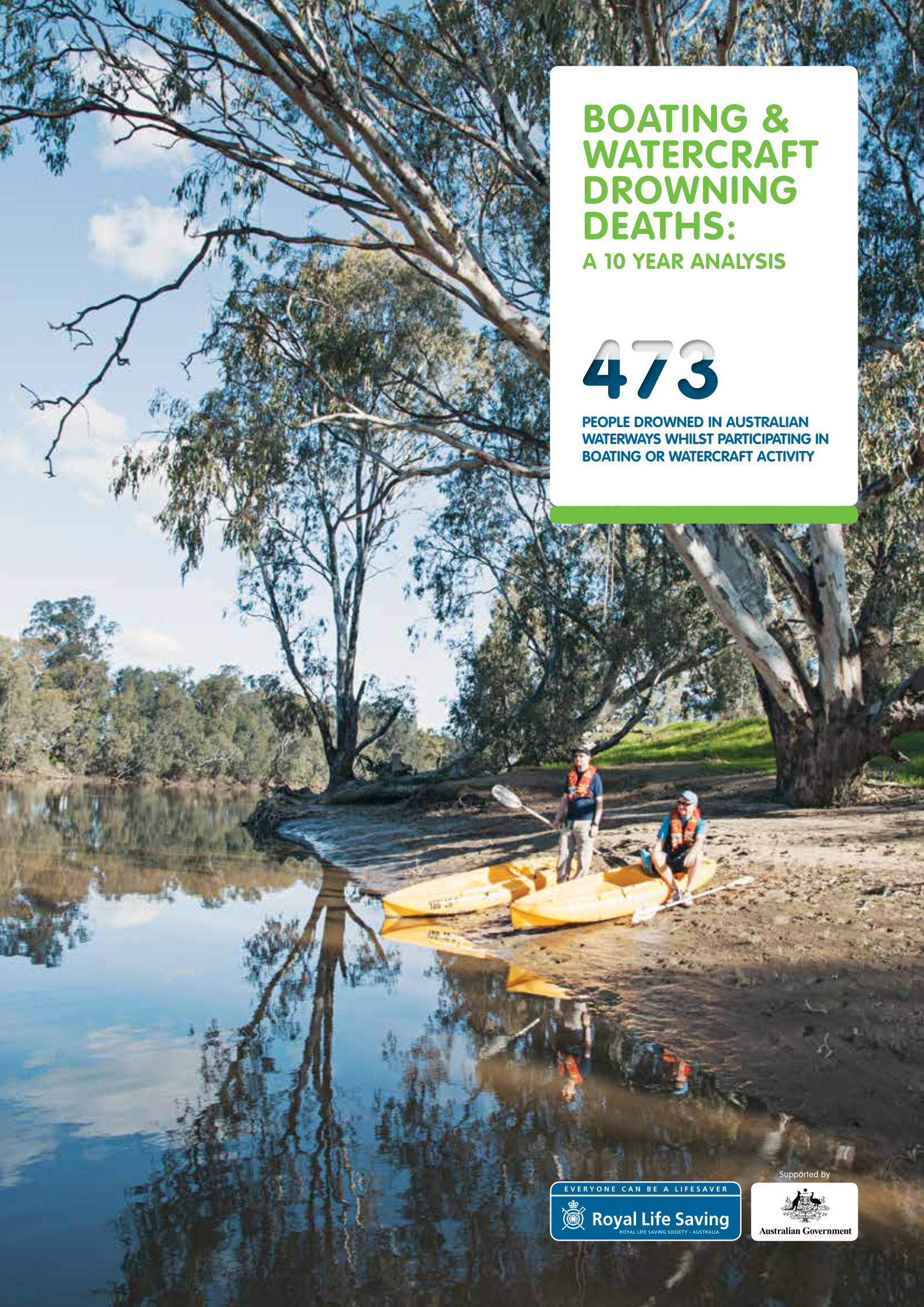


BOATING & WATERCRAFT DROWNING DEATHS:

A 10 YEAR ANALYSIS

473

PEOPLE DROWNED IN AUSTRALIAN WATERWAYS WHILST PARTICIPATING IN BOATING OR WATERCRAFT ACTIVITY



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PEOPLE DROWNED PARTICIPATING IN BOATING OR WATERCRAFT ACTIVITY 2005/06 TO 2014/15



92%

TOP 3 AGE GROUPS



TOP 3 ACTIVITIES



92% NOT WEARING A LIFEJACKET
26% OF CASES INVOLVED ALCOHOL
OF THESE, 59% WERE OVER THE LEGAL DRIVING LIMIT
31% OF CASES INVOLVED DRUGS
OF THESE, 31% HAD ILLEGAL DRUGS IN THEIR SYSTEM

PREVENTION STRATEGIES



BOATING AND WATERCRAFT DROWNING DEATHS: A 10 YEAR ANALYSIS

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DID YOU KNOW?

- Between 1 July 2005 and 30 June 2015 (a period of 10 financial years), 473 people drowned in Australian waterways whilst participating in boating or watercraft activity
- Powered boats accounted for 71.5% deaths (228) and non-powered watercraft 28.5% (126)
- 91.8% were of men, with men aged 35-44 and 45-54 years most at risk
- Ocean/Harbour was the leading location for drowning, accounting for 246 of deaths
- 45.0% occurred on Saturday and Sunday in the afternoon (12:01pm to 6pm), the lowest number occurred on Mondays
- 52.0% occurred in the summer and spring (26% each),
- The highest number of deaths occurred in October (10.8%) and March (10.4%)
- The majority of boating and watercraft drowning deaths occurred in major cities (28.1%) and outer regional areas (27.1%)
- Most people (63.2%) lived locally to where they drowned
- Most common activity being undertaken prior to drowning was fishing from a vessel (both boating and watercraft)
- Only 8.2% were found to have been wearing a lifejacket
- Of the 164 cases known not to be wearing lifejackets, 14% were found to have had lifejackets on the boat
- In 22.8% of cases, more than one person drowned during the incident
- 26.0% of all boating and watercraft drowning deaths were known to involve alcohol
- Of those, the amount of alcohol detected was deemed contributory in 58.8% of cases (where blood alcohol concentration was recorded to be 0.05mg/L or higher)
- A higher number of cases were found to involve drugs (30.7%), of which 60.4% were legal drugs, 31.3% were illegal substances and 6.9% of cases involved both legal and illegal drugs
- Alcohol and drugs were identified as a contributing cause of death in 23 cases
- An pre-existing medical condition was found to be present in 33.2% of deaths
- Skipper and passenger status was known in 287 cases, of which skippers made up 29.3% and 23.0% were passengers
- 4.9% were working or employees on the vessel at the time of drowning
- Where information was known, 1.9% drowned during a boat hire or charter (e.g. houseboat or fishing charter) and 1.3% were with an adventure company (e.g. white water rafting) when the incident occurred.

EXECUTIVE SUMMARY

This report analyses all unintentional drowning deaths related to boating and watercraft that have occurred over the past 10 financial years from 2005-06 to 2014-15¹.

Although aspects of this area have been examined in other drowning reports such as rivers, adult males and older Australians; the subject of boating and watercraft drowning deaths has not yet been analysed in its entirety. With boating and watercraft related drowning deaths accounting for, on average, one-sixth of all drowning deaths annually in Australia, this is an area of key focus for drowning prevention¹. This project links to Goal 9 of the Australian Water Safety Strategy 2016-20 – Reduce Boating, Watercraft and Recreational Activity Related Drowning Deaths, in particular objective 3: Conduct research into boating and watercraft related drowning incidents which assist in the identification of risk factors and prevention strategies for such drowning deaths².

Between 1 July 2005 and 30 June 2015 (a period of 10 financial years), 473 people drowned in Australian waterways whilst participating in boating and watercraft activity. The crude drowning rate for boating and watercraft over this period is 0.21 per 100, 000 population. This represents 16.5% of all drowning deaths during this time period. Men accounted for 91.8% of all boating and watercraft related drowning deaths.

New South Wales recorded more drowning deaths than any other state, with 149 fatalities (31.4%) over the study period. Over a quarter of drowning incidents occurred in major cities (28.1%) and outer regional areas (27.4%), with the majority of people who drowned not considered visitors to the location of the drowning incident (63.5%). The highest number of deaths occurred in the months of October (10.5%) and March (10.3%). The afternoon hours (between 12:01pm to 6pm) were the most common time for people to drown, with over one third (35.9%) of incidents occurring in this time band.

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**PEOPLE DROWNED PARTICIPATING
IN BOATING OR WATERCRAFT
ACTIVITY 2005/06 TO 2014/15**

Ocean and harbour locations was the leading locality, accounting for 51.9% of deaths, followed by rivers, creeks and streams (21.9%). Powered boats accounted for 70.6% of all boating and watercraft related drowning deaths, with the highest occurring in boats under 5m in length (30%). Paddlecraft (canoes, kayaks, surf skis) made up the highest watercraft related deaths (34%), followed by surfboards (32%). The top three activities prior to drowning were fishing from a vessel (27.8%), whilst moving (26.6%) and falling from a vessel (12.2%).

Where information was available, 8.2% who drowned were recorded as wearing a lifejacket. Unfortunately, over a quarter (28.8%) of these people were found to be wearing a lifejacket that was either not suitable, was worn incorrectly, or was wearing an inflatable type that did not inflate. Of those cases where lifejackets were not worn, 14.0% of cases recorded lifejackets as being on the boat. Royal Life Saving advocates for regularly serviced lifejackets to be worn by all people when on board a boat.

Over one quarter of all drowning deaths were known to involve alcohol (26.2%), of which 58.8% had an alcohol reading above the blood alcohol concentration (BAC) limit of 0.05mg/L for operating a motor vehicle. The 18-24 age group had the highest proportion of alcohol recorded (41.7%). Alcohol related drowning deaths most commonly occurred in summer (31.7%) and on the weekend (Saturday 26.8% and Sunday 19.5%). Over a third (35.5%) occurred in the evening between 6:01pm to 12am, with 43.8% recording a reading above the limit. Inland locations recorded more drowning deaths involving alcohol than not, when compared to all other locations. Over ten times more drowning deaths where the person was over the limit occurred in rivers, lakes and streams than beaches, and over three times more than in ocean and harbour locations ($p > 0.05$).

Just under one third (30.6%) of drowning deaths were known to involve drugs, including both legal and illegal substances. Of those cases where drugs were known to be present, approximately 60.4% of drugs were recorded as legal, 31.3% illegal substances and 6.9% had consumed both legal and illegal drugs. The most commonly recorded illegal drugs were cannabis and methamphetamine. A further 5.7% of drowning deaths involved a combination of alcohol and drugs.

A pre-existing medical condition was known to be present in one third of the drowning deaths studied (33.2%). Medical conditions were deemed contributory causes of death in 12.7% of boating and watercraft related deaths. Most major underlying conditions cited were cardiac related.

One fifth (22.8%) of cases were multiple fatality events where more than one person drowned, with the majority (78.2%) of these incidents occurring in ocean and harbour locations.

Where information was available, in 34.0% of cases the person who drowned was the skipper of the vessel and 25.9% of fatalities were passengers. The 40.0% of remaining cases included single occupant activity (e.g. surfing, body boarding, and wind or kite surfing) and cases where information was unavailable. Of note, 4.9% of drowning deaths reported occurred in an employment capacity, 1.9% during a boat hire or charter (e.g. houseboat or fishing charter) and a further 1.3% occurred during an adventure type activity (e.g. white water rafting).

The study revealed key risk factors for drowning when participating in boating and watercraft activity, such as the lack of lifejackets, alcohol and drug consumption and lack of basic safety equipment and experience. Given that men accounted for over 90% of boating and watercraft drowning deaths, continued efforts in awareness raising and education campaigns targeted at men aged 25 to 65 years is imperative. This research adds to the current body of research and analysis being undertaken by the wider Australian boating sector and provides further evidence towards the development of evidence-based prevention strategies to improve boating and watercraft safety.

Key Risk Factors:

- Not wearing a lifejacket
- Being under the influence of alcohol and drugs
- Being unprepared and not having basic safety equipment
- Unaware of marine weather conditions

BACKGROUND

Boating and watercraft related activities are increasing in popularity across high income countries as boats become more affordable and accessible. Men are greatly over-represented in boating-related drowning statistics in Australia, Canada, New Zealand and the United States³⁻⁵.

International comparison

Boating and watercraft fatalities in Australia currently account for one sixth or 16% of all drowning deaths annually; this is a similar rate to boating related deaths in New Zealand (16% from the combination of powered, non-powered and sailing boats)³. In the United States, the fatality rate of drowning whilst boating recreationally is around 5.2 per 100,000 registered recreational vessels, equating to 78% of boating related deaths⁴. A study in Canada (1991-2008)⁵ reported that boating was the leading cause of non-fatal drowning and immersion fatalities and injuries, with men aged 15-74 accounting for over 90% of deaths⁵.

Common risk factors include lack of wearing a lifejacket, ranging from 88% not wearing a lifejacket in Canada, 84% in the United States and 69% in New Zealand. Alcohol contributed to 21% of boating deaths in the United States and 46% in Canadian statistics. Other shared issues contributing to boating fatalities included being in small boats (commonly referred to as 'dinghys' 'runabouts' 'tinnies'), excessive speed and being unprepared or inexperienced.

Australian statistics

A national study conducted in 2001 documented all boating related fatalities and non-fatal injuries over ten years from 1979-1998. A total of 1567 boating deaths were recorded, with an average of 80 deaths annually. Not surprisingly, males were over represented, with the most common age group being 25-29 years (with the majority occurring among men aged 20-54 years). This report highlighted alcohol and low rates of lifejacket use as an issue 20 years ago, both of which continue to be leading factors in boating and watercraft drowning deaths to this day⁶.

Current recreational boating statistics across states and territories show similar trends not unlike the earlier report. A 15 year study of recreational boating fatalities in Tasmania (2001-2015) recorded lifejacket wear in over 50% of deaths (11% higher than previous 1987-2000 report)⁵. Statistics suggest whilst the usage and registration of recreational boats in Tasmania has increased, the drowning rate has decreased from 6.34 to 2.2 over the past 15 years (Lifejacket legislation was introduced in Tasmania in 2001). Additionally, the rate of boating fatalities per 10,000 Statistics also show a 10% reduction in alcohol related boating deaths between 1987-2000 and 2001-2015. Cold water immersion has emerged as a factor in Tasmanian boating fatalities, with 70% of Tasmanian fatalities having occurred in temperature 15 degrees or under⁵. A ten year report of boating incidents in New South Wales⁸ between 2002/03 and 2011/12 reported 167 boating fatalities, 61.7% of which were drowning deaths.

Over 90% of boating fatalities were of males and over 50% were aged between 30 and 59 years and only 6.8% were wearing a lifejacket. More recreational boating fatalities occurred in the winter months (47.9%), and nearly half of fatalities (47.1%) occurred in the afternoon and evening (2pm to 11.59pm), 70.8% of fatalities occurred in small boats under 6m in length, 60% occurred whilst a boat was moving or underway. The report attributed the 55% reduction of fatal incidents from approximately one to less than 0.5 per annum to the introduction of compulsory wearing of a lifejacket when crossing coastal bars in 2003⁸. Recent recreational boating statistics in Queensland suggest improvements in the profile of recreational boating fatalities in 2014-2015⁹ with a zero alcohol recorded, all vessels registered and all but one cases being a registered skipper/master of the vessel⁹. Despite most states showing a decrease in boating fatalities, Victoria has experienced an increase in boating fatalities over the past five years, with a 42.86% increase in fatalities compared with the three year average¹⁰.

Lifejacket legislation

This section provides a brief overview of lifejacket legislation across Australia and will be discussed further in the report. Lifejacket legislation is not standard across the country and whilst most, if not all states require appropriate lifejackets to be carried for each person on-board the boat, the circumstances in which they are required to be worn differ. Specifications vary as to who, where and when a lifejacket is required include: from what age lifejackets are compulsory for children, the size and type of the vessel, what types of water (e.g. ocean bars, sheltered, open water) as do requirements when alone and during times of 'heightened risk'. The type of lifejacket required for various activities also differs. Other factors are considered, with some legislation stating that low swimming ability creates a requirement for lifejacket wearing, whereas other states have exempted certain rivers and creeks from the requirement to wear lifejackets¹¹⁻¹⁵.

License and boat registration requirements

A boat or marine license or recreational skipper's ticket is required to drive a recreational power boat in all but one state or territory. In some states both a boat driving license and a personal watercraft license (PWC) is required to operate PWC/Jet Ski^{16,17}. All states with the exception of Australian Capital Territory and Northern Territory require motor boats to be registered (similar to a car registration). Requirements range from all boats fitted with an engine (including PWC/Jet Ski and kayaks/canoes fitted with an engine) in most states, to specifying boats with a power rating of 3-4kW as the minimum.

Prevention strategies

The boating and water safety sectors across Australia are committed to working towards a decrease in the number of boating and watercraft related drowning deaths. Along with the relevant legislation, there are a number of initiatives and prevention strategies currently in place around the country targeting behaviour and attitudes. Although lifejackets are the number one safety priority, other safety messages and campaigns targeting boaters include avoiding alcohol, being prepared by having the correct safety equipment and communication tools, checking the weather and water conditions, having a seaworthy vessel and registering vessels.

Respect the River

Royal Life Saving's Respect the River campaign has been designed to educate the public about the hidden dangers of inland waterways. It encourages people to respect rivers by following some simple safety tips:



WEAR A LIFEJACKET:

Ensure lifejackets are worn by all people on board, including competent swimmers. They need to be properly fitted to be effective, including children's lifejackets



AVOID ALCOHOL AROUND WATER:

Alcohol impairs judgment and increases risk-taking behavior, affects coordination and reaction time, making it difficult to get out of trouble



BE PREPARED:

It is important to check the weather report before and during watercraft activity and keep a lookout for bad weather while out on the water



NEVER GO ALONE:

Always go with a friend and inform others not on board of your destination and when you intend to return, particularly in remote locations



LEARN HOW TO SAVE A LIFE:

Learn lifesaving skills, as well as first aid/resuscitation so you are able to respond in an emergency

For more information visit
www.royallifesaving.com.au/respecttheriver



NEXT STEPS

Policy, Programs and Advocacy

- Working with the wider boating safety sector to advise and develop key drowning prevention messages regarding lifejacket wear and alcohol consumption among men
- Simplify advice regarding the requirements of when to wear a lifejacket and what type of lifejacket
- Explore ways to reduce the number of men consuming alcohol and drugs prior to participating in boating and watercraft activity
- Recognise the increased risk for Aboriginal and Torres Strait Island communities and tailor messaging accordingly to ensure cultural acceptability; community input is vital to the likelihood of sustainable behaviour change
- Investigate partnerships with boating regulators to promote and strengthen existing boating safety legislation, by highlighting the legal (and safety) ramifications to those who:
 - Skipper a boat whilst under the influence of a contributory level of alcohol (BAC \geq 0.05mg/L) and/or illegal drugs
 - Drive a boat or PWC at excessive speed
 - Modify a vessel in ways that may alter seaworthiness
 - Drive boats without a license or boat registration
- Continue to communicate the importance of checking local conditions and hazards at all aquatic locations, including familiar sites as conditions can change rapidly.

Research Agenda

- Work with partner organisations in the boating safety sector to obtain non-fatal drowning data in order to gain a more complete understanding of the full burden of boating and watercraft drowning
- Investigate the current terminology and definitions within the wider sector in regards to boating and watercraft to enable better comparison of data across Australia
- Work with other organisations to investigate attitudes and behaviour of boaters and barriers to wearing lifejackets and drinking when boating.

This report will focus on unintentional, fatal drowning deaths among those who participate in boating and watercraft activity across the last ten financial years (2005/06 to 2014/15). The circumstances of boating and watercraft related drowning will be examined, with a focus on risky behaviour, including alcohol and drug consumption and unsafe boating practices, and will suggest recommendations for evidence-based prevention measures.



AIMS

This study aimed to:

- Conduct an in-depth analysis of boating and watercraft drowning incidents across the last 10 financial years (1 July 2005 to 30 June 2015), including the circumstances of drowning deaths
- To develop an increased understanding of the risk factors and appropriate prevention strategies for boating and watercraft drowning deaths among men
- To provide current, up to date evidence and recommendations to support existing projects/campaigns related to boating and watercraft drowning deaths.

METHODS

All unintentional, fatal drowning deaths in Australian waterways related to boating and watercraft incidents between 1 July 2005 and 30 June 2015 were included.

A year round media monitoring service was used to identify drowning deaths reported in the media, which were then corroborated with information sourced from ethical access to the National Coronial Information System (NCIS), State and Territory police services and Royal Life Saving State and Territory Member Organisations (STMOs).

All care is taken to ensure that the information is as accurate as possible. Please note that the figures from more recent financial years may change depending upon the outcomes of ongoing coronial investigations and findings. This report contains information correct as at 31 August 2016. As of this date, 91.1% of cases were closed (i.e. no longer under coronial investigation).

Exclusions from this data include: drowning deaths known to be as a result of suicide or homicide, deaths from natural causes, shark and crocodile attack, or hypothermia where known. All information presented is about drowning deaths or deaths where drowning was a factor.

The remoteness classification was defined using the Australian Standard Geographical Classification – Remoteness Area (ASGC-RA) system⁸. The distance between the incident and residential postcode was determined using Google Maps⁹. A distance of less than 100km was considered 'not a visitor', more than 100km but within the same state was 'visitor - intrastate', a different state was 'visitor - interstate' and an overseas residential postcode as 'visitor – overseas'. In cases where the incident or resident postcode was unknown, this was entered as 'unknown'.

The time of drowning was coded into four bands: early morning (12:01am to 6am), morning (6:01am to 12pm), Afternoon (12:01pm to 6pm) and evening (6:01pm to 12am).

Definitions and terms are consistent with the Australian Water Safety Strategy 2016-2020³ and the Royal Life Saving Society – Australia's Drowning Database Definitions²⁰:

Boats:

Water-based wind or motor powered vessels, boats, ships and personal watercraft (e.g. boats, jet skis, sail boats, yachts, catamarans).

Watercraft:

Water-based non-powered recreational equipment such as those that are rowed or paddled (e.g. rowboats, surf boards, kayaks, canoes, stand up paddle boards, body boards, wind surfers, inflatable rafts and inflatable boats without motors)³.

Activity:

The specific primary activity the drowning victim was undertaking immediately prior to the drowning incident, causing the drowning victim to be in, on, or near the water.

A Blood Alcohol Concentration (BAC) greater than or equal to 0.05g/mL (0.05 grams of alcohol per 100 millilitres of blood) was considered relevant and contributory to the drowning death. Additionally, for the purposes of this report, all prescribed medications were considered to be legal. Illicit drugs, such as cannabis and methamphetamine, were considered illegal drugs.

Lifejacket usage refers to lifejacket wearing at the time of death. Information has been taken from the coronial finding and police reports on the NCIS. Not all cases reported on lifejacket wearing.

Data were analysed using SPSS Version 2004. Descriptive statistics were utilised, as well as chi squared analysis. Statistical significance was deemed $p < 0.05$. Chi squared analysis was conducted without the 'unknown' variable (e.g. the presence of alcohol was calculated using the 'yes' and 'no' variables only).

RESULTS

Between 1 July 2005 and 30 June 2015 (a period of 10 financial years), 473 people drowned in Australian waterways whilst participating in boating (71.5%) and watercraft (28.5%) activity (Figure 1).

Absolute numbers of boating drowning deaths show a decrease over the past 10 years, whilst numbers of watercraft drowning deaths have increased over the same 10-year period.

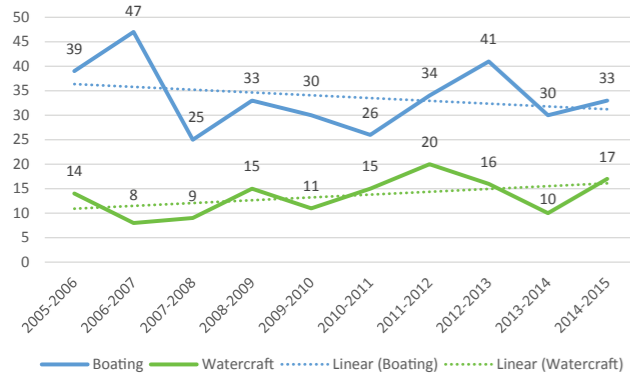


Figure 1: Boating and watercraft drowning deaths between 2005/06-2014-15

This represents around 16% or one sixth of drowning deaths nationwide; an average of 47.4 per year. Drowning deaths occurred in all years of the study period, with a high of 57 deaths (12%) in 2012-13 and a low of 34 deaths (7.2%) in 2007-08 (Figure 2).

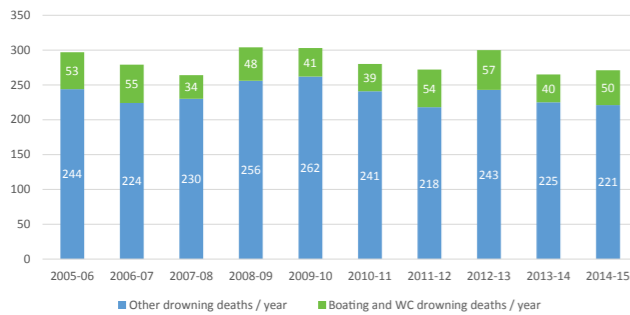


Figure 2: Boating and watercraft drowning deaths as a proportion of total drowning deaths

Overall demographic information

The highest number of drowning deaths occurred in males (91.8%), highest age group 35-44 years (18.4%), followed by 45-54 years (17.5%) and 25-34 years (17.3%). The lowest number occurred among children under 5 (less than 1%), followed by children aged 5-17 years (3.6%) (Figure 3).

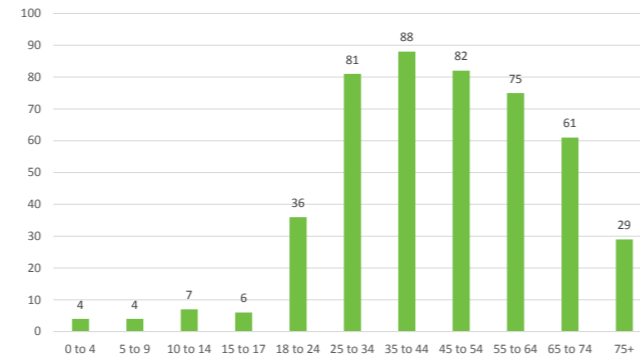


Figure 3: Boating and watercraft drowning deaths by age in years

The majority of people who drowned did not identify as either Aboriginal or Torres Strait Islander (79.1%). However, 2.3% were Aboriginal and 1.5% were Torres Strait Islander. The status of the remaining 17.1% was either unknown or the information was missing (Figure 4).

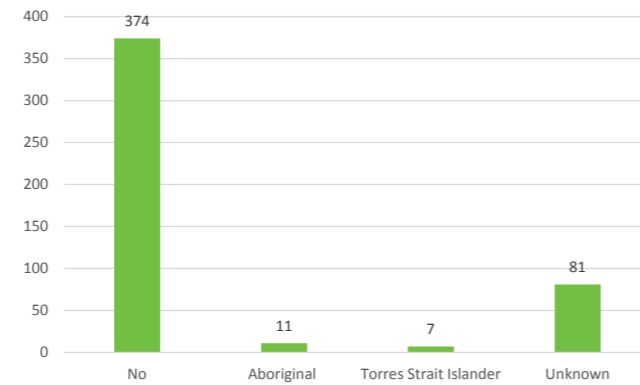


Figure 4: Boating and watercraft drowning deaths by Aboriginal and Torres Strait Islander (ATSI) status

Of those who drowned when participating in boating and watercraft activity, 56.9% were Australian born, 21.8% were overseas and country of birth was unknown in 21.4% of cases.

Of those born overseas, 30.1% were from Asian countries, 24.3% from the United Kingdom, 17.5% from European countries and 9.7% were from New Zealand.

NSW recorded more drowning deaths than any other state, with 149 fatalities (31.4%) recorded over the study period. Queensland recorded 121 deaths (25.9%), followed by Western Australia with 63 deaths (13.3%) and Victoria with 57 deaths (11.8%) (Figure 5).

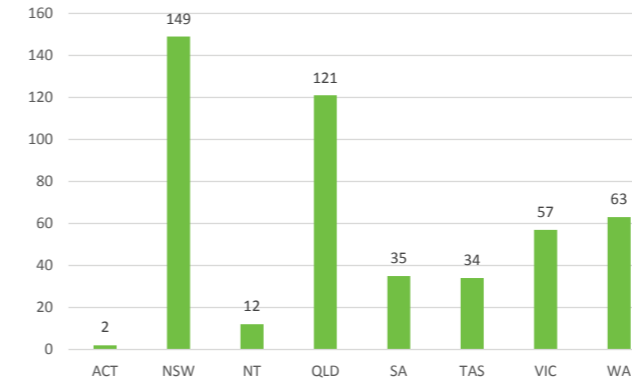


Figure 5: Boating and watercraft drowning deaths by state of death

Over a quarter of drowning incidents occurred in major cities (28.1%), with 27.1% occurring in outer regional areas and 24.1% in inner regional areas. A smaller proportional of incidents took place in remote (10.4%) and very remote (7.0%) locations and offshore (2.5%). The remoteness classification of the remaining 0.6% of incidents was unknown (Figure 6).

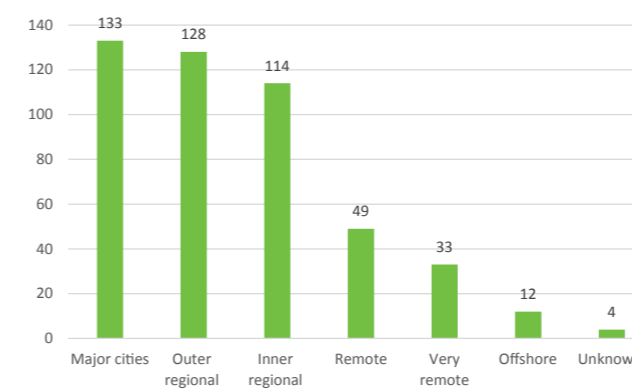


Figure 6: Boating and watercraft drowning deaths by remoteness classification of incident postcode

The majority of people who drowned were not visitors to the location where they drowned (63.5%). Intrastate visitors accounted for 20.9% of deaths, with 7.6% classified as interstate visitors and 4.9% overseas visitors. This information could not be obtained in the remaining 3% of cases (Figure 7).

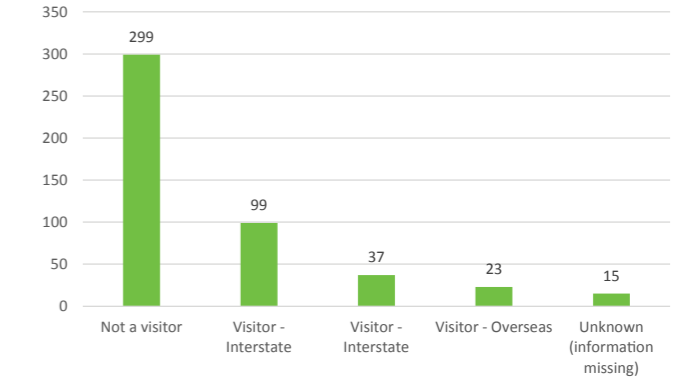


Figure 7: Boating and watercraft drowning deaths by visitor status

Time of drowning deaths

Season

Drowning deaths occurred all year round, with similar numbers of incidents occurring across the seasons. The highest number occurred during spring (26.8%) and summer (26.0%), followed by autumn (24.5%) and winter (22.6%) (Figure 8).

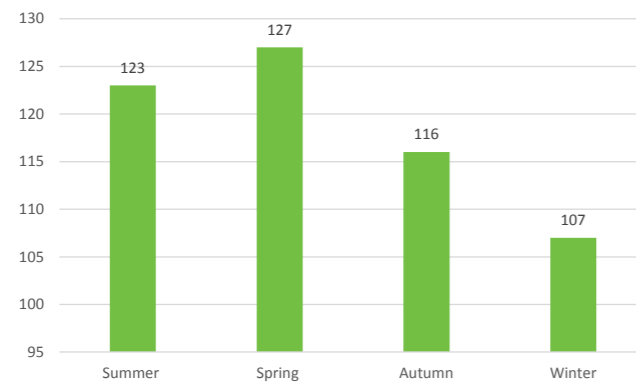


Figure 8: Boating and watercraft drowning deaths by season

Month

The highest number of deaths occurred in October (10.5%) and March (10.3%). The lowest number of deaths occurred in May (5.1%) and August (5.9%) (Figure 9).

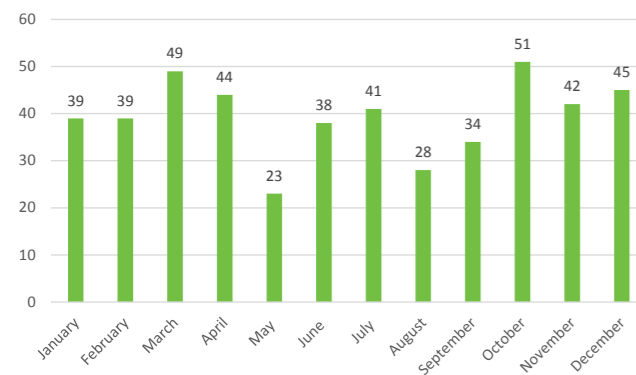


Figure 9: Boating and watercraft drowning deaths by month

Day of the week

Almost half of all drowning deaths occurred on weekends, with Sundays accounting for 22.6% and Saturdays accounting for 22.4% of deaths. The lowest number of deaths occurred on Mondays (7.2%) (Figure 10).

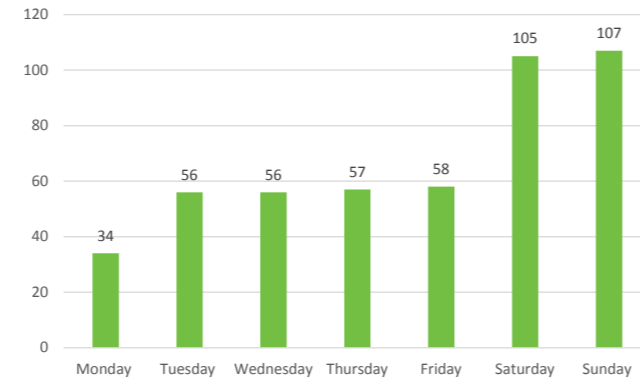


Figure 10: Boating and watercraft drowning deaths by day of week

Time of day

The afternoon between 12:01pm and 6pm was the most common time for people to drown, with 35.9% of incidents occurring in this time band, 30% occurred in the morning (6:01am - 12pm), the time of drowning was unknown in 0.8% of cases (Figure 11).

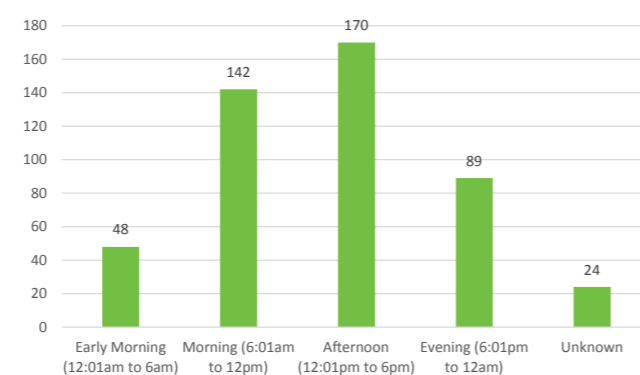


Figure 11: Boating and watercraft drowning deaths by time band

Location and activity

Location

Oceans and harbours were the leading locations for drowning, accounting for 51.9% of deaths. Rivers, creeks and streams accounted for the second highest number of deaths (21.9%), followed by beach locations (15%). Other common locations for boating and watercraft drowning were lakes, dams and lagoons (10.8%) (Figure 12). One third (32.7%) of boating and watercraft drowning deaths occurred in Inland waterways.

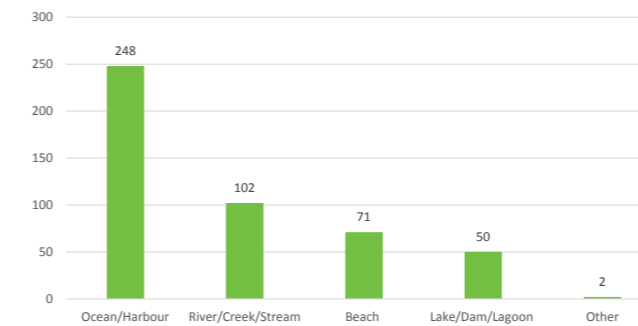


Figure 12: Boating and watercraft drowning deaths by location

More drowning deaths in rivers, creeks and streams occurred in NSW, Queensland, South Australia and Tasmania, whereas in Victoria and Western Australia more occurred in beach locations (Figure 13).

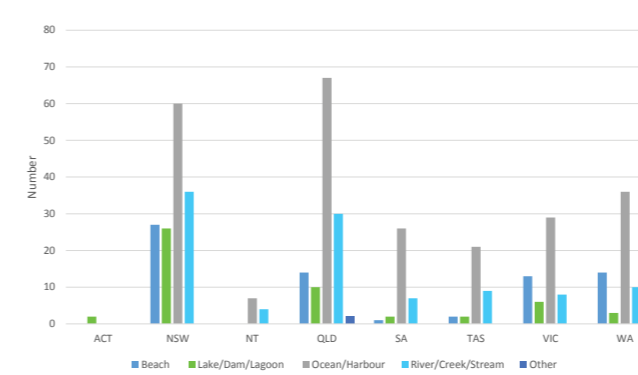


Figure 13: Location of boating and watercraft drowning deaths by state analysis

Type of vessel

The highest number of drowning deaths among powered boats occurred in vessels under 5 meters (20.6%), followed by 5-9.9 meters (16.4%) (Figure 14).

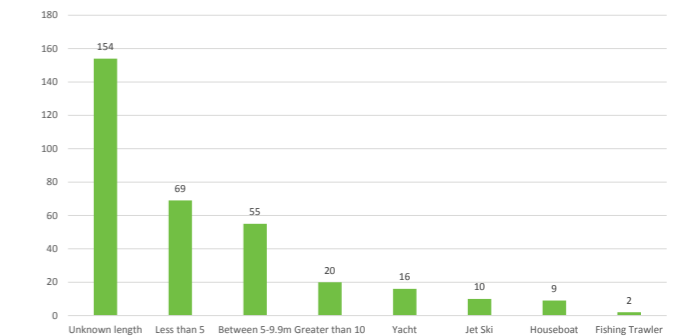


Figure 14: Boating (powered watercraft) drowning deaths

Paddle craft combined (canoes, kayaks, surf skis) accounted for one third (33.3%) of all unpowered craft, followed by surf boards (28.3%) (Figure 15).

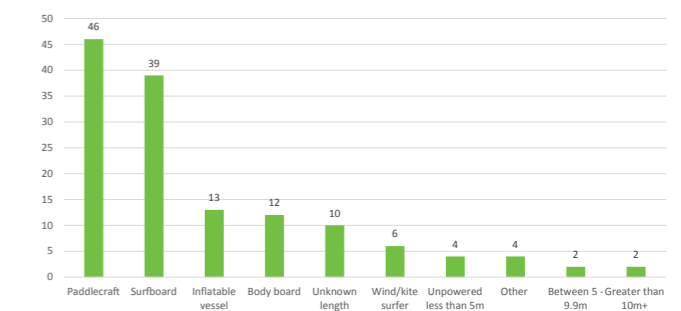


Figure 15: Watercraft drowning deaths

Activity undertaken prior to death

The highest number of fatalities occurred whilst fishing from a vessel (27.9%), whilst moving (26.9%) and falling overboard (12.3%) (Figure 16).

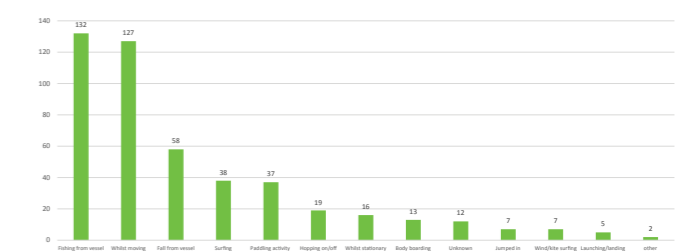


Figure 16: Boating and watercraft drowning deaths broken down by type of activity

Risk factors relating to boating and watercraft drowning deaths

Alcohol

The presence of alcohol was examined in relation to a number of variables, including overall demographics, time and location. Just over one quarter of all boating and watercraft drowning deaths were known to involve alcohol (26.2%). Approximately 43% did not involve alcohol, in 30.6% of cases this information was unknown (Figure 17).

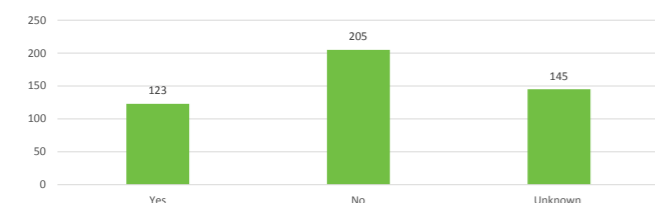


Figure 17: Boating and watercraft drowning deaths by presence of alcohol

Of the 124 cases recorded to have alcohol present, 73 cases (58.8%) recorded a a BAC $\geq 0.05\text{mg/L}$ (Figure 18).

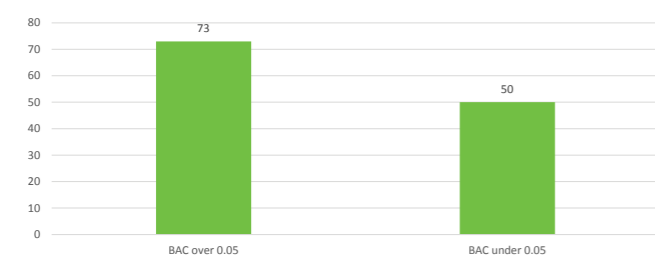


Figure 18: Boating and watercraft drowning deaths by alcohol relevance

Alcohol presence was analysed by age group. The 18-24 age group recorded the highest percentage of alcohol present (41.7%), of which 33.3% recorded a BAC $\geq 0.05\text{mg/L}$. The 25-34 and 55-64 age groups each recorded 17% of people who have been drinking as being over the limit.

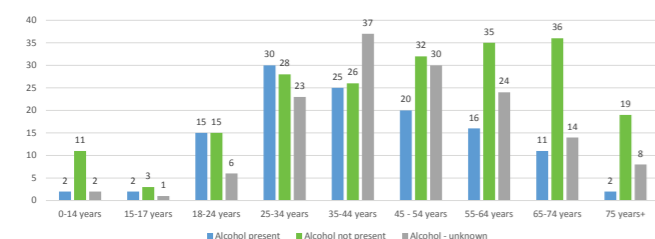


Figure 19: Boating and watercraft drowning deaths by presence of alcohol and age

The presence of alcohol was examined by different locations. Inland locations recorded more drowning deaths involving alcohol than not, when compared to all other locations (Figure 20).

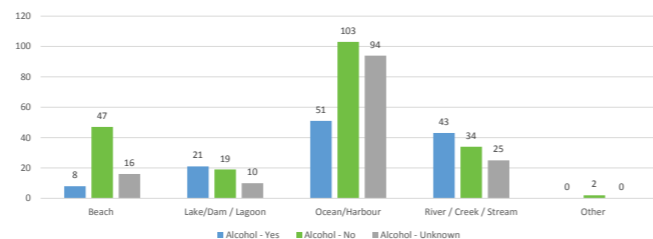


Figure 20: Boating and watercraft drowning deaths by location and presence of alcohol

When analysed by relevance of alcohol, rivers, creeks and streams also accounted for the highest proportion (31.4%), followed by lake/dam/lagoon locations (20.0%). Over ten times more drowning deaths where the person had a BAC $\geq 0.05\text{mg/L}$ occurred in rivers, lakes and streams than beaches, and over three times more than in ocean/harbour locations ($p > 0.05$).

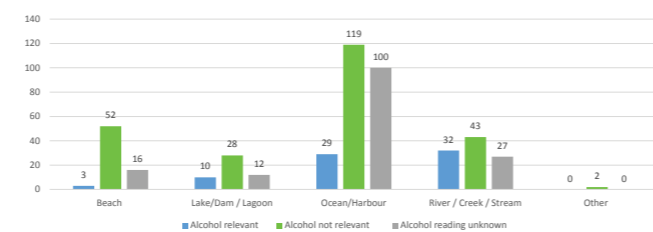


Figure 21: Boating and watercraft drowning deaths by location and alcohol relevance

Presence of alcohol was most common when fishing and whilst moving. When analysed by alcohol relevance, 35.1% were fishing, 28.4% were moving and 12.2% fell overboard after consuming a level of alcohol BAC $\geq 0.05\text{mg/L}$ (Figure 22).

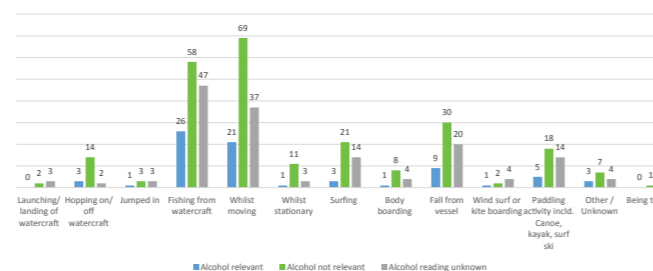


Figure 22: Boating and watercraft boating deaths by alcohol presence and activity

The highest number of drowning deaths involving alcohol occurred in New South Wales, followed by Queensland and Western Australia. Northern Territory was the only state with more cases involving alcohol than not (Figure 24). When analysed by proportion of deaths per state, Northern Territory had the highest percentage of alcohol related deaths (33.3%), followed by Tasmania (29.4%) and Queensland (28.1%).

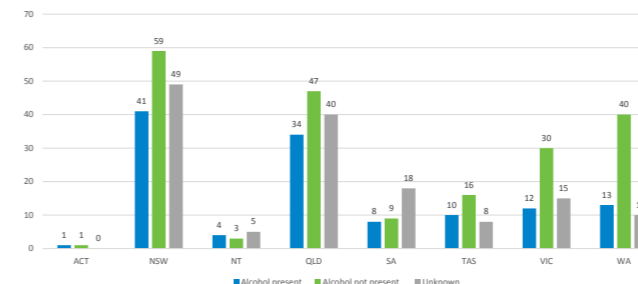


Figure 23: Presence of alcohol in boating and watercraft drowning deaths by state

In regards to time and location, the highest number of alcohol related drowning deaths occurred in summer (31.7%), followed by spring (22.8%) and winter (22%). Almost half of all alcohol related drowning deaths occurred during the weekend (26.8% Saturday and Sunday 19.5%). The least likely day for an alcohol related drowning death to occur was on Tuesday (5.7%). About one third (35.5%) of alcohol related drowning deaths most often occurred in the evening (6:01pm to 12am) with 43.8% recording a reading with a BAC $\geq 0.05\text{mg/L}$.

Inner regional locations accounted for the highest number of alcohol related deaths (28.5%), followed by major cities (27.6%). Major cities recorded the highest number of alcohol relevant deaths (31.5%).

Among deaths with pre-existing medical condition, alcohol was present in 23.5% of cases. Of these, alcohol was deemed relevant in 70.0% of cases.

Drugs

Just under one third of boating and watercraft drowning deaths were known to involve drugs (30.7%), including both legal and illegal substances, 36.6% of cases did not involve drugs, whilst 32.3% of cases did not provide toxicology information (Figure 24). Just over two thirds (67.6%) of boating deaths involved drugs and 31.7% in watercraft drowning deaths.

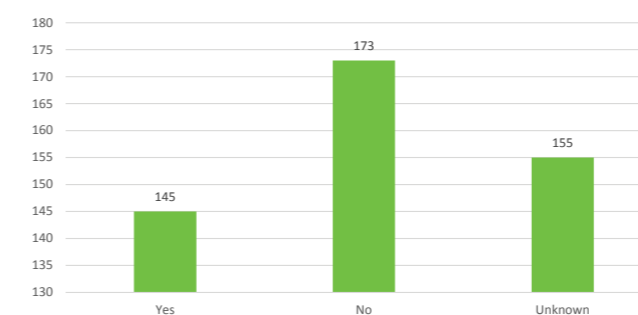


Figure 24: Boating and watercraft drowning deaths by presence of drugs

Of those cases where drugs were known to be present, approximately 60.4% of drugs were recorded as legal, 31.3% were illegal substances, 6.9% had consumed both legal and illegal drugs and 1.4% of cases were unknown (Figure 25). The most commonly recorded illegal drugs were cannabis and methamphetamine and the most common legal drugs recorded were paracetamol and ibuprofen.

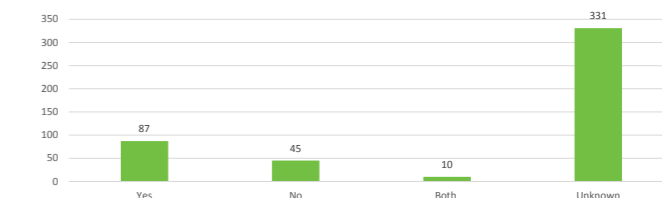


Figure 25: Boating and watercraft drowning deaths by legality of drugs

Alcohol and drugs combined

When examining alcohol consumption by drug use, it was found that 5.7% of drowning deaths involved both alcohol and drugs, while 59.4% involved neither. In 34.9% of cases, toxicology information on both alcohol and drugs was missing (Figure 26). In four cases, alcohol intoxication and/or drug overdose were listed as the primary cause of death. In total, alcohol and drugs were identified as a contributing factor in 23 cases.

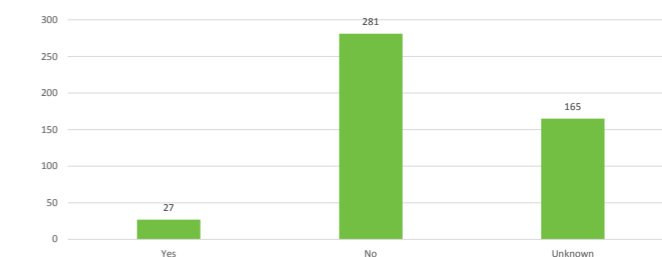


Figure 26: Boating and watercraft drowning deaths by alcohol and drugs combined

Lifejacket usage

Lifejackets were found to be worn in 8.2% of boating and watercraft drowning deaths, 34.6% were not wearing a lifejacket, in 11.4% of cases lifejackets were not required (e.g. surf boards, body boards), information is not available in 45.7% of cases. Of those not wearing a lifejacket, 14.0% were recorded as having had lifejackets on-board the boat. Of those wearing lifejackets, 28.8% were wearing an inflatable type that did not inflate for reasons unknown, a lifejacket that did not meet requirements or the lifejacket was worn incorrectly (Figure 27).

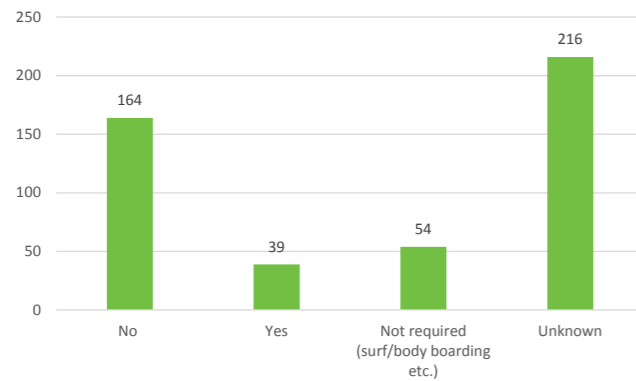


Figure 27: Boating and watercraft drowning deaths by lifejacket usage

Medical conditions

A pre-existing medical condition was known to be present in a third of boating and watercraft drowning deaths (33.2%). There were no known medical conditions in 25.6% of cases, with medical history or autopsy results not available in 40.8% of cases (Figure 28). Medical conditions were deemed to be contributory to the cause of death in 60 cases (12.7%). Major medical conditions contributing to cause of death included: coronary artery atherosclerosis, ischaemic heart disease and other cardiac-related diseases, obesity, diabetes, asthma, epilepsy and depression.

Of the 47 cases where a medical condition contributed to cause of death, 43.3% occurred in ocean and harbor locations, followed by 28.3% in rivers, creeks and streams. Over one quarter (27.7%) of cases occurred in powered vessels under 5 meters, followed by 14.9% in powered vessels sized 5 – 9.9 meters, and 10.6% occurred whilst using a surfboard.

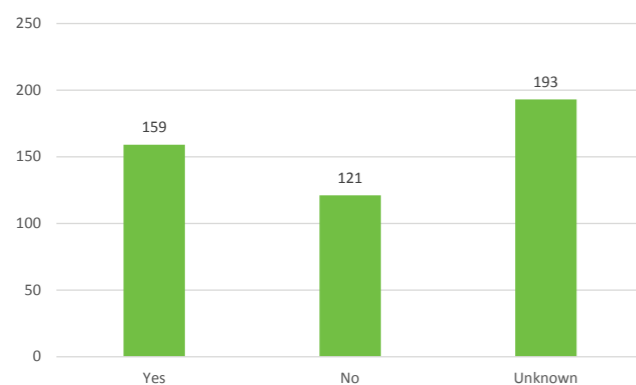


Figure 28: Boating and watercraft drowning deaths by pre-existing medical condition

Multiple fatality event

Of the 473 people who drowned during boating and watercraft activity, 108 people (22.8%) were involved in a multiple fatality event, where more than one person drowned during the incident (Figure 29).

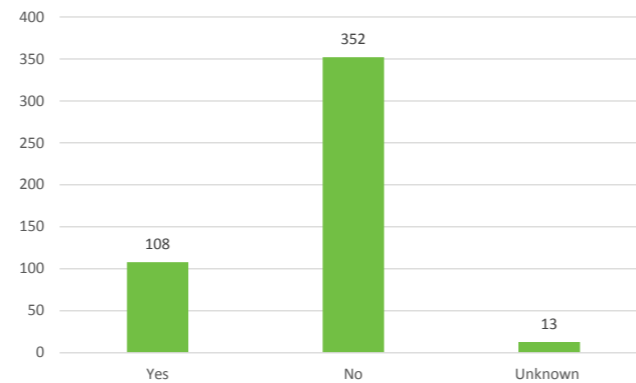


Figure 29: Boating and watercraft drowning deaths by multiple fatality event

Of the 108 cases involving in a multiple fatality event, 77.8% occurred in ocean and harbour locations and 13.0% at rivers, creeks and streams. Multiple fatality events were significantly more likely to occur at an ocean or harbour than a beach location ($p < 0.05$). Powered vessels sized 5 – 9.9 meters accounted for 20.8% of multiple fatality events and 12.9% occurred in small powered vessels under 5 meters.

Skipper and passenger status

Where information was available, it was found that in 34.0% of cases the person who drowned was the skipper of the vessel and 25.9% of fatalities were passengers on the vessel. The 40.0% of remaining cases included single occupant activity (e.g. surfing, body boarding, and wind or kite surfing) and cases where information was unavailable (Figure 30).

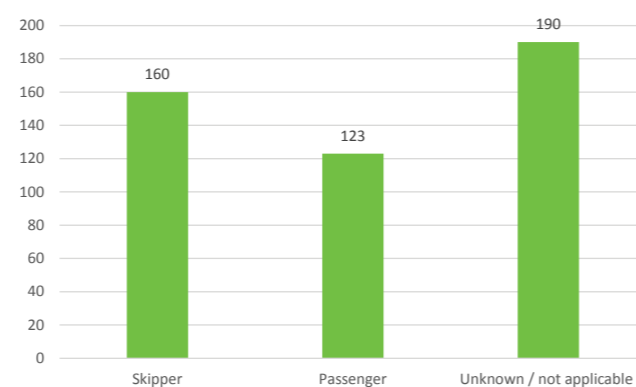


Figure 30: Boating and watercraft drowning by skipper or passenger

When analysed by presence of alcohol, 26.5% of skippers and 29.2% of passengers were found to have alcohol in their system. Approximately 17.0% of skippers and passengers had an alcohol reading over the $\geq 0.05\text{mg/L}$ limit. Drugs were found in 33.8% of skippers and 39.6% of passengers, with 13.6% of skippers and 26.3% of passengers found to have consumed illegal drugs.

Ownership information

Where information about vessel ownership was recorded, owners of boats and watercraft accounted for 38.5% of drowning deaths. Information about ownership was unknown in 35.9% of cases. Of note, 4% of deaths occurred in an employment capacity and 1% during a fishing charter or adventure company excursion (e.g. white water rafting) (Figure 31).

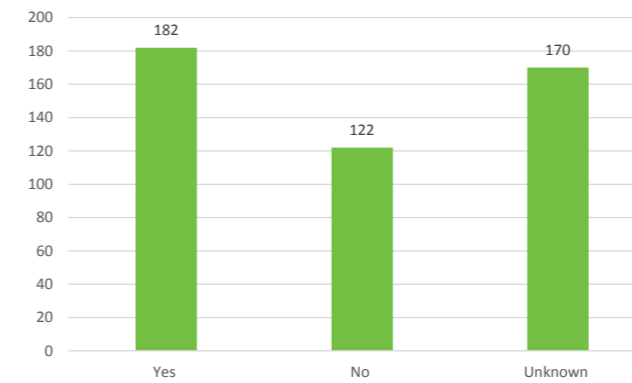


Figure 31: Boating and watercraft drowning deaths by vessel ownership

Boat Safe Partner Program

The Boat Safe program is just one part of a strategy to improve boating safety in Tasmania. Developed by Marine and Safety Tasmania (MAST), this is a partnership program with retailers, boat dealers and anyone selling boating equipment. The aim of the program is to ensure those new to boating, as well as those with experience, are given the best possible advice and guidance. A major part of the program is training up staff of Boat Safe partners on legislation, life jackets and other safety issues relating to recreational boating. These trained people then become a "train the trainer" by committing to train up other staff members in boating safety knowledge, so they in turn can pass vital safety messages onto the public.

Commitment to becoming a Boat Safe partner includes:

- Display Boat Safe Partner literature and material;
- Display Boat Safe Partner sticker near entry to premises;
- Boats on display to be fitted with the Boat Safe and safety swing tags;
- Safety material to be displayed in-store and, as a minimum, Australian Standard life jackets to 4758.1 be stocked;
- Safety material to be passed on to clients on purchase of boat or service of engine or boat repair.

Benefits of being a Boat partner:

- Promotion of partners on the MAST website and social media pages, and in other boating safety publications
- Trained staff selling products for an activity for which they have had some basic training and knowledge
- Ability to on-sell required safety equipment and boating gear to clients
- Safety outcomes for boaters and the state.

For more information see

mast.tas.gov.au/recreational/boat-safe-partners

STATE SUMMARIES - NEW SOUTH WALES

- 149 (31%) boating and watercraft drowning deaths occurred in New South Wales
- Men accounted for 89.3% of boating and watercraft drowning deaths, females accounted for 10.7%, the highest percentage of females in any one state/territory
- The most common age group for drowning is among those aged 35-44 years; followed by the 25 – 34 years and 45-54 years
- 55.7% of drowning deaths occurred in summer and spring
- 36.9% occurred during the afternoon (12:01pm – 6pm)
- Ocean and harbour incidents account for 40.3% of boating and watercraft drowning deaths, followed by rivers, creeks and streams (24.2%)
- When analysed by type, powered boats under 5 metres accounted for 15.4% and surfboards 10.7%
- Most boating and watercraft drowning deaths in NSW occurred in Major cities (36.9%) and Inner regional locations (36.9)
- The most boating and watercraft drowning deaths occurred in the Sydney area (24.4%), 16.1% on the South Coast and 12.6% in the Hunter region
- 66.4% of people were not visitors, whereas 16.1% of people were intrastate visitors when they drowned.

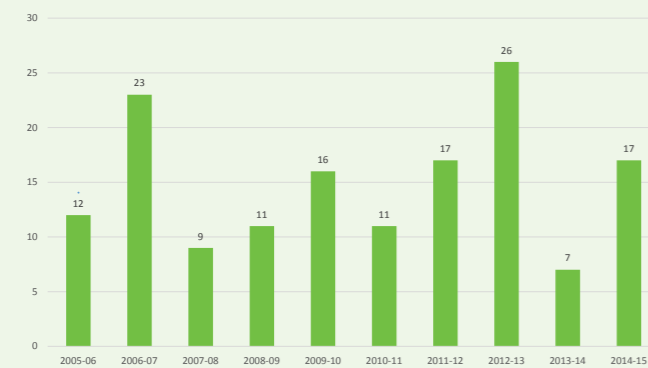


Figure 32: New South Wales boating and watercraft drowning deaths by financial year

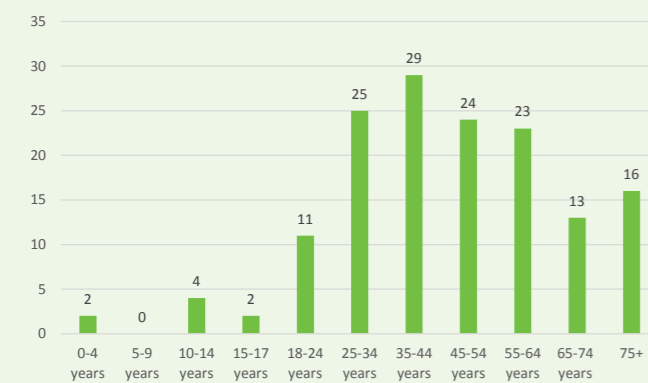


Figure 33: New South Wales boating and watercraft drowning deaths by age

Risk factors

- Alcohol was present in over a quarter of NSW boating and drowning deaths (27.5%), of those 63.4% recorded a BAC $\geq 0.05\text{mg/L}$
- Drugs were recorded in 32.6% of cases, of these 23.0% were recorded as illegal substances
- Only 4.7% of people were recorded to have been wearing a lifejacket. In one case, the person was wearing an inflatable lifejacket that did not inflate. Note that a lifejacket was not required in 14.1% of cases e.g. surfing or body boarding
- Pre-existing medical conditions were known to be present in 26.2% of NSW cases
- 22.4% of boating and watercraft drowning deaths involved one or more deaths in the same incidents (also known as a multiple fatality event).

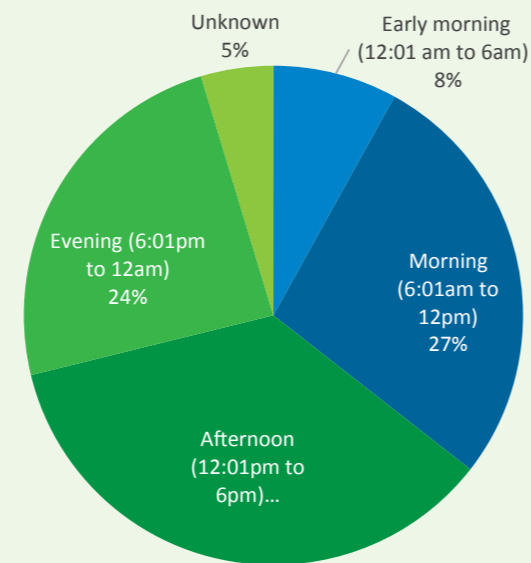


Figure 34: New South Wales boating and watercraft drowning deaths by time

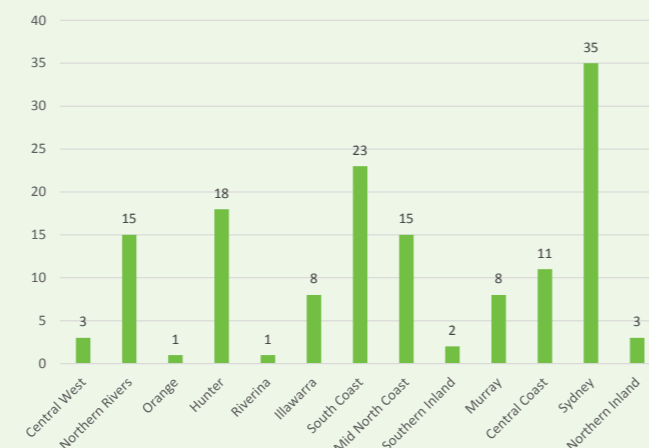


Figure 35: New South Wales boating and watercraft drowning deaths by incident region

VICTORIA

- 57 (12%) boating and watercraft drowning deaths occurred in Victoria
- Men accounted for 98.2% of boating and watercraft drowning deaths
- 25.0% of drowning deaths occurred among the 25-34 year age group
- An equal number of drowning deaths occurred in the morning (6:01am to 12pm) and in the afternoon (12:01pm to 6pm)
- The highest number of drowning deaths occurred in spring (33.9%) and summer (28.6%)
- 51.0% of boating and watercraft related drowning deaths occurred in Ocean/Harbour locations, followed by beaches (23.2%)
- When analysed by type, paddlecraft accounted for 22.9% of all boating and watercraft drowning deaths in Victoria
- Most drowning deaths occurred in Major cities (41.1%) and Outer regional locations (33.9%)
- The most boating and watercraft drowning deaths occurred in the Southern Melbourne area (31.6%), 19.3% in Barwon South West and 12.3% in the Hume region
- 67.9% of people were not visitors, 23.2% of people were intrastate visitors to the location where they drowned.

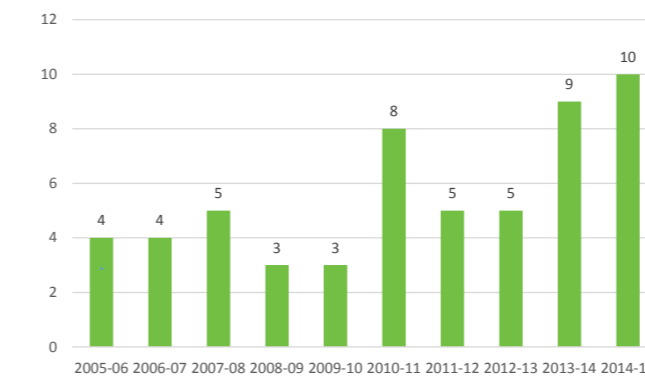


Figure 36: Victoria boating and watercraft drowning deaths by financial year

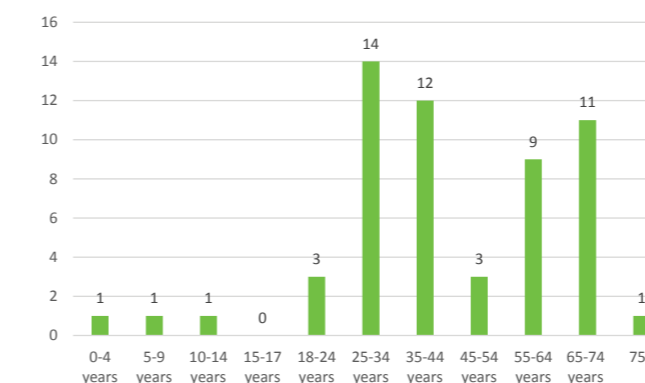


Figure 37: Victoria boating and watercraft drowning deaths by age

Risk factors

- Alcohol was present in 21.1% of VIC boating and watercraft drowning deaths, of those 50.0% recorded a BAC $\geq 0.05\text{mg/L}$
- Drugs were recorded in 16 cases, of which 50.0% were recorded as illegal substances
- 14.3% of victims were recorded as wearing a lifejacket
- 32.1% were recorded to have an pre-existing medical condition
- 8.9% of drowning deaths occurred during multiple fatality events where more than one person drowned.

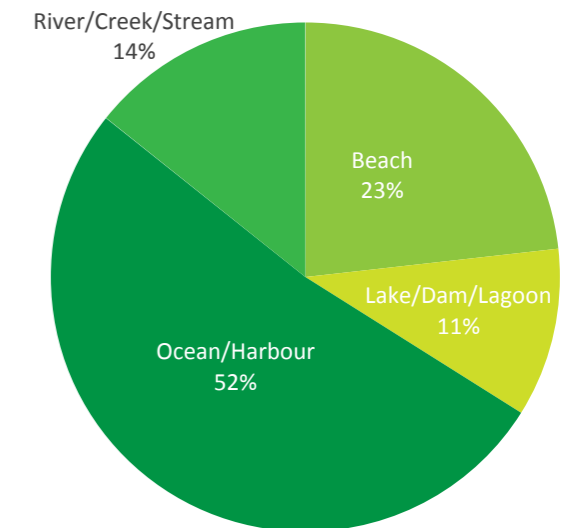


Figure 38: Victoria boating and watercraft drowning deaths by location

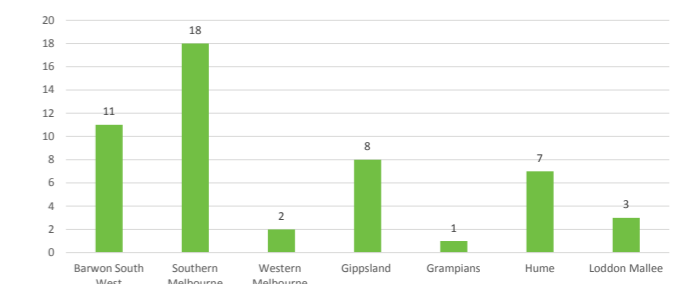


Figure 39: Victoria boating and watercraft drowning deaths by incident region

QUEENSLAND

- 121 (26%) boating and watercraft related drowning deaths occurred in Queensland
- Men accounted for 91.9% of deaths and females 8.1%
- The highest risk age group are those aged 45-54 years (22.8%)
- One third (33.3%) of boating and watercraft drowning deaths occurred in the afternoon (12:01pm to 6pm), and 29.3% in the morning
- The highest number of fatalities occurred in autumn (32.5%), followed by spring (26.0%)
- 54.4% occurred in ocean and harbour locations and 24.4% in rivers, creeks and streams (24.4%)
- When analysed by type, the highest number occurred in powered boats under 5m (12.4%) and powered boats 5 – 9.9m (10.7%)
- Most boating and watercraft drowning deaths occurred in Major cities (29.3%) and Outer regional locations (23.6%)
- Boating and watercraft drowning deaths most commonly occurred in Far North Queensland and the Torres Strait (19.5%) and Wide Bay - Burnett area (9.8%)
- 61.0% of victims were not visitors, and 19.5% were intra-state visitors who drowned 100km or further from where they lived.



Figure 40: Queensland boating and watercraft drowning deaths by financial year

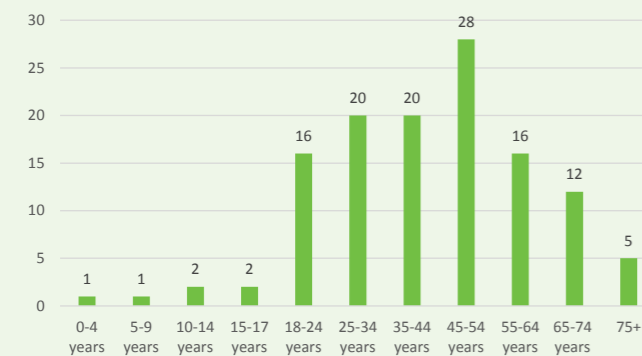


Figure 41: Queensland boating and watercraft drowning deaths by age

Risk factors

- 28.1% of boating and watercraft drowning deaths involved alcohol, 73.5% of which recorded a BAC $\geq 0.05\text{mg/L}$
- 26.4% of drowning deaths involved drugs, of which 43.7% were illegal substances
- 2.5% of victims were recorded to be wearing lifejackets
- 26.4% were involved in multiple fatality events where more than one person drowned
- 38.0% were found to have an pre-existing medical condition.

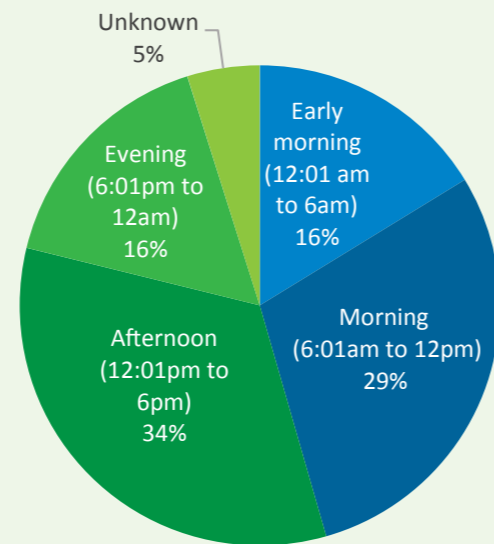


Figure 42: Queensland boating and watercraft drowning deaths by time

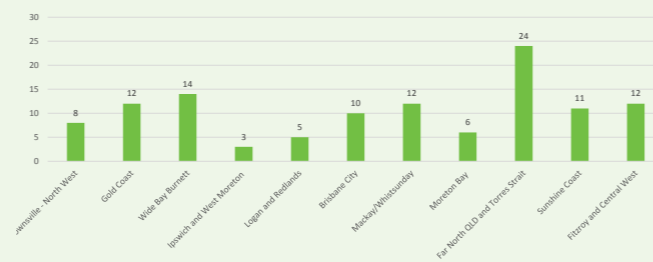


Figure 43: Queensland boating and watercraft drowning deaths by incident region

WESTERN AUSTRALIA

- 63 (13%) boating and watercraft related drowning deaths occurred in Western Australia
- 90.5% were men
- Those aged 55-64 years accounted for the highest number of boating and watercraft drowning deaths at 23.8%, followed by 65-74 years (19.0%)
- 41.9% occurred in the afternoon (12:01pm to 6pm)
- An equal number occurred in autumn (20.6%) and spring (20.6%)
- Ocean and harbour locations accounted for 57.1% of boating and watercraft drowning deaths, followed by beaches (22.2%)
- When analysed by type, the highest number occurred using powered boats 5-9.9m (23.8%) and surfboards (9.5%)
- Most boating and watercraft drowning deaths occurred in Outer regional locations (28.6%) followed by Major cities (20.6%)
- Boating and watercraft drowning deaths most commonly occurred in Perth (27%) and the Mid-West Gascoyne area (25.4%)
- 63.5% of victims were not visitors, whereas 22.2% were intra-state visitors who drowned 100km or further away from where they lived.

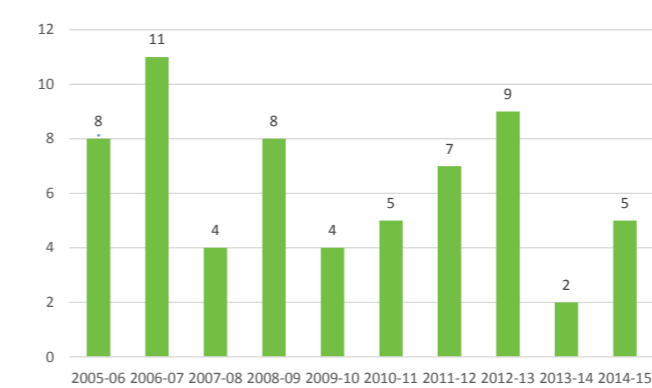


Figure 44: Western Australia boating and watercraft drowning deaths by financial year

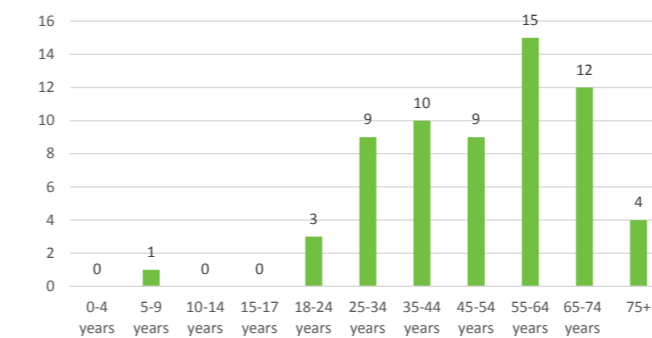


Figure 45: Western Australia boating and watercraft drowning deaths by age

Risk factors

- 20.6% of boating and watercraft drowning deaths in Western Australia were alcohol related, 38.4% of which had a BAC $\geq 0.05\text{mg/L}$
- 38.1% of deaths involved drugs, of which 75.0% involved illegal substances
- 11.1% of victims were found to be wearing lifejackets
- Almost half (49.2%) were found to have underlying pre-existing medical condition
- 19.0% were multiple fatality events, resulting in more than one person drowning per incident.

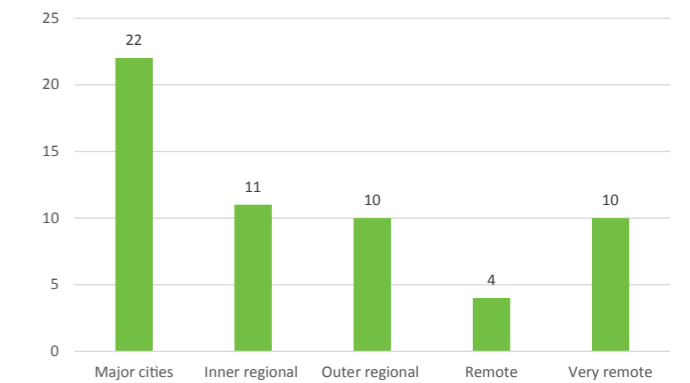


Figure 46: Western Australia boating and drowning deaths by remoteness classification

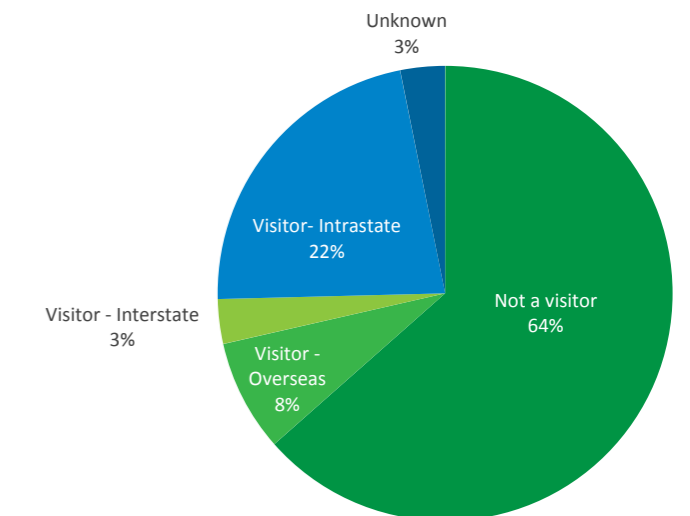


Figure 47: Western Australia boating and watercraft drowning deaths by visitor status

SOUTH AUSTRALIA

- 35 (7%) boating and watercraft drowning deaths occurred in South Australia
- 88.9% of victims were men
- 58.3% of boating and watercraft drowning deaths were among those aged between 35 and 65 years
- 40.0% occurred in the afternoon (12:01pm to 6pm)
- 36.1% occurred in summer, followed by spring (27.8%)
- Ocean and harbour was the most common location (72.2%)
- When analysed by craft type, the highest number of incidents occurred in powered boats under 5m in length (11.4%)
- Most deaths occurred in Outer regional locations (38.9%) followed by Remote areas (27.8%)
- 61.1% of victims were not visitors, and 30.6% were intra-state visitors that lived 100km or further from where they drowned
- Boating and watercraft drowning deaths most commonly occurred in the Murrayland and Riverland area (20.0%) and York and Mid-North region (20.0%).

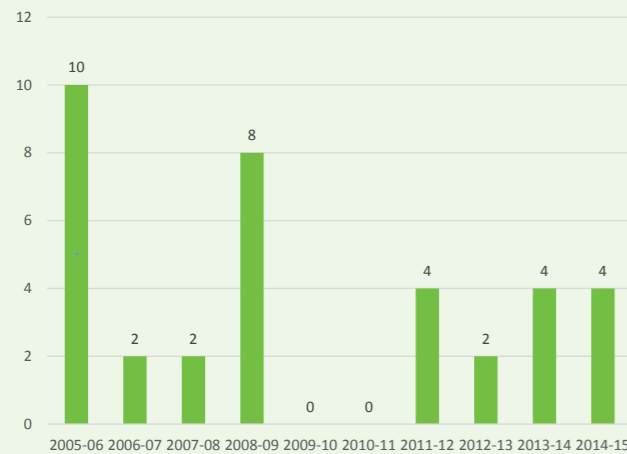


Figure 48: South Australia boating and watercraft drowning deaths by financial year

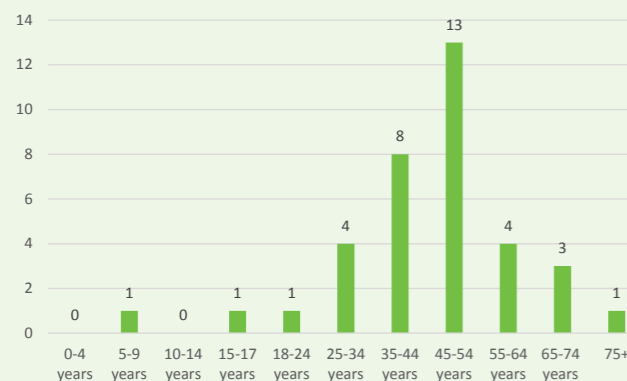


Figure 49: South Australia boating and watercraft drowning deaths by age

Risk factors

- 22.9% of boating and watercraft drowning deaths involved alcohol, of which 25.0% were found to have a BAC $\geq 0.05\text{mg/L}$
- 19.4% involved drugs, of which 1 involved illegal substances
- Only one victim was recorded to be wearing a lifejacket
- 27.8% were multiple fatality events where more than one person drowned
- 2 people were found to have a pre-existing medical condition.

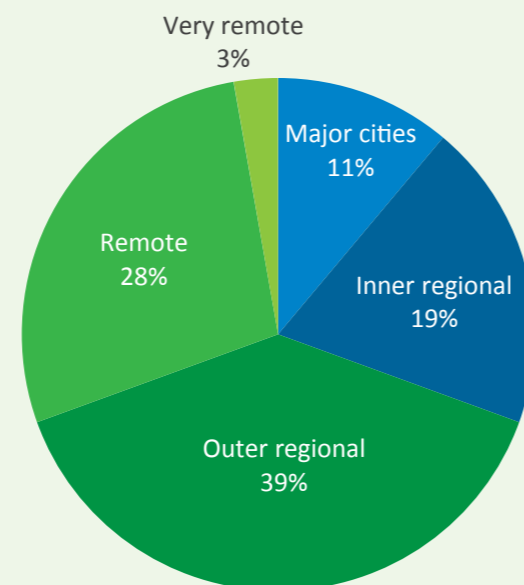


Figure 50: South Australia boating and watercraft drowning deaths by remoteness classification



Figure 51: South Australia boating and watercraft drowning deaths by incident region

TASMANIA

- 34 (7%) of boating and watercraft drowning deaths occurred in Tasmania
- 97.1% of victims were men
- The 25-34 and 55-64 years age groups accounted for the highest number of boating and watercraft related deaths (20.6% each)
- There were no boating and watercraft related drowning deaths among children aged 0-14 years
- Boating and watercraft drowning deaths occurred most frequently in the afternoon (39.4%), and in the morning (33.3%)
- Boating and watercraft related drowning deaths in Tasmania occurred most frequently in the winter (38.2%), followed by incidents in the summer (32.4%)
- When analysed by type, 23.5% occurred using powered boats 5-9.9m and 14.7% in powered boats under 5m in length
- More boating and watercraft drowning deaths occurred in Ocean and harbour (61.8%) locations
- 61.8% boating or watercraft drowning deaths occurred in Outer Regional locations
- 52.9% of people who drowned due to boating and watercraft related activity were not visitors to where they drowned
- 38.2% were intra-state visitors who drowned 100km or further from where they resided
- 50.0% of boating and watercraft drowning deaths occurred in the Hobart area.

Risk factors

- 29.4% of deaths involved alcohol, of which 60% had a BAC $\geq 0.05\text{mg/L}$
- Almost half involved drugs (48.5%), of which 64.7% were illegal substances
- 38.2% were wearing lifejackets
- 21.9% were multiple fatality events where more than one person drowned
- 54.5% were found to have underlying pre-existing medical condition.

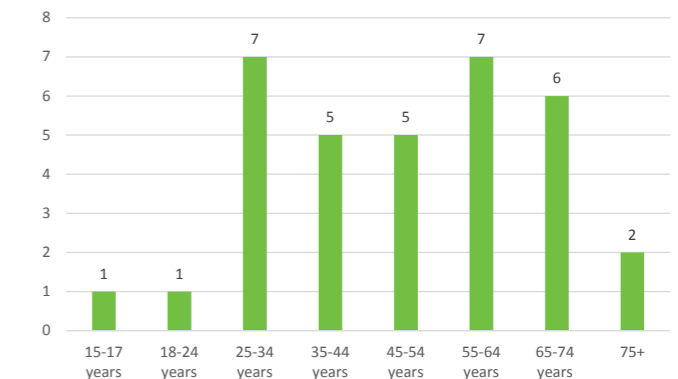


Figure 53: Tasmania boating and watercraft related drowning deaths by age



Figure 52: Tasmania boating and watercraft drowning deaths by financial year

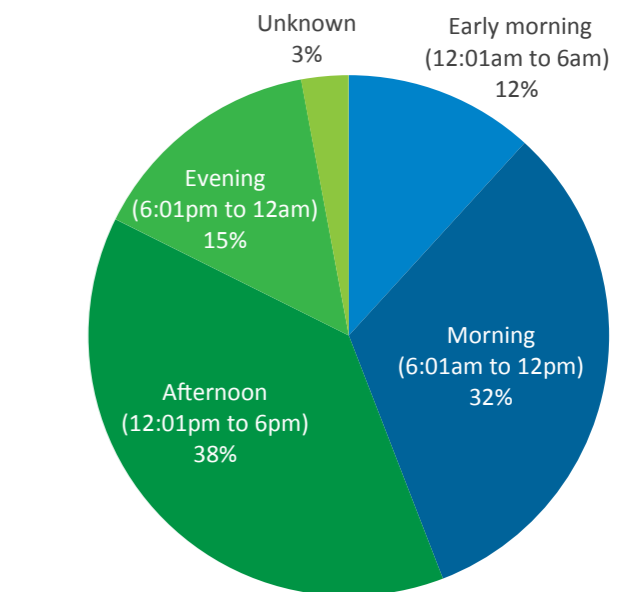


Figure 54: Tasmania boating and watercraft related drowning deaths by time occurrence

NORTHERN TERRITORY

- 12 (3%) boating and watercraft drowning deaths occurred in Northern Territory
- All but one of the victims were men
- The 35-44 years age group and the 65-74 years age group each accounted for 27.3%
- There were no drowning deaths under the age of 18 attributed to boating and watercraft recorded in the Northern Territory
- Boating and watercraft drowning deaths most commonly occurred in the evening and in the spring (45.5%)
- 63.6% occurred in Ocean and harbour locations
- The highest number of fatalities occurred using powered boats under 5m (33.3%)
- 63.6% were not visitors to the location where they drowned, 27.3% were intra-state visitors who lived 100km or further from where they drowned
- 75% of boating and watercraft drowning deaths occurred in the Darwin region.

Risk factors

- 33.3% of cases involved alcohol
- No cases recorded of wearing a lifejacket or having them on-board the boat
- 25.0% were multiple fatality events where more than one person drowned
- 36.0% recorded having an underlying medical condition.

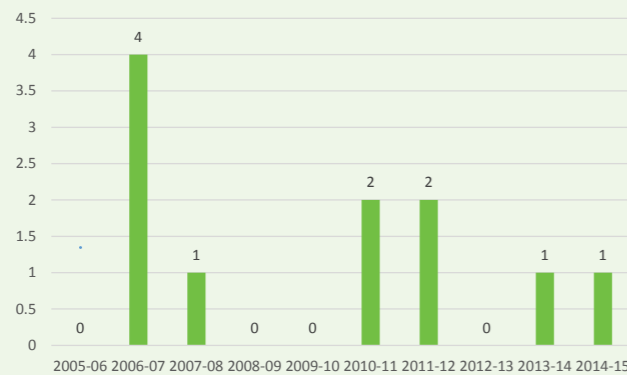


Figure 55: Northern Territory boating and watercraft drowning deaths by financial year

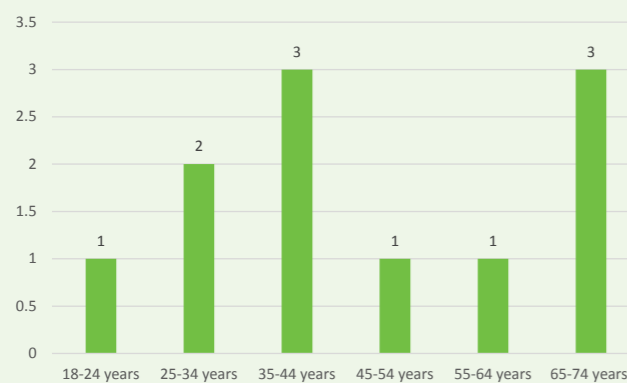


Figure 56: Northern Territory boating and watercraft drowning deaths by age

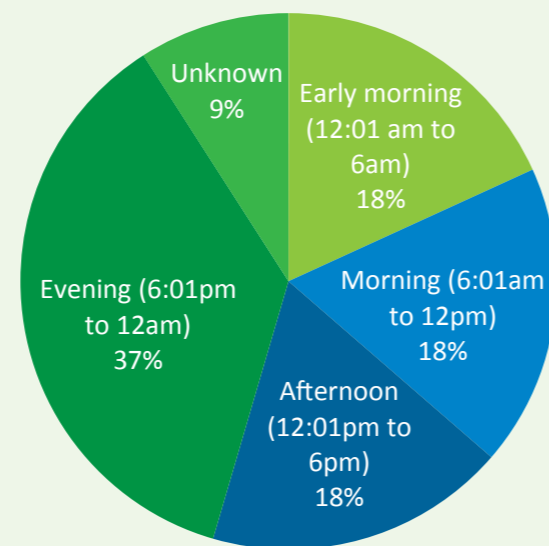


Figure 57: Northern Territory boating and watercraft drowning deaths by time band

AUSTRALIAN CAPITAL TERRITORY

- 2 (0.4%) boating and watercraft related drowning deaths occurred in Australian Capital Territory in the past 10 years
- Both drowning deaths occurred in a lake/dam/lagoon, in neither instance they were wearing a lifejacket.
- Age group 25-34 years and 55-64 years
- Alcohol was present in one case, however it was not deemed relevant
- Both were not visitors to the area
- One incident occurred in summer and one occurred in the winter
- Both occurred in the afternoon (12:01pm to 6pm).

OLD4NEW LIFEJACKET CAMPAIGN

The Old4New lifejacket program is all about making more boaters aware of the range of modern lifejackets.

Not only are they slim-fitting but there's also a style to suit all different types of water activity. Now in its third season running, the program is helping to promote wearing a lifejacket when you're out on the water, especially when in smaller craft. Advice and guidance on lifejacket care and servicing is provided through the Old4New program and skippers are strongly encouraged to service their lifejacket once a year or in accordance with the manufacturer's instructions. An inflatable lifejacket will only work if it's kept in working order. In the last decade alone, 8 out of 10 people who drowned in NSW while boating were not wearing a lifejacket. The Old4New program is just part of a wider campaign to get people into the right habit of putting on a lifejacket each time they go boating.

For more about Lifejacket Law, the Old4New program or to download the latest Guide to selection, care and service visit maritimemanagement.transport.nsw.gov.au or facebook.com/nswmaritime



DISCUSSION

Boating and watercraft activity accounted for 473 drowning deaths over the past 10 years, and represent on average one sixth, or 16% of drowning deaths annually.

Boating remains the second leading activity prior to drowning behind swimming and recreating, however a slight decrease over time (with a spike in 2012-2013), suggests that prevention efforts and relevant legislation are making a difference. Interestingly, whilst boating drowning deaths appear to be slowly decreasing over time, this study suggests that watercraft drowning deaths are on the rise. Victoria was the only state to record a substantial increase in boating and watercraft related drowning deaths over the past 10 years. The lack of wearing lifejackets and consumption of alcohol whilst participating in boating and watercraft activity remain key prevention issues.

Given that men aged between 25 and 64 years account for the majority of all boating and watercraft drowning fatalities, evidence based strategies tailored to this particular audience whilst they are participating in such activity are recommended.

Lifejackets

This study reported that only 8.2% reported having worn a lifejacket, with a proportion wearing inflatable types that did not deploy, or were wearing a lifejacket that was unsuitable. Furthermore, of those not wearing lifejackets, 14% were found to have been carrying lifejackets on the vessel at the time of the incident. Tasmania recorded the highest rates of lifejacket wear, with over 50.0% found wearing a lifejacket. These statistics reinforce the importance of regularly maintaining and servicing inflatable lifejackets and ensuring that lifejackets are the correct size and fitted correctly for everyone on board the vessel. Tailoring messages encouraging people to wear their lifejackets opposed to just carrying them should be considered.

Recommendations from the Coroner regarding the wearing of lifejackets when participating in boating and watercraft activity were provided in 55 cases. The nature of recommendations addressing lifejacket wearing were consistent across jurisdictions, and mostly referred to: the wearing lifejackets "in vessels under the size of either 6 meters or 4.8 meters" (depending on state legislation); clarifying or simplifying the interpretation of "heightened risk"; increased promotion and public awareness of wearing lifejackets, even if not legally required, e.g. when using non-powered watercraft (specifically in Victoria and Tasmania). The skipper's responsibility to ensure that all passengers are wearing lifejackets was highlighted. The finding of this report support the coroner's recommendations and strengthen the argument for consistent and streamlined requirements for the wearing of lifejackets across the country.

Alcohol and drugs

Alcohol was present in 26% of cases, with half recording a BAC ≥ 0.05 mg/L. Young men aged 18-24 years were most likely to consume large quantities of alcohol prior to or during boating and watercraft activity. Inland locations were found to have the most number of people over the legal limit, with people drowning in rivers, lakes and streams over ten times more likely to be over the limit than those who drowned at beach locations. More people were found to be over the limit in the evening than any other time, compounding the risk for drowning when using boats and watercraft at night. Alcohol concentration was high among those with a pre-existing medical condition, increased awareness of mixing alcohol and medication should be addressed in future safety messaging. A higher number of boating and watercraft related deaths involved drugs (30.3%), with nearly one third (31.3%) recording illegal drugs. Consuming drugs when using boats and watercraft is just as dangerous as alcohol and needs to be incorporated into future alcohol related drowning prevention messages.

Greater public awareness of the legislation pertaining to being under the influence of alcohol and illicit drugs when operating a vessel needs to be addressed, and increasing enforcement of breath testing when on the water is needed, particularly on rivers, lakes and streams.

Emerging trends

When combined, people of the aged of 65 years made up the highest proportion of boating and watercraft drowning deaths. Also given that one third (33.3%) of people who drowned had a pre-existing medical condition, Royal Life Saving encourages that people aged 55 years and over undergo regular medical check-ups, allowing early detection of chronic disease, as well as appropriate monitoring and treatment.

Over half (53%) of all boating and watercraft drowning deaths occurred in the summer and spring, October and March accounted for the highest number of drowning deaths. These months reflect the warmer weather and when the national public holiday long weekends occur. Timing of public awareness messages and safety campaigns to coincide with key public and school holiday periods should be considered to enable maximum impact and relevance. Tasmania is the only state to go against this trend with the highest rate of boating and watercraft drowning deaths occurring in the winter, with cold water immersion emerging as a factor in drowning deaths.

Most boating and watercraft drowning deaths occurred in powered vessels under 5 meters in length (including dinghy's, runabouts, tinnies, dory's), followed by paddle craft (kayaks, canoes, surf skis). Victoria recorded the highest number of watercraft related drowning deaths (40.4%). Given the trend of drowning deaths among these vessels, further research should be explored to investigate specific safety issues and the need for any tailored drowning prevention strategies.

Almost two thirds (63.5%) of people who drowned whilst using boats or watercraft were not visitors to the location where they drowned, with the exception of Western Australia where most were intrastate visitors. Qualitative research exploring the attitudes and perceptions of people undertaking boating and watercraft related activity should be undertaken to better understand people's behaviour when around the water and enable safety campaigns to be tailored accordingly.

This report focused solely on boating and watercraft drowning deaths and cannot be directly compared to other reports whereby all boating fatalities and injuries are presented⁹. However, this report has provided a comprehensive analysis on the key risk factors contributing to drowning whilst participating in boating and watercraft activity, with some well-known factors such as lack of lifejackets and consuming alcohol, along with new trends emerging. Working with industry partners to promote boating and watercraft drowning should continue to make a difference.

RECOMMENDATIONS

1. Investigate the current terminology and definitions within the wider sector in regards to boating and watercraft to enable better comparison across Australia and to strengthen validity and reliability of boating and watercraft incident data.
2. Work with partner organisations in the boating safety sector to improve non-fatal drowning data collection and conduct qualitative research relating in order to better understand the full burden of boating and watercraft drowning.
3. Advocate relevant state and territory bodies for streamlined safety requirements and legislation across the country, specifically the wearing of lifejackets, breathalysing on the water and licensing of skipper and vessel requirements.
4. Continue to work with key sector agencies to develop and implement public education strategies when using boats and watercraft, addressing risky behaviour such as operating a vessel when under the influence of alcohol and drugs, specifically targeting men.
5. Continue to communicate the importance of checking local conditions and hazards at all aquatic locations, including familiar sites given that most people were local to the area that they drowned.

LIMITATIONS

- A proportion of cases within this report were open (i.e. case still under investigation) and as such, a number of variables remain unknown until the case is closed following the completion of any coronial investigation. It should be noted there may be a higher number of unknown variables among cases in regional / rural areas or more recent years where a larger proportion of cases may still be under investigation.
- Amongst cases which were closed, some were still missing information, either because the information was unknown or it was not made available electronically. In such cases, variables were entered as 'unknown', limiting the completeness of the data.

CONCLUSION

This is the first report to comprehensively analyse boating and watercraft related drowning deaths on a national scale. Boating and watercraft is the second leading activity prior to drowning behind swimming and recreating, and statistics show a slight decrease in boating and drowning deaths over the past 10 years. It is imperative that prevention efforts targeting boat and watercraft users continue to make an impact in this area.

This report confirms previous findings that men, alcohol and inland locations are key issues for drowning overall. The number of lives lost when using small powered boats and paddlecraft (canoes, kayaks, surf skis) are of high concern, given the increased accessibility and availability of these vessels. Further research and tailored safety campaigns relating to these vessels should be explored.





Royal Life Saving will continue working with sector partners to advocate and address the safety requirements and enforcement of legislation when using boats and watercraft.



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FOR MORE INFORMATION ABOUT THIS REPORT CONTACT:

Royal Life Saving Society - Australia

Phone 02 8217 3111

E-mail info@rlssa.org.au

Visit www.royallifesaving.com.au

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ACT Phone 02 6260 5800
E-mail act@rlssa.org.au

NSW Phone 02 9634 3700
E-mail nsw@royalnsw.com.au

NT Phone 08 8981 5036
E-mail nt@rlssa.org.au

QLD Phone 07 3823 2823
E-mail admin@rlssq.com.au

SA Phone 08 8210 4500
E-mail mail@royallifesavingsa.com.au

TAS Phone 03 6243 7558
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