

Water Act 1989

Plenty River

Water Supply Protection Area

Stream Flow Management Plan 2007



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Preface

Throughout Victoria stream flow management plans are being prepared to better manage the surface water resources of particular catchments. The plans are prepared for the benefit of water users and the general community and they aim to improve the environmental health of waterways in these catchments.

The advisory committee, consisting of the following people, have developed this Plan following extensive discussions and consideration of technical work and in response to public submissions.

Mr David Leighton	Diversion Licence Holder
Mr Charles Castle	Diversion Licence Holder
Mr Peter Rutley	Diversion Licence Holder
Mr Gordon Taylor	Victorian Farmers Federation
Ms Susanna Finger	Environment Protection Authority
Ms Sue Phillips	Environment Victoria
Mr Ian Morgans	Port Phillip and Westernport CMA
Ms Felicity Ayres	Whittlesea City Council
Mr Mick Holmes	Banyule City Council
Ms Nerilee Kerslake	Nillumbik Shire Council
Mr Paul Bennett	Department of Sustainability and Environment
Mr Peter Rankin	Melbourne Water

Past members of the advisory committee

Mr Steve Nicol	Melbourne Water
Mr Martin Hartigan	Port Phillip and Westernport CMA
Mr Paulo Lay	Department of Sustainability and Environment
Mr Alec Whittaker	Diversion Licence Holder
Ms Lisa McLeod	Environment Protection Authority
Mr Jonathon Miller	Nillumbik Shire Council
Ms Narelle Leipa	City of Banyule
Mr Adam Muir	DSE (Flora and Fauna)

The Minister administering the Water Act 1989 subsequently approved the draft plan.

The *Water Act* 1989 was amended on 4 April 2002 to allow Stream Flow Management Plans that were under development prior to the amendment to be given a legislative basis. With the approval of this Plan the Plenty River catchment was deemed to be a Water Supply Protection Area under the *Water Act* 1989.

This Plan is prepared in two parts. The first part is the explanatory memorandum which provides the background for the development of the Plan and explains the reasons why the various rules were adopted. The second part is the Plan itself, which is written in a more legalistic way in line with the requirements of the *Water Act* 1989.

Throughout the Plan the agreements reached by the Committee through consensus have been listed. In addition to this there are some specific issues where consensus was unable to be reached. A response to the Committee recommendation has been provided where there were different views.

Plenty River Stream Flow Management Plan Executive Summary

This stream flow management plan has been developed through the efforts of an advisory committee consisting of three licensed diverter representatives, a Victorian Farmers Federation representative, an Environment Victoria representative, a representative from each of the City of Whittlesea, Banyule City Council and Nillumbik Shire Council and representatives from EPA Victoria, Department of Sustainability and Environment, Port Phillip and Westernport Catchment Management Authority and Melbourne Water.

This Plan recognises that water in our streams needs to be managed in a sustainable manner. The stream flow management plan aims to establish a framework to equitably share water between all consumptive users while also providing for the needs of the environment.

The stream flow management plan applies to all water use in the Plenty River system including its tributaries. The main tributaries of Plenty River are Barbers Creek, Scrubby Creek, Plenty River East and West (Crystal Creek) Branches and Bruces Creek which join at Whittlesea to form the Plenty River.

The development of the stream flow management plan began in March 2001 and took considerable time, effort and resources from all advisory committee members. Every effort was made in the development of the stream flow management plan to produce workable solutions which try to address the extremely complex problems arising from competing interests.

Issues were discussed at length by the different groups represented with the aim of a stream flow management plan which might take into account the wide range of interests. Dissenting views were put forward by some committee members on some outcomes of the plan.

A stream flow management plan was developed for the Plenty River system because the State environmental protection policy (Waters of Victoria) Schedule F7. Waters of the Yarra Catchment 1999, requires that such a plan be developed for streams within the Yarra Basin to ensure that water resources are managed to protect beneficial uses. The Plenty River has also been viewed as a priority stream due to the low reliability of supply to licensed water users, high level of water use and environmental concerns.

Water is harvested annually by Melbourne Water, through the Toorourrong and Yan Yean Reservoirs (7000 ML) for urban supply, by allocations to private licensed water users (669 ML) and by farm dams which have a combined volume estimated to be 3500 ML. Water remaining after harvesting is available for the environment.

The committee recognise that there are limitations in the current Victorian water allocation framework with respect to the ability of stream flow management plans to address water use covered under bulk water entitlements held by water authorities. It is with this in mind that the committee formulated the rules of this plan in a way that recognised that the major water use within the catchment (urban supply from the Toorourrong/Yan Yean Reservoir systems) could not be changed. In formulating this plan the committee recognise that the recommendations will not go all the way in addressing the water needs of the Plenty River system and its agricultural water users.

A fundamental recommendation of this stream flow management plan is the capping of allocations from the Plenty River system for winter-fill and all-year licences at the existing level of commitment. The major implication of this capping is that water for future development within the Plenty River Water Supply Protection Area will need to be obtained through water entitlement transfers.

This is consistent with the Government policy to cap further allocation for private water users from the entire Yarra catchment, which was presented in the White Paper "Securing Our Water Future Together", published June 2004.

The stream flow management plan also recommends a number of flow provisions to improve the environmental condition of the Plenty River. This includes minimum flows at which harvesting from the waterway must cease and an investigation into provision of flushing flows from Toorourrong Reservoir by Melbourne Water, to improve water quality and encourage fish spawning and migration.

In addition to the rules of the plan, the advisory committee recommend that the findings from its development be considered in the process to formalise the bulk entitlement for the Yarra system (including the Plenty River).

Glossary and Acronyms

All-year licence An annual diversion licence entitlement, which can be taken at any time of the year subject to rostering and restriction rules either by pumping from a waterway (direct), or collecting water in a dam.

Bulk Entitlement An entitlement under the Water Act, usually relating to urban water supply or irrigation districts, held by a water authority for collecting a defined volume of water from a catchment or waterway. A bulk entitlement will have environmental flow requirements specified. A bulk entitlement generally recognises historical use and access to water.

Catchment Dam/Farm Dam A dam which is filled from rainfall/ runoff or from a spring or soak, and which is not filled by pumping water from a waterway.

Commercial Use Water used for general commercial purposes not covered by general irrigation eg. for industrial uses such as cooling, aquaculture and dairy washing, piggeries, feed lots and poultry.

Crown Frontage A section of land adjacent to a waterway set aside for the conservation of natural values and public access by the Government in 1881.

DSE Department of Sustainability and Environment.

Domestic and Stock Use The use of water for the following: household purposes; watering of animals kept as pets; watering of cattle or other stock; watering of an area not exceeding 1.2 Ha for fire prevention purposes, or irrigation of a kitchen (household) garden.

Environmental Flow A flow regime aimed at maintaining or improving environmental values associated with aquatic ecosystems.

Ephemeral A term applied to waterways that dry up or cease to flow seasonally.

Flow regime The range of flows throughout the year which may include low flows, flood events, high flows and cessation of flow.

Harvested Water taken from the catchment or waterway for later use.

Instantaneous Flow The rate of flow at a given location at a given point in time.

Inactive licence Licences to take and use water from a waterway for which a licence fee is paid but water is not used. The potential exists to reactivate the entitlement into a fully active licence.

Maximum Daily Volume Is the maximum daily volume expressed in ML and stipulated on a licence.

ML Megalitre is one million litres of water, equivalent to the water in an Olympic sized swimming pool.

ML/d Megalitres per day.

Natural flow Estimated flow which would have occurred with current land use conditions if no water was harvested from the catchment or waterways by any use.



Off-stream dam A storage which is not located on a waterway, but is filled with water primarily pumped from a waterway.

On-stream dam A storage that is located on a waterway.

Perennial A term applied to a waterway which rarely stops flowing.

Permissible Consumptive Volume Means the volume specified by the Minister under Section 22 of the *Water Act 1989*. The PCV places a limit on the volume of water that can be harvested in any year.

Reliability of Supply Is the probability of being able to obtain a specified extraction rate and volume of water. This is largely determined by the physical availability of water in the stream and rules under which the water can be accessed.

Section 8 Right A person has the right to take water, free of charge, for that person's domestic and stock use from a waterway or bore because that person occupies land adjacent to it; or because that person occupies the land on which the water flows or occurs;

Shortfall A shortfall occurs when the full allocation of water can not be supplied.

Stream A waterway.

Unregulated Waterways which do not have a major storage, which is used to store and release water for downstream users.

Water supply protection area The entire Plenty River catchment will be declared a water supply protection area on the approval of this Plan. This will enable the formalisation of the Plan under the *Water Act 1989*. Water use within the entire water supply protection area will be subject to the rules of the stream flow management plan.

Waterway The *Water Act 1989* defines what a waterway is and it includes a river, creek, stream, watercourse and natural channel where water regularly flows, whether or not that flow is continuous.

Winter-fill licences Licences permit the filling of storages during the prescribed winter-fill months, June to November inclusive. No limit is placed on the area that may be irrigated or the period of water use from the storage.

Explanatory Memorandum

1 Background

1.1 What is a Stream Flow Management Plan?

The objective of a stream flow management plan (SFMP) is to manage the water resources of the relevant area in an equitable manner so as to ensure the long-term sustainability of those resources. It is developed by a committee, which represents all the relevant interests in the area.

An SFMP considers the amount of water in a water supply protection area (usually an entire catchment) and prescribes how it will be shared between water users and the environment. It aims to recognise the needs of existing and future water users whilst maintaining waterway health by protecting environmental flows for the environment. Providing sufficient environmental flows to maintain river health is a key component of ensuring the long-term sustainability of the water resource.

In preparing a plan, community involvement is necessary to ensure that community needs and aspirations are fully understood and that essential background knowledge is considered.

1.2 Framework for the development of Stream Flow Management Plans

In Victoria there are two main components of the water resource management process, the bulk entitlement process and the stream flow management plan process. The Bulk Entitlement process converts historical use of water to a legal right to water under the *Water Act* 1989 and provides passing flows for the environment and other users.

Water harvested by water authorities under bulk entitlements is usually harvested for either urban use or for rural customers as a regulated supply of water for irrigation, dam filling or domestic and stock purposes. The Plenty River is being considered under the Yarra System Bulk Entitlement which is yet to be finalised.

Until recently the environment was not formally considered during water allocation planning, and thus water allocations were often made without consideration of environmental impacts. The Council of Australian Government's (COAG) water reform, established national principles for the provision of water for the environment in 1996. The state government's White Paper, *Securing Our Water Future Together* confirms the commitment to providing water for the environment.

1.3 Stream Flow Management Plans in the Yarra River Basin

This stream flow management plan has been prepared as part of Melbourne Water's program for managing priority catchments throughout the Yarra River basin. This program will see new SFMPs developed for other priority tributary catchments in the basin, and existing plans reviewed when required.

State environment protection policy (Waters of Victoria) Schedule F7.

Waters of the Yarra Catchment

requires that stream flow management

plans be developed in order to help manage water resources to protect beneficial uses. The Yarra Catchment Action Plan, 1999, and the draft Port Phillip and Westernport Regional River Health Strategy 2004 further support the recommendation of the development of stream flow management plans for priority streams including the Plenty River.



2 Development of the Plenty River SFMP

2.1 How was this Stream Flow Management Plan developed?

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

Water in the Plenty River Water Supply Protection Area is shared between:

- > Melbourne Water – who harvest water from the East Plenty River, in Toorourrong Reservoir.
- > Private landholders – who harvest water throughout the Protection area to supply irrigation, domestic and stock and dam filling requirements.
- > Environment – which includes the fish, platypus, aquatic bugs, streamside vegetation, the river and its tributaries.

The advisory committee recognised that there are limitations in the current Victorian water allocation framework with respect to the ability of stream flow management plans to address water use covered under bulk water entitlements held by water authorities. It is with this in mind that the committee formulated the rules of this plan in a way that recognised that the major water use within the catchment (urban supply from the Toorourrong/Yan Yean Reservoir systems) could not be changed. In formulating this plan the committee recognise that the recommendations will not go all the way in addressing the water needs of the environment and the agricultural water users.

In addition to the rules of the plan, the advisory committee recommend that the findings from its development be considered in the process to formalise the bulk entitlement for the Yarra system (including the Plenty River).

2.2 Consultation during the development of the SFMP

The development of the Plenty River Stream Flow Management Plan (the Plan) involved significant consultation to ensure that the rules are relevant to local stakeholders and conditions. Stakeholders have been informed and involved during the development of the Plan through the following activities and communication.

- > Water user survey and property visit.
- > Advisory committee membership – including local water users, relevant authorities, interest groups. Advisory committee meetings.
- > Letters to licensed water users – describing the process and encouraging involvement.
- > Development of a newsletter.
- > Media releases and public notices.
- > An open day information session (during consultation phase) with invitations to water users and other key stakeholders, as well as the broader community.
- > A rural mail run.

These recommendations were published in a draft plan in December 2003 for consideration of water users and the broader community. The initial consultation phase was extended to ensure that rural landholders, in particular, were aware of the plan. The advisory committee amended the plan based on the submissions received.

A total of 15 submissions were received. The advisory committee considered the issues raised in the submissions and amended the plan accordingly. A summary of the committee's response to the submissions is provided in Appendix 1.

The advisory committee released the Plan for public viewing for one month prior to forwarding it to the Minister administering the Water Act 1989.



3 The Plenty River Catchment

3.1 Catchment Description

The Plenty River is ephemeral and ceases to flow regularly for a number of months over summer. Historically the river may have flowed almost continuously. The impact of harvesting water by Melbourne Water combined with water allocations to licensed water users and collecting water in farm dams means that the system is unable to meet all users needs at all times.

The flow regime of the Plenty River has undergone significant change which may have resulted in the changes to the aquatic flora and fauna within the Plenty system.

The Plenty River rises from the slopes of Mount Disappointment in the Great Dividing Range approximately 50 kilometres north of Melbourne. The Plenty River Water Supply Protection Area, incorporates the whole of the Plenty River catchment and is approximately 351 square kilometres in area. Water is also diverted to the Plenty River from the King Parrot Creek catchment (Silver and Wallaby Creeks) over the dividing ridge and into Toorourrong Reservoir. The Plenty River Water Supply Protection Area is shown in Schedule 1.

The river flows generally north-south with the protection area extending from the Great Dividing Range north of Whittlesea to the junction with the Yarra River at View Bank/Lower Plenty. The main sub catchments of Plenty River are Scrubby Creek, Plenty River East and West (Crystal Creek) Branches and Bruces Creek which join at Whittlesea to form the Plenty River. The other major tributary is Barbers Creek, which enters Plenty River about nine kilometres downstream of Whittlesea.

Two water supply reservoirs within the protection area have significantly altered the natural flow. The largest of these is Yan Yean Reservoir, an off stream storage, upstream of Mernda and Toorourrong Reservoir in the upper catchment. Yan Yean Reservoir is connected to Toorourrong Reservoir via the Clear Water Aqueduct.

Upstream of the rural areas, the river runs through State Forest and the catchment of Toorourrong Reservoir is closed. The rural reaches of the Plenty River system extend from the State Forest area downstream to approximately Mernda.

Downstream of Mernda the adjoining land use is a combination of rural and urban, with extensive urban development proposed. The other dominant land use in this reach is public open space with Plenty Gorge Park straddling the River for approximately nine kilometres. The River downstream of Plenty Gorge Park flows through the predominantly developed urban areas of Greensborough, Montmorency and Lower Plenty until its confluence with the Yarra River.

3.2 Environmental Values

The Plenty River has been identified as an important wildlife corridor linking the Kinglake National Park, via the closed catchment of Yan Yean Reservoir, to the Yarra River. Platypus has been recorded in Plenty River upstream of Greensborough and in the lower reaches close to the confluence with the Yarra River.

The environmental condition or health of a stream is a product of many factors. Land use within the protection 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 within the scope of the stream flow management plans is the flow regime. While Stream flow management plans recognise other issues and make recommendations where relevant and necessary they do not specifically deal with these other issues.

The flow regime is the range of flows that occur within the waterway over all seasons. The flow components may include high flows such as floods, very low flows and zero flow events and medium freshening flows that follow periods of dry weather. All components of the flow regime are important to stream health, with local flora and fauna having adapted to and become reliant on particular flow components.

Instream habitat values along the Plenty River and its tributaries vary markedly. The Plenty River Gorge provides high value habitat for aquatic flora and fauna. A number of deep pools which are significant for fish species such as the river blackfish occur in this reach of the stream. Intact streamside vegetation and the presence of rocks and boulders also add to the habitat values.

Around Mernda and Whittlesea the Plenty River is largely devoid of native streamside vegetation. Willow trees choke the stream in some sections, while abundant growth of Cumbungi and the Common reed occurs in other sections where lack of flow and excessive light penetration provide ideal conditions for growth of these plants.

With the aid of Melbourne Water a number of landholders are actively rehabilitating sections of the streamside through the Stream Frontage Program. Willow removal and the replanting of indigenous (locally native) vegetation will help to increase environmental values in the middle reaches of the river system.

The upper sections of the tributary streams around Toorourrong Reservoir contain some areas of intact vegetation, which are significant for flora and fauna. In the lowest sections of the River through Greensborough, urban stormwater runoff and other associated impacts of urban development have reduced water quality over time, but may have aided stream flow.

4 Water Usage and Management

4.1 Urban water supply

The Bulk Entitlement for the Yarra River system, including Toorourrong and Yan Yean Reservoirs, is currently being finalised. Melbourne Water collects approximately 7,000 ML per year from the East Plenty River. Additional water is collected in Toorourrong Reservoir from an inter-basin transfer from the Goulburn River tributaries of Wallaby and Silver Creeks. A passing flow of 0.2ML/d had been allocated to the Plenty River below Toorourrong Reservoir. This may be revised during the finalisation of the Yarra System Bulk Entitlement.

Yarra Valley Water is the retail water company for the Plenty River catchment. It is responsible for urban water supply to households and for treatment of sewerage in local sewerage treatment plants. Melbourne Water is the water resource manager for the region and provides water to the retailer and treats most of Melbourne's sewerage through bulk water supply and sewerage agreements.

4.2 Licensed water allocations

Licences are required to take and use water from a waterway for irrigation and commercial purposes and in some instances for domestic and stock use. Melbourne Water has the delegated responsibility under the *Water Act 1989* to issue and manage licences for most of the Plenty River catchment. Southern Rural Water has the delegated responsibility to issue and manage licences in a small part of the upper reaches of the system.

Licences within the Plenty River Protection area may have conditions that allow:

- > pumping from a waterway (direct) or collecting water in a dam, any month of the year for irrigation, domestic, stock and commercial use (**all-year licence**)
- > pumping from a waterway to fill off-stream dams, collecting water in a dam¹, or collecting water in an on-stream dam, during a winter-fill period (**winter-fill licence**)

All-year irrigation licences are normally issued with a maximum area of irrigation and an annual volume, as they have not historically been metered. No new all-year licences have been issued in the Plenty River Protection area or state wide, since a government policy released in 1968, recognised the lack of water to meet demands over the summer period. The Victorian River Health Strategy, 2003, reconfirms this as government policy.

Winter-fill licences are issued for the purposes of filling dams by pumping from the waterway during the high-flow period. Water stored in these dams can be used at any time of the year, which provides a higher reliability of supply.

Amendments to the *Water Act 1989* enabled a person to obtain a registration licence for water taken from a spring, soak or dam that was used for irrigation or commercial purposes in any year within a 10-year period prior to 4 April 2002. Existing unlicensed dams could be registered up until 30 June 2003 (no fee)², or licensed until 30 June 2004 (fee payable).

A registration licence for an existing dam is perpetually free, there are no annual charges. Farmers who registered their water use cannot transfer the water off their property. However a registration licence can be converted to a standard all-year licence at any time. A standard all-year licence for an existing unlicensed dam incurs annual charges but there is no initial application fee. Standard licences can be transferred.

Farm dams which were licensed or registered are permitted to take water in any month of the year (all-year licence) in recognition of their operation prior to the changes to legislation. Restrictions and bans do not apply to farm dams licensed or registered prior to 30 June 2003, or licensed prior to 30 June 2004. New farm dams will be required to be constructed to enable them to comply with licence conditions and restrictions.

¹ New dams constructed after April 2002.

² The option to register an existing farm dam closed on 30 June 2003. Failure to licence farm dams before 30 June 2004 may lead to prosecution if commercial or irrigation use from the dam continues.

Melbourne Water and Southern Rural Water have now completed the registration process for the Plenty River. One farm dam licence (10 ML) and twenty-one farm dam registrations (totalling 244.4 ML) were issued.

Table 1 shows the distribution of licence types and the volume of water allocated in the Plenty River Water Supply Protection Area.

	Irrigation (all-year)	Off-stream Dam (winter-fill)	On-stream Dam (winter-fill)	Domestic & stock, Domestic & stock & commercial (all-year)	Farm Dam licences	Farm Dam registrations	Total
Total Volume (ML yr)	55.4	353		6.2	10	244.4	669
Number of licences	7	9		3	1	21	41

There is currently 596 ML allocated to private water users in the Plenty River system managed by Melbourne Water. A small group of licensed water users (total allocated volume 73 ML) from the upper reaches of the system are managed by Southern Rural Water.

There are nine winter-fill licences, with a total annual allocation of 353 ML. In total there are 41 licensed water users in the Plenty River Catchment, with a total annual allocation of 669 ML. The 55.4 ML per annum allocated for all-year irrigation licences is rarely available during the low-flow period due to the ephemeral nature of the system.

4.3 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 a farm dam without a licence provided the water is not used for any irrigation or commercial purpose, for example, a farm dam used for aesthetic, stock or domestic purposes. The collection of reuse water, within allowable volumes, and the collection of rainwater from a roof, are also exempt from any licensing requirements.

4.4 Management arrangements prior to the approval of the Plan

Historically, licence conditions have specified a maximum daily rate of diversion, an annual volume and for irrigation use, an area limitation (if not metered).

During periods of low-flow within the Yarra River Basin, licences are managed in accordance with the Yarra Drought Response Plan for private water use, unless a stream flow management plan is in place.

Melbourne Water has not issued all-year licences for many years, except for stock and domestic purposes or under a transfer arrangement. New winter-fill licences have been available and assessed on a case by case basis.

Yarra Valley Water are responsible for a number of localised sewerage treatment plants through its area of responsibility. Historically the Whittlesea sewerage treatment plant discharged to the Plenty River. State environment protection policy (Waters of Victoria) Schedule F7. Water of the Yarra Catchment, clause 12(2) requires that sewerage treatment plants with a capacity exceeding 0.1ML/day must be upgraded such that by 1 July 2004, discharges cause no detrimental change in the environmental quality of receiving waters. Following substantial negotiations and feasibility studies Yarra Valley Water made the decision to cease discharges to the Plenty River as of July 2004. Water from the sewerage treatment plant is now being reused as part of a golf course development.

The advisory committee considered the value of the discharges to the Plenty River, particularly as a source of water during the low-flow period. The committee noted that sewerage treatment plant discharges treated to an appropriate level may be beneficial for the environment. Some members of the committee felt that the continuing discharge of this water would be significant in helping to meet the objectives of the plan and regretted the decision to cease the discharges from the plant. The committee was not in a position to reverse the decision to cease discharging this water into the stream. Other members did not consider this as a major influencing factor in meeting the objectives of the plan.

5 Determining Environmental Flows and Allocation Limits

5.1 Licence Holder Survey

A licensed water user survey was conducted in 1999 which collected information on their current water use practices and equipment. The survey found that very few all-year licence holders rely on their licences for their water needs due to low summer flows. This has meant that many have found alternative supplies of water such as catchment dams, mains water and winter-fill licences. Many licensed water users are no longer actively farming.

5.2 Environmental Flows and Environmental Values

Lieschke et al, 2000, conducted a study on the distribution and habitat availability of aquatic animals in the Plenty River system. The report recommended an environmental flow regime, which would protect the key flow related environmental values.

The study involved fish and habitat surveys along the River. The study suggested that the Plenty River is in poor to very poor condition. However the upper reaches of the system above Toorourrong and the Plenty River Gorge are exceptions to this and contain good habitat values. The fish species included eight species of native fish and seven species of exotic fish. Recolonisation of the Plenty River by native migratory species may now occur due to the construction of the fishway at Dights Falls on the Yarra River.

During an environmental flow study various components of the flow regime may be assessed for their importance to the flow dependent flora and fauna and stream processes within the system.

An environmental flow study may consider the timing, frequency, duration and magnitude of flows required to sustain the aquatic environment.

The study on the Plenty River identified the fish habitat availability during a range of flows. This was measured by recording the area of the stream that was submerged during particular flow levels, and the types of available habitat at these flows such as snags, rocky substrate or aquatic vegetation. These habitats are considered to be critical to sustain the fauna and flora within the river and include an area for shelter, food gathering and reproduction. This study was undertaken using the best available method in 1999.

The environmental flow study recommended a flow of 1.5ML/d or natural should be protected during the low-flow period. That is, pumping from the stream should stop at this flow to ensure that there is sufficient minimal habitat for fish and other organisms to survive. During the winter-fill period it was recommended that pumping from the stream should stop below the flow which occurs 80% of the time (80th percentile exceedence flow) for each month.

The report also recommended that the first rise in stream flows following rainfall events in May and June should also be protected. These flows are referred to as 'freshes'. 'Freshes' are important for the clearance of silt and excessive aquatic vegetation from the stream channel. Freshes are the flows which stimulate the spawning migrations of native fish such as the Australian grayling. Freshes of a larger magnitude would help to destratify (break up the thermal and physio-chemical layering) deep pools within the system such as those occurring in the Plenty River Gorge area.

5.3 Issues associated with implementing Environmental Flows and Allocation Limits

Doeg (2001) conducted a hydrological study which looked at the natural flow patterns in the Plenty River and compared them to the current patterns after water use. The study then assessed the extent to which the change in the flow patterns had caused "flow stress". The study also looked at water user reliability of supply for the low-flow and high-flow seasons. The Flow stress relates to the extent that the stream flow pattern has changed from the natural pattern. The results showed that the Plenty River is flow stressed in all seasons including a relatively high flow stress index of 1.38 during the high flow season. A stress value of greater than one is considered to pose a high risk of environmental degradation. More information on the flow stress index can be found in Doeg, 2001 which is provided on the Melbourne Water internet site under the Plenty River Stream Flow Management Plan page.

Doeg (2001) identified that the high flow season for the Plenty River was July to October based on the flow patterns, historically the winter-fill season has been managed as May to October.

Modelling undertaken using the Greensborough stream flow monitoring gauge indicated that there is 100% reliability of supply during the high-flow season. This means that winter-fill licensed water users have their full allocation available every year. However the gauge is well downstream of the licensed water users and therefore some inflow into the system which is measured at the gauge will be unavailable for licensed water users, as it is the result of increased flows from stormwater runoff around Greensborough. When the results are extrapolated for the Mernda gauge Doeg suggested that in 1-2 years out of 18 there will be shortfalls in the ability of the system to supply demand during the winter-fill season with no environmental flow. This suggests that licensed water users would get their full allocation approximately in 89% of years as shown in Table 2.

The hydrological modelling showed that the full licence allocation volume could not be fully met in 10 out of 18 years during the low-flow period. The licensed volume of all-year licences is only available in 45% of years as shown in Table 2. The recommended 1.5ML/d environmental flow does not have a great impact on reliability of supply as the current reliability is extremely low as the system ceases to flow over the low-flow period.

The protection of a winter-fill period flow known as the 80th percentile exceedance flow, as recommended in, Lieschke et al 2002, which is the flow that is equalled or exceeded 80% of the time was also assessed. The study found that if protection of the 80% exceedance flow were to occur the system would be unable to fully supply demand in five out of eighteen years. That is with this winter-fill season environmental flow, winter-fill licensed water users would only be able to access their full allocation in 72% of years as shown in Table 2.

Table 2 Reliability of Supply under current conditions and with recommended environmental flow provisions (Greensborough gauging station)		
Period	Summer Irrigation	Winter-fill
Current	45 %	89 %
Recommended Environmental Flow	Approx 45 %	72 %

The key conclusions of the Doeg study were:

- > The Plenty River currently has too much water allocated and collected in all seasons to enhance current environmental values.
- > Current winter-fill licences can be satisfied, but there is little or no opportunity for additional allocations without an impact on reliability of supply.

5.4 Accounting for Farm Dams

5.4.1 TEDI Model

As farm dams did not require licensing prior to 4 April 2002, exact information on the number, size and usage patterns of farm dams was not available. A Tool for Estimating Dam Impacts (TEDI) model was used to estimate the volume of water harvested by farm dams in the Plenty River Catchment.

The Plenty River Farm Dam Impact study (Sinclair Knight Merz 2001) found that farm dams harvest a far greater amount of water from the Catchment than the current licensed water users. The impact of farm dams is second only to the impact of Melbourne Water’s harvesting for urban supplies.

The study estimated that the annual influence on stream flow of Melbourne Water’s harvesting from the East Plenty River is approximately 7,400 ML/ year, by farm dams is 7,600 ML/year and by licensed water use was 450 ML/year.

The study estimated that there is currently 3,565 ML of farm dam volume in the Plenty River Catchment with an estimated impact of 7,408 ML on stream flows at Mernda per annum. This relates to a relative impact of 2.2 ML per every 1 ML of farm dam volume. The majority of the Advisory Committee endorsed this study.



5.4.2 Castle Model for Estimating Farm Dam Impacts

Those members representing water users were concerned that the conclusions of the Farm Dam Impact Study (SKM 2000) overstated the effect that the farm dams had on stream flow at Mernda. They suggested that as a result inappropriate recommendations might be made that would seriously impact on enterprises in the catchment. Needing to test this, Charles Castle, a water user representative, formulated an alternative hydrological model to test the farm dam impact. The mathematical model developed (Castle Model) used the same data used in the TEDI Model. The Castle Model used a different approach to modelling dam impact. It was based on calculations involving parameters such as average monthly rainfall and evaporation, ground water absorption and surface water run off. The volume of water used to maintain the dams was equivalent to that predicted by the TEDI model.

Further to determining the volume of water used to maintain existing dams, the Castle model also estimated the volume of water available to move towards the river and its tributaries from rain which fell outside the catchment areas of dams. The water user representatives noted that the difference in this and volume recorded in the stream was a substantial one. Based on this finding the water user representatives suggested that if a volume of 7,408 ML of water similar to the volume identified as needed to maintain the dams was allowed to flow to the river, this volume would suffer a similar attrition as the water falling outside dam catchment areas experienced on its way to the stream flow gauge. Therefore the water user representatives believe that the impact of farm dams on stream flow is exaggerated as the TEDI model does not consider all water within the catchment and the loss of water volume as it moves through the catchment to the stream flow gauges in the river.

5.4.3 Independent Review of the Farm Dam Impact Study

As the results of the two methodologies for assessing farm dam impacts were conflicting the Advisory Committee commissioned a review of both models (TEDI and Castle) by an expert hydrologist.

Rory Nathan of Sinclair Knight Merz, who developed the TEDI model, 2001, found that the TEDI model is the most suitable for estimating the impact of farm dams in the Plenty River Catchment.

A further review by an independent expert hydrologist, Stewardson (2001) also found that the TEDI model was the most suitable method for estimating the impact of farm dams in the Plenty River Catchment.

Stewardson (2001) did however recommend that some of the assumptions used in both hydrological models required on ground testing to further refine the accuracy of the models for future use. This was particularly in relation to dam usage (demand) factors and the runoff characteristics of catchments similar in size to the Plenty.

Response to the independent review

(Charles Castle, Gordon Taylor, Peter Rutley)

The focus of the two reviews was questioned as they dealt with calculating the volume of water needed to maintain the existing dams as the prediction of this figure by each model are of the same order. It is the prediction of the volume of water available to move towards the river and the notion of losses that is the difference in the concepts of the two models. Meaning that it is believed that the TEDI model does not estimate the impact on stream flows.

Both reviewers criticised the runoff factors used in the Castle Model and failed to mention that Model is flexible and is designed to allow parameter values to be adjusted and obtain consequential outcomes. Stewardson indicated that for this area run off was likely to be in the order of that used by the Castle Model.

The Castle Model was adjusted to provide a result based on the same run off actor as that used by the TEDI model. Daily stream flow data for Mernda was input into the model. Monthly rainfall data was obtained from local records. The run- off coefficient was amended in accordance with the knowledge gained from the feedback from the reviewers.

Using the updated parameter values in the Castle Model, the water user representatives identified that the difference between the volume of water available to move towards the River and the volume measured at Mernda stream flow gauging station was significantly large. In the yearly results generated the greater ratio of flow volume reading at Mernda to volume of water predicted to be available to the river was 0.36 and 0.66 for the winter period.

The water user representatives believe that this result supports their view that the impact of farm dams at Mernda is not 7,408 ML, but a maximum volume in only one of the years of 2667 ML and less for other years in the study time frame. This equates to the maximum impact of 0.75 ML per 1 ML of farm dam volume; less for other years.

5.4.4 Basic Water Balance Assessment

In general the majority of the advisory committee agreed that there was sufficient information provided by the environmental flow study, the farm dams study and hydrological study from which to base decisions for the winter-fill period.

However, in order to provide an indication of the amount of water used from the Plenty River catchment, a simple water balance assessment was undertaken. This consisted of an estimation of the natural flow, and the proportion of this harvested in a range of years. The technique was applied for a median year (50% of years harvesting activities and flows occurred within these volumes), and a representative dry and wet year (1982 and 1996 respectively). The results showed that in a median year 52 % of flows remain in the waterway after all extractions during the winter-fill period, 3% of flows in a dry year and 87% of flows remain in the waterway during a wet year.

Castle (2002) further examined these results using the Castle model, and found between a one and four percent difference in results. The results of the simple water balance assessment are presented in Table 3

	Less than current catchment dam volume 500 ML	Current catchment dam volume 3,500 ML	Estimated catchment dam impact 7,400 ML
Median Year		52%	44%
1982 (Representative Dry Year)	5%	3%	2%
1996 (Representative Wet Year)		87%	81%

The water balance work was undertaken for the advisory committee to aid decision making. This work was a simplistic way of presenting the collated results from the other studies for discussion by the advisory committee.

Response to the Water Balance Assessment

(Charles Castle, Gordon Taylor, Peter Rutley)

It is believed that the basic water balance assessment is far too simple to be a basis for decisions on stream flow management plan recommendations. This is because it is only a snapshot of three years and is based on estimated farm dam impact, licensed water use, urban water harvesting and the gauged stream flow, during the winter-fill period. The study needed to be more intensive as there is no strong relationship between these values. The water users analysed the Castle Model outputs using a simple water balance. The dam impact of 0.75 ML to 1 ML of farm dam volume was used when calculating the results in the following table.

Median Year	55%
1982 (Drought Year)	8%
1996 (Wet Year)	89%

In calculations for 1982, the licensed water use was set at OML to represent the availability of water in this year. Urban harvesting was represented as eleven times greater than both the effects of dams and gauged flow and is identified as responsible for reducing stream flow in this year. It is nearly three times greater than the effect of farm dams in a median year. The water user representatives question the assumption that the proportion of water left in the waterway in a dry year will be less than 55%. This is because a linear relationship between rainfall, urban harvesting and recorded flow rate has not been identified.

5.4.5 Technical Audit Panel Review

The Minister administering the Water Act 1989 convened a Technical Audit Panel (TAP), consisting of experts in the fields of Hydrology and Ecology to consider the technical information used in the development of stream flow management plans. The TAP reviewed the technical information used to develop the Plenty River Stream Flow Management Plan. The summary of the TAP report is provided in Appendix 2.

6 What the draft Plan contains

6.1 Object of the Plan (Clause 6)

The *Water Act* states:

“The object of a management plan is to make sure that the water resources of the relevant Water Supply Protection Area (the Plenty River catchment) are managed in an equitable manner and so as to ensure the long-term sustainability of those resources.”

In addition to this general objective, additional objectives of the Plan are listed in Schedule 2 and Appendix 3. The general objectives have been linked to the flow related values within the system. The clause or recommendation, which will help to protect the value, is also listed.

The Plan is also consistent with the Victorian Biodiversity Strategy 1997, State environment protection policy (Waters of Victoria) Schedule F7. Waters of the Yarra Catchment, the draft Port Phillip and Westernport Regional Catchment Strategy, 2004 and the Yarra Catchment Action Plan, 1999.

6.2 Administration and enforcement (Clause 7)

Melbourne Water will have the duty of enforcing and administering the stream flow management plan on its approval by the Minister.

It will be responsible for ensuring that:

- > The metering and monitoring program is undertaken;
- > Licence holders comply with rosters, restrictions and licence conditions;
- > Licences are issued with the appropriate licence conditions; and
- > Illegal water use does not occur.

6.3 Permissible Consumptive Volume (Clause 8)

The *Water Act* enables a draft management plan to recommend to the Minister the permissible consumptive volume (PCV) for the area concerned.

A PCV is the total volume of water that may be taken under licence in the area during a 12 month period. When considering the issue, renewal or transfer of a licence, Melbourne Water must have regard to the permissible consumptive volume for the area. It is an allocation limit or “cap”. Melbourne Water must also consider the overall “cap” on the Yarra River basin, which was established as an outcome of the government’s White Paper “Securing Our Water Future Together, 2004”.

For new licence applications, the *Water Act* requires that Melbourne Water must refuse an application if the allocation or use of water under the licence will or may result in the PCV for the area for that year or a future year being exceeded.

The introduction of a PCV ensures reliability of supply to existing users and avoids further potentially detrimental affects to waterway health.

This Plan recommends a PCV of 669 ML, which includes the volume of farm dams registered or licensed before July 2004. The PCV comprises the all-year allocation limit and the winter-fill allocation limit.

6.4 Prohibitions on granting new licences (Clause 9)

All-year licence allocation limit

An all-year licence allocation limit is recommended, as additional allocations would affect the level of reliability of existing licences and potentially affect the environmental condition of the Plenty River, particularly when water is taken between December and May (low-flow season).

Under Melbourne Water policy, no new all-year licences have been issued in the Yarra River Basin for many years. The policy was put in place to protect waterways within the Yarra River system from further stress during the summer/ autumn low-flow period. The recommendation in this plan is consistent with the established Melbourne Water and Victorian government policy and effectively caps further allocations during the low-flow period. All-year licences can, however, be transferred subject to the prescriptions in the Plan and normal licensing considerations.

Due to the ephemeral nature of the Plenty River, the existing flow stress during the low-flow season and the current water use patterns of all-year licensed water users it was decided that the volume of all-year diversion licences should be capped at existing levels.

As there is very little use of existing all-year licences it was suggested that the impact of capping all-year licences at the current level would be low. The potential impacts on current users from inactive licences becoming active was also considered when setting the all-year licence permissible consumptive volume.

As there will be no new all-year licences, an all-year licence will only be issued when a water user surrenders a registration licence to obtain a standard all-year licence. This means that the volume of water taken under all-year licence is not increased. All licences, other than registration licences, are issued for a period of 12 months and renewed annually.

The allocation limit for all-year licences is set at 316 ML. This includes the volume of farm dams licensed or registered by 30 June 2004.

Existing farm dams must be included in this volume as:

- > Their historic volume of use and operation is recognised under the Water Act 1989.
- > They have not been designed with the capacity to pass flows during the prescriptive periods (i.e. they cannot operate to winter-fill licence conditions) and therefore have historically collected water throughout the year.

People requiring stock and domestic water for new developments could access water by constructing a stock and domestic farm dam, through trading or through reticulated supplies, where available.

Winter-fill licence allocation limit

The winter-fill period was discussed in great detail during the formulation of the Plenty River stream flow management plan. Whilst the report by Doeg (2002) suggested that the high-flow period is July to October, it was felt that limiting licensed winter-fill water users to a shorter period would not lead to any significant reduction in environmental stress as the volume of water harvested by licensed water users was much less than the other users.

A number of submissions received during the consultation phase suggested the winter-fill period should be flexible so that water can be captured at any time during flood events. The committee did not support this suggestion as the winter-fill period had been developed using over 30 years of stream flow pattern data. Capturing water during floods was also seen as impractical given the limitations of pump and storage capacity. The committee also considered that those with all-year licences may choose to use their licence at any time during the year, as long as the minimum stream flows are achieved.

The environmental flow study had emphasised that the freshes which would naturally occur during May and June are important trigger flows for fish spawning and are also critical for improving water quality in deep pools. Licensed water users had indicated that May was not a critical month for water harvesting and so it was agreed that the winter-fill months could be moved back a month to include the period 1 June to 30 November.

As the volume of water harvested by farm dams was a contentious issue, recommending a winter-fill allocation limit for all winter-fill licences including on-stream and off-stream dams and new irrigation or commercial use catchment dams was undertaken following detailed negotiations. A number of the studies suggested that the catchment was over allocated, (Doeg 2001 and Lieschke 2000) and that no further allocations could be made without increasing environmental risk and reducing existing water user reliability of supply. The Water Balance Assessment and the Castle model also indicated that a high proportion of flows are harvested in all but the very wet years. Castle (2002) suggested that there was more water available during the winter-fill period for harvesting in farm dams. Limiting allocations from waterways during the winter-fill period was unanimously supported.

The Advisory Committee believe that there is sufficient information to base the decision upon and has proposed a precautionary approach to cap the Catchment, as a high proportion of flows during 'normal/median' years and 'dry' years is currently being harvested. The recommendation to cap the Catchment was made on the understanding that additional work will be undertaken to refine water use (demand) impact modelling tools within the five year review period.

The government's White Paper "Securing Victoria's Water Future Together, 2004" has placed a moratorium on the issue of additional allocations from the Yarra River system. If the Plenty winter-fill cap was to be set higher than the current allocation then the water would need to be sourced through trading.

Response to the winter-fill allocation limit

(Charles Castle, Gordon Taylor and Peter Rutley)

These committee members suggested that water extractions from the waterway should be treated separately to water harvested from the catchment, as they believed that not all surface water would have naturally reached the waterway and therefore it should be available for consumptive use. The results from the Castle model were used as the basis for the view that future water allocations to new farm dams should be permitted under a higher allocation limit.

Charles Castle, Gordon Taylor and Peter Rutley raised the point that the advisory committee had considered that the collection of 55% of flows from the River was significant and would cause flow stress and therefore the catchment should be capped. Castle et al, suggested that harvesting water for urban use would be a significant cause of flow stress in median and dry years. They also suggest that emphasis should not be placed on the median year as they believe that the relationship between rainfall, urban harvesting and flow rate at Mernda has not been established and that the impact of dams in dry years is negligible.

The TEDI model farm dam impact assessment looked at the difference in demand (number of times dams are filled in any year). They looked at two scenarios which were that dams were filled once or dams were filled twice. The Castle model identified that the difference between these two scenarios was 2,160 ML. The TEDI model identified that with dams filled once the impact was 7,200 ML and with dams filled twice the impact was 7,408 ML. Castle et al, suggest that this means that more farm dams could be constructed.

Water is a valuable resource. The loss rate of water as it moves towards the river is significant. Therefore water lost in the catchment should be available for new developments and drought protection. For the reasons outlined in this response Castle et al believe that there is still scope for increasing allocations to farm dams.

6.5 Transferring licences (Clause 10)

The *Water Act* 1989, allows licences to be transferred following approval of an application by Melbourne Water. Licences can be transferred on the sale of a property to which the licence relates but they can also be transferred to the owners of other land. Licences can be transferred permanently or temporarily. The SFMP enables the development of specific local rules relating to licence transfers.

Water transfers promote efficiency and will result in farmers moving water over time to its highest value use. It provides access to water in areas where no more new licences are being issued. However, water transfers also have the potential to increase the overall water use within the catchment, as unused licences become active.

Under this Plan, rules relating to transfer of licences from one location to another have been recommended to ensure that additional development can occur without adversely affecting existing water users or the environment.

When considering an application to transfer a licence, Melbourne Water is required under the *Water Act* 1989 to have regard to any adverse effect that the allocation or use of water may have on existing users or on the environment.

In the Plenty River Catchment all-year licence allocations could not be fully supplied in most years. Many all-year licensed water users who are not using their licence have retained the entitlement because of plans for future use or the potential future value of the licence on the transfer market.

In order to increase reliability of supply during the low-flow period for all-year licensed water users, and to reduce the stress on the aquatic environment it was recommended that the all-year allocation limit be reduced by the volume of water which is transferred out of the catchment. The conversion of all-year licences to winter-fill licences on transfer elsewhere within the catchment will further help to achieve these aims. Therefore the winter-fill allocation limit will increase each year by the volume of water transferred out of or within the protection area. The overall recommended permissible consumptive volume for the protection area will not change.

It was decided that downstream transfers should be permitted within the catchment to encourage entitlements to be moved downstream from the less reliable sections of the Plenty River. Any potential transfer of entitlements upstream needs to be carefully investigated for potential impacts to existing water user reliability of supply and the environment. The *Water Act* 1989 outlines considerations for assessing transfer of entitlements either upstream or downstream.

The committee considered future availability of the water for agricultural development essential. The committee recommended that the overall allocation limits would not decrease if water was transferred out of the protection area. However when all-year licences transferred they would become winter-fill licences, thus the allocation limit for winter-fill would increase and the allocation limit for all-year licences would decrease accordingly.

6.6 Rostering and Restrictions (Clause 11)

Rostering and restriction arrangements need to be developed for the area to ensure that during times of low-flow, the available water is shared equitably and used efficiently. It is recommended that Melbourne Water will develop the arrangements within 12 months of the SFMP being approved. Given the flow patterns and the low number of water users within the Plenty River system it is likely that rosters and restrictions may not be inappropriate. This will however be considered in consultation with water users.

Bans on diverting water from the waterway will be imposed when the flows at the Mernda stream flow gauging station fall below the environmental flow levels as set for the high-flow and low-flow seasons.

Due to dynamic fluctuations in stream flows and the practicalities involved in communication of roosting and bans a seven-day rolling average will be used to monitor the environmental flow.

Farm dams that have been licensed or registered prior to 1 June 2004 will not be subject to rosters and restrictions due to the physical limitations of these dams which do not provide a mechanism to pass incoming flows.

Note: The requirement to comply with environmental flows does not alter the ability of Melbourne Water to exercise discretionary powers to apply rosters and restrictions or bans to any part of the system, including individual tributaries or reaches.

6.7 Licence conditions (Clause 12 & Schedule 3)

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

This draft Plan recommends conditions, which include:

- > Restrictions on the taking of water to ensure that environmental flows are maintained
- > Amendments to the times when winter-fill licences may be used
- > Removal of the requirement to limit the area irrigated if a meter is installed

6.8 Stream flow monitoring program (Clause 13)

This Plan recommends that Melbourne Water be required to maintain the stream flow monitoring gauge on the Plenty River at Mernda. Although the environmental flow recommendations were made at a number of locations within the protection area, the Mernda gauge, located in the mid section of the protection area, is the most appropriate place to monitor stream flows to access compliance with the Plan. There are two main stream flow gauging stations, which are located in the protection area which could be used for management of the environmental flow. The Mernda stream flow gauging station (229216) was selected by the advisory committee for management of the environmental flow, as the gauge at Greensborough is highly influenced by urban stormwater runoff.

A number of submissions were received regarding the installation of additional stream flow gauges. The committee felt that the gauge at Mernda was sufficient for measuring compliance with environmental flows.

6.9 Metering (Clause 14 & 15)

The Plan requires that Melbourne Water install meters for all irrigation and commercial use as soon as practicable. During 2000, meters were installed on all active irrigation, on-stream and off-stream dam licences to provide data to assist with the development of this Plan. Inactive licences will be metered at the time that they become active and the metering of water taken from licensed farm dams is recommended. Meters will be installed on all commercial or irrigation use over 5 ML. The metering policy in the White Paper requires these meters to be fitted within two years (July 2006). The government will contribute \$400 per meter to the licensing authority, and the authority through licence fees will cover the remainder of the cost over time. New licences whether pumped from the waterway or collected in farm dams will be metered at the applicant's cost.

Metering of farm dams will bring them in line with other licences and provide valuable information on demand patterns for refinement of modelling tools and review of the plan. It is proposed to remove the licence area constraints following the installation of meters to enable licensed water users to efficiently maximise use of their entitlement and allow trading.

The introduction of meters has a number of benefits to both irrigators and Melbourne Water. Melbourne Water will be required to maintain each meter and keep records of any maintenance. Meters will be read at least once annually for all-year licences and at the start and end of the winter-fill season for winter-fill licences to ensure that these licensees abide by their winter-fill period licence conditions.

6.10 Environmental Flows (Clause 16)

December to May (Low- flow period)

A low-flow period minimum environmental flow of 1.5 ML per day is recommended. The recommended low-flow environmental flow can be implemented without a great impact on reliability of supply as there are very few licensed water users using their entitlements during this period. The environmental flow recommendations refer to the requirement that no pumping from the waterway shall occur when the flow is less than or equal to the environmental flow.

Flow peaks, which occur during the low-flow period, were considered important for the instream health of the Plenty River. Analysis of the flow record showed that the low-flow flushes would be protected by the proposed rules. As low or zero flows persist over the low-flow period in most years the implementation of bans below the minimum environmental flow, would allow any rainfall associated flushes to pass through the system. Melbourne Water currently manages all systems to ensure that there is a sustained increase in flows prior to the lifting of any ban.

June to November (Winter-fill Period)

A winter-fill period environmental flow of 2ML per day is recommended. This flow can be implemented without a great impact on water users, as it is the flow that occurs eighty percent of the time according to the stream flow record. Numerous options for the winter-fill minimum environmental flow were considered however other options would have had a significant impact on access to water during the winter-fill period.

Water users taking water from the waterway or via a farm dam constructed after the approval of this Plan will be banned from taking water when the flow falls below this environmental flow level.

The importance of autumn freshes (flushing flows) as fish spawning triggers and for water quality replenishment after the low-flow period was discussed in the environmental flow recommendations. A fresh is estimated as a flow greater than that would have occurred naturally at least 50% of the time (median flow). The volume of the freshes for May and June are estimated to be approximately 23 ML/d for May and 43 ML/d for June (Melbourne Water unpublished data). Analysis against the flow record at Mernda showed that these freshes are now occurring in the Plenty River system in only 6 in 34 years in May and 8 in 34 years in June. Melbourne Water urban harvesting is harvesting approximately 15- 22 ML/d and water collected in farm dams is estimated to be approximately 5- 16 ML/d during this time period. Licensed water users are only using approximately 1-3 ML/d during the May- June period. The impact of licensed water users on the occurrences of freshes is minimal when compared to other water users. There is no opportunity to manage farm dams to allow freshes to pass due to the style of construction of the dams.

As freshes were considered an integral component of the flow regime for instream flora and fauna it was decided that Melbourne Water, as a major water user from the Plenty River should investigate the potential for the release of freshes from the Toorourrong Reservoir. It is understood that Melbourne Water has no legal requirement to release this volume of water and that infrastructure or operational limitations may mean that it is not possible for freshes to be provided. The investigations into the release of freshes should be completed within 12 months of the Stream flow management plan being approved by parliament. Melbourne Water have committed to this investigation subject to specific water supply system limits being met. These limits will take time to reach as the system recovers from the effects of drought.

A research program looking at the ability of flows of certain magnitude to provide environmental outcomes is currently underway. Water quality monitoring data has been installed in some deep pools within the Plenty system and is being supported by regular sampling in other pools. Results from this project will help to identify the magnitude of flows required to act as the flushing flow.

6.11 Monitoring the implementation of the Plan (Clause 17)

During the implementation of the Plan, it is important that information is collected which will allow a meaningful review of the effectiveness of the Plan 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 and geomorphologic studies. SEPP Schedule F7 outlines monitoring requirements and goals for river health and water quality. The recent draft Victorian River Health Strategy 2002 further recommends monitoring and rehabilitation activities to be undertaken by Melbourne Water. This Stream flow management plan supports the implementation of these monitoring programs.

It is proposed to incorporate the data collection on stream health of the Plenty River into the existing Melbourne Water program. Data collected by metering and gauging will also be an integral part of the review.

It is important to collect data on both the environmental and water user outcomes and issues of implementing the stream flow management plan. This is to ensure that the review of issues can be related to both licensed water users and the environment.

Advisory committee discussions and the subsequent expert review of the farm dam impact modelling work revealed that a number of the assumptions used in farm dam models need to be field truthed. One component of this is the amount of water harvested in stock and domestic catchment dams. As these dams do not fall under the licensing regime, it was recommended that a sample of these dams be voluntarily metered to collect information for the review of the Plenty Stream Flow Management Plan, but also to gather information which could be used in subsequent farm dam studies in other Catchments.

Response to the review

(Charles Castle, Gordon Taylor and Peter Rutley)

It is suggested that all of the activities identified in the independent review by Stewardson should be included in the data collected under the review.

Two integrated projects are currently underway which are investigating demand from farm dams. The Department of Sustainability and Environment project is using surveys of farm dam owners across Victoria to better gauge use from farm dams. Melbourne Water is installing meters on a sample of farm dams. The meters will monitor water pumped from the farm dam over a number of years. Data loggers will record the timing of use so that seasonal patterns can be established.

Melbourne Water will consult EPA Victoria during the development of the monitoring programs for SFMPs. An outline of the monitoring program is provided in Appendix 4.

6.12 Reporting (Clause 18)

In accordance with section 32C of the *Water Act* 1989, Melbourne Water is required to prepare an annual report for each approved Stream flow management plan.

As part of the annual report, Melbourne Water will make an assessment of the following matters:

- > Changes to the level and type of development within the area including:
 - The activation of inactive licences;
 - The extent of water usage resulting from transfers;
 - The location and impact of new take and use licences;
 - Development within the protection area as a result of subdivision;
- > The impact that any new development may have had on the reliability of existing water users and the flows in the waterway;
- > Water usage information;
- > The effectiveness of management prescriptions in meeting the objectives of the Plan including:
 - Metering;
 - Monitoring;
 - Restrictions and rosters;
- > Any difficulties associated with, and progress towards, meeting environmental flows specified in the Plan.

The report will be provided to the Minister and the Port Phillip and Westernport Catchment Management Authority on or before 30 September each year. It will be made available to the public for inspection free of charge at the offices of the Catchment Management Authority and on Melbourne Water's web site. A notice will also be published in a local newspaper advising of the availability of the report at the time of its release.

Copies of the report will also be sent to the Department of Sustainability and Environment, Department of Primary Industries, EPA Victoria and relevant local government offices.

6.13 Review of the Plan (Clause 19)

A review of the operation of an approved Stream flow management plan will be required within five years to ensure that the Stream flow management plan is meeting its objectives. The annual reporting requirements specified under the *Water Act* 1989 will help to determine when this review should take place. Stakeholders may raise issues for investigation during the review.

If the review concludes that the Plan should be amended, the *Water Act* 1989 requires a consultative committee to be established to advise on the amendment. Public submissions on the amendment would also be called for and considered by the Minister before an amendment would be approved.



7 Compliance

The *Water Act* 1989 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 *Water Act* 1989 and be liable for prosecution. This may include anyone who takes water without a licence or who takes more water than the licence allows.

Licence holders are also required to comply with their licence conditions and licences can be revoked if licence conditions are not complied with.

8 Other recommended initiatives

8.1 Land Use Planning

As all water within the allocation limits set is allocated, water for further commercial or irrigation developments will need to be accessed through trading of entitlements. It is crucial that proponents for new developments requiring access to water from within the Protection area identify their water requirements and contact Melbourne Water to determine if that water is available. This is particularly important in the development of multi lot subdivisions which can have considerable water needs, when the cumulative impacts of all lots within the subdivision is assessed.

8.2 Catchment and Waterway Management Issues

The Plenty River Waterway Management Activity Plan was written in 2000 and identifies priority activities for the management of the stream bed, banks and streamside zone. Melbourne Water have been implementing the plan in partnership with local shires, the community and other key agencies and will continue to work on the priorities as identified.

A significant amount of stream frontage rehabilitation has been undertaken in the Plenty River catchment to date. It is important that future maintenance of such sites is seen as an ongoing responsibility by both landholders and agencies. Ongoing management of the newly established indigenous vegetation should be undertaken, whilst integrating the landholders annual control program for management of noxious weeds and vermin. The management of instream vegetation has been raised as an issue in the Plenty River system.

Excessive instream vegetation growth can occur when:

- > There is little flow in the waterway to flush new growth.
- > There is little shade provided by the native streamside vegetation.
- > Nutrient enriched silt collects in slow flowing areas and provides ideal conditions for the instream vegetation.

Any control of such vegetation should be undertaken only following consultation with Melbourne Water. In many cases the instream vegetation is forming important habitat for aquatic species in otherwise poor reaches of the stream. The reestablishment of indigenous streamside vegetation will greatly improve stream health and in the long term will help to control excessive instream vegetation growth.

8.3 Arrangement for licensing responsibilities in the Plenty River Water Supply Protection Area

As mentioned earlier Melbourne Water manages all licences in the Plenty River Protection area except for a small number which are located in the upper section of Bruces Creek. Southern Rural Water's responsibility within the Plenty River Protection area covers a very small area.

The advisory committee recommends that in order to ensure consistency in licensing procedures and rules that it would be ideal if one authority were responsible for licensing surface water use within the entire Plenty River Water Supply Protection Area.

8.4 Establishment of a water user committee

One of the key outcomes from the Plan is the need for Melbourne Water to continue to consult licensed water users about water allocation issues and rules. This will be achieved through the development of a local water user committee.

9 References

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- Lieschke J, Grgat L & Zampatti B (2000) An assessment of environmental flow requirements for the Plenty River Catchment, Parks Flora and Fauna, Natural Resources and Environment. A Report for Melbourne Water.
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- Sinclair Knight Merz, 2000, REALM model, prepared for Melbourne Water
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- Thompson Berrill Landscape Design Pty Ltd, (2000), Plenty River Waterway Management Activity Plan, prepared for Melbourne Water
- Weaver, F. (1991). The Lower Plenty River Archaeological Survey – A Survey for Aboriginal and Historical Sites, forming the Heritage component of the Lower Plenty River Concept Plan, Melbourne and Metropolitan Board of Works, Melbourne.

Appendix 1

Recommendation Number	Respondent	Comment	Advisory Committee Comment
1	Banyule City Council	It is a relief that allocation will not be increased. We are not convinced however that the measures proposed adequately ensure greater flows to the river.	Noted. Monitoring and review of the plan will show if greater flows occur. The capping of allocations maintains current levels but doesn't necessarily lead to an improvement. Constraints within legal framework.
1	James Taylor	Ridiculous to cap a system and stop farmers using water caught on their properties for their own use.	Noted. Legislative constraints- Farm dams in particular.
1	Albert Miller	Why cap one group of users when a public authority removes 7000ML. The total 7414.6ML should be reduced.	Noted. The committee understands the legislative constraints associated with the stream flow management plan and bulk entitlement framework under the Water Act 1989.
1	Mick Kavanagh	Agree that the diverters and farm dams are not the major water users, but agree to cap at these levels until more accurate data is available.	Agree.
2	Banyule City Council	Does this mean that the all-year licence permissible consumptive volume is set higher than current usage? It would seem preferable to take advantage of these inactive licences (by cancelling them if possible). However there is a fundamental concern that by only capping private allocation at the current level, rather than reducing those allocations, any opportunity of improving flows is impossible over the long term.	Noted. Yes, the volume set is higher than current usage. Inactive licences holders have an existing right. All water use was considered when the recommendation was proposed. Overall licensed volumes in this catchment are small.
2	James Taylor	Discriminate against landholders who wish to develop water resources on farm.	Noted. All users considered when recommendations proposed. Opportunities exist including water trading to allow for future business development.
2	Albert Miller	The cap is 7000ML. The management plan should not differentiate between state and private water use.	Noted. The committee understands the legislative constraints associated with the stream flow management plan and bulk entitlement framework under the Water Act 1989.
3	James Taylor	Farmers need the right to draw water for stock & domestic purposes particularly in drought years	Agree. Section 8 right not impacted where no Crown Reserve exists between property and waterway. Stock and domestic farm dams not impacted.
3	John Wilkinson	Except in times of flood then no cap	The committee is required to identify a cap. The Plenty system falls within the broader Yarra catchment which has just been capped.
4	Ashley Park Farm	If there are exceptionally high flows at other times this should be revised.	The committee considers they have negotiated and compromised to achieve a balanced outcome. All points have been considered in proposing the recommendation.
4	Lois Taylor	Could be earlier depending on rainfall	The committee considers they have negotiated and compromised to achieve a balanced outcome. All points have been considered in proposing the recommendation.
	Environment Victoria	Agree with the intent however Plenty River will still remain under stress. Recommendations are not adequate to relieve the stress, as it is Melbourne Water's urban allocation, which is causing the stress.	Noted. The committee understands the legislative constraints associated with the stream flow management plan and bulk entitlement framework under the Water Act 1989. The committee acknowledges that the plan will maintain the current status, and will not lead to large improvements in river condition. However conditions will not further degrade as a result of the protection from the plan's recommendations.
4	Environment Victoria	We recommend that the winter-fill period should be as outlined by scientists- July to October (Doeg). As the recommendation currently stands, Environment Victoria advocated that topping up should only be permitted in October and November as recommended by Lieschke et al.	The committee considers they have negotiated and compromised to achieve a balanced outcome. All points have been considered in proposing the recommendation.
4	DSE	Work by Doeg and Lieschke have advised of environmental risk to trigger flows for fish spawning and water quality reasons due to water extraction, therefore it is proposed that the recommendation be revised to protect the important ecological month of June from extraction i.e. the winter-fill period be July - November inclusive	The committee considers they have negotiated and compromised to achieve a balanced outcome. All points have been considered in proposing the recommendation.
4	WH Mott	All will vary dependent on stream flow	The committee considers they have negotiated and compromised to achieve a balanced outcome. All points have been considered in proposing the recommendation.
4	WH Mott	Winter-fill licences should be able to fill storages during high (flood) stream flows outside the winter-fill period or prevented from filling when stream flows fall below certain levels.	The committee considers they have negotiated and compromised to achieve a balanced outcome. All points have been considered in proposing the recommendation.

Appendix 1 continued

Recommendation Number	Respondent	Comment	Advisory Committee Comment
4	WH Mott	In times of flood there can be too much water. If farmers were allowed to have large dams near the river the dams would fill naturally and at no pumping cost and at the same time assist with breeding of water fowl. Flooding can be at any time.	The committee considers they have negotiated and compromised to achieve a balanced outcome. All points have been considered in proposing the recommendation.
5	Ashley Park Farm	Strongly support individual consideration for transfer upstream.	The committee has considered all views when making the recommendation. The plan will formalise the processes already used by Melbourne Water to undertake assessments for trading.
5	James Taylor	Discriminates against upper catchment landholders. A cunning way to reduce the cap on the catchment as downstream is surrounded by suburbia.	The committee considers they have negotiated and compromised to achieve a balanced outcome. All points have been considered in proposing the recommendation.
5	Environment Victoria	Environment Victoria recommends that upstream trading not be permitted with the Plenty in any reaches.	
5	DSE	Transfers downstream supported. Upstream transfers not supported until method for determining potential impacts to existing users and the environment is clearly defined. Revise recommendation to 'Licences may be transferred downstream only'	
5	Albert Miller	More efficient storage and use higher in the catchment. Rigorous assessment for downstream transfers.	Noted. Rigorous assessment for downstream transfers is not required because the impact would have been occurring upstream. Downstream transfer means that the water travels down the river further before it is diverted, thus providing benefits to the system.
6	Ashley Park Farm	We do not support trading of water outside the Plenty River catchment.	Intent of recommendation was for no reduction in overall permissible consumptive volume on trade out of the protection area. Therefore, amend recommendation to include "Out of or within". The committee are unable to ban trading out of the protection area. However the recommendation made will ensure that the cap remains in place at the current level to ensure availability of water in the protection area for future users.
6	James Taylor	Farmers should be encouraged to drought proof their farms.	Farmers should be encouraged to have a drought plan. The committee also encourages improving the reliability of supply and improving their water use efficiency.
6	Albert Miller	Trading should stop. Licences sold only back to catchment authority at their purchase price. If the CMA wants/can resell capacity that should be left to it for consideration.	Government policy supports trading, and it is enshrined in the Water Act 1989. The committee cannot recommend the cessation of trading.
7	Environment Victoria	Environment Victoria recommends that no new dams should be built on any waterways.	Recommendation removed as covered in the Water Act.
7	Ashley Park Farm	We are concerned about the definition of watercourse. Therefore there must be an opportunity for individual consideration.	
7	Lois Taylor	This inhibits further development/change of farming type.	
7	Albert Miller	Table 1 shows no existing "on-stream" dams now. Watercourse is a waterway by definition page 8 so why include it.	
8	James Taylor	This plan should be thrown out.	Suggestion noted however the committee disagrees.
9	James Taylor	You might realise that farm dams have nominal impact on the catchment. I suggest that you pull the plug on the Toorourrong and Yan Yean Reservoirs for a year and analyse the impact Melbourne Water has on the catchment.	Outside scope of SFMP. The volume of water captured through the Toorourrong and Yan Yean system was acknowledged when making the recommendations.
9	Environment Victoria	Another gauge should be located upstream of Mernda.	Committee resolved that another gauge is not necessary to monitor compliance with the plan.
9	Jean Ely	Too far down	
9	Albert Miller	Meters on streams flowing into Whittlesea would show total stream flow inputs with much more detail.	
10	Banyule City Council	We are sceptical about there being any uptake of the voluntary metering system.	The recommendation is consistent with the government's White Paper on water.
10	Ashley Park Farm	Licence the dams as under the current system.	Agree.
10	James Taylor	Another government tax and infringement of farmers right to farm by bureaucrats justifying their existence.	Noted.
10	EPA Victoria	Need to include reference to user pays for new meters in the recommendations.	Agree. Reference included in the text.

Appendix 1 continued

Recommendation Number	Respondent	Comment	Advisory Committee Comment
10	Environment Victoria	Revise recommendation to "All commercial or irrigation use licences be metered"	Noted. Committee agreed that recommendation does not need to change.
10	DSE	Conditionally supported. To ensure appropriate sharing of the resource between users, compliance, and ongoing data review purposes it is viewed that all commercial and irrigation use be metered. Revise recommendation to "All commercial or irrigation use licences be metered"	Noted. The committee believes that metering policy should reflect the government's policy in the White Paper.
10	John Wilkinson	Except in times of flood then no cap	The committee is required to identify a cap. The Plenty system falls within the broader Yarra catchment which has just been capped.
11	James Taylor	Who's going to pay- another tax on farmers?	The cost of metering will be recovered through licence fees over time. A contribution from the government is suggested in the White Paper.
11	Albert Miller	Twice a year for all meters or once a year for all meters.	Included in explanatory note.
12	James Taylor	Some of the highest flows I have witnessed have occurred in Dec, Jan, April and May, when major rains have occurred in the catchment.	Observations noted and sentiment shared by committee...
12	Environment Victoria	Low flow period should be November to June.	Noted.
12	WH Mott	All will vary dependent on stream flow	The committee considers they have negotiated and compromised to achieve a balanced outcome. All points have been considered in proposing the recommendation.
12	John Wilkinson	I have seen flooding at Christmas	Low flow season was determined by the hydrological studies.
12	Albert Miller	Assess seasonally i.e. Via meter at Mernda if it falls below 1.5 ML/d its considered low flow.	The committee considers they have negotiated and compromised to achieve a balanced outcome. All points have been considered in proposing the recommendation.
12	WH Mott	The stream flows will alter from year to year and month to month.	Low flow season was determined by the hydrological studies.
13	Lois Taylor	If low flow season can be determined.	Low flow season was determined by the hydrological studies.
13	James Taylor	If Melbourne Water agrees not to take any water from the catchment.	Noted. Outside the scope of the SFMP.
13	Environment Victoria	A sustained increase in flow should be required to release the ban when the environmental flow is reached.	The system will be managed to a seven day rolling average flow to provide for sustained increases in flows.
14	Banyule City Council	How is it proposed to prevent taking water via a farm dam constructed after the approval of this plan? It would be good to identify how the use or not of any such bypass system would be monitored for compliance.	Wording included in explanatory note describing the requirements of bypass systems and the associated compliance.
14	James Taylor	If Melbourne Water agrees not to take any water from the catchment.	Noted. Outside the scope of the SFMP.
14	Environment Victoria	Recommends that the winter environmental flow be amended to the meet the scientifically recommended 80th %ile daily flow. Once this is attained only 20% of the flow rate can be diverted. A sustained increase in flow should be required to release the ban when the environmental flow is reached.	The committee discussed this extensively and a compromise was reached.
14	Mick Kavanagh	Too low a figure. Flows should be increased to restore the river's flow to a perennial system. Melbourne Water should decrease intake from Toorourrong. Melbourne Water could source the water from its other catchments.	Noted. Outside the scope of the SFMP. Melbourne Water use from Toorourrong and Yan Yean will be considered in the Central Region Sustainable Water Plan as recommended in the government's White Paper on Water.
15	James Taylor	If you want to let water flow naturally build a complete bypass of the Toorourrong so that a natural flow pattern occurs in the catchment below the Toorourrong in Autumn.	Noted. Outside the scope of the SFMP.
15	EPA Victoria	Strongly supported.	Noted.
15	Environment Victoria	Amend to " the advisory committee recommends an investigation into other release of autumn fresh flow in the required amount 23 ML per day May and 43 ML per day June, from the Toorourrong Reservoir. If this investigation shows that infrastructure or operations limitations are favourable, the advisory committee recommends that the autumn fresh flows be released to the Plenty River system.	Explanatory note to explain that flushing flows will be implemented if the investigations are favourable.
16	James Taylor	Advisory committee would need to be totally independent of Melbourne Water, who takes the majority of water from the catchment.	A consultative committee may be formed if significant issues arise during the implementation of the plan. The Water Act specifies membership of the consultative committee. Melbourne Water conducts monitoring and not the advisory committee. The advisory committees role is to develop the plan.

Appendix 1 continued

Recommendation Number	Respondent	Comment	Advisory Committee Comment
16	EPA Victoria	By ensuring that the plan is of an auditable form and that mechanisms are in place for such a process, the Plan will easily submit to critical review and enable changes to be incorporated where it is found that the environmental objectives of the Plan are not being achieved.	Noted.
16	Environment Victoria	Two new recommendations to alter rec 16, "The environmental outcomes that are expected to arise from the implementation of this Plan must be scientifically determined within three months of approval of the Plan. These outcomes should include parameters that progress in meeting environmental objectives can be measured against. Monitoring of in-stream environmental indicators must give appropriate data to inform the above" and "Monitoring of the Plenty system should also support the technical information that would be required to redress ecological changes resulting from the system moving from permanent to ephemeral"	Included in appendices 1 and 2. Monitoring changes in the system from permanent to ephemeral is not considered necessary as this change in the hydrological regime occurred over 150 years ago and there is no baseline data.
16	DSE	Supported however the recommendation should be revised to include how and when this monitoring program will be done. A program detailing how and when this will be done should be included in the plan.	Included in appendix 2.
16	Mick Kavanagh	I would like to see a hydrological model of the river based on its entire catchment assuming no restriction or increases to its natural flow over twelve months during both a dry and wet period.	The committee used a long series of flow data to make their decisions.
16	John Wilkinson	Except in drought	Disagree. Monitoring needs to occur throughout the implementation of the plan to capture the effectiveness of the plan in wet and dry years.
16	City of Whittlesea	The report recognises the need to undertake additional work to refine water use/ demand impact modelling tools within the 5-Year implementation period. This should be a recommendation.	Some additional work to refine water use/ demand impact is discussed in appendix 2. The monitoring program will be conducted including hydrological monitoring at Mernda stream flow station. There will be a review within five years to determine the effectiveness of the plans assumptions.
17	Ashley Park Farm	Committee must consist of equal representation of farmers/water users and other representatives.	There will be an invitation sent out for a range of people to be involved in the implementation committee. This may include environment and agency representatives and water users. The committee may meet infrequently in response to issues associated with implementation of the plan.
17	Environment Victoria	An SFMPS implementation committee should be formed to oversee the implementation of the Plan and should include diverters and environmental and other stakeholders.	
17	DSE	Supported. A program detailing how and when this will be done should be included in the plan.	Within 12 months of the approval of the plan the committee will set up as above.
17	Jean Ely	A committee of landowners. This means the decision is already made so why this consultation farce. The present committee are 4 to 9 But they are diversion farmers who all take the water.	The committee members represent a wide range of views
Other initiative 1	James Taylor	Houses increase runoff. Small dams make no difference.	Agree with the first point. There may be a cumulative impact of many small farm dams.
Other initiative 1	City of Whittlesea	How does this fit into broader planning permit process, which includes MW as a referral authority? Perhaps an additional action stating MW's role with respect to providing technical support/ advice to land holders is necessary.	Policies and requirements already in place between local government and Melbourne Water. Need to improve awareness of existing procedures and agreements.
New rec	Environment Victoria	Additional recommendation: "The Plenty River SFMPS will be reviewed within five years of approval of the Plan. The stakeholders currently represented on the Consultative Committee will form the basis of those involved in the review".	Separate recommendation not required. Comment is covered under the Water Act where the requirements for review committee membership are outlined.
Additional comment	Environment Victoria	Environment Victoria agrees with Dr Stewardson and the TAP that an alternative method of analysis would have little impact on the conclusion relating to available water for diversion. We strongly agree that the precautionary principle should be adopted whilst awaiting the outcomes of future hydrological data and dam demands.	Noted

Appendix 1 continued

Recommendation Number	Respondent	Comment	Advisory Committee Comment
Additional comment	Mick Kavanagh	Need to consider discharges from the STP, given that they are due to cease shortly.	Comments are noted. The committee discussed the issue in detail while reviewing submissions. The committee understands that discharges have now ceased and that this water will not be available to the river or to the direct diverter water users. The committee noted that water of an acceptable treatment level may have beneficial uses in some rivers or creeks.
Additional comment	Yarra Valley Water	Discharge from the Whittlesea STP to the Plenty River is scheduled to cease in July 2004. The STP had an average daily discharge of 480KL in 2002/2003. The committee prior to finalising the plan should consider this issue.	
Additional comment	Bruce Houghton	Could Melbourne Water undertake a feasibility study to determine if there is any potential site where some low land water treatment wetland could be developed by Melbourne Water into a storage dam that could accept river water in winter during large flows. This water could be saved and released as an environmental flow when required. This could occur over a number of years.	The committee considered that there would be little merit in building a new storage to provide high flows for the environment. The committee has recommended a study, which was underway at the time of drafting of the final plan to look at releasing flushing flows from the Toorourrong Reservoir.
Additional comment	Ashley Park Farm	It is important that plan recognises that farmers and small landholders need water to be operational. This is particularly important to farmers on the rural/ urban fringe where added pressures mean that farming is of doubtful economic viability. If farmers are encouraged to undertake alternative farming pursuits, these activities can only be viable with access to water. The viability of these farms is critical to surrounding community and good land management practices.	Noted.
Additional comment	Banyule City Council	It is of some concern that the potential impacts of greenhouse effect have not been discussed at all in this Plan.	The plan is to be reviewed within five years time incorporating new flow data, which will help to identify any significant trends. Climate change is however a long term process.
Additional comment	Banyule City Council	There is also no reference to the control and monitoring of new off-stream dams for domestic and stock purposes	These are not licensable under the Water Act 1989. There are some planning controls through the local government planning schemes, which mainly relate to the location of such dams.
Additional comment	Banyule City Council	Other than a reference in section 4.1 to a possible increase in the passing flow allocated to the Plenty River below the Toorourrong Reservoir, we see no intention to attempt to reduce the 7000 ML annually harvested for urban supply. It would be hoped that through education and restriction and incentives that this could be achieved by Melbourne Water and the community.	Noted. Outside the scope of the SFMP. Melbourne Water use from Toorourrong and Yan Yean will be considered when defining environmental flows for the Yarra system Bulk Entitlement.
Additional comment	DSE	Definitions for catchment dams and bulk entitlement	These have been added to the glossary.
Additional comment	DSE	DSE recognises that the management of Toorourrong Res does not come under the SFMPS terms of reference it encourages Melbourne Water to consider improving environmental flows below the dam in recognition of its contribution to the altered flow regime.	Noted.
Additional comment	DSE	The committee should consider options for addressing this over commitment.	Noted.
Additional comment	DSE	Explanatory note should explain Melbourne Water's BE from the Plenty and harvesting for Toorourrong and Yan Yean and the Clear Water Channel.	Included in text of explanatory note.
Additional comment	DSE	Explanatory note should explain Southern Rural Water's role in licence allocation and area of licence management in the Plenty River system.	Included in text of explanatory note.
Additional comment	City of Whittlesea	Additional urban development will lead to increased runoff. There are opportunities for reuse of stormwater and water sensitive urban design.	The government's White Paper has identified a process to look at opportunities for reuse of stormwater and water sensitive urban design. Water sensitive urban design is currently being incorporated into new development into some of the local government areas within the Plenty River protection area.
Additional comment	City of Whittlesea	The Municipal golf course development on Donnybrook Road is irrigated by STP discharges. This should be considered.	Comments are noted. The committee discussed the issue in detail while reviewing submissions. The committee understands that discharges have now ceased and that this water will not be available to the river or to the direct diverter water users. The committee noted that water of an acceptable treatment level may have beneficial uses in some rivers or creeks.

Appendix 1 continued

Recommendation Number	Respondent	Comment	Advisory Committee Comment
Additional comment	City of Whittlesea	The Plan does not acknowledge the broader state government policy direction in water security, nor does it refer to the City of Whittlesea's SWMP.	The plan has been developed under the state framework for stream flow management plans and is in accordance with government policy. As mentioned earlier stormwater issues are being further investigated at a state level.
Additional comment	City of Whittlesea	The plan does not address the recent questions and policy direction raised in the Green Paper. Will a decline in potable water consumption increase the opportunities for environmental flow releases from MW storages.	The plan has considered the government's green paper and white paper. Information on current government policy was provided on a regular basis by the Department of Sustainability and Environment representatives.
Additional comment	City of Whittlesea	City of Whittlesea should not be referred to as a local shire as this is legally incorrect.	Noted. Amendments made in text.
Additional comment	Mick Kavanagh	I felt disappointed that the committee had concentrated too much on minor issues and missed the bigger picture.	The committee consistently referred to the issues in the Plenty River in the context of the wider Yarra River basin issues and government policy. The guidelines for stream flow management plans clearly state the local issues are the focus.
Additional comment	Mick Kavanagh	Reports vary and their accuracy is questionable. Was the catchment of Toorourrong excluded like the catchment of Yan Yean? Why was the Mernda gauge used sometimes and Greensborough in others?	The committee had the technical information reviewed on a number of occasions including by the consultants who prepared the reports, by independent scientists and by the Minister administering the Water Act 1989's Technical Audit Panel. Where differing views were presented by committee members these were recorded in the draft available for public consultation.
Additional comment	Mick Kavanagh	Fish migration past Toorourrong should be considered.	Fish migration past Toorourrong was not considered within the development of the stream flow management plan. Advice from Melbourne Water indicates that it is not a priority under Melbourne Water's fish habitat management strategy.
Additional comment	Mick Kavanagh	Toorourrong has over flowed twice in the last five years, which has provided flushes. Although may not be big flushes as the reservoir has silted up so much.	Noted.
Additional comment	Mick Kavanagh	Evaporation from Toorourrong would be more than 273 ML per year.	Committee disagrees; the entire storage capacity of the reservoir is approximately 200 ML.
Additional comment	Mick Kavanagh	Environmental, cultural and recreational issues have not been addressed in the plan. There are some historical points on the river, which need to be discussed or documented. Bluestone draw off weir downstream of cades road, Batman's apple tree, old Greensborough swimming hole.	The committee does not believe that the recommendations will impact adversely on the historical features mentioned in this submission.
Additional comment	Jean Ely	Melbourne Water should: Go and look at the stagnant drain which is called a river at cades lane; look after their property instead of trying to force land owners into extra cost; Open the river around Whittlesea and encourage the flow; the river is at its poorest state because of diversion to Yan Yean, like the snowy; the gorge is filled with noxious weeds and is impassable these days.	Noted. The committee has passed this comment onto the appropriate team within Melbourne Water. The committee did tour the catchment and observe some of these issues, however the committee's core business was flow management relating to water use licences.
Additional comment	John Wilkinson	We note that no farmers with river frontages are on the committee. Everyone has a say except them. To us this is strange.	There were four representatives on the committee who owned or were involved in the management of properties with Plenty River, or its tributary creeks, frontage. The committee would like to highlight that on several occasions calls were made for additional landholder representatives. The VFF recommended Gordon Taylor, a local landholder, as their representative following these calls.
Additional comment	John Wilkinson	Shouldn't have done SFMP until the willows have been removed and don't stop the flow anymore.	Willow removal programs have been occurring along the Plenty River via Melbourne Water's programs.
Additional comment	John Wilkinson	We are being exhorted to conduct stream frontage management programs whilst at the same time MW's unsprayed aqueduct is a major source of weeds. Shouldn't slash weeds as this spreads them and damages the fences.	This comment has been passed on to the appropriate team within Melbourne Water.
Additional comment	Albert Miller	Farm dam capacity of 3,565 seems high. Should be investigated further. Most dams are in upper catchment.	The farm dam capacity was determined using aerial photograph interpretation and a surface area to volume relationship. This is the method generally used in Victoria and does involve assumptions which were documented.
Additional comment	Albert Miller	Stream fill capacity needs inclusion. From dry conditions the streams north of Mernda may need 500 ML to fill and flow.	Environmental flows have been provided. All recommendations have looked at approximately thirty years of stream flow data, which take into account periods of drought.
Additional comment	Albert Miller	The catchment size of Yan Yean Reservoir is important and should not be excluded. If you remove this and Toorourrong catchment the Plenty catchment is much smaller.	The catchment of Yan Yean was excluded as Yan Yean is filled from the Toorourrong Reservoir and transfers from the Silver and Wallaby Creek systems located outside the Plenty River protection area. Catchment input to Yan Yean has not been estimated. If the Yan Yean catchment had have been included it may have double counted the water that Yan Yean uses.

Appendix 2

Technical Audit Panel

Summary- Review of technical information

- > The Plenty River SFMP process, which is taking into account the total water resources of the Plenty River catchment, has been underway since March 2001.
- > Progress at the Consultative Committee has been hampered by major differences of opinion regarding the hydrology of the catchment.
- > Dr Mike Stewardson was contracted as an expert to consider the contentious issues relating to the Diverters Representatives (2001a) document and to report his findings. He concluded that “the TEDI model is a more appropriate approach to estimating the impact of farm dams and should be adopted for the Plenty River Streamflow Management Plan” (Stewardson, 2002), page 2).
- > He recommended “that further investigations including a field program be undertaken to improve the hydrological basis for assessing impacts of farm dams”. We endorse this recommendation.
- > A major source of uncertainty in assessing the impact of catchment dams using the TEDI model or any other approach is that there are no measurements of historical demand estimates.
- > In line with current SFMP practice there is no information on what values the community places on the Plenty System or how such values, the scientific information, and diverters requirements might be combined to produce a generally accepted outcome. It should be noted that, for the Plenty SFMP, there appears to be little scope for 'trade-offs', and that it is likely that current diversions and the recommendations of the environmental flow study can be accommodated.

Appendix 3

Value	Objective	Clause Number
Plenty River aquatic and streamside environment and water users	1. The surface water resources of the Plenty River Water Supply Protection Area are equitably shared between water users and the environment.	All recommendations
Flow dependent species Migratory native fish	2. The diversity of flow dependent species is maintained, and where possible, migratory native fish species recolonise the Plenty River.	16
Water quality	3. Water quality is maintained in accordance with State Environmental Protection Policy - waters of Victoria, Schedule F7- Waters of the Yarra Catchment, 1999.	16
Deep pools as aquatic habitats	4. Instream habitats such as deep pools are maintained, and where possible, restored.	16
River Blackfish	5. River blackfish habitat is maintained.	16
Native fish species Channel processes	6. Migration and spawning of native fish species and stream forming processes such as channel scouring are occurring at sustainable levels.	16
Consumptive use and environment	7. Use of the available water resource is sustainable and efficient. 8. Water users reliability of supply is protected along with the environmental condition of the Plenty River. 9. Total water allocations are consistent with total available water resources in the protection area	8, 9, 16
Consumptive use and environment	10. Equitable access to water for existing users is maximised	8, 9, 10
Consumptive use	11. Water users are involved in the ongoing management of water use licences in the Plenty River protection area.	Explanatory note section 8.4
Consumptive use and environment	12. New tools and information for managing water resources are developed. 13. Management of the Plenty River system is adaptive to allow for continual improvements for both the environmental and water use values	17 and Appendix 3

Appendix 4

Activity	Description	Timeframe
Metering of all commercial and irrigation use over 5ML	Installation of meters on all commercial and irrigation use over 5 ML. Meters will be read once in the case of all-year licences and twice in the case of winter-fill licences	31 December 2005
Water user survey	Survey of water users to identify current water use patterns, equipment and issues	Minimum 4 years after plan approval
Farm dam demand research	Installation of meters and data loggers on a number of farm dams including stock and domestic farm dams. The data loggers will enable monthly and seasonal water use from farm dams to be recorded. Program will run over the initial plan implementation period and will incorporate samples from the Plenty River catchment and other Yarra Basin catchments	Underway
Sustainable Diversion Limits – Stage 2	Improvements in surface area to volume relationship equation; Improvements in demand estimations from farm dams; Calculation of farm dam demands universally across Victoria; Calculation of farm dam impact for the period July to October.	Underway
Autumn flush investigation	Investigation of the magnitude of flows required to replenish water quality in deep pools in the mid to lower Plenty River system following the summer low-flow period. Stage 2. Feasibility study into opportunities for enhancing flush reliability through the provision of releases from Toorourrong Reservoir. Stage 3. Flow trials	Underway Following stage 1. Following stage 2 and subject to Melbourne Water storage levels being above restriction trigger levels.
Rolling tributary investigations	Melbourne Water program which provides fish, water quality and macroinvertebrate studies	Within the initial five year implementation period.
Stream flow monitoring	Continuous monitoring of stream flows at the Mernda, Greensborough and Lower Plenty stream flow gauges.	Ongoing

PLENTY RIVER Stream Flow Management Plan 2007

1. INTERPRETATION

1.1 Definitions

The following definitions apply in this Plan.

“Act” means the Water Act 1989.

“all-year licence” means a licence issued under section 51(1)(a), (ba), 51(1A) or 51A of the Act to take and use water either:

- (a) from a waterway; or
- (b) from a dam, spring or soak

during any month of the year.

“average stream flow” means the mean daily average stream flow calculated over any consecutive 7 day period.

“Plenty River Water Supply Protection Area” means the area referred to in clause 4.

“Mernda gauging station” means the stream gauging station no 229216 located on Plenty River at Mernda.

“Melbourne Water” means Melbourne Water Corporation.

“Minister” means the Minister administering the Act.

“Protection Area” means the Plenty River Water Supply Protection Area.

“registration licence” means a licence issued under section 51(1A) of the Act.

“winter-fill licence” means a licence issued under section 51(1)(a) or (ba) of the Act to take water from a waterway or dam during a winter-fill period.

“winter-fill period” means the period between 1 June and 30 November in any year.

1.2 Rules for interpreting this Plan

Headings are for convenience only and do not affect interpretation. The following rules also apply in interpreting this Plan, except where the context makes it clear that a rule is not intended to apply.

- (a) Expressions defined in the Act have the same meaning as in the Act.

Note: Section 3(1) of the Act defines “dam”, “person”, “registration licence” and “waterway”.

- (b) A reference to:

- (i) legislation (including subordinate legislation) is to that legislation as amended, re-enacted or replaced, and includes any subordinate legislation issued under it;
- (ii) a document or agreement, or a provision of a document or agreement, is to that document, agreement or provision as amended, supplemented, replaced or novated;
- (iii) a reference to a person includes a permitted substitute or a permitted assign of that person and that person’s employees, officers, agents and contractors;
- (iv) anything (including a right, obligation or concept) includes each part of it.

- (c) A singular word includes the plural, and vice versa.

- (d) If a word is defined, another part of speech has a corresponding meaning.

- (e) If an example is given of anything (including a right, obligation or concept) such as by saying it includes something else, the example does not limit the scope of that thing.

2. AUTHORISING PROVISION

This Plan is approved by the Minister under section 32E of the Act.

3. COMMENCEMENT

This Plan commences on the day on which the Minister approves it.

4. **WATER SUPPLY PROTECTION AREA**

The area delineated in Plan No LEGL./02-0153 held in the Office of Land and Survey Information Services, Department of Sustainability and Environment is:

- (a) the particular area to which this Plan relates; and
- (b) deemed to be a water supply protection area for the protection of surface water resources, within the meaning of section 32E(5)(a) of the Act.

5. **SURFACE WATERS**

This Plan applies to the surface waters of the Protection Area.

6. **SPECIFIC OBJECTIVES**

- 6.1 The general object of this Plan prescribed by section 32A(1) of the Act is “to make sure that the water resources of the “Protection Area” are managed in an equitable manner and so as to ensure the long-term sustainability of those resources”.
- 6.2 For the purpose of achieving that general object, Melbourne Water must have regard to specific objectives proposed by the Plenty River Stream Flow Management Plan Advisory Committee and set out in Schedule 2.

7. **ADMINISTRATION AND ENFORCEMENT**

Melbourne Water has the duty of enforcing and administering this Plan.

8. **PERMISSIBLE CONSUMPTIVE VOLUME**

- 8.1 The recommended permissible consumptive volume of surface water in the Protection Area is 669 ML. This includes the volume of registration licences and any licences issued under section 51A.

Note: Section 22A gives the Minister power to declare a permissible consumptive volume from time to time by Order published in the Government Gazette.

Section 51(1A) allows a person to apply for a registration licence during the period 1 July 2002 and 30 June 2003. Section 51A allows a person to surrender a registration licence and apply for a licence under section 51(1)(a) or (ba) and Melbourne Water must within 14 days issue a licence for the same annual volume as the registration licence.

9. **PROHIBITIONS ON GRANTING NEW LICENCES**

- 9.1 Melbourne Water must refuse an application under section 51(1)(a) or (ba) of the Act in the Protection Area, if in its opinion, the approval of the application will or may cause:
 - (a) subject to clause 9.2, the total volume of water taken and used in the Protection Area in any year under all-year licences to exceed 316 ML (which includes the volume of registration licences and any licence issued under section 51A); or
 - (b) the total volume of water taken from waterways or collected in dams in the Protection Area under any winter-fill licences during a winter-fill period, to exceed 353 ML.

Note: Section 55(2B) of the Act also prevents Melbourne Water from granting a licence if, in its opinion, the allocation or use of water under the licence will or may result in the permissible consumptive volume for that year or a future year, being exceeded.

- 9.2 The volume referred to in 9.1(a) will reduce to reflect the volume of all-year licence transferred out of or within the protection area.
- 9.3 The volume referred to in 9.1(b) will increase to reflect the volume of all-year licences transferred out of or within the protection area.

10. **TRANSFERRING LICENCES**

Note: Section 62 of the Act empowers Melbourne Water to approve an application temporarily or permanently to transfer a licence upstream or downstream after having regard for the matters mentioned in Section 53, and Section 40 (1) of the Act.

- 10.1 Subject to clause 10.2, Melbourne Water must approve an application to transfer a licence, to take water from a waterway, or to collect water in a dam if the proposed transferee will take or collect water under the transferred licence downstream of the original licence location.
- 10.2 Melbourne Water may approve the transfer of a licence resulting from the transfer or conveyance of land providing the location at which water is taken or collected will not, change.

11. **ROSTERS AND RESTRICTIONS**

- 11.1 Melbourne Water may, from time to time, prepare and implement rosters or restrictions or other arrangements for taking and using water.

12. **LICENCE CONDITIONS**

For the purposes of section 32A(12) of the Act, a licence granted under section 51(1)(a) or (ba) or renewed under section 58 of the Act for a purpose specified in Schedule 3 is subject to each condition set out in that Schedule, in relation to that purpose.

13. **STREAM FLOW MONITORING PROGRAM**

Melbourne Water must:

- (a) continuously record the flows at the Mernda gauging station; and
- (b) periodically inspect the condition of the Mernda gauging station; and
- (c) maintain the Mernda gauging station in good condition; and
- (d) keep a record of each inspection and all work undertaken under paragraph (a), (b) or (c).

14. **INSTALLING METERS**

- 14.1 After the commencement of this Plan, Melbourne Water must, within two years, ensure that a flow meter is installed to measure water taken for irrigation or commercial purposes under any licence greater than 5 ML volume which has been or is thereafter granted within the Protection Area under section 51(1)(a) or (ba) or 51(1A) of the Act.

- 14.2 Melbourne Water must:

- (a) periodically inspect the condition of each flow meter installed under sub clause 14.1; and
- (b) maintain each flow meter in good condition; and
- (c) replace any damaged flow meter; and
- (d) keep a record of all work done under paragraph (b) and (c).

15. **READING METERS**

Melbourne Water must:

- (a) read each meter referred to in sub-clause 14.1 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 winter-fill period in every year, in the case of a winter fill licence; and
- (b) record, for each meter:
 - (i) the reading obtained; and
 - (ii) the number of the relevant licence; and
 - (iii) the date on which the meter is read; and
 - (iv) any information about the accuracy of the meter which Melbourne Water considers relevant; and

- (c) 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; or
 - (ii) by comparison with the quantity of water taken after the meter has been restored to proper order; or
 - (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.

16. MAINTAINING ENVIRONMENTAL FLOWS

16.1 For the purposes 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 domestic and stock use.

16.2 1 December to 31 May

Melbourne Water must do its best to ensure that, during the period 1 December to 31 May in any year, a licensee does not take any water from a waterway when the average stream flow at Mernda gauging station is 1.5ML or less per day.

16.3 1 June to 30 November

Melbourne Water must do its best to ensure that, during the period 1 June to 30 November in any year, a licensee does not take any water from a waterway when the average stream flow at Mernda gauging station is 2 ML or less per day.

17. MONITORING THE IMPLEMENTATION OF THE PLAN

17.1 Within 12 months after the commencement of this Plan, Melbourne Water must propose to the Minister a program to monitor the implementation of the Plan.

17.2 A program proposed under sub-clause 17.1 must include arrangements to monitor:

- (a) the effects of the Plan on the reliability of supply to licensees within the Protection Area; and
- (b) the ability of the provisions to maintain environmental flows set out in clause 16; and
- (c) in-stream environmental indicators within the Protection Area; and
- (d) indicators against which Melbourne Water's performance in implementing this Plan can be measured.

17.3 The Minister may:

- (a) approve a plan proposed under sub-clause 17.1; or
- (b) approve that plan, subject to amendments made by the Minister; or
- (c) refuse to approve the plan.

17.4 Melbourne Water must implement a plan in the form approved by the Minister under sub clause 17.3.

18. REPORTING

Note: Section 32C and 32D of the Act requires Melbourne Water to report on its activities in carrying out its duties in relation to this Plan in each financial year and to:

- (a) give the report to the Minister and the Port Phillip and Westernport Catchment Management Authority by 30 September in each year; and
- (b) make a copy available for public inspection at its offices.

19. REVIEW OF PLAN

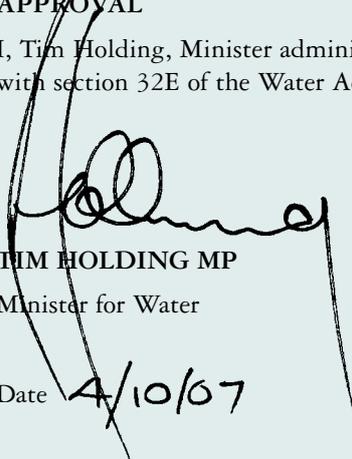
Melbourne Water must:

- (a) review the operation of this Plan:
 - (i) not more than 5 years after it commences; and
 - (ii) thereafter, at intervals of no more than 5 years; and
- (b) propose any consequential amendment (if any) to the Minister.

Note: Sections 29, 31 and 32G of the Act provide 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

20. APPROVAL

I, Tim Holding, Minister administering the Water Act 1989, approve this Plan in accordance with section 32E of the Water Act 1989.

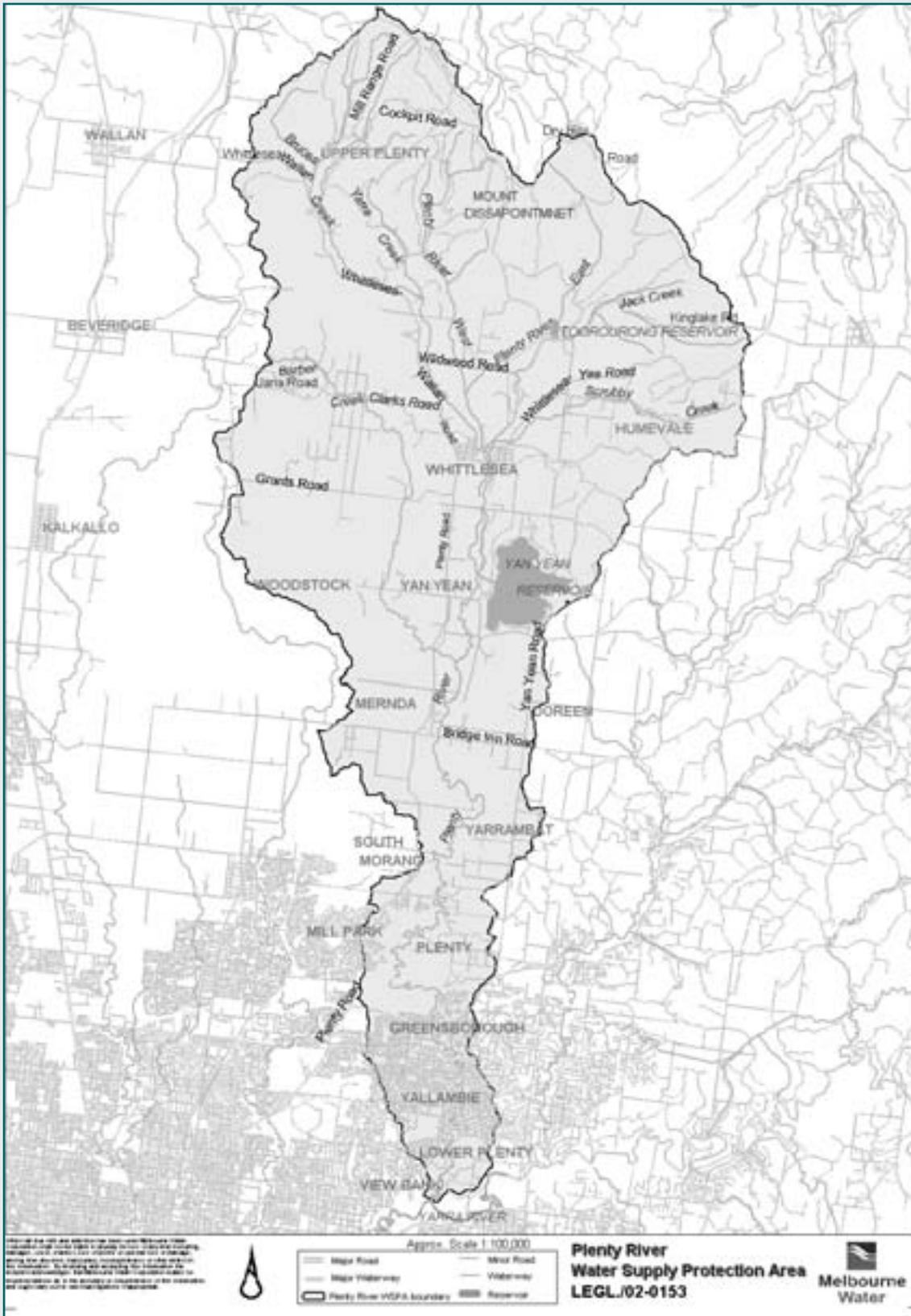


TIM HOLDING MP
Minister for Water

Date 4/10/07

Schedule 1

PLENTY RIVER WATER SUPPLY PROTECTION AREA



Schedule 2

SPECIFIC OBJECTIVES PROPOSED BY THE PLENTY RIVER ADVISORY COMMITTEE

1. The surface water resources of the Plenty River Water Supply Protection Area are equitably shared between water users and the environment.
2. The diversity of flow dependent species is maintained, and where possible, migratory fish species recolonise the Plenty River.
3. Water quality is maintained in accordance with State Environmental Protection Policy- waters of Victoria, Schedule F7- waters of the Yarra Catchment, 1999.
4. Instream habitats such as deep pools are maintained, and where possible, restored.
5. River blackfish habitat is maintained.
6. Migration and spawning of native fish species and stream forming processes such as channel scouring are occurring at sustainable levels.
7. Use of the available water resource is sustainable and efficient.
8. Water users reliability of supply is protected along with the environmental condition of the Plenty River.
9. Total water allocations are consistent with total available water resources within the Protection Area.
10. Equitable access to water for existing users is maintained.
11. Water users are involved in the ongoing management of water use license in the Plenty River Water Supply Protection Area.
12. New tools and information for managing water resources are developed.
13. Management of the Plenty River system is adaptive to allow for continual improvements for both the environmental and water use values.

Schedule 3

LICENCE CONDITIONS

1. **Licence to take and use water from a waterway for any purpose:** *{section 51(1)(a)}*
 - 1.1 The Licensee must not:
 - (a) take any water from a waterway when the average stream flow at Mernda gauging station:
 - (i) is 1.5ML per day or less, at any time between 1 December and 31 May, in any year; and
 - (ii) is 2ML per day or less, at any time between 1 June and 30 November, in any year;
 - 1.2 The Licensee must comply with any roster, restriction or other arrangement prepared and implemented by Melbourne Water under clause 11 of the Plenty River Water Supply Protection Area Stream Flow Management Plan 2007.
2. **Licence to take water from a waterway to fill a dam:** *{section 51(1)(a)}*

The Licensee must not take water from a waterway or collect water to fill a dam, whether the dam is built on or off a waterway, between 1 December and 31 May in the following year.
3. **Licence to use water from a dam constructed after the commencement of Plenty River Water Supply Protection Area Stream Flow Management Plan 2007:** *{section 51(1)(ba)}*

The Licensee must not allow water (other than rain water supplied to a dam from the roof of a building, or a bore or for use other than domestic and stock use) to collect in the dam between 1 December and 31 May in the following year.
4. **Licence for a purpose referred to in section 51(1)(a) or (ba)**

From the date upon which Melbourne Water installs a flow meter to measure water taken, used, collected, stored or concentrated for commercial or irrigation purposes, the Licensee is not required to comply with the condition describing the area to be irrigated in the First Schedule of this Licence.
5. **Licence to take and use water transferred into or within the protection area:** *{section 62(3A), 62(6)(b)}*

The Licensee must not take any water from a waterway or collect water in a dam between 1 December and 31 May in the following year.

Note: These conditions are additional to, or replace, existing licence conditions where appropriate.



Melbourne Water

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and manage waterways and major drainage systems
in and around Melbourne.*

