

## PART 3

# DROWNINGS & OTHER INJURY FATALITIES DURING SWIMMING & OTHER AQUATIC ACTIVITIES

Aquatic activities such as swimming, wading, and playing in water represent the second most frequent category of drowning in Canada after boating and account for 25% of all drownings, excluding land and air transport. Aquatic drownings include only incidents where the victim had intended to be in the water, and hence falls into water are excluded. Swimming is the most frequent aquatic activity associated with drowning, followed by wading and/or playing in water.

Drownings from aquatic activities are about 4 to 6 times more frequent among males than females. They account for about one-third of recreational drownings among both males and females. Aquatic activities tended to account for about 15% of recreational drownings among children 0-4 years old, although in 1999 there were no recreational aquatic drownings in this age group. For 15-24 year olds, aquatic drownings generally account for about 50%.

Many swimmers and waders underestimate the significant hazard of rivers with current (The Canadian Red Cross Society, 1996b). Even in seemingly gently flowing rivers the power of current can be enormous; however, this power is frequently unapparent to inexperienced observers.

Teenage and young adult males are the highest risk group for swimming drownings, while toddlers and other young children are at special risk during wading. Alcohol is a frequent risk factor for males 25 years and older, while current appears to be a more significant factor for younger males and children. This difference suggests that knowledge of the hazards of current and how to cope with it may be acquired with experience, but that advancing age does not necessarily lead to greater prudence in the use of alcoholic beverages. Alcohol involvement is nearly twice as frequent as for boating drownings.

While non-swimmers and weak swimmers are at high risk for swimming and wading drownings, strong swimmers are also at risk. They may overestimate their capabilities and take unwise risks. Many swimming drownings occur in relatively shallow water and close to shore. The fact that at least a third of swimming drownings occur relatively close to shore indicates that even moderate swimming ability should be protective in such incidents.

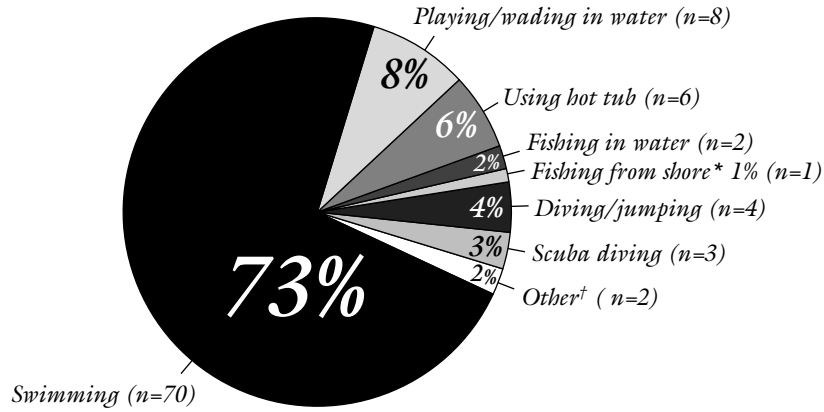
Unlike boating drownings, the vast majority of aquatic drownings occur during the warm months of June, July, and August. Swimming drowning rates are relatively constant across Canada.

The most frequent severe non-drowning injuries associated with aquatic activities are spinal cord injuries from diving into water. While the number of fatalities is relatively small compared with drownings, many victims survive with a permanent severe disability of tetraplegia.

For greater details on aquatic drownings in Canada, the reader may wish to consult the Special Research Report, *Drowning of Swimmers in Canada: Circumstances and Prevention* and the *Comprehensive Surveillance Report: National Drowning Report* (The Canadian Red Cross Society, 1994, 1996b).

## RECREATIONAL AQUATIC DROWNINGS

Figure 3.1 RECREATIONAL AQUATIC DROWNINGS BY ACTIVITY, CANADA 1999 (n=96)

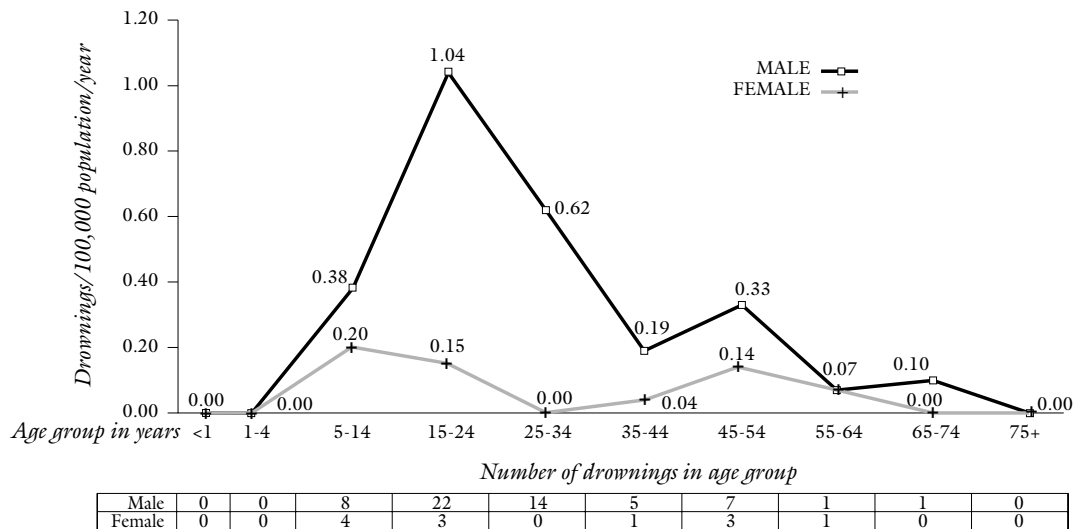


\* Victim entered water to retrieve dropped object † Including 1 each of snorkeling & hunting

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

## RECREATIONAL SWIMMING DROWNINGS

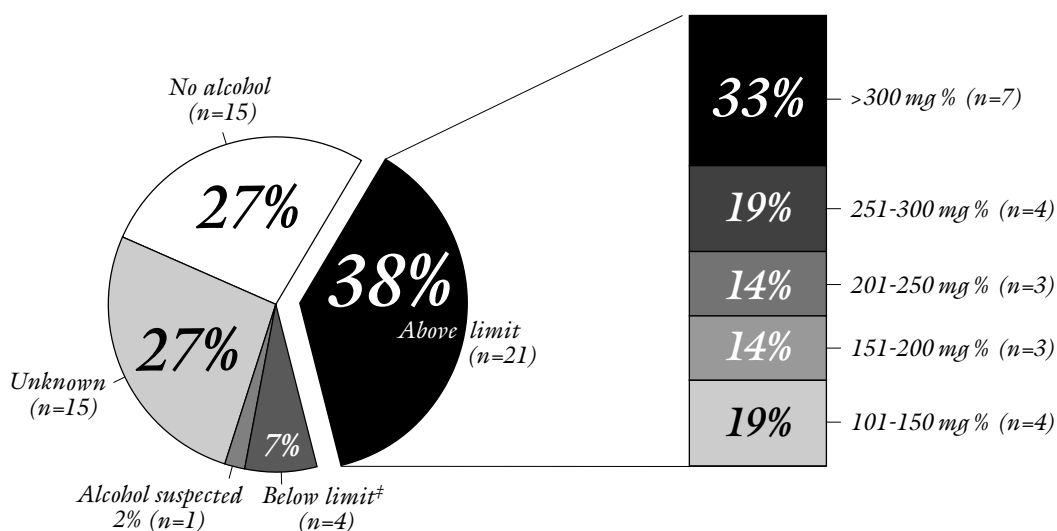
Figure 3.2 RATE AND NUMBER OF RECREATIONAL SWIMMING DROWNINGS BY AGE & SEX, CANADA 1999 (n=70)



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

Figure 3.3a

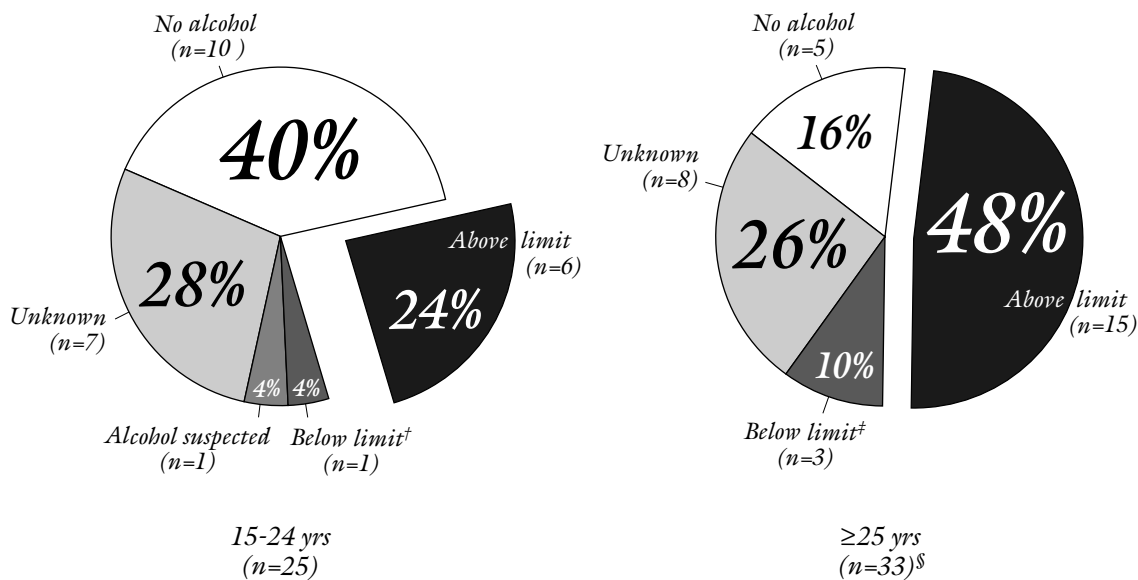
**BLOOD ALCOHOL LEVELS\* FOR RECREATIONAL SWIMMING DROWNINGS, CANADA 1999 (VICTIMS ≥15 YEARS OF AGE; n=58)†**



\* Legal limit is 80 mg % † This figure excludes 2 victims; decomposition rendered blood alcohol unreliable ‡ 2 at 1-49 mg %, 2 at 50-80 mg %  
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 3.3b

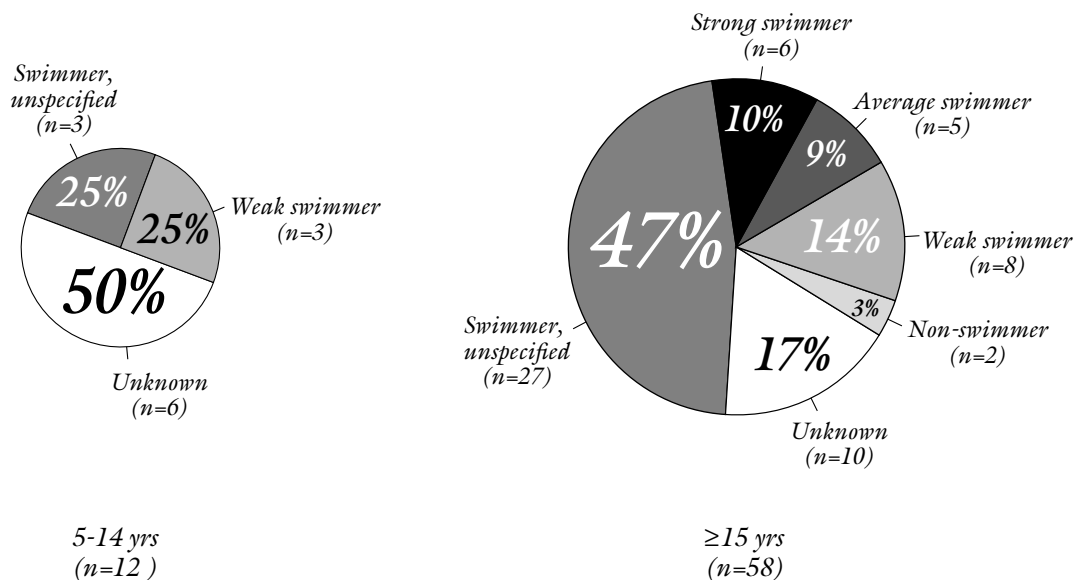
**BLOOD ALCOHOL LEVELS\* FOR RECREATIONAL SWIMMING DROWNINGS BY AGE, CANADA 1999 (VICTIMS ≥15 YEARS OF AGE; n=58)**



\* Legal limit is 80 mg % † 1 at 1-49 mg % ‡ 1 at 1-49 mg %, 2 at 50-80 mg %  
 § This figure excludes 2 victims; decomposition rendered blood alcohol unreliable  
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 3.4

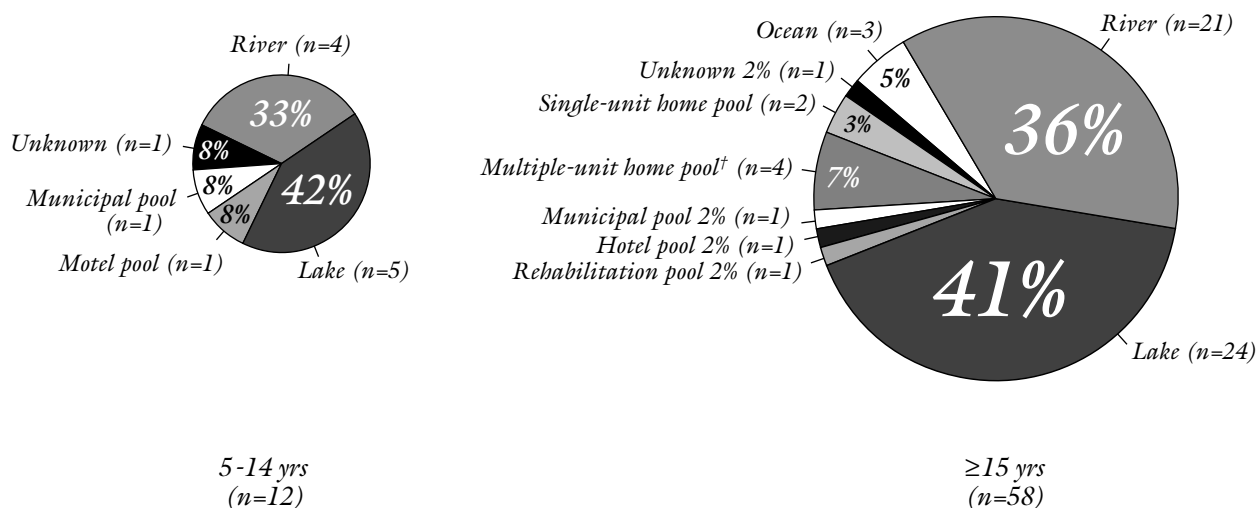
**RECREATIONAL SWIMMING DROWNINGS BY SWIMMING ABILITY & AGE, CANADA 1999 (n=70)**



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

Figure 3.5

**RECREATIONAL SWIMMING DROWNINGS BY AGE & TYPE OF BODY OF WATER,\* CANADA 1999 (n=70)**

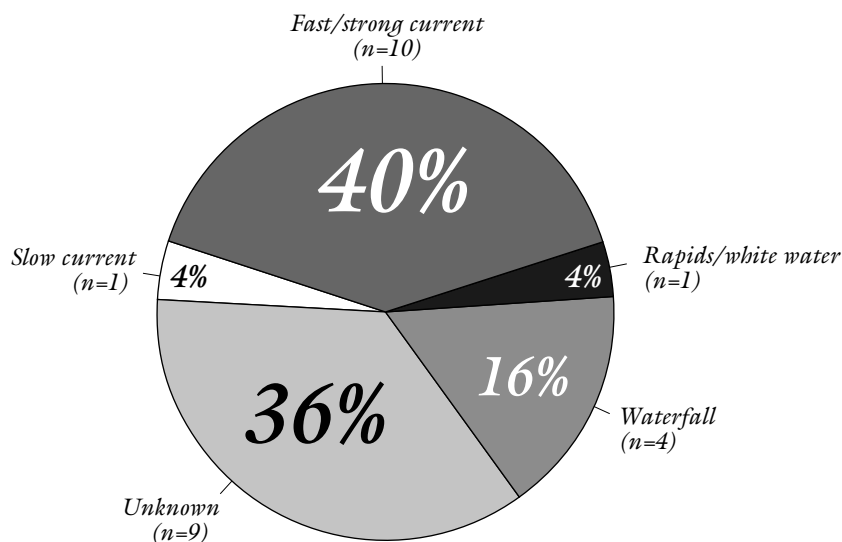


\* "Lake" includes pond & reservoir † Pool at an apartment building

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

Figure 3.6

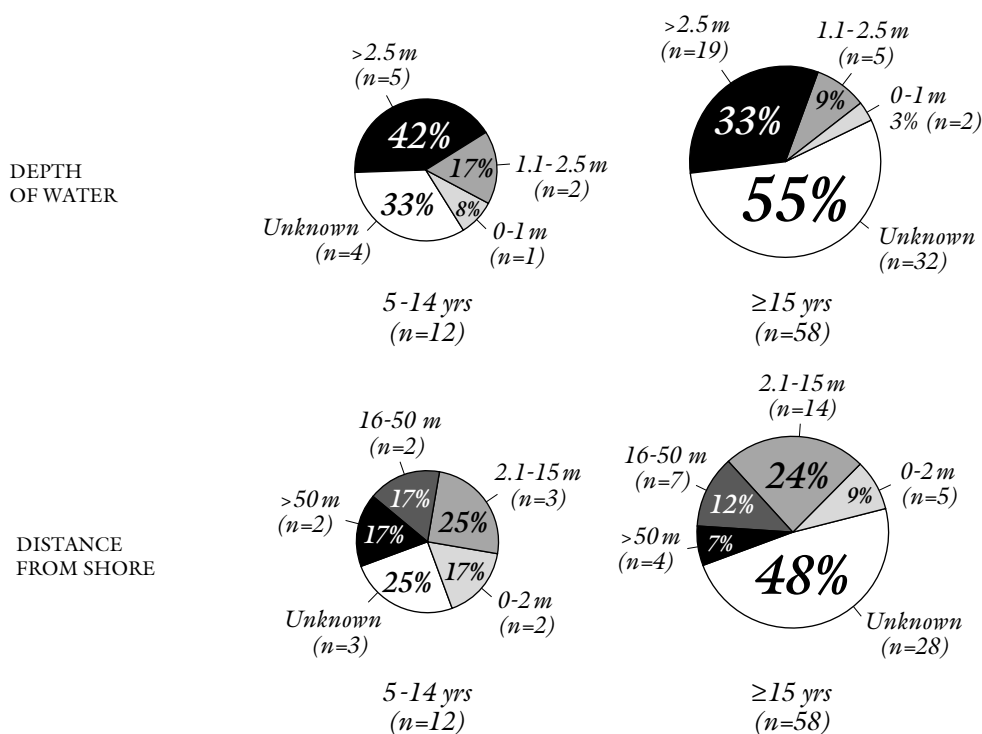
**RECREATIONAL SWIMMING DROWNINGS IN RIVERS BY WATER CURRENT, CANADA 1999 (n=25)**



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

Figure 3.7

**RECREATIONAL SWIMMING DROWNINGS BY AGE AND BY DEPTH OF WATER & DISTANCE FROM SHORE,\* CANADA 1999 (n=70)**

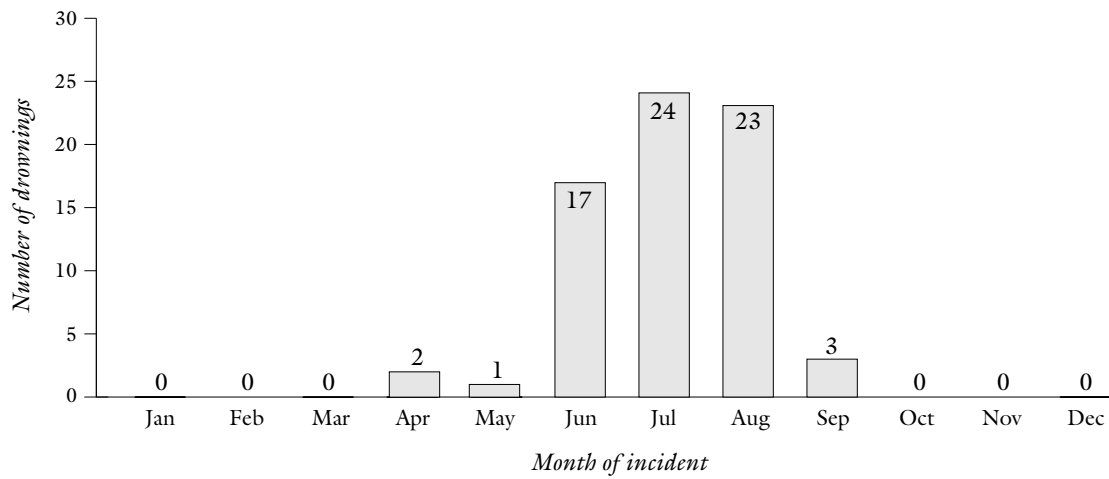


\* Depth and distance in metres

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

Figure 3.8

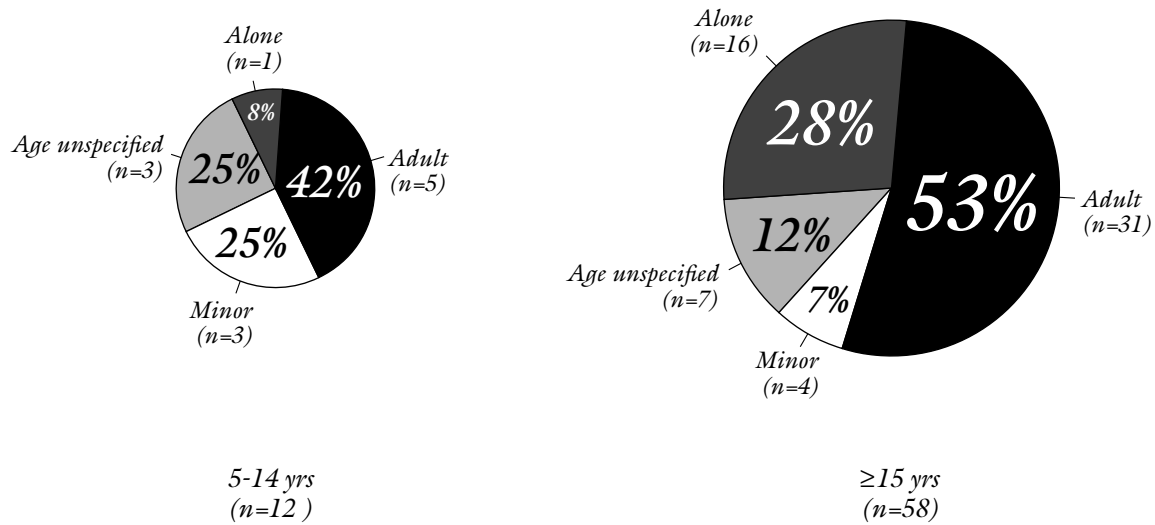
**RECREATIONAL SWIMMING DROWNINGS BY MONTH OF INCIDENT, CANADA 1999 (n=70)**



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

Figure 3.9

**RECREATIONAL SWIMMING DROWNINGS BY AGE OF VICTIMS & ACCOMPANYING PERSONS,\* CANADA 1999 (n=70)**

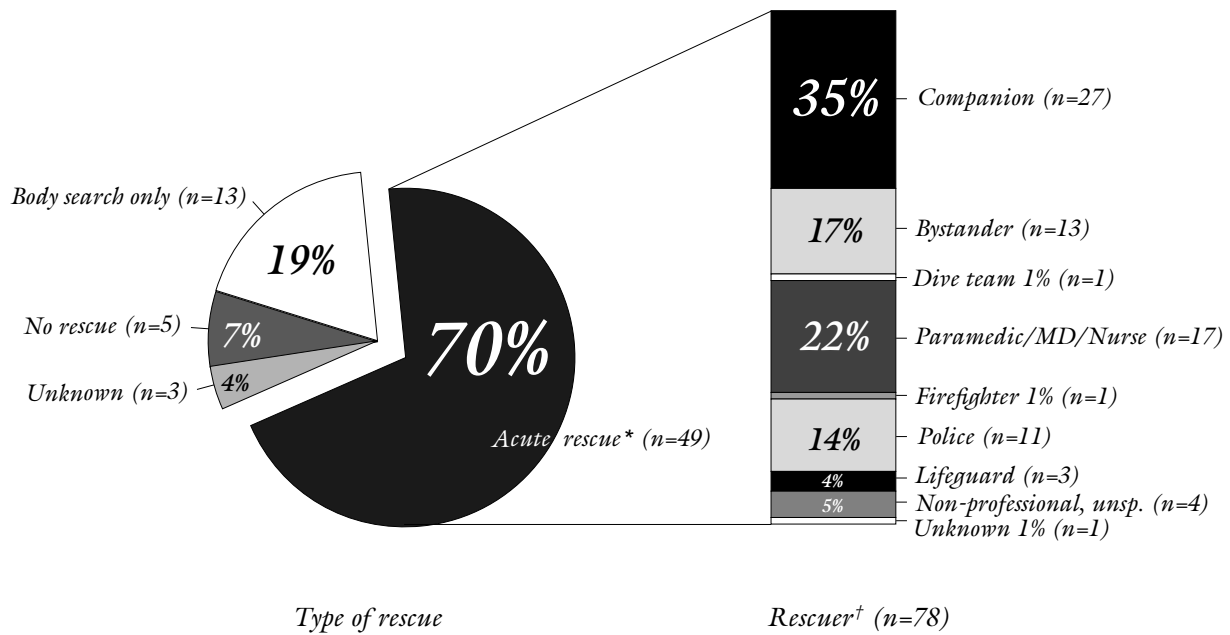


\* "Adult" indicates that victim was accompanied by adult(s); does not exclude presence of minor(s) (<18 years);  
 "Minor" indicates presence of minor(s) only

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

Figure 3.10

**RECREATIONAL SWIMMING DROWNINGS BY TYPE OF RESCUE & RESCUER, CANADA 1999 (n=70)**



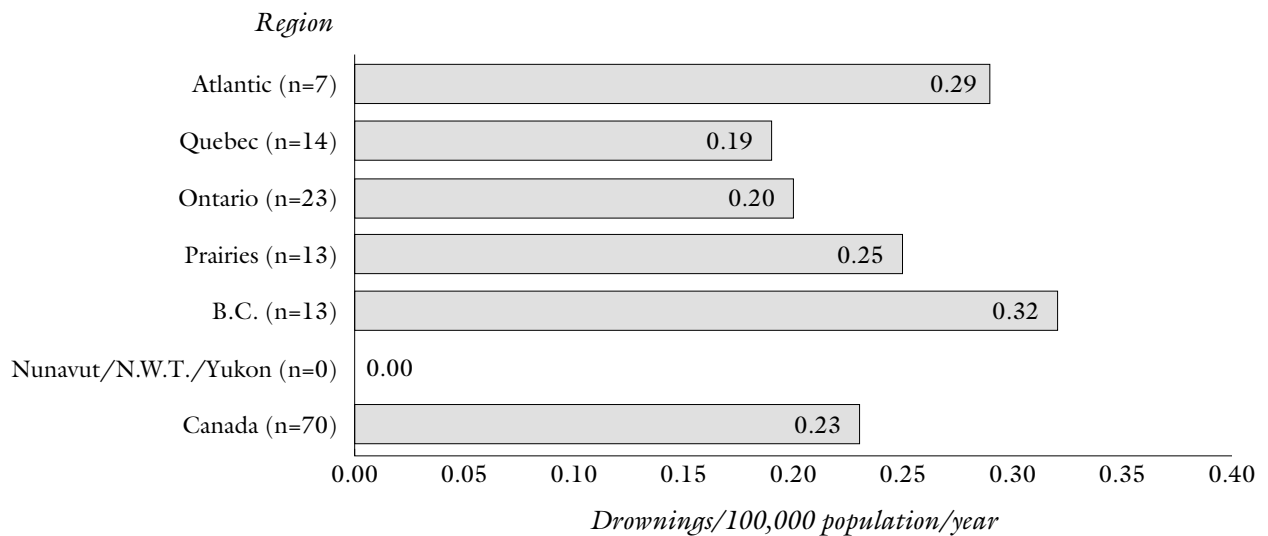
\* Includes cases with a subsequent body search

† There was more than one rescuer for some drownings, thus there were more rescuers than victims

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

Figure 3.11

**RATE OF RECREATIONAL SWIMMING DROWNINGS BY REGION, CANADA 1999 (n=70)**



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

Table 3.1

**WATER-RELATED INJURY FATALITIES OTHER THAN DROWNINGS\*  
DURING AQUATIC ACTIVITIES, CANADA 1999 (n=8)**

Activity/incident	No.	%	Nature of injury	No.	Age	Sex		Alcohol		Other risk factors‡
						M	F	mg%†	No.	
Scuba diving	5	62	Air embolism	5	22, 27, 28, 34, 47	3	2	0	3 Unk. 2	Ascending too rapidly, difficulty breathing at surface, problem with regulator, panicked at 50', cold/very cold water
Diving into water	3	38	Head injury	3	20, 24, 27	3	0	0	1 171 1 susp. 1	Dove into waterfall, dove into home swimming pool, marijuana/drug consumed or susp., dark, strong current, dangerous dive of 25'
<b>Total</b>	<b>8</b>	<b>100</b>				<b>6</b>	<b>2</b>			

\* 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

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