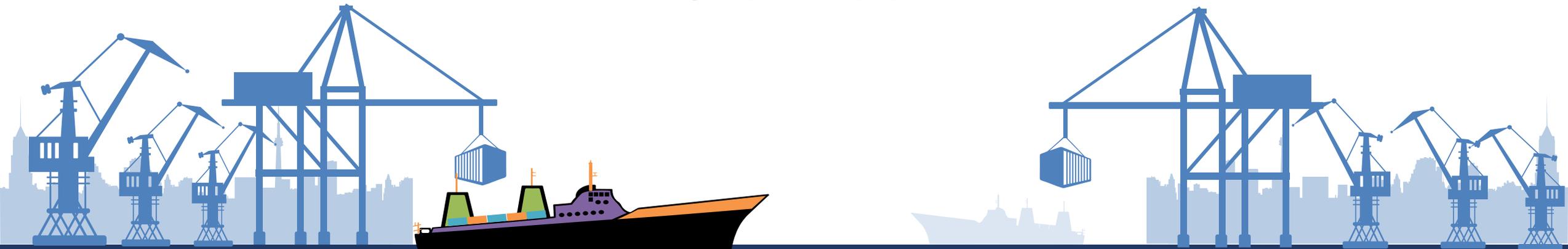


INTERGROUP



Seas, Rivers, Islands & Coastal Areas



Building up a reliable, efficient, attractive service network
for ship effluents: ballast water, oily and toxic waste water





ECOOIL



What if, black could be green too?

wake-up call



wake-up call

**1 liter of oil is enough to pollute
1 million liter of water**

wake-up call

**Average volumes wastes are off loaded in
European ports per Vessel, are:
2 MT of garbage
12 MT of oily wastes**

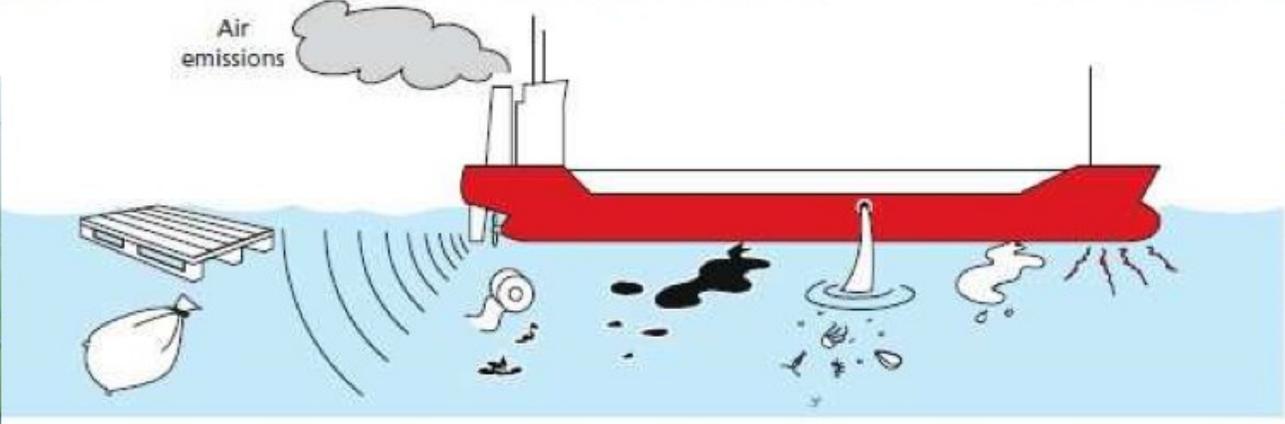
 wake-up call

**Many ships still leave
the EU
with waste on board**

 wake-up call

Treatment by dilution
It's not a treatment at all

Ship wastes



Marine litter
(garbage and
cargo-related waste)

Underwater
noise

Sewage
Oil spills
(accidental and
operational discharges)

Invasive species
(ballast water)

Chemicals
(accidental and
operational discharges)

Antifouling



Legal Frame

MARPOL 73/78

International Convention for the Prevention of Pollution from Ships

eliminate intentional pollution by oil and other harmful substances
minimize accidental discharge

Ballast Water Management Convention BWMC

entered into force globally on 8 September 2017
EU Regulation 1143/2014 on Invasive Alien Species entered into force on 1 January 2015.

DIRECTIVE 2019/883 (replacing Directive 2000/59) on port reception facilities (PRF) for ship-generated waste and cargo residues:

reduce discharges at sea
improve availability and use of PRF
applies to all EU-ports and all ships calling them

Ship Wastes in EU



Annex 1 Oil	1 712 249	1 470 322
Annex 2 Noxious liquid in bulk	62 245	62 245
Annex 3 substances in packages	587	570
Annex 4 Sewage	414 317	88 563
Annex 5 Garbage	279 748	279 748
Annex 6 Air Pollution	4 096	4 096
Total	2 473 242	1 905 544

Figures in metric tons, EU Ports 2019, Euroshore source.

Remarks:

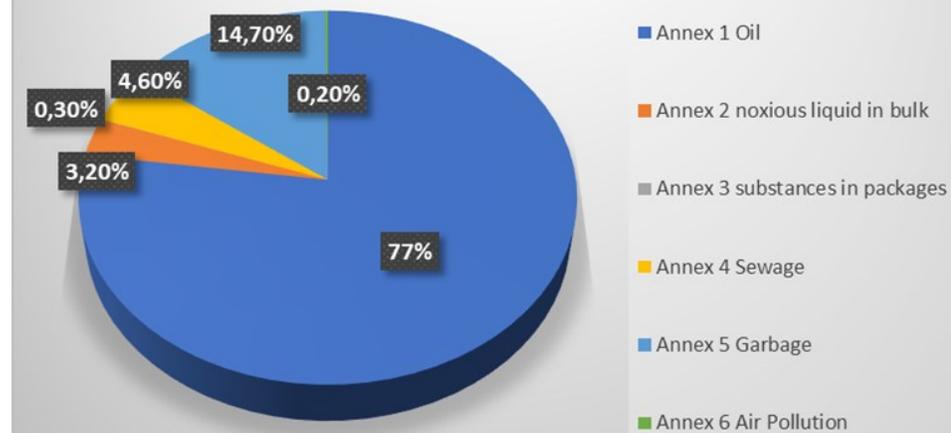
Euroshore members collect 77% of the total wastes collected in EU Ports.

Annex 1 / Annex 5 ratio is 6, meaning for every ton of garbage, 6 tons of oils are delivered.

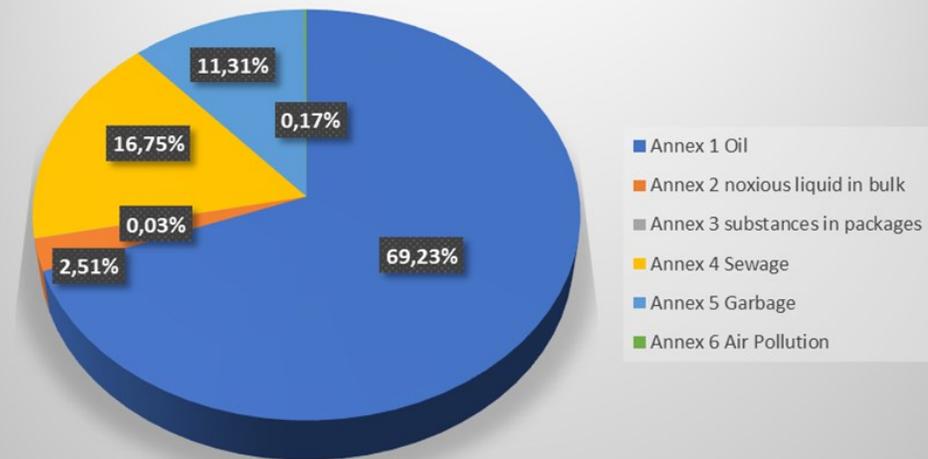
Annex 1 represents 77% of all the wastes collected in EU Ports (data from Euroshore International Association).



COLLECTION OF WASTE IN EUROPE IN 2019



Collection of MARPOL waste in 2019 EUROSHORE's Members



Annex 1 – oily wastes

1 712 249 MT

What if?

Extended producer responsibility



BATTERIES



OILS



GRAPHIC PAPER



PACKAGING



END-OF-LIFE VEHICLES



WASTE ELECTRIC AND ELECTRONIC EQUIPMENT

Extended producer responsibility, the idea

Main goals

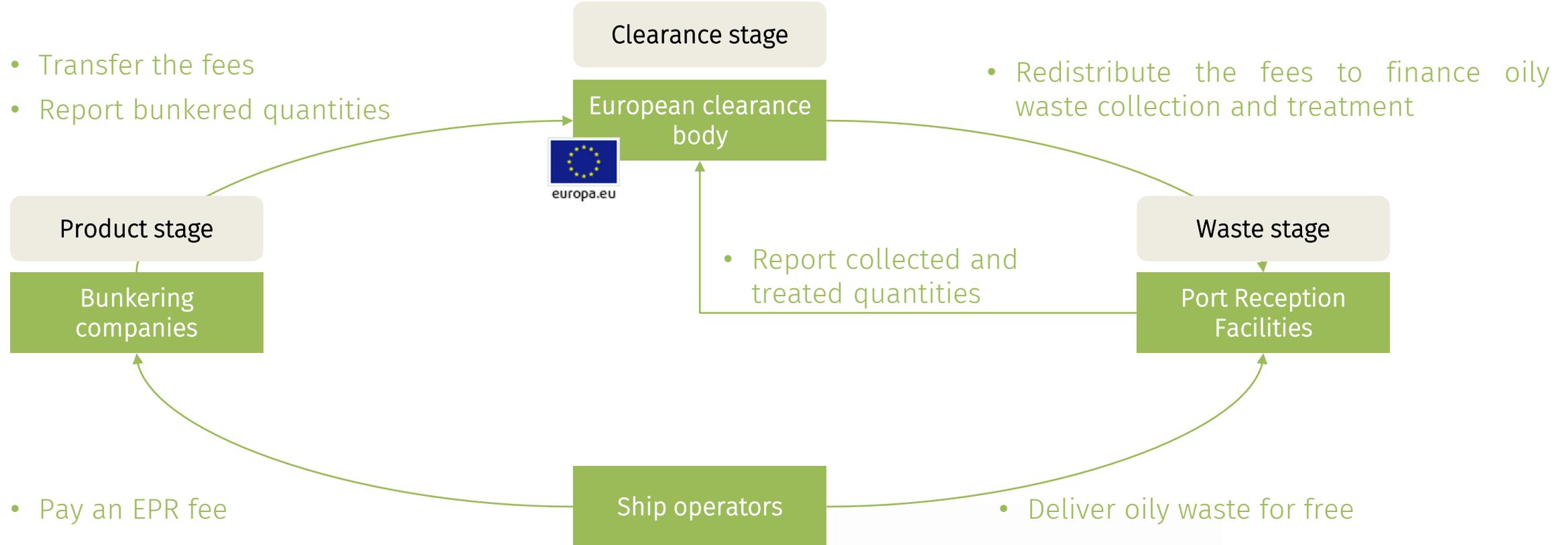
Objective 1: Analyse an alternative financing scheme to cover the costs of collection and treatment of ship-generated waste (SGW) based on **extended producer responsibility (EPR)**

Objective 2: Encourage more harmonized practices on the financing of ship-generated waste treatment across the European Union (EU), with the aim to:

- Achieving better protection for the marine environment by discouraging the discharge of ship-generated waste into the ocean
- Further incentivizing the use of port reception facilities (PRF)

Extended producer responsibility, the model

Simplified scheme of potential EPR scheme for ship-generated oily waste



Extended producer responsibility, the cost

Fuel	Source ¹⁰⁴	Unit	Scope	2005	2010	2012	2014	2015
HFO	[1]	MT	EU	45.03	50.00	48.00	45.00	27.59
	[2]	Million m ³	EU	50.43	56.00	53.76	50.40	30.90
	[4]	Million m ³	Rotterdam	n.a.	11.26	10.27	9.83	8.74
MGO	[1]	MT	EU	6.75	6.75	6.75	6.75	15.65
	[2]	million m ³	EU	7.56	7.56	7.56	7.56	17.53
	[3]	MT	Maersk	n.a.	n.a.	n.a.	n.a.	8.90
	[4]	million m ³	Rotterdam	n.a.	0.52	0.55	0.67	1.63
LSFO	[3]	MT	Maersk	n.a.	n.a.	n.a.	n.a.	0.05

¹⁰⁴ [1] Fuels Europe (2016), Statistical Report

[2] Own conversion based on the following factor: 1 tonne is 1.12 cubic meter of fuel. Reference data: oil converter tool for fuel oil at 60°F (www.thecalculatorsite.com/conversions/substances/oil.php)”

[3] Maersk, stakeholder interview

[4] Port of Rotterdam bunker sales 2010-2016

Extended producer responsibility, the cost

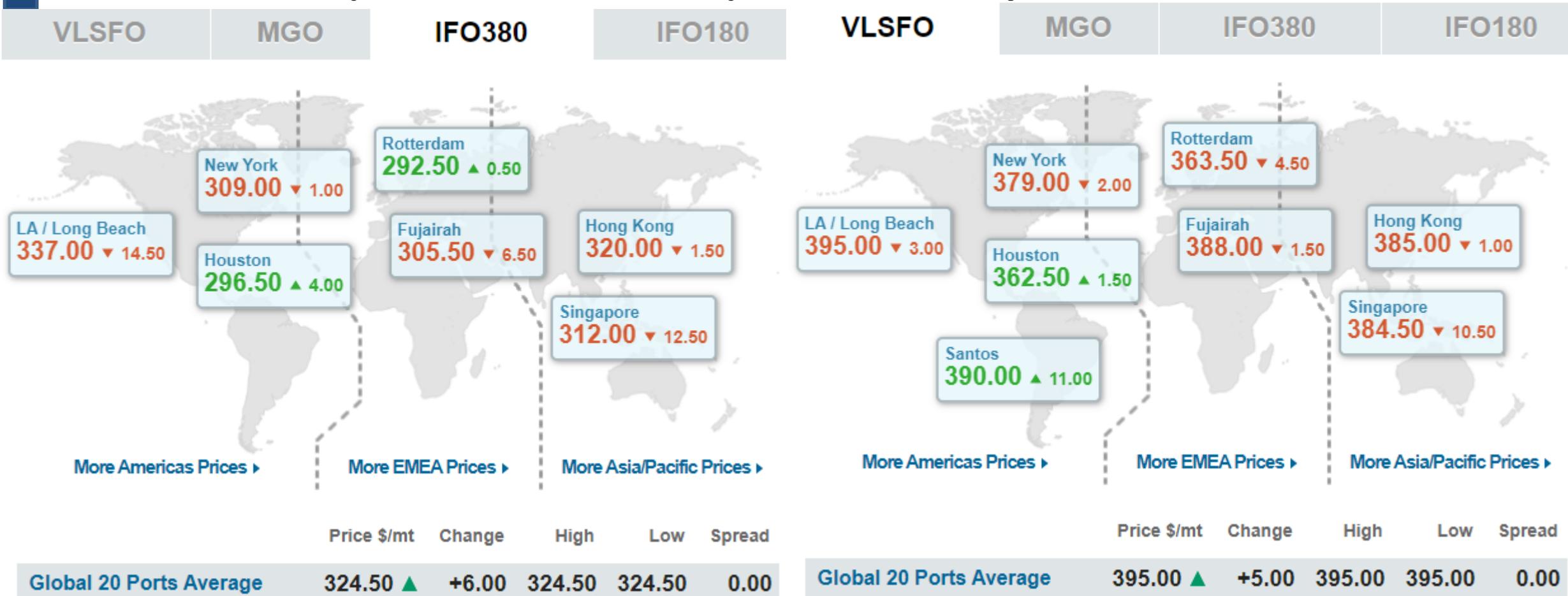
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Less than,



¹⁰⁴ [1] Fuels Europe (2016), Statistical Report
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Extended producer responsibility, the cost



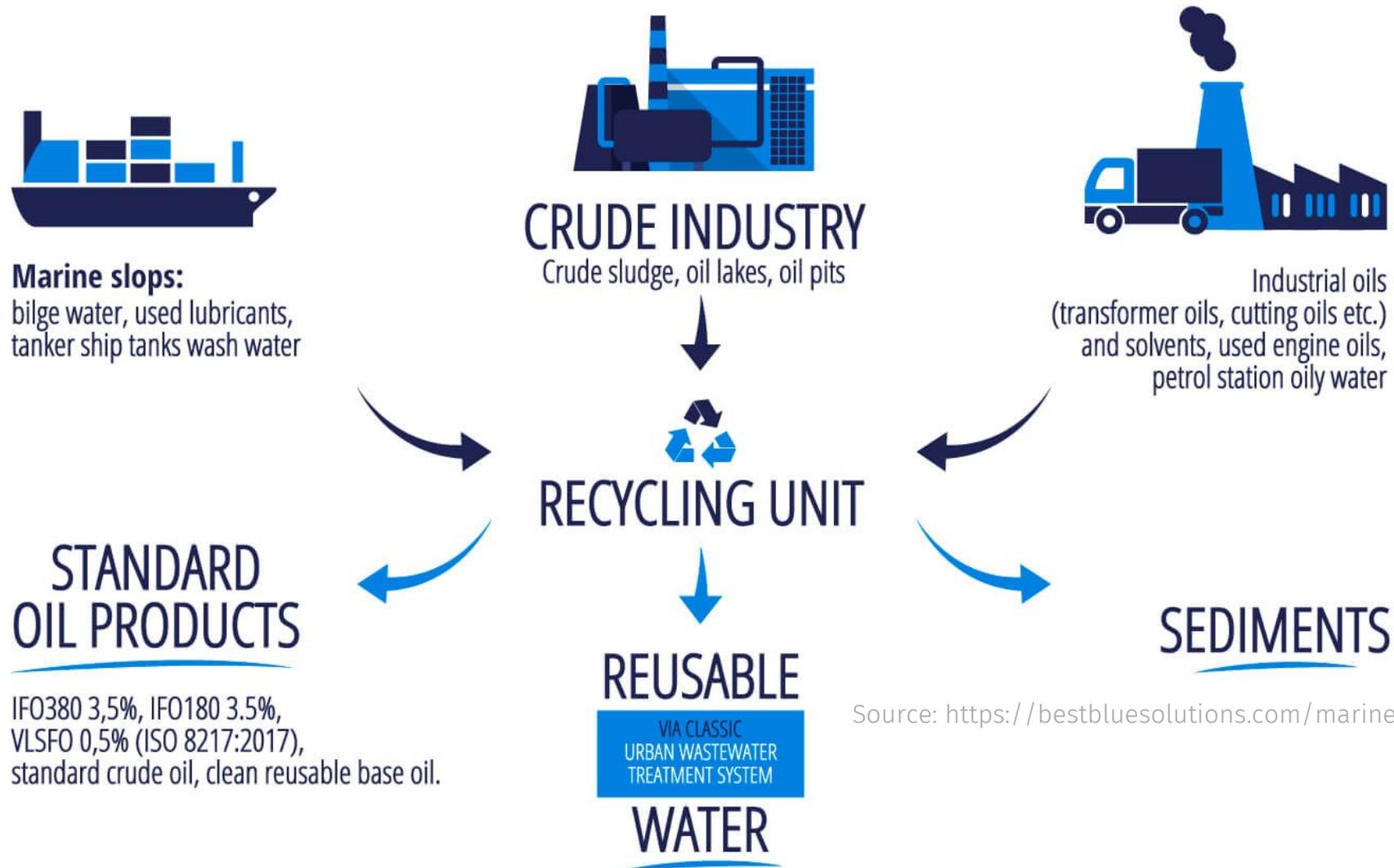
From: <https://shipandbunker.com/prices#IFO380>, 08.12.20



Back to the beginning, what to do with all the oily wastes?



1 712 249 MT, Oily wastes just from shipping



Source: <https://bestbluesolutions.com/marine-waste-recycling>



Circular economy



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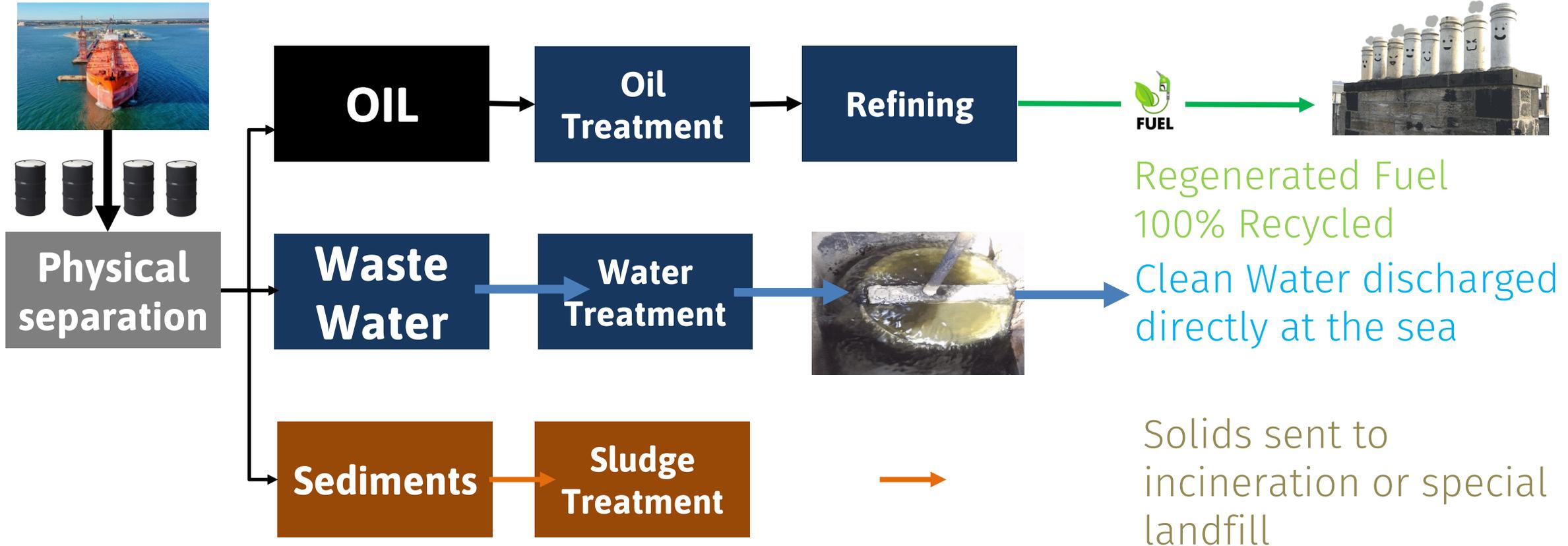
Circular economy



ECOIL



Fuel regeneration process



Circular economy



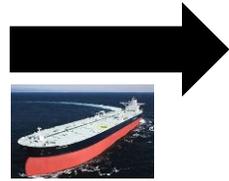
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CO2, life cycle assessment



Extraction



Transport



Refining



Storage & Transport

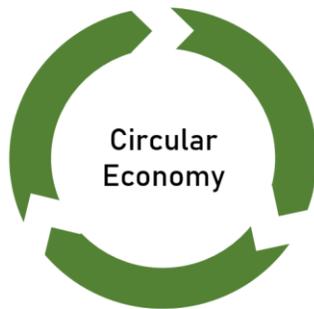
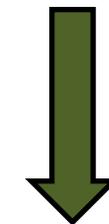


Fuel to power the ship

Between 1 to 2% of all fuel used become oily wastes in the shipping cluster



Waste collection



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Regenerated Fuel 100% Recycled



Circular economy



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Comparative study done by BEL, under the same conditions in the same boiler using two different fuels, done by a third party



MATOS, FONSECA & ASSOCIADOS
ESTUDOS E PROJECTOS LDA

NO_x=607 mg/m³N
SO₂=1 215mg/m³N
Particles=252mg/m³N

Low Emissions

NO_x=52mg/m³N
SO₂=4mg/m³N
Particles=89mg/m³N



Circular economy



ECOIL



Comparative study done by BEL, under the same conditions in the same boiler using two different fuels, done by a third party



MATOS, FONSECA & ASSOCIADOS
ESTUDOS E PROJECTOS LDA

NO_x=607 mg/m³N
SO₂=1 215mg/m³N
Particles=252mg/m³N

NO_x less 91%
SO₂ less 99,6%
Particles less 65%

Low Emissions

NO_x=52mg/m³N
SO₂=4mg/m³N
Particles=89mg/m³N



Circular economy



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Fuel 100% Recycled

Low Emissions

Neutral Fuel

Low Carbon Fuel



Eco-Oil, presentation movie

INTERGROUP



Seas, Rivers, Islands
&
Coastal Areas

@BluePorts
discharge polluted water in port, not at sea



Interreg
Atlantic Area
European Regional Development Fund



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EUROSHORE
SUSTAINABLE SHIP WASTE SOLUTIONS

Thank you for your attention



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Conference of Peripheral Maritime Regions



nuno.matos@eco-oil.pt



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ATLANTIC ARC
COMMISSION