



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

**ENVIRONMENTAL
MANAGEMENT
GOALS
for TASMANIAN
WATERS**

**CATCHMENTS IN THE KINGBOROUGH
MUNICIPAL AREA (excluding the Derwent
Estuary catchment) AND
D'ENTRECASTEAUX CHANNEL**

March, 2003



Proposed Environmental Management Goals for Tasmanian Waters:

During 2001/2002 Protected Environmental Values (PEVs) were set for the catchments in the Kingborough Municipal Area (excluding the Derwent Estuary catchment) and D'Entrecasteaux Channel. 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 D'Entrecasteaux Channel, Bruny Island surface waters, North West Bay River and other surface waters in the Kingborough Municipal Area that drain into D'Entrecasteaux Channel. The Derwent Estuary catchment was dealt with in a separate discussion paper.

This paper was prepared by the Environment Division in consultation with the Marine Farming Branch, Kingborough Council, Huon Valley Council, Hobart City Council, the Wellington Park Management Trust, and the Tasmanian Parks and Wildlife Service. Words and expressions used in this discussion paper have, unless the contrary intention appears, the same meaning as defined in the *State Policy on Water Quality Management 1997* and the *Environmental Management and Pollution Control Act 1994*. Ecosystem refers to physical,

chemical and biological aspects of the aquatic environment.

This paper has been modified into its current form to reflect that the process for setting Protected Environmental Values for the Kingborough catchments (excluding the Derwent Estuary catchment) and D'Entrecasteaux Channel is now complete. It was considered, however, that much of the information included in the discussion paper should remain as a record of the PEV setting process.

This paper is divided into six main sections:

- The first part discusses water reform in general.
- The second part gives a brief description of the waterways in the Kingborough Municipal area and the D'Entrecasteaux Channel.
- Part three discusses the State Policy on Water Quality Management.
- The fourth part discusses the Protected Environmental Values for catchments in the Kingborough Municipal Area (excluding the Derwent Estuary catchment) and the D'Entrecasteaux Channel
- Water quantity values are discussed in part 5
- Part 6 and 7 discusses the community water values for the catchments.

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2 INTRODUCTION

2.1 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.

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. Our waterways are not immune from problems, however, and many of our river systems are showing signs of stress.

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 is currently finalising a range of reforms designed to ensure that these values are protected for the future of the State.

2.2 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 using environmental best practice.

Facilitate and promote integrated catchment management.

Focusing on overall water quality management strategies by identifying those water quality values and uses which are considered worthy of protection.

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

(b) water quantity management

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

- Major changes to the institutional arrangements for water management;
- The ready transfer of water rights between different users;
- Enhanced stakeholder and community input into water allocation and management; and
- A more transparent and equitable water allocation system, including formal allocation of flows to maintain a healthy river environment.

The second purpose of this discussion paper was to canvas your views on what you value in your water resources from a water quantity perspective.

2.3 What did we want the public to do?

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

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 or on the D'Entrecasteaux Channel that you traditionally use for swimming or other recreational activities? Do you fish in these waters? Are there specific features of your rivers and streams that are recognised scenic attractions, such as rapids or waterfalls? Do you use water for livestock watering? Do you know of rare or endangered animals or plants in, or adjacent to, specific areas

of your rivers, streams and the D'Entrecasteaux Channel? Does your river supply the local town water supply? Do you draw water from it to irrigate your farm?

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

Planning to ensure sustainable use of these waters and protection of river health requires sound knowledge of local water quality and quantity issues is important. The public submissions providing local knowledge will assist this.

2.4 How was the public input be used?

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

Information from stakeholders, catchment groups and the public on water quantity values will be utilised to better plan the water resources of the catchments. Water management planning will be closely linked with overall catchment management planning to put water resource management on a sustainable footing for the State. Water management planning will be undertaken on a

priority basis, with stressed rivers in the State being targeted initially.

3 CATCHMENT/ WATERWAYS OVERVIEW

3.1 North West Bay River catchment and other catchments in the Kingborough Municipal Area draining into the west coast of the D'Entrecasteaux Channel

The North West Bay River has its origins at an altitude of 1,270 m in the string bogs and alpine marshes at Dead Island on the Mount Wellington plateau. This area of the catchment is within the Hobart City Municipal Area. From here the river enters the Kingborough Municipal Area. The river is 25 km long and flows through Wellington Park, agricultural land, and a rural residential housing area before draining into North West Bay at Margate. The catchment area of the North West Bay River is 94 km². Its tributaries include Blue Gate Creek, Allens Rivulet, Mafeking Creek, Thomson Creek, Levert Rivulet, Gully Creek, Quarry's Creek, The Plains Rivulet and Coombes Rivulet¹. Annual rainfall in the catchment ranges from 1400 mm on Mt. Wellington to 700 mm near Margate². The annual freshwater discharge from North West Bay River into North West Bay represents 79 % of the total freshwater discharge into North West Bay². Smaller freshwater discharges into North West Bay are from Melville Creek, Snug River, Margate Rivulet, Nierinna Creek, Coffee Creek, the Snug Point area, and the Howden-Tinderbox peninsular. Small creeks drain from the west into the D'Entrecasteaux Channel from the

coastal catchment between Snug Point and the mouth of the Huon River.

North West Bay River is divided into four reaches according to geomorphic characteristics¹. The *headwaters reach* extends from the origins of the river on the Mt. Wellington plateau to Wellington Falls. After leaving the plateau the river valley is steep and characterised by pool and riffle sequences. Apart from bushfires the headwater reach has not been modified by humans. The *gorge reach* extends from Wellington Falls to Bett's bridge. The Hobart Water weir is located in the northern part of this reach and except in periods of prolonged rainfall or significant snowmelt much of the water flow in the river at this point is diverted into the Hobart Water supply system. The gorge reach is steep and has been impacted by landslips. The river in this reach is characterised by boulder and rock deposits and plunge pools. The pipeline track, which is a cultural heritage feature of the catchment is located in this area. The headwater reach and most of the gorges reach are located in Wellington Park, which is managed by the Wellington Park Management Trust. The *transfer reach* at the base of Mt. Wellington extends from Betts Bridge to the Huon Highway at Sandfly. In this region the river flows through farms and rural residential properties. During flood periods properties on the banks of the river have been damaged in the past from the force of the river in this reach. The *throughput reach* extends from the Huon Highway at Sandfly to the mouth of the river on North West Bay near Margate. The small estuarine area at the mouth of the North West Bay River and the adjacent Nierinna Creek is of

¹ Green, G. (1999) North West Bay River Catchment Management Plan. Kingborough Council.

² Matthews, J. H. and Volframs, A. (1977) Investigations into the Hydrodynamics of the North West Bay. MSc thesis. University of Tasmania.

ecological importance but has been classified as badly degraded^{3,4}.

The majority of the catchment of the North West Bay River (80.4 %) is comprised of natural landtypes (e.g. forest, woodland, heath/buttongrass, scrub, alpine heath/grassland) with forest being the predominant land type (31.7 %)¹. The remainder of the catchment is comprised of agriculture (17.7 %), cleared bush (1.5 %) and urban (0.5 %) land uses¹. Much of the farming land in this area has been subdivided into small acreages. This type of land use has been zoned as rural residential in the Kingborough Council's planning scheme and involves 12 % of the North West Bay River catchment¹. The land uses in the smaller catchments draining into North West Bay, and those draining into the west coast of the D'Entrecasteaux Channel between Snug Point and the mouth of the Huon River are predominantly forest and agriculture with small urban areas.

The geology of the North West Bay River catchment and other catchments in the Kingborough Municipal Area draining into the west coast of the D'Entrecasteaux Channel is predominantly dolerite and sedimentary rock types with small areas of rock types belonging to the alkaline intrusion group located on the western edge of the catchment inland from Kettering⁴. Features which have been identified as having geoconservation significance in

³Kingborough Council (1976) National Estate Study, Municipality of Kingborough: A study to identify aspects in Kingborough for inclusion in the national estate, Planning Department, Kingborough.

⁴Edgar, G. J., Barrett, N. S. and Graddon, D. J. (1998) A Classification of Tasmanian Estuaries and Assessment of their Conservation Significance: an Analysis using Ecological and Physical Attributes, Population and Land Use. Report to Environment Australia from Parks and Wildlife Services.

the North West Bay River Catchment are cryoplantation/blockstream landform systems, "ploughed field" blockstream sections, alpine peat soils, alpine marshes and string bogs which are located at the origins of the river, and Cathedral Rock in the catchment of the gorges reach of the river⁵.

The flora in Wellington Park (headwater and gorges reaches) is species rich, with 30 % of Tasmania's native flora represented including 80 endemic species (only found in Tasmania). In addition the Park contains 389 species of mosses, liverworts and lichens. The Park contains a number of species which have conservation significance because they are reserved, rare, vulnerable or endangered. The vegetation types in the Park are predominantly alpine, *E. delegatensis* and *E. obliqua* wet forests, with temperate rainforest communities occurring in gullies. The forests in the lower region of the catchment are mostly dry sclerophyll (hard leafed) with *E. pulchella* and *E. obliqua* the main types; however *E. obliqua* wet forest occurs in the upper catchment of Thomson Creek. There are 11 species classified as rare or vulnerable under the *Tasmanian Threatened Species Protection Act 1995* in the lower region of the catchment. A daisy (*Argentipallium spiceri*) thought to be extinct has been recently rediscovered¹.

The North West Bay River catchment is home to 131 animal species including 93 species of birds, 28 species of mammals and 10 species of fish. Rare, endangered and vulnerable species in this catchment are the wedge-tailed eagle, the grey goshawk, the fort-spotted pardolote and the swift parrot.

⁵ Wellington Park Management Plan 1997. Prepared by the Wellington Park Management Trust.

Platypus are a feature of the catchment. Platypus are considered an indicator of catchment health as the platypus is susceptible to poor water quality and to changes in river bank and riparian vegetation structure¹.

Hobart Water

Water is diverted from the upper catchment of North West Bay River into the Hobart Water supply system. This system is also fed by other catchments in Wellington Park, catchments within Mount Field National Park and the Derwent River catchment. On average, Hobart Water supplies 36,000 megalitres of water to the southern Tasmanian community every year. Most of this water (99%) is supplied to eight councils who then have the responsibility to supply householders and industry.

Hobart Water is in the fortunate situation of sourcing much of its raw water supply from highland catchments yielding high quality water. In these areas rainfall run-off and snow melt yield natural water resources that are relatively unaffected by human contact and largely free from atmospheric and environmental pollutants that are common in developed and highly populated areas. Hobart Water is currently working with representatives invited from the Wellington Park Trust, Councils, State Government, local community groups and recreational groups to develop a drinking water catchment management plan for catchments within Wellington Park. A background discussion paper has been prepared to facilitate group discussion and assist in the preparation of the management plan.

North West Bay River – Water Quality

Most pollutants enter the North West Bay river and its tributaries in the lower

catchment. Erosion and contamination by septic tank leachate are identified as the most significant sources of pollution in The North West Bay River Catchment Management Plan¹. Erosion of the banks of the river and particularly creeks flowing through agricultural and other areas of cleared land increases the turbidity of the water and results in siltation. Siltation can smother aquatic biota and decrease the light available to aquatic plants. Plumes of sediment have been observed discharging from the river into North West Bay, discolouring the water.² While some erosion is a natural phenomenon particularly in periods of high rainfall, excessive erosion occurs where the vegetation on the banks of the river and creeks (riparian vegetation) has been cleared. Runoff from gravel/dirt roads and open clay drains was also identified as a significant source of sediment into creeks running into North West Bay River.

Leachate from septic tanks inputs nutrients, bacteria, other microorganisms and viruses into the waterways. The presence of excess nutrients can produce algal blooms and excess growth of weeds which degrade the quality of ecosystems. Animal wastes and fertiliser runoff are other sources of excess nutrients. The levels of nutrients in North West Bay River have been monitored regularly since 1993, and are not considered to be a serious problem. Contamination by faecal bacteria, other microorganisms and viruses may prevent the use of waterways for recreational activities that involve water contact. The presence of faecal coliform bacteria is used as an indicator of the presence of faecal contamination from humans, pets, livestock and native animals. Monitoring of faecal coliforms from May to November 1994 found high

numbers of these bacteria in Allens Rivulet on several occasions¹.

Other sources of pollution include run-off of oil and other material from roads, golf course runoff, stormwater runoff from town areas and litter. The highest input of pollutants occurs during periods of high rainfall when surface run-off, over-flow of septic tanks and erosion are greatest. As land uses in the Snug River catchment, and other small catchments draining into the D'Entrecasteaux Channel have the same land uses as the North West Bay river catchment, a similar range of pollutants probably affect these waters.

North West Bay River Catchment – Community Consultation

Community consultation undertaken as part of the North West Bay River Catchment Management Plan identified the following issues and concerns: preservation of wildlife habitat, willows and other weeds, water quality, water flow/quantity, septic tank pollution, fire mismanagement/deliberate fires, overall environmental preservation, litter in gullies/pipe debris in rivers, land development/subdivision, vegetation clearance/removal, stormwater pollution, stream-bank erosion, flood damage, algal growth, landslips and siltation in North West Bay.

3.2 Bruny Island

The average annual rainfall on Bruny Island is in the order of 450 – 750 mm, with drier conditions on the north of the island. Bruny Island has a population of 580. The main industries on the island are farming (primarily grazing) and aquaculture. The main land tenures on the island are Private Land, State Forest, Forest Reserve, National Park, and Game Reserve. Protected environmental values (PEVs) have been

proposed for the South Bruny National Park, Waterfall Creek State Reserve and Green Island Nature Reserve in the Parks and Wildlife Service draft management plan for those areas.

As activities on private land on Bruny Island are similar to those in other catchments in the Kingborough Municipal area, similar impacts on water quality as those described above would be expected.

2.3 D'Entrecasteaux Channel

The D'Entrecasteaux Channel, which separates Bruny Island and the mainland of south-east Tasmania is an area of great scenic beauty. The waters of the D'Entrecasteaux Channel and associated bays are defined in this paper by a line between Piersons Point and the northern most point of Bruny Island and between Hopwood Point and Southport Bluff. The Channel is used extensively for recreational activities including sailing, boating, fishing, swimming and diving, and is an important area for the marine farming and tourism industries. Most human activities that occur in the Channel depend on good water quality. These activities and activities in the surrounding catchments that drain into the Channel also have the potential to impact on water quality. Good water quality is essential to the maintenance of ecosystems in the Channel.

The Channel is a marine waterway. The two major currents which influence it are the East Australian Current and the Antarctic Circumpolar Current.⁶ The greatest influence of the East Australian current is in late summer, and these waters are relatively warm and nutrient

⁶ Phillips, G. (1999). State of the D'Entrecasteaux Channel Report, prepared as part of the D'Entrecasteaux Channel and Catchment Integrated Land and Marine Planning Project.

poor. Sub-antarctic waters of the Antarctic Circumpolar Current are the greatest influence between August to January, and these waters are cooler and nutrient rich. The main input of non-marine waters is from the Huon Estuary. The movement of water (hydrodynamics) in the Channel is not well studied. The maximum tidal range is 1 metre and winds may be a major influence at least on the movement of surface waters ⁶.

A number of marine mammals frequent the Channel. Bottle-nosed and common dolphins are the most common species sighted, but a number of seal and whale species are also sighted. One hundred and twenty-four fish species have been recorded from the Channel or thought likely to occur there, in addition to a great diversity of invertebrate species ⁶. Over 100 species of seaweeds (macrophytes) have been recorded from the Channel, in addition to seagrasses, and a large number of microscopic phytoplankton species ⁶. Areas at Tinderbox and Ninepin point are protected as marine reserves. Other features of the Channel are bryozoan beds, sponge beds and deep holes with populations of cowries. In addition to the species listed for the North West Bay River catchment, the following rare, endangered or threatened or significant species⁷ are found in the Channel region: hooded plover, white-breasted sea eagle, fairy tern, little penguin, Australian grayling, spotted handfish, broad-striped ghost moth, southeast stag beetle, chaostola skipper, Australian fur seal, New Zealand fur seal, eastern quoll, eastern barred bandicoot, green and gold frog and leatherback turtle ⁶.

D'Entrecasteaux Channel – Water Quality

On-shore activities that discharge directly into the Channel are sewerage treatment plants at Dru Point (Margate), Electrona and Dover and seafood processors that in most cases treat effluent before discharge. The types of pollution that affect the waterways that drain into the Channel, described in section 2.1, will also impact on the Channel. In addition pollutants enter the Channel from water-based activities, such as marine farming and boating. Marine farming of finfish introduces nutrients into the Channel in the form of uneaten feed and fish excrement. Recreational boating is a major activity on the Channel. It is estimated that 30,000 – 50,000 “man-days” are spent on the Channel each year by yachtsmen⁶. Raw sewage and other wastes disposed of directly from small boats into the waterways and toxic substances leaching from anti-fouling paints impact on water quality. Maintenance activities at marinas, fuel and oil spills may also impact on water quality.

Water quality data for the D'Entrecasteaux Channel is limited, however data at the mouth of the Huon Estuary in a recent study undertaken by CSIRO Marine Research provides an indication of water quality for the Channel⁸. The report from this study stated that the marine water entering the Huon Estuary from D'Entrecasteaux Channel is of a high environmental quality⁷. This is perhaps understandable from the regular flushing of these waterways by oceanic and coastal waters. Nonetheless there is evidence of environmental degradation in the

⁷ Bryant, S. and J. Jackson. 1999. Tasmania's Threatened Fauna Handbook: what, where and how to protect Tasmania's threatened animals. Threatened Species Unit, Parks and Wildlife Service, Hobart.

⁸ CSIRO Huon Estuary Study Team (2000). Huon Estuary Study: Environmental Research for Integrated Catchment Management and Aquaculture. CSIRO Marine Research.

Channel which is likely linked to water quality, most notably in the reduction of seagrasses.⁹ Seagrass beds reduced by 38% in North West Bay between 1950 and 1990, and there was a 97% reduction in a 492 ha seagrass bed off Middleton between 1970 and 1990. Declines in seagrasses throughout Tasmania are correlated to the growth of algae on the surface of the grasses⁸. It is suggested that this growth of surface algae (epiphytes) is a result of increased nutrients from human activities. Excess nutrients come from land-based activities (e.g. run-off of agricultural fertilisers, septic tank drainage) and water-based activities (e.g. heavy epiphyte growth was found in Missionary Bay, an anchorage off Bruny Island⁸).

D'Entrecasteaux Channel, including North West Bay has been described as a chronically disturbed zone that has been seriously degraded over the past 200 years¹⁰. Much of the degradation of this environment in the past is a result of changes other than in water quality e.g. scallop dredging, scouring by mooring chains, over-fishing and the introduction of exotic species. Although there is evidence that changes in water quality of the Channel have modified natural ecosystems, the water quality is high, making it suitable for the farming of filter-feeding shellfish for human consumption.

D'Entrecasteaux Channel – Community Consultation

Public forums were held at Kingston, Margate, Kettering and Allonah in

October 1999, as part of the D'Entrecasteaux Channel Integrated Land and Marine Planning Project⁶. Protecting water quality was one of the priority issues identified in these forums. Values dependent on water quality that were identified in these forums were: clean water for recreational activities including swimming, snorkelling, fishing and boating; marine farming and tourism including ecotourism. Many pressures/issues/threats related to maintaining these and other values were raised in these forums and included nutrient loads, growth of marine farms, sewerage, leachate from the Baretta tip, discharges from small boats, pollution from old industrial sites, clearance of coastal vegetation, leaching of the anti-fouling agent tributyl tin and ballast water. In addition most of issues raised in the community consultation undertaken as part of the North West Bay River Management Plan (section 2.1), were also raised in these forums.

⁹ Rees, C. G. (1994). Tasmanian Seagrass Communities. MSc Thesis. University of Tasmania

¹⁰ Rees, C. (1993). Issues in the Marine Environment. State of the Marine Environment Report No. 1. Prepared for the Parks and Wildlife Service, Department of Environment and Land Management, Tasmania.

4 WATER QUALITY: PROTECTED ENVIRONMENTAL VALUES

4.1 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)** of the surface waters in your region. **PEVs are the values or uses of the water body for which it is determined that any given area of that water body 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

These values are described in more detail in Section 3.2.

The Board of Environmental Management and Pollution Control will then specify a range of pollutant limits called 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 values to be protected.

The Policy then 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.

4.2 Protected Environmental Values Categories

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

A: Protection of Aquatic Ecosystems

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

What does pristine mean?

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

B: Recreational Water Quality & Aesthetics

- (i) Primary contact
- (ii) Secondary contact

(iii) Aesthetics

‘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.

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 water body should be 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.

4.3 Community Input

We asked the public to examine and provide comment on some water quality PEVs which the Board and regional planning authorities had as a starting point, suggested may be suitable for surface waters in the Kingborough Municipal Area (excluding the Derwent Estuary catchment) and D’Entrecasteaux Channel.

These PEVs were developed in to the final PEVs as shown in Section 4 and relate to the attached land tenure map for the region.

We wanted the community to tell us about 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)? Other questions were whether existing values and uses are under threat from deteriorating water quality, or whether there is the potential for improving water quality to support new uses.

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

WATER QUALITY: PROTECTED ENVIRONMENTAL VALUES FOR CATCHMENTS in the KINGBOROUGH MUNICIPAL AREA (excluding the Derwent Estuary catchment) and D'ENTRECASTEAUX CHANNEL

In 2001-2002 the State Government through the Environmental Management and Pollution Control Board, in association with the Kingborough, Huon Valley and Hobart City Councils, the Director of Parks and Wildlife, the planning authority under the *Marine Farming Planning Act 1995*, and the Wellington Park Management Trust set Protected Environmental Values (PEVs) for surface water quality for D'Entrecasteaux Channel, Bruny Island, North West Bay River and other surface waters in the Kingborough Municipal Area that drain into D'Entrecasteaux Channel, as required by the *State Policy on Water Quality Management 1997*.

The Discussion Paper – *Proposed Environmental Management Goals for Tasmanian Surface Waters: Catchments in the Kingborough Municipal Area (excluding the Derwent Estuary Catchment) and D'Entrecasteaux Channel*– was developed by DPIWE, in association with Councils and approved for release to stakeholders and the public in December 2000. This paper explained the Policy and how the environmental values for water quality (PEVs) are identified and used.

The discussion paper was sent to approximately 170 stakeholders who were invited to workshops at Woodbridge, Margate and Alonnah in February 2001. Further information about the Policy and Protected Environmental Values was provided at the meetings and information collected on Community Water Values in the region. Similar public meetings in March 2001 were advertised twice in

the Mercury, in the Kingston Classifieds and the Cygnet and Channel Classifieds, and by the display of notices. The Margate meetings were attended by 32 people, the Woodbridge meetings by 19 people and the Bruny Island meetings by 4 people. As a result of the meetings the PEVs were amended by identifying North-West Bay as a separate area, and identifying the location of swimming spots on private land. These amendments and the compiled Community Water Values were sent to stakeholders and those who attended the meetings for comment. Of the 5 organisations who provided feedback, four (Hobart Water, North-West Bay Catchment Management Committee, the Southern District of the Parks and Wildlife Service, and the Hobart City Council) were supportive of the outcomes of the consultation process, and one (The Howden Progress Association) was dissatisfied with the broad nature of the Protected Environmental Values, and the non-regulatory nature of the Community Water Values. The Community Water Values provide valuable information regarding the communities expectations for water management, they help stakeholders make the link between the PEVs and their specific values for the regions waterways and are used in water management planning. Issues at the Margate public meeting focussed on a proposal (which has since been abandoned) to re-develop the port at Electrona.

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

Remember - the Protected Environmental Values are those values and uses which are currently in evidence.

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.

Table 2: Protected Environmental Values for the North West Bay River catchment, other catchments in the Kingborough Municipal Area draining into the west coast of D'Entrecasteaux Channel and Bruny Island	
Land Tenure	Protected Environmental Values
<p>Surface Waters in Wellington Park</p> <p>(including Hobart Water Supply Catchment)</p>	<p>A: Protection of Aquatic Ecosystems</p> <p>(i) Pristine or nearly pristine ecosystems</p> <p>B: Recreational Water Quality & Aesthetics</p> <p>(i) Primary contact water quality, (where permitted under the Wellington Park Management Plan)</p> <p>(ii) Secondary contact water quality, (where permitted under the Wellington Park Management Plan)</p> <p>(iii) Aesthetic water quality</p> <p>C: Raw Water for Drinking Water Supply</p> <p>(ii) Subject to coarse screening plus disinfection (Hobart Water supply catchment), having regard to the latest edition of the Australian Drinking Water Guidelines.</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 pristine or near pristine aquatic ecosystem; which will allow people to safely engage in primary contact activities (e.g. swimming) and secondary contact recreation activities (e.g. paddling or fishing) in aesthetically pleasing waters, where those activities are permitted under the Wellington Park Management Plan, and which is suitable as raw water for drinking water supply subject to coarse screening plus disinfection in the Hobart Water supply catchment.</p>

Table 2: Protected Environmental Values for the North West Bay River catchment, other catchments in the Kingborough Municipal Area draining into the west coast of D’Entrecasteaux Channel and Bruny Island

Land Tenure	Protected Environmental Values
<p>Surface Waters on Private Land (including forest on private land)</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Modified (not pristine) ecosystems <ul style="list-style-type: none"> (a) from which edible fish, crustacea and shellfish are harvested <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (Hazell property at Brookfield, Miandetta Drive – public access to river) (iii) Secondary contact water quality (iv) Aesthetic water quality <p>D: Agricultural Water Uses</p> <ul style="list-style-type: none"> (i) Irrigation (ii) Stock watering <p>E: Industrial Water Supply (Blue Metal Industries)</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 irrigation and stock watering purposes; which will allow people to safely engage in primary contact recreation activities such as swimming (at specific sites) and secondary contact recreation activities such as paddling or fishing in aesthetically pleasing waters; and which is suitable for industrial uses by Blue Metal Industries.</p>

Table 2: Protected Environmental Values for the North West Bay River catchment, other catchments in the Kingborough Municipal Area draining into the west coast of D’Entrecasteaux Channel and Bruny Island

Land Tenure	Protected Environmental Values
<p>Surface waters in Forest Reserves with their headwaters within Forest Reserves.</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (i) 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 (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, paddling or fishing in aesthetically pleasing waters.</p>
<p>Surface Waters flowing through Forest Reserves from 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, crustacea and shellfish 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 (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, paddling or fishing in aesthetically pleasing waters.</p>

Table 2: Protected Environmental Values for the North West Bay River catchment, other catchments in the Kingborough Municipal Area draining into the west coast of D’Entrecasteaux Channel and Bruny Island

Land Tenure	Protected Environmental Values
<p>Surface Waters in National Parks, State Reserves, Nature Reserves or Historic Sites with their headwaters within those National Parks, State Reserves, Nature Reserves or Historic Sites, or flowing directly from an adjacent Forest Reserve where their headwaters are located.</p>	<p>A: Protection of Aquatic Ecosystems</p> <p>(i) Pristine or nearly pristine ecosystems</p> <p>having regard for the management objectives for national parks, state reserves, nature reserves and historic sites outlined in Schedule 1 of the <i>National Parks and Reserves Management Act, 2002</i>.</p> <p>B: Recreational Water Quality & Aesthetics</p> <p>(i) Primary contact water quality</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 pristine or nearly pristine ecosystem; and which will allow people to safely engage in recreation activities such as swimming, paddling or fishing in aesthetically pleasing waters.</p>

Table 2: Protected Environmental Values for the North West Bay River catchment, other catchments in the Kingborough Municipal Area draining into the west coast of D’Entrecasteaux Channel and Bruny Island

Land Tenure	Protected Environmental Values
<p>Surface Waters flowing through National Parks, State Reserves, Nature Reserves and Historic Sites from private land, state forests or un-allocated crown</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Modified (not pristine) ecosystem <ul style="list-style-type: none"> (a) from which edible fish, crustacea and shellfish are harvested <p>having regard for the management objectives for national parks, state reserves, nature reserves and historic sites outlined in Schedule 1 of the <i>National Parks and Reserves Management Act, 2002</i>.</p> <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (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 may be harvested; and which will allow people to safely engage in recreation activities such as swimming, paddling or fishing in aesthetically pleasing waters.</p>

Table 2: Protected Environmental Values for the North West Bay River catchment, other catchments in the Kingborough Municipal Area draining into the west coast of D’Entrecasteaux Channel and Bruny Island

Land Tenure	Protected Environmental Values
<p>Surface Waters in Nature Recreation Areas, Conservation Areas and Game Reserves with their headwaters in Nature Recreation Areas, Conservation Areas and Game Reserves.</p>	<p>A: Protection of Aquatic Ecosystems</p> <p>(i) Pristine or nearly pristine ecosystems</p> <p>Having regard for the management objectives for nature recreation areas, conservation areas and game reserves outlined in Schedule 1 of the <i>National Parks and Reserves Management Act, 2002</i>.</p> <p>B: Recreational Water Quality & Aesthetics</p> <p>(i) Primary contact water quality</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 pristine or near pristine aquatic ecosystem; and which will allow people to safely engage in recreation activities such as swimming, paddling or fishing in aesthetically pleasing waters.</p>

Table 2: Protected Environmental Values for the North West Bay River catchment, other catchments in the Kingborough Municipal Area draining into the west coast of D’Entrecasteaux Channel and Bruny Island

Land Tenure	Protected Environmental Values
<p>Surface Waters flowing through Nature Recreation Areas, Conservation Areas and Game Reserves from private land, state forests or un-allocated crown</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Modified (not pristine) ecosystem <ul style="list-style-type: none"> (a) from which edible fish, crustacea and shellfish are harvested <p>having regard for the management objectives for nature recreation areas, conservation areas and game reserves outlined in Schedule 1 of the <i>National Parks and Reserves Management Act, 2002</i>.</p> <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (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 may be harvested; and which will allow people to safely engage in recreation activities such as swimming, paddling or fishing in aesthetically pleasing waters.</p>
<p>Surface waters flowing through Public Reserves (under the <i>Crown Lands Act 1976</i>) from private land, state forest or un-allocated crown land.</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Modified (not pristine) ecosystems <ul style="list-style-type: none"> (a) from which edible fish, crustacea and shellfish are harvested <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (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; and which will allow people to safely engage in recreation activities such as swimming, paddling or fishing in aesthetically pleasing waters.</p>

Table 2: Protected Environmental Values for the North West Bay River catchment, other catchments in the Kingborough Municipal Area draining into the west coast of D’Entrecasteaux Channel and Bruny Island

Land Tenure	Protected Environmental Values
<p>Surface waters on Unallocated Crown Land</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Modified not pristine ecosystem <ul style="list-style-type: none"> (a) from which edible fish, crustacea and shellfish are harvested <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (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 (not pristine) ecosystem from which edible fish are harvested; and which will allow people to safely engage in recreation activities such as swimming, paddling or fishing in aesthetically pleasing waters.</p>
<p>Surface waters within State Forests (managed under the <i>Forestry Act</i> 1920)</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Modified (not pristine) ecosystems <ul style="list-style-type: none"> (a) from which edible fish, crustacea and shellfish are harvested <p>having regard for Forestry Tasmania’s Management Decision Classification System</p> <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (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; and which will allow people to safely engage in recreation activities such as swimming, paddling and fishing in aesthetically pleasing waters.</p>

Table 2: Proposed PEVs for the D'Entrecasteaux Channel

<p>Waters within D'Entrecasteaux Channel, but excluding marine reserves</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Modified (not pristine) ecosystems <ul style="list-style-type: none"> (a) from which edible fish, crustacea and shellfish are harvested <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (ii) Secondary contact water quality (iii) Aesthetic water quality <p>E: Industrial Water Supply (Aquaculture)</p> <p>That is, as a minimum, water quality management strategies should provide water of a physical and chemical nature to support a healthy, but modified aquatic ecosystem from which edible fish, crustacea and shellfish may be harvested; and which will allow people to safely engage in recreation activities such as swimming, paddling, fishing or boating in aesthetically pleasing waters; and which is suitable for the farming of fish and shellfish in marine farm zones.</p>
<p>North-West Bay</p>	<p>A: Protection of Aquatic Ecosystems</p> <ul style="list-style-type: none"> (ii) Modified (not pristine) ecosystems <ul style="list-style-type: none"> (a) from which edible fish, crustacea and shellfish are harvested <p>B: Recreational Water Quality & Aesthetics</p> <ul style="list-style-type: none"> (i) Primary contact water quality (ii) Secondary contact water quality (iii) Aesthetic water quality <p>E: Industrial Water Supply (Aquaculture)</p> <p>That is, as a minimum, water quality management strategies should provide water of a physical and chemical nature to support a healthy, but modified aquatic ecosystem from which edible fish, crustacea and shellfish may be harvested; and which will allow people to safely engage in recreation activities such as swimming, paddling, fishing or boating in aesthetically pleasing waters; and which is suitable for the farming of fish and shellfish in marine farm zones.</p>

Table 2: Proposed PEVs for the D’Entrecasteaux Channel

<p>Marine Reserves</p>	<p>A: Protection of Aquatic Ecosystems</p> <p>(iii) Modified (not pristine) ecosystems</p> <p>having regard for management objectives outlined for nature reserves in Schedule 1 of the <i>National Parks and Reserves Management Act, 2002</i>. (n.b. Tinderbox and Nine Pin Point Marine Nature Reserves are protected from fishing activities by Fisheries Rules under the <i>Living Marine Resources Management Act 1995</i>).</p> <p>B: Recreational Water Quality & Aesthetics</p> <p>(i) Primary contact water quality (where permitted)</p> <p>(ii) Secondary contact water quality (where permitted)</p> <p>(iii) Aesthetic water quality</p> <p>That is, as a minimum, water quality management strategies should provide water of a physical and chemical nature to support a healthy, but modified aquatic ecosystem and which will allow people to safely engage in recreation activities such as swimming and in aesthetically pleasing waters.</p>

6 WATER QUANTITY VALUES

6.1 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 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 on legitimate community values and uses.

6.2 Water quantity values

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

- Ecosystem values;
- Physical landscape values.

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

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

An appraisal of water 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 water body. Examples may include:

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

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

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

Recreational Values: These include the range of direct human uses of water bodies for purposes such as kayaking, canoeing, sailing, swimming, fishing etc. This type of value is difficult to

quantify, but is an essential part of our way of life in Tasmania. Water quality issues are also important, especially where primary contact occurs (swimming for example), or where the recreational activity relies on a base of good quality water, such as a recreational fishery. Examples may include:

- maintenance or improvement of the quantity (and quality) of water for recreational fishery (trout, blackfish etc);
- provision of sufficient water for whitewater rafting;
- provision of sufficient water (of adequate quality) for swimming.

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

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

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

7 Community Water Values for catchments in the Kingborough Municipal Area (excluding the Derwent Estuary Catchment)

Community water values for North West Bay River were recorded at a Stakeholder meeting, held at Sandfly in March 1999, and have been reproduced in Table 6.1. These values were used as the basis for the identification of additional values for NW Bay River and other surface waters in the Kingborough Municipal Area at Stakeholder and Public meetings held at Margate, Woodbridge and Alonnah in February and March 2001. These values, along with those contributed in written submissions are recorded in Table 6.2.

Table 6.1: Water values for North West Bay River resulting from a Stakeholder workshop held at Sandfly Hall on 22nd March 1999.

WATER VALUE CATEGORIES	SPECIFIC WATER VALUES
1. Ecosystem	<ul style="list-style-type: none"> • Improve water quality. • Maintain platypus habitat. • Increase summer flows. • Provide occasional flushing flows. • Improve protection of catchment from further human impacts. • Improve wildlife habitat (terrestrial and aquatic). • Establish ecologically sustainable water flows. • Protection of riverine vegetation. • Minimise erosion, weed invasion and distribution. • Minimise septic seepage. • Improve dilution flows. • Minimise stormwater pollution. • Minimise stock access and runoff. • Improve fish habitat in river.
2. Consumptive and non-consumptive use	<ul style="list-style-type: none"> • Maintain current agricultural Commission water rights. • Maintain household water supplies. • Provide water collection points for emergency services. • Maintain riparian rights. • Improve potable water standards. • Review Hobart Water consumption. • Maintain the viability of the water supply to the greater Hobart area.
3. Recreational	<ul style="list-style-type: none"> • Improve water quantity for swimming. • Define access to the river. • Improve habitat for recreational fishing. • Remove horse riding trails from river. • Maintain horse riding trails. • Maintain water quantity for primary contact. • Centralised camping/day use facilities.

	<ul style="list-style-type: none"> • Maintain or improve water for kayaking.
4. Physical Landscape	<ul style="list-style-type: none"> • Maintain water in waterfalls and rock pools in upper reach below the weir. • Minimise visual impact of development. • Prevention of mining or removal of material from river.
5. Aesthetic	<ul style="list-style-type: none"> • Maintain minimum flows for visual and aural impact. • Improve appearance of river by removing exotic vegetation and revegetating with native riparian vegetation. • Repair and revegetate eroded banks. • Arrest streambank erosion.

Table 6.2. Community water values for catchments in the Kingborough Municipal Area (excluding the Derwent Estuary catchment) recorded at Stakeholder and Public Meetings held at Woodbridge, Margate and Alonnah in February and March 2001, or contributed by written submissions.

Water Value Categories	Specific Water Values
1. Ecosystem Values	<ul style="list-style-type: none"> • Maintain overall ecosystem health and biodiversity • Maintain significant areas of native riparian vegetation in NW Bay River, Snug River, and maintain catchment vegetation, including areas such as Snug Tiers, Woodbridge Hill, Mountain Creek, Mt. Royal and the forested mountain range on Bruny Island. • Presence of graylings in waterways • Presence of eels in waterways • Presence of fish species in brackish parts of stream • Presence of frogs • Presence of birdlife • Creek debris important to maintaining birdlife • Schemes Creek and the next un-named creek are almost a mini-delta and support a lot of wildlife • Good wildlife habitat in the headwaters/catchment of Captain Cook Creek on Bruny Island <p>Issues and concerns:</p> <ul style="list-style-type: none"> • Weed invasion including willows, blackberry and thistles • Ecosystem loss • Natural pressure on water due to tree uptake as forests have reestablished following the 1967 bushfires. • Runoff from gravel roads runs into creeks during rainfall – tarred roads would decrease turbidity • Water flows to minimise anaerobic conditions • Sediment transport from quarries into creeks

	<ul style="list-style-type: none"> • Pollution by salts/organics from fish processing • Impact of dams on natural flows • Biological indicators should be quantified and used as part of Water Quality Objectives • Several estuarine areas at mouths of creeks are often in a degraded condition
2. Physical Landscape Values	<ul style="list-style-type: none"> • Geomorphology and hydrology of NW Bay River and other rivers in Kingborough • Variation in flow conditions including summer flows • Intrinsic value of NW Bay river system • Value areas free of Radiata pine where they fall into and choke creeks on Bruny Island
3. Consumptive and non-consumptive	<ul style="list-style-type: none"> • Quarry • Irrigation of pasture, orchards and vineyards • Stock-watering of cattle and sheep • Freshwater bathing of commercially-produced salmon • Firefighting • Domestic – gardens, toilets, showering, keeping things green for fire protection • Water for roadworks (off-take points include Betts Rd Bridge, the Highway north of Sandfly, and the Channel Highway at Margate) • Captain Cook Creek is the largest creek on Bruny Island and is a reliable creek for water in times of drought when tanks get low • Offtakes from Captain Cook Creek to bath fish at a fish farm <p>Issues and concerns:</p> <ul style="list-style-type: none"> • Concerns about the conflict of values and uses of NW Bay river, environmental flows, use by Hobart Water and water management planning • Increasing number of bores in Kingborough need to be managed • Impact of private collection of water, including water for bushfires during the dry months • Lack of control on fish-farmers taking water for fish-bathing on Bruny Island
4. Recreational Values	<ul style="list-style-type: none"> • Maintenance of sufficient flows for kayaking in the North-West Bay River • Salmon and trout spawning • Used to be fishing at Schemes creek • Walking along creeks • Bushwalking (Snug River, Snug Falls and Wellington Falls) • Fishing for bream below Margate Bridge • Betts Road Bridge to Cathedral Rock walk

	<ul style="list-style-type: none"> • Bird watching • Fishing and playing by children in all small streams • Small creeks and estuaries behind sandbars at Adventure Bay are a valued recreational area • Walking at the Waterfall Creek Nature Reserve • 4WD in Snug Tiers Nature Recreation Area <p>Issues and concerns:</p> <ul style="list-style-type: none"> • Mouth/Estuary of Captain Cook Creek is used for swimming and fishing, but is polluted by septic leachate at times.
5. Aesthetic Landscape Values	<ul style="list-style-type: none"> • Aesthetic value of foreshores • Snug Falls, Pelverata Falls • Tree-line along creeks • Aesthetic values at bridge crossings at Margate and Snug <p>Issues and concerns:</p> <ul style="list-style-type: none"> • Would like quantified objectives associated with aesthetic values. •
6. Others	<ul style="list-style-type: none"> • Value healthy waterways for appreciation/education of the community

8 Community Water Values for D’Entrecasteaux Channel and North West Bay

Some water values collected at public forums as part of the D’Entrecasteaux Channel and North West Bay Strategic Management Plan and Strategic Action Plan¹¹ are incorporated in Table 7.1 and were a starting point for the collection of additional community water values for the D’Entrecasteaux Channel recorded at Stakeholder and Public Meetings held at Woodbridge, Margate and Alonnah in February and March 2001, and from written submissions. There was a strong opinion expressed at the meetings held at Margate that the values of North West Bay warranted separate recognition. Values specific to North West Bay are listed in Table 7.2.

Table 7.1. Community Water Values for D’Entrecasteaux Channel

Water Value Categories	Specific Water Values
1. Ecosystem Values	<ul style="list-style-type: none"> • Importance of all communities and species, not just endangered species • Pristine beaches, free from pollution • Bird Sanctuary on Green Island • Clean water • Diversity of fish • Good flushing system (open at both ends) • Wetlands at Snug River, Captain Cook Creek • Biodiversity • Mudflats • Endangered sea-star species <i>Smilasterias tasmaniae</i> and <i>Patiriella vivipara</i> • Intertidal zones are important bird habitat • Tinderbox and Ninepin Point Marine Reserves • Seagrasses valued as habitat for juvenile fish e.g. Cloudy Bay Lagoon • Waterways free of land reclamation • Waterways free from anti-fouling leachates • Vegetation (She-oaks) stabilising foreshore • Maintenance of water clarity • Beaches free from siltation • Muttonbirds (shearwaters) and fairy penguins at Bruny Island Neck Game Reserve and other locations on Bruny Island • Forty-spotted pardolote – Dennes Hill Nature Reserve on Bruny Island was proclaimed to protect this endangered species <p>Issues and concerns:</p>

¹¹ Phillips, G. 2000. The D’Entrecasteaux Channel and North West Bay Strategic Management Plan and Strategic Action Plan. Prepared as part of the D’Entrecasteaux Channel and Catchment Integrated Land and Marine Planning Project. National Heritage Trust and Kingborough Council.

	<ul style="list-style-type: none"> • Seagrasses in Kettering harbour declining because of mooring chains • Importance of monitoring marine waters • Destruction of seabeds under salmon farms • Disappearance of fish species such as flounder and flathead
2. Physical Landscape Values	<ul style="list-style-type: none"> • Foreshore accessibility • Good anchorages – Coningham, Rats Bay, Oyster Cove, Sheppards • Sheltered Bays • Sheltered waterway • Islands e.g Green Island, Partridge Island, Arch Island, Snake Island • Reserve areas such as Whale Point and other areas around Laballadiere Peninsular
3. Consumptive/ Non-consumptive Values	<ul style="list-style-type: none"> • Marine farming • Commercial fishing – 1 licence only • Clean water for tanks at the Marine Discovery Centre • Clean water for the commercial activities such as the processing of mussels, oysters and abalony, for keeping live crayfish, and for off-loading at Kettering commercially-caught fish from outside of the Channel • Land-based fish-farming
4. Recreational Values	<ul style="list-style-type: none"> • Safe navigable waterways/best cruising waters in Australia • Fishing, including fishing off rocks and fishing for galaxids in Birchs Bay • Swimming – all of Bruny Island and most of the eastern foreshore of the Channel is used for swimming e.g. Middleton Beach, Silver Water Park, Verona Sands, Snug Beach, Trial Bay • Surfing • Interaction with the environment • Canoeing • Snorkelling • Safe beaches e.g. Rats Bay • Dru Point Picnic area, and many picninc areas at the ends of roads e.g. Birchs Bay, Flowerpot Rock, Jetty Road • Marine reserves at Tinderbox and Ninepin Point • Value jetties such as Woodbridge jetty which services a number of users • Water skiing • Sea-kayaking • Beach combing/rock pooling • Playground for children e.g. paddling in Birchs Bay • Dive trail at Tinderbox • Diving e.g. off Verona Sands • Wetland for birds at Simpsons Bay • Value areas free of plastics, treated timbers, glass and fishfarm weed

	<ul style="list-style-type: none"> • Value seals for tourism, but not for fish farms • Penguin and muttonbird rookeries • Camping • Crayfishing • Kelp beds • Boating • Wind-surfing • Clarity of water for observing sealife • Shellfish gathering • Walking along coastal trails <p>Issues and concerns:</p> <ul style="list-style-type: none"> • Water quality at Woodbridge has improved since the improvements in sewerage treatment; swimming may be possible where it wasn't recommended previously • Septic public toilets at Tinderbox are a source of pollution • Feral oysters at Woodbridge, Middleton and other areas are a nuisance cutting feet, reducing enjoyment of foreshore for swimming and other inshore activities • Detritus from oyster farms ending up on foreshore • Salmon farms make navigation difficult • Impact of pollution from existing, recently developed and further industrial development, specifically agricultural pesticides, fertilisers, animal wastes and sewerage • Impact of erosion from banks of rivers and bays, manmade tracks, walkways, concrete steps and vehicle/trailer access and from trail-bike riding, dune-buggy and bushwalking • Invasive weeds such as Marram grass and Lupins
5. Aesthetic Values	<ul style="list-style-type: none"> • Good scenery including bush and hills of the Channel area • Extraordinary underwater scenery • Trees down to waterline • Water free from oils/scum from fish farms
6. Other	<ul style="list-style-type: none"> • Valuable area for educating children about the marine environment, particularly at the Marine Discovery Centre • Tourism/Ecotourism potential • Relaxing/peaceful lifestyle; different from suburbia • Historic values • Aboriginal heritage and landscape values, including middens and seacaves along foreshore and creeks • Aesthetic values attract investment; safe/creative employment; potential for development and enterprising options

Table 7.2. Community Water Values raised at the Margate meeting and in written submissions that are specific to North West Bay, and additional to the values in Table 7.1 which apply in general to the D'Entrecasteaux Channel

Water Value Categories	Specific Water Values
1. Ecosystem Values	<ul style="list-style-type: none"> • Seagrass beds • Fish communities • Sea horses • Fish breeding and nursery (including commercial species) • Mutton-bird feeding • Feeding of dolphins and sometimes humpback whales • Feeding and breeding of little penguins • Tidal flats and wetlands in the Margate-Dru Point Area have National Estate listing and contain rare species • Shark nursery <p>Other issues and concerns:</p> <ul style="list-style-type: none"> • Impact of jellyfish populations on aquaculture • Action of shipping movements and tugboats stirring up sediment • Impacts from septic and household seepage, incompetent sewerage systems and a fish farm
2. Physical Landscape Values	<ul style="list-style-type: none"> • Large, shallow tidal area with limited flushing
3. Consumptive/ Non-consumptive Values	
4. Recreational Values	<ul style="list-style-type: none"> • Sailing/boating • Walking on foreshore • Fishing such as flatheading and floundering
5. Aesthetic Values	<ul style="list-style-type: none"> • High aesthetic/amenity community values because it is surrounded by townships
6. Other	<ul style="list-style-type: none"> • North West Bay is an educational resources for schools and the University <p>The following concerns were raised at the public meeting at Margate and in written submissions in relation to a proposed wharf development at Electrona on North-West Bay:</p> <ul style="list-style-type: none"> • concern that PEVs and Water Quality Objectives will not be taken into consideration in planning and environmental assessments • Concern that the community is consulted but not listened to • Concern that the State Policy on Water Quality Management does not have teeth i.e. needs to be regulatory • Concern about value of Environmental Management Plans • Prevention of the disturbance of contaminated sediments (containing PAH's) at Electrona

	<ul style="list-style-type: none">• Concern that the proposed port facility at Electrona will have a detrimental effect on the environment, the aesthetics of the Channel and its value as an area for tourism
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