

## What we heard

*In May and June 2020, the NSW Department of Planning, Industry and Environment (the department) held a series of webinars to share information on drought outlook and water availability issues.*

Four webinars were held, covering:

- Barwon-Darling and Lower Darling
- Southern Valleys – Lachlan, Murrumbidgee and Murray
- Northern Valleys - Border Rivers, Gwydir, Namoi, Peel and Macquarie
- Hunter Valley

Due to Covid-19 restrictions, the sessions were streamed live via webinar. The sessions covered the state's drought outlook and water availability issues and were an opportunity for the community to ask questions and raise issues. All questions raised in each of the webinars have been documented and responded to below.

## Key information provided at the webinars

The following information was provided:

- The department provided an update on drought measures and the ongoing support available to drought impacted communities.
- The department outlined the impacts of drought on groundwater and the lessons learned from the current drought.
- WaterNSW provided an overview of climatic trends and forecasts, as well as storage levels and system flows.
- The department discussed water availability including prospects for allocations for the new water year starting 1 July 2020.

Recordings of the webinars and copies of the presentations from the department and WaterNSW are now available on the Drought Update Page of the department's website - [www.industry.nsw.gov.au/water/allocations-availability/droughts-floods/drought-update/information-sessions](http://www.industry.nsw.gov.au/water/allocations-availability/droughts-floods/drought-update/information-sessions)

## More community drought communications

The department will continue to update the community on the drought outlook and water availability across the state. The department's website is regularly updated and you can receive email updates by subscribing to the below newsletters and reports.

## Further information

For regular email updates, subscribe to the monthly newsletter and water allocation statements - [www.industry.nsw.gov.au/media/subscribe](http://www.industry.nsw.gov.au/media/subscribe)

For regular email updates from WaterNSW, subscribe to the weekly drought update, water availability report and/or other notifications - [www.waternsw.com.au/customer-service/news/subscribe](http://www.waternsw.com.au/customer-service/news/subscribe)

## Issues raised

**Table 1. Barwon-Darling and Lower Darling**

Issue	Response
<p>How do I get compensated for all the water I had to buy because there was none in the river? This includes changes to our infrastructure to accommodate the switch from using river water.</p>	<p>Raw water quality or quantity from NSW rivers is not guaranteed. On the Lower Darling (and some other sections of regulated rivers in the north-west), a \$2,000 water carting rebate is available as a result of regulated flows being ceased and the impact on domestic supplies. Application can be made through the <a href="#">Service NSW website</a>, applications close 30 September 2020.</p>
<p>With the restrictions of water to river dependant towns for their supply, how is the impact of water cartage on surrounding water supplies where water is being taken from accounted for? Or is it factored into that zones consumption rate?</p>	<p>Water carting is only practical for individual landholders, small villages and communities. For most towns, groundwater has been used as a supplementary supply during the drought when town weirs or storages were low. Carting from the larger towns to these other users is counted as part of the town water supply.</p>
<p>When monitoring compliance, how will Walgett's drinking water be prioritised? How will the wellbeing of surface and ground water ecology be monitored?</p>	<p>In critical water shortages, town water supply becomes the highest priority. Significant funding has been provided to secure town water supplies during the drought and into the future.</p> <p>Work has commenced on the raising of Walgett Weir. Completion of the project is scheduled for September 2020. Council has also been provided funding for an additional bore. Due to water quality issues, a temporary reverse osmosis plant has been installed at the Walgett water treatment plant.</p> <p>The <a href="#">Natural Resource Access Regulator (NRAR)</a> is the independent regulator of the compliance and enforcement of water management legislation in NSW. Significant penalties can be imposed for not complying with rules and licence conditions.</p> <p>Water sharing plans set the rules for sharing water in both surface and groundwater systems. Under the <i>Water Management Act 2000</i>, protection of the water source is a highest priority in all but extreme events.</p>

<p>What Traditional Owners' involvement has there been in water management decision making?</p>	<p>The department has been working closely with Aboriginal people in the Lachlan, Macquarie-Castlereagh and Gwydir regions to develop the draft Regional Water Strategies. We ran workshops in December last year and February 2020 to seek input on Aboriginal people's water rights and values. Workshops will be held in the remaining regions over the coming months.</p> <p>Extensive consultation with First Nations has also been undertaken through the Water Resource Plans. We consulted with 50 Nations in the Murray Darling Basin, with over 50 workshops and around 500 Aboriginal people in attendance. These resulted in 30 first nation reports that feed into the Water Resource Plans. The first nation report/s for each of the <a href="#">water resource plans</a> can be found in the appendices for each plan and then click on the reports in the consultation section.</p> <p>First Nations People are also involved in water management through working with other levels of government, including the Commonwealth Environmental Water Holder and NSW's environmental water holder. This varies by valley, and in the northern valleys this is usually in consultation with the Northern Basin Aboriginal Nations. For more information see:</p> <p><a href="#">National Culture Flows Research Project</a></p> <p><a href="#">MDBA – Partnerships with Traditional Owners</a></p>
<p>What are water allocation projections for 2020-21?</p>	<p>In the Barwon-Darling, allocation announcements on 1 July 2020 will be 100% which is the usual approach for unregulated rivers. However, water can be only pumped when flows reach the various commence to pump levels and must stop when flows fall to cease to pump levels for the class of licence – A, B or C class.</p> <p>For the Lower Darling, town, domestic and stock allocations were increased to 100% on 1 April 2020. A 30% general security allocation was announced on 15 May 2020. Unused general security account water can be carried over up to 50% of entitlement in the Lower Darling. The last <a href="#">Water Allocation Statement</a> for the Lower Darling for the 2019-20 water year advised that:</p> <ul style="list-style-type: none"> <li>• full (100%) allocation can be expected for towns, domestic and stock access licences, and high security entitlements in 2020/21</li> <li>• opening Lower Darling general security allocation is likely to be low or zero per cent unless there is significant further inflow in coming months</li> <li>• carryover water will be fully available</li> </ul> <p>See <a href="#">Water Allocation Statements</a> for the latest allocations.</p>

<p>What water is available for Lower Darling irrigation?</p>	<p>The <a href="#">Water Allocation Statement</a> released on 15 May 2020, provided general security users with a 30% allocation. This can be carried over to the new water year starting on 1 July 2020. This was the first new general security allocation in the Lower Darling since 1 July 2017 when allocations were 100% and then zero for 2018-19 and most of the 2019-20 water year.</p>
<p>What are the plans for the Warrego and Toorale Station?</p>	<p>The storages on the former Toorale Station on the Warrego River are being modified to enable greater quantities of flows to be passed through the Warrego to the Darling River, while maintaining the capacity to water important ecosystems in the park. This work will also improve conditions so that fish can more easily move through this reach.</p> <p>The work is being undertaken in two phases. Phase 1 of the project, the removal of Peebles Dam, was completed on 29 October 2019. The detailed designs for Phase 2 (modifications to other dams and construction of fish passage structures) are being finalised. The environmental assessment was on public exhibition in January and February 2020. Pending approvals, the works will commence in 2020 and are due for completion in 2021.</p> <p>See <a href="#">Toorale Water Infrastructure Project</a> for more information.</p>
<p>Is building more dams and raising walls of existing dams going to take away some of the vital flooding water needed and expected from places downstream?</p>	<p>Proposals for new dams must include environmental assessments, including impacts on downstream users and ecosystems.</p> <p><a href="#">Frequently Asked Questions</a> on the <i>Water Supply (Critical Needs) Act 2019</i> advises that an Environmental Impact Statement (EIS) would need to be prepared for the Wyangala Dam wall raising and construction of the Mole River Dam and Dungowan Dam, before any 'Critical State significant infrastructure' application is lodged.</p> <p>More detail can be found at: <a href="#">WaterNSW's - New Dams for NSW</a></p> <p>During non-drought periods, infrastructure such as large dams (with a capital investment value of more than \$30 million) and pipelines are not assessed under the <i>Water Supply (Critical Needs) Act 2019</i>, but are typically assessed under State Significant Development assessment process. These assessments also entail environmental and economic assessments.</p> <p>See <a href="#">State Significant Development</a> for more information.</p>
<p>How will active management be handled for held environmental water prior to the water sharing plan and WaterNSW systems being in place?</p>	<p>Until the active management provisions commence on 1 December 2020, held environmental water will continue to be managed using temporary water restriction orders under section 324 of the <i>Water Management Act 2000</i>.</p>

<p>Active management provisions need targets to be met all the way to Wilcannia. Given the long physical travel times, are restrictions lifted progressively as the flow moves downstream or does the Wilcannia flow have to be met first?</p>	<p>Resumption of flow rules are intended to ensure connectivity along the 1200 km length of the Barwon-Darling River. Restrictions are lifted once downstream flow targets are met. If flow forecasting indicates that the event is large enough to provide 30 gigalitres (GL) to the gauge at Bourke, then restrictions in the top of the catchment can be lifted.</p> <p>See the Draft Policy for <a href="#">Active Management in Unregulated Rivers</a> for more information.</p>
<p>Is the NSW Government looking into ways to reduce the evaporation of the Menindee Lakes?</p>	<p>Yes. The system comprises large shallow lakes in a hot dry environment. Operationally, water is moved and stored in the most efficient areas. It is used from the least efficient storages first. Maximum productive use is made of the water so that it is not held for long periods exposing to large evaporative losses.</p> <p>The <a href="#">Menindee Lakes Project</a> proposes a suite of structural and non-structural measures to achieve further water savings. Modifications could potentially save around 106 GL. The Menindee Lakes Project, however; needs to strike a balance between a desire to maximise water savings, with a need to protect the significant ecological, cultural heritage and socio-economic values that exist in the Menindee Lakes, Lower Darling and Great Darling Anabranch.</p> <p>The NSW Government has established a <a href="#">formal community advisory group</a> to enable the exploration of options and alternatives for the project with community and stakeholder group representatives to ensure that local knowledge is incorporated into the project design and outcomes. There is a wide range of representatives on this advisory group from the community, Aboriginal groups and water users.</p>
<p>Can a report be done on the North-west flow event that clearly shows total inflows, total losses (and where those losses could be mostly attributed to) total extractions by the various licences and total inflow into Menindee?</p>	<p>Information on inflows and volumes protected can be found on the department's <a href="#">North-west flows in early 2020</a> web page. This shows that the percentage of flows from February to end of April 2020 that were protected from extraction and contributed to the downstream system.</p>

<p>The presentation showed a table with some very specific flow targets for different streams. Were restrictions lifted strictly in accordance with the specific flow targets shown in the presentation?</p>	<p>The targets under the Northern Basin restrictions at locations along the rivers were indicative targets of the minimum needed to meet critical needs. There was also the target of 60-70 GL in Menindee Lakes which applied during the period the northern valleys were restricted (up until 23 February 2020). The Menindee Lakes target was subsequently increased to 200 GL as a result of the later contribution of significant flows from Queensland towards the end of February, but only applied to the Barwon-Darling extractions. The key principles for considering whether restrictions should be lifted upstream of a target were:</p> <ul style="list-style-type: none"> <li>• to consider access to upstream water users <b>if</b> the nearest downstream targets are met or forecast to be met <b>and</b> the event will not meaningfully contribute to meeting any downstream targets</li> <li>• to allow early relaxation of upstream restrictions prior to downstream targets being met <b>only</b> if there is high confidence in downstream flow predictions meeting targets</li> </ul> <p>An information sheet on the triggers, showing all the valley flow targets, and the principles for allowing access during the Northern Basin restriction period(s) is available from the department's website at the <a href="#">Northern Basin First Flush Assessment</a> under further information.</p>
<p>For the last couple of years, the Great Artesian Basin Eastern Recharge has had allocations significantly less than 100%, with 33% allocated this year. Is it expected that the allocation next year will be less again?</p>	<p>The <a href="#">NSW Groundwater Allocation Statement</a> issued on 19 May 2020 lists those groundwater sources where reduced allocations may be announced on 1 July 2020. Under water sharing plan rules, allocations must be reduced in a groundwater source when the average annual extraction exceeds the plan's compliance trigger over a five-year rolling average period. Reduced allocations are intended to return groundwater extraction to within long term average sustainable limits.</p> <p>The GAB Eastern Recharge groundwater source has triggered reduced allocations in 2018-19 of 50%, 2019-20 of 32% and 2020-21 will be the third year that reduced allocations will apply in this groundwater source. This groundwater source is within the Gwydir and Border Rivers catchment and most of the extraction is happening around North Star.</p> <p>The allocation percentage that will be provided on 1 July 2020 will depend on the extent that extractions are continuing to exceed the compliance trigger and so will be based on the final meter data for 2019-20. The allocations will be available on 1 July 2020 on the department's <a href="#">Water Allocation Statements</a> page. You can also <a href="#">subscribe</a> to receive water availability updates.</p>

<p>Is the Murrumbidgee Deep the same aquifer that was previously known as the Lower Murrumbidgee?</p>	<p>Yes, the Murrumbidgee Deep is the same as the Lower Murrumbidgee groundwater source.</p>
<p>Is the effect of changes in the tributary catchments on flows into tributaries being considered in assessment of how much flow to expect this year or in future droughts? For example, people deepening their farm dams or building more farm dams, or groundwater levels dropping so it takes more gentle rain to get sustained flows that might eventually contribute to Barwon Darling flows?</p>	<p>Land use changes are occurring as businesses adapt to changing markets, technologies and climatic conditions. However, because we have a long record (100+ years) of streamflow data in many areas, and we build on it year by year with new data, the impact of current land use changes on the probabilities of inflows and droughts is very small. Trends will emerge over time. Water sharing plans, sustainable diversion limits and water allocation policy are based on long-term average annual flow information which changes at small increments.</p> <p>The size of farm dams is subject to the harvestable rights policy. If the farm dam is larger than that allowed for under harvestable rights, then the landholder will need to purchase a licensed entitlement for the larger volume. This ensures that the capture of water in farms dams does not continue to grow and impact on water availability downstream. See <a href="#">Harvestable rights-dams</a> for more information.</p> <p>The current drought has reduced recharge across all groundwater systems across the state. Until there is sufficient rain to enable deep drainage of water through the soil profile, the deeper groundwater stores will not be replenished. The fall in groundwater levels during droughts does result in a reduction of baseflows to creeks and rivers. How quickly a catchment recovers is not only linked to the seasonal conditions but also the characteristics of a catchment's groundwater systems. As mentioned above, we have long term streamflow records and long-term water level monitoring for groundwater.</p>

**Table 2. Southern Valleys – Lachlan, Murrumbidgee and Murray**

Issue	Response
<p>What assumptions are made when allocating water, including assumptions regarding the Snowy Hydro?</p>	<p>The main assumptions used in allocating water are about inflows and losses. It is assumed that there will be at least a minimum volume of future inflow and that river losses (the cost in water of running the regulated river system) will be as budgeted. If that inflow volume does not eventuate and/or the assumed losses are more than budgeted, then we are in a situation of deficit – not all allocated water in accounts can be delivered until resource conditions improve.</p> <p>Snowy Hydro is obliged to provide Required Annual Releases (RAR) for the Murray and Murrumbidgee valleys. The volume of water is assumed available from 1 July, and allocated, even though the physical delivery from the Snowy during the year is unknown. However, if the full RAR is not physically available on 1 July, a Dry Inflow Sequence Volume (DISV) applies. Then as the Snowy resource improves, the DISV reduces and the water available for allocation increases, until DISV is zero and full RAR has been allocated.</p>

Issue	Response
<p>How are Murray River reserves calculated and how does special accounting work?</p>	<p>NSW receives its share of the Murray River resource from the Murray Darling Basin Authority (MDBA). With that volume, the department's priority under the water sharing plan is to ensure that all high priority commitments in this water year can be met. Then we are required to ensure all high priority commitments for the next water year can be met. After this, water can be allocated to general security water licences in the current water year.</p> <p>Therefore, water must be set aside (reserved) in the current year for next year's high priority commitments, but the volume and timing of that build varies depending on current conditions and outlooks. For example, when facing potentially severe water shortage conditions, the build of reserves for next year must commence earlier and harder than otherwise.</p> <p>The other reserve is the Mandatory Reserve under the Murray Darling Basin Agreement and this is deducted by MDBA before the States (NSW and Victoria) are provided with their share of Murray resource. If this reserve is not forecast to reach 1250 GL by the end of May each year, the State is declared to be in Special Accounting with South Australia. This Mandatory Reserve is about having upper States set aside enough water this year, to guarantee South Australia's full entitlement flow the following year. If the reserve is not guaranteed, then Special Accounting provides that South Australia receives one-third of any resource improvement in the upper States until the reserve can be met. This prevents upper States from keeping resource improvements in the current year and potentially leaving South Australia short in the following year.</p> <p>The department is working with Murray Irrigation on communication material to further explain Murray River resource allocation.</p>
<p>Why has more water been allocated to future high priority use in 2020 than previous years? Is this in the water sharing plan?</p>	<p>Further to the response above, NSW had seen new record low inflows unfold in 2019 across northern inland NSW with severity starting to move south and outlooks of further record dry conditions.</p> <p>In addition, for the water years starting 1 July 2018 and 1 July 2019 the opening water allocations in the NSW Murray could not meet all high priority commitments as required by the water sharing plan. Therefore 'saving' through 2019-20 had to be increased to ensure that allocations on 1 July 2020 could at least meet all high priority commitments as required.</p>

Issue	Response
<p>What is the breakdown for the high priority reserves of 435 GL in the Murray, as previous years were significantly less?</p>	<p>The 435 GL is the volume set aside to allocate to high priority needs in the Murray on 1 July for the 2020-21 water year. All this water will be allocated on 1 July and, if there is any remaining after all high priority commitments are satisfied, it will be allocated to general security water users. The pattern and low volume of inflows across 2019-20, coupled with starting deficits in the previous two water years, meant this reserve needed to be larger than previously to be sure of meeting high priority commitments on 1 July 2020.</p>
<p>What is the projected water utility allocation for the Murray River valley system?</p>	<p>Water utilities are expected to receive a full (100%) allocation in the NSW Murray River system on 1 July 2020 for the 2020-21 water year.</p>
<p>What is the priority for sharing increases in available water in the NSW Murray River from 1 July 2020?</p>	<p>Water allocation priorities are established in the water sharing plan. If all high priority commitments can be met on 1 July 2020 as expected, then improvements from 1 July through the water year will accrue to general security entitlements concurrently with the build for next year's high priority commitments. If a shortfall eventuates on 1 July, then the shortfall must be met from the first resource improvements.</p>
<p>In early May the Murray had unregulated flows that ended up in the Barmah/Millewa and Werai forests as they were not recognised as achieving an environmental function. Why wasn't a supplementary water event called?</p>	<p>The Murray Darling Basin Authority (MDBA) is the River Murray operator and does so on behalf of the States. If the MDBA declares unregulated flow conditions then NSW can announce supplementary flow access, providing all prior higher priority requirements in the water sharing plan are met. There were no unregulated flows declared by the MDBA, therefore no supplementary access could be announced by NSW. All water could be re-regulated upstream of South Australia and accrued to NSW and Victorian water availability.</p>
<p>When determining opening allocation what is the low risk based on?</p>	<p>The risk is based on a repeat of the worst inflow sequence (drought) at the start of the water sharing plan (2004), that is, before the Millennium Drought. A repeat of that drought or worse is considered a low risk, therefore allocating on this basis would almost always be safe particularly in the Murray and Murrumbidgee valleys.</p>

Issue	Response
<p>What is happening with drought planning?</p>	<p>As outlined above, for immediate planning over the current and next water year, the department in its allocation process assumes that a minimum level of inflows will occur during the year and bases its allocation announcements on that. If inflows are lower than the assumed minimums (based on the drought of record as at 2004), then lower priority users may be subject to restrictions on the water in their accounts. This has happened in the Lachlan Valley in 2019-20 where high security allocations were reduced and restrictions placed on the use of a proportion of a general security users carryover water. The priority always remains to provide critical town and domestic water.</p> <p>For longer term planning, we are preparing <a href="#">Regional Water Strategies</a> based on the latest climate evidence to plan and manage the water needs in each NSW region over the next 20 years. The Lachlan Regional Water Strategy is being developed as a priority and the draft is scheduled to be released for comment in mid- 2020. The draft strategies for the Murray and Murrumbidgee are scheduled for release in late 2020.</p>
<p>With recent decent autumn rainfall in the NSW Murray and a recent 3% NSW Murray water allocation indicating there is no real deficit, why isn't the 'projected allocation' at November 15th closer to (or above) the 'new' long term average annual yield of 69%?</p>	<p>The long-term average annual yield (LTAAY) is the annual volume of water allocated to water entitlements over the longer term. It is a calculation used by the Commonwealth Government in converting different types of water licences purchased into a longer-term figure towards meeting the Murray Darling Basin Plan's water recovery targets for the environment.</p> <p>The LTAAY is based on long-term statistical treatments and does not consider current antecedent conditions, weather outlooks or other factors such as payback of previously borrowed water. The projected 1 November 2020 allocations in the department's last Water Allocation Statement for the Murray include consideration of the repayment of the borrow by general security users of the Barmah-Millewa Environmental Water Allowance (EWA). Payback of the borrowed NSW share of the Barmah Millewa EWA, some 290 GL, needs to commence when general security allocations reach 30%.</p>

Issue	Response
<p>What are the main triggers for cutting back on general security carryover and what determines the % that has been announced?</p>	<p>The aim is for all high priority commitments and general security carryover to be fully met every year. However, general security carryover is considered a general security product in terms of priorities of licence categories under the <i>Water Management Act 2000</i>. Therefore, in the unlikely event, in the Murray and Murrumbidgee, of a resource deficit that cannot be met from elsewhere, and water must be 'saved', the savings from general security entitlements (including carryover) must be at least as much as the savings from high security entitlements. Any suspended carryover water is put into special drought accounts and is released back to account holders as the resource situation improves.</p> <p>In the Lachlan, for example, on 1 July 2019 general security users were restricted to only using 57% of their carryover water in their accounts and high security allocations were limited to 87%.</p> <p>An information sheet on restricting carryover is available at <a href="#">Drought Information</a>.</p>
<p>With an opening Murray allocation of 50% for conveyance, operating under the water sharing plan rules, what does this mean for general security allocations? How will future water made available to the Murray River be distributed? If allocations are not allocated to general security and conveyance, then what will they be allocated to?</p>	<p>Water allocation priorities are established in the water sharing plan. If all high priority commitments can be met on 1 July 2020 as expected, then improvements from 1 July through the water year will accrue to general security entitlements concurrently with the build for next year's high priority commitments. If a shortfall eventuates on 1 July, then the shortfall must be met from the first resource improvements.</p>
<p>With the late allocation in March 2018 of 2% or 33GL, what would not have been allocated?</p>	<p>The shortfall on 1 July 2018 was nearly 200 GL. With perfect hindsight, at least the 2% March 2018 and the previous 3% January 2018 allocations should have been withheld. This would have built the year two reserve and reduced the carryover liability (520 GL) to reduce the 1 July 2018 deficit.</p>

Issue	Response
<p>Is there going to be an opportunity to have more detailed individual river system updates?</p>	<p>The 'roadshow' webinars were designed as four regional sessions to provide an overview across all NSW of the drought journey, the lessons learned, a seasonal water availability outlook and for the department to get an indication of the additional information that stakeholders were interested in. This 'What We Heard' document is one means of trying to provide answers to more specific questions. More materials and opportunities, particularly in the Murray, will be provided to inform and discuss specific issues, with the department working with Murray Irrigation Ltd on this.</p> <p>WaterNSW holds regular River Operations Stakeholder Consultation Committee (ROSCCO) meetings with regulated river stakeholders. Information from the previous meetings and the dates for the next <a href="#">ROSCCOs</a> are available on WaterNSW's website.</p>

Issue	Response
<p>How do we optimise river-wetland connectivity in the low Murrumbidgee (especially in the Balranald Weir pool)?</p>	<p>The department and WaterNSW work closely with Environmental Water managers (NSW Environment Energy &amp; Science (EES) and Commonwealth Government) and DPIE Fisheries to optimise environmental water use and on the preservation of key environmental assets during all climate scenarios. EES leads these processes for NSW and applies the priorities according to the valley <a href="#">annual environmental watering plans</a>, and in reference to the valley-scale Long Term Watering Plans. This includes objectives around connectivity if there is sufficient water.</p> <p>As flow conditions become increasingly dry, environmental flow management becomes focused on preserving ecological assets and functions, maintenance of river pools, avoiding fish deaths and managing water quality, where it is practically possible to deliver water.</p> <p>By opportunistically ordering environmental water from upstream storages and adding to rainfall derived surplus flows, the river flows downstream of Redbank Weir can be raised above 4,000 megalitres (ML)/day to allow inflows into Tala and Yanga Lakes. By synchronising Murrumbidgee environmental water releases with high Murray River flows the Junction wetlands (located between Balranald and the Murray Junction) and low-level floodplain can be inundated when flows concurrently exceed 5000 ML/day downstream of Balranald Weir and 10,000 ML/day downstream of Wakool Junction.</p> <p>In higher allocation years, floodplain return flows can be managed from the Yanga and North Redbank floodplains back to the Murrumbidgee River via numerous ‘escape’ regulators. These productive return flows feed the river carbon and small organisms, which small native fish need to survive. Whole of river <i>wetland reconnection flows</i> can also be managed in wetter years with significant storage releases from the dams. These environmental flow events allow for the lower three weirs to be removed (gates out, to optimise fish passage). Through this action significant overbank floodplain inundation is achieved from above Maude Weir, right down to the Murray junction.</p>

**Table 3. Northern Valleys – Border Rivers, Gwydir, Namoi, Peel and Macquarie**

Issue	Response
<p>Is the worst drought sequence on record including the current drought, to be included in the volume of carry over storage for town water supplies?</p> <p>Why is old historical rainfall average used to plan for future allocations? How does it provide for future community growth?</p>	<p>In 2020-21 all towns in the northern regulated river valleys will receive full allocations, except for Tamworth where allocations are again likely to be restricted to 70%. Noting that Tamworth's entitlement from the regulated river is much greater than Tamworth's requirements.</p> <p>The allocation for towns does not get limited by the drought of record assumptions. If necessary, because of severe drought conditions worse than the drought of record used for the allocation process, restrictions are then applied to other water users to protect the critical needs of the town. The priority in extreme events is for critical town water supply, noting that towns should also act as conservatively as possible and impose restrictions on their town water users.</p>
<p>Has the groundwater system in Zone 4 of the Upper Namoi groundwater source recovered in recent months and are there any restrictions forecast?</p>	<p>Zone 4 is not on the list of groundwater sources that could receive a reduced allocation on 1 July. Allocations are only reduced in aquifers or zones where extractions are exceeding the extraction compliance limits.</p> <p>However, the department can impose restriction on access if water levels in specific areas are dropping to levels which is putting the aquifer at risk.</p> <p>A review of the hydrographs indicate there has been no significant recharge (observed) to the systems since the onset of more favourable weather from early 2020.</p> <p>The department is continuing to monitor how the water levels are responding and will discuss with stakeholders prior to introducing any restrictions.</p>
<p>How can I speak/ communicate with an NRAR hydro?</p>	<p>A hydro may be either a hydrologist for surface water or a hydrogeologist for groundwater. Specific questions can be emailed to the department - <a href="mailto:water.enquiries@dpi.nsw.gov.au">water.enquiries@dpi.nsw.gov.au</a></p> <p>Alternatively, the <b>Natural Resource Regulator (NRAR)</b> can be contacted:</p> <p><b>Phone:</b> 1800 633 362</p> <p><b>Email:</b> <a href="mailto:nrar.enquiries@nrar.nsw.gov.au">nrar.enquiries@nrar.nsw.gov.au</a></p>

Issue	Response
<p>How will water quality be prioritised for Walgett at end of the Namoi River?</p> <p>How are surface and groundwater use, the health of river and groundwater ecology, and town drinking water use all monitored?</p>	<p>Supply for Walgett:</p> <ul style="list-style-type: none"> <li>• When Keepit Dam was very low, a final release of water in December 2018 was made to provide a flow along the river to Walgett. After that the dam was at such low levels that no further water could be released from the dam during 2019 for any purpose.</li> <li>• Earlier this year (2020) when we saw some rainfall, this resulted in natural inflows that were protected to ensure that town water supplies and refuge pools were replenished before access was permitted for commercial purposes. Substantial volumes passed by Walgett, and Walgett's weir was filled as a result.</li> <li>• During the drought substantial financial assistance has also been provided to Walgett to access groundwater as a supplementary supply. In addition, a temporary reverse osmosis plant has been installed at the Walgett Water Treatment Plant to assist in improving water quality. This is currently being commissioned.</li> <li>• For longer term water security, Walgett Weir is being raised. Work has commenced and expected to be completed by September 2020.</li> </ul> <p>Water monitoring:</p> <ul style="list-style-type: none"> <li>• Extractions by commercial surface and groundwater users are metered and the data assessed to ensure compliance with licence conditions and water sharing plan compliance limits.</li> <li>• A range of monitoring bores across the state monitor changing groundwater levels and various water quality parameters. Similarly, surface water quality and quality are monitored.</li> <li>• Data can be found at WaterNSW's <a href="#">Realtime data</a>. WaterNSW's website also provides information on <a href="#">algal alerts</a>.</li> <li>• Ecological conditions are monitored at some locations by the department's Biodiversity and Conservation Division, Fisheries and the Commonwealth Environmental Water Office as part of various programs.</li> </ul>
<p>When will carry over be available?</p>	<p>The suspension of carryover water in Upper and Lower Namoi was lifted on 25 February 2020.</p> <p>Approximately 40% of suspended carryover water will be available shortly in the Macquarie.</p>

Issue	Response
<p>Will Upper Namoi Regulated River users get a 50% general security allocation on 1 July 2020?</p>	<p>Upper Namoi general security users were given a 50% water allocation on 21 April 2020 and they can carryover unused account water up to 50% of their entitlement. The 5 June 2020 <a href="#">Water Allocation Statement</a> advises that Upper and Lower Namoi general security entitlement holders can expect zero allocations on 1 July 2020. However, access to full carryover water will be available.</p>
<p>Provide information about groundwater levels, availability and security for the Dubbo region.</p>	<p>Groundwater levels have declined in response to the drought and high pumping volumes. This is to be expected during drought periods. There has been some recovery due to reduced pumping as a result of rainfall in recent months, however monitoring to date has not shown any significant recharge to the system. The department can impose temporary restrictions on water users if groundwater levels drop to unacceptable levels.</p> <p>The department can also reduce groundwater allocations where extractions are continuing to exceed the extraction limit. This is the third year that the volume pumped from the Upper Macquarie Alluvial groundwater source has exceeded the water sharing plan's annual extraction limit, due to the heavy reliance on groundwater during the drought. With the rainfall received earlier this year, the total volume pumped this water year is below that of 2018/19, which is the highest recorded usage.</p> <p>The plan's compliance rules are based on a five-year rolling average extraction. Whether reduced allocations will be triggered for the 2020-21 water year will be determined from the final metering data. While there is potential to reach this trigger, it is unlikely that groundwater allocations will be reduced in the Upper Macquarie Alluvial groundwater source. This assessment is based on meter data received so far from the 2019-20 water year.</p>
<p>What will the water allocations for the Peel River be?</p>	<p>With the need to secure remaining supplies in Chaffey Dam for Tamworth, there will not be a general security allocation in the Peel until storage levels improve. The forecast allocation for high security is 50%, town water supply 70%, and domestic and stock 70%.</p>

Issue	Response
<p>How much water was extracted via floodplain harvesting in the Macquarie?</p>	<p>There is currently no metered measurement of floodplain harvesting because imposing these conditions relies having work approvals and licensing in place. It is intended that the NSW Floodplain Harvesting Measurement Policy will be published in July 2020 with implementation commencing on 1 July 2021.</p> <p>Over the past six years the department has invested significantly in technologies such as remote sensing, computer modelling and data to build accuracy and confidence in the estimate of floodplain harvesting volumetric entitlements and how capture will be monitored.</p> <p>We have used sensor technology to establish the location, capacity and the relative elevation of each storage on the floodplain and to estimate the volume of floodplain harvesting captured in private water storages in the Northern Basin valleys.</p> <p>Using this technology, we were able to assess the volume of water harvested in February 2020 during the four-day exemption from the Northern Basin restrictions from all the northern lower valley floodplains as around 30 GL. Over 500 GL of flow has made it to the Menindee Lakes.</p>
<p>What are the implications of contamination of Dubbo's aquifers with PFAS (Perfluoroalkyl and polyfluoroalkyl substances)? Will this contamination work through the whole aquifer eventually?</p>	<p>Dubbo Regional Council is working with the relevant government agencies to resolve and manage the PFAS issue. The available information on PFAS in groundwater under Dubbo is being incorporated into the planning of the current drilling investigations for the city's water supply.</p> <p>Sampling and testing of groundwater for PFAS is being undertaken and will be ongoing to evaluate its current extent and its likely presence in the longer term within the groundwater under the city.</p> <p>Recent information can be found on <a href="#">Dubbo Regional Council's website</a>.</p>
<p>Have these 'budget' run out numbers considered contingency water needs for firefighting requirements (based on this fire season's estimated consumption) under continued drought?</p>	<p>Water for fire-fighting purposes can be taken as a priority as this constitutes an emergency. The Rural Fire Service obtains the water from whatever sources are available. This can include mains water (town supply) or recycled water from sewerage treatment works, water trucked in from other areas, local rivers, creeks, dams, bores or water on a property from swimming pools, tanks and farm dams.</p> <p>There are no volumes specifically budgeted for firefighting requirements.</p>

**Table 4. Hunter Valley**

Issue	Response
<p>Who is doing what regarding NSW Government drought support?</p>	<p>There is a wide range of government drought support programs. DPI's <a href="#">Drought Hub</a> and the <a href="#">Rural Assistance Authority</a> provide support and assistance for farmers.</p> <p><a href="#">ServiceNSW</a> provides services and support to drought affected community across NSW.</p> <p>The NSW Government has established working groups to ensure coordination of assistance. At the State level the <a href="#">Office of Drought Response</a> has been formed and in the Hunter, a Hunter Drought Taskforce.</p> <p>The department chairs the <a href="#">Hunter Critical Water Advisory Panel</a> with State and local government representatives to advise on water management during the drought.</p>
<p>Will the Hunter have a general security allocation next year?</p>	<p>The <a href="#">Hunter Water Allocation Statement</a> published on 20 May 2020 advised that:</p> <ul style="list-style-type: none"> <li>• High security and general security licences can expect opening allocations on 1 July 2020 of up to 85% and 20% of entitlement respectively.</li> <li>• The final assessment will be undertaken in late June, using the latest inflows and water usage data and likely carryover volume.</li> </ul>

How is climate change factored into future supply options?

Future supply options for regional NSW are being informed by a new approach to understanding future climate risks using knowledge from scientific analysis of past climate (using tree rings, cave stalactites and stalagmites, river sediments, soil patterns, and ice cores).

The new approach provides us with a much more extensive picture of past climates, which in turn helps us to see what might happen in the future under similar circumstances.

This type of modelling tells us much more about possible climatic extremes (droughts and floods) to investigate how and where our regional water resources and waterways may be vulnerable to such climate risks.

The [Greater Hunter Regional Water Strategy](#) was the first to use this approach. The strategy looked at existing and near-future risks to water security, and factors that could affect these risks. It looked at the risk of a drought worse than the worst drought on record and the effect it would have on the region's water security.

To develop this information, the University of Newcastle was commissioned to undertake stochastic data (probability) to simulate variability by producing 10 000 years of records based on historical records. This broadens statistically the probability of climate variability including whether there are changes in such things as averages.

Further work was then done to analyse and compare the data to see if the stochastic data was showing the same order of drought as the paleoclimate data (i.e. pre-climate record). This was to ensure that there is robustness in the stochastic data for soundness of method.

Through two Hunter Water Corporation (HWC) consultations the Hunter community articulated a preference for recycling, demand management, stormwater harvesting and water conservation rather than any more dams. 90% of urban water supply in the Hunter comes from dams. How is the department and HWC going to address this imbalance and shelve dams?

## Lower Hunter Water Security Plan

The Lower Hunter Water Security Plan is currently looking at a range of options in order to identify the best portfolio of measures. Through recent community consultation activities, Hunter Water Corporation (HWC) advises that they have learned that the community wants consideration of all options for the region's long-term water security. This includes recycling, demand management, conservation, groundwater, inter-regional transfers, desalination and dams.

HWC has short listed several water supply options. Work is now underway to better understand the technical feasibility, and the costs and environmental and social aspects of these options. HWC recognises there is a range of measures, including diversity of sources, that contributes to the reliability of the overall water supply system. Before the lower Hunter Water Security Plan is finalised, HWC will continue to engage with the community for feedback on the portfolios.

More information can be found at [Hunter Water Corporation's website](#).

## Greater Hunter Regional Water Strategy

The Greater Hunter Regional Water Strategy, which covers a much larger area, recommended a combination of new infrastructure and better use of existing assets. It identified the following infrastructure options for further investigation:

- Construction of a two-way pipeline between Lostock and Glennies Creek Dam.
- Construction of a potable pipeline from Hunter Water Corporation to Singleton.
- A large-scale water reuse scheme.
- Continued operation of the Barnard Scheme after Liddell Power Station closes.

The strategy also allows AGL's water infrastructure to be incorporated into a regional framework when Bayswater Power Station closes in 2035. Some of the benefits can be transferred to Hunter Water for urban growth in Newcastle and the Central Coast, delaying the need for a major augmentation. It could significantly delay the next supply augmentation for both Newcastle and the Central Coast and mitigate the need for restrictions.

For more information see the [Greater Hunter Regional Water Strategy](#).

If the groundwater aquifers take many years to recover, why is Hunter Water Corporation (HWC) continuing to investigate dams in the Lower Hunter rather than concentrate on more drought secure measures like recycling?

Information on the options being considered by Hunter Water is covered above. HWC has advised that it has identified several potential dam sites for further investigation. However, aside from continuing to invest in water conservation and leakage reduction, no decisions have been made about which options will be included in the revised Water Security Plan.

With regard to the issue of groundwater recovery, levels in deeper groundwater sources respond more slowly to seasonal changes than, for example, the shallow alluvial groundwater sources under the Hunter tributaries, which can recover much more quickly with sustained rainfall and surface water flows.

The alluvial groundwater systems closely connected to the regulated river flows have dropped less during the drought than those connected to unregulated tributaries. This is due to the constant source of recharge the regulated flows provide. As such, the alluvial groundwater systems connected to the regulated river flows will continue to respond more rapidly.

The hard rock formations of the Hunter catchment include a range of groundwater systems. These range from shallow water table aquifers, that are very responsive to seasonal conditions, to large regional groundwater flow systems that show minimal change to seasonal rainfall and have groundwater levels that reflect recharge and discharge conditions over the previous decades or centuries.

The aquifers in the Tomago coastal sands from which Hunter Water Corporation (HWC) pump groundwater are shallow (20 to 50 m) and are replenished directly from rainfall. The water table in these sand beds recovers quickly to rainfall.

Even though the speed of recovery of these groundwater systems varies, all these groundwater resources are monitored and managed through collaboration between HWC, WaterNSW and the department. HWC also monitors and manages groundwater in the Tomago sands to ensure its extraction remains sustainable for the longer term.

<p>Inflows to the Hunter River and to the Upper Hunter dams were severely reduced over the last three years. The Williams River had a red alert at Clarence Town due to reduced flows. So why is Hunter Water Corporation investigating another possible dam on the Williams River which would further reduce flow endangering the Hunter Estuary and Ramsar wetlands.</p>	<p>Hunter Water Corporation has advised that in order to fully consider all the options available, a range of shortlisted options have been identified. This includes two dam investigation areas, so that the benefits, potential impacts, and costs of each of the options can be assessed. Further consultation will occur with the community before the end of the year.</p>
<p>What is the status of the new water sharing plan?</p>	<p>The Hunter Unregulated and Alluvial water sharing plan is due to be replaced on 1 July 2020. The Natural Resources Commission has recently completed its final review of the plan and the recommendations are being considered by the department.</p> <p>See <a href="#">Water Sharing Plans</a> for more information on plans developed for the Hunter and Paterson River catchments</p>
<p>What will be state of groundwater moving forward?</p>	<p>Groundwater sources will continue to be managed according to the rules in the water sharing plans which set extraction limits and require monitoring of extraction against these limits. If groundwater extractions exceed these limits in the water sharing plan, then the department can reduce allocations. In addition, if water levels drop to unacceptable levels, then restrictions on access can also be applied.</p>
<p>Do you know how many accusations of water theft were recorded in the Hunter System?</p>	<p>The Natural Resources Access Regulator (NRAR) is an independent regulator with responsibility for ensuring compliance with water management legislation in NSW. Since NRAR commenced operations on 30 April 2018, 12 154 enquiries from across the state have been received by email and through the hotline. 3 331 breach allegations have also been logged.</p> <p>In the Hunter over the last 12 months NRAR has received around 120 reports, with 43 reports relating to potential illegal water extraction in the Hunter. In comparison to other parts of NSW, Hunter is in the top 10 of water sharing plan areas for reports of suspicious activity. The Hunter is a regulatory high priority area in NSW for NRAR.</p> <p><a href="#">NRARs website</a> provides reports monthly on actions in each water sharing plan area and lists all convictions and directions completed on the NRAR public register on its website.</p>

## Webinars

**Table 5: Webinar details**

Date	Valley	No of attendees	Attendees
22 May 2020	Barwon-Darling and Lower Darling	44	Commonwealth Environmental Water Office, Cotton Australia, Inland Rivers Network, Murray Darling Basin Authority, NSW Farmers Association, Rural Financial Counselling Services, Water Resource Drilling, Western Local Land Services, farmers and community members.
25 May 2020	Southern Valleys – Lachlan, Murrumbidgee and Murray	48	AgField Services, Albury City Council, Australian Vintage Ltd, Balranald Shire Council, Brooks Farms, Cadia Valley Operations, Central Tablelands Water, Coleambally Irrigation, Corowa District Landcare, Murrumbidgee Council, Federation Council, Forbes Shire Council, Lachlan Shire Council, Murray Darling Basin Authority, Murray irrigation, Murray Lower Darling Rivers Indigenous Nations, Murray River Council, Murrumbidgee Irrigation, Newcrest Mining, Northparkes Mines, NSW Farmers Association, NSW Minerals Council, Progressive Agriculture, Parkes Shire Council, Rural Financial Counselling Services, Risk Management Capability Group Business, SunRice, Wakool River Association, Water Resource Drilling, Webster, Yanco Creek and Tributaries Advisory Council, and individual water users.
28 May 2020	Northern Valleys – Border Rivers, Gwydir, Namoi, Peel and Macquarie	86	Bathurst Regional Council, Border Rivers Fire & Flood, Dharriwaa Elders Group, Dubbo Regional Council, Gunnedah Shire Council, Gwydir Valleys Irrigators Association, Healthy Rivers Dubbo, Hunter H2O, Inverell Shire Council, Murray Darling Basin Authority, Mid-Western Regional Council, Moree Plains Shire Council, Namoi Unlimited, Narrabri Shire Council, Narromine Shire Council, Ningawalla Farming, North West Local Land Services, NSW Minerals Council, Orana Water Utilities Alliance, Peel Valley Water Users Association, Southern New England Land Care, Tamworth Regional Council, Tritton Mines, Water Resources Drilling, farmers and community members.

# Drought outlook and water availability



What we heard | May – June 2020

2 June 2020	Hunter Valley	37	AGL Macquarie, Ashton Coal, Glencore, Hunter Wine Country Private Irrigation District, Landcare Upper Hunter, Lower Hunter Agricultural Water Users Association, MACH energy, Muswellbrook Shire Council. NSW Farmers Association, NSW Minerals Council, Save the Williams Coalition, Singleton Council, Tocal College, Wentworth Shire Council, Yancoal, water users and community members.
-------------	---------------	----	--

© State of New South Wales through Department of Planning, Industry and Environment 2020. The information contained in this publication is based on knowledge and understanding at the time of writing (June 2020). However, because of advances in knowledge, users are reminded of the need to ensure that the information upon which they rely is up to date and to check the currency of the information with the appropriate officer of the Department of Planning, Industry and Environment or the user's independent adviser.