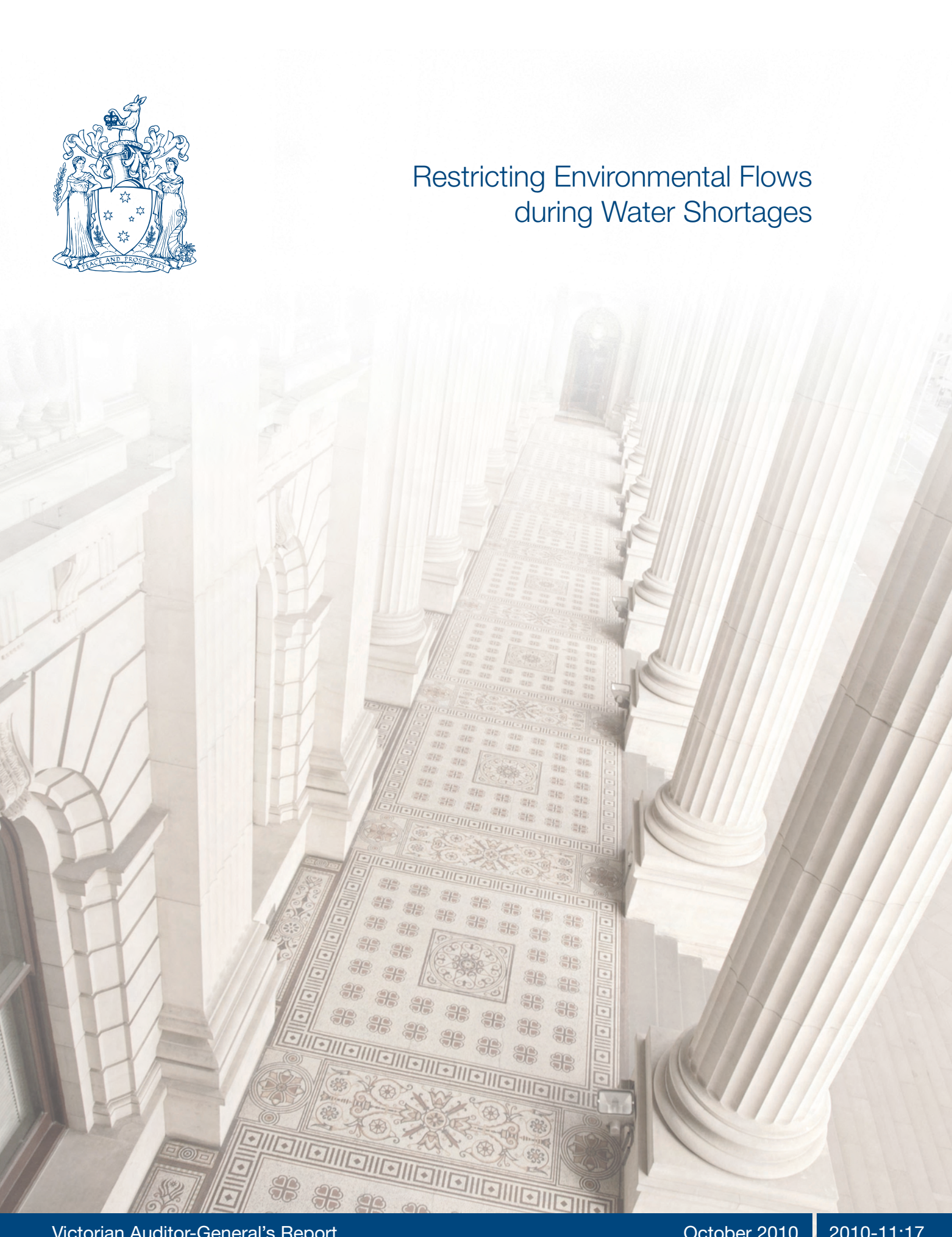
Restricting Environmental Flows during Water Shortages



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Restricting Environmental Flows during Water Shortages

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Victorian Auditor-General's Office

Auditing in the Public Interest

The Hon. Robert Smith MLC
President
Legislative Council
Parliament House
Melbourne

The Hon. Jenny Lindell MP
Speaker
Legislative Assembly
Parliament House
Melbourne

Dear Presiding Officers

Under the provisions of section 16AB of the *Audit Act 1994*, I transmit my performance report on *Restricting Environmental Flows during Water Shortages.*

Yours faithfully

D D R PEARSON
Auditor-General

7 October 2010

Contents

Audit summary

Victoria has around 85 000 kilometres of rivers, streams, creeks and estuaries. These natural waterways supply water for towns, farms and businesses, and contribute to local economies through industries, such as boating and tourism. River flows provide important benefits to aquatic ecosystems, which vary depending on the timing and quantity of delivery. In 2005, the government created the environmental water reserve under the *Water Act 1989* to preserve the health and environmental values of natural waterways.

The prolonged drought that began in 1997 in many parts of Victoria seriously affected the surface water available for communities and the environment. When there is less water, the government needs to ration community and environmental water use. Ways of doing this include placing mandatory restrictions on external uses, such as parks, gardens and lawns, and seeking voluntary reductions in internal use by residences, industry and business.

Under the *Water Act 1989*, when there is less water available, the Minister for Water can declare a water shortage and temporarily 'qualify' rights to water, including the environment's rights. This means the minister can alter access to water by either restricting—reducing or suspending—or increasing them to meet a critical need. The *Water Act 1989* also allows the minister to alter water rights under a ministerial direction. This restricts or increases rights in a similar way to a temporary qualification.

The objective of the audit was to assess how effectively the Department of Sustainability and Environment (DSE), water corporations and catchment management authorities (CMA) managed temporary restrictions on surface water rights to meet critical needs, including steps to minimise river health damage. The report examines the strength of the advice and information DSE and water corporations used to justify restricting water rights. It also examines how the effectiveness of these restrictions was assessed, and how DSE, water corporations and CMAs managed the environmental risks on three rivers—the Tarwin, Wimmera and Yarra.

Conclusions

DSE and two of the three water corporations examined did not effectively manage restrictions to environmental water rights. DSE's justification requirements for water corporations wanting to temporarily restrict water rights are sound. However, the water corporations did not consistently follow these guidelines.

Slow action to address environmental risks by South Gippsland Water and a lack of action and limited accountability by Grampians Wimmera Mallee Water (GWMW) around environmental risks meant that it was not possible to demonstrate that the environment had not been unnecessarily put at risk for the Tarwin and Wimmera rivers.

Limited DSE oversight of how the environment's water rights were restricted meant it could not judge whether the restrictions were effective. This meant it could not effectively identify improvements. DSE did not enforce its own requirements, effectively de-valuing the need to justify environmental water right restrictions.

Findings

Justifying the need

DSE's requirements for justifying alterations to water rights and managing identified risks are sound. However, only Melbourne Water and the three Melbourne water retail companies' proposals to restrict rights on the Yarra River fully applied them.

It was clear that the drought led to water shortages in communities that depend on the Tarwin, Wimmera and Yarra rivers. However, GWMW's justifications for the Wimmera River restrictions did not state the critical volume of water required to meet emergency needs, or the expected volume from emergency demand and supply measures. The proposals for both the Tarwin and Wimmera rivers did not comply with DSE's requirement for a comprehensive assessment of environmental risks and strategies to manage them.

DSE provided minimal guidance about the conditions for justifying water shortages and critical needs. Clearer, more comprehensive guidance would minimise proposal inconsistencies and prevent overly subjective assessments.

The water corporations' focus on critical needs shifted from an emergency response of supplying urgent and short-term needs, to a risk-management approach, securing supplies in the longer-term to meet future needs. While this is positive, there is a lack of guidance on what sorts of longer-term risks are temporary emergencies. This needs to be resolved to aid consistent and fair assessments of the temporary nature of proposed restrictions.

Managing environmental impacts

Monitoring the impact of restrictions on the Yarra and Tarwin rivers showed no environmental damage or emergencies. Melbourne Waters' sound risk assessment, monitoring programs and annual assessments of impacts on the Yarra provided adequate assurance of this outcome. There was less assurance for the Tarwin River because there was little baseline data to compare against.

There was little specific monitoring of the impacts of restrictions on the Wimmera River. However, data from other monitoring programs showed the river's health had worsened following environmental water restrictions.

Only Melbourne Water's analysis of its emergency measures to secure supplies for Melbourne considered the outcomes from restricting river flows, as well as the outcomes from other demand and supply measures.

While DSE acted to understand and improve the use and management of the 65 temporary alterations to surface water rights since 2006, its approach was not systematic. DSE needs to improve transparency and accountability for the management of, and outcomes from, restrictions to water rights to assure effective use of this emergency measure.

Recommendations

Number	Recommendation	Page
1.	To create consistent and comparable approaches across different waterways for restricting environmental water rights and managing environmental risks, the Department of Sustainability and Environment should: • enforce uniform compliance with its requirements for justifying the restriction of water rights, with a particular focus on the consistency and completeness of the information • standardise the information in ministerial briefings for restriction proposals against each of its information requirements • clarify what the terms 'water shortage', 'critical need' and 'temporary emergency' mean, and what needs to be considered for each • apply its information requirements to the management of any ministerial directions in the same way as a temporary qualification of rights • provide an easily understandable and publicly accessible summary of the rationale for each water shortage declaration that includes justification of the critical need, temporary nature, environmental considerations and environmental risk management for each qualification to water rights, or ministerial direction used in this way.	20
2.	The Department of Sustainability and Environment should strengthen how the environmental risks of restricting environmental water rights are managed, by: • requiring CMAs to plan and implement monitoring, mitigation and recovery programs for rivers without a tradeable entitlement as well as for those with one • overseeing the planning, implementation and outcomes of environmental risk management, for example through the proposed Environmental Water Holder.	20

Recommendations – *continued*

Number	Recommendation	Page
3.	The Department of Sustainability and Environment should: • effectively oversee restrictions and perform a quality assurance and continuous improvement role • enforce its requirements for water corporations and catchment management authorities to review and report on the effectiveness of restrictions to water rights.	28
4.	The Department of Sustainability and Environment, water corporations, and catchment management authorities should report publicly on the management of restrictions and the outcomes achieved. In particular: • the Department of Sustainability and Environment should include consistent and comprehensive information on restrictions to water rights in the Victorian water accounts and publish them within 12 months of the end of each financial year • water corporations and catchment management authorities should include references in their annual reports to their compliance with the restrictions, and success or otherwise in managing risks to the community and the environment, according to the responsibilities the Department of Sustainability and Environment has assigned to them.	28

Submissions and comments received

In addition to progressive engagement during the course of the audit, in accordance with section 16(3) of the *Audit Act 1994,* a copy of this report, or relevant extracts from the report, was provided to the Department of Sustainability and Environment, City West Water, Grampians Wimmera Mallee Water, Melbourne Water, South East Water, South Gippsland Water, West Gippsland Catchment Management Authority, Wimmera Catchment Management Authority and Yarra Valley Water with a request for submissions or comments.

Agency views have been considered in reaching our audit conclusions and are represented to the extent relevant and warranted in preparing this report. Their full section 16(3) submissions and comments together with my acquittal responses to the Managing Director, Grampians Wimmera Mallee Water; the Managing Director, South Gippsland Water; and the Chief Executive Officer, Wimmera Catchment Management Authority, are included in Appendix B.

1 Background

1.1 Introduction

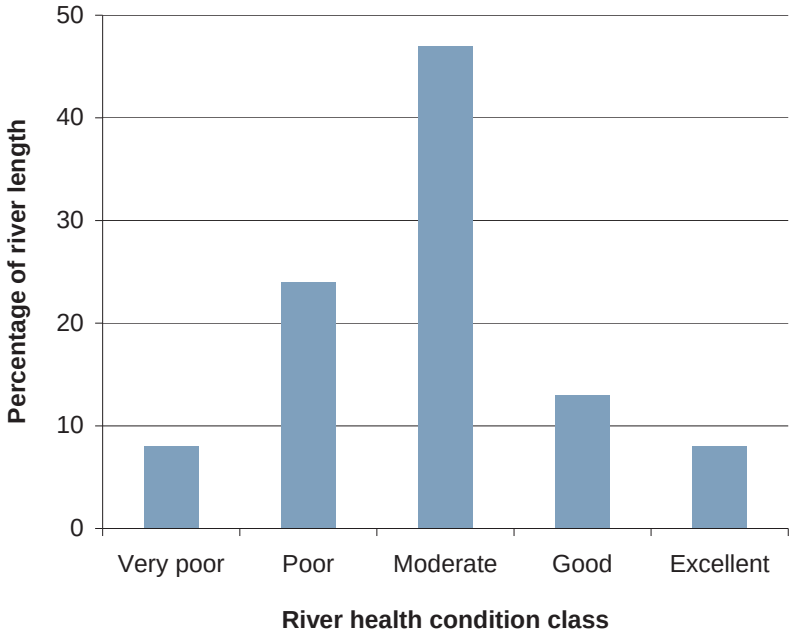
Victoria has around 85 000 kilometres of rivers, streams, creeks and estuaries. These natural waterways supply water to towns, farms and businesses, and contribute to local economies through industries, such as boating and tourism.

Rivers are also important to the health of the environment. They support diverse species of water-dependent native plants and animals in the river channels and along their banks, floodplains and estuaries. They also perform important functions, such as processing nutrients in the landscape and providing fish breeding sites. Together, these are necessary to maintain environmental balance, or 'river health'.

Over the long-term, in an average year, around 27 million megalitres (ML) of water flows along these inland waterways—slightly more than the volume of water in Port Phillip Bay. The prolonged drought seriously affected the amount of available surface water in Victoria. In 2006–07, total flows across the state's inland waterways were only around 7.1 million ML, or 26 per cent of the long-term average volume. Flows in the Wimmera River were 14 per cent of the long-term average.

The last statewide assessment of river health in 2004 showed that only 21 per cent of rivers and streams were in good or excellent condition, whereas 32 per cent were in poor or very poor condition. The Department of Sustainability and Environment (DSE) plans to release the third benchmark report in 2011. Figure 1A shows the condition of rivers and streams in 2004.

Figure 1A
Statewide condition of rivers and streams in 2004



Source: Victorian Auditor-General's Office from *Index of Stream Condition: The Second Benchmark of Victorian River Condition*, Department of Sustainability and Environment, 2005.

1.2 Safeguarding environmental benefits

The 2002 *Victorian River Health Strategy* set the 10-year direction for river and floodplain protection and management. It prioritised high-value natural assets, such as a section of river in good condition, a wetland with cultural significance or an important native fish species, for protection and restoration.

River health programs use a range of protection and restoration approaches to meet these priorities. These include works, such as stabilising riverbanks and reducing the level of nutrients entering the waterways. River management also focuses on improving water flows to meet river health needs, through the way water is extracted from rivers or released from water storages.

This benefits water ecosystems, depending on timing, amount and duration of delivery. For example, short periods of higher flow over summer can improve water quality and trigger fish breeding. Higher flows over winter and spring can flush sediment from channels and add nutrients back to floodplains.

1.2.1 Environmental water reserve

Recognising the importance of environmental releases, the 2004 *Our Water Our Future* policy required water managers to return water to the environment to maintain river health. This requirement was realised in 2005 through the creation of the environmental water reserve (EWR) under the *Water Act 1989*. This did not affect existing consumptive water rights.

The EWR, which is the amount of water legally set aside for the environment, aims to preserve the environmental values and health of water ecosystems, and comprises surface water from:

- **unallocated water**—any extra water in the rivers and streams not allocated for consumption, provided primarily through high inflows and unregulated spills from storages. This water is the main source of the reserve, and the part most susceptible to climate change
- **passing flow obligations**—the flows that water corporations and licensed diverters must release from a dam or allow to flow past a water extraction point, to meet environmental needs
- **environmental entitlements**—legal shares of available water held in water storages. The Minister for the Environment holds these shares, which provide the most secure source for the reserve and apply to around 5 per cent of the length of Victoria's rivers. For example, in an average year the Yarra has an unallocated flow of 597 000 ML, passing flow obligations of 3 000 ML and its environmental entitlement of 17 000 ML, or 3 per cent of the unallocated flow.

The volume of water in the EWR in any year depends on rainfall. There are bigger reductions to the environmental share when there is less than average rainfall. When this happens, it is less likely that the environment will get the water needed to support healthy water ecosystems.

Water corporations are responsible for managing the unallocated water and passing flow obligations of the EWR. The Minister for the Environment is responsible for managing environmental entitlements, although the recently created Environmental Water Holder will take responsibility for environmental entitlements from July 2011.

The Victorian environmental flow monitoring and assessment program, which measures the outcomes of environmental releases on eight major rivers, complements the EWR.

1.3 Balancing environmental and community needs

As well as meeting the environmental needs, water has several consumptive uses, such as drinking, stock water, irrigation and industrial. The amount of water for these purposes in any year depends on rainfall and inflows in that year, and the water in storages from previous years.

Water corporations forecast future demand and availability of water and plan how they will meet that demand in the short and long-term. They also plan how they will manage supplies in drought conditions. The 2004 *Our Water Our Future* policy introduced 50-year regional water resource planning to strengthen water security and sustainable water use, including environmental flows. There are regional plans for the central and northern regions and the western and Gippsland regions are developing them. The development of the Victorian water grid from 2007 aims to further bolster water security by creating a network of waterways and pipelines for transferring water across greater areas of Victoria in response to need.

When there is less water available, use is rationed and reduced using several methods, including placing mandatory restrictions on external uses, such as parks, gardens and lawns, and seeking voluntary reductions in internal use by residences, industry and business.

In addition, the Minister for Water has emergency powers under the *Water Act 1989* to direct water towards a specific use or uses. This happens by altering access to water by either restricting—reducing or suspending—or increasing the water rights of others, including the environment, during times of declared water shortage to meet the specific use. The minister can do this through two different powers: 'temporary qualification' and 'ministerial directions'.

Temporary qualifications

Under the *Water Act 1989*, the Minister for Water can temporarily alter water rights in an area or river system to meet a declared water shortage. The water shortage may be either in the same area or system, or elsewhere. The minister declares a water shortage when they are satisfied that the volume or quality of water is, or will soon be, inadequate to supply water rights.

DSE requires water corporations to provide specific types of information to quantify the water shortage, justify the need to alter water rights, and show how they will manage impacts on other users, including the environment.

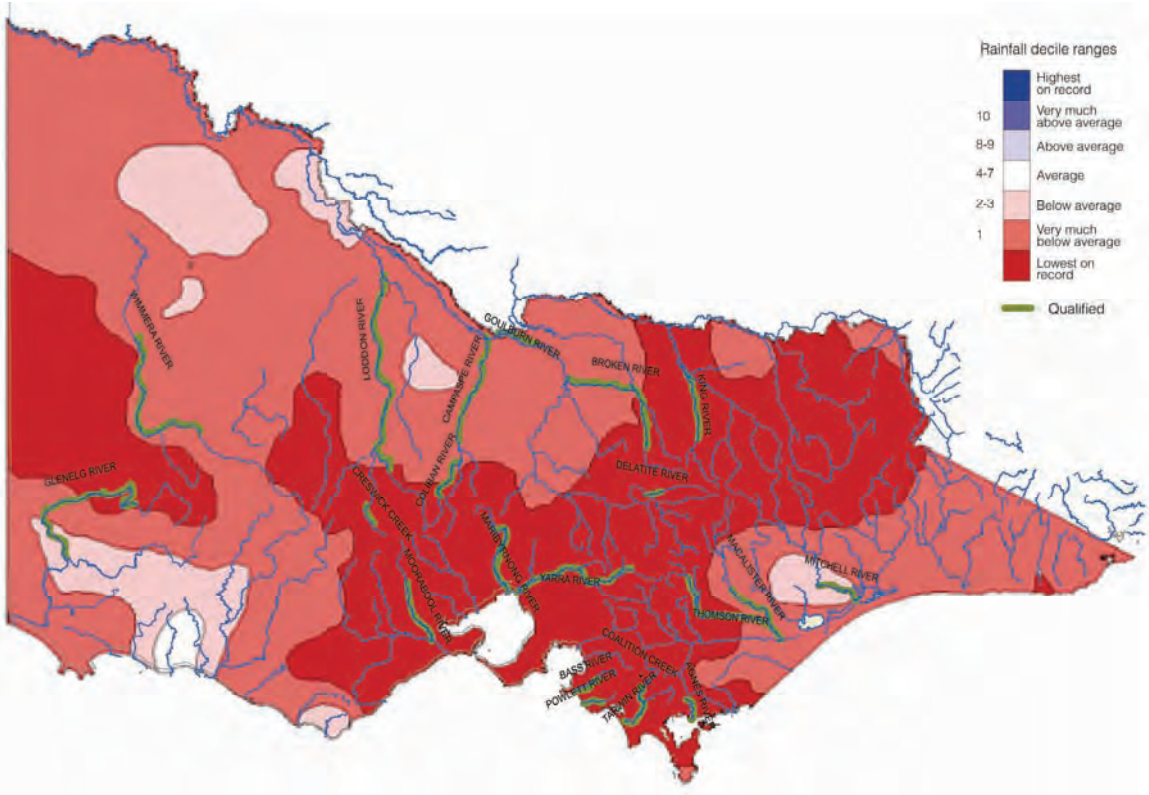
Ministerial directions

The *Water Act 1989* enables the Minister for Water to direct a water authority on how it performs any of its functions or exercises any of its powers. The minister can use this power to direct water corporations to alter water rights, in a similar way to a temporary qualification. There is no guidance about how to manage such a direction.

Exercising powers

Between September 2006—when the first temporary alteration to water rights from the drought was approved—and June 2010, the Minister for Water reallocated surface water to meet critical needs 65 times. Of these, 42 involved restricting environmental water rights, affecting 22 waterways across 12 of Victoria's 29 river basins. Six of the 42 restrictions came as ministerial directions and the rest were temporary qualifications. Ministerial directions were not used after June 2007. Figure 1B shows the rivers that have had environmental flows restricted.

Figure 1B
Temporary restrictions to environmental water flows
July 2006–June 2009



Notes: Environmental flows were restricted in two rivers to meet water shortages in other areas of the state:
(a) in the Goulburn River, for Bendigo, Ballarat and Melbourne
(b) in the Thomson River, for Melbourne and the Werribee and Bacchus Marsh irrigation areas.

Source: Department of Sustainability and Environment.

Figure 1C shows the chronology of environmental water restrictions for the three rivers examined for this audit, the restriction type and the months the restrictions operated. Appendix A describes the characteristics of these rivers.

Figure 1C
Chronology of suspensions and reductions of environmental flows in the Tarwin, Wimmera and Yarra rivers

River	Period of restriction	Restriction type	Months
Tarwin	14 November 2006–05 March 2007	Ministerial direction	4
	05 March 2007–30 June 2007	Temporary qualification	4
	01 July 2007–18 October 2007	Temporary qualification	4
	13 June 2008–30 June 2010	Temporary qualification	24
	Total months		**36**
Wimmera	31 October 2006–30 June 2007	Ministerial direction	8
	03 January 2008–31 October 2008	Temporary qualification	10
	Total months		**18**
Yarra	16 April 2007–20 October 2007	Temporary qualification	6
	20 October 2007–10 March 2010	Temporary qualification	29
	10 March 2010–ongoing	Temporary qualification	7[(a)]
	Total months		**42[(a)]**

Note: (a) The period of this restriction was 7 months as at October 2010. The restrictions on environmental flows for the Yarra River are not expected to end until Melbourne is on Stage 1 water restrictions.

Source: Victorian Auditor-General's Office.

1.4 Responsibilities for temporarily restricting flows

The agencies that manage temporary changes to water rights, including restricting environmental flows, are DSE, water corporations and catchment management authorities (CMA).

Department of Sustainability and Environment

DSE advises the Minister for Water on requests to temporarily restrict environmental flows. It also advises the Minister for the Environment if it plans to reduce or suspend the environmental share of water in storages, or if there are significant environmental issues. DSE advises and, if needed, supports the water corporations and CMAs in justifying the need to restrict environmental flows and planning how best to manage the environmental risks. DSE also manages some environmental entitlements on behalf of the Minister for the Environment.

Water corporations

As the water resource managers, water corporations are responsible for identifying water shortages and ways to address them. This includes identifying situations where existing or forecast supplies will not meet critical needs and requesting any temporary changes to water rights to meet these needs.

Before March 2008, the water corporations were also responsible for identifying environmental risks, and developing and implementing risk management programs. Since March 2008, they have been responsible for identifying risks and responding to any environmental emergencies. However, they have only been required to monitor and manage environmental risks for rivers *without* an environmental entitlement.

Catchment management authorities

CMAs and Melbourne Water are the waterway managers and are responsible for the health of rivers and streams. They manage the majority of environmental entitlements on behalf of the Minister for the Environment. They identify and manage environmental risks from temporary flow restrictions in rivers *with* environmental entitlements, as well as advising water corporations on environmental risks and management in rivers *without* an entitlement. Figure 1D summarises these responsibilities.

Figure 1D
Responsibilities of agencies involved in requesting and managing temporary restrictions to river flows

Process step	Water corporation	Waterway manager (CMA/Melbourne Water)	DSE	Minister for Water
Water supply drought planning	Primary responsibility		Advise on drought planning	
Notify DSE of intention to request changes to water rights	Primary responsibility		Provide guidance on process	
Prepare supporting information	Primary responsibility[(a)]	Prepare to manage environmental risks (rivers with water shares in storage)	Advise agencies	
Request Minister to change rights	Primary responsibility		Brief Minister[(b)]	Minister considers request
Notify affected parties	As advised by Minister or DSE			Minister notifies statutory authorities
Extract/withhold water and respond to emergencies	Primary responsibility[(a)]			
Manage risks to environment	Primary responsibility (rivers without water shares in storage)[(a)]	Primary responsibility (rivers with water shares in storage)		
Report to DSE on effectiveness	Effectiveness in meeting critical need	Effectiveness in managing risks to environment	Review effectiveness	

Note: (a) In consultation with the waterway manager.
(b) Including the Minister for the Environment when a river with water shares in storage is affected or there is a significant environmental issue.
Licensing authorities and storage operators advise on managing risks to other users.
Source: Department of Sustainability and Environment.

1.5 Audit objective and scope

The audit assessed how effectively DSE, water corporations and CMAs have managed restrictions to environmental water rights to meet critical needs, whether they were granted as qualifications or as ministerial directions. For three rivers—the Tarwin, Wimmera and Yarra—it examined the processes used and advice provided to justify restricting environmental rights to water. It also examined the steps to identify and manage associated environmental risks.

As well as DSE, the agencies examined in the audit included:

- South Gippsland Water and West Gippsland CMA—Tarwin River
- Grampians Wimmera Mallee Water and Wimmera CMA—Wimmera River
- City West Water, South East Water and Yarra Valley Water, collectively referred to as the three Melbourne water retail companies, and Melbourne Water—Yarra River.

The audit was performed in accordance with the Australian Auditing and Assurance Standards. The cost of this report was $225 000.

2 Justifying alterations to water rights

At a glance

Background

When a water corporation asks the Minister for Water to temporarily alter water rights to meet critical needs, it must demonstrate the forecast shortfall, justify the use of these rights, and demonstrate that it will manage potential impacts on other users effectively, including the environment.

Conclusion

The Department of Sustainability and Environment (DSE) has a sound process for water corporations that want to temporarily alter water rights to meet critical needs during water shortages. However, in some cases DSE and water corporations have compromised the effectiveness of this process through poor oversight, inconsistent application and a limited understanding of the risks.

Findings

- DSE's justification requirements for altering water rights and managing identified impacts are sound.
- Only proposals to restrict rights on the Yarra River followed all of DSE's requirements.
- Tarwin River proposals met DSE's requirements for justifying need, but plans to manage environmental risks were inadequate. The Wimmera River justifications and the risk management were poorly developed.

Recommendations

- The Department of Sustainability and Environment should enforce compliance with its requirements to justify alterations of water rights, and provide standardised information in briefings, which support proposals for alterations.
- The Department of Sustainability and Environment should strengthen the management of the environmental risks of altering environmental water rights.

2.1 Introduction

River flows provide water for communities and protect the environmental health of rivers and surrounding areas. Balancing the needs of the environment and community, particularly in times of water shortage, is a challenging task that requires tough decisions about the greatest need.

Understandably, community and human consumption needs will often take priority over the other user needs. Decisions about restricting river flows need to be carefully considered, particularly in rivers with high environmental values and rivers that are already stressed by low flows or poor water quality.

The basis of decisions to restrict river flows—through temporary qualification or ministerial direction—should be sound advice that assesses the critical need, the use of alternative sources of water, the environmental risks and how to manage them.

2.2 Conclusion

The Department of Environment and Sustainability (DSE) has a sound process for water corporations requesting temporary restrictions to water rights to meet critical needs during water shortages. However, poor oversight compromises its effectiveness.

The lack of information in the Tarwin and Wimmera rivers' proposals made it difficult to weigh critical needs against the environmental risks in decisions about restricting water rights.

The lack of definition and response to risks facing the Wimmera River and late identification and management of environmental risks facing the Tarwin River give little assurance that the environment was not at risk of unnecessary environmental damage.

2.3 Requirements for justifying restrictions

The *Water Act 1989* allows the Minister for Water to temporarily 'qualify', or alter, water rights if water availability is, or is likely to be, inadequate to satisfy water rights. A 'shortage' is when the volume or quality of water is inadequate to satisfy water rights. The *Water Act 1989* does not define what an inadequate volume or quality is, or how those proposing restrictions to a water right should demonstrate a shortage.

To provide clarity, DSE progressively developed and communicated requirements for water corporations to follow for proposals to alter water rights, including restricting environmental water rights. These were first issued in September 2006, with additional detail added in October 2006 and March 2008.

The current guidelines provide adequate information about roles and responsibilities, about the information required to justify a restriction and about managing restrictions. DSE could improve the usefulness of its guidelines through better definitions of water shortages and critical needs—an additional requirement included in the 2008 guidelines, which must be met before restrictions on water rights will occur.

DSE developed the information requirements to bring consistency to proposals for restricting water rights through temporary qualifications. Restrictions to environmental water rights can happen via ministerial directions, although DSE has not released any requirements for this.

DSE advised that the water corporations proposed the initial restrictions to the Tarwin and Wimmera rivers as temporary qualifications before DSE's legal advice showed that ministerial directions were more appropriate. Therefore, DSE's information requirements were as relevant to these ministerial directions as they were to the other restrictions examined, which the minister granted as temporary qualifications of rights.

2.4 Identifying the need to restrict rights

Under the *Water Act 1989*, the environment's rights can only be restricted if the Minister for Water has declared that there is a water shortage. Under this requirement, water corporations are responsible for showing that there is a water shortage, or a forecast water shortage, and providing evidence to support this.

For the three rivers examined—the Tarwin, Wimmera and Yarra—each relevant water corporation expressed a need for extra water, to be met by restricting the environment's right to water. However, the extent to which the water corporations justified the need varied across the three proposals. The Wimmera River proposal did not meet DSE's information requirements.

2.4.1 Establishing a water shortage and critical need

Demonstrating a water shortage

All the water corporations used similar criteria to demonstrate water shortages. These included falling storage levels, restrictions on residential water use and other water consumers, and a range of emergency demand and supply measures.

They also had to assess the extent of the available water shortfall in meeting forecast community consumption needs. The proposals for the Yarra and Tarwin rivers clearly quantified the shortfall. The initial proposal for the Wimmera River included the quantity of extra water required—2 000 megalitres (ML). This figure was not based on forecasting demand and supply, and estimating delivery volumes by reducing demand and sourcing extra water. Accordingly, there was no assurance that the 2 000 ML was a shortfall, or that restriction of environmental water rights was warranted.

As Figure 2A shows, the basis of critical shortfall for both the Yarra and Tarwin rivers was quantified.

Figure 2A
Assessment of the initial critical shortfall in megalitres

		Volume provided through measures to meet shortfall			
River	Critical shortfall	Reduced demand	Additional supply	Remaining shortfall	Environmental water provided
Tarwin[(a)]	>5.2/day	1.2/day	2.3/day	>1.7/day	Up to 4.5/day[(b)]
Wimmera[(c)]	2 000 ML	Not identified	Not identified	Not identified	3 585 ML
Yarra[(d)]	95 000 ML	6 500 ML	34 000 ML	54 500 ML	55 000 ML[(e)]

Note: (a) For the period October 2006 to June 2007 at latest, minimum shortfall was 5.2 ML per day but additional water was required to provide a reserve for the following summer.
(b) Up to 3.5 ML per day from Tarwin River and up to 1 ML per day from Coalition Creek (to a maximum of 250 ML per year).
(c) For the period October 2006 to June 2007 at latest.
(d) For the period April 2007 to December 2008.
(e) Includes up to 10 000 ML made available through deferring new passing flow requirements.
Source: Victorian Auditor-General's Office.

Establishing a critical need

Under the *Water Act 1989,* water corporations must justify a water shortage. DSE has provided further definition around this by requiring water corporations to consistently:

- show that the water shortage was an emergency—referred to as a 'critical need' from 2008
- show that all other possible means of addressing the shortage had been, or were being implemented, including the highest levels of water restrictions
- show the impact of severe water shortage on major industrial users
- consider water for human survival as the most important use of extra water.

The Tarwin and Yarra rivers' proposals complied with critical need requirements, but the Wimmera River proposals did not. An assessment of the initial proposals for restrictions follows.

Tarwin River, 2006

For the Tarwin River, the emergency needs that South Gippsland Water identified were threefold: to supply a local industry with strong economic ties to the region; to shore up drinking supplies over the summer; and to manage the risk of insufficient supply the following summer. The primary emergency was as much about commercial need as human need. The information provided met the requirements.

Strengthening the case for the emergency water shortage were small water storages and a small reserve. This was enough when there was average rainfall, but when the storages did not fill during the drought this reserve depleted quickly. South Gippsland Water estimates that 5.2 ML per day was the total volume needed to maintain supplies through summer.

Wimmera River, 2006

Following successive dry years in the Wimmera region, in August 2006 the volume of water in storages fell to 50 750 ML, or 7 per cent full.

The emergency needs that Grampians Wimmera Mallee Water (GWMW) identified for the initial Wimmera River proposal included a water reserve for fire fighting, and combating possible water contamination from blue-green algae. In addition, GWMW identified the need for a drinking water reserve in subsequent years, in case of continued drought. Some in the community were not in favour of releasing the water to the environment.

The minimum volume needed to cover these contingencies was estimated at 2 000 ML, although the calculation method for this figure was not provided. As a result, GWMW's proposal did not meet DSE's information requirements for justifying the need.

Around 3 500 ML was held in reserve—more than the estimate—despite earlier advice from DSE and the catchment management authority (CMA) that this would pose major risks to the environment.

In spring 2007, GWMW released some of the water withheld from the environment in 2006 into the river. At the time, inflows remained low, with less than average rainfall forecast. Yet GWMW used open channels to fill farm house dams, causing evaporation and seepage losses of around 26 000 ML, even though the storage volume had not reached its 10 per cent prerequisite. It did this rather than cart water to fill them, which was estimated to cost up to $3 million.

In January 2008, the GWMW again proposed withholding the environmental allocation until conditions improved. This restriction became necessary because GWMW went against its own guidelines by filling the farm house dams in 2007.

Yarra River, 2007

For the Yarra River, the emergency need in April 2007 was avoiding forecast Stage 4 water restrictions. This complied with the requirement for water corporations to have enforced, or soon need to enforce Stage 4 restrictions. Related to this was the need to prevent the potential loss of around 9 500 jobs from the turf, nursery and car wash industries, and the impact on outdoor sports. The basis for the projected job losses was not established. The need to shore up supplies against the risk of continued low inflows was also a consideration.

The total volume needed to prevent Stage 4 restrictions and provide for future needs was about 95 000 ML over two years, with 55 000 ML of that to be taken from the environment.

Temporary nature of alterations

Under Section 33AAA of the *Water Act 1989*, any alterations to water rights must be temporary. However, as with water shortage and critical need, there is no clear definition about what temporary means.

Environmental flows have been restricted on 20 waterways, and on six of them, including the Tarwin and Yarra rivers, there were successive restrictions for three years or more, which were not necessarily continuous. While this is temporary in the context of 50-year consumptive supply and demand planning, sometimes it may be long enough to cause major changes in river health.

In all three cases examined the definition of critical need changed with the application of successive temporary restrictions to river flows. Initially, the focus was on immediate or shorter-term needs. Over time, the approach became more precautionary and focused on mitigating the risk of future water shortages if the low inflows of 2006–07 recurred. Although this is an example of careful planning, DSE has not provided guidance on what types of longer-term supply risks would be considered a temporary emergency.

2.4.2 Considering alternative options

Before requesting a temporary change to environmental flows, a water corporation needs to show that it has implemented or is implementing all feasible supply and demand measures to address the shortfall and prevent future shortfalls. They also need to show how much water these measures will save or provide.

Two of the water corporations had considered demand and supply options as part of their proposals, and implemented the feasible options, as required. GWMW, however, did not state how much more water it expected to generate from demand and supply measures in 2006 and only identified expected volumes from some supply measures in 2008.

Reducing demand

Each of the water corporations used restrictions. The towns supplied from the Tarwin and Wimmera rivers were on Stage 4, whereas Melbourne was on Stage 3a. In the Wimmera, water supplies were severely restricted. For example, irrigation supplies were zero, supply to recreational lakes had been zero since 2000 and commercial supplies to some major customers were limited to 6 per cent. Each water corporation also ran customer education and awareness programs and efficiency promotions, including efficient showerheads, to reduce demand.

Apart from water restrictions, water corporations' demand reduction initiatives were voluntary. The water corporations for the Yarra and Tarwin rivers set voluntary targets for reducing residential and non-residential demand. In 2008–09 the reduction in residential and non-residential use exceeded the targets that the three Melbourne water retail companies and Melbourne Water set in the 2007 joint water conservation plan. South Gippsland Water set targets for residential and non-residential use and met them.

The extra demand strategies that these corporations used to manage their emergency shortages included:

- South Gippsland Water's interest-free loans to support water saving initiatives among non-residential users, and audits of Wimmera-Mallee major water users
- the Melbourne Water retail companies' Target 155 program for residential users, water management action plans for major water users and a range of rebate programs.

In March 2008, GWMW identified additional demand programs and some estimates of the volume that they could deliver to the Wimmera region. It is reviewing its urban residential and commercial demand management now that the Wimmera-Mallee pipeline is complete.

Augmenting supply

Each of the water corporations considered both short- and long-term supply measures to address the immediate need.

The short-term measures included water carting, using recycled water, purchasing water and accessing groundwater. The mix of supply measures implemented varied although the rationale for measure choices was unclear. For example, water carting was used extensively for the Wimmera system but not the Tarwin system, although the water corporation had identified it as a feasible option.

Many of the long-term supply measures required new water infrastructure. This included the building of, and connection to, the desalination plant, pipelines and upgrades to dam outlets. Notable among these were the efforts of GWMW and the state and Commonwealth governments from 2006 to complete the Wimmera-Mallee pipeline in five years, rather than the 10 forecast.

The actual volumes delivered to the Yarra River through augmentation measures met the forecasts. This could not be determined for the Wimmera River because there were no forecasts. The volume delivered through augmentation was less than forecast for the Tarwin River because there was so little groundwater.

Across the state, longer-term augmentation works, such as desalination, along with changes to carry over rules and expansion of the water grid will increase reserve water and the capacity to move it to areas most in need. This should reduce the likelihood of water restrictions and emergency changes to flows over time, although these gains may be lost if climate change reduces inflows.

2.5 Assessing the environmental risks

As part of ongoing waterway management, the CMAs have programs to protect and improve river health. These involve assessing the values of the system and threats to those values, and using monitoring, river improvement works and environmental flows where an environmental entitlement exists, to manage identified risks. In drought, the focus turns to protecting parts of the river system that support river recovery when flows return. These include threatened plant and animal species and river pools that provide drought refuges for plants and animals.

Restricting rights to water during water shortages has the potential to cause major environmental damage if water corporations do not fully understand or manage the risks.

The water corporations, in consultation with local waterway managers—the West Gippsland CMA (Tarwin River), the Wimmera CMA (Wimmera River) and Melbourne Water for the Yarra River—were responsible for identifying the environmental risks from restricting water rights. This included assessing a range of scenarios for changing water flows, and the river's resilience to coping with stress. The water corporations were also responsible for developing plans to manage the risks.

Risk assessments that supported the proposals to restrict environmental water flows varied, from inadequate for the Wimmera River, to comprehensive for the Yarra River. So too did the strategies developed to monitor and manage the risks.

2.5.1 Identifying the risks

While each of the three rivers had regionally important environmental values, the health of the rivers varied, as did the major threats to river health (see Appendix A). Each had different total annual flows and consumption rates, and the volume of the proposed restriction on flows differed. Figure 2B shows the total annual flows for the three rivers, as well as the percentage of consumption and restricted environmental water.

Figure 2B
Water flows and consumption in 2006–07 in megalitres

River flow and water use	Tarwin ML/year	Wimmera ML/year	Yarra ML/year
Total annual flow	73 375	64 900	388 200
Consumptive use	2 209	36 600	79 514
Volume restricted to meet critical needs	692	3 585[(a)]	7 000
Volume at the lower end of the river[(b)]	71 166	100	136 100

Note: (a) This water was returned to the environment in subsequent years.
(b) This may not be the difference between total annual flow less consumptive use and volume restricted to meet critical needs because of evaporation and seepage losses and downstream inflows.
Source: Victorian Auditor-General's Office, using Department of Sustainability and Environment data.

Only Melbourne Water used systematic and comprehensive processes to assess risks to the Yarra River.

Yarra River

There was no risk assessment needed for the first restriction on environmental flows in April 2007 because this did not involve changing existing flows, but delayed the introduction of a new flow regime. Melbourne Water did a detailed assessment for the October 2007 proposal, building on existing knowledge of the flows needed to support a healthy river. It reviewed risks through annual assessments on the impact of restrictions on river health.

Tarwin River

South Gippsland Water strengthened its assessments of the risks of restricting river flows in the Tarwin River in response to the successive restrictions, which allowed more water to be taken over longer periods. However, contrary to DSE's requirements, for the 2006 and 2007 restrictions South Gippsland Water only assessed these risks after restrictions began. There was no risk assessment for the June 2008 restriction, which was in place for two years.

The September 2007 assessment found that continued low flows and restrictions were likely to affect river health and that South Gippsland Water needed to do a quantitative assessment of the Tarwin River's flow requirements. This did not happen until 2009.

When granting the June 2008 proposal, the Minister for Water asked for a flow study to assess whether the flow sharing rules and monitoring developed for the restrictions were adequate, as well as to support future flow-sharing decisions. This was not completed until August 2009.

The water corporation's slow response in properly identifying risks could have compromised river health.

Wimmera River

Although DSE's ministerial briefings and the CMA's correspondence with the Minister for Water had described the risks to the Wimmera River, GWMW did not do a rigorous, systematic assessment of the specific risks. The risks of withholding environmental water on the heritage section of the Wimmera River were assessed for the 2006 restriction but not in 2008, further weakening the assurance that the benefits of withholding environmental water outweighed the risks.

2.5.2 Strategies for managing the risks

In 2006 and 2007, DSE required water corporations to prepare plans for managing and monitoring risks, but it did not indicate which management strategies should be considered. In 2008, DSE specified that this included plans for monitoring impacts, risk mitigation actions, emergency responses and recovery strategies once the restriction had expired.

Yarra River

Melbourne Water took over responsibility for managing the risks to the Yarra River from the three Melbourne water retail companies. It planned a sound environmental management program. The planning showed that the most appropriate way to mitigate potential impacts on fish and other flora and fauna was through restriction rules to stop pumping or providing extra water if water quality or flow reached critical levels. It identified the most likely risks and included detailed plans for monitoring and responding to them.

Tarwin River

The June 2007 restriction for the Tarwin River required pumping to stop if water quality reached critical levels. The 2008 restriction reduced potential impacts further by maximising pumping over winter, which would have less impact on river flows than summer pumping. From 2006, the Minister for Water also requested monitoring. South Gippsland Water did not develop a comprehensive plan, outlining monitoring objectives and site selection rationale, what would be monitored, how the monitoring would be done and how frequently.

South Gippsland Water did not do any extra planning to mitigate risks, respond to emergencies, or support potential recovery needs, even after the Minister for Water specifically required these plans be developed when granting the 2008 restriction.

Wimmera River

GWMW had no plans to monitor the restriction risks for the Wimmera River. The Wimmera CMA agreed to continue its existing monitoring, which it had designed to address different objectives. It directed resources towards drought monitoring and management, but these activities did not specifically examine the impact of the restrictions. The only planned management actions were creating rules for progressively releasing the water as storages filled, and providing emergency releases to protect high-value river reaches, as part of the 2008 restriction.

The water corporations had discussed the environmental management with the waterway managers for each of the rivers. This had resulted in effective identification and planning for the Yarra River, but not for the Tarwin or Wimmera rivers. Following initial decisions to restrict environmental flows, the West Gippsland and Wimmera CMAs raised concerns with the Minister for Water and DSE that the water corporations' strategies for managing risks were inadequate. South Gippsland Water made gradual improvements to the Tarwin River, but GWMW made none for the Wimmera River.

2.6 Weighing the need against the risks

After showing that there is a water shortage, that it is an emergency, and that feasible alternative water sources could not prevent it, the water corporation needs to show that the need for environmental water outweighs the risks to the environment. If satisfied, the corporation should then present the information justifying that case to the Minister for Water, along with the request for the environmental water.

Only Melbourne Water produced enough evidence to show the need to restrict environmental water outweighed the risks to the environment for the Yarra River. The water corporations' proposals for the Tarwin and Wimmera rivers did not comply with DSE's requirements. As a result, DSE's ministerial briefings did not provide consistent summaries against each of its requirements.

Gaps in the information provided meant water corporations and DSE did not consistently or reliably provide stakeholders and the Minister for Water with sufficient information to properly weigh the emergency consumption needs against the risks to the environment before deciding whether or not to agree to the requests to temporarily restrict environmental or passing flows.

There was a lack of transparency in communicating these decisions. The ministerial declarations of water shortage and restrictions to water rights provide a public record of decisions and planned application, but they do not explain the shortage or outline the decision rationale. These mediums generally use technical language to describe the restrictions. Given these decisions are complex and situation-specific, using non-technical summaries to support declarations would improve transparency and accountability about the decisions and their impacts.

Recommendations

1. To create consistent and comparable approaches across different waterways for restricting environmental water rights and managing environmental risks, the Department of Sustainability and Environment should:
   - enforce uniform compliance with its requirements for justifying the restriction of water rights, with a particular focus on the consistency and completeness of the information
   - standardise the information in ministerial briefings for restrictions proposals against each of its information requirements
   - clarify what the terms 'water shortage', 'critical need' and 'temporary emergency' mean, and what needs to be considered for each
   - apply its information requirements to the management of any ministerial directions in the same way as a temporary qualification of rights
   - provide an easily understandable and publicly accessible summary of the rationale for each water shortage declaration that includes justification of the critical need, temporary nature, environmental considerations and environmental risk management for each qualification to water rights, or ministerial direction used in this way.
2. The Department of Sustainability and Environment should strengthen how the environmental risks of restricting environmental water rights are managed, by:
   - requiring CMAs to plan and implement monitoring, mitigation and recovery programs for rivers without a tradeable entitlement as well as for those with one
   - overseeing the planning, implementation and outcomes of environmental risk management, for example through the proposed Environmental Water Holder.

3 Managing environmental risks

At a glance

Background

Restricting environmental flows can affect the health of a river. Protecting river systems involves monitoring and managing risks to mitigate or minimise any environmental damage.

Conclusion

The water corporations did not effectively manage the environmental risks to the Tarwin and Wimmera rivers. This reduced the assurance of the environmental outcomes. The Department of Sustainability and Environment's (DSE) oversight of environmental management and restrictions to environmental water rights was limited.

Findings

- No environmental damage or emergencies were found from the monitoring of the Yarra and Tarwin rivers. Although Grampians Wimmera Mallee Water did not monitor restriction impacts on the Wimmera River, results from other monitoring showed river health had worsened after the restrictions.
- The water corporations met DSE's reporting requirements for showing how effective restrictions were in meeting critical needs and managing environmental risks.
- DSE did not have a systematic approach to understanding and improving the way water corporations used and managed restrictions.

Recommendations

- The Department of Sustainability and Environment should effectively oversee restrictions, and perform a quality assurance and continuous improvement role.
- The Department of Sustainability and Environment, water corporations and catchment management authorities should report publicly on the management of restrictions and the outcomes achieved.

3.1 Introduction

Since 1997, the drought had reduced rainfall and the low inflows to rivers placed many Victorian rivers under increasing stress. Examples of this include increasingly stagnant and saline water, riverine plants, such as river red gums dying, and native fish not breeding.

Restricting environmental flows can potentially affect the health of a river and the flora and fauna that relies on the river system. The first step in protecting river systems from damage is identifying risks. To maintain river health and give it the best chance of recovery it is important to monitor and manage the risks to mitigate or minimise any environmental damage.

Given the community directly benefits from restrictions to environmental flows, and the possible environmental effects from restrictions, it is important that water corporations account for the extra water and show how it meets a critical need.

3.2 Conclusion

Inadequate management activities for the Tarwin and Wimmera rivers meant that South Gippsland Water's management of environmental risks was incomplete and Grampians Wimmera Mallee Water's (GWMW) was ineffective. This compromised their ability to assure the environmental outcomes. For the Wimmera River, it is likely that damage resulted from the restrictions to environmental flows.

3.3 Monitoring and managing environmental risks

Reducing the amount of water for the environment has inherent risks. Monitoring and managing these risks to reduce environmental damage and help rivers recover after flow restoration, is paramount.

Melbourne Water effectively managed risks to the Yarra River. However, the limited environmental risk assessments and planning the water corporations did for the Tarwin and Wimmera rivers, meant that management activity was poor.

3.3.1 Actions to manage risks

Melbourne Water used a comprehensive environmental management approach for the Yarra River. South Gippsland water's management approach for the Tarwin River focused on monitoring, while risk management for the Wimmera River was minimal.

Tarwin River

South Gippsland Water complied with the monitoring requirements that the Minister for Water specified when he granted the restrictions. It employed a dedicated environmental management officer to manage this. Its monitoring included water quality, fish and aquatic invertebrates, at one site initially, and then at three sites along the river from June 2007. The monitoring did not identify any emergencies. However, it was not until 2010 that it commenced the nutrient monitoring that its 2007 risk assessment strongly recommended.

South Gippsland Water worked with the Department of Sustainability and Environment (DSE) and the West Gippsland Catchment Management Authority (CMA) to respond to the recommendation in its 2007 risk assessment and 2009 flow study to improve the passage of fish by modifying a weir in early 2010. This was its only risk mitigation measure, apart from the rules to stop taking water if certain environmental triggers were met.

South Gippsland Water is yet to respond to another 2009 recommendation about examining the relationship between freshwater flows and estuary condition. The main recommendations from the 2009 assessment revolved around the minimum environmental flows needed to maintain, rehabilitate or restore river health. South Gippsland Water is considering these as part of the bulk entitlement amendment process.

Wimmera River

The Wimmera CMA continued its existing monitoring and drought recovery works, such as mapping the pools, providing the best refuge for remaining species and removing exotic fish.

There was no extra monitoring of the impact of withholding water from the Wimmera River. This was despite earlier identification of risks in 2006 and the approval for the 2008 restriction, which required GWMW, the Wimmera CMA and DSE to develop and implement a monitoring program.

GWMW did not do anything to mitigate risks or support recovery in response to the water being withheld, even though there were acknowledged environmental impacts. GWMW focused on completing the Wimmera-Mallee Pipeline. The river received a boost to its share of water in the storages from 2009 when the pipeline was completed.

Yarra River

Melbourne Water monitored several aspects of the Yarra River to detect potential impacts of the restrictions, such as flow, water quality, habitat, aquatic invertebrates and fish, at several sites and intervals, including ongoing, monthly or seasonally. The estuary—the 22 km stretch below Dight's Falls—was not included because Melbourne Water's risk assessment did not show it as a high priority for monitoring. It did not detect any environmental emergencies during the restrictions.

Melbourne Water's planning for restrictions identified that additional mitigation works were not required.

In 2010, flow restrictions were partially lifted in line with the easing of water restrictions from Stage 3a to Stage 2. As a result, Melbourne Water will release 17 000 megalitres (ML) in environmental flows.

3.3.2 Effectiveness of environmental management

Since March 2008, waterway managers, the CMAs and Melbourne Water have been required to assess and report to DSE on the effectiveness of the environmental management program. The assessments should happen at the end of a restriction on environmental water, or annually if the restrictions continue for more than one year. Of the cases examined, this requirement only applied to the Tarwin River from June 2008 and the Yarra River from March 2010.

Assessments of river health during restrictions showed there were no adverse impacts on the Tarwin and Yarra. However, a lack of comparable data for the Tarwin before restrictions, and the narrow focus of the monitoring program, limits its validity. The Wimmera CMA identified that the condition of the Wimmera River deteriorated during the restrictions.

Yarra River

Melbourne Water reported weekly on water quality and flow monitoring results related to the restrictions. It commissioned an annual independent scientific review of restriction impacts. It also reported on the outcomes of the restrictions in its annual reports on compliance with the environmental entitlement.

The water quality and biological assessments and annual reviews examining the impact of the restrictions found that while the restrictions altered river flow patterns, this did not cause adverse environmental impacts. Melbourne Water used the extraction rules to protect a high flow event in spring 2009 that was important for the breeding cycle of a protected fish. The results indicate it managed the environmental risks well.

Wimmera River

The prolonged drought had already worsened river health before the initial 2006 restriction. Monitoring by the CMA, the Environment Protection Authority and other studies showed that the environment was severely stressed and deteriorating. High salinity, low oxygen levels, fish kills and dying river red gums still affected the lower Wimmera River.

In its regular 'snapshot' reports on river health and its annual environmental entitlement compliance reports the Wimmera CMA reported on what the outcomes of the restrictions were. The monitoring and assessment information showed that during the restrictions, pools in the river shrank or dried, water quality deteriorated and there were fish kills and algal blooms. It is unclear whether any of these were environmental emergencies because there was no planning about what it would class as an emergency in a river already so stressed.

The releases of the withheld water improved river health. For example, the spring 2007 release—the first since the summer of 2004–05—connected some river pools and expanded others, improving habitat and water quality. However, because the river had become so dry, the 2007 water releases did not reach the lower river. These results indicate that GWMW had not managed environmental risks well.

Tarwin River

The West Gippsland CMA did not follow DSE's requirement for reporting on the effectiveness of environmental management for the 2008 Tarwin River restriction. South Gippsland Water's biological monitoring assessments indicated that there were no impacts but it did not publicly report this.

The 2009 flows study showed that the passing flow rules used for the restriction were adequate. Water quality monitoring and biological assessments since the restrictions first began in 2006 showed that flow restrictions had not adversely affected river health, but that it was too early to determine impacts on fish. However, this assurance is limited by insufficient knowledge about river health before the changes to flows, making it harder to detect any changes from restrictions.

3.3.3 Effectiveness in meeting critical needs

Since 2008, water corporations have had to assess the effectiveness of the restrictions in meeting their emergency or critical water needs. They also have to report on this to DSE when the restrictions expire, or annually for those longer than a year. This only applied to the 2008 restriction on the Tarwin River and the 2010 restriction on the Yarra River.

All the water corporations monitored river flows and the volumes extracted or withheld, complied with the requirements of the restrictions, and met the critical needs.

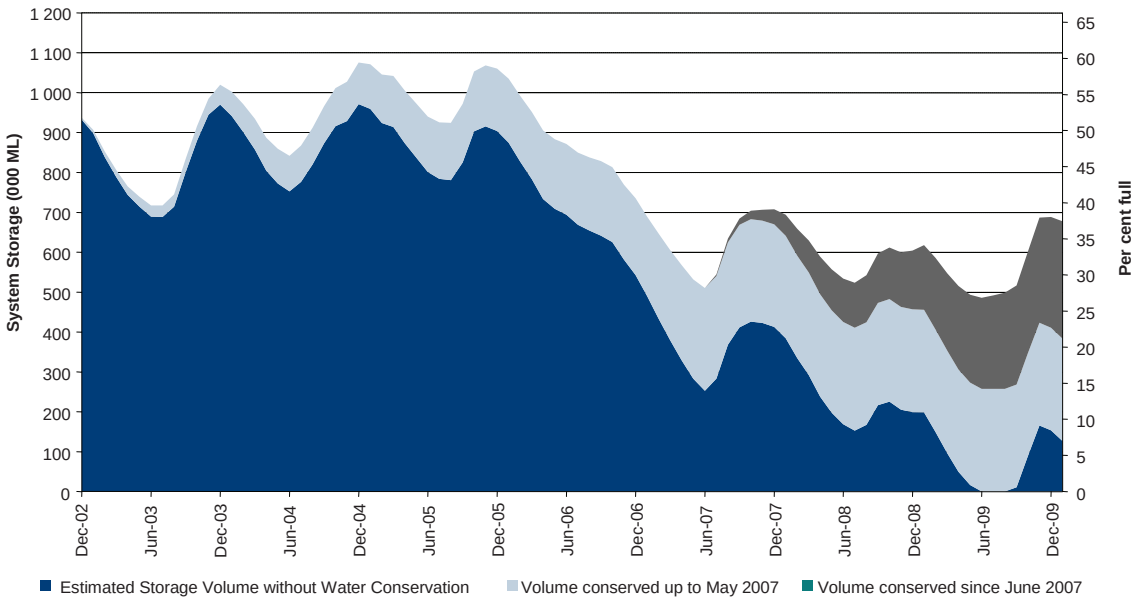
Yarra River

Melbourne Water and the three Melbourne water retail companies regularly assessed and reported on the water savings made through demand reduction and supply measures. Melbourne Water also showed good practice in reporting its compliance with the restrictions in its annual reports. None of the other water corporations did.

The critical shortfall in March 2007 was around 95 000 ML in 2007 and 2008. Environmental water was forecast to contribute 55 000 ML of this over the period, and demand and supply measures were forecast to provide an extra 40 000 ML. The October 2007 restriction allowed about 10 000 ML more of environmental water to be harvested annually.

The volume of environmental water harvested met the forecast, while the volume created through the supply and demand measures exceeded expectations. Between April 2007 and December 2009, the environmental water contributed around 98 700 ML and the demand and supply measures, around 150 000 ML (Figure 3A).

Figure 3A
Volume in Melbourne's storages, 2002–2009



Source: South East Water and Melbourne Water.

The success of the demand and supply measures, coupled with improved inflows, allowed a reduction in the volume harvested from the environment from early 2010.

Tarwin River

South Gippsland Water reviewed how effectively it was meeting the need as part of its June 2007 and June 2008 proposals for further restrictions of flows in the Tarwin River. Once the restrictions had finished, in 2010, it reviewed them again in its report to DSE on the effectiveness of the restrictions. This report did not assess how the volume provided through restrictions compared with volumes supplied from groundwater and demand management in meeting critical needs.

Between 2006 and 2009, 1 279 ML was harvested from the Tarwin River through the restrictions to river flows. This was well within the total amount of around 5 180 ML that the restrictions allowed for and was the main source of water used to meet the critical need. While South Gippsland Water successfully reduced residential demand, voluntary measures did not successfully reduce major industry water use and it could only source a very small amount from groundwater.

Wimmera River

GWMW was not required to review the effectiveness of the restrictions to flows in the Wimmera River. When it proposed the 2008 restriction, it did not include a review of how effectively it had met the need with its 2006 and 2007 strategies.

A total of 8 285 ML was withheld from the Wimmera River between 2006 and 2008 because of the restrictions. This water was released back to the river after the restrictions expired, minus around 1 200 ML in evaporation losses. There were savings of 46 750 ML generated in 2008, as towns progressively connected to the Wimmera-Mallee Pipeline but GWMW did not report on other demand and supply volumes.

3.4 Review and oversight by the Department of Sustainability and Environment

Over time, DSE strengthened its requirements of agencies involved in restricting water rights by introducing reporting and expanded environmental management requirements in 2008. In June 2010, when the *Water Act 1989* was amended the Minister for Water was able to directly impose monitoring, river health recovery works and reporting requirements when restricting water rights.

DSE updated its information on the operational details of qualifications at its weekly drought committee meetings, but did not have a centralised system for capturing summary information about qualifications, such as expiry dates and volumes restricted.

It also did not get any of the reports required back from water corporations on the effectiveness of using environmental water to meet critical needs. It only got around half of the reports from waterway managers assessing how well they managed environmental impacts.

DSE did not do a statewide analysis of how well restrictions were managed or what the outcomes were. The only assessment of the environmental impact of restrictions that looked at more than one river system was the annual scientific review for the northern Victorian rivers that the water corporations and CMAs commissioned.

Given these gaps, DSE could not monitor how well the water corporations and catchment management authorities, where applicable, were managing restrictions of water rights and whether they were working effectively to protect river health. DSE is reviewing the effectiveness of drought management between 2006 and 2010, including the use of temporary changes to environmental flows.

VAGO's 2008 report—*Planning for Water Infrastructure in Victoria* (2007–08:16) recommended that DSE validate the flow compliance information that CMAs provide and make their operating and compliance reports publicly available. DSE has done this by trying to improve CMAs and other bulk entitlement holders' water metering. The report also recommended that DSE regularly release information to the community on how well it has met its environmental flow obligations. This is now reported in the *Victorian Water Accounts* and DSE's annual summary of environmental watering in Victoria.

The report also noted that a requirement, introduced in 2004, for independent audits of water corporations' compliance with their bulk entitlements, had not been finalised. These audits have not started. Without them, there is limited assurance of restriction effectiveness.

Published online, the annual *Victorian Water Accounts* provide some information on restrictions to water rights, including how the restriction worked, what the water was used for, and its duration. Information in these accounts is inconsistent for each river basin and does not show the volume withheld or extracted from the restriction or the impact on river flows.

The 2008–09 accounts have not been published. This lengthy delay limits their usefulness. However, DSE advised that the accounts will be published in September 2010 and that it is trying to improve their timeliness.

Recommendations

3. The Department of Sustainability and Environment should:
   - effectively oversee restrictions and perform a quality assurance and continuous improvement role
   - enforce its requirements for water corporations and catchment management authorities to review and report on the effectiveness of restrictions to water rights.
4. The Department of Sustainability and Environment, water corporations and catchment management authorities should report publicly on the management of restrictions and the outcomes achieved. In particular:
   - the Department of Sustainability and Environment should include consistent and comprehensive information on restrictions to water rights in the Victorian water accounts and publish them within 12 months of the end of each financial year
   - water corporations and catchment management authorities should include references in their annual reports to their compliance with the restrictions, and success or otherwise in managing risks to the community and the environment, according to the responsibilities the Department of Sustainability and Environment has assigned to them.

Appendix A.

Characteristics of the Tarwin, Wimmera and Yarra rivers

The Tarwin River

The Tarwin River runs through the South Gippsland Basin, near Leongatha, and flows south into the sea at Anderson Inlet, near Inverloch. It drains a small 1 077 km^2 catchment and supports a population of around 10 000. Agriculture, light industry and forestry plantations are the main land uses, with little native vegetation remaining. The lower sub-catchment has high economic value for west Gippsland.

The Tarwin's natural values include a population of the threatened fish, Australian grayling, in the upper reaches. The inlet is a wetland of national importance, with its seagrass beds and mangroves supporting fish breeding and migratory wading birds, including the threatened little bittern. The river also has important recreational fishing value, including river blackfish and estuary perch. Water quality and habitat are generally poor, primarily because of agriculture impacts, but aquatic plant and animal communities are generally healthy.

The Wimmera River

The Wimmera River is in the Wimmera Basin in western Victoria and forms the southwest part of the Murray Darling Basin. It flows northwards from the Pyrenees and Grampians ranges in the south, to a series of inland lakes. These include Lake Hindmarsh and the internationally important Lake Albacutya wetland, two of the largest natural freshwater lakes in Victoria.

It drains a large, landlocked catchment of more than 30 000 km^2, with a population of around 49 000 concentrated in the towns of Horsham and Stawell. The main land use is agriculture, traditionally supplied with water through an extensive but inefficient channel system. This was replaced with pipelines during the 2000s, resulting in major water savings, of which around 80 per cent will be returned to the environment.

The catchment also contains important parks and more than 3 000 wetlands, while a section of the lower Wimmera is a declared heritage river under the *Heritage Rivers Act 1992*. As well as its regional socio-economic importance, the river has important natural values, including populations of the threatened freshwater catfish, and river red gums. The drought has damaged river health, which is now generally in moderate to poor condition. Water quality has also deteriorated, with high salinity and temperatures, and poor oxygen levels. Reduced flows are the main threat to river health.

The Yarra River

The Yarra River, in the Yarra Basin in central Victoria runs for 242 kilometres from Mt Baw Baw in the north and flows through Melbourne into Port Philip Bay. It drains a moderate catchment of around 4 000 kms^2 and supports more than two million people—more than a third of Victoria's population. The upper fifth of the catchment is mainly forested land, which has been reserved for water supply purposes for more than 100 years, and receives relatively high inflows. The cleared middle and lower catchment areas support agriculture and urban development.

The Yarra has significant Aboriginal cultural value, and the reach between Warburton and Warrandyte is declared a heritage river under the *Heritage Rivers Act 1992*. Its environmental values include populations of platypus, Murray cod and Australian grayling, and the largest Victorian population of the endangered fish, Macquarie perch.

The upper river reaches are in good health, however, the condition deteriorates in the rural and urban reaches downstream because of erosion, pollution, land-use change, and changes to river flows.

Appendix B.

Audit Act 1994 section 16—submissions and comments

Introduction

In accordance with section 16(3) of the *Audit Act 1994,* a copy of this report or relevant extracts from the report, was provided to the Department of Sustainability and Environment, City West Water, Grampians Wimmera Mallee Water, Melbourne Water, South East Water, South Gippsland Water, West Gippsland Catchment Management Authority, Wimmera Catchment Management Authority and Yarra Valley Water with a request for submissions or comments.

- Responses received were as follows:
  - Department of Sustainability and Environment 32
  - Grampians Wimmera Mallee Water 36
  - Melbourne Water 39
  - South East Water, City West Water and Yarra Valley Water 40
  - South Gippsland Water 41
  - Wimmera Catchment Management Authority..... 45
- Auditor General's acquittal responses to
  - Grampians Wimmera Mallee Water 47
  - South Gippsland Water 48
  - Wimmera Catchment Management Authority..... 49

The submissions and comments provided are not subject to audit nor the evidentiary standards required to reach an audit conclusion. Responsibility for the accuracy, fairness and balance of those comments rests solely with the agency head.

Submissions and comments received

RESPONSE provided by the Secretary, Department of Sustainability and Environment

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Mr D D R Pearson
Auditor-General
Auditor General Victoria
Level 24
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MELBOURNE VIC 3000

Dear Mr Pearson

PROPOSED AUDIT REPORT - RESTRICTING ENVIRONMENTAL FLOWS DURING WATER SHORTAGES

Thank you for your letter dated 15 September 2010 regarding the proposed Audit Report *Restricting Environmental Flows During Water Shortages*. I understand that the report is due to be tabled in Parliament in October 2010.

It is important that the audit recommendations are viewed in the context of the severe water shortages that were being experienced across Victoria. Between 1997 and 2009, Victoria experienced unprecedented dry conditions that have challenged the fundamental assumptions of drought and water resource management, particularly in 2006/07. Many regions were experiencing the worst drought on record with up to 40 per cent less rainfall than in past droughts. The extent and severity of the drought provided significant challenges for all. The policy framework needed to evolve and a key principle emerged that water users, including the environment, needed to share the pain. This was generally accepted by regional communities who were acutely aware of their water supply situation.

In emergency circumstances, where water resources are so scarce that the sharing arrangements defined in the entitlement framework and the source bulk entitlements are no longer meeting essential needs, the Minister for Water can intervene by declaring a water shortage and qualifying rights to water to ensure there is enough water for essential needs.

Towns across Victoria, such as Bendigo and Ballarat, relied on qualifications to meet their demand even though Stage 4 water restrictions were in place. The additional water was critical in avoiding running out of water during the time it took to bring other contingency measures on line.

RESPONSE provided by the Secretary, Department of Sustainability and Environment – continued

Water restrictions and the use of the emergency powers are not designed to be a long-term solution to water shortages. Investment in water projects across the State is pulling Melburnians and regional Victorians away from severe water restrictions. The Government and water corporations around the State have made significant investments to augment water supplies, including utilisation of the water market and expansion of the water grid that provide a broader set of water supply options.

There are key lessons from the past 13 years of drought. Legislation has been strengthened, with new policy and procedures introduced to clarify roles and responsibilities surrounding water shortages. In June 2010 the *Water Act 1989* was amended to enable the Minister for Water to directly impose monitoring, river health recovery works and monitoring requirements when restricting water rights. In addition, formal guidelines outlining procedures in addressing water shortages have now been issued to all water corporations.

This investment, together with the recent rain, has meant that in most cases where environmental flows had been reduced for emergency purposes, they have now been reinstated.

The drought further focussed attention on the need for additional water for flow stressed rivers and the capacity for environmental managers to make their own choices on using environmental water. Some of the major initiatives to recover water for the environment include:

- the Northern Victoria Irrigation Renewal Project, which will provide 175 billion litres of water saved from irrigation upgrades to rivers and wetlands in northern Victoria;
- The Living Murray Initiative - Victoria has exceeded its Living Murray target of 214 billion litres of water for the Murray River;
- Wimmera Mallee Pipeline Project – completed six years ahead of schedule, with 83 billion litres of water set aside to boost environmental flows in the region;
- 21.5 billion litres of water provided to the Snowy River as part of the Victorian, New South Wales and Commonwealth Governments' commitments, which are on track to recover entitlements for 212 billion litres by the end of 2012;
- decommissioning of Lake Mokoan with 44 billion litres per year committed to contribute to Victoria's Murray and Snowy River targets; and
- Macalister Irrigation District Channel Automation Project, which has so far secured 8.1 billion litres of water on average each year for the Macalister River and the Gippsland Lakes, and has the potential to deliver up to a total of 15 billion litres of water savings annually to the Macalister and Thomson rivers when completed.

RESPONSE provided by the Secretary, Department of Sustainability and Environment – continued

It is fundamental that the community continue to be consulted in an open and transparent way about the extent of water provided for environmental purposes against the costs and services of providing water supplies. This community engagement is undertaken when Sustainable Water Strategies are prepared with the support of the Department of Sustainability and Environment (DSE).

I note that your audit states that DSE's requirements for justifying alterations to water rights and managing risks are sound. As with any new legislation and policy framework it does take some time to bed down all aspects of implementation. Consequently I welcome your findings which will help the work to strengthen and refine the processes.

However a temporary water shortage may be the result of droughts which are more severe than planned for in drought response plans, water quality incidence, catastrophic failure of infrastructure, or other unforseen events. The rapid responses required in these circumstances are difficult to prescribe in advance. The Minister for Water is best placed to make these decisions and should continue to do so.

There is no doubt that the actions I have outlined above better place communities in dealing with water supplies should there be a repeat of the past drought without the dependence on using water set aside for environmental purposes.

Thank you for this opportunity to comment on the proposed audit results. I have enclosed comments specific to your recommendations.

Thank you for raising this matter with me.

Yours sincerely

Greg Wilson
Secretary

Encl.

STEC007126 Page 2

RESPONSE provided by the Secretary, Department of Sustainability and Environment – continued

Attachment 1 – Comments on Specific Recommendations

Recommendation 1
The Department of Sustainability and Environment will ensure the most comprehensive information is available to the Minister in making a decision to qualify rights within the context of the level of emergency and timeliness of response required.

The Department does not favour such prescriptive approach to defining critical human needs. This is consistent with the *Water Act 1989* which allows for unforseen emergency events to be considered on a case by case basis and responses tailored appropriately.

The Department will continue to make public information on any qualification of right that reduces water set aside for environmental purposes. This information is presently available on the *Our Water Our Future* website and formally reported annually in the Victoria Water Accounts. The Department will review the form of information to ensure that it can be better understood by the community.

Recommendation 2
These recommendations appear to confuse the emergency response, long-term water resource planning and roles and responsibilities.

The guidelines for qualification of rights specify the roles and responsibilities including the need for the proponent (usually a water corporation) to ensure risk mitigation procedures in place and involving the catchment management authorities and the Department.

It is inappropriate for the Victorian Environmental Water Holder, once established, to oversee the planning and implementation of environmental risk management. The VEWH will be responsible for the management of environmental entitlements.

Recommendation 3
Agree. This information is presently available on the *Our Water Our Future* website and formally reported annually in the Victoria Water Accounts.

Recommendation 4
Agree.

SEC007126 Page 4

RESPONSE provided by the Managing Director, Grampians Wimmera Mallee Water

Our ref: 09/036/002/ O2010/2831
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28 September 2010

Mr D D R Pearson
Victorian Auditor-General's Office
Level 24, 35 Collins Street
MELBOURNE VIC 3000

Dear Mr Pearson

GWMWater Response to Performance Audit; *'Restricting Environmental Flows During Water Shortages'*

Thank you for the opportunity to respond to the above mentioned report. Provided below is a response to the audit report.

GWMWater acknowledges the recommendations made in the Audit report on 'Restricting Environmental Flows During Water Shortages'. The only specific recommendation made for water corporations, highlighted in the second point under recommendation four, is accepted by GWMWater. GWMWater will continue to work with the Department of Sustainability and Environment (DSE) to include compliance related activities in appropriate reporting frameworks.

The report however makes reference to GWMWater being assessed against compliance with the DSE framework for qualifications, when in fact the first direction to withhold water was not sought by GWMWater.

GWMWater's plans for water supply in spring-summer 2006 were focussed on:

- A supply to towns as a base for water carting for rural customers,
- Implementation of supply supplementation including and beyond those measures outlined in our Drought Response Plan,
- Fast-tracking of WMPP – a point recognised on page 15 of the report.

The 2006 Ministerial Direction to withhold water to the environment arose out of significant community concern in relation to the prospect of release of environmental flows during a period when no supply to farms was possible. It had not been part of GWMWater's plans to withhold water to the environment at that time. Application of the guidelines to something not sought by GWMWater seems out of context given this background.

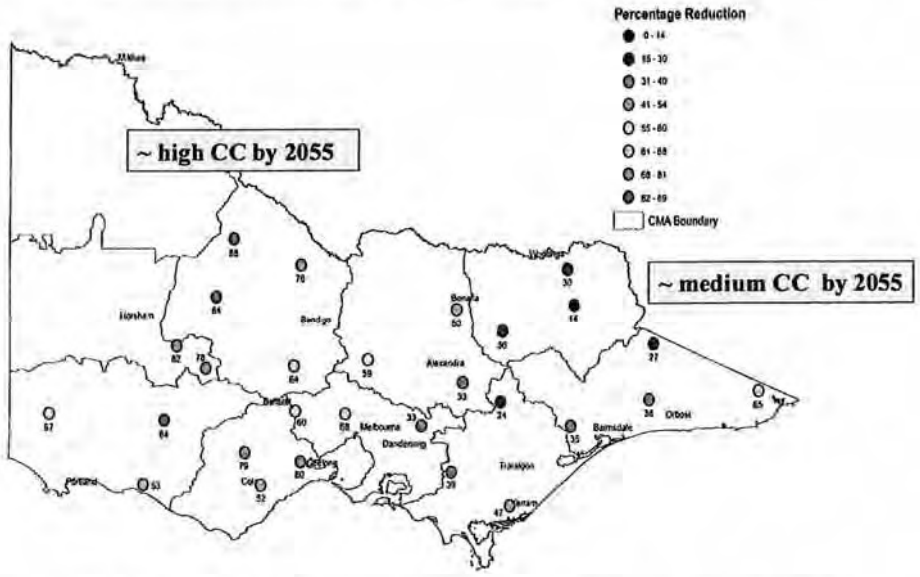
RESPONSE provided by the Managing Director, Grampians Wimmera Mallee Water – continued

The statement on page 13 of the report "Some in the community were not in favour of releasing the water to the environment," significantly understates the regional sentiment, and the severity of the drought at the time.

The approach developed, through the direction, was formulated as a collaboration between the Wimmera Catchment Management Authority (WCMA) with DSE and GWMWater. Through this collaboration, the WCMA acknowledged a role in monitoring environmental aspects. This collaborative approach is acknowledged in relation to the 2008 qualification on page 23 of the report.

In various places, the report indicates that the Wimmera River was significantly stressed, and suggests that the health of the river worsened, e.g. page ix. These statements are made with limited context on the extreme severity of drought in the Wimmera River system. This is reflected in the following points:

- The GWMWater storages held 6% of capacity in October 2006, declining to 3.5% by April 2007. This was the lowest on record to that time, eclipsing the previous low of 5.4% in 1968.
- The storages reached a new low the following season, reaching a minimum of 3.3% by May 2008.
- Many farmers only received water by carting. A partial channel supply only was possible in one year.
- Inflows to the Wimmera catchment, and other catchments in western Victoria were at record low levels as shown in the diagram below.



The diagram above, produced by DSE in 2006, shows the inflows from 1997-2005 as a percentage reduction from the long term averages. The upper Wimmera was showing a reduction of 82% below the average - highlighting the severity of the situation.

2

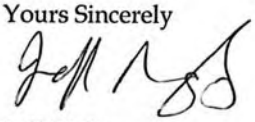
RESPONSE provided by the Managing Director, Grampians Wimmera Mallee Water – continued

The river health status cannot be attributed to just the management of the environmental reserve, the extreme river flow situation is highly relevant.

The statement on page 34 "GWMWater did not do anything to ... support recovery..." is immediately contradicted by "GWMWater focussed on completing the Wimmera Mallee Pipeline. The river received a boost ... when the pipeline was completed." It would seem GWMWater did do something, the Wimmera Mallee Pipeline being one of the largest water infrastructure projects in Victoria, with one of its outcomes being the return of an average of 83,000 ML per year to the environment.

Page 29 – it should be noted that of the 3000 wetlands cited as being in the Wimmera Basin, very few of these are connected to the Wimmera River. Most are in the West Wimmera area which does not connect to the Wimmera River and were not impacted on by GWMWater works or operations.

Yours Sincerely



Jeff Rigby
Managing Director

3

RESPONSE provided by the Managing Director, Melbourne Water

Melbourne Water

29 September 2010

Mr Des Pearson
Auditor-General
Victorian Auditor-General's Office
Level 24, 35 Collins Street
MELBOURNE VIC 3000

Dear Mr Pearson

Performance Report on Restricting Environmental Flows during Water Shortages

Thank you for your letter dated 15 September 2010. Enclosed with your correspondence was a copy of the proposed Audit Report on *Restricting Environmental Flows During Water Shortages*.

We appreciate the opportunity to clarify a statement on page 14 (section 2.4.1) of the report regarding the justification for restricting the Yarra's rights.

From Melbourne Water's perspective, the emergency need for qualifying Yarra River environmental flows in April 2007 was to safeguard the security of Melbourne's water supply. Following ten years of below average inflows to Melbourne's reservoirs and the driest year on record in 2006, storages were at 32 per cent of capacity and falling. This was despite implementing drought contingency measures including stringent water restrictions. The qualification slowed the decline in Melbourne's low water supply reserves by deferring increases to Yarra River environmental flows that had been announced in 2006.

The response to Melbourne's worst drought on record did consider other factors including the effect of water restrictions on parks and gardens, sports grounds and employment. However, it is important to reiterate that maintaining a secure water supply to Melbourne was the primary factor leading to the temporary restriction of the Yarra River's environmental flows.

In this context, Melbourne Water welcomes your acknowledgement that our sound risk assessment, monitoring programs and annual assessments of impacts on the Yarra provided adequate assurance of no environmental damage or emergencies. These programs were supported by actions, including the implementation of an 'Emergency Contingency Plan' to enhance a naturally occurring flow event in 2009 to protect the Macquarie Perch and preserve the environmental values of the Yarra.

Thank you again for the opportunity to comment on the report.

Yours sincerely

ROB SKINNER
MANAGING DIRECTOR

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Victoria
The Place To Be

RESPONSE provided by the Managing Director, South East Water on behalf of South East Water, City West Water and Yarra Valley Water

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28 September 2010

MR D D R Pearson
Auditor General
Victoria Auditor General's Office
Level 24, 35 Collins Street
Melbourne VIC 3000

Dear Mr Pearson,

Proposed Audit Report
Restricting Environmental Flows During Water Shortages

Thank you for your copy of the Draft Report "Restricting Environment Flows during Water Shortages" dated 15 September 2010. I have been asked to make a reply on behalf of the three Melbourne water retailers.

The management of water resources is a complex issue and in periods of supply shortage, as experienced over the last few years, a range of measures are required in order to ensure the critical needs of customers, communities and the environment are achieved. There are times though, in exceptional circumstances, when "qualification" of the environment's right to water is needed.

I am pleased to note that your report has recognised these complexities, the tool box of responses undertaken plus the robust systems and processes put in place for the Yarra River to manage the possible implications for the health of that river following the qualification of rights.

These systems and processes however do need to remain current with best practice and to this end your recommendations are noted and supported.

Yours sincerely

Shaun Cox
MANAGING DIRECTOR
SOUTH EAST WATER

RESPONSE provided by the Managing Director, South Gippsland Water

South Gippsland Water

Thursday, 30 September 2010

Our File: *636/005/026*
Your Ref:

Mr D D R Pearson
Auditor – General
Victorian Auditor General's Office
Level 24
35 Collins Street
MELBOURNE VIC 3000

Dear Mr Pearson,

Re: Audit Act 1994, s16(3) – Proposed Audit Report
Restricting Environmental Flows During Water Shortages

Thank you for the invitation to provide submissions for inclusion in the report on Restricting Environmental Flows During Water Shortages to be tabled in Parliament in October 2010.

Please find attached comments by South Gippsland Water Corporation for inclusion into the report.

Yours faithfully

STEVE EVANS
Managing Director

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RESPONSE provided by the Manager Operations, South Gippsland Water – continued

South Gippsland Water Corporation

Comments to: Audit Act 1994, s16(3) - Proposed Audit Report

Restricting Environmental flows During Water shortages

South Gippsland Water Corporation provides the following responses to the Proposed Audit Report – Restricting Flows During Water Shortages.

2.5.1 Identifying the risks.

Page 17, paragraph 3 (second sentence) & paragraph 4.

Tarwin River

South Gippsland Water strengthened its assessments of the risks of restricting river flows in the Tarwin River in response to the successive restrictions, which allowed more water to be taken and over longer periods. However, contrary to DSE's requirements, for the 2006 and 2007 restrictions South Gippsland Water only assessed these risks after restrictions began. There was no risk assessment for the June 2008 restriction, which was in place for two years.

The September 2007 assessment found that continued low flows and restrictions were likely to affect river health and that South Gippsland Water needed to do a quantitative assessment of the Tarwin River's flow requirements. This did not happen until 2009.

Box 1

South Gippsland Water would like to make comment to the statement in box 1:

"there was no risk assessment for the June 2008 restriction".

During the period 2008, a coordinated effort between West Gippsland Catchment Management Authority, DSE Environmental Group and SGW was taking place regarding a FLOWS study for the Tarwin River. During 2008 the above stakeholder groups were in discussion regarding the scoping of the Tarwin River FLOWS study. These discussions required several months in planning and finalising the successful tender for the study. The study was completed in June 2009 with the costs of the study shared between South Gippsland Water and West Gippsland Catchment Management Authority.

Although there was not a published risk assessment for year 2008, the FLOWS study was being developed and implemented for the Tarwin River during this time.

RESPONSE provided by the Manager Operations, South Gippsland Water – continued

2.5.2 Strategies for managing the risks.

Page 18, paragraph 4 (final sentence) & paragraph 5

Tarwin River

The June 2007 restriction for the Tarwin River required pumping to stop if water quality reached critical levels. The 2008 restriction reduced potential impacts further by maximising pumping over winter, which would have less impact on river flows than summer pumping. From 2006, the Minister for Water also requested monitoring. South Gippsland Water did not develop a comprehensive plan, outlining monitoring objectives and site selection rationale, what would be monitored, how the monitoring would be done and how frequently.

South Gippsland Water did not do any extra planning to mitigate risks, respond to emergencies, or support potential recovery needs, even after the Minister for Water specifically required these plans be developed when granting the 2008 restriction.

Box 2

SGW believe the statement of the last sentence in box 2 to be misleading.

There was a clearly defined water quality monitoring plan set out by the West Gippsland CMA in response to the 2006 Qualification of Rights. The following arrangements were sent in an email from Frank Donohue (WGCMA) to Ravi Raveendran (SGW) Tuesday 3 April 2007 that stated the following:

Water Quality Monitoring downstream of Meeniyan

Water quality monitoring is to continue downstream of Meeniyan however frequency of monitoring was discussed and the following arrangements have been agreed;

1. If flow @ Meeniyan is <5ML/d monitoring is conducted 3 times per week
2. If flow @ Meeniyan is between 5ML/d and 10ML/d monitoring is conducted once per week
3. If flow @ Meeniyan is >10ML/d monitoring is conducted once per month

SGW complied with all monitoring in relation to the above requirement.

The WGCMA email also stated: *"It is recognised that water quality, macro and fish monitoring arrangements are currently in place for Coalition Creek by SGW."*

SGW believed also that it has provided evidence of a biological and water quality monitoring programme developed in response to the 2008 Qualification of Rights to the Auditor-General.

Biological monitoring is continuing to be undertaken in the Tarwin River catchment by SGW that includes water quality monitoring, fish and macroinvertebrate monitoring.

In reference to the final paragraph of Box 2, it is SGW belief, as indicated by the risk assessments undertaken, that no mitigation was necessary due to the minimal impact to the environment resulting from the SGW extraction from the Tarwin River. As provided in earlier correspondence with the Auditor General's Office, SGW extractions from the Tarwin River were very minimal compared with total river flows at the time.

RESPONSE provided by the Manager Operations, South Gippsland Water – continued

3.3 Monitoring and managing environmental risks.

Page 23, paragraph 1, sentence 5.

Tarwin River

South Gippsland Water complied with the monitoring requirements that the Minister for Water specified when he granted the restrictions. It employed a dedicated environmental management officer to manage this. Its monitoring included water quality, fish and aquatic invertebrates, at one site initially, and then at three sites along the river from June 2007. The monitoring did not identify any emergencies. However it was not until 2010 that it commenced the nutrient monitoring that its 2007 risk assessment strongly recommended.

GW2

Box 3

The recommendation that a nutrient monitoring program be developed in the 2007 Tarwin River risk assessment by SKM was a general long term recommendation and not a requirement for qualification of right. It was also acknowledged in the above mentioned report that the Tarwin River catchment has limited riparian vegetation as a result of significant historical clearance of land for agriculture and that cattle access to the river is probably contributing to high nutrient concentrations and turbidity in the river.

SGW in conjunction with the WGCMA funded an employment position within EPA Victoria. The position involves the auditing of agricultural landholders in the SGW catchment. An area of focus is the auditing of all dairy effluent dams in order to identify the management of dairy waste effluent dams and to mitigate any potential contaminations to waterways from this source of pollution. This position was funded in 2008.

RESPONSE provided by the Chief Executive, Wimmera Catchment Management Authority

Wimmera Catchment Management Authority

Our Ref: WCMA-12089 – Letter to Victorian Auditor General re. Qualification Of Rights
Contact: Greg Fletcher
Date: 28 September 2010

Mr D D R Pearson
Auditor-General
Victorian Auditor-General's Officer
Level 24, 35 Collins Street
MELBOURNE VIC 3000

Dear Mr Pearson

RESTRICTING ENVIRONMENTAL FLOWS DURING WATER SHORTAGES

Thank you for the opportunity to provide final comments regarding the draft report. Wimmera CMA finds the findings and recommendations are reasonable given the information provided. Wimmera CMA also appreciates the consultative approach undertaken during the audit process.

It is important that the learnings derived during this process are applied and recommendations around defining 'water shortages' or 'critical needs' are not restricted to exceptionally dry periods. An accurate understanding of consumptive needs going forward and developing augmentation measures where required will be critical to ensure that water is allocated for realistic consumptive demands and not lead to excessive volumes being retained in storages. Wimmera CMA is pursuing this approach in the current Bulk Entitlement amendment process following the completion of the Wimmera Mallee Pipeline Project.

As mentioned in your report, the Wimmera River has suffered severe declines in condition due to the inability to conduct environmental water releases. It is worth emphasising that the MacKenzie and Glenelg Rivers were also severely impacted by this as well. In the lower Wimmera River there were fish kills, algal blooms and extensive declines to riparian vegetation that can largely attributed to the lack of flows. Water savings provided by excellent water infrastructure projects such as the Northern Mallee and Wimmera Mallee Pipelines will be of enormous benefit however the substantial declines in river health will take many years to redress. Given the drying climate experienced over the last fifteen years, all avenues for environmental water recovery should be exhausted if the community and environment is to achieve the full benefits from the substantial public funds invested in these projects.

These exceptionally dry periods, although causing enormous negative impacts to Victoria's communities and environment have provided some useful learnings to take into a drier future. The development of the guidelines for the declaration of Temporary Qualifications of Rights after the withholding of the Environmental Water Reserve in the Wimmera is an example of this.

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RESPONSE provided by the Chief Executive, Wimmera Catchment Management Authority – continued

Other aspects of note include that the Wimmera CMA tailored various monitoring programs utilised to determine catchment conditions to better quantify the impacts of the drought across the catchment, including in the lower Wimmera River. This is alluded to in the report. Also the volume of 100 ML of flows at the lower end of the Wimmera River in 2006-07 is incorrect, no flows took place that reached the end of the Wimmera River from Autumn 2005 until Spring 2009, almost half a decade.

Please do not hesitate to contact Tony Baker on (03) 5382 1544 if you have any questions regarding these issues.

Yours sincerely

MARC THOMPSON
CHIEF EXECUTIVE

Page 2 of 2

Auditor-General's acquittal response to the Managing Director, Grampians Wimmera Mallee Water

VAGO

Victorian Auditor-General's Office

30 September 2010

Mr Jeff Rigby
Managing Director
Grampians Wimmera Mallee Water
PO Box 481
Horsham VIC 3402

Dear Mr Rigby

Restricting Environmental Flows During Water Shortages

I refer to your letter of 28 September 2010 providing comments on the above audit.

I am pleased that you support the recommendation of the report specific to water corporations. I also note your assertion that the Department of Sustainability and Environment's (DSE) requirements did not apply to your water corporation in relation to the October 2006 ministerial direction to withhold environmental flows from the Wimmera River. Your rationale indicates this is because Grampians Wimmera Mallee Water (GWMW) did not seek to withhold the water.

The evidence provided to VAGO by your water corporation showed that on 6 September 2006, GWMW's Chairman wrote to the Minister for Water recommending the Wimmera River's environmental water allocation be withheld. GWMW recommended this option over the other options identified in the letter, which were to fully release the water to the river, release some and withhold some, or use it to supply some house dams. The Minister announced his decision to withhold the water on 13 September 2006 and issued his direction to this effect on 31 October 2006.

As DSE's initial requirements were communicated to water corporations on 13 September 2006, VAGO maintains that they applied to GWMW.

Yours sincerely

D D R Pearson
Auditor-General

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Auditing in the Public Interest

Auditor-General's acquittal response to the Managing Director, South Gippsland Water

VAGO

Victorian Auditor-General's Office

30 September 2010 File No.: 26455/01

Mr Steve Evans
Managing Director
South Gippsland Water
PO Box 102
Foster VIC 3960

Dear Mr Evans

Restricting Environmental Flows During Water Shortages

I refer to your letter of 30 September 2010 providing comments on the above audit.

Your comments on the audit report include two instances where you suggest the report is misleading.

First, you indicated that although there was no published risk assessment in 2008, the work done in 2008 as part of the environmental flows study met the requirement for a risk assessment. Your officers provided additional evidence in support of this statement but this evidence did not demonstrate any risk assessment prior to June 2008. It showed that planning for the environmental flows study started in July 2008 and work began on it in November 2008. As stated in the report, this work was completed in August 2009, after the restriction had been in place for over a year.

Second, you identified that you believe the comment 'South Gippsland Water did not develop a comprehensive plan, outlining monitoring objectives and site selection rationale, what would be monitored, how the monitoring would be done and how frequently' is misleading, and provided new evidence that the monitoring frequency for 2007 was agreed and documented. This additional evidence addresses the 'frequency' aspect of our concern but still does not represent a comprehensive program that makes clear the objectives of the monitoring, the site selection rationale and detail about how the monitoring would operate.

Yours sincerely

D D R Pearson
Auditor-General

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Auditing in the Public Interest

Auditor-General's acquittal response to the Chief Executive Officer, Wimmera Catchment Management Authority

VAGO

Victorian Auditor-General's Office

30 September 2010 File No.: 26455/01

Mr Marc Thompson
Chief Executive Officer
Wimmera Catchment Management Authority
PO Box 479
Horsham VIC 3402

Dear Mr Thompson

Restricting Environmental Flows During Water Shortages

I refer to your letter of 28 September 2010 providing comments on the above audit.

I am pleased that you support the findings and recommendations of the report and thank you for acknowledging the consultative approach taken during the audit.

You suggested that the report incorrectly identified in Figure 2B on page 17 of the report that 100 ML of water reached the lower Wimmera River in 2006-07, and should instead have been 0 ML. The 100 ML volume is the volume reported in the *Victorian Water Accounts, 2006-07*, by the Department of Sustainability and Environment.

Yours sincerely

D D R Pearson
Auditor-General

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Public Hospitals: Interim Results of the 2009–10 Audits (2010–11:5)	September 2010
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Sustainable Farm Families Program (2010–11:7)	September 2010
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Soil Health Management (2010–11:10)	October 2010
Sustainable Management of Victoria's Groundwater Resources (2010–11:11)	October 2010
The Department of Human Services' Role in Emergency Recovery (2010–11:12)	October 2010
Access to Ambulance Services (2010–11:13)	October 2010
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Auditing in the Public Interest

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