities would need to be provided to the department as conditions of licence. Please be aware that until the Department approaches you with respect to these alternative methods you do not have to do anything.



In most cases for on-stream dams with only one licensed user, metering is not required. This is because the department considers that your dam capacity is equivalent to your licensed water entitlement, whether that be related to an agreed dam estimation at the time of issue or by submission of a volumetric survey undertaken by a professional surveyor.

You **do not need to install a meter** where;

- You are taking water only for stock watering and/or domestic purposes,
- Where you capture water in a licensed on-stream dam contained solely on your property and to which you are the only licensee,
- Where your licence has conditions to report your take of water by alternative measurement only (i.e. staff gauge readings or dam water levels).

You **need to install a meter** related to your surface water licence where;

- Your take of water involves direct pumping from a watercourse for irrigation or commercial uses; or to an on-stream or off-stream dam, or other storage,
- Where you are one of two or more licensees sharing the same dam i.e. where a dam is built or ponds across a number of property boundaries each landholder is metered to ensure the water in that dam is shared for commercial purposes,
- Where your licence currently has conditions related to the submission of meter readings.

If you are unsure if you meet the requirements of the regulations, you should contact the department's Manjimup office on 6364 7925 or Bunbury office on 9726 4111.

Manjimup Brook Gauging Station - Update



This new gauging station for Manjimup Brook at the Gregory Road Bridge has been on-line since June. You can now access hourly data updates of stage height and flow plots and reports at;

<https://kumina.water.wa.gov.au/waterinformation/wir/reports/publish/608020/608020.htm>

Further upgrades are due in the summer of 2020/21.

The upgrade of this gauging site to a long term gauging station ensures the department meets the water planning and hydraulic considerations to collect high accuracy, reliable and timely water information over the next 40-50 years. Planning considerations required the site to be located at the downstream end of the sub catchment, which is a consistent approach across the Warren/Donnelly region, and the State, as water resources are managed at this scale. Hydraulic considerations ensure the current site is outside the influence of the variable water conditions of the Manjimup Brook and containment of the full range of flows without obstructions. The new bridge at Gregory Rd meets all our requirements and given the contemporary nature of its design also meets the life span of our proposed gauging station design.



The Sears Rd Bridge was considered as an alternative, as the closest location to the downstream reach of private landholdings, through the investigation phase for both the long-term stream gauge and previous temporary gauge establishment. On both occasions it was found this site had a number of less desirable characteristics for undertaking flow measurement. These include the channel shape (which is wide and shallow), the change in gradient as flow approaches the bridge, and

that there are four pylons impeding the flow path. This combination of factors could potentially lead to errors in the data.

Having said that, the Department's hydrographic staff have undertaken a localised assessment of flows on the same days in June (twice) and August this year at both the Sears Rd Bridge and the Manjimup Brook Gauging station to measure the adequacy of the gauging station to represent flows from the Manjimup Brook/Yanmah-Dixvale subarea. The results show that at the beginning of the flow season it does take two to four weeks for the forested area at the bottom of the sub-area to become saturated and flows to become similar at both sites. After this initial period, flows show very little difference with discharge measurements at both sites (less than 5 per cent difference). This demonstrates that the Department's gauging station provides an accurate measure of runoff coming from the subarea.

Why do we use models?

Reliable estimates of streamflow helps the department make informed decisions on water planning and management, including the availability of water (e.g. establishing allocation limits) and licence conditions (e.g. establishing bypass rates). As per previous newsletters, the department uses a network of long-term and temporary gauging to understand catchment flows. However, not all tributaries are gauged and periods of data may be limited. Estimations of flow in ungauged areas is needed to complement gauged areas over a long periods and models are also required to understand water availability under future conditions (i.e. a drying climate).



The department develops what are referred to as rainfall-runoff models based on best practice principles. As the name suggests, it uses measured rainfall and streamflow data to build the model (a series of mathematic relationships and equations) that can estimate runoff from rainfall, evaporation and other data inputs.

A key step in building such a model is to demonstrate the outputs of the model match real data collected at the nearest available gauging station(s) (referred to as model calibration). Models consider a number of variables including catchment area, existing use, land use, vegetation cover, gradient and rainfall (isopleths or weather station data) that reflect the landscape and may influence how runoff over the catchment varies.

Models are used to test licencing and planning decision. For examples, models are used to assess changes to streamflow when a new dam is proposed to be built, what potential impact on downstream users might be or what are the expected changes to environmental flows.

Rainfall-runoff models are widely used and proven in Australia for water resource management because they provide good estimates of flows in gauged and ungauged catchments. However, by their very nature, models may have some uncertainty associated with them, simply because we can't gauge every tributary or have rainfall gauges on every property. To reduce this uncertainty, the models developed and used by the department comply with 'Best Practice Modelling' which ensure that the model is built using a series of quality assurance principles and actions to ensure that model development, implementation and application are the best achievable and meet the desired outcome (called fit-for-purpose). These models are also peer

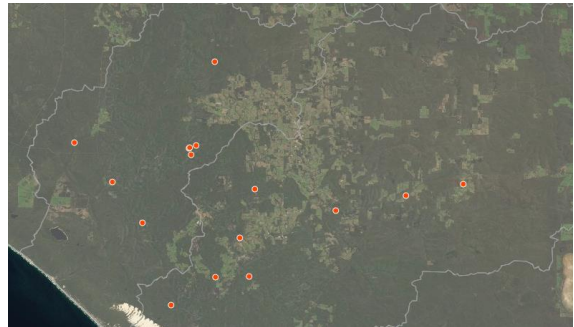


reviewed by specialists in the field relevant to the model project to ensure the reliability and robustness of the results and the methodology used to obtain the results. Models are maintained and run by departmental engineers with expertise in their application.

In doing so, the department uses the best science available to inform its decision making.

River Health Assessments

In February 2020 the department sampled 16 sites across the Warren and Donnelly Rivers as part of the 'Healthy Rivers' program. These river health assessments are designed to support a range of management decisions by the department, particularly in determining ecological water requirements and establishing baseline condition of river health. At each site we assess water quality, aquatic communities (fish, freshwater crayfish, macro-invertebrates, macrophytes and other semi-aquatic fauna such as native water rats), fringing vegetation, hydrology, soil and bank structure (including erosion) and land use.



Above: 'Healthy Rivers' sampling locations in the Warren Donnelly catchments

At selected sites sampling was also completed in August 2020 (and in October 2020). We extended the monitoring season for the Manjimup Brook, Donnelly River, Barlee Brook and Lefroy sites to track water quality through the wet season and into the spring recession period and will also be tracking fish populations. Amongst other things, this will help in understand connectivity with the Donnelly and Warren River systems (e.g. the extent to which fish communities move between the main channel and the respective tributaries).

Recent sampling in the Donnelly River and tributaries found nine species of native freshwater fish, four species of freshwater crayfish, and two estuarine-freshwater fish. Eleven of these are endemic to the south-west of WA. Most sites had juveniles and adults present, which shows that the populations are successfully breeding. Four non-native fish species were found including introduced brown and rainbow trout, but total abundances were low.

Sampling in the Warren River and tributaries found seven species of native freshwater fish, four species of freshwater crayfish, and two estuarine-freshwater fish. Nine of these are endemic to the south-west of WA. Again, most sites had juveniles and adults present, which shows that the populations are successfully breeding. Three non-native fish species were found including rainbow trout and redfin perch.

For more information visit the 'Healthy Rivers' website at <https://rivers.dwer.wa.gov.au/>.



Above Left: 'Healthy Rivers' vehicles; Below Left: Western Minnow, Manjimup Brook; Centre: Fyke netting and flow measurements; Above Right: Measuring Marron – Donnelly River; Below Right: Pouched Lamprey – Carey Brook.



Moving water between properties

Operational policy 5.13 – Water entitlement transactions for Western Australia describes the intent and framework to support voluntary distribution of licensed water entitlements under opportunities to trade, transfer or under agreements between eligible parties. Licensed entitlements can be traded or redistributed under agreement between properties within the same surface water management area (i.e. subarea).



A **transfer** takes place when a licence to take water is permanently transferred to another person and the water will continue to be taken from the same location. For example, a transfer must take place if there is a change in property ownership within 30 days of settlement.

In considering the purchase of a property with a licensed water entitlement, we caution prospective purchasers to undertake their due diligence with the department in regards to the regulatory setting associated to the property. For example, properties advertised or promoted as having exemptions (such as those colloquially known as 'spring rights') may not have these exemptions recognised by the department. Equally, advertised annual water entitlements often do not acknowledge conditions of the licence such as bypasses, measurement or reporting requirements, nor do they identify the reliability of supply (how often that volume of water could be captured). This can have significant impacts on the expectations of the purchaser on the availability of water for use. It is important to note that the department cannot provide this information to prospective purchasers without the consent of the current licensee.

A **trade** takes place when a water entitlement, or part of an entitlement, is permanently traded to another person and the water will be taken from another location and potentially used for a different purpose. Trades typically occur in fully allocated water resource areas where new water entitlements are no longer available.

When part of a licensed entitlement is traded then that licensed entitlement will often no longer be taken from its original location. In such cases, the trader will have to demonstrate how no more than the balance of their original entitlement may be taken in any given year. This may be achieved by installing additional measurement and undertaking reporting; or by physical changes to infrastructure (i.e. reduce spillway height). Where a whole licensed entitlement is traded, the trader will need to demonstrate how that water is no longer being captured.

The location where the traded entitlement is proposed to be taken (the tradee) may also need additional measurement and reporting depending on existing circumstances. Bypasses will often be required which release a specified volume of water downstream so as not to detrimentally impact existing downstream users. It's important to recognise that the reliability of supply of the traded entitlement will also likely differ between the locations of the trader and tradee. The department will work with applicants to understand their requirements and risk associated with an application for a trade.

An **agreement** is a form of lease and occurs via the temporary assignment of a licensed water entitlement, or part of an entitlement, by a licence holder to another party. The water may be used at the same or a different location. Agreements cannot exceed the term of the original licence, that is not exceed the expiry date of that licence or 80% of the Annual Water Entitlement (unless related to metered direct pumping).

The regulation of agreements is similar to that described for trades above. However, temporary access to water means that once the term of the agreement is over the agreement holder must be able to demonstrate how they are only capturing other secured entitlements (licenses or agreements). Where no other secured entitlements exist on the property, the agreement holder's infrastructure will be required to be removed or demonstrate that there is no ability to capture water once the agreement has expired. Again, the department will work with applicants to understand their requirements and risk associated with any application for an agreement.

We recognise the historical practice of landholders 'sharing' water in times of need or shortage. Much of this has occurred as informal arrangements between the two parties by either releasing water downstream or more commonly, piping and pumping water between storages for short periods of time over the hotter and



drier months. The department will be looking at opportunities, and consulting with the Warren Donnelly Water Advisory Committee in the first instance, to minimise the regulatory requirements associated with this 'goodwill' practice where risks to the resource and other users are low.

Powers of Entry

When needing to conduct business with a licensee or landowner the Department will make contact to arrange a mutually suitable time. If the Department has been unable to make contact officers may attend a property seeking to make contact with a landowner at the residence and/or sheds identify themselves and share why they are there. They will then engage to determine when they can meet to discuss the reason for their contact, that may be at the time if suitable or arranging to come back at another.



In certain circumstances Department of Water and Environmental Regulation officers have powers of entry under Section 26H of the *Rights in Water and Irrigation Act 1914*, Sections 71, 73 and 83 of the *Water Agencies (Powers) Act 1984*, and Sections 12BD and 12ED of the *Country Areas Water Supply Act 1947*. These powers of entry allow the Minister, and Departmental officers acting on the Minister's behalf, to enter and inspect land for purposes such as, ascertaining whether an offence has been committed under the applicable legislation, to undertake clearing and the provision of water-related infrastructure. This may include undertaking assessment of applications, auditing against licence conditions, investigations of suspected non-compliance, and complaints management. In the few circumstances where the Department decides it is necessary to exercise these powers the Department will first identify themselves to anyone on the property, and provide an explanation of why the officers are entering the property and the powers of entry they are exercising, prior to conducting their business. If the property is unattended, the officers will conduct their business and inform the land owner that the Department entered the property, when and why.

Evaluating bypasses

Licensees are required to install bypasses for a number of reasons but primarily to provide flows to ensure the reliability of supply of existing users of the resource. These may include, licensees under first-in first-served, unregulated stock and domestic use and the environment.

One of the actions of reviewing the Variable Take Review (as per the April 2020 *Water Update* newsletter) the department is working with licensees to evaluate existing and new variable take bypass infrastructure for measurement against modelled outcomes.

The department has fitted ultrasonic meters to two bypasses at the start of this year's Winter Take Period. These meters are telemetered so as to provide real-time data to the department during periods of flow. We hope to collect good information over a number of seasons to validate changes in flows. We appreciate that we need a lot more sites to make a valid assessment and are seeking expressions of interest from licensees interested in participating in the program. To participate you need to have a winter bypass that is piped as a requirement of your licence.



Any contribution by the licensee related to participating in the program is voluntary. All costs are covered by the department and we would like to acknowledge and thank our partnering licensees for their assistance.

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



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

