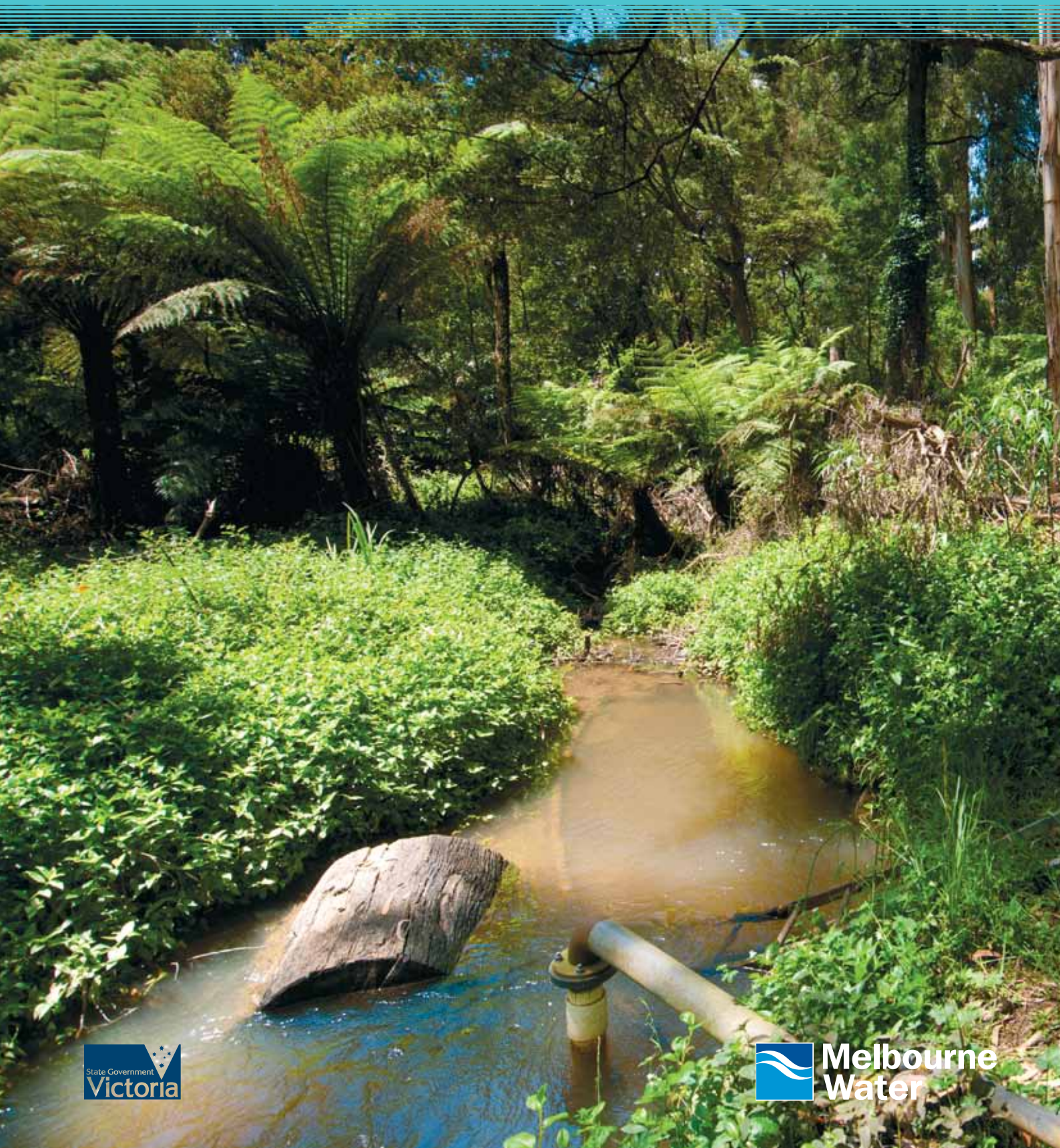
Water Act 1989

WOORI YALLOCK CREEK WATER SUPPLY PROTECTION AREA

STREAM FLOW MANAGEMENT PLAN 2012



State Government Victoria

Melbourne Water

CONTENTS

PREFACE

The *Water Act 1989* (the Act) was amended in 2005 to establish the environmental water reserve to provide a legally protected share of water for the environment. In streams such as Woori Yallock Creek , the environmental water reserve is made up of minimum flows, and the water that is not used by others ("above cap" water).

Under the Act, management plans can be prepared for the sustainable management of the water resources of an area. The Woori Yallock Creek catchment was identified as an area where a management plan would be developed to protect the area's surface waters.

The preparation of this Stream Flow Management Plan (SFMP) commenced in April 2009 by a consultative committee established by the Act. The consultative committee, consisting of the following people, has developed this Plan following extensive discussions and consideration of technical work and in response to public submissions. The committee provided advice and made decisions within guidelines provided in accordance with the Act.

WOORI YALLOCK CREEK SFMP CONSULTATIVE COMMITTEE MEMBERS

Mr Ian Ada Yarra Ranges Council
Mr Bob Anderson (OAM)
Friends of the Helmeted Honeyeater
Mr Steve Chapman Landholder
Mr Gavin Corbett Landholder
Mr Graeme Frith Landholder
Mr Mick Kealy Parks Victoria
Mr Leo Koelewyn (Chair) Landholder
Mr Stephen Livermore Landholder
Dr Daniel Mainville
Department of Sustainability and Environment
Mr Dan Robertson Melbourne Water
Ms Jan van Rooijen Landholder
Ms Jo Tenner Environment Victoria
Mr Franklin Trouw Landholder
Ms Penny Winbanks Southern Rural Water

PAST CONSULTATIVE COMMITTEE MEMBERS

Mr Murray McIntyre
Department of Sustainability and Environment
Mr Ian Roche Parks Victoria

These members were appointed in accordance with section 29 of the Act. The appointments were made following nomination by the Port Phillip and Westernport Catchment Management Authority and in consultation with Melbourne Water and the Victorian Farmers' Federation.

WOORI YALLOCK CREEK SFMP OBSERVERS

Ms Danielle Atkin
Department of Sustainability and Environment
Mr Tim Donovan Melbourne Water
Ms Cheryl Edwards Melbourne Water
Ms Sarah Gaskill Melbourne Water
Mr Steve Hosking Melbourne Water
Mr Anthony Urban VR Fish
Mr Greg Williams Melbourne Water

This Plan has been divided into two parts:

Part one describes the past management of water in the Woori Yallock Creek catchment including its environmental values, the investigations that have been undertaken to understand it better and the water entitlements that have been issued and how they are used.

Part two recommends how water will be managed in the Woori Yallock Creek catchment for the next five years. It provides details on the implementation of the cap on licensed surface water diversions, the process by which licences will be rostered and restricted in dry times, the rules around transferring licences, how licences will be metered and accounted, the monitoring program, private dams and reporting.

PART 1
PAST AND PRESENT MANAGEMENT

1. INTRODUCTION

1.1 DECLARATION OF A WATER SUPPLY PROTECTION AREA

An area may be declared a Water Supply Protection Area (WSPA) under section 27(1) of the *Water Act 1989* (the Act), in order to protect the groundwater resources in the area, the surface water resources in the area, or both. The Woori Yallock Creek Catchment has been declared a WSPA under the Act (see section 2 & 3) for surface water only.

Once an area is declared as a WSPA, the Minister must under section 29(1) of the Act appoint a consultative committee to develop a draft management plan for the declared area. This consultative committee is made up of landholders, representatives of statutory bodies, government agencies and a representative from Environment Victoria.

A Stream Flow Management Plan (SFMP) considers the total amount of surface water in a WSPA and prescribes how it will be shared between water users and the environment.

Section 32A(1) of the Act states that the object of a management plan is to make sure that water resources are managed in an equitable manner and to ensure the long-term sustainability of those resources. It aims to recognise the needs of the existing and future users whilst attempting to maintain or improve waterway health by protecting the environment's share of water, including minimum flows and the water above what is available for consumptive use. Providing sufficient environmental flows to achieve healthy rivers is a key part of ensuring the long-term sustainability of the water resource.

This section of the Act together with the guidelines issued under the Act, titled "Guidelines for Draft Management Plan: Woori Yallock Creek Catchment Water Supply Protection Area", provide the scope for the Woori Yallock Creek Catchment WSPA SFMP. These guidelines require the Plan to implement a number of requirements under the Act, including a requirement that water will be reserved for the environment. The Act also requires that licence volumes be capped in accordance with the Permissible Consumptive Volume (PCV) that was declared for the whole of the Yarra River Basin in November 2006.

A plan can only prescribe requirements, conditions or restrictions to licences issued under section 51 ('take and use licences') and section 67 ('licences to construct works on a waterway or bore'). Private rights to domestic and stock water under section 8 are not impacted by this Plan. There are no bulk entitlements, environmental entitlements or water shares issued in the Woori Yallock Creek catchment.

This Plan has been prepared as part of Melbourne Water's program for managing priority catchments throughout the Yarra River basin. Plans have already been prepared for Diamond Creek, Hoddles Creek, Plenty River, Olinda Creek, Stringybark Creek and Steels, Pauls and Dixons Creeks. The Little Yarra and Don, and Woori Yallock Creek Stream Flow Management Plans are the last two plans being prepared under this priority catchments program. Existing plans will be reviewed periodically and if deemed necessary revised in consultation with relevant stakeholders.

Using advice from numerous scientific and other studies the consultative committee identified improvements that could be made in the management of licences to take and use water, and made recommendations that aim to balance reliability for water users and environmental benefits.

As a part of the Plan development, the Plan was released for public comment allowing stakeholders to make recommendations or provide advice. The submissions have been considered to create this Plan. A summary of the committee's response to the submissions is provided in Appendix 3.

The Plan has been submitted to the Minister for approval and tabled before Parliament, after which time the prescriptions are administered and enforced by Melbourne Water.

This Plan provides descriptions and/or prescriptions for:

- the WSPA (Section 1 & 2)
- water entitlements and use (Section 3)
- objectives of the plan (Section 4)
- administration and enforcement (Section 5)
- restrictions on taking surface water (Section 6)
- licence transfers (Section 7)
- restrictions and prohibitions on the issue of licences (Section 8)
- metering and accounting (Section 9)
- monitoring (Section 10)
- private dams (Section 11)
- annual reporting (Section 12)
- licence conditions (Schedule 1)

2. THE WOORI YALLOCK CREEK WATER SUPPLY PROTECTION AREA

2.1 THE WATER SUPPLY PROTECTION AREA

This Plan applies to the surface waters of the Woori Yallock Creek Protection Area. In accordance with section 27 of the Act, Melbourne Water advertised the proposed WSPA for the Woori Yallock Creek catchment on 1 May 2006. In October 2006, after receiving public submissions, the Woori Yallock Creek catchment was declared a WSPA. The boundaries of the protection area may be inspected on Plan No. LEGL./05–525 at the Central Plan Office, Department of Sustainability and Environment, Level 5, 570 Bourke Street Melbourne. For opening hours visit: www.dse.vic.gov.au

A groundwater WSPA has also been declared for an area that overlaps the Woori Yallock Creek catchment (the Wandin Yallock area). Southern Rural Water is responsible for managing groundwater resources in this area. The consultative committee was not asked to address groundwater issues in this Plan.

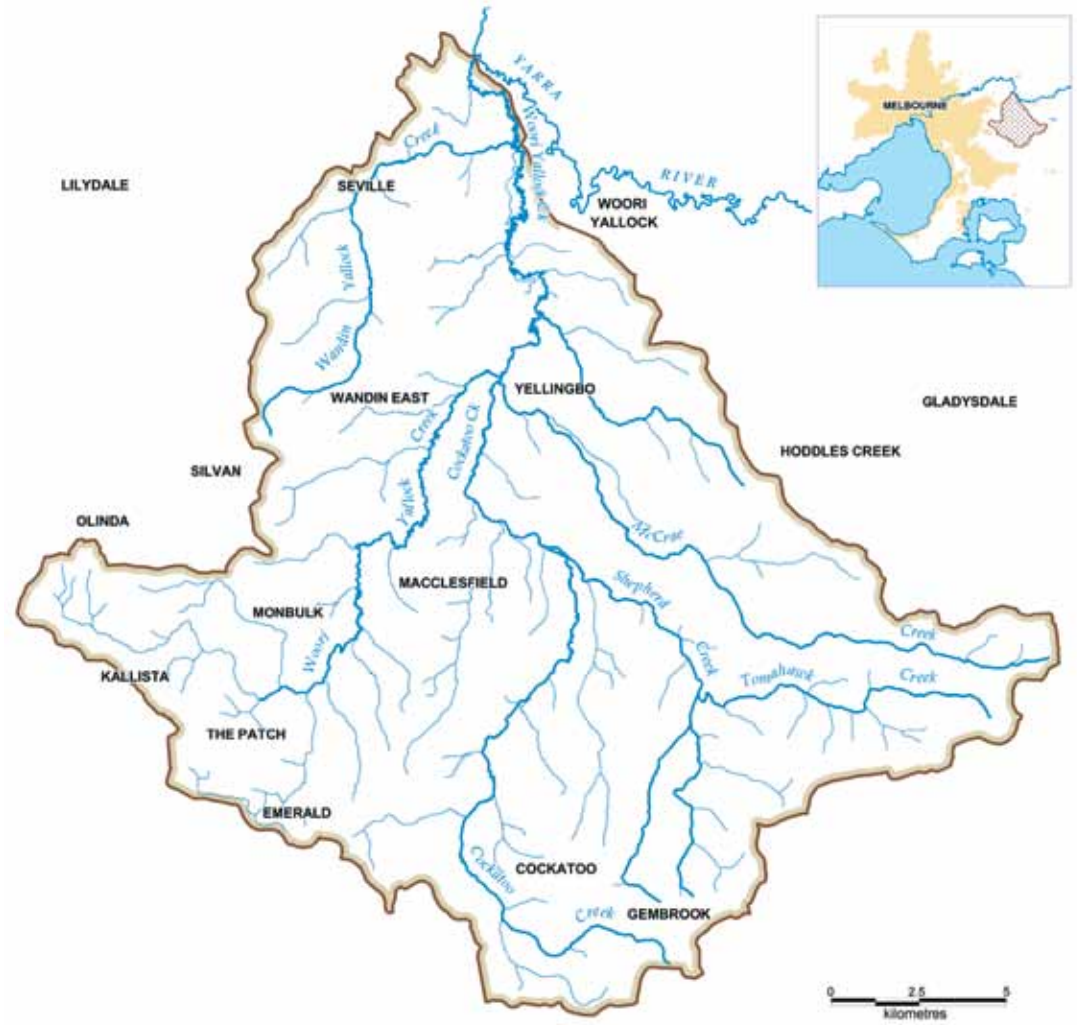
2.2 PROTECTION AREA DESCRIPTION

The Woori Yallock Creek rises on the eastern slopes of the Dandenong Ranges flowing in a generally northerly direction before joining the Yarra River northeast of the town of Seville (Figure 1). Major tributaries include the Wandin Yallock, Emerald, Sassafras, Menzies, Cockatoo, Macclesfield, Wattle, Gembrook, Shepherd, McCrae, Tomahawk and Sheep Station creeks.

The Woori Yallock Creek catchment has an average rainfall of around 1,100 to 1,200 mm which falls mainly over the winter period. A permanent flow is maintained throughout the year on most creeks, with a base flow provided by groundwater inputs. Groundwater and surface water interaction occurs within the catchment. The total catchment area is about 272 km².

The upper regions of the catchment are a mix of forest, intensive horticulture (flowers and nursery, orchard fruit, berries, viticulture and vegetables), and urban developments. The lower, northern reaches have predominantly been cleared for grazing and horticulture. Approximately 80 per cent of the catchment has been cleared, with this cleared area now used for urban and rural-residential developments, and intensive horticulture and grazing.

Figure 1: Woori Yallock Creek WSPA



Small townships are located throughout the Woori Yallock Creek catchment including Woori Yallock Creek, Cockatoo, Monbulk, Kallista, Seville, Emerald, Olinda, Gembrook, Silvan, Wandin and Macclesfield. Figure 2 shows the distribution and purpose of diversion licences (entitlements) issued under section 51 ('take and use' water licences) and section 8 (private rights to water) in the Woori Yallock Creek WSPA. Further details of licence entitlements and use are provided in section 3 of this document.

2.3 GENERAL ENVIRONMENTAL VALUES

The environmental condition or health of a river or creek is a product of many factors. Land use within the catchment area, the presence of native streamside vegetation, the level of change from its natural state, water quality and water use all affect stream health.

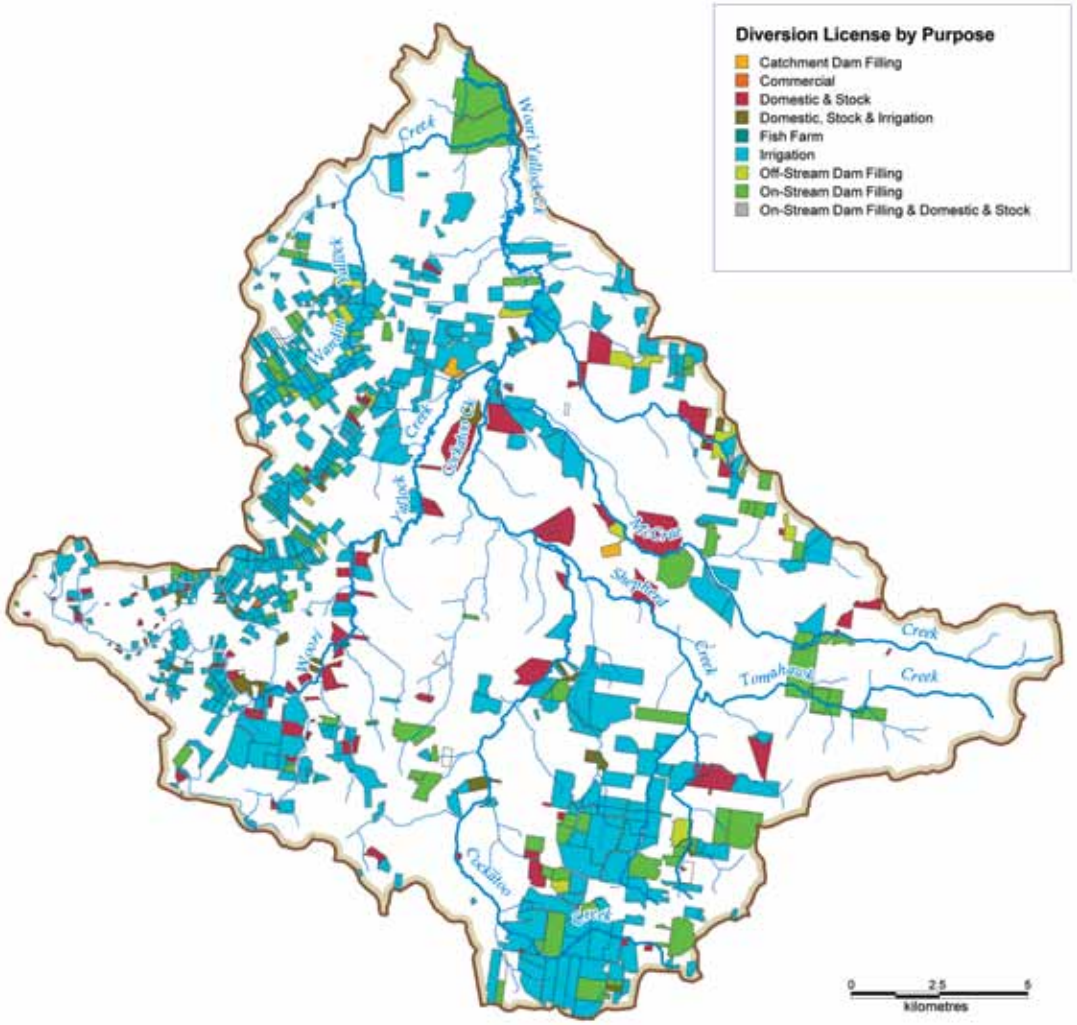
The component of river health addressed within the scope of SFMPs is the flow regime. While SFMPs recognise other pressures they do not specifically deal with these other issues. Specifically, SFMPs make rules for the issuing and management of section 51 licences.

The flow pattern of a river or creek can be described by its components that may include high flows such as floods, very low flows and zero flow events and medium freshening flows that follow dry periods. All components of the flow regime are important to stream health, with local flora and fauna having become reliant on and adapted to particular flow patterns.

Small native migratory fish within the Yarra River system (including the Woori Yallock Creek) require flushing flows to trigger migrations. Sediment that accumulates on the streambed during the dry periods is flushed downstream by higher flows, deep pools are replenished by fresh water and the silt is removed.

Thirteen fish species (seven native and six exotic) have been recorded in the Woori Yallock Creek WSPA, including River Blackfish, Southern Pygmy Perch and Common Galaxias throughout all reaches, and Mountain Galaxias in the upper reaches. Construction of a fishway at Dights Falls on the lower Yarra River means that other native migratory fish such as Australian Grayling, listed as Vulnerable under the Australian Government *Environment Protection and Biodiversity Conservation Act 1999*, will have the opportunity to migrate into the Woori Yallock Creek region. In addition to these fish, three species of crayfish have been found in the Woori Yallock Creek catchment, including the Central Highlands Spiny Cray. Mussel beds are also in existence in the catchment.

Figure 2: Map of the Woori Yallock Creek Protection Area illustrating the distribution and purpose of diversion licences.



Ten species of frog, froglet and toadlet have been found in the catchment, along with Platypus and a range of macroinvertebrates. Riparian and in-stream vegetation were also assessed and accounted for in the flow recommendations.

The only occurrence of natural populations of Helmeted Honeyeaters and the lowland form of Leadbeater's Possum live in the Yellingbo Nature Conservation Reserve on the mid Woori Yallock Creek. The Reserve is also renowned for its sedge rich *Eucalyptus camphora* swamp vegetation community which is listed in the *Flora & Fauna Guarantee Act 1988*.

2.4 STREAM FLOWS

With seven active stream flow gauges (Table 1), the Woori Yallock Creek Catchment has a high density of gauging stations in comparison to other Victorian catchments.

Table 1: Active stream flow gauging stations in the Woori Yallock Creek Catchment.

Gauge number	Gauge name	Activation date
229215 B	Woori Yallock Creek at Woori Yallock Creek	1 January 1975
229248 A	Cockatoo Creek at Nangana	4 April 1998
229677 B	Shepherd Creek at Nangana	10 July 1999
229678 A	McCrae Creek at Yellingbo	10 July 1999
229679 B	Woori Yallock Creek at Yellingbo	9 July 1999
229681 B	Wandin Yallock Creek at Seville East	9 July 1999
229694 B	Woori Yallock Creek at Monbulk	16 July 1999

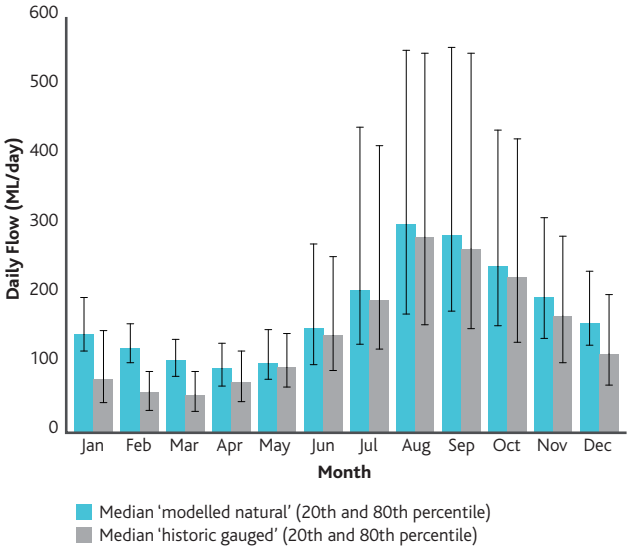
The longest continuous record of stream flow has been from gauging station 229215 (Woori Yallock Creek at Woori Yallock Creek) which is situated at the bottom of the catchment and has been recording flows for the past 35 years. The remaining gauges have around 12 years of data, which have been recorded over a period of low rainfall.

2.5 CURRENT FLOWS COMPARED TO NATURAL FLOWS

Flows in the catchment have been altered from natural flows in many ways. This includes the interception by catchment dams, lack of passing flows from on-stream dams, changes in rainfall patterns and extraction of water from waterways for agricultural use (domestic, stock and irrigation).

Figure 3 compares the 'modelled natural' daily stream flow statistics for each month over the period 1975 – 2009 with that of the 'historic gauged' data. The top of each solid bar represents the median or 50th percentile flow. Half of recorded flows are above this point, and half below. The outline bars illustrate the flow variability with the upper limit representing the point at which 80 per cent of flows are below, whilst the lower limit represents the point at which 20 per cent of flows are below. Therefore 60 per cent of flows occur between the upper and lower limit.

Figure 3: Median daily stream flow statistics for each month at gauge 229215 Woori Yallock Creek at Woori Yallock Creek over the time period 1975 – 2009.



The 'modelled natural' data was derived from the Resource Allocation Model (REALM model), whilst the 'historic gauged' is the actual recorded data (current flows). Since the region is dominated by winter rainfall, and most irrigation occurs over the summer growing season, the impact of extractions on stream flows is greatest in summer. The impact of water diversions is greatest from December to April inclusive with more than 20 per cent of natural flows being diverted.

2.6 HISTORICAL MANAGEMENT OF WATER LICENCES

Licensed water users in the Woori Yallock Creek Catchment are managed according to a system of restriction and ban rules. The implementation or lifting (relief) of restrictions and bans occurs when specific catchment triggers have been met based upon seven-day rolling average stream flows.

Between 1997 and 2003, restriction levels (ranging from Level 1 to Level 3) for the Woori Yallock Creek catchment were based on the seven-day rolling average flow in the Yarra River at Warrandyte (Gauging Station 229200). From 2004 onwards, restriction levels have been based on the seven-day rolling average at Seville East (Gauging Station 229968) for Wandin Yallock Creek and at Yellingbo (Gauging Station 229679) for the rest of the Woori Yallock Creek and its tributaries.

During periods of low stream flow, rosters or restrictions on water extraction may be used to share available flows or to protect environmental flows. A staged level of restriction is deemed beneficial for some catchments, as they are perennial in nature. Historical flow data indicates that flows in these catchments normally decline over a more prolonged period than the other more ephemeral waterways, and therefore provide opportunity for a staged level of restriction to be implemented.

Helmeted Honeyeater
(Photograph M Serong)

Details of the original restriction and ban trigger levels for both the low and high flow periods in the Woori Yallock and Wandin Yallock Creeks prior to the formation of the SFMP consultative committee are detailed in Table 2. Restrictions apply only in the Woori Yallock Creek catchment and not on the Wandin Yallock. The compliance point for Woori Yallock Creek is at the Yellingbo gauge on the Woori Yallock Creek. Between 1 November to 30 June restrictions are implemented when the seven-day rolling average drops below 45 ML/d and lifted when the flow rises above 45 ML/d. Between 1 July and 31 October restrictions are implemented when the seven-day rolling average drops below 120 ML/d and lifted when the flow rises above 120 ML/d.

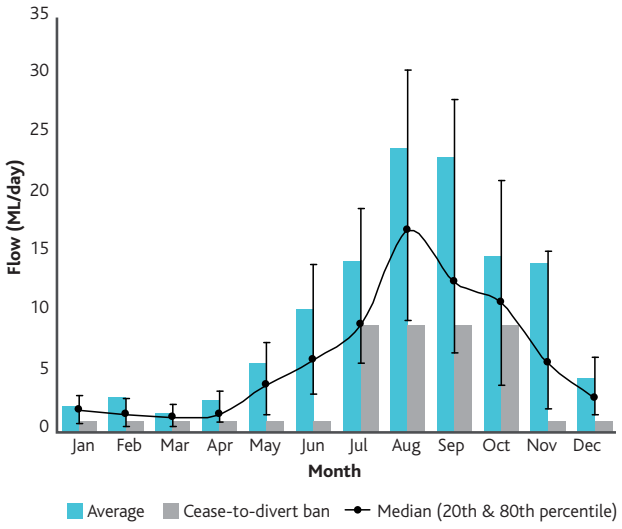
Currently when restrictions are imposed there is a rostering scheme based on licence type, roster groups are allocated, and pumping days allotted for waterways within the catchments subject to water restrictions outlined in Melbourne Water's 'Drought Response Plan Licensed Water Users 2007'. Diverters can access the Melbourne Water webpage to obtain information on ban and restrictions status.

Table 2: Original cease-to-divert ban and restriction triggers prior to formation of the SFMP consultative committee.

	229681 Wandin Yallock Creek at Seville East	229679 Woori Yallock Creek at Yellingbo	
	Cease-to-divert ban	Restriction trigger	Cease-to-divert ban
Low flow season (Nov. – Jun.)	1 ML/d	45 ML/d	31 ML/d
High flow season (Jul. – Oct.)	9 ML/d	120 ML/d	103 ML/d

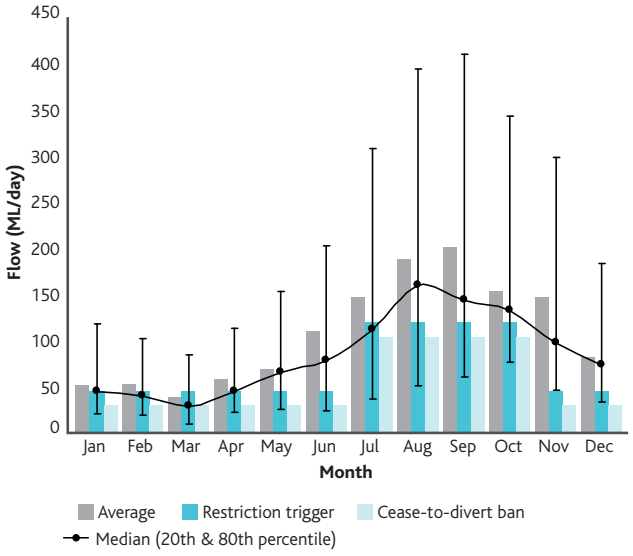
Wandin Yallock Creek daily flow statistics for each month are shown in Figure 4 relative to the original 'cease-to-divert' bans. The monthly average flow ranges from 1.6 ML/d in March to 23.9 ML/d in August. The flow statistics in figure 4 and 5 demonstrate the variability in stream flow in the catchment.

Figure 4: Average daily stream flow and cease to divert ban flow for each month over the time period 2000 – 2009 at gauge Wandin Yallock Creek at Seville East (229681).



Daily flow statistics for each month in Woori Yallock Creek at Yellingbo are shown in Figure 5 relative to the original 'restriction triggers' and 'cease-to-divert' bans. The monthly average flow ranges from 37.8 ML/d in March to 201 ML/d in September.

Figure 5: Average daily stream flow for each month over the time period 2000 – 2009 at gauge Woori Yallock Creek at Yellingbo (229681).



2.7 MODELLING THE CATCHMENT

To help the Consultative Committee develop the SFMP, a water REsource ALlocation Model (REALM) for the Woori Yallock Creek Catchment was developed by Sinclair Knight Merz (SKM) in December 2009. REALM relates rainfall in the area to runoff and simulates daily stream flows and water use throughout the catchment over the period January 1975 to December 2007. Other inputs used in this model include estimated dam impact, evaporation, runoff, seepage, and licensed water use. REALM is used to assess the reliability of water supply to licensed water users and the impact on natural stream flows.

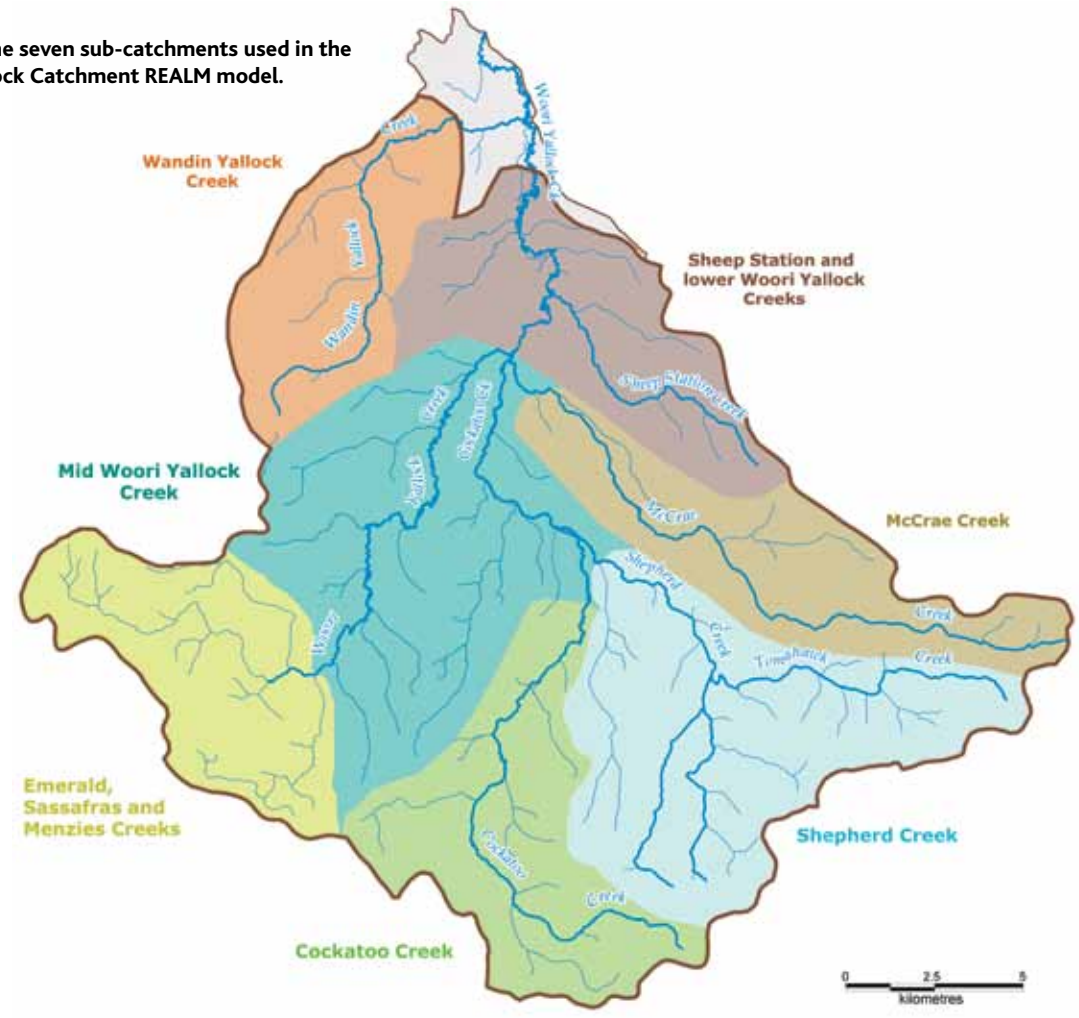
The Woori Yallock Creek Catchment was divided into seven sub-catchments based on the location of the stream flow gauges shown in Table 1. These sub-catchments are shown in Figure 6. The stream flow data from these gauges were used to calibrate the model. Two stream flow scenarios were simulated based on two climate scenarios: Natural historic stream flows and climate change stream flows.

In combination with these stream flow scenarios, different levels of development demand scenarios were derived, including historic, current and full level of development. Historic are the demands for water that have occurred over time in a catchment; current are the demands for water that are being seen at present in a catchment and are based on the current level of development; and full level of development are the demands for water that will be seen when the catchment's water resources are being used at the limit established at licensed volume for private diverters. Updated farm dam information helped estimate the impact of farm dams. Metered diversion data from Melbourne Water's 2006 Diverter Survey were utilised to provide greater insight into water use.

An independent Technical Audit Panel (TAP) reviewed the REALM. The report considered that the flow recommendations are credible and well supported by the available evidence. This report is available upon request and further information is provided in Appendix 5.

Epacris impressa
(Photograph I Moodie)

Figure 6: The seven sub-catchments used in the Woori Yallock Catchment REALM model.



2.8 ENVIRONMENTAL FLOWS

One of the most important roles of the SFMP consultative committee is to identify an appropriate environmental flow regime. The environmental flow regime may consist of minimum seasonal flows (high flow/winter and low flow/summer seasons), and flushing flows, as well as any other flow components considered necessary for instream and streamside flora and fauna. The typical components of an environmental flow regime are outlined in Figure 7.

Melbourne Water commissioned a study by SKM to determine the environmental flow requirements of the Woori Yallock Creek Catchment. The report, called '*Environmental Flow Determination for Woori Yallock Creek* ', was completed in November 2005. For the purposes of this study, the catchment was divided up into six sub-catchments (Figure 8).

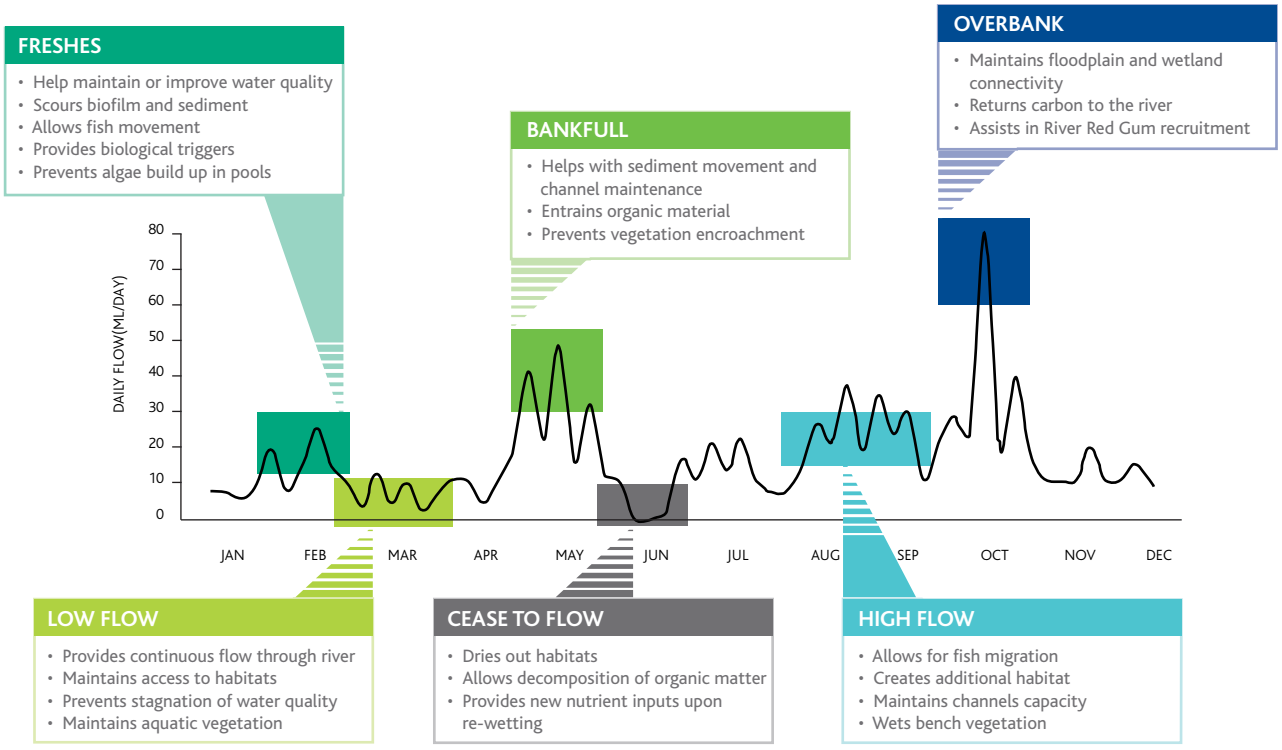
The Technical Audit Panel (TAP) also reviewed this study. The report considered that the flow recommendations are credible and well supported by the available evidence. This report is available upon request and is discussed briefly in Appendix 4.

Environmental objectives, which can be met or managed through improved flow, were developed as part the environmental flows study based on environmental assets (the species and communities, their habitats and ecological processes) in the Woori Yallock Creek Catchment. The objectives aim to either:

- Maintain - keep the condition of the asset in its current state.
- Restore - move the condition of the environment back to natural conditions.
- Rehabilitate – move the condition of the asset to some improved state (but different to natural).

Further information is available in the Environmental Flow Determination for Woori Yallock Creek (SKM November 2005). Available from Melbourne Water upon request.

Figure 7: General environmental flow components.



2.9 ENVIRONMENTAL FLOW RECOMMENDATIONS

In order to meet the environmental objectives, flow recommendations were made for cease-to-divert trigger levels at the six reaches across the Woori Yallock Creek. These trigger levels are outlined in Table 3, in contrast with the original trigger levels (Table 2). The recommended flow rates may also be met if the flow naturally drops below that level.

This is because the catchment, not having a large upstream dam from which water is released to maintain a flow at a determined level, is unregulated and flow naturally fluctuates depending on rainfall and runoff in the catchment. Consequently all flow recommendations are set at that level or volume the natural flow would be.

Table 3: Recommended cease-to-divert flow triggers based on environmental flows study

	Reach 1: Lower Woori Yallock Creek	**Reach 2:** Wandin Yallock Creek	**Reach 3:** Mid Woori Yallock Creek	**Reach 4:** McCrae Creek	**Reach 5:** Cockatoo Creek & Shepherd Creek	**Reach 6:** Upper Woori Yallock Creek
Low flow season (Dec. – May)	60 ML/d	4 ML/d	50 ML/d	12 ML/d	30 ML/d	20 ML/d
High flow season (Jun. – Nov.)	110 ML/d	14 ML/d	120 ML/d	20 ML/d	50 ML/d	35 ML/d

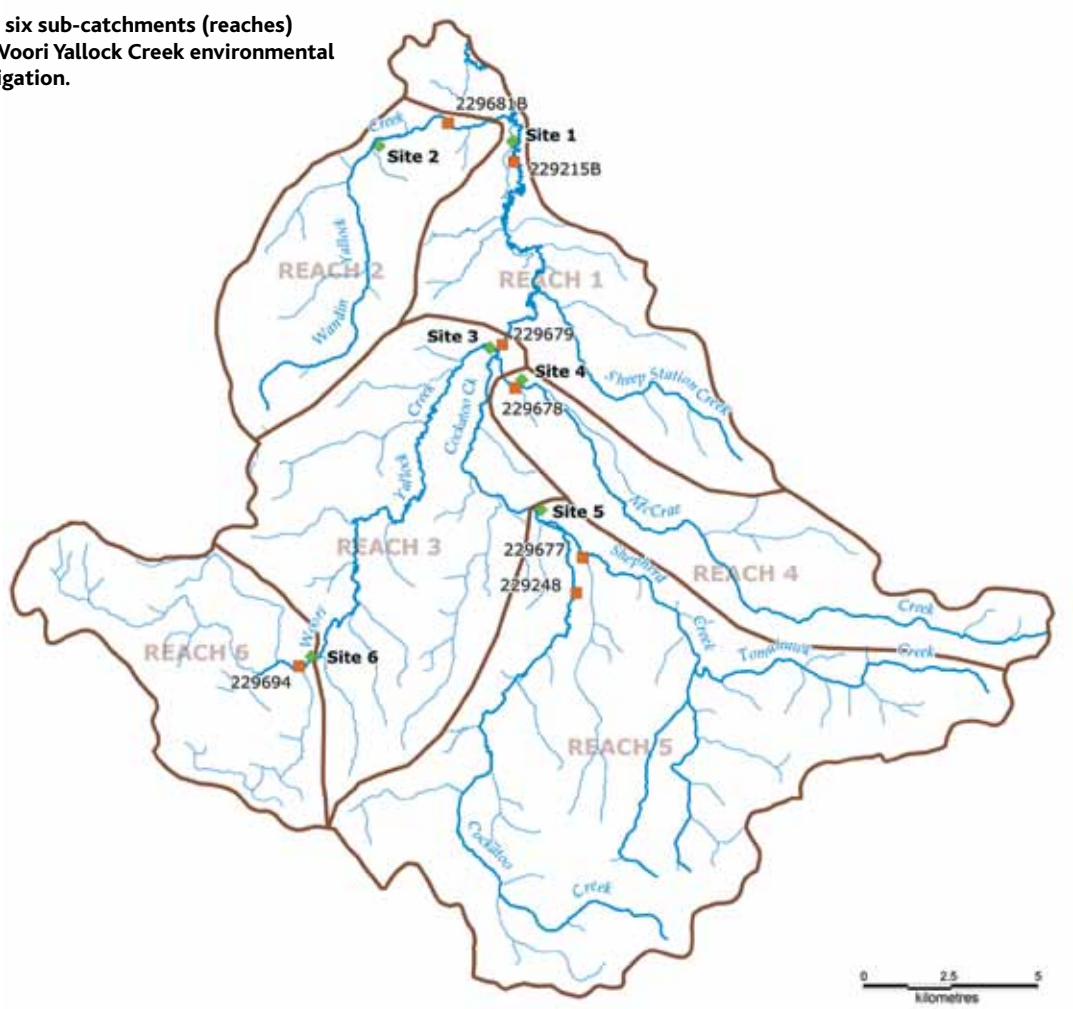


Figure 8: The six sub-catchments (reaches) used in the Woori Yallock Creek environmental flows investigation.

Figure 9 and Figure 10 show how these environmental recommendations compare to the historical flow management arrangements in the Woori Yallock Creek Catchment based on the two compliance gauges: *229968 Wandin Yallock Creek at Seville East*; and *229679 Woori Yallock Creek at Yellingbo*.

The outline bars illustrate the flow variability within the upper limit representing the point at which 80 per cent of flows are below, whilst the lower limit represents the point at which 20 per cent of the flows are below.

Figure 9: Environmental flow recommendations in the Wandin Yallock Catchment (*Wandin Yallock Creek at Seville East - 229968*) relative to historical flow management arrangements. The average and median flow data is based on actual (historic) gauge data over the time period 2000 – 2009.

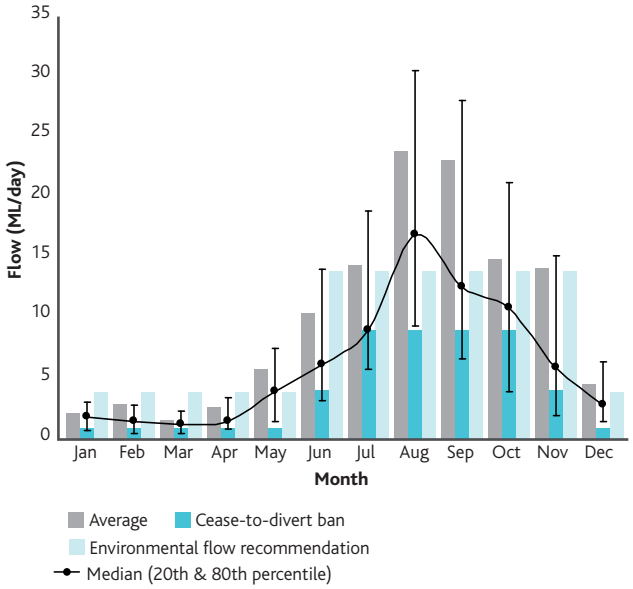
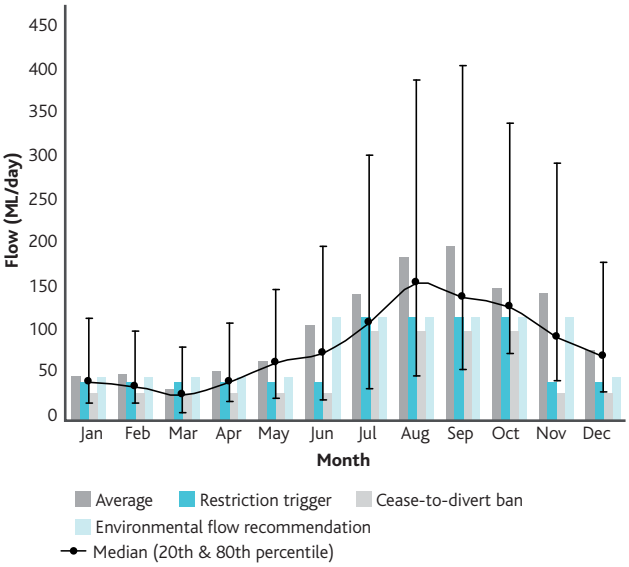


Figure 10: Environmental flow recommendations in the Woori Yallock Creek Catchment (*Woori Yallock Creek at Yellingbo - 229679*) relative to historical flow management arrangements. The average and median flow data is based on actual (historic) gauge data over the time period 2000 – 2009.



2.10 SUB-CATCHMENT DELINEATIONS

As a result of the two different studies (REALM model and environmental flows investigation), there are two different systems by which the region has been classified in this SFMP. The REALM report produced seven 'sub-catchments' (A-G), while the environmental flows study uses six 'reaches' (1-6; sub-catchments A & B are combined to make one reach). Table 4 illustrates which sub-catchment corresponds with which reach. This Plan predominantly uses the REALM model catchments, but in some instances, the Plan will refer to the sub catchment reaches defined in the environmental flow study.

Table 4: Definitions of sub-regions of the Woori Yallock Creek catchment.

Sub-Catchment (REALM)	Environmental flow reach	Sub-catchment / Reach description	Area (km²)
A	5	**Cockatoo Creek** Cockatoo Creek catchment upstream of the stream flow gauge at Nangana (229248)	49.4
B	5	**Shepherd Creek** Shepherd Creek catchment upstream of the stream flow gauge at Nangana (229677)	71.0
C	4	**McCrae Creek** McCrae Creek catchment upstream of the stream flow gauge at Yellingbo (229678).	43.4
D	6	**Emerald, Sassafras and Menzies** Upper Woori Yallock Creek catchment upstream of the stream flow gauge at Monbulk (229694). Includes flows from Sassafras and Emerald Creeks. Menzies Creek confluence is downstream of gauge, but for environmental flow assessment these catchments were combined.	29.6
E	1	**Sheep Station and lower Woori Yallock Creek** Lower Woori Yallock Creek catchment upstream of the stream flow gauge at Woori Yallock Creek (229215) and downstream of sub-catchment G. Includes flows from Sheep Station Creek.	44.9
F	2	**Wandin Yallock Creek** Wandin Yallock Creek catchment upstream of the stream flow gauge at Seville East (229681).	35.0
G	3	**Mid Woori Yallock Creek** Intermediate Woori Yallock Creek catchment upstream of the stream flow gauge at Yellingbo (229679) and downstream of sub-catchments A, B, C and D. Not including Menzies Creek	77.7

2.11 WATERWAY MANAGEMENT PROGRAMS IN THE CATCHMENT

In addition to recommending the provision of environmental flows, the Woori Yallock Creek Environmental Flow Technical Panel (November 2005) made additional recommendations to assist with improving the health of the Woori Yallock Creek catchment. To help address these recommendations Melbourne Water undertakes a variety of incentive programs which vary depending upon the type of land owner – Stream Frontage Management Program, Community Grants, Corridors of Green, and Water Sensitive Farm Design.

The Stream Frontage Management Program provides grant funding to landowners with private freehold or licensed crown land to protect, improve and manage their river frontages. Participating landowners are offered funding assistance, technical advice and educational opportunities. The program has a long and committed history. For an individual project, funding may continue for several years if work needs to be done in stages. The most common works required are weed control, fencing to exclude stock, revegetation with indigenous plants and off stream stock watering.

The Community Grants program provides grants to community groups such as Macclesfield Landcare Group and the Friends of the Helmeted Honeyeaters. The Corridors of Green provides grants to public land managers such as councils and Parks Victoria to undertake complimentary works on frontages that are public land.

In addition Melbourne Water undertakes a capital works and maintenance program which aims to manage the bed and banks of waterways for stability and habitat. Over recent years major weed control and revegetation work has been undertaken on a number of waterways including, Cockatoo, Sassafras, Woori Yallock Creek, and Sheep Station creeks. Any work undertaken on or near a waterway requires a permit to work from Melbourne Water.

In the Woori Yallock Creek catchment, Melbourne Water commenced a pilot Water Sensitive Farm Design program in June 2009. The program is to work with land managers beyond the riparian zone to improve water quality leaving the farm. It is due for completion in June 2012. The Water Sensitive Farm Design program has the following objectives:

- Improve the quality of rural runoff entering waterways.
- Improve land management practices.
- Gain a better understanding of the approaches required to tackle poor land management practices.
- Encourage greater adoption of best management practices in key catchments and/or industries.
- Collaborate with other Melbourne Water Programs to maximise benefits to waterway health.
- Work in partnership with other agencies and service providers including DPI and industry.

3. WATER ENTITLEMENTS AND USE

The Act governs the way water entitlements are issued and allocated in Victoria. It defines water entitlements and establishes the mechanisms for managing Victoria's water resources. For instance, section 7 of the Act provides that the Crown has the right to the use, flow and control of all water in a waterway and all groundwater.

A water entitlement is the maximum amount of water authorised to be taken and used by a person under specific conditions/ specifications. In unregulated systems water availability can vary considerably from year to year and licence holders may not always have access to their full entitlement volume. Annual use is determined by rosters, restrictions and bans.

Some entitlements to water are not formally issued but exist under the Act for domestic and stock purposes by virtue of an individual's private ownership of, or access to, land. In these circumstances, the Act allows individuals to take water for domestic and stock purposes from a range of surface water and groundwater sources without a licence. These domestic and stock rights are defined under section 8 of the Act and they include farm dams for domestic and stock purposes.

Under the Act, there are four different types of issued entitlements to take water. These include water licences (section 51), bulk entitlements (part 4, division 1), environmental entitlements (part 4, division 1A), and water shares (part 3A).

A water licence issued under section 51 grants the holder the right to take and use water from: waterways, on-stream and off-stream dams, springs and soaks, works of an authority and groundwater. In order to access water under a section 51 take and use licence, a person will also need to operate works. This may involve bore or dam construction and/or the use of pumping equipment. In order to do this a section 67 works licence is also required and the two licences are normally incorporated into the one licence document. Separate licences will be required to construct, alter, remove or decommission any works on a waterway or a bore.

3.1 LICENSED WATER ALLOCATIONS

A licence issued and managed by Melbourne Water to take and use water under section 51 of the Act generally falls into one of the following categories:

- *All-year licences* are issued with conditions that allow pumping from a waterway, or harvesting water in a dam, during any month of the year. All-year licences include irrigation, domestic and stock and farm dam licences or registrations (Table 5).
- *Dam-filling licences* are issued with conditions that allow filling of dams during the high flow and shoulder periods, typically by pumping from a waterway or collecting water in the dam.
- *Farm dam registration licences* were issued to people who were taking water from a catchment dam that was used for irrigation or commercial purposes in any year within the 10-year period prior to 4 April 2002. Registration licences are a subset of all-year licences in that water can be collected in any month.
- *Farm dam licence* allows people to take water from catchment dams that were historically utilised for irrigation. The difference between these licences and farm dam registrations is that farm dam licences can be traded and incur annual fees. Farm dam licences cannot be converted to farm dam registrations.

Licences are issued and renewed annually. Table 5 and Table 6 provide a summary of diversions in the Woori Yallock Creek Protection Area at November 2009.

Consistent with current policies for managing take and use licences, Melbourne Water may issue a licence in excess of the Permissive Consumptive Volume (PCV), catchment cap or if the licence includes a condition that requires all the water to be returned to the waterway or to be used in the waterway for a non-consumptive purpose.

3.2 WATER USE NOT REQUIRING A TAKE AND USE LICENCE

Water for domestic and stock use can be taken from a waterway without a licence if the waterway flows through a person's property or the waterway immediately borders a person's property. If a crown frontage or property owned by someone else exists between a person's land and the waterway, a licence for domestic and stock use is required.

Water can also be collected in catchment dams without a licence provided the water is not used for any irrigation or commercial purpose, e.g. for aesthetic, stock or domestic purposes. From 2011 onwards the government has introduced requirements for all new or modified aesthetic or domestic and stock dams to be registered with the relevant water authority. The collection of irrigation reuse water, within allowable volumes, and the collection of rainwater from a roof, is also exempt from any licensing requirements.

3.3 DAIRY WASH LICENCES

Historically, water used to wash down farm dairies was estimated to be relatively small. In most instances, section 51 licence volumes were below the actual volumes used for dairy washing or no licence existed as it was incorrectly assumed to meet the definition of section 8 rights. This position represents a historical inconsistency between policy and accounting for actual dairy wash use.

To address this issue, a state-wide transition program was implemented. The dairy shed water licence transition program required dairy farmers without a section 51 licence or with a section 51 licence that did not sufficiently represent their current water used for dairy wash apply for a new licence or amend an existing licence to reflect their actual water demands. The amnesty under this program ended on 26 April 2010. All licences are expected to be issued under the program before the end of 2011.

Table 5: Volumetric summary of diversion licences by licence type in the Woori Yallock Creek WSPA as at November 2009.

	Diversion licences (Consumptive) (ML)	Registered farm dams (ML)	Licensed farm dams (ML)	**Total licensed allocation (consumptive) (ML)**	Diversion licences (Non-consumptive – fish farm) (ML)
All-year:	6,658.0	1,116.3	421.5	**8,195.8**	1,606.0
Dam-filling:	1,329.4		23.0	**1,352.4**	
Total:	**7,987.4**	**1,116.3**	**444.5**	**9,548.2**	**1,606.0**

Table 6: Volumetric summary of diversion licences by purpose in the Woori Yallock Creek WSPA as at November 2009.

	Catchment dam filling	Domestic & stock	Domestic, stock & irrigation	Irrigation	Off-stream dam filling	On-stream dam filling	On-stream dam filling, domestic & stock	Total licensed allocation (consumptive)	Fish farm (non-consumptive)
All-year:		183.0	113.0	7,859.8	34.0	6.0		8,195.8	1,606.0
Dam-filling:	9.0			28.0	292.0	1,015.4	8.0	1,352.4	
Total:	9.0	183.0	113.0	7,887.8	326.0	1,021.4	8.0	9,548.2	1,606.0

A PCV for the Yarra Basin was originally declared in November 2006 for 435,982 ML. After the completion of the Dairy Wash amnesty, the PCV Surface Water Order 2010 declared that the PCV in the Yarra Basin is 435,982 ML plus the volume that may be taken under any licence issued or amended or to be issued or amended under section 51 of the Act in the WSPA to take and use water for the purposes of dairy shed cleaning.

3.4 CAPS ON LICENCE ALLOCATIONS

The entire Yarra River catchment is capped at current entitlement levels and no new water entitlements are available. This cap also applies to the Woori Yallock Creek catchment. As such the only way to obtain a new or increased entitlement is through water transfers downstream or at a local level. All other transfers where water is traded up-stream or across catchments requires the licence to be considered on a winter-fill basis only (i.e. water is available for extraction during the high flow winter months to be pumped into an off-stream storage dam for summer usage). Refer to 'Section 7 – Licence transfers' for further details.

PART 2
FUTURE MANAGEMENT UNDER THE SFMP

4. OBJECTIVES OF THE SFMP

The Act (section 32A(1)) defines the overall aim of a Stream Flow Management Plan:

"The object of a management plan is to make sure that the water resources of the relevant water supply protection area are managed in an equitable manner and so as to ensure the long term sustainability of those resources."

The Woori Yallock Creek consultative committee further listed its own specific objectives as follows:

1. Stream flows to match natural stream patterns to maintain existing species diversity and populations of aquatic fauna and, where possible, provide conditions that will encourage re-colonisation of historic aquatic species.
2. Water management rules that are clearly defined but adaptable to long term change.
3. Trading rules and opportunities are clearly specified to encourage water licence trading with minimal impact on existing licence holders and the environment.
4. To allocate water in the future in accordance with the total available water resources in the catchment, having regard for available surface water and groundwater resources.
5. To help improve water quality in accordance with the SEPP (Waters of Victoria) Schedule 7 Waters of the Yarra Catchment (EPA, 1999).
6. To identify areas of limited knowledge and/or understanding to more adequately inform future plan development and review.
7. To develop a monitoring and review program (including metering) to determine the effectiveness of the environmental flows to improve understanding of the catchment.
8. To encourage the sustainable and efficient use of the available water resources.

5. ADMINISTRATION AND ENFORCEMENT OF THE PLAN

Melbourne Water has the duty of administering, implementing and enforcing this plan. It is responsible for ensuring that:

- the metering and monitoring program is undertaken;
- licence holders understand and comply with rosters, restrictions and licence conditions;
- licences are issued with the appropriate licence conditions; and
- illegal water use does not occur.

5.1 PLAN IMPLEMENTATION TIMETABLE

This Plan comes into effect upon approval by the Minister (see section 14), except for changes to licence conditions (schedule 1) which come into effect four months after the Minister's approval. When the licence conditions (schedule 1) come into effect this will be year one of the Plan.

6. RESTRICTIONS ON TAKING SURFACE WATER

6.1 PERMISSIBLE CONSUMPTIVE VOLUME

The Permissible Consumptive Volume (PCV) represents the volume of water that can be taken at any time during the year in a specified area. Section 22A of the Act allows the Minister for Water to declare this PCV that limits the total volume of water that may be taken from a specific area. Section 32A(4) of the Act allows a draft management Plan to recommend to the Minister the total volume of water that should be declared to be the PCV for the protection area.

On 2 November 2006, an Order declared a PCV for the entire Yarra River Basin of 435,982 ML (which includes Woori Yallock Creek catchment). This PCV was based on the volume of water authorised to be taken by licences and bulk entitlements in existence in the area at the time of the declaration.

As a result of the PCV, no increase in water entitlements can occur within the Woori Yallock Creek catchment. New demand for water must be met through an application to Melbourne Water for assessment and trading of the necessary volume with an existing licence holder. Some exemptions to this requirement have been put in place.

A new PCV order was declared in July 2010. The new order declares that the PCV in the Yarra Basin is 435,982 ML plus (as set out in clause 8(b) of the Permissible Consumptive Volume Surface Water Order 2010) the volume that may be taken under any licence issued or amended or to be issued or amended under section 51 of the Act in the Yarra Basin to take and use water –

- from stormwater works; and
- for dairy shed cleaning under the Dairy Shed Water Licence Transition Program; and
- for stock watering where the applicant or licensee –
  - i) holds a conservation licence over Crown frontage along the waterway and the Crown frontage has been fenced off since 7 September 2004; or
  - ii) held a licence under the Land Act 1958 allowing grazing over Crown frontage along the waterway that was either cancelled to implement a recommendation of the Victorian Environment Assessment Council or surrendered as part of an arrangement for the Crown frontage to be managed by a Committee of Management.

The current allocation level for the Woori Yallock catchment as at the November 2009 level of entitlement, including all registered and licensed farm dams, is 9,548.2 ML, plus the volume that may be taken under any licence issued or amended or to be issued or amended under section 51 of the Act in the WSPA to take and use water for purposes consistent with the Yarra PCV above.

It is acknowledged that the catchment is over allocated and this Plan desires to reduce allocation to provide 80 per cent security based on historical use. The REALM model previously produced by SKM was used. The model was run with the environmental flows and at full level of development (all licences assumed to be fully active). The reliability of the licences was then calculated.

The calculated volume which is able to be supplied in 80 per cent of years showed that the volume of water that Woori Yallock Creek can supply 80 per cent of the time after the environmental water is provided is **8,828 ML**. This volume gives an indication of the amount of water that could reliably be taken in eight out of ten years. An 80 per cent reliability is considered a reasonable benchmark for acceptable reliability for a licence in an unregulated river.

Based on these calculations, the Plan sets the Allocation Cap for the Woori Yallock Creek catchment at **8,828 ML** plus the volume that may be taken under any licence issued or amended or to be issued or amended under section 51 of the Act in the WSPA to take and use water for purposes consistent with the Yarra PCV above. Melbourne Water will work towards achieving the Allocation Cap through application of prescriptions covering licence transfers referred to in Section 7 'Licence Transfers.' Additionally, this will be supported by prescriptions imposing limitations on transfers into the catchment and the issue of new allocations.

In addition to the allocation cap for the protection area, the Plan will set an allocation cap for the dam-filling period. Dam-filling licences can harvest and store water during the high flow months for use throughout the year. The Sustainable Diversion Limit (SDL) is a methodology applied in Victoria to provide a winter fill volume and diversion rules for approximately 1600 unregulated catchments. The SDLs were designed to protect the environment from unacceptable risks, and provide consumptive users a volume of water they could divert with 80% reliability.

From 2004 onwards, SDLs have been used to cap or allow additional consumptive use in Victoria's unregulated catchments during the winterfill period. This will be adopted as the dam-filling allocation cap for the SFMP for the dam-filling period. It should be noted that the 80% reliability is indicative and based on historical use. As the catchment is unregulated the levels of reliability cannot be guaranteed.

The allocation limit for the dam-filling period will be set at the SDL which is the volume of water that can be extracted over the dam-filling period.

The SDL for the dam-filling period for the Woori Yallock Creek is **4,029.5 ML** (based on lowest downstream catchment 2290014). This will be adopted as the dam-filling allocation cap for the SFMP. The current dam filling period allocation (November 2009 and used to set the total Allocation cap) within the catchment is **3,840.5 ML**.

Melbourne Water is undertaking investigation work in the Woori Yallock Creek catchment to obtain further information on water use. This work includes extending the coverage of the smart metering program, investigating the impacts of dams and examining the component of unlicensed domestic and stock water use in the catchment. The combination of this data will allow further understanding of the demands and timing of water use in the catchment. It is recommended that the dam-filling period cap will be revisited when the Plan is reviewed.

PRESCRIPTION 6.1: ALLOCATION CAP

a) The Allocation Cap in the Woori Yallock Creek Water Supply Protection Area will be **8,828 ML**.

b) Melbourne Water may not issue licences above the Allocation Cap except when this is a result of a renewal of an existing allocation within the catchment or any of the circumstances as prescribed in prescriptions 8.1(1) and 8.1(5).

c) Melbourne Water will work from the current allocation level of 9,548.2 ML in the Protection Area towards an Allocation Cap of **8,828 ML** through application of the prescriptions in this plan.

d) On reaching the Allocation Cap, Melbourne Water must report in the next Annual Report that the Allocation Cap has been achieved.

6.2 IMPLEMENTATION OF MINIMUM ENVIRONMENTAL FLOWS

The implementation of minimum environmental flows will be achieved through amending the existing (historic) 'restriction triggers' and 'cease-to-divert bans' for all months of the year. In addition the Plan introduces new compliance locations. This combination allows for improved management of environmental flows whilst balancing the requirements of the diverters. The bans and restrictions will be enforced by licence conditions as described in Schedule 1. These conditions will be in addition to the State-wide Licence Conditions that currently exist (a copy is presented in Appendix 2).

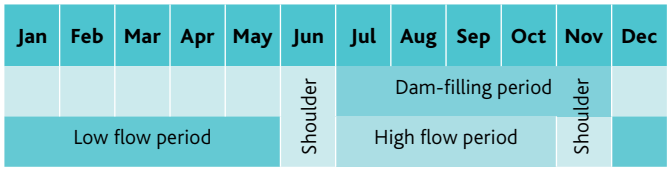
Licence periods

The Plan recommends three periods to manage the take and use of water:

- Low Flow Period – 1 December to 31 May
- High Flow Period – 1 July to 31 October
- Shoulder Periods – June and November.

Figure 11 shows the three periods as described and also the dam-filling period. In essence there are two licences periods, all-year licences and dam-filling licences. All-year licences allow extractions in all months whilst dam-filling licences are restricted to the dam-filling period. The period during which each licence can take is recorded on the licence in the section 'take period'.

Figure 11: Low flow period, high flow period and shoulder period illustrated in months and the dam filling period.



Flow thresholds, restrictions and bans

Within these periods various flow thresholds apply to different compliance points. Restrictions and bans will be introduced when catchment specific triggers have been met based upon 7-day rolling average stream flows. Restrictions may apply both before the introduction of, and after, the lifting of bans. The stream flow trigger will be specific to the catchment and will vary depending upon the location.

The impact of bans on licence holders is recognised as severe, however, the implementation of bans within a catchment is necessary to protect base environmental flows and maintain where possible river health and associated flora and fauna.

The Plan recommends a compromise between the current triggers and the minimum environmental flows following thorough analysis. This compromise has been reached following many detailed discussions by the Consultative Committee. Varying the seasonality offers some variety in the flow triggers thus delivering environmental protection and providing water availability for diverters. The triggers are catchment specific.

Within the Wandin Yallock Creek catchment, the Plan recommends the use of the gauge at Seville East (229681) to manage flows (which is the same as the current situation). In this catchment only bans will apply and will be based on the flow triggers as detailed in Table 7. Restrictions are not implemented in this catchment as at lower flow conditions the historic flow data and management demonstrates that there is limited benefit or impact on stream conditions when introducing restrictions.

Within the Woori Yallock Creek catchment, the Plan recommends use of the gauge at Yellingbo (229679) to manage flows (which is the same as the current situation). In this catchment bans and restrictions will apply and will be based on the flow triggers as detailed in Table 7. The original cease to divert ban and restriction triggers are detailed in **Table 2**.

Table 7: SFMP 'cease-to-divert bans' and 'restriction triggers' under the Woori Yallock Creek SFMP for years one to three.

Restriction triggers Ml/d					
Sub catch-ments	**Compliance gauge**	**Low season** (Dec to May)	**Shoulder** (June)	**High season** (July to Oct)	**Shoulder** (Nov)
F	229681 Wandin Yallock Creek at Seville East	N/A	N/A	N/A	N/A
A B C D E G	229679 Woori Yallock Creek at Yellingbo	50	85	120	85

Ban triggers Ml/d					
Sub catch-ments	**Compliance gauge**	**Low season** (Dec to May)	**Shoulder** (June)	**High season** (July to Oct)	**Shoulder** (Nov)
F	229681 Wandin Yallock Creek at Seville East	1	4	10	4
A B C D E G	229679 Woori Yallock Creek at Yellingbo	34	50	105	50

Note: A - Cockatoo Creek, B - Shepherd Creek, C - McCrae Creek, D - Emerald, Sassafras & Menzies Creeks, E - Sheep Station & lower Woori Yallock Creek , F - Wandin Yallock Creek and G - Mid Woori Yallock Creek. For full catchment details refer to Table 4.

The Plan recommends to stage the introduction of two new compliance points; one managing diverters on the Cockatoo and Shepherd catchments (sub-catchment AB) and the other on the McCrae catchment (sub-catchment C). The catchments are based on the REALM reaches.

Introducing the two new compliance points will provide improved environmental benefit for the two significant catchments as the full level of environmental flows has not been implemented across the catchment. However, it is also recognised that increasing environmental flows may impact the reliability of supply of users.

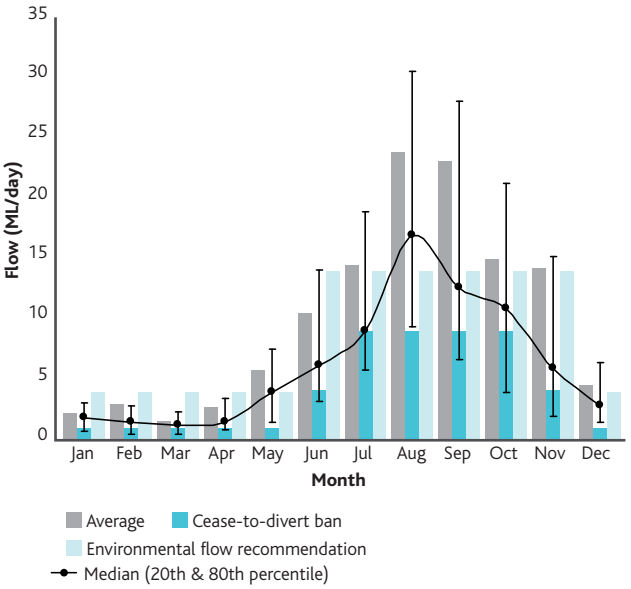
As a consequence of this potential impact, it is recommended that during years one to three of the Plan, ecological monitoring will be undertaken in the catchment (e.g. invertebrate, fish and plant surveys) to gain a better understanding of the benefits improved environmental flows will bring. At the end of year three the compliance point on Cockatoo and Shepherd Creek (sub-catchment AB) and McCrae Creek (sub-catchment C) will be introduced for the periods and flows identified in Table 8.

This three year period will give diverters a chance to monitor flows in the catchment and to make necessary business planning arrangements before the new flow triggers are introduced. Monitoring will continue during years four and five of the Plan. At the end of year five the consequence of the bans will be assessed and a decision will be made on future management.

The triggers have been selected to represent what has been introduced at the other compliance points in the catchment and correspond with a flow trigger equivalent to 66 percent (the average negotiated environmental flow). The trigger flow at Cockatoo and Shepherds Creek (sub-catchment AB) will be a combination of the flows through both gauges.

Figure 12 represents the cease to divert ban for Wandin Yallock.

Figure 12: Woori Yallock Creek SFMP 'cease-to-divert bans' for Wandin Yallock Catchment.



In the Woori Yallock Creek Catchment the summer environmental flow recommendation of 50 ML/day will be implemented as the June and November 'cease-to-divert ban' (Figure 13).

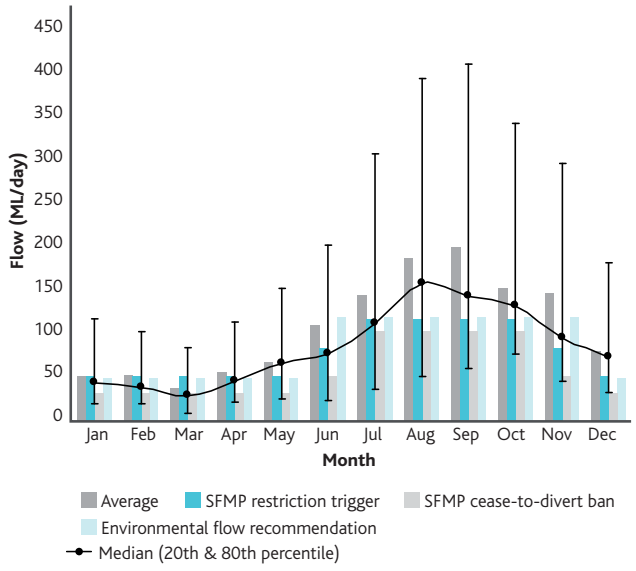
Each catchment will be managed independently depending upon the flow conditions.

Table 8: SFMP 'cease-to-divert bans' and 'restriction triggers' under the Woori Yallock Creek SFMP for years four and five.

Restriction triggers Ml/d					
Sub catchments	**Compliance gauge**	**Low season** (Dec to May)	**Shoulder** (June)	**High season** (July to Oct)	**Shoulder** (Nov)
D E G	229679 Woori Yallock Creek at Yellingbo	50	85	120	85
F	229681 Wandin Yallock Creek at Seville East	N/A	N/A	N/A	N/A
A B	Combined flow of 229677 Shepherd Creek at Nangana and 229248 Cockatoo Creek at Nangana	30	40	50	40
C	229678 McCrae Creek at Yellingbo	12	17	20	17

Ban triggers Ml/d					
Sub catch-ments	**Compliance gauge**	**Low season** (Dec to May)	**Shoulder** (June)	**High season** (July to Oct)	**Shoulder** (Nov)
D E G	229679 Woori Yallock Creek at Yellingbo	34	50	105	50
F	229681 Wandin Yallock Creek at Seville East	1	4	10	4
A B	Combined flow of 229677 Shepherd Creek at Nangana and 229248 Cockatoo Creek at Nangana	20	30	33	30
C	229678 McCrae Creek at Yellingbo	8	12	13	12

Figure 13: Woori Yallock Creek SFMP 'restriction triggers' and 'cease-to-divert bans' for the rest of the Woori Yallock Creek catchment at Yellingbo.



Drought Response Plan for Licensed water users

The 'Drought Response Plan for Licensed water users' is active at all times in conjunction with licence conditions and requires licence holders to proactively seek and monitor information about stream flow status prior to taking any water.

The status of restrictions, bans and warning levels for individual catchments along with catchment specific stream-flow data will be posted on the Melbourne Water website at www.melbournewater.com.au/diverters and be available by calling Melbourne Water on 131 722. The website will communicate the applicable status of bans, status of restriction if applicable, current catchment warning level, daily stream-flow and 7-day average stream-flow. The call centre will communicate the status of bans and restrictions only. Any further amendments to methods of communication will be updated in the 'Drought Response Plan for Licensed Water Users'.

Catchments will be monitored on a continuous basis with the status of warning level, restriction and ban being updated as conditions change.

Newsletters and other information will be forwarded to licence holders at periodic intervals to remind them to check the status of flows before taking water. Information will also be provided on current catchment conditions. These newsletters will be provided as information only and do not replace the need for licence holders to check their catchment status each time before taking water.

PRESCRIPTION 6.2:
IMPLEMENTATION OF MINIMUM ENVIRONMENTAL FLOWS

a) For the purpose of this clause, a licensee is the holder of a licence issued under section 51(1)(a) of the Act for any purpose other than stock and domestic use and registered farm dam licences.

b) Melbourne Water ***must*** ensure that licensees comply with licence conditions referred to in Schedule 1.

6.3 CHANGES TO LICENCE CONDITIONS TO IMPLEMENT THE ENVIRONMENTAL FLOW RECOMMENDATIONS

The conditions of licences will be amended to ensure that they reflect the requirements of this Plan.

Licence conditions will include a requirement to stop pumping water from the creek on a flow based regime and a time based regime. These rules protect the environmental flows described in this Plan.

Schedule 1 outlines the conditions that will be placed on all licences. The conditions are specific to each licence type and will be applied on renewal of licences or granting of new licences.

PRESCRIPTION 6.3:
LICENCE CONDITIONS

A licence granted under section 51 of the Act is subject to each condition set out in Schedule 1, in relation to that licence's purpose.

6.4 RATIONALE FOR THE RESTRICTIONS

During periods of low stream flow, rosters or restrictions on water extraction may be used at any time throughout the year to share available flows between licensed users and the environment or to protect environmental flows. Restrictions based on full environmental flows help to ensure that the first high flow in the transitional or high flow season is preserved to provide spawning and migration cues for fish.

Not only do the restrictions have environmental benefits but licensees within the catchment are familiar with managing their business based on them. The move to volumetric rostering allows for a flexible watering regime and a more energy efficient outcome for diverters.

Table 9 details the basis on which the restriction levels were set. The ban level is set at the negotiated trigger and restrictions on MDV is set at the full environmental value. The flexibility allows licensees to take incremental volumes depending upon the flows in the river.

Table 9: Description of restriction rationale.

Low season (Dec to May)		**High season** (July to Oct)		**Shoulder months** (June & Nov)	
Flow component	Maximum Daily Volume (MDV)	Flow component	Maximum Daily Volume (MDV)	Flow component	Maximum Daily Volume (MDV)
Summer fresh	250%	Winter fresh	250%	Midpoint of summer and winter fresh	250%
Summer environmental flow to summer fresh	100%	Winter environmental flow to Winter fresh	100%	Midpoint of summer and winter environmental flow to Midpoint of summer and winter fresh	100%
Negotiated environmental flow to summer environmental flow	50%	Negotiated environmental flow to winter environmental flow	50%	Negotiated environmental flow to midpoint of summer and winter environmental flow	50%
Negotiated environmental flow*	Ban	Negotiated environmental flow*	Ban	Negotiated environmental flow*	Ban

* achieves 66 per cent of minimum environmental flow requirements

6.5 ROSTERING AND RESTRICTIONS

As detailed in section 2.5 there is currently a 'restrictions and rostering arrangement' in place on the Woori Yallock Creek catchment excluding the Wandin Yallock. The restrictions and rostering are intended to help share water amongst licensed users by attempting to prolong stream-flows, and water availability, before the introduction of bans.

This Plan prescribes a method of rostering that is more equitable and is based on the Maximum Daily Volume (MDV) on the extraction licence. The annual allocation on a licence can not be exceeded and the MDV will be set at not greater than two per cent of the annual volume. The MDV will be subject to the licensee's existing take period.

PRESCRIPTION 6.4:
MAXIMUM DAILY VOLUME

Melbourne Water ***must*** amend all licences within the Woori Yallock Creek Catchment so that the Maximum Daily Volume is not greater than two per cent of the annual volume.

In terms of restriction levels, the flows detailed in Table 10 will be adopted from the implementation of the Plan, for users on the Woori Yallock Creek catchment (excluding the Wandin Yallock) at the Yellingbo gauge on the Woori Yallock Creek. Non-metered diverters (less than 5 ML per year) will remain on the current rostering system as detailed in Appendix 1 from the 'Drought Response Plan for Licensed Water Users'. If the licensee wishes to purchase and install a meter they will then be included in the volumetric rostering arrangements. Flows will be calculated on the seven day rolling average.

Table 10: SFMP detailed restriction triggers/flows for the Woori Yallock Creek catchment at the Yellingbo gauge for years one to three of the Plan.

Low season (Dec to May)		**High season** (July to Oct)		**Shoulder months** (June & Nov)	
River Flow (Ml/d)	Maximum Daily Volume (MDV)	River Flow (Ml/d)	Maximum Daily Volume (MDV)	River Flow (Ml/d)	Maximum Daily Volume (MDV)
> 115	250%	> 200	250%	> 150	250%
51 - 115	100%	121 - 200	100%	86 - 150	100%
35 - 50	50%	106 - 120	50%	51 - 85	50%
< 34	Ban	< 105	Ban	< 50	Ban

During years four and five of the Plan the flow triggers in Table 11 will apply to licensees in the McCrae Creek and those in Table 12 for licensees in the Shepherd and Cockatoo Creek. Licensees on the Woori Yallock Creek that are not within Shepherd, Cockatoo and McCrae catchments will not change their roster arrangements and will be rostered in accordance to Table 10. Flows will be calculated on the seven day rolling average. It is recommended that Melbourne Water could produce a licence 'summary sheet' to help licence holders understand the implications of the rostering.

This would not replace the take and use licence but would translate the MDV and the river triggers associated with the licence.

Table 11: SFMP detailed restriction triggers/flows for the McCrae Creek catchment at the Yellingbo gauge for years four and five of the Plan.

Low season (Dec to May)		**High season** (July to Oct)		**Shoulder months** (June & Nov)	
River Flow (Ml/d)	Maximum Daily Volume (MDV)	River Flow (Ml/d)	Maximum Daily Volume (MDV)	River Flow (Ml/d)	Maximum Daily Volume (MDV)
> 20	250%	> 40	250%	> 30	250%
13 - 19	100%	21 - 39	100%	18 - 29	100%
9 - 12	50%	14 - 20	50%	13 - 17	50%
< 8	Ban	< 13	Ban	< 12	Ban

Table 12: SFMP detailed restriction triggers/flows for the Shepherd and Cockatoo Creek catchment at the Nangana gauge for years four and five of the Plan.

Low season (Dec to May)		**High season** (July to Oct)		**Shoulder months** (June & Nov)	
River Flow (Ml/d)	Maximum Daily Volume (MDV)	River Flow (Ml/d)	Maximum Daily Volume (MDV)	River Flow (Ml/d)	Maximum Daily Volume (MDV)
> 56	250%	> 91	250%	> 76	250%
31 - 55	100 %	51 - 90	100 %	41 - 75	100 %
21 - 30	50 %	34 - 50	50 %	31 - 40	50 %
< 20	Ban	< 33	Ban	< 30	Ban

PRESCRIPTION 6.5:
ROSTERS, RESTRICTIONS AND BANS

Melbourne Water ***must*** prepare and implement rosters or restrictions in accordance with the principles specified in prescription 6.6 to specify a maximum volume or percentage allocation of water that a licensee may take or use on any rostered day (or lesser roster period).

PRESCRIPTION 6.6:
IMPLEMENTATION OF ROSTERS, RESTRICTIONS AND BANS

Melbourne Water ***must*** amend their 'Drought Response Plan for Licensed Water Users' to incorporate the rosters, restrictions and ban requirements outlined in this Plan to include volume based restrictions as prescribed in Schedule 1.

Unmetered licence holders will only be able to take water on rostered days as defined in 'Drought Response Plan for Licensed Water Users'.

6.6 POTENTIAL IMPACTS OF IMPLEMENTING THE ENVIRONMENTAL FLOW REGIME

There are a number of ways of looking at the impact of implementing environmental flows on the environment and water diverters. Within this Plan full environmental flows have not been implemented but instead a midpoint, representing approximately 66 per cent, has been implemented. This flow value refers to maintaining the basic summer and winter low flow and not the full range of environmental flows including freshes etc. The recommended flows represent a balance chosen by the consultative committee between the needs of the environment and diverters, based on the flows measured at gauges and other information. The impact of not going to full environmental flow recommendations has been reviewed in an Environmental Impact Assessment report (see Appendix 6).

Impact on the environment

The environmental flows investigation undertaken in preparation for this Plan determined the minimum environmental water requirements that will provide for an ecologically healthy stream. The current flow regime of Woori Yallock Creek has been altered from its natural state which has tended to diminish stream health.

The environmental flow recommendations were developed using the FLOWS method. The FLOWS method defines a clear scientific process for the determination of environmental water requirements and strategies to implement and test environmental water provisions. The method includes:

- a thorough investigation of existing information;
- setting environmental objectives; and
- use of a sound scientific method to define a flow regime that meets the environmental objectives.

The objectives were developed such that, if met, would sustain the ecological objectives for the Woori Yallock Creek as defined in the FLOWS study.

Implementing the full range of environmental flows is difficult in an unregulated catchment but the environment can be protected by implementing the minimal flows.

For the most part, the low flow periods are currently punctuated by one or more spells of lower-than-recommended flow. These periods tend to be more pronounced in the higher reaches. Most of the freshes and higher flows currently occur but are often shorter than the recommended duration by one or two days.

Given that this Plan does not deliver these minimum flow recommendations, there is a risk that the long-term health of the Woori Yallock Creek catchment will continue to decline. Deviations from the recommendations are likely to give rise to environmental stress, as some of the objectives will not be achieved.

In order to assess the risk of not delivering the full environmental flows, Melbourne Water has undertaken an Environmental Impact Assessment. This has concluded that on balance, a risk rating of None or Low should be seen as an acceptable compromise balancing the needs of the environment and other users. In the endpoint assessments of risk, a rating of Low represents only a small difference between the environmental flow recommendations and the SFMP flow regulations. The risk is a shared one. When the Plan is reviewed in five years time this assessment will need to be revisited to check for appropriateness. A copy of the full report is available upon request.

Impact on diverters

The impact on diverters has been investigated by analysing the number of ban days per year and the amount of water that can be supplied based on the full level of development. In each case the current 'Drought Response Plan rules' are used as the base case for comparison. Additional work has been undertaken to identify the number of diverters who would be impacted.

Using the output from REALM for the reference years of dry (2006/07 – the driest year on record), average (2004/05) and wet year (1993/94), it is possible to compare the impact of number of days water is available for extraction on a base case scenario (current Drought Response Plan) with the environmental flows and the SFMP recommended flows. The work takes into account the restrictions within the modelling, whether the original Drought Response Plan or the recommended SFMP triggers have been used.

During a wet year water is available for extraction all year i.e. there are no bans or restrictions in the baseline (current) situation or with the SFMP recommended triggers. There is one exception within the Wandin Yallock catchment which has nine days on ban during July to October in the baseline situation rising to 14 days on ban during July to October and 19 days on ban during June and November in the SFMP recommended triggers.

During an average year water is available for the majority of the year i.e. there are a small numbers of days on ban in the baseline scenario as shown in Table 13. In the SFMP recommended triggers there is a slight reduction of water available but water is available for the majority of the time as described in Table 14.

Table 13: Water availability (days) in an average year under the Drought Response Plan Rules.

Gauge	Seville		Yellingbo	
Period	Winter (Jul–Oct)	Summer (Nov–Jun)	Winter (Jul–Oct)	Summer (Nov–Jun)
Baseline – Drought Response Plan	118	242	123	242
No of days in period	123	242	123	242

Table 14: Water availability (days) during the SFMP lifespan for an average year using the SFMP recommended triggers.

Gauge	Seville			Yellingbo			McCrae			Shepherd & Cockatoo		
Period	Low	Shoulder	High	Low	Shoulder	High	Low	Shoulder	High	Low	Shoulder	High
SFMP proposed - Years 1 to 3	182	55	117	182	60	123	182	60	123	182	60	123
SFMP proposed - Years 4 to 5	182	55	117	182	60	123	180	52	120	182	60	123
No of days in period	182	60	123	182	60	123	182	60	123	182	60	123

Note: Low is December to May, Shoulder is June and November and High is July to October.

During a drought year the whole of the catchment is under pressure. The environment and diverters both have to exist with less water in the catchment. Businesses can plan for this eventuality using off stream storage and other water sources but the environment can be hit hard. This is where the restrictions and bans help to protect the environmental flows. The graphs shown in Figure 14, Figure 15 and Figure 16 illustrate the water availability in a dry year. In each scenario the relevant restriction flows have been modelled.

Figure 14: Water available in a dry year (2006/07, the driest year on record) at Yellingbo and Seville under the Drought Response Plan.

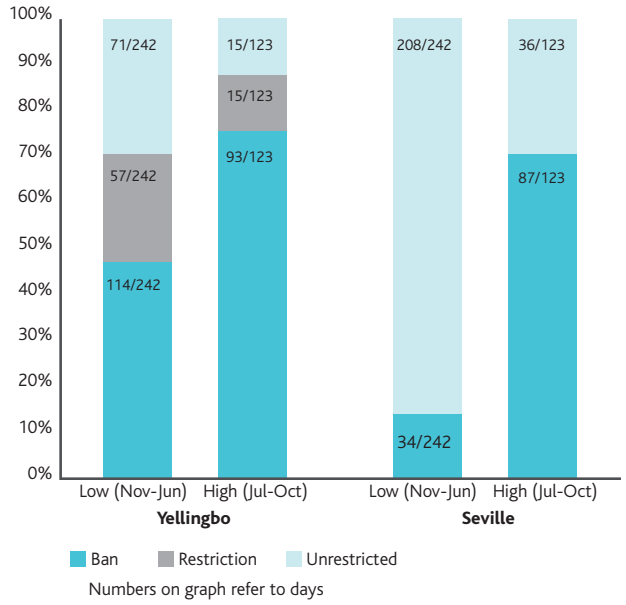


Figure 15: Water available in a dry year at Yellingbo and Seville in years 1 to 3 of the SFMP.

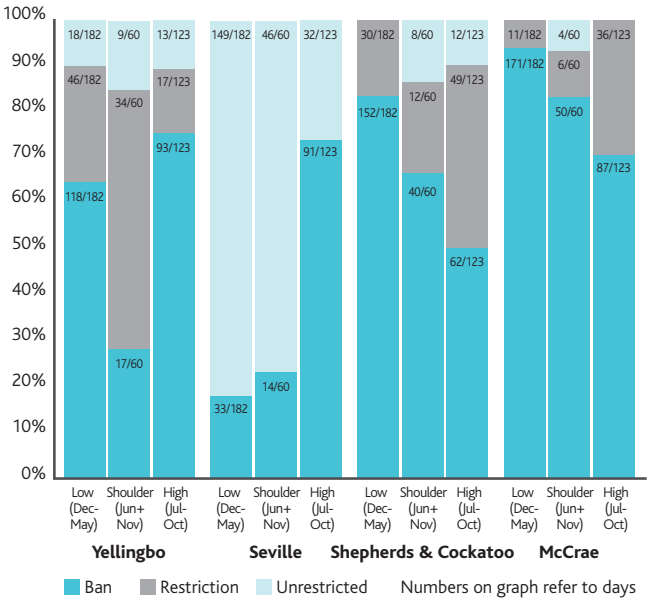
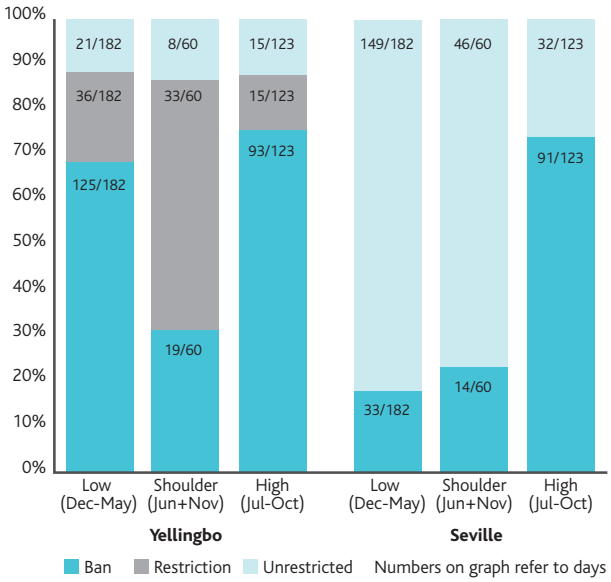


Figure 16: Water available in a dry year at Yellingbo, Shepherd & Cockatoo, McCrae and Seville East in years 4 to 5 of the SFMP



To determine the impact on diverters taking directly from the river compared to that diverted via storage, some analysis work has been undertaken. The data was taken from the Melbourne Water diversion database by licence allocation and registered dams. The data was then sorted by sub-catchment and whether the licence had a storage (on-stream, off-stream, or catchment) associated with it. Those licences without a storage were assumed to be direct diverters. Those licences with a storage were assumed to have some ability to store water for commercial purposes during periods on restrictions and bans. This data has been processed into megalitre volume, percentage volume, number of diverters and percentage of diverters. This information is presented in Figure 17, Figure 18, Figure 19 and Figure 20. The data demonstrated that the majority of volume is extracted to storage in most catchments except two. This means that when the bans are in place the majority of catchments will not have direct extraction occurring. The data are presented by the REALM reaches for consistency.

Figure 17: Volume of water extracted by direct diversion compared to that diverted via a storage.

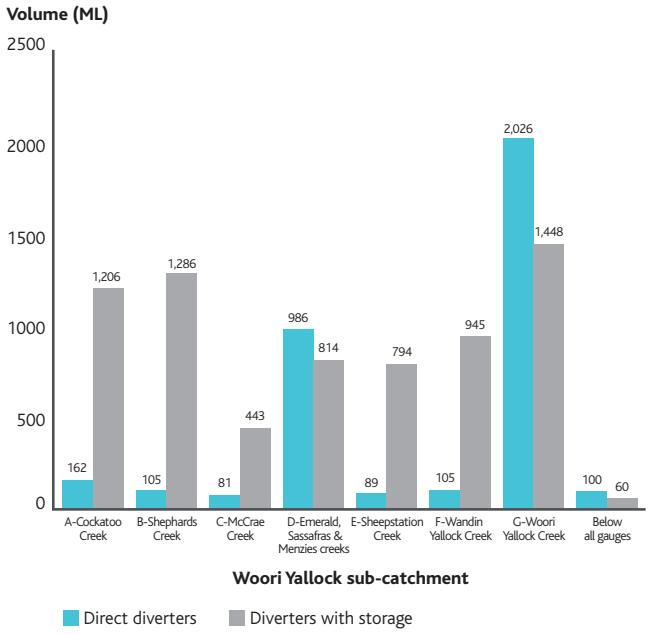


Figure 18: Percentage volume of water extracted by direct diversion compared to that diverted via a storage.

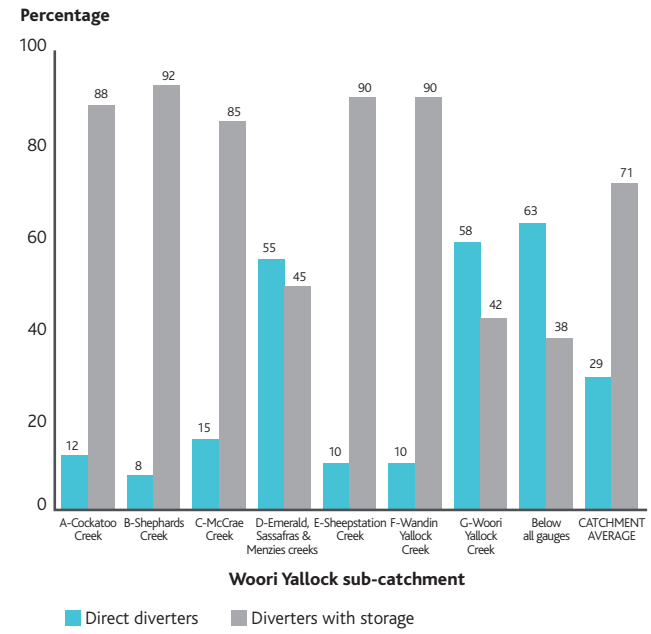


Figure 19: Number of diverters who extract by direct diversion compared to those that divert via a storage.

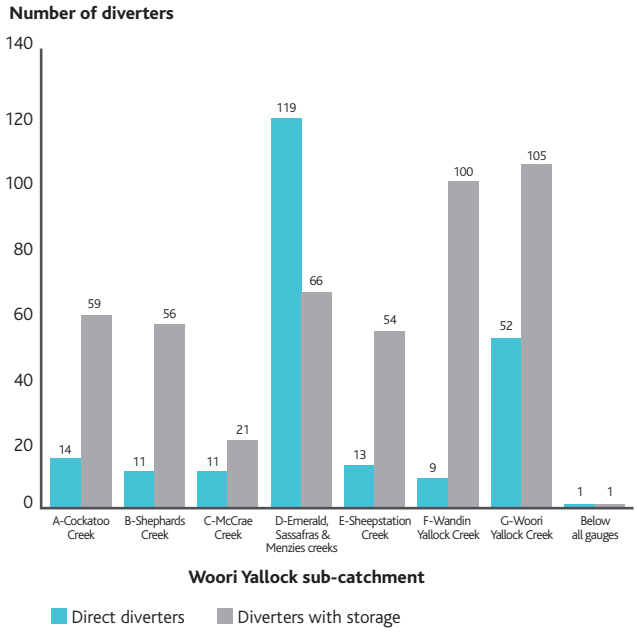
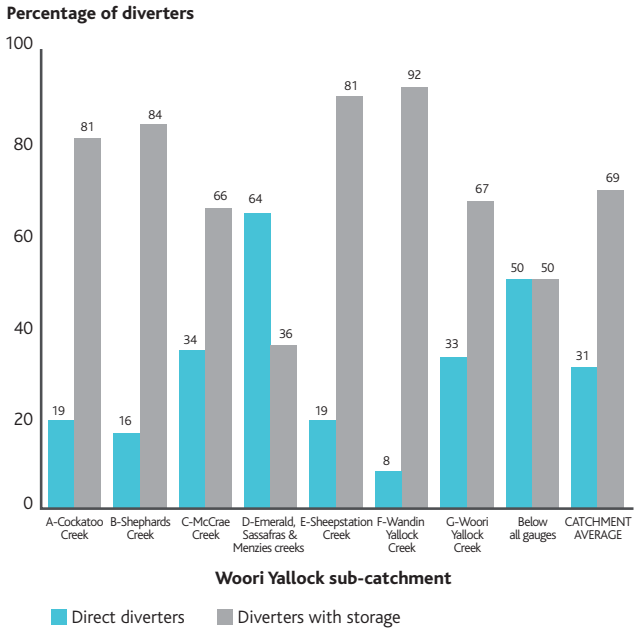


Figure 20: Percentage number of diverters who extract by direct diversion compared to those that divert via a storage.



7. LICENCE TRANSFERS

7.1 INTRODUCTION

Section 62 of the Act allows licences to be transferred (traded) subject to consideration of matters listed under section 53 of the Act and subsequent approval from Melbourne Water. Licences can be transferred on the sale or conveyance of land on which the licence is used, from one owner to another. They may also be transferred (traded) to the owners of other land within the protection area or downstream out of the protection area. Licences can be transferred either permanently or temporarily for the remaining months of a financial year.

NOTE – Licence transfers

Section 62 of the Act empowers Melbourne Water to approve or reject an application to temporarily or permanently transfer a licence subject to consideration of matters listed under section 53.

As no more new licences are being issued in the Woori Yallock Creek WSPA, water licence transfers promote water use efficiency by establishing a market to sell unused entitlements and provide access to water. In limiting the availability of water and creating a market place, incentives are created to utilise it in the most cost-effective way and maximise the return from each ML. However, water transfers also have the potential to increase the overall water use, as unused licences become active.

Rules for licence transfers can be a mechanism that, over time, can achieve good environmental outcomes and water management objectives. However, without stringent controls it is likely that the activation of unused licences, through licence transfers, may be detrimental to the environment and adversely impact on active water users.

The issues considered in developing specific transfer rules for the Woori Yallock Creek WSPA include:

- The need to keep the rules simple.
- Recognising the allocation cap.
- The opportunity presented by licence transfers to reduce the allocation cap.
- Protecting reliability of supply when licences are transferred.
- Equity in trading: between the environment and extractive water users and between licence holders.
- Catchment hydrological characteristics.

7.2 MATTERS THAT MUST BE TAKEN INTO ACCOUNT

In considering an application to transfer a licence, Melbourne Water is required by the Act (section 53 and 40) to have regard to any adverse effect that the transfer may have on existing users or on the environment. The maximum volume of a transferred licence will be determined by Melbourne Water after considering the volume of water available at the new location.

An application may be refused or it may be approved. If approved the conditions of a transferred licence may be amended.

Melbourne Water may or may not alter the licence conditions of a transferred licence depending on whether the location of the licence changes as a result of the transfer. In other words a licence that is transferred from one person to another but is still being used at the same location may not need to have its conditions changed. This may occur if a farm is sold to another person and actual farming activity continues without change.

PRESCRIPTION 7.1:
MATTERS THAT MUST BE TAKEN INTO ACCOUNT

When exercising its power under section 53 and 40 of the Act to decide whether to amend, delete or add to the conditions to which a licence is subject when it is transferred or renewed, Melbourne Water ***must*** have regard to whether the location at which water is taken or collected will, or will not, change.

7.3 TRANSFERS INTO THE WOORI YALLOCK CREEK WSPA

As discussed in Section 3, there will be no transfers of water licences into the Woori Yallock Creek WSPA because it is over-allocated.

PRESCRIPTION 7.2:
LICENCE TRANSFERS INTO THE WOORI YALLOCK CREEK WSPA

a) Melbourne Water must not approve an application to transfer a licence into the Protection Area under section 62(3) of the Act until such time as the Allocation Cap referred to in prescription 6.1(a) is achieved.

b) Upon reaching the Allocation Cap referred to in prescription 6.1(a), Melbourne Water must not approve an application to transfer a licence into the Protection Area under section 62(3) of the Act if, in its opinion, the approval of the application will cause the Allocation Cap referred to in prescription 6.1(a) to be exceeded.

7.4 GENERAL CONDITIONS ASSOCIATED WITH LICENCE TRANSFERS

Diversions in the Woori Yallock Creek WSPA can have a significant impact during the low flow period. To reduce this impact, either:

a) New all-year licences created though trading will be converted to the dam-filling period (Winterfill) licences and to an off-stream storage for the total volume of the transferred licence; or

b) All-year licences traded to on-stream all-year licences will incur a 20 per cent reduction in the original licence volume.

Measures a) and b) will equally apply to temporarily and permanent traded licences.

The duration of the reduction in licence volume will be based on the type of trade. Permanent transfers will be permanently reduced, whilst temporary trades will be reduced for the duration of the trade.

The SDL methodology will be applied to the dam-filling period. The beneficial effect on summer flows through trading of an all-year licence to a dam-filling period (winterfill) licence may in some cases be considered to outweigh the risk of adverse effect on winter flows. Melbourne Water may approve the transfer of an all-year licence to become a dam-fill licence, within a particular sub catchment, which would result in the dam-fill allocation exceeding the nominated allocation cap, if in it's view there will be no undue adverse impacts on other water users or the environment.

Table 15 provides a summary of the types of transfers that the consultative committee has agreed upon for the Woori Yallock Creek WSPA.

Table 15: Summary of transfer types in the Woori Yallock Creek WSPA.

Transfer type	Permitted (?)	Conditions
Transfer into the Woori Yallock Creek catchment	Not permitted	Not applicable
Direct downstream transfer (irrespective of zones)	Yes	All-year to all-year: 80% All-year to winterfill: 100%
Intra-zone (within zone) upstream transfer	Yes	All-year to winterfill: 80%
Inter-zone (cross-catchment) transfer	Yes, but subject to SDL availability.	All-year to winterfill: 80%
Transfer out of the Woori Yallock Creek Catchment	Yes	Will be subject to the trading rules at the location to be transferred to.

PRESCRIPTION 7.3:
GENERAL CONDITIONS ASSOCIATED WITH LICENCE TRANSFERS

If approving an application to permanently or temporarily transfer a licence to take and use water within the Protection Area, Melbourne Water must:

a) amend the conditions of that licence to ensure that water may only be taken or collected during the dam-filling period; or

b) require that the volume of the licence be reduced by 20 per cent: or

c) for transfers other than downstream transfers, amend the conditions of that licence to ensure that water may only be taken or collected during the dam-filling period and require that the volume of the licence be reduced by 20 per cent.

The 20 per cent reduction of licence volume on transfer will continue to apply until the Allocation Cap is reached, at which time it will cease. The achievement of the Allocation Cap and cessation of the 20 per cent reduction of licence volume on transfer will then be reported in the following Annual Report.

PRESCRIPTION 7.4:
CESSATION OF THE 20 PER CENT REDUCTION OF LICENCE VOLUME ON TRANSFER

a) Upon reaching the Allocation Cap referred to in prescription 6.1(a), the requirement to reduce by 20 per cent the licence volume on transfer of licence under prescriptions 7.3(b), 7.3(c), 7.7 and 7.8 ceases.

b) Upon reaching the Allocation Cap referred to in prescription 6.1(a), prescription 7.6 no longer applies.

7.5 TRADING ZONES

The Woori Yallock Creek catchment will be divided into seven trading zones (Figure 21). These zones are based on the REALM sub-catchments (Section 2.7 'Modelling the catchment'), however licences 'Below all gauges' (Figure 18 and Figure 20) will be included in the Sheep Station Creek sub-catchment.

Transfers can only occur if there is an allocation available within the licence allocation limit. Table 16 translates the 80 per cent reliability of supply discussed in Section 6.1 'Permissible Consumptive Volume' into caps for each sub-catchment. This indicates if there is availability within a sub-catchment at the time of print.

PRESCRIPTION 7.5: TRADING ZONES

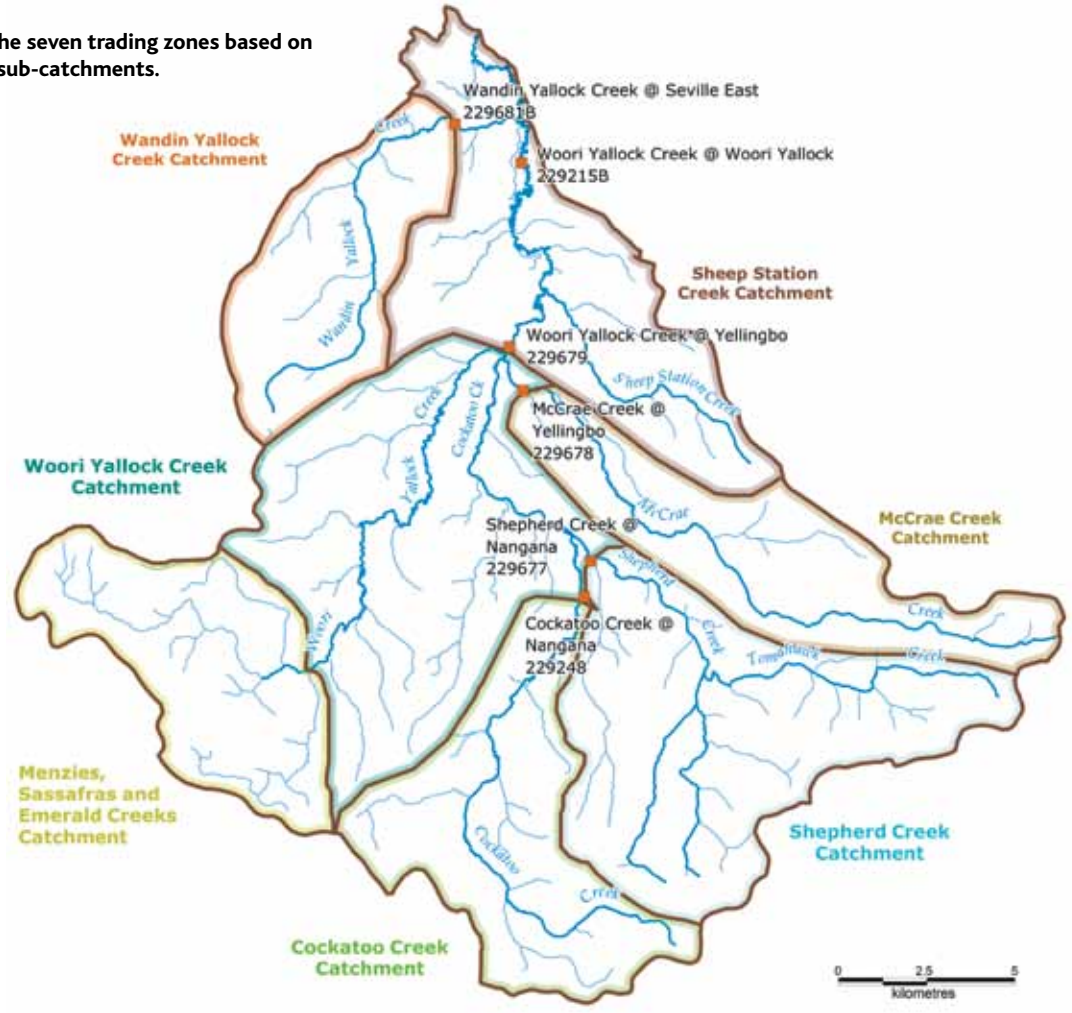
The Woori Yallock Creek WSPA will be divided up into seven trading zones based on the REALM sub-catchments. Transfers rules within the Woori Yallock Creek WSPA will be based on these zones.

Licences issued 'below all gauges' will be managed as part of Sub-catchment E.

Table 16: Total licensed allocation volume, allocation volume at 80 per cent reliability of supply and the percentage allocation for each sub-catchment.

Sub-Catchment	Total licence allocation (ML)	Sub-catchment cap (80% reliability of supply) (ML)	Percentage allocation (%)
A Cockatoo Creek Catchment	1,343.5	1,412.0	95
B Shepherd Creek Catchment	1,391.0	1,380.0	101
C McCrae Creek Catchment	536.0	649.0	83
D Menzies, Sassafras, Emerald Creek Catchment	1,810.0	1,016.0	178
E Sheep Station Creek Catchment	1,042.5	1,217.0	85
F Wandin Yallock Creek Catchment	1,049.5	1,025.0	102
G Woori Yallock Creek Catchment	2,375.7	2,128.0	112
TOTAL	9,548.2	8,828.0	108

Figure 21: The seven trading zones based on the REALM sub-catchments.



7.6 DIRECT DOWNSTREAM TRANSFERS IRRESPECTIVE OF THE TRANSFER ZONE

Direct transfers downstream irrespective of the transfer zone will be permitted because the same source water is being accessed regardless of the access point. These transfers will be subject to the general conditions discussed in Section 7.4.

PRESCRIPTION 7.6:
DOWNSTREAM TRANSFERS IRRESPECTIVE OF THE TRANSFER ZONE

Subject to prescription 7.4(b), in approving an application to permanently or temporarily transfer a licence to take and use water downstream irrespective of the transfer zone, Melbourne Water ***must*** either:

a) amend the conditions of that licence to ensure that water is only taken or collected during the dam-filling period; or

b) require that the volume of the licence be reduced by 20 per cent.

7.7 UPSTREAM TRANSFERS WITHIN A TRADING ZONE

Upstream trade may be permitted if the season is changed to the dam-filling period (Winterfill) and the licence volume is reduced by 20 per cent and will require approval by Melbourne Water.

PRESCRIPTION 7.7:
UPSTREAM TRANSFERS WITHIN A TRADING ZONE

Upstream transfers ***must*** be converted to the dam-filling period (Winterfill) and the volume of the licence be reduced by 20 per cent subject to prescription 7.4(a).

7.8 TRANSFERS BETWEEN TRADING ZONES

Cross catchment transfers will only be allowed into sub-catchments where the 80 per cent reliability sub-catchment cap has not been exceeded and will be considered as an upstream trade and the same rules will apply.

PRESCRIPTION 7.8:
TRANSFERS BETWEEN TRADING ZONES

Transfers between Woori Yallock sub-catchments will only be allowed into sub-catchments where the 80 per cent reliability sub-catchment cap has not been exceeded and ***must*** be converted to the dam-filling period (Winterfill) and the volume of the licence reduced by 20 per cent subject to prescription 7.4(a).

7.9 TRANSFERS OUT OF THE WOORI YALLOCK CREEK WSPA

As the Woori Yallock Creek WSPA is already over-allocated, transfers downstream and out of the catchment are seen as an opportunity to reduce the total allocation cap by 100 per cent of the volume of water traded. Downstream transfers will thereby hasten the removal of the 20 per cent reduction in transferred licence volume.

PRESCRIPTION 7.9:
TRANSFERS OUT OF THE WOORI YALLOCK CREEK WSPA

Transfers of licence volumes downstream and out of the Woori Yallock Creek WSPA will be subject to the licence conditions of the destination catchment.

8. PROHIBITIONS ON NEW ALLOCATIONS

There are certain situations when there will be prohibitions on the issuing of licences. No new entitlements will be issued in the Woori Yallock Creek WSPA that causes the PCV for the Yarra or the allocation cap on the WSPA to be exceeded. There are exceptions to the rule that allows Melbourne Water to renew a licence in accordance with any state-wide policy approved by the Minister of Water. This links with prescription 6.1.

Prescriptions relating to the licences to construct works granted under section 67 of the Act are also included in the Plan and can be found in section 11.

PRESCRIPTION 8.1:
PROHIBITIONS ON GRANTING NEW ALLOCATIONS

Section 32A(3)(d) of the Act allows for a management plan to prescribe restrictions or prohibitions on the issue of licences under section 51 or 67.

1) Melbourne Water must not issue a licence under section 51(1)(a) or (ba) of the Act until the allocation level in the Protection Area is at or below the Allocation Cap referred to in prescription 6.1(a), unless the issue of the licence is as a result of –
   a) a transfer of a licence under section 62 of the Act;
   b) the surrender of licences to be replaced by consolidated licences or divided licences or licences with different conditions;
   c) the surrender of a registration licence to be replaced by a licence in accordance with section 51A of the Act; or
   d) a sale of water by a water corporation or the Minister –

and the licence is issued for a volume not greater than the volume of water as transferred, surrendered, or purchased in the above categories.

2) If the allocation level is at or below the Allocation Cap referred to in prescription 6.1(a), Melbourne Water must not issue a licence under section 51(1)(a) or (ba) if this would cause the Allocation Cap referred to in prescription 6.1(a) to be exceeded.

3) Melbourne Water must not issue a licence under section 51(1)(a) or (ba) for dam-filling purposes if this would cause the dam-filling period cap as described in prescription 8.1(4) to be exceeded.

4) For the purposes of this prescription, the dam-filling period cap is **4,029.5 ML** plus the volume of any all year licences transferred to dam filling licences where Melbourne Water considers that the beneficial effect on summer flows outweighs the risk of adverse effect on winter flows.

5) Despite the above, Melbourne Water may at any time issue a licence –
   a) within clause 8(b) of the Permissible Consumptive Volume Surface Water Order 2010 (as amended from time to time); or
   b) if the licence includes a condition that requires all the water to be returned to the waterway or to be used in the waterway for a non-consumptive purpose.

9. METERING AND ACCOUNTING FOR WATER

Effective water resource management relies upon information about water usage patterns and volumes. This information will be collected by metering extractions. Melbourne Water will install meters to measure any water that is taken under licence. Meters are not required for licences less than 5ML in volume or for licences that are inactive. Most licences have already been metered. Melbourne Water must read all-year licence meters annually and read dam-filling licence meters at the start and end of the dam-filling period each year.

Melbourne Water has installed some smart meters within the catchment. The meters have data loggers linked via communications, allowing the data to be downloaded in the office and the information viewed over a secure web link. Data collected can be used for improved hydrological modelling and enhanced water resource management decisions e.g. rostering, compliance, improving environmental flows.

Automating meter readings allows Melbourne Water to increase the number of meter readings during drought conditions to ensure compliance with the SFMP and protect environmental flows. Increased number of readings will provide our customers better information on their water usage patterns.

Section 32a(3)(a) of the Act allows management plans to prescribe requirements for metering and monitoring.

PRESCIPTION 9.1:
METER INSTALLATION

Melbourne Water ***must*** install a flow meter to measure water taken for irrigation or commercial purposes under any actively used licence greater than 5 ML in volume granted within the Protection Area under section 51(1)(a) of the Act. The cost of new metering under this clause must be met by the applicant.

PRESCRIPTION 9.2:
METER MAINTENANCE PROGRAM

Melbourne Water ***must***:

a) periodically inspect the condition of each flow meter installed under prescription 9.1;

b) maintain each flow meter in good condition;

c) replace any damaged flow meter; and

d) keep a record of all work done under paragraph (b) and (c).

PRESCRIPTION 9.3:
METER READING PROGRAM

Melbourne Water:

a) ***must*** read each meter referred to in prescription 9.1 at least:

   i) once in every year in the case of an all-year licence; and

   ii) shortly after the beginning and end of the dam-filling period in every year, in the case of a licence for the purpose of dam-filling; and

b) ***must*** record, for each meter:

   i) the reading obtained;

   ii) the number of the relevant licence;

   iii) the date on which the meter is read; and

c) may if a meter becomes defective, registers incorrectly or is removed for any reason, estimate the correct registration in any of the following ways:

   i) by comparison with the quantity of water taken under similar conditions during some other period;

   ii) by comparison with the quantity of water taken after the meter has been restored to proper order;

   iii) by comparison with the registration of a substitute meter used temporarily in place of the defective meter; or

   iv) by applying a correction factor if the meter is found to have a consistent error of registration.

10. MONITORING PROGRAM

During the implementation of the Plan, information will be collected to allow a meaningful review of its effectiveness in meeting its objectives. Whilst it is important to measure the success of the Plan against its objectives, it is also important to keep in mind that environmental change may be incremental and cumulative. Therefore, short term monitoring may not identify any significant changes to stream health over the five-year period.

Melbourne Water currently monitors stream health across the Yarra Basin by undertaking water quality, macro-invertebrate, fish, platypus and geomorphological studies. Information on the health of the Woori Yallock Creek and tributaries will be incorporated into existing Melbourne Water programs. Data collected by metering and stream flow gauging will also be an integral part of the monitoring program.

Melbourne Water has developed an SFMP monitoring program (Alluvium 2008). The purpose of the program is to review the existing monitoring undertaken by other programs associated with stream health (physical and biological) and system operation (water allocations and use) within the Yarra River Catchment. This will provide recommendations for any additional monitoring required to ensure that an appropriate level of monitoring is in place to enable effective review of the SFMPs every five years. Melbourne Water will review and implement this monitoring program.

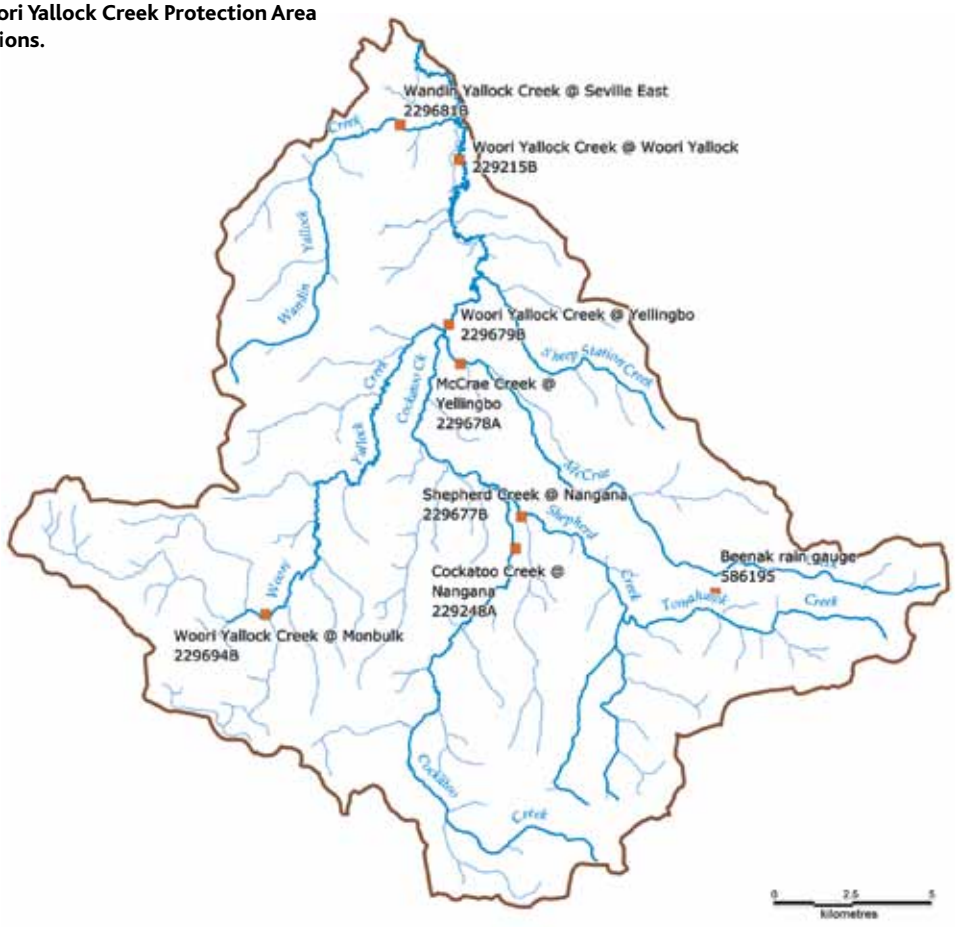
The monitoring program should collect data to:

- Test assumptions about water use,
- Monitor reliability of supply,
- Report compliance,
- Assess in-stream environmental health, and
- Assess whether the Plan is protecting the environmental flows.

Melbourne Water will not attempt to demonstrate any ecological improvements from the implementation of the environmental flows.

Melbourne Water manages a network of stream flow and rainfall monitoring sites in the catchment. The gauges are linked by communications allowing the monitoring of flows from the office. There is a regular program of field visits to ensure quality control of the data and maintenance on the gauges. A full list of sites is available in Table 1. There are currently seven active stream flow gauges located in the Woori Yallock Creek Catchment (Figure 22).

Figure 22: Map of the Woori Yallock Creek Protection Area highlighting gauging stations.



PRESCRIPTION 10.1:
FLOW MONITORING PROGRAM

Section 32a(3)(a) of the Act allows management plans to prescribe requirements for metering and monitoring.

Melbourne Water ***must***:

a) continuously record flows at the Seville East (on Wandin Yallock Creek 229681), Yellingbo (on Woori Yallock Creek 229679), Nangana (on Shepherds Creek 229677 and Cockatoo Creek 229248) and Yellingbo (on McCrae Creek 229678);

b) periodically inspect the condition of each gauging station;

c) maintain each gauging station in good condition; and

d) keep a record of each inspection and work undertaken under paragraph (a) or (b).

PRESCRIPTION 10.2:
PLAN IMPLEMENTATION MONITORING PROGRAM

Within 12 months of the approval of this Plan, Melbourne Water ***must*** propose to the Minister a program to monitor the implementation of the Plan, including arrangements to monitor:

a) the effects of the Plan on the reliability of supply to licensees;

b) the ability of the provisions to maintain environmental flows set out in Schedule 1;and

c) in-stream environmental indicators.

PRESCRIPTION 10.3:
MINISTERIAL APPROVAL OF MONITORING PROGRAM

The Minister may:

a) approve a plan proposed under prescription 10.2;

b) approve that plan, subject to amendments made by the Minister; or

c) refuse to approve the plan.

PRESCRIPTION 10.4:
IMPLEMENTATION OF MONITORING PLAN

Melbourne Water must implement a monitoring plan in the form approved by the Minister under prescription 10.2.

11. PRIVATE DAMS

The Act defines a private dam (section 3) as "anything in which by means of an excavation, a bank, a barrier or other works water is collected, stored or concentrated but ***does not*** *include:*

a) anything owned or operated by a public statutory body; or

b) any works of an Authority or a licensee; or

c) a channel, drain or pipe; or

d) a bore."

Recent studies of numerous catchments across South-East Australia regarding the impact of farm dams on stream flows show that:

- the dams constructed to date have reduced stream flows;
- the reduction is more pronounced during periods of low stream flow e.g. summer, when dams are more likely to be empty;
- dams increase the frequency and length of periods of low and zero stream flow;
- building more dams would continue to reduce stream flows;
- for each ML of dam, annual stream flows are reduced by one to three ML due to evaporation and other losses; and
- the annual loss due to evaporation accounts for 10-20 per cent of dam volume in the wetter more humid areas of the state and up to 70 per cent of dam volume in drier areas.

Generally speaking, dams are constructed for the following purposes: commercial and/or irrigation; domestic and stock; and aesthetic. Commercial and/or irrigation dams are required to be licensed, whilst existing dams built for domestic and stock, and aesthetic purposes do not require a licence or to be registered. All new aesthetic, stock and domestic dams and any dam (aesthetic, stock and domestic) that is altered needs to be registered with Melbourne Water; unless on a property greater than 8 hectares or not in a rural living zone, green wedge zone or residential zone as defined in Victorian Planning provisions. However they may require approval from the relevant council. Consideration is given to dam size, planning overlays and zoning of land.

Yarra Ranges Council has a provision in the planning scheme (clause 53), linked to the *Planning and Environment Act (1987)*. This sets some triggers for 'vegetation removal' and 'earthworks'. Permits are required for 'earthworks' which are a depth of more than 1 metre. Remnant vegetation is also a significant consideration when assessing permit applications for dams.

When considering farm dams, Yarra Ranges Council considers how the dam will influence water. They can also informally refer the permit application internally or externally to Melbourne Water or Port Phillip and Westernport CMA.

Depending on where the dam is located a formal referral to other authorities may be required (i.e. if the dam is in a 1 in 100 year flood level it must be referred to Melbourne Water).

11.1 CONSTRUCTION OF NEW ON-STREAM DAMS

The former State Rivers and Water Supply Commission (SR&WSC) originally encouraged the building of on-stream dams as pumping points for irrigators. As a result the concentration of on-stream dams in the Woori Yallock Creek WSPA is very high.

Under section 67 of the Act, a licence is required to construct, alter, operate or remove any works on a waterway, including dams. The environmental impacts of these dams are now better understood. For environmental and flow management reasons, Melbourne Water does not endorse any more dams built across waterways. Under this Plan, no new dams on waterways will be licensed as the environmental impacts are too great.

PRESCRIPTION 11.1:
CONSTRUCTION OF NEW ON-STREAM DAMS

Melbourne Water ***must*** not issue any licence under section 67 of the Act to construct a new dam on a waterway.

11.2 OFF-STREAM DAMS

This Plan seeks to encourage licensed diverters to construct off-stream dams in suitable areas away from waterways. This is being encouraged in an attempt to reduce the demand during the low-flow months, when the rivers are under most stress. By building off-stream dams existing diverters can fill their dam over the high flow period instead. Diverters who change to off-stream storage are also likely to increase their reliability of supply.

The distribution, number and size of off-stream catchment dams that collect water from rainfall runoff were identified as part of the REALM modelling process (Table 17). This process accounted for their impact on stream flows by estimating their interception of run-off, evaporation and water usage. The total number and volume of catchment dams within the Woori Yallock Creek was found to be 1,941 dams with an approximate volume of 4,514 ML.

Table 17: The number and volume of all small off-stream catchment dams within the Woori Yallock Creek Protection Area (SKM 2009). This excludes those dams licensed to be filled directly from a waterway.

Sub-catchment	Number of small catchment dams	Volume of small catchment dams (ML)
A: Cockatoo Creek	223	671
B: Shepherd Creek	179	663
C: McCrae Creek	144	374
D: Emerald, Sassafras & Menzies Creeks	116	281
E: Sheep Station & lower Woori Yallock Creek s	280	732
F: Wandin Yallock Creek	452	626
G: Mid Woori Yallock Creek	547	1,167
Total:	**1,941**	**4,514**

Melbourne Water is working with Yarra Ranges Council and Cardinia Shire Council to try and support where appropriate, the building of off-stream dams for existing licensees.

11.3 REGISTERED AND LICENSED CATCHMENT DAMS

A catchment dam is one which predominantly harvests water from rainfall runoff events rather than a defined waterway. Dams were registered and licences issued to people who were taking water from a catchment dam that was used for irrigation or commercial purposes in any year within the 10-year period prior to 4 April 2002. Registration licences are a subset of all-year licences, in that water can be collected in any month.

11.4 UNREGISTERED AND UNLICENSED CATCHMENT DAMS

There are also a number of catchment dams in the Woori Yallock Creek catchment that, whilst legal, are neither registered nor licensed. These are 'domestic and stock dams', and are discussed in Section 3.2 'Water use not requiring a take and use licence'. From 2011 onwards the government has introduced requirements for all new or modified aesthetic or domestic and stock dams to be registered with the relevant water authority. This process does not control the construction or use of these dams, but will simply record the location and capacity so that they may be considered in the total water resource considerations.

11.5 AESTHETIC DAMS

Generally aesthetic dams do not need a licence to take and use water, yet they can still capture significant volumes of water. As water is lost from the dams through evaporation, and replaced by rainfall, they can impact on the availability of water downstream.

PRESCRIPTION 11.2:
DEFINITION OF AN AESTHETIC DAM

For the purposes of this Plan, an aesthetic dam is:

a) operated for aesthetic purposes if it is constructed after the commencement of this Plan and is used for recreational purposes; but

b) not operated for aesthetic purposes if it is:

   i) constructed or used for domestic and stock, irrigation or commercial purposes; or

   ii) designed specifically for environmental, rather than aesthetic or recreational purposes and is used for erosion control or nature conservation purposes.

New aesthetic dams need a dam construction licence if they exceed a certain size (refer to the Act, section 67(1A)). The Plan does not permit the construction of dams on watercourses, however a large dam off a watercourse may still be allowed if a licence to construct works etc is issued under section 67 of the Act. As the licence limits in the Plan have already been reached, any section 67 licence issued to construct an aesthetic dam can include a condition requiring the dam owner to obtain a diversion licence equal to the annual evaporation from the dam.

Dam owners in this situation will be required to obtain a licence by transfer for a volume of water equal to the annual evaporation from the dam.

PRESCRIPTION 11.3:
RESTRICTIONS ON THE OPERATION OF AESTHETIC DAMS

A person ***must*** not operate a dam by taking or storing water for aesthetic purposes at any time when, in the opinion of Melbourne Water, the volume of evaporation from that dam alone, or in combination with evaporation of other aesthetic dams in the protection area, would cause the combined volume taken under licences and aesthetic dams to exceed the limits referred to in Prescription 8.1: Prohibitions on granting new allocations.

11.6 DAMS ON SUB-DIVISIONS

The subdivision of rural land may increase the number of dams, particularly domestic and stock dams, throughout the protection area. The Act enables a management plan to limit the maximum volume of water retained in private dams on new lots in a subdivision.

The Plan limits the volume of water that can be retained in domestic and stock dams on subdivided lots to the greater of:

- those dams that were there before the Plan, or
- a volume that is reasonable to meet the domestic and stock water needs of the land, calculated in accordance with approved guidelines.

Once this limit is reached no additional water can be retained in additional domestic and stock dams. Melbourne Water will liaise with the Yarra Ranges and Cardinia Councils to encourage them to consider the prescriptions of the Plan when considering applications in the Woori Yallock Creek Protection Area to subdivide land or for planning permits that include dams for aesthetic purposes.

PRESCRIPTION 11.4:
DAMS ON SUB-DIVISIONS

The total volume of water for domestic and stock purposes that may be taken from all private dams within a subdivision ***must*** not exceed the greater of:

a) the total volume taken from all private dams on that land before the relevant plan of subdivision was approved; or

b) the total volume required for domestic and stock purposes on that land, as determined by Melbourne Water in accordance with the *Reasonable Domestic and Stock Guidelines for Rural Residential Properties contained in the Ministerial Policies for Registering Private Dams in Rural Residential Areas*.

12. ANNUAL REPORT

12.1 COMPLIANCE AND REPORTING

The Act states that an approved management plan is binding on every person including every statutory body.

Anyone who takes water without proper authorisation may be guilty of an offence under the Act and be liable to prosecution. This may include anyone who takes water without a licence, does not comply with their licence conditions or who takes more water than the licence allows.

Licences can be revoked or not renewed if licence conditions are not complied with.

Section 32C of the Act requires Melbourne Water to report on its duties in relation to this Plan in each financial year and to give the report to the Minister and Port Phillip and Westernport Catchment Management Authority by 30 September in each year; and make a copy available for public inspection at its offices.

PRESCRIPTION 12.1:
Compliance and reporting

Melbourne Water ***must*** report on its duties in relation to this Plan in each financial year and give the report to the Minister and the Port Phillip and Westernport Catchment Management Authority by 30 September in each year; and make a copy available for public inspection on its website.

12.2 REVIEW OF THE PLAN

Melbourne Water must review the implementation and objectives of this Plan five years after it commences; and thereafter, at intervals of no more than five years. Melbourne Water must propose any consequential amendment to the Minister. Any amendment will require a review of all information and consultation with all stakeholders. The Act provides for the constitution and convening of a consultative committee to develop any proposed amendment and the process to be followed by the Minister before approving it. The review of the Plan may reconsider the total cap on allocations.

PRESCRIPTION 12.2:
Review of the Plan

Melbourne Water ***must*** review the implementation and objectives of this Plan five years after it commences; and thereafter, at intervals of no more than five years. Any consequential amendment will be proposed to the Minister.

13. FURTHER RECOMMENDATIONS FROM THE CONSULTATIVE COMMITTEE

Additional recommendations have been proposed by the committee. Although they are outside the scope of the Plan, the recommendations are considered important issues that along with the prescriptions will help improve water accessibility and meet environmental objectives.

13.1 COMPLIANCE

Issue

The committee has recognised that there are some limitations with existing monitoring arrangements and compliance of unlicensed water use.

Melbourne Water has metered all significant water use in line with government policy in order to properly account for water use. This means that all existing active licence holders with licence allocations greater than 5 ML per annum have had meters installed and all new licences other than domestic and stock licences are required to be metered.

Despite this there are compliance issues associated with dam-filling period licences linked to on-stream dams. These licences are required to pass all inflows outside the dam-filling period (July – November inclusive). Without the ability to monitor flows immediately upstream and downstream of a dam it is very difficult to ensure compliance. Stricter compliance with passing flow licence conditions would provide incentives for diverters to install by-pass mechanisms on their dams and in so doing improve environmental flows during the low-flow months.

Concern has also been expressed during the committee process about a small number of diverters who may be inappropriately using 'domestic and stock' water for commercial purposes. The committee believes that where there is good reason to believe that this is occurring, Melbourne Water should be able to require the installation of meters in order to monitor usage and enforce compliance.

Recommendations

The committee supports the work of Melbourne Water to:

- continue its risk-based monitoring program.
- improve the methodology to enforce compliance of passing flows through on-stream dams.
- investigate new technologies such as smart metering to monitor compliance.

13.2 GROUNDWATER

Issue

The committee has recognised the importance of groundwater and surface water interactions in the WSPA. A number of presentations were made at committee meetings about groundwater use, its contribution to stream base flows and connection to groundwater dependent ecosystems. Throughout the planning process the committee has been concerned that the terms of reference for this Plan has been limited to the management of section 51 surface water licences.

Recommendation

The committee recommends that an 'integrated total water cycle management approach' is adopted to conjunctively manage surface water and groundwater for urban, rural and environmental uses.

13.3 IMPROVING WATER USE EFFICIENCY

Issue

With competition high for an increasingly scarce resource it is important to make the best use of water in a business. As water resources shrink and competition from other sectors grows, agriculture faces a dual challenge: to produce more food with less water and to prevent the deterioration of water quality through contamination with soil runoff, nutrients and agrochemicals. There is much work being undertaken studying water use efficiency and producing documentation to help users make the best use of their allocation. Increasing water use efficiency will also have the long term effect of reducing the total demand on the catchment.

Recommendations

The committee supports extension programs including the production of literature and demonstration days, to assist diverters with irrigation advice thus encouraging more efficient usage of water. This information could be produced in conjunction with the industry associations and Department of Primary Industries.

13.4 DOMESTIC AND STOCK USE IN THE CATCHMENT

Issue

Throughout the process of developing the Plan, the issue of domestic and stock rights and the potential for their abuse has been a re-occurring theme. Under present arrangements, the allocation of domestic and stock water remains a right under section 8 of the Act. As such, it is not licensed or metered. Its impact on water availability to downstream users and the environment needs to be accounted for as with all other water uses. The committee recognises that this issue has already been identified by the Northern Region Sustainable Water Strategy.

Domestic and stock water can be accessed either by pumping directly from a waterway that runs through or adjacent to their property or from a catchment dam. Those users directly accessing water from a waterway essentially have unfettered use. There are no controls in place under the Water Act on the construction of domestic and stock dams in the general catchment, off a waterway, provided the dam is below the sizes designated for potentially hazardous dams. One of their major impacts is that they intercept the first percentage of run-off prior to it getting into waterways. The rainfall pattern has altered to such an extent that farm dams rarely fill and spill. They then deplete through use or evaporation / infiltration before being partially filled again by the next rain event. Effectively this amounts to the farm dam impact being doubled or tripled due to the decline in rainfall volume and events.

The '*Notes on aesthetic dams*' in the '*Compendium of Ministerial Guidelines for Irrigation and Commercial Farm Dams*' provides a guide to assessing 'reasonable' domestic and stock use. Under these guidelines a household may claim up to 4.1 ML (or 7.7 ML if their property was alienated from the crown prior to 15 December 1886) even before their stock needs are taken into account. These volumes could be considered to be very generous.

Recommendations

The committee recommends that investigations are undertaken to determine the:

- volume of section 8 domestic and stock catchment dams.
- number of properties in the catchment that have a domestic and stock right and calculate their total usage accessed by direct pumping.

The data collected from these two studies would be used to estimate the impact of section 8 rights on stream flows, which would then be fed into existing Melbourne Water's 'Water Sensitive Farm Design' program. It would also assist with ensuring that section 8 rights are not being abused by individuals who may be using domestic and stock water for commercial purposes.

13.5 OTHER INFLUENCES ON SURFACE WATER

Issue

The committee supports the intent of the planning process to encourage the change from all-year to dam-filling licences. The committee recognises that the primary beneficiary of this initiative is the environment and the broader community.

Such a change to licence conditions is very costly to diverters as it means that land is taken out of production in order to build an expensive off-stream storage.

Recommendation

The committee supports the use of tax breaks to encourage the construction of winter storage reservoirs or similar investments to benefit environmental flows.

13.6 OTHER PRESSURES IN THE CATCHMENT

Despite being part of the Melbourne 2030 Greenwedge Zones that prevents growth of urban development in the Woori Yallock Creek Protection Area, some farmers are feeling the pressure from increased land values, increased hobby farming, and landholders using land for lifestyle purposes and tourism and recreational development. There is concern that these pressures will result in reduced viability of farming activity in Woori Yallock Creek Protection Area.

14. APPROVAL

I, Peter Walsh, Minister for Water, approve this Plan in accordance with section 32A(6) of the *Water Act 1989*.

PETER WALSH MP
Minister for Water

Date 22-8-2012

15. REFERENCES

Conallin J & Abernethy B (2005). Environmental Flow Determination for Woori Yallock Creek. (Unpublished Report prepared by Sinclair Knight Mertz Consulting for Melbourne Water).

Department of Natural Resources and Environment (May 2003) Irrigation and Commercial Farm Dams Compendium of Ministerial Guidelines and Procedures.

Doeg T (2011). Ecological risk assessment of the Woori Yallock Creek Stream Flow Management Plan. (Unpublished report by Tim Doeg for Melbourne Water).

Hart B and Rutherford I (2008). Technical Audit Panel: Review of the Environmental Flow Determination for the Woori Yallock Creek.

Melbourne Water (2007) Drought Response Plan for Licensed Water Users.

McGuckin J (2009). River Health in the Woori Yallock Creek Catchment (Catchment Condition Report 2008) (Unpublished Report prepared by Streamline Research P/L for Melbourne Water).

Reasonable Domestic and Stock Guidelines for Rural Residential Properties contained in the Ministerial Policies for Registering Private Dams in Rural Residential Areas.

SKM (2009). Woori Yallock Creek: Review and Update of REALM Model and Scenario Modelling. (Unpublished Report prepared by Sinclair Knight Mertz Consulting for Melbourne Water).

SKM (2011). Response to Woori Yallock TAP review comments. (Unpublished Report prepared by Sinclair Knight Mertz Consulting for Melbourne Water).

Take and Use Policy (Water Act 1989) – Section 9 - Sustainable diversion limits applied to winter-fill licences.

Wealands, A., Arnott, C., Zavadil, E. (2008). Monitoring and evaluation program: Stream Flow Management Plans - Yarra River catchment. (Report prepared by Alluvium Consulting for Melbourne Water, East Melbourne).

Water Act 1989

APPENDIX 1
ROSTERING ARRANGEMENTS FOR NON-METERED USERS

The Melbourne Water Drought Response Plan for Licensed Water Users details the rostering arrangement. This appendix is a copy of that plan at the time of print. Licensees must be aware of updated versions of this plan as they are produced. The low flow and high flow period will be modified to match the requirements of this plan.

Licence type	Low flow period 1st December to 31st May	High flow period 1st June to 30th November
Irrigation, industrial or commercial use direct from waterway	All users except as shown: Max. 7 hours between 6 am & 9 am and 6 pm and 10 pm on allotted group days, as agreed with Melbourne Water. Group A: Mondays, Wednesdays and Fridays. Group B: Tuesdays, Thursdays and Saturdays commercial flower growers and nurseries. Max. 3 hours between 6 am & 8 am and 7 pm & 8 pm any day. Golf courses and industrial volume diverted to be reduced by 50%. Records to be kept of actual use for audit purposes.	All users except as shown: Max. 7 hours between 6 am & 9 am and 6 pm & 10 pm on any day. Golf courses and industrial volume diverted to be reduced by 25%. Records to be kept of actual use for audit purposes.
Irrigation or commercial licence used with an on-stream dam	If diverters share of water held in on-stream dam is: • Greater than 50% of licensed entitlement No restrictions apply provided all water used is drawn from reserves of stored water and all natural stream flow passes downstream. • 20% - 50% of licensed entitlement Stored water may be used but diverters must consult with other affected diverters to ensure that a Melbourne Water agreed environmental flow is maintained. • Less than 20% of licensed entitlement Restrictions apply as per use direct from waterway as above.	If diverters share of water held in on-stream dam is: • Greater than 50% of licensed entitlement No restrictions apply provided all water used is drawn from reserves of stored water and all natural stream flow passes downstream. • 20% - 50% of licensed entitlement Stored water may be used but diverters must consult with other affected diverters to ensure that a Melbourne Water agreed environmental flow is maintained • Less than 20% of licensed entitlement Restrictions apply as per use direct from waterway as above
On-stream dam - winterfill	Refilling of storages is banned. No restrictions on water use provided water supply is drawn from reserves of stored water.	No restrictions on water use provided water supply is drawn from reserves of stored water. Under restriction conditions, dam-filling limited to maximum four hours per day, between 8:00 am & 12:00 pm
Irrigation or commercial licence used with an off-stream dam	Stored water in the dam may be used at any time but refilling of the dam from the waterway may only occur in accordance with the following hours. All users except as shown Max. 7 hours between 6 am & 9 am and 6 pm & 10 pm on allotted group days, as agreed with Melbourne Water Group A Mondays, Wednesdays and Fridays Group B Tuesdays, Thursdays and Saturdays commercial flower growers and nurseries. Max. 3 hours between 6 am & 8 am and 7 pm & 8 pm any day. Golf courses and industrial Volume diverted to be reduced by 50%. Records to be kept of actual use for audit purposes.	Stored water in the dam may be used at any time but refilling of the dam from the waterway may only occur in accordance with the following hours. All users except as shown Max. 7 hours between 6 am & 9 am and 6 pm & 10 pm on any day Golf courses and industrial Volume diverted to be reduced by 25%. Records to be kept of actual use for audit purposes.

Licence type	Low flow period 1st December to 31st May	High flow period 1st June to 30th November
Off-stream dam - winterfill	Refilling of storages is banned. No restrictions on water use provided water supply is drawn from reserves of stored water.	No restrictions on water use, provided water is drawn from reserves of stored water. Under restriction conditions, dam filling limited to maximum 4 hours per day between 8:00 am & 12:00 pm
Domestic and stock	Pumping is banned if alternative supply available. If no alternative supply available then pumping is banned except as follows: • Essential household use • Watering of stock Individual drought contingency plans should be implemented.	Not restricted
Non-consumptive use	Provided 100% of water is returned in accordance with EPA licence, no more than the lesser of 25% of the assessed stream flow or 75% of the daily flow as indicated on the licence may be diverted.	Provided 100% of water is returned in accordance with EPA licence, no more than the lesser of 25% of the assessed stream flow or 75% of the daily flow as indicated on the licence may be diverted.
Farm dams	Not restricted	Not restricted

The following tables define the roster group allocation and allotted pumping days for waterways within those catchments subject to water restrictions. To be used in conjunction with restriction tables above.

Woori Yallock Creek catchment. Site ID 229679		
Low-Flow Period: 1 Dec-31 May	**High-Flow Period: 1 Jun-30 Nov**	
Restriction Roster Group A waterways Allotted days – Monday, Wednesday, Friday	**Restriction Roster Group B waterways Allotted days – Tuesday, Thursday, Saturday**	
Boggy Creek	Avonsleigh Creek	McCrae Creek
Desmond Creek	Bob Mann Creek	Menzies Creek
Emerald Creek	Cassells Creek	Pancake Creek
Ferndale Creek	Club Creek	Perrins Creek
Nathania Springs Creek	Cockatoo Creek	Rundells Creek
Stoney Creek	Flannigans Creek	Sassafras Creek
Wattle Creek	Gembrook Creek	Sheep Station Creek
Woori Yallock Creek	Lone Star Creek	Shepherd Creek
	Lyrebird Creek	Ti Tree Creek
	Macclesfield Creek	Tomahawk Creek

APPENDIX 2
STANDARD CONDITIONS FOR TAKE AND USE LICENCES (STATE-WIDE)

METHOD OF TAKING

1. Water may only be taken under this licence if it is taken by the methods expressly approved by this licence.
2. The licence holder must at all times provide the Authority with safe access to inspect all works and appliances used to take water under this licence.

TAKE LOCATION

3. Water may only be taken under this licence if it is taken at the location specified in the licence under "extraction point details".

TAKE VOLUME AND RATE

[for all-year licences]

4. The volume of water taken under this licence in any twelve-month period from 1 July to 30 June must not exceed the licence volume, less any volume that has been temporarily transferred to another person or location.

[for winter-fill licences]

5. The volume of water taken under this licence in the period during which water may be taken must not exceed the licence volume, less any volume that has been temporarily transferred to another person or location, [*for an on-waterway dam or a catchment dam, add*] "and the volume of water taken will be measured as the volume taken out of the dam between 1 July and 30 June".
6. The maximum volume of water that may be taken under this licence in any one day is [*insert relevant max daily volume here*] megalitres.

TEMPORARY TRANSFERS TO THE LICENCE HOLDER

7. If there has been a temporary transfer of another licence to take water at the location, and use water on the land, specified in this licence:
   a) the extra volume of water taken at the location specified in this licence as a result of the temporary transfer must not exceed the volume transferred; and
   b) all the conditions of this licence apply to the taking and using of water consequential to the transfer.

TAKE PERIOD

[for all-year licences]

8. Unless otherwise directed by the Authority, water may be taken at any time between 1 July and 30 June.

[for winter-fill diversion to an off-waterway dam]

9. Unless otherwise directed by the Authority, water may only be taken from the waterway during the period from [period to be specified; normally 1 July and 31 October].

[for winter-fill using an on-waterway dam]

10. Unless otherwise directed by the Authority, water may only be harvested into the on waterway dam during the period from [*period to be specified; normally 1 July and 31 October*]; at all other times, the entire streamflow must be passed downstream of the dam.

[for winter-fill using a catchment dam]

11. Unless otherwise directed by the Authority, water may only be harvested into the catchment dam during the period from [*period to be specified; normally 1 July and 31 October*]; at all other times, the entire run-off must be passed around the dam.

PASSING FLOWS

[for an on-waterway dam]

12. The licence holder must, at all times that there is natural inflow into the on-waterway storage, maintain a flow in the waterway downstream of the storage, to the satisfaction of the Authority [*may specify required flow in ML per day where determined*].
13. Bypass mechanisms must be installed and maintained in good working order to ensure that outside the take period, none of the natural flow in the waterway is harvested into the dam.

[for a catchment dam]

14. Bypass mechanisms must be installed and maintained in good working order to ensure no run-off is harvested outside the take period.

ROSTERS AND RESTRICTIONS [*WHICH MAY INCLUDE BANS*]

[if rules have not yet been set]

15. When directed by the Authority, water must be taken in accordance with the rosters and restrictions determined by the Authority and advised to the licence holder.

[for when rules have been set in advance, and the Authority notifies people each time they apply]

16. When directed by the Authority, water must be taken in accordance with the rosters and restrictions as set out in <<*"the management plan, local management rules or other document", or else insert name of actual document*>> that is available on the Authority's website.

[for when rules have been set in advance, and the onus is on people to check when they apply]

17. Water must be taken in accordance with the rosters and restrictions as set out in <<*"the management plan, local management rules or other document", or else insert name of actual document*>> that is available on the Authority's website, and before taking water under their licence the licence holder must check the restrictions that currently apply.

METERING OF WATER TAKEN AND USED

[for a licence less than 5ML]

18. Water may need to be taken through a meter if requested by the Authority.

[for licences 5ML or greater]

19. Water may only be taken under this licence if it is taken through a meter approved by the Authority.
20. Meters must be installed in accordance with the specifications set by the Authority at the licence holder's expense.
21. Meters used for the purpose of this licence are deemed to be the property of the Authority.
22. The licence holder must at all times provide the Authority with safe access to meters for the purpose of reading, calibration or maintenance.
23. The licence holder must notify the Authority within one business day if the meter ceases to function or operate properly.
24. The licence holder must, if required by the Authority, keep an accurate record of the quantity of water taken under this licence and allow the Authority to inspect this record at all reasonable times, and provide a copy of the record when requested.
25. The licence holder must not, without the consent of the Authority, interfere with, disconnect or remove any meter used for the purposes of the licence.
26. The Authority may, if it deems necessary, make an estimate of the total volume of water taken under this licence.

MAINTAINING WORKS

27. The licence holder must keep all works, appliances and dams associated with this licence, including spillways, outlet pipes and valves in a safe and operable condition; and free from obstacles and vegetation that might hinder access to the works.

PREVENTING POLLUTION

28. The licence holder must construct and maintain bund walls around any hydrocarbon-fuel-driven engine, motor, fuel storage or chemical storage used in connection with this licence, in accordance with the timeframe, specifications, guidelines or standards prescribed by the Authority.

USE OF WATER

29. Water taken under this licence may only be used on the land, and for the purposes, specified in the licence.

[the next two conditions not required where no land is specified in accordance with Policy 16]

30. The licence holder must at all times provide the Authority with safe access to inspect the land on which water is licensed to be used.

[for any licence that allows irrigation and does not require metering]

31. The maximum area that may be irrigated in any 12-month period from 1 July to 30 June is [*the licensed area*].

MANAGING GROUNDWATER INFILTRATION

32. The maximum volume of water that may be applied to the land referred to in the licence in any 12-month period from 1 July to 30 June is the annual use limit which is equal to the licence volume, or if the annual use limit is adjusted by the Authority on account of seasonal conditions this adjusted annual use limit.

MANAGING DISPOSAL OF DRAINAGE

33. Where irrigation results in drainage from the land specified in the licence, that drainage water must be disposed in ways that met the standards, terms and conditions adopted from time to time by the Authority.

FEES

34. The licence holder must, when requested by the Authority, pay all fees, costs and other charges under the *Water Act 1989* in respect of this licence[1,2].

1. The SFMP will over ride some of the conditions of the State wide conditions. Where specific conditions have been developed for Woori Yallock Creek SFMP these will replace the conditions in the standard conditions set.
2. Policy 16 refers to State take and use policy.

APPENDIX 3
CONSULTATIVE COMMITTEE RESPONSES TO COMMUNITY SUBMISSIONS ON THE DRAFT SFMP

The consultation process included issuing a questionnaire to all licence holders and stakeholders along with the summary document. The questionnaire gave options for 'yes', 'no' or 'don't know' answers and the opportunity to comment. Overall the responses gave a positive answer to the questions and some respondents provided further comment. The committee discussed all the responses and the committee comment on the written content is provided.

Respondents who provided additional questionnaire comment are included in the following text.

1. What do you consider to be the key water management issues in the Woori Yallock Creek catchment?		
Respondent	Comment	Consultative Committee Comment
Rowan and Clyde Shera-Jones	To achieve a balance between the environment and farmers	Agree. The overall aim of a stream flow management plan is to achieve a balance between the environment and all users. This is further explained in the plan objectives.
George Van Graas	Lack of off-stream storage and lack of government support to assist horticultural producers with drought proofing strategies	Agree. The committee acknowledges the limitations and lack of financial support relating to off stream storage. The committee recommends the use of tax breaks to encourage construction of off stream storages as referenced under section 13.5.
Michael Koelewyn	Cleaner water	Noted, the plan has an objective of improving water quality but has limited powers beyond flow management. There are other complimentary programs within the catchment that assist with improving water quality at a property scale e.g. Stream Frontage Management Program, Water Sensitive Farming Design. Additional information on these programs is available from Melbourne Water.
G & G & V Garretto	That a fair and balanced system is put in place that protect our environmental issues and at the same time doesn't discriminate against our irrigators to the point of huge crop and financial losses.	Agree. The overall aim of a stream flow management plan is to achieve a balance between the environment and all users. This is further explained in the plan objectives.
John Cascone	To balance the need of water between users and the environment.	Agree. The overall aim of a stream flow management plan is to achieve a balance between the environment and all users. This is further explained in the plan objectives.
Frank Broersen	We are concerned that the environmental flows are too high and that farmers will be disadvantaged in the future if bracket creep applies. Currently, 85,000 megalitres is the average flow in drought years. Farmers are currently permitted to use 9,500 megalitres approximately. This is to be lowered to 7,800 megalitres under the draft plan. At this level, farmers will be struggling and further reductions in volume could drastically affect the farming industry in the Yarra Valley. It seems that the economic impact on farmers has not been considered in the draft plan. Better planning with amendments to deliver a balanced solution for both farmers and the environment should be done.	Noted. The plan aims to achieve a balance through negotiated outcomes. It is recognised that there will be impacts on both the environment and water users. Assessment was undertaken to consider the impact on diverters of the number of days on ban by applying the proposed rules. (Refer section 6.6.) The position reached by the committee was considered a fair compromise between granting access to water and protecting environmental values. It should be noted also that the desired allocation cap proposed in the plan is 8,828ML. This represents the volume of water that could reliably be taken in eight out of ten years. An 80% reliability is considered a reasonable benchmark for acceptable reliability for a licence in an unregulated river.
G & F Magagna	Finding correct balance between diverters and correct environmental flows	Agree. The overall aim of a stream flow management plan is to achieve a balance between the environment and all users. This is further explained in the plan objectives.
G & V Firrito	Water security for growers to be able to irrigate and expand in order to survive in the growing demands driven by market forces.	Noted. The overall aim of a stream flow management plan is to achieve a balance between the environment and all users. This is further explained in the plan objectives.
Daryl Knoll	The continual changing and adding more rules and conditions by Melb Water. Every year sees more rules and red tape and cost and more infringement on farmers livehoods	The Plan sets the 'rules' for the Woori Yallock Creek catchment and will be 'set ' for at least five years when the plan will be reviewed. The balance of standard conditions applied uniformly to all licences remain subject to periodic State wide reviews.

2. Do you agree that the restrictions on surfacewater extraction are clear (Section 6)?		
Respondent	Comment	Consultative Committee Comment
Rowan and Clyde Shera-Jones	I find them too complicated	Noted. The proposed system of restrictions and bans can seem complicated; however the committee has made every attempt to express them in a clear, concise and consistent manner in the plan. Some modifications to tables have been made to make the Plan clearer. Anyone requiring further information can contact Melbourne Water's Diversions team for assistance.
George Van Graas	Greater clarity would be achieved and better understood if a complete list of sub/minor tributary streams were compiled and shown.	Noted. The committee have revised the maps in the final plan to help improve clarity.
G & G & V Garretto	While restrictions and bans are introduced during low flow periods, irrigators who have on stream reserves should not be banned of using up there reserve while allowing the natural flow through. A estimate of litres stored in these dam's should be estimated and allowed for irrigation and protection of the farmers livelihoods. This is providing there reserve meets there full license allocation.	Agree. Irrigators can draw off on-stream reserves at times of restriction and bans provided they allow all inflows to pass downstream.
John Cascone	But not totally convinced they are fair to water users	The plan aims to achieve a balance through negotiated outcomes. It is recognised that there will be impacts on both the environment and water users. The position reached by the committee, which comprises 50% land holders, was considered a fair compromise between granting access to water and protecting environmental values.
Frank Broersen	No. It has been very difficult to fully understand all the graphs, trigger figures and flow figures in this section. It should have been put in a more easily understandable format.	Noted. The proposed system of restrictions and bans can seem complicated; however the committee has made every attempt to express them in a clear, concise and consistent manner in the plan. Some modifications to tables have been made to make the Plan clearer. Anyone requiring further information can contact Melbourne Water's Diversions team for assistance.
G & V Firrito	Yes they are clear but they should be more favourable towards the farmers for there irrigation needs.	Noted. The plan aims to achieve a balance through negotiated outcomes. It is recognised that there will be impacts on both the environment and water users. Assessment was undertaken to consider the impact on diverters of the number of days on ban by applying the proposed rules. (Refer section 6.6.) The position reached by the committee was considered a fair compromise between granting access to water and protecting environmental values.
Daryl Knoll	It seems very similar to the current rules and a lot of people do not understand these restrictions	Noted. The proposed system of restrictions and bans can seem complicated; however the committee has made every attempt to express them in a clear, concise and consistent manner in the plan. Some modifications to tables have been made to make the Plan clearer. Anyone requiring further information can contact Melbourne Water's Diversions team for assistance.

3. Are the trading rules clear and transparent as explained in Section 7?		
Respondent	Comment	Consultative Committee Comment
Rowan and Clyde Shera-Jones	Reasonable but complicated	Noted. The proposed system of trading can seem complicated due to the number of sub catchments that may have different trading rules applied. The committee has made every attempt to express them in a clear, concise and consistent manner in the plan. Anyone requiring further information can contact Melbourne Water's Diversions team for assistance.
George Van Graas	I don't agree with the option of an individual landowner being able to render productive farm land unusable by selling their right to access water.	It is the licence holder's decision to retain or trade their licence as required. Trading allows for water to be moved to where high demand exists as driven by the open market. The proposed trading rules in the Plan allow a landholder with or without a water licence to purchase or re-purchase a water licence on the water market within the rules defined.
G & G & V Garretto	where a farmer sells there water allocation to a downstream irrigator on a temporary transfer basis and that purchaser has paid for the total 100% allocation and is only allowed to use up to 80% then he should be compensated by government on the shortfall.	The catchment is considered to be over allocated at present levels. The purpose of the 20% reduction on trade is to reduce the overall allocation to protect and improve security of supply to water users. The 20% reduction will only apply until the nominated cap is reached. Given that all trades are subject to the same conditions the value of the water is not expected to alter significantly and will remain as determined by the market (i.e. buyer and seller).
John Cascone	Clear as presented but disagree with the 20% reduction on transfers. If the 20% reduction must accrue it will have to be funded by the environmental authority and not funded by the individual license holders. This is my greatest concern to the whole plan.	The catchment is considered to be over allocated at present levels. The purpose of the 20% reduction on trade is to reduce the overall allocation to protect and improve security of supply to water users. The 20% reduction will only apply until the nominated cap is reached. Given that all trades are subject to the same conditions the value of the water is not expected to alter significantly and will remain as determined by the market (i.e. buyer and seller).
Frank Broersen	No. Initially I found it difficult to make sense of this section. I have in the meantime spoken to Tim Donovan (from Melbourne Water) on the phone at length to clarify some of the issues on points 2, 3 and 4. I am now satisfied that after having Tim explain some of the issues from this section; I now understand how this will work.	Noted. The Diversion team at Melbourne Water are happy to clarify various queries.
G & F Magagna	Unsure of meaning of conditions "all year to winterfill 80%" what is this reference to?	This refers to the transfers, other than downstream trades, where it is required to convert the volume to winterfill conditions as well as reducing the traded volume by 20%. Anyone requiring further information can contact Melbourne Water's Diversions team for assistance.
G & V Firrito	Yes also clear but don't agree with 20% reduction that is proposed without being compensated for.	The catchment is considered to be over allocated at present levels. The purpose of the 20% reduction on trade is to reduce the overall allocation to protect and improve security of supply to water users. The 20% reduction will only apply until the nominated cap is reached. Given that all trades are subject to the same conditions the value of the water is not expected to alter significantly and will remain as determined by the market (i.e. buyer and seller).
Daryl Knoll	If an allocation is being transferred from one on stream dam to another on the same watercourse there should be no reduction of the allocation as the water is stored.	The catchment is considered to be over allocated at present levels. The purpose of the 20% reduction on trade is to reduce the overall allocation to protect and improve security of supply to water users. The 20% reduction will only apply until the nominated cap is reached. Given that all trades are subject to the same conditions the value of the water is not expected to alter significantly and will remain as determined by the market (i.e. buyer and seller).

4. The intent of the plan is to achieve an equitable balance between the environment and water users. Do you think that the draft plan achieves this objective?		
Respondent	Comment	Consultative Committee Comment
George Van Graas	A balance needs to be found to support future activities in the region, but it won't always be to everyone's liking!	Noted.
John Cascone	Because I believe that license holders will not support the 20% financial burden by them. I urge the minister not to adopt this plan on this issue as stated above.	The committee considers the 20% reduction on trading as the fairest way in which to address the over allocation within the catchment. It does not affect existing water users, only those seeking additional water in response to changes in water demands.
Frank Broersen	No. As mentioned above, I am concerned that the environmental flows are too high and farmers will have greater difficulty accessing the water they need in the future (especially during the low flow periods) to survive. It is very difficult and expensive to build new dams off stream due to the lengthy and involved process with the Shire of Yarra Ranges, not to mention the costs. A business associate I recently spoke to told me he was quoted $35,000 for soil testing before a permit may be issued to build an off stream dam in the Shire of Yarra Ranges. This seems very excessive, and beyond the financial means of most farmers who are already under much financial stress due to economic factors and drought in recent times.	As noted above, the committee supports off stream storage by farmers and recommends also in section 13.5 the use of tax breaks by government to encourage construction. Melbourne Water has made a commitment to work with the Shire of Yarra Ranges and Cardinia regarding off -stream dams.
G & F Magagna	Obviously greater care has been taken on environmental flows increasing trigger points by 10%. Concerned when modelling was done the past 13 years have been extremely dry. Has this affected outcome of results?	The catchment has been modelled to generate daily streamflows and water use throughout the catchments over the period January 1975 to December 2007 using historical rainfall and streamflow data where available from the same period. This represents a long term average and allows various scenarios to be compared during this period. The variation has been taken into account during this period and has not affected the outcome of the results.
G & V Firrito	No because the farmers and irrigators should not have to pay for the 20% environment water, therefore I propose that this should be paid by the appropriate industry.	The catchment is considered to be over allocated at present levels. The purpose of the 20% reduction on trade is to reduce the overall allocation to protect and improve security of supply to water users. The 20% reduction will only apply until the nominated cap is reached. Given that all trades are subject to the same conditions the value of the water is not expected to alter significantly and will remain as determined by the market (i.e. buyer and seller).
Daryl Knoll	If the plan was really serious about improving environmental flows it would include a plan to subsidize the building of winterfill off stream dams. This would be the best solution to improve summer flows. Melb Water is currently offering subsidies to improve water management but building off stream dams would have a far greater benefit.	The committee acknowledges the limitations and lack of financial support relating to off stream storage. The committee recommends the use of tax breaks to encourage construction of off stream storages as referenced under section 13.5.

5. The plan can only consider licensed surface water management issues. Are there any aspects of the plan that are missing or need further development?		
Respondent	Comment	Consultative Committee Comment
George Van Graas	Don't just restrict a licensed water user to limited access, but actively and financially support better water usage and minimise on stream demand in the low season. Also while doing so, don't apply asset ownership restrictions to grant applications.	Under section 13 the committee has made further recommendations around a number of issues including water use efficiency, off stream storages and domestic and stock use in the catchment. The issues around grant applications is outside the scope of the Plan and rests with the agency administering the grant.
John Cascone	Yes - explore the possibility of a reservoir witch would secure water for the well being for working families and the environment.	The Plan encourages existing licensed water users to construct their own off-stream storages away from waterways to improve storage and access to water and avoid additional impacts on the waterways. Large regulated storages are not considered feasible in this catchment on environmental, economic or social grounds.
Frank Broersen	What will happen to the water allocations that are not used? Can we carry these forward? My understanding is that the Murray River farmers can carry over to successive years if they have high security preference in this area. Are we able to negotiate a similar system in the Woori Yallock Creek catchment? Or will unused allocations form part of the environmental flows?	Carry over has not been proposed in the Woori Yallock Creek system as it is an unregulated waterway and relies on natural flows. Carry over is used in regulated system where irrigators can store allocation in large catchment dams as opposed to small private dams. Unregulated systems do not have seasonal allocations against their licences and cannot store unused volumes because there are no large catchment dams. Seasonal allocations do not apply in unregulated catchments, therefore carry over cannot be applied. However, stored water in on-stream dams can be used at any time provided the usage is within the annual allocation held and the dam owner can demonstrate that they are passing the required flows downstream. In periods of ban this would mean the entire inflow must be passed. Allocations are for one year.
Frank Broersen	Will there be compensation for farmers adversely affected during the low flow periods when they cannot access the water they need?	No. During a low flow period all users are under pressure including the environment. Farmers need to manage their business to adapt to variations in water availability.
Stephen Malseed	As a non consumptive user we would like some recognition that it is impossible for us to completely stop diversion.	All users have a responsibility to control their offtake during different flow conditions, including bans, and no user is exempt from this. As a non-consumptive user some limited access may be permitted during ban periods provided that there are no adverse environmental impacts and that the volume is returned to the waterway. The Plan has been amended to include the management of non-consumptive licences in section 3 and section 6. Such licenses will be considered on a case by case basis and will be required to be supported by an environmental impact assessment.
G & F Magagna	1 - conclusions reached is that catchment is over allocated and greater attention is given to winter filling of dams and use. This is fair enough however will Melbourne Water look at reviewing the volume registered of dams as many were registerer (capacity) under what farmers were submitting?? without any supporting document. Therefore the accuracy of there capacity is even greater because of increased trigger levels.	1. Melbourne Water will not be reviewing the capacity of registered farm dams as this process was completed in 2004. Each dam was individually inspected and assessed.
	2 Also in year 4-5 trigger bans will be changed due to sub catchments. With regard to A&B concerned that these creeks may be used to compensate the overall flow. So diverters will be worse off on this system. This cannot be verified without obtaining flow levels of these two creeks in the past when the whole creek was on restrictions.	2. Continuous monitoring is undertaken on the sub catchments. Scenarios have been modelled in the sub catchments in relation to the proposed changes and are reported on in the plan in section 6.6. Data is available on the web site for diverters to monitor the flow levels in the creek.
G & V Firrito	A water security reservoir should be built on an appropriate location to adequately satisfy the needs for the environment and the irrigators which would enable irrigators to expand there enterprises for survival needs.	The Plan encourages existing licensed water users to construct their own off-stream storages away from waterways to improve storage and access to water and avoid additional impacts on the waterways. Large regulated storages are not considered feasible in this catchment on environmental, economic or social grounds.
Daryl Knoll	Will the conditions outlined in the plan be locked in or will they be continually changed and added to by Melb Water as is currently the case. Diverters need a plan to be permanent so they know where they stand.	The specific conditions introduced by the Plan will be "locked in" for at least five years when the Plan will be reviewed. There is a legal process to amend the plan. The balance of standard conditions applied uniformly to all licences remain subject to periodic State wide reviews.

In addition to the questionnaire there were other comments received on the draft Plan. The committee included these in their discussions and the responses are recorded below. They are separated into the appropriate sections of the Plan.

General		
Respondent	Comment	Consultative Committee Comment
Mr & Mrs Foote	Melbourne Water should be made aware of all of the chemicals used on these factory farms, also the amounts used each time they are sprayed plus how may days each week over the season they are sprayed. Plus what effect each chemical can have on the environmental health of the creek. THIS KNOWLEDGE IS NECESSARY FOR BUFFER ZONE DESIGN.	The committee share the concerns raised regarding the impact of chemical use on water quality. The plan has an objective of improving water quality but has limited powers beyond flow management. Other authorities such as DPI and EPA hold responsibility for regulating chemical application on agricultural land.
Mr & Mrs Foote	Buffer zones should be compulsory and should be designed to reflect the land use, at the moment this is not the case, and the creek is subjected to large amounts of fungicide and insecticide spray, either directly into it, or drifting into it. The width of the buffer zone should protect the riparian zone. A 10 meter or even 20 meter average width of buffer zone may not be enough to stop chemical spray drift and run off. But a 10 meter width is probably fine for grazing animal.	The Committee supports good land management to protect waterway values. There are other complimentary programs within the catchment that assist with improving water quality at a property scale e.g. Stream Frontage Management Program, Water Sensitive Farming Design. Additional information on these programs is available from Melbourne Water.
Mr & Mrs Foote	If a licence holder has flood plain land this should be given more consideration, as a flood plain is also a waterway, but also a riparian zone in times of flood. It should be a condition of the licence holders not to build silt/chemical traps of flood plains, as we have seen in recent floods all this water just floods back into the creek. Licence holders should not be allowed to fill in large area of the flood plain for their use, at least 50% of said flood plain should be left as a Waterway and riparian zone. It should be a condition of the licence they are not to build levee banks across the flood plain to impede the natural flow of the creek.	Development on flood plains should be consistent with statutory requirements and is an issue outside the scope of the Plan.
Mr & Mrs Foote	In conclusion we believe the committee should make these changes if they are going to meet their environmental objectives. The committee should be aware that aquatic life is under extreme threat in low flows, but this is the time the licence holders are spraying the most and using the most irrigation. Most of this water will find its way back to the creek but if it is polluted it will also do the most damage. compulsory scientifically designed buffer zones are a must if a 50 m to 100 m buffer zone is required that should be the requirement of that licence condition. AFTER ALL QUALITY WATER IS EQUALLY, IF NOT MORE IMPORTANT THAN QUANTITY.	As highlighted above, the Plan is limited in how it can control water quality impacts. The committee supports good land management practices including use of buffer zones and controlled applications of agricultural chemicals; however the regulation of these activities is managed outside the scope of the Plan.
Mr and Mrs Marshall	Natural flows in forested natural environments such as this catchment are invariably lower than the same catchment 80% cleared, the SFMP denies this science. Therefore, this Plan is fatally flawed, totally wrong and cannot proceed.	The plan has used appropriate data and methodology that has been reviewed by an independent technical audit panel and is considered robust. The plan is written within strict guidelines and uses best available information.
Mr and Mrs Marshall	The low average rainfall to flows claimed by Melbourne Water and used in the Plan are improbable to the point of being ridiculous. Nowhere in the world in a similar environment do such rainfall to flows occur. Consequently the Plan is fatally flawed and must be totally replaced after proper research has been done.	The plan has used appropriate data and methodology that has been reviewed by an independent technical audit panel and is considered robust. Catchment specific measured flow data has been used and is considered more reliable than modelled flow data.
Mr and Mrs Marshall	The Plan totally fails to consider its social, cultural and community implications, its devastating impact on many of the people who provide this current pristine catchment for Melbourne.	Noted. The plan aims to achieve a balance through negotiated outcomes. It is recognised that there will be impacts on both the environment and water users. Assessment was undertaken to consider the impact on diverters of the number of days on ban by applying the proposed rules. (Refer section 6.6.) The position reached by the committee was considered a fair compromise between granting access to water and protecting environmental values. The social and cultural values were considered during the plan development by the make up of the Consultative Committee representing such areas of interest in the catchment.
Irene Pearey	Congratulations on developing a comprehensive plan; Challenge of equitably sharing the scarce and unreliable water resource is immense; Urge a fairly deal for environment and believe supported by the plan; cannot comment on value but trust MW staff and consultants have done their best with incomplete water usage data and hope that plan is reviewed and revised in 5 years time when more data available.	The comments are appreciated regarding the support for the Plan development. There has been detailed thought put into the Plan of which its main aim is to achieve a balance between the environment and all users. This is further explained in the Plan objectives. The values used for triggers/flows has been assessed by an independent technical audit panel which supports the use of the technical data (report available). It is proposed that the Plan will be reviewed after 5 years as described in prescription 12.2

APPENDIX 3 CONSULTATIVE COMMITTEE RESPONSES TO COMMUNITY SUBMISSIONS ON THE DRAFT SFMP

Section 2		
Juliet Le Feuvre - Environment Victoria	Woori Yallock Creek has significant environmental values with seven species of native fish, three crayfish species and ten different frogs and toads. These values and the environmental flow regime required to protect them are described in the S K M study Environmental Flow Determination for Woori Yallock Creek. One of the key tasks for a Stream Flow Management Plans is to look at the equitable sharing of water between users and the environment, and to implement the recommended flow regime.	Agree. The overall aim of a stream flow management plan is to achieve a balance between the environment and all users. This is further explained in the plan objectives.
Section 4		
Irene Pearey	Objective 4 - I agree in principle but don't see how this Plan can consider groundwater at all. Nor can it take into account of all the unlicensed/unmetered extractions	The committee acknowledges the interaction between groundwater and surfacewater. It supports the ongoing close working relationship between Southern Rural Water and Melbourne Water. Further work is proposed to better understand the unlicensed water extraction in the catchment.
Irene Pearey	Para 1 talks of ecological monitoring in years 1 to 3 to gain better understanding - reinforced on page 32 para 2 and then refuted in adjacent column - MW will not attempt to demonstrate - I am confused.	Monitoring will be undertaken in the catchment to improve understanding of the ecology and dynamics. There are many other influences in the catchment that have ecological impacts. Demonstrating which is the dominant driver can be difficult.
Section 6		
Richard Anderson VFF	To enable the more efficient use of water for productive use and in the environment, alterations should be made to licences to facilitate water storage filling during periods of high flow events up to their total entitlement. Many licensees are reliant on stream flows over the winter fill period to provide their allocated entitlement. With the changing patterns of rainfall which are being experienced in Victoria, particularly elevated summer rainfall, dam filling licences could be altered to allow for these storages to be filled during high flow events. With the ability to capitalise on the high stream flow of this period, pressure can be alleviated on the river system at other times of the year.	The committee discussed this topic and have proposed rostering arrangements that allows for some additional access to water during the nominated shoulder period. Further review of access periods will be undertaken when the plan is reviewed. In the mean time winter fill licence holders can obtain access to flows outside this period through trading with all-year licences.
Juliet Le Feuvre - Environment Victoria	The recommended changes to the rostering regime make it more equitable and easier to implement. We also support the recommendations on trading	Noted. The rostering and trading recommendations were designed to be more equitable.
Juliet Le Feuvre - Environment Victoria	The draft Plan fails to implement the recommended flow regime. All the 'cease to divert' ban trigger points are at below those recommended in the environmental flows determination, and there is no risk assessment of what the consequences of failing to meet the recommendations will be.	The plan aims to achieve a balance through negotiated outcomes. It is recognised that there will be impacts on both the environment and water users. The position reached by the committee was considered a fair compromise between granting access to water and protecting environmental values. It is considered that the implementation of the proposed triggers will provide positive environmental outcomes compared to current arrangements. An environment impact assessment will be undertaken for input into the next plan period.
Juliet Le Feuvre - Environment Victoria	In addition, although the plan recommends that the allocation cap (PCV) should be reduced to 8,828 ML, it provides no mechanism (other than trade) or time frame for doing so. Relying on trade means that the reduction could take many years to achieve (if ever) and again there is no risk assessment of what the consequences of delay would be.	The committee considers the 20% reduction on trading as the fairest way in which to address the over allocation within the catchment. It does not affect existing water users, only those seeking additional water in response to changes in water demands. The core environmental values are protected through the implementation of restrictions and ban triggers and are less affected by the total volume issued to water users.
Irene Pearey	But how can unmetered licence holders be monitored?	Melbourne Water does have a program to inspect unmetered licence holders and monitor their irrigation activities but it is recognised that being unmetered means that only estimates can be applied to their usage.

Darren Koll	Presently, it is my understanding from my communications with Melbourne water that unused water held in on-stream storage cannot be used from the start of the following year's on-stream dam winter filling period. For example, an on-stream dam with a 10ML dam filling license is filled to 10ML in an average rainfall year. If 5ML of that water is used that summer and by chance the next winter-fill period is dry meaning bans are in place, the diverter is unable to use the previous season's unused stored water. I feel this should be altered, to allow water to be stored for as long as they need it to give diverters some back up water supply in the event of a drought Also if in the case of the fore mentioned example, the capacity of that on-stream storage is greater than the license (let's say the dam has 25ML capacity), I believe the diverter should have the right to accumulate over time, extra water for a dry year provided that the flows into the storage are allowed to pass. In this case if the diverter averages 5ML usage per year in an average rainfall year, this would allow for enough water to be accumulated for security in dry years, without affecting environmental flows. Off stream dams are an ideal option to store water, however, not every farm has either- (a) An ideal site to build off stream storage. In some cases the terrain or correct soil type may be unsuitable to build a dam economically. (b) The available space required. In the case of small intensive farms, space can be limited.	Carry over is used in regulated system where irrigators can store allocation in large catchment dams as opposed to small private dams. Unregulated systems do not have seasonal allocations against their licences and cannot store unused volumes because there are no large catchment dams. Seasonal allocations do not apply in unregulated catchments, therefore carry over cannot be applied. However, stored water in on-stream dams can be used at any time provided the usage is within the annual allocation held and the dam owner can demonstrate that they are passing the required flows downstream. In periods of ban this would mean the entire inflow must be passed.
Darren Koll	To conclude, while I understand the need to protect the environment, I believe that every possibility should be explored to allow businesses which depend on their diversion license, to survive and prosper into the future.	The plan aims to achieve a balance through negotiated outcomes. It is recognised that there will be impacts on both the environment and water users. Assessment was undertaken to consider the impact on diverters of the number of days on ban by applying the proposed rules. (Refer section 6.6.) The position reached by the committee was considered a fair compromise between granting access to water and protecting environmental values.
Irene Pearey	Serious lack of balance - consumptive users can divert 100% of allocation with 80% reliability whereas the environment is assured of just 66% of the minimum environmental flow requirements. Part of catchment are hot spots for biodiversity. Suffered during last 12-13 years of drought. Now have opportunity to maintain restrictions, encourage wise water usage and allow nature to recover - believe missed opportunity.	The plan aims to achieve a balance through negotiated outcomes. It is recognised that there will be impacts on both the environment and water users. Assessment was undertaken to consider the impact on diverters of the number of days on ban by applying the proposed rules. (Refer section 6.6.) The position reached by the committee was considered a fair compromise between granting access to water and protecting environmental values. The plan proposes rostering arrangements that are more equitable and also promotes improving water efficiency (section 13.3). Along with the proposed monitoring program and other complimentary programs this will assist with the ecological functioning of the catchment.

APPENDIX 3 CONSULTATIVE COMMITTEE RESPONSES TO COMMUNITY SUBMISSIONS ON THE DRAFT SFMP

Section 7		
Christopher Dean	In regards to the Management plan for the Woori Yallock Creek Flow Management Plan, I wish to put forward my thoughts regarding New Licences – Section 7. Transfer down stream, you are preposing that you only get 80% pumping rights. I am a Nurseryman on the stoney creek catchment, and have purchased 4 megs from another farmer upstream, but changes in permeant transfer have stopped me from obtaining a licence. Reading section 7, I understand that it means I can only take 3.68 megs. It does not seem very fair that we have to pay for 4 megs when unable to use the full quoter.It seems unfair that you can only obtain 80% when you should be able to use the full 100% as given.	The catchment is considered to be over allocated at present levels. The purpose of the 20% reduction on trade is to reduce the overall allocation to protect and improve security of supply to water users. The 20% reduction will only apply until the nominated cap is reached. Given that all trades are subject to the same conditions the value of the water is not expected to alter significantly and will remain as determined by the market (i.e. buyer and seller).
Richard Anderson VFF	The VFF are supportive of measures which increase the efficiency of use of allocated water within catchments, however has some concerns about the proposal for a 20 per cent reduction in a licensed volume of water where the licence is traded.	The catchment is considered to be over allocated at present levels. The purpose of the 20% reduction on trade is to reduce the overall allocation to protect and improve security of supply to water users. The 20% reduction will only apply until the nominated cap is reached. Given that all trades are subject to the same conditions the value of the water is not expected to alter significantly and will remain as determined by the market (i.e. buyer and seller).
Richard Anderson VFF	The availability of water is integral of a farm business and enterprises have been developed around the security of the entitlement and the decision to trade water will not be taken lightly. Farmers who are relinquishing these rights permanently need to be adequately compensated for the trade.	Given that all trades are subject to the same conditions the value of the water is not expected to alter significantly and will remain as determined by the market (i.e. buyer and seller).
Richard Anderson VFF	The VFF question if the application of the 20 per cent reduction in the volume of a licence upon its trade is an effective way of reducing the 'over allocation' of the water supply protection area. Management of entitlement is already possible through the management of seasonal allocations. It is of concern that the reduction of licensed entitlement physically available, less than that which they paid for, will drive up the price of water in the catchment.	The committee considers the 20% reduction on trading as the fairest way in which to address the over allocation within the catchment. It does not affect existing water users, only those seeking additional water in response to changes in water demands. Seasonal allocations do not apply in unregulated catchments.
Irene Pearey	Is there any incentive for a license holder to surrender their license to the environment? E.g. financial payout from state government. Could this be a recommendation?	There is no incentive at present. The Government has trialled market based instruments to encourage licence holders to surrender their licences. However, a cost benefit analysis suggested there was little benefit for the environment through these projects. Consequently the main method to protect the environment is to raise the restriction and ban trigger levels.
Section 9		
Irene Pearey	Would like MW to read meter on site at least once per year even after installing a smart meter. Could it be less than 12 months?	Melbourne Water already undertake on site meter readings at least once a year and twice a year for winter fill. Additional spot meter readings are taken throughout the year on many licences.
Section 11		
Irene Pearey	Yes but how can this be monitored?	Aesthetic dams will either require a works licence under the Water Act or a Planning Permit from the local Council and thus notification by the applicant will be required. Controls on the size and operation of the dam may be placed through these planning processes.
Irene Pearey	Strongly urge total must not exceed the lesser of a and b. How can this be monitored without metering?	This prescription is designed to ensure that upon sub division the demands for domestic and stock use is not greater than existing demand already occurring on that land. Therefore the term 'must not exceed the greater' is appropriate so as not to reduce existing rights.
Darren Koll	In these cases, I would like to suggest exploring the possibility of enlarging existing on-stream dams, if this can be done in a sustainable way, for example, in return for an irrigator to enlarge an on-stream dam they may have to build a stream bypass/fish way.	On-stream dams present significant management issues and impacts on flows. New on-stream dams or enlargement of on-stream dams is not supported by Melbourne Water. The Plan encourages existing licensed water users to construct their own off-stream storages away from waterways to improve storage and access to water and avoid additional impacts on the waterways.

Section 12		
Darren Koll	To do this I believe diverters should continue to be consulted whenever the stream flow management plan is reviewed.	The plan proposes a review in 5 years time and any amendment will require a review of all information and consultation with all stakeholders. Anyone requiring further information can contact Melbourne Water's Diversions team for assistance.
Section 13		
Christopher Dean	Also on another point I would like to make, there is no incentive to water save. If the government is serious about environmental flow in streams, they should encourage farmers to implement better water management. E.g.: – Re-reimbursing what water is not used during the season, but still being able to obtain the same meg's per year.	Under section 13 the committee has made further recommendations for the Minister to consider around a number of issues including water use efficiency and incentives for off stream storages in the catchment.
Juliet Le Feuvre - Environment Victoria	Environment Victoria notes the committee's comments (p37) on stock and domestic use in the catchment and supports their recommendations. Stock and domestic use has a significant effect on stream flows in the catchment and impacts on both the environment and the reliability of supply for other users. The Stream Flow Management Plan will be limited in its effectiveness while this significant water use remains outside its scope.	Agreed. The committee acknowledges the rights of stock and domestic users but also notes the lack of understanding regarding demand hence the recommendations in section 13.4.
Irene Pearey	Severe draw back is number of restrictions imposed on committee. Support all recommendations listed in section 13. Hopefully message will be conveyed to appropriate body that the issues are important.	The committee have captured other issues that have been discussed during the development of the plan and welcomes support for these important issues relating to water management.
Irene Pearey	Licensed or not these water diversions are no metered so there's no monitoring or control. Delighted to see this was raised in 13.4	Agreed. The committee acknowledges the rights of stock and domestic users but also notes the lack of monitoring or control hence the recommendations in section 13.4.
Irene Pearey	Isn't it time to recommend that the whole issue of domestic and stock usage be reviewed by the State - as a minimum users should observe (by law) a similar rostering arrangement to appendix 1.	Agreed. The committee acknowledges the rights of stock and domestic users but also notes the lack of understanding regarding demand hence the recommendations in section 13.4.

APPENDIX 4
TECHNICAL AUDIT PANEL (TAP) REVIEW OF THE ENVIRONMENTAL FLOW STUDY

OVERVIEW

During April 2008 the independent Technical Audit Panel reviewed the 'Environmental Flow Determination for Woori Yallock Creek' (SKM 2005).

AIM

The main purpose of the review was to answer two fundamental questions

- Was the information and methodology used the best available at the time?
- Has the assessment of risks (to the environment and to security of supply) been properly done?

RESULTS

The review found that the flow recommendations in the final report are creditable and well supported by available evidence.

- The report made some recommendations to improve future environmental flow determination studies.
- A full copy of the report is available upon request from Melbourne Water.

APPENDIX 5
TECHNICAL AUDIT PANEL (TAP) REVIEW OF REALM MODEL AND REPORT

OVERVIEW

During the early part of 2011, the independent Technical Review Panel reviewed the 'Woori Yallock Creek catchment – Review and update of REALM model and scenario modelling (SKM 2009).' Their report is available upon request.

AIM

The aim of their report was to establish if the methodology, data and modelling had utilised the relevant techniques and data collection – more specifically:

- Methodology
  - What methodology was used?
  - Was it appropriate?
  - Was it properly applied?
- Data
  - Have the technical investigations used relevant data?
  - Has the data quality been checked?
  - Have gaps in data been reasonably dealt with?
- Modelling
  - Are natural flows defined?
  - Have future scenarios been accounted for?
  - Has a broad level of analysis been undertaken?

RESULTS

The TAP report concluded that 'overall, SKM carried out a thorough update of REALM-2005 resulting in REALM-2009'. In addition:

- There were a few issues that required clarification and the committee requested that SKM respond to the queries raised.
- The filenote 'Response to Woori Yallock Creek TAP Review Comments (August 2011)' clarifies some of the concerns raised. The issues are minor in terms of the REALM update and will be included for future REALM updates. The filenote was discussed with the committee.
- The TAP report and the responding SKM filenote are available upon request.

APPENDIX 6
TECHNICAL AUDIT PANEL (TAP) REVIEW OF THE SFMP DRAFT PLAN

OVERVIEW

During the early part of 2011, the independent Technical Review Panel reviewed the 'Woori Yallock Creek Stream Flow Management Plan, Draft for Community Consultation, Melbourne Water February 2011' and supporting documents. Their report is available upon request.

AIM

The primary objective was to assess the risks to the environment and to the security of supply resulting from the environmental flow recommendations documented in the draft management plan.

More specifically the TAP were asked to address the following questions:

- Were the environmental flow recommendations used properly to determine environmental flow provisions to balance need of environment and existing users?
- Is the outcome logical and repeatable – evidence documented?
- Have relevant errors and risks been assessed?
- Are recommendations for modelling and monitoring provided?

RESULTS

The TAP report concluded that the Woori Yallock Creek Consultative Committee had relatively good technical background information available to it in preparing the draft SFMP'. In addition:

- There were a few issues that required clarification and the committee requested that these be addressed.
- The main concern was that the draft plan did not contain a specific environmental risk assessment. Melbourne Water engaged Tim Doeg to undertake such an assessment. This report concluded that the additional risk to the environment by adopting the SFMP flows rather than the recommended environmental flows is low. It is not negligible. Rather, the SFMP flows represent an acceptable risk to the environment. The plan achieves the object of an SFMP: *"...share water resources in an equitable manner so as to ensure its long-term sustainability."* The risk is shared between the environment and diverters
- Other concerns raised in the TAP response have been reviewed by the committee and will be used in future SFMPs.
- The TAP report and the responding documents are available upon request.

SCHEDULE 1
LICENCE CONDITIONS

All licences are currently subject to a range of conditions, which will largely remain the same. These conditions are largely generic but can vary between different licence types and purposes. An example set of standard conditions is included in Appendix 2.

Additional licence conditions specific to the Woori Yallock Creek are detailed as follows.

1. Licence to take and use water from a waterway for any purposes: [section 51 (1)(a)].

ROSTERS AND RESTRICTIONS

Wandin Yallock Creek

From the implementation of this Plan for licences located within the Wandin Yallock catchment will have conditions amended as follows:

1.1 The licensee must not take any water from a waterway when the seven-day rolling average stream flow at Seville East gauging station on Wandin Yallock Creek (229681):

a. is 1 ML/day or less, at any time between 1 December and 31 May; or

b. is 10 ML/day or less, at any time between 1 July and 31 October; or

c. is 4 ML/day or less, at any time in the month of June and November.

Woori Yallock Creek (excluding Wandin Yallock)

From the implementation of this Plan for licences located within the Woori Yallock Creek catchment (excluding Wandin Yallock) will have conditions amended as follows:

1.2 The licensee must not take any water from a waterway when the seven-day rolling average stream flow at Yellingbo gauging station on Woori Yallock Creek (229679):

a. is 34 ML/day or less, at any time between 1 December and 31 May; or

b. is 105 ML/day or less, at any time between 1 July and 31 October; or

c. is 50 ML/day or less, at any time in the month of June and November.

1.3. The licensee must not take water, except in accordance with any rostering or other arrangements set out in the Melbourne Water Drought Response Plan for Licensed Water users, when the seven-day rolling average stream flow at Yellingbo gauging station on the Woori Yallock Creek (Site ID 229679) is:

a. is 50 ML/day or less, at any time between 1 December and 31 May; or

b. is 120 ML/day or less, at any time between 1 July and 31 October; or

c. is 85 ML/day or less, at any time in the month of June and November.

Shepherds/Cockatoo and McCrae Catchments

For years 1-3 of the Plan licence holders on the Shepherds/ Cockatoo and McCrae Catchments will have the same roster and restriction conditions as per sections 1.2 and 1.3 above. From the beginning of year four, rosters and restrictions will be implemented based on flows recorded at the respective gauging stations located on the Shepherds / Cockatoo and McCrae Creek catchments. The following conditions will replace sections 1.2 and 1.3 within these catchments:

1.4 The licensee must not take water from a waterway when the seven-day rolling average stream flow at the Yellingbo gauging station on McCrae Creek (229678):

a. is 8 ML/day or less, at any time between 1 December and 31 May; or

b. is 13 ML/day or less, at any time between 1 July and 31 October; or

c. is 12 ML/day or less, at any time in the month of June and November.

1.5 The licensee must not take water from a waterway except in accordance with any rostering or other arrangements set out in the Melbourne Water Drought Response Plan for Licensed Water users, when the seven-day rolling average stream flow at Yellingbo gauging station on the McCrae Creek (229678) is:

a. is 12 ML/day or less, at any time between 1 December and 31 May; or

b. is 20 ML/day or less, at any time between 1 July and 31 October; or

c. is 17 ML/day or less, at any time in the month of June and November

1.6 The licensee must not take water from a waterway when the combined seven-day rolling average stream flow at Nangana gauging station on Shepherd Creek (229677) and Nangana gauging station on Cockatoo Creek (229248):

a. is 20 ML/day or less, at any time between 1 December and 31 May; or

b. is 33 ML/day or less, at any time between 1 July and 31 October; or

c. is 30 ML/day or less, at any time in the month of June and November.

1.7 The licensee must not take water from a waterway except in accordance with any rostering or other arrangements set out in the Melbourne Water Drought Response Plan for Licensed Water users, when the combined seven-day rolling average stream flow at Nangana gauging station on Shepherd Creek (229677) and Nangana gauging station on Cockatoo Creek (229248):

a. is 30 ML/day or less, at any time between 1 December and 31 May; or

b. is 50 ML/day or less, at any time between 1 July and 31 October; or

c. is 40 ML/day or less, at any time in the month of June and November.

All licences within the Plan area will contain the following condition:

1.8 The Licensee must comply with any roster or restriction prepared and implemented by Melbourne Water as set out in the Melbourne Water Drought Response Plan for Licensed Water Users.

1.9 The Licensee must in order to determine their entitlement to take water from a waterway, check the restriction or ban status within their catchment, before taking water under their licence, either by calling 131 722 or at the website www.melbournewater.com.au/diverters.

TAKE VOLUME AND RATE

2. The take volume and rate condition will be amended on all licences so that the maximum volume that may be taken in any one day is no greater than two per cent of the annual volume.

TAKE PERIOD

3. The take period for a licence will be covered in the licence details. The period for dam-filling will be **1 July to 30 November**. Current winterfill licences will have their condition amended.

GLOSSARY AND TERMS

Act *Water Act 1989 (Vic)*

Aesthetic dams Dams built for visual appeal, which are not used for any other purpose.

Allocation The volume of water licensed for extraction from a **waterway**.

Allocation cap The maximum combined volume of all licences permitted in the catchment.

All-year licence A licence that allows harvesting of water from a waterway or dam any time during the year up to the licensed volume.

All-year licence condition Condition on a licence that allows harvesting of water from a **waterway** or dam any time during the year up to the licensed volume.

Ban level The volume of flow in a **waterway** that, when reached, licence holders must cease extracting or collecting water. Usually measured at a gauging point along the **waterway** and equivalent to the **minimum environmental flow**.

Baseflow The component of river flow that is derived from groundwater sources rather than surface run-off.

Bank-full flow A stream flow that fills the main channel of the **waterway** without over-topping into the floodplain.

Catchment dam A dam that is not located on a waterway, and which captures rainfall and runoff (overland flow) from the catchment. May also be filled by an extraction from a **waterway** (i.e. **an off-stream dam**).

Commercial use licence A licence granted for non-irrigation **commercial uses**, such as bottling or dairy washing.

Current level of development The demands for water that are being seen at present in a catchment and are based on the current level of development, i.e. the current types and licensed volume of water use, such as the current number of small catchment dams harvesting water, the current area of irrigated crops or the current types of crops being irrigated. These demands are generated using historic climate data.

Dam-filling licence A licence to fill an on- or off-stream dam during the **dam-filling period**. The licence is limited to the volume of the storage. Previously known as a winter-fill licence.

Dam-filling period Occurs in the months from July to November. These are the wetter months of the year when flows are consistently high enough to allow additional water to be harvested over and above extraction by all-year licence holders and environmental flows. See **high flow period**.

Dam-filling licence condition A condition placed on a water **diversion licence** to take water from a **waterway** during a prescribed **dam-filling period** (July to November), store it in a dam and use it for later **irrigation** or other **commercial use**.

Direct licence condition A condition on a **diversion licence** which allows extraction of water from a **waterway** via pumping directly onto crops or for stock and domestic or commercial use.

Diversion licence See **take and use diversion licence.**

Diverter See **Licensed water user**.

Domestic and stock licence (D&S) A licence issued under section 51(1)(a) of the Act to take and use water in, and around, a house or for watering of stock, but not for commercial purposes.

Dozer licences Dozer licences are used sporadically (often during very dry years when rainfall is insufficient to maintain rain-fed plantings).

Environmental flow A pattern of stream flows that maintains or improves aquatic ecosystems and their habitats by mimicking the size and timing of natural flows. The pattern may include a **minimum environmental flow, freshes, bank-full** and **over-bank flows**.

Farm dam licence This licence allows a person to take water from **catchment dams** that were historically utilised for **irrigation**. The difference between these licences and **farm dam registrations** is that farm dam licences can be traded and incur annual fees. Farm dam licences cannot be converted to farm dam registrations.

Farm dam registration This covers **catchment dams** that were historically utilised for **irrigation** or **commercial** purposes prior to the Water (Irrigation Farm Dams) Act 2002. They are granted in perpetuity and transfer with the property. Farm dam registrations can be converted into farm dam licences.

Flow regime The range of flows throughout the year which may include cease to flow events, low flows, freshes, high flows, bankfull and over bank events

Flow statistics

Average (or mean): the sum of flow observations over a given time period divided by the number of those observations.

Median: The middle number in a set of numbers arranged in ascending order. In the context of flow, it represents the mid-point at which half of flows are less than this volume, and half are greater.

20th percentile: The flow below which 20 percent of observations are found. This is represented by the error bars below the median line in the flow graphs.

80th percentile: The flow below which 80 percent of observations are found. This is represented by the error bars above the median line in the flow graphs.

Fresh An increase in stream flow which would generally follow a small to medium rainfall event. Freshes may be specified for the **low-flow (summer) period** or the **winter-fill period**. Can be defined as the flow above the natural **median** flow. These peaks partially fill the river or creek channel for a number of days. They 'freshen' the river or creek by providing water to flush the system and rejuvenate the aquatic life.

Full level of development The demands for water that will be seen when the catchment's water resources are being used at the limit established in a bulk entitlement (for regulated systems) or at licensed volume for private diverters.

High-flow period (winter-fill period) The period excluding the **low-flow** or **summer period**. Occurs in the months from July to November. Now known as 'dam-filling period'.

Historic level of development The demands for water that have occurred over time in a catchment. Changes in the level of demand occur as different crops may be planted that have different water requirements, new areas may become irrigated or additional licences are added.

Industrial use licence A licence granted for non-irrigation **industrial uses**, such as cooling or industrial production.

Instantaneous flow The flow measured at a particular point in time.

Irrigation use licence A licence granted for this purpose can be used for any irrigation as well as for any domestic and stock and other general non-irrigation farm use on the nominated property. Granted under Section 51 of the Act.

Licensed water user Any person holding a current water use licence of any type.

Low-flow period (summer period) The period excluding the **high-flow** or **dam-filling period**. Occurs in the months from December to June.

Macroinvertebrate Animal species without a backbone that can be seen with the naked eye. Macroinvertebrate abundance and variety are commonly used as a measure of stream health.

Maximum daily extraction rate Term associated with the **Sustainable Diversion Limits** project, meaning the maximum total volume of water that can be taken in any day by all licence holders combined or individually.

Megalitre or ML One million litres, a measure of volume.

Melbourne Water Melbourne Water Corporation

Minimum environmental flow This flow may be specified for a particular period i.e. **dam-filling period**, and is the flow below which licence holders must cease extracting or collecting water. Will be the same flow as the **ban level**.

Minimum flow threshold Term associated with the Sustainable Diversion Limits project, meaning the minimum environmental flow for the period July to October.

Minister Minister for Water, who administers the *Water Act 1989 (Vic)*

ML Megalitre, or one million litres. Very commonly expressed as 'ML/d' which is an abbreviation for **megalitres** per day, a measure of flow.

Natural flow The flow that would exist if there was no harvesting of water by dams or direct extraction. Natural flows are estimated by adding an approximation of the water taken out of the catchment back onto the flows that are recorded at a stream gauge.

Non-consumptive use Water can be used for a non-consumptive purpose and returned to the **waterway**, such as for power generation or aquiculture.

Off-stream dam A storage which is not located on a **waterway** as determined under the *Act* definition, but is filled with water pumped or diverted from a waterway. Usually associated with **dam-filling licences** and are therefore filled during the **dam-filling period** for use during any time of the year. An off-stream dam may also be a **catchment dam**.

On-stream dam A storage that is located on and filled by a **waterway** as determined under the *Act*. On-stream dams can be associated with **dam-filling licences** that are filled during the **dam-filling period** subject to bans and restrictions for use during any time of the year. On-stream dams associated with **all year licences**, can harvest water all year subject to bans and restrictions. For all licences, water must be passed downstream of the dam at all times that natural flow is occurring.

Over-bank flows A stream flow that fills the channel of the **waterway** and spills out into the floodplain.

Permissible Consumptive Volume (PCV) Declared by the Minister as the total volume of water, which may be allocated within a **Water Supply Protection Area** in any period of time. It is the equivalent of a 'cap'.

Private right to water Some properties have rights to domestic & stock water without need of a licence. Section 8(1) of the *Act* provides that a person has the right to take water, free of charge, for that person's domestic and stock use from a **waterway** to which that person has access –

a) by a public road or public reserve; or

b) because that person occupies the land on which the water flows or occurs; or

c) in the case of a waterway, because that person occupies land adjacent to it and the bed and the banks have remained the property of the Crown.

Private dams The Act (section 3) defines a **private dam** as:

*"anything in which by means of an excavation, a bank, a barrier or other works water is collected, stored or concentrated but **does not** include —*

e) anything owned or operated by a public statutory body; or

f) any works of an Authority or a licensee; or

g) a channel, drain or pipe; or

h) a bore."

Protection Area Abbreviation for **Water Supply Protection Area (WSPA)**.

REALM Model REsource ALlocation Model - A computer model used to simulate stream flow throughout a **waterway**. Parameters used in this model include estimated dam impact, evaporation, rainfall, runoff, seepage, licensed water use.

Regulated stream A stream which has a major dam for the purpose of storing and releasing water for downstream agricultural or domestic and stock use, or for storing and releasing through a domestic water supply system.

Reliability of supply The likelihood of being able to extract the full volume of all **diversion licences** in a catchment for any particular year. Also can refer to an individual licence holder's ability to extract the full volume of their licence for any year. Usually measured in number of days of 'normal' supply (i.e. days not on ban).

Restriction trigger A flow level, above the ban level, that when reached, licence holders will be restricted to a lesser volume of water per day or a shorter pumping period.

Rolling average flow The average daily flow calculated over a number of consecutive days.

Section 8 right See **private right to water**

SEPP State Environment Protection Policy. Environment Protection Authority document that sets minimum water quality standards.

Shortfall When the total **allocation** in any year can not be provided.

Shortfall volume The volume of total **allocation** in any year that cannot be provided.

Sleeper licence Sleeper licences are inactive licences that have not been used (when diversions or extractions were permitted).

SFMP Stream flow management Plan

Summer licence condition See **All-year licence condition**

Summer period See **Low-flow period**

Sustainable Diversion Limit (SDL) A catchment **allocation limit** for the period July to October as determined by the Victorian Sustainable Diversion Limits project. The SDL also has a **maximum daily extraction rate, reliability of supply** and a **minimum flow threshold** associated with the volume. The **allocation limit** represents an upper limit on diversions beyond which there is an unacceptable risk that additional extractions will degrade the environment.

Take and use diversion licence This licence allows the licensee to take and use water from a **waterway** or dam up to the volume and for the purpose (usually **irrigation** or **industrial or stock and domestic**) specified in the licence. Issued under section 51 of Act.

Take period all year licences The phrase used in the Water Register to define the period that all year licences can take water. See all year licence condition.

Take period for dam filling The phrase used in the Water Register to define the period that dam filling licences can take water. See High-flow period (dam-filling period).

TEDI model Tool for Estimating Dam Impacts - used to estimate the impact of farm dams on stream flow, using parameters such as the estimated dam volume, evaporation, rainfall and runoff.

The Committee Woori Yallock Creek Stream Flow Management Plan Consultative Committee

The Plan Woori Yallock Creek Stream Flow Management Plan

Transferable water entitlement The temporary or permanent transfer of an existing licence to a new licensee, either in whole or in part. Temporary is on an annual basis from July 1 to June 30 in any given year.

Unregulated stream A stream which does not have a major dam for the purpose of storing and releasing water for downstream agricultural or domestic and stock use. The streams in the Woori Yallock Creek system are unregulated streams.

Water allocation Is the amount of water that can be used under an entitlement to water each year.

Water entitlement Is the maximum amount of water authorised to be taken and used by a person under specific conditions/specifications.

Water Register The Water Register is a public register of all water-related entitlements in Victoria. It records water entitlements, enables water accounting, keeps track of the water market and produces crucial information for managing Victoria's water resources. Melbourne Water licences have been recorded on the register since September 2009.

Waterway As defined in section 3 of the *Act*.

"Waterway" means -

a) a river, creek, stream or watercourse; or

b) a natural channel in which water regularly flows, whether or not the flow is continuous; or

c) a channel formed wholly or partly by the alteration or relocation of a waterway as described in paragraph (a) or (b); or

d) a lake, lagoon, swamp or marsh, being -

   i) a natural collection of water (other than water collected and contained in a private dam or a natural depression on private land) into or through or out of which a current that forms the whole or part of the flow of a river, creek, stream or watercourse passes, whether or not the flow is continuous; or

   ii) a collection of water (other than water collected and contained in a private dam or a natural depression on private land) that the Governor in Council declares under section 4(1) to be a lake, lagoon, swamp or marsh; or

e) land on which, as a result of works constructed on a waterway as described in paragraph (a), (b) or (c), water collects regularly, whether or not the collection is continuous; or

f) land which is regularly covered by water from a waterway as described in paragraph (a), (b), (c), (d) or (e) but does not include any artificial channel or work which diverts water away from such a waterway; or

g) if any land described in paragraph (f) forms part of a slope rising from the waterway to a definite lip, the land up to that lip;

Water Supply Protection Area (WSPA) An area declared by the Minister for Water which is set aside for the preparation of a management plan for the water resources. The Water Supply Protection Area may cover groundwater, surface water or both resources.

Winter-fill period Now known as the **dam-filling period**.

Yarra River Drought Response Plan Plan implemented by Melbourne Water to manage water use licences in the entire Yarra River basin, includes restriction and ban levels. Rules in a Stream Flow Management Plan will supersede the Drought Response Plan in that particular catchment.

Melbourne Water
990 LaTrobe Street,
Docklands, Victoria 3008
PO Box 4342 Melbourne VIC 3001
Telephone 131 722
melbournewater.com.au

Designed and produced by Equest Design.

Melbourne Water