

PART 2

DROWNINGS & OTHER WATER-RELATED INJURY FATALITIES DURING BOATING

DROWNINGS DURING BOATING

Boating drownings are the most important category of drownings in Canada. Boating tends to account for about 40% of all drownings and 45% of drownings during recreational activities, excluding land and air transport. This represents between 150 and 200 Canadians each year, and 1675 deaths during 1991-1999. If this many people died in an air crash, there would be an extensive investigation. Among aboriginals, many of whom use boats for daily transport, boating represents close to 50% of all drownings. Aboriginals constitute a significant proportion of boating drowning victims, and they are greatly overrepresented among all victims on the basis of their population. You will find more information on drowning among aboriginal peoples in Part 6.

There are significant differences in the relative importance of boating drownings by sex, since during 1991-1997, boating accounted for about 45% of all drownings among males and only about 10% among females. However, in 1998, 23% of drownings among females occurred during boating. In 1999, 40% of drownings among males occurred during boating, and for females, 16%. Boating is generally rare as a cause of drowning among children 0-14 years old, although in 1999 seven children less than 15 years old drowned during boating. On the other hand, for persons of 15 and older, boating accounts for about 50% of all drownings for males and 25% for females.

The rate of boating drownings in Canada has been high with respect to the United States and certain European countries, similar to rates in Sweden and Australia, and substantially lower than in other Scandinavian countries, as evidenced in data for 1988-1992 (The Canadian Red Cross Society, 1994a). Rates in Canada were nearly double those in the United States, about 4 times higher than in Scotland, 7 times higher than in England, and 12 times higher than in France. On the other hand, rates in Finland and Norway were about 4 or more times greater than rates in Canada. In Canada, vital statistics data appear to undercount up to about 33-43% of boating drownings (Codes E830 & E832), because of misclassification of many boating drownings as non-boating drownings (Code E910) (The Canadian Red Cross Society, 1994a).

A single multiple-victim incident, such as the loss of a ferry boat or large fishing vessel, can exaggerate the usual national rate and cause marked fluctuation of rates. Hence, to facilitate the interpretation of trends, rates are included in this report by individual deaths and also by incident.

Recreational boating is the major source of boating drownings, followed by occupational boating and travel by boat as part of daily or subsistence living. While there are some common risk factors for recreational, occupational, and daily living boating, there are also significant differences.

For the purposes of this report, recreational, daily living, and occupational boating are defined as follows:

- *Recreational boating* is boating for leisure and sporting activities. This includes predominantly recreational fishing and travel in powerboats and canoes for pleasure and as part of other recreational activities.

- *Daily living boating* is boat travel as part of normal daily life by people who use boats for transport to and from their home. It also includes boating for subsistence hunting and fishing. Most daily living boating incidents involve aboriginal peoples who use a boat for daily travel and for hunting and fishing for food rather than cash profit. Daily living boating does not include use of boats at cottages during holidays.
- *Occupational boating* is use of a boat that generates revenue. This includes commercial fishing, trapping, aquaculture, guiding or other paid activities. Occupational boating can be as a member of a paid crew or self-employment.

Since *small open powerboats* <5.5 metres long and *canoes* account for most recreational boating drownings, data are provided in greater detail for these high-risk boaters. Most frequent drowning incidents involving these boats are capsizing, swamping, and falls into water that potentially affect all occupants of the boat, and alcohol consumption which is as unwise for passengers as for operators.

Canoeing victims tend to be younger than powerboaters, with the highest drowning rate for canoeists among 15-24 year olds and for powerboaters among 15 to 75+ year olds. Small powerboat drownings rates are high at all ages, with a trend to the highest rates among middle-aged and elderly males. Alcohol is associated with about 25% of drowning in small powerboats and canoes; the frequency of alcohol associated with boating drownings has decreased during 1991-1999.

Non-wearing of a flotation device continues to be associated with the vast majority of drownings in these small boats, even among non-swimmers and weak swimmers. Between 1991 and 1999, the proportion of victims wearing a flotation device has remained very low, at 10%. Hence 90% of boating victims did not wear a flotation device, and only about 30% had consumed alcohol. Boaters who drown during occupational activities rarely were wearing a flotation device and rarely consumed alcohol.

While staying with the boat is often recommended when a boater finds themselves in the water, this is not always possible. When a lone boater falls in, the boat (with the unworn flotation device in it) sometimes continues on alone or runs about in circles. In some cases where immediate rescue is not feasible water and wind are so cold that fine muscles lose function and the boater is unable to find and put on their flotation device nor to hang on to the boat for long. In comparing data for survivors and victims, it is apparent that in both groups more than half attempted to swim to shore. No dogmatic advice can be given to support either strategy in all situations. The well-informed boater will be in the best position to decide on the most appropriate strategy for a specific situation pending on his/her assessment of the situation (e.g. very cold water, distance to shore, rescue is not likely to arrive soon, etc.).

As for other injuries, fatal incidents often result from a combination of more than one risk factor. Other frequent risk factors include cold, wind, waves, and darkness. Extremely cold water below 10 degrees is a frequent risk factor in recreational boating drownings, very frequent in daily living drownings, and present in almost all occupational drownings. Although the summer months are most popular for boating, many fatal incidents occur during spring and fall. Lakes are by far the most frequent type of body of water for recreational boating drownings; however, in Quebec and British Columbia rivers are also important, and in the Atlantic region and British Columbia oceans are another frequent source of drownings.

An acute rescue for a potentially salvageable victim occurred in only 30% of boating drownings. The fact that so few boaters wear a flotation device that would keep them alive in the water together with the fact that immediate rescue is often not feasible make for a deadly combination.

During 1991-1999, recreational and daily living boating drowning rates in coastal provinces have averaged about twice those in inland provinces, and rates in northern territories have averaged about 20 times higher. Occupational drowning rates are about three times higher in the Atlantic region and the northern territories than in British Columbia, and about 20 times higher than in the inland provinces.

OTHER INJURY FATALITIES DURING BOATING

Boating fatalities other than drownings killed about 15 Canadians per year during 1991-1999. They fall into two major categories, including:

- * Collisions, propeller wounds, & crushing injuries with blunt or lacerating trauma
- * Immersion hypothermia without drowning

Boating collisions may involve another boat or a fixed object such as a log, rock, or dock. Waterskiers or persons being towed on tubes and other devices can collide with a fixed object or be struck by a propeller. Boaters and bystanders who fall in and swimmers are also at risk of propeller injuries, since most motors are still not equipped with a propeller guard.

In some of these incidents, drowning is also a factor in the death, but is assessed to be secondary to other injuries, often severe head trauma. While small open powerboats and canoes are the most frequent types of boats associated with boating drownings, this is not the case with fatal traumatic injuries. Boats involved in fatal collisions tend to be either large powerboats more than 5.5 metres long or personal watercraft.

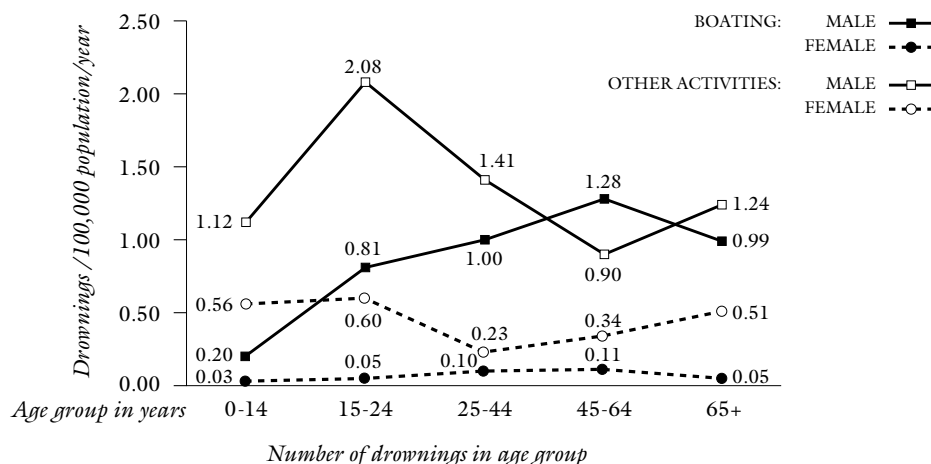
Alcohol and darkness are involved in more than 50% of boating collisions. Thus boating collisions have about twice as frequent an involvement of alcohol as boating drowning incidents. Collisions also occur about twice as frequently in darkness as drowning incidents.

For more information about water-related fatalities during boating in Canada, the reader may wish to consult the Special Research Reports: *Drowning Among Recreational Boaters in Canada* and *Drowning & Other Injury Fatalities during Boating*. Other details are included in the *Comprehensive Surveillance Report: National Drowning Report* and the annual *Visual Surveillance Reports* (The Canadian Red Cross Society, 1994a, 1994c, 1996, 1997b, 1998, 1999, 2000).

OVERVIEW OF BOATING DROWNINGS

Figure 2.1

RATE AND NUMBER OF BOATING DROWNINGS* & ALL OTHER DROWNINGS† BY AGE & SEX, CANADA 1999 (n=405; 145 BOATING, 260 OTHER ACTIVITIES)‡



	0-14	15-24	25-44	45-64	65+
Boating, male	6	17	49	44	16
Boating, female	1	1	5	4	1
Other activities, male	34	44	69	31	20
Other activities, female	16	12	11	12	11

* Includes recreational, occupational, daily living & other boating drownings (E830 & E832)

† Includes aquatic & non-aquatic drownings (E910); excludes land & air transport drownings

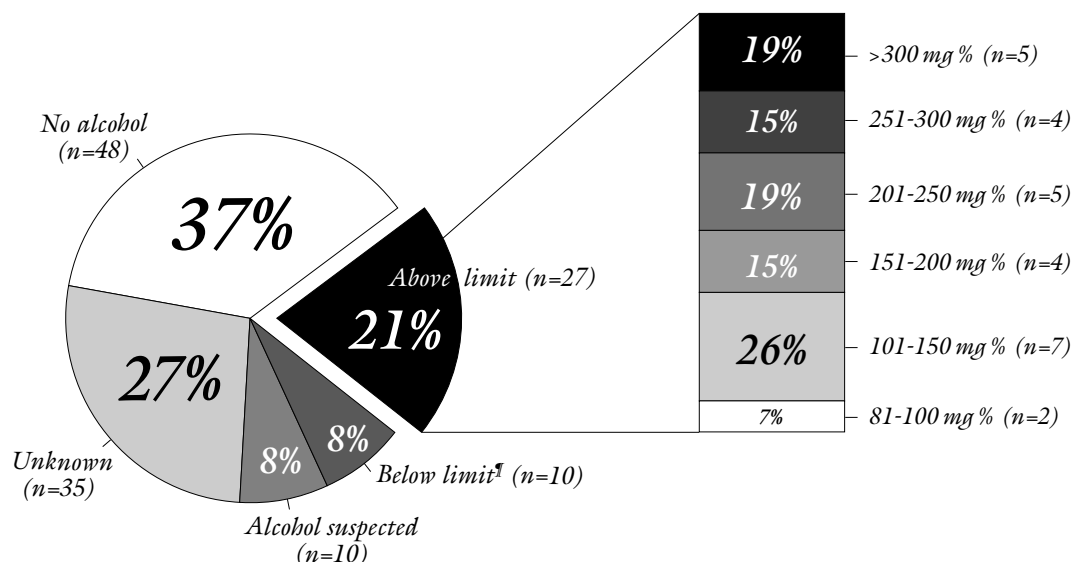
‡ Age unknown for 1 male victim, presumed adult, boating;

sex unknown for 2 victims, imputed male: 36-year-old, boating and 2-year-old, other activities

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.2

BLOOD ALCOHOL LEVELS* FOR ALL BOATING DROWNINGS,† CANADA 1999 (VICTIMS ≥15 YEARS OF AGE; n=138)‡§

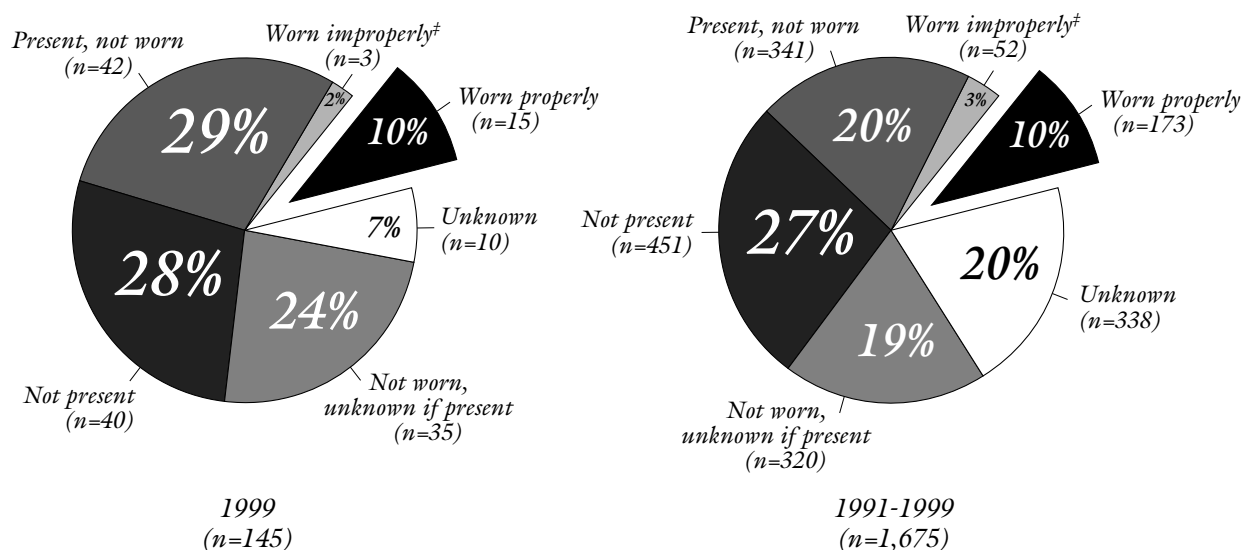


* Legal limit is 80 mg % † Includes recreational, occupational, daily living & other boating drownings (E830 & E832)
 ‡ This figure excludes 8 victims; decomposition rendered blood alcohol unreliable § Age unknown for 1 male victim, presumed adult
 ¶ 4 at 1-49 mg %, 6 at 50-80 mg %

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.3

BOATING DROWNINGS* BY USE OF A FLOTATION DEVICE,† CANADA 1999 (n=145) AND 1991-1999 (n=1,675)



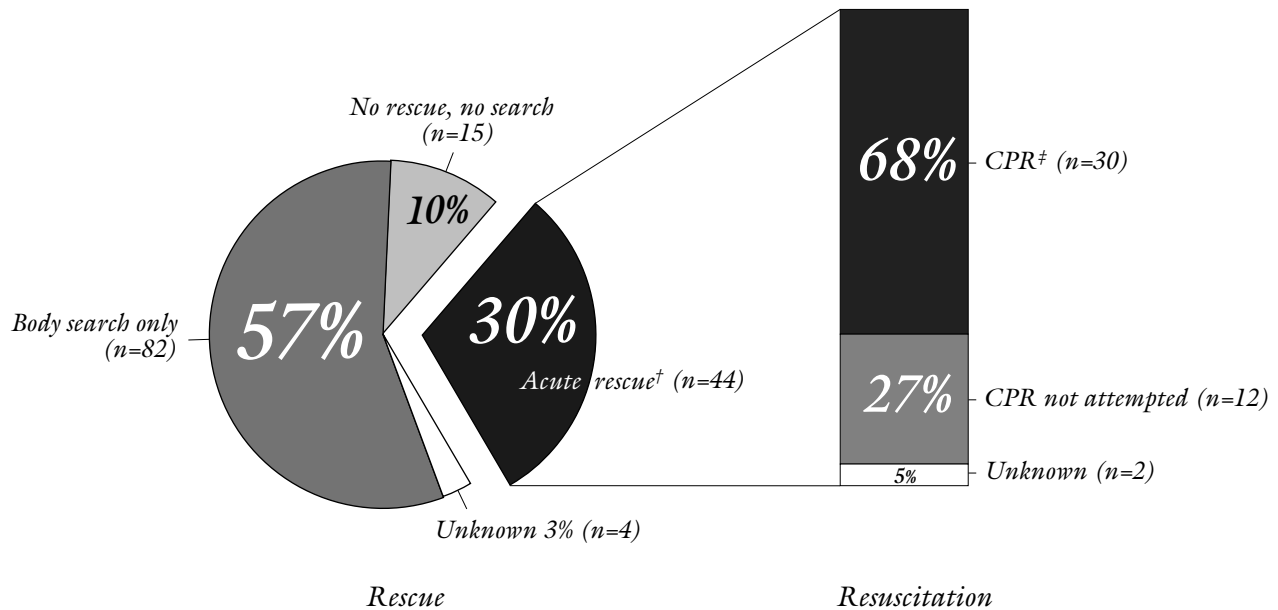
* Includes recreational, occupational, daily living & other boating drownings (E830 & E832)

† Personal flotation device or lifejacket ‡ Not fastened or inappropriate size

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.4

BOATING DROWNINGS* BY RESCUE & RESUSCITATION, CANADA 1999 (n=145)



* Includes recreational, occupational, daily living & other boating drownings (E830 & E832)

† Including 28 cases with acute rescue for a potentially survivable victim & 16 with acute rescue followed by an extended body search

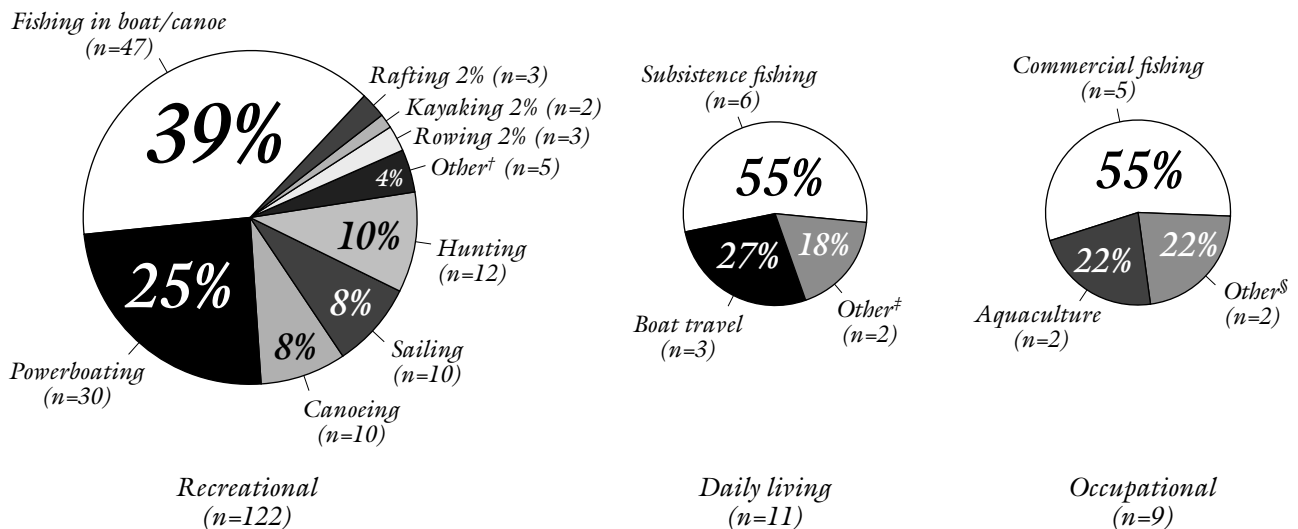
‡ Cardiopulmonary resuscitation

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

BOATING DROWNINGS BY PURPOSE OF ACTIVITY: RECREATIONAL, DAILY LIVING & OCCUPATIONAL

Figure 2.5

BOATING DROWNINGS BY ACTIVITY & PURPOSE, CANADA 1999 (n=145)*



* This figure excludes 3 victims who were attempting rescue

† Including 1 each of being pulled by boat on tube, attempting to hold boat at dock, swimming to retrieve drifted boat, using unpowered inflatable craft, boarding or leaving boat

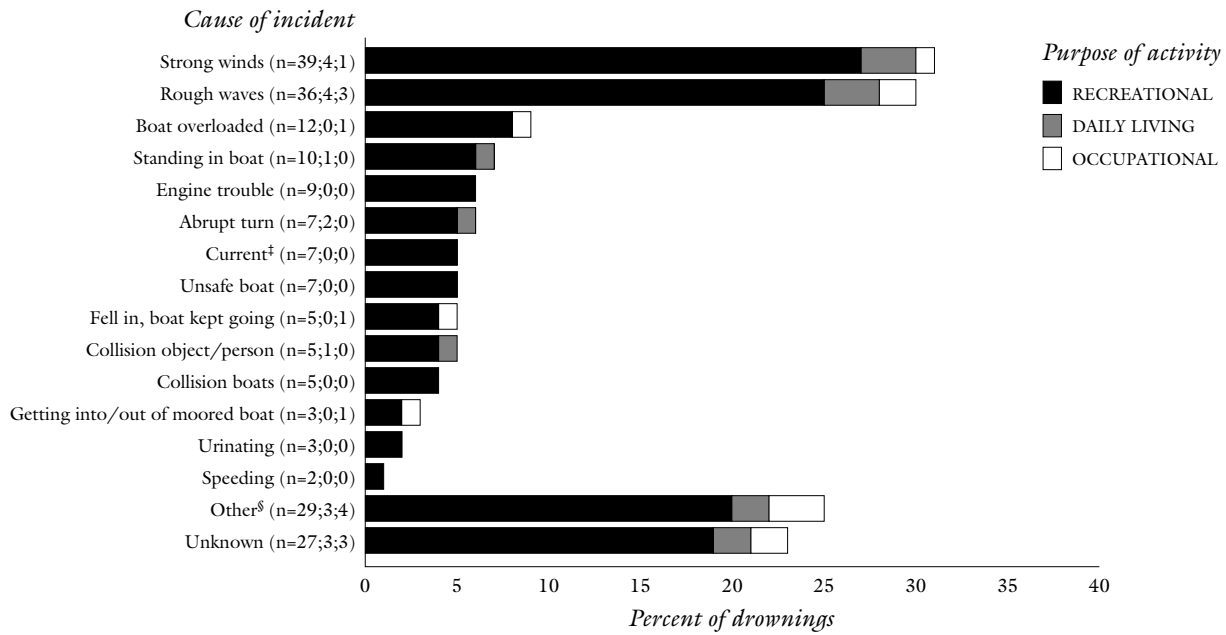
‡ Including 1 each of salvaging log, removing log pushed against wharf by current

§ Including 1 each of using water taxi, towing with a heavy cable

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.6

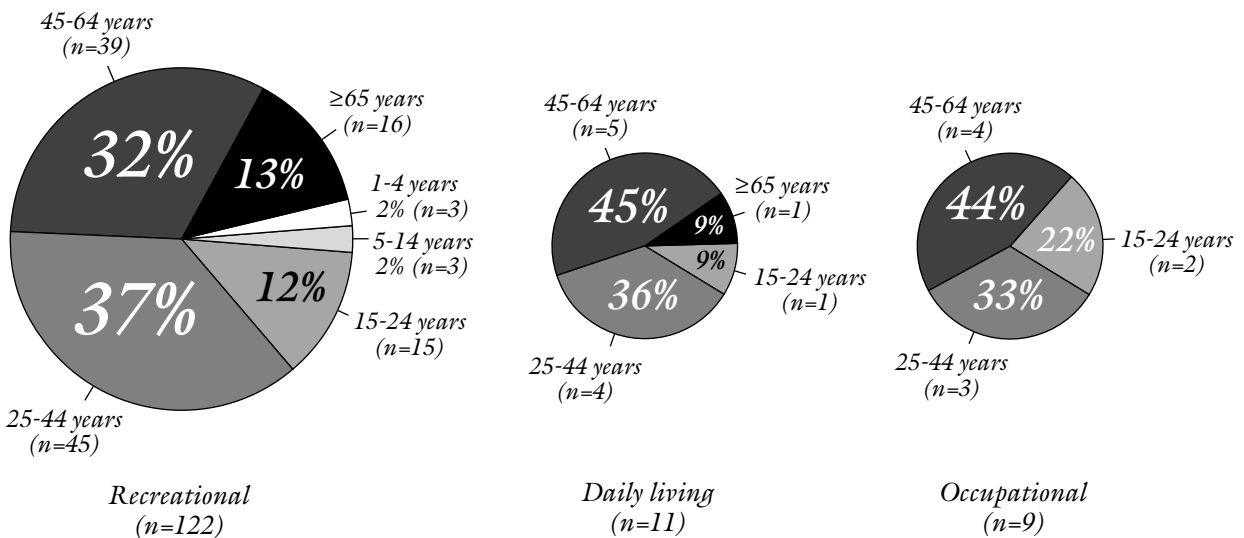
BOATING DROWNINGS BY CAUSE OF INCIDENT AND BY PURPOSE OF ACTIVITY,* CANADA 1999 (n=145)†



* There may be more than one cause per incident † This figure excludes 3 victims who were attempting rescue
 ‡ Including eddy 2 § Including, among other things, transferring passengers 7, heavy fishing gear 2
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.7

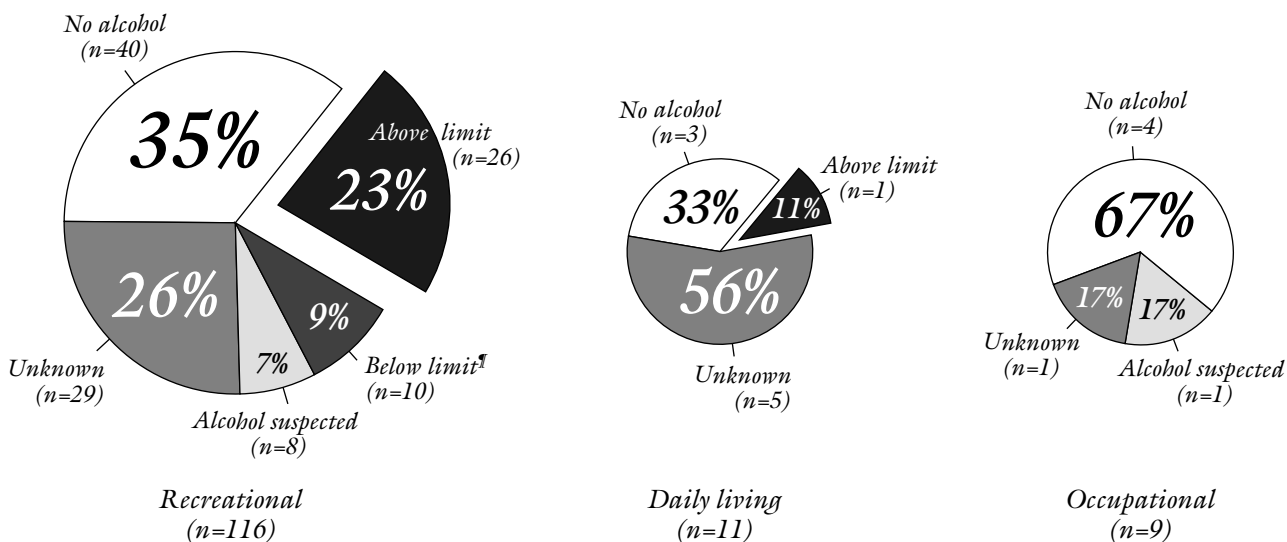
BOATING DROWNINGS BY AGE & PURPOSE, CANADA 1999 (n=145)*†



* This figure excludes 3 victims who were attempting rescue
 † Age unknown for 1 recreational victim
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.8

BLOOD ALCOHOL LEVELS* FOR BOATING DROWNINGS BY PURPOSE, CANADA 1999 (VICTIMS ≥15 YEARS OF AGE; n=138)^{†‡§}

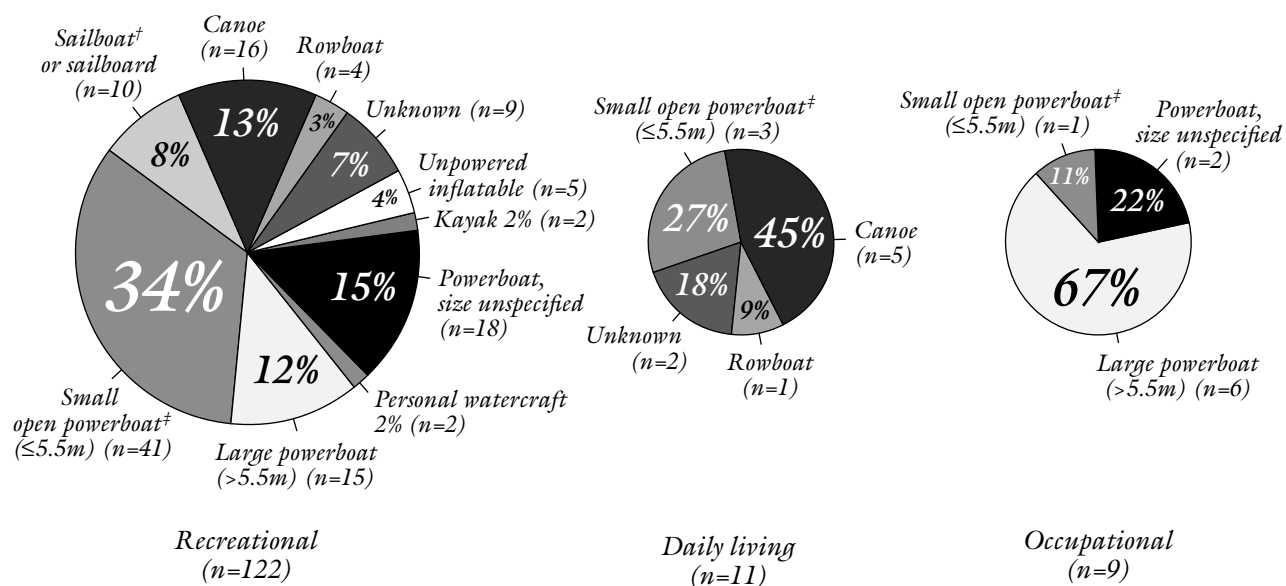


* Legal limit is 80 mg % † This figure excludes 2 victims who were attempting rescue ‡ Age unknown for 1 recreational victim, presumed adult § This figure excludes 8 victims; decomposition rendered blood alcohol unreliable (recreational 3, daily living 2, occupational 3) ¶ 4 at 1-49 mg %, 6 at 50-80 mg %

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.9

BOATING DROWNINGS BY TYPE OF BOAT & PURPOSE, CANADA 1999 (n=145)*

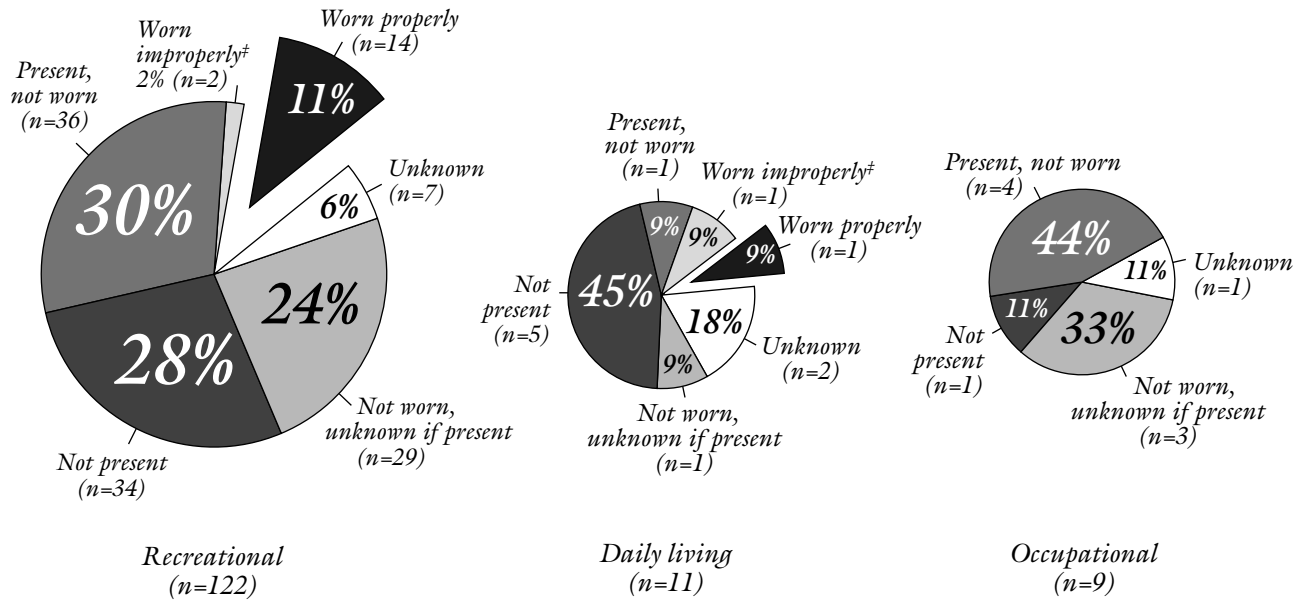


* This figure excludes 3 victims who were attempting rescue † Including sailboat ≤ 5.5m 3, sailboat >5.5m 2, & sailboat, unknown size 5 ‡ Includes open outboard motorboats and other open powered boats such as inflatables; excludes personal watercraft

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.10

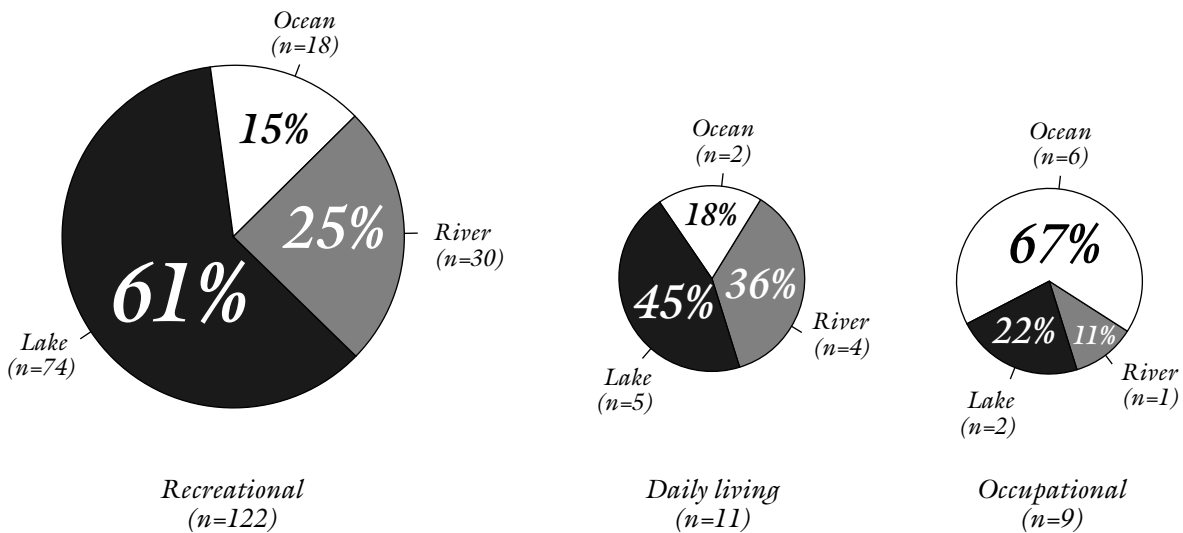
BOATING DROWNINGS BY USE OF A FLOTATION DEVICE* & PURPOSE, CANADA 1999 (n=145)†



* Personal flotation device or lifejacket † This figure excludes 3 victims who were attempting rescue ‡ Not fastened or inappropriate size
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

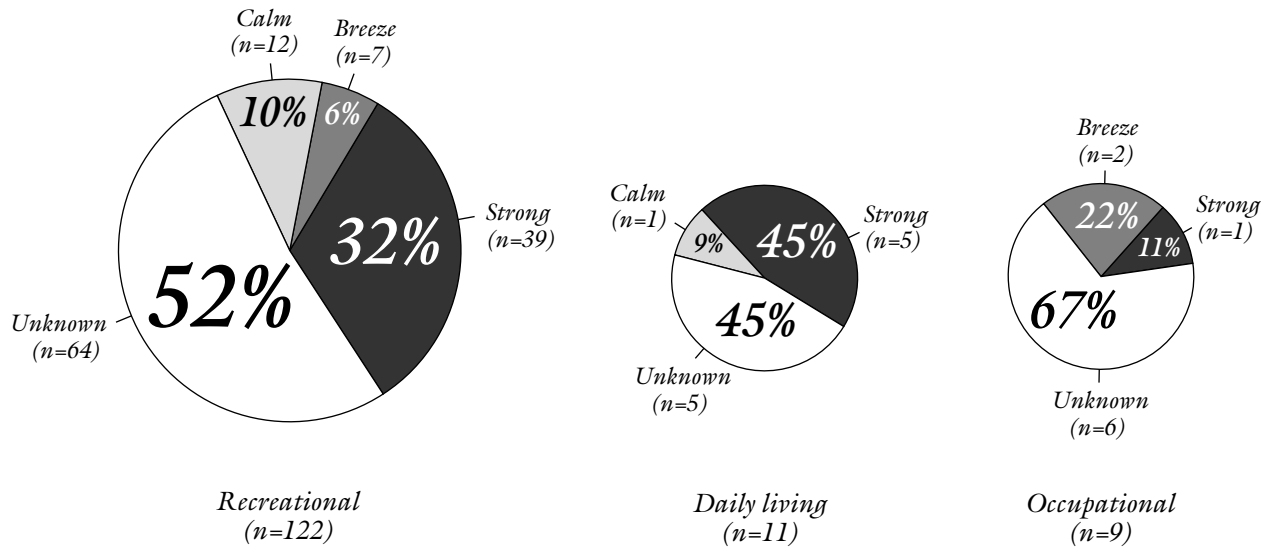
Figure 2.11

BOATING DROWNINGS BY TYPE OF BODY OF WATER* & PURPOSE, CANADA 1999 (n=145)†



* "Lake" includes pond & reservoir † This figure excludes 3 victims who were attempting rescue
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

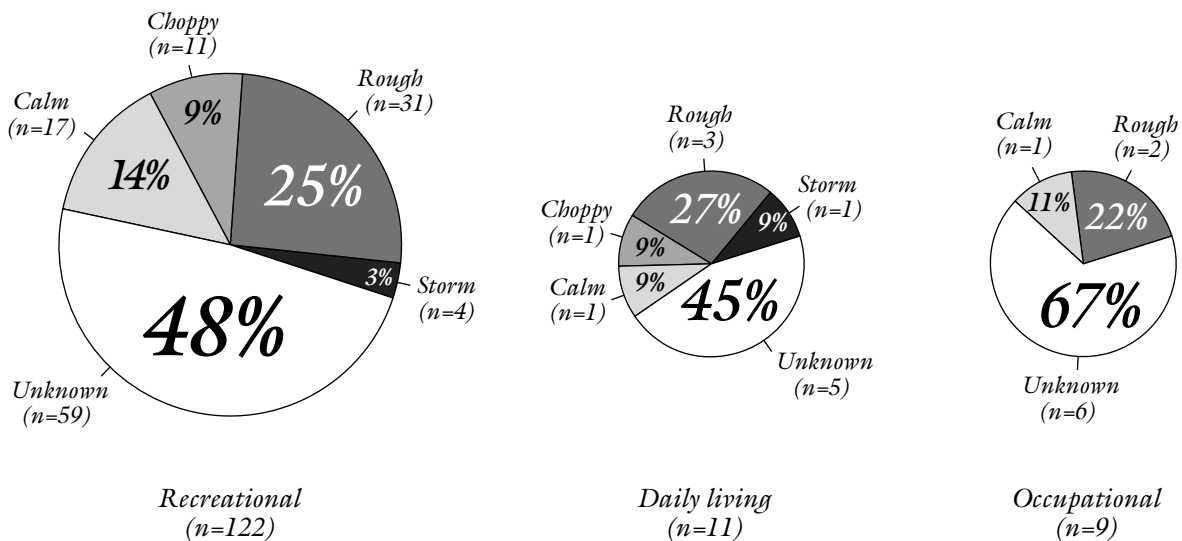
Figure 2.12 **BOATING DROWNINGS BY WIND CONDITIONS & PURPOSE, CANADA 1999 (n=145)***



* This figure excludes 3 victims who were attempting rescue

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

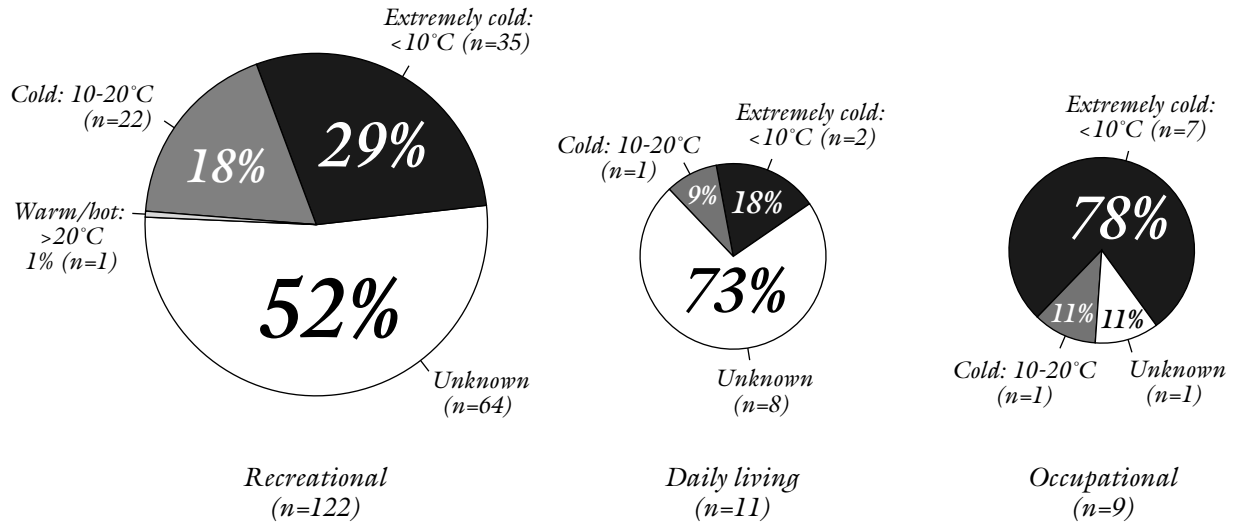
Figure 2.13 **BOATING DROWNINGS BY WAVE CONDITIONS & PURPOSE, CANADA 1999 (n=145)***



* This figure excludes 3 victims who were attempting rescue

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

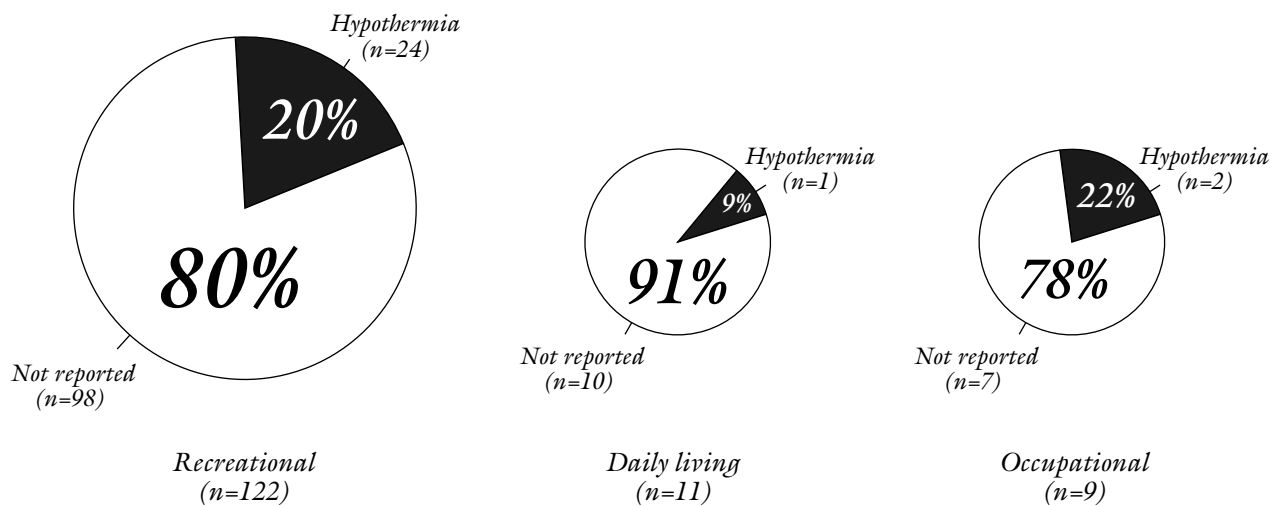
Figure 2.14 **BOATING DROWNINGS BY WATER TEMPERATURE & PURPOSE, CANADA 1999 (n=145)***



* This figure excludes 3 victims who were attempting rescue

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.15 **BOATING DROWNINGS BY HYPOTHERMIA* & PURPOSE, CANADA 1999 (n=145)†**

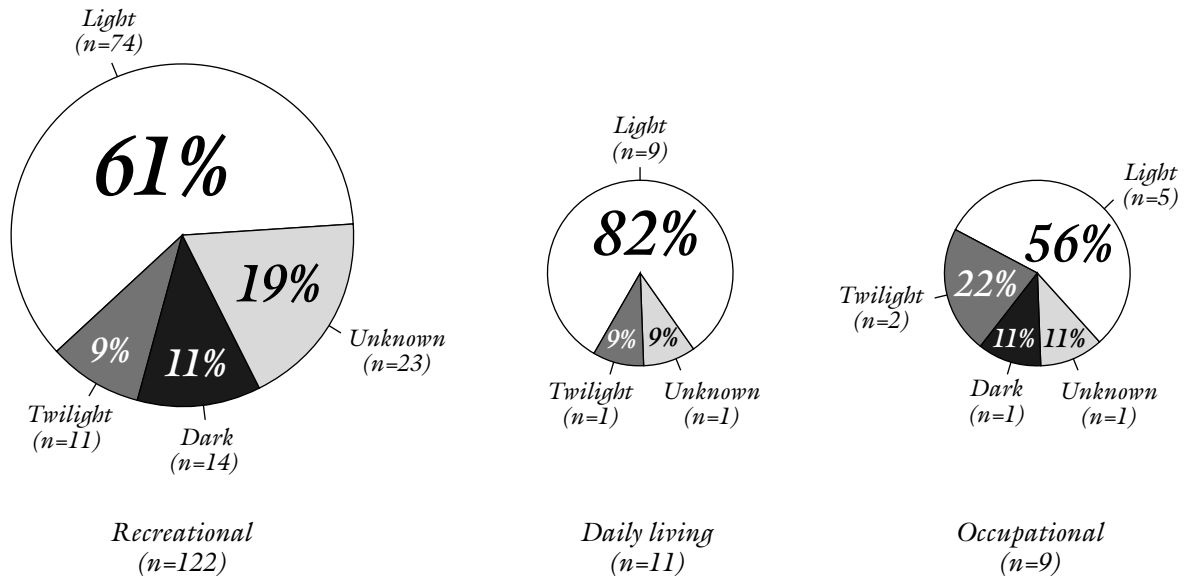


* Includes only cases where hypothermia was reported by coroner as a contributing factor to drowning

† This figure excludes 3 victims who were attempting rescue (all without hypothermia)

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

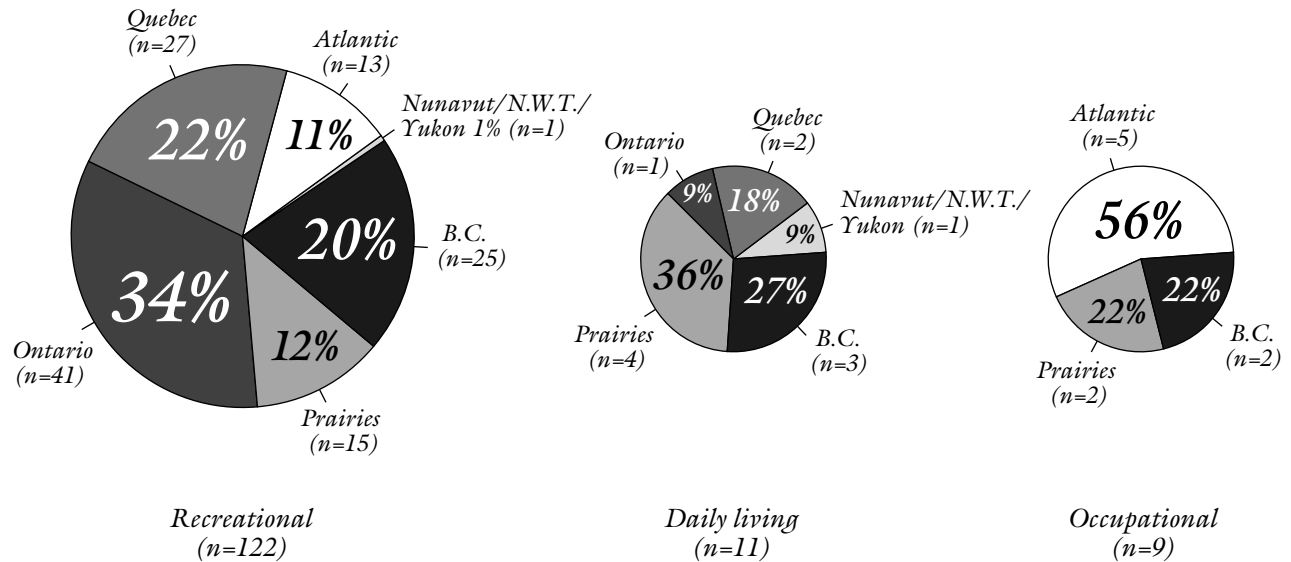
Figure 2.16 **BOATING DROWNINGS BY LIGHT CONDITIONS & PURPOSE, CANADA 1999 (n=145)***



* This figure excludes 3 victims who were attempting rescue

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.17 **BOATING DROWNINGS BY REGION & PURPOSE, CANADA 1999 (n=145)***

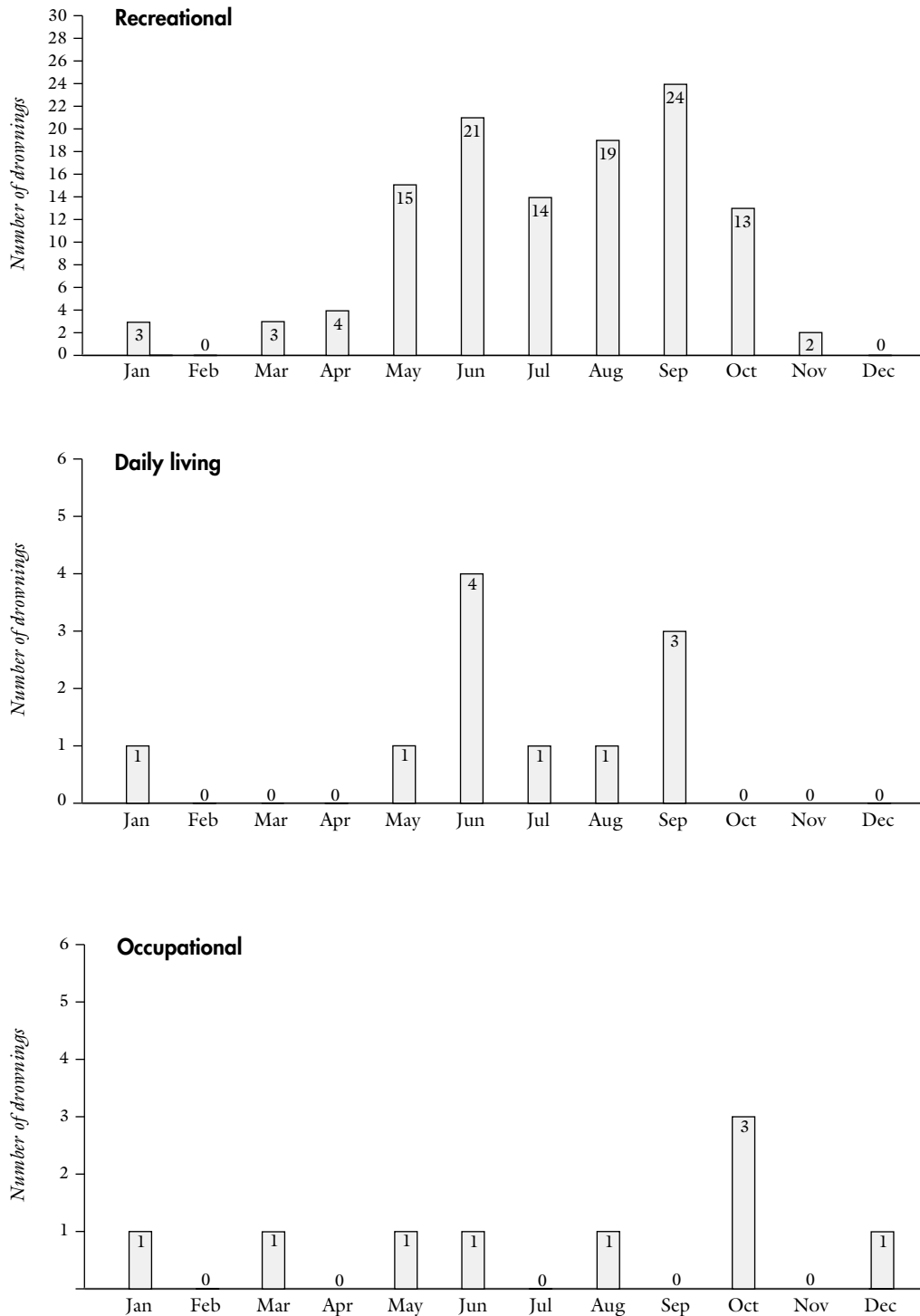


* This figure excludes 3 victims who were attempting rescue

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.18

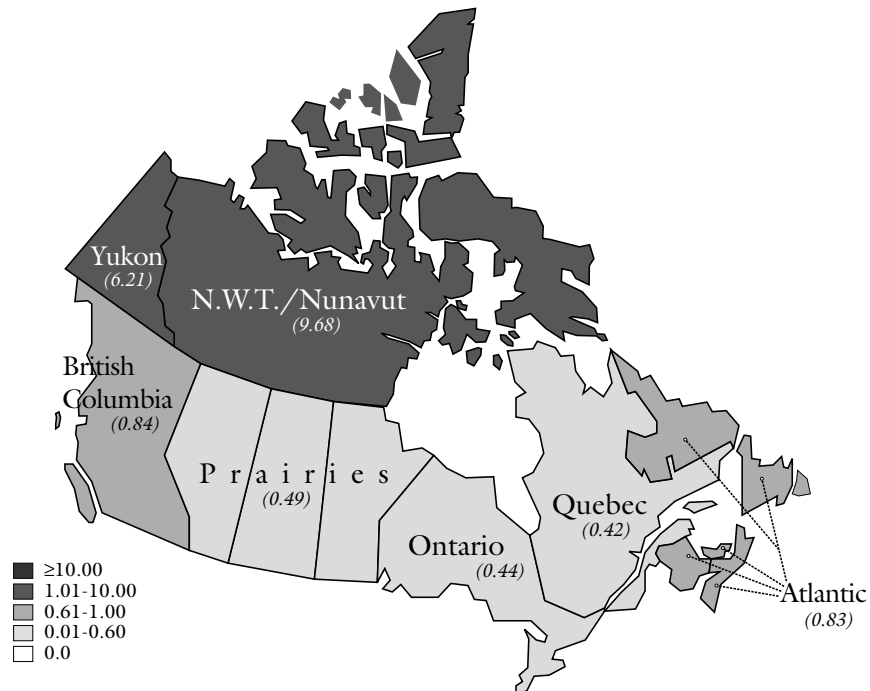
BOATING DROWNINGS BY MONTH & PURPOSE, CANADA 1999 (n=145)*†



* This figure excludes 3 victims who were attempting rescue † Month unspecified for 4 recreational drownings
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.19

RATE* OF RECREATIONAL AND DAILY LIVING† BOATING DROWNINGS BY REGION, CANADA 1991-1999 (n=1,442)‡



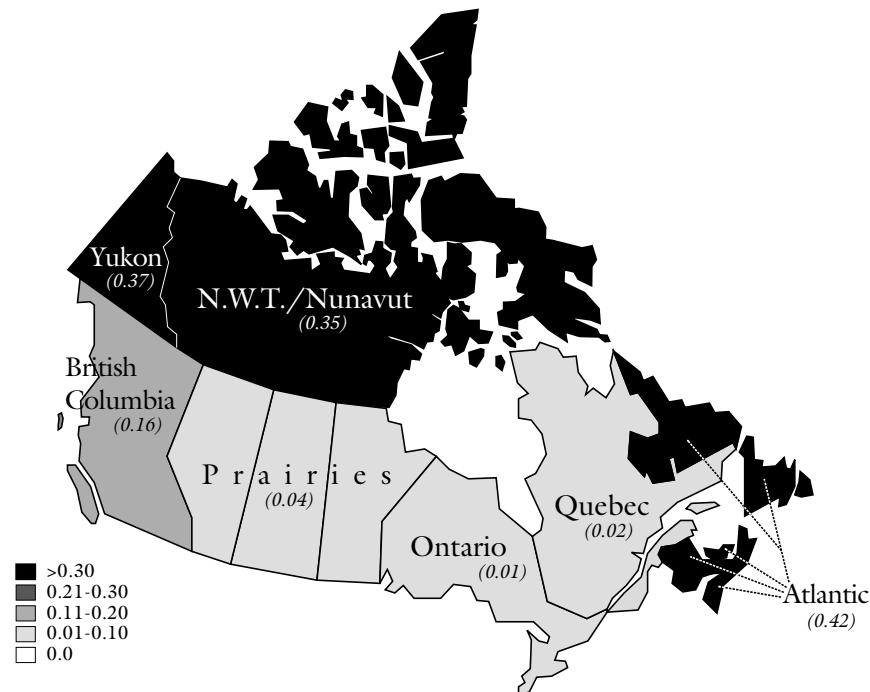
* Average number of drownings per 100,000 population per year

† Includes subsistence activities & boat travel as part of normal daily life ‡ Region unknown for 1 victim

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.20

RATE* OF OCCUPATIONAL BOATING DROWNINGS BY REGION, CANADA 1991-1999 (n=186)

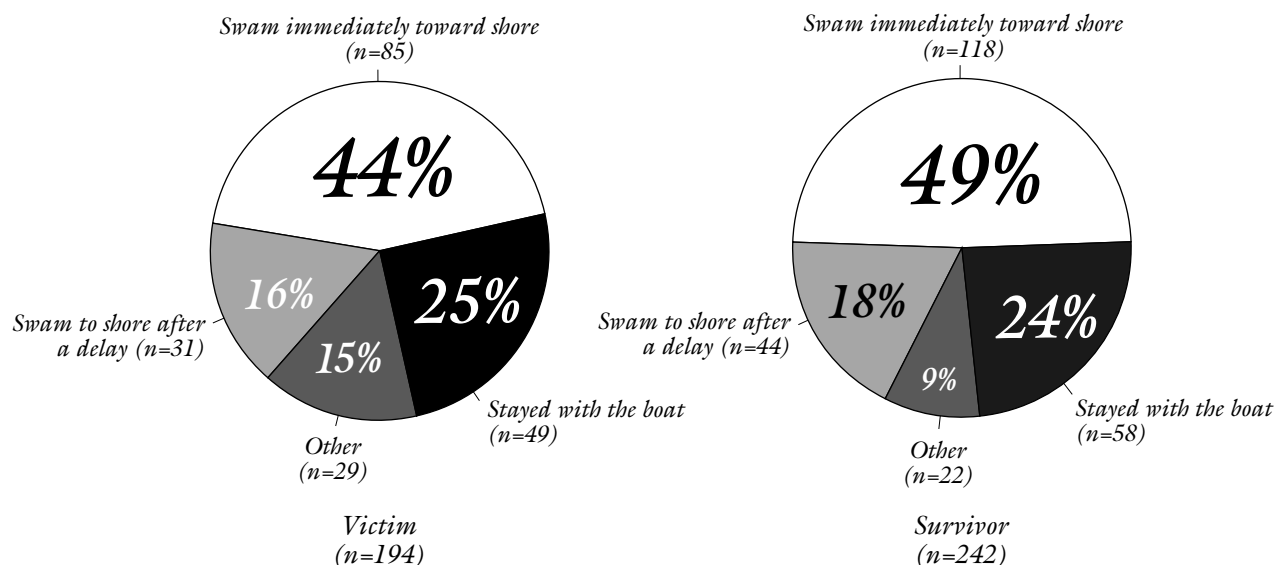


* Average number of drownings per 100,000 population per year

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.21

BOATING DROWNINGS* AFTER CAPSIZING OR SWAMPING BY VICTIM'S OR SURVIVOR'S REACTION, CANADA 1994-1999 (n=100 INCIDENTS)†



* Includes recreational, occupational & daily living drownings (E910, E830, E832); excludes land & air transport drownings
 † This figure excludes incidents where staying by the boat was not an option (e.g. boat sank), or where the reaction of the victim/survivor is unknown
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 1996-2001

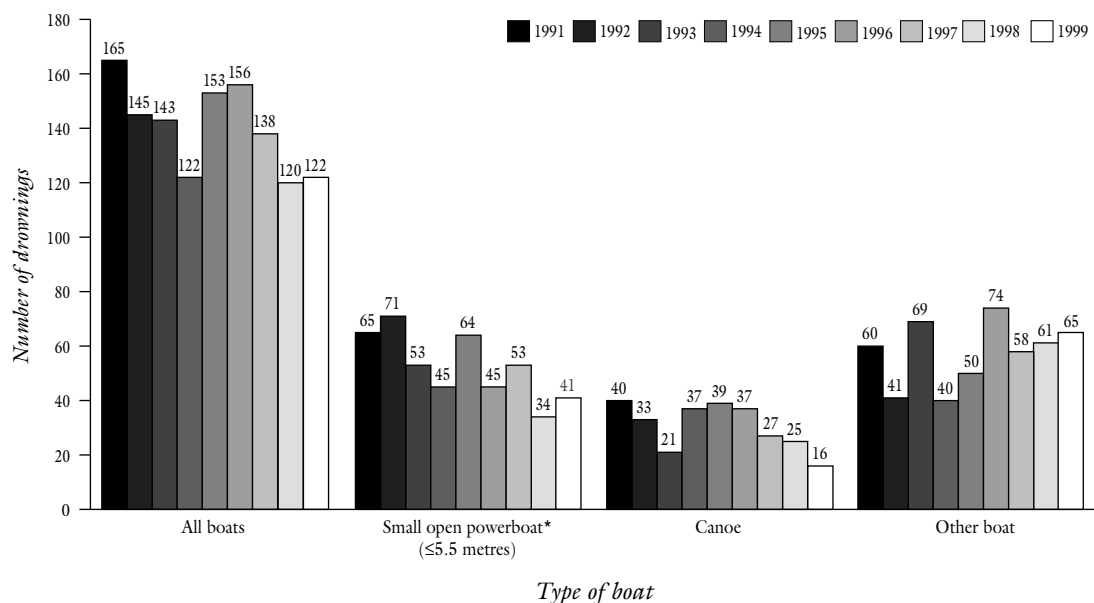
Table 2.1 **MULTIPLE-VICTIM INCIDENTS AS A PROPORTION* OF ALL BOATING INCIDENTS, WITH INCIDENCE RATES† BY PURPOSE OF ACTIVITY, CANADA 1999 (n=145)**

Purpose of boating	Single-victim		Multiple-victim				All incidents	
	Incidents No.	Incidents No. %	Victims No. %	Avg. no. deaths/incident	Multiple-victim incidents as % of all incidents	No.	Rate†	
Recreational‡§	76	16 94	46 94	2.9	17	92	0.30	
Daily living	9	1 6	2 4	2.0	10	10	0.03	
Occupational	9	0 —	0 —	—	—	9	0.03	
Other	0	0 —	0 —	—	—	0	0.00	
Attempting rescue‡	2	1 6	1 2	1.0	33	3	0.01	
Unknown	0	0 —	0 —	—	—	0	0.00	
Total	96	17 100	49 100	2.9	15	113	0.37	

* Percents total to 100% vertically in 3rd and 5th columns of figures and do not total for 7th column
 † Number of both single and multiple-victim incidents per 100,000 population per year
 ‡ Including 1 multiple-victim incident with 1 recreational & 1 attempted rescue death (counted once in total)
 § Including 1 multiple-victim incident with 7 drownings & 1 non-drowning injury death
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

RECREATIONAL BOATING DROWNINGS

Figure 2.22 **RECREATIONAL BOATING DROWNINGS BY TYPE OF BOAT & YEAR, CANADA 1991-1999 (n=1,264)**



* Includes open outboard motorboats and other open powered boats such as inflatables; excludes personal watercraft; the number of small powerboat drownings in 1998 was probably higher than 34, since the number of unspecified powerboat drownings in Quebec increased from 0 in 1997 to 12 in 1998

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Table 2.2 **RECREATIONAL BOATING DROWNINGS BY INJURY INCIDENT & TYPE OF BOAT, CANADA 1999 (n=122)**

Incident	Type of boat							
	Small powerboat* (≤5.5m)		Canoe		Other boat		Total	
	No.	%	No.	%	No.	%	No.	%
Capsized	11	27	9	56	22	34	42	34
Swamped	4	10	2	13	10	15	16	13
Fell overboard	9	22	1	6	15	23	25	20
Jumped overboard†	0	0	0	0	5	8	5	4
Collision	0	0	0	0	7	11	7	6
Swimming to retrieve boat	0	0	0	0	2	3	2	2
Other‡	1	2	0	0	2	3	3	2
Unknown	16	39	4	25	2	3	22	18
Total	41	100	16	100	65	100	122	100

* Includes open outboard motorboats & other open powered boats such as inflatables; excludes personal watercraft

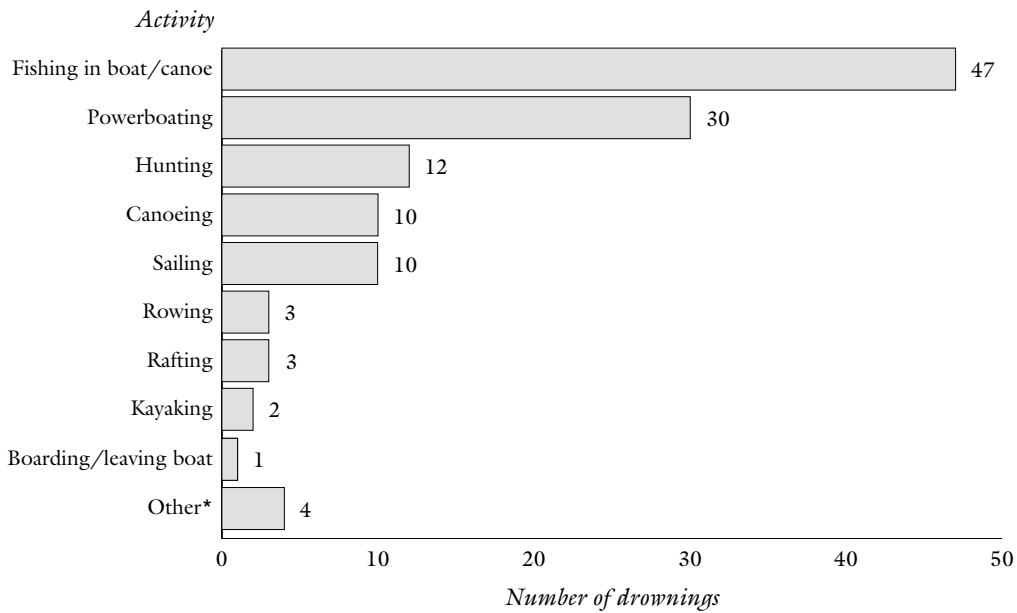
† Including escaping onboard fire 3, & 1 each of pushing boat off shoal & swimming to shore for fuel

‡ Including 1 each of small powerboat swept away by hydroelectric dam, victim towed on tube, & large powerboat disintegrated

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.23

RECREATIONAL BOATING DROWNINGS BY ACTIVITY, CANADA 1999 (n=122)

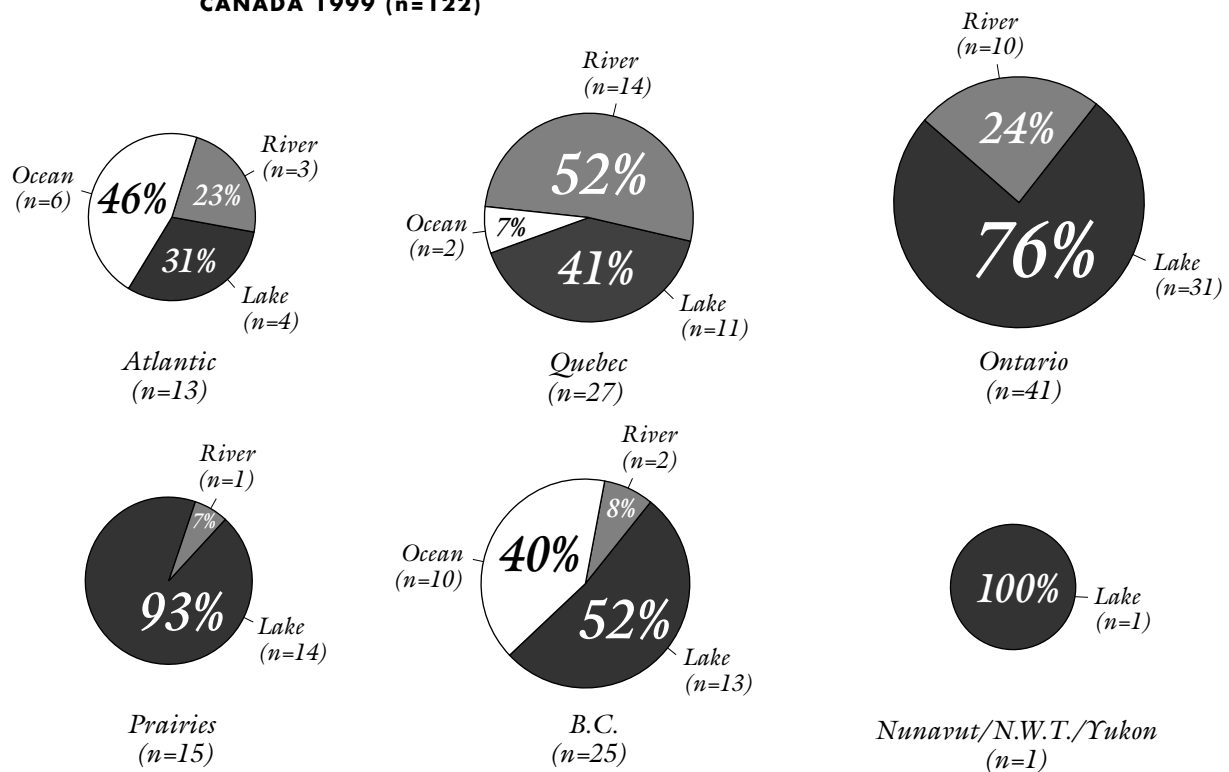


* Including 1 each of being pulled by boat on tube, attempting to hold boat at dock, swimming to retrieve drifted boat, using unpowered inflatable craft

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.24

RECREATIONAL BOATING DROWNINGS BY TYPE OF BODY OF WATER* & REGION, CANADA 1999 (n=122)

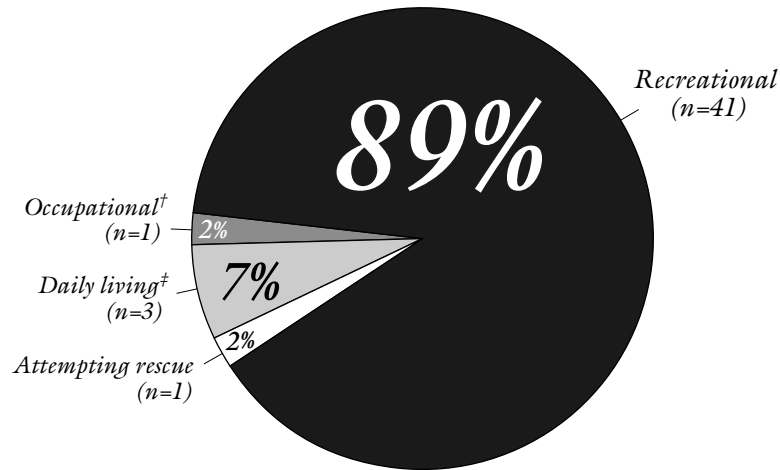


* "Lake" includes pond & reservoir

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

SMALL POWERBOAT (≤ 5.5 M) DROWNINGS

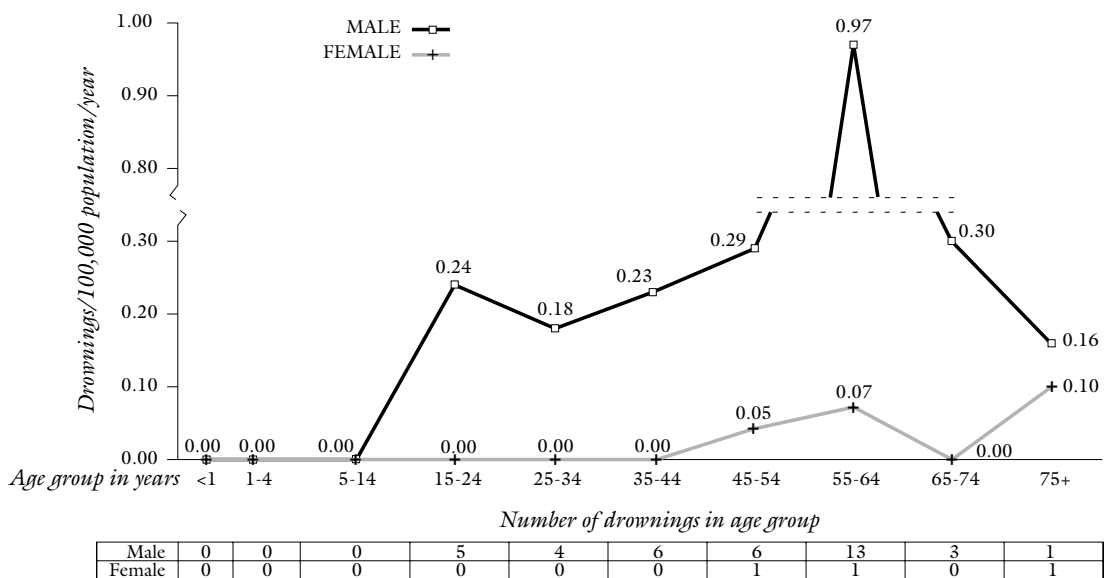
Figure 2.25 **SMALL POWERBOAT* (≤ 5.5 m) DROWNINGS BY PURPOSE, CANADA 1999 (n=46)**



* Includes open outboard motorboats and other open powered boats such as inflatables; excludes personal watercraft
 † Including aquaculture ‡ Including 1 each of boat travel, subsistence fishing, salvaging log

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

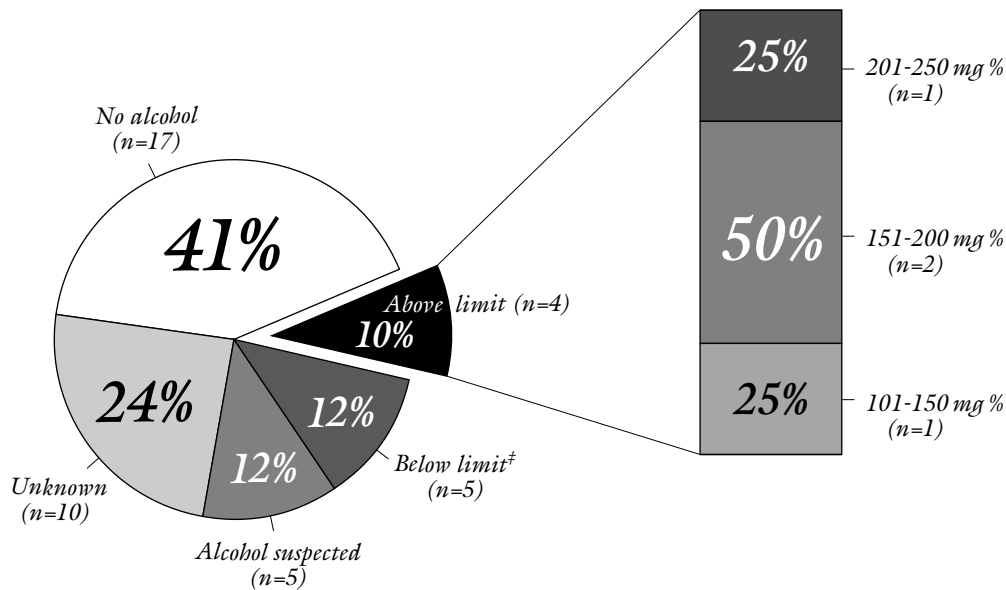
Figure 2.26 **RATE AND NUMBER OF RECREATIONAL SMALL POWERBOAT* (≤ 5.5 m) DROWNINGS BY AGE & SEX, CANADA 1999 (n=41)**



* Includes open outboard motorboats (37) & other open powered boats such as inflatables (4); excludes personal watercraft
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.27

BLOOD ALCOHOL LEVELS* FOR RECREATIONAL SMALL POWERBOAT† (≤5.5m) DROWNINGS, CANADA 1999 (VICTIMS ≥15 YEARS OF AGE; n=41)



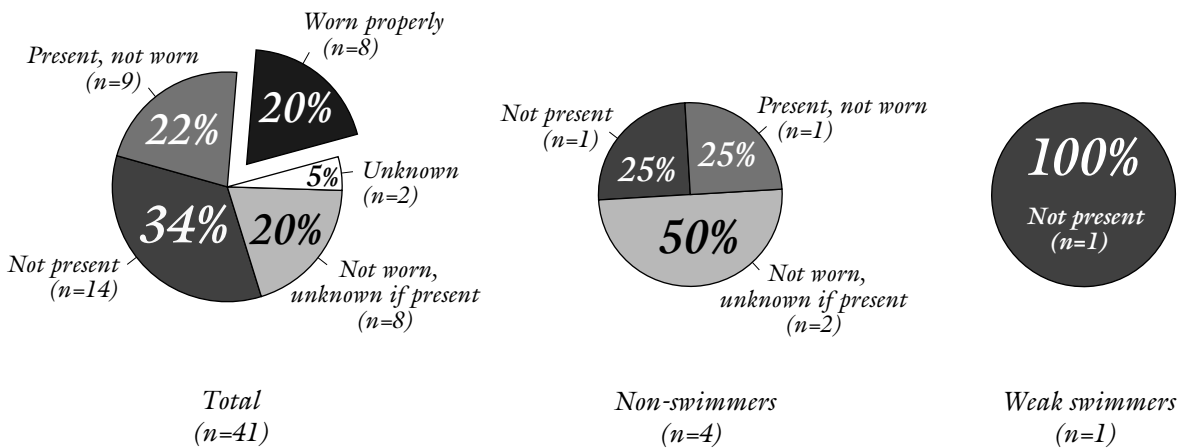
* Legal limit is 80 mg %

† Includes open outboard motorboats and other open powered boats such as inflatables; excludes personal watercraft
‡ 2 at 1-49 mg %, 3 at 50-80 mg %

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.28

RECREATIONAL SMALL POWERBOAT* (≤5.5m) DROWNINGS BY USE OF A FLOTATION DEVICE† & SWIMMING ABILITY, CANADA 1999 (n=41)

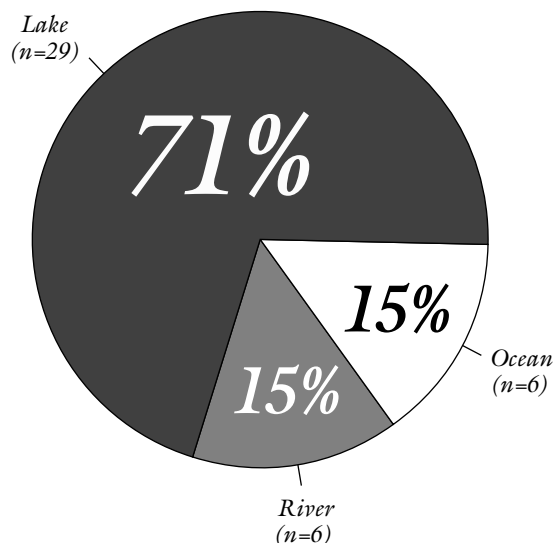


* Includes open outboard motorboats and other open powered boats such as inflatables; excludes personal watercraft
† Personal flotation device or lifejacket

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.29

RECREATIONAL SMALL POWERBOAT* ($\leq 5.5\text{m}$) DROWNINGS BY TYPE OF BODY OF WATER,[†] CANADA 1999 (n=41)

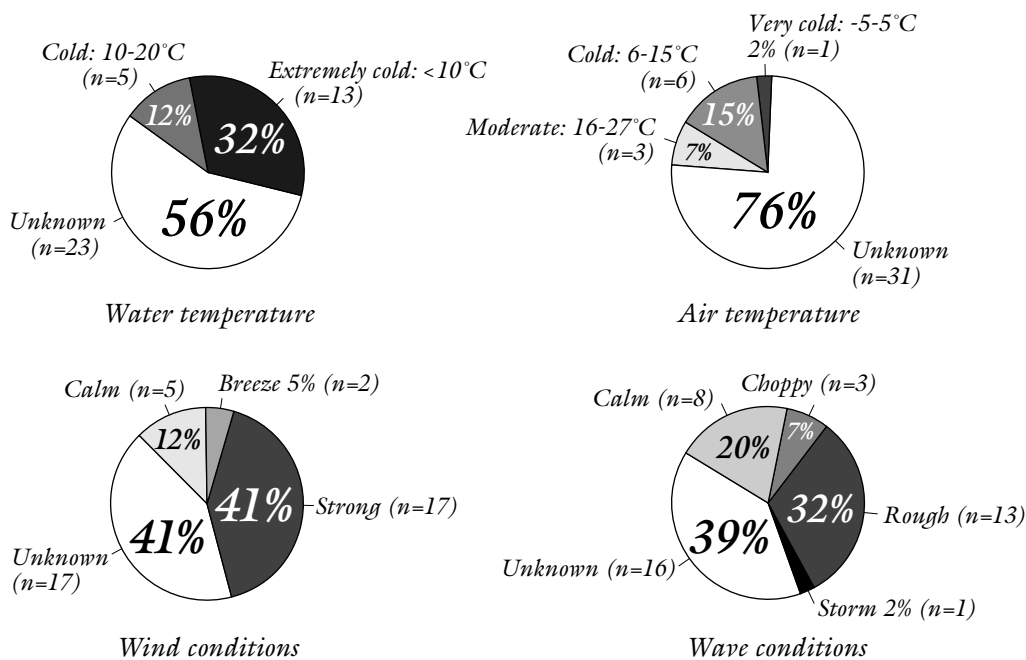


* Includes open outboard motorboats and other open powered boats such as inflatables; excludes personal watercraft
[†] "Lake" includes pond & reservoir

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

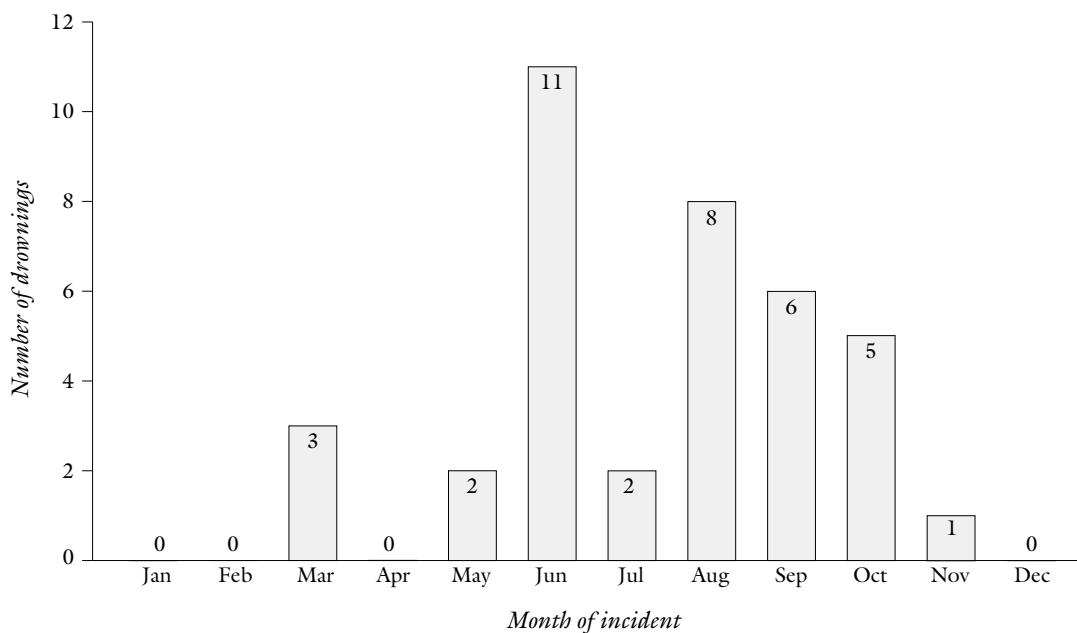
Figure 2.30

RECREATIONAL SMALL POWERBOAT* ($\leq 5.5\text{m}$) DROWNINGS BY ENVIRONMENTAL RISK FACTORS, CANADA 1999 (n=41)



* Includes open outboard motorboats and other open powered boats such as inflatables; excludes personal watercraft
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

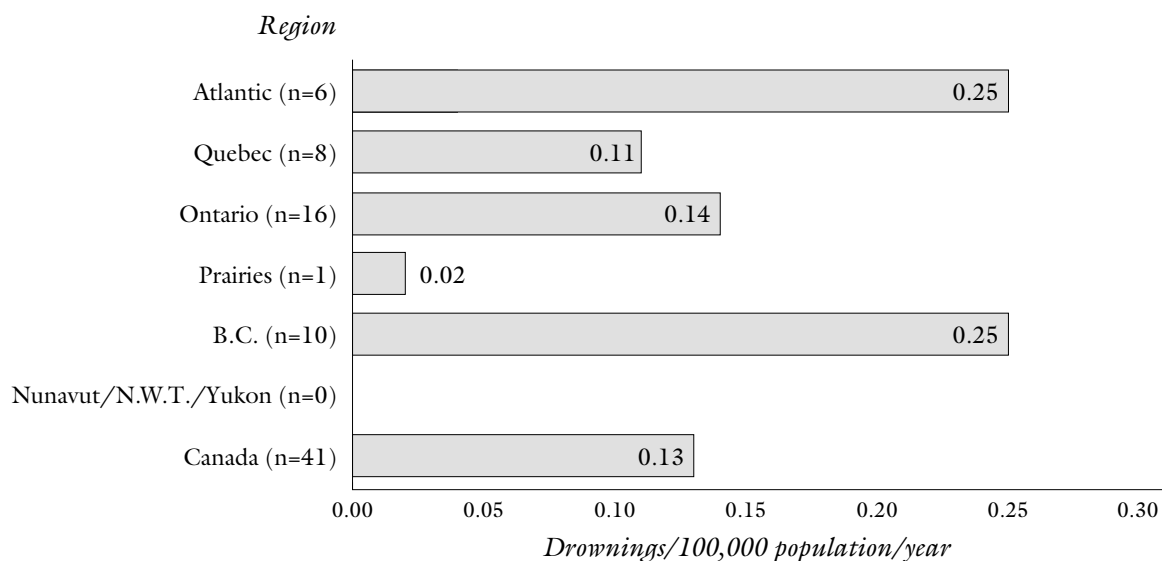
Figure 2.31 **RECREATIONAL SMALL POWERBOAT* ($\leq 5.5\text{m}$) DROWNINGS BY MONTH OF INCIDENT, CANADA 1999 (n=41)[†]**



* Includes open outboard motorboats and other open powered boats such as inflatables; excludes personal watercraft
[†] Month unspecified for 3 drownings

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

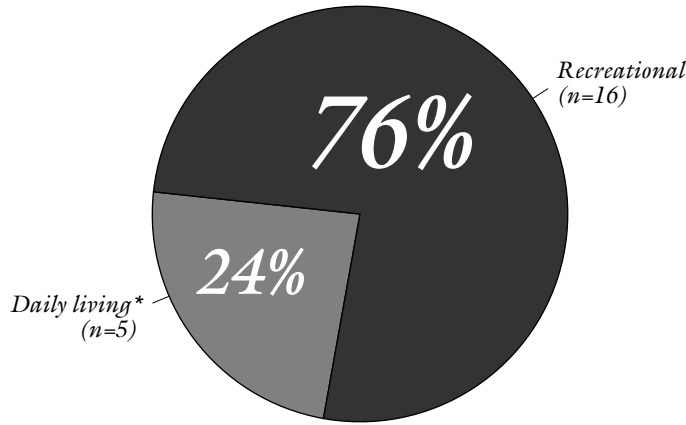
Figure 2.32 **RATE OF RECREATIONAL SMALL POWERBOAT* ($\leq 5.5\text{m}$) DROWNINGS BY REGION, CANADA 1999 (n=41)**



* Includes open outboard motorboats and other open powered boats such as inflatables; excludes personal watercraft
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

CANOEING DROWNINGS

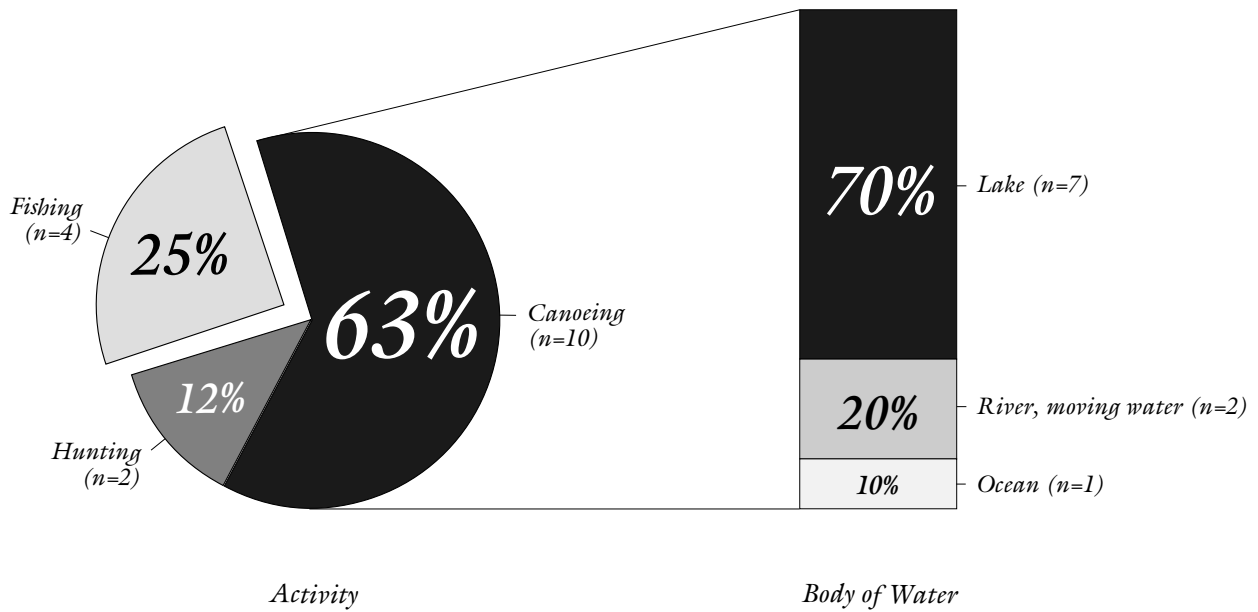
Figure 2.33 **CANOEING DROWNINGS BY PURPOSE, CANADA 1999 (n=21)**



* Including subsistence fishing 4, boat travel 1

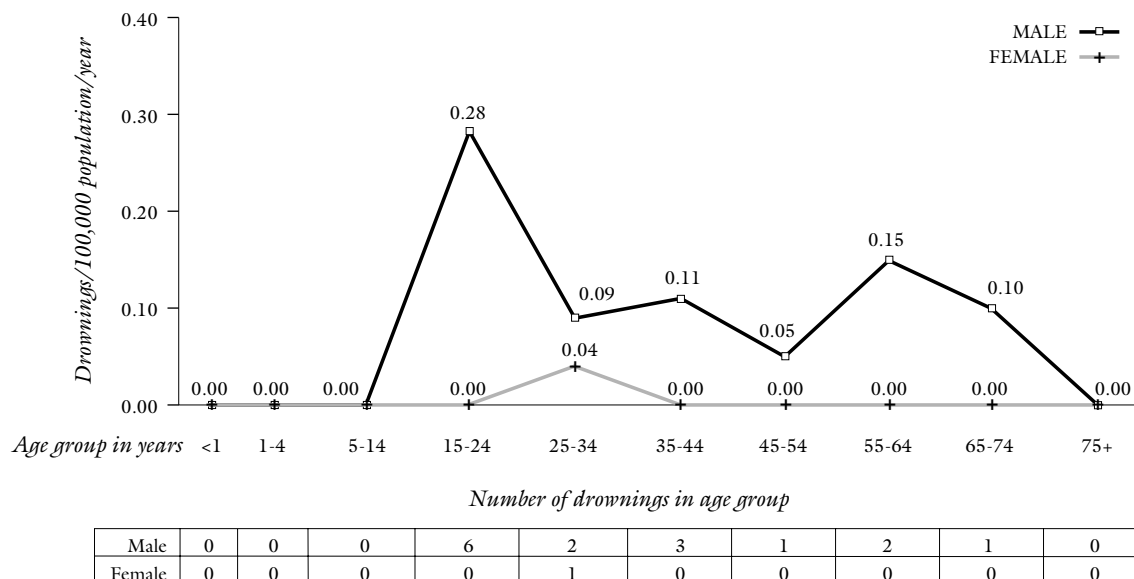
Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.34 **RECREATIONAL CANOEING DROWNINGS BY ACTIVITY & TYPE OF BODY OF WATER, CANADA 1999 (n=16)**



Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

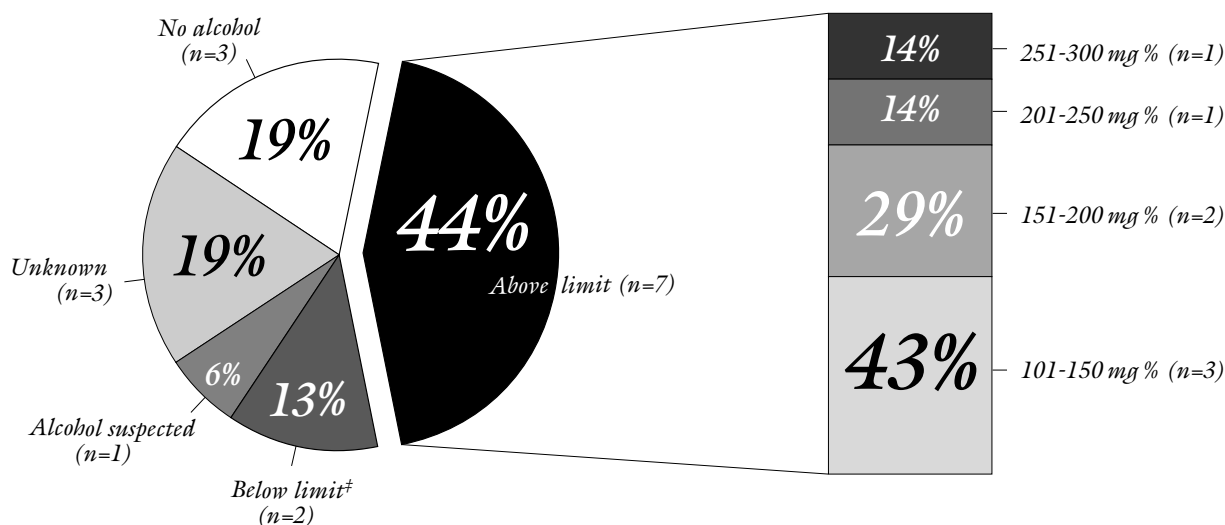
Figure 2.35 **RATE AND NUMBER OF RECREATIONAL CANOEING DROWNINGS BY AGE & SEX, CANADA 1999 (n=16)***



* Age unknown for 1 male victim, presumed adult

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.36 **BLOOD ALCOHOL LEVELS* FOR RECREATIONAL CANOEING DROWNINGS, CANADA 1999 (VICTIMS ≥15 YEARS OF AGE; n=16)†**

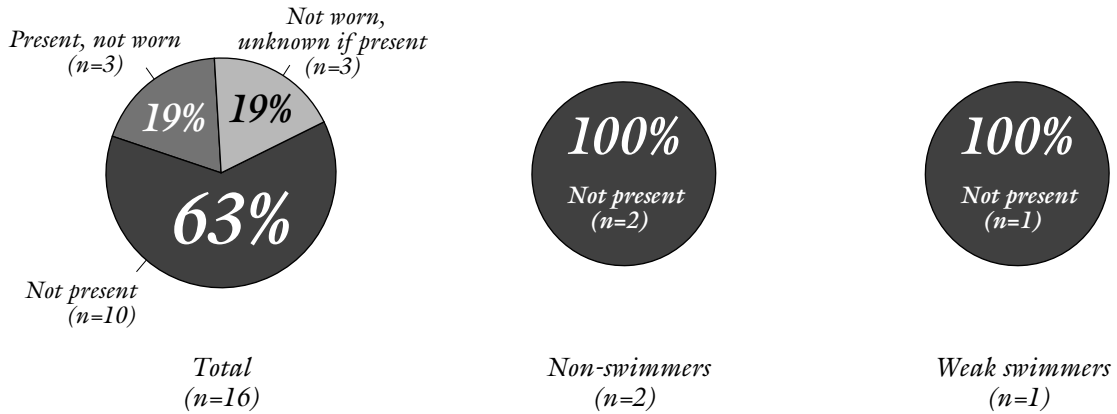


* Legal limit is 80 mg % † Age unknown for 1 victim, presumed adult ‡ 2 at 50-80 mg %

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.37

RECREATIONAL CANOEING DROWNINGS BY USE OF A FLOTATION DEVICE* & SWIMMING ABILITY, CANADA 1999 (n=16)

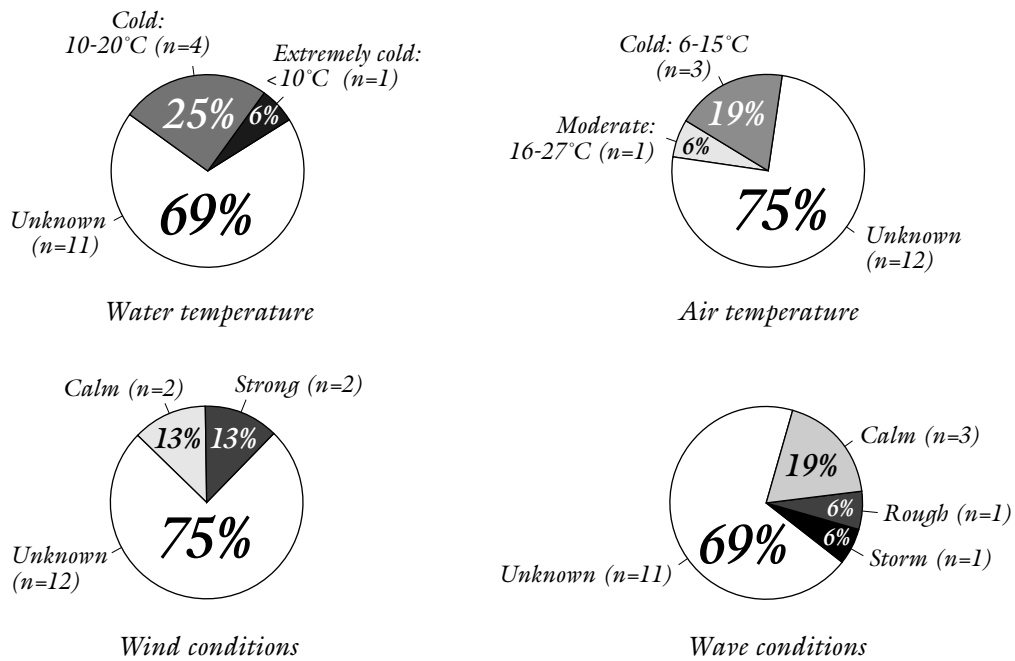


* Personal flotation device or lifejacket

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.38

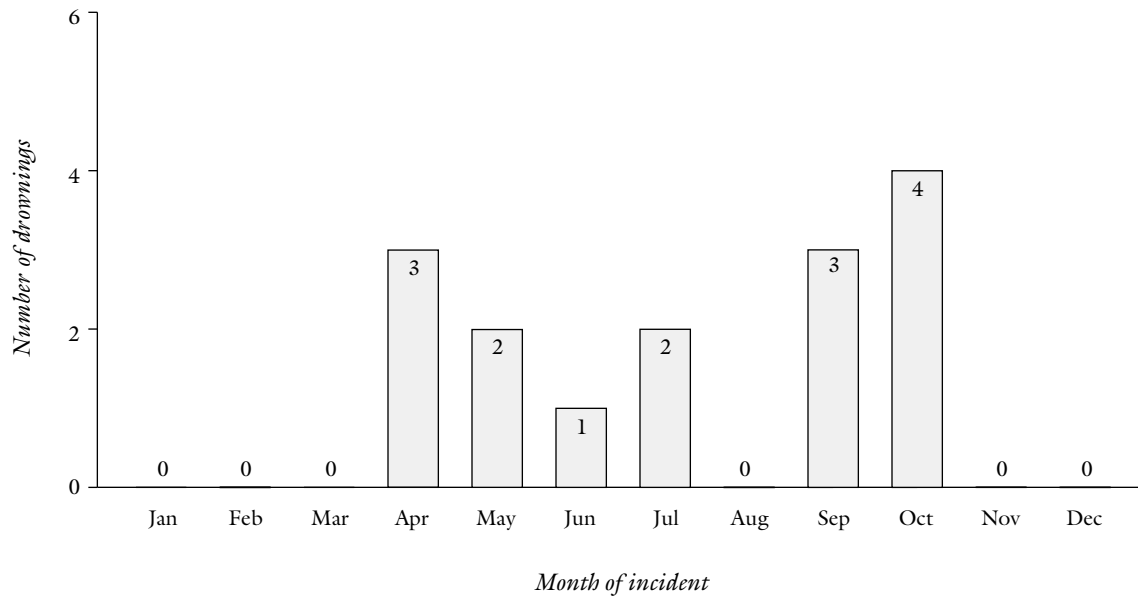
RECREATIONAL CANOEING DROWNINGS BY ENVIRONMENTAL RISK FACTORS, CANADA 1999 (n=16)



Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.39

RECREATIONAL CANOEING DROWNINGS BY MONTH OF INCIDENT, CANADA 1999 (n=16)*

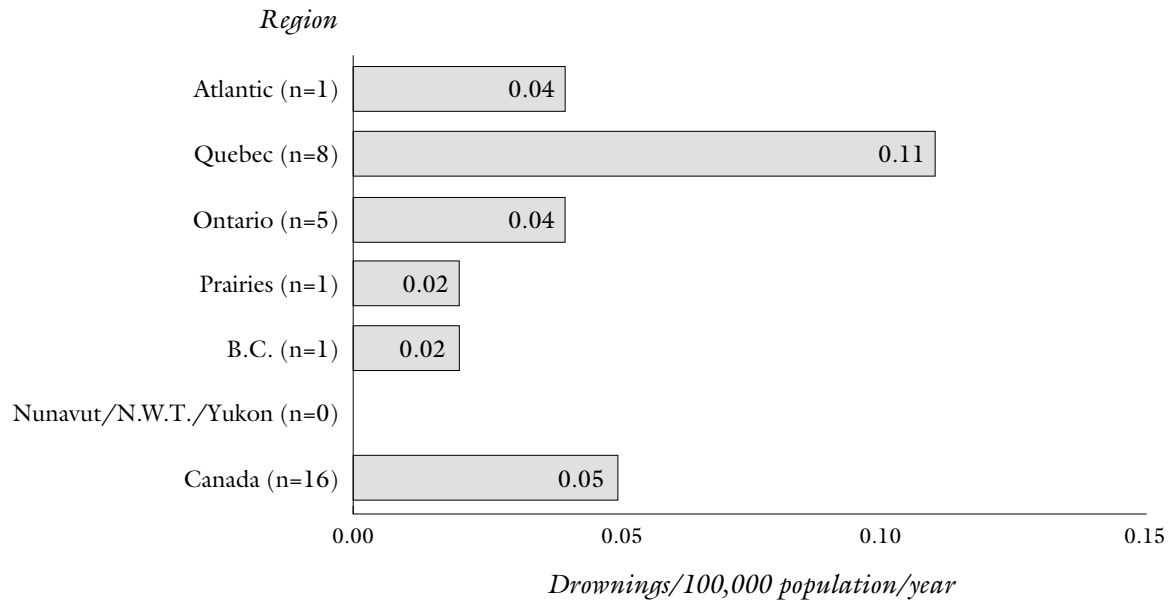


* Month unspecified for 1 drowning

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.40

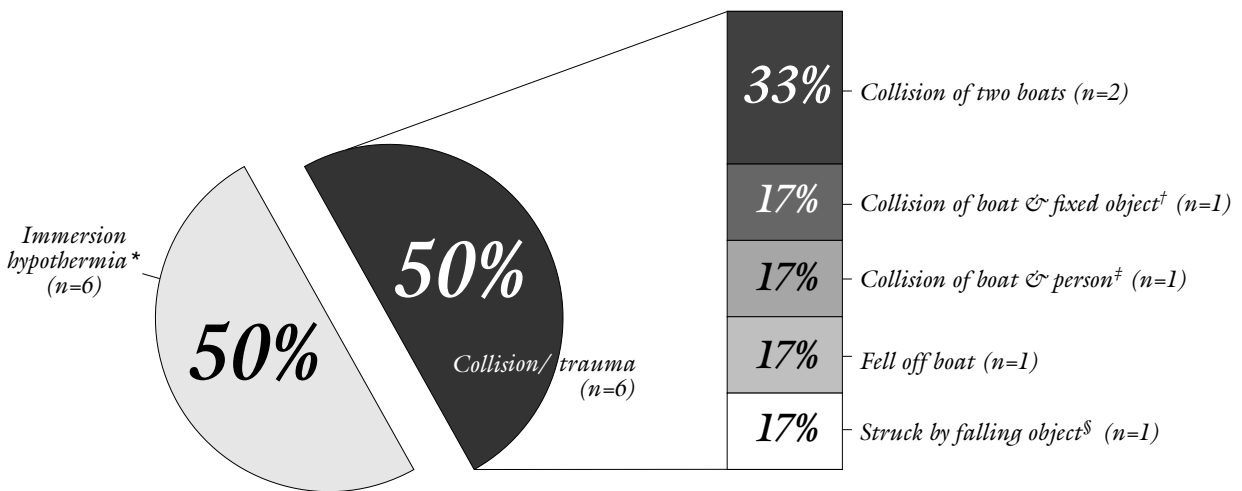
RATE OF RECREATIONAL CANOEING DROWNINGS BY REGION, CANADA 1999 (n=16)



Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

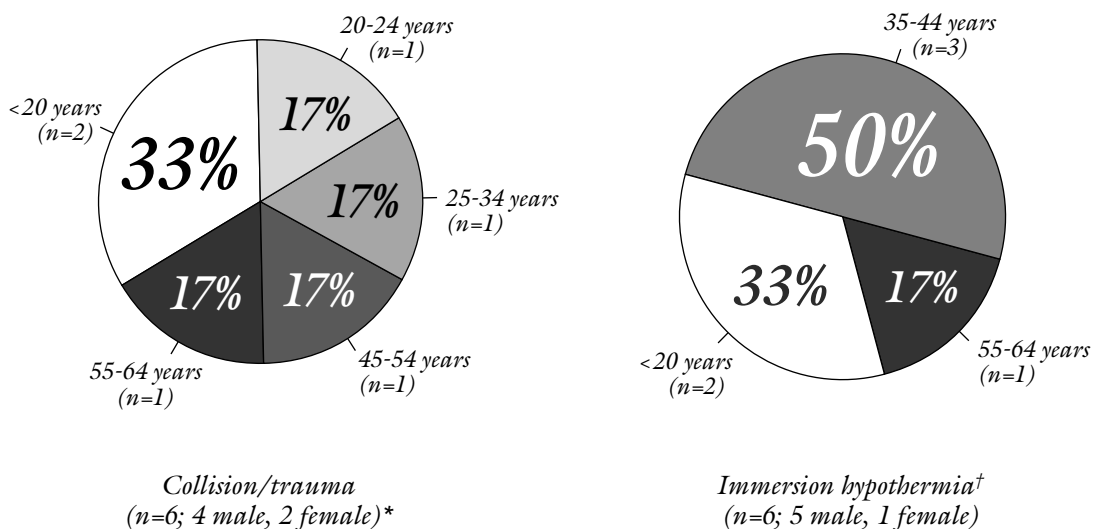
BOATING INJURY FATALITIES OTHER THAN DROWNINGS

Figure 2.41 **NON-DROWNING BOATING INJURY DEATHS BY TYPE OF INCIDENT, CANADA 1999 (n=12)**



* Excludes cases with drowning & hypothermia † Pillar of bridge ‡ Victim towed on tube, struck by a second boat § Fulcrum & rope
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.42 **NON-DROWNING BOATING INJURY DEATHS BY AGE, SEX & TYPE OF INCIDENT, CANADA 1999 (n=12)**

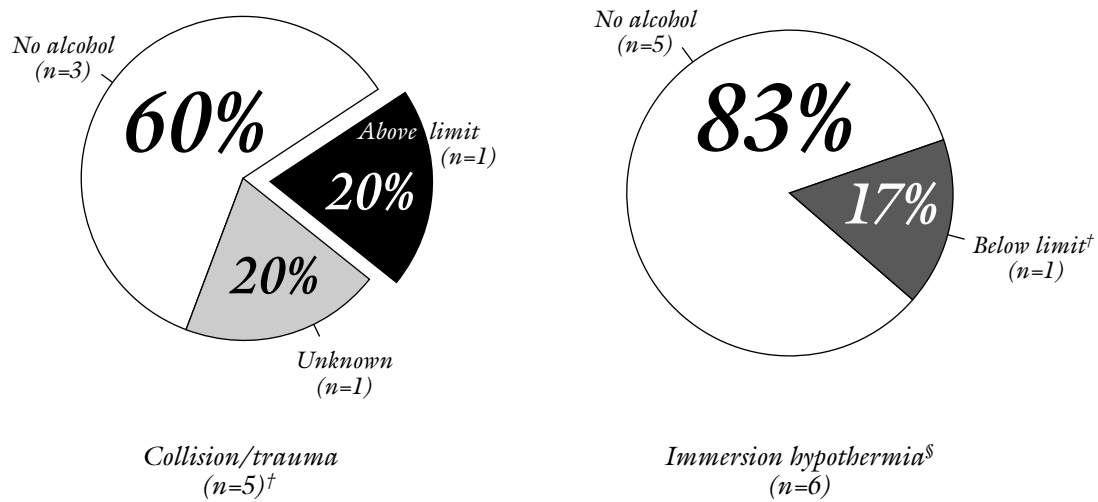


* Including collision of two boats 2, collision of boat & fixed object 1, collision of boat & person 1, fell off boat 1, struck by falling object 1
 † Excludes cases with drowning & hypothermia

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.43

NON-DROWNING BOATING INJURY DEATHS BY BLOOD ALCOHOL LEVEL* & TYPE OF INCIDENT, CANADA 1999 (VICTIMS ≥15 YEARS OF AGE; n=11)



* Legal limit is 80 mg %

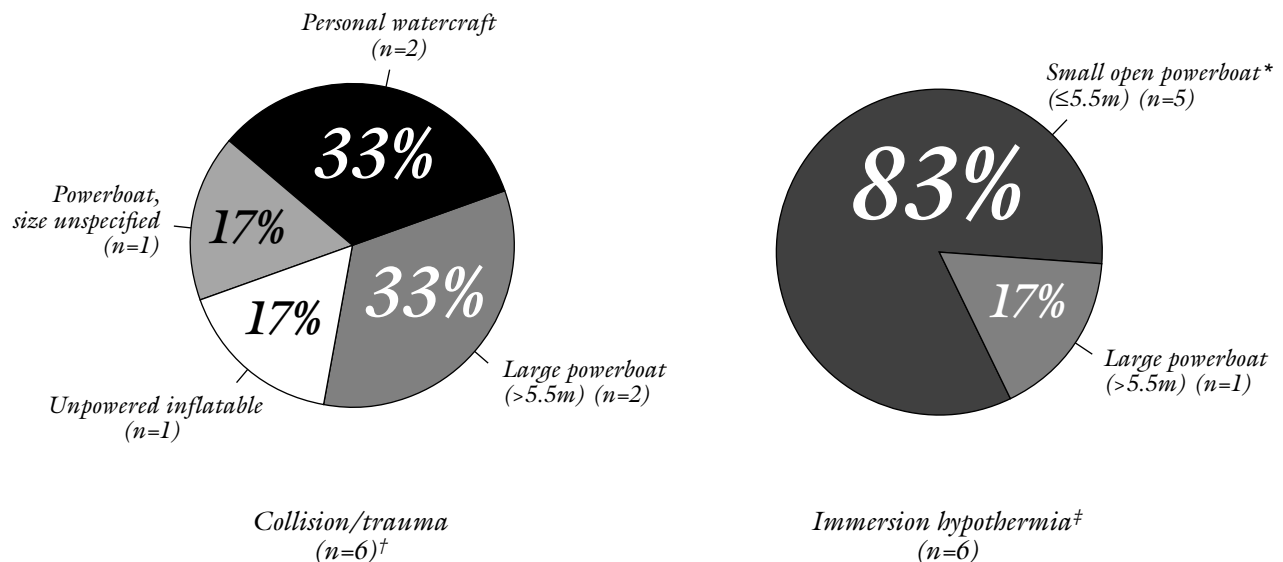
† Including collision of two boats 2, collision of boat & person 1, fell off boat 1, struck by falling object 1

‡ 1 at 1-49 mg % § Excludes cases with drowning & hypothermia

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.44

NON-DROWNING BOATING INJURY DEATHS BY TYPE OF BOAT & TYPE OF INCIDENT, CANADA 1999 (n=12)



* Includes open outboard motorboats and other open powered boats such as inflatables; excludes personal watercraft

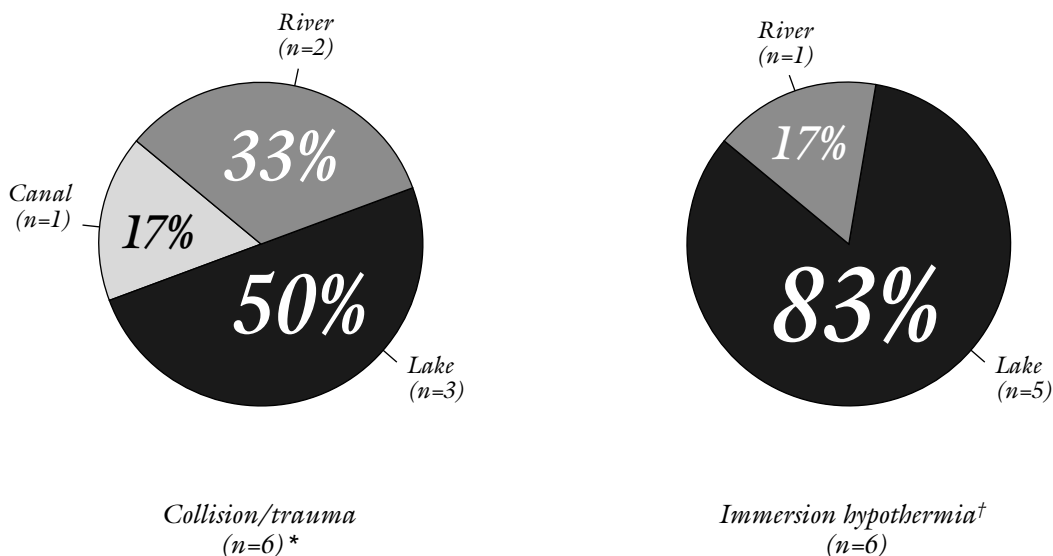
† Including collision of two boats 2, collision of boat & fixed object 1, collision of boat & person 1, fell off boat 1, struck by falling object 1

‡ Excludes cases with drowning & hypothermia

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.45

NON-DROWNING BOATING INJURY DEATHS BY TYPE OF BODY OF WATER & TYPE OF INCIDENT, CANADA 1999 (n=12)

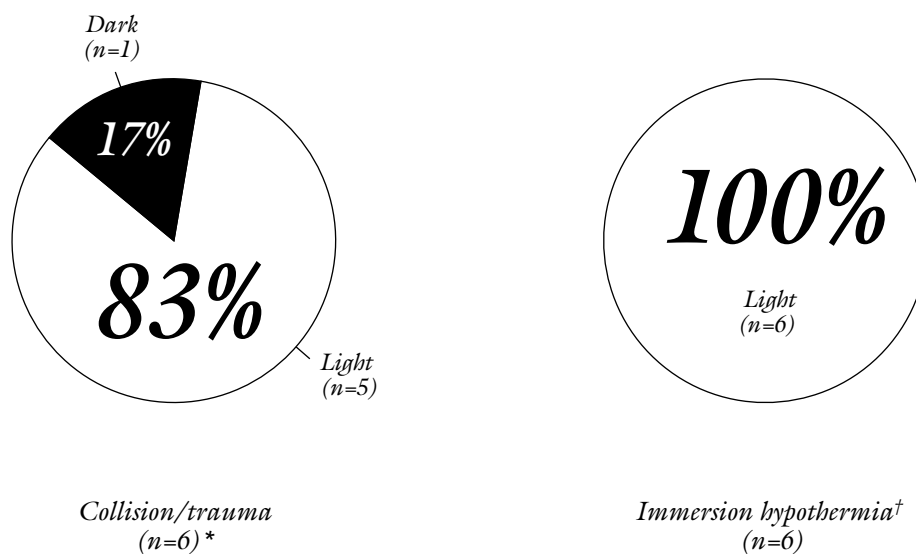


* Including collision of two boats 2, collision of boat & fixed object 1, collision of boat & person 1, fell off boat 1, struck by falling object 1
 † Excludes cases with drowning & hypothermia

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.46

NON-DROWNING BOATING INJURY DEATHS BY LIGHT CONDITIONS & TYPE OF INCIDENT, CANADA 1999 (n=12)

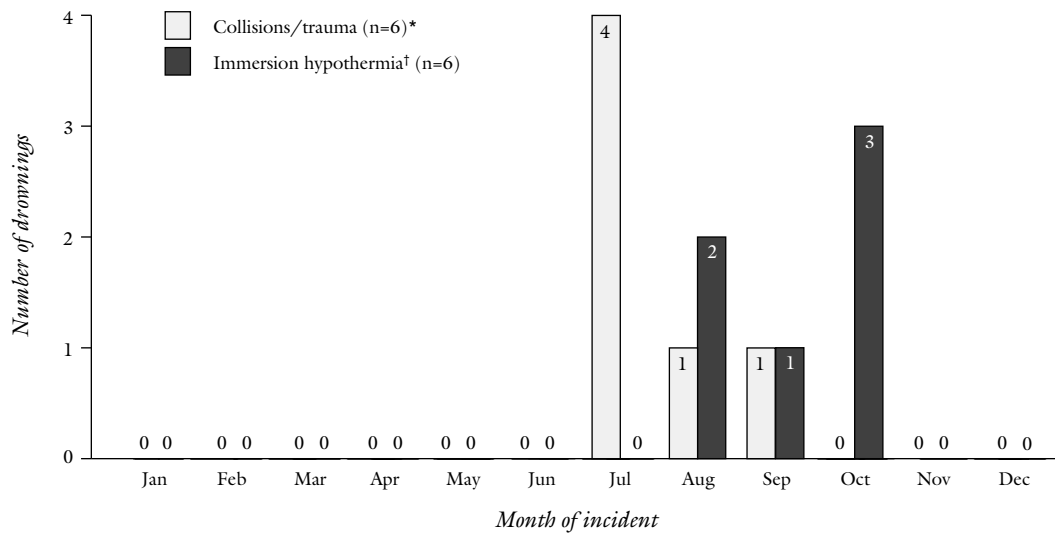


* Including collision of two boats 2, collision of boat & fixed object 1, collision of boat & person 1, fell off boat 1, struck by falling object 1
 † Excludes cases with drowning & hypothermia

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.47

NON-DROWNING BOATING INJURY DEATHS BY MONTH & TYPE OF INCIDENT, CANADA 1999 (n=12)

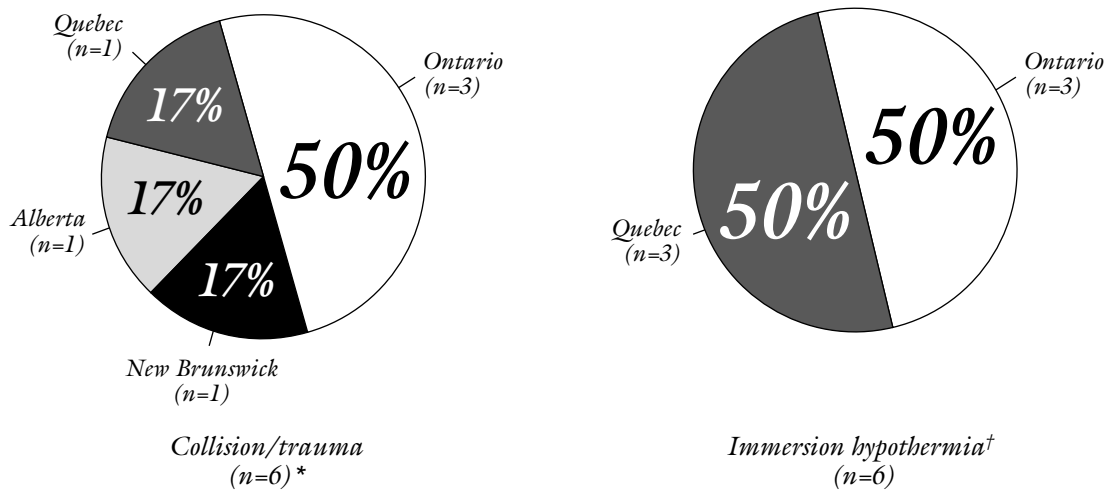


* Including collision of two boats 2, collision of boat & fixed object 1, collision of boat & person 1, fell off boat 1, struck by falling object 1
 † Excludes cases with drowning & hypothermia

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 2.48

NON-DROWNING BOATING INJURY DEATHS BY PROVINCE & TYPE OF INCIDENT, CANADA 1999 (n=12)



* Including collision of two boats 2, collision of boat & fixed object 1, collision of boat & person 1, fell off boat 1, struck by falling object 1
 † Excludes cases with drowning & hypothermia

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Table 2.3

WATER-RELATED INJURY FATALITIES OTHER THAN DROWNINGS* DURING BOATING ACTIVITIES, CANADA 1999 (n=12)

Activity/incident	No.	%	Nature of Injury	No.	Type of boat	No.	Age	Sex		Alcohol mg%† No.	
								M	F		
Collision											
Boat with another boat	2	17	Head injury	1	Large powerboat (>5.5 m)	1	28	2	0	98	1
				1	Personal watercraft	1	22			0	1
Other risk factors:‡ dark, 180° turn, inexperienced boater, illegal drug, driving too close to another personal watercraft											
Boat with fixed object	1	8	Head injury	1	Personal watercraft	1	12	0	1	—	1
Other risk factors:‡ pillar of bridge in water											
Other incidents											
Immersion in cold water	6	50	Hypothermia	5	Small open powerboat§ (≤5.5 m)	5	15, 16, 35, 40, 57	5	1	0	5
				1	Large powerboat (>5.5 m)	1	37			12	1
Other risk factors:‡ engine failure, strong winds, capsized, rough water, prolonged immersion, transferring passengers in strong wind & current, not enough PFDs¶ in boat, PFD¶ not worn, PFD¶ improperly worn											
Fell out of boat	1	8	Head injury	1	Unpowered inflatable	1	62	1	0	0	1
Other risk factors:‡ rafting in white water, capsized, no helmet, PFD¶ improperly worn, very cold water											
Struck by boat	1	8	Head & cervical spine injury	1	Powerboat, size unknown	1	15	0	1	unk.	1
Other risk factors:‡ towed on tube											
Struck by rope	1	8	Head injury	1	Large powerboat (>5.5 m)	1	52	1	0	0	1
Other risk factors:‡ marine shipping, steel fulcrum broke off and fell, victim struck by fulcrum rope, fell 20', hit head on steel railing											
Total	12	100				12		9	3		

* Primary cause of death was injury other than drowning, although drowning may have complicated another injury; in case of hypothermia, only hypothermia deaths reportedly uncomplicated by drowning are included here † Legal limit is 80 mg % ‡ Other factors that may have contributed to these incidents

§ Includes open outboard motorboats & other open powered boats such as inflatables; excludes personal watercraft ¶ Personal flotation device or lifejacket

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001