

Westernport Catchment

The Westernport catchment, including all of the Mornington Peninsula, has an area of 3433 square kilometres and some 2232 kilometres of rivers and creeks. The landscape varies from the northern highlands (including the Bunyip State Park) and the southern uplands (including part of the Strezlecki Ranges), to the flat, undulating terrain of the former Koo Wee Rup Swamp region.

Major rivers and creeks include the Bunyip, Bass and Tarago rivers and Cardinia and Toomuc creeks. There are also a number of small creeks within Phillip Island and French Island.

Approximately 70% is rural land, 20% is Crown land and 5% is urban. Dairying remains the primary industry. Forested areas are mainly in the northern highlands and industrial zones are mostly confined to Hastings.

Since European settlement, the former Koo Wee Rup Swamp was drained for agricultural use. Previously, the swamp extended for some 400 square kilometres and much of it was dense tea tree scrub. It once intercepted a high proportion of river flows prior to entering Western Port. But as a result of the draining, many of the rivers and creeks in the lower catchment have become channel drains and much of the surrounding swamp vegetation has been lost. Resulting erosion issues have taken many years to address.

Although urbanisation is currently low, the catchment is undergoing rapid urban growth along the southeastern growth corridor (including Berwick and Pakenham) and the Mornington Peninsula.

The marine ecosystem within Western Port is of regional, national and international importance (including Ramsar listing), with a range of habitats and associated mangrove, salt marsh, seagrass, reef and soft seabed communities.

The region has a rich indigenous history, including the traditional Aboriginal belief of the Too-roo-dun (otherwise known as the bunyip) that occupied the Koo Wee Rup Swamp and was said to live at the mouth of what is now called Sawtells Creek at Tooradin (Eidelson 1997).

The rivers and creeks are diverse in form and health, varying from good or very good in the northern highlands, to poor or very poor in the rural and urban sections in the lowlands.

The apparent loss of 50-70% of seagrass cover in Western Port since the mid 1970s has become a focus of concern in recent years because of the critical role that seagrass meadows play not only in providing food and shelter for fish and other marine animals, but also in stabilising seabeds and improving water clarity.

Five-year program objective

Considerable effort will be required to improve the health of rivers and creeks and to minimise catchment impacts on Western Port. While the channel form and streamside programs within this catchment are costly, this investment is relative to the direct and indirect benefits that the programs will have on a range of river and creek assets.

In addition to the broad benefits of revegetating streambanks and stabilising bed and banks, fish passage will be restored at three sites, which will reopen over 90 kilometres to native fish. Significant habitat will be protected for the listed Australian grayling, dwarf galaxias and growling grass frog.

Strategies will be put in place to reduce flow stress on rivers and creeks and the State Government's *Central Region Sustainable Water Strategy* proposes to enhance the environmental flow regime with an addition 3 GL/yr for the Tarago Bunyip system.

Improvements in current land management activities will minimise impacts to water quality and, in areas where land use changes from rural to residential or industrial, these changes will be managed to ensure that direct impacts to the local river and creek environments and Western Port are minimised. Specifically, this will involve implementing environmental best practice design and construction measures.

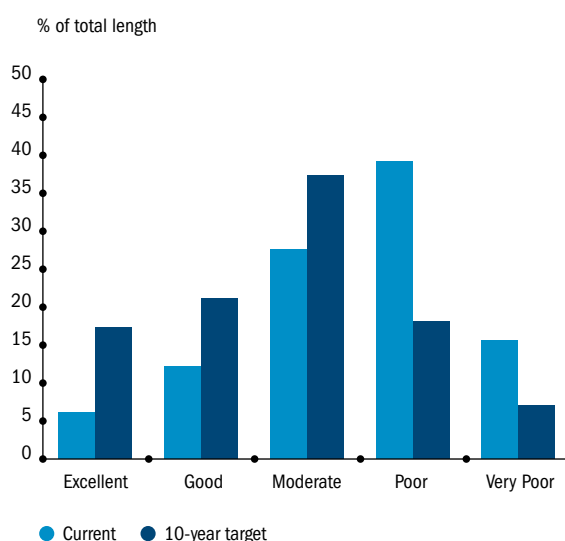
In five years, approximately 300 kilometres of rivers and creeks will be revegetated and 48 sites treated for erosion. Within 10 years, this will lead to an improvement in approximately 1000 kilometres of rivers and creeks and an improvement in the IRC physical form rating. Approximately 650 kilometres will be in good or excellent condition, of which 190 kilometres will be ecologically healthy.

Environmental knowledge of the Westernport catchment's rivers and creeks will improve as investigations are undertaken. Understanding of Aboriginal values associated with the rivers, creeks and Koo Wee Rup Swamp will also improve from the implementation of the heritage program.

A summary of the five-year river health program and 10-year target condition for rivers and creeks within the Westernport catchment are described on the following pages. The highlighted red section of the maps indicates the catchment area for the individual rivers and creeks.

A detailed description of all rivers and creeks and the five-year program as well as the long-term (20-years) programs are contained in the attached Resource CD.

Figure 11.
Current and 10-year condition targets for rivers and creeks in the Westernport catchment



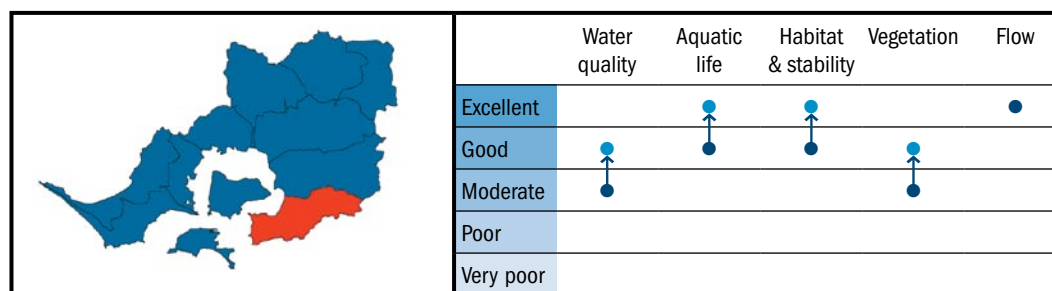
Bass River

Regional Importance: Low

Management Objective: Improve condition to sustain downstream values

Current Condition: Moderate

Target: Good



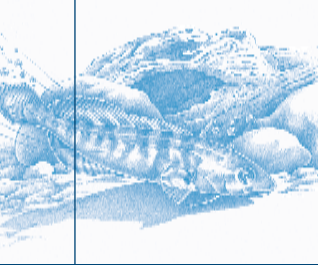
Current Social Value: Moderate

Target: Moderate

The Bass River rises near Poowong and flows through Glen Forbes and Bass before joining Western Port, north of San Remo. The catchment is predominantly rural. The river is in moderate condition and has pockets of good condition as well as sites of geological, Aboriginal and European heritage value. The river is also valued for fishing. The lower reaches of the Bass River include a valued saltmarsh community that is important for bird and fish populations.

Key risks include stock access and weed infestations, while sediment contributions from Bass River pose a risk to the health of the highly valued Western Port.

River Health Program: Over 20 kilometres will be revegetated, weeds controlled and streamside fencing erected. Catchment and gully erosion will be managed to minimise the amount of sediment entering Western Port. A waterway plan will be developed for managing the Bass River and information will be collected on water quality, fish and aquatic macroinvertebrates.



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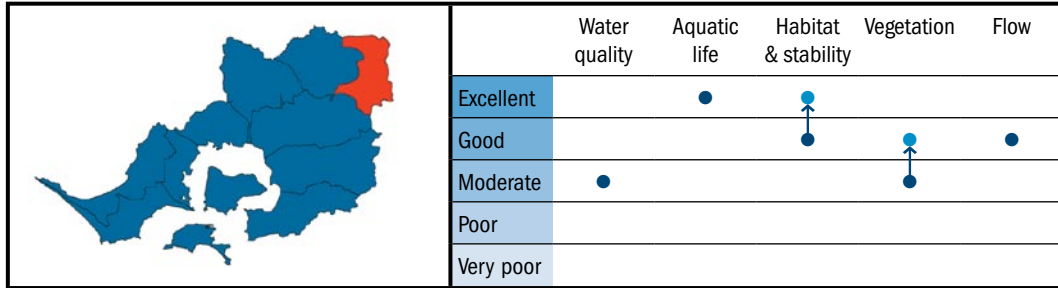
Tarago River

Regional Importance: Very High

Management Objective: Improve condition

Current Condition: Moderate

Target: Good



Current Social Value: Moderate

Target: Moderate

The Tarago River is a major tributary of the Bunyip River. Its headwaters are within the Tarago State Forest and flow into the Tarago Reservoir at Neerim. Downstream of the reservoir, the Tarago flows through the towns of Rokeby and Robin Hood before meeting the Bunyip River at Longwarry North. Tributaries include Labertouche, Whisky, Gum Scrub, and Spion Kopje creeks. Much of the catchment is forested upstream of Tarago Reservoir, although rural land use is considerable along the Tarago River East Branch. Downstream of the reservoir, the catchment is mostly rural with some small townships and forested areas such as the headwaters of Labertouche and Red Jacket creeks. The upper Tarago is considered ecologically healthy and the lower reaches retain good environmental values including, native fish (such as Australian grayling and river blackfish) and a very healthy platypus population. Other significant species include the Warragul burrowing cray, giant Gippsland earthworm and Strzelecki gum. The Tarago system is also valued for fishing. Risks include a lack of streamside vegetation, stock access, weeds, water quality and barriers to the migration of aquatic life.

River Health Program: Activities over the next five years will involve working in partnerships with land owners to control stock access and weeds along approximately 20 kilometres of rivers and creeks in the upper system, constructing a fishway in the Tarago River, collecting additional stream health information, developing a stream flow management plan and implementing priority actions in the Tarago Catchment Management Plan.

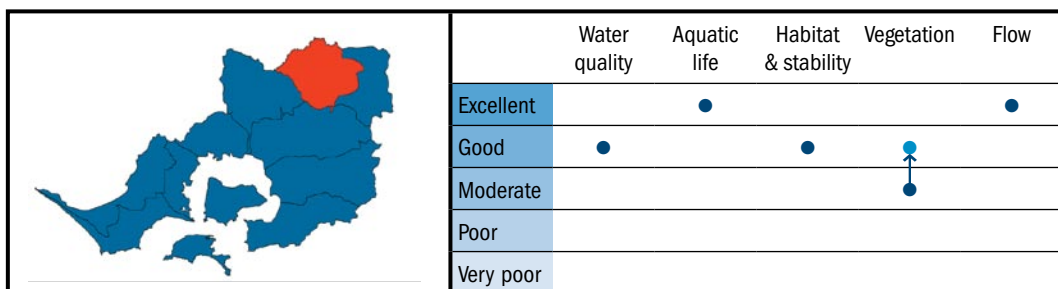
Middle and Upper Bunyip River

Regional Importance: Low

Management Objective: Improve condition

Current Condition: Good

Target: Excellent



Current Social Value: Moderate

Target: Moderate

The catchment includes the Upper Bunyip River and tributaries upstream of Princes Highway. Most of the catchment is within State forest, although rural land use dominates the lower reaches around Tonimbuk and Labertouche. Major tributaries include Back, Diamond and Dyer creeks. Environmental values are high, with many reaches considered to be ecologically healthy.

Several significant species occur within the upper Bunyip system, including azure kingfishers and powerful owls. Risks include a lack of streamside vegetation and barriers to the migration of fish and other aquatic life.

River Health Program: In the next five years, work will be done in partnerships with local landowners to control stock access and weeds and to plant vegetation along 46 kilometres. Priority actions will involve implementing activities to improve water quality, stream channels will be stabilised and fishways constructed.

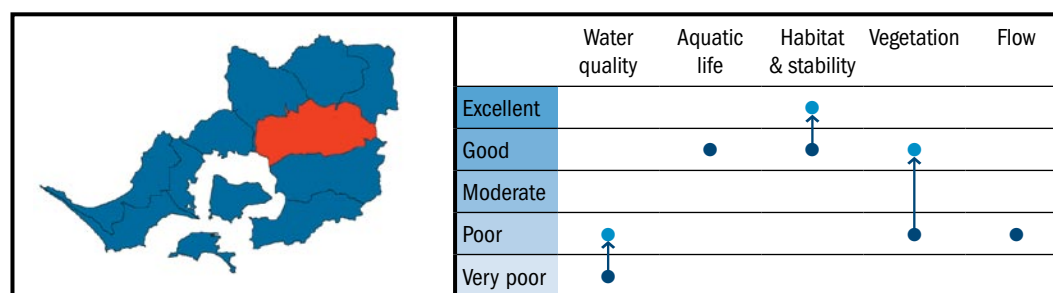
Lower Bunyip River

Regional Importance: Low

Management Objective: Improve condition to sustain downstream values

Current Condition: Poor

Target: Moderate

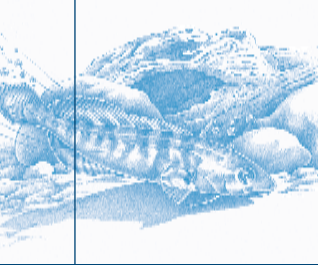


Current Social Value: Very Low

Target: Very Low

This area includes Yallock Creek, Monomeith Drain and the Bunyip River and its tributaries from the Princes Highway to Western Port near Koo Wee Rup. Land use in the catchment is predominantly rural with small urban zones associated with townships such as Koo Wee Rup, Bayles and Drouin South. Prior to European settlement, the Koo Wee Rup Swamp covered most of this area. The swamp was drained and many of the rivers and creeks are today highly modified agricultural drains. Parts that still retain some natural form include the section of the Bunyip River immediately downstream of the Princes Highway, lower Yallock Creek and upper Musk and King Parrot Creeks. In general, environmental values are moderate to poor. However significant species such as Australian grayling, azure kingfisher, giant Gippsland earthworm and growling grass frog are present. The lower Bunyip River and Yallock systems have notable economic and social value associated with agricultural productivity, European heritage and fishing. The former Koo Wee Rup Swamp area also has significance for Aboriginal communities because it provided a wide range of native plants and animals for the Mayunabalug clan of the Boonwurrung language group. Key risks include water quality, a lack of streamside vegetation, stock access, changes to natural stream flows and barriers to the migration of fish and other aquatic life.

River Health Program: Activities over the next five years will involve implementing activities to improve water quality, developing a stream flow management plan, channel improvement and working in partnership with local landowners to control stock access, weeds and plant vegetation along approximately 52 kilometres of rivers and creeks.



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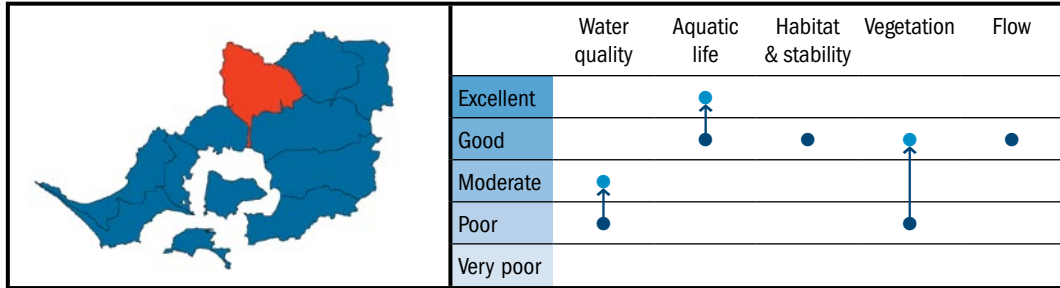
Cardinia, Toomuc, Deep and Ararat Creeks

Regional Importance: Moderate

Management Objective: Improve condition

Current Condition: Poor

Target: Moderate



Current Social Value: Moderate

Target: Moderate

Cardinia, Toomuc, Deep and Ararat creeks, including Gum Scrub Creek, cover a large portion of the northern Westernport catchment and incorporates areas such as Upper Beaconsfield, Nar Nar Goon and Dalmore. Land use in the highlands is generally low-density drinking water storage. Historically, these rivers and creek were disconnected from the bay by the former Koo Wee Rup Swamp. Notable fauna include native fish, frogs and the swamp skink. Many of these significant species occur along Cardinia Creek. In addition, platypus have successfully re-established in upper Cardinia following recent translocation. Social values are also important, particularly in upper Cardinia Creek where there is fishing, European heritage and passive recreation. Risks to river health are urban development, lack of streamside vegetation, stock access, poor water quality and changes to natural stream flows.

River Health Program: A comprehensive program is proposed and includes the protection of heritage and recreation values, implementing stormwater management plans and activities to improve water quality. Activities will focus on ensuring that development is managed to minimise the impacts on receiving waters, developing rules to manage the licensed stream flow diversions and controlling weeds and stock access. Revegetation will occur along approximately 50 kilometres of rivers and creeks, additional stream health information will be collected, sections of upper Cardinia and Ararat creeks will be stabilised, and there will be habitat improvement works for native fish along Cardinia Creek.

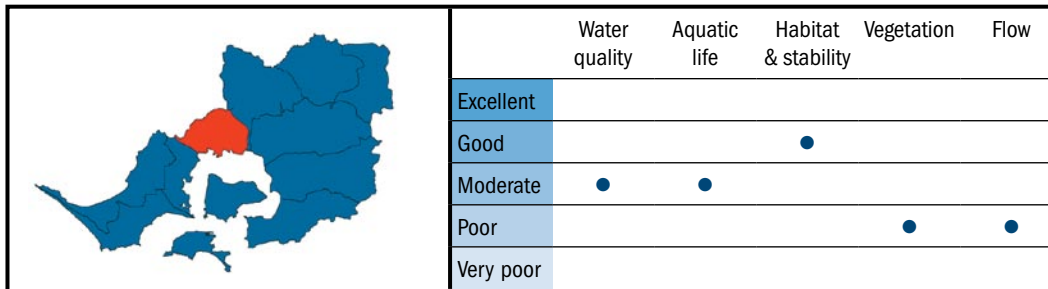
Dalmore Outfalls

Regional Importance: Low

Management Objective: Improve condition and enhance social values

Current Condition: Poor

Target: Poor



Current Social Value: High

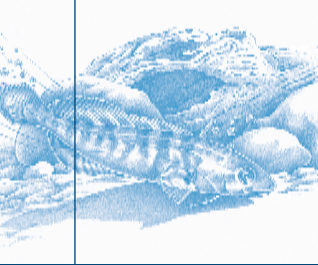
Target: High

The Dalmore Outfalls consist of a number of creeks and drains that flow into Western Port via the Pearcedale, Devon Meadows, Clyde and Tooradin areas. Rivers and creeks include Langwarrin Creek, Christies Drain, Wylies Drain, Tooradin Road Drain and the Western Outfall Drain. The catchment is predominantly rural and most of the rivers and creeks have been modified or are constructed agricultural drains. While environmental values tend to be low to moderate, passive recreation is valued in areas such as the Cranbourne Botanic Gardens. Swamp skinks, southern toadlets and growling grass frogs are among the significant fauna in the area. European and Aboriginal heritage values are also important. Risks include a lack of streamside vegetation, modification of river beds and banks, weeds and changes to natural stream flows. Water quality in the drains is poor and poses a risk to the health of Western Port.

River Health Program: Prospects to improve environmental condition are low because the drains are heavily modified. Activities in the next five years will focus on the protection of heritage and recreation values, and planting vegetation along approximately eight kilometres of the Tooradin Road Drain. The long-term program will address other risks and some improvements in water quality and streamside zone vegetation are expected in this timeframe



Cardinia Creek fishway at Clyde North.



French and Phillip Islands

Regional Importance: Very High

Management Objective: Prevent further damage and enhance social values

Current Condition: Excellent

Target: Excellent

(based on a large area of National Park on French Island)

		Water quality	Aquatic life	Habitat & stability	Vegetation	Flow
	Excellent	Insufficient data				
	Good					
	Moderate					
	Poor					
	Very poor					

Current Social Value: Low

Target: Low

The small creeks of French Island are isolated from the mainland and many provide important references. The upper section of creeks on French Island are ecologically healthy hence the excellent rating. There is no formal IRC data for Phillip Island. However studies have shown that some of the creeks on Phillip Island are in poor to moderate condition. Risks to the creeks on French Island include stock access, whilst the creeks on Phillip Island are subjected to degrading factors such as water quality issues, lack of streamside vegetation and weeds.

River Health Program: Fish, aquatic macroinvertebrate and water quality investigations will be undertaken for the creeks on French Island. Over 12 kilometres of streamside are to remain as ecologically healthy. Actions to improve river health on Phillip Island are programmed for the longer term. Opportunities for community groups to undertake projects will be available over the next five years.

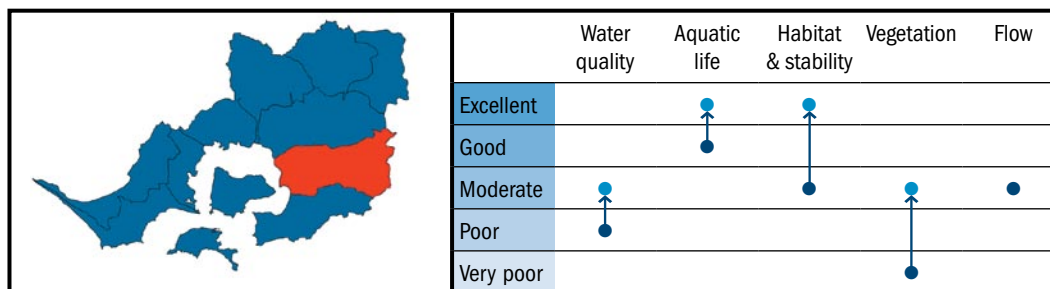
Lang Lang River

Regional Importance: Low

Management Objective: Improve condition to sustain downstream values

Current Condition: Poor

Target: Moderate



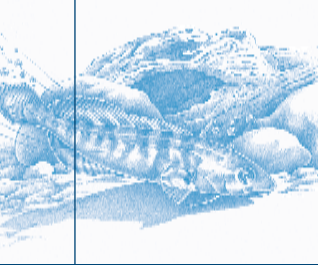
Current Social Value: Low

Target: Low

The headwaters of the Lang Lang River are situated in the Strzelecki Ranges near Poowong. Major rivers and creeks in this catchment include O'Mahony, Minnieburn, Pheasant, Adams and Red Bluff creeks and the Little Lang Lang River. The Lang Lang River catchment has undergone significant changes over the last two centuries. Prior to European settlement, it was densely forested and contained a series of swamps with thick tea-tree scrub, which formed part of the Koo Wee Rup Swamp area. Much of the forest and swampland has now been cleared, with agriculture land use covering most of the area. Environmental values are moderate to low, with the middle reaches of the Lang Lang River and some sections of smaller rivers and creeks, such as Minnieburn, Adams and Red Bluff creeks, tending to be in better condition.

Several significant animals have been recorded, including native fish, platypus, frogs, swamp antechinus and the giant Gippsland earthworm. Significant vegetation includes native orchids and the Strzelecki gum. Fishing and European heritage are of social value, particularly in the Lang Lang River. Risks include a lack of streamside vegetation, stock access, changes to natural stream flows, water quality (including sediment to Western Port) and barriers to fish and other migratory aquatic life.

River Health Program: Activities in the next five years will involve the stabilisation of river and creek channels and gullies to decrease sediment loads to Western Port. A fishway will be constructed on the river at Heads Road, and stream frontage management to control weeds (including willows), stock access and revegetation will occur along approximately 56 kilometres.



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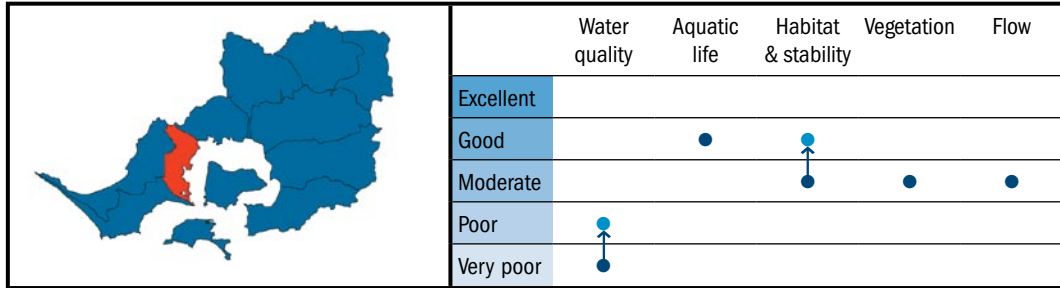
North-Eastern Peninsula Rivers and Creeks

Regional Importance: Low

Management Objective: Improve condition to sustain downstream values

Current Condition: Moderate

Target: Moderate



Current Social Value: Low

Target: Moderate

The north-eastern Peninsula rivers and creeks flow into Western Port and include several small creeks including Watsons, Olivers, Kings and Warringine creeks. All have mostly rural-urban catchments. They are generally of moderate environmental value, including supporting significant fauna such as the swamp skink and southern toadlet. Reserves in the Hastings area, such as the Warringine Heritage Park, represent social values associated with the rivers and creeks. Risks include urban stormwater, elevated nutrients in some rural areas, weeds and a lack of streamside vegetation. Poor water quality from Watsons Creek poses a risk to Yaringo Marine National Park.

River Health Program: Activities in the next five years will involve activities to manage water quality, as well as protecting and improving streamside vegetation along approximately five kilometres of Watsons Creek and removing barriers to fish migration along Warringine Creek.

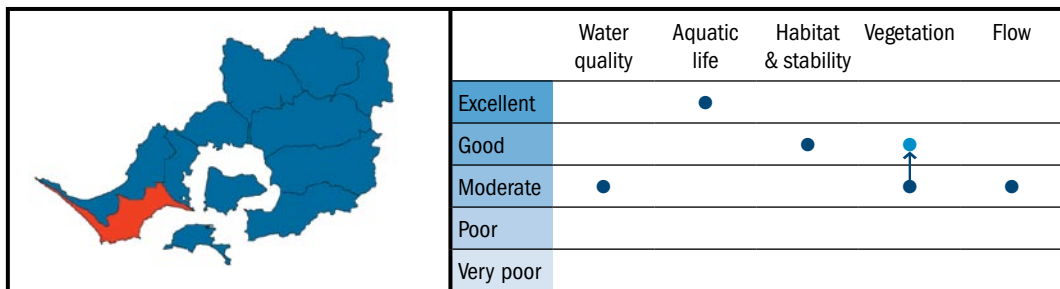
South-Eastern Peninsula Rivers and Creeks

Regional Importance: High

Management Objective: Improve condition and enhance social values

Current Condition: Moderate

Target: Moderate



Current Social Value: High

Target: High

Rivers and creeks within the south-eastern Peninsula include Merricks, Coolart, East, Stony, Manton and Main creeks. These rivers and creeks flow into Western Port between Somers and Flinders or Bass Strait. They have mainly rural catchments, with some urban centres and remnant forest (particularly associated with the Mornington Peninsula National Park). Environmental values are generally moderate to good, including records of river blackfish, mountain galaxias, swamp skink, southern toadlet and growling grass frog. These rivers and creeks are also important for European and Aboriginal heritage and passive recreation. Risks include changes to natural stream flows, poor water quality and stock access.

River Health Program: Activities in the next five years involve activities to manage water quality, local stormwater management plans, protecting heritage and recreation values, managing licensed flow diversions, collecting additional stream health data for Main Creek, investigating the removal of barriers to fish migration, stream frontage management for stock access and improving streamside vegetation along approximately 18 kilometres of the Main Creek.

West Peninsula Rivers and Creeks

Regional Importance: Moderate

Management Objective: Improve condition

Current Condition: Moderate

Target: Moderate

	Water quality	Aquatic life	Habitat & stability	Vegetation	Flow
	Excellent		●		
Good	●		●	●	
Moderate					
Poor					●
Very poor					

Current Social Value: Moderate

Target: Moderate

West Peninsula rivers and creeks consist of several small coastal waterways that flow into Port Phillip between Mount Martha and Rosebud. Creeks in this area include Balcombe, Devilbend, Brokil, Dunns, Sheepwash and Drum Drum Alloc. The catchment is a mix of urban and rural. A number of parks and reserves also exist, including Briars Park and Arthurs Seat State Park. The rivers and creeks are generally of moderate environmental value and include populations of threatened swamp skinks, growling grass frogs, dwarf galaxias and native orchids. Passive recreation is valued in many of these rivers and creeks. Key risks to river health are urban stormwater and a lack of streamside vegetation.

River Health Program: Activities in the next five years will involve implementation of local stormwater management plans and ensuring that urban development does not impact water quality. Heritage and recreation values will be protected and vegetation planted along approximately 30 kilometres. The long-term program will involve water quality management and further revegetation. Improvements in condition are expected in the long-term.



Growling Grass Frog.