MURRAY RIVER DROWNING REPORT

Analysis of the drowning cases known to have occurred on the Murray River between 1 July 2002 and 30 June 2015.

www.royallifesaving.com.au
ABOUT ROYAL LIFE SAVING

Royal Life Saving is focused on reducing drowning and promoting healthy, active and skilled communities through innovative, reliable, evidence based advocacy; strong and effective partnerships; quality programs, products and services; underpinned by a cohesive and sustainable national organisation.

Royal Life Saving is a public benevolent institution (PBI) dedicated to reducing drowning and turning everyday people into everyday community lifesavers. We achieve this through: advocacy, education, training, health promotion, aquatic risk management, community development, research, sport, leadership and participation and international networks.

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Royal Life Saving Society – Australia
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MURRAY RIVER DROWNING DEATHS 2002-2015

68

PEOPLE DROWNED IN THE MURRAY RIVER BETWEEN 1 JULY 2002 AND 30 JUNE 2015

TOP 4 AGE GROUPS

- 19% 45-54 years
- 18% 25-34 years
- 13% 18-24 years
- 13% 35-44 years

TOP 3 ACTIVITIES

- 31% WATERCRAFT INCIDENTS
- 24% SWIMMING & RECREATING
- 13% NON-AQUATIC TRANSPORT

40% OF DROWNING DEATHS INVOLVED ALCOHOL

When enjoying our rivers remember...

- WEAR A LIFEJACKET
- AVOID ALCOHOL AROUND WATER
- NEVER SWIM ALONE
- LEARN HOW TO SAVE A LIFE
# EXECUTIVE SUMMARY

This report provides a comprehensive analysis of river drowning deaths in Australia, focusing on the Murray River. The top 10 river drowning blackspots in Australia are identified, along with contributory factors to river drowning. Detailed analysis of Murray River drowning deaths is conducted, including trends over time, drowning deaths by age group and sex, state of postcode of incident, state of residential postcode, state of postcode of residence and incident, visitor status, remoteness classification of incident location, activity immediately prior to drowning, pre-existing medical conditions, and alcohol involvement.

### BACKGROUND

- **Top 10 River Drowning Blackspots in Australia**
- **Contributory Factors to River Drowning**

### DETAILED ANALYSIS OF MURRAY RIVER DROWNING DEATHS

- **Methods**
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- **CASE STUDY: Drowning Deaths in Lakes Hume and Mulwala**
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### REFERENCES

- **CONTENTS**
The Murray River is the number one river drowning blackspot in Australia. Between 1 July 2002 and 30 June 2015, there were 68 unintentional fatal drownings. As part of the Inland Waterways Drowning Prevention Initiative, Royal Life Saving has conducted deeper analysis of the drowning cases known to have occurred on the Murray River from 2002/03 to 2014/15.

An analysis of drowning in the Murray River shows males dominate statistics, accounting for 90% of all deaths during this period. The largest number of drowning deaths occurs in the 45-54 years age group, followed by 25-34 years age group. Drowning deaths in the Murray on the basis of geographical location are reasonably evenly split between Victoria (38.2%), New South Wales (32.4%) and South Australia (29.4%). Almost all deaths occur in areas deemed Inner and Outer Regional (94.0%).

There are a wide variety of activities being undertaken immediately prior to drowning in the Murray River. The most common was watercraft incidents (21 deaths), followed by swimming and recreating (16 deaths) and non-aquatic transport incidents (9 deaths).

Alcohol was known to be involved in 39.7% (n=27) of all drowning deaths in the Murray River. The role of alcohol in unintentional fatal drowning in the Murray River is likely to be even larger than currently known as alcohol involvement was unknown in a further 31 cases (45.6%). Blood Alcohol Content (BAC) readings ranged from 0.034 to 0.321. Of the 25 cases where a blood alcohol content was available, 14 (56.0%) were equal to or greater than 0.1 (twice the legal limit).

When examining alcohol involvement by activity immediately prior to drowning, alcohol was commonly involved in drowning deaths as a result of swimming and recreating, watercraft and non-aquatic transport incidents. There were a further five drowning deaths in Lakes Hume and Mulwala within the Murray River system during the same time period.

**EXECUTIVE SUMMARY**

**RECOMMENDATIONS**

- Identify stakeholders involved with or with an interest in river use and safety along the Murray River. These activities will need to be undertaken in collaboration across New South Wales, Victoria and South Australia.
- Form a Murray River Drowning Prevention Partnership with Transport for NSW to deliver a three year strategic approach to watercraft safety including exploring the following opportunities:
  - Extension and promotion of the Wear a Lifejacket campaign to the region;
  - Deliver a mobile education program such as the Old4New Lifejacket swap campaign to the region;
  - Collaborate in water safety and drowning prevention promotions and education at community events;
  - Coordinate safety messaging and activities with Boating Safety Officers (BSOs) and Boating Education Officers (BEOs);
  - Work with safety partners such as the Marine Teacher’s Association on water safety programs in schools;
  - Collaborate in water safety messages to indigenous communities;
  - Improve water safety signage; and
  - Improve collaboration and effectiveness of joint boating safety campaigns across New South Wales and Victoria.
- Targeted interventions at boat ramps and known points of entry to recreational boating and fishing locations.
- Auditing of safety measures along boat ramps and at wharfs and jetties, particularly those with high usage rates or where data or local knowledge indicates safety issues (either recent or historical).
- Provision of safety information through local fishing and boating groups and community groups, particularly those targeting males.
- Targeting safety information to houseboat users through houseboat providers. These should include both the importance of wearing lifejackets and the legal (if skipper) and safety implications (if passengers) of consuming alcohol on houseboats.
- Explore the provision of general water safety information through tourism information centres, local councils, hotels and motels, local caravan parks and camping grounds.
- Create partnerships with local media outlets and communicate safety messages and information about drowning prevention and safety promotion initiatives, particularly around peak times (e.g. Summer, Friday, Saturday, Sunday and in the lead-up to and during public holidays).
- Identify opportunities to create partnerships with the education sector for increased engagement around drowning prevention education (particularly in late secondary school due to increase in deaths from 15 to 17 years of age and into adulthood [18+]).
- Foster collaborations with police to increase enforcement of legislation prohibiting the operation of watercraft whilst under the influence of alcohol through random breath testing at high risk periods, e.g. Summer, weekends and holiday periods (such as school holidays and long weekends).
- Develop and implement a National Alcohol Drowning Prevention Program specifically targeting males, particularly those aged between 18 and 54 years of age.

The data presented in this report is drawn from the Royal Life Saving National Fatal Drowning Database which includes data from the National Coronial Information System (NCIS), State and Territory Coronial Offices and police and media reports.

When examining alcohol involvement by activity immediately prior to drowning, alcohol was commonly involved in drowning deaths as a result of swimming and recreating, watercraft and non-aquatic transport incidents. There were a further five drowning deaths in Lakes Hume and Mulwala within the Murray River system during the same time period.
Rivers are a significant location for drowning in Australia. In the report entitled *Drowning Deaths in Australian Rivers, Creeks and Streams: A 10 Year Analysis*, Royal Life Saving found during the period 2002-2012 that:

- Rivers accounted for more drowning deaths than any other aquatic location, recording 735 drowning deaths or 25% of all drowning deaths in Australia during this period.
- Men accounted for 80% of all drowning deaths in rivers, creeks and streams. Men drowned in rivers at a rate 4 times that of women.
- Alcohol was known to be involved in 37% of all river drowning deaths, although this likely under represents the true incidence. In 13% of cases the Blood Alcohol Content (BAC) of the victim was equal to, or greater than, four times the legal limit (0.2mg/L).
- Almost half (42%) of all river drowning deaths took place in areas deemed to be regional and remote. A concerning 10.3% of all river drowning deaths occurred in areas classified as Very Remote.

The study reported that a further 10% (n=296) of all drowning deaths between 2002 and 2012 occurred in aquatic locations classified as lakes, dams and lagoons.

### Top 10 River Drowning Blackspots in Australia

The report identified the top 10 river drowning blackspots in the country. The rivers, and the number and proportion of drowning deaths are listed below:

<table>
<thead>
<tr>
<th>Rank</th>
<th>River</th>
<th>Population Centre</th>
<th>Drowning Deaths (2002-2012)</th>
<th>Proportion of Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Murray River</td>
<td>Albury, Wodonga, Echuca, Mildura, Mannum</td>
<td>43</td>
<td>5.9</td>
</tr>
<tr>
<td>2</td>
<td>Brisbane River (QLD)</td>
<td>Brisbane</td>
<td>33</td>
<td>4.5</td>
</tr>
<tr>
<td>3</td>
<td>Yarra River (VIC)</td>
<td>Melbourne</td>
<td>29</td>
<td>3.9</td>
</tr>
<tr>
<td>4</td>
<td>Swan River (WA)</td>
<td>Perth</td>
<td>24</td>
<td>3.3</td>
</tr>
<tr>
<td>5</td>
<td>Hawkesbury River (NSW)</td>
<td>Wiseman’s Ferry, Windsor, Brooklyn</td>
<td>15</td>
<td>2.0</td>
</tr>
<tr>
<td>6</td>
<td>Murrumbidgee River</td>
<td>Wagga Wagga</td>
<td>12</td>
<td>1.6</td>
</tr>
<tr>
<td>7</td>
<td>Sandy Creek (QLD)</td>
<td>Toowoomba</td>
<td>11</td>
<td>1.5</td>
</tr>
<tr>
<td>8</td>
<td>Derwent River (TAS)</td>
<td>Hobart</td>
<td>9</td>
<td>1.2</td>
</tr>
<tr>
<td>9</td>
<td>Katherine River (NT)</td>
<td>Katherine</td>
<td>9</td>
<td>1.2</td>
</tr>
<tr>
<td>10</td>
<td>Macquarie River (NSW)</td>
<td>Dubbo</td>
<td>9</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td>194</td>
<td>26.4%</td>
</tr>
</tbody>
</table>

Table 1: Drowning deaths by top 10 river drowning blackspots

### Contributory Factors to River Drowning

The research also identified contributing factors in drowning deaths in inland waterways. These factors include:

- Excessive use of alcohol and illegal drugs
- Unsafe use of watercraft, both powered and non-powered
- Management of safe recreation locations, including identification of hazards
- Flood safety, including knowledge of when it is safe to cross a flooded roadway
- Water safety knowledge and skills, including survival swimming and lifesaving skills such as CPR and First Aid Training.

Royal Life Saving Society – Australia with the support of the Federal Government, are implementing the Inland Waterways Drowning Prevention Initiative, which is aimed at identifying drowning risk factors in known inland drowning blackspots in collaboration with stakeholders, river users and the local community.
Detailed Analysis of Murray River Drowning Deaths

As part of the Inland Waterways Drowning Prevention Initiative, Royal Life Saving has conducted discrete analysis on the cases of unintentional fatal drowning known to have occurred in the Murray River between 1 July 2002 and 30 June 2015.

Methods

The data presented in this report is drawn from the Royal Life Saving National Fatal Drowning Database. Data shown refers to fatal, unintentional drowning deaths in rivers, creeks and streams across Australia that occurred between 1 July 2002 and 30 June 2015. Data coding and analysis was conducted in SPSS V20.

Data is sourced from State and Territory Coronial Offices, the National Coronial Information System (NCIS) and media reports. All cases are cross-referenced against the NCIS to ensure cases included for analysis are unintentional fatal drowning deaths or deaths where drowning was known to be a factor. Data is correct as at 7th October, 2015. Information presented in this report may still change as 13% of cases remain open (i.e. under investigation within the coronial system). The 10 year averages in this report were calculated from drowning deaths data from 2005/06 to 2014/15.

Exclusions from this data include drowning deaths as a result of suicide, homicide, deaths from natural causes, shark attacks, crocodile attacks and hypothermia where known.

Variables collected included age, sex, activity prior to drowning, time, day of the week and season of drowning, alcohol involvement, geographical location of incident, remoteness classification of incident postcode, residential and incident postcode, visitor status, information on flooding and information on Multiple Fatality Events (MFE). An MFE was classified as such if more than one victim drowned at the time of the event.

Time of incident was coded into four groupings for analysis: Morning (6:01am to 12pm), Afternoon (12:01pm to 6pm), Evening (6:01pm to 12am) and Early Morning (12:01am to 6am). For the time of incident variable, where time could not be determined a coding of 9999 (Unknown) was used.

An intrastate tourist is defined as someone who drowned in a postcode that was 100km or more from their residential postcode, but was within the same State or Territory as their residential postcode. The distance between the two postcodes was calculated using Google Maps. An interstate tourist is defined as someone who drowns in a postcode that is in a different State or Territory to their residential postcode. An international tourist is defined as someone who had a residential postcode outside Australia and drowned in an Australian postcode.

The remoteness classification of incident postcode was coded according to the Australian Standard Geographical Classification (ASGC). Postcodes are coded into one of five remoteness classifications based on a number of factors including distance from essential services. The five remoteness classifications are: Major Cities, Inner Regional, Outer Regional, Remote and Very Remote.
**MURRAY RIVER DROWNING SUMMARY**

- The Murray River is the number one river drowning blackspot in Australia.
- Between 1 July 2002 and 30 June 2015, there were 68 people who drowned in the Murray River.
- There were a further five drowning deaths in Lakes Hume and Mulwala within the Murray River system during the same time period.

**Murray River Drowning Deaths Trends Over Time**
- Drowning deaths in the Murray tend to vary from year to year, with eight recorded last year, an increase on the ten year average of 6 drowning deaths.

**Drowning Deaths by Age Group and Sex**
- Men dominate statistics, accounting for 90% of all deaths during this period.
- With respect to age group of drowning victims in the Murray River, the largest number of drowning deaths occurred in the 45-54 years age group (19.1%), followed by the 25-34 years age group with 17.6% drowning deaths.

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**CASE STUDY: MULTIPLE FATALITY EVENTS**

Between 1 July 2002 and 30 June 2015, there were three multiple fatality events that resulted in six deaths (two victims in each incident). Two were associated with drunk drivers involved in non-aquatic transport accidents where cars ended up in the Murray River and the occupants could not escape. The other MFE occurred as a result of the two victims falling into the water and drowning.
Drowning Deaths by State of Residential Postcode

• With respect to residential postcode, Victorian residents accounted for 52.9% of all drowning victims in the Murray River, followed by South Australian residents (25.0%) and NSW residents (14.7%).

• There was one drowning of an overseas tourist and four cases where residential postcode of the drowning victim was unknown.

Drowning Deaths by State of Postcode of Incident

• When examining drowning deaths in the Murray on the basis of geographical location, 26 (38.2%) drowning deaths occurred in Victorian postcodes, 22 (32.4%) in New South Wales postcodes and 20 (29.4%) in South Australian postcodes.

CASE STUDY: DROWNING DEATHS IN LAKES HUME AND MULWALA

Between 1 July 2002 and 30 June 2015, there were a total of five drowning deaths in Lakes Hume and Mulwala. 60% of these deaths occurred in Lake Hume.

All drowning deaths were males, with 60% aged between 32 and 34 years of age. Two drowning deaths were as a result of swimming and recreating, whilst the other three were as a result of watercraft accidents.
CASE STUDY: WATERCRAFT

There were 21 drowning deaths as a result of watercraft accidents on the Murray River. All but two were powered vessels. The two unpowered vessels were both canoes. Of the 19 powered vessels, nine were houseboats, eleven were powered boats of various lengths and one was a jet ski.
Drowning Deaths by Remoteness Classification of Incident Location

• When examining drowning deaths in the Murray River by the remoteness classification of the incident location, almost all drowning deaths occurred in areas deemed Inner Regional (43%) and Outer Regional (51%).
• Six percent of drowning deaths occurred in areas deemed to be Remote.

Drowning Deaths by Activity Immediately Prior to Drowning

• There are a wide variety of activities being undertaken immediately prior to drowning in the Murray River. The most common is watercraft related drowning deaths (21 deaths), followed by swimming and recreating (16 deaths) and non-aquatic transport incidents (9 deaths).
• Activity prior to drowning was unknown in 12% of cases indicating a number of people were on their own when they drowned.

CASE STUDY: NON-AQUATIC TRANSPORT

Of the nine non-aquatic transport related drowning deaths in the Murray River, seven were cars, one was a quad bike and one was a truck.
Alcohol involvement in drowning deaths in the Murray River

- Alcohol was known to be involved in 39.7% (27 deaths) of all drowning deaths in the Murray River. Alcohol involvement was unknown in a further 31 cases (45.6%) indicating the proportion of drowning deaths involving alcohol is likely to be higher than currently known.
- Of the 27 cases where alcohol was known to be involved, 18 of these were deemed to be relevant e.g. the victim had a Blood Alcohol Content (BAC) equal to or greater than 0.05mg/L.
- Blood Alcohol Contents recorded ranged from 0.034 to 0.321. Of the 25 cases where a blood alcohol content was available, 14 (56.0%) were equal to or greater than 0.1 (twice the legal limit).
- When examining alcohol involvement by activity immediately prior to drowning, alcohol was commonly contributory in drowning deaths as a result of swimming and recreating, watercraft and non-aquatic transport incidents.

Season / Day of Week

- With respect to season of drowning death in the Murray River:
  - Summer – 27 deaths (39.7%)
  - Autumn – 19 deaths (27.9%)
  - Winter – 8 deaths (11.8%)
  - Spring – 14 deaths (20.6%)
- When analysing drowning deaths by day of the week of date of incident – Drowning deaths predominately occur on Fridays and over the weekend (Saturday and Sunday).

Geographical Location of Drowning Deaths

Drowning deaths in the Murray River are spread along the length of the Murray with groupings around major towns and known holiday destinations as can be seen on the map above. Groupings of drowning deaths across the ten year period analysed in this study occurred in towns including Albury, Echuca, Moama, Mildura and Paringa.

By identifying local stakeholders and working with local communities to deliver drowning prevention initiatives that are based on known risk factors for drowning, Royal Life Saving aims to prevent drowning deaths and ensure a culture of safety along the length of the Murray River.
Pre-Existing Medical Conditions
• Just over one quarter of all drowning victims in the Murray were known to have a pre-existing medical condition.
• In one third (33.3%) of cases where the victim was known to have had a pre-existing medical condition, the condition was deemed to have contributed to the circumstances of the drowning death.
• Common contributory pre-existing medical conditions were epilepsy, cardiac conditions and dementia.

Flood related
There are no known cases of drowning deaths related to flooding in the Murray River. Of the 68 deaths that have occurred in the 13 year period analysed, 49 are known not to be flood related with a further 19 cases where status of a flood are not known.

Coronial Recommendations
Of the 68 drowning deaths in the Murray River between 2002/03 and 2014/15, there are two cases where a coronial recommendation is known to have been made. A further 13.2% of cases remain open (i.e. under investigation within the coronial system) and it is not known if coronial recommendations will be handed down in these cases.
Enforcement and State and Territory Jurisdiction
Information obtained from the NSW Maritime Management Centre states.

“The Murray River marks the border between NSW and Victoria, however NSW has jurisdiction of the water up to the southern bank on the Victorian side. A number of other waterways in this region cross the NSW and Victorian border thus responsibility for boating safety is divided between Roads and Maritime (NSW) and Transport Safety Victoria under the Marine Safety Legislation (Lakes Hume and Mulwala) Act 2001. Within Victorian waters, enforcement of boating rules is usually carried out by Victoria Police and Victorian marine safety authorities.”

Information about safety on the Murray River in South Australia is provided through the South Australia Department of Planning, Transport and Infrastructure. Safety information specific to the Murray River is geared around the Murray River ferry services and the obligations of boats at ferry crossings. The issue of riverbank collapse is also specifically discussed in the Murray River safety section. Sections of the Murray River in South Australia are also under the control of National Parks South Australia. These include many camping and conservation parks.

Administering alcohol or drug (cannabis, speed and ecstasy) screening is the responsibility of the police. Anyone operating a vessel, or a member of the crew of a vessel may be required to submit to a drug or alcohol screening test.

Watercraft Profile of the Murray-Riverina Region
The Murray River is known to be a popular location for recreation across New South Wales, Victoria and South Australia. A Regional Boating Plan drafted by the Transport for NSW Maritime Management Centre identified a range of recreational activities being undertaken on the Murray River including recreational boating, recreational fishing, water skiing, wake boarding, PWC operation, sailing, rowing, house boating, canoeing and kayaking.

In a 2010 review of the Murray River, produced by the then NSW Maritime, it was reported that almost 90% of vessels checked by NSW Maritime on the Murray River were registered in Victoria. The majority of the population centres along the Murray River are also on the Victorian side of the river.

There are currently approximately 45,000 recreational boating licence holders in the Murray-Riverina region, which represents 8.2% of all boat licence holders in New South Wales. There are currently approximately 20,000 registered recreational vessels in the Murray-Riverina region. The large majority of boats and boat licence holders in this region are from Victoria.

Open runabouts account for 89% of all New South Wales registered vessels. A majority (91%) of all vessels are between 2 and 6m in length with the average vessel length being 4.5m.

Existing safety activities being undertaken by State and Territory Maritime agencies include the promotion of lifejackets, particularly on small vessels. Maritime Management in NSW also employ Boating Safety Officers (BSOs) who conduct regular on-water patrols and inspections throughout the Murray Riverina waterways to provide boating safety education and ensure compliance with safety requirements including lifejacket use and speed limits among others. Boating Safety Officers often conduct joint patrols with police and local Marine Area Command, however it should be noted that police officers are solely responsible for conducting random breath testing on NSW navigable waters.

Information about safety on the Murray River in South Australia is provided through the South Australia Department of Planning, Transport and Infrastructure. Safety information specific to the Murray River is geared around the Murray River ferry services and the obligations of boats at ferry crossings. The issue of riverbank collapse is also specifically discussed in the Murray River safety section. Sections of the Murray River in South Australia are also under the control of National Parks South Australia. These include many camping and conservation parks.

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REFERENCES


