THE EU FLEET AND CHRONIC HYDROCARBON CONTAMINATION OF THE OCEANS

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Introduction

Almost 40% of the vessels flying the flags of one of the European Union states have shown deficiencies or committed violations of the MARPOL convention for the prevention of pollution from ships in the last four years, and this figure rises to 75% if we include all types of deficiencies.

During this period of time, in which an average of 3-4 inspections per EU vessel were carried out, deficiencies were found in half of them, and in 16% of them in the case of deficiencies relating to MARPOL.

This figure, which in itself is significant, is just another example of the failure of international conventions to prevent the chronic contamination of the oceans by the world merchant fleet from hydrocarbons and other toxic substances.

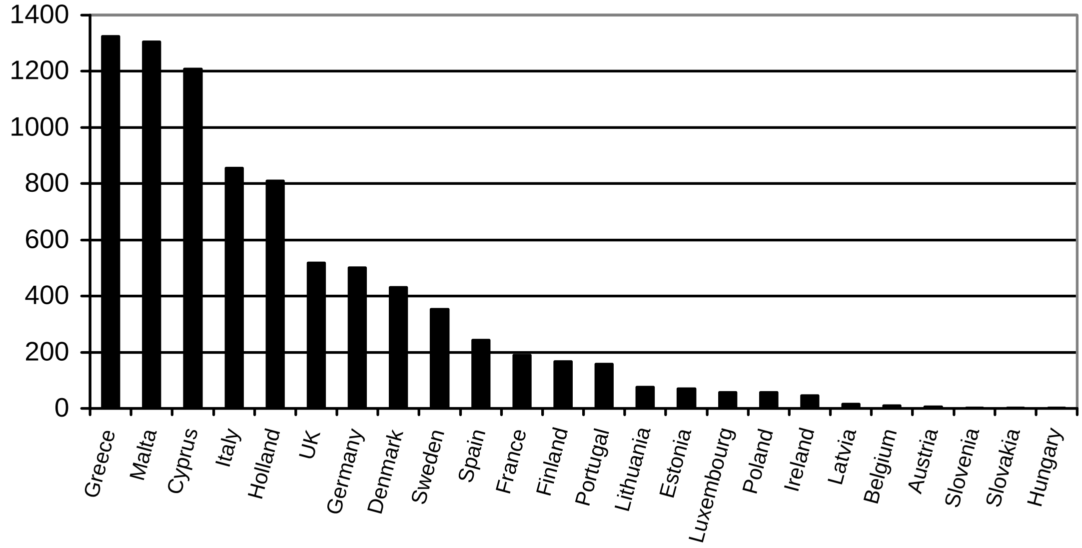
Every year, thousands of deficiencies are detected in vessels that dock in the ports where there is some kind of inspection system. These are divided into around thirty categories, which include those relating to safety, navigation, communications systems, engines, vessel documentation, accident prevention systems, compliance with international agreements, etc. MARPOL deficiencies are particularly worrying, as these refer to systems for preventing sea pollution, and include violations of the convention and illegal dumping at sea.

It is a matter of great concern that some vessels have shown deficiencies in 100% of the inspections carried out on them, this being the case of Lithuanian tankers, Latvian oil tankers, Maltese and Cypriot factory ships, Spanish and Estonian reefers, bulk and ore carriers from the United Kingdom, Finland and Spain, etc. Yet even more alarming is the fact that some vessels have shown MARPOL deficiencies at every inspection, such as Latvian chemical and oil tankers and Maltese supply vessels.

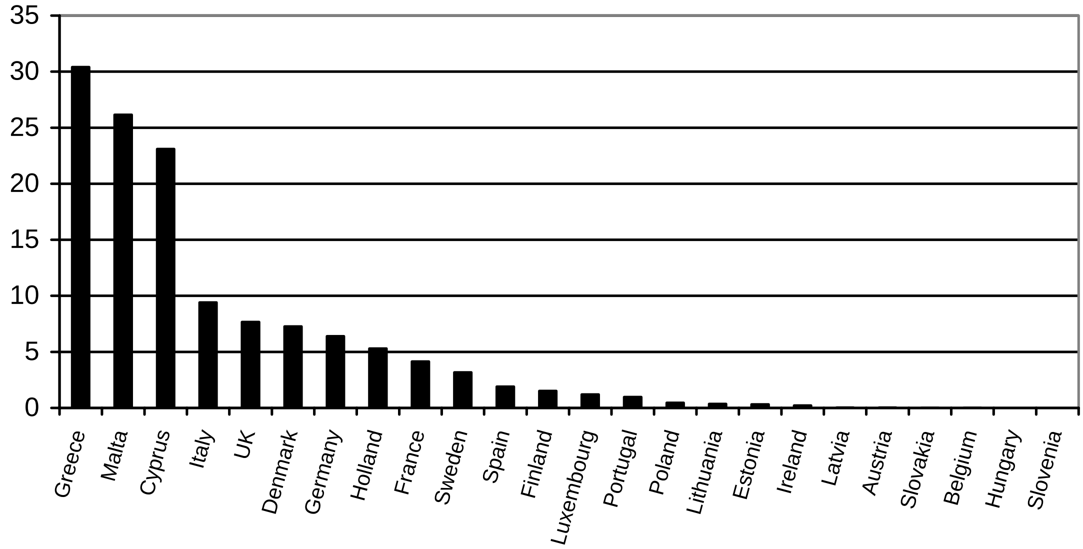
If we take into account the inspection records of EU vessels over the last four years, it can be corroborated that less than 25% of them have passed every inspection with no deficiencies. Among the rest, a large number of vessel types have shown MARPOL deficiencies in 100% of vessel inspections during this period. This is the case with Lithuanian tankers, Latvian and Polish chemical tankers, Irish container ships, Estonian and Spanish passenger ships, special vessels from Portugal and Italy, Latvian oil tankers and Slovenian bulk carriers.

The fleet flying the flags of EU member states comprises some 8,000 vessels with a capacity of 198.2 million dead weight tonnes (DWT), which represents 20% of the world merchant fleet in terms of numbers and almost 24% in terms of cargo capacity[1]. The significant proportion of international maritime traffic represented by the EU has been strongly increased by the entry of the 10 new member states, which have added some 2,700 vessels, increasing transport capacity by 68%[2].

Number of EU vessels by country



Size of the EU fleet in terms of GRT (Gross Registered Tonnage - in millions)



However, the total fleet controlled by EU companies is much larger (40% of the GRT[3]), but the vessels are registered in third countries and many fly so-called “flags of convenience”.

For example, Greek companies are the proprietors of 16% of the world merchant fleet, with more than 3,200 ships[4]. In other words, only 40% of the fleet managed by Greek companies actually fly a Greek flag; fewer than 20% of the vessels controlled by German companies actually fly a German flag[5]... and this is the case with the majority of EU countries.

Before the enlargement of the EU, its shipping companies had 64% of the merchant fleet flying under foreign flags[6]. The 12% that were flying the Maltese flag and the 14% with Cypriot flags have now joined the EU fleet, but there are still 11% registered in Liberia, 12% in Panama, 8% in the Bahamas and 22% in other open registers (Bermuda, Cambodia, Antigua and Barbuda, St. Vincent and the Grenadines, etc.). As recognised by the European Commission itself[7], the EU fleet controls 35% of the total oil tanker fleet, although less than 40% of these vessels actually sail under its flags.

Flags of the leading EU fleets				
Country	Total % under foreign flags	% in Cyprus and Malta	% in other open registers	% in other registers
Greece	75.57	49.30	42.39	8.31
Germany	74.33	13.97	68.31	17.72
UK	49.17	2.09	62.92	34.99
Denmark	48.83	0.90	28.53	70.57
Italy	18.65	28.57	45.38	26.05
Holland	26.53	15.38	58.17	26.45
Sweden	50.00	3.70	33.33	37.03
Belgium	83.66	3.91	51.56	44.53
France	37.55	1.98	66.34	31.68
Spain	79.70	2.28	21.29	76.43
Total	***63.72***	***25.46***	***51.33***	***23.21***

Analysing the degree of compliance with MARPOL in terms of the vessels that are "officially" part of the EU can give us an idea of the situation of the world merchant fleet and what dangers the oceans are being subjected to from the chronic dumping of hydrocarbons and hazardous substances.

Status of EU fleets in the ranking of offending vessels, according to the Paris MOU (Memorandum of Understanding):

Position	Country	Category
21	Malta	Black list – medium risk
25	Cyprus	Black list – medium risk
33	Portugal	Grey list
40	Estonia	Grey list
42	Latvia	Grey list
50	Spain	Grey list
51	Poland	Grey list
52	Austria	Grey list
57	Italy	White list
60	France	White list
61	Greece	White list
70	Luxembourg	White list
71	Denmark	White list
74	Holland	White list
75	Ireland	White list
76	Germany	White list
78	Finland	White list
79	Sweden	White list
80	United Kingdom	White list

We should not forget that Europe bases 90% of its foreign trade and 35% of its domestic trade on maritime transport[8].

As demonstrated by Oceana in an earlier report[9], maritime traffic in Europe generates more than 20 million tonnes of hydrocarbon waste, of which it is unknown where the majority finally ends up.

No EU country appears amongst the positions regarded as “most dangerous” by the Paris MOU. While on the one hand this is reassuring, on the other it leads us inevitably to ask the question: if almost 40% of European vessels are *not* complying with MARPOL regulations and, in spite of that, they do not appear on the list of “most dangerous”, then what must be the degree of contravention of vessels that dock in our ports flying the flags of non-EU member states?

This report demonstrates that, compared to the big merchant fleets such as those of Malta, Cyprus and Greece which, because of their size, accumulate a higher number of infractions, the percentage of violations in other small fleets (Slovakia, Slovenia and Hungary) and medium-sized fleets (Portugal, Spain and Poland) is very high.

What is also striking is that while the volume of deficiencies in the European fleet is worrying, the situation of many of the vessels that visit us is really alarming. While deficiencies have been detected in 51.08% of the European fleet, and the Paris MOU average is 57.20%, other vessels under the flags of the Cape Verde Islands, the Cook Islands, Jordan, Kazakhstan, Mexico, México, Sao Tome and Principe and South Africa, show deficiencies of 100% in their inspections.

Bearing in mind that only 36.86% of the inspections carried out in 2002 took place on EU vessels and the rest on vessels flying under other flags –the majority from worse registers than the European ones- we find that almost 60% of ships visiting European ports are flying foreign flags, and presumably have a greater number of deficiencies (at least in a large number of cases).

This data demonstrates the urgent need to set in motion legislation that severely penalises offenders and prevents the pollution of the seas.

Effects of chronic hydrocarbon contamination of the marine environment

As highlighted by Oceana in its report “The Other Side of Oil Slicks[10]”, chronic hydrocarbon contamination from washing out tanks and dumping bilge water and other oily waste represents a danger at least three times higher than that posed by the oil slicks resulting from oil tanker accidents.

In the case of the North Sea alone, the volume of illegal hydrocarbon dumping is estimated at between 15,000 and 60,000 tonnes per year, added to which are another 10-20,000 tonnes of authorised dumping[11]. In the Mediterranean, it has been estimated at more than 400,000 tonnes[12] and in the Baltic, if we assume that close to 10% comes from this source[13], we would be looking at another 1,750-5,000 tonnes a year.

Despite the fact that the majority of infractions of MARPOL regulations go unnoticed, every year around 3,000 cases of illegal hydrocarbon dumping are detected in European waters[14]. Based on these observations, a recent study[15] estimated the amount of hydrocarbons received by European waters each year at 109,000 tonnes, of which 62% corresponded to around 90,000 small spillages of less than 20 tonnes, which could affect an area totalling 242,000 km^2. According to the UNEP[16], the levels of hydrocarbons dissolved in the waters of the Mediterranean up to 5 g/l, with levels of more than 10 g/l in areas of acute chronic contamination. Similarly, the volume of tar balls in the sea is estimated at between 0.6g/m^2 and 130g/m^2 and between 0.2 and 4.388 g per linear metre of coast on beaches.

Some studies have estimated the possibility of different groups of animals coming into contact with hydrocarbon spills and consequently suffering from the effects of its pollution, depending on their ethology, feeding zones and distribution[17].

Possibility of coming into contact with a hydrocarbon spill	
Animal group	**Probability**
Anseriforms (web-footed swimming birds)	99%
Sea birds resting on the surface of the sea	99%
Hairy mammals	75%
Sea birds in flight	5%
Diving coastal species	35%
Wading birds and similar	35%
Wetland fauna	35%
Pinnipeds, sirenians, turtles	1%
Terrestrial fauna	0.1%
Cetaceans	0.1%

It is very difficult to estimate the number of marine organisms affected by these constant spills, but some studies may throw some light on this unknown quantity.

Birds

One of the most alarming studies[18] was made in the Atlantic waters of Canada by means of collecting oiled seabirds from the beaches of Newfoundland between 1984 and 1999. After separating those resulting from known oil tanker accidents, so as to make an estimate based only on those attributable to chronic contamination, the remaining birds were analysed and oil residue was found on 62% of them. This enabled an estimate of 0.77 oiled seabirds per kilometre of coast to be made.

The European Union has some 100,000 kilometres of coastline. If the above figures were extrapolated to Europe, we would be faced with seabird mortality from chronic hydrocarbon contamination of 77,000 birds a year. But obviously the ecosystems are different, and thus this extrapolation can only be used as a rough approximation of the size of the problem.

However, studies of this kind have also been carried out in Europe. In fact, studies on the coast of the North Sea came to very similar conclusions as the Canadian study. Between 37%[19] and 46%[20] of birds found dead on the coasts had been oiled. In the case of Belgian coast, it is calculated that 50% of the 1,000-6,000 dead birds that reach the coast each year have suffered some level of contamination from hydrocarbons[21]. Taking into account the oiled seabirds on the German and Belgian coasts of the North Sea, we come to a very similar average per kilometre of coastline as the Canadian figure.

Studies carried out in Canada and various European coasts on the compounds found on oiled seabirds and the hydrocarbon residues found on beaches have proved that in 90% of cases this consisted of heavy fuel mixed with lubricants[22], which corresponds to the typical residue from ships' bilge water.

Chronic hydrocarbon contamination can have very harmful effects on the populations of seabirds around the world, as just small doses of these pollutants can have very negative results. Studies on the reduction in the survival rates of seabirds to adult status have confirmed this, as this threat has diminished their capacity by some 2.75%[23]. In some species, incidents of severe chronic contamination can lead to a reduction in successfully reaching adult age of up to 1.7% in guillemots *(Uria aalge)* in the United States[24] and 5.6% in razorbills *(Alca torda)* in British populations[25].

Some scientists believe that the impact of chronic contamination is much higher than that from accidents producing oil slicks[26], and they have even gone so far as to compare the mortality from illegal dumping in certain zones with the mortality that would be caused by an accident of the magnitude of *Exxon Valdez* every year[27]. In addition, the time when the highest amount of illegal hydrocarbon dumping at sea takes place tends to coincide with the most sensitive moment in the life of seabirds: the autumn plumage changeover. As demonstrated by the studies, the volume of oiled seabirds on the coasts during autumn and winter can be three times higher than in the summer season[28].

On the one hand, winter meteorological conditions mean that vessels consume higher amounts of fuel and use anti-freeze and other chemical products, which also generates a higher amount of waste. On the other, surveillance systems are less effective during storms and thus the vessels' impunity is greater. It has even been noted that, protected by the cover of a rough sea, oil tankers can come inshore more easily and wash their tanks out there[29].

It needs to be remembered that all these studies, as pointed out by the researchers themselves, make estimates on anthropogenic mortality resulting from these dumpings, but they do not take into account other sublethal effects. In addition, many oiled animals can go unnoticed, either because a large proportion of these dead animals never reach the coasts[30], or because the contamination is not visible to the naked eye. In studies in Germany, it was proven that 20% of animals with hydrocarbon traces in their digestive tracts did not show any sign of contamination on their plumage[31].

Sea turtles

As is the case with sea birds, there are no estimates on the total number of sea turtles affected by chronic hydrocarbon contamination, but there is abundant scientific literature[32] on this subject, which allows us to corroborate its scope.

A study on sea turtles caught on longline hooks in the central Mediterranean discovered traces of contamination from hydrocarbons and other floating rubbish in 20% of the sample specimens[33]. Another study, with the same characteristics but in the western Mediterranean and only taking into account visible traces of hydrocarbons on the bodies of the turtles, found hydrocarbon traces in 10.6%[34]. In a compilation of data gathered in the Nineties on the causes of the deaths of turtles found stranded on the coasts, it was concluded that 22% of loggerhead turtles deaths *(Caretta caretta)* and 46% of green turtle deaths *(Chelonia mydas)* were associated with hydrocarbon contamination[35].

On the other side of the Atlantic, reports on turtles contaminated by hydrocarbons also throw up alarming data. Thirty-six percent of newborn turtles examined on the coasts of Florida showed hydrocarbon traces in their stomachs and oesophagus, while this figure increased to up to 46% if the mouth was included[36]. In the case of turtles examined in the downwelling zones of the Gulf Stream, it was estimated that 20% of them had ingested tar balls[37]. Likewise, recent studies[38] on the coast of Rio Grande do Sul (Brazil) estimated that 13.2% of green turtles had died from ingesting plastic or oil.

Analyses carried out on the hydrocarbon compounds found in the bodies of dead turtles on the Caribbean coasts came to the conclusion that the contamination came from routine dumping by oil tankers[39].

The majority of sea turtles found in Europe congregate in the south of the continent between the Azores, the Iberian Peninsula and the Canary Islands, and throughout the Mediterranean[40].

It is known that during the spring and summer, hundreds of thousands of sea turtles congregate in this zone, having come from their laying beaches in America and the eastern Mediterranean[41]. This area is also well known for its high maritime traffic density, particularly oil tankers, making it a very sensitive area where hundreds of illegal dumping activities are recorded each year[42]. In the strait of Gibraltar there are some 200,000 crossings a year[43]. It is calculated that 50,000 merchant vessels cross the strait every year, including 18,000 vessels loaded with dangerous cargo[44] -40% of which are oil tankers- added to which are the 10,000 crossings by the ferries linking Africa and Europe[45].

Studies undertaken in controlled environments[46] have proved that turtles do not move away from contaminated areas, so the possibility of them coming into contact with spillage is very high. Likewise, they often consume floating rubbish, including tar balls, which they mistake for food.

Cetaceans

There is hardly any information on the impact of chronic contamination of sea mammals in Europe, given that the majority of existing studies evaluate the problems caused by major disasters, or the accumulation of contaminants in cetaceans and pinnipeds, but without making a distinction between accidents and routine dumping.

As in the case with turtles, because these animals have lungs they need to come to the surface to breathe, where they can come into contact with hydrocarbon spillage floating in the upper layers of the oceans.

Despite the fact that it has been noted that marine mammals tend to avoid zones where hydrocarbons have been dumped, cetaceans and pinnipeds have also been observed swimming in water contaminated by these spillages[47]. Indeed, beached cetaceans have been found on European coasts with balls of tar blocking their respiratory tracts. However, the greatest threat to these animals as a result of oil dumping is bioaccumulation from eating contaminated prey[48].

Other species:

As noted at the beginning of this report, the possibility of estimating the number of species and individuals affected by illegal hydrocarbon dumping is very complex, given the variety of sources that end up polluting the sea, but bearing in mind the size of its origin (75% of dumping at sea and close to 33% of the total[49]) it would not be unreasonable to attribute one third of the levels of contaminants in marine ecosystems to this activity. Many of the effects of these contaminants have been extensively studied for decades[50].

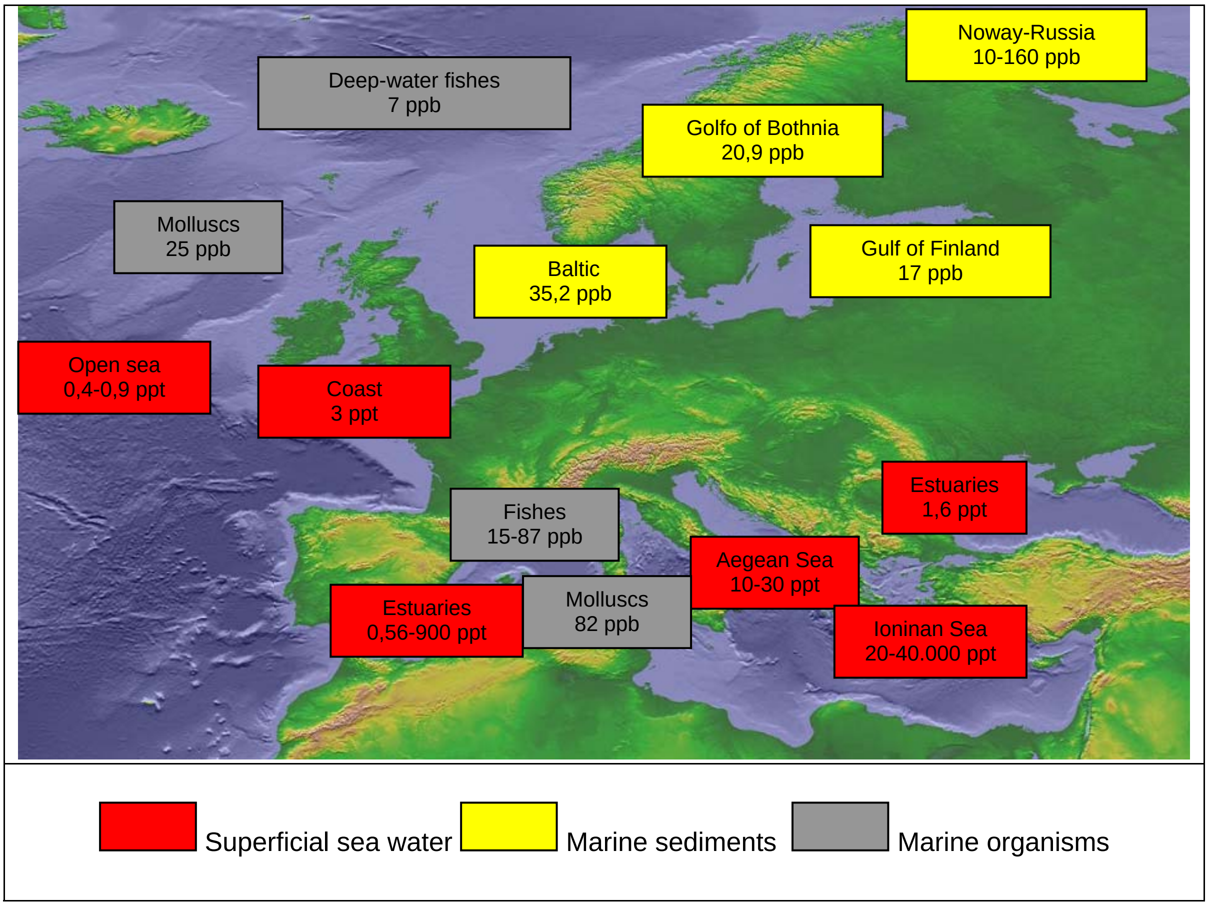
Polycyclic Aromatic Hydrocarbons (PAHs)

All hydrocarbons contain different amounts of compounds that are harmful to health and marine life; benzene, toluene, xylene, etc., heavy metals such as iron, nickel, chrome, vanadium and cobalt, and polycyclic aromatic hydrocarbons (PAHs).

PAHs number amongst the most toxic compounds to life and are thus high on the priority interest lists of international institutions such as the UNEP and the WHO[51]. Although 90% of these compounds come from the combustion of oil derivatives[52], chronic oil dumping and its derivatives generate a very major source of sea contamination. It is estimated that close to 228,000 tonnes of these compounds of anthropic origin are dumped into aquatic ecosystems each year[53].

A recent study by the UNEP[54] on the chemical compounds that are most harmful to human health, which compiled the most comprehensive information from around the world, detailed the PAH levels in marine ecosystems and noted the importance of monitoring their origins.

The data relating to Europe showed the following concentrations:



The concentrations in superficial sea water in Europe went from 0.4 nanograms per litre, or ppt (parts per trillion), in the open sea to 40,000 ng/l in certain areas of the Ionian Sea. It is believed that these exceptionally high concentrations are due to the illegal dumping of hydrocarbons from ships[55].

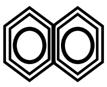
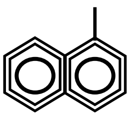
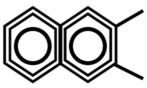
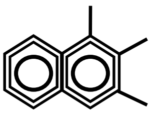
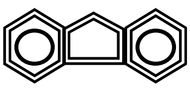
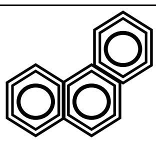
Other zones where there are high concentrations of PAHs are the estuaries of certain rivers, demonstrating the size of input from the land via rivers. In the Black Sea, the Danube and Dnieper estuaries, average concentrations of 1.6 ng/l are reached while in the western Mediterranean, concentrations tend to be around 0.56 ng/l, although in estuaries such as the Ebro and the Rhone, up to 570-970 ng/l have been measured[56].

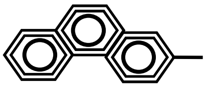
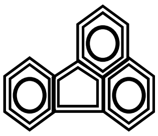
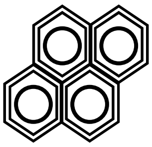
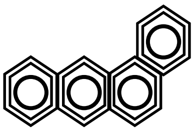
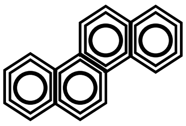
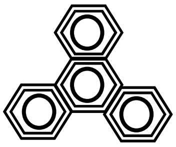
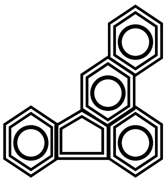
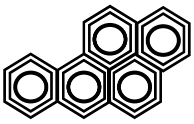
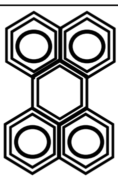
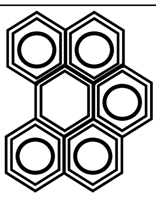
In marine sediments, concentrations can be much higher, especially in coastal zones and around ports, where routine accidental spillages of hydrocarbons can reach concentrations of 8,000 to 60,000 micrograms per kilo, or ppb (parts per billion)[57].

It is more problematic when these pollutants reach the food chain. Bivalves can attain average concentration levels of between 25 (Atlantic) and 82 (Mediterranean) picograms per kilo of dry weight, and fish can reach between 7 and 87 µg/kg (deep Atlantic waters and areas of the Mediterranean respectively). In port zones, levels in mussels *(Mytilus sp.)* can shoot up to 290 µg/k in the western Mediterranean, or 750 µg/k in the eastern basin[58].

PAHs are structures made up of multiple fused carbon and hydrogen rings. Their persistence in the environment depends upon their molecular weight. In sediments, they can last from between a few hours to several years.

PAH content in transported crude (Kuwait type) and distilled hydrocarbons such as Fuel No. 2 and residual Bunker C fuel, in µg/g or ppm[59]

Compound	Crude	Fuel Nº2	Bunker C
 Naphthalene	400	4,000	1,000
 Methylnaphthalene	1,200	27,100	7,500
 Dimethylnaphthalene	2,000	31,100	12,300
 Trimethylnaphthalene	1,900	18,400	8,800
 Fluorenes	<100	3,600	2,400
 Phenanthrene	26	429	482

 Methylphenanthrenes	89	7,850	871
 Fluoranthenes	2.9	37	240
 Pyrenes	4.5	41	23
 Benzo(a)anthracenes	2.3	1.2	90
 Chrysene	6.9	2.2	196
 Triphenylene	2.8	1.4	31
 Benzo(b,g-k)fluoranthenes	<1		
 Benzo(a,e)pyrenes	3.3	0,7	54
	<0.1		22
 Benzo(ghi)perilenes	<1		

Their toxicity has been corroborated in various species: one of the most toxic elements is benzo(a)pyrene, a compound that is carcinogenic in humans[60] which can cause the death of fish in concentrations of 0.005 mg/l or ppm. Mortal toxicity (Ld50) for some fish in phenanthrene and naphthalene is estimated at 0.1 and 1 mg/l respectively, and for anthracene and naphthalene in rats, at 18,000 and 490 ppm[61]. It is also known that many of these contaminants have sublethal effects in much lower doses[62]. For example, studies in the North Sea have correlated the appearance of pre-tumorous states in the livers of flatfish with the presence of contaminants such as PAHs[63].

We should remember that 1 ppm is equal to 0.001 ppb or 0.000001 ppt.

Most common effects of PAHs on marine life[64]

Taxonomic group	Damage
V, M, R/A, F, B, I	Death
V, M, R/A, F, B, I	Reproductive dysfunction
V, R/A, F, B, I	Reduction in growth and development
M	Immunosuppressant effects
B, F	Endocrine system disorders
V	Disturbance to photosynthesis
B, F	Malformations
R/A, F, M, I	Tumours and lesions
F, R/A, M	Cancers
M, R/A, F, B, I	Behavioural disorders
M, R/A, F, B, I	Blood disorders
M, F, B, I	Liver and kidney disorders
M, B	Hypothermia
M, B	Inflammation of epithelial tissue
I, F, R/A	Respiratory disorders and heart arrhythmias
F	Hyperplasia of the gills
F	Damage to fins
V, I, B	Disturbance to colonies
V, I, B	Changes in populations
V, I	Changes in biomass
F	Embryonic disorders
V = vegetables, M= mammals R/A = Reptiles/amphibians, B = birds, I = invertebrates, F = Fish	

Breakdown of data on EU vessel inspections

Methodology

In undertaking this study, we have taken into account all the inspections carried out on EU vessels over the last four years (between June/July 2000 and June/July 2004), as part of the Paris MOU agreement[65], to which Germany, Belgium, Canada, Croatia, Denmark, Slovenia, Spain, Finland, France, Greece, Holland, Ireland, Iceland, Italy, Norway, Poland, Portugal, the United Kingdom, Russia and Sweden belong. In total, 28,545 inspections carried out in the ports of these countries were analysed, on a total of 7,883 vessels in the fleet flying the flags of one of the 25 states that make up the European Union. Only one of these, the Czech Republic, did not have any vessels inspected during this period.

All vessels that were flying an EU flag were counted. The only ones excluded were those that, despite belonging to one of the EU countries, were flying a different flag, an example being the British colonies of Gibraltar and Bermuda. However, those that *were* included, as there is no difference in the flag, were ships from other European colonies such as the Dutch Antilles, or on the international register or the second German, Danish or Spanish register.

The data obtained relate to the number of inspections and vessels inspected, the number of deficiencies per vessel and inspection, and the number of MARPOL deficiencies per vessel and inspection. MARPOL deficiencies of any annex or those relating to general deficiencies with regard to this convention were added together and presented as a whole. However, as is the case with the annual reports of the Paris MOU, the predominance of deficiencies or violations relating to Annex I with regard to hydrocarbons is very evident. In second place come those relating to Annex V on emissions into the atmosphere, and much further behind those relating to other annexes.

In order to assign a category to the vessels, the parameters used by the Paris MOU inspections has been followed, dividing them primarily into 15 categories. We are aware that the same vessel could have changed category and flag during the course of its useful life. In these cases, the category and flag reflected in the most recent revision was maintained.

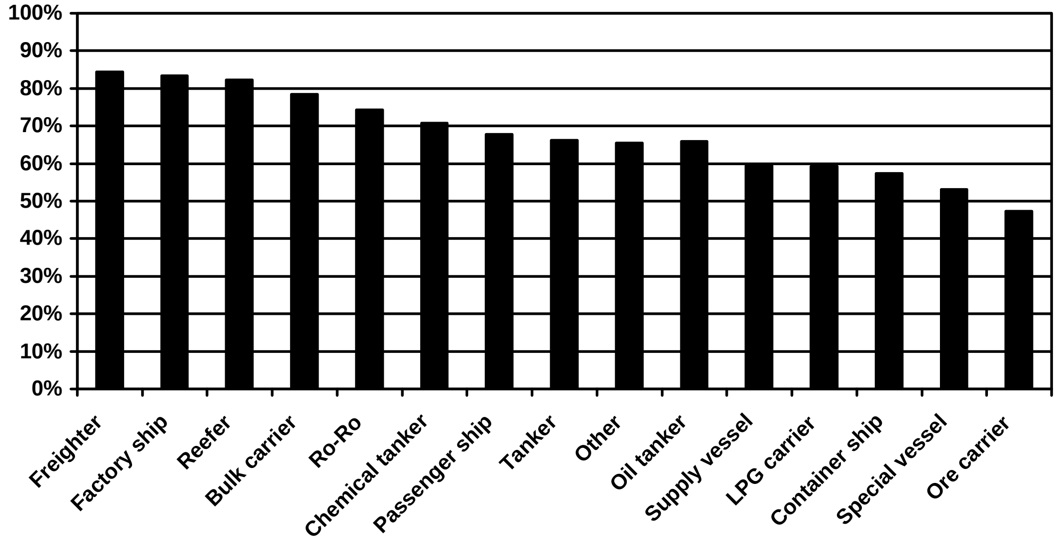
Type	Transport	Type	Transport
Bulk carrier	Loose cargo, generally without being packaged	**Other**	Other vessels, including large private vessels.
Freighter	General dry cargo, normally packaged.	**Passenger ships**	Cruise ships and other vessels dedicated mainly to transporting passengers
Reefer	With refrigerated holds for transporting food products	**Oil tanker**	Crude oil and petroleum derivatives
Container ship	Transport of containers	**Chemical tanker**	Chemical products and petroleum derivatives
Special vessel	Research, health, special operations, etc.	**Ro-Ro**	Vehicles, with or without passengers.
Factory ship	Large fishing vessels	**Supply vessel**	Support for other fleets (e.g. the Navy)
LPG carrier	Liquid gases	**Tanker**	Liquid cargo, especially hydrocarbons.
Ore carrier	Combination of dry cargo and loose liquid cargo, including hydrocarbons		

RESULTS

1- **By type of vessel**

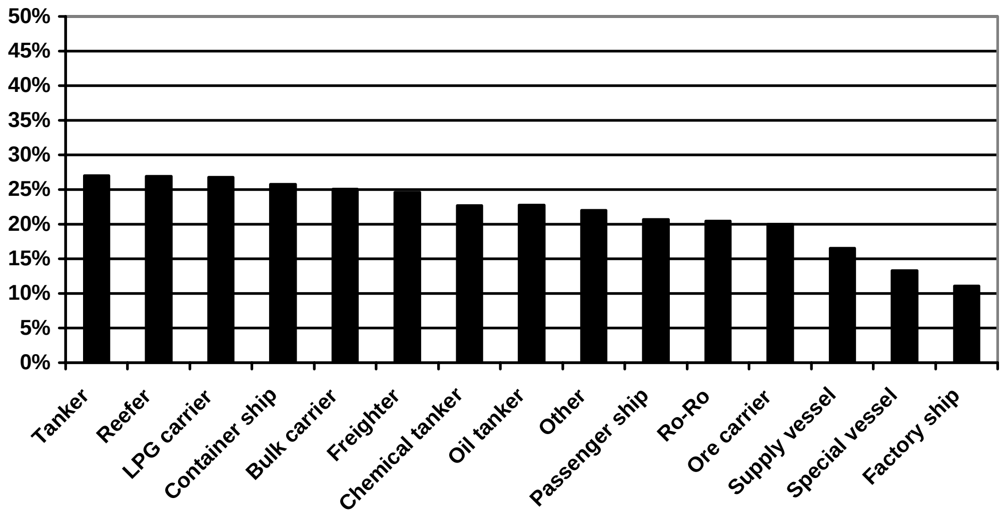
The average number of inspections carried out over these four years on EU vessels was 3.62. In this way, deficiencies were detected in 14,565 inspections which represents 51.08% of those carried out, with an average of 2.75 deficiencies per inspection. The average of inspections with deficiencies in 2002 in the area covered by the Paris MOU was 57.20%, with a total of 3.50 deficiencies per inspection[66].

Vessels with deficiencies



With regard to the number of vessels, 74.59% showed some kind of deficiency during the last four years.

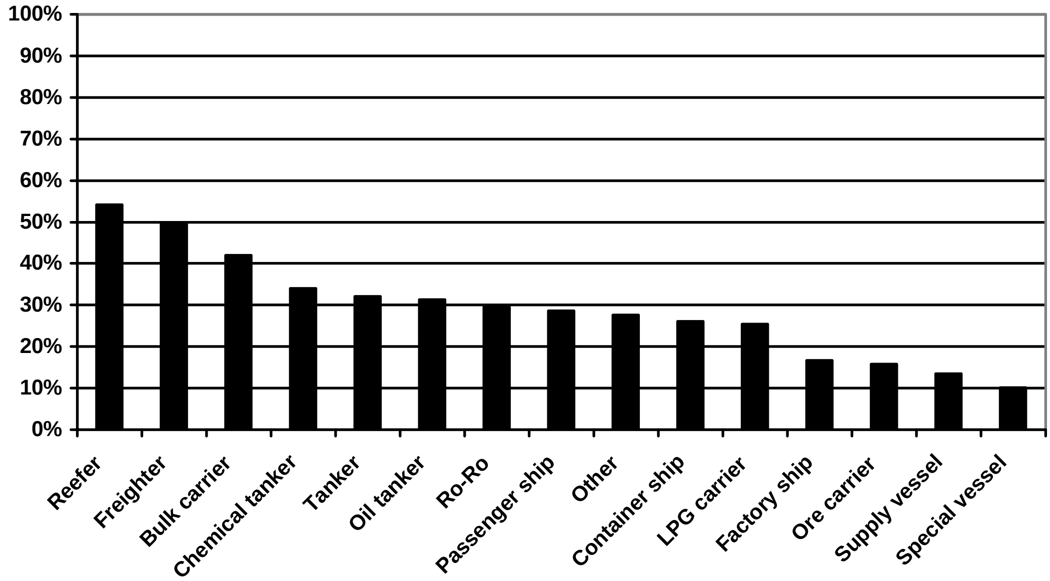
MARPOL deficiencies by inspection and vessel types



With regard to the number of inspections in which MARPOL deficiencies were detected, this came to 16.29% of the total volume of inspections.

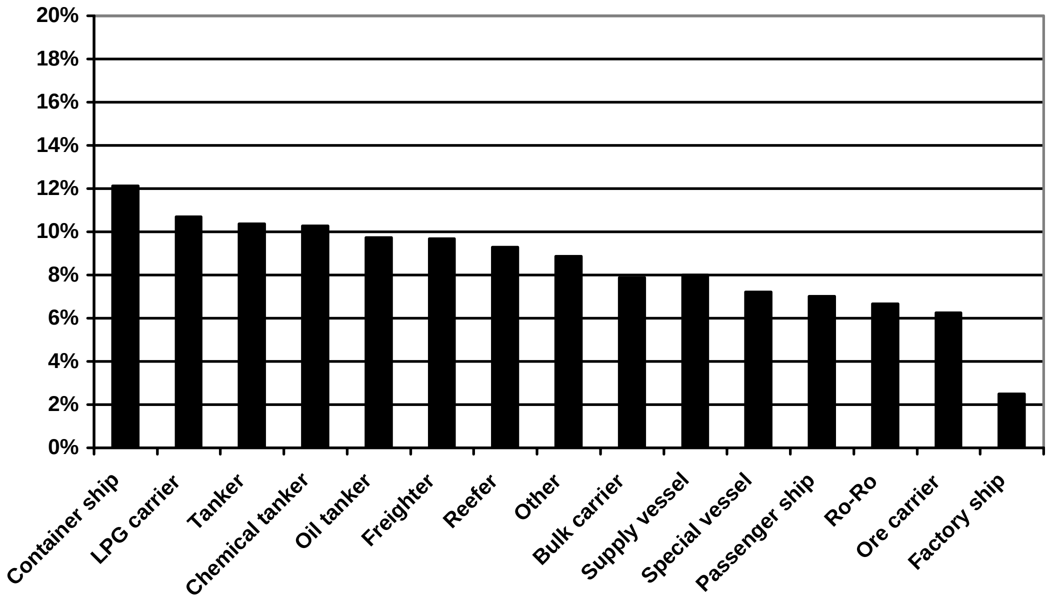
What is especially significant is the number of vessels in which, during the last four years, MARPOL deficiencies were found in at least one of the inspections carried out, as this percentage comes to 38.70%.

Vessels with MARPOL deficiencies



MARPOL deficiencies represented 9.04% of the total deficiencies found on the vessels, as opposed to the 8.03% average in the Paris MOU area[67], i.e. 12.58% more.

Percentage of MARPOL deficiencies

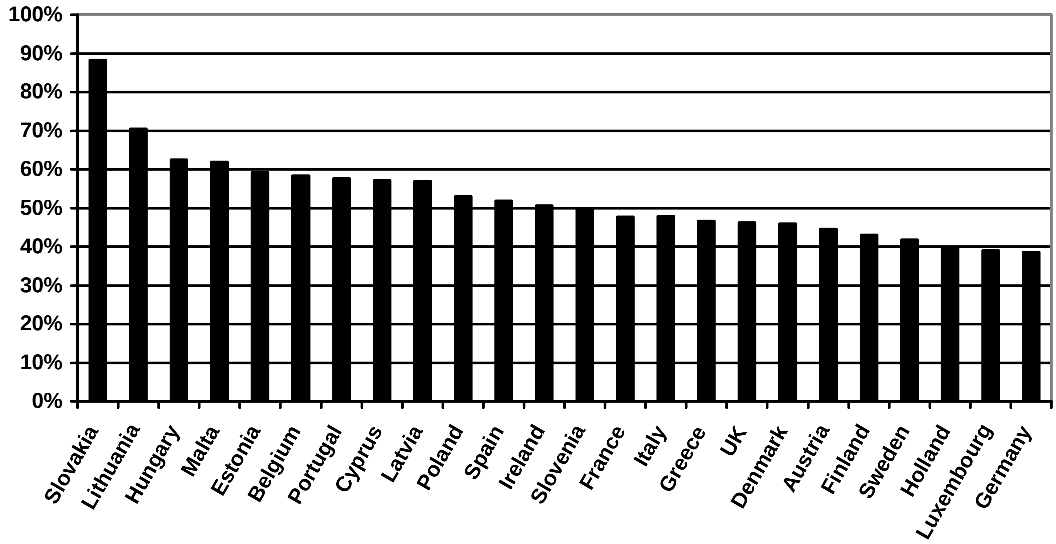


2- By country

On analysing which fleet has the highest percentage of deficiencies, the following results were obtained:

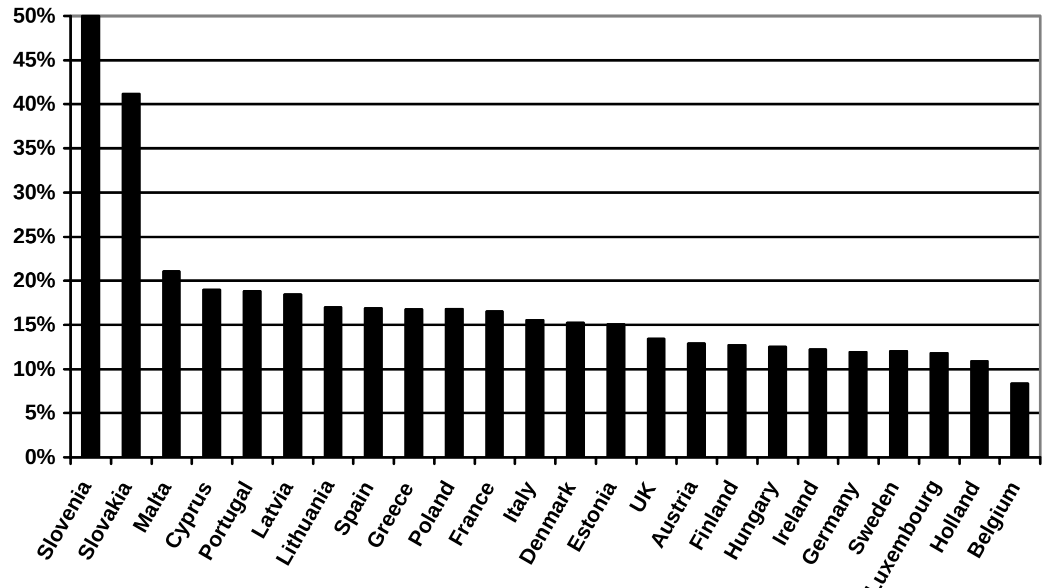
With regard to the number of deficiencies per inspection, this varied from 38.57% in the case of Germany to 88.24 in the case of Slovakia.

Inspections with deficiencies, by country



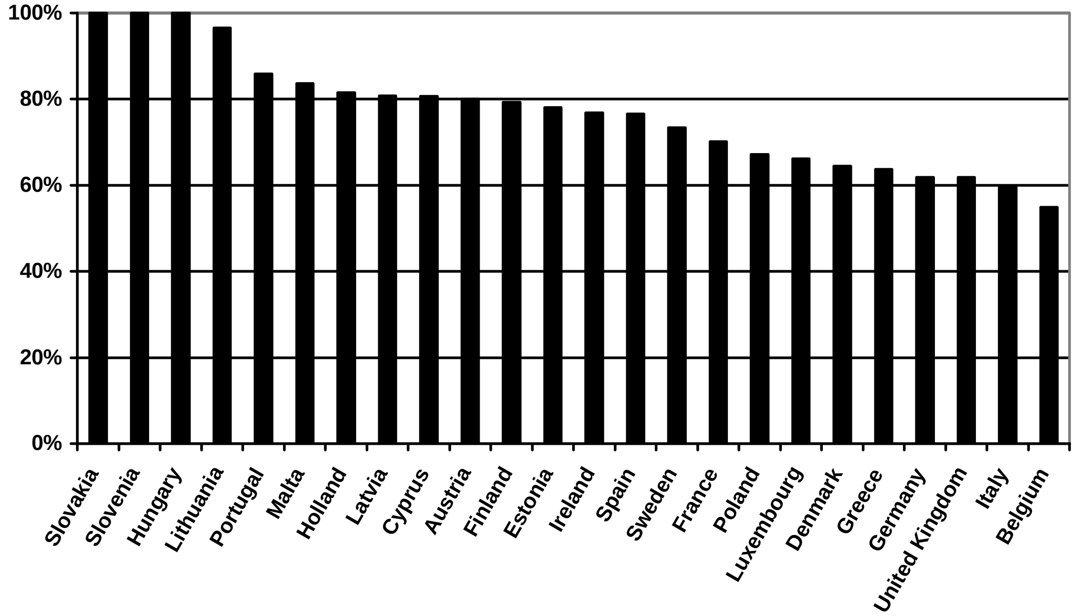
The MARPOL deficiencies detected in terms of inspections and vessel nationality were the lowest in the case of Belgium, with 9.09%, and highest in Slovenia, where 50% of inspections detected MARPOL deficiencies.

Inspections with MARPOL deficiencies, by country



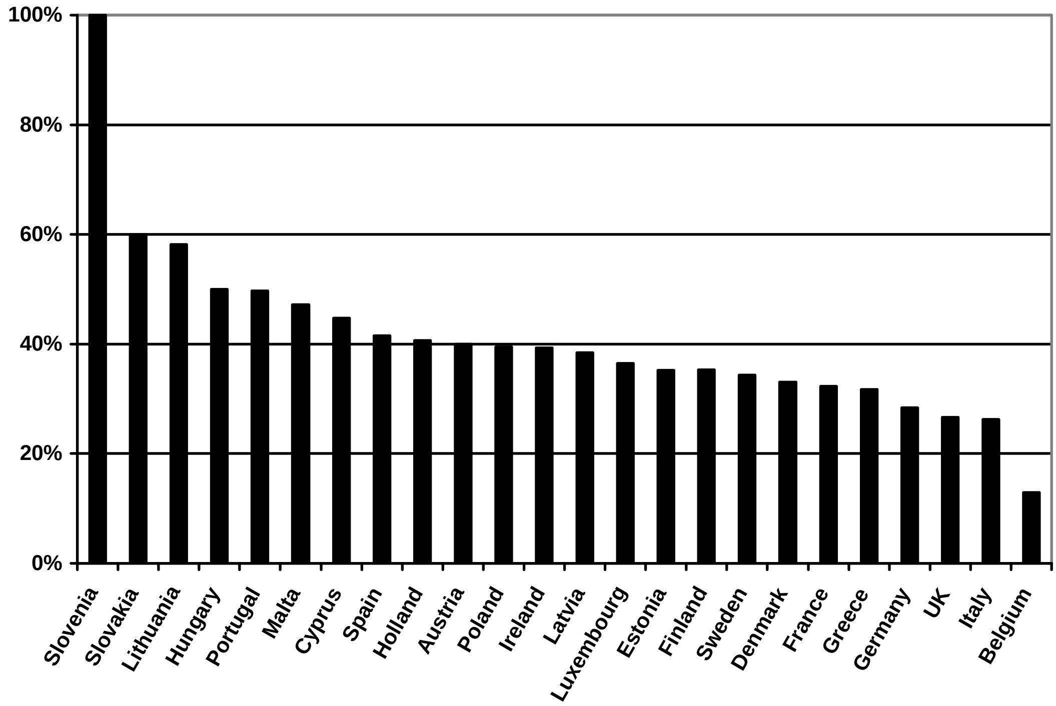
The vessels in which the largest number of deficiencies was detected belonged to the Slovakian, Slovenian and Hungarian fleets, at 100%, while the fleet with the least number of deficiencies was Belgium, with “just” 54.84%.

Vessels with deficiencies, by country

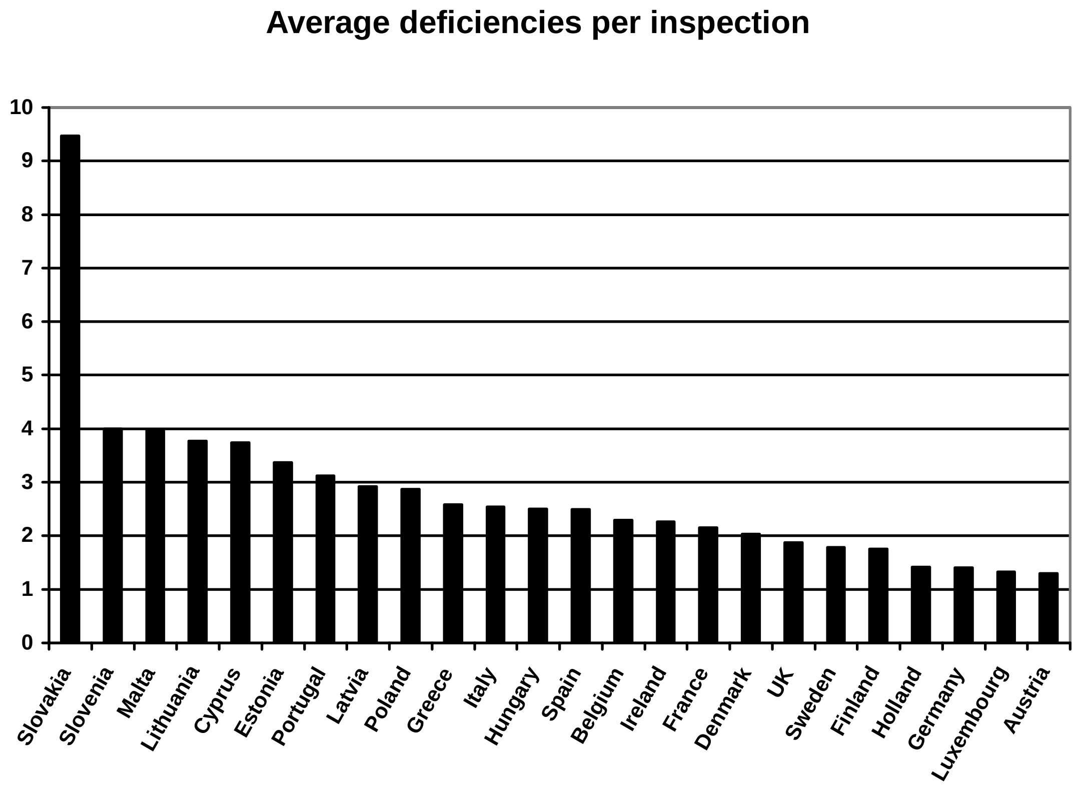


The volume of MARPOL deficiencies per fleet was very significant, going from 14.81% in the case of Belgium to 100% in the vessels inspected in the Slovenian fleet.

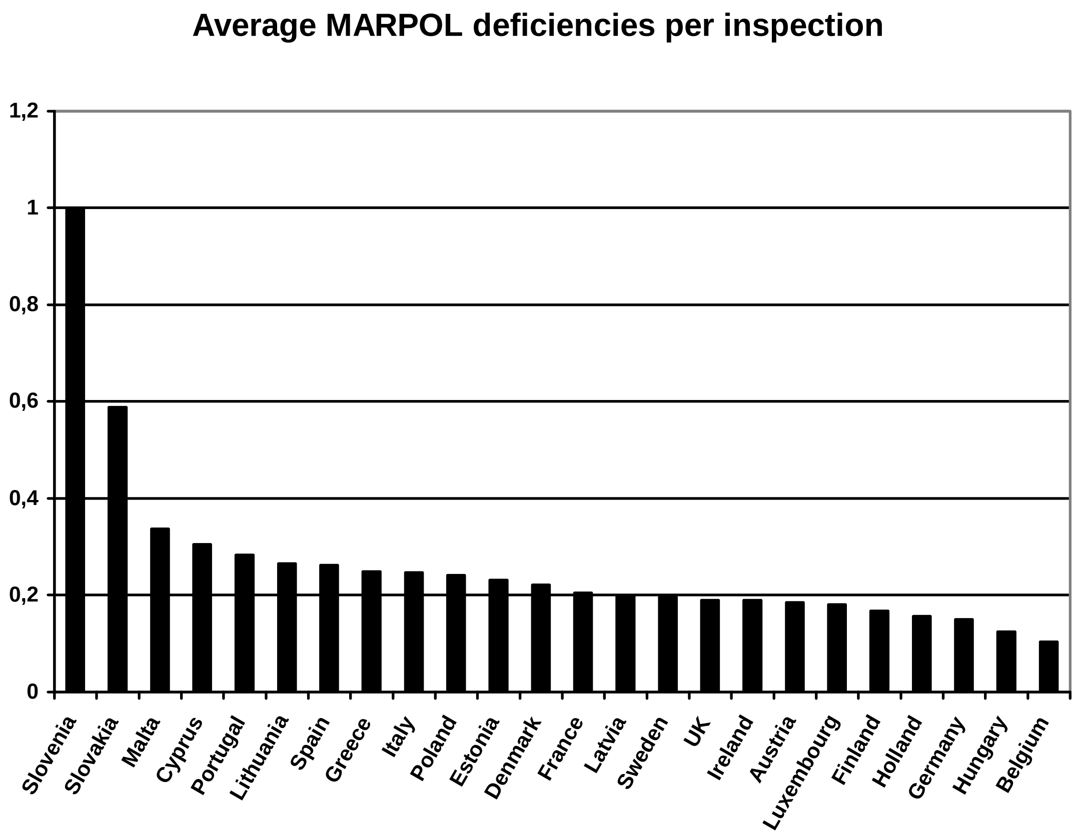
Vessels with MARPOL deficiencies, by country



Number of deficiencies per inspection

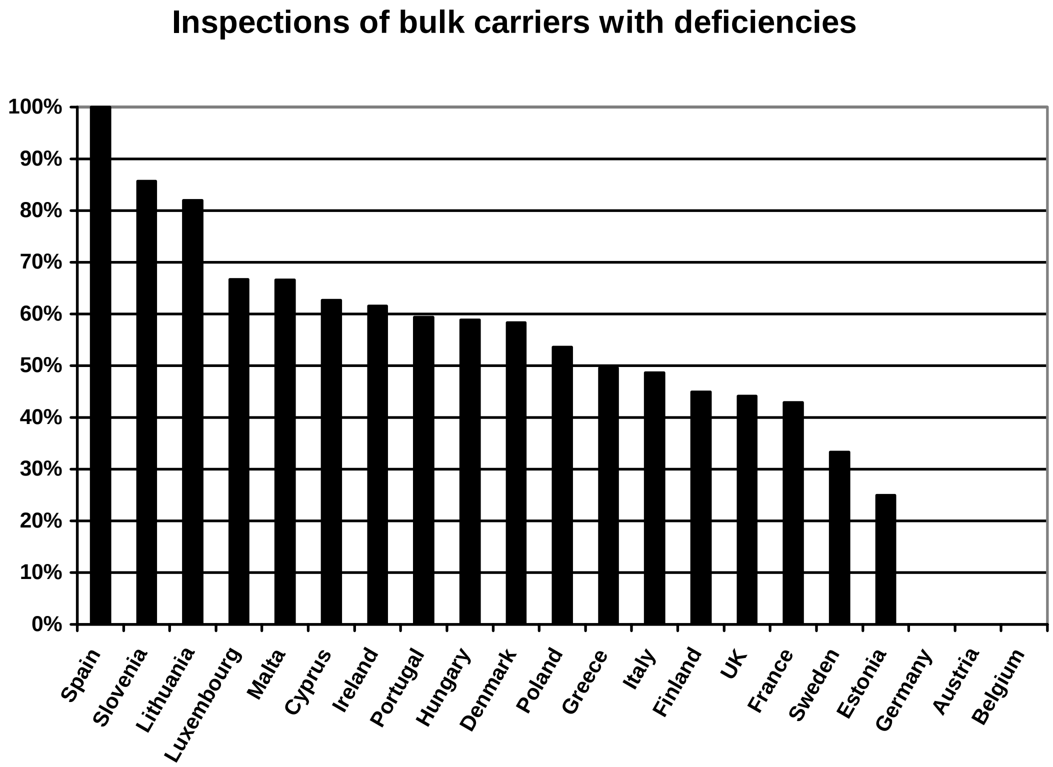


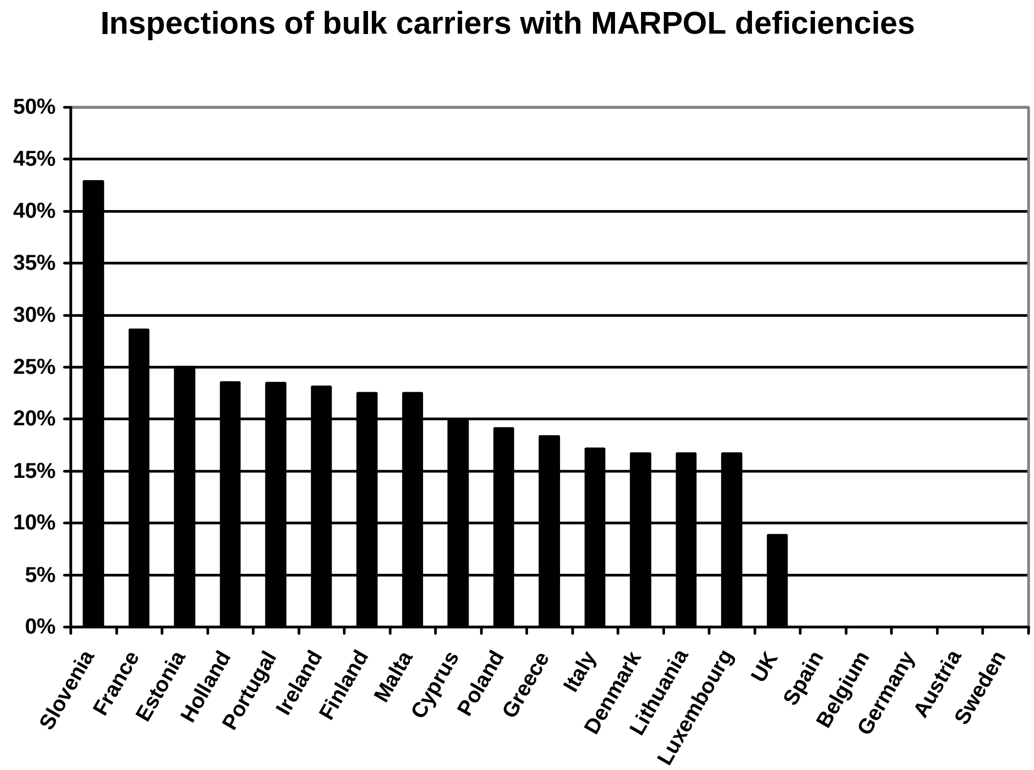
Number of MARPOL deficiencies per inspection



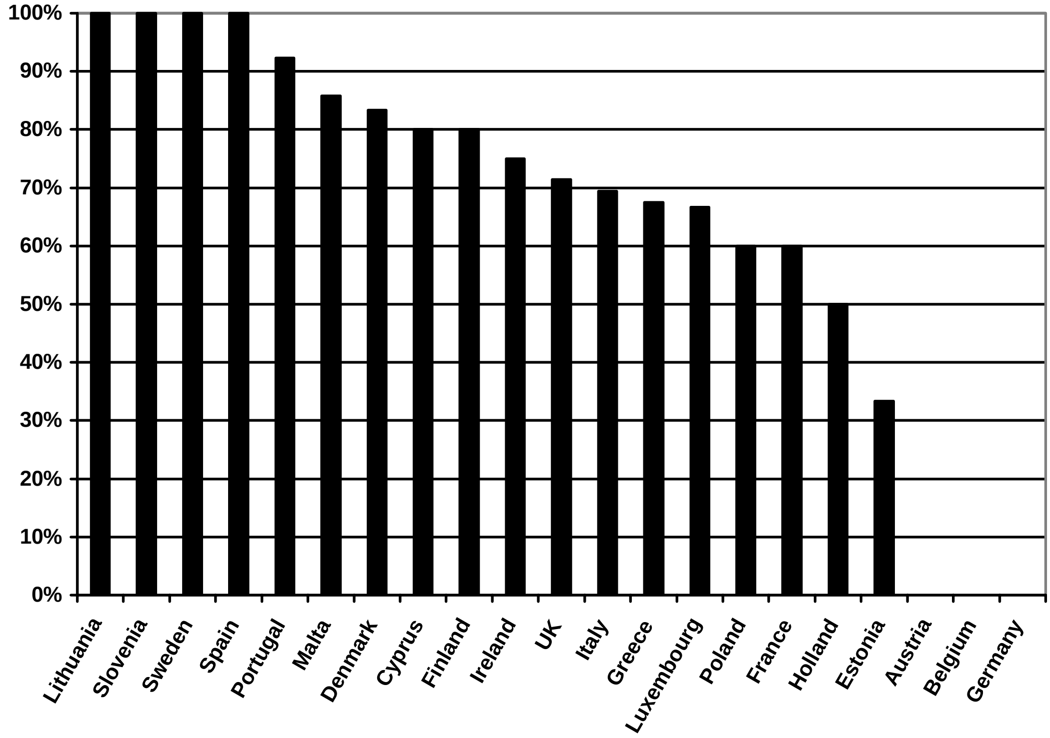
3- By type of vessel and country

Bulk carriers

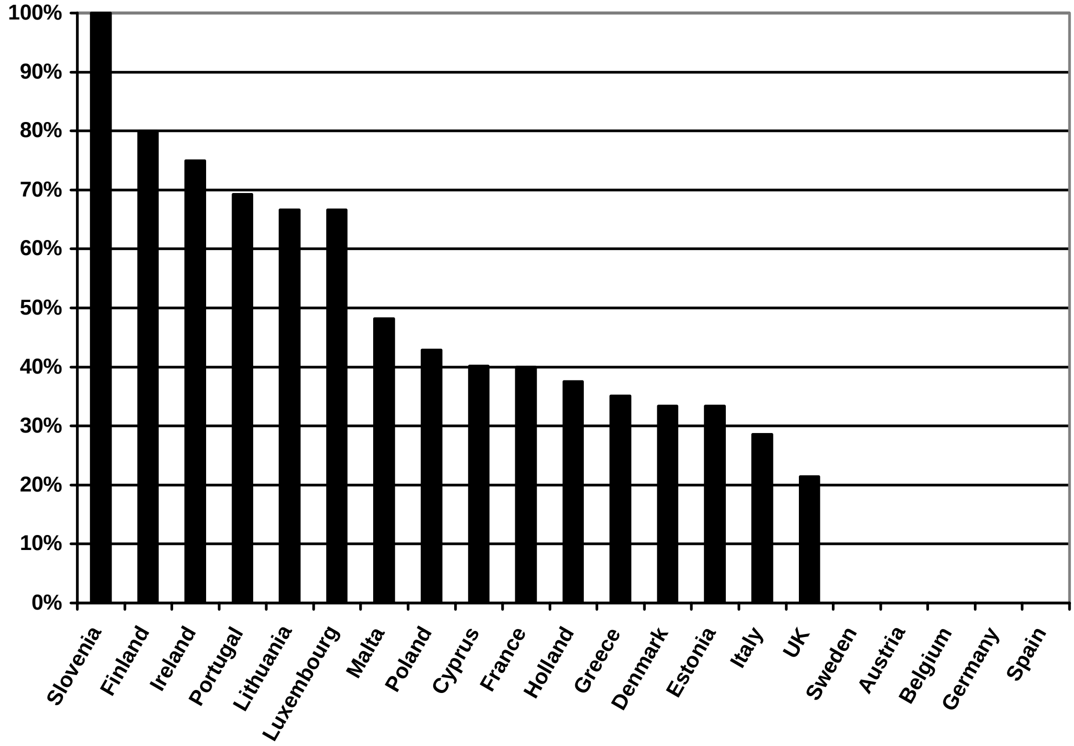




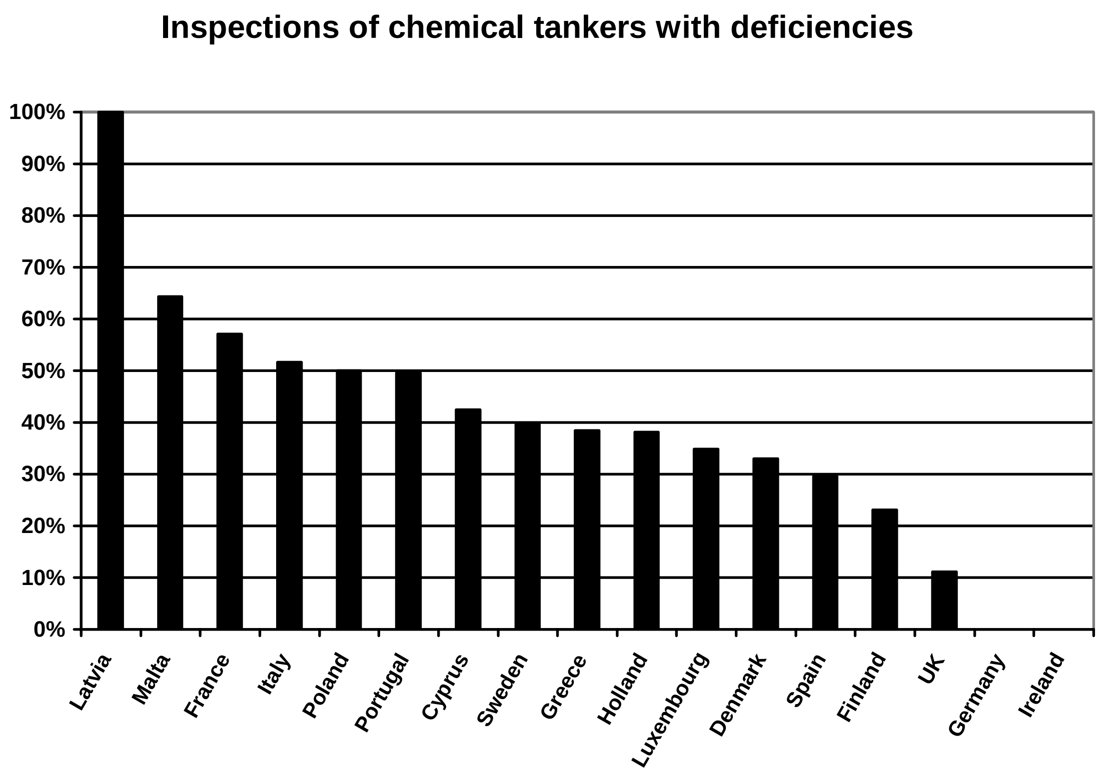
Bulk carriers with deficiencies

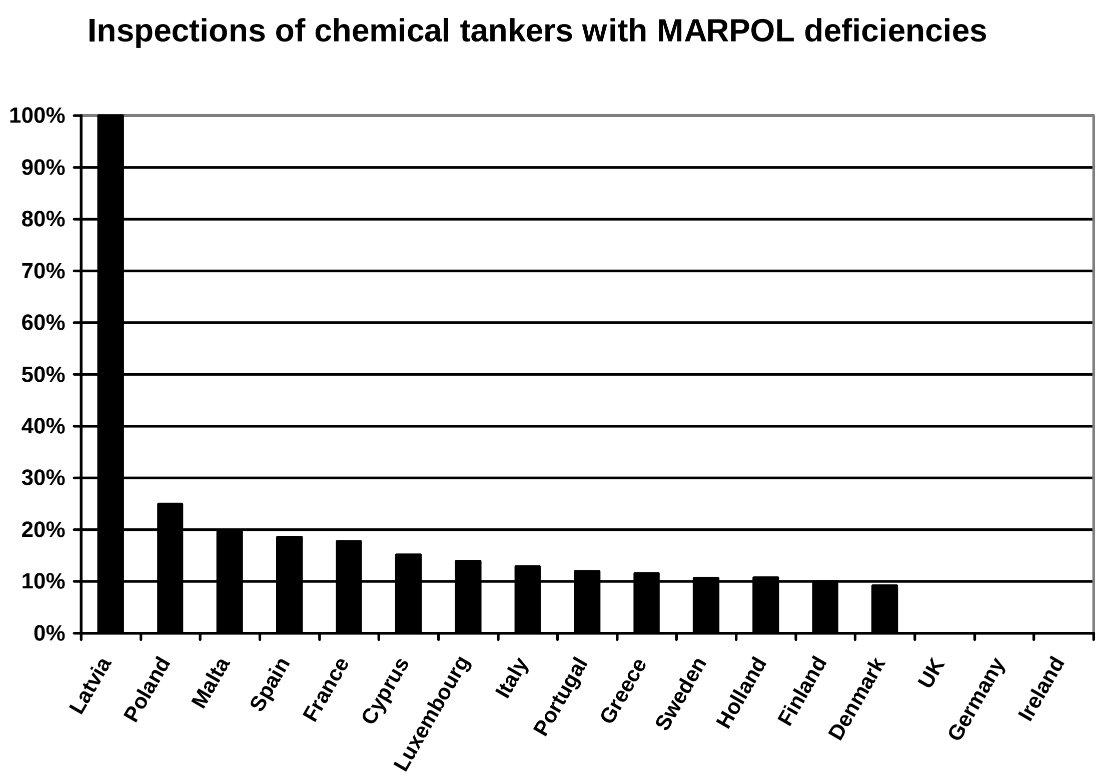


Bulk carriers with MARPOL deficiencies

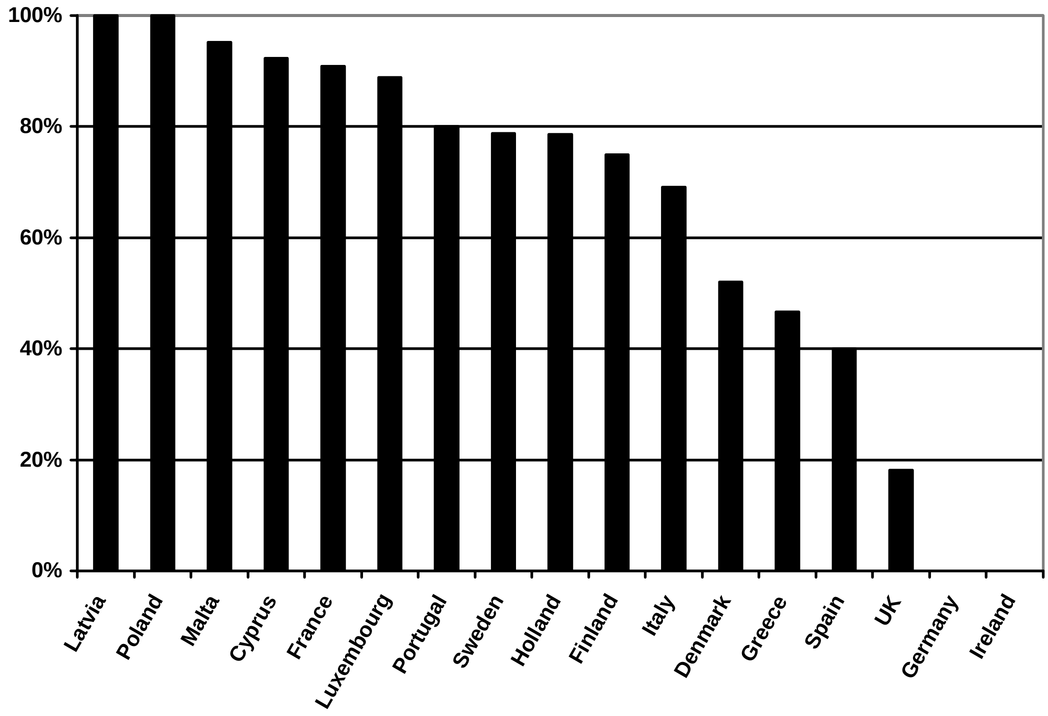


Chemical tankers

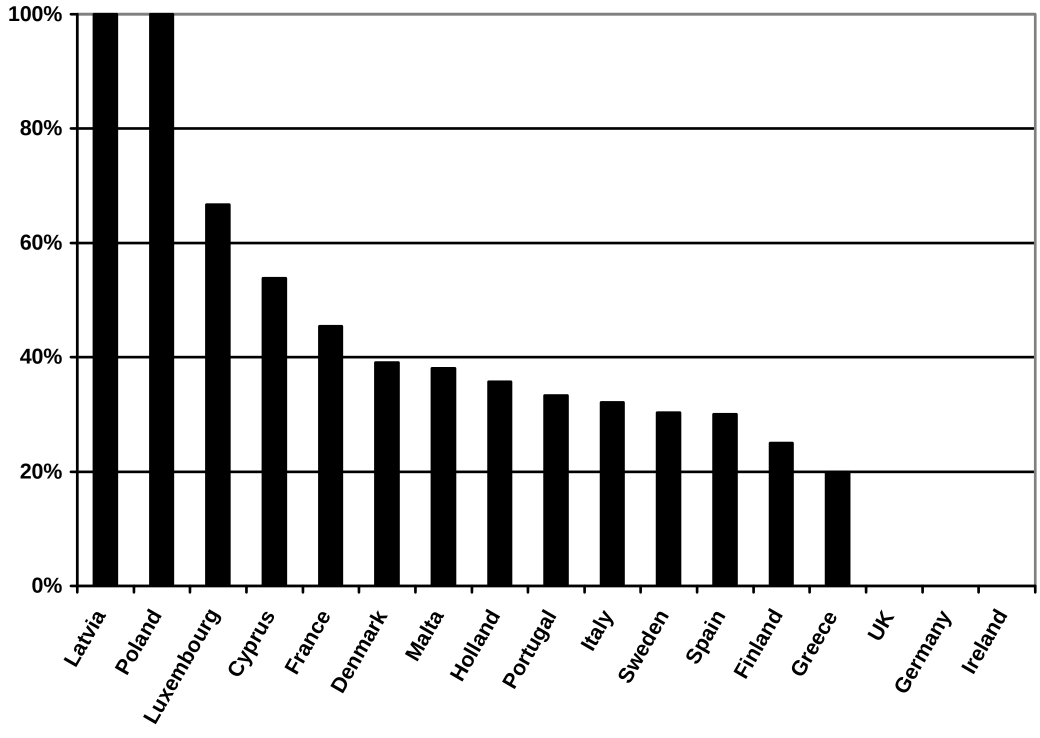




Chemical tankers with deficiencies

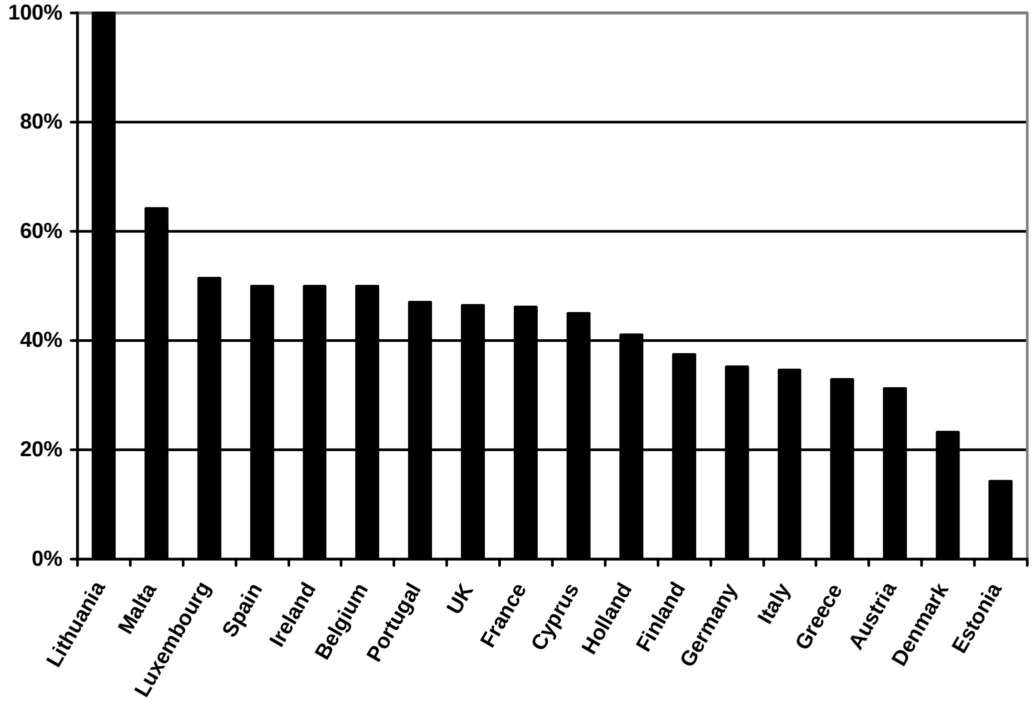


Chemical tankers with MARPOL deficiencies, by country

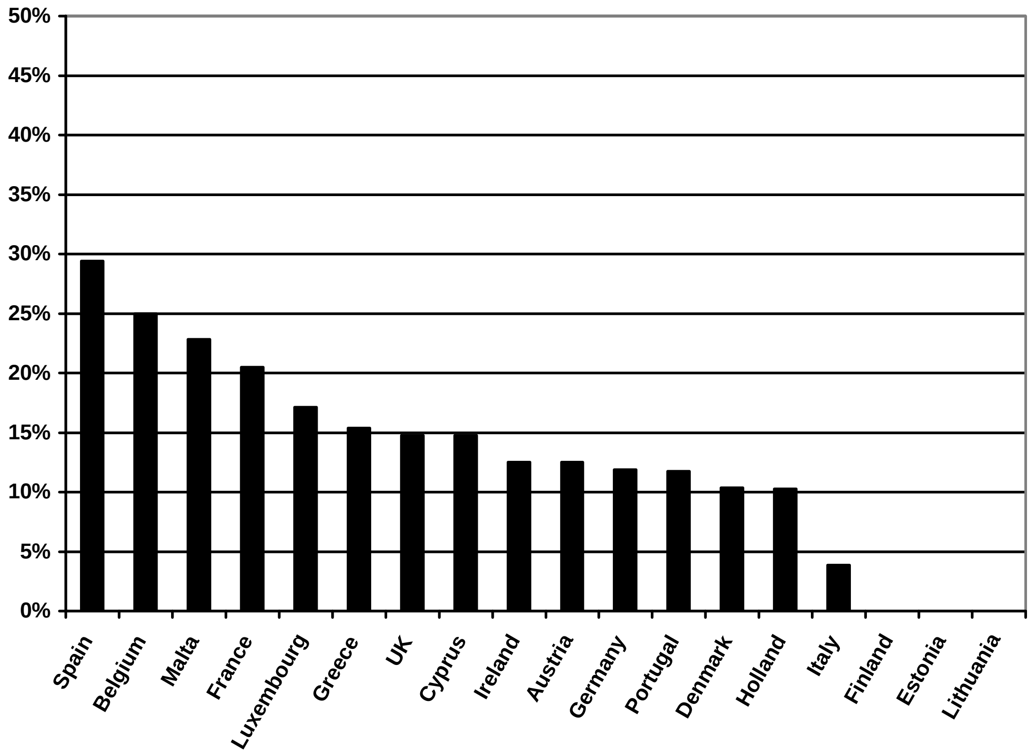


Container ships

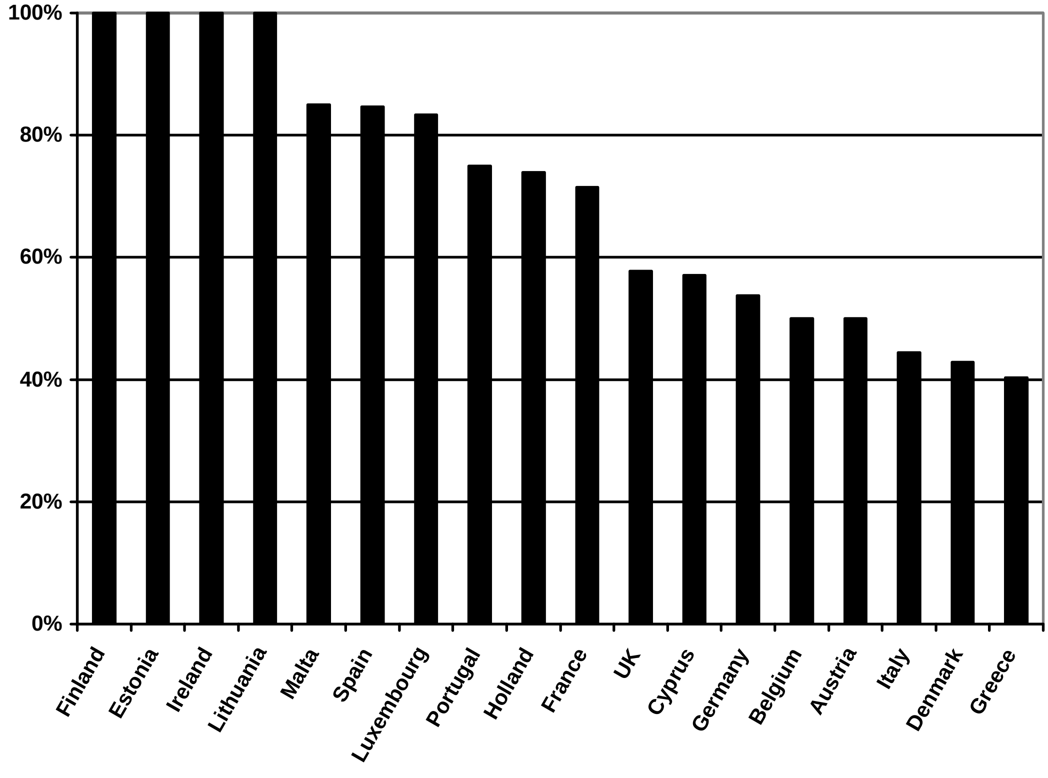
Inspections of container ships with deficiencies



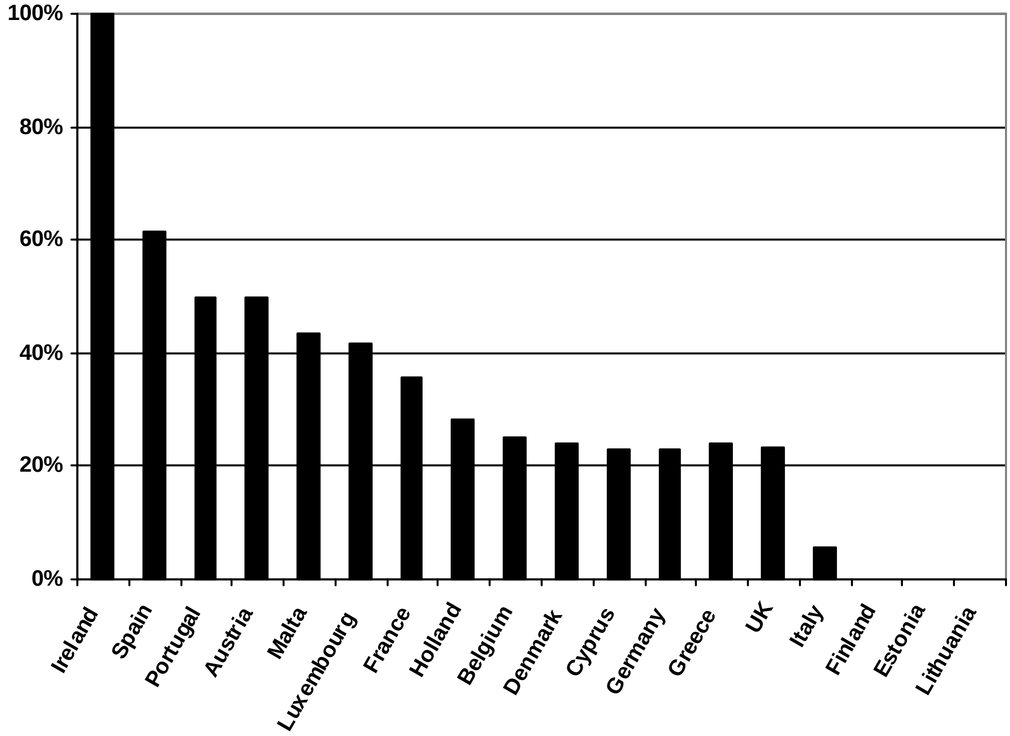
Inspections of container ships with MARPOL deficiencies



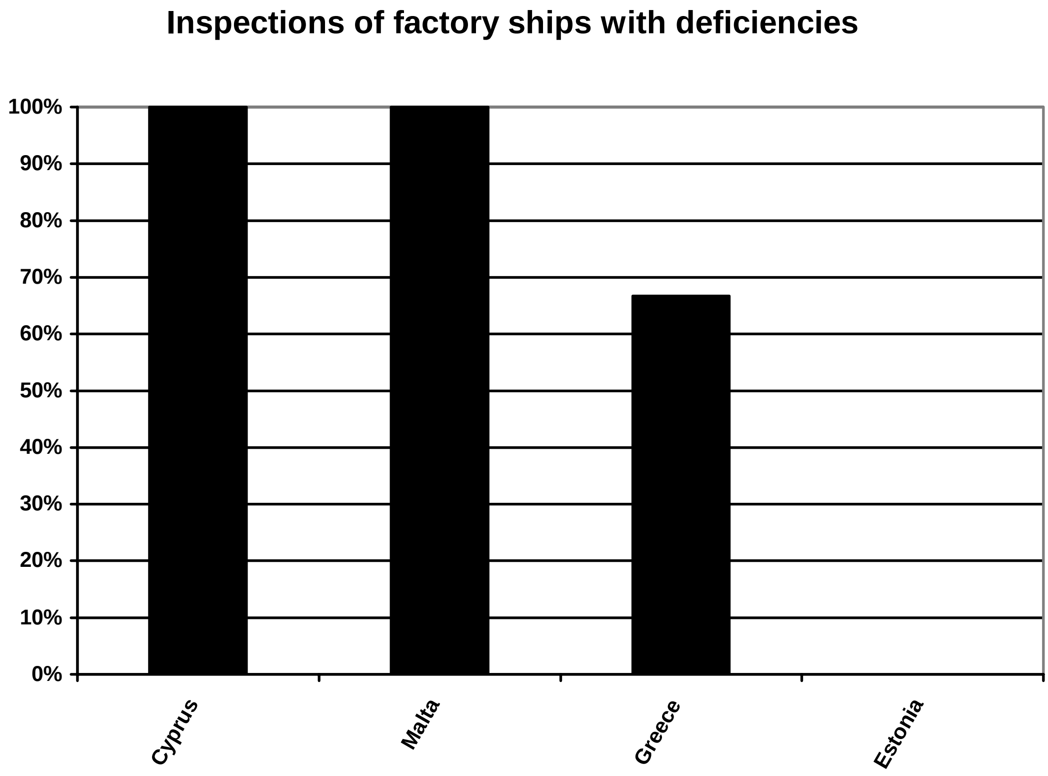
Container ships with deficiencies

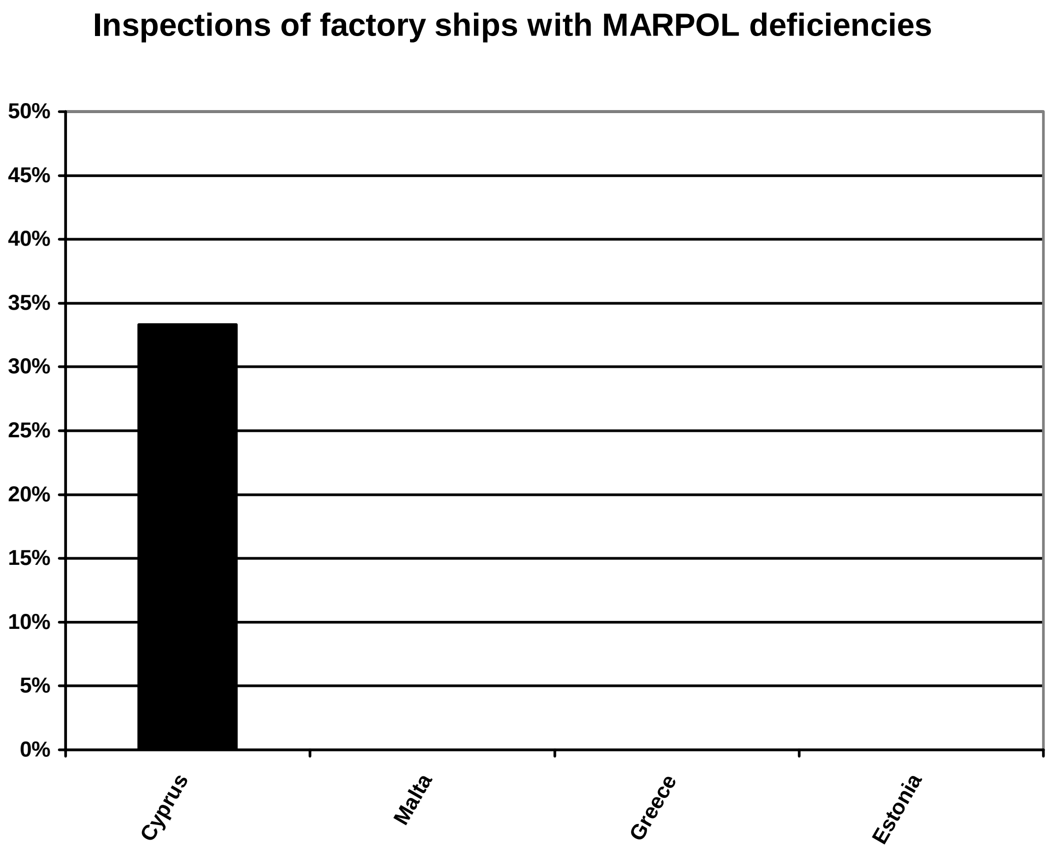


Container ships with MARPOL deficiencies

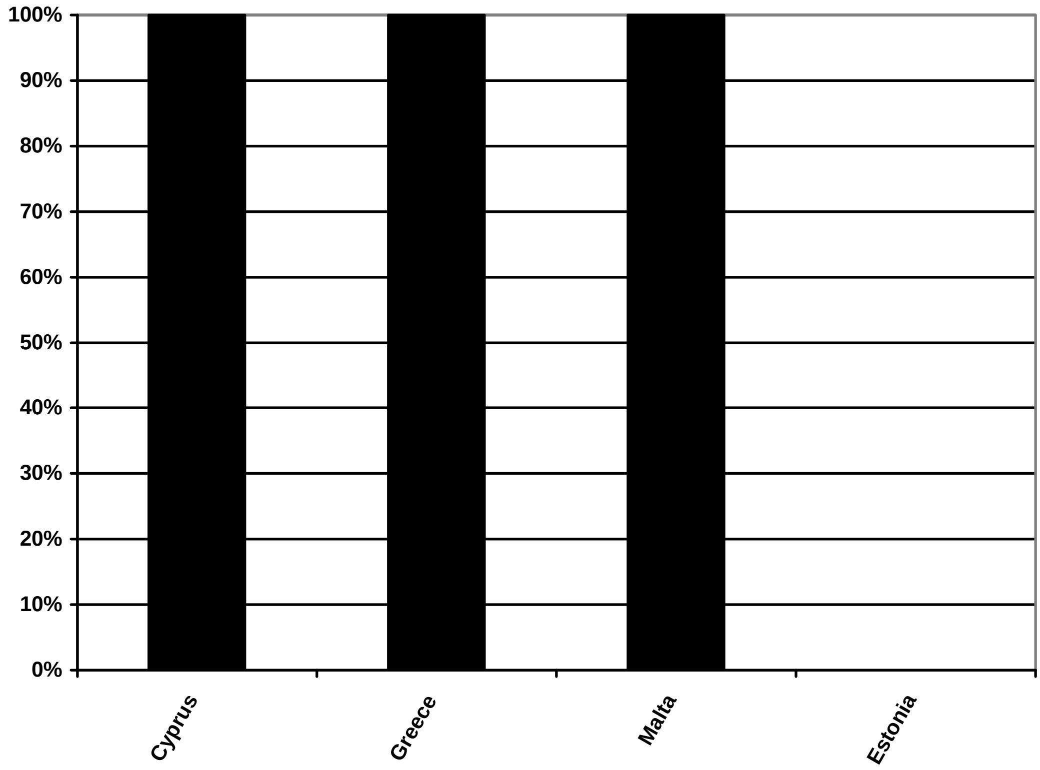


Factory ships

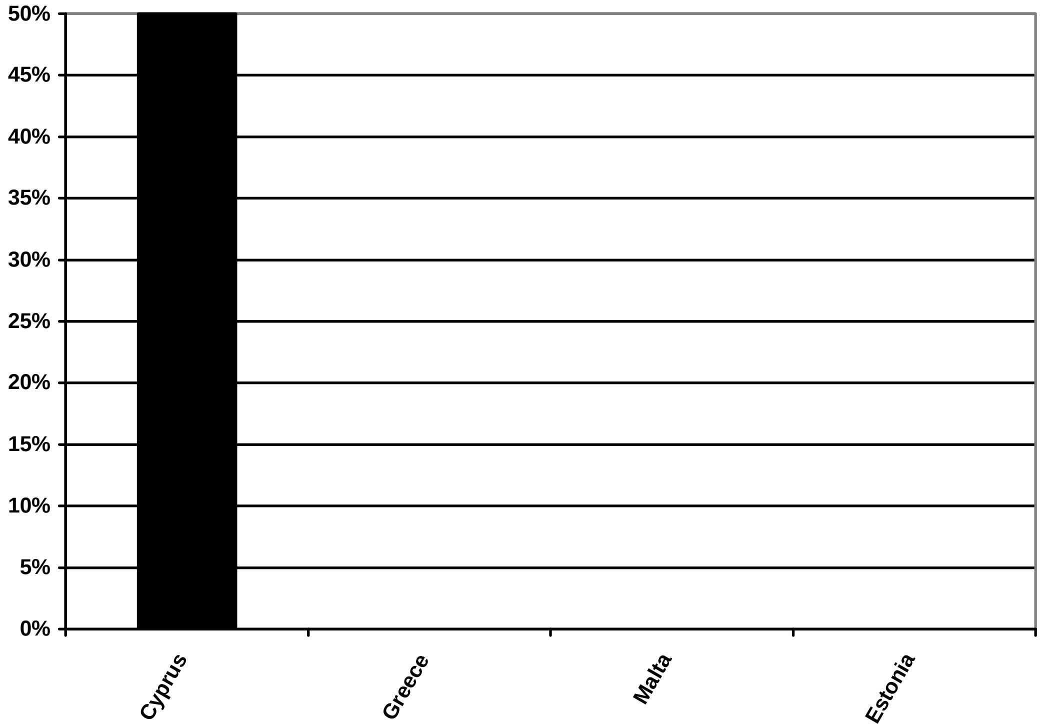




Factory ships with deficiencies

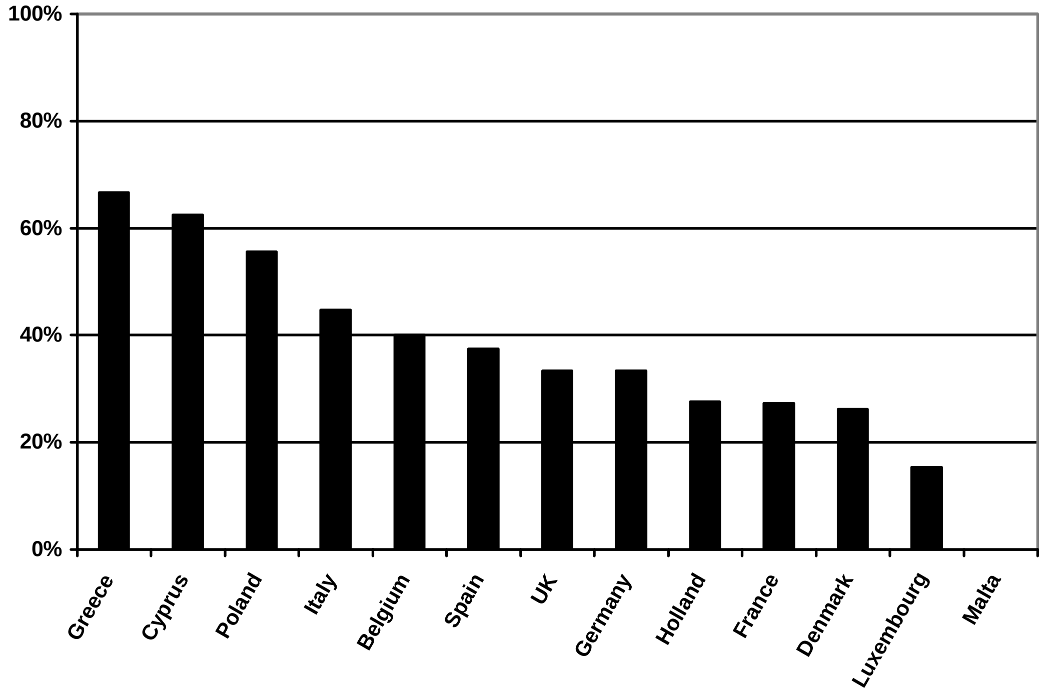


Factory ships with MARPOL deficiencies

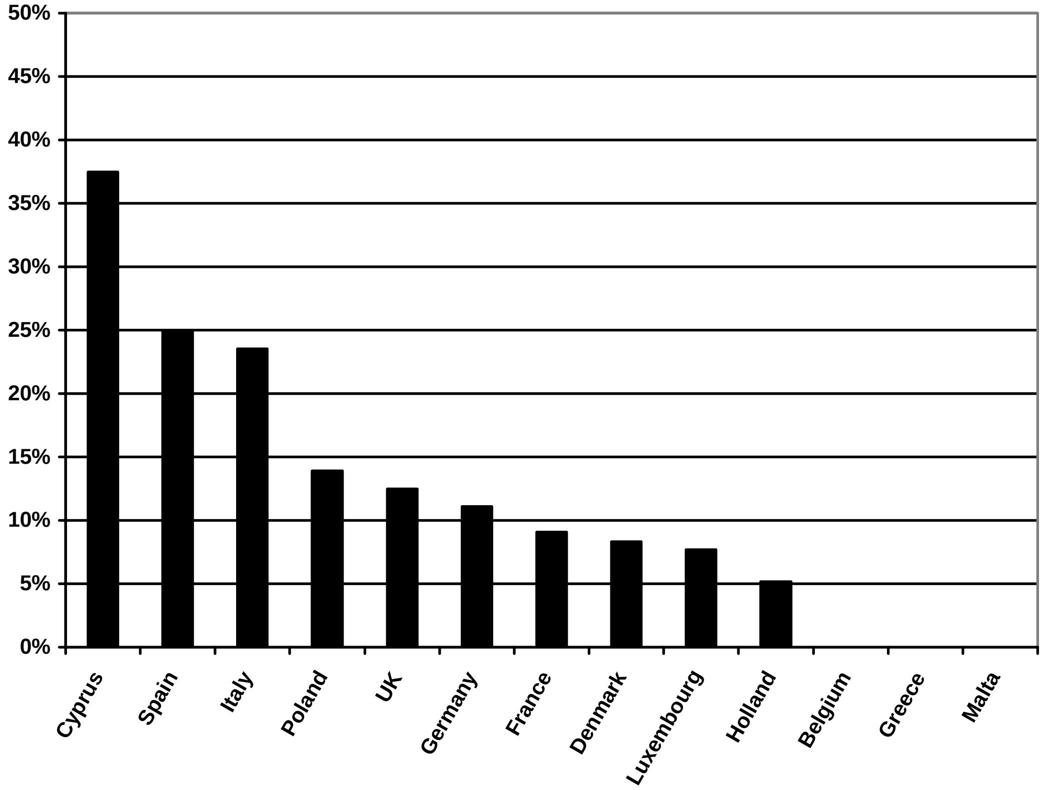


LPG carriers

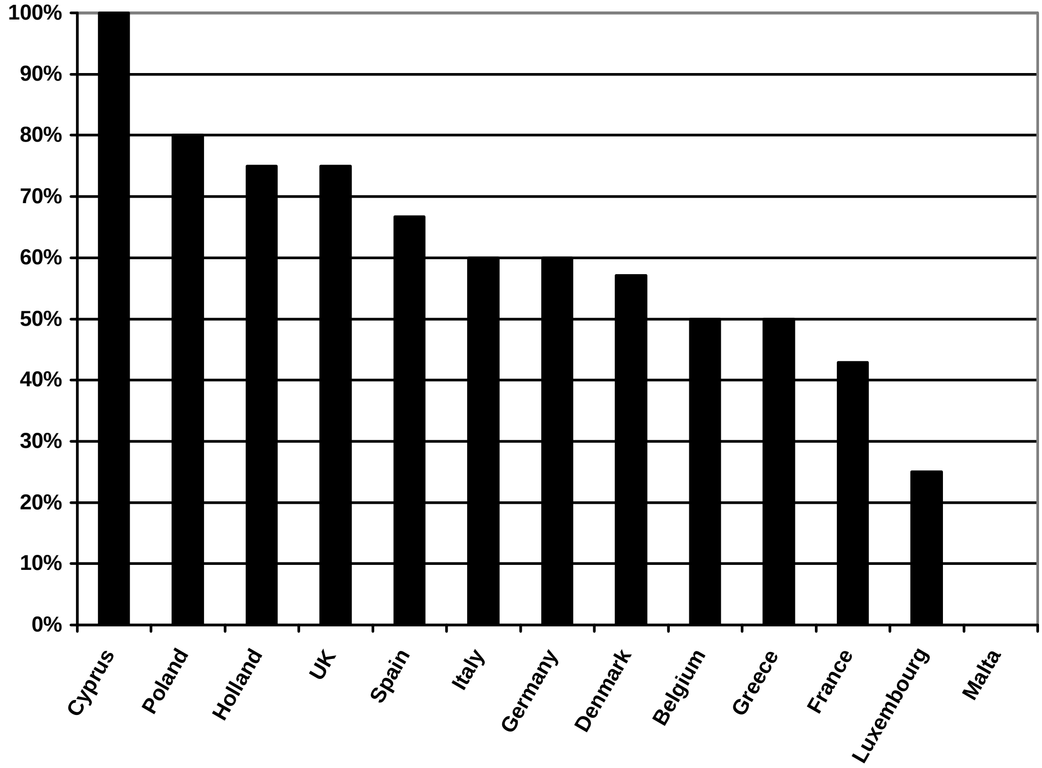
Inspections of LPG carriers with deficiencies



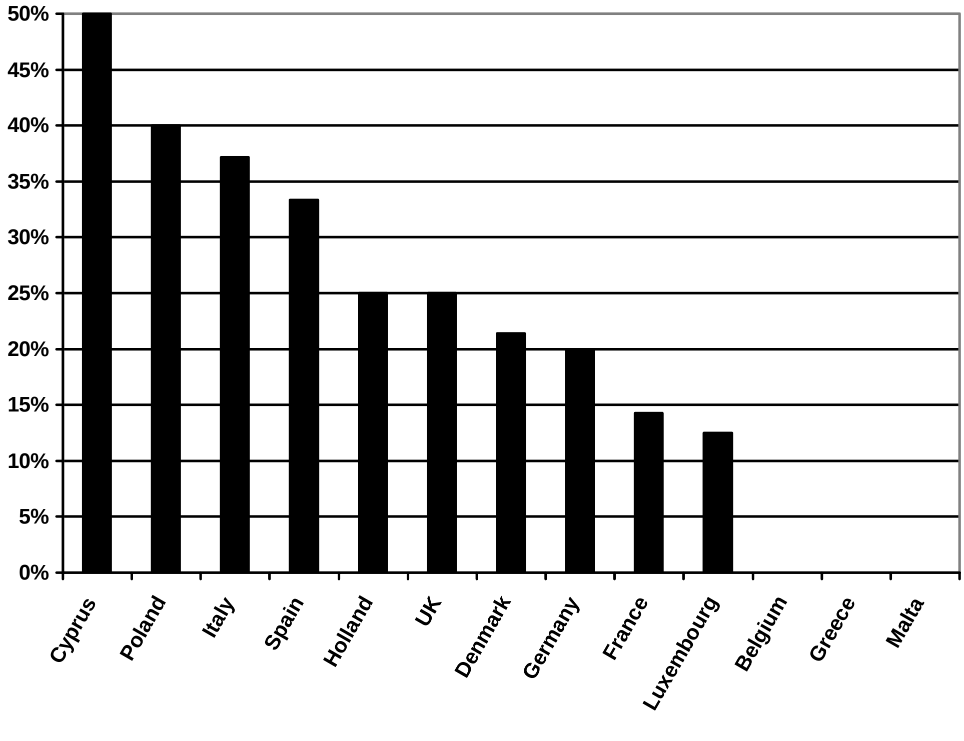
Inspections of LPG carriers with MARPOL deficiencies



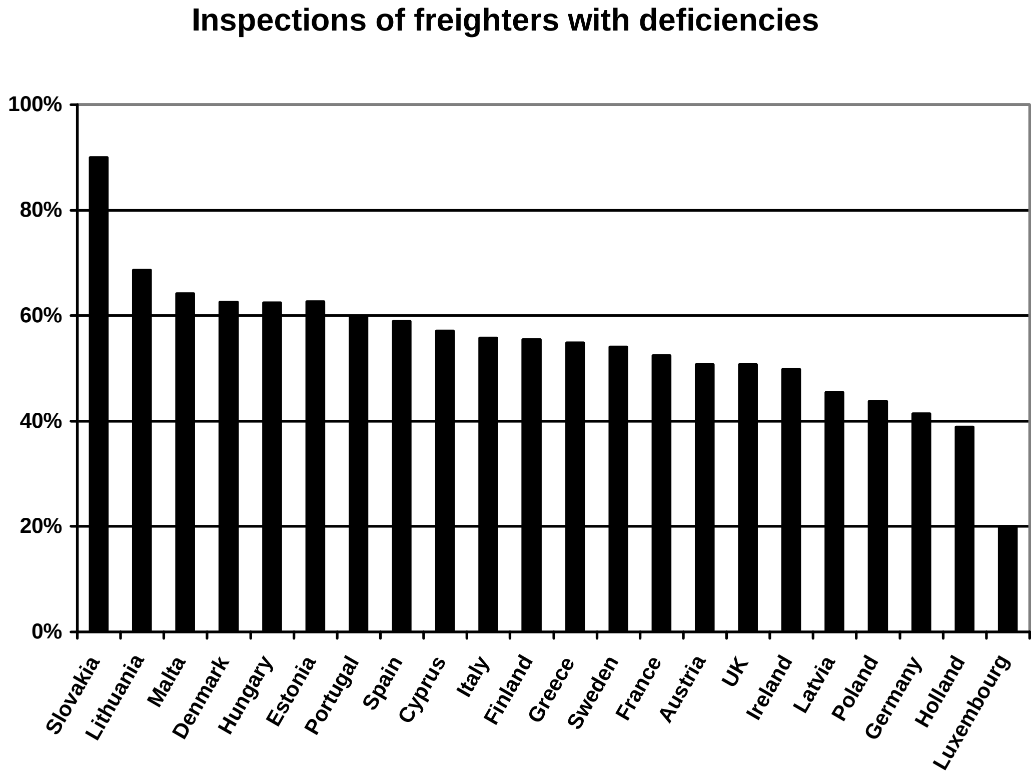
LPG carriers with deficiencies

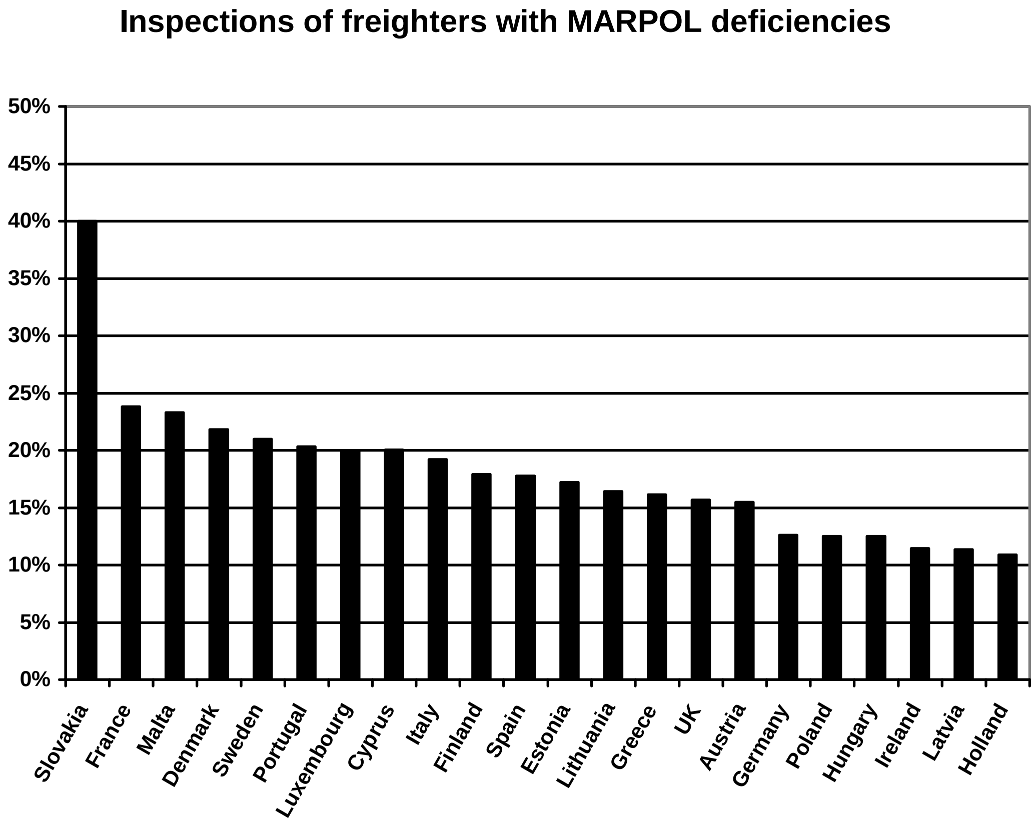


LPG carriers with MARPOL deficiencies

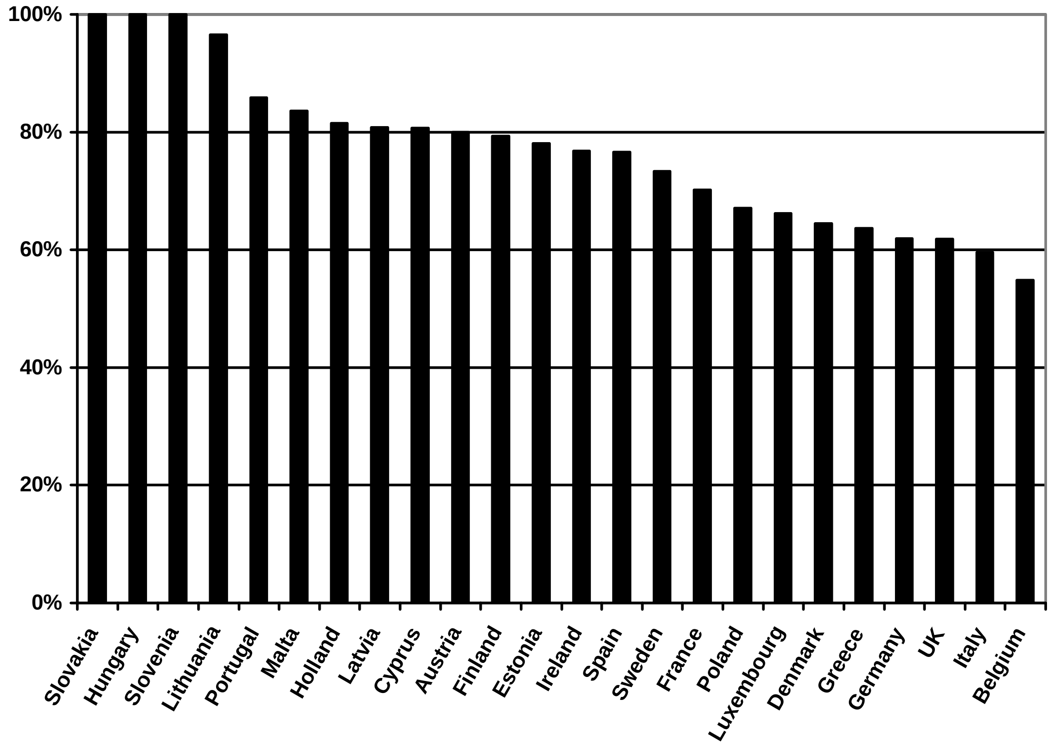


Freighters

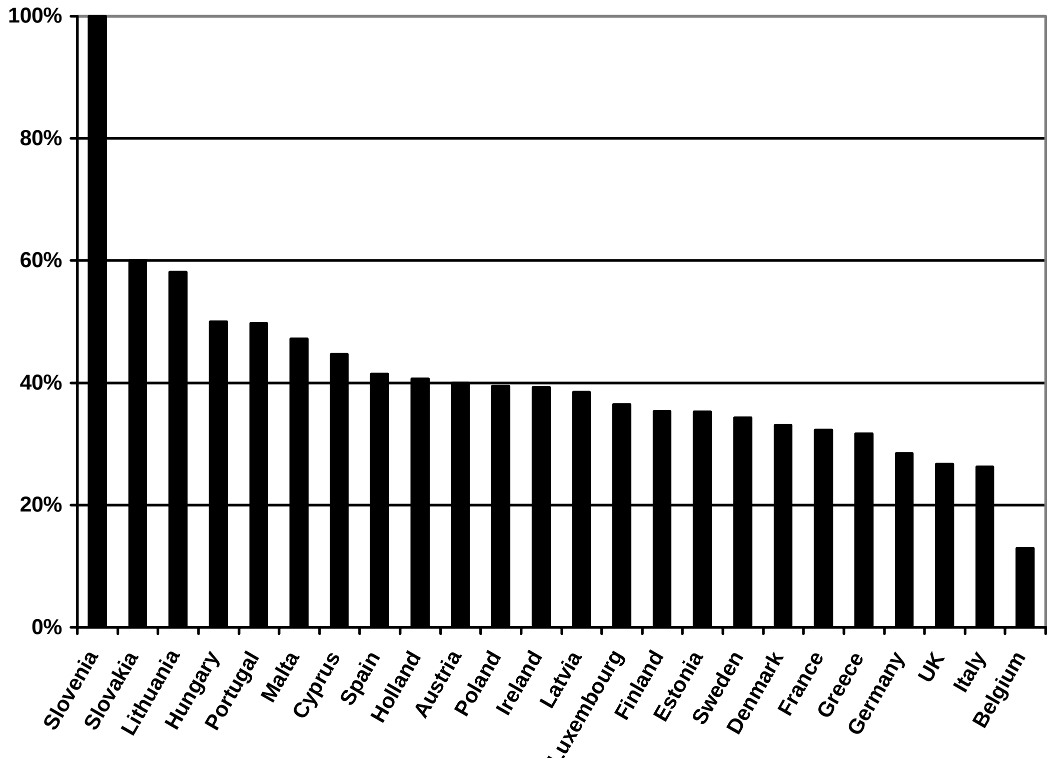

Inspections of freighters with deficiencies
100%
80%
60%
40%
20%
0%
Slovakia
Lithuania
Malta
Denmark
Hungary
Estonia
Portugal
Spain
Cyprus
Italy
Finland
Greece
Sweden
France
Austria
UK
Ireland
Latvia
Poland
Germany
Holland
Luxembourg


Inspections of freighters with MARPOL deficiencies
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Slovakia
France
Malta
Denmark
Sweden
Portugal
Luxembourg
Cyprus
Italy
Finland
Spain
Estonia
Lithuania
Greece
UK
Austria
Germany
Poland
Hungary
Ireland
Latvia
Holland

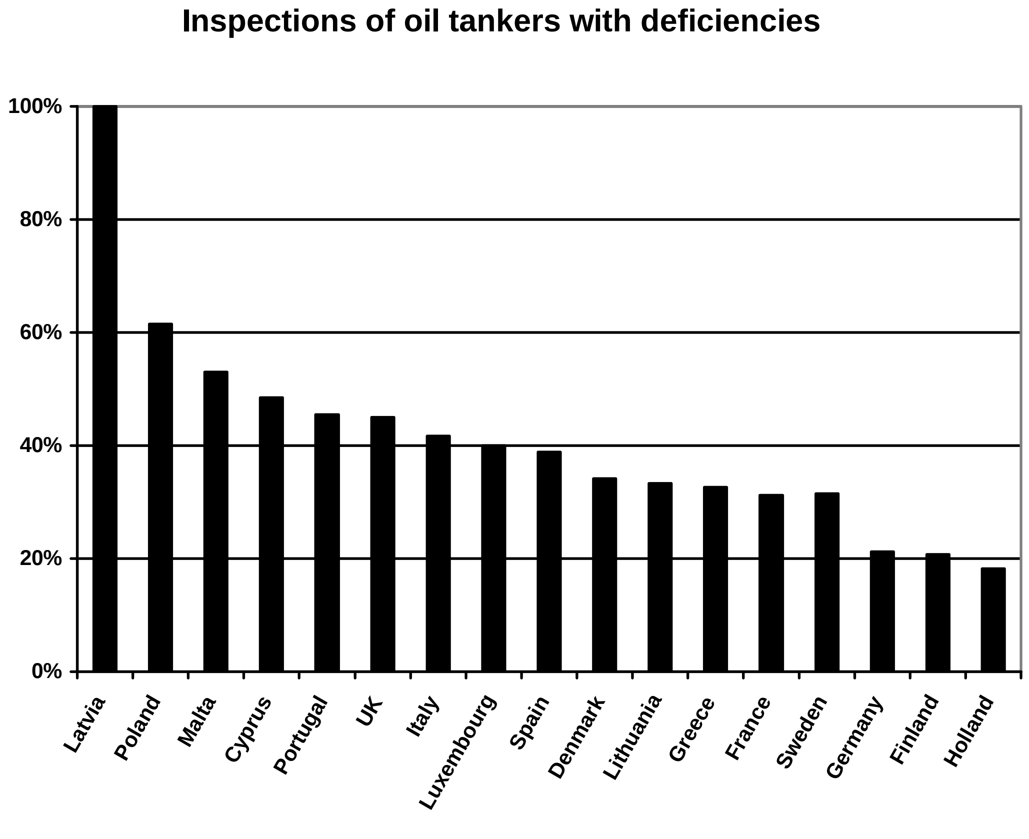
Freighters with deficiencies



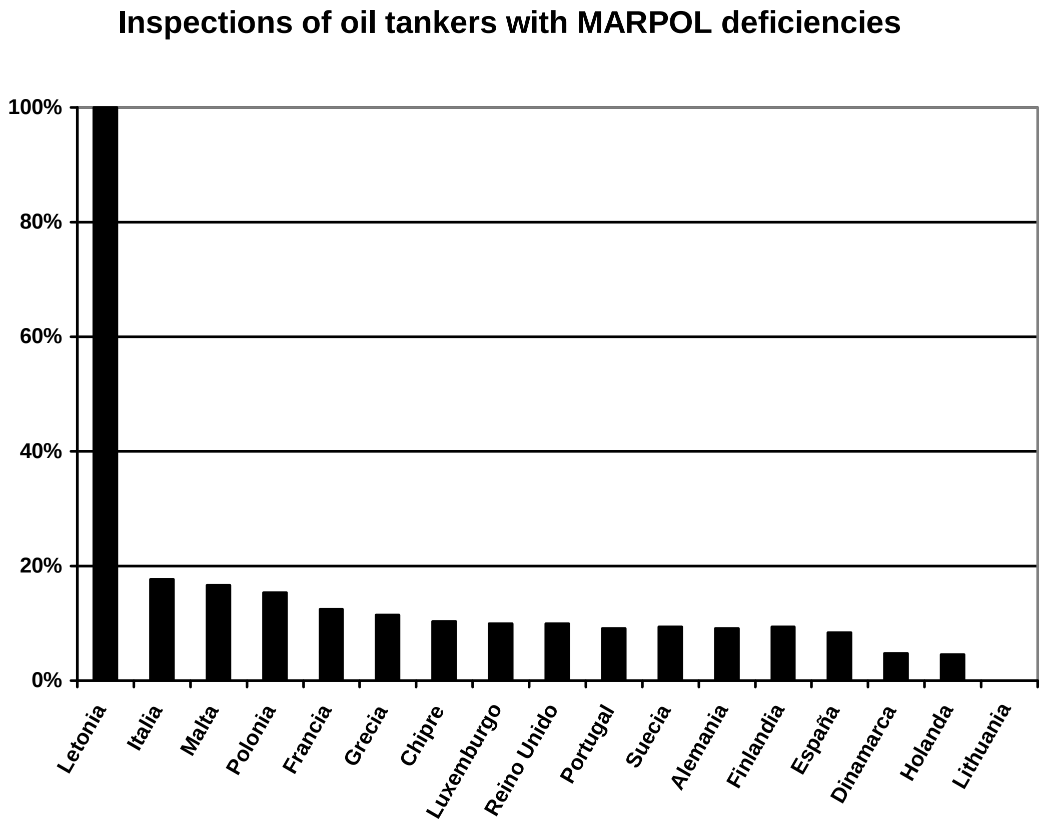
Freighters with MARPOL deficiencies



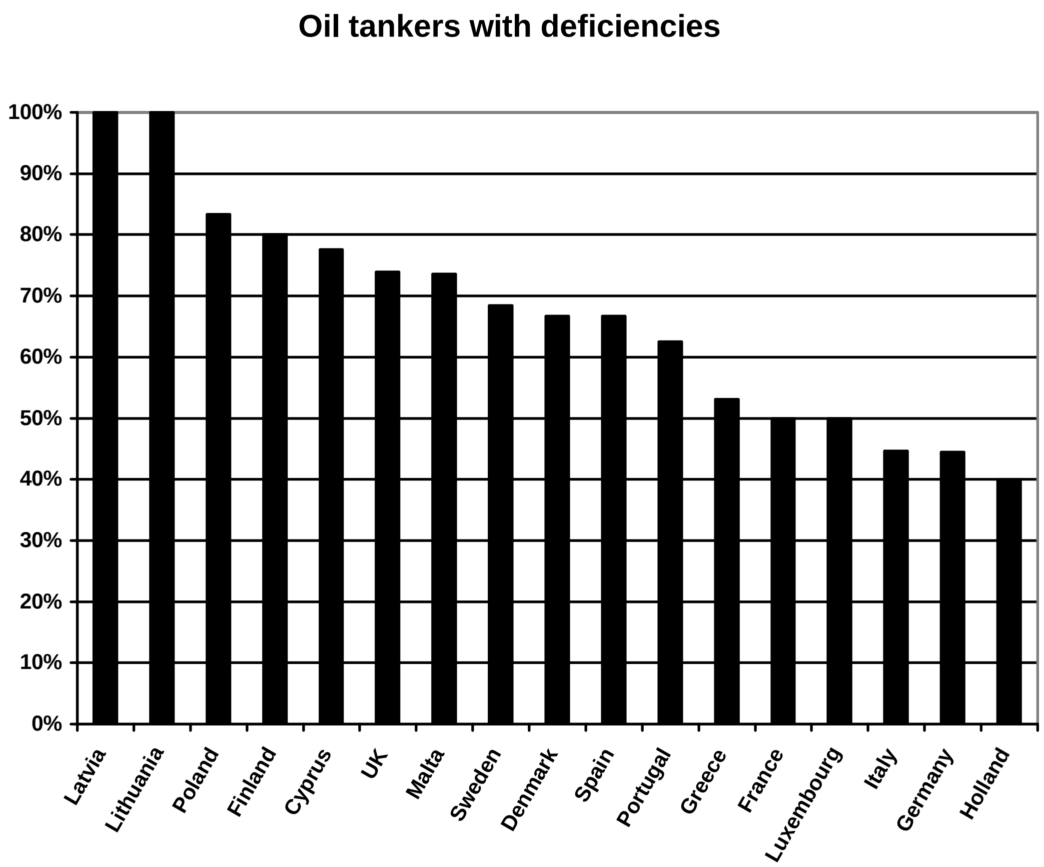
Oil tankers

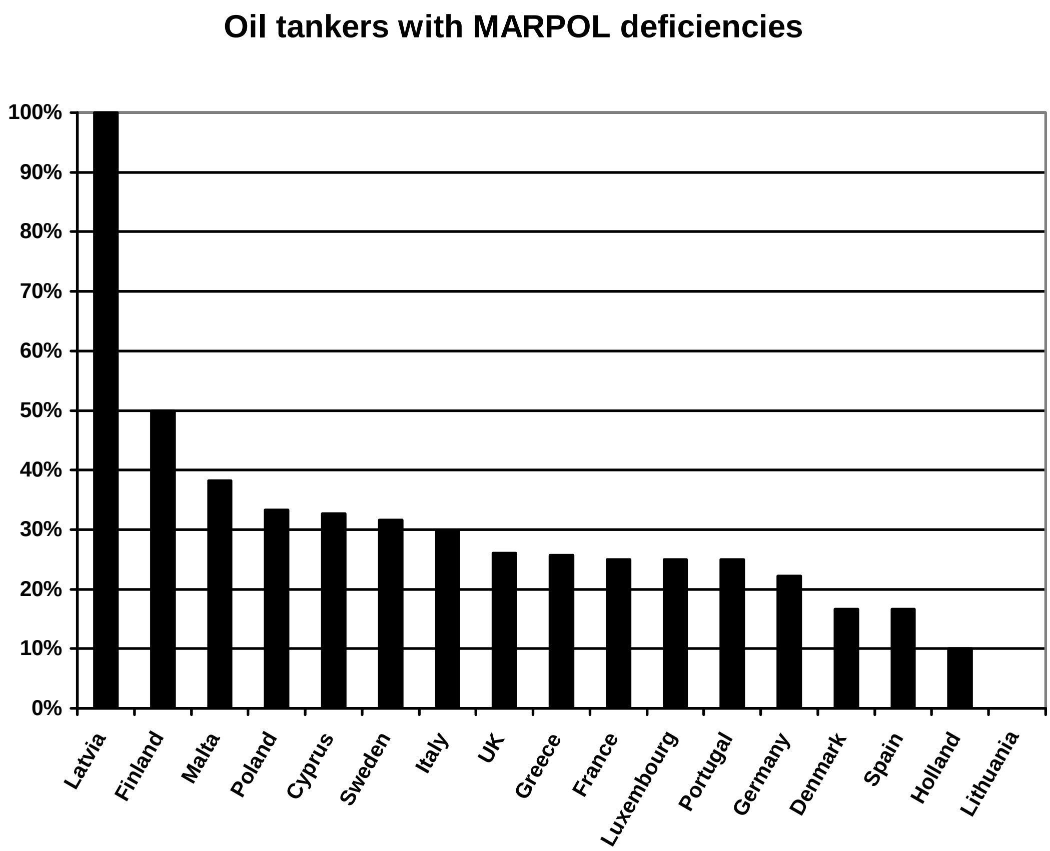


Inspections of oil tankers with deficiencies
100%
80%
60%
40%
20%
0%
Latvia
Poland
Malta
Cyprus
Portugal
UK
Italy
Luxembourg
Spain
Denmark
Lithuania
Greece
France
Sweden
Germany
Finland
Holland



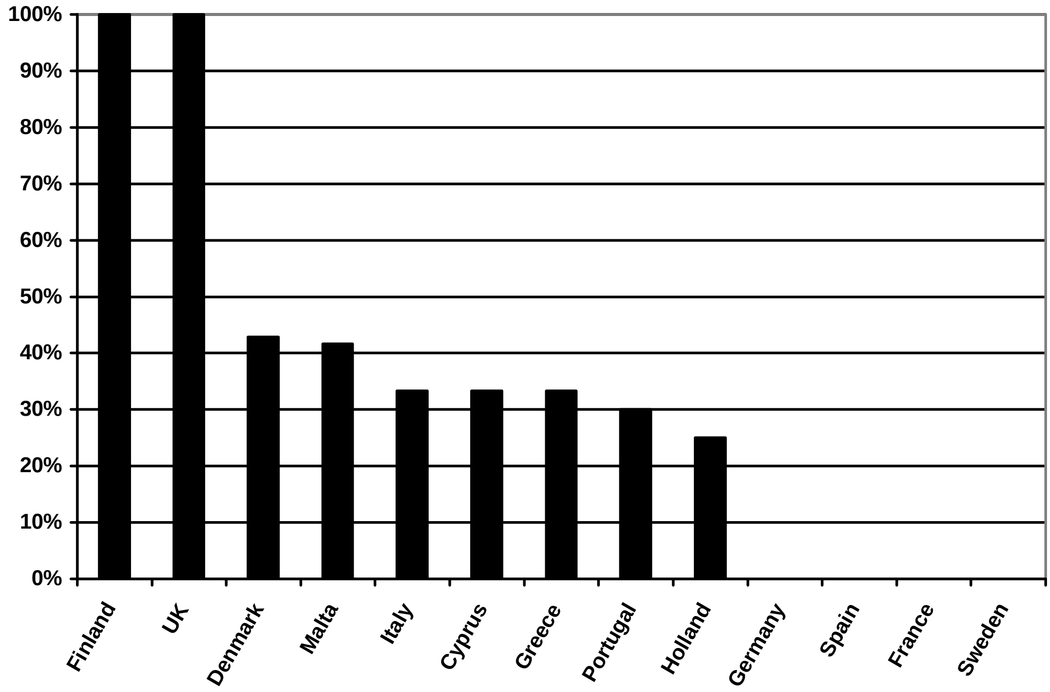
Inspections of oil tankers with MARPOL deficiencies
100%
80%
60%
40%
20%
0%
Letonia
Italia
Malta
Polonia
Francia
Grecia
Chipre
Luxemburgo
Reino Unido
Portugal
Suecia
Alemania
Finlandia
España
Dinamarca
Holanda
Lithuania


Oil tankers with deficiencies
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Latvia
Lithuania
Poland
Finland
Cyprus
UK
Malta
Sweden
Denmark
Spain
Portugal
Greece
France
Luxembourg
Italy
Germany
Holland

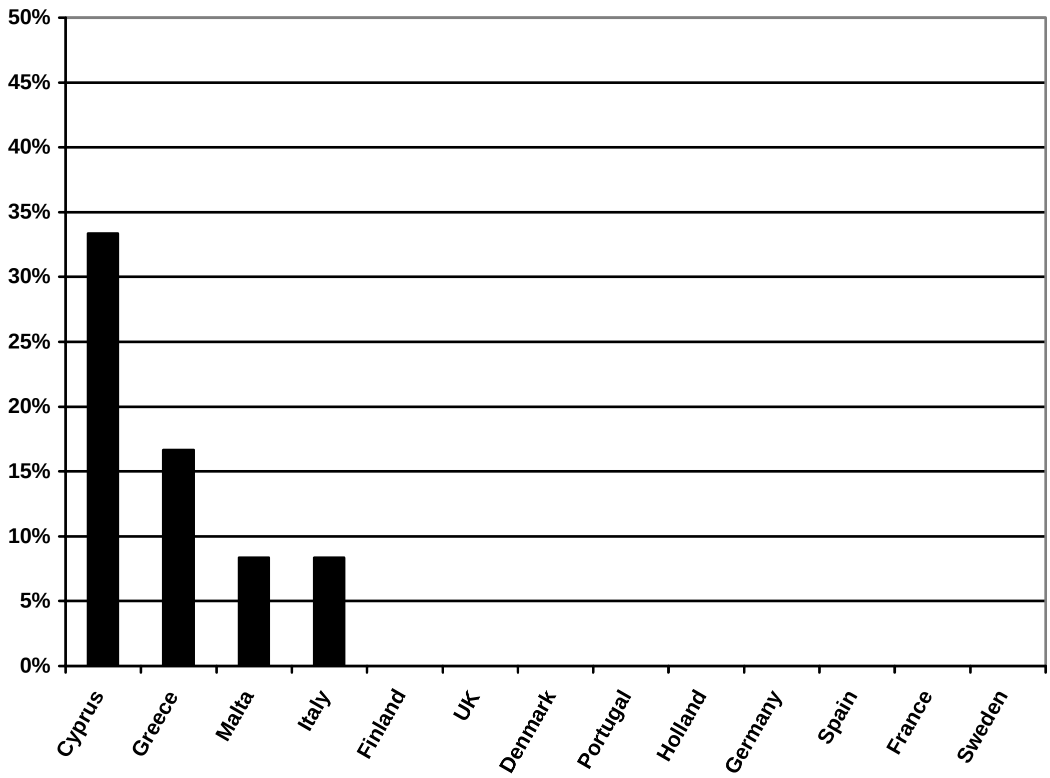

Oil tankers with MARPOL deficiencies
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Latvia
Finland
Malta
Poland
Cyprus
Sweden
Italy
UK
Greece
France
Luxembourg
Portugal
Germany
Denmark
Spain
Holland
Lithuania

Ore carriers

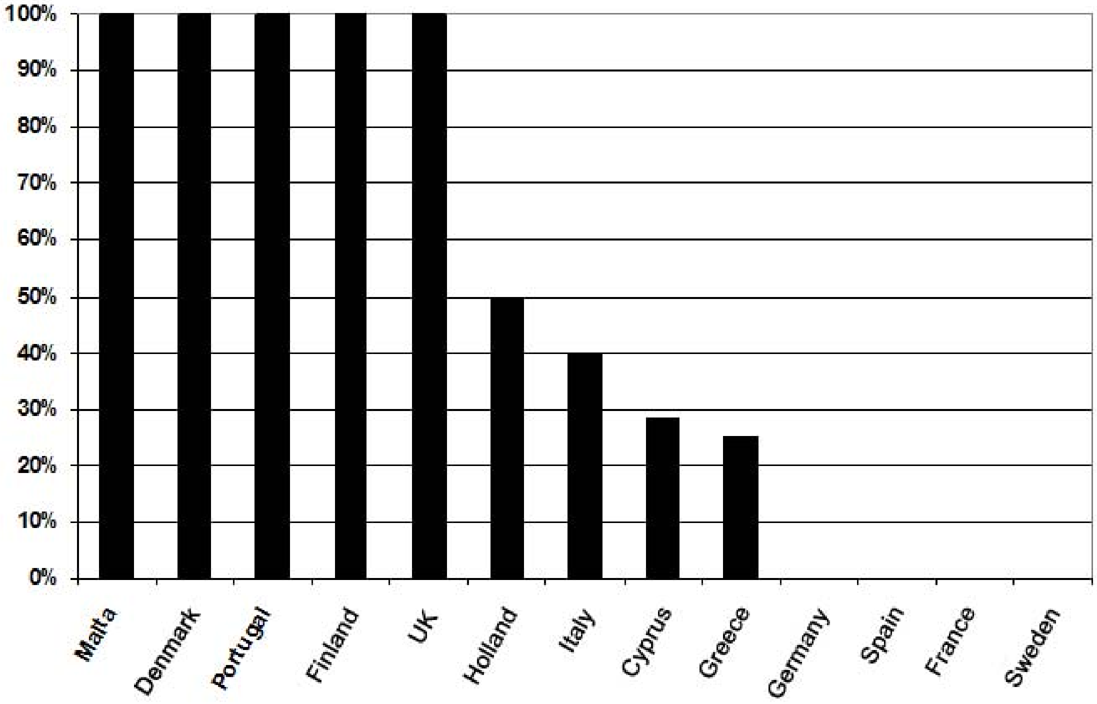
Inspections of ore carriers with deficiencies



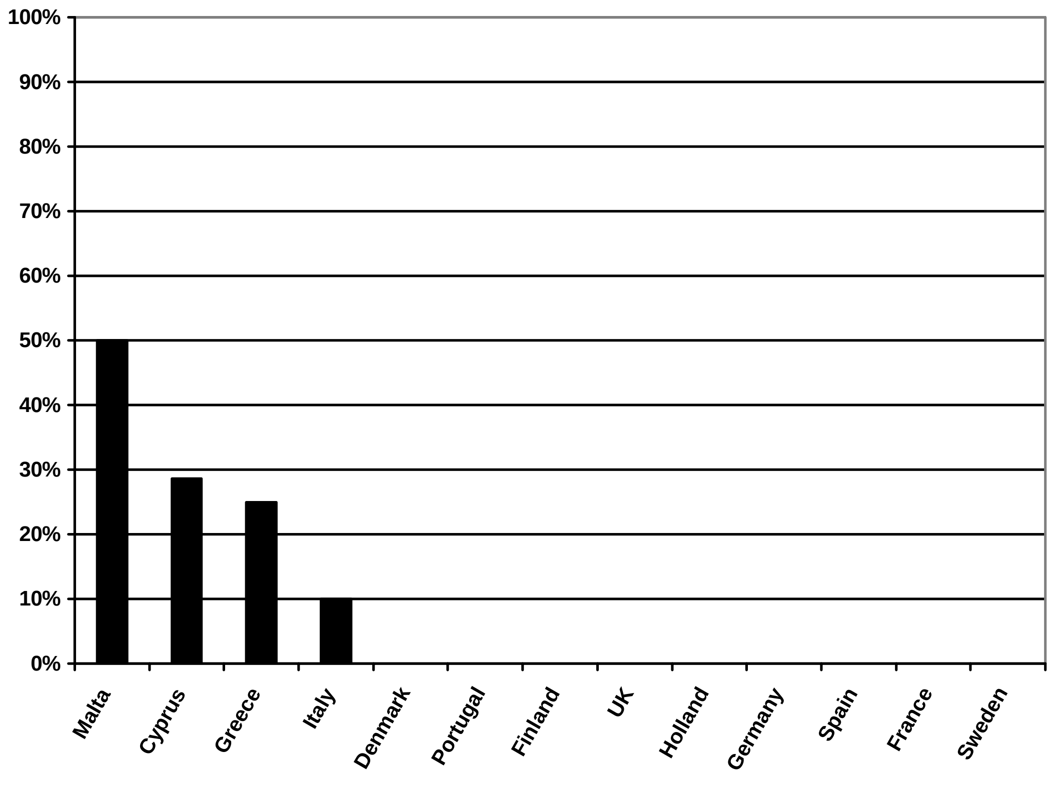
Inspections of ore carriers with MARPOL deficiencies



Ore carriers with deficiencies

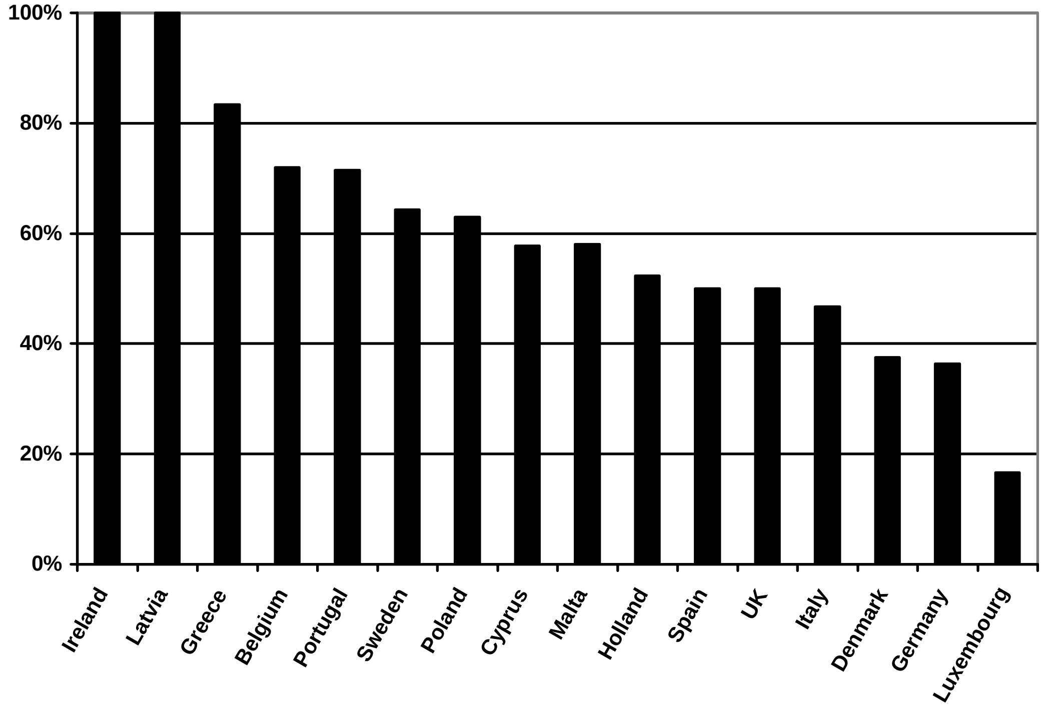


Ore carriers with MARPOL deficiencies

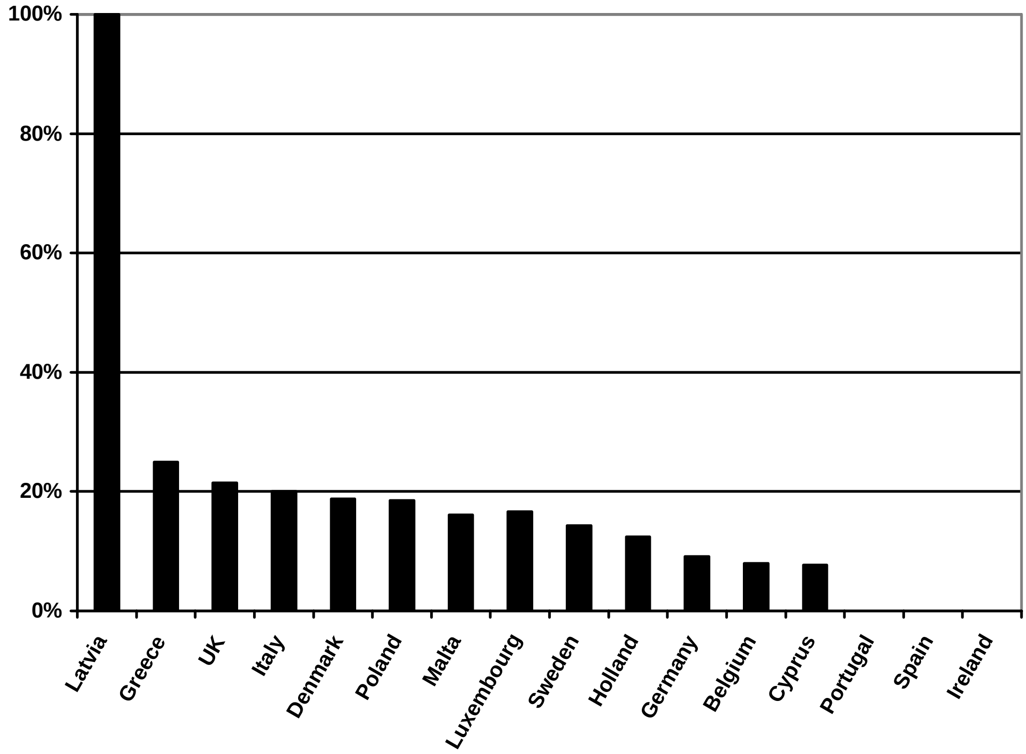


Other vessels

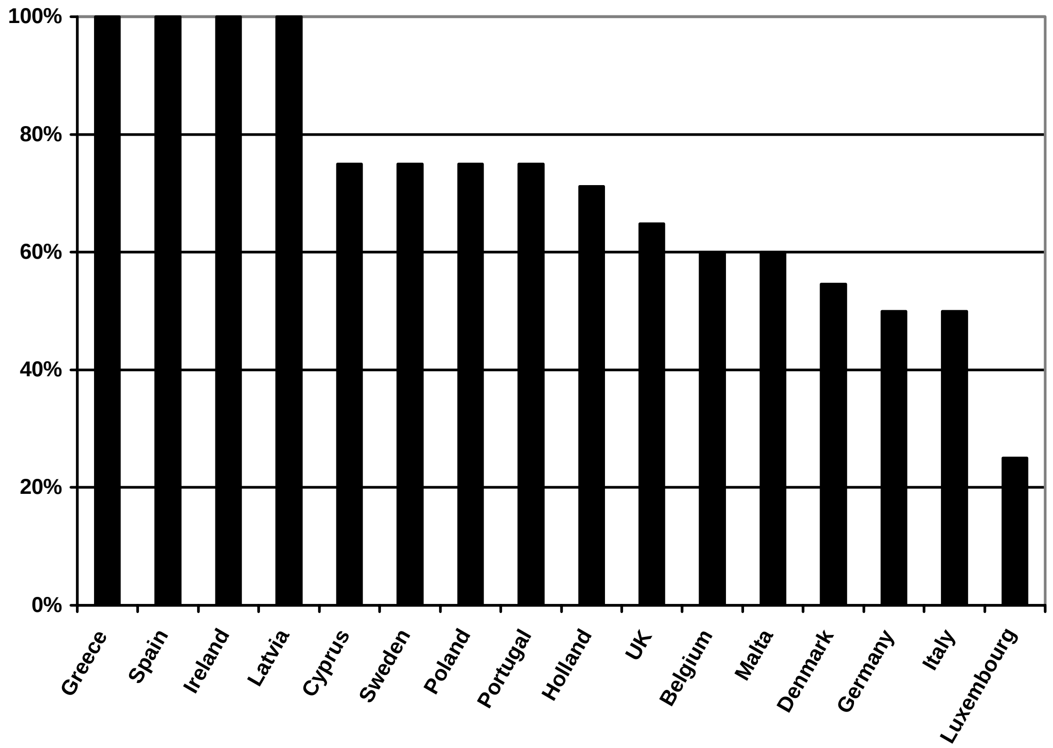
Inspections of other vessels with deficiencies



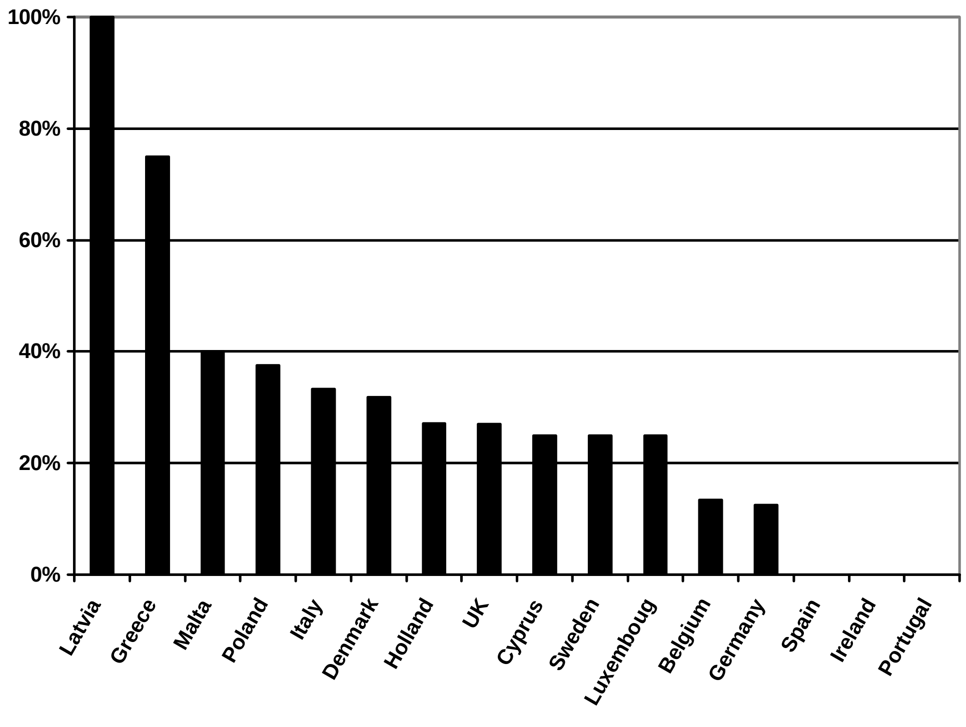
Inspections of other vessels with MARPOL deficiencies



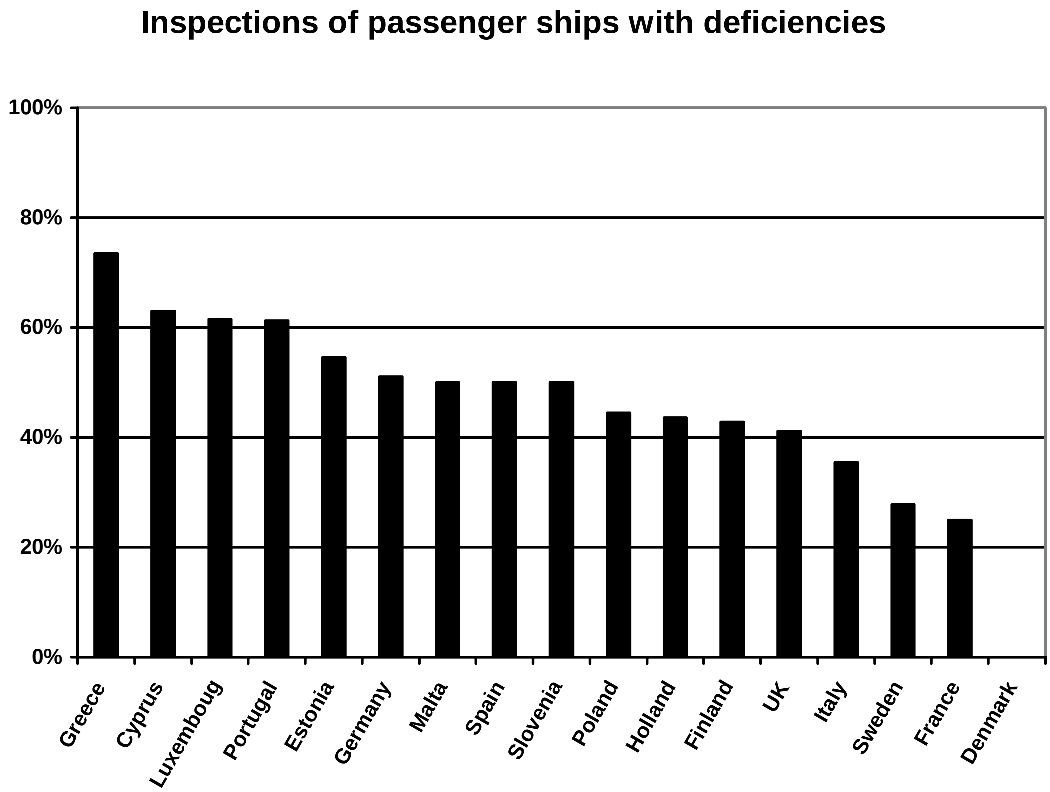
Other vessels with deficiencies

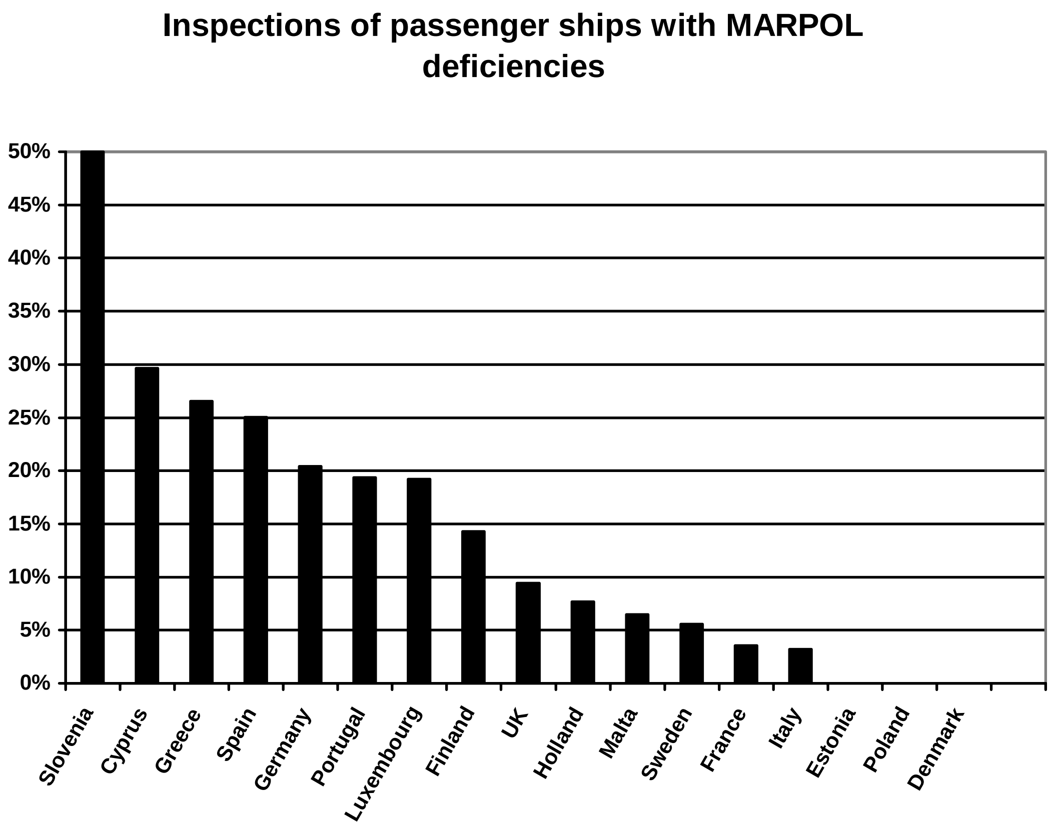


Other vessels with MARPOL deficiencies

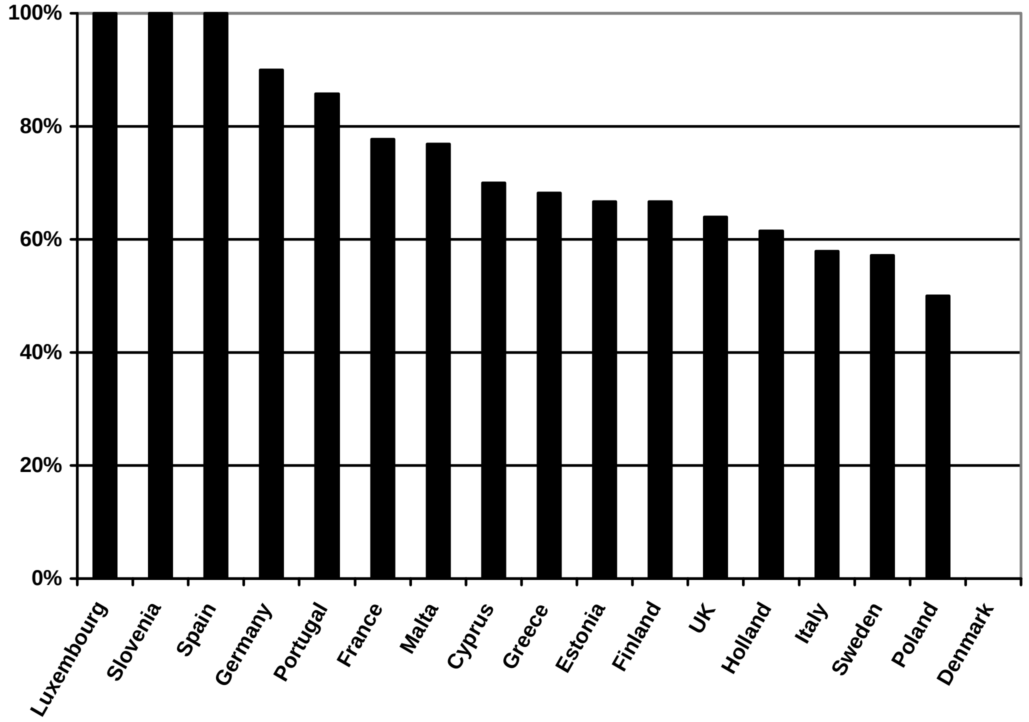


Passenger ships

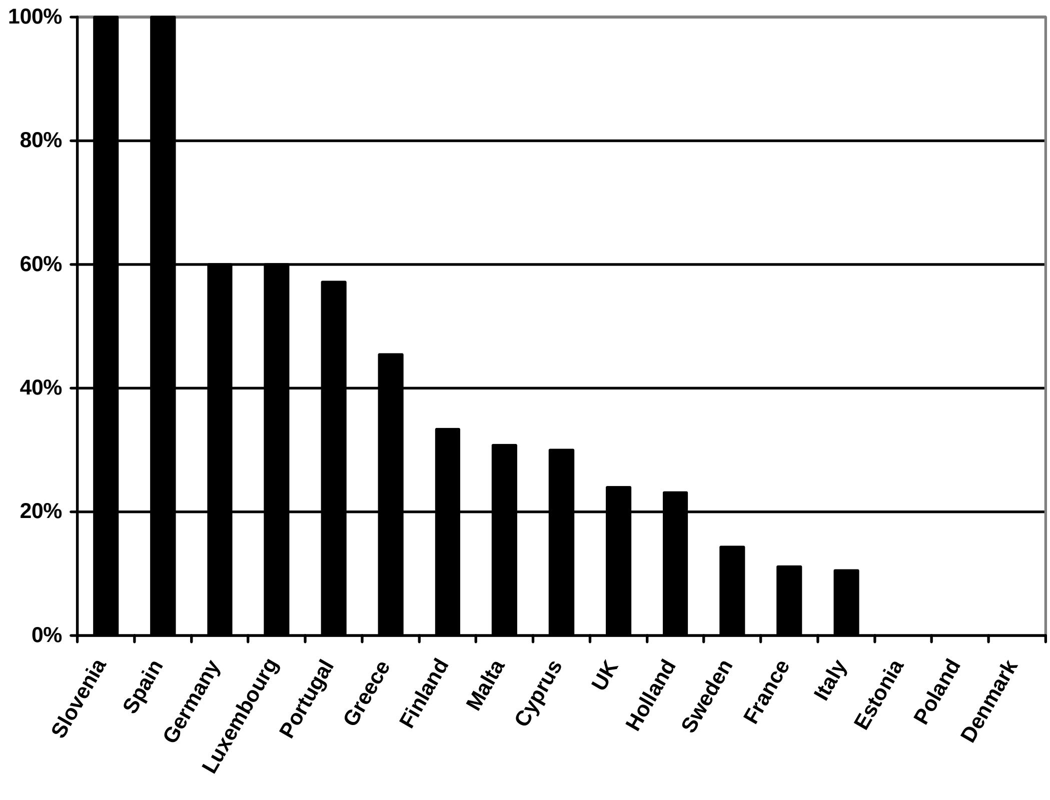




Passenger ships with deficiencies

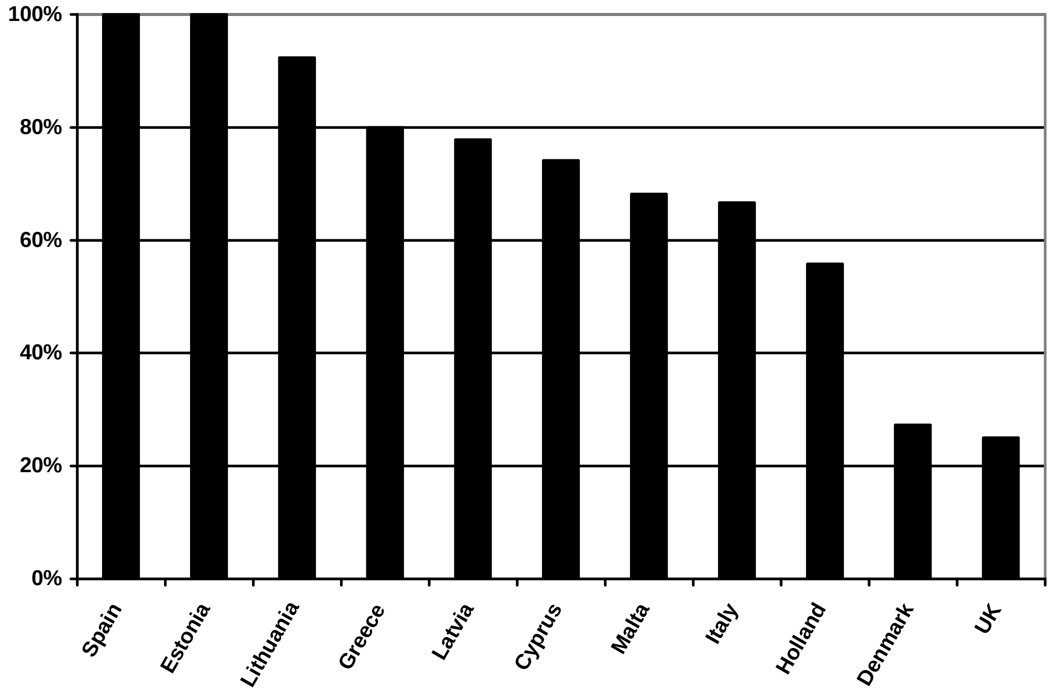


Passenger ships with MARPOL deficiencies

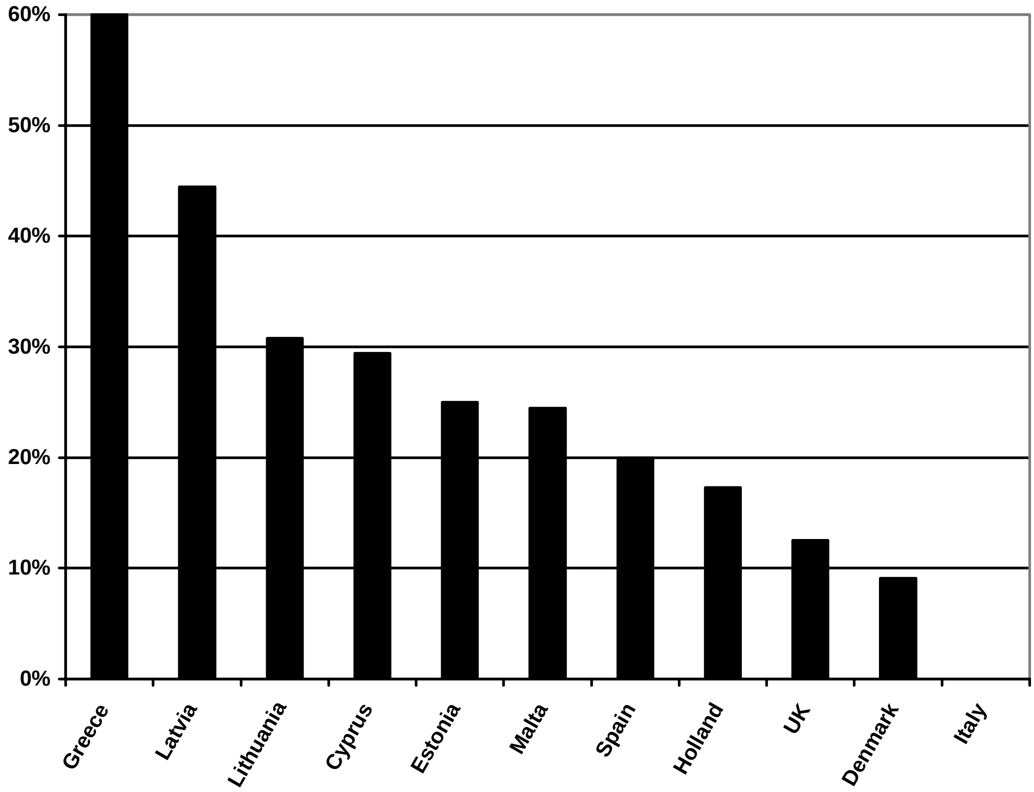


Reefers

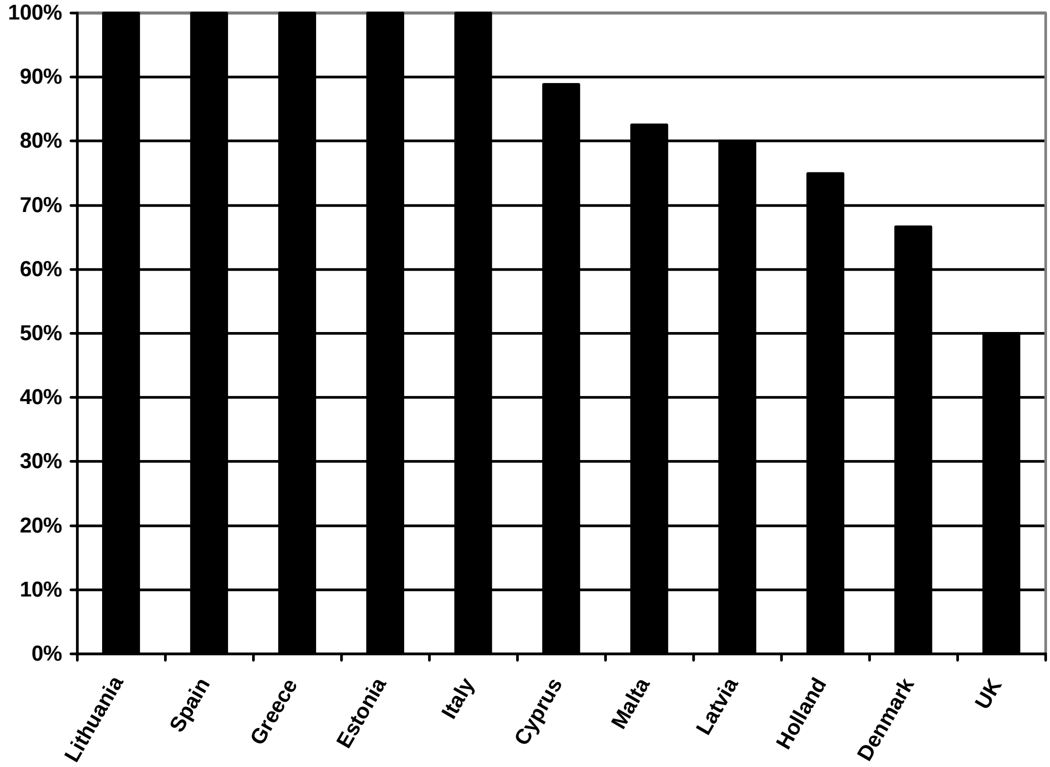
Inspections of reefers with deficiencies



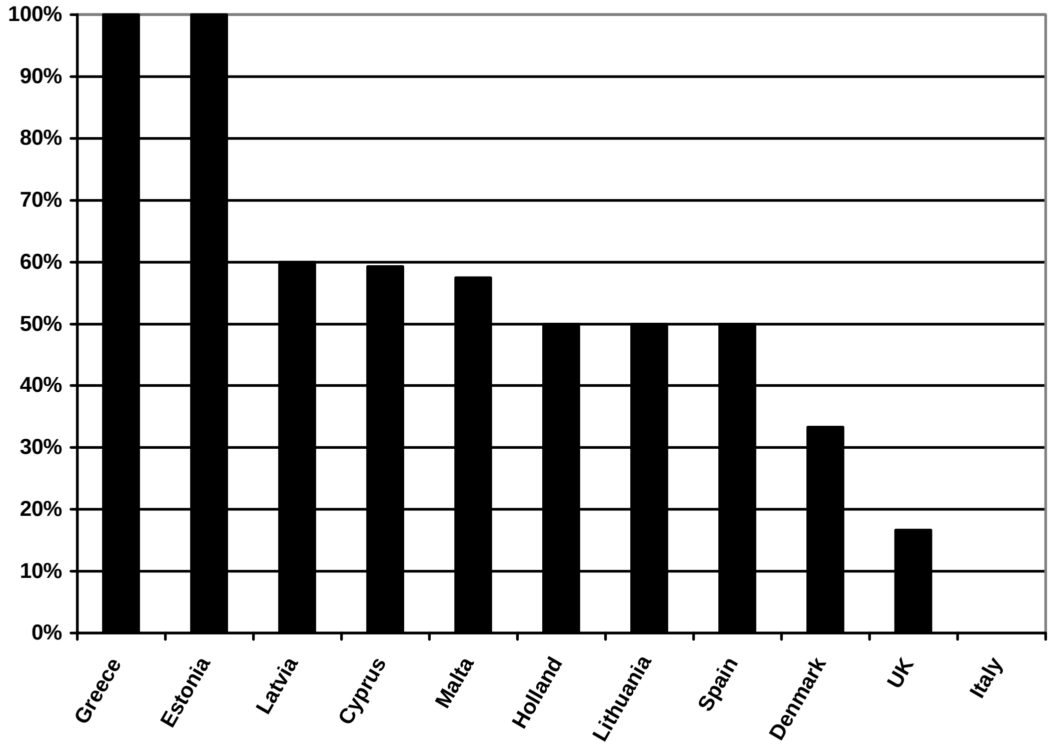
Inspections of reefers with MARPOL deficiences



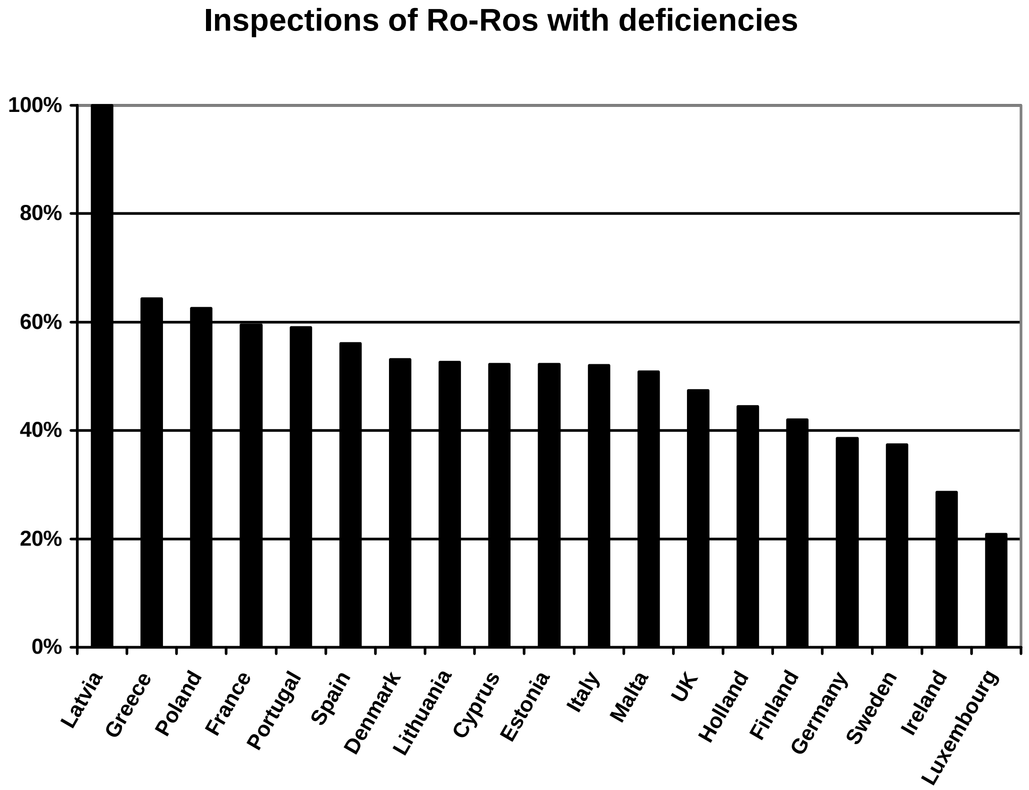
Reefers with deficiencies, by country



Reefers with MARPOL deficiencies



Ro-Ro


Inspections of Ro-Ros with deficiencies
100%
80%
60%
40%
20%
0%
Latvia
Greece
Poland
France
Portugal
Spain
Denmark
Lithuania
Cyprus
Estonia
Italy
Malta
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Holland
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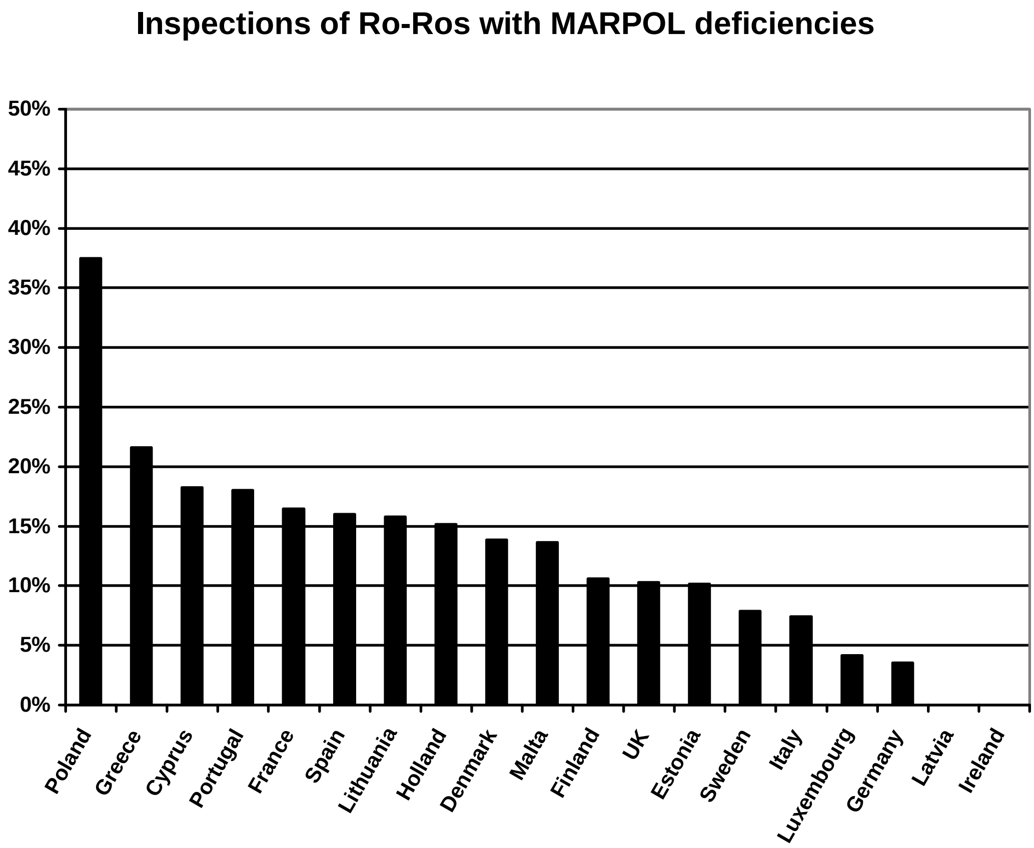
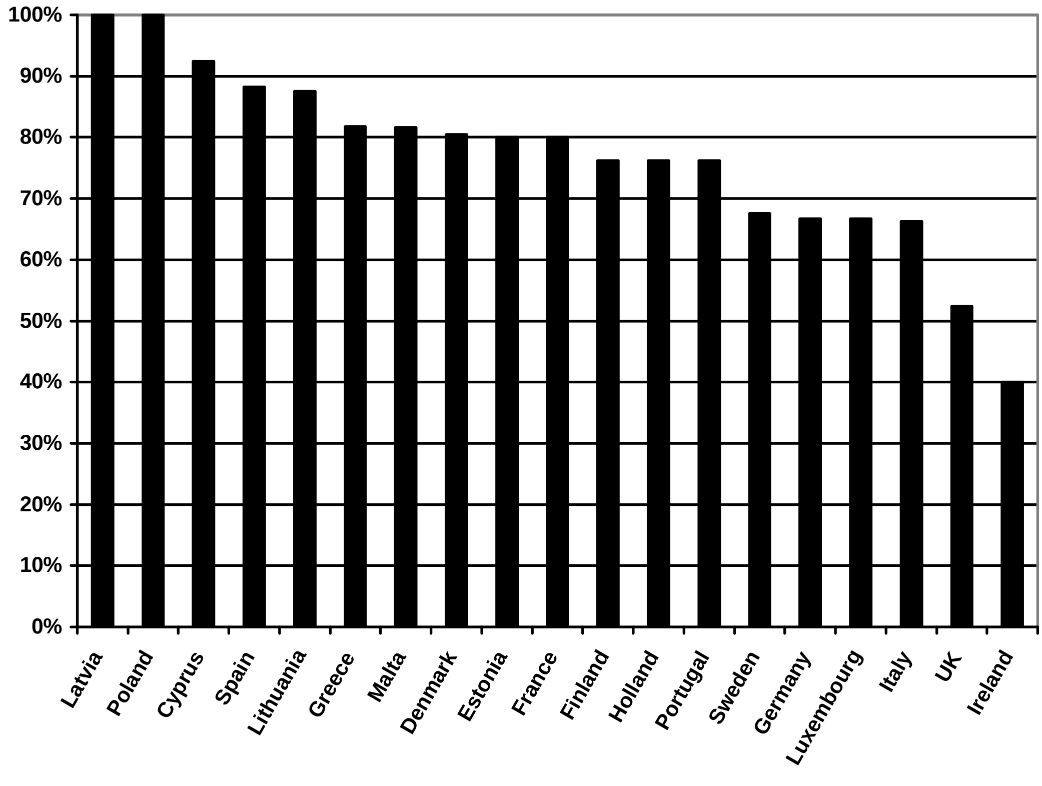
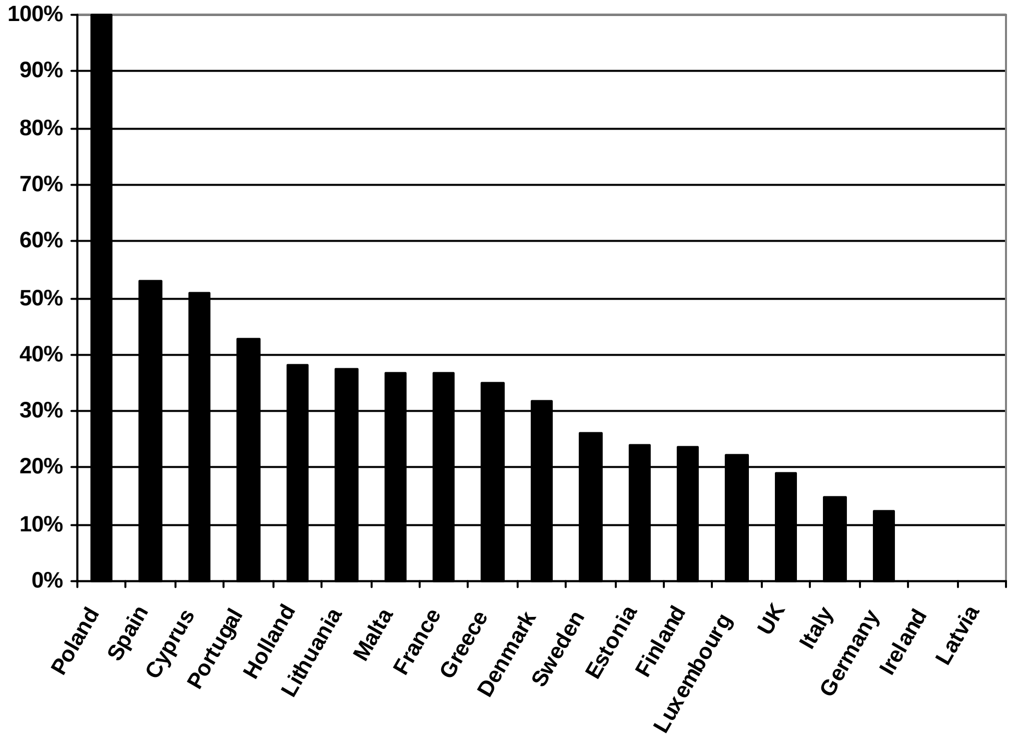
Germany
Sweden
Ireland
Luxembourg


Inspections of Ro-Ros with MARPOL deficiencies
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Poland
Greece
Cyprus
Portugal
France
Spain
Lithuania
Holland
Denmark
Malta
Finland
UK
Estonia
Sweden
Italy
Luxembourg
Germany
Latvia
Ireland

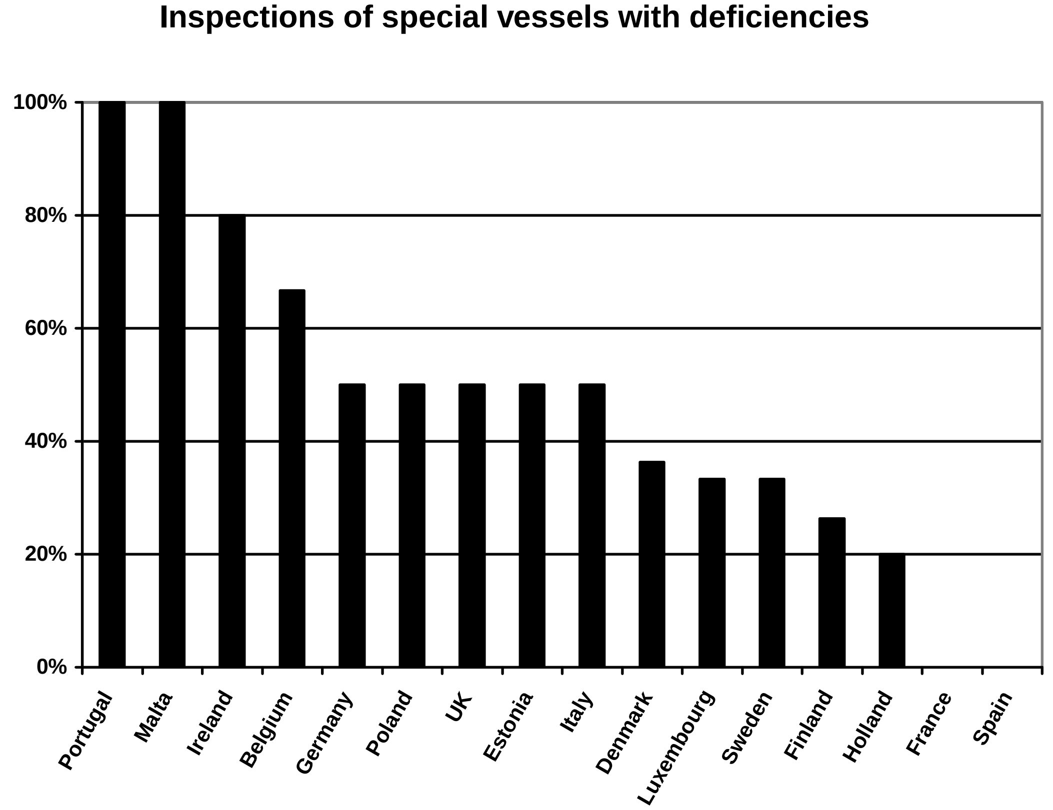
Ro-Ros with deficiencies

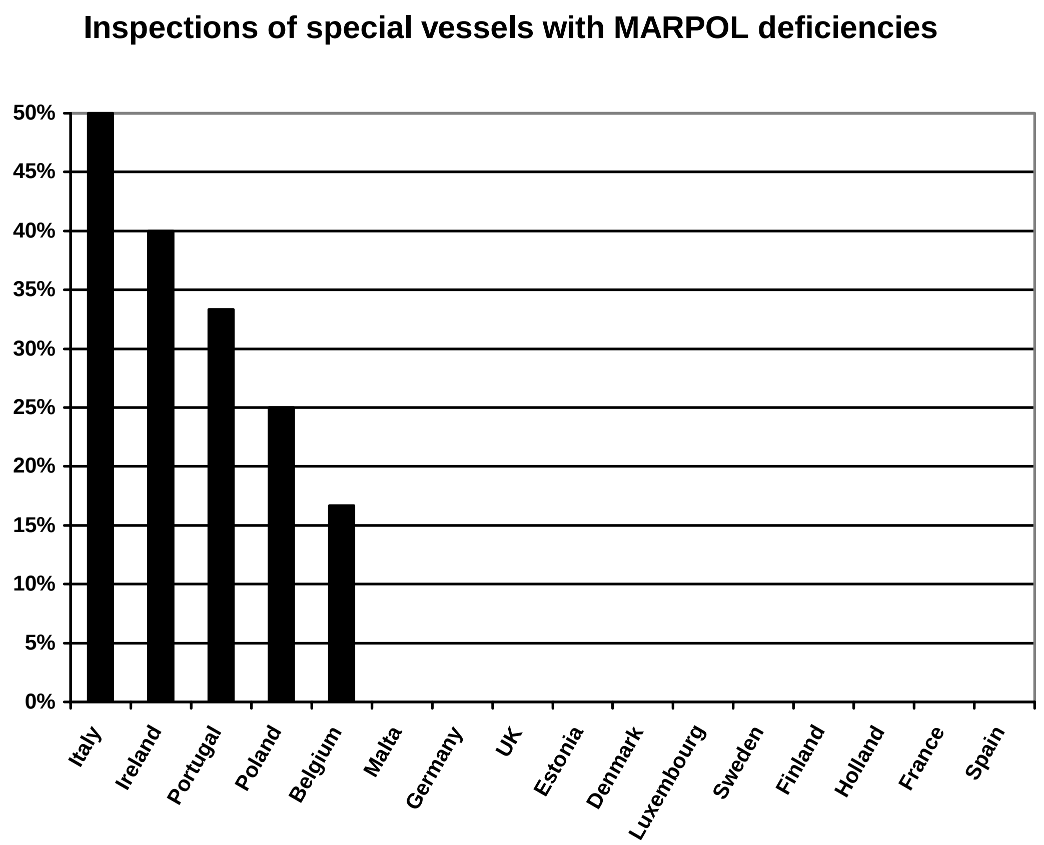


Ro-Ros with MARPOL deficiencies

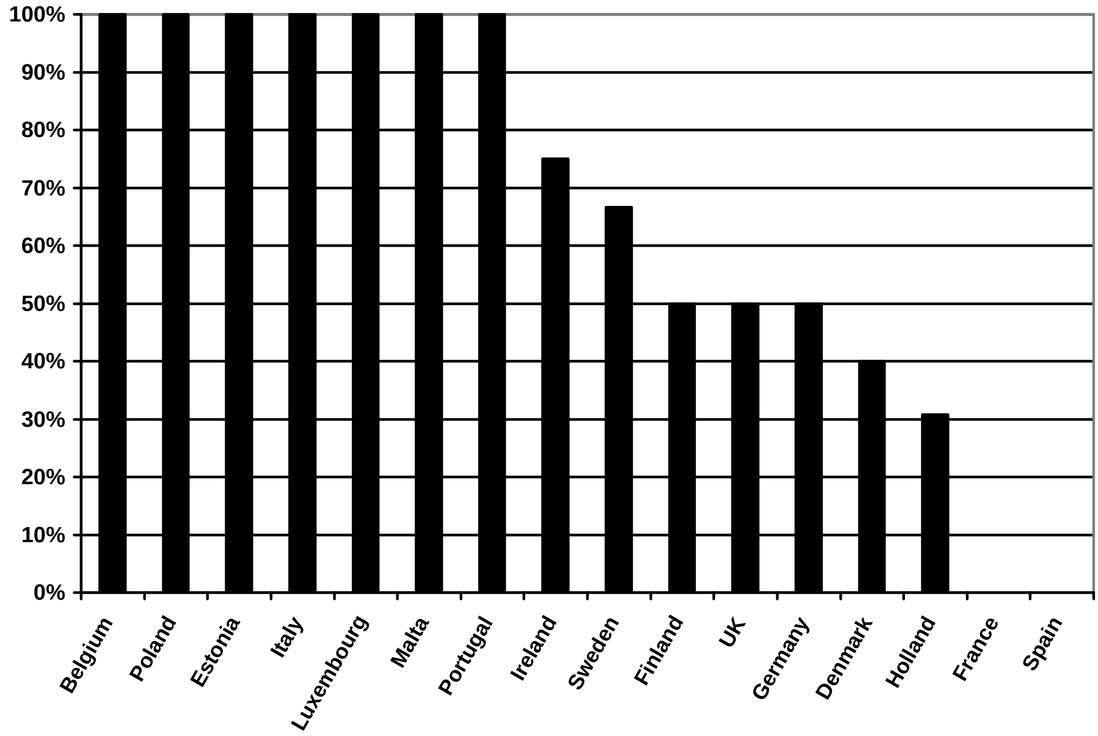


Special vessels

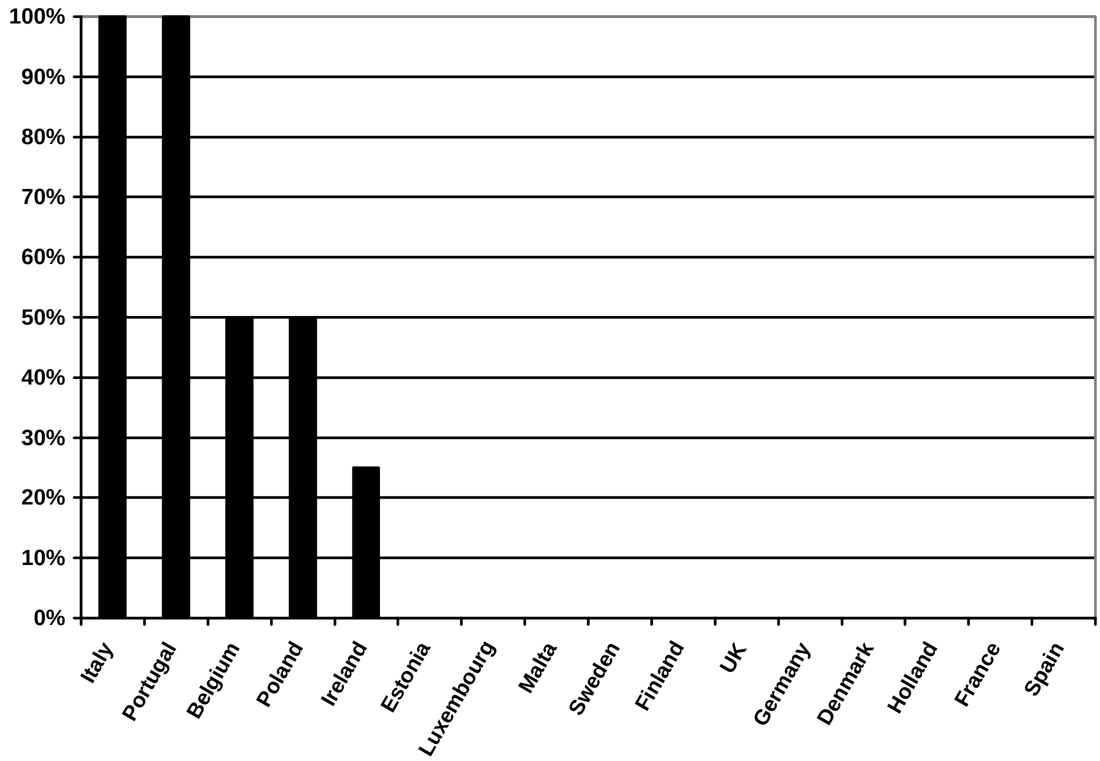




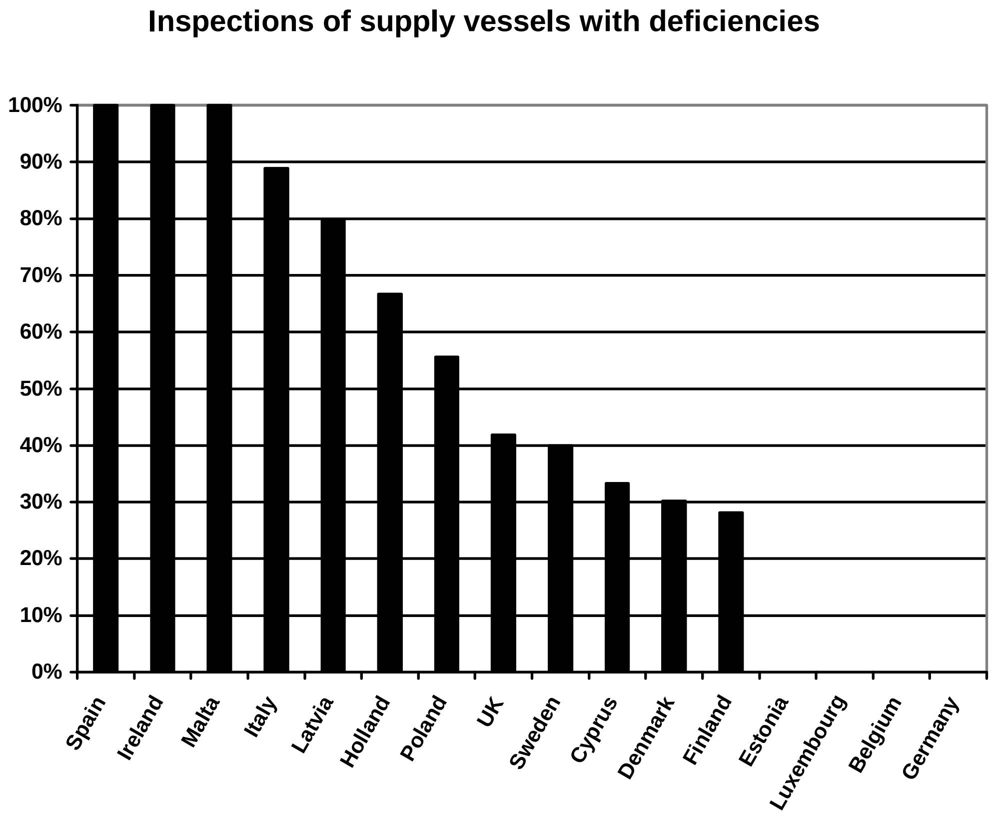
Special vessels with deficiencies

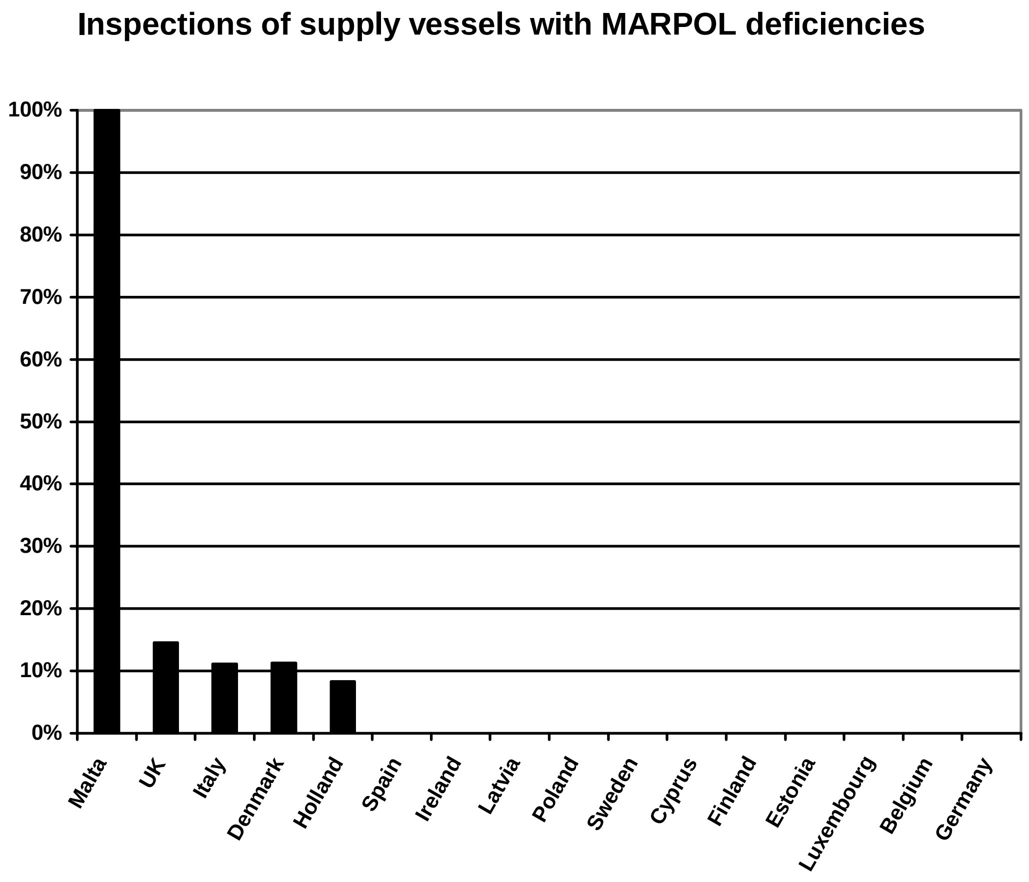


Special vessels with MARPOL deficiencies

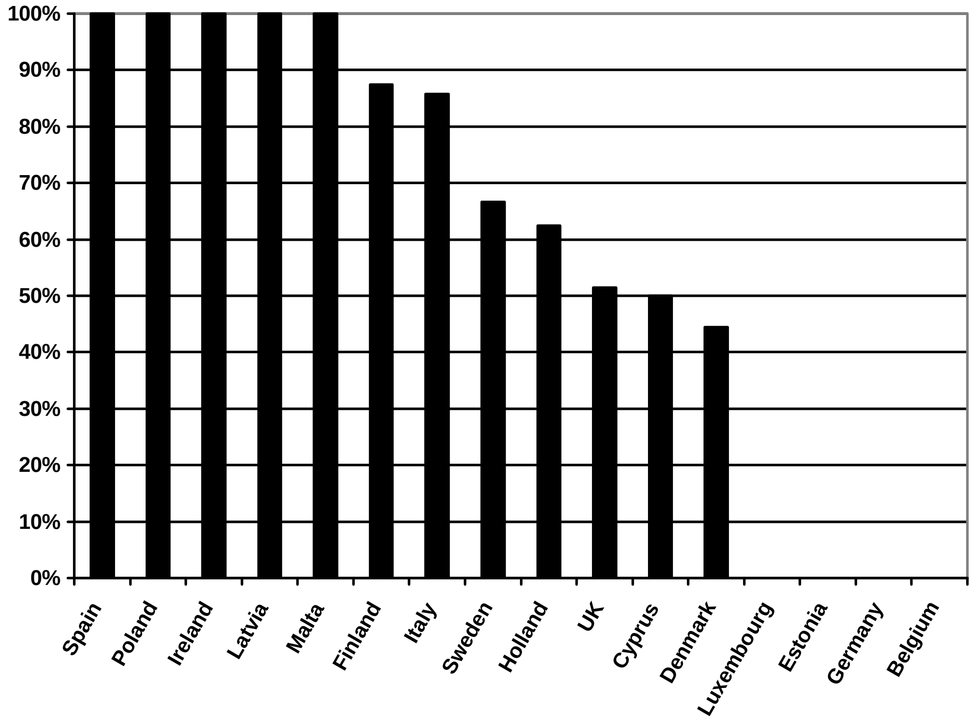


Supply vessels

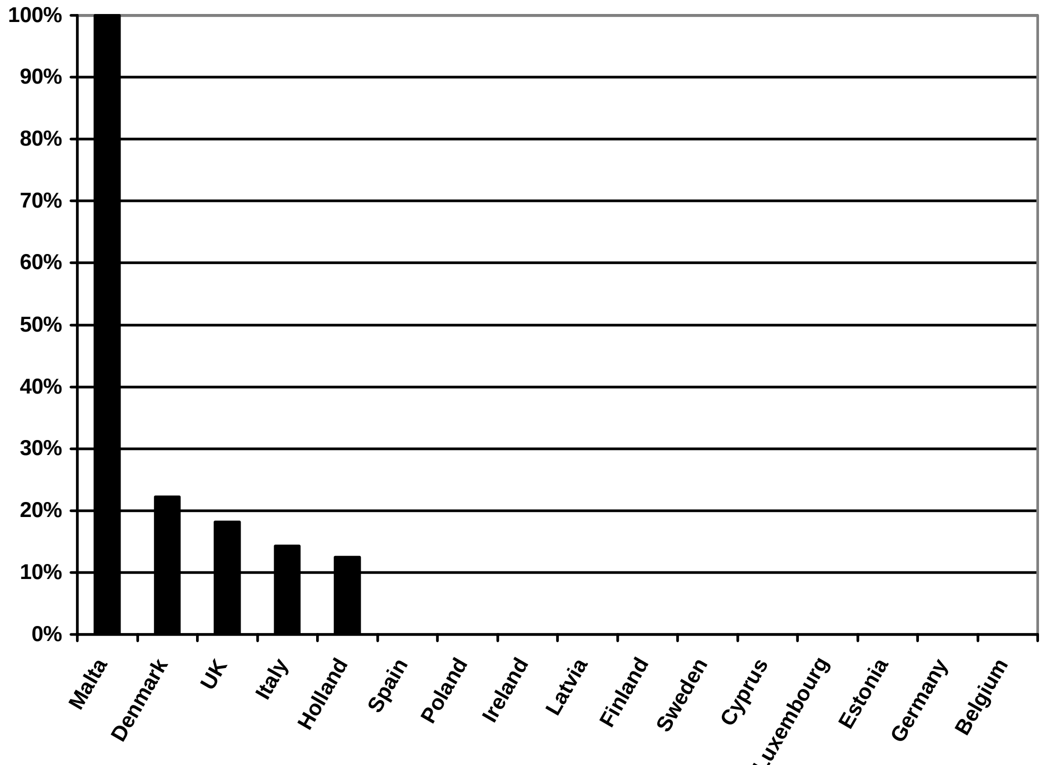




Supply vessels with deficiencies

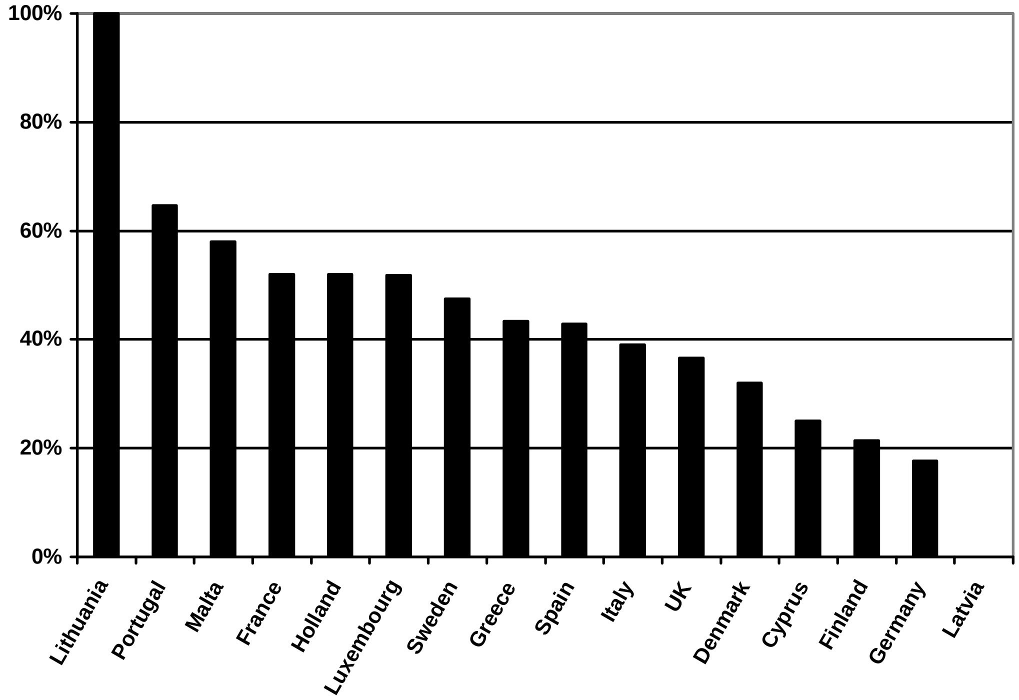


Supply vessels with MARPOL deficiencies

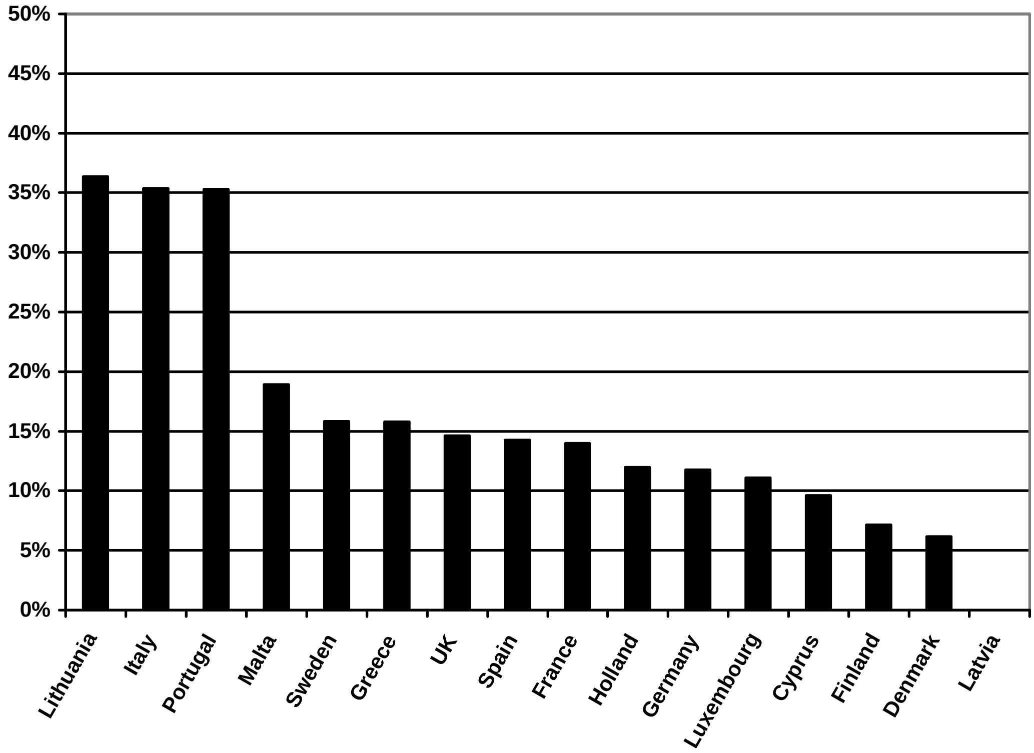


Tankers

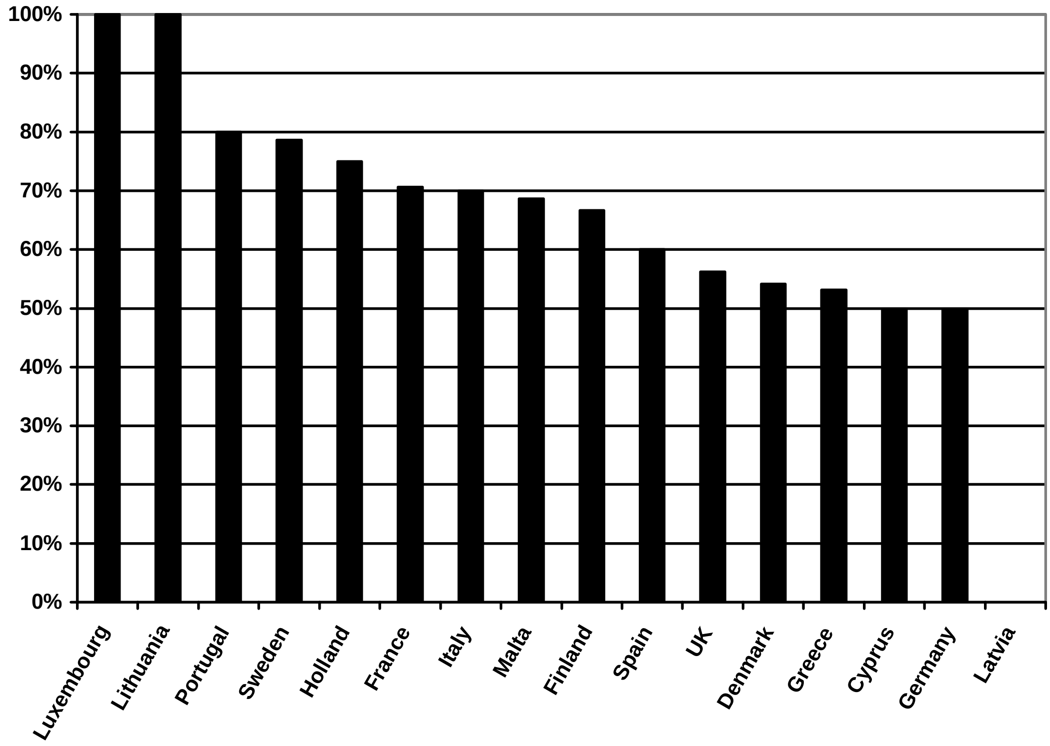
Inspections of tankers with deficiencies



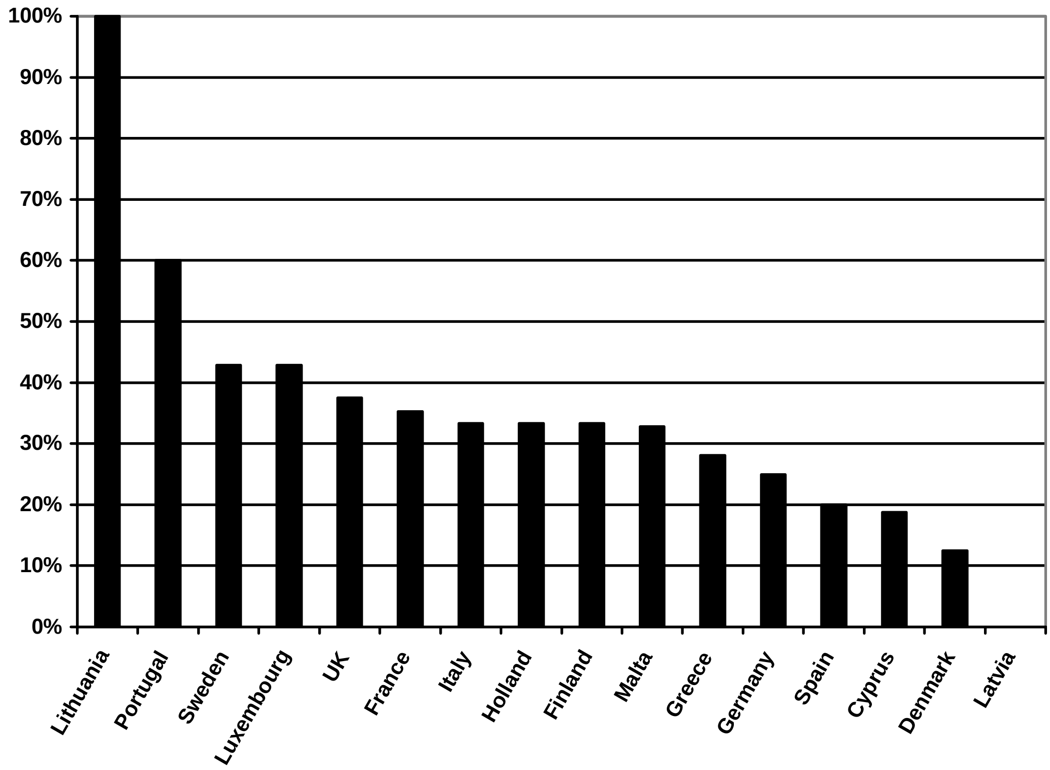
Inspections of tankers with MARPOL deficiencies



Tankers with deficiencies

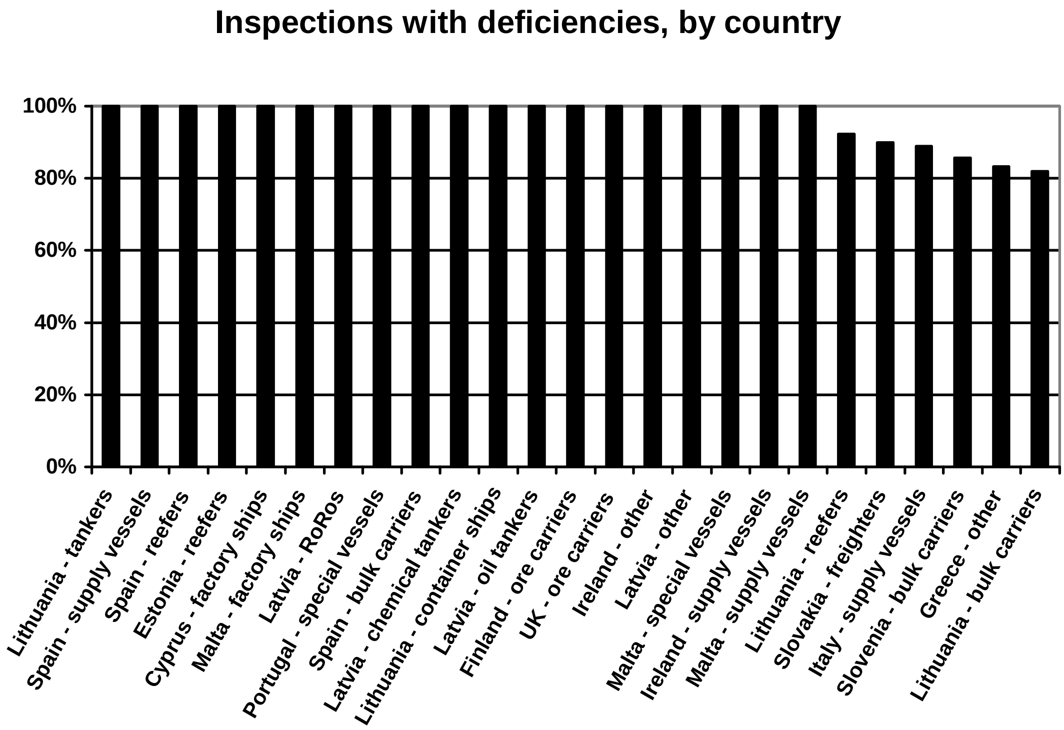


Tankers with MARPOL deficiencies

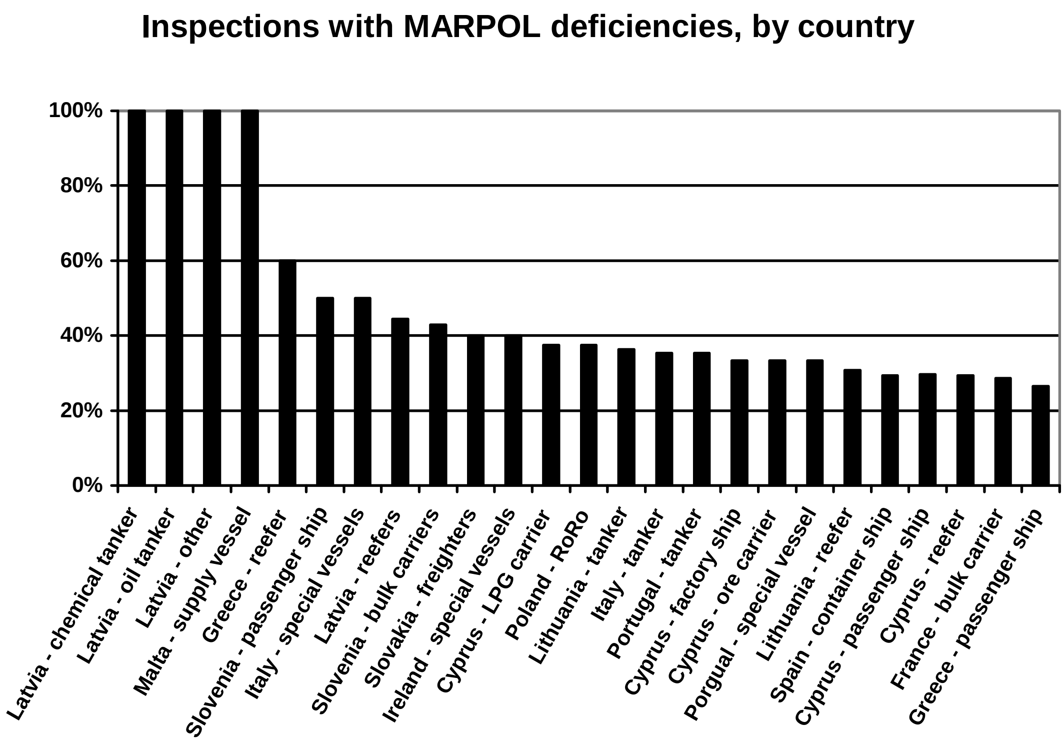


THE WORST OFFENDERS

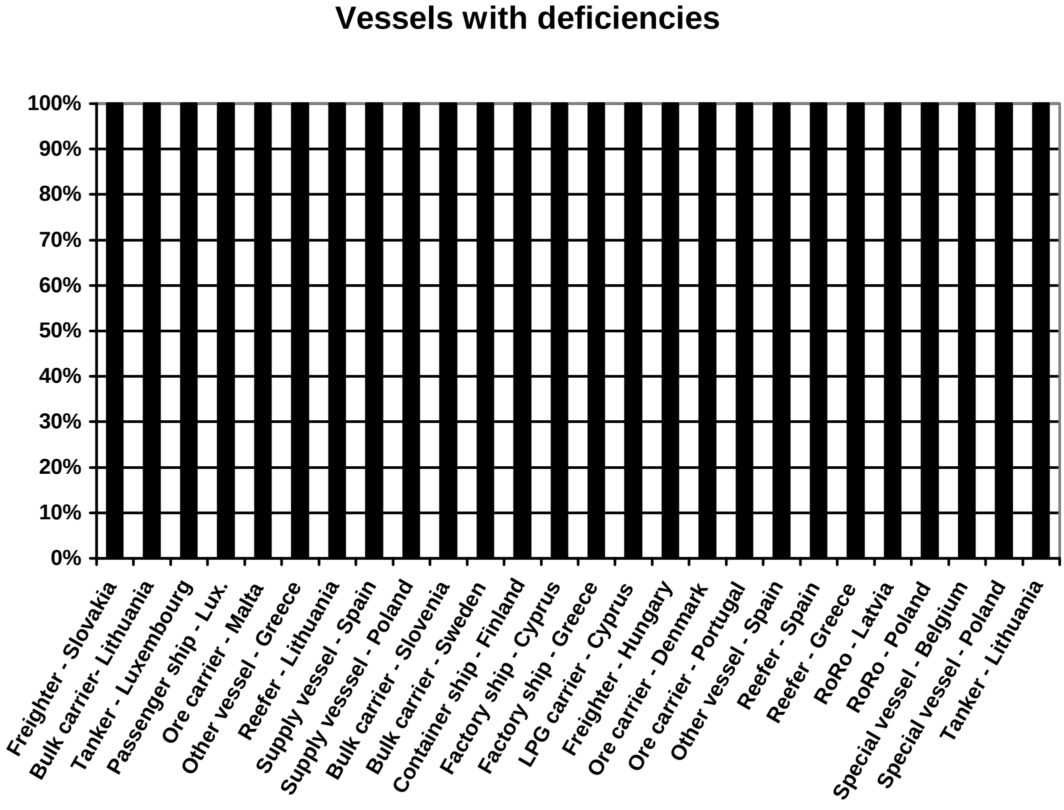
By inspection with deficiencies



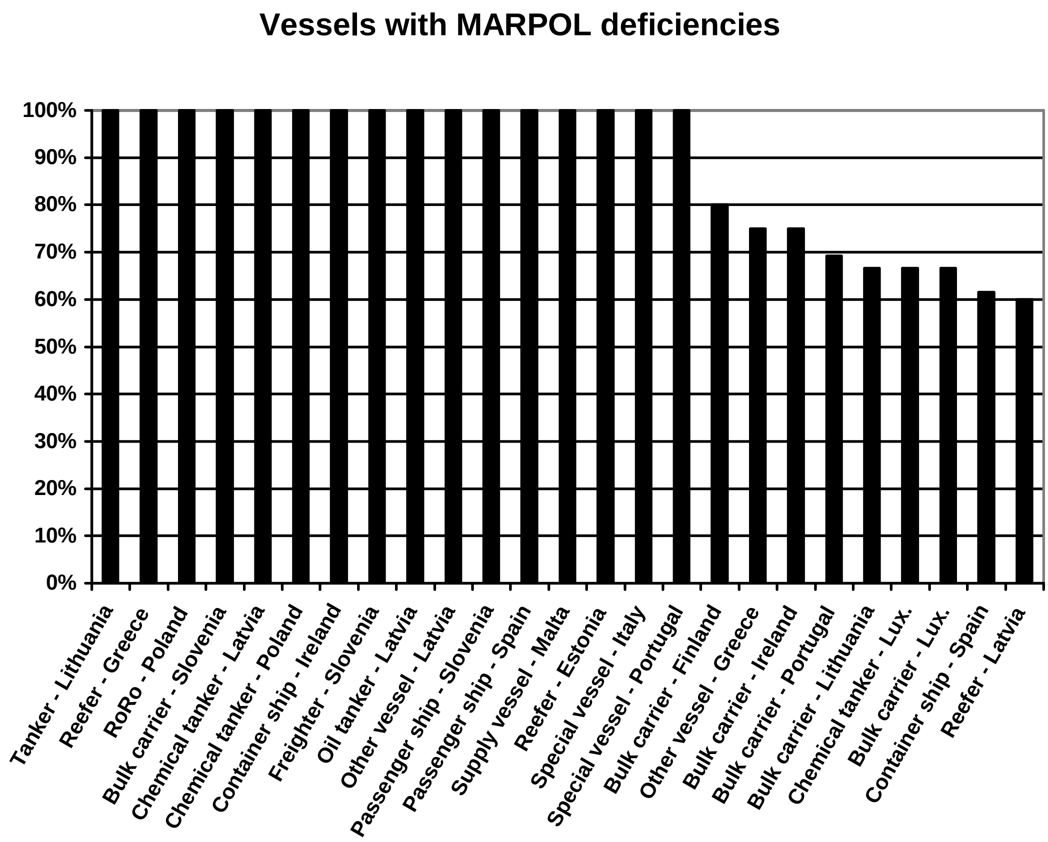
By inspection with MARPOL deficiencies



By vessel with deficiencies



By vessel with MARPOL deficiencies



Conclusions and recommendations

Data on the high number of discharges of hydrocarbons that take place annually in European waters, the vast quantity of waste generated by sea traffic in Europe, the lack of adequate port installations for waste management and the toxicity of compounds thrown into the sea make chronic hydrocarbon pollution a priority for improving the environmental quality of European seas and oceans.

Aware of the degree of non-compliance with international agreements on the prevention of marine pollution, such as MARPOL, and the volume of deficiencies in vessels under an EU flag, and those of other countries that visit our ports, a fast and decided action by public administrations is necessary.

For this reason, Oceana is asking the European Council, the European Commission and the European Parliament to consider the following recommendations:

Legal improvements

- Approval of a new Directive that will unify and provide reference values for all EU Member States to establish criminal sanctions against all those who unlawfully discharge hydrocarbons into the sea.
- Establishment of sanctions that distinguish between accidental discharges and those caused intentionally. Similarly, it should be borne in mind whether these discharges were due to deficient observance of international agreements and other EU rules that would have prevented or mitigated their impact. In this way, it will be possible to assess the degree of negligence.

Fight against impunity

- Immediate analysis of the degree of default on Directive 2000/59/EC by Member States and the imposition of sanctions on those that have not yet transposed this Directive to their national legislation or that, despite having done so, continue to fail to attain its objectives.
- Open and accessible publication of all MARPOL waste management firms and facilities existing in the EU, and their processing capacities .
- Updating of information on these facilities given to the IMO.
- Commissioning of a plan to increase port controls of vessels visiting European waters, to include, during the next year, a budget item for the development of a pilot experience in the 20 ports with the greatest volume of maritime traffic in Europe, where the percentage of ships inspected must be increased to 50%, independently of the 25% global coverage agreed under Paris-MOU.
- Signature of a cooperation agreement between EU Member States: a) to increase measures for the detection of unlawful hydrocarbon discharges into the sea (aircraft, satellites, infra-red, analysis, etc.); b) agreements on surveillance for the rapid detection of discharges; and c) application of sanctions on infringing vessels.

Improvement of the quality of maritime traffic

- Extension of the "black list" published by the European Commission on vessels that are repeatedly detained, including a special chapter on those with continuous deficiencies in compliance with international agreements for the prevention of marine pollution.
- Negotiation of rules and legislations to prevent the migration of EU vessels to foreign flags by offering tax and other advantages to shipowners who encourage vessels to remain under the registers controlled by the EU and for those registers to be competitive with other registers, without reducing maritime safety requirements, and the observance of international agreements or employment conditions.
- Application of tax advantages and cost reductions for companies and shipowners that improve their record of detentions and deficiencies in their vessels.

Follow-up of pollution

- Establishment of budget items for the development of follow-up studies on hydrocarbon pollution levels (paying special attention to PAHs) at different points of the coast, port areas and high seas, and also for the follow-up and analysis of marine organisms stranded on the coast to identify the percentage of animals affected by unlawful discharges from ships. In this way, it will be possible to define the specific participation of the EU in the recommendations given in conventions such as OSPAR, HELCOM or BARCOM.

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