Life Saving Victoria

2019/20 Life Saving Victoria **Drowning Report**

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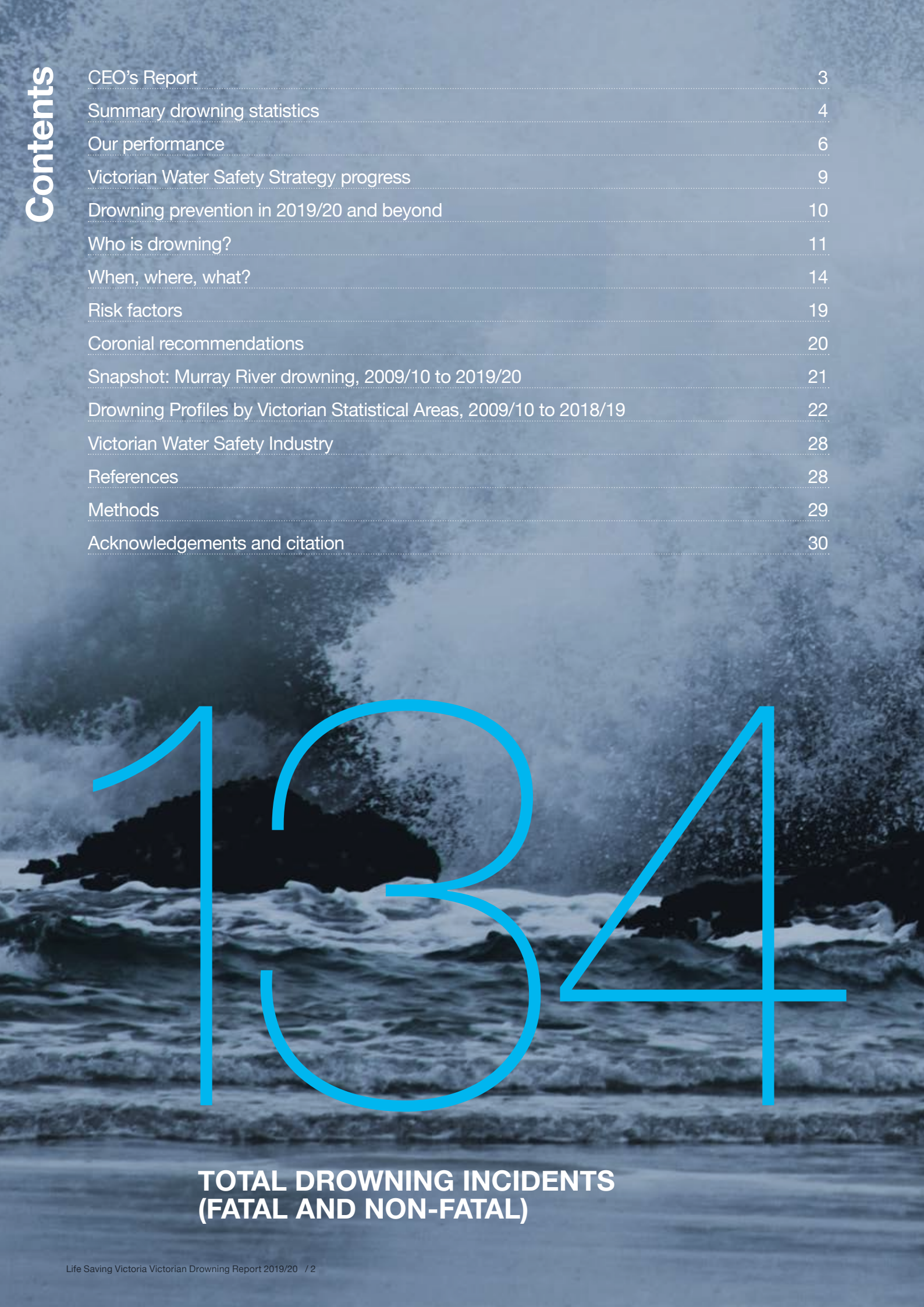


134

TOTAL DROWNING INCIDENTS (FATAL AND NON-FATAL)

TRAGICALLY, IN THE 2019-20 FINANCIAL YEAR, 34 PEOPLE IN VICTORIA LOST THEIR LIVES TO DROWNING, WHICH IS A 23% DECREASE ON THE 10-YEAR AVERAGE.

I present to you this year's Victorian Drowning Report, Life Saving Victoria's annual analysis of drowning incidents in Victoria. The report again provides a sobering reminder not to become complacent around water, as well as providing insights on where drowning prevention efforts are most needed to ensure all Victorians and visitors enjoy the water safely.

Tragically, in the 2019-20 financial year, 34 people in Victoria lost their lives to drowning. This is a 23% decrease on the drowning rate per head of population compared to the 10-year average. However, this is tempered by knowledge the season was marred by poor air quality, bushfires and a global pandemic restricting people's access to the water.

During the year, a further 100 people experienced a non-fatal drowning incident, adding to a total of 1,022 hospital admissions and 952 Emergency Department (ED) presentations for non-fatal drowning over the previous decade (2009/10-2018/19).

Worryingly, children aged 0-4 years accounted for 44% of ED presentations. This is a stark reminder of the importance of supervision.

Some of the key trends in 2019/20 included:

- 34 fatal drowning incidents is 6 fewer than the average number of drowning incidents in Victoria over the past 10 years (2009/10–2018/19).
- This year the number of overall drowning incidents was 6% below the 10-year average, with 134 incidents, including 34 fatal and 100 non-fatal drownings.
- Males continue to be overrepresented in the drowning statistics and are four times more likely to drown than females. In fact, males aged 25-44 years accounted for 26% of all drowning deaths.
- There were no drowning deaths of children aged 0-4 years for the first time in 20 years, however almost one-third of non-fatal incidents involved children in this group.
- Men aged 65 years and above had the highest age-specific fatal drowning rate.
- Drownings decreased across all open waterways with a 24% decrease in coastal waterways and a 13% decrease in inland waterways. However, drowning continues to occur predominately in coastal and inland waterways, with 35% and 34% of incidents occurring in these locations, respectively, in 2019/20.
- Half of all drowning deaths were a result of unintentional water entry (i.e. slips/trips/falls), which highlights the importance of learning survival swimming and water safety skills.
- Residents of metropolitan Melbourne were overrepresented in the statistics in 2019/20 compared to those in regional Victoria, which is a reversal of recent trends.

Over the past decade:

- 36% of those who drowned were from a culturally and linguistically diverse (CALD) background. People from CALD communities are almost twice as likely to drown when comparing drowning rates per head of population and cultural background.
- 34% of drowning deaths involved alcohol and/or illegal drugs.
- 79% of drowning deaths in boating incidents occurred when the drowning victim was not wearing a lifejacket (or not the correct lifejacket).

The 2019-20 drowning statistics are set against a backdrop of bushfires and, in March, the start of the global COVID-19 pandemic. These factors made the year vastly different to previous years and the findings in this report should be interpreted in recognition of these unusual circumstances impacting how often, in what ways and where we interacted with water.

The next year will therefore be crucial for lifesaving services as the perfect storm is created when Victorians who have had limited or no exposure to waterways, aquatic recreation or learn to swim activity for almost a year head back into the water over summer. They may potentially head to more remote, unpatrolled areas in an attempt to avoid the crowds, and into pools with social distancing in place, without the same level of skills and fitness.

Our drowning prevention efforts will be more in demand than ever before and I urge all Victorians to take extra precautions around our waterways in the upcoming year. Please heed the water safety messages in this report – we want everyone to have an enjoyable summer when we can finally return to a semblance of what we once took for granted – the freedom to enjoy all of our aquatic environments.

Look out for yourself and those around you.

Dr Nigel Taylor ESM
CEO

Summary drowning statistics

Fatal drowning in 2019/20

34
Drowning deaths

0.52
Crude fatal drowning rate per
100,000
persons

23%
Decrease on the 10-year average drowning rate

$167M
Direct cost of lives lost

76%
Male

24%
Female

Location (fatal)

35%
Bay/beach/ ocean

34%
Lakes/dams/ rivers/creeks

Activity (fatal)

18%
Swimming/ paddling/wading

15%
Rock fishing

18%
Involved alcohol and/or illegal drugs

Key fatal drowning statistics in 2019/20

22% ↗
Increase in fatal drowning rate of people aged 15–24 years

24% ↘
Decrease in drowning deaths in coastal waterways*

6x ↗
Increase in fatal drownings of people who were rock fishing*

40% ↘
Decrease in drowning deaths from January-June 2020*

*Compared to the 10-year average

Non-fatal drowning in 2019/20

1.52

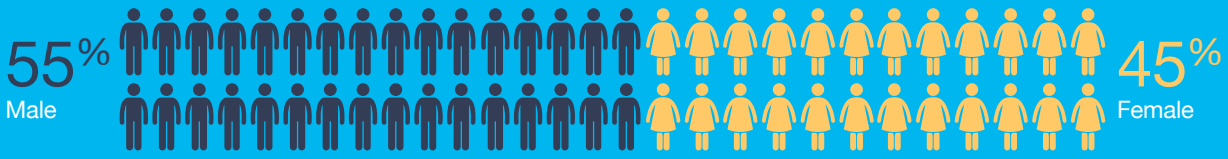
Crude non-fatal drowning rate per

100,000

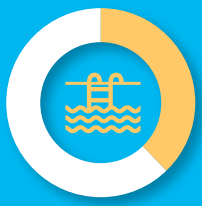
persons

100

Non-fatal drowning incidents attended by paramedics



Location (non-fatal)

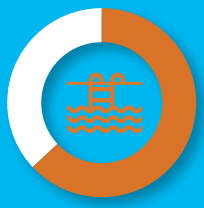


38%

Pools

14%

Residential pools



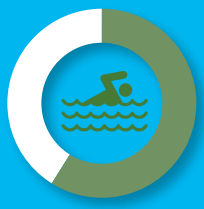
24%

Public pools

33%

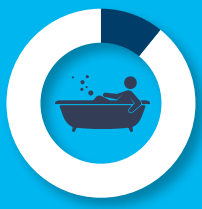
Bay/beach/ ocean

Activity (non-fatal)



59%

Swimming/ paddling/wading



11%

Bathing

Of drowning deaths between 2009/10 and 2018/19

36%

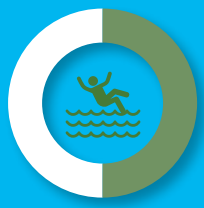
Were people from CALD communities

34%

Involved alcohol and/or illegal drugs

79%

Were not/incorrectly wearing a lifejacket in boating incidents



50%

Resulted from unintentional entry

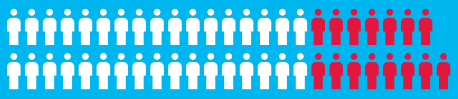
Our performance

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 this setting. The performance factors highlighted below were impacted by the 2019/20 summer bushfires and subsequent poor air quality and the COVID-19 pandemic.

Reduce drowning

Reduce the Victorian drowning rate

34



Drowning deaths in Victoria in 2019/20.
This is 15 less than the 10-year average.

0.52

Crude fatal drowning rate per 100,000 population in Victoria in 2019/20; a 23% decrease compared to the 10-year average.

100

Non-fatal drowning incidents attended by paramedics in 2019/20. This represents a crude non-fatal drowning rate of 1.52 per 100,000 population in Victoria in 2019/20.

49%

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 3-year average 1996/7 to 1998/99 compared to the follow-up 2017/18 to 2019/20 average).

$167M

Direct cost to society of lives lost (where the value of a statistical life is estimated at $4.9 million; Office of Best Practice Regulation, 2019).

Services

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

625

Rescues by lifesavers and lifeguards on patrolled beaches on average per year from 2009/10 to 2018/19.

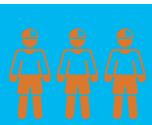
25.6

Rescues per 100,000 beachgoers on average per year from 2009/10 to 2018/19.

1,945

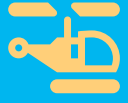
First aid assistance by lifesavers and lifeguards on patrolled beaches on average per year from 2009/10 to 2018/19.

38,000+



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

$6.1B



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

105,795

Participants took part in water safety education programs in 2019/20, prior to the COVID-19 pandemic. The 5-year average (2014/15 to 2018/19) is 188,187 participants.

22,000

Culturally and linguistically diverse participants took part in LSV programs in 2019/20; a 39% increase compared to the 5-year average (2014/15 to 2018/19).

21,449

People trained in CPR or other First Aid-related courses in 2019/20.

10,580

Participants in accredited aquatic safety training courses in 2019/20.

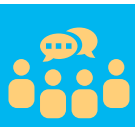
196

Aquatic facilities are registered Watch Around Water facilities in 2019/20. This represents an estimated 33% of aquatic facilities in Victoria.

Risk & Research

Striving for excellence in evidence-based practice

4,350+



People from the lifesaving community and the Victorian public, and industry, business and government sectors contributed to a wide-ranging review of LSV's lifesaving capability and resourcing, which identified opportunities for improvement.

50

Qualified pool lifeguards engaged in a study with LSV and Swinburne University using eye-tracking technology to determine the most appropriate lifeguard-to-patron ratio. This research will help to ensure optimal ratios are implemented in future.

88%

Average post-program water safety knowledge score by participants (n=113) in Year 2 of the Bush Nippers pilot project, which determined the program's effectiveness in regional inland areas and feasibility for state-wide implementation (Life Saving Victoria – Risk & Research Services, 2020).

117

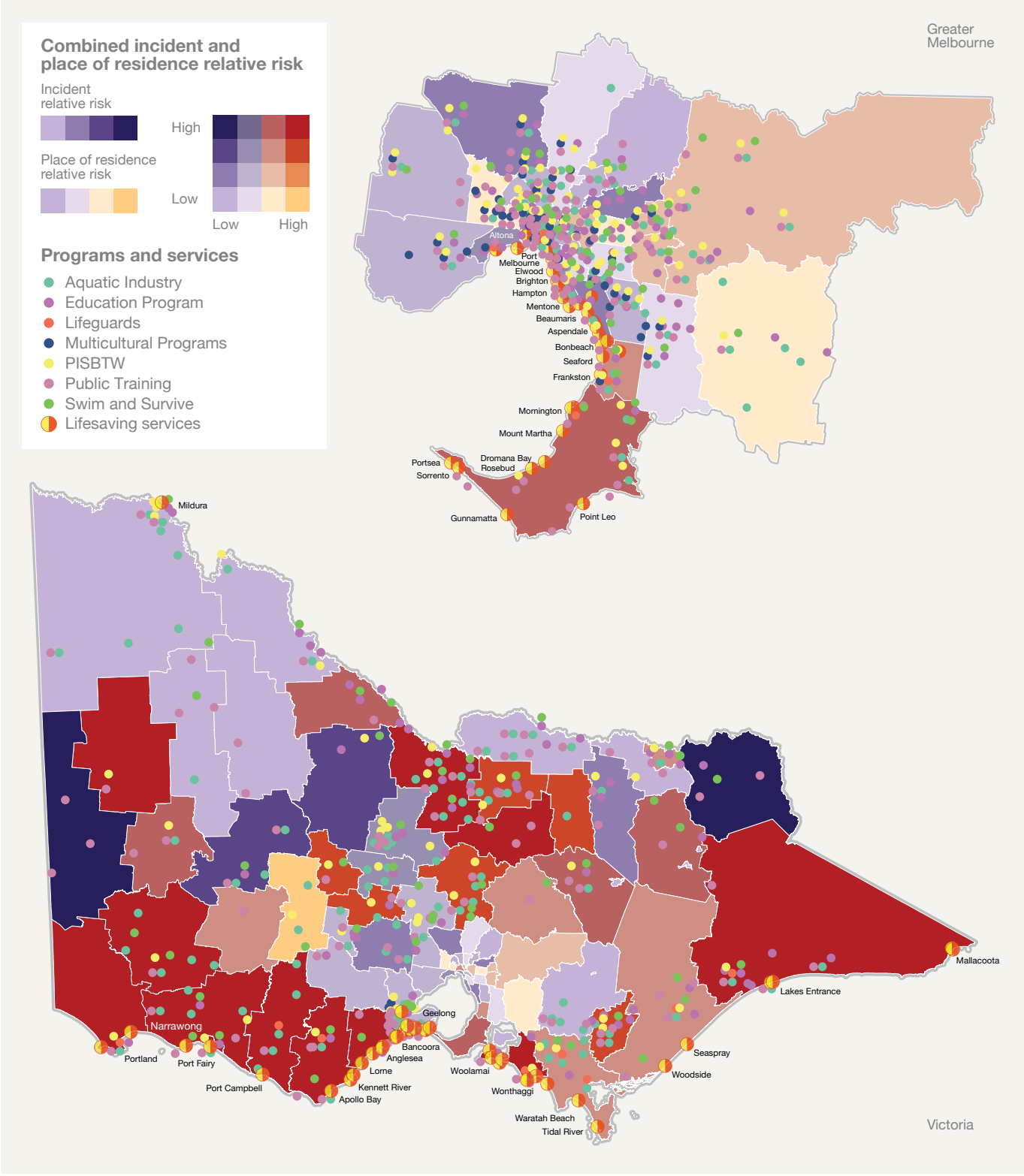
Assessments conducted by LSV. Pool safety assessments of 110 aquatic centres measured performance against best practice standards, and 7 beach risk assessments were conducted within coastal drowning blackspot areas.

42%

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

The following maps highlight the service provision that LSV directs to different areas of Victoria in response to 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, for example, risk assessment prioritisation, lifesaving service provision, and public awareness raising for residents and local and international tourists. Relative risk of drowning by place of residence is utilised to direct the provision of education programs and further public awareness raising.

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 22% from baseline, this is well short of the Strategy's goal of a 50% reduction in drowning by the end of this year.

Of the 11 priority areas, three areas are on track, but urgent work is required across five other areas, especially Reduce drowning in high-risk populations and Reduce drowning in coastal waters, which have increased by 63% and 24% respectively, since baseline.

Priority areas and goals		BASELINE (3-YEAR AVERAGE 2004/05 TO 2006/07)	FOLLOW-UP (3-YEAR AVERAGE (2017/18 TO 2019/20)	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	1.06	0.33	-69%	On track
	5–14 years	0.62	0.13	-79%	On track
2. Reduce drowning in young people aged 15–24 years		5	0.71	-8%	Work needed
3. Reduce drowning in males aged 25–64 years	25–44 years	1.5	1.0	-35%	Work needed
	45–64 years	1.1	1.1	-3%	Urgent work needed
4. Reduce drowning in people aged 65+		1.13	1.02	-10%	Work needed
Priority area two: Targeting high-risk locations		**Frequency**	**Frequency**	**%**	
5. Reduce drowning in inland waterways		16	16	4%	Urgent work needed
6. Reduce drowning in coastal waters		14	17	24%	Urgent work needed
7. Reduce drowning by strengthening the aquatic industry[1]		0	0	0%	On track
Priority area three: Focusing on key drowning challenges		**Frequency**	**Frequency**	**%**	
8. Reduce alcohol and drug-related drowning[2]		14	9	-37%	Work needed
9. Reduce boating, watercraft and recreational activity-related drowning[3]		9	9	0%	Urgent work needed
10. Reduce drowning in high-risk populations[4]		9	15	63%	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 peoples, people from culturally and linguistically diverse (CALD) backgrounds, international tourists and international students. Statistics are primarily determined from Country of Birth data.

Drowning prevention in 2019/20 and beyond

Reporting on a reduction in the number of individuals losing their lives to drowning is always a significant, positive moment. Although it is encouraging to see a 23% reduction in the drowning rate compared to the previous decade, it is important to recognise that 2019/20 was vastly different to previous years, and that these findings should be interpreted with caution due to the unprecedented challenges Victoria has faced. Restrictions on movement and activity prevented Victorians from engaging in many aquatic recreational activities thus reducing exposure to water. This potential influence on the drowning statistics is highlighted in that there was a 40% decrease in drowning from January to June 2020 compared to the 10-year average.

LOOKING AHEAD

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 almost a year, which means that drowning prevention efforts and public water safety awareness are more important than ever.

UNPRECEDENTED IMPACTS

Since December 2019, Victoria has faced unprecedented challenges, beginning with bushfires on a geographic scale not seen since 1939 and subsequent poor air quality across the state, followed by the COVID-19 pandemic, which created a multitude of additional challenges. Victoria's aquatic and tourism industries were 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.

For these reasons, it is more important than ever for Victorians to take greater precautions around 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.

THIS YEAR, IT IS MORE IMPORTANT THAN EVER FOR VICTORIANS TO TAKE GREATER PRECAUTIONS AROUND WATERWAYS.

Bushfires

November 2019 to February 2020

IMPACTS ON AQUATIC ACTIVITY

- Beach and outdoor pool closures across large areas of Victoria, particularly East Gippsland.
- Restricted travel to coastal and inland regions where people typically holiday and interact with water.
- Poor air quality forcing Victorians to stay indoors.
- Loss of Mallacoota Surf Life Saving Club rescue and first aid equipment.

COVID-19 pandemic

March 2020 onwards

IMPACTS ON AQUATIC ACTIVITY

- State-wide beach closures and an early end to the lifeguard patrol season.
- Long-term closures of public swimming pools led to cancellation of swimming lessons for an estimated 145,000 (mostly children) weekly participants.
- Restrictions on movement and activity prevented Victorians from engaging in recreational activities, including pool and open water swimming, aqua aerobics and rehabilitation, water sports, boating and fishing.

There were 134 drowning incidents in Victoria in 2019/20, comprising 34 drowning deaths and 100 non-fatal incidents attended by paramedics. People aged 65 years and above had the highest age-specific fatal drowning rate in 2019/20. However, children aged 0–4 have the greatest overall risk of drowning with the highest age-specific combined rate of fatal and non-fatal drowning, as they made up 23% of all non-fatal incidents.

Safety tips for young people (15-24 years)

- Be aware and prepared for conditions.
- Swim between the red and yellow flags.
- Avoid alcohol until after your aquatic activity.

Safety tips for carers of children 0–4 years

- 20 seconds is all it takes for a child to drown, so never take your eyes off children around water.
- Make sure to restrict children's access to water and always keep them within arm's reach when around water.

DEATHS

The 34 drowning deaths in 2019/20 represents a 15% decrease compared to the 10-year average (40 deaths). The crude fatal drowning rate was 0.52 per 100,000 population in 2019/20, and is a 23% decrease compared to the 10-year average (0.67 per 100,000 population).

Of the 34 drowning deaths in Victoria in 2019/20, 26 (76%) were male. Males are consistently overrepresented in drowning statistics, and over the past decade were almost four times more likely to drown than females.

Young people aged 15–24 years were the only group to see an increased drowning rate this year (0.69 per 100,000 population, 22% increase). Nine males in the 25-44 year age group died as a result of drowning this year in Victoria, making up 26% of all drowning deaths. Men aged 65 years and above had the highest fatal drowning rate, followed by men aged 25–44 years. There was an 18% decrease in the drowning rate of females, and there were no drowning deaths of children aged 0–4 years for the first time since 2000/01.

NON-FATAL INCIDENTS

There were 100 non-fatal drowning incidents attended by paramedics in 2019/20. This represents a crude non-fatal drowning rate of 1.52 per 100,000 population in 2019/20. Almost one-third of non-fatal incidents involved children aged 0–4 years.

Hospital admissions – 2009/10 to 2018/19

Over the previous decade there were 1,022 hospital admissions for non-fatal drowning, or an average of 102 hospital admissions per year. The annual crude hospital admissions rate was 1.79 per 100,000 population per year. The rate of admissions was below 2.0 over the period from 20013/14 to 2016/17, with an increase to 2.24 in 2017/18.

A total of 717 males were admitted to hospital for non-fatal drowning, an average of 72 (70%) hospital admissions per year.

Children aged 0–4 years had the highest rates of admission, with 6.19 per 100,000 population annually followed by those aged 15–24 years (2.25 per 100,000 population) and those in the 5–14 years age group (1.86 per 100,000 population). Those aged 65 years and above presented the lowest rate of admission at 0.98 per 100,000 population.

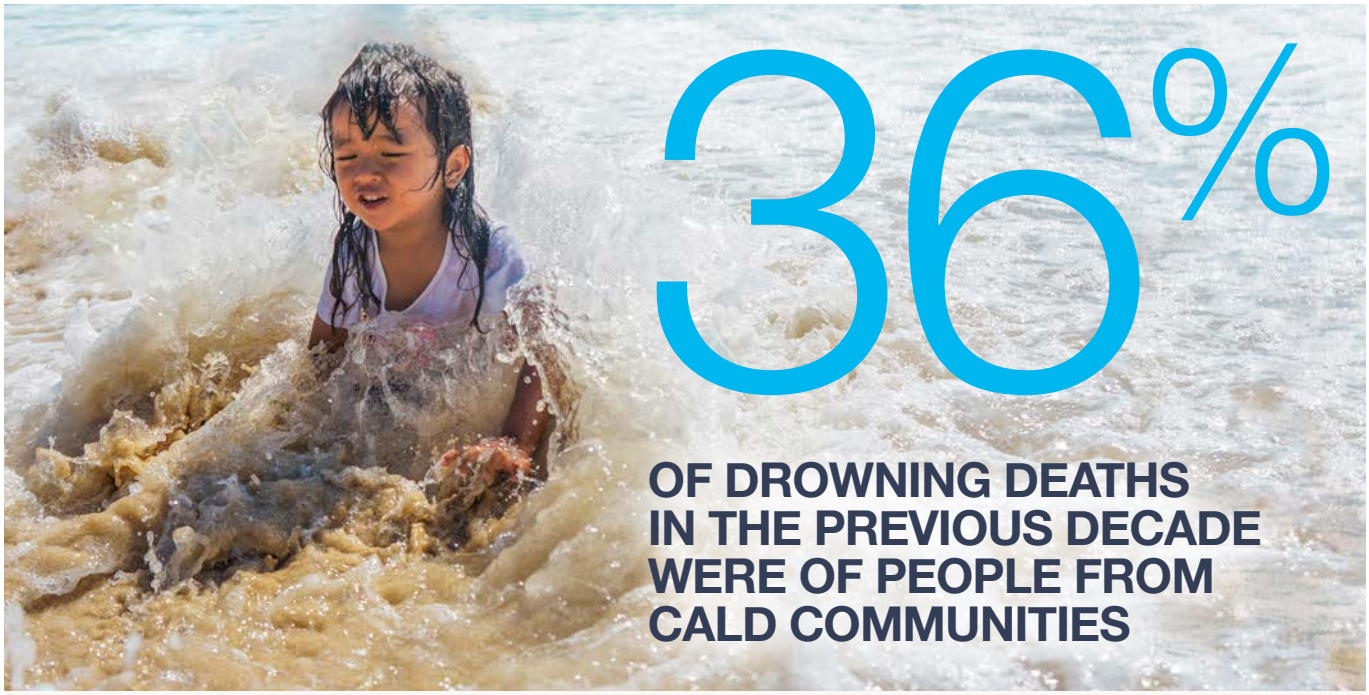
Of hospital admissions where location of drowning was recorded, 22% occurred in the home.

Emergency Department presentations – 2009/10 to 2018/19

There were 952 Emergency Department (ED) presentations for non-fatal drowning in the 10-year period from 2009/10 to 2018/19, an average of 95 ED presentations annually. The average annual rate of ED presentations was 1.57 per 100,000 population per year. Children aged 0–4 years had by far the highest rate of ED presentations, with 10.96 per 100,000 population annually. This was followed by those aged 5–14 years (2.31 per 100,000 population) and those in the 15–24 years age group (1.37 per 100,000 population).

The majority of the 952 ED presentations were males (619, 65%). Similar to hospital admissions, ED presentations decreased with increasing age, with children aged 0–4 years accounting for 44% of ED presentations.

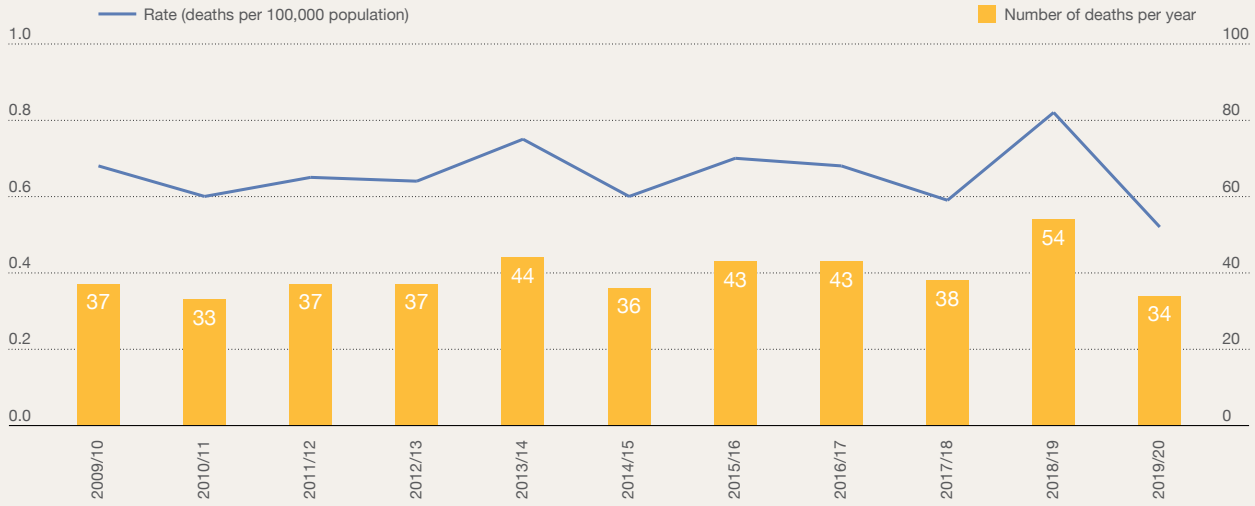
Who is drowning?



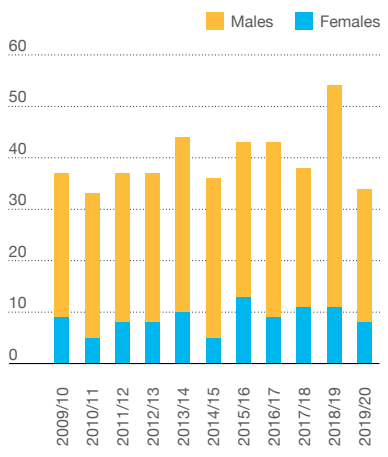
36%

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

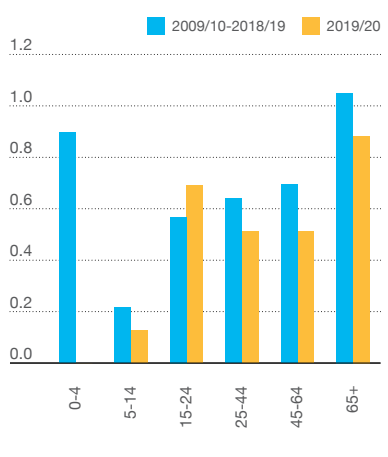
DROWNING DEATHS AND DROWNING RATE 2009/10 TO 2019/20



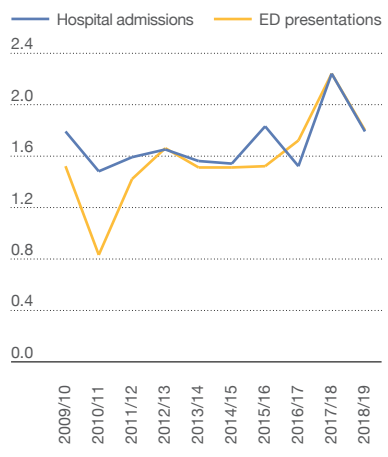
FREQUENCY OF FATAL DROWNING IN VICTORIA BY SEX, 2009/10 TO 2019/20



FATAL DROWNING RATE PER 100,000 PERSONS IN VICTORIA BY AGE, 2009/10 TO 2019/20



HOSPITAL ADMISSIONS AND EMERGENCY DEPARTMENT (ED) PRESENTATIONS RATE PER 100,000 PERSONS IN VICTORIA, 2009/10 TO 2018/19



147 OVERSEAS-BORN PEOPLE DROWNED OVER THE PAST DECADE

80% male

39% aged 25–44 yrs

23% aged 45-64 yrs

41 yrs (median age)

82% resided in major cities in Victoria

10 yrs median time living in Australia

Common waterways

31% beaches

20% rivers/creeks/streams

Common activities

28% swimming/paddling/wading

21% fishing*

15% walking/recreating near water

71% of rock fishing-related deaths were of people born overseas

VICTORIA'S MULTICULTURAL POPULATIONS

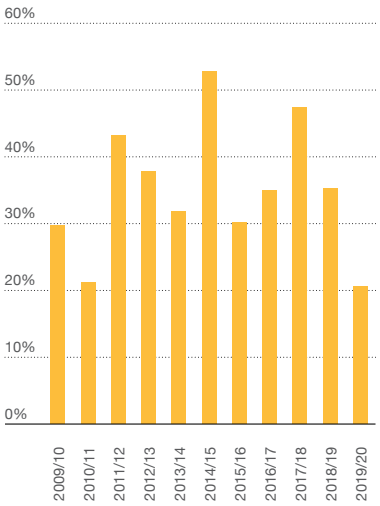
Victoria is one of the most culturally diverse societies in the world; a place where people born in over 200 countries call home. In fact, 28% of Victorians were born overseas and half were either born overseas or have at least one parent who was.

This year, 7 (21%) 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 79% of cases.

Due to limitations with country of birth data collected, data has been analysed over the previous 10-year period from 2009/10–2018/19. On average, 36% of drowning deaths were of individuals known to have been born overseas (with 16% unknown country of birth). People born overseas are 1.86 times more 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.

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).

PERCENTAGE OF DROWNING DEATHS IN VICTORIA BY OVERSEAS COUNTRY OF BIRTH* 2009/10 TO 2019/20



*Where country of birth of drowning victim was known

2X

PEOPLE FROM CALD COMMUNITIES ARE ALMOST TWICE AS LIKELY TO DROWN

86%

OF INDIVIDUALS FROM CALD COMMUNITIES WHO DROWNED OVER THE PREVIOUS 10 YEARS WERE MALE

Safety tips for CALD communities

- Be aware and prepared for conditions.
- Read safety signs to understand dangers.
- Swim between the red and yellow flags wherever possible.
- Never swim alone.
- Always wear a lifejacket when boating or rock fishing, it buys you time to survive.

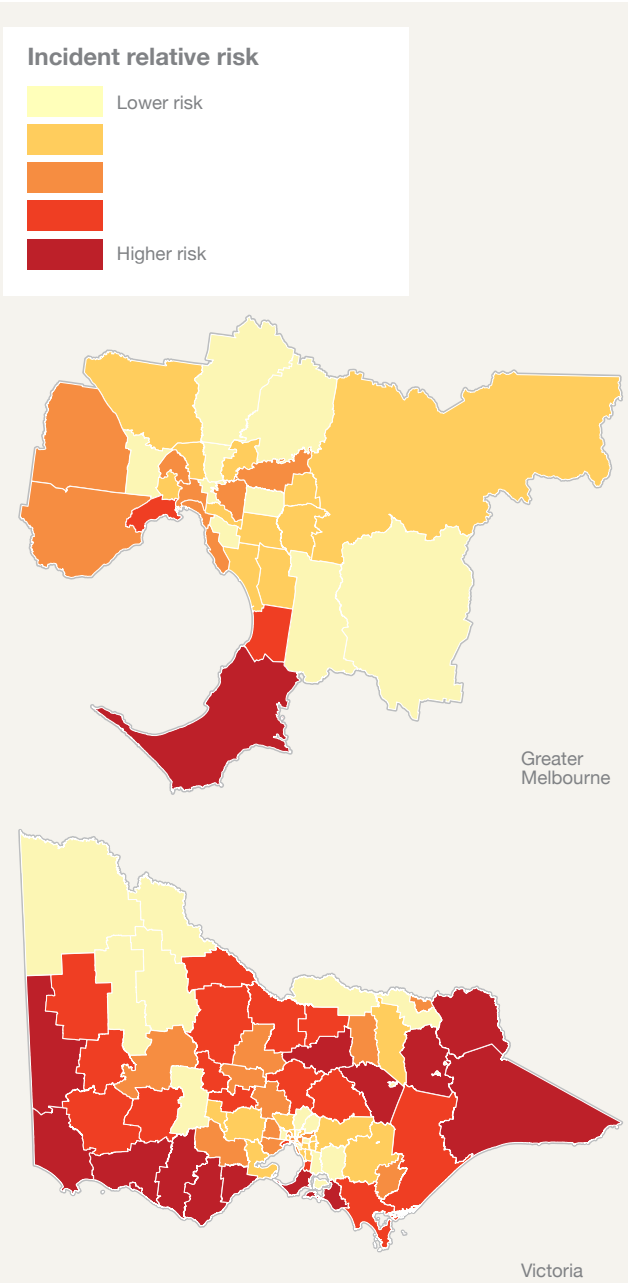
*Fishing includes fishing for abalone (typically snorkelling/diving), rock fishing, and fishing from a boat.

DROWNING RELATIVE RISK BY LOCATION AND RESIDENCE – 2009/10 TO 2018/19

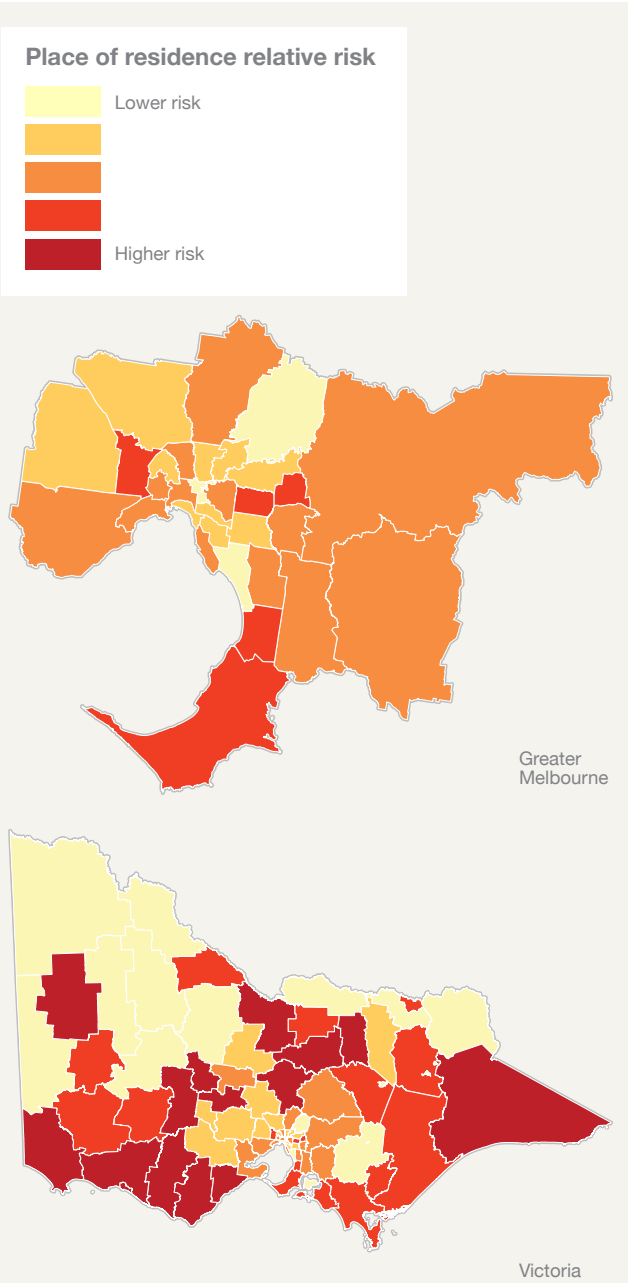
These maps outline the relative risk of drowning based on a) incident location, b) place of residence, and c) a composite index of both incident and place of residence. All maps illustrate relative risk within Victorian Local Government Areas (LGAs) using postcodes of drowning event locations over a 10-year timeframe (2009/10 to 2018/19).

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. By scanning the first two maps, geographical changes to the risk of drowning by incident versus residence can be compared.

RELATIVE RISK OF DROWNING BY INCIDENT LOCATION



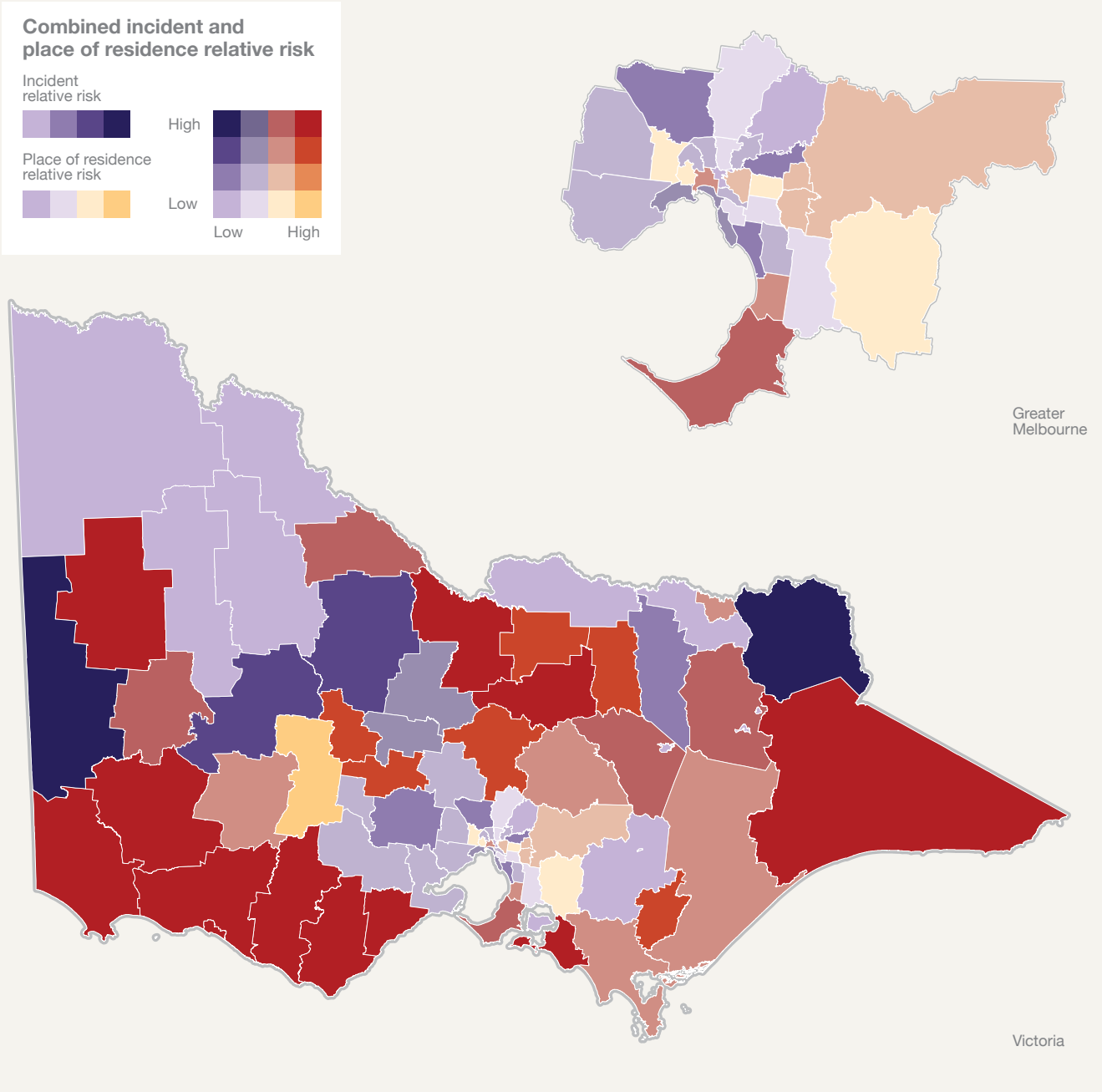
RELATIVE RISK OF DROWNING BY PLACE OF RESIDENCE



COMBINED DROWNING RELATIVE RISK – 2009/10 TO 2018/19

Another approach to compare relative risk of drowning, is to combine location and place of residence relative risk into a composite risk. 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. Light red and darker red areas highlight that incident and resident relative risk ratios are both moderate to high within those specific LGAs.

COMBINED INCIDENT AND PLACE OF RESIDENCE RELATIVE RISK OF DROWNING



When, where, what

WHEN DID THEY DROWN?

Season and month

Two in five (41%, 14) drowning deaths in 2019/20 occurred in the summer months. This is a 21% decrease compared to the 5-year average of 18 (2014/15 to 2018/19). Spring represented the second largest number of drowning deaths, with 12 (35%), which is 2 more than the 5-year average. Winter 2020 saw the lowest proportion of drowning deaths (6%) since 1997. It is likely that this was influenced by COVID-19 restrictions preventing people from leaving home to engage in aquatic recreation.

In the previous decade, the majority of drowning deaths occurred in summer (38%), followed by spring (24%), autumn (21%), and winter (16%).

Most (62%, 21) drowning deaths occurred between 01 July and 31 December 2019, before Victoria was significantly impacted by the bushfires, poor air quality and the COVID-19 pandemic. Almost one-quarter (24%, 8) of drowning deaths in 2019/20 occurred in December, which is three more than the 10-year average. There was a 40% decrease in drowning from January to June 2020 compared to the 10-year average.

Similar to fatal drowning, non-fatal drowning incidents were far more common in summer (62%, 62). This was followed by spring (23%, 23), autumn (9%, 9), and winter (6%, 6).

WHERE DID THEY DROWN?

Region

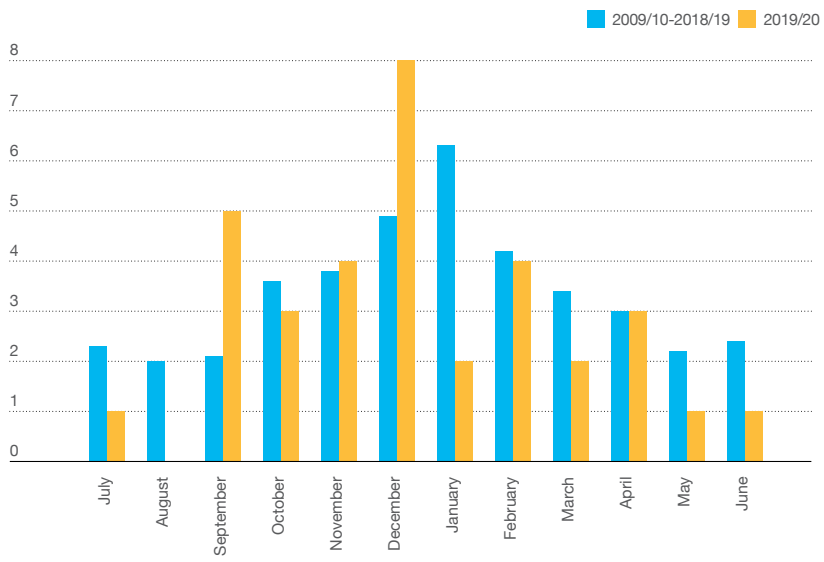
This year, 20 (59%) drowning incidents occurred in major cities in Victoria. This is one more than the 10-year average from 2009/10 to 2018/19.

When accounting for the differences in the distribution of the residential population, the drowning rate decreased for those residing in regional Victoria but remained unchanged for those in metropolitan Melbourne (0.55 per 100,000 population in 2019/20). There was a 78% decrease in the drowning rate of those residing in regional areas of Victoria (0.21 per 100,000 population) compared with the 10-year average (0.98 per 100,000 population).

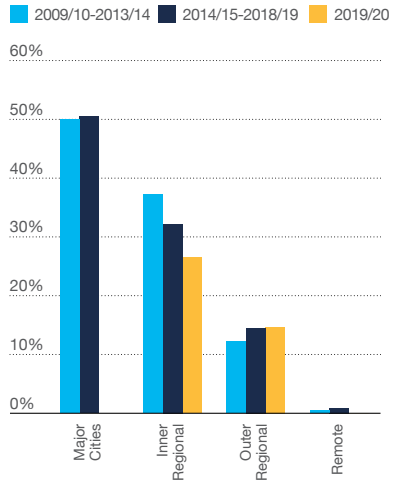
Waterways

In 2019/20, 35% (12) of all drowning deaths occurred in coastal environments (bay/beach/ocean), making it the most common location for drowning.

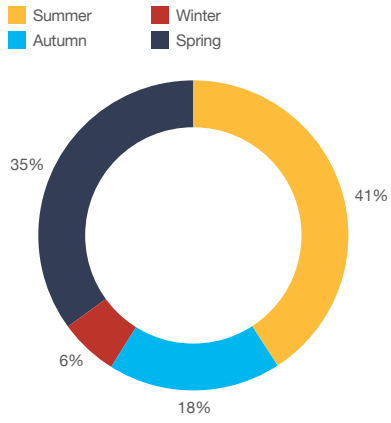
FREQUENCY OF DROWNING DEATHS BY MONTH 2009/10 TO 2019/20



PERCENTAGE OF FATAL DROWNING BY REMOTENESS AREA OF INCIDENT IN VICTORIA, 2009/10–2019/20



PERCENTAGE OF FATAL DROWNING BY SEASON 2019/20

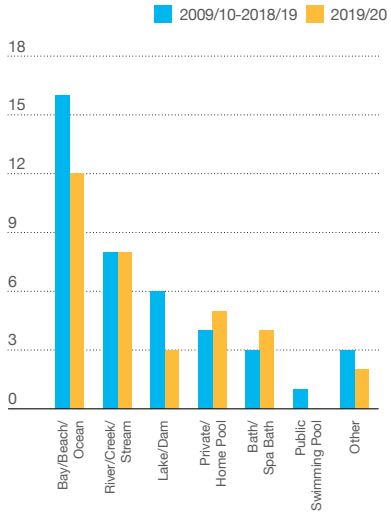


These 12 deaths represent a 24% decrease in drowning deaths in coastal waterways compared with the 10-year average of 16. More than two-thirds (69%, 7) of coastal drowning deaths occurred on rocky outcrops, which is 6 above the 10-year average of 1 and 21% of all drowning deaths this year.

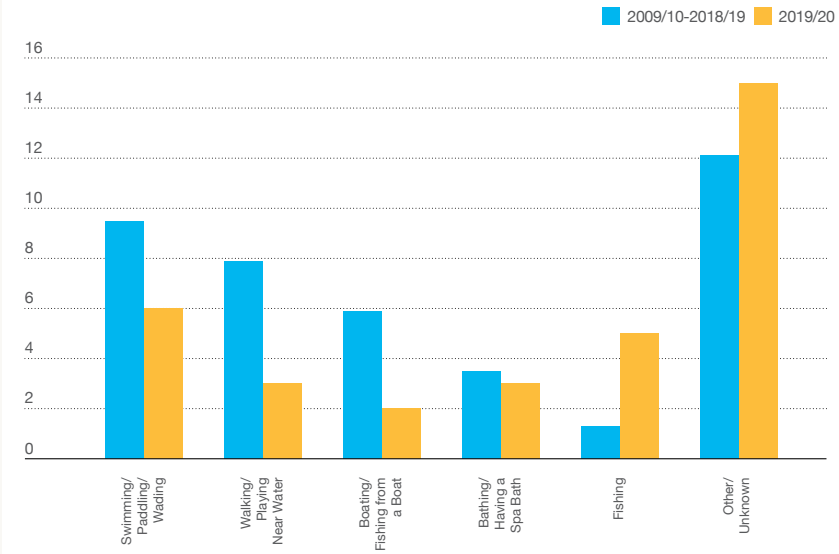
A further 34% of people drowned in inland waterways (11 in rivers/creeks/streams and lakes/dams), which is a 19% decrease on the 10-year average of 14.

One-third of non-fatal drowning incidents in 2018/19 occurred in bay/beach/ocean environments (33%, 33). A further 24% (24) occurred in public swimming pools. Other common waterways for non-fatal incidents were private/home pools (14%, 14), and baths/spa baths (13%, 13).

FREQUENCY OF FATAL DROWNING PER YEAR BY BODY OF WATER 2009/10–2019/20



FREQUENCY OF FATAL DROWNING PER YEAR BY ACTIVITY 2009/10 TO 2019/2020



Safety tips for the beach

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

Safety tips for inland waterways

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

WHAT WERE THEY DOING?

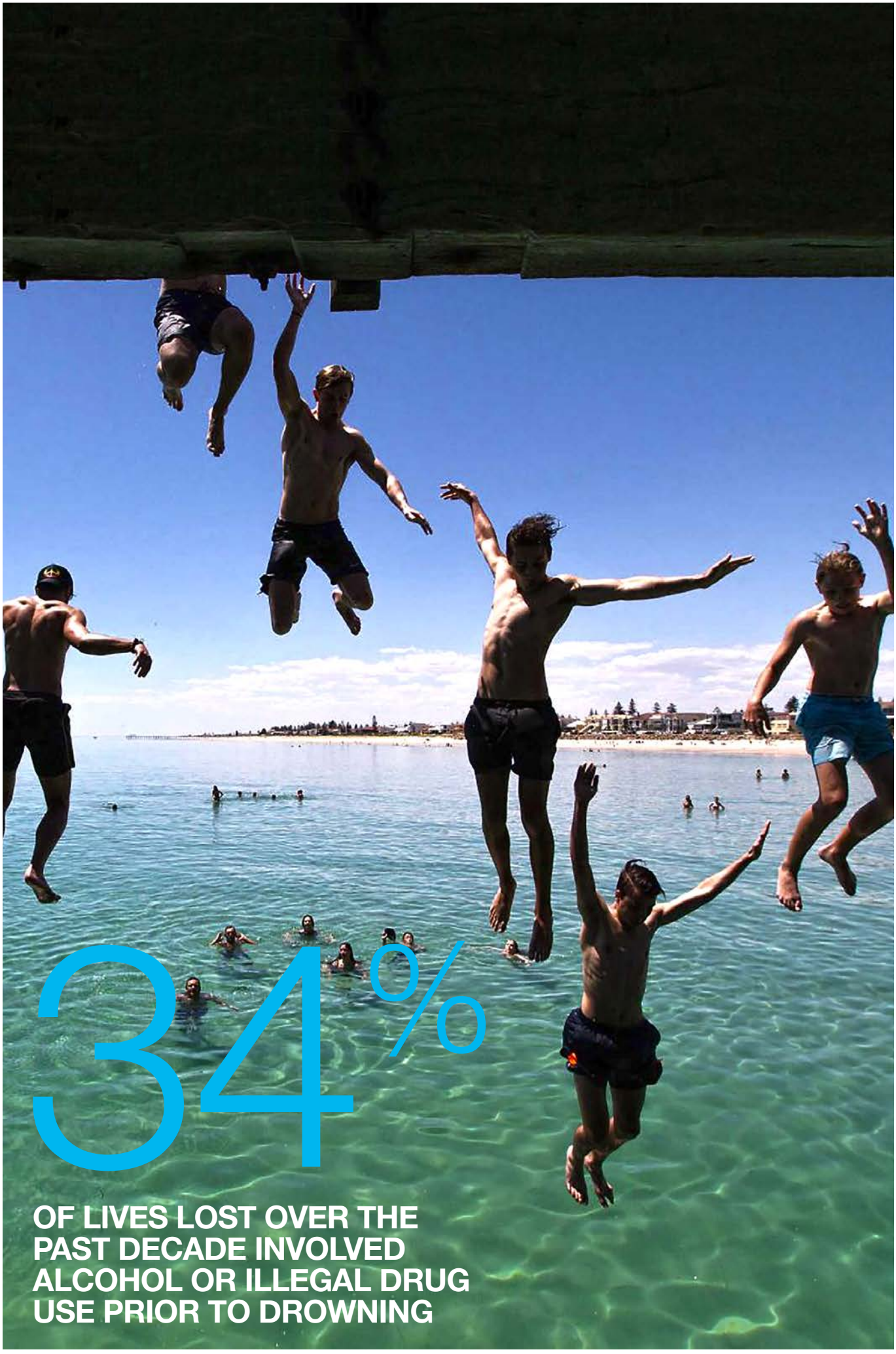
Activity

Swimming/paddling/wading was the most common activity immediately prior to a fatal drowning in 2019/20 (18%, 6), followed by rock fishing (15%, 5). Walking/playing near water and bathing/having a spa bath, both accounted for 9% of drowning deaths.

There was a six-fold increase in those that fatally drowned whilst rock fishing in 2019/20 compared to the 10-year average from 2009/10 to 2018/19.

Most non-fatal drowning incidents involved those swimming/paddling/wading (59%, 59) at the time. These figures again highlight the importance of swimming and water safety education and skills maintenance across all age groups. A further 11 non-fatal incidents occurred while bathing/having a spa bath (11%), indicating that bathtubs continue to be a risk factor for drowning, particularly among young children.

Unintentional water entry (including slips/trips/falls and attempting a rescue) accounted for 50% (17) of fatal drowning incidents this year. This is 1 more than the average of 16 (39%) per year from 2009/10 to 2018/19.


34%
OF LIVES LOST OVER THE PAST DECADE INVOLVED ALCOHOL OR ILLEGAL DRUG USE PRIOR TO DROWNING

ALCOHOL AND DRUGS

There were 6 drowning deaths in 2019/20 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 the remainng 72% 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.

6

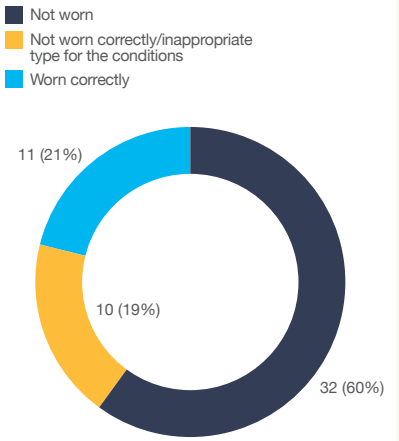
DROWNING DEATHS IN 2019/20 IN WHICH ALCOHOL AND/OR ILLEGAL DRUGS WERE REPORTEDLY CONSUMED

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.

LACK OF LIFEJACKET USE

Failure to wear a lifejacket has likely claimed many lives in Victoria. Among the 59 boating-related drowning deaths over the past decade (2009/10 to 2018/19), lifejacket usage was known in 53 cases. Of these 53 incidents, two-thirds (32, 60%) of the deceased were not wearing a lifejacket at the time. A further 10 (19%) had an incorrectly fitted lifejacket or wore the incorrect type recommended for the conditions.

LIFEJACKET WEAR WHEN BOATING 2009/10-2018/19



Wearing a lifejacket when rock fishing could also have saved at least another 6 lives over the past decade, with 6 of the 7 individuals that drowned while rock fishing known to have not been wearing a lifejacket, with 1 unknown.

Don't let your mates drink and drown.

- Avoid alcohol until after your aquatic activity.
- Advise your friends against entering the water if they have been drinking or taken illegal drugs.

Always wear a lifejacket when boating or 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.

Coronial recommendations

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 five coronial findings in 2019/20 where a recommendation or comment was made related to a drowning death. Note, these are not exact replications from the findings; these should be accessed from the Coroners Court of Victoria website: *http://www.coronerscourt.vic.gov.au/home/coroners+written+findings/*

2016 Antonio D'Augello, aged 63 years, drowned in an irrigation channel near the front of his residence in Kyabram. Mr D'Augello reportedly could not swim; he had schizophrenia and a history of poor physical and mental health.

The recommendations made by the coroner are wholly specific to patient care practices and can be accessed from the Coroners Court of Victoria website above.

2016 Logan Saminathan, aged 39 years, drowned while undertaking an open water scuba diving course at Mornington Pier. Conditions were described as cold, wet and windy. The water temperature was 12 degrees Celsius, winds gusted at 40 kilometres per hour, and waves were at two metres. Mr Saminathan was a strong swimmer but an inexperienced diver. During the second dive, the instructor surfaced with Mr Saminathan, who was unconscious and without his mask on. The events that transpired during the dive are unclear. Witnesses heard the instructor's cries for help and contacted emergency services. A witness made several attempts to place a life ring around Mr Saminathan, however the extreme conditions greatly affected the potential for successful rescue and Mr Saminathan floated away. He was retrieved shortly after and declared deceased at the scene.

No formal recommendation was made, however the coroner strongly, but informally, recommended that Parks Victoria consider trialling the provision of lifebuoys at Mornington Pier and other piers along the Mornington Peninsula where dive schools frequently operate, for a period of three years, and assess the availability and usefulness of the devices at the end of that period.

2016 Leonie Hanson, aged 40 years, drowned while instructing an open water scuba diving course at Mornington Pier. Conditions and the incident are described above. Ms Hanson was an experienced dive instructor. Unfortunately, Ms Hanson became overcome with exhaustion from trying to assist Mr Saminathan. The witness was also unable to secure a life ring around Ms Hanson before losing contact with her. Ms Hanson kept taking on water and lost consciousness. Victoria Police divers later retrieved Ms Hanson from the sea floor. It was deemed that inadequate emergency planning and execution and adverse conditions played a role in the outcome.

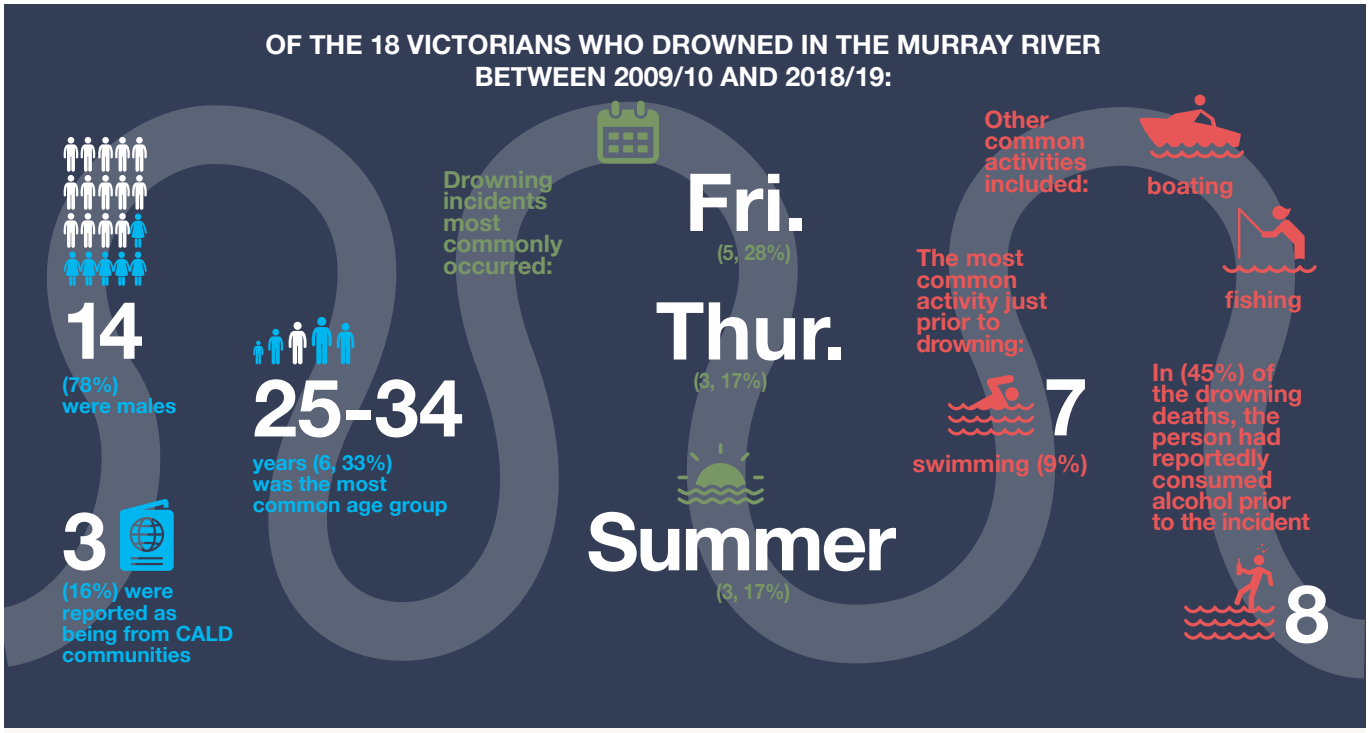
No formal recommendation was made, however the coroner strongly, but informally, recommended that Parks Victoria consider trialling the provision of lifebuoys at Mornington Pier and other piers along the Mornington Peninsula where dive schools frequently operate, for a period of three years, and assess the availability and usefulness of the devices at the end of that period.

2017 Vibhor Narula, aged 41 years, drowned whilst holidaying at Skenes Creek on the Great Ocean Road. Mr Narula took his two sons to Skenes Creek Beach for a swim. All three were considered to be strong swimmers. When Mr Narula's wife arrived at the beach ten minutes later, one of her sons was very distressed and said his brother and father were in the water and they were gone. A passing van was flagged down, and emergency services were called. The van occupants and Mr Narula's brother-in-law retrieved Mr Narula from the water unconscious and unresponsive, whilst another bystander rescued Mr Narula's son. Mr Narula's brother-in-law commenced CPR. Police and Ambulance paramedics arrived shortly afterwards and continued with CPR, however Mr Narula could not be resuscitated and was declared deceased at the scene.

Recommendation That the Marine and Coastal Council, and thereby the Minister for Energy, Environment and Climate Change, specify in the upcoming Marine and Coastal Policy, the risk measures to be put in place to prevent incidents of drowning amongst beachgoers throughout the state of Victoria (including but not limited to signage). The identification and inclusion of suitable risk measures in the policy, and with whom the responsibility for introducing and maintaining these risk measures lies, should be undertaken in consultation with industry experts and stakeholders such as Life Saving Victoria, forming regional and strategic partnerships where appropriate to achieve this aim.

2019 Richard Lyon, aged 19 years, drowned while swimming in Baxter Park Dam at Frankston South. Mr Lyon spent an hour swimming and joking around with his girlfriend and friend, before the boys bragged about being able to swim across the dam. Mr Lyon walked around to the far side and entered the water. He was not considered to be a strong swimmer. Shortly after, Mr Lyon became distressed and called out for assistance from his friend. However, Mr Lyon was unable to be calmed, his panicked state lead to a struggle and the rescue attempt was abandoned. A passer-by also made several attempts to locate Mr Lyon under the water. However, efforts were abandoned due to the murky water and physical exhaustion. Following aerial and underwater search by emergency services, Mr Lyon was discovered 4.5 metres below the water's surface. He was brought to shore and confirmed deceased by paramedics at the scene. Toxicological analysis identified the presence of cannabis.

Recommendation That Frankston City Council ensure there is a regular inspection and maintenance regime of the dam and its fencing, to improve public safety in the area and minimise the occurrence of similar events in future.



MURRAY RIVER DROWNING 2008/09 TO 2018/19

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 victims are often Victorian residents; in fact, Victorians made up 45% of drowning victims over the previous decade. Therefore, the key trends of Victorians drowning in the Murray River are a focus for this report.

Seven people drowned in the Murray River in 2019/20, including 4 Victorian residents. Over the previous decade, 43 people drowned in the Murray River including 18 Victorians, an average of 2 per year.

Respect the River
Saving lives in Australian Rivers

AN INITIATIVE OF

Royal Life Saving
Life Saving Victoria

SUPPORTED BY

Australian Government

Respect rivers by following some simple safety tips:

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

18

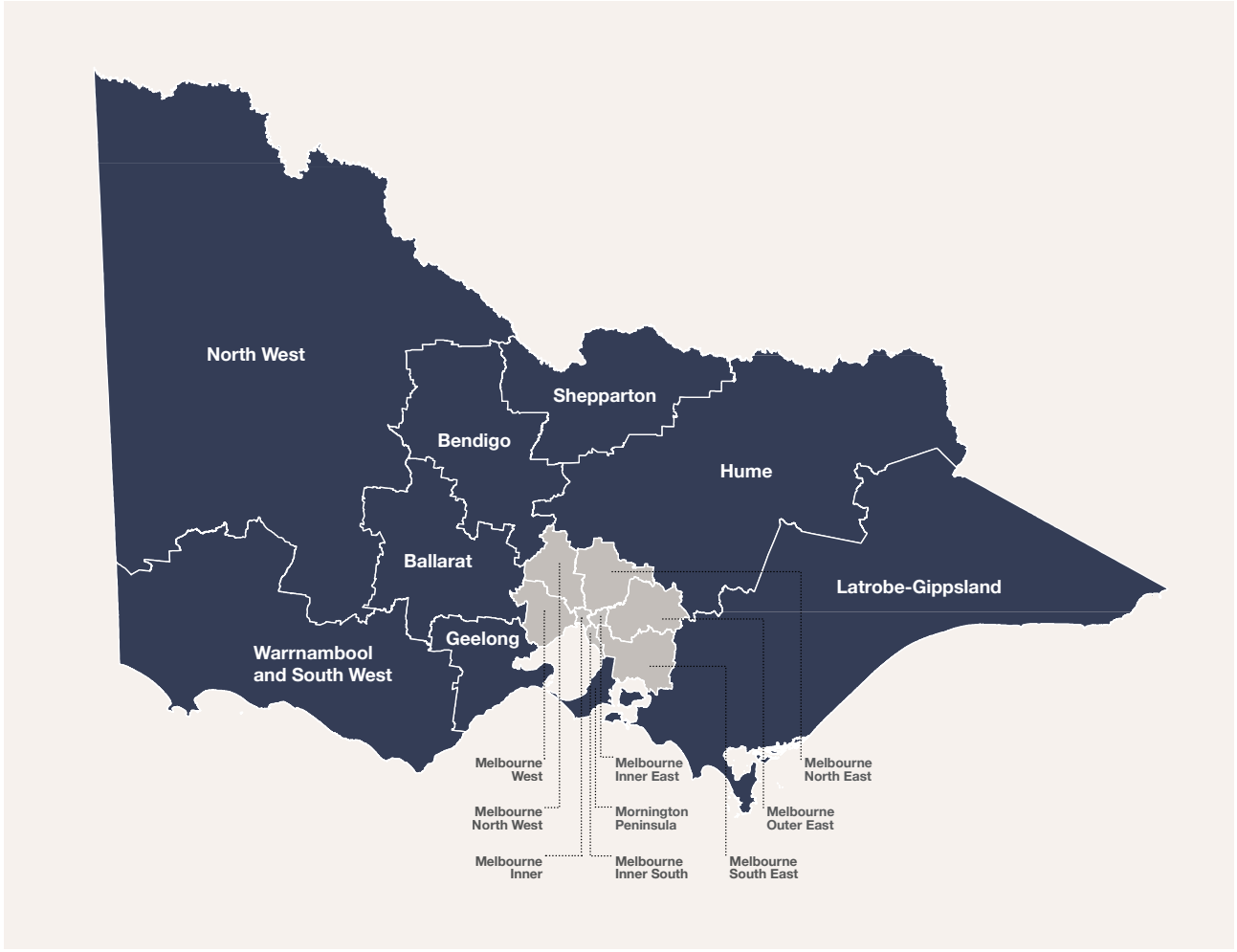
VICTORIAN RESIDENTS DROWNED IN THE MURRAY RIVER OVER THE PREVIOUS DECADE

45%

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

Drowning profiles

By Victorian Statistical Areas 2009/10 to 2018/19



BALLARAT Statistical Area 4 – Drowning Statistics 2009/10 to 2018/19

9 Drowning Deaths

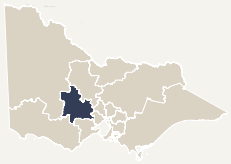
19 Ballarat SA4 residents hospitalised due to non-fatal drowning

21 Emergency Department presentations of Ballarat SA4 residents for non-fatal drowning

11 Ballarat SA4 Residents Drowned in Victoria

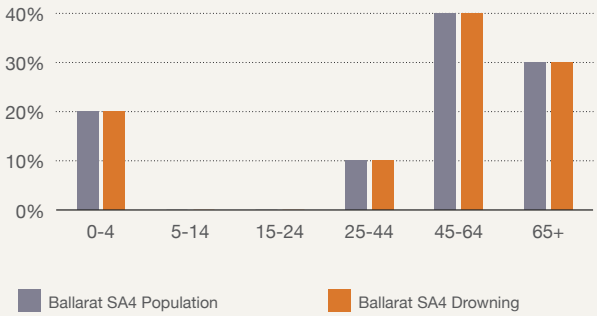
59% Likelihood of one or more drowning deaths occurring in Ballarat SA4 in any given year

67% Likelihood of one or more residents of Ballarat 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
- Bathtubs/spa baths
- Bathing
- Walking/recreating near water
- Transport (for work/recreation)

Males were 2.3 times more likely to drown than females.

BENDIGO Statistical Area 4 – Drowning Statistics 2009/10 to 2018/19

9 Drowning Deaths

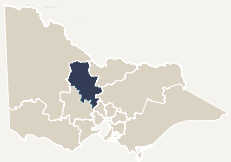
30 Bendigo SA4 residents hospitalised due to non-fatal drowning

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

5 Bendigo SA4 Residents Drowned in Victoria

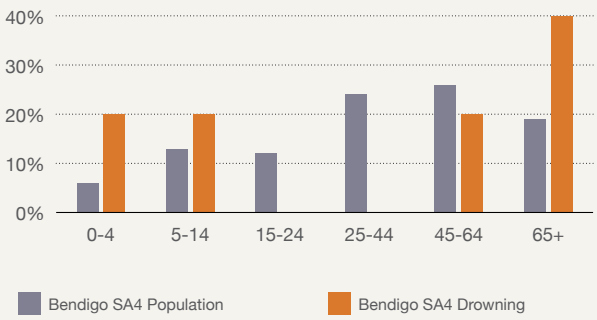
59% Likelihood of one or more drowning deaths occurring in Bendigo SA4 in any given year

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
- Home swimming pools
- Walking/recreating near water
- Boating/fishing
- Transport (for work/recreation)

Males were 4.0 times more likely to drown than females.

GEELONG Statistical Area 4 – Drowning Statistics 2009/10 to 2018/19

25 Drowning Deaths

76 Geelong SA4 residents hospitalised due to non-fatal drowning

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

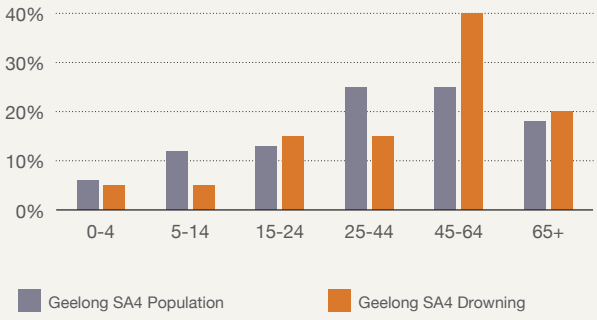
20 Geelong SA4 Residents Drowned in Victoria

92% Likelihood of one or more drowning deaths occurring in Geelong SA4 in any given year

86% 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
- Ocean
- Rivers/creeks/streams
- Swimming/attempting a rescue
- Walking/recreating near water
- Diving (SCUBA/snorkelling)

Males were 1.9 times more likely to drown than females.

Drowning profiles

By Victorian Statistical Areas 2009/10 to 2018/19

HUME Statistical Area 4 – Drowning Statistics 2009/10 to 2018/19

30 Drowning Deaths

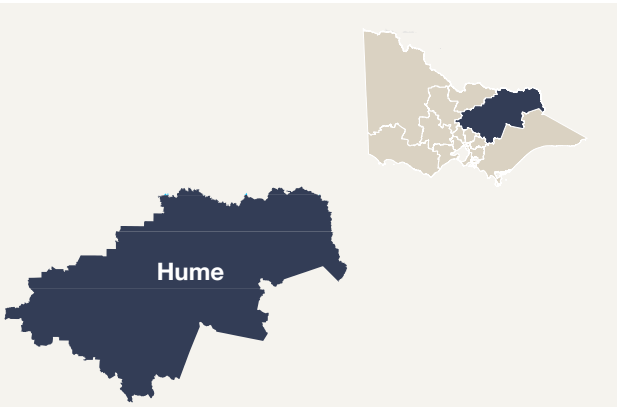
27 Hume SA4 residents hospitalised due to non-fatal drowning

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

18 Hume SA4 Residents Drowned in Victoria

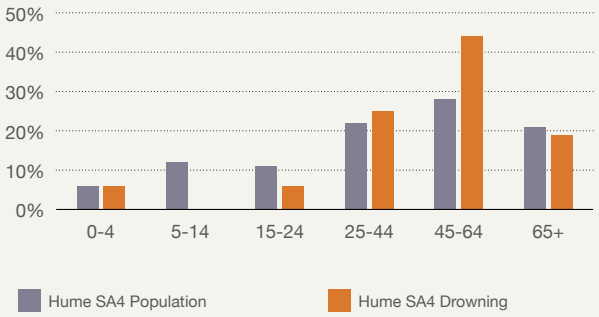
95% Likelihood of one or more drowning deaths occurring in Hume SA4 in any given year

83% 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

- Lakes
- Rivers/creeks/streams
- Home swimming pools
- Swimming/ paddling/wading
- Boating
- Fishing

Males were 3.0 times more likely to drown than females.

LATROBE-GIPPSLAND Statistical Area 4 – Drowning Statistics 2009/10 to 2018/19

58 Drowning Deaths

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

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

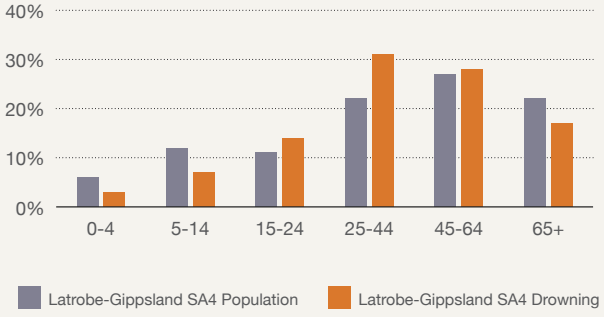
29 Latrobe-Gippsland SA4 Residents Drowned in Victoria

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)



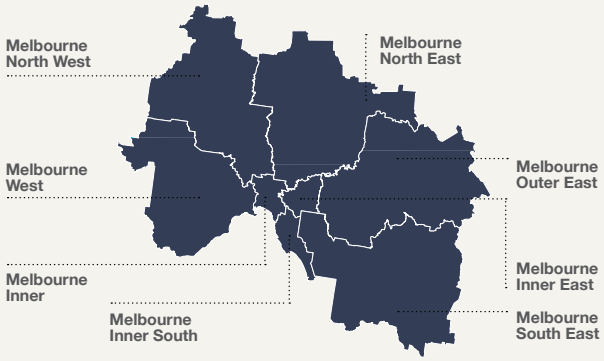
LOCATION AND ACTIVITY

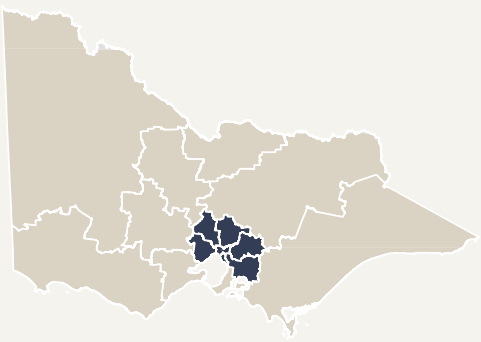
- Beaches
- Ocean
- Rivers/creeks/streams
- Swimming/ attempting a rescue
- Walking near water/ rock walking
- Boating/fishing

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 2009/10 to 2018/19



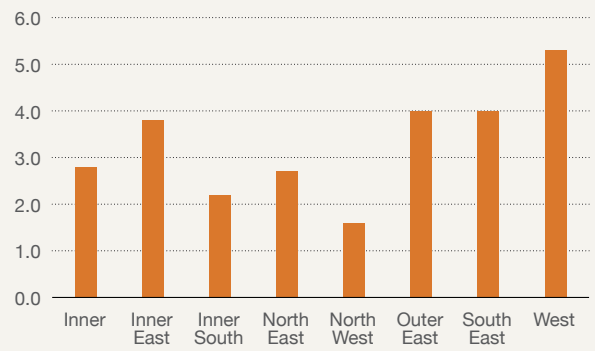


DROWNING STATISTICS FOR ALL MELBOURNE SA4S

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	32	28	81	67	96%	94%
Melbourne – Inner East	12	22	61	53	70%	89%
Melbourne – Inner South	17	16	67	58	82%	80%
Melbourne – North East	14	24	55	59	75%	91%
Melbourne – North West	10	14	41	44	63%	75%
Melbourne – Outer East	17	40	59	60	82%	98%
Melbourne – South East	15	40	119	101	78%	98%
Melbourne – West	32	44	87	106	96%	99%

DEMOGRAPHICS

Male : Female Drowning Ratio in Melbourne SA4s



LOCATION AND ACTIVITY

- Rivers/creeks/streams
- Beaches/ocean
- Swimming pools
- Bathtubs/spa baths
- Walking/recreating near water
- Swimming/ paddling/wading
- Bathing

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

	0–4		5–14		15–24		25–44		45–64		65+	
Statistical Area 4	Population	Drowning	Population	Drowning	Population	Drowning	Population	Drowning	Population	Drowning	Population	Drowning
Melbourne – Inner	5%	0%	7%	0%	16%	20%	42%	40%	20%	23%	11%	17%
Melbourne – Inner East	5%	0%	12%	5%	15%	5%	27%	26%	25%	32%	17%	32%
Melbourne – Inner South	6%	6%	12%	0%	12%	13%	27%	25%	26%	25%	16%	31%
Melbourne – North East	7%	4%	12%	8%	13%	19%	30%	35%	24%	15%	14%	19%
Melbourne – North West	8%	31%	13%	15%	13%	0%	30%	31%	23%	8%	13%	15%
Melbourne – Outer East	6%	5%	12%	5%	13%	13%	27%	30%	26%	25%	16%	23%
Melbourne – South East	7%	10%	13%	3%	15%	10%	30%	33%	22%	30%	13%	15%
Melbourne – West	8%	16%	13%	0%	13%	11%	33%	27%	22%	23%	10%	23%

Drowning profiles
By Victorian Statistical Areas 2009/10 to 2018/19

MORNINGTON PENINSULA Statistical Area 4 – Drowning Statistics 2009/10 to 2018/19

57 Drowning Deaths

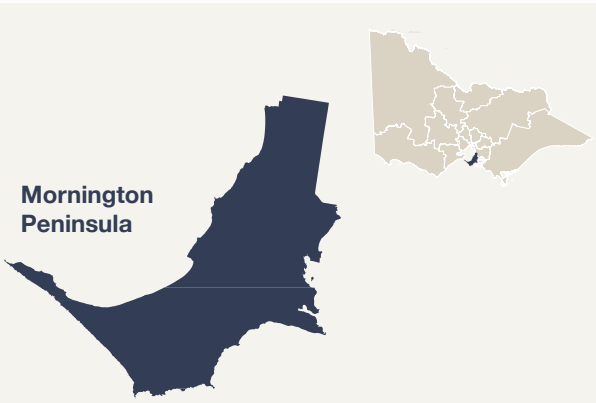
26 Mornington Peninsula SA4 Residents Drowned in Victoria

76 Mornington Peninsula SA4 residents hospitalised due to non-fatal drowning

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

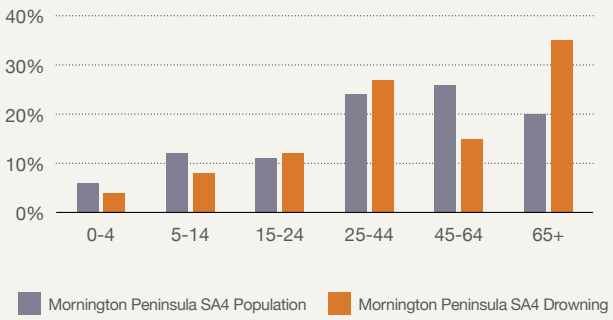
99% Likelihood of one or more drowning deaths occurring in Mornington Peninsula SA4 in any given year

93% Likelihood of one or more residents of Mornington Peninsula SA4 drowning in any given year



DEMOGRAPHICS

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



LOCATION AND ACTIVITY

- Beaches/rocky outcrops
- Harbour/bay/inlet/ocean
- Home swimming pools
- Swimming/ paddling/wading
- Diving (SCUBA/snorkelling)
- Boating/fishing (including rock fishing)

Males were 3.3 times more likely to drown than females.

NORTH WEST Statistical Area 4 – Drowning Statistics 2009/10 to 2018/19

12 Drowning Deaths

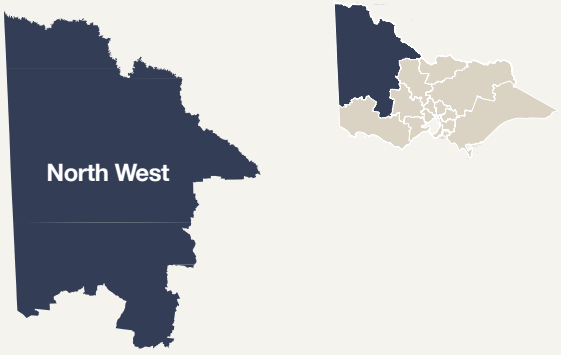
6 North West SA4 Residents Drowned in Victoria

32 North West SA4 residents hospitalised due to non-fatal drowning

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

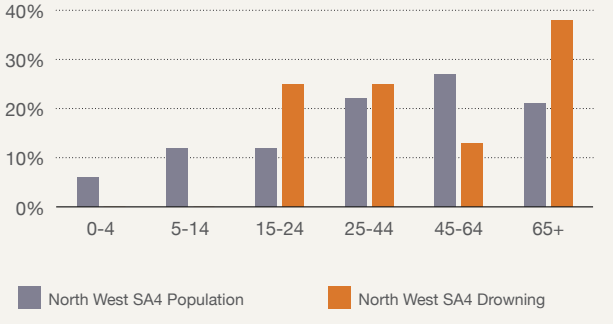
70% Likelihood of one or more drowning deaths occurring in North West SA4 in any given year

45% Likelihood of one or more residents of North West SA4 drowning in any given year



DEMOGRAPHICS

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



LOCATION AND ACTIVITY

- Lakes/dams/ irrigation channels
- Rivers/creeks/streams
- Home swimming pools
- Swimming
- Boating
- Transport (for work/recreation)

Males were 8.0 times more likely to drown than females.

SHEPPARTON Statistical Area 4 – Drowning Statistics 2009/10 to 2018/19

14 Drowning Deaths

40 Shepparton SA4 residents hospitalised due to non-fatal drowning

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

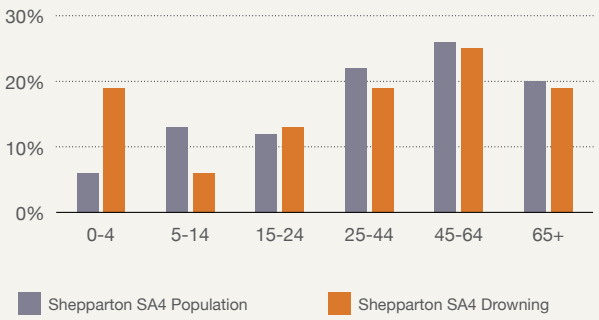
16 Shepparton SA4 Residents Drowned in Victoria

75% 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

Males were 7.0 times more likely to drown than females.

WARRNAMBOOL AND SOUTH WEST Statistical Area 4 – Drowning Statistics 2009/10 to 2018/19

35 Drowning Deaths

23 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

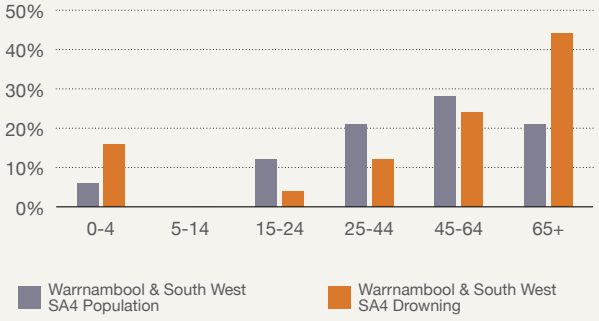
25 Warrnam-bool and South West SA4 Residents Drowned in Victoria

97% 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

- Ocean
- Beaches
- Rivers/creeks/streams
- Boating/fishing
- Walking/recreating near water
- Swimming/ attempting a rescue

Males were 7.3 times more likely to drown than females.

Victorian Water Safety Industry

AGENCIES

Life Saving Victoria
Aquatics and Recreation Victoria
Australian Sailing
Australian Volunteer Coast Guard
AUSTSWIM
Belgravia Leisure
Boating Industry Association
Coroners Prevention Unit
Dragon Boating Victoria
Kidsafe Victoria
Kiteboarding Australia
Landscaping Victoria
Municipal Association of Victoria
Outdoors Victoria
Paddle Victoria
Royal Children's Hospital Safety Centre
Sport and Recreation Victoria
Surfing Victoria
Swimming Pool and Spa Association of Victoria
Swimming Victoria
Triathlon Victoria
Victorian Municipal Building Surveyors Group
Victorian Recreational Fishing
World Wide Swim School
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 Services Telecommunications Authority
Parks Victoria
State Emergency Service
Tourism Victoria
Transport Safety Victoria
Victoria Police
Victorian Building Authority
Victorian Fisheries Authority
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
Barwon Coast Committee of Management Inc.
Bass Coast Shire Council
Borough of Queenscliffe
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
Greater Geelong City Council – Waterfront
Hobsons Bay City Council
Mornington Peninsula Shire Council
Moyne Shire Council
Parks Victoria Wilsons Promontory National Park
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 2019 to 30 June 2020 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 2009 to 30 June 2019. For example, the 10-year average spans the 2009/10 to 2018/19 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 2019/20 remained open on the NCIS.

NON-FATAL INCIDENTS

Information on non-fatal drowning in 2019/20 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 2009/10 to 2018/19 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 2009 to 30 June 2019.

The VEMD is a dataset containing records of emergency department presentations in Victorian hospitals with 24-hour emergency services. 100% statewide 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 LSV fatal drowning data.

INCIDENCE CALCULATIONS

Incidence calculations were performed using population figures published by the Australian Bureau of Statistics, 2016 (Australian Bureau of Statistics [ABS], 2016a).

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.

LGA census population counts were used as at-risk denominator counts (ABS, 2016b), while drowning counts over a 10-year timeframe (2009/10 to 2018/19) were assigned to LGAs using postcode location (2016b) first and then aggregated by LGA. The drowning counts were used as numerator counts. Together, numerator and denominator counts, enabled calculation of relative risk ratios by incident location and by place of residence.

The relative risk ratios were then mapped by LGAs. They provide the ability to compare individual LGA relative risk ratios against the overall statewide drowning event type to population ratio. A bivariate choropleth map was then constructed with the incident location and place of residence relative risk maps. This illustrates the extent to which the relative risk of drowning by location and by place of residence exist together within each LGA.

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 at least one drowning event occurring within each of the 17 Victorian statistical regions. Probabilities were calculated based on yearly means (spanning 10 years from 2009/10 to 2018/19) 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, 2016c, 2016d). 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 2009/10 to 2019/20. 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 and citation

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

SUGGESTED CITATION

Life Saving Victoria. (2020). Victorian Drowning Report 2019/20. Life Saving Victoria: Melbourne.

COMPILED BY

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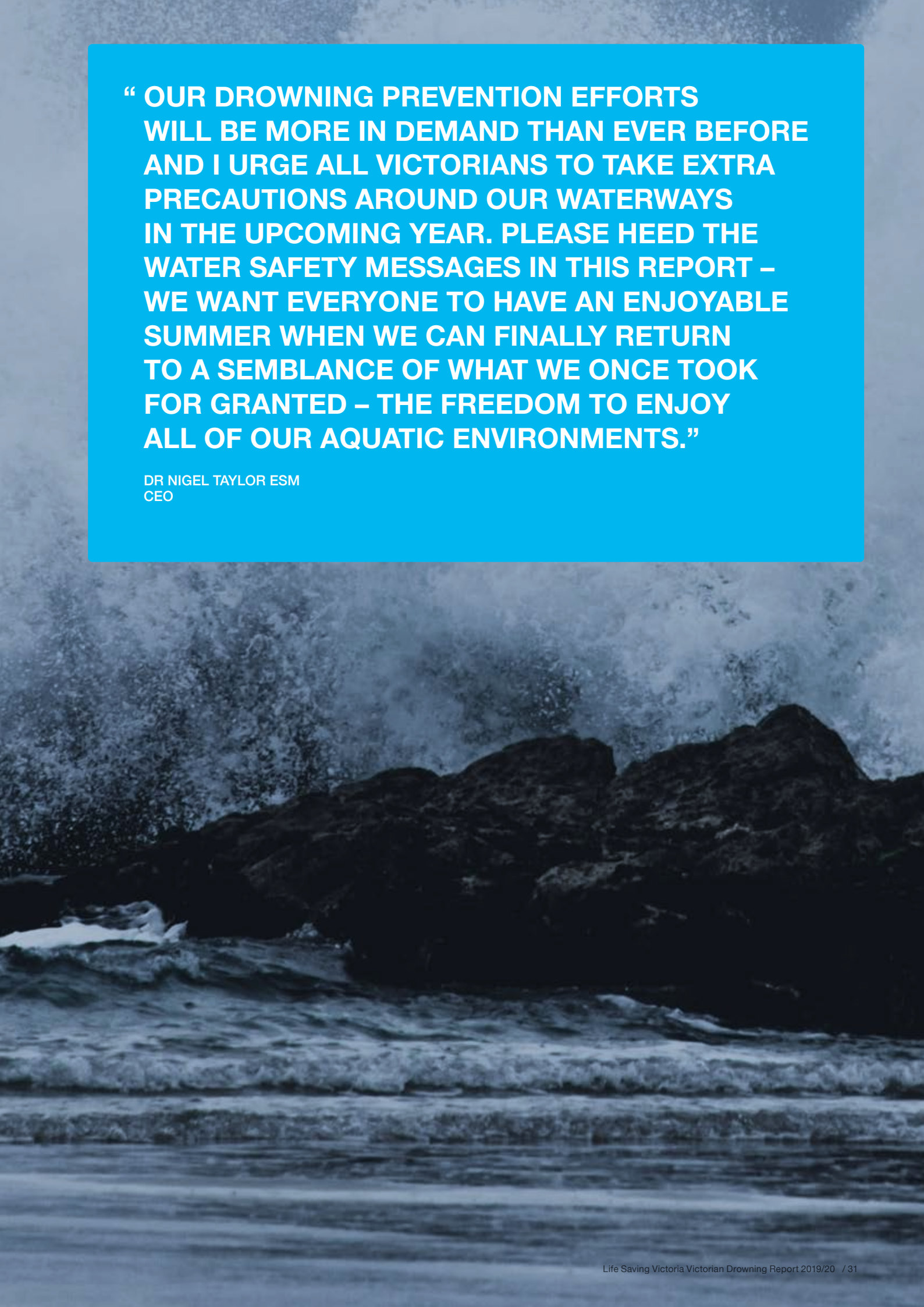
Rhiannon Birch is the Research Manager for Life Saving Victoria. Rhiannon assists in the management of LSV's research on water safety issues, including: swimming and water safety education programs; lifesaving service delivery; water competency among children and older adults; inland waterways drowning prevention; coastal risk assessments; public pool safety; multicultural water safety campaigns and international drowning prevention research. Rhiannon holds a Bachelor of Environmental Science and Graduate Diploma in Education.

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.

Grace Strugnell is the Coordinator – Research at Life Saving Victoria. Grace assists with coordination of research studies for a variety of water safety and drowning prevention initiatives. This encompasses evaluation of the Play it Safe by the Water campaign and a vast range of environments and demographics, including controlled and open waterways, metropolitan and regional communities, and vulnerable groups to drowning. Grace holds a Bachelor of Public Health and Health Promotion.

Allana Santiago is the Health Promotion Officer at Life Saving Victoria. Allana assists with the implementation, monitoring, evaluation and reporting of various drowning prevention and water safety programs. This includes formative research to inform a range of education programs and public awareness campaigns implemented across metropolitan and regional Victoria. Allana holds a Master 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 Risk and Research as well as the Media and Communications teams.



“ OUR DROWNING PREVENTION EFFORTS WILL BE MORE IN DEMAND THAN EVER BEFORE AND I URGE ALL VICTORIANS TO TAKE EXTRA PRECAUTIONS AROUND OUR WATERWAYS IN THE UPCOMING YEAR. PLEASE HEED THE WATER SAFETY MESSAGES IN THIS REPORT – WE WANT EVERYONE TO HAVE AN ENJOYABLE SUMMER WHEN WE CAN FINALLY RETURN TO A SEMBLANCE OF WHAT WE ONCE TOOK FOR GRANTED – THE FREEDOM TO ENJOY ALL OF OUR AQUATIC ENVIRONMENTS.”

DR NIGEL TAYLOR ESM
CEO

Life Saving Victoria

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