



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

**ENVIRONMENTAL
MANAGEMENT
GOALS
for TASMANIAN
SURFACE WATERS**

**TAMAR ESTUARY AND
NORTH ESK CATCHMENTS**

December 2005



Environmental Management Goals

For Tasmanian Surface Waters:

Tamar Estuary and North Esk Catchments

Between 2001 and 2005 Protected Environmental Values were set for the waterways that are located within the Tamar Estuary and North Esk Catchments. 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 Tamar Estuary and North Esk Catchments.

The paper was prepared by the Department of Primary Industries, Water and Environment in association with the Tasmanian Parks and Wildlife Service and Latrobe, West Tamar, George Town, Launceston City, Northern Midlands, Break O'Day, Meander and Dorset Councils.

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.

The first part of the paper is divided into six main sections:

1. The first part describes water reform in general.
2. The second part gives some general information relating to the area covered in the paper.
3. The third part discusses the *State Policy on Water Quality Management*.
4. The final Protected Environmental Values for the area are shown in part four.
5. The fifth section discusses water quality and water quantity values
6. 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 recently 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 were identified and will be used. Local communities played a key role in identifying these values in their areas.

(b) water quantity management

The Government has recently finalised new water management legislation to replace the *Water Act 1957*. The *Water Management Act, 1999* 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; and
- A more transparent and equitable water allocation system, including formal allocation of flows to maintain a healthy river environment.
- The development of water management plans

The second purpose of this paper is to summarise stakeholder and public views on what you value in your water resources from a water quantity perspective.

1.3 What did this community input achieve?

The objective was to identify Water Management Goals for the catchments within your region. These Water Management Goals include Protected Environmental Values (PEVs) as defined under the *State Policy on Water Quality Management*, and identified community water values.

1.4 What do we want you to do?

Local communities have a valuable understanding of their regional waterways. Catchment stakeholders were asked to consider the following questions. What uses or values do you have for surface waters in this area that rely upon maintaining or enhancing

water quality? 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?

Answers to these questions (and those of other catchment stakeholders) helped to develop the community water values for regional wetlands and waterways. People had different views on these questions. What was needed was for the community to try to think about the "big" picture, and how their 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. As such, the community input providing local knowledge was important to the process.

1.5 How was your input used?

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

Information from the community on water quantity values will be utilised along with advice from catchment groups and the public to better plan the water resources of your catchment. 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

TAMAR ESTUARY AND NORTH ESK CATCHMENT OVERVIEW

2.1 Catchment Description

This paper covers PEVs for the Tamar Estuary and North Esk Catchments. The South Esk is not covered in this paper even though it flows to the Tamar as the PEV setting process for the South Esk catchment has already been conducted.

The Tamar and its tributaries drain a catchment area of approximately 10,000 km², comprising over one fifth of Tasmania's land mass in north east and central Tasmania. The South Esk Basin (consisting of the Macquarie, Meander and South Esk sub-catchments) occupies the majority of this total area, while the North Esk basin is considerably smaller. Topography in the catchment varies from the low hills and rolling plains characteristics of the agricultural regions in the Northern Midlands, to the high peaks and plateaus of the Western Tiers, Ben Lomond Range and Eastern Highlands.

The Tamar Estuary extends along a south east to north west axis for approximately 70 km, following a meandering path from Launceston to Low Head on Tasmania's north coast, where it enters the Bass Strait. The Tamar River Estuary is formed at Launceston in the north east of Tasmania, by the confluence of the South Esk and North Esk Rivers.

The South Esk Basin is the largest water catchment in Tasmania, covering an area of approximately 8,900 km squared which is almost 15% of Tasmania's land mass. It is located in the north-east and midlands. Its principal sub-catchments are the South Esk, Macquarie and Meander Rivers.

Water is also diverted into the South Esk Basin from the Great Lake catchment, which lies in the Central Plateau region¹.

The North Esk River basin has two main sections, comprising the catchments of the North Esk and the St Patrick's rivers. Its drainage basin is approximately 1,050 km² in area. The geology of the basin mainly consists of three rock types, namely Palaeozoic sediments, Palaeozoic granodiorites and Jurassic dolerites. The latter rock type dominates the lower reaches of the catchment, while the former two dominate the source areas of the North Esk and the St Patricks Rivers respectively².

The upper section of the Tamar Estuary is generally narrow, but below the Batman Bridge, the Tamar opens out into several long embayments or 'arms' known as East Arm, Middle Arm and West Arm. The main channel is quite deep in the lower estuary, reaching 45 metres in depth near Bryants Bay (just off Deceitful Cove). However, above Swan Point (at Paper Beach), the estuary is subject to rapid in-filling by sediments and becomes very shallow as it nears Launceston. Tidal mud flats border the main channel of the Tamar throughout its length.

The morphology of the estuary is that of a drowned river valley, which was formed between 13,000 and 6,500 years

¹ Pirzl, H., Coughanowr, C. 1997. State of the Tamar Estuary: a review of environmental quality data to 1997. Supervising Scientist Report 128, Supervising Scientist, Canberra.

² Skirving, W. 1986. Suspended Sediment Sources of the Tamar River. University of Tasmania.

ago, when sea level rose around 60 metres to near its current level. The estuary winds through the Tamar Valley, which is long and generally narrow, and is bordered by the high ranges and rolling hills typical of the local countryside. The geology of the Tamar Valley consists of tertiary and more recent deposits with substantial areas of Jurassic dolerite. The estuary is located in the Tamar Graben, which physically defines the Tamar region between the Western Tiers and Eastern Highlands of Tasmania and from the Northern Midlands to Bass Strait. The northern end of the graben is defined by ridges of Jurassic dolerite, which form West Head and Low Head at the mouth of the Tamar. Drainage patterns in the lowlands and the Tamar Valley tend to be rectangular, reflecting the major lines of faulting and jointing³.

The Tamar Estuary is the only estuary of its type (mesotidal drowned river valley) in Tasmania. It possesses extremely high plant, invertebrate and fish diversity and it possesses a large component of species not found elsewhere in the State⁴. The estuarine and coastal ecosystems of the Tamar Estuary and its environs provide many important habitats including soft muddy and sand bottoms, open ocean environments, wetland communities and sandy beaches. These provide many benefits including commercial and recreational fisheries, water sports, aesthetic values, recreation, navigation, and education. However, the estuary is

³ Pirzl, H., Coughanowr, C. 1997. State of the Tamar Estuary: a review of environmental quality data to 1997. Supervising Scientist Report 128, Supervising Scientist, Canberra.

⁴ Edgar, G.J. Barrett, N.S., Graddon, D.J. 1999. A classification of Tasmanian Estuaries and assessment of their conservation significance using ecological and physical attributes, population and land use. Marine Research Laboratories Tasmania and Fisheries Institute, University of Tasmania.

also badly degraded as a result of human activities, particularly from the effects of the large urban population in its drainage area and land clearance in its catchment. Extremely high loads of silt continue to be deposited in the estuary, leading to active dredging to maintain shipping channels and rising mudflats along the shoreline. The estuary is also badly affected by introduced species including ricegrass (*Spartina anglica*) East Asian bag mussel (*Musculista senhousia*) and Pacific oysters (*Crassostrea gigas*).⁵

Two Marine Farming Zones have been proposed for the Tamar Estuary. One is proposed for the Long Reach area and the other for the immediate waters near Inspection Head wharf facility. Historically marine farming interests in the Tamar have been limited, however, there is one existing marine farm lease in the Mowbray Point area which is licensed to culture Pacific oysters. This area will be outside the proposed marine farming zone but this will not affect the company's operations. The two proposed marine farming areas are currently being used for a fin fish farm trial and a land based aquaculture operation farming seahorses which principally uses Tamar water.

2.1.1 Water Resources

The two main tributaries of the Tamar Estuary are the North Esk River and the South Esk River. The Estuary itself is tidal to the First Basin and predominantly semi-diurnal (two tides per day). The water in the Tamar gradually becomes less saline with distance upstream of the estuary. The

⁵ Edgar, G.J. Barrett, N.S., Graddon, D.J. 1999. A classification of Tasmanian Estuaries and assessment of their conservation significance using ecological and physical attributes, population and land use. Marine Research Laboratories Tasmania and Fisheries Institute, University of Tasmania.

South Esk River is the longest river in Tasmania (214 kms) and is the main source of freshwater flows and sediments to the Tamar. Mean annual flows from the South Esk Basin are approximately 70 cubic meters per second. Flow gauging of the North Esk at Ballroom has indicated mean annual flows of 5.6 cumecs though mean flows from the entire North Esk catchment probably approach 10 cumecs.

Esk Water collects, conserves, treats and sells water to participating Councils and major industries in the Launceston/Tamar Valley region. There are 5 main treatment plants in this area: Distillery Creek and Chimney Saddle draw water from intake weirs on the St Patricks and North Esk Rivers respectively. The Bell Bay treatment plant draws water from the Curries River Dam whilst the remaining two plants draw water from the Hydro's Trevallyn Dam located on the lower reaches of the South Esk River.

2.1.2 Land Use

The principal land use types within the Tamar catchment, as indicated in Table 1, are forests and agriculture. Urban land uses occupy only a small percentage of the catchment area, primarily in the immediate vicinity of the estuary. Industrial zones are mostly restricted to the region surrounding Launceston, and to the area south east of George Town. Based on 1994 census data, the total population in the catchment is estimated to be in order of 119,000, approximately one-half of which are concentrated in Launceston and its suburbs⁶. Other significant towns include George Town (pop. 7000), Longford and Westbury. In the more distant regions of the catchment,

small areas of the highlands are protected as national parks⁷.

Table 1: Land use areas within the Tamar Catchment (Pirzl & Coughanowr 1997)

Landuse	% of total catchment
Woodland, forest and rainforest	52
Agriculture	37
Heath and Scrub	9
Water Storages	2
Urban	0.5
Total	100

2.2 Water Quality

The limited environmental monitoring data for the Tamar indicates that it is environmentally degraded in several areas, particularly in the vicinity of Launceston and near major industrial and mining areas. There have been a number of significant improvements in industrial and sewage emissions over the past 10 years. As major point sources around the estuary are progressively upgraded, it is anticipated that diffuse sources of pollution will contribute the majority of contaminants. These diffuse sources such as urban, agricultural and mining run off, atmospheric inputs and ground water contamination are typically difficult and expensive to remediate.

⁶ Australian Bureau of Statistics. 1995.

⁷ Pirzl, H., Coughanowr, C. 1997. State of the Tamar Estuary: a review of environmental quality data to 1997. Supervising Scientist Report 128, Supervising Scientist, Canberra.

Contaminants identified from a study by Pirzl and Coughanowr⁸ of the highest concern were:

- Water quality contamination by pathogens derived from a combination of urban run off, sewage, agricultural run off and waterfowl/wildlife.
- Heavy metal contamination. Zinc and cadmium appear to be elevated in several areas of the Tamar, notably in the upper estuary. Heavy metal concentrations in water, sediments and shellfish collected from these areas have been in excess of recommended Australian and international guidelines. Sources of heavy metal pollution are mining wastes, ground and surface water emissions from tips and contaminated sites, urban run off and contaminated sediments/dredge spoils in or adjacent to the estuary.
- Fine grain silt accumulation in the Upper Tamar from the North and South Esk Rivers.
- Very little data is available on nutrients or chlorophyll a in the Tamar beyond indications of elevated phosphorus in the upper reaches. The Tamar is not known to experience recurrent nuisance algal blooms.
- Introduced species particularly rice grass, which appears to accelerate siltation rates. The Pacific oyster, also an introduced species, has colonised large areas of mudflats throughout the estuary. There is concern that other potentially

destructive species could also be introduced via ships ballast water.

- The degradation and potential loss of wetlands and seagrass beds.

The report further identified:

- Contaminants entering the estuary were from a variety of point and non point sources, these include sewage and industrial effluent, urban run off, atmospheric pollution, ground water pollution, agricultural and mining run off from the catchment.
- The Tamar shows indications of environmental degradation in several areas however this conclusion is supported by very limited information.

Water quality for the North Esk and St Patricks rivers appears to be of reasonable quality. Water temperature has been measured at an Esk Water site on the North Esk and the St Patricks River over 30 years and it has shown that water temperature at Chimney Saddle on the North Esk has increased by about 3.5°C over that time. The temperature increase may be related to local influences within the catchment. Environmental flows on the North Esk have been modified which has had an effect on the temperature of the water.

In the 19th Century tin smelting occurred on the lower North Esk River, this may have caused higher heavy metal contamination in this area. Although this has not been quantified.

The pH of Distillery Creek on the St Patricks River has decreased since the beginning of records and this change may be related to clearing and deforestation within the catchment. Turbidity across the catchment is generally low, however during flood events turbidity has effectively doubled between the Ford River and Ballroom

⁸ Pirzl, H., Coughanowr, C. 1997. State of the Tamar Estuary: a review of environmental quality data to 1997. Supervising Scientist Report 128, Supervising Scientist, Canberra.

(downstream of where Musselboro enters the North Esk), this increase in turbidity is most likely due to farm management practices.⁹

Dissolved oxygen levels in the North Esk are relatively healthy with the levels decreasing towards the bottom of the catchment. Nutrient studies have shown an increase in the nutrient levels at the lower end of the catchment as expected but concentrations are generally low compared to other Tasmanian rivers.

2.3 Values and Resources of the Tamar Estuary

The values and resources of the Tamar Estuary were identified through the Tamar 2020 project which undertook wide public consultation through a discussion paper and workshops during 1999 and 2000. The consultation identified a range of values.

These were:

(a) Economic values:

The Tamar Estuary is valued for economic purposes. The resources contributing to those values are:

- The deep water port and industrial facilities and the associated transport infrastructure and transport industry.
- The tourism industry due to the views and scenery, and the general beauty of the valley.
- The agricultural lands and the agricultural industry including orchards and vineyards.

- Real estate value which is dependent on the setting of the estuary.

(b) Social values: The Tamar Estuary and Environs is highly valued socially. The resources contributing to this include:

- The ability to live by the river which is the focus of a lot of community activity, for example the Tamar River Festival.
- The importance of the waterway as the "soul" of its communities. The river being the focus of all communities along it therefore making the Tamar a single community
- Sense of ownership that the Estuary is "Our Estuary" i.e. belongs to the people of the region.

(c) Biophysical/Environmental values: Wide ranges of natural and environmental values were identified. These related to:

- Diversity of flora and fauna.
- Important fish breeding habitats, birdlife and other wildlife habitats.
- Areas of remnant vegetation.
- Unique geophysical and natural setting.

(d) Recreational Values: The Estuary is highly valued for a range of recreational activities that include:

- Freedom to use the Estuary for a range of activities: boating, sailing, recreational fishing, water skiing, jet skiing.

⁹ Second Progress Report on the NHT 'State of the River' project on the North Esk Catchments (1999).

- Safe environment for children to fish, recreational access for small boats and safe anchorage.
- Access to the Estuary is good and structures at appropriate locations along the estuary are valued for being able to provide this.
- The ability to walk along most of the foreshore is a valued activity.

(e)Historical/Cultural values: Ranges of historical and cultural values were identified:

- Semaphore stations.
- Jetties and boatsheds, particularly the old ones which add to the cultural values and enhance the character of the Estuary.
- Importance of particular sites of early settlement such as Supply River Mill, Low Head etc.

(f)Landscape Values: the scenery and setting of the Tamar estuary is highly valued¹⁰.

2.4 Environmental issues

The Tamar Region Natural Resource Management Strategy 1999¹¹ identified from wide community consultation that declining water quality is the highest priority issue affecting the region. Declining water quality was considered an issue in inland waters, wetlands, coastal, estuarine and marine

environments. Declining water quality has occurred through contamination from a variety of sources including industry; historical discharges; domestic effluent; storm water run off; agriculture, diffuse sources; expansion of urban areas; septic and sewage; forestry; oil spills, shipping and marine debris.

The Tamar Region Natural Resource Management Strategy 1999 identified the goal for declining water quality as "to maintain and improve water quality for the whole Region so water can be used, where appropriate, for catching fish, swimming, wildlife, industry, agriculture and domestic use, giving priority to the Gravelly Beach to George Town reach of the Tamar Estuary."

Adverse sedimentation impacts on the Tamar Estuary and North Esk River was also identified as a high priority issue in the Tamar Region Natural Resource Management Strategy 1999. Siltation in the Tamar Estuary is a highly complex issue and there are many different hypotheses as to where the particles come from and how they move within the system. The major sediment deposits with the Tamar Estuary are at Stephen's Bend, upstream of Tamar Island, at Home Point and on the inside bends of the Estuary at Tail Race. The Tamar Estuary receives inputs of sediments from the catchments of the South and North Esk Rivers, the Macquarie River and the Meander River.

Rapid siltation in the Home Reach section of the Tamar causes difficulties with navigation and restricts recreational and tourism pursuits. Causes of the sedimentation have been linked to the clearance of land for agriculture and forestry operations in the upper catchment. These practices can disturb soils, resulting in their washing into water courses that are part

¹⁰ Tamar Estuary 2020. 1999. Community Consultation Report. Unpublished Tasmanian Department of Primary Industries, Water and Environment Report.

¹¹ Rowlands, C. 1999 Tamar Region Natural Resource Management Strategy. May 1999 National Library of Australia Cataloguing in Publication

of the Tamar's catchment. Sediment is released into water systems by stock accessing streams and rivers, predisposing banks to erosion. The animals can disrupt the banks and beds, releasing particles, including soils and nutrients. The expansion and development of urban areas and associated construction sites add to the net sediment loads entering the Tamar Estuary and its feeder rivulets and streams. The Tamar Region Natural Resource Management Strategy goal to address sedimentation is: to define, stabilise and reduce the adverse sedimentation and to identify future opportunities for uses of the Tamar Estuary and North Esk Rivers¹².

The Tamar 2020¹³ consultation process identified environmental issues of concern in the Tamar Estuary. The environmental issues identified were:

- Water quality is a concern particularly in relation to: lack of reticulated sewerage in developed residential areas, problems with septic tanks, stormwater run-off, industrial pollution and potential for oils spills.
- Weed and pest invasion such as gorse, rice grass and pacific oysters.
- Threats to remnant vegetation.
- Inappropriate removal of foreshore vegetation by residents
- Rubbish along roads

- Continued silting of the river and dredging.

The Tamar coastal/estuarine ecosystems play a vital role as transition zones or buffers between terrestrial and marine ecosystems. Recent studies however, have all indicated that comprehensive ecological studies of the estuary are lacking. Pirzl & Coughanowr¹⁴ state that little information is available on the environmental status of seagrass beds and wetlands which are vital components of the Tamar estuarine system.

¹² Rowlands, C. 1999 Tamar Region Natural Resource Management Strategy. May 1999 National Library of Australia Cataloguing in Publication

¹³ Tamar Estuary 2020. 1999 Community Consultation Report Unpublished Tasmanian Department of Primary Industries, Water and Environment.

¹⁴ Pirzl, H., Coughanowr, C. 1997. State of the Tamar Estuary: a review of environmental quality data to 1997. Supervising Scientist Report 128, Supervising Scientist, Canberra.

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 your 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:

<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none">(i) Pristine or nearly pristine ecosystems;(ii) Modified (not pristine) ecosystems:<ul style="list-style-type: none">(a) from which edible fish, crustacea and shellfish are harvested, or(b) from which edible fish, crustacea and shellfish are not harvested.
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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).

<p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none">(i) Primary contact water quality(ii) Secondary contact water quality(iii) Aesthetics water quality
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‘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

(ii) Subject to coarse screening and disinfection.

Under the current *Policy* this PEV applies to water used as 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 region.

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 finalising the PEVs for these wetlands and waterways.

4 WATER QUALITY : PROTECTED ENVIRONMENTAL VALUES (PEVS) FOR THE TAMAR ESTUARY AND NORTH ESK CATCHMENTS

Between 2001 and 2005 the Board of Environmental Management and Pollution Control and regional planning authorities set Protected Environmental Values for the waterways that are located within the Tamar Estuary and North Esk Catchments as required by the *State Policy on Water Quality Management 1997* (the Policy)

The public discussion paper – Proposed Environmental Management Goals for Tasmanian Surface Waters: Tamar Estuary and North Esk Catchments – was developed by the Department of Primary Industries, Water & Environment, local government and Parks officers, and approved for release to stakeholders and the general community by the Board, the Parks & Wildlife Service and the relevant local government authorities in mid 2001. This paper explained the Policy and how the environmental values for water quality (PEVs) are identified and used.

The Discussion Paper was circulated amongst agencies and organisations having an interest in surface waters in the region. The identified stakeholders (268 people) and community were invited to participate in regional water values workshops at Launceston (9/7/2001), Riverside (10/7/2001), Nunamara (11/7/2001), George Town (16/7/2001) and Beaconsfield (17/7/2001). The meetings were advertised inviting the general public to have input into the PEV setting process. The meetings were advertised in the Examiner Public Notices (23/6/2001 and 7/7/2001) and three media interviews were conducted (WIN television for the evening news (10/7/01), Examiner (6/7/01) and ABC Radio (9/7/01)). Across the 5 meetings

55 people participated in the process. These meetings were followed by an extended comment period until the end of July 2001. Information collected from the meetings was compiled, amendments were made to the PEVs and discussion paper and they were sent back to all stakeholders and workshop attendees and comment was invited on these changes until September 14.

Information collected during community consultation with regard to water quality was incorporated and reflected in the setting of the PEVs. Other Community Water Values should be incorporated into the future development of water management and catchment management plans.

The major changes made to the PEVs as a result of the community consultation are as follows:

- Primary contact recreation (activities such as swimming) has been applied to the entire length of the Tamar Estuary aside from Deceitful Cove where it was felt that although water quality would support primary contact recreation the sediments would not.
- The following locations have been designated as primary contact recreation areas (areas that are commonly recognised as primary contact recreation sites) for the non estuarine areas occurring on or adjacent to private land: St Patricks River, North Esk at St Leonards, Dicksons Land, Distillery Creek, Diddleum Plains, Corralinn Bridge, Scout Island at Corralinn, Myrtle Park, Nunamara Bridge, Lady Nelson Creek, Dilston Falls,

Waverley Dam, and York Town Rivulet.

The primary contact value throughout the entire Tamar Estuary and the lower North Esk was questioned by one stakeholder. Community feedback at the meetings reflected that these areas were used and valued for primary contact recreation activities. All other community water values raised during the public consultation phase are listed in Section 6 of this Paper.

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

The PEVs for the surface waters of the Tamar Estuary and North Esk Catchments are described in Table 2 under land use categories.

The PEVs apply to all surface waters within each land tenure category, other than¹⁵:

- 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.

¹⁵ State Policy on Water Quality Management 1997

Table 2: PEVs for the Tamar Estuary and North Esk Catchments

Land Tenure	Protected Environmental Values ^(*see note on page 24)
<p>Surface Waters flowing through Private Land</p> <p>(including forest on private land)</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Protection of modified (not pristine) ecosystems <ul style="list-style-type: none"> a. from which edible fish are harvested <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (St Patricks River, North Esk at St Leonards, Dicksons Land, Distillery Creek, Diddleum Plains, Corralinn Bridge, Scout Island at Corralinn, Myrtle Park, Nunamara Bridge, Lady Nelson Creek, Dilston Falls, Waverly Dam, York Town Rivulet) (ii) Secondary contact water quality (iii) Aesthetic water quality <p>C: Raw Water for Drinking Water Supply (Town water offtakes at Nunamara, Distillery Creek and Watery Plains).</p> <ul style="list-style-type: none"> (ii) Subject to coarse screening plus disinfection <p>D: Agricultural Water Uses</p> <ul style="list-style-type: none"> (i) Irrigation (ii) Stock watering <p>E: Industrial Water Supply (Fish farming – North Esk)</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 Nunamara, Distillery Creek and Watery Plains (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 a St Patricks River, North Esk at St Leonards, Dicksons Land, Distillery Creek, Diddleum Plains, Corralinn, Myrtle Park, Nunamara Bridge, Lady Nelson Creek, Dilston Falls, Waverly Dam, York Town Rivulet and secondary contact recreation activities such as paddling or fishing in aesthetically pleasing waters and which is suitable for fish farming on the North Esk at Corralinn.</p>

Table 2: PEVs for the Tamar Estuary and North Esk Catchments

Land Tenure	Protected Environmental Values ^(*see note on page 24)
<p>Surface Waters flowing through Forest Reserves from State Forest, Private Land or Unallocated Crown Land</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Protection of modified (not pristine) ecosystems <ul style="list-style-type: none"> a. from which edible fish are harvested <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 & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (where permitted) (ii) Secondary contact water quality (iii) Aesthetic water quality <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 Forest Reserves.</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (i) Protection of pristine or nearly pristine ecosystems <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 & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (where permitted) (ii) Secondary contact water quality (iii) Aesthetic water quality <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>

Table 2: PEVs for the Tamar Estuary and North Esk Catchments

Land Tenure	Protected Environmental Values ^(*see note on page 24)
<p>Surface Water flowing through State Forest</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 & 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>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 flowing through National Parks, State Reserves, Nature Reserves or Historic Sites from Private Land, State Forest or Unallocated Crown 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>having regard for the management objectives for National Parks, State Reserves, Nature Reserves and Historic Sites as outlined in Schedule 4 of the <i>National Parks and Wildlife Act, 1970</i>.</p> <p>B: Recreational Water Quality & 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>That is, as a minimum, water quality management strategies should seek to provide water of a physical and chemical nature to support a modified 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>

Table 2: PEVs for the Tamar Estuary and North Esk Catchments

Land Tenure	Protected Environmental Values ^(*see note on page 24)
<p>Surface Waters with their headwaters within National Parks, State Reserves, Nature Reserves or Historic Sites.</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (i) Protection of pristine or nearly pristine ecosystems <p>having regard for the management objectives for National Parks, State Reserves, Nature Reserves and Historic Sites as outlined in Schedule 4 of the <i>National Parks and Wildlife Act, 1970</i>.</p> <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (where permitted) (ii) Secondary contact water quality (iii) Aesthetic water quality <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 nearly pristine ecosystem; 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 Nature Recreation, Conservation, Game or Regional Reserves from Private Land, State Forest or Unallocated Crown Land</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (i) Protection of a modified (not pristine) ecosystem <ul style="list-style-type: none"> a. from which edible fish are harvested <p>having regard for the management objectives for nature recreation areas, conservation areas and regional reserves as outlined in Schedule 4 of the <i>National Parks and Wildlife Act, 1970</i></p> <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (where permitted) (ii) Secondary contact water quality (iii) Aesthetic water quality <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 ecosystem from which edible fish maybe 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>

Table 2: PEVs for the Tamar Estuary and North Esk Catchments

Land Tenure	Protected Environmental Values ^(*see note on page 24)
<p>Surface Waters with their headwaters within Nature Recreation, Game Conservation or Regional Reserves</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (i) Protection of Pristine or nearly pristine ecosystems <ul style="list-style-type: none"> a. from which edible fish are harvested <p>having regard for the management objectives for nature recreation areas, conservation areas and regional reserves as outlined in Schedule 4 of the <i>National Parks and Wildlife Act, 1970</i>.</p> <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (where permitted) (ii) Secondary contact water quality (iii) Aesthetic water quality <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; 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 Public Reserves under the <i>Crown Lands Act 1976</i></p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Protection of modified (not pristine) ecosystems <ul style="list-style-type: none"> a. from which edible fish are harvested <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 & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (where permitted) (ii) Secondary contact water quality (iii) Aesthetic water quality <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; which will allow people to safely engage in recreation activities such as swimming (where permitted), paddling or fishing in aesthetically pleasing waters.</p>

Table 2: PEVs for the Tamar Estuary and North Esk Catchments

Land Tenure	Protected Environmental Values ^(*see note on page 24)
<p>Surface waters flowing through Un-allocated Crown Land</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Protection of modified (not pristine) ecosystems <ul style="list-style-type: none"> a. from which edible fish are harvested <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (where permitted) (ii) Secondary contact water quality (iii) Aesthetic water quality <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; which will allow people to safely engage in recreation activities such as swimming (where permitted), paddling and fishing in aesthetically pleasing waters.</p>
<p>Surface waters flowing through Commonwealth Land</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Protection of modified (not pristine) ecosystems <ul style="list-style-type: none"> a. from which edible fish are harvested <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (where permitted) (ii) Secondary contact water quality (iii) Aesthetic water quality <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; which will allow people to safely engage in recreation activities such as swimming (where permitted), paddling and fishing in aesthetically pleasing waters.</p>

Table 2: PEVs for the Tamar Estuary and North Esk Catchments

Land Tenure	Protected Environmental Values ^(*see note on page 24)
<p>Deceitful Cove Waters (Requires Review)</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Protection of modified (not pristine) ecosystems <ul style="list-style-type: none"> b. from which edible fish, crustacea and shellfish are not harvested <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (ii) Secondary contact water quality (iii) Aesthetic water quality <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, crustacea and shellfish may not be harvested; which will allow people to safely engage in recreation activities such as paddling and fishing in aesthetically pleasing waters.</p>
<p>Estuarine Waters excluding Deceitful Cove</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Protection of modified (not pristine) ecosystems <ul style="list-style-type: none"> a. from which edible fish and crustacea are harvested but not shellfish except where permitted by Marine Farming Licences under the <i>Living Marine Resources Management Act 1995</i> <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (where permitted) (ii) Secondary contact water quality (iii) Aesthetic water quality <p>E: Industrial Water Supply (Aquaculture in Marine Farming Zones and existing marine farming licences issued pursuant to the Living Marine Resources Management Act 1995, Gunns Ltd and Bell Bay Power Station)</p> <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 and crustacea may be harvested but not shellfish except where permitted by Marine Farming Licences under the <i>Living Marine Resources Management Act 1995</i>; which will allow people to safely engage in recreation activities such as swimming (where permitted), paddling and fishing in aesthetically pleasing waters and which is suitable to support Aquaculture in Marine Farming Zones and existing marine farming licences issued pursuant to the Living Marine Resources Management Act 1995, Gunns Ltd sawmill operations and cooling in Bell Bay Power Station.</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 TAMAR ESTUARY AND NORTH ESK CATCHMENTS

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. 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 obtained by gathering water management values from stakeholders, community groups and government agencies will be used when water management planning is undertaken for the catchment.

An appraisal of water quantity 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 quality.

6. Community Water Values for the Tamar Estuary

Tables 3 to 12 summarise the Community Water Values collected at a number of meetings in the Tamar Estuary and North Esk region. These values relate to both water quality and water quantity. The Community Water Values for the Estuary are listed separately to those values collected for the freshwater creeks and rivers.

Table 3: Community Water Values for the Tamar Estuary and North Esk collected at a public meeting held in Launceston on 9 July 2001 and from written submissions

CATEGORIES	Community Water Values – Freshwater, Launceston Meeting
<p>CONSUMPTIVE/ NON CONSUMPTIVE</p>	<ul style="list-style-type: none"> • Maintain water quality suitable for drinking water supply at Nunamara and St Patrick’s River. • Maintain water quality suitable for Homestead use throughout the catchment. • Manage water quality and quantity so that it is suitable for irrigation and watering of stock. • Maintain water quality at a level suitable for fish farming practices on the St Patrick’s River and at Corralinn on the North Esk. • Maintain water quality at a level suitable for irrigation of the Scotch Oakburn recreational park. • Maintain water quality to be suitable to irrigate the Launceston golf course out of Kings Meadows Rivulet.
<p>RECREATIONAL/ AESTHETIC</p>	<ul style="list-style-type: none"> • Maintenance of water quality at a level that is suitable for swimming at the following locations: <ul style="list-style-type: none"> ❖ Campden River ❖ St Patrick’s River ❖ St Leonard’s ❖ Dickson’s Lands ❖ Myrtle Park ❖ Scout Island ❖ Waverley Dam ❖ Distillery Creek • Maintain water quality at a level suitable for kayaking and canoeing on the North Esk between St Leonard’s and Ben Lomond and on the St Patrick’s River. • Maintain water quality to support rafting both commercial and recreational on the North Esk. • Maintain water quality at Scout Island for camping, swimming and picnicking. • Maintain Corralinn Bridge as a recreational area for walking, bike riding, horse trails and dog walking. • Maintain the water quality at a level suitable for recreational fishing at the following locations: <ul style="list-style-type: none"> ❖ Campden River ❖ St Patrick’s River ❖ St Leonard’s River (Trout, Perch, Blackfish, Eels) ❖ Myrtle Park ❖ Distillery Creek ❖ Waverley Dam

CATEGORIES	Community Water Values – Freshwater, Launceston Meeting
	<ul style="list-style-type: none"> • Maintain the aesthetic value of Corralinn Bridge and retain its litter free status. • Maintain the educational value of the freshwater streams. • Maintain aesthetic qualities of the North Esk adjacent to road crossings. • Maintain aesthetic values of the King Meadows Rivulet for walking and bike riding. • Maintain Patersonia Rivulet water quality so it is suitable to support fishing and so its aesthetic values are maintained. • Maintain the Scotch Oakburn recreational grounds as they act as a detention basin for stormwater. <p>Tidal Area of North Esk (up to St Leonard’s)</p> <ul style="list-style-type: none"> • Maintenance of water quality and quantity to support rowing. • Maintenance of water quality suitable to support canoeing and kayaking in the North Esk up to Hoblers Bridge and between Hoblers Bridge and St Leonard’s when willows do not obstruct the path. • Maintain riverine walkways around St Leonard’s for dog walking.
<p>ECOSYSTEM / BASIC RIVER HEALTH</p>	<ul style="list-style-type: none"> • Maintain water quality suitable to support the following species: trout, blackfish, perch, galaxiids, lampreys, eels, burrowing crayfish and other <i>engeus</i> species. • Maintain water quality at a level suitable to support platypus populations. • Maintain water quality and quantity at a level suitable to maintain macroinvertebrate species and benthic plant communities. • Maintain in stream woody debris as it is important habitat for invertebrate species. • Maintain habitat which is suitable to support sea eagles • Maintain water quality at a level suitable to support the green and gold frog. • Maintain fish passages in the Rivers. • Maintain areas that are free of the mainland introduced yabbies. • Maintain riparian reserves and riparian vegetation particularly those areas that are free of weeds (blackberry, willow, gorse, ragwort). • Maintain areas free of willow particularly in the lower North Esk due to potential flooding problems. • Maintain streams or sections of the North Esk that are low in turbidity. • Maintain waters free of algal blooms. • Maintain current in stream dissolved oxygen content. • Manage the artificial introduction of nutrients to waterways due to their potential impacts on waterway diversity. • Maintain buffer zones around streams to protect water quality.

CATEGORIES	Community Water Values – Freshwater, Launceston Meeting
	<ul style="list-style-type: none"> • Maintain riparian vegetation to stabilise soil and reduce sediment inputs to streams. • Maintain waterways free of debris for safety whilst maintaining enough debris as habitat for water species. • Maintain areas where stock access to waterways is restricted. • Maintain environmental flows and manage the impact of storage dams on stream flows. • Manage water storages to allow environmental flows as well as allowing controlled flooding events for flushing and spawning/migration triggers. • Maintain areas free of salinity particularly the West Tamar and Kings Meadows catchments. <p><u>Tidal Area of North Esk (up to St Leonard's)</u></p> <ul style="list-style-type: none"> • Maintain the water quality and quantity to sustain wetlands and the bird life sanctuary. • Manage the occurrence of siltation adjacent to road crossings. • Maintain water quality at a level to continue supporting visiting ocean species such as seals.
OTHER ISSUES	<ul style="list-style-type: none"> • Continue to manage sewage, stormwater and potential tip site runoff from impacting on waterways. • Maintain the heritage values of Glebe Farm and Gunn Powder Mills. • Environmental flows should be ensured on all waterways and there should really be more enforcement. • Maintain summer water yields at or above historical levels at the main water supply intakes at Watery Plains and Nunamara by appropriate agricultural and forestry cropping cycles.

Table 4: Community Water Values for the Tamar Estuary and North Esk collected at a public meeting held in Launceston on 9 July 2001 and from written submissions

Categories	Community Water Values – Estuary, Launceston Meeting
CONSUMPTIVE/ NON CONSUMPTIVE	<ul style="list-style-type: none"> • Maintain water quantity and quality suitable for Bell Bay Power Station for cooling water (water is extracted from the estuary and returned to Dollivans Bay). • Maintain water quality which is suitable for Longreach woodchip mills. • Maintain water quality and quantity to support abalone, sea horse and salmon farming.
RECREATIONAL/ AESTHETIC	<ul style="list-style-type: none"> • Maintain water quality at a level suitable to support swimming at the following locations: <ul style="list-style-type: none"> ❖ Kings Bridge ❖ Gravelly Beach to Low Head • Maintenance of water quality at a level suitable to support sailing, rowing, personal water craft use (eg jet ski), water skiing, sail boarding, boating and kayaking. • Maintain water of a quality suitable for personal water craft use (eg jet skiing) from Kings Bridge to the Estuary mouth. • Maintain water quality at a level suitable for diving throughout the entire estuary. Police divers have to dive throughout the estuary length. • Maintain water quality at a level to support fishing throughout the estuary. • Maintain scenic vista of the estuary for its tourism value and for river cruises. • Maintain aesthetic of the estuary for walking. • Maintain public accessibility to the estuary. • Maintain aesthetic values of Williams Creek and Long Reach. • Maintenance of aesthetics of the area for the tourist value of the wine route. • Maintain existing wharves and jetties for their recreational value. • Maintain current dredging regimes to ensure that current recreation activities can be sustained. • Maintain tourist value of historic ship wrecks, however some people do not value the pollution and the devalued aesthetics of the Codswald ship wreck.
ECOSYSTEM / BASIC RIVER HEALTH	<ul style="list-style-type: none"> • Maintain the diversity of the Tamar system. • Maintain water quality to support the southern tiger shark and the elephant shark in the shark nursery areas of the Tamar. • Maintain habitat suitable to support penguin populations. • Maintain the wildlife reserves along the Tamar. • Maintain water quality at a level to support flounder, a bottom dwelling fish. • Maintain water quality to support snapper and Kingfish fisheries. Kingfish occur north of Batman's Bridge and Snapper from Rosevears

Categories	Community Water Values – Estuary, Launceston Meeting
	<p>downstream.</p> <ul style="list-style-type: none"> • Maintain riparian vegetation and water quality to support the local sea eagles. • Maintain water quality to support black swan species at Swan Point. • Maintain the riparian reserves alongside the east side of the Tamar and at Longreach. • Maintain the values of the estuarine wetlands. • Maintain rice grass for its sediment holding capacity. • Maintain the ecosystem values of the embayments that occur during low tide. • Maintain and control the presence of marine pests in the estuary and prevent new pests entering from ballast water. • Maintain the estuary for its educational value and maintain the educational facilities that occur along the river. • Maintain a high quality level for stormwater and septic tank discharges.
OTHER ISSUES	<ul style="list-style-type: none"> • Manage existing industrial discharges and potential discharges from wineries into the estuary. • Manage the impacts of forestry on water yields within the catchment, particularly the impacts of cloud seeding on agricultural practices. • Maintain and manage combined stormwater/sewage system overflows. • Maintain and enhance management of tip sites to reduce runoff entering the estuary. • Manage fish farming and abalone farming wastes so they do not impact on the estuary. • Manage the potential for oil spills and TBT impacts on the estuary. • Industrial heritage waterfronts should be maintained whilst their impacts on water quality should be minimised ie yacht clubs, boat yards, maritime transport infrastructure. • Maintain shipping access to the Estuary particularly cruise ships and the Devil Cat. • Oysters in the estuary are inedible due to metal contamination. • Bell Bay is valued as a major industrial area. It would be more highly valued if more industry goes into the area but the environmental impacts need to be carefully managed. • Speedboats are causing foreshore erosion in the Swan Point - Paper Beach area, this needs to be managed by implementing speed restrictions. • The middle arm section of the Tamar is badly contaminated from 20th Century gold extraction.

Table 5: Community Water Values for the Tamar Estuary and North Esk collected at a public meeting held in Riverside on 10 July 2001 and from written submissions

CATEGORIES	Community Water Values – Freshwater, Riverside Meeting
RECREATIONAL/ AESTHETIC	<ul style="list-style-type: none"> • Maintain water quality at a level suitable to support swimming at Scout Island and St Leonard's. • Maintain water quality and quantity to support rowing and surf boating activities on the North Esk up to Hoblers Bridge. • Maintain water quality that is suitable to support swimming in York Town Rivulet. • Maintain water quality at a level suitable for children to paddle in all waterways. • Maintain water quality at Grindelwald dam that is suitable for paddling and other secondary contact activities. • Maintain water quality that is suitable for fishing throughout the entire North Esk. • Maintain water quality that is suitable for fishing in York Town Rivulet. • Maintain the aesthetic value of the Old Flower Mill on the Supply River. • Maintain the aesthetic value of the waterfall on Stony Creek.
ECOSYSTEM / BASIC RIVER HEALTH	<ul style="list-style-type: none"> • Maintain riparian vegetation and green corridors particularly between Trevallyn dam and Corralinn. • Maintain water quality at a level that is suitable to support waterfowl. • Maintain water quality on the Supply River to support healthy trout populations. • Maintain water quality in York Town Rivulet to support fish species. • Maintain regions of the waterways that are free of rats. • Maintain the quality of creeks and streams for their current and future educational values. • Manage the impacts of sewage treatment plants on the waterways. • Manage potential impacts of farming activities on waterways. • Manage impacts of any tip runoff into Stony Creek. • Maintain and enhance the quality of stormwater runoff entering waterways. • Ensure the quality of any onsite septic system is high to prevent adverse effects on waterways.
OTHER ISSUES	<ul style="list-style-type: none"> • Maintain the historic value of the Gunn Battery on Cormiston Creek.

Table 6: Community Water Values for the Tamar Estuary and North Esk collected at a public meeting held in Riverside on 10 July 2001 and from written submissions

CATEGORIES	Community Water Values – Estuary, Riverside Meeting
CONSUMPTIVE/ NON CONSUMPTIVE	<ul style="list-style-type: none"> • Maintain water quality at a level suitable for use by the seahorse industry and abalone farming industry. • Maintain water quality at a level suitable for fish and abalone processing at Beauty Point. • Maintain water quality so that it is suitable for cooling in the Bell Bay Power Station.
RECREATIONAL/ AESTHETIC	<ul style="list-style-type: none"> • Maintain water quality at a level to support swimming throughout the entire estuary but specifically at the following locations: <ul style="list-style-type: none"> ❖ Paper Beach ❖ Gravelly Beach ❖ Kelso ❖ Bonnie Beach ❖ Swan Point ❖ Beauty Point ❖ Sandy Beach ❖ Deviot • Maintain water quality suitable for swimming at the diving pontoons at Gravelly Beach, Sandy Beach and Deviot (diving from these pontoons is not a permitted use). • Maintain water quality at a level which is suitable for rowing, sailing, skiing, boating, canoeing, sea kayaking, surf skiing, jet skiing and malabo boarding. • Maintain water quality at a level suitable for fishing to occur throughout the entire estuary and from wharves. • Maintain water quality at a level suitable to support fishing from Black Bridge to the North Esk. • Maintain the fitness trail along the Tamar Estuary. This trail is more highly valued when dogs are not using the area. • Maintain the aesthetics of the whole estuary for its sense of place and tourism values.
ECOSYSTEM / BASIC RIVER HEALTH	<ul style="list-style-type: none"> • Maintain water quality and quantity to support sea grass beds (Gravelly Beach). No seagrass beds occur south of Batmans Bridge. • Maintain water quality at a level suitable to maintain the many fish species in the estuary. • Maintain water quality and habitat to support bird life particularly cranes, cormorants, wetland birds, swans, ducks and sea eagles. • Maintain all natural beaches in their current state. • Maintain water quality that is suitable to support native oysters, particularly the large deep water oyster. • Maintain areas free of rice grass and pacific oysters.
OTHER ISSUES	<ul style="list-style-type: none"> • Manage the amount of marine farming on the estuary as the aesthetic and tourism values are greater. • Maintain and manage the aesthetics of the wood chip mills and their impacts on the estuary.

Table 7: Community Water Values for the Tamar Estuary and North Esk collected at a public meeting held in Nunamara on 12 July 2001 and from written submissions

CATEGORIES	Community Water Values – Freshwater, Nunamara Meeting
CONSUMPTIVE/ NON CONSUMPTIVE	<ul style="list-style-type: none"> • Maintain water quality at a level that will support trout farming at Myrtle Bank. • Maintain water quality at a level that is suitable for Homestead use including drinking. • Maintain water quality that suitable for drinking water supply for Esk water at its offtakes.
RECREATIONAL/ AESTHETIC	<ul style="list-style-type: none"> • Maintain water at a level that is suitable for swimming at the following locations: <ul style="list-style-type: none"> ❖ Myrtle Park ❖ Corralinn ❖ St Leonard's picnic ground ❖ Diddleum Plains ❖ Nunamara Bridge ❖ Swimming adjacent to all properties • Maintain water quality that is suitable for canoeing and boating on the St Patrick's River and North Esk. • Maintain water quality at a level that is suitable for fishing at: <ul style="list-style-type: none"> ❖ Patersonia Rivulet ❖ Diddleum ❖ St Patrick's River ❖ North Esk • Maintain water quality and aesthetics at Mt Barrow Reserve, Myrtle Park and Nunamara Bridge for picnicking. • Maintain Scott's property for its use as a recreational area. • Maintain aesthetics of Mt Barrow and the Myrtle forest. • Maintain the following renowned walking areas: Mt Scott, Mt Barrow and Mt Arthur. • Maintain recreational values of horse riding and trail bike riding from Myrtle Park to Nabowla. • Maintain ability to rock climb on the North Esk at Corralinn. • Maintain the aesthetics of the streams and rivers particularly the skyline vista.
ECOSYSTEM / BASIC RIVER HEALTH	<ul style="list-style-type: none"> • Maintain native diversity in its entirety throughout the catchment at least at current levels so no loss of environmental diversity occurs. • Maintain water quality at a level that is suitable to sustain platypus populations. • Maintain water quality at a level that is suitable to support trout and eel populations. • Maintain water quality and habitat suitable to sustain the Scottsdale burrowing crayfish and Mt Arthur burrowing crayfish. • Maintain riparian vegetation which is free of environmental weeds such as willow, gorse and blackberries. • Maintain water quality to support threatened species such as the

CATEGORIES	Community Water Values – Freshwater, Nunamara Meeting
	<p>native water cress and native hemp (<i>hempgynatrix</i>).</p> <ul style="list-style-type: none"> • Maintain healthy riparian vegetation and maintain the refugia that exists for rare species. • Maintain environmental flows in the North Esk and ensure that there is no reduction in current water quality or quantity values. • Maintain water low in turbidity. • Maintain and manage plantation forestry in the upper catchments at current levels.
OTHER ISSUES	<ul style="list-style-type: none"> • General concern about the impacts of plantation forestry on water quality and water quantity on the North Esk. • For future catchment uses the precautionary approach should be implemented.

Table 8: Community Water Values for the Tamar Estuary and North Esk collected at a public meeting held in Nunamara on 11 July 2001 and from written submissions

CATEGORIES	Community Water Values – Estuary, Nunamara Meeting
CONSUMPTIVE/ NON CONSUMPTIVE	<ul style="list-style-type: none"> • Maintain water quality of a suitable quality to support cooling in the Bell Bay Power Station.
RECREATIONAL/ AESTHETIC	<ul style="list-style-type: none"> • Maintain water quality at a level that is suitable for swimming from Windermere Jetty to the Estuary mouth. Swimming generally ceases at the Gorge Bridge. • Maintain water quality at a level that is suitable for scuba diving and snorkelling at the following locations: <ul style="list-style-type: none"> ❖ Inspection Head ❖ Western Arm ❖ Shagg Rock ❖ Pilot Station ❖ Garden Island ❖ Middle Island • Maintain water quality so that sailing, water skiing, personal water craft use (e.g jet skiing), windsurfing and rowing are possible throughout the estuary. • Maintain water quality at a level that is suitable for fishing throughout the entire estuary. • Maintain aesthetics of camping sites and picnic areas at the following locations: <ul style="list-style-type: none"> ❖ Paper Beach ❖ Swan Point ❖ Abestos Range ❖ Kelso ❖ Clarence Point ❖ Batmans Bridge ❖ Redbill Point ❖ Western Arm ❖ Hillwood ❖ Bronte Beach ❖ Gravelly Beach ❖ Swan Bay ❖ Lagoon Bay • Maintain aesthetics and general scenic value of the entire estuary. • Maintain the aesthetic values of the area particularly areas where the wine route passes. • Maintain the Tamar Valley lifestyle of hobby farming. • Maintain the educational values that the estuary presents. • Maintain water quality to support bird species for bird watching. • Maintain water quality at a level that is safe to allow for bushwalking.
ECOSYSTEM / BASIC RIVER HEALTH	<ul style="list-style-type: none"> • Maintain water quality at a level to support the wetlands and the Tamar Island Interpretation Area. • Maintain water quality at Rosevears to sustain the water bird haven. • Maintain water quality at a level that is suitable to maintain the current level of species diversity. • Maintain current weed management regimes to ensure the Tamar's appeal is not lost.

CATEGORIES	Community Water Values – Estuary, Nunamara Meeting
	<ul style="list-style-type: none"> • Maintain water quality and quantity to support the threatened forest and heath communities. • Manage aquatic pests to ensure the ecosystem diversity is maintained at current levels. • Maintain and improve current controls over ship ballast water to ensure no further threatening pest species are introduced to the Tamar. • Maintain and reduce the levels of sewage and sediment inputs to the estuary.
OTHER ISSUES	<ul style="list-style-type: none"> • Maintain appropriate ship maintenance practices along the rivers edge so no species diversity is lost. • Maintain water quality around the port by implementing ship waste pumpout facilities. • The Codswald ship should be removed from the estuary due to the ongoing leaching of pollutants from this ship. • Reduce air pollution in the Tamar Valley as it can impact on the water quality in the Tamar.

Table 9: Community Water Values for the Tamar Estuary and North Esk collected at a public meeting held in George Town on 16 July 2001 and from written submissions

CATEGORIES	Community Water Values – Freshwater, George Town Meeting
RECREATIONAL/ AESTHETIC	<ul style="list-style-type: none"> • Maintain water quality at Lady Nelson Creek and Dilston Falls to support swimming. • Maintain water quality at a level that is suitable for fishing and to maintain the aesthetic values of Egg Island Creek, Williams Creek and 14 Mile Creek. • Maintain water quality at a level which will support fishing on the Supply River. • Maintain water quality at the Western Arm to support recreational activities such as walking, swimming, picnicking. • Maintain the historic significance of the Supply River and Western Arm.
ECOSYSTEM / BASIC RIVER HEALTH	<ul style="list-style-type: none"> • Maintain water quality at a level that is suitable to support Mountain Trout. • Maintain the current water quality in the streams in order to protect the existing ecosystems. • Maintain a high quality of stormwater at George Town Cove to reduce impacts when discharged to York Rivulet.
OTHER ISSUES	<ul style="list-style-type: none"> • Most streams flowing into the Tamar are intermittent and inaccessible by the public

Table 10: Community Water Values for the Tamar Estuary and North Esk collected at a public meeting held in George Town on 16 July 2001 and from written submissions

CATEGORIES	Community Water Values – Estuary, George Town Meeting
CONSUMPTIVE/ NON CONSUMPTIVE	<ul style="list-style-type: none"> • Maintain water quality at a level that is suitable to support land based fish farming. • Maintain water quality at a level to support the sea horse farming enterprise. • Maintain water quality that is suitable for use at Bell Bay Power Station for cooling.
RECREATIONAL/ AESTHETIC	<ul style="list-style-type: none"> • Maintain water quality at a level that is suitable to support swimming at the following locations: <ul style="list-style-type: none"> ❖ Homereach ❖ Freshwater Point ❖ Dilston ❖ Rosevears ❖ Swimming throughout the entire estuary ❖ Swimming does not occur in Deceitful Cove due to sediment contamination. The water quality is fine but the sediments are not. • Maintain water quality at a level that is suitable for recreational diving from the Estuary mouth to Bell Bay. • Maintain water quality that is suitable to support boating, water skiing, canoeing and jet skiing throughout the estuary. • Maintain water quality at a level that is suitable to support recreational fishing throughout the estuary. • Maintain water quality in the estuary to support tourist events such as the 3 Peaks Race, fishing competitions and the Tamar River Festival. • Maintain the aesthetic appeal of the estuary. • Maintain the aesthetics and appeal of living near the estuary and the associated property prices.
ECOSYSTEM / BASIC RIVER HEALTH	<ul style="list-style-type: none"> • Maintain ricegrass for its aesthetics and sediment binding capacity. • Maintain areas currently free of ricegrass particularly at some recreational sites such as Gravelly Beach. • Maintain water quality to support the many fish species occurring in the estuary. • Maintain water quality at a level to support viable seal and penguin populations. • Maintain water quality to support shark breeding in the shark nursery area. • Maintain salmon and snapper fish species as well as other edible species in the estuary for the purposes of fishing. • Maintain areas that are free of oysters and move towards their eradication. • Minimise the impacts of ballast water on the estuary as the Tamar is fairly free of ballast pests. • Minimise illegal dumping in the estuary and the impacts it has on biodiversity. • Control fish farming and ensure it is maintained in areas that will not

CATEGORIES	Community Water Values – Estuary, George Town Meeting
	have detrimental impacts on current biodiversity levels.
OTHER ISSUES	<ul style="list-style-type: none"> • Maintain the commercial shipping channel in the Estuary.

Table 11: Community Water Values for the Tamar Estuary and North Esk collected at a public meeting held in Beaconsfield on 17 July 2001 and from written submissions

CATEGORIES	Community Water Values – Freshwater, Beaconsfield Meeting
CONSUMPTIVE/ NON CONSUMPTIVE	<ul style="list-style-type: none"> • Maintain water quality so that irrigation can occur out of the Supply River • Maintain water quality that is suitable for drinking water supply on the North Esk • Maintain water quality at a level that is suitable to support homestead use.
RECREATIONAL/ AESTHETIC	<ul style="list-style-type: none"> • Maintain water quality in the Supply River for recreational fishing. • Maintain water quality in Curries Creek Dam to support boating and fishing activities. • Maintain water quality that is suitable for walking at Notelly Fern Gorge and Holwell Gorge. • Maintain aesthetics for walking along the rivers edge of the Supply River. • Maintain the aesthetic quality of the headwaters of the Tamar by protecting the tree line and hills. • Maintain environmental flows in the Supply River. Flows are low in the summer and there is not enough water for swimming.
ECOSYSTEM / BASIC RIVER HEALTH	<ul style="list-style-type: none"> • Maintain water quality at a level that is suitable to support platypus populations. • Maintain water quality in the Supply River to support waterbirds. • Maintain platypus species and snake species in Barnard's Creek. • Maintain current levels of species diversity both in the streams and in the riparian zone. • Maintain water quality to support bird species such as waterfowl and sea eagles. • Maintain water quality in streams to support the entire food chain as each part of the food chain is integral to the rest. • Maintain water quality in streams as they act as breeding grounds for aquatic life such as whitebait. • Maintain riparian vegetation that is free of willows, blackberries and ragworts. • Maintain environmental flows in all urban streams. • Maintain the current high level of water quality that exists in the Supply River. • Maintain low chemical levels in urban streams. • Manage and maintain high quality runoff into streams. • Maintain existing stream fencing and encourage further fencing of streams to protect them from any further degradation. • Maintain water quality of the streams so it does not affect the underground water in the Beaconsfield area.
OTHER ISSUES	<ul style="list-style-type: none"> • Maintain the balance of natural resources of the Tamar Valley whilst

CATEGORIES	Community Water Values – Freshwater, Beaconsfield Meeting
	<p data-bbox="571 230 959 264">maintaining future development.</p> <ul data-bbox="523 277 1369 369" style="list-style-type: none"> <li data-bbox="523 277 1369 369">• Most of the streams feeding the Tamar dry up during the Summer months. 12-13 catchments occur in the west Tamar areas and the Supply River is the largest followed by Stoney Brook.

Table 12: Community Water Values for the Tamar Estuary and North Esk collected at a public meeting held in Beaconsfield on 17 July 2001 and from written submissions

CATEGORIES	Community Water Values – Estuary, Beaconsfield Meeting
CONSUMPTIVE/ NON CONSUMPTIVE	<ul style="list-style-type: none"> • Maintain water quality at a level that is suitable for use in the sea horse, salmon and abalone farming operations.
RECREATIONAL/ AESTHETIC	<ul style="list-style-type: none"> • Maintain water quality at a level that will support swimming at the following locations: <ul style="list-style-type: none"> ❖ Clarence Point ❖ Beauty Point ❖ Gravelly Beach ❖ No swimming at Launceston ❖ Swimming off Estuary pontoons (this is not a permitted use) • Maintain water quality at a level to support diving at the Estuary head. • Maintain water quality at a level which will support sailing, water skiing and personal water craft use (e.g jet skiing). • Maintain water quality from Beauty Point to the mouth of the estuary for sailing. • Maintain water quality at Rosevears that is suitable for motor boat racing. • Maintain water quality at a level that is suitable for picnicking at the following locations: <ul style="list-style-type: none"> ❖ Hillwood ❖ Egg Island Point ❖ Tamar Island Reserve ❖ Supply Mill Reserve ❖ Paper Beach Walk ❖ Bonnie Beach ❖ There are many picnic areas dotted along the estuary. • Maintain water quality for use by the Maritime College. • Maintain the aesthetics of the estuary for painting and photography. • Maintain the aesthetics of the estuary for its tourism potential ie the Tamar vista.
ECOSYSTEM / BASIC RIVER HEALTH	<ul style="list-style-type: none"> • Maintain water quality at low head to support the Penguin rookeries. • Maintain water quality at a level that is suitable to support water birds. • Maintain water quality at a level that is suitable to support visiting seal populations. • Maintain water quality to support pelican, sea eagle and swan populations. • Maintain water quality around Tamar Island to support the wetland species. • Maintain water quality at a level that is suitable to support and maintain the shark nursery area of the Tamar. • Maintain water quality to support and maintain the sea horse nursery which occurs near the sea horse farm. • Maintain water quality at a level to support a healthy ecosystem at all levels. • Maintain areas that are currently free of pacific oysters.

CATEGORIES	Community Water Values – Estuary, Beaconsfield Meeting
	<ul style="list-style-type: none"> • Maintain areas free of ballast water pests and prevent any further pest introductions. • Maintain areas of native vegetation. • Maintain high quality sewage discharges to the estuary.
OTHER ISSUES	<ul style="list-style-type: none"> • Question whether the Tamar Estuary can sustain commercial fishery operations and perhaps it should be limited to recreational fishing with tight controls in place • Maintain the Tamar charm as a working river ie boats coming in and going out of the estuary • Maintain the assets of the river due to its shipping as it is important to the economy • Maintain and control the ship maintenance industry and the impacts they have on water • Maintain historic values of the estuary • Maintain shack, boat sheds and jetties along the estuary so they do not adversely impact on water quality