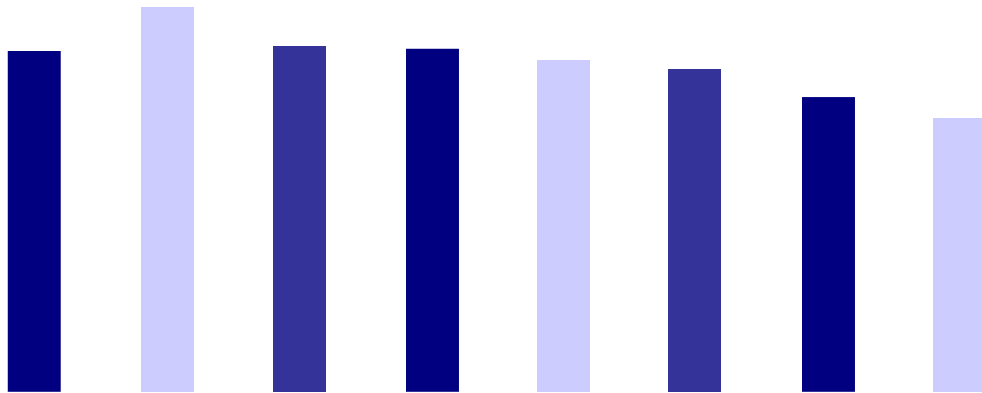




Statistical Summary Marine Occurrences 2009



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.bst-tsb.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 2009 statistics presented here reflect the TSB database updated as of 18 March 2010.

To enhance awareness and increase the safety value of the material presented in the *Statistical Summary, Marine Occurrences 2009*, 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.

Comments on this document can be forwarded to the following address:

Transportation Safety Board of Canada
Communications Division
Place du Centre
200 Promenade du Portage
4th Floor
Gatineau, Quebec
K1A 1K8

Telephone: 819-994-3741
Facsimile: 819-997-2239
E-mail: communications@bst-tsb.gc.ca

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MARINE OCCURRENCES IN 2009

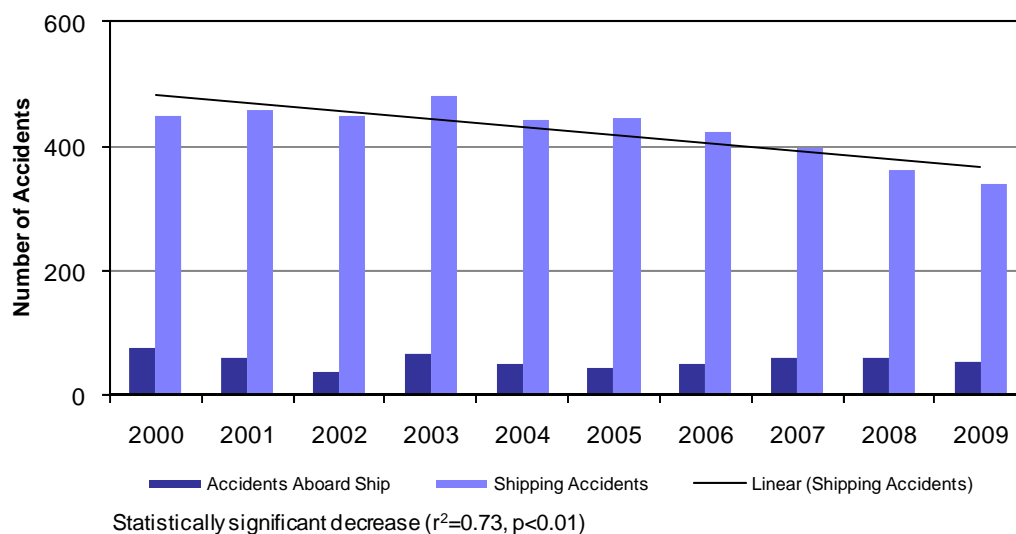
ACCIDENTS

Overview of Accidents and Casualties (Tables 1 and 8)

In 2009, 390 marine accidents were reported to the TSB, down from the 2008 total of 420 and the 2004–2008 average of 466. 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 35-year low of 338 in 2009, a 6% decrease from the 2008 total of 361 and an 18% decrease from the 2004–2008 average of 413. Statistical analysis using linear regression indicates that there has been a significant downward trend¹ in the number of shipping accidents since 2000 ($p < 0.01$) (Figure 1). In 2009, there were 52 accidents aboard ship, down from 59 in 2008 and down from the 2004–2008 average of 53. The majority of accidents aboard ship occurred on fishing vessels (37%) and cargo/bulk carrier/OBO² vessels (29%).

Figure 1 – Accidents Aboard Ship and Shipping Accidents, 2000–2009

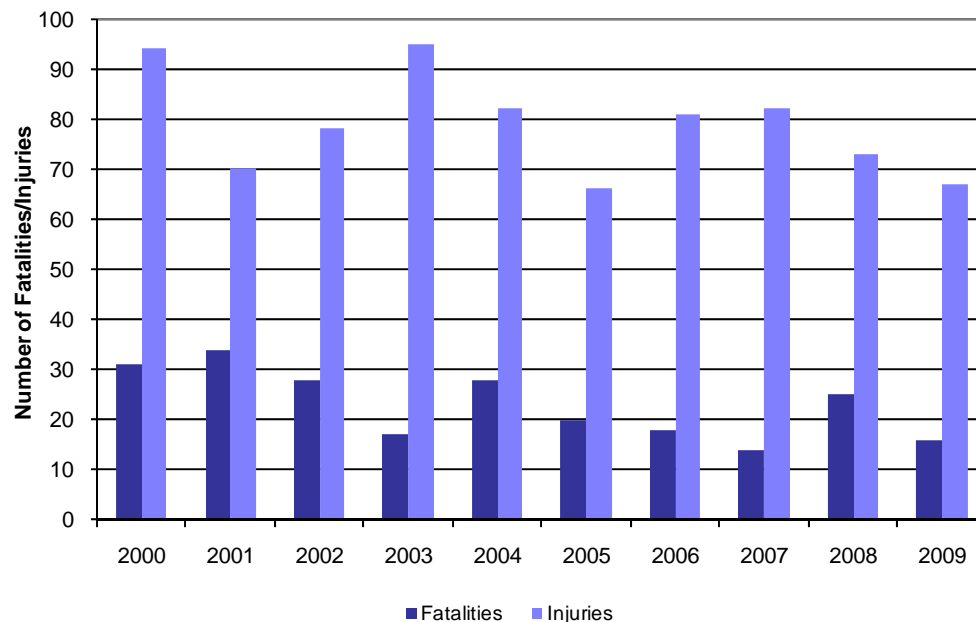


¹ It is agreed by convention that, for a result to be considered statistically significant, its probability must be lower than 1 in 20 (that is, $p < 0.05$).

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

Marine-related fatalities totalled 16 in 2009 (Figure 2), down from the 2008 total of 25 and the 2004–2008 average of 21. This decrease consisted mainly of a decrease in shipping accident fatalities, which totalled 9 in 2009, down from 14 in 2008 and the five-year average of 13. In all, 11 of the 16 fatalities resulted from fishing vessel accidents. Injuries in 2009 numbered 67, down from 73 in 2008 and the 2004–2008 average of 77. Of the 67 injuries in 2009, 52 were serious and 47 resulted from accidents aboard ship.

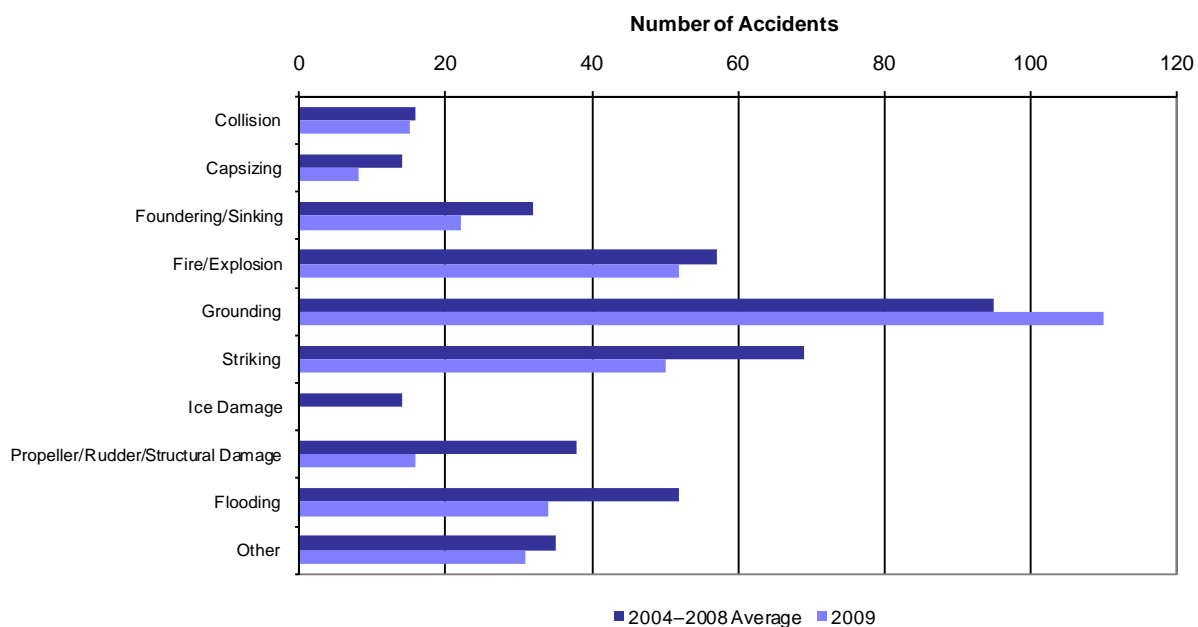
Figure 2 – Marine Fatalities and Injuries, 2000–2009



Shipping Accidents

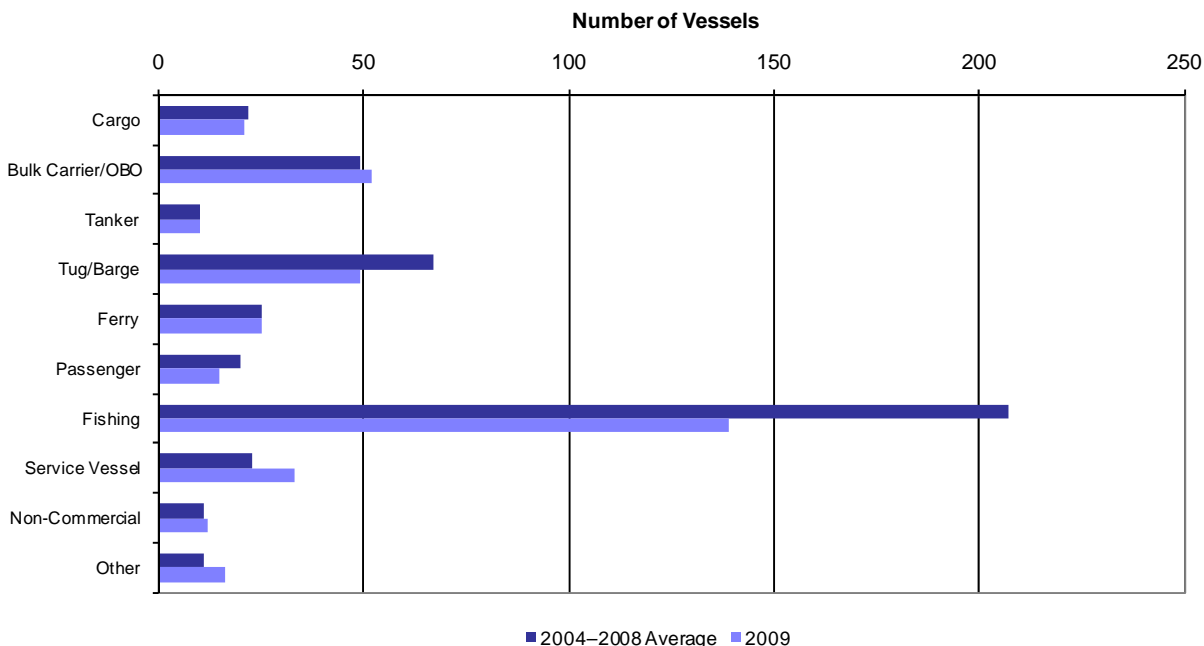
Type of Accidents (Table 1): As illustrated in Figure 3, the most frequent types of shipping accidents in 2009 were groundings (33%) and fire/explosions (15%). Groundings increased by 16% from the five-year average, while fire/explosions decreased by 9% and striking accidents decreased by 28%.

Figure 3 – Shipping Accidents by Accident Type



Type of Vessels (Table 1): In 2009, there were 23 533 registered fishing vessels in Canada, representing 58% of all registered vessels excluding pleasure craft (source: Transport Canada). Since 2000, 46% of the vessels involved in shipping accidents have been fishing vessels. In 2009, there were 139 fishing vessels involved in shipping accidents (Figure 4), compared to 173 in 2008 and the 2004–2008 average of 207. After fishing vessels, bulk carriers/OBO vessels (14%) and tugs/barges (13%) were involved most often in shipping accidents.

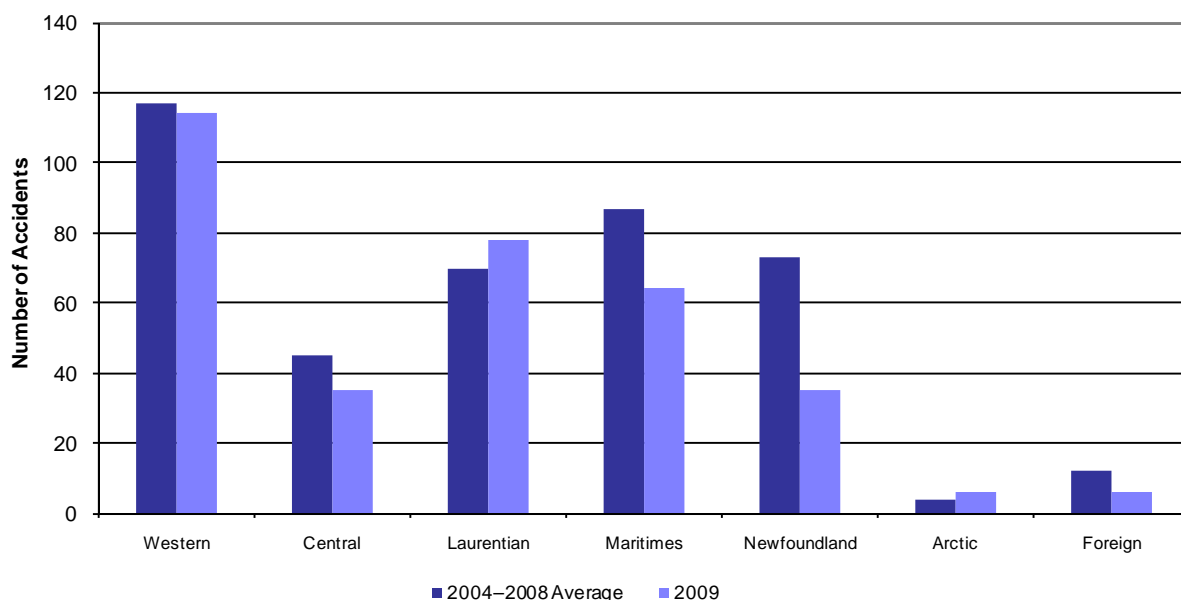
Figure 4 – Shipping Accidents by Vessel Type



Geographical Region (Tables 2a and 2b): In 2009, 76% of shipping accidents occurred in three of the seven geographical regions (Figure 5): the Western region (34%), the Laurentian region (23%) and the Maritimes region (19%). Shipping accidents decreased from the 2004–2008 average by 52% in the Newfoundland region and 26% in the Maritimes region. The Central region had 35 shipping accidents, down 31% from the 2004–2008 average of 51. The Central and Newfoundland regions each accounted for 10% of shipping accidents. Within the narrower waterways of the Central region, accidents most often involved larger commercial vessels such as cargo/bulk carrier/OBO vessels. The remaining 4% of shipping accidents took place in foreign waters (6) or in the Arctic region (6).

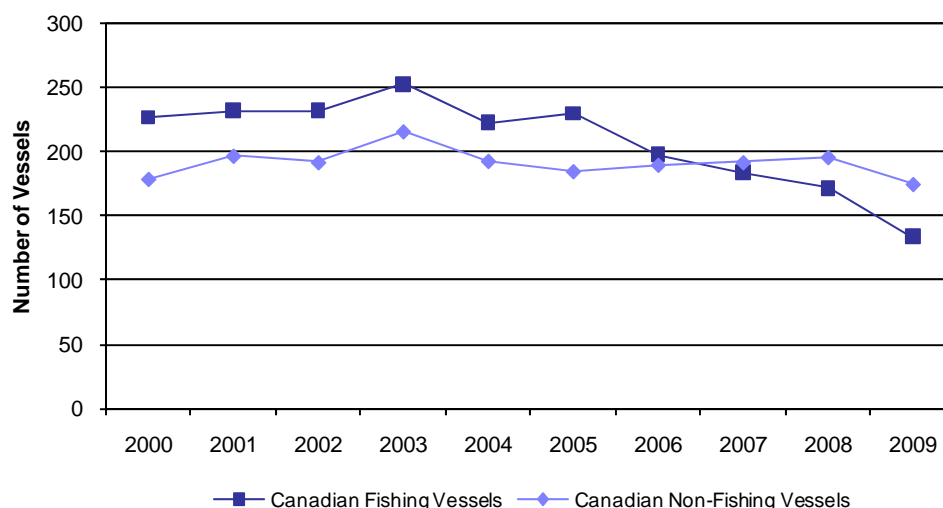
Although accidents involving fishing vessels accounted for approximately three-quarters of all shipping accidents in the Maritimes region, fishing vessels involved in shipping accidents decreased in the Western, Maritimes and Newfoundland regions compared to the 2004–2008 average. In the Newfoundland region, 19 fishing vessels were involved in shipping accidents, down 69% from the 2004–2008 average of 62.

Figure 5 – Shipping Accidents by Region



Vessel Flag (Tables 1, 3 and 4): In 2009, 83% of the 372 vessels involved in shipping accidents reported to the TSB were Canadian-flag vessels. In all, 43% of the Canadian-flag vessels were fishing vessels, 49% were commercial non-fishing vessels and the remaining 8% were non-commercial/pleasure craft or service vessels (Figure 6).

Figure 6 – Canadian-Flag Vessels Involved in Shipping Accidents, 2000–2009



For Canadian-flag fishing vessels in 2009, groundings (42%) and fire/explosions (19%) were the most frequent shipping accident types. Canadian-flag commercial non-fishing vessels were mostly involved in groundings (30%) or strikings (23%). Marine activity for Canadian commercial non-fishing vessels over 15 gross tons (excluding passenger vessels and cruise ships) decreased by 8% from the 2004–2008 average. This yields an accident rate of 3.3 accidents per 1000 movements, down from the five-year average of 3.6.

In 2009, 63 foreign-flag vessels were involved in shipping accidents in Canadian waters, 86% of which were commercial non-fishing vessels involved mainly in strikings (31%) or groundings (11%). Marine activity for foreign commercial non-fishing vessels decreased by 3.0% from the 2004–2008 average while the accident rate decreased to 1.6 accidents per 1000 movements, down from the five-year average of 1.7.

Vessels Lost (Tables 1 and 6): In 2009, 26 vessels were reported lost, down from 35 in 2008 and the 2004–2008 average of 30. During the past 10 years, small fishing vessels (less than 15 gross tons [grt])³ have accounted for the largest proportion of vessels lost in Canada. Of the 26 vessels lost in 2009, 7 were commercial non-fishing vessels and 16 were fishing vessels. In 2009, over one-third of vessels lost were less than 15 grt, and half were 20 years or older.

³ The majority of vessels classified under “unknown tonnage” were vessels known to be 15 gross tons or less.

INCIDENTS

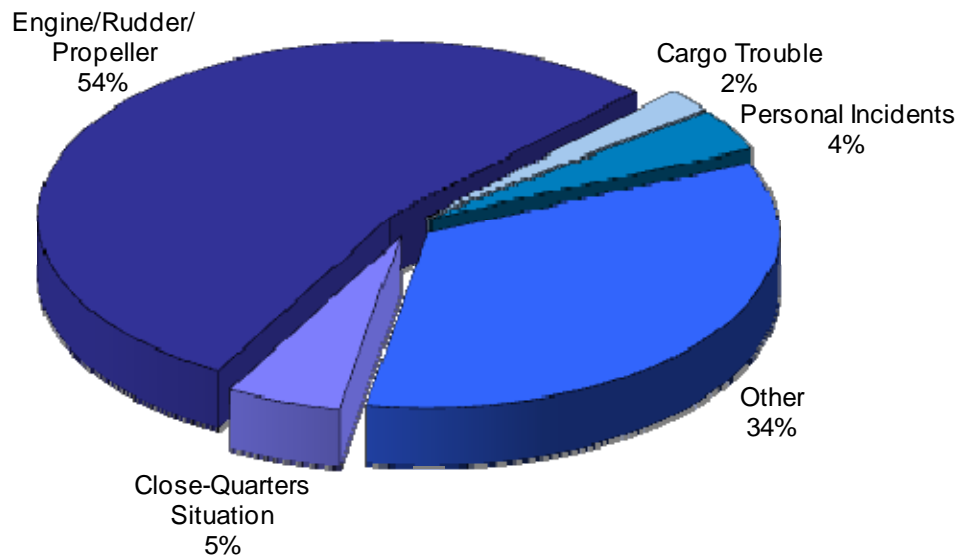
Overview of Incidents (Tables 1, 2a and 2b)

Pursuant to mandatory reporting requirements, 228 marine incidents were reported to the TSB in 2009, down from the 2008 total of 248 and the 2004–2008 average of 233. The majority of reportable incidents consisted of engine/rudder/propeller failures. The Western region had the majority of close-quarters situations (92%) and engine/rudder/propeller incidents (56%).

In 2009, incidents in the Western region represented 49% of all marine incidents. The proportion of marine incidents in other regions was as follows: Laurentian 21%, Central 15%, Maritimes 7% and Newfoundland 5%. Eight reported incidents took place in foreign waters, and one occurred in the Arctic region.

In 2009, vessels most often involved in close-quarters situations were commercial vessels (75%) and fishing vessels (16%). In the majority of these incidents, the vessels involved were cargo/bulk carrier/OBO vessels, fishing vessels, ferries and tugs.

Figure 7 – Marine Incidents by Type, 2009



APPENDIX A – MARINE OCCURRENCE TABLES

Table 1
Total Marine Occurrences
Types, Vessels and Losses Involved
2000–2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Shipping Accidents by Type	450	459	448	481	442	444	422	397	361	338
Collision	16	16	15	24	12	20	19	13	17	15
Capsizing	15	6	14	11	18	10	18	12	13	8
Foundering/Sinking	38	37	26	30	18	21	24	20	32	22
Fire/Explosion	64	84	53	65	51	69	55	49	62	52
Grounding	123	114	129	118	108	87	112	95	71	110
Striking	68	89	72	76	82	81	63	61	57	50
Ice Damage	6	4	2	28	17	11	2	25	15	0
Propeller/Rudder/Structural Damage	31	19	42	39	36	43	56	41	15	16
Flooding	51	70	52	49	63	59	46	49	45	34
Other	38	20	43	41	37	43	27	32	34	31
Accidents Aboard Ship	77	59	36	66	50	45	50	61	59	52
Vessels Involved in Shipping Accidents										
By Type of Vessel	492	507	482	526	471	491	461	435	410	372
Cargo	24	31	21	18	21	19	30	24	18	21
Bulk Carrier/OBO	60	58	58	48	52	70	60	56	49	52
Tanker	14	12	9	15	7	15	13	9	5	10
Tug	33	39	25	34	32	30	27	44	48	21
Barge	30	28	32	31	34	27	33	29	29	28
Ferry	26	24	21	25	20	26	26	24	30	25
Passenger	20	16	27	41	29	20	19	17	14	15
Fishing	238	246	238	260	227	237	208	190	173	139
Service Vessel	23	27	18	27	25	20	22	25	25	33
Non-Commercial	12	18	19	14	11	10	14	10	11	12
Other	12	8	14	13	13	17	9	7	8	16
By Vessel Flag	492	507	482	526	471	491	461	435	410	372
Canadian (Non-Fishing)	179	197	192	216	193	185	190	192	196	175
Canadian (Fishing)	227	232	232	253	223	230	198	184	172	134
Foreign	86	78	58	57	55	76	73	59	42	63
Vessels Lost by Gross Tonnage	37	51	32	38	22	26	35	31	35	26
1600 grt and over	0	1	2	2	0	0	3	0	0	3
150 to 1599 grt	2	3	1	2	0	0	2	1	3	0
60 to 149 grt	3	8	4	8	5	6	7	8	4	5
15 to 59 grt	13	15	7	12	8	7	6	9	14	6
Less than 15 grt	16	18	12	12	3	9	13	10	11	6
Unknown Tonnage	3	6	6	2	6	4	4	3	3	6
Fatalities	31	34	28	17	28	20	18	14	25	16
Shipping Accidents	16	17	19	9	22	13	12	3	14	9
Accidents Aboard Ship	15	17	9	8	6	7	6	11	11	7
Injuries	94	70	78	95	82	66	81	82	73	67
Shipping Accidents	23	18	42	35	37	25	26	29	22	20
Accidents Aboard Ship	71	52	36	60	45	41	55	53	51	47
Reportable Incidents by Type	248	239	175	224	248	227	216	228	248	228
Close-Quarters Situation	57	60	29	60	67	56	30	21	20	12
Engine/Rudder/Propeller	105	99	57	83	106	85	112	90	129	124
Cargo Trouble	5	4	5	3	1	4	4	1	6	5
Personal Incidents	6	8	8	14	9	4	12	21	10	9
Other	75	68	76	64	65	78	58	95	83	78

Table 2a
Marine Occurrences by Region
Occurrences, Vessels and Losses Involved
2000–2009

Western Region
Central Region
Laurentian Region
Maritimes Region

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Western Region										
Shipping Accidents	166	158	139	141	125	125	124	102	109	114
Accidents Aboard Ship	32	29	15	19	15	13	15	19	15	21
Vessels Involved in Shipping Accidents										
By Type of Vessel	177	179	155	159	135	145	142	116	131	127
Cargo	3	8	2	5	3	2	9	3	3	9
Bulk Carrier/OBO	6	2	1	4	7	3	3	2	4	4
Tanker	0	0	0	0	0	0	0	0	0	1
Ferry/Passenger	18	15	19	26	19	26	25	12	15	15
Tug/Barge	44	39	33	31	31	34	38	42	48	24
Fishing	93	98	78	76	65	69	51	43	54	49
Other	13	17	22	17	10	11	16	14	7	25
Vessels Lost	14	22	13	11	6	8	15	11	10	7
Fatalities	10	12	10	4	8	6	6	7	9	8
Incidents	110	122	86	95	98	87	84	68	146	111
Central Region										
Shipping Accidents	46	68	57	53	59	52	46	51	45	35
Accidents Aboard Ship	7	3	3	2	7	3	4	9	14	6
Vessels Involved in Shipping Accidents										
By Type of Vessel	54	79	63	59	62	55	50	55	51	38
Cargo	4	5	6	2	11	3	3	6	4	0
Bulk Carrier/OBO	23	32	25	15	22	29	25	21	23	19
Tanker	6	6	2	4	1	4	2	1	2	3
Ferry/Passenger	8	13	13	14	7	3	7	11	2	0
Tug/Barge	3	11	12	15	10	9	6	9	12	7
Fishing	1	2	2	1	2	1	2	1	1	1
Other	9	10	3	8	9	6	5	6	7	8
Vessels Lost	0	0	2	0	0	0	1	0	2	1
Fatalities	2	9	10	2	4	1	0	1	0	0
Incidents	32	26	28	23	25	32	33	45	28	34
Laurentian Region										
Shipping Accidents	60	59	59	56	62	94	61	76	56	78
Accidents Aboard Ship	7	9	6	17	8	13	11	16	15	10
Vessels Involved in Shipping Accidents										
By Type of Vessel	66	63	61	60	66	107	66	87	60	89
Cargo	8	12	6	3	5	11	11	11	7	10
Bulk Carrier/OBO	21	12	21	19	17	32	17	20	14	25
Tanker	4	4	4	5	4	11	7	7	3	4
Ferry/Passenger	8	5	7	10	11	7	3	10	12	8
Tug/Barge	4	9	5	5	7	7	8	17	7	12
Fishing	14	13	13	13	15	25	15	15	9	20
Other	7	8	5	5	7	14	5	7	8	10
Vessels Lost	2	2	3	6	1	2	0	2	0	3
Fatalities	1	2	2	2	4	2	2	0	3	2
Incidents	51	39	24	50	67	82	59	58	40	47
Maritimes Region										
Shipping Accidents	85	90	121	129	101	95	100	64	77	64
Accidents Aboard Ship	10	10	5	13	8	7	11	8	6	10
Vessels Involved in Shipping Accidents										
By Type of Vessel	95	97	128	138	108	104	107	66	88	71
Cargo	3	4	3	3	0	2	1	2	0	2
Bulk Carrier/OBO	0	0	2	1	0	1	3	1	1	0
Tanker	2	0	2	3	0	0	2	0	0	1
Ferry/Passenger	5	3	5	11	7	7	5	5	9	7
Tug/Barge	3	4	3	6	4	4	4	0	2	2
Fishing	73	75	96	99	80	79	78	50	63	50
Other	9	11	17	15	17	11	14	8	13	9
Vessels Lost	10	12	12	14	9	9	12	7	15	5
Fatalities	4	6	1	7	8	2	3	3	9	3
Incidents	35	33	26	35	28	16	21	18	16	16

Table 2b
Marine Occurrences by Region
Occurrences, Vessels and Losses Involved
2000–2009
Newfoundland Region
Arctic Region
Foreign Waters

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Newfoundland Region										
Shipping Accidents	73	69	58	80	73	70	74	87	61	35
Accidents Aboard Ship	20	5	5	9	10	8	4	4	5	4
Vessels Involved in Shipping Accidents										
By Type of Vessel	76	72	60	86	73	71	76	91	64	35
Cargo	2	1	3	0	1	1	6	2	3	0
Bulk Carrier/OBO	1	2	2	3	1	1	1	0	1	1
Tanker	2	1	1	0	0	0	2	0	0	0
Ferry/Passenger	5	4	4	5	5	2	3	3	6	10
Tug/Barge	3	0	0	2	2	0	0	2	2	1
Fishing	56	58	48	71	64	62	60	81	45	19
Other	7	6	2	5	0	5	4	3	7	4
Vessels Lost	9	15	1	7	6	6	6	11	8	8
Fatalities	9	4	5	0	3	9	6	2	2	3
Incidents	15	12	5	17	20	9	11	30	9	12
Arctic Region										
Shipping Accidents	8	4	2	7	6	0	4	3	5	6
Accidents Aboard Ship	0	0	0	5	1	0	3	1	1	0
Vessels Involved in Shipping Accidents										
By Type of Vessel	8	4	2	7	8	0	4	4	5	6
Cargo	3	1	0	3	0	0	0	0	1	0
Bulk Carrier/OBO	2	2	0	0	0	0	0	0	0	0
Tanker	0	0	0	1	1	0	0	1	0	0
Ferry/Passenger	1	0	0	0	0	0	2	0	0	0
Tug/Barge	0	1	2	0	2	0	1	0	2	3
Fishing	1	0	0	0	0	0	0	0	1	0
Other	1	0	0	3	5	0	1	3	1	3
Vessels Lost	2	0	1	0	0	0	1	0	0	1
Fatalities	4	0	0	2	1	0	1	1	0	0
Incidents	2	1	1	1	5	0	2	0	1	2
Foreign Waters										
Shipping Accidents	12	11	12	15	16	8	13	14	8	6
Accidents Aboard Ship	1	3	2	1	1	1	2	4	3	1
Vessels Involved in Shipping Accidents										
By Type of Vessel	16	13	13	17	19	9	16	16	11	6
Cargo	1	0	1	2	1	0	0	0	0	0
Bulk Carrier/OBO	7	8	7	6	5	4	11	12	6	3
Tanker	0	1	0	2	1	0	0	0	0	1
Ferry/Passenger	1	0	0	0	0	1	0	0	0	0
Tug/Barge	6	3	2	6	10	3	3	3	4	0
Fishing	0	0	1	0	1	1	2	0	0	0
Other	1	1	2	1	1	0	0	1	1	2
Vessels Lost	0	0	0	0	0	1	0	0	0	1
Fatalities	1	1	0	0	0	0	0	0	2	0
Incidents	3	6	5	3	5	1	6	9	8	6
	450	459	448	481	442	444	422	397	361	338
	248	239	175	224	248	227	216	228	248	228

Table 3
**Canadian-Flag Vessels Involved in Shipping Accidents by
Vessel Category and Type of Accident (Including Commercial Accident Rate)
2000–2009**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Commercial Vessels	136	146	143	165	147	140	146	151	158	118
Collision	7	8	8	20	8	15	13	10	9	7
Capsizing	6	1	3	7	4	3	8	9	4	3
Foundering/Sinking	9	14	11	6	3	6	8	9	11	13
Fire/Explosion	17	15	14	20	17	24	18	15	21	12
Grounding	32	31	42	35	31	20	35	27	26	35
Striking	36	43	37	44	46	46	37	41	45	27
Ice Damage	1	2	0	4	2	4	0	2	0	0
Propeller/Rudder/Structural Damage	2	7	9	8	10	3	5	9	9	6
Flooding	9	7	5	4	9	7	11	6	21	6
Other	17	18	14	17	17	12	11	23	12	9
Movements *	40 081	34 843	37 619	39 802	36 208	39 264	41 076	34 139	34 048	33 971
Accident Rate **	3.1	3.9	3.3	3.3	3.8	3.4	3.1	3.9	4.1	3.3
Fishing Vessels	227	232	232	253	223	230	198	184	172	134
Collision	15	11	19	15	7	17	11	11	13	6
Capsizing	5	3	5	5	8	5	7	3	5	3
Foundering/Sinking	23	21	11	19	12	17	15	10	20	7
Fire/Explosion	32	57	28	38	28	31	22	22	35	25
Grounding	71	60	70	67	67	54	49	49	36	56
Striking	8	12	12	15	8	13	4	6	7	4
Ice Damage	3	2	1	21	14	5	2	23	15	0
Propeller/Rudder/Structural Damage	20	7	29	24	20	30	48	17	4	1
Flooding	42	56	41	39	50	46	31	39	24	20
Other	8	3	16	10	9	12	9	4	13	12
Other Vessels	43	51	49	51	46	45	44	41	38	57
Collision	3	7	3	7	6	4	7	3	8	10
Capsizing	4	0	6	0	4	2	3	0	3	2
Foundering/Sinking	6	3	3	5	2	0	1	2	2	2
Fire/Explosion	8	8	7	7	4	9	8	8	4	10
Grounding	5	9	4	8	3	7	9	11	5	13
Striking	12	18	14	13	7	10	9	9	5	6
Ice Damage	0	0	0	2	0	1	0	0	0	0
Propeller/Rudder/Structural Damage	1	1	1	1	2	2	1	2	2	1
Flooding	0	4	3	2	3	2	2	3	1	4
Other	4	1	8	6	15	8	4	3	8	9
Total	406	429	424	469	416	415	388	376	368	309

* Based on data from Transport Canada (2008 and 2009 data are estimated).

** 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)
2000–2009**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Commercial Vessels	71	62	50	47	48	67	62	52	35	54
Collision	5	5	1	5	3	4	6	0	2	6
Capsizing	0	0	0	0	2	0	0	0	1	0
Foundering/Sinking	0	0	0	0	0	0	0	0	0	0
Fire/Explosion	6	6	4	0	2	5	7	5	3	4
Grounding	12	14	12	8	6	3	18	8	7	6
Striking	27	29	19	18	26	31	20	15	12	17
Ice Damage	2	0	1	1	1	1	0	0	0	0
Propeller/Rudder/Structural Damage	7	4	3	5	4	7	2	13	0	8
Flooding	0	1	2	2	0	2	1	1	0	3
Other	12	3	8	8	4	14	8	10	10	10
Movements *	32 946	31 696	31 442	30 877	31 580	32 234	31 425	30 612	30 530	30 462
Accident Rate **	2.2	2.3	2.1	1.8	1.6	1.3	1.3	2.2	2.0	1.6
Fishing Vessels	11	14	6	7	4	7	10	6	1	5
Collision	1	1	0	1	0	1	4	2	0	1
Capsizing	0	1	0	0	0	0	1	0	0	0
Foundering/Sinking	0	1	0	0	1	0	0	0	0	0
Fire/Explosion	1	1	0	1	0	0	0	0	1	0
Grounding	5	3	4	1	1	3	4	4	0	3
Striking	1	4	1	0	1	0	0	0	0	0
Ice Damage	0	0	0	0	0	0	0	0	0	0
Propeller/Rudder/Structural Damage	1	0	0	1	0	1	0	0	0	0
Flooding	0	2	1	2	1	2	1	0	0	1
Other	2	1	0	1	0	0	0	0	0	0
Other Vessels	4	2	2	3	3	2	1	1	6	4
Collision	1	0	0	1	0	0	0	0	2	1
Capsizing	0	1	0	0	0	0	0	0	0	0
Foundering/Sinking	0	1	1	0	0	0	0	0	0	0
Fire/Explosion	0	0	0	0	0	0	0	0	0	1
Grounding	1	0	0	1	2	2	1	1	1	1
Striking	1	0	0	0	0	0	0	0	2	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	0	1	1	1	0	0	0	1	1
Total	86	78	58	57	55	76	73	59	42	63

* Based on data from Transport Canada (2008 and 2009 data are estimated).

** 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
2000–2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Canadian-Flag Vessels										
Commercial Vessels	136	146	143	165	147	140	146	151	158	118
Master Foreign-Going	8	13	12	12	14	11	11	9	12	4
ON1	13	8	12	9	8	15	9	8	4	7
ON2	1	0	0	0	1	1	1	0	0	1
CN1	4	6	11	14	8	6	5	5	4	3
CN2	4	6	1	2	9	5	3	4	6	6
Master – Ferry	2	1	3	4	1	2	1	2	2	2
Watchkeeping Mate	7	6	8	11	10	8	8	6	3	3
Other	25	24	29	22	29	11	16	31	36	19
Unknown	72	80	67	89	64	79	92	86	91	73
No Certificate	0	2	0	2	3	2	0	0	0	0
Fishing Vessels	227	232	232	253	223	230	198	184	172	134
Fishing Master – Class 1	3	4	2	3	1	2	0	1	0	0
Fishing Master – Class 2	3	3	8	3	4	9	3	1	1	3
Fishing Master – Class 3	11	9	17	16	9	14	10	5	4	5
Fishing Master – Class 4	12	22	19	19	19	23	17	10	7	17
Fishing – Other Certificate	5	1	4	5	2	3	5	0	1	0
Watchkeeping Mate	1	4	3	1	2	0	0	0	1	0
Other	2	1	1	0	1	3	0	2	5	4
Unknown	182	160	126	154	147	132	144	163	152	104
No Certificate	8	28	52	52	38	44	19	2	1	1
Other Vessels	43	51	49	51	46	45	44	41	38	57
Master Foreign-Going	4	10	9	7	6	6	5	4	6	2
ON1	5	1	2	4	4	3	4	1	2	6
ON2	0	1	0	1	1	1	0	0	0	1
CN1	1	2	0	0	0	2	2	1	0	1
CN2	0	1	0	0	3	0	0	2	1	2
Watchkeeping Mate	4	8	6	2	6	2	3	1	1	1
Other	6	4	5	10	10	9	4	8	2	7
Unknown	23	24	25	27	16	21	26	23	26	36
No Certificate	0	0	2	0	0	1	0	1	0	1
Foreign-Flag Vessels										
Commercial Vessels	71	62	50	47	48	67	62	52	35	54
Master Foreign-Going	46	33	25	17	19	20	26	19	17	18
CN1	0	0	0	0	0	0	0	0	0	1
CN2	1	0	1	0	0	1	0	0	0	0
Other	3	2	0	0	0	0	2	0	1	1
Unknown	21	27	24	30	29	46	34	33	17	34
Fishing Vessels	11	14	6	7	4	7	10	6	1	5
Certificate	4	2	1	2	1	0	0	0	0	1
Unknown	7	12	5	5	3	7	10	6	1	4
No Certificate	0	0	0	0	0	0	0	0	0	0
Other Vessels	4	2	2	3	3	2	1	1	6	4
Master Foreign-Going	0	0	0	0	0	1	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	1
Unknown	4	2	2	3	3	1	1	1	6	3
No Certificate	0	0	0	0	0	0	0	0	0	0

Table 6
Vessels Lost by Vessel Category and Age
2000–2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Commercial Vessels	4	7	8	4	1	2	9	7	7	7
Unknown	0	0	4	2	0	1	2	2	1	4
0–4 years	0	1	1	0	0	0	0	0	0	0
5–9 years	0	1	0	0	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	1	1	0	0	0	0	0	0	1	0
25–29 years	0	0	0	0	0	0	0	0	2	0
30+ years	3	4	3	2	1	1	7	5	3	3
Fishing Vessels	30	44	20	32	19	24	25	22	27	16
Unknown	4	7	4	2	5	3	4	3	6	0
0–4 years	0	2	0	2	2	2	2	1	0	0
5–9 years	4	1	4	2	2	1	4	1	5	2
10–14 years	6	9	3	4	0	2	2	3	2	4
15–19 years	4	3	1	5	3	7	3	3	2	0
20–24 years	4	7	2	5	3	3	3	3	4	4
25–29 years	2	2	3	5	1	4	1	4	2	2
30+ years	6	13	3	7	3	2	6	4	6	4
Other Vessels	3	0	4	2	2	0	1	2	1	3
Unknown	2	0	1	1	2	0	1	1	0	3
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	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	0	0	0	0	0	0	0	1	0
25–29 years	1	0	0	0	0	0	0	0	0	0
30+ years	0	0	3	1	0	0	0	1	0	0
All Vessels	37	51	32	38	22	26	35	31	35	26
Unknown	6	7	9	5	7	4	7	6	7	7
0–4 years	0	3	1	2	2	2	2	1	0	0
5–9 years	4	2	4	2	2	1	4	1	5	2
10–14 years	6	9	3	4	0	2	2	3	2	4
15–19 years	4	3	1	5	3	7	3	3	2	0
20–24 years	5	8	2	5	3	3	3	3	6	4
25–29 years	3	2	3	5	1	4	1	4	4	2
30+ years	9	17	9	10	4	3	13	10	9	7

Table 7
Accidents, Fatalities and Injuries by Type of Accident
2000–2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Shipping Accidents										
with Fatalities or Injuries										
Collision	1	2	4	2	1	4	0	0	1	4
Capsizing	6	3	4	3	7	6	6	4	6	2
Sinking/Foundering	7	5	3	2	7	1	1	3	5	4
Fire/Explosion	1	2	5	4	2	1	4	1	4	3
Grounding	2	2	4	2	0	0	3	0	3	2
Striking	3	4	4	5	2	5	2	3	1	3
Other	2	1	1	1	2	0	0	1	0	2
Total	22	19	25	19	21	17	16	12	20	20
Fatalities*										
Collision	2	1	0	1	2	0	0	0	0	2
Capsizing	6	3	10	5	9	10	6	2	8	2
Sinking/Foundering	7	10	7	2	11	3	1	0	6	4
Fire/Explosion	0	0	1	1	0	0	2	0	0	0
Grounding	0	0	1	0	0	0	3	0	0	1
Striking	1	0	0	0	0	0	0	1	0	0
Other	0	3	0	0	0	0	0	0	0	0
Total	16	17	19	9	22	13	12	3	14	9
Injuries										
Collision	0	1	4	1	2	7	0	0	1	4
Capsizing	5	1	0	2	7	4	1	2	8	1
Sinking/Foundering	5	6	4	2	4	0	0	3	1	4
Fire/Explosion	3	2	7	4	6	1	6	9	5	3
Grounding	3	3	10	3	0	0	3	0	6	1
Striking	5	5	16	22	15	13	16	14	1	5
Other	2	0	1	1	3	0	0	1	0	2
Total	23	18	42	35	37	25	26	29	22	20
Accidents Aboard Ship										
Fatalities*	77	59	36	66	50	45	50	61	59	52
Carried Overboard	1	2	0	3	0	0	1	2	1	1
Caught by Cargo/Machinery	1	3	1	2	1	1	0	1	4	1
Fell Overboard	7	8	3	2	2	3	2	3	2	3
Fell into Tank/Hold	0	0	0	0	0	0	0	0	1	0
Fell on Deck or off Quay	0	2	0	0	0	2	0	0	0	0
Heavy Weather	0	0	0	0	0	0	0	0	0	0
Suicide (Suspected)	1	0	0	1	1	1	0	0	0	0
Other	5	2	5	0	2	0	3	5	1	2
Total	15	17	9	8	6	7	6	11	9	7
Injuries										
Carried Overboard	1	3	2	2	2	3	0	2	0	1
Caught by Cargo/Machinery	33	16	11	25	16	17	23	13	16	17
Fell Overboard	4	2	2	1	1	1	0	1	0	2
Fell into Tank/Hold	2	1	1	3	0	0	0	5	2	1
Fell on Deck or off Quay	12	8	7	9	4	8	5	6	8	3
Heavy Weather	0	2	0	2	1	0	0	0	2	3
Suicide (Suspected)	0	0	0	0	0	0	0	0	0	0
Other	19	20	13	18	19	11	25	25	22	17
Total	71	52	36	60	43	40	53	52	50	44

* The total number of fatalities includes missing persons.

Table 8
Accidents, Fatalities and Injuries by Type of Vessel
2000–2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Shipping Accidents										
with Fatalities or Injuries										
Cargo/Bulk Carrier/OBO	1	1	0	0	0	0	0	1	0	0
Tanker	0	0	0	0	0	0	2	0	0	0
Tug/Barge	5	3	3	0	2	1	0	5	3	1
Fishing	9	10	13	11	10	9	9	3	8	9
Passenger	1	0	2	3	1	1	1	0	2	4
Ferry	1	0	2	4	2	3	2	3	1	1
Other	5	5	5	1	6	3	2	0	6	5
Total	22	19	25	19	21	17	16	12	20	20
Fatalities*										
Cargo/Bulk Carrier/OBO	4	0	0	0	0	0	0	0	0	0
Tanker	0	0	0	0	0	0	1	0	0	0
Tug/Barge	1	4	1	0	3	0	0	2	0	0
Fishing	5	10	9	8	13	11	8	1	10	7
Passenger	2	0	4	0	0	0	0	0	0	0
Ferry	0	0	0	0	0	0	2	0	0	0
Other	4	3	5	1	6	2	1	0	4	2
Total	16	17	19	9	22	13	12	3	14	9
Injuries										
Cargo/Bulk Carrier/OBO	0	2	0	0	0	0	0	1	0	0
Tanker	0	0	0	0	0	0	2	0	0	0
Tug/Barge	7	2	6	0	0	3	0	6	4	1
Fishing	7	10	18	10	8	8	5	2	2	7
Passenger	0	0	1	8	10	4	8	0	4	5
Ferry	1	0	14	17	7	9	8	20	1	1
Other	8	4	3	0	12	1	3	0	11	6
Total	23	18	42	35	37	25	26	29	22	20
Accidents Aboard Ship										
Cargo/Bulk Carrier/OBO	15	16	9	16	15	6	13	17	17	15
Tanker	2	3	0	3	1	2	5	2	2	1
Tug/Barge	3	7	4	4	3	5	4	7	8	5
Fishing	34	23	13	27	26	15	21	21	15	19
Passenger	5	2	2	0	0	5	2	4	6	3
Ferry	4	0	4	4	3	3	1	0	2	1
Other	14	8	4	12	2	9	4	10	9	8
Total	77	59	36	66	50	45	50	61	59	52
Fatalities*										
Cargo/Bulk Carrier/OBO	3	3	1	0	1	1	2	2	5	0
Tanker	0	1	0	0	0	0	1	0	0	0
Tug/Barge	2	4	0	2	0	0	1	1	1	1
Fishing	8	8	5	4	3	3	2	5	4	4
Passenger	1	0	0	0	0	1	0	0	0	0
Ferry	1	0	1	2	1	1	0	0	0	0
Other	0	1	2	0	1	1	0	3	1	2
Total	15	17	9	8	6	7	6	11	11	7
Injuries										
Cargo/Bulk Carrier/OBO	15	14	9	18	14	5	18	17	14	15
Tanker	2	2	0	3	1	2	4	2	2	1
Tug/Barge	3	8	5	2	3	5	3	6	7	4
Fishing	29	16	14	23	23	13	19	16	11	15
Passenger	4	3	2	0	0	4	3	4	6	3
Ferry	4	0	4	2	2	3	1	0	2	1
Other	14	9	2	12	1	9	5	8	8	8
Total	71	52	36	60	44	41	53	53	50	47

* 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

