Welcome

Gwydir Valley
Customer Advisory Group

12 March 2019
Water System Operations Report

• The Water System Operations Report is uploaded quarterly to the WaterNSW website.

• www.waternsw.com.au
Operational Drought update

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System Operation
Extreme Events policy principles

Guiding principles

1. The market will continue to operate for as long as possible during extreme events
2. The local requirements for critical human water needs will be recognised and prioritised
3. Licence holders within licence categories should be treated equally
4. Certainty should be maximized

Every attempt will be made to maintain the operation of the statutory water sharing plans

Management strategies will be fit for purpose

Local stakeholder consultation should inform management responses so that they are fair

Learnings from previous extreme events will inform the development and implementation of IRGs

Connectivity of systems should be considered
## Extreme Events stages

The policy sets out the 4 stages for managing extreme events and the criteria.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Water quantity</th>
<th>Water quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>Normal management</td>
<td>Continue to deliver water as normal. Raw water can be treated with usual methods.</td>
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<tr>
<td>Stage 2</td>
<td>Emerging drought/water shortage</td>
<td>Restrictions on water for general security licences. Minor adjustments to treat raw water.</td>
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<td>Potential or actual impacts on groundwater users and groundwater dependent ecosystems.</td>
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<tr>
<td></td>
<td>Potential for aquifer subsidence</td>
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</table>
| Stage 3          | Severe drought/water shortage                                                 | Restrictions on water for:
|                  | - High priority licences                                                      | - Major adjustments are needed to treat raw water. |
|                  | - General security licences                                                   |                                                                               |
|                  | Unacceptable groundwater impacts                                              |                                                                               |
| Stage 4          | Critical drought/water shortage                                               | Water only available for critical human needs. Restrictions on:
|                  | - Town water, stock and domestic                                              | - Not possible to treat raw water with standard processes to meet health values and drinking guidelines. |
|                  | - High priority licences                                                      | - Raw water is likely to remain untreatable over the longer term. |
|                  | - General security licences                                                   |                                                                               |
## Hierarchy of water priorities

<table>
<thead>
<tr>
<th>Priority</th>
<th>Take/type of use</th>
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</table>
| 1        | • Critical human water needs:  
|          | - core human consumption requirements  
|          | - non-human consumption requirements that a failure to meet would cause prohibitively high social, economic or national security costs |
| 2        | • Needs of the environment |
| 3        | • Stock  
|          | • High security licences  
|          | • Commercial and industrial activities authorised by local water utility  
|          | • Water for electricity generation on a major utility licence  
|          | • Conveyance in supplying water for any of these needs in this paragraph |
| 4        | • General security & other |
Water Sources – Drought Status Update

Incident Response Guide: Drought stage

- **Stage 1:** Normal operations
- **Stage 2:** Emerging drought
- **Stage 3:** Severe drought
- **Stage 4:** Critical drought
Current situation
Extractive users (GS and Supplementary) have taken 22% of total inflows over this period.
Border Rivers System Inflows & Water Usage

Irrigation usages
Environmental usages
Supplementary usages
River flows

Volume (ML)

09-10 10-11 11-12 12-13 13-14 14-15 15-16 16-17 17-18 18-19 up to 31 Dec
Allocations to extractive users (GS and Supplementary) has been 16% of total inflows over this period.
Macquarie system inflows and water allocations

Allocations to extractive users (GS and Supplementary) has been 17% of total inflows over this period

Combined inflows in 2017-18 was 42 GL. Allocation made from 2016 floods

Combined inflows in 2018-19 up to 10th Feb 55 GL

Long term average inflow (1448 GL)
Balonne flows upstream of St George
Barwon Darling versus Menindee Lakes inflows

Flow per annum (GL)

09/10 10/11 11/12 12/13 13/14 14/15 15/16 16/17 17/18 18/19
Barwon-Darling Flows versus Extractions

Barwon Darling Extraction versus Inflows

- 12/13: 2000
- 13/14: 100
- 14/15: 100
- 15/16: 100
- 16/17: 1000
- 17/18: 100
- 18/19: 0

WaterNSW
Situation at Menindee?
Water losses
July 2016 – January 2019

Initial 2016 storage level = 133,899 ML
Total inflows from July 16 until Jan 19 = 2,097,991 ML

TOTAL WATER (storage + inflows) = 2,231,890 ML

MINUS

Total releases from July 16 until Jan 19 = 898,336 ML
(MDBA, Enviro, River Ops, Customers)

Total losses from July 16 to Jan 19 = 1,273,934

EQUALS

January 2019 storage level = 59,620 ML

TOTAL WATER – releases + actual storage = LOSSES
Menindee Lakes Storage Operations 2016-17

Darling River Flows and Menindee Storage Volume

- 28 Jul 2016 - Releases at Weir 32 re-commence. First pulse 14.4GL
- 27 Aug -16 Sept 2017 - 2nd pulse. Total release to date 31.6GL. E-water release from 17 Sept
- 7 January - 24 April 2017 MDBA call - total 282 GL
- 20 Oct 2017 - 640 GL in storage
- Release rate managed with regard to Menindee Outlet capacity, storage surcharge and storage efficiency
- E-water delivery Darling Anabranch 16 Feb - 30 Jun 2017 - 100 GL

Weir 32 Release
Cawndilla Release
Evaporation (30 day moving avg)
Total System Storage Volume
Darling River Flows and Menindee Storage Volume

Approaching 480GL negotiated lower rate of call for MDBA - extended time above 480 GL improving the ratio of water held in Wetherell + Pamamaroo against that held in Cawndilla + Menindee

E-water delivery continued at Weir 32 from 22 Nov to 15 Dec 2017

15 December 2017 - 480 GL total storage

15 December 2017 - Weir 32 reduced below WSP requirements

28 March 2018 - Cawndilla Outlet releases cease

1 July 2017 - e-water delivery continues at low rates

1 Oct - 21 Nov 2017 - MDBA call - 38 GL

Weir 32 Release
Cawndilla Release
Evaporation (30 day moving avg)
Total System Storage Volume
Distribution of Water – July 2016 – January 2019

- System loss including Evaporation, 58.6%
- MDBA, 17.4%
- OEH Environmental, 11.3%
- River Operations, 8.5%
- Lower Darling Customers, 4.1%
Why are we in this situation?
Maximum temperature
1 January 2017 – 31 December 2018

Distribution Based on Gridded Data
Australian Bureau of Meteorology
Comparison of drought inflows – Copeton Dam
Drought inflows for 18 months starting in January
Comparison of drought inflows – Pindari Dam

Drought inflows for 24 months starting in January

Cumulative inflows in GL

No of Months

Jan 1918 - Dec 1919
Jan 1979 - Dec 1980
Jan 1986 - Dec 1987
Jan 1993 - Dec 1994
Jan 2018 - Dec 2018
Comparison of drought inflows – Glenlyon Dam

Drought inflows for 24 months starting in January
Comparison of drought inflows – Keepit and Split Rock Dams
Drought inflows for 24 months starting in January

Comparison of drought inflows – Keepit and Split Rock Dams
Drought inflows for 24 months starting in January
Comparison of drought inflows – Burrendong Dam

Drought inflows for 37 months starting in December

Comparison of Drought Inflows - Burrendong Dam (Drought Inflows for 37 Months Starting in December)