

Will the Basin Plan uphold Australia's Ramsar Convention obligations?

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Australia stands poised to adopt the first Murray–Darling Basin Plan (Basin Plan), ushering in a new era of water governance in which the Commonwealth government mandates environmentally sustainable limits on the amount of water that can be taken from Basin rivers and aquifers.

The key components of the proposed Basin Plan and legal parameters within which it must be created have been described in a previous issue of *Australian Environment Review*.¹ This article seeks to build on that work by examining whether the Basin Plan prepared by the Murray–Darling Basin Authority (Authority) will implement the Convention on Wetlands of International Importance (commonly known as the Ramsar Convention), as required under the Water Act 2007 (Cth). As we submit for publication, Commonwealth Minister Tony Burke is potentially within weeks of adopting the most recent version of the Basin Plan² either “as is” or with amendments of his choosing. Having considered the Authority’s 20 volumes of hydrologic modelling and analysis, it is contested that the Basin Plan, even if amended along the lines recently mooted by Minister Burke, will be unable to prevent the marked decline of a number of the Basin’s 16 Ramsar-listed wetlands. As such, it will fall short of Australia’s obligations under the Ramsar Convention, which will in turn constitute a breach of the Water Act. Why? Because neither the Authority nor the Minister is proposing that the Basin Plan allocate sufficient water to the environment.

The Ramsar Convention

The Ramsar Convention is a multilateral environmental treaty that was adopted in Ramsar, Iran in 1971 and entered into force in 1975. Australia was one of the first nations to become a contracting party to the Convention in 1975.

While wetlands remain among the most threatened ecosystems on the planet,³ it is likely that the proper implementation of the Ramsar Convention will improve their status, notably by facilitating the creation and protection of a “global network of sites representative of

all wetland types”.⁴ We therefore focus on those obligations in the Ramsar Convention that are most directly connected to the realisation of this goal.

Obligations under the Ramsar Convention

The Ramsar Convention requires parties to designate wetlands for listing on the basis of their internationally significant ecology, botany, zoology, limnology or hydrology, with priority to be given to wetlands that provide waterfowl with habitat.⁵ Parties are further obliged to “promote the conservation of wetlands included in the List and as far as possible the wise use of all wetlands in their territory”.⁶ The “wise use” of wetlands has been defined by the Ramsar Convention as “the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development”.⁷ While wetland boundaries may be extended, or conversely deleted or restricted owing to an “urgent national interest”,⁸ parties should strive “as far as possible” to compensate for any loss of wetland resources.⁹ They must also notify the Secretariat of any deletions, restrictions¹⁰ or changes to the ecological character of listed wetlands without delay.¹¹

It is important to clarify the impact of qualifying remarks, such as “as far as possible”, on treaty obligations. These comments, which are often included in framework conventions, should be interpreted in light of the international legal principle of “common but differentiated responsibility”. According to this principle, implementation is to be commensurate with national capacity.¹² Given Australia’s wealth and technical expertise, it is arguable that wetlands in this country should be managed in accordance with best-practice standards.

Why do these obligations have to be upheld in the Basin?

There are two central legal arguments as to why the Ramsar Convention must be implemented in the Murray–Darling Basin. First, the Water Act provides for the creation of a Basin Plan. As such, it must be drafted in accordance with the requirements of the Water Act. Failure to do so would render it unlawful. With this in

mind, the Water Act stipulates that the Basin Plan must give effect to a suite of “relevant international agreements”, including the Ramsar Convention, “to the extent that they are relevant to the use and management of Basin water resources”.¹³

Second, the Water Act (and, by way of corollary, the Basin Plan) derives the majority of its constitutional validity from the aforementioned international agreements, in particular the Ramsar Convention and the Convention on Biological Diversity. Failure to properly implement these Conventions in accordance with criteria developed by the High Court¹⁴ could potentially render the Basin Plan constitutionally invalid.

How does the Basin Plan intend to implement the Ramsar Convention?

The key means by which the Basin Plan gives effect to the Ramsar Convention is via scientifically determined Sustainable Diversion Limits (SDLs) and an Environmental Watering Plan (EWP). The former will result in extra water being available for the environment, compared to the current limits. At the time of writing, the Authority is proposing that basin-wide SDLs be set at 2750 gigalitres (GL) below current limits, although the Minister has indicated that he will consider reducing extractions by up to 3200 GL pending the outcome of new modelling and analysis.¹⁵ Whatever volume is ultimately recovered will be added to the existing environmental water pool and managed under the rules provided for in the EWP.

At first blush, the EWP appears to say very little, leading to the oft-repeated allegation that the Authority does not know “how, when, where, why or what it wants to water”, and therefore cannot justify the recovery of such large volumes from consumptive use.¹⁶ This misreads both the purpose and letter of the EWP, and the large body of work that sits behind the Authority’s decisions on SDLs.

The EWP is a framework of principles, rules and procedures within which state and Commonwealth water managers will make more detailed decisions about water management. Anything more prescriptive would not only be likely to be resisted by state water managers, it would also most likely prove unworkable.

The Basin Plan’s brief 250 pages are intended to govern one of the most complex webs of inter- and intra-jurisdictional public policy in the country. Within that knot of decision making, the EWP must guide the application of environmental water across one of the world’s largest and most climatically variable river basins. While scientific knowledge of how ecosystems respond to specific watering regimes is not perfect, it will improve as management interventions are monitored and evaluated. Scientific uncertainties aside, the

sheer number of variables in any one year (rainfall and storage levels in each catchment, for example) requires a system of flexible decision-making principles rather than management prescriptions. Just as it would be absurd for the Basin Plan to dictate to the Basin’s 19,000 irrigators which crops they should water and when, it would be unworkable to include this level of detail in respect of its 30,000 wetlands and 23 major rivers.

How then can it be concluded that the Basin Plan recovers too *little* water for the environment; and that it will fail to achieve sufficient environmental outcomes, particularly for Ramsar listed wetlands? First, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) has stated that enough is known about the Basin to determine how much water should be recovered for the environment, and to begin distributing it under an adaptive management framework. Furthermore, the CSIRO endorsed the Authority’s hydrologic modelling and scientific analysis as fit for the purpose of making such a determination. However, it did not agree that the proposed 2750 GL water recovery scenario would result in sufficient environmental outcomes.¹⁷ Close scrutiny of the Authority’s work reveals that no matter what decisions are made by the Basin’s water managers under this scenario, if rainfall patterns remain within the range observed over the past century, it will be impossible to maintain all of the Basin’s 16 Ramsar-listed wetlands in the ecological condition required by the Convention — let alone the 30,000 unlisted wetlands to which the Convention also applies. There will simply not be enough environmental water available, meaning that either trade-offs will have to be made between sites, lower standards of ecological conditions will have to be accepted, or both.

The Authority’s modelling methodology

To determine appropriate SDLs, the Authority conducted hydrologic modelling to assess the environmental outcomes achievable with given volumes of water recovery in each catchment. These models predicted hydrologic outcomes (for example, a given frequency of overbank flows into a wetland), which would in turn give rise to specific ecological outcomes (for example, the stimulation of fish breeding). To keep the task at a manageable scale, a limited number of sites were selected as proxies of overall Basin health and analysed in detail (indicator sites).¹⁸

For each of these indicator sites, ecological targets were determined for water-dependent components of the ecosystem, such as the recurrence of colonial nesting waterbird breeding or the maintenance of endemic wetland vegetation. Of the Basin’s sixteen Ramsar wetlands, ten were chosen as indicator sites. As a result, there is quite specific information available regarding

the ability of the Basin Plan to uphold Australia's obligations under the Ramsar Convention at these ten sites. Their ecological targets were attuned to maintaining the wetland's ecological character, and were based on the official Ecological Character Descriptions (ECDs) completed by state governments.¹⁹ In particular, these targets reflect the "limits of acceptable change" contained in the ECDs. For sites where these limits have not yet been defined, the Authority used the best available information on the character of the wetland at its time of listing.²⁰

Ecological targets were linked to hydrologic targets, generally comprising a specific flow event (defined in terms of magnitude, duration and seasonality) and frequency of occurrence (defined by the average and/or maximum recurrence intervals). The hydrologic models used actual climatic and river flow data for the 114 year period from 1895–2009, and assessed the ability to achieve these targets under a repeat of these conditions. Ecological targets were taken to be achieved if the associated flow event occurred with sufficient frequency, within a range of uncertainty.²¹ As noted by the Authority:²²

For the low uncertainty frequency, there is a high likelihood that the environmental objectives and targets will be achieved ... The high uncertainty frequency is considered to represent a boundary beyond which there is a high likelihood that the objectives and targets will not be achieved.

By way of illustration, a flow event of 25,000 ML/day for at least six weeks in winter–spring was linked to ecological targets for maintaining Freshwater Meadows, Moira Grass Plains and Red Gum Forest within the Ramsar-listed Barmah–Millewa wetland. If a flood of this nature occurred in less than 40% of years the ecological targets would not be achieved. If it occurred in at least 40% of years, it was assumed that the targets would probably be achieved, but with a high level of uncertainty. If the figure was greater than 50%, it was considered likely that the target would be achieved with a low degree of uncertainty. Under natural conditions, the model predicted that it would have occurred in about 66% of years.²³

Modelled outcomes for the Basin's Ramsar wetlands

Of the ten Ramsar sites included in the model, it appears likely that with only 2750 GL of water recovery, eight will decline beyond the "limits of acceptable change" mandated under the Ramsar Convention. Results for the other two Ramsar-listed wetlands are inconclusive. The achievement of ecological targets is summarised in Table 1 and a more detailed technical discussion, including the relationship of these targets to

the ECDs, is available in a separate report.²⁴ Results of an earlier model run of the 3200 GL scenario suggest that if Minister Burke were to adopt this water recovery target, then results would improve at several sites in the Southern Basin, but still not enough to uphold Australia's Ramsar obligations.²⁵

To understand what this will mean for Basin wetlands, consider the Ramsar-listed Narran Lakes. In the anodyne language of modelling, there is a high likelihood that four out of five ecological targets for the Lakes will not be achieved. In other words, unique communities of lignum and river cooba, grasslands, and coolibah will permanently decline, and colonial nesting waterbirds will just have to find some other place to breed.²⁶

Of course, this represents but one potential scenario: actual environmental outcomes will depend on where rain falls and where environmental water managers choose to deliver their entitlements. Nevertheless, there is no evidence to suggest that even careful, strategic management of water under either a 2750 or a 3200 GL/year scenario will deliver significantly better environmental outcomes than those predicted by the Authority's models.

Conclusion

While the Authority may propose amendments to the Basin Plan at any time²⁷ and must undertake a complete review of the Plan every 10 years,²⁸ both of these amendment processes trigger a statutory requirement to engage in targeted consultation with Basin states, as well as the broader public.²⁹ As recent events have proven, this is a fraught process that is unlikely to give rise to any sort of consensus regarding an appropriate reduction figure. Furthermore, while the complexity of Basin water management certainly warrants meaningful engagement with stakeholders, it does mean that there is no quick and easy method of reducing extractions in light of, for example, updated science concerning climate change or extreme drought conditions. It is therefore vital that its first incarnation be drafted in accordance with best available science and the precautionary principle if Ramsar wetlands are to be afforded a chance of maintaining their ecological character.

It appears likely that Minister Burke will present Parliament with a Basin Plan that on available evidence will allow significant ongoing decline of our internationally listed wetlands, thereby rendering it unlawful under the Water Act. The alternative, a plan that provides sufficient environmental water to achieve the Authority's own ecological targets, has never been drafted. While early modelling conducted by the Authority indicates that a volume as low as 3856 GL may be sufficient to achieve those targets,³⁰ no detailed assessment of this

scenario has ever been conducted. Accordingly, Parliament will have been denied the opportunity to weigh up the costs and benefits of realistic alternatives.

Table 1: Summary of the modelled achievement of ecological targets for Ramsar sites in the Murray–Darling Basin under the 2750 GL Basin Plan scenario

| SITE | ECOLOGICAL CHARACTER | HYDROLOGIC/ECOLOGICAL TARGET ³¹ | | |
|---|---|--|--|--|
| NORTHERN BASIN | | | | |
| Narran Lakes | Change in ecological character | (1) red gum, coolibah and lignum in northern lakes | (2) lignum and river cooba at Clear Lake | (3) lignum, coolibah and grassland communities on broader floodplain |
| | | (4) colonial nesting waterbirds | (5) lignum stands on broader floodplain | |
| Gwydir Wetlands-Lower Gwydir and Gingham channel | Indeterminate; ecological character possibly maintained | (1) native fish, frogs and turtles | (2) native fish, frogs and turtles | (3) wetlands; floodplain lignum, woodlands and grasslands |
| | | (4) wetlands; floodplain lignum, woodlands and grasslands | (5) wetlands; floodplain lignum, woodlands and grasslands | (6) wetlands, floodplain vegetation and colonial nesting waterbirds |
| | | (7) wetlands, floodplain vegetation and colonial nesting waterbirds | | |
| Macquarie Marshes | Indeterminate ecological character possibly maintained | (1) semi-permanent wetlands and red gum forest | (2) wetlands and red gum forest; colonial nesting waterbirds | (3) woodland communities; colonial nesting waterbirds |
| | | (4) woodland communities; colonial nesting waterbirds | | |
| SOUTHERN BASIN | | | | |
| Lake Albacutya | Change in ecological character | (1) red gum and black box woodlands; waterbird foraging; aquatic herblands | (2) red gum and black box woodlands; waterbird breeding; aquatic herblands | |
| Barmah–Millewa³² | Change in ecological character | (1) freshwater meadows and marshes; moira grass plains; red gum forest | (2) freshwater meadows and marshes; moira grass plains; red gum forest | (3) freshwater meadows and marshes; moira grass plains; red gum forest |
| | | (4) red gum forest and woodland; black box woodland | (5) red gum forest and woodland; black box woodland | (6) red gum forest and woodland; black box woodland |
| | | (7) colonial nesting waterbirds | | |
| Gunbower–Koondrook-Pericoota³³ | Change in ecological character | (1) permanent and semi-permanent wetlands | (2) permanent and semi-permanent wetlands | (3) red gum forest and woodland; black box woodland |
| | | (4) red gum forest and woodland; black box woodland | (5) colonial nesting waterbirds | |

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|--|--------------------------------|--|---|---|
| Hattah Lakes | Change in ecological character | (1) permanent, persistent and semi-permanent wetlands | (2) permanent, persistent and semi-permanent wetlands | (3) permanent, persistent and semi-permanent wetlands |
| | | (4) red gum forest | (5) red gum woodland | (6) episodic wetlands and black box woodland |
| Riverland | Change in ecological character | (1) native fish | (2) wetlands and red gum forest | (3) wetlands and red gum forest |
| | | (4) wetlands and red gum forest | (5) red gum forest and woodland | (6) black box woodland |
| | | (7) black box woodland | | |
| Edward–Wakool³⁴ | Change in ecological character | (1) native fish | (2) reed beds and low-lying wetlands in Werai Forest | (3) colonial nesting waterbirds in Werai Forest |
| | | (4) ephemeral wetlands and watercourses; red gum forest and woodland | (5) ephemeral wetlands and watercourses; black box woodland | |
| Coorong, Lower Lakes and Murray Mouth | Change in ecological character | (1) Southern Coorong average salinity | (2) Southern Coorong maximum salinity | (3) Southern Coorong maximum salinity |
| | | (4) Southern Coorong maximum salinity | (5) Northern Coorong average salinity | (6) Northern Coorong maximum salinity |
| | | (7) Northern Coorong maximum salinity | (8) barrage flow | (9) barrage flow |

Key

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| | Targets not achieved |
| | Hydrologic target achieved at high uncertainty frequencies: lower likelihood that ecological target is achieved |
| | Hydrologic target achieved at low uncertainty frequencies: higher likelihood that ecological target is achieved |

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Footnotes

1. Foerster A, "The Murray–Darling Basin Plan: a new chapter of sustainable water management?" (2012) 27(3)*Australian Environment Review* 71–74.
2. Finlayson M C, "Forty years of wetland conservation and wise use" (2012) 22 *Aquatic Conservation: Marine and Freshwater Ecosystems* 139–43, p 140.
3. Finlayson M C, "Forty years of wetland conservation and wise use" (2012) 22 *Aquatic Conservation: Marine and Freshwater Ecosystems* 139–43, p 140.
4. Ramsar Convention, COP 7 Res VII 1 1.
5. Ramsar Convention, Arts 2(1) and 2(2).
6. Ramsar Convention, Art 3(1).
7. Ramsar Convention, COP 9 Res IX.1, Annex A.
8. Ramsar Convention, Art 2(5).
9. Ramsar Convention, Art 4(2).
10. Ramsar Convention, Art 2(5).
11. Ramsar Convention, Art 3(2).
12. See Birnie P W and Boyle A E, *International Law and the Environment* (2nd ed), Oxford University Press, Oxford, 2002, p 101. Common but differentiated responsibility is considered to be a principle of customary international law. See, for example, Bates G, *Environmental Law in Australia* (7th ed), LexisNexis Butterworths, Sydney, 2010, p 82.

13. Water Act, s 20(a).
14. See *Victoria v Commonwealth* (1996) 187 CLR 416; 138 ALR 129; 70 ALJR 680; BC9603985 for a fulsome discussion of what constitutes proper treaty implementation by the Australian legislature.
15. Due to be released in coming weeks. See, for example, Palmer, above note 4.
16. National Irrigators Council, “An historic draft Basin plan or the start of the great Basin scam”, media release, 2011.
17. Young W J et al, *Science Review of the Estimation of an Environmentally Sustainable Level of Take for the Murray–Darling Basin: A Report to the Murray–Darling Basin Authority from the CSIRO Water for a Healthy Country Flagship*, 2011.
18. MDBA, *The Proposed “Environmentally Sustainable Level of Take” for Surface Water of the Murray Darling Basin: Methods and Outcomes*, 2011.
19. Note that ECDs have not yet been prepared for all Ramsar wetlands.
20. MDBA, *Proposed “Environmentally Sustainable Level of Take”*, above note 20.
21. MDBA, *Proposed “Environmentally Sustainable Level of Take”*, above note 20; MDBA, *Hydrologic Modelling to Inform the Proposed Basin Plan — Methods and Results*, 2012.
22. MDBA, *Proposed “Environmentally Sustainable Level of Take”*, above note 20, p 43.
23. MDBA, *Guide to the Proposed Basin Plan: Technical Background*, 2010; MDBA, *Hydrologic Modelling*, above note 23.
24. La Nauze J, *Predicted Outcomes of the Murray–Darling Basin Plan for Ramsar Wetlands: Analysis of Hydrological Modeling Conducted by the Murray–Darling Basin Authority*, Friends of the Earth Melbourne, 2012.
25. La Nauze J, “Submission on the proposed Basin Plan”, Friends of the Earth Melbourne, 2012.
26. MDBA, *Hydrologic Modelling*, above note 23; MDBA, *Assessment of Environmental Water Requirements for the Proposed Basin Plan: Narran Lakes*, 2012.
27. Water Act, s 45.
28. Water Act, s 50.
29. Water Act, ss 46, 47 and 47A.
30. MDBA, *Guide*, above note 25.
31. MDBA, *Guide*, above note 25; MDBA, *Assessment of Environmental Water Requirements for the Proposed Basin Plan: Barmah–Millewa Forest*, 2012; MDBA, *Assessment of Environmental Water Requirements for the Proposed Basin Plan: Edward–Wakool River System*, 2012; MDBA, *Assessment of Environmental Water Requirements for the Proposed Basin Plan: Gwydir Wetlands*, 2012; MDBA, *Assessment of Environmental Water Requirements for the Proposed Basin Plan: Hattah Lakes*, 2012; MDBA, *Assessment of Environmental Water Requirements for the Proposed Basin Plan: Macquarie Marshes*, 2012; MDBA, *Assessment of Environmental Water Requirements for the Proposed Basin Plan: Narran Lakes*, 2012; MDBA, *Assessment of Environmental Water Requirements for the Proposed Basin Plan: Riverland–Chowilla Floodplain*, 2012; MDBA, *Assessment of Environmental Water Requirements for the Proposed Basin Plan: Wimmera River Terminal Wetlands*, 2012; MDBA, *Hydrologic Modelling*, above note 23.
32. Includes the entire Barmah Forest Ramsar site and part of the NSW Central Murray State Forests Ramsar site.
33. Includes the entire Gunbower Forest Ramsar site and part of the NSW Central Murray State Forests Ramsar site.
34. Includes the Werai Forest, part of the NSW Central Murray State Forests Ramsar site.