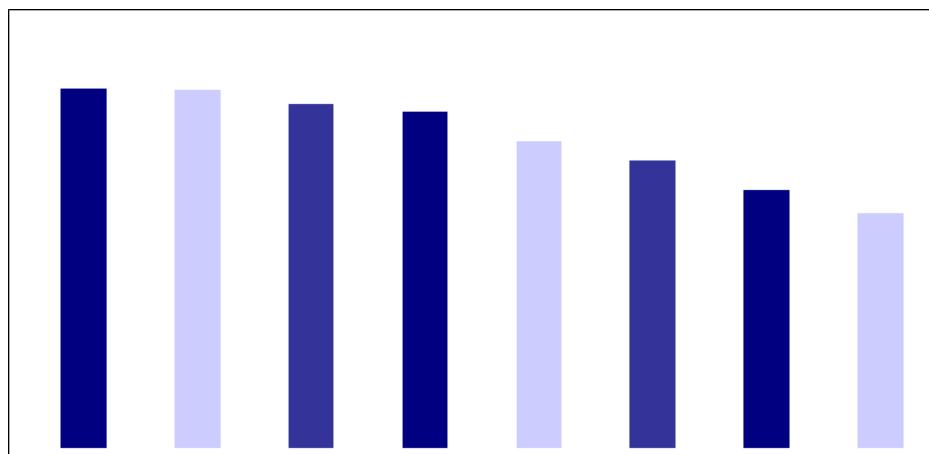




## Statistical Summary Marine Occurrences 2011



## **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](http://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 2011 statistics presented here reflect the TSB database updated as of 16 February 2012.

To enhance awareness and increase the safety value of the material presented in the *Statistical Summary, Marine Occurrences 2011*, 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 2011

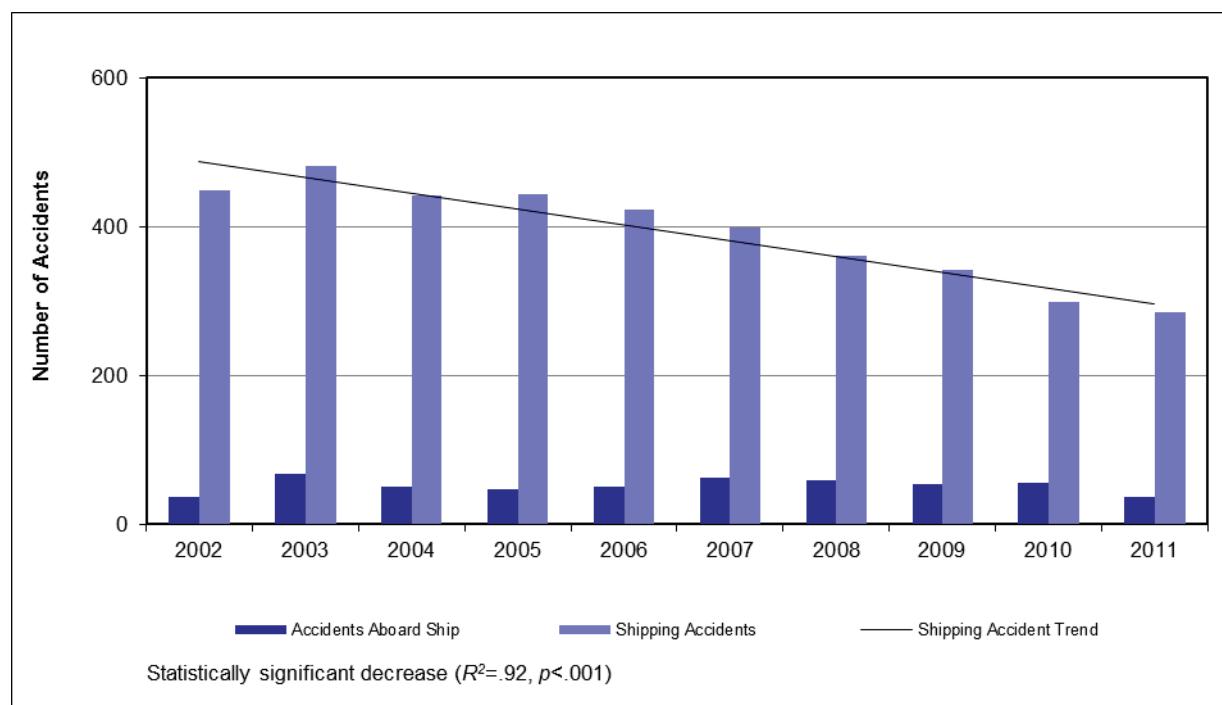
## ACCIDENTS

### *Overview of Accidents and Casualties (Tables 1 and 7)*

In 2011, 322 marine accidents were reported to the TSB, down from the 2010 total of 354 and the 2006–2010 average of 420. 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 37-year low of 285 in 2011, a 5% decrease from the 2010 total of 299 and a 22% decrease from the 2006–2010 average of 364. Statistical analysis using linear regression indicates that there has been a significant downward trend<sup>1</sup> in the number of shipping accidents since 2002 ( $p<0.001$ ) (Figure 1). In 2011, there were 37 accidents aboard ship, down from 55 in 2010 and down from the 2006–2010 average of 56. The majority of accidents aboard ship occurred on fishing vessels (43%) and cargo/bulk carrier/OBO<sup>2</sup> vessels (32%).

**Figure 1 – Accidents aboard ship and shipping accidents, 2002–2011**



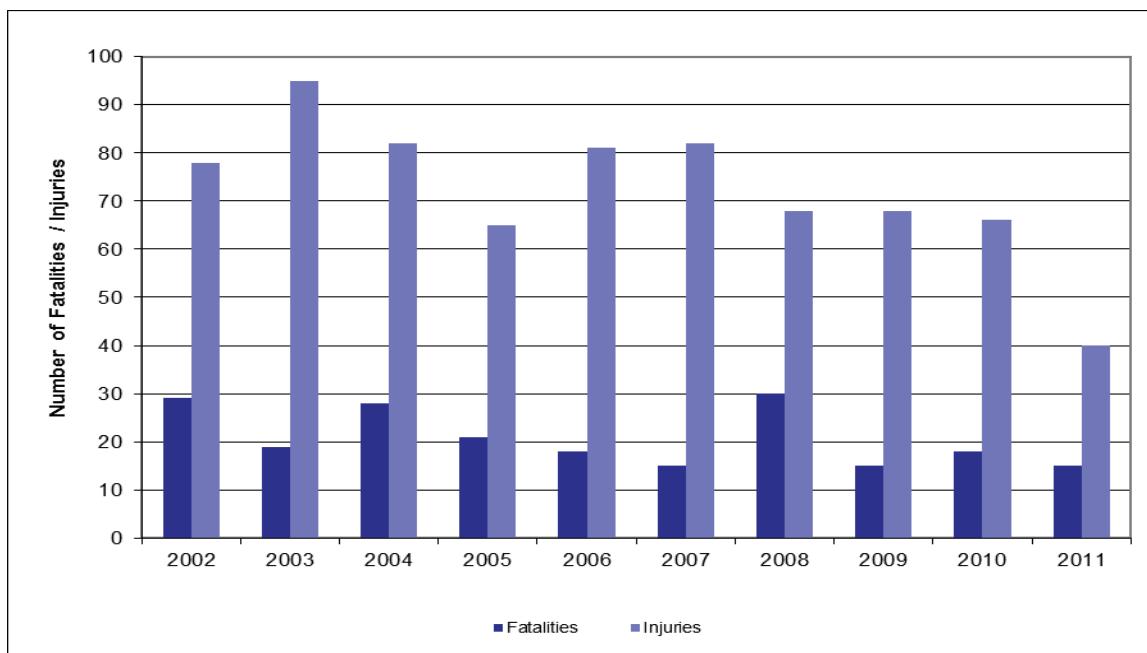
<sup>1</sup> It is agreed by convention that, for a result to be considered statistically significant, its probability must be lower than 1 in 20 (that is,  $p<0.05$ ).

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

Marine-related fatalities totalled 15 in 2011 (Figure 2), down from the 2010 total of 18 and down from the 2006–2010 average of 19. In 2011, fishing vessel accidents accounted for 2 of the 3 shipping vessel accident fatalities and for 10 of the 12 accident aboard ship fatalities.

Injuries in 2011 totalled 40, down from 66 in 2010 and the 2006–2010 average of 72. Thirty of the 40 injuries (29 of the 31 serious injuries) resulted from accidents aboard ship.

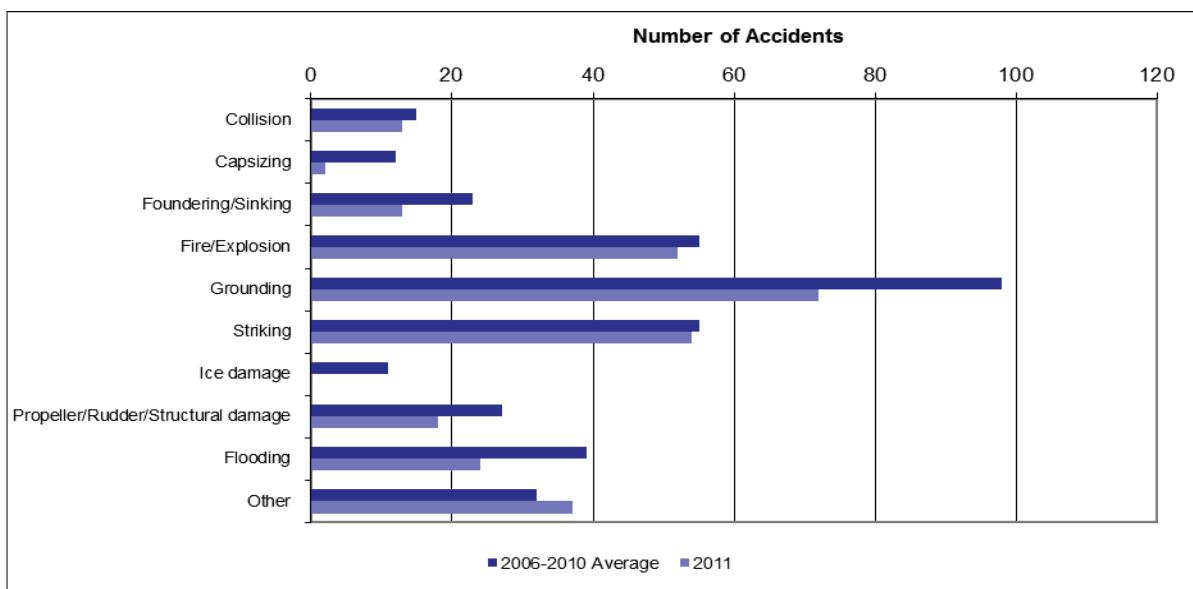
**Figure 2 – Marine fatalities and injuries, 2002–2011**



### *Shipping Accidents*

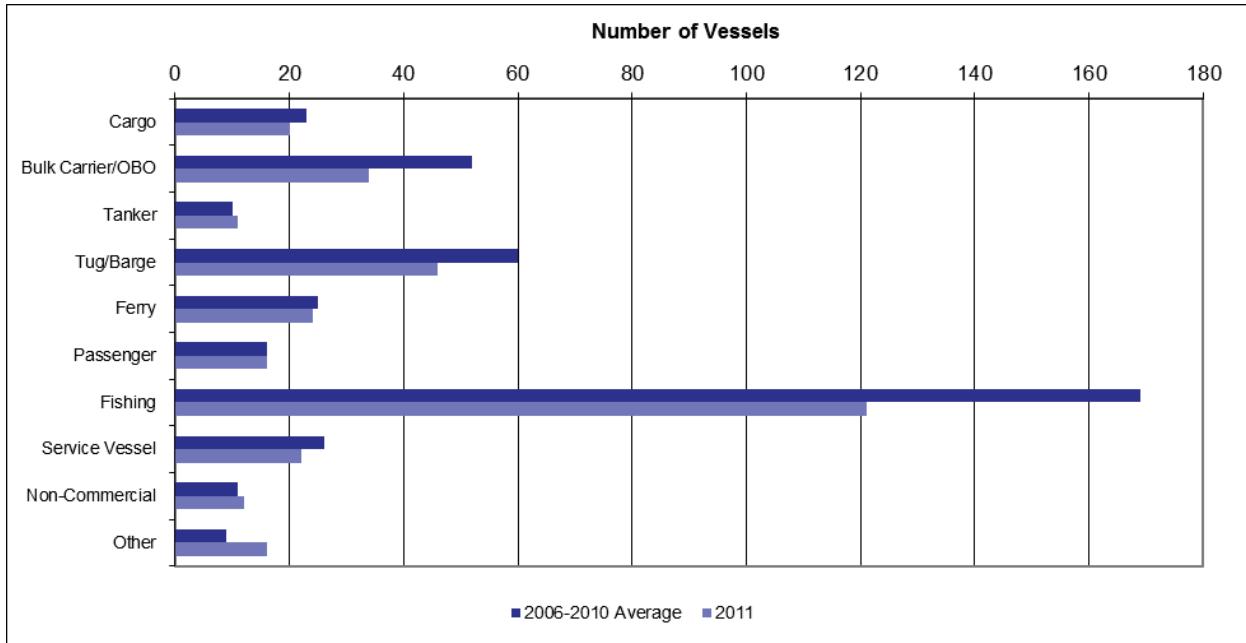
**Type of Accidents** (Table 1): As illustrated in Figure 3, the most frequent types of shipping accidents in 2011 were groundings (25%), strikings (19%) and fire/explosion accidents (18%). Groundings decreased by 27% from the five-year average, while strikings remained approximately the same and fire/explosion accidents decreased by 5%.

**Figure 3 – Shipping accidents by accident type**



**Type of Vessels (Table 1):** In 2011, there were 23 560 registered fishing vessels in Canada<sup>3</sup>, representing 55% of all registered vessels excluding pleasure craft. Since 2002, 45% of the vessels involved in shipping accidents have been fishing vessels. In 2011, there were 121 fishing vessels involved in shipping accidents (Figure 4), compared to 136 in 2010 and the 2006–2010 average of 169. After fishing vessels, tugs/barques (14%) and bulk carriers/OBO vessels (11%) were involved most often in shipping accidents.

**Figure 4 – Shipping accidents by vessel type**



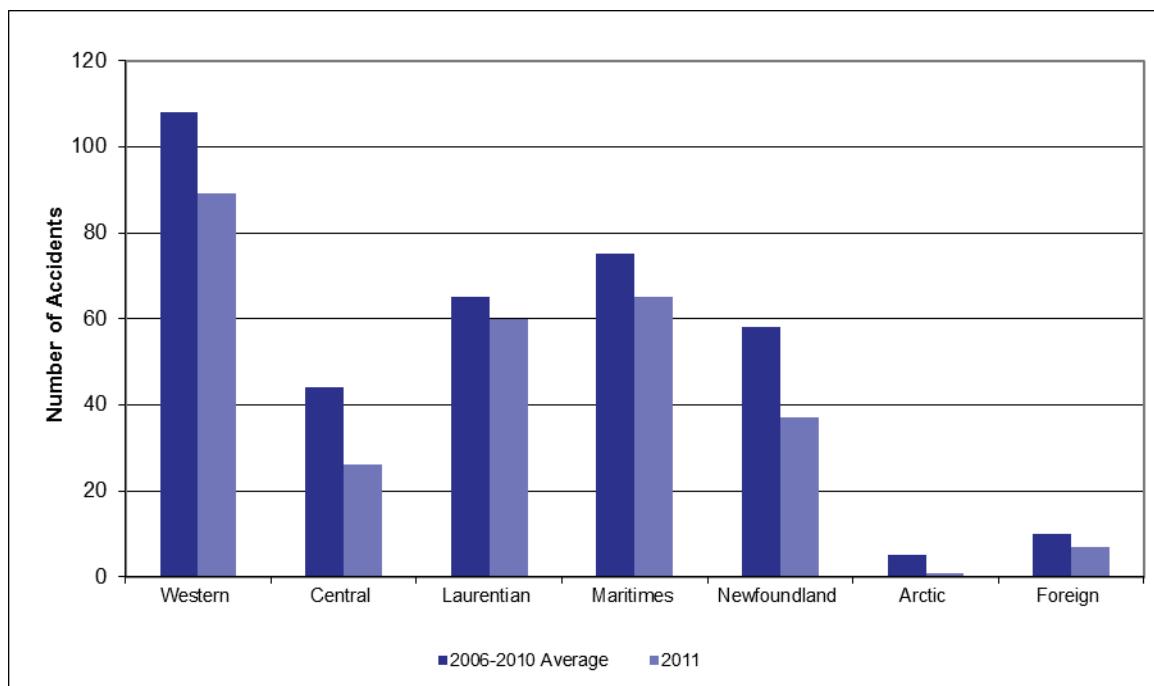
<sup>3</sup>

Source: Transport Canada.

**Geographical Region (Tables 2a and 2b):** In 2011, 75% of shipping accidents occurred in three of the seven geographical regions (Figure 5): the Western region (31%), the Maritimes region (23%) and the Laurentian region (21%). Shipping accidents decreased from the 2006–2010 average by 41% in the Central region and 36% in the Newfoundland region. The Central and Newfoundland regions accounted for 9% and 13% of shipping accidents respectively in 2011. Within the narrower waterways of the Central region, accidents most often involved larger commercial vessels such as cargo/bulk carrier/OBO vessels. The remaining 3% of shipping accidents took place in foreign waters (7) or in the Arctic region (1).

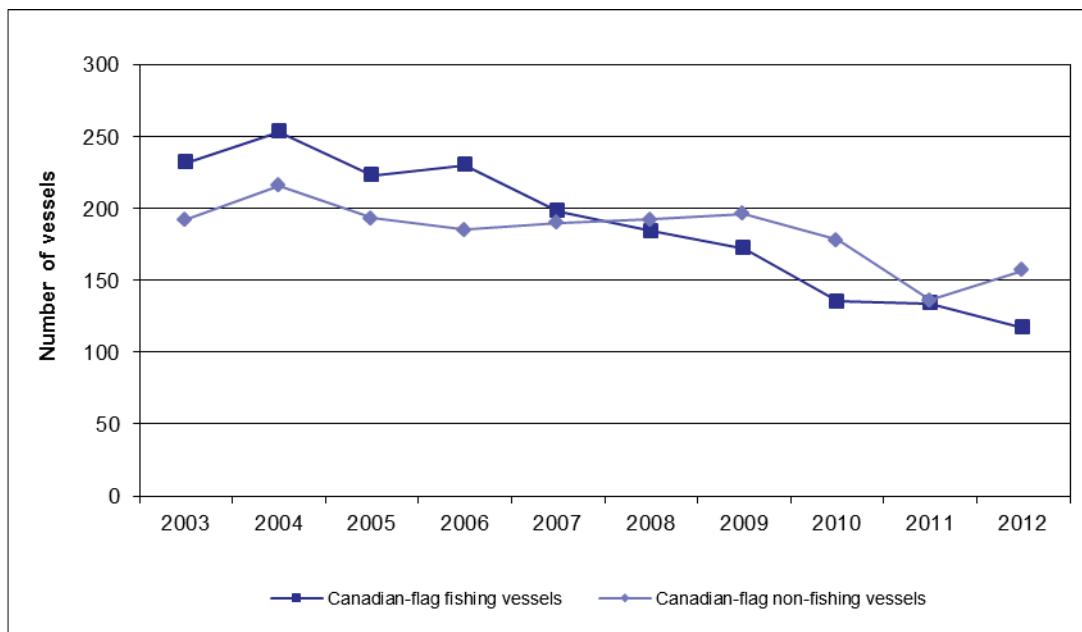
Fishing vessels accounted for 63% of all vessels involved in shipping accidents in the Maritimes region and 52% in the Newfoundland region. In that region, 22 fishing vessels were involved in shipping accidents, down 51% from the 2006–2010 average of 45.

**Figure 5 – Shipping accidents by region**



**Vessel Flag (Tables 1, 3 and 4):** In 2011, 85% of the 322 vessels involved in shipping accidents reported to the TSB were Canadian-flag vessels. In all, 43% of the Canadian-flag vessels were fishing vessels, 40% were commercial non-fishing vessels and the remaining 17% were non-commercial vessels, pleasure craft or service vessels (Figure 6).

**Figure 6 – Canadian-flag vessels involved in shipping accidents, 2002–2011**



For Canadian-flag fishing vessels in 2011, groundings (37%) and fire/explosions (21%) were the most frequent shipping accident types. Canadian-flag commercial non-fishing vessels were mostly involved in strikings (35%), fire/explosions (17%), or groundings (16%). Marine activity<sup>4</sup> for Canadian commercial non-fishing vessels over 15 gross tons (grt) (excluding passenger vessels and cruise ships) decreased by 16% from the 2006–2010 average. This yields an accident rate of 4.1 accidents per 1000 movements, up from the five-year average of 3.9.

In 2011, 48 foreign-flag vessels were involved in shipping accidents in Canadian waters, 85% of which were commercial non-fishing vessels involved mainly in strikings (32%). Marine activity for foreign commercial non-fishing vessels decreased by 3% from the 2006–2010 average while the accident rate decreased to 1.4 accidents per 1000 movements from the five-year average of 1.8.

**Vessels Lost (Tables 1 and 6):** In 2011, 22 vessels were reported lost, down from 27 in 2010 and the 2006–2010 average of 31. During the past 10 years, small fishing vessels (less than 15 grt)<sup>5</sup> have accounted for the largest proportion of vessels lost in Canada. Of the 22 vessels lost in 2011, 21 were fishing vessels. Half of the vessels lost were less than 15 grt, and 68% were 20 years or older.

<sup>4</sup> Source: Transport Canada.

<sup>5</sup> The majority of vessels classified under “unknown tonnage” were vessels known to be 15 gross tons or less.

# INCIDENTS

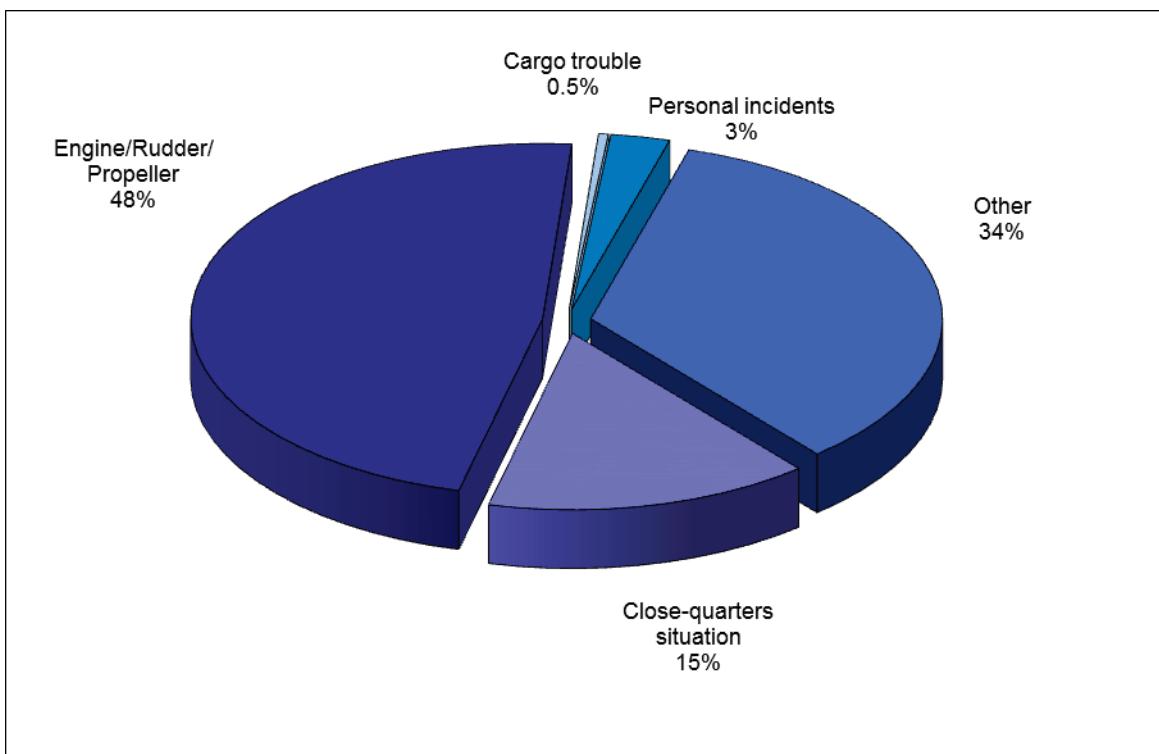
## *Overview of Incidents (Tables 1, 2a and 2b)*

Pursuant to mandatory reporting requirements, 221 marine incidents were reported to the TSB in 2011, down from the 2010 total of 235 and the 2006–2010 average of 251. The majority of reportable incidents consisted of engine/rudder/propeller failures. The Western region had the majority of both close-quarters situations (85%) and engine/rudder/propeller incidents (53%).

In 2011, incidents in the Western region represented 54% of all marine incidents. The proportion of marine incidents in other regions was as follows: Laurentian 25%, Central 13%, Maritimes 4% and Newfoundland 2%. Three reported incidents took place in foreign waters, and one occurred in the Arctic region.

In 2011, vessels most often involved in close-quarters situations were commercial vessels (88%) and fishing vessels (9%). In the majority of these incidents, the vessels involved were ferries, tugs, passenger vessels and cargo vessels.

**Figure 7 – Marine incidents by type, 2011**



# APPENDIX A – MARINE OCCURRENCE TABLES

**Table 1**

**Marine occurrences (types, vessels and losses involved)**

**2002-2011**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>Accidents</b>	<b>485</b>	<b>549</b>	<b>492</b>	<b>490</b>	<b>472</b>	<b>460</b>	<b>420</b>	<b>394</b>	<b>354</b>	<b>322</b>
Shipping accidents by type (a)	448	481	442	444	422	398	361	341	299	285
Collision	15	24	12	20	19	13	17	15	10	13
Capsizing	14	11	19	10	18	12	13	8	8	2
Foundering/Sinking	26	30	17	21	24	20	32	22	19	13
Fire/Explosion	53	65	51	69	55	49	62	53	54	52
Grounding	129	118	108	87	112	95	71	110	102	72
Striking	72	76	82	81	63	61	57	51	41	54
Ice damage	2	28	17	11	2	26	15	0	1	0
Propeller/Rudder/Structural damage	42	39	36	43	56	41	15	16	8	18
Flooding	52	49	63	59	46	49	45	34	23	24
Other	43	41	37	43	27	32	34	32	33	37
Accidents aboard ship	37	68	50	46	50	62	59	53	55	37
<b>Vessels involved in shipping accidents by type of vessel</b>	<b>482</b>	<b>526</b>	<b>471</b>	<b>491</b>	<b>461</b>	<b>436</b>	<b>410</b>	<b>376</b>	<b>321</b>	<b>322</b>
Cargo	20	18	21	19	30	25	18	22	18	20
Bulk carrier/Ore-bulk-oil (OBO) carrier	58	48	52	70	60	56	49	53	43	34
Tanker	9	15	7	15	13	9	6	10	12	11
Tug	25	34	32	30	27	43	48	22	22	25
Barge	32	31	34	27	33	29	29	28	17	21
Ferry	21	25	20	26	26	25	30	25	20	24
Passenger	27	41	29	20	19	17	15	15	15	16
Fishing	238	260	227	237	208	190	173	140	136	121
Service vessel	18	27	25	20	22	25	25	34	22	22
Non-commercial	19	14	11	10	14	10	11	13	7	12
Other	15	13	13	17	9	7	6	14	9	16
<b>Vessels involved in shipping accidents by vessel flag</b>	<b>482</b>	<b>526</b>	<b>471</b>	<b>491</b>	<b>461</b>	<b>436</b>	<b>410</b>	<b>376</b>	<b>321</b>	<b>322</b>
Canadian non-fishing vessels	192	216	193	185	190	192	196	178	136	157
Canadian fishing vessels	232	253	223	230	198	184	172	135	134	117
Foreign vessels	58	57	55	76	73	60	42	63	51	48
<b>Vessels lost by gross tonnage</b>	<b>32</b>	<b>38</b>	<b>22</b>	<b>26</b>	<b>35</b>	<b>31</b>	<b>35</b>	<b>27</b>	<b>27</b>	<b>22</b>
1600 gross tons and over	2	2	0	0	3	0	0	3	0	0
150 to 1599 gross tons	1	2	0	0	2	1	3	0	0	0
60 to 149 gross tons	4	8	5	6	7	8	4	5	4	2
15 to 59 gross tons	7	12	8	7	6	9	14	7	10	9
Less than 15 gross tons	12	12	3	9	13	10	11	6	8	10
Unknown tonnage	6	2	6	4	4	3	3	6	5	1
<b>Fatalities</b>	<b>29</b>	<b>19</b>	<b>28</b>	<b>21</b>	<b>18</b>	<b>15</b>	<b>30</b>	<b>15</b>	<b>18</b>	<b>15</b>
Shipping accidents	19	9	22	13	12	3	19	7	11	3
Accidents aboard ship	10	10	6	8	6	12	11	8	7	12
<b>Injuries</b>	<b>78</b>	<b>95</b>	<b>82</b>	<b>65</b>	<b>81</b>	<b>82</b>	<b>68</b>	<b>68</b>	<b>66</b>	<b>40</b>
Shipping accidents	42	35	37	25	26	30	17	21	15	10
Accidents aboard ship	36	60	45	40	55	52	51	47	51	30
<b>Reportable incidents by type (b)</b>	<b>195</b>	<b>251</b>	<b>269</b>	<b>260</b>	<b>235</b>	<b>260</b>	<b>276</b>	<b>247</b>	<b>235</b>	<b>221</b>
Close-quarters situation	29	60	67	56	30	21	20	12	27	33
Engine/Rudder/Propeller	57	83	106	85	112	90	129	124	127	105
Cargo trouble	5	3	1	4	4	1	6	5	3	1
Personal incidents	8	14	9	4	12	21	10	9	13	6
Other	96	91	86	111	77	127	111	97	65	76

Data extracted February 16, 2012.

a. Due to changes in the application of reporting criteria by the TSB in 2009, some accidents formerly categorized as Ice damage are now categorized as Propeller/Rudder/Structural damage.

**Table 2a****Details of occurrences, losses and vessels involved by region****(Western, Central, Laurentian and Maritimes regions)****2002-2011**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>Western region</b>										
Shipping accidents	139	141	125	125	124	102	109	114	89	89
Accidents aboard ship	16	21	15	14	15	20	15	21	13	9
Vessels involved in shipping accidents	155	159	135	145	142	116	131	127	97	103
Cargo	2	5	3	2	9	3	3	9	5	4
Bulk carrier/Ore-bulk-oil (OBO) carrier	1	4	7	3	3	2	4	5	0	2
Tanker	0	0	0	0	0	0	0	1	0	0
Ferry/Passenger	19	26	19	26	25	12	15	15	9	13
Tug/Barge	33	31	31	34	38	42	48	24	23	28
Fishing	78	76	65	69	51	43	54	49	48	39
Other	22	17	10	11	16	14	7	24	12	17
Vessels lost	13	11	6	8	15	11	10	8	5	3
Fatalities	11	6	8	7	6	8	9	6	6	5
Incidents	86	95	98	87	84	68	146	111	117	120
<b>Central region</b>										
Shipping accidents	57	53	59	52	46	51	45	36	41	26
Accidents aboard ship	3	2	7	3	4	9	14	7	9	2
Vessels involved in shipping accidents	63	59	62	55	50	55	51	39	44	30
Cargo	5	2	11	3	3	6	4	0	7	3
Bulk carrier/Ore-bulk-oil (OBO) carrier	25	15	22	29	25	21	23	19	16	10
Tanker	2	4	1	4	2	1	2	3	2	5
Ferry/Passenger	13	14	7	3	7	11	2	0	9	3
Tug/Barge	12	15	10	9	6	9	12	7	3	4
Fishing	2	1	2	1	2	1	1	1	2	1
Other	4	8	9	6	5	6	7	9	5	4
Vessels lost	2	0	0	0	1	0	2	1	1	0
Fatalities	10	2	4	1	0	1	1	1	1	0
Incidents	28	23	25	32	33	45	28	34	43	28
<b>Laurentian region</b>										
Shipping accidents	59	56	62	94	61	76	56	78	54	60
Accidents aboard ship	6	17	8	13	11	16	15	10	19	12
Vessels involved in shipping accidents	61	60	66	107	66	87	60	89	57	69
Cargo	6	3	5	11	11	11	7	10	4	7
Bulk carrier/Ore-bulk-oil (OBO) carrier	21	19	17	32	17	20	14	25	19	14
Tanker	4	5	4	11	7	7	4	4	4	3
Ferry/Passenger	7	10	11	7	3	10	12	8	8	13
Tug/Barge	5	5	7	7	8	17	7	12	8	8
Fishing	13	13	15	25	15	15	9	20	9	15
Other	5	5	7	14	5	7	7	10	5	9
Vessels lost	3	6	1	2	0	2	0	3	1	2
Fatalities	2	2	4	2	2	0	3	2	2	1
Incidents	44	77	88	115	78	89	67	66	45	56
<b>Maritimes region</b>										
Shipping accidents	121	129	101	95	100	64	77	64	70	65
Accidents aboard ship	5	13	8	7	11	8	6	10	2	3
Vessels involved in shipping accidents	128	138	108	104	107	66	88	71	75	70
Cargo	3	3	0	2	1	2	0	2	0	3
Bulk carrier/Ore-bulk-oil (OBO) carrier	2	1	0	1	3	1	1	0	1	3
Tanker	2	3	0	0	2	0	0	1	0	2
Ferry/Passenger	5	11	7	7	5	5	9	7	1	7
Tug/Barge	3	6	4	4	4	0	2	2	4	3
Fishing	96	99	80	79	78	50	63	50	58	44
Other	17	15	17	11	14	8	13	9	11	8
Vessels lost	12	14	9	9	12	7	15	5	12	13
Fatalities	1	7	8	2	3	3	9	3	7	3
Incidents	26	35	28	16	21	18	16	16	7	8

Data extracted February 16, 2012.

**Table 2b****Details of occurrences, losses and vessels involved by region****(Newfoundland, Arctic region and Foreign waters)****2002-2011**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>Newfoundland region</b>										
Shipping accidents	58	80	73	70	74	88	61	37	32	37
Accidents aboard ship	5	9	10	8	4	4	5	4	8	11
Vessels involved in shipping accidents	60	86	73	71	76	92	64	38	34	42
Cargo	3	0	1	1	6	3	3	1	2	3
Bulk carrier/Ore-bulk-oil (OBO) carrier	2	3	1	1	1	0	1	1	0	1
Tanker	1	0	0	0	2	0	0	0	3	1
Ferry/Passenger	4	5	5	2	3	4	7	10	7	4
Tug/Barge	0	2	2	0	0	1	2	2	0	3
Fishing	48	71	64	62	60	81	45	20	19	22
Other	2	5	0	5	4	3	6	4	3	8
Vessels lost	1	7	6	6	6	11	8	8	6	4
Fatalities	5	0	3	9	6	2	6	3	1	6
Incidents	5	17	20	9	11	31	9	12	13	5
<b>Arctic region</b>										
Shipping accidents	2	7	6	0	4	3	5	6	5	1
Accidents aboard ship	0	5	1	0	3	1	1	0	0	0
Vessels involved in shipping accidents	2	7	8	0	4	4	5	6	5	1
Cargo	0	3	0	0	0	0	1	0	0	0
Bulk carrier/Ore-bulk-oil (OBO) carrier	0	0	0	0	0	0	0	0	0	0
Tanker	0	1	1	0	0	1	0	0	3	0
Ferry/Passenger	0	0	0	0	2	0	0	0	1	0
Tug/Barge	2	0	2	0	1	0	2	3	0	0
Fishing	0	0	0	0	0	0	1	0	0	0
Other	0	3	5	0	1	3	1	3	1	1
Vessels lost	1	0	0	0	1	0	0	1	1	0
Fatalities	0	2	1	0	1	1	0	0	0	0
Incidents	1	1	5	0	2	0	2	2	3	1
<b>Foreign waters</b>										
Shipping accidents	12	15	16	8	13	14	8	6	8	7
Accidents aboard ship	2	1	1	1	2	4	3	1	4	0
Vessels involved in shipping accidents	13	17	19	9	16	16	11	6	9	7
Cargo	1	2	1	0	0	0	0	0	0	0
Bulk carrier/Ore-bulk-oil (OBO) carrier	7	6	5	4	11	12	6	3	7	4
Tanker	0	2	1	0	0	0	0	1	0	0
Ferry/Passenger	0	0	0	1	0	0	0	0	0	0
Tug/Barge	2	6	10	3	3	3	4	0	1	0
Fishing	1	0	1	1	2	0	0	0	0	0
Other	2	1	1	0	0	1	1	2	1	3
Vessels lost	0	0	0	1	0	0	0	1	1	0
Fatalities	0	0	0	0	0	0	2	0	1	0
Incidents	5	3	5	1	6	9	8	6	7	3

Data extracted February 16, 2012.

**Table 3**

**Canadian-flag vessels involved in shipping accidents by vessel category and type of accident  
(including commercial accident rate)**

**2002-2011**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>Canadian-flag vessels involved</b>	<b>424</b>	<b>469</b>	<b>416</b>	<b>415</b>	<b>388</b>	<b>376</b>	<b>368</b>	<b>313</b>	<b>270</b>	<b>274</b>
Commercial vessels	143	165	147	140	146	151	159	120	101	110
Collision	8	20	8	15	13	10	9	7	6	8
Capsizing	3	7	4	3	8	9	4	3	5	1
Foundering/Sinking	11	6	3	6	8	9	11	13	5	4
Fire/Explosion	14	20	17	24	18	15	21	12	14	19
Grounding	42	35	31	20	35	27	26	35	34	16
Striking	37	44	46	46	37	41	45	28	24	38
Ice damage	0	4	2	4	0	2	0	0	1	0
Propeller/Rudder/Structural damage	9	8	10	3	5	9	9	6	1	6
Flooding	5	4	9	7	11	6	22	6	0	0
Other	14	17	17	12	11	23	12	10	11	18
Commercial movements (a)	37,619	39,802	36,208	39,264	41,076	34,436	29,717	24,783	25,231	26,000
Commercial accident rate (b)	3.3	3.3	3.8	3.4	3.1	3.9	4.7	4.6	3.7	4.1
Fishing vessels	232	253	223	230	198	184	172	135	134	117
Collision	19	15	7	17	11	11	13	6	4	12
Capsizing	5	5	9	5	7	3	5	3	1	1
Foundering/Sinking	11	19	11	17	15	10	20	7	13	9
Fire/Explosion	28	38	28	31	22	22	35	26	28	24
Grounding	70	67	67	54	49	49	36	56	51	43
Striking	12	15	8	13	4	6	7	4	3	3
Ice damage	1	21	14	5	2	23	15	0	0	0
Propeller/Rudder/Structural damage	29	24	20	30	48	17	4	1	1	3
Flooding	41	39	50	46	31	39	24	20	19	19
Other	16	10	9	12	9	4	13	12	14	3
Other vessels	49	51	46	45	44	41	37	58	35	47
Collision	3	7	6	4	7	3	8	10	6	3
Capsizing	6	0	4	2	3	0	3	2	2	0
Foundering/Sinking	3	5	2	0	1	2	2	2	1	0
Fire/Explosion	7	7	4	9	8	8	4	10	6	6
Grounding	4	8	3	7	9	11	5	13	4	6
Striking	14	13	7	10	9	9	5	7	5	12
Ice damage	0	2	0	1	0	0	0	0	0	0
Propeller/Rudder/Structural damage	1	1	2	2	1	2	2	1	1	3
Flooding	3	2	3	2	2	3	0	4	1	4
Other	8	6	15	8	4	3	8	9	9	13

Data extracted February 16, 2012.

a. Based on data from Transport Canada. 2011 data are estimated.

b. The accident rate is the number of Canadian-flag commercial vessels of 15 gross tons 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 rates)**

**2002-2011**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>Foreign-flag vessels involved</b>	<b>58</b>	<b>57</b>	<b>55</b>	<b>76</b>	<b>73</b>	<b>60</b>	<b>42</b>	<b>63</b>	<b>51</b>	<b>48</b>
Commercial vessels	49	47	48	67	62	53	36	55	46	41
Collision	0	5	3	4	6	0	2	6	2	3
Capsizing	0	0	2	0	0	0	1	0	0	0
Foundering/Sinking	0	0	0	0	0	0	0	0	0	0
Fire/Explosion	4	0	2	5	7	5	3	4	5	4
Grounding	12	8	6	3	18	8	7	7	12	6
Striking	19	18	26	31	20	15	12	16	14	13
Ice damage	1	1	1	1	0	1	0	0	0	0
Propeller/Rudder/Structural damage	3	5	4	7	2	13	0	8	5	6
Flooding	2	2	0	2	1	1	0	3	3	1
Other	8	8	4	14	8	10	11	11	5	8
Commercial movements (a)	31,442	30,877	31,580	32,234	29,256	30,644	28,015	23,808	26,269	26,700
Commercial accident rate (b)	1.5	1.4	1.3	2.1	2.1	1.7	1.3	2.3	1.6	1.4
Fishing vessels	6	7	4	7	10	6	1	5	2	4
Collision	0	1	0	1	4	2	0	1	0	0
Capsizing	0	0	0	0	1	0	0	0	0	0
Foundering/Sinking	0	0	1	0	0	0	0	0	0	0
Fire/Explosion	0	1	0	0	0	0	1	0	0	0
Grounding	4	1	1	3	4	4	0	3	2	3
Striking	1	0	1	0	0	0	0	0	0	1
Ice damage	0	0	0	0	0	0	0	0	0	0
Propeller/Rudder/Structural damage	0	1	0	1	0	0	0	0	0	0
Flooding	1	2	1	2	1	0	0	1	0	0
Other	0	1	0	0	0	0	0	0	0	0
Other vessels	3	3	3	2	1	1	5	3	3	3
Collision	1	1	0	0	0	0	2	1	2	1
Capsizing	0	0	0	0	0	0	0	0	0	0
Foundering/Sinking	1	0	0	0	0	0	0	0	0	0
Fire/Explosion	0	0	0	0	0	0	0	1	1	0
Grounding	0	1	2	2	1	1	1	0	0	0
Striking	0	0	0	0	0	0	2	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	1	1	0	0	0	0	1	0	2

Data extracted February 16, 2012.

a. Based on data from Transport Canada. 2011 data are estimated.

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

**Table 5**  
**Vessels lost by vessel category and age**  
**2002-2011**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All vessels	32	38	22	26	35	31	35	27	27	22
0-4 years	1	2	2	2	2	1	0	0	1	0
5-9 years	4	2	2	1	4	1	5	2	5	1
10-14 years	3	4	0	2	2	3	2	5	1	1
15-19 years	1	5	3	7	3	3	2	0	2	3
20-24 years	2	5	3	3	3	3	6	4	6	4
25-29 years	3	5	1	4	1	4	4	2	2	4
30+ years	9	10	4	3	13	10	9	7	4	7
Unknown	9	5	7	4	7	6	7	7	6	2
Commercial vessels	8	4	1	2	9	7	7	8	1	1
0-4 years	1	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	1	0	0
15-19 years	0	0	0	0	0	0	0	0	0	0
20-24 years	0	0	0	0	0	0	1	0	0	0
25-29 years	0	0	0	0	0	0	2	0	0	0
30+ years	3	2	1	1	7	5	3	3	0	1
Unknown	4	2	0	1	2	2	1	4	1	0
Fishing vessels	20	32	19	24	25	22	27	16	23	21
0-4 years	0	2	2	2	2	1	0	0	1	0
5-9 years	4	2	2	1	4	1	5	2	5	1
10-14 years	3	4	0	2	2	3	2	4	1	1
15-19 years	1	5	3	7	3	3	2	0	2	3
20-24 years	2	5	3	3	3	3	4	4	6	4
25-29 years	3	5	1	4	1	4	2	2	1	4
30+ years	3	7	3	2	6	4	6	4	4	6
Unknown	4	2	5	3	4	3	6	0	3	2
Other vessels	4	2	2	0	1	2	1	3	3	0
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	1	0	0	0
25-29 years	0	0	0	0	0	0	0	0	1	0
30+ years	3	1	0	0	0	1	0	0	0	0
Unknown	1	1	2	0	1	1	0	3	2	0

Data extracted February 16, 2012.

**Table 6**  
**Accidents, fatalities and injuries by accidents type**  
**2002-2011**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>Shipping accidents with fatalities or injuries</b>	<b>24</b>	<b>19</b>	<b>21</b>	<b>17</b>	<b>16</b>	<b>12</b>	<b>22</b>	<b>20</b>	<b>13</b>	<b>8</b>
Collision	3	2	1	4	0	0	1	3	2	0
Capsizing	4	3	8	6	6	4	8	2	1	0
Sinking/Foundering	3	2	6	1	1	3	5	4	2	0
Fire/Explosion	5	4	2	1	4	1	4	3	3	4
Grounding	4	2	0	0	3	0	3	2	1	2
Striking	4	5	2	5	2	3	1	4	2	2
Other	1	1	2	0	0	1	0	2	2	0
<b>Shipping accidents fatalities (a)</b>	<b>19</b>	<b>9</b>	<b>22</b>	<b>13</b>	<b>12</b>	<b>3</b>	<b>19</b>	<b>7</b>	<b>11</b>	<b>3</b>
Collision	0	1	2	0	0	0	0	0	0	0
Capsizing	10	5	11	10	6	2	13	2	4	0
Sinking/Foundering	7	2	9	3	1	0	6	4	1	0
Fire/Explosion	1	1	0	0	2	0	0	0	0	1
Grounding	1	0	0	0	3	0	0	1	0	1
Striking	0	0	0	0	0	1	0	0	0	1
Other	0	0	0	0	0	0	0	0	6	0
<b>Shipping accidents injuries</b>	<b>42</b>	<b>35</b>	<b>37</b>	<b>25</b>	<b>26</b>	<b>29</b>	<b>17</b>	<b>21</b>	<b>15</b>	<b>10</b>
Collision	4	1	2	7	0	0	1	4	3	0
Capsizing	0	2	7	4	1	2	3	1	0	0
Sinking/Foundering	4	2	4	0	0	3	1	4	1	0
Fire/Explosion	7	4	6	1	6	9	5	3	5	3
Grounding	10	3	0	0	3	0	6	1	1	2
Striking	16	22	15	13	16	14	1	6	5	5
Other	1	1	3	0	0	1	0	2	0	0
<b>Accidents aboard ship</b>	<b>37</b>	<b>68</b>	<b>50</b>	<b>46</b>	<b>50</b>	<b>62</b>	<b>59</b>	<b>53</b>	<b>55</b>	<b>37</b>
<b>Accidents aboard ship fatalities (a)</b>	<b>10</b>	<b>10</b>	<b>6</b>	<b>8</b>	<b>6</b>	<b>12</b>	<b>11</b>	<b>8</b>	<b>7</b>	<b>12</b>
Carried overboard	0	3	0	0	1	2	1	1	0	1
Caught by cargo/machinery	1	2	1	1	0	2	4	1	0	0
Fell overboard	3	3	2	4	2	3	2	3	2	5
Fell into tank/hold	0	0	0	0	0	0	1	0	0	0
Fell on deck or off quay	0	1	0	2	0	0	0	0	2	0
Heavy weather	0	0	0	0	0	0	0	0	0	0
Other	6	1	3	1	3	5	3	3	3	6
<b>Accidents aboard ship injuries</b>	<b>36</b>	<b>60</b>	<b>44</b>	<b>40</b>	<b>53</b>	<b>52</b>	<b>50</b>	<b>47</b>	<b>50</b>	<b>29</b>
Carried overboard	2	2	2	3	0	2	0	1	0	0
Caught by cargo/machinery	11	25	16	17	23	13	16	17	10	11
Fell overboard	2	1	1	1	0	1	0	2	3	2
Fell into tank/hold	1	3	0	0	0	5	2	1	1	2
Fell on deck or off quay	7	9	4	8	5	6	8	4	10	7
Heavy weather	0	2	1	0	0	0	2	3	1	0
Other	13	18	20	11	25	25	22	19	25	7

Data extracted February 16, 2012.

a. Fatalities includes missing persons.

**Table 7**  
**Vessels, fatalities and injuries by vessel type**  
**2002-2011**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>Vessels involved in shipping accidents with fatalities or injuries</b>	<b>25</b>	<b>19</b>	<b>21</b>	<b>17</b>	<b>16</b>	<b>12</b>	<b>22</b>	<b>20</b>	<b>13</b>	<b>8</b>
Cargo/Bulk carrier/Ore-bulk-oil (OBO) carrier	0	0	0	0	0	1	2	0	0	1
Tanker	0	0	0	0	2	0	0	0	0	0
Tug/Barge	3	0	2	1	0	5	3	1	0	0
Fishing	13	11	10	9	9	3	8	9	9	5
Passenger	2	3	1	1	1	0	2	4	1	0
Ferry	2	4	2	3	2	3	1	1	1	0
Other	5	1	6	3	2	0	6	5	2	2
<b>Shipping accident fatalities (a)</b>	<b>19</b>	<b>9</b>	<b>22</b>	<b>13</b>	<b>12</b>	<b>3</b>	<b>19</b>	<b>7</b>	<b>11</b>	<b>3</b>
Cargo/Bulk carrier/Ore-bulk-oil (OBO) carrier	0	0	0	0	0	0	5	0	0	0
Tanker	0	0	0	0	1	0	0	0	0	0
Tug/Barge	1	0	3	0	0	2	0	0	0	0
Fishing	9	8	13	11	8	1	10	7	7	2
Passenger	4	0	0	0	0	0	0	0	4	0
Ferry	0	0	0	0	2	0	0	0	0	0
Other	5	1	6	2	1	0	4	0	0	1
<b>Shipping accident injuries</b>	<b>42</b>	<b>35</b>	<b>37</b>	<b>25</b>	<b>26</b>	<b>29</b>	<b>17</b>	<b>21</b>	<b>15</b>	<b>10</b>
Cargo/Bulk carrier/Ore-bulk-oil (OBO) carrier	0	0	0	0	0	1	2	0	0	1
Tanker	0	0	0	0	2	0	0	0	0	0
Tug/Barge	6	0	0	3	0	6	4	1	0	0
Fishing	18	10	8	8	5	2	2	7	9	4
Passenger	1	8	10	4	8	0	4	5	0	0
Ferry	14	17	7	9	8	20	1	1	2	0
Other	3	0	12	1	3	0	4	7	4	5
<b>Vessels involved in accidents aboard ship</b>	<b>37</b>	<b>68</b>	<b>50</b>	<b>46</b>	<b>50</b>	<b>62</b>	<b>59</b>	<b>53</b>	<b>55</b>	<b>37</b>
Cargo/Bulk carrier/Ore-bulk-oil (OBO) carrier	9	16	15	6	13	17	17	15	17	12
Tanker	0	3	1	2	5	2	2	1	1	2
Tug/Barge	4	4	3	5	4	7	8	5	5	2
Fishing	14	29	26	16	21	22	15	19	15	16
Passenger	2	0	0	5	2	4	6	3	5	4
Ferry	4	4	3	3	1	0	2	2	2	0
Other	4	12	2	9	4	10	9	8	10	1
<b>Accident aboard ship fatalities (a)</b>	<b>10</b>	<b>10</b>	<b>6</b>	<b>8</b>	<b>6</b>	<b>12</b>	<b>11</b>	<b>8</b>	<b>7</b>	<b>12</b>
Cargo/Bulk carrier/Ore-bulk-oil (OBO) carrier	1	0	1	1	2	2	5	0	1	1
Tanker	0	0	0	0	1	0	0	0	0	0
Tug/Barge	0	2	0	0	1	1	1	0	0	0
Fishing	6	6	3	4	2	6	4	4	4	10
Passenger	0	0	0	1	0	0	0	0	1	1
Ferry	1	2	1	1	0	0	0	1	1	0
Other	2	0	1	1	0	3	1	2	0	0
<b>Accident aboard ship injuries</b>	<b>36</b>	<b>60</b>	<b>44</b>	<b>40</b>	<b>53</b>	<b>52</b>	<b>50</b>	<b>47</b>	<b>50</b>	<b>29</b>
Cargo/Bulk carrier/Ore-bulk-oil (OBO) carrier	9	18	14	5	18	16	14	15	16	11
Tanker	0	3	1	2	4	2	2	1	1	2
Tug/Barge	5	2	3	5	3	6	7	4	5	2
Fishing	14	23	23	12	19	16	11	15	11	8
Passenger	2	0	0	4	3	4	6	3	4	5
Ferry	4	2	2	3	1	0	2	1	3	0
Other	2	12	1	9	5	8	8	8	10	1

Data extracted February 16, 2012.

a. 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 ship<sup>6</sup> 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,<sup>7</sup> 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.”

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<sup>4</sup> 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.

<sup>5</sup> 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

