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# WATER SUPPLY CATCHMENT MANAGEMENT PLAN

## EWR-001

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**Approach to Providing Safe Drinking Water in Open  
Potable Water Supply Catchments**

May 2017

## **Glossary**

CMP:	Catchment Management Plan
DWMS:	Drinking water management system
EMS:	Environmental Management system
SGW:	South Gippsland Water
EPA:	Victorian Environment Protection Authority
WGCMA:	West Gippsland Catchment Management Authority
SGSC:	South Gippsland Shire Council
GIS:	Geographic Information System
ADWG:	Australian Drinking Water Guidelines (2011), (2016)

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## PART 1 - Catchment Management Plan

### 1.0 Introduction

*Catchment management and source water protection provide the first barrier for the protection of water quality (NHMRC, 2011)<sup>1</sup>.*

South Gippsland has developed a long term Catchment Management Plan (CMP) for protecting and improving water quality in our source water and catchments. This plan is based on an accepted Australian and international catchment management methodology in managing water quality in source waters that involves the implementation of principles or elements in a multiple barrier philosophy approach to ensure high quality water supply to its customers.

### 1.1 Objective of the SGW Catchment Management Plan

This Catchment Management Plan is the overarching document providing a framework for each of the ten water supply catchment areas of South Gippsland Water. Under this plan sits a number of documents, programs, actions, objectives and implementations all of which are outlined in **PART 3** of this document “**The Principles of the Catchment Management Plan.**”

A snapshot of water quality in South Gippsland Water’s drinking water catchments reveals that water quality varies across sites. It is evident that each catchment has its own risk profile, catchment characteristics and resulting water quality. **PART 2** of this document describes each water supply catchment providing an understanding of the nature and health of each.

Figure 1 illustrates the structure of the South Gippsland Water Catchment Management Plan which sits under the South Gippsland Water Drinking Water Management System and provides direction for the various catchment management programs.

### 1.2 Outcome of the SGW Catchment Management Plan

South Gippsland Water’s role is to focus on ensuring its customers have access to safe and reliable drinking water. We are focused on building strong partnerships to maintain our catchments and pursue improvements as far as is reasonable.

Managing South Gippsland’s catchments requires effective collaboration between a range of stakeholders including the West Gippsland Catchment Management Authority, Shire Councils, regulators (including the EPA and Department of Health), the agricultural sector, Landcare network groups, Waterwatch, landowners and the community.

### 1.3 Key Implementations to the SGW Catchment Management Plan

#### 1.3.1 Multiple Barriers and Source Protection

SGW recognise that even where water treatment is used to mitigate risk, the costs of water treatment and the risks to public health from those consuming the treated water, can be reduced through enhanced catchment management. [The Australian Drinking Water Guidelines](#)<sup>2</sup> recommend managing water quality risks via multiple barriers so that even where water treatment is used, it is appropriate to further minimise the risks through catchment interventions.

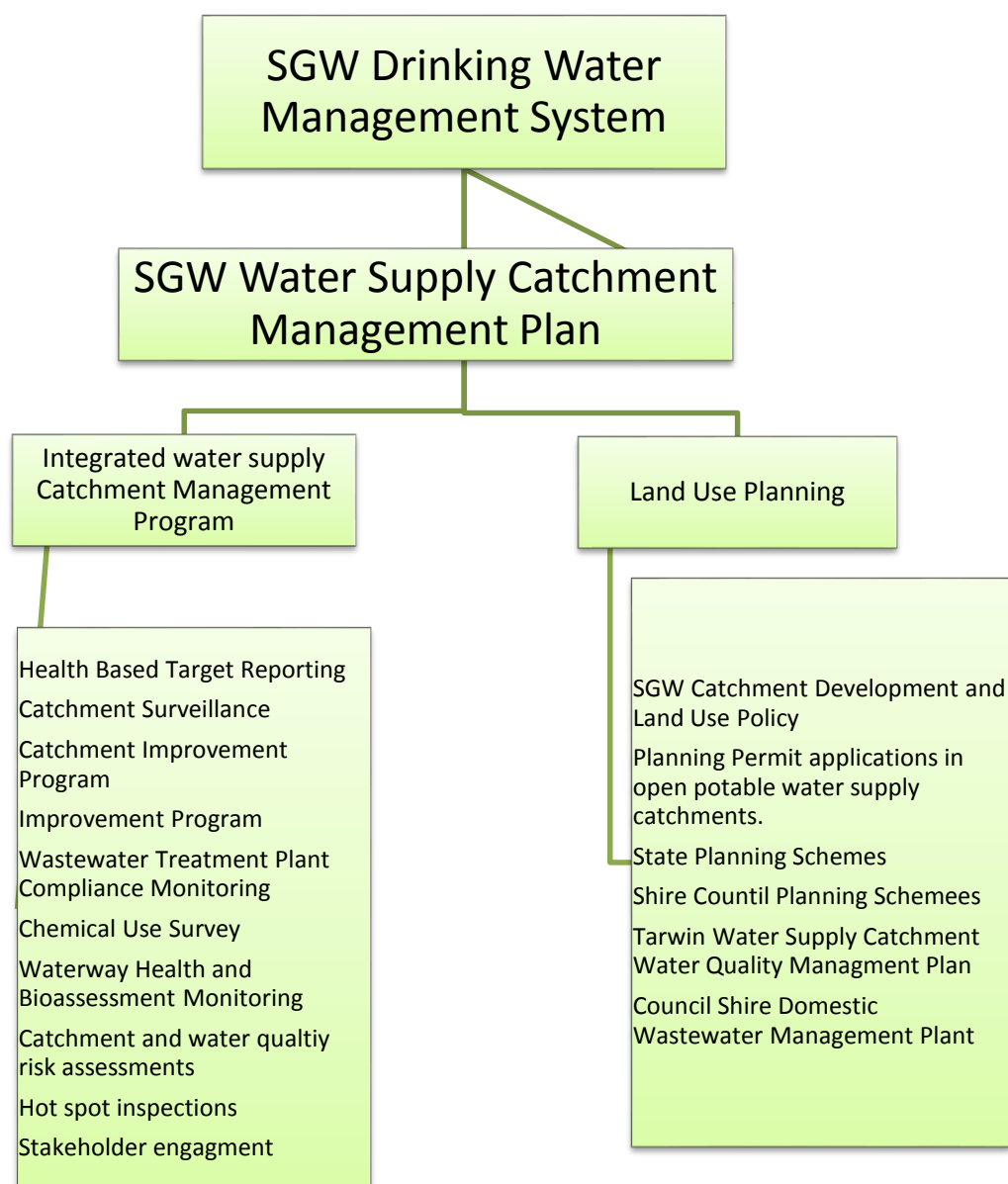
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<sup>1</sup> National Health and Medical Research Council 2011

<sup>2</sup> Australian Drinking Water Guidelines 2011

In practice, a combination of both catchment management and water treatment are typically used in combination to minimise risks through multiple barrier management. In general, the more effective the catchment management, the lower the risk and the costs related to public health, the more inherently reliable the controls become and the lower the cost of water treatment.

SGW note that the optimal mix of catchment and treatment interventions will vary between situations. This catchment management plan and associated policies and programs seeks to optimise the mix of catchment and treatment interventions for current and future SGW customers whilst recognising the economic and social benefits of current land uses within water supply catchments.



**Figure 1: South Gippsland Water Catchment Management Structure**

### 1.3.2 Co-Operation with Stakeholders

SGW acknowledges the benefits and primacy of source water protection, and given its largely open agricultural catchments, SGW believe that there is a need to work co-operatively with land owners and the West Gippsland Catchment Management Authority in the long term to manage and improve source water yield and quality.

### 1.3.3 Multiple Use Catchments

While the primary focus of SGW's Catchment Management Plan is to manage and reduce the water quality risk, SGW also acknowledge its role in the broader community. An additional ancillary aim of this catchment management plan in addition to public health objectives is to secure additional environmental and economic benefits.

SGW acknowledge that beyond their function to supply water, the catchments as open catchments support agricultural activities and these are important for the region.

SGW are committed to a triple bottom line approach that recognises the social, economic, and environmental value of the catchments.

This approach is consistent with the [Gippsland Region Sustainable Water Strategy \(2011\) \(SWS\)](#) which seeks to:

- Ensure secure supplies for towns and industry
- Encourage economically viable and sustainable agriculture
- Support tourism, recreation and other social values
- Protect and improve the health of rivers, wetlands, estuaries and aquifers.

The water supply catchments in the South Gippsland Basin fall under the geographic area of the West Gippsland Catchment Management Authority (WGCMA) and as such South Gippsland Water refers to the Regional Catchment Strategy developed by West Gippsland Catchment Management Authority (WGCMA). The RCS is a statutory document under the Catchment and Land Protection Act 1994 (CaLP Act). This Act legislates the declaration of the water supply drinking catchments.

### 1.3.4 Overall SGW Commitment

SGW extracts water from a number of rivers and small streams to provide high quality drinking water to its customers. The vision for South Gippsland Water is to provide this service in a sustainable way focusing on:

- Protecting all waterways in which South Gippsland Water has links with:
- Maintaining environment, social and economic waterway asset values;
- Managing all SGW activities that may impact on the river and waterways in an 'environmentally sustainable fashion.'

## PART 2 - South Gippsland Water's Drinking Water Catchments

There are currently ten legislated special water supply catchments from which South Gippsland Water is licensed to extract. These are defined in the Catchment and Land Protection Act 1994. The ten drinking water catchments are within the boundaries of four Shire Councils, South Gippsland Shire Council, Wellington Shire Council, Bass Coast Shire Council and Baw Baw Shire Council.

Each catchment is predominantly highly modified agricultural areas, with the main emphasis on dairy farming, beef and sheep farming. However, tourism is also an industry of significant importance to the region and located within three of the catchments Tarwin River, Agnes River and Tarra River catchment are areas of significant conservation status. Mount Worth State Park is located protects the headwaters of the Tarwin River in the northern Tarwin River water supply catchment area. The SGW offtake at Agnes River Falls is located within the Agnes River Falls State Park and the Tarra Bulga National Park protects the headwaters of the Tarra River at Tarra Bulga and Balook.

A snapshot of water quality in South Gippsland Water's drinking water catchments reveals that water quality varies across sites. It is evident that each catchment has its own risk profile, catchment characteristics and resulting water quality. Individual catchments are described to give an overview of the current understanding of their nature and health.

South Gippsland Water also acknowledge that the drinking water catchment areas are within the traditional country of the Gunai Kurnai indigenous community.

The declared drinking water catchment areas are depicted in Figure 2 and Table 1.

Sections 2.2 – 2.10 provide a brief description of each of the water supply catchments and the relevant planning scheme and overlays unto which each fall.



Water Supply System	Towns Served	Catchment Area	Shire Council
Tarra River	Alberton, Port Albert, Yarram, Devon North	28 Km <sup>2</sup>	Wellington
Agnes River	Toora, Welshpool, Port Welshpool, Port Franklin.	67 Km <sup>2</sup>	Wellington Shire South Gippsland Shire
Battery Creek	Fish Creek	2 Km <sup>2</sup>	South Gippsland Shire
Deep Creek	Foster	18 Km <sup>2</sup>	South Gippsland Shire
Tarwin River	Dumbalk, Meeniyar	1071 Km <sup>2</sup>	South Gippsland Shire, Baw Baw Council Shire
Ruby Creek	Leongatha	9 Km <sup>2</sup>	South Gippsland Shire
Coalition Creek	Korumburra	6 Km <sup>2</sup>	South Gippsland Shire
Ness Creek			
Bellview Creek			
Little Bass River	Poowong, Loch, Nyora	7 Km <sup>2</sup>	South Gippsland Shire
Lance Creek	Wonthaggi, Inverloch, Cape Paterson	20 Km <sup>2</sup>	Bass Coast Shire,

Table 1: Water supply catchment description

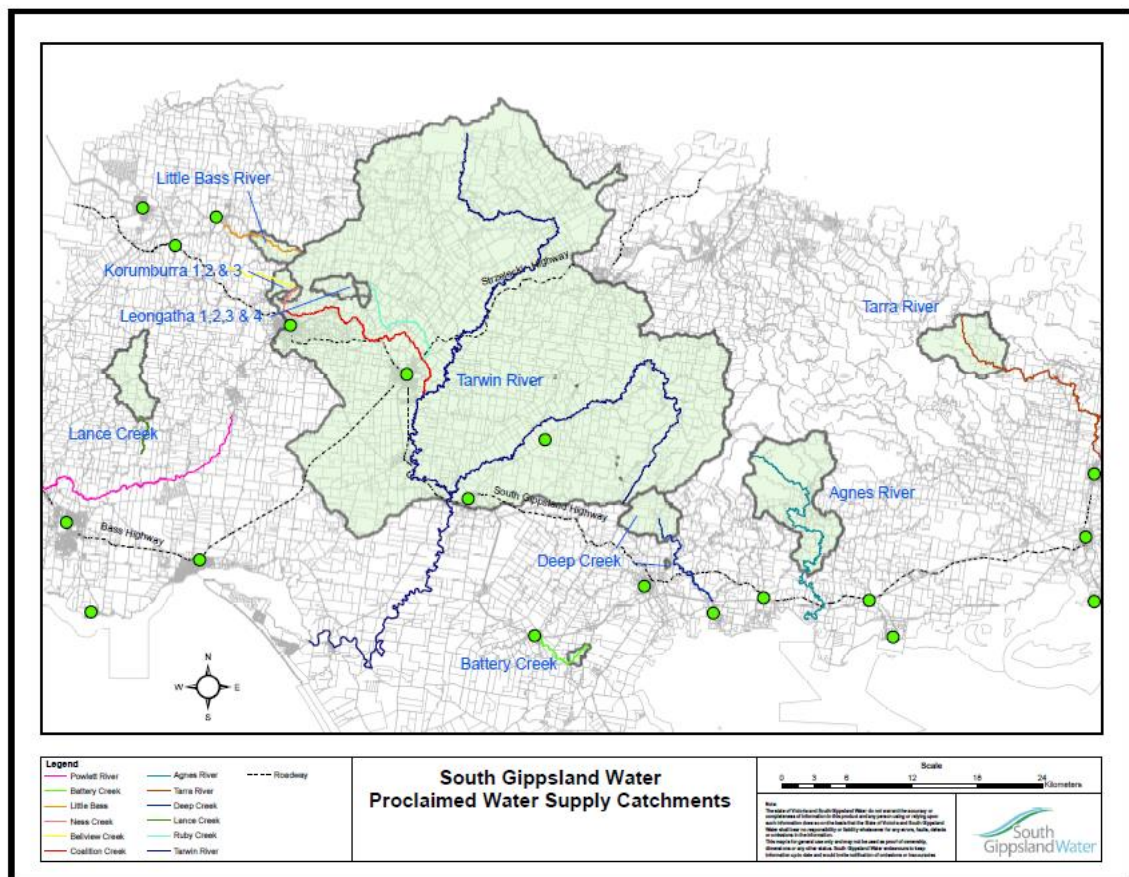


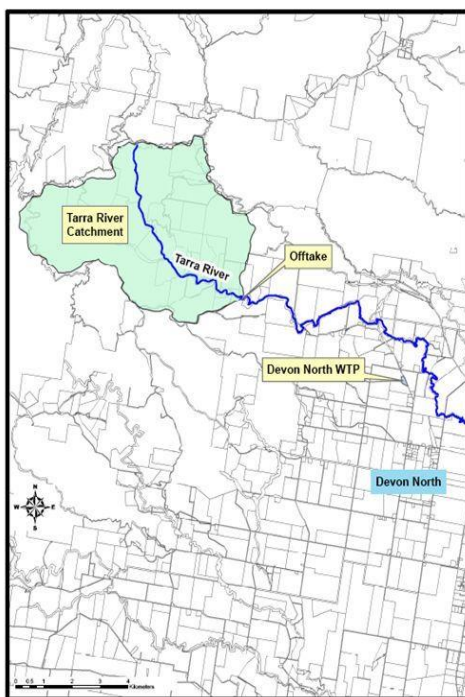
Figure 1: South Gippsland Water's Declared Water Supply Catchments



## 2.1 Tarra River Water Supply Catchment Area

The Tarra River Water Supply Catchment lies within the Wellington Shire boundary of the West Gippsland Catchment Management region. Proclaimed on 26 January 1971<sup>1</sup>, the catchment comprises 28 square kilometres on the Tarra River within the Parishes of Bulga and Devon. Identified as a “special area”, under the *Catchment and Land Protection Act 1994*, any functions involving land management on behalf of the Crown or under an Act must be carried out with regard to any special area plan applying to the land.

The water treatment plant for the Tarra River Catchment is located 5 kilometres north-west of Yarram, and supplies the townships of Yarram, Alberton, Port Albert and Devon North, which have a combined population of about 1300 people. The catchment is largely vegetated, with an approximate land use break-up of 5% pasture, 5% arable farming land and 90% forestry.



Catchment and Land Use Summary Information	
Area	28km <sup>2</sup>
Urban areas	none
Recreation	2 camping/caravan parks adjacent to river, are not sewered.
Industrial areas	none
Highways	none
Significant roads	none
Minor roads	20km Tarra Valley Rd
Minor tracks/access roads	
Pasture	5%
Intensive stock rearing	none
Arable farming land	5%
Forestry	90% Tarra Bulga National Park
Raw water customer	30
Reservoir volume	30 ML

### Planning Scheme Zones and Overlays

The Tarra River water supply catchment lies within the Wellington Shire planning scheme. [Wellington Planning Scheme](#)

The Tarra River and Tarra River Water Catchment Area is covered by the following zones and overlay:

[Public Conservation and Resource Zone \(PCRZ\)](#)

[Public Park and Recreation Zone \(PPRZ\)](#)

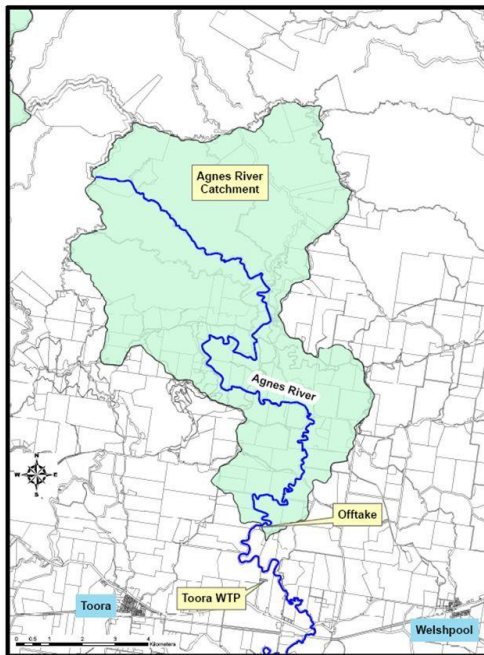
[Farming Zone \(FZ\)](#)

[Bushfire Management Overlay \(BMO or WMO\)](#)

## 2.2 Agnes River Water Supply Catchment Area

The Agnes River Water Supply Catchment lies within the South Gippsland Shire boundary of the West Gippsland Catchment Management region. Proclaimed on 10 November 1987<sup>1</sup>, the catchment comprises 67 square kilometres on the Agnes River within the Parishes of Woorarra, Toora, Wonyip and Gunyah Gunyah. Identified as a “special area”, under the *Catchment and Land Protection Act 1994*, any functions involving land management on behalf of the Crown or under an Act must be carried out with regard to any special area plan applying to the land.

The water treatment plant for the Agnes River catchment is located between Toora and Welshpool, and supplies the townships of Toora, Welshpool, Port Welshpool, Hedley, Port Franklin, and approximately 200 rural properties, and has a combined population of about 1250 people.



### Catchment and Land Use Summary Information

Area	67km <sup>2</sup>
Urban areas	none
Industrial areas	none
Highways	none
Significant roads	none
Minor roads	40km including tourist roads)
Pasture	35%
Intensive stock rearing	none
Arable farming land	5%
Forestry	60%
Raw water customer	none
Reservoir volume	59 ML

### Planning Scheme Zones and Overlays

The Agnes River water supply catchment lies within the South Gippsland Shire planning scheme and the Wellington Shire planning scheme.

The Agnes River is covered by the zone PCRZ (Public Conservation and Resource Zone).

Two overlays apply to the area, ESO2 (Environmental Significance Overlay – Schedule 2) for water catchments, and ESO5 (Environmental Significance Overlay – Schedule 5) for areas susceptible to erosion.

The following links are for the planning zone and overlay maps relevant to the Agnes River water supply catchment:

[South Gippsland Planning Scheme - Zones \(Map 31\)](#)

[South Gippsland Planning Scheme - Overlays \(ESO2\)](#)

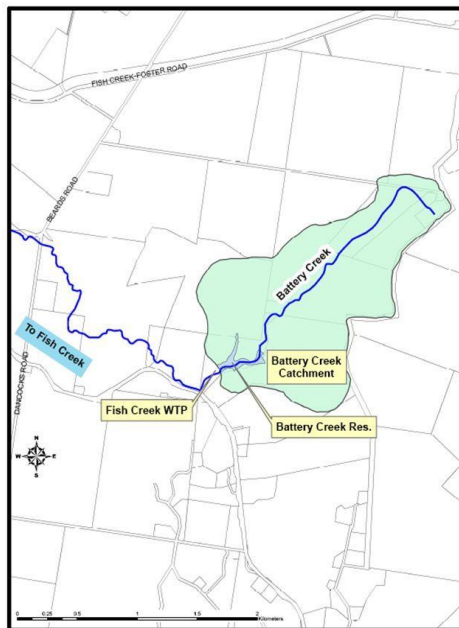
[South Gippsland Planning Scheme – Overlays \(ESO5\)](#)

More information including requirements that must be met for each of the zones and overlays can be accessed at: [South Gippsland Planning Schemes](#)

### 2.3 Battery Creek Water Supply Catchment Area

The Battery Creek Water Supply Catchment lies within the South Gippsland Shire boundary of the West Gippsland Catchment Management region. Proclaimed on 10 November 1987<sup>1</sup>, the catchment comprises 2 square kilometres on Battery Creek within the Parish of Doomburrim. Identified as a “special area”, under the *Catchment and Land Protection Act 1994*, any functions involving land management on behalf of the Crown or under an Act must be carried out with regard to any special area plan applying to the land.

The Battery Creek reservoir supplies the township of Fish Creek, along with rural properties within the area, which is a total population of about 300 people. The reservoir is located in a partly cleared catchment.



#### Catchment Land Use Summary:

Area	2 km <sup>2</sup>
Urban areas	none
Industrial areas	none
Highways	none
Significant roads	none
Minor roads	none
Pasture	85%
Intensive stock rearing	none
Other land uses: quarry	5%
Plantation	10%
Reservoir volume	122.9ML

#### Planning Scheme Zones and Overlays

The Battery Creek water supply catchment lies within the South Gippsland Shire planning scheme.

The Battery Creek drinking water catchment is zoned RUZ (Rural Zone).

Two overlays apply to the area, ESO2 (Environmental Significance Overlay – Schedule 2) for water catchments, and ESO5 (Environmental Significance Overlay – Schedule 5) for areas susceptible to erosion.

The following links are for the planning zone and overlay maps relevant to the Battery Creek water supply catchment:

[South Gippsland Planning Scheme- Zones \(Map 26\)](#)

[South Gippsland Planning Scheme - Overlays \(ESO2\)](#)

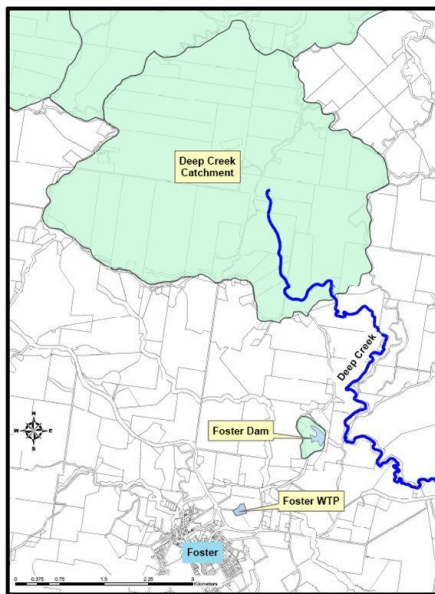
[South Gippsland Planning Scheme – Overlays \(ESO5\)](#)

More information including requirements that must be met for each of the zones and overlays can be accessed at: [South Gippsland Planning Schemes](#)

## 2.4 Deep Creek Water Supply Catchment Area

The Deep Creek Water Supply Catchment lies within the South Gippsland Shire boundary of the West Gippsland Catchment Management region. Proclaimed on 10 November 1987<sup>1</sup>, the catchment comprises 18 square kilometres on Deep Creek within the Parishes of Wonga Wonga, Woorarra and Mirboo South. Identified as a “special area”, under the *Catchment and Land Protection Act 1994*, any functions involving land management on behalf of the Crown or under an Act must be carried out with regard to any special area plan applying to the land.

The Foster Water Treatment Plant is located adjacent to the township of Foster, to which it supplies water, and has a population of about 1130 people. The reservoir is located in a semi-cleared catchment with an approximate land use break-up of 50% pasture, 10% arable farming land and 40% forestry.



Catchment & Land Use Summary	
Area	0.2 km <sup>2</sup>
Urban areas	none
Industrial areas	none
Highways	none
Significant roads	none
Minor roads	0.5km
Pasture	50%
Intensive stock rearing	none
Arable farming land	none
Forestry	50%
Reservoir volume	237.8 ML

### ***Panning Scheme Zones and Overlays***

The Deep Creek water supply catchment lies within the South Gippsland Shire planning scheme.

Two overlays apply to the catchment area, ESO2 (Environmental Significance Overlay – Schedule 2) for water catchments, and ESO5 (Environmental Significance Overlay – Schedule 5) for areas susceptible to erosion.

The following links are for the planning zone and overlay maps relevant to the Deep Creek water supply catchment.

[South Gippsland Planning Scheme - Zones \(Map 29\)](#)

[South Gippsland Planning Scheme - Overlays \(ESO2\)](#)

[South Gippsland Planning Scheme – Overlays \(ESO5\)](#)

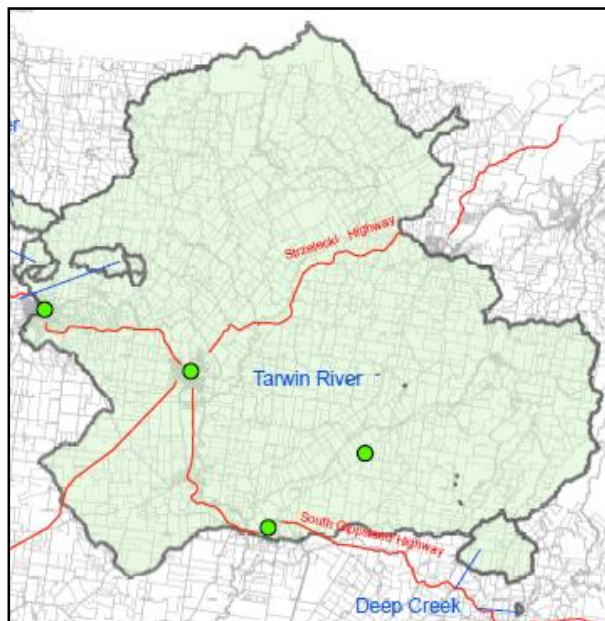
More information including requirements that must be met for each of the zones and overlays can be accessed at: [South Gippsland Planning Schemes](#)



## 2.5 Tarwin River Water Supply Catchment Area

The Tarwin River Water Supply Catchment lies within the South Gippsland Shire boundary of the West Gippsland Catchment Management region. Proclaimed on 24 April 1990<sup>1</sup>, the catchment comprises 1077 square kilometres on the Tarwin River within the Parishes of Leongatha, Nerrena, Dumbalk, Mirboo South, Mirboo, Mardan, Koorooman, Korumburra, Allambee and Allambee East. Identified as a “special area”, under the *Catchment and Land Protection Act 1994*, any functions involving land management on behalf of the Crown or under an Act must be carried out with regard to any special area plan applying to the land.

The Tarwin River Catchment is the largest catchment within South Gippsland Water’s region. Water treatment plants are located at Meeniyen and Dumbalk that supply the two townships, which have a combined population of about 600 people. The catchment is largely cleared, privately owned and farmed, with an approximate land use break-up of 80% pasture, 10% arable farming land and 10% forestry.



### Catchment & Land Use Summary

Area	1071 km <sup>2</sup>
Urban areas	Leongatha, Korumburra, Meeniyen, Dumbalk, Mirboo North, Koonwarra and many smaller districts.
Industrial areas	Leongatha, Korumburra
Highways	60km - South Gippsland Hwy and Strzelecki Hwy
Significant roads	Extensive
Minor roads	Extensive
Pasture	80%
Intensive stock rearing	none
Arable farming land	10%
Forestry	10%

### Planning Scheme Zones and Overlays

The Tarwin River water supply catchment lies within the South Gippsland Shire planning scheme. A planning scheme controls land use and development within a municipality.

An overlay applies to the area, ESO5 (Environmental Significance Overlay – Schedule 5) for areas susceptible to erosion.

The following links are for the planning zone and overlay maps relevant to the Tarwin River water supply catchment.

[South Gippsland Planning Scheme - Zones \(Map 20\)](#)

[South Gippsland Planning Scheme – Zones \(Map 19\)](#)

[South Gippsland Planning Scheme - Overlays \(ESO2\)](#)

[South Gippsland Planning Scheme – Overlays \(ESO5\)](#)

More information including requirements that must be met for each of the zones and overlays can be accessed: [South Gippsland Planning Schemes](#)

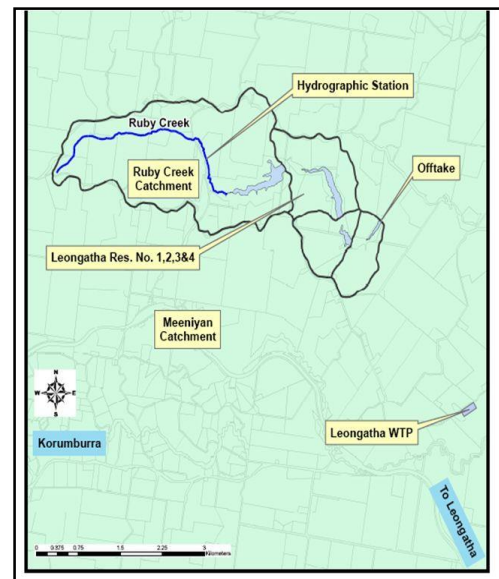
## 2.6 Ruby Creek Water Supply Catchment Area

The Ruby Creek Water Supply Catchment lies within the South Gippsland Shire boundary of the West Gippsland Catchment Management region. Proclaimed on 10 November 1987<sup>1</sup>, the catchment comprises 9 square kilometres on Ruby Creek within the Parish of Korumburra. Identified as a “special area” under the *Catchment and Land Protection Act 1994*, any functions involving land management on behalf of the Crown or under an Act must be carried out with regard to any special area plan applying to the land.

Ruby Creek has four reservoirs which each feed downstream by spillage or controlled discharge to the creek. No.1 storage is then gravity fed to the water treatment plant. The Leongatha water treatment plant supplies the townships of Leongatha and Koonwarra, which have a combined permanent population of about 5300 people.

The Ruby Creek reservoirs are located in a cleared, privately owned and farmed land with an approximate land use break-up of 70% pasture for grazing, 10% arable farming land and 20% forestry.

Catchment & Land Use Summary	
Area	9 km <sup>2</sup>
Urban areas	none
Industrial areas	none
Highways	none
Significant roads	none
Minor roads	Approx. 15km
Pasture	70%
Intensive stock rearing	none
Arable farming land	10%
Forestry	70%
Total Reservoir volume	1910 ML
No 1 Reservoir	18.9ML
No 2 Reservoir	83.6 ML
Hyland Reservoir	671.1 ML
Western Reservoir	1,1370 ML



### Planning Scheme Zones and Overlays

The Ruby Creek water supply catchment lies within the South Gippsland Shire planning scheme.

Two overlays apply to the area, ESO2 (Environmental Significance Overlay – Schedule 2) for water catchments, and ESO5 (Environmental Significance Overlay – Schedule 5) for areas susceptible to erosion.

The following links are for the planning zone and overlay maps relevant to the Ruby Creek water supply catchment:

[South Gippsland Planning Scheme - Zones \(Map 13\)](#)

[South Gippsland Planning Scheme - Overlays \(ESO2\)](#)

[South Gippsland Planning Scheme – Overlays \(ESO5\)](#)

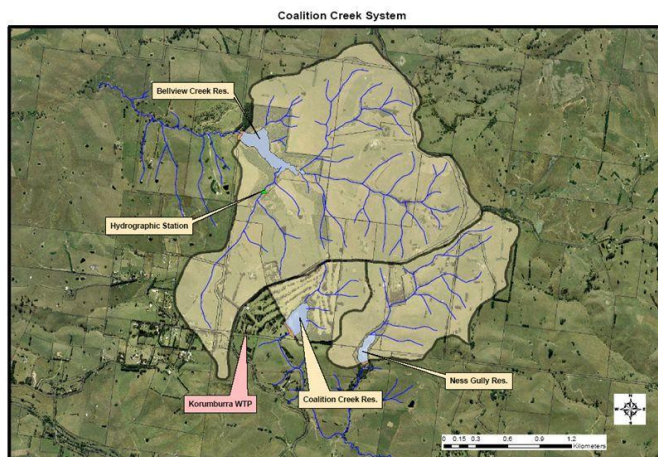
More information including requirements that must be met for each of the zones and overlays can be accessed at: [South Gippsland Planning Schemes](#)



## 2.7 Coalition, Bellview and Ness Creek Water Supply Catchment Area

The Bellview, Ness and Coalition Creeks Catchments lie within the South Gippsland Shire boundary of the West Gippsland Catchment Management region. Proclaimed on 10 November 1987<sup>1</sup>, the catchment comprises 6 square kilometres within the Parishes of Korumburra and Jeetho. Identified as a “special area”, under the *Catchment and Land Protection Act 1994*, any functions involving land management on behalf of the Crown or under an Act must be carried out with regard to any special area plan applying to the land.

The Bellview, Ness and Coalition Creeks reservoirs are located just to the north of Korumburra, and supply water to this township which has a population of 4200 people. The Bellview and Ness reservoirs are located in largely cleared, privately owned and farmed catchments with an approximate land use break-up of 80% pasture, 10% arable farming land and 10% forestry. The land use break-up for the Coalition Creek reservoir catchment is 80% golf course, and 20% pasture.



### Catchment & Land Use Summary

Area	6km <sup>2</sup>
Urban areas	none
Industrial areas	none
Highways	none
Significant roads	3 km – Warragul Korumburra Road
Minor roads	none
Pasture	80%
Intensive stock rearing	none
Arable farming land	10%
Forestry	10%
Golf Course	80%
Total Reservoir Volume	592.7 ML
Coalition Creek Reservoir	143 ML
Ness Creek Reservoir	73.5 ML
Bellview Creek Reservoir	359.2 ML

### Planning Scheme Zones and Overlays

The Bellview, Ness and Coalition Creeks water supply catchment lies within the South Gippsland Shire planning scheme.

Two overlays apply to the catchment area, ESO2 (Environmental Significance Overlay – Schedule 2) for water catchments, and ESO5 (Environmental Significance Overlay – Schedule 5) for areas susceptible to erosion.

The following links are for the planning zone and overlay maps relevant to the Bellview, Ness and Coalition Creeks’ water supply catchment:

[South Gippsland Planning Scheme - Zones \(Map 6\)](#)

[South Gippsland Planning Scheme - Overlays \(ESO2\)](#)

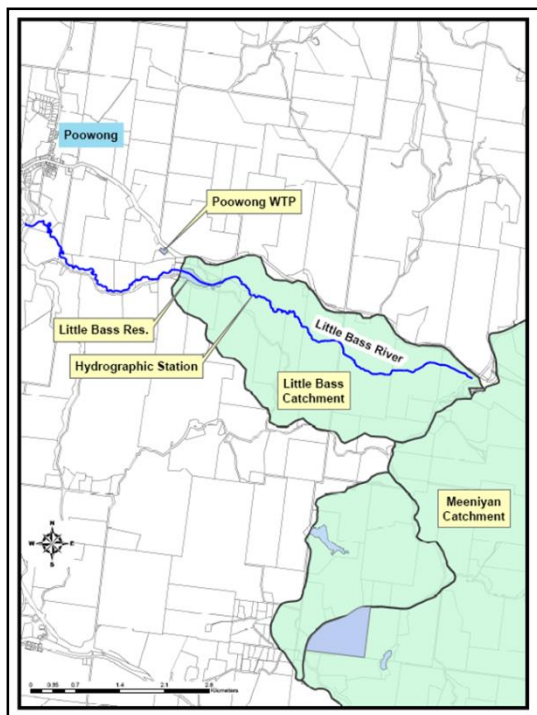
[South Gippsland Planning Scheme – Overlays \(ESO5\)](#)

More information including requirements that must be met for each of the zones and overlays can be accessed at: [South Gippsland Planning Schemes](#)

## 2.8 Little Bass River Water Supply Catchment Area

The Little Bass River Water Supply Catchment lies within the South Gippsland Shire boundary of the West Gippsland Catchment Management region. Proclaimed on 10 November 1987<sup>1</sup>, the catchment comprises 7 square kilometres on the Little Bass River within the Parishes of Jeetho and Korumburra. Identified as a “special area”, under the *Catchment and Land Protection Act 1994*, any functions involving land management on behalf of the Crown or under an Act must be carried out with regard to any special area plan applying to the land.

The Little Bass reservoir is situated approximately 3 kilometres east of Poowong and supplies the townships of Poowong, Loch and Nyora, which have a combined population of about 1000 people. The reservoir is located in a largely cleared, privately owned and farmed catchment with an approximate land use break-up of 90% pasture, <10% arable farming land and <10% forestry.



Catchment & Land Use Summary	
Area	7 km <sup>2</sup>
Urban areas	none
Industrial areas	none
Highways	none
Significant roads	7km (Korumburra Warragul Road)
Minor roads	3km
Pasture	90%
Intensive stock rearing	none
Arable farming land	less than 10%
Forestry	less than 10%
Reservoir volume	218.5 ML

### Planning Scheme Zones and Overlays

The Little Bass River water supply catchment lies within the South Gippsland Shire planning scheme.

Two overlays apply to the area, ESO2 (Environmental Significance Overlay – Schedule 2) for water catchments, and ESO5 (Environmental Significance Overlay – Schedule 5) for areas susceptible to erosion.

The following links are for the planning zone and overlay maps relevant to the Little Bass River water supply catchment.

[South Gippsland Planning Scheme - Zones \(Map 3\)](#)

[South Gippsland Planning Scheme - Overlays \(ESO2\)](#)

[South Gippsland Planning Scheme – Overlays \(ESO5\)](#)

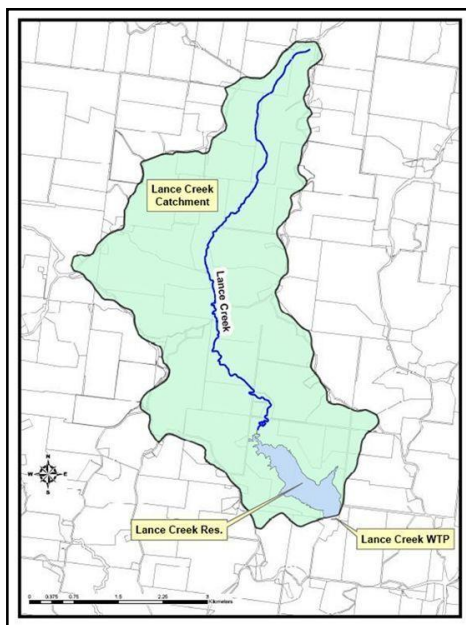
More information including requirements that must be met for each of the zones and overlays can be accessed at [South Gippsland Planning Schemes](#)

## 2.9 Lance Creek Water Supply Catchment Area

The Lance Creek Water Supply Catchment lies within the Bass Coast Shire boundary of the West Gippsland Catchment Management region. Proclaimed on 6 May 1979<sup>1</sup>, the catchment comprises 20 square kilometres on Lance Creek within the Parish of Kongwak. Identified as a “special area”, under the *Catchment and Land Protection Act 1994*, any functions involving land management on behalf of the Crown or under an Act must be carried out with regard to any special area plan applying to the land.

The Lance Creek reservoir is the single largest water storage managed by South Gippsland Water. The reservoir is located approximately 13 kilometres north east of the regional centre of Wonthaggi and supplies the townships of Wonthaggi, Inverloch and Cape Paterson. The towns have a combined permanent population of about 10,000 people but can increase to three times that number during summer and holiday periods.

The Lance Creek reservoir is located in largely cleared, privately owned and farmed catchment with an approximate land use break-up of 80% pasture for grazing, 15% arable farming land and 5% forestry



Catchment & Land Use Summary	
Area	20 km <sup>2</sup>
Urban areas	none
Industrial areas	none
Highways	none
Significant roads	none
Minor roads	approximately 15km of minor farm access roads
Pasture	80%
Intensive stock rearing	none
Arable farming land	15%
Forestry	5%
Reservoir volume	4200ML

### Planning Scheme Zones and Overlays

The Lance Creek water supply catchment lies within the [Bass Coast Shire planning scheme](#).

Two overlays apply to the catchment area, ESO4 (Environmental Significance Overlay – Schedule 4) for environmental hazards (e.g. landslide, erosion, flooding etc.), and SLO2 (Significant Landscape Overlay – Schedule 2) for the Strzelecki Foothills.

The following links are for the planning zone and overlay maps relevant to the Lance Creek water supply catchment.

[Bass Coast Planning Scheme - Zones \(Map 21\)](#)

[Bass Coast Planning Scheme – Zones \(Map 57\)](#)

[Bass Coast Planning Scheme - Overlays \(ESO4\)](#)

[Bass Coast Planning Scheme – Overlays \(SLO2\)](#)

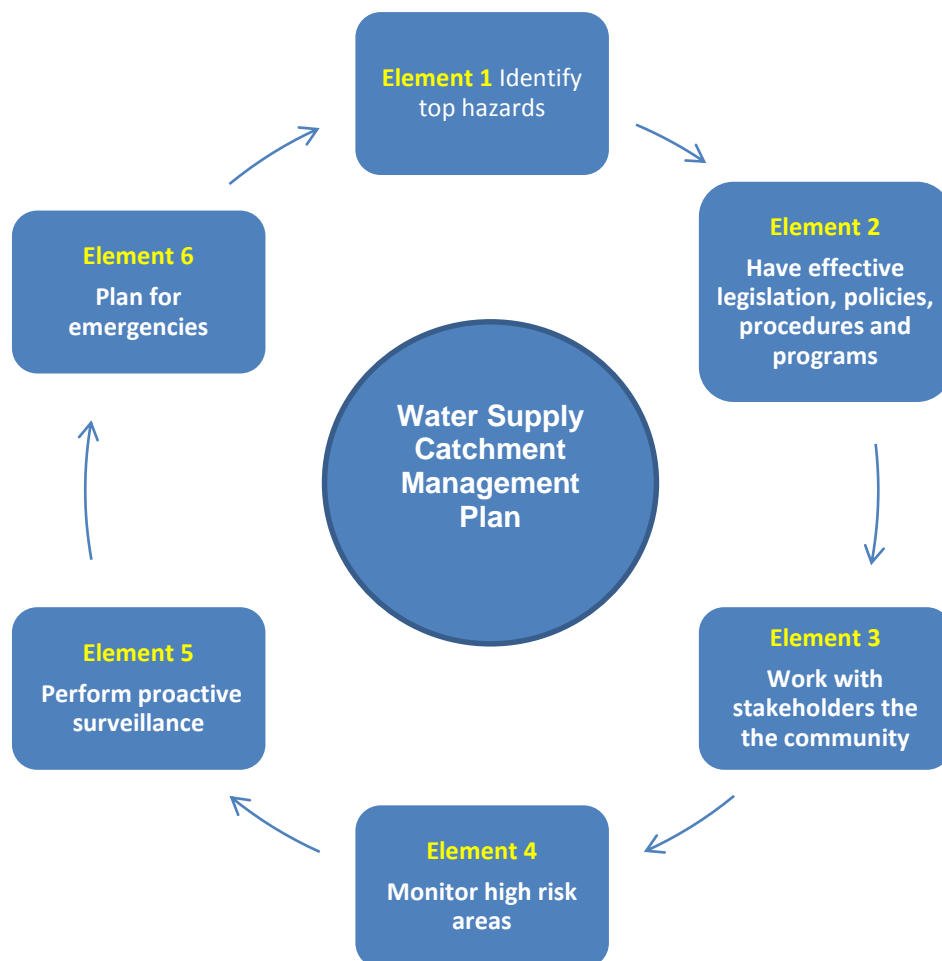
## PART 3 - The Principles of the SGW Catchment Management Plan

Part 3 of the SGW Catchment Management Plan, is based on the acceptance that Australian and international leaders in catchment management effectively implement a number of principles to minimise water quality risks in drinking water catchments.

SGW has adopted this approach and modified it to present the following catchment management plan.

- Element 1: Identify the top hazards
- Element 2: Have effective legislation
- Element 3: Work with stakeholders and engage the Community
- Element 4: Monitor high risk areas
- Element 5: Perform proactive surveillance
- Element 6: Plan for emergencies

This Catchment Management Plan produces recommendations to be put in place to provide for the promotion of future planning.



### 3.1 Element 1 - Identify the Top Hazards

#### *SGW objective:*

To develop a better understanding of our catchments so we can make informed decisions about their future management

To map hazards across the water supply catchments to enable improved risk management

#### *How we will do it:*

Through the Catchment Monitoring Program and the Drinking Water Management System, SGW maintains a good understanding of the hazards within its water supply catchments.

Some of these hazards are intrinsic to the geology and flora of the area, such as manganese and organics. These hazards are elevated by soil erosion and excessive run off. Other hazards are introduced into the catchment such as infective cryptosporidium from cattle.

SGW also maintain a watching brief for emerging hazards identified by regulators, academics, and other water authorities. For example, SGW has closely tracked work assessing the risk associated with stock in water supply catchments. This external information is combined with local knowledge to enable SGW to identify its top hazards and focus its efforts.

#### *Key outcomes:*

The top identified hazards are

- Pathogens due to stock risk
- Pathogens from septic tanks
- BGA due to elevated nutrients
- Manganese due to soil erosion and geology of the catchments

#### *Key Implementations:* ✓ indicates an ongoing commitment to the implementation

Implementations	2016	2017	2018	2019	2020
Undertake all monitoring detailed in the Integrated Catchment Management Program	✓	✓	✓	✓	✓
Strengthen the utilisation of the monitoring programs as an input to hazard analysis and risk assessment processes	✓	✓	✓	✓	✓
Develop and adopt improved methods and indicator of hazard concentrations and surveillance techniques within catchment that are appropriate and beneficial for SGW	✓	✓	✓	✓	✓
Develop GIS system for hazard surveillance across all catchments. GIS is an important tool for mapping changes to catchments and working out areas requiring attention. A key element of the catchment monitoring program is the development a GIS recording of information to assist in catchment assessments.	✓	✓	✓	✓	✓
Adapt catchment hazard models to SGW catchments. A range of models have been developed and are being applied by large metropolitan water authorities. SGW will review and adopt these models where beneficial.	Development of HBT treatment target surveys		Review & Update		Review & Update



### 3.2 Element 2 - Have Effective Legislation and Guidelines

#### **SGW objective:**

To utilise available legislation and guidelines in the drinking water catchment to ensure that land is managed with a focus on water quality protection to minimise risk as far as is reasonable.

#### **How we will do it:**

Effective legislation refers not only to the strengthening and clarity of the rules governing catchment land use, but also their integration into local planning.

#### **Key outcomes:**

Applicable legislation includes:

[Planning permit applications in open, potable water supply catchment areas](#)  
[State Planning Scheme](#)  
[South Gippsland Shire Planning Scheme](#)

SGW's [NWR-025 Water Supply Catchment Development and Land Use Guidelines Information](#) provides guidance to land owners regarding possible developments within water supply catchments, and requirements

The policy also provides encouragement to land owners to undertake best practice land management.

**Key Implementations:** ✓ indicates an ongoing commitment to the implementation

Implementations	2016	2017	2018	2019	2020
Work with the Shire Council of South Gippsland to fully implement SGW's role as the referral authority within water supply catchments.	✓	✓	✓	✓	✓
Promote the Department of Health – Protect our waters, Protect our health to all landholders within catchment	✓	✓	✓	✓	✓
Establishment of the <a href="#">Water Supply Catchment Management and Improvement Program NWR-001</a>	Established 2015	Review and update		Review and update	
Undertake a catchment study of the Tarwin Water Supply Catchment area as a planning tool for the construction of a management policy to be included into the South Gippsland Shire's Planning Scheme.	Completed	✓	✓	✓	✓
Review the Catchment Development and Land Use Policy to ensure that it accurately reflects the development pressures in catchment. Population projects for Melbourne indicate that there will be development pressures on some of SGW	Established 2016		Review and update		Review and update
Assess whether new water resources will be included into the SGW supply, and what legislated catchment controls should be in place	Greater Yarra System-Thompson River Pool pipeline to Northern Towns establishment				✓
Consult with the community to ensure that the existing Catchment Development and Land Use Policy provides clarity and direction for development.	✓	✓	✓	✓	✓
Work with the State government, landholders and key stakeholders to improve the capacity of SGW to protect drinking water through legislated measures	✓	✓	✓	✓	✓



### 3.3 Element 3 - Work with Stakeholders and Engage the Community

#### *SGW objective:*

To promote partnerships across stakeholder groups for more effective management of drinking water catchments.

To inform, connect with and empower the community to make a positive change in catchments

#### *How we will do it:*

We will build on current stakeholder relationships through ongoing consultation with the aim of increasing collaboration with stakeholders to manage the total water cycle to improve the outcomes for social, environmental and financial benefits.

#### *Key outcomes:*

The main stakeholders in SGW catchments include:

- West Gippsland Catchment Management Authority;
- Local Shire Councils-South Gippsland, Bass Coast, Wellington and Baw Baw.
- Farmers Groups;
- Major industries in the catchment including Murray Goulburn, Burra Foods and other trade waste customers
- Department of Environment and Primary Industries;
- Local towns business communities;
- Landcare Groups-South Gippsland and Bass Coast;
- Friends of groups;
- Parks Victoria;

Other major stakeholders include agreements with the Gippsland Regional Monitoring Partnership, and the Victorian EPA to deliver on project work that underpins the purpose and philosophies outlined in the SGW Drinking Water Management System.

#### *Key Implementations:*

✓ Indicates an ongoing commitment to the implementation

Implementations	2016	2017	2018	2019	2020
Promote and distribute the Department of Health – Protect our waters, Protect our health to all landholders within catchments	✓	✓	✓	✓	✓
Continue with the coordinated approach with the EPA, West Gippsland CMA and with South Gippsland and Land care Network with respect to identifying catchment works that are of mutual benefit	✓	✓	✓	✓	✓
Continue with employment of a catchment Project Officer to undertake dairy audits that are effective in reducing the source water risk.	This was discontinued in 2015 due to funding barriers				
Participate in the development of a South Gippsland Water Supply Catchment Co-ordination group to facilitate improvements in catchment management	✓	✓	✓	✓	✓

### 3.4 Element 4 - Monitor High Risk Areas and Undertake Catchment Improvements

#### *SGW objective:*

To undertake catchment improvement works and investment that can be demonstrated to be cost effective and consistent with SGW aims of achieving an outcome that recognises the financial, social and environmental contribution of water catchments to the

#### *How we will do it:*

SGW through the DWMS and the EMS identify and prioritise improvement works.

#### *Key outcomes:*

The main catchment improvement programs in place are –

- H2O program
- Weed control program
- Dairy farm audit program

#### *Key Implementations:*

Implementations	2016	2017	2018	2019	2020
Continue with the existing improvement programs	✓	✓	✓	✓	✓
Undertake improvement works (fencing, stock crossings, off stream watering) based on the recommended catchment controls identified in the Department of Health report – Public Health Issues Associated with Stock Accessing Waterways Upstream of Drinking Water diversion points – 26 <sup>th</sup> September 2011.	✓	✓	✓	✓	✓
Pilot program to move juvenile stock away from waterways	✓	✓	✓	✓	✓

✓ Indicates an ongoing commitment to the implementation

### 3.5 Element 5 - Perform Proactive Surveillance

#### **SGW objective:**

To perform regular, documented surveillance of the drinking water catchment areas.

#### **How we will do it:**

Gathering knowledge about catchments is an essential foundation of the risk assessment process. SGW employs a catchment officer to undertake surveillance of the catchments.

SGW has implemented programmed surveillance of each catchment so that catchment condition information can be recorded and shared. Risk areas are identified and documented.

#### **Key outcomes:**

All catchment surveillance is documented and reported in the quality documentation system. Documentation [SWR-002 Catchment Surveillance Routine Procedure](#) outlines the catchment surveillance program. All catchment surveillance information from the surveillance routine can be located in the following area of the SGW quality documentation system. [QD/ Water Resources/ Catchment/ General](#)

#### **Key Implementations:**

Implementations	2016	2017	2018	2019	2020
Formalised surveillance is embedded into staff duties supported by a record keeping system that allows dissemination of information and actions.	✓	✓	✓	✓	✓
Regular and documented surveillance is routinely performed in catchments on as scheduled	✓	✓	✓	✓	✓

✓ Indicates an ongoing commitment to the implementation

### 3.6 Element 6 - Plan for Emergencies

#### **SGW objective:**

To mitigate the risk of uncontrolled events (such bushfire, and storms) causing injury, damage or loss of water supply

#### **How we will do it:**

SGW has in place an incident and emergency management system to address the catchment and treatment plant failures.

There is limited planning for fires based on the catchments.

#### **Key outcomes:**

Maintaining an incident management structure that is well drilled on the implementation of contingency plans/management of assets. This is outlined in the documents listed under the Quality Documentation System: Emergency Management Plan. [\\_01 - EIM-001 SGW EMERGENCY MANAGEMENT PLAN \(EMP\)](#)

#### **Key Implementations:**

Implementations	2016	2017	2018	2019	2020
Review potential emergencies and identify possible catchment controls. E.g. Loss of fuel, release of trade waste, storm and elevated turbidity events, pesticide and protozoa detections within the distribution system, bushfire	✓	✓	✓	✓	✓
Develop improved emergency and incident response plans that are tested with mock exercises	✓	✓	✓	✓	✓
Review incident and emergency response plans for effectiveness. Identify deficiencies and include remedial programs in DWMS Improvement Register.	✓	✓	✓	✓	✓

✓ Indicates an ongoing commitment to the implementation