

DESTINATION UNKNOWN



European single hull oiltankers: no place to go

GREENPEACE

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(top left) 3D visualisation: Ecodock
(centre) Tanker: GP/Aslund.,
(top right) Sinking Oil tanker Prestige near Galician coast ,Spain: EPA foto
(below left) Jolly Rubino wrecked on South African coast : Lloyds List:
(below right) Shipbreakingsite Alang: Heeneman/GP

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Executive Summary

According to new research by Greenpeace (section 2), EU+¹ countries bear a great responsibility, as either 'flag' state or country of ownership, for up to 29% of all single hull oil tankers (by DWT²) subject to the global phase out regulations through 2005. Our research indicates 334 EU+ controlled oil tankers alone have either already met the IMO global phase out criteria, or will meet this criteria through 2005, and will have to be removed from operation: bearing a collective toxic burden of 130 million litres equal to more than two Prestige disasters (see section 3).

During the research to collect a list of single hull oil tankers, subject to phase out regulation through 2005, it became clear that the well known lack of transparency in the shipping industry is also a critical gap within the implementation and enforcement of the phase out regulation. How is it possible that the EU will attempt to carry out these regulatory function without one definitive and consolidated vessel list from an authoritative regulatory body? How is it possible that several studies available on this issue of single hull oil tankers subject to phase out regulations have considerable factual discrepancies? According to our estimates, more than one thousand (as many as 1,119) oil tankers, potentially including vessels that should have been removed from service already, will have to be scrapped in less than 13 months through the end of 2005. These tankers represent 54 million DWT of which 29% (334 vessels, representing 16 million DWT) have a European face (owned, flagged, or both via the EU). How can the EU carry out its regulatory function on this issue if no transparent regulatory body can precisely identify and monitor the tankers which meet the phase out regulatory criteria?

As witnessed and documented by Greenpeace and other concerned stakeholders over the past several years³, the current practice of sending EU+ toxic old ships to developing countries is a carefully disguised form of the hazardous waste trade. The recent Basel Convention decision (appendix 3) of 163 countries in October, 2004 that ships ending their life must be considered a Basel waste is just another confirmation of this cynical waste trade. It is clear that the EU+ has not only an enormous responsibility but an opportunity to bring the shipping industry into line with the norms of international guidelines on the transboundary trade in toxic waste. The EU+ cannot, on either legal or moral grounds, protect its beaches and environment from oil spills by exporting the threat to Asia and Turkey. There is an urgent need for shipbreaking facilities that can deal with the inherent legacy of toxics.

¹ We have examined data for 25 EU countries, plus Norway and Switzerland. In this report we have referred to this group as "EU+".

² Dead Weight Tonnage (a measure expressed in metric tonnes of a ship's carrying capacity when fully loaded, including bunker oil, fresh water, crew and provisions)

³ Please see www.greenpeaceweb.org/shipbreak for all reports and links relating to shipbreaking

Section 1 Introduction

Without urgent action from the European Union the human and environmental tragedy of ship breaking is about to get much worse. In the wake of the Prestige and Erika disasters the world moved to ban single hull oil tankers, and over the next five years more than 2,000 are to be taken out of the water and scrapped. But, the question remains where will they go and who will take responsibility?

These new Greenpeace findings confirm the imminent increase in human and environmental problems associated with current shipbreaking practises. If the more than one thousand oil tankers identified in this report are required by regulation to leave service over the next 13 months, it will create an insatiable demand for more recycling facilities. This will increase the danger that developing countries, where most of the existing global shipbreaking occurs, could resort to unsustainable scrapping of the vessels and in fact this is happening already, e.g. beaching, such as at Kakinada beach in Eastern India. At this moment the Indian Government is planning a new shipbreaking facility at Kakinada beach, despite the fierce protests of fishermen and other local groups. In some cases, as is already happening, oil tankers may end up being abandoned along the West African coast line (see appendix 2).

The lack of a green shiprecycling capacity was also revealed by a recently published EU study. Following a request of the European Parliament the European Commission (DG TREN) commissioned a report 'on the implications of the accelerated phase out scheme of single hull tankers proposed by the EU for the world ship scrapping and recycling industry'⁴. Among its main conclusions were:

- The EU Waste Shipment Regulation 259/93/EEC is being evaded by ship-owners despite case law confirming the application of these regulations;
- There is currently almost no green scrapping capacity for ships, neither in the EU+, nor elsewhere. Green scrapping capacity will only be possible if legal and economic incentives are created.

Recommendations of the EU report on the creation of necessary legal and economic incentives include: development of mandatory regulation and the establishment of a Global Fund paid for by the shipping industry.

Based on our findings, Greenpeace urges:

- the EU institutions to take urgent action on EU+ controlled single hull oil tankers by enforcing the EU Waste Shipment regulation;
- the EU institutions to fight the lack of transparency in the shipping industry and to develop a definitive and consolidated list of single hull oil tankers subject to phase out regulations.

Greenpeace demands an immediate commitment from EU transport ministers and EU Commission that the toxic burden of Europe's single hull oil tankers will not end up on Asian beaches.

⁴ COWI/EC report "Oil tanker Phase-out and the Ship Scrapping Study", June 2004

Section 2 The European Face of the Single Hull oil Tankers phase out through 2005

2.1 In short: regulation on the phase out of single hull oil tankers

The global phase-out regulation covers all single hull oil tankers over 5,000 DWT by 2010. These tankers are divided in several categories:

Category 1 (Cat 1) oil tankers are defined as an oil tanker of 20,000 tons deadweight and above carrying crude oil, fuel oil, heavy diesel oil or lubricating oil as cargo, and of 30,000 tons deadweight and above carrying oil other than the above, which does **not** comply with the requirements for new oil tankers as defined in regulation 1 (26) of MARPOL⁵ (i.e. **pre** MARPOL SBT⁶).

Category 2 (Cat 2) oil tankers are defined as an oil tanker of 20,000 tons deadweight and above carrying crude oil, fuel oil, heavy diesel oil or lubricating oil as cargo, and of 30,000 tons deadweight and above carrying oil other than the above, which **complies** with the requirements for new oil tankers as defined in regulation 1 (26) of MARPOL (i.e. **post** MARPOL SBT).

Category 3 (Cat 3) oil tankers are defined as an oil tanker of 5,000 tons deadweight and above but less than specified in the two paragraphs above.

In addition to the phase out regulation, the IMO regulation also covers other aspects:

- There will be restrictions from 2008 on single hull oil tankers between 600-5,000 DWT carrying Heavy Grades of Oil;
- Regulation 13H prohibits single hull tankers above 5,000 DWT from carrying heavy oil from 5th April 2005 (this already applies in the EU);
- Conditional Assessment Scheme (CAS): CAS will go ahead for all Cat 2 or 3 tankers aged over 15 years from 2005. CAS will be carried out in line with the Enhanced Survey Program at the next due survey or intermediate survey after 2005.

When will the ships be regulated out of the water?

Overall, the accelerated phase out agreed at the Marine Environment Protection Committee (MEPC 50) in December 2003 is defined as:

⁵ The International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL73/78), hereinafter referred to as MARPOL

⁶ SBT: Segregated Ballast Tanks.

All category 1 tankers must leave service by the 5th April 2005 if built on 5th April 1982 or earlier, or by the end of 2005 if built after this date. In short, Category I tankers have to go by the end of 2005, most by April 2005⁷.

The same 2005 dates also apply to **all category 2 and 3 tankers built before 1st January 1978**.

Categories 2 and 3 oil tankers are progressively (depending on year of built) required to be phased out of use from 2005 through 2010. Extensions for category 2 and 3 oil tankers after 2010 are possible depending on flag and state policy. Individual flag states can allow trading of single hull Category 2 and 3 tankers beyond 2010 subject to a strengthened CAS. At the same time, member states can choose to deny entry into ports or offshore terminals any category 2 and 3 tankers after 2010 if they so wish.

2.2 The number of EU+ controlled oil tankers becoming waste in 2005 by law

How does one find the exact figure of oil tankers that meet the criteria of phase out in 2005?

During our research to collect a detailed and accurate list (as far as was possible with the current lack of transparency within the shipping industry) of EU+ single hull oil tankers subject to phase out by the end of 2005 we discovered that:

- a definitive and consolidated list of tankers scheduled for phase out from an authoritative regulatory body does not exist;
- there is a lack of transparency which makes it difficult to identify and assess tankers by category, e.g. to determine whether an individual oil tanker should be classified as a Category 1 or 2 tanker⁸;
- several studies existing on the issue of single hull oil tankers subject to phase out regulations show factual discrepancies.⁹

⁷ IMO MEPC 50 confirmed that the accelerated phase-out of the Category I fleet would begin in 2005. However, prior to this the previous regulation 13G would phase-out tankers aged 30 years in 2003 and 28/29 years in 2004. Also note that the EU have already implemented an accelerated phase-out of the category I ships so that ships built in 1980 will be banned in 2003 and ships built in 1981 will be banned from 2004.

⁸ The IMO status of single hull oil tankers or example depends on DWT and MARPOL SBT compliance. The ships classification certificate provides information on MARPOL SBT compliance but due to its confidential nature there is a lack of transparency which results in a critical flaw in the regulatory process.

⁹ The reason for this seems to be that there is no legal requirement for flag states to come forward with information on their flagged ships. Therefore a 100% reliable, transparent and coordinated database on the vessels in question does not exist. Recent studies on the phase-out of single hull oil tankers include the COWI/EC report "Oil tanker Phase-out and the Ship Scrapping Study", June 2004; The CLARKSON report "Tankers in Transition 2004", Shipping Report Series, Clarkson Research Studies, September 2004; The IACS list of tankers that are categories 1, 2 and 3 based on the accelerated phase-out requirements under MARPOL annex 1 regulations 13G and 13H (renumbered regulations 20 and 21, respectively in the newly updated annex 1), December 2003.

As a result, the estimates of the total figure of single hull oil tankers that meet IMO phase out regulations and that are due for phase out in April 2005 and then progressively through 31 December 2010 or later¹⁰) varies between 1,743 and 2,256 tankers. Together these tankers represent an estimated 112 to 129 million DWT.

We based our phase out list on information derived from the International Association of Classification Societies (IACS) and checked and supplemented this information via additional research reports and vessel databases¹¹. We have developed a list (as of 01 December, 2004) of the single hull oil tankers that are EU+ controlled either by flag, ownership or both and meet the criteria for phase out through the end of 2005.

Our EU+ controlled oil tanker phase out list is not definitive, but is intended to provide a substantive overview of single-hull tankers meeting criteria for phase out through 31 December, 2005. The fluid nature of the shipping industry, with vessels frequently changing flags and ownership will result in some list inclusions of vessels already removed from service and the omission of other vessels still in service, but meeting phase out criteria.

The fact that a definitive list of oil tankers subject to phase out from an authoritative regulatory body does not already exist should be of great concern to the EU institutions charged with implementing and enforcing a regulatory function in this issue.

The current lack of clarity in defining the precise number of vessels subject to phase out through 2005 makes the EU's ability to carry out their regulatory duty virtually impossible. These EU institutions are powerless to carry out their own regulatory function without the authority to require the shipping industry and the flag states to provide a complete, detailed and unfiltered list of all vessels. From this complete consolidated list the EU's regulatory authority will assess and identify those vessels meeting the phase out criteria.

Total number of single hull oil tankers subject to phase out regulation

As this report is focused on developing a list of oil tankers that meets the criteria for phase out through the end of 2005 we have neither estimated the total figure of single hull oil tankers that are subject to phase out regulation between 2005 and 2010, nor their share in the total oil tanker fleet.

Current sources¹² indicate that:

- the share of the number of single hull oil tankers (1,734) is 48.7% of the total existing fleet of oil tankers (single hull and double hull) which is estimated at 3,585 tankers.
- the share of single hull oil tankers (112 million DWT) in DWT is 37.1% of the total existing fleet of oil tankers (single hull and double hull) which is estimated at 302.3 million DWT.

¹⁰ Individual flag states can allow trading of single hull Category 2 and 3 tankers beyond 2010 subject to a strengthened CAS.

¹¹ Sources: Lloyds, Fairplay (International Shipping Weekly), "Tankers in Transition", Sept-2004, Clarkson Research Studies.

¹² Sources: Lloyds, Fairplay (International Shipping Weekly), "Tankers in Transition", Sept-2004, Clarkson Research Studies.

EU controlled oil tankers becoming waste by law in 2005

We have examined data for 25 EU countries, plus Norway and Switzerland. In this report we have referred to this group as “EU+”.

Appendix I lists all EU+ single hull oil tankers meeting criteria established via the IMO for categories 1, 2 and 3 indicating phase out dates through 31 December, 2005 (i.e. criteria indicate phase out of service either by April 2005 or progressively through the end of 2005).

Overall figures

Our research indicates that between 1 December, 2004 and 31 December, 2005 as many as 334 EU+ controlled¹³ single hull oil tankers will meet the global (IMO) phase out criteria.

There are as many as 1,119¹⁴ single hull oil tankers globally (including the above mentioned 334 EU+ tankers) meeting the IMO phase out criteria through the end of 2005. In total, these vessels represent **54 million DWT**. This indicates that the EU+ controlled oil tankers represent **approximately 30%** of the total number of phase out vessels and **approximately 29%** of the total phase out DWT. See table and graphic A1.

These totals are much higher than any single report on this issue derived from shipping industry information and it reinforces the need for both the EU institutions and other concerned stakeholders in the process to have complete access to reliable, timely and public information.

Table A: tankers subject to phase out regulation through the end of 2005

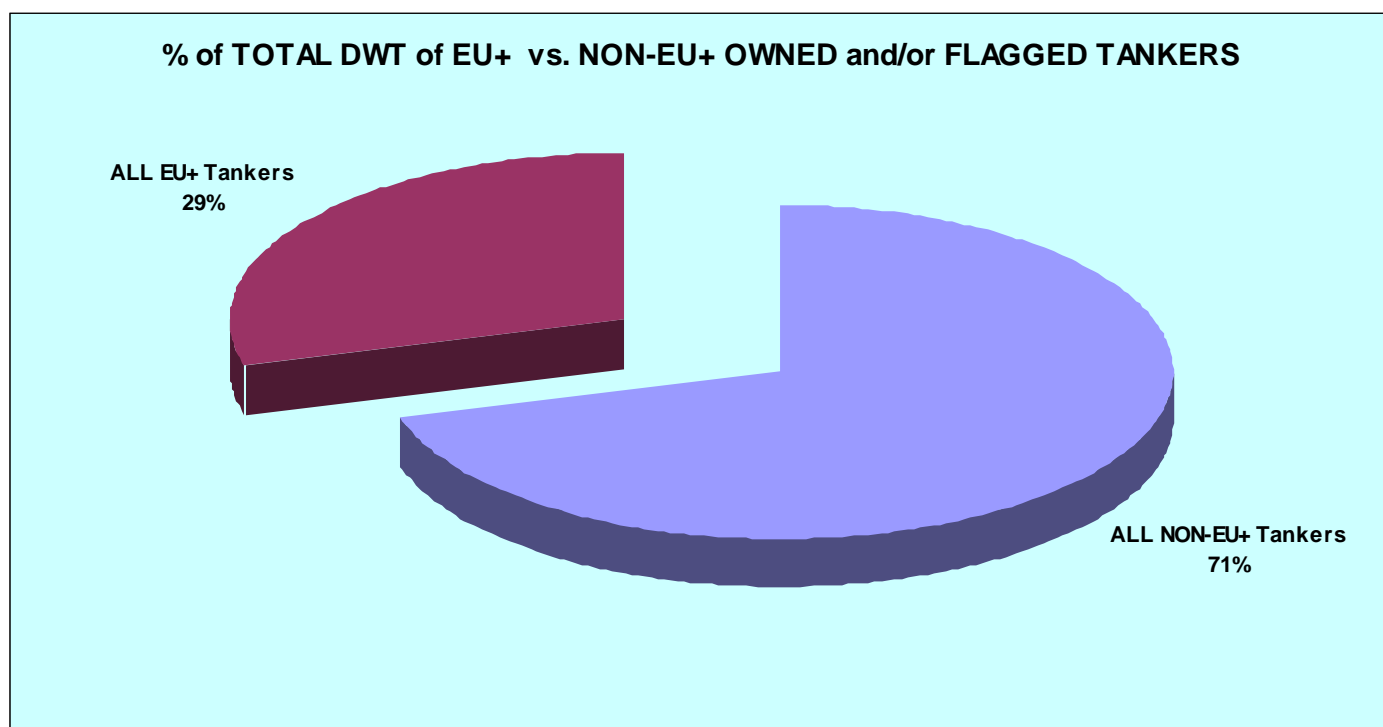
Through 31 Dec, 2005	DWT	% by DWT	Vessels	% by Vessels
ALL Tankers (including EU+)	54128787	100.00%	1119	100.00%
ALL NON-EU+ Tankers	38186415	70.55%	785	70.15%
ALL EU+ Tankers	15942372	29.45%	334	29.85%

¹³ EU+ controlled: as EU+ flagged but not EU+ owned, EU+ owned but not EU+ flagged and EU+ owned and EU+ flagged.

¹⁴ “As many as 1,119 single hull oil tankers...”: it can not be excluded that some of the oil tankers identified in this report have already been scrapped, however they appear on our list as none of our sources have indicated that the vessel has been deleted from the register.

Destination unknown: European single hull oil tankers...No place to go

Graph A: % of total DWT EU controlled versus non EU controlled



The following three vessel groups (mutually exclusive, i.e. no overlap of data) of 334 *EU+* tankers, provides a complete overview of the EU+ controlled tankers. See table B.

Table B: EU+ controlled tankers (mutually exclusive) due to phase out through 31 December, 2005

Vessel Group	Vessels	DWT
i) EU+ owner and non EU+ flag	74	3.9 million DWT
ii) EU+ flag and non EU+ owner	53	2.9 million DWT
iii) EU+ owner and EU+ flagged	207	9.2 million DWT
Total	334	16.0 million DWT

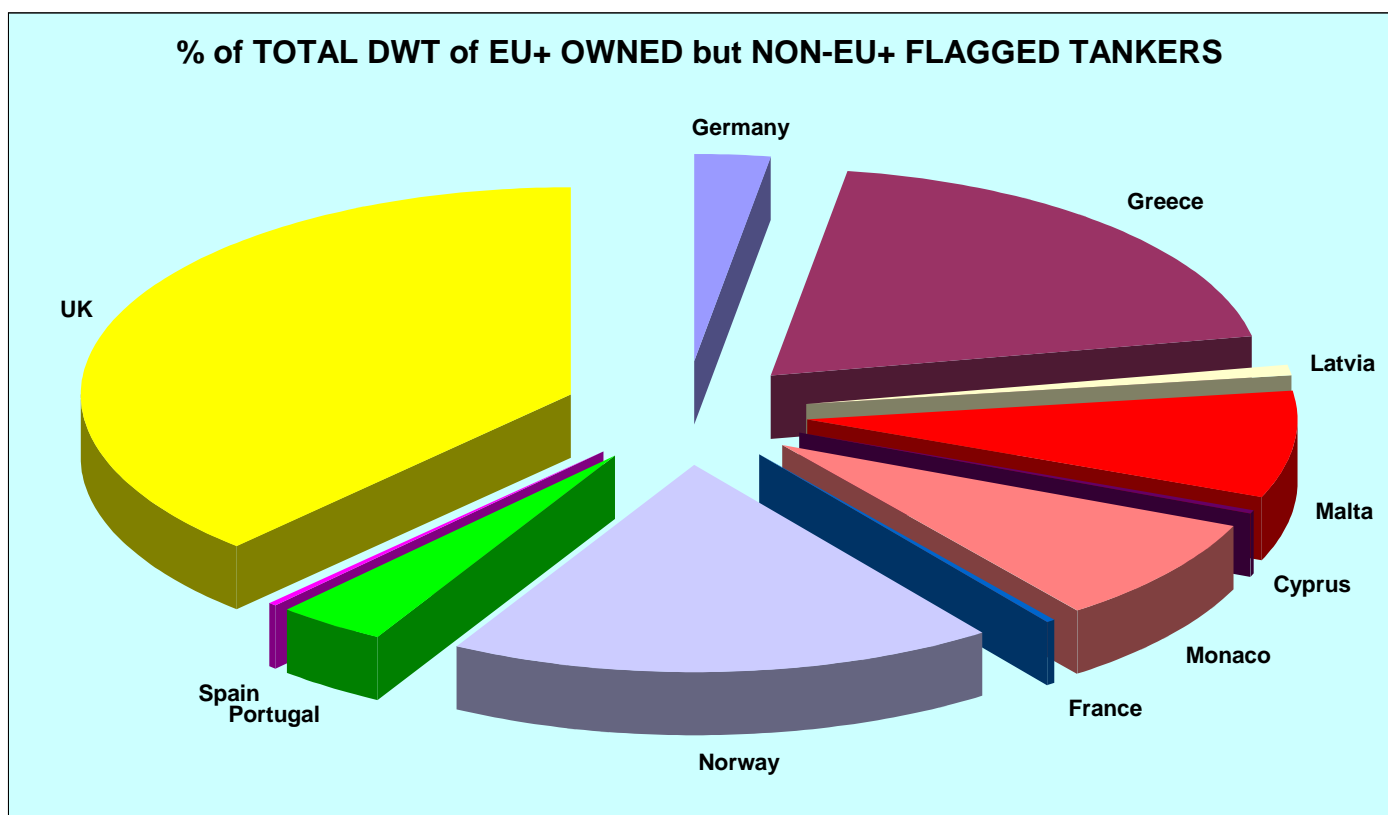
Destination unknown: European single hull oil tankers...No place to go

Table C and Graph C indicate that the main EU+ countries **by EU ownership and non EU flag** are UK (38%), Greece (19%) and Norway (18%). See Appendix I: Table C for vessel specifics.

Table C: EU+ countries by EU ownership and non EU flag

OWNER	DWT	% of TOTAL
Germany	93400	2.42%
Greece	750906	19.45%
Latvia	40030	1.04%
Malta	315709	8.18%
Cyprus	14037	0.36%
Monaco	321138	8.32%
France	6585	0.17%
Norway	703835	18.23%
Portugal	138930	3.60%
Spain	7650	0.20%
UK	1469381	38.05%
TOTAL	3861601	100.00%

Graph C: EU+ countries by EU ownership and non EU flag



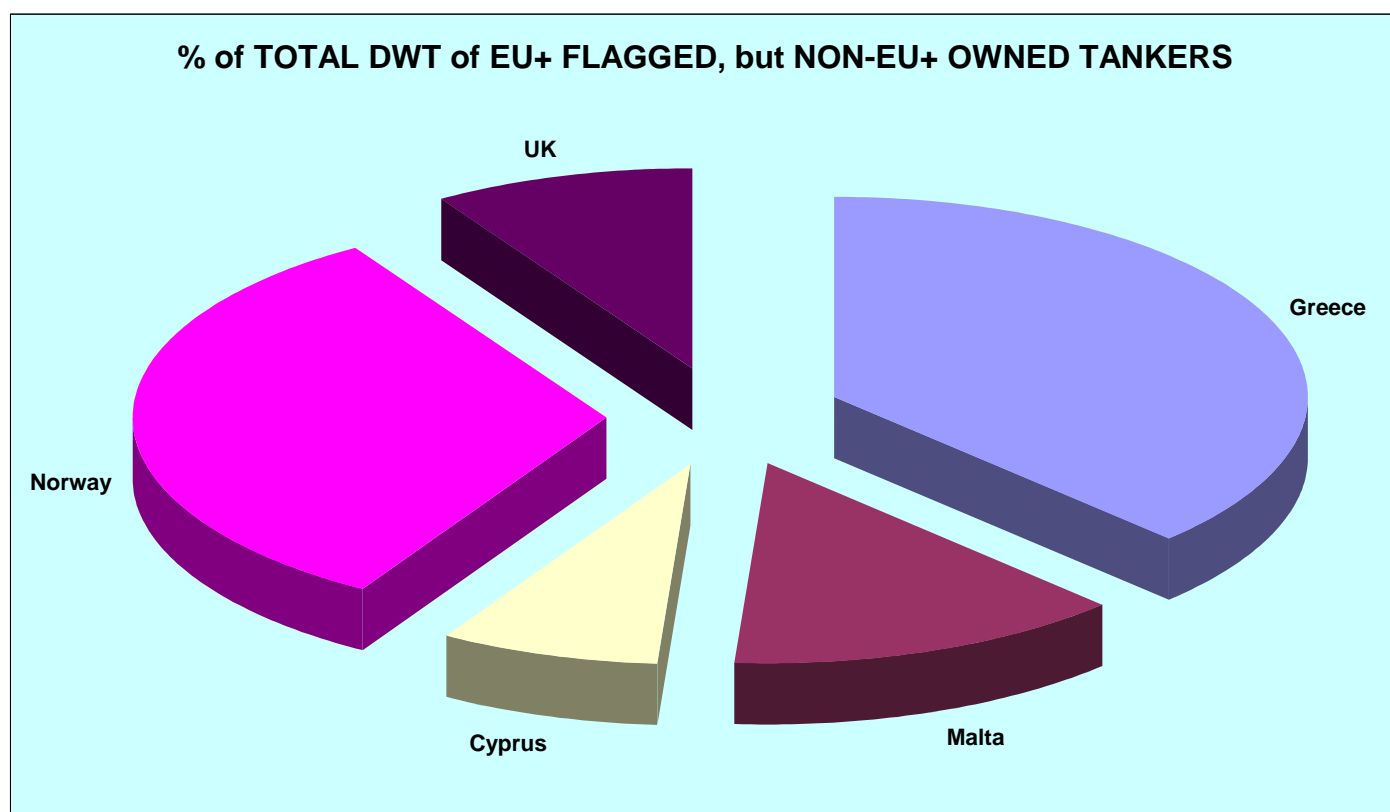
Destination unknown: European single hull oil tankers...No place to go

Table D and Graph D indicate that **by DWT** the main EU+ countries **by EU flag and non EU ownership** are Greece (38%), Norway (32%) and Malta (14%). Please see Appendix I: Table D for vessel specifics.

Table D: EU+ countries by EU flag and non EU ownership

FLAG	DWT	% of TOTAL
Greece	1072383	37.53%
Malta	386887	13.54%
Cyprus	218393	7.64%
Norway	923077	32.31%
UK	256641	8.98%
TOTAL	2857381	100.00%

Graph D EU+ countries by EU flag and non EU ownership



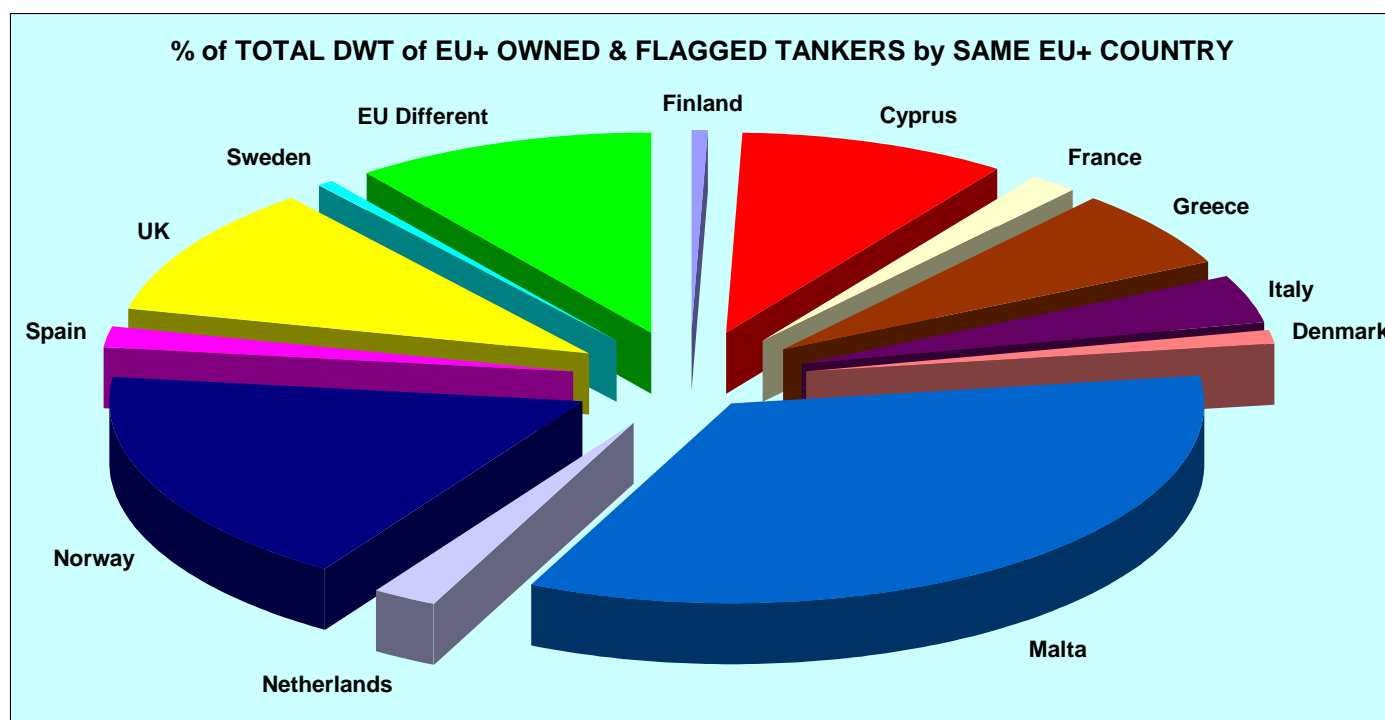
Destination unknown: European single hull oil tankers...No place to go

Table E and Graph E indicate that **by DWT** the main EU+ countries **by EU flag and EU owned by same country** are Malta (34%), Norway (18%) and UK (11%). Please see Appendix I: Table E for vessel specifics.

Table E: EU+ countries by EU flag and EU owned by same country

EU+ COUNTRY (Same Flag/Owner)	DWT	% by DWT	TOTAL VESSELS	% by VESSELS
Finland	45434	0.49%	4	1.93%
Cyprus	852013	9.24%	19	9.18%
France	144219	1.56%	4	1.93%
Greece	610551	6.62%	9	4.35%
Italy	344559	3.74%	13	6.28%
Denmark	102107	1.11%	3	1.45%
Malta	3140594	34.05%	61	29.47%
Netherlands	217183	2.35%	13	6.28%
Norway	1631200	17.69%	27	13.04%
Spain	172156	1.87%	3	1.45%
UK	976392	10.59%	18	8.70%
Sweden	48746	0.53%	4	1.93%
EU Different	938236	10.17%	29	14.01%
TOTAL	9223390	100.00%	207	100.00%

Graph E: EU+ countries by EU flag and EU owned by same country



Section 3 How much toxic waste will the EU illegally export?

In order to get an approximation of the level of contamination that the EU (and Norway and Switzerland) will be exporting via single hull oil tankers from now through the end of 2005, we examined the existing data¹⁵ of toxic materials and waste stream volumes on board of a specific oil tanker. We have then extrapolated this data to:

- the total fleet of single hull oil tankers that are subject to phase out regulation by 2010 (approximately 112 m DWT) and;
- the EU controlled tankers (approximately 16 m DWT) that are due for phase out in 2005.

Table F indicates that the toxic burden for the EU+ controlled tankers due for phase out by the end of 2005 will be considerable. The toxic burden consists of an estimated 130 million litres of contaminated oil residue which is equal to more than the equivalent of two Prestige disasters¹⁶. In addition, the toxic burden of these vessels also contains persistent toxic substances, e.g. 66,000 kg of the extremely toxic organic tin compound tributyl tin – TBT – used in anti-fouling paints.

Tributyltin (TBT) is an aggressive biocide (kills living organisms) that has been used in anti-fouling paints since the 1970s. TBT is considered as one of the most toxic compounds in the aquatic ecosystems; its impact on marine organisms range from the subtle to the lethal. TBT is responsible for the disruption of the endocrine system of marine shellfish leading to the development of male characteristics in female marine snails. TBT also impairs the immune system of organisms. Shellfish are reported to have developed shell malformation after exposure to extremely low levels of TBT in the seawater.

As organotin compounds can damage human health even in small doses, in industrialised nations, legal regulations are in place to protect workers from exposure to antifouling paints containing TBT. Skin, eye and lung protection are mandatory for any contact work with TBT-containing paints.

More specific data on the reports that analysed the toxic materials and waste stream volumes on board a specific oil tanker can be found in appendix III.

¹⁵ Figures on hazardous waste found on a specific oil tanker (a VLCC, 1967, 290,000 DWT) 1976 can be found in the DNV Report No. 2000-3527: "Technological and Economic Feasibility Study of Ship Scrapping in Europe". DNV & Appledore International for the Commission of the European Communities, February 2001 and COWI/EC report "Oil tanker Phase-out and the Ship Scrapping Study", June 2004 and DNV Report No. 99-3065: "Decommissioning of Ships - Environmental Protection and Ship Demolition Practices", 1999.

¹⁶ The "Prestige" tanker that sank on 19 November 2002 spilling much of its cargo of 77,000 metric tonnes of heavy fuel oil caused one of the biggest European environmental disasters of the last decade. Some 300,000 sea birds are estimated to have died from the oil spill. WWF estimated that the effects on fishing and related economic sectors, tourism and the natural heritage along 3,000 km of coastline polluted by the spill would last for over a decade and would cost approximately €5 billion, with society at large paying 97.5 % of this cost.

The single hull oil tanker "Prestige" lost approximately 63,000 metric tonnes (New Scientist website 27 Aug 2003) of heavy fuel oil (categorised as "Russian M-100"). The "Russian M-100" heavy fuel oil has a specific gravity of .993@15°C resulting in 63,444,000 litres of toxic waste spilled.

Table F Toxic materials and waste streams volumes based on EU assessment and DNV reports

The EU investigated oil Tanker of 290,000 DWT (37,500 LDT)			Amount per 100,000 DWT units	Extrapolation on the Single Hull oil Tanker Fleet (per 100,000 DWT)	
Compo-nents	Material	Amount		For Total Single Hull oil Tanker fleet +/- 112 million DWT	For EU+ controlled Single Hull oil Tanker fleet phased out through the end of 2005 16 million DWT
			(: 2.9)	(x 1120)	(x 160)
Anodes	Zn	20,000 kg	6,896 kg	7,723,530 kg	1,103,000 kg
	Al	35,000 kg	12,068 kg	13,516,160 kg	1,931,000 kg
	Lead (Pb) ¹⁷	0.4 kg	0.14 kg	154 kg	22 kg
	Cadmium	120 kg	41 kg	45,920 kg	6,560 kg
Batteries	Lead (Pb):	140 kg	48 kg	53,760 kg	7,680 kg
	Sulfuric acid (H2SO4):	44 litres	15 litres	16,800 litres	2,400 litres
Paints and coatings	Antifouling (TBT)	24,000 kg ¹⁸ (1,200 kg)	8,275 kg (413 kg)	9,268,000 kg (462,560 kg)	1,324,000 kg (66,080 kg)
Refrigerants (CFC-gases)	R22 & Freon-12	1,000 kg	344 kg	385,280 kg	55,040 kg
Head Insulation	Asbestos	7,000 kg	2,413 kg	2,702,560 kg	386,080 kg
Electrical installations	Cu cable	45,000 kg	15,517 kg	17,379,040 kg	2,483,000 kg
	PVC cable insulation	10,000 kg	3,448 kg	3,861,760 kg	552,000 kg
	Rubber insulation	20,000 kg	6,896 kg	7,723,520 kg	1,104,000 kg
	Light tube capacitors (PCB)	24 kg ¹⁹ (14 g)	8.3 kg (4.82 g)	9,269 kg (5.407 g)	1,328 kg (771 g)
	Light tubes (Hg)	100 kg ²⁰ (15 g)	35 kg (5.17 g)	39,200 kg (5,790 g)	5,600 kg (827 g)
Oil residue	Heavy fuel oil	333,000 litres	114,000 litres	129,000,000 litres	18,240,000 litres
	Hydraulic oil	18,000 litres	6,200 litres	6,950,000 litres	992,000 litres
	Lubrication oil	20,000 litres	6,900 litres	7,720,000 litres	1,104,000 litres
	Oil sludge (sand, rust and oil)	2,000,000 litres	689,655 litres	772,400,000 litres	110,400,000 litres

¹⁷ Lead and Cadmium are trace elements that can not be separated from the main part of metal. Assuming 50% of the anodes have disappeared due to corrosion

¹⁸ The estimated TBT-content of 5%

¹⁹ estimated weight of 50g/capacitor

²⁰ estimated weight of 100 g/tube

Appendix I:

Appendix I: Table C: EU+ countries by EU ownership and non EU flag

IMO No.	VESSEL NAME	FLAG	Country of Ownership	DWT
8025111	Gulf Dove	Panama	Cyprus	14037
7917599	Olympics I	Panama	Cyprus	29940
8009739	TOUR PRIGNAC	St Vincent & The Grenadines	France	6585
9036911	ANTARES	Liberia	Germany	6417
8313350	Belgreeting	Liberia	Germany	43549
8313362	Belguardian	Liberia	Germany	43434
8015685	EIRINI	Bahamas	Greece	149640
7046168	CM Spirit	Honduras	Greece	27726
7925833	Bandondari	Indonesia	Greece	89999
8016134	CHELSEA	Liberia	Greece	23297
7918244	Laertis	Marshall Islands	Greece	37785
7925730	Afroditi	Marshall Islands	Greece	127575
8015697	Behemoth	Marshall Islands	Greece	149863
8705618	SUN	Marshall Islands	Greece	29815
7828504	Ageliki	Marshall Islands	Greece	27360
7410917	MIGUEL G	Panama	Greece	30672
7410917	Miguel G.	Panama	Greece	30672
7902582	Eagle II	Panama	Greece	97839
8124010	BAGE - Bagi	Panama	Greece	91647
7022112	Ocean treasure	Panama	Greece	10049
7104221	Leetha	Panama	Greece	5233
7823542	Sea ray I	Panama	Greece	16317
7391379	DAVIDS SIKEIROSS	Liberia	Latvia	40030
7377270	Vitoria	Dominican Republic	Malta	56390
8107529	Kapitan Stankov	Liberia	Malta	76290
8517047	Nino	Marshall Islands	Malta	17523
7357048	Orchid	Morocco	Malta	96532
7389780	Arcadia I	Morocco	Malta	31177
6927731	Ocean challenger	Nigeria	Malta	5112
7383384	Norna	Panama	Malta	37797
7902568	Kriti Rock	Panama	Malta	97543
7902570	Kriti Mountain	Panama	Malta	97535
7373080	FPSO Serpentina	Bahamas	Monaco	307437
9011404	HIBIYA PARK	Panama	Monaco	13701
7917587	Vikstraum	Bahamas	Norway	8693
8610423	TURCHESE	Liberia	Norway	6184
8616568	Ancora	Marshall Islands	Norway	142031
8609527	CAMAR	Panama	Norway	44987
8312370	Capemar	Panama	Norway	37615
8800767	Bow Gorgonilla	Panama	Norway	8192

Destination unknown: European single hull oil tankers...No place to go

IMO No.	VESSEL NAME	FLAG	Country of Ownership	DWT
8711095	Ermor	Panama	Norway	34999
8800779	Antisana - Bow Antisana	Panama	Norway	8192
8309816	Probo Koala	Panama	Norway	48077
8805004	Allenmar	Panama	Norway	41750
7385112	Folk Sun	Saudi Arabia	Norway	323115
7374280	FPSO MYSTRAS	Puerto Rico	Portugal	138930
8030269	CAMARON	Liberia	Spain	7650
8512554	STOLT AUSTRALIA	Australia	UK-Bermuda	9939
8814421	ROWAN	Bahamas	UK-Bermuda	44646
8700242	Columbia Spirit	Bahamas	UK-Bermuda	84841
8710182	Sabine Spirit	Bahamas	UK-Bermuda	84841
8700254	Hudson Spirit	Bahamas	UK-Bermuda	84841
8607799	EAGLE MILWAUKEE	Singapore	UK-Bermuda	104385
8607804	EAGLE MEMPHIS	Singapore	UK-Bermuda	104499
8022858	CAURA	Venezuela	UK-Bermuda	19999
8613281	Tristar Dubai	Bahamas	UK-British Virgin Islands	50001
8315657	Pindar	Bahamas	UK-British Virgin Islands	54502
8127282	Paean	Bahamas	UK-British Virgin Islands	54500
8105923	Theresa VIII	Liberia	UK-British Virgin Islands	22294
8705527	CLOVELY	Panama	UK-British Virgin Islands	248034
7915826	Petroskald - Severomorsk	Russia	UK-British Virgin Islands	39750
7107883	Abakan	Russia	UK-British Virgin Islands	22610
7395337	SEAEXPLORER	St Vincent & The Grenadines	UK-British Virgin Islands	39733
7923524	Stolt Protector	Liberia	UK-Cayman Islands	39782
8802222	Genmar Commander	Liberia	UK-Cayman Islands	96758
8510415	Stolt Titan	Liberia	UK-Cayman Islands	12749
8908210	GENMAR GABRIEL	Marshall Islands	UK-Cayman Islands	94993
7825021	Xitle	Mexico	UK-Cayman Islands	7949
8000276	Nordic Blossom	Liberia	UK-Isle of Man	19954
7222059	Mater Salvatoris	Nigeria	UK-Isle of Man	5780
7321635	CAM ETINDE	Bahamas	United Kingdom	9178
8009571	Cabot	Liberia	United Kingdom	67208
8023278	Kapitan Koziar	Liberia	United Kingdom	76326
8001464	Bismil	Panama	United Kingdom	5628
			TOTAL	3861601

Appendix I: Table D: EU+ countries by EU flag and non EU ownership

IMO No.	VESSEL NAME	FLAG	Country of Ownership	DWT
7826843	VICKY I	Cyprus	China	88729
8012786	ATLANTIC WIND	Cyprus	Germany	13845
7379278	Icarus II	CYPRUS	India	36192
8517059	Lake Maya	Cyprus	Marshall Islands	17400
7343346	GLOBAL SPIRIT	Cyprus	Panama	32290
8028589	ZEAL	Cyprus	Singapore	29937
7329912	KRITI LAND	Greece	India	81212

Destination unknown: European single hull oil tankers...No place to go

IMO No.	VESSEL NAME	FLAG	Country of Ownership	DWT
8906822	Meribel	Greece	Liberia	95711
8706131	VERONA	Greece	Liberia	275341
7901605	GOLDEN GATE	Greece	Liberia	84711
8312186	KORIANA	Greece	Liberia	63786
8316091	METAXATA	Greece	Liberia	63774
8420256	KRITI FILOXENIA	Greece	Panama	47618
8420270	KRITI CHAMPION	Greece	Panama	47618
8002080	ASPHALT GLORY	Greece	Panama	38598
8420268	KRITI PALM	Greece	Panama	47559
8412572	KRITI AKTI	Greece	Panama	41470
8412584	KRITI ART	Greece	Panama	41483
8900505	OLYMPIC SYMPHONY	Greece	Panama	96672
7907752	Samaria	Greece	Panama	46830
7369091	A. P. PRIDE	Malta	Bangladesh	32004
7924932	ATHINA - Ebome	Malta	Cameroon	68820
7341415	Maykop	Malta	China	29990
7921320	EXPRESS	Malta	India	81275
7902178	Westchester	Malta	Liberia	88389
8806345	Hellenic Star	Malta	Liberia	29999
8513625	Histria Emerald	Malta	Romania	88850
8729951	Akademik Vereschagin	Malta	Russia	28610
8211722	METANOL	Malta	Singapore	6525
8000111	PEARL OF SALALAH	Malta	United Arab Emirates	13845
8414336	SEA ACE	Malta	United Arab Emirates	6969
7006405	Seville	Malta	United Arab Emirates	10029
7429138	WHITE STAR	Norway	Bangladesh	31487
8009595	Myre	Norway	Liberia	91252
8711083	Campos Transporter	Norway	Liberia	39977
8916102	GEILO	Norway	Liberia	234988
8308123	MARIELLA	Norway	Marshall Islands	77769
8009569	Nordic Troll	Norway	Marshall Islands	67436
8301204	Maribel	Norway	Marshall Islands	40158
8023773	Mostraum	Norway	Norway	8661
7926291	Ncc Arar	Norway	Saudi Arabia	23016
7926306	Ncc Asir	Norway	Saudi Arabia	23016
8112926	NCC Baha	Norway	Saudi Arabia	24728
7707932	Traveller	Norway	Singapore	127545
8001270	Bow Petros	Norway	Singapore	39726
8416322	Jo Brevik	Norway	Singapore	33490
8012126	Bow Fighter	Norway	Singapore	35100
8112914	Bow Eagle	Norway	Singapore	24728
8500238	Premvati	UK	India	83729
8914855	SUNNIVA	UK	Liberia	9009
8003345	BELTRADE	UK-Cayman Islands	Liberia	40520
8806888	CAPETAN COSTIS	UK-Gibraltar	Liberia	39542
8500240	Sarla	UK-Isle of Man	India	83841
		TOTAL		2857381

Appendix I: Table E: EU+ countries by EU flag and EU owned by same country

IMO No.	VESSEL NAME	FLAG	Country of Ownership	DWT
7356472	Enias	CYPRUS	Cyprus	38987
7917410	Panos G.	CYPRUS	Cyprus	86983
7926150	Seaway L.	CYPRUS	Cyprus	59999
8117079	ATHOS I	Cyprus	Cyprus	60880
7931442	PRIGIPOS	Cyprus	Cyprus	99811
7929530	PORTHOS	Cyprus	Cyprus	65779
8138516	BULDURI	Cyprus	Cyprus	28750
8207305	OJARS VACIETIS	Cyprus	Cyprus	16341
8820901	Sea Monarch	Cyprus	Cyprus	28610
8504870	Azija	Cyprus	Cyprus	40474
8315138	DARTAGNAN	Cyprus	Cyprus	61762
8008993	PELLA	Cyprus	Cyprus	40231
8207317	ROPAZI	Cyprus	Cyprus	16341
8820896	Estere	Cyprus	Cyprus	28610
7926162	Ektoras	Cyprus	Cyprus	53500
8319938	Eurydice	Cyprus	Cyprus	94941
8814158	Zoja I	Cyprus	Cyprus	28610
7926174	Patroklos	Cyprus	Cyprus	61403
7917410	Panos G	Cyprus	Cyprus	86983
8819108	Zoja II	Latvia	Cyprus	28610
7927855	Ocean Liberty	Malta	Cyprus	38479
7916129	Bela	UK-Cayman Islands	Cyprus	37940
8700008	TORM MARGRETHE	Denmark (International Register)	Denmark	84000
7350260	Dansborg	Denmark (International Register)	Denmark	7606
8030398	Atlantic Swan	Denmark (International Register)	Denmark	10501
8203464	TAVI	Finland	Finland	22717
8203452	KIHU	Finland	Finland	22717
7421954	Sotka	Finland	Finland	16420
8002511	Sirri	Finland	Finland	6954
9079171	BRO ARTHUR	France	France	45999
9079183	BRO ALEXANDRE	France	France	45999
9085388	BRO ALBERT	France	France	46768
8610447	POINTE DU CORMORAN	France	France	5453
8012786	ATLANTIC WIND	Cyprus	Germany	13845
8201040	THEOPISTI	Greece	Greece	29810
8316429	Polyxeni	Greece	Greece	29974
8420282	KRITI COLOR	Greece	Greece	47618
8812667	ASTRO LUPUS	Greece	Greece	257589
8321864	OLGA	Greece	Greece	29992
8100909	NICOPOLIS	Greece	Greece	60525
7916868	MARIVIC	Greece	Greece	81283
8113190	Theodosia	Greece	Greece	53700
8122464	Salamis	Greece	Greece	20060

Destination unknown: European single hull oil tankers...No place to go

IMO No.	VESSEL NAME	FLAG	Country of Ownership	DWT
8419013	CROWN A	Malta	Greece	39008
7612046	KARINA	Malta	Greece	7041
8416188	Konstantinos D	Malta	Greece	29979
9005613	VEMAOIL XX	Malta	Greece	5191
8325078	Vernaocean	Malta	Greece	107633
8225034	FOUR ETOILES	Italy	Italy	54500
7229849	Rapallo	Italy	Italy	5185
8420373	VALTELLINA	Italy	Italy	18773
8315035	CONNY	Italy	Italy	19960
8315047	GIACINTA	Italy	Italy	19862
7925871	FOUR GLENS	Italy	Italy	49999
7907790	BLACK POINT	Italy	Italy	46825
8420385	CALITEA	Italy	Italy	18582
8026189	San Terenzo	Italy	Italy	24044
8400933	LIA	Italy	Italy	29998
9008811	LONGOBARDA	Italy	Italy	10006
7907790	Black Point	Italy	Italy	46825
7407049	Leo	Italy	Italy	7620
7907788	Blue Point	Malta	Italy	48159
7400120	ENDEAVOR II	Greece	Malta	96482
7916480	Adriatiki	Malta	Malta	29990
8028577	Ocean Success	Malta	Malta	29951
7330387	LIANO	Malta	Malta	29990
8623937	GRIGORIY NESTERENKO	Malta	Malta	28610
8206947	MOSKOVSKIY FESTIVAL	Malta	Malta	28750
8706014	NAVARIN	Malta	Malta	255312
8617196	SIMBA	Malta	Malta	146270
7343164	GUDERMES	Malta	Malta	32039
8814550	STAR HERO	Malta	Malta	154448
8014667	APAGEON	Malta	Malta	82253
7931454	LUCKY LADY	Malta	Malta	88272
8607828	SEAVINHA	Malta	Malta	39717
8607816	SEAPURHA	Malta	Malta	39672
8002456	COBRA	Malta	Malta	27841
7925857	Big One	Malta	Malta	51267
7826192	KAPSALI	Malta	Malta	84656
7925039	LENI	Malta	Malta	19999
7922087	Isola Turchese	Malta	Malta	36834
8711124	MATILDA	Malta	Malta	147500
7391599	ANDREEA	Malta	Malta	23956
8704365	GOLDIE	Malta	Malta	29998
8006866	Leader M	Malta	Malta	46122
7826180	SERENO 2	Malta	Malta	89500
7925792	SIREN	Malta	Malta	29990
8202020	MILAGRO	Malta	Malta	60962
8617988	DINDI	Malta	Malta	29736
7925077	APNOIA	Malta	Malta	51528
7932513	W.S. Challenger	Malta	Malta	45306

Destination unknown: European single hull oil tankers...No place to go

IMO No.	VESSEL NAME	FLAG	Country of Ownership	DWT
8002444	Horizon A	Malta	Malta	27841
8624008	Vladimir Kokkinaki	Malta	Malta	28750
8312368	SEATREASURE	Malta	Malta	37623
7382782	West Queen	Malta	Malta	5984
8410665	VEMAOIL IX	Malta	Malta	4999
7917446	STAR 2	Malta	Malta	85925
8908753	TASSELS	Malta	Malta	96922
8522640	Mirza	Malta	Malta	28610
8323020	Masalli	Malta	Malta	5686
8008981	Westa	Malta	Malta	40293
8724860	Valeriy Chkalov	Malta	Malta	28610
9002154	TAMARA	Malta	Malta	97151
9003081	CORCOVADO	Malta	Malta	97113
7383358	San Carlo	Malta	Malta	27000
8627749	Petr Shmidt	Malta	Malta	28610
8006921	Mostoles	Malta	Malta	75395
8523101	Noda Star	Malta	Malta	28750
8023292	Kapitan Zhuravlyov	Malta	Malta	76284
9107693	NGOL DANDE 1	Malta	Malta	6512
8724743	Yevgeniy Titov	Malta	Malta	28610
8714011	Sealoyalty	Malta	Malta	96551
7330387	Liano	Malta	Malta	29990
8410847	Little Lady	Malta	Malta	7303
8800248	KASHMIR	Malta	Malta	44292
8325066	Vernabaltic	Malta	Malta	107544
8819196	Rain - Runner A	Malta	Malta	29998
8819184	Racer - Racer A.	Malta	Malta	29998
8014746	Akti A	Malta	Malta	44360
8706088	NGOL Luena	Malta	Malta	45650
8618968	Balva	Malta	Malta	40349
8805470	Balta	Malta	Malta	40392
7235850	Archangel	Malta	Malta	7030
7925039	Leni	Malta	Malta	19999
9000613	DUTCH NAVIGATOR	Netherlands	Netherlands	6259
8712154	BASTIAAN BROERE	Netherlands	Netherlands	5098
8712166	JACOBUS BROERE	Netherlands	Netherlands	5098
8808707	DUTCH MATE	Netherlands	Netherlands	6259
8919037	JO SPRUCE	Netherlands	Netherlands	36778
8819718	FRYKEN	Netherlands Antilles	Netherlands	6247
8819720	SAXEN	Netherlands Antilles	Netherlands	6000
8819732	VISTEN	Netherlands Antilles	Netherlands	6260
8500135	Jo Ebony	Norway	Netherlands	12152
8113566	Sea Teal - Teal	Netherlands Antilles	Netherlands Antilles	32101
8000977	Tern	Netherlands Antilles	Netherlands Antilles	32650
8001000	Swan	Netherlands Antilles	Netherlands Antilles	30060
8113554	Swift	Netherlands Antilles	Netherlands Antilles	32187
8500604	JO CALLUNA	Netherlands	Netherlands Antilles	12186
8518871	COLMAR	Cyprus	Norway	39729

Destination unknown: European single hull oil tankers...No place to go

IMO No.	VESSEL NAME	FLAG	Country of Ownership	DWT
8518883	CITY UNIVERSITY	Cyprus	Norway	39729
8806876	FULMAR	Cyprus	Norway	39521
8517061	Kapitan Korotaev	Cyprus	Norway	17400
8517085	Akademik Semenov	Cyprus	Norway	17485
7708302	Berge Enterprise	France -French Southern Territories	Norway	360700
8316716	Bow Puma	Greece	Norway	40092
8709298	Bow Cheetah	Greece	Norway	40257
8001945	Norwave	Malta	Norway	29994
7816484	CT Sun	Malta	Norway	5858
8012138	Ct Sky	Malta	Norway	6275
7920510	Champion Vincita	Norway	Norway	45576
8111518	VIVALDI	Norway	Norway	6125
8311297	Sigloo Moss	Norway	Norway	13774
7926887	Viscaya	Norway	Norway	26328
7728534	DREGGEN	Norway	Norway	15456
8619417	Fossanger	Norway	Norway	40264
8314471	Bege Fjord	Norway	Norway	310698
8910706	CHAMPION EXPRESS	Norway	Norway	29998
8112495	Jo Oak	Norway	Norway	39161
8806682	Toril Knutsen	Norway	Norway	14910
8313128	Stavanger Breeze	Norway	Norway	37660
8809921	Gerrita	Norway	Norway	112046
8000616	Nordic Laurita	Norway	Norway	68139
8000989	Igloo Finn, Sigloo Finn	Norway	Norway	11665
8023773	Mostrum	Norway	Norway	8661
8913708	Solstrum	Norway	Norway	7013
8107141	Singlo Polar	Norway	Norway	12426
7926875	Bryggen	Norway	Norway	26300
8416334	Singloo Espoon	Norway	Norway	13524
7922128	Sira Borg	Norway	Norway	5380
8715546	Tove Knutsen	Norway	Norway	113131
8716863	Hilda Knutsen	Norway	Norway	14390
7922295	Linnea	Norway	Norway	11520
7920493	Champion Venture	Norway	Norway	45576
8314483	Tijuca - Berge Vik	Norway (International Register)	Norway	310686
8406406	Berge Phoenix	Norway (International Register)	Norway	290793
7824259	Beffen	Norway	Norway	11648
7719155	Kitty Knutsen	UK	Norway	127540
8800511	Scottish Wizard	UK-Isle of Man	Norway	40525
7812048	ALCUDIA	Spain-Canary Islands	Spain	15456
8910110	Sevilla Soirit	Spain-Canary Islands	Spain	147275
9140853	HESPERIDES	Spain-Canary Islands	Spain - Canary Islands	9425
8705333	BRO TRADER	Sweden	Sweden	14402
8716007	BRO TRANSPORTER	Sweden	Sweden	14316
8027200	OMEGA AF DONSO	Sweden	Sweden	11538
8906951	FUREVIK	Sweden	Sweden	8490
8110667	LAETITIA	Malta	Switzerland	17879
7370193	Stena Congress	UK-Bermuda	UK-Bermuda	273193

Destination unknown: European single hull oil tankers...No place to go

IMO No.	VESSEL NAME	FLAG	Country of Ownership	DWT
7370246	Stena Constellation	UK-Bermuda	UK-Bermuda	273397
8309543	Stolt Emerald	UK-Cayman Islands	UK-Cayman Islands	38720
8309555	Stolt Topaz	UK-Cayman Islands	UK-Cayman Islands	38818
8309529	Stolt Aquamarine	UK-Cayman Islands	UK-Cayman Islands	38729
8320119	Stolt Jade	UK-Cayman Islands	UK-Cayman Islands	38729
9004310	STOLT AVOCET	UK-Cayman Islands	UK-Cayman Islands	5749
8207056	ACRONEOS	UK-Cayman Islands	UK-Cayman Islands	16421
7913476	Armata	UK-Cayman Islands	UK-Cayman Islands	89920
7813884	Lough Fisher	UK-Gibraltar	UK-Gibraltar	8496
7359541	Ausonia	United Kingdom	UK-Gibraltar	32907
8919051	JO SELJE	Netherlands	UK-Isle of Man	36800
8007080	NORTHICA	Norway	UK-Isle of Man	6679
7431741	SKAGICA	Norway	UK-Isle of Man	6433
8116611	SEVERN FISHER	UK-Gibraltar	United Kingdom	10716
8810023	SCOTTISH BARD	UK-Isle of Man	United Kingdom	35367
8022860	CARDISSA	UK-Isle of Man	United Kingdom	22291
6923163	GREY ROVER	United Kingdom	United Kingdom	6931
7329338	BLACK ROVER	United Kingdom	United Kingdom	6799
7915814	OAKLEAF	United Kingdom	United Kingdom	34800
7800734	Celtic Terrier	United Kingdom	United Kingdom	12905
			TOTAL	9223390

Appendix II: Recent Decision: The Basel Convention Decision VII/21 & VII/23 of October, 2004

Appendix II: Decision VII/21 on the Environmentally Sound Management of ship dismantling

The Conference of the Parties,

Aware of the risk of damage to human health and the environment caused by hazardous wastes and other wastes and the transboundary movement thereof,

Recognizing that many ships and other floating structures are known to contain hazardous materials and that such hazardous materials may become hazardous wastes as listed in the annexes to the Basel Convention,

Concerned that ships and other floating structures may pose a threat to the environment and human health if they are not, when pre-decontaminated or dismantled, managed in an environmentally sound manner,

Noting the need to improve the standards of ship dismantling worldwide and the importance of international cooperation in achieving this goal,

Recognizing the importance of the environmentally sound management of dismantling of ships,

Noting that a ship may become waste as defined in article 2 of the Basel Convention and that at the same time it may be defined as a ship under other international rules,

Recognizing the important role that concerned States, ship owners, recycling facility operators and other stakeholders have to play in developing mechanisms to ensure the environmentally sound management of ship dismantling,

Further recognizing the need to ensure effective enforcement of such mechanisms, including a reporting system, for ships destined for dismantling,

Recalling decision V/28 on the dismantling of ships, which mandated the Technical Working Group to collaborate with the International Maritime Organization on the subject of the full and partial dismantling of ships and, together with the Legal Working Group, to discuss the legal aspects of the subject under the Basel Convention,

Further recalling decision VI/24 on technical guidelines for the environmentally sound management of the full and partial dismantling of ships,

Noting that the Governing Body of the International Labour Office has adopted guidelines on safety and health in ship breaking, that the International Maritime Organization has adopted guidelines on ship recycling and that the Basel Convention has adopted technical guidelines for the environmentally sound management of the full and partial dismantling of ships,

Noting the importance of promoting the implementation of the above-mentioned guidelines,

Further noting that the International Maritime Organization and the International Labour Organization, together with the Conference of the Parties to the Basel Convention, have agreed to establish a joint working group on ship scrapping and have agreed to terms of reference and working arrangements governing its activities,

Affirming that elements of prior informed consent as elaborated in the Basel Convention enable the minimization of the impact to human health and the environment associated with dismantling of ships, recognizing the particular issues that arise in the unique context of ships,

Noting the progress made at the fifty-second session of the International Maritime Organization's Marine Environment Protection Committee toward the possible development of a mandatory scheme for ship recycling, including a reporting system for ships destined for recycling,

Realizing that States have distinct obligations as Parties to the United Nations Convention on the Law of the Sea and relevant International Maritime Organization conventions, including obligations of States in their capacities as flag States, and as Parties to the Basel Convention, including obligations of States in their capacities as States of Export, and that States should be able to meet these obligations in a consistent manner,

Noting that duplication of regulatory instruments that have the same objective should be avoided,

1. *Reminds* the Parties to fulfil their obligations under the Basel Convention where applicable, in particular their obligations with respect to prior informed consent, minimization of transboundary movements of hazardous wastes and the principles of environmentally sound management;
2. *Invites* Parties, other States, ship owners and other stakeholders to assist in the improvement of the environmentally sound management of ship dismantling worldwide;
3. *Invites* Parties, especially developed States, to encourage the establishment of domestic ship recycling facilities;
4. *Encourages* Parties to ensure their full and effective participation in the deliberations of the joint working group of the International Maritime Organization, the International Labour Organization and the Basel Convention, either through their representatives or as observers;
5. *Invites* the International Maritime Organization to continue to consider the establishment in its regulations of mandatory requirements, including a reporting system for ships destined for dismantling, that ensure an equivalent level of control as established under the Basel Convention and to continue work aimed at the establishment of mandatory requirements to ensure the environmentally sound management of ship dismantling, which might include pre-decontamination within its scope;

Requests the Open-ended Working Group to consider the practical, legal and technical aspects of the dismantling of ships in the context of achieving a practical approach to the issue of ship dismantling, to report on developments and to present any proposals, as appropriate, to the Conference of the Parties at its eighth meeting on a legally binding solution, taking into consideration the work of the International Maritime Organization and the work of the joint working group.

Appendix II: Decision VII/23 on abandonment of ships

Recognizing the concern expressed by a number of Parties related to the abandonment of ships on land or in ports,

Concerned that abandonment of ships on land or in ports could have effects on human health and the environment,

1. *Invites* Parties to provide information regarding the abandonment of ships on land or in ports to the Secretariat of the Basel Convention and directs the Secretariat to compile such information for presentation to the Open-ended Working Group;
2. *Requests* the Open-ended Working Group to consider the information submitted with a view to taking action, as deemed appropriate;

Requests the Secretariat to consult the secretariat of the International Maritime Organization on this issue.

Appendix III: Toxic Material and Waste stream Volumes on oil tankers

This appendix of toxic materials and waste stream volumes to be found on oil tanker has been derived from EU assessment and DNV reports²¹. The reports have established the level of toxic materials and waste stream volumes on a typical VLCC (Very Large Crude Carrier). This VLCC is representative of the toxic contaminants inherent in single hull oil tankers that will be scrapped over the next few years. This VLCC was built in Europe in 1976 and had a carrying capacity of 290,000 dwt.

Appendix III: Extract from the EU assessment and DNV report

Main groups of substances of environmental concern were identified and attempted quantified.

Anodes

For protection against corrosion and fouling a number of anodes are fitted to the vessel's hull and inside the tanks. According to the original specifications there were about 70,000-kg Aluminium (Al) anodes and 40,000 kg Zinc (Zn) anodes on board when the ship was first built. It has been found that 30-70 % of the original amount is likely to be left when the ship is ready for scrapping, hence our sample vessel would contain ~ 35,000 kg Al and ~ 20,000 kg Zn (the anodes will also contain small amounts of other metals including some heavy metals).

Batteries

Lead-acid batteries represent the largest volume of batteries on board and are found in radios, fire alarms, emergency start equipment, lifeboats, etc. The total weight (wet) of lead-acid batteries on the sample ship amounts to 232 kg, of which there were 140 kg lead (Pb) and 44 litres of sulphuric acid (H_2SO_4 (l)). This amount is thought to be low in comparison with merchant vessels in general, since some vessels have configurations providing emergency lighting from a battery source in addition to a number of spare batteries.

Paints and coatings

Paints and coating are used on ships in order to protect against corrosion and fouling (subsurface hull) and are known to contain various environmentally hazardous substances, such as certain heavy metals, PCB and tin-organic compounds (ex. TBT). Documentation indicates that 65,000 litres of paints and coatings were used when the ship was built. A considerable amount of this is volatile compounds that will evaporate during coating. The amount left of the original paints and coatings has been estimated to be about 25 % on the hull/ superstructure and about 60 % on the inside of the vessel. However, due to accumulation caused by new applied paintwork following maintenance, the total amount of paint on the ship ready for scrapping is most likely more than the amount originally applied. The remaining TBT from anti-fouling paint was estimated to be 1,200 kg.

Another source gives an estimate of 3 litres of paints and coatings per GT of ship. Of this, 10% of the products used are polyurethanes, 15% are anti-foulings, 12% are shop primers (zinc silicates), and the balance is mainly epoxy based.

In Norway, the PCB content in paint used on vessels in the period 1950-1970 has been found to be approx. 5% (wet paint).

²¹ DNV Report No. 2000-3527: "Technological and Economic Feasibility Study of Ship Scrapping in Europe". DNV & Appledore International for the Commission of the European Communities, February 2001, page B11-B13; DNV Report No. 99-3065: "Decommissioning of Ships - Environmental Protection and Ship Demolition Practices", 1999 and COWI/EC report "Oil tanker Phase-out and the Ship Scrapping Study", June 2004.

CFC

The total amount of refrigerants on board was estimated to be approx. 1000 kg of R22 (CHClF₂) and Freon-12 (CF₂Cl₂), and was used in the control room, storage rooms, air conditioning systems and as spare.

Asbestos

Two ships were assessed with respect to asbestos content. The sample VLCC of 290,000 DWT contained about 7,000-kg asbestos and a 100,000 DWT chemical tanker had about 10,000 kg of asbestos. It must be noted that the vessel size is not necessarily decisive for heat insulation requirements in the engine room.

Steel

The amount of steel will vary according to ship type. Empirical methods suggest some 15 % of the DWT for VLCC and ULCC to be representative for the steel weight. The steel fraction will be somewhat higher for smaller vessels.

Since the relationships above are for very large ships only, some relationships between steelweight and dead-weight that would be valid across a wider range of vessel sizes have been developed:

0.7-1.8 million tonnes steelweight equates to 3.6-9.0 million DWT.

This means that about 20% of the DWT represent the steel weight (Ref. Appledore).

Electrical installations

The approximately 50,000 meters of cables on board our sample ship contained an estimated amount of 45,000-kg copper (Cu), 10,000-kg PVC and 20,000 kg rubber.

PCB was detected in a cable sample from an on-site assessment at a ship-scraping yard in Bangladesh. It is not established if the PCB came from the original cable material or if the cable had been contaminated with PCB-containing oil. EPA has recently revealed maximum PCB-concentrations from cable samples taken from a vessel during scrapping at 280.000 ppm. Based on this, it seems likely to suggest that the configuration of cables arriving from vessels being decommissioned will most likely contain PCB in some quantities.

It has been shown that capacitors in light fittings may contain up to 30 mg PCB, and that fluorescent light tubes might contain up to 15-mg mercury (Hg). Our sample VLCC had 481 light fittings and more than 1,000 light tubes, which yields a total of 14 grams of PCB and about 15 grams of Hg. There are also other sources of Hg and PCB on a ship that may contribute more to Hg- and PCB-containing waste, but these were not assessed in our sample ship.

Oil

The oil content (remaining onboard when beached) of the VLCC was estimated as follows:

Lubrication oil:	approx. 20,000 litres
Hydraulic oil:	approx. 18,000 litres
Heavy fuel oil:	approx. 333,000 litres
Oil sludge (sand, rust and oil):	approx. 2,000,000 litres