

COMMONWEALTH ENVIRONMENTAL WATER OFFICE

Response to questions submitted by Aither on behalf of the Interim Inspector-General of MDB Resources.

Background: Commonwealth Environmental Water Holder (CEWH) functions and responsibilities

At its core, the function of the CEWH is to match the available supply of environmental water with the needs of the Murray-Darling Basin environment.

- Established under the *Water Act 2007* (Water Act), the statutory, independent CEWH is responsible for managing the Commonwealth environmental water holdings and the Environmental Water Holdings Special Account.
- The CEWH's function is a fundamental element of the Murray-Darling Basin water reforms which aim to reduce historical over allocation and over-use of water by returning water to the environment and placing Basin agriculture on a sustainable footing.
- The Water Act also gives effect to relevant international agreements, notably the Ramsar Convention (wetlands) and the Convention on Biological Diversity.
- Under law, the water must be managed to protect and restore the environmental assets of the Murray-Darling Basin including watercourses, lakes, wetlands and floodplains, in the national interest.
- The Water Act places requirements on the CEWH to manage environmental water holdings in accordance with the Basin Plan 2012 and the environmental water plan (Chapter 8).
- The Basin Plan also requires the CEWH to perform its functions and exercise its powers consistent with the *Basin-wide environmental watering strategy* and have regard to the Basin annual environmental watering priorities developed by the Murray-Darling Basin Authority (MDBA).
- The CEWH first delivered water in the Basin in 2009. Since then, the CEWH's business processes and operations have undergone continual improvement to ensure the requirements of the Water Act are met in a way that is transparent and accountable.
- The CEWH cannot deliver water in its own right and is reliant on partnerships with state water and environment agencies.
- CEWH's decision-making depends on seasonal conditions, water availability and the predicted environmental response. Dynamic management of environmental water relies on multiple agencies and jurisdictions, including state agencies and research institutions to:
 - a) collaborate in the shared planning and delivery of water for the environment
 - b) manage infrastructure and operate the rivers
 - c) monitor and collect data pre and post watering, supporting compliance
 - d) report on what happened and why
 - e) identify opportunities for new approaches through adaptive management.
- Our six local engagement officers placed throughout the Basin are critical to building and maintaining community relationships. These officers directly link the community and water delivery staff. They spend much of their time discussing environmental watering activities with the community and providing feedback in both directions.

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- Redressing the long-standing historical over-use and impact on the environment will take decades. Environmental watering is delivering significant environmental benefits for the river system, including for plants and animals that rely on the rivers and wetlands.
- The benefits are being documented through ecological monitoring. To date, we have committed over \$55.4 million to monitoring, evaluation and research through to 2022-23, to help manage our water use and demonstrate environmental outcomes.
- Monitoring shows that environmental water contributing to a range of environmental objectives including:
 - a) river flows that support improved water quality
 - b) recreating flow patterns necessary for native fish and birds to breed
 - c) maintaining habitats used by migratory species
 - d) connecting rivers to floodplains to maintain food chains and support fish movement
 - e) filling wetlands that support native fish, birds and other native animals
 - f) recovery of the environment following the drought and building resilience in preparation for drought.
- Operational monitoring is undertaken for every watering action, collecting on-ground data such as volumes, timing, duration, location, flow rates and river heights. Much of this information is provided to the Commonwealth Environmental Water office (CEWO) by state water managers.
- Long and short-term intervention monitoring helps us understand the environmental response to watering actions. We contract this directly with research institutions, contractors and federal and state government agencies.
- Monitoring the environmental response to watering actions allows us to improve our water delivery techniques over time. The learnings gained from each watering action influence future watering decisions.
- The CEWH is not the only entity investing in environmental monitoring and evaluation activities, it is a shared commitment and the Basin Plan places responsibility on other agencies. Basin States are required to monitor and report on changes in environmental health over time at a wetland and catchment scale e.g. <https://www.mdba.gov.au/managing-water/water-for-environment/progress-outcomes>. The MDBA are required to monitor and report on the changes in environmental health at a Basin-scale (<https://www.mdba.gov.au/basin-plan-roll-out/monitoring-evaluation> and <https://www.mdba.gov.au/publications/mdba-reports/basin-plan-evaluation-framework>).
- The Southern Connected Basin Environmental Watering Committee and the emerging Northern Basin Environmental Watering Committee are the two operational coordination forums that allow CEWH to work with other environmental water holders. These collaboration forums allow CEWH to coordinate the delivery of environmental water with other water holders to improve environmental outcomes.

Water Reform Agenda

- Bipartisan agreement on the need for the reforms identified in the National Water Initiative laid the groundwork the enactment of the *Water Act 2007* and the subsequent establishment of the MDBA and drafting of the *Basin Plan 2012*, amongst other actions.
- The establishment of the CEWH and the acquisition of water to achieve environmental outcomes prescribed by the Basin Plan is the new and central element of the reform.

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- When the Basin Plan was developed, the baseline calculations took account of operational water and the environmental benefits provided by its passage through the system, as well as water already managed for the environment under state instruments and programs. The volume of water required for the environment under the Basin Plan is in addition to those operational flows, even if the operational flows achieve base level environmental benefits.
- If the rules were changed to apportion operational losses to environmental water accounts, more water would need to be recovered from irrigators to achieve the level of environmental outcomes envisioned by the Water Act and the Basin Plan.

Issues raised about the CEWH or environmental water in community consultation

1. Aither: Conveyance losses should be counted as environmental water

CEWH response: Conveyance losses should be covered by all water users

‘Conveyance water’ is the volume of water used to carry water orders to customers, the water that is required to be able to deliver any other water downstream. Conveyance water has been part of water sharing arrangements for decades and would be required to deliver water to users even if there was no environmental water. Losses from delivering water are socialised and accounted for in conveyance water as an accepted part of running a regulated river system.

Conveyance water benefits all water users, including the environment. The environmental benefits of conveyance water were included by the MDBA when they determined the volume of water required for the environment under the Basin Plan (that is, these benefits were included in the baseline assessment, with the environmental water intended to achieve *additional* outcomes).

If all operational losses were deducted from environmental water accounts, more water would need to be recovered from irrigators to achieve the same level of environmental outcomes and the Environmentally Sustainable Level of Take required under the Basin Plan. This is because you would be directly substituting environmental water for system water, which changes the goal posts of the Basin Plan.

Apportioning operational losses against environmental entitlements would see them unfairly treated and have their value reduced compared to water entitlements held for other uses. This is despite environmental water entitlements being subject to the same allocations, carryover rules and fees and charges as like entitlement holders. Such a change is inconsistent with the National Water Initiative and the *Intergovernmental Agreement on Implementing Water Reform in the Murray-Darling Basin*, which requires water for the environment to have at least the same degree of security as water entitlements for consumptive uses.

States have arrangements in place to ensure environmental water holders are responsible for any losses from any environmental water deliveries that may significantly increase losses above previous experience during overbank watering or any changed pattern of water delivery, and these are factored into their orders. This means the environmental water holders can water wetlands and floodplains, or use less efficient flow paths, and paying for the additional water used and without impacting on the water availability of other water users.

State governments are responsible for determining the loss and accounting arrangements for these types of environmental flows. The loss rates are typically conservative (that is, they overestimate losses) to avoid having negative third-party impacts.

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2. Aither: Environmental water allocations, delivery and outcomes aren't transparent or accountable

CEWH response: Every delivery of environmental water is accounted for and all of our holdings are on our website. We are working to improve the accessibility of the large amounts of information we share.

Allocations

The environment receives exactly the same allocations as any other water user holding the same entitlement. The environmental water held by the Commonwealth does not get any preferential treatment or receive allocation before others.

Allocation decisions are made by the relevant state agency. Allocation information for each state is available online. When states publish their available water determinations, they include an overview of environmental water holdings. We publish our water availability across catchments online, including transparent reporting of likely carryover. No other large water user provides this level of transparency.

Transparency

Regional stakeholder groups are involved in the planning that precedes any environmental watering event. These community members provide local input to the decision-making process, as well as providing a feedback loop to the community on the resulting decisions. The CEWH is always working to improve and build community relationships to enable better information sharing.

[Information about watering events](#), [trade actions](#) and [water holdings](#) is shared with [key stakeholders](#) and published on the CEWH website.

The Commonwealth Environmental Water Holder has [six local engagement officers](#) working alongside State and local land and water management officers, providing outreach to local communities throughout the Basin. Their contact details are provided on the website so that any community member can find them. They work closely with the MDBA's regional engagement officers.

The Commonwealth Environmental Water Holder is committed to being a 'good neighbour' and has adopted the following approach to managing environmental water (see details at **Attachment A**):

- Maximising the environmental outcomes
- No intended harm
- Using local knowledge
- Negotiating consent
- Equal treatment
- Flexibility

Reviews¹ have found that this approach is effective, however, more work is needed to improve community understanding of our work. The office of the CEWH is currently drafting a new communication and engagement strategy which we would be happy to discuss with your team.

Accountability

Every order of environmental water is accounted for and debited against an account, in the same way that water is accounted for other purposes. The State water authorities use the accounting

¹ [Review of the Commonwealth Environmental Water Holder's operations and business processes. Byron, Nov 2017. Report on the inquiry into the management and use of Commonwealth environmental water.](#) Senate Select Committee, 2018.

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method most appropriate for the scale of water management and they have responsibility for water accounting across a river, independent of environmental water holders.

Environmental water that is extracted from the river by a pump or through an irrigation channel is directly metered, the same way as it is for an irrigator. Meters are managed by state-based Water Authorities that independently manage water accounts.

Water that is delivered in-stream, or through an irrigation canal is accounted for in the same ways that large irrigation companies account for water. State river operators account for this water by calculating a balance between river gauges and applying this to both environmental water and irrigation water orders.

Overbank flows are calculated by state water authorities using a combination of river gauges and models. This accounting method is also used by water authorities for the management of state water shares under the Murray-Darling Basin Agreement. Models are used to estimate the increase in 'transmission losses' directly attributable to the environmental water order. This is the same approach that waterway managers would use to estimate losses during naturally high flows

The methods used for accounting large-scale water use are the subject of on-going refinement and improvement. Accounting is currently conservative in approach to ensure there are no impacts on other users.

An example is that we pay 50GL upfront for any flow that goes into the Barmah-Millewa Forest, and then 20% additional loss is applied in crediting flow returning from the Forest.

[Information on the CEWH holdings](#) is published on our website and updated regularly. Click on the drop-down arrows to see the data. Information is also provided about [carryover](#).

2a) Aither:

- a. **Water is being delivered through the Choke without concern for zoning attached to water licences**

CEWH response: Commonwealth environmental water cannot and does not bypass choke trade restrictions.

The Barmah Choke trade restrictions were established to minimise unseasonal watering of the Barmah-Millewa Forest. Above Choke entitlements held by the Commonwealth are subject to the same trading restrictions as other entitlements. This means that unless the Barmah Choke trade balance is positive, Commonwealth held above choke entitlements must be used above the choke. Similarly, water ordered below the choke (e.g. water orders for South Australia) must come from Below Choke entitlements—the Commonwealth Environmental Water Holder cannot bypass the choke trade restrictions.

While Commonwealth Above Choke entitlements are ordered in the Above Choke zone, the resultant flow is protected in its transit (using accounting treatments) through the river system. The mechanism for delivering and accounting environmental flows from upstream to downstream of the Choke have been developed by state authorities in a manner to avoid unintended impacts on the environment or other water licence holders.

- b. **Barmah-Millewa is flooded too regularly - watering is killing the forest**

CEWH response: Barmah-Millewa Forest is not being overwatered—parts of the forest are suffering from receiving less water since regulation of the river system.

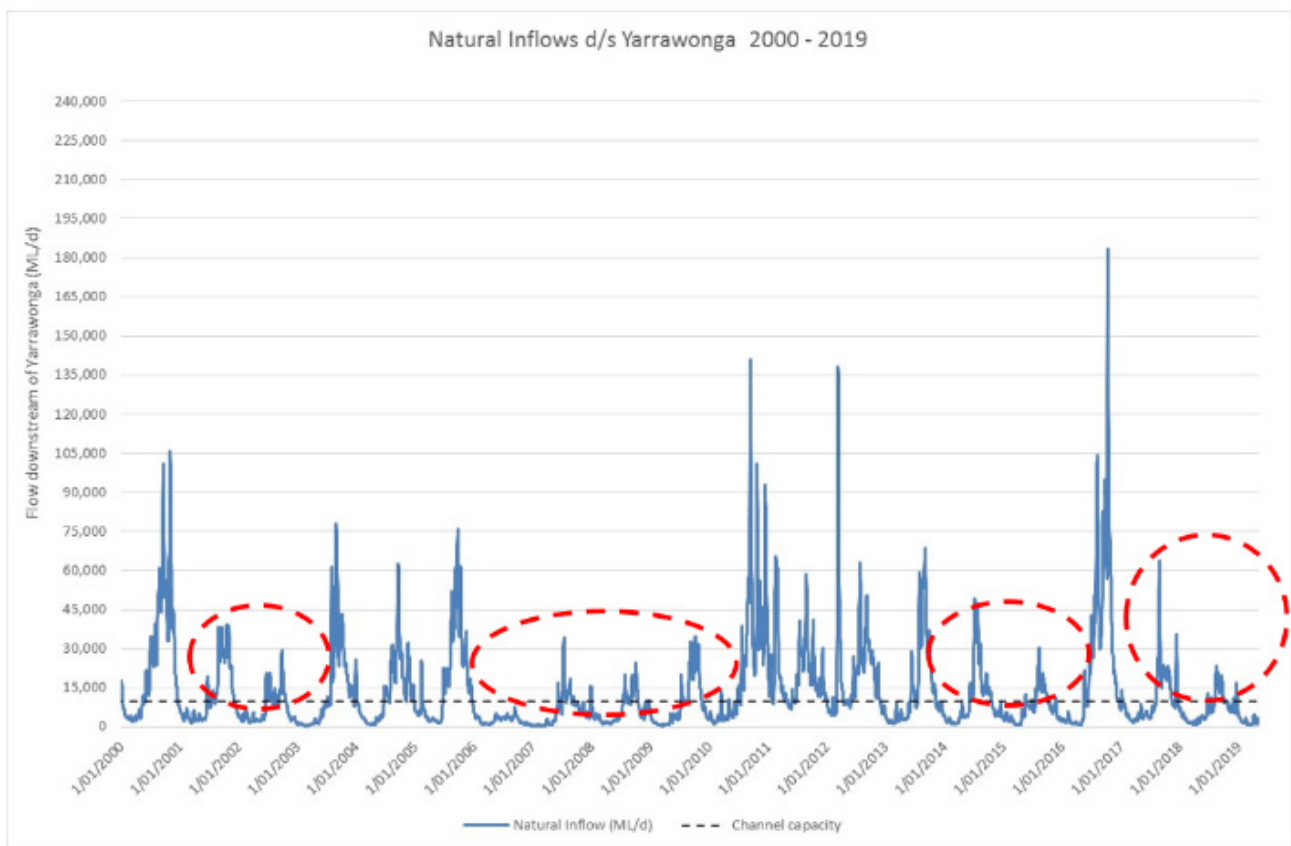
Under natural conditions, the Barmah-Millewa Forest would receive inflows every winter-spring. In 19 of the past 20 years, under natural conditions, the low laying parts of the forest would have

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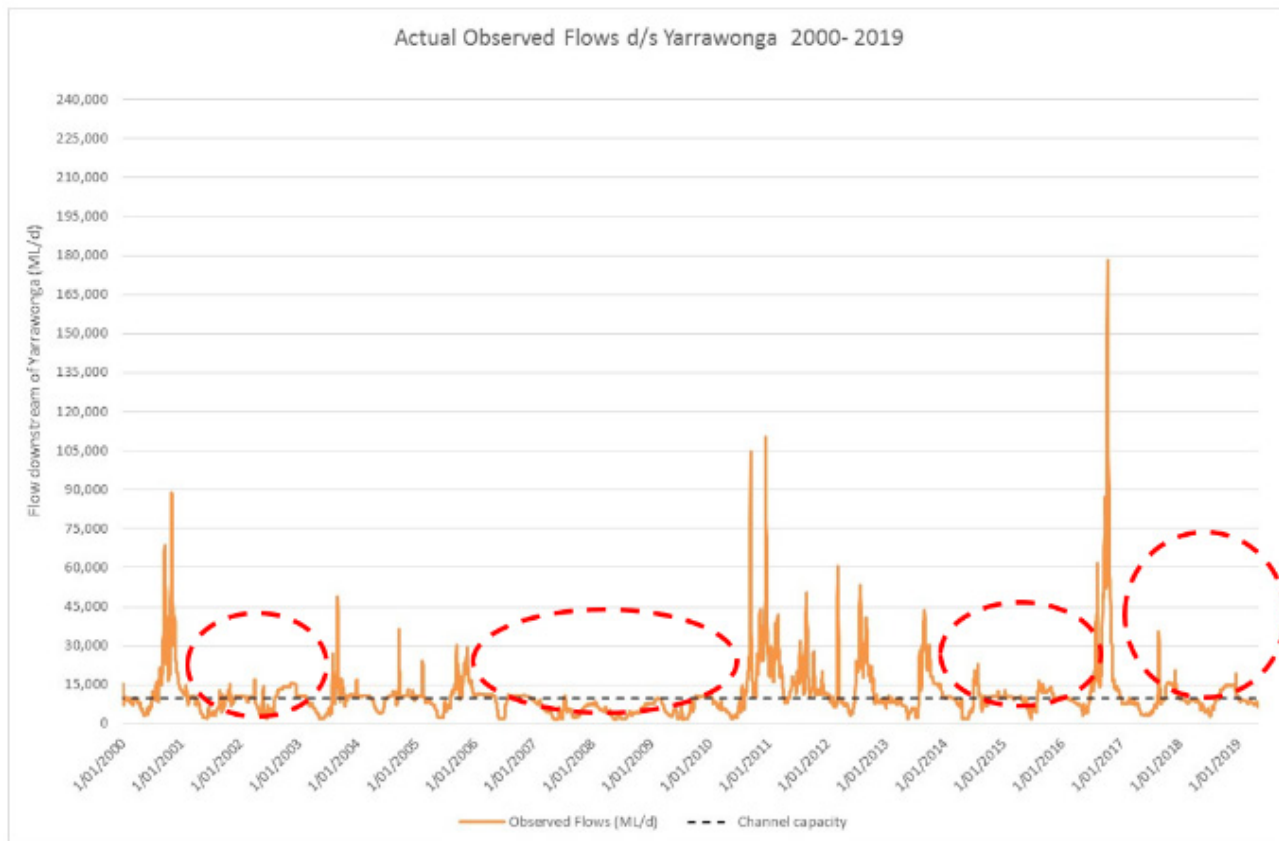
received flows from the river, including during the Millennium Drought. The figures below compare what would have happened in the river naturally, versus actual observed flows over the last 20 years. The years highlighted in red show the reduction in small to moderate overbank flows as a result of river regulation.

Naturally flows into the forest would have commenced at around 4,000 to 5,000ML per day with water entering through several flood runners and flowing into low lying wetlands. Forest regulators and banks were historically constructed to prevent water leaving the river at these low flows to increase the volumes flowing downstream and to facilitate forestry activities.

Below: The figures compare the expected inflows at Yarrawonga without regulation against flows that occurred in the current system.



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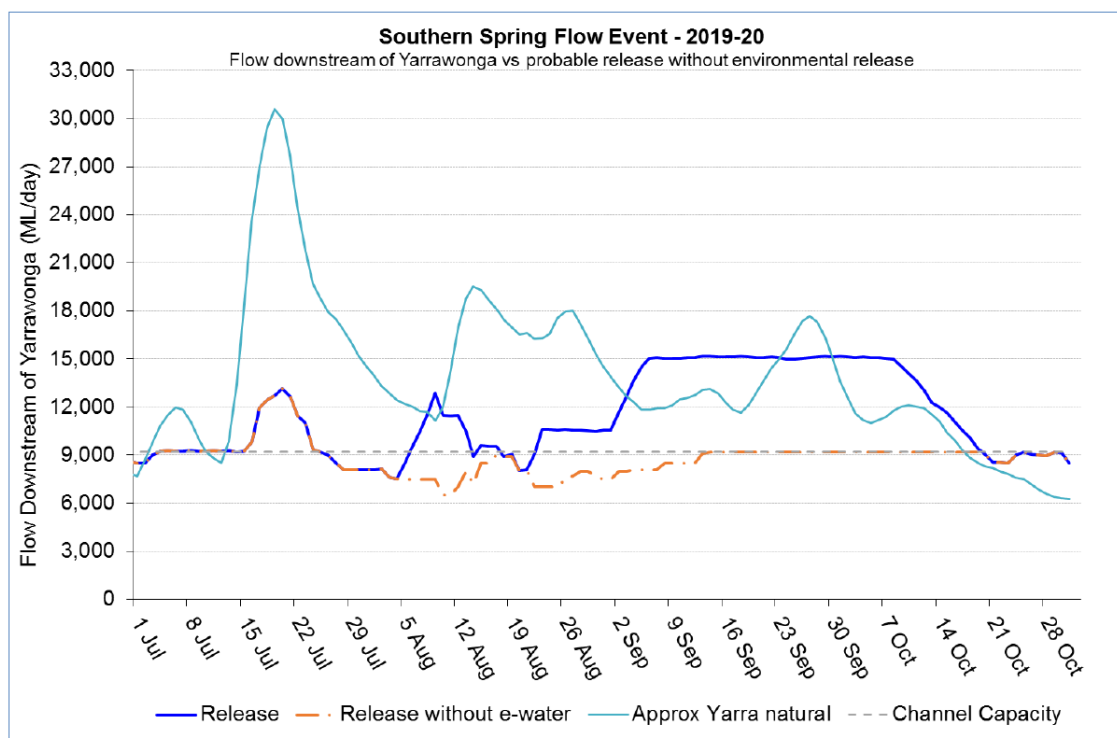
Environmental flows are seasonally appropriate and aim to restore some of these small overbank flows in winter and spring.

This year, Barmah-Millewa Forest would have naturally received flows up to 30,000 ML/day, and overbank flows from July to October (including an actual overbank flow event of around 13,000 ML/day in response to July rainfall). In comparison, environmental flows in our regulated system only reached 15,000 ML/day, with overbank flows of much shorter duration, watering a relatively small percentage of the Barmah-Millewa forest floodplain (25%).

Red gums are tolerant of seasonal flooding but not prolonged flooding. They are not harmed by seasonally appropriate environmental watering in winter-spring.

(<https://www.mdba.gov.au/publications/report/barmah-millewa-environmental-water-management-plan>).

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Monitoring is showing the improvements in the health of Barmah-Millewa Forest since the Millennium Drought. MDBA's report card shows the overall health of Barmah-Millewa Forest has improved from a "D" in 2008–09, to an "A" in 2017–18 (see <https://www.mdba.gov.au/managing-water/water-for-environment/barmah-millewa-forest-report-card-2017-18>).

No mature stands of river red gums have been killed or negatively affected by environmental flows. Only a relatively small area of Barmah-Millewa Forest can be watered due to the current flow constraints. Therefore, a large proportion of the forest is presently severely drought stressed. Science tells us there are stands of trees located on more elevated sites that are extremely stressed and many trees appear to have died due to lack of water, not overwatering.

There are concerns about the long-term erosional impacts of water delivery through the Barmah Choke, which is different than the discussion around water on the forest floor. For overbank flows that travel through the forest, most of it makes its way back into the river again downstream of the Choke. Further work on the Barmah Choke is being undertaken as part of the Murray–Darling Basin Authority (MDBA) Riparian and Assets management programs. Operating the river for long periods at 'top of bank' levels within the Choke area (i.e. high in-channel flows that are common over the irrigation season) leads to notch erosion and bank instability.

3. Aither: Environmental water should be given (or sold) back to irrigators during drought

CEWH response: In dry times, the environment needs water. Lending or gifting water for the environment is not allowed under the law.

Even during dry times, animals and plants that depend on water to survive still need somewhere to live. When it's dry, water for the environment is used to maintain the few critical places where plants and animals shelter (called refuges). This helps them survive the drought so they can bounce

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back when the rains return. Drying cycles are important in wetlands management but not all sites should be dried off in drought years.

Some types of wetlands and parts of our rivers can never be left to dry out. Complete drying of these systems can lead to catastrophic impacts such as fish deaths, acid sulfate soil exposure and complete loss of species.

The Millennium Drought resulted in disastrous losses to rivers, creeks and wetlands all along the River Murray. These losses have taken years to recover from. Some things have not yet recovered. Small pockets of remaining vegetation, small water holes and internationally recognised wetlands are critical places for animals, fish and birds to reside in until drought times cease.

Some people mistakenly believe the environment doesn't need any water in dry times—because droughts and floods are normal. This myth misleads as it fails to recognise that historically many of the Basin's rivers continued to flow even during consecutive dry years.

Even in dry times environmental water is needed to mitigate the environmental impacts of river regulation, which imposes drought-like conditions on the river's ecology more frequently, as the water is used elsewhere for production.

It may be more accurate to say the environment doesn't need *as much* water in dry times as it does in wet times. This is consistent with the existing allocation system, which automatically adjusts the allocation for all water holders (including the environment) in response to prevailing climatic conditions. Just like other water users, environmental water allocations drop when it is dry. When allocations are zero for farmers, they are zero for environmental water holders. To match the reduced supply of water, water holders also change the objectives of our watering and scale down what we are trying to achieve (for example, we will target much fewer sites).

The role of the Commonwealth Environmental Water Holder is set in law under the *Water Act 2007*.

The law requires water recovered for the environment to be used for the environment – to directly support the health of floodplains, rivers and wetlands. Under the law, water set aside for the environment cannot be given away or borrowed.

Trade of Commonwealth environmental water can occur—since 2009, the CEWH has sold 60GL of water². However, these trades can only be undertaken on the open water market when water is excess to environmental requirements and there is no risk to the environment. That is not the case during a drought.

Commonwealth owned entitlements were purchased with taxpayer dollars. Therefore, the CEWH must meet the requirements of the *PGPA Act 2013*, including that value for money must be considered in any transaction. Temporary trade is undertaken transparently and publicly so as not to distort the water market and so that other users are not impacted. Selling or gifting water during dry conditions has the potential to distort the operation of maturing water markets. For more information see [Victorian Environmental Water Holder independent report here](#).

If environmental water were given or sold to irrigators during dry times, it is highly likely that this would compromise critical parts of the ecosystem, and these arrangements could therefore be inconsistent with the requirements of the *Water Act 2007*. In fact, if these 'gifting/selling' arrangements had been in place in 2012, it is likely that the Authority would have recommended a recovery volume higher than 2,750 GL to ensure critical outcomes could be maintained during dry periods.

² <https://www.environment.gov.au/water/cewo/trade/trading-outcomes>

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- 4. Aither: The environmental value of agriculture isn't considered - Credits should be provided to irrigators that deliver environmental benefits on farms (e.g Australasian bittern habitat).**

CEWH: Land with high ecological value that is purposely managed for environmental outcomes will have good results for a multitude of species. Land managed for agriculture can provide coincidental benefit for some species, but these outcomes can be less reliable as production outcomes are primary.

While there is no doubt that well managed irrigated agricultural land can provide beneficial habitat, a healthy river system with diverse habitats provides a sustainable resource that provides benefits for the agricultural industry, communities and cultural outcomes.

Rice paddies and other types of paddocks are not environmental assets, they have low ecological value and limited species diversity.

On private land managed for agriculture, all decisions about what to grow, how much water to use and when to use the water are made to meet business needs. Environmental water managers have no control over how consumptive water is used and cannot set environmental objectives for privately owned water. A farmer is unlikely to delay harvest or provide additional water to complete a bird breeding event.

When the Basin Plan was developed, the baseline calculations took account of operational water and the environmental benefits provided by its passage through the system. The volume of water required for the environment under the Basin Plan is in addition to those operational flows.

See 13 for more detail.

- 5. Concerns about the science behind the Basin Plan and calculations for environmental water requirements (e.g. conveyance and dilution flows weren't used in calculations) particularly in regards to the CLLMM.**

CEWH: Best available science is always utilised in planning and assessing CEWH environmental water use.

The development and the implementation of the Basin Plan, and our watering activity, accesses the most relevant science. We continually invest in new science and use it to inform our watering decisions.

The science of South Australia's Lower Lakes is [being reviewed](#) by an independent team led by Australia's lead science agency, CSIRO. The CEWO will take the outcomes of this review into consideration in planning environmental water delivery.

Conveyance and dilution flows were taken into account in the development of the baseline diversion limit—environmental water is intended to achieve outcomes in addition to those achieved under the baseline conditions.

The Murray-Darling Basin Authority can provide the best data on development of the Basin Plan. The MDBA and states have modelled salinity (dilution) benefits from environmental water recovery.

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These measurable long-term benefits have been included in the Basin salinity register, under the MDB Agreement, the MDBA is best placed to provide information on this.

6. Aither: Environmental water is prioritised over consumptive water

CEWH response: No, Commonwealth environmental water is not prioritised over consumptive water

As noted above, Commonwealth environmental water is subject to the same allocations, carryover rules and fees and charges as like entitlement holders.

There are no instances in which Commonwealth environmental water is prioritised over consumptive water. In fact, there has been numerous examples where consumptive water has been prioritised over environmental water, as was seen in the River Murray in 2018–19.

For instance, the high operational transfers in 2018-19 restricted the delivery of environmental water and impeded the ability to meet environmental demands in the Southern Connected Basin. This meant that environmental demands were not able to be fully met in the creeks of the Barmah-Millewa Forest and in South Australia, the latter because most of the operational transfers were diverted along the way or contributed to Lake Victoria filling.

The delivery challenges experienced in 2018-19 highlight the ongoing need for river operations to evolve to better meet the needs of environmental water holders.

Environmental water holders do require some unique delivery services that reflect that our water stays in the river instead of being extracted, so we have different needs to other users (e.g. return flow provisions). However, these services are not prioritised over other users and are designed to have no negative third-party impacts.

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Additional data and information requested by Aither

7. *Data on the volume of environmental water allocations over time, the size of the current entitlement portfolio and a breakdown of the of entitlement types, including the volume allocated to different entitlement products over time to show where the water is coming from.*

Summary of annual holdings data:

	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20 as at 30 Nov 19
Entitlement (GL)	65	738	993	1,368	1,632	2,126	2,309	2,432	2,562	2,706	2,847	2,851
LTAAY (GL)	39	465	679	984	1,192	1,454	1,592	1,692	1,780	1,859	1,952	1,978
New Allocations (GL)	14	187	690	979	1,112	1,056	1,021	1,007	1,721	1,198	885	670
Available for Use (GL)	14	187	724	1,292	1,614	1,440	1,470	1,450	2,050	1,808	1,403	1,122
Delivered (GL)	13	154	387	680	1,272	982	1,014	1,049	1,453	1,270	853	653
Delivered (%)	93	82	53	52	79	68	69	72	71	70	61	58
Carryover (GL)	0.3	34	331	564	393	450	444	361	612	523	526	N/A
Carryover (%)	2	18	46	44	23	31	30	25	30	29	37	N/A
Forfeiture (GL) (Includes Groundwater)	0.685	-	-	0.104	0.172	0.152	0.825	0.932	1.712	1.591	7,156	N/A

Additional, more detailed information, including allocations against all types of entitlements, can be found in the following:

- a) October, November and December Monthly Reports at **Attachment B**
- b) [Holdings data on the CEWH website](#)
- c) Allocation history spreadsheet at **Attachment C**
- d) Water use minute to provide detail on watering decisions at **Attachment D**

8. *Information on environmental water delivery processes procedures, particularly details on the requirements for there to be no third-party impacts and how environmental delivery is prioritised (e.g. over consumptive use, if that is the case).*

Please see Item 6 above.

Policy and procedures for qualifying rights to water access (prioritisation) during extreme dry conditions are set by state authorities and documented within state entitlement frameworks and water resource plans.

Protecting critical environmental values may, in cases, be identified as part of the state's water management priorities, however, this priority does not apply to water access licences held by environmental water holders. Water access licences held by environmental water holders are treated the same way as similar licences held for consumptive water users regarding allocation and access.

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Section 7.15 (1) (d) of the Basin Plan requires that there be no “detrimental impacts on reliability of supply of water to the holders of water access rights that are not offset or negated” in the implementation of Prerequisite Policy Measures (PPMs). NSW has identified that there is potential for supply reliability and access rights for third parties and has said it will not implement PPMs where this is the case.

Equally, there is growing recognition of the third-party benefits resulting from environmental water use. An approach for quantifying the third-party impacts (positive or negative) has not been agreed, resulting in a high level of conservatism being applied by state water authorities in the development of environmental water management arrangements.

For more information see:

- a) CEWO Business Workflow Diagram at **Attachment E**
- b) [Approach to planning for the use, carryover and trade of Commonwealth environmental water](#)
- c) [Framework for determining Commonwealth Environmental Water Use](#)
- d) [The Environmental Water Outcomes Framework](#)

9. Information on rules for the CEWO to incur conveyances losses out of their allocation including demonstrating how they are conservative including possible evidence of these being deducted from accounts.

See information in response to items 1 and 8 for overarching information.

The rules have been developed at a catchment and site level with the States. Examples of loss rate:

For all environmental flows delivered through Barmah-Millewa forest that result in over-bank flows (currently greater than 9000 ML/day downstream of Yarrawonga) the initial volume of use (or ‘loss’) is up to 50 gigalitres. An ongoing 20% loss rate is then applied to any further flows³.

In 2017, the first return flow of environmental water from the Murrumbidgee River was allowed by the NSW state authorities. A loss rate of 14% was applied to the environmental flow to enable the accounting of environmental water delivery to the SA border. In 2018-19 a subsequent ‘return flow’ event occurred with NSW authorities applying a 26% loss factor.

These losses are estimates based on worst case scenarios and are not adjusted to reflect actual river conditions. Evaluations of the Murrumbidgee accounting treatments commissioned by the CEWO, and conducted by the MDBA, indicate that these arrangements were very conservative, with the losses applied during the 2018-19 event being close to three times greater than the total conveyance loss during that period within the River Murray downstream of the Murrumbidgee junction.

10. Information on the difference between environmental water delivered to Barmah-Millewa Forest and overbank transfers.

In 2018–19, most of the water through the Barmah-Millewa Forest was from operational transfers to meet downstream requirements.

These operational transfers did provide a range of environmental benefits for the forest, including inundating core wetland habitat. However, it is important to note that:

- Environmental water holders did not get to decide where the operational transfers went through Barmah-Millewa Forest. For example, the preference would have been to maintain

³ Note: this only applies for held environmental water entitlements—for the Barmah-Millewa Environmental Water Allowance (a form of planned environmental water) there are no return flows and a 100% use rate is applied.

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open regulators throughout the forest over spring to benefit native fish—however, all but the most efficient regulators were closed in the forest. Also, environmental water holders were seeking higher flows, but this was also not possible.

- There were no return flows from the operational flows. This meant the environmental benefits were largely limited to the forest and the river channel immediately downstream. The river and wetlands downstream of Lake Victoria did not receive any additional water. The consequences included:
 - Being unable to deliver a coordinated flow down both the Murray and the Goulburn River at the same time (as occurred in 2019–20)
 - Reduced end-of-system flows, with flows to the Coorong below the annual target of 650 gigalitres/year.
 - The high operational flows were required to meet downstream water requirements and would have been delivered in this way even if environmental water never existed as part of normal river operations.

11. Background information on the need for environmental water particularly in relation to the CLLMM.

Please see the [South Australian River Murray long-term watering plan](#) which defines the watering needs for the CLLMM and links to the Basin Environmental Watering Strategy which CEWH need to have regard to.

The natural movement, distribution, and quality of water is altered due to river regulation and infrastructure that was built to support burgeoning communities and agricultural production.

The ecosystems of the Murray-Darling Basin have been placed under significant pressure by the combination of drought and river regulation. Many species are at risk.

Managed environmental water is a practical rehabilitation measure in which governments work together to re-introduce some natural variability in river flows to reconnect Murray-Darling Basin rivers floodplains and wetlands for the benefit of the environment.

Intervention monitoring, evaluation and research aims to understand the environmental response to Commonwealth environmental watering, and assess achievement of objectives and expected outcomes. Results are used by the CEWO to inform management of Commonwealth water for the environment and meet our legislative reporting requirements. Intervention monitoring, evaluation and research activities include:

- [CEWO Monitoring Evaluation and Research Program](#)

Integrates and replaces monitoring and research activities under the Long-Term Intervention Monitoring project (concluded June 2019) and Environmental Water Knowledge and Research (concluded June 2019)
- [Short term intervention monitoring reports](#)

The CEWO conducts monitoring, evaluation and research activities on the short-term (annual) environmental response of selected watering actions in different areas of the Basin.

The Coorong, Lower Lakes and Murray Mouth

The Coorong and Lakes Alexandrina and Albert are listed as an internationally important wetland under the Convention on Wetlands of International Importance (the Ramsar Convention). The listing was made in 1985, meeting eight of the nine listing criteria.

The wetlands:

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- comprise a unique mosaic of 23 different wetland types
- support over 80 threatened or migratory bird species (including three nationally-listed endangered or critically endangered); are ranked one of the six most significant waterbird sites in Australia; and support the greatest waterbird species richness of the Basin
- provide critical fish habitats including nursery and feeding areas for commercial and non commercial fish species (including three nationally listed threatened species).

The Ngarrindjeri people are the Traditional Owners of the Lower Lakes, Coorong and Murray Mouth. The wetlands form the 'Meeting of the Waters' registered Aboriginal heritage site, and are of enormous cultural significance.

The land and waters is a living body. We the Ngarrindjeri people are a part of its existence. The land and waters must be healthy for the Ngarrindjeri people to be healthy.

Freshwater flows down the Murray–Darling system are seen by the Ngarrindjeri as the life blood of the living body of the Murray, Lower Lakes and Coorong. Maintaining connectivity between parts of the living body is a Ngarrindjeri cultural priority.

Freshwater flows underpin all these values.

Another issue that influences the ongoing management of the Coorong and Lakes Alexandrina and Albert wetland are the acid sulfate soils that underly the site. These soils are benign if they remain saturated. When they dry out, they will produce large amounts of sulfuric acid. The result would be poor water quality, deoxygenation of surface waters, fish kills, and the release of toxic metals such as manganese, aluminium, and arsenic.

Exposure of acid sulfate soils occurred during the Millennium Drought and resulted in significant impacts to the Ramsar site. This led to an Article 3.2 notification of change in ecological character under the Ramsar Convention. Flows to the Lakes Alexandrina and Albert are necessary for maintaining the ecological character of the Coorong and Lakes Alexandrina and Albert Ramsar wetland. Any further restriction or reduction in flows may be inconsistent with Australia's obligations under the Ramsar Convention. ASS also threatens surrounding agriculture.

More information on the ecological character of the site can be found [here](#).

12. Information on CEWO policy on Lower Lake levels – would regulating spills in the Lower Lakes be a storage option for environmental water holders.

SA DEW has a Barrage and Water Level Management Policy and a Barrage Operating Strategy. Both are publicly available documents (<https://www.environment.sa.gov.au/topics/river-murray/improving-river-health/variable-lakes>).

In relation to Commonwealth environmental water, the CEWH and SA DEW have a watering schedule that sets out the arrangements for Commonwealth environmental water at the Lower Lakes and Coorong (see **Attachment F**). The lakes are not operated translucently (that is, flows passed as soon as they are delivered). Water that is delivered early in the season can sometimes be stored in the lakes to support releases into the Coorong over summer.

13. Information on the ecological benefit of agricultural fields vs wetlands and rivers

Irrigated agricultural lands can provide complementary habitats. They do not provide the same range and sustained level of environmental outcomes (breeding, survival, recruitment and long-term improvement in condition of key populations) as provision of water to wetlands managed for conservation purposes. Places like Barmah-Millewa Forest provide diverse and enduring habitat for a broad range of species.

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While it is recognised that agricultural land-use such as rice production can provide environmental benefits, many of these benefits are subject to the production cycle and are lost with changes in land use, management and ownership.

It is important to maintain areas of the environment, particularly those recognised as being nationally and internationally significant, to ensure there is adequate food and habitat for a variety of plants and animals. This is particularly important in times of drought.

The Commonwealth Environmental Water Holder is responsible for making decisions on the use of water for the environment for Basin scale benefit. All environmental flows are carefully considered, drawing on the best available science as well as input from local communities.

Environmental water managers are open to providing water to private land. For example, New South Wales Office of Environment and Heritage has a 'Water for Private Wetlands' program (<http://www.environment.nsw.gov.au/environmentalwater/private-property.htm>).

The CEWH provides water to private wetland sites, particularly on the South Australian floodplain where we have developed partnerships with organisations such as the Renmark Irrigation Trust, where environmental water is delivered using the irrigation network to help restore wetlands and floodplains within the irrigation district.

14. Information on current communications practices

- a. *List of all products the CEWO produces and how disseminated.*
- b. *Information on the role of Leo's and how they raise CEWO profile in the regions*
- c. *How does outreach work with general public/ people not interested in environmental water?*

[Provided at meeting 11/2/2020]

Approach to managing Commonwealth environmental water

The Commonwealth Environmental Water Holder is committed to being a 'good neighbour' and has adopted the following approach to managing environmental water:

- **Maximising the environmental outcomes:** The Commonwealth environmental water portfolio is used to achieve the best environmental effect, through water delivery, carry over and trade.
- **No intended harm:** a conservative risk-based approach to environmental flow management is taken so that unintended impacts do not occur. All decisions on water use are informed by a comprehensive assessment of risk, with arrangements put in place to ensure risks are appropriately managed. Commonwealth environmental water is also ordered and delivered at flow rates generally below the operational limits to provide a buffer against unpredictable local inflows resulting from rainfall.
- **Using local knowledge:** We are committed to working closely with communities and delivery partners (including state agencies, river operators and local advisory groups) so they can engage meaningfully on Commonwealth environmental water management. This engagement is critical to ensure water is delivered to important environmental assets and potential impacts and risks are identified and managed.
- **Negotiating consent:** If potentially unacceptable impacts on private property are identified we will negotiate with affected landholders to avoid or minimise any potential problems and obtain consent to watering events. In many situations landholders support watering events because the outcomes are mutually beneficial, such as by creating environmental benefits while also supporting the productivity of floodplain pastures.
- **Equal treatment:** Commonwealth environmental water is delivered by river operators within the current operating framework that applies to all types of water deliveries. Commonwealth environmental water is subject to fees and charges and receives the same allocations as equivalent entitlements held for consumptive use. The underlying entitlement characteristics should not be changed; however, the operating rules which enable water use should continue to evolve to meet the needs of all water users, just as they always have.
- **Flexibility:** At times of critical environmental need, the Commonwealth may assert its rights to access its share of channel capacity. However, in the event of channel capacity becoming limited, we can be flexible about how and when environmental water is ordered so as to minimise any potential impact on others.