Queensland Annual Environmental Watering Priorities 2017–2018
Implementing the Murray–Darling Basin Plan
Introduction

The environmental management framework outlined in Chapter 8 of the Murray–Darling Basin Plan 2012 (Basin Plan) requires Basin States to identify annual environmental watering priorities for surface water in each Commonwealth water resource plan area. The annual environmental watering priorities must specify watering priorities for environmental assets and ecosystem functions in accordance with the principles and method included in the Basin Plan. This information will inform the development of the Basin annual environmental watering priorities by the Murray–Darling Basin Authority (the Authority), which in turn will inform decisions about the management and use of Commonwealth and other environmental water holdings.

The prescribed method for development of annual environmental watering priorities requires that they be developed having regard to: the Authority’s Basin-wide environmental watering strategy (released 24 November 2014); the expected availability of ‘planned’ (rules-based) and ‘held’ (entitlement-based) environmental water; and the long term watering plan for each Commonwealth water resource plan area. They must also be compliant with any relevant Commonwealth-accredited water resource plan.

The Queensland context

With the exception of the recently made Warrego, Paroo, Bulloo and Nebine Water Plan 2016 and its amended resource operation plan - which have been submitted for accreditation to the Authority - Queensland’s existing water plans1 and resource operations plans2 within the Murray–Darling Basin have been recognised as transitional water plans under the Commonwealth Water Act 2007.

Queensland’s annual environmental watering priorities for the Basin reflect the environmental watering arrangements provided for under the existing transitional water plans as well as those in the Warrego, Paroo, Bulloo and Nebine Water Plan 2016. The environmental watering arrangements in the transitional plans are built on very similar methods to those prescribed under the Basin Plan. They seek to protect and where possible restore natural flow regimes to support high value environmental assets and critical ecosystem functions. These outcomes are also balanced with the need to provide industry and the broader community with safe and reliable water supplies.

Queensland’s water plans provide for the achievement of general and specific ecological outcomes for identified environmental assets and ecosystem functions within and downstream of each plan area. This is achieved through the effect of water sharing rules, infrastructure operating rules and flow event management rules included in ‘operational’ resource operations plans. This integrated, rules-based approach is designed to achieve specific environmental flow objectives at selected nodes within each river catchment to support identified environmental assets and ecosystem functions, while maintaining the performance of consumptive water entitlements. The environmental assets, ecosystem functions and associated environmental flow requirements are identified during the development of each water plan through a process that includes extensive technical assessments and stakeholder consultation.

This long-term, integrated, rules-based approach is particularly suited to the Queensland Murray-Darling Basin which, compared with the southern Basin, is characterised by highly ephemeral watercourses and wetlands and a very limited capacity to regulate flow using in-stream storage infrastructure. Therefore, Queensland’s relatively unregulated hydrology and unique long-term approach to environmental watering

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1 From the commencement of the Water Reform and Other Legislation Amendment Act 2014 (WROLA Act) on 6 December 2016, each State water resource plan mentioned in this document continues in force as the respective water plan (see section 1256(1) of the Water Act 2000 (Qld)).

2 From the commencement of the Water Reform and Other Legislation Amendment Act 2014 (WROLA Act) on 6 December 2016, the provisions of a Resource Operations Plan referred to in this document are taken to be, or to have effect for, a number of other documents under the Water Act 2000 (Qld) as amended (see section 1259 of the Water Act). Section 1266 of the Water Act allows references to resource operations plans to, where the context permits, be taken to be a reference to the relevant document under the Water Act as amended by the WROLA on 6 December 2016.
also means that there is limited opportunity for prioritising the active watering of individual priority environmental assets and ecosystem functions at the annual timescale.

Figure 1: Catchments of the Queensland Murray–Darling Basin

Planned environmental water

The provision of ‘planned’ environmental water, under Queensland’s rules-based approach to environmental watering, in effect provides a long-term watering plan for each plan area (also a requirement of Basin States under Chapter 8 of the Basin Plan). The rules and flow triggers protecting the availability of this ‘planned’ environmental water are responsive to natural variability of flows, as well as water use decisions by individual entitlement holders - made in accordance with entitlement access conditions and within the rules-based management framework. Of particular importance to the achievement of stated ecological outcomes in the Condamine and Balonne, Border Rivers and Warrego catchments are specific flow event management arrangements. These arrangements embody a level of flexibility in resource allocation for ecological purposes at the annual timescale, based on antecedent flow conditions.

The effectiveness of this rules-based approach to the provision of ‘planned’ environmental water is assessed and adaptively managed in accordance with water plan and resource operations plan review provisions of the Queensland Water Act 2000 using the best available science, including findings of Queensland’s Environmental Flow Assessment Program which can be found on the Queensland Government website at www.qld.gov.au/environment/water/quality/monitoring.

Held environmental water

Currently all of the ‘held’ environmental water in the Queensland Murray–Darling Basin is owned by the Commonwealth and managed by the Commonwealth Environmental Water Holder (CEWH). Most of it is
held as unsupplemented (unregulated) water allocation. There is a relatively small volume of supplemented (regulated) water allocation held in the Border Rivers plan area.

Access to unsupplemented entitlements is typically conditional on achievement of specific river flow thresholds, while access to supplemented entitlements is conditional on assessments of availability of water held in publicly owned dams and weirs within managed water supply schemes. Instantaneous, daily, annual and/or multi-year volumetric limits provide a ceiling on the maximum volume that can be taken in any given year.

Consultation and cooperative arrangements

In developing water resource plans and resource operations plans for the Queensland Murray–Darling Basin, the Queensland government undertook extensive consultation with stakeholders including water users, water infrastructure operators, sectoral interest groups and other jurisdictions. This ensured that their values and competing interests were balanced and accommodated where possible.

These same stakeholder groups have been consulted as required as a part of Queensland’s preparations for implementation of the Basin Plan. To a large extent, all the above mentioned consultations have implicitly informed the development of the annual watering priorities included in this document. Additionally, and in the context of framing the 2017–2018 annual environmental watering priorities, the Queensland government has consulted directly with the Commonwealth Environmental Water Office (CEWO), New South Wales government and SunWater—the operator of bulk water supply infrastructure, on proposed environmental watering priorities and possible cooperative arrangements.

The CEWO’s annual options planning process for 2017–2018 in relation to environmental water holdings in Queensland have been considered in the development of the annual watering priorities included in this document. Also consultation has occurred with the Border Rivers Water Network and Border Rivers Food and Fibre in relation to the developing arrangements on the Border. For the Condamine and Balonne, engagement has occurred with key interests from Lower Balonne Water Network.

Examples where cooperative cross-border participatory processes have occurred include:

- The development of low and medium flow water sharing rules for the Lower Balonne
- The development of flow sharing arrangements for the Lower Warrego.

Further cooperative arrangements between Queensland and the Commonwealth Environmental Water Office (CEWO) may provide some additional benefits to identified priority assets. This would be through CEWO identifying and implementing complementary actions to be undertaken concurrently with Queensland’s environmental watering (this is via a rules based approach triggered by antecedent conditions as per Appendices A, B and C). Examples of complementary actions that may be considered by CEWO include:

- Temporary trading of water in the Border Rivers, where the catchment has experienced low/medium flows for the last 3 years and is drought declared (see Table 1), to increase the environmental share of the available volume during the suitable announced period to be >25% and provide targeted flow enhancement in the Lower Macintyre River.
- Purchase of waterharvesting opportunity and/or water in storage in the Lower Balonne to improve inflows to maintain waterbird nesting habitat in the Narran Lakes Ramsar site, which was last filled in October 2016.
- Purchase of waterharvesting opportunity and/or water in storage in the Lower Balonne to improve inflows to support waterbird breeding in Narran Lakes. The last large scale breeding event occurred in March 2012.
Purchase of waterharvesting opportunity in the Lower Balonne to add to environmental benefits from Queensland low flow event management and to refresh waterholes and connect all parts of the Lower Balonne Distributary System.

The following table documents consultation on environmental watering undertaken by Queensland.

**Consultation on environmental watering**

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Date of consultation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SunWater</td>
<td>ongoing</td>
</tr>
<tr>
<td>New South Wales – Office of Water</td>
<td>ongoing</td>
</tr>
<tr>
<td>CEWO</td>
<td>ongoing</td>
</tr>
<tr>
<td>Strategic Consultative Committee</td>
<td>ongoing</td>
</tr>
<tr>
<td>Lower Balonne Water Network</td>
<td>ongoing</td>
</tr>
<tr>
<td>Border Rivers Environmental Water Network</td>
<td>ongoing</td>
</tr>
<tr>
<td>Border Rivers Food and Fibre</td>
<td>ongoing</td>
</tr>
</tbody>
</table>

**Annual environmental watering priorities**

**All plan areas**

Queensland’s priorities for environmental watering are embodied in the specific and general ecological outcomes stated in each of Queensland’s existing transitional water plans and the WPBN water plan. These outcomes are directly related to high-value environmental assets and critical ecosystem functions that have been identified through extensive technical assessments and stakeholder consultation.

According to these outcomes, the priority for all plan areas is to protect natural flow variability across all flow bands to maintain critical ecosystem functions including: maintaining longitudinal (in-stream) and lateral (floodplain) connectivity; providing for sediment and nutrient transport; providing spawning and migration cues for aquatic animals; supporting the recruitment and maintenance of in-stream, riparian and floodplain vegetation; maintaining the success of bird-breeding in the Narran Lakes and on floodplains; and providing for the filling of refugial waterholes and wetlands. Maintenance of these critical ecosystem functions is expected to support a diverse range of location and non-location based environmental assets, as well as broader Basin Plan objectives relating to ecosystem resilience, diversity and water quality.

Table 1 outlines the relevant ecological outcomes for each water plan area, the antecedent conditions, as well as the contributing ‘planned’ and ‘held’ water within each plan area. Appendices A to C include details of additional flow event management arrangements in the Border Rivers, Condamine and Balonne, and Warrego, Paroo and Nebine areas.

The Authority has identified likely environmental watering opportunities in the Basin environmental watering outlook for 2017–2018 with the following relevant to Queensland:

- Native fish
- Waterbird
- River flows and connectivity

Queensland supports the environmental watering priorities identified by the Authority through the ongoing implementation of its water plans. In particular the flow event management rules in Appendix B that provides for low flow, medium flow and Narran Lakes flow event management will contribute to these watering priorities for the Condamine and Balonne and downstream connecting catchments.

Prior to the start of each water year the CEWH provides the relevant Basin State a copy of the proposed water use options for each valley in the Northern Basin. These options are not constrained by Queensland
water management plans. These options support water plan outcomes for the Queensland Murray–Darling Basin catchments.

**Border Rivers**

While there are no location-based assets specified in the stated ecological outcomes for the Border Rivers plan area, environmental watering in this area supports in-stream environmental values and ecosystem function benefits, as well as those associated with the Sundown National Park and Sundown Resources reserve on the Severn River and the Lower Barwon Wetlands. Note that current flow event management arrangements protect 25 per cent of natural flows during announced periods of access for unsupplemented water users, while other rules restrict access by supplemented water users to protect low flows resulting from tributary inflow during the period from September to March each year (see appendix A for details). To date a Long-term Watering Plan for the Border Rivers catchment has not been developed.

**Moonie**

There are also no location-based assets specified in the ecological outcomes for the Moonie plan area. However, environmental watering in this plan area is expected to support in-stream and floodplain environmental values and ecosystem function benefits and more specifically, the ecological values associated with Thallon Waterholes and the complex of wetlands located below Nindigully. The favourable transmission efficiency means that environmental flows in the Moonie catchment are also able to contribute to achievement of downstream ecological outcomes in the Barwon-Darling system. To date a Long-term Watering Plan for the Moonie River catchment has not been developed.

**Condamine and Balonne**

For the Condamine and Balonne plan area, the priorities for environmental watering, as embodied in the stated ecological outcomes, comprise the in-stream and floodplain environmental values and ecosystem function benefits of trunk and tributary streams, and include the floodplain and wetlands of the Lower Balonne, National Parks of the Culgoa floodplain and bird breeding at the Narran Lakes Ramsar site. Flows may also contribute to ecological outcomes in the Darling River above Bourke. Note that flow event management arrangements provide some additional protection for low to medium flows in the Lower Balonne as well as for flows that are likely to fill Narran Lakes (see appendix B for details). To date a Long-term Watering Plan for the Condamine and Balonne River catchment has not been developed.

**Warrego, Paroo, Nebine**

In January 2016 Queensland developed a Long-term Watering Plan for the Warrego, Paroo and Nebine water plan areas in accordance with the requirements of the Basin Plan. The priority environmental assets and priority ecosystem functions identified in the Long-term Watering Plan are expressed through the outcomes for the sustainable management of water that are stated in the WPBN water plan. The ecological outcomes and associated environmental assets (as highlighted) are:

- Minimisation of changes to the natural variability of flows of water that support aquatic ecosystems (throughout the plan area)
- Maintenance of the near natural flow regime that supports the aquatic ecosystems of the Paroo River
- maintenance of floodplain vegetation and wetland systems in the plan area, including Currawinya Lakes and Paroo Overflow Lakes
- Maintenance of flows of water in the plan area that support waterholes, river channels and migratory fish.

For the Warrego, Paroo and Nebine plan area, locations of environmental watering priorities include the Currawinya Lakes and Paroo Overflow lakes as well as other significant wetlands of the plan area, such as the Upper Warrego waterholes and wetlands of the Lower Warrego distributary system. The Long-term Watering Plan for the Warrego Paroo and Nebine catchments demonstrates Queensland’s approach to providing the environmental watering requirements for the priority environmental assets and functions.
Appendix C provides details of the rules in place to achieve the ecological objectives and targets relating to these assets and function, i.e. the flow event management rules that restrict unsupplemented water users to protect drought breaking low and medium flows.

**Water delivery**

In the Queensland setting, there are no iconic sites or significant opportunities for holding water for later delivery for either planned or held unsupplemented environmental water. The limited exceptions relate to passing flow requirements for major infrastructure associated with water supply schemes. It is therefore appropriate to leave any available environmental water from unsupplemented holdings in-stream during flow events for local and downstream benefits.

In developing the annual watering priorities in accord with Chapter 8 of the Basin Plan, regard has been given to the targets for managing water flows to achieve water quality targets in accord with Section 9.14 of the Basin Plan 2012, and in particular Sections 9.14 (3) and (4). The Basin Plan targets in Section 9.14 (5) relate to a) maintenance of dissolved oxygen, b) recreational water quality and c) levels of salinity. The operational levers available in the Queensland setting are limited. However on the positive side the lack of regulation inherent in Queensland river systems means that when flows occur they primarily do so more in line with natural flow sequences.

Limited active management of unsupplemented holdings may be possible in future years, such as by direct application to priority assets and event based mechanisms including water trading, but this sort of active management is not likely to be available during 2017–2018.

The optimal environmental watering outcomes will be achieved through a combination of planned environmental water and held unsupplemented water. Supplemented holdings will have little to no benefit in achieving the stated ecological outcomes for these highly unregulated systems.
Table 1 – Environmental watering priorities

This table details the focus for managing ‘planned’ and ‘held’ environmental water in Queensland water plan areas subject to resource availability. Additional detail on flow event management arrangements in the Border Rivers, Lower Balonne and Warrego catchments is included in the appendices.

<table>
<thead>
<tr>
<th>Water resource plan area</th>
<th>Held environmental water March 2017 (Long-term yield)</th>
<th>Volume available in 2017-18 (subject to Trigger flows)</th>
<th>Management authority</th>
<th>Watering strategy</th>
<th>Antecedent condition a (Note - forecast resource availability not applicable in Queensland context)</th>
<th>Desired outcomes as stated in Queensland water resource plans (including identification of priority environmental assets and ecosystem functions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Border Rivers</td>
<td>7,843 ML</td>
<td>Up to 28,738 ML</td>
<td>Commonwealth Environmental Water Holder</td>
<td>All available held water accounted for as in-stream flow</td>
<td>Dry • The Border catchment has experienced very high flows in 2010–11, moderate flows in 2011–12 and 2012–13 and low flows in 2013–14, 2014–15 and 2015–16. While low flows continued throughout the 2016-2017, there were two significant flow events in October 16 and April 17 that provided meaningful volumes of water for environmental purposes. • The entire catchment remains drought declared. • The Commonwealth’s unsupplemented entitlements made a small contribution to in-stream flows in the Border Rivers main stem during the three water harvesting events in 2016–17, which was on top of the 25% share of these events protected through the flow event management rules (Appendix A) • Environmental watering will support ongoing recovery of the system to good ecosystem health, and will continue to provide environmental benefit, connectivity and cues for ecological response which is consistent with the Basin Plan outcomes.</td>
<td>• to make water from the basin available to be stored and used while retaining water for the riverine and associated environment; • to achieve ecological outcomes consistent with maintaining a healthy riverine environment, floodplains and wetlands, including, for example— o maintaining pool habitats, and native plants and animals associated with the habitats, in watercourses; and o maintaining natural riverine habitats that sustain native plants and animals o maintaining the natural abundance and species richness of native plants and animals associated with habitats within watercourses, riparian zones, floodplains and wetlands maintaining active river-forming processes, including sediment transport o Improving wetland inundation to provide for ecological processes o reducing the adverse impact of infrastructure on natural hydraulic bank erosion processes.</td>
</tr>
<tr>
<td>5,241 ML</td>
<td>13,033 ML c</td>
<td>Commonwealth Environmental Water Holder</td>
<td>To be determined by the CEO through environmental watering options</td>
<td>Planned water availability subject to resource operations plan rules including flow event management rules that limit both supplemented and unsupplemented entitlements under specific circumstances, as per Appendix A.</td>
<td>Dry • The Moonie catchment experienced very high flows in 2010-11 and 2011-12, moderate flows in 2012-13 and low flows in 2013-14, 2014-15 and 2015-16. Low flows continued throughout 2016-17 with only ~ 3000 megalitres passing the most downstream gauging station. • The entire catchment remains drought declared. • There has been limited opportunity to realise any benefit from held environmental watering • Environmental watering will continue to support recovery of the system to good ecosystem health, and will continue to provide environmental benefit, connectivity and cues for ecological response which is consistent with the Basin Plan outcomes.</td>
<td>• to make water from the basin available to be stored and used while retaining water for the riverine and associated environment; • to achieve ecological outcomes consistent with maintaining a healthy riverine environment, floodplains and wetlands, including, for example, maintaining— o pool habitats, and native plants and animals associated with the habitats, in watercourses o natural riverine habitats that sustain native plants and animals o the natural abundance and species richness of native plants and animals associated with habitats within watercourses, riparian zones, floodplains and wetlands o active river-forming processes, including sediment transport</td>
</tr>
<tr>
<td>N/A (planned water)</td>
<td>Qld Department of Natural Resources and Mines</td>
<td>Planned water availability subject to resource operations plan rules</td>
<td>N/A (planned water)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Note that background colour indicates type of water (held unsupplemented including overland flow licences = [ ], held supplemented = [ ] and planned = [ ]).
<table>
<thead>
<tr>
<th>Water resource plan area</th>
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<th>Volume available in 2017-18 (subject to Trigger flows)</th>
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<th>Watering strategy</th>
<th>Antecedent condition (Note - forecast resource availability not applicable in Queensland context)</th>
<th>Desired outcomes as stated in Queensland water resource plans (including identification of priority environmental assets and ecosystem functions)</th>
</tr>
</thead>
</table>
| Condamine – Balonne     | 58,111 ML Up to 181,466 ML Commonwealth Environmental Water Holder | All available held water accounted for as in-stream flow | Dry:  
- The Condamine and Balonne catchment experienced very high flows in 2010-11 and 2011-12, moderate to high flows in 2012-13 and low flows in 2013-14 and 2014-15. There were no significant flows during 2015-16 other than a flow in February 2016 which filled Beardmore Dam and provided some limited opportunity for waterharvesting. While there were 2 moderate sized flows events in September 2016 and April 2017 which provided meaningful access for waterharvesting, the remainder of the year experienced either low flow or no flow periods. The total flow passing the St George G/S for the water year was ~420,000 megalitres.  
- The entire catchment area remains drought declared.  
- The Commonwealth’s unsupplemented holdings in the Lower Balonne made a noticeable contribution to in-stream flows throughout the Lower Balonne system during the flow events in September 2016 and April 2017. A flow through the end of the major streams of Lower Balonne distributary system resulted from the September 2016 flow event at St George.  
- Environmental watering will continue to provide environmental benefit, connectivity and cues for ecological response which is consistent with the Basin Plan outcomes.  
- to maintain water quality at levels acceptable for water use and to support natural ecological processes.  
- to make water from the basin available to be stored and used while retaining water for the riverine and associated environment;  
- to achieve ecological outcomes consistent with maintaining a healthy riverine environment, floodplains and wetlands, including, for example, maintaining—  
  - pool habitats, and native plants and animals associated with the habitats, in watercourses  
  - natural riverine habitats that sustain native plants and animals  
  - the natural abundance and species richness of native plants and animals associated with habitats within watercourses, riparian zones, floodplains and wetlands  
  - active river-forming processes, including sediment transport  
  - existing flow paths across the floodplains to allow ecological processes to take place  
  - the condition and diversity of native vegetation on the floodplains and related streams  
  - the diversity and abundance of native animals within the floodplains and related streams  
  - the success of bird-breeding in the Narran Lakes and on floodplains  
  - the condition of the Narran Lakes and the national parks of the Culgoa;  
- to contribute to maintaining or improving the ecological condition of the Darling River upstream of Bourke  
- in the Lower Balonne and in the floodplain downstream of the plan area, to provide for improved flows, especially low and medium flows, that mimic the natural variability of the river system by, for example, the real time management of individual flow events;  
- to reduce the impact of the operation of water infrastructure on natural flow regimes  
- to maintain water quality at levels acceptable for water use and to support natural ecological processes. |
|                         | 43 ML 45 ML Commonwealth Environmental Water Holder | To be determined by the CEWH | N/A (planned water) QLD Department of Natural Resources and Mines | Planned water availability subject to resource operations plan rules including flow event management rules that protect low and medium flows and enhance bird breeding opportunities in Narran lakes, as per Appendix B | |
### Water Resource Plan Area

<table>
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</thead>
<tbody>
<tr>
<td>Warrego, Paroo, Nebine</td>
<td>9,350 ML</td>
<td>Up to 22,720 ML</td>
<td>Commonwealth Environmental Water Holder</td>
<td>All available held water accounted for as in-stream flow</td>
<td>Dry:  &lt;ul&gt;&lt;li&gt;The Warrego catchment experienced high to very high flows during in 2010–11 and 2011–12. However, since then the catchment has been in drought and stream flows have been generally well below average. While there were moderate flows in the early part of 2016-17 with ~ 346,000 megalitres passing the Cunnamulla G/S during 2016-17, the remainder of the year experienced either low flow or no flow periods.&lt;/li&gt;&lt;li&gt;The Paroo catchment has experienced low flows since 2011/12. However, since then the catchment has been in drought and stream flows have been generally well below average. While there were moderate flows in the early part of 2016-17 with ~ 166,000 megalitres passing the most downstream gauging station, the remainder of the year experienced either low flow or no flow periods.&lt;/li&gt;&lt;li&gt;The Nebine catchment has generally experienced low flows since 2011/12. Low flows continued throughout 2016-17 with less than ~ 10,000 megalitres passing the most downstream gauging station.&lt;/li&gt;&lt;li&gt;The entire Warrego, Paroo and Nebine catchments remain drought declared.&lt;/li&gt;&lt;li&gt;The Commonwealth's unsupplemented entitlement in the Warrego system made a small contribution to in-stream environmental outcomes during unsupplemented flow events in the early part of the 2016-17 year. Environmental watering will contribute to maintaining or improving ecological condition across the three catchments and will continue to provide environmental benefit, connectivity and cues for ecological response which is consistent with the Basin Plan outcomes.&lt;/li&gt;&lt;/ul&gt;</td>
<td>Note that background colour indicates type of water (held unsupplemented including overland flow licences = , held supplemented = , planned = )</td>
</tr>
</tbody>
</table>
|                         |                                                             |                                                         |                     |                   |                      | • to achieve ecological outcomes consistent with maintaining a healthy riverine environment, floodplains and wetlands, including, for example —  
  o minimisation of changes to the natural variability of flows of water that support aquatic ecosystems; and  
  o maintenance of the near natural flow regime that supports the Paroo River; and  
  o maintenance of floodplain vegetation and wetland systems in the plan area, including Currawinya Lakes and Paroo Overflow Lakes; and  
  o maintenance of flows of water in the plan area that support waterholes (other than waterholes within the storage area of a dam), river channels, migratory fish. |
| Notes to Table:         |                                                             |                                                         |                     |                   |                      | A. Maximum volume available (as per access conditions) from Commonwealth unsupplemented water holdings at 31 March 2017. Actual water availability is subject to trigger flows.  
B. Antecedent conditions at 31 March 2017  
C. Assumes ‘announced annual limit’ of 150% for unsupplemented water allocations in the Border Rivers Water Management Area in 2017-18.  
D. Approximation for Commonwealth holdings as at 31 March 2017. The maximum volume able to be used is the combined account balance for all Commonwealth holdings in the Lower Balonne at the commencement of 2017–18. This will depend on the final volume accounted in 2016-17. Further use in 2016-17 will reduce the volume shown in the table. However, additional water is also expected to become available from new entitlements transferred during 2017–18.
### Appendix A

**Border Rivers (Qld) flow event management arrangements 2017–2018**

<table>
<thead>
<tr>
<th>Purpose:</th>
<th>To provide for an environmental share of a minimum of 25% of the available volume during announced periods of access to unsupplemented flow.</th>
</tr>
</thead>
</table>
| Trigger: | The unsupplemented flow event management rule is triggered as follows  
(a) an announced period may start when a flow volume of a minimum of 10,000 megalitres passes the Goondiwindi Gauging Station over a two day period  
(b) an announced period must cease when a flow volume of a minimum of 3,650 megalitres passes the Goondiwindi Gauging Station over a two day period  
The above management rule is subject to the Dumaresq–Barwon Border Rivers Commission having declared access to unsupplemented flows in the Border Rivers. |
| Action: | The requirement to provide an environmental share of a minimum of 25% of the available volume must be applied on each occasion an announced period is made to access a declared unsupplemented flow. |
| Associated environmental watering needs | (1) Wetting of upper terraces and benches of the Dumaresq, Macintyre and Barwon Rivers and effluent flowing stream  
(2) Contribute to maintaining or improving riverine environment, floodplain and wetlands associated with the Border stream |
| Status at end of 2016/17 | During the 2016/17 water year (up to 31 March 2016), there were three flow events which resulted in 65 664 megalitres being accounted for or protected from take through the above action.  
During the 2017–18 water year, adherence with this planned watering priority will be monitored to ensure compliance |
## Preservation of tributary inflow for Border Rivers

<table>
<thead>
<tr>
<th><strong>Purpose:</strong></th>
<th>To provide for maintenance of low flow due to tributary inflow to the Border Rivers by not making it available for access by supplemented purposes.</th>
</tr>
</thead>
</table>
| **Trigger:** | The low flow management rule is triggered as follows  
(a) applies during the period from 1 September each year to 31 March of each following year |
| **Action:** | Supplemented water may not be supplied from that portion of natural inflows to the Border Rivers that, after taking into account losses and when combined with any other natural inflows flowing simultaneously in the Border Rivers, would result in a flow over Mungindi Weir of up to 100 megalitres per day. |
| **Associated environmental watering needs** | (1) Wetting of lower terraces and benches of the Dumaresq, Macintyre and Barwon Rivers  
(2) Replenishment of waterholes and to provide connectivity between waterholes throughout the Dumaresq, Macintyre and Barwon Rivers |
| **Status at end of 2016/17** | During the 2016–17 water year (up to 31 March 2016), there were 176 days where the tributary inflow resulted in up to 100 megalitres per day at Mungindi Weir.  
During the 2017-18 water year, adherence with this planned watering priority will be monitored to ensure compliance |
## Lower Balonne (Qld) flow event management arrangements 2017–18

<table>
<thead>
<tr>
<th>Purpose:</th>
<th>To maximise environmental benefits and the reliability of supply of water for stock and domestic purposes.</th>
</tr>
</thead>
</table>

**Trigger:**

The low flow event management rule is triggered following

- **T1** –
  - (a) an inflow occurs into E J Beardmore Dam; and
  - (b) a period of 12 months elapsing since the last flow event ceases; and
  - (c) the release of the stored water for environmental, stock and domestic purposes will maximize the likelihood of a flow through event

- **T2** –
  - (a) the release of stored water in accordance with T1 is unlikely to result in a flow through event; and
  - (b) a period of 12 months elapsing since the last flow event ceases

**Action:**

Inflows into Beardmore Dam up to 730 Ml/day are required to be passed downstream in the first instance. However provisions do exist where inflows into Beardmore Dam up to 730 Ml/day may be stored for later release providing there is available air space in the dam.

The rules for managing low flow events are as follows:

- **T1** – Outside an announced period (Chapter 4 sections 70 and 75 of the Condamine and Balonne Resource Operations Plan 2008)
  - (a) firstly releasing water that has been stored in Beardmore Dam for stock and domestic purposes to supplement the inflow

- **T2** – During an announced period (Chapter 4 sections 70 and 75 of the Condamine and Balonne Resource Operations Plan 2008)
  - (b) secondly by
    - (i) reducing waterharvesting3 access to 90% for a maximum period of 5 days
    - (ii) reducing the volume of water that could have been taken by downstream weirs by 10%
    - (iii) managing the bifurcation weirs
  - (c) thirdly by reducing the volume of inflow 10% that would otherwise be stored in Beardmore Dam for use under supplemented water allocations in the SGWSS

**Associated environmental watering needs**

(1) Wetting of lower terraces and benches of the streams within the Lower Balonne Distributary System

(2) Replenishment of waterholes and to provide connectivity between waterholes throughout the streams within the Lower Balonne Distributary System

**Status at end of 2016/17**

- Inflow to Beardmore Dam accounted for as water used for environmental, stock and domestic purposes was not stored and continued to be passed downstream (as at 30 April 2017).
- The last flow through event ceased on 3 November 2016.
- Therefore, the requirement to comply with the rules for managing a Low Flow Event will trigger on 3 November 2017.

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3 Waterharvesting includes both unsupplemented water allocations and overland flow licences.
## Medium flow event management

<table>
<thead>
<tr>
<th>Purpose:</th>
<th>To provide improved flows, especially low and medium flows, that mimic the natural variability of the river system and floodplains.</th>
</tr>
</thead>
</table>
| Trigger: | Medium flow event management is triggered following:  
T1 - a period of 24 months has passed since a flow event with a peak of at least 60,000 megalitres a day at Jack Taylor Weir, or  
T2 - a period of 36 months has passed since a flow event with a peak of at least 100,000 megalitres a day at Jack Taylor Weir |
| Action: | The rules for managing medium flow events are as follows:  
(a) reducing water harvesting access to 90% for a maximum period of 5 days |
| Associated environmental watering needs: |  
1. To achieve ecological outcomes consistent with maintaining a healthy riverine environment, floodplains and wetlands within the Lower Balonne Distributary System  
2. Contribute to maintaining or improving natural inundation of floodplains, filling of wetlands and connectivity between the main tributaries of the distributary system  
3. Provide for the biota of the rivers and distributary channels, and wetlands of the Lower Balonne  
4. Contribute to maintaining or improving the ecological condition of the Darling River upstream of Bourke |
| Status at end of 2016/17: |  
- The most recent flow event passing St George peaked at ~14,500 megalitres per day on 08/04/2017.  
- The most recent flow events which reset the medium flow event triggers are as follows:  
  - A flow event with a peak of at least 60,000 megalitres a day occurred on 18/03/2013 (which is now more than 24 months ago).  
  - A flow event with a peak of at least 100,000 megalitres a day occurred on 13/02/2012 (which is now more than 36 months ago).  
- Therefore the requirement to comply with the rules for managing a Medium Flow Event has been triggered since the following dates:(unless there is a flow that resets the triggers prior to the end of the 16-17 water year):  
  - since 18/03/2015 for a flow event with a peak of at least 60,000 megalitres a day at Jack Taylor Weir  
  - since 13/02/2015 for a flow event with a peak of at least 100,000 megalitres a day at Jack Taylor Weir |
## Narran Lakes filling flow event management

<table>
<thead>
<tr>
<th>Purpose:</th>
<th>To provide improved water availability for bird breeding in the Narran Lakes Ramsar site.</th>
</tr>
</thead>
</table>
| Trigger: | Narran Lakes filling flow event management is triggered:  
  T1 where a flow event of a volume sufficient to fill the Narran Lakes Ramsar site under the pre-development flow pattern occurs during the winter bird breeding season; or  
  T2 where within a 4 month period after the Narran Lakes Ramsar site has filled during the winter bird breeding season, a flow event of a volume sufficient to refill the Narran Lakes Ramsar site under pre-development flow pattern occurs. |
| Action: | The rules that apply to managing a Narran Lakes filling flow event are as follows:  
  T1 and T2 - During an announced period (Chapter 4 sections 70 and 75 of the Condamine and Balonne Resource Operations Plan 2008)  
  (a) reducing waterharvesting access to 90% for a maximum period of 10 days |
| Associated environmental watering needs | 1. Provide water for bird breeding in the internationally recognised Narran Lakes Ramsar site  
  2. Provide for the biota of the rivers and distributary channels, and wetlands of the Lower Balonne  
  3. Contribute to maintaining or improving natural inundation of floodplains, filling of wetlands and connectivity between the main tributaries of the distributary system |
| Status at end of 2016/17 | The Narran Lakes Ramsar site last filled in October 2016  
Therefore -  
  - the requirement to manage a Narran Lakes filling flow event in accordance with trigger T1 was current during the 2016/17 water year:  
    - from 01/07/2016 to 31/08/2016 (did not trigger), and  
    - from 01/04/2017 and ongoing to 30/06/2017 (was triggered for Flow Event No 2 commencing 6 April 2017).  
  - the requirement to manage a Narran Lakes filling flow event in accordance with trigger T2 depend on the Narran Lakes Ramsar site having being filled during the periods  
    - 1 July 2016 to 31 August 2016 (did not fill).  
    - 1 April 2017 to 30 June 2017 (had not filled as at 23 May 2017). |

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4 Winter bird breeding season means the period from 1 April to 31 August.
### Appendix C

**Warrego Rivers (Qld) flow event management arrangements 2017/18**

<table>
<thead>
<tr>
<th>Unsupplemented flow event management for Upper and Lower Warrego rivers water management area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose:</strong> To provide improved flows, especially low and medium flows, that mimic the natural variability of the river system and floodplains, following a period of dry weather conditions.</td>
</tr>
<tr>
<td><strong>Trigger:</strong> Flow event management is required to have regard to antecedent condition which incorporates the following triggers:</td>
</tr>
<tr>
<td>T1 Where more than six months has passed since a passing flow greater than 1,000 megalitres per day has occurred at the flow reference point of Wyandra G/S or Cunnamulla Weir or the Point of Take</td>
</tr>
<tr>
<td>T2 Where less than six months has passed since a passing flow greater than 1,000 megalitres per day has occurred at the flow reference point of Wyandra G/S or Cunnamulla Weir or the Point of Take</td>
</tr>
<tr>
<td><strong>Action:</strong> The rules that apply to managing the flow event are as follows:</td>
</tr>
<tr>
<td>T1 - During an announced period (Chapter 4 Part 2 – Water Sharing Rules for the Upper and Lower Warrego Water Management Areas of the Warrego, Paroo, Bulloo and Nebine Resource Operations Plan 2006 (Amended Jan 2016):</td>
</tr>
<tr>
<td>(a) water must not be taken unless</td>
</tr>
<tr>
<td>• The passing flow at the relevant flow reference point is greater than the rate specified in the flow condition for the water allocation</td>
</tr>
<tr>
<td>• 36 hours has lapsed since the peak of the flow has passed the flow reference point, or</td>
</tr>
<tr>
<td>• The passing flow at the flow reference point has exceeded the rate specified in the special condition for the water allocation</td>
</tr>
<tr>
<td>T2 - During an announced period (Chapter 4 Part 2 – Water Sharing Rules for the Upper and Lower Warrego Water Management Areas of the Warrego, Paroo, Bulloo and Nebine Resource Operations Plan 2006 (Amended Jan 2016):</td>
</tr>
<tr>
<td>(b) water must not be taken unless</td>
</tr>
<tr>
<td>• The passing flow at the relevant flow reference point is greater than the rate specified in the flow condition for the water allocation</td>
</tr>
<tr>
<td>• The peak of the flow has passed the flow reference point, or</td>
</tr>
<tr>
<td>• The passing flow at the flow reference point has exceeded the rate specified in the special condition for the water allocation</td>
</tr>
<tr>
<td><strong>Associated environmental watering needs:</strong></td>
</tr>
<tr>
<td>(1) Wetting of upper terraces and benches of the Warrego River and effluent flowing stream</td>
</tr>
<tr>
<td>(2) Contribute to maintaining or improving riverine environment, floodplain and wetlands associated with the Warrego River system</td>
</tr>
<tr>
<td><strong>Status at end of 2016/17:</strong> The most recent flow event passing Wyandra G/S that exceeded 1,000 megalitres per day was on 28/01/2017. Therefore, for water allocations with a flow condition referenced to Wyandra G/S -</td>
</tr>
<tr>
<td>- the requirement to manage a flow event in accordance with trigger T1 will not activate until the trigger under T2 has deactivated</td>
</tr>
</tbody>
</table>
| - the requirement to manage a flow event in accordance with trigger T2 is active until at least 28/07/2017.
The most recent flow event passing Cunnamulla Weir that exceeded 1,000 megalitres per day was on 9/10/2016. Therefore, for a water allocation with a flow condition referenced to Cunnamulla Weir –

- the requirement to manage a flow event in accordance with trigger T1 became active on 9/4/2017
- the requirement to manage a flow event in accordance with trigger T2 has deactivated.

The most recent flow event passing the Point of Take that exceeded 1,000 megalitres per day varies. The nearest gauging stations are used to determine the flows. The most recent flow exceeding 1,000 megalitres per day at:

- **Augathella G/S** was on 24/09/2016.
  
  Therefore, for a water allocation located in Zone G with a flow condition referenced to Point of Take:
  - the requirement to manage a flow event in accordance with trigger T1 became active on 24 March 2017
  - the requirement to manage a flow event in accordance with trigger T2 is no longer active

- **Wyandra G/S** was on 28/01/2017.
  
  Therefore, for a water allocation located in Zone I with a flow condition referenced to Point of Take:
  - the requirement to manage a flow event in accordance with trigger T1 will not activate until the trigger under T2 has deactivated
  - the requirement to manage a flow event in accordance with trigger T2 is active until at least 28/07/2017.

- **Cunnamulla G/S** was on 9/10/2016.
  
  Therefore, for a water allocation located in Zone B with a flow condition referenced to Point of Take:
  - the requirement to manage a flow event in accordance with trigger T1 became active on 9 April 2017.
  - the requirement to manage a flow event in accordance with trigger T2 is no longer active.