Analysis of unintentional drowning in Australia 2002-2022

› PROGRESS, CHALLENGES AND DATA TO INFORM PREVENTION

ROYAL LIFE SAVING AUSTRALIA

ABOUT ROYAL LIFE SAVING

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

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

ACKNOWLEDGEMENT OF COUNTRY

Royal Life Saving Society – Australia acknowledges the Aboriginal and Torres Strait Islander people of this nation. We pay our respects to their Elders past, present and emerging recognising their continued connection to land, waters and communities.

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OUR VISION

A water-loving nation free from drowning.

CONTENTS

ROYAL LIFE SAVING AUSTRALIA

***The Royal Life Saving Report - Analysis of unintentional drowning in Australia 2002-2022: progress, challenges, and data to inform prevention,* provides two decades of data for fatal drowning incidents in Australia.**

Each number in this report represents a life lost and countless other lives forever affected by tragedy. To this end, the data presented here is intended to inform action that prevents future fatal and non-fatal drowning. By understanding and highlighting the details and long-term trends of these events, we can better design and implement national, regional and community responses that address the burden of drowning in Australia.

The Australian Water Safety Strategy 2030 set the aspirational goal of reducing drowning by 50 per cent by 2030. This twenty-year review provides an opportunity to evaluate both gains that have been made with decreasing rates of drowning, and areas of concern where the situation is either not improving or has worsened.

In May 2023, the World Health Assembly adopted their first drowning resolution "Accelerating action on global drowning prevention" which requests governments to assess their national drowning situation. This report, in part, represents an answer to that call. In Australia we are fortunate to have robust, long-term data to inform policy responses and assess the impact of our action.

Data collection

The Report provides a detailed understanding of who is drowning in Australia, and how, when and where they are drowning. The report analyses drowning data for the period 2002/03 to 2021/22, triangulated from data extracted from the National Coronial Information System, media reports, police reports and Royal Life Saving's state and territory member organisations.

One feature is the presentation of data in five-year intervals (2002/03 - 2006/07) to measure and report changing patterns and assess whether progress is being made.

While anyone can drown, no one should.

Tragically, 5,692 people died from drowning in Australia across the 20-year period, 2002/03-2021/22. Their deaths are a tragedy which rippled through entire communities. In recording the circumstances of their deaths, Royal Life Saving Society – Australia aims to prevent future drowning, both fatal and non-fatal.

Reduction in drowning deaths

This report captures an overall decline in drowning numbers of six per cent during the twenty-year period. While this is an important achievement, it is well short of successive goals contained within the Australian Water Safety Strategy.

In public health circles, planning and measuring impact is best done by considering the drowning rate. Drowning rates give a general measure of the burden of drowning in the Australian population, and is represented by the number of drowning deaths each year per 100,000 population. In this respect the average drowning rate has dropped by 26 per cent from 1.45 to 1.08 per 100,000 population.

All states and territories recorded a reduction in the fatal drowning rate of at least 20 per cent over the twenty-year period. The greatest reduction was recorded in South Australia, with a 37 per cent decrease in the rate.

Greatest improvements

By far the greatest improvement was in the 0 to four-year-old age group: the count of drowning deaths reduced by 51% over the period, and the rate of fatal drowning reduced by 59% over the period. While this improvement is something to celebrate, any number of drowning deaths is still unacceptable and should motivate further action.

Progress is credited to the introduction of pool fencing legislation across Australia[1], community awareness focusing on supervision, and increasing participation in water familiarisation programs by young children.[2,3]

The drowning rate continues to be lowest in children 5-14 years. Reductions of 46% (5-9 years) and 28% (10-14 years) reinforce the importance of swimming and water safety education. More recent increases in drowning deaths in these age groups are a cause for concern.

Progress is less pronounced, but still impressive across most adults age groups ranging from reduction of 20% (35-44 years) to 34% (45-54 years). While rates are decreasing across all ages, there is much debate about how to accelerate progress.

Floods

The proportion of flood related drownings has doubled from three to six per cent of all drowning deaths in the past 20 years. With the increases in severe weather events, more needs to be done to protect vulnerable individuals and communities from drowning during flooding. Community education, particularly around driving through flood waters, and improved early warning systems will be critical to reduce drowning deaths.

Older people

Drowning in older age groups is of particular concern. Reflecting the aging Australian population, the drowning rate among 65 to 74 years decreased by 7%, however the number of drowning deaths increased by 58%.

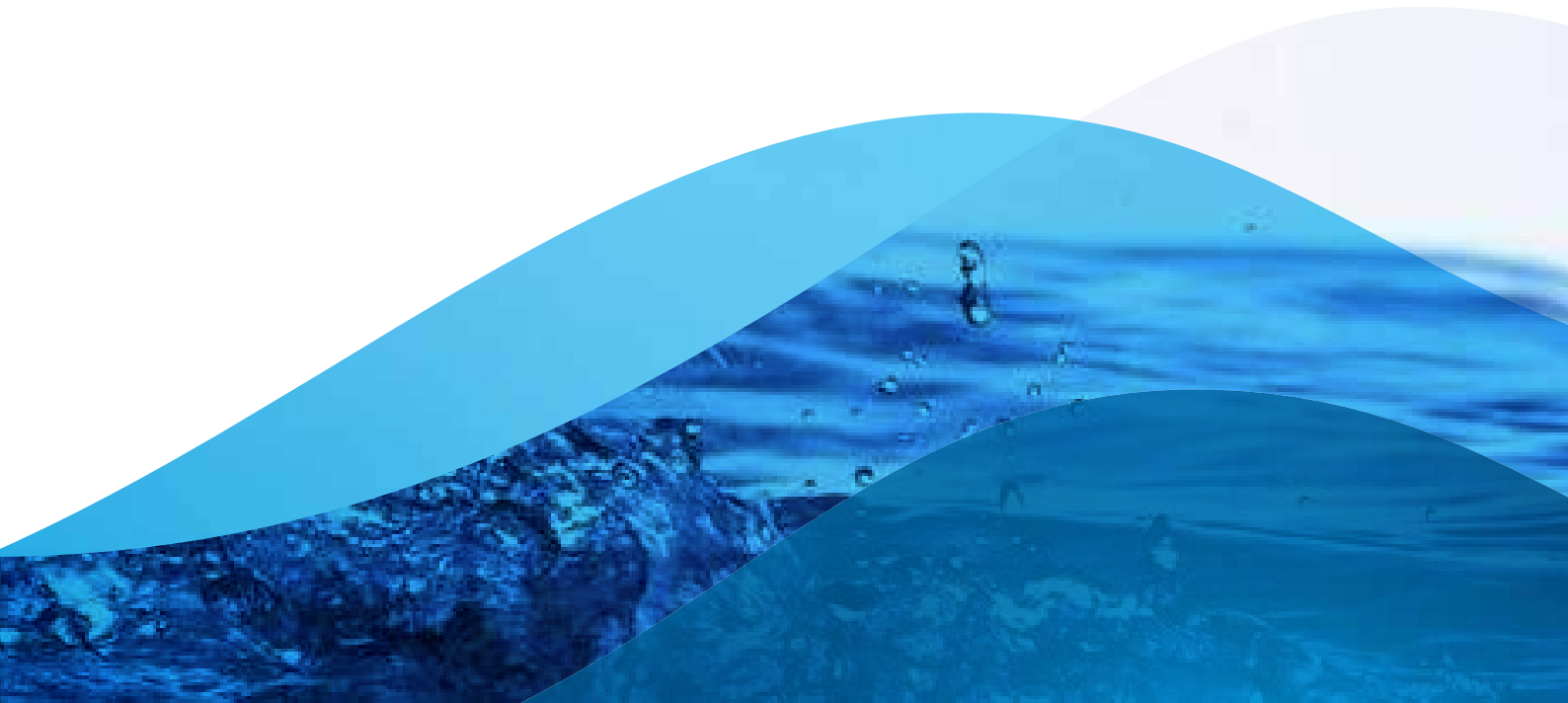
This growth in the number of fatal drowning incidents represents an emerging challenge for drowning prevention. These results reinforce the need for more prioritised interventions, and commitment to greater funding of awareness campaigns, particularly around the risks posed by swimming while using some pharmaceutical medications and swimming alone, or in unsupervised areas.

Non-fatal drowning

Perhaps of most concern is the projected rise in non-fatal drowning incidents, up by 32%. While first aid and CPR can be effective in drowning incidents, the best prevention of impairment, significant disability or death is prevention of a drowning incident in the first instance.

We acknowledge all those who are grieving the loss of a loved one due to drowning, or who are caring for those who survive a drowning incident but are left with significant impairments.

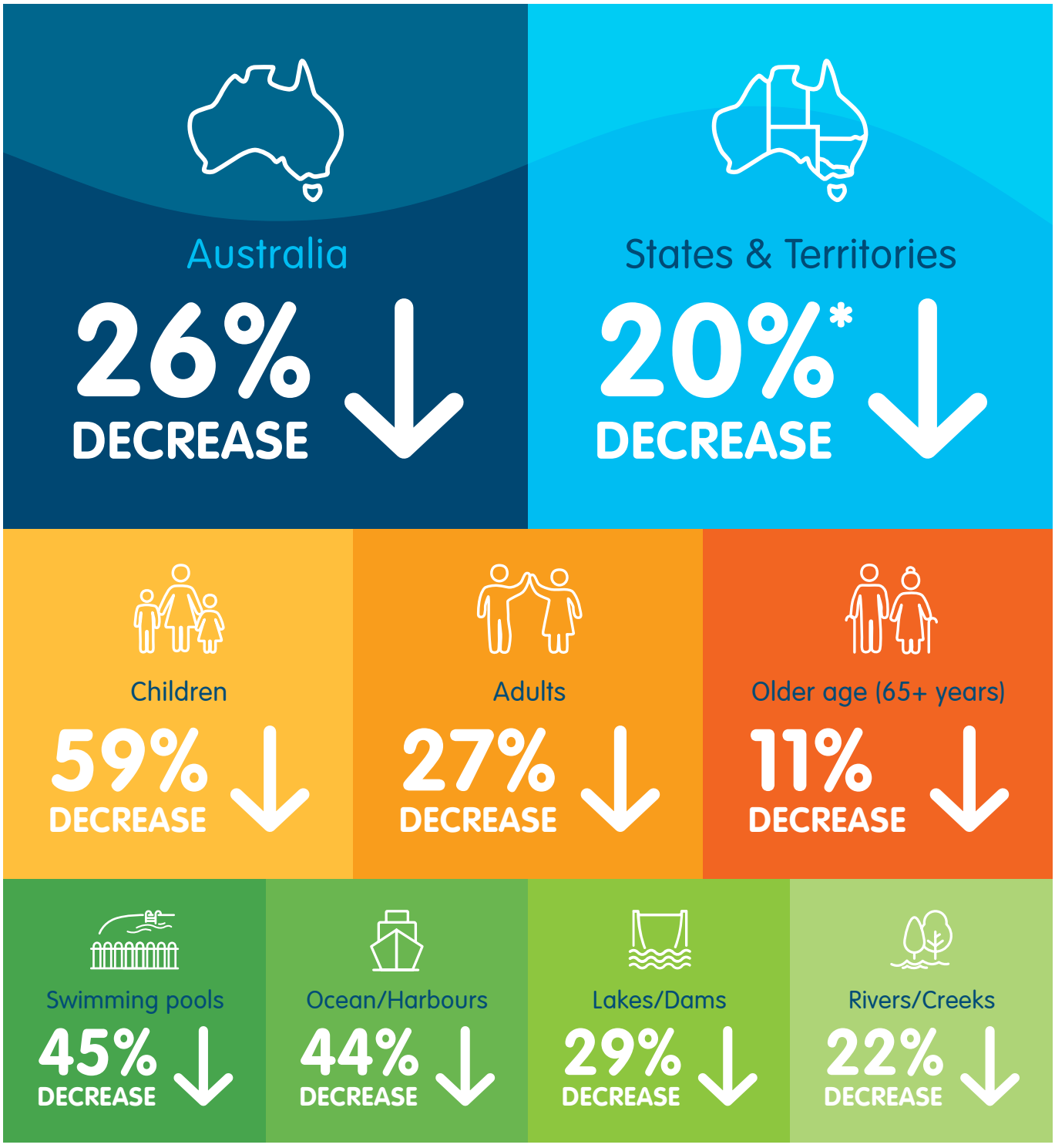
Royal Life Saving acknowledges and thanks our partners, particularly the National Coronial Information System team who have worked tirelessly over the past two decades to ensure the data is of the highest quality.



PROGRESS OVER THE 20 YEAR PERIOD

Over the 20-year period, there has been some encouraging progress in reducing the drowning rate across all Australian states and territories. The biggest gains were in the 0-4 age group, which recorded a substantial decrease in drowning deaths. Changes to the population size and in key demographics, climate change, ongoing effects of the COVID-19 pandemic and increased use of waterways for recreation are all significant headwinds which must be countered if we are to maintain the progress made over the past two decades.

DROWNING RATE IN



* All States and Territories had atleast a 20% decrease in drowning rate.

CHALLENGES OVER THE 20 YEAR PERIOD

Males still drown more frequently than females; representing over 70 per cent of drowning cases each year

The biggest gap between the genders occurs in the 25-34 year age group, where 87 per cent of all drowning deaths were males

Reducing drowning in this group of young men is a priority

While there has been progress in reducing the number of **children** who drown each year, drowning deaths are still unacceptably high and a reduction in swimming and water safety lessons due to COVID-19 lockdowns is expected to have flow on effects in future years

Older age groups (65 years+) had an increase in the number of drowning events by 43 per cent when comparing baseline years

70 per cent of those who drowned in these age groups had a pre-exisiting medical condition

Reducing **beach** drowning rates has been a major challenge

The beach is a hazardous and dynamic environment, a changing climate and growing population has made keeping people safe even more difficult

Contributing Factors

Population growth

- Since 2002 the Australian population has grown by 34 per cent; reaching more than 26 million in 2022[2]

Aging population

- One in every six Australians was over the age of 65 years (4.2 million); representing 16 per cent of the Australian population
- Pre-exisiting medical conditions are common among the older age groups, requiring surveillance when taking part in aquatic activities
- Projections show that older people will make up 23 per cent of the Australian population by 2066[4]

Population diversity

- Net migration has increased by 250 per cent, reaching 395,000 migrant arrivals since 2002, despite a decline during the COVID-19 pandemic[5]
- Swimming ability and experience are not always known when drowning deaths are reported. Many migrants have never swum before coming to Australia and are unfamiliar with water safety, swimming and lifesaving

Environmental impacts

- Extreme weather events, including flooding, are rising in frequency and severity across the world due to climate change. The most recent significant flooding occurred across Australia in 2021/22[6]

COVID-19 pandemic

- 10 million swimming classes were cancelled due to the COVID-19 pandemic lockdowns[7]
- Two years of swimming and water safety education was missed for children, with a disproportinate effect on children who relied on primary school-based classes for fundamental water safety skills

Increase use of water spaces

- When COVID-19 lockdowns lifted, there was a rebound in visitor numbers increasing the risk of drowning
- Ongoing shortages of qualified lifeguards and swimming and water safety are a critical challenge

CHANGE OVER TIME BY LOCATION

Age group		Overall (age groups)				Beach				Lake / Dam			
		Number		Drowning rate		Number		Drowning rate		Number		Drowning rate	
0-4	Avg 02/07	37	↓ 51%	2.87	↓ 59%	n.p.	No change	n.p.	No change	3	No change	0.23	↓ 13%
	Avg 17/22	18		1.17						3		0.20	
5-9	Avg 02/07	9	↓ 33%	0.68	↓ 46%	n.p.	↓ 100%	0.08	↓ 100%	n.p.	No change	0.08	↓ 25%
	Avg 17/22	6		0.37				n.p.				0.06	
10-14	Avg 02/07	6	↓ 17%	0.43	↓ 28%	n.p.	↓ 100%	0.07	↓ 100%	n.p.	↓ 100%	0.07	↓ 100%
	Avg 17/22	5		0.31				n.p.				n.p.	
15-17	Avg 02/07	5	↑ 20%	060	↑ 13%	n.p.	No change	0.12	↓ 8%	n.p.	No change	0.12	↓ 8%
	Avg 17/22	6		0.68				0.11				0.11	
18-24	Avg 02/07	29	↓ 3%	1.47	↓ 17%	6	No change	0.30	↓ 13%	n.p.	No change	0.10	↓ 10%
	Avg 17/22	28		1.22		6		0.26				0.09	
25-34	Avg 02/07	43	↓ 27%	1.50	↓ 27%	9	↑ 11%	0.31	↓ 13%	3	↑ 33%	0.10	↑ 10%
	Avg 17/22	41		1.09		10		0.27		4		0.11	
35-44	Avg 02/07	40	↓ 8%	1.33	↓ 20%	7	↑ 43%	0.23	↑ 26%	3	↑ 33%	0.10	↑ 10%
	Avg 17/22	37		1.07		10		0.29		4		0.12	
45-54	Avg 02/07	44	↓ 23%	1.58	↓ 34%	6	↑ 50%	0.22	↑ 27%	6	↓ 50%	0.22	↓ 59%
	Avg 17/22	34		1.05		9		0.28		3		0.09	
55-64	Avg 02/07	34	No change	1.57	↓ 27%	7	↑ 14%	0.32	↓ 16%	4	↓ 75%	0.19	↓ 84%
	Avg 17/22	34		1.14		8		0.27		n.p.		0.03	
65-74	Avg 02/07	24	↑ 58%	1.74	↓ 7%	4	↑ 100%	0.29	↑ 17%	3	No change	0.22	↓ 41%
	Avg 17/22	38		1.62		8		0.34		3		0.13	
75+	Avg 02/07	22	↑ 27%	1.78	↓ 14%	4	↑ 50%	0.32	↑ 3%	2	↑ 50%	0.16	No change
	Avg 17/22	28		1.53		6		0.33		3		0.16	
Total	Avg 02/07	293	↓ 6%	1.45	↓ 24%	46	↑ 26%	0.23	No change	29	↓ 14%	0.14	↓ 29%
	Avg 17/22	275		1.10		58		0.23		25		0.10	

GREEN – reduction on track
BLUE – no change
RED – increase or slower progress
n.p. = not presenting due to low cell count

Table 1: Incidence change in fatal unintentional drowning by age group and top five drowning locations between 2002/07 baseline and 2017/22 baseline.

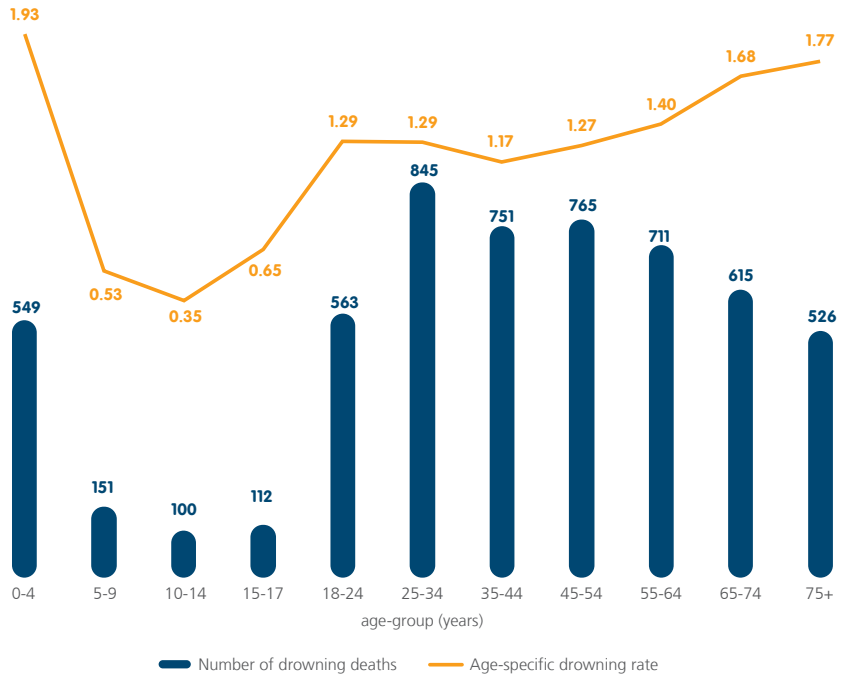
Please note that some percentage increases or reductions are affected by rounding of rates. Please also note the rates do not take exposure into account and represent rates per 100,000 population only.

Age group		Ocean / Harbour				River / Creek				Swimming pool			
		Number		Drowning rate		Number		Drowning rate		Number		Drowning rate	
0-4	Avg 02/07	n.p.	No change	n.p.	No change	4	↓ 75%	0.31	↓ 77%	19	↓ 53%	1.47	↓ 60%
	Avg 17/22					n.p.		0.07		9		0.57	
5-9	Avg 02/07	n.p.	No change	0.08	↓ 25%	3	↓ 33%	0.23	↓ 48%	2	No change	0.15	↓ 20%
	Avg 17/22			0.06		2		0.12		2		0.12	
10-14	Avg 02/07	n.p.	No change	n.p.	No change	3	↓ 67%	0.22	↓ 73%	n.p.	No change	0.07	↓ 14%
	Avg 17/22					n.p.		0.06				0.06	
15-17	Avg 02/07	n.p.	No change	n.p.	No change	2	No change	0.24	↓ 4%	n.p.	No change	n.p.	No change
	Avg 17/22					2		0.23					
18-24	Avg 02/07	4	↓ 25%	0.20	↓ 35%	9	No change	0.46	↓ 15%	3	↓ 33%	0.15	↓ 40%
	Avg 17/22	3		0.13		9		0.39		2		0.09	
25-34	Avg 02/07	9	↓ 22%	0.31	↓ 39%	12	↑ 8%	0.42	↓ 17%	3	↓ 33%	0.10	↓ 50%
	Avg 17/22	7		0.19		13		0.35		2		0.05	
35-44	Avg 02/07	9	↓ 44%	0.30	↓ 53%	12	↓ 17%	0.40	↓ 28%	3	↓ 33%	0.10	↓ 40%
	Avg 17/22	5		0.14		10		0.29		2		0.06	
45-54	Avg 02/07	10	↓ 60%	0.36	↓ 67%	11	↓ 9%	0.40	↓ 23%	3	↓ 67%	0.11	↓ 73%
	Avg 17/22	4		0.12		10		0.31		n.p.		0.03	
55-64	Avg 02/07	9	↓ 33%	0.42	↓ 52%	8	↑ 13%	0.37	↓ 19%	n.p.	↑ 100%	0.05	↑ 40%
	Avg 17/22	6		0.20		9		0.30		2		0.07	
65-74	Avg 02/07	7	↓ 14%	0.51	↓ 33%	5	↑ 60%	0.36	↓ 6%	4	↓ 25%	0.29	↓ 55%
	Avg 17/22	8		0.34		8		0.34		3		0.13	
75+	Avg 02/07	2	↑ 50%	0.16	No change	6	↑ 33%	0.49	↓ 10%	5	↓ 20%	0.40	↓ 45%
	Avg 17/22	3		0.16		8		0.44		4		0.22	
Total	Avg 02/07	51	↓ 27%	0.25	↓ 44%	75	↓ 3%	0.37	↓ 22%	44	↓ 36%	0.22	↓ 45%
	Avg 17/22	37		0.14		73		0.29		28		0.12	

NATIONAL DROWNING 20 YEAR REPORT SNAPSHOT

5,692 people drowned in Australian waterways
between 2002/03 to 2021/22

Number of drowning deaths by age group and age-specific rates per 100,000 over the 20-year period



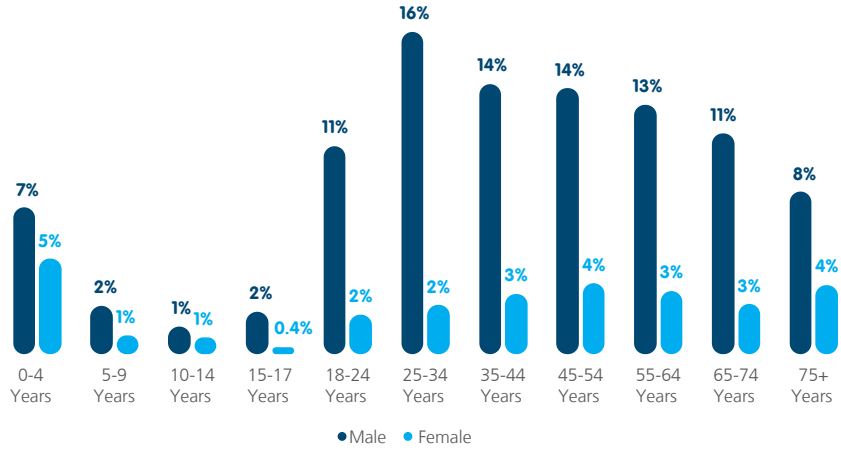
Top 3 age groups

15% 25-34 years

13% 35-44 years

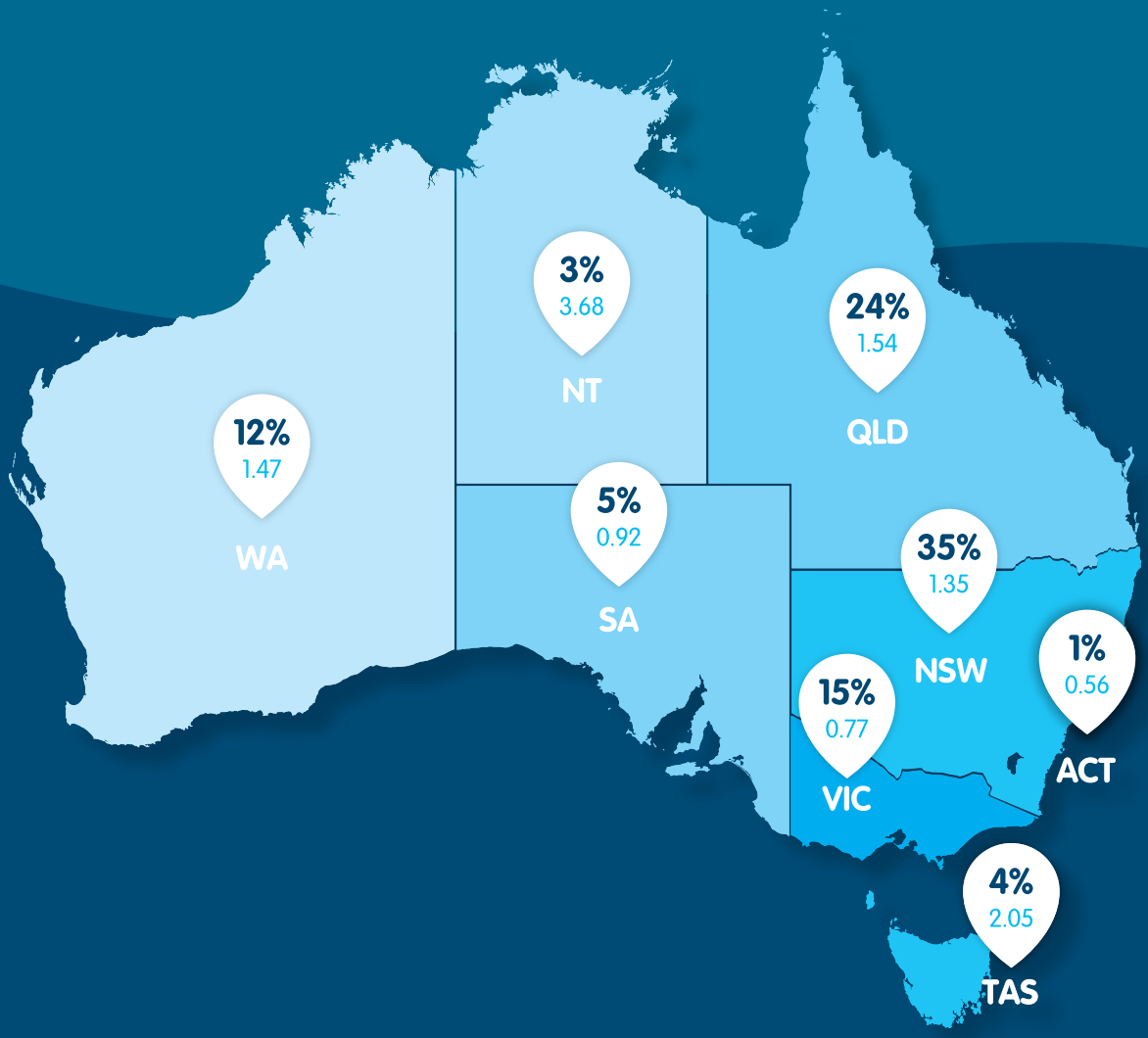
13% 45-54 years

Sex and age breakdown



79%
of all drowning deaths were males

State and Territory breakdown



Top 3 locations

26%
River/Creek

18%
Beach

16%
Ocean/Harbour

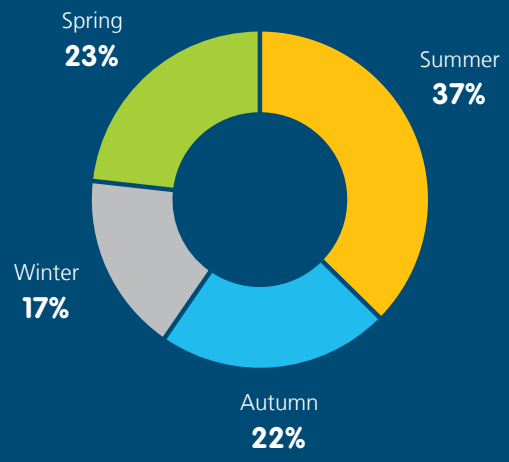
Top 3 activities

23%
Swimming & Recreating

19%
Fall

13%
Boating

Season

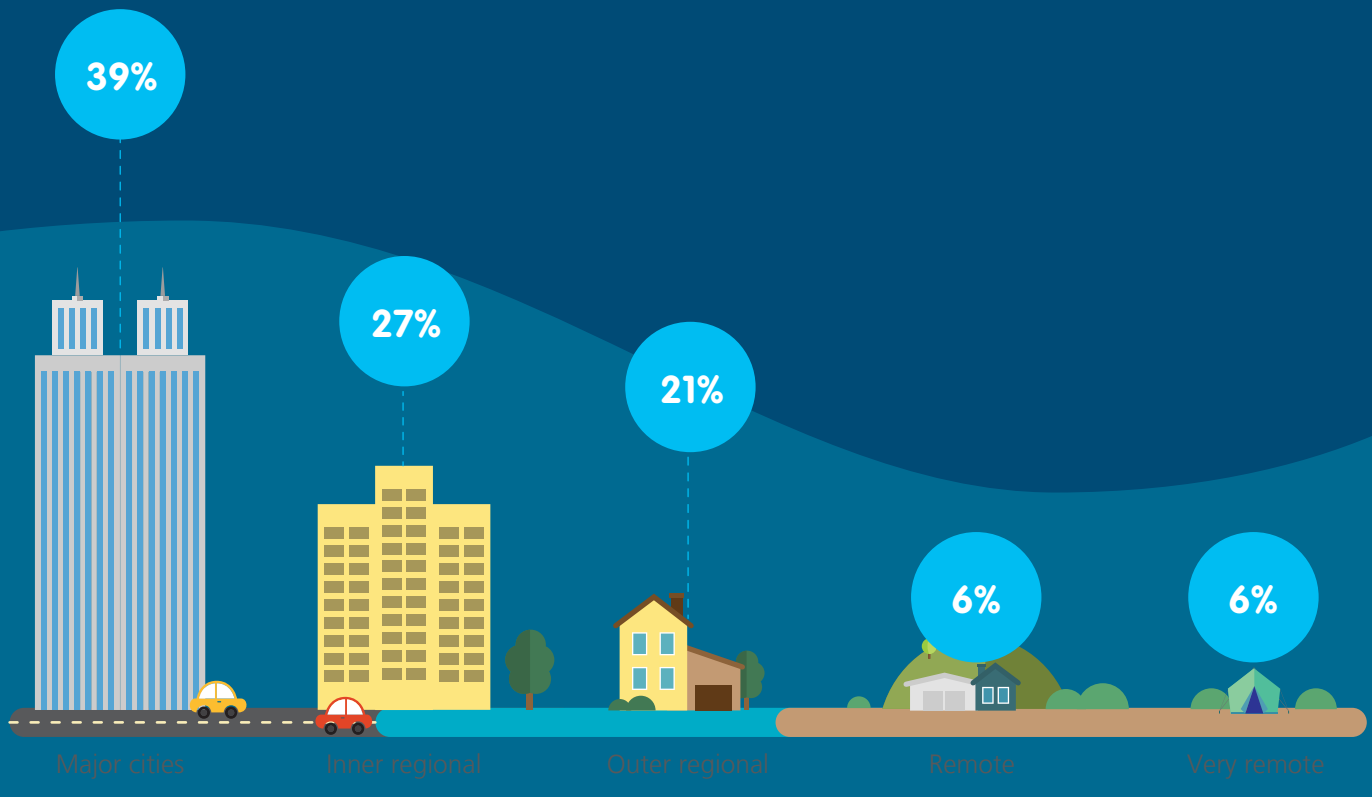


54%
were born in Australia

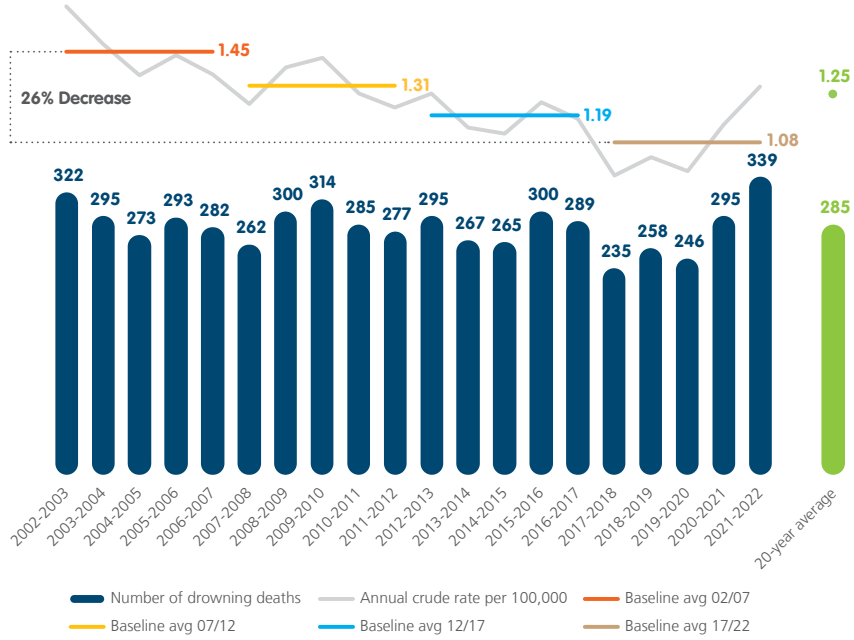
Visitor Status

67%	Not a visitor
6%	Visitor – Overseas
6%	Visitor – Interstate
13%	Visitor – Intrastate
8%	Unknown

Remoteness of drowning location



Unintentional drowning deaths and death rates per 100,000 population from 2002/03 to 2021/22 and the 20-year average



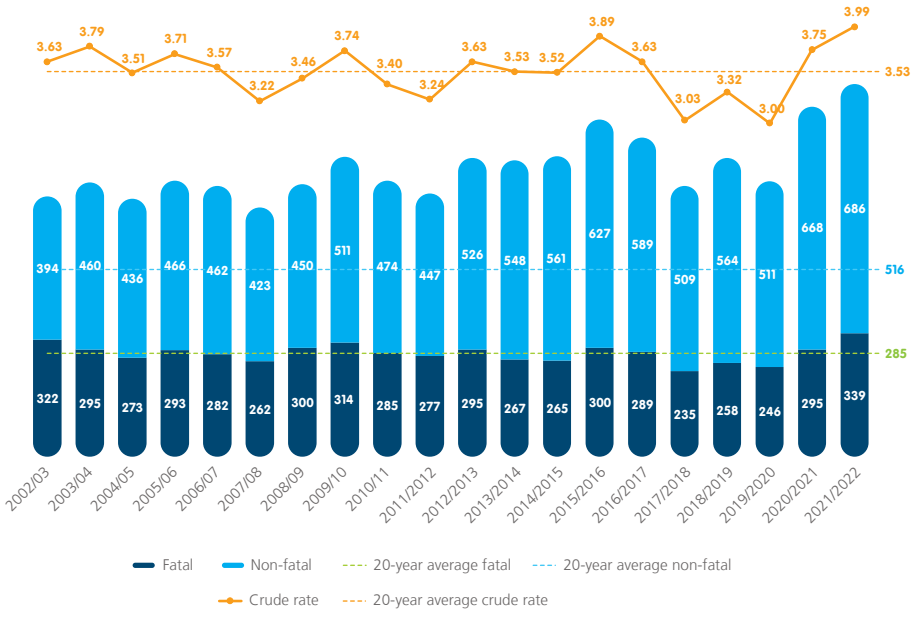
20-year average drowning deaths = **285**

20-year average crude rate = **1.25 per 100,000 population**

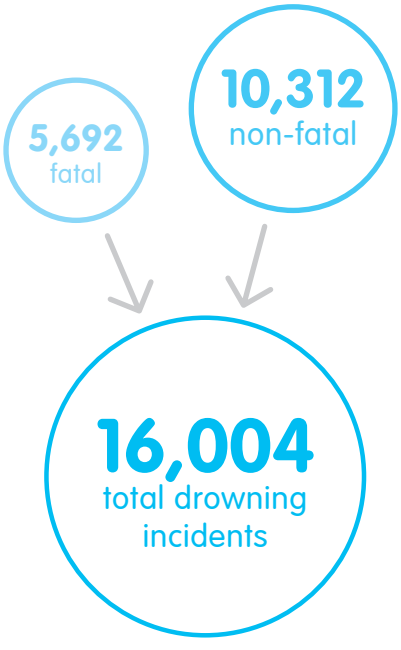
This showed a **26% decrease** in drowning rate between the 2002/07 baseline and the 2017/22 baseline

There was a **6% decrease** in number of drowning deaths between the 2002/07 baseline and the 2017/22 baseline

Comparison of fatal and non-fatal incidents and crude rate of drowning incidents from 2002/03 to 2021/22 and the 20-year average



Over 16,000 drowning incidents occurred in Australia, representing a 20-year average crude drowning rate of **3.53 drowning incidents per 100,000 population**



DROWNING DEATHS BY LIFE STAGES: **CHILDREN AGED 0-4 YEARS**

549
children aged 0-4 years drowned in Australia from 2002/03 to 2021/22

There was a **59%** **decrease** in drowning rates between 2002/07 and 2017/22

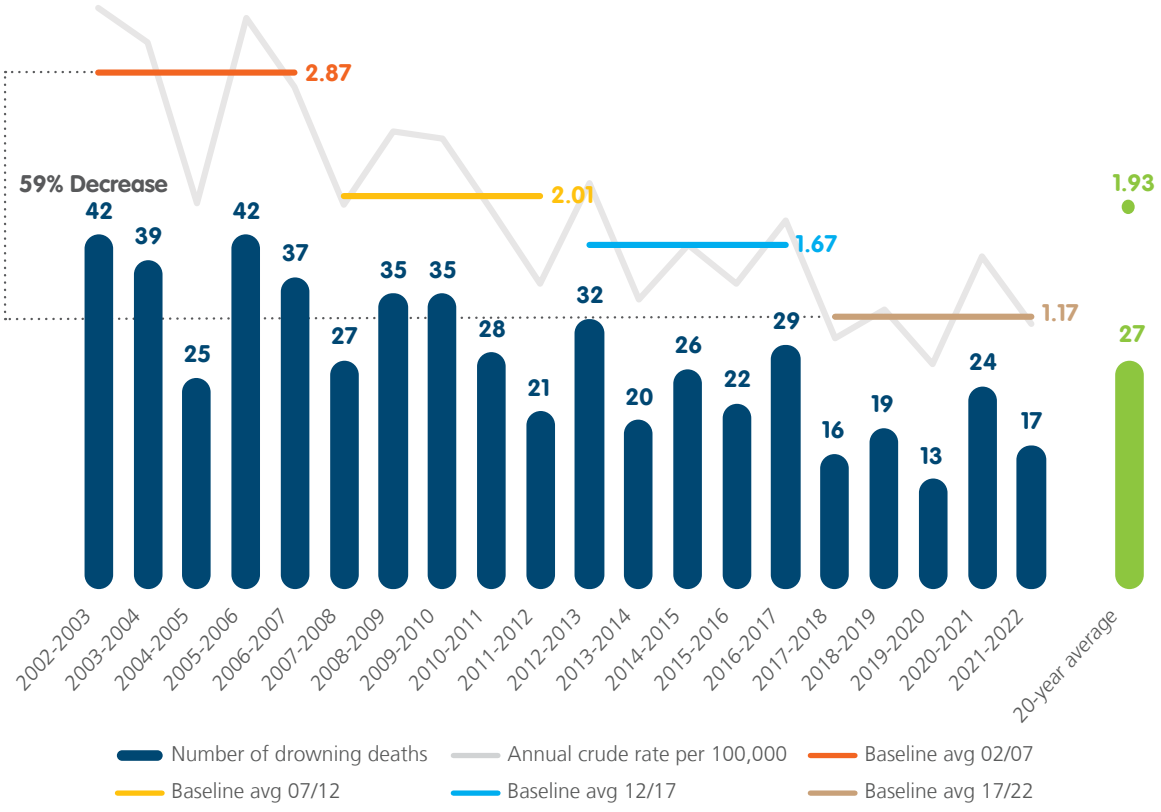
There was a **51%** **decrease** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **1.93** **drowning incidents** per 100,000

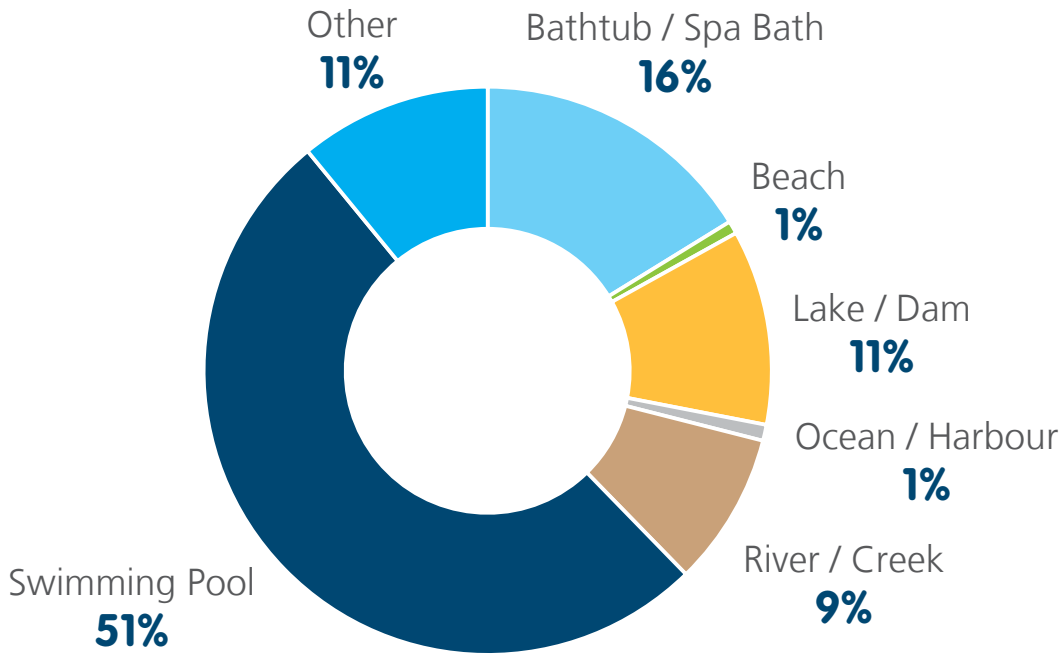
60% decrease
in drowning rates for swimming pools

77% decrease
in drowning rates for rivers/creeks

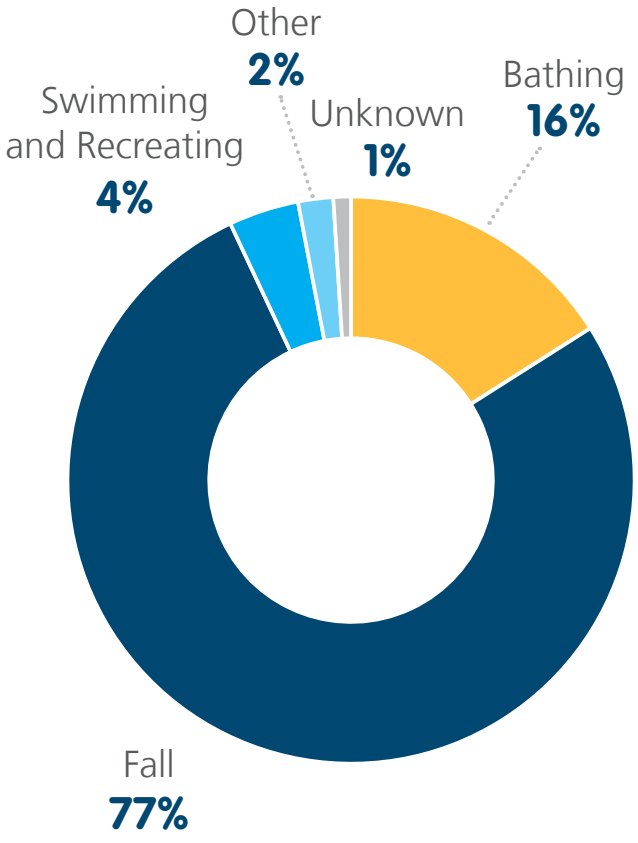
Drowning deaths and rates per 100,000 population, people aged 0-4 years (2002/03 to 2021/22) and the 20-year average



Drowning deaths of children aged 0-4 years by location



Drowning deaths of children aged 0-4 years by activity



DROWNING DEATHS BY LIFE STAGES: **CHILDREN AGED 5-14 YEARS**

251
children aged 5-14 years drowned in Australia from 2002/03 to 2021/22

There was a **38%** **decrease** in drowning rates between 2002/07 and 2017/22

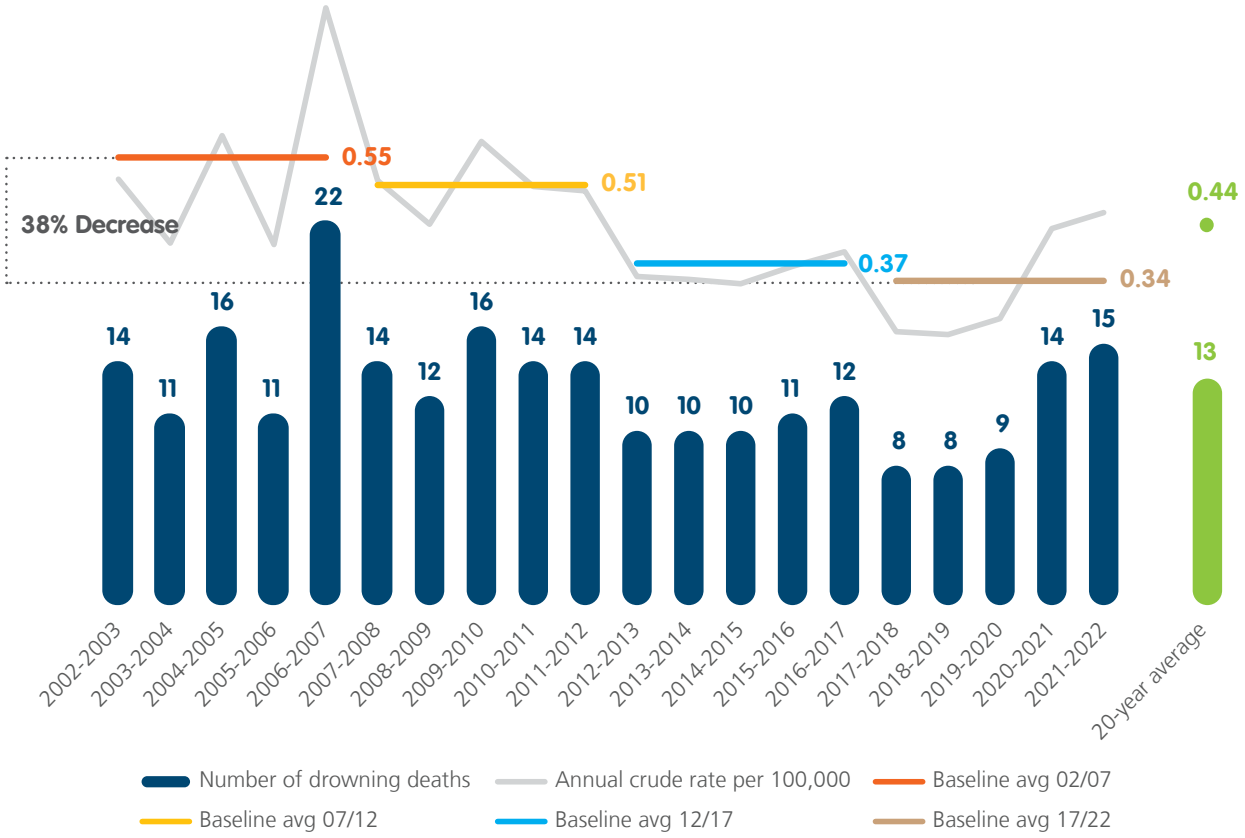
There was a **27%** **decrease** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **0.44** **drowning incidents** per 100,000

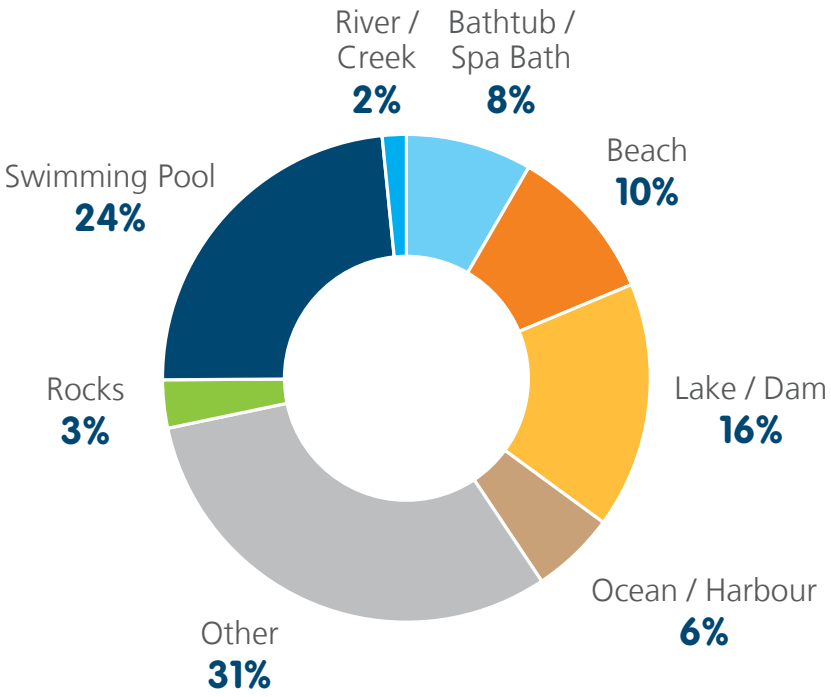
25% decrease
in drowning rates for swimming pools

48% decrease
in drowning rates for rivers/creeks

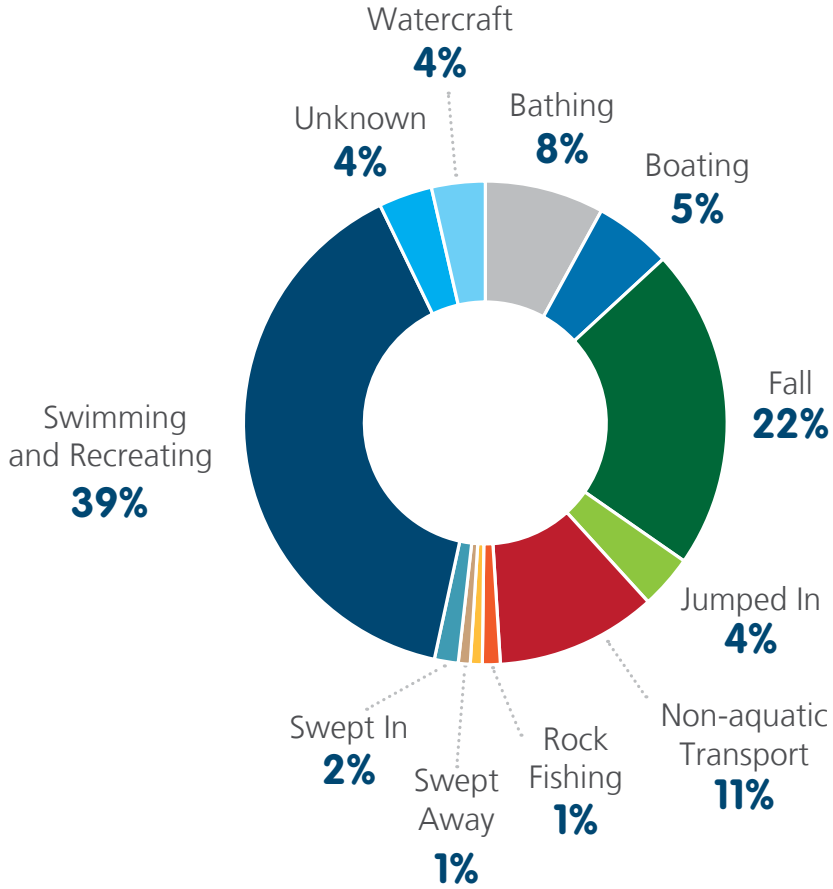
Drowning deaths and rates per 100,000 population, people aged 5-14 years (2002/03 to 2021/22) and the 20-year average



Drowning deaths of children aged 5-14 years by location



Drowning deaths of children aged 5-14 years by activity



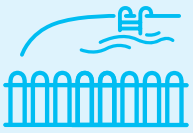
DROWNING DEATHS BY LIFE STAGES: **YOUNG PEOPLE AGED 15-24 YEARS**

675
young people aged 15-24 years drowned in Australia from 2002/03 to 2021/22

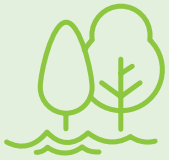
There was a **7%** **decrease** in drowning rates between 2002/07 and 2017/22

There was **no change** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **1.11** **drowning incidents** per 100,000

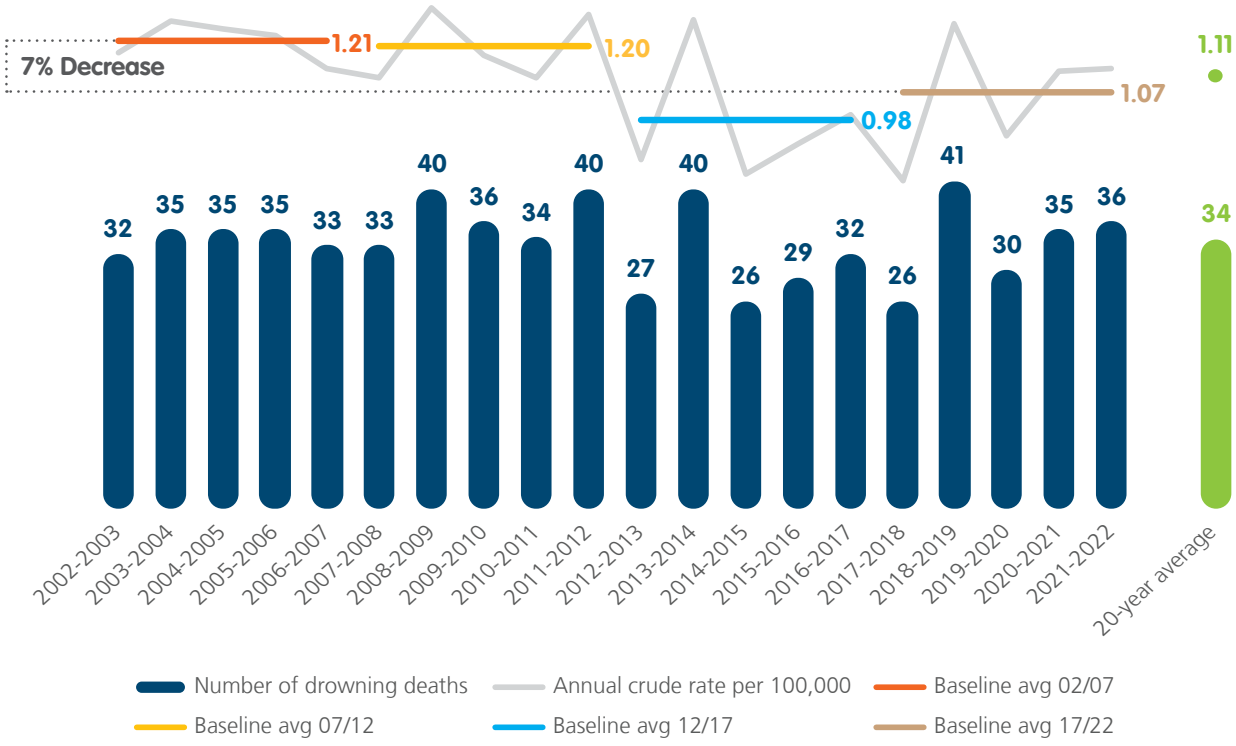


45% decrease
in drowning rates for swimming pools

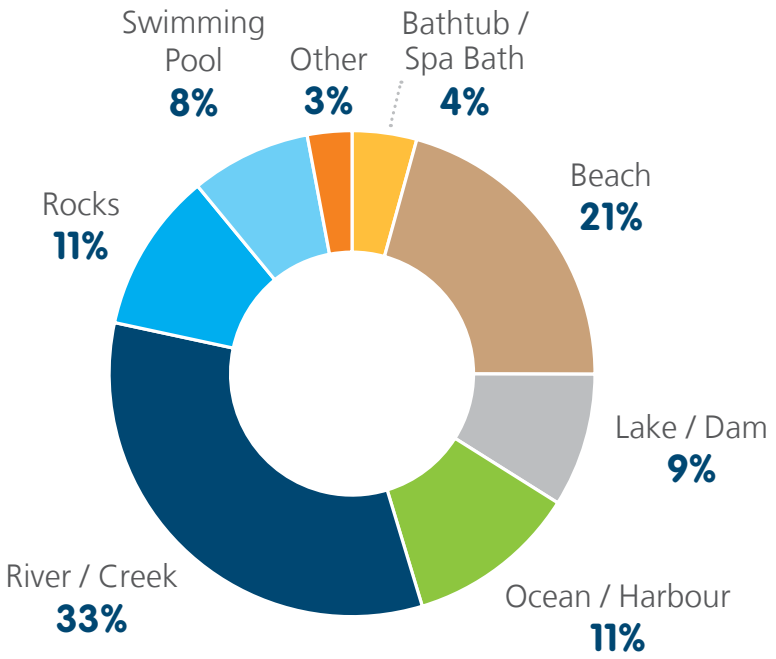


11% decrease
in drowning rates for rivers/creeks

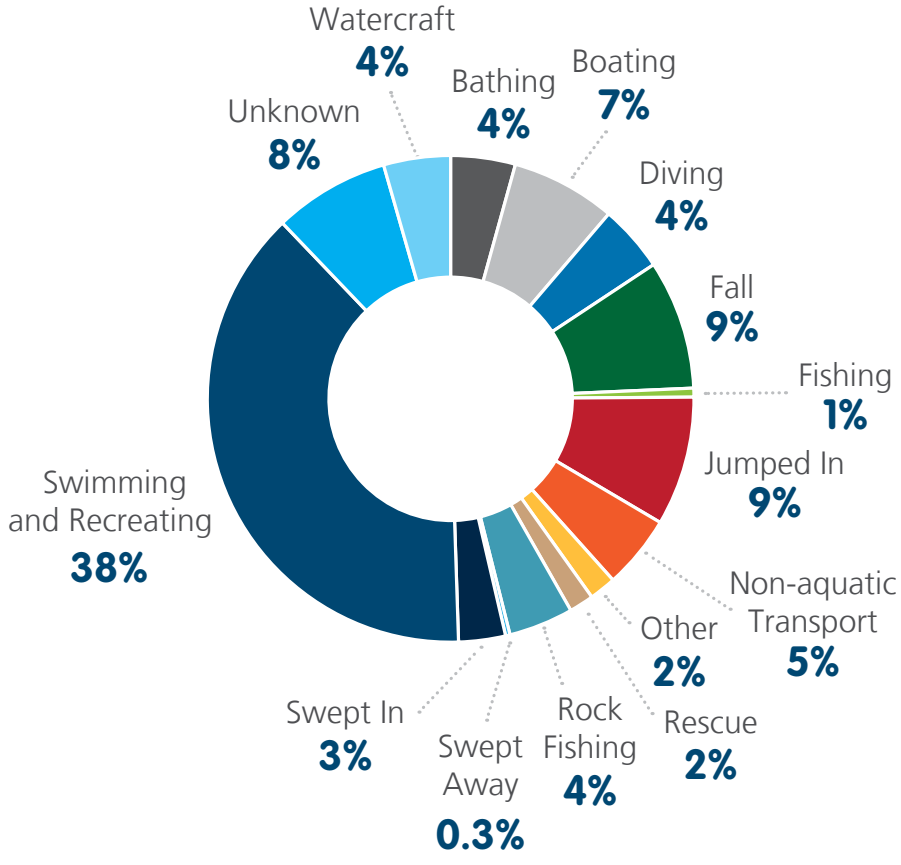
Drowning deaths and rates per 100,000 population, people aged 15-24 years (2002/03 to 2021/22) and the 20-year average



Drowning deaths of young people aged 15-24 years by location



Drowning deaths of young people aged 15-24 years by activity



DROWNING DEATHS BY LIFE STAGES: **PEOPLE AGED 25-64 YEARS**

3,072 people aged 25-64 years drowned in Australia from 2002/03 to 2021/22

There was a **27%** **decrease** in drowning rates between 2002/07 and 2017/22

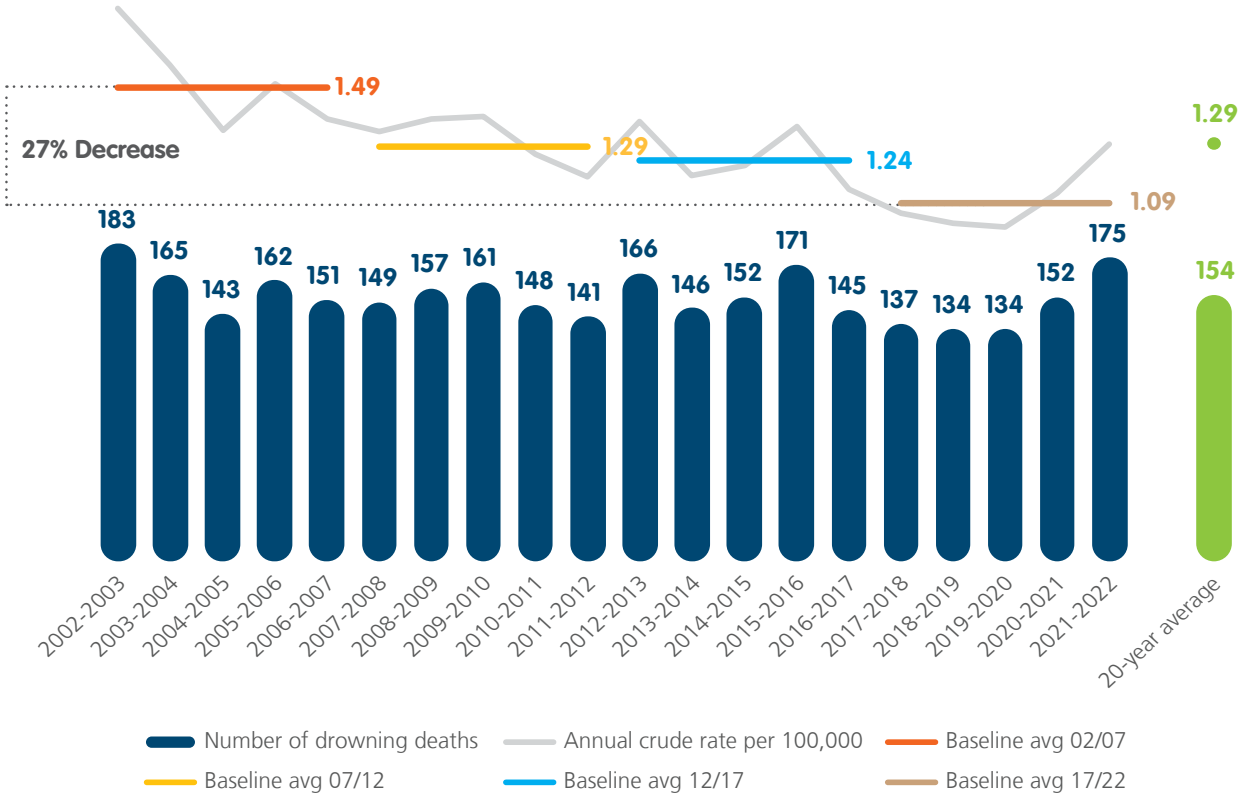
There was a **9%** **decrease** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **1.29** **drowning incidents** per 100,000

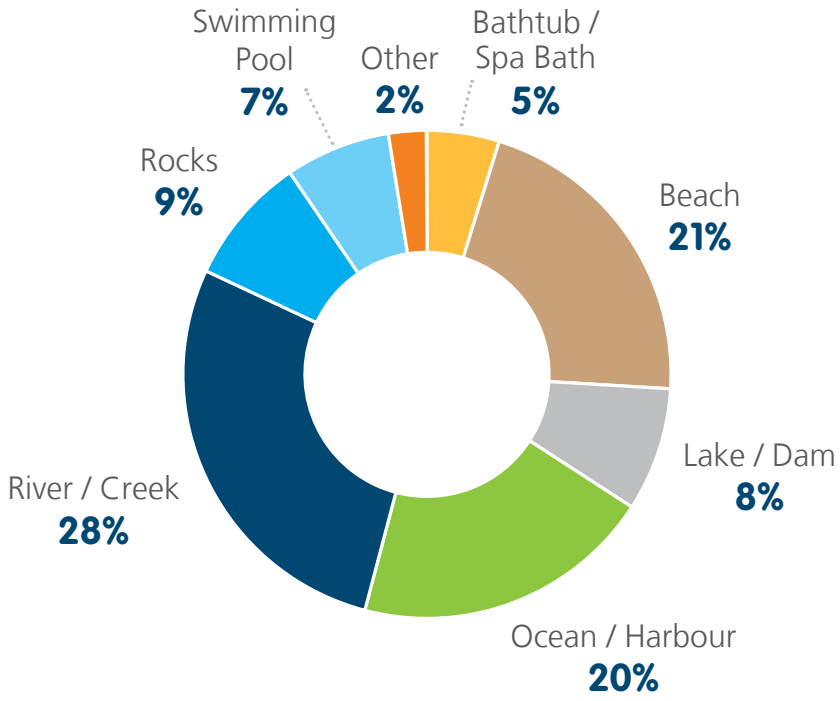
15% decrease in drowning rates for swimming pools

22% decrease in drowning rates for rivers/creeks

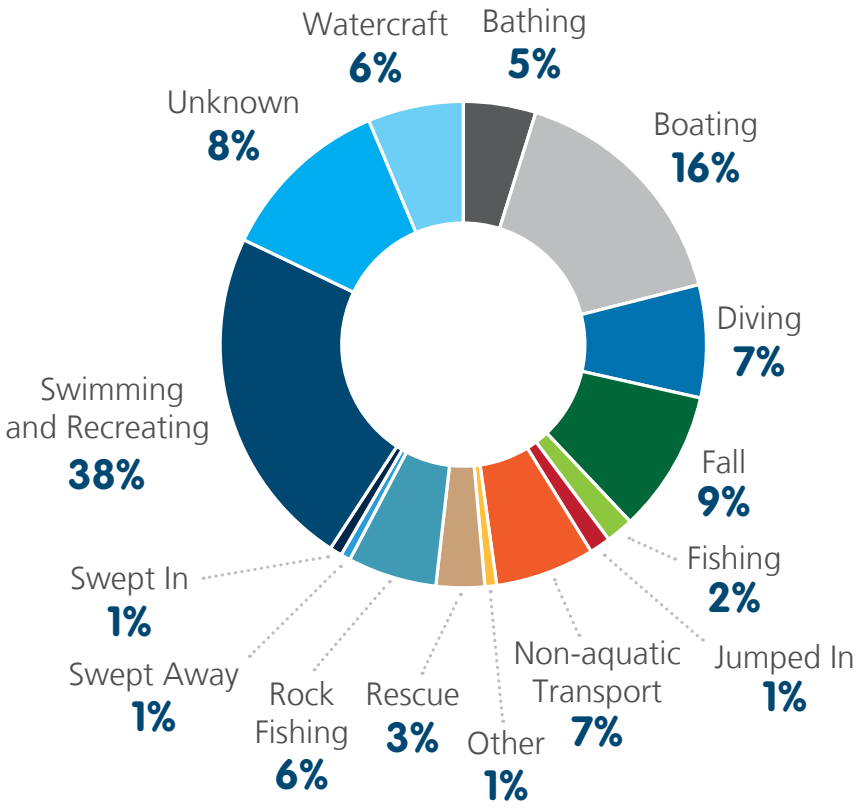
Drowning deaths and rates per 100,000 population, people aged 25-64 years (2002/03 to 2021/22) and the 20-year average



Drowning deaths of people aged 25-64 years by location



Drowning deaths of people aged 25-64 years by activity



DROWNING DEATHS BY LIFE STAGES: **PEOPLE AGED 65 YEARS AND OVER**

1,142 people aged 65 years and over drowned in Australia from 2002/03 to 2021/22

There was a **11%** **decrease** in drowning rates between 2002/07 and 2017/22

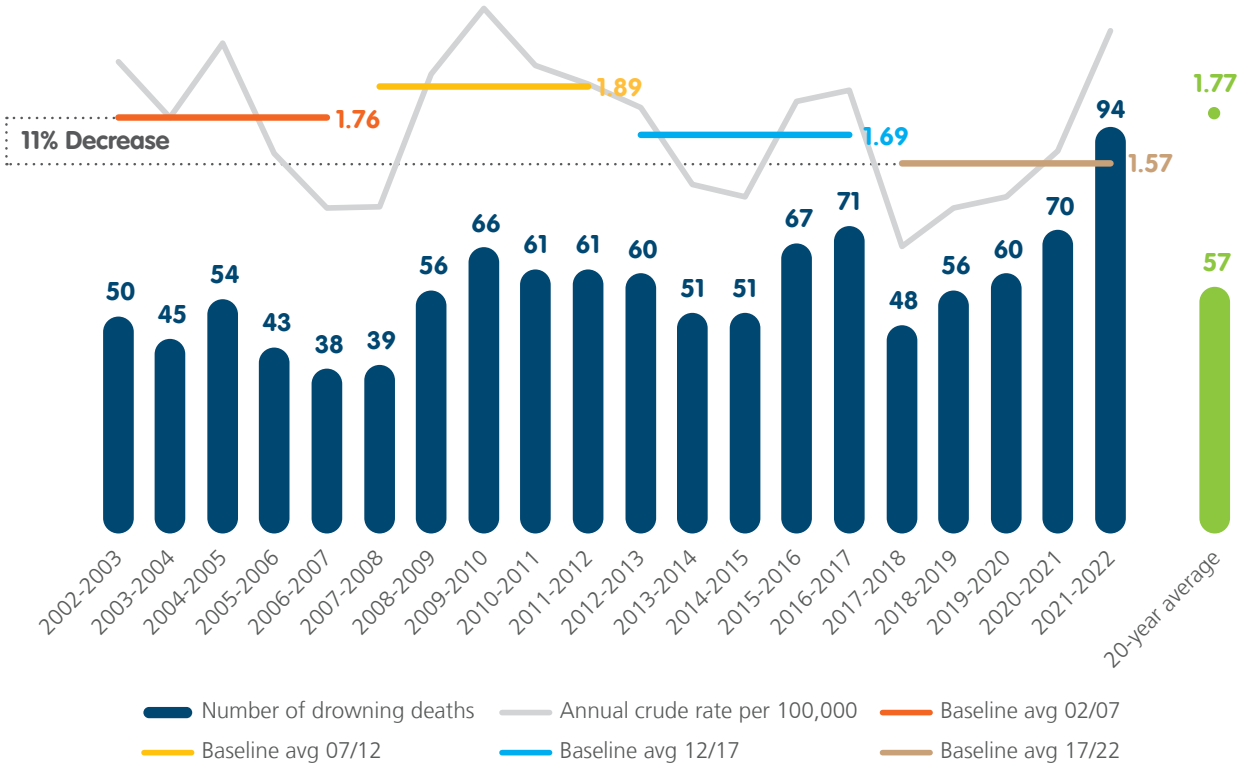
There was a **43%** **increase** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **1.77** **drowning incidents** per 100,000

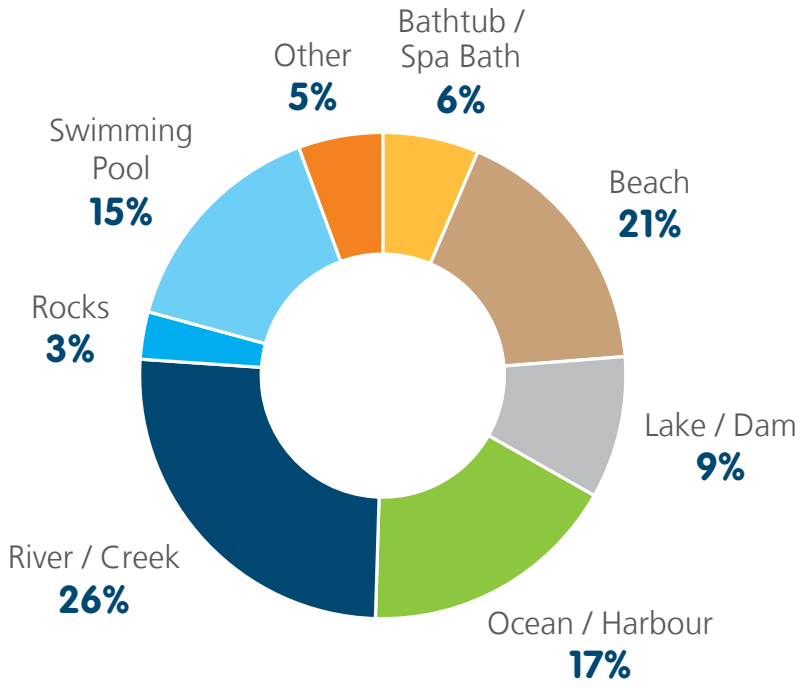
48% decrease
in drowning rates for swimming pools

9% decrease
in drowning rates for rivers/creeks

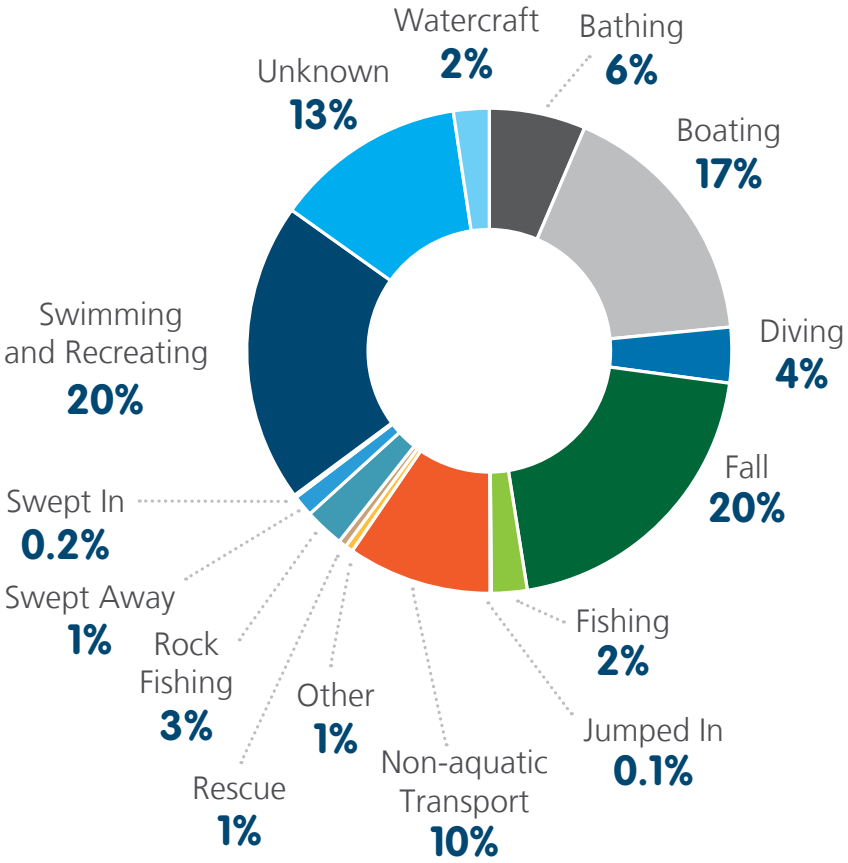
Drowning deaths and rates per 100,000 population, people aged 65 years and over (2002/03 to 2021/22) and the 20-year average



Drowning deaths of people aged 65 years and over by location



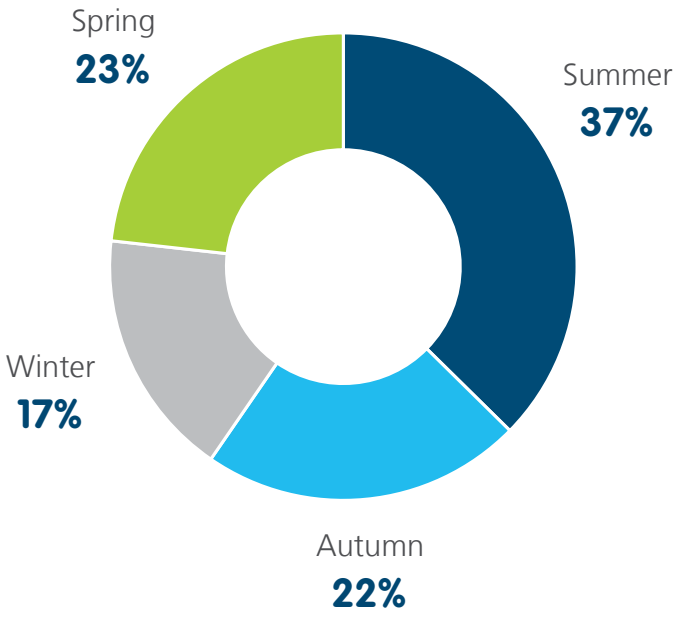
Drowning deaths of people aged 65 years and over by activity



WHEN DO DROWNING DEATHS OCCUR?

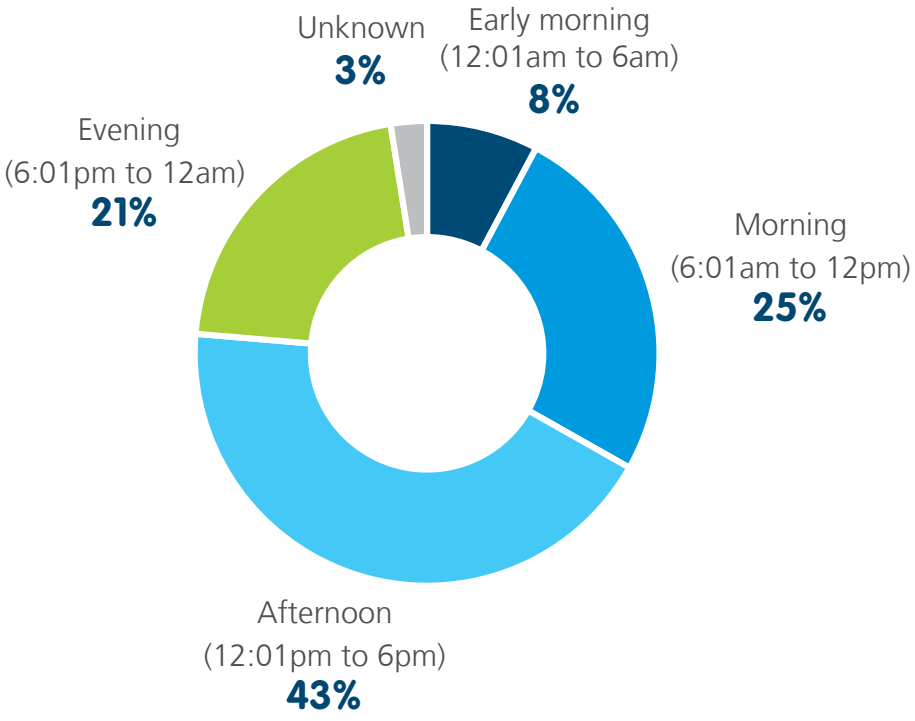
Season

Drowning deaths occur in all seasons, with the largest proportion occurring in the summer months (37%)



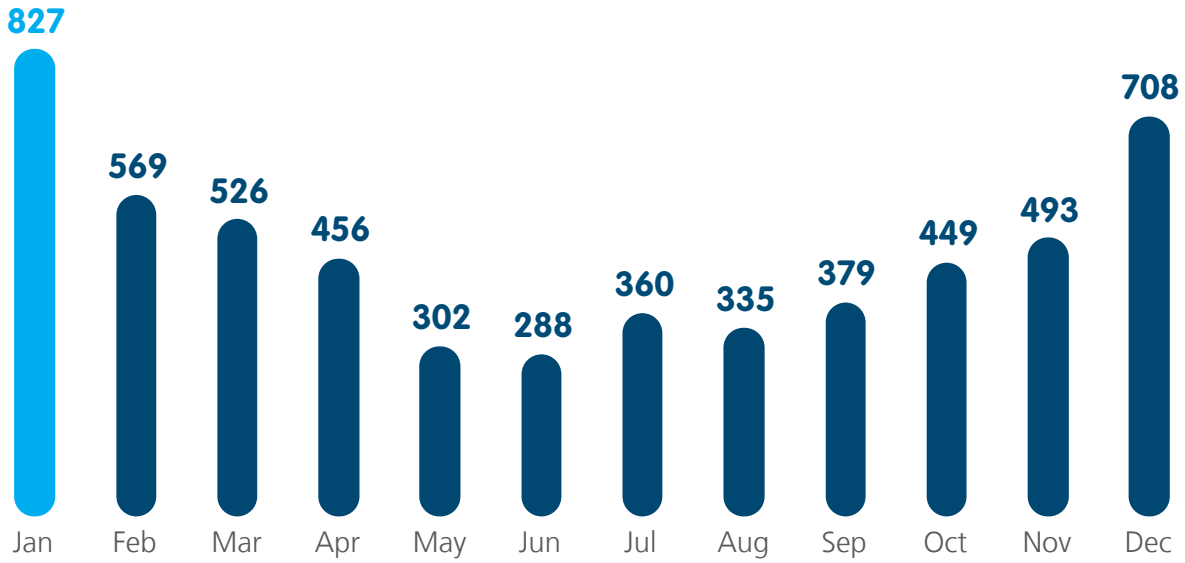
Time of the day

The majority (43%) of all drowning deaths in the 20-year period took place in the afternoon.



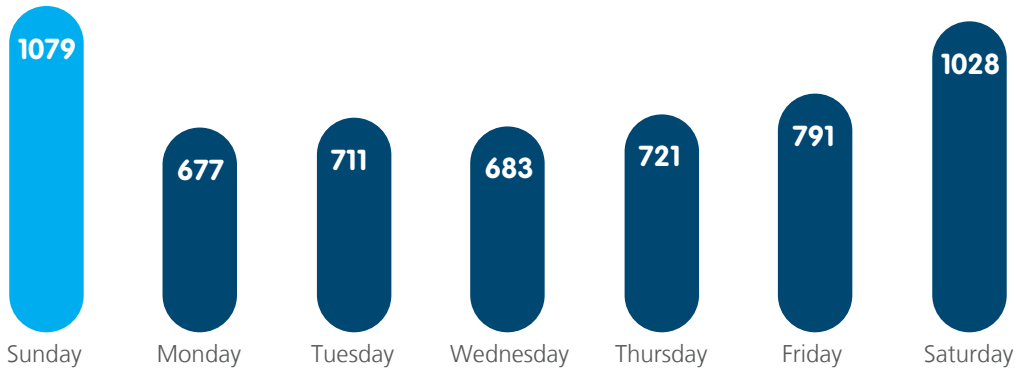
Month

By month, fatal drowning peaked in January with 827 deaths, followed by December with 706 drowning deaths.



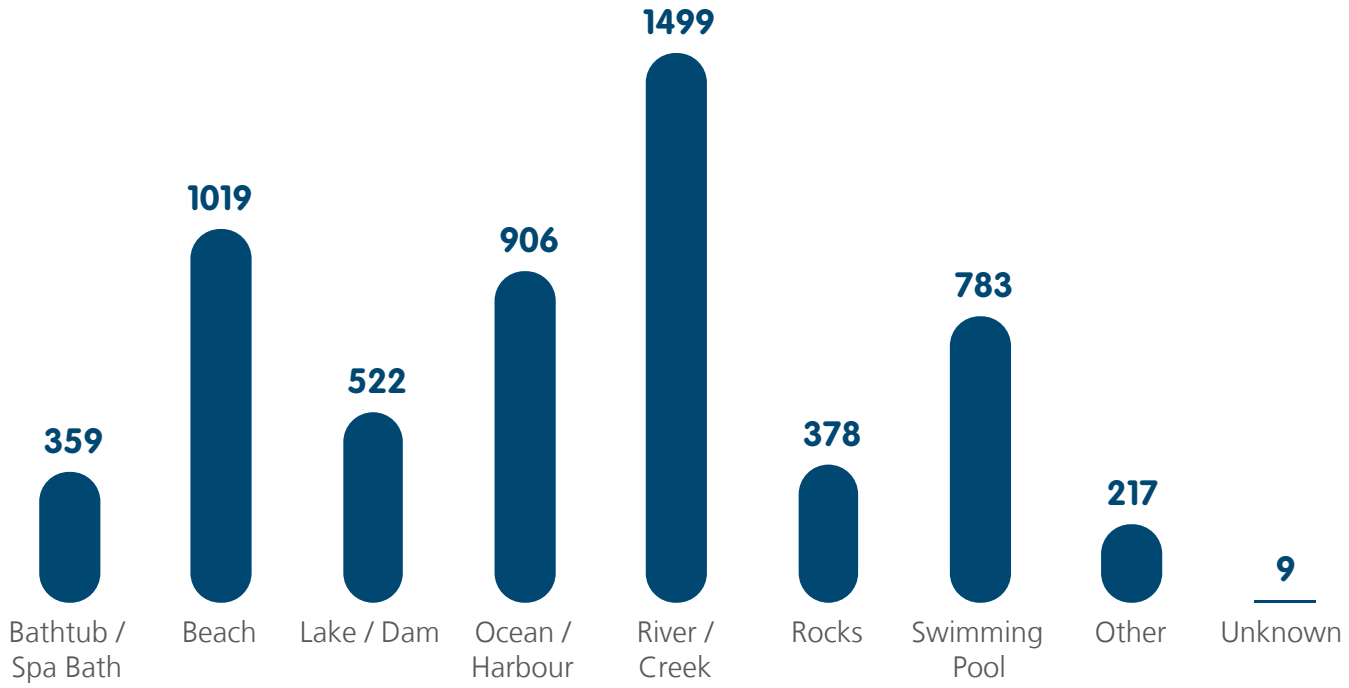
Day of the week

Sunday continues to be the most common day of the week for fatal drowning, accounting for 19% of all deaths; 30% of which was a public holiday.



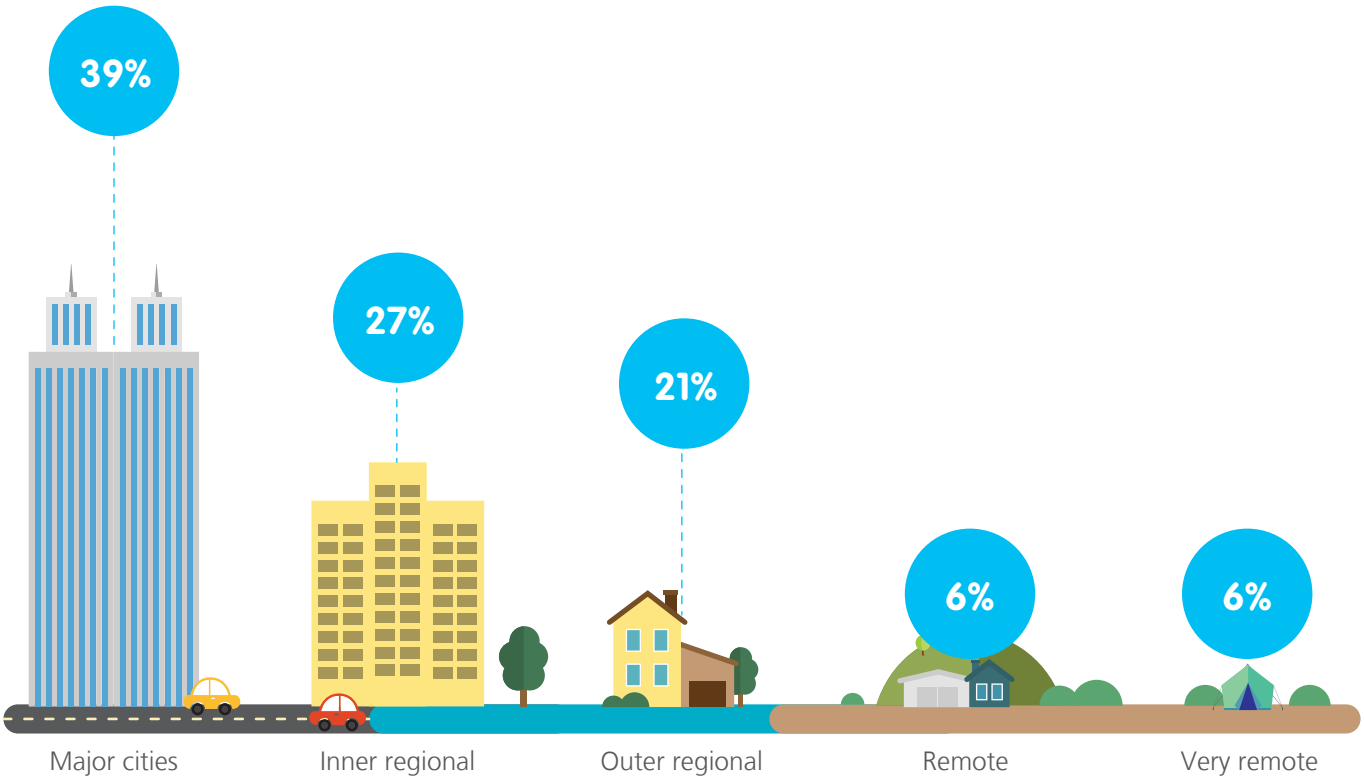
Location

Rivers, creeks and streams continue to be the location with the largest number of drowning deaths, accounting for 26% of all drowning deaths in the 20-year period.



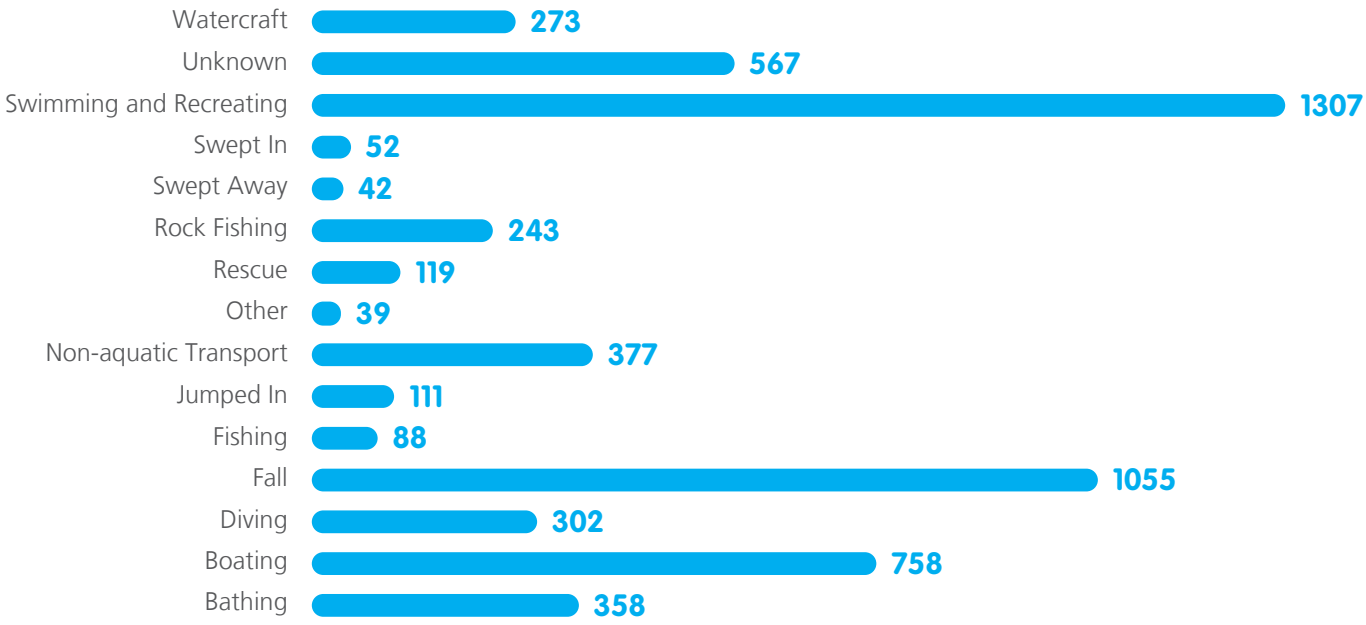
Remoteness

The largest proportion of drowning deaths occurred in areas classified as major cities (39%), with the number of deaths decreasing as remoteness increases.



Activity

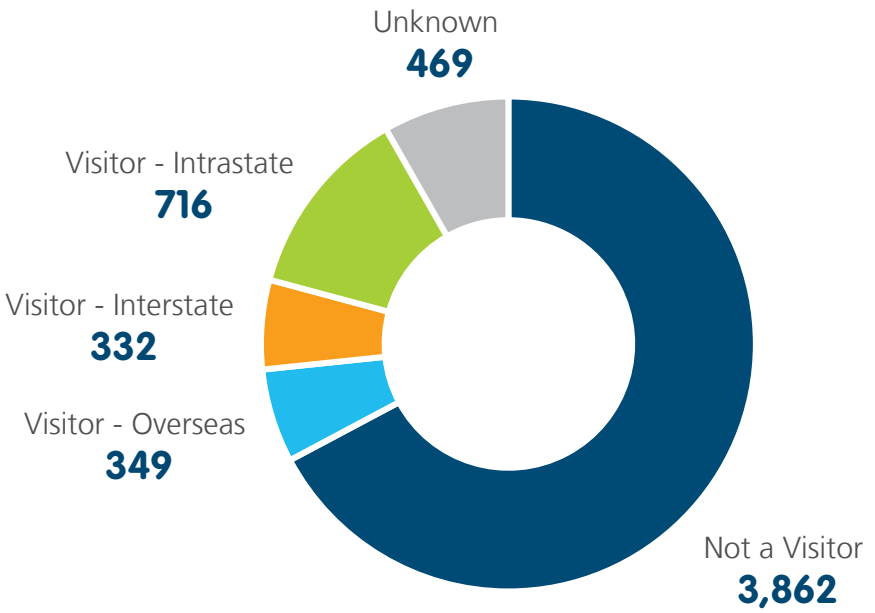
Swimming and recreating was the leading activity being undertaken immediately prior to drowning (23%), followed by a fall into water (19%).



Visitor status

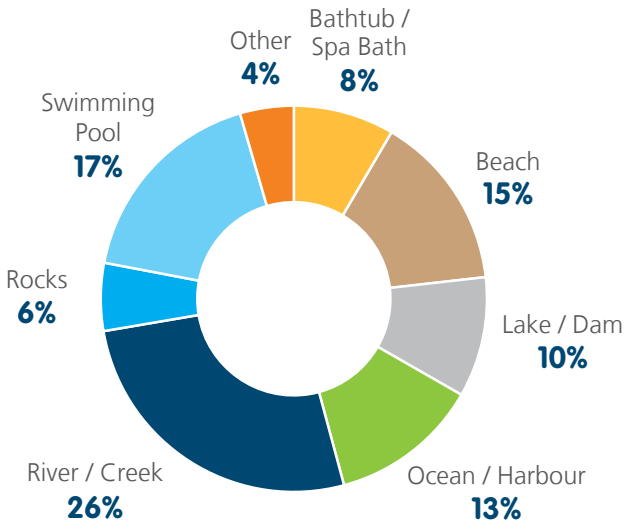
Most of those who drowned (67%) were not visitors, that is, they drowned within 100km of where they lived. In 1397 cases (25%) the person who drowned was known to be a visitor to the location where they drowned. Visitors were commonly male (84%) and most commonly aged 25-34 years (21%).

Of those who were known to be visitors, 716 people drowned within their own State or Territory in a postcode that was 100km or further from their residential postcode. A further 332 people were visiting a different State or Territory when they drowned. 349 people who drowned were overseas tourists, predominately from Europe, Asia, and North America.

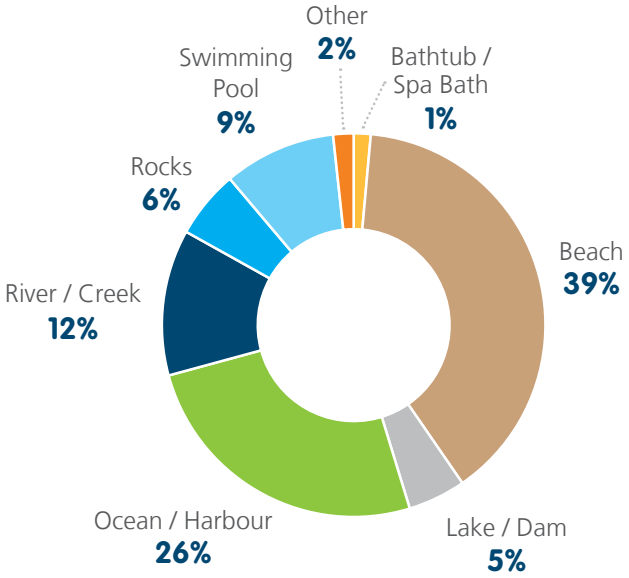


Location of drowning in visitors

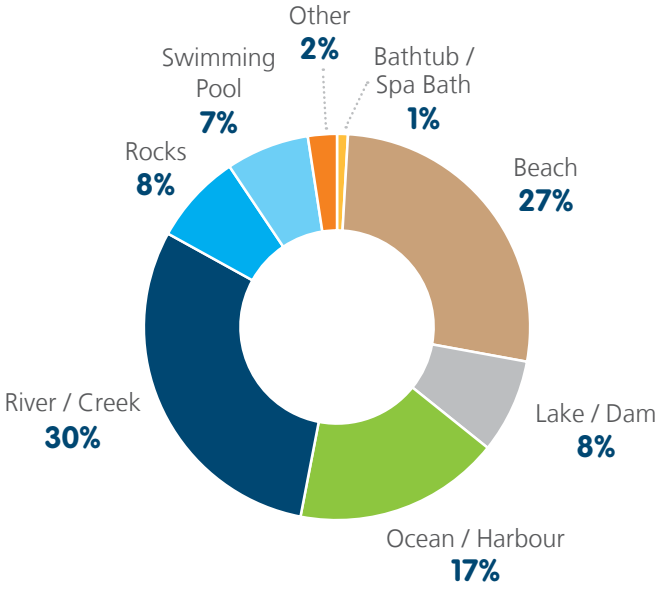
Not a Visitor



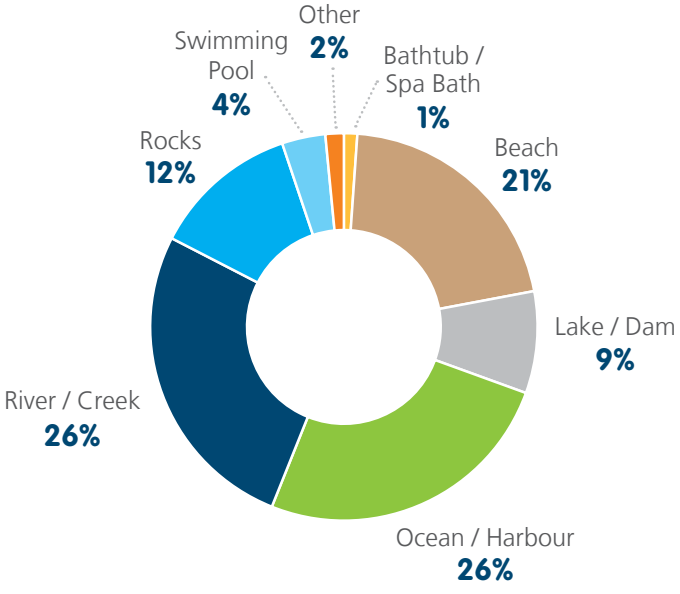
Visitor - Overseas



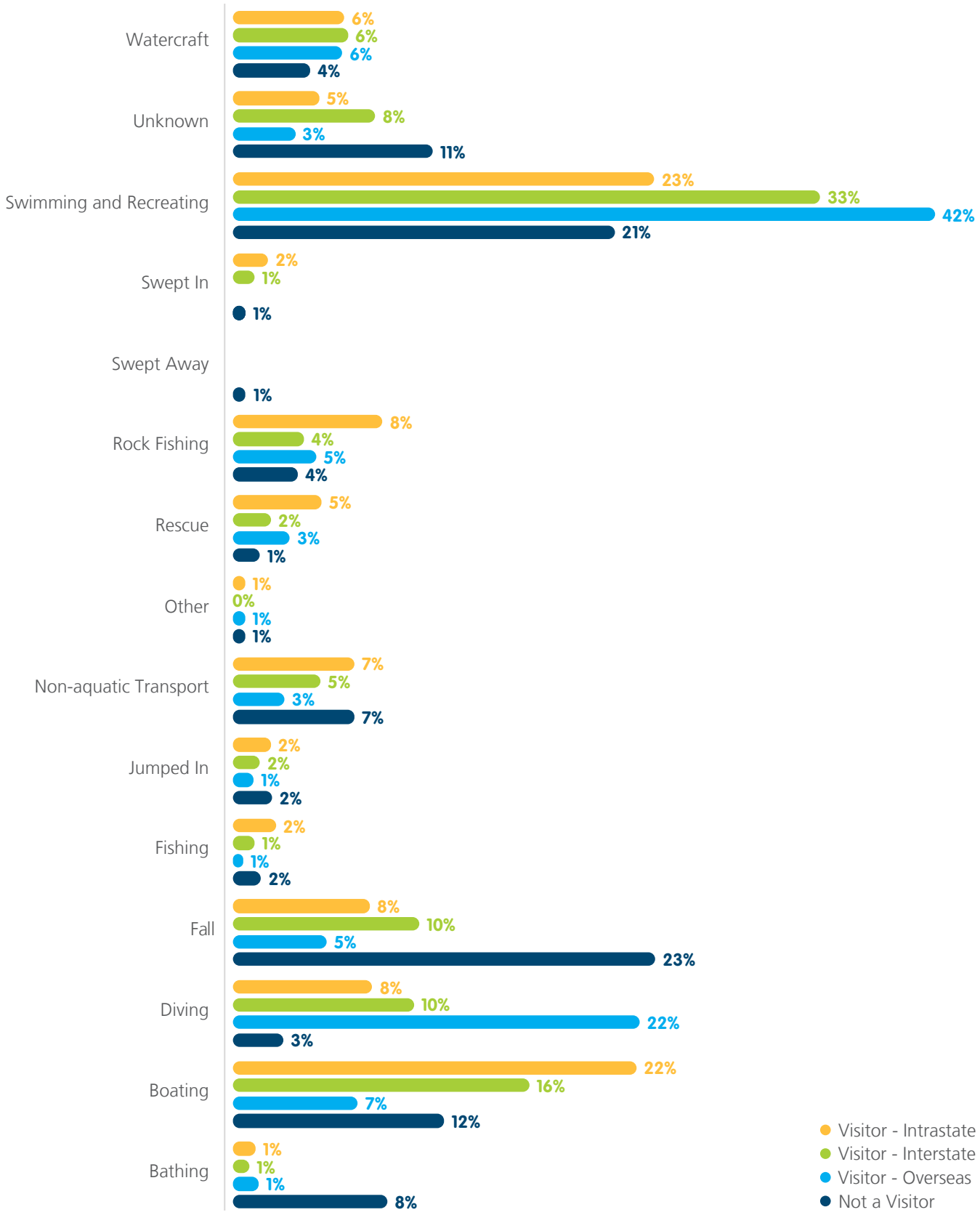
Visitor - Interstate



Visitor - Intrastate



Activity prior to drowning in visitors



DROWNING DEATHS BY KEY LOCATIONS: **RIVER/CREEK**

1,499 drowning deaths occurred at rivers/creeks over the 20-year period

There was a **22%** **decrease** in drowning rates between 2002/07 and 2017/22

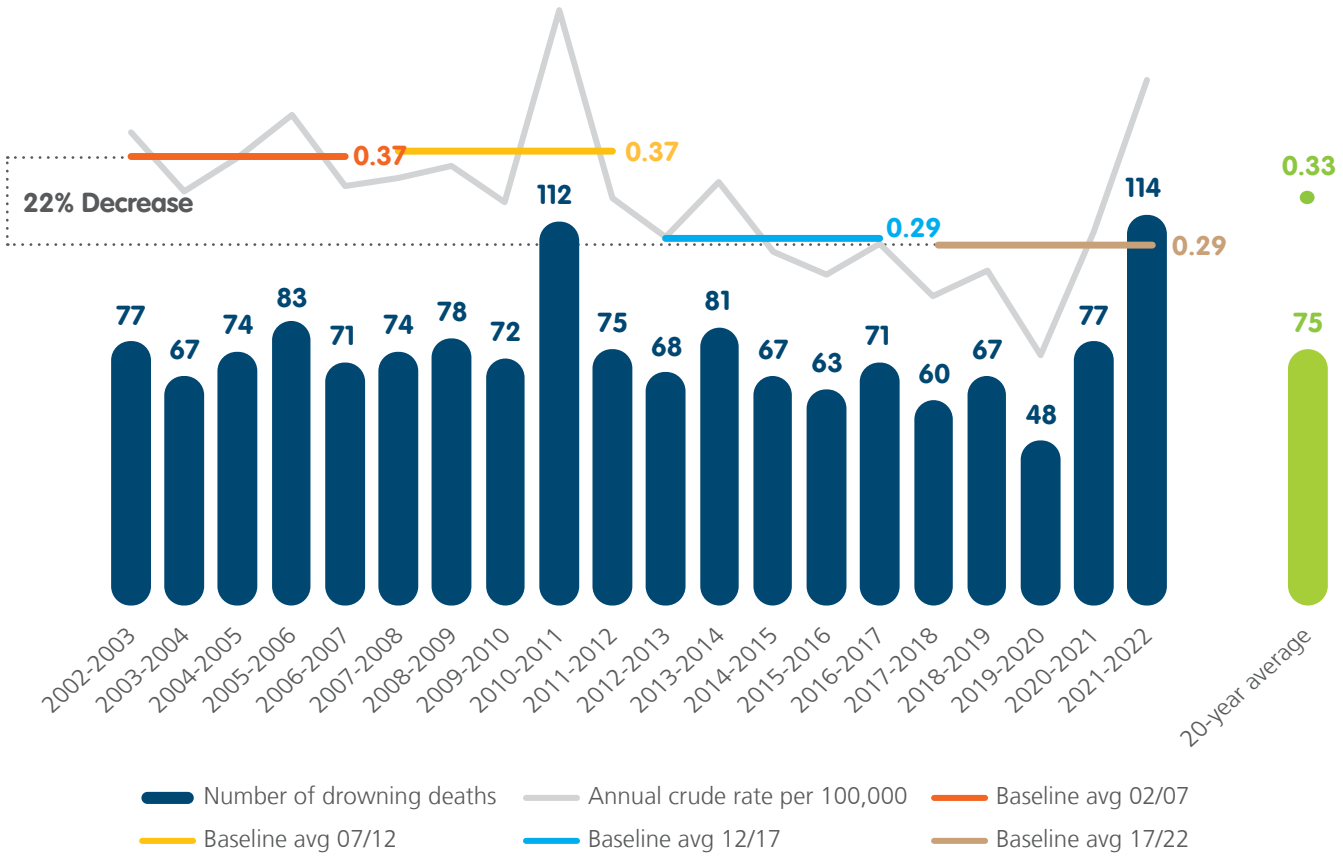
There was a **3%** **decrease** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **0.33** **drowning incidents** per 100,000

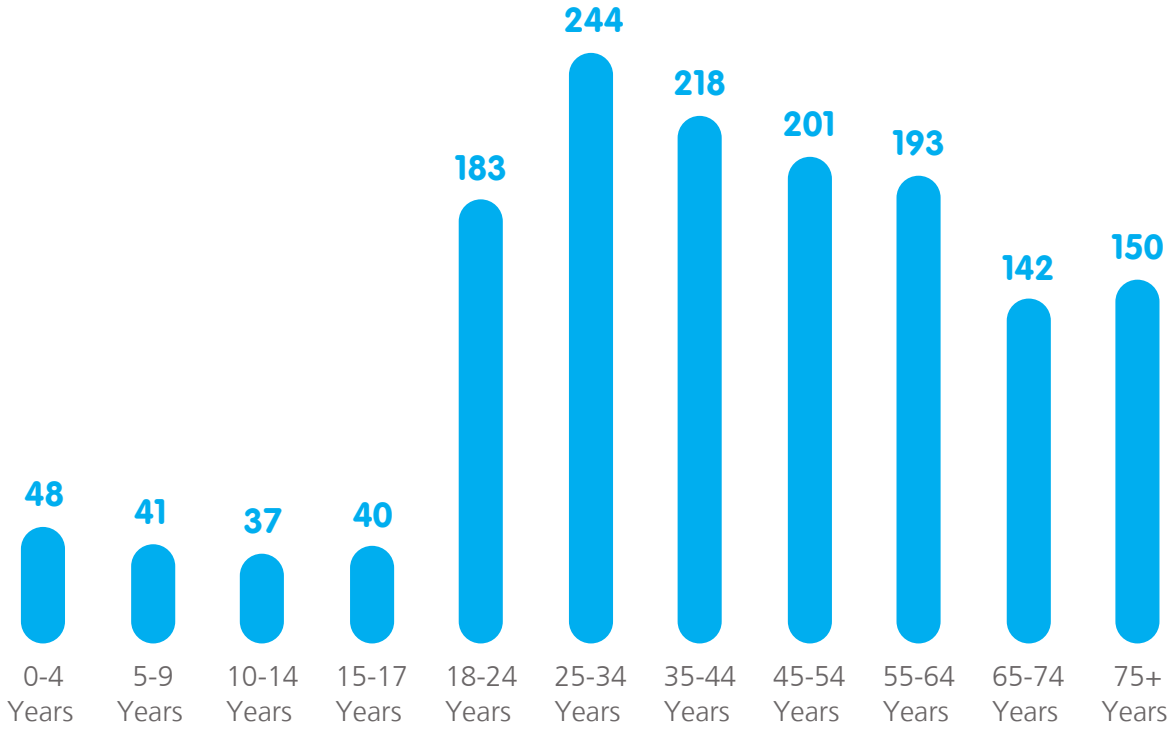
81% of all drowning deaths in this location were males

15% of drowning deaths were flood-related

Drowning deaths and rates per 100,000 population, in river/creek locations (2002/03 to 2021/22) and the 20-year average



Drowning deaths in river/creek locations by age, 2002/03-2021/22



Drowning deaths in river/creek locations by activity, 2002/03-2021/22

19% Fall

18% Swimming and recreating

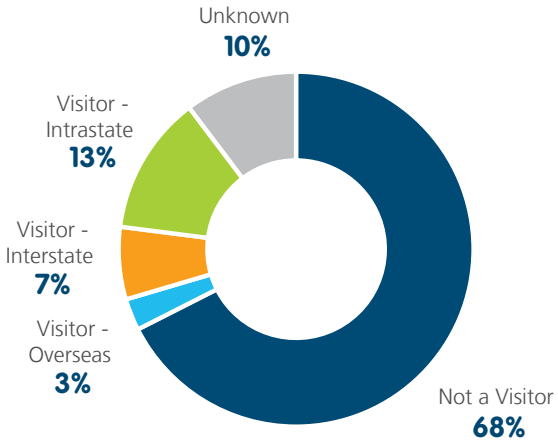
18% Non-aquatic transport

17% Unknown

14% Boating and watercraft

4% Jumped In

Drowning deaths in river/creek locations by visitor status, 2002/03-2021/22



DROWNING DEATHS BY KEY LOCATIONS: **BEACH**

1,019 drowning deaths occurred at beaches over the 20-year period

There was **no change** in drowning rates between 2002/07 and 2017/22

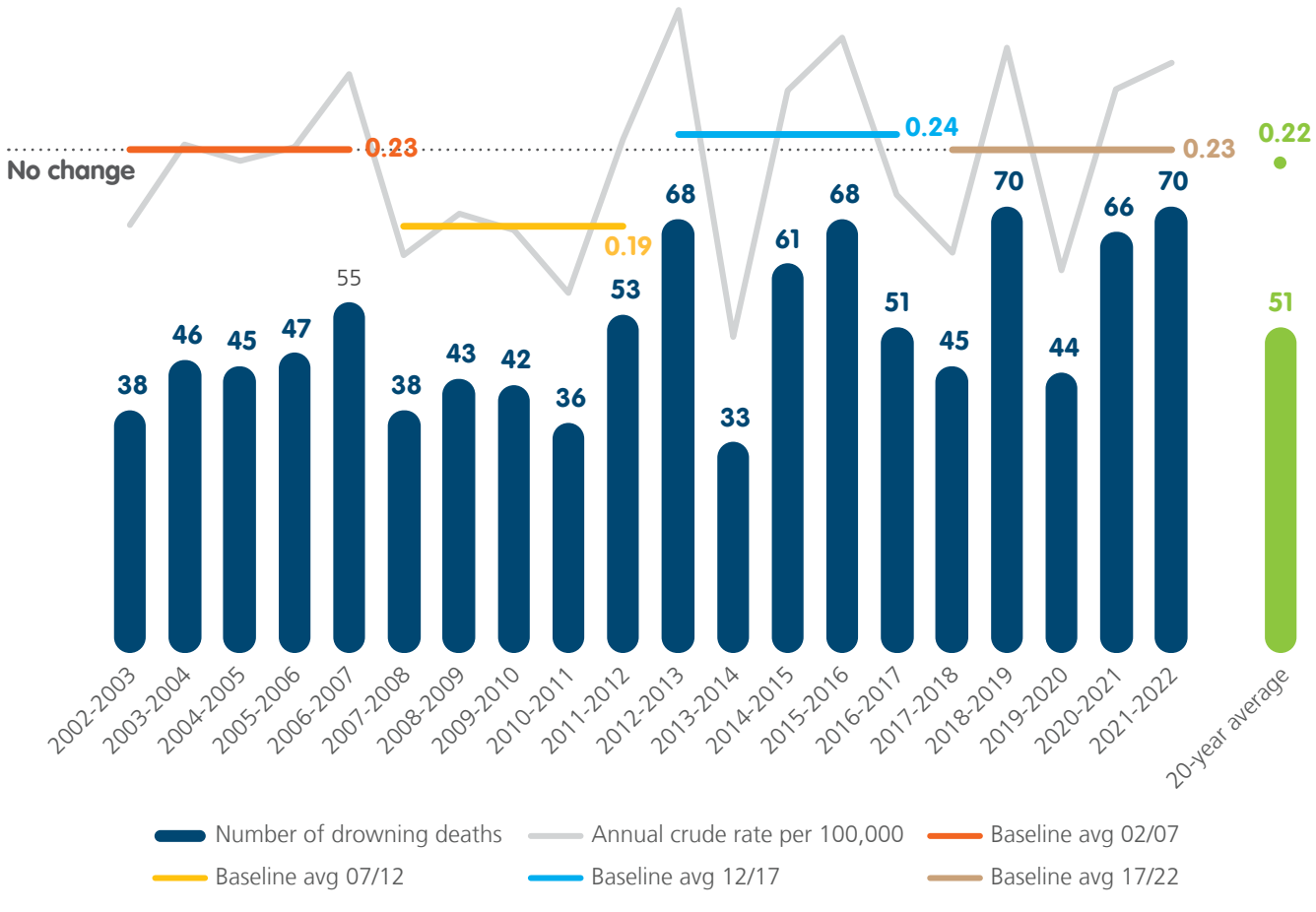
There was a **26%** **increase** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **0.22** **drowning incidents** per 100,000

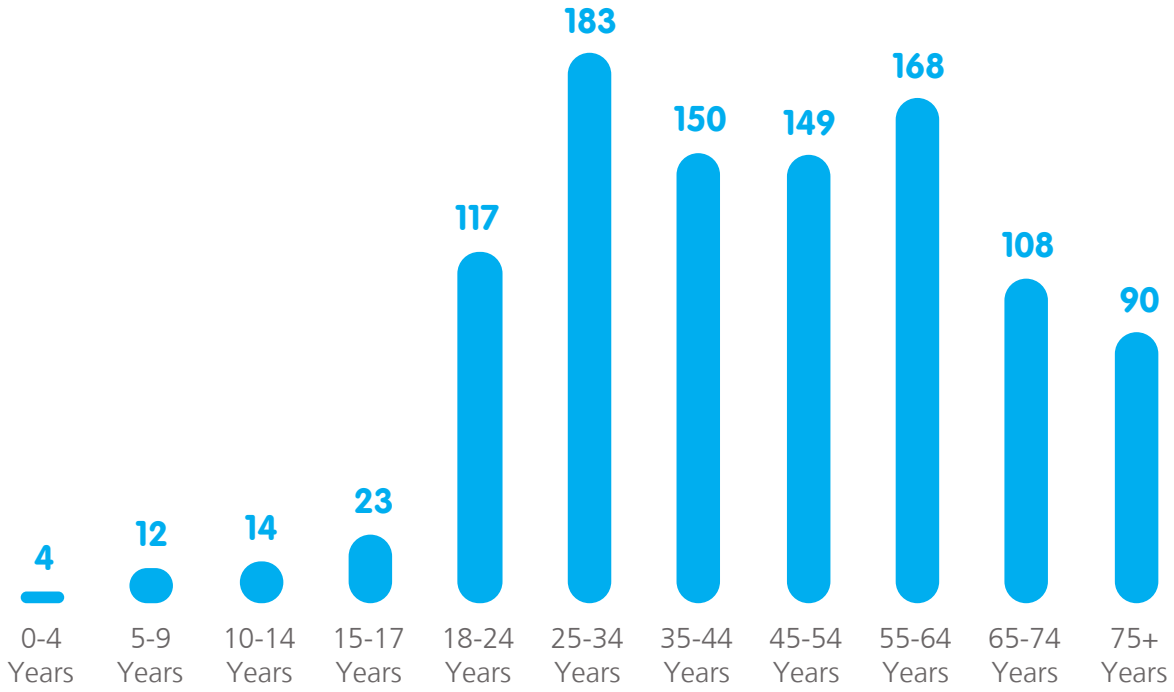
82% of all drowning deaths in this location were males

27% of drowning deaths occured 5km from home

Drowning deaths and rates per 100,000 population, in beach locations (2002/03 to 2021/22) and the 20-year average



Drowning deaths in beach locations by age, 2002/03-2021/22



Drowning deaths in beach locations by activity, 2002/03-2021/22

56% Swimming and recreating

15% Boating and watercraft

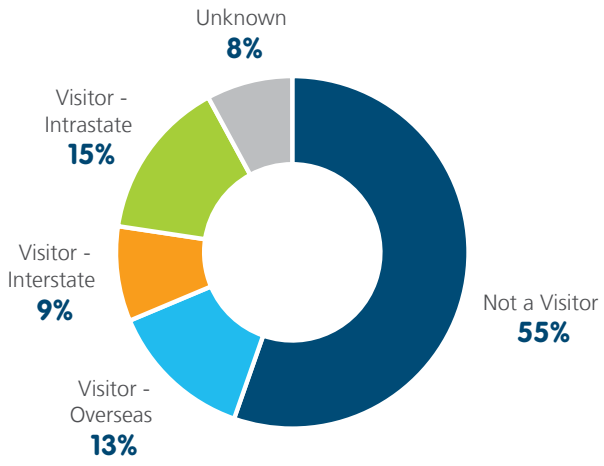
9% Diving

9% Unknown

2% Fall

2% Fishing

Drowning deaths in beach locations by visitor status, 2002/03-2021/22



DROWNING DEATHS BY KEY LOCATIONS: **OCEAN/HARBOUR**

906
drowning deaths occurred at a ocean/harbour over the 20-year period

There was a **44%** **decrease** in drowning rates between 2002/07 and 2017/22

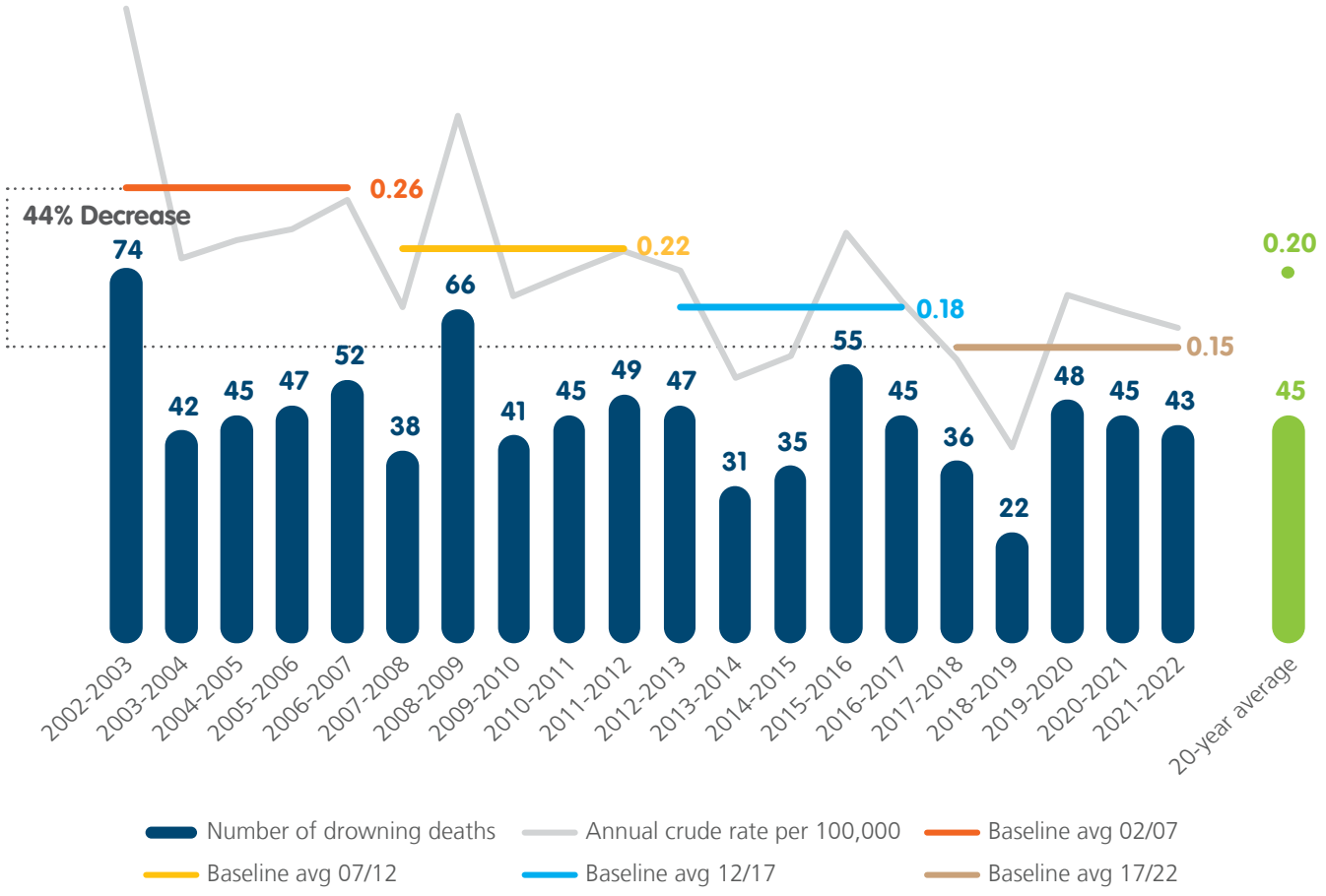
There was a **27%** **decrease** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **0.20** **drowning incidents** per 100,000

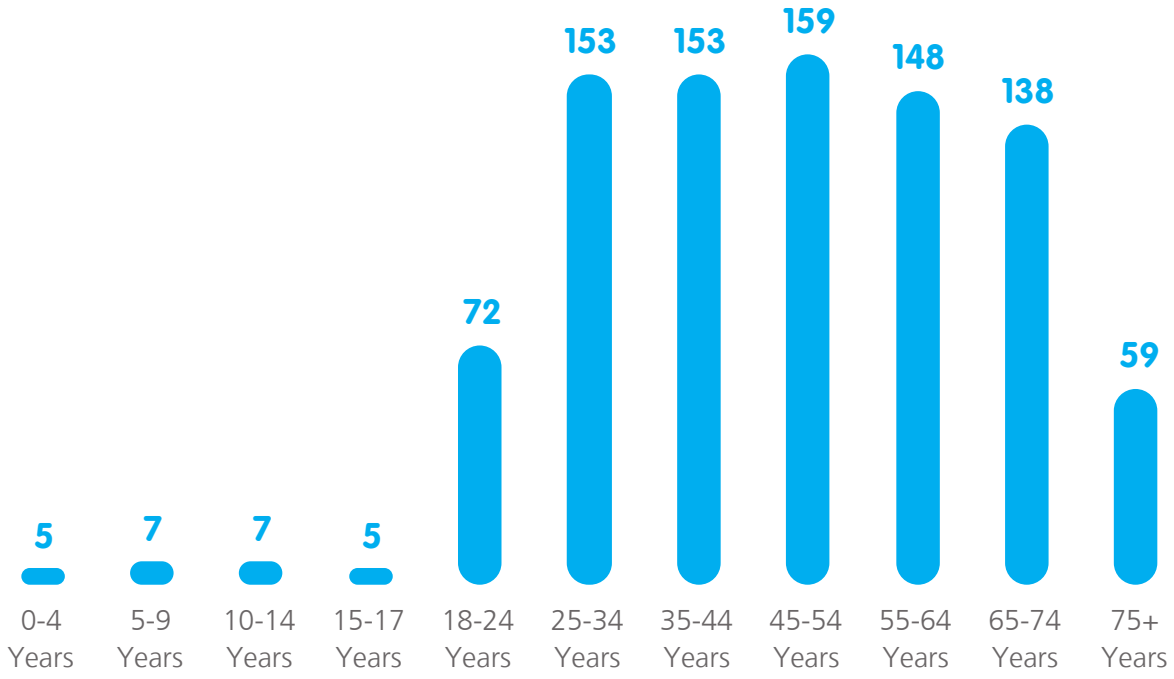
90%
of all drowning deaths in this location were males

27%
of drowning deaths occured 100+km intrastate

Drowning deaths and rates per 100,000 population, in ocean/harbour locations (2002/03 to 2021/22) and the 20-year average



Drowning deaths in ocean/harbour locations by age, 2002/03-2021/22



Drowning deaths in ocean/harbour locations by activity, 2002/03-2021/22

60% Boating and watercraft

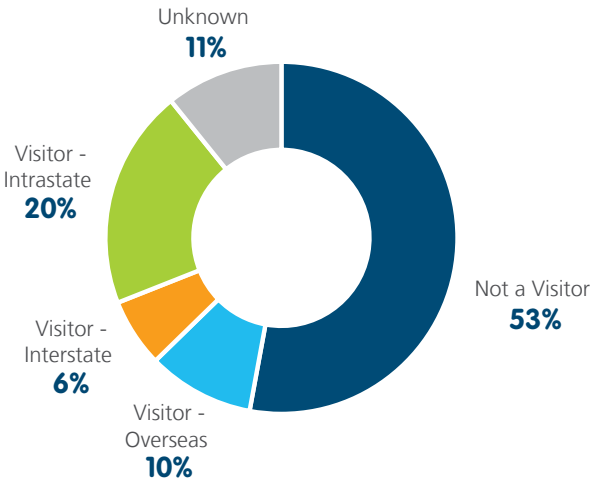
19% Diving

6% Unknown

4% Swimming and recreating

4% Fall

Drowning deaths in ocean/harbour locations by visitor status, 2002/03-2021/22



DROWNING DEATHS BY KEY LOCATIONS: **SWIMMING POOLS**

783 drowning deaths occurred at a swimming pool over the 20-year period

There was a **45%** **decrease** in drowning rates between 2002/07 and 2017/22

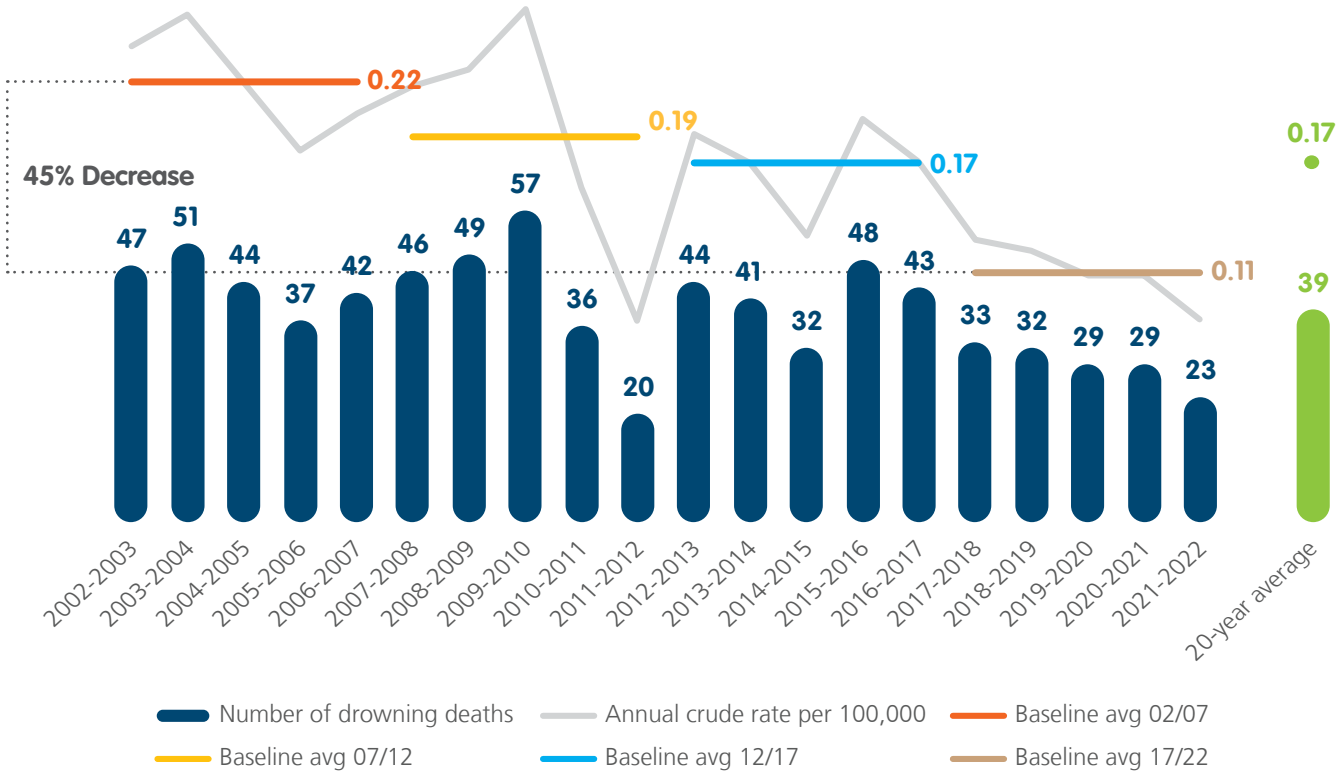
There was a **36%** **decrease** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **0.17** **drowning incidents** per 100,000

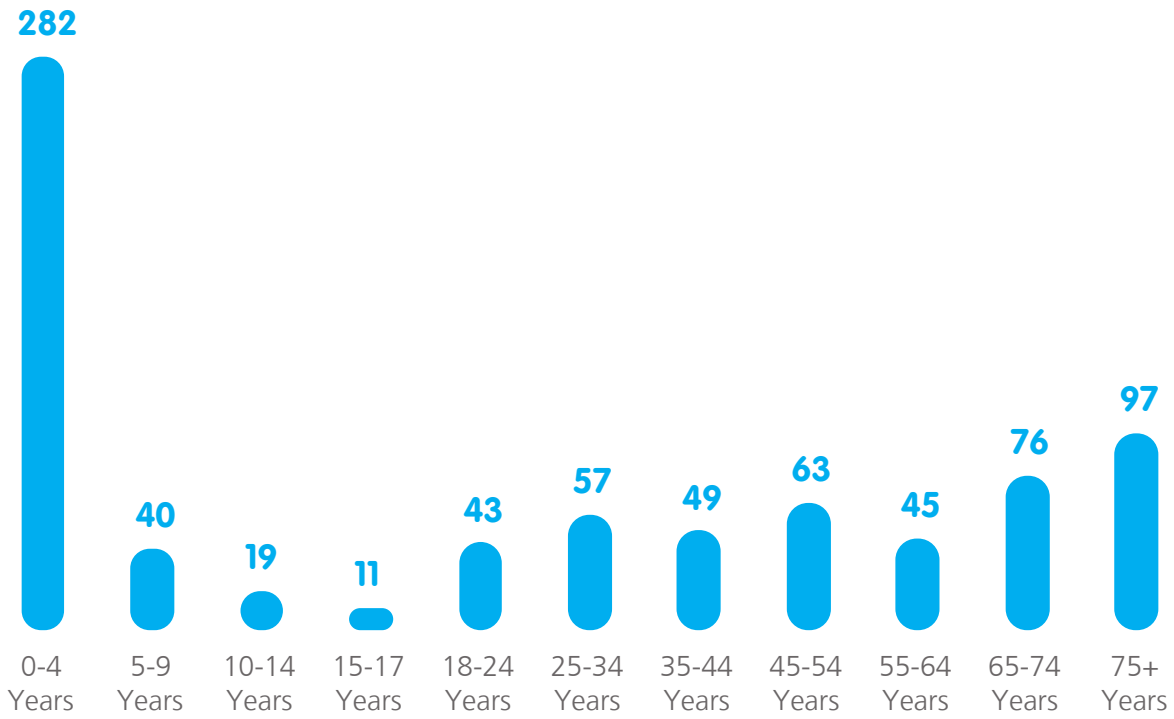
64% of all drowning deaths in this location were males

67% of drowning deaths occured at home

Drowning deaths and rates per 100,000 population, in swimming pool locations (2002/03 to 2021/22) and the 20-year average



Drowning deaths in swimming pool locations by age, 2002/03-2021/22



Drowning deaths in swimming pool locations by activity, 2002/03-2021/22

54% Fall

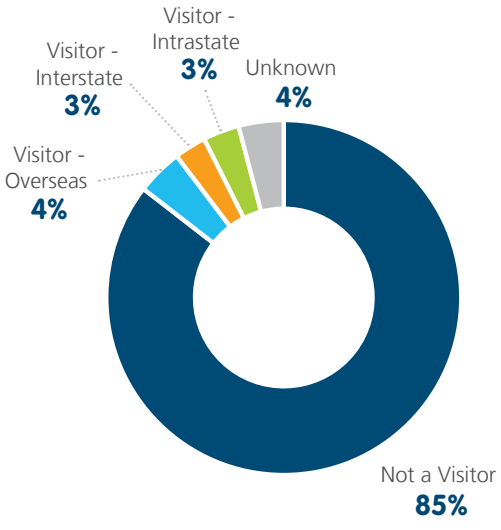
37% Swimming and recreating

6% Unknown

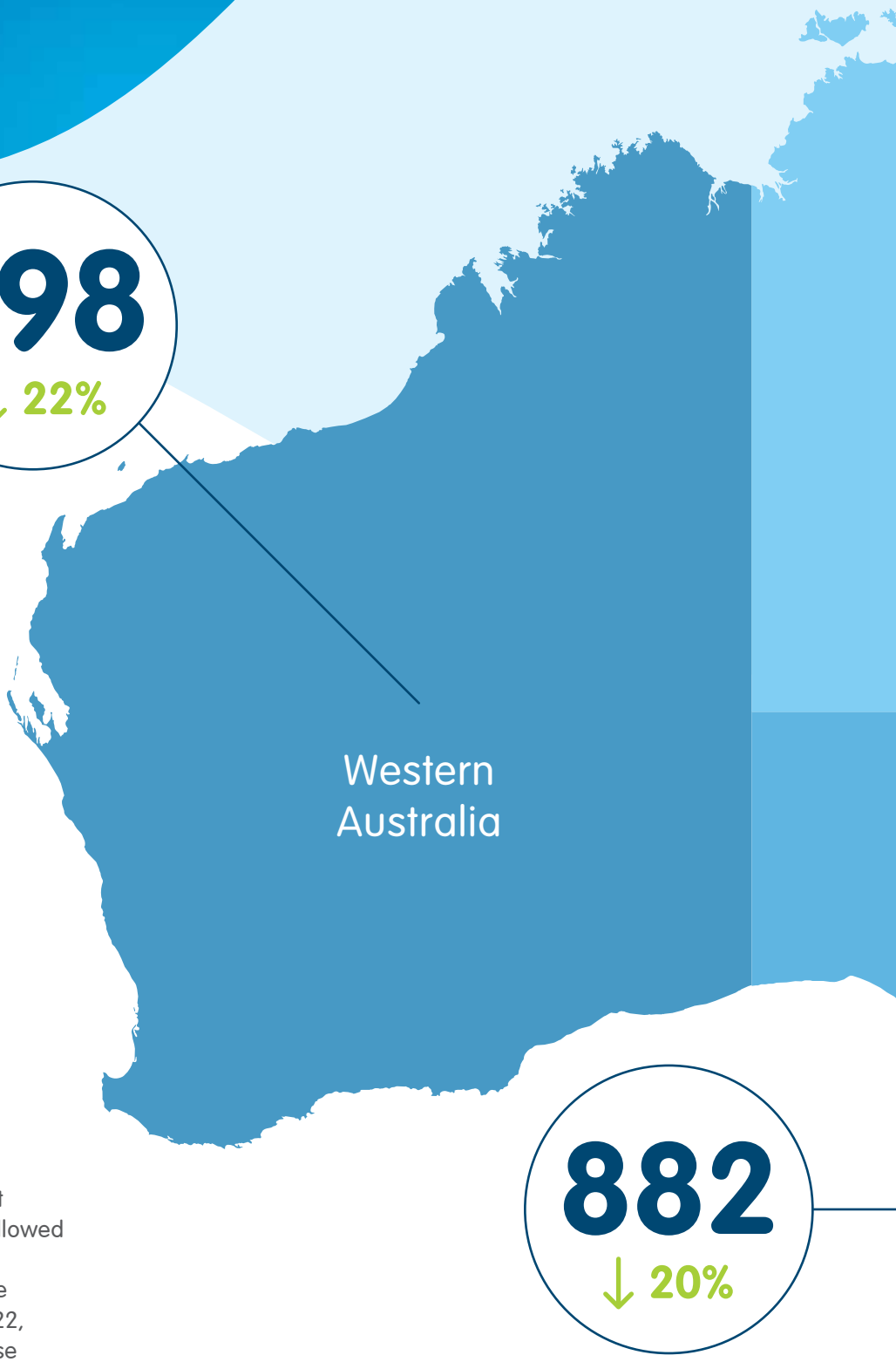
2% Bathing

0.6% Jumped In

Drowning deaths in swimming pool locations by visitor status, 2002/03-2021/22



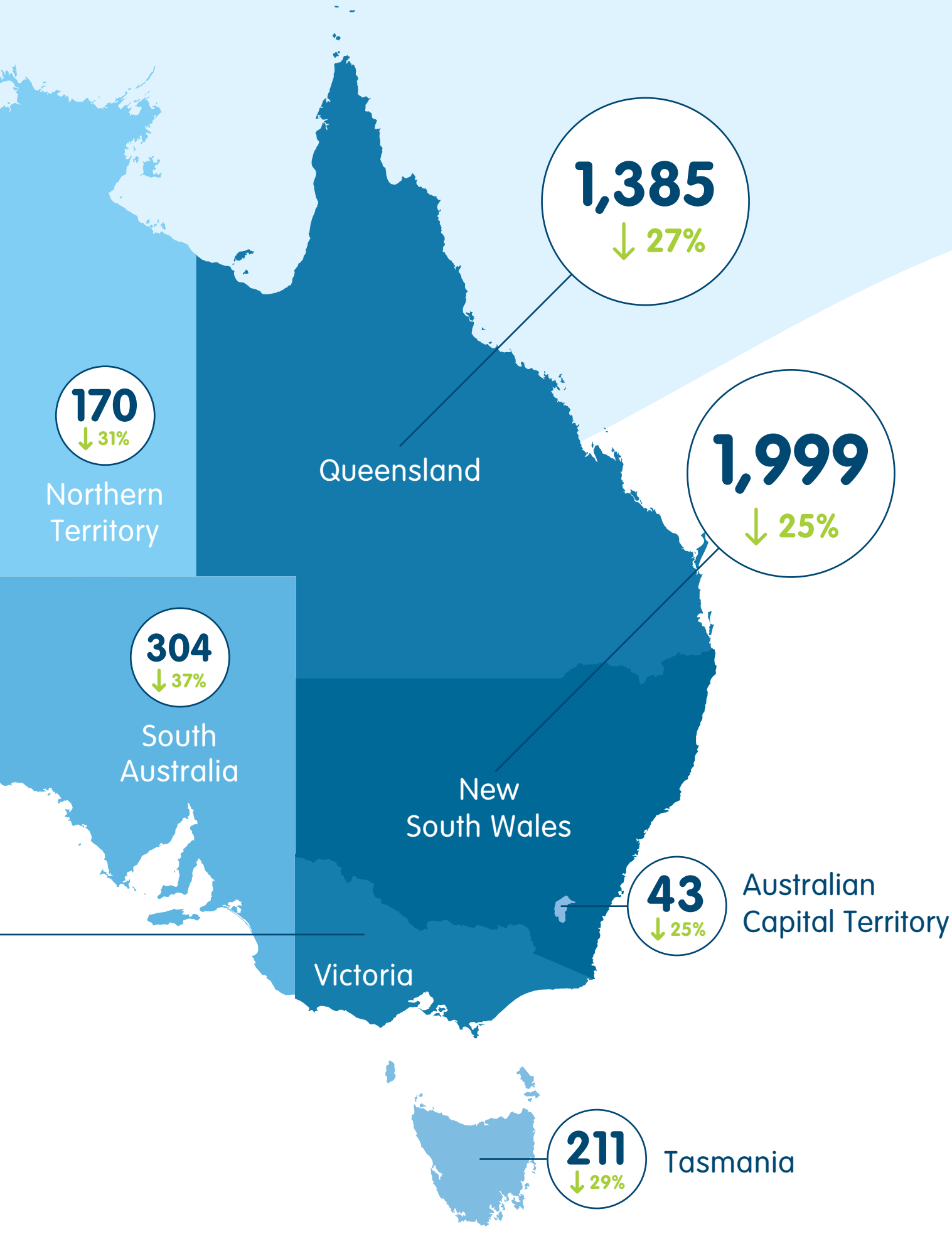
STATE AND TERRITORY DROWNING DEATHS



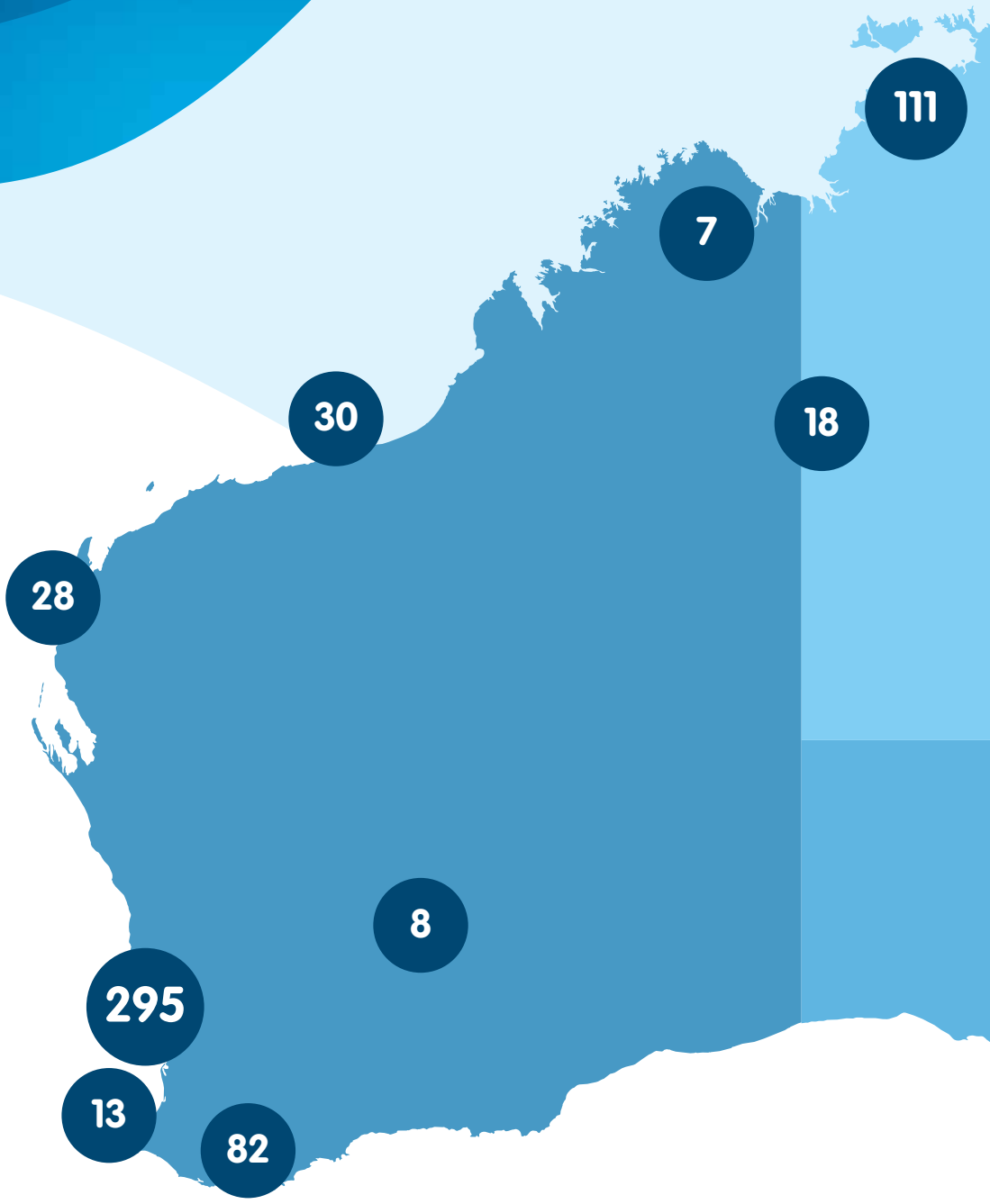
New South Wales recorded the largest number of drowning deaths (1999), followed by Queensland (1385). South Australia recorded a 37% decrease between the 2002/07 baseline average and 2017/22, while Victoria recorded a 20% decrease between the baseline averages.

The Northern Territory recorded the highest 20-year average drowning rate at 3.68 per 100,000 population. The Australian Capital Territory recorded the lowest 20-year average drowning rate at 0.56 per 100,000 population.

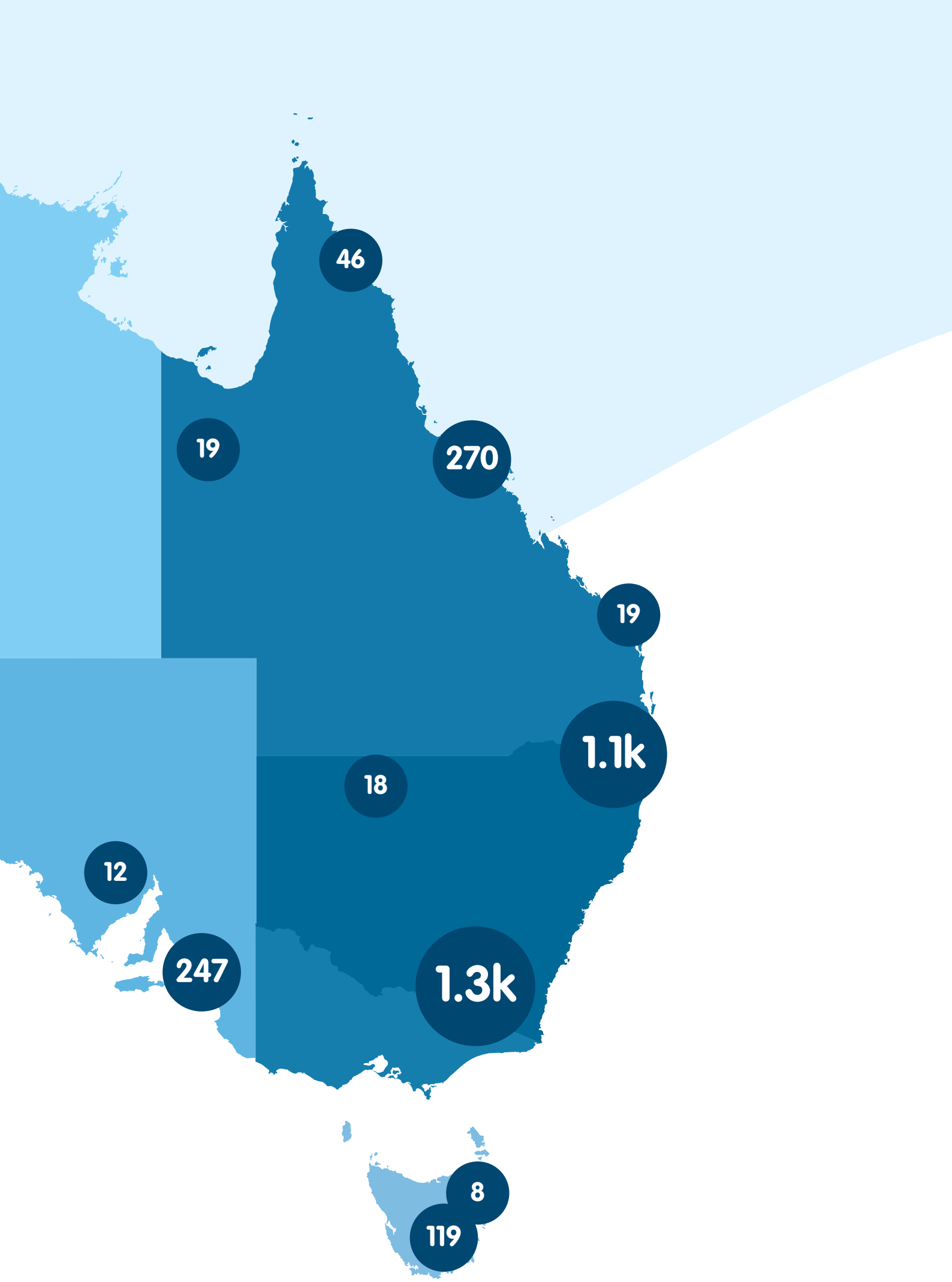
↓ Arrows reflect the change in drowning rate between 2002/07 baseline and 2017/22 baseline


1,385
↓ 27%
Queensland
170
↓ 31%
Northern Territory
1,999
↓ 25%
New South Wales
304
↓ 37%
South Australia
43
↓ 25%
Australian Capital Territory
Victoria
211
↓ 29%
Tasmania

CLUSTER MAP OF DROWNING DEATHS

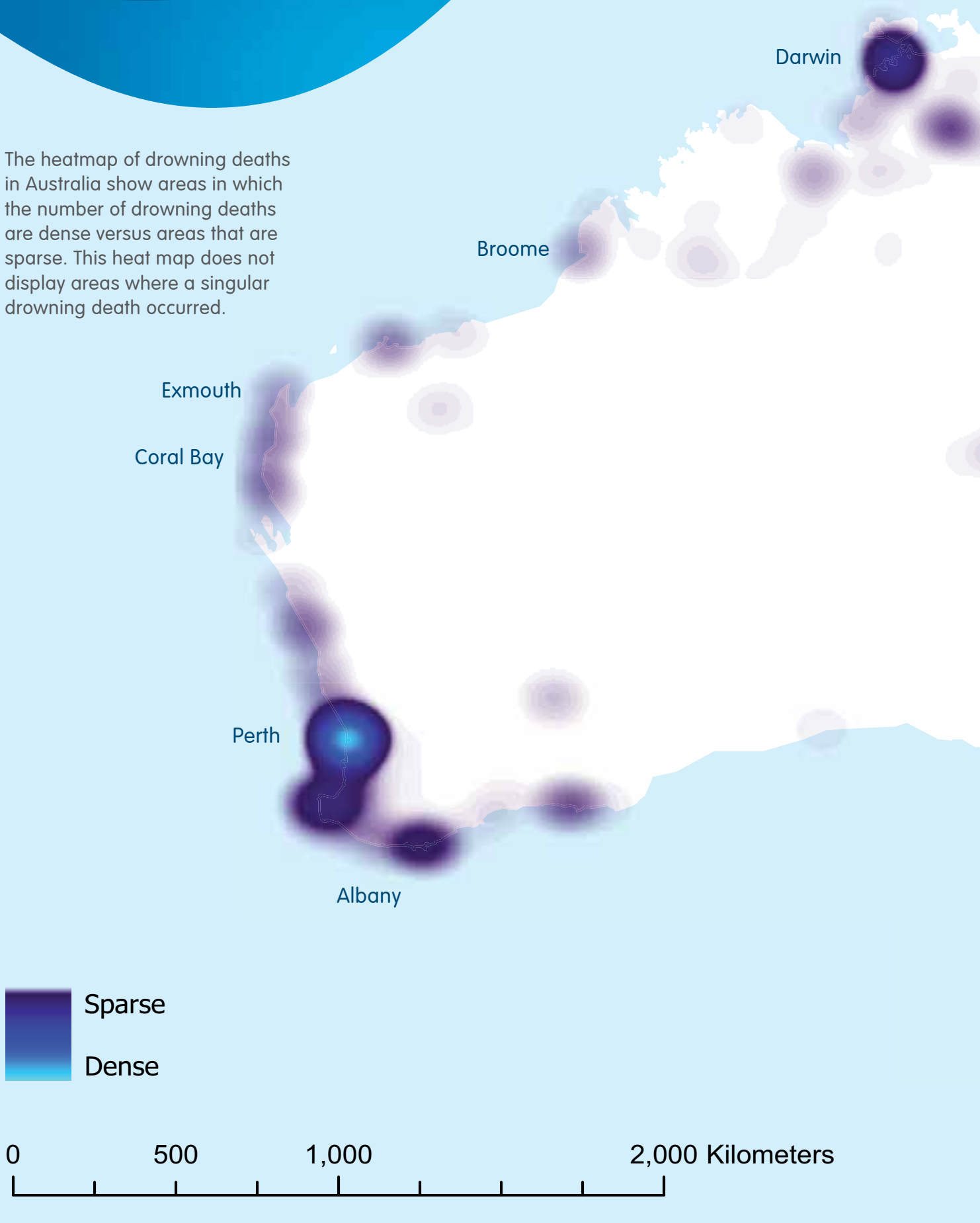


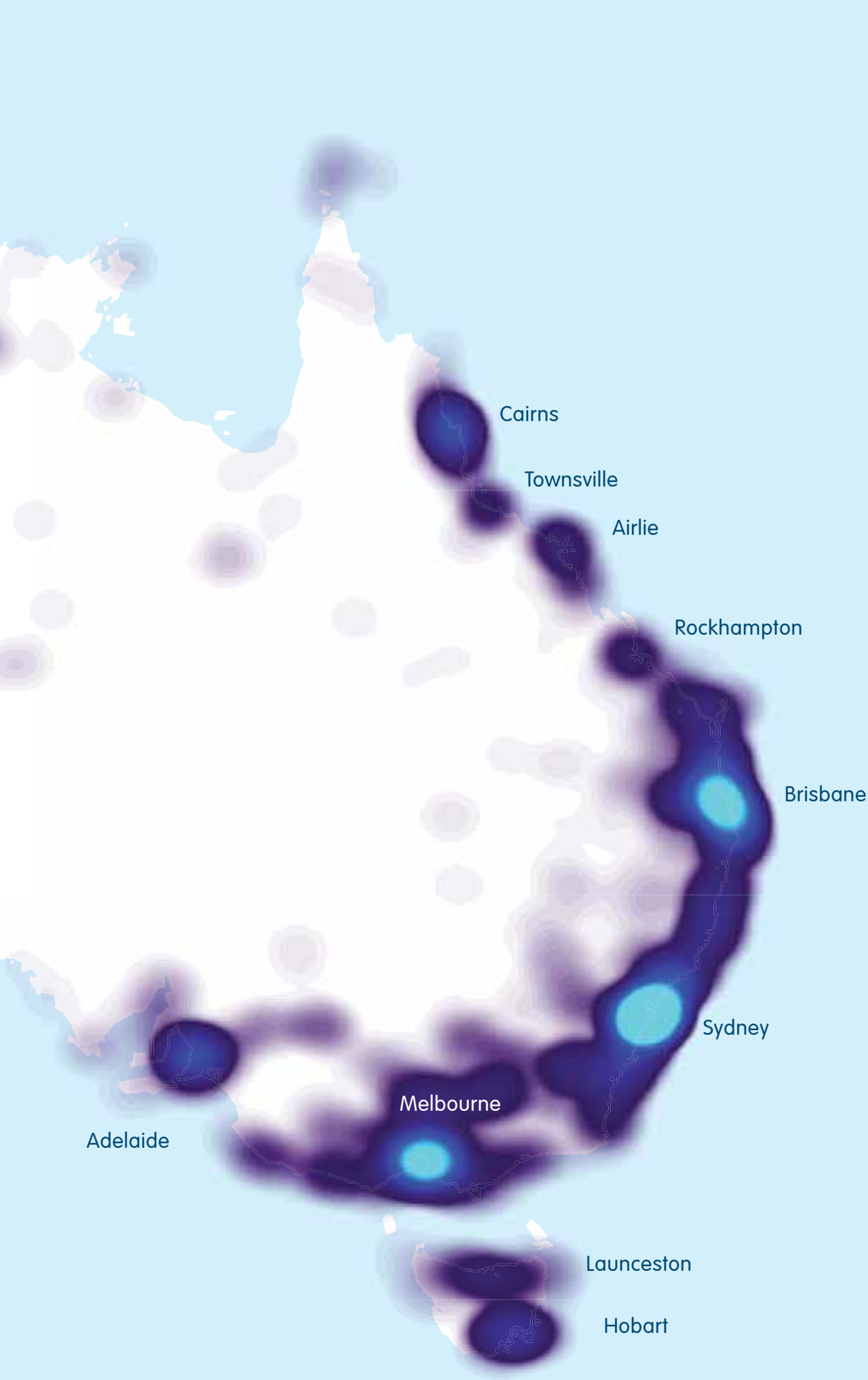
The cluster map of drowning deaths in Australia identifies major groups of drowning occurring across the country, in remote and coastal areas.


46
19
270
19
1.1k
18
12
247
1.3k
8
119

HEATMAP OF DROWNING DEATHS

The heatmap of drowning deaths in Australia show areas in which the number of drowning deaths are dense versus areas that are sparse. This heat map does not display areas where a singular drowning death occurred.




Cairns
Townsville
Airlie
Rockhampton
Brisbane
Sydney
Melbourne
Adelaide
Launceston
Hobart

AUSTRALIAN CAPITAL TERRITORY

43 drowning deaths occurred in the ACT over the 20-year period

There was a **25%** **decrease** in drowning rates between 2002/07 and 2017/22

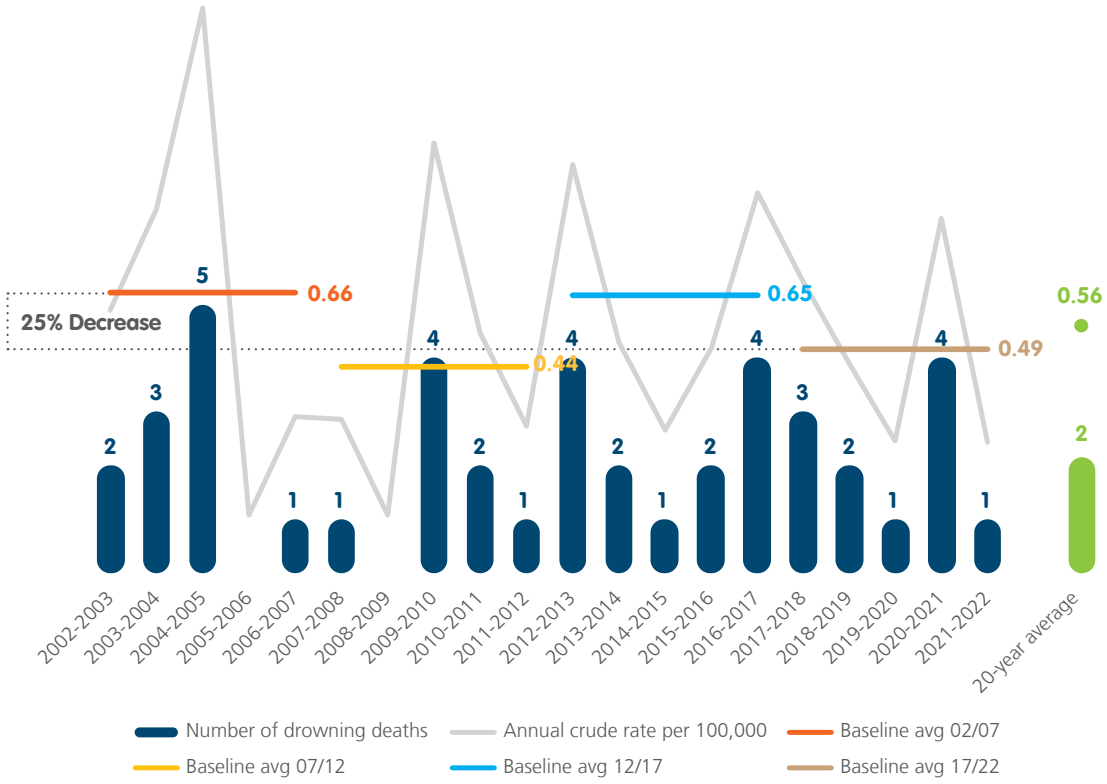
There was **no change** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **0.56** **drowning incidents** per 100,000

81% of those who drowned in the ACT were males

6% of drowning deaths were flood-related

Drowning deaths and rates per 100,000 population, in the ACT (2002/03 to 2021/22) and the 20-year average



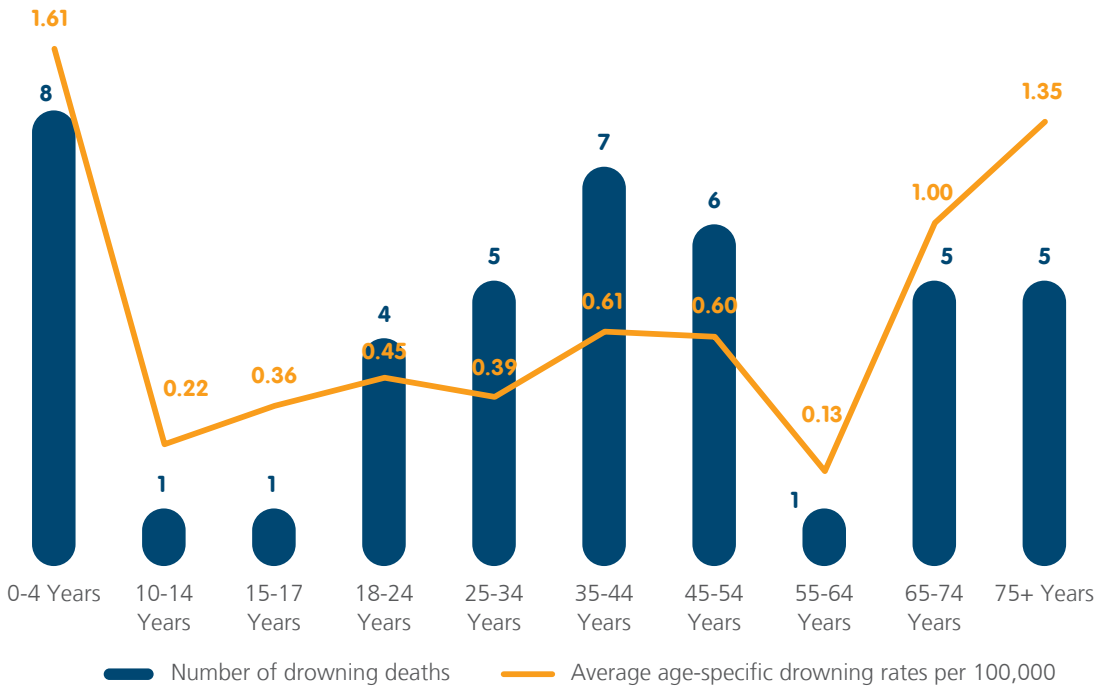
Visitor status

84% Not a visitor

12% interstate
2% intrastate

2% unknown

Age



Activity

30% Swimming and recreating

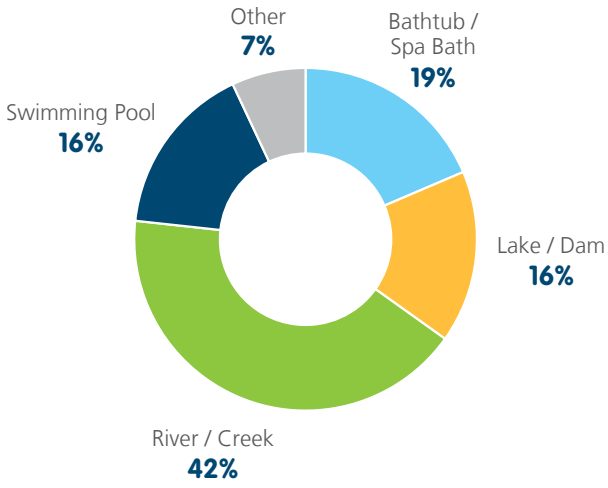
23% Fall

19% Bathing

12% Unknown

9% Boating and watercraft

Location



High-risk times for drowning

51%
Summer months

23% on a Sunday
34% school holidays

64%
Afternoon
12PM - 6PM

NEW SOUTH WALES

1,999 drowning deaths occurred in NSW over the 20-year period

There was a **25%** **decrease** in drowning rates between 2002/07 and 2017/22

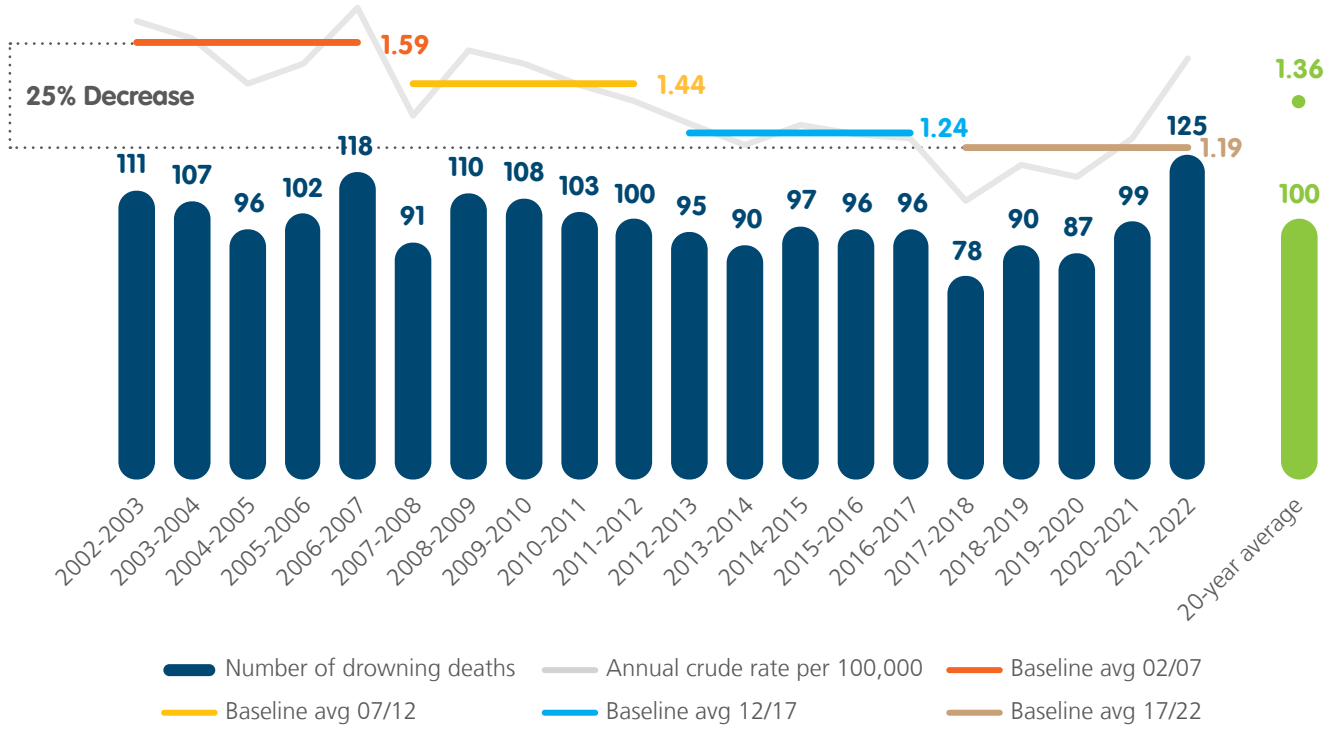
There was a **10%** **decrease** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **1.36** **drowning incidents** per 100,000

79% of those who drowned in the NSW were males

4% of drowning deaths were flood-related

Drowning deaths and rates per 100,000 population, in the NSW (2002/03 to 2021/22) and the 20-year average



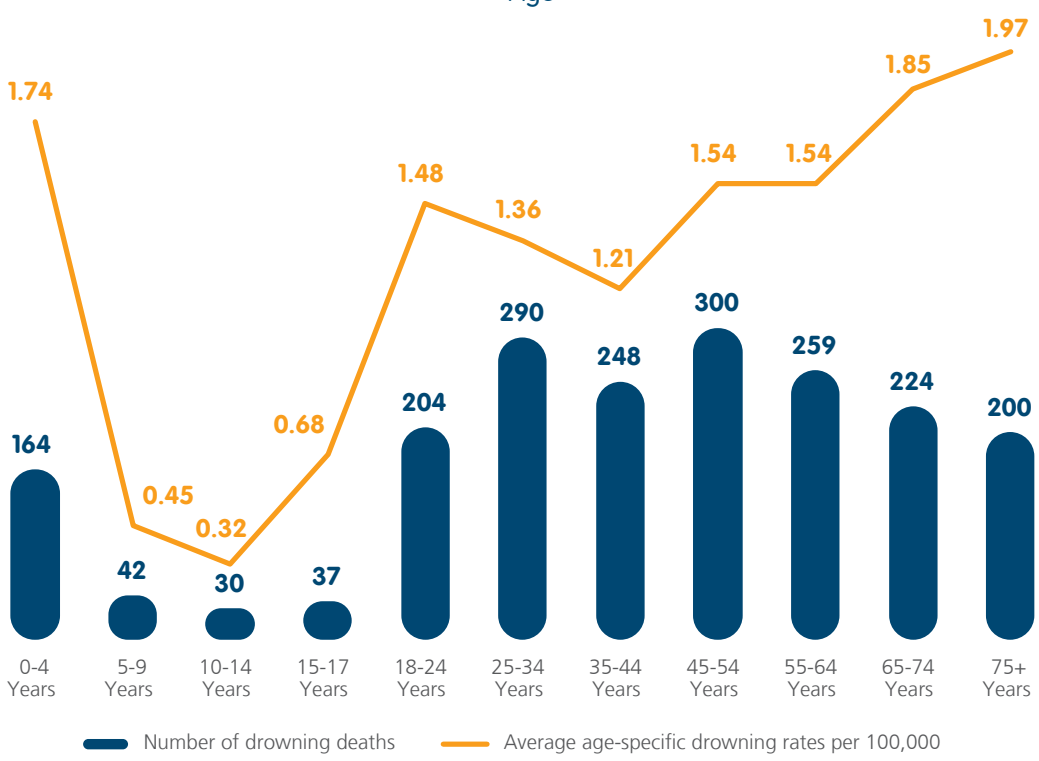
Visitor status

70% Not a visitor

11% interstate
8% intrastate

8% Overseas visitors

Age



Activity

22% Swimming and recreating

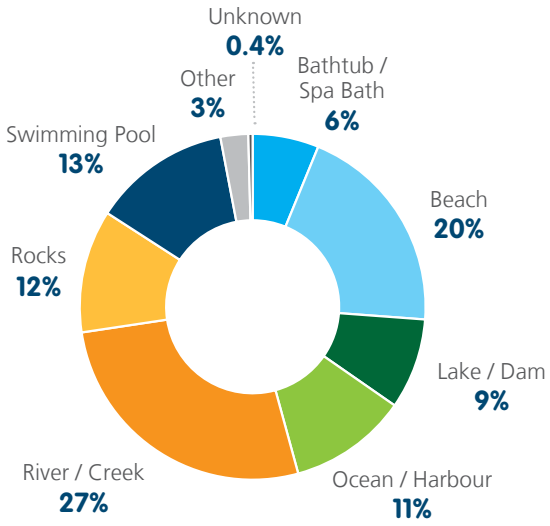
16% Fall

13% Unknown

11% Boating and watercraft

8% Fishing

Location



High-risk times for drowning

37% Summer months

19% on a Saturday
30% public holidays

42% Afternoon
12PM - 6PM

NORTHERN TERRITORY

140 drowning deaths occurred in the NT over the 20-year period

There was a **31%** **decrease** in drowning rates between 2002/07 and 2017/22

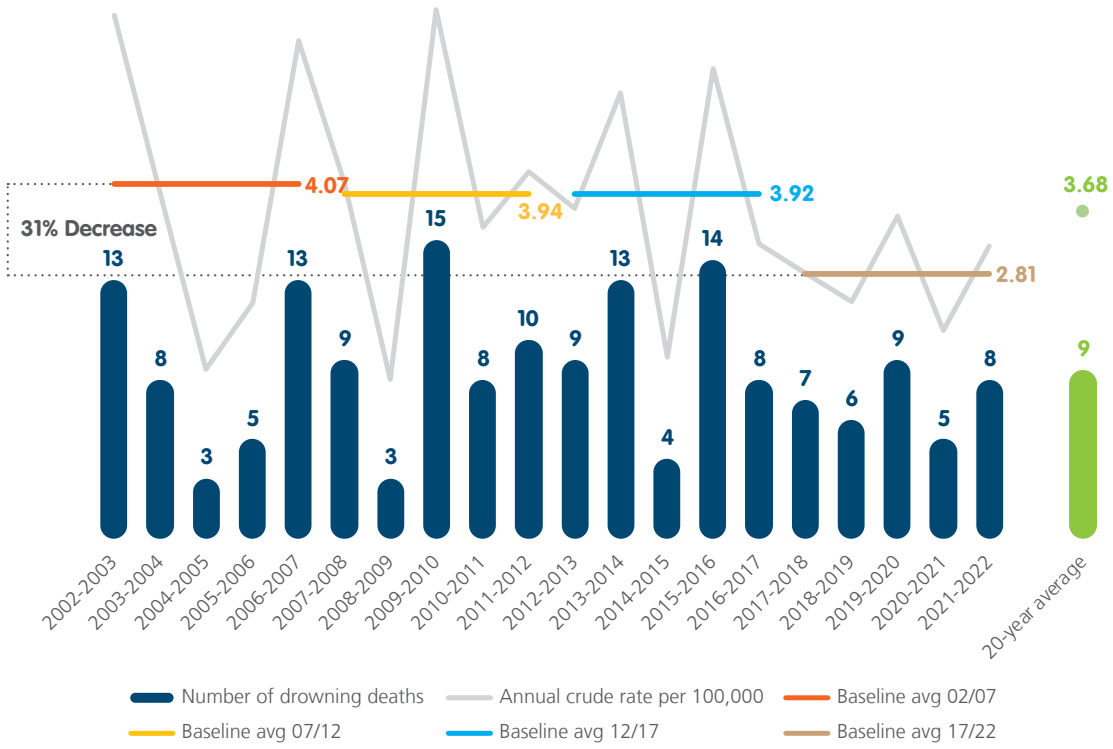
There was a **13%** **decrease** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **3.68** **drowning incidents** per 100,000

82% of those who drowned in the NT were males

17% of drowning deaths were flood-related

Drowning deaths and rates per 100,000 population, in the NT (2002/03 to 2021/22) and the 20-year average



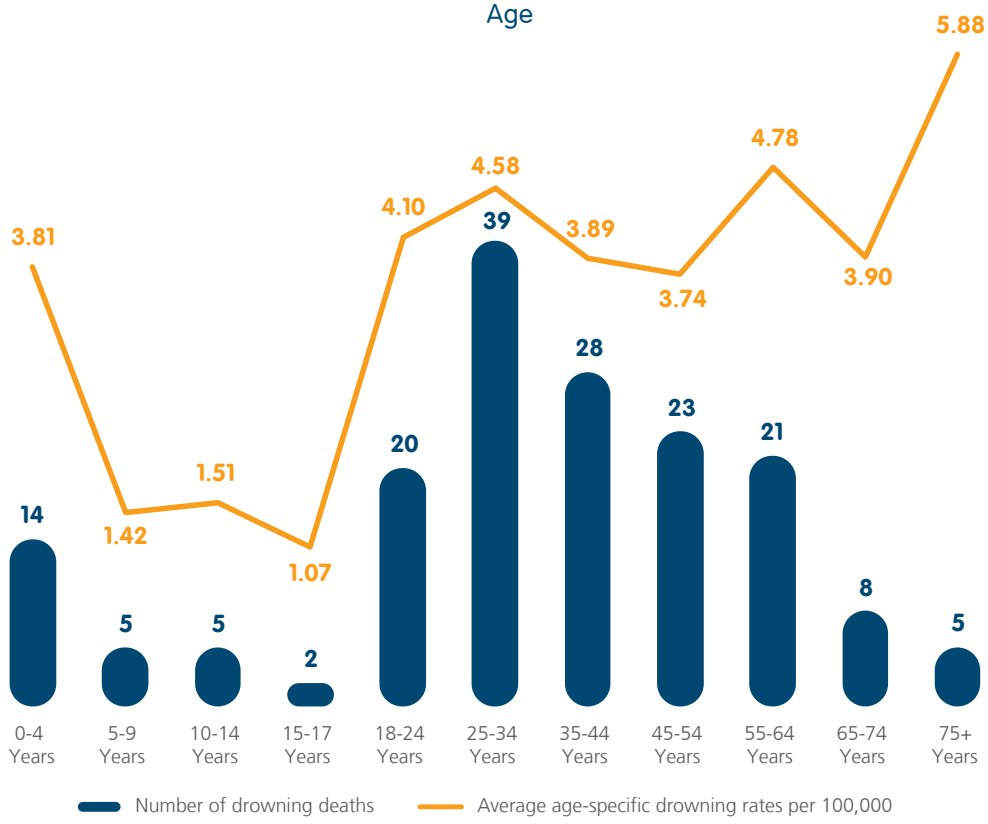
Visitor status

62% Not a visitor

15% interstate
10% intrastate

7% Overseas visitors

Age



Activity

36% Swimming and recreating

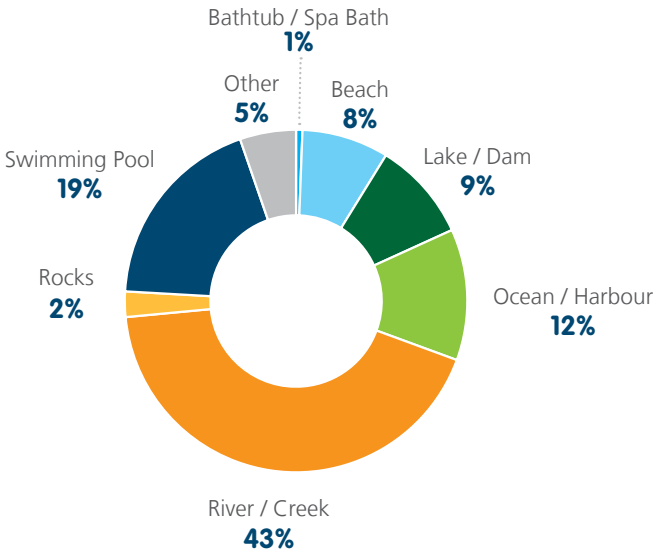
19% Fall

11% Unknown

11% Boating and watercraft

10% Non-aquatic transport

Location



High-risk times for drowning

35%
Summer months

19% on a Saturday
27% school holidays

50%
Afternoon
12PM - 6PM

QUEENSLAND

1,385 drowning deaths occurred in QLD over the 20-year period

There was a **27%** **decrease** in drowning rates between 2002/07 and 2017/22

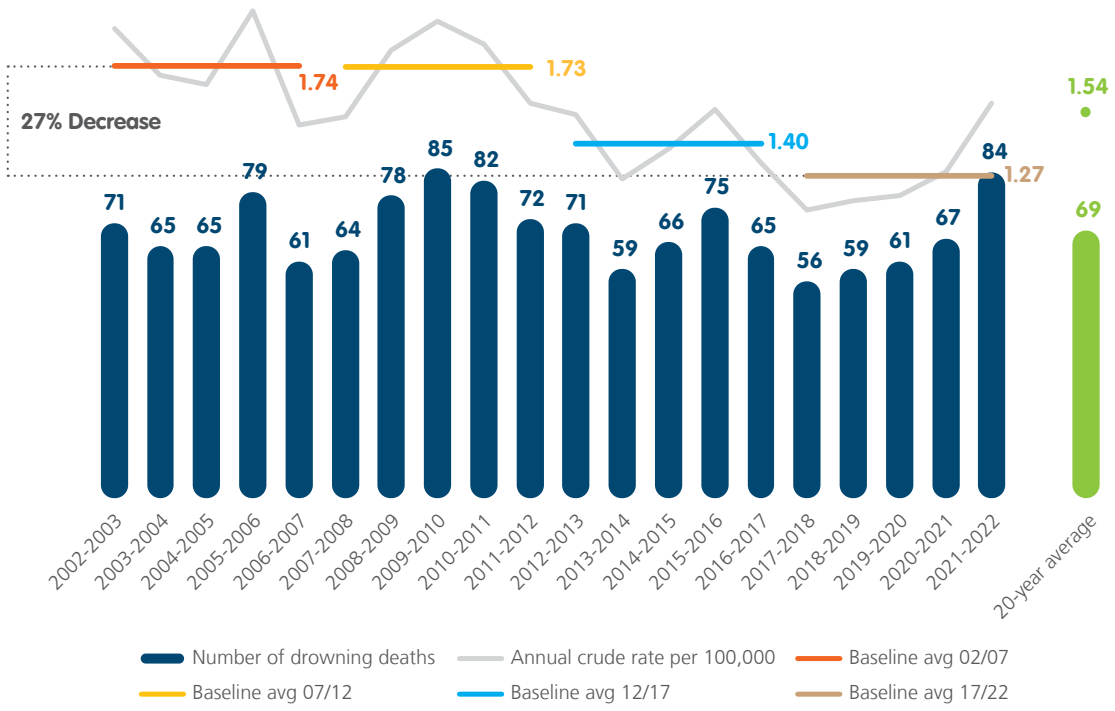
There was a **4%** **decrease** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **1.54** **drowning incidents** per 100,000

77% of those who drowned in QLD were males

11% of drowning deaths were flood-related

Drowning deaths and rates per 100,000 population, in QLD (2002/03 to 2021/22) and the 20-year average



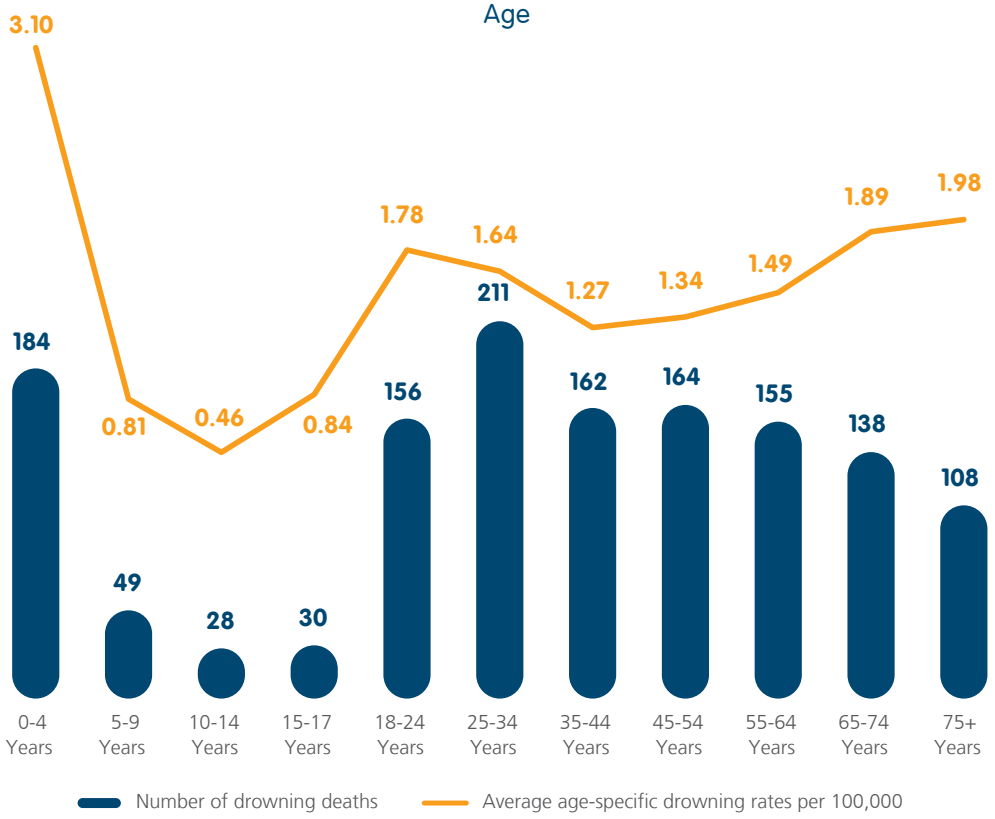
Visitor status

64% Not a visitor

10% interstate
5% intrastate

12% Overseas visitors

Age



Activity

26% Swimming and recreating

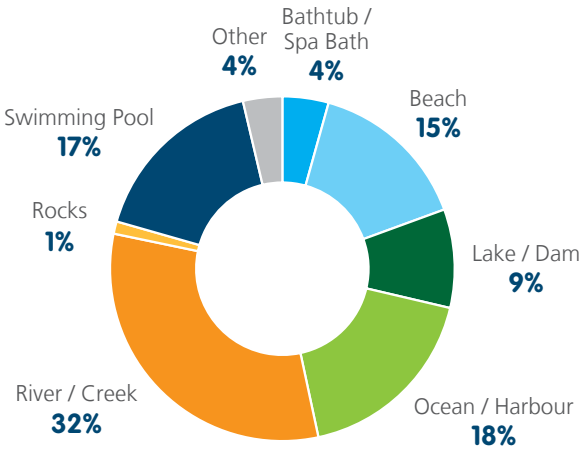
22% Fall

20% Boating and watercraft

8% Non-aquatic transport

7% Diving

Location



High-risk times for drowning

39% Summer months

19% on a Sunday

26% school holidays

43% Afternoon

12PM - 6PM

SOUTH AUSTRALIA

304 drowning deaths occurred in SA over the 20-year period

There was a **37%** **decrease** in drowning rates between 2002/07 and 2017/22

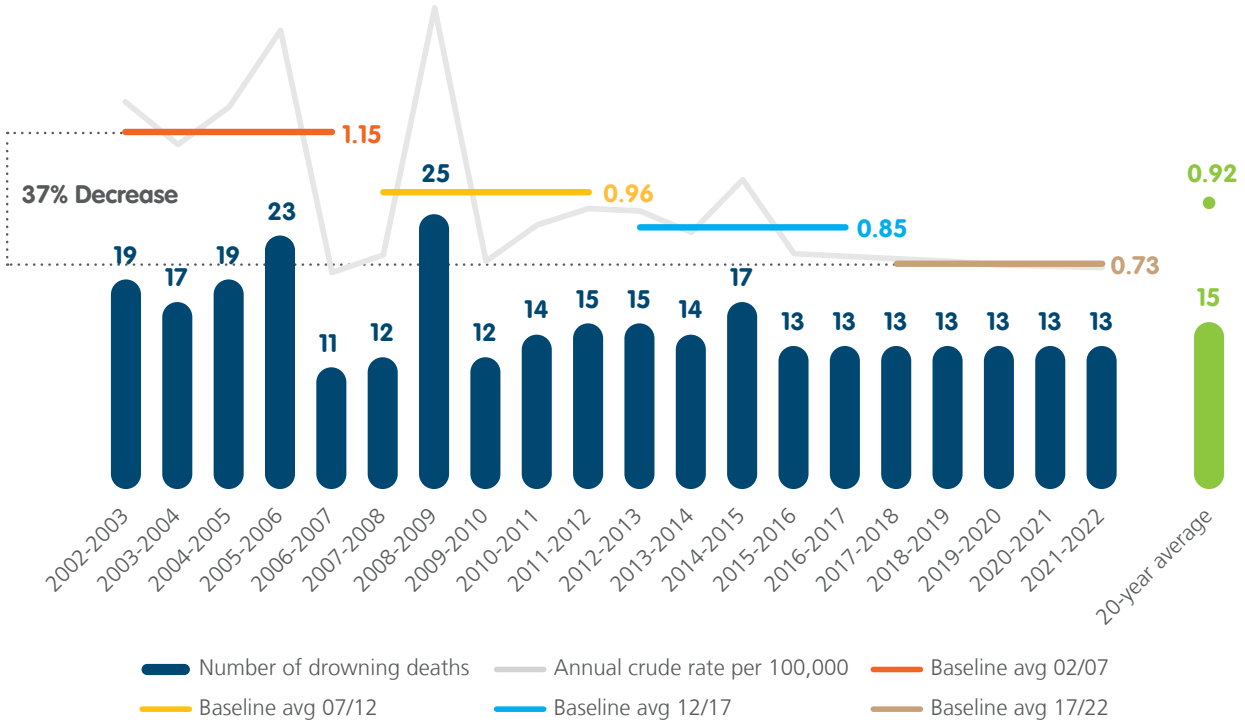
There was a **28%** **decrease** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **0.92** **drowning incidents** per 100,000

77% of those who drowned in SA were males

0% of drowning deaths were flood-related

Drowning deaths and rates per 100,000 population, in SA (2002/03 to 2021/22) and the 20-year average



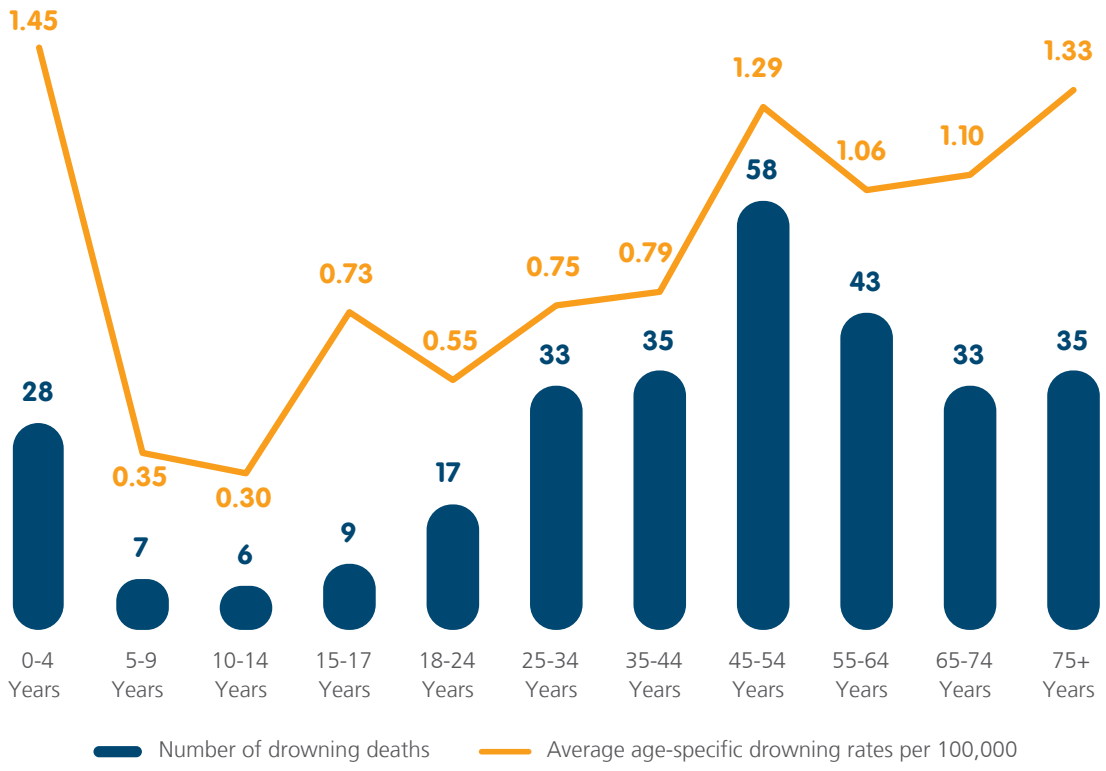
Visitor status

67% Not a visitor

18% interstate
7% intrastate

3% Overseas visitors

Age



Activity

25% Swimming and recreating

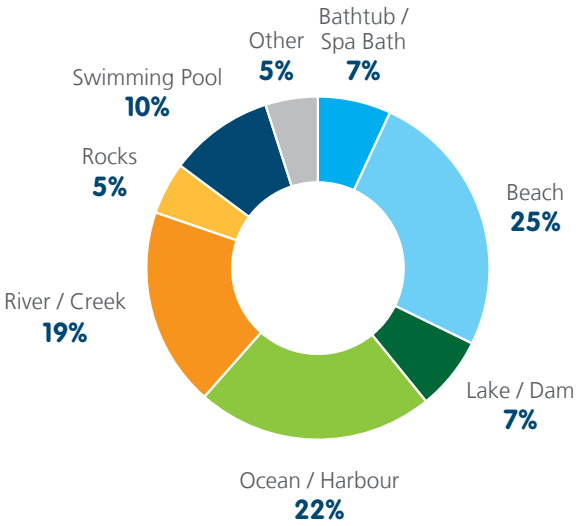
22% Boating and watercraft

16% Fall

9% Unknown

7% Bathing

Location



High-risk times for drowning

40% Summer months

21% on a Saturday

34% school holidays

41% Afternoon

12PM - 6PM

TASMANIA

211 drowning deaths occurred in TAS over the 20-year period

There was a **29%** **decrease** in drowning rates between 2002/07 and 2017/22

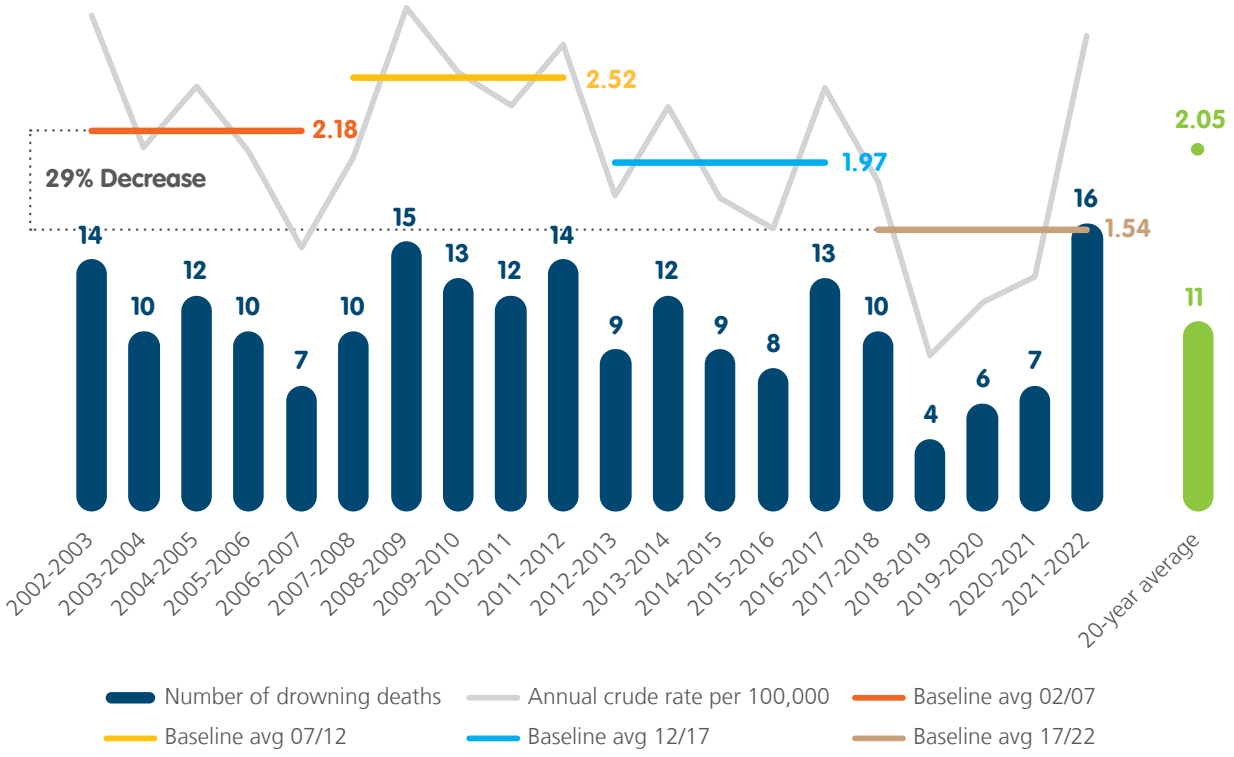
There was a **18%** **decrease** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **2.05** **drowning incidents** per 100,000

83% of those who drowned in TAS were males

4% of drowning deaths were flood-related

Drowning deaths and rates per 100,000 population, in TAS (2002/03 to 2021/22) and the 20-year average



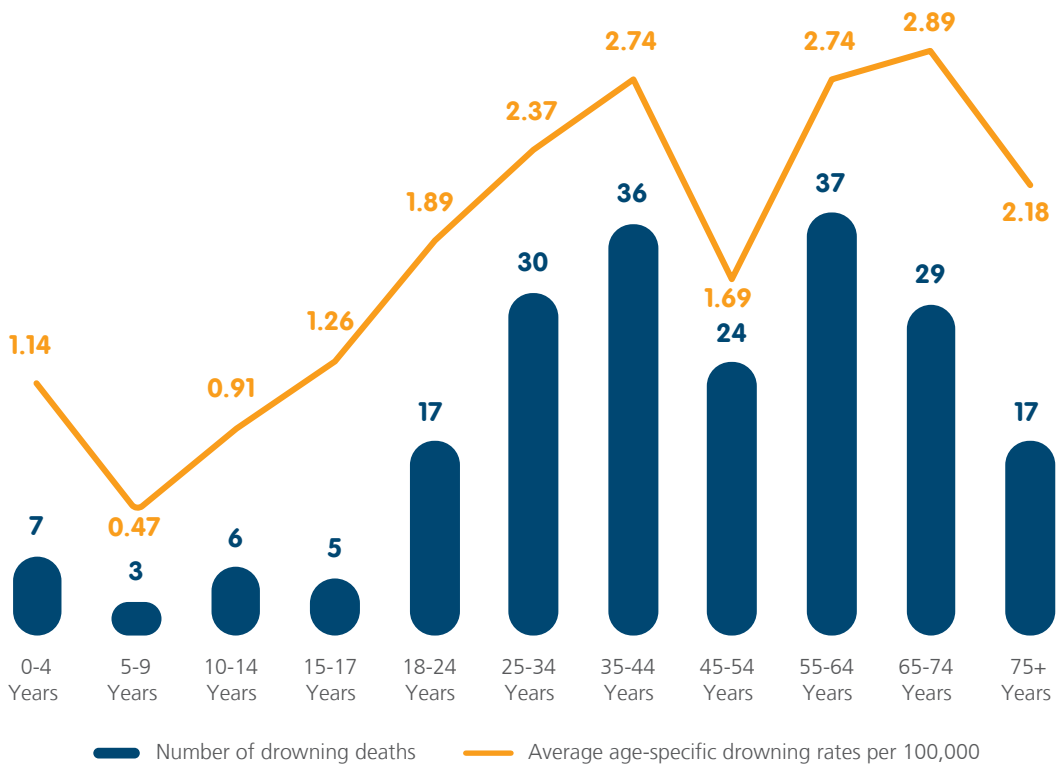
Visitor status

66% Not a visitor

15% interstate
5% intrastate

4% Overseas visitors

Age



Activity

36% Boating and watercraft

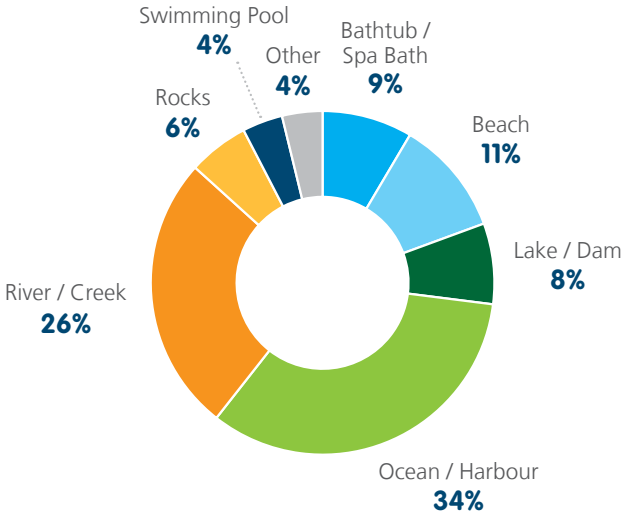
19% Fall

9% Swimming and recreating

9% Bathing

8% Diving

Location



High-risk times for drowning

30%
Summer months

23% on a Sunday
25% school holidays

46%
Afternoon
12PM - 6PM

VICTORIA

882 drowning deaths occurred in VIC over the 20-year period

There was a **20%** **decrease** in drowning rates between 2002/07 and 2017/22

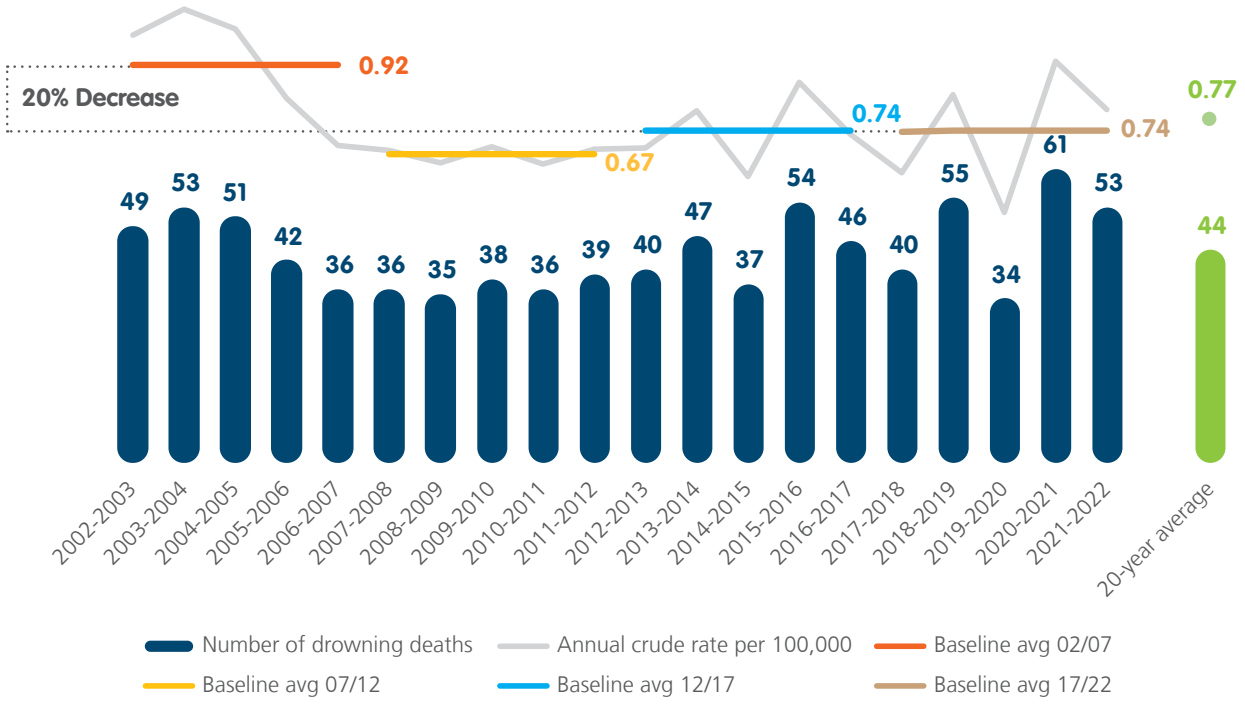
There was a **7%** **increase** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **0.77** **drowning incidents** per 100,000

76% of those who drowned in VIC were males

3% of drowning deaths were flood-related

Drowning deaths and rates per 100,000 population, in VIC (2002/03 to 2021/22) and the 20-year average



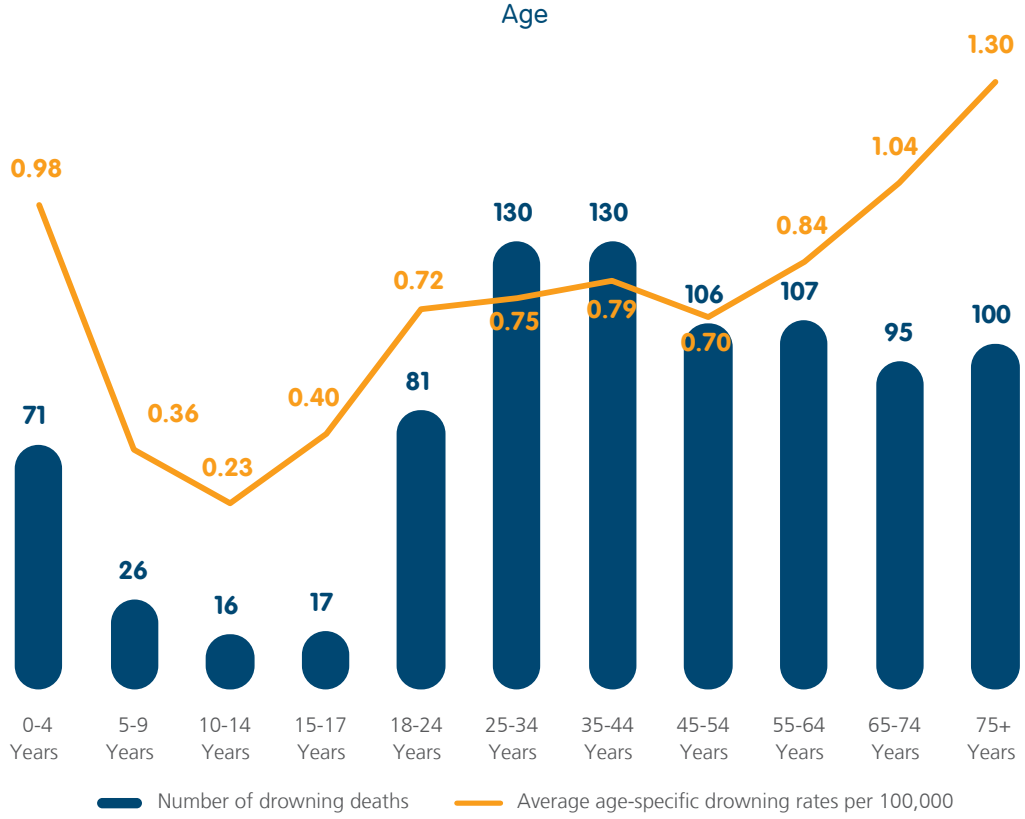
Visitor status

69% Not a visitor

16% interstate
2% intrastate

4% Overseas visitors

Age



Activity

22% Swimming and recreating

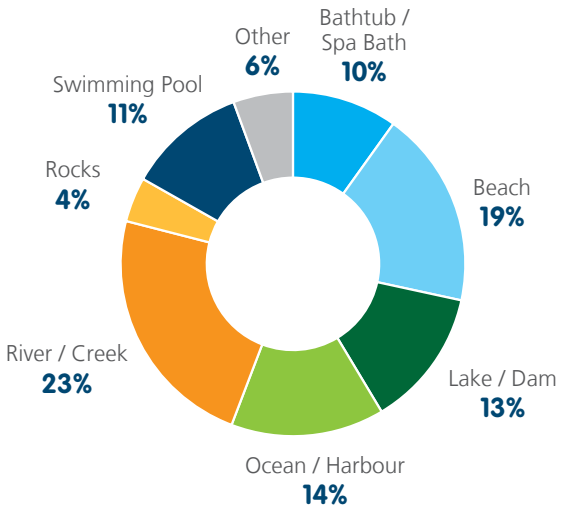
19% Fall

16% Boating and watercraft

15% Unknown

10% Bathing

Location



High-risk times for drowning

37%
Summer months

18% on a Sunday
28% school holidays

41%
Afternoon
12PM - 6PM

WESTERN AUSTRALIA

698 drowning deaths occurred in WA over the 20-year period

There was a **22%** **decrease** in drowning rates between 2002/07 and 2017/22

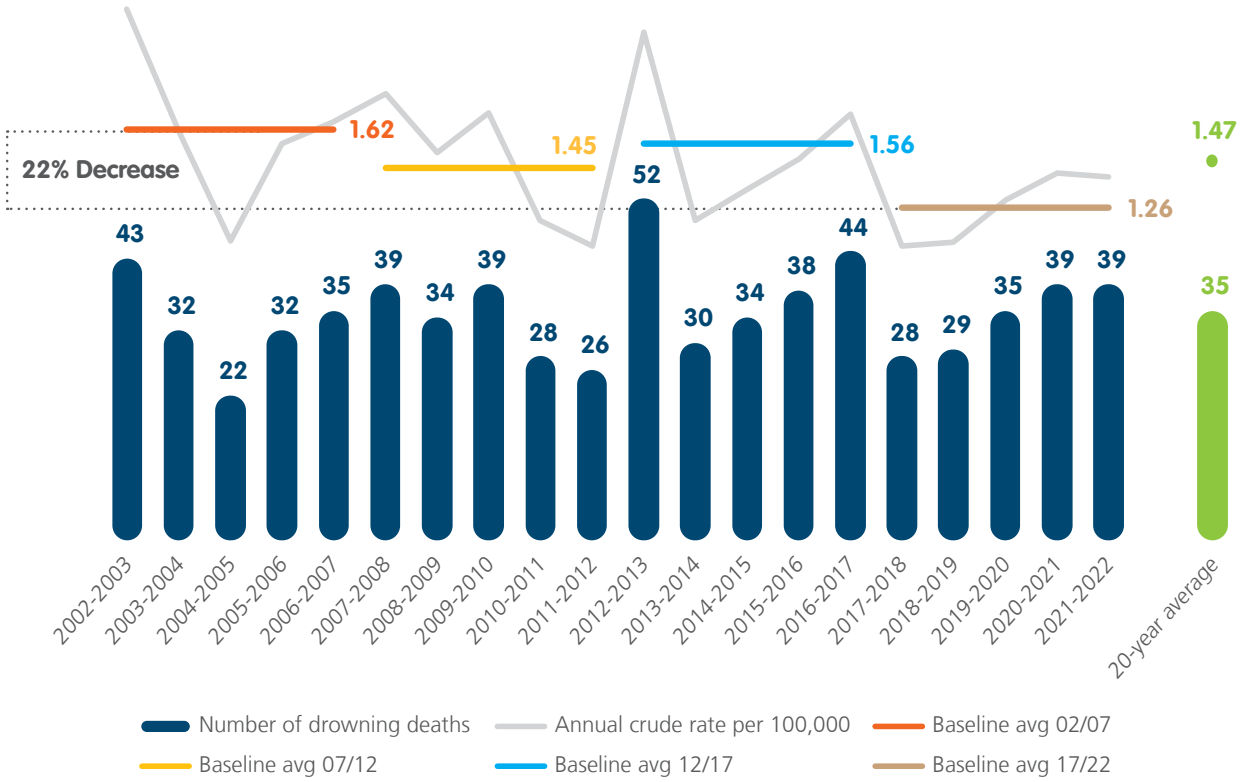
There was a **3%** **decrease** in drowning numbers between 2002/07 and 2017/22

with a 20-year average crude rate of **1.47** **drowning incidents** per 100,000

81% of those who drowned in WA were males

3% of drowning deaths were flood-related

Drowning deaths and rates per 100,000 population, in WA (2002/03 to 2021/22) and the 20-year average



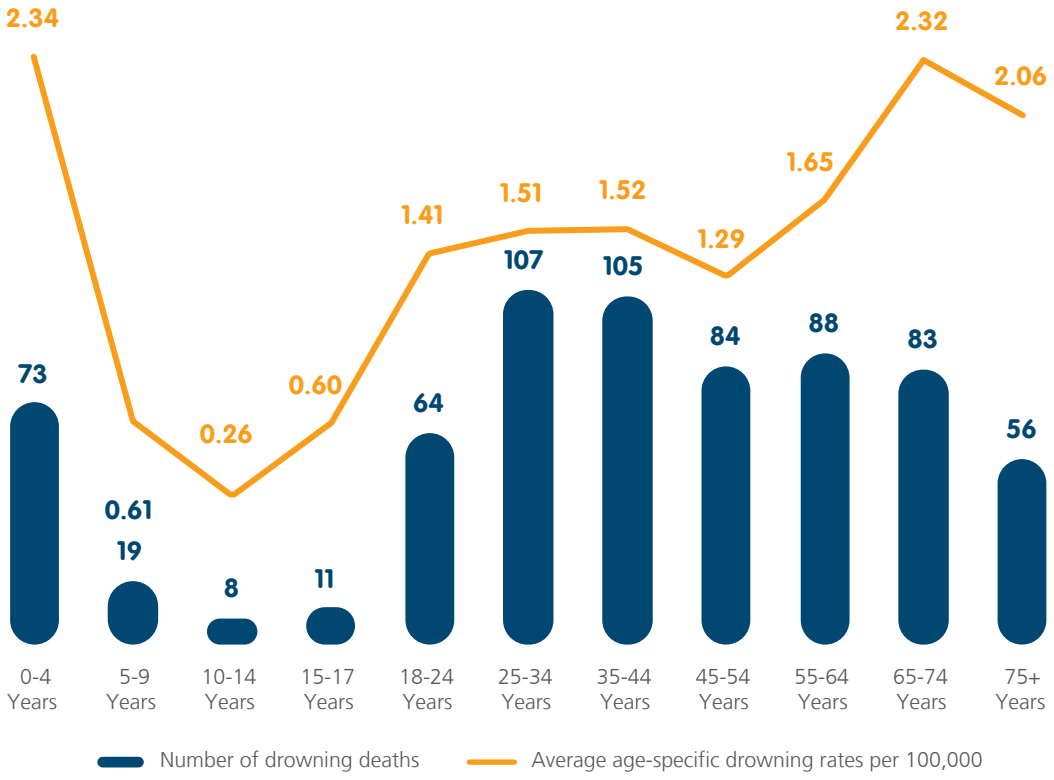
Visitor status

64% Not a visitor

15% interstate
4% intrastate

9% Overseas visitors

Age



Activity

22% Swimming and recreating

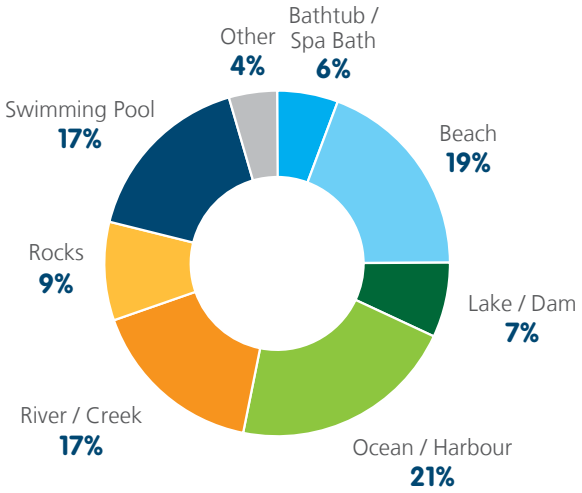
21% Boating and watercraft

19% Fall

9% Diving

7% Rock fishing

Location



High-risk times for drowning

33% Summer months

20% on a Sunday
29% school holidays

44% Afternoon
12PM - 6PM

METHODS

Fatal drowning

The information presented in the *Analysis of unintentional drowning in Australia 2002-2022: progress, challenges and data to inform prevention* has been collated from the National Coronial Information System (NCIS), State and Territory Coronial offices and year-round media monitoring. Cases are collated in partnership with Royal Life Saving State and Territory Member Organisations (STMOs) and Surf Life Saving Australia and analysed by Royal Life Saving Society – Australia. Information contained within the NCIS is made available by the Victorian Department of Justice and Community Safety.

Royal Life Saving uses a media monitoring service for broadcast, print and online all year round to identify drowning deaths reported in the media. This information is then corroborated with information from the NCIS, police reports and Royal Life Saving STMOs before being included in the National Drowning Report.

Great care is taken to ensure that the information in this report is as accurate as possible. Figures may change depending on ongoing coronial investigations and findings, as 16% of cases are still under investigation (i.e., open). Royal Life Saving regularly publishes ongoing studies, which provide detailed information on long-term data trends.

Historical drowning data are correct as of 1 July 2022, for this 20-year period, in accordance with Royal Life Saving's ongoing data quality assurance policy. All cases in the Royal Life Saving National Fatal Drowning Database are checked against those in the NCIS on a regular basis and figures are updated in annual National Drowning Reports as cases close. The 20-year averages in this report are calculated from drowning death data from 2002/03 to 2021/22 inclusive.

The baseline averages are derived from a five-year average of fatal drowning data from 2002/03 to 2006/07, 2007/08 to 2011/2012, 2012/13 to 2016/17,2017/18 to 2021/22.

For this report, the first baseline five-year average (2002/03-2006/07) was compared to the most recent five-year average (2017/18-2021/22). Comparisons were mainly on rates over 100,000 population.

Drowning rates per 100,000 population are calculated using population data from the Australian Bureau of Statistics (ABS) publication 'Australian Demographic Statistics' (Cat 3101.0). Percentages and averages are presented as whole numbers and have been rounded up or down accordingly. Some graphics may not add to 100% due to rounding.

Exclusions and categorisations

Drowning deaths as a result of suicide or homicide, deaths from natural causes, shark and crocodile attacks, or hypothermia have been excluded from this report. All information presented in this report relates to drowning deaths or deaths where drowning is a contributory cause of death.

'Non-aquatic transport' relates to drowning deaths involving a means of transport that is not primarily designed or intended for aquatic use such as cars, motorbikes, bicycles and aeroplanes among others.

Means of transport primarily used for aquatic purposes are categorised under 'boating' (water-based wind or motor-powered vessels, boats, ships and personal watercraft, such as boats, jet skis, sail boats and yachts). 'Watercraft' refer to water-based non-powered recreational equipment such as those that are rowed or paddled (e.g., rowboats, surfboats, kayaks, canoes, boogie boards).

Within this report, 'swimming pool' includes home swimming pools, public swimming pools, hotel and motel pools, and portable swimming pools among others.

Variables analysed in this study included: financial year, age groups, sex, state/territory of drowning, location of drowning, distance from residential location and drowning location, remoteness classification of drowning location, season, time of day, activity being undertaken prior to drowning, visitor status, and flood status.

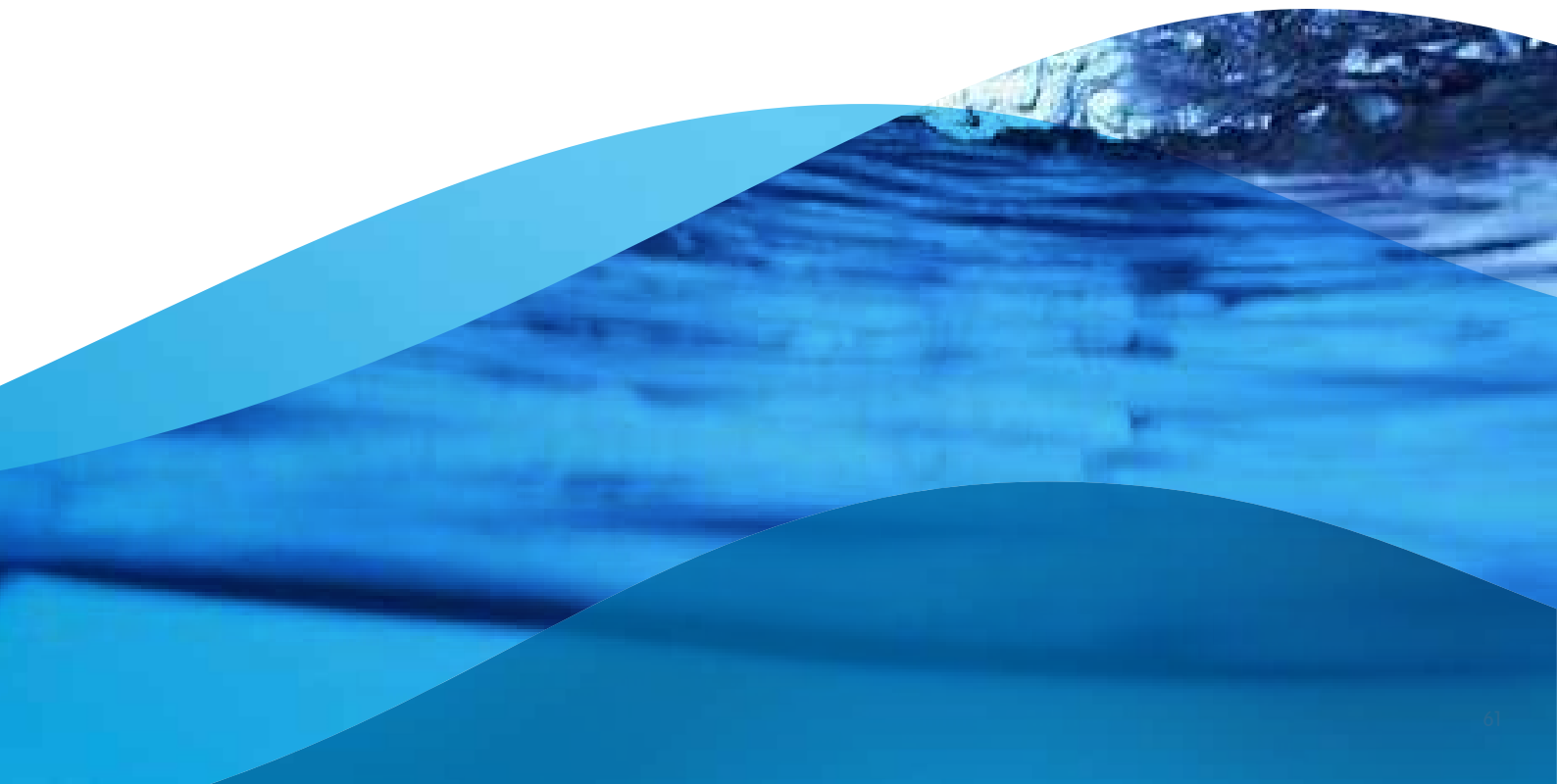
Non-fatal drowning

In the absence of up-to-date data on non-fatal drowning, non-fatal drowning incidents in 2017/18, 2018/19, 2019/20, 2020/21 and 2021/22 were estimated using the observed ratios of fatal to non-fatal incidents for each age group and sex between 2002/03 and 2014/15.

The applicable average ratio of fatal to non-fatal incidents over that period was then used to project the likely number of non-fatal incidents based on the number of fatal incidents for that age group and sex in 2017/18, 2018/19, 2019/20, 2020/21 and 2021/22.

Since available counts of non-fatal incidents do not include all drowning incidents, the proportion of missing incidents was estimated based on a four-year sample of fatal incident data which compared incident counts using both broad and restrictive definitions of 'drowning'.

The estimated proportion of drowning incidents not captured in existing non-fatal data for each age group was then used to scale-up estimates of non-fatal incidents to arrive at a projection comparable with the broad definition of drowning used to count fatal drowning incidents in this report.



Conclusion

This report describes drowning deaths over a 20-year period. While the rates of drowning per 100,000 population have decreased by 26%, more needs to be done to reduce drowning across all age groups and locations by 2030. This report has shown what has been achieved over the past 20-years, the challenges involved, and areas that require attention.

There is an opportunity to enhance existing strategies and develop new and innovative strategies focusing on key populations, activities, and risk factors.

While this study focused on fatal drowning deaths, we must acknowledge that non-fatal drowning has a significant impact on families and communities, and any future drowning prevention strategies should take a multi-pronged approach engaging with a range of partners to effectively address drowning in all forms at inland waterway locations.

References

1. Mahony A, Pidgeon S (2023) Review of pool fencing legislation in Australia. Royal Life Saving Society – Australia. Sydney
2. Royal Life Saving Society - Australia. Be Pool Safe - Changes to Pool Fencing Legislation 2017 [Available from: https://www.royallifesaving.com.au/programs/nsw-pool-register-be-pool-safe.
3. Royal Life Saving Society - Australia. National Swimming and Water Safety Education Symposium - Summary Report, 2017.
4. ABS 2020b. National, state and territory population. ABS cat. no. 3101.0. Canberra: ABS. Viewed 2023. [Available from: https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/latest-release#data-downloads]
5. Australian Institute of Health and Welfare. Older Australians. Australia; 2023. DOI:10.25816/5ec5bda5ed178
6. ABS 2021. Migration, Australia 2019–20. ABS cat. no. 3412.0. Canberra: ABS. Viewed 2021. Viewed 2023. [Available from: https://www.abs.gov.au/statistics/people/population/migration-australia/2019-20#net-overseas-migration]
7. Australian Government Bureau of Meteorology & CSIRO. State of the climate 2022. Australia: Australian Government Bureau of Meteorology & CSIRO; 2022
8. PwC Australia. 2022. Towards a Nation Free From Drowning: The Role of Learn to Swim. Prepared for Royal Life Saving, Sydney, Australia.
9. Peden, A. E., Willcox-Pidgeon, S., Scarr, J. P., & Franklin, R. C. (2023). Lessons learned through the 20-year development of a national fatal drowning database in Australia. BMC public health, 23(1), 1-10.

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