



## Report on shipping accidents in the Baltic Sea area for the year 2008

### 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 2008.

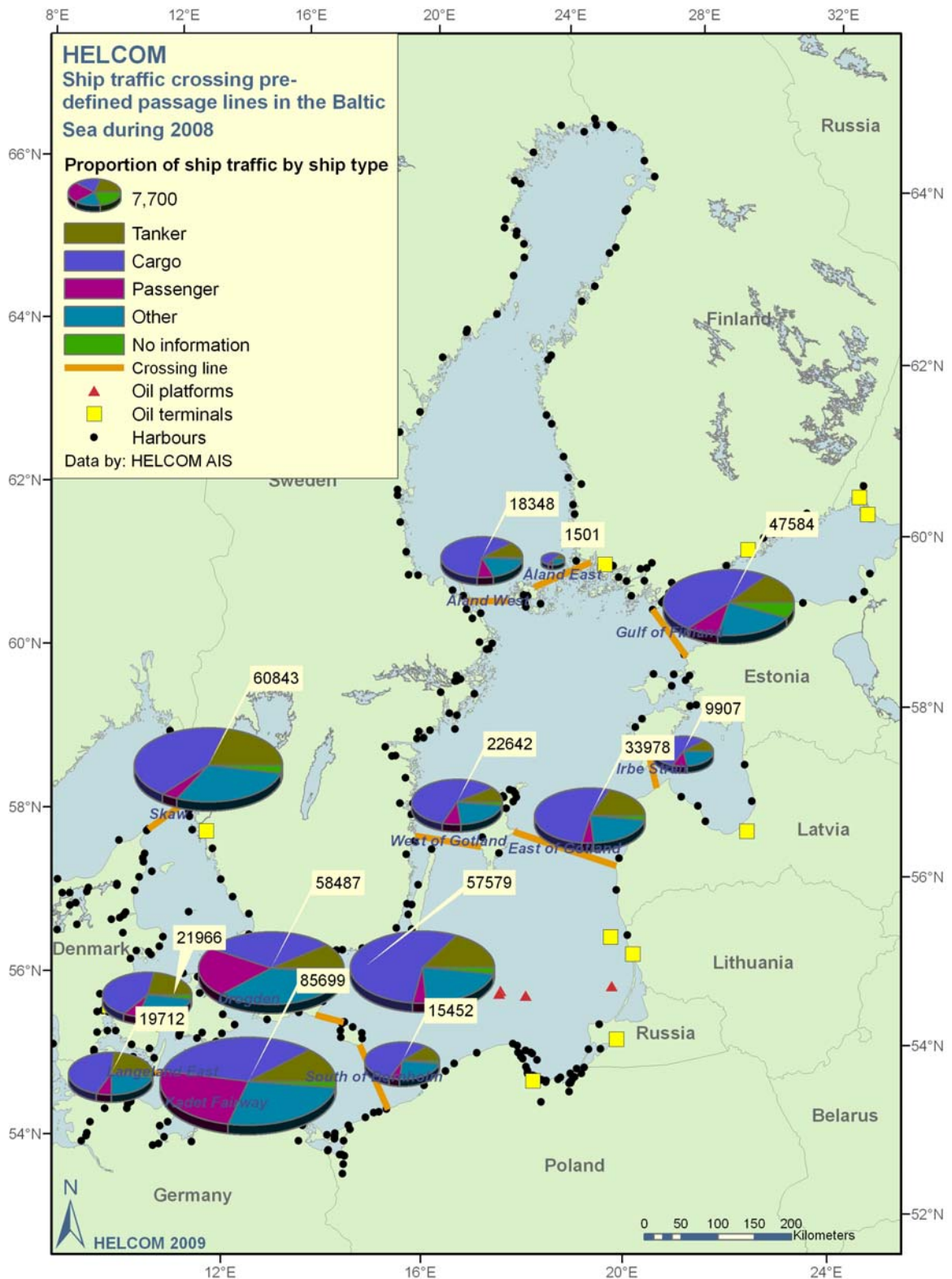
According to the agreed procedure all accidents (including but not limited to grounding, collision with other vessel or contact with fixed structures (offshore installations, wrecks, etc.), disabled vessel (e.g. machinery and/or structure failure), fire, explosions, etc.), which took place in territorial 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

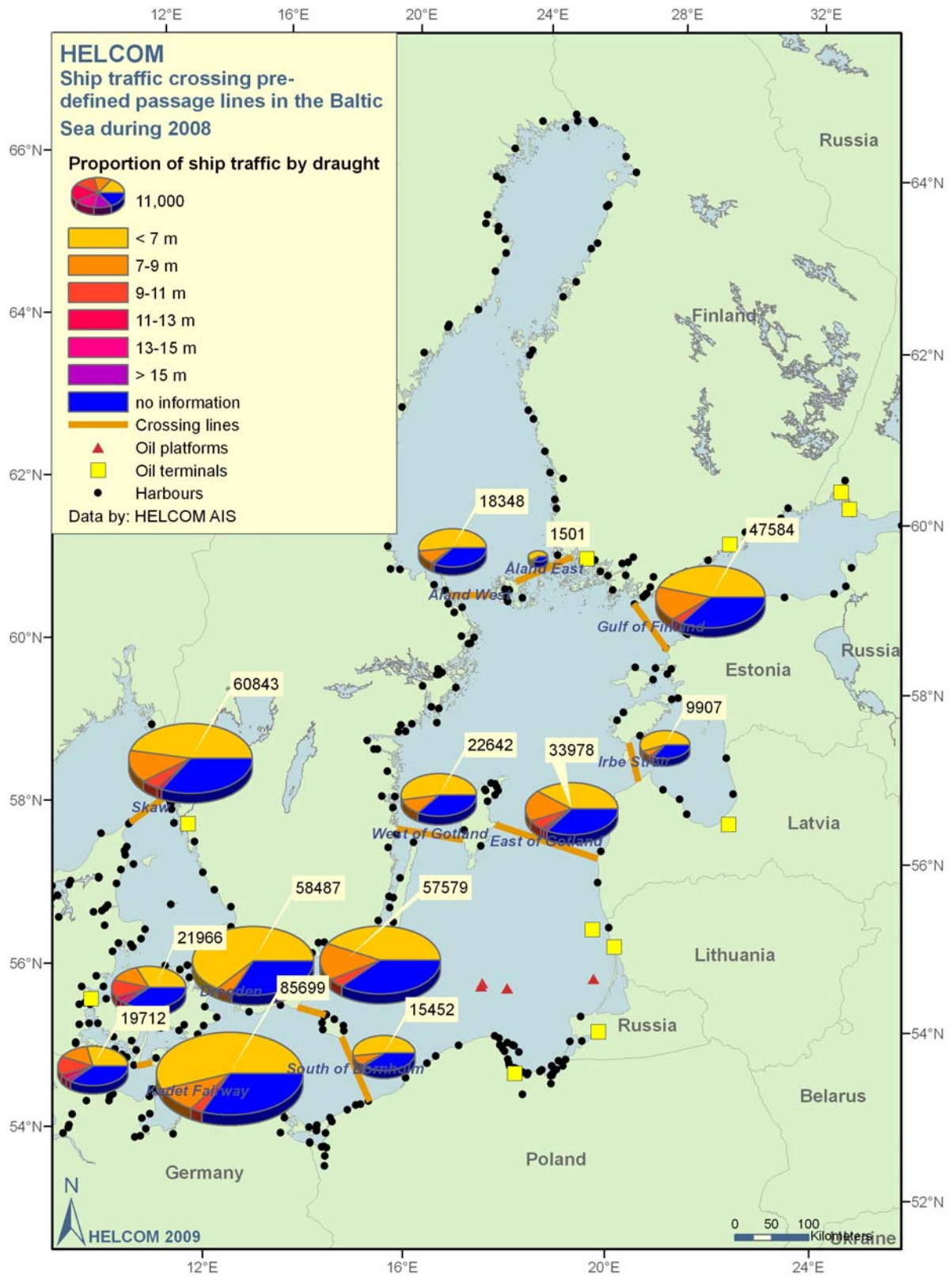
IMO regulations require Automatic Identification System (AIS) transponders to be fitted aboard all ships of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages and all passenger ships irrespectively of size. 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.

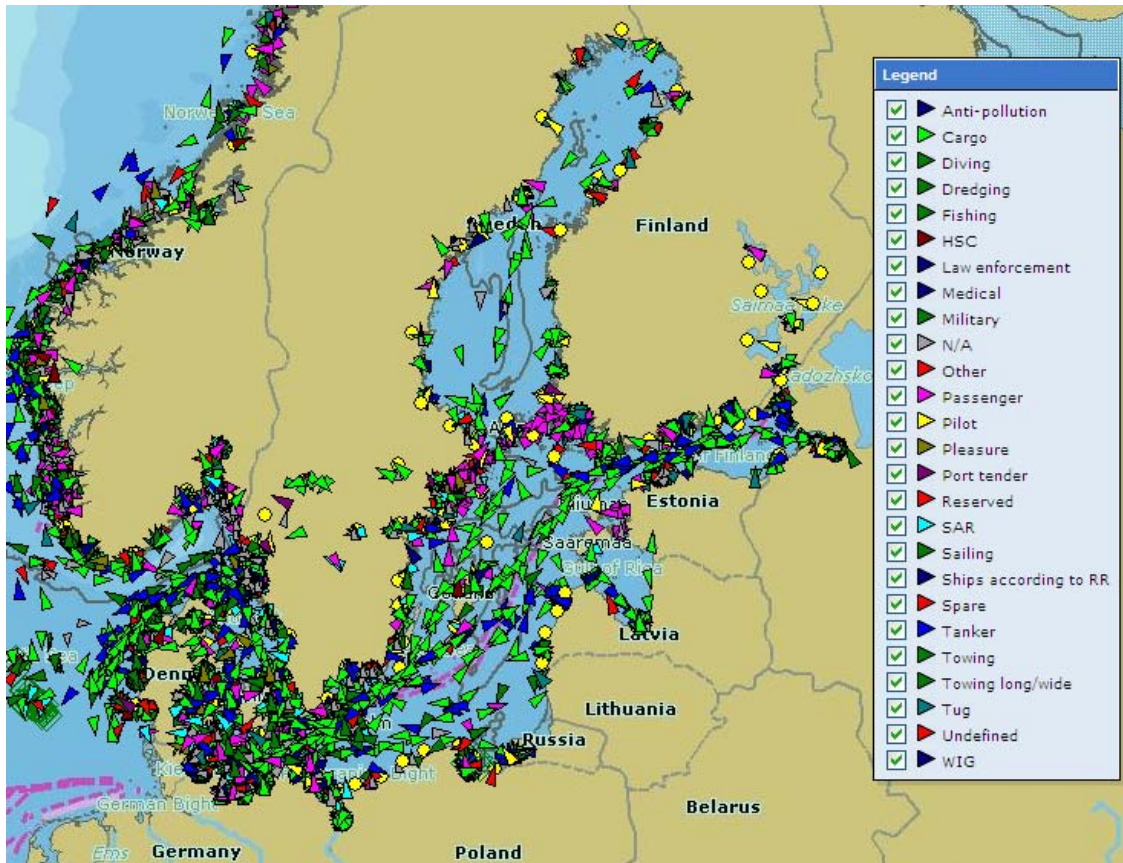
To get a full picture of the shipping safety in the Baltic, basic information on the intensity of shipping is of importance. According to the HELCOM AIS, there are about 2,000 ships in the Baltic marine area at any given moment, and each month around 3,500–5,000 ships ply the waters of the Baltic. The 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**.



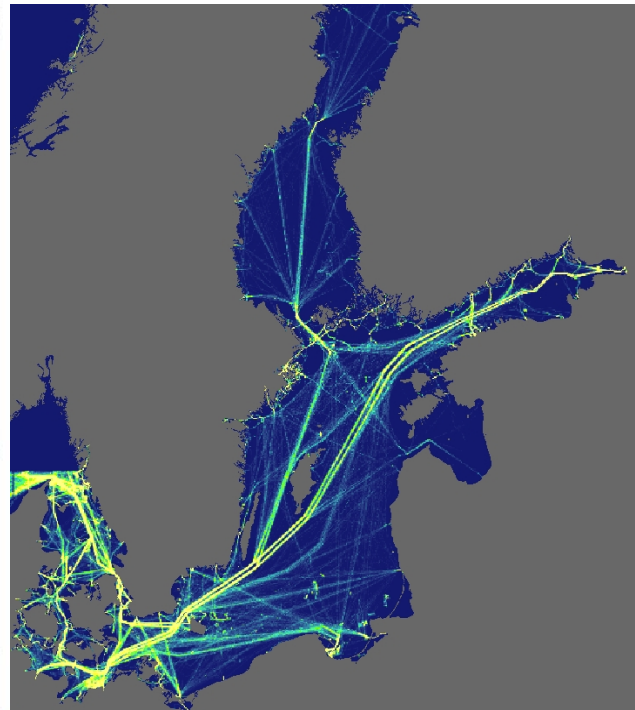
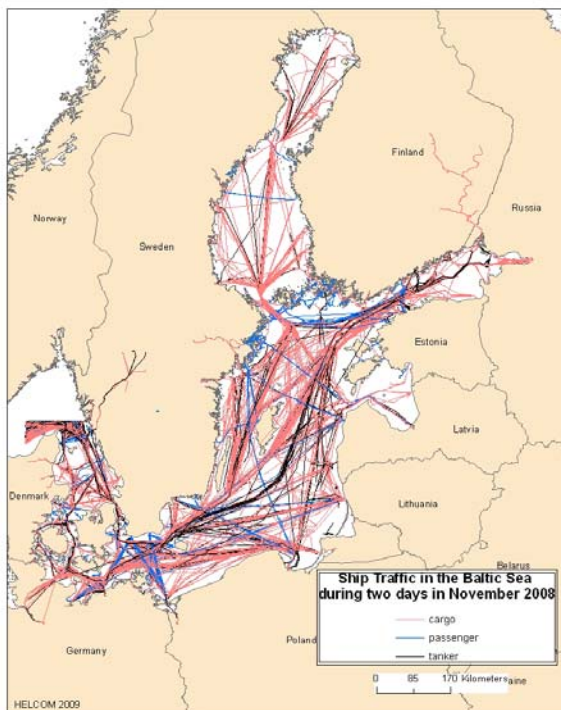
**Figure 1. Number of ships crossing AIS fixed lines in the Baltic Sea according to the type of the vessels, 2008.**



**Figure 2. Number of ships crossing AIS fixed lines in the Baltic Sea according to the draught, 2008.**



**Figure 3. Snapshot of ship traffic in the Baltic Sea on 8 April 2009. 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 of the pre-defined HELCOM AIS lines	Type of ship					
	Passenger	Cargo	Tanker	Other	No info	Total
The Skaw	2453	25383	12071	19378	1558	60843
The Great Belt East Bridge	1506	9160	4791	6048	461	21966
Drogden	9965	20219	4991	22370	942	58487
Langeland East	1546	8648	4643	4472	403	19712
Kadet Fairway	19447	31874	8618	24349	1411	85699
North of Bornholm	2402	32869	8509	12597	1202	57579
South of Bornholm	928	8655	1743	3852	274	15452
West of Gotland	2071	13440	1897	4838	396	22642
East of Gotland	1645	18596	5776	7298	663	33978
Åland West	1636	11499	1755	3266	192	18348
Åland East	109	827	168	385	12	1501
Gulf of Finland	4585	23237	6053	10986	2723	47584
Irbe Strait	1062	5614	981	2190	60	9907
<b>Total</b>	<b>49355</b>	<b>210021</b>	<b>61996</b>	<b>122029</b>	<b>10297</b>	<b>453698</b>
<b>Percentage of total</b>	<b>10.9</b>	<b>46.3</b>	<b>13.7</b>	<b>26.9</b>	<b>2.3</b>	<b>100</b>

**Table 1. Number of ships crossing AIS fixed lines in the Baltic Sea according to the type of the vessels, 2008.**

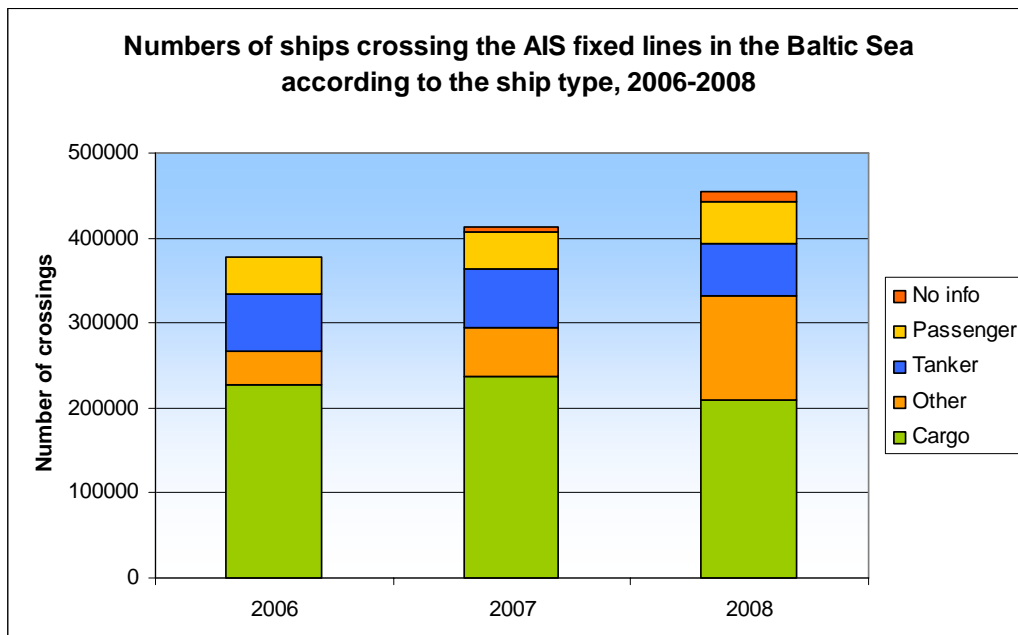
Location of the pre-defined HELCOM AIS lines	Draught of ship							Total
	<7 m	7-9 m	9-11 m	11-13 m	13-15 m	>15 m	Unknown	
The Skaw	28400	6949	2847	813	572	210	21052	60843
The Great Belt East Bridge	7048	2926	2293	640	552	81	8426	21966
Drogden	36486	2863	54*	10	0	12*	19062	58487
Langeland East	5687	2932	2287	645	538	84	7539	19712
Kadet Fairway	46057	7756	2643	643	537	72	27991	85699
North of Bornholm	24755	7651	2301	543	522	87	21720	57579
South of Bornholm	7993	1218	197	23	2	2	6017	15452
West of Gotland	11786	2330	168	44	29	8	8277	22642
East of Gotland	13782	5144	1774	381	471	69	12357	33978
Åland West	9482	1878	259	37	21	2	6669	18348
Åland East	905	70	7	0	0	1	518	1501
Gulf of Finland	21529	6688	1563	256	467	86	16995	47584
Irbe Strait	5466	624	275	89	4	1	3448	9907
<b>Total</b>	<b>219376</b>	<b>49029</b>	<b>16668</b>	<b>4124</b>	<b>3715</b>	<b>715</b>	<b>160071</b>	<b>453698</b>
<b>Percentage of total</b>	<b>48.4</b>	<b>10.8</b>	<b>3.7</b>	<b>0.9</b>	<b>0.8</b>	<b>0.2</b>	<b>35.3</b>	<b>100</b>

\*) 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, 2008.**

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, and a rising trend in number of crossings is clear (**Figure 6** and **Table 3**). Although 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.



**Figure 6. Number of ships crossing fixed AIS lines in the Baltic Sea during 2006-2008, shown here by ship type.**

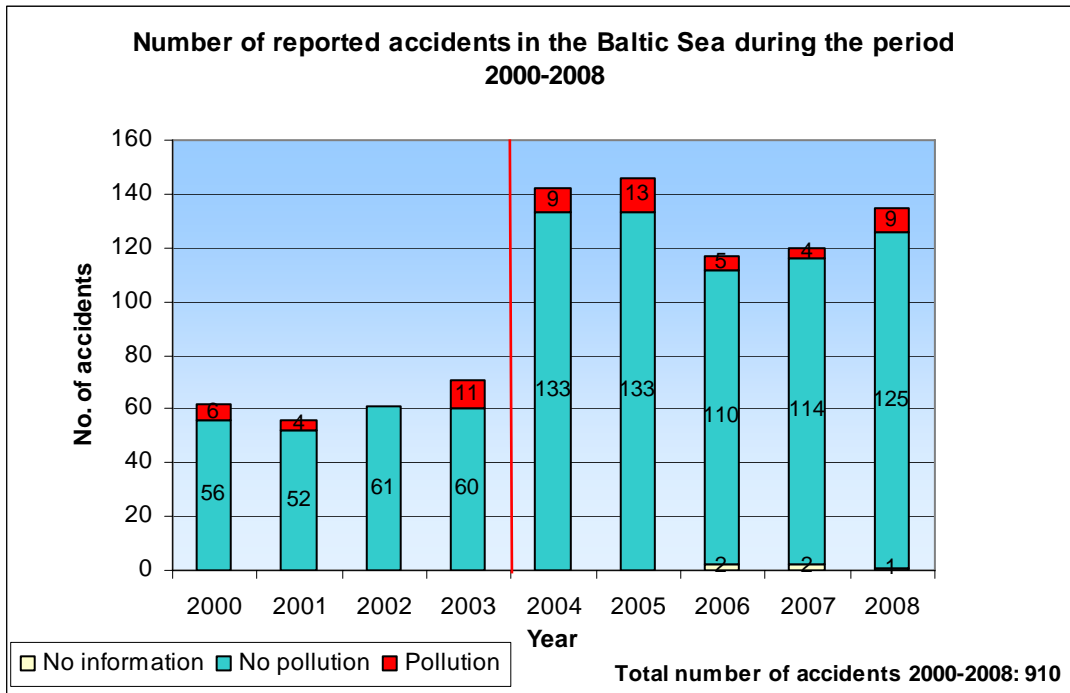
	Passenger	Cargo	Tanker	Other	No info	Total
<b>2006</b>	42731	226855	67458	39627	-	376671
%	11.3	60.2	17.9	10.5	-	100.0
<b>2007</b>	43215	237342	69335	56981	6901	413774
%	10.4	57.4	16.8	13.8	1.7	100.0
<b>2008</b>	49355	210021	61996	122029	10297	453698
%	10.9	46.3	13.7	26.9	2.3	100

**Table 3. Number of ships crossing fixed AIS lines in the Baltic Sea during 2006-2008.**

For more information about maritime traffic in the Baltic Sea region, see: [http://www.helcom.fi/shipping/navigation/en\\_GB/navigation/](http://www.helcom.fi/shipping/navigation/en_GB/navigation/).

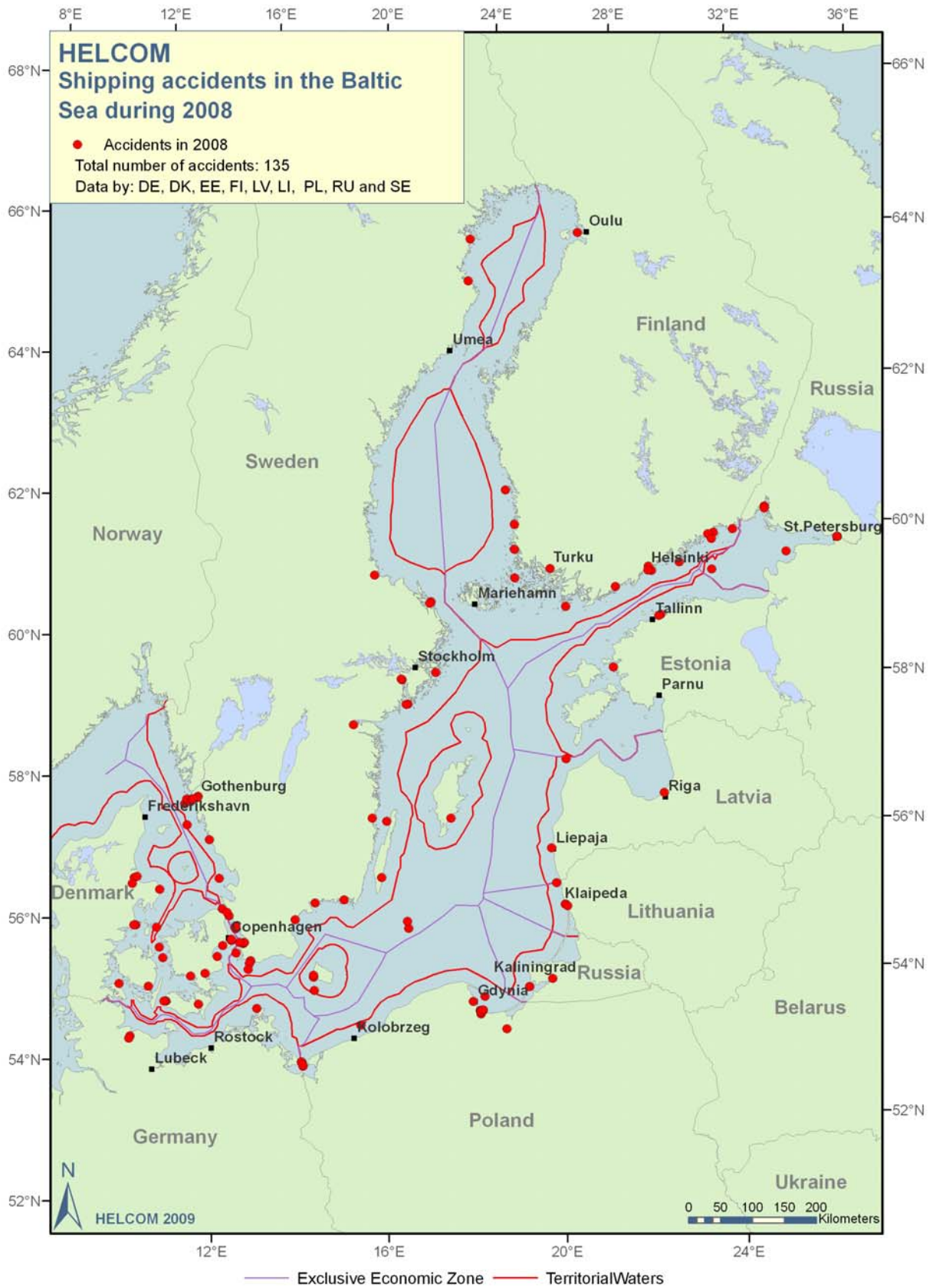
## Overview of accidents in the Baltic Sea

According to the reports from the Contracting States there were 135 ship accidents in the HELCOM area in 2008 (**Figure 7**), which is 15 more than the year before (increase by 12.5%) and 18 more than in 2006 (increase by 15%). The rising number of accidents could be explained by 20% increase in ship traffic between 2006 and 2008. In one case, the reporting Contracting Party did not provide information about whether the accident resulted in pollution or not.



**Figure 7**

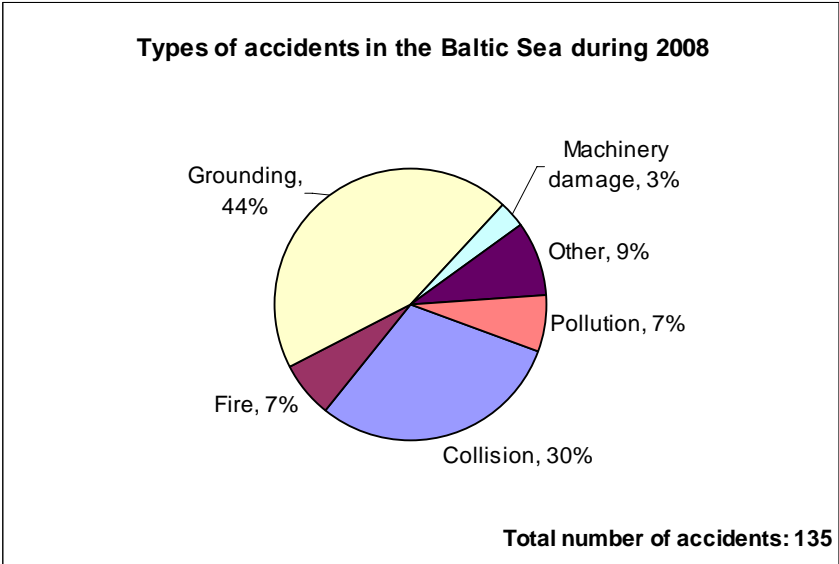
The spatial distribution of the reported accidents in 2008 is presented in **Figure 8**. As can be noted, almost all accidents occurred very close to shore or in harbours.



**Figure 8**

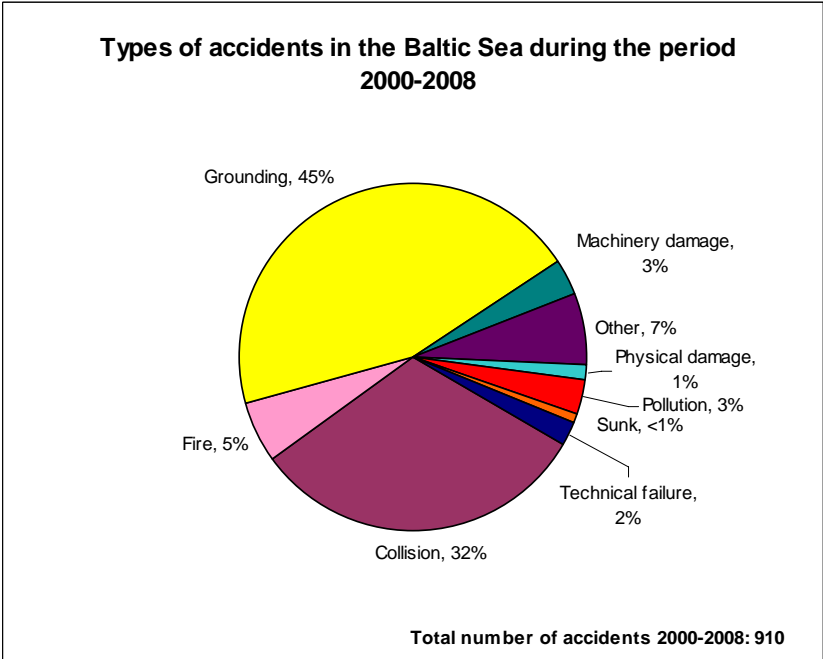


Groundings were the most common type of accident in the Baltic accounting for almost half of all reported cases (44%), while a third of reported accidents were collisions (30%) (**Figure 9**). Since 2006, the share of groundings has increased (from 39%) and the share of collisions has decreased (from 46%). These proportions have not changed significantly since 2007, however, when 45% of reported accidents were groundings and 33% collisions. On the other hand, there were nine accidents in 2008 classified as “pollution accident” type, not related to any grounding or collision, but occurring e.g. during fuel transfer – the most reported since 2000 and a significant increase compared to none in 2006 and 2007. One of these accidents was related to an oil spill on deck and no pollution at sea was reported.



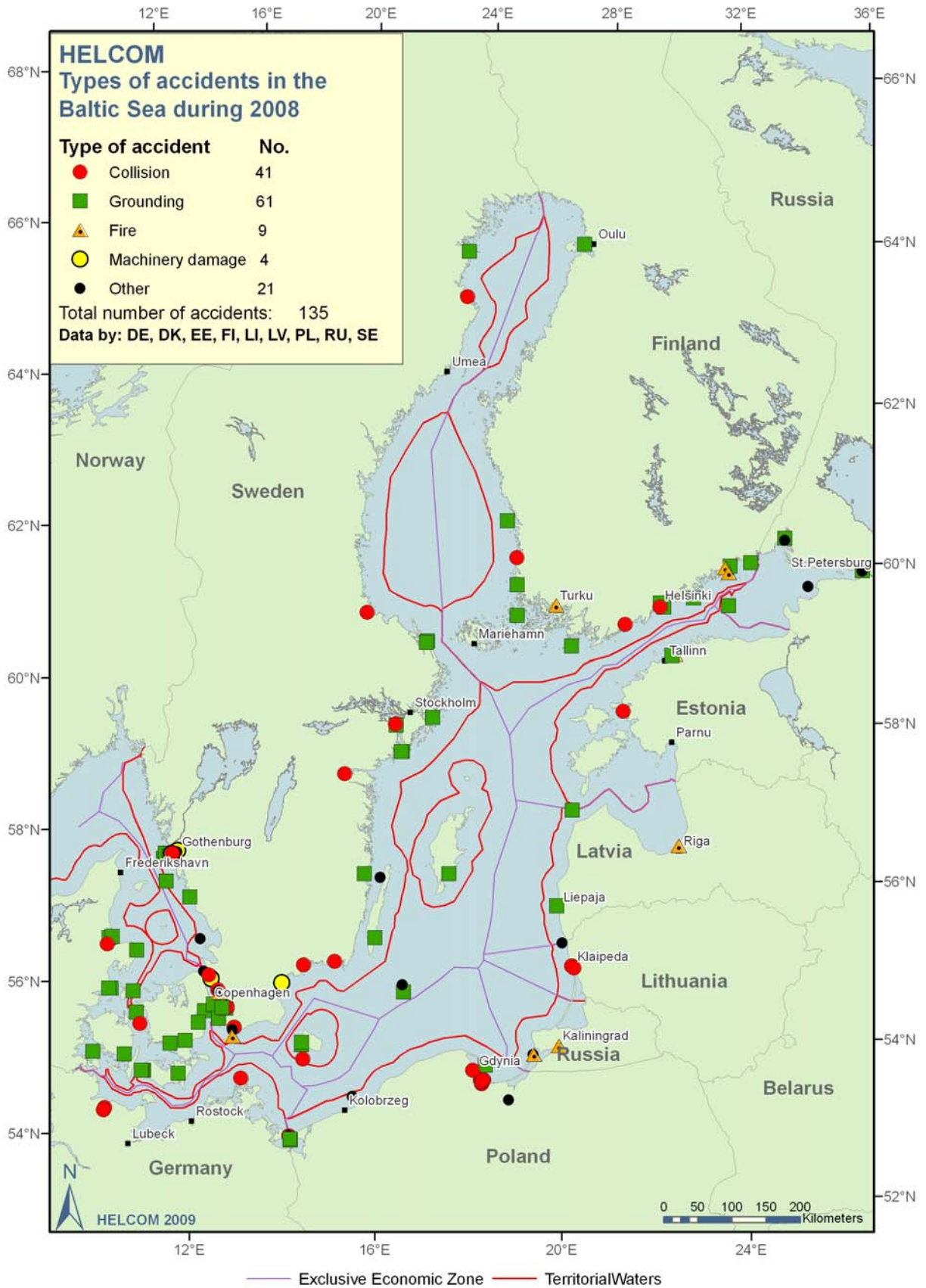
**Figure 9**

The share of groundings and collisions in accidents in 2008 (**Figure 9**) is similar to their share in total number of accidents during 2000-2008 (**Figure 10**).



**Figure 10**

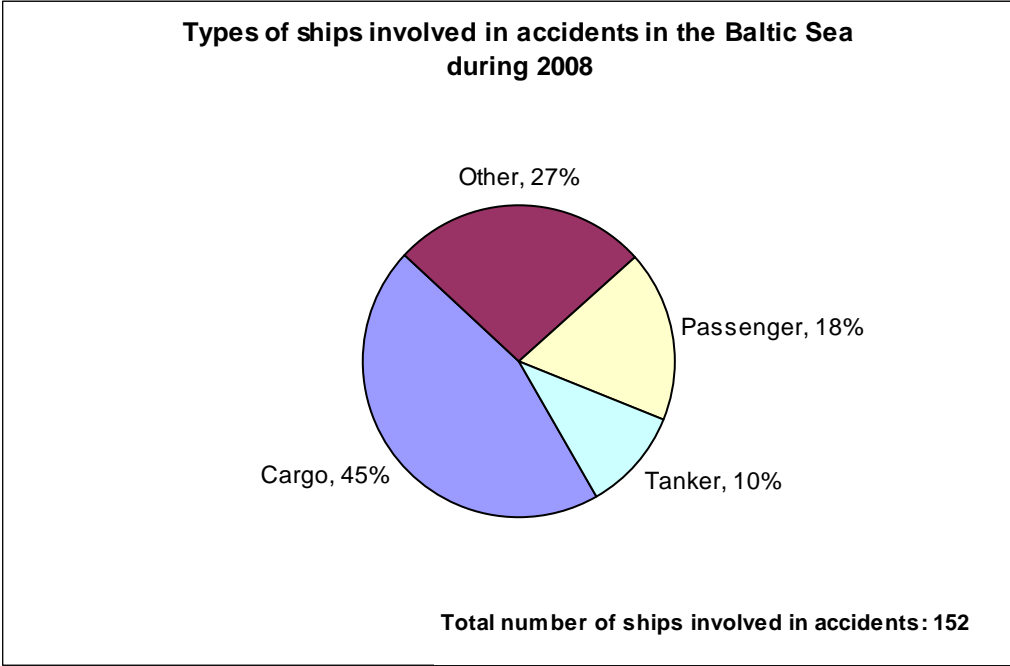
Spatial distribution of different types of reported accidents in the Baltic Sea in 2008 is presented in **Figure 11**.



**Figure 11**

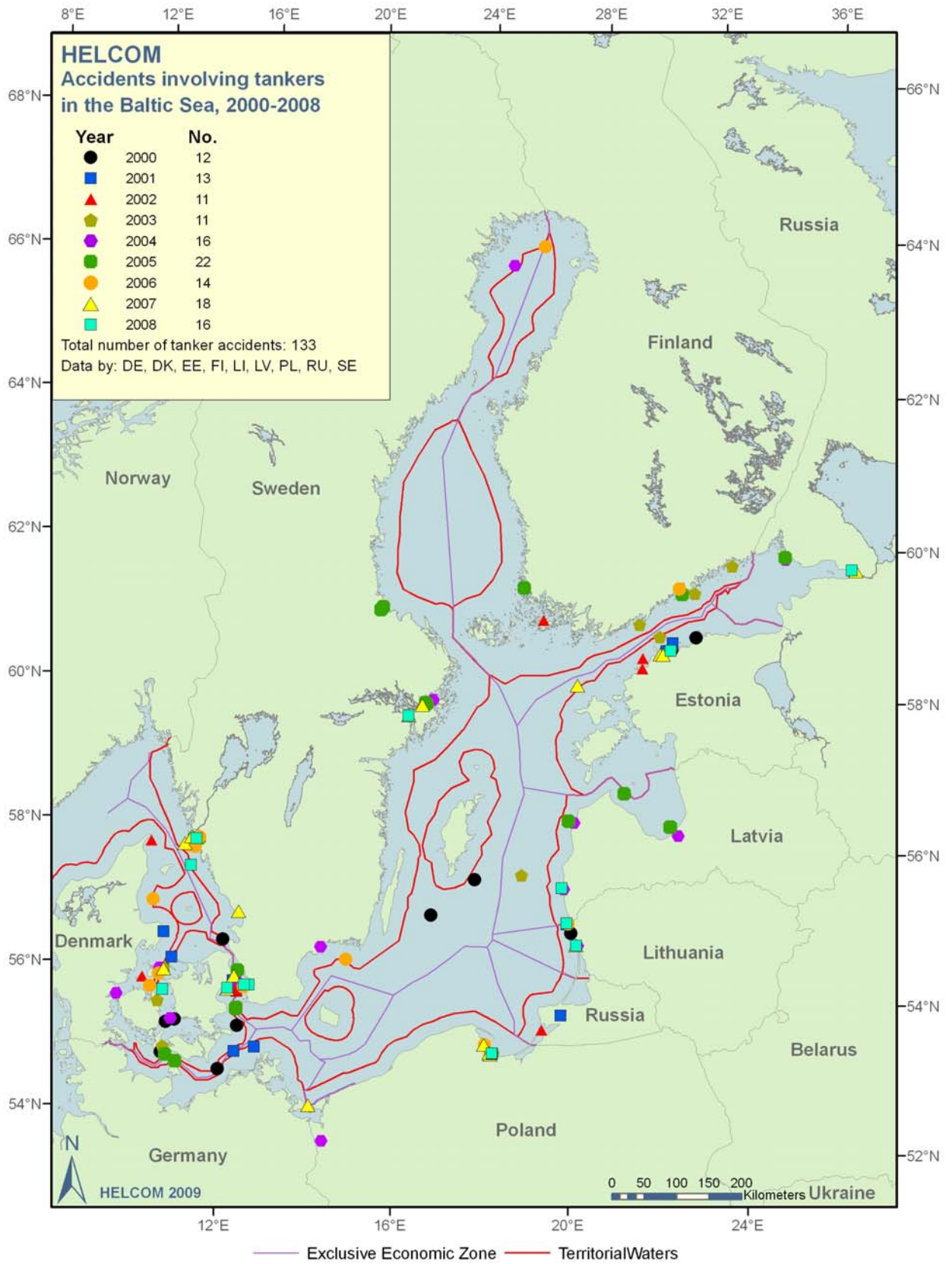
### Types of vessels involved in the accidents

As can be seen from **Figure 12**, cargo vessels are the main group of ships involved in accidents (45%), followed by passenger vessels (18%) and tankers (10%). This proportion more or less reflects the amount of different vessel types making up the Baltic Sea traffic in 2008 (crossings through the AIS lines, see Table 1), except for passenger ships for which a higher risk can be observed - passenger ships made up 10% of the overall traffic while their share in accidents was as much as 20%.



**Figure 12**

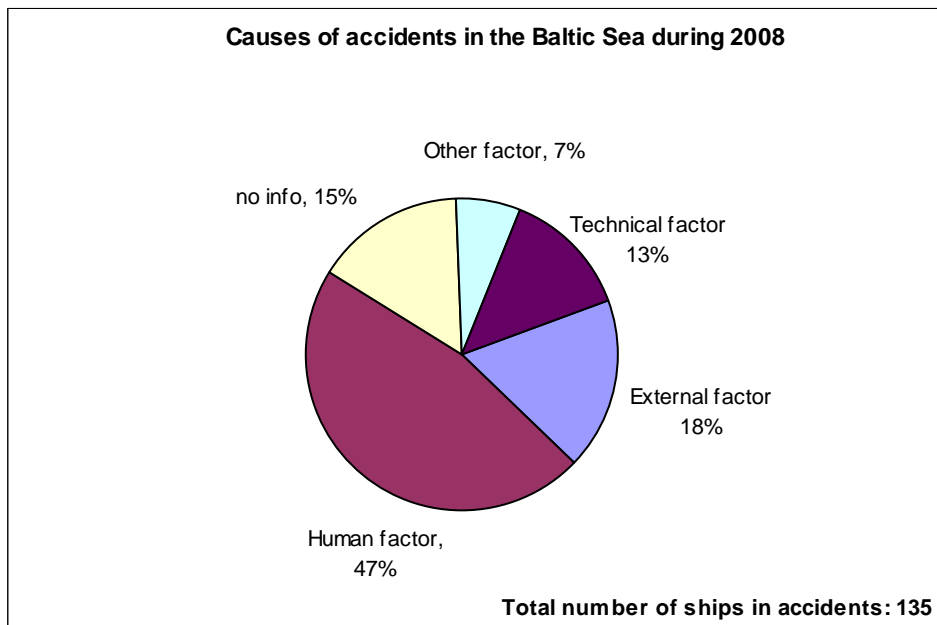
As tankers are often an issue of high concern, a map on accidents involving tankers from 2000 to 2008 (**Figure 13**) is also presented here. All tankers involved in accidents in 2008 were double hull ships.



**Figure 13**

## Causes of accidents

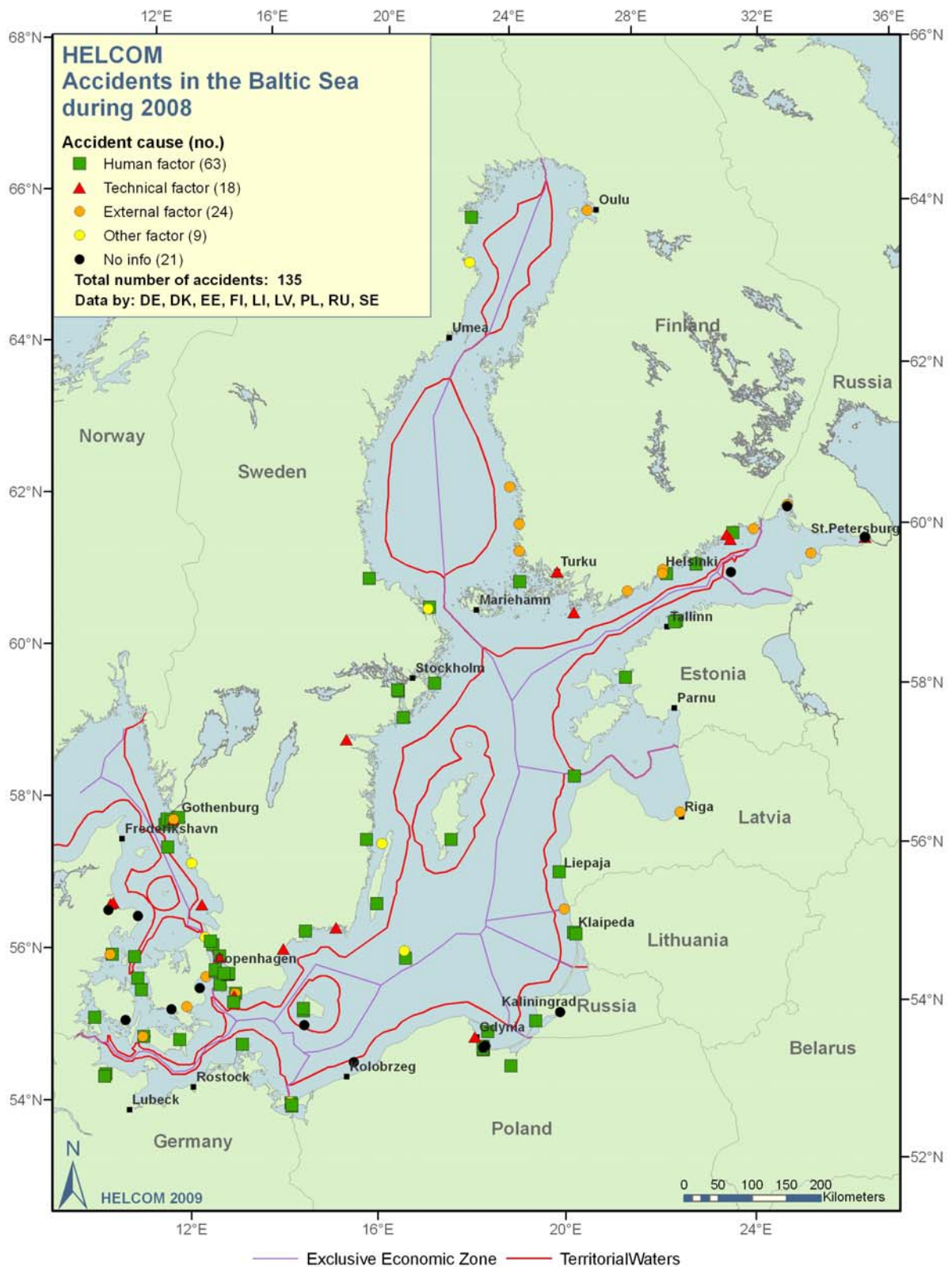
Human factor was the main cause of accidents in almost half (47%) of the incidents reported in 2008. External and technical factors were the reason for 18% and 13% of accidents, respectively (**Figure 14**).



**Figure 14**

Only one accident was reported as occurring in ice conditions in 2008. On the other hand, for a number of accidents no information was provided on ice presence.

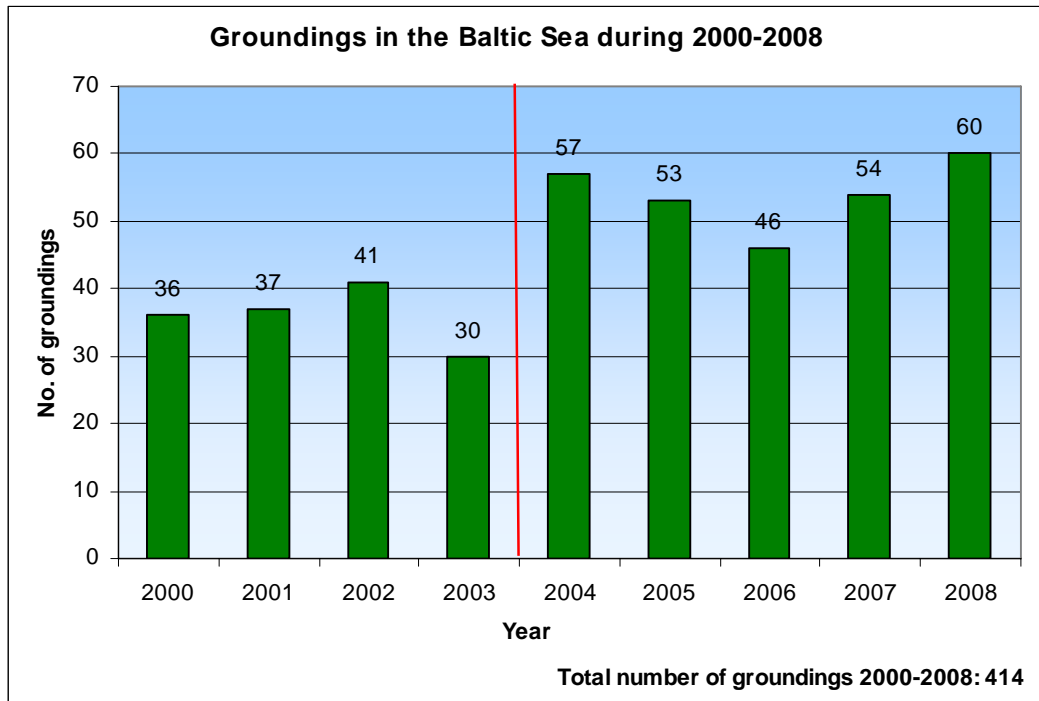
Spatial distribution of accidents with indication of the cause is presented in **Figure 15**.



**Figure 15**

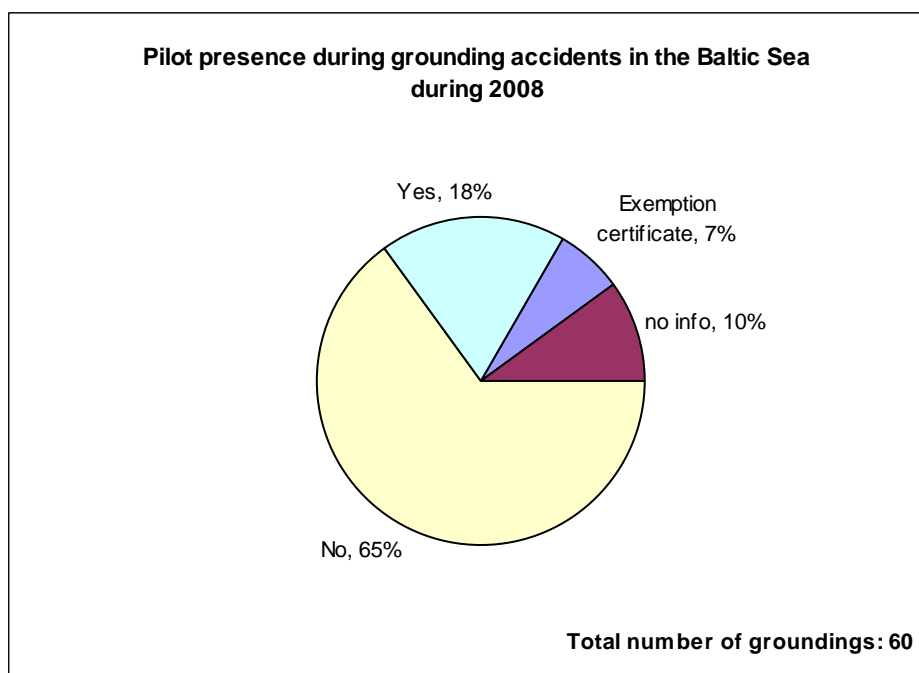
## Groundings

In 2008, there were 60 reported groundings – more than any other year since HELCOM reporting started (**Figure 16**). Accounting for 44% of the total number of reported accidents in 2008, groundings have been the most common type of accident in the Baltic since 2007, in contrary to 2005 and 2006 when collisions were more common.

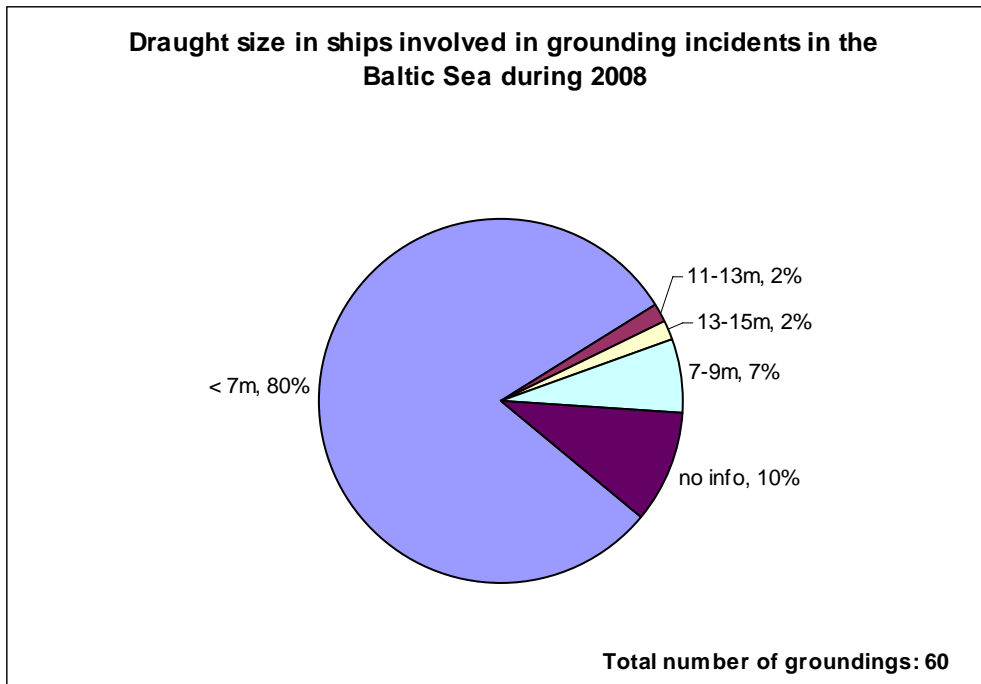


**Figure 16**

**Figure 17** illustrates the presence/absence of a pilot on board vessels in cases of grounding accidents in 2008. Clearly the vast majority (65%) did not have a pilot on board at the time of grounding. On the other hand, most reported groundings in 2008 (80%) occurred with vessels having a draught of less than 7 m (**Figure 18**).



**Figure 17**



**Figure 18**

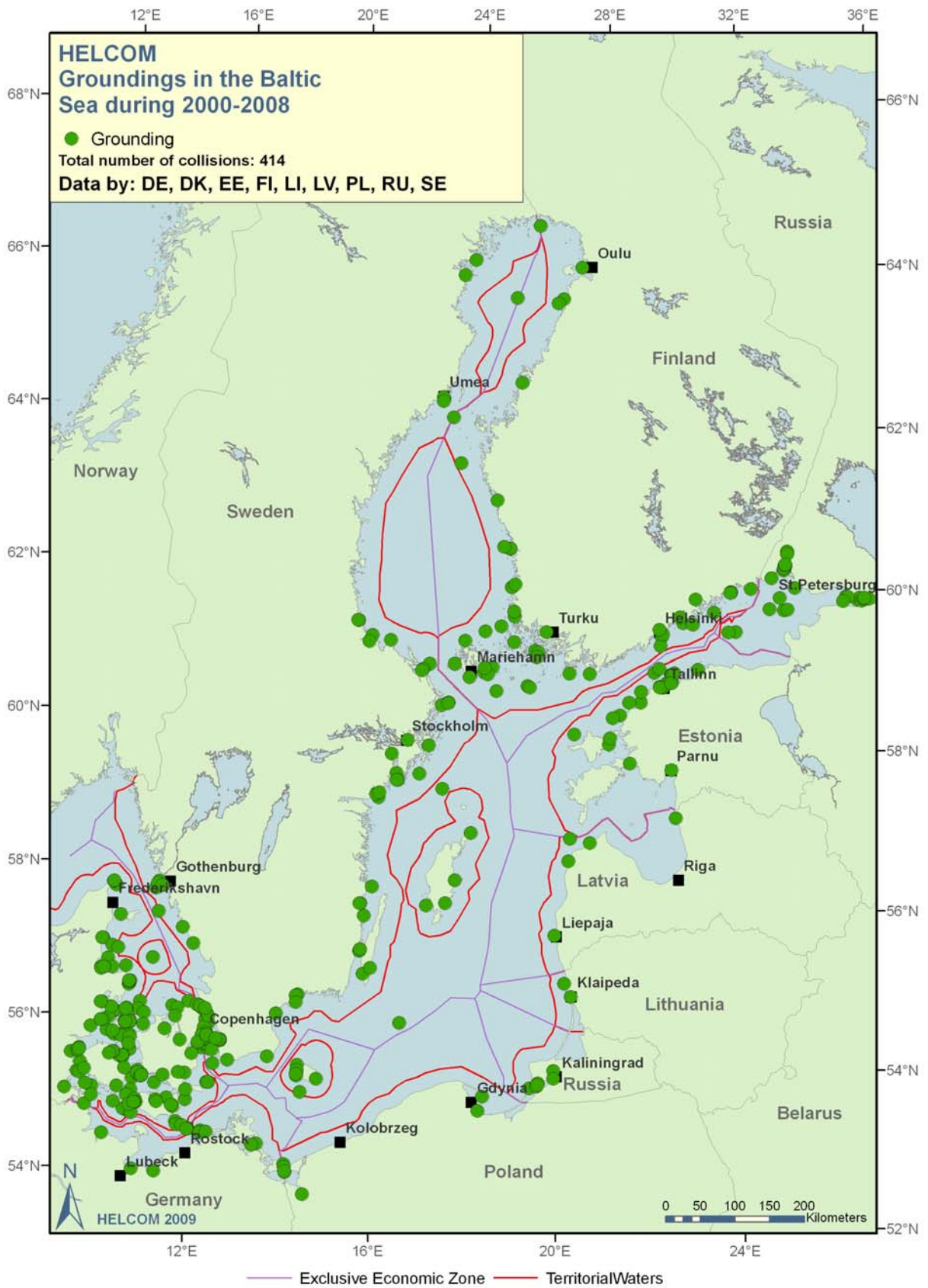
The map of the reported groundings in 2000-2008 (**Figure 19**) clearly indicates that the areas of primary concern are:

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

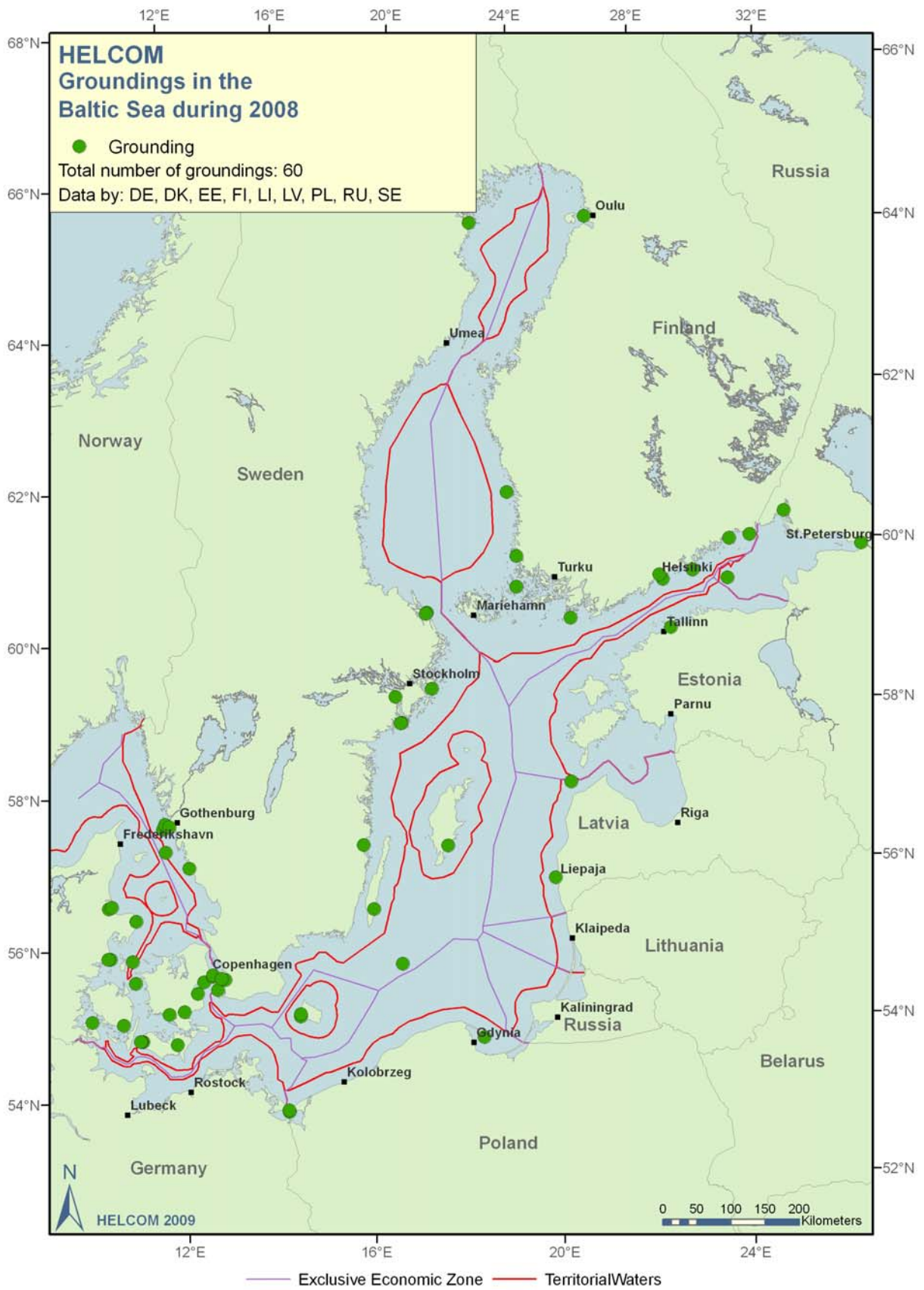
The other areas where groundings have occurred deserve the attention of the relevant states as well.

The map of groundings in 2008 (**Figure 20**) especially points to the Danish straits.



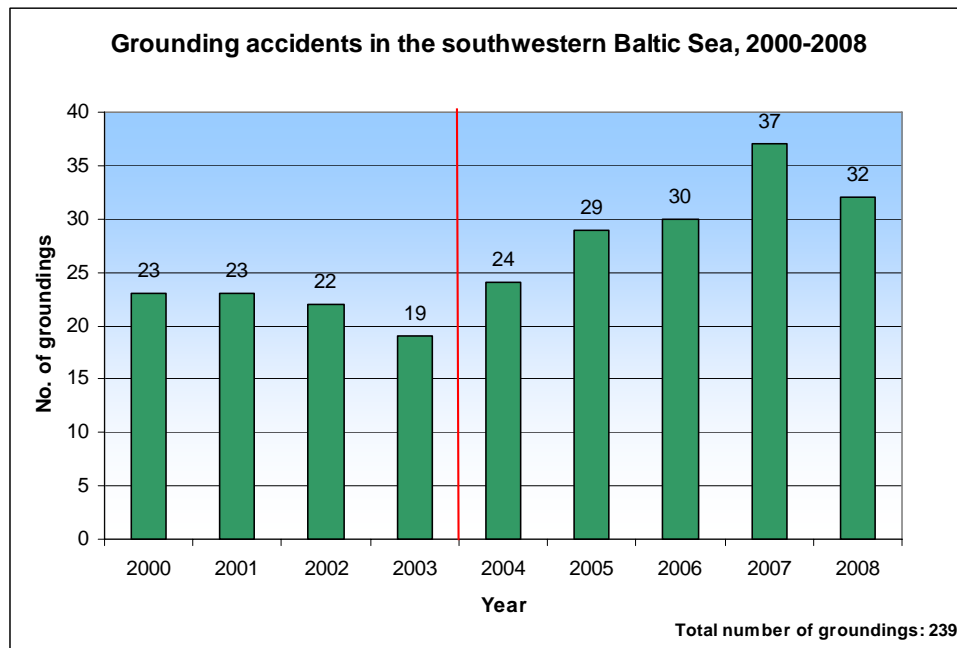


**Figure 19**

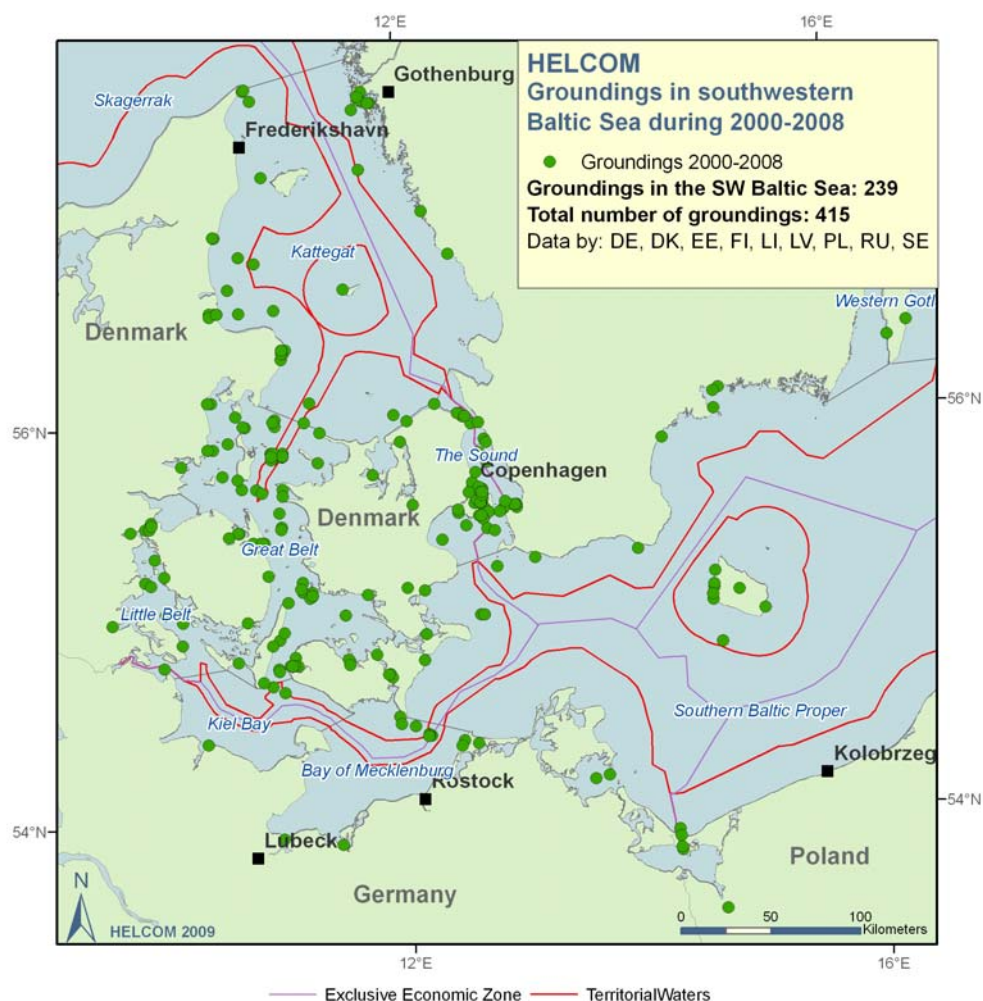


**Figure 20**

The statistics on groundings in southwestern Baltic Sea, including the Danish straits, show an increase in recent years (**Figures 21 and 22**) accounting for around 58% of all groundings registered in 2000-2008. The peak year was 2007 when 37 grounding cases were reported, and in 2008 this number decreased by 5.



**Figure 21**



**Figure 22**

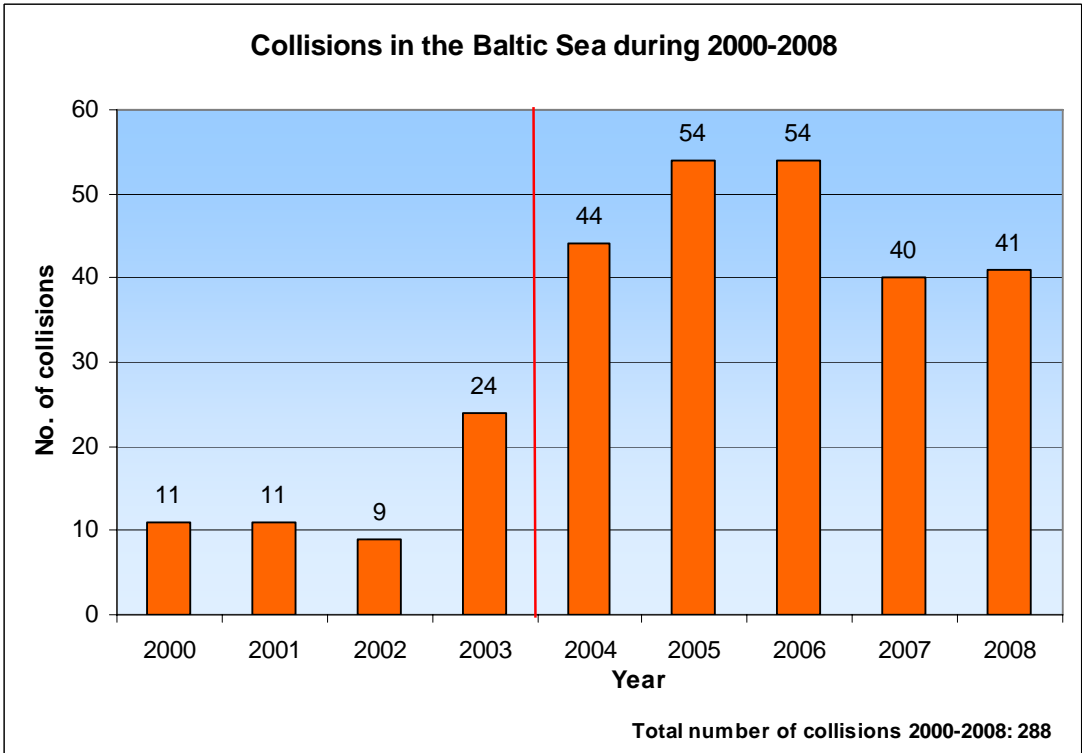
The number of the reported groundings in the Gulf of Finland doubled between 2007 and 2008 after a comparatively low number of incidents in the two prior years (**Figure 23**).



**Figure 23**

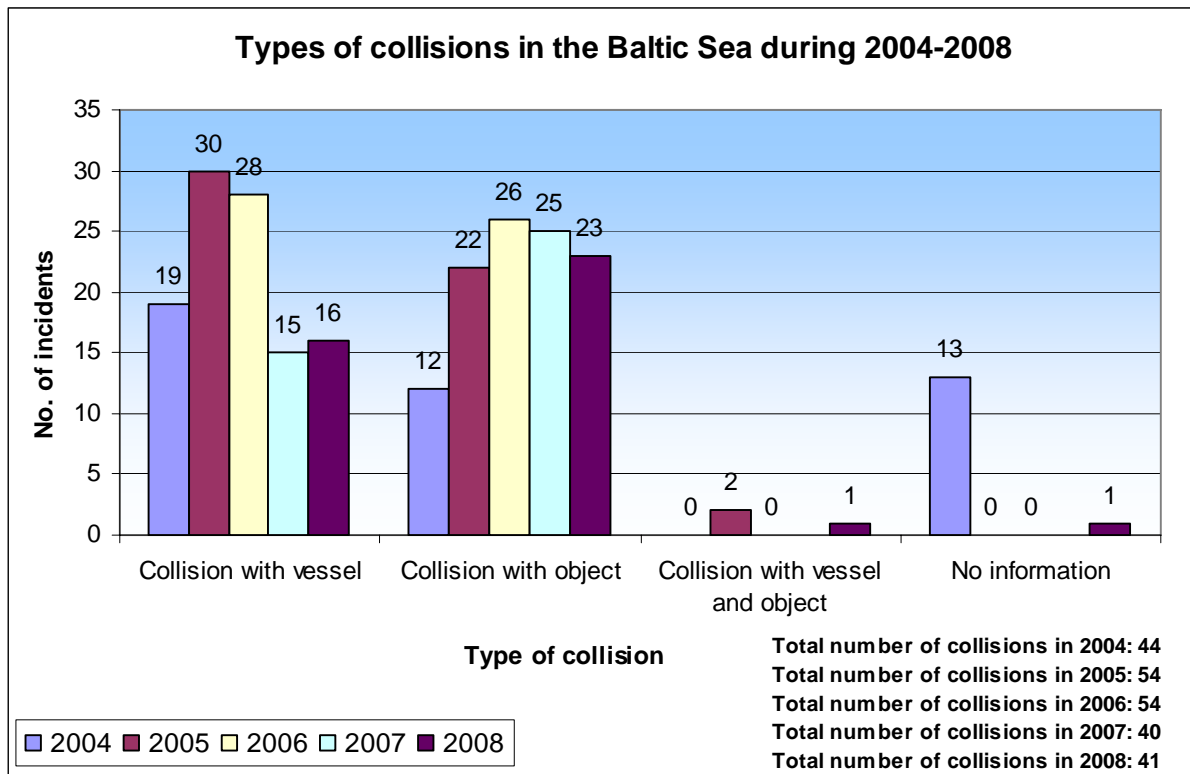
**Collisions**

Amounting to 41 cases (30%) of all accidents in 2008 and 288 cases (32%) for the period 2000-2008; 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, however, with an increase in one, there was not much change in the number of incidents reported between 2007 and 2008 (**Figure 24**).



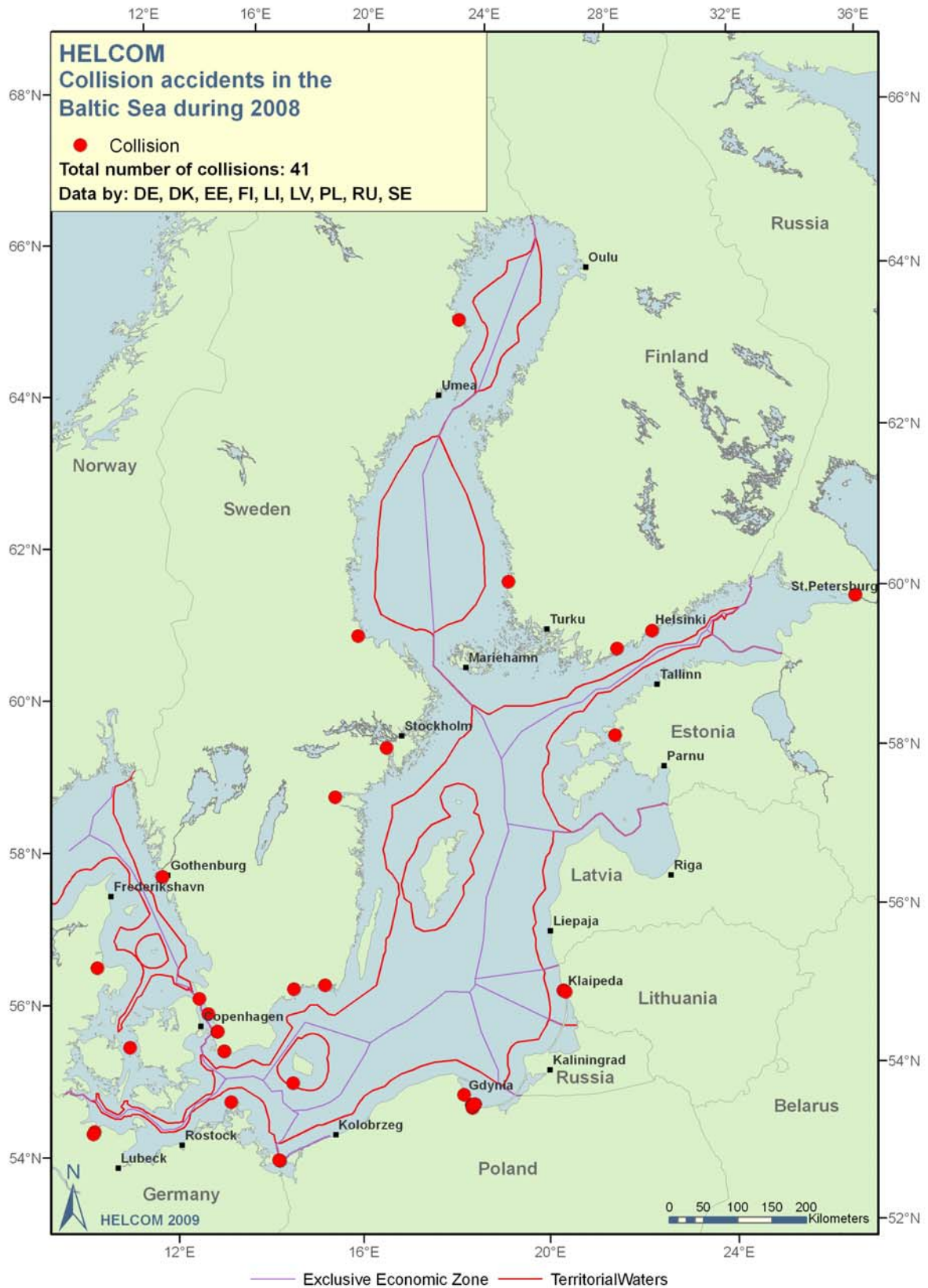
**Figure 24**

Ship to ship collisions accounted for 39% of all collision cases in 2008 and the rest of the cases were collisions with fixed and/or floating structures, e.g. peers, navigation signs etc. On a positive note, the number of ship to ship collisions has almost halved since 2005-2006, whereas the number collisions with objects has remained largely unchanged (**Figure 25**).



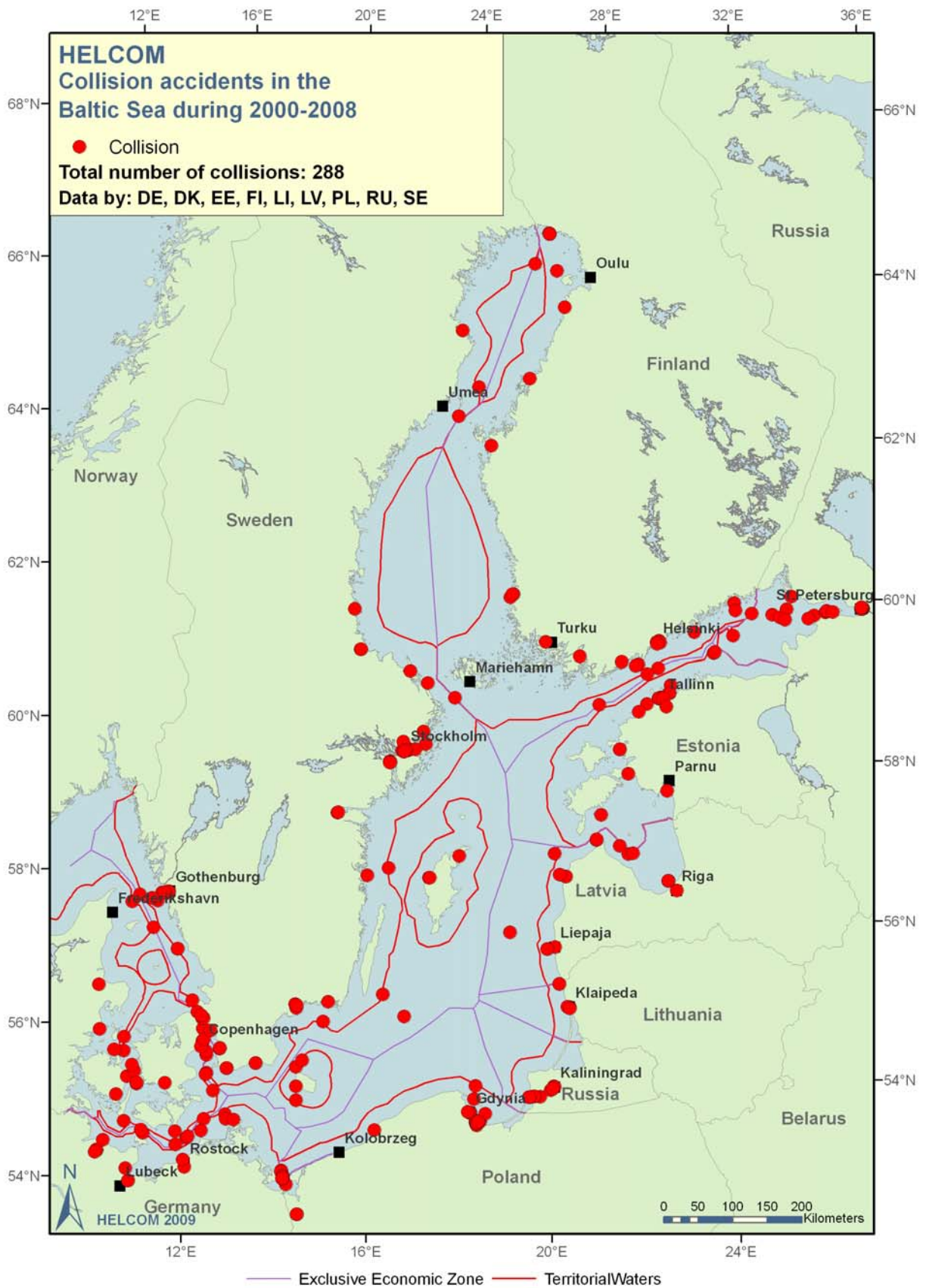
**Figure 25**

Spatially collisions are not clearly accumulated in few areas (**Figure 26**) but the map of collisions during 2000-2008 (**Figure 27**) does point toward approaches to ports and the Danish straits as the most risky areas for ships to collide. No clear trend can be observed for collisions in the southwestern Baltic Sea, including the Danish straits (**Figures 28 and 29**) as the number of cases vary from year to year. Although there were two more collisions reported in the Gulf of Finland during 2008 than 2007, the number of incidents still remains dramatically lower than before 2006 (**Figures 30 and 31**).

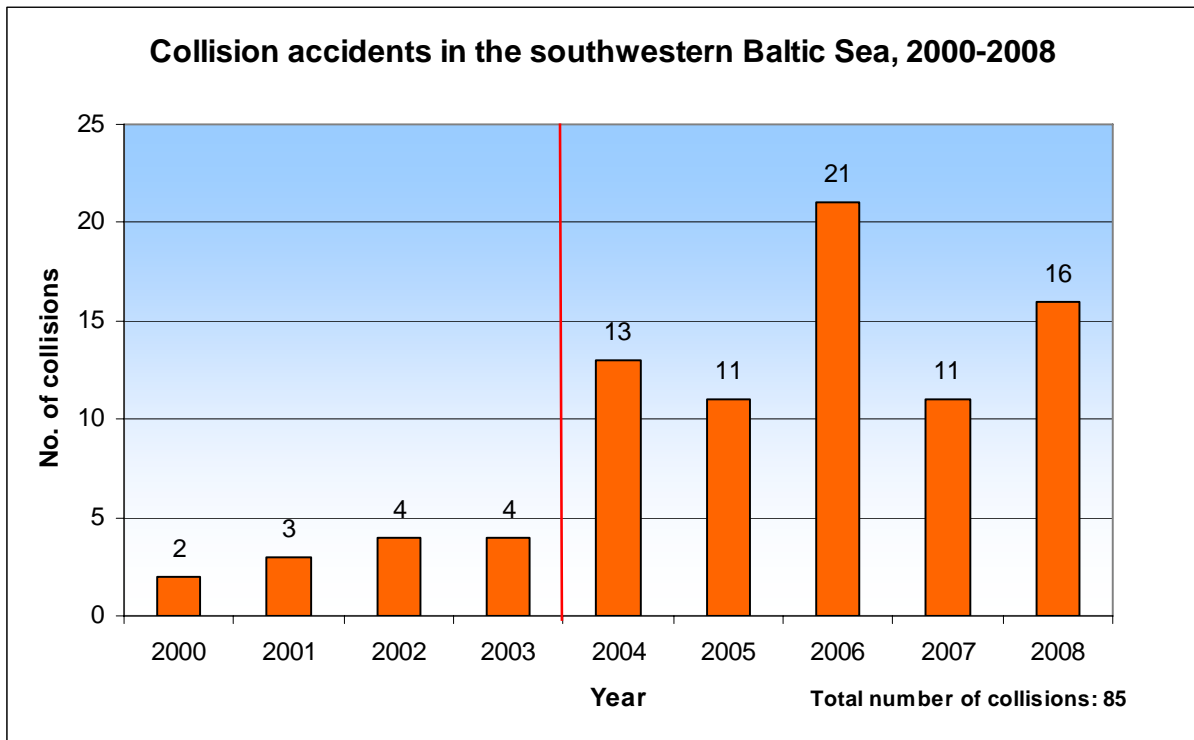


**Figure 26<sup>1</sup>**

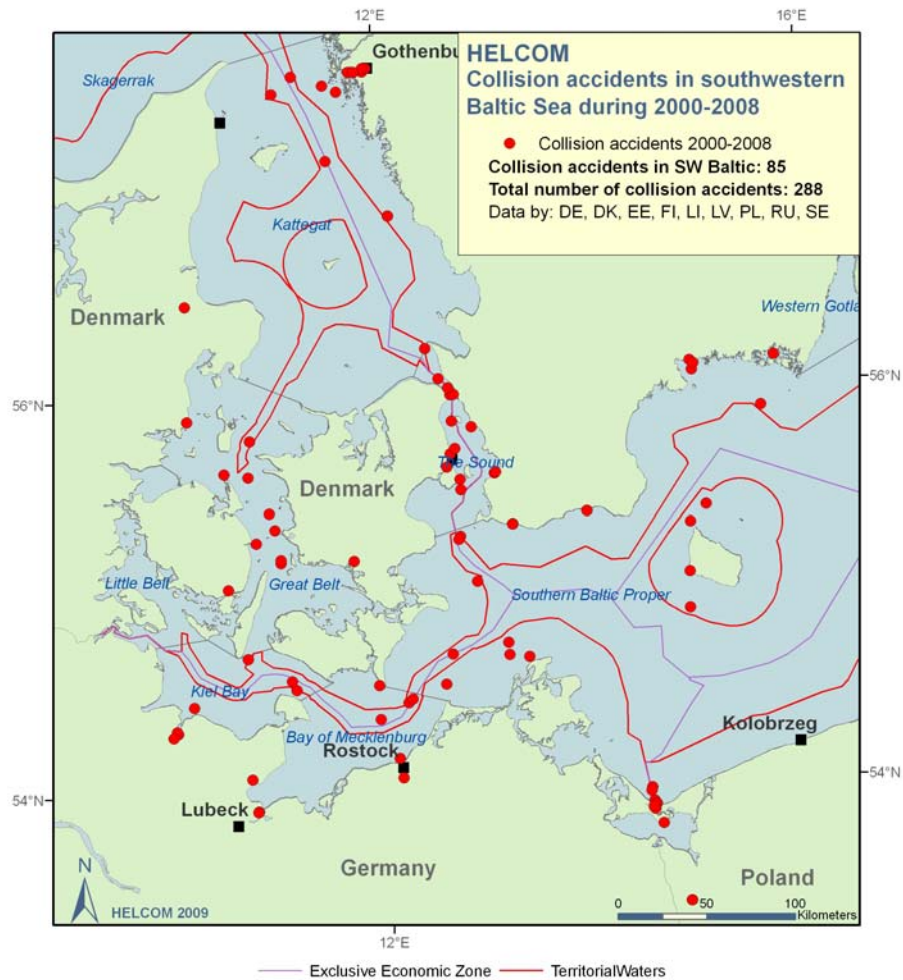
<sup>1</sup> **Note:** More than one collision took place e.g. in Gothenburg, Szczecin, Gdansk, Gdynia, Klaipeda and St. Petersburg.



**Figure 27**



**Figure 28**

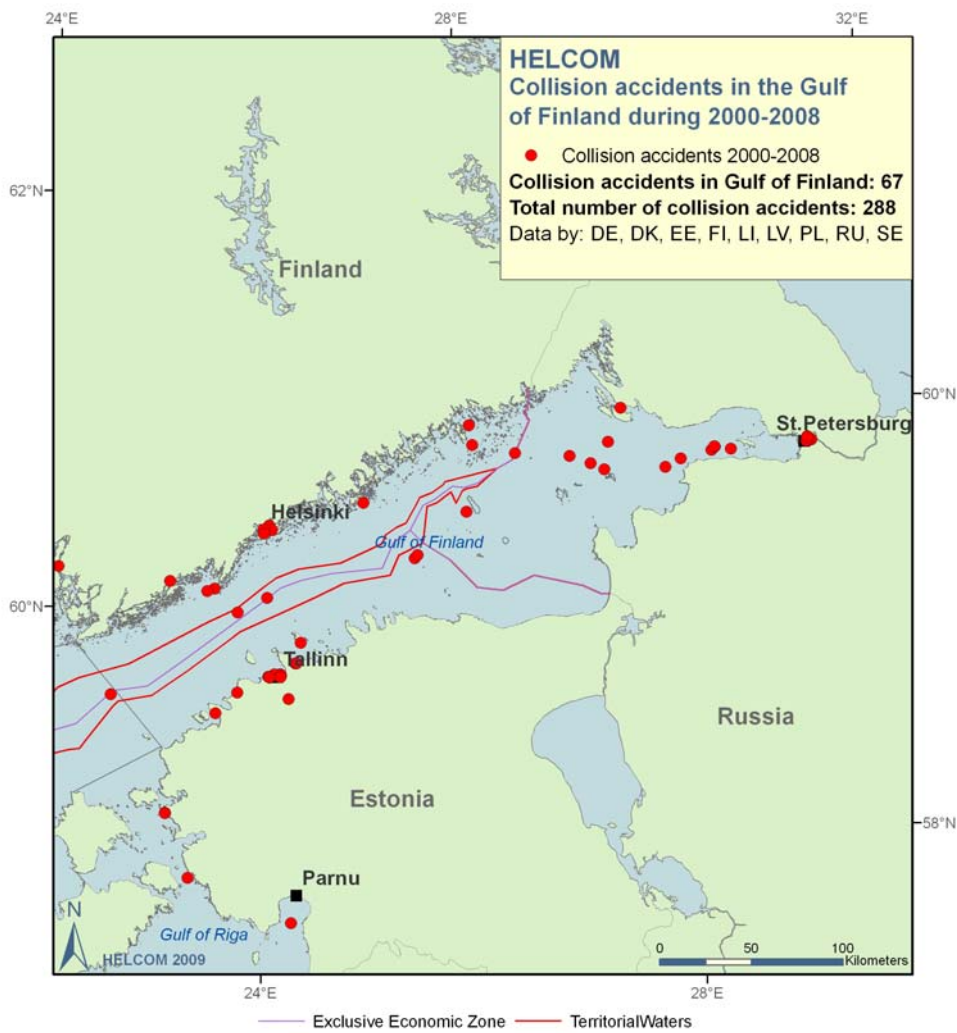


**Figure 29**





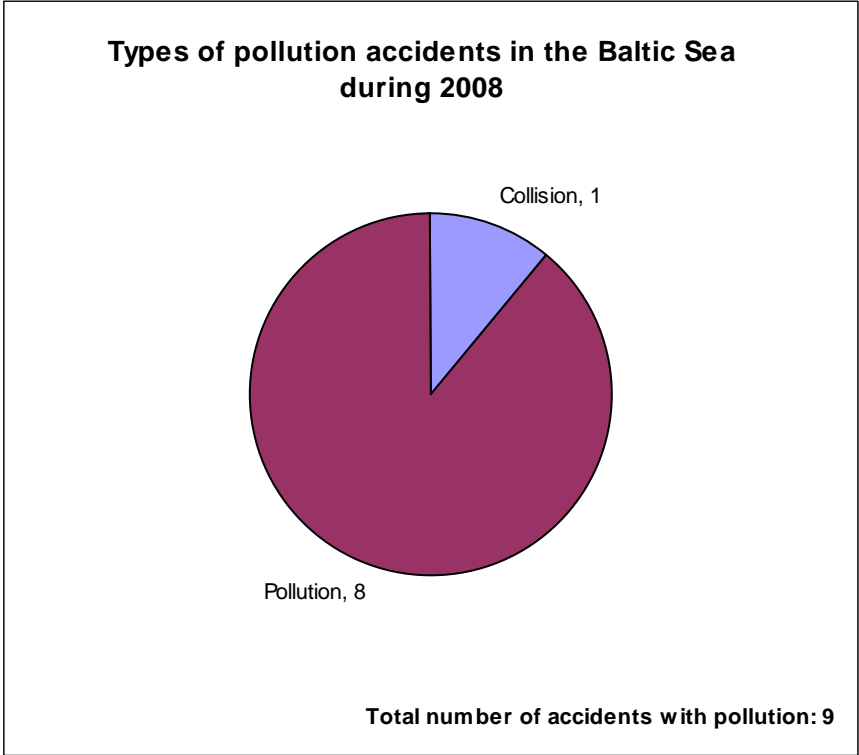
**Figure 30**



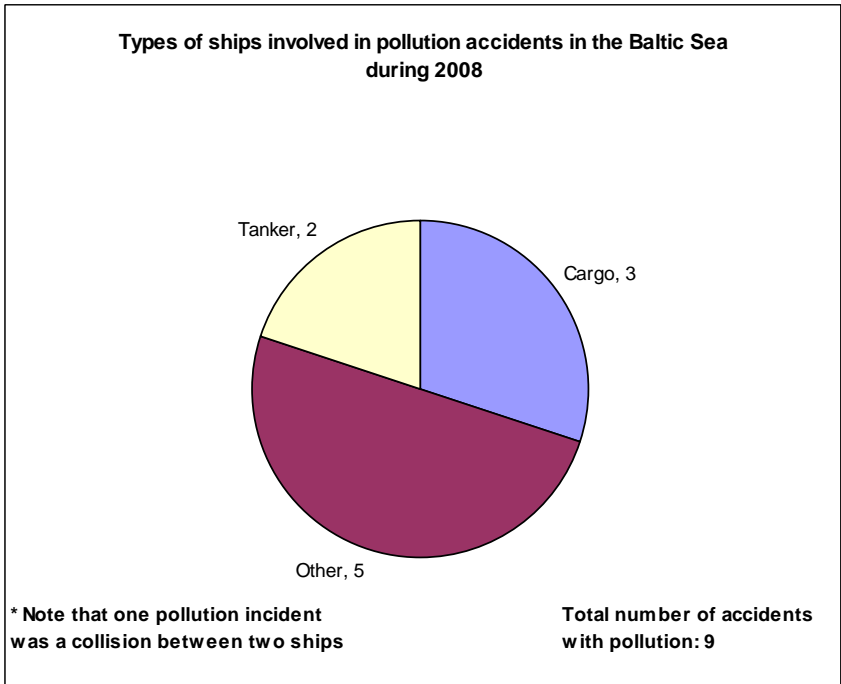
**Figure 31**

### Accidents with pollution

As one may expect, accidents resulting in pollution get more attention of the competent authorities and media. According to the 2000-2008 data, 7% of the reported accidents ended up with some kind of pollution. In 2008, this percentage was the same, with nine out of the total 135 reported accidents resulting in pollution. One of these incidents was a collision, whereas the rest were pollution incidents occurring e.g. during fuel transfer (**Figure 32**). Half of the ships involved in pollution accidents were vessels other than cargo, tanker or passenger ships (**Figure 33**).

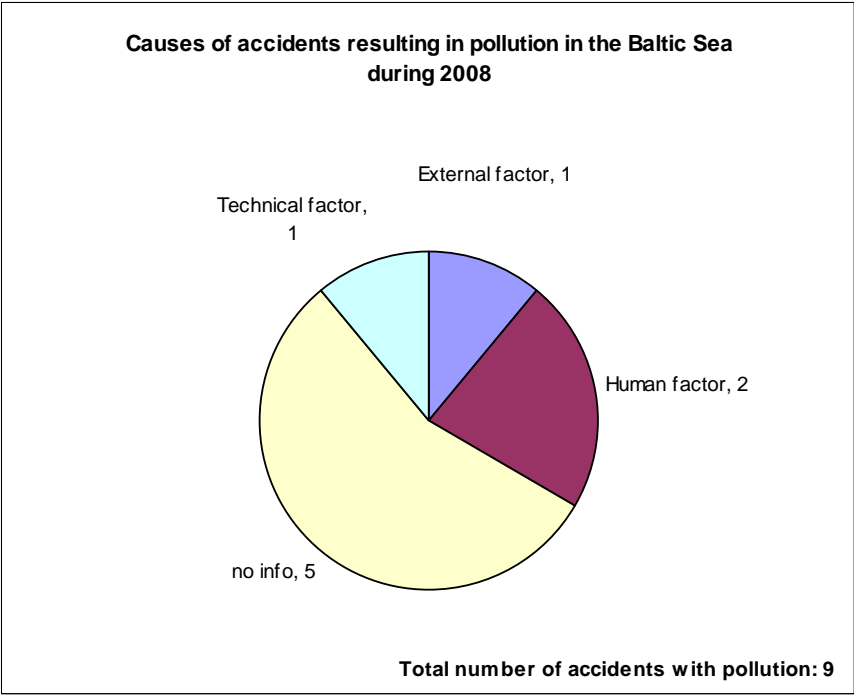


**Figure 32**



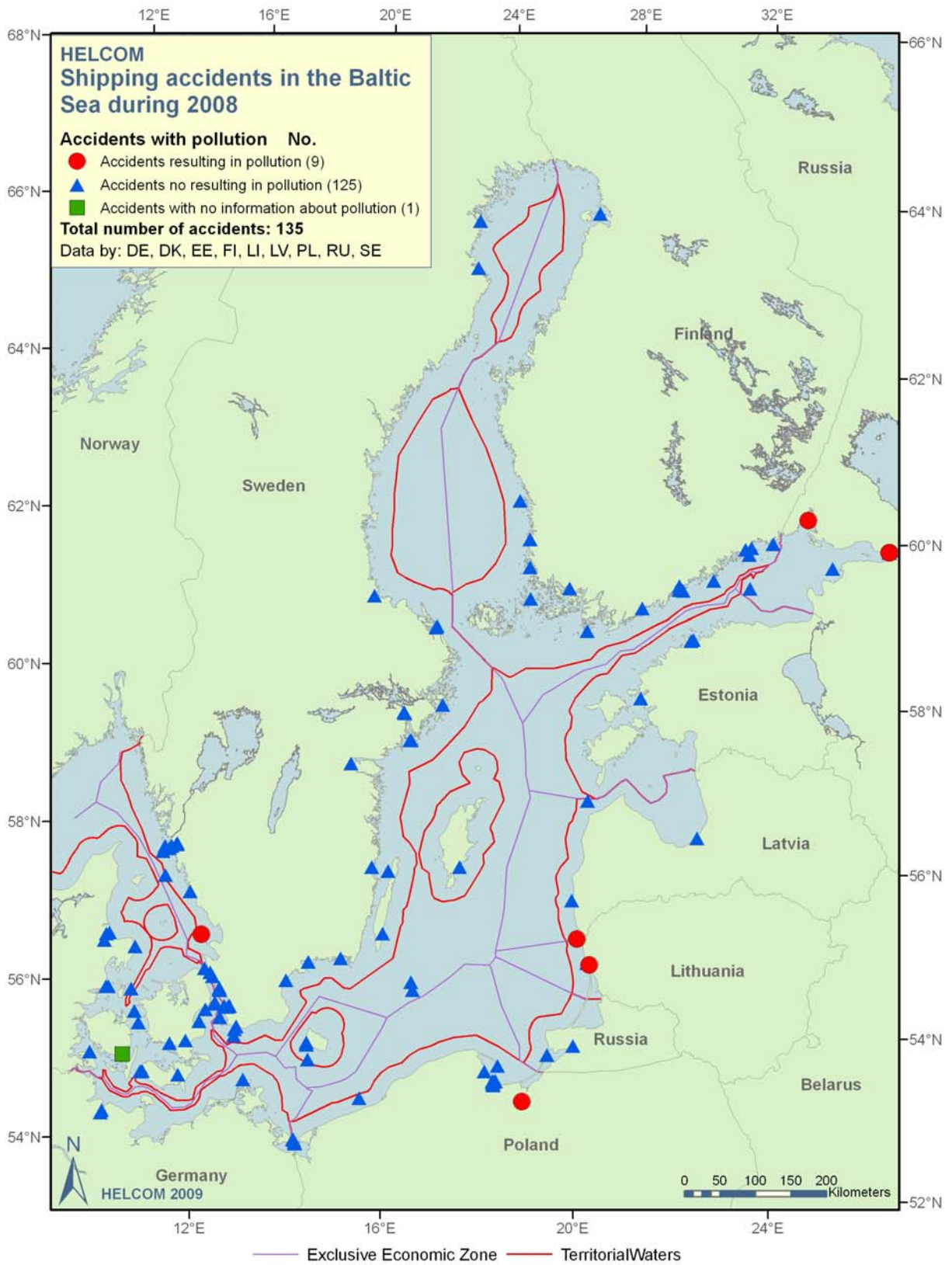
**Figure 33**

For five out of the nine accidents resulting in pollution in 2008, no information was provided on the dominating cause of the accident (**Figure 34**).



**Figure 34**

The spatial distribution of the accidents in 2008 resulting in pollution is presented in **Figure 35** and some additional details of the pollution accidents are contained in **Table 4**.



**Figure 35**

Country	Date	Latitude	Longitude	Ship name(s)	Ship type(s)	Ship size (gt)	Cargo	Type of accident	Cause of accident	Type of pollution
Lithuania	31.01.2008	56.0470	20.9560	STENA ANTARCTICA, 9322827, Cayman Islands	Tanker	61371	Crude Oil	Pollution	External factor	2.2437 tonnes crude oil
Lithuania	10.04.2008	55.7000	21.1350	BARTA, 8853910, Lithuania and MAGDALENA, 8302234, Malta	Other and cargo	182	Ballast	Collision	Human factor	n.i. (diesel oil)
Poland	20.06.2008	54.1040	19.2320	Tanais, 6721008, Poland	Cargo		ballast and empty	Pollution	Human factor	ca. 0.2 - 0.3 tonnes MDO
Russia	31.05.2008	59.9500	30.3167	BALTIK WIND, 377566000, Sent-Vinsent	Other	n.i.	bunker	Pollution	n.i.	2 tonnes mazut IFO-380
Russia	04.06.2008	59.9500	30.3167	EMMA, Russian Federation	Other	n.i.	mazut	Pollution	n.i.	0.4 tonnes mazut IFO-180
Russia	23.02.2008	59.9500	30.3167	PIETARY FROST, Russian Federation	Other	n.i.	n.i.	Pollution	n.i.	0.8 tonnes mazut IFO-390
Russia	09.07.2008	59.9500	30.3167	NARVA, Russian Federation	Tanker	n.i.	mazut	Pollution	n.i.	0.5 tonnes mazut
Russia	17.11.2008	60.6167	28.5667	K. BREDLI, Marshall Islands	Other	n.i.	diesel oil	Pollution	n.i.	0.25 tonnes diesel oil
Sweden	11.02.2008	56.5500	12.4500	Hans, SKEZ, Sweden	Other	499	Bulk	Pollution	Technical factor	0.015 m <sup>3</sup> hydraulic oil

**Table 4. Data on accidents resulting in pollution in 2008.**

### More information

For more information about maritime traffic and accidents, see the HELCOM website:  
[http://www.helcom.fi/shipping/en\\_GB/main/](http://www.helcom.fi/shipping/en_GB/main/)

The complete HELCOM dataset on shipping accidents from 1989-2008 can be:

- viewed and queried in the interactive web-based map service: *HELCOM Maritime and Accident Response Information System (MARIS)*:  
[http://www.helcom.fi/GIS/maris/en\\_GB/main/](http://www.helcom.fi/GIS/maris/en_GB/main/) and
- downloaded as a GIS file via the *HELCOM data delivery service*:  
[http://www.helcom.fi/GIS/en\\_GB/data\\_delivery/](http://www.helcom.fi/GIS/en_GB/data_delivery/)