



# Golten's

Green Technologies

## BALLAST WATER TREATMENT RETROFITS CHALLENGES AND STRATEGY

### BALLAST WATER CONVENTION

February 2011: 27 states representing 25,3% of world shipping tonnage have ratified

Convention will be ratified this year (2011)

Convention will come into force next year (2012)

# TIMELINE

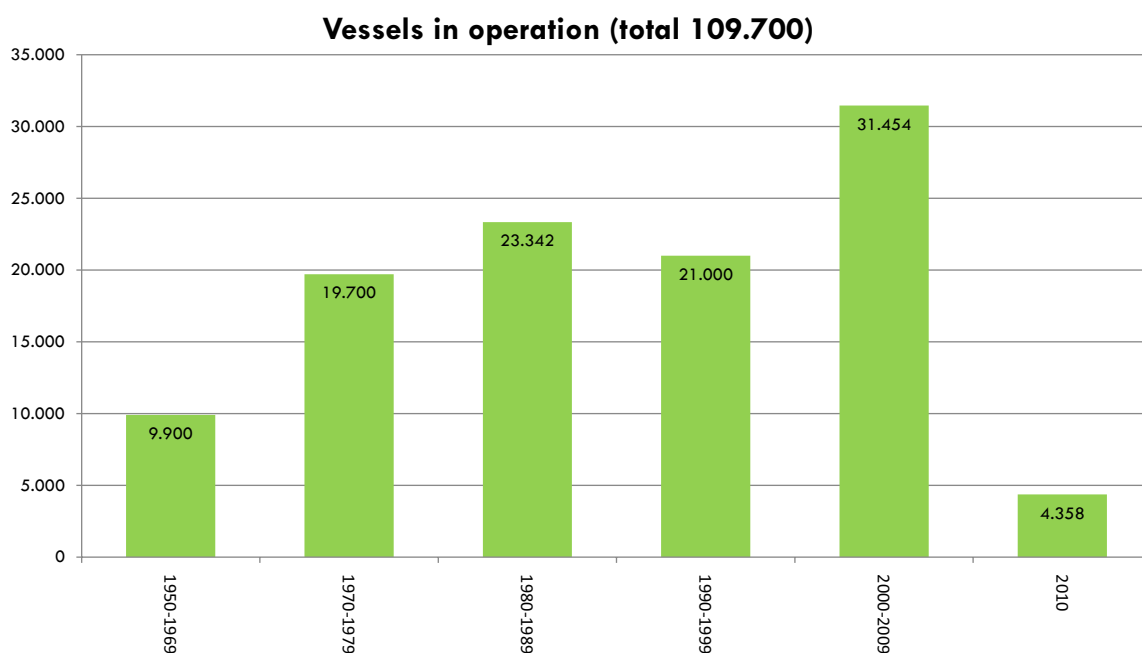
- Vessels constructed after 2009 with BW capacity < 5000 m<sup>3</sup>: ready in 2012
- Existing vessels with a ballast water capacity > 1500 m<sup>3</sup> and < 5000 m<sup>3</sup>: 2014
- Existing vessels with a ballast water capacity < 1500 m<sup>3</sup> or > 5000 m<sup>3</sup>: 2016



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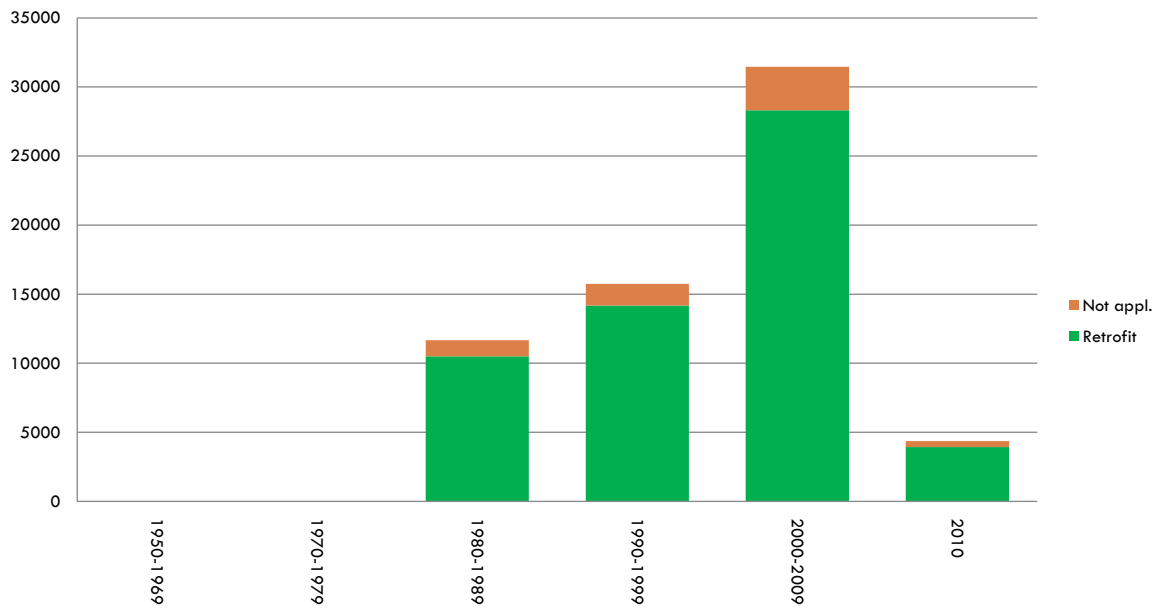
# Number of vessels in operation



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# Number of vessels for BW retrofits

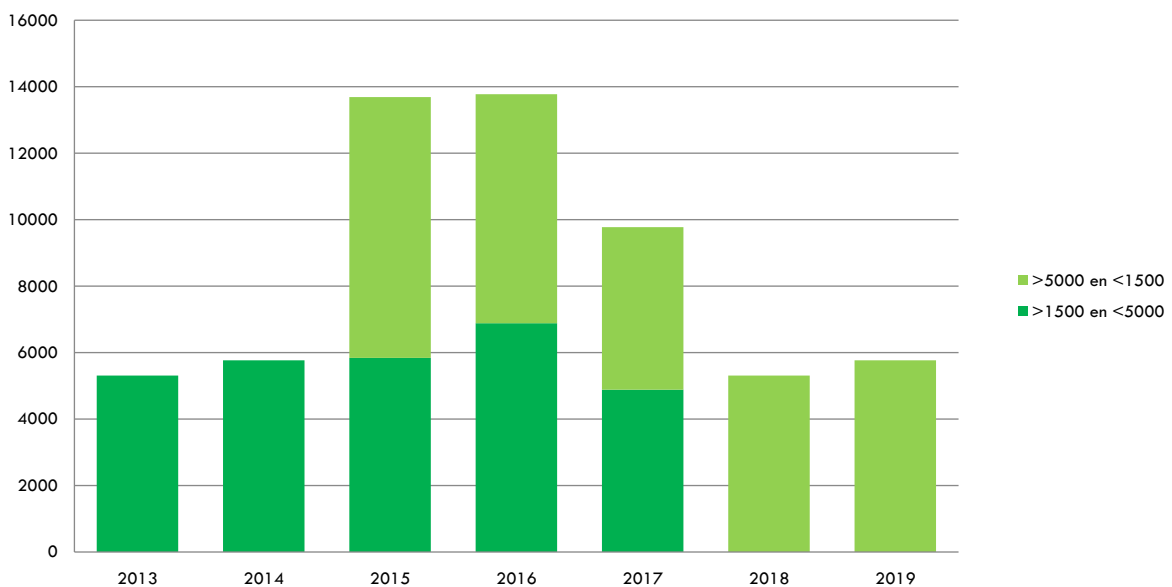
All retrofits by newbuild date



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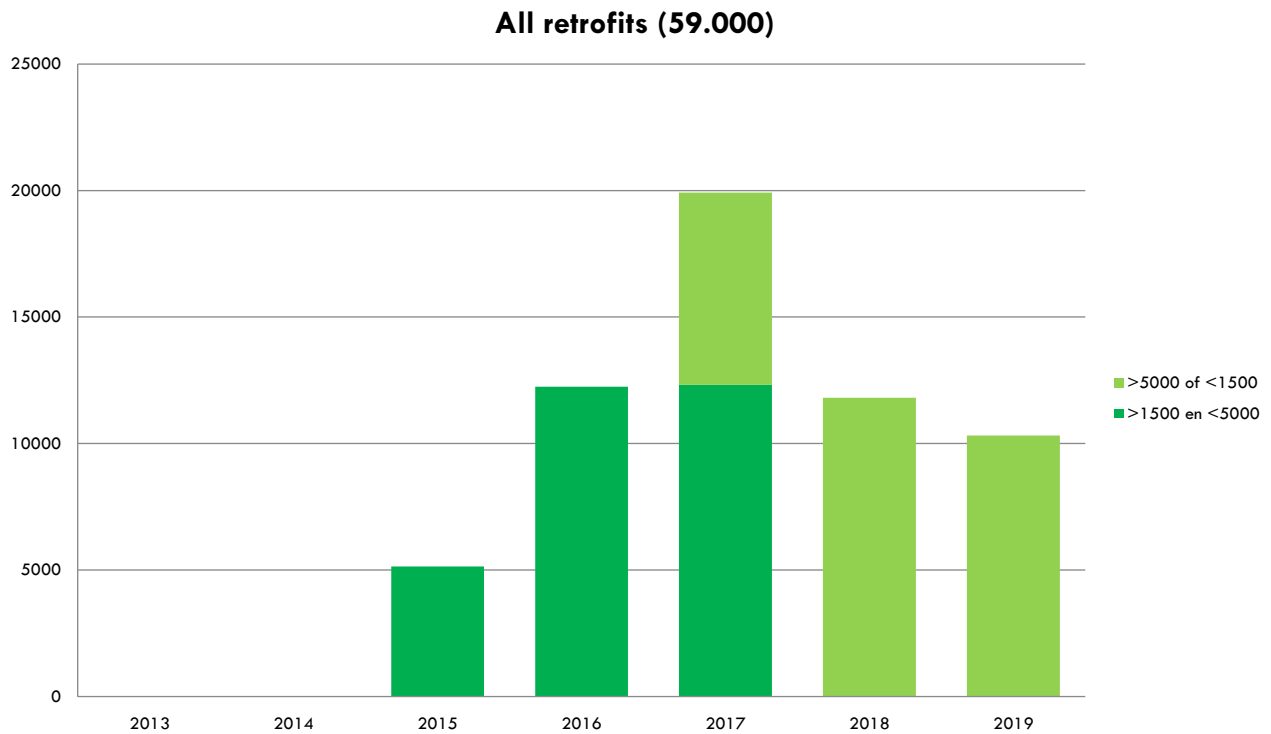
# Retrofit planned in large survey

Installations during large survey



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# All vessels, max. postponement



## How many systems are approved?

- Basic approval: 27 systems
- Final approval: 18 systems
- Type approval (meaning: approved to be installed on board): 11 systems



# Type approved systems

- Tested for active substances:
  - Pure Ballast (Alfa Laval)
  - SEDNA (Hamann)
  - Electrocleen (Techcross)
  - Oceansaver (Oceansaver)
  - NK-O3 (NK)
  - GloEn Patrol (Panasia)
  - Clear Ballast (Hitachi)
  - Unitor Resource (Wilhelmsen)



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# Type approved systems

- No active substances:
  - NEI treatment system (VOS)
  - Hyde Guardian (Hyde Marine)
  - Optimarin Ballast System (Optimarin)



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# ARGUMENTS TO WAIT

- Convention is not yet ratified
- Large investment
- Gain more experience with systems



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# ARGUMENTS NOT TO WAIT

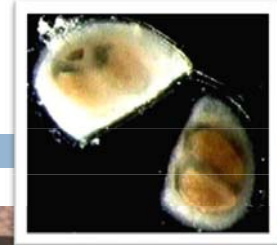
- Prices will rise
- Ballast water exchange
  - ▣ Time consuming
  - ▣ Ballastpumps will wear much faster
  - ▣ Not without risks
- Protection of sea-environment
  - ▣ Green image of company
- Risk of late compliance
- Tankcleaning
  - ▣ add. costs €40.000 and up



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# Tankcleaning



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## Looking ahead

- 47 systems in the pipeline (Febr. 2010, Lloyds BWT guide)
- Perhaps 30 – 40 approved systems
- In 2017 20.000 systems to be installed (retrofit only)
- Average of 500 systems per supplier
- A shortage is likely if everyone waits
- How much choice will there still be...?



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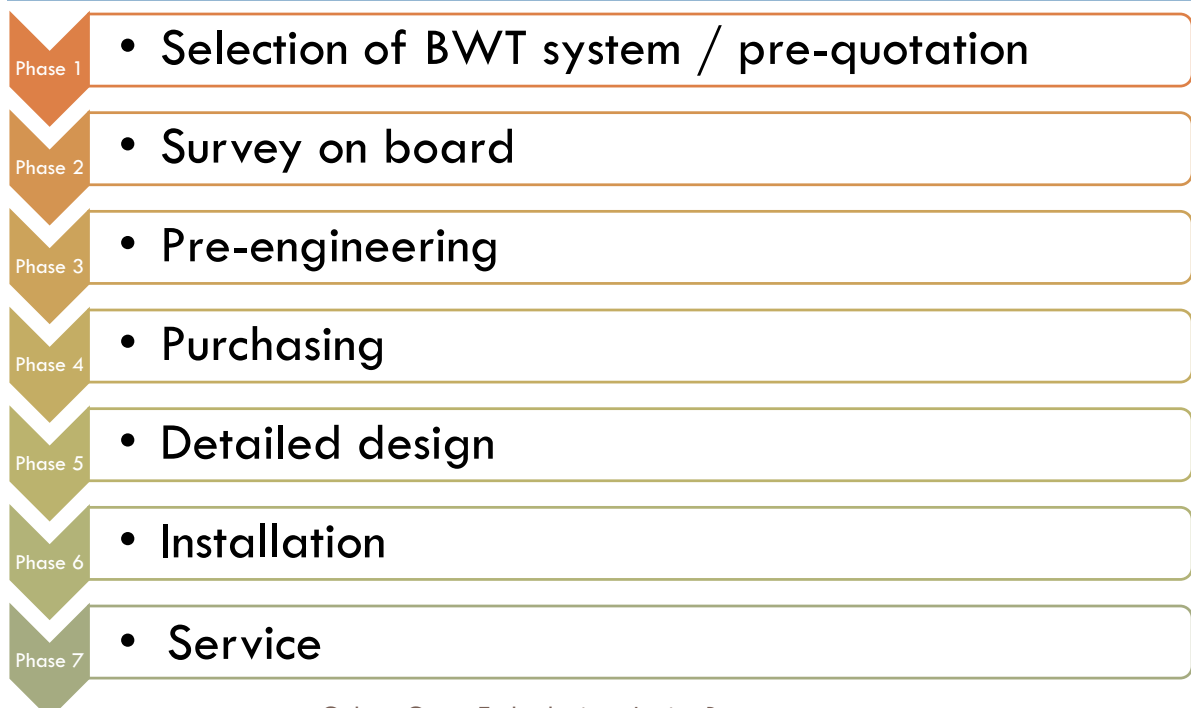
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- Independent with stations all over the world



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## 7 phases



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# Alternatives compared

	Goltens	Shipyard	Piping company
Independent advice	✓		
Engineering	✓		
Preparing classification documentation	✓		
Piping prefabrication	✓	✓	✓
Foundations and steelwork	✓	✓	✓
Project management	✓	✓	
Electrical installation and integration	✓	✓	
Installation	✓	✓	✓
Commissioning	✓		
Turn-key delivery	✓		
Aftersales and service (worldwide)	✓		

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## Strategy

- Don't end up in the back of this line....
- Be prepared, plan ahead!



Goltens Worldwide Services



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Thank you for your attention