

Sewage reception and waste management in Port of Turku



Markku Alahäme
Port of Turku Ltd

5.3.2014
BPO Environmental Seminar
Gdansk

Content of presentation

- National and local waste regulations and waste flows
- Mandatory delivery of ship-generated waste - vessels in regular service
- Port reception facilities for garbage
- Waste management of passenger traffic
- Waste water reception facilities in Turku
- Adequate waste water reception facility?

Port of Turku



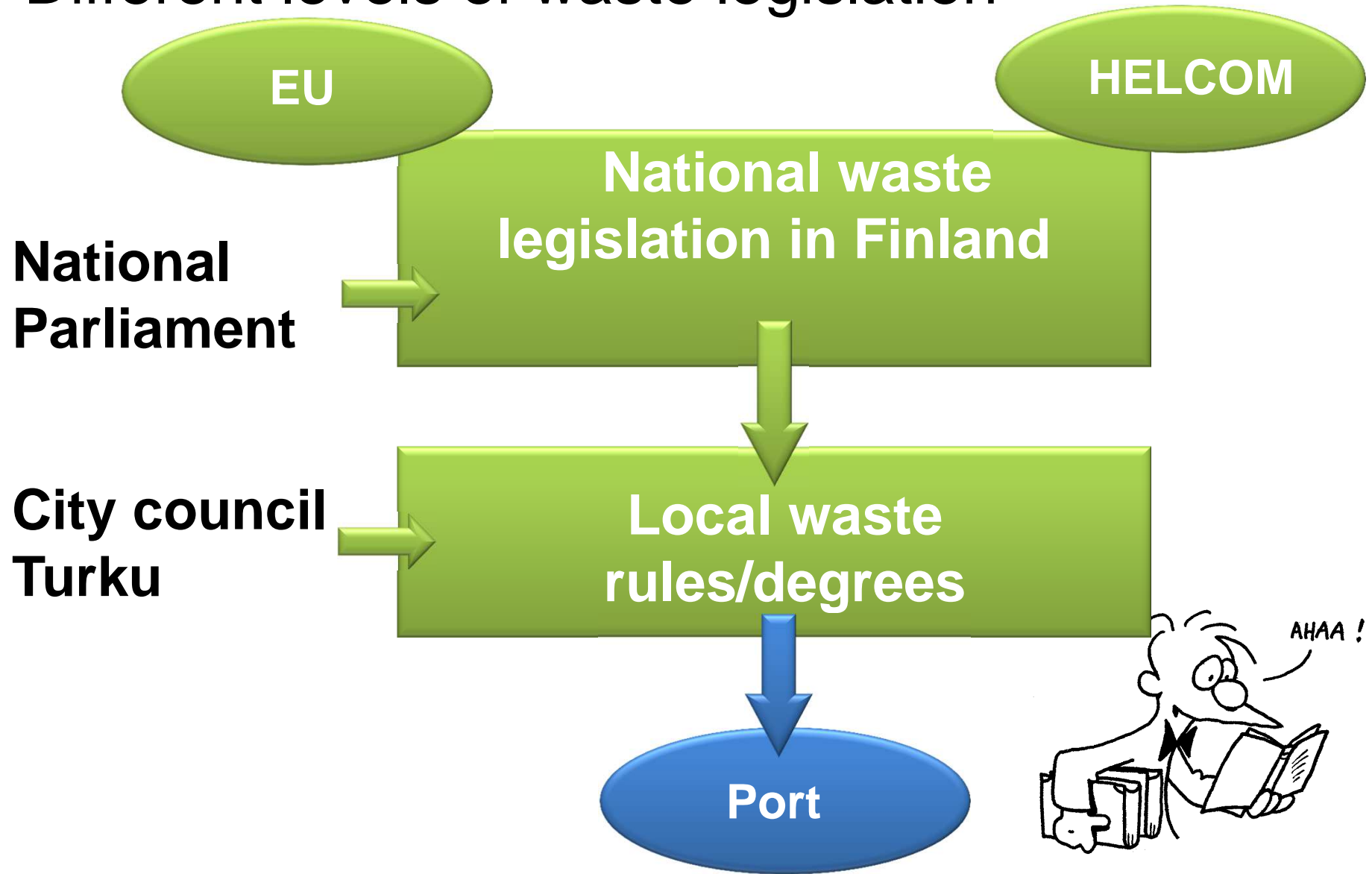
Passenger port
3,48 M
passengers
(+5 %)

**RoRo and
unitised cargo
traffic**

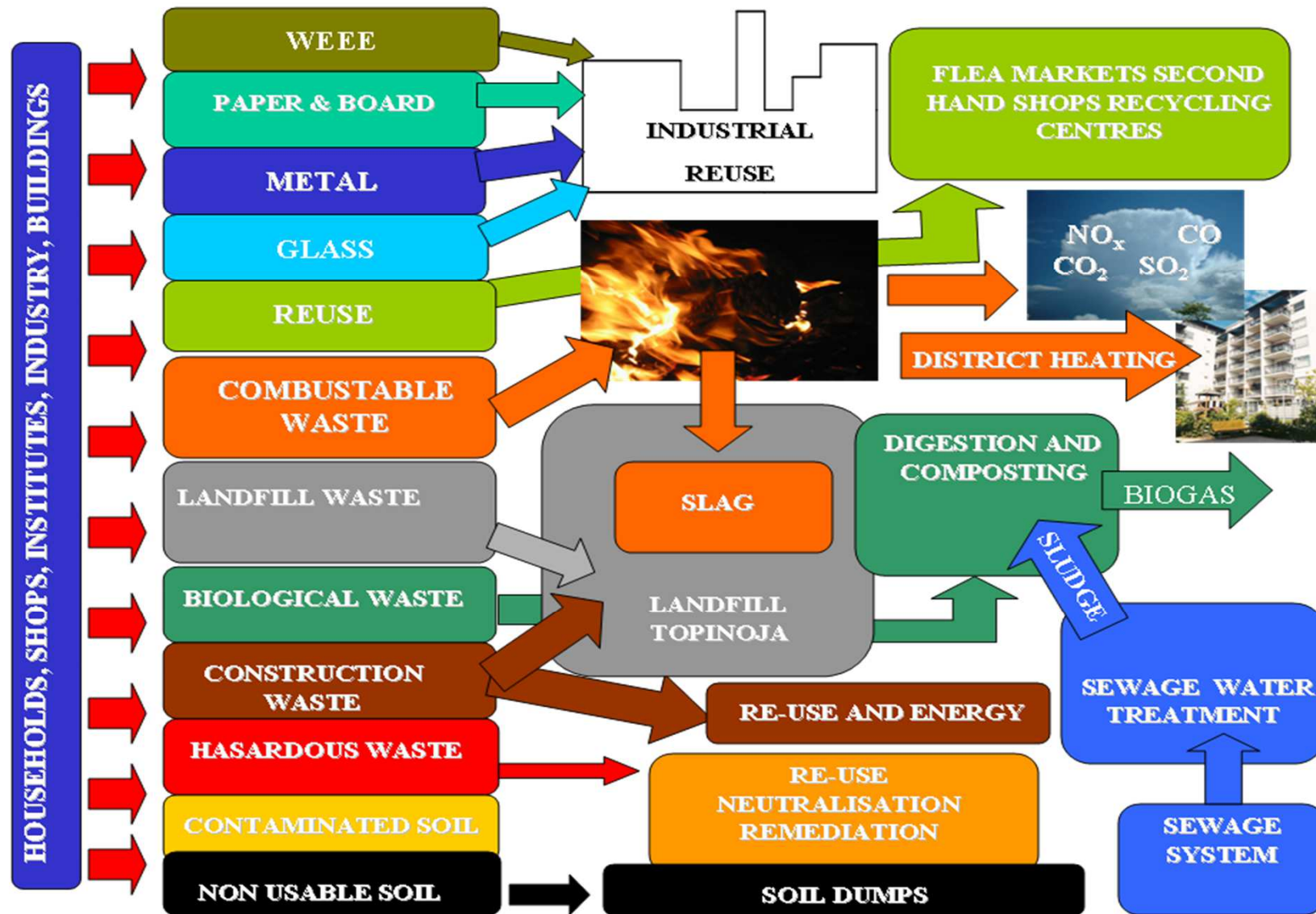
Lorry traffic
120 000 pcs
(+8 %)

**Centre for
Scandinavian
traffic in Finland**

Different levels of waste legislation



Waste flows in Turku Region



Ship-generated waste - exemption

Mandatory delivery of ship-generated waste

- HELCOM regulation, Directive 2000/59/EC
- Finland: Act on the Prevention of Pollution from Ships

Fees

- The no-special-fee system: fee is charged from every ship that calls at a port, regardless of whether or not the ship delivers any waste in the port

Exemptions

- Finnish Transport Safety Agency (Trafi) grants exemptions from mandatory delivery of ship-generated waste to ships engaged in regular service
- **Regular service**: the ships operate on a schedule or a pre-confirmed route, between designated ports and that they call at one designated Finnish port at least once a fortnight
- Condition: the ship has concluded a waste management agreement with qualified waste management company
- Exempted also from the no-special-fee

Passenger and Cruise Traffic

Size of ships visiting in Turku

	Overall length	Gross tonnage	Passengers
Viking Line			
- Viking Grace	218 m	57 565 GT	2 890
- Amorella	169 m	34 384 GT	2 480
Tallink Silja			
- Galaxy	212 m	48 915 GT	2 800
- Baltic Princess	212 m	48 915 GT	2 800
Some cruise ships			
- Clipper Odyssey	102 m	5 218 GT	128
- Quest for Adventure	165 m	18 591 GT	602
- Seven Seas Voyager	204 m	42 363 GT	706
- Black Watch	205 m	21 847 GT	868
- Braemar	196 m	24 344 GT	1 020

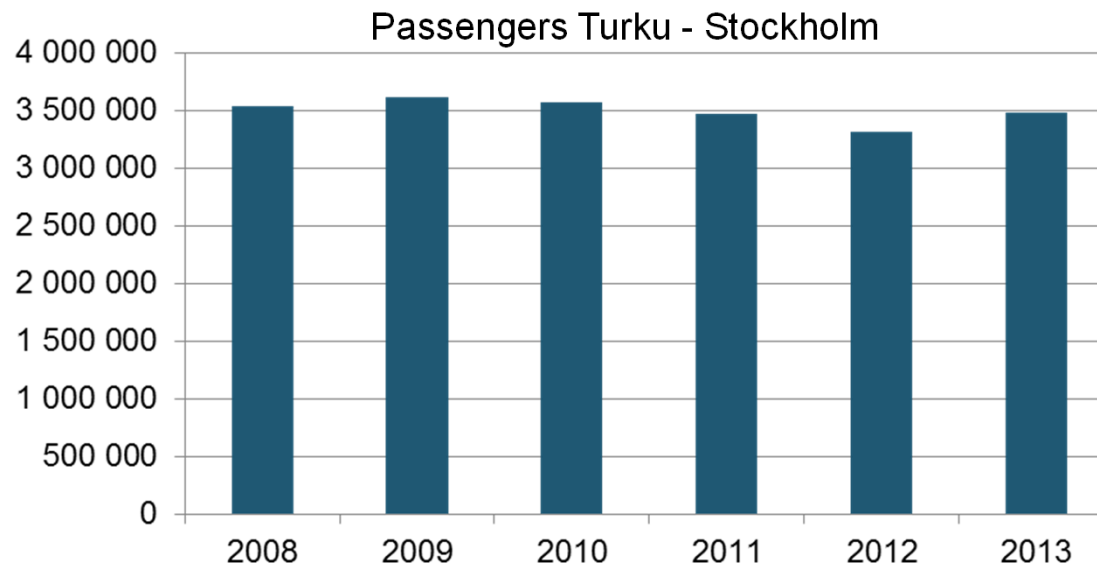


Vessels in regular service

Ship calls per year	2008	2009	2010	2011	2012	2013
- Passenger ships/ropax	1 419	1 430	1 414	1 449	1 426	1 428
- Cruise ships	7	7	6	7	4	4
Total number of ships	2 652	2 430	2 330	2 329	2 272	2 178

~ 66 %

~ 0,2 %



Cruise passengers:

Year	
2009	2 736
2010	2 000
2011	5 456
2012	2 598
2013	1 275

The share of ship calls exempted from mandatory delivery of waste and no-special fee: **86%**

Waste management

Port reception facilities:

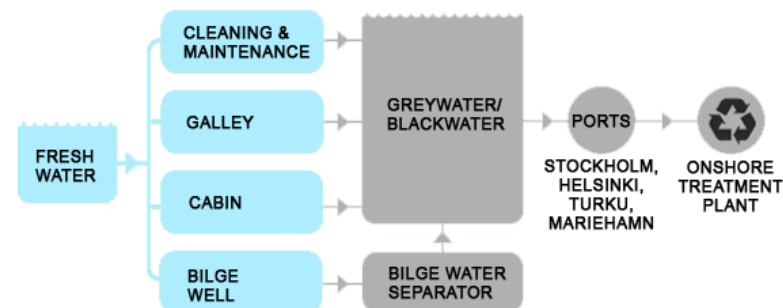
Permanent waste disposal stations (A, B, C, D, E and F)

TYPE OF WASTE	SORTING EXAMPLE
Metal	Empty cans, bands and hoops, short metal wires, small metal parts.
Glass	Glass bottles and jars.
Cardboard	Cardboard boxes, packaging.
Wood	Clean wooden material.
Burnable waste	Other mixed waste / garbage.



Waste management of passenger traffic

WASTE CATEGORY	WASTE COLLECTION	RECEPTION FACILITIES
Mixed municipal waste	Containers, tanks	Waste incineration plants, landfill site, biogas plants
RECYCLING		
Glass Metallic Aluminium Wood Plastics Frying fat Electrical	Containers	Recycling centres
HAZARDOUS WASTE		
Solid oil remains Paint, glue Accumulators, batteries Fluorescent lamps Alkali, acids Solvents Drums, canisters Miscellaneous	Hazardous waste containers	Hazardous material processing plants
Grey, black and bilge water	Tanks onboard	Municipal wastewater treatment plants
Sludge	Tanks onboard	Used oil recycling centres



Waste water reception facilities in Turku



Fixed waste water receptions points for passenger traffic (pressure sewer)

- owner: Turku Municipal Waterworks Corporation
 - Silja Line/Tallink Silja
 - Connection built 1984, renovated 2008
 - Viking Line
 - Connection built 1988, renovated 2005/2012

→ Capacity 200 - 250 m³/h (time in port 1 h)

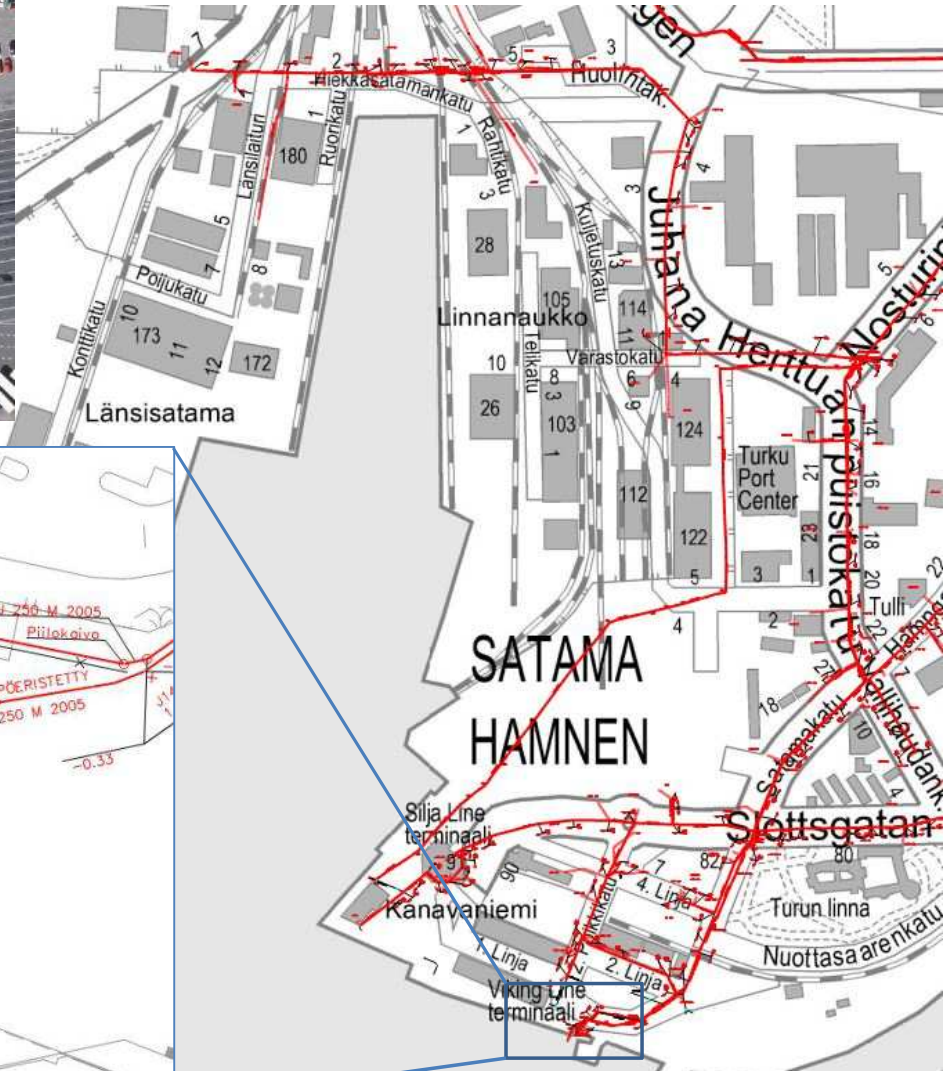
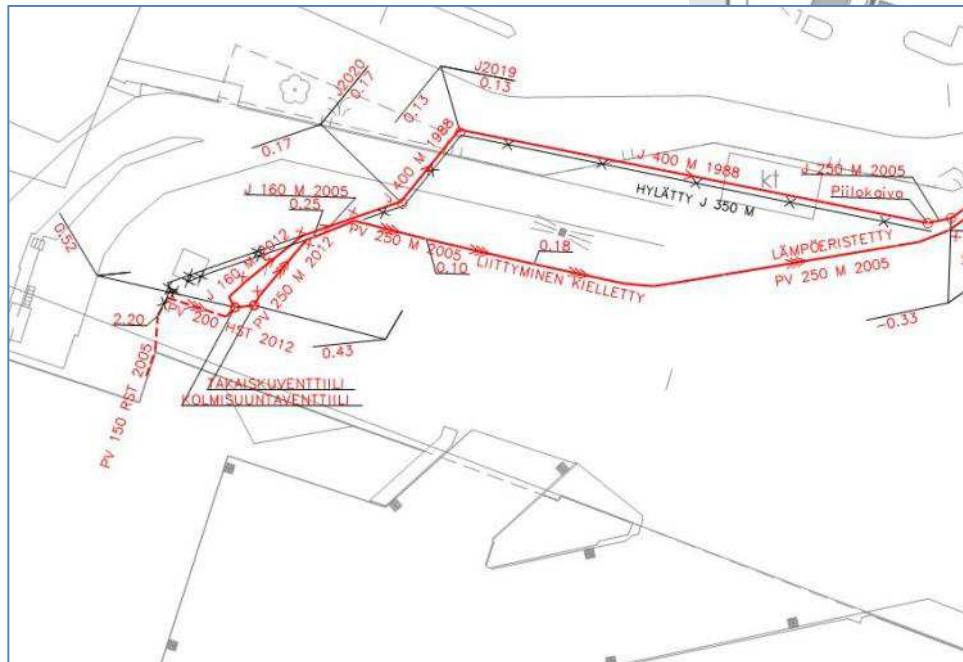


Reception point for tank trucks

- Built 2009
 - Owner: Port of Turku
- Capacity: Receiving station 90 m³/h
(tank trucks 24 m³/h)



Waste water reception facilities in Turku



Waste water – adequate reception capacity?

Waste water amounts from cruise ships per call:

Saga Pearl II	200 m ³ (Helsinki 2010)
Black Watch	126 m ³ (Stockholm 2010)
Saga Ruby	148 m ³ (Turku 2009)

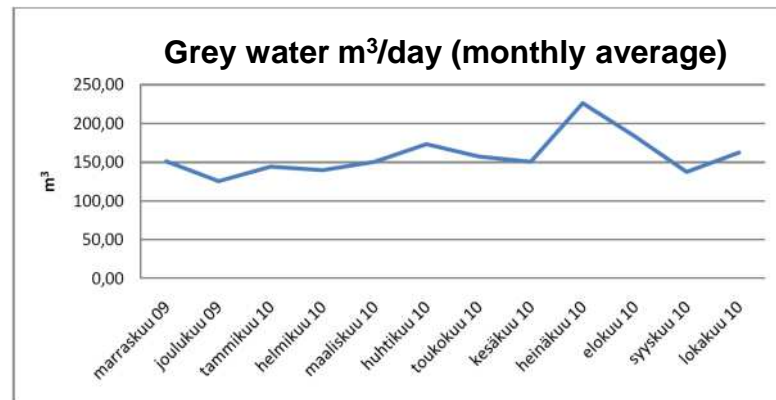
Reception point for tank trucks

- Capacity with tank trucks 24 m³/h
- Berth time 8 h → ~ 190 m³

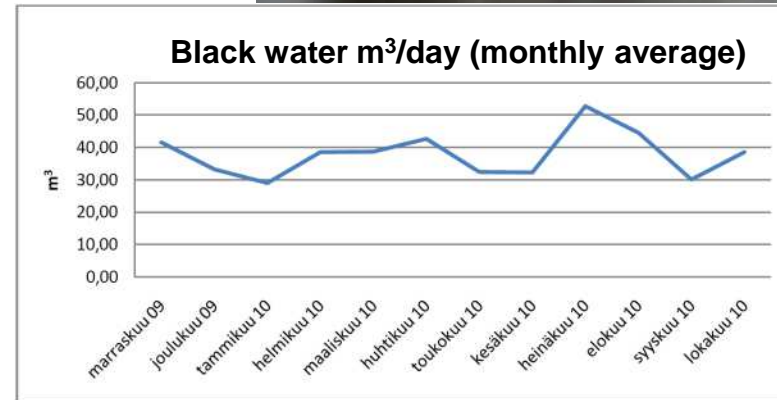
SHIP RETROFITTING WATER TREATMENT SYSTEM PROJECTION PRE-PLANNING

(m/s Silja Europa, Gross tonnage 59 914 GT, passengers max 3 013)

Rami Raekangas 2010



Kuva 5.1 Harmaan veden vuorokautinen määrä keskimäärin kuukausittain



Kuva 5.2 Mustan veden vuorokautinen määrä keskimäärin kuukausittain

Thank You!

