

# Delivering water from the Murray River

## River Murray Operations

The Murray Darling Basin Authority (MDBA) and River Murray Operations Group (RMO) are responsible for managing Murray River flows to supply demand in Victoria, New South Wales (NSW) and South Australia (SA). Operations must comply with the water sharing rules in the Murray Darling Basin Agreement. This Agreement defines how much water is available to each state and also a requirement to deliver defined amounts of water to SA each month.

Decisions about where to release water from are made to conserve as much water as possible in the dams and to meet all demands. This is a balancing act which is made difficult by the Barmah choke, which is the narrowest section of the Murray River and can only take flows up to about 10,500 ML per day and by the long time it takes for water released from Hume dam to reach irrigators in the Mallee. It takes about 25 days for water to travel from Hume Dam to Lake Victoria.

This means that RMO must forecast water demand about 25 days ahead, but the reliability of weather forecasts declines rapidly after about one week.

## Shortfalls during dry seasons

Delivery shortfalls occur in dry conditions when there are no unregulated flows available from the Menindee Lakes and little water available in the Goulburn and Murrumbidgee Inter Valley Transfers (IVT) accounts. Under these circumstances water must pass through the Barmah choke.

This was the case in the 2018/19 season when RMO struggled to supply South Australia and irrigation demands and thereby restricted environmental water deliveries in late 2018 due to the small size of the choke.

The last time a shortfall occurred was in March 2002. Water was temporarily rationed to share the available water fairly between all users. During a 16-day heatwave in January 2018 further rationing was avoided but substantial draw down occurred in weir pools.

The challenge of supplying demand is becoming more difficult due to an increased reliance on releases from Hume dam because of less water in the Darling and Murrumbidgee, the expansion of horticulture in the Mallee and the increased requirement to deliver environmental flows to SA.

The expansion of horticulture has concentrated the demand of water in the summer months meaning that the peak daily demand for water has increased.

## How much water is available for irrigation below the Barmah Choke?

Water entitlements below the Choke	Total Volume at 100% allocations(GL)
Victorian Zone 7 High Reliability Water Shares	658
South Australian Zone 12 entitlements	410
NSW Zone 11 High Security Licences	167
NSW Zone 14 High Security Licences	4
<b>Subtotal (for all entitlements available for irrigation in trading zones below the Barmah Choke)</b>	<b>1,239</b>
Goulburn IVT (not including 100 GL legacy of "exchange rate" trade)	100
Murrumbidgee IVT	100
<b>Total</b>	<b>1,439</b>

The total volume available for irrigation use below the Choke at 100 per cent allocation is 1439 GL across Victoria, New South Wales and South Australia.

## Increasing water use in the Victorian Mallee

The Mallee CMA released a report in early 2019 examining changes in crop types across the region.<sup>1</sup> Almond trees were the dominant crop in the Mallee catchment from 2009 to 2018, while wine grape plantings were dominant from 1997 to 2006.

Almond trees increased by 22,740 hectares; a 1303% increase from 1,745 hectares in 1997 to 24,485 hectares in 2018. Plantings of table grapes and olives also increased significantly, by 4,810 hectares and 3,655 hectares respectively.<sup>2</sup>

<sup>1</sup> <http://www.malleecma.vic.gov.au/2018%20Mallee%20Horticulture%20Crop%20Report%20-%20MCMA.pdf>

<sup>2</sup> <http://www.malleecma.vic.gov.au/2018%20Mallee%20Horticulture%20Crop%20Report%20-%20MCMA.pdf>

Based on the existing plantings in Victoria alone, at maturity they will require 779,000 ML. That is over half of the total water available below the Barmah Choke assuming a 100% allocation of high reliability water shares and an increase of around 400,000 ML compared to 1997.

Catastrophic water shortfalls can be expected to occur when we experience the next drought similar to 2006/07 to 2008/09.

Water use by hectare and industry in SA or NSW was not available although there have been significant plantings of almonds in those states in recent years.

Tim Cummins and Associates and Frontier Economics<sup>4</sup> estimated the mature needs of horticultural crops requiring water below the Choke in 2015 would be 1136GL. More crops have been planted since and the VFF anticipate this number being higher.

## Victorian Mallee Water Use by Crop Type

Crop Type	Ha Use 1997	Ha Use 2018	Difference	Water Use/Ha <sup>3</sup>	Total Water Use ML
Almonds	1700	25,000	23,300	14	350,000
Table Grapes	4000	9,000	5,000	12	108,000
Wine Grapes	10000	8,000	2,000	9	72,000
Field Crops	Not available	5,500	Not available	8	44,000
Citrus	Not available	4,000	Not available	12	48,000
Olives	160	4,000	3,840	12	48,000
Potatoes	Not available	3,500	Not available	15	52,500
Dried Grapes	6300	3,000	3,300	9	27,000
Vegetables	Not available	2,500	Not available	12	30,000.00
<b>TOTAL</b>					<b>779,500</b>

## Supplying demands and conveyance losses

The MDBA has recently published a report about the conveyance losses incurred in operating the Murray River during 2018/19 GL<sup>5</sup>. The report documented that high conveyance losses were experienced in 2018/19 to supply irrigation and environmental demands downstream of Barmah Choke because of the dry seasonal conditions.

These conditions are likely to occur more frequently in the future as irrigation and environmental demands in the Mallee grow.

## High deliveries causing erosion

Operating rivers at full bank is causing environmentally damaging erosion. There are concerns that erosion is steadily reducing the capacity of the Choke, and erosion is being made worse by running the Choke at full capacity more often.

Increased erosion has also been observed along the lower Goulburn River caused by the high summer flows needed to transfer water from the Goulburn to the Murray to supply downstream environmental and irrigation demands.<sup>6</sup>

## What is the VFF calling for?

The VFF is demanding that the Victorian, NSW and SA Governments together with the MDBA establish a moratorium on new irrigation developments in the Mallee.

While the Moratorium is in place, the Australian Competition Consumer Commission (ACCC) must urgently complete its review of Water Markets which must focus on third party impacts.

That the ACCC look to establish water trading rules to ensure existing irrigators and the environments are protected into the future.



Aerial view of almond development in the Victorian Mallee

<sup>3</sup> Standard Water Use Conditions as outlined in the Water Act, [https://waterregister.vic.gov.au/images/documents/consolidated\\_standard\\_water\\_use\\_conditions.pdf](https://waterregister.vic.gov.au/images/documents/consolidated_standard_water_use_conditions.pdf)

<sup>4</sup> <https://www.mdba.gov.au/sites/default/files/pubs/River-murray-system-losses-report.pdf>

<sup>5</sup> <https://www.mdba.gov.au/sites/default/files/pubs/River-murray-system-losses-report.pdf>

<sup>6</sup> [https://www.gbcma.vic.gov.au/news\\_events/pulse-check-request-for-the-goulburn-river-](https://www.gbcma.vic.gov.au/news_events/pulse-check-request-for-the-goulburn-river-)

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