



Report on shipping accidents in the Baltic Sea area for the year 2006

Introduction

Data on shipping accidents in the Baltic Sea area has been collected 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 2006. Figures 14,15,16,17, 19, 20 and 21 have been amended on 8 August 2007.

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

The IMO regulation requires Automatic Identification System 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 the basic information on the shipping intensity is of importance, which can be illustrated by the number of ships crossing the HELCOM AIS pre-defined lines as presented in **Figure 1** and **Figure 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**. The numeric data used in developing the maps are presented in **Tables 1 and 2**.

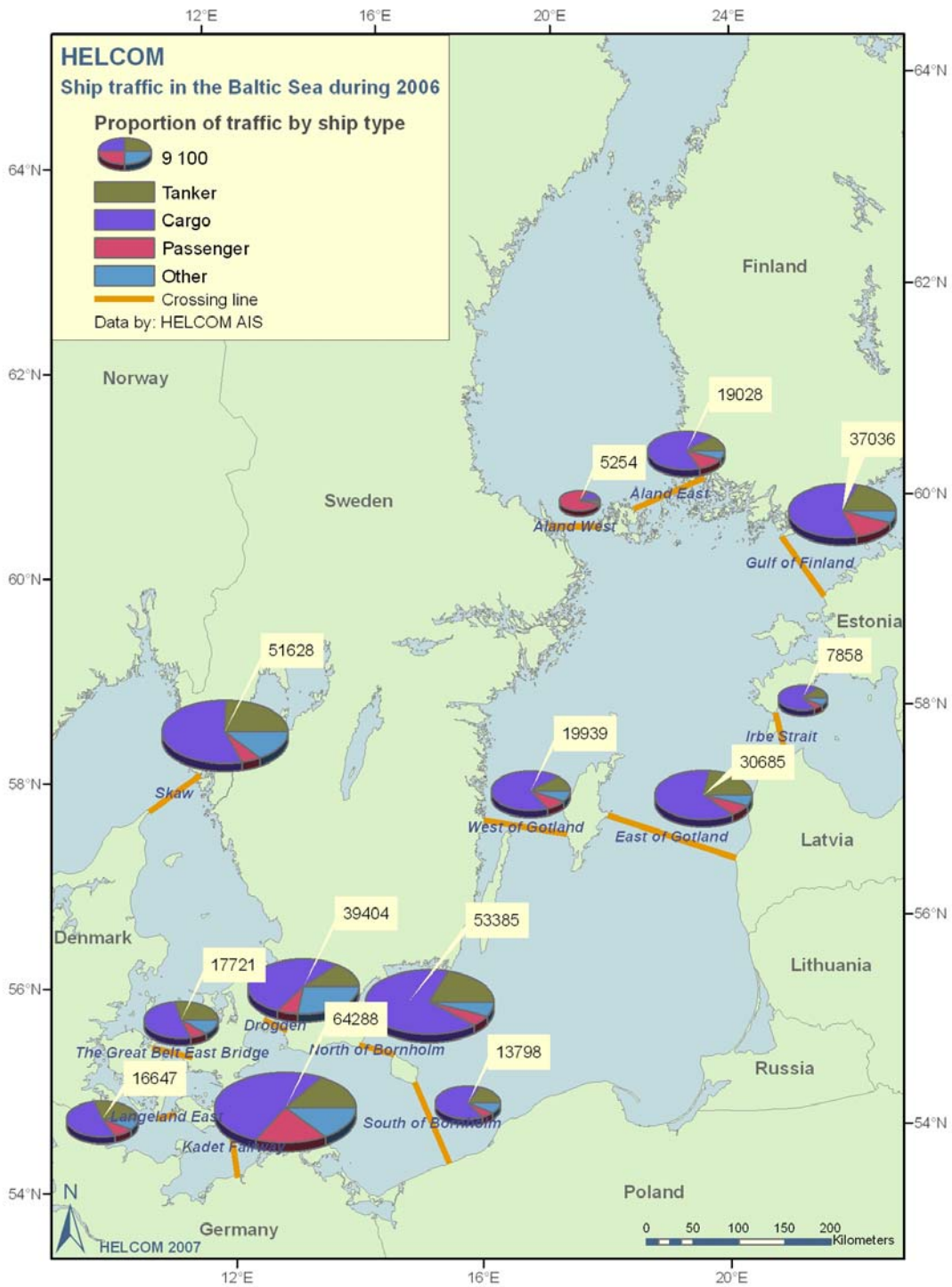


Figure 1. Number of ships crossing the AIS fixed lines in the Baltic Sea according to the type of the vessels, 2006.

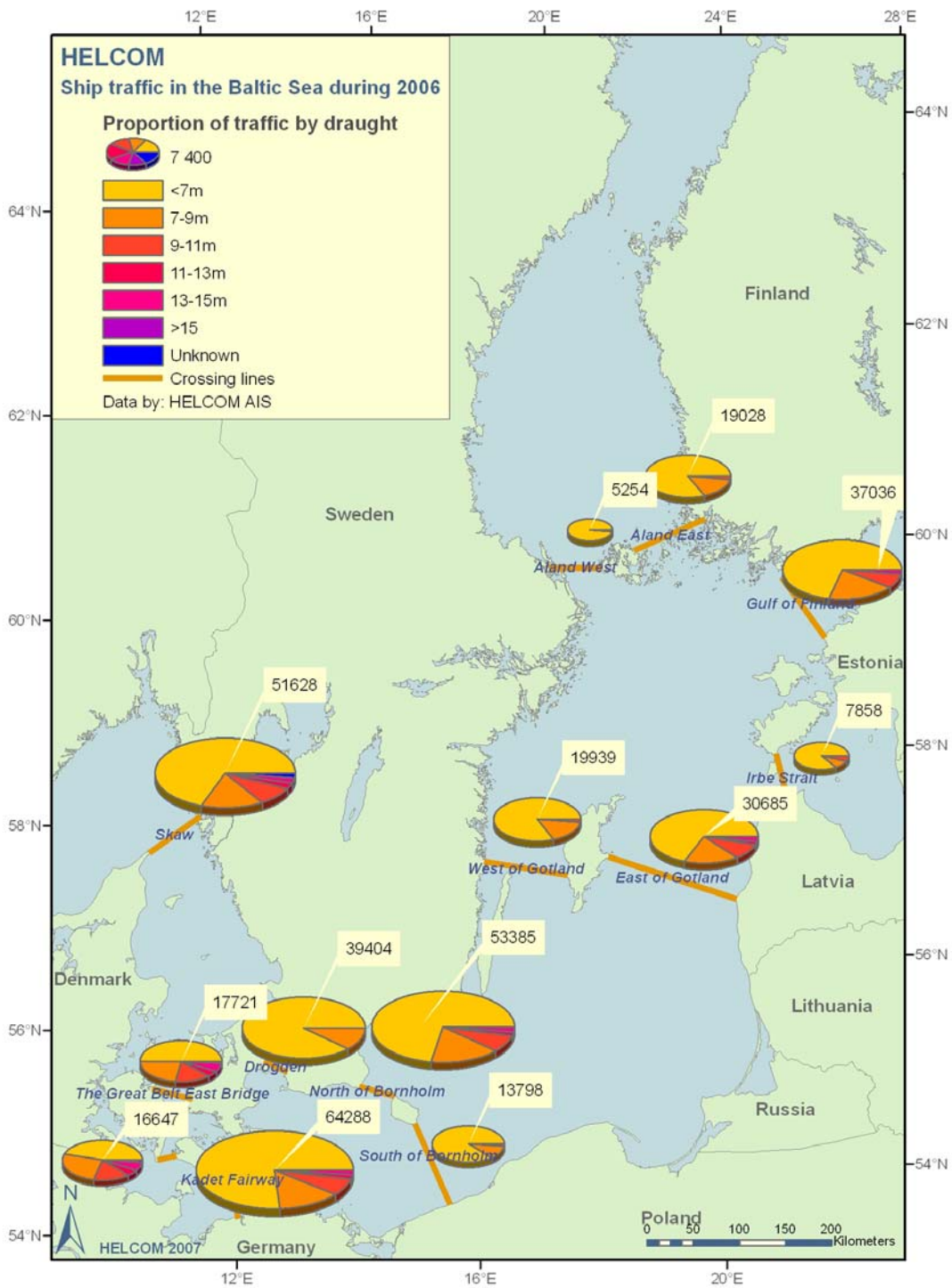


Figure 2. Number of ships crossing the AIS fixed lines in the Baltic Sea according to the draught, 2006.

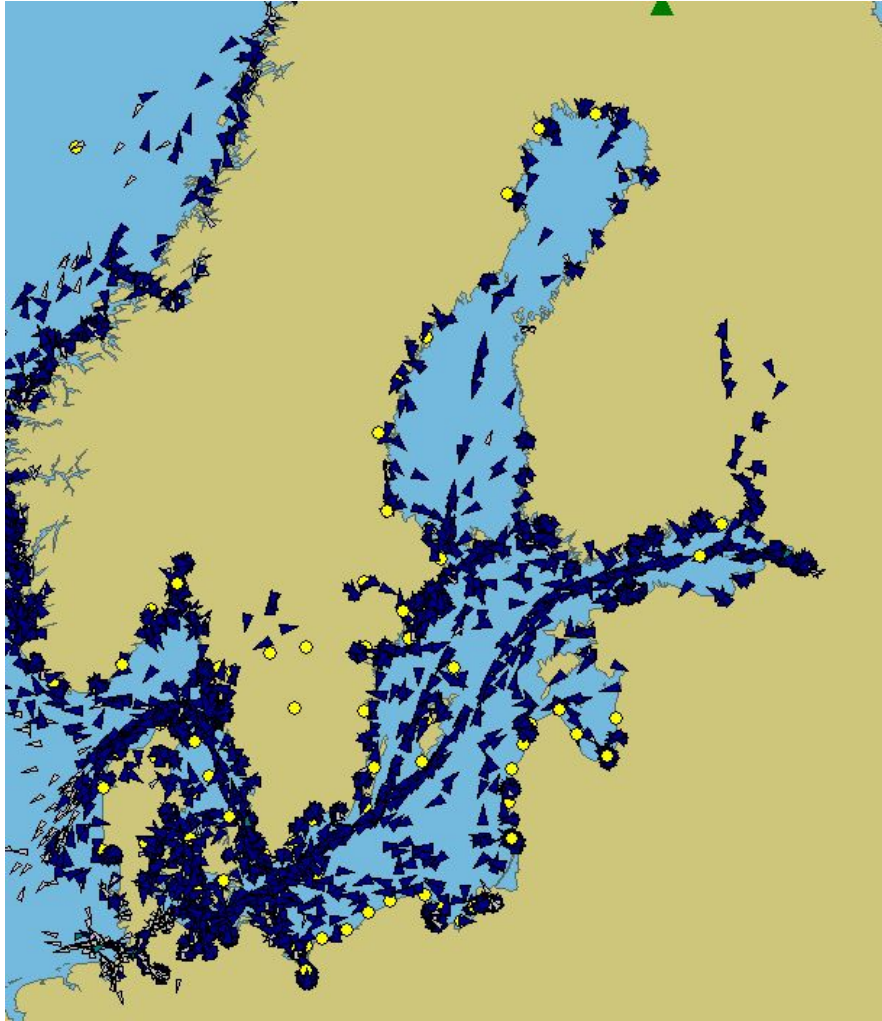


Figure 3. Snapshot from the HELCOM AIS.

Location	Type of ship				Total
	Tanker	Cargo	Passenger	Other	
Skaw	12702	29101	3149	6676	51628
The Great Belt East	5133	9213	1527	1848	17721
Bridge	4638	20833	3117	10816	39404
Drogden	5044	8743	1580	1280	16647
Langeland East	9990	38013	2486	2896	53385
Bornholm North	2319	9386	895	1198	13798
Bornholm South	8942	33333	13909	8104	64288
Kadet Fairway	2015	14792	1762	1370	19939
Gotland West	6838	20125	2139	1583	30685
Gotland East	1921	13791	2253	1063	19028
Åland West	110	677	4291	176	5254
Åland East	6850	23107	5098	1981	37036
Gulf of Finland	956	5741	525	636	7858
Irbe Strait	67458	226855	42731	39627	376671
Total	18%	60%	11%	11%	100%
Percentage					

Table 1. Number of ships crossing the AIS fixed lines in the Baltic Sea according to the type of the vessels, 2006.

Location	Draught						Unknown	Total
	<7m	7-9m	9-11m	11-13m	13-15m	>15m		
Skaw	34424	9823	4089	1024	989	487	792	51628
The Great Belt East Bridge	8862	3824	3105	764	899	190	77	17721
Drogden	35096	3703	82	6	0	152	365	39404
Langeland East	7689	3876	3120	759	904	187	112	16647
Bornholm North	37694	10407	3312	690	868	233	181	53385
Bornholm South	12150	1318	208	15	22	9	76	13798
Kadet Fairway	48811	9634	3648	770	904	253	268	64288
Gotland West	16411	2998	313	66	44	50	57	19939
Gotland East	20332	6519	2416	440	683	169	126	30685
Åland West	15749	2776	317	52	32	25	77	19028
Åland East	5146	69	6	0	0	5	28	5254
Gulf of Finland	25388	8194	2187	321	624	154	168	37036
Irbe Strait	6689	683	370	76	0	5	35	7858
Total	274441	63824	23173	4983	5969	1919	2362	376671
Percentage	72.86	16.4	6.15	1.32	1.58	0.51	0.63	~100%

*) 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, 2006.

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 would be useful to be discussed during HELCOM MARITIME meetings with a view to identify the possible need and possibilities of HELCOM actions in this area.

General information on accidents

According to the reports from the Contracting States there were 117 ship accidents in the HELCOM area in 2006 (**Figure 4**), which is 29 less than the year before. Among the reported accidents three ships sank as a result of collision. In two cases the reporting Contracting Party did not provide information about whether the accident resulted in pollution or not.

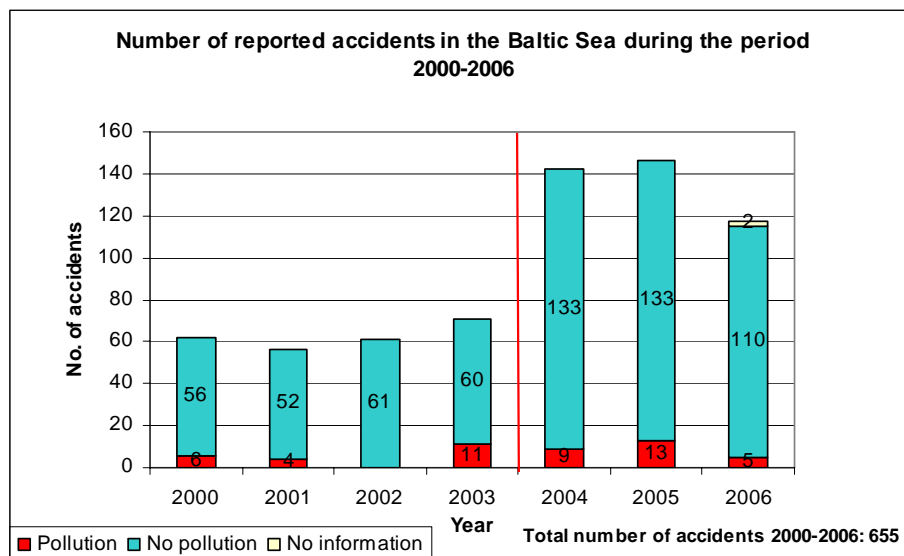


Figure 4

The spatial distribution of the reported accidents in 2006 is presented in **Figure 5**.

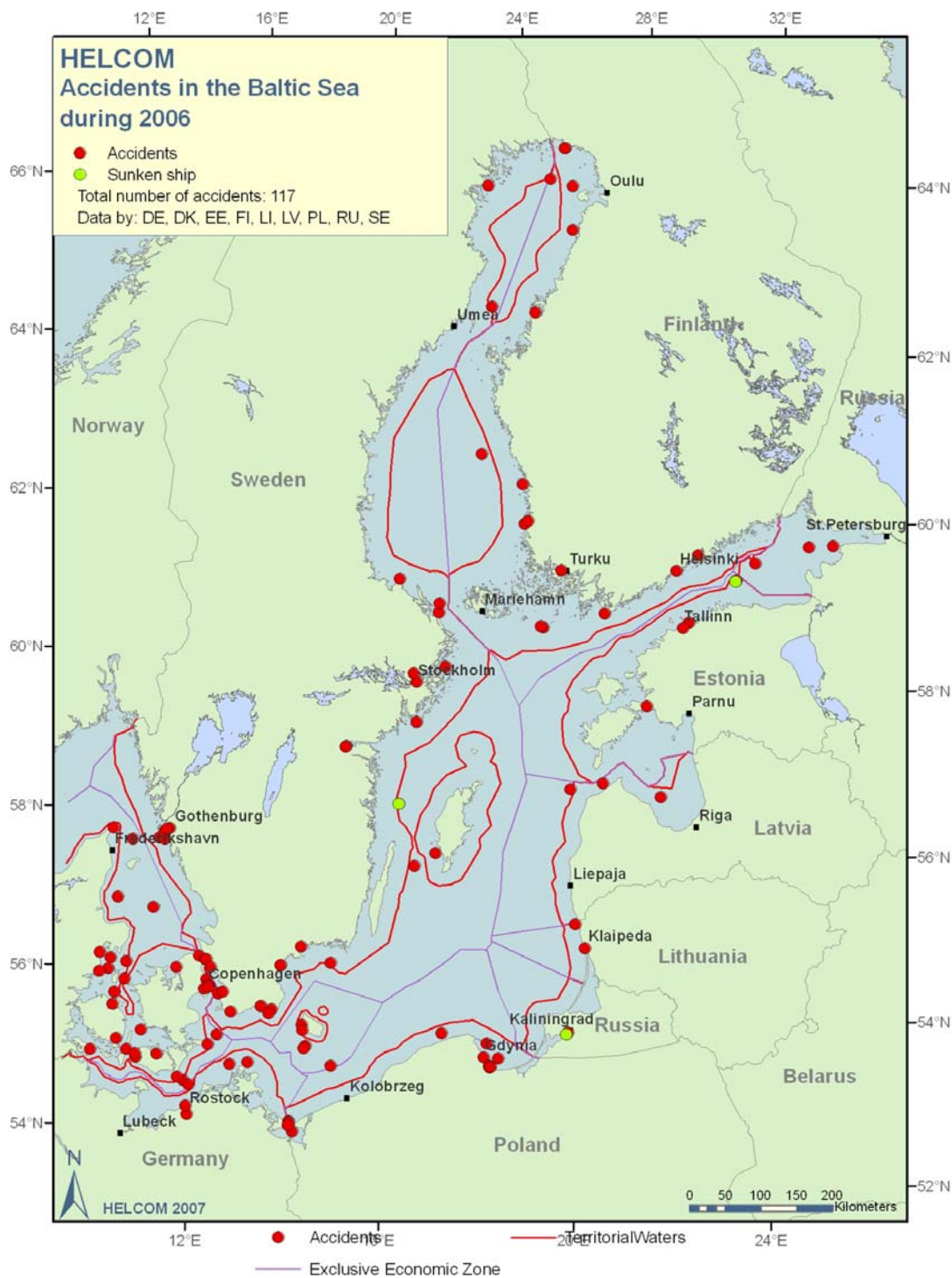


Figure 5

Collisions were the most common type of accidents in the Baltic accounting for almost a half of all reported cases (46%) and for a second year in a row surpassing the number of groundings (39%) (**Figure 6**). The share of the both types of accidents has increased as much as 10 % for collisions and 2 % for groundings compared to 2005.

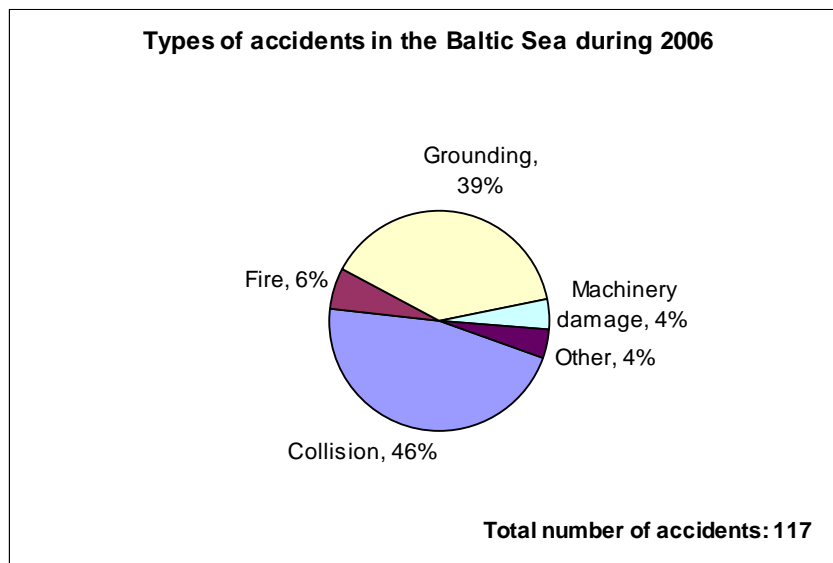


Figure 6

Reversed significance of groundings and collisions can be seen when comparing their share in accidents in 2006 (**Figure above**) and averaged percentages for 2000-2006 (**Figure 7**).

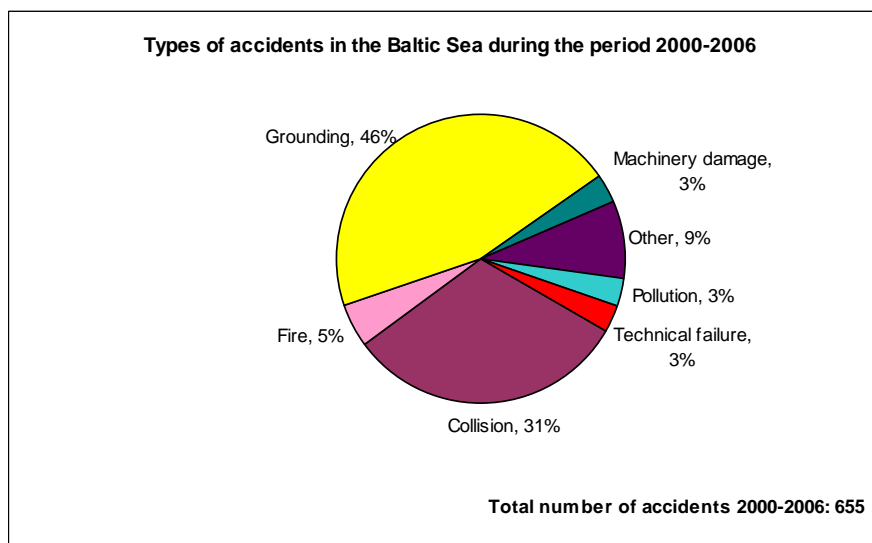


Figure 7

Spatial distribution of different types of reported accidents in the Baltic Sea in 2006 is presented in **Figure 8**.

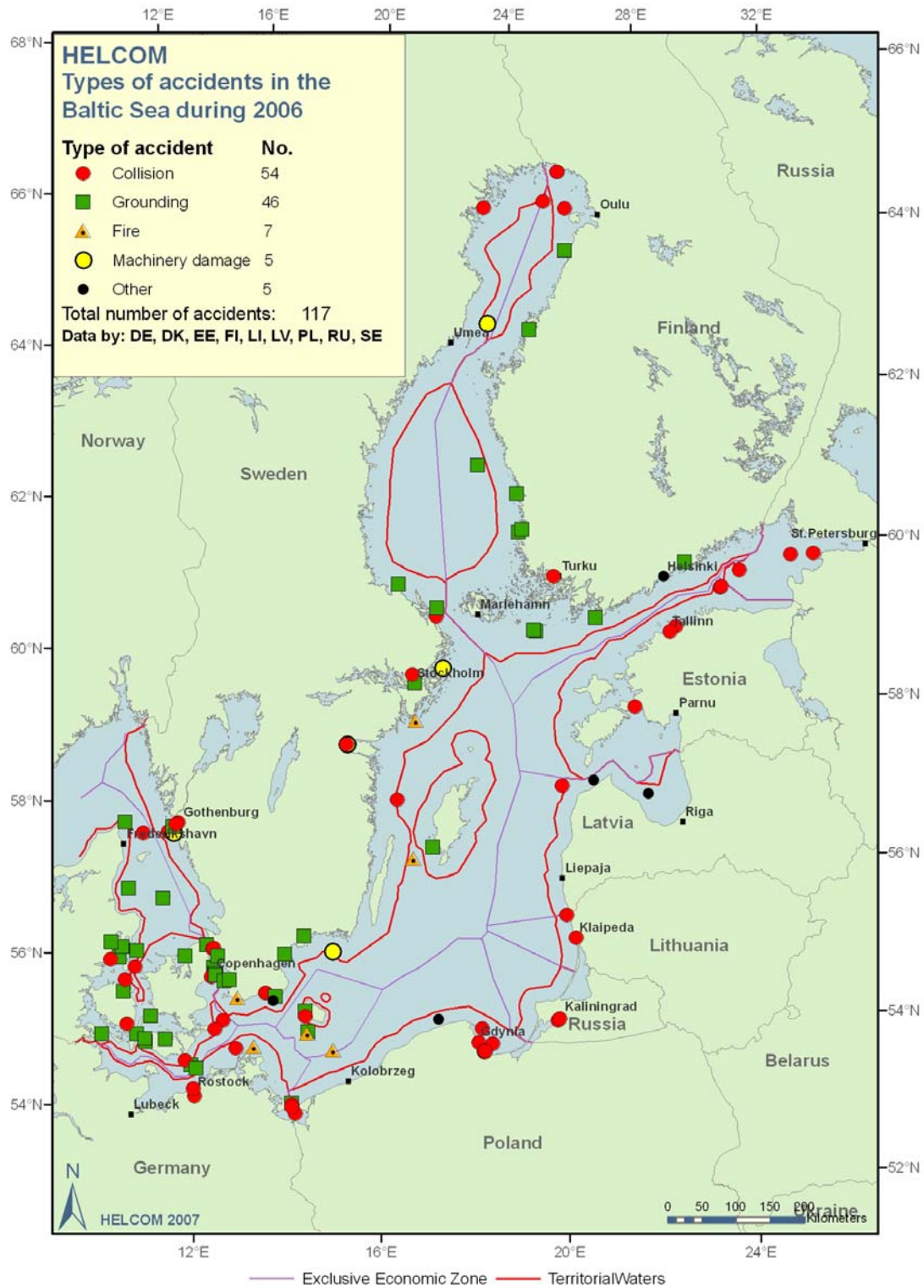


Figure 8

Types of vessels involved in the accidents

As can be seen from **Figure 9** cargo vessels are the main group of ships involved in accidents, followed by passenger vessels and tankers. This proportion more or less reflects the amount of different vessel types making up the Baltic Sea traffic in 2006 (crossings through the AIS lines, see Table 1), however the slightly higher risk can be observed for passenger ships and slightly lower for tankers and cargo ships.

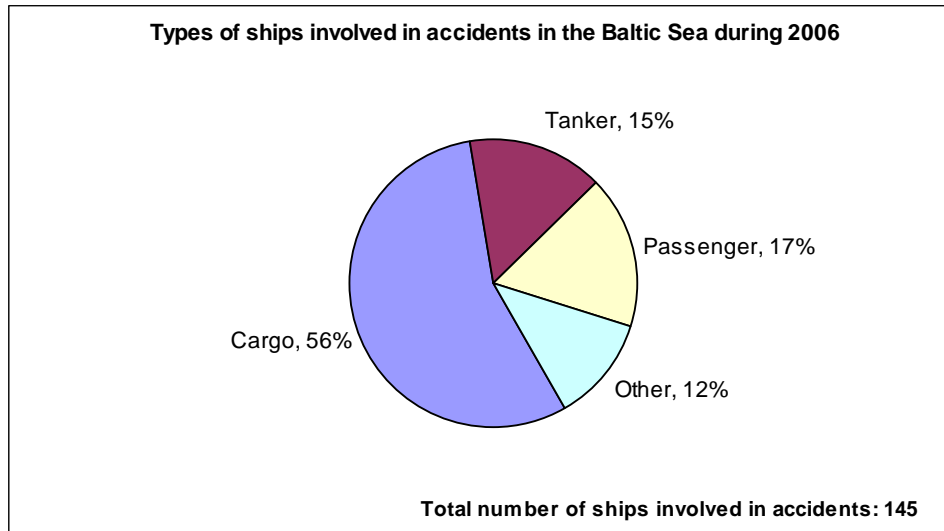


Figure 9

As tankers are often the issue of high concern, the map on tanker accidents in 2000-2006 (**Figure 10**) is also presented here.

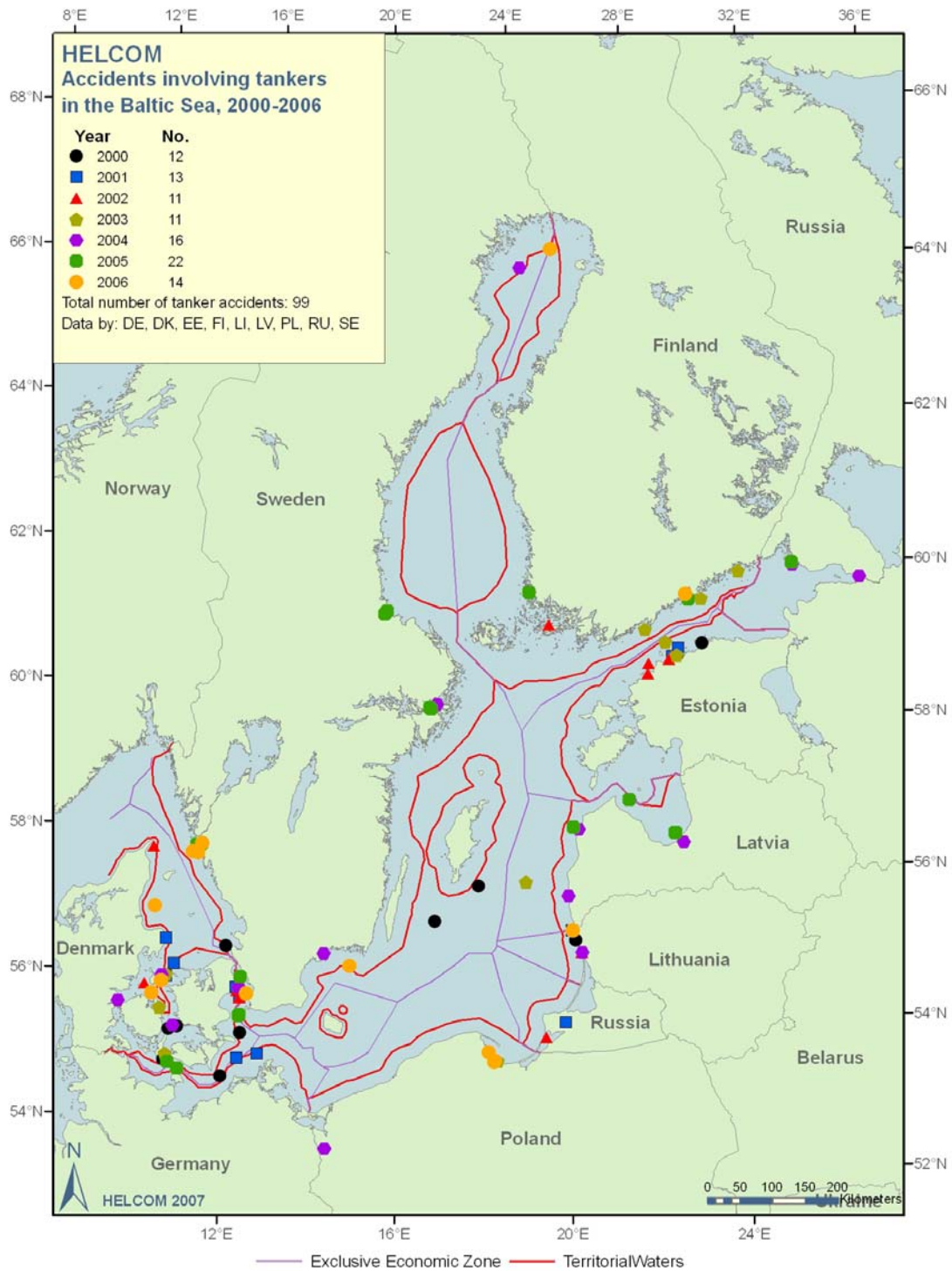


Figure 10

Causes of accidents

The main cause of accidents in 2006 is not as clear as the year before due to the lack of information for 35% of cases. However, human factor seems to continue to be the main reason for an accident to happen (36%), followed by technical factor (15%) (**Figure 11**).

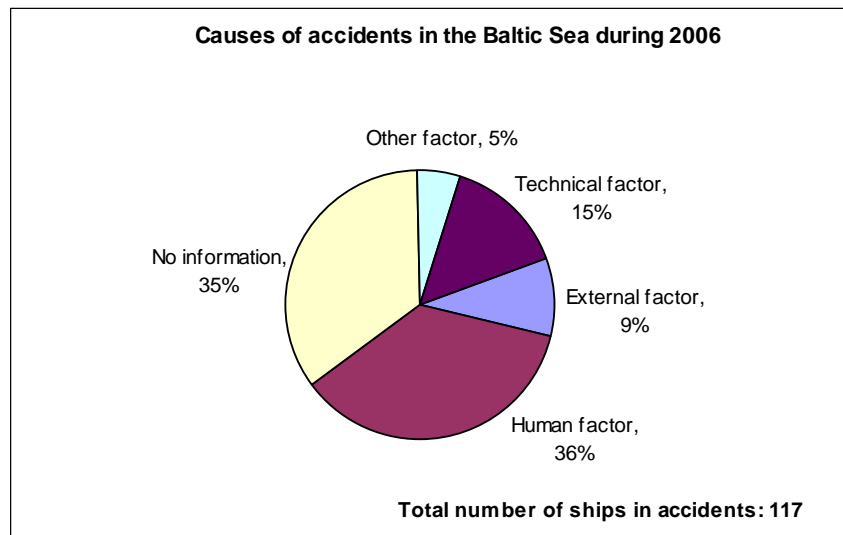


Figure 11

Seven accidents that took place in ice conditions were reported in 2006 and their location is presented in **Figure 12**.

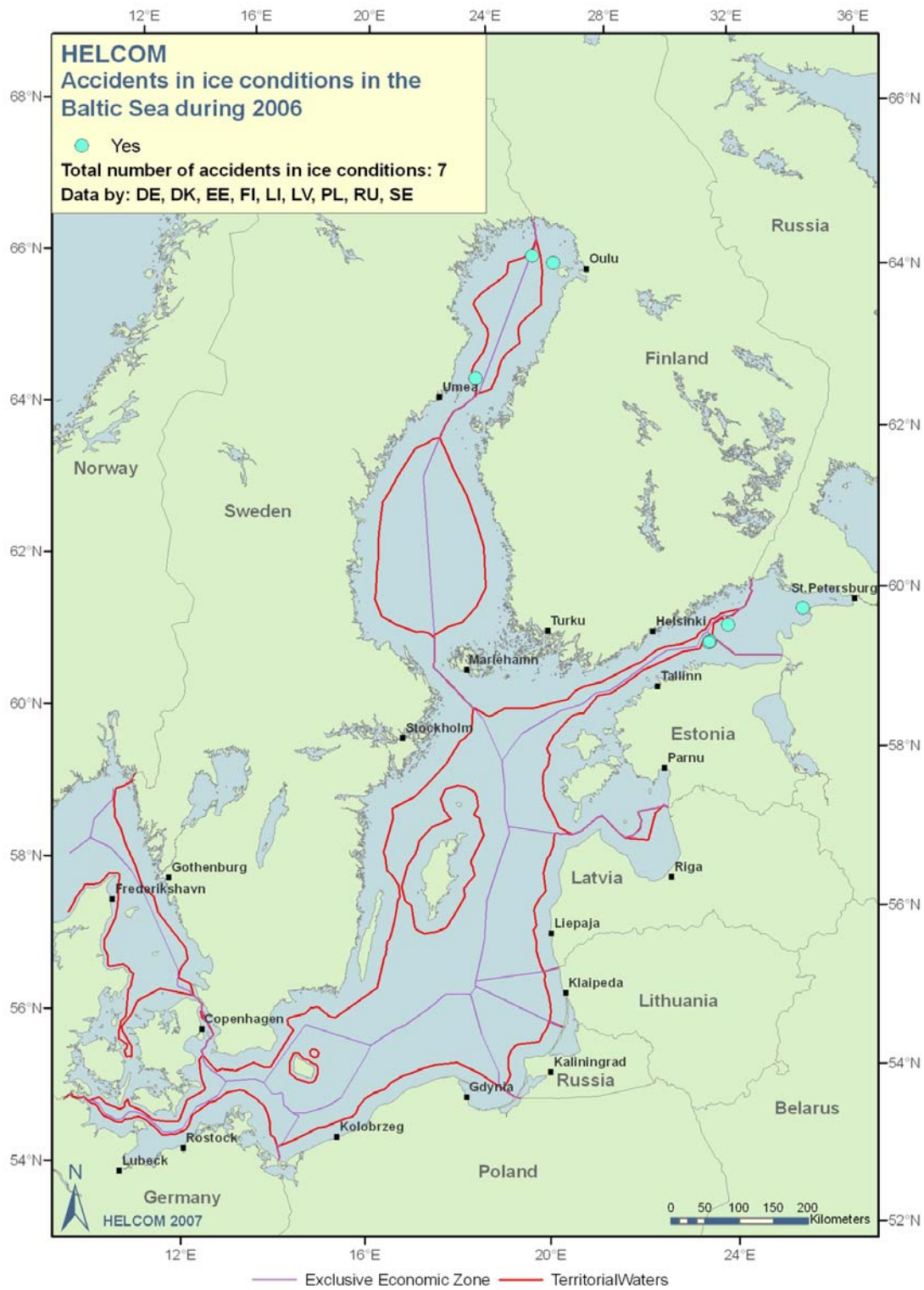


Figure 12 (dot in Estonian waters depicts two accidents).

Spatial distribution of accidents with indication of the cause is presented in **Figure 13**.

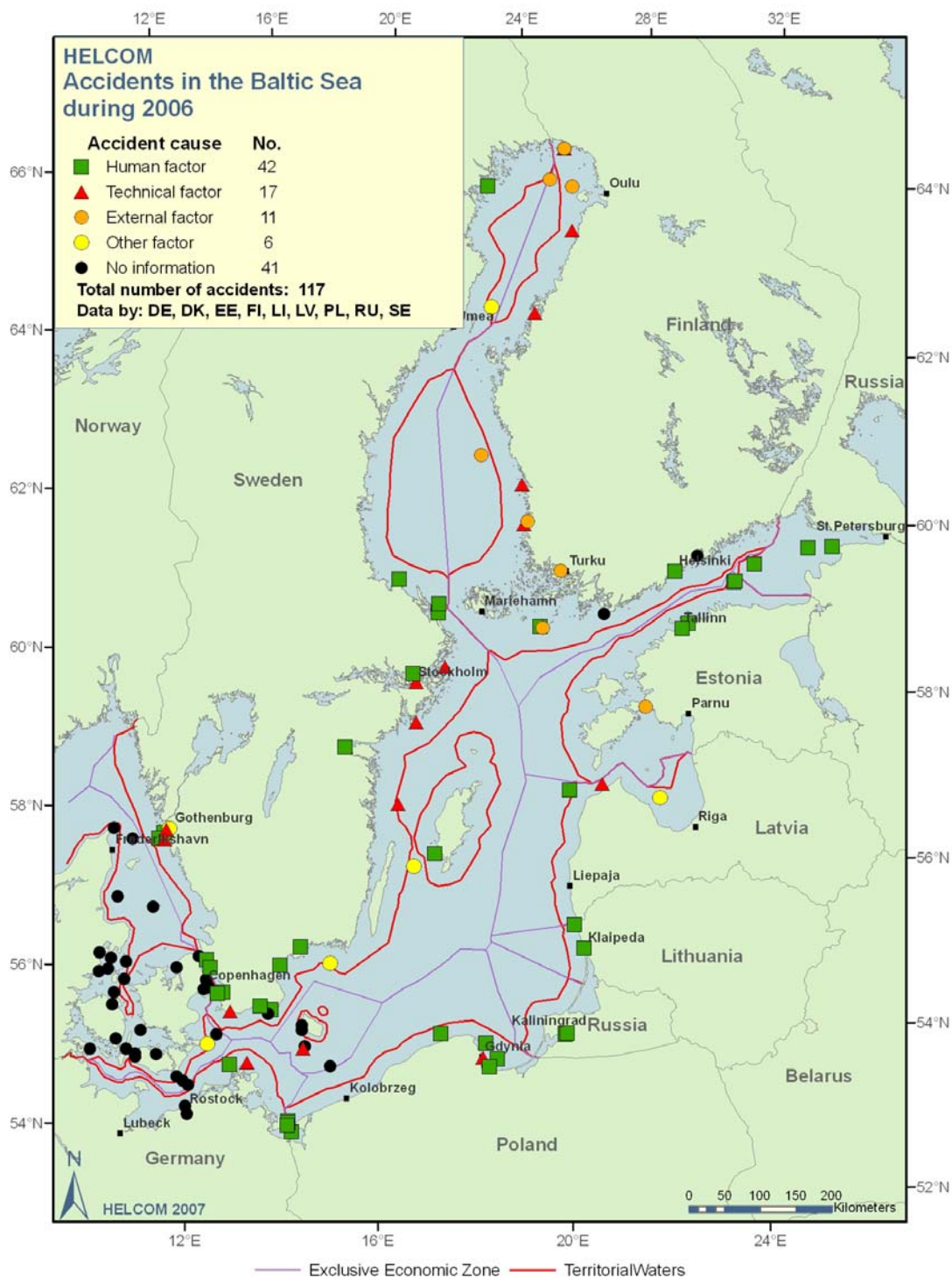


Figure 13

Collisions

Amounting to 54 cases (46%) of all accidents in 2006 and 206 cases (31%) in 2000-2006; collisions became the most frequent type of shipping accident in the Baltic. The number of reported collisions in 2006 remains on the same level as in the previous year, however is higher by ten compared to 2004 (*Figure 14*).

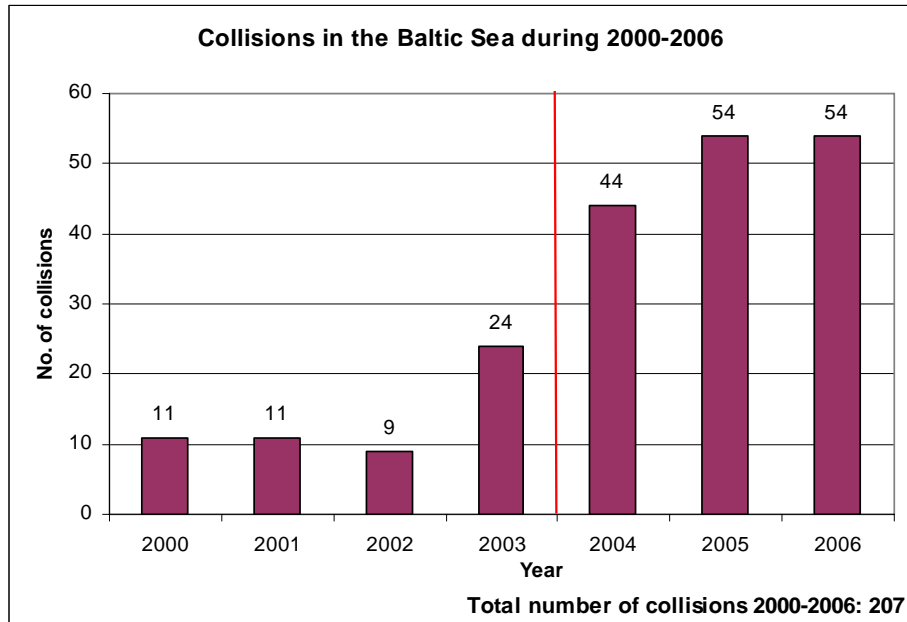


Figure 14 (Note: This figure was updated on 8 August 2007)

Ship to ship collisions accounted for 52% of all collision cases in 2006 and the rest of the cases were collisions with fixed and/or floating structures, e.g. peers, navigation signs etc. (*Figure 15*).

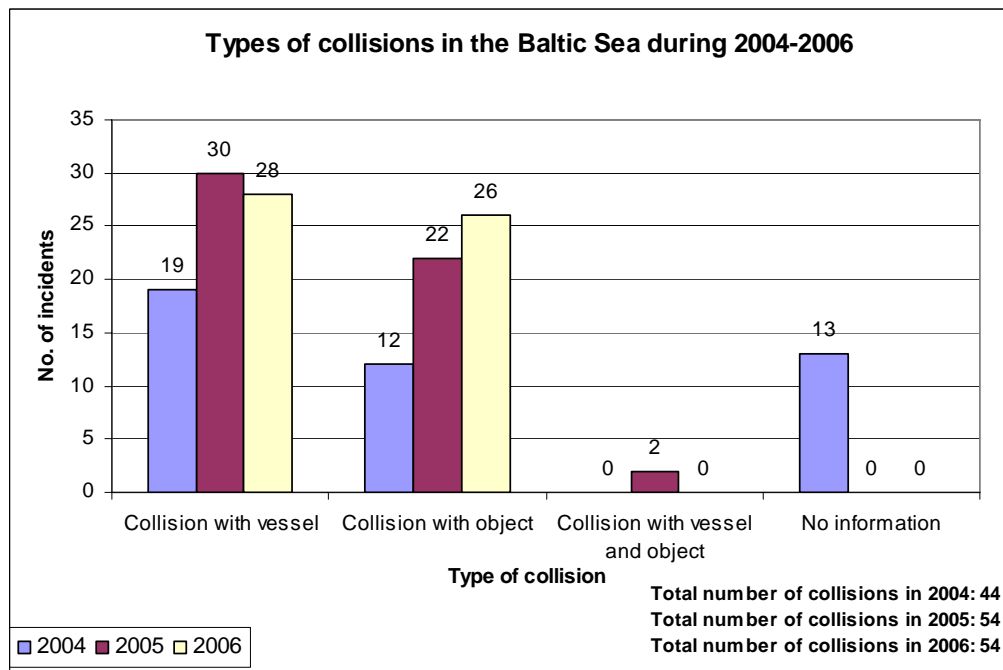


Figure 15 (Note: This figure was updated on 8 August 2007)

Spatially collisions are not clearly accumulated in few areas but the maps of collisions during 2006 (**Figure 16**) and during 2000-2006 (**Figure 17**) are pointing to the approaches to ports and the Danish straits as the most risky areas for ships to collide. Some increase in the number of collisions can be identified in the southwestern Baltic Sea, including the Danish straits (**Figures 18-19**) while in the Gulf of Finland the number of collisions has decreased compared to previous years (**Figure 20-21**).

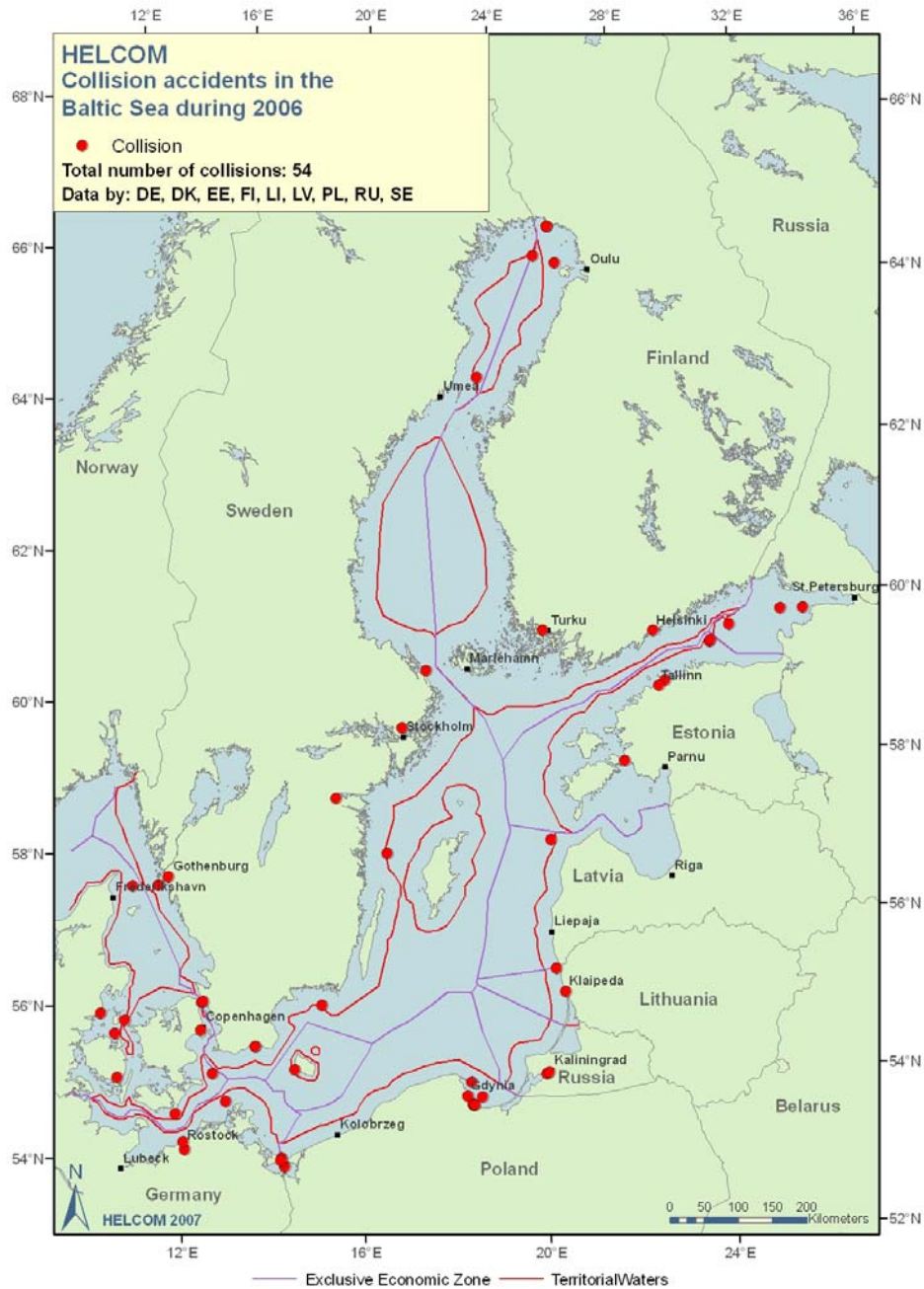


Figure 16 (Note: This figure was updated on 8 August 2007)

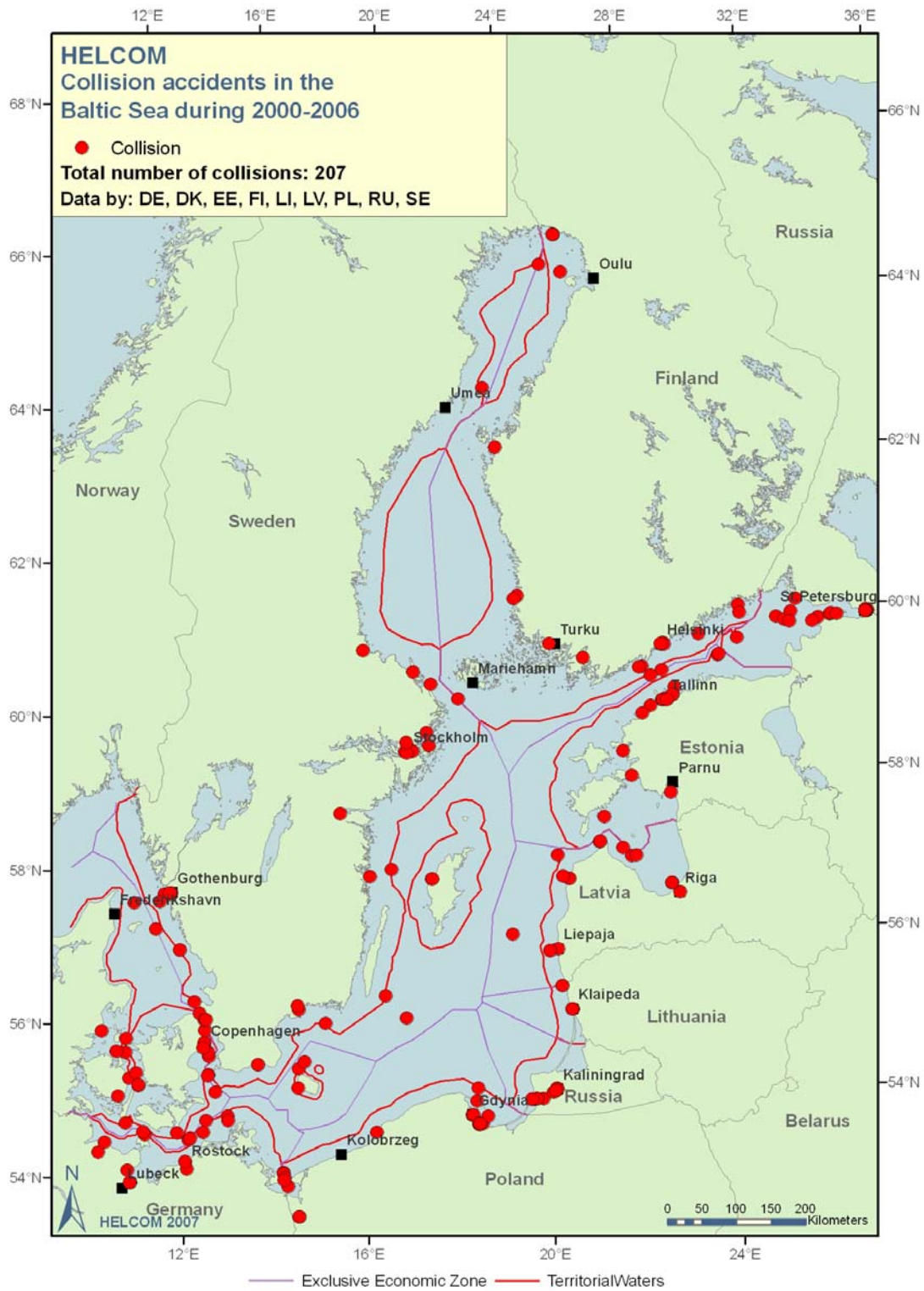


Figure 17 (Note: This figure was updated on 8 August 2007)

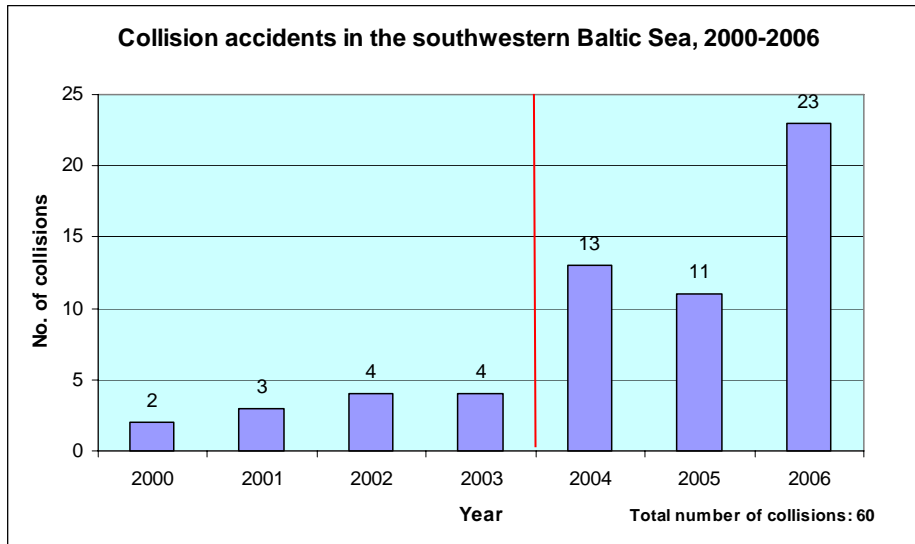


Figure 18

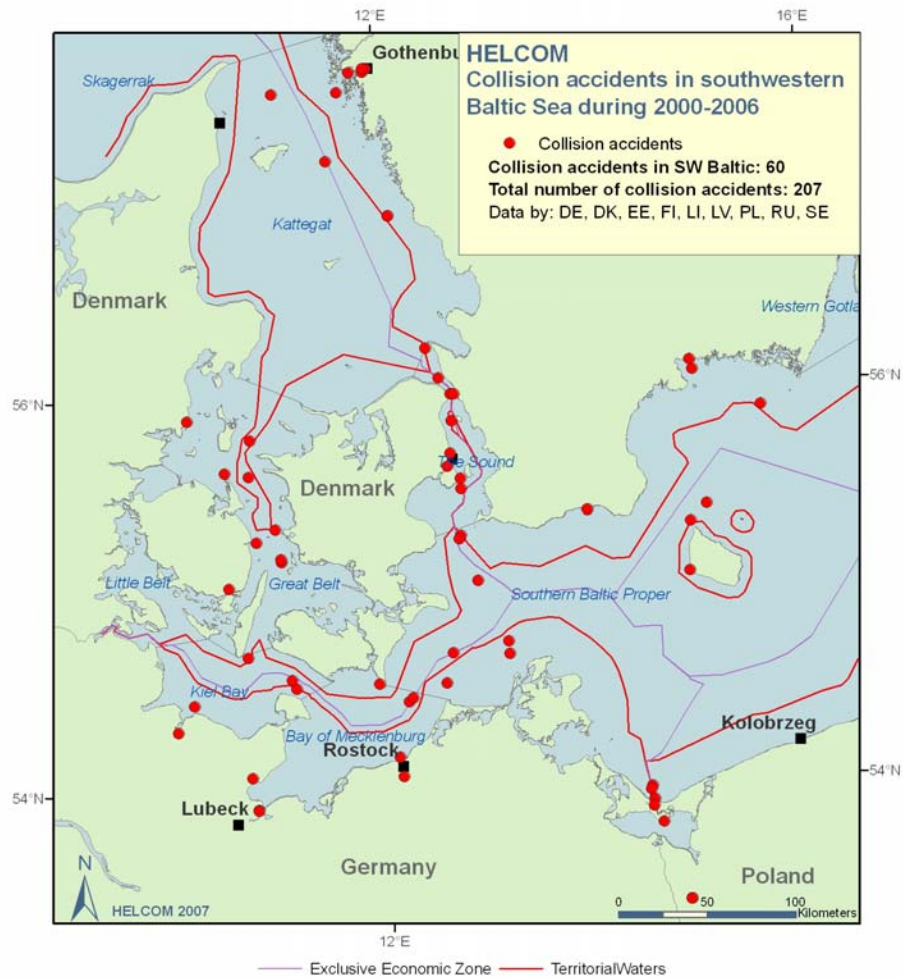


Figure 19 (Note: This figure was updated on 8 August 2007)

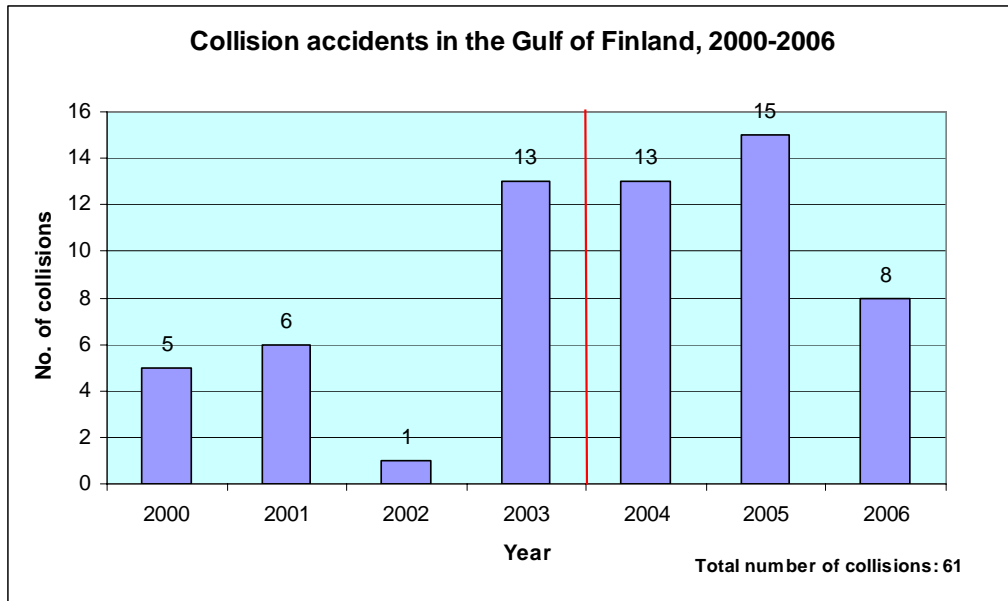


Figure 20 (Note: This figure was updated on 8 August 2007)

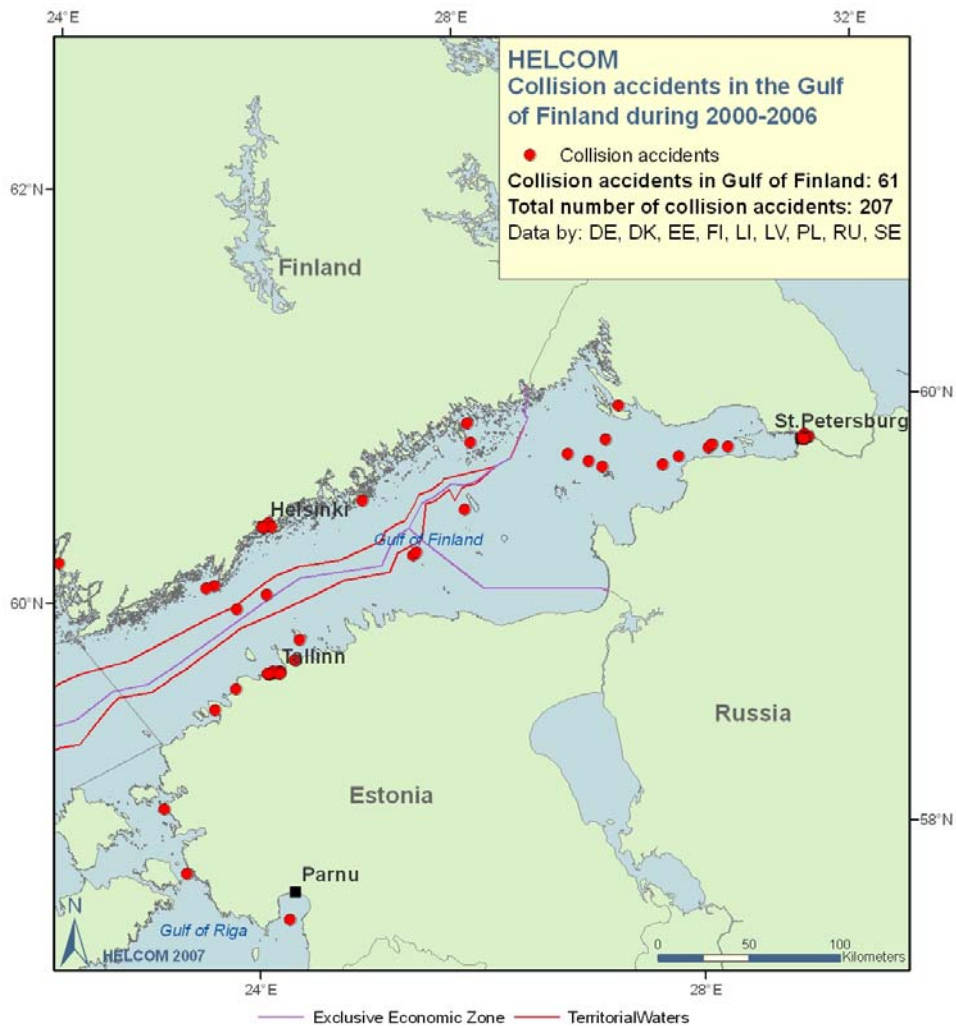


Figure 21 (Note: This figure was updated on 8 August 2007)

Groundings

Accounting for 39% of the total number of reported accidents in 2006, groundings are the second most common type of accidents in the Baltic (**Figure 22**). A decrease in the number of groundings in the Baltic can be observed in the last three years.

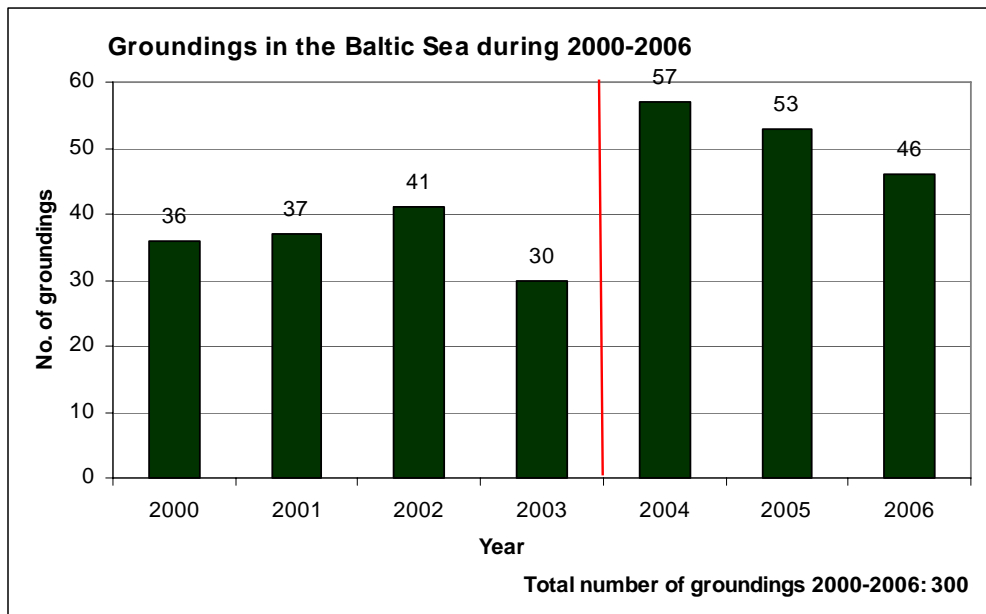


Figure 22

Figure 23 illustrates the pilot presence/absence on board in cases of grounding accidents in 2006.

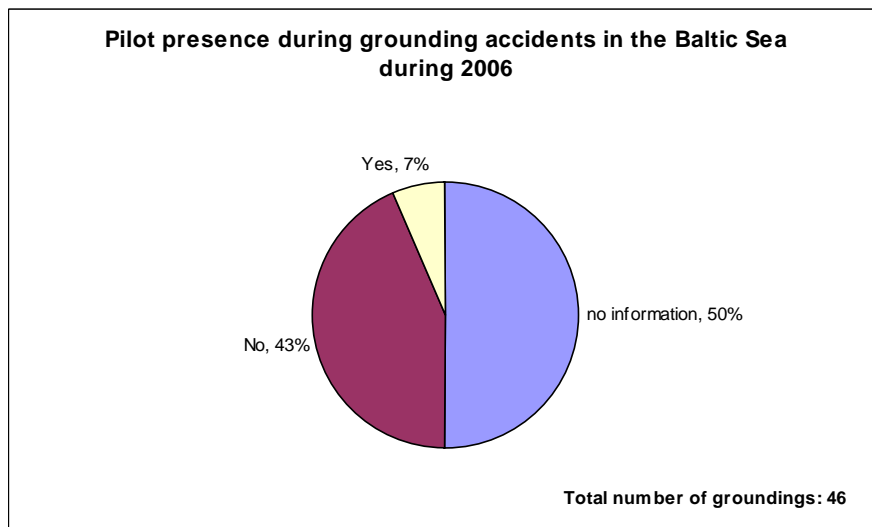


Figure 23

The map of the reported groundings in 2000-2006 (**Figure 24**) clearly indicates the areas of primary concern:

- Danish straits
- Gulf of Finland, especially the Estonian coast
- Åland archipelago 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 2006 (**Figure 25**) especially points to the Danish straits.

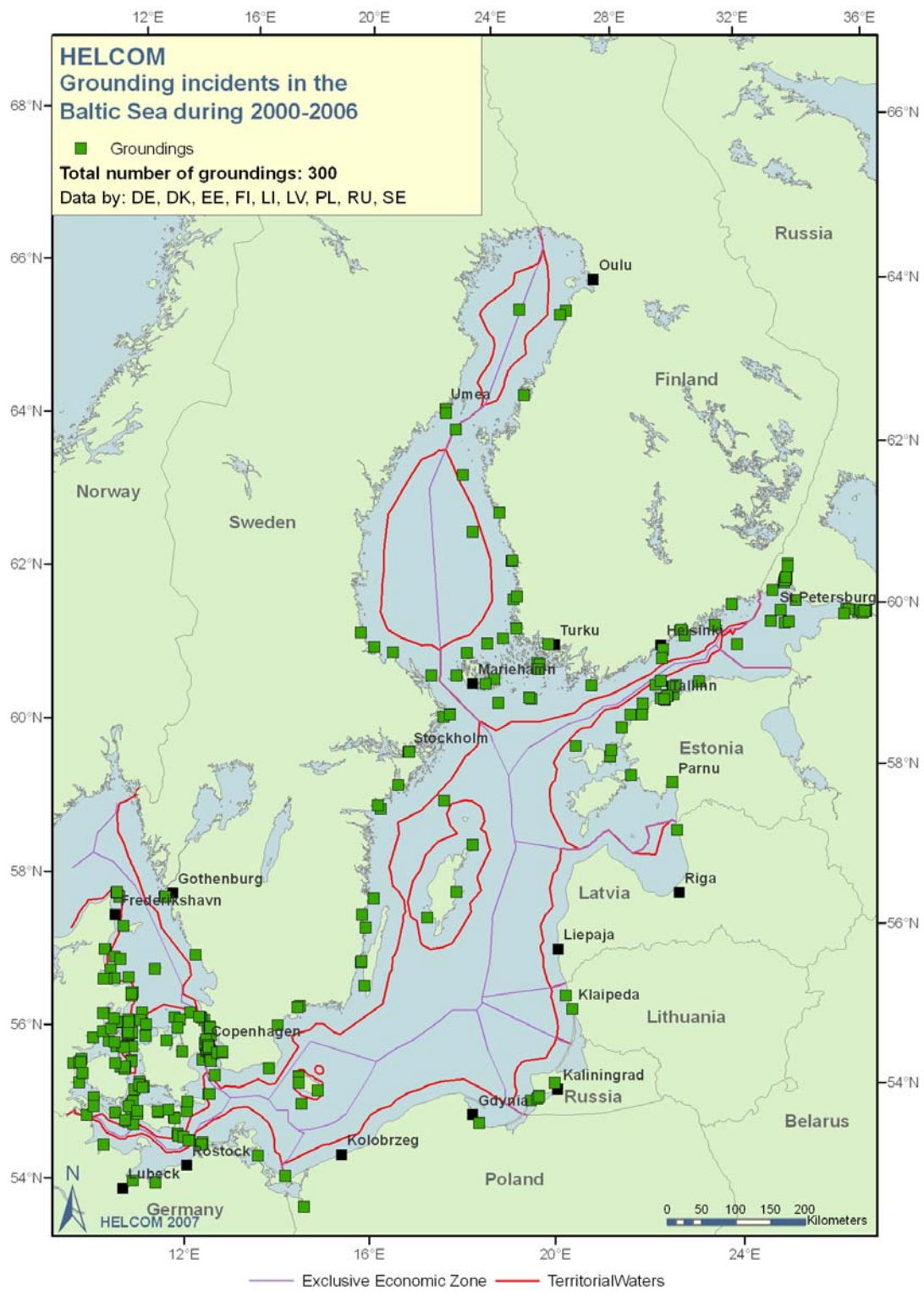


Figure 24

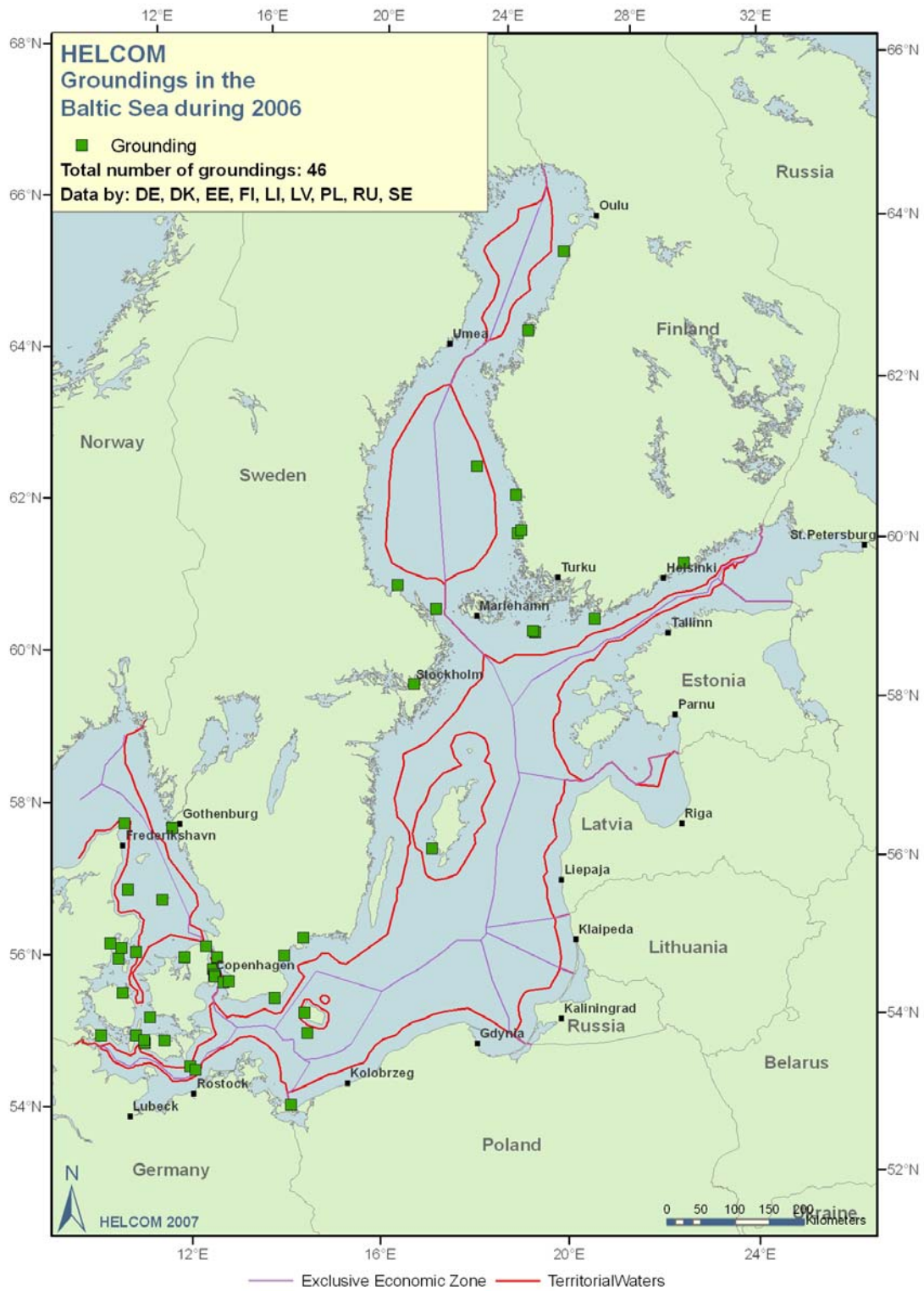


Figure 25

Vessels with the draught of less than 7 m had the biggest share in the number of groundings reported in 2006 (54%) (**Figure 26**). However, when compared to the composition of ship traffic in 2006 (crossings through the AIS lines, see Table 2), in which vessels with the smallest draught constitute around 72%, the accident risk for this type of vessels seem lower than e.g. for ships with draught of 13-15 m (0.6% of the traffic).

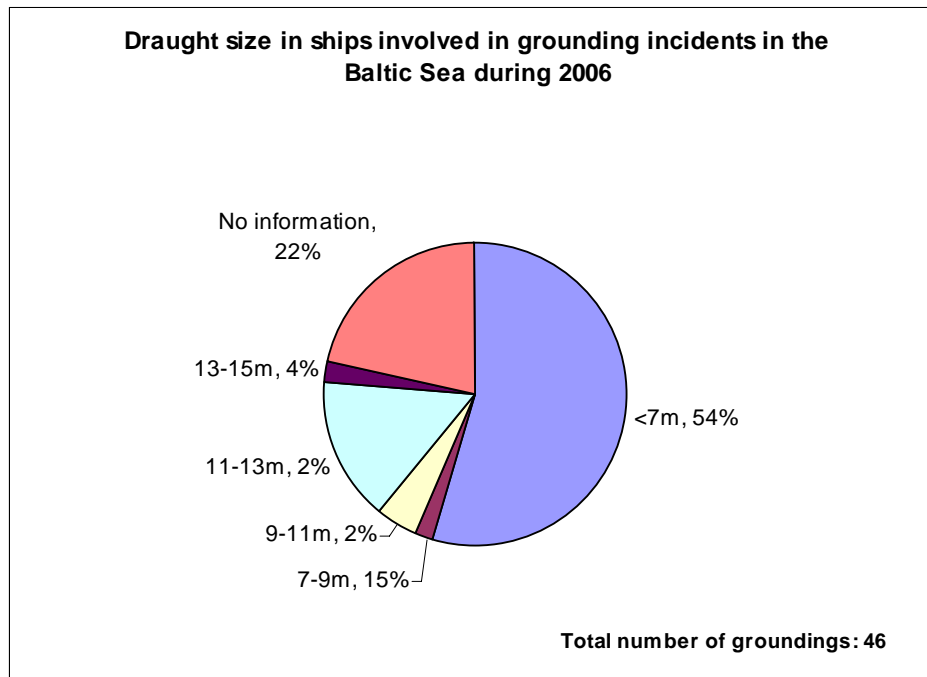


Figure 26

The statistics on groundings in southwestern Baltic Sea, including the Danish straits, shows an increase in recent years (**Figure 27, 28**) accounting for around 57% of all groundings registered in 2000-2006.

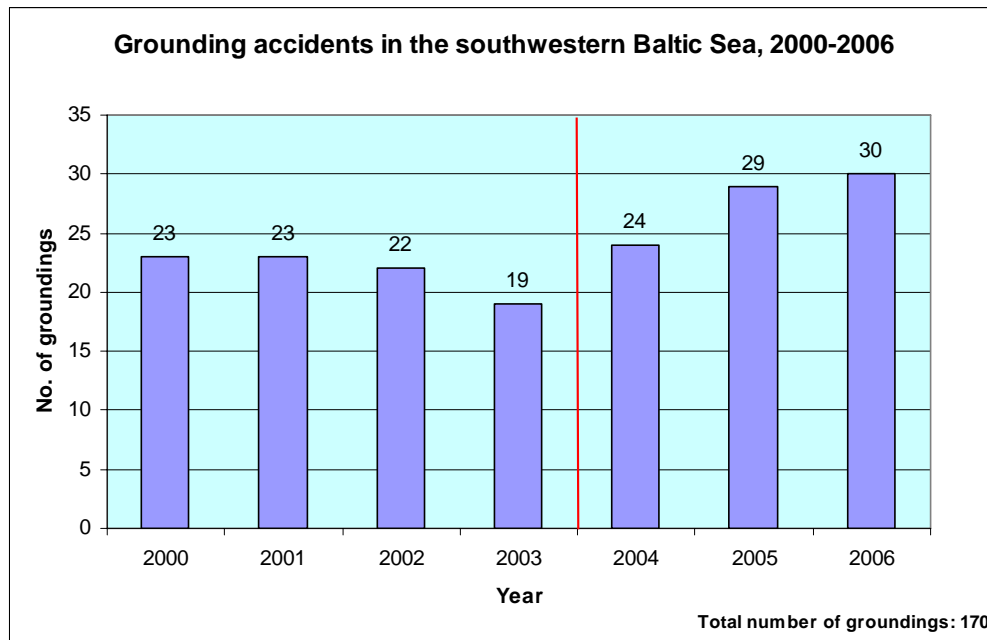


Figure 27

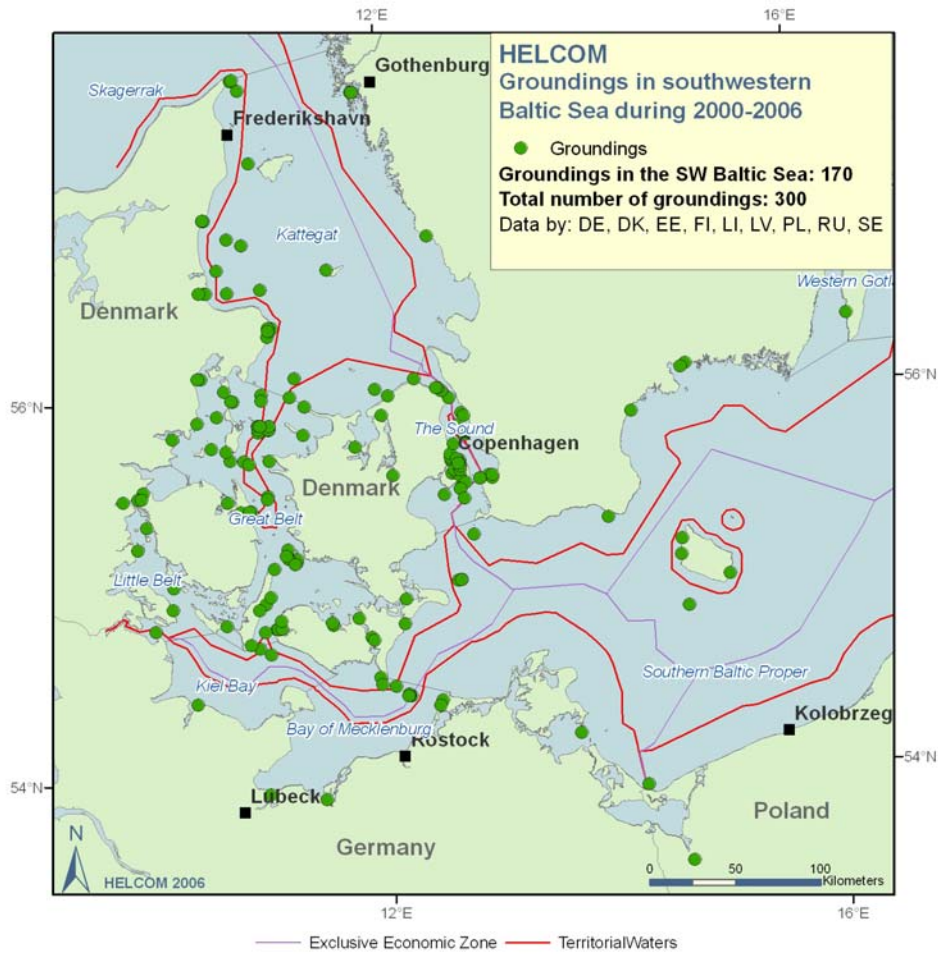


Figure 28

A substantial decrease in the number of the reported groundings in 2006 compared to 2005 can be observed in the Gulf of Finland (**Figures 29**).



Figure 29

Accidents with pollution

As one may expect accidents with pollution get more attention of the competent authorities and media. According to the 2000-2006 data, 7 % of the reported accidents ended up with some kind of pollution. In 2006 this percentage was lower (4%), with five accidents reported by the Contracting Parties. Two of the pollution accidents were caused by collisions and one by grounding (**Figure 30**) and the most common type of ships involved were cargo vessels (**Figure 31**).

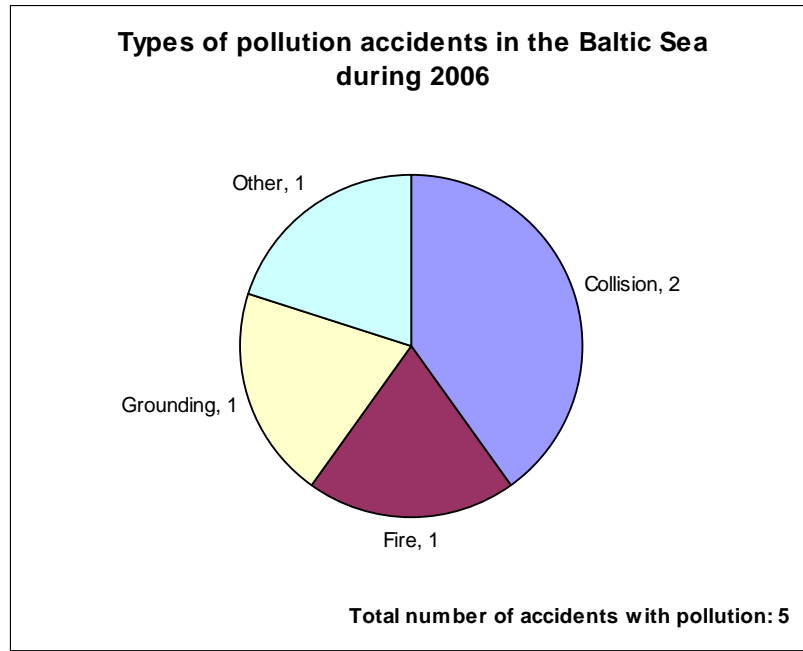


Figure 30

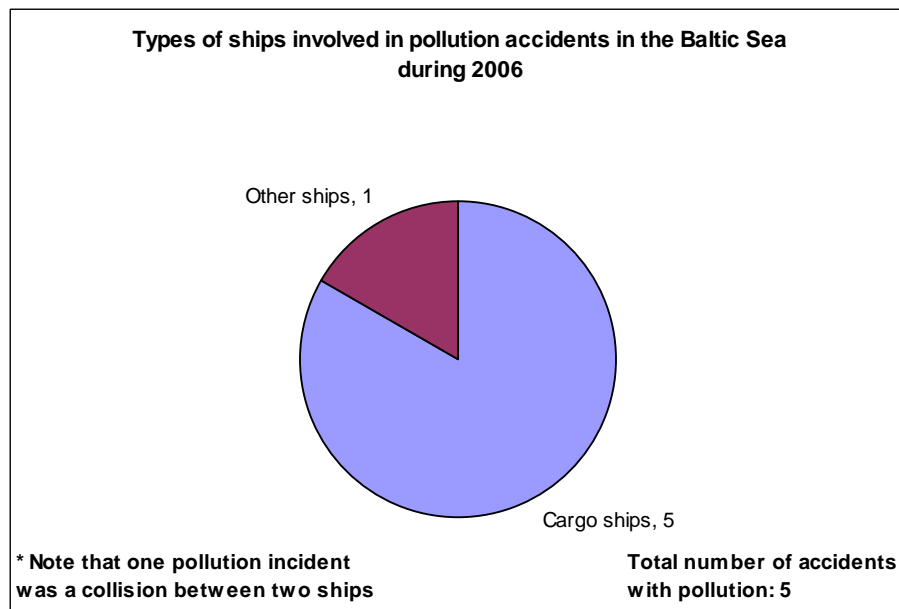


Figure 31

Human factor was also dominating in accidents with pollution, causing four out of five accident cases (**Figure 32**).

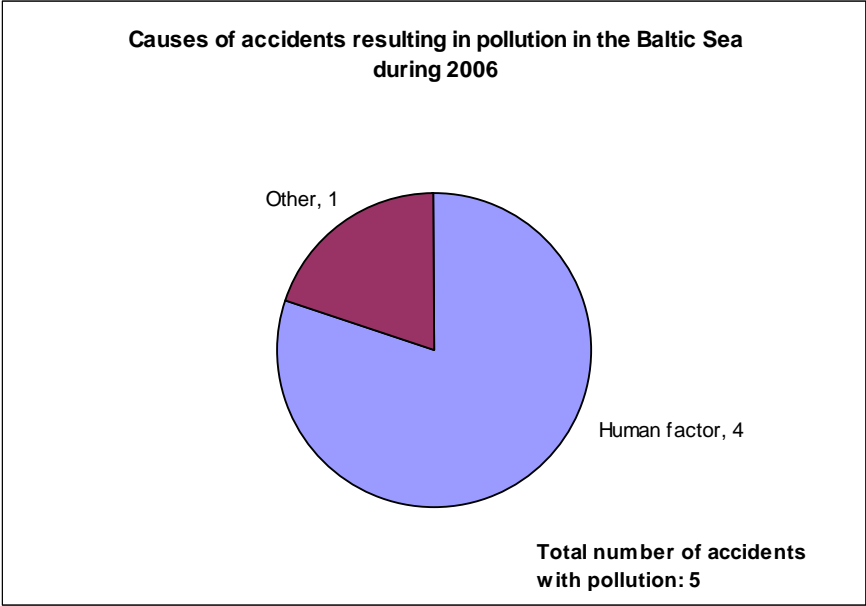


Figure 32

The spatial distribution of the accidents in 2006 causing pollution is presented in **Figure 33** and some additional details of pollution accidents are contained in **Table 3**.

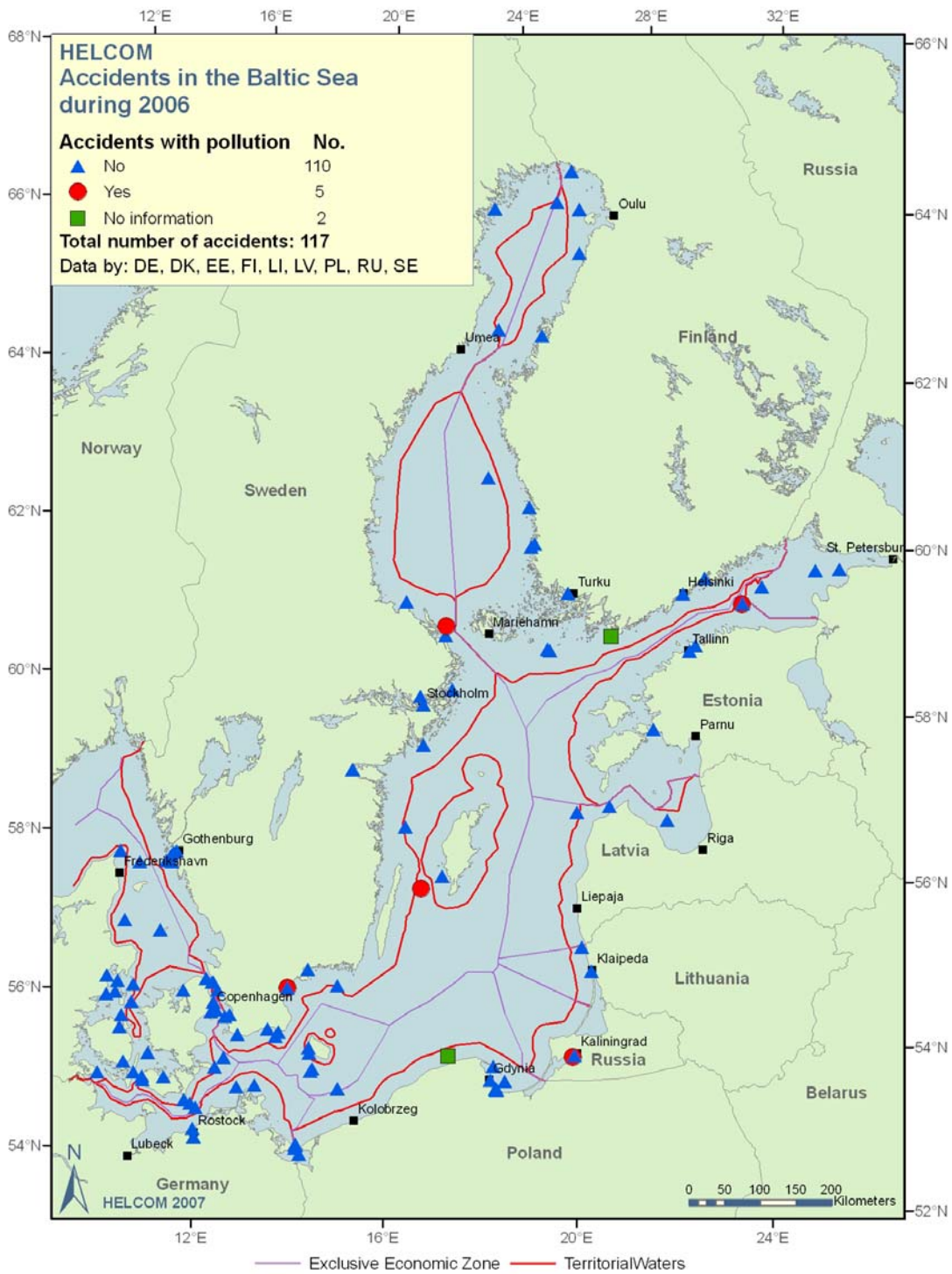


Figure 33

Country	Date	Latitude	Longitude	Ship(s), ID, flag	Ship type(s)	Size (GT)	Cargo	Type of accidents	Cause	Type and amount of pollution
Estonia/ Russia	05/03/2006	59.5220	26.1800	Runner-4, 7514555, Dominican Replublic and Sv. Apostol Andrey, 9247601, Malta	Cargo	3464 and 4974	Aluminium/ Saw timber	Collision	Human factor and ice conditions/ ice convoy	150m3
Russia	05/04/2006	54.6833	20.4167	Giovanna, port of registry – Kaliningrad	Other	4060	I/O-380 (200 mt), MDO (200 mt)	Collision	Human factor and rather minor explosion and fire which became more serious when ship started sinking	10m3 oil
Sweden	01/02/2006	55.5500	14.1900	SKARPOE,C2BY2, Cyprus	Cargo	3,183	Bulk	Fire	Human factor	0.045 m3 unknown pollution
Sweden	01/11/2006	57.0200	17.5300	FINNBIRCH, Sweden	Cargo	15,396	Trailers/flat beds	Other - capsized	Other conditions concerning cargo and safeguarding cargo and bunkers	0.1 m3 heavy oil
Sweden/ Lithuania	22/09/2006	60.1600	18.5400	ARINA, LYRY, LITHUANIA	Cargo	3,826	Dry cargo (containers, steel products)	Grounding	Human factor - fell asleep on watch	0.015m3 Hydraulic oil from bowthruster

Table 3. Data on accidents resulting in pollution in 2006.