



Transportation
Safety Board
of Canada

Bureau de la sécurité
des transports
du Canada

STATISTICAL SUMMARY MARINE OCCURRENCES IN 2017

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Statistical summary: marine occurrences in 2017

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Le présent rapport est également disponible en français.

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Statistical Summary

Marine Occurrences in 2017

This document is a summary of selected 2017 marine safety data. 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.

The TSB gathers and uses this data during the course of its investigations to analyse safety deficiencies and identify risks in the Canadian transportation system.

It should be noted that certain characteristics of the data constrain statistical analysis and identification of emerging trends. These include the small totals of accidents and incidents, the large variability in the data from year to year, changes to regulations and definitions, and missing or incomplete accident/ incident reports. The reader is cautioned to keep these limitations in mind when viewing this summary to avoid drawing conclusions that cannot be supported by statistical analysis.

The 2017 data were collected according to the reporting requirements described in the TSB Regulations in force during that calendar year.

The statistics presented here reflect the TSB database at 11 February 2018. Since the occurrence data are constantly being updated in the live database, the statistics may change slightly over time.

Also, as many occurrences are not formally investigated, information recorded on some occurrences may not have been verified.

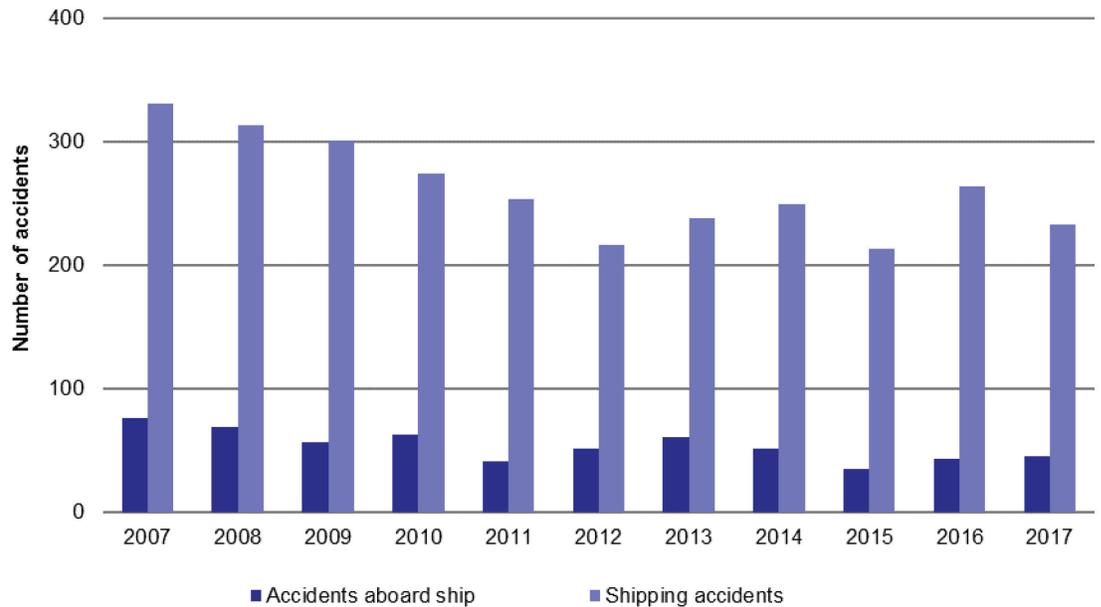
Accidents

Overview of accidents and casualties

In 2017, 278 marine accidents¹ were reported to the TSB (Figure 1), down from the 2016 total of 307, and below the 10-year (2007–2016) average of 320. In 2017, and over the past 10 years, the proportion of shipping accidents vs. accidents aboard ship has remained relatively constant, at approximately 83%.

There were 233 shipping accidents in 2017, down 12% from the 2016 total of 264 and from the 2007–2016 average of 265. The majority of shipping accidents involved fishing vessels (33%), followed by service ships (14%) and solid cargo vessels (15%).

Figure 1. Accidents aboard ship and shipping accidents, 2007–2017



In 2017, there were 45 accidents aboard ship, up from 43 in 2016 but down from the 2007–2016 average of 55. The majority of accidents aboard ship occurred on cargo vessels (40%) and fishing vessels (31%).

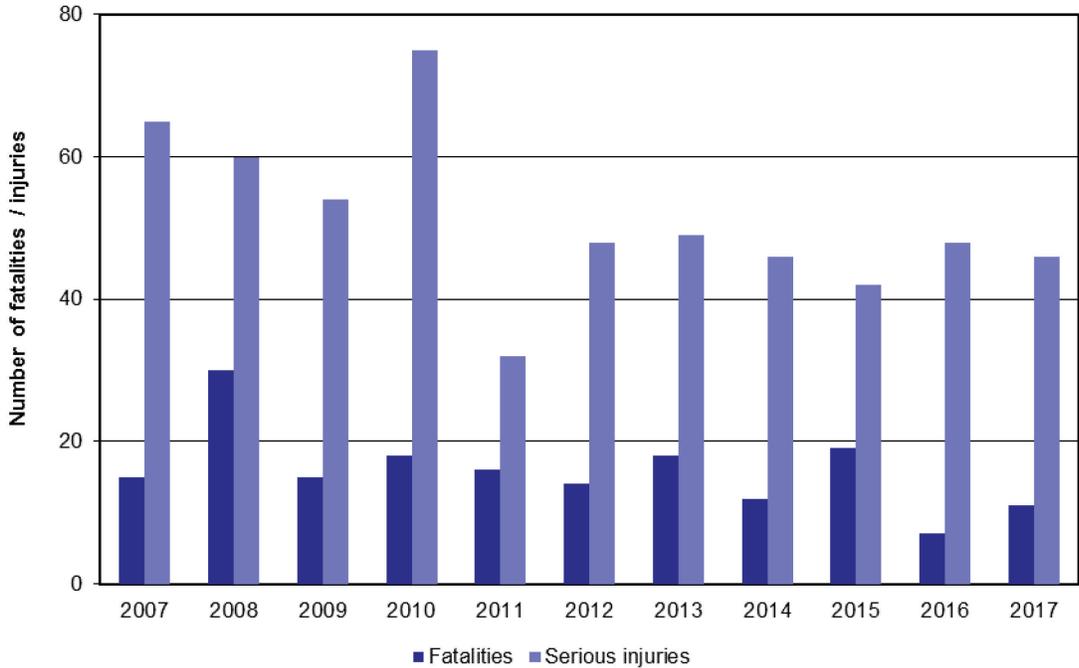
Marine fatalities totalled 11 in 2017 (Figure 2): 4 were the result of 3 shipping accidents, while the remaining 7 fatalities resulted from 7 accidents aboard ship. This total is up from the 7 fatalities reported in 2016, but below the annual average of 16 in the period 2007 to 2016. One of the 4 shipping accident fatalities resulted from an accident involving a fishing vessel, 2 resulted from an accident involving a sport fishing vessel (ferry/passenger) and 1 resulted from an accident involving a workboat. Two of the 7 fatal accidents aboard ship occurred aboard fishing vessels, resulting in 3 fatalities. The total of

¹ Refer to Appendix for a definition of a reportable marine accident.

3 fishing vessel fatalities in 2017 was below the annual average of 10 in the period 2007 to 2016.

Serious injuries in 2017 totalled 46, down from 48 in 2016 and down from the annual average of 52 in 2007 to 2016. Thirty-nine of the 46 serious injuries (85%) resulted from accidents aboard ship.

Figure 2. Marine fatalities and serious injuries, 2007–2017

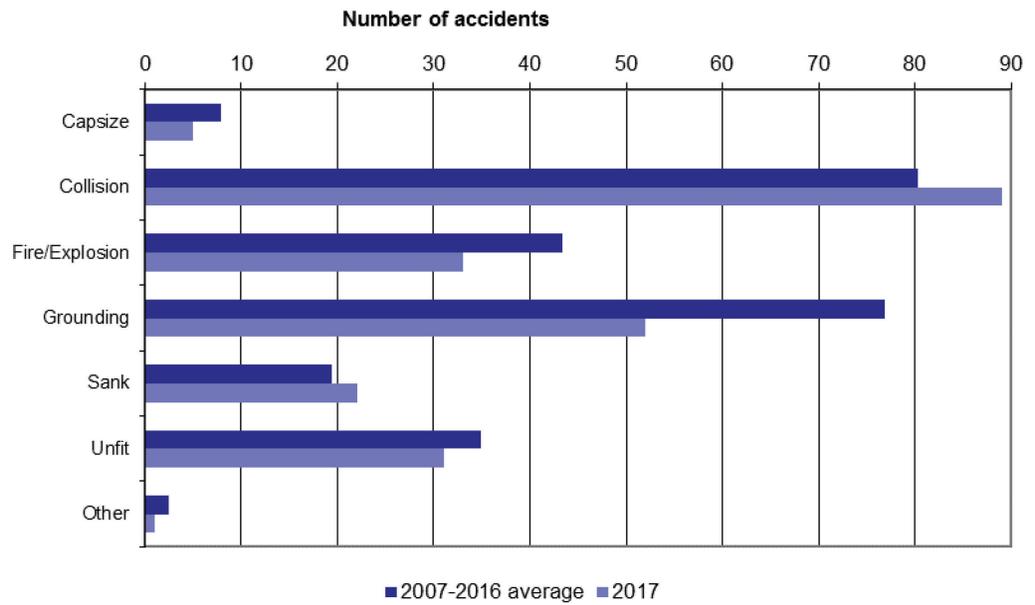


Shipping accidents

Type of accident (Table 1)

As illustrated in Figure 3, the most frequent types of shipping accidents in 2017 were Collision (38%), Grounding (22%), Fire/Explosion (14%), and Unfit (sustains damage rendering unseaworthy/unfit for purpose accidents) (13%). The total number of collisions (89) was 11% more than the prior 10-year average of 80, while the number of groundings (52) was 32% below the 10-year average. The number of Unfit accidents (31) was 11% below the 10-year average, as was the number of Fire/explosion accidents (33) .

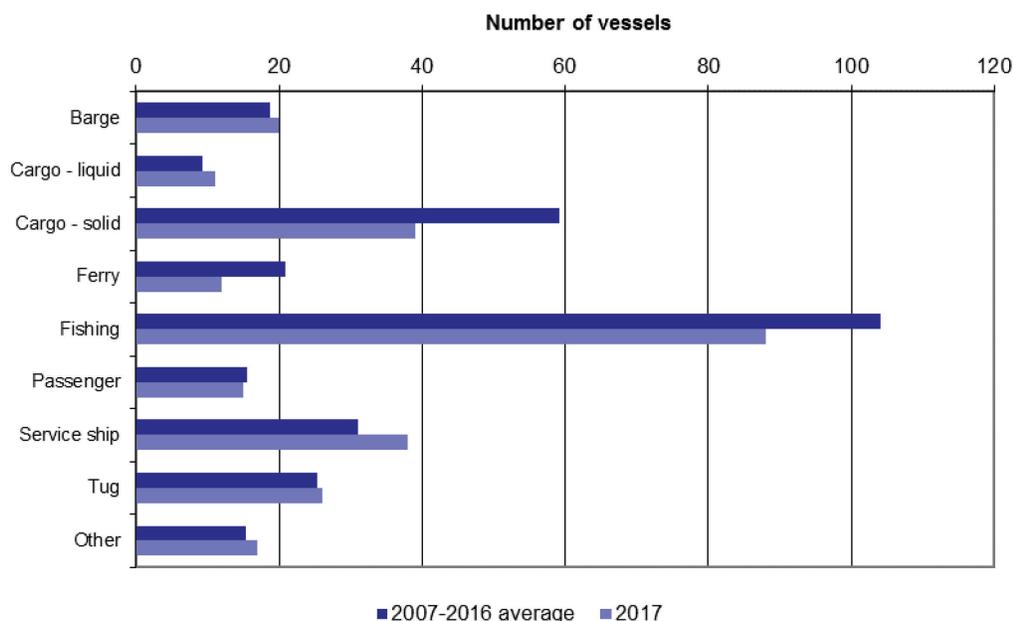
Figure 3. Shipping accidents by accident type



Type of vessel (Table 1)

Eighty-eight fishing vessels (33% of all vessels involved in shipping accidents) were involved in shipping accidents (Figure 4), down from 91 in 2016 and down from the 2007–2016 average of 104.

Figure 4. Shipping accidents by vessel type



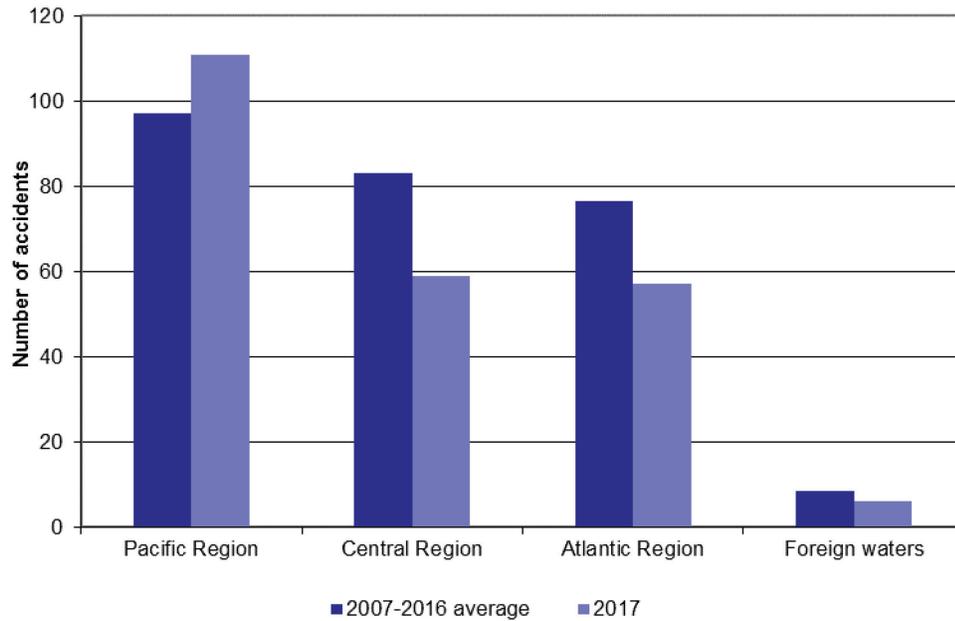
Geographical region² (Table 2)

In 2017, 48% of shipping accidents (Figure 5) occurred in the Pacific region, 25% in the Central region, 24% in the Atlantic region, and the remaining 3% of shipping accidents took place in foreign waters. In the Pacific region in 2017, shipping accidents were 14% above the 2007–2016 average, in the Central region shipping accidents were 29% below the 2007–2016 average, and in the Atlantic region shipping accidents were 25% below the 2007–2016 average.

Thirty-eight fishing vessels were involved in shipping accidents in the Atlantic region, which is below the 2007–2016 average of 56 fishing vessels. Thirty-five fishing vessels were involved in shipping accidents in the Pacific region, below the 2007–2016 average of 39 fishing vessels.

² See Regional Limits in Definitions appendix.

Figure 5. Shipping accidents by region



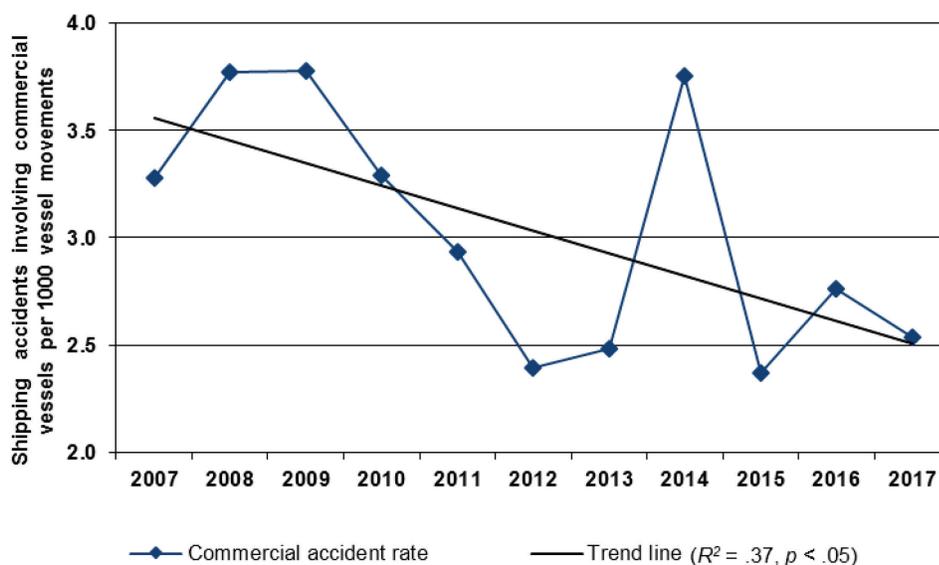
Vessel flag (tables 1, 3 and 4)

In 2017, 86% of the 266 vessels involved in shipping accidents reported to the TSB were Canadian-flag vessels. In all, 40% of these Canadian-flag vessels were commercial non-fishing vessels, 37% were fishing vessels and the remaining 23% were non-commercial vessels, pleasure craft or service vessels.

According to information provided by Transport Canada, marine activity for Canadian commercial non-fishing vessels over 15 gross tons (grt) (excluding passenger vessels and cruise ships) was 29,156 commercial movements³ in 2017, which is 4% above the 2007–2016 average. This yields a rate of 2.5 shipping accidents per 1,000 commercial movements in 2017, lower than the prior 10-year average of 3.1. There has been a statistically significant downward trend in the Canadian commercial shipping accident rate over the last 11 years ($p < .05$) (Figure 6).

³ Transport Canada has updated their methodology for counting commercial movements for 2014 to 2017. Movements for 2014 are likely under-reported as a result, inflating the 2014 accident rate.

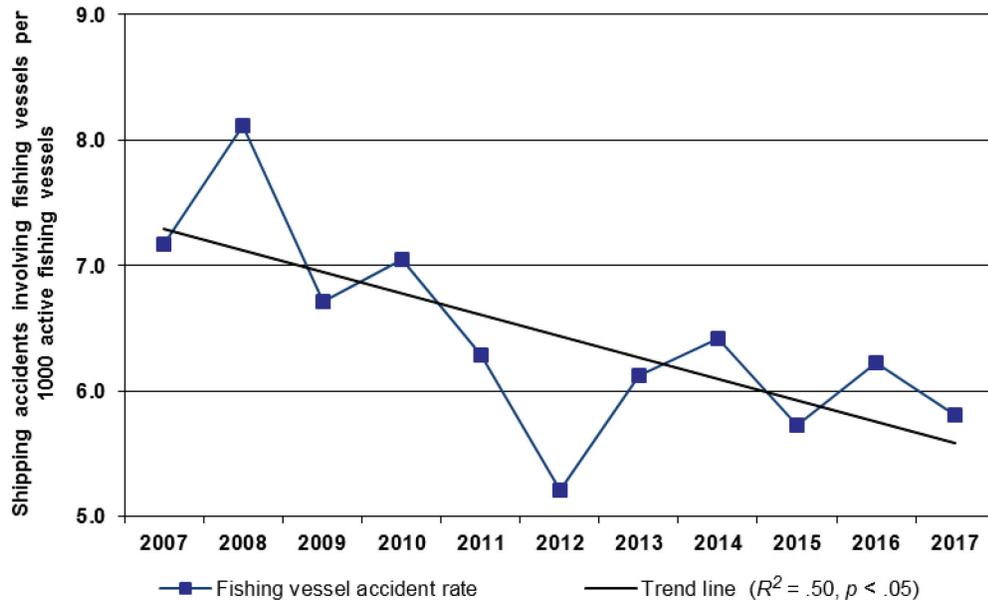
Figure 6. Shipping accident rates for Canadian-flag commercial non-fishing vessels, 2007–2017



In 2017, there were an estimated 12,742 active fishing vessels in Canada⁴. The shipping accident rate for Canadian fishing vessels decreased from 6.2 shipping accidents per 1000 active fishing vessels in 2016 to 5.8 in 2017, which is 13% below the prior 10-year average. There has been a statistically significant downward trend in the Canadian fishing vessel shipping accident rate over the last 11 years ($p < .05$) (Figure 7).

⁴ Commercial fishing vessels landing a catch (Source: DFO). 2015 to 2017 data are preliminary and subject to change.

Figure 7. Shipping accident rates for Canadian-flag fishing vessels, 2007–2017



For Canadian-flag fishing vessels in 2017, groundings (33%), collisions (25%), and fire/explosion accidents (19%) were the most frequently reported shipping accident types. Canadian-flag commercial non-fishing vessels were mostly involved in collisions (48%) or groundings (22%).

In 2017, 36 foreign-flag vessels were involved in shipping accidents in Canadian waters, 31 of which were commercial non-fishing vessels. According to information provided by Transport Canada, marine activity for foreign commercial non-fishing vessels was 22,894 commercial movements² in 2017, below the 2007–2016 average of 24,557. This yields an accident rate of 1.3 commercial vessels involved in shipping accidents per 1000 commercial movements, below the 10-year average of 1.5.

Vessels lost (tables 1 and 5)

In 2017, 12 vessels were reported lost, down from 16 in 2016, and from the 2007–2016 average of 24. Seven of the 12 vessels lost in 2017 were fishing vessels. Eight of the 12 vessels lost were less than 15 grt⁵, and half were at least 30 years old. During the past 10 years, fishing vessels under 60 grt have accounted for more than 60% of Canadian vessels lost.

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

Incidents

Overview of incidents

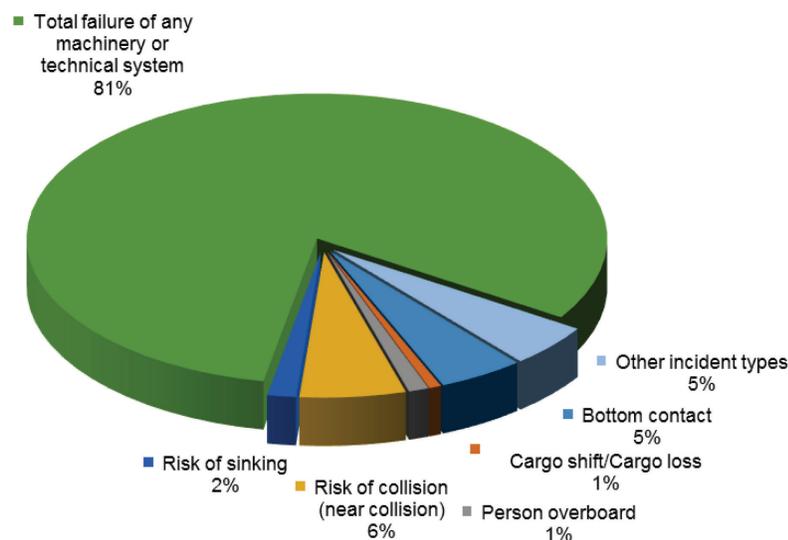
In 2017, 882 marine incidents⁶ were reported to the TSB, up from a total of 768 in 2016, and above the annual 10-year (2007–2016) average of 450. On March 12, 2014, the TSB issued new regulations that changed the reporting requirements effective July 1, 2014. The new regulations clarify the reporting requirements for a total failure of any machinery or technical system, leading to an increase in incidents of this category since 2014. The 2013 increase was related to the clarification of the threshold used to classify the engine / rudder/propeller incident category, which is now included in the total failure of any machinery or technical system incident category.

In 2017, incidents in the Atlantic region represented 43% of all marine incidents, followed by 32% in the Pacific region, and 23% in the Central region. The remaining 2% of reported incidents took place in foreign waters (data not shown).

The majority (81%) of reportable incidents consisted of total failure of any machinery or technical systems (Figure 8). The Atlantic region had the most incidents relating to the total failure of any machinery or technical systems (48%), and the Pacific region had the most incidents involving risk of collision (66%).

In 2017, vessels most often involved in total failure of any machinery or technical systems incidents were fishing vessels (60%) and solid cargo vessels (17%) (data not shown).

Figure 8. Marine incidents⁷ by type, 2017



⁶ Refer to Appendix for a definition of a reportable marine incident.

⁷ Due to rounding, data label percentages do not sum to 100%.

Data tables

Table 1**Marine occurrences (types, vessels and losses involved)****2007-2017**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Accidents	407	382	358	337	295	268	299	301	248	307	278
Shipping accidents by type	331	313	301	274	254	216	238	249	213	264	233
Capsize	11	15	9	8	2	6	8	3	10	7	5
Collision	84	95	81	65	87	78	79	88	57	89	89
Fire/Explosion	48	62	50	53	50	34	31	29	33	44	33
Grounding	95	73	110	102	73	69	62	61	59	65	52
Sank	21	31	20	20	10	10	14	26	16	26	22
Sustains damage render unseaworthy/ Unfit for purpose	65	35	29	24	28	16	43	41	36	32	31
Other shipping accident types	7	2	2	2	4	3	1	1	2	1	1
Accidents aboard ship	76	69	57	63	41	52	61	52	35	43	45
Vessels involved in shipping accidents by type of vessel	371	364	337	297	294	244	275	280	233	299	266
Barge	28	23	28	17	20	6	19	12	10	24	20
Cargo - liquid	7	6	11	12	10	6	7	14	12	7	11
Cargo - solid	75	67	63	62	57	63	60	68	37	40	39
Ferry	24	29	26	19	23	18	13	20	18	19	12
Fishing	133	144	118	111	99	83	88	92	81	91	88
Passenger	20	11	17	14	16	16	15	13	17	16	15
Service ship	34	29	38	29	25	20	36	21	29	50	38
Tug	38	34	18	19	24	27	26	22	19	27	26
Other vessel types	12	21	18	14	20	5	11	18	10	25	17
Vessels involved in shipping accidents by vessel flag	371	364	337	297	294	244	275	280	233	299	266
Canadian non-fishing vessels	185	179	165	138	152	114	147	146	121	172	146
Canadian fishing vessels	127	143	115	109	95	79	86	92	80	90	84
Foreign vessels	59	42	57	50	47	51	42	42	32	37	36
Vessels lost by gross tonnage	29	32	26	27	22	23	20	20	23	16	12
1600 gross tons and over	0	0	3	0	0	0	0	0	0	0	0
150 to 1599 gross tons	1	2	0	0	0	1	1	1	2	0	0
60 to 149 gross tons	8	3	4	4	2	3	4	4	6	4	2
15 to 59 gross tons	8	14	7	10	9	8	6	4	6	2	2
Less than 15 gross tons	9	10	6	8	10	9	6	8	8	6	5
Unknown tonnage	3	3	6	5	1	2	3	3	1	4	3
Fatalities	15	30	15	18	16	14	18	12	19	7	11
Shipping accidents	3	21	7	11	3	5	10	4	13	6	4
Accidents aboard ship	12	9	8	7	13	9	8	8	6	1	7
Serious injuries	65	60	54	75	32	48	49	46	42	48	46
Shipping accidents	4	4	5	5	2	6	0	1	12	5	7
Accidents aboard ship	61	56	49	70	30	42	49	45	30	43	39
Occurrences with a dangerous good release*	0	5	7	7							
Reportable incidents by type	296	285	249	224	216	270	734	747	707	768	882
Bottom contact	24	23	14	13	14	21	19	24	36	24	42
Cargo shift/Cargo loss	2	6	6	3	2	5	2	1	4	4	6
Person overboard	15	9	7	9	4	5	10	7	13	10	10
Risk of collision (near collision)	30	25	28	33	38	37	63	35	31	45	52
Risk of sinking	49	46	33	24	24	25	26	0	10	20	14
Total failure of any machinery or technical system**	147	161	150	135	120	156	603	676	589	637	716
Other incident types	29	15	11	7	14	21	11	4	24	28	42

Note:

Data extracted February 11, 2018

In November 2013, the Transportation Safety Board developed and deployed a new Marine Database. The new database significantly improves the TSB's ability to collect, categorize and present statistics. In accordance with these changes the 2014 statistical summary onward will be presented in a slightly different format. New TSB regulations came into effect on July 1, 2014, changing some reporting requirements.

* Under new reporting requirements the release of dangerous goods has been harmonized with Part 8 of the Transportation of Dangerous Goods Regulations. Detailed data were not collected prior to July 1, 2014.

** New regulations clarify the reporting requirements for a total failure of any machinery or technical system.

Table 2**Details of occurrences, losses and vessels involved by region
(Western, Central, Laurentian and Maritimes regions)****2007-2017**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Pacific region											
Shipping accidents	101	103	106	87	88	76	88	95	90	138	111
Accidents aboard ship	21	14	22	15	11	18	21	23	13	19	8
Vessels involved in shipping accidents	115	127	120	95	103	90	107	107	99	153	128
Barge/Tug	35	40	25	20	25	19	29	23	23	40	34
Cargo / Tanker	5	11	13	5	5	12	8	15	6	14	9
Ferry/Passenger	14	16	15	8	13	11	10	10	15	17	12
Fishing	39	49	45	43	38	30	30	36	33	43	35
Other vessel types	22	11	22	19	22	18	30	23	22	39	38
Vessels lost	11	10	8	6	3	6	3	9	12	8	9
Fatalities	8	9	6	6	6	4	2	5	12	0	6
Reportable incidents	69	148	115	113	102	118	150	149	260	290	283
Central region											
Shipping accidents	119	87	105	98	81	74	73	74	64	56	59
Accidents aboard ship	33	34	18	31	16	19	25	17	10	11	16
Vessels involved in shipping accidents	137	97	119	106	95	79	85	85	71	65	67
Barge/Tug	27	12	17	11	12	9	14	8	6	9	8
Cargo / Tanker	61	50	52	55	46	46	40	55	35	24	27
Ferry/Passenger	24	9	11	18	14	14	13	14	13	9	11
Fishing	11	9	17	10	11	6	7	3	6	5	14
Other vessel types	14	17	22	12	12	4	11	5	11	18	7
Vessels lost	2	1	5	2	2	1	4	2	2	1	0
Fatalities	2	4	3	3	1	3	5	2	2	0	3
Reportable incidents	121	85	82	67	74	107	149	137	116	126	203
Atlantic region											
Shipping accidents	99	114	86	80	78	56	62	72	54	63	57
Accidents aboard ship	15	17	16	13	14	14	12	12	12	13	17
Vessels involved in shipping accidents	105	128	94	86	88	64	67	80	57	72	64
Barge/Tug	1	1	4	4	6	5	2	3		1	1
Cargo / Tanker	6	5	6	6	11	3	6	6	2	3	11
Ferry/Passenger	5	15	17	7	12	9	4	9	7	9	4
Fishing	83	86	56	58	50	45	49	52	42	43	38
Other vessel types	10	21	11	11	9	2	6	10	6	16	10
Vessels lost	16	21	12	18	17	15	12	9	9	7	3
Fatalities	5	15	6	8	9	6	11	5	5	7	2
Reportable incidents	97	46	44	38	36	40	429	450	319	338	381
Foreign waters											
Shipping accidents	12	9	4	9	7	10	15	8	5	7	6
Accidents aboard ship	7	4	1	4	0	1	3	0	0	0	4
Vessels involved in shipping accidents	14	12	4	10	8	11	16	8	6	9	7
Barge/Tug	3	4	0	1	1	0	0	0	0	1	3
Cargo / Tanker	10	7	3	8	5	8	13	6	6	6	3
Ferry/Passenger	1	0	0	0	0	0	1	0	0	0	0
Fishing	0	0	0	0	0	2	2	1	0	0	1
Other vessel types	0	1	1	1	2	1	0	1	0	2	0
Vessels lost	0	0	1	1	0	1	1	0	0	0	0
Fatalities	0	2	0	1	0	1	0	0	0	0	0
Reportable incidents	9	6	8	6	4	5	6	11	12	14	15

Note:

Data extracted February 11, 2018

In November 2013, the Transportation Safety Board developed and deployed a new Marine Database. The new database significantly improves the TSB's ability to collect, categorize and present statistics. In accordance with these changes the 2014 statistical summary onward will be presented in a slightly different format.

New TSB regulations came into effect on July 1, 2014, changing some reporting requirements.

Table 3**Canadian-flag vessels involved in shipping accidents by vessel category and type of accident****(including commercial accident rates)****2007-2017**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Canadian-flag vessels involved	312	322	280	247	247	193	233	238	201	262	230
Commercial vessels	141	135	112	99	109	90	102	108	83	101	92
Capsize	7	7	3	5	1	2			3	2	1
Collision	59	61	41	35	55	47	46	54	34	48	44
Fire/Explosion	15	21	12	13	18	9	12	12	11	14	7
Grounding	28	25	34	31	17	22	28	16	14	22	20
Sank	9	7	12	5	3	1	3	6	10	5	5
Sustains damage render unseaworthy/ Unfit for purpose	22	14	10	10	15	9	13	20	11	10	15
Other shipping accident types	1	0	0	0	0	0	0	0	0	0	0
Commercial movements (a)	34,436	29,717	24,871	25,539	28,269	28,800	29,000	23,185	27,013	28,960	29,156
Commercial accident rate (b)	3	4	4	3	3	2	2	4	2	3	3
Fishing vessels	127	143	115	109	95	79	86	92	80	90	84
Capsize	3	5	4	1	1	3	6	1	5	3	2
Collision	18	29	14	10	16	12	12	15	6	12	21
Fire/Explosion	22	34	27	28	24	19	12	10	14	16	16
Grounding	48	38	56	50	43	34	30	32	33	31	28
Sank	10	18	6	14	6	9	9	19	9	17	8
Sustains damage render unseaworthy/ Unfit for purpose	20	17	7	4	1	0	16	14	11	10	8
Other shipping accident types	6	2	1	2	4	2	1	1	2	1	1
Active fishing vessels (c)	16,514	15,800	15,050	14,167	14,217	13,871	13,556	13,565	13,282	13,493	12,742
Fishing vessel accident rate (d)	7.1	8.5	7.0	7.5	6.3	5.3	6.1	6.4	5.7	6.2	5.8
Other vessels	44	44	53	39	43	24	45	38	38	71	54
Capsize	1	3	2	2	0	1	2	2	2	3	2
Collision	17	20	25	20	25	10	25	17	21	36	32
Fire/Explosion	7	5	7	6	6	4	3	7	3	14	5
Grounding	11	7	15	8	7	6	10	8	8	8	3
Sank	4	7	2	1	1	0	2	2	0	4	9
Sustains damage render unseaworthy/ Unfit for purpose	4	2	1	2	4	3	3	2	4	6	3
Other shipping accident types	0	0	1	0	0	0	0	0	0	0	0

Note:

Data extracted February 11, 2018

a. Based on data from Transport Canada. 2012 to 2013 data are estimated. Transport Canada has updated their methodology for counting commercial movements for 2014 to 2017. Movements for 2014 are likely under-reported as a result, inflating the 2014 accident rate.

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

c. Commercial fishing vessels landing a catch (Source: DFO). 2015 to 2017 data are preliminary and subject to change.

d. The fishing vessel accident rate is the number of shipping accidents involving Canadian-flag commercial fishing vessels of 15 gross tons or more per 1000 active fishing vessels.

Table 4**Foreign-flag vessels involved in shipping accidents by vessel category and type of accident
(including commercial accident rates)****2007-2017**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Foreign-flag vessels involved	59	42	57	50	47	51	42	42	32	37	36
Commercial vessels	51	35	51	44	41	46	38	41	30	32	31
Capsize	0	1	0	0	0	0	0	0	0	0	0
Collision	19	22	26	18	24	28	19	29	11	17	19
Fire/Explosion	5	3	3	5	3	3	5	0	5	0	3
Grounding	8	7	8	13	6	10	2	7	4	8	3
Sank	0	0	0	0	0	0	1	0	0	1	0
Sustains damage render unseaworthy/ Unfit for purpose	19	2	14	8	8	5	11	5	10	6	6
Other shipping accident types	0	0	0	0	0	0	0	0	0	0	0
Commercial movements (a)	30,644	28,015	23,720	26,029	25,669	26,300	26,600	17,635	19,266	21,696	22,894
Commercial accident rate (b)	1.6	1.1	1.9	1.5	1.4	1.6	1.4	2.3	1.3	1.3	1.3
Fishing vessels	6	1	3	2	4	4	2	0	1	1	4
Capsize	0	0	0	0	0	0	0	0	0	0	0
Collision	2	0	0	0	1	2	2	0	0	0	2
Fire/Explosion	0	1	0	0	0	0	0	0	0	0	1
Grounding	4	0	3	2	3	1	0	0	1	1	1
Sank	0	0	0	0	0	0	0	0	0	0	0
Sustains damage render unseaworthy/ Unfit for purpose	0	0	0	0	0	0	0	0	0	0	0
Other shipping accident types	0	0	0	0	0	1	0	0	0	0	0
Other vessels	2	6	3	4	2	1	2	1	1	4	1
Capsize	0	0	0	0	0	0	0	0	0	0	0
Collision	1	5	2	3	2	1	2	1	1	3	0
Fire/Explosion	0	0	1	1	0	0	0	0	0	0	1
Grounding	1	1	0	0	0	0	0	0	0	1	0
Sank	0	0	0	0	0	0	0	0	0	0	0
Sustains damage render unseaworthy/ Unfit for purpose	0	0	0	0	0	0	0	0	0	0	0
Other shipping accident types	0	0	0	0	0	0	0	0	0	0	0

Note:

Data extracted February 11, 2018

a. Based on data from Transport Canada. 2012 and 2013 data are estimated. Transport Canada has updated their methodology for counting commercial movements for 2014 to 2017. Movements for 2014 are likely under-reported as a result, inflating the 2014 accident rate.

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

Table 5
Vessels lost by vessel category and age
2007-2017

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All vessels	29	32	26	27	22	23	20	20	23	16	12
0-4 years	1	0	0	1	0	1	0	0	1	0	0
5-9 years	1	5	2	5	1	1	1	0	0	0	0
10-14 years	3	1	4	1	1	2	3	0	2	0	0
15-19 years	2	2	0	2	3	5	2	2	1	2	1
20-24 years	3	6	4	6	4	3	2	1	1	0	0
25-29 years	4	2	2	2	4	3	2	5	5	1	0
30+ years	10	9	7	4	7	5	5	4	10	5	6
Unknown	5	7	7	6	2	3	5	8	3	8	5
Commercial vessels	6	4	8	1	1	1	1	2	8	3	2
0-4 years	0	0	0	0	0	0	0	0	0	0	0
5-9 years	0	0	0	0	0	0	0	0	0	0	0
10-14 years	0	0	1	0	0	0	0	0	0	0	0
15-19 years	0	0	0	0	0	0	0	0	0	0	0
20-24 years	0	0	0	0	0	0	0	0	1	0	0
25-29 years	0	1	0	0	0	0	0	1	2	0	0
30+ years	5	3	3	0	1	1	1	1	4	2	1
Unknown	1	0	4	1	0	0	0	0	1	1	1
Fishing vessels	20	25	15	23	21	22	17	17	15	12	7
0-4 years	1	0	0	1	0	1	0	0	1	0	0
5-9 years	1	5	2	5	1	1	1	0	0	0	0
10-14 years	3	1	3	1	1	2	3	0	2	0	0
15-19 years	2	2	0	2	3	5	2	2	1	2	1
20-24 years	3	4	4	6	4	3	2	1	0	0	0
25-29 years	4	1	2	1	4	3	2	4	3	1	0
30+ years	4	6	4	4	6	4	2	3	6	3	5
Unknown	2	6	0	3	2	3	5	7	2	6	1
Other vessels	3	3	3	3	0	0	2	1	0	1	3
0-4 years	0	0	0	0	0	0	0	0	0	0	0
5-9 years	0	0	0	0	0	0	0	0	0	0	0
10-14 years	0	0	0	0	0	0	0	0	0	0	0
15-19 years	0	0	0	0	0	0	0	0	0	0	0
20-24 years	0	2	0	0	0	0	0	0	0	0	0
25-29 years	0	0	0	1	0	0	0	0	0	0	0
30+ years	1	0	0	0	0	0	2	0	0	0	0
Unknown	2	1	3	2	0	0	0	1	0	1	3

Note:

Data extracted February 11, 2018

Table 6**Accidents, fatalities and serious injuries by accidents type****2007-2017**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Shipping accidents with fatalities or serious injuries	4	14	9	7	4	7	4	4	7	5	8
Capsize	2	8	1	1	0	3	2	0	2	1	1
Collision	1	0	4	3	1	1	0	1	2	2	4
Fire/Explosion	0	1	0	0	2	3	1	0	1	1	1
Grounding	0	1	1	0	1	0	1	0	1	0	0
Sank	1	4	3	1	0	0	0	3	1	1	2
Sustains damage render unseaworthy/ Unfit for purpose	0	0	0	0	0	0	0	0	0	0	0
Other shipping accident types	0	0	0	2	0	0	0	0	0	0	0
Shipping accidents fatalities (a)	3	21	7	11	3	5	10	4	13	6	4
Capsize	2	15	2	4	0	3	6	0	9	2	1
Collision	1	0	0	0	1	1	0	0	1	0	0
Fire/Explosion	0	0	0	0	1	1	1	0	0	0	0
Grounding	0	0	1	0	1	0	3	0	0	0	0
Sank	0	6	4	1	0	0	0	4	3	4	3
Sustains damage render unseaworthy/ Unfit for purpose	0	0	0	0	0	0	0	0	0	0	0
Other shipping accident types	0	0	0	6	0	0	0	0	0	0	0
Shipping accidents serious injuries	4	4	5	5	2	6	0	1	12	5	7
Capsize	0	0	0	0	0	3	0	0	0	0	0
Collision	2	0	5	5	1	0	0	1	9	4	6
Fire/Explosion	0	2	0	0	1	3	0	0	1	1	1
Grounding	0	2	0	0	0	0	0	0	2	0	0
Sank	2	0	0	0	0	0	0	0	0	0	0
Sustains damage render unseaworthy/ Unfit for purpose	0	0	0	0	0	0	0	0	0	0	0
Other shipping accident types	0	0	0	0	0	0	0	0	0	0	0
Accidents aboard ship	76	69	57	63	41	52	61	52	35	43	45
Accidents aboard ship fatalities (a)	12	9	8	7	13	9	8	8	6	1	7
Boarding, being on board, falling overboard from the ship	7	3	6	4	13	3	3	5	6	0	5
In contact with any part of the ship or its contents	5	6	2	3	0	6	5	3	0	1	2
Accidents aboard ship serious injuries	61	56	49	70	30	42	49	45	30	43	39
Boarding, being on board, falling overboard from the ship	6	5	4	2	3	2	6	10	5	4	6
In contact with any part of the ship or its contents	55	51	45	68	27	40	43	35	25	39	33

Note:

Data extracted February 11, 2018

a. Fatalities includes missing persons.

Table 7**Vessels, fatalities and serious injuries by vessel type****2007-2017**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Vessels involved in shipping accidents with fatalities or serious injuries	4	14	9	7	4	7	4	4	7	5	8
Barge/Tug	1	1	0	0	0	2	0	0	0	0	0
Cargo	0	3	0	0	0	0	0	1	0	0	1
Ferry/Passenger	0	1	1	1	0	0	0	0	2	2	2
Fishing	1	6	5	4	3	4	4	3	3	2	3
Other	2	3	3	2	1	1	0	0	2	1	2
Shipping accident fatalities (a)	3	21	7	11	3	5	10	4	13	6	4
Barge/Tug	1	0	0	0	0	1	0	0	0	0	0
Cargo	0	7	0	0	0	0	0	2	0	0	0
Ferry/Passenger	0	0	0	4	0	0	0	0	6	0	2
Fishing	1	10	7	7	2	2	10	2	6	6	1
Other	1	4	0	0	1	2	0	0	1	0	1
Shipping accident serious injuries	3	4	5	5	2	6	0	1	12	5	7
Barge/Tug	0	2	0	0	0	1	0	0	0	0	0
Cargo	0	0	0	0	0	0	0	0	0	0	1
Ferry/Passenger	0	2	1	0	0	0	0	0	2	4	2
Fishing	0	0	0	1	1	3	0	1	1	0	3
Other	3	0	4	4	1	2	0	0	9	1	1
Vessels involved in accidents aboard ship	77	71	58	64	41	53	61	52	35	43	45
Barge/Tug	8	9	6	5	4	1	3	4	0	4	2
Cargo	25	22	16	22	13	23	17	21	5	12	18
Ferry/Passenger	8	8	8	8	6	3	7	5	8	5	5
Fishing	24	17	20	17	17	21	25	18	21	18	14
Other	12	15	8	12	1	5	9	4	1	4	6
Accident aboard ship fatalities (a)	12	9	8	7	13	9	8	8	6	1	7
Barge/Tug	1	1	1	0	1	0	1	0	0	0	0
Cargo	2	3	0	1	1	2	2	1	0	0	2
Ferry/Passenger	0	0	1	2	1	1	0	0	1	0	2
Fishing	6	4	4	4	10	6	5	6	5	0	2
Other	3	1	2	0	0	0	0	1	0	1	1
Accident aboard ship serious injuries	61	56	49	70	30	42	49	42	30	42	39
Barge/Tug	7	6	4	5	3	0	2	4	0	4	3
Cargo	19	18	16	36	12	21	12	18	5	12	15
Ferry/Passenger	7	8	6	5	6	2	7	5	7	5	4
Fishing	18	12	16	13	8	15	19	12	17	18	12
Other	10	12	7	11	1	4	9	3	1	3	5

Note:

Data extracted February 11, 2018

a. Fatalities includes missing persons.

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 TSB Regulations.

Marine occurrence

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

Marine accident

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

Accident aboard ship

- a person is killed or sustains a serious injury as a result of
 - boarding, being on board or falling overboard from the ship, or
 - coming into direct contact with any part of the ship or its contents;

Shipping accident

- the ship
 - sinks, founders or capsizes,
 - is involved in a collision (includes strikings and contacts)
 - sustains a fire or an explosion,
 - goes aground,
 - sustains damage that affects its seaworthiness or renders it unfit for its purpose, is missing or abandoned

Marine incident

- a person falls overboard from the ship,
- makes unforeseen contact with the bottom without going aground,
- fouls a utility cable or pipe, or an underwater pipeline,
- is involved in a risk of a collision,
- sustains a total failure of
 - the navigation equipment if the failure poses a threat to the safety of any person, property or the environment,
 - the main or auxiliary machinery, or
 - the propulsion, steering, or deck machinery if the failure poses a threat to the safety of any person, property or the environment;
- all or part of the ship's cargo shifts or falls overboard; or
- is anchored, grounded or beached to avoid an occurrence,
- a crew member whose duties are directly related to the safe operation of the ship is unable to perform their duties as a result of a physical incapacitation which poses a threat to the safety of persons, property or the environment;

- there is an accidental release on board or from the ship consisting of a quantity of dangerous goods or an emission of radiation that is greater than the quantity or emission levels specified in Part 8 of the Transportation of Dangerous Goods Regulations.

Serious injury

- (a) a fracture of any bone, except simple fractures of fingers, toes or the nose;
- (b) lacerations that cause severe hemorrhage or nerve, muscle or tendon damage;
- (c) an injury to an internal organ;
- (d) second or third degree burns, or any burns affecting more than 5% of the body surface;
- (e) a verified exposure to infectious substances or injurious radiation; or
- (f) an injury that is likely to require hospitalization.

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, passenger vessels, tugs and barges.

Fishing Vessels: include vessels involved in commercial fishing.

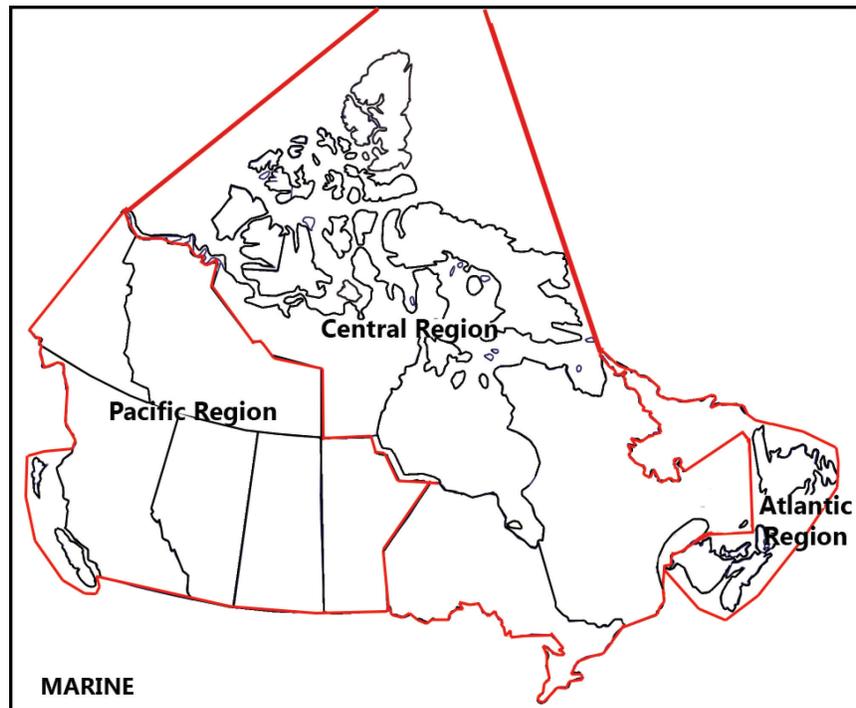
Other Vessels: include research vessels, oil exploration, exploitation and support vessels, government vessels and pleasure craft.

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.

Regional limits



Pacific Region's area of responsibility consists of the provinces of British Columbia, Alberta, Saskatchewan, and Manitoba, the Yukon and the Northwest Territories south of the 70th parallel, as well as the waters adjacent to these provinces and territories.

Central Region's area of responsibility consists of the provinces of Ontario and Quebec (including the Magdalen Islands), the territory of Nunavut, and the Northwest Territories north of the 70th parallel, as well as James Bay, Hudson Bay, the St. Lawrence Seaway, and the Great Lakes waterways up to the Canada–U.S. border.

Atlantic Region's area of responsibility consists of the provinces of New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador, as well as the waters adjacent to these provinces.