

## **26. Corangamite Basin**

### **26.1 Location of Water Resources**

The Corangamite Basin is located with the South East Coast Drainage Division in western Victoria. Rivers and streams within the basin terminate in a series of inland lakes, the largest is Lake Corangamite. A map of the river basin is shown in Figure 26-1.

Water Supply Protection Areas within the Corangamite Basin include the entire Warrion WSPA. Groundwater Management Areas within the Corangamite Basin include part of the Colongulac GMA, Gerangamete GMA and Paaratte GMA.

### **26.2 Responsibilities for Management of Water Resources**

Southern Rural Water is the licensing authority responsible for managing groundwater and surface water licensed diversions. Barwon Water supplies Colac and South West Water supplies Camperdown, Lismore and Derrinallum, all from sources outside this basin. The Corangamite Catchment Management Authority is responsible for waterway management in the Corangamite Basin.

### **26.3 Seasonal Overview**

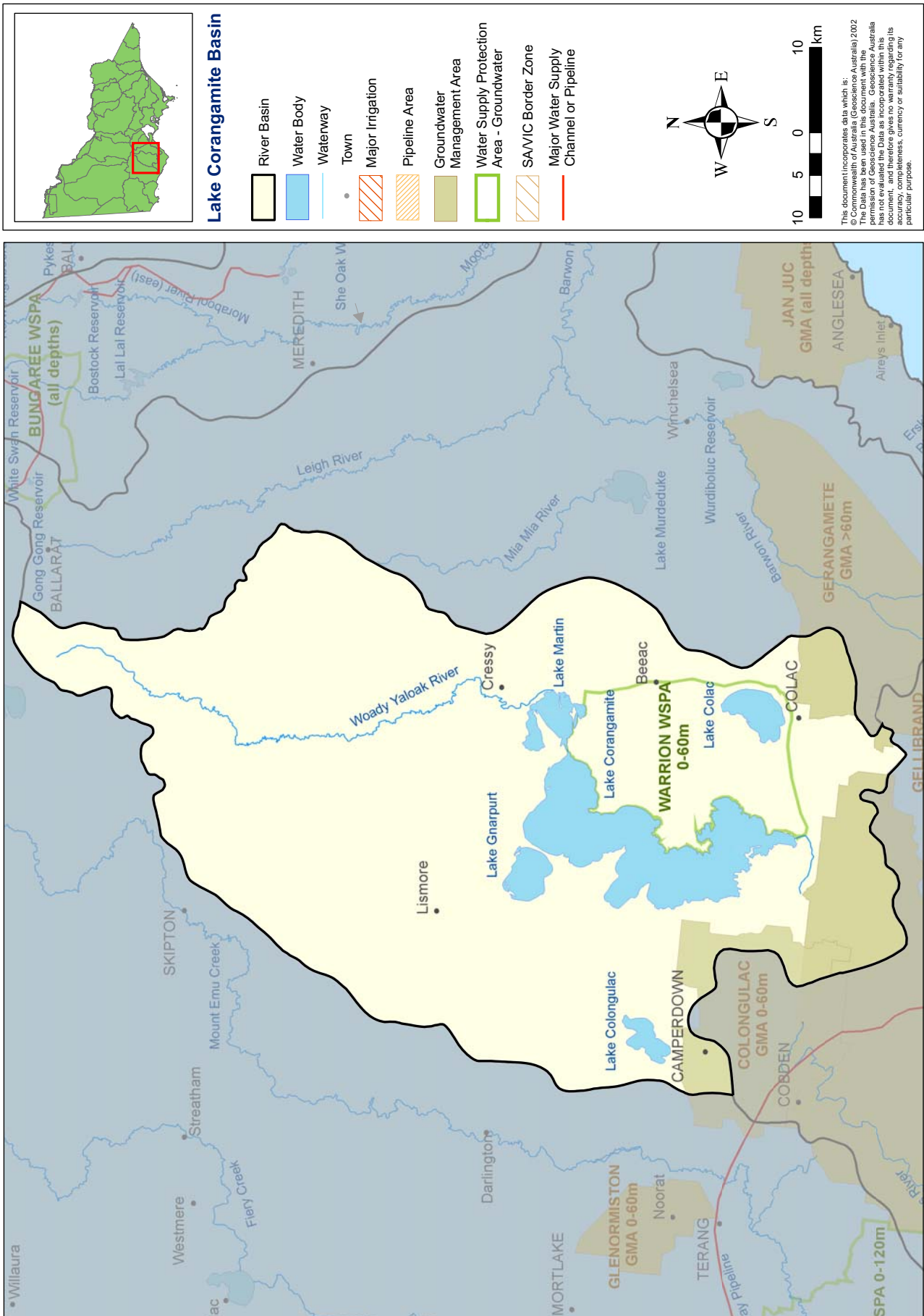
Rainfall was above average in the Corangamite Basin during 2003/04. However, streamflows were still below average. Flows in Woody Yaloak River at Pitfield (gauge 234200) were only 32 per cent of the long-term average.

No restrictions were in place for licensed diverters.

With dry conditions continuing in 2003/04, the water levels in Lake Corangamite were extremely low and its salinity was approximately three times saltier than seawater. Whilst the Lough Calvert Drainage Scheme and Woody Yaloak Diversion Scheme assets were maintained, they remained closed on account of the dry conditions. For the salinity in Lake Corangamite to reduce, increased flows from the Woody Yaloak River are required. At the low levels reached in 2003/04, the lake has little life and only supports a small number of birds that normally reside on this Ramsar-protected waterway.

An assessment made by the Corangamite CMA concluded the streams within the basin were in a marginal or poor condition in 2003/04. Most of the catchment has been cleared for agriculture and many wetlands have been drained.

**Figure 26-1 Map of the Corangamite Basin**



## 26.4 Summary of the Total Water Resources in the Basin

The total volume of water available and supplied from water resources in the Corangamite Basin are shown in Table 26-1. Barwon Water transferred 4,128 ML from the Otway Coast Basin into the Corangamite Basin to supply Colac. South West Water transferred 1,400 ML from the Otway Coast Basin into the Corangamite Basin to supply the towns of Camperdown, Lismore and Derrinallum. These transfers are accounted for under the Otway Coast Basin. All surface water extractions are from farm dams and licensed diverters.

**Table 26-1 Summary of total water resource and water use in Corangamite Basin 2003/04**

Water source	Total Water Resource (ML)	Total Extraction (ML)
Surface water	99,650	12,950
Groundwater <sup>(1)</sup>	Not available	Not available
Recycled water	2510	450

(1) The total resource and use is not stated because not all GMAs or WSPAs in this basin have more than 90 per cent of their surface area within the river basin boundary.

## 26.5 Environmental Water Reserve

In 2003/04 there was no formal environmental water reserve established in the Corangamite Basin. The water available to the environment at the basin outlet was 70,740 ML, which is about 72 per cent of the streamflow water in the basin. This amount consists of water flowing in the basin, which was not taken out of the streams for consumptive uses.

## 26.6 Surface Water Resources

### 26.6.1 Water Balance

A surface water balance for Corangamite Basin is shown in Table 26-2. Overall the inflows in the Corangamite Basin were 81 per cent of the long-term average. In the Corangamite Basin approximately 20 per cent of the total inflows were diverted for consumptive use, the majority being extracted by catchment farm dams. Transfers from the Otway Coast Basin supply all urban demands within the catchment because of its better water quality, especially with regards to salinity. There are no major storages in the Corangamite Basin (> 1,000 ML in size).

The estimate of in-stream losses to groundwater and evaporation is the volume of unaccounted for water after separately estimating inflows, outflows, change in storage and consumptive use. In the Corangamite Basin the inflows were back calculated by adding diversions to outflows, so no estimate of these losses is available. The losses accounted for in the water balance do not include losses occurring between the point of water diversions and the point of use.

**Table 26-2 Balance of surface water in the Corangamite Basin**

Water Account Component	Volume (ML)
<b>Storage Volume</b>	
Volume in storage at start of year	0
Volume in storage at end of year	0
<b>Change in storage</b>	<b>0</b>
<b>Inflows</b>	
Catchment inflow <sup>(1)</sup>	97,580
Irrigation return flow	0
Treated effluent discharge back to river <sup>(2)</sup>	2,070
<b>Subtotal</b>	<b>99,650</b>
<b>Diversions</b>	
Urban diversions	0
Unregulated licensed private diversions	580
Catchment farm dams	12,370
<b>Subtotal</b>	<b>12,950</b>
<b>Losses</b>	
Evaporation losses from major storages	0
Losses from catchment farm dams	6,540
In-stream losses to groundwater and evaporation <sup>(3)</sup>	9,430
<b>Subtotal</b>	<b>15,970</b>
<b>Water passed at outlet of basin</b>	
River outflows to the Corangamite Lakes	70,740
<b>Volume available to the environment in the Corangamite Basin</b>	<b>70,740</b>

(1) Inflows have been back-calculated from outflows plus diversions

(2) Assumes non-reused water is discharged to waterways

(3) Assumed to be zero because not readily available

### 26.6.2 Catchment Farm Dams

The capacity of catchment farm dams in the Corangamite Basin is estimated to be around 18,000 ML (Table 26-3). Average annual usage from the dams is estimated to be 12,400 ML, and after allowing for losses, the total catchment runoff that is harvested by the dams is estimated to be 18,900 ML. Specific information on catchment farm dam behaviour for 2003/04 was not readily available and the values provided in the table below are based on estimates of the average annual impact.

Catchment farm dams used for irrigation and commercial use are in the process of being licensed, and when the licences have been processed, the relevant volume will be accounted for under licensed diversions.

**Table 26-3 Catchment Farm Dam Information**

Type of catchment farm dam	Capacity (ML)	Usage (ML)	Total water harvested (ML)
Stock and domestic	8,100	4,050	n/a
Irrigation	9,900	8,320	n/a
<b>TOTAL</b>	<b>18,000</b>	<b>12,370</b>	<b>18,900</b>

n/a = information not available

### 26.6.3 Water Entitlement Transfers

There was no temporary or permanent transfer of water rights, diversion licences or sales water within the basin in 2003/04.

### 26.6.4 Volume Diverted

The only licences utilised in the Corangamite Basin are licences on unregulated streams and are listed in Table 26-4. Licences on unregulated streams are not currently metered and hence compliance has not been assessed.

**Table 26-4 Volume of water diverted under surface water entitlements in the Corangamite Basin**

Entitlement	Bulk entitlement (ML)	Net transfer of entitlement (ML)	Maximum volume divertible in 2003/04 (ML)	Amount diverted (ML)	Complied?
<i>Unregulated licensed diverters</i>	871	0	871	576	n/a

### 26.6.5 Compliance with Passing and Environmental Flow Obligations in Bulk Entitlements

There are no bulk entitlements currently in operation in the Corangamite Basin.

### 26.6.6 Compliance with Streamflow Management Plans

There is no Streamflow Management Plan (SFMP) currently in operation in the Corangamite Basin.

## 26.7 Groundwater Resources

A summary of licensed volume and use in Groundwater Management Areas that overlap the Corangamite Basin, excluding stock and domestic use, is shown in Table 26-5. An estimate of stock and domestic use within these management areas is provided in Table 26-6.

The Corangamite Basin contains all of the Warrion WSPA as well as part of the Gerangamete GMA, Paaratte GMA and Colongulac GMA. The volumes described in Table 26-5 are totals for the management areas and include the area that falls outside the Corangamite Basin. Groundwater allocation and use for unincorporated areas has not been included in the 2003/04 water accounts.

The Warrion WSPA comprises the basaltic stony rises and scoria cones to the north of Colac. Current licensed allocation is 84 per cent of the PAV. The Paaratte GMA is currently allocated 69 per cent of the PAV and is under increased pressure of further development because it is a good source of high yielding groundwater.

**Table 26-5 Compliance with Licensed Groundwater Volumes**

Water Supply Protection Area/Groundwater Management Area <sup>(1)</sup>	GMA/WSPA Depth Limits <sup>(2)</sup>	PAV (ML/yr)	Licensed Allocation <sup>(3)</sup> (ML)	Metered Use (ML)	Estimated Use in Unmetered Areas <sup>(4)</sup> (ML)	Total Water Resource <sup>(5)</sup> (ML)
Warrion WSPA	0 - 60	16,500	13,788	5,915	Not applicable	16,500
Colongulac GMA (31%)	0 - 60	14,271	3,213	Not available	1,542	Not available <sup>(6)</sup>
Paaratte GMA (14%)	> 120	4,606	3,192	Not available	1,532	Not available <sup>(6)</sup>
Gerangamete GMA (14%)	> 60	Not available <sup>(7)</sup>	8,000	Not available	3,840	Not available <sup>(6)</sup>

(1) The percentage of the GMA/WSPA by surface area within the river basin is given in the parentheses; where there is no percentage given, the entire management area falls within the river basin. Those GMA/WSPA with < five per cent surface area within the basin have not been included.

(2) This column indicates the aquifer depth limits for which the GMA/WSPA applies.

(3) Allocated volume includes domestic and stock usage (except Grampians Wimmera Mallee Water).

(4) In non-metered areas estimate of use is based on the State average use for metered areas ('State Average' meaning the average percentage metered use versus PAV) equalling 48 per cent.

(5) The sum of PAVs or licensed volume, which ever is greater.

(6) No estimate of Total Water Resource is applicable as >10 per cent GMA/WSPA is located outside the river basin.

(7) There is no PAV for Gerangamete GMA as the entitlement is managed under a Groundwater Licence.

**Table 26-6 Number of Stock and Domestic Bores and Estimated Use**

Water Supply Protection Area/Groundwater Management Area	No. of Stock and Domestic Bores <sup>(1)</sup>	Estimated Stock and Domestic Use (assuming 2ML/bore) <sup>(1)</sup>
Warrion WSPA	461	922
Colongulac GMA	208	416
Paaratte GMA	4	8
Gerangamete GMA	5	10

(1) There are a number of licensed bores that also incorporate stock and domestic use. The estimated use for these bores is not included in the above table.

## 26.8 Recycled Water

The volume of water recycled in Corangamite Basin in 2003/04 is shown in Table 26-7. The sewage treatment plant at Colac is operated by Barwon Water and the plant at Camperdown is operated by South West Water. Approximately 80 per cent of the effluent at Camperdown is reused and 18 per cent of the total basin effluent is reused.

**Table 26-7 Volume of recycled water**

Sewage Treatment Plant	Water Authority	Total volume of effluent (ML)	Volume reused (ML)
Colac	Barwon Water	1,931	7
Camperdown	South West Water	580	438
<b>TOTAL</b>		<b>2,511</b>	<b>445</b>