

SUBMISSION TO THE HOUSE OF REPRESENTATIVES INQUIRY INTO THE MANAGEMENT AND USE OF COMMONWEALTH ENVIRONMENTAL WATER

Purpose

In line with your request, this document is a preliminary submission to the Standing Committee on the Environment and Energy's inquiry into the management and use of Commonwealth environmental water (the Inquiry). Information in this submission is provided against each of Committee's four Terms of Reference as an introduction. More detailed information will be provided in a subsequent submission by the closing date for general submissions.

About the Commonwealth Environmental Water Holder

The CEWH is a statutory position established under the *Water Act 2007* (Water Act) responsible for managing the Commonwealth environmental water holdings and the Commonwealth Environmental Water Holdings Special Account. The Commonwealth environmental water holdings must be managed to protect and restore the environmental assets of Murray-Darling Basin (the Basin), including watercourses, lakes, wetlands¹ and floodplains, in the national interest. The Water Act also gives effect to relevant international agreements, such as the Ramsar Convention. The CEWH's function is a critical part of the sustainable management of the Basin's water resources over the long-term for environmental, social and economic outcomes.

The CEWH is governed by the requirements of the Water Act, such as managing the Commonwealth environmental water holdings in accordance with the Basin Plan 2012 (the Basin Plan) environmental water plan (Chapter 8), including the principles and methods to determine priorities for applying environmental water. The Basin Plan requires the CEWH to perform its functions and exercise its powers in a way that is 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. In addition, the CEWH must comply with other relevant state and Commonwealth policy, frameworks and environmental legislation, including the *Public Governance, Performance and Accountability Act 2013* and the *Environment Protection and Biodiversity Conservation Act 1999*.

National water reform is being undertaken in collaboration between the Australian Government and Basin State governments (Queensland, New South Wales, Victoria, South Australia and the Australian Capital Territory). Two other Commonwealth agencies with responsibilities under the Water Act framework are:

- The Department of Agriculture and Water Resources who administers national water policy and is responsible for recovering the water managed by the CEWH.
- The Murray-Darling Basin Authority who is both responsible for, and the regulator of, the Basin Plan, *Basin-wide environmental watering strategy*. The Authority also operates the River Murray.

The CEWH cannot undertake its functions without the support of others. All Commonwealth environmental water delivered in the Basin occurs in partnership with state governments,

¹ See information about the Basin's wetlands: <http://www.environment.gov.au/water/cewo/wetlands>

local groups and non-government organisations, including the irrigation industry, environment groups and Indigenous communities.

Ms Jody Swirepik is the CEWH. She is supported by staff of the Commonwealth Environmental Water Office (the Office). The Office employs six local engagement officers² who live and work in regional centres across the Basin connecting Canberra to the regions.

² See who our Local Engagement Officers are: <http://www.environment.gov.au/water/cewo/local-engagement>

Maximising the use of environmental water for the protection and restoration of environmental assets

- What is Commonwealth environmental water?
- How does the CEWH manage the portfolio?
- Who do we work with in collaboration?
- How will water use be maximised when the Basin Plan is fully implemented? Pre-requisite policy measures and the Sustainable Diversion Limit Adjustment Mechanism projects.

About Commonwealth environmental water

The Commonwealth environmental water holdings are water entitlements and rights, issued by Basin state governments that were acquired by the Australia Government through investments in water-saving infrastructure and purchases on the water market. The Commonwealth environmental water holdings consist of 102 different entitlement types in 230 water accounts across 22 catchments. The rules governing the entitlements vary across states and across catchments. Commonwealth environmental water entitlements are subject to the same fees, allocations, carryover and other rules as equivalent entitlements held by other water users. These rules determine how the water can be used, the value of the portfolio and the environmental outcomes that can be achieved.

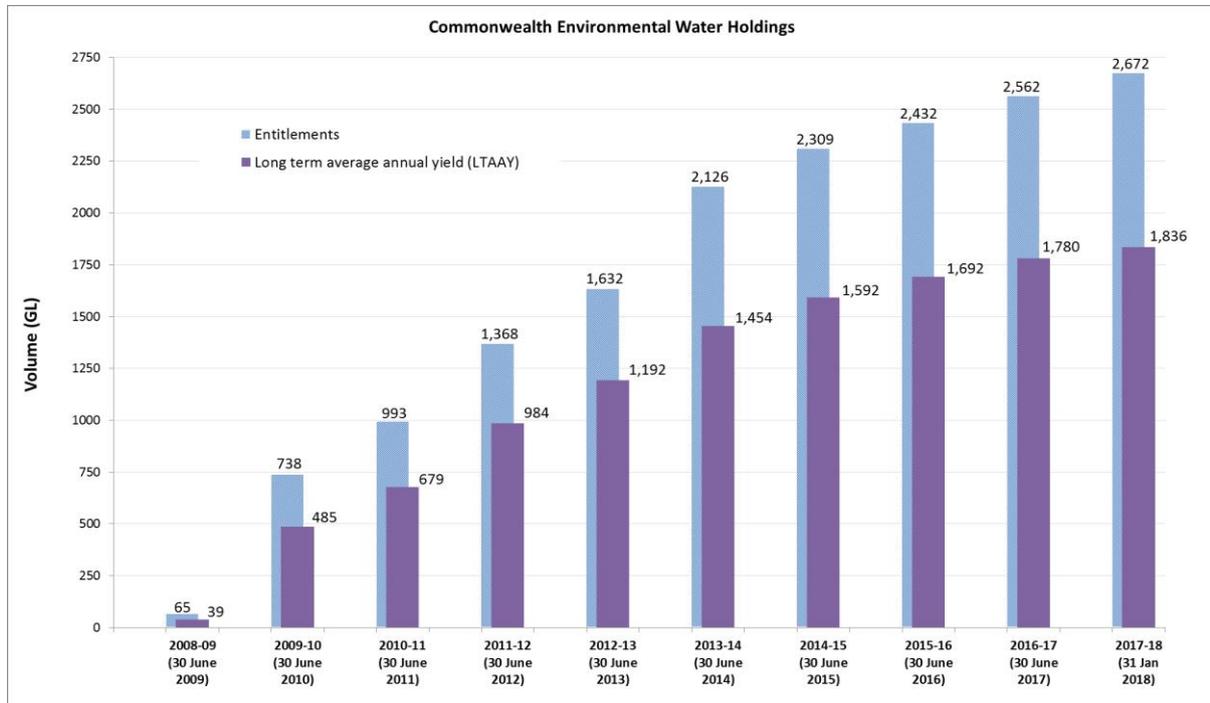
The Commonwealth environmental water holdings grew progressively over time since 2008 (see graphic below). The total volume of the holdings as at 31 January 2018 was 2672 gigalitres of entitlements. Over the long-term, the average annual amount of water allocated against these entitlements is estimated to be 1866 gigalitres³. The original Basin Plan water recovery target of 2,750 gigalitres is based on the long-term average. At June 2017, the estimated value of the portfolio was \$3.15 billion.

The Commonwealth environmental water holdings will continue to grow until at least 2019, and possibly until 2024. The existing state-based management tools set the rules for how the CEWH can manage water and there are broadly three options:

- delivering water to a river or wetland to meet an identified environmental demand
- for held water types leaving water in storage and carrying it over for use in the next water year (referred to as 'carryover')
- trading water (selling water and using the proceeds to buy water or invest in environmental activities).

³ <http://www.environment.gov.au/water/cewo/about/water-holdings>

The decisions made are guided by the Murray-Darling Basin Authority’s *Basin-wide environmental watering strategy* and the Basin annual environmental watering priorities. The processes and frameworks are informed through collaboration with delivery partners and communities. More information about water use is provided below.



The CEWH’s planning and decision-making is driven by the need to fulfil legislated environmental outcomes. The portfolio of Commonwealth environmental water is actively managed to flexibly adapt to seasonal, operational and management conditions in the same way that an irrigator adapts to changing conditions to achieve the best outcomes with their water. This is particularly important because conditions differ across catchments and years.

It is a Basin Plan principle that the Commonwealth’s water entitlements held for environmental use will not be enhanced or diminished relative to similar entitlements held and used for other purposes, except by agreement to improve environmental watering. This includes changes to fees and charges, access to allocations, and the capacity to use, trade, and carryover, compared to like entitlements held for other purposes, including irrigation. Any changes that disadvantage the Commonwealth’s holdings compared to equivalent entitlements held by other users have the potential to devalue this public asset.

Managing the portfolio

Using environmental water

Decisions about how Commonwealth environmental water will be used each year are made by the CEWH following annual planning processes. Planning for, and delivery of, Commonwealth environmental water is a collective effort. Local groups, state governments and others are involved in helping to determine how and where water can be best used, identifying potential risks, delivering the water and also monitoring the outcomes. To deliver the water to the target location, the CEWH has entered into a number of formal partnership agreements with state governments and non-government organisations across the Basin to

support environmental watering⁴. The Office engages through a number of forums, such as Customer Advisory Groups, Customer Service Committees, Environmental Water Advisory Groups and Operational Advisory Committees, to name a few. These are the forums where Commonwealth, state, local and industry representatives can discuss the planning and delivery of environmental water.

The overarching approach to planning is based on the *Commonwealth Environmental Water Portfolio Management Framework*⁵ and plans are made publicly available each year⁶.

All Commonwealth environmental watering decisions are assessed against the following five criteria:

1. the ecological value of the targeted site
2. the expected outcomes
3. potential risks
4. the long-term sustainability and management of the site (including any complementary natural resource management activities)
5. the cost effectiveness and feasibility of watering.

The CEWH has built-on existing Commonwealth and state government systems that were already in place to manage held environmental water. For example, The Living Murray program⁷ and water held by state environmental water holders, such the New South Wales Office of Environment and Heritage. These were incorporated into the Basin Plan when it was made and are part of the foundations that the management of Commonwealth environmental water sits on, along with planned environmental water, which is based on river operating rules. State governments hold and use environmental water in the Basin, which is often delivered in partnership with the use of Commonwealth environmental water.

When a decision is made by the CEWH to proceed with a watering action, arrangements are made with state government and local delivery partners to deliver the water⁸.

Commonwealth environmental water is transferred to state accounts or licences for water orders to be made and the water to be delivered. Like all water orders, water regulating authorities and river operators in the Basin are responsible for the delivery of Commonwealth environmental water. As part of their responsibility to manage water resources and the rivers, they have the ability to delay or deny the delivery of the CEWH's

⁴ <http://www.environment.gov.au/water/cewo/publications/agreements-use-commonwealth-environmental-water>

⁵ <http://www.environment.gov.au/water/cewo/publications/framework-determining-cew-use>

⁶ See this year's Portfolio Management Planning: <http://www.environment.gov.au/system/files/resources/e10cf42e-4105-4670-acca-4aed7b8a0c11/files/portfolio-mgt-plan-approach-planning-2017-18.pdf>

⁷ See The Living Murray program here: <https://www.mdba.gov.au/managing-water/environmental-water/delivering-environmental-water/living-murray-program>. It is managed in partnership with the Commonwealth, NSW, Vic, SA and ACT governments.

⁸ See who our delivery partners are: <http://www.environment.gov.au/water/cewo/delivery-partners>

water orders. Environmental water is delivered in accordance with state rules and regulations governing the delivery of water in each catchment.

Since 2009, over 7,999 gigalitres of Commonwealth environmental water has been delivered to rivers, wetlands and floodplains across the Basin. Not all of the water travels down the Basin to the end of the river system, approximately half of the water is used in the upstream states to protect and restore the environmental assets located there.

Carrying over water for future use

Some water entitlements issued under state law have provisions that allow water holders to use water allocated to their water entitlements across years⁹. The rules for carryover vary for different entitlement types and in different water plan areas across the Basin, however some general principles are:

- Carryover provides flexibility in the timing of water delivery across years for all entitlement holders. The CEWH complies with the same rules that apply to all.
- Carryover is an essential management tool for any water user as a prudent risk management strategy.
- Carryover allows the most effective use of water. For example, water reserved in good years can be used later to mitigate the risk of environmental damage during drier periods.
- Carryover limits apply to all entitlement holders, including the CEWH.
- No water holder can fill up dams to the exclusion of other water users, including the CEWH.

Generally, the CEWH has used water early in the water year (i.e. late winter and early spring), whereas peak demand for agriculture is summer. Carrying water over for use in the next water year – commencing in July – before the state government allocates water is very beneficial for the environment. This is because spring has traditionally been a period of high natural flows and the CEWH can use water to support things like breeding events for fish and birds.

Commonwealth environmental water makes up a very small portion of all water stored across the Basin. Commonwealth environmental water carried over into 2015–16 was equivalent to approximately 2 per cent of the capacity of public water storages across the Basin. At January 2018, the total amount of Commonwealth environmental water in public dams and other storages as a percentage of the Basin-wide storage capacity was 2.7 per cent. The CEWH publishes carryover information on its website to increase transparency in the management of the portfolio¹⁰.

⁹ Water users hold water in storages so that it is available to use later in a water year, or in the following years in accordance with state-based frameworks.

¹⁰ <http://www.environment.gov.au/system/files/pages/5972374e-4aaf-4f30-a264-1f6f1b0a0de7/files/allocations-carryover-january-2018.pdf>

Trading environmental water

The Water Act sets out the conditions under which Commonwealth environmental water can be sold and prioritises how the proceeds from sales can be used. Water can only be sold in the following circumstances:

- If water allocations are not required in the current year to meet environmental objectives and it cannot be carried over for use in the next year.
- If water allocations are not required to meet environment objectives and, if retained, would likely reduce future allocations due to account limits being reached.
- If the proceeds are used to purchase water that would improve the capacity to achieve the environmental objective set out in the Basin Plan through environmental water use.
- If the proceeds of water allocations can be used for environmental activities that would improve the capacity to achieve the environmental objective set out in the Basin Plan and are complementary to environmental water use.

All trading activities are guided by the *Commonwealth Environmental Water Trading Framework*¹¹. This makes sure all trades comply with operating rules, protocols and procedures for buying or selling water, including the Basin Plan water trading rules. The framework ensures that trading activities:

- support enhanced environmental outcomes
- have regard to social and economic outcomes
- are undertaken in a manner which meets legislative requirements
- are financially responsible, fair, equitable, transparent and accountable.

To date the CEWH has sold 39.9 gigalitres of water allocations in four trading actions, raising \$12.6 million in the process. Less than 0.5 per cent of the allocation received by the CEWH have been sold to date. This represents less than 0.1 per cent of all allocations provided to consumptive users since the Commonwealth environmental water holdings were established.

The CEWH is a leader in water market transparency and openness publishing a quarterly update that signals what trading actions are being considered¹². When trades are undertaken processes are used to minimise barriers to access for market participants.

The CEWH will always use water directly for environmental outcomes where possible. To date, the CEWH has taken a cautious approach to trading so that the potential impacts of its trading activities on the water market could be determined. As the Office gathers more experience, without pre-empting future trading activities by the CEWH, it will become a regular and routine participant in the water market maximising environmental outcomes while managing risk.

¹¹ <http://www.environment.gov.au/water/cewo/publications/water-trading-framework-nov2016>

¹² <http://www.environment.gov.au/water/cewo/trade/portfolio-mgt-update>

Investing in activities that complement water use

Changes to the Water Act in 2016 increased the flexibility of the CEWH to use the proceeds from the sale of water allocations to fund environmental activities. These changes recognise that environmental outcomes in the Basin require both water and associated activities.

Under the Water Act, the CEWH can only invest in environmental activities that will improve environmental outcomes from the use of Commonwealth environmental water, and are undertaken for the purpose of protecting and restoring environmental assets in the Basin. Essentially, only the proceeds from the latest trade can be used to invest in environmental activities and other proceeds need to be used for water purchase.

Environmental activities could include activities that enable or improve the efficiency of environmental water delivery, which complement and improve the effectiveness of environmental water delivery, or that improve the knowledge base that informs the management of Commonwealth environmental water. It is also important that any investment made:

- contributes to long-term and Basin-wide environmental benefits
- will improve environmental water management
- has strong community support
- will be undertaken collaboratively
- are demonstrably viable and cost-effective.

It is important to note that the CEWH will not provide funding for projects that should or would otherwise be principally funded by other Commonwealth, state or local government agencies.

The Office is in the process of developing an Investment Framework¹³ to guide the CEWH on how and what types of environmental activities should be considered for investment.

How water use will be maximised

Pre-requisite policy measures

The Basin Plan included additional policy measures¹⁴ to protect environmental water from extraction, and allow water to be used to build on flows throughout the river system. These measures are intended to maximise environmental water use in the Southern Connected Basin. Basin States committed to change their state frameworks and put these policies in place by June 2019 to:

1. credit environmental return flows for downstream environmental use (protection of environmental water)

¹³ <http://www.environment.gov.au/water/cewo/investment-framework>

¹⁴ 'unimplemented policy measures' section 7.15 Basin Plan

2. allow the call of held environmental water from storage during un-regulated flow events (piggybacking).

These two policy measures were required by the Basin Plan and are directly linked to the CEWH's ability to achieve environmental outcomes and maximise water use. Basin States are currently working to ensure the measures that they are required to put in place by 2019 will operate and can be utilised by the CEWH over the long-term. In many parts of the Basin policies and measures to deliver on these Basin Plan requirements are being trialled already.

Return flows will provide a mechanism to ensure environmental water can be used more efficiently and effectively throughout the length of the river system. This will provide many environmental benefits, for example, environmental return flows will be able to be re-used more than once providing a benefit to multiple sites, maximising the environmental outcomes that can be achieved from the same water.

As with entitlements held for consumptive use, Commonwealth environmental water should be protected from extraction by other users. Before the Commonwealth's entitlements were recovered under the Basin Plan, they were owned by consumptive users and the water was not available for extraction by other water users from within the same water resource area.

In regulated rivers, piggybacking allows Commonwealth environmental water to be used to build on the flows already in the river to mimic what would have been larger natural events. It provides for environmental water to be used more efficiently because a greater outcome can be achieved with the same volume of water. Piggybacking is also necessary to realise the full value of Commonwealth environmental water and is essential to achieve the Basin Plan objectives whilst maximising the environmental benefit of the water.

Sustainable Diversion Limit Adjustment Mechanism

The Basin Plan requires 2,750 gigalitres of water recovery (the Sustainable Diversion Limit) to return the rivers to health. The Plan also includes the Sustainable Diversion Limit Adjustment Mechanism, which will put in place a number of state managed projects that should make Commonwealth environmental water use more effective. Having these projects in place should mean that less water recovery is required. The types of projects designed to maximise environmental water use include:

- removing physical constraints or barriers to environmental water flows
- putting in place protections for environmental water flows (called shepherding) and other state regulations to make environmental water use more effective
- putting in place infrastructure and projects that deliver the same environmental outcomes with less water (supply measures)
- changes to river operating rules
- better methods to account for environmental water
- agreement to not substitute environmental water that was planned or held by states before the Basin Plan.

Basin governments have made a preliminary agreement to accept 36 projects proposed by the Basin States following the completion of the Murray-Darling Basin Authority's assessment in January 2018. The Basin Plan amendment which would implement the Sustainable Diversion Limit Adjustment Mechanism is currently with the Parliament and is subject to a disallowance motion in the Senate.

Basin States are required to implement the projects by 2024 in collaboration with Commonwealth agencies, including the CEWH. Working together effectively will ensure that the projects meet the Murray-Darling Basin Authority's requirements and that water recovered for the environment can be managed effectively, like the Basin Plan sets out.

The final volume of water to be recovered for the environment will not be determined until 2024 when all the projects are required to be completed.

Investment by the CEWH and the states in natural resource management activities that are complementary to environmental watering will be important to ensure the CEWH can achieve the environmental outcomes required under the Basin Plan. The largest prospective investment will be through the Sustainable Diversion Limit Adjustment Mechanism projects delivered by the states.

Considering innovative approaches for the use of environmental water

- We are always looking to innovate and trial new approaches.
- Adaptive management is implemented through process.
- Partners play a critical role in the capacity to innovate.
- Hydro cues – one example from what we have done so far.

The CEWH first delivered water in the Basin in 2009. Since then, the Office's business processes and operations have undergone continual improvement to ensure the legislative requirements of the Water Act are being met in a way that is both transparent and accountable.

Watering for the environment is an investment in the future, which is starting to reverse the impacts of almost 100 years of river management. Environmental watering is changing from 'just add water' to a more integrated catchment management approach to environmental management. The full benefits of environmental watering by the CEWH and states will not be realised for decades into the future.

The CEWH remains focussed on improving business processes that support the management of the Commonwealth environmental water holdings so confidence in the Commonwealth's investment increases. To do this, the processes of planning, implementation, evaluation and improvement are being used to make sure the CEWH's decision-making remains robust.

The CEWH's decision-making will vary depending on the seasonal conditions, water availability and the predicted environmental response. Being dynamic in the way the environmental water is managed relies on multiple agencies and jurisdictions, including state agencies and research institutions to:

- be the CEWH's eyes on the ground
- manage infrastructure and operate the rivers
- monitor, collecting data pre and post watering
- report on what happened and why
- research new approaches to be undertaken in future.

The CEWH could not manage the portfolio effectively without utilising the existing structures set up by the states. The Office's processes rely on collaboration, the information collected from other sources and the actions of others. The Office is always reviewing its information needs to ensure the information used to support the CEWH's decision-making is up-to-date and accurate.

The Office also trials innovative approaches, manages risks and fosters an environment that enables adaptive management. The following case study shows how we innovate together with our delivery partners.

Piggybacking, which allows water from return flows to be used at multiple sites along a river system (see previous section) is also an innovative approach increasingly being employed by environmental water managers in the Basin.

Case Study: Using natural water cues (Hydro Cues)

In 2015-16, we started trialling an approach to environmental water management in the Murray River that mimicked the natural river flows more closely (refer to diagram below).

Commonwealth environmental water was released from Hume Dam to provide outcomes at multiple sites on the way to South Australia, including within the Edward-Wakool River System, Lindsay River, and others.

The volume and timing of environmental water released from Hume Dam was guided by a natural flow pattern we determined through modelling that was based on rainfall runoff, dam inflows and other parameters for the Yarrawonga Weir.

The “natural” flow pattern provided the basis for determining seasonally appropriate flow targets. The environmental flow was varied to target particular hydrological objectives to maximise environmental outcomes.

This approach to environmental watering enabled greater coordination in the management of watering between multiple river valleys. It also met the requirements of both environmental and consumptive water – providing opportunity for achieving environmental, economic and social benefits.

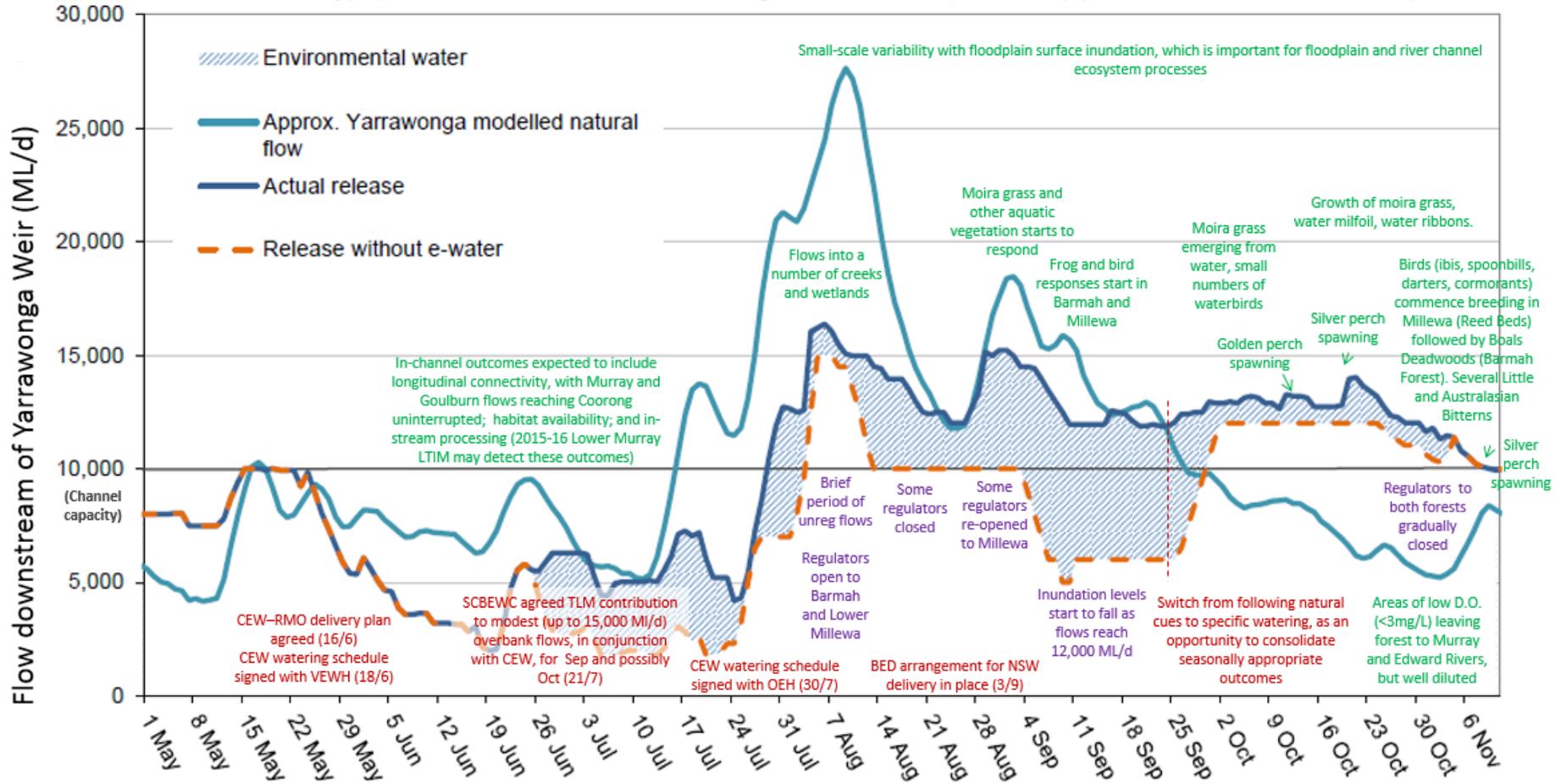
Adaptive management continues to be a fundamental framework for supporting continual improvement and innovation in environmental water management in the Office. Taking this adaptive management approach relied on robust evidence, operational monitoring and a comprehensive evaluation processes after watering. This allowed the CEWH to build the confidence to continue to trial innovative approaches.

The Office works with state agencies and local groups to look for new ways to approach how environmental water is delivered. You can see this through the many partnerships the CEWH has formed, both formal and informal, that assist the CEWH to undertake its functions. For example, the CEWH partners with irrigation companies to use their irrigation networks to deliver water to wetlands that may not have been accessible otherwise. The CEWH has also delivered water for environmental benefit on Indigenous lands that has provided a cultural benefit for Traditional Owners.

This all maximises the environmental outcomes that can be achieved from the Commonwealth’s investment. More information about how the Office takes innovative approaches will be provided in a supplementary submission to the Inquiry.

Actual flow in River Murray downstream of Yarrawonga vs probable flow without environmental release

This representation is for *accounting purposes* to track environmental water. The diagram *cannot* be interpreted to imply that environmental water "sits atop" other flows.



Legend:
Operational and water use decisions
Environmental outcomes or issues
Key administrative arrangements

June – July

- CEW flows follow the pattern of modelled natural flows, capped at 6-7,000 ML/d to extend bank drying and allow works and firewood collection to occur.
- RMO re-filling Lake Mulwala.

August – Early September

- Overbank flows follow the pattern of modelled natural in response to rainfall.
- RMO operational transfers to Lake Victoria
- Regulators used to allow flows into low-lying creeks and wetlands of Barmah and Millewa Forests.

Rest of September

- Joint CEW and TLM contributions to continued overbank flows.
- Reduced operational transfers to Lake Victoria due to Murrumbidgee inflows.

October – Early November

- CEW flows to maintain inundation of moira grass areas in Millewa Forest.
- 'Piggy-backing' of operational transfers to Lake Victoria.
- Gradual recession to channel capacity

Monitoring and evaluating outcomes of the use of environmental water

- Just a few of the environmental outcomes we are seeing.
- How do we measure the environmental outcomes achieved?
- There are social and economic benefits of watering.
- We are a 'good neighbour'.

Environmental outcomes

Environmental water is used by the CEWH to get specific outcomes. The results of watering are being documented through ecological monitoring. The Office has invested over \$40 million in monitoring, evaluation and research to help manage Commonwealth environmental water and to demonstrate environmental outcomes. This work is managed in partnership with over 30 research bodies including some of Australia's leading regional universities, scientific research institutions and state agencies. Environmental watering has shown significant environmental benefits for river systems as a whole, but also for the fish, birds, frogs and vegetation that rely on the rivers and wetlands. While the full results of environmental watering across the Basin will take many years to be realised, monitoring to date has shown that Commonwealth environmental water is contributing towards a range of environmental objectives including:

- providing river flows that support improved water quality for the environment and water users
- connecting rivers to low lying floodplains to maintain food chains and support fish movement
- filling wetlands that support native fish, birds and other native animals
- supporting the recovery of the environment following the drought, and building resilience in preparation for the next drought.

More specific examples include that:

- Environmental water delivered down the Lower Darling supported one of the largest Murray cod spawning events in 20 years.
- Environmental water supported the first ever recorded Pelican breeding event in the Lowbidgee with an estimated 6,000 nests in the colony.
- Over the last three to four years, nationally listed threatened species, such as, the Australian Painted Snipe, Silver Perch, Southern Bell Frog and Australasian Bittern are showing indications that they are starting to recover in response to environmental watering.

Other organisations are also reporting on the outcomes the CEWH is achieving in partnership with the Commonwealth's water for wetlands and native fish, lampreys and birds¹⁵.

These are just a few of the many examples out there that will be expanded upon through a supplementary submission to the Inquiry.

Measuring environmental outcomes

Monitoring and evaluation is required under the Water Act and Basin Plan. It is also critical to the management of Commonwealth environmental water so that outcomes, like those provided above, can become known. Monitoring undertaken under the *Monitoring, Evaluation, Reporting and Improvement Framework*¹⁶ supports the efficient and effective use of water, ensures accountability and transparency, supports adaptive management and helps to build knowledge. A number of monitoring activities are undertaken supported by the Office:

- Operational monitoring is undertaken for every watering action, which collects on-ground data about the environmental water delivery action such as volumes, timing, duration, location, flow rates and river heights.
- Long and short term intervention monitoring helps us to understand the environmental response to watering actions.
 - The Long Term Intervention Monitoring Project (\$30 million investment over 5 years) commenced in 2014¹⁷. The Project consists of consortium teams led by Australian research institutions involving locally-based land and water managers. The teams implement the monitoring and evaluation plans in seven selected areas within the Basin – the Junction of the Warrego and Darling rivers; Gwydir river system; Lower Lachlan river system; Murrumbidgee river system; Edward-Wakool river system; Goulburn River; and Lower Murray River. These regions provide the maximum coverage possible over areas where Commonwealth environmental watering occurs and complements, rather than duplicates, monitoring activities undertaken by others.

¹⁵ See some of the things others are saying about the environmental outcomes we are achieving:

1. https://www.environment.sa.gov.au/Home/Full_newsevents_listing/News_Events_Listing/170824-lamprey-fish-population-increasing
2. <https://www.mdba.gov.au/media/mr/lower-darling-breeding-bonanza-biggest-20-years>
3. http://www.awa.asn.au/AWA_MBRR/Publications/Latest_News/Flow_project_highlights_potential_for_Murray-Darling_fish.aspx
4. <http://www.dailyliberal.com.au/story/4615679/environmental-flow-to-increase-fish-numbers>
5. <http://www.abc.net.au/news/2017-09-25/rare-wildlife-spotted-sa-river-murray-high-flows/8975344>
6. <https://www.dailyadvertiser.com.au/story/4369802/birds-of-a-feather-flock-to-booligal/>
7. <http://www.abc.net.au/news/2016-04-22/historic-water-agreement-brings-together-irrigators-and-environ/7346778>

¹⁶ <http://www.environment.gov.au/water/cewo/publications/cew-monitoring-evaluation-reporting-and-improvement-framework>

¹⁷ <http://www.environment.gov.au/water/cewo/monitoring/ltim-project>

- Short term intervention monitoring¹⁸ has been undertaken since 2010. Short term projects have focused on determining whether selected watering actions are meeting their intended ecological objectives and understanding the implications for environmental water delivery.
- The Environmental Water Knowledge Research Project¹⁹ (\$10 million investment over 5 years) commenced in 2014. The Project funds research to improve the science available to support the CEWH's decision-making and environmental water management in the Basin broadly.

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 too:

- Basin States are required to monitor and report on the changes in environmental health over time at a wetland and catchment scale.
- The Murray-Darling Basin Authority are required to monitor and report on the changes in environmental health at a Basin-scale.

Ongoing investment in monitoring and evaluation is important so that the outcomes of environmental watering are known and to ensure responsible entities, such as the CEWH, can manage public assets in a transparent and accountable way that informs adaptive management and continual improvement of policy and operations.

Socio-economic benefits of environmental watering

Commonwealth environmental water must be used to achieve legislated environmental outcomes. The water cannot be used to achieve social and economic outcomes except where these are incidental to the primary environmental purpose. However, there are a number of social, cultural and economic benefits of environmental watering the CEWH has observed.

Supporting cultural values

The CEWH is partnering with representatives of Indigenous communities and Indigenous organisation to get environmental, as well as, cultural benefits from environmental water²⁰. Some of the stories so far include:

- Enhancing sites as nesting and breeding areas for wetland birds of cultural significance.

¹⁸ See the results of short term monitoring:

<http://www.environment.gov.au/water/cewo/publications#monitoring>

¹⁹ <http://www.environment.gov.au/water/cewo/monitoring/ewkr>

²⁰ Read about one of our Indigenous partnerships:

1. <http://www.abc.net.au/news/rural/2016-04-20/ngarrindjeri-partnership/7339714>

2. <http://www.abc.net.au/news/2016-04-04/environmental-water-wentworth-wetlands/7298350>

- Restoration and maintenance of vegetation with bush medicine, craft, ceremony artefacts and food sources.
- Vegetation outcomes, which can be linked to re-establishing traditional harvest activity of the site, to enable sharing of cultural knowledge, stories and experiences as a community.
- Establishing refuge for wildlife in a highly developed and modified landscape (farmland, irrigation, river regulation), including animals of historical and cultural importance such as kangaroo, emu and koalas.
- Supporting cultural management, ongoing protection and preservation significant sites, including artefact, burial sites and occupation sites, connected to the belief in the continuing spiritual presence of ancestors in the landscape.

In the future, there could be a number of opportunities for the CEWH to undertake watering that has greater co-benefits for Traditional Owners.

Benefits for other water users

Environmental water is often delivered in response to natural triggers, such as naturally occurring flow events in response to rainfall, to better reflect seasonally appropriate flow regimes. This means the timing of environmental watering events is often different from the timing of irrigation deliveries (i.e. winter versus summer). The water year starts in July each year. By delivering water early in the water year the CEWH can:

- reduce competition for channel capacity during periods of peak agricultural demands
- sometimes increase the free space in dams available to capture inflows.
- reduce water losses in the system under standard river operations, resulting in improvements in state water resource shares.

Trading environmental water

The trade of Commonwealth environmental water must be undertaken for environmental purposes but it can also provide a benefit to other market participants. The CEWH has traded water in the Basin on four occasions. For example, in January 2014, 10 gigalitres of Commonwealth environmental water allocations were sold in the Gwydir catchment of northern New South Wales. Conditions for a sale of temporary water allocations in the Gwydir were favourable at the time because the needs of the environment had largely been met and there was strong demand for water from irrigators due to drier than normal conditions. This meant that irrigators had access to water to finish of their crops that would have otherwise been used by another water user.

Water quality

Commonwealth environmental water has improved water quality throughout the Basin. In addition to supporting the Basin's ecosystems, improved water quality also supports economic outcomes. For example, salinity impacts in the River Murray have real and

measurable economic costs. Managing salinity is important to all water users and ensures that water is suitable for drinking, agriculture, recreation and the environment.

The long-term salinity target for the River Murray has been set at less than 800 EC (electrical conductivity units) for 95 per cent of the time measured at the town of Morgan in South Australia. Commonwealth environmental water has helped export between 100,000 and 4,500,000 tonnes of salt each year since 2009.

The environmental water delivered to date has contributed to these improved salinity outcomes along with salt interception schemes that assist in reducing salt levels in the rivers by intercepting very salty groundwater before it enters the river. There are benefits for commercial enterprises from reducing salt from rivers in the Basin, including fishers and salt producers.

Benefits for recreational river users

Commonwealth environmental water is enhancing communities' interactions with the Basin's rivers. Many river users enjoy the billabongs, pools and swimming holes for fishing and camping. Commonwealth environmental water supports recreational fishing by supporting the breeding, migration, condition and survival of native fish in the Basin. This increases the number of native fish, such as Murray cod and Golden perch, which are important to many Basin communities. Environmental watering can improve the vegetation on surrounding riverbanks providing overall amenity, promoting tourism and recreational activities.

Delivery of Commonwealth environmental water has also been timed to avoid disruption to important social events, such as fishing events in the Goulburn and Murray that occur around the opening of the Murray cod fishing season and require more stable water levels. Such adjustments have been made without compromising the environmental outcomes to be achieved and reflects the CEWH's 'good neighbour' approach (see below).

Avoiding third-party impacts – the 'good neighbour' approach

While the CEWH's primary focus is on achieving, monitoring and reporting environmental outcomes, it also has a responsibility to minimise risks to communities while undertaking its activities. As a member of the Basin community, the CEWH is committed to being a 'good neighbour'. Operating effectively in a working river system where much of Australia's food and fibre is produced necessitates that environmental water management must co-exist with agricultural production in a mutually respectful and harmonious manner.

The good neighbour approach is based on practices that guide the management of Commonwealth environmental water²¹. It aims to promote mutually beneficial relationships with other water users and landholders, in a way that is consistent with the CEWH's statutory obligations.

The central principle of the approach is to 'first, do no harm'. A precautionary, risk-averse approach is taken to managing environmental water, so that there is no material impairment of the interests of landholders and water users. All decisions are informed by comprehensive

²¹ Read about the good neighbour policy here: <http://www.environment.gov.au/water/cewo/local-engagement>

risk assessments, which draw on previous results captured through effective monitoring activities. River operators do not deliver environmental flows above the operational limits that apply to all water deliveries, including irrigation orders. Examples of good neighbour policy in action include:

- The CEWH has not, and will not, place water orders that would flood private land without the consent of the landholder.
- Taking an appropriate share of the channel capacity in a river system to not impact on agricultural producers.
- If potentially unacceptable impacts are identified on private property through planning, the Office will negotiate with affected landholders to avoid or minimise any potential problems and obtain consent to water.

While the approach may be seen by some as the CEWH being overly risk averse or cautious, it is important that the CEWH acts responsibly in building a social license within the community it operates in. With acceptance of environmental water as 'business as usual' in the landscape and the possible progressive lifting of constraints to delivery, the CEWH will continue to operate as a good neighbour albeit within a larger operating boundary.

Options for improving community engagement and awareness of the way in which environmental water is managed

- Environmental water is managed in partnership.
- How the community is involved.
- Our approach so far to engagement and awareness

Collaborative management

Water resource management occurs in a complex operating environment across a range of jurisdictional responsibilities between Commonwealth, state and local government and industry. The CEWH works with other Commonwealth agencies (including the Department of Agriculture and Water Resources and the Murray-Darling Basin Authority) and Basin State governments to implement the Basin Plan reforms. This includes policy development, reducing constraints to environmental watering, water resource plans, long-term environmental watering plans, Sustainable Diversion Limit Adjustment Mechanism projects, complementary measures, changes to the Murray-Darling Basin Agreement, and other reviews and inquiries. The CEWH seeks to ensure environmental water management is considered and taken into account throughout the implementation of the Basin Plan.

The CEWH also works in active partnership with other environmental water holders (both Commonwealth and state), river operators and irrigation infrastructure operators to devolve water delivery. There is a continuing need to increase transparency about the roles and responsibilities in Basin Plan among those involved in environmental water management and to grow and expand our partnerships.

Getting others involved

The CEWH aims to build social licence through active engagement and participation, not just consultation. Commonwealth environmental water is delivered in partnership with state environmental water holders and managers, non-government organisations, their local delivery partners and river operators. This means the Office stays actively engaged with those interested in the community who input to bottom-up planning processes for Commonwealth environmental and state watering each year. There are also a number of Committees and local forums, often run by state governments, where communities can engage with the Office building long-term relationships. This coordinated approach to planning enables the CEWH to manage water in the national interest whilst harnessing local knowledge and experience.

In July 2017, the CEWH renewed the Office's commitment to local engagement with a decision to appoint six permanently employed officers across the Basin. The local engagement officer's play a critical role in the engagement process, including working with communities to gain local knowledge and provide landholders and the broader community with greater access to information from the Office, which is a critical part of how the CEWH engages locally. This demonstrates the CEWH's commitment to continuing the dialogue with

regional communities across the Basin so they are involved in environmental water management.

The CEWH will increase community engagement in environmental watering through the delivery of the Investment Framework in the coming months. The CEWH encourages communities to get actively engaged and interact with environmental watering through participation in watering actions and monitoring the outcomes, where possible.

Getting the message out

The CEWH seeks to be as transparent as possible about where watering actions are occurring and their environmental outcomes. The CEWH makes information available on the Department of the Environment and Energy's website, including:

- 'snapshots' that tell the stories catchment-by-catchment about the CEWH's activities for a watering year²²
- a multimedia gallery²³ containing videos, photos and podcasts.

The CEWH maintains and publishes a newsletter so subscribers²⁴ and the public can be kept up to date with what's new in the Office and what the CEWH has been up to.

The message is also being told by our delivery partners, including state governments, monitoring partners and others in agricultural businesses who are either directly involved in watering or who are seeing the environmental outcomes and other benefits from environmental water.

The Office endeavours to convey the work of the CEWH but there is space for future development. The CEWH is always looking to improve the way the Office engages and how we can best get our stories out to local, Basin-wide and national audiences.

Indigenous engagement

The Office undertakes a range of Indigenous engagement activities to help further Indigenous engagement in environmental water planning processes. The CEWH has engaged in a number of ways with Indigenous Nations. This includes funding contributed to the National Cultural Flows Research Project²⁵ and partnering with a small number of Indigenous Nation representative groups (e.g. Ngarrindjeri Regional Authority in South Australia, Nari Nari Tribal Council at Toogimbie Indigenous Protected Area; Tar-Ru Lands Board of Management) to deliver water on Country to achieve environmental outcomes. In the case of the Ngarrindjeri Regional Authority, a formal Partnership Agreement (outlining engagement processes and arrangements for delivering environmental water) has been entered into by the CEWH. There are also ongoing discussions with Ngiyampaa-Wayilwan

²² <http://www.environment.gov.au/water/cewo/publications>

²³ <http://www.environment.gov.au/water/cewo/multimedia-gallery>

²⁴ Subscribe to the Commonwealth Environmental Water Holder Updates:
<http://www.environment.gov.au/water/cewo/subscribe>

²⁵ <http://culturalflows.com.au/>

elders to formalise engagement and planning processes for environmental water management on the Macquarie River.

The Office is continuing to look for opportunities to collaborate with Indigenous communities and build partnerships that achieve outcomes with mutual benefits.

Conclusion

Environmental watering involves a highly coordinated, planned and managed program of activities in close partnership with state agencies as delivery partners and involving communities. The CEWH intends to continue to work with all governments, and with people across the Basin, to obtain the best outcomes from the water that has been made available to the environment. The Terms of Reference for the Inquiry will be addressed further through a supplementary submission.