Cockburn groundwater area water management plan: Evaluation statement 2007–2011

This statement evaluates the extent to which the objectives of the *Cockburn groundwater area water management plan* were met since its release in December 2007.

Evaluation statements are part of the Department of Water's adaptive management process and allow us to continually review and improve management of water resources.

1 Allocation status

1.1 Changes in allocation status

There are no resources in the Cockburn groundwater area that changed allocation status since the plan's release. At present limited water is still available for licensing from the superficial aquifer and no water is available from the confined aquifers.

For a full list of up to date water availability in all resources contact the Kwinana–Peel Regional office, in Mandurah or see our water register, <www.water.wa.gov.au/ags/WaterRegister>.

1.2 Over-allocated resources

Over-allocated resources are those where the licensed entitlements exceed the allocation limit for that resource. Of the six resources that are managed by the plan, one resource was recovered to full allocation and another remains over allocated (see Table 1). Both resources were over allocated when the plan was released.

Table 1 Over-allocated resources

Resource		% Allocated[1]		Comments
Subarea	**Aquifer**	**2008**	**2011**	
Cockburn confined	Leederville	111	111	No new entitlements were granted for the Leederville aquifer. We are continuing to carry out recouping, compliance and enforcement to return this resource to full allocation.
	Yarragadee	108	100	This resource was recovered to full allocation.

Notes: Total of licensed entitlements against licensable component/s of the allocation limit

2 Implementation actions

We committed to completing the following actions identified in the plan by the 2010−2011 reporting period (Table 2)

Table 2 Summary of progress towards actions for implementing the plan

	Action	Status	Evaluation
1	Review groundwater monitoring program in the Cockburn groundwater area (see Section 3.5 of the plan for recommendations)	In progress	A review of state-wide groundwater monitoring network was carried out in 2009. It identified that monitoring in the Cockburn plan area was adequate given the risks to the resource and the pressures of water use. However, further work needs to be done to clarify what monitoring is critical for assessing the status of the resources and the performance of the management described in the plan. The department is developing guidelines for designing monitoring programs for allocation plans and the monitoring program for this area will be updated in line with these guidelines.
2	Recoup water from the over-allocated Leederville and Yarragadee aquifers	Partially met	The Yarragadee aquifer was returned to full allocation by recouping unused entitlements. We are continuing to carry out recouping, compliance and enforcement to return the Leederville aquifer to full allocation
3	Conduct water use surveys for unused allocations and compliance with licence conditions	Met	Water use, unused entitlements and compliance with licence conditions are routinely assessed throughout the year and at the licence renewal stage.

	Action	Status	Evaluation
4	Complete annual evaluation and monitoring reports	Partially met	These statements are publicly available on our website. A resource review was completed for the Wellard and Valley subareas. The remaining subareas are to be reviewed as part of the next evaluation statement.
5	Consider impacts on Cockburn Sound in allocation and licensing decision making	Met	Impacts of water abstraction on Cockburn Sound are assessed through the licensing process. We liaise with the Department of Environment and Conservation on pollution and contamination related issues.
6	Review of environmental criteria (see Section 2.2.5 of the plan for recommendations).	Not met	This action was not met. It will be met when the plan is replaced.
	Score:	3.5/6	
	Rating:	**Adequate**	

3 Plan performance

We rated the performance of the plan and its implementation by reviewing the performance indicators and assessing the extent to which plan objectives were met (refer to section 1.1 of plan for purpose and objectives). The information used is summarised in Table 3.

Table 3 Objectives and their status

Objective	Status	Evaluation
Sustainable water allocation and development for current and future users		**Unconfined aquifers (Superficial)**
	Met	Allocations for the superficial aquifer remain below the allocation limit and are licensed in accordance with the plan. Groundwater levels continue to stabilise since the release of the plan (±1 m seasonal variation). This suggests that the allocation limits are sustainable. Water quality monitoring is undertaken by licensees to gauge seasonal fluctuations in salinity and determine if their abstraction is causing adverse impacts on the resource. The department works with licensees to verify and address any reported impacts.
		Confined aquifers (Leederville and Yarragadee)
	Not met	No further licences were granted in the confined aquifers since release of the plan. The Yarragadee aquifer was returned to full allocation. The water level trend in the Yarragadee aquifer is still declining. This trend (~15 m in 30 years) is a continuation of the long term regional trend as a result of abstraction and climate.

Objective	Status	Evaluation
		The Leederville aquifer is still over-allocated. Monitoring in the Leederville aquifer stopped in 2005 and only recently recommenced so it is difficult to accurately discern water level trends. Regionally there is a continued decline (~5 m over 30 years) in the Leederville aquifer. There is no evidence from licensees of water quality changes.
Protection of ecosystems dependent on groundwater[1]	Met	Environmental monitoring undertaken at Ministerial criteria sites (refer to *Ministerial Statement 688*) during 2009–10 showed no severe declines in vegetation condition or macro-invertebrate richness. No changes to water quality were observed in 2009–2010; however the monitored wetlands only cover a small portion of the total number of wetlands in the plan area. The long-term trend since the mid 1990s was one of declining ecosystem health due to rainfall declines and land-use changes. Detailed information on water level criteria and ecological condition for groundwater-dependent ecosystems in the plan area is presented in the annual compliance report to the Department of Environment and Conservation.[2]
Score:	1.5/2	
Rating:	**Good**	

1 *At the time of evaluation the 2011 data was not yet available for review*

2 Department of Water, 2010, *Environmental management of groundwater from the Gnangara and Jandakot mounds – annual compliance report to the Department of Environment and Conservation July 2009 to June 2010,* Department of Water, Government of Western Australia, Perth. http://www.water.wa.gov.au/PublicationStore/first/95812.pdf

4 Evaluation of management set out in plan

The implementation of revised allocation limits and policies across the plan area resulted in a majority of the plan's objectives being met.

Allocation decisions for both unconfined and confined aquifers show that current local abstraction is sustainable. Licensed entitlements from the unconfined resources remain below the allocation limits. No new licences were issued in the confined resources. However, not all resources were returned to full allocation.

Allocation decisions resulted in continued stabilisation of water levels in the superficial aquifer. Both the confined Leederville and Yarragadee aquifers continued to show water level decline across the plan area. This continuing decline highlights the impacts of regional abstraction and climate, both in and outside the plan area.

A regional approach to managing the confined aquifers will be considered to address this as part of planning for Jandakot, Perth South and Serpentine groundwater areas and updating the Gnangara groundwater areas allocation plan.

We observed in data collected by licensees that there was no significant change to water quality across the Superficial aquifer. Where localised changes are reported we work with licensees to verify the changes and address the impacts. Licensee

reporting is the most efficient mechanism for monitoring changes in water quality across the plan area, and at this stage it is the only method employed.

5 Response to this evaluation

We identified through this evaluation that the *Cockburn groundwater area water management plan* is suitable to remain in place until the next evaluation. The plan is not scheduled for replacement, as the current management approach is meeting it's objectives. The need to replace the plan will continue to be considered each year through the evaluation process.

5.1 Work required to improve plan performance

We identified work required to improve our implementation of this plan. We will:

- continue to recoup unused water entitlements in over-allocated resources to return them to full allocation
- review and update our monitoring program in line with the objectives of the plan.

5.2 Work required for next plan

There are particular components of the plan that will require consideration when the plan is replaced. They are:

- Establish ecological water requirements in the plan area.
- Review allocation limits using updated modelling, long-term regional water level monitoring and climatic influences in the confined aquifers.
- Update the objectives and performance indicators to better facilitate adaptive management.

Rating system

Rating	Description
Good	70 to 100% of performance indicators, objectives and/or actions met
Adequate	40 to 70% of performance indicators, objectives and/or actions met
Poor	Less than 40% of performance indicators, objectives and/or actions met