

Flood flows in the Barwon-Darling River system

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This is the third information paper issued by the NSW Office of Water to provide advice to communities, industries and landowners about the passage of floodwaters through the Barwon-Darling River to the Menindee Lakes and the Lower Darling River.

The flood peak has crossed the Queensland border and is now making its way through the complex of NSW rivers and floodplains.

Flow peaks through the Culgoa system have been lower than expected but high flows in the Culgoa should continue for longer than was originally anticipated. Contributions from the Paroo system are still hard to quantify as the floodwater in this system is tending to spread widely, which may be the result of vegetation growth from the Christmas floodwaters.

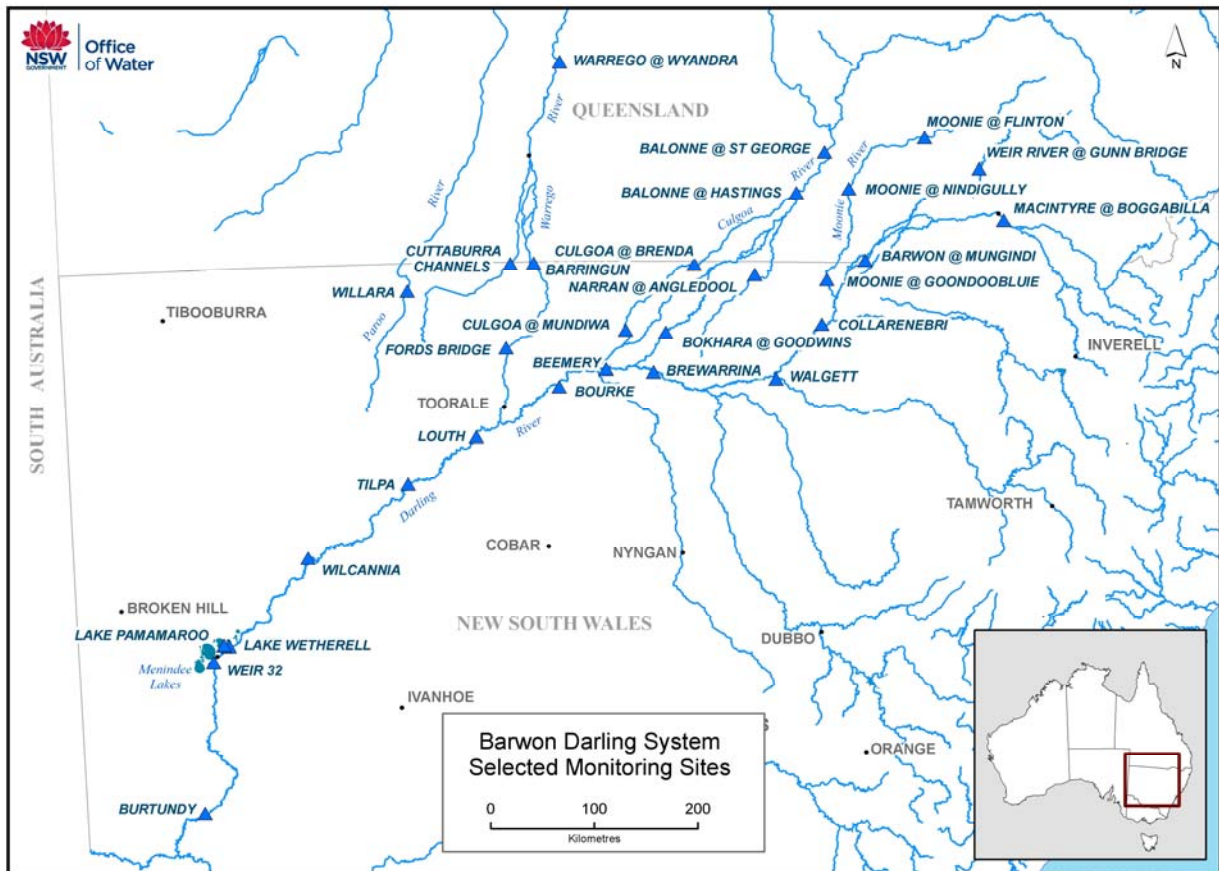
The floodwater on the Barwon-Darling River is now approaching Brewarrina with a peak expected over the weekend of 3/4 April. Flows in the Barwon-Darling will combine with those from the Culgoa River to produce a peak at Bourke around 7 April.

Flood waters inundate the Cuttaburra Basin at Yantabulla



Photo courtesy Melissa Hull , Department of Environment Climate Change and Water

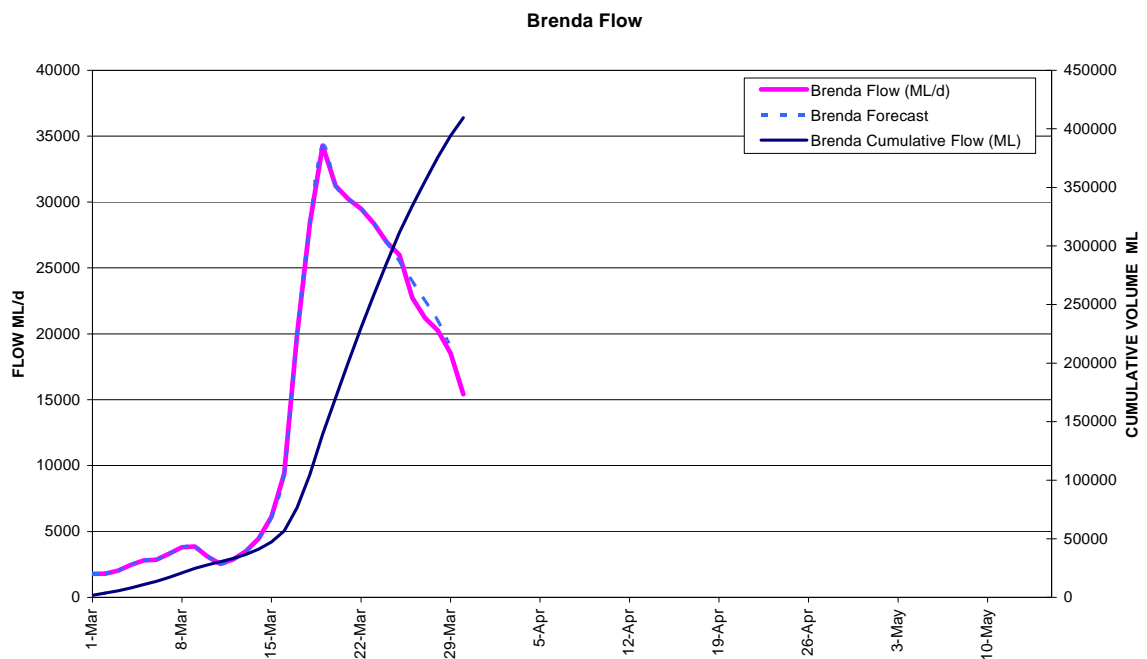
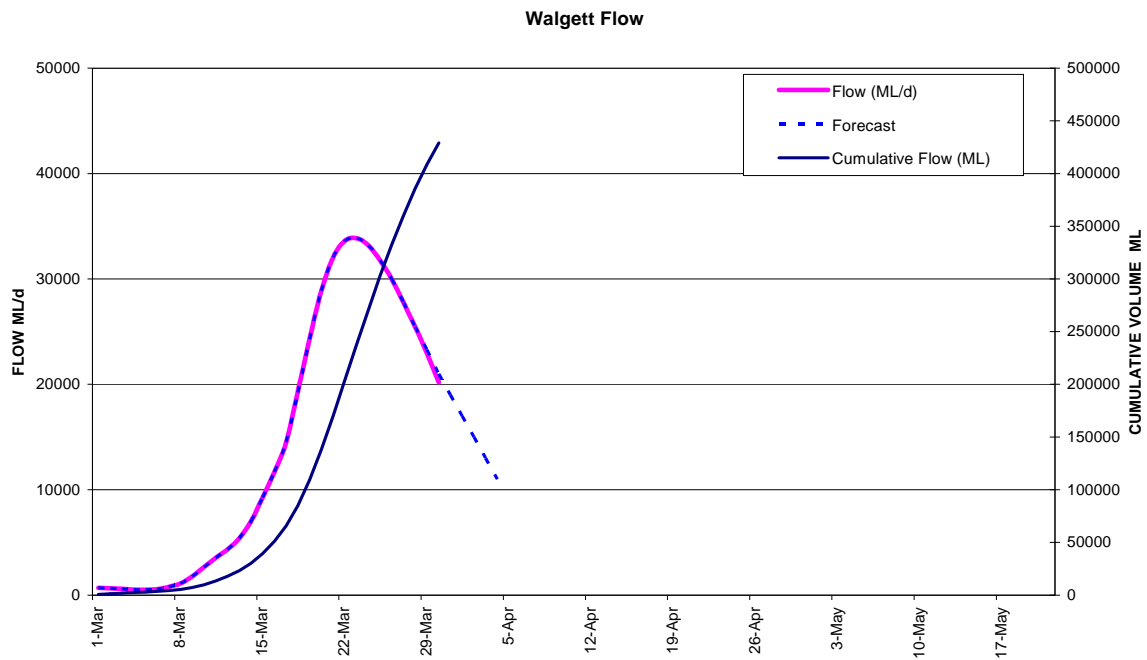
Monitoring flows and river levels

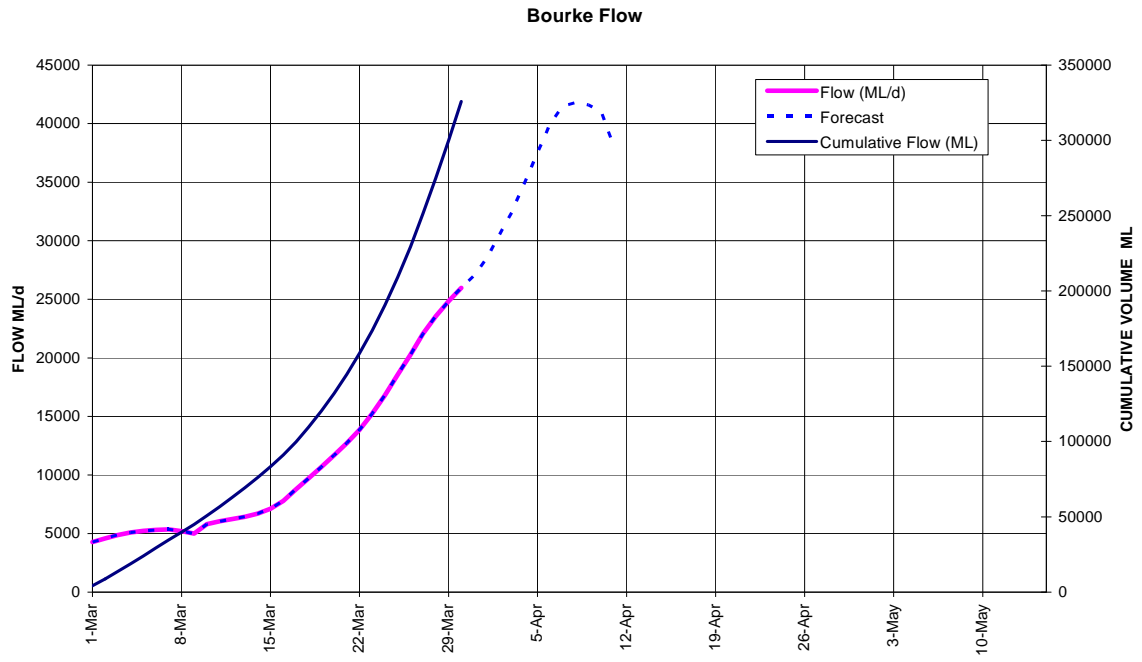


As the flood passes downstream, flows and river heights will rise and fall at different locations. This map shows the location of gauging stations used to monitor and report on the passage of flows. Daily updates of the flows and heights at these and other gauging stations throughout NSW are available on the NSW Office of Water website at www.water.nsw.gov.au under Real-time data > Rivers and streams.

Following the flood

Hydrographs at selected locations show the rise and fall of the flood peaks, and the total volume of water passing the site.





- ❖ the blue line denotes cumulative flow
- ❖ the purple line denotes daily flow

Stream flows (at 30 March 2010)

| Location | Height (m) | Flow (GL/d *) | Comments |
|---------------------------------------|------------|---------------|--|
| Warrego River | | | |
| Wyandra | | | Fallen, over 1560GL** |
| Barrington | 2.4 | 3 | Fallen, pk 20/3 at 13GL/d, 167GL** |
| Cuttaburra Channels | 2.2 | 1 | Fallen, pk 16/3 at 66GL/d, 652GL** |
| Fords Bridge (total) | 2.0 | 5 | R, peak expected next few days, 103GL** |
| Paroo River | | | |
| Willara | 1.3 | 2 | Fallen, pk 12/3 |
| Border Rivers | | | |
| Moonie R @ Gundablouie | | | Fallen, pk 13/3 at 39ML/d, 360GL** |
| Culgoa, Bokhara, Narran Rivers | | | |
| Balonne R @ St George | | | Fallen, over 2700GL** |
| Bokhara R @ Goodwins | 1.8 | 1 | R, peak expected next few days, 15GL** |
| Narran R @ Angledool | 4.1 | 8 | F, pk 20/3 at 11GL/d, 181GL** |
| Culgoa R @ Brenda | 5.8 | 15 | F, pk 19/3 at 34GL/d, 410GL** |
| Culgoa R @ Mundiwa | 5.2 | 9 | R, peak expected next few days, 198GL** |
| Barwon-Darling River System | | | |
| Mungindi | 3.3 | <1 | Fallen, 180GL** |
| Collarenebri (total) | | 3 | Fallen, pk 16/3 at 44GL/d, 536GL** |
| Walgett | 9.3 | 20 | F, pk 23/3 at 34GL/d, 429GL** |
| Brewarrina (total) | | 25 | R, peak expected next few days, 249GL** |
| Beemery | 9.7 | 22 | R, 246GL** |
| Bourke | 8.2 | 26 | R, peak expected about 7/4, 326GL** |
| Louth | 7.0 | 18 | R, peak expected 2 nd week April, 249GL** |
| Tilpa | 6.7 | 17 | R, peak expected 3 rd week April, 225GL** |
| Wilcannia | | | R, |
| Menindee Lakes | | | See Table below for capacity details |
| Lake Wetherell | 60.97 | 135 | 70% full supply capacity |
| Lake Pamamaroo | 60.33 | 269 | 97% full supply capacity |
| Lake Menindee | 56.63 | 134 | 9% full supply capacity |
| Lake Cawndilla | 0 | 0 | |
| Weir 32 | 2.1 | 1.8 | |
| Lower Darling River | | | |
| Burtundy | 2.1 | 3.2 | |

R= Rising, F = Falling, S = Steady

* Flows are in gegalitres per day (GL/d): 1 gegalitre = 1000 megalitres = 1 billion litres.

** Volumes (GL) are the total flow passing this station so far this month.

Current river flows

Paroo River

The bulk of floodwater is now in the lower reaches of the Paroo River, to the north of Mount Macpherson, where extensive systems of channels, flood-runners and billabongs have been replenished. The complex network of streams in this area is providing significant storage for the floodwaters. This is slowing down the water and spreading it out across the floodplain. Whilst this reduces flows to downstream areas it also provides tremendous benefits for the environment and graziers in the region. Flows from the Paroo catchment are likely to sustain flows in the Barwon-Darling River above Wilcannia at relatively low rates for an extended period of time.

Warrego River

A significant volume of water has pooled near the Cuttaburra Channels, 80km northwest of Fords Bridge. Although some appears to be draining to the Paroo River, a lot of water will be lost to evaporation and seepage. The Bureau of Meteorology is expecting the Warrego River to peak at Fords Bridge on the weekend of 3/4 April. This water will enter the Darling River at Toorale Station, between Bourke and Louth, throughout April. It is estimated that over 100 GL passed Fords Bridge during March and that a further 50 GL will pass over the next few weeks.

Culgoa System

Floodwaters in the Culgoa System; including the Culgoa, Birrie, Ballandool, Bokhara and Narran are also slowing down and spreading out and as a result flood peaks are lower than were originally expected. It is thought that the Christmas/New Year floods, and the vegetation growth that resulted may have had a significant effect on flood behaviour. Satellite imagery shows extensive areas of inundation, much of which will not contribute to flows in the Darling River. Upstream on the Culgoa River at Brenda Station, flows have now fallen to about half of the peak. Over 400 GL of flow has been measured at Brenda Station this month. Downstream, levels are expected to peak at Mundiwa in early April and arrive at Bourke about a week later.

On the Bokhara River at Goodwins, which is a much smaller waterway than the Culgoa, the water level continues to rise slowly and is nearing its peak. This water will then flow through Beemery and on to Bourke over the next two weeks. Over 180 GL has flowed past the gauge at New Angledool on the Narran River. This water is providing substantial habitat improvement as streams and lakes are replenished but no water from this flow event will contribute to flows in the Barwon-Darling.

Border Rivers – Barwon River

Minimal flows are now passing from the Border Rivers into the Barwon-Darling. Floodwaters in the Moonie catchment in the second week of March are now downstream of Walgett and are expected to reach Brewarrina on 3/4 April. The flow at Brewarrina is currently 25 GL/day and rising, with nearly 250 GL passing Brewarrina so far this month.

Darling River

The next milestone in this flood event is when the peak arrives at Bourke, after which flows at Wilcannia and Menindee maybe more accurately predicted. The Bureau of Meteorology has forecast moderate flooding for Bourke with a peak around 7 April. When the hydrograph for Bourke can be confirmed and Paroo inflows quantified, it will be possible to better estimate the likely volume and timing of flows at Wilcannia, and the volumes reaching the Menindee Lakes.

Menindee Lakes

Lakes Wetherell and Pamamaroo continue to fall as water is transferred to Lake Menindee in anticipation of inflows in April and May. The falling levels in Lake Pamamaroo and the associated reduced head has caused flow at the Menindee Inlet to fall to a maximum 14 GL/d.

Releases to the lower Darling River through Weir 32, are currently about 2 GL/d and are continuing to deliver water traded from the Lower Darling into the Murray River.

The total storage volume of the Menindee Lakes is now 538 GL and falling due to the high losses from the initial wetting of the dry lake bed and evaporation.

It is expected that the volume in storage will increase in the weeks ahead as the anticipated Darling River flows arrive. The 640 GL volume whereby the management of releases from the Menindee Lakes reverts to the Murray-Darling Basin Authority is likely to be reached by mid April. Control of the water will again revert to NSW when the volume in storage next falls below 480 GL.

| Lake | Full Supply Level (m AHD) | Full Supply Capacity (GL) | Surcharged Level (m AHD) | Surcharged Capacity (GL) |
|----------------------|---------------------------|---------------------------|--------------------------|--------------------------|
| Wetherell & Tandure | 61.67 | 193 | 62.30 | 262 |
| Pamamaroo | 60.45 | 278 | 61.50 | 353 |
| Menindee & Cawndilla | 59.84 | 1261 | 60.45 | 1435 |
| Totals | | 1731 | | 2050 |

Figures provided by NSW State Water Corporation

Extraction management

Water users in the Barwon-Darling and lower Darling will be able to access the available water according to their licence conditions and supplementary water announcements.

Communications

Updates will be provided weekly, where possible, and will be available from the NSW Office of Water's website at www.water.nsw.gov.au

The information provided is advice only. Real-time and daily information is available at www.water.nsw.gov.au. For current river level predictions and flood warnings consult the Bureau of Meteorology at www.bom.gov.au

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