



Government of **Western Australia**  
Department of **Water**

## Evaluation statement for 2009: Carnarvon Artesian Basin water management plan



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Department of Water

October 2009

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October 2009

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ISBN : 978-1-921675-55-3 (online)

**Acknowledgements**

The Department of Water would like to thank staff at its Carnarvon office for their contribution to this publication.

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## Summary

This is the Department of Water's first annual evaluation statement of the *Carnarvon Artesian Basin water management plan*. The plan came into effect in December 2007.

Implementation of the plan's key strategies has been effective in meeting the plan's objectives. Several of these strategies relate to the long-term management of the Carnarvon Artesian Basin (CAB) and will be progressively addressed throughout the plan's life. The department has initiated the majority of actions in the plan.

A number of issues have been highlighted during the plan's implementation, primarily relating to the licensing process; in particular condition setting and monitoring requirements. These have been resolved through consultation with stakeholders. Based on updated information, several operational changes have also been made during the plan's implementation.

The CAB Rehabilitation Project (Phase 2) has played an important role in the plan's implementation and meeting several of its key objectives. This project involved rationalising free-flowing artesian bores and included extensive consultation with users of the resource through regular site visits and committee meetings.

The department is putting an annual monitoring program in place, in addition to monitoring to be conducted by individual licensees.

The department will update and maintain the groundwater flow model for the CAB with monitoring data as it is received. New applications will continue to be initially assessed for potential impacts using this model.

In conclusion, the department is tracking well against the plan's objectives. The department will continue to implement the strategies as outlined in the plan.

# 1 Carnarvon Artesian Basin water management plan evaluation

## 1.1 Introduction

The Department of Water is committed to adaptively managing water resources and enabling community input into its planning process.

This statement evaluates the effectiveness and performance of the *Carnarvon Artesian Basin water management plan* since its release in December 2007 and also summarises key issues reported by the community.

This evaluation statement applies to the area shown in Figure 1.

## 1.2 Allocation statistics

A summary of the allocation status for the main water resource in the Carnarvon Artesian Basin (CAB) is provided in Table 1.

A total of 27 licensees are using the Birdrong aquifer. The Department of Water has received an additional six applications – which are currently being assessed – bringing the amount of water requested and allocated from the aquifer to 27.8 GL. A number of licences have been amended since the plan's implementation as a result of works undertaken by the CAB Rehabilitation Project (Phase 2).

The allocation limit for the Birdrong resource is currently at 30 GL/year. It is anticipated that the limit will be reviewed and increased in 2009 as per the plan's principle to maintain use at 70 per cent of the allocation limit. This is due to the water savings through the CAB Rehabilitation Project, as well as pending applications that the department is assessing.

*Table 1 Allocation statistics*

Subarea	Resource	Allocation limit (GL/yr)	No. current licenses	Current licensed allocations (GL/yr)	Water available
Zuytdorp/ Ningaloo	Carnarvon – Birdrong*	30	27	9.6 (27.8 requested)	Aquifer is managed on a pressure basis, with a nominal allocation limit for licensing purposes.

\* The Birdrong Sandstone aquifer is the main aquifer and applications in the Carnarvon Artesian Basin will be assigned to that aquifer.

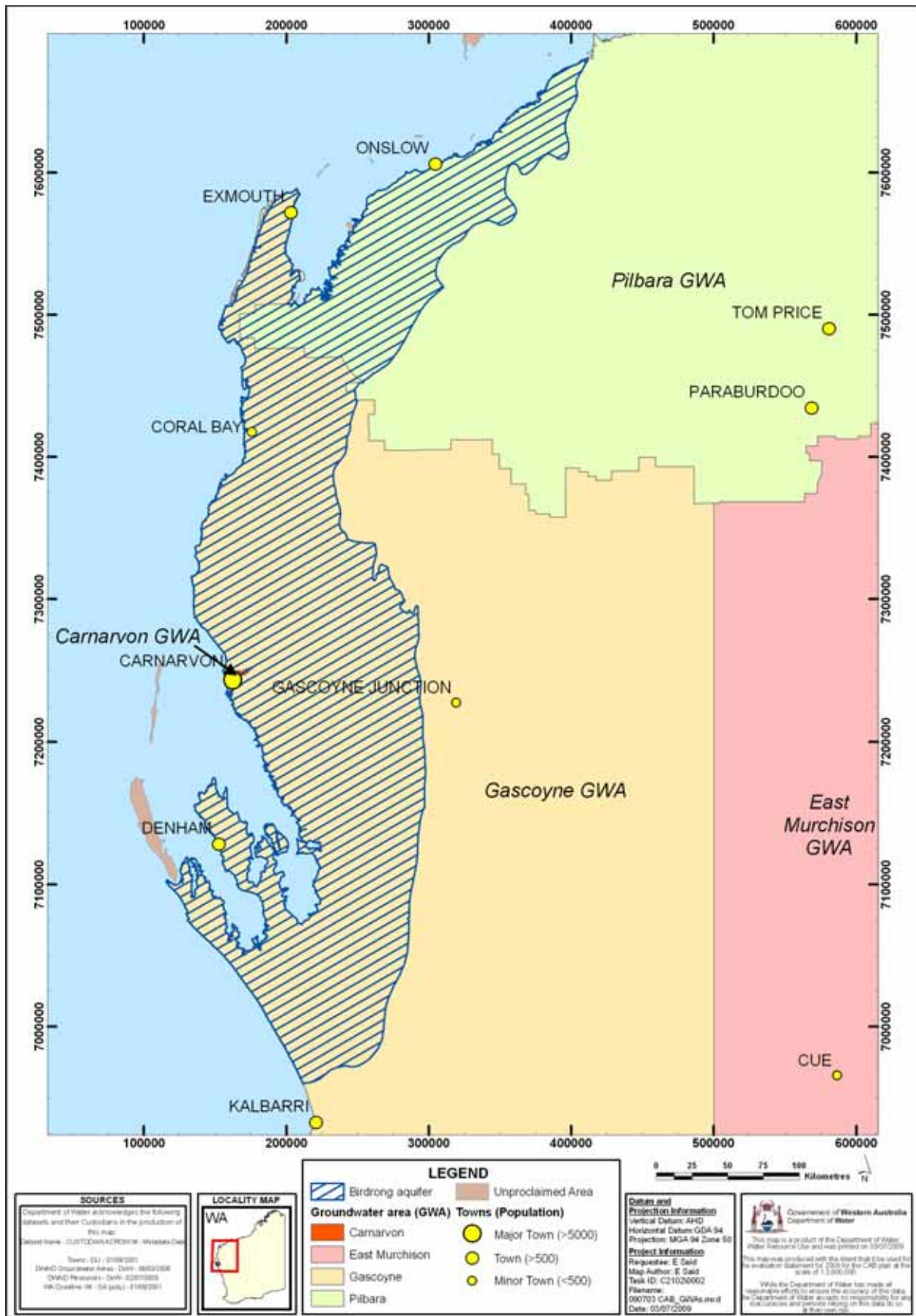


Figure 1 Carnarvon Artesian Basin (Birdrong aquifer)



## 1.3 New allocation issues

The *Carnarvon Artesian Basin water management plan* provides the key strategies to address water allocation issues in the area. During the past year several issues have emerged in relation to the plan's implementation. The main issues raised by licensees include:

- salinity sampling requirements
- metering conditions
- development of operating strategies
- new licence applications
- departmental monitoring programs.

The department has responded to and resolved these issues as they have been raised. These are documented in the regional office.

## 1.4 Performance against plan objectives

A summary of the allocation objectives and their performance over the past year (December 2007 to December 2008) is provided in Table 2.

*Table 2 Summary of performance against resource objectives*

Objective	Performance indicator	Evaluation summary
Maintain pressure heads in the Birdrong sufficiently to allow pastoral users to operate efficient distribution systems.	Pressure levels remain stable in artesian bores compared with pressure at time of drilling (baseline level).	<ul style="list-style-type: none"><li>• Standardised pressure gauges have been installed on the majority of artesian bores in the CAB (total of 41 installed).</li><li>• Groundwater licences in the CAB have been progressively amended to include monitoring conditions for pressure.</li><li>• The department has developed an annual monitoring program for pressure levels for the CAB. This will be implemented in 2009.</li></ul>

Objective	Performance indicator	Evaluation summary
Ensure groundwater resources are allocated reasonably and used appropriately in the long term.	All artesian use will be licensed.  All sub-artesian use will be licensed.	<ul style="list-style-type: none"> <li>The aquifer has currently 27.8 GL of water allocated and requested. A total of 27 licensees use water in the aquifer for stock, domestic and commercial purposes.</li> <li>The department has not calculated the percentage of water use not licensed. At the finalisation of the CAB Rehabilitation Project (Phase 2), an estimation of the artesian water use not licensed will be made.</li> <li>Currently no sub-artesian water use is licensed. It is unlikely the department will have the resources to undertake a survey of unlicensed sub-artesian use in the next few years.</li> </ul>
Prescribe the rules and protocols that will apply in assessment of licence applications (and in the future, water resource development proposals and the issue of groundwater resource entitlements).	Provide copy of the plan to stakeholders in the CAB.	<ul style="list-style-type: none"> <li>The department sent letters to all registered stakeholders in early 2008 when the plan was released.</li> <li>The Carnarvon office has received 15 applications for groundwater licences in the CAB.</li> </ul>
Prescribe monitoring requirements for the groundwater resource.	A monitoring program is developed and implemented.	<ul style="list-style-type: none"> <li>The department has developed an annual monitoring program for the CAB.</li> <li>Licences are being amended to include monitoring conditions. A total of five have already been amended.</li> </ul>
Inform the community about water resource management.	Support Carnarvon Artesian Basin Rehabilitation Group meetings.	<ul style="list-style-type: none"> <li>The department has coordinated quarterly meetings to inform members and subsequently the community about water resource management.</li> </ul>
Clearly state the policies of the department relevant to the CAB.	No performance indicator.	<ul style="list-style-type: none"> <li>The department states the policies relevant to the CAB in the water management plan.</li> </ul>

## 1.5 Progress towards plan actions

A summary of progress towards the Carnarvon Artesian Basin allocation planning actions are provided in Table 3.

*Table 3 Summary of progress towards plan actions*

Action	Evaluation
<b>Status report</b>	
Identify actions required, completed actions, pending actions and track progress of objectives.	This evaluation statement outlines actions and progress in implementing the management plan.
<b>Resource monitoring data management</b>	
Define a monitoring program to ensure appropriate monitoring of regional Birdrong water levels, head pressures, water quality and licence compliance is carried out.	Regional monitoring program has been developed and is being implemented by the department.
Use logs and data from new or recommissioned bores, or information from the CAB Rehabilitation Project (Phase 2), to update the department's WIN database. This database will provide improved information about the status of the Birdrong aquifer.	Regional staff have been updating the WIN database from new bores and new licensing information.
A review of bore logs (where available), as it is now known that some bores in the CAB's southern areas are drawing water from the Windalia Radiolarite/Sand Aquifer or the Kopke Sandstone.	<p>Bore logs from the CAB Rehabilitation Project (Phase 2) are being reviewed by the regional hydrogeologist.</p> <p>It is unlikely the department will have the resources to undertake a complete review of bore logs at this time. As licences are renewed or amended, the bore logs may be referred to the regional hydrogeologist for review depending on level of application.</p>
<b>Resource investigation</b>	
Consider whether unproclaimed areas within the CAB need to be proclaimed. Pressure on the resource and the priorities of other proclamation projects will determine if and when proclamation of these areas will occur.	The pressure on the resource is manageable currently. The department has not considered the proclamation of additional areas (offshore islands) at this time.
An assessment of unlicensed water use is to be undertaken.	Regional staff may undertake a desktop review of potential unlicensed water use in 2009 at the finalisation of the CAB Rehabilitation Project (Phase 2) in proclaimed areas. This review will depend on available staffing resources and will be focused on unlicensed artesian water. It is unlikely to include sub-artesian water use.

Action	Evaluation
<b>Licensing</b>	
License all relevant use.	<p>Regional staff have implemented licensing requirements as outlined in the management plan. This is an ongoing action and will be addressed progressively throughout the life of the plan. It is anticipated that all artesian use will be licensed by the end of the plan.</p> <p>A total of five licences have been issued or revised, and a number of additional applications have been received and are being assessed. Departmental meters have been installed on 10 bores, while licensees have installed a further 21 meters.</p> <p>Licensing of sub-artesian use will depend on resources in the region. This is considered a lower priority than artesian use.</p>
A formal water-use survey and follow-up compliance program will be carried out before this plan is reviewed to confirm changes in water use and ensure accurate accounting and licensing of water for future planning.	No action has been undertaken to date. When modelling and monitoring show the aquifer is becoming fully allocated, this will be undertaken.
Engage users in program of awareness of trading concepts.	No action has been undertaken to date. When modelling and monitoring show the aquifer is becoming fully allocated, this will be undertaken.
<b>Allocation planning</b>	
Review allocation plan in five years or as requested.	No action has been undertaken to date. The review will take place in five years unless the Minister requests it beforehand or an update is needed because of legislative change.

## 2 Conclusions

- Implementation of the plan's key strategies have been effective in meeting the plan's objectives.
- A number of strategies are for the CAB's long-term management. These will continually be reviewed to ensure effective management of the resource.
- A number of issues have been highlighted in the licensing process for the CAB. These have been resolved through consultation with stakeholders. These issues have resulted in amendments to licensing conditions, primarily in the areas of metering and monitoring. It is anticipated that licensing conditions will continue to evolve with the plan's application and implementation.
- The CAB Rehabilitation Project (Phase 2) has played an important role in the plan's implementation and several of its key objectives. This project involved rationalising free-flowing artesian bores and included extensive consultation with users of the resource through regular site visits and committee meetings.
- The department is implementing an annual monitoring program, in addition to monitoring conducted by individual licensees.
- The department will update and maintain the groundwater flow model for the CAB with monitoring data as it is received. New applications will continue to be initially assessed for potential impacts using this model.
- The allocation limit for the Birdrong resource is currently at 30 GL/ year. It is anticipated the limit will be maintained such that 70 per cent is allocated, as per the plan's principle to maintain use at this level.
- Implementation of the plan will continue and no formal review is required at this time.





*Looking after all our water needs*

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