

# WIMMERA SOUTHERN MALLEE:

## *Socio-Economic Value of Recreational and Environmental Water 2018*



Wimmera Development Association

The Wimmera Southern Mallee Socio-Economic Value of Recreational and Environmental Water report has been made possible by the following project partners



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## EXECUTIVE SUMMARY

### E1 Background

This project has been a joint initiative of Wimmera Development Association, GWMWater, the Wimmera Catchment Management Authority, and Local Councils. It is the second annual assessment of the economic and social contribution made by the local weirs, lakes and rivers to the regional economy. The project encompassed assessments of 25 lakes, weir pools and rivers around the region.

### E2 Recreational Water Facility Visitation and Usage

- Estimated recreational water users in 2017-18 at the selected facilities are:
 

- Overnight visitors:	62,730
- Visit nights:	208,300
- Local active participation (people using the water facility as a day trip destination for fishing, swimming, boating, picnicking on the banks):	77,022
- Local passive participation (people engaged in an activity using the foreshore or trails around the water facility due to its amenity, such as walking, cycling, jogging):	162,937
- Total recreational water participation:	302,689
- Change on 2016-17 <sup>1</sup> :	1.49%
- Estimated number of people involved:	77,011
  
- Activities and amenity provided at the WSM water facilities are clearly suited to residents and visitors 'for a lifetime', with good levels of participation across all age ranges. Family groups and retirees dominate the overnight visitor users. Older participants, including 'grey nomad' style overnight visitors were most prevalent at the water facilities in Yarriambiack Shire and Horsham Rural City.
  
- A large majority of visitors to the recreational water facilities are residents of the Wimmera Southern Mallee and other parts of regional Victoria.
  
- Most towns servicing the WSM recreational water facilities have high levels of socio-economic disadvantage. In fact, most are within the most disadvantaged 30% of all 'suburbs' in Victoria (of 2,676 suburbs in total)<sup>2</sup>. This suggests the local towns and their residents are likely to achieve greater than average benefits from the economic and social benefits accruing from the regional recreational water facilities.

### E3 Economic Contribution

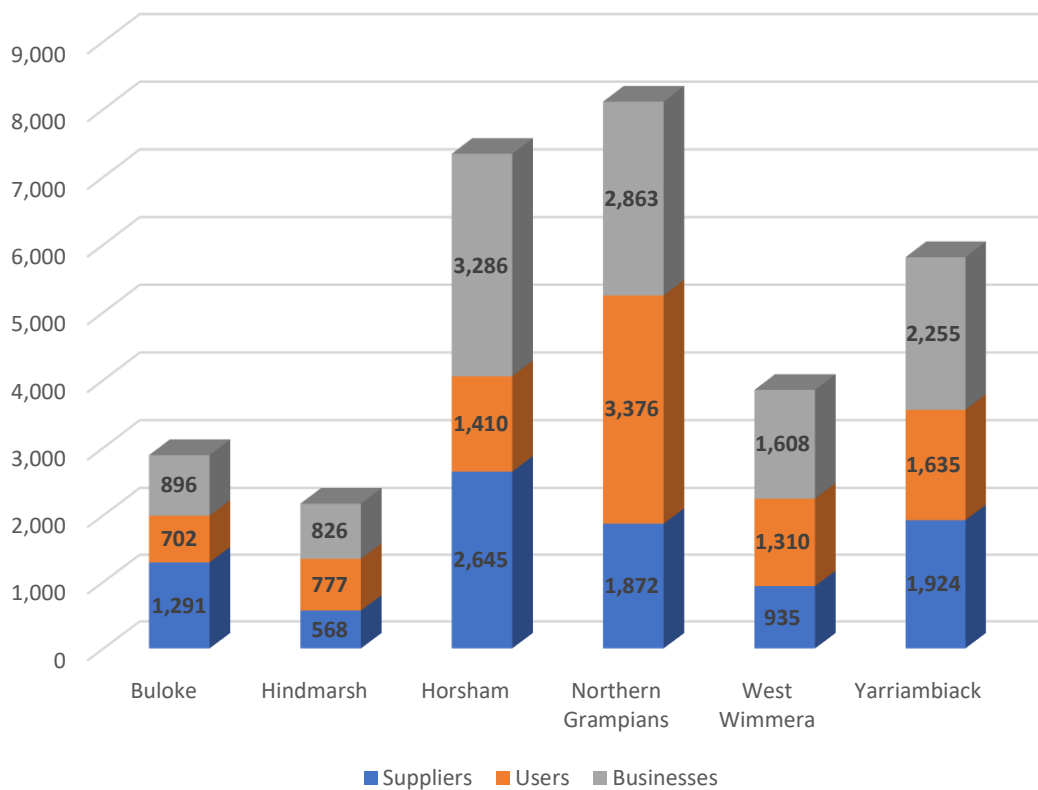
- The total estimated regional economic contribution from the 25 selected recreational water facilities in the Wimmera Southern Mallee is \$30.178 million in 2017-18 (a 9.47% increase on the contribution measured in 2016-17).

<sup>1</sup> The change on 2016-17 is a combination of growth in participation and a change in the recreational water sites evaluated (Lake Toolondo, Lake Ratzcastle and Lake Natimuk were added in 2017-18, while Lake Hindmarsh and the Glenelg River at Harrow had been included in 2016-17 and were excluded in 2017-18)

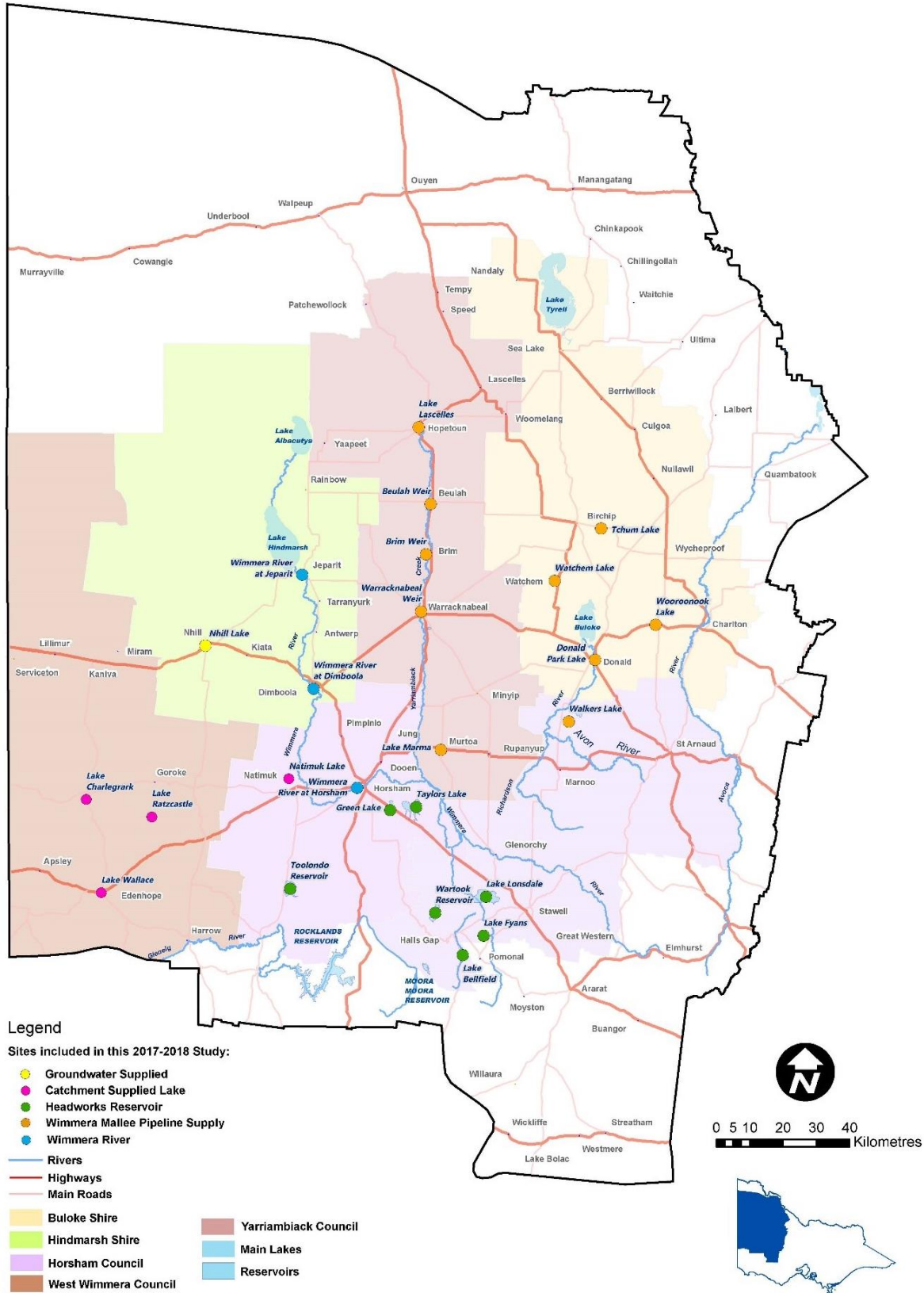
<sup>2</sup> Australian Bureau of Statistics' SEIFA indices calculate relative advantage and disadvantage using a range of variables on income, education, employment, occupation, housing, and other miscellaneous indicators.

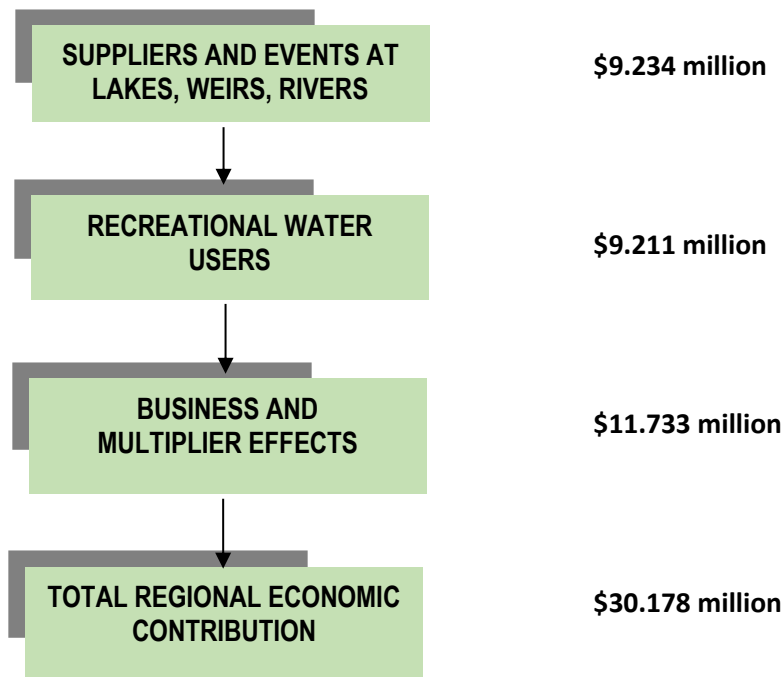
- Estimated regional economic contributions of the water facilities generated by respective local areas is:
  - Buloke Shire: \$2.889 million
  - Hindmarsh Shire: \$2.171 million
  - Horsham Rural City: \$7.340 million
  - Northern Grampians Shire: \$8.111 million
  - West Wimmera Shire: \$3.853 million
  - Yarriambiack Shire: \$3.853 million
  - Total: \$30.178 million.

**Figure E1 Estimated Regional Recreational Water Economic Contribution by Local Areas, 2017-18: (\$'000)**



Wimmera Southern Mallee Socio-Economic Value of Recreational and Environmental Water



**Figure E2 2017-18 Estimated Recreational Water Economic Contribution: WSM Region**

#### E4 Community and Social Contribution

- The value of WSM recreational water users' health contribution has been estimated based on the prevention of chronic diseases (such as breast cancer, coronary heart disease, diabetes, bowel cancer and stroke). The mental health benefits are derived from the prevention of anxiety and depression.
- The estimated total health benefits from WSM residents and all country Victorians participating at WSM recreational water facilities in 2017-18 include:

	WSM Resident Participants	Country Victorian Participants
- Physical: Annual benefit:	\$1,564,578	\$3,549,879
- Mental benefit:	\$ 107,581	\$ 255,799
- Total annual health benefit	\$1,672,159	\$3,805,678
- % of annual desirable <sup>3</sup> activity:	70.6%	69.3%
- Equivalent Estimate <sup>4</sup> 2016-17:	\$2,247,920	\$5,200,449

<sup>3</sup> Measured as a percentage of Disability-Adjusted Life Years

<sup>4</sup> There was a greater level of detail on duration of time spent exercising at the lakes and weir pools and frequency of visits in the 2017-18 interviews with recreational water users, so the 2016-17 to 2017-18 estimates are not directly comparable. Although, the apparent reduction in health benefits is partly explained by fewer people involved in water recreation (but at more frequent levels of activity), the relatively younger age structure, and a larger proportion of non-country Victorians using the lakes and weir pools.

- WSM communities which have recreational water facilities are rated highly for lifestyle, community spirit and inclusiveness by residents. On a scale of 1 to 7, where 7 implies 'totally agree', WSM average ratings for lifestyle and community factors, were:
- My community is a great place to live: 6.5
  - The community copes well when faced with challenges: 6.0
  - I feel proud to live in the community: 6.3
  - The community has a bright future: 5.5
  - There is good community spirit: 6.2
  - Local groups and organisations are good at getting things done: 6.0
  - Some individuals get left out of the community: 2.6
  - There is a lot of disagreement between people in the community: 2.1
  - I attend community events such as farmers' markets, festivals and shows: 4.8
  - I take part in community-based organisations (eg Rotary, Lions, CWA): 4.5
  - I take part in sports groups or teams: 5.3
  - I feel part of my community: 6.5
  - Local businesses in my town are doing well at the moment: 5.2
- WSM recreational water users who are also local residents, are generally satisfied with their health and wellbeing. The following average satisfaction ratings (scored out of 10) were recorded in 2017-18.
- Your health: 8.9
  - Your standard of living: 8.6
  - What you are currently achieving in life 8.6
  - Your relationships with friends and family 9.1
  - How safe you feel 9.4
  - Feeling part of your community 9.0
  - Your future security 8.7.



## 1. INTRODUCTION

### 1.1 ACKNOWLEDGEMENTS

This project was undertaken during December 2017 to July 2018 by Street Ryan under direction from a Steering Group comprising:

- Ralph Kenyon, Executive Director, WDA
- Mark Fletcher, Project Officer, WDA
- Tony Baker, Statutory and Strategy Manager, Wimmera CMA
- Bernie Dunn, Co-ordinator Water Resources and Recreation Strategy, GWMWater
- James Goldsmith, Southern Mallee Lakes Alliance
- Jeff Woodward, Wimmera Mallee Tourism.

This group provided advice, direction and support in collection of data from Wimmera Southern Mallee businesses, recreational water facility committees of management, and recreational water users. Their input and contribution is gratefully acknowledged.

Street Ryan was also assisted by Sport Business Partners in the estimation of health benefits for the recreational water facilities, and Insight Communications in interviews and consultations with businesses in Horsham, Stawell, Halls Gap and Nhill.



### 1.2 SCOPE

This project was a joint initiative of Wimmera Development Association, GWM Water, the Wimmera Catchment Management Authority, and Local Councils. It has been designed to assess the economic and social contribution made by the local weirs, lakes and rivers to the regional economy and local communities. This assessment is the second in a planned four-year longitudinal annual study. The project is intended to support development of facilities and government grant applications as well as planning for future water allocations.

The project encompassed assessments of 25 lakes, weir pools and rivers around the region and measured contributions in the 'recreational water supply chain' at three levels:

- Level 1: Service providers (supplying products and services to the lakes/weirs) including water, camping/caravanning, maintenance, construction, management, research and catering.
- Level 2: Users of the Recreational Water Lakes/Weir Pools including residents, community groups and visitors.
- Level 3: Local businesses (servicing the users of the lakes/weirs) including accommodation, food services, health, sport and recreation, transport, retail and personal services.

The 2017-18 assessment process involved:

- Level 1: Supplier Organisations
  - Person to person and telephone interviews with 31 Wimmera Southern Mallee recreational water facility supplier organisations.
- Level 2: Recreational Water Users
  - Person to person interviews with 2,136 recreational water facility users (overnight, active and passive day visitors)
  - Online surveys completed by 26 recreational water facility users (overnight, active and passive day visitors), many of which were users of multiple facilities.

- Level 3: Local Businesses
  - Person to person interviews with 40 businesses in towns servicing recreational water facilities (adding to supply chain details of those completed in 2016-17).

The 25 lakes, weir pools and rivers in 2017-18 were:

- Buloke Shire
  - Tchum Lake
  - Lake Watchem
  - Wooroonook Lake
  - Donald Caravan Park Lake (Folletti Lake)
- Horsham Rural City
  - Wimmera River at Horsham
  - Taylors Lake
  - Green Lake
  - Natimuk Lake
  - Lake Toolondo
- Hindmarsh Shire
  - Wimmera River at Dimboola
  - Wimmera River at Jeparit
  - Nhill Lake
- Northern Grampians Shire
  - Walkers Lake
  - Lake Fyans
  - Lake Bellfield
  - Lake Wartook
  - Lake Lonsdale.
- West Wimmera Shire
  - Lake Charlegrark
  - Lake Wallace
  - Lake Ratzcastle
- Yarriambiack Shire
  - Beulah weir pool
  - Brim weir pool
  - Warracknabeal weir pool
  - Lake Lascelles
  - Lake Marma.

Person to person interviews were conducted during December 2017 to April 2018. Although respondents were asked to comment on their usage of recreational facilities, and business impacts, over the entire 2017-18 year, the nature of the individuals and groups may be affected by the months in which interviews were conducted.

Busy school holiday periods, public holidays and major events, were explicitly included in the interview processes, and the types of visitation during other seasons is likely to be somewhat different. However, bias associated with a restricted interview period has been addressed in discussions with service providers at the recreational water facilities and with committees of management.

### 1.3 CHANGES AND ENHANCEMENTS TO ASSESSMENT APPROACH IN 2017-18

Several changes were implemented to the recreational water assessment approach in 2017-18:

- 25 Lakes and weir pools were included: 22 were unchanged from 2016-17, but Lake Hindmarsh (with no water in 2017-18) and the Glenelg River at Harrow were excluded. Lake Toolondo, Lake Ratzcastle and Lake Natimuk were added for the 2017-18 assessment<sup>5</sup>.
- Interviews with lake, river and weir users were undertaken over a longer period of time (December to April) compared with the previous year, when interviews were restricted to March to early-May. The longer elapsed timescale is believed to better reflect the socio-demographic mix of total annual participation, although it is likely that older retired couples ('grey nomads') are still under-reported (as a percentage of total users), since committees of management believe this cohort dominates overnight visitations during the quieter and cooler winter months (June to August). Activities that are strongly represented in the interview sample during December to April such as swimming and water skiing, also give way to non-water immersion activities (such as fishing, canoeing, and picnicking) in the cooler months.
- There was an enhanced approach to the economic contributions of suppliers to the lakes and weir pools. Specifically:
  - The fish stocking program<sup>6</sup> of Fisheries Victoria for Wimmera Southern Mallee recreational waterways, was assessed and included in the 2017-18 estimates.
  - A larger number of recreation related projects of the Wimmera CMA were included in 2017-18.
  - Expenditure by GWM Water and Wimmera CMA were allocated to local government areas (where possible) in 2017-18, whereas the economic contributions of these organisations were all allocated to the Rural City of Horsham (as the headquarters of the organisations) in 2016-17.
  - Overall, the supplier organisation direct contribution was increased by 36.3% in 2017-18; largely a result of these enhancements to the approach.
- Business and Multiplier contributions (at Level 3 in the supply chain) have been entirely allocated to the local government area in which the direct contribution occurs, instead of having an amount called "contributions accruing in other WSM local government areas. This means all total economic contributions are Wimmera Southern Mallee regional contributions from visitors and suppliers to the lakes and weir pools. As a result, all Level 3 figures in the LGA sections of the report are higher than reported in 2016-17 except Horsham Rural City (due to the localised allocation of GWM Water and Wimmera CMA contributions), but it provides a meaningful reflection of the regional contribution and overcomes any potential confusion in the sum of the local government areas not equalling the regional total.
- Health contributions more clearly defined. In 2017-18 the contributions related to total health benefits from the annual lifestyle of participants. For example, interviewees were asked how many hours in a typical week that they spent exercising. This year there was a greater concentration on hours of activity at the lake/weir and the number of times the WSM lakes and weirs were visited. This has enabled more specific calculations of health benefits from actual time exercising at WSM lakes/weirs for both WSM residents and Country Vic residents.
- Some comparisons of recreational water users' community and personal wellbeing ratings with those of the '*National Wellbeing Survey*'<sup>7</sup> have been included.

<sup>5</sup> Lake Natimuk had insufficient water for recreational activities in 2017-18, so the assessment in this case was confined to a review of trends in use over more than a decade.

<sup>6</sup> Stocking fish in recreational waterways is considered similar to providing an asset, for which there will be a return on investment over three years. The value of the fingerling or advanced stocker, plus the costs associated with freight and labour in releasing the fish, are factored over the three year investment timescale.

<sup>7</sup> Health Research Institute, Uni of Canberra 2016 Regional Wellbeing Survey (released July 2017).

## 2. WIMMERA SOUTHERN MALLEE REGION RESULTS

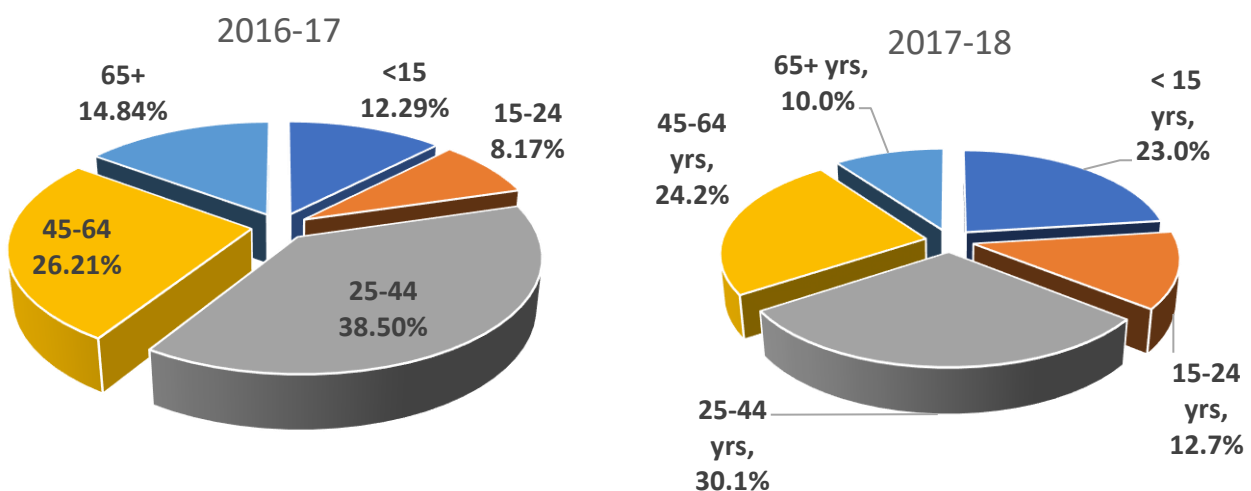
### 2.1 DEMOGRAPHIC AND LOCATION CHARACTERISTICS OF INTERVIEWEES

Features of WSM recreational water users in 2017-18 were:

- Greater participation by male (54.5%) residents and visitors (compared with 51.7% in 2016-17).
- Activities ‘for a lifetime’, with good levels of participation across all age ranges, as shown in Figure 2.1. In 2017-18 there was an increase in younger water users (in the less than 15 years and 15-24 years age groups) reflecting the extended public and school holiday periods during December-January and Easter.
- A major source of recreational activities for country Victorians, with the large majority of participation from non-metropolitan Victoria, and overwhelmingly from inland cities and towns in regional Victoria.

Families, retired couples, and friendship groups are the most frequent users of the recreational water facilities, with the 25 to 44 years age cohort being the largest, and 45 to 64 years the second largest, as shown in Figure 2.1 and Table 2.1. The age profile of recreational water users is notably older in Horsham Rural City and Yarriambiack Shire.

**Figure 2.1 Age Structure of WSM Recreational Water Users**



**Table 2.1 Recreational Water Users by Age and Local Government Area**

	<15 years	15-24 years	25-44 years	45-64 years	65+ years	Total Sample <sup>8</sup>
Buloke Shire	36.53%	12.00%	34.93%	13.07%	3.47%	375
Hindmarsh Shire	19.82%	16.13%	31.80%	23.04%	9.22%	217
Horsham Rural City	14.92%	12.03%	32.29%	30.07%	10.69%	449
Northern Grampians Shire	26.55%	13.56%	35.31%	20.34%	4.24%	354
West Wimmera Shire	24.74%	13.00%	25.37%	29.56%	7.34%	477
Yarriambiack Shire	12.59%	10.00%	19.63%	26.67%	31.11%	270
<b>Total</b>	<b>23.02%</b>	<b>12.65%</b>	<b>30.07%</b>	<b>24.23%</b>	<b>10.04%</b>	<b>2,142</b>

Males make up the majority of users for most of the Wimmera Southern Mallee recreational water facilities. The gender split, of recreational water users interviewed in 2017-18 was 54.5% male and 45.5% female. Lakes with the largest imbalance between male and female participants tend to be those where fishing is the dominant activity, with many male groups involved, especially Lake Toolondo and Taylors Lake (although family fishing groups and youth groups engaged in fishing is also increasingly popular). Male users were in the majority at:

**Buloke Shire**

- Foletti Park Lake – Donald (51.9%)
- Lake Wooroonook (66.7%)
- Tchum Lake (53.4%)

**Hindmarsh Shire**

- Wimmera River – Dimboola (51.8%)
- Wimmera River – Jeparit (55.9%)
- Nhill Lake (55.3%)

**Horsham Rural City**

- Lake Toolondo (72.6%)
- Wimmera River – Horsham (61.25%)
- Taylors Lake (70.7%)

**Northern Grampians**

- Lake Bellfield (52.4%)
- Lake Lonsdale (66.7%)
- Lake Wartook (62.1%)
- Lake Fyans (52.7%)
- Walkers Lake (55.1%)

**West Wimmera Shire**

- Lake Ratzcastle (53.0%)
- Lake Wallace (51.9%)
- Lake Charlegrark (50.9%)

**Yarriambiack Shire**

- Beulah Weir Pool (61.1%)
- Lake Marma (51.9%)

Female users were in the majority at:

- Brim Weir Pool (55.7%)
- Lake Lonsdale (53.6%)
- Warracknabeal Weir Pool (51.2%).

<sup>8</sup> Includes person to person interviewees and online respondents (respondents for whom age was not provided are excluded)

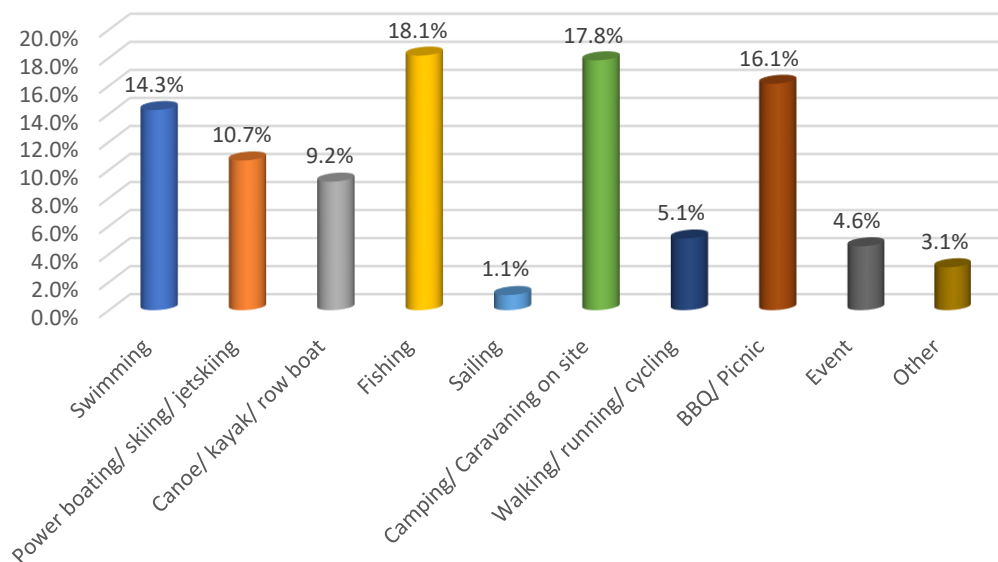
Gender equity (50% of each gender) was recorded at Lake Watchem, Green Lake and Lake Lascelles).

Recreational water activities of fishing, swimming, camping or caravanning on site, barbequing/picnicking, power boating (including skiing and jet skiing)<sup>9</sup>, and unpowered water craft, were the most popular recreational uses of the waterways in 2017-18 as summarised in Table 2.2 and Figure 2.2.

On average, visitors to the waterways participated in 3.5 different activities. The range of “other activities” included:

- Yabbying
- Paddling, kneeboarding and paddleboarding
- Painting and photography
- Enjoying/viewing wildlife/birdlife
- Using waterways as a hub for visiting the Silo Art Trail
- Walking dogs
- Trail biking and dirt biking
- Maintenance work on-site at the waterbodies.

**Figure 2.2 Frequency of Activities Undertaken by Visitors to WSM Water Sites, 2017-18**



<sup>9</sup> Power boating is disallowed or restricted at several of the WSM recreational water bodies

**Table 2.2 Activities Undertaken by Visitors to WSM Lakes, Rivers and Weirs, 2017-18**

Activity	Buloke	Hindmarsh	Horsham	Northern Grampians	West Wimmera	Yarriambiack	Total
Swimming	257	82	63	271	275	111	1,059
Power boating/skiing/jet skiing	237	54	26	174	214	87	792
Canoeing/kayaking/rowing	198	55	20	111	233	63	680
Fishing	158	136	345	248	351	109	1,347
Sailing	14	0	35	31	0	0	80
Camping/caravanning on site	274	105	165	224	386	168	1,322
Walking/ running/ cycling	55	37	44	73	61	109	379
BBQ/ Picnic	266	31	120	243	392	146	1,198
Event	0	88	246	4	0	0	338
Other	2	10	5	8	122	80	227
<b>Total</b>	<b>1,461</b>	<b>598</b>	<b>1,069</b>	<b>1,387</b>	<b>2,034</b>	<b>873</b>	<b>7,422</b>
Sample	375	217	449	354	477	270	2,142
Average activities per person	3.9	2.8	2.4	3.9	4.3	3.2	3.5

Estimated recreational water users in 2017-18, detailed in Table 2.3, at the selected facilities are:

- Overnight visitors: 62,730 (10.3% more than estimated in 2016-17)
- Visit nights: 208,300 (6.2% more than 2016-17)
- Average length visit - overnight visitors: 3.32 nights (compared with 3.45 in 2016-17)
- Local active participation: 77,022 (1.5% less than 2016-17)
- Local passive participation: 162,937 (0.2% less than 2016-17)
- Total recreational water participation: 302,688 (1.5% more than 2016-17)
- Number of people involved: 77,011 people 85,135 (9.5% less than 2016-17)
- Number of WSM residents involved: 19,714 people (or 25.6% of total users)
- Number of country Victorian residents: 51,645 people (or 67% of total users)<sup>10</sup>

<sup>10</sup> Country Victorians represent 67% of people using the waterways and 72% of participants

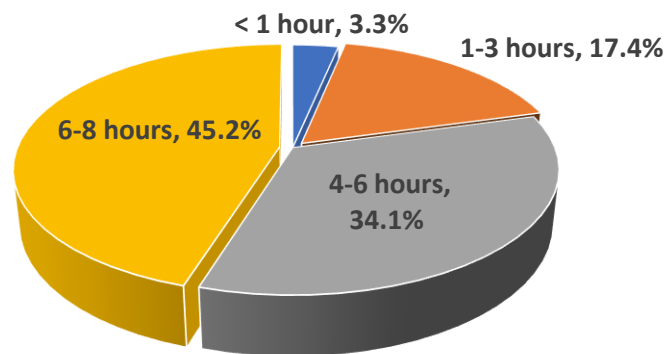
**Table 2.3 Estimated Recreational Water Facility Users, 2017-18**

	Visit Nights	Overnight Visitors	Active Day Participants	Passive Day Participants	Total Water Participants 2017-18
<b>Buloke Shire</b>					
Donald Foletti	4,320	1,253	2,341	3,680	7,274
Tchum	3,790	1,208	3,725	1,500	6,433
Watchem	3,738	1,110	1,030	0	2,140
Wooroonook	4,903	1,279	1,092	0	2,371
<b>Total Buloke</b>	<b>16,750</b>	<b>4,850</b>	<b>8,188</b>	<b>5,180</b>	<b>18,218</b>
<b>Hindmarsh Shire</b>					
Wimmera - Dimboola	10,599	3,744	6,445	13,550	23,739
Wimmera - Jeparit	1,411	390	1,350	6,250	7,990
Nhill Lake	1,254	596	6,730	10,560	17,886
<b>Total Hindmarsh</b>	<b>13,264</b>	<b>4,730</b>	<b>14,525</b>	<b>30,360</b>	<b>49,615</b>
<b>Horsham Rural City</b>					
Wimmera - Horsham	8,086	2,981	13,806	62,592	79,379
Green Lake	653	363	3,680	850	4,893
Natimuk Lake	0	0	0	0	0
Taylors Lake	7,436	2,530	1,515	0	4,045
Toolondo	4,250	1,741	1,599	0	3,340
<b>Total Horsham</b>	<b>20,425</b>	<b>7,615</b>	<b>20,600</b>	<b>63,442</b>	<b>91,657</b>
<b>Northern Grampians</b>					
Bellfield	5,061	2,530	2,355	14,660	19,545
Fyans	78,613	23,385	2,768	3,415	29,569
Lonsdale	1,980	314	1,280	4,780	6,374
Walkers	4,112	1,225	1,494	0	2,719
Wartook	741	221	615	1,100	1,936
<b>Total Northern Grampians</b>	<b>90,508</b>	<b>27,675</b>	<b>8,513</b>	<b>23,955</b>	<b>60,143</b>
<b>West Wimmera</b>					
Charlegrark	7,776	1,745	2,200	0	3,945
Ratzcastle	6,265	1,653	1,150	0	2,803
Wallace	20,783	5,557	2,465	9,860	17,882
<b>Total West Wimmera</b>	<b>34,825</b>	<b>8,955</b>	<b>5,815</b>	<b>9,860</b>	<b>24,630</b>
<b>Yarriambiack Shire</b>					
Brim Weir Pool	7,937	2,483	5,260	0	7,743
Beulah Weir Pool	3,282	930	1,190	0	2,121
Lascelles	8,228	1,305	8,157	5,100	14,562
Marma	2,678	1,268	1,456	9,100	11,824
Warracknabeal Weir Pool	10,403	2,919	3,319	15,939	22,177
<b>Total Yarriambiack Shire</b>	<b>32,529</b>	<b>8,906</b>	<b>19,381</b>	<b>30,139</b>	<b>58,426</b>
<b>Total WSM</b>	<b>208,300</b>	<b>62,730</b>	<b>77,022</b>	<b>162,937</b>	<b>302,688</b>
% change on 2016-17 assessment	10.27%	6.23%	-1.45%	-0.15%	1.49%



Overnight visitor participants are those who are staying on-site at, or near, the selected waterway/waterbody for recreation. Active day participants are people engaging in a direct water related activity (swimming, fishing, canoeing, skiing, etc). Passive day participants are people engaging in a recreational activity in close proximity to the lake, weir or river due to the amenity and facilities offered at the site (walking or running along a track, picnicking, etc). The duration of daily physical activities is most often 4-6 hours or 6-8 hours, as shown in Figure 2.3.

**Figure 2.3 Duration of Daily Physical Activities by WSM Recreational Water Users**



The majority of users and participants at the recreational water facilities are from regional Victoria, as shown in Figure 2.4. The distribution of residential locations of day and overnight visitors to the recreational water facilities in 2017-18 was:

- Visitors who live in the same Shire or City as the facility: 22.2%
- Visitors who live in another part of the Wimmera Southern Mallee: 13.4%
- Visitors from other regional (country) Victoria: 36.7%
- Visitors from regional South Australia: 4.5%
- Visitors from Melbourne: 14.6%
- Visitors from Adelaide: 4.1%
- Visitors, other interstate/overseas locations and no fixed address: 4.4%

**Figure 2.4 Residential Location of Recreational Water Visitors**

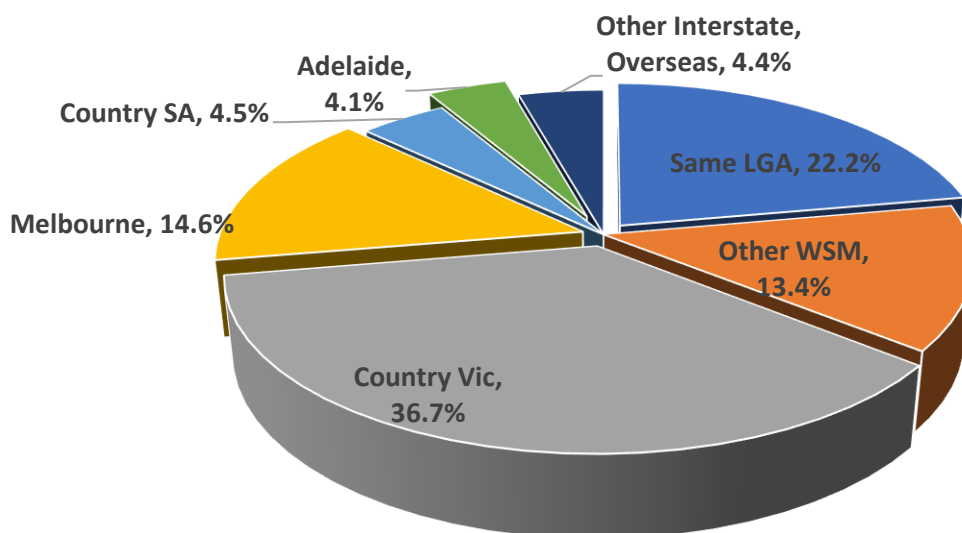
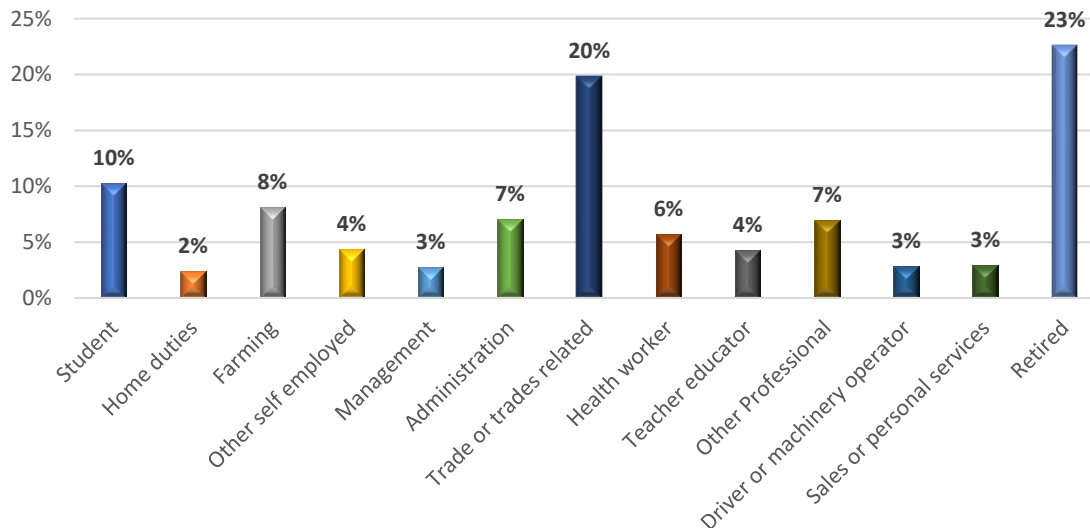


Figure 2.5 indicates that recreational users of WSM recreational water encompass a wide array of occupational backgrounds, with retirees, tradespeople, students, and farmers being the most frequent.

**Figure 2.5 Occupations of Wimmera Southern Mallee Recreational Water User Interviewees**



## 2.2 ECONOMIC CONTRIBUTION

Table 2.4 presents estimates of the economic contribution from the recreational water facilities at the three levels in the supply chain by Local Government Area, revealing:

- Suppliers (including supplier businesses, statutory agencies, community groups and Committees of Management) contributed an estimated \$9.234 million.
- Recreational water users contributed an estimated \$9.211 million to the local areas in which the facilities are located
- Businesses in the immediate, and nearby, towns and the flow-on effects from this expenditure, contributed an estimated \$11.733 million to the local government areas in the Wimmera Southern Mallee from the recreational water facility users and suppliers.

The 25 assessed recreational water facilities made a total regional economic contribution of \$30.178 million in 2017-18. This comprised:

- Buloke Shire: \$2.889 million
- Hindmarsh Shire: \$2.171 million
- Horsham Rural City: \$7.340 million
- Northern Grampians Shire: \$8.111 million
- West Wimmera Shire: \$3.853 million
- Yarriambiack Shire: \$5.814 million
- Total contribution: \$30.178 million.

**Table 2.4 Estimated Economic Contribution by WSM Recreational Water Facilities: Suppliers, Recreational Users and Regional Businesses, 2017-18**

	Suppliers	Water Users	Businesses	Total
Buloke	\$1,290,940	\$701,693	\$896,279	\$2,888,913
Hindmarsh	\$567,846	\$777,219	\$826,382	\$2,171,447
Horsham	\$2,644,870	\$1,410,021	\$3,285,597	\$7,340,489
Northern Grampians	\$1,871,880	\$3,376,185	\$2,863,013	\$8,111,077
West Wimmera	\$935,309	\$1,310,044	\$1,607,585	\$3,852,938
Yarriambiack	\$1,923,610	\$1,635,356	\$2,254,567	\$5,813,533
<b>Total WSM Region</b>	<b>\$9,234,456</b>	<b>\$9,210,518</b>	<b>\$11,733,424</b>	<b>\$30,178,398</b>

Lake Fyans, in the heart of the Grampians tourism region, was the water facility generating the largest estimated contribution from visitors and other users, with overnight visitors making the overwhelming majority of this contribution. The Wimmera River at Horsham and Lake Wallace at Edenhope had the next greatest estimated contribution from users, followed by Lake Lascelles at Hopetoun, Yarriambiack Creek at Warracknabeal, and Wimmera River at Dimboola. With the exception of Lake Fyans (which is in the Grampians National Park tourism precinct), all these sites are located within the town boundaries of an urban area and are rated among the top local assets by many residents and visitors. The lakes estimated to have the greatest economic contribution from users that are not within a town boundary or urban area (excluding Lake Fyans) were Brim Weir Pool, Lake Bellfield, Lake Charlegrark, Taylors Lake, and Lake Toolondo.

These estimates are detailed in Table 2.5. Average daily expenditures by overnight and active day visitors are shown in Figures 2.6 and 2.7. These estimates are average daily expenditure per person per day.

**Table 2.5 Estimated Expenditure by Participants at Recreational Water Facilities 2017-18**

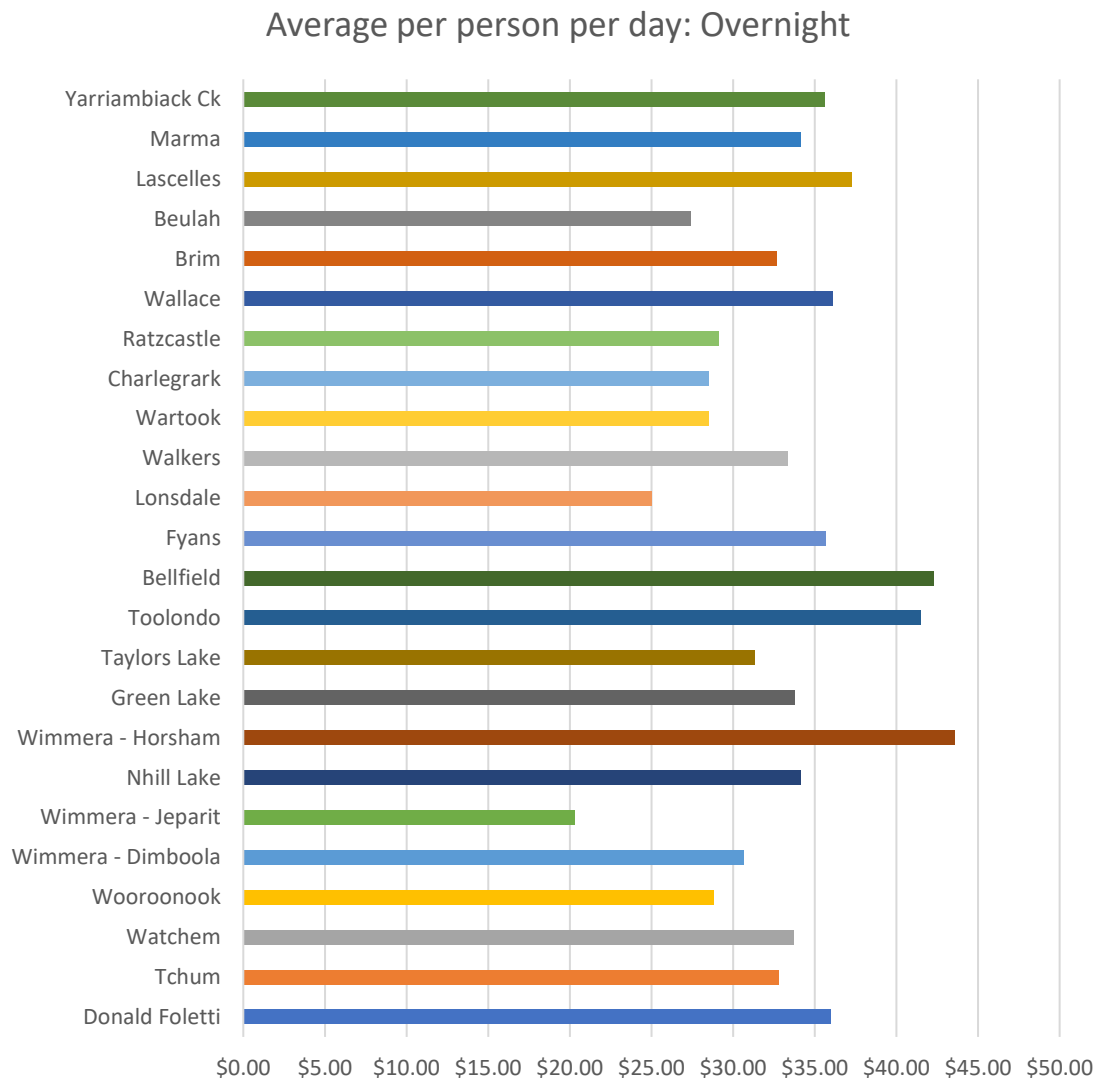
	Expenditure Overnight Visitors	Expenditure Active Day Users	Expenditure Passive Day Users	TOTAL	% Change on Last Year 2016-17
<b>Buloke Shire</b>					
Donald Foletti	\$155,448	\$27,289	\$10,121	\$192,858	10.98%
Tchum	\$124,201	\$80,460	\$4,200	\$208,861	26.56%
Watchem	\$125,974	\$11,771	\$0	\$137,745	17.05%
Wooroonook	\$141,169	\$21,060	\$0	\$162,229	0.99%
<b>Total Buloke</b>	<b>\$546,792</b>	<b>\$140,581</b>	<b>\$14,321</b>	<b>\$701,693</b>	<b>13.70%</b>
<b>Hindmarsh Shire</b>					
Wimmera - Dimboola	\$325,032	\$142,711	\$31,843	\$499,585	48.07%
Wimmera - Jeparit	\$28,662	\$7,688	\$17,188	\$53,537	-67.26%
Nhill Lake	\$42,812	\$153,829	\$27,456	\$224,097	58.70%
<b>Total Hindmarsh</b>	<b>\$396,506</b>	<b>\$304,227</b>	<b>\$76,486</b>	<b>\$777,219</b>	<b>21.04%</b>
<b>Horsham Rural City</b>					
Wimmera River - Horsham	\$352,506	\$303,785	\$159,610	\$815,900	-12.11%
Green Lake	\$22,083	\$76,213	\$2,890	\$101,185	-59.97%
Natimuk Lake	\$0	\$0	\$0	\$0	n.a
Taylor's Lake	\$232,997	\$42,979	\$0	\$275,976	26.24%
Toolondo	\$176,405	\$40,555	\$0	\$216,960	n.a
<b>Total Horsham</b>	<b>\$783,990</b>	<b>\$463,532</b>	<b>\$162,500</b>	<b>\$1,410,021</b>	<b>0.74%</b>
<b>Northern Grampians</b>					
Bellfield	\$213,978	\$35,207	\$38,849	\$288,034	19.73%
Fyans	\$2,761,654	\$41,803	\$12,978	\$2,816,435	2.22%
Lonsdale	\$49,520	\$14,629	\$16,730	\$80,878	-7.23%
Walkers	\$137,106	\$29,410	\$0	\$166,515	83.43%
Wartook	\$13,998	\$7,134	\$3,190	\$24,322	-42.53%
<b>Total Northern Grampians</b>	<b>\$3,176,255</b>	<b>\$128,182</b>	<b>\$71,747</b>	<b>\$3,376,185</b>	<b>4.98%</b>
<b>West Wimmera</b>					
Charlegrark	\$221,762	\$43,686	\$0	\$265,447	-4.10%
Ratzcastle	\$182,513	\$21,701	\$0	\$204,214	n.a.
Wallace	\$750,797	\$54,582	\$35,003	\$840,382	-2.29%
<b>Total West Wimmera</b>	<b>\$1,155,072</b>	<b>\$119,969</b>	<b>\$35,003</b>	<b>\$1,310,044</b>	<b>3.42%</b>
<b>Yarriambiack Shire</b>					
Brim	\$259,339	\$93,509	\$0	\$352,847	8.33%
Beulah	\$89,968	\$23,472	\$0	\$113,440	
Lascelles	\$306,460	\$212,021	\$11,985	\$530,467	-2.98%
Marma	\$91,427	\$20,384	\$18,200	\$130,011	12.39%
Warracknabeal Weir Pool	\$370,658	\$98,883	\$39,050	\$508,591	-5.99%
<b>Total Yarriambiack Shire</b>	<b>\$1,117,852</b>	<b>\$448,268</b>	<b>\$69,236</b>	<b>\$1,635,356</b>	<b>0.09%</b>
<b>Total WSM</b>	<b>\$7,176,467</b>	<b>\$1,604,292</b>	<b>\$429,292</b>	<b>\$9,210,518</b>	<b>4.96%</b>

Estimates of the direct expenditure by businesses in the Wimmera Southern Mallee municipalities are detailed in Table 2.6.

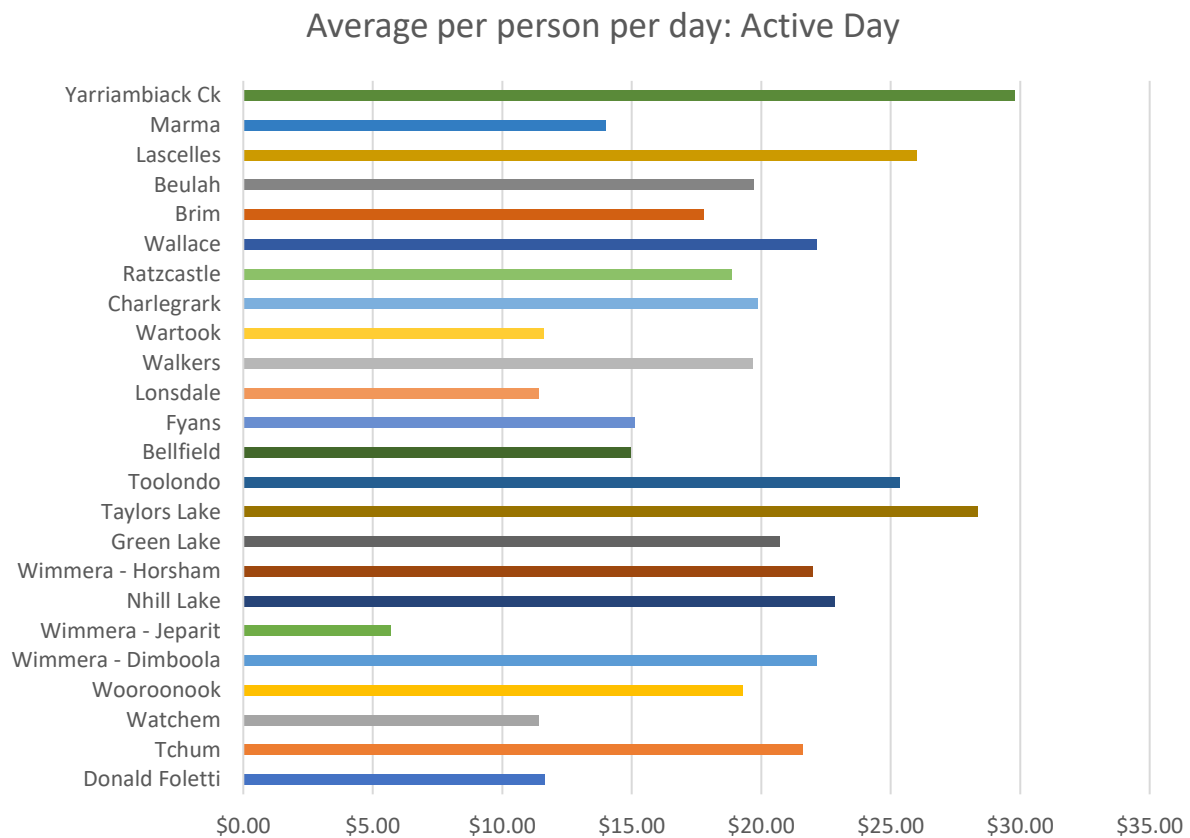
**Table 2.6: Estimated Regional Expenditure by Businesses from Recreational Water User Customers, 2017-18**

	Café/Milk bar Eat in Meal/ Takeaway	Supermarkets/ Groceries	Pharmacy, health needs, newspapers, books	Clothing, Sportswear, Hardware and Other	Fuel, vehicle and equipment maintenance	Hotels/ Motels	Total
Buloke	\$84,444	\$100,124	\$3,659	\$5,890	\$14,561	\$131,776	\$340,454
Hindmarsh	\$144,651	\$84,532	\$1,407	\$37,866	\$6,392	\$88,109	\$362,957
Horsham	\$251,721	\$67,002	\$1,372	\$77,230	\$20,405	\$245,975	\$663,705
Northern Grampians	\$219,835	\$172,804	\$26,874	\$37,082	\$34,118	\$975,890	\$1,466,602
West Wimmera	\$169,414	\$175,140	\$10,644	\$4,624	\$13,024	\$473,146	\$845,991
Yarriambiack	\$366,106	\$148,882	\$7,743	\$40,075	\$22,382	\$507,269	\$1,092,457
<b>Total</b>	<b>\$1,236,171</b>	<b>\$748,483</b>	<b>\$51,698</b>	<b>\$202,767</b>	<b>\$110,882</b>	<b>\$2,422,166</b>	<b>\$4,772,166</b>

**Figure 2.6 Overnight Visitors to Recreational Water Facilities (per person per day)**



**Figure 2.7 Active Day Visitors to Recreational Water Facilities (per person per day)**



**2.3 HEALTH AND COMMUNITY CONTRIBUTION**

Local communities report that the Wimmera Southern Mallee’s recreational water facilities make an extremely important contribution to the social fabric of the region’s towns, provide a critical outlet for physical and mental relaxation, enhance the amenity of towns and rural areas, and improve the health of residents and visitors to the region. Community impacts are strong across all recreational water facilities.

The physical health benefits analysed in this assessment are derived from the prevention of chronic diseases (such as breast cancer, coronary heart disease, diabetes, bowel cancer and stroke). Mental health benefits are derived from the prevention of anxiety and depression.

The value of Wimmera Southern Mallee recreational water residents’ health contribution has been based on the prevention of these physical and mental diseases among the 2017-18 recreational water participation base<sup>11</sup> and are considered conservative estimates. They are focussed on selected health issues which are evidenced to be attributed to physical inactivity.

Estimated health benefits to country Victorians, directly from the water facilities in 2017-18 are:

	<b>2017-18</b>	<b>2016-17 Equivalent<sup>12</sup></b>
- Physical health benefits	\$3,549,879	\$4,824,942
- Mental health benefits	\$ 255,799	\$ 375,507
- Total	\$3,805,678	\$5,200,449.

<sup>11</sup> Assessment using methodology provided by Sport Business Partners

<sup>12</sup> There was a greater level of detail on duration of time spent exercising at the lakes and weir pools and frequency of visits in the 2017-18 interviews with recreational water users, so the 2016-17 to 2017-18 estimates are not directly comparable. Although, the apparent reduction in health benefits is partly explained by fewer people involved in water recreation (but at more frequent levels of activity), the relatively younger age structure, and a larger proportion of non-country Victorians using the lakes and weir pools.

### 3. RECREATIONAL WATER FACILITIES IN BULOKE SHIRE

#### 3.1 OVERVIEW

Buloke Shire is the fourth largest local government area in terms of population, and the second largest in area, in the Wimmera Southern Mallee. Although it is serviced by the Wimmera Mallee Pipeline it is frequently included in Victoria's Loddon Mallee North region. At June 30<sup>th</sup> 2017 it had an estimated resident population of 6,151<sup>13</sup> having decreased by 1.3% in the last year; the greatest rate of decrease in the region. The main townships are Wycheproof, Donald, Charlton, Birchip and Sea Lake, with many smaller villages/towns that have dwindled since with the aggregation and automation of grain farming (such as Berriwillock, Culgoa, Watchem, Nullawil and Nandaly). The towns mostly servicing the selected recreational water facilities in Buloke Shire are Donald, Birchip, Charlton, and Watchem.

Buloke's economy is dominated by agriculture (mainly dry land cropping and livestock) which generates more than half the value of production and employed 29.2% of all workers in 2016. The other major employing industries in Buloke Shire are, in order:

- Health care and social assistance (12.2%)
- Education and training (9.8%).
- Retail trade (8.1%)
- Construction (5.4%).

Several Buloke Shire towns have high levels of socio-economic disadvantage. The Australian Bureau of Statistics uses data from its Censuses of Population and Housing to calculate SEIFA Indices (Socio-Economic Indices for Areas). These indices provide an overview or summary measure of Census data, rather than looking at individual items. The indices rank geographic areas across Australia in terms of their relative socio-economic advantage and disadvantage. For each index, every geographic area in Australia is given a SEIFA score which measures how relatively 'advantaged' or 'disadvantaged' that area is compared with other areas in Australia.

Table 3.1 shows that the Shire's larger towns Sea Lake, Donald, Wycheproof, Charlton, and Birchip are within the most disadvantaged 30% of all 'suburbs' in Victoria, with:

- Sea Lake being the most disadvantaged, ranking 106<sup>th</sup> of all 2,672 suburbs in the State.
- Wycheproof ranking 124<sup>th</sup>
- Charlton ranking 252<sup>nd</sup>
- Donald ranking 277<sup>th</sup>
- Birchip ranking 706<sup>th</sup>

The smaller communities of Berriwillock, Watchem and Nandaly are relatively advantaged.

<sup>13</sup> <sup>13</sup> ABS, Regional Population Growth by LGA 2017 (released April 2018)

**Table 3.1: SEIFA Indices<sup>14</sup> for Buloke Shire Suburbs, 2016**

	Usual Resident Population	SEIFA Score	Ranking within Victoria			Minimum score for SA1s in area <sup>15</sup>	Maximum score for SA1s in area
			Rank	Decile	Percentile		
Berriwillock	184	1003	1345	6	31	1003	1003
Birchip	702	970	706	3	27	967	1002
Charlton	1,050	923	252	1	10	907	1038
Donald	1,498	927	277	2	11	891	1036
Nandaly	39	1024	1810	7	68	1024	1024
Sea Lake	640	896	106	1	4	869	1024
Watchem	114	1002	1294	5	49	1002	1002
Wycheproof	635	900	124	1	5	868	1007

Note: The SEIFA Index used in this table relates to Socio-Economic Advantage and Disadvantage, 2016.

The Australian Bureau of Statistics broadly defines relative socioeconomic advantage and disadvantage in terms of people's *access to material and social resources, and their ability to participate in society*. There were 2,672 state suburbs in Victoria. A score of 1,000 or above tends to indicate an area which is relatively advantaged, and a score below 1,000 is an area which is relatively disadvantaged. In any of the Wimmera Southern Mallee 'suburbs' there are likely to be pockets which are relatively more advantaged and disadvantaged than the suburb as a whole. The minimum and maximum scores for these smaller pockets (shown as SA1s, Statistical Area 1s) are presented in the final two columns of the table.

Fisheries Victoria has stocked 135,050 fingerlings and advanced stocker fish in the selected lakes in Buloke Shire during the three-year period including 2017-18<sup>16</sup>. Native species have been the main focus of fish stocking programs (95% of all fish stocked) in Buloke Shire with golden perch and silver perch stocked in all four lakes. Details of the number and species of stockings over this period is summarised in Table 3.2.

**Table 3.2 Fish Released in Buloke Shire Selected Waterways 2015-2018**

Units stocked (fingerlings and/or advanced stockers)	Rainbow Trout	Murray Cod	Golden Perch	Silver Perch	Total
Donald Foletti Park	2,100		10,200	10,000	22,300
Tchum Lake	4,750		23,000	25,000	52,750
Watchem Lake			20,000	5,000	25,000
Wooroonook Lake			25,000	10,000	35,000

## 3.2 SELECTED RECREATIONAL WATER FACILITIES

### 3.2.1 Lake Wooroonook

Lake Wooroonook is a natural lake situated 13 kilometres west of Charlton on the Borung Highway, 21 kilometres south of Wycheproof and 23 kilometres north-east of Donald. The Lake Wooroonook recreational water facility is located at the western end of a larger natural lake system known as the Wooroonook Lakes. The middle and eastern lakes have irregular water volumes, while the basin volume of 700 megalitres is provided by the Wimmera Mallee Pipeline at the highly subsidised cost to the community of \$20 per megalitre, supplemented by rainfall. The waterway manager (under the Marine Safety Act, 2010) for Lake Wooroonook is Buloke Shire Council, and foreshore management is the responsibility of the Wooroonook Committee of Management.

<sup>14</sup> SEIFA indices are calculated by the Australian Bureau of Statistics using a range of variables on income, employment, housing, etc.

<sup>15</sup> SA1s are Statistical Areas Level 1 – a 'neighbourhood' scale of geography.

<sup>16</sup> Stocking fish in recreational waterways is considered similar to providing an asset, for which there will be a return on investment over three years.



The system was an important source of water for Aboriginal communities over tens of thousands of years and, more recently, in Charlton's early colonial settlement as a place for fishing, swimming and boating. The current facilities include 10 powered sites, an amenities block, BBQ, boat launching area, playground and a pontoon. The lake is well suited to nature walks, water skiing, swimming, fishing, and camping or caravanning on the foreshore. Adjacent wetlands in the system are suited to duck hunting in season. During the 2016-17 assessment the lake was affected by blue-green algae but was fully operational in 2017-18.



Wooroonook attracts retired couples and small groups seeking a quiet and relatively isolated location for camping and caravanning. On weekends during warmer months, the lake is popular as a fishing destination.

Estimated overnight visitors and day trip users of Lake Wooroonook in 2017-18 and 2016-17 are summarised in Table 3.3. These estimates have been developed through interviews on site, online surveys, and discussions with Wooroonook Committee of Management representatives.

**Table 3.3: Estimated Overnight and Day Visitors to Lake Wooroonook, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Total Participants
2016-17	764	3,630	1,094	1,858
2017-18	1,320	4,903	1,092	2,371
% change	67.4%	35.1%	-0.18%	27.6%



### 3.2.2 Tchum Lake

Tchum Lake system is located on the Birchip-Wycheproof road, about 8 kilometres east of Birchip. The natural lakes area includes sections to the north and south of the road. The southern lake has been modified to provide for permanent recreational water activities, while the northern lakes area is an irregular wetlands area.

The recreational (southern) lake holds approximately 730 megalitres of water provided by the Wimmera Mallee Pipeline at a cost to the community of \$20 per megalitre, supplemented by rainfall. The waterway manager (under the Marine Safety Act, 2010) is the Tchum Lake Aquatic Club, and the club is also responsible for foreshore management.

Tchum Lake is a popular holiday spot for campers and water skiers. Lake users also participate in fishing and swimming. The lake is very busy at Easter and other summer holiday periods, and tends to be relatively quiet at other times of the year. As a holiday-period recreational lake facility, Tchum attracts larger family groups rather than the retired and 'grey nomad' caravanning group that are frequent users of other Wimmera Southern Mallee water facilities.

There is a membership structure which allows regular users to access powered and unpowered camping sites at reduced rates. Normal site fees are \$30 per night for powered sites and \$10 per night for unpowered sites.

Estimated overnight visitors and day trip users of Tchum Lake in 2016-17 and 2017-18 are summarised in Table 3.4. These estimates have been developed through interviews on site, online surveys, and discussions with the Committee of Management/Aquatic Club representatives.

**Table 3.4: Estimated Overnight and Day Visitors to Tchum Lake, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	1,344	3,830	3,510	1,459	6,313
2017-18	1,208	3,790	3,725	1,500	6,433
% change	-10.1%	-1.1%	6.1%	2.8%	1.9%



### 3.2.3 Lake Watchem

Part of the Djadjawyrybg and Djabwyrung traditional lands, Watchem was settled by Europeans in the 1870's. Lake Watchem is located on the Watchem-Warracknabeal road just 1.3 kilometres to the west of Watchem township and the Sunraysia Highway. It is a focal point of the town, which now has a very limited commercial centre (consisting of a general store, hotel, aquatic centre/pool, and other sports facilities).

The lake has a small island in the centre which breaks waves created by speed boats and makes Watchem a good lake for water skiing. The lake is also established for swimming, fishing and camping/caravanning. Powered sites are available for \$20 per night and unpowered sites for \$10 per night.

Lake Watchem holds approximately 260 megalitres of water provided by the Wimmera Mallee Pipeline at a cost to the community of \$20 per megalitre, supplemented by rainfall. The waterway manager (under the Marine Safety Act, 2010) is the Lake Watchem Committee of Management, and boating activities are subject to Victorian state boating regulations.



Lake Watchem users peak during the Christmas holiday period when over 500 people visit in family groups and again in the Easter period. At other times, the lake is frequented by grey nomad type caravaners, and an estimated 1,030 local/regional participants.

Estimated overnight visitors and day trip users of Lake Watchem in 2016-17 and 2017-18 are summarised in Table 3.5. These estimates have been developed through interviews on site during, online surveys, and discussions with the Committee of Management representatives.

**Table 3.5: Estimated Overnight and Day Visitors to Lake Watchem, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Total Participants
2016-17	1,139	3,203	900	2,039
2017-18	1,110	3,738	1,030	2,140
% change	-2.5%	16.7%	14.4%	5.0%



### 3.2.4 Donald's Foletti Caravan Park Lake

Foletti Caravan Park Lake is a small recreational facility in the heart of the Donald urban area. It is mostly used for fishing, kayaking/canoeing and environmental amenity (walks, picnics and camping on the foreshore). Powered sites are available for \$20 per night. As a centrally located, urban lake, many of the visitors, in the past, stayed for extended periods to access facilities in Donald township and/or as a base to visit friends and relatives. In 2017-18 the local football club took over responsibility for many of the management functions at the lake, on behalf of Council (which had previously employed a non-resident part time manager). The number of visitors using the lake and the lake environs improved substantially in 2017-18, although visit nights reduced somewhat due to removal of some tenants who had become semi-permanent.

Foletti Caravan Park Lake holds 50 megalitres of water provided by the Wimmera Mallee Pipeline at a cost to the community of \$20 per megalitre, supplemented by rainfall. The waterway manager (under the Marine Safety Act, 2010) is Buloke Shire Council, and boating activities are subject to Victorian state boating regulations.

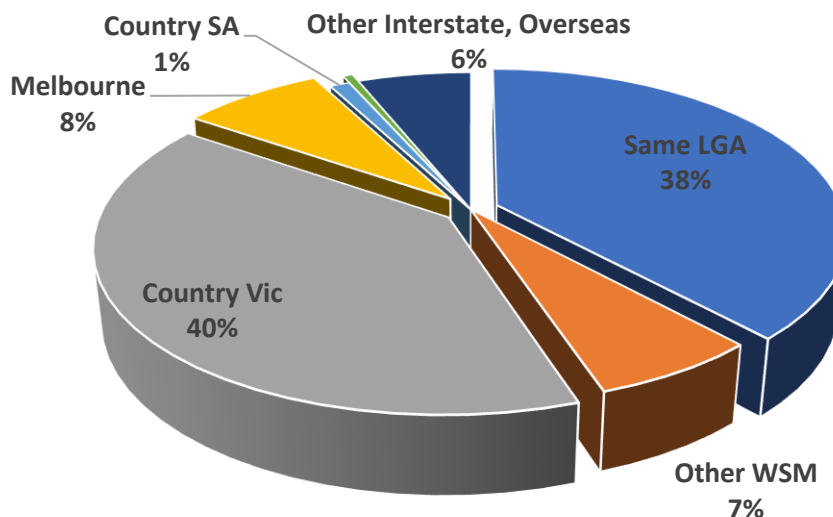
Estimated overnight visitors and day trip users of Foletti Caravan Park Lake in 2016-17 and 2017-18 are summarised in Table 3.6. These estimates have been developed through interviews on site, online surveys, and discussions with Buloke Shire Council representatives.

**Table 3.6: Estimated Overnight and Day Visitors to Foletti Caravan Park Lake, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	912	4,742	2,197	3,645	6,754
2017-18	1,253	4,320	2,341	3,680	3,680
% change	37.4%	-8.9%	6.5%	1.0%	7.7%

### 3.3 ECONOMIC CONTRIBUTION

Figure 3.1 shows 45% of recreational water users at Buloke were Wimmera Southern Mallee residents in 2017-18, and a further 40% were from other parts of country Victoria. Melbourne, interstate and overseas visitors made up a total of 15% of visitation.

**Figure 3.1 Residential Location of Recreational Water Users, Buloke Shire**

During 2017-18 Buloke Shire Council awarded just under \$4.0 million in contracts to upgrade amenities at Lake Tchum, Lake Watchem and Lake Wooroonook, and flood road rehabilitation projects. The Lake Tchum project includes renovation of existing toilet and shower areas and an extension to include a new shower and toilet area with disability access as well as laundry area and storeroom. The Lake Watchem project includes construction of new male, female and disability access toilets as well as shower and laundry areas. The work at Lake Wooroonook includes construction of new male, female and disability access toilets as well as shower and laundry areas.

Tables 3.7 and 3.8 and Figure 3.2 detail the estimated 2017-18 economic contribution of the assessed recreational water facilities in Buloke Shire.

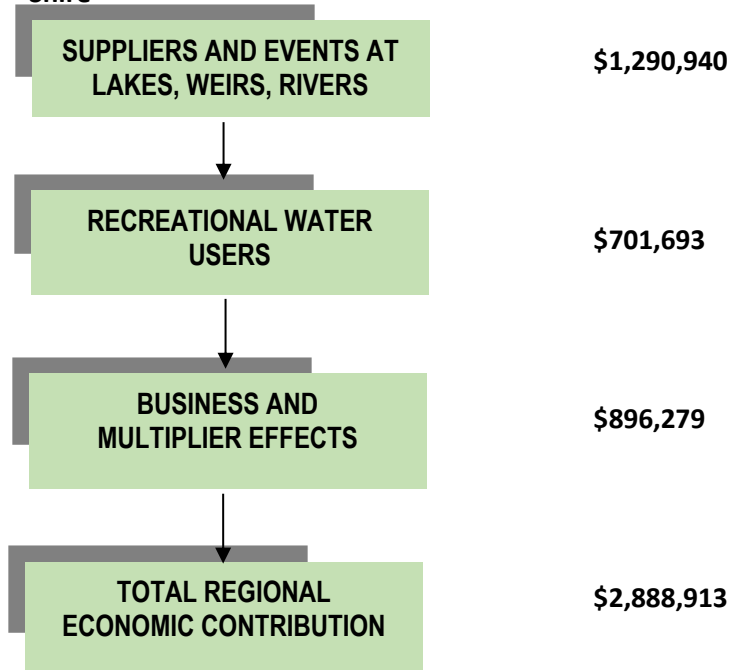
**Table 3.7: Estimated Economic Contribution 2017-18: Recreational Water Facility Users**

	Total Overnight Visitors	Total Visit Nights	Active Day Visitors	Passive Day Visitors	Total Participation	% Change on 2016-17
<b>Visitation and Participation</b>						
Donald Foletti Lake	1,253	4,320	2,341	3,680	7,274	7.70%
Tchum Lake	1,208	3,790	3,725	1,500	6,433	1.90%
Lake Watchem	1,110	3,738	1,030	0	2,140	4.98%
Wooroonook Lake	1,279	4,903	1,092	0	2,371	27.60%
<b>Total Buloke</b>	<b>4,850</b>	<b>16,750</b>	<b>8,188</b>	<b>5,180</b>	<b>18,218</b>	<b>13.49%</b>
<b>Visitor Expenditure (\$)</b>						
Buloke Shire						
Donald Foletti		\$155,448	\$27,289	\$10,121	\$192,858	10.98%
Tchum		\$124,201	\$80,460	\$4,200	\$208,861	26.56%
Watchem		\$125,974	\$11,771	\$0	\$137,745	17.05%
Wooroonook		\$141,169	\$21,060	\$0	\$162,229	0.99%
<b>Total Buloke Shire</b>		<b>\$546,792</b>	<b>\$140,581</b>	<b>\$14,321</b>	<b>\$701,693</b>	<b>13.70%</b>

**Table 3.8: Estimated Economic Contribution 2017-18: Supplier Organisations**

Suppliers: Direct	
Caravan Parks/Committees of Management	\$81,319
Events and Other Businesses	\$26,500
Statutory Agencies <sup>17</sup>	\$1,183,121
<b>Total Buloke Shire</b>	<b>\$1,290,940</b>

**Figure 3.2 2017-18 Estimated Recreational Water Regional Economic Contribution: Buloke Shire**



<sup>17</sup> Statutory agencies include Fisheries Victoria, Wimmera CMA and GWM Water

## 4. RECREATIONAL WATER FACILITIES IN HINDMARSH SHIRE

### 4.1 OVERVIEW

Hindmarsh Shire is in the north west of the Wimmera Southern Mallee region, with the Western Highway and the Melbourne to Adelaide rail line passing the southern section of the Shire. It is the third largest LGA in area (after West Wimmera and Buloke) and has the second smallest population (West Wimmera Shire has the smallest). In fact, West Wimmera, Buloke and Hindmarsh have the lowest population densities of all LGAs in Victoria. Around 80% of Hindmarsh's population reside in its four main townships; Dimboola, Jeparit, Nhill and Rainbow. The largest of these townships (Nhill) is 74 kilometres north of the urban area of Horsham.

At June 2017, Hindmarsh had a population of 5,677<sup>18</sup>, having decreased by 1.1% in the last year. This is a similar rate of population decline to those experienced in Buloke, West Wimmera and Yarriambiack.

Hindmarsh's major industry is agriculture (principally grain, sheep, oilseeds and legumes) which accounted for 26.1% of its workers in 2016, although decreasing at a rate of 1.76% per year. Value adding to agriculture is also important, with major duck processing, and grain handling businesses helping to make manufacturing the third largest employing industry (at 8.1%). Other significant industries include health services (which is the second largest employing industry at 19.1% of all jobs, and has been increasing at 0.86% per annum), and retail and employment/training (the equal fourth largest employing industries). Hindmarsh Shire has a concentration of grain storage businesses (silo and conveyance equipment manufacturers) that is unique in Victoria. Tourism is recognised as an emerging industry and Hindmarsh Shire is part of the Wimmera Mallee Tourism regional grouping.

Hindmarsh Shire towns have high levels of socio-economic disadvantage. Table 4.1 shows that the four main towns are within the most disadvantaged 20% of all 'suburbs' in Victoria, with:

- Jeparit being the most disadvantaged, ranking 37<sup>th</sup> of all 2,672 suburbs in the State.
- Dimboola ranking 189<sup>th</sup>
- Nhill ranking 347<sup>th</sup>
- Rainbow ranking 371<sup>st</sup>.

**Table 4.1: SEIFA Indices for Hindmarsh Shire Suburbs, 2016**

	Usual Resident Population		Ranking within Victoria			Minimum score for SA1s in area	Maximum score for SA1s in area
		Score	Rank	Decile	Percentile		
<b>Dimboola</b>	1,730	913	189	1	8	837	1012
<b>Jeparit</b>	477	849	37	1	2	799	975
<b>Nhill</b>	2,184	939	347	2	13	897	1042
<b>Rainbow</b>	683	943	371	2	14	874	1044

Note: The SEIFA Index used in this table relates to Socio-Economic Advantage and Disadvantage.

The Australian Bureau of Statistics broadly defines relative socioeconomic advantage and disadvantage in terms of people's *access to material and social resources, and their ability to participate in society*. There are 2,672 state suburbs in Victoria. A score of 1,000 or above tends to indicate an area which is relatively advantaged, and a score below 1,000 is an area which is relatively disadvantaged. In any of the Wimmera Southern Mallee 'suburbs' there are likely to be pockets which are relatively more advantaged and disadvantaged than the suburb as a whole. The minimum and maximum scores for these smaller pockets (shown as SA1s, Statistical Area 1s) are presented in the final two columns of the table.

<sup>18</sup> ABS, Regional Population Growth by LGA 2017 (released April 2018)



Fisheries Victoria has stocked 700 advanced stocker rainbow trout in Nhill lake during the three-year period including 2017-18<sup>19</sup>. This was the only recreational water facility in Hindmarsh Shire explicitly stocked. However, there were fish stocking programs for the Wimmera River, reported in the Horsham City section, which undoubtedly provide fish stocks downstream at Dimboola and Jeparit.

## 4.2 SELECTED RECREATIONAL WATER FACILITIES

### 4.2.1 Wimmera River Dimboola

The Wimmera River rises in the Pyrenees Ranges near Ararat, flows through Horsham and Dimboola and eventually drains into Lake Hindmarsh, a short distance beyond Jeparit. It is the longest land-locked river in Victoria. In Dimboola, the River flows between the town and the Little Desert. In high rainfall years river flow can be large with occasional floods. During times of low rainfall, the weir retains water near the town while elsewhere the river becomes a series of pools<sup>20</sup>.

Dimboola district was occupied by the Wotjobaluk people prior to white settlement, and when settled by Europeans, the prolific branches and tributaries of the Wimmera River led to the town being initially called 'Nine Creeks'. An area along and adjacent to the river, near the centre of Dimboola is still known as the Nine Creeks run, and this forms part of the recreational water facilities of the Wimmera River. Environmental flows have substantially reduced the periods when the river has been too low for water to flow.



There are some private farm stay and camping sites along the Wimmera River in Dimboola (particularly in the Horseshoe Bend area), but the main accommodation provision is the Riverside Holiday Park owned and operated by Hindmarsh Shire Council. The park has 55 powered sites, a flexible range of unpowered sites, and 2 furnished cabins. A further 5 cabins as well as a new recreation room were installed in 2017. It is estimated that up to 40% of visitors to the Holiday Park are attracted by the river participate in either active or passive activities (ie utilise the amenity of the river) during their visit.

<sup>19</sup> Stocking fish in recreational waterways is considered similar to providing an asset, for which there will be a return on investment over three years.

<sup>20</sup> Sourced from Dimboola.com.au

In addition to regular swimming, fishing and boating activities on the river, the main river events are the Dimboola Fishing Classic (promoted as the Wimmera's only “bank and boat” community based fishing event) and the Rowing Regatta. As a water course which runs through the Dimboola township, the Wimmera River has a relatively higher number of passive day users than many other Wimmera Southern Mallee recreational water facilities.

The *Wimmera River Discovery Trail* walking and cycling trail along the Wimmera River (Stage 1 between Dimboola and Jeparit) adds another tourism attraction intrinsically related to the Wimmera River.

Estimated overnight visitors and day trip users of Wimmera River at Dimboola in 2016-17 and 2017-18 are summarised in Table 4.2. These estimates have been developed through interviews on site, online surveys, and data from Hindmarsh Shire Council, and discussions with the Riverside Holiday Park management.

**Table 4.2: Estimated Overnight and Day Visitors to Wimmera River, Dimboola 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	2,800	8,197	6,380	13,680	22,860
2017-18	3,744	10,599	6,445	13,550	23,739
% change	33.7%	29.3%	1.0%	-1.0%	3.8%

#### 4.2.2 Wimmera River, Jeparit

The Wimmera River flows through Jeparit, south of Rainbow, as its final town, prior to draining into Lake Hindmarsh. It flows alongside the Jeparit township. Lake Hindmarsh was not included in the 2017-18 assessment since it has little or no water for recreational activities at present. In very wet conditions, Lake Hindmarsh fills and overflows into Outlet Creek and Lake Albacutya, then several smaller lakes beyond. During times when Lake Hindmarsh has a good level of water (such as 2010-11 when it was around two thirds full) the recreational water use brings significant increases to the local visitor economy.

Prior to white settlement the Jeparit area was occupied by the Gromiluk (part of the Wotjobaluk people). Explorer Edward Eyre camped at Lake Hindmarsh in 1838 while searching for an overland route from Melbourne to Adelaide, and the land, which included the site of Jeparit townsite, was taken up by Robert von Stieglitz in 1846. The *Edward John Eyre Heritage River Walk* follows alongside the river through town.

There are many camping sites along the Wimmera River around Jeparit and Lake Hindmarsh, and the main accommodation provision is the Jeparit Caravan Park, owned and operated by Hindmarsh Shire Council. The park has large powered and unpowered sites, barbecues, laundry, toilet and showers facilities. Two new cabins were installed in 2017 on the river foreshore. As in Dimboola, the river runs through the Jeparit township, and has a relatively high number of both active and passive day users. The annual Jeparit Fishing Competition is the major local event using the river.

The Jeparit Fishing Competition had 334 senior entrants and 125 junior entrants or 459 entrants in total (an increase of 4.1% on 2017). An estimated 39% stayed in the town (and another 20% stayed elsewhere in the Wimmera Southern Mallee as part of a visit to the area).

At Jeparit, 12% of fishing competition entrants were local Jeparit residents, a further 19% lived elsewhere in Hindmarsh Shire and 36% were residents of another part of the Wimmera Southern Mallee region. A total of 33% were visitors from another region; country Victoria, Melbourne and interstate.



With the exception of the fishing competition, and with the exclusion of Lake Hindmarsh in the 2017-18 assessment, visitation numbers were down on the previous year. Hindmarsh Shire Council has indicated an interest in capitalising on the Wimmera River environs at Jeparit in order to stimulate additional visitation. Council is looking to develop new ideas for facilities, such as a new area on the river banks for camping.

Estimated overnight visitors and day trip users of Wimmera River at Jeparit in 2016-17 and 2017-18 are summarised in Table 4.3. These estimates have been developed through interviews on site, online surveys, data from Hindmarsh Shire Council, and the Jeparit Anglers Club.

**Table 4.3: Estimated Overnight and Day Visitors to Wimmera River, Jeparit and Lake Hindmarsh 2016-17 and Jeparit only in 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	1,155	3,935	1,396	7,295	9,846
2017-18	390	1,411	1,350	6,250	7,990
% change	-66.2%	-64.2%	-3.3%	-14.3%	-18.9%

#### 4.2.3 Nhill Lake

Nhill Lake is a man-made recreation facility constructed in 1960. It is very much a lake built for local users, with shaded areas, a playground, and provision for swimming, fishing, boating and barbecues. A track around the lake provides 1 kilometre of flat surface which is suited to walking, cycling and running activities. The lawn area is used to host community events. The Nhill Lake is run by a volunteer Committee of Management. A recently upgraded boardwalk links the lake to Jaypex Park on the Western Highway.

GWMWater supplements the catchment, or stormwater runoff, into Nhill Lake with bore water from the GWMWater Groundwater Entitlement. The recreation levy is charged for bore water, and a volume up to 150 megalitres is supplied.

Nhill Lake is near the Nhill shopping centre on the southern edge of the urban area, in almost an ornamental botanic gardens type setting. It is a small lake with crystal clear water (in early 2017) and boat ramp access at the end of Clarence Street. Nhill Lake was originally part of Nhill Swamp. When full there is boating, a boardwalk and plenty of bird life.



There are no camping sites on the foreshore of Nhill Lake. Nhill Caravan Park is close to the lake but is separated from it by the Nhill Swamp Wildlife Reserve. There was a bridge providing access from the Caravan Park to the lake, but this has been recently removed. The Caravan Park is privately owned and operated. It has 8 cabins, 45 powered sites, and a few non-powered sites. The majority of park stays are 1 to 2 nights, with most people staying as a stopover location between Melbourne and Adelaide or other major destinations. Only 20% of overnight visitors in summer months and 5% in winter months are estimated to participate in activities at the lake, or take advantage of lake amenity.

Since 2014 there has been an annual *February Fiesta* at the Nhill Lake, with activities every Friday evening in February. Nhill Lake Reserve lights up to music, food, dancing, children's entertainment and art.



Estimated overnight visitors and day trip users of Nhill Lake in 2016-17 and 2017-18 are summarised in Table 4.4. These estimates have been developed through interviews on site and in town, online surveys, and discussions with Nhill Caravan Park owners.

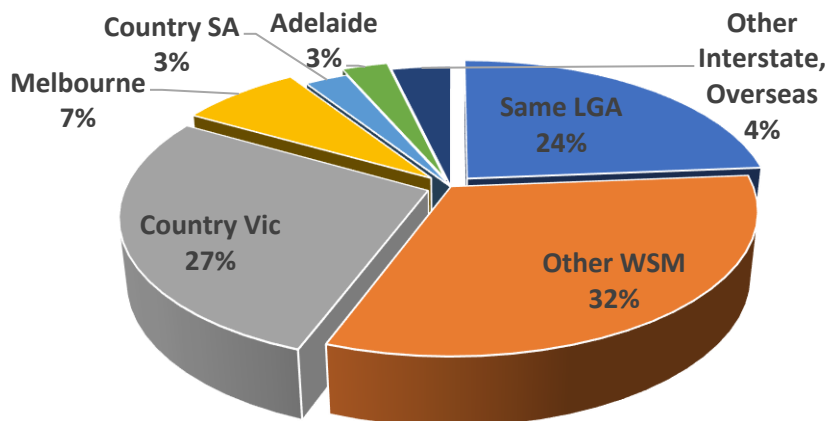
**Table 4.4: Estimated Overnight and Day Visitors to Nhill Lake 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	501	1,053	6,460	10,025	16,986
2017-18	596	1,254	6,730	10,560	17,886
% change	19.0%	19.1%	4.2%	5.3%	5.3%

### 4.3 ECONOMIC CONTRIBUTION

Figure 4.1 shows the majority (56%) of recreational water users at Hindmarsh Shire were Wimmera Southern Mallee residents in 2017-18, and a further 27% were from other parts of country Victoria. Melbourne, interstate and overseas visitors made up a total of 17% of visitation.

**Figure 4.1 Residential Location of Recreational Water Users, Hindmarsh Shire**



Tables 4.5 and 4.6 and Figure 4.2 detail the estimated 2017-18 economic contribution of the assessed recreational water facilities in Hindmarsh Shire.

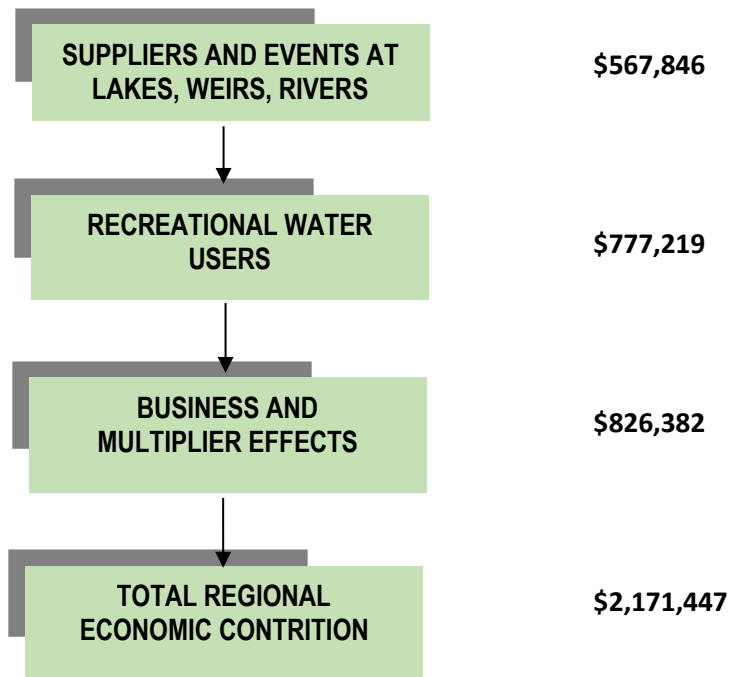
**Table 4.5: Estimated Economic Contribution 2017-18: Recreational Water Facility Users**

	Total Overnight Visitors	Total Visit Nights	Active Day Visitors	Passive Day Visitors	Total Participation	% Change on 2016-17
<b>Visitation and Participation</b>						
Wimmera River - Dimboola	3,744	10,599	6,445	13,550	23,739	3.84%
Wimmera River - Jeparit	390	1,411	1,350	6,250	7,990	-18.85%
Nhill Lake	596	1,254	6,730	10,560	17,886	5.30%
<b>Total Hindmarsh Shire</b>	<b>4,730</b>	<b>13,264</b>	<b>14,525</b>	<b>30,360</b>	<b>49,615</b>	<b>-0.39%</b>
<b>Visitor Expenditure (\$)</b>						
Wimmera River - Dimboola		\$325,032	\$142,711	\$31,843	\$499,585	48.07%
Wimmera River - Jeparit		\$28,662	\$7,688	\$17,188	\$53,537	-67.26%
Nhill Lake		\$42,812	\$153,829	\$27,456	\$224,097	58.70%
<b>Total Hindmarsh Shire</b>		<b>\$396,506</b>	<b>\$304,227</b>	<b>\$76,486</b>	<b>\$777,219</b>	<b>21.04%</b>

**Table 4.6: Estimated Economic Contribution 2017-18: Supplier Organisations**

<b>Suppliers: Direct</b>	
Caravan Parks/Committees of Management	\$123,918
Events and Other Businesses	\$99,500
Statutory Agencies <sup>21</sup>	\$344,428
<b>Total Hindmarsh Shire</b>	<b>\$567,846</b>

**Figure 4.2 2017-18 Estimated Recreational Water Economic Contribution: Hindmarsh Shire**



<sup>21</sup> Statutory agencies include Fisheries Victoria, Wimmera CMA and GWM Water

## 5. RECREATIONAL WATER FACILITIES IN THE HORSHAM RURAL CITY

### 5.1 OVERVIEW

The Horsham Rural City is home to 37% of the population in the Wimmera Southern Mallee region (including Buloke Shire). It is in the central south of the region, around 300 kilometres north west of Melbourne and, at 4,267 square kilometres, is the smallest in area of all municipalities in Wimmera Southern Mallee.

Three highways pass through the LGA (the Western Highway, the Wimmera Highway and the Henty Highway) all passing through Horsham and providing connections between Horsham and Melbourne, Hamilton and Portland, Mildura and Adelaide. The Melbourne–Adelaide rail line also passes through Horsham.

The 2017 estimated resident population of Horsham was 19,833<sup>22</sup> and is growing at just 0.1% per year. It is the only municipality within the region currently experiencing population growth. Around 75% of the population live within the urban area of Horsham. There are, however, about 40 other localities within the municipality.

Horsham is a service centre for the surrounding rural hinterland and, indeed, the region with higher order health, education facilities (including secondary colleges, a university campus and an agricultural college), retail and recreation and leisure facilities. The major industry is dryland and broadacre agriculture and it is home to a nationally acclaimed agricultural research centre, the Grains Innovation Park. Major employing industries are health care and social assistance (16.6% of jobs), retail (11.8%) and agriculture (9.2%).

Horsham urban area has high levels of socio-economic disadvantage. Table 5.1 shows that the ‘suburb’ of Horsham ranks 334<sup>th</sup> most disadvantaged of all 2,672 suburbs in the State. Natimuk ranks 549<sup>th</sup>. The smaller ‘suburb’ communities of Horsham Rural City (Brimpaen, Toolondo and McKenzies Creek) are relatively advantaged.

**Table 5.1: SEIFA Indices<sup>23</sup> for Horsham Rural City Suburbs, 2016**

	Usual Resident Population	SEIFA Score	Ranking within Victoria			Minimum score for SA1s in area <sup>24</sup>	Maximum score for SA1s in area
			Rank	Decile	Percentile		
Horsham	14,543	938	334	2	13	644	1058
Brimpaen	79	1067	2380	9	90	1067	1067
Drung	147	989	1032	4	39	989	989
Natimuk	514	958	549	3	21	934	1041
McKenzie Creek	136	1051	2237	9	84	1051	1051
Toolondo	59	1000	1235	5	47	1000	1000

Note: The SEIFA Index used in this table relates to Socio-Economic Advantage and Disadvantage.

The Australian Bureau of Statistics broadly defines relative socioeconomic advantage and disadvantage in terms of people's *access to material and social resources, and their ability to participate in society*. There are 2,672 state suburbs in Victoria. A score of 1,000 or above tends to indicate an area which is relatively advantaged, and a score below 1,000 is an area which is relatively disadvantaged. In any of the Wimmera Southern Mallee ‘suburbs’ there are likely to be pockets which are relatively more advantaged and disadvantaged than the suburb as a whole. The minimum and maximum scores for these smaller pockets (shown as SA1s, Statistical Area 1s) are presented in the final two columns of the table.

<sup>22</sup> ABS, Regional Population Growth 2017 (April 2018)

<sup>23</sup> SEIFA indices are calculated by the Australian Bureau of Statistics using a range of variables on income, employment, housing, etc.

<sup>24</sup> SA1s are Statistical Areas Level 1 – a ‘neighbourhood’ scale of geography.

Fisheries Victoria has stocked 798,806 fingerlings and advanced stocker fish in the selected lakes and the Wimmera River in Horsham Rural City during the three-year period including 2017-18<sup>25</sup>. Native species make up the overwhelming majority of stockings, except in Lake Toolondo which is a popular 'trophy trout' fishing destination. Around 50% are in the Wimmera River (potentially servicing recreational fishers along the downstream locations through Horsham City and Hindmarsh Shire).

Details of the number and species of stockings over this period are summarised in Table 5.2.

**Table 5.2 Fish Released in Horsham Rural City Selected Lakes and River 2015-2018**

Units stocked (fingerlings and/or advanced stockers)	Brown Trout	Rainbow Trout	Murray Cod	Golden Perch	Silver Perch	Total
<b>Horsham Rural City</b>						
Green Lake Horsham				35,000		35,000
Wimmera River				328,000	65,000	393,000
Taylors Lake			128,880	191,875	20,000	340,755
Toolondo Reservoir	16,307	13,744				30,051

## 5.2 SELECTED RECREATIONAL WATER FACILITIES

### 5.2.1 Wimmera River at Horsham

The Wimmera River is naturally an inland intermittent river. It rises in the Pyrenees, on the northern slopes of the Great Dividing Range, and flows generally north by west and drains into Lake Hindmarsh and Lake Albacutya, a series of ephemeral lakes. While they do not directly empty into a defined watercourse, this system is part of the catchment in the Murray-Darling basin.

The River weaves through suburban Horsham, with parkland and red gums lining long stretches of the river. The Wimmera River is popular for kayaking, canoeing and fishing. Horsham Rowing Club has a clubhouse and base on the riverbank.

There are several boat ramps and picnic areas available for use. A healthy number of Horsham residents use the riverside pathways for daily exercise routines; walking, jogging, or cycling. The Lawrie Rudolph Walk follows the path of the river along its northern bank, and there are several designated walking trails encouraging residents and visitors to experience the river, including:

- The Yanga Track (1.2 kilometres walk including two boardwalks across the river)
- Southbank trail
- Burnt Creek trail
- Weir Park/Wetlands trail
- Riverside trail.

The number of day users at the Wimmera River at Horsham is the greatest of all recreational water facilities in the Wimmera Southern Mallee. Fishing is the most popular Wimmera River activity, with walking, running and exercising along the river were the activities in which people participated most frequently (ie the passive day users group).

<sup>25</sup> Stocking fish in recreational waterways is considered similar to providing an asset, for which there will be a return on investment over three years.



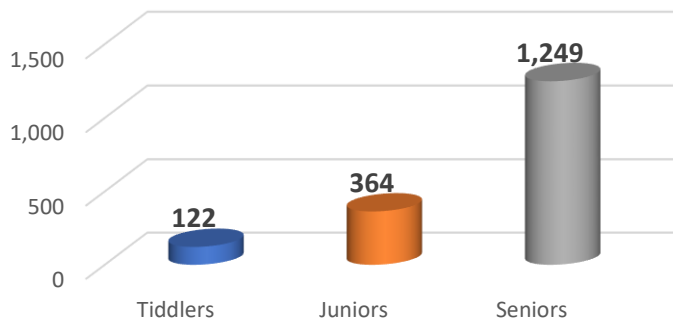
Major annual events at the river are:

- Horsham Fishing Competition, conducted annually on the March Labour Day long-weekend. It is a family oriented event which encourages participants to combine fishing with camping. Family and friends who wish to fish together in a quiet and relaxed environment can fish in an allocated area along the river reserved for this specific purpose. Angling clubs are allocated designated free camping and fishing areas. The fishing competition is a widely supported community event with considerable cash and in-kind contributions from local businesses, community organisations, Horsham Rural City Council, and Wimmera CMA.
- Great Wimmera River Duck Race in November at Sawyer Park. This event is a fundraiser for the Wimmera Health Care Group and part of the Kannamaroo Festival weekend, with around 350 active participants.

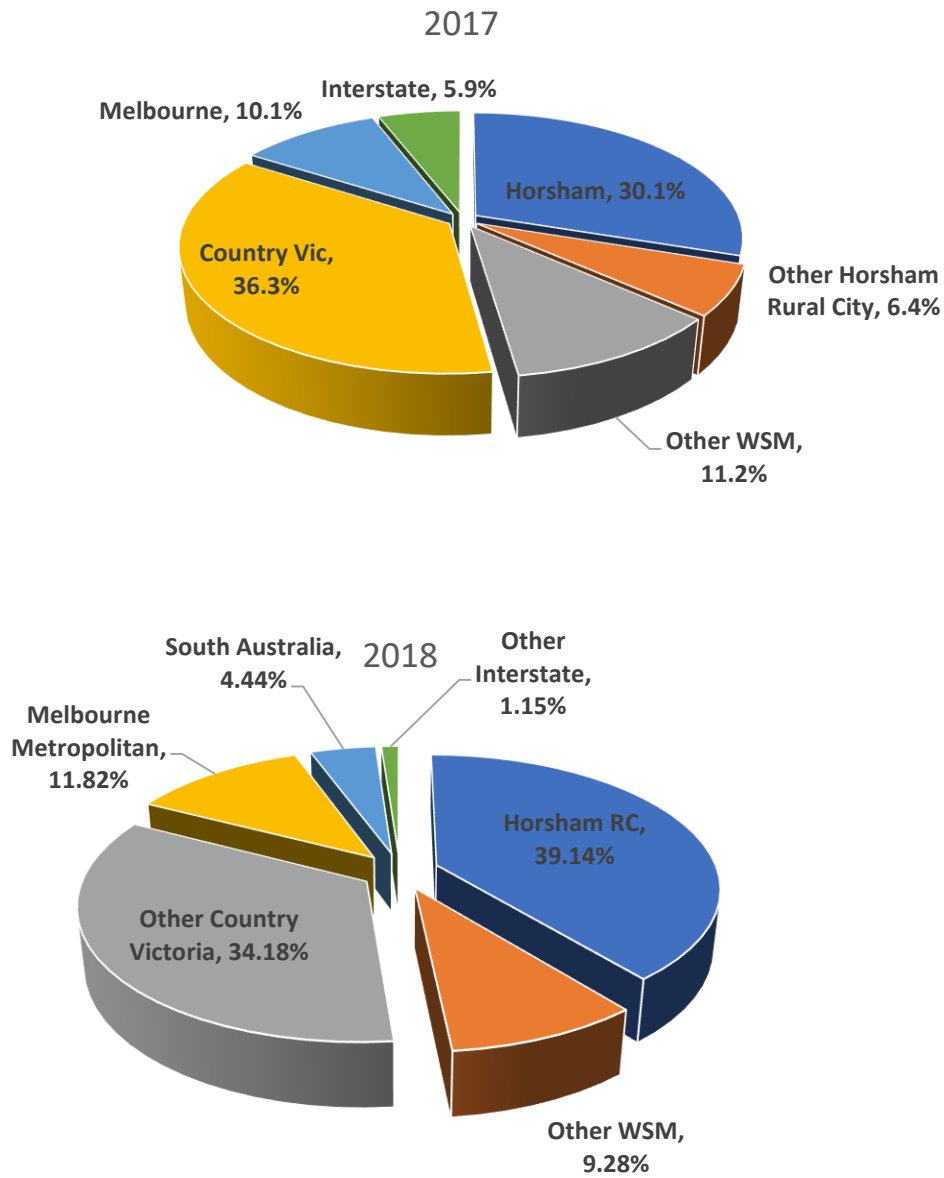
There is a vast array of accommodation options in Horsham, including hotels and motels and caravan parks well located for access to the river. The number of day users at the Wimmera River at Horsham is the greatest of all recreational water facilities in the Wimmera Southern Mallee.

The Horsham Fishing competition had 1,735 entrants (Figure 5.1) in 2018 (down by 10.5% on the 2017 event) of which an estimated 45% stayed in the City (near the river, in commercial accommodation or with friends or relatives). Figure 5.2 reveals 39.1% of participants were residents of Horsham Rural City (compared with 36.5% in 2017). Over 50% of Fishing Competition participants continued to be visitors from somewhere else in country Victoria, Melbourne or interstate. Figure 5.3 gives more insight into the economic significance of the Fishing Competition, showing the distribution of people including overnight stays at or near the river, as part of their involvement, with Country Victoria and Melbourne being the most significant origins of participants. Figure 5.4 summarises the economic contribution estimates from the event.

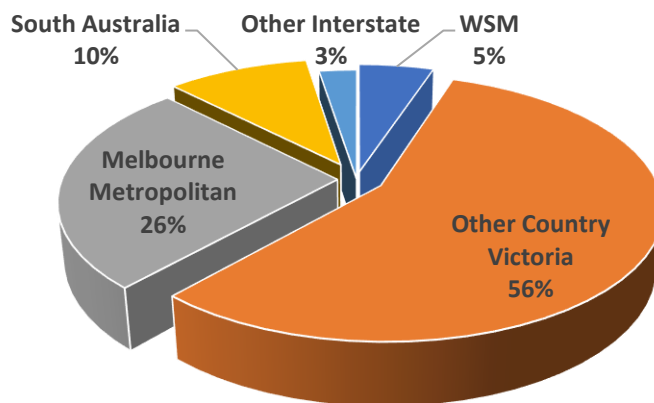
**Figure 5.1 Horsham Fishing Competition Entries in 2018 by Category**

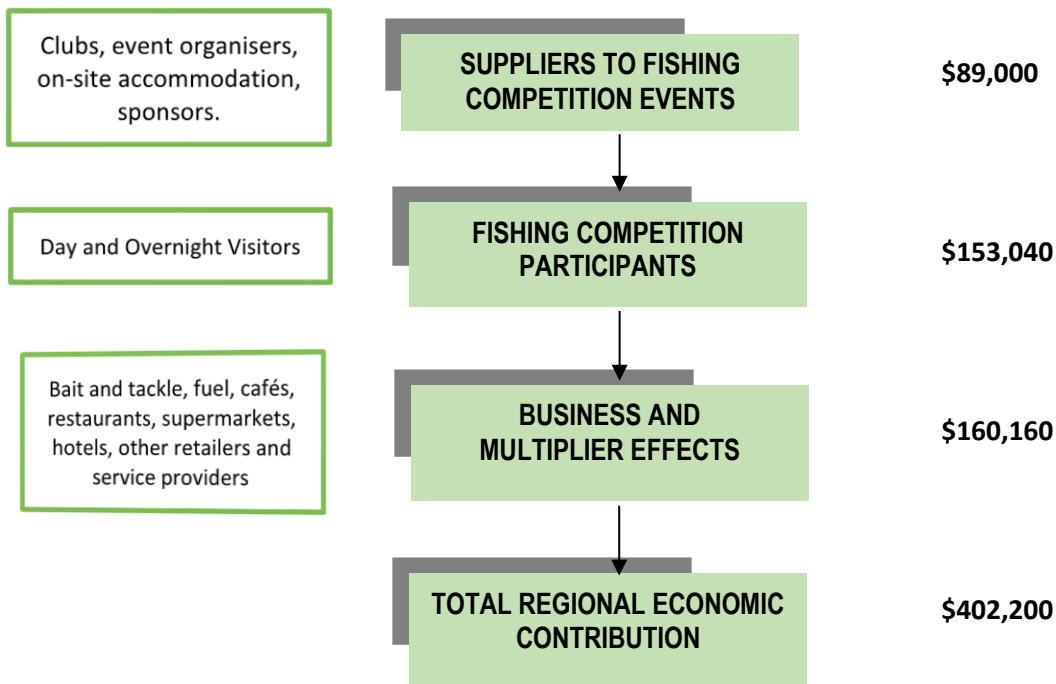


**Figure 5.2 Residential Location of Horsham Fishing Club Participants, 2017 and 2018**



**Figure 5.3 Estimated Overnight Visitor Participants in Horsham Fishing Competition**



**Figure 5.4 2018 Estimated Regional Economic Contribution: Horsham Fishing Competition**

Total estimated overnight visitors and day users of the Wimmera River at Horsham in 2016-17 and 2017-18 are presented in Table 5.3. These estimates have been developed through interviews on site and in Horsham business area, online surveys, and discussions with the Horsham Angling Club, Fishing Competition management, and Wimmera Lakes Caravan Park.

**Table 5.3: Estimated Overnight and Day Visitors to Wimmera River at Horsham, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	3,401	7,001	13,510	61,446	78,357
2017-18	2,981	8,086	13,806	62,592	79,370
% change	-12.4%	15.5%	15.5%	1.9%	1.3%

### 5.2.2 Green Lake

Green Lake is a small, attractive lake with a volume of 5,350 megalitres. It is, an off-stream reservoir with its own catchment from Diggers Creek and was originally used for irrigation purposes. GWMWater advises that, since construction of the Wimmera Mallee Pipeline, Green Lake is no longer used as a water supply reservoir, but plays an important role in managing the water quality within the headworks system.

Green Lake is adjacent to the Western Highway, just 12 kilometres from Horsham. The lake has a long sandy beach, boat ramp, jetty and picnic facilities. The Horsham Yacht Clubhouse is located at Green Lake, and runs regattas and events when water levels are suitable. There are no camping facilities at this lake, so most overnight visitors stay in Horsham.

Green Lake is popular for fishing, swimming, boating and windsurfing. In early 2017 a large number of visitors were fishing for yabbies. However, the lake was very quiet throughout the summer and autumn of 2017-18, with blue-green algae infestations declared during the season.



Estimated overnight visitors and day users of Green Lake near Horsham in 2016-17 and 2017-18 are summarised in Table 5.4. These estimates have been developed through interviews on site and in the Horsham business area, online surveys, and discussions with the Horsham Angling Club, and other stakeholders.

**Table 5.4: Estimated Overnight and Day Visitors to Green Lake, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	469	1,631	9,544	0	10,013
2017-18	363	653	3,680	850	4,893
% change	-22.6%	-59.9%	-61.4%	n.a.	-51.1%

### 5.2.3 Taylors Lake

Taylors Lake is another off-stream reservoir and a reliable water source for the region. It is located 20 kilometres south-east of Horsham, and is supplied from upstream storages within the Wimmera-Glenelg headworks. Nearby Potters Creek also serves as a small natural catchment for Taylors Lake.

The lake has an important role in supplying environmental water to the Wimmera River and also a backup reservoir for the WMP supply, should Lake Bellfield be unable to supply WMP, and is very popular with Horsham locals for recreation, especially fishing and water skiing. When other lakes are dry, Taylors Lake will often still have water to enjoy. The lake does not have a formal caravan park/camping ground but camping and camp fires are permitted in designated areas. Taylors Lake was affected by blue-green algae from April 2018

Estimated overnight visitors and day users of Taylors Lake in 2016-17 and 2017-18 are summarised in Table 5.5. These estimates have been developed through interviews on site and in the Horsham business area, online surveys, and discussions with the Taylors Lake Committee of Management.

**Table 5.5: Estimated Overnight and Day Visitors to Taylors Lake, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Total Participants
2016-17	2,051	6,289	1,612	3,663
2017-18	2,530	7,436	1,515	4,045
% change	23.4%	18.2%	-6.0%	10.4%

#### 5.2.4 Lake Toolondo

Lake Toolondo is an off-stream reservoir, well known for trout fishing and as a popular recreational destination in the Wimmera Southern Mallee region. The lake supply is reliant on transfers from Rocklands Reservoir<sup>26</sup> as per the storage management rules to achieve recreation objectives at Lake Toolondo. The lake is also supplied partially by the small Mt Talbot Creek catchment. The configuration of inlet and outlet structure of Lake Toolondo results in a large volume of 'dead water'. This means that water in Lake Toolondo does not flow through to another source; it can only be pumped out.

The northern, southern and eastern ends of Lake Toolondo all have a boat ramp, however, these ramps become unusable during periods of drought due to the onset of low water levels. Lake Toolondo is also used by water skiers (when water levels permit) and swimmers.

Fishing activity was not at its peak during 2017-18. In particular, there was an absence of "trophy trout" for the enthusiastic sports anglers, although there were good returns for those fishing for redfin during the summer and spring months. Fisheries Victoria advises: *"The stocked trout fishery of Toolondo Reservoir is most productive when, following a period of low water, water levels increase significantly and flood the margins. This creates a trophic upsurge in nutrients, plant-life, insects, fish and other aquatic life that drives feed supply for foraging trout (and redfin). Conversely, when water levels stabilise, fishery productivity falls and stabilises which moderates the performance of the fishery. Over the last few years the growth rates and condition of Toolondo trout has fallen while redfin fishing has remained strong. The presence of carp may also impact on the trout fishery, particularly if carp abundance results in changes to water turbidity"*.

<sup>26</sup> GWMWater information



Supplier businesses servicing Lake Toolondo include:

- Wash Tomorrow Caravan Park located at Telangatuk East Road, Toolondo. The park has powered and unpowered sites and there are 11 sites occupied by on-site vans/cabins owned by regular visitors.
- Victorian Inland Fishing Charters, offering day and overnight fishing charters, especially targeting trophy trout.
- 3-4 rental cabins in adjacent privately-owned land (available for visitors making bookings).



Estimated overnight visitors and day users of Lake Toolondo in 2017-18 are summarised in Table 5.6. These estimates have been developed through interviews on site and in the Horsham business area, online surveys, and discussions with suppliers to the lake.

**Table 5.6: Estimated Overnight and Day Visitors to Lake Toolondo, 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Total Participants
2017-18	1,741	4,250	1,599	3,340

### 5.2.5 Natimuk Lake

Located 6.5 kilometres from Natimuk and 29 kilometres from Horsham, Natimuk Lake, when full, is a large freshwater lake up to 3 metres deep covering an area of 368 hectares. Visitors to the lake enjoy swimming, bird watching, fishing, yabbing, boating, wind surfing, camping, picnics and picnics/barbecues. The Natimuk Lake Foreshore Committee advises that the lake is a nationally significant wetland and has supported threatened water bird species including the Great Egret, Freckled Duck and the Blue-billed Duck. Natimuk Lake is listed on the *“Important Bird Areas in Victoria”* register. Five waterbird species protected by international migratory bird agreements regularly visit Natimuk Lake and Natimuk Creek. It has been nominated as a wetland of international significance for recognition under the Ramsar Convention.

Infrastructure at the lake includes a caravan park with permanent on-site cabins and 40 caravan sites (30 of which are powered). Infrastructure developments at the lake (funded through contributions and grants by the Foreshore Committee) includes:

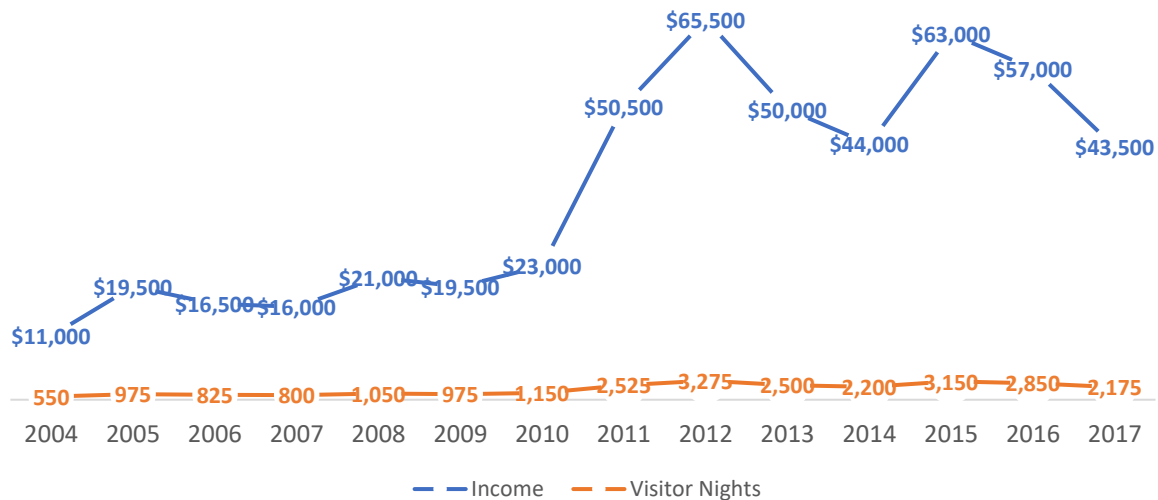
- Caravan park and public hall
- Toilet block for the caravan park
- Public toilets and camp kitchen
- Playground equipment
- Caretaker’s cabin
- On-site cabins (x 2)
- Concrete boat ramps (x 2)
- Floating pontoons (x 2)
- New car bridge over creek
- Barbecues and shelters
- Jetty
- Earthworks on far side of park
- Rock work for erosion control over 700 metres of the shore line
- Solar power for the camp kitchen
- Power upgrades
- Septic system connected to the town’s septic systems.

Parks Victoria requested that a Water Management Plan or a Hydrological Flows Study be completed for the environmentally significant area in the past year. It is understood that an initial assessment highlighted several risks and issues associated with the proposed works. One of these was that the proposed structure, being higher than the existing weir, had the potential to significantly modify the water regime of Lake Natimuk and its associated waterways.

Parks Victoria is working with the Foreshore Committee of Management, Wimmera CMA, Horsham Rural City Council, and the Department of Environment, Land, Water and Planning in the developing the Water Management Plan (Hydrological Flows Study).

Natimuk Lake was dry during 2017-18. Natimuk Lake is supplied almost solely by runoff from its catchment during wetter periods is very vulnerable to dry seasons.

Figure 5.5 presents details of visit nights and sales income from the Natimuk Lake Caravan Park records over the period 2004 to 2017.

**Figure 5.5 Occupancy and Income: Natimuk Caravan Park 2004 to 2017**

There was virtually no recreational water visitation to Natimuk Lake in 2017-18. Estimated overnight visitors and day users of Natimuk Lake in 2012 and 2017 are summarised in Table 5.7. These estimates have been derived from records of the Caravan Park and Foreshore Committee of Management.

**Table 5.7: Estimated Overnight and Day Visitors to Lake Natimuk, 2012 and 2017**

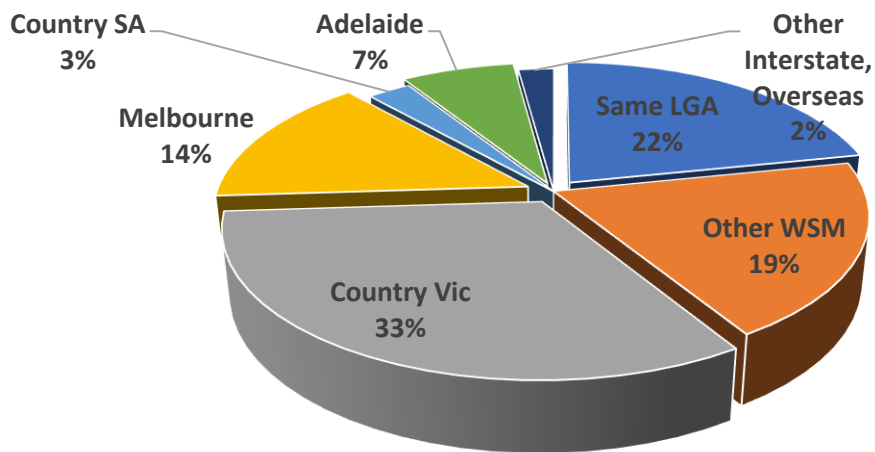
	Overnight Visitors	Total visit nights	Active Day Users	Total Participants
2012	1,170	3,275	3,500	4,670
2017	777	2,175	1,500	2,953

Based on expenditure profiles from interviews with WSM recreational water users in comparable lakes around the region (such as Taylors Lake, Green Lake and Walkers Lake), the recreational water users' direct contribution in a year when the Natimuk Lake has good levels of water, such as 2012, would be around \$145,000. This would lead to a total regional economic contribution in the order of \$330,000 to \$350,000 per annum.

### 5.3 ECONOMIC CONTRIBUTION

Figure 5.6 shows 41% of recreational water users at Horsham Rural City sites were Wimmera Southern Mallee residents in 2017-18, and a further 33% were from other parts of country Victoria. Melbourne metropolitan visitation (at 14%) is among the highest in WSM, while interstate and overseas visitors made up a total of 12% of visitation.



**Figure 5.6 Residential Location of Recreational Water Users, Horsham Rural City**

Tables 5.8 and 5.9 and Figure 5.7 detail the estimated 2017-18 economic contribution of the assessed recreational water facilities in the Horsham Rural City.

**Table 5.8: Estimated Economic Contribution 2017-18: Recreational Water Facility Users**

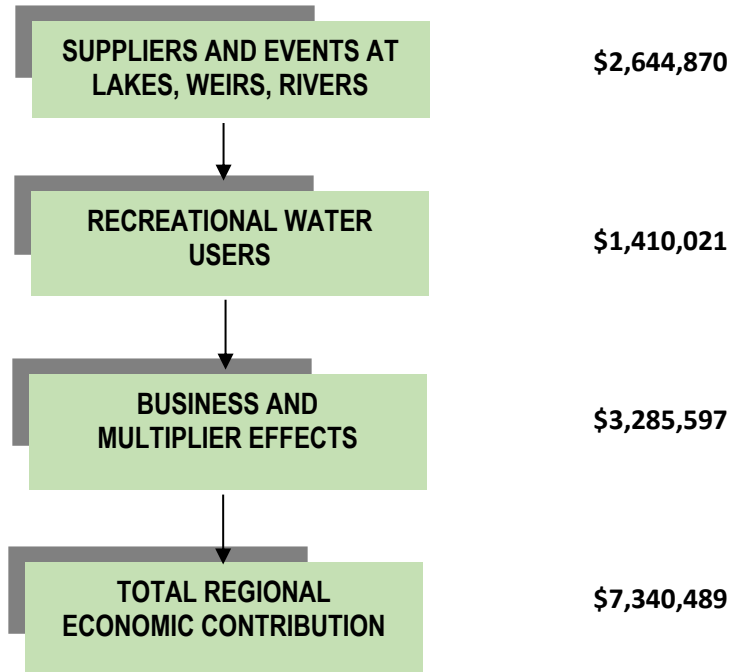
	Total Overnight Visitors	Total Visit Nights	Active Day Visitors	Passive Day Visitors	Total Participation	% Change on 2016-17
<b>Visitation and Participation</b>						
Wimmera River - Horsham	2,981	8,086	13,806	62,592	79,379	1.30%
Green Lake	363	653	3,680	850	4,893	-51.13%
Natimuk Lake	0	0	0	0	0	n.a.
Taylors Lake	2,530	7,436	1,515	0	4,045	10.43%
Toolondo	1,741	4,250	1,599	0	3,340	n.a.
<b>Total Horsham</b>	<b>7,615</b>	<b>20,425</b>	<b>20,600</b>	<b>63,442</b>	<b>91,657</b>	<b>-0.41%</b>
<b>Visitor Expenditure (\$)</b>						
Wimmera River - Horsham		\$352,506	\$303,785	\$159,610	\$815,900	-12.11%
Green Lake		\$22,083	\$76,213	\$2,890	\$101,185	-59.97%
Natimuk Lake		\$0	\$0	\$0	\$0	n.a.
Taylors Lake		\$232,997	\$42,979	\$0	\$275,976	26.24%
Toolondo		\$176,405	\$40,555	\$0	\$216,960	n.a.
<b>Total Horsham Rural City</b>		<b>\$783,990</b>	<b>\$463,532</b>	<b>\$162,500</b>	<b>\$1,410,021</b>	<b>0.74%</b>

**Table 5.8: Estimated Economic Contribution 2017-18: Supplier Organisations**

<b>Suppliers: Direct</b>	
Caravan Parks/Committees of Management	\$401,427
Events and Other Businesses	\$96,000
Statutory Agencies <sup>27</sup>	\$2,147,443
<b>Total Horsham Rural City</b>	<b>\$2,644,870</b>

<sup>27</sup> Statutory agencies include Fisheries Victoria, Wimmera CMA and GWM Water. Direct supplier contribution in the Rural City of Horsham has decreased in 2017-18. This is due to expenditure by GWM Water and Wimmera CMA being allocated to the local government areas where recreational water contributions were delivered in 2017-18, whereas the economic contributions of these organisations were all allocated to the Rural City of Horsham (as the headquarters of the organisations) in 2016-17.

**Figure 5.7 2017-18 Estimated Recreational Water Regional Economic Contribution: Horsham Rural City**



## 6. RECREATIONAL WATER FACILITIES IN NORTHERN GRAMPIANS SHIRE

### 6.1 OVERVIEW

Northern Grampians is at the eastern end of the Wimmera Southern Mallee region. Its major centres are Stawell in the south (just off the Western Highway) and St Arnaud in the north (on the Sunraysia Highway). Smaller centres include Great Western, Halls Gap, Glenorchy, Navarre, Marnoo and Stuart Mill. Stawell and St Arnaud are both service centres for their surrounding rural communities.

The population of Northern Grampians is 11,498<sup>28</sup>, having declined at 0.7% in the past year. It is the second most populous municipality in the region and most of the population live in the southern part of the Shire.

The structure of Northern Grampians economy is quite different from the remainder of the region. There is a history of gold mining and, while agriculture and agricultural product processing are key industries, it has a diversity of agricultural enterprises including the more traditional dryland pursuits of wool, broad acre grazing and cereal cropping, but also significant horticultural sectors (wine, olives and emerging hydroponics). Health services (16.0% of all jobs), agriculture (13.1%) and manufacturing (11.1%) are the Shire's largest employing industries.

Tourism is very a significant industry for the Shire, particularly in the south associated with the Grampians National Park. This is also the location of four of the assessed recreational water facilities in the Shire, with only Walkers Lake in the northern part of the Shire.

Some Northern Grampians Shire towns have high levels of socio-economic disadvantage, the two largest, Stawell and St Arnaud being the most significant. Table 6.1 shows the SEIFA rankings of the five 'suburbs' compared with all those in Victoria, revealing:

- St Arnaud is the most disadvantaged, ranking 90<sup>th</sup> of all 2,672 suburbs in the State.
- Stawell is the next most disadvantaged, ranking 96<sup>th</sup>
- Other towns near the recreational water sites rank in the 'more advantaged' percentiles: Moyston and Halls Gap (near Lake Fyans and Lake Bellfield) ranking around the middle of all suburbs, and Marnoo (near Walkers Lake) ranking 2035<sup>th</sup>.

**Table 6.1: SEIFA Indices for Northern Grampians Shire Suburbs, 2016**

	Usual Resident Population		Ranking within Victoria			Minimum score for SA1s in area	Maximum score for SA1s in area
		Score	Rank	Decile	Percentile		
Halls Gap	430	1006	1405	6	53	998	1011
Marnoo	122	1038	2035	8	77	1038	1038
Moyston	348	999	1224	5	46	999	999
St Arnaud	2,193	892	90	1	4	854	988
Stawell	6,032	894	96	1	4	837	981

Note: The SEIFA Index used in this table relates to Socio-Economic Advantage and Disadvantage.

The Australian Bureau of Statistics broadly defines relative socioeconomic advantage and disadvantage in terms of people's *access to material and social resources, and their ability to participate in society*. There are 2,672 state suburbs in Victoria. A score of 1,000 or above tends to indicate an area which is relatively advantaged, and a score below 1,000 is an area which is relatively disadvantaged. In any of the Wimmera Southern Mallee 'suburbs' there are likely to be pockets which are relatively more advantaged and disadvantaged than the suburb as a whole. The minimum and maximum scores for these smaller pockets (shown as SA1s, Statistical Area 1s) are presented in the final two columns of the table.

<sup>28</sup> ABS, Regional Population Growth 2017 (April 2018)

Fisheries Victoria has stocked 156,829 fingerlings and advanced stocker fish in the selected lakes in Northern Grampians Shire (except Lake Lonsdale) during the three-year period including 2017-18<sup>29</sup>. The fish stocking in this Shire is the only one in WSM region where introduced (trout) species are in the majority. Details of the number and species of stockings over this period is summarised in Table 6.2.

**Table 6.2 Fish Released in Northern Grampians Shire Selected Lakes 2015-2018**

Units stocked (fingerlings and/or advanced stockers)	Brown Trout	Rainbow Trout	Murray Cod	Golden Perch	Silver Perch	Total
<b>Northern Grampians Shire</b>						
Lake Bellfield		20,129				20,129
Lake Fyans	27,000	24,100				51,100
Lake Wartook	21,000	29,600				50,600
Walkers Lake				25,000	10,000	35,000

## 6.2 SELECTED RECREATIONAL WATER FACILITIES

### 6.2.1 Lake Bellfield

Lake Bellfield is located in the eastern Grampians Ranges near Halls Gap and has an inlet from Fyans Creek. Lake Bellfield supplies water to Halls Gap and Pomonal. It is the main source of supply for the Wimmera Mallee Pipeline system, supported by Taylors Lake. The lake is used for recreational activities such as boating, fishing and picnicking. Combustion engine boats are not permitted on lake Bellfield.

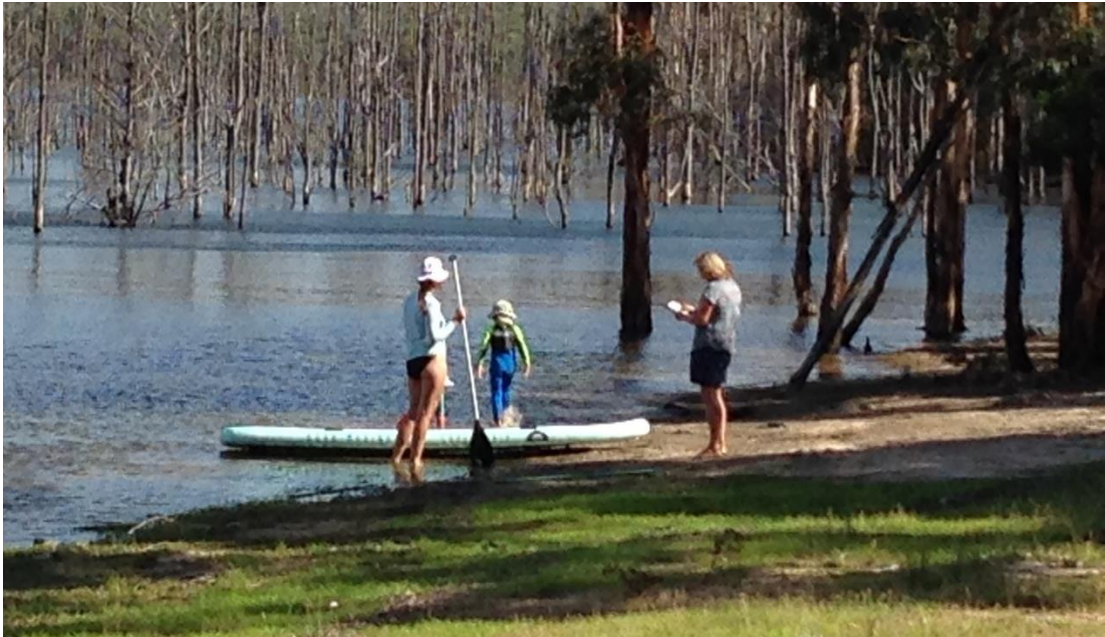
Lake Bellfield is located in the Halls Gap urban area. Therefore, accommodation is available at several premises throughout Halls Gap. The Lakeside Tourist Park is a major facility and is adjacent to the lake, although below the dam wall. A small proportion of overnight visitors at the Tourist Park are lake users. Most water uses are low impact, such as fishing, canoeing, kayaking and picnics on the banks.

Estimated overnight visitors and day trip users of Lake Bellfield in 2016-17 and 2017-18 are summarised in Table 6.3. These estimates have been developed through interviews on site and in Halls Gap, online surveys, and discussions with the Halls Gap Lakeside Tourist Park management.

**Table 6.3: Estimated Overnight and Day Visitors to Lake Bellfield, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	1,177	4,453	2,173	14,842	18,192
2017-18	1,786	5,061	2,355	14,660	18,801
% change	51.8%	13.7%	8.4%	-1.2%	3.4%

<sup>29</sup> Stocking fish in recreational waterways is considered similar to providing an asset, for which there will be a return on investment over three years.



### 6.2.2 Lake Lonsdale

Lake Lonsdale is a large, shallow water reservoir on Mount William Creek. It fills from its own catchment and is reliant on natural inflows. Although the catchment can be a substantial producer of water during wet years, it covers a very large area and is not reliable during times of drought. As a lake with relatively shallow depth, it has high evaporation losses over summer months.

Since the introduction of the Wimmera Mallee Pipeline, the lake is rarely used by GWMWater for domestic or stock water supply, however it remains a key source of water for the environment. Lake Lonsdale is important to the surrounding communities, especially Stawell, as a recreational lake offering fishing, yabbying, boating, swimming, camping and water skiing. The surrounding land provides opportunity for trekking, hiking and wildlife watching. Camping is available at four designated camping areas along the lake. Towards the end of 2017-18 the lake was well below 50% filled.



Estimated overnight visitors and day trip users of Lake Lonsdale in 2016-17 and 2017-18 are summarised in Table 6.4. These estimates have been developed through interviews on site and in Stawell and Halls Gap, online surveys, and discussions with the Lake Lonsdale Advisory Committee and other stakeholders.

**Table 6.4: Estimated Overnight and Day Visitors to Lake Lonsdale, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	469	1,995	1,500	5,000	6,969
2017-18	314	1,980	1,280	4,780	6,374
% change	-33.0%	-0.8%	-15.7%	-4.4%	-8.5%

### 6.2.3 Lake Wartook

Lake Wartook is an important water resource in the region. It is the primary water source for Horsham and Natimuk, and an important resource for “Supply System 6” of the Wimmera Mallee Pipeline. The lake also provides substantial environmental flows.

Located on the MacKenzie River in the central Grampians, Lake Wartook is popular with locals, particularly for fishing with trout as the target species. Around 15,000 rainbow and brown trout are stocked in the lake each year.

Horsham Angling Club has a lodge located on the foreshore of Lake Wartook, and this is the main accommodation facility. The club has 300 to 400 fishing members, not all of whom are active. Many of the members join specifically to access the club’s lodge facilities at Wartook and Rocklands Reservoir.

Estimated overnight visitors and day trip users of Lake Wartook in 2016-17 and 2017-18 are summarised in Table 6.5. These estimates have been developed through interviews on site and in Stawell and Halls Gap, online surveys, and discussions with the Horsham Angling Club.

**Table 6.5: Estimated Overnight and Day Visitors to Lake Wartook, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	641	3,938	660	0	1,301
2017-18	221	741	615	1,100	1,936
% change	-65.6%	-81.2%	-6.8%	n.a.	48.8%

#### 6.2.4 Lake Fyans

Lake Fyans is part of the GWMWater headworks reservoir supply system. Lake Fyans has a small natural catchment and it relies on water transfers from Lake Bellfield to fulfil its role in providing water supply to the towns of Ararat, Stawell and Great Western and to some 'supply by agreement' customers of GWMWater.

The lake is one of the most important recreational lakes in the region. It hosts a number of activities including sailing, jet skiing, hunting and caravanning, and is the base for:

- Lake Fyans Holiday Park which is the largest accommodation facility dedicated to servicing any of the 25 selected recreational water facilities in the Wimmera Southern Mallee. The Holiday Park has 20 cabins, 120 powered sites, 200 unpowered sites, and associated resort facilities.
- Stawell Yacht Club which organises regular sailing races and learn to sail programs (tackers).
- Scouts Victoria's Lake Fyans Scout Camp on 10 hectares a of bushland at the edge of Lake Fyans. The camp has 100 patrol camp sites, a campfire circle, disabled access shelter and storm hut, and a self-contained kitchen. It provides canoeing, games room, hiking and bush walking, and water activities. There is also a lodge accommodating up to 40 people.



A new walking track at Lake Fyans was opened in 2017-18. The project has developed a 9.6 kilometres walking track around the southern perimeter of Lake Fyans, with fencing, shade shelters, upgraded and new toilets, signage, nature trails and bird trails. It will better connect the recreational, cultural and natural heritage of the lake surrounding Lake Fyans Holiday Park. Splinter tracks off the main trail encourage walkers to explore the diverse plant life, observe fauna activity and to preserve the cultural heritage of the Djab Wurrung Nation. The project complements the Grampians Peaks Trail project by promoting the greater region as a place to enjoy the nature and beauty of the Grampians by foot and bicycle. This development was expected to add around 15% to the visitation numbers at the lake.





Estimated overnight visitors and day trip users of Lake Fyans in 2016-17 and 2017-18 are summarised in Table 6.6. These estimates have been developed through interviews on site and in Stawell, Moyston and Halls Gap, online surveys, and discussions with the Lake Fyans Holiday Park, and GWM Water (having replaced the Lake Fyans Committee of Management).

**Table 6.6: Estimated Overnight and Day Visitors to Lake Fyans, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	21,649	66,456	2,681	3,485	27,815
2017-18	23,385	78,613	2,768	3,415	29,569
% change	8.0%	18.3%	3.3%	-2.0%	6.3%

### 6.2.5 Walkers Lake

Walkers Lake is located at Avon Plains, with the nearest Wimmera Southern Mallee towns being Donald, St Arnaud, Marnoo, Rupanyup and Minyip.

Walkers Lake has a basin volume of 900 megalitres. When full, it covers an area of around 27 hectares.

There are no specific clubs or organisations making regular use of facilities at Walkers Lake, but a few host events at the lake from time to time, for example the St Arnaud Anglers Club.



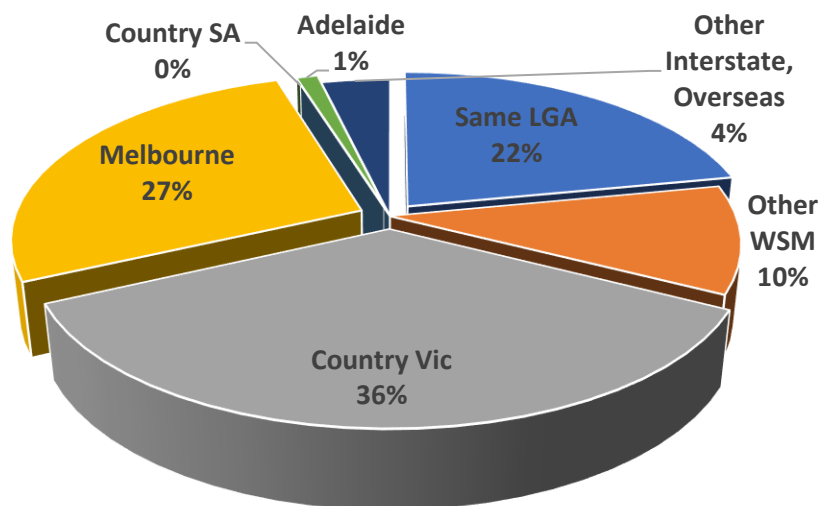
Estimated overnight visitors and day trip users of Walkers Lake in 2016-17 and 2017-18 are summarised in Table 6.7. These estimates have been developed through interviews on site and in Donald during March and April 2017, online surveys, and discussions with the Committee of Management.

**Table 6.7: Estimated Overnight and Day Visitors to Walkers Lake, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Total Participants
2016-17	768	3,101	1,430	2,198
2017-18	1,225	4,112	1,494	2,719
% change	59.5%	32.6%	4.5%	23.7%

### 6.3 ECONOMIC CONTRIBUTION

Figure 6.1 shows 32% of recreational water users at Northern Grampians Shire sites were Wimmera Southern Mallee residents in 2017-18, and a further 36% were from other parts of country Victoria. Melbourne metropolitan visitation (at 27%) is the highest of all municipalities in WSM, while interstate and overseas visitors made up 5% of visitation.

**Figure 6.1 Residential Location of Recreational Water Users, Northern Grampians Shire**

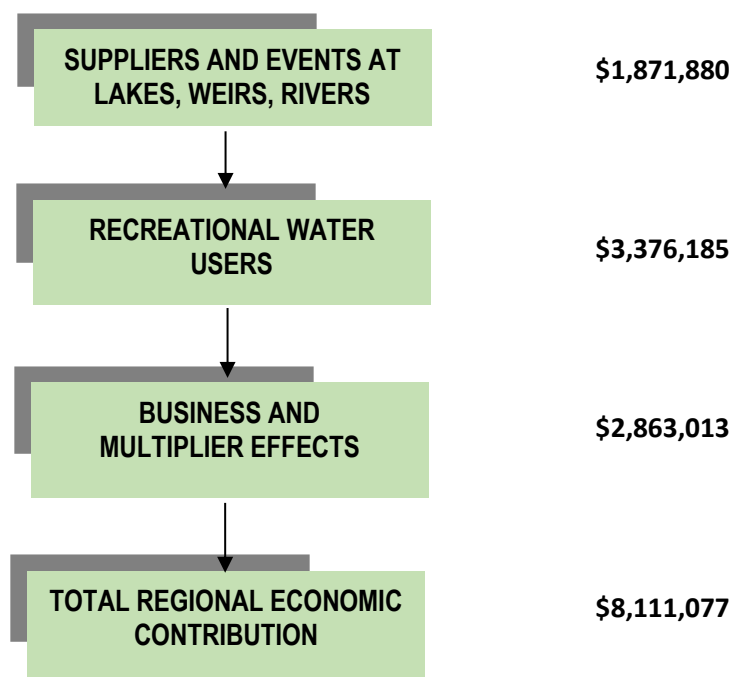
Tables 6.8 and 6.9 and Figure 6.2 detail the estimated 2017-18 economic contribution of the assessed recreational water facilities in Northern Grampians Shire.

**Table 6.8: Estimated Economic Contribution 2017-18: Recreational Water Facility Users**

	Total Overnight Visitors	Total Visit Nights	Active Day Visitors	Passive Day Visitors	Total Participation	% Change on 2016-17
<b>Visitation and Participation</b>						
Lake Bellfield	2,530	5,061	2,355	14,660	19,545	3.35%
Lake Fyans	23,385	78,613	2,768	3,415	29,569	6.30%
Lake Lonsdale	314	1,980	1,280	4,780	6,374	-8.54%
Walkers Lake	1,225	4,112	1,494	0	2,719	23.72%
Lake Wartook	221	741	615	1,100	1,936	48.79%
<b>Total Northern Grampians</b>	<b>27,675</b>	<b>90,508</b>	<b>8,513</b>	<b>23,955</b>	<b>60,143</b>	<b>6.49%</b>
<b>Visitor Expenditure (\$)</b>						
Lake Bellfield		\$213,978	\$35,207	\$38,849	\$288,034	19.73%
Lake Fyans		\$2,761,654	\$41,803	\$12,978	\$2,816,435	2.22%
Lake Lonsdale		\$49,520	\$14,629	\$16,730	\$80,878	-7.23%
Walkers Lake		\$137,106	\$29,410	\$0	\$166,515	83.43%
Lake Wartook		\$13,998	\$7,134	\$3,190	\$24,322	-42.53%
<b>Total Northern Grampians</b>		<b>\$3,176,255</b>	<b>\$128,182</b>	<b>\$71,747</b>	<b>\$3,376,185</b>	<b>4.98%</b>

**Table 6.9: Estimated Economic Contribution 2017-18: Supplier Organisations****Suppliers: Direct**

Caravan Parks/Committees of Management	\$1,068,827
Events and Other Businesses	\$151,500
Statutory Agencies <sup>30</sup>	\$651,553
<b>Total Northern Grampians Shire</b>	<b>\$1,871,880</b>

**Figure 6.2 2017-18 Estimated Recreational Water Regional Economic Contribution: Northern Grampians Shire**<sup>30</sup> Statutory agencies include Fisheries Victoria, Wimmera CMA and GWM Water

## 7. RECREATIONAL WATER FACILITIES IN WEST WIMMERA SHIRE

### 7.1 OVERVIEW

As the name implies, West Wimmera is at the western edge of the Wimmera Southern Mallee region adjoining the South Australian border. Its largest townships are Edenhope (on the Wimmera Highway) and Kaniva (on the Western Highway).

West Wimmera is the smallest of the region's LGAs in terms of population and the largest in area, and has the lowest density of population of all LGAs in Victoria. At June 2017, West Wimmera had a population of 3,867<sup>31</sup>. Its population has been declining over many years with the rate of decline slightly slowing. In the past year the rate of decline was 1.2%.

The major industry in the Shire is agriculture, encompassing grains, small seeds, wool, beef, pork, olives, vegetables, timber and hay. It contributes 44.0% of jobs in the Shire, although the number of jobs in agriculture has been decreasing at 2.1% per annum. It also has a sizeable transport cartage industry, primarily associated with the agricultural resource base. Health care and social assistance has become the second largest employing industry in the Shire over the past two decades to 2016; now 12.4% of all jobs and increasing at 0.3% per annum (at a time when total jobs have been decreasing by 1.4% per annum). Edenhope's hospital and aged care facilities are located on the foreshore of Lake Wallace.

Some West Wimmera Shire towns have high levels of socio-economic disadvantage, with Goroke and Minimay being exceptions. Table 4.1 shows the SEIFA rankings of the five 'suburbs' compared with all those in Victoria, revealing:

- Edenhope is the most disadvantaged, ranking 171<sup>st</sup> of all 1,516 suburbs in the State.
- Apsley ranking 317<sup>th</sup>
- Kaniva ranking 351<sup>st</sup>
- Goroke ranking 530<sup>th</sup>
- Minimay ranking quite highly at 1,173<sup>rd</sup> and in more advantaged 20% of suburbs.

**Table 7.1: SEIFA Indices for West Wimmera Shire Suburbs, 2016**

	Usual Resident Population		Ranking within Victoria			Minimum score for SA1s in area	Maximum score for SA1s in area
		Score	Rank	Decile	Percentile		
<b>Apsley</b>	277	936	324	2	13	936	936
<b>Edenhope</b>	946	937	332	2	13	902	1016
<b>Goroke</b>	299	915	200	1	8	866	1051
<b>Kaniva</b>	803	975	775	3	29	927	1032
<b>Minimay</b>	84	1049	2194	9	83	1049	1049

Note: The SEIFA Index used in this table relates to Socio-Economic Advantage and Disadvantage.

The Australian Bureau of Statistics broadly defines relative socioeconomic advantage and disadvantage in terms of people's *access to material and social resources, and their ability to participate in society*. There are 2,672 state suburbs in Victoria. A score of 1,000 or above tends to indicate an area which is relatively advantaged, and a score below 1,000 is an area which is relatively disadvantaged. In any of the Wimmera Southern Mallee 'suburbs' there are likely to be pockets which are relatively more advantaged and disadvantaged than the suburb as a whole. The minimum and maximum scores for these smaller pockets (shown as SA1s, Statistical Area 1s) are presented in the final two columns of the table.

<sup>31</sup> ABS, Regional Population Growth 2006-2016

Fisheries Victoria has stocked 42,000 fingerlings and advanced stocker fish in the selected lakes in West Wimmera Shire during the three-year period including 2017-18<sup>32</sup>. Each Lake features different species: Trout in Lake Wallace, Murray cod at Charlegrark, and golden perch at Ratzcastle. Details of the number and species of stockings over this period is summarised in Table 7.2.

**Table 7.2 Fish Released in West Wimmera Shire Selected Lakes 2015-2018**

Units stocked (fingerlings and/or advanced stockers)	Brown Trout	Rainbow Trout	Murray Cod	Golden Perch	Total
<b>West Wimmera Shire</b>					
Lake Charlegrark			20,000		20,000
Lake Ratzcastle				10,000	10,000
Lake Wallace	4,000	8,000			12,000

## 7.2 SELECTED RECREATIONAL WATER FACILITIES

### 7.2.1 Lake Wallace

Lake Wallace is a freshwater lake located in the Edenhope urban area. The lake was named in 1845 after the first European visitor to the region, William Wallace; reportedly a direct descendant Sir William Wallace, a Scottish knight and leader during the thirteenth century Wars of Scottish Independence. In 1866, the banks of the lake became the main training area for the Aboriginal cricket team that later became the first Australian team to tour England in 1868, with star allrounder and local identity Johnny Mullagh and captain/coach Tom Wills.

Lake Wallace has been known for great fishing from bank or boat and is stocked with trout, and also contains redfin. It was stocked with advanced yearlings (4,000 rainbow and 1,000 brown trout) following the filling rains of 2016, from Fisheries Victoria's Snob's Creek hatchery. However, the fish from these stockings had not achieved sufficient growth in the Summer and Autumn of 2017 to provide angling sport for visitors.

Residents of Edenhope overwhelmingly believe that Lake Wallace is one of, if not the, key physical asset in the community, and is the town's lifeblood. Many residents regularly visit, walk, run and picnic around the lake's foreshore.

<sup>32</sup> Stocking fish in recreational waterways is considered similar to providing an asset, for which there will be a return on investment over three years.



The prominence of Lake Wallace in Edenhope means that it has a direct effect on amenity, liveability, business activity, and even real estate values around its perimeter. Although on a much smaller scale, this effect is similar to the suburbs which surround Lake Wendouree in Ballarat. Following drought conditions, Lake Wallace was empty until late in 2016.

Increased confidence in water levels in Lake Wallace encouraged the community to run additional events during 2017-18, increasing the number of recreational users considerably. A good growth rate from stocked trout and a good yabby season also attracted recreational fishers. Towards the end of 2017-18 there was an outbreak of blue-green algae at Lake Wallace (closing water-based activities between 28<sup>th</sup> April and 22<sup>nd</sup> May).



Estimated overnight visitors and day trip users of Lake Wallace at Edenhope in 2016-17 and 2017-18 are summarised in Table 7.3. These estimates have been developed through interviews on site and in town, online surveys, data and discussions with Edenhope residents and community organisations, and discussions with the Edenhope Lakeside Tourist Park management.

**Table 7.3: Estimated Overnight and Day Visitors to Lake Wallace, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	4,481	19,834	2,038	9,842	16,361
2017-18	5,557	20,783	2,465	9,860	17,882
% change	24.0%	4.8%	21.0%	0.2%	9.3%

### 7.2.3 Lake Charlegrark

Lake Charlegrark is a natural lake located between Kaniva and Edenhope. The nearest township is Goroke and the small community of Minimay is just 3 kilometres to the north-west. Lake Charlegrark has only been dry twice in history; from 1870 to 1877 (8 years) and then 2005 to 2009. The Lake Charlegrark Foreshore Committee believes there is no real need for Wimmera Mallee Pipeline water to top it up. The Lake has a depth of 3.5 to 5 metres.

Fish were first stocked in Lake Charlegrark in the 1950s, all Murray cod. The largest caught in recent years (2-3) has been 82 cm. There have been 20,000 fingerlings released in the past three years. The lake also contains a few redfin, but there is not a problem with carp infestation at Charlegrark.

This lake is popular for water skiing and fishing during holiday periods over warmer months. Families are attracted to the camping ground where there are powered facilities, a shower block and barbecue area. Camp fees are \$7.00 per person (free for children under 12 years). Powered sites are \$25. There are also self-contained cottages and a house available for bookings.

There is private boutique style accommodation on the eastern side of the lake (opposite the main camping and caravan park) and a lodge (Langley Lodge) about 3 kilometres from the lake and suitable for large groups, functions and worker accommodation.

Regular maintenance works and small capital improvements are made by the Foreshore Committee. In the 2016-17 year this has included installation of 2 new electric barbecues in Crabtree Hall (the functions facility) within the reserve, upgrading of navigational aids on the lake, a solar panel for Crabtree Hall, and new water pumps. In 2017-18 an upgrade to three phase power and construction of an all-abilities amenities block has been undertaken, together with upgrades to barbecue and seating areas. The full capital works costs were \$789,000 with several contributors.



An on-site catering business, Charlie's Diner commenced in 2016-17 and trades Friday to Sunday throughout the summer school holidays and long weekends and through October to April on-demand. The Diner offers light meals, snacks and beverages to campers and other lake visitors. A second on-site food van 'Café La Demi' commenced operations over the 2017-18 summer season.

Events held at Lake Charlegrark throughout the year are:

- Lake Charlegrark Country Music Marathon held in February
- Youth Art @ Charlegrark held in March
- Fishing competitions (hosted by several local fishing clubs: Neuarpuurr Angling Club, Edenhope Angling Club, Apsley Angling Club, and Wimmera Anglers).
- A range of sporting functions and training sessions, family days and community activities.

Unfortunately, power outages occurred at Lake Charlegrark over the summer holidays in 2017-18, impacting on overnight visitor numbers, compounded by blue-green algae blooms in February. This reduced the total growth in visitation.





Estimated overnight visitors and day trip users of Lake Charlegrark in 2016-17 and 2017-18 are summarised in Table 7.4. These estimates have been developed through interviews on site and in nearby towns, online surveys, data from residents, and discussions with the Lake Charlegrark Foreshore Committee.

**Table 7.4: Estimated Overnight and Day Visitors to Lake Charlegrark, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Total Participants
2016-17	1,697	6,873	2,215	3,912
2017-18	1,745	7,776	2,200	3,945
% change	2.8%	13.2%	-0.7%	0.9%

### 7.2.3 Lake Ratzcastle

Lake Ratzcastle is located 10 kilometres south of Groke on the Groke-Harrow Road. When full the lake covers a surface area of around 14 hectares. The lake only fills on a seasonal basis but is an iconic wetland. The lake and its environs are understood to have significant Aboriginal cultural heritage values.

Camping is permitted at Lake Ratzcastle, at a good selection of unpowered sites, but there are no booking arrangements or camping fees. Access to the camping area is along 2 kilometres of unsealed road. Picnic facilities for day visitors are available, including barbecues and picnic tables. Flush toilets and a solar-heated shower are provided. No drinking water is supplied, although there is limited unpotable water at the on-site rainwater tanks.

The lake foreshore is well maintained by the Groke Lions Club.



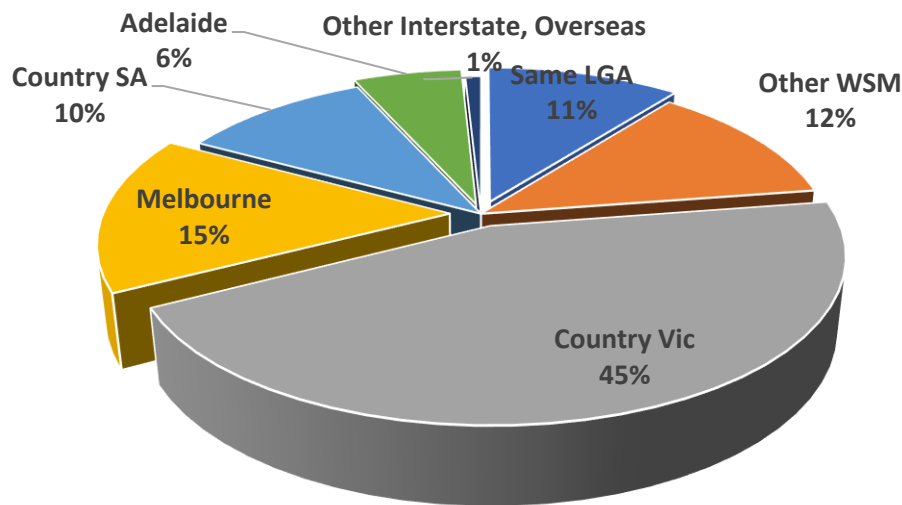
Estimated overnight visitors and day trip users of Lake Ratzcastle in 2017-18 are summarised in Table 7.5. These estimates have been developed through interviews on site and in nearby towns (especially Goroke), online surveys, data from residents, and discussions with the Lake Ratzcastle Committee/Lions Club.

**Table 7.5: Estimated Overnight and Day Visitors to Lake Ratzcastle, 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Total Participants
2017-18	1,653	6,265	1,150	2,803

### 7.3 ECONOMIC CONTRIBUTION

Figure 7.1 shows 23% of recreational water users at West Wimmera Shire sites were Wimmera Southern Mallee residents in 2017-18, and a further 45% were from other parts of country Victoria. Melbourne metropolitan visitation was 15%, while interstate and overseas visitors made up 17% of visitation (overwhelmingly from South Australia).

**Figure 7.1 Residential Location of Recreational Water Users, West Wimmera Shire**

Tables 7.6 and 7.7 and Figure 7.2 detail the estimated 2017-18 economic contribution of the assessed recreational water facilities in West Wimmera Shire.

**Table 7.6: Estimated Economic Contribution 2017-18: Recreational Water Facility Users**

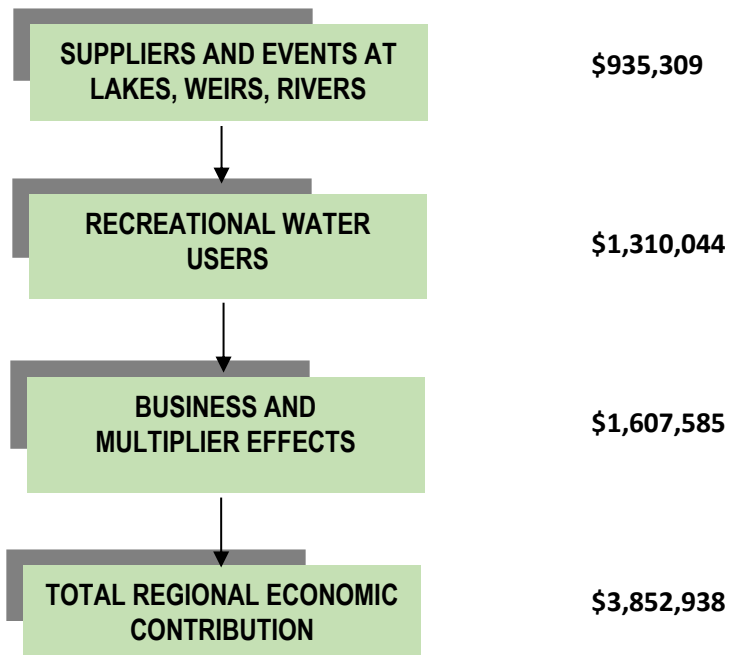
	Total Overnight Visitors	Total Visit Nights	Active Day Visitors	Passive Day Visitors	Total Participation	% Change on 2016-17
<b>Visitation and Participation</b>						
Lake Charlegrark	1,745	7,776	2,200	0	3,945	0.85%
Lake Ratzcastle	1,653	6,265	1,150	0	2,803	n.a.
Lake Wallace	5,557	20,783	2,465	9,860	17,882	9.30%
<b>Total West Wimmera</b>	<b>8,955</b>	<b>34,825</b>	<b>5,815</b>	<b>9,860</b>	<b>24,630</b>	<b>21.49%</b>
<b>Visitor Expenditure (\$)</b>						
Lake Charlegrark		\$221,762	\$43,686	\$0	\$265,447	-4.10%
Lake Ratzcastle		\$182,513	\$21,701	\$0	\$204,214	n.a.
Lake Wallace		\$750,797	\$54,582	\$35,003	\$840,382	-2.29%
<b>Total West Wimmera</b>		<b>\$1,155,072</b>	<b>\$119,969</b>	<b>\$35,003</b>	<b>\$1,310,044</b>	<b>3.42%</b>

**Table 7.7: Estimated Economic Contribution 2017-18: Supplier Organisations**

Suppliers: Direct	
Caravan Parks/Committees of Management	\$290,906
Events and Other Businesses	\$253,500
Statutory Agencies <sup>33</sup>	\$390,903
<b>Total West Wimmera Shire</b>	<b>\$935,309</b>

<sup>33</sup> Statutory agencies include Fisheries Victoria, Wimmera CMA and GWM Water

**Figure 7.1 2017-18 Estimated Recreational Water Economic Contribution: West Wimmera Shire**



## 8. RECREATIONAL WATER FACILITIES IN YARRIAMBIACK SHIRE

### 8.1 OVERVIEW

Yarriambiack Shire is in the north east of the Wimmera Southern Mallee region. The north of the Shire is characterised by the dunes of the Lowan Mallee and sandy plains of the Mallee, while the south of the Shire is part of the undulating plains of the Wimmera. Warracknabeal is the largest township in the Shire, followed by Murtoa, Hopetoun, Minyip, Rupanyup and Beulah. Warracknabeal is centrally located in the Shire; 57 kilometres north of Horsham and around 350 kilometres north east of Melbourne.

The Shire economy is highly dependent on broadacre farming and so are the Shire's urban centres, which have economies that have built their business bases to contribute to agribusiness supply chains and to provide services to farming communities. The agricultural activity is dominated by wheat, barley, lambs and wool, grain legumes, and oilseeds. This agricultural focus has given the Shire and its towns many distinctive features, strong resilience and connected communities, but it has also led to decades long population decline as farms have become bigger and more automated, and the financial returns from agricultural commodities have continued to decline in an increasingly competitive global environment. In 2016, agriculture contributed 27.5% of all jobs in the Shire, with health care and social services being the second largest employing industry (19.8% of jobs).

Tourism is an emerging sector in Yarriambiack in the past few years, as the Shire which pioneered the concept of an art silo trail. This tourism stimulus is having a flow-on effect to other local attractions such as the lakes and weir pools, annual events, and historic attractions (such as the 'stick shed' and agricultural machinery museums).

The resident population of Yarriambiack Shire has been decreasing by an annual average of 1.26% over the past decade. In 2017, the population was 6,673 (having declined by 1.0% in the past year)<sup>34</sup>.

Yarriambiack towns have high levels of socio-economic disadvantage. Table 8.1 shows the SEIFA rankings of the eight 'suburbs' compared with all those in Victoria, revealing:

- Minyip is the most disadvantaged, ranking 145<sup>th</sup> of all 1,516 suburbs in the State.
- Warracknabeal ranking 161<sup>st</sup>
- Murtoa ranking 225<sup>th</sup>
- Hopetoun ranking 264<sup>th</sup>
- Brim and Beulah ranking 437<sup>th</sup> and 603<sup>rd</sup>, respectively.

<sup>34</sup> ABS Regional Population Growth, Australia 2017 (April 2018)

**Table 8.1: SEIFA Indices for Yarriambiack Shire Suburbs, 2011**

	Usual Resident Population		Ranking within Victoria			Minimum score for SA1s in area	Maximum score for SA1s in area
	Score	Rank	Decile	Percentile			
Beulah	329	946	408	2	16	868	1036
Brim	171	993	1104	5	42	993	993
Hopetoun	739	938	335	2	13	871	1036
Minyip	524	911	167	1	7	871	1038
Murtoa	865	923	250	1	10	872	1065
Patchewollock	133	983	903	4	34	964	1016
Rupanyup	536	959	561	3	21	902	1077
Warracknabeal	2744	925	161	2	11	855	1056

Note: The SEIFA Index used in this table relates to Socio-Economic Advantage and Disadvantage.

The Australian Bureau of Statistics broadly defines relative socioeconomic advantage and disadvantage in terms of people's *access to material and social resources, and their ability to participate in society*. There are 2,672 state suburbs in Victoria. A score of 1,000 or above tends to indicate an area which is relatively advantaged, and a score below 1,000 is an area which is relatively disadvantaged. In any of the Wimmera Southern Mallee 'suburbs' there are likely to be pockets which are relatively more advantaged and disadvantaged than the suburb as a whole. The minimum and maximum scores for these smaller pockets (shown as SA1s, Statistical Area 1s) are presented in the final two columns of the table.

Fisheries Victoria has stocked 96,950 fingerlings (all natives) in Lake Lascelles and Yarriambiack Creek (servicing the weir pools) in Yarriambiack Shire during the three-year period including 2017-18<sup>35</sup>. Details of the number and species of stockings over this period is summarised in Table 8.2.

**Table 8.2 Fish Released in Yarriambiack Shire 2015-2018**

Units stocked (fingerlings and/or advanced stockers)	Golden Perch	Silver Perch	Total
<b>Yarriambiack Shire</b>			
Lake Lascelles	29,200	34,000	63,200
Yarriambiack Creek	33,750		33,750

## 8.2 SELECTED RECREATIONAL WATER FACILITIES

### 8.2.1 Lake Lascelles

Lake Lascelles has a basin volume of 440 megalitres. It is located within the Hopetoun town area and is a very popular holiday and day visit destination.

It is attractive for walking, swimming, boating, skiing, fishing and bird watching. Increased water security from Wimmera Mallee Pipeline allocation has given the lake more security to people who choose to return annually. A dedicated fishing 'precinct' is under construction in one section of the lake.

Lake Lascelles has a variety of accommodation options including free unpowered sites, powered sites for \$20 per night and the eclectic collection of cabins/units at the Mallee Bush Retreat, made to replicate structures from the district's pioneering heritage (such as silos, cow sheds, stables and machinery sheds). The Bush Retreat also has a 'shearing shed' accommodating a functional shared kitchen, fireplace, and television room, which is used for functions, dining and as a multi-purpose area.

<sup>35</sup> Stocking fish in recreational waterways is considered similar to providing an asset, for which there will be a return on investment over three years.

Lake Lascelles tends to be one of the Wimmera Southern Mallee recreational water facilities that is utilised year-round, although at much lower occupancy in the winter months.



Estimated overnight visitors and day trip users of Lake Lascelles in 2016-17 and 2017-18 are summarised in Table 8.3. These estimates have been developed through interviews on site and in Hopetoun, online surveys, and discussions with the Lake Lascelles Committee of Management.

**Table 8.3: Estimated Overnight and Day Visitors to Lake Lascelles, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	1,428	6,320	8,052	5,005	14,485
2017-18	1,305	8,228	8,157	5,100	14,562
% change	-8.6%	30.2%	1.3%	1.9%	0.5%

### 8.2.2 Lake Marma

Lake Marma is a small lake, with a basin volume of 170 megalitres. It is in the heart of Murtoa's urban area. The 'Lake Marma Loop' encircles the main lake and takes in the main area of the town of Murtoa, giving Murtoa a reputation as a lakeside town. There are a selection of Murtoa - Lake Marma walking trails which encompass natural and historic areas of interest.

Originally a small dammed natural swamp it became incorporated into the Wimmera Mallee water supply system over a century ago and was the source of Murtoa's drinking water until recently, when it became piped to town.

This lake is a tranquil oasis with abundant birdlife and treed surrounds. The Lake has always been a haven for wildlife, due to its safe location within Murtoa, and is famous for sunset and sunrise views. The lake has experienced severe infestations of ribbon weed in 2017, and the Management is raising funds for its removal.

There is a small caravan park at Lake Marma which is particularly popular with grey-nomad type travellers who tend to stay for extended periods of time. Murtoa Progress Association continues to work towards establishment of 2-3 cabins on a site next to the lake, where a Scout Hall is located.



Estimated overnight visitors and day trip users of Lake Marma in 2016-17 and 2017-18 are summarised in Table 8.4. These estimates have been developed through interviews on site and in Murtoa, online surveys, and discussions with Lake Marma's Public Park and Gardens Reserve Committee of Management.

**Table 8.4: Estimated Overnight and Day Visitors to Lake Marma, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	1,110	2,453	1,365	9,237	11,712
2017-18	1,268	2,678	1,456	9,100	11,824
% change	14.3%	9.2%	6.7%	-1.5%	1.0%

### 8.2.3 Brim and Beulah Weir Pools

Brim weir pool is one of the smallest recreational water facilities in the Wimmera Southern Mallee, with a basin volume of 120 megalitres. Beulah weir pool is larger, with a basin volume of 140 megalitres.

Redda's Park is the recreational complex on the Yarriambiack Creek at the Brim Weir. It offers camping in a bushland setting, amenities, walking tracks, powered and non-powered sites and BBQ facilities. The park was landscaped and constructed by Brim Lions Club in 2001. Toilets have two hot and cold showers each, timed by push button. The campground is illuminated at night. Powered sites are \$10 per night.



The Yarriambiack Silo Art Trail was pioneered with the artwork on silos at Brim, and the Reserve Committee of Management suggests that it is difficult to separate specific visitation for the Weir (including those people camping or caravanning on-site).

The Beulah weir is also constructed across the Yarriambiack Creek, creating another recreation ground with powered and unpowered camping sites, a playground, barbecue facilities. Recent new amenities have been installed including a landscaped grassed area and rubbish disposal facilities. Boating is permitted on the Beulah Weir Pool and fishing, bird watching and walking is popular. There is also a public swimming pool in the grounds.

Estimated overnight visitors and day trip users of the Brim and Beulah Weir Pools in 2016-17 and 2017-18 are summarised in Tables 8.5 and 8.6. These estimates have been developed through interviews on site and in Brim and Beulah townships, online surveys, and discussions with the Beulah Reserve Committee of Management and Brim Reserve Committee of Management.

**Table 8.5: Estimated Overnight and Day Visitors to Beulah Weir Pool, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Total Participants
2016-17	783	3,117	1,176	1,959
2017-18	930	3,282	1,190	2,121
% change	18.8%	5.3%	1.2%	8.3%

**Table 8.6: Estimated Overnight and Day Visitors to Brim Weir Pool, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Total Participants
2016-17	2,172	7,343	5,198	7,370
2017-18	2,483	7,937	5,260	7,743
% change	14.3%	8.1%	1.2%	5.1%

#### 8.2.4 Warracknabeal Weir Pool

Yarriambiack Creek is an inland intermittent watercourse of the Wimmera catchment. The Weir Pool on the Yarriambiack Creek at Warracknabeal has a basin volume of 210 megalitres. In Warracknabeal, the weir pool and the creek meandering through town are part of the recreational water facilities. Warracknabeal Caravan Park is located near the banks of the weir pool section of the creek, providing powered and unpowered sites, en-suites, barbecues and laundry facilities.



As with the Wimmera River in Horsham, Yarriambiack Creek is used widely by local residents and community groups for walking and other forms of regular exercise, as well as the site for tranquil picnics and relaxation. There is a fauna park in a main section of the creek, near Warracknabeal’s commercial district, and several walking tracks that transect walking bridges across. Among the many regular users of the creek and weir pool at Warracknabeal are:

- The Warracknabeal Angling Club,
- Warracknabeal Ski Club.
- Woodbine Centre Incorporated, visiting most days with its 12-seater bus.
- Primary, secondary and disabled schools.

Membership of both the angling club and ski club declined in 2017-18, and the number of people using ski boats (largely on weekends) declined as well. Warracknabeal’s annual Easter festival, the Y-Fest focuses strongly on activities along the Creek.



Estimated overnight visitors and day trip users of the Warracknabeal Weir Pool in 2016-17 and 2017-18 are summarised in Table 8.7. These estimates have been developed through interviews on site and in Warracknabeal, online surveys, and discussions with the Committee of Management.

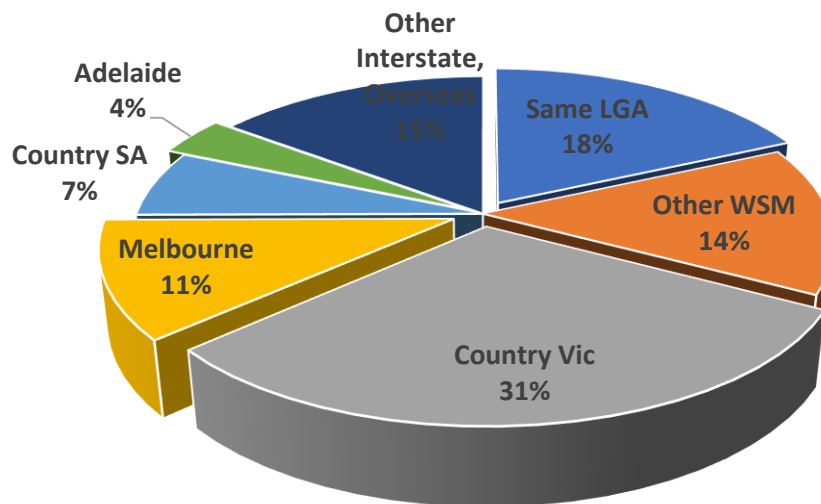
**Table 8.7: Estimated Overnight and Day Visitors to Warracknabeal Weir Pool, 2016-17 and 2017-18**

	Overnight Visitors	Total visit nights	Active Day Users	Passive Day Users	Total Participants
2016-17	5,101	16,295	3,512	3,512	16,415
2017-18	2,919	10,403	3,319	3,319	15,939
% change	-42.8	-36.2%	-5.5%	-2.9%	-11.4%

### 8.3 ECONOMIC CONTRIBUTION

Figure 8.1 shows 32% of recreational water users at Yarriambiack Shire sites were Wimmera Southern Mallee residents in 2017-18, and a further 31% were from other parts of country Victoria. Melbourne metropolitan visitation was 11%, while Yarriambiack had the highest level of interstate and overseas visitors (26%) substantially due to the interest generated by the Silo Art Trail and the flow-on to people staying at the recreational water sites.

**Figure 8.1 Residential Location of Recreational Water Users, Yarriambiack Shire**



Tables 8.8 and 8.9 and Figure 8.2 detail the estimated 2017-18 economic contribution of the assessed recreational water facilities in Yarriambiack Shire.

**Table 8.8: Estimated Economic Contribution 2017-18: Recreational Water Facility Users**

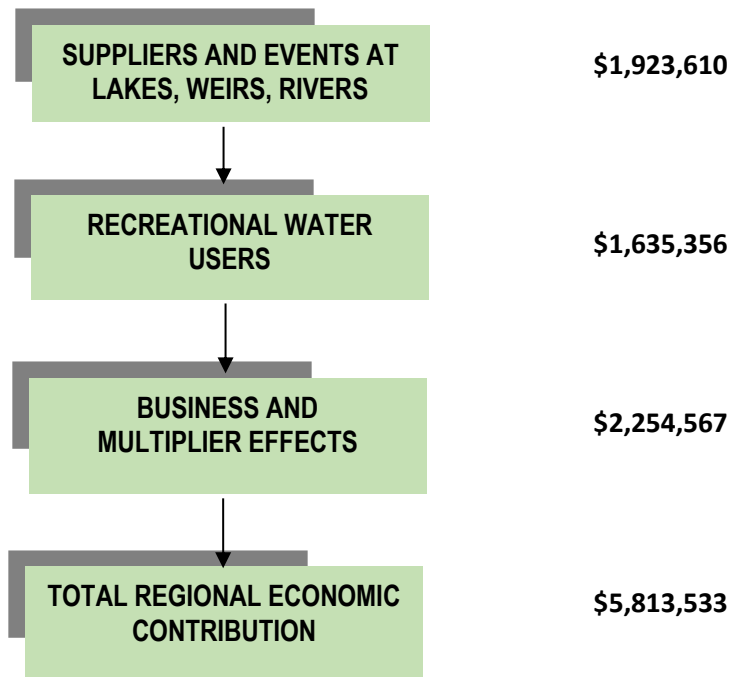
	Total Overnight Visitors	Total Visit Nights	Active Day Visitors	Passive Day Visitors	Total Participation	% Change on 2016-17
<b>Visitation and Participation</b>						
Brim Weir Pool	2,483	7,937	5,260	0	7,743	5.06%
Beulah Weir Pool	930	3,282	1,190	0	2,121	8.25%
Lake Lascelles	1,305	8,228	8,157	5,100	14,562	0.53%
Lake Marma	1,268	2,678	1,456	9,100	11,824	0.96%
Warracknabeal Weir Pool	2,919	10,403	3,319	15,939	22,177	-11.39%
<b>Total Yarriambiack Shire</b>	<b>8,906</b>	<b>32,529</b>	<b>19,381</b>	<b>30,139</b>	<b>58,426</b>	<b>-2.55%</b>
<b>Visitor Expenditure (\$)</b>						
Brim Weir Pool		\$259,339	\$93,509	\$0	\$352,847	8.33%
Beulah Weir Pool		\$89,968	\$23,472	\$0	\$113,440	
Lake Lascelles		\$306,460	\$212,021	\$11,985	\$530,467	-2.98%
Lake Marma		\$91,427	\$20,384	\$18,200	\$130,011	12.39%
Warracknabeal Weir Pool		\$370,658	\$98,883	\$39,050	\$508,591	-5.99%
<b>Total Yarriambiack Shire</b>		<b>\$1,117,852</b>	<b>\$448,268</b>	<b>\$69,236</b>	<b>\$1,635,356</b>	<b>0.09%</b>

**Table 8.9: Estimated Economic Contribution 2017-18: Supplier Organisations**

<b>Suppliers: Direct</b>	
Caravan Parks/Committees of Management	\$227,924
Events and Other Businesses	\$167,500
Statutory Agencies <sup>36</sup>	\$1,528,186
<b>Total Yarriambiack Shire</b>	<b>\$1,923,610</b>

<sup>36</sup> Statutory agencies include Fisheries Victoria, Wimmera CMA and GWM Water

**Figure 8.2: 2017-18 Estimated Recreational Water Economic Contribution: Yarriambiack Shire**



## 9. COMMUNITY AND SOCIAL EFFECTS

### 9.1 COMMUNITY IMPACTS

Local communities report that the Wimmera Southern Mallee’s recreational water facilities make an extremely important contribution to the social fabric of the region’s towns, provide a critical outlet for physical and mental relaxation, enhance the amenity of towns and rural areas, and improve the health of residents and visitors to the region.

Community impacts are strong across all recreational water facilities, evidenced by WSM resident perceptions. On a scale of 1 to 7, where 1 means ‘totally disagree’ and 7 means ‘totally agree’, average (resident) participant ratings in 2017-18, presented in Table 9.1, were:

- 6.6 for the statement that the “weir/lake/river is one of the community’s best assets”, compared with 6.9 recorded in 2016-17. For this statement, the lowest rating was 6.1 at Horsham Rural City sites and the highest rating of 6.99 at West Wimmera Shire water facilities. Although all communities rated their recreational water facilities highly as local assets, it is notable that this rating was inversely proportional to the resident population size of the local area. Horsham Rural City and Northern Grampians Shire, the largest municipalities by population, had the (relatively) lowest ratings in the region, and the least populous municipality, West Wimmera Shire, had the highest rating. This further confirms the importance of recreational water assets in small communities, where tourism, commercial and natural assets are more limited.
- 6.8 for the statement that “community spirit increases when there is a good level of water in the weir/lake/river” (also 6.8 in 2016-17). For this statement, the lowest rating was 6.4 in Horsham and highest ratings of 6.95 in Northern Grampians.
- 6.7 for the statement that “more people come to town when there is a good level of water in the weir/lake/river” (also 6.7 in 2016-17). For this statement, the lowest rating was again in Horsham (6.1) highest in Northern Grampians (6.9).
- 6.6 for the statement that “There are more social functions in the community when there is a good level of water in the weir/lake/river” (compared with 6.4 in 2016-17). For this statement, the lowest rating was at Horsham (6.1) and highest at Yarriambiack (6.8).
- 6.7 for the statement that “I tend to stay in the Wimmera Southern Mallee region more often when there is a good level of water in the weir/lake/river” (compared with 6.4 in 2016-17). For this statement, the lowest rating was, once again, at Horsham and highest at Northern Grampians (6.95).

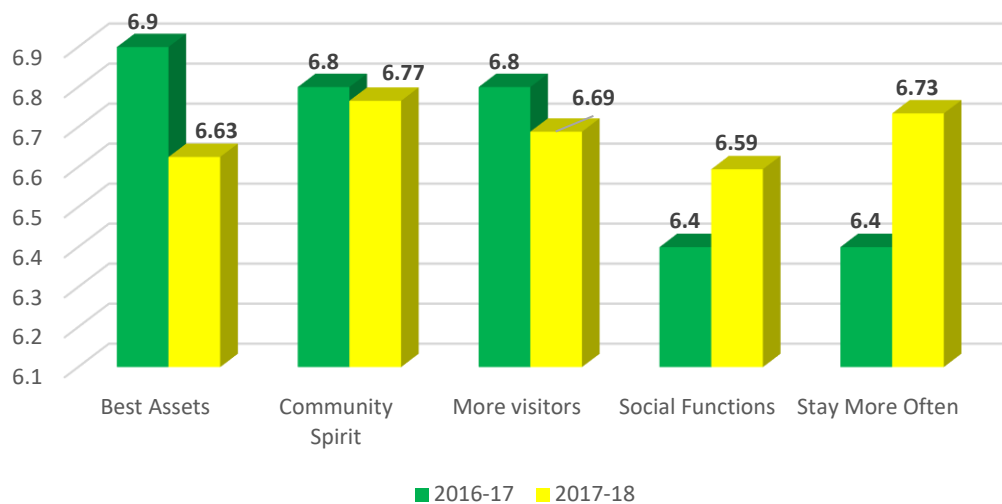
Changes in the average ratings are summarised in Figure 9.1.

**Table 9.1 Perceptions of Community Wellbeing**

**When there are good levels of water in the weir, lake or river:**

	It is one of the local community’s best assets	Community spirit increases	More people come to town	More social functions in the community	I stay in WSM region more often on weekends and holidays
Buloke	6.89	6.89	6.79	6.63	6.73
Hindmarsh	6.88	6.75	6.56	6.57	6.57
Horsham	6.06	6.42	6.29	6.10	6.22
Northern Grampians	6.34	6.95	6.88	6.74	6.95
West Wimmera	6.98	6.44	6.45	6.44	6.73
Yarriambiack	6.67	6.90	6.87	6.83	6.93
<b>Total WSM</b>	6.63	6.77	6.69	6.59	6.73

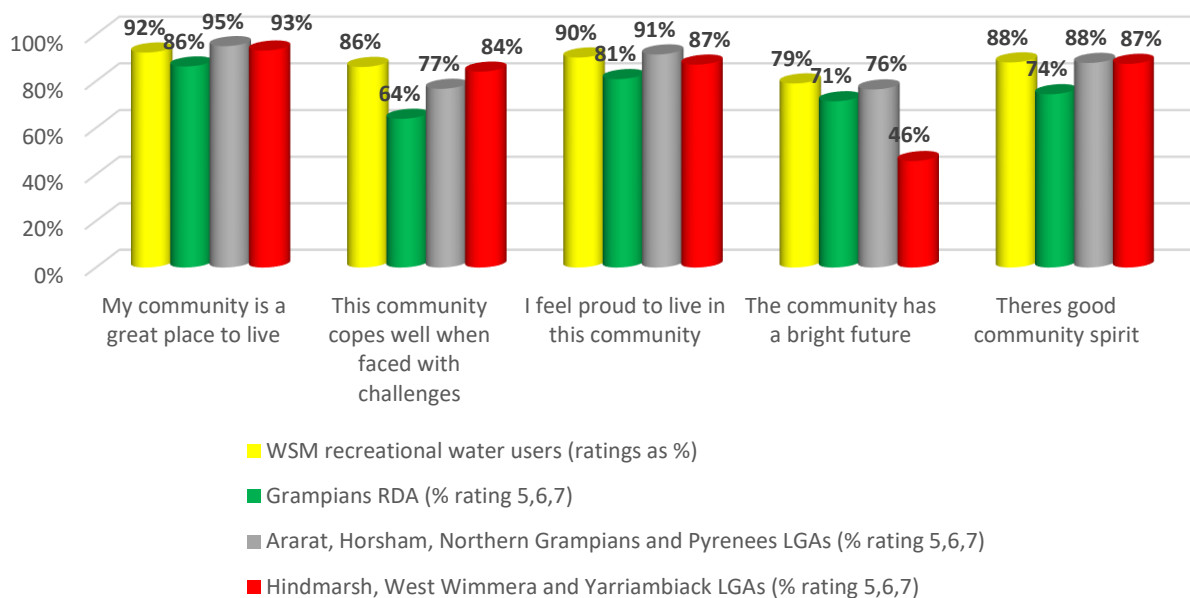
**Figure 9.1 Changes in Perceptions of the Importance of Recreational Water 2016-17 to 2017-18**



The first three ‘importance factors’ in Figure 9.1 have all decreased marginally in 2017-18, suggesting that the relative importance tends to wane slightly as the newness of having good levels of water subsidies, and it becomes more of an expectation. Conversely, the last two factors (more social functions and spending more time in the local area) probably take more planning and therefore increase over time).

WSM residents rated their perceptions of the local community as a place to live. Responses were given to prompts, with a rating of 1 meaning totally disagree and a rating of 7 meaning totally agree with the prompted statement. The results are presented in Table 9.2, and the regional results compared with relevant results<sup>37</sup> from the 2016 Community Wellbeing Survey of the University of Canberra are shown in Figure 9.2.

**Figure 9.2 Ratings of Community Wellbeing<sup>38</sup>**



<sup>37</sup> Community Wellbeing Survey Results are % respondents rating 5,6, or 7, while the WSM results are % of overall average scores

<sup>38</sup> WSM ratings from interviews with recreational water users, Grampians region Community Wellbeing ratings from Health Research Institute, Uni of Canberra 2016 Regional Wellbeing Survey (released July 2017)

**Table 9.2 Perceptions of Local Communities as a Place to Live**

	My community is a great place to live	The community copes well when faced with challenges	I feel proud to live in the community	The community has a bright future	There is good community spirit	Local groups and organisations are good at getting things done	Some individuals get left out of the community	There is a lot of disagreement between people in the community	I attend community events such as farmers' markets, festivals and shows	I take part in community-based organisations (eg Rotary, Lions, CWA)	I take part in sports groups or teams	I feel part of my community	Local businesses in my town are doing well at the moment
Buloke	6.81	6.09	6.39	5.54	6.37	5.92	2.67	2.10	4.73	5.37	5.87	6.47	5.92
Hindmarsh	6.55	6.12	6.48	5.65	6.35	5.99	2.48	1.87	5.29	5.05	5.06	6.39	5.28
Horsham	5.75	4.87	5.45	4.71	5.04	5.21	3.34	2.43	4.20	4.33	4.36	6.17	4.23
Northern Grampians	6.60	6.46	6.65	5.70	6.63	6.49	2.12	1.65	5.33	3.52	6.69	6.82	5.31
West Wimmera	6.35	6.41	6.50	5.38	6.13	6.40	2.36	2.12	5.41	5.12	5.30	6.77	4.60
Yarriambiack	6.48	5.94	6.21	5.88	6.12	5.93	2.69	2.46	4.02	3.94	3.91	6.28	5.33
<b>Total WSM</b>	<b>6.46</b>	<b>6.03</b>	<b>6.31</b>	<b>5.53</b>	<b>6.16</b>	<b>6.02</b>	<b>2.58</b>	<b>2.09</b>	<b>4.80</b>	<b>4.45</b>	<b>5.25</b>	<b>6.49</b>	<b>5.18</b>
Last Year 2016-17	6.4	6.1	6.4	5.7	6.1	5.9	3.7	3.0	5.3	4.1	5.1	6.2	5.0



## 9.2 HEALTH AND LIFESTYLE IMPACTS

Regular participation in physical activity provides significant health benefits to individuals from both a physical and mental perspective.

The physical health benefits analysed in this assessment are derived from the prevention of chronic diseases (such as breast cancer, coronary heart disease, diabetes, bowel cancer and stroke). Mental health benefits are derived from the prevention of anxiety and depression.

The value of Wimmera Southern Mallee recreational water residents' health contribution has been estimated based on the prevention of these physical and mental diseases among the 2017-18 recreational water participation base<sup>39</sup>, and results are summarised in Table 9.3. The assessment is similar to many previous sport and recreation industry studies and includes data input related to the reduction in Disability-Adjusted Life Years (DALY) from the Australian Institute of Health and Welfare and the Australian Government Department of Health.

Modelling of the health benefits is based on conservative estimates, and is focussed on selected health issues which are evidenced to be attributed to physical inactivity.

WSM recreational water users achieve a considerable proportion of the physical and mental activities towards a Disability Adjusted Life Year, through the time spent at the water recreational facilities. On average, in 2017-18 these estimated percentages were:

	Overnight and Active	Passive
Buloke Shire	35.9%	35.8%
Hindmarsh Shire	23.3%	56.0%
Horsham Rural City	71.8%	100%
Northern Grampians Shire	60.1%	13.7%
West Wimmera Shire	33.2%	91.7%
Yarriambiack Shire	100%	47.0%

**Table 9.3 Total Estimated Health Benefits<sup>40</sup>**

	Physical Health Benefits	Mental Health Benefits	Total Health Benefits
<b>2017-18 WSM Residents</b>			
- Activities at water facilities	\$1,564,578	\$107,581	\$1,672,159
- Total annual*	\$2,191,458	\$177,900	\$2,369,358
<b>2017-18 Country Victorian Residents</b>			
- Activities at water facilities	\$3,549,879	\$255,799	\$3,805,678
- Total annual*	\$5,027,641	\$462,717	\$5,490,358
<b>Lifetime Benefits</b>			
- WSM residents*	\$31,461,665	\$8,581,602	\$40,043,267
- Country Victorian residents*	\$75,756,970	\$22,165,278	\$97,922,248
<b>2016-17 Country Victorian Residents<sup>41</sup></b>			
- Activities at water facilities	\$4,824,942	\$375,507	\$5,200,449
- Total annual*	\$7,955,132	\$618,421	\$8,573,553

\* Total annual figures assume that activities at WSM water facilities are indicative of annual lifestyle

<sup>39</sup> Assessment assisted by Sport Business Partners

<sup>40</sup> Selected health conditions measured by activities required to reduce Disability-Adjusted Life Years (DALYs)

<sup>41</sup> There was a greater level of detail on duration of time spent exercising at the lakes and weir pools and frequency of visits in the 2017-18 interviews with recreational water users, so the 2016-17 to 2017-18 estimates are not directly comparable. Although, the apparent reduction in health benefits is partly explained by fewer people involved in water recreation (but at more frequent levels of activity), the relatively younger age structure, and a larger proportion of non-country Victorians using the lakes and weir pools.

Lakes and other water facilities have been identified as important community assets and directly contribute to improving the quality of life (both physical and mental) of residents and visitors. As walking and swimming are usually conducted in casual or informal settings, access to lakes and water facilities (and their surrounds) encourage and support participation in physical activity.

The estimated health benefits by local government area, for country Victorian residents in 2017-18 are presented in Table 9.4.

**Table 9.4 Estimated Physical and Mental Health Benefits, Country Victorian Users, 2017-18**

LGA	Water Facility	Physical Health Benefits	Mental Health Benefits	Total Health Benefits
Horsham	Wimmera River-Horsham Green Lake Taylors Lake Lake Toolondo Natimuk Lake	\$663,174	\$51,565	\$714,592
Hindmarsh	Wimmera River-Dimboola Nhill Lake Wimmera River-Jeparit	\$125,457	\$14,680	\$140,137
Northern Grampians	Lake Bellfield Lake Fyans Lake Lonsdale Lake Wartook Walkers Lake	\$503,396	\$98,809	\$602,205
Buloke	Donald Park Lake Tchum Lake Lake Watchem Lake Wooroonook	\$83,609	\$21,116	\$101,587
West Wimmera	Lake Wallace Lake Charlegrark Lake Ratzcastle	\$188,165	\$22,669	\$610,722
Yarriambiack	Brim Weir Pool Beulah Weir Pool Lake Lascelles Lake Marma Warracknabeal Weir Pool	\$1,986,077	\$50,245	\$2,036,322

Australian Government Department of Health Physical Activity and Sedentary Behaviour Guidelines “suggest that Australian adults aged 18 to 64 years should “accumulate 150 to 300 minutes (2 ½ to 5 hours) of moderate intensity physical activity or 75 to 150 minutes (1 ¼ to 2 ½ hours) of vigorous intensity physical activity, or an equivalent combination of both moderate and vigorous activities, each week”. The Disability-Adjusted Life Years (DALY) from the Australian Institute of Health and Welfare is 250 hours of physical activity. Recreational water users who are residents of WSM and Country Victoria tend to have active lifestyles which exceed the minimum recommended levels of physical activity. On average, they achieve between 12.7% and 100% of this annual level at the lakes, weirs and rivers of the region (detailed in Appendix B).

Three of the top ten most common diseases in Australia are preventable through physical activity, with 5.0% of all diseases being attributed to physical inactivity (according to the Australian Institute of Health and Welfare). The diseases which are preventable through physical activity have a significant negative impact on the health of Australians aged 45+ years of age. Therefore, participation at water recreation facilities plays a significant preventative role in the later stages of life.

Physical inactivity is also the fourth highest risk of causing disease, behind tobacco, obesity and alcohol use. A total of 94% of the burden of disease resulting from physical inactivity is borne by people aged 15 years and above.

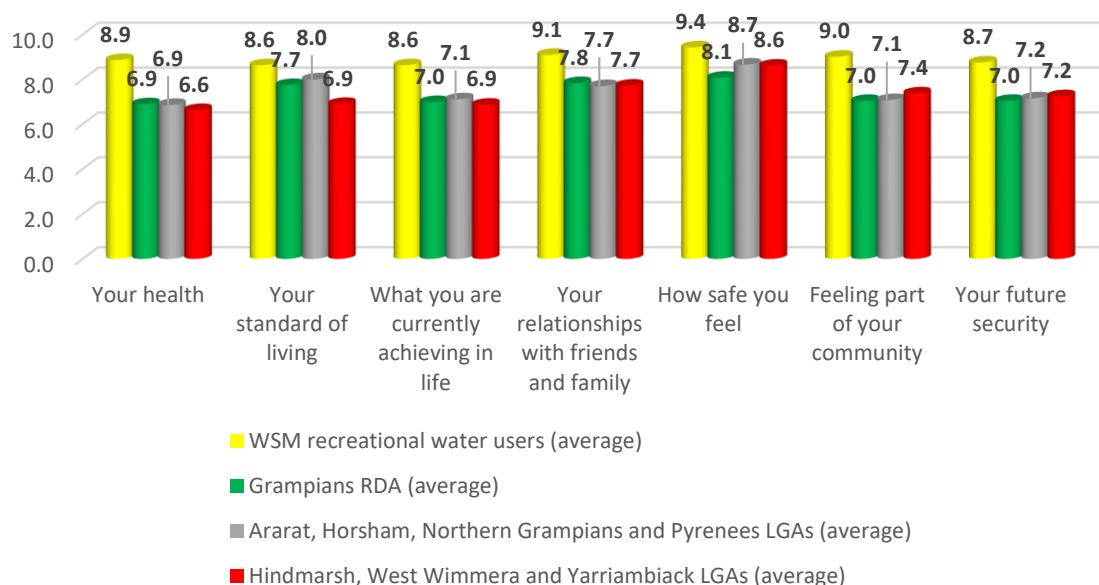
Mental disorders are the third most burdensome disease and are most prominent among younger people and females. Based upon evidence used by the Department of Health to support current physical activity guidelines, a conservative estimate of the preventative effect of adequate levels of physical activity is a 25% reduction in risk of anxiety and depression.

Health and wellbeing satisfaction self-assessments were scored on a scale of 1 to 10 with 10 being the highest level of satisfaction. Results are presented in Table 9.5 and compared with the 2016 Regional Wellbeing Survey of 2016 in Figure 9.3.

**Table 9.5 Health and Wellbeing Satisfaction Ratings: WSM Recreational Water Users 2017-18**

	Your health	Your standard of living	What you are currently achieving in life	Your relationships with friends and family	How safe you feel	Feeling part of your community	Your future security
Buloke	9.71	8.83	8.46	9.42	9.45	8.92	8.40
Hindmarsh	9.16	8.97	8.69	8.78	9.21	8.75	8.71
Horsham	7.54	7.44	7.30	8.07	8.70	7.83	7.89
Northern Grampians	9.61	9.19	9.22	9.61	9.83	9.63	9.21
West Wimmera	8.34	7.99	8.58	8.92	9.61	9.18	8.84
Yarriambiack	8.34	8.79	8.96	9.21	9.45	9.21	9.05
<b>Total WSM 2017-18</b>	<b>8.86</b>	<b>8.63</b>	<b>8.63</b>	<b>9.09</b>	<b>9.42</b>	<b>9.01</b>	<b>8.75</b>
<b>2016-17 Total WSM</b>	<b>7.9</b>	<b>8.2</b>	<b>8.3</b>	<b>8.6</b>	<b>8.9</b>	<b>8.4</b>	<b>7.8</b>

**Figure 9.3 Ratings of Individual Wellbeing<sup>42</sup>**



<sup>42</sup> WSM ratings from interviews with recreational water users, Grampians region Individual Wellbeing ratings from Health Research Institute, Uni of Canberra 2016 Regional Wellbeing Survey (released July 2017)