

2020/21
LIFE SAVING
VICTORIA

DROWNING REPORT



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165

TOTAL DROWNING INCIDENTS (FATAL AND NON-FATAL)

ACKNOWLEDGEMENT OF COUNTRY

WE AT LIFE SAVING VICTORIA ACKNOWLEDGE THE TRADITIONAL CUSTODIANS OF THE LAND AND WATERWAYS WHERE OUR ACTIVITIES TAKE PLACE. WE PAY OUR RESPECTS TO THEIR ELDERS, PAST AND PRESENT, AND THE EMERGING LEADERS.



PRESENTING THE 2020/21 LIFE SAVING VICTORIA DROWNING REPORT.

Each year, Life Saving Victoria's research team compiles the drowning incidents of the past 12 months to provide an overview of the state's drowning profile in comparison to previous years. It details how many people drowned, where they drowned and what they were doing when they got into trouble, in order to identify any trends to help us better focus our prevention efforts.

While this report tells us many things and provides valuable insights into how we should target our vital water safety work, what it can't tell us is the stories of the individual people who make up its contents.

It can't tell us about the rich and full lives they lived, or the gaping holes left behind in their families, among their loved ones and within their communities.

When reviewing this report, I ask that you keep this in mind. These are more than just numbers, they are people, and it is our intention in compiling this report that part of their legacy lives on to help prevent future drownings in Victorian waters.

Tragically, this year's report details Victoria's worst fatal drowning toll in more than 20 years and the worst fatal drowning toll since Life Saving Victoria was established in 2002, with 61 lives cut short in Victorian waters. This represents a 40% increase in the fatal drowning rate when compared to the 10-year average, and an unacceptable spike in an otherwise downward turning trend.

It is even more heart-wrenching to highlight that of these fatalities, 15 involved children aged 0–14 years, equating to a quarter of all drownings and accounting for the highest age-specific fatal drowning rate this year. Seven of these drownings occurred in or around the home environment, while eight occurred in open waterways or public pools.

Regarding drowning locations, there was a 90% increase in drowning deaths in private or home swimming pools, and a 61% increase in bathtubs compared to the 10-year average. This may have been impacted by changes in people's movements, lifestyles and behaviours during the pandemic, negatively affecting water safety outcomes in domestic settings.

In 2020/21, drowning deaths in coastal areas rose by more than a quarter, and in inland waterways increased by 56% compared to the 10-year average. It is concerning that 38% of this year's drowning deaths occurred when walking, recreating or playing near water – more than double the decade's average, highlighting just how dangerous being caught off guard around water can be.

While men aged 25–44 continued to be overrepresented in fatal drownings, accounting for 20% of all fatalities, 22 women drowned in 2020/21, 13 more than the 10-year average. During the same period, this report reveals people from culturally and linguistically diverse (CALD) communities represented 35% of all drowning deaths, making them twice as likely to drown than people born in Australia, affirming our vital work with various communities and cultural groups to increase water safety knowledge and skills among newly arrived Australians, as well as with established communities throughout Victoria.

This report also showed that regional Victorians are almost twice as likely to drown than those who live in metropolitan areas; and perhaps contrary to what would be assumed, almost half of all drowning deaths occurred within the person's own postcode, showing the risk is oftentimes where you'd least expect it.

What can often be overlooked when we speak about drowning are the non-fatal incidents that leave people seriously and sometimes permanently injured. In 2020/21, there were 104 non-fatal drowning incidents reported in Victoria, 13% more than the past decade's average. Each of these people have been left with varying degrees of trauma they will carry with them for life, physically, mentally, and emotionally. This is why we don't refer to non-fatal drowning incidents as near misses, because, as many people who have survived a drowning will attest, they aren't a near miss at all, and can change every aspect of your life.

As I leave you to peruse the full report, I wish to again acknowledge all of the people whose tragedies have been collated within. Our sincerest condolences go out to everyone who has been personally affected by drowning, which motivates us to continue our crucial life-saving water safety work towards achieving our goal of a future free from drowning. Although anyone can drown, no one should.

Cath Greaves

CEO
Life Saving Victoria



FATAL DROWNING IN 2020/21



61

Drowning deaths

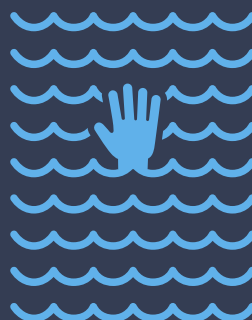


0.92

Crude fatal drowning rate per

100,000

persons



40% ↑

Increase on the 10-year average drowning rate



\$311M

Direct cost of lives lost



64%

Male

36%

Female

COMMON LOCATIONS (FATAL)



39%

Rivers/creeks/lakes/dams



33%

Beach/bay/ocean

ACTIVITY/FACTORS# (FATAL)



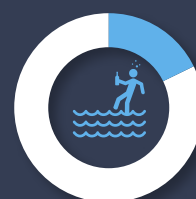
38%

Walking/playing near water



18%

Swimming/paddling/wading



18%

Involved alcohol and/or illegal drugs

#where activity was known

KEY FATAL DROWNING STATISTICS IN 2020/21



25%

of fatal drownings involved children aged 0-14 years



56% ↑

Increase in fatal drownings in inland waterways*



78% ↑

Increase in fatal drownings in waterways around the home*



48%

of people drowned at a waterway within their residential postcode

NON-FATAL DROWNING IN 2020/21



1.55

Crude non-fatal drowning rate per

100,000

persons



104

Non-fatal drowning incidents attended by paramedics

65%
Male



1%

Other

34%

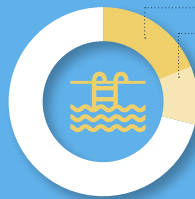
Female

COMMON LOCATIONS (NON-FATAL)



40%

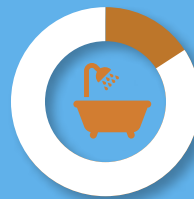
Bay/beach/
ocean



19% Residential pools
10% Public pools

29%

Pools



16%

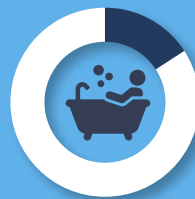
Bath/
spa bath

ACTIVITY (NON-FATAL)



59%

Swimming/
paddling/wading



16%

Bathing

OF THE DROWNING DEATHS BETWEEN 2011/12 AND 2020/21



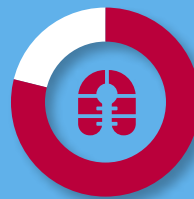
35%

Were people
from CALD
communities



31%

Involved
alcohol and/or
illegal drugs



79%

Were either not wearing a
lifejacket or it was incorrectly
fitted/worn in boating incidents

Every day, visitors to Victoria's 811 kilometres of ocean beaches, 259 kilometres of bay beaches, 85,000 kilometres of rivers, 13,000 natural wetlands and 588 public and commercial swimming pools, engage in a wide variety of recreational aquatic activities including swimming, boating, bathing, driving, sporting and other leisure activities (Matthews et al., 2017; Short, 1996; Department of Sustainability and Environment, 2011). Our prevention efforts span these settings. The performance factors highlighted below were impacted by the 2020/21 COVID-19 pandemic.

REDUCE DROWNING

Reduce the Victorian drowning rate

SERVICES

Expand to meet public need, sustainability, membership development, growth and support



Drowning deaths in Victoria in 2020/21. This is 21 more than the 10-year average.



Rescues by lifesavers and lifeguards on patrolled beaches on average per year from 2010/11 to 2019/20.



Crude fatal drowning rate per 100,000 population in Victoria in 2020/21; a 40% increase compared to the 10-year average.



Rescues per 100,000 beachgoers on average per year from 2010/11 to 2019/20.



Non-fatal drowning incidents attended by paramedics in 2020/21. This represents a crude non-fatal drowning rate of 1.55 per 100,000 population in Victoria in 2020/21.



First aid assistance by lifesavers and lifeguards on patrolled beaches on average per year from 2010/11 to 2019/20.



Decrease in the fatal drowning rate in Victoria since the start of the Play it Safe by the Water (PISBTW) campaign in 1998 (baseline is the three-year average 1996/7 to 1998/99 compared to the follow-up 2018/19 to 2020/21 average).



Volunteer members, patrolling our beaches and providing education and training in lifesaving activities, to ensure the safety of Victoria's waterway users.



Direct cost to society of lives lost (where the value of a statistical life is estimated at \$5.1 million; Office of Best Practice Regulation, 2021).



Estimated value of coastal safety and lifesaving services per year in Australia (Deloitte Access Economics, 2020).

EDUCATION & TRAINING

Continue development to ensure efficiency and expansion of delivery

RISK & RESEARCH

Striving for excellence in evidence-based practice

50,000+ 

Participants took part in water safety education programs in 2020/21, including the Water Safety @ Home series; online and face-to-face Sink or Swim and Open Water Learning Experience (OWLE) programs; and Nippers programs.

1,250+ 

Members of LSV participated in the first Annual Member Survey, which assisted in identifying member satisfaction and experiences with the different areas of LSV.

17,000 

Culturally and linguistically diverse participants took part in LSV programs in 2020/21.

58 

Children participated in pilot testing of the dry swimming aid – the Platypus Swim Trainer. This research helped to identify how the trainer could be further developed to improve children's swimming technique and confidence.

11,929 

People trained in CPR or other First Aid-related courses in 2020/21.

1,833 

The estimated number of swim teachers required across Victoria following research involving 39 Victorian swimming lesson providers. Methods for overcoming this include enhancing recruitment and retention.

8,118 

Participants in accredited aquatic safety training courses in 2020/21.

127 

Pool safety assessments conducted. These assessments measured performances of 127 aquatic centres against best practice standards, and 13 risk assessments and three supervision plans have been provided to aquatic facilities.

216 

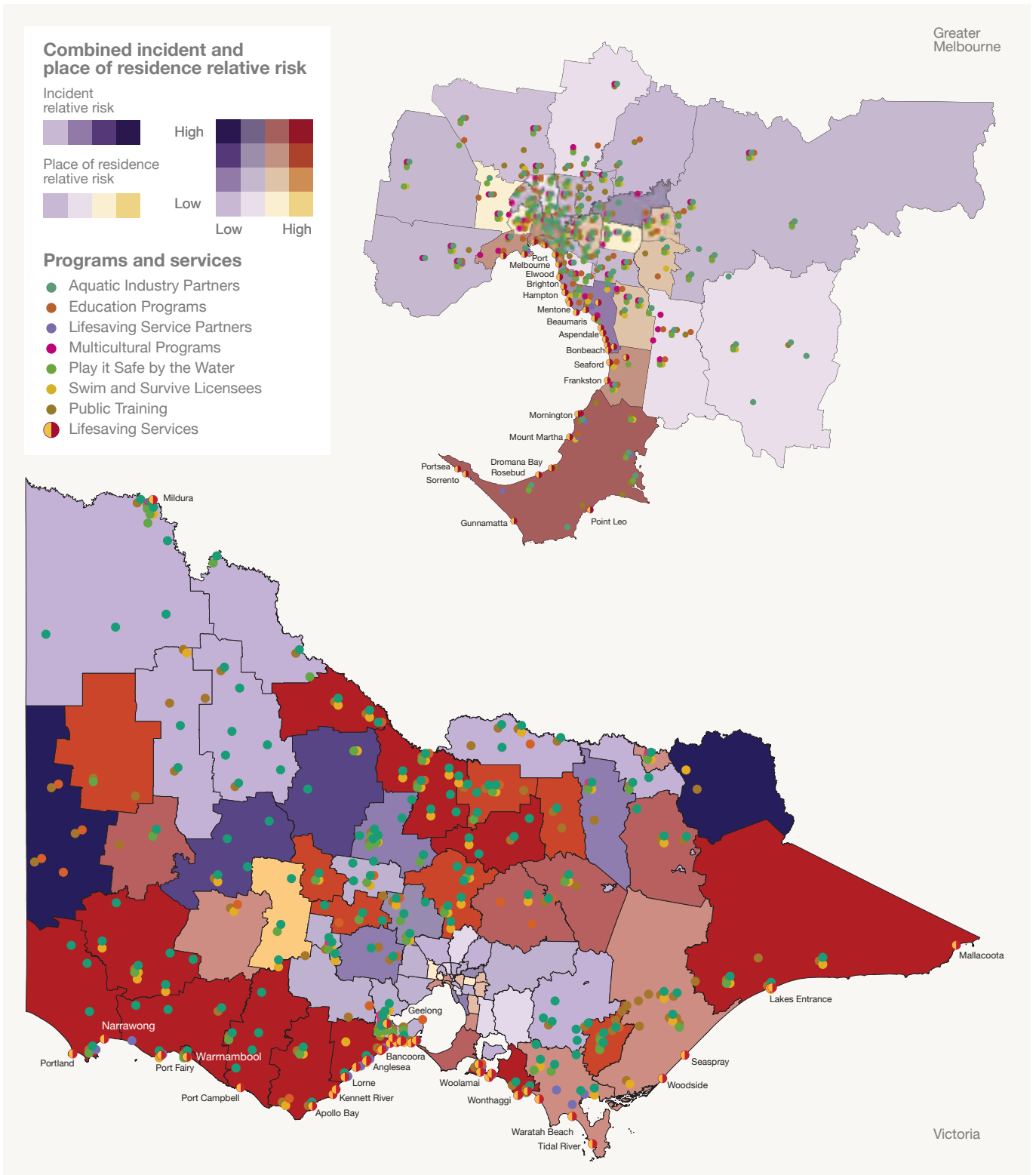
Aquatic facilities are registered Watch Around Water facilities in 2020/21.

14.5% 

Of council-owned aquatic facilities have not completed a Pool Safety Assessment in the past three years.

The following maps highlight the geographical distribution of LSV programs and services in response to composite risk of drowning based on incident and resident locations. Understanding geographically varying risk exposure based on place of incident, place of residence or a combination of both, better informs current and future program and service resource allocation. This information allows for more targeted drowning prevention approaches, such as risk assessment prioritisation, lifesaving service provision, and public awareness raising for local residents and/or international tourists. Relative risk of drowning by place of residence is utilised to direct the provision of, for example, education program delivery.












LSV PROGRAMS AND SERVICES AND RELATIVE RISK OF DROWNING BY INCIDENT LOCATION AND PLACE OF RESIDENCE



The following table outlines Victoria’s progress against the Victorian Water Safety Strategy 2016-2020 (Victorian Water Safety Assembly, 2016) and Australian Water Safety Strategy 2016-2020 (Australian Water Safety Council, 2016) with respect to fatal drowning incidents. Whilst the overall drowning rate has decreased by 8% from baseline, this is well short of the Strategy’s goal of a 50% reduction in drowning by the end of 2020.

Of the 11 goals, two are on track, but urgent work is required across nine other goals, especially in goals four, five and six (reduce drowning among people aged 65+ years, in inland waterways and coastal waters); which have increased by 10%, 23% and 29% respectively, since baseline.

At the time of reporting, an updated Victorian Water Safety Strategy (2021–2025) was being developed, therefore changes in these Priority Areas and Goals may occur following release in late 2021.

PRIORITY AREAS AND GOALS		BASELINE (3-YEAR AVERAGE 2004/05 TO 2006/07)	FOLLOW-UP (3-YEAR AVERAGE (2018/19 TO 2020/21)	DIFFERENCE BASELINE TO FOLLOW-UP (TARGET -50%)	PROGRESS	
Priority area one: Taking a life stages approach		Rate (per 100,000 population)	Rate (per 100,000 population)	%		
	1. Reduce drowning in children aged 0–14 years	0–4 years	1.057	0.914	-13%	Urgent work needed
		5–14 years	0.615	0.370	-40%	Work needed
	2. Reduce drowning in young people aged 15–24 years	0.712	0.740	+4%	Urgent work needed	
	3. Reduce drowning in males aged 25–64 years	25–44 years	1.494	0.980	-34%	Work needed
		45–64 years	1.097	1.046	-5%	Urgent work needed
	4. Reduce drowning in people aged 65+	1.134	1.248	+10%	Urgent work needed	
Priority area two: Targeting high-risk locations		Frequency	Frequency	%		
	5. Reduce drowning in inland waterways	16	19	+23%	Urgent work needed	
	6. Reduce drowning in coastal waters	14	18	+29%	Urgent work needed	
	7. Reduce drowning by strengthening the aquatic industry ¹	0	1	0%	On track	
Priority area three: Focusing on key drowning challenges		Frequency/ rate	Frequency/ rate	%		
	8. Reduce alcohol and drug-related drowning ²	14	10	-24.4%	Urgent work needed	
	9. Reduce boating, watercraft and recreational activity-related drowning ³	8.7	9.3	+7.7%	Urgent work needed	
	10. Reduce drowning in high-risk populations ⁴	0.704 (per 100,000)	0.581 (per 100,000)	-17%	Urgent work needed	
	11. Reduce the impact of disaster and extreme weather on drowning	1	0	0%	On track	

1. Figures include drowning deaths at public swimming pools.
2. Toxicology reports to confirm alcohol and/or drug involvement are available only once a case is closed therefore numbers may change once cases are closed.
3. Includes boats and watercraft, rock fishing, fishing and diving.
4. Includes Aboriginal and Torres Strait Islander people, people from culturally and linguistically diverse (CALD) backgrounds, international tourists and international students. Statistics are primarily determined from Country of Birth data.

THIS YEAR, IT IS MORE IMPORTANT THAN EVER FOR VICTORIANS TO LEARN SWIMMING AND WATER SAFETY SKILLS AND TO TAKE GREATER PRECAUTIONS AROUND ALL WATERWAYS

Reporting the number of individuals losing their lives to drowning is always devastating, and particularly following an unprecedented year of change. Although it is discouraging to see a 40% increase in the drowning rate compared to the previous decade, it is important to recognise that 2020/21 was vastly different to previous years, and that these findings should be interpreted in recognition of the unprecedented challenges Victoria has faced. Nevertheless, with the changes that COVID-19 has brought to all Victorians, it is important the information presented in this report is used to actively prevent drowning in the future despite the further challenges that may be encountered.

COVID-19

Since March 2020, Victoria has faced unprecedented challenges from the COVID-19 pandemic, which prolonged the impacts of the 2019/20 bushfires and created a multitude of additional issues. Victoria's aquatic and tourism industries have been extremely hard hit by the COVID-19 restrictions, as was the whole Victorian community. These events significantly impacted how often, in what ways and where we interacted with water this year. The drowning details reported here demonstrate some trends which align with COVID-19 restrictions, such as an increase in drowning incidents in waterways around the home, and almost half (48%) of people drowned at a waterway within their residential postcode – a 79% increase on the 10-year average. When looking in more detail, 45% of those people who drowned within their residential postcode did so in an inland waterway, 41% occurred within the home environment and 7% occurred in coastal waters.

WATER SAFETY CHALLENGES OF COVID-19	WHAT IS THE IMPACT?
1. Long-term closures of public swimming pools led to cancellation of swimming lessons for an estimated 160,000 weekly participants (mostly children), and job uncertainty for many aquatic industry staff.	1. Fewer people have learnt swimming and lifesaving skills, placing them at a higher risk of experiencing a drowning incident.
2. A shortage of over 1,800 swim teachers across Victoria has led to new and innovative ways of recruiting, training and retaining swim teachers, to ensure everyone has the opportunity for swimming lessons.	2. Fewer staff in the aquatic industry means there is reduced provision to meet the demand for swimming lessons, and less people able to improve their aquatic skills and knowledge.
3. Restrictions on movement and activity prevented Victorians of all ages from engaging in recreational activities including pool and open water swimming, aqua aerobics and rehabilitation, water sports, boating and fishing.	3. Alongside skill reduction, this means their water familiarity will have decreased i.e., how their body moves in the water, placing them at increased risk of experiencing a drowning incident.
4. Social distancing restrictions could lead to an increase in people visiting more remote aquatic locations to avoid crowds.	4. Visiting more remote locations may be further from lifesaving help if needed, and also may be less familiar waterways.
5. Spending more time in the home environment along with working from home and the additional pressures COVID-19 has presented could result in pandemic fatigue.	5. Pandemic fatigue could lead to increased risk taking, complacency and a lack of vigilance around water, particularly local waterways and those around the home.

LOOKING AHEAD

LSV with the aquatic industry developed many great initiatives to educate the community, and connect, train and upskill our lifesavers, the aquatic industry and the public through innovative online programs and resources. Nevertheless, the 2020/21 spring and summer seasons will be particularly challenging for water safety in Victoria. We are facing the prospect of a period where Victorians have had limited or no exposure to waterways and aquatic recreation in over a year, which means that drowning prevention efforts and public water safety awareness are more important than ever.

For these reasons it is important for Victorians to take greater precautions around all waterways and heed the water safety advice included throughout this report. This summer, the safest place to swim is at patrolled beaches and lifeguarded pools. COVIDSafe plans for reopening are being implemented across these locations to ensure a safe and enjoyable experience.



Simple tips to stay safe this year

At home

With Victorians likely to be spending more time at home this summer, take time to check for water safety risks in and around the home, including checking pool fences. Always empty the bathtub, buckets and sinks immediately after use and ensure your pool fence is maintained.

At the pool

Always watch your child around water. Increased active supervision of children is crucial especially after decreased access to swimming lessons and water safety programs during restrictions. COVIDSafe plans for reopening are being implemented in 300+ pools in Victoria.

At the beach

Swim between the red and yellow flags at a patrolled beach. All 57 lifesaving clubs are implementing COVIDSafe plans, so remain aware of current restrictions and abide by the COVID safety messaging.

At inland waterways

Never go alone and always read safety signs to understand dangers. Postpone alcohol until after your aquatic activity. Learn swimming and lifesaving skills and know your limits.

On the water

Always wear a well-fitted and maintained lifejacket when boating or fishing (including rock fishing): a lifejacket can keep you afloat if needed until help arrives. Postpone alcohol until after your aquatic activity and make a plan should the worst happen.

There were 165 drowning incidents in Victoria in 2020/21, comprising 61 drowning deaths and 104 non-fatal incidents attended by paramedics. Children aged 0–4 years had the highest age-specific fatal drowning rate in 2020/21 (2.005 per 100,000 population), and also the greatest overall risk of drowning with the highest age-specific combined rate of fatal and non-fatal drowning (10.524), as they made up 25% of all drowning incidents.

DEATHS

The 61 drowning deaths in 2020/21 represents a crude fatal drowning rate of 0.92 per 100,000 population in 2020/21, and is a 40% increase compared to the 10-year average (0.65 per 100,000 population).

Of the 61 drowning deaths in Victoria in 2020/21, 39 (64%) were male, with the most common age group being 25–44 years. Males are consistently overrepresented in drowning statistics, and over the past decade were over three times more likely to drown than females.

Young people aged 15–24 years were the only group to see a decrease in drowning rate this year (0.59 per 100,000 population, 2% decrease). All other age groups observed increases in the drowning rate, with the highest recorded increase among children aged 5–14 years old. Tragically, seven children in this age group drowned compared to an average of one per year over the previous 10 years. Five males in this age group died as a result of drowning this year in Victoria, making up 8% of all drowning deaths.

Females aged 0–4 years had the highest fatal drowning rate (2.580), followed by males aged 65+ years (1.834). Concerningly, the drowning rate of females doubled in 2020/21, with those aged 0–4 years and 65+ years recording the highest numbers of drownings among females.

NON-FATAL INCIDENTS

There were 104 non-fatal drowning incidents attended by paramedics in 2020/21. This represents a crude non-fatal drowning rate of 1.55 per 100,000 population in 2020/21. Over one-third of non-fatal incidents involved children aged 0–4 years.

Hospital admissions – 2010/11 to 2019/20

Over the previous decade there were 999 hospital admissions for non-fatal drowning, or an average of 100 hospital



admissions per year. The annual crude hospital admissions rate was 1.63 per 100,000 population per year. The rate of admissions in 2019/20 was the lowest in the past decade, at 1.12 per 100,000 population.

A total of 698 males were admitted to hospital for non-fatal drowning, an average of 70 (70%) hospital admissions per year.

Children aged 0–4 years had the highest rates of admission, with 5.91 per 100,000 population annually followed by those aged 15–24 years (2.19 per 100,000 population) and those in the 5–14 years age group (1.83 per 100,000 population). Those aged 65 years and above presented the lowest rate of admission at 0.88 per 100,000 population.

Of hospital admissions where location of drowning was recorded, 21% occurred in the home.

Emergency Department presentations – 2010/11 to 2019/20

There were 996 Emergency Department (ED) presentations for non-fatal drowning in the 10-year period from 2010/11 to 2019/20, an average of 100 ED presentations annually. The average annual rate of ED presentations was 1.59 per 100,000 population per year. Children aged 0–4 years had by far the highest rate of ED presentations, with 11.05 per 100,000 population annually. This was followed by those aged 5–14 years (2.43 per 100,000 population) and those in the 15–24 years age group (1.36 per 100,000 population).

The majority of the 996 ED presentations were males (654, 66%).



Safety tips for carers of children (0–14 years)

- 20 seconds is all it takes for a child to drown.
- Parents are busy and often try to do many things at once to save time. But when you multi-task you can too easily become distracted and not give your full attention to the safety of your children.
- Children must be actively supervised at all times around water. Children under 5 years must be within arm's reach and children under 10 must always be within sight when around water.
- Enrol children in learn-to-swim lessons: swimming lessons have multiple benefits, and provide foundation skills to get into other activities surfing, fishing etc.
- Be aware that children's swimming ability and water safety knowledge will have been impacted from the past year – your perceptions of their aquatic skills and knowledge may differ from reality.
- Be vigilant in supervising children around all waterways, including those around the home.

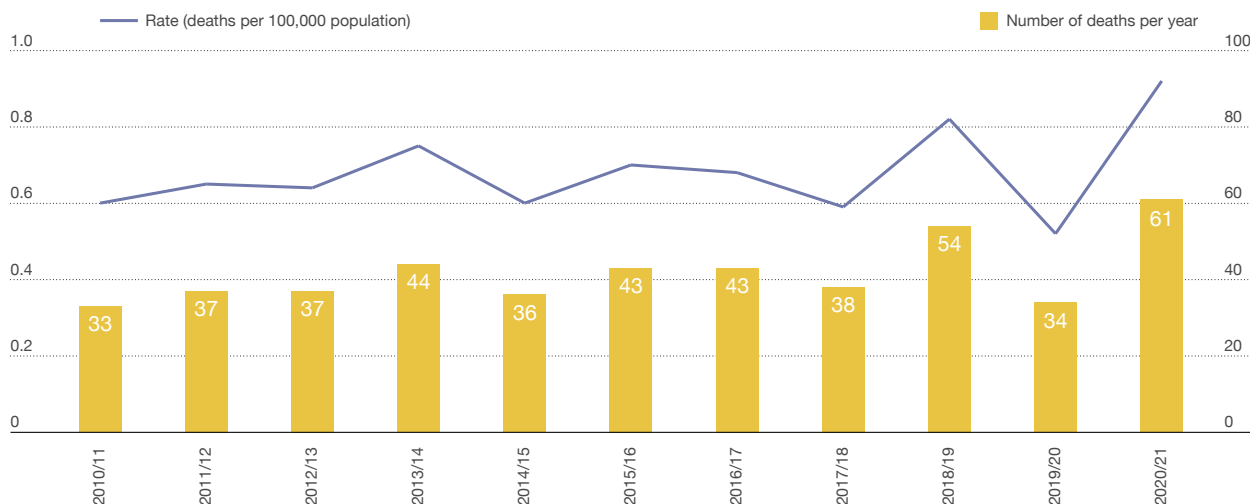
Similar to hospital admissions, ED presentations decreased with increasing age, with children aged 0–4 years accounting for 45% of ED presentations.



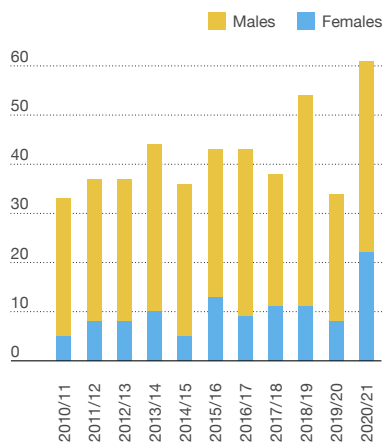
35%

OF DROWNING DEATHS IN THE PREVIOUS DECADE WERE OF PEOPLE FROM CALD COMMUNITIES

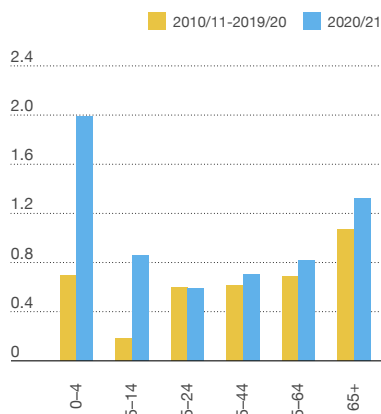
DROWNING DEATHS AND DROWNING RATE 2010/11 TO 2020/21



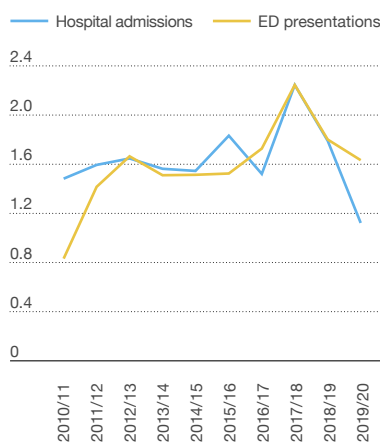
FREQUENCY OF FATAL DROWNING IN VICTORIA BY SEX, 2010/11 TO 2020/21



FATAL DROWNING RATE PER 100,000 PERSONS IN VICTORIA BY AGE, 2010/11 TO 2020/21



HOSPITAL ADMISSIONS AND EMERGENCY DEPARTMENT (ED) PRESENTATIONS RATE PER 100,000 PERSONS IN VICTORIA, 2010/11 TO 2019/20



DETAILS OF 144 PEOPLE FROM CALD COMMUNITIES WHO FATALLY DROWNED OVER THE PAST DECADE (2011/12 TO 2020/21) ARE AVAILABLE. THIS DATA REVEALS THAT:



77%
male



39%
aged 25-44 yrs



23%
aged 45-64 yrs

Common waterways



31%

beaches



Common activities

31%

swimming/
paddling/wading



20%
fishing*



37 yrs
(mean age)



82%
resided in major cities in Victoria



15 yrs
median time living in Australia



21%
rivers/creeks/
streams

14%

walking/
recreating near water



56%

of fishing*-related deaths were of CALD individuals



6%
resided in regional Victoria

*Fishing includes fishing for abalone (typically snorkelling/diving), rock fishing, and fishing from a boat.

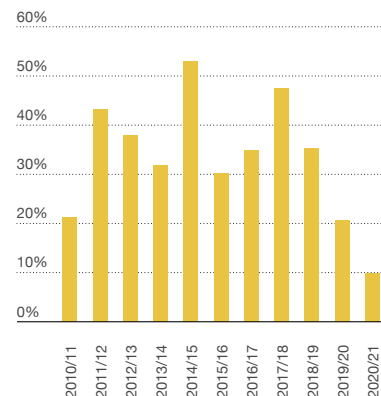
VICTORIA'S MULTICULTURAL POPULATIONS

Victoria is one of the most culturally diverse societies in the world; a place where people born in over 200 countries call home. In fact, approximately 31% of Victorians were born overseas and half were either born overseas or have at least one parent who was.

This year seven (12%) individuals that drowned were reported as being from culturally and linguistically diverse (CALD) communities. However, at the time of publication, country of birth was unknown for the remaining 89% of cases.

Due to limitations with country of birth data collected, data has been analysed over the previous 10-year period from 2011/12-2020/21. On average, 35% of drowning deaths were of individuals known to have been born overseas (with 30% unknown country of birth).

PERCENTAGE OF DROWNING DEATHS IN VICTORIA BY OVERSEAS COUNTRY OF BIRTH* 2010/11 TO 2020/21



*Where country of birth was known
*Country of birth known in 81% of drowning deaths.

People born overseas are over twice (2.31) as likely to drown when comparing drowning rates per head of population and cultural background.

When swimming ability was recorded, the majority were noted to be weak or non-swimmers, followed by average or fair with very few good or reasonable swimmers.

Individuals from a CALD background are recognised as those who identify as 'having a specific cultural or linguistic affiliation by virtue of their place of birth, ancestry, ethnic origin, religion, preferred language, language(s) spoken at home, or because of their parents' identification on a similar basis (Department of Human Services Multicultural Strategy Unit, 2002)

2x

PEOPLE FROM CALD COMMUNITIES ARE OVER TWICE AS LIKELY TO DROWN

77%

OF INDIVIDUALS BORN OVERSEAS WHO DROWNED OVER THE PREVIOUS 10 YEARS WERE MALE



Safety tips for CALD populations

- Be aware and prepared for conditions.
- Read safety signs to understand dangers.
- Learn how to spot and avoid rips and have knowledge and skills to get out of one, otherwise swim at a patrolled beach between the red and yellow flags.
- Never swim or fish alone.
- Always wear a lifejacket when boating or fishing (including rock fishing), it buys you time to survive.
- If you want to rock fish, you should learn how to minimise the risks.
- Understand the conditions and ensure your skills/activities are appropriate before deciding to enter the water.

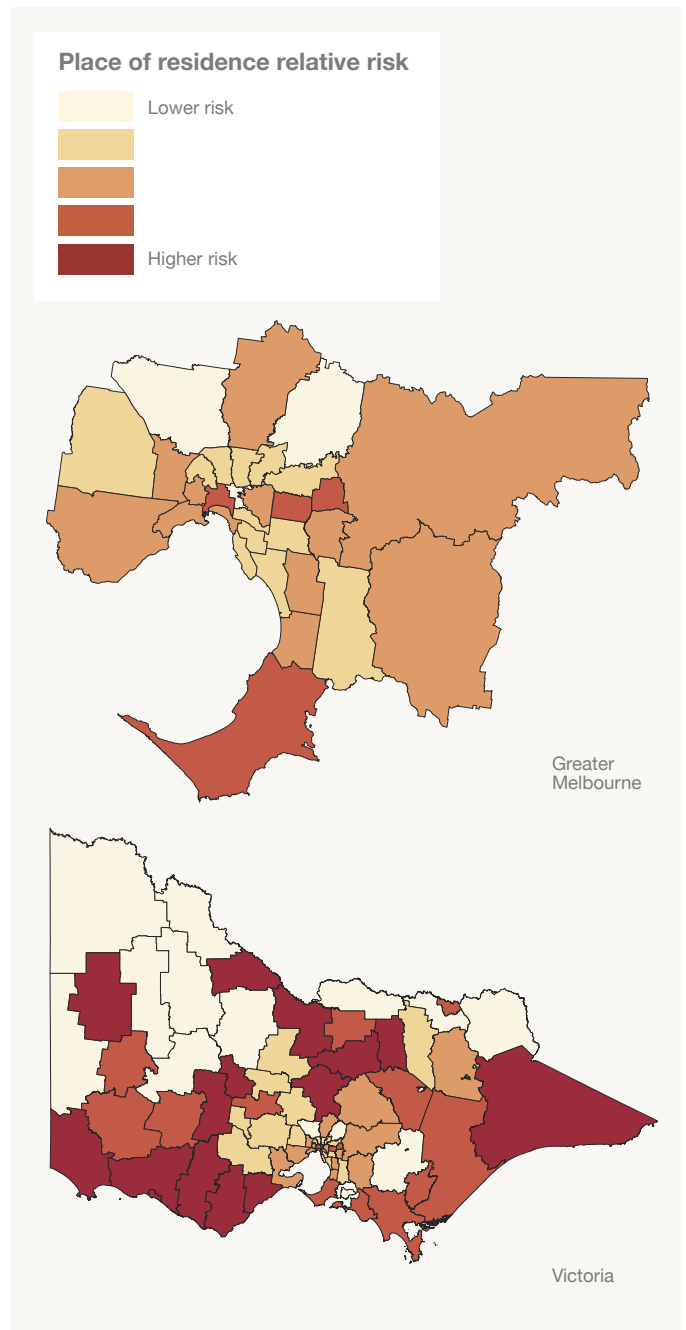
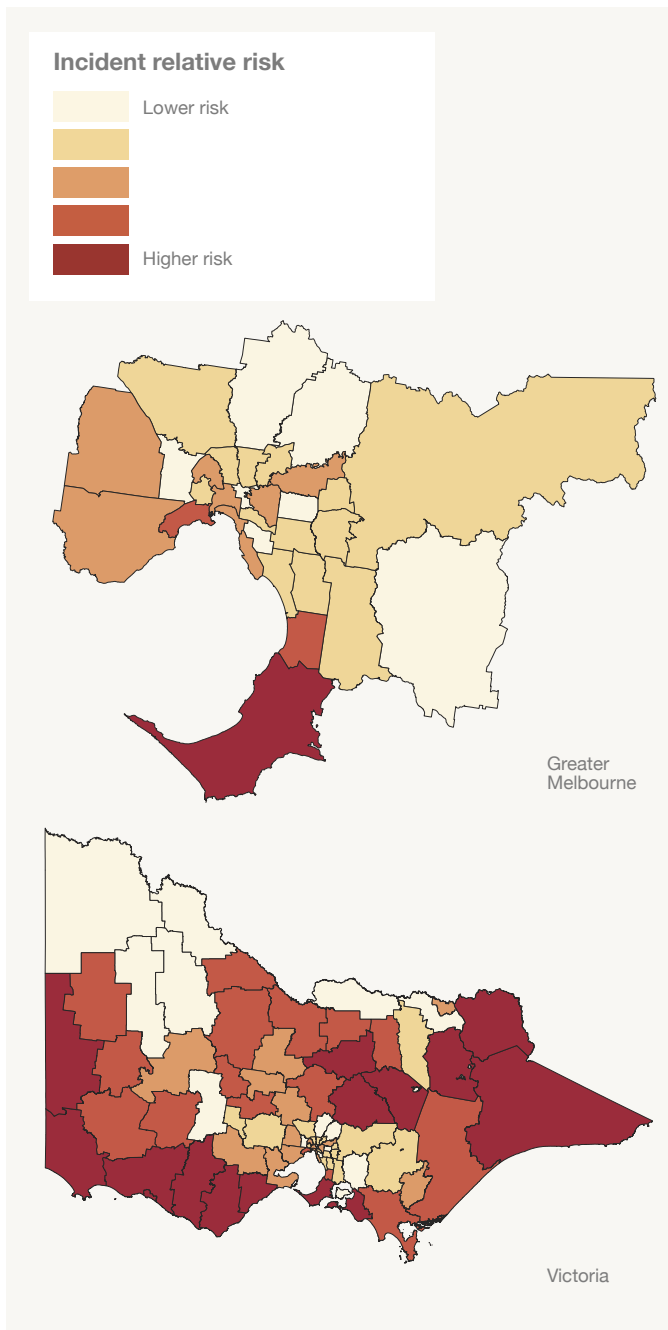
FATAL DROWNING RELATIVE RISK BY LOCATION AND RESIDENCE – 2010/11 TO 2019/20

These maps outline the relative risk of fatal drownings based on a) incident location, b) place of residence, and c) a composite index of both incident and place of residence. All maps illustrate relative risk within Victorian Local Government Areas (LGAs) using postcodes of drowning event locations over a 10-year timeframe (2010/11 to 2019/20).

The first two maps provide relative risk ranging from low to high. Lower risk areas are light yellow, while increasing risk is signified by changes from dark orange for moderate risk areas to dark red for higher risk areas. The first two maps show the geographical changes to the risk of drowning by incident and place of residence.

RELATIVE RISK OF DROWNING BY INCIDENT LOCATION

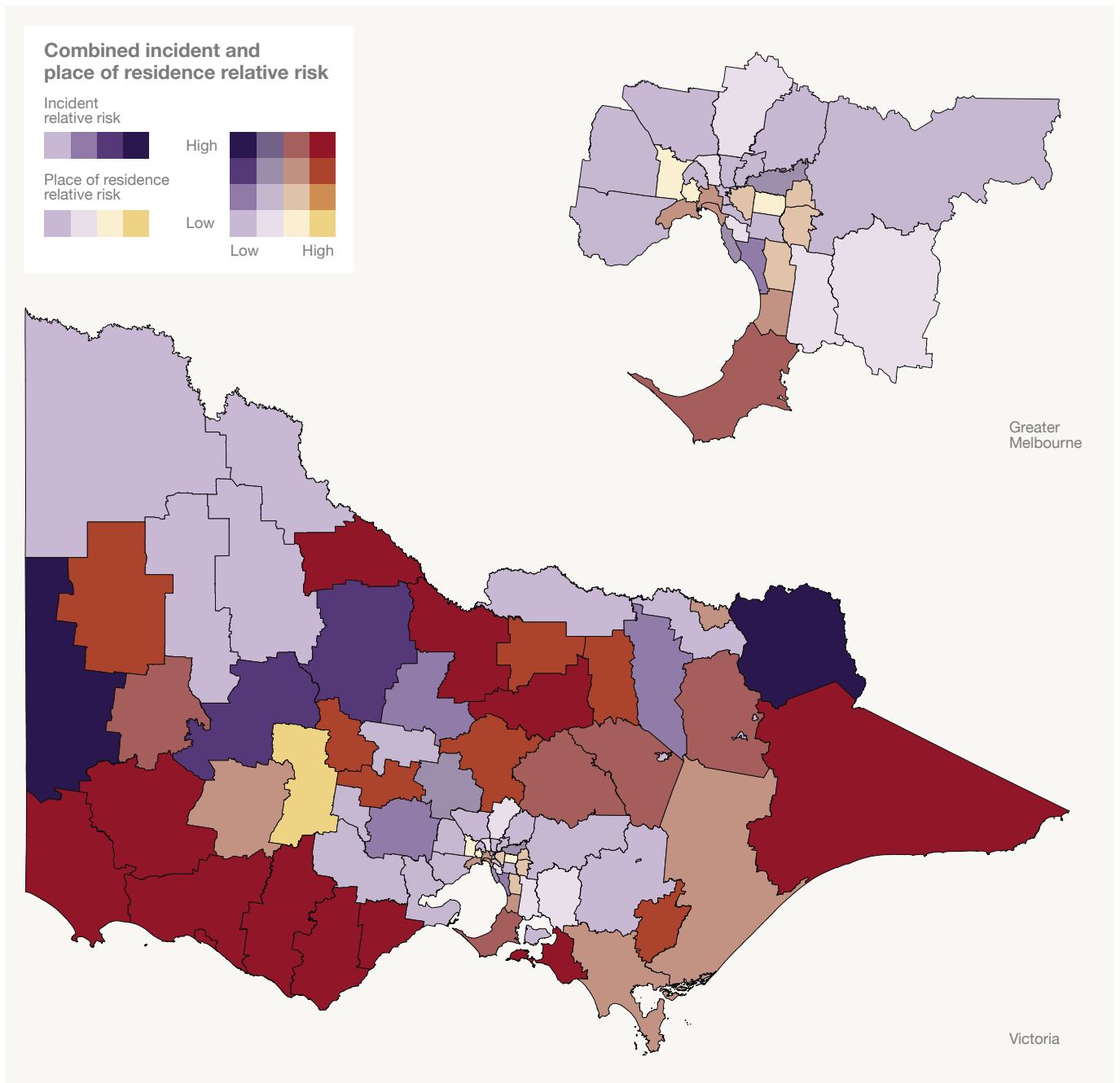
RELATIVE RISK OF DROWNING BY PLACE OF RESIDENCE



COMBINED FATAL DROWNING RELATIVE RISK – 2010/11 TO 2019/20

Another approach to compare relative risk of drowning, is to combine location and place of residence relative risk into a composite risk. Light red and darker red areas highlight that incident and resident relative risk ratios are both moderate to high within those specific LGAs. Light purple signifies low risk based on incident and resident location. Dark purple highlights locations with high relative risk based on incident location but low resident location risk. Light yellow signifies high risk based on resident location but low for incident location.

COMBINED INCIDENT AND PLACE OF RESIDENCE RELATIVE RISK OF FATAL DROWNING



WHEN AND WHERE DID THEY DROWN?



25%

OF DROWNING DEATHS
OCCURRED DURING
WINTER MONTHS

WHEN DID THEY DROWN?

Season and month

Over a third (38%, 23) of drowning deaths in 2020/21 occurred in the summer months. This is a 50% increase compared to the 10-year average of 15 (2010/11 to 2019/20). Winter represented the second largest number of drowning deaths, with 15 (25%), which is an increase of eight (131%) from the 10-year average. Spring saw the lowest proportion of drowning deaths (18%) this year.

In the previous decade, the majority of drowning deaths occurred in summer (38%), followed by spring (25%), autumn (21%), and winter (16%). This year, most (56%, 34) drowning deaths occurred between 01 July and 31 December 2020. One fifth (20%, 12) of drowning deaths in 2020/21 occurred in December, which is seven more than the 10-year average.

Similar to fatal drowning, non-fatal drowning incidents were far more common in summer (51%, 53). This was followed by spring (27%, 28), autumn (13%, 14), and winter (9%, 9).

WHERE DID THEY DROWN?

Region

This year, 26 (43%) fatal drowning incidents occurred in major cities in Victoria. This is six more than the 10-year average from 2010/11 to 2019/20.

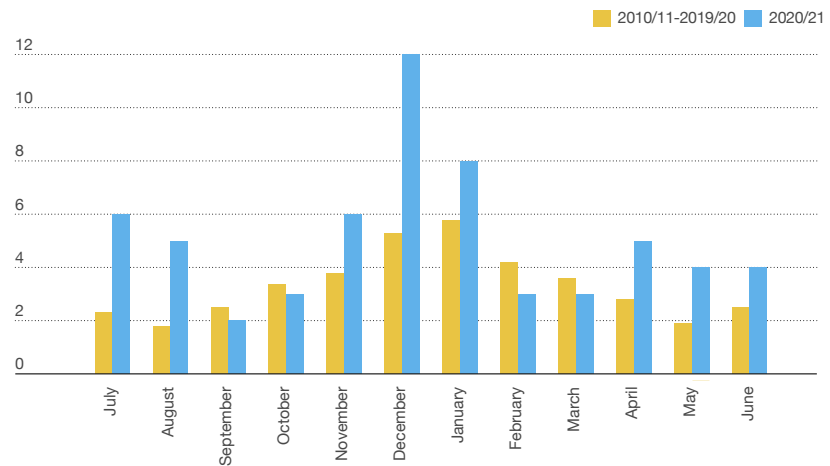
When accounting for the differences in the distribution of the residential population, the fatal drowning rate reduced by over 2% for those in metropolitan Melbourne (0.52 per 100,000 population in 2020/21) compared to the 10-year average, but increased for those residing in regional Victoria. The fatal drowning rate of those residing in regional areas of Victoria doubled compared to the 10-year average (1.84 per 100,000 population vs 0.92 in 2010/11–2019/20).

Over the past 10 years, those people who live in regional Victoria were found to be almost twice as likely to drown compared to those living in metropolitan Melbourne.

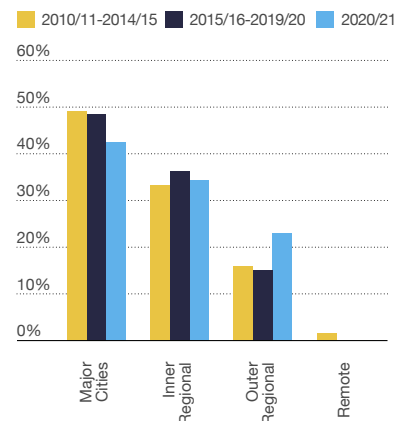
Waterways

In 2020/21, 39% (24) of all drowning deaths occurred in inland waterways (rivers/creeks/streams/lakes/dams), making it the most common location for drowning. These 24 deaths represent a 56% increase in drowning deaths in inland waterways compared with the 10-year average of 15. More than two-thirds (67%, 16) of inland drowning deaths occurred in rivers, creeks and streams, which is eight above the 10-year average of eight, and 26% of all drowning deaths this year.

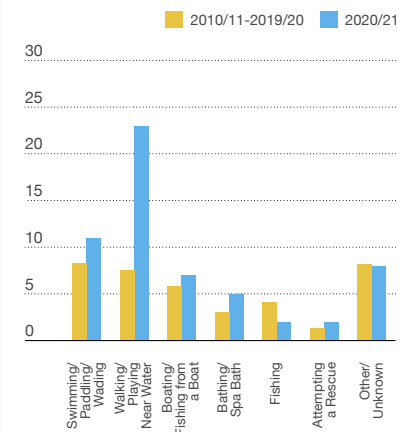
FREQUENCY OF DROWNING DEATHS BY MONTH 2010/11 TO 2020/21



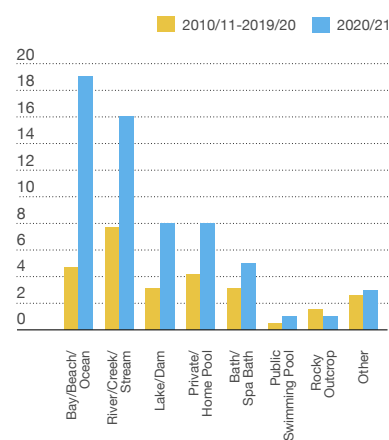
PERCENTAGE OF FATAL DROWNING BY REMOTENESS AREA OF INCIDENT IN VICTORIA, 2010/11 TO 2020/21



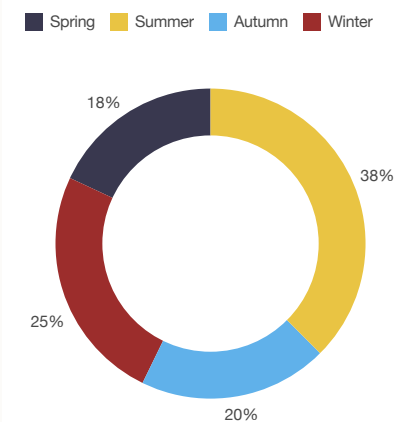
FREQUENCY OF FATAL DROWNING PER YEAR BY ACTIVITY 2010/11 TO 2020/21



FREQUENCY OF FATAL DROWNING PER YEAR BY BODY OF WATER 2010/11 TO 2020/21



PERCENTAGE OF FATAL DROWNING BY SEASON 2020/21



A further 33% of people drowned in coastal waterways (20 at beaches, oceans and bays), which is a 27% increase on the 10-year average of 16.

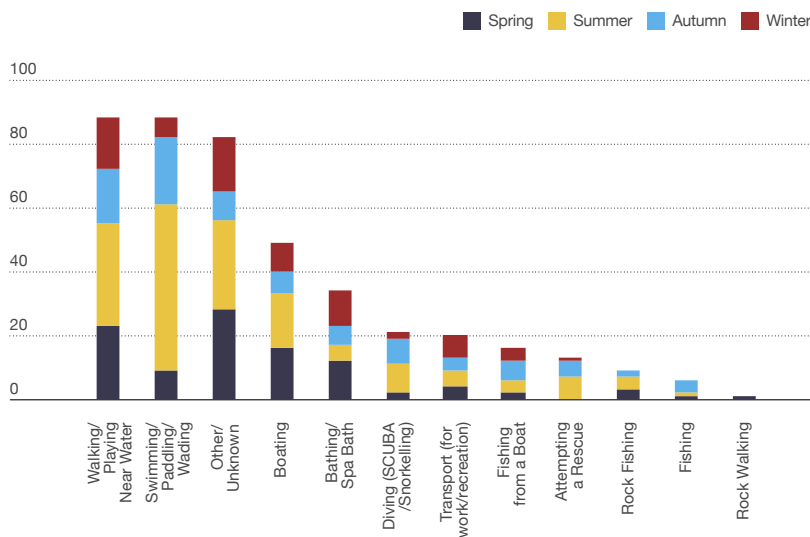
One-fifth of fatal drowning incidents in 2020/21 occurred in waterways around

the home, including baths and home pools (21%, 13). This represents an increase of 78% from the 10-year average of seven and may be a result of Victorians spending more time in and around the home during 2020/21.



36% OF ALL DROWNING DEATHS WERE A RESULT OF INTENTIONAL WATER ENTRY

FATAL DROWNING BY SEASON AND ACTIVITY
2011/12 TO 2020/21



WHAT WERE THEY DOING?

Activity

Walking/playing near water was the most common activity immediately prior to a fatal drowning in 2020/21 (38%, 23), followed by swimming/paddling/wading (18%, 11). Boating and fishing together accounted for 15% of drowning deaths, and bathing accounted for 8% – an increase of 61% on the 10-year average.

Most non-fatal drowning incidents involved those swimming/paddling/wading (59%, 61) at the time. These figures again highlight the importance of swimming and water safety education and skills maintenance across all age groups. A further 17 non-fatal incidents occurred while bathing/having a spa bath (16%), indicating that bath tubs continue to be a risk factor for drowning, particularly among young children.

Where entry was known (66%), intentional water entry (including to swim, bathe or dive) accounted for 36% (22) of fatal drowning incidents this year. This is six more than the average of 16 (40%) per year from 2010/11 to 2019/20.



Safety tips for water around the home

- Always be vigilant about all the waterways around your home and mindful of the dangers posed.
- Actively supervise children when in, on or around any water, and never leave them unattended, for example in the bath, shower or pool.



Safety tips for inland waterways

- Avoid alcohol around water.
- Never go alone.
- Always wear a lifejacket when on the water.



Safety tips for the beach

- Swim between the red and yellow flags wherever possible.
- Never swim alone.
- Check the conditions before you leave home.



31%

OF LIVES LOST OVER THE PAST DECADE INVOLVED ALCOHOL OR ILLEGAL DRUG USE PRIOR TO DROWNING

WHAT WERE THE RISK FACTORS?

Alcohol and drugs

There were 11 drowning deaths in 2020/21 in which alcohol and/or illegal drugs were reportedly consumed by the individual prior to drowning, representing 18% of the total number of drowning incidents. At the time of compilation, the presence of alcohol and/or illegal drugs was unknown for 49% of cases.

Looking at cases over the previous decade reveals that alcohol and/or illegal drugs were consumed prior to 34% of all drowning deaths of people aged 15 years and above.

Consuming alcohol and/or illegal drugs increases the risk of drowning because they can impair judgment, slow reaction times, affect swimming ability, impair coordination and increase risk-taking behaviour. Prescription medications can also increase the risk of drowning as they can heighten the risk of falls and affect reaction times.



Life Saving Victoria urges all Victorians to:

- Avoid alcohol until after your aquatic activity.
- Advise your friends against entering the water if they have been drinking.
- Be vigilant with the effects of prescription medication, such as dizziness, and how this could affect you in, on and around water.

Lack of lifejacket use

Failure to wear a lifejacket has likely claimed many lives in Victoria. Among the 60 boating-related drowning deaths over the past decade (2011/12 to 2020/21), lifejacket usage was known in 48 cases. Of these 48 incidents, over half (27, 56%) of the deceased were not wearing a lifejacket at the time. A further 11 (23%) had an incorrectly fitted lifejacket or wore the incorrect type recommended for the conditions.

Wearing an appropriate, well-fitting and maintained lifejacket when rock fishing could also have saved at least another five lives over the past decade, with five of the nine individuals that drowned while rock fishing known to have not been wearing a lifejacket, with four unknown.

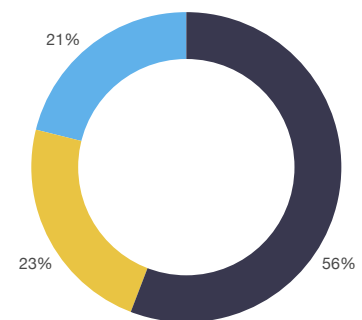


Always wear a lifejacket when boating or fishing (including rock fishing).

A lifejacket can keep you afloat if needed until help arrives. In addition, check the conditions before you leave home and never go boating or fishing alone.

LIFEJACKET WEAR WHEN BOATING 2011/12 TO 2020/21

- Not worn
- Not worn correctly/inappropriate type for the conditions
- Worn correctly



*Those with unknown lifejacket use removed from analysis.

79%

OF PEOPLE THAT DROWNED IN BOATING INCIDENTS OVER THE PAST DECADE WERE NOT WEARING A LIFEJACKET OR IT WAS NOT WORN CORRECTLY/INAPPROPRIATE FOR THE ACTIVITY

The role of the coroner in Victoria is to investigate reportable deaths, which include drowning, in order to determine the identity of the person who died, the cause of the death and, in some situations, the circumstances surrounding the death. As part of this process the coroner may recommend ways to help prevent similar deaths in the future.

The following is a summary of eight coronial findings in 2020/21 where a recommendation was made related to a drowning death.

Note, it is not an exact replication from the findings; these should be accessed from the Coroners Court of Victoria website:

<http://www.coronerscourt.vic.gov.au/home/coroners+written+findings/>



2017

MR L (38 years) Mr L, a Pakistani national living in London, drowned at Mounts Bay, Apollo Bay. Mr L was described as a competent swimmer and had swimming lessons as a child. However, whilst swimming, Mr L struggled to get back to shore safely. Despite performing CPR, he was unable to be revived. The conditions on the day were described as “unsuitable for swimming”, and there was a large rip current running along the area where they entered the water.

Recommendations

- That the OCC [Otway Coast Committee] ensure adequate risk measures (including but not limited to signage and public awareness messaging for tourists) are undertaken in relation to the coastline it manages to address the potential for drowning in public spaces.
- That these measures should be re-assessed at appropriate intervals to ensure that they remain best practice and in line with relevant standards.
- That water safety measures be undertaken in consultation with industry experts/stakeholders, such as Life Saving Victoria (the recognised peak water safety agency in Victoria), and form part of the Coastal and Marine Management Plans required to be prepared under the Coastal and Marine Policy 2020.

2018

AMANDA BOURKE (44 years) Amanda Bourke drowned at The Cutting in Tower Hill. Ms Bourke and her partner went to a beach that was unfamiliar to them, which was primarily ideal for surfing. The couple were separated from each other but were eventually rescued and brought back to shore. There was a delay in the arrival of Emergency Services, and unfortunately, Ms Bourke passed away at the scene.

Recommendation

In order to prevent further instances where the response of emergency services is delayed due to confusion or unawareness of the correct emergency location, it is recommended that Parks Victoria review the warning signs along the Belfast Coastal Reserve to ensure unique emergency marker codes are included where appropriate.

BABY M (3 years) ‘Baby M’, drowned in a home swimming pool which was fenced but the gate had a faulty latch. On the evening of the incident, Baby M’s mother mistakenly assumed Baby M was being watched by another family member. Later, when Baby M’s mother came to look for her child, she found him face-down in the pool. Despite administering CPR and arriving to hospital alive, Baby M tragically passed away the following day.

Recommendations

That Committee CS-034, Safety of Private Swimming Pools, of Standards Australia consider whether amendments should be made to Australian Standard 1926.1 to ensure that pool gate hinges are resistant to degradation over time, particularly in conditions of disuse, by requiring that either certain grades of materials be used in spring-based self-closing hinges; or that self-closing gate hinges employ a prescribed class of mechanisms.

2019

ALLAN MCFARLANE (71 years) Allan McFarlane suffered cardiac arrest, 'secondary to drowning'. Mr McFarlane – an experienced former boat owner – and his wife went fishing in Rye, using a boat they borrowed from family. The couple had personal floatation devices (PFDs) aboard with them along with other safety equipment, however they were unfamiliar on how to use the PFDs. When their boat began sinking, the couple jumped overboard and did not have enough time to put on their PFDs. Upon being rescued, Mr McFarlane was unconscious and sadly passed away later in hospital.

Recommendations

- Most recently, after the death of Graham Hill, Coroner Michelle Hodgson recommended "...that Transport Safety Victoria consider introducing requirements that all boats be fitted with a manual or electrical pumping mechanism to all bilge areas...". I support Coroner Hodgson's recommendation and add that I concur with the Water Police Squad's advocacy for all boats fitted with electrical bilge pumps in enclosed bilge areas to have automated switches or floats, or alarms if a manual bilge exists.
- ... I encourage Transport Safety Victoria to explore the possibility of implementing a system of vessel inspections, akin to roadworthy inspections, to improve marine safety.
- Furthermore, I recommend that as part of seaworthy inspections, builders plates are retrospectively attached which determine the number of people, the conditions for which the vessel is suited and the maximum engine capacity of the vessel.

EHREN HYDE (24 years) Ehren Hyde died from drowning whilst sailing. Mr Hyde had almost a decade of experience in sailing and was regarded as safety conscious – he always wore a wetsuit, helmet and PFD. The morning of the incident Mr Hyde took his Laser Dinghy into the bay where the weather conditions were technically within his abilities; however, it was cold, and the weather changed rapidly, with increasing wind speeds. It was concluded that Mr Hyde fell into the bay, separated from the Laser, and due to the weather conditions and lack of signalling equipment, drowned.

Recommendations

- ...that Transport Safety Victoria (TSV) engage with Victorian sailing and yacht clubs to promote the 'Prepare to Survive: Know The Five' campaign, and encourage boaters or paddlers to enact the five steps, particularly when boating or paddling alone. Such a campaign may be multimodal, utilising where possible, social media, flyers or posters at sailing or yacht clubs, and articles or advertisements in sailing club newsletters.
- ...that TSV liaise with the Department of Economic Development, Jobs, Transport and Resources to explore the possibility and feasibility of legislative amendment to require EPIRBs [Emergency Position Indicating Radio Beacons] or PLBs [Personal Locator Beacons] to be carried by the operators of recreational vessels (regardless of the classification of waterway or distance offshore) in high-risk situations, including when operating alone.

ABALONE FISHING INCIDENTS

2018

XU ZHOU (19 years) Xu Zhou, an inexperienced swimmer, drowned whilst abalone fishing with friends at Altona Beach. Despite the trio beginning in shallow water, the weather and wind changes created currents that took them further out to sea. Mr Zhou struggled to get back to shore and required rescuing. Mr Zhou was eventually brought back to shore but was unable to be revived.

XUAN TRUONG HA (41 years) Xuan Truong Ha drowned whilst abalone fishing at Williamstown Beach. Mr Ha migrated to Australia in 2010 from Vietnam: he was not a strong swimmer and fished occasionally. On the day of the incident, Mr Ha and his friend had a beer before entering the water. When a cool change moved in, the wind speeds increased and created rough water conditions which fatigued Mr Ha. Whilst Mr Ha was brought back to shore, he was unable to be revived.

2019

SWEE CHUAN HO (29 years) Swee Chuan Ho was a Malaysian national living in Victoria. Mr Ho, a competent swimmer and snorkeller, drowned whilst on a seven-person, abalone-diving day trip. Mr Ho was believed to have sunk beneath the surface, as witnessed by people within the group; however, it was incorrectly assumed that he had resurfaced. Mr Ho's body was discovered later that day on the ocean floor, 7.5 metres deep.

Recommendations

Regarding the deaths of Mr Zhou, Mr Ha and Mr Ho, it was recommended that:

- Life Saving Victoria updates its public awareness messaging to include abalone fishing and promote this messaging through targeted education, social media channels, and other relevant websites;
- Life Saving Victoria work with recreational fishing organisations and agencies that promote recreational fishing to include safe practices for abalone fishing; and
- The Victorian Fisheries Authority update the Victorian Recreational Fishing Guide and its other resources to include information about abalone fishing safety and the risk of drowning whilst abalone fishing.

Regarding the death of Mr Ho a further recommendation was:

- With the aim of promoting public health and safety and preventing like deaths, it is recommended that Mornington Peninsula Shire Council work with Life Saving Victoria, the Victorian Fisheries Authority and any other relevant bodies to provide messaging about the risk of drowning whilst abalone fishing, and to promote safe practices for abalone fishing, in the Mornington Peninsula Local Government Area.

OF THE 25 VICTORIANS WHO DROWNED IN THE MURRAY RIVER BETWEEN 2011/12 AND 2020/21:



21

(84%) were males



25-34

years (7, 28%) was the most common age group



7

(28%) were reported as being born overseas

Drowning incidents most commonly occurred:



FRI

(5, 20%)

TUE

(5, 20%)



SUMMER

(14, 56%)

Other common activities included:



boating



fishing

The most common activity just prior to drowning:



10

swimming (40%)

In 40% of drowning deaths the person had reportedly consumed alcohol prior to the incident



10

The Murray River is Australia's longest river, stretching 2,508 km across the majority of the border between Victoria and New South Wales and down into South Australia, where it meets the Southern Ocean. The Murray River has been identified as the number one river drowning blackspot in Australia (Peden & Queiroga, 2014). State government legislation means drowning incidents that occur in the Murray River are under New South Wales jurisdiction and are therefore reported in New South Wales drowning data. However, drowning fatalities are often Victorian residents; in fact, Victorians made up 45% of drowning fatalities over the previous decade. Therefore, the key trends of Victorians drowning in the Murray River are a focus for this report.

Seven people drowned on the Murray River in 2020/21, including five Victorian residents. Over the previous decade, 49 people drowned on the Murray River including 25 Victorians, averaging more than two per year.

AN INITIATIVE OF

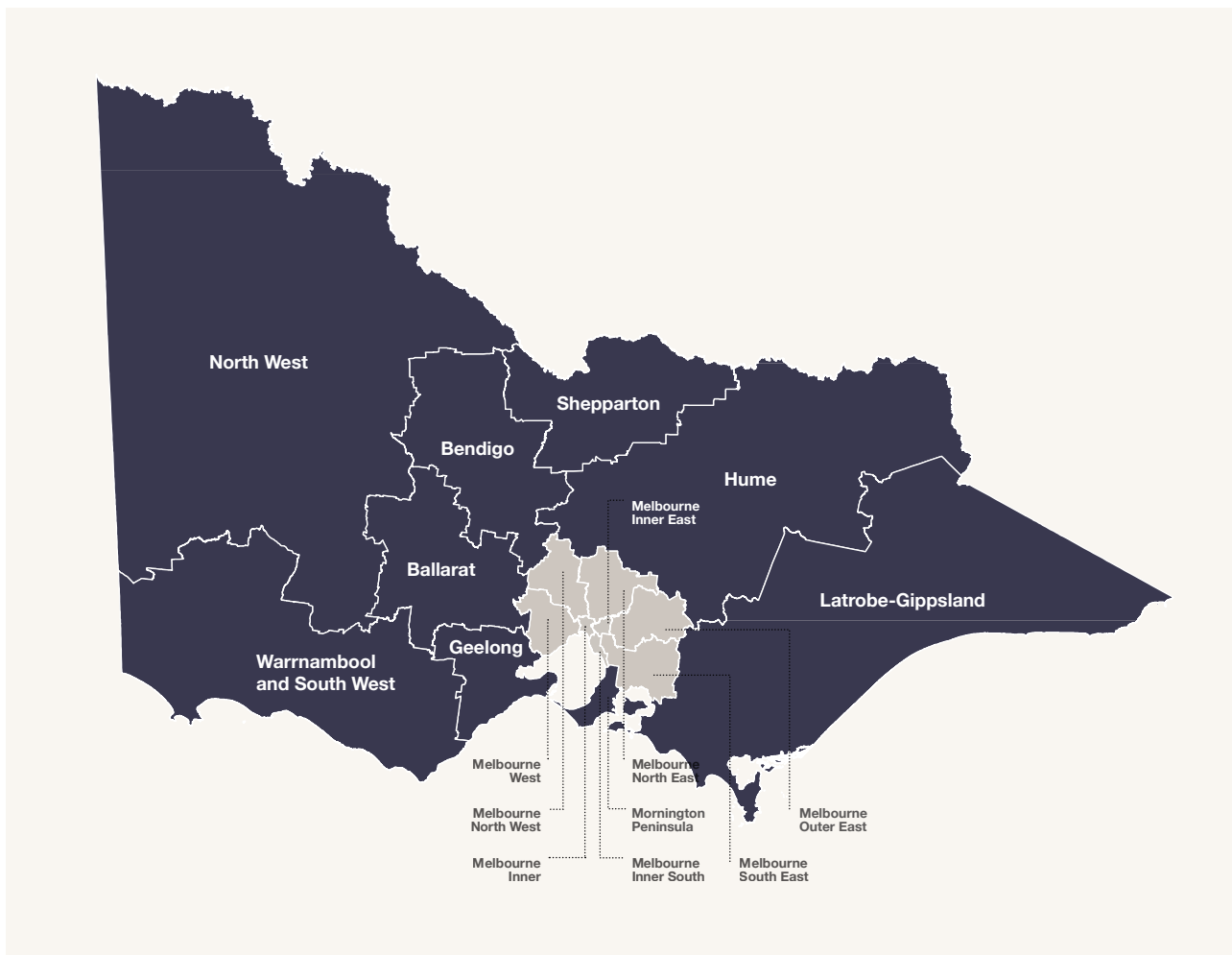
SUPPORTED BY

Royal Life Saving's Respect the River campaign encourages people to respect rivers by following some simple safety tips:

- Wear a life jacket
- Avoid alcohol around water
- Never swim alone
- Learn how to save a life

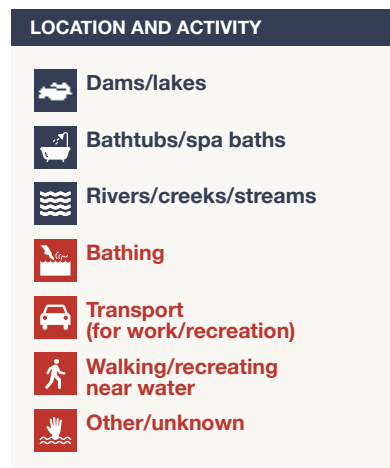
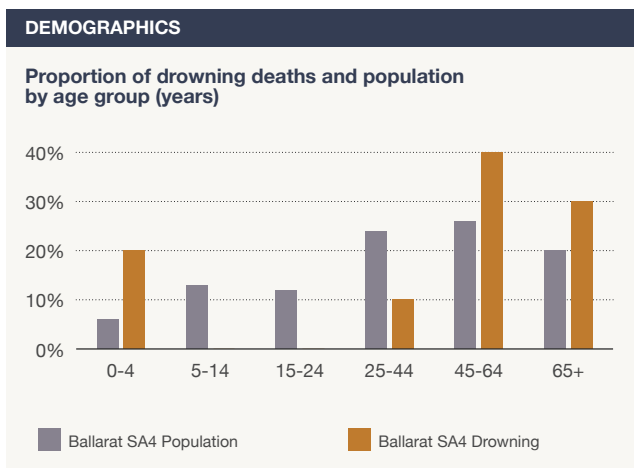
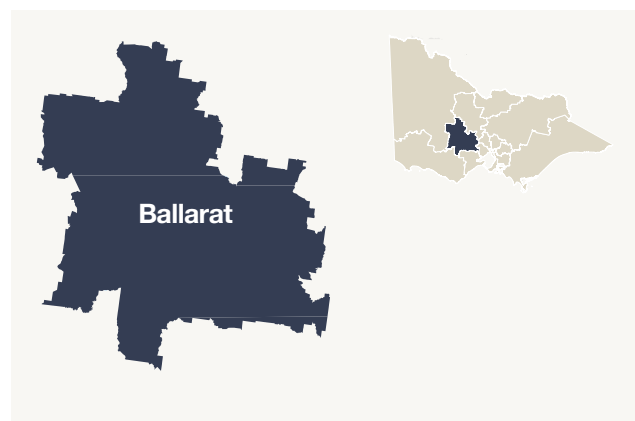
25
VICTORIAN RESIDENTS DROWNED IN THE MURRAY RIVER OVER THE PREVIOUS DECADE

40%
OF VICTORIAN RESIDENTS THAT DROWNED IN THE MURRAY RIVER HAD REPORTEDLY CONSUMED ALCOHOL PRIOR TO THE INCIDENT



BALLARAT Statistical Area 4 – Drowning Statistics 2010/11 to 2019/20

<h1>9</h1> <p>Drowning Deaths</p>	<h1>20</h1> <p>Ballarat SA4 residents hospitalised due to non-fatal drowning</p>
<h1>10</h1> <p>Ballarat SA4 Residents Drowned in Victoria</p>	<h1>19</h1> <p>Emergency Department presentations of Ballarat SA4 residents for non-fatal drowning</p>
<h1>59%</h1>	<p>Likelihood of one or more drowning deaths occurring in Ballarat SA4 in any given year</p>
<h1>67%</h1>	<p>Likelihood of one or more residents of Ballarat SA4 drowning in any given year</p>



SEX DIFFERENCES

MALES WERE 2.3 TIMES MORE LIKELY TO DROWN THAN FEMALES

BENDIGO Statistical Area 4 – Drowning Statistics 2010/11 to 2019/20

9

Drowning Deaths

30

Bendigo SA4 residents hospitalised due to non-fatal drowning

17

Emergency Department presentations of Bendigo SA4 residents for non-fatal drowning

5

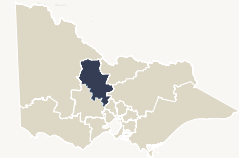
Bendigo SA4 Residents Drowned in Victoria

63%

Likelihood of one or more drowning deaths occurring in Bendigo SA4 in any given year

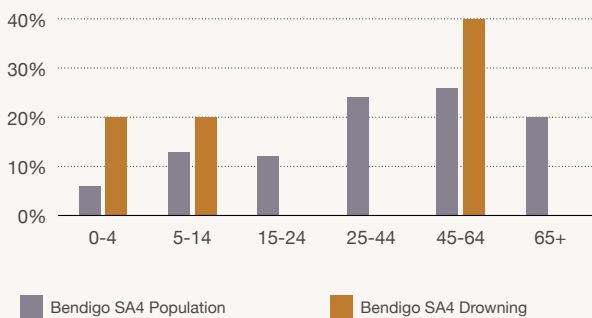
39%

Likelihood of one or more residents of Bendigo SA4 drowning in any given year



DEMOGRAPHICS

Proportion of drowning deaths and population by age group (years)



LOCATION AND ACTIVITY

- Dams/lakes
- Rivers/creeks/streams
- Private swimming pools Bathtubs/spa baths
- Walking/recreating near water
- Transport (for work/recreation)
- Boating (including fishing)
- Bathing and Swimming/paddling/wading

SEX DIFFERENCES

MALES WERE 4.0 TIMES MORE LIKELY TO DROWN THAN FEMALES

GEELONG Statistical Area 4 – Drowning Statistics 2010/11 to 2019/20

29

Drowning Deaths

68

Geelong SA4 residents hospitalised due to non-fatal drowning

56

Emergency Department presentations of Geelong SA4 residents for non-fatal drowning

21

Geelong SA4 Residents Drowned in Victoria

94%

Likelihood of one or more drowning deaths occurring in Geelong SA4 in any given year

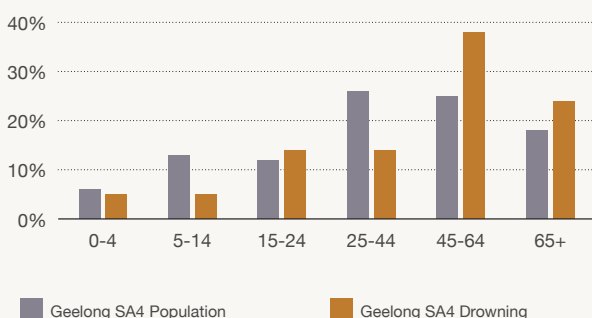
88%

Likelihood of one or more residents of Geelong SA4 drowning in any given year



DEMOGRAPHICS

Proportion of drowning deaths and population by age group (years)



LOCATION AND ACTIVITY

- Beaches and rocky outcrops
- Harbour/bay/inlet and ocean
- Rivers/creeks/streams
- Swimming/paddling/wading
- Walking/recreating near water/rock walking
- Diving (SCUBA/snorkelling)
- Attempting a rescue

SEX DIFFERENCES

MALES WERE 2.0 TIMES MORE LIKELY TO DROWN THAN FEMALES

HUME Statistical Area 4 – Drowning Statistics 2010/11 to 2019/20

30 Drowning Deaths

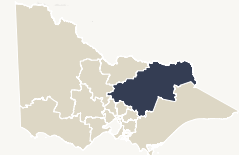
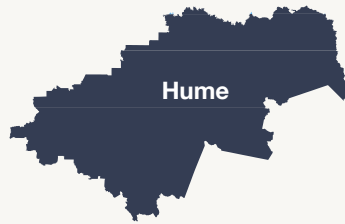
30 Hume SA4 residents hospitalised due to non-fatal drowning

33 Emergency Department presentations of Hume SA4 residents for non-fatal drowning

16 Hume SA4 Residents Drowned in Victoria

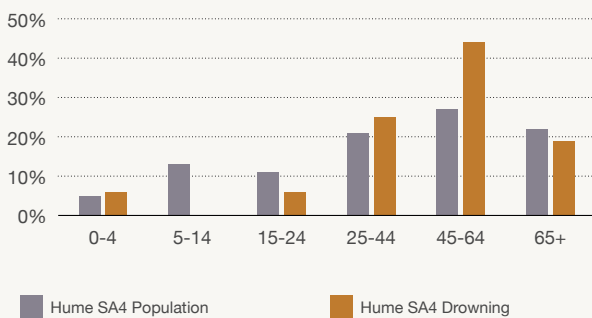
96% Likelihood of one or more drowning deaths occurring in Hume SA4 in any given year

85% Likelihood of one or more residents of Hume SA4 drowning in any given year



DEMOGRAPHICS

Proportion of drowning deaths and population by age group (years)



LOCATION AND ACTIVITY

- Dams/lakes
- Rivers/creeks/streams
- Public and private swimming pools
- Bathtubs/spa baths
- Boating (including fishing)
- Swimming/paddling/wading
- Walking/recreating near water

SEX DIFFERENCES

MALES WERE 4.3 TIMES MORE LIKELY TO DROWN THAN FEMALES

LATROBE-GIPPSLAND Statistical Area 4 – Drowning Statistics 2010/11 to 2019/20

52 Drowning Deaths

71 Latrobe-Gippsland SA4 residents hospitalised due to non-fatal drowning

56 Emergency Department presentations of Latrobe-Gippsland SA4 residents for non-fatal drowning

25 Latrobe-Gippsland SA4 Residents Drowned in Victoria

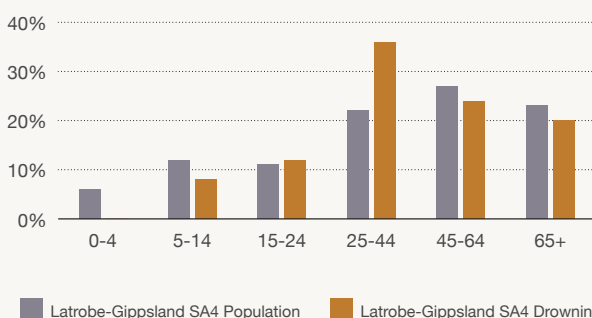
99% Likelihood of one or more drowning deaths occurring in Latrobe-Gippsland SA4 in any given year

95% Likelihood of one or more residents of Latrobe-Gippsland SA4 drowning in any given year



DEMOGRAPHICS

Proportion of drowning deaths and population by age group (years)



LOCATION AND ACTIVITY

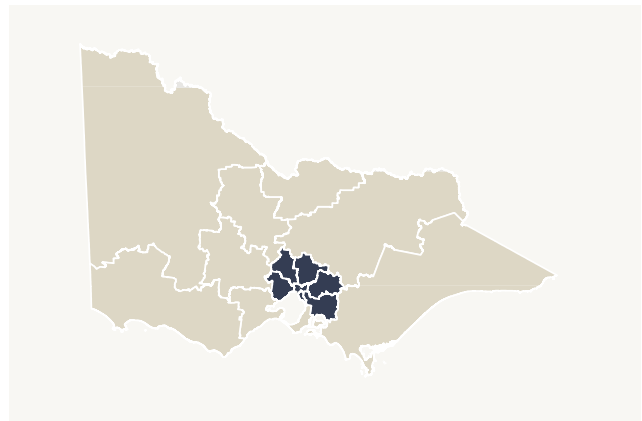
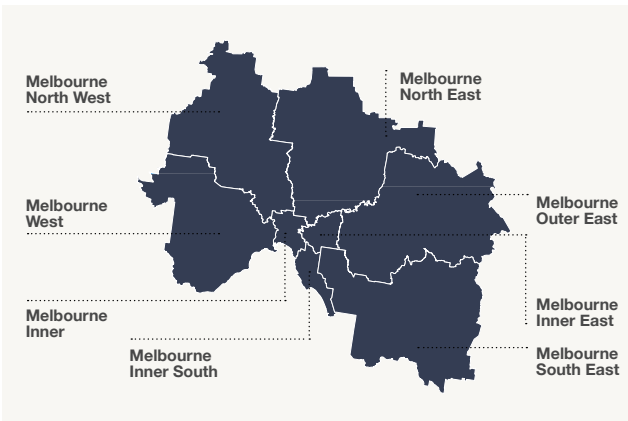
- Beaches and rocky outcrops
- Harbour/bay/inlet and ocean
- Dams/lakes
- Rivers/creeks/streams
- Swimming/paddling/wading
- Boating (including fishing)
- Walking/recreating near water/rock walking

SEX DIFFERENCES

MALES WERE 2.6 TIMES MORE LIKELY TO DROWN THAN FEMALES

MELBOURNE

Inner, Inner East, Inner South, North East, North West, Outer East, South East, West
Statistical Area 4 – Drowning Statistics 2010/11 to 2019/20

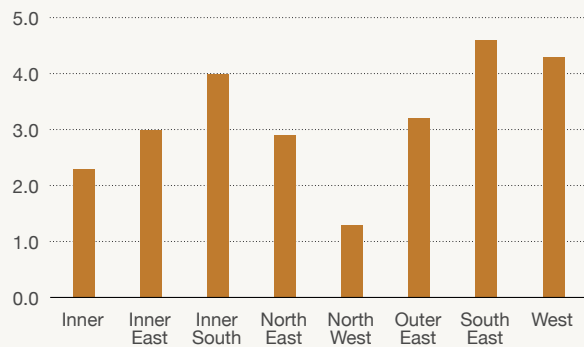


DROWNING STATISTICS FOR ALL MELBOURNE SA4S

Statistical Area 4	Drowning deaths	Drowning deaths of residents	Hospital admissions of residents	Emergency department presentations of residents	Likelihood of one or more drowning deaths in any given year	Likelihood of one or more residents drowning in any given year
Melbourne – Inner	40	33	75	66	98%	96%
Melbourne – Inner East	8	16	61	52	73%	90%
Melbourne – Inner South	12	15	68	60	83%	83%
Melbourne – North East	12	31	64	63	73%	94%
Melbourne – North West	8	9	40	50	63%	75%
Melbourne – Outer East	20	42	53	58	90%	99%
Melbourne – South East	12	39	116	112	80%	99%
Melbourne – West	29	42	94	122	97%	99%

DEMOGRAPHICS

Male : Female Drowning Ratio in Melbourne SA4s



LOCATION AND ACTIVITY

- Rivers/creeks/streams
- Private swimming pools
- Bathtubs/spa baths
- Dams/lakes
- Walking/recreating near water
- Swimming/paddling/wading
- Bathing

PROPORTION OF DROWNING DEATHS AND POPULATION BY AGE GROUP (YEARS) FOR ALL MELBOURNE SA4S

Statistical Area 4	0–4		5–14		15–24		25–44		45–64		65+	
	Population	Drowning	Population	Drowning	Population	Drowning	Population	Drowning	Population	Drowning	Population	Drowning
Melbourne – Inner	4%	0%	7%	0%	15%	21%	44%	36%	19%	21%	11%	21%
Melbourne – Inner East	4%	0%	12%	6%	15%	6%	27%	13%	24%	38%	18%	38%
Melbourne – Inner South	5%	0%	12%	0%	12%	13%	28%	27%	26%	27%	17%	33%
Melbourne – North East	7%	3%	13%	6%	12%	19%	31%	35%	23%	19%	14%	16%
Melbourne – North West	7%	33%	14%	0%	12%	0%	31%	33%	23%	11%	13%	22%
Melbourne – Outer East	6%	5%	12%	2%	12%	12%	27%	29%	26%	26%	17%	26%
Melbourne – South East	7%	5%	13%	3%	14%	13%	31%	31%	22%	31%	13%	18%
Melbourne – West	8%	14%	14%	0%	12%	10%	34%	29%	22%	24%	11%	24%

MORNINGTON PENINSULA Statistical Area 4 – Drowning Statistics 2010/11 to 2019/20

56

Drowning Deaths

61

Mornington Peninsula SA4 residents hospitalised due to non-fatal drowning

80

Emergency Department presentations of Mornington Peninsula SA4 residents for non-fatal drowning

26

Mornington Peninsula SA4 Residents Drowned in Victoria

99%

Likelihood of one or more drowning deaths occurring in Mornington Peninsula SA4 in any given year

95%

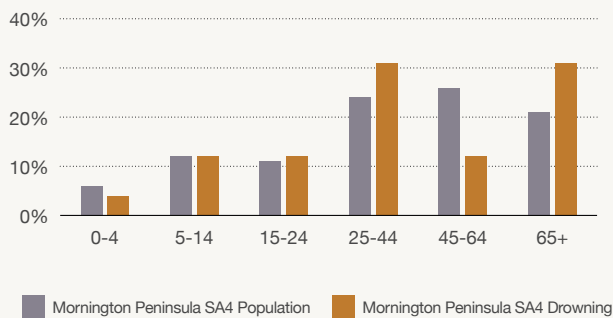
Likelihood of one or more residents of Mornington Peninsula SA4 drowning in any given year

Mornington Peninsula



DEMOGRAPHICS

Proportion of drowning deaths and population by age group (years)



LOCATION AND ACTIVITY

- Beaches/rocky outcrops
- Harbour/bay/inlet/ocean
- Private swimming pools
- Swimming/paddling/wading
- Boating (including fishing)
- Diving (SCUBA/snorkelling)
- Attempting a rescue

SEX DIFFERENCES

MALES WERE 4.2 TIMES MORE LIKELY TO DROWN THAN FEMALES

NORTH WEST Statistical Area 4 – Drowning Statistics 2010/11 to 2019/20

12

Drowning Deaths

33

North West SA4 residents hospitalised due to non-fatal drowning

40

Emergency Department presentations of North West SA4 residents for non-fatal drowning

9

North West SA4 Residents Drowned in Victoria

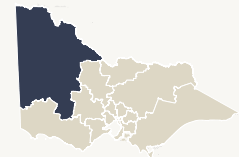
70%

Likelihood of one or more drowning deaths occurring in North West SA4 in any given year

50%

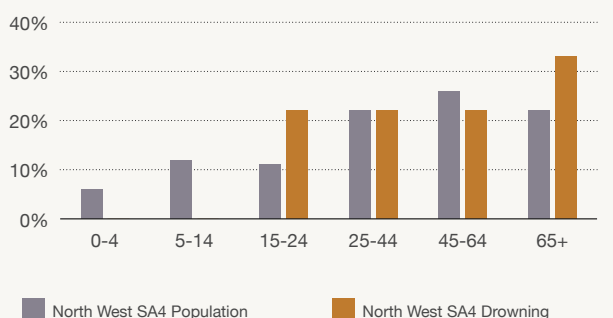
Likelihood of one or more residents of North West SA4 drowning in any given year

North West



DEMOGRAPHICS

Proportion of drowning deaths and population by age group (years)



LOCATION AND ACTIVITY

- Dams/lakes & irrigation channels
- Rivers/creeks/streams
- Private swimming pools
- Swimming/paddling/wading
- Boating (including fishing)
- Transport (for work/recreation)
- Walking/recreating near water

SEX DIFFERENCES

ALL DROWNING DEATHS WERE MALES

SHEPPARTON Statistical Area 4 – Drowning Statistics 2010/11 to 2019/20

14 Drowning Deaths

38 Shepparton SA4 residents hospitalised due to non-fatal drowning

45 Emergency Department presentations of Shepparton SA4 residents for non-fatal drowning

15 Shepparton SA4 Residents Drowned in Victoria

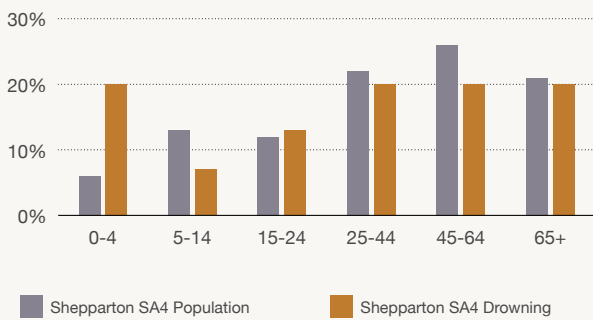
78% Likelihood of one or more drowning deaths occurring in Shepparton SA4 in any given year

80% Likelihood of one or more residents of Shepparton SA4 drowning in any given year



DEMOGRAPHICS

Proportion of drowning deaths and population by age group (years)



LOCATION AND ACTIVITY

- Rivers/creeks/streams
- Dams/lakes
- Bathtubs/spa baths
- Walking/recreating near water
- Bathing
- Boating (including fishing)
- Swimming/paddling/wading

SEX DIFFERENCES

MALES WERE 14.0 TIMES MORE LIKELY TO DROWN THAN FEMALES

WARRNAMBOOL AND SOUTH WEST Statistical Area 4 – Drowning Statistics 2010/11 to 2019/20

35 Drowning Deaths

26 Warrnambool and South West SA4 residents hospitalised due to non-fatal drowning

21 Emergency Department presentations of Warrnambool and South West SA4 residents for non-fatal drowning

23 Warrnambool and South West SA4 Residents Drowned in Victoria

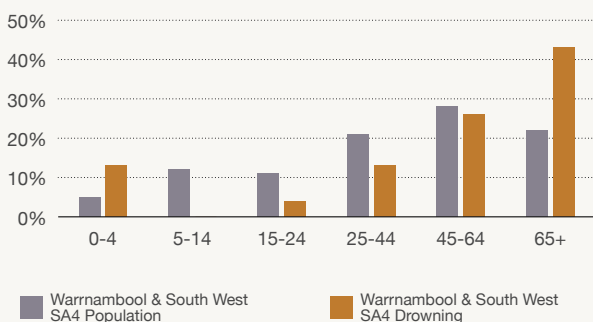
98% Likelihood of one or more drowning deaths occurring in Warrnambool and South West SA4 in any given year

92% Likelihood of one or more residents of Warrnambool and South West SA4 drowning in any given year



DEMOGRAPHICS

Proportion of drowning deaths and population by age group (years)



LOCATION AND ACTIVITY

- Harbour/bay/inlet and ocean
- Beaches and rocky outcrops
- Rivers/creeks/streams
- Boating and fishing
- Walking/recreating near water
- Transport (for work/recreation)
- Swimming/paddling/wading; Diving (SCUBA/snorkelling); and, Attempting a rescue

SEX DIFFERENCES

MALES WERE 6.7 TIMES MORE LIKELY TO DROWN THAN FEMALES

AGENCIES

Aquatics & Recreation Vic
 Australian Sailing
 AUSTSWIM Vic
 Belgravia Leisure
 Boating Industry Association of Victoria
 Department of Justice and Regulation
 Dragon Boat Victoria
 Fisheries Victoria
 Kidsafe Victoria
 Kiteboarding Australia
 Life Saving Victoria
 Maritime Safety Victoria
 Paddle Victoria
 Parks Victoria
 Surfing Victoria
 Swimming Victoria
 Triathlon Victoria
 VR Fish
 Worldwide Swim Schools
 YMCA Victoria

GOVERNMENT ENTITIES

Ambulance Victoria
 Community Safety Building Authority
 Country Fire Authority
 Department of Education and Training
 Department of Environment, Land, Water and Planning
 Department of Justice and Community Safety
 Emergency Management Victoria
 Emergency Management Pride Network Victoria
 Emergency Services
 Federal Government
 Office for Women in Sport and Recreation Victoria
 Parks Victoria
 State Emergency Service
 Telecommunications Authority
 Tourism Victoria
 Transport Safety Victoria
 Vic Health
 Victoria Police
 Victorian Building Authority
 Victorian Fisheries Authority
 Victorian Government
 Victorian Institute of Forensic Medicine
 Victorian Marine and Coastal Council
 Victorian Multicultural Commission

LOCAL GOVERNMENT AREAS AND LAND MANAGERS

Contributors to the Victorian Paid Lifeguard Service
 Banyule City Council
 Barwon Coast Committee of Management Inc.
 Bass Coast Shire Council
 Borough of Queenscliff
 Brimbank City Council
 Colac Otway Shire Council
 Corangamite Shire Council
 East Gippsland Shire Council
 Frankston City Council
 Glenelg Shire Council
 Great Ocean Road Coast Committee
 Greater Geelong City Council
 Hobsons Bay City Council
 Mornington Peninsula Shire Council
 Moyne Shire Council
 National Park
 Parks Victoria Wilsons Promontory
 Port Phillip City Council
 South Gippsland Shire Council
 Surf Coast Shire Council
 Warrnambool City Council
 Wellington Shire Council

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This report includes unintentional fatal and non-fatal drowning incidents reported in Victoria, Australia. An overview of fatal drowning for 1 July 2020 to 30 June 2021 is provided and compared with non-fatal drowning incidents for the same period. Comparisons between the latest financial year and 5 and 10-year averages were calculated from fatal and non-fatal drowning data in Victoria from 1 July 2010 to 30 June 2020. For example, the 10-year average spans the 2010/11 to 2019/20 financial years.

FATAL INCIDENTS

Information on fatal drowning incidents was collected from the Coroners Court of Victoria, and the National Coroners Information System (NCIS). Deaths due to natural causes, suicide, or homicide are excluded from this report.

Coronial information relates to both open and closed cases. While all care is taken to ensure that the results are as accurate as possible, these figures are provisional only as coronial investigations and findings relating to open cases may alter the reported drowning figures. At the time of compilation all suspected unintentional drowning cases in 2020/21 remained open on the NCIS.

NON-FATAL INCIDENTS

Information on non-fatal drowning in 2020/21 was provided by Ambulance Victoria (AV). Cases of non-fatal and immersion related injuries attended by AV paramedics were extracted from the VACIS® clinical information system. Potential drowning data for this report were identified via a database search for all drowning related dispatch codes identified at the emergency call-taker level, as well as cases in which paramedics reported a final assessment of 'post immersion'. Only patients reported as suffering respiratory compromise or vomiting as a result of immersion were included in analyses.

Information on non-fatal drowning from 2010/11 to 2019/20 was provided by the Victorian Injury Surveillance Unit (VISU). Data included non-fatal and immersion related injuries extracted from the Victorian Emergency Minimum Dataset (VEMD) and Victorian Admitted Episodes Dataset (VAED) for the period 1 July 2010 to 30 June 2020.

The VEMD is a dataset containing records of emergency department presentations in Victorian hospitals with 24-hour emergency services. 100% state wide coverage of these hospitals applies from 2004. Data was selected if the cause of injury was 'drowning/near drowning' or the terms 'drown', 'submerged', 'immersion' and their variations were included in the "Description" variable. Further all injuries with an injury coded to

drowning or immersion were also selected. Finally, any injury coded to a drowning or non-fatal drowning cause code with the mention of 'decompression illness' in the description was also chosen. These cases were then manually screened to ensure that they were submersion or non-fatal drowning cases. Cases were retained if the "Human Intent" was coded to "Non-intentional harm". Cases were limited to incidence (excludes return visits and pre-arranged admissions).

The VAED is a record of all hospital admissions in the state of Victoria. VAED data is coded to the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modifications (ICD-10-AM). VAED records were initially extracted if the principal diagnosis was a community injury (S00-T75 or T79 ICD 10 AM code). Cases were then extracted if there was a drowning injury diagnosis (ICD 10 AM code of T75.1 "Drowning and non-fatal submersion") anywhere in the 40 diagnosis codes or the external cause code was in the range W65-W71 (accidental drowning and submersion) or V90 (accident to water craft causing drowning and submersion) or V92 (water-transport-related drowning and submersion without accident to watercraft). Admissions as a result of transfer from another hospital or due to a statistical separation from the same hospital were excluded. Readmissions for day-treatments within 30 days of initial admission were excluded.

Drowning deaths from either AV or VISU data were excluded to avoid an overlap with Life Saving Victoria (LSV) fatal drowning data.

INCIDENCE CALCULATIONS

Incidence calculations were performed using population figures published by the Australian Bureau of Statistics, 2021 (Australian Bureau of Statistics [ABS], 2021).

RELATIVE RISK MAPS

Relative risk maps were created to illustrate geographical variation of risk across Victoria. These maps outline the relative risk of drowning based on: a) incident location, b) place of residence, and c) a composite index of both incident and place of residence. All maps illustrate relative risk within Victorian LGAs.

The compiled relative risk maps show areas of higher and lower risk relative in comparison to the overall Victorian risk rate. Relative risk ratios were calculated using grouped event counts (incident and residence) and population counts within each postcode and then assigned to LGAs.

The maps illustrate excess relative rates over a 10-year timeframe (2010/11 to 2019/20). The underlying population

estimates are based on a 10-year mean of 10 years (2010 to 2019) population estimates within Victorian LGAs.

This approach was used to factor changing population counts across the 10-year period.

PERFORMANCE MAP

The performance map uses the bivariate relative risk map as a base-layer, illustrating the combination of risk of drowning based on incident location along with relative risk based on resident location. On top of the combined LGA relative risk map, are points representing presence of type of LSV program or service based on postcode within given LGAs. As more than one LSV program or service was often delivered within different postcodes, programs and service points were plotted using different offset values to avoid stacking of the points.

STATISTICAL AREA 4 PROBABILITIES

Probabilities for Victorian Statistical Area Level 4 (SA4) regions were created demonstrating the likelihood of one or more drowning events occurring within each of the 17 Victorian statistical regions. Probabilities were calculated based on yearly means (spanning 10 years from 2010/11 to 2019/20) for each SA4 region. Using yearly means provides the ability to devise the likelihood of one or more drowning events in each SA4 in any given year.

GEOGRAPHICAL CLASSIFICATION

Geographical classification of fatal and non-fatal drowning variables utilised the Australian Statistical Geography Standard (ABS, 2016a, 2016b). The ASGS is the Australian Bureau of Statistics' geographical framework. Data was categorised into Remoteness Areas and Statistical Areas. Data was extracted from the Census DataPack applicable to each census period. These can be accessed from the Australian Bureau of Statistics website: <https://datapacks.censusdata.abs.gov.au/datapacks/>

MURRAY RIVER FATAL DROWNING ANALYSIS

This year's report includes analysis of Victorians who drowned in the Murray River from 2011/12 to 2020/21. This research was conducted as part of the Inland Waterways Drowning Prevention project by Royal Life Saving Society – Australia and funded by the Australian Government.

Information on incidents was collected from the Royal Life Saving National Fatal Drowning Database and the NCIS. Methods for reporting these incidents is as per all Victorian fatal drowning incidents as reported above.



ACKNOWLEDGEMENTS

Acknowledgement of Country

We at Life Saving Victoria acknowledge the Traditional Custodians of the land and waterways where our activities take place. We pay our respects to their Elders, past and present, and the emerging leaders.

Life Saving Victoria gratefully acknowledges the assistance of the following organisations in the production of the Victorian Drowning Report:

- Ambulance Victoria
- Coroners Prevention Unit, Coroners Court of Victoria
- Emergency Management Victoria, Department of Justice and Community Safety
- National Coroners Information System
- Royal Life Saving – Australia
- Surf Life Saving Australia
- Victorian Injury Surveillance Unit

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Life Saving Victoria. (2021). Victorian Drowning Report 2020/21. Life Saving Victoria: Melbourne.

COMPILED BY

Dr Hannah Calverley, Robert Andronaco, Beáta Kiss and Dr Bernadette Matthews – Life Saving Victoria.

Dr Hannah Calverley is the Manager - Research and Evaluation for Life Saving Victoria. Hannah assists in the management and undertaking of LSV's research and evaluation of injury prevention and water safety issues, including: swimming and water safety education programs; lifesaving service delivery; water competency among children and older adults; inland waterways drowning prevention; public pool safety; multicultural water safety campaigns and international drowning prevention research. Hannah holds a Bachelor (with Honours) of Sport Development with Coaching, a Masters of Psychology, and a PhD which investigated alcohol-related drowning among young people.

Robert Andronaco is the Risk and Spatial Analysis Specialist at Life Saving Victoria. In his role he focuses on quantifying drowning risk and assisting land managers in mitigating assessed risks specific to recreational drowning and injury. Robert uses both traditional statistical approaches and spatial statistical analysis approaches to quantify drowning risk. Robert holds a Masters in Sport and Recreation Management and a Post Graduate Diploma in Risk Management.

Beáta Kiss is the Coordinator – Research and Health Promotion at Life Saving Victoria. Beáta assists with the coordination of research and health promotion, encompassing a vast range of environments and demographics, including controlled and open waterways, metropolitan and regional communities, and vulnerable groups to drowning. Beáta is also involved in the Play it Safe by the Water campaign in an evaluator role and has a special interest in working with culturally and linguistically diverse communities. Beáta holds a Bachelor of Human Services (major in Counselling), Graduate Certificate in Teaching of English to Speakers of Other Languages and a Masters of Public Health.

Dr Bernadette Matthews is the General Manager – Health Promotion and Communications for Life Saving Victoria. Bernadette specialises in aquatic injury prevention research, from epidemiology of fatal and non-fatal drowning, injuries at public swimming pools and patrolled beaches, aquatic safety signage recognition and recall, through to evaluation of education programs and major public awareness campaigns. Bernadette leads LSV's Research and Health Promotion as well as the Media and Communications teams.



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