



DEPARTMENT *of*  
PRIMARY INDUSTRIES,  
WATER *and*  
ENVIRONMENT

**ENVIRONMENTAL  
MANAGEMENT  
GOALS  
*for* TASMANIAN  
SURFACE WATERS**

**GREATER PIPERS RIVER CATCHMENT**

**June 2003**



## **Environmental Management Goals**

### **For Tasmanian Surface Waters: Greater Pipers River Catchment**

Between late 2001 and 2003 Protected environmental Values (PEVS) were set for the Greater Pipers River Catchment. A discussion paper was prepared to facilitate public participation in setting the PEVs. This discussion paper was intended as a basis for community and stakeholder participation in the process of developing environmental management goals for the waterways that are located within the Pipers Catchment.

The paper was prepared by the Division of Environment Division in association with the Land and Water Management Branch, of the Department of Primary Industries, the Tasmanian Parks and Wildlife Service Water and Environment and the George Town and Launceston City Councils.

This paper has been modified into its current form to reflect that the process for the greater Pipers Catchments is now complete. It is considered, however, that much of the information included in the discussion paper should remain as a record of the PEV setting process.

Words and expressions used in this final paper have, unless the contrary intention appears, the same meaning as defined in the *State Policy on Water Quality Management 1997* and the *Environmental Management and Pollution Control Act 1994*. Ecosystem refers to physical, chemical and biological aspects of the aquatic environment.

This final paper is divided into six main sections:

- The first part describes water reforms in general.
- The second part provides a brief description of the greater Pipers River catchment.
- Part three discusses the State Policy on Water Quality Management.
- The final Protected Environmental Values for the greater Pipers River catchment are shown in part four.
- Water quantity values are discussed in part five, and
- Part six lists the community water values for the catchments.

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# 1 INTRODUCTION

## 1.1 Why do we need water reform?

A good supply of fresh, clean water is an essential requirement for human life, a healthy environment and a productive economy.

We need water for drinking, for recreational activities like fishing, swimming and boating, to provide the food we eat and export, to generate clean electricity, and to support mining and other industries.

We also expect our rivers and lakes to look healthy and provide a healthy environment for a wide range of aquatic plants and animals.

We sometimes take for granted that our use of water resources is sustainable; that our hard-working water will still be there in a healthy state to provide the same benefits for future generations. Our waterways are not immune from problems, however, and many of our river systems are showing signs of stress.

Tasmanian rivers range from relatively short, swiftly flowing rivers fed from mountain sources to slowly flowing rivers which may be reduced to a series of pools during dry periods.

River health, and the health of the economies that depend upon them, is clearly linked to the way we use the waters; the degree of regulation we impose; the quantity of water we take out; and the quality of water we return.

In response to a general recognition across the community of the importance of having clean water and appropriate river flows, the Tasmanian Government has introduced a range of reforms designed to ensure that these values are protected for the future of the State.

## 1.2 What are these reforms?

Two major aspects of the water reforms are water quality management and water quantity management.

### (a) water quality management

The *State Policy on Water Quality Management 1997* is designed to **maintain or enhance** the quality of Tasmanian surface waters. Principal objectives of the Policy include:

- Move on from reliance on ‘end of pipe’ controls to take into consideration the number of discharges into a given water body, or the sensitivity or current condition of the water body.
- Ensure that diffuse source and point source pollution does not endanger the achievement of water quality objectives, and that pollutants discharged to waterways are reduced as much as possible by the use of best practice environmental management.
- Facilitate and promote integrated catchment management.
- Focusing on overall water quality management strategies by identifying those water quality values and uses that are considered worthy of protection.

The first purpose of this paper is to explain how the water quality values will be identified and used. Local communities have a key role in identifying these values in their catchments.

### (b) water quantity management

The introduction of the *Water Management Act, 1999* to replace the *Water Act 1957*. provides for:

- Major changes to the institutional arrangements for water management;

- The ready transfer of water rights between different users;
- Enhanced stakeholder and community input into water allocation and management;
- A more transparent and equitable water allocation system, including formal allocation of flows to maintain a healthy river environment; and
- The development of water management plans

The second purpose of this paper is to advise of what the public views were and what was valued in the water resources from a water quantity perspective.

### **1.3 What did we want the public to do?**

Local communities have a valuable understanding of their regional waterways. The following questions of catchment stakeholders were asked.

- Which of your activities rely upon maintaining or enhancing the flow of water into catchment waterways?
- Are there certain places on your rivers that you traditionally use for swimming or other recreational activities?
- Do you fish in them?
- Are there specific features of your rivers and streams that are recognized scenic attractions, such as rapids or waterfalls?
- Do you know of rare or endangered animals or plants in, or adjacent to, specific areas of your rivers or streams?
- Do you use water for livestock watering?
- Does your river supply the local town water supply?

- Do you draw water from it to irrigate your farm?
- How often do you need to draw water from it, and when?

The catchment stakeholders/publics answers to these questions helped to develop the community water values for regional wetlands and waterways. People had different views on these questions. What was needed to do was to try to think about the "big" picture, and how our own objectives may impact on the whole catchment and the wider community.

Planning to ensure sustainable use of these waters and protection of river health requires sound knowledge of local water quality and quantity issues. Therefore the public submissions providing local knowledge were important.

### **1.4 How will the public input be used?**

Information from the public on values particularly relating to water quality assisted the Board of Environmental Management and Pollution Control and the councils to finalise the range of Protected Environmental Values for the surface waters of the regional waterways. These values will be used in management planning for the region.

Information from community stakeholders, catchment groups and the public on water quantity values will be used to better plan the water resources of the catchments. Water management planning will be closely linked with overall catchment management planning to put water resource management on a sustainable footing for the State. Water management planning will be undertaken on a priority basis, with stressed rivers in the State being targeted initially.

## 2 GREATER PIPERS CATCHMENT OVERVIEW

### 2.1 Catchment Descriptions

This document covers predominantly the Pipers River Catchment the main focus of the paper as well as Pipers Brook, and Curries River.

The Pipers River begins on the slopes of Mount Arthur at about 960m in altitude and flows to the north for about 48km before entering the Bass Strait near Weymouth. The River has a catchment area of approximately 380km<sup>2</sup>. The Pipers River is a narrow and long river, with the widest part of the Pipers being 12m<sup>1</sup>. The flow of the main river is unregulated however many of the tributary streams that feed Pipers River are modified by on-stream storages. The river flow tends to peak between July and September and is usually at its lowest flow between January and April.

The catchment is bounded in the south by the St Patricks catchment, the west by the Tamar valley, and to the east by the Little Forester. The Pipers River itself has a number of significant tributaries including the Second and Third rivers, Butchers, Venns, Montgomery and Dead Horse creeks.

The Pipers area is used predominantly for agriculture and forestry and thus land management practices need to be managed to ensure impacts on waterways are kept to a minimum. Historically numerous abandoned prospecting trenches, shafts and open cast alluvial workings occurred in the area, particularly in the Lisle-Golconda and Lefroy-Back Creek areas where once flourishing gold mining industries

occurred<sup>2</sup>. Some slate quarries were also historically present in the area.

Several areas and sites in the region have been recognised in some way as having natural or cultural heritage values. There are no National Parks or State Reserves under the control of the Parks and Wildlife Service but there is a privately owned Conservation Area named the Pipers River Wildlife Sanctuary on the south-western side of the Pipers River gorge at Underwood<sup>3</sup>. The catchment includes a large area of Commonwealth Land, which is designated as a rifle range.

### 2.2 Climate

The area experiences a mild to cool maritime climate. The maritime influence over the climate decreases with distance inland from the coast and with increase in altitude. Approximate minimum temperatures vary from 2.7°C in July and 11.4°C in February and maximums ranging from 12.0°C in July to 24.6°C in February<sup>4</sup>. In general summers are generally mild to warm and winters cool to cold.

Annual average rainfall varies from around 800mm near the coast and 1,400 mm around Mount Arthur. The influence of the higher ranges produces a rain shadow effect and subsequently lower rainfalls in some areas. The Pipers River can be subject to winter

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<sup>1</sup> Bobbi, C., Graham, B., Read, M., Nelson, M. 1999. State of Rivers Report for the Pipers River Catchment. Department of Primary industries, Water and Environment.

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<sup>2</sup> Marshall, B. 1969. Geological Survey Explanatory Report – Pipers River. Tasmanian Department of Mines.

<sup>3</sup> Tassell, M. 2000. Rural Launceston Heritage Study. Report of the Queen Victoria Museum and Art Gallery, Launceston.

<sup>4</sup> Bureau of Meteorology Website: <http://www.bom.gov.au/climate/averages/tables/cw-091049.shtml>

flooding due to the high rainfall experienced. During winter frosts can be a common occurrence especially inland and at higher altitudes.

### 2.3 Geology

The topography of the Pipers catchment is influenced by the underlying geological formations. The majority of the area mapped consists of rolling steep hills, which occur on the dolerite, sandstone and granodiorite rocks. Flatter areas are found along the river valleys and on the extensive coastal sand plains along the northern coastline.

Mt Arthur is one of the highest geological points in the region and is formed by large scale intrusions of Jurassic dolerite into Permian and Triassic sediments. This mountain is capped with dolerite.

### 2.4 Soils and Land Uses

Generally the soils in the Pipers region are poor and not suitable for cropping use except for the red basalt soils which cover a limited area.

The major land uses in the greater Pipers catchment are grazing of sheep and cattle. Dairying is concentrated in the higher rainfall areas around Lilydale and often supplementary irrigation is required during the summer months. There is some cropping in this area in small pockets. The major crops are potatoes, peas, carrots, onions, poppies, beans and cereals<sup>5</sup>. Some vineyards have been established around Pipers Brook and Pipers River.

Forestry is a major land user with both private and commercial forests providing wood for both pulp and

sawlogs. A large area of this region is designated as state forest, however there is also a portion of forest reserve in the region.

### 2.5 Water Uses

There are very few irrigation rights from this river system and most of the water that is extracted is for stock and domestic purposes. The Pipers Catchment also has some small scale water extractions for power generation purposes.

The Curries River catchment is part of the Esk Water System. Esk water was established to collect, conserve, treat and sell water to councils and other major industrial and wayside users in the Launceston/Tamar Valley Region. As a part of this system Bell Bay draws water from the Curries River Dam.

### 2.6 Water Quality

State of the Rivers reporting<sup>6</sup> conducted in 1988 on the Pipers Catchment shows that water quality is moderately impacted across the catchment. At sites nearer to the headwaters, water quality appears to be good, with better clarity and lower dissolved salts. In the middle and lower parts of the catchment turbidity levels indicate that suspended material is entering the river. Dissolved oxygen levels in many parts of the river system are a significant cause for concern, as oxygen concentrations measured at several sites were at or near levels known to cause stress to aquatic life.

The poor oxygen levels that have been recorded are due in part to the willow infestations and the increased nutrients in the river. High levels of nutrients and

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<sup>5</sup> Noble, K.E. 1991. Land Capability Survey of Tasmania – Pipers Report. Department of Primary Industry Tasmania.

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<sup>6</sup> Bobbi, C., Graham, B., Read, M., Nelson, M. 1999. State of Rivers Report for the Pipers River Catchment. Department of Primary industries, Water and Environment.

sediments in the river system encourages high productivity and the resulting large fluctuations in dissolved oxygen.

Nutrient concentrations throughout the catchment were moderate to slightly elevated. The data suggests that there may be significant addition of nutrients and sediments in the middle section of the River. The nutrient load estimated to be lost from the catchment is high in relation to other catchments studied in Tasmania. This has serious implications for both the loss of productive soil and nutrients as well as the ecological risks associated with sedimentation of the lower river and estuary at Weymouth.

Reducing the amount of nutrients entering the estuary will provide at least two obvious benefits. The first of these is decreased silting of the estuary. This will enhance the areas holiday retreat and recreational fishing status. The other benefit of reducing the sediment will be for the environmental functioning of the estuary. Reducing the levels of nutrients and sediments will reduce the possibility of algal blooms and benthic fouling both of which impact on the estuary as a fish nursery.

Some parts of the Pipers River are subject to dense willow infestations, which can also create erosion. Erosion is created by the willows as they block the river channel forcing the river to find other pathways to convey larger flows thus creating erosion of the river banks.

In general good water quality was reported in the upper reaches of the catchments and thus implementation of management practices in the mid and lower parts of the river should be implemented to protect the Pipers River and the Weymouth estuary.

## 2.7 Aquatic Ecology

The aquatic ecosystem analysis documented in the State of the Rivers Report tends to suggest that impacts tend to be most noticeable in the middle parts of the catchment.<sup>7</sup> The analysis shows that changes in the communities have occurred due to habitat modification and possibly water quality deterioration. In terms of river health the Pipers catchment at the time of sampling ranged from poor to only fair river health with habitat degradation of aquatic and adjacent riparian habitat the primary cause of impairment.

## 2.8 Aquatic Fauna

The Greater Pipers catchment has a number of rare or vulnerable species living in the catchment. Within the catchment there are at least 6 frog species, this area is viewed as a significant area for frogs due to the extensive coastal wetlands which offer excellent frog habitat. There are also 16 freshwater fish species found in the north east region. There are two major genus' of freshwater crayfish in this region, *Astacopsis* (Giant Freshwater Crayfish) and *Engaeus* (Burrowing Crayfish). *Astacopsis gouldi* is recognised as a 'vulnerable' species and is protected under the *Threatened Species Protection Act, 1995*.

Approximately four endangered aquatic species have distributions in the Greater Pipers Catchment. *Astacopsis gouldi* is one of those species and requires streams with good water quality, low temperatures and habitat cover in the form of woody debris, undercut banks

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<sup>7</sup> Bobbi, C., Graham, B., Read, M., Nelson, M. 1999. State of Rivers Report for the Pipers River Catchment. Department of Primary industries, Water and Environment.

and canopy cover<sup>8</sup>. Large scale habitat disturbance from agricultural and urban landuse, forestry activity and fishing pressures can reduce species abundance and viability. There are other rare species that require high quality water and catchments to exist. Maintaining native riparian vegetation is one way of ensuring these species are maintained in the region. This is evident as sites in the lower catchments seemed fairly unimpaired and this may be attributed to an improvement in site specific habitat conditions.

## **2.9 State of the Rivers Report Recommendations**

Each of the reports making up the State of the Rivers report highlighted the fact that there are impacts on water quality, ecosystem health and river condition in the middle reaches of the Pipers River. The middle section of the river has several problems which revolve around the management of the streamside zone. Poor condition of the riparian vegetation and river banks may be causing sedimentation of the lower sections of the river, leading to low oxygen levels and elevated nutrients. Improved management of the riparian zone is one of the major recommendations arising from the State of the Rivers Report.

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<sup>8</sup> Bluhdorn, D.R. 1997. Recovery Plan for the Tasmanian Giant Freshwater Lobster *Astacopsis gouldi* Clark. Inland Fisheries Commission, Hobart.

### 3 WATER QUALITY : THE STATE POLICY ON WATER QUALITY MANAGEMENT

#### 3.1 Setting Protected Environmental Values

The first step in the implementation of the *State Policy on Water Quality Management 1997* is the identification of **Protected Environmental Values (PEVs)** for the surface waters in each region. **PEVs are the current values and uses of a water body for which water quality should be protected.** These values and uses should be clearly in evidence at the time of the implementation of the Policy.

The Policy specifies a range of PEVs which may be applied to a given water body. More than one PEV may be applied to a water body. The PEVs are:

- A. Protection of Aquatic Ecosystems
- B. Recreational Water Quality and Aesthetics
- C. Raw Water for Drinking Water Supply
- D. Agricultural Water Use
- E. Industrial Water Supply

The Board of Environmental Management and Pollution Control will then specify a range of Water Quality Objectives. These will be designed to ensure the quality of water in that water body is maintained at a level which will allow the chosen PEVs to be protected.

The Policy also sets out a range of strategies which are aimed at ensuring that waste water discharges from point sources (such as industrial or sewage treatment plant discharges) and diffuse sources (such as runoff from highways, urban areas, farms, forest harvesting

etc.) will not endanger the achievement of the Water Quality Objectives.

The Board and local planning authorities will use these strategies in land use planning and approvals processes, and in ongoing regulation, to ensure that the PEVs for a given water body are maintained or enhanced over time.

#### 3.2 Protected Environmental Values categories

The Policy lists a range of PEVs which are used to describe the identified values and uses of a given water body. These are:

##### **A: Protection of Aquatic Ecosystems**

- (i) Pristine or nearly pristine ecosystems;
- (ii) Modified (not pristine) ecosystems:
  - (a) from which edible fish, crustacea and shellfish are harvested, or
  - (b) from which edible fish, crustacea and shellfish are not harvested.

*What does pristine mean?*

“Pristine” means waters not subject to human interference through discharges or other activities within the catchment (Australian Water Quality Guidelines 1992)

##### **B: Recreational Water Quality & Aesthetics**

- (i) Primary contact water quality
- (ii) Secondary contact water quality
- (iii) Aesthetics water quality

‘Primary contact’ means recreation involving bodily immersion/submersion where there is direct contact

with water, & includes swimming, diving, surfing, water skiing.

‘Secondary contact’ means activities where there is some direct water contact, but it is unlikely that water will be swallowed (e.g. paddling, boating, and fishing).

‘Aesthetics’ means visual appearance of the water, being free from oil, grease, floating debris, unnatural colour, algal blooms etc.

### **C: Raw Water for Drinking Supply**

- (i) Subject to coarse screening and disinfection.

Under the current *Policy* this PEV applies to water used at the intake source for **public use** (town water supply, in other words) and to registered private water supplies. It does not apply to the taking of water from surface waters by individuals for private use for the purposes of drinking etc.

The Director of Public Health recommends that raw water from any surface waterbody should be disinfected/boiled before use.

### **D: Agricultural Water Uses**

- (i) Irrigation
- (ii) Stock watering

### **E: Industrial Water Supply**

The actual industry type must be specified in order to identify appropriate guidelines.

## **3.3 Community Input**

We asked the public to examine and provide comment on some water quality PEVs which the Board and regional planning authorities had suggested as a starting point and may be suitable for surface waters of the greater Pipers River catchment area.

The community was asked if they agreed with the suggested PEVs for water quality, and why, or if they wished to propose other PEVs and why?

The community was asked the following:

- To identify specific areas of the rivers that may need different or additional PEVs (traditional fishing areas, for example).
- Are there rare or endangered species in specific locations which need to be acknowledged?
- Are there specific locations or stretches of river which need different PEVs (traditional swimming holes, for example)?
- Are there existing values and uses under threat from deteriorating water quality.

The Board and the regional planning authorities considered and took account of all submissions before coming to a decision on PEVs for these wetlands and waterways.

#### **4 PROTECTED ENVIRONMENTAL VALUES FOR THE GREATER PIPERS RIVER CATCHMENT**

Between late 2001 and 2003 the Board of Environmental Management and Pollution Control, in association with the Launceston City and George Town councils set Protected Environmental Values (PEVs) for surface waters for the Greater Pipers River catchment as required by the *State Policy on Water Quality Management 1997* (the Policy).

A Discussion Paper – *Proposed Environmental Management Goals for Tasmanian Surface Waters: Greater Pipers River Catchment* – was developed by DPIWE in association with councils and approved for release to stakeholders and the public in November 2001. This paper explained the Policy and how the environmental values for water quality (PEVs) are identified and used.

The discussion paper was sent to 62 stakeholders who were invited to public workshops at Lilydale and Pipers River in December 2001. These workshops were advertised twice in the Public Notices section of *The Advocate*. The meetings were also advertised through an Australia Post letter box drop to all residents of the catchment (1268 notices delivered). At the meetings background information on Protected Environmental Values and the State Policy on Water

Quality Management was provided and Community Water Values for the region were collected from the participants. Attendances at the meetings were as follows: Lilydale - 17, Pipers River – 9. A list of Community Water Values was compiled from information collected at the meetings. No written submissions were received.

The only significant change to the PEVs arising from the consultation was the identification of swimming locations on or adjacent to private land. An industrial water supply PEV was also included in the PEVs for private land in recognition of the saw mills in the region taking water from the catchment for their operations. The amended PEVs and compiled Community Water Values were forwarded to all the stakeholders and others who attended the meetings to ensure that their values had been represented satisfactorily (82 in total). One response was received which related to land tenure and State Forest.

Other issues raised throughout the consultation process have been incorporated into the document.

Community Water Values should be incorporated into the future development of water management and catchment management plans.

## **PROTECTED ENVIRONMENTAL VALUES FOR THE GREATER PIPERS RIVER CATCHMENT**

### **Greater Pipers River Catchment**

The Pipers River begins on the slopes of Mount Arthur at approximately 960m in altitude and flows north for about 48km before entering the Bass Strait near Weymouth. As well as the Pipers River, this document covers Pipers Brook and Curries River. These catchments are bounded to the south by the St Patricks catchment, the west by the Tamar Valley and the east by the Little Forester. The Pipers area is used predominantly for agriculture and forestry. The fresh surface waters and estuarine waters of the Greater Pipers River catchment have many varied uses including recreational, irrigation, drinking water and basic river health values.

The PEVs for the catchments are described following:-

## PROTECTED ENVIRONMENTAL VALUES

### for surface waters of the Greater Pipers River Catchment

The PEVs for the surface waters of the Greater Pipers River Catchment are described in Table 1 under land use categories. The PEVs apply to all surface waters within each land tenure category, other than<sup>9</sup>:

- privately owned waters that are not accessible to the public and are not connected to, or flow directly into, waters that are accessible to the public; or
- waters in any tank, pipe or cistern.

“Privately owned waters” means any surface waters confined within the boundary of privately owned land and which do not flow into, or do not communicate with:

- (a) the sea or arm or creek of the sea;
- (b) a source of supply for a water district or irrigation water district;
- (c) any river, stream, watercourse, lake, pond or marsh.

Management of all surface waters within the catchment shall focus on the achievement of water quality objectives.

The water quality objectives will be determined by the Board of Environmental Management and Pollution Control in accordance with the *State Policy on Water Quality Management 1997*.

Achievement of these water quality objectives will maintain or enhance the water quality of those surface waters to ensure the protection of all of the following values and uses applying to each land use category. These values and uses are derived from the formal PEVs listed in Clause 7 of the Policy.

In general, diffuse source pollution can be managed to protect the PEVs by compliance with approved codes of practice, or by development and implementation of best practice environmental management guidelines where codes are not available.

In general, point source pollution should be managed to protect the PEVs by implementation of best practice environmental management, and by compliance with emission limits set by the regulatory authority. This may also require the setting of a mixing zone by the Board of Environmental Management and Pollution Control. For specific details refer to Part 4 of the *State Policy on Water Quality*.

**Protected Environmental Values reflect current values and uses of a water body but do not necessarily imply that the existing water quality will support these values and uses.**

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<sup>9</sup> State Policy on Water Quality Management 1997

<b>Table 1: PEVs for the Greater Pipers River Catchment</b>	
<b>Land Tenure</b>	<b>Protected Environmental Values</b> <sup>(*see note on page 19)</sup>
<p>Surface Waters flowing through <b>Private Land</b></p> <p>(including forest on private land)</p>	<p>A: Protection of Aquatic Ecosystems</p> <p>(ii) Protection of modified (not pristine) ecosystems</p> <p>a. from which edible fish are harvested</p> <p>B: Recreational Water Quality &amp; Aesthetics</p> <p>(i) Primary contact water quality (Karoola, Hollybank on Pipers River, Weymouth and Brim Hole)</p> <p>(ii) Secondary contact water quality</p> <p>(iii) Aesthetic water quality</p> <p>C: Raw Water for Drinking Water Supply (Curries Dam, McGowans Creek, Rocky Creek)</p> <p>(ii) Subject to coarse screening plus disinfection</p> <p>D: Agricultural Water Uses</p> <p>(i) Irrigation</p> <p>(ii) Stock watering</p> <p>E: Industrial Water Supply (sawmilling)</p> <p>That is, as a minimum, water quality management strategies should seek to provide water of a physical and chemical nature to support a healthy, but modified aquatic ecosystem from which edible fish may be harvested; that is acceptable for town drinking water at Curries Dam, McGowans Creek and Rocky Creek (subject to coarse screening plus disinfection); that is acceptable for irrigation and stock watering purposes; which will allow people to safely engage in primary contact recreation activities such as swimming at Karoola, Hollybank on Pipers River, Weymouth and Brim Hole and secondary contact recreation activities such as paddling or fishing in aesthetically pleasing waters; and which is suitable for industrial use in sawmilling operations..</p>

**Table 1: PEVs for the Greater Pipers River Catchment**

<b>Land Tenure</b>	<b>Protected Environmental Values</b> <small>(*see note on page 19)</small>
<p>Surface Waters flowing through <b>Forest Reserves</b> from Unallocated Crown Land, State Forest and Private Land.</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> <li>(ii) Protection of modified (not pristine) ecosystems                             <ul style="list-style-type: none"> <li>a. From which edible fish are harvested</li> </ul> </li> </ul> <p>Having regard for the management objectives for forest reserves outlined in Schedule 3 of the <i>Forestry Act, 1920</i>.</p> <p>B: Recreational Water Quality &amp; Aesthetics</p> <ul style="list-style-type: none"> <li>(i) Primary contact water quality (where permitted)</li> <li>(ii) Secondary contact water quality</li> <li>(iii) Aesthetic water quality</li> </ul> <p>That is, as a minimum, water quality management strategies should seek to provide water of a physical and chemical nature to support a healthy, but modified aquatic ecosystem from which edible fish may be harvested; and which will allow people to safely engage in recreation activities such as swimming (where permitted), paddling or fishing in aesthetically pleasing waters.</p>
<p>Surface Waters with their headwaters within <b>Forest Reserves</b>.</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> <li>(i) Protection of pristine or nearly pristine ecosystems</li> </ul> <p>Having regard for the management objectives for forest reserves outlined in Schedule 3 of the <i>Forestry Act, 1920</i>.</p> <p>B: Recreational Water Quality &amp; Aesthetics</p> <ul style="list-style-type: none"> <li>(i) Primary contact water quality (where permitted)</li> <li>(ii) Secondary contact water quality</li> <li>(iii) Aesthetic water quality</li> </ul> <p>That is, as a minimum, water quality management strategies should seek to provide water of a physical and chemical nature to support a pristine or near pristine aquatic ecosystem, which will allow people to safely engage in recreation activities such as swimming (where permitted), paddling or fishing in aesthetically pleasing waters.</p>

<b>Table 1: PEVs for the Greater Pipers River Catchment</b>	
<b>Land Tenure</b>	<b>Protected Environmental Values</b> <sup>(*see note on page 19)</sup>
<p>Surface Waters flowing through <b>State Forest</b></p> <p>(managed under the <i>Forestry Act 1920</i>)</p>	<p>A: Protection of Aquatic Ecosystems</p> <p>(ii) Protection of modified (not pristine) ecosystems</p> <p>a. From which edible fish are harvested</p> <p>Having regard for the management objectives outlined in Schedule 3 of the <i>Forestry Act, 1920</i>.</p> <p>B: Recreational Water Quality &amp; Aesthetics</p> <p>(i) Primary contact water quality (where permitted)</p> <p>(ii) Secondary contact water quality</p> <p>(iii) Aesthetic water quality</p> <p>C: Raw Water for Drinking Water Supply (Curries Dam)</p> <p>(ii) Subject to coarse screening plus disinfection</p> <p>That is, as a minimum, water quality management strategies should seek to provide water of a physical and chemical nature to support a healthy, but modified aquatic ecosystem from which edible fish may be harvested; that is acceptable for town drinking water at Curries Dam (subject to coarse screening plus disinfection); and which will allow people to safely engage in recreation activities such as swimming (where permitted), paddling or fishing in aesthetically pleasing waters.</p>
<p>Surface waters flowing through <b>Public Reserves</b> under the <i>Crown Lands Act 1976</i></p>	<p>A: Protection of Aquatic Ecosystems</p> <p>(ii) Protection of modified (not pristine) ecosystems</p> <p>a. From which edible fish are harvested</p> <p>having regard for the management objectives for public reserves outlined in Schedule 4 of the <i>Regional Forest Agreement (Land Classification) Act, 1998</i></p> <p>B: Recreational Water Quality &amp; Aesthetics</p> <p>(i) Primary contact water quality (where permitted)</p> <p>(ii) Secondary contact water quality</p> <p>(iii) Aesthetic water quality</p> <p>C: Raw Water for Drinking Water Supply (Curries Dam)</p> <p>(ii) Subject to coarse screening plus disinfection</p> <p>That is, as a minimum, water quality management strategies should seek to provide water of a physical and chemical nature to support a modified, but healthy aquatic ecosystem from which edible fish are harvested; that is acceptable for town drinking water at Curries Dam (subject to coarse screening plus disinfection) and which will allow people to safely engage in recreation activities such as swimming (where permitted), paddling or fishing in aesthetically pleasing waters.</p>

<b>Table 1: PEVs for the Greater Pipers River Catchment</b>	
<b>Land Tenure</b>	<b>Protected Environmental Values</b> <sup>(*see note on page 19)</sup>
<b>Surface Waters flowing through Unallocated Crown Land</b>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> <li>(ii) Protection of modified (not pristine) ecosystems <ul style="list-style-type: none"> <li>a. From which edible fish are harvested</li> </ul> </li> </ul> <p>B: Recreational Water Quality &amp; Aesthetics</p> <ul style="list-style-type: none"> <li>(i) Primary contact water quality (where permitted)</li> <li>(ii) Secondary contact water quality</li> <li>(iii) Aesthetic water quality</li> </ul> <p>That is, as a minimum, water quality management strategies should seek to provide water of a physical and chemical nature to support modified, but healthy aquatic ecosystems from which edible fish may be harvested; and which will allow people to safely engage in recreation activities such as swimming (where permitted), paddling and fishing in aesthetically pleasing waters.</p>
<b>Surface Waters on Commonwealth Land</b>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> <li>(ii) Protection of modified (not pristine) ecosystems <ul style="list-style-type: none"> <li>a. From which edible fish are harvested</li> </ul> </li> </ul> <p>B: Recreational Water Quality &amp; Aesthetics</p> <ul style="list-style-type: none"> <li>(i) Primary contact water quality (where permitted)</li> <li>(ii) Secondary contact water quality</li> <li>(iii) Aesthetic water quality</li> </ul> <p>That is, as a minimum, water quality management strategies should seek to provide water of a physical and chemical nature to support modified, but healthy aquatic ecosystems from which edible fish may be harvested; and which will allow people to safely engage in recreation activities such as swimming (where permitted), paddling and fishing in aesthetically pleasing waters.</p>

<b>Table 1: PEVs for the Greater Pipers River Catchment</b>	
<b>Land Tenure</b>	<b>Protected Environmental Values</b> <sup>(*see note on page 19)</sup>
All Estuarine Surface Waters	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> <li>(ii) Protection of modified (not pristine) ecosystems <ul style="list-style-type: none"> <li>a. from which edible fish, shellfish and crustacea are harvested</li> </ul> </li> </ul> <p>B: Recreational Water Quality and Aesthetics</p> <ul style="list-style-type: none"> <li>(i) Primary contact water quality (where permitted)</li> <li>(ii) Secondary contact water quality</li> <li>(iii) Aesthetic water quality</li> </ul> <p>That is, as a minimum, water quality should be managed to provide water of a chemical nature to support a modified, but healthy aquatic ecosystem from which edible fish, shellfish and crustacea may be harvested and which allows people to safely engage in activities such as swimming, boating or fishing in aesthetically pleasing waters.</p>

**\* In general, diffuse source pollution can be managed to protect the PEVs by compliance with approved codes of practice, or by development and implementation of best practice environmental management guidelines where codes are not available.**

**In general, point source pollution should be managed to protect the PEVs by implementation of best practice environmental management, and by compliance with emission limits set by the regulatory authority. This may also require the setting of a mixing zone by the Board of Environmental Management and Pollution Control.**

**For specific details refer to Part 4 of the State Policy on Water Quality Management, 1997.**

## 5 WATER QUANTITY VALUES FOR THE PIPERS RIVER CATCHMENT

### 5.1 Overview

While water quality is a very important part of any water management regime, the issue of how much water a river or stream carries, and how that flow is managed, is of equal importance. Water quality and quantity are closely linked.

The State Government proposes to re-organise the way water flow in our rivers and streams is managed, and one of the key understandings is that there needs to be a specific allocation of water for the river or stream itself (Water Management Act 1999). This is necessary not only to protect the aquatic life of the river, but also to maintain basic "river health". If there is insufficient flow at crucial times of the year, the overall quality of the remaining water may be badly affected. This will very likely have a negative effect on human uses of the water, as well as on the environment.

In some instances there may be competing uses for the available resource, and there may need to be trade-offs needed to ensure a balanced sharing arrangement between human uses and the needs of the river environment.

The allocation of water for the environment must be based on scientific information, and also on legitimate community values and uses.

### 5.2 Water quantity values

Five broad categories of water quantity values have been identified, and as with the water quality PEVs, it is likely that most rivers will attract more than one value/use category. The categories are:

- Ecosystem values;
- Physical landscape values;

- Consumptive and non-consumptive use values;
- Recreation values;
- Aesthetic landscape values.

The information from the public input, and gathering water management values from stakeholders, community groups and government agencies will be utilised when water management planning for the catchment is undertaken.

An appraisal of water quality values will be undertaken in order to develop water management goals for the catchment. This will be undertaken during the water management planning process.

An explanation of the water quantity value categories and examples of specific values are given below:

Ecosystem values: The term is used to identify those values which are to be protected and/or enhanced in the current state of aquatic and adjacent land ecosystems. Specific water values associated with the ecosystem value category may be:

- protection of an endangered species (plant or animal);
- protection or improvement in native fish populations;
- protection of riverine vegetation;
- provision of adequate water for stream habitat for flora and fauna;
- provision of water for wetland and/or estuary ecosystems.

Physical Landscape values: These values are closely related to the physical nature of the catchment. This includes the nature and constitution of channels, the frequency of floods and droughts, soil and rock types, and vegetation

coverage. These values are also closely associated with ecosystem function, and may overlap with the protection of ecosystem values. Specific water values associated with physical landscape values may include:

- provision of variable flows;
- prevention of artificial erosion whilst maintaining where appropriate natural processes of erosion and deposition;
- protection or improvement of riparian zone.

Consumptive and non-consumptive use values: These are related to the current and potential human uses of water bodies. Consumptive use refers to the extraction of water from the water body, with no return of it to the waterbody. Examples may include:

- provision of water for irrigation;
- provision of water for town supply;
- provision of water for industry.

Non-consumptive use refers to extraction or use of water, where the water is eventually returned to the river. Examples may include:

- use of water for hydro-electricity generation;
- use of water for fish farming.

Recreational values: These include the range of direct human uses of water bodies for purposes such as kayaking, canoeing, sailing, swimming, fishing etc. This type of value is difficult to quantify, but is an essential part of our way of life in Tasmania. Water quality issues are also important, especially where primary contact occurs (swimming for example), or where the recreational activity relies on a base of good quality water, such as a recreational fishery. Examples may include:

- maintenance or improvement of the quantity (and quality) of water for recreational fishery (trout, blackfish etc);

- provision of sufficient water for whitewater rafting;
- provision of sufficient water (of adequate quality) for swimming.

Aesthetic Landscape Values: These values relate to human appreciation of water and adjacent environments. It is often extremely difficult to address these types of values, or work out the flow requirements to ensure their protection. They are, however, legitimate values which must be acknowledged in any good management process. Examples may include:

- maintenance or improvement of flow through gorges or over waterfalls;
- protection of scenic features in a river.

The Community Water Values identified through the PEVs process can therefore be considered when making management decisions for water quantity.

## 6 Community Water Values – Greater Pipers River Catchment

**Table 2: Lilydale Meeting Community Water Values 11 December 2001**

<p><b>Consumptive/ Non Consumptive</b></p>	<ul style="list-style-type: none"> <li>▪ Maintain water quality at McGowens Creek and Rocky Creek that is suitable for drinking and for the Lilydale town water supply.</li> <li>▪ Maintain water quality throughout the catchment that is suitable for non potable homestead uses.</li> <li>▪ Maintain water quality and quantity for irrigation of crops.</li> <li>▪ Maintain water quality and quantity for safe stock watering.</li> <li>▪ Maintain water quantity to allow for fire fighting.</li> <li>▪ Maintain water quality and quantity to support any water uses associated with wineries.</li> </ul>
<p><b>Recreational/ Aesthetic</b></p>	<ul style="list-style-type: none"> <li>• Maintain water quality at a level that is suitable to support swimming at the following locations: <ul style="list-style-type: none"> <li>❖ Pipers River at Holy Bank</li> <li>❖ Karoola on Pipers River</li> </ul> </li> <li>• Maintain water quality at a level that is suitable to support fishing throughout the catchment.</li> <li>• Maintain the following recreational values of Mount Arthur and other state forest areas: <ul style="list-style-type: none"> <li>❖ Mountain bike riding</li> <li>❖ 4WD</li> <li>❖ Trail bike riding</li> <li>❖ Horse riding</li> <li>❖ Bushwalking</li> <li>❖ Lobster watching</li> <li>❖ Flora and fauna surveying</li> <li>❖ Inspirational location for artists</li> <li>❖ Educational values</li> <li>❖ Paddling in streams</li> </ul> </li> <li>• Maintain aesthetic qualities of Lilydale Falls for picnicking.</li> </ul>

	<p>family recreation and paddling.</p> <ul style="list-style-type: none"> <li>• Maintain the aesthetic values of Merthyr Park.</li> <li>• Maintain the aesthetic values of the Mount Arthur region.</li> <li>• Maintain the aesthetics of the wine route in the region for its tourist values.</li> <li>• Maintain the scenic values of the catchment particularly where man ferns occur in gullies.</li> <li>• Maintain the historical and cultural values of the Mount Arthur region, Lilydale Falls and Merthyr park.</li> <li>• Maintain the water mill at Holybank which is on the Upper Pipers River for its historic values.</li> <li>• Maintain the historic values and aesthetics of the old tramway.</li> <li>• Maintain water quality that is suitable to support duck populations for the purposes of shooting.</li> </ul>
<p><b>Ecosystem / Basic River Health</b></p>	<ul style="list-style-type: none"> <li>• Maintain water quality so it is suitable to support the giant freshwater crayfish (<i>astacopsis gouldi</i>) and the Mount Arthur burrowing crayfish.</li> <li>• Maintain areas of native riparian vegetation as an optimum measure and maintain other vegetated areas in the absence of native vegetation.</li> <li>• Maintain native forests and the continual slow release of water to waterways which native forests provide.</li> <li>• Maintain water quality to support native flora and fauna throughout the catchment.</li> <li>• Maintain water quality to support the natural biodiversity of the catchment.</li> <li>• Maintain water quality at a level which is suitable to support blackfish and trout populations.</li> <li>• Maintain water quality at a level that is suitable to support native frog species.</li> <li>• Maintain water quality to support bird populations particularly grey goshawks, ducks and native hens.</li> <li>• Maintain water quality at a level that is suitable to support platypus.</li> <li>• Maintain water quality suitable to sustain eel populations.</li> </ul>

	<ul style="list-style-type: none"> <li>• Maintain water that is free of turbidity.</li> </ul>
<p><b>Other Values /Issues</b></p>	<ul style="list-style-type: none"> <li>• Concern that the water flows in the catchment are less constant than in the past due to plantation forestry.</li> <li>• Value any research which is being undertaken to examine the impacts of plantation forestry on water yields.</li> <li>• Would value an increase in the hydrological knowledge of the catchment.</li> <li>• Maintain adequate fire breaks throughout the catchment.</li> <li>• Concerned about swimming pools being discharged into or overflowing into streams.</li> <li>• Concerned about sewage overflows into Rocky Creek.</li> <li>• Ensure the preservation of groundwater for its purity and quantity in the region.</li> <li>• Concern about the occurrence of chemical spraying by forestry and wineries and its impact on waterways.</li> <li>• Concern about the accumulation of nutrients and pesticides in the catchment.</li> <li>• Place value on the gradual increase in community awareness through the NRM process and any other community action schemes dealing with water or the environment.</li> <li>• Concerned about the way forestry fell logs near waterways, this is usually not done in accordance with the Forest Practices Code.</li> </ul>

**Table 3: Pipers Brook Meeting Community Water Values 12 December 2001**

<p><b>Consumptive/ Non Consumptive</b></p>	<ul style="list-style-type: none"> <li>• Maintain water flows and quality during the summer months for irrigation from the Pipers River and Pipers Brook.</li> <li>• Maintain water quality throughout the catchment for non potable homestead uses.</li> <li>• Maintain water quality at a level that is suitable for stock watering.</li> <li>• Maintain water quality and quantity in Pipers River to support one of the saw milling operations.</li> <li>• Maintain water quantity and quality for use as truck wash down water.</li> <li>• Maintain water quality at a level that is suitable for filling storage dams during winter.</li> <li>• Maintain water quality and quantity for fire fighting purposes.</li> </ul>
<p><b>Recreational/ Aesthetic</b></p>	<ul style="list-style-type: none"> <li>• Maintain water quality at Weymouth to support fishing, swimming, boating, tourism and camping.</li> <li>• Maintain water quality at a level that is suitable to support swimming, fishing and boating at Brim hole (3km up from the mouth of the Pipers River).</li> <li>• Maintain water quality at a level that is suitable to support recreational fishing.</li> <li>• Maintain water quality at a level suitable to support camping along the entire length of the Pipers River.</li> <li>• Maintain water quality at a level suitable for the training of horses adjacent to private land.</li> <li>• Maintain the aesthetics of waterfalls and cascades on the river particularly where there are no willows present.</li> </ul>
<p><b>Ecosystem / Basic River Health</b></p>	<ul style="list-style-type: none"> <li>• Maintain water quality and quantity to support freshwater crayfish species.</li> <li>• Maintain water quality at a level suitable to support platypus.</li> <li>• Maintain water quality to support wild ducks, cormorants and raptors.</li> <li>• Maintain water quality to support native frog species.</li> <li>• Maintain water quality at a level that is suitable to support</li> </ul>

	<p>the following fish species:</p> <ul style="list-style-type: none"> <li>• Blackfish</li> <li>• Roaches</li> <li>• Eels</li> <li>• Trout</li> <li>• Maintain water quality at the river mouth to support the estuarine fish nursery area.</li> <li>• Maintain river flows during the summer.</li> <li>• Maintain areas free of turbid waters and areas free of blue green algae.</li> <li>• Maintain areas free of willows.</li> <li>• Maintain and increase fencing of rivers and riparian vegetation.</li> <li>• Maintain areas free of erosion.</li> <li>• Maintain areas free of willows due to their impact on stream flooding.</li> </ul>
<p><b>Other Values/Issues</b></p>	<ul style="list-style-type: none"> <li>• Manage the frequency of flooding within the catchment.</li> <li>• Need to remove all willows, gorse and other weeds within the riparian zone of the catchment and replace them with native species.</li> <li>• Need to exclude all stock from the waterways throughout the length of the river systems.</li> <li>• Should engineer some riffles into the river system to slow down the river flow.</li> <li>• The State Government should match the community and Commonwealth money put into projects by volunteers.</li> <li>• There is a private hydro generation scheme at the top of the Pipers catchment.</li> <li>• Turbidity and sedimentation have affected the river mouth (particularly during flood events).</li> <li>• Maintain the natural changes in the direction of the rivers flow.</li> </ul>