Australian Government

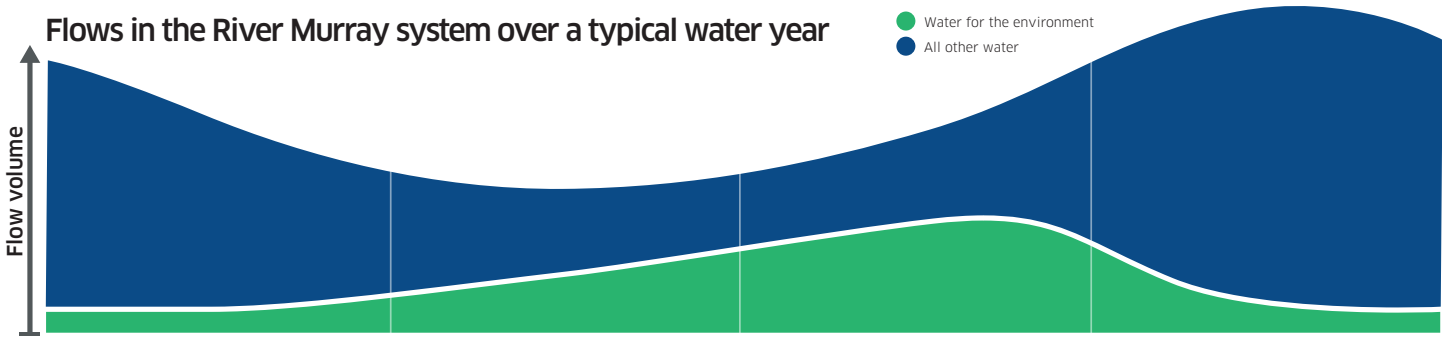
MURRAY–DARLING BASIN AUTHORITY

Flows in the River Murray System – September 2021

Flows in the River Murray System vary widely depending on a range of factors, including rainfall, inflows, evaporation, and demand for water for human use.

At any given time, water flowing through the river is destined for various uses, including irrigation, industry, communities, the environment, and meeting South Australia's flow entitlement. The exact mix of these flow components is determined by demand and water availability, amongst other factors.

The graphic below is indicative of how water flow is managed throughout the seasons across a typical year.



Autumn
- River operations focus on managing dam storage levels and river system for the following water year
- River flows are relatively stable
- Medium demand for consumptive use (irrigation, industry, communities)
- Water for the environment flows are low
- Dam storage levels decline

Winter
- River operations focus on capturing inflows from tributaries and meeting early season demand*
- River flows are highly variable
- Lowest demand for consumptive water (irrigation, industry, communities)
- Water for the environment flows increase
- Dam storage levels increase

Spring
- River operations aim to capture water inflows and manage dam storage levels for summer demand*
- Increasing demand for consumptive water (irrigation, industry, communities)
- River flows are highly variable
- Water for the environment flows are highest
- Dam storage levels increase due to higher inflows

Summer
- River operations focus on managing water supply to meet large system demand*
- River flows are relatively stable
- Highest demand for consumptive water (irrigation, industry, communities)
- Water for the environment flows decrease
- Dam storage levels decline

* including meeting South Australia's flow entitlement

Water for the environment

Overall, water for the environment is a small percentage of the total water used in the Murray–Darling Basin.

The volume of water for the environment used under water entitlements has increased slightly over the past five years, as more water became available. The average use over this period was 20.4% of the total water used in the Basin.

Importantly, water held for the environment uses the same entitlement framework as consumptive users. In any given year the amount of water available for delivery to key environmental sites is determined based on the same rules that apply to all other consumptive water uses.

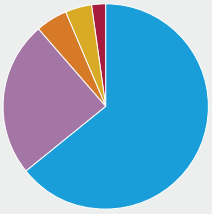
Types of water for the environment

Water for the environment can be categorised as:

- **'Planned' environmental water** – water that flows through the river system that is typically managed through rules outlined in state water resource plans and is used to improve the health of the environment.
- **'Held' environmental water** – is water that is held by government agencies and is delivered where and when it is needed in the river system. It is water that is allocated to relevant government agencies through water licenses for environmental use.

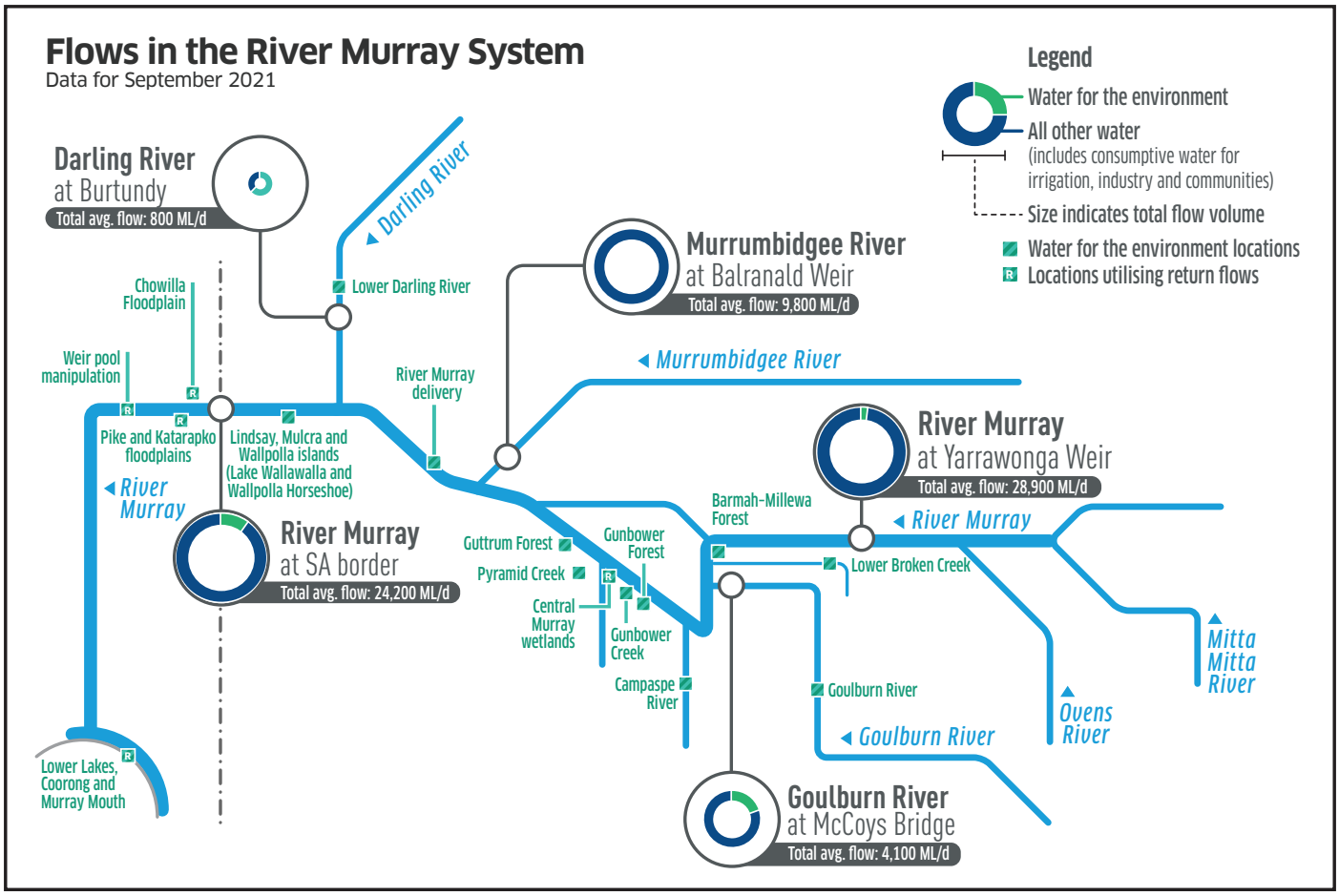
Who holds and manages water for the environment

(based on the long term average diversion limit for entitlements held for the environment at June 2019)



Water manager	% of total
Commonwealth Environmental Water Holder	66%
Jointly held	23%
Victoria	5%
New South Wales	4%
South Australia	2%

Source: Southern Connected Basin Environmental Watering Committee Annual Report



Information in the figure above is for the month of September 2021 and may not include recent rainfall or delivery of water for the environment in the River Murray system. Information in this figure is an average estimate over the past month and formal accounts from Basin state governments may vary. Water for the environment in the figure above represents water that is held by environmental water holders, through entitlements. Other water that flows through the river can also achieve environmental outcomes.

River flow information

The September flow to South Australia comprised of water for South Australia's entitlement, traded volumes, water for the environment and unregulated flows. When rainfall falls downstream of storages and cannot be captured, it's referred to as unregulated flow. This commonly occurs when there is persistent, high inflows downstream of Hume Dam, or as the result of a spill at Hume Dam or the Menindee Lakes–these flows all significantly boost flows into the Murray. Water for the environment consisted of releases from Hume Dam and water delivered from the Goulburn, Broken, Campaspe, Loddon and lower Darling River.

For the latest information on water for the environment see the River Murray weekly report.

Intended environmental outcomes

Water for the environment takes time to move through the system. Water from past watering events is still moving through the River Murray as return flows. Environmental water holders can also use water for the environment by extracting allocations directly from the river. These allocations are often used for small-scale watering events rather than having water delivered from a storage.

Location	Return flows used	Intended environmental outcome(s)
River Murray delivery	• n/a	• delivery of water between periods of unregulated flows caused by wet conditions and River Operations airspace management at Hume • maintain connections between the River Murray and its forests, wetlands and creeks
Millewa Forest	• n/a	• provide flows through Gulpa Creek to support Australasian bitterns and large bodied native fish
Barmah Forest	• n/a	• replenish refuge pools to maintain water quality, fish and turtle populations • maintain connectivity between the forest and the river • remove accumulated organic matter and cycle carbon in the river system to minimise the risk of hypoxic blackwater
Lower Broken Creek	• n/a	• protect and increase native fish populations and avoid excessive build-up of azolla fern
Goulburn River	• n/a	• protect and boost populations of native fish and turtles • maintain abundant and diverse waterbugs • increase water dependent plants in the river channel and banks
Campaspe River	• n/a	• provide habitat to help protect and boost native fish • maintain resident platypus numbers
Pyramid Creek	• n/a	• maintain connectivity between pools • provide habitats for native fish and waterbugs
Gunbower Forest	• No	• maintain breeding habitats and food resources for native fish including Murray cod
Gunbower Creek	• No	• fill key wetlands and surrounding forest • support growth and recruitment of wetland and river red gum vegetation • increase water depth and quality to support native small-bodied fish, turtles and frogs
Central Murray Wetlands	• Yes	• create habitat for native waterbirds, frogs and turtles • stimulate the germination of aquatic vegetation
Guttrum Forest	• No	• support the growth of adult river redgums and river red gum saplings • promote the growth and re-establishment of aquatic vegetation and tall marsh vegetation • maintain the depth of the wetland to support frogs and waterbird feeding and breeding
Lower Darling River (Baaka)	• n/a	• small increase to baseflows to improve the condition of the Lower Darling (Baaka) • assist native fish population recovery by supporting breeding opportunities of primarily Murray Cod (and potentially golden perch and silver perch) this spring
Lindsay, Mulcra and Wallpolla islands (Lake Wallawalla and Wallpolla Horseshoe)	• No	• provide shallow-water, open-water and shoreline habitat • provide foraging habitat and breeding opportunities for frogs, yabbies, waterbirds and turtles
Chowilla floodplain	• Yes	• operate environmental regulators to inundate floodplain areas • support the health and resilience of native vegetation, wetlands and anabranch habitats
Pike and Katarapko floodplains	• Yes	• operate environmental regulators and River Murray Weirs 5 and 4 to inundate floodplain areas • support the health and resilience of native vegetation, wetlands and anabranch habitats
Weir pool manipulation	• Yes	• raising of the weir pool level to support floodplain vegetation • promote connectivity and improve productivity
Lower Lakes, Coorong and Murray Mouth	• Yes	• maintain barrage releases to support the upstream migration of native fish such as lamprey and the downstream migration of congolli and common galaxias through the barrage fishways • reduce salinity in the Coorong, supporting the Coorong food web

More information on river flows and water for the environment

Live River Data
riverdata.mdba.gov.au

River Murray Weekly Report
mdba.gov.au/river-information/weekly-reports

Water sharing in the River Murray
www.mdba.gov.au/river-information/water-sharing

Water use in catchments
www.environment.gov.au/water/cewo/catchment

FLOW Monitoring, Evaluation and Research
flow-mer.org.au

Delivering water for the environment
mdba.gov.au/managing-water/water-for-environment/water-over-time