HELSINKI COMMISSION
Baltic Marine Environment
Protection Commission

Report on shipping accidents in the Baltic Sea area during 2009

Introduction

Reports on shipping accidents in the Baltic Sea area have been compiled since 2000. In 2004 a new reporting format was developed and used for the reporting of accidents starting 2004. For that reason the data for 2003 and the subsequent years are not fully comparable. The changed reporting is interpreted as a reason for the increased number of accidents in 2004 and subsequent years, when compared to 2003.

All Contracting States have provided data on shipping accidents for 2009.

According to the agreed procedure all accidents (including but not limited to grounding, collision with other vessel or contact with fixed structures (offshore installations, wrecks, etc.), disabled vessel (e.g. machinery and/or structure failure), fire, explosions, etc.), which took place in territorial seas or EEZ of the Contracting Party and involved tankers over 150 GT and/or other ships over 400 GT irrespectively if there was pollution or not are reported.

Ship traffic in the Baltic

IMO regulations require Automatic Identification System (AIS) transponders to be fitted aboard all ships of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages and all passenger ships irrespective of size. The AIS enables the identification of the name, position, course, speed, draught and cargo of ships and displays all available data over a common background map.
The traffic statistics presented below has been generated by the HELCOM AIS database.

To get a full picture of the shipping safety in the Baltic, basic information on the intensity of shipping is of importance. According to the HELCOM AIS, there are about 2,000 ships in the Baltic marine area at any given moment, and each month around 3,500–5,000 ships ply the waters of the Baltic. The intensity of traffic can also be illustrated by the number of ships crossing the pre-defined HELCOM AIS lines as presented in ***Figures 1*** and ***2*** (ships according to the type of vessels and their draught, respectively). A snapshot illustrating the spatial distribution of shipping activities in the whole Baltic at a specific moment can be seen in ***Figure 3*** and images of the traffic on the Baltic Sea based on AIS signal within time periods of two days and one week are shown in ***Figures 4*** and ***5***. The numeric data behind maps in Figures 1 and 2 are presented in ***Tables 1 and 2***.

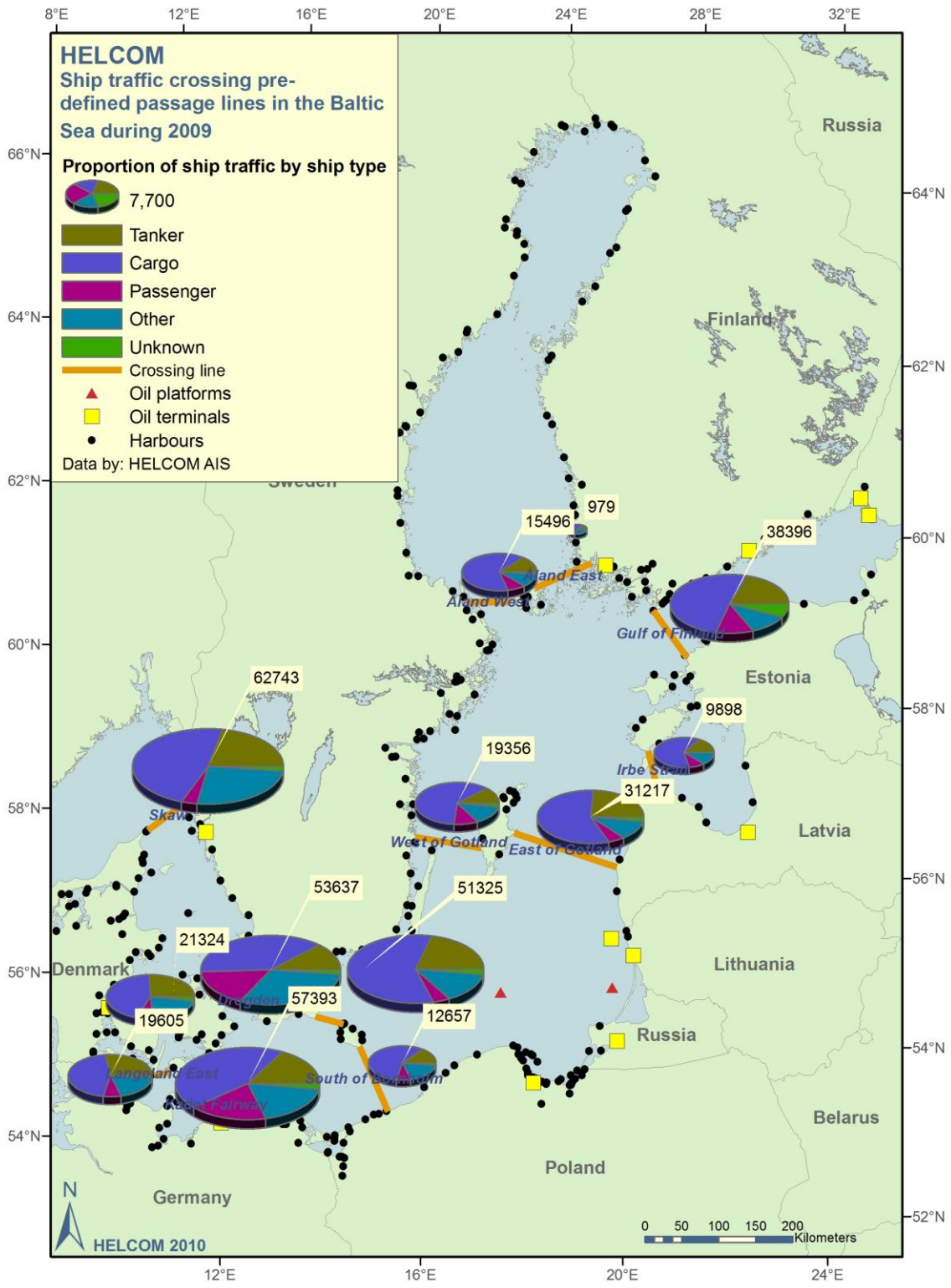


Figure 1. Number of ships crossing AIS fixed lines in the Baltic Sea according to the type of the vessels, 2009.

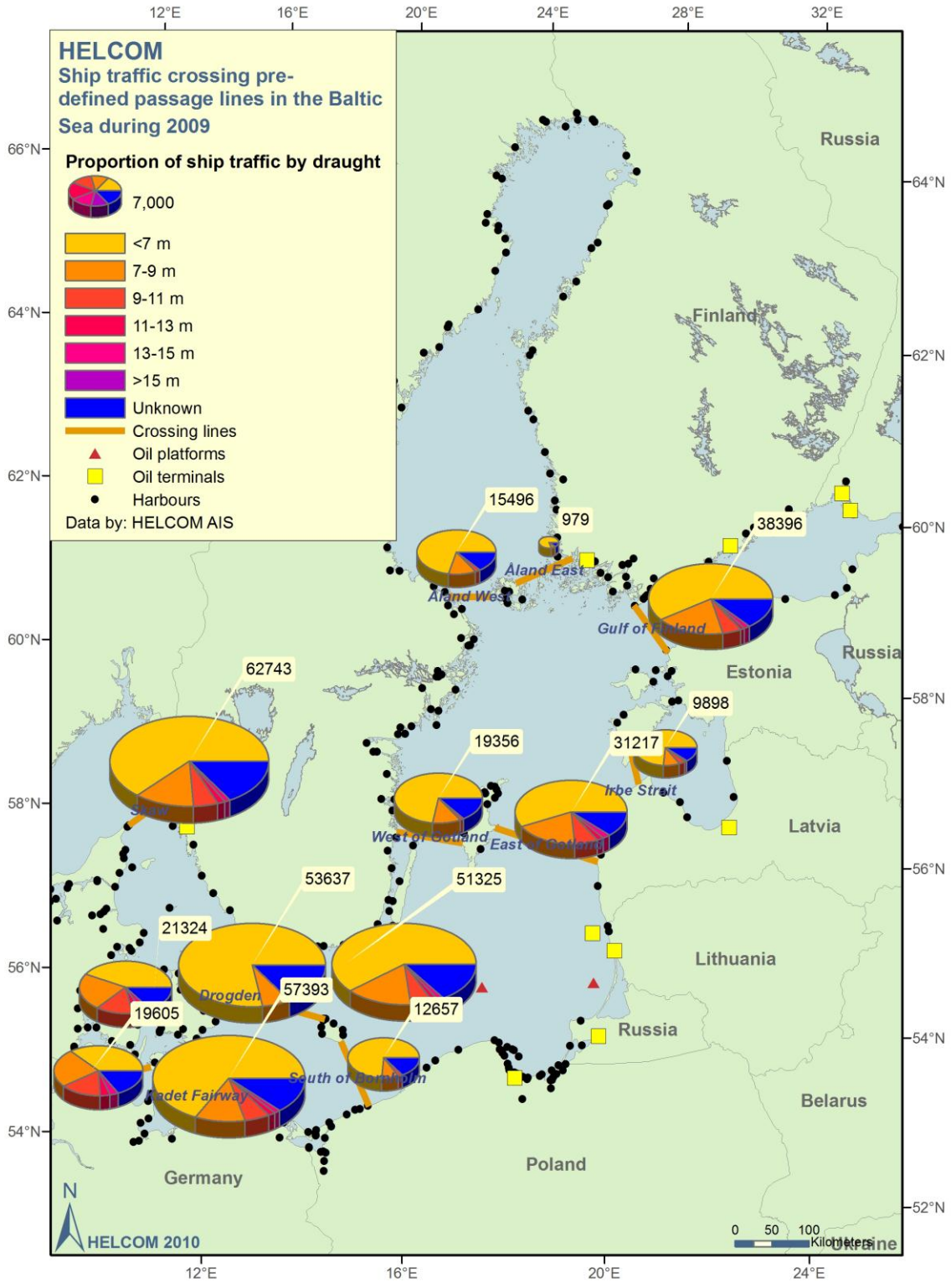


Figure 2. Number of ships crossing AIS fixed lines in the Baltic Sea according to the draught, 2009.

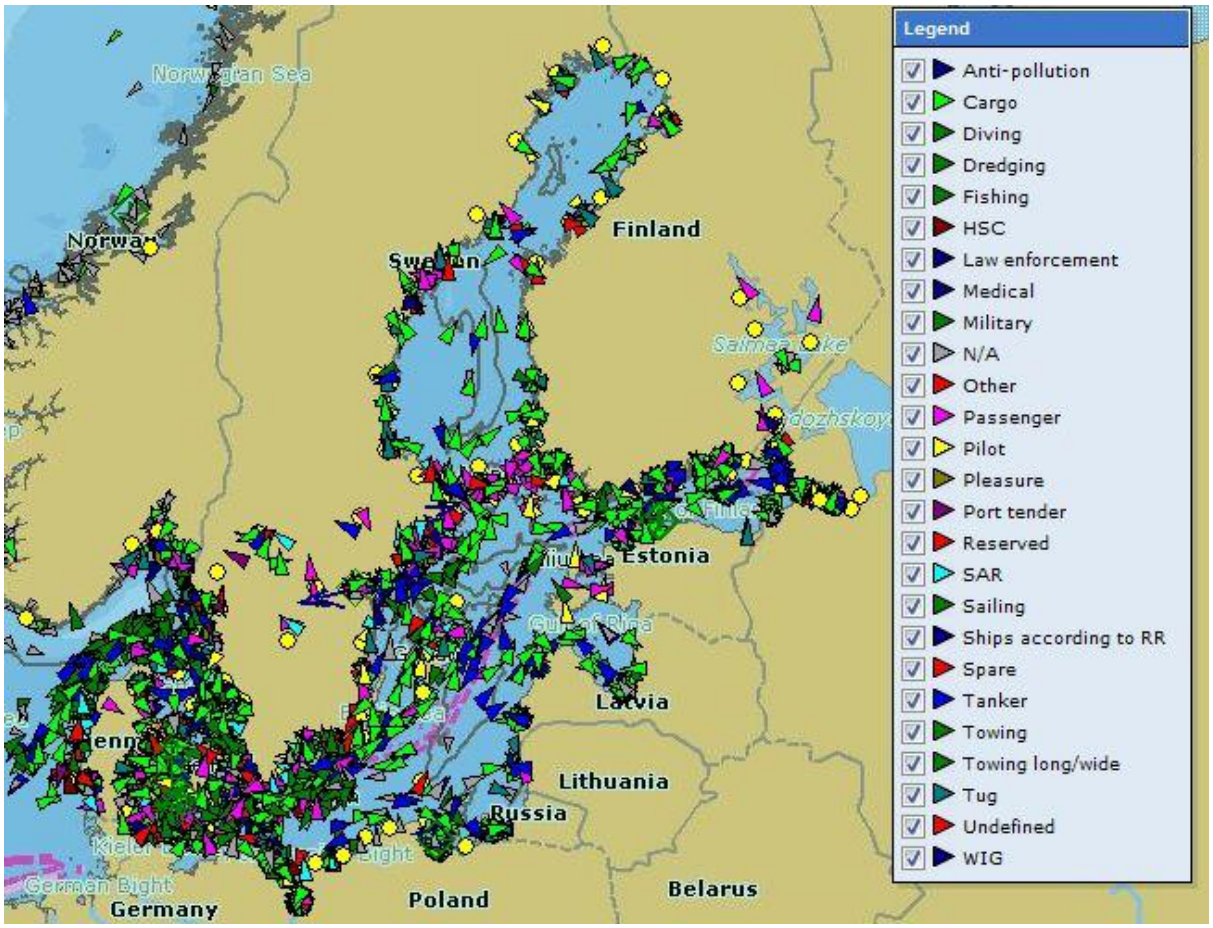
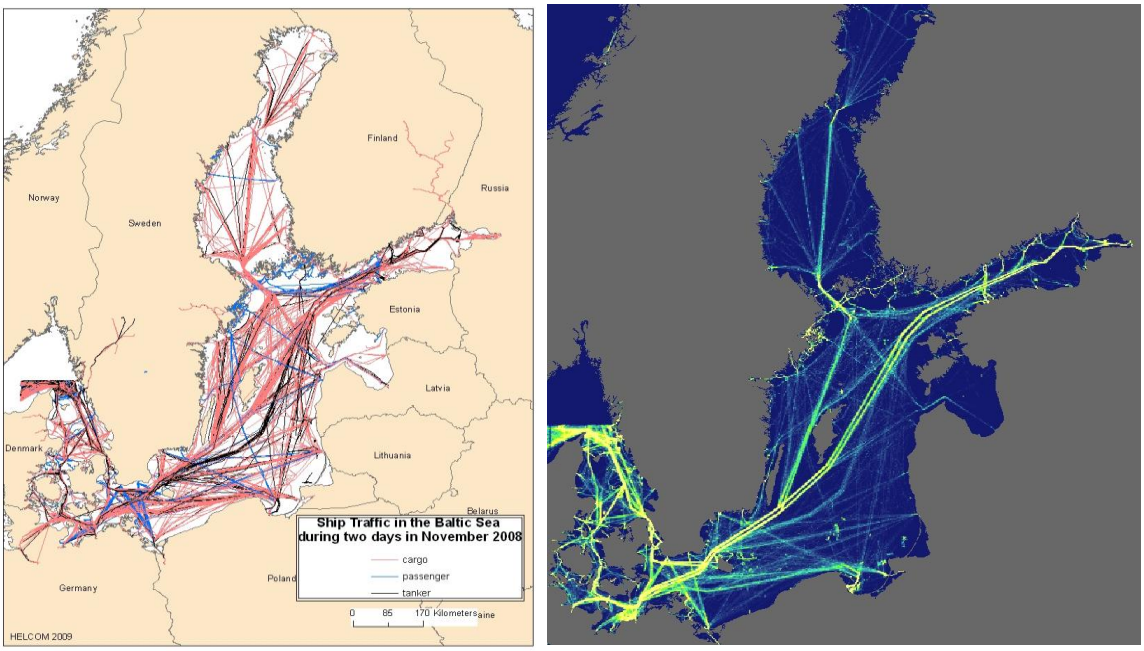


Figure 3. Snapshot of ship traffic in the Baltic Sea on 26 January 2010. Note: the yellow dots illustrate AIS stations and the arrowheads depict different types of ships and direction of travel.



Figures 4 and 5. The figure on the left illustrates cargo, tanker and passenger ship traffic on the Baltic Sea during two days in November 2008. The figure on the right shows the density of shipping traffic during one week in 2008, with the busiest routes highlight in yellow.

Location	Type of ship					
	Passenger	Cargo	Tanker	Other	No info	Total
The Skaw	2816	29078	13042	16930	877	62743
The Great Belt East Bridge	1759	3002	5513	4519	531	21324
Drogden	7883	21751	5419	17813	771	53637
Langeland East	1856	8535	5419	3563	232	19605
Kadet Fairway	12368	25524	8313	10117	1071	57393
North of Bornholm	2592	31299	10143	6316	975	51325
South of Bornholm	1208	7462	1529	2228	230	12657
West of Gotland	2359	12268	1916	2450	363	19356
East of Gotland	1763	18401	7421	3015	617	31217
Åland West	1425	10628	1779	1475	189	15496
Åland East	9	545	110	306	9	979
Gulf of Finland	5349	19749	7031	4115	2152	38396
Irbe Strait	1021	6353	1386	1059	79	9898
Total	**42408**	**200595**	**69021**	**73906**	**8096**	**394026**
Percentage of tot.	**10.8**	**50.9**	**17.5**	**18.8**	**2.1**	**100**

Table 1. Number of ships crossing AIS fixed lines in the Baltic Sea according to the type of the vessels, 2009.

Location	Draught							
	<7 m	7-9 m	9-11 m	11-13 m	13-15 m	>15 m	Unknown	Total
The Skaw	38172	9334	4091	1192	813	310	8831	62743
The Great Belt East Bridge	9274	3878	3389	930	802	123	2928	21324
Drogden*	41840	4137	72	2	0	5*	7581	53637
Langeland East	7464	3890	3394	929	800	126	3002	19605
Kadet Fairway	37561	8017	3776	916	803	113	6207	57393
North of Bornholm	30252	9156	3345	847	785	109	6831	51325
South of Bornholm	9327	1249	295	33	2	4	1747	12657
West of Gotland	13872	2623	292	38	32	11	2488	19356
East of Gotland	17353	6426	2633	682	725	135	3263	31217
Aland West	10874	2273	357	26	36	18	1912	15496
Aland East	787	83	3	0	0	0	106	979
Gulf of Finland	22147	8204	2309	434	658	108	4536	38396
Irbe Strait	7288	1053	385	127	1	2	1042	9898
Total	**246211**	**60323**	**24341**	**6156**	**5457**	**1064**	**50474**	**394026**
Percentage of tot.	**62.5**	**15.3**	**6.2**	**1.6**	**1.4**	**0.3**	**12.8**	**100.0**

*) For ships passing the Drogden the maximum draught is 8 m; therefore these numbers are probably due to a reporting error.

Table 2. Number of ships crossing AIS fixed lines in the Baltic Sea according to the draught, 2009.

HELCOM AIS has been in operation since July 2005 providing additional information for the analysis of each individual accident case by respective Contracting States and the findings of such investigations are discussed during meetings of HELCOM groups with a view to identifying the possible need and possibilities of HELCOM actions in this area.

The HELCOM AIS historical statistics on ship traffic allow for the assessment of annual changes in traffic intensity. Since 2006, HELCOM has been following the trends in vessel traffic crossing fixed AIS lines, which are shown in ***Figure 6*** and ***Table 3***. Although overall ship traffic is increasing (and is expected to continue doing so), a part of the increase in numbers could also be explained by the growing number of vessels registered in the AIS system. The decrease in AIS registered ship crossings in 2009 for cargo, passenger and other ship types is likely to be due to decreased shipping activity resulting from the economic recession.

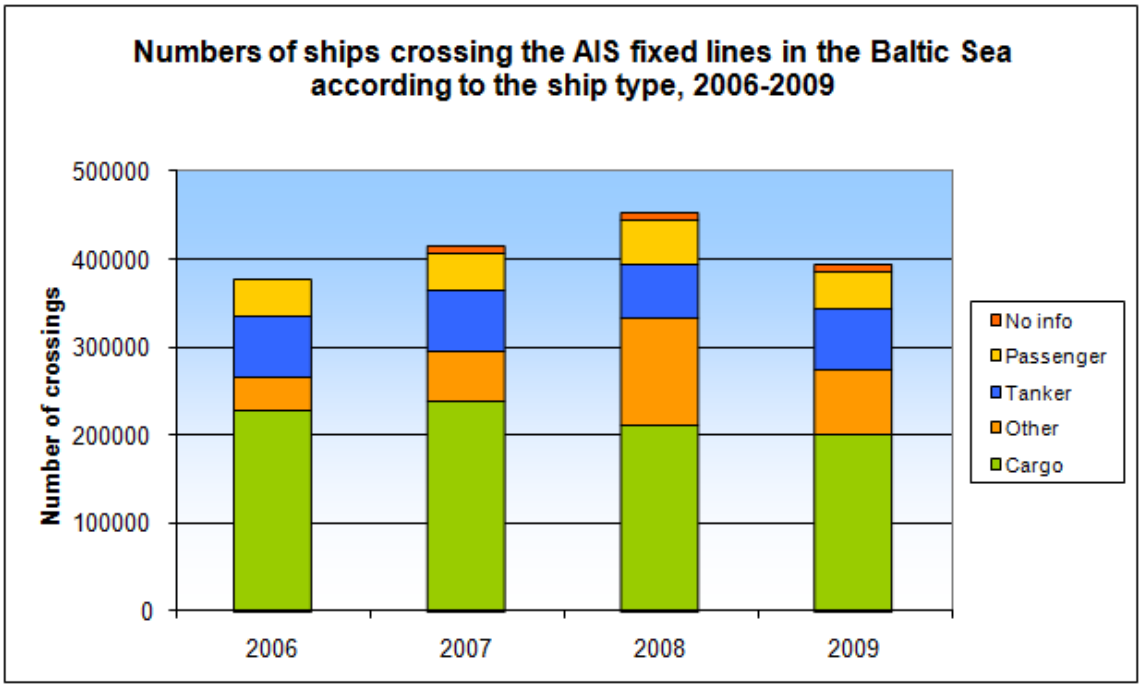


Figure 6. Number of ships crossing fixed AIS lines in the Baltic Sea during 2006-2009, shown here by ship type.

	Passenger	Cargo	Tanker	Other	No info	Total
2006	42731	226855	67458	39627	-	376671
%	*11.3*	*60.2*	*17.9*	*10.5*	*-*	*100.0*
2007	43215	237342	69335	56981	6901	413774
%	*10.4*	*57.4*	*16.8*	*13.8*	*1.7*	*100.0*
2008	49355	210021	61996	122029	10297	453698
%	*10.9*	*46.3*	*13.7*	*26.9*	*2.3*	*100*
2009	42408	200595	69021	73906	8096	394026
%	10.8	50.9	17.5	18.8	2.1	100

Table 3. Number of ships crossing fixed AIS lines in the Baltic Sea during 2006-2009.

For more information about maritime traffic in the Baltic Sea region, see: http://www.helcom.fi/shipping/navigation/en_GB/navigation/.

Overview of accidents in the Baltic Sea

According to the reports from the Contracting States there were 105 ship accidents in the HELCOM area in 2009 (***Figure 7***), which is 30 less than the year before (decrease of 22%) and 15 less than in 2007 (decrease of 13%). The significant decrease in shipping accidents could be partially linked to the 13% reduction in shipping traffic from 2008 to 2009.

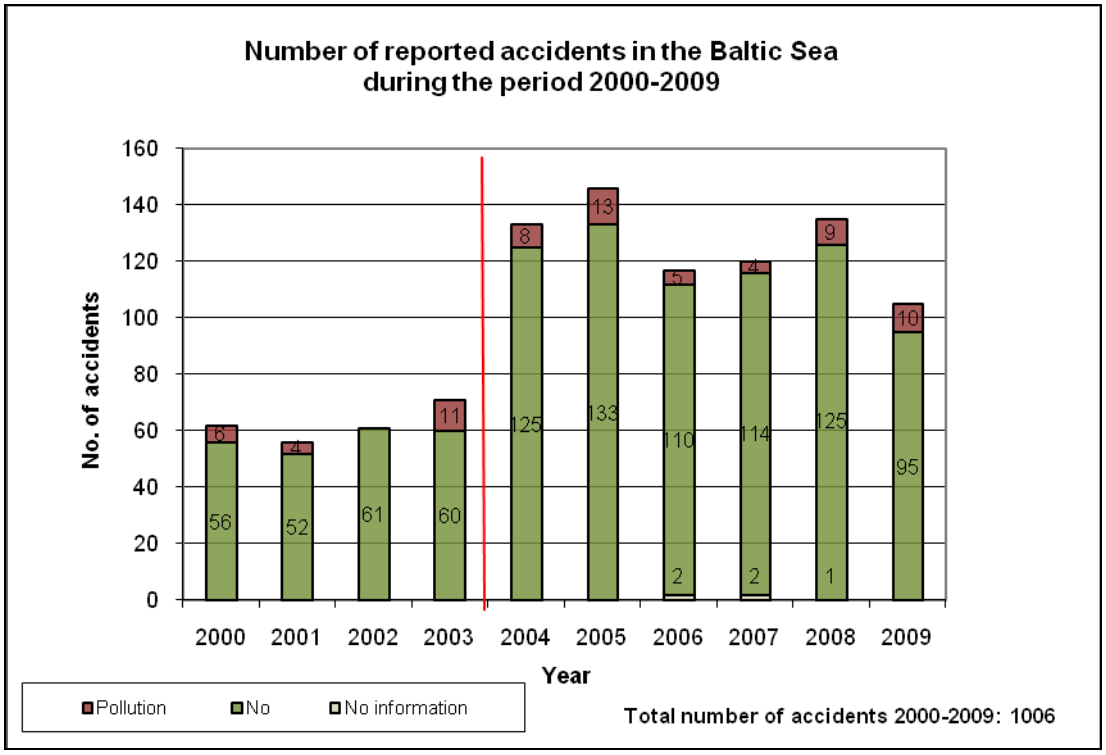


Figure 7

The spatial distribution of the reported accidents in 2009 is presented in ***Figure 8***. As can be noted, almost all accidents occurred very close to shore or in harbours.

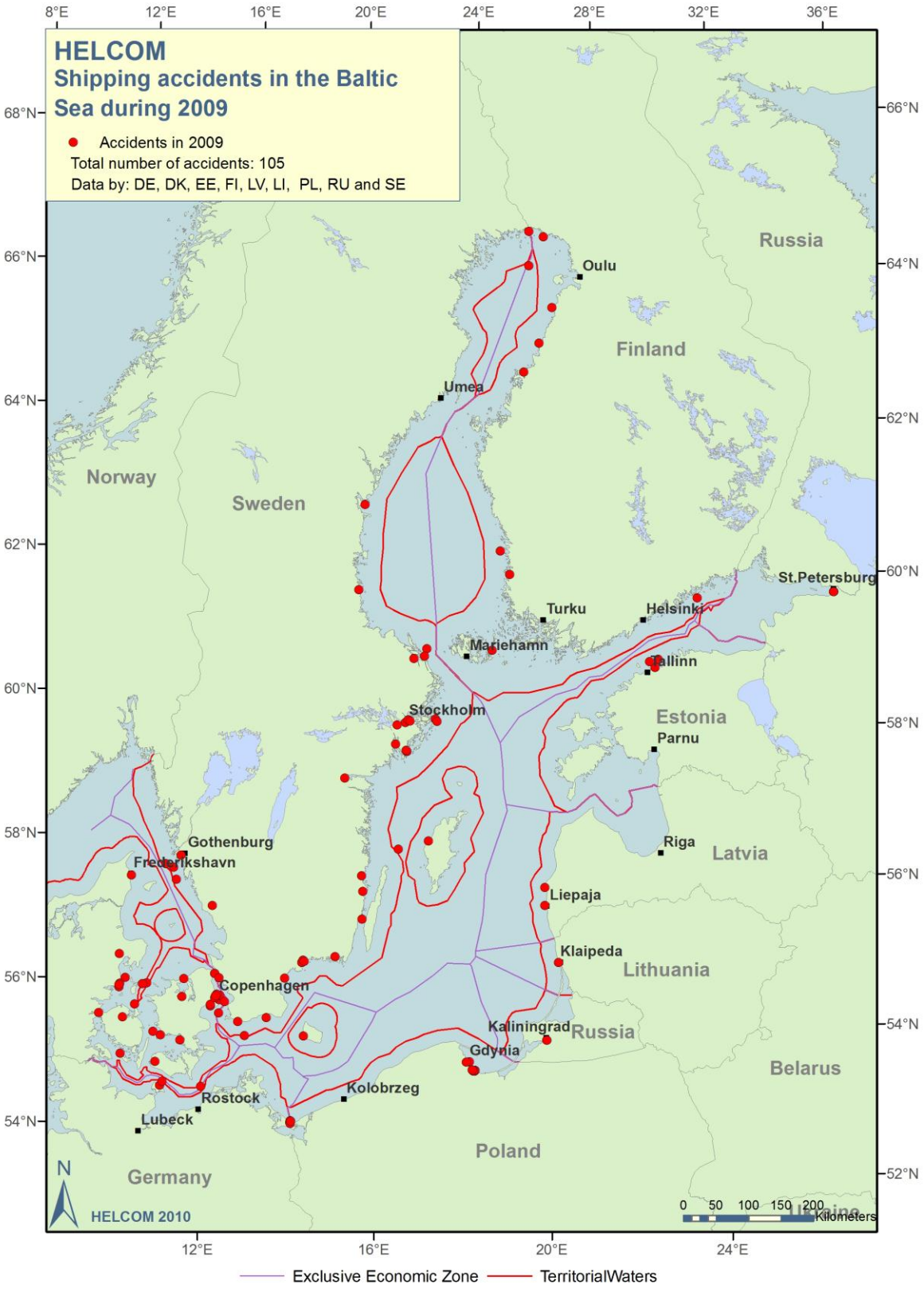

HELCOM
Shipping accidents in the Baltic Sea during 2009
Accidents in 2009
Total number of accidents: 105
Data by: DE, DK, EE, FI, LV, LI, PL, RU and SE
8°E
12°E
16°E
20°E
24°E
28°E
32°E
36°E
68°N
66°N
64°N
62°N
60°N
58°N
56°N
54°N
52°N
Russia
Finland
Norway
Sweden
Estonia
Latvia
Lithuania
Belarus
Poland
Germany
Oulu
Umea
Turku
Helsinki
St.Petersburg
Mariehamn
Tallinn
Stockholm
Parnu
Riga
Liepaja
Klaipeda
Gothenburg
Frederikshavn
Copenhagen
Kaliningrad
Gdynia
Kolobrzeg
Rostock
Lubeck
N
HELCOM 2010
0 50 100 150 200
Kilometers
Exclusive Economic Zone
TerritorialWaters

Figure 8

In 2009, groundings and collisions accounted for 36% and 32% of shipping accidents reported, respectively (***Figure 9***). Pollution, fire, machinery damage and other types of accidents each made up less than 10% of the total number of reported accidents.

Ten accidents resulted in pollution in 2009. This is one more than in 2008, and six more than in 2007. On the other hand, most of the pollution accidents reported in 2008 and 2009 were not related to grounding or collision, but rather occurred during e.g. fuel transfer.

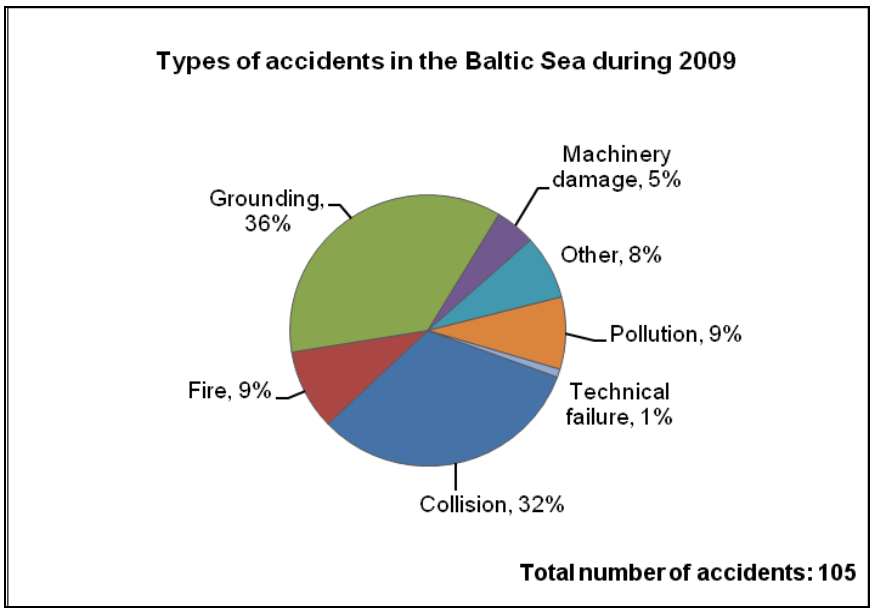


Figure 9

The share of collision accidents in 2009 (***Figure 9***) is similar to their share in the total number of accidents during 2000-2009 (***Figure 10***). The share of groundings was significantly lower in 2009 compared to their share of the past 10-year period.

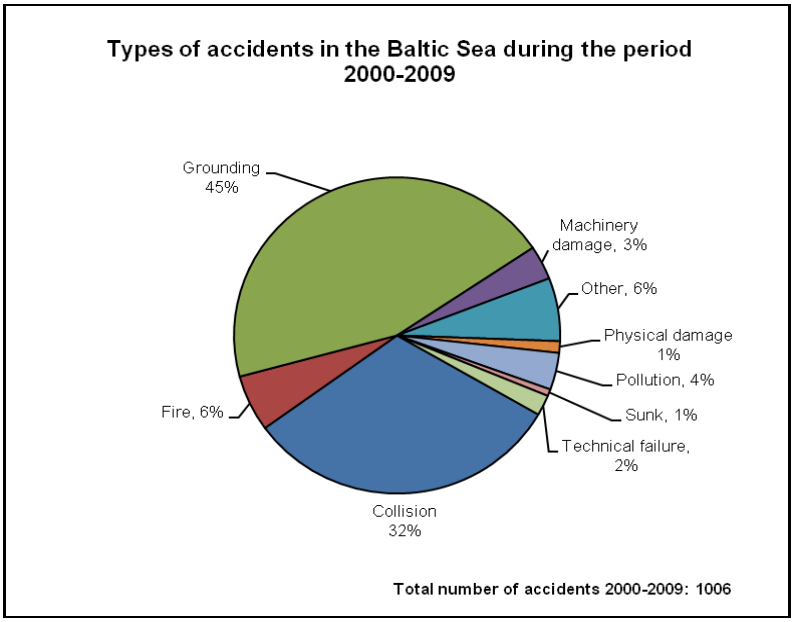


Figure 10

Spatial distribution of different types of reported accidents in the Baltic Sea in 2009 is presented in ***Figure 11.***

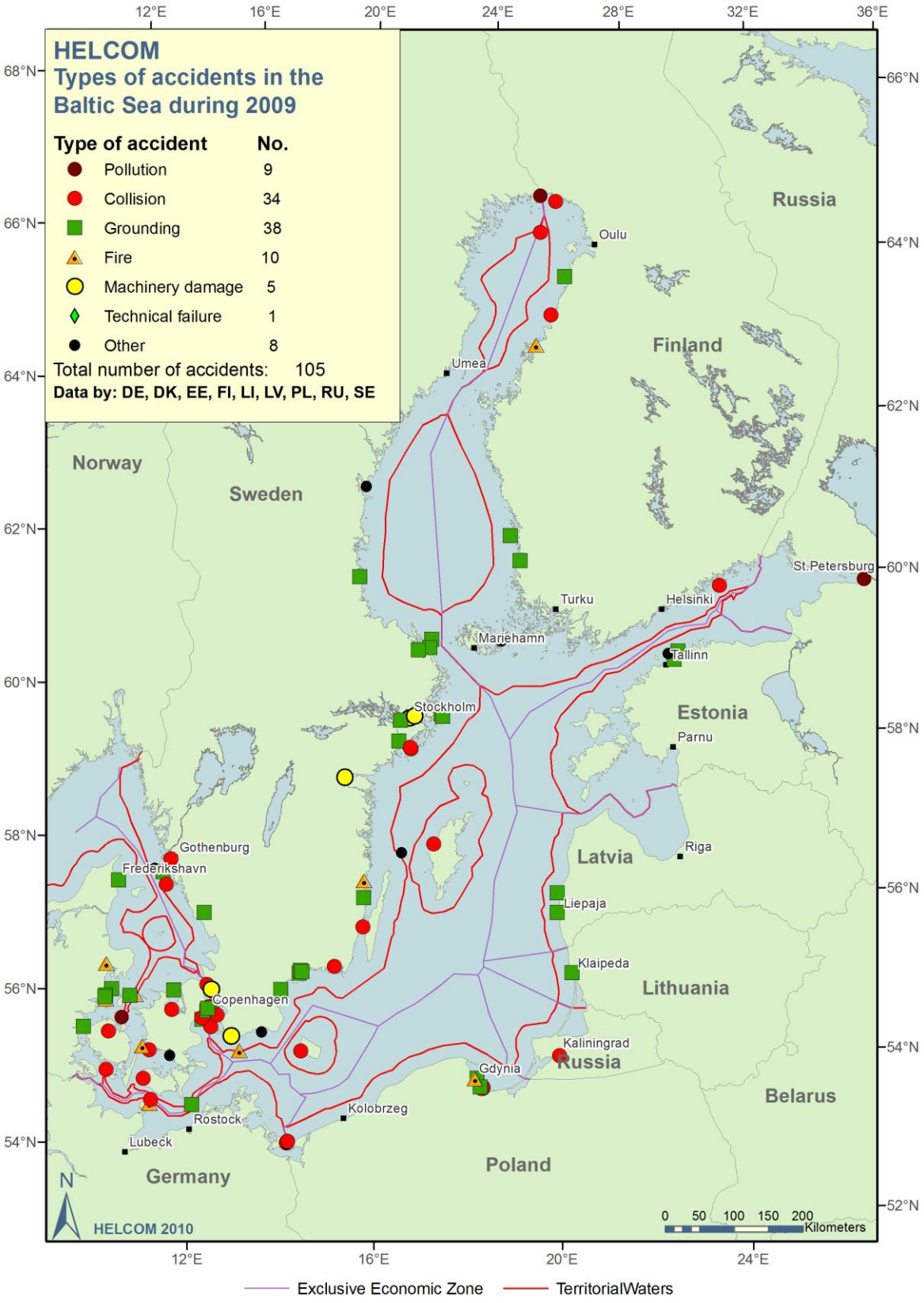


Figure 11

Types of vessels involved in the accidents

As can be seen from ***Figure 12***, cargo vessels and passenger vessels were most commonly involved in accidents in 2009 (28% and 26%, respectively). Tankers were involved in approximately a fifth of all reported accidents.

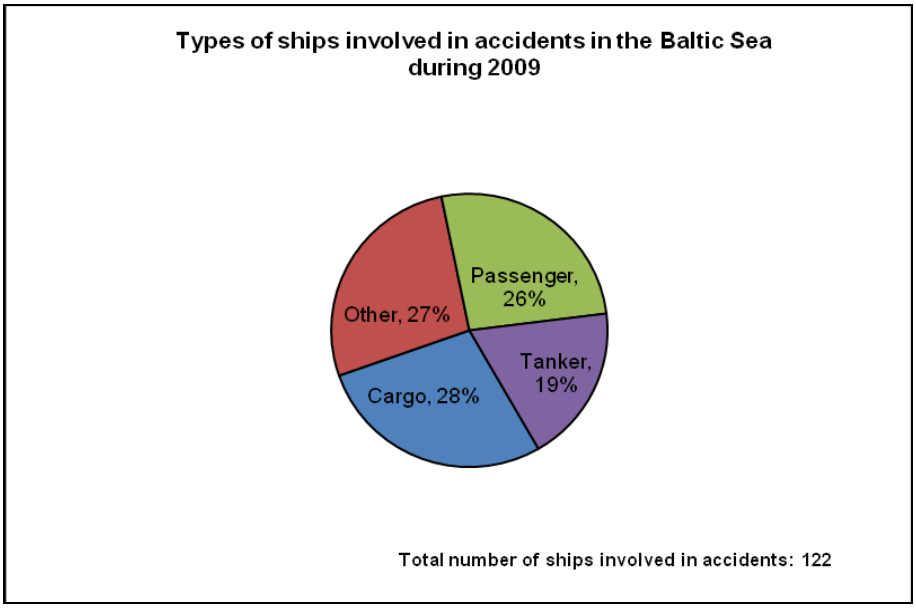


Figure 12

As tankers are often an issue of high concern, a map on accidents involving tankers from 2000 to 2009 (***Figure 13***) is also presented here. Of the 22 tankers involved in accidents in 2009, 5 were single hull, 5 double hull and for 12 information about hull type was not available. None of the single-hull tankers were involved in accidents resulting in pollution.

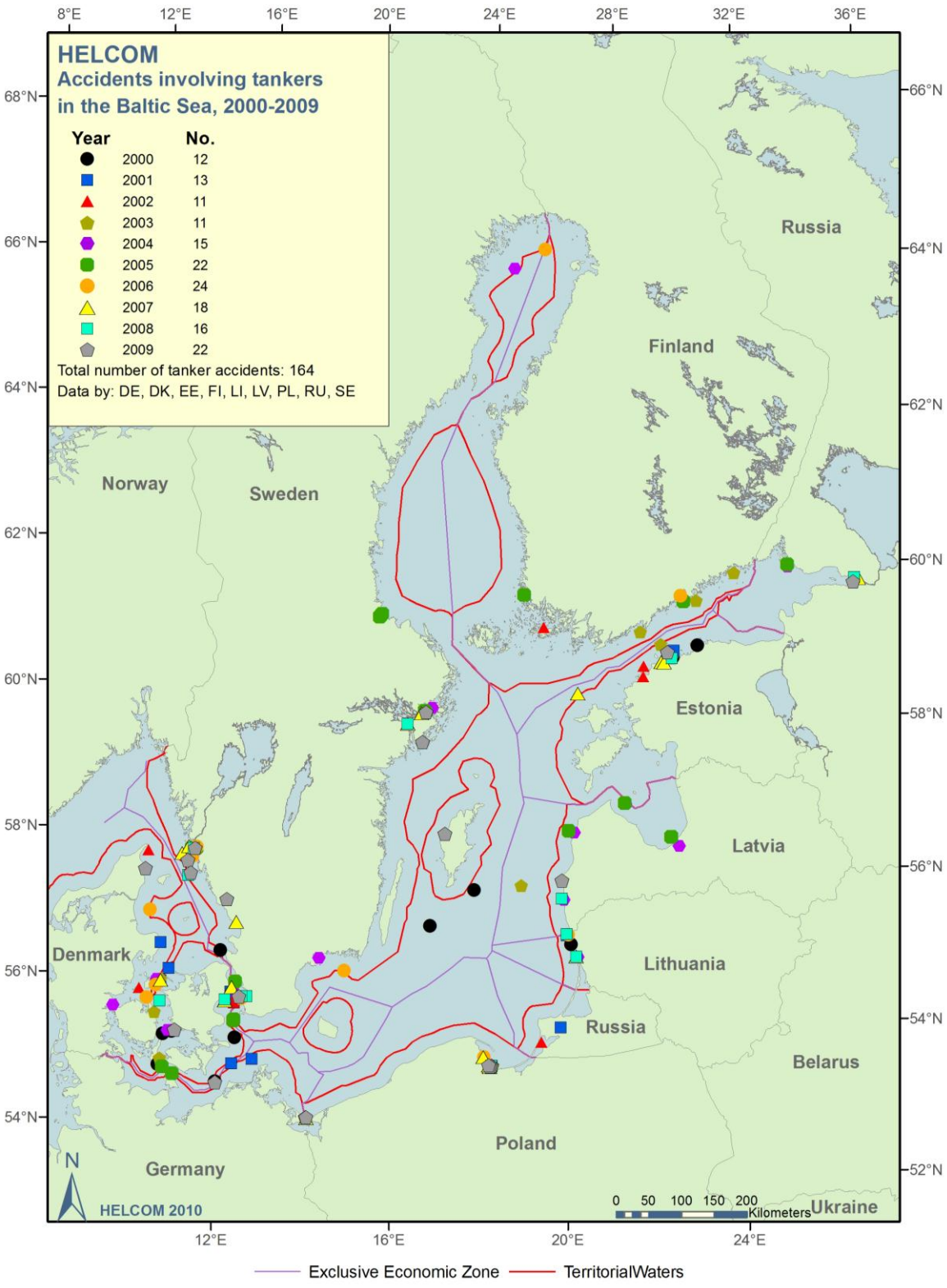

HELCOM
Accidents involving tankers
in the Baltic Sea, 2000-2009
Year No.
2000 12
2001 13
2002 11
2003 11
2004 15
2005 22
2006 24
2007 18
2008 16
2009 22
Total number of tanker accidents: 164
Data by: DE, DK, EE, FI, LI, LV, PL, RU, SE
Russia
Finland
Norway
Sweden
Estonia
Latvia
Lithuania
Denmark
Russia
Belarus
Poland
Germany
Ukraine
N
HELCOM 2010
0 50 100 150 200
Kilometers
Exclusive Economic Zone
TerritorialWaters

Figure 13

Causes of accidents

Human factor was the main cause of accidents in over half (52%) of the incidents reported in 2009. External and technical factors were the reason for 15% and 20% of accidents, respectively (***Figure 14***).

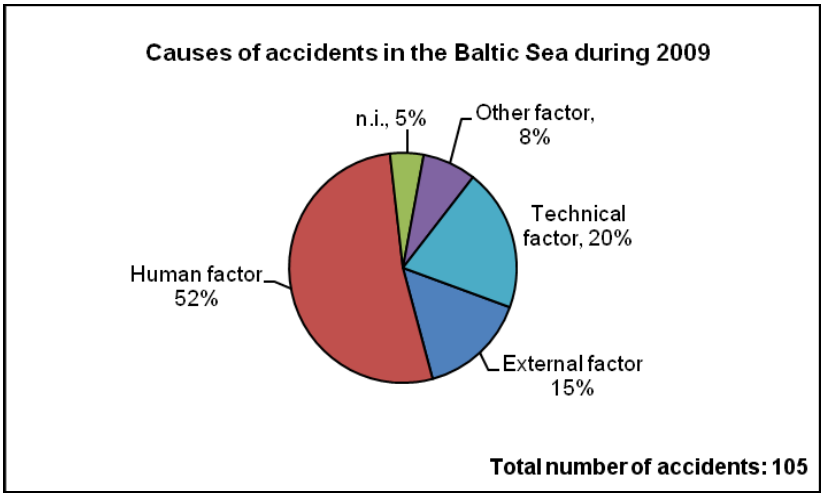


Figure 14

Spatial distribution of accidents with indication of the cause is presented in ***Figure 15***.

Six of the accidents reported in 2009 took place in icy conditions (***Figure 16***). No information was provided on ice presence for almost 10% of accidents.

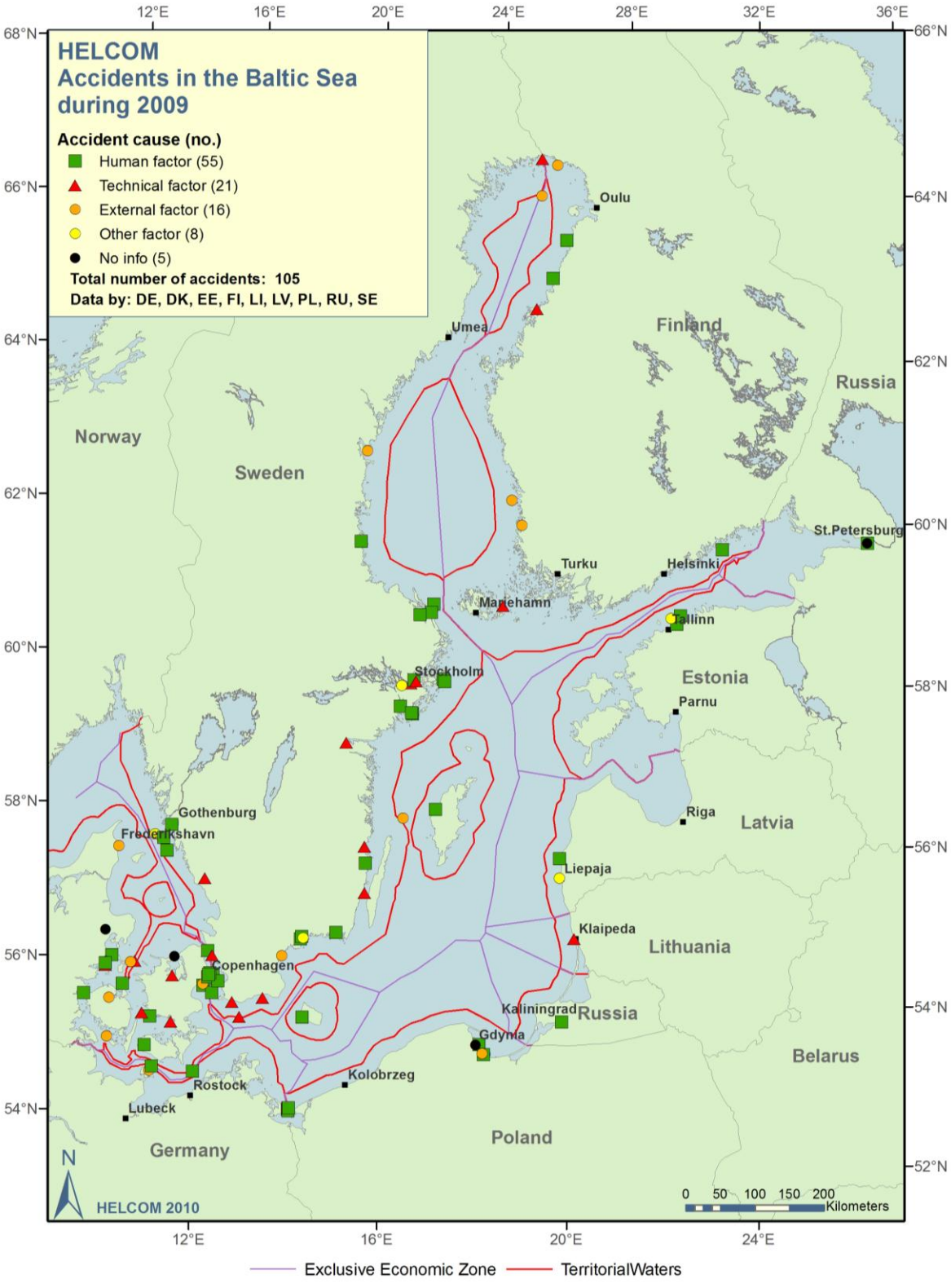

HELCOM
Accidents in the Baltic Sea during 2009
Accident cause (no.)
Human factor (55)
Technical factor (21)
External factor (16)
Other factor (8)
No info (5)
Total number of accidents: 105
Data by: DE, DK, EE, FI, LI, LV, PL, RU, SE
12°E
16°E
20°E
24°E
28°E
32°E
36°E
68°N
66°N
64°N
62°N
60°N
58°N
56°N
54°N
52°N
Oulu
Umea
Finland
Russia
Norway
Sweden
St.Petersburg
Turku
Helsinki
Mariehamn
Tallinn
Stockholm
Estonia
Parnu
Gothenburg
Frederikshavn
Riga
Latvia
Liepaja
Klaipeda
Lithuania
Copenhagen
Kaliningrad
Russia
Gdynia
Belarus
Kolobrzeg
Rostock
Lubeck
Germany
Poland
N
HELCOM 2010
0 50 100 150 200
Kilometers
Exclusive Economic Zone
TerritorialWaters

Figure 15

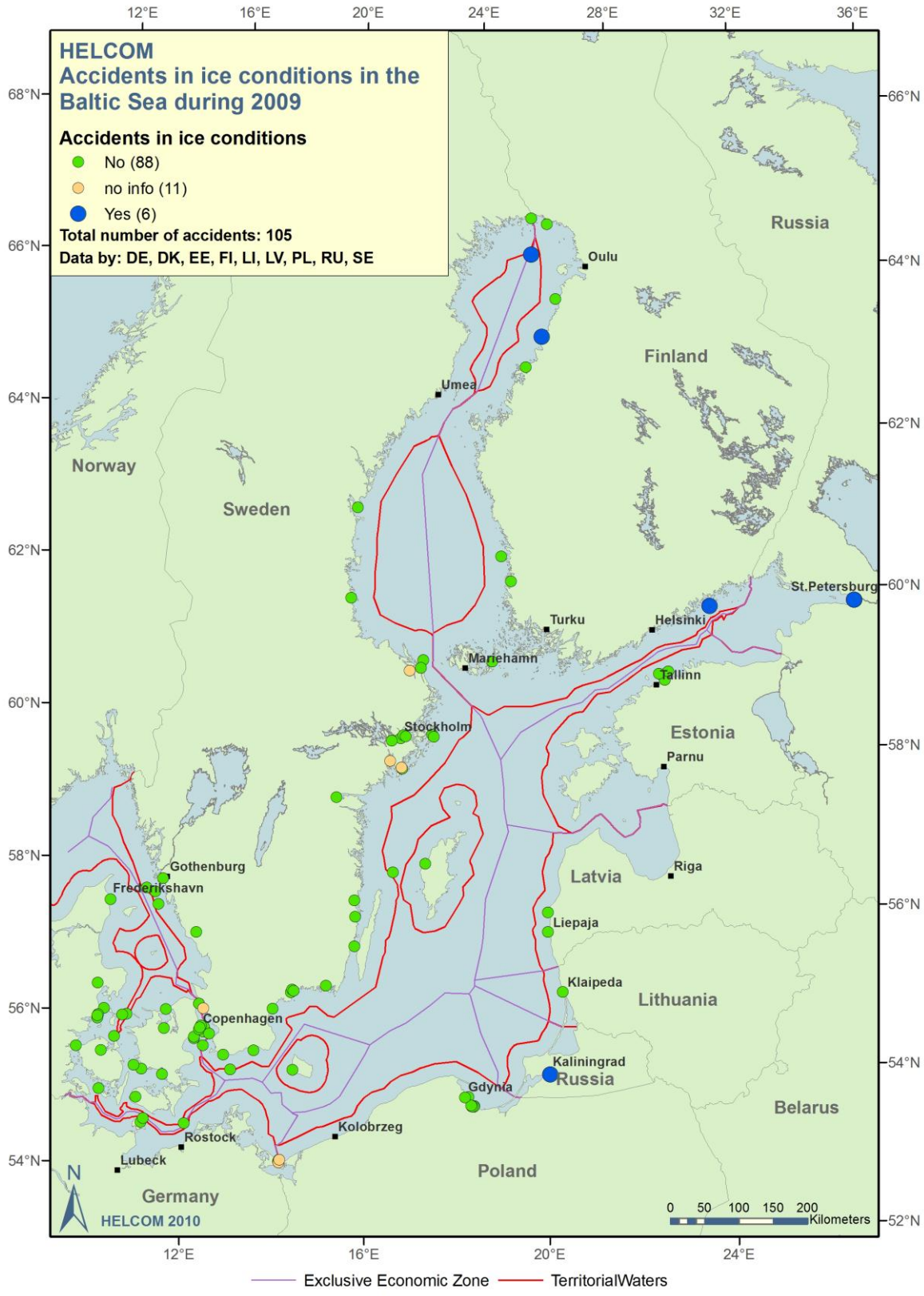


Figure 16

(Note that two accidents in ice conditions took place near St. Petersburg)

Groundings

In 2009, there were 38 reported groundings – the lowest reported amount since 2002 and almost 40% less than in 2008 (***Figure 17***). Accounting for 36% of the total number of reported accidents in 2009, groundings were still the most common type of accident in the Baltic since 2007, in contrary to 2005 and 2006 when collisions were more common. The share of groundings amongst all reported accidents has clearly dropped, as the share for the 10-year period 2000-2009 is 45%.

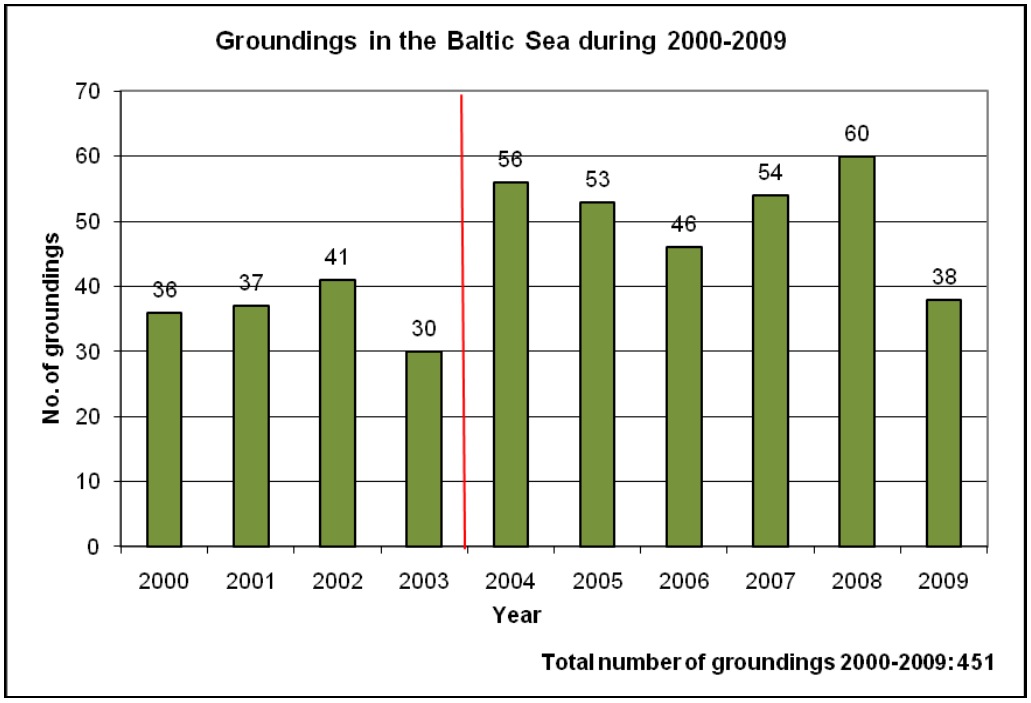


Figure 17

Figure 18 illustrates the presence/absence of a pilot on board vessels in cases of grounding accidents in 2009. Clearly the vast majority (63%) did not have a pilot on board at the time of grounding. On the other hand, most reported groundings in 2008 (68%) occurred with vessels having a draught of less than 7 meters (***Figure 19***). Small vessels are not covered by IMO's recommendations on the use of pilotage.

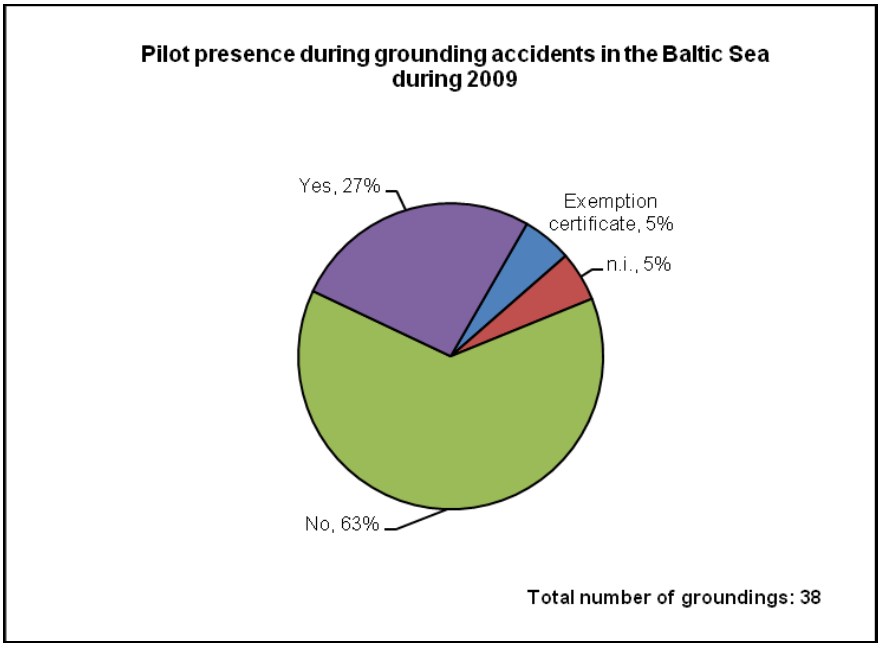


Figure 18

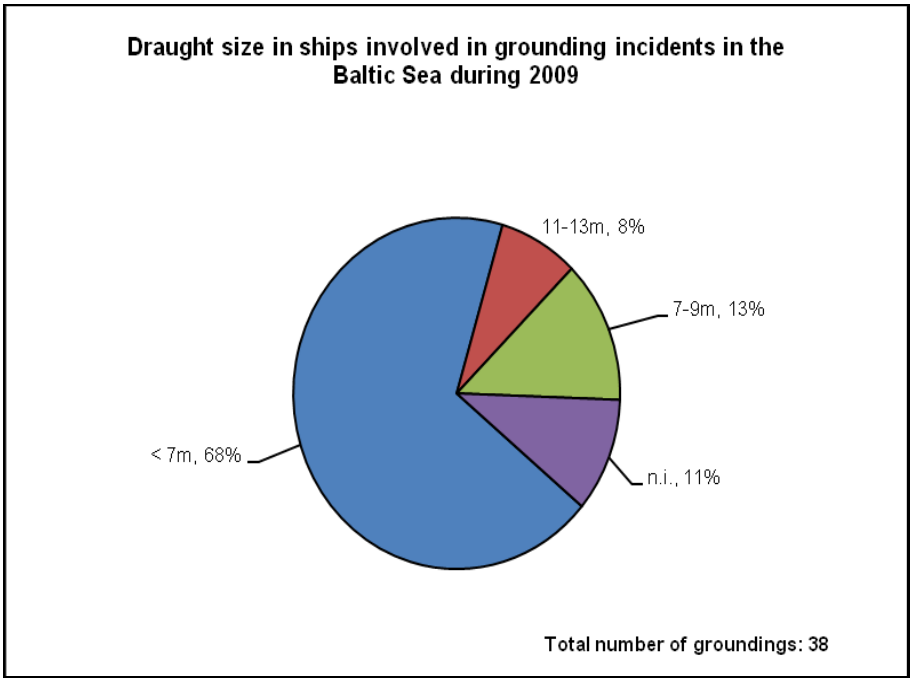


Figure 19

The map of the reported groundings in 2000-2009 (***Figure 20***) clearly indicates that the areas of primary concern are:

- Danish straits
- Gulf of Finland
- Åland/Archipelago Sea area
- Swedish coast of the Baltic Proper
- Ports.

The other areas where groundings have occurred deserve the attention of the relevant states as well.

The map of groundings in 2009 (***Figure 21***) especially points to the Danish straits and ports.

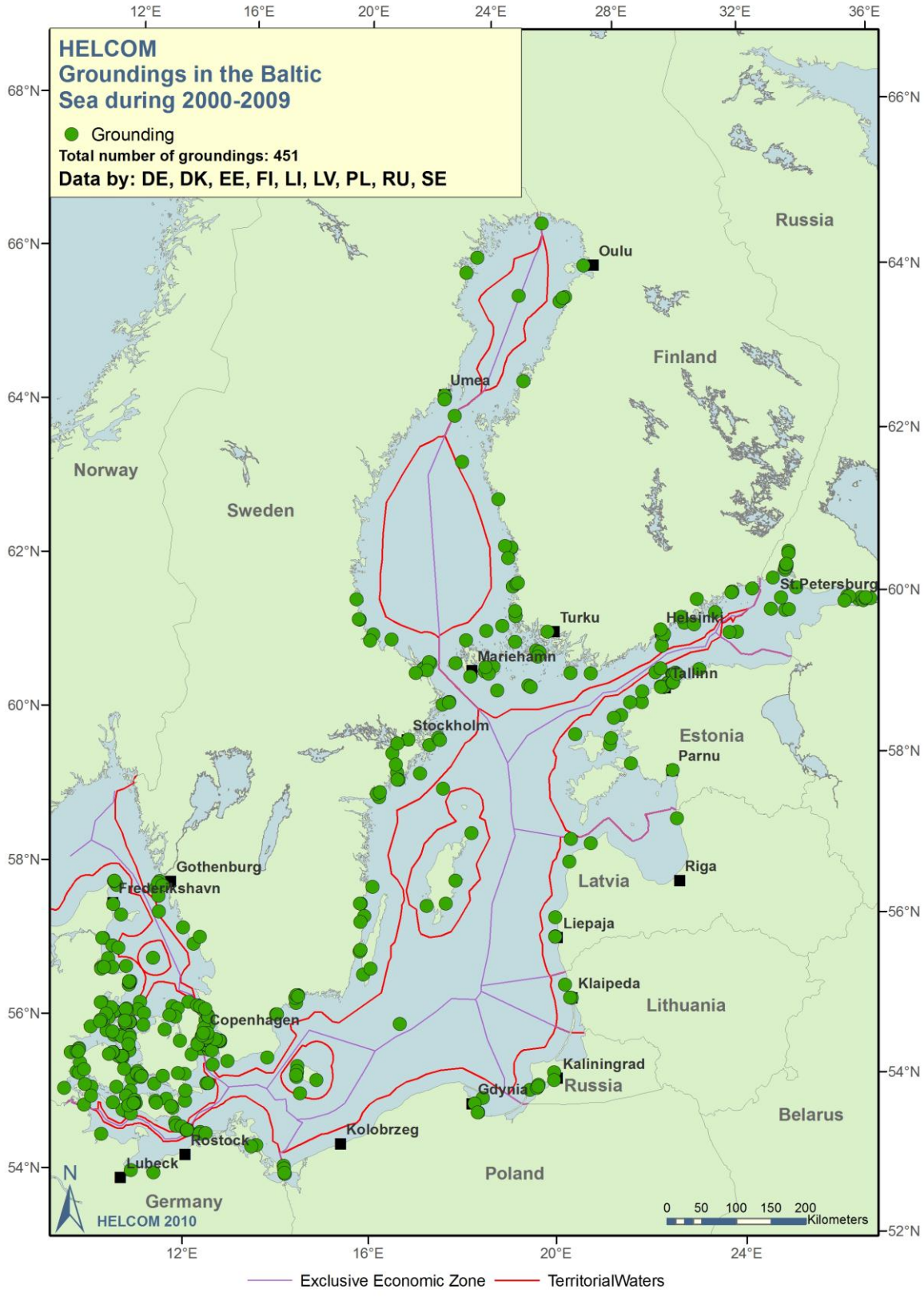

HELCOM
Groundings in the Baltic
Sea during 2000-2009
Grounding
Total number of groundings: 451
Data by: DE, DK, EE, FI, LI, LV, PL, RU, SE
12°E
16°E
20°E
24°E
28°E
32°E
36°E
68°N
66°N
64°N
62°N
60°N
58°N
56°N
54°N
52°N
Russia
Oulu
Finland
Umea
Norway
Sweden
St.Petersburg
Turku
Helsinki
Mariehamn
Tallinn
Stockholm
Estonia
Parnu
Gothenburg
Frederikshavn
Riga
Latvia
Liepaja
Klaipeda
Lithuania
Copenhagen
Kaliningrad
Russia
Gdynia
Belarus
Kolobrzeg
Rostock
Lubeck
Poland
Germany
N
HELCOM 2010
0 50 100 150 200
Kilometers
Exclusive Economic Zone
TerritorialWaters

Figure 20

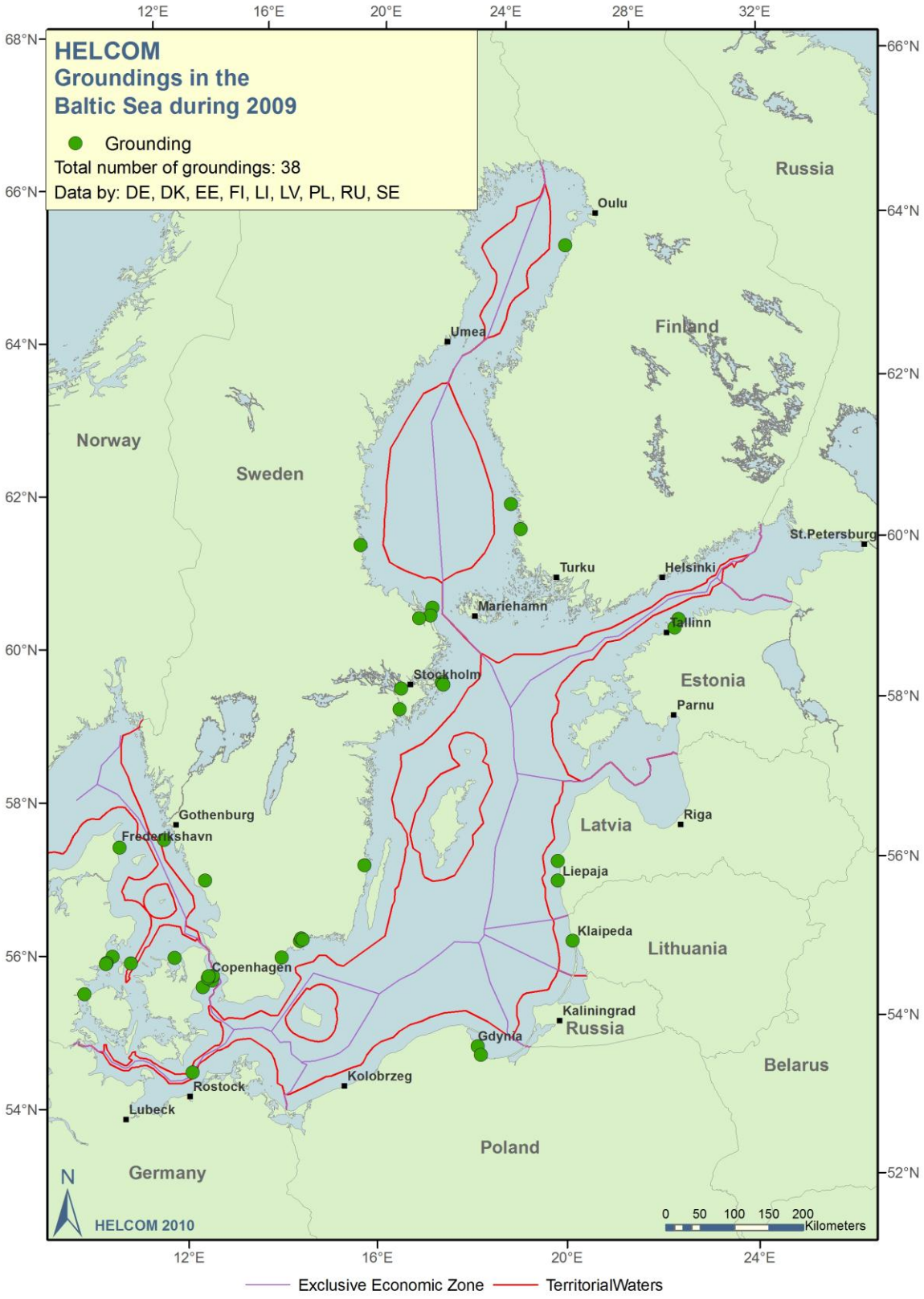

HELCOM
Groundings in the
Baltic Sea during 2009
Grounding
Total number of groundings: 38
Data by: DE, DK, EE, FI, LI, LV, PL, RU, SE
12°E
16°E
20°E
24°E
28°E
32°E
68°N
66°N
64°N
62°N
60°N
58°N
56°N
54°N
52°N
Russia
Finland
Norway
Sweden
Estonia
Latvia
Lithuania
Belarus
Poland
Germany
Oulu
Umea
Turku
Helsinki
St.Petersburg
Mariehamn
Tallinn
Stockholm
Parnu
Gothenburg
Frederikshavn
Riga
Liepaja
Klaipeda
Copenhagen
Kaliningrad
Russia
Gdynia
Kolobrzeg
Rostock
Lubeck
N
HELCOM 2010
0 50 100 150 200
Kilometers
Exclusive Economic Zone
TerritorialWaters

Figure 21

The number of groundings reported in the south western Baltic Sea decreased by more than 50% from 2008 to 2009 and by almost 60% when compared to the peak year of 2007 when 37 cases were reported (***Figures 22***). The southwestern Baltic Sea, including the Danish straits, continues to be the main problem area for groundings in the Baltic, with 38% of the 2009 groundings occurring in the area, and 56% of all groundings registered for the period 2000-2009 (***Figures 22 and 23***).

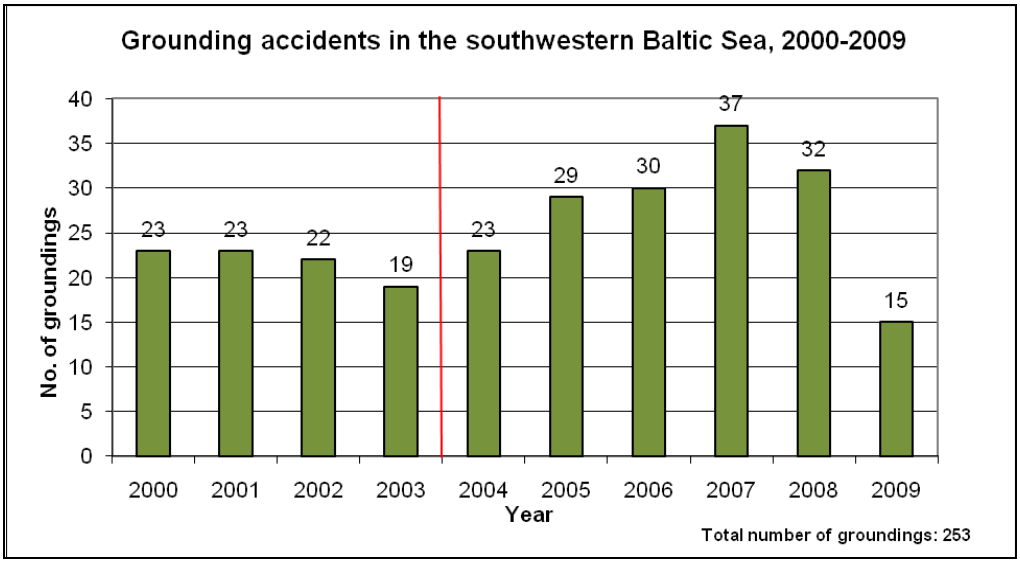


Figure 22

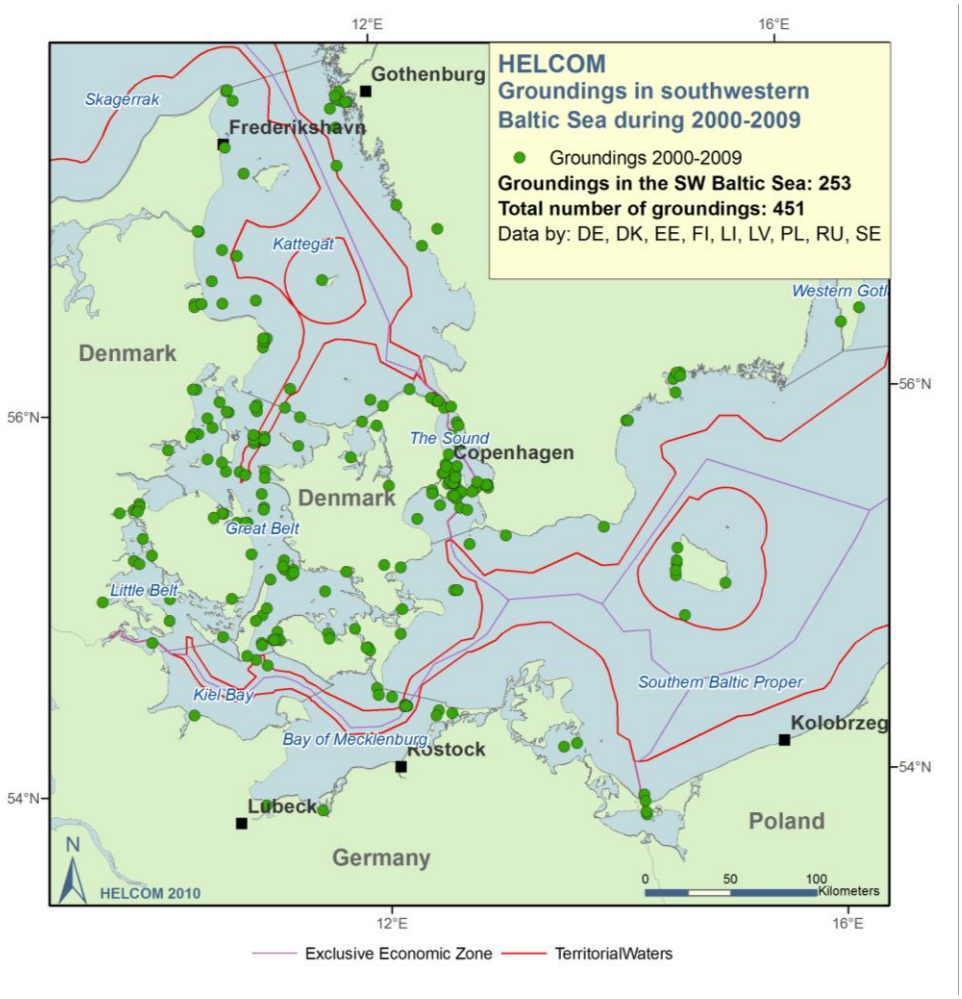


Figure 23

The number of the reported groundings in the Gulf of Finland in 2009 (two groundings) has returned to the low level reported in 2006 and 2007 after a high of nine incidents in 2008 (***Figure 24***).

Figure 24

Collisions

Amounting to 34 cases (32%) of all accidents in 2009 and 319 cases (32%) for the period 2000-2009; collisions are the second most frequent type of shipping accidents in the Baltic. The number of reported collisions has decreased in the last few years, with a decrease of seven from 2008 to 2009 and a decrease of about 37% since 2006 (***Figure 25***).

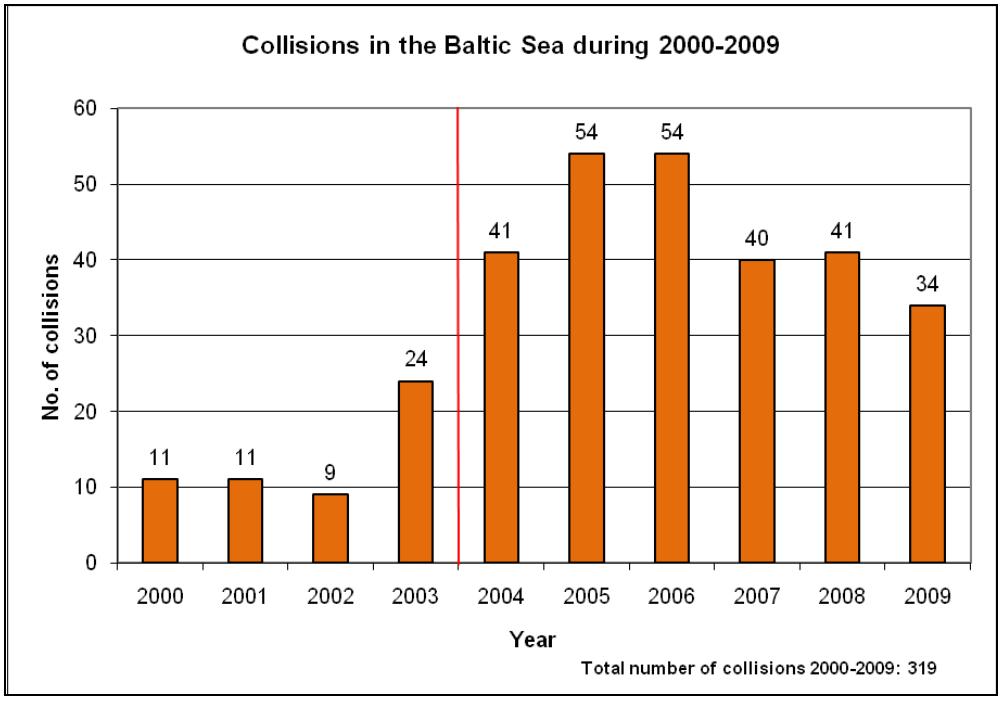


Figure 25

Ship to ship collisions accounted for 18% of all collision cases in 2009 and the rest of the cases were collisions with fixed and/or floating structures, e.g. peers, navigation signs etc. The number of ship to ship collisions in 2009 was 80% less than in 2005-2006, whereas the number of collisions with objects has remained largely unchanged (***Figure 26***).

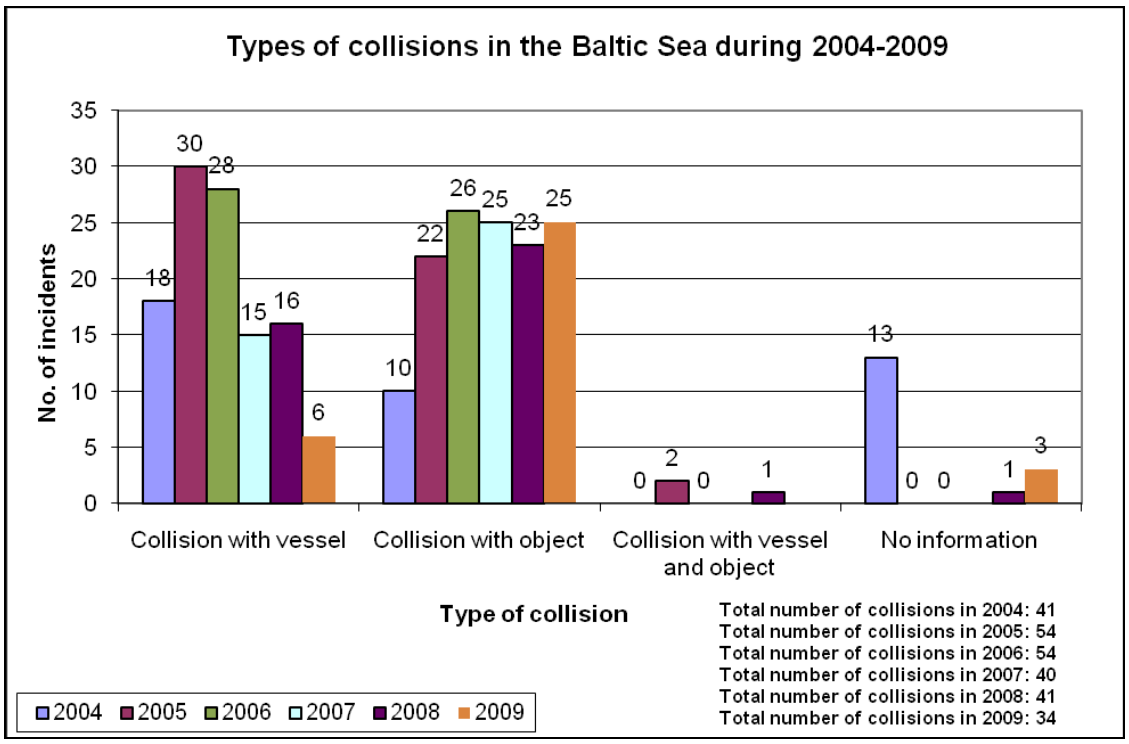


Figure 26

Spatially, collisions in 2009 occurred mostly in near shore areas (***Figure 27***). Also the map of collisions during 2000-2009 (***Figure 28***) points toward approaches to ports and the Danish straits as the most risky areas for ships to collide.

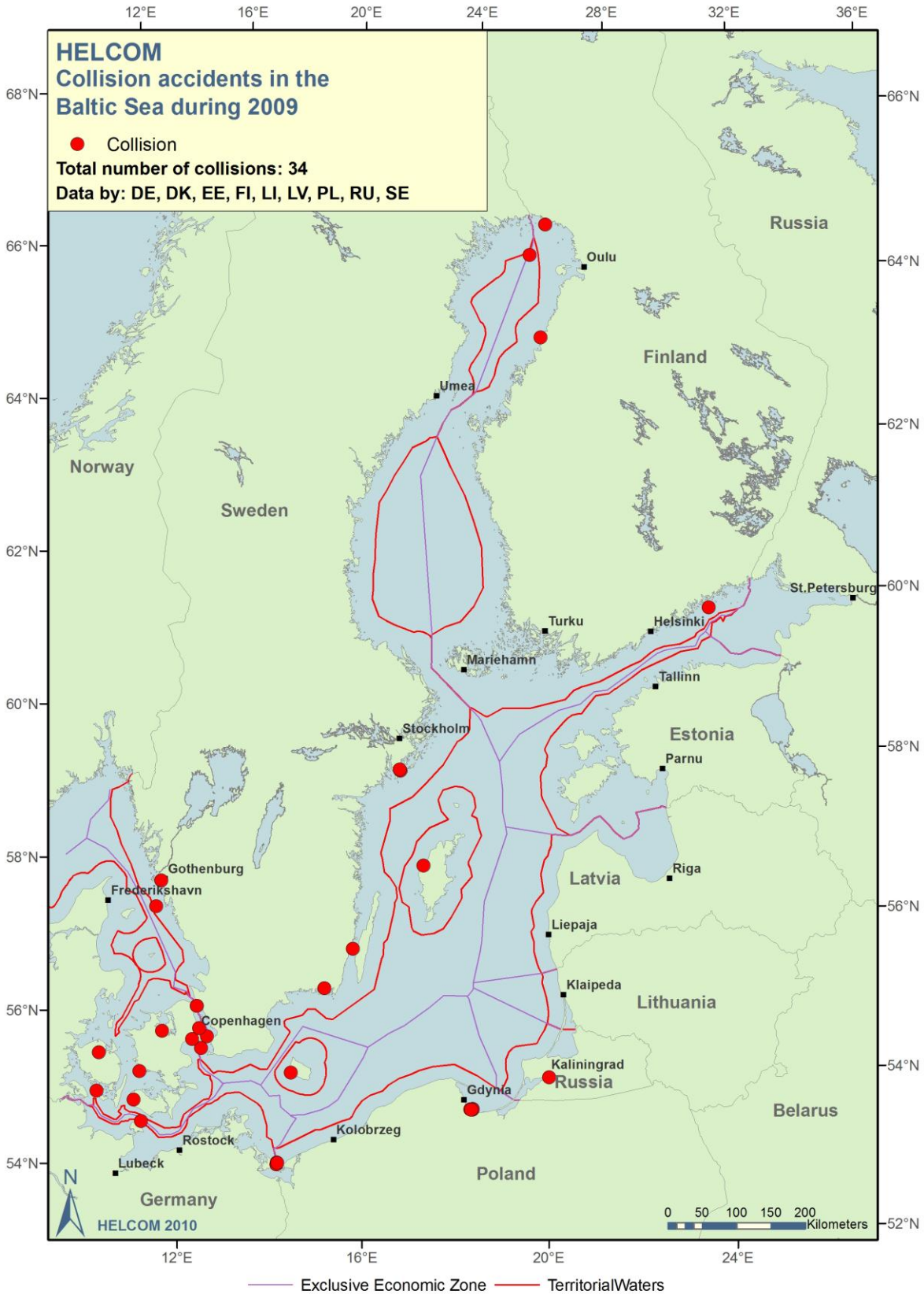

HELCOM
Collision accidents in the
Baltic Sea during 2009
Collision
Total number of collisions: 34
Data by: DE, DK, EE, FI, LI, LV, PL, RU, SE
Russia
Finland
Norway
Sweden
Estonia
Latvia
Lithuania
Belarus
Poland
Germany
Oulu
Umea
St.Petersburg
Turku
Helsinki
Mariehamn
Tallinn
Stockholm
Parnu
Riga
Liepaja
Klaipeda
Gothenburg
Frederikshavn
Copenhagen
Kaliningrad
Russia
Gdynia
Kolobrzeg
Rostock
Lubeck
N
HELCOM 2010
0 50 100 150 200
Kilometers
Exclusive Economic Zone
TerritorialWaters

Figure 27

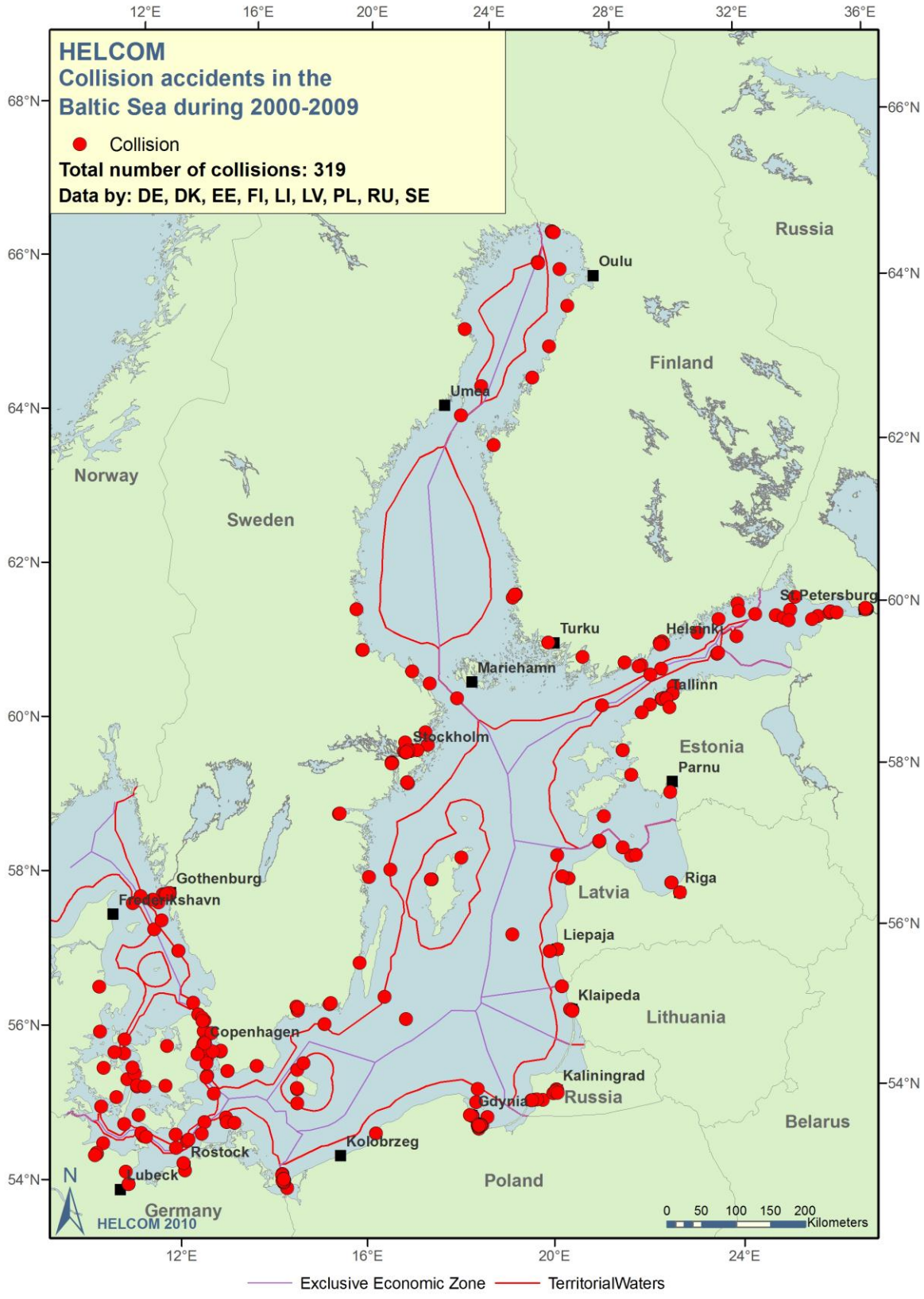

HELCOM
Collision accidents in the
Baltic Sea during 2000-2009
Collision
Total number of collisions: 319
Data by: DE, DK, EE, FI, LI, LV, PL, RU, SE
12°E
16°E
20°E
24°E
28°E
32°E
36°E
68°N
66°N
64°N
62°N
60°N
58°N
56°N
54°N
Russia
Oulu
Finland
Umea
Norway
Sweden
St Petersburg
Turku
Helsinki
Mariehamn
Tallinn
Stockholm
Estonia
Parnu
Gothenburg
Frederikshavn
Latvia
Riga
Liepaja
Klaipeda
Lithuania
Copenhagen
Kaliningrad
Russia
Gdynia
Belarus
Kolobrzeg
Rostock
Lubeck
Poland
Germany
N
HELCOM 2010
0 50 100 150 200
Kilometers
Exclusive Economic Zone
TerritorialWaters

Figure 28

An increasing number of collisions have been reported in the southwestern Baltic Sea, including the Danish straits since 2007 (***Figures 29 and 30***). The area is one of the hot spots for collisions in the Baltic, with 53% of 2009 collisions and 31% of all reported collisions during 2000-2009 taking place in the southwestern Baltic.

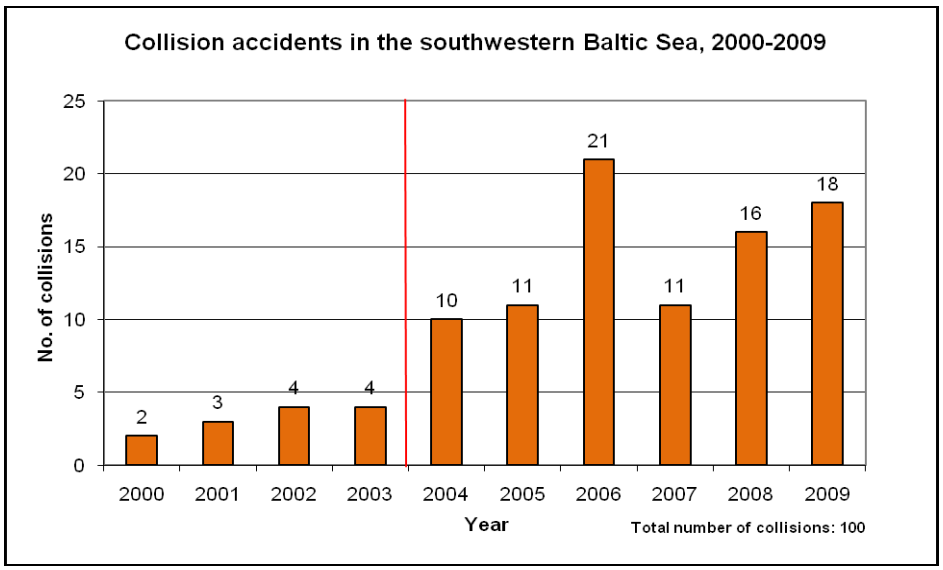


Figure 29

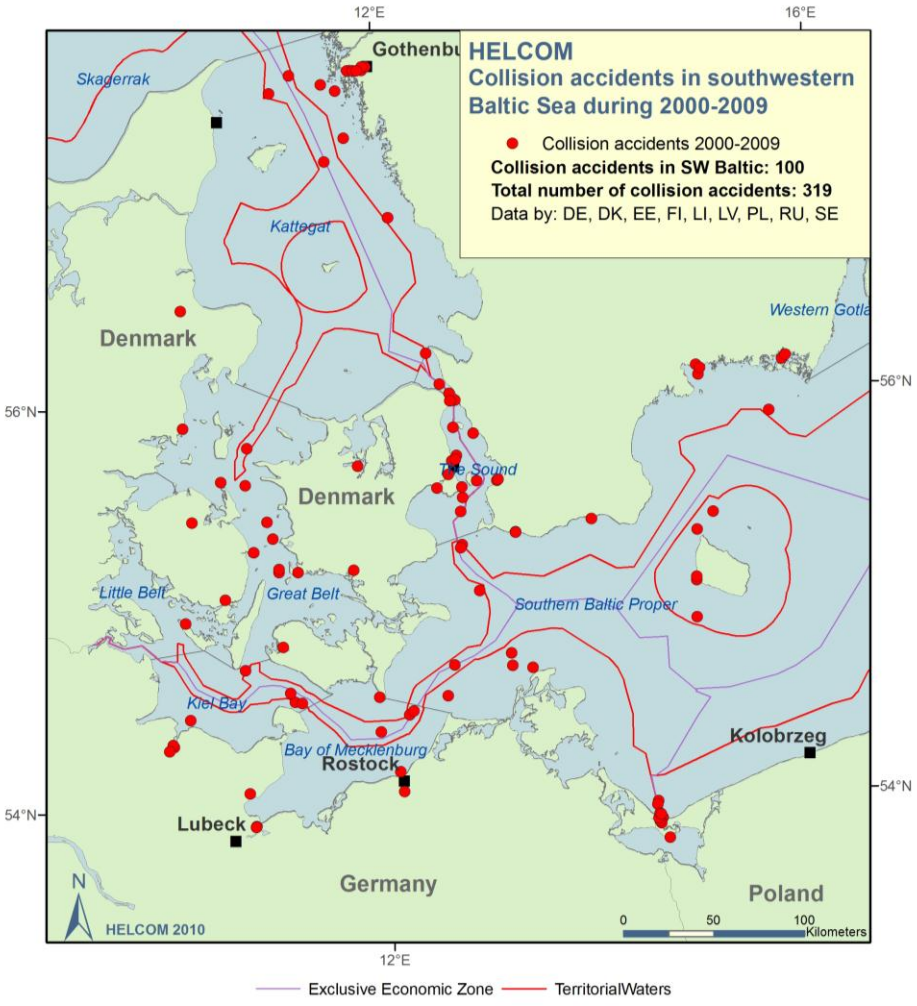


Figure 30

Out of a total of 34 collisions in 2009, only one was reported to have occurred in the Gulf of Finland (***Figures 31***). There has been a drastic reduction in the number of collisions occurring in the Gulf of Finland. For the 10-year period 2000-2009, collisions in the Gulf of Finland made up 22% of the total number of reported collisions (***Figure 32***).

Figure 31

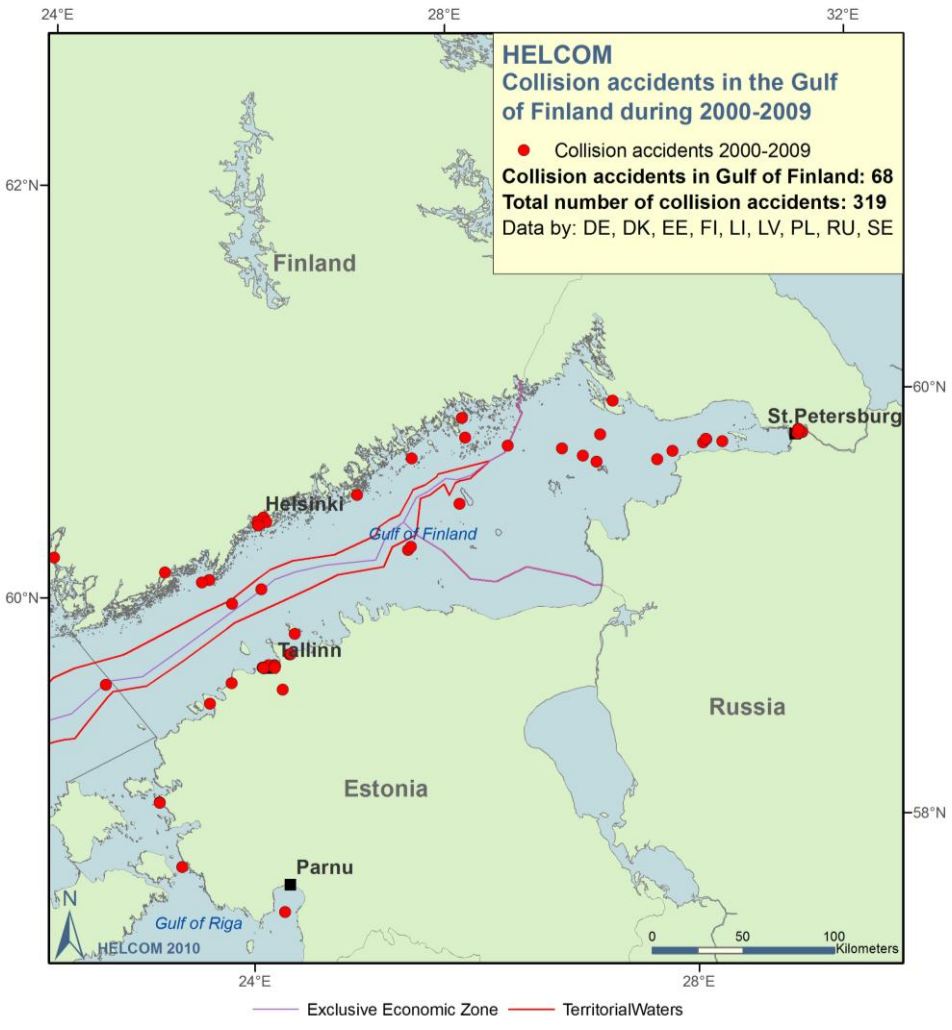


Figure 32

Accidents with pollution

As one may expect, accidents resulting in pollution get more attention of the competent authorities and media. According to the 2000-2009 data, 7% of the reported accidents ended up with some kind of pollution. In 2009, this percentage was slightly higher at 10%, with 10 out of the total 105 reported accidents resulting in pollution. One of these incidents was a collision and one caused by machinery damage, whereas the rest were pollution incidents occurring e.g. during fuel transfer (***Figure 33***). The types of vessels involved in pollution accidents was varied, including one cargo ship, three tankers, a tug boat, a bunker, a barge, a fire service vessel, an oil recovery vessel and four other types of motor vessels (***Figure 34***).

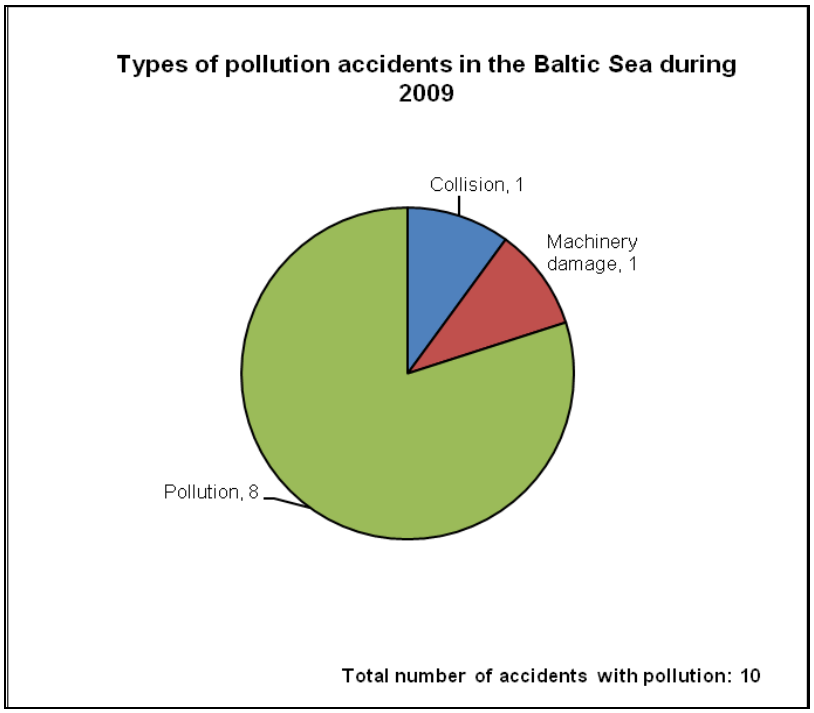


Figure 33

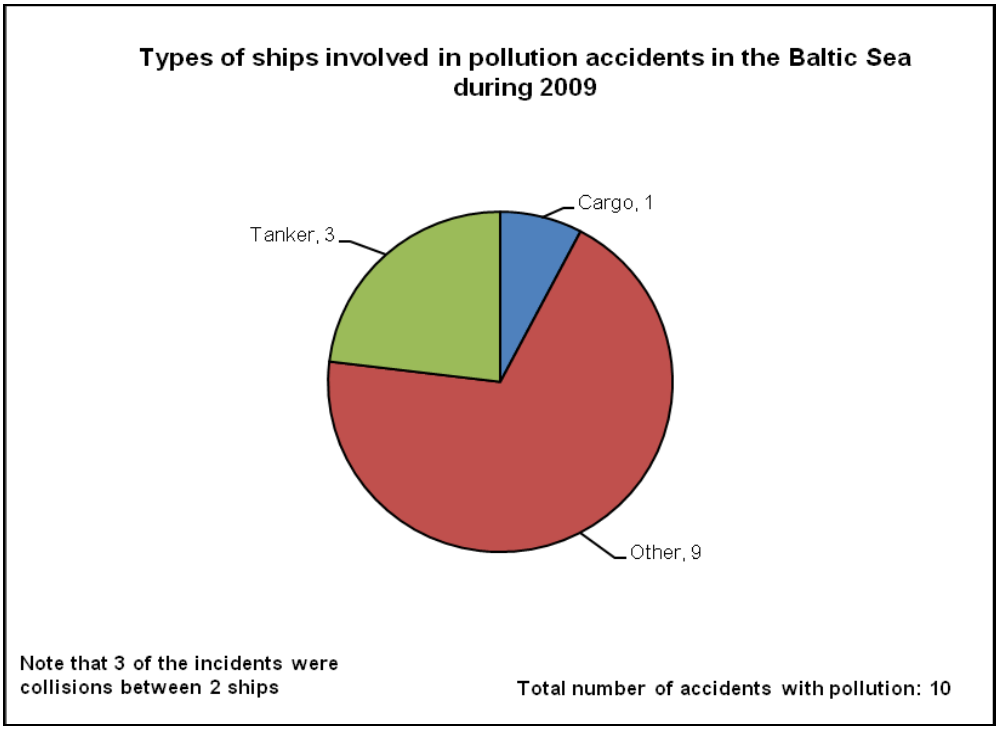


Figure 34

Seven out of the ten accidents resulting in pollution in 2009 were caused by human factors and one by technical factors. No information was provided on the dominating cause of two of the reported pollution accidents (***Figure 35***).

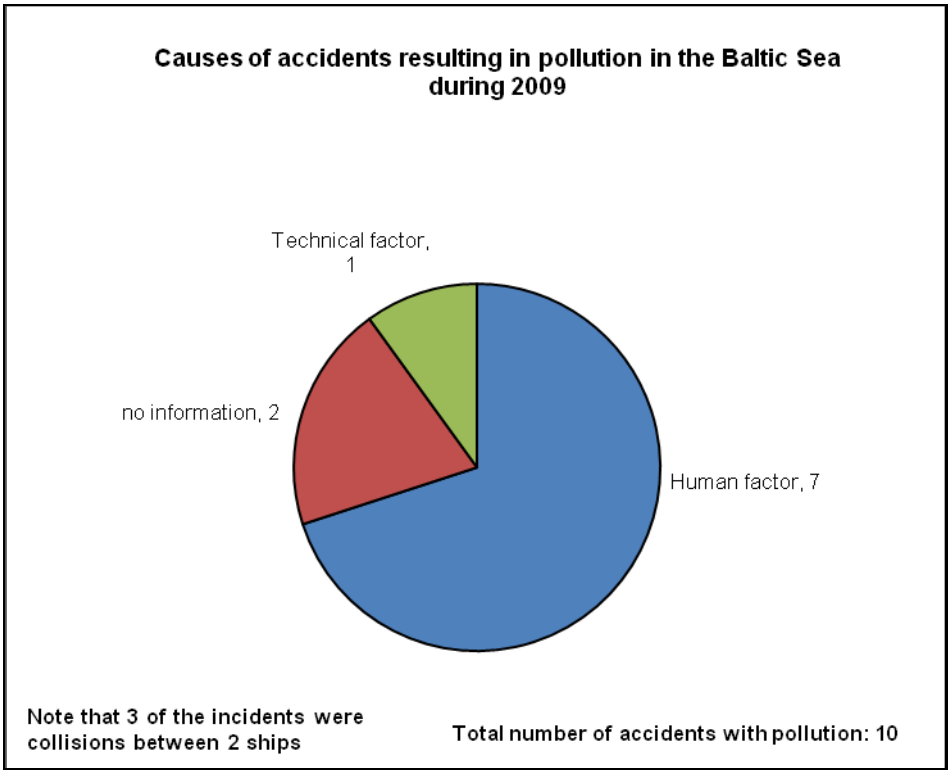


Figure 35

The spatial distribution of the accidents in 2009 resulting in pollution is presented in ***Figure 36*** and some additional details of the pollution accidents are contained in ***Table 4***.

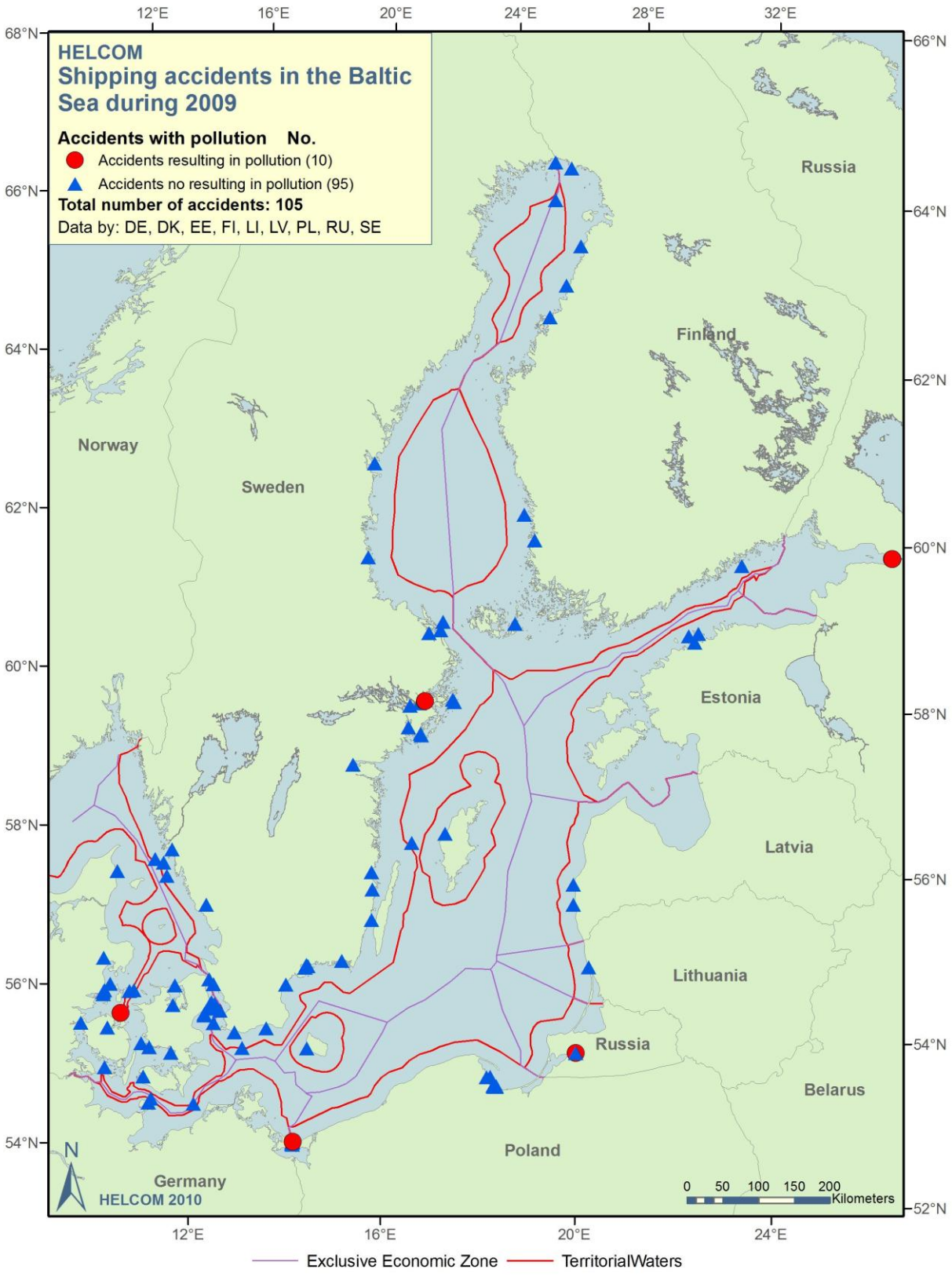

HELCOM
Shipping accidents in the Baltic Sea during 2009
Accidents with pollution No.
Accidents resulting in pollution (10)
Accidents no resulting in pollution (95)
Total number of accidents: 105
Data by: DE, DK, EE, FI, LI, LV, PL, RU, SE
Russia
Finland
Norway
Sweden
Estonia
Latvia
Lithuania
Russia
Belarus
Poland
Germany
HELCOM 2010
N
0 50 100 150 200
Kilometers
12°E
16°E
20°E
24°E
28°E
32°E
68°N
66°N
64°N
62°N
60°N
58°N
56°N
54°N
52°N
Exclusive Economic Zone
TerritorialWaters

Figure 36

Country	Date	Latitude	Longitude	Ship name(s)	Ship type(s)	Ship size (gt)	Cargo	Type of accident	Cause of accident	Type of pollution
Denmark	25.5.2009	55.6300	10.6300	DALLINGTON 7403550, Isle of Man	Cargo	7788	Goods	Pollution	Human factor	200-5000 tonnes gasoil
Poland	11.12.2009	53.9350	14.2720	Happy Eagle, ZNHT7, Isle of Man and Strazak- 25, 7909918, Poland	Tanker and other	3733 and 276	LPG	Collision	Human factor	about 0.010 tonnes oil mixed with water
Russia	31.01.2009	54.6833	20.5167	TAURAS, 8854172, Russia	Other	n.i.	none	Pollution	n.i.	0.005 tonnes oil product
Russia	01.02.2009	59.9000	30.2500	FEDERAL RAIN, n/i, Barbados	Other	n.i.	n.i.	Pollution	Human factor	0.6 tonnes hydraulic oil
Russia	01.02.2009	59.9000	30.2500	BUKHTA OMEGA, 8723385, Panama	Other	n.i.	n.i.	Pollution	Human factor	0.4 tonnes oil product
Russia	30.05.2009	59.9000	30.2500	BP-12, n/a, Russia and LUGA, 8228103, Russia	Other and tanker	n.i.	mazut	Pollution	Human factor	0.3 tonnes mazut
Russia	07.11.2009	59.9000	30.2500	MSC MALIN, n/a, Panama and ONEGA, 8926236, Russia	Other	n.i.	n.i.	Pollution	Human factor	Mazut-water mix (amount unknown)
Russia	12.11.2009	59.9000	30.2500	VLADIMIR SHUMAKOV, 8923624, Russia	Other	n.i.	mazut	Pollution	Human factor	0.05 tonnes mazut
Russia	18.12.2009	59.9000	30.2500	VARADERO, 7808906, Sent-Vinsent & Grenadin	Other	n.i.	mazut	Pollution	n.i.	0.5 tonnes mazut
Sweden	08.06.2009	59.3170	18.1670	ZEBRON,SBQH,Sweden	Tanker	391	Oil	Machinery damage	Technical factor	Hydraulic oil (amount unknown)

Table 4. Data on accidents resulting in pollution in 2009.

More information

For more information about maritime traffic and accidents, see the HELCOM website: http://www.helcom.fi/shipping/en_GB/main/

The complete HELCOM dataset on shipping accidents from 1989-2009 can be accessed via the HELCOM map and data service (http://maps.helcom.fi/website/mapservice/index.html) for viewing, querying and/or downloading. Information on establishing a *web map service* connection to the dataset is also available via the HELCOM map and data service