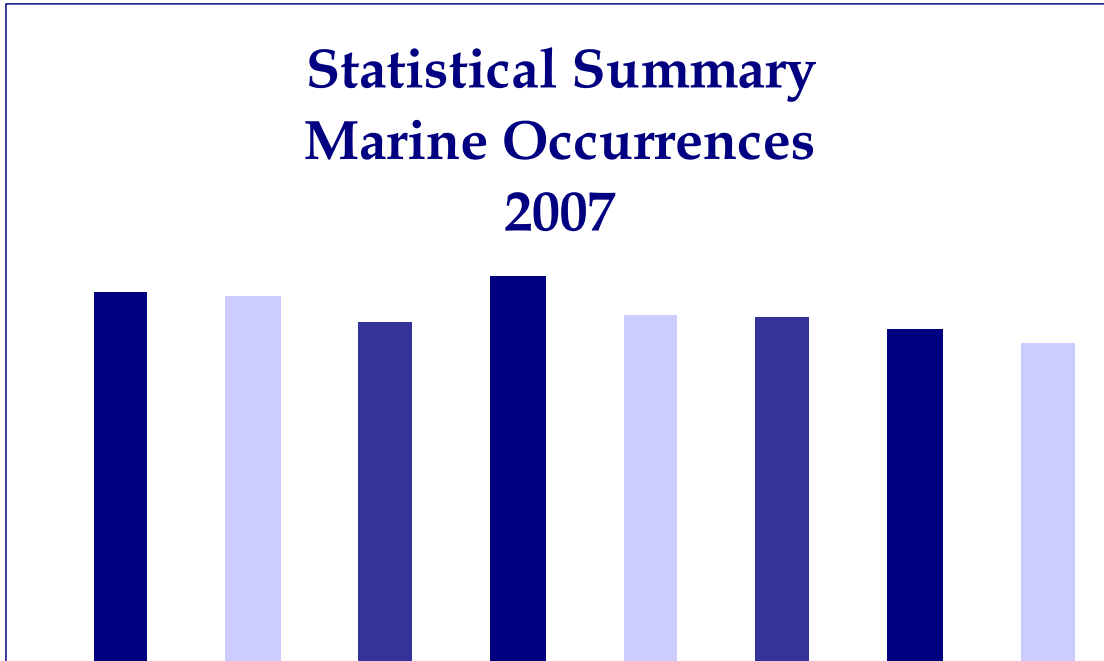




Statistical Summary Marine Occurrences 2007



Foreword

This document provides users of Canadian maritime safety data with an annual summary of selected statistics on marine occurrences. It covers commercial vessels, which include all vessels registered or licensed to operate commercially. Pleasure craft occurrences are not normally included unless they also involve a commercial vessel. Information in this summary is also posted on the Transportation Safety Board of Canada (TSB) website at www.tsb-bst.gc.ca.

Users of these statistics are advised that, in a live database, the occurrence data are constantly being updated. Consequently, the statistics can change slightly over time. Further, as many occurrences are not formally investigated, information recorded on some occurrences may not have been verified. Therefore, caution should be used when using these statistics. The 2007 statistics presented here reflect the TSB database updated as of 10 April 2008.

To enhance awareness and increase the safety value of the material presented in the *Statistical Summary, Marine Occurrences 2007*, readers are encouraged to copy or reprint the data presented, in whole or in part, for further distribution (with acknowledgements of the source).

The TSB is an independent agency operating under its own Act of Parliament. Its sole aim is the advancement of transportation safety.

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MARINE OCCURRENCES IN 2007

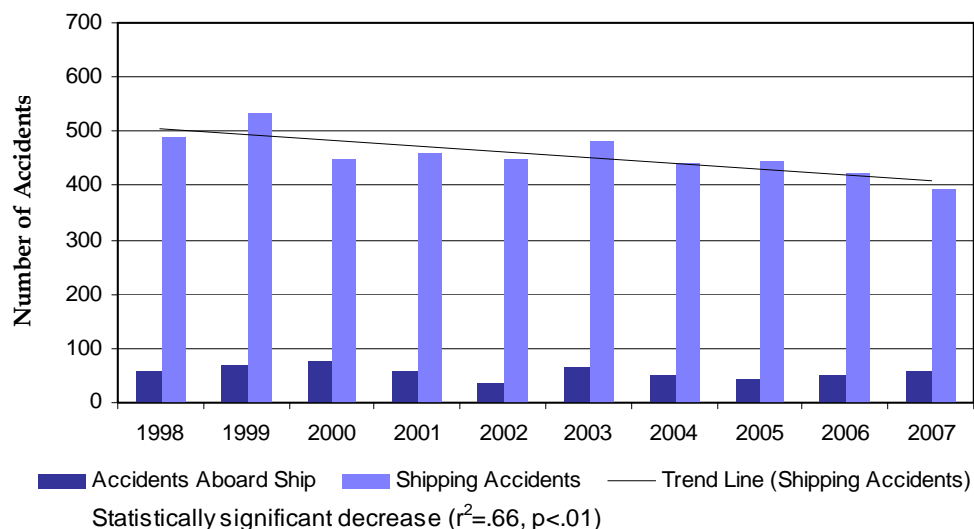
ACCIDENTS

Overview of Accidents and Casualties (Tables 1 and 8)

In 2007, 453 marine accidents were reported to the TSB, down from the 2006 total of 472 and the 2002–2006 average of 497. Over the past 10 years, nearly 90% of marine accidents have been shipping accidents, while the remainder were accidents aboard ship (see Appendix B – Definitions).

Shipping accidents reached a 30-year low of 393 in 2007, a 7% decrease from the 2006 total of 422 and a 12% decrease from the 2002–2006 average of 447. Statistical analysis using linear regression indicates that there has been a significant downward trend¹ in the number of shipping accidents since 1998 ($p < .01$) (Figure 1). In 2007, there were 60 accidents aboard ship, up from 50 in 2006 and the 2002–2006 average of 49. The majority of accidents aboard ship occurred on fishing vessels (35%) and cargo/bulk carrier/OBO² vessels (27%).

Figure 1 – Accidents Aboard Ship and Shipping Accidents, 1998–2007

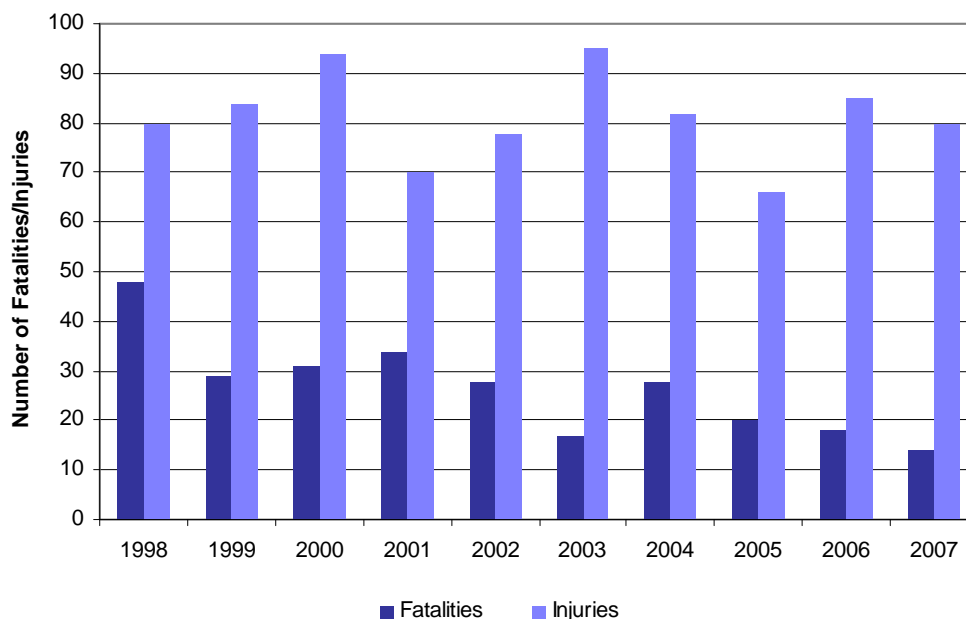


¹ It is agreed by convention that, for a result to be considered statistically significant, its probability must be lower than 1 in 20 (that is, $p < .05$).

² Oil/bulk/ore carrier (OBO), see Appendix B.

Marine-related fatalities totalled 14 in 2007 (Figure 2), down from the 2006 total of 18 and the 2002–2006 average of 22. This decrease consisted mainly of a decrease in shipping accident fatalities, which totalled 3 in 2007, down from 12 in 2006 and the five-year average of 15. In all, 6 of the 14 fatalities resulted from fishing vessel accidents. Injuries in 2007 numbered 80, down from 85 in 2006 and the 2002–2006 average of 81. Of the 80 injuries in 2007, 52 were serious and 51 resulted from accidents aboard ship.

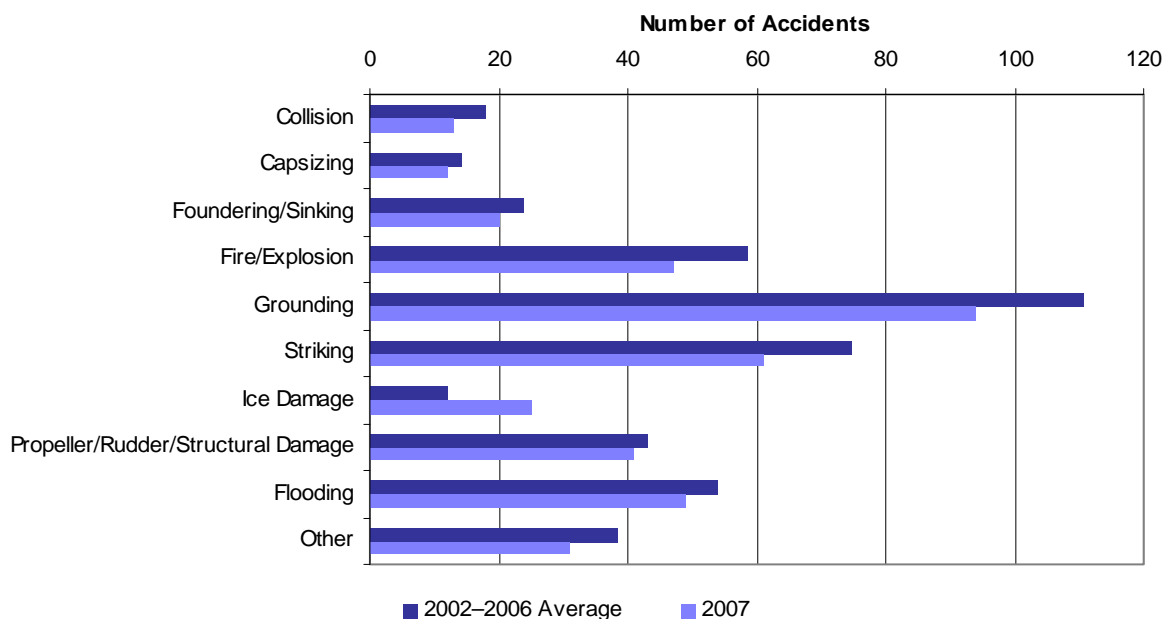
Figure 2 – Marine Fatalities and Injuries, 1998–2007



Shipping Accidents

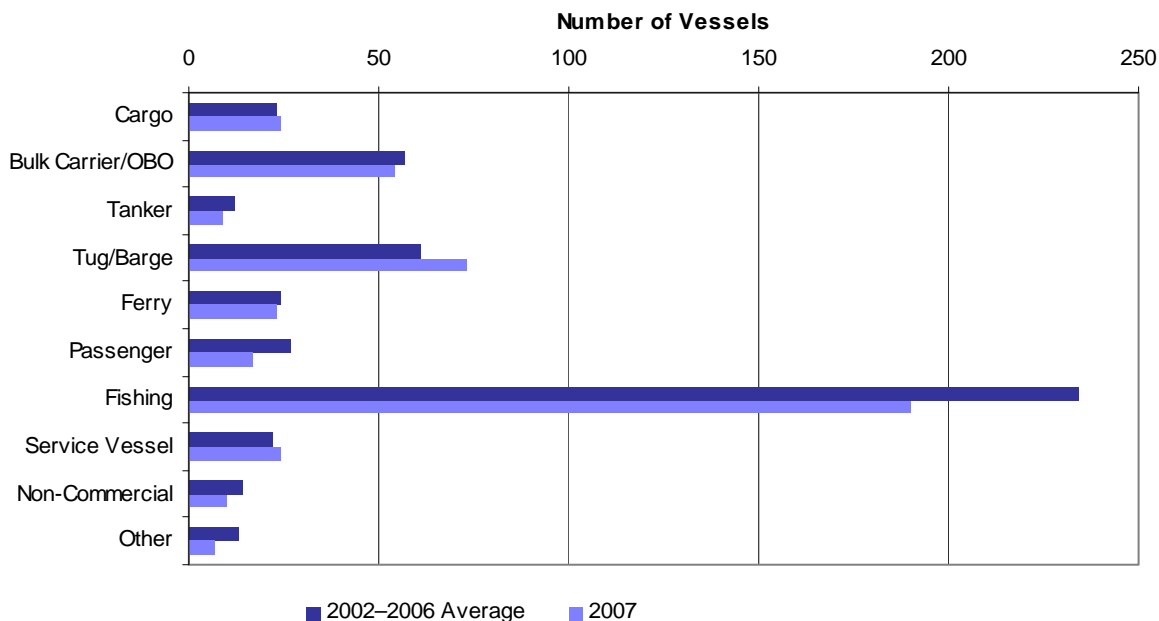
Type of Accidents (Table 1): As illustrated in Figure 3, the most frequent types of shipping accidents in 2007 were groundings (24%) and strikings (16%). Groundings and strikings showed a 15% and 18% decrease respectively from the five-year average, while ice damage accidents showed an 8% increase.

Figure 3 – Shipping Accidents by Accident Type



Type of Vessels (Table 1): In 2007, there were 19 885 fishing vessels in Canada, representing 73% of all registered vessels excluding pleasure craft (source: Transport Canada). Since 1998, approximately 50% of the vessels involved in shipping accidents have been fishing vessels. In 2007, there were 190 fishing vessels involved in shipping accidents (Figure 4), compared to 208 in 2006 and the 2002–2006 average of 234. After fishing vessels, tugs/barges (17%) and bulk carrier/OBO vessels (13%) were involved most often in shipping accidents.

Figure 4 – Shipping Accidents by Vessel Type

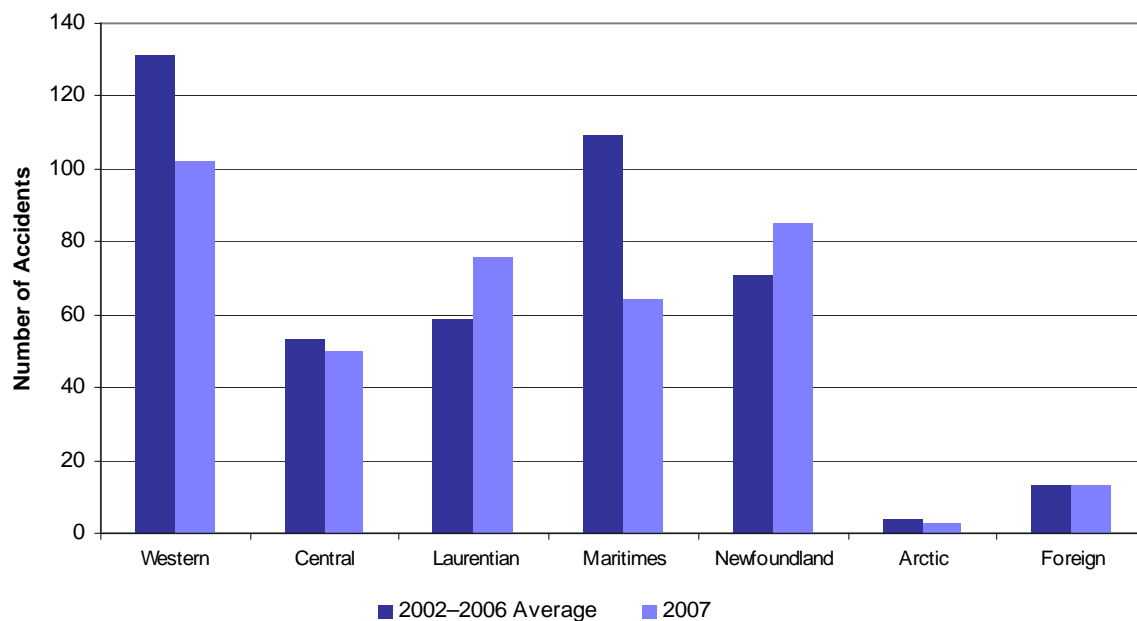


Geographical Region (Tables 2a and 2b): In 2007, 67% of shipping accidents occurred in three of the seven geographical regions (Figure 5): the Western region (26%), the Newfoundland region (22%) and the Laurentian region (19%). Fishing vessel accidents account for three-quarters of all shipping accidents in the Maritimes region. Overall, shipping accidents in the Maritimes region decreased by 41% from the 2002–2006 average.

Fishing vessel accidents dominated the accident record in coastal waters. Compared to the 2002–2006 average, fishing vessels involved in shipping accidents decreased in both the Western and Maritimes regions. However, in the Newfoundland region, 81 fishing vessels were involved in shipping accidents, up from the 2002–2006 average of 61.

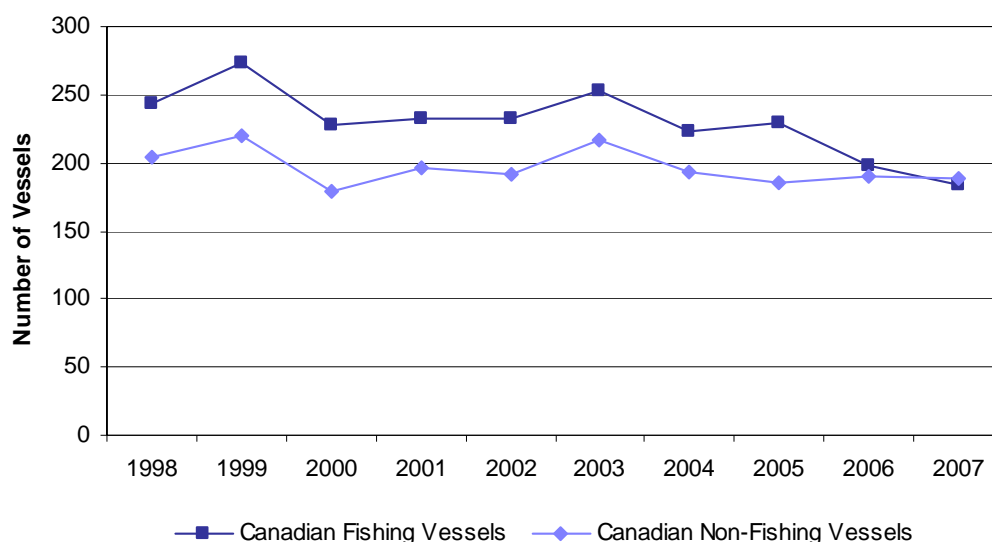
The Central region accounted for 13% of shipping accidents. Within narrower waterways, accidents in this region most often involved larger commercial vessels such as cargo/bulk carrier/OBO vessels. The remaining 4% of shipping accidents took place in foreign waters (13) or in the Arctic region (3).

Figure 5 – Shipping Accidents by Region



Vessel Flag (Tables 1, 3 and 4): In 2007, 86% of vessels involved in shipping accidents reported to the TSB were Canadian-flag vessels. In all, 49% of these were fishing vessels, 40% were commercial non-fishing vessels and the remaining 11% were non-commercial/pleasure craft or service vessels (Figure 6).

Figure 6 – Canadian-Flag Vessels Involved in Shipping Accidents, 1998–2007



For Canadian-flag fishing vessels, groundings (27%) and floodings (21%) were the most frequent shipping accident types. For the first time in 10 years, ice damage (13%) exceeded fire/explosion (12%). For the same period, Canadian-flag commercial non-fishing vessels were mostly involved in strikings (28%) or groundings (18%). Marine activity for Canadian commercial non-fishing vessels increased by 2% from the 2002–2006 average, yielding a 3% decrease in the accident rate from 3.4 to 3.3 accidents per 1000 movements.

In 2007, 59 foreign-flag vessels were involved in shipping accidents in Canadian waters, 88% of which were commercial non-fishing vessels involved mainly in strikings (29%) or rudder/propeller/structural damage (25%). Marine activity for foreign commercial non-fishing vessels increased by 2% from the 2002–2006 average while accidents decreased, yielding a 6% decrease in the accident rate to 1.5 accidents per 1000 movements from the five-year average of 1.6.

Vessels Lost (Tables 1 and 6): In 2007, 28 vessels were reported lost, down from 34 in 2006 and lower than the 2002–2006 average of 30. During the past 10 years, small fishing vessels (less than 15 in gross tonnage [grt])³ have accounted for the largest proportion of vessels lost in Canada. Of the vessels lost in 2007, 6 were commercial non-fishing vessels and 21 were fishing vessels. In 2007, nearly half of vessels lost were less than 15 grt, and more than half were at least 20 years old.

³ The majority of vessels classified under unknown tonnage were vessels of 15 tons or less in gross tonnage.

INCIDENTS

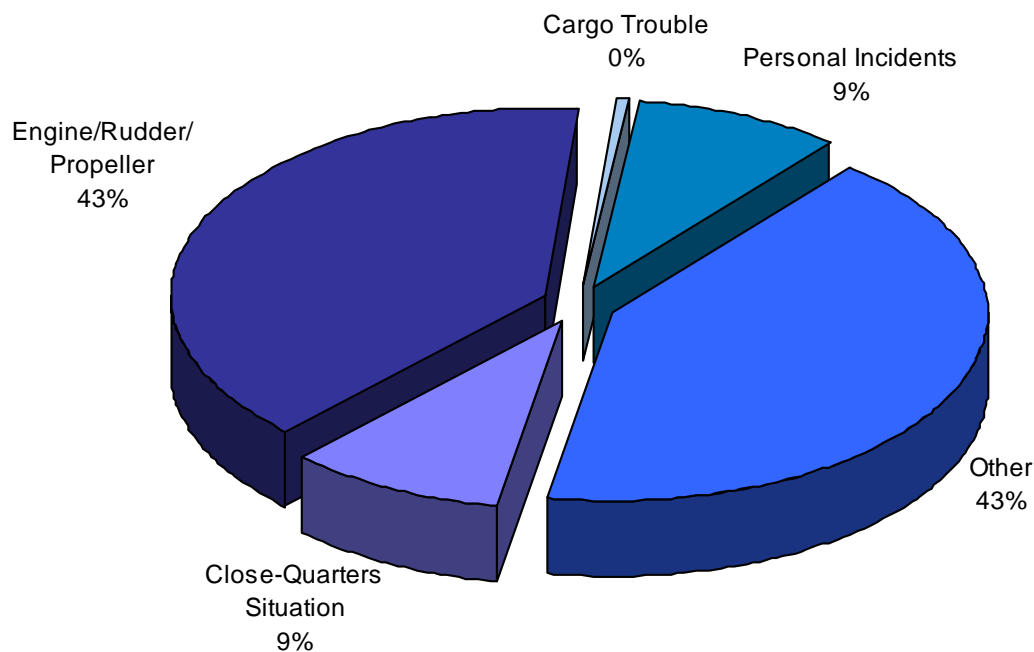
Overview of Incidents (Tables 1, 2a and 2b)

Pursuant to mandatory reporting requirements, 222 marine incidents were reported to the TSB in 2007, up from the 2006 total of 216 and the 2002–2006 average of 218. The majority of reportable incidents consisted of engine/rudder/propeller failures. The Western and Laurentian regions had the majority of close-quarters situations (56% and 25% respectively) and engine/rudder/propeller incidents (40% and 24% respectively).

In 2007, vessels most often involved in close-quarters situations were commercial vessels (62%) and fishing vessels (24%). In the majority of these incidents, the vessels involved were cargo/bulk carrier/OBO vessels, fishing vessels, ferries and tugs.

In 2007, incidents in the Western region represented 31% of all marine incidents, lower than the 2002–2006 proportion of 41%. The proportion of marine incidents that took place in other regions was as follows: Laurentian 26%, Central 19%, Newfoundland 13%, and the Maritimes 8%. One reported incident took place in foreign waters and none occurred in the Arctic region.

Figure 7 – Marine Incidents by Type, 2007



APPENDIX A – MARINE OCCURRENCE TABLES

Table 1
Total Marine Occurrences
Types, Vessels and Losses Involved
1998–2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Shipping Accidents by Type	491	536	450	459	448	481	442	444	422	393
Collision	15	22	16	16	15	24	12	20	19	13
Capsizing	13	6	15	6	14	11	18	10	18	12
Foundering/Sinking	28	32	38	37	26	30	18	21	24	20
Fire/Explosion	65	70	64	84	53	65	51	69	55	47
Grounding	128	146	123	114	129	118	108	87	112	94
Striking	85	85	68	89	72	76	82	81	62	61
Ice Damage	11	10	6	4	2	28	17	11	2	25
Propeller/Rudder/Structural Damage	25	40	31	19	42	39	36	43	56	41
Flooding	69	65	51	70	52	49	63	59	46	49
Other	52	60	38	20	43	41	37	43	28	31
Accidents Aboard Ship	59	69	77	59	36	66	50	45	50	60
Vessels Involved in Shipping Accidents										
By Type of Vessel	534	581	492	507	482	526	471	491	461	431
Cargo	26	26	25	31	22	18	21	21	31	24
Bulk Carrier/OBO	68	73	59	58	57	48	52	68	59	54
Tanker	18	14	14	12	9	15	7	15	13	9
Tug	42	42	33	39	25	34	32	30	27	44
Barge	25	35	30	28	32	31	34	27	33	29
Ferry	23	22	26	24	21	25	20	26	26	23
Passenger	27	20	20	16	27	41	29	20	19	17
Fishing	251	280	238	246	238	260	227	237	208	190
Service Vessel	27	35	23	27	18	27	25	20	22	24
Non-Commercial	19	14	12	18	19	14	11	10	14	10
Other	8	20	12	8	14	13	13	17	9	7
By Vessel Flag	534	581	492	507	482	526	471	491	461	431
Canadian (Non-Fishing)	204	220	179	197	192	216	193	185	190	188
Canadian (Fishing)	243	273	227	232	232	253	223	230	198	184
Foreign	87	88	86	78	58	57	55	76	73	59
Vessels Lost by Gross Tonnage	49	45	37	51	32	38	22	26	34	28
1600 grt and over	1	1	0	1	2	2	0	0	3	0
150 to 1599 grt	2	3	2	3	1	2	0	0	2	0
60 to 149 grt	6	5	3	8	4	8	5	6	6	8
15 to 59 grt	14	7	13	15	7	12	8	7	6	8
Less than 15 grt	16	21	16	18	12	12	3	9	12	9
Unknown Tonnage	10	8	3	6	6	2	6	4	5	3
Fatalities	48	29	31	34	28	17	28	20	18	14
Shipping Accidents	38	14	16	17	19	9	22	13	12	3
Accidents Aboard Ship	10	15	15	17	9	8	6	7	6	11
Injuries	80	84	94	70	78	95	82	66	85	80
Shipping Accidents	22	23	23	18	42	35	37	25	26	29
Accidents Aboard Ship	58	61	71	52	36	60	45	41	59	51
Reportable Incidents by Type	165	178	248	239	175	224	248	227	216	222
Close-Quarters Situation	38	34	57	60	29	60	67	56	30	21
Engine/Rudder/Propeller	66	74	105	99	57	83	106	85	112	87
Cargo Trouble	9	1	5	4	5	3	1	4	4	1
Personal Incidents	3	5	6	8	8	14	9	4	12	20
Other	49	64	75	68	76	64	65	78	58	93

Table 2a
Marine Occurrences by Region
Occurrences, Vessels and Losses Involved
1998–2007

Western Region
Central Region
Laurentian Region
Maritimes Region

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Western Region										
Shipping Accidents	196	168	166	158	139	141	125	125	124	102
Accidents Aboard Ship	14	18	32	29	15	19	15	13	15	19
Vessels Involved in Shipping Accidents										
By Type of Vessel	213	181	177	179	155	159	135	145	142	116
Cargo	5	4	3	8	2	5	3	2	9	3
Bulk Carrier/OBO	3	6	6	2	1	4	7	3	3	2
Tanker	2	1	0	0	0	0	0	0	0	0
Ferry/Passenger	14	10	18	15	19	26	19	26	25	12
Tug/Barge	44	40	44	39	33	31	31	34	38	42
Fishing	128	102	93	98	78	76	65	69	51	43
Other	17	18	13	17	22	17	10	11	16	14
Vessels Lost	25	19	14	22	13	11	6	8	14	9
Fatalities	6	10	10	12	10	4	8	6	6	7
Incidents	54	57	110	122	86	95	98	87	84	68
Central Region										
Shipping Accidents	64	54	46	68	57	53	59	52	46	50
Accidents Aboard Ship	8	5	7	3	3	2	7	3	4	9
Vessels Involved in Shipping Accidents										
By Type of Vessel	67	59	54	79	63	59	62	55	50	54
Cargo	2	1	5	5	6	2	11	4	4	6
Bulk Carrier/OBO	30	33	22	32	25	15	22	28	24	20
Tanker	3	4	6	6	2	4	1	4	2	1
Ferry/Passenger	13	7	8	13	13	14	7	3	7	11
Tug/Barge	10	8	3	11	12	15	10	9	6	9
Fishing	1	1	1	2	2	1	2	1	2	1
Other	8	5	9	10	3	8	9	6	5	6
Vessels Lost	0	1	0	0	2	0	0	0	1	0
Fatalities	1	2	2	9	10	2	4	1	0	1
Incidents	24	16	32	26	28	23	25	32	33	43
Laurentian Region										
Shipping Accidents	64	72	60	59	59	56	62	94	61	76
Accidents Aboard Ship	8	12	7	9	6	17	8	13	11	16
Vessels Involved in Shipping Accidents										
By Type of Vessel	73	78	66	63	61	60	66	107	66	87
Cargo	9	12	8	12	6	3	5	11	11	11
Bulk Carrier/OBO	23	20	21	12	21	19	17	32	17	20
Tanker	5	6	4	4	4	5	4	11	7	7
Ferry/Passenger	10	11	8	5	7	10	11	7	3	10
Tug/Barge	6	14	4	9	5	5	7	7	8	17
Fishing	12	9	14	13	13	13	15	25	15	15
Other	8	6	7	8	5	5	7	14	5	7
Vessels Lost	2	4	2	2	3	6	1	2	0	2
Fatalities	9	5	1	2	2	2	4	2	2	0
Incidents	53	29	51	39	24	50	67	82	59	58
Maritimes Region										
Shipping Accidents	87	118	85	90	121	129	101	95	100	64
Accidents Aboard Ship	12	17	10	10	5	13	8	7	11	8
Vessels Involved in Shipping Accidents										
By Type of Vessel	95	128	95	97	128	138	108	104	107	66
Cargo	5	5	3	4	3	3	0	3	1	2
Bulk Carrier/OBO	3	0	0	0	2	1	0	0	3	1
Tanker	3	0	2	0	2	3	0	0	2	0
Ferry/Passenger	7	6	5	3	5	11	7	7	5	5
Tug/Barge	5	8	3	4	3	6	4	4	4	0
Fishing	59	92	73	75	96	99	80	79	78	50
Other	13	17	9	11	17	15	17	11	14	8
Vessels Lost	8	11	10	12	12	14	9	9	12	6
Fatalities	8	9	4	6	1	7	8	2	3	3
Incidents	17	35	35	33	26	35	28	16	21	17

Table 2b
Marine Occurrences by Region
Occurrences, Vessels and Losses Involved
1998–2007
Newfoundland Region
Arctic Region
Foreign Waters

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Newfoundland Region										
Shipping Accidents	59	94	73	69	58	80	73	70	74	85
Accidents Aboard Ship	11	11	20	5	5	9	10	8	4	4
Vessels Involved in Shipping Accidents										
By Type of Vessel	59	101	76	72	60	86	73	71	76	89
Cargo	2	3	2	1	3	0	1	1	6	2
Bulk Carrier/OBO	1	2	1	2	2	3	1	1	1	0
Tanker	3	2	2	1	1	0	0	0	2	0
Ferry/Passenger	3	5	5	4	4	5	5	2	3	2
Tug/Barge	0	3	3	0	0	2	2	0	0	2
Fishing	48	76	56	58	48	71	64	62	60	81
Other	2	10	7	6	2	5	0	5	4	2
Vessels Lost	13	10	9	15	1	7	6	6	6	11
Fatalities	24	1	9	4	5	0	3	9	6	2
Incidents	12	33	15	12	5	17	20	9	11	29
Arctic Region										
Shipping Accidents	5	15	8	4	2	7	6	0	4	3
Accidents Aboard Ship	2	3	0	0	0	5	1	0	3	1
Vessels Involved in Shipping Accidents										
By Type of Vessel	5	17	8	4	2	7	8	0	4	4
Cargo	2	1	3	1	0	3	0	0	0	0
Bulk Carrier/OBO	0	2	2	2	0	0	0	0	0	0
Tanker	0	0	0	0	0	1	1	0	0	1
Ferry/Passenger	1	3	1	0	0	0	0	0	2	0
Tug/Barge	0	2	0	1	2	0	2	0	1	0
Fishing	0	0	1	0	0	0	0	0	0	0
Other	2	9	1	0	0	3	5	0	1	3
Vessels Lost	0	0	2	0	1	0	0	0	1	0
Fatalities	0	0	4	0	0	2	1	0	1	1
Incidents	1	1	2	1	1	1	5	0	2	0
Foreign Waters										
Shipping Accidents	16	15	12	11	12	15	16	8	13	13
Accidents Aboard Ship	4	3	1	3	2	1	1	1	2	3
Vessels Involved in Shipping Accidents										
By Type of Vessel	22	17	16	13	13	17	19	9	16	15
Cargo	1	0	1	0	2	2	1	0	0	0
Bulk Carrier/OBO	8	10	7	8	6	6	5	4	11	11
Tanker	2	1	0	1	0	2	1	0	0	0
Ferry/Passenger	2	0	1	0	0	0	0	1	0	0
Tug/Barge	2	2	6	3	2	6	10	3	3	3
Fishing	3	0	0	0	1	0	1	1	2	0
Other	4	4	1	1	2	1	1	0	0	1
Vessels Lost	1	0	0	0	0	0	0	1	0	0
Fatalities	0	2	1	1	0	0	0	0	0	0
Incidents	4	7	3	6	5	3	5	1	6	7

Table 3
**Canadian-Flag Vessels Involved in Shipping Accidents by
Vessel Category and Type of Accident (Including Commercial Accident Rate)
1998–2007**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Commercial Vessels	156	157	136	146	143	165	147	140	146	148
Collision	13	11	7	8	8	20	8	15	13	10
Capsizing	2	2	6	1	3	7	4	3	8	9
Foundering/Sinking	13	8	9	14	11	6	3	6	8	9
Fire/Explosion	17	16	17	15	14	20	17	24	18	14
Grounding	43	40	32	31	42	35	31	20	35	26
Striking	32	40	36	43	37	44	46	46	36	41
Ice Damage	2	3	1	2	0	4	2	4	0	1
Propeller/Rudder/Structural Damage	1	4	2	7	9	8	10	3	5	9
Flooding	12	4	9	7	5	4	9	7	11	6
Other	21	29	17	18	14	17	17	12	12	23
Movements*	35 885	31 315	40 081	34 843	37 619	39 802	36 208	38 905	38 910	38 945
Accident Rate**	3.5	4.9	3.1	3.9	3.3	3.3	3.8	3.4	3.3	3.3
Fishing Vessels	243	273	227	232	232	253	223	230	198	184
Collision	8	21	15	11	19	15	7	17	11	11
Capsizing	8	3	5	3	5	5	8	5	7	3
Foundering/Sinking	12	22	23	21	11	19	12	17	15	10
Fire/Explosion	33	37	32	57	28	38	28	31	22	22
Grounding	63	74	71	60	70	67	67	54	49	49
Striking	30	15	8	12	12	15	8	13	4	6
Ice Damage	9	6	3	2	1	21	14	5	2	23
Propeller/Rudder/Structural Damage	13	30	20	7	29	24	20	30	48	17
Flooding	52	55	42	56	41	39	50	46	31	39
Other	15	10	8	3	16	10	9	12	9	4
Other Vessels	48	63	43	51	49	51	46	45	44	40
Collision	3	9	3	7	3	7	6	4	7	3
Capsizing	3	1	4	0	6	0	4	2	3	0
Foundering/Sinking	2	1	6	3	3	5	2	0	1	2
Fire/Explosion	6	10	8	8	7	7	4	9	8	7
Grounding	8	13	5	9	4	8	3	7	9	11
Striking	11	12	12	18	14	13	7	10	8	9
Ice Damage	0	0	0	0	0	2	0	1	0	0
Propeller/Rudder/Structural Damage	3	2	1	1	1	1	2	2	1	2
Flooding	2	3	0	4	3	2	3	2	2	3
Other	10	12	4	1	8	6	15	8	5	3
Total	447	493	406	429	424	469	416	415	388	372

* Based on data from Transport Canada (2006 and 2007 data are estimated). Note that Statistics Canada changed the method of recording tug and barge movements in 2000.

** The accident rate is the number of Canadian-flag commercial vessels of 15 grt or more (excluding passenger vessels and fishing vessels) involved in shipping accidents per 1000 vessel movements.

Table 4
**Foreign-Flag Vessels Involved in Shipping Accidents by
Vessel Category and Type of Accident (Including Commercial Accident Rate)
1998–2007**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Commercial Vessels	73	75	71	62	50	47	48	67	62	52
Collision	3	2	5	5	1	5	3	4	6	0
Capsizing	0	0	0	0	0	0	2	0	0	0
Foundering/Sinking	1	0	0	0	0	0	0	0	0	0
Fire/Explosion	7	6	6	6	4	0	2	5	7	5
Grounding	16	16	12	14	12	8	6	3	18	8
Striking	27	31	27	29	19	18	26	31	20	15
Ice Damage	0	1	2	0	1	1	1	1	0	1
Propeller/Rudder/Structural Damage	8	4	7	4	3	5	4	7	2	13
Flooding	2	2	0	1	2	2	0	2	1	1
Other	9	13	12	3	8	8	4	14	8	9
Movements*	32 532	32 352	32 946	31 696	31 442	30 877	31 580	32 223	32 230	32 255
Accident Rate**	2.2	2.3	2.0	1.8	1.6	1.4	1.3	2.1	1.9	1.5
Fishing Vessels	8	7	11	14	6	7	4	7	10	6
Collision	1	0	1	1	0	1	0	1	4	2
Capsizing	0	0	0	1	0	0	0	0	1	0
Foundering/Sinking	0	1	0	1	0	0	1	0	0	0
Fire/Explosion	2	0	1	1	0	1	0	0	0	0
Grounding	2	3	5	3	4	1	1	3	4	4
Striking	2	2	1	4	1	0	1	0	0	0
Ice Damage	0	0	0	0	0	0	0	0	0	0
Propeller/Rudder/Structural Damage	0	0	1	0	0	1	0	1	0	0
Flooding	1	1	0	2	1	2	1	2	1	0
Other	0	0	2	1	0	1	0	0	0	0
Other Vessels	6	6	4	2	2	3	3	2	1	1
Collision	0	1	1	0	0	1	0	0	0	0
Capsizing	0	0	0	1	0	0	0	0	0	0
Foundering/Sinking	0	0	0	1	1	0	0	0	0	0
Fire/Explosion	0	1	0	0	0	0	0	0	0	0
Grounding	1	2	1	0	0	1	2	2	1	1
Striking	4	0	1	0	0	0	0	0	0	0
Ice Damage	0	0	0	0	0	0	0	0	0	0
Propeller/Rudder/Structural Damage	0	0	0	0	0	0	0	0	0	0
Flooding	0	0	0	0	0	0	0	0	0	0
Other	1	2	1	0	1	1	1	0	0	0
Total	87	88	86	78	58	57	55	76	73	59

* Based on data from Transport Canada (2006 and 2007 data are estimated). Note that Statistics Canada changed the method of recording tug and barge movements in 2000.

** The accident rate is the number of foreign-flag commercial vessels of 15 grt or more (excluding passenger vessels and fishing vessels) involved in shipping accidents per 1000 vessel movements.

Table 5
**Masters, Skippers and Operators Involved in Shipping Accidents
by Vessel Flag and Crew Qualification
1998–2007**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Canadian-Flag Vessels										
Commercial Vessels	156	157	136	146	143	165	147	140	146	148
Master Foreign-Going	13	11	8	13	12	12	14	11	11	8
ON1	16	10	13	8	12	9	8	15	9	8
ON2	0	0	1	0	0	0	1	1	1	0
CN1	16	2	4	6	11	14	8	6	5	5
CN2	9	8	4	6	1	2	9	5	3	4
Master – Ferry	2	1	2	1	3	4	1	2	1	1
Watchkeeping Mate	10	12	7	6	8	11	10	8	8	6
Other	17	38	25	24	29	22	29	11	16	30
Unknown	71	74	72	80	67	89	64	79	92	86
No Certificate	2	1	0	2	0	2	3	2	0	0
Fishing Vessels	243	273	227	232	232	253	223	230	198	184
Fishing Master – Class 1	3	2	3	4	2	3	1	2	0	1
Fishing Master – Class 2	1	3	3	3	8	3	4	9	3	1
Fishing Master – Class 3	8	10	11	9	17	16	9	14	10	5
Fishing Master – Class 4	9	13	12	22	19	19	19	23	17	10
Fishing – Other Certificate	1	0	5	1	4	5	2	3	5	0
Watchkeeping Mate	1	0	1	4	3	1	2	0	0	0
Other	0	2	2	1	1	0	1	3	0	2
Unknown	198	238	182	160	126	154	147	133	144	163
No Certificate	22	5	8	28	52	52	38	43	19	2
Other Vessels	48	63	43	51	49	51	46	45	44	40
Master Foreign-Going	3	13	4	10	9	7	6	6	5	3
ON1	4	3	5	1	2	4	4	3	4	1
ON2	1	1	0	1	0	1	1	1	0	0
CN1	1	1	1	2	0	0	0	2	2	1
CN2	0	0	0	1	0	0	3	0	0	2
Watchkeeping Mate	5	0	4	8	6	2	6	2	3	1
Other	12	14	6	4	5	10	10	9	4	8
Unknown	20	30	23	24	25	27	16	21	26	23
No Certificate	2	1	0	0	2	0	0	1	0	1
Foreign-Flag Vessels										
Commercial Vessels	73	75	71	62	50	47	48	67	62	52
Master Foreign-Going	38	36	46	33	25	17	19	20	26	20
CN1	1	0	0	0	0	0	0	0	0	0
CN2	0	0	1	0	1	0	0	1	0	0
Other	9	6	3	2	0	0	0	0	2	0
Unknown	25	33	21	27	24	30	29	46	34	32
Fishing Vessels	8	7	11	14	6	7	4	7	10	6
Certificate	1	0	4	2	1	2	1	0	0	0
Unknown	7	7	7	12	5	5	3	7	10	6
No Certificate	0	0	0	0	0	0	0	0	0	0
Other Vessels	6	6	4	2	2	3	3	2	1	1
Master Foreign-Going	0	1	0	0	0	0	0	1	0	0
Other	1	0	0	0	0	0	0	0	0	0
Unknown	5	4	4	2	2	3	3	1	1	1
No Certificate	0	1	0	0	0	0	0	0	0	0

Table 6
Vessels Lost by Vessel Category and Age
1998–2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Commercial Vessels	8	5	4	7	8	4	1	2	9	6
Unknown	0	1	0	0	4	2	0	1	2	2
0–4 years	0	1	0	1	1	0	0	0	0	0
5–9 years	1	0	0	1	0	0	0	0	0	0
10–14 years	0	0	0	0	0	0	0	0	0	0
15–19 years	0	0	0	0	0	0	0	0	0	0
20–24 years	0	1	1	1	0	0	0	0	0	0
25–29 years	2	0	0	0	0	0	0	0	0	0
30+ years	5	2	3	4	3	2	1	1	7	4
Fishing Vessels	41	39	30	44	20	32	19	24	24	21
Unknown	8	4	4	7	4	2	5	3	4	3
0–4 years	2	1	0	2	0	2	2	2	2	1
5–9 years	6	3	4	1	4	2	2	1	4	1
10–14 years	3	5	6	9	3	4	0	2	2	3
15–19 years	5	7	4	3	1	5	3	7	3	2
20–24 years	4	5	4	7	2	5	3	3	3	3
25–29 years	5	2	2	2	3	5	1	4	1	4
30+ years	8	12	6	13	3	7	3	2	5	4
Other Vessels	0	1	3	0	4	2	2	0	1	1
Unknown	0	0	2	0	1	1	2	0	1	1
0–4 years	0	0	0	0	0	0	0	0	0	0
5–9 years	0	0	0	0	0	0	0	0	0	0
10–14 years	0	1	0	0	0	0	0	0	0	0
15–19 years	0	0	0	0	0	0	0	0	0	0
20–24 years	0	0	0	0	0	0	0	0	0	0
25–29 years	0	0	1	0	0	0	0	0	0	0
30+ years	0	0	0	0	3	1	0	0	0	0
All Vessels	49	45	37	51	32	38	22	26	34	28
Unknown	8	5	6	7	9	5	7	4	7	6
0–4 years	2	2	0	3	1	2	2	2	2	1
5–9 years	7	3	4	2	4	2	2	1	4	1
10–14 years	3	6	6	9	3	4	0	2	2	3
15–19 years	5	7	4	3	1	5	3	7	3	2
20–24 years	4	6	5	8	2	5	3	3	3	3
25–29 years	7	2	3	2	3	5	1	4	1	4
30+ years	13	14	9	17	9	10	4	3	12	8

Table 7
Accidents, Fatalities and Injuries by Type of Accident
1998–2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Shipping Accidents with Fatalities or Injuries										
Collision	2	3	1	2	4	2	1	4	0	0
Capsizing	5	2	6	3	4	3	7	6	6	4
Sinking/Foundering	5	4	7	5	3	2	7	1	1	3
Fire/Explosion	1	2	1	2	5	4	2	1	4	1
Grounding	0	3	2	2	4	2	0	0	3	0
Striking	1	2	3	4	4	5	2	5	2	3
Other	2	4	2	1	1	1	2	0	0	1
Total	16	20	22	19	25	19	21	17	16	12
Fatalities*										
Collision	2	5	2	1	0	1	2	0	0	0
Capsizing	6	2	6	3	10	5	9	10	6	2
Sinking/Foundering	28	5	7	10	7	2	11	3	1	0
Fire/Explosion	0	1	0	0	1	1	0	0	2	0
Grounding	0	0	0	0	1	0	0	0	3	0
Striking	0	1	1	0	0	0	0	0	0	1
Other	2	0	0	3	0	0	0	0	0	0
Total	38	14	16	17	19	9	22	13	12	3
Injuries										
Collision	0	3	0	1	4	1	2	7	0	0
Capsizing	5	0	5	1	0	2	7	4	1	2
Sinking/Foundering	14	5	5	6	4	2	4	0	0	3
Fire/Explosion	1	1	3	2	7	4	6	1	6	9
Grounding	0	3	3	3	10	3	0	0	3	0
Striking	1	4	5	5	16	22	15	13	16	14
Other	1	7	2	0	1	1	3	0	0	1
Total	22	23	23	18	42	35	37	25	26	29
Accidents Aboard Ship										
Fatalities*	59	69	77	59	36	66	50	45	50	60
Carried Overboard	0	0	1	2	0	3	0	0	0	2
Caught by Cargo/Machinery	1	5	1	3	1	2	1	1	0	1
Fell Overboard	4	6	7	8	3	2	2	3	2	2
Fell into Tank/Hold	0	1	0	0	0	0	0	0	0	0
Fell on Deck or off Quay	2	0	0	2	0	0	0	2	0	0
Heavy Weather	0	0	0	0	0	0	0	0	0	0
Suicide (Suspected)	1	0	1	0	0	1	1	1	0	0
Other	2	3	5	2	5	0	2	0	3	5
Total	10	15	15	17	9	8	6	7	5	10
Injuries										
Carried Overboard	1	0	1	3	2	2	2	3	0	2
Caught by Cargo/Machinery	24	17	33	16	11	25	16	17	23	13
Fell Overboard	3	5	4	2	2	1	1	1	0	1
Fell into Tank/Hold	2	3	2	1	1	3	0	0	0	5
Fell on Deck or off Quay	4	9	12	8	7	9	4	8	5	6
Heavy Weather	2	0	0	2	0	2	1	0	0	0
Suicide (Suspected)	1	0	0	0	0	0	0	0	0	0
Other	21	27	19	20	13	18	19	11	19	18
Total	58	61	71	52	36	60	43	40	47	45

* The total number of fatalities includes missing persons.

Table 8
Accidents, Fatalities and Injuries by Type of Vessel
1998–2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Shipping Accidents with Fatalities or Injuries										
Cargo/Bulk Carrier/OBO	1	1	1	1	0	0	0	0	0	1
Tanker	0	0	0	0	0	0	0	0	2	0
Tug/Barge	1	2	5	3	3	0	2	1	0	5
Fishing	10	10	9	10	13	11	10	9	9	3
Passenger	1	1	1	0	2	3	1	1	1	0
Ferry	0	0	1	0	2	4	2	3	2	3
Other	3	6	5	5	5	1	6	3	2	0
Total	16	20	22	19	25	19	21	17	16	12
Fatalities*										
Cargo/Bulk Carrier/OBO	21	1	4	0	0	0	0	0	0	0
Tanker	0	0	0	0	0	0	0	0	1	0
Tug/Barge	0	0	1	4	1	0	3	0	0	2
Fishing	14	7	5	10	9	8	13	11	8	1
Passenger	2	0	2	0	4	0	0	0	0	0
Ferry	0	0	0	0	0	0	0	0	2	0
Other	1	6	4	3	5	1	6	2	1	0
Total	38	14	16	17	19	9	22	13	12	3
Injuries										
Cargo/Bulk Carrier/OBO	4	0	0	2	0	0	0	0	0	1
Tanker	0	0	0	0	0	0	0	0	2	0
Tug/Barge	2	4	7	2	6	0	0	3	0	6
Fishing	11	10	7	10	18	10	8	8	5	2
Passenger	2	3	0	0	1	8	10	4	8	0
Ferry	0	0	1	0	14	17	7	9	8	20
Other	3	6	8	4	3	0	12	1	3	0
Total	22	23	23	18	42	35	37	25	26	29
Accidents Aboard Ship										
Cargo/Bulk Carrier/OBO	16	14	15	16	9	16	15	6	13	16
Tanker	1	2	2	3	0	3	1	2	5	2
Tug/Barge	7	3	3	7	4	4	3	5	4	7
Fishing	19	28	34	23	13	27	26	15	21	21
Passenger	6	6	5	2	2	0	0	5	2	4
Ferry	1	2	4	0	4	4	3	3	1	0
Other	9	14	14	8	4	12	2	9	4	10
Total	59	69	77	59	36	66	50	45	50	60
Fatalities*										
Cargo/Bulk Carrier/OBO	3	4	3	3	1	0	1	1	2	2
Tanker	0	0	0	1	0	0	0	0	1	0
Tug/Barge	1	1	2	4	0	2	0	0	1	1
Fishing	4	8	8	8	5	4	3	3	2	5
Passenger	1	0	1	0	0	0	0	1	0	0
Ferry	0	1	1	0	1	2	1	1	0	0
Other	1	1	0	1	2	0	1	1	0	3
Total	10	15	15	17	9	8	6	7	6	11
Injuries										
Cargo/Bulk Carrier/OBO	19	10	15	14	9	18	14	5	19	15
Tanker	1	2	2	2	0	3	1	2	4	2
Tug/Barge	6	2	3	8	5	2	3	5	3	6
Fishing	16	25	29	16	14	23	23	13	19	16
Passenger	7	8	4	3	2	0	0	4	6	4
Ferry	1	1	4	0	4	2	2	3	1	0
Other	8	13	14	9	2	12	1	9	5	8
Total	58	61	71	52	36	60	44	41	57	51

* The total number of fatalities includes missing persons.

APPENDIX B – DEFINITIONS

The following definitions apply to marine occurrences that are required to be reported pursuant to the *Canadian Transportation Accident Investigation and Safety Board Act* and the associated regulations.

Marine Occurrence

- a) any accident or incident associated with the operation of a ship⁴ and
- b) any situation or condition that the Board has reasonable grounds to believe could, if left unattended, induce an accident or incident described in paragraph a) above.

The Act applies

- a) in Canada; and
- b) in any other place, including waters described in paragraph c), if
 - i) Canada is requested to investigate the marine occurrence by an appropriate authority,
 - ii) the marine occurrence involves a ship registered or licensed in Canada, or
 - iii) a competent witness to, or person having information concerning a matter that may have contributed to, the marine occurrence arrives or is found at any place in Canada.
- c) This Act also applies in respect of marine occurrences related to an activity concerning the exploration or exploitation of the continental shelf.

Reportable Marine Accident

An accident resulting directly from the operation of a ship other than a pleasure craft,⁵ where

- a) a person sustains a serious injury or is killed as a result of
 - i) being on board the ship or falling overboard from the ship, or
 - ii) coming into contact with any part of the ship or its contents, or
- b) the ship
 - i) sinks, founders or capsizes,
 - ii) is involved in a collision (which includes collisions, strikings and contacts),
 - iii) sustains a fire or an explosion,
 - iv) goes aground,
 - v) sustains damage that affects its seaworthiness or renders it unfit for its purpose, or
 - vi) is missing or abandoned.

For statistical purposes, accidents defined in paragraph a) are classified as “Accidents Aboard Ship” and accidents defined in paragraph b) are classified as “Shipping Accidents.”

⁴ Ship includes:

- a) every description of vessel, boat or craft designed, used or capable of being used solely or partly for marine navigation without regard to method or lack of propulsion, and
- b) a dynamically supported craft.

⁵ Pleasure craft means a ship that is used for pleasure or recreation and does not carry goods or passengers for hire or reward.

Reportable Marine Incident

An incident resulting directly from the operation of a ship, other than a pleasure craft, where

- a) a person falls overboard from the ship;
- b) the ship, of 100 gross tons or more, unintentionally makes contact with the bottom without going aground;
- c) the ship fouls a utility cable or pipe, or underwater pipeline;
- d) the ship is involved in a risk of collision;
- e) the ship sustains a total failure of any machinery;
- f) the ship sustains a shifting of cargo or a loss of cargo overboard;
- g) the ship is intentionally grounded or beached to avoid an accident;
- h) any crew member whose duties are directly related to the safe operation of the ship is unable to perform the crew member's duties as a result of a physical incapacitation that poses a threat to the safety of any person, property or the environment; or
- i) any dangerous goods are released on board or from the ship.

Vessels Covered

This report covers commercial vessels that include all vessels either registered or licensed to operate commercially. Pleasure craft occurrences are not normally included unless they also involved a commercial vessel.

Vessel Categories

- **Commercial Vessels:** include cargo vessels, ferries, tankers, passenger vessels, tugs and barges.
- **Fishing Vessels:** include vessels involved in commercial fishing.
- **Other Vessels:** include research vessels, oil exploration, exploitation and support vessels, government vessels and pleasure craft.

Type of Vessel

Cargo: Ships designed for the carriage of various types and forms of cargo and the combined carriage of general cargo and passengers with 12 or less fare-paying passengers.

Bulk Carrier: Ships specifically designed for bulk carriage of ore or other dry cargo.

OBO (Oil/Bulk/Ore Carrier): Ships specifically designed for bulk carriage of ore with additional facilities for alternative, but not simultaneous, carriage of oil or loose dry cargo.

Tanker: Propelled ships designed and constructed for the bulk carriage of liquids.

Tug: Vessels designed for the towing and pushing of ships or other floating structures. Additional activity may include salvage, fire-fighting and work duties of a general nature.

Barge: Vessels designed as non-propelled units for the carriage of cargo in holds or in tanks or weather deck cargo space only for the carriage of non-perishable cargo, or specially outfitted for specific operations.

Ferry: Ships that follow a regular scheduled service of relatively short duration, designed for the carriage of passengers and vehicles. There is usually no cabin accommodation for passengers or not all passengers are accommodated in cabins where cabins are provided.

Passenger: Vessels designed for the carriage of passengers.

Fishing: Vessels designed for fishing operations and support.

Service: Vessels designed for supporting marine transportation such as icebreakers, buoy tenders, search and rescue vessels, pilot boats and fireboats.

Non-Commercial: Vessels designed to conduct non-commercial activities such as pleasure craft, seaplanes and naval vessels.

Other: Vessels designed for other functions such as laying and repair of sea-bed cables, dredging, training, patrolling as well as ships and platforms designed for the extraction, processing, and storage of oil/gas from offshore wells; ships designed for the carriage of stores and cargo to offshore installations; ships outfitted for support activities related to offshore oil and gas exploration; and vessels designed for research work such as seismic research, oceanic and hydrographic survey.

Type of Accident

Collision: An impact between two or more vessels under way.

Capsizing: To turn over.

Foundering: To fill from above the waterline and sink.

Sinking: To become submerged from water intake below the waterline and settle to the bottom.

Fire: Where a fire is the first event reported.

Explosion: Where an explosion is the first event reported.

Grounding: To touch bottom and remain stranded.

Striking: A hard impact with a stationary object or a vessel not under way.

Ice Damage: Damage sustained as a consequence of contact with ice.

Propeller Damage: Damage to a vessel propeller, propeller portion or propeller adjoining parts affecting a vessel's seaworthiness or rendering the vessel unfit for its purpose.

Rudder Damage: Damage to a vessel rudder or rudder adjoining parts affecting a vessel's seaworthiness or rendering the vessel unfit for its purpose.

Structural Damage: Hull damage, such as cracks and fractures, sustained by a vessel affecting its seaworthiness or rendering the vessel unfit for its purpose.

Flooding: To fill a compartment below the waterline with water admitted from the sea.

Other: Vessels lost or damaged for other reasons, including contact defined as a lateral/light impact with another vessel or an object (that is, bottom contact affecting a vessel's seaworthiness or rendering the vessel unfit for its purpose).

Miscellaneous

Gross tons (grt): A measure of vessel capacity in cubic feet of the spaces within the hull, and of enclosed spaces above deck available for cargo, stores, fuel, passengers and crew, with certain exclusions. One hundred cubic feet is equivalent to one gross ton.

Movement: A vessel's travel segment between ports with at least one port being a domestic port.

Under way: Vessel not at anchor or made fast to shore or aground.

APPENDIX C – REGIONAL LIMITS

