2022 – 23
Life Saving Victoria

Drowning report

Life Saving Victoria

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- Victorian Injury Surveillance Unit

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Life Saving Victoria: Melbourne.

Acknowledgement of Traditional Owners

Life Saving Victoria respectfully acknowledges the Traditional Owners of the land and waterways in which we swim, explore, play and meet.

We wish to specifically acknowledge the Bunurong People of the South Eastern Kulin Nation as the Traditional Owners of the lands on which this report was compiled. We also acknowledge the Traditional Owners of the various lands on which our activities take place throughout the state of Victoria.

We pay our respect to Elders past and present.

Contents

8 fatal drownings were recorded as a result of the flooding or heatwave conditions seen in Victoria: the highest number of extreme weather-related drownings on record.

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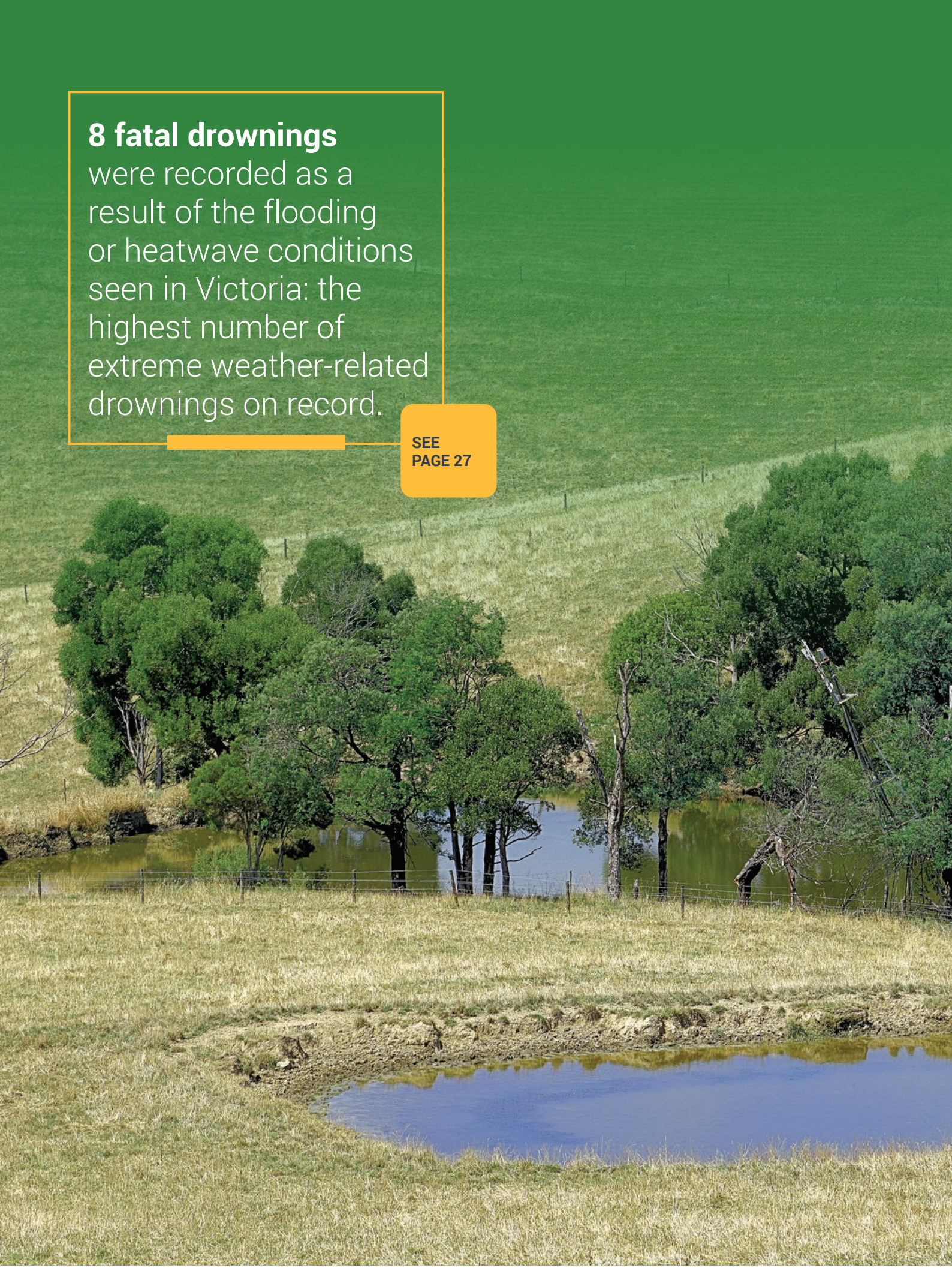


Introducing the 2022 – 23 Life Saving Victoria Drowning Report

In the shadow of a heart-wrenching previous two years that saw the highest number of drownings in two decades, we approached 2022 – 23 with our sights set firmly on our fundamental purpose: saving lives and empowering communities to safely enjoy water.

Upon assessment of the risks facing our community, we remained cautious and deeply concerned for the hazards that lay ahead in, on, and around Victorian waters, particularly in light of the lingering impacts of the Victorian floods and the COVID-19 pandemic on water safety. We are fortunate to have the benefit of our lessons learned from previous seasons well documented in our drowning reports, and we actively apply that knowledge to our approach each year. As the year unfolded, we strategically mobilised our drowning prevention efforts across the state, targeting those areas, activities, and age groups most at risk. Our goal was simple: to stave off further tragedies.

While this year's statistics did not reach the harrowing levels of recent years, the stark truth remains that 59 precious lives were lost to drowning incidents across Victorian waterways and households, representing a 33 per cent increase on the decade's average. That's 59 lives cut short,

59 precious lives were lost to drowning incidents across Victorian waterways and households, representing a 33 per cent increase on the decade's average.

and 59 families and communities forever scarred by the loss of a loved one. Our hearts go out to all those who have felt the agonising impact of drowning. We've said it before, and we'll say it again: even a single life lost to drowning is one life too many.

Beyond the fatality count, chillingly 122 individuals experienced a non-fatal drowning requiring ambulance attendance. These incidents often leave deep physical and emotional scars, which can frequently traumatise survivors and their loved ones for a lifetime. Regrettably, the number of people encountering peril in Victorian waters continues to defy the previously encouraging downward trend that we had been seeing prior to the pandemic.

Within the pages of this report readers will gain invaluable insight into those critical moments before disaster struck — moments where choices were made, or perhaps not made, or risks were taken. Insights that may become a beacon for influencing behaviours, systems and programs to save lives.

Among the most profound revelations in this year's report was the alarming increase in fatal drowning incidents involving individuals aged 65 and older compared with the past decade's average. In this age group, both men and women found themselves in trouble in the water, with older men representing 20 per cent of all tragic drownings in Victoria this year. While men continue to be overrepresented in these grim statistics, we've also witnessed a concerning upswing in women losing their lives in, on, or around water. The fatal drowning rate for women now stands 50 per cent higher than the decade's average.

As climate change continues to have an impact on Victorian communities, we saw this reflected in our drowning statistics, with eight people sadly losing their lives in circumstances where extreme weather conditions, including heatwaves and flooding events were a known factor.

There was an equal number of drownings in coastal and inland waterways, with 19 drownings apiece, demonstrating that any waterway can pose a risk, and that it is essential to always be vigilant in, on, and around any body of water. In 10 per cent of incidents, the individual was walking, recreating, or playing near a waterway, and tragically died through entering the water unintentionally.

A sombre observation emerges — 44 per cent of fatalities transpired within one's own postcode. This distressing trend included 18 fatalities occurring within the home environment, which is double the 10-year average, including in bathtubs, where drowning incidents have more than doubled over the past decade — a stark reminder that our vigilance around any vessel or body of water must never wane.

As we invite you to delve into the insights within this report, we urge you to remember that behind each statistic lies a human life, forever altered or lost. In compiling this report, our dedicated research team has meticulously unravelled the narrative of water safety risks in Victoria, with the sole purpose of working together with our communities, government and aquatic partners to safeguard a future free from drowning.

From a bucket of water to the ocean; anyone can drown, we believe that no one should.

Catherine Greaves
CEO, Life Saving Victoria

Glossary

10-year average	Unless otherwise specified, the 10-year, or decade, average is the period between 1 July 2012 – 13 and 30 June 2021 – 22.
Aquatic industry	The aquatic industry comprises Council-owned aquatic facilities, learn to swim centres, and early childhood care, secondary, tertiary and higher education venue swimming pools, as well as associated trades and services.
Bathing	The act of cleaning/washing oneself.
Coastal waterways	Includes beaches, oceans, bays, harbours, inlets or rocky outcrops.
Disaster and/ or extreme weather	This includes flooding events or heatwaves, and natural disasters.
Drowning	"The process of experiencing respiratory impairment from submersion/immersion in liquid"[1]. Outcomes can be **fatal**, or **non-fatal** with potential for varied resulting morbidities.
Drowning rate	The frequency of drowning per 100,000 population, determined by most recent ABS population numbers[2].
Fishing	Unless otherwise stated, includes fishing for abalone (typically snorkelling or diving), rock fishing and fishing from a boat.
High-risk populations	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.
Inland waterways	Includes rivers, lakes, public dams, creeks or streams.
Private pool	An in- or above-ground pool within a residential property.
Public pool	Public pools include those which are council-owned, learn to swim, early childhood care, tertiary education, and higher education venue pools. Pools are also considered public where swimming lessons are conducted for the duration of the lesson/s and any pool offering access on a pay-per-usage basis for the duration of the pay-per-usage access[3].
Water bodies around the home	Includes but is not limited to baths, home pools, dams or any item on the property filled with water (paddle pools, buckets).

[1] van Beeck, E., & Branche, C. (2014). Definition of drowning: A progress report. In J. J. L. M. Bierens (Ed.), *Drowning Prevention, rescue, treatment* (2nd ed., pp. 85 – 89). Springer.

[2] Australian Bureau of Statistics. (2022). *Australian National, state and territory population statistics, Dec 2022. Cat. No. 31010*, Australian Bureau of Statistics: Canberra.

[3] Department of Health. (2020). Public aquatic facilities key compliance requirements. Victorian Government. Retrieved from: *www.health.vic.gov.au/water/public-aquatic-facilities-key-compliance-requirements*

Overview

	10-year average	2022 – 23	Difference 2022 – 23 to 10-year average
OVERVIEW	Summary	Summary	%
Number (rate) of fatal drownings	44 (0.70)	59 (0.89)	+33% (+27%)
Number (rate) of fatal drowning males	34 (1.07)	42 (1.28)	+26% (+20%)
Number (rate) of fatal drowning females	11 (0.34)	17 (0.51)	+56% (+50%)
Number (rate) of non-fatal drownings	79 (1.25)	122 (1.84)	+54% (+48%)
PEOPLE AND POPULATIONS	Rate	Rate	%
0 – 4 years	0.89	0.78	-12%
5 – 14 years	0.19	0.12	-35%
15 – 24 years	0.59	0.74	+26%
25 – 44 years	0.64	0.77	+21%
45 – 64 years	0.71	1.01	+43%
65+ years	1.22	1.64	+34%
High-risk populations[4]	0.86	0.61	-29%
PLACES	Frequency	Frequency	%
Inland waterways	17	19	+14%
Coastal waterways	17	19	+11%
Water bodies around the home	10	18	+88%
Aquatic industry[5]	1	2	+186%
ACTIVITIES AND RISK FACTORS	Frequency	Frequency	%
Alcohol and drug-related[6]	12	12	0%
Boating, watercraft, fishing and diving/snorkeling	11	7	-33%
Disaster and/or extreme weather	<1	8	+1,900%

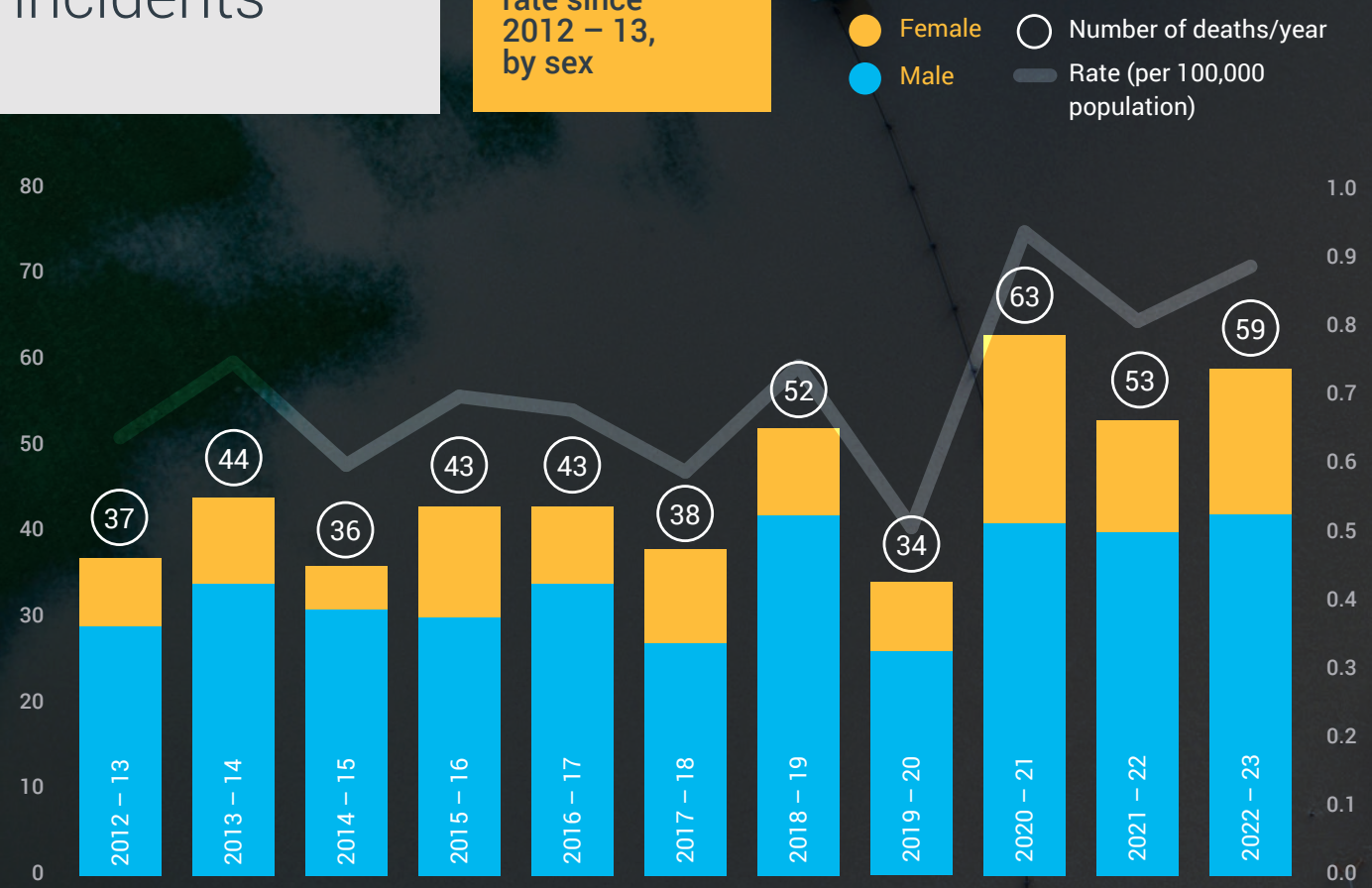
[4] Statistics are primarily determined from country of birth data. Average from most recent period where country of birth known 2011 – 12 to 2020 – 21.

[5] Figures include drowning deaths at public swimming pools.

[6] Toxicology reports to confirm alcohol and/or drug involvement are available only once a case is closed; therefore, numbers may be subject to change.

Summary of fatal drowning incidents

Drowning fatalities and rate since 2012 – 13, by sex



59
FATAL DROWNINGS

33%*

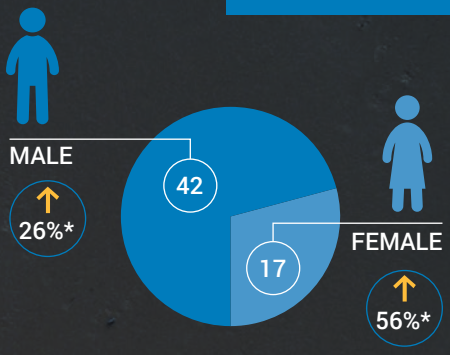
0.89
RATE

$312.7 MILLION
DIRECT COST TO SOCIETY OF LIVES LOST^

* Compared to the 10-year average

^ Office of Impact Analysis. (2023). Value of statistical life. Australian Government. Retrieved from *oia.pmc.gov.au/sites/default/files/2023-05/value-of-statistical-life.pdf*

People and populations



58%
AGED 45+ YEARS

65+ year olds
RECORDED THE HIGHEST DROWNING RATE: 1.64

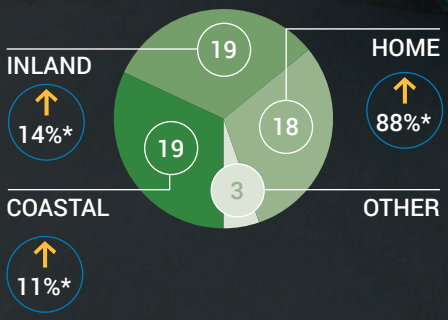
36%
FATALITIES OVER THE PAST DECADE INVOLVED PEOPLE FROM CALD COMMUNITIES†

Places

44%
OF PEOPLE DROWNED WITHIN THEIR OWN POSTCODE

REGIONAL RESIDENTS WERE
1.5x
MORE LIKELY TO DROWN THAN METROPOLITAN

Location



Activities and risk factors

11
FATALITIES WHILE BATHING NEARLY 3X HIGHER*

31%
INCIDENTS RESULTED FROM SWIMMING, PADDLING OR WADING

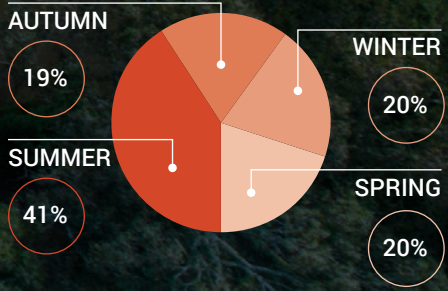
52%↓
DECREASE IN BOATING, CRAFT RIDING AND FISHING-RELATED DROWNINGS*

36%↑
INCREASE IN DROWNINGS FROM: DIVING/SNORKELLING ACTIVITIES*

5
FATALITIES: TRANSPORT (WORK/RECREATION) RELATED INCIDENT

8
FATALITIES: FLOODING OR HEATWAVE

Season



* Compared to the 10-year average

† Where country of birth data was collected

Summary of non-fatal drowning incidents

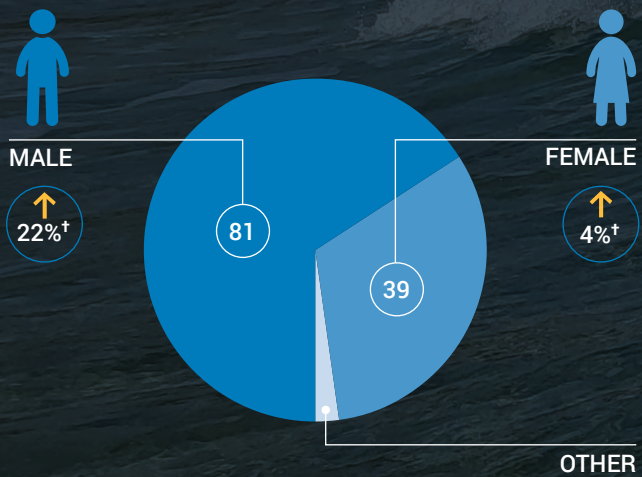
Ambulance attendance

122
NON-FATAL DROWNINGS

54%*

1.84
RATE

People and populations



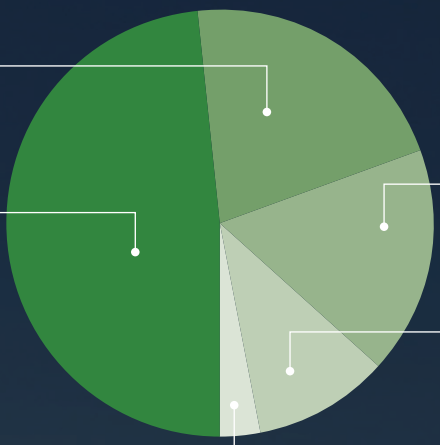
46%
aged 0 – 14 years

0 – 4
year olds
RECORDED THE HIGHEST NON-FATAL DROWNING RATE:
6.53

* Compared to the 10-year average

† Increase on 4-year average 2018 – 19 to 2021 – 22

Places



21%
PUBLIC POOLS
49% INCREASE*

48%
COASTAL WATERWAYS
>100% INCREASE*

17%
WATER BODIES AROUND THE HOME
14% DECREASE*

10%
INLAND WATERWAYS
13% INCREASE*

3%
OTHER/UNKNOWN

Activities and risk factors

69%
INCIDENTS RESULTED FROM SWIMMING, PADDLING OR WADING

64%
INCIDENTS OCCURRED IN SUMMER

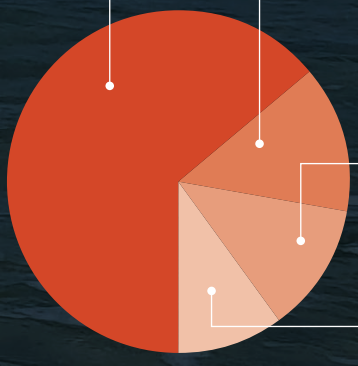
5
INCIDENTS FROM CRAFT RIDING

92%
INCREASE

6
INCIDENTS FROM ATTEMPTING A RESCUE

2X
10-YR AVG

Season



SUMMER
64%

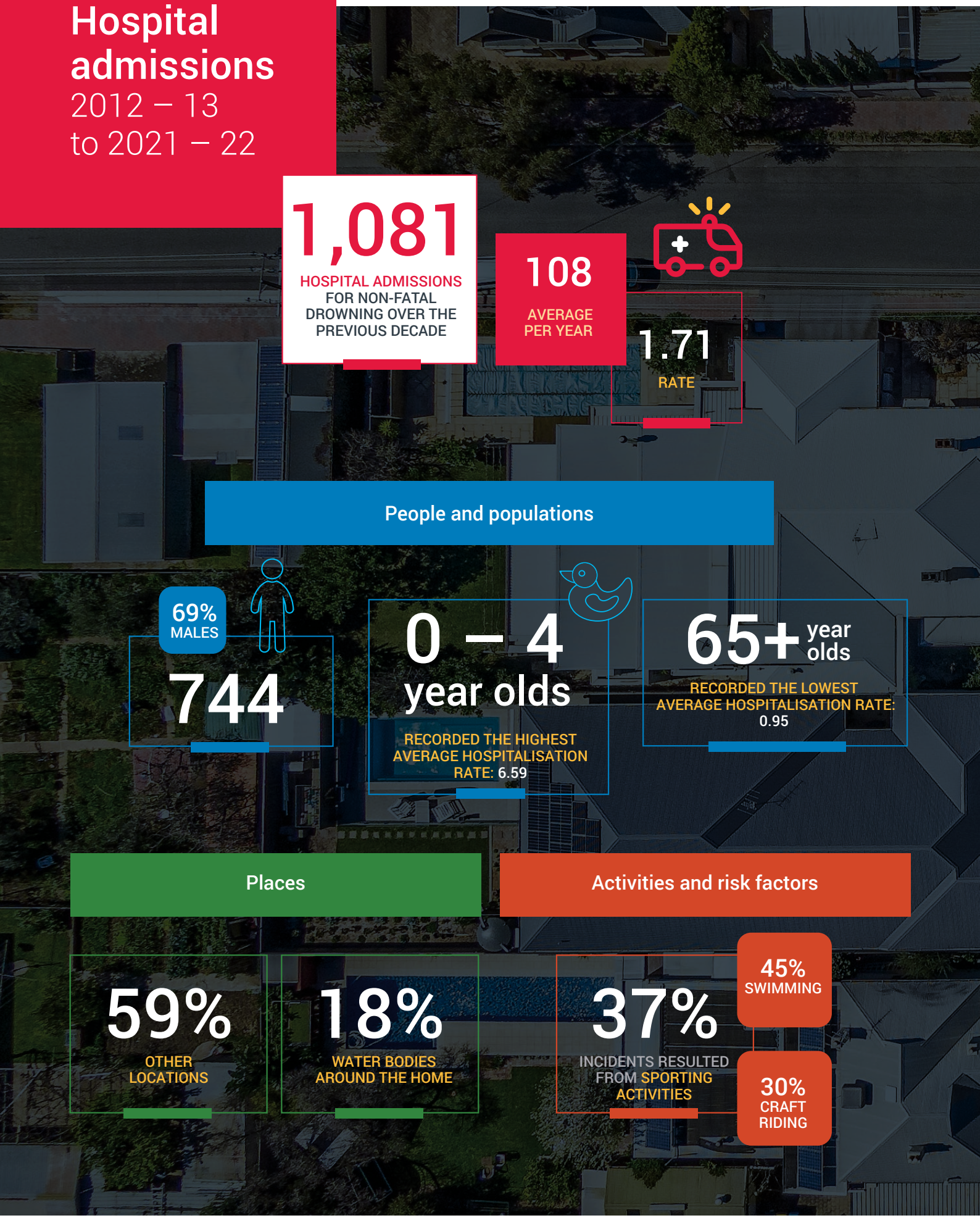
AUTUMN
14%

SPRING
12%

WINTER
10%

* Compared to the 10-year average

Hospital admissions
2012 – 13 to 2021 – 22



1,081
HOSPITAL ADMISSIONS FOR NON-FATAL DROWNING OVER THE PREVIOUS DECADE

108
AVERAGE PER YEAR

1.71
RATE

People and populations

69%
MALES

744

0 – 4 year olds
RECORDED THE HIGHEST AVERAGE HOSPITALISATION RATE: 6.59

65+ year olds
RECORDED THE LOWEST AVERAGE HOSPITALISATION RATE: 0.95

Places

59%
OTHER LOCATIONS

18%
WATER BODIES AROUND THE HOME

Activities and risk factors

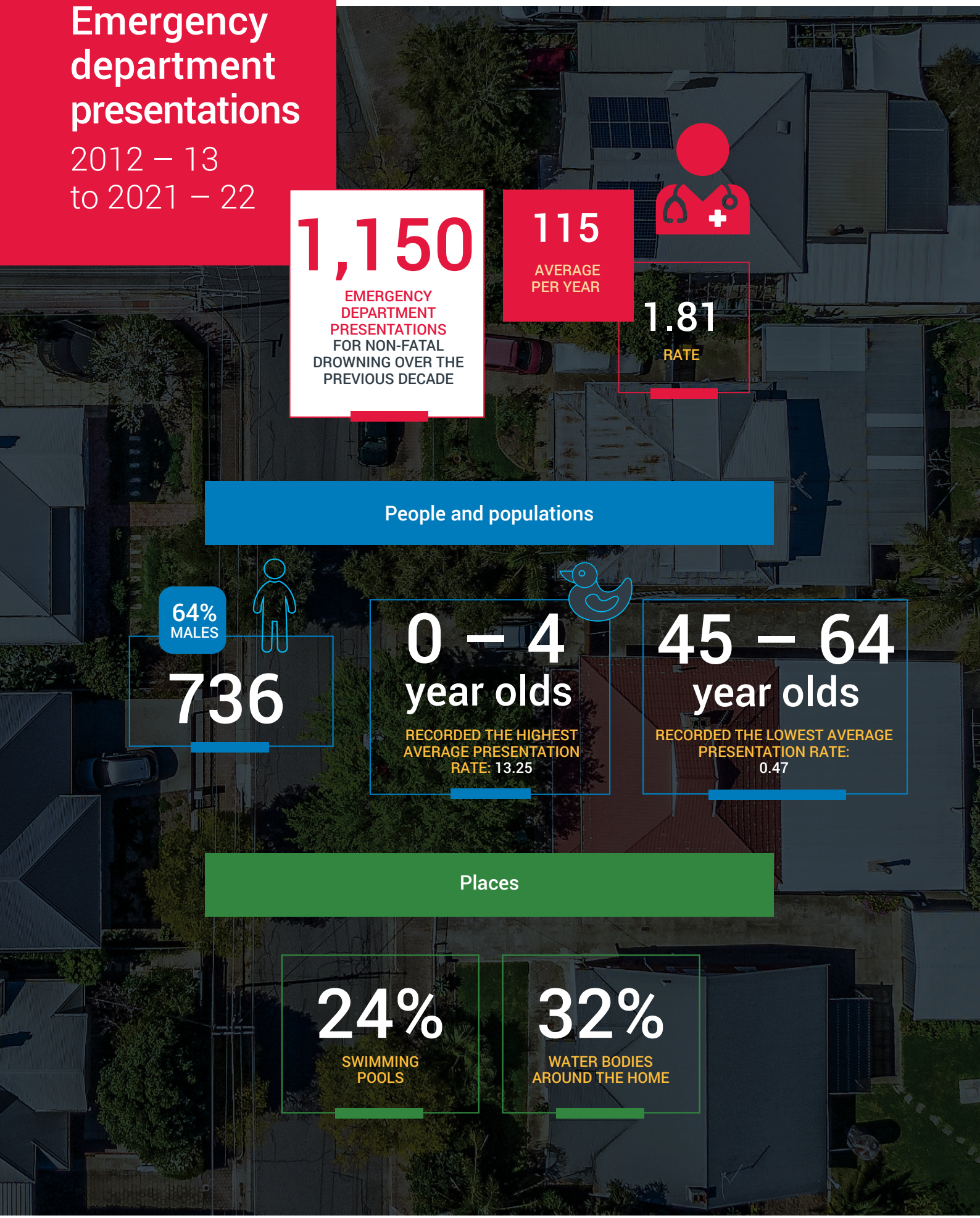
37%
INCIDENTS RESULTED FROM SPORTING ACTIVITIES

45%
SWIMMING

30%
CRAFT RIDING

Emergency department presentations

2012 – 13 to 2021 – 22



1,150
EMERGENCY DEPARTMENT PRESENTATIONS FOR NON-FATAL DROWNING OVER THE PREVIOUS DECADE

115
AVERAGE PER YEAR

1.81
RATE

People and populations

64%
MALES

736

0 – 4 year olds
RECORDED THE HIGHEST AVERAGE PRESENTATION RATE: 13.25

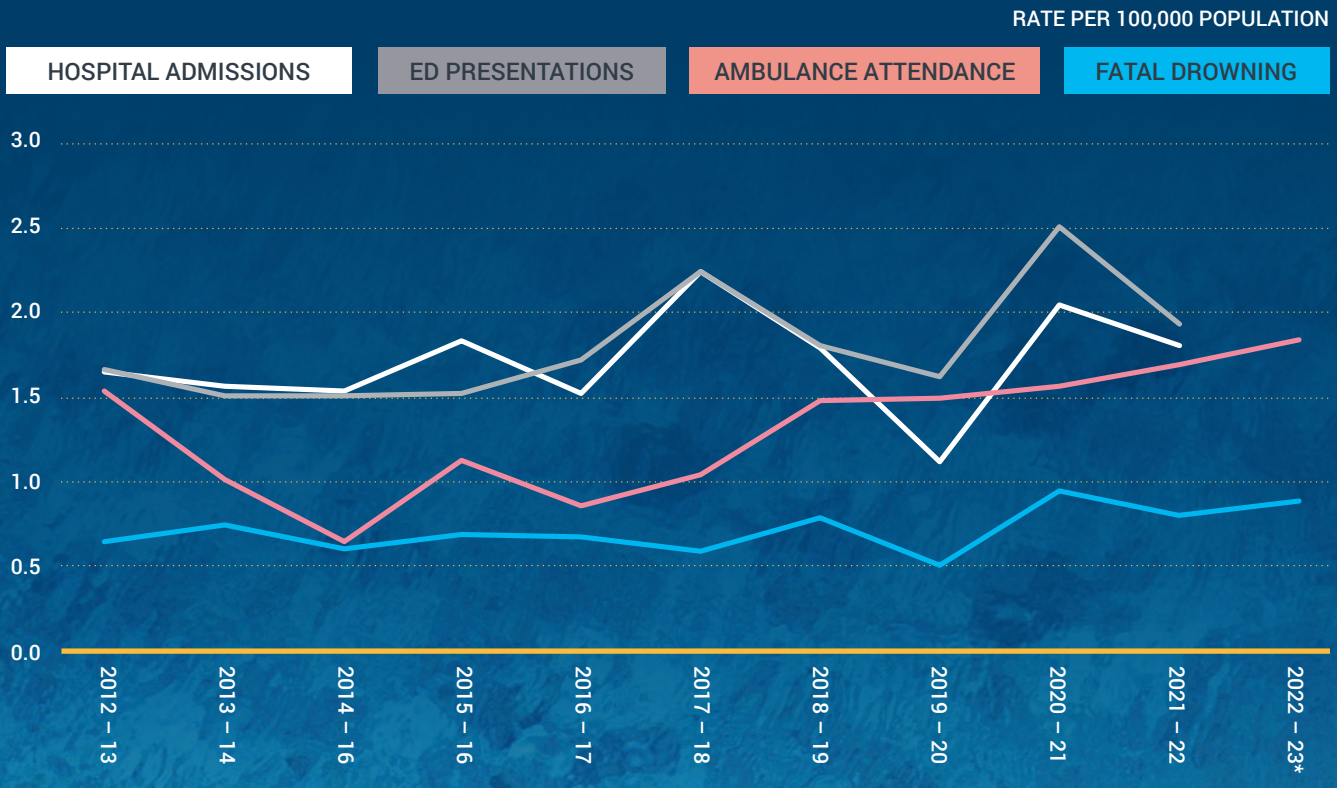
45 – 64 year olds
RECORDED THE LOWEST AVERAGE PRESENTATION RATE: 0.47

Places

24%
SWIMMING POOLS

32%
WATER BODIES AROUND THE HOME

All drowning rate per 100,000 persons in Victoria, 2012 – 13 to 2022 – 23



* Hospital admission and ED presentation data not available

There is likely an overlap of data from ambulance attendance, hospital admissions and ED presentations.

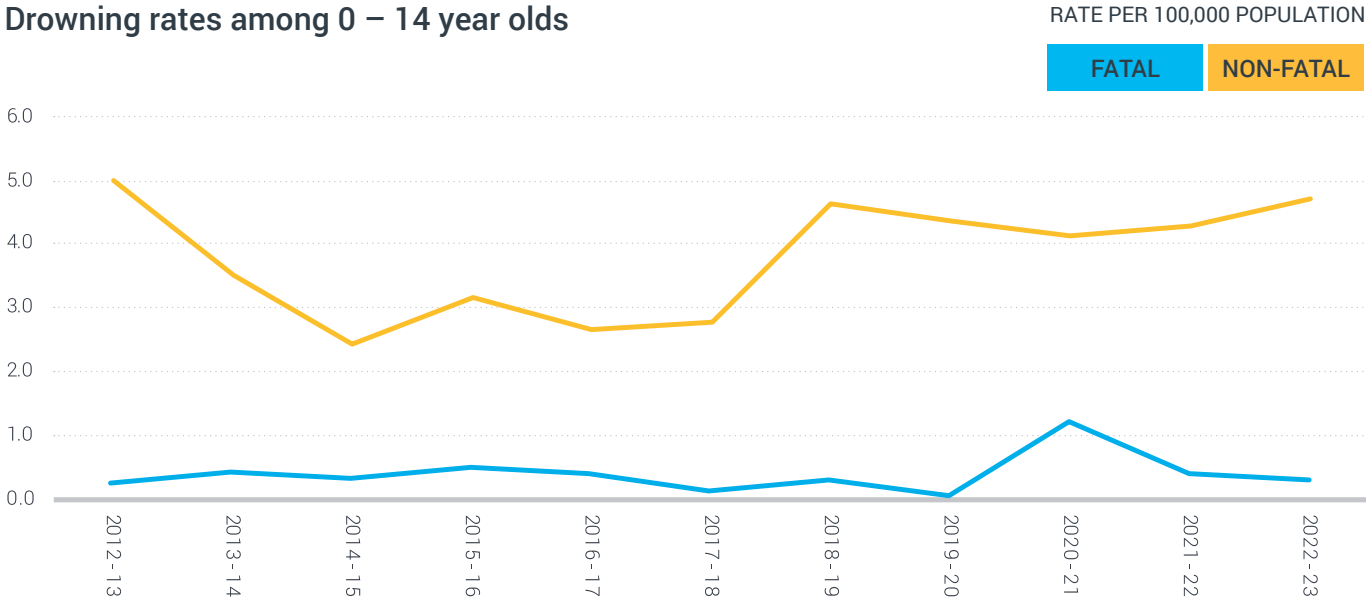
People and populations

People aged 0 – 14 years old

In 2022 – 23:

- Fewer than five fatal drownings among 0 – 14 year-olds: a rate of 0.34 and a 22% reduction on the 10-year average rate.
- Fifty-six 0 – 14 year-olds experienced a non-fatal drowning requiring ambulance attendance (25 incidents among 0 – 4 year-olds; 31 incidents among 5 – 14 year olds), a combined rate of 4.70 and 27% increase on the 10-year average rate.
- 0 – 4 year-olds recorded a non-fatal drowning rate of 6.53; the highest recorded among all age groups.

Drowning rates among 0 – 14 year olds



Common trends for drowning incidents in 2022 – 23 compared to previous years.

	Fatal drowning		Non-fatal drowning	
	10-year average	2022 – 23	5-year average	2022 – 23
Males	60%	75%	56%*	55%**
Females	40%	25%	43%	43%
Key activity	Walking or playing near water	Walking or playing near water	Swimming, paddling, or wading	Swimming, paddling, or wading
Key location	Private swimming pools	Water bodies around the home	Swimming pools: public & private	Swimming pools: public & private
Key season	Summer	Spring	Summer	Summer
Key time of day	Afternoon (12 – 6pm)	Afternoon (12 – 6pm)	-	-
Were they supervised?	No active supervision	Alone, no supervision	Yes, distracted	Yes, supervised

* 1% unknown

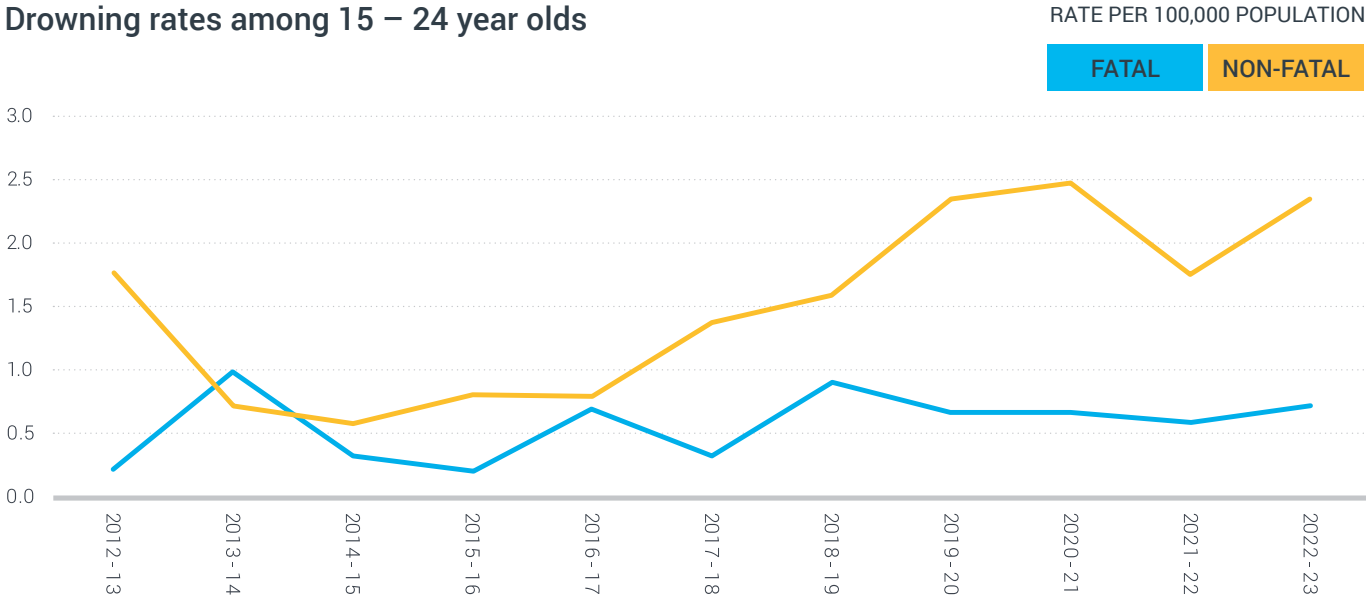
** 2% unknown

People aged 15 – 24 years old

In 2022 – 23:

- Six people aged 15 – 24 years fatally drowned: a rate of 0.74 and a 26% increase on the 10-year average rate.
- Nineteen 15 – 24 year-olds experienced a non-fatal drowning requiring ambulance attendance: a rate of 2.36 and a 63% increase on the 10-year average rate.

Drowning rates among 15 – 24 year olds



Common trends for drowning incidents in 2022 – 23 compared to previous years.

	Fatal drowning		Non-fatal drowning	
	10-year average	2022 – 23	5-year average	2022 – 23
Males	76%	83%	68%*	69%**
Females	24%	17%	31%	26%
Key activity	Swimming, paddling, or wading	Swimming, paddling, or wading	Swimming, paddling, or wading	Swimming, paddling, or wading
Key location	Beach; river, creek, or stream	Beach	Bay, ocean, or sea	Bay, ocean, or sea
Key season	Summer	Summer	Summer	Summer
Key time of day	Afternoon (12 – 6pm)	Afternoon (12 – 6pm)	-	-
Key day	Weekend	Weekday	Weekday	Weekday
Incident within or outside home postcode?	Outside home postcode	Outside home postcode	-	-

* 1% unknown

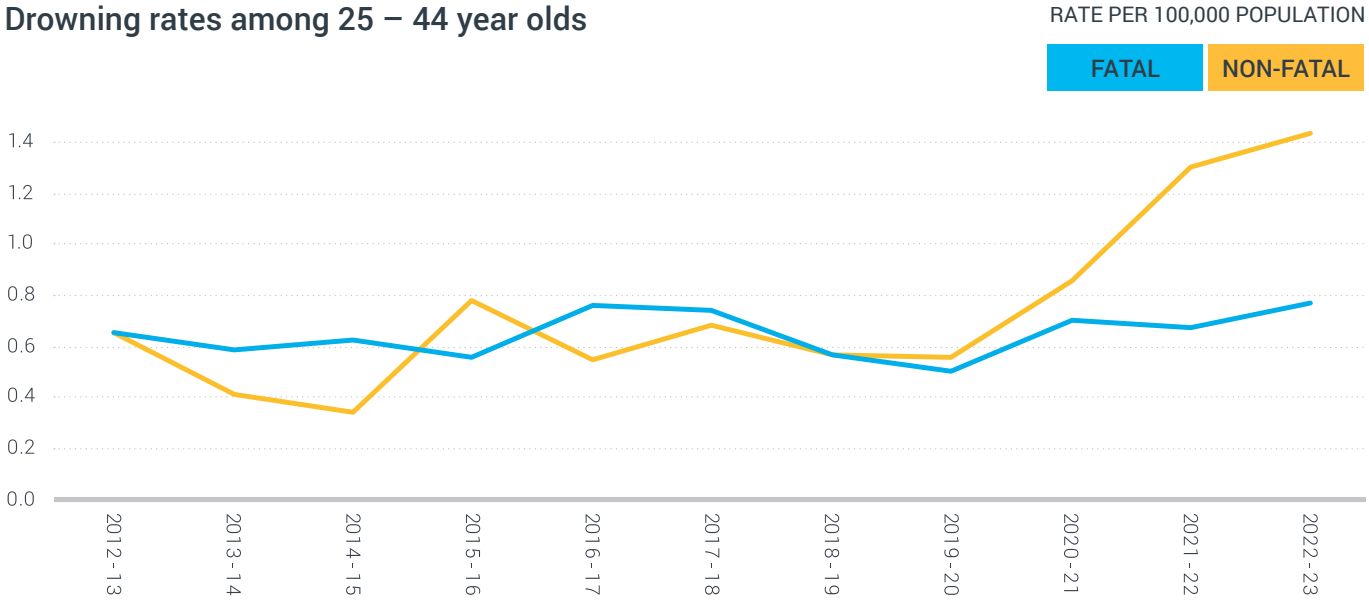
** 5% unknown

People aged 25 – 44 years old

In 2022 – 23:

- Fifteen people aged 25 – 44 years fatally drowned: a rate of 0.77 and a 21% increase on the 10-year average rate.
- Twenty-eight 25 – 44 year-olds experienced a non-fatal drowning requiring ambulance attendance a rate of 1.44 and a 115% increase on the 10-year average rate.

Drowning rates among 25 – 44 year olds



Common trends for drowning incidents in 2022 – 23 compared to previous years.

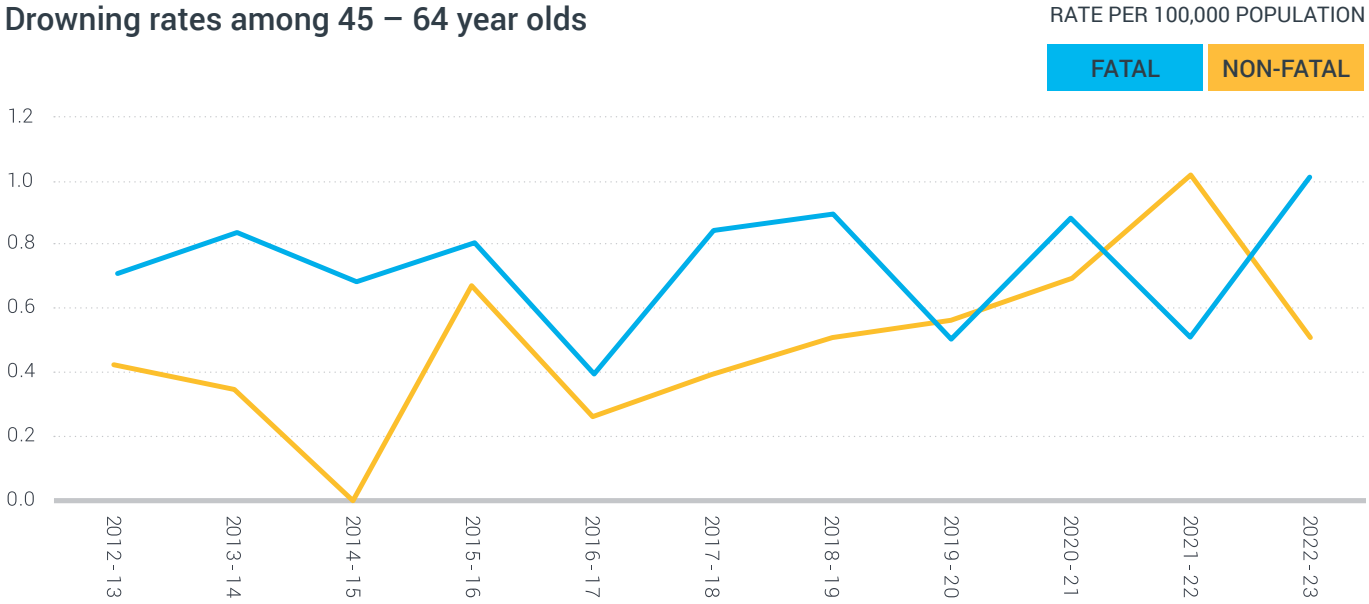
	Fatal drowning		Non-fatal drowning	
	10-year average	2022 – 23	5-year average	2022 – 23
Males	85%	80%	74%	82%
Females	15%	20%	26%	18%
Key activity	Swimming, paddling, or wading	Swimming, paddling, or wading	Swimming, paddling, or wading	Swimming, paddling, or wading
Key location	Beach	River, creek, or stream	Bay, ocean, or sea	Bay, ocean, or sea
Key season	Summer	Summer	Summer	Summer
Key time of day	Afternoon (12 – 6pm)	Morning and afternoon (6am – 6pm)	-	-
Key day	Weekday	Weekend	Weekend	Weekend
Incident within or outside home postcode?	Outside home postcode	Outside home postcode	-	-

People aged 45 – 64 years old

In 2022 – 23:

- Sixteen people aged 45 – 64 years fatally drowned: a rate of 1.01 and a 43% increase on the 10-year average rate.
- Eight 45 – 64 year olds experienced a non-fatal drowning requiring ambulance attendance: a rate of 0.51 and a 4% increase on the 10-year average rate.

Drowning rates among 45 – 64 year olds



Common trends for drowning incidents in 2022 – 23 compared to previous years.

	Fatal drowning		Non-fatal drowning	
	10-year average	2022 – 23	5-year average	2022 – 23
Males	74%	63%	77%	88%
Females	26%	37%	23%	12%
Key activity	Boating and water craft riding	Swimming, paddling, or wading	Swimming, paddling, or wading	Swimming, paddling, wading, attempting a rescue
Key location	River, creek, or stream; Beach	Beach	Bay, ocean, or sea	Bay, ocean, or sea
Key season	Summer	Winter	Summer	Summer
Key time of day	Afternoon (12 – 6pm)	Afternoon (12 – 6pm)	-	-
Key day	Weekday	Weekday	Weekday	Weekend
Incident within or outside home postcode?	Outside home postcode	Outside home postcode	-	-

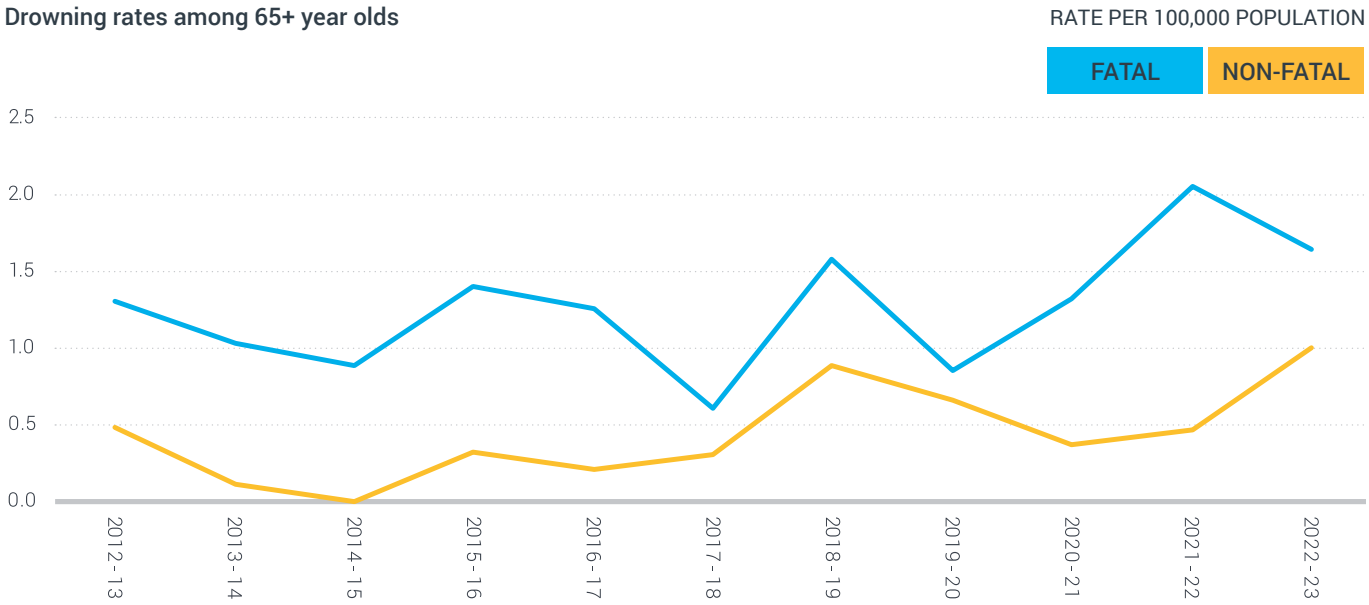
People and populations

People aged 65+ years old

In 2022 – 23:

- **Eighteen people aged 65 years and older fatally drowned: the most fatalities this year among all age groups.** This equated to a rate of 1.64 – 34% higher than the 10-year average rate.
  - Males aged 65+ years recorded a fatal drowning rate of 2.37; the highest among all groups.
- **Eleven 65+ year-olds experienced a non-fatal drowning requiring ambulance attendance:** a rate of 1.00 and a 162% increase on the 10-year average rate.

Drowning rates among 65+ year olds



Common trends for drowning incidents in 2022 – 23 compared to previous years.

	Fatal drowning		Non-fatal drowning	
	10-year average	2022 – 23	5-year average	2022 – 23
Males	74%	67%	69%	64%
Females	26%	33%	31%	36%
Key activity	Walking near water	Swimming, paddling or wading	Swimming, paddling, or wading	Swimming, paddling, or wading
Key location	River, creek, or stream; Beach	Beach	Bay, ocean, or sea	Bay, ocean, or sea
Key season	Autumn	Summer	Summer	Summer
Key time of day	Afternoon (12 – 6pm)	Afternoon (12 – 6pm)	-	-
Key day	Weekday	Weekday	Weekday	Weekday
Incident within or outside home postcode?	Within home postcode	Within home postcode	-	-

Victoria's high-risk populations

Aboriginal and Torres Strait Islander peoples made up less than 1% of drowning fatalities in Victoria 2013 – 14 to 2022 – 23: Indigeneity was unknown in 63% of cases.

Twelve individuals (20%) who fatally drowned this year were known to be from CALD communities. However, at the time of publication, country of birth was unknown for the remaining 47 fatalities.

Due to this limitation, data was analysed from the most recent decade where country of birth data was known for most cases (2011 – 12 to 2020 – 21). Over this time, 152 people born overseas fatally drowned in Victoria (36% of drowning deaths), and **were over twice (2.1) as likely to drown than Australian-born people when comparing drowning rates** per head of population and cultural background.

58%
of all fishing-related deaths were of CALD individuals

People and populations

77%
MALE

38%
AGED 25 – 44 YEARS

23%
AGED 45 – 64 YEARS

43 years
MEAN AGE

82%
RESIDED IN MAJOR CITIES IN VICTORIA

21 years
MEAN LENGTH OF TIME LIVING IN AUSTRALIA

Places

31%
BEACHES

21%
RIVERS, CREEKS, OR STREAMS

57%
DROWNED IN A METROPOLITAN AREA

Activities and risk factors

29%
SWIMMING, PADDLING, OR WADING

16%
FISHING

16%
WALKING OR RECREATING NEAR WATER

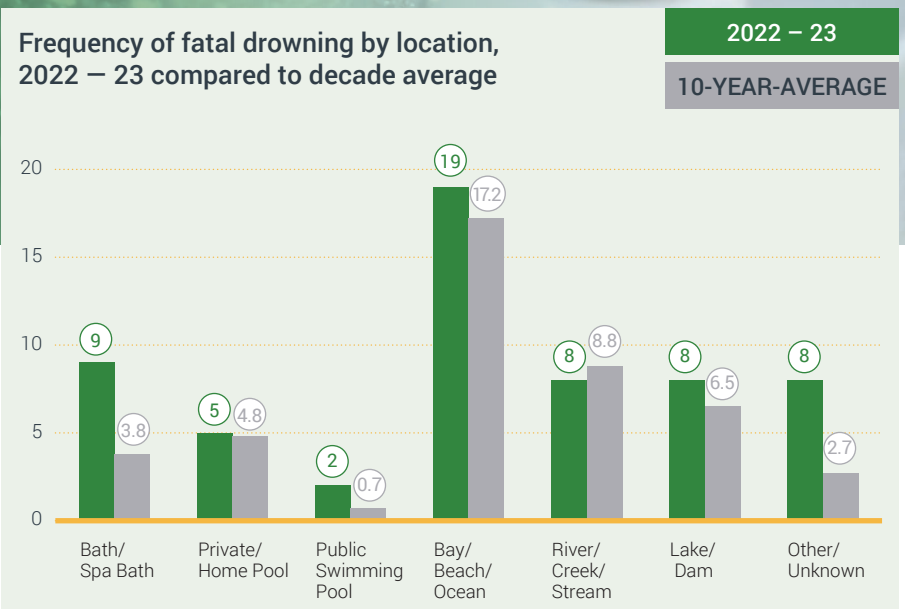
42%
KNOWN ALCOHOL AND/OR DRUGS PRESENT

Places

Fatal drowning

- **Five more drowning deaths at beaches in 2022 – 23** compared to the decade average; **one fewer** in rivers, creeks and streams; and, **two more** in lakes.
- **Nine drowning deaths in bathtubs** – **five more** than the decade average.
- In 2022 – 23, **44% of people fatally drowned at a waterway within their residential postcode**; **similar** to the decade average of 41%.

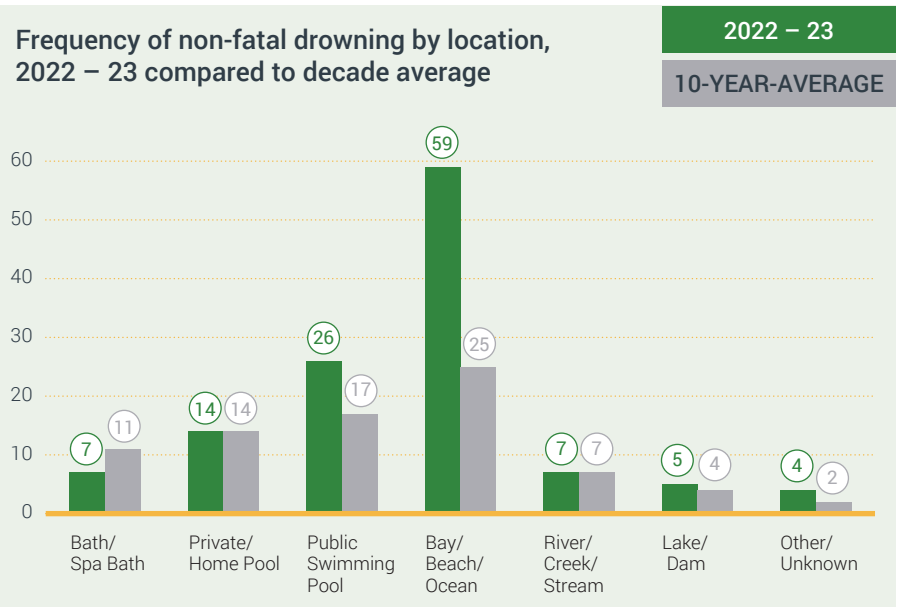
Frequency of fatal drowning by location, 2022 — 23 compared to decade average



Non-fatal drowning

- **Over double the number of non-fatal drownings** were recorded in 2022 – 23 at bay, beach or ocean locations compared to the 10-year average.
- **Nine more non-fatal drownings in public pools** compared to the decade average.

Frequency of non-fatal drowning by location, 2022 – 23 compared to decade average



Region

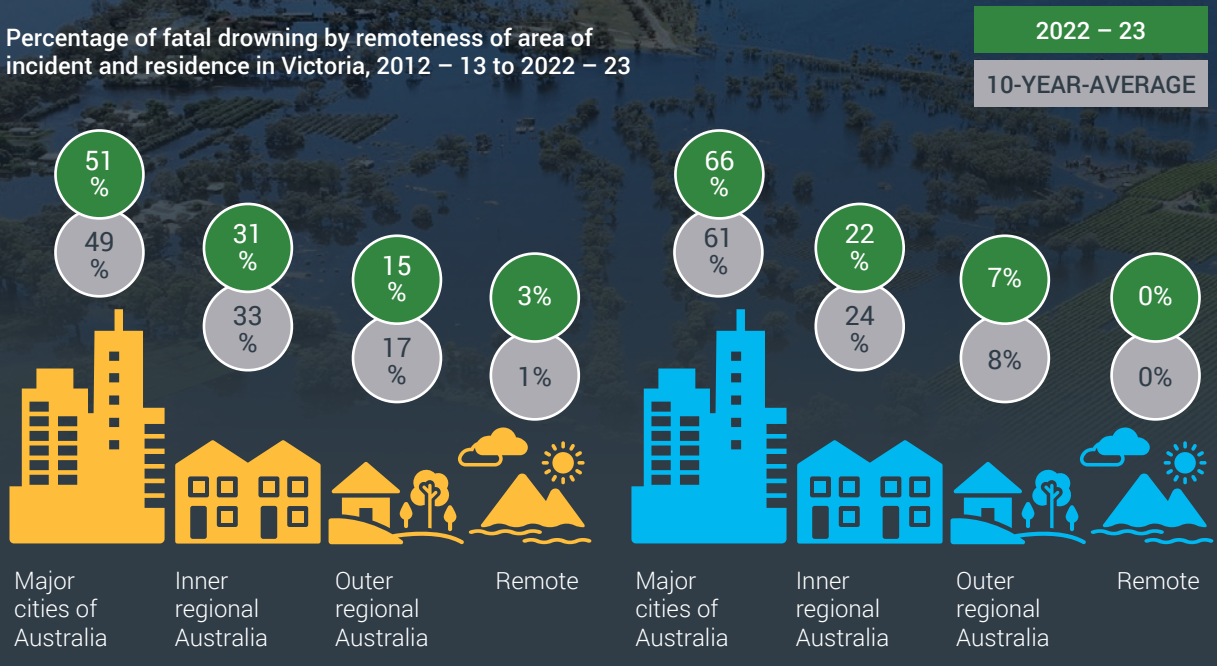
51%
(30) FATALITIES:
OCCURRED WITHIN
METROPOLITAN AREAS

66%
OF FATAL
INCIDENTS INVOLVED
METROPOLITAN RESIDENTS

REGIONAL RESIDENTS
1.5x
MORE LIKELY TO
FATALLY DROWN
THAN METROPOLITAN
RESIDENTS

8
MORE THAN
10-YEAR
AVERAGE*

Percentage of fatal drowning by remoteness of area of incident and residence in Victoria, 2012 – 13 to 2022 – 23



The Murray River

State government legislation requires drowning incidents in the Murray River to be reported within the New South Wales jurisdiction, however, Victorians made up almost half (47%, 22) of the 47 Murray River drowning deaths over the previous decade (2013 – 14 to 2022 – 23). Among these **47 drownings**, **92% were males**, the majority were **aged 18 – 44 years**, more than half recorded a presence of **alcohol and/or drugs** and **43% of incidents** were preceded by **swimming and/or recreating in the water**.

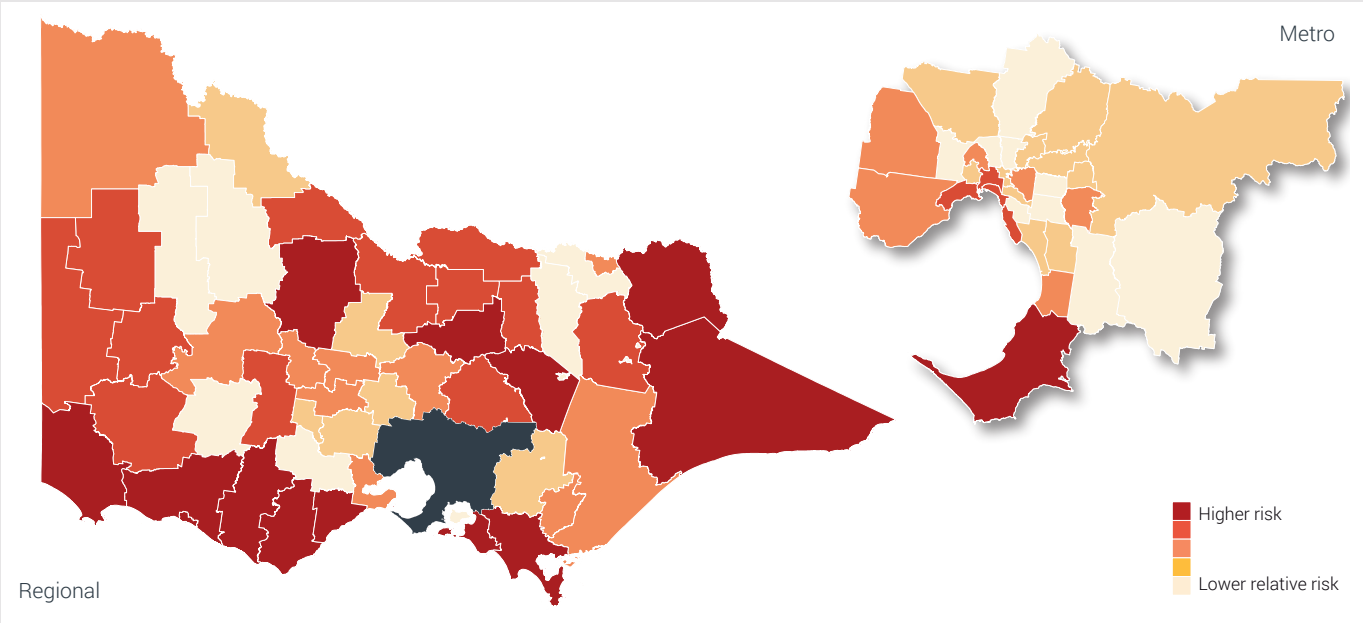
* Compared to 2012 – 13 to 2021 – 22

Relative fatal drowning risk by location and residence
2013 – 14 to 2022 – 23

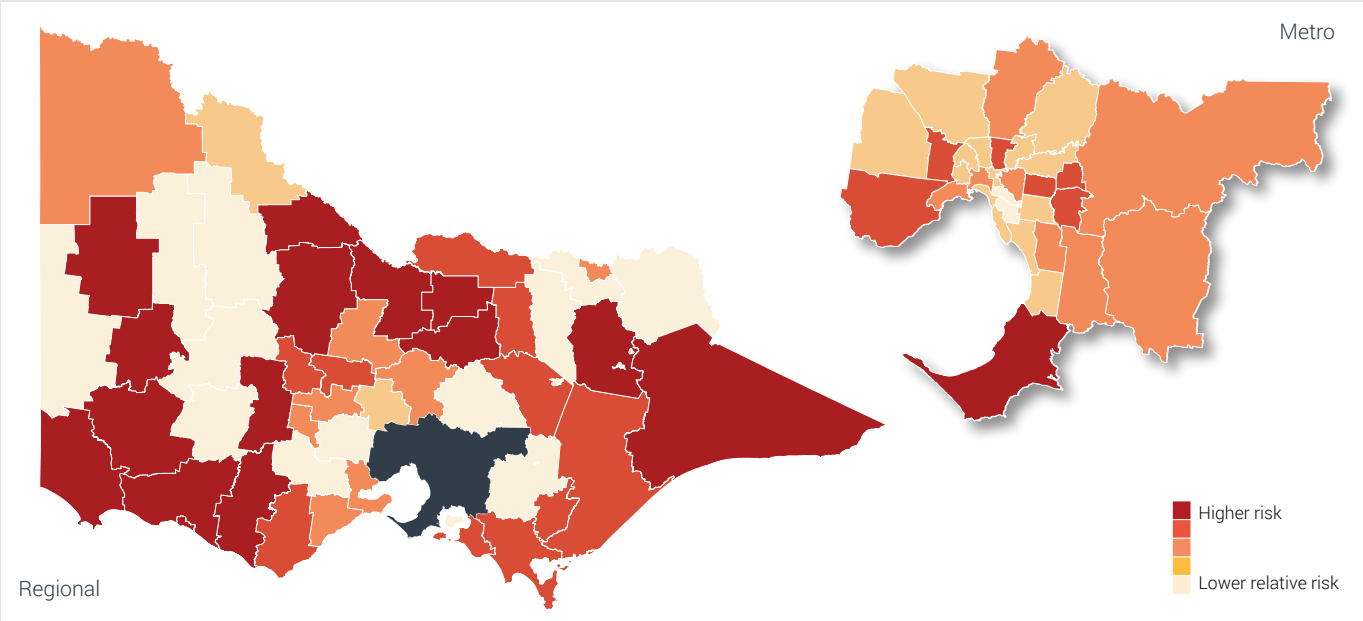
These maps show fatal drowning risk in local government areas (LGAs) over the past decade by place of a) incident, and b) residence.

Colours range from light yellow (low risk) to dark red (high risk). They highlight relative risk levels, based on underlying population counts within each Victorian LGA.

Incident location relative risk, based on postcode



Place of residence relative risk, based on postcode

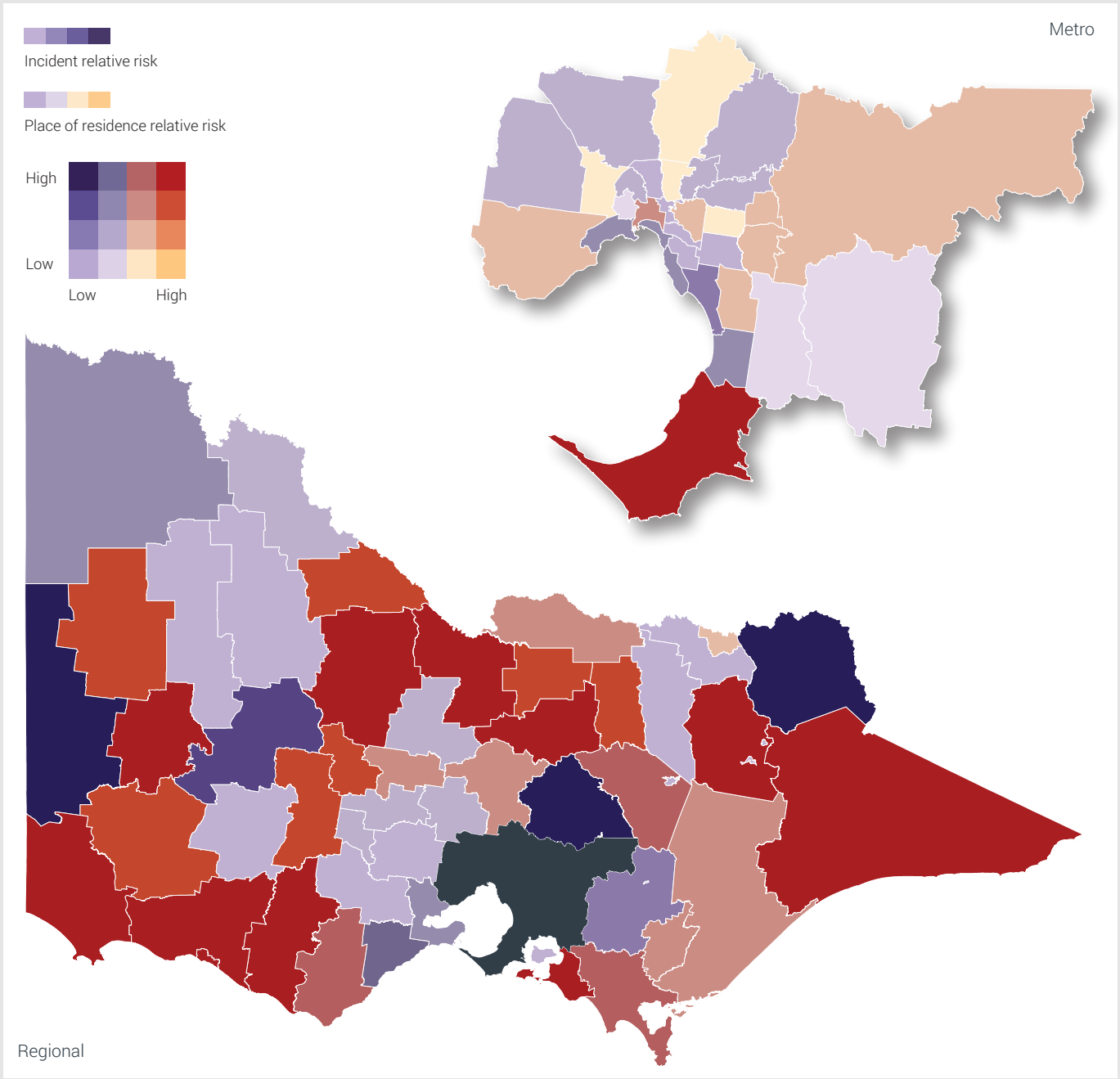


Combined relative fatal drowning risk
2013 – 14
to 2022 – 23

This map provides a dual relative risk perspective by incorporating both incident location and place of residence.

The red-shaded areas indicate elevated risk for both incidents and residence. Light purple shows low risk for both. Dark purple highlights high incident risk but low residence risk. Pale orange/ peach colour signifies higher residence risk but lower incident risk. This visualisation provides insights into the combined geographical relative risk of drowning across Victoria.

Combined incident and place of residence relative to risk, based on postcode



Fatal drowning summary
by Victorian local government areas 2013 – 14 to 2022 – 23

This table summarises fatal drowning incidents since 2013 – 14 within Victorian LGAs where more than five incidents have occurred. Trends are not necessarily related and should be interpreted independently of one another. LGAs are listed by the number of fatal drownings in descending order, from most to least incidents recorded.

Rank	LGA	Key age group	Key waterway	Known key activity	Drownings involving LGA residents
1	Mornington Peninsula (S)	25 – 44 years	Beach	Swimming, paddling, or wading	40%
2	Bass Coast (S)	25 – 64 years	Beach	Swimming, paddling, or wading	18%
3	Greater Geelong (C)	45 – 64 years	Beach	Swimming, paddling, or wading	53%
	Melbourne (C)	25 – 44 years	River, creek, or stream	Walking or playing near water	21%
4	East Gippsland (S)	25 – 64 years	Beach; river, creek, or stream	Swimming, paddling, or wading	53%
5	Wyndham (C)	65+ years	River, creek, or stream	Walking or playing near water	80%
6	Hobsons Bay (C)	25 – 44 years	Beach; harbour, bay, or inlet	Skin diving or snorkelling	21%
	Port Phillip (C)	25 – 64 years	Harbour, bay, or inlet	Fishing from a boat	23%
7	Bayside (C)	65+ years	Beach	Swimming, paddling, or wading	36%
	Surf Coast (S)	45 – 64 years	Rocky outcrop	Swimming, paddling, or wading	18%

Rank	LGA	Key age group	Key waterway	Known key activity	Drownings involving LGA residents
8	Campaspe (S)	NA	Lake; river, creek, or stream	NA	60%
	Frankston (C)	15 – 24 years	Beach	Swimming, paddling, or wading	40%
9	Corangamite (S)	25 – 44 years	Rocky outcrop	Attempting a rescue	44%
	Hume (C)	25 – 44 years	Bathtub	Walking or playing near water	78%
	Mansfield (S)	25 – 44 years	Lake	Swimming, paddling, or wading; motorised watercraft	11%
	Warrnambool (C)	45 – 64 years	Ocean	Fishing or motorized watercraft	78%
10	Casey (C)	65+ years	River, creek, or steam; bathtub	Walking or playing near water	75%
	Glenelg (S)	45 – 64 years	Rocky outcrop	Rock fishing; walking or playing near water	38%
	Greater Shepparton (C)	65+ years	River, creek, or stream	Walking or playing near water	89%
	South Gippsland (S)	25 – 64 years	Beach	Swimming, paddling, or wading	13%
11	Baw Baw (S)	65+ years	River, creek, or stream	Transport	57%
	Brimbank (C)	0 – 4 & 45 – 64 years	River, creek, or steam; bathtub	Walking or playing near water	86%
	Knox (C)	45 – 64 years	Lake	Walking or playing near water	71%
	Manningham (C)	65+ years	River, creek, or stream	Swimming, paddling, or wading	43%
	Strathbogie (S)	25 – 44 & 65+ years	Lake	Still water fishing; walking or playing near water	14%
	Yarra Ranges (S)	45 – 64 years	Inland waterways	NA	100%
12	Colac-Otway (S)	25 – 44 years	Beach	Swimming, paddling, or wading	17%
	Kingston (C) (Vic.)	65+ years	Beach	NA	67%
13	Banyule (C)	25 – 44 years	Public swimming pool; bathtub	Swimming, paddling, or wading; bathing	40%
	Boroondara (C)	65+ years	River, creek, or stream	Walking or playing near water	80%
	Greater Bendigo (C)	65+ years	Dam	Walking or playing near water	80%
	Greater Dandenong (C)	0 – 4 & 45 – 64 years	River, creek, stream; lake	Walking or playing near water	60%
	Horsham (RC)	25 – 44 years	River, creek, or stream	Swimming, paddling, or wading	60%
	Maroondah (C)	NA	Bathtub	Bathing	100%
	Monash (C)	65+ years	Bathtub	Bathing	100%
	Moyne (S)	65+ years	Ocean	Swimming, paddling, or wading	40%
	Wellington (S)	25 – 44 years	Ocean	Sailing	100%
	Yarra (C)	25 – 44 & 65+ years	River, creek, or stream	Bathing	60%

Activities and **risk factors**

Fatal drowning

Activities

- **52%** fewer boating (including craft riding) and fishing-related fatal drownings than the 10-year average.
- Swimming, paddling, or wading was the most common activity – preceding **31%** of fatal drownings.
- **19%** of fatalities resulted from bathing – almost three times the decade average.
- **Five** people fatally drowned following a transport (for work/ recreation) incident: more than double the decade average.

Risk factors

- Among the **55** boating-related drowning deaths between 2013 – 14 to 2022 – 23, lifejackets were not worn in **54%** of cases, and **24%** had an ill-fitting or incorrect lifejacket for the activity or conditions.

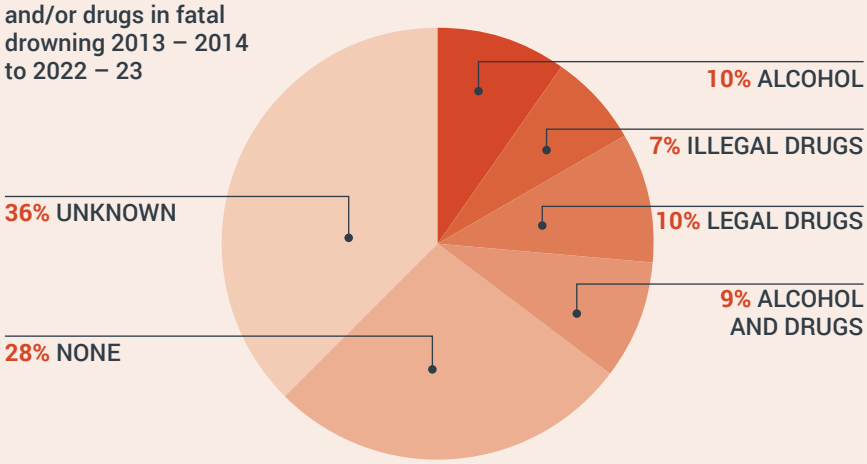
Extreme weather

- **Eight** fatal drownings were recorded as a result of the flooding or heatwave conditions seen in Victoria: the highest number of extreme weather-related drownings on record.

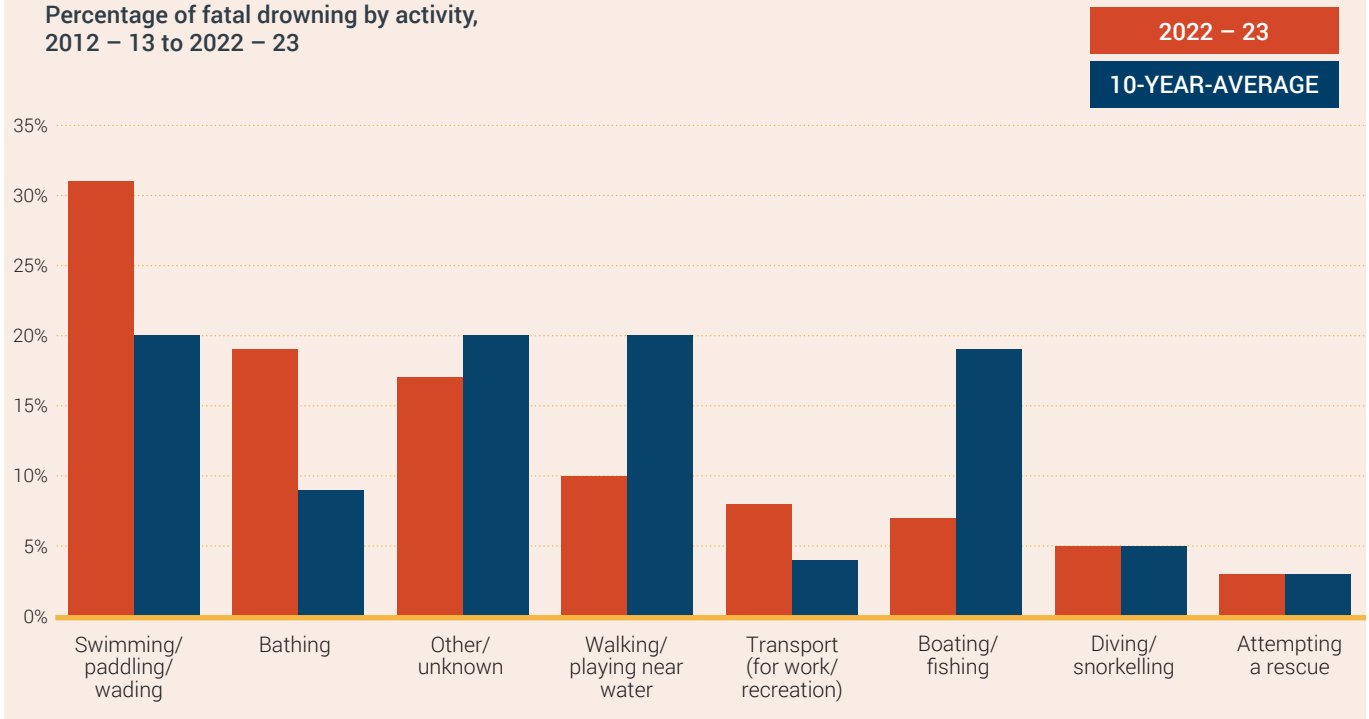
Alcohol and/or drugs

- Over the past decade (2013 – 14 to 2022 – 23), alcohol and/or drugs have been recorded in **31%** of fatal drownings among people aged 15 years and above.
- **67%** of alcohol and/or drug use occurred within inland waterways; **33%** was in home/other locations.

Presence of alcohol and/or drugs in fatal drowning 2013 – 2014 to 2022 – 23



Percentage of fatal drowning by activity, 2012 – 13 to 2022 – 23

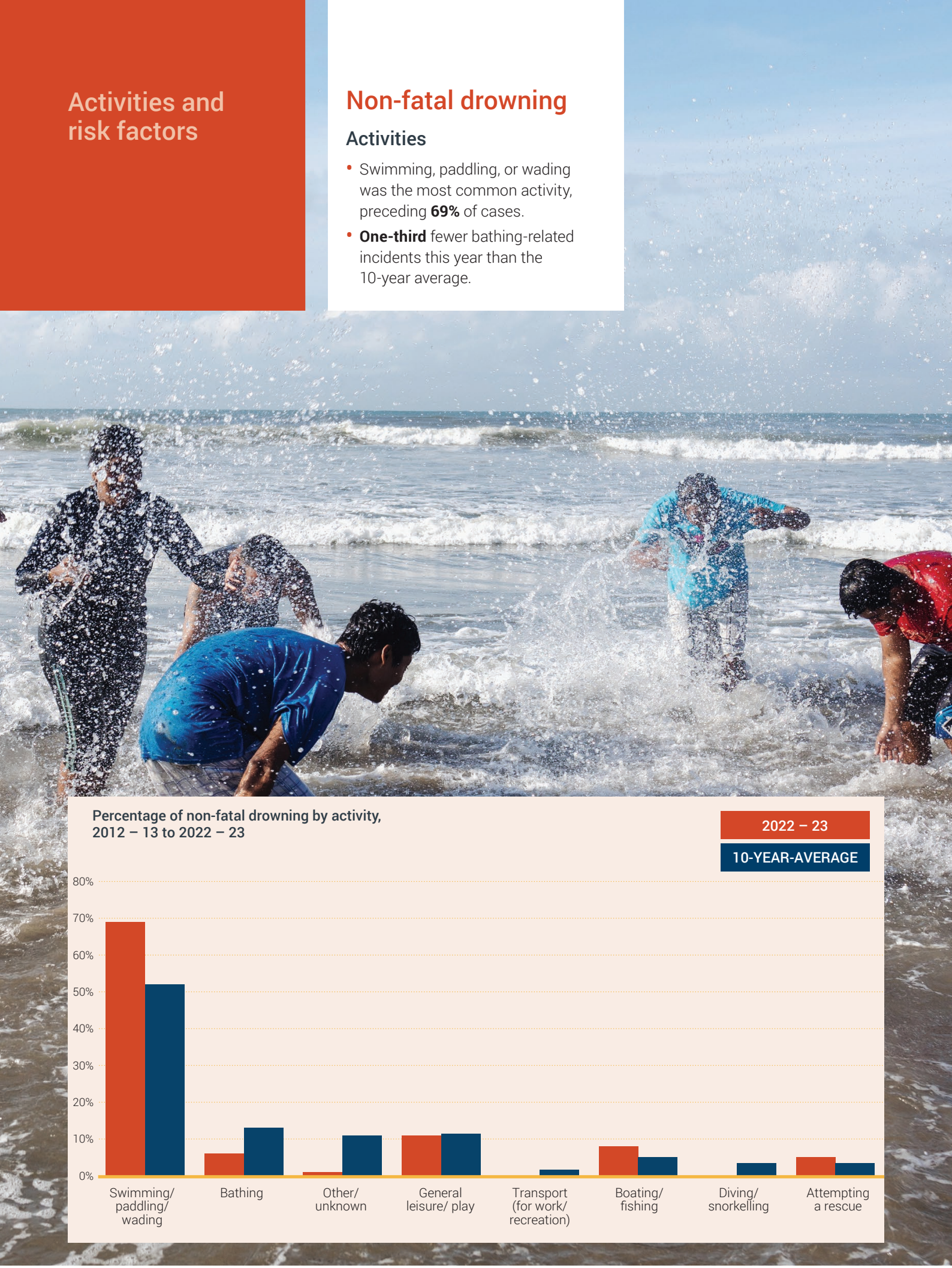


Activities and risk factors

Non-fatal drowning

Activities

- Swimming, paddling, or wading was the most common activity, preceding **69%** of cases.
- **One-third** fewer bathing-related incidents this year than the 10-year average.



Percentage of non-fatal drowning by activity, 2012 – 13 to 2022 – 23

Coronial recommendations

Life Saving Victoria recognises that every life lost to drowning is a tragedy and causes devastation to all who are impacted. We pay our heartfelt respects to those who have lost their lives and send our condolences to their loved ones.

The role of the coroner in Victoria is to investigate reportable deaths, which include drowning, 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 released in 2022 – 23 where a recommendation or relevant comment was made relating to a drowning death. These are not an exact replication of the findings; these can be accessed from the Coroners Court of Victoria website.

Coastal waterways

GFE
65 years old

In March 2020, GFE intended to travel solo from Melbourne to Sydney aboard his 11-metre vessel. GFE, an experienced, safety-conscious sailor, was sufficiently prepared for the voyage with an "exceptional" level of safety equipment, including an Emergency Position Indicating Radio Beacon (EPIRB). He consistently wore a lifejacket, generally only removing it in bed. On 20 March 2020, contact with the vessel was lost, its last known position being near Cape Conran. Offshore conditions in the area were thought to be "terrible". Investigations determined that GFE was likely suffering from hallucinations caused by hypoxia resulting from a gas leak within the cabin. The toilet was not connected, and several rail wires were open. It was deemed probable that GFE fell overboard, possibly while toileting. He was not wearing a lifejacket at that time, as all safety gear was accounted for on board the vessel. Despite extensive search operations, GFE has unfortunately never been found, and a lack of any signs of life indicate that he is most likely deceased.

Recommendations:

1. Marine Safety Victoria* and the Department of Transport develop legislation mandating that solo operators in enclosed and coastal Victorian waters must wear a Type 1 lifejacket with an attached registered EPIRB, and
2. Marine Safety Victoria and the Department of Transport develop legislation mandating that any recreational vessel that has a liquefied petroleum gas system on board in an enclosed area must have an operable gas detection system.

Do Hung Vu
65 years old

On 5 March 2022, Do Hung Vu drove to Altona Beach alone and subsequently entered the water to dive for abalone. While other divers were present, no eyewitness accounts suggested Mr Vu experienced any difficulties in the water. One of the other divers found Mr Vu unresponsive on the seabed, and he and his friends pulled Mr Vu onto a rock groyne where they commenced CPR. Emergency services arrived and observed signs indicating Mr Vu was already deceased.

The coroner noted that given the ongoing work of LSV and the Victorian Fisheries Authority in abalone fishing safety and related engagement with culturally and linguistically diverse communities arising from previous fatal drowning cases with alike findings and recommendations, they did not make any further recommendations.

*Currently known as Safe Transport Victoria

Inland waterways

Charles Frederick Norton
87 years old

On 28 February 2020, Charles Frederick Norton's partner and son discovered he was not in his room at the retirement village where he lived. After searching the grounds to no avail, police were alerted over concerns for Mr Norton's welfare. Mr Norton was found by residents that same day, deceased, lying face down in a canal that flowed through the precinct. While the circumstances surrounding Mr Norton's passing are unknown, no specific signs indicated death consistent with drowning. It was deemed that the cause of death was ischaemic heart disease in the setting of immersion.

While the coronial report did not include any recommendations, the coroner acknowledged and commended the retirement village for installing barricades along the banks of the canal in response to Mr Norton's death, to prevent future accidental entry by residents and members of the public, in the interest of health and safety, and preventing harm.

YOA
7 years old

On 1 January 2022, YOA was playing with his brother XLZ in the Snowy River at Jarrahmond when they were swept downstream by strong currents. Neither child was a competent swimmer or familiar with the waterway. An adult bystander was able to successfully rescue XLZ; however, there was no sign of YOA. Lack of phone reception and the location's remoteness contributed to delayed emergency response. An intensive, multi-agency search was carried out, and on 2 January 2022, YOA was located, deceased, submerged in a deep pool in the river.

Recommendations:

1 I recommend that the Department of Environment, Land, Water and Planning (DELWP; now known as Department of Energy, Environment and Climate Action) install appropriate signs at the Wood Point campsite to warn visitors of the dangers of swimming in the river, including the dangers of sudden floods and strong currents,

2 I recommend that the DEWLP liaise with Snowy Hydro to establish a real-time warning system to notify DEWLP employees and relevant personnel about water releases from the Jindabyne Dam, and

3 I recommend that the DEWLP liaise with the appropriate authorities to conduct a feasibility study of installing/improving mobile phone reception and coverage in and around the area of the Wood Point camping ground to allow for prompt emergency notifications if required.

Peter Boyle
61 years old

On 18 March 2022, experienced sailors Peter Doyle and Robert Scholes boarded Mr Doyle's 9-metre vessel in Paynesville for an event. Issues with changing the sails led Mr Doyle to intentionally enter the water to free a line tangled in the propellor. He became separated from the vessel and Mr Scholes threw a life ring, but even with the clear conditions it was too lightweight to reach Mr Doyle and he disappeared from sight.

Emergency services were called and a coordinated search resulted in Mr Doyle's body being recovered the next day, approximately 80 metres from his last known location. It was determined the incident was the result of several miscalculations, including Mr Doyle's compromised swimming ability, influenced by Parkinson's disease; misjudging the drift of the vessel; and not wearing a lifejacket or being tied to the vessel as he entered the water.

Recommendations:

1 Safe Transport Victoria (ST Vic) consider reviewing the current information and safety material provided to mariners to ensure that it includes:

a. information about the requirement to conduct an annual service and test of inflatable lifejackets to ensure that they are functional. The material should include a step-by-step guide as to how to conduct a check and service of the lifejacket if it is to be done by the owner or information about third-party contractors who provide this service,

b. information about the availability of automatic inflating lifejackets which may be a preferable option for people who have a disability or restriction of movement – such a lifejacket would automatically inflate if the person entered the water, and

c. guidance to mariners about the precautions they should take to protect themselves if they need to enter the water to conduct repair works (for example to clear a line that has become tangled in the propellor) including but not limited to, anchoring the boat if possible, tethering themselves to the vessel before entering the water, advising and briefing other crew members before entering the water.

2 ST Vic consider providing this information with the annual renewal of the registration of a vessel to ensure that boat owners read and understand this information. Consideration should be given by ST Vic to the feasibility of developing an online test to be completed prior to renewal of registration.

Our **preventative efforts**

689

Rescues by lifesavers and lifeguards on patrolled beaches, inland waterway sites and event lifeguard services in 2022 – 23.

19

Rescues per 100,000 beachgoers on average per year from 2013 – 14 to 2022 – 23.

231

Major first aids performed by lifesavers, lifeguards and support services on patrolled beaches in 2022 – 23.

43,000+

Life saving club members, patrolling our coastlines and inland waterway locations while providing education and training in lifesaving activities, to ensure the safety of waterway users in Victoria.

Volunteer proficiencies

5,804

Bronze Medallion qualifications

1,429

Surf Rescue Certificates (CPR Endorsed)

1,503

Advanced Resuscitation Techniques Certificates

1,787

First aid qualifications

2,611

Inflatable Rescue Boat (IRB) Certificates

1,317

Silver Medallion Inflatable Rescue Boat (IRB) drivers

$6.5 billion

Estimated **value of coastal safety and lifesaving services** per year in Australia*

*Deloitte Access Economics. (2020). *Between the red and yellow flags: The social and economic value of Surf Life Saving Australia.* Deloitte Access Economics: Sydney.

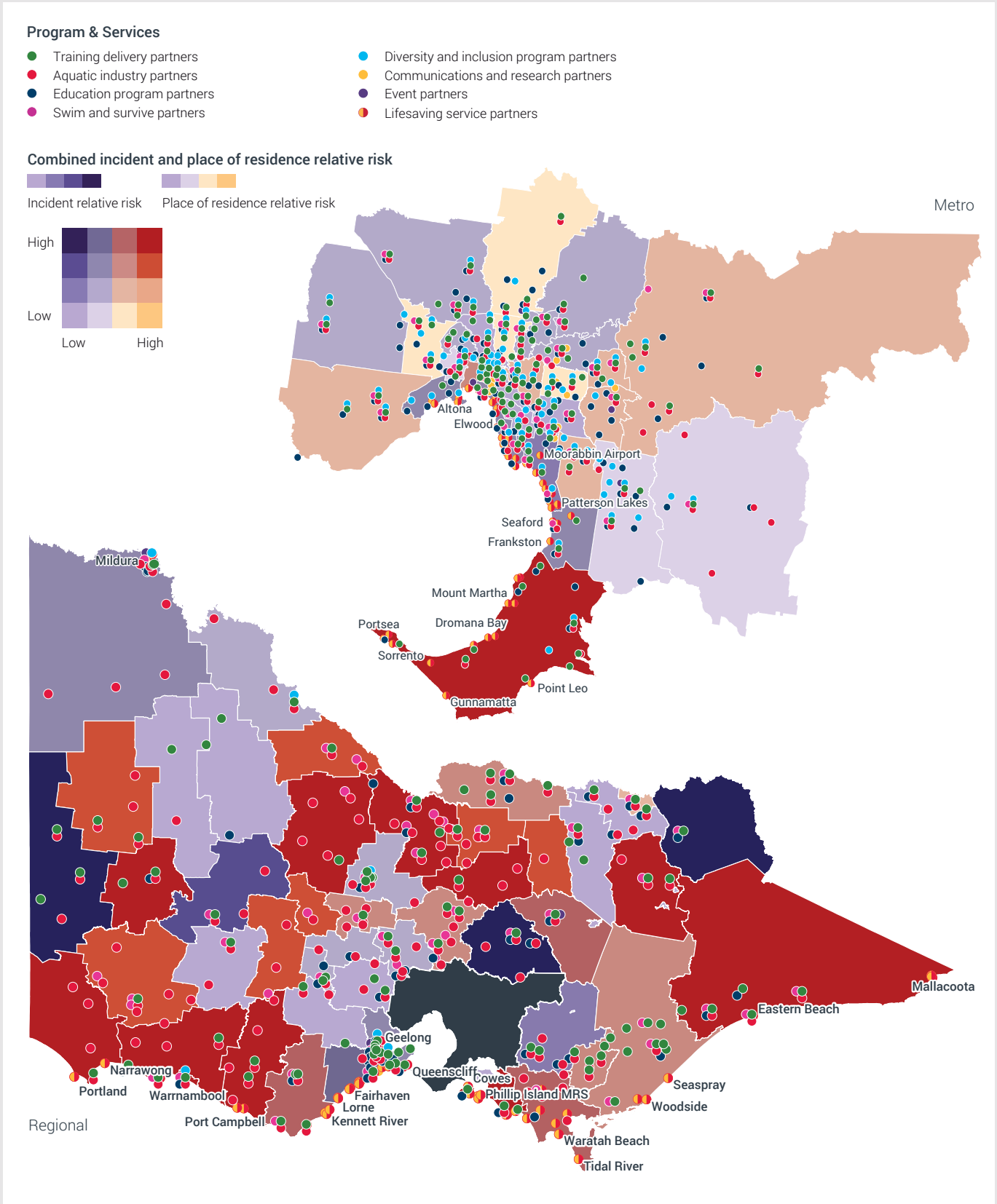
43,000+

life saving club members, patrolling our coastlines and inland waterway locations.

SEE PAGE 31

These maps illustrate how LSV programs and services are positioned in response to fatal drowning risks, considering both incident and resident locations.

LSV programs and services and relative risk of drowning by incident location and place of residence



Safety tips

Who are you?

Parent or caregiver of children

- Keep children under five years within arms' reach, and children under 10 within constant eyesight.
- Make a supervision plan so there is always an adult actively supervising children around water.
- Never leave your child alone in the bath, or in the care of an older child.
- Understand how your child's swimming ability might change in different environments.

Person who is culturally or linguistically diverse

- Swim at patrolled beaches between the red and yellow flags, where lifesavers and lifeguards can help in an emergency.
- Wear a lifejacket when boating or fishing, including rock fishing.
- Call 000 in an emergency.

Person aged 65+ years

- Be aware of conditions, read safety signs and refresh your swimming and water safety skills.
- Learn how your medication and health conditions might impact your capabilities in, on and around water.
- Prevent falls in your bathroom, for example by installing handrails, and install an alert system should you require assistance.

Male aged 15-45 years

- Before entering the water always check you have the ability to deal with the conditions. If you decide to enter the water, do so safely, slowly and feet first.
- Always swim and recreate with a friend.
- Look after your friends by encouraging safe decisions in, on and around water, including not entering water if they have been drinking alcohol.

A person who goes boating or fishing

- Wear the correct lifejacket for the waterway and activity.
- Carry communication and safety equipment, such as a distress beacon.
- Tell someone where you are going and when you will return.

Where do you recreate?

Water bodies around the home

- Develop an emergency action plan, including calling 000 and knowing CPR, especially if there are bodies of water on your property.
- Always empty baths, buckets, portable pools, sinks and eskies immediately after use.
- Remove floating objects that may attract children to water.
- If you are renting, familiarise yourself with your property rights relating to pool/spa/dam barriers and removing climbable objects.

Open waterways (coastal and inland)

All open waterways

- Always swim and recreate with a friend.
- Check local weather conditions before heading out.
- Tell someone where you are going and when you will return.
- If boating or fishing, wear the correct lifejacket for the waterway and activity.
- Read safety signs to understand dangers.
- Postpone alcohol until after your aquatic activity.

Inland

- Take care around the water's edge, including crumbling and slippery surfaces.
- Enter the water safely, slowly and feet first to check depths and retreat quickly if you need to.
- Never drive through floodwater.

Coastal

- Use the BeachSafe app to choose a patrolled beach and to check for beach closures.
- Escape a rip by staying calm, raising an arm to seek help, floating with the current until it releases you, or swimming parallel to the shore or towards breaking waves to help you to shore.

What can **you** do?

Aquatic facilities	• Display key information from this report in your facility and discuss it with your staff. • Develop programs for people who have been identified as high-risk. • Encourage patrons to adopt safe aquatic behaviours around nearby waterways. • Use the key messages from this report to help develop your programs, such as activities for water safety month.
Government entities (including councils and land managers)	• Promote shared responsibility, and empower communities to better assess and respond to local water safety risks. • Work with local partners to manage local risk. • Improve coordination and collaboration between agencies and with community members. • Refer to the Victorian Water Safety Strategy 2021 – 25[7] and the Australian Water Safety Strategy[8] for specific actions.
Healthcare practitioners and community service organisations	• Educate patients on the importance of water safety, particularly to parents/caregivers of people with disabilities or medical conditions. • Inform people of the impacts that medication and health conditions can have on their capabilities in, on and around water, especially older adults. • Remind older people to maintain their water safety skills and knowledge to mitigate impacts of ageing on drowning risk. • Assist older people and their families to install handrails in their bathrooms.
Life saving clubs	• Print out key pages of this report to display around your club. • Circulate the report to your members. • Use this report to inform future programs and activities.
Media outlets and journalists	• Prioritise reporting drownings of underrepresented groups, such as older people, through traditional and social media. • Promote key drowning prevention messages in accessible and inclusive ways.
Parents and caregivers of children	• Contact your local aquatic centre and enrol your child in swimming lessons. • Discuss the importance of water safety with other parents/caregivers, including making supervision plans. • Discuss water safety risks and safe aquatic behaviours with your child. • Share this report with your child's school, and advocate for water safety lessons to be delivered in, and out, of the classroom.
School principals and teachers	• Sign up for water safety education programs, including incursions and excursions. • Ensure the swim school where your students attend school swimming lessons integrates the competencies of the Victorian Water Safety Certificate. • Integrate lessons about water safety into the classroom, by teaching about aquatic risks and encouraging safe behaviours. • Encourage parents to adopt constant and active supervision of children around water.
Water safety industry agencies	• Distribute this report within your organisation and to wider audiences. • Use this report to inform future programs and activities. • Empower communities to better assess and respond to water safety risks. • Promote opportunities for subsidies, funding and grants to at-risk communities.

[7] Department of Justice and Community Safety. (2021). *Victorian Water Safety Strategy 2021 – 25.* Department of Justice and Community Safety: Melbourne.

[8] Australian Water Safety Council. (2021). *Australian Water Safety Strategy 2030.* Australian Water Safety Council: Sydney.

Victorian **water safety** industry

Government entities (Water Safety Task Force)

- Ambulance Victoria
- Country Fire Authority
- Department of Education
- Department of Energy, Environment and Climate Action
- Department of Justice and Community Safety
- Emergency Management Victoria
- Emergency Services Telecommunications Authority
- Fire Rescue Victoria
- Local Government Victoria
- Municipal Association of Victoria
- Parks Victoria
- Sport and Recreation Victoria
- Tourism Victoria
- Transport Safety Victoria
- Victoria Police
- Victoria State Emergency Service
- Victorian Fisheries Authority
- Victorian Institute of Forensic Medicine
- Victorian Multicultural Commission

Agencies (Play it Safe by the Water)

- Aquatics & Recreation Vic
- Australian Sailing
- AUSTSWIM Vic
- Belgravia Leisure
- Boating Industry Association of Victoria
- Dragon Boat Victoria
- Kidsafe Victoria
- Kiteboarding Australia
- Outdoors Victoria
- Paddle Victoria
- Rowing Victoria
- Surfing Victoria
- Triathlon Australia
- VR Fish
- World Wide Swim School
- YMCA Victoria

Local government areas and land managers

Contributors to the Victorian 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 Coastal and Parks Authority
- City of Greater Geelong
- Hobsons Bay City Council
- Mornington Peninsula Shire Council
- Moyne Shire Council
- Parks Victoria Wilsons Promontory
- Port Phillip City Council
- South Gippsland Shire Council
- Surf Coast Shire Council
- Warrnambool City Council
- Wellington Shire Council
- City of Wyndham

Methods

This report includes unintentional fatal and non-fatal drowning incidents reported in Victoria, Australia.

An overview of fatal and non-fatal drownings for 1 July 2022 to 30 June 2023 is provided and compared with 10-year averages from drowning data from 1 July 2012 to 30 June 2022.

Fatal incidents

Information collected from the Coroners Court of Victoria, and the National Coroners Information System (NCIS). Deaths due to natural causes, suicide or homicide were 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 2022 – 23 remained open on the NCIS.

Information of Victorians who drowned in the Murray River from 2013 – 14 to 2022 – 23 was collected from the Royal Life Saving National Fatal Drowning Database and the NCIS, as part of the Inland Waterways Drowning Prevention project by Royal Life Saving Society – Australia, funded by the Australian Government.

Non-fatal incidents

Information on non-fatal drowning in 2022 – 23 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 2012 – 13 to 2021 – 22 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 2012 to 30 June 2022.

The VEMD is a dataset containing records of emergency department presentations in Victorian hospitals with 24-hour emergency services. One hundred percent state-wide coverage of these hospitals applied 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 watercraft 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. Re-admissions 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 ABS[9] .

Relative risk maps

Choropleth maps depict drowning risk across Victoria, using incident location, place of residence, and a collective representation map combining the two (bivariate map). These maps focus on drowning counts within Victorian LGAs[10]. The compiled maps indicate areas with higher or lower risk compared to the overall Victorian drowning ratio. Risk ratios were calculated using grouped incident and residence counts, initially aggregated from postcode locations into LGA counts based on location. As event counts extend over a 10-year period (2013 – 14 to 2022 – 23), LGA time-series population counts (2011, 2016 & 2021) were used and averaged as the denominator exposure population value[11].

[9] Australian Bureau of Statistics. (2022). *Australian National, state and territory population statistics, Dec 2022*. Cat. No. 31010, Australian Bureau of Statistics: Canberra.

[10] Australian Bureau of Statistics. (2021). *Digital boundary files* (Edition 3) [GeoPackage]. https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/jul2021-jun2026/access-and-downloads/digital-boundary-files

[11] Australian Bureau of Statistics. (2022). *Census DataPacks* (Time Series Profile) [CSV]. https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/jul2021-jun2026/access-and-downloads/digital-boundary-files

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