

How do environmental conservation laws interact with environmental aspects of water laws?

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Introduction

The environmental protection and conservation of wetlands, including wetlands listed under the Ramsar Convention², is a primary example of how environmental conservation laws interact with the environmental aspects of water laws. This paper examines that example by:

1. considering Australia's Ramsar Convention obligations and their implications for water allocation and management;
2. reviewing a Western Australian case study – the management of the Ramsar-listed Forrestdale and Thomsons Lakes – to illustrate how environmental conservation laws and water laws interact; and
3. concluding with some general observations about that interaction and how it may be reformed in light of a drying southern Australian climate.

Our theme is that there are fundamental requirements for good management of water abstraction activities that affect wetlands. Different laws – in particular environmental impact assessment and water resource management laws – can meet those requirements in different ways. These laws have their own strengths and weaknesses, but properly designed water laws are the superior management tool for securing water for wetlands.

The Ramsar Convention and its implications for water management

A central obligation of a party to the Ramsar Convention is to designate suitable wetlands within its territory for inclusion in a List of Wetlands of International Importance and to promote the conservation of those wetlands,³ which has been equated with the “maintenance of the ecological character” of those sites.⁴ The Convention itself does not say much about how the conservation of wetlands should be promoted, beyond a requirement to “[establish] nature reserves on wetlands...and provide adequately for their wardening”.⁵ In particular, the Convention does not address the issue of managing off-site water abstraction that may affect the ecological character of wetlands.

The Convention does, however, provide that Conferences of the Contracting Parties may make recommendations concerning the conservation, management and wise use of wetlands and adopt resolutions to promote the functioning of the Convention.⁶ Pursuant to these provisions, the 2005 Ninth Conference adopted detailed resolutions concerning the allocation and management of water for maintaining the ecological function of wetlands and the management of groundwater to

¹ The research for this paper is supported by Commonwealth research funding provided through the National Centre for Groundwater Research and Training: <http://www.groundwater.com.au/>. This paper therefore focuses on groundwater regimes and environmental water for Ramsar listed wetlands.

² *Convention on Wetlands of International Importance, Especially as Waterfowl Habitat*, opened for signature 2 February 1971, 996 UNTS 245 (entered into force 21 December 1975).

³ *Ibid* art 2, 3(1).

⁴ J Pittock, M Finlayson, A Gardner & C McKay, “Changing character: The Ramsar Convention on Wetlands and climate change in the Murray-Darling Basin, Australia”, (2010) 27 EPLJ 401, 403.

⁵ *Ibid* art 4(1).

⁶ *Ibid* art 6(2).

maintain wetland ecological character. As it is most relevant to our case study, we have summarised below the groundwater resolution’s seven-step framework, which “contains key issues or areas of concern where wetland managers should communicate and collaborate with water resources managers in order to ensure that the protection and maintenance of wetland ecosystems is taken into account in groundwater and surface water management planning”.⁷

Table 1: Summary of Ramsar Framework for Groundwater Management

Step	Description	Objective
Step A	Screening to identify wetlands potentially associated with groundwater	To identify wetlands that are linked to groundwater (either as recharge or discharge sites) and that require further detailed study.
Step B	Development of a conceptual model of groundwater-wetland interactions for wetlands in the basin	To quantify a wetland’s dependence on groundwater and, conversely, an aquifer’s potential dependence on associated wetlands.
Step C	Situation assessment of combined impacts, status and trends	To take into account the impacts of both abstraction from, and discharge to, groundwater and surface water bodies in the basin. Wider scenarios of climate or land use change should be used to assess how groundwater-wetland interactions may change in the future.
Step D	Determination of groundwater requirements of wetlands	To determine the preferred water needs of the wetland ecosystem and its sensitivity to hydrological change, its resilience, and its adaptive capacity.
Step E	Agreement and setting of groundwater allocations for wetlands	To allocate sufficient water for wetlands that are dependent on the aquifer, in order to maintain desired ecological character, although this may require a trade-off with abstraction being permitted for consumptive use.
Step F	Inclusion of groundwater-related management actions and strategies in the land and water management plan for the basin	To include strategies specifically related to groundwater, where necessary. This may relate, for example, to the timing and location of abstraction, or supplementation of the wetland using surface flows.
Step G	Monitoring and evaluation related to groundwater	To monitor the status of the groundwater resource and demands on groundwater, concurrently with monitoring of the status and response of wetlands to changes in groundwater availability.

Both the Commonwealth and State Governments can implement international law, though a valid Commonwealth law would prevail over an inconsistent State law. The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (“EPBC Act”) mandates Commonwealth action to manage listed wetlands on Commonwealth land consistently with the Ramsar Convention,⁸ but only requires its best endeavours for listed wetlands in State territory, where the States have primary management authority.⁹ The “Australian Ramsar Management Principles” prescribed by

⁷ ‘Guidelines for the management of groundwater to maintain wetland ecological character’ (Resolution IX.1, Annex Cii). para 78.

⁸ *Environment Protection and Biodiversity Conservation Act 1999* (Cth) ss.328-331.

⁹ *Ibid* ss.332-333.

the Commonwealth¹⁰ can only guide State planning and management. The Principles provide that a management plan should “state mechanisms to deal with the impacts of actions that ... endanger [a wetland’s] ecological character”, including risks arising from “changes to water regimes”.¹¹ The Ramsar framework for groundwater management would operate only guideline, twice removed, for State management of listed Ramsar wetlands.

Case study: State Management of the Forrestdale and Thomsons Lakes

The management of the Forrestdale and Thomsons Lakes, a Ramsar site located in Perth’s southern metropolitan area, is a good case study for our purposes because of the interaction between the statutory regimes for:

- conservation of protected areas;¹²
- environmental impact assessment;¹³ and
- water resource management.¹⁴

The Forrestdale and Thomsons Lakes were jointly designated as a Ramsar site on 7 June 1990. Documentation submitted by Australia under the Ramsar Convention describes them as “the best remaining examples of brackish, seasonal lakes with extensive fringing sedgeland typical of the Swan Coastal Plain, and in a regional context, they constitute a major breeding, migration stop-over and semi-permanent drought refuge area for waterbirds”.¹⁵ This documentation also notes that the water levels in both lakes respond to events which cause variations in local groundwater supply, including groundwater abstraction.¹⁶

The Forrestdale and Thomsons Lakes are designated as nature reserves. They are vested in a statutory authority, the Conservation Commission, and are managed by the Department of Parks and Wildlife under a statutory objective of maintaining and restoring the natural environment.¹⁷ The Department of Parks and Wildlife does not have any clear regulatory authority over offsite water abstraction.¹⁸ However, it does have an obligation to prepare management plans that are consistent with the statutory objective mentioned above.¹⁹

In 1987, the present Department’s predecessor prepared plans for the two lakes, which did address offsite water management. For example, the 1987 management plan for the Forrestdale Lake (revised in 2005) identified an objective of “maintain[ing] an annual pattern of water levels which will meet the needs of the full range of waterbirds currently using the Lake”.²⁰ To achieve

¹⁰ Ibid s335 and Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) Reg 10.02 and Schedule 6.

¹¹ Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) Schedule 6, 2.02(e).

¹² *Conservation and Land Management Act 1984* (WA).

¹³ *Environmental Protection Act 1986* (WA).

¹⁴ *Rights in Water and Irrigation Act 1914* (WA).

¹⁵ Commonwealth of Australia, *Information Sheet on Ramsar Wetlands: Forrestdale and Thomsons Lakes, Western Australia* (2003), <<http://www.environment.gov.au/water/topics/wetlands/database/index.html>>.

¹⁶ Ibid.

¹⁷ *Conservation and Land Management Act 1984* (WA) s 56(1)(d).

¹⁸ Paragraph 30(1)(a) of the *Conservation and Land Management Regulations 2002* (WA) does provide that “a person must not, without lawful authority...take water from, or interfere with water on, CALM land” (emphasis added). It might be argued that “interference with water on CALM land” includes interference through off-site abstraction. However a licence under the *Rights in Water and Irrigation Act 1914* (WA) to take water would constitute “lawful authority” for the purposes of 30(1)(a).

¹⁹ Ibid ss 54, 56.

²⁰ Department of Conservation and Land Management, *Forrestdale Lake Management Plan 1987-1992* (1987), p 70.

that objective, the plan proposed, among other things, the maintenance of a peak water level of at least 0.9m in late spring. Consistent with its limited regulatory powers, the plan merely states that the department would “liaise closely” with the water resource manager to ensure groundwater supply is adequate to achieve this water level.²¹ The plan also identified the need to monitor groundwater inputs to ensure they remained adequate, but did not identify who would carry out that monitoring.²²

In 1991 the Water Authority²³ sought approval for Stage 2 of the Jandakot Groundwater Scheme, which would abstract up to 8GL/yr from the Jandakot Groundwater Mound on which the Thomsons and Forrestdale Lakes are located. The proposal was seen as sufficiently environmentally significant to trigger an assessment under the relatively new *Environmental Protection Act 1986* (WA) (“EP Act”). The resulting report from the Environmental Protection Authority (“EPA”) to the Minister for the Environment identified wetland protection as an important environmental factor, but found that the proposal would be environmentally acceptable if managed appropriately.²⁴ In 1992 the Minister for the Environment published a statement that the proposal could be implemented, subject to conditions (“the Ministerial Conditions”).²⁵ Among other things, the Ministerial Conditions:

- established water level criteria for wetlands, including minimum water levels for Thomsons and Forrestdale Lakes and a peak water level of at least 0.9m for Forrestdale Lake;
- required the Water Authority to undertake regular monitoring and reporting on compliance with water level criteria;
- required the Water Authority to modify pumping and artificially maintain wetlands if agreed water level criteria are breached or if there are significant impacts of a nature that had not been predicted in the assessment.²⁶

The Ministerial Conditions do not bind private users of groundwater, such as those engaged in horticultural operations. Even though private abstraction collectively takes more water than public water supply (see Attachment A), individual horticultural proposals were not considered sufficiently environmentally significant to merit assessment under the EP Act. Groundwater abstraction for horticulture has, therefore, been regulated only by licensing under the water resources legislation, guided by internal departmental policy on allocation limits and case-by-case assessment of risks to groundwater-dependent ecosystems.²⁷

²¹ Ibid.

²² Ibid.

²³ At the time, the water service provider and water resources regulator.

²⁴ Environmental Protection Authority, *Jandakot Groundwater Scheme Stage 2* (Bulletin 587, 1991), p ii.

²⁵ Minister for the Environment, *Statement that a Proposal May be Implemented (Pursuant to the Provisions of the Environmental Protection Act 1986)* (Ministerial Statement 253, 29 April 1992), Condition 1 and Schedule of Commitments. These conditions were later replaced with an amended set of conditions (Ministerial Statement 688, 27 September 2005) but the changes between the two statements are not relevant for present purposes.

²⁶ There were some caveats around the commitment to modify pumping. Modification of pumping was only required where this would ‘have a measurable effect (say raise water levels 1 centimetre or more)’. There is also a reference to ‘extenuating circumstances such as where significant economic hardship would occur.’

²⁷ There is one unusual feature of this case study that should be noted for completeness. The Water Authority was responsible for licensing private abstraction. Commitments made by the Water Authority (and subsequently taken on by government agencies that later took over the Water Authority’s role as

In the period since the mid-1990s, during which south-west Western Australia (WA) experienced substantial declines in average rainfall, there have been frequent breaches of the water level criteria in the Ministerial Conditions. Minimum water level requirements at Forrestdale Lake were not met in 12 of the last 17 years.²⁸ The contribution of groundwater abstraction to these breaches appears to be a matter of some dispute. The 2005 management plan for Forrestdale Lake concluded that “the breaches mainly occurred as a result of water extractions being excessive given the declining groundwater levels resulting from drier climatic conditions”.²⁹ However, subsequent reports suggest that groundwater abstraction only has a minor impact on water levels in the lake because it is (has become?) largely disconnected from regional groundwater.³⁰

This case study indicates that the WA statutory regimes for conservation of protection areas, environmental impact assessment and water resource management can all play a role in managing the impacts of groundwater abstraction on Ramsar wetlands. Protected area laws require the preparation of management plans which can provide a situation assessment and identify wetland water needs (Steps C and D in the Ramsar Guidelines). Environmental impact assessment laws can, for major new abstraction proposals, assess impacts, set allocation limits and put in place monitoring requirements (Steps D, E and G). Water resource management laws can, through water resource planning and licensing, manage all significant groundwater abstraction impacts on wetlands (Steps A to G) – although in the case study no formal water resource management plan had been adopted (Step F).

One notable feature of the interplay between these statutory regimes in south-west WA has been uncertainty as to how a declining water resource should be shared between consumptive and environmental uses. While the water level requirements of the Ministerial Conditions would suggest non-negotiable bottom lines, ongoing non-compliance with these requirements suggest otherwise.³¹ Steps have been taken to reduce the environmental impacts of abstraction on the Jandakot Mound, including by introducing basic efficiency requirements for users of garden bores and by shifting public water supply abstraction to deeper aquifers.³² However, the fact that wetland water level requirements have been regularly breached but private license holders have not had their entitlements reduced indicates that, in practice, the Ramsar wetlands in this case study have not enjoyed the same level of water security as private license holders.

proponent) included commitments to manage that abstraction having regard to environmental impacts. The EIA process did, therefore, have some indirect influence over private abstraction.

²⁸ Department of Water, *Monitoring Data for Lake Forrestdale Bore* <<http://kumina.water.wa.gov.au/waterinformation/wrdata/GWL/61410714/gwp.htm>> (compare with 21.1m AHD, the minimum water level under the Ministerial Conditions).

²⁹ Department of Conservation and Land Management, *Forrestdale Lake Nature Reserve Management Plan 2005* (2005), p15.

³⁰ Stragen, *Section 46 Review of the Gnanagara and Jandakot Mounds Stage 1 Proposal to Change Conditions* (August 2004), p34; Barron O., Wendling L., Tucker D., Green M., Devkota B., and Donn M., *Investigation of techniques to better manage Western Australia's non-potable water resources* (CSIRO, 2010), p.18. It is unclear whether there has been an historical transition from connected to disconnected.

³¹ For a discussion of the legal effect of ministerial conditions made under the EP Act see A Gardner, “Environmental water allocations in Australia”, (2006) 23 EPLJ 208, 227-229.

³² Department of Water, *Environmental management of groundwater abstraction from the Jandakot Mound: Annual compliance report to the Office of the Environmental Protection Authority July 2011-June 2012*, (2013) para 6.2.

Concluding observations

We begin by defining more clearly what we mean by “water laws” and “environmental conservation laws”. “Water laws” provide for regulating the extraction and use of groundwater and surface water. These laws have traditionally focused on sustaining and sharing water for consumptive use. Over the last 20 years, more recently in WA, the need to consider environmental objectives in water planning and allocation has been recognised and incorporated into water laws.³³ “Conservation laws” provide for regulating the impacts of human activities on the natural [and built] environments. This includes laws for the protection of biodiversity and of areas designated for conservation, and laws for environmental impact assessment of actions that may have a significant effect on environmental conservation values.

These laws play different roles in determining how much water is allocated to wetlands. Each of these laws has their own strengths and weaknesses. For example, protected area regimes have the advantage of designating land use to conservation purposes, strong on-site controls and a clear focus on the conservation needs of wetlands, but the disadvantage of weak controls over off-site water abstraction.

Similarly, the EIA process has a number of strengths from the perspective of wetland conservation: the public nature of the assessment process, the focus on environmental factors, the ability to set strong environmental conditions on a proposal, and monitoring of compliance by a body with an environmental conservation focus. However, project-based EIA also has weaknesses. One problem is that it only applies to significant abstraction proposals. The combined impact of multiple smaller proposals is not easily dealt with through a traditional EIA process.

Another limitation with EIA is that it is not well suited to addressing existing abstraction activities. For example, the EPBC Act provides that a person must not, without approval, take actions that are likely to have a significant impact on the ecological character of a declared Ramsar wetland.³⁴ However, the EPBC Act does not apply to existing water abstraction activities, such as abstraction for public water supply on the Jandakot Mound, which are lawful continuations of a use undertaken before the Act commenced.³⁵

All of this points to the advantages of properly designed and applied water laws with secure environmental allocations, rather than project-based EIA, being the primary tool to manage the impacts of abstraction on Ramsar wetlands. All of the steps identified by the Ramsar Framework for Groundwater Management can be addressed under such laws. If water laws are properly designed and implemented, with comprehensive water management plans setting cumulative limits on water abstractions, that are adopted with the benefit of public engagement, broad regulatory coverage and good monitoring and enforcement, there should be no need for EIA of individual abstraction proposals.

³³ A Gardner, “Planning for Integrated Natural Resources Management in Western Australia”, (1996) 26(2) *UWA Law Review* 427-458.

³⁴ *Environment and Biodiversity Conservation Act 1999 (Cth)*, s16. This can, of course, include abstraction proposals outside the wetland. The EPBC Act assessment of water abstraction associated with the Wonnerup Mineral Sands Mine provides an example from south west WA: Department of Sustainability, Environment, Water, Population and Communities, *EPBC Act Public Notices and Invitations to Comment* <<http://www.environment.gov.au/epbc/>> (*Bemax Resources Limited /Mining/8.5 km east of Busselton /WA/Wonnerup Titanium Mineral Mining Project*).

³⁵ *Environment Protection and Biodiversity Conservation Act 1999 (Cth)*, ss 43A, 43B, 345(2).

The adequacy of the water management regime also goes to the question of whether water management plans should be subject to strategic environmental assessment. Water plans can be subject to formal strategic assessment under the EPBC Act³⁶, although probably not under the EP Act as currently drafted.³⁷ One option that could be considered in the water reform process currently underway in WA is to amend the EP Act to enable strategic assessment of statutory water management plans, in much the same way as statutory land use plans are currently assessed.³⁸ Consideration of whether this is appropriate will be informed, in part, by a judgment as to whether the new water management regime will adequately protect the conservation values of important environmental assets, like Ramsar wetlands, without the need for the additional overlay of strategic environmental assessment.

An alternative water law reform approach would be to enact a statutory mandate that high conservation value areas are to receive priority planning attention to secure adequate provision of environmental water to maintain their ecological character, as is required under the Ramsar Convention. If the State does not enact such laws, the Commonwealth could legislate to mandate the environmental water allocations for listed Ramsar wetlands across the whole country, as it has done in the Murray-Darling Basin through the *Water Act 2007* (Cth).

Finally, special consideration will need to be given to the impacts of climate change on environmental water provisions. Should Ramsar listed wetlands be freed from the impacts of human consumptive water use to give them every chance to adjust to a drying climate? This may require particular measures for clawback of water access rights, inevitably raising compensation questions and who should foot the bill. The National Water Initiative risk assignment framework may be inapplicable to such an exercise, so what are the alternative propositions to apply?

³⁶ Given that the EPBC Act provides in broad terms that the Minister “may agree in writing with a person responsible for the adoption or implementation of a policy, plan or program” that an assessment of its impacts on one of the EPBC Act matters of national environmental significance is required: 146(1).

³⁷ *Environmental Protection Act 1986* (WA), 37B(2); see also *Roe v the Director General, Department of Environment and Conservation for the State of Western Australia* [2011] WASCA 57 per Martin CJ at [28]. A proposal for an industrial precinct fits easily within this definition; a water plan that is agnostic as to future development does not. (The EP Act does provide for the assessment of land use plans: *Environmental Protection Act 1986* (WA), Part IV, Div 3.

³⁸ One law reform option would be to include similar provisions for water plans. This would have the advantage of making it clear that water abstraction proposals under an assessed plan don’t need to be referred to the EPA. At present the Department of Water must refer environmentally significant abstraction proposals to the EPA for assessment, and the grant of an abstraction licence could be invalidated if it fails to do so: *Environmental Protection Act 1986* (WA) s38(5); *Serpentine-Jarrahdale Ratepayers and Residents Association Inc v Minister for Mines* [2001] WASC 203 (10 July 2001)).

Attachment A: Table 2

Allocation limits and entitlements in Jandakot Mound Groundwater Area (2011-12)³⁹

Subarea	Allocation limit (GL/yr)	Public water supply licensed entitlements (GL/yr)	Private licensed entitlements (GL/yr)	Total entitlements (GL.yr)	Total entitlements (% of allocation limit)
Airport	4.29	0.64	0.95	1.59	37%
Banjup	3.61	0.42	0.71	1.13	31%
Canning Vale	1.35	0.45	0.11	0.66	41%
Forrestdale	2.01	0.08	0.98	1.06	53%
Mandogalup	3.00		1.88	1.88	63%
Oakford	1.37		0.24	0.24	18%
South Lakes	1.25		0.46	0.46	37%
Success	4.30	1.22	1.05	2.27	53%
Wandi	1.20		0.47	0.47	39%
Wright	0.96		0.81	0.81	84%
Total	23.34	2.81	7.66	10.57	45%

³⁹ These figures are drawn from Department of Water, *Environmental management of groundwater abstraction from the Jandakot Mound: Annual compliance report to the Office of the Environmental Protection Authority July 2011-June 2012*, (2013) p8, table 3.