Lachlan Drought Operations update

29th October 2019

Adrian Langdon
Executive Manager System Operation
36 Month Rainfall Deficiency

Australian Rainfall Deciles
1 October 2016 to 30 September 2019

Distribution Based on Gridded Data
Australian Bureau of Meteorology

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ID code: AWAP
Issued: 03/10/2019
NSW Temperatures

Maximum Temperature Anomaly (°C) 1 October 2018 to 30 September 2019

Australian Bureau of Meteorology

http://www.bom.gov.au

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Issued: 03/10/2019
Soil moisture deficiencies
August 2019

Soil moisture: August 2019
Decile range
- Highest on record
- Very much above average
- Above average
- Average
- Below average
- Very much below average
- Lowest on record

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System inflows & water allocations

Murrumbidgee + Murray Inflow vs Allocation (GL)

Last 10 year avg. inflow 8,636 GL
System inflows & water allocations

Northern Valleys Inflow vs Allocation (GL)

Last 10 year avg. inflow 3,435 GL
Lachlan system inflows & allocations

Long Term Average Inflow (1,212 GL)
Water Availability

**Red Number** – water available in accounts

**Blue Number** – water available in storage
## Drought of Record – 24 Months

<table>
<thead>
<tr>
<th>Valley</th>
<th>Previous Drought of Record Inflows (GL)</th>
<th>Period</th>
<th>Last 24 months Inflows (GL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glen Lyon</td>
<td>7</td>
<td>1992-94</td>
<td>33</td>
</tr>
<tr>
<td>Pindari</td>
<td>45</td>
<td>1918-20</td>
<td>25</td>
</tr>
<tr>
<td>Copeton</td>
<td>53</td>
<td>1918-20</td>
<td>107</td>
</tr>
<tr>
<td>Keepit</td>
<td>57</td>
<td>2001-03</td>
<td>25</td>
</tr>
<tr>
<td>Split Rock</td>
<td>8</td>
<td>1956-58</td>
<td>7</td>
</tr>
<tr>
<td>Chaffey</td>
<td>13</td>
<td>1964-66</td>
<td>6</td>
</tr>
<tr>
<td>Burrendong</td>
<td>169</td>
<td>1945-47</td>
<td>87</td>
</tr>
<tr>
<td><strong>Wyangala</strong></td>
<td><strong>138</strong></td>
<td><strong>2001-03</strong></td>
<td><strong>228</strong></td>
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<tr>
<td>Burrinjuck</td>
<td>463</td>
<td>2008-10</td>
<td>571</td>
</tr>
<tr>
<td>Blowering</td>
<td>124</td>
<td>2006-08</td>
<td>421</td>
</tr>
</tbody>
</table>
### Drought of Record – 36 Months

<table>
<thead>
<tr>
<th>Valley</th>
<th>Previous Drought of Record Inflows (GL)</th>
<th>Period</th>
<th>Current Drought (GL)</th>
<th>Current Period Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glen Lyon</td>
<td>44</td>
<td>1992-95</td>
<td>32</td>
<td>30</td>
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<tr>
<td>Pindari</td>
<td>142</td>
<td>1992-95</td>
<td>82</td>
<td>29</td>
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<tr>
<td>Copeton</td>
<td>218</td>
<td>1992-95</td>
<td>209</td>
<td>29</td>
</tr>
<tr>
<td>Keepit</td>
<td>157</td>
<td>1992-95</td>
<td>100</td>
<td>34</td>
</tr>
<tr>
<td>Split Rock</td>
<td>22</td>
<td>1925-28</td>
<td>21</td>
<td>35</td>
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<tr>
<td>Chaffey</td>
<td>26</td>
<td>1964-67</td>
<td>19</td>
<td>35</td>
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<tr>
<td>Burrendong</td>
<td>478</td>
<td>1936-39</td>
<td>157</td>
<td>33</td>
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<tr>
<td><strong>Wyangala</strong></td>
<td><strong>283</strong></td>
<td><strong>2002-05</strong></td>
<td><strong>315</strong></td>
<td><strong>34</strong></td>
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<tr>
<td>Burrinjuck</td>
<td>756</td>
<td>2007-09</td>
<td>926</td>
<td>34</td>
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<tr>
<td>Blowering</td>
<td>240</td>
<td>2006-09</td>
<td>599</td>
<td>34</td>
</tr>
</tbody>
</table>
Wyangala Dam Inflows – 36 Months

- Aug 2017 – Sept 2019 (26 months) actual dam inflows = 253 GL
- Aug – Sept 26 months pre 2004 DOR inflows = 400 GL (year 2003)
- Aug – Sept 26 months millennium DOR inflows = 201 GL (year 2009)
No Wyangala Situation

If there was no dam, trouble would have started since late 2016 to supply towns, industries and irrigators, which is around 34 months.

End of Oct 2016, dam volume 1200 GL

Feb 2017 onwards, almost no inflow

Critical Human water needs is supplying towns, S&D, industries, BLR and running river
Natural system flows compared to actual flows
Drought Now - Lachlan

<table>
<thead>
<tr>
<th>Carryover (158 GL) – 57%</th>
<th>Water Accounts</th>
<th>Storage Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS (593 GL) – 0%</td>
<td>149.4 GL</td>
<td>244 GL</td>
</tr>
<tr>
<td>Conveyance (17.9 GL) – 38.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS (27.7 GL) – 87%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LWU (15.5 GL) – 100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D&amp;S (12.8 GL) – 100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Drought conditions continue to intensify in the Lachlan
- Operational efficiency measure likely to be implemented over summer – block releases into some creeks
- Enough water in the system to get through to July 2020 and with operational efficiencies look to get through to Oct 2020
Lachlan Water Resources

Resource Distribution: October 2019 to May 2021
Lachlan Valley

- Essential Requirements and Losses: 361 GL
- Total: 682 GL

Supply Source

- Resource Required for new AWD: 332 GL

- Min inflows: 75 GL
- L. Cargelligo: 23 GL
- Wyangala Dam: 252 GL
Day Zero - What are the facts?

If it does not rain again and critical drought works are not completed – there could be a day zero for the region.

Measures being undertaken by WaterNSW in conjunction with Local Councils are planned extend supplies.
### Wyangala Day Zero

#### Depletion Scenarios for Lachlan under different drought conditions

<table>
<thead>
<tr>
<th>Cease to supply in Lachlan Valley</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Case - until cease to flow</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Stage 1 - Change to allocation availability**
1. Only 57% access to remaining carryover on 1st of July 2019
2. Operations in 2020-20 is normal IRG 2 with water savings
3. Operations in 2020-21 is under IRG 1

- Current operating with no GS and carry over of GS @ 37% from previous years.

**Impact of Stage 1 on cease to flow**
- Ceases to flow

**Stage 2 - Change operating procedures**
1. Operations in 2019-20 under IRG 2a suspending SRO replenishment in lower Lachlan in winter/spring 2019
2. Operations in 2020-21 under IRG 3

**Decision on stopping replenishments to be taken in March which can extend this date**

**Impact of Stage 2 on cease to flow**
- Ceases to flow

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**Key:**
- [IRG 2 = 384 GL, IRG 2a = 160 GL and IRG 5 = 350 GL](#)
- Water Resource is made up of multiple storages

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**Acceptable Serviceability Criteria**
- Against lowest recorded inflow: 2 years
- Current availability with approach against lowest recorded inflow: 1.25 years

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**WaterNSW**
Wyangala Dam Forecast

All the critical dates in the graphs are for Zero inflow scenario.

Lachlan Valley forecast storage volume

- July 2019
  - 57% access to GS Carryover
  - 87% AWD for HS
  - 80% use of LWU + 60% use of S&D
  - Some water conservation measures

- June 2020
  - Cease to Flow

Legend:
- Dead Storage
- SDR1 (Aug 17 to Jul 19)
- SDR2 (Repeat DoR yearly)
- Drought of Record (Pre-2004)
- Zero Inflow (IRG2A & IRG3)
- Actual
Drought Planning

- Enough water in storage to meet supply through to July 2020.
- Need to implement measures to push date out past October 2020
- Lachlan/Wyangala usually have a winter/spring inflows
- No inflows before October will result in significant risks next summer
Drought Contingency Measures – Lessons from millennium drought

• Cutdown regulated sections to reduce transmission losses
• Take Lake Cargelligo offline to reduce evaporation losses
• Control inefficiencies in delivery of Basic Landholder Rights
• Reduced access to General Security and High Security allocations
Drought contingency measures/potential savings

- Additional restrictions on general security carryover access
- Suspend the Lachlan river end of system flows
- Cease top-up flows to Lake Cargelligo
- Restrictions on basic landholder rights and domestic & stock use
- Pulsed releases to Booberoii Creek
- Deliver flows in the Wallamundry Creek system down one creek rather than three
- Reconsider the use of the water quality allowance
Visit the website at: waternsw.com.au/drought

For information on the Lachlan Valley including water availability reports and drought reports go to: waternsw.com.au/supply/drought-information/regional-nsw/lachlan-valley

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