

JUNE 2016

REPORT

WATER-RELATED FATALITY TRENDS ACROSS CANADA
1991 TO 2013



**CANADIAN
RED CROSS**

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The Canadian Red Cross is committed to preventing water-related injuries and fatalities, and therefore maintains the Canadian Surveillance System for Unintentional Water-Related Fatalities.

Canadian Red Cross staff and volunteers annually collect provincial and territorial coroner and medical examiner data for each death by completing a structured questionnaire or by direct data-entry into the Unintentional Water-Related Fatalities Database. This evidence-based data research is influential in determining Red Cross public education strategies and community initiatives. It is also used to identify key messages and skills that all Canadians need to help them stay safe in, on, and around the water.

The analysis in this report focuses on activity, purpose, equipment, environment, and personal risk factors, as well as trends.

Between 1991 and 2013, an average of 518 Canadians died annually in water-related fatalities. The average rate of water-related fatalities across the country was 1.6 per 100,000 persons (**Table 1**).

Table 1 Water-related fatalities by years, province, and rate, Canada, 1991-2013 (n=11,903)								
Province	1991 to 1995 (n=3,219)	1996 to 2000 (n=2,722)	2001 to 2005 (n=2,213)	2006 to 2010 (n=2,369)	2011 to 2013 (n=1,380)	Total (n=11,903)	Percent (%)	Rate per 100,000 persons
Nfld & Labrador	135	123	106	109	45	518	4	4.2
Nova Scotia	144	148	69	81	40	482	4	2.2
Prince Edward Island	20	18	13	15	4	70	1	2.2
New Brunswick	110	69	78	57	32	346	3	2
Quebec	636	577	417	405	237	2,272	19	1.3
Ontario	918	739	728	829	482	3,696	31	1.3
Manitoba	171	137	107	118	85	618	5	2.3
Saskatchewan	131	113	81	86	69	480	4	2
Alberta	184	179	171	192	130	856	7	1.2
British Columbia	672	554	387	404	226	2,243	19	2.4
Northern Territories	98	65	56	73	30	322	3	13.6
Canada						11,903	100	1.6

Water-related fatalities occurred across all provinces/territories, even though Ontario had the highest frequency of water-related deaths (n=3,696 or 31%), with a rate of 1.3 per 100,000 persons (**Table 1**).

The Northern Territories, including Nunavut, Yukon and the Northwest Territories, had the second lowest number of water-related deaths (n=322 or 3%), but the highest rate per capita (13.6 per 100,000 persons) (**Table 1**). This means the Northern Territories were at a particularly high risk with a rate of water-related deaths at eight and a half times the national average. It should be noted, however, that the Northern Territories have a low population, and therefore a smaller number of deaths can affect the rate.

When looking at **Table 1** above, please note the first four columns are in five year increments that include: 1991 to 1995, 1996 to 2000, 2001 to 2005, 2006 to 2010; the next column, 2011 to 2013, only covers three years of data. Complete data is only available to the end of 2013. As the 2011 to 2013 column only covers three years worth of data, the number of fatalities is much lower than the preceding columns. The average number of water-related fatalities for each province/territory is provided in **Table 2**, which follows below:

Province	1991 to 1995 5 year average	1996 to 2000 5 year average	2001 to 2005 5 year average	2006 to 2010 5 year average	2011 to 2013 3 year average	1991 to 2013 23 year average	Percent (%)
Nfld & Labrador	27	25	21	22	15	23	4
Nova Scotia	29	30	14	16	13	21	4
Prince Edward Island	4	4	3	3	1	3	1
New Brunswick	22	14	16	11	11	15	3
Quebec	127	115	83	81	79	99	19
Ontario	184	148	146	166	161	161	31
Manitoba	34	27	21	24	28	27	5
Saskatchewan	26	23	16	17	23	21	4
Alberta	37	36	34	38	43	37	7
British Columbia	134	111	77	81	75	98	19
Northern Territories	20	13	11	15	10	14	3
Canada						518	100

*Average means the average number of water-related fatalities over five years for periods 1991 to 1995, 1996 to 2000, 2001 to 2005, and 2006 to 2010, and the average number of water-related fatalities over three years from 2011 to 2013.

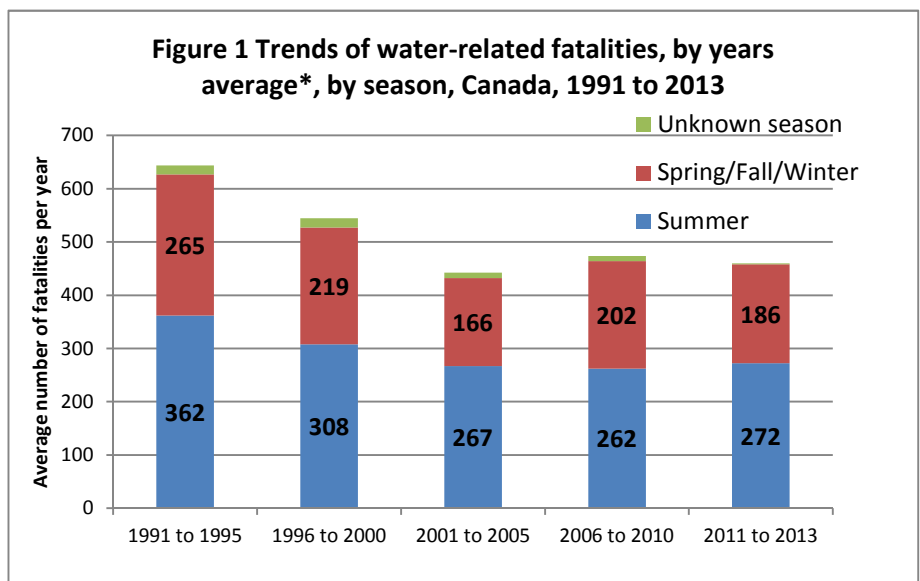
Table 2 generally shows a decreasing trend from 1991 to 2013 in the average number of water-related fatalities for the provinces of Newfoundland and Labrador, Nova Scotia, Prince Edward Island, New Brunswick, Quebec, and British Columbia.

Since 1991, 11,903 water-related fatalities have been identified, and 57% or 6,811 fatalities occurred during the summer months. In this brief report, summer is defined as the months between May 1st and August 31st.

Between 1991 and 2005, the adjacent figure, **Figure 1**, shows a decreasing trend in the average number of water-related fatalities. Between 2006 and 2013, the average number of fatalities had generally plateaued.

Figure 1 also provides the average number of fatalities by years and by season. For example, between 1991 and 1995, the five-year average number of deaths was 362 in the summer months, and 265 in the spring, fall and winter.

The number of fatalities that occurred by years and by season are shown below in **Table 3**.



*Average means the average number of water-related fatalities over five years for periods 1991 to 1995, 1996 to 2000, 2001 to 2005, and 2006 to 2010, and the average number of water-related fatalities over three years from 2011 to 2013.

	1991 to 1995 (n=3,219)	1996 to 2000 (n=2,722)	2001 to 2005 (n=2,213)	2006 to 2010 (n=2,369)	2011 to 2013 (n=1,380)	Total (n=11,903)
Summer	1,809	1,540	1,334	1,311	817	6,811
Spring/Fall/Winter	1,327	1,095	828	1,008	558	4,816
Unknown season	83	87	51	50	5	276

From 1991 to 2013:

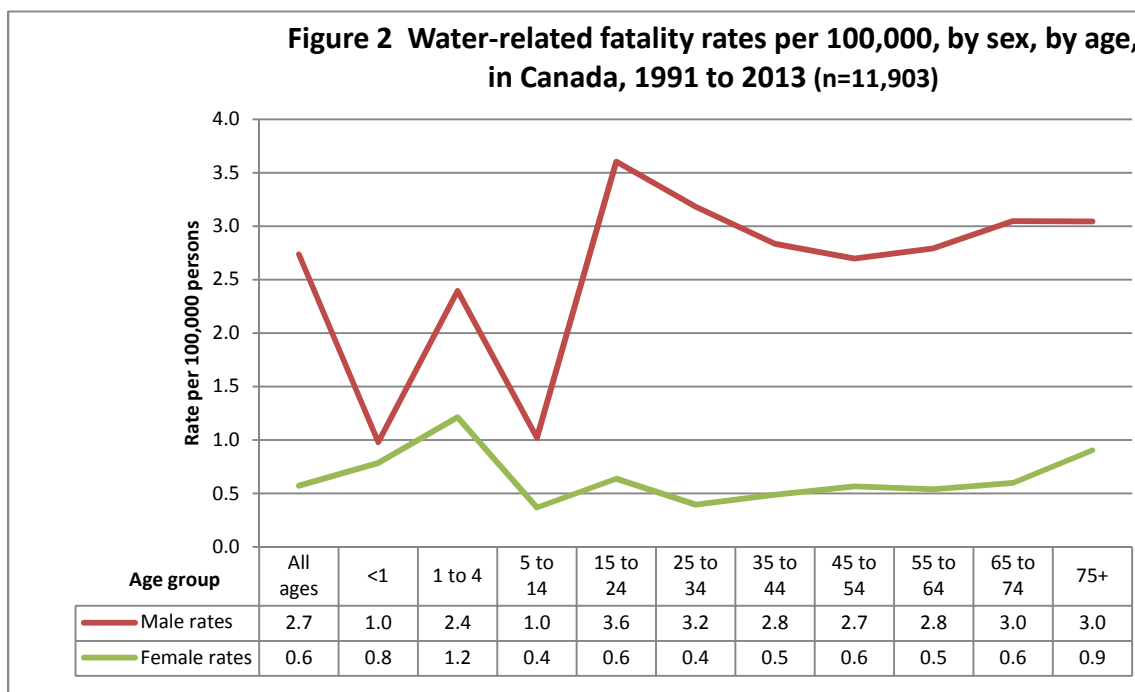
- On average, 518 Canadians died annually in water-related fatalities.
- The average rate of water-related fatalities across the country is 1.6 per 100,000 persons.
- The Northern Territories had the highest rate of water-related deaths.
- 57% of water-related fatalities occurred in summer months.

Rates were calculated to identify the sex and age groups most at risk for water-related fatalities in Canada.

Figure 2 shows males had the highest rate of water-related fatalities, with an overall rate of 2.7 per 100,000 persons.

For males, the age group with the highest rate was 15 to 24 year olds, with a rate of 3.6 per 100,000 persons.

For both sexes, the age group with the highest rate was 15 to 24 year olds, with a rate of 2.2 per 100,000 persons.



For females, the age group with the highest rate was 1 to 4 year olds, with a rate of 1.2 per 100,000 persons (**Figure 2**).

All rates were calculated using Statistics Canada Table 051-0001—and include annual estimates of population by age group and sex.

From 1991 to 2013:

- Males accounted for 82% of water-related fatalities.
- Overall males had the highest rate of water-related fatalities, with a rate of 2.7 per 100,000 persons.
- Persons most at risk were 15 to 34 year old males, and 65+ year old males.

This report will focus on summer statistics from 1991 to 2013 from this point forward.

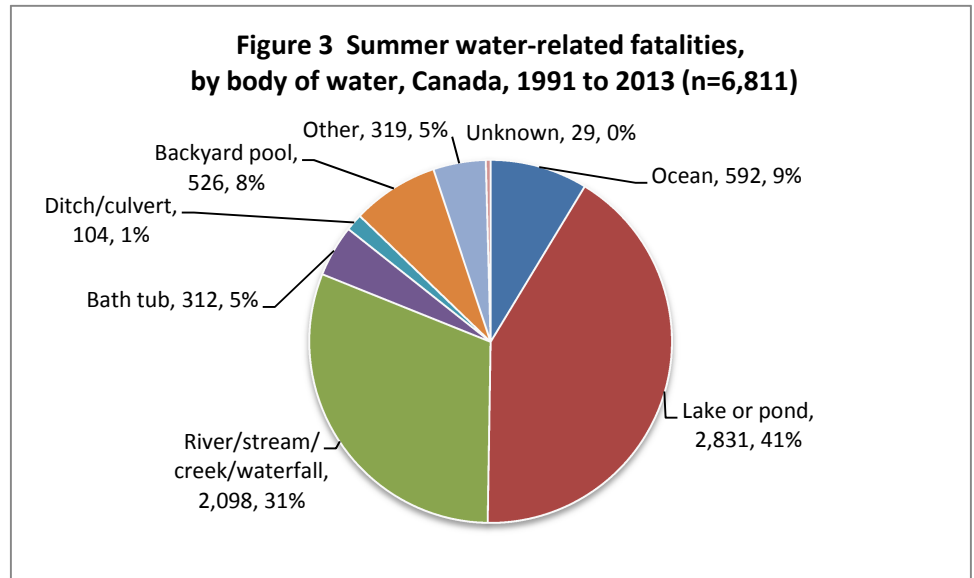
SUMMER WATER-RELATED FATALITIES

From 1991 to 2013:

- On average, 296 people died in the summer each year from water-related incidents.
- Males accounted for 83% of summer water-related fatalities.

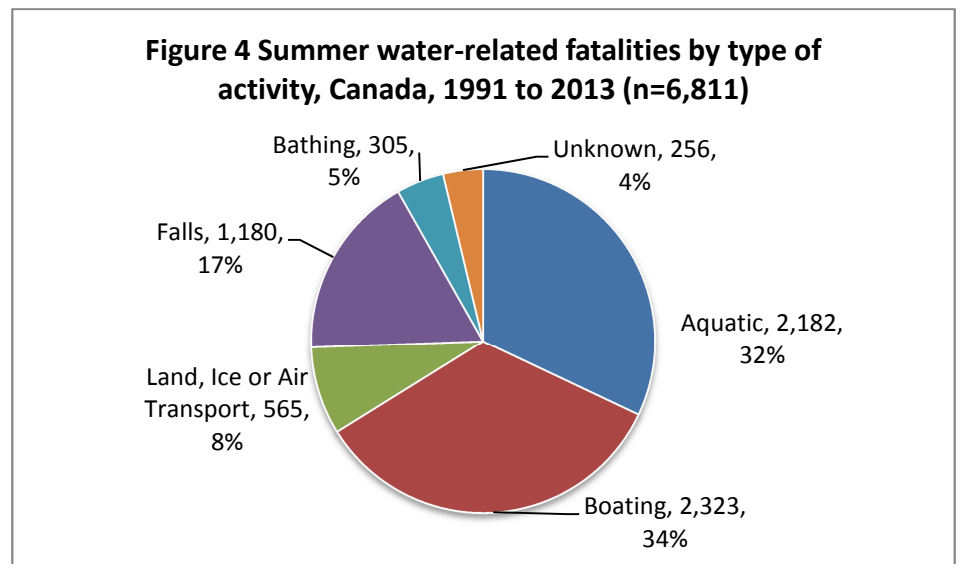
LOCATION

From 1991 to 2013, the most frequent locations that victims were found in during the summer were lakes or ponds (41%, n=2,831), rivers (31%, n=2,098), ocean (9%, n=592), backyard pools (8%, n=526), and bath tubs (5%, n=312)



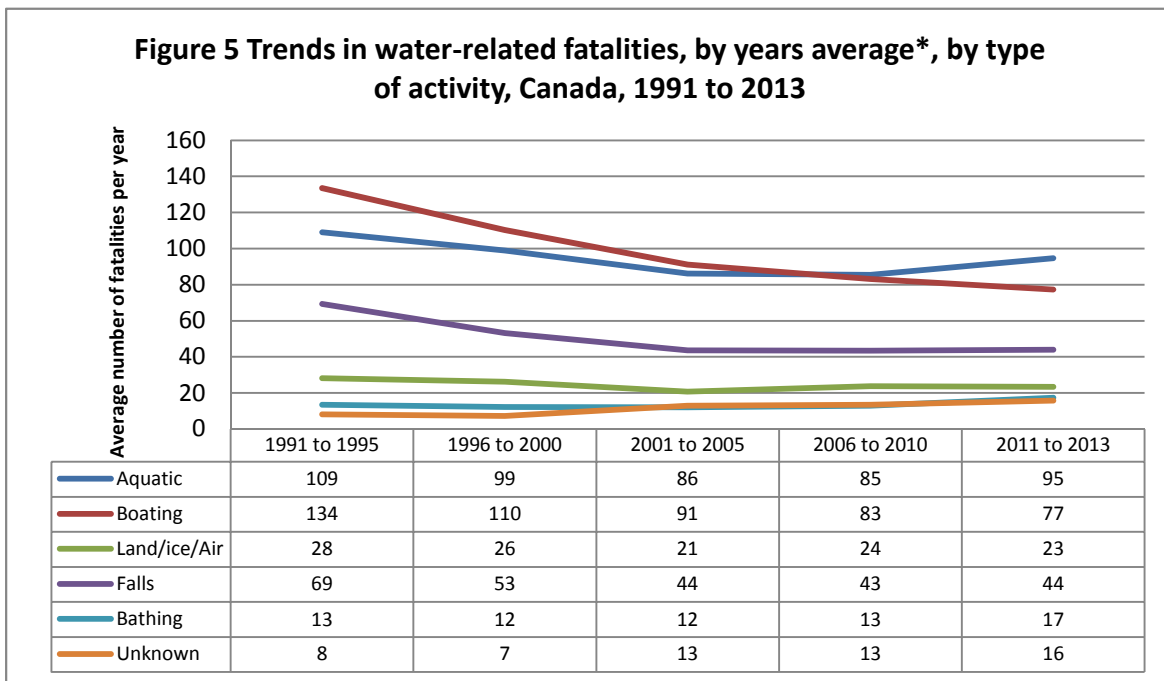
SUMMER ACTIVITIES

From 1991 to 2013, summer boating activities had the highest percentage of deaths (34%, n=2,323), with aquatic activities second (32%, n=2,182), and non-aquatic activities (falls) third (17%, n=1,180) (**Figure 4**).



Overall, summer boating activities had the highest percentage of deaths, compared to any other summer activity.

Figure 5 shows the trends in summer activities using the average number of water-related fatalities, for different time periods.



*Average means the average number of water-related fatalities over five years for periods 1991 to 1995, 1996 to 2000, 2001 to 2005, and 2006 to 2010, and the average number of water-related fatalities over three years from 2011 to 2013.

The average number of summer boating fatalities had consistently been higher than the average number of summer aquatic fatalities until they were practically the same from 2006 to 2010. Between 2011 and 2013, the average number of aquatic deaths was higher than the average number of boating deaths (**Figure 5**).

From 1991 to 2013:

- On average, 101 people died each year during the summer from a boating-related incident.
- Men aged 15 to 54 accounted for 73% of summer boating fatalities.
- Alcohol was present or suspected in at least 41% of deaths for individuals aged 15 and over.
- In only 13% of summer boating deaths, was a lifejacket worn by the decedent.

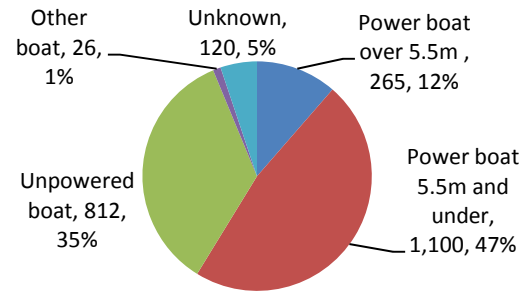
SUMMER BOATING ACTIVITY

Of the 2,323 summer boating-related fatalities that occurred between 1991 and 2013, only 13% of fatalities were wearing a lifejacket properly at the time of the incident. Lifejackets were not worn properly in 3% of the cases. In 23% of cases, a lifejacket was present but not worn. And in 26% of cases, a lifejacket was not present.

For the purposes of this report, power boats are boats that are mainly propelled by a motor, and include power boats over 5.5 meters in length, as well as power boats 5.5 meters and under, including Jet Skis or Sea-Doos. Unpowered boats are usually not powered by a motor, mainly by human or wind power, and include canoes, rowboats, kayaks, sailboats, rafts, etc.

The largest percentage of summer boating deaths occurred with power boats 5.5 metres and under at 47%, compared to unpowered boats at 35% (**Figure 6**).

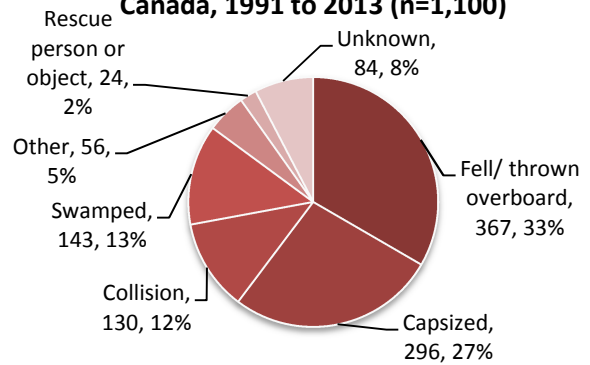
Figure 6 Summer boating water-related fatalities by boat type, Canada, 1991 to 2013 (n=2,323)



POWER BOATS 5.5M AND UNDER (N=1,100)

The largest percentage of summer power boat deaths (power boats 5.5 metres and under), were from people falling/thrown overboard (33%), with capsized incidents being second (27%) (**Figure 7**). Looking at age group and sex, the highest frequency of deaths were seen in 35 to 44 year old males (17%, n=191), 45 to 54 year old males (16%, n=181), and 25 to 34 year old males (16%, n=181). Males were involved in 92% (n=1,010) of power boat deaths 5.5m and under.

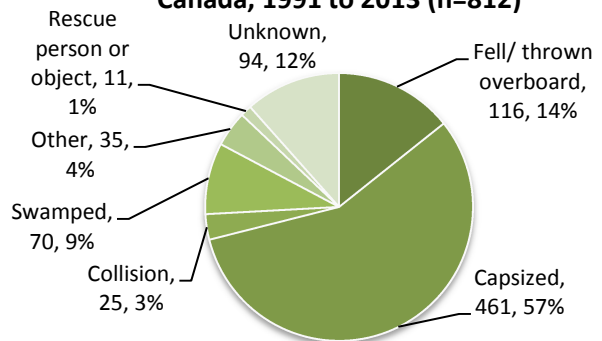
Figure 7 Summer boating fatalities by power boat 5.5m and under, by boating incident, Canada, 1991 to 2013 (n=1,100)



UNPOWERED BOATS (N=812)

The largest percentage of unpowered boating deaths in the summer was due to capsizing (57%), then from falling/thrown overboard (14%) (**Figure 8**). Looking at age group and sex, the highest frequency of deaths were from 15 to 24 year old males (26%, n=208), 25 to 34 year old males (20%, n=160), and 35 to 44 year old males (16%, n=127). Males were involved in 92% (n=745) of unpowered boat deaths.

Figure 8 Summer boating fatalities by unpowered boat, by boating incident, Canada, 1991 to 2013 (n=812)



SUMMER AQUATIC ACTIVITY

On average, 95 people died in the summer, each year, following an aquatic incident where the person was in the water and intended to be in the water. Overall, males accounted for 85% of summer aquatic deaths.

	1991 to 1995 (n=545)	1996 to 2000 (n=495)	2001 to 2005 (n=431)	2006 to 2010 (n=427)	2011 to 2013 (n=284)	1991 to 2013 (n=2,182)	Percent %
Swimming	349	294	238	225	132	1,238	57
Playing in water/wading	108	64	77	70	48	367	17
Diving/jumping	26	32	35	43	49	185	8
Non-recreational activity	21	49	34	37	19	160	7
Scuba diving	11	15	19	11	14	70	3
Hot tub/whirlpool	4	12	6	14	9	45	2
Fishing from water/land	14	13	8	10	5	50	2
Other recreational activity	12	16	14	17	8	67	3

Between 1991 and 2013, summer aquatic fatalities occurred during the following activities: 57% were swimming, 17% were playing and/or wading in the water, and 8% were diving or jumping into the water (**Table 4**).

More summer aquatic fatalities occurred on Saturday than any other day of the week (23%, n=493). 43% of the summer aquatic fatalities occurred over the weekend.

SWIMMING (N=1,238)

Swimming fatalities occurred in the following order: the most frequent locations were in lakes (47%, n=577), followed by rivers (32%, n=390), then backyard/private pools (12%, n=153).

The swimming ability was unknown for 22% (n=272) of the swimming victims. 49% (n=471) of the remaining victims were identified as a swimmer but with the skill level not identified, 22% (n=213) were weak swimmers, and 17% (n=160) were average or intermediate swimmers.

87% of the swimmers, who died between 1991 and 2013, were male, and 13% were female.

From 1991 to 2013, the age group most at risk for swimming deaths was: 15 to 24 year olds (n=379, rate=0.38 per 100,000 persons). The majority of the deaths for this age group were in lakes (n=170) and rivers (n=161).

PLAYING IN WATER/WADING (N=367)

While playing in water and/or wading in water, the most frequent fatalities occurred in the following order: lakes (41%, n=151), in rivers (26%, n=96), backyard/private pools (23%, n=85), and public pools (5%, n=19).

The swimming ability was unknown for 22% (n=79) of the victims who waded in the water. 71% (n=205/288) of the remainder of the victims were non-swimmers, and 19% (n=55/288) were weak swimmers.

76% of the people playing or wading in the water were male, and 24% were female.

Between 1991 and 2013, the age group most at risk for a fatality as a result of wading in water was: 1 to 4 year olds (n=48, rate=0.13 per 100,000 persons). The majority of the deaths for this age group occurred in backyard pools (n=23) and in lakes (n=13).

SUMMER NON-AQUATIC ACTIVITY (FALLS)

On average, 51 people died during the summer, each year, from non-aquatic activity incidents—or from falls into water, where the person did not intend to be in the water, but was close to the body of water and fell into it. Overall, males accounted for 80% of summer non-aquatic activity (falls) deaths.

Age group	Male (n=946)	Female (n=230)	Unknown (n=4)	Total (n=1,180)	Percent (%)	Rate per 100,000 persons
<1	3	4	0	7	1	0.1
1 to 4	219	89	2	310	26	0.9
5 to 14	78	18	0	96	8	0.1
15 to 24	128	24	0	152	13	0.2
25 to 34	90	11	0	101	9	0.1
35 to 44	101	20	2	123	10	0.1
45 to 54	96	13	0	109	9	0.1
55 to 64	80	12	0	92	8	0.1
65 to 74	78	17	0	95	8	0.2
75+	72	22	0	94	8	0.2
Unknown	1	0	0	1	0	

The age group most at risk in the summer for non-aquatic incidents or falls into water is 1 to 4 year olds (26%, n=310, rate= 0.9 per 100,000 persons) (**Table 5**).

1 TO 4 YEAR OLDS (N=310)

The majority of 1 to 4 year olds fell into backyard pools (52%, n=160), 29% (n=91) fell into lakes or ponds, and 8% (n=26) fell into rivers. 71% were males, and 29% were females.

77% (n=239) of fatalities occurred when children were alone (without adult supervision or their caregiver was momentarily absent). An additional 15% (n=47) of fatalities occurred when the children were with a minor only (under the age of 18). 35% (n=109) of the 1 to 4 year olds had an unknown swimming ability, of the remainder, 90% (n=180/201) were identified as non-swimmers.

Home pools must meet the municipal requirements for fencing, however, when data was present, only 24% (n=38) of fences met legal standards for these victims. Only 12% (n=19) of home pools had both self-closing and self-latching gates.

The Canadian Red Cross is a leader and a resource on injury prevention. We are committed to preventing water-related injuries and fatalities. We are extremely concerned about Canadians' behaviour around water, and we work year round to promote water safety through awareness campaigns and skills training courses, including swimming lessons, self-rescue and survival classes. Despite these efforts, water-related fatalities continue to take too many lives each year.