

# Underwriters Challenge:

## Advancing ship technology and maritime claims



2006

**IUMI**

Tokyo

Capt. P. Zahalka

Managing Director

Verein Hanseatischer Transportversicherer e.V.

# Verein Hanseatischer Transportversicherer e.V. (Association of Hanseatic Marine Underwriters)

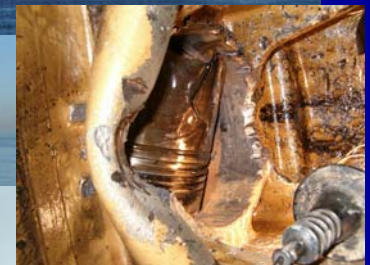


[www.vht-online.de](http://www.vht-online.de)



# VHT services

- Risk analysis and loss prevention as required,
- Giving advise to insurer and owners regarding steps and preventive measures to be taken in case of damages,
- Damage surveys to all types of vessels and machinery, construction parts, piers and other harbour constructional fittings,
- When required by the circumstances of the case: Immediate dispatch of VHT-experts to the site of the accident,



- Preparation of independent valuation - certificates, survey and/or expert reports and tenders,
- Negotiations with shipyards, workshops, manufacturers of machinery and other interested parties,







# VHT services (continued)

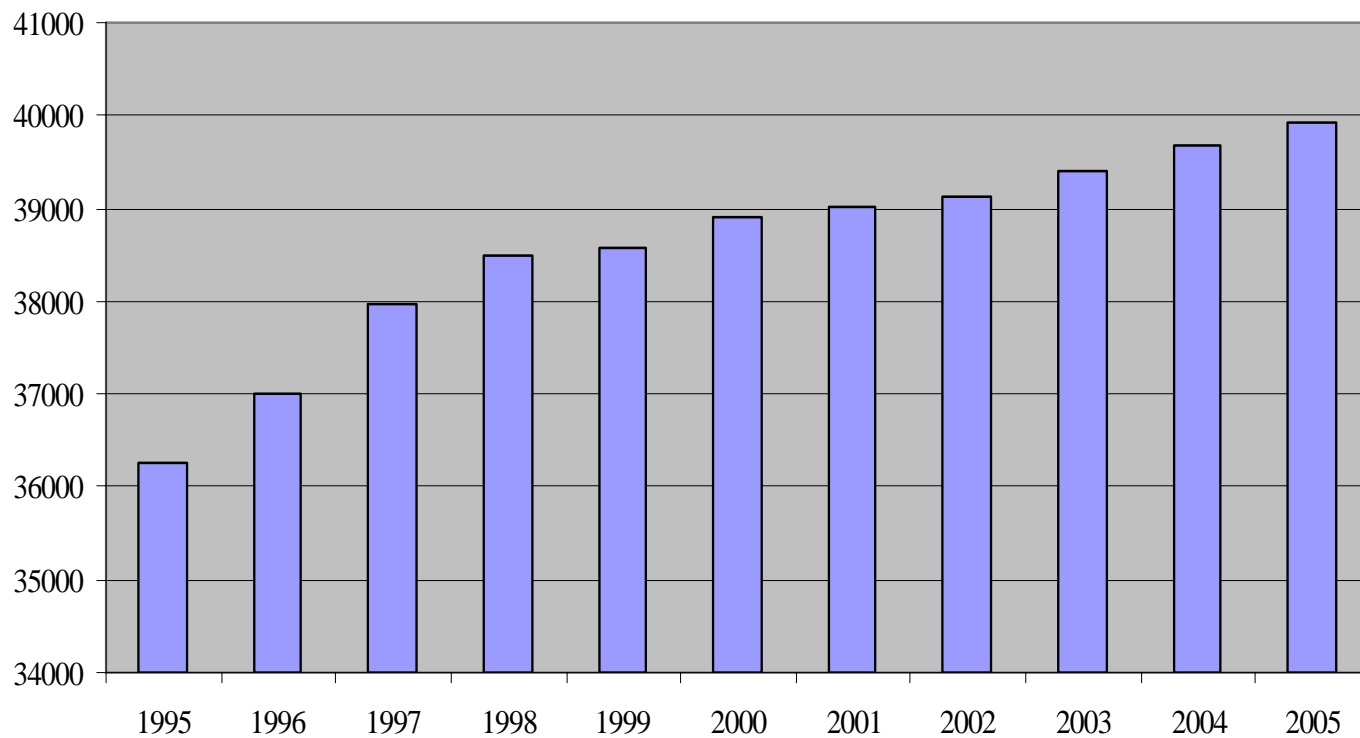
- Supervising repairs and respective costs,
- Nautical and technical preparation and approval of all types of ocean going tows,
- Early advise and supervision for special transports,
- Assistance in marine emergencies and salvage cases and negotiations with salvage and towing companies,
- Recoveries on behalf of clients,
- Qualified claims adjustment for and on behalf of underwriters,
- Maintaining the global network of international average agents for **underwriters and owners benefit alike,**





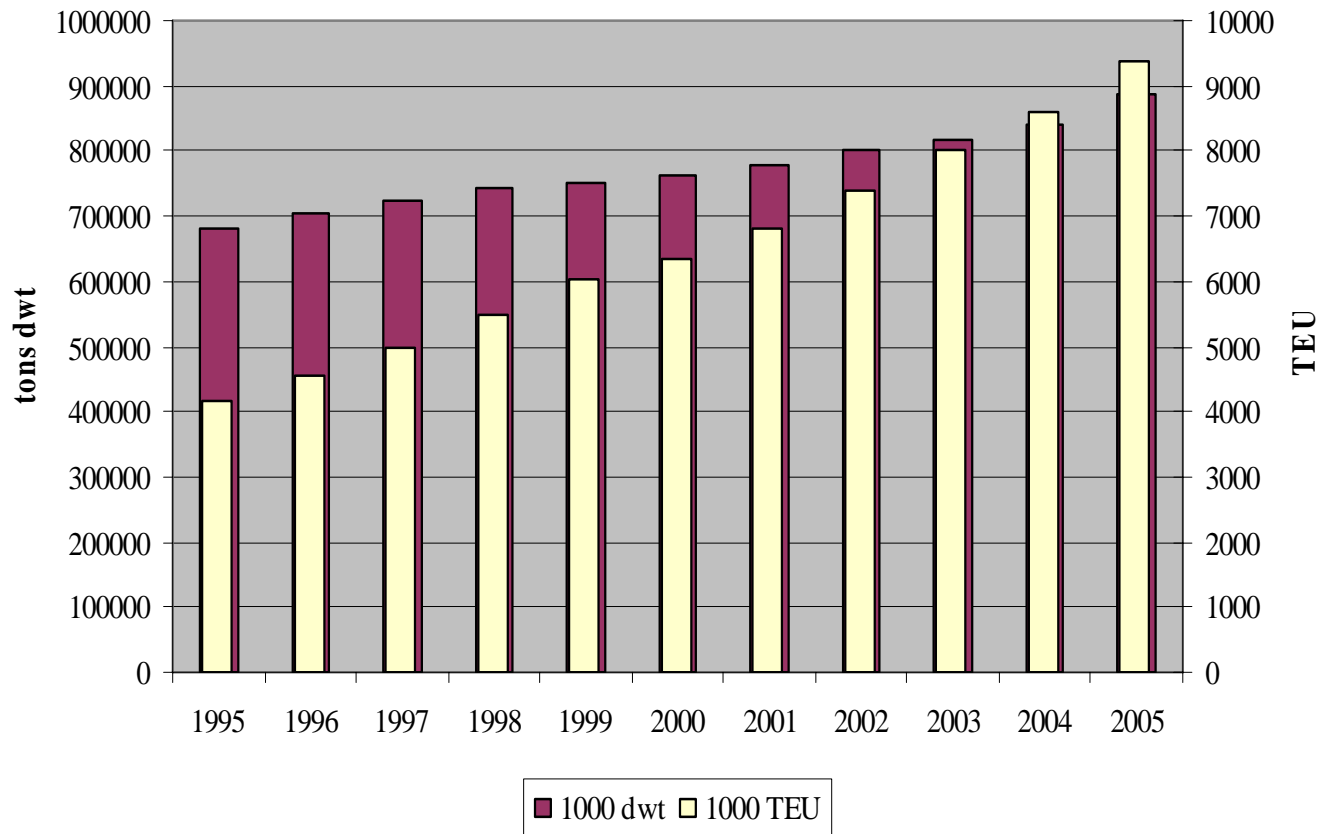
Increase: 10%

**Worldfleet - No. of ships**  
**1995 - 2005**  
Ships of 300 GT and over



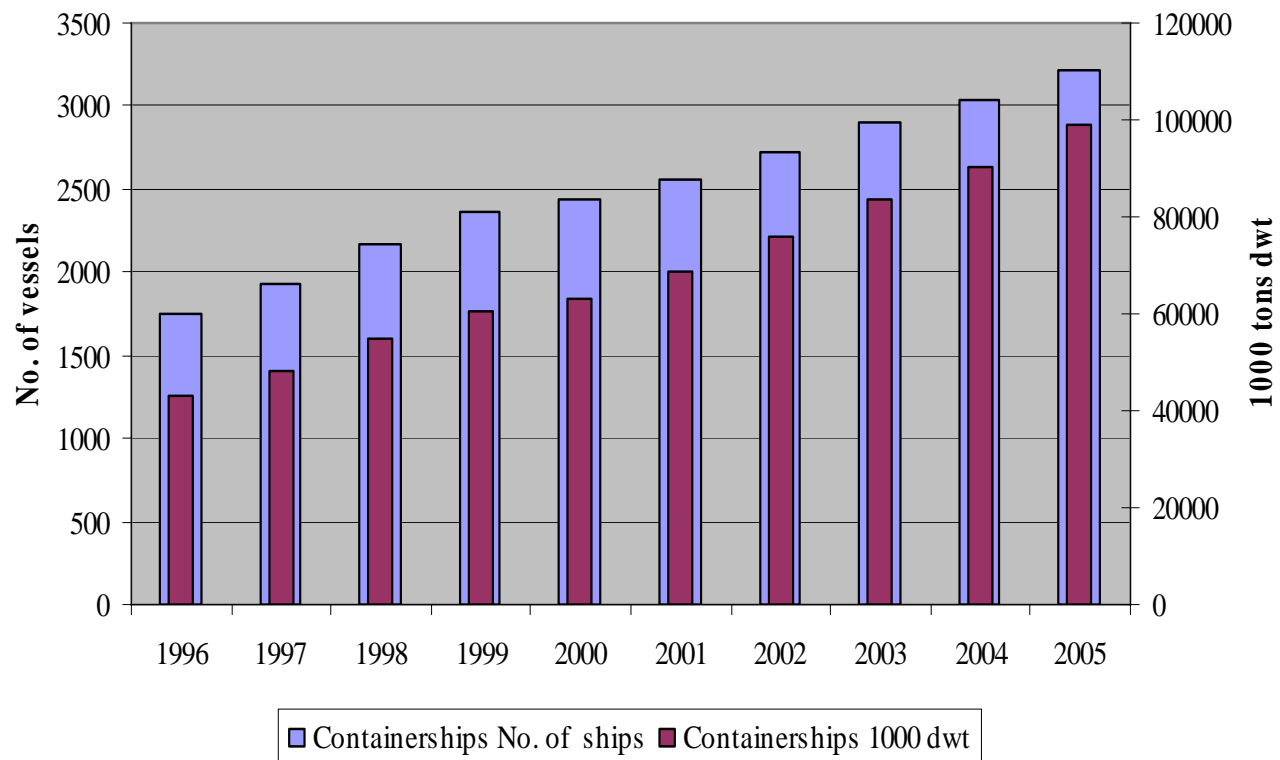
Source: ISL

### World Fleet development 1995 - 2005



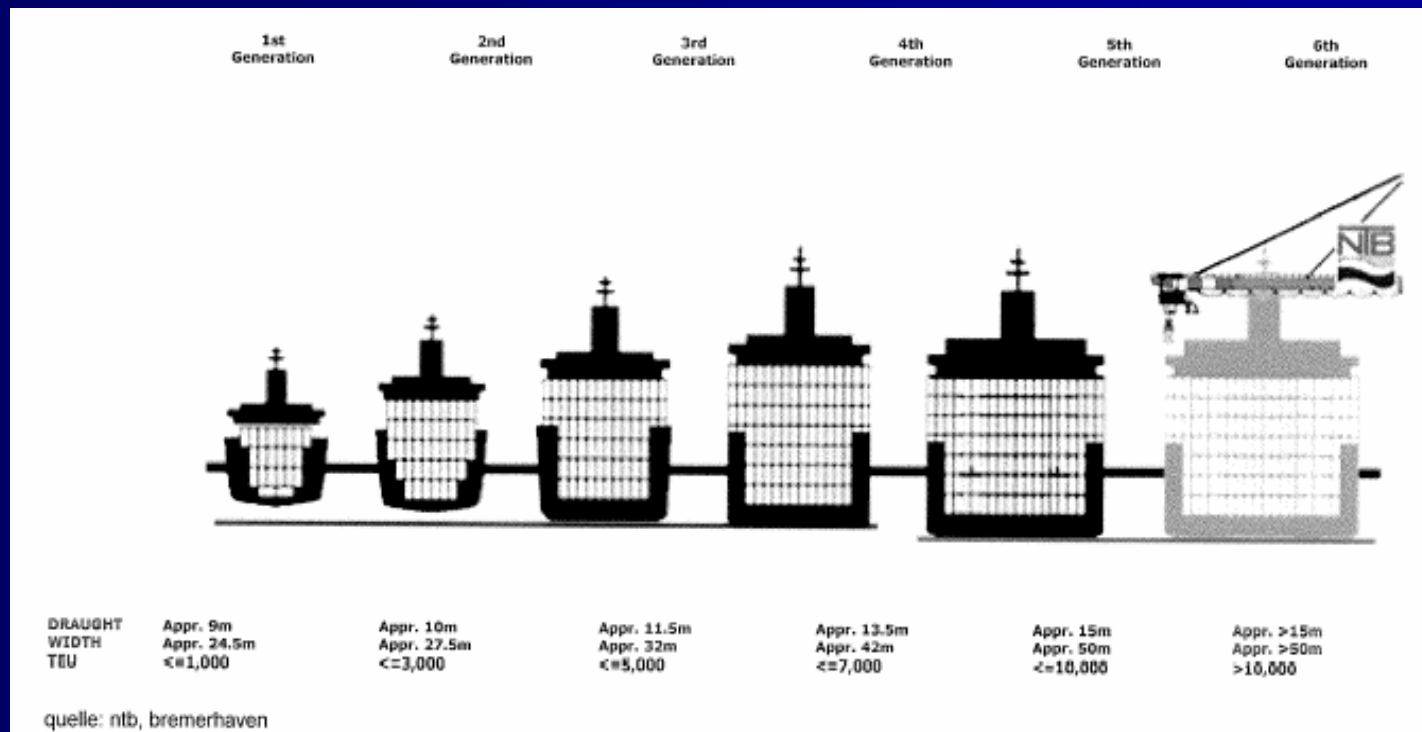
Source: ISL

## Containerships Number and tons dwt



Source: ISL

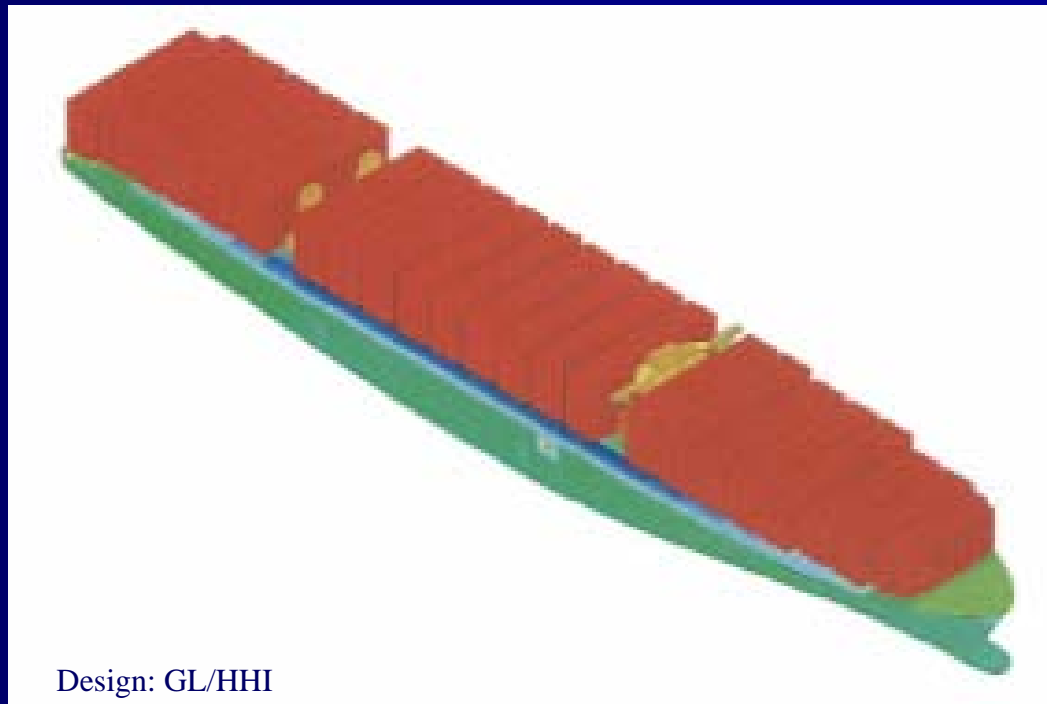
# Development of ship dimensions



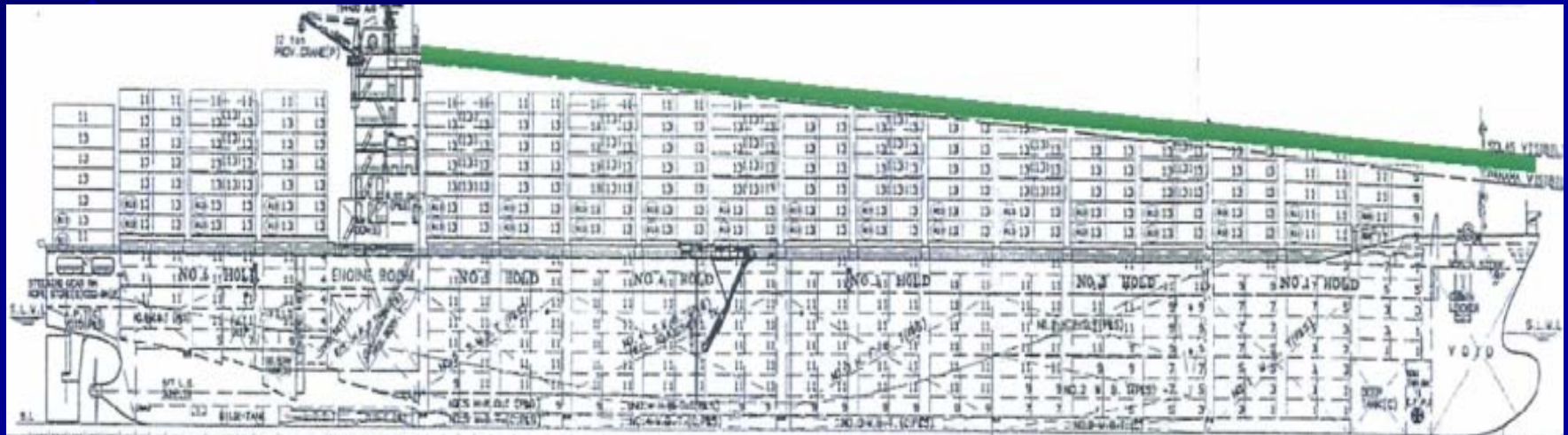
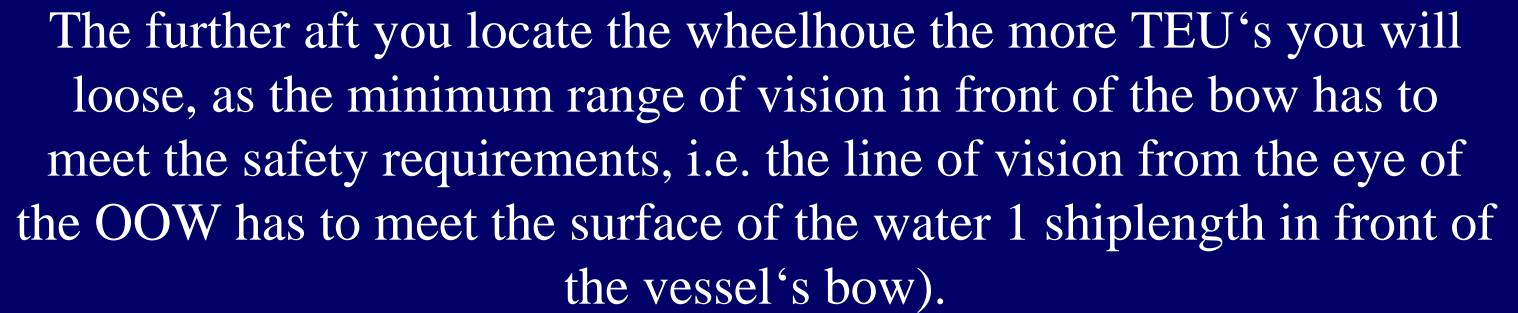




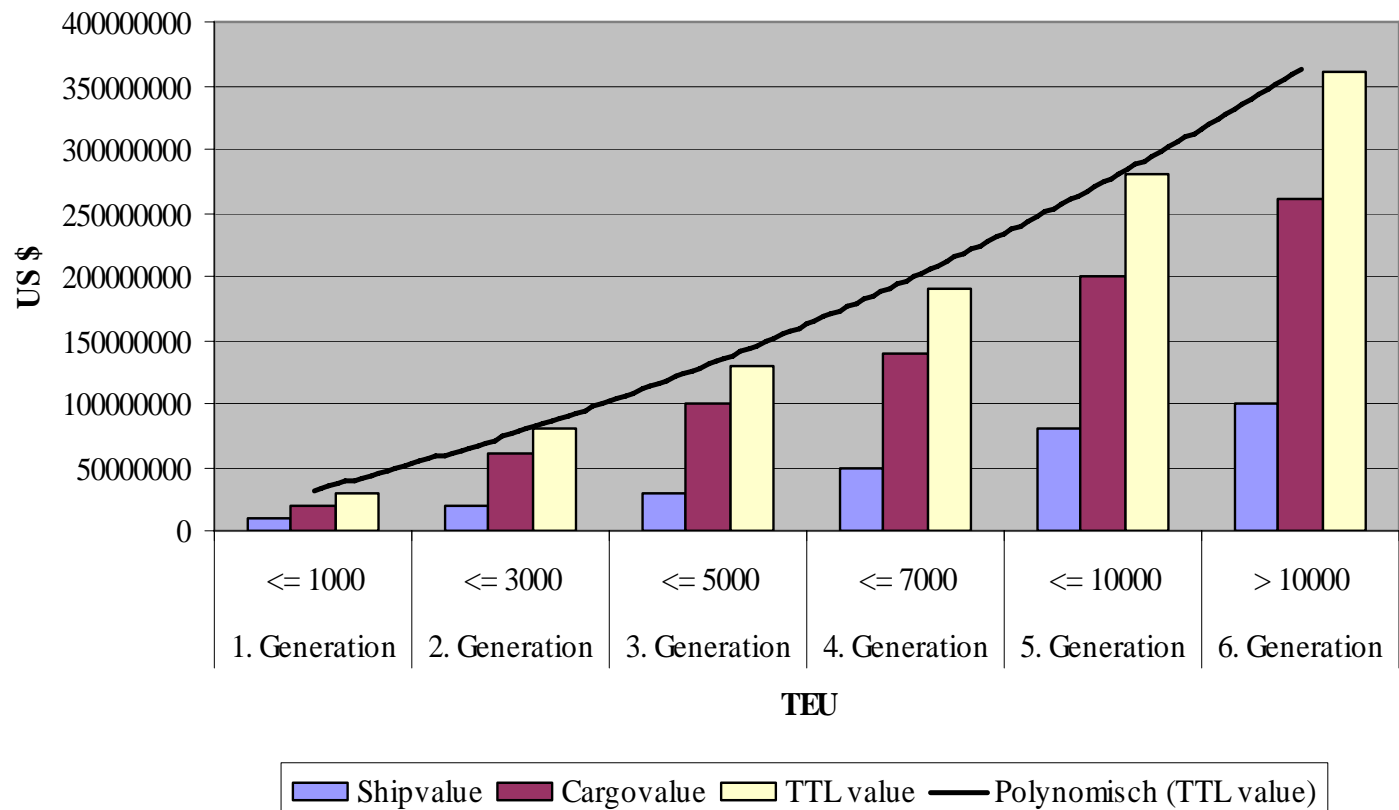
# FE-Model 12.770 TEU



Design: GL/HHI



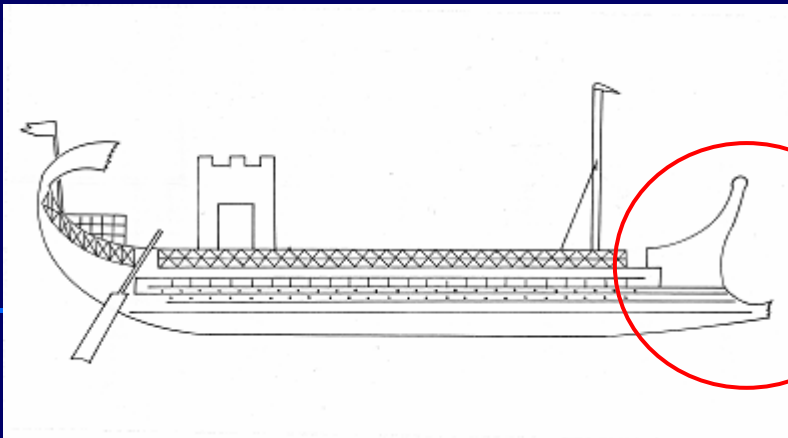
## Development of ship and cargo values



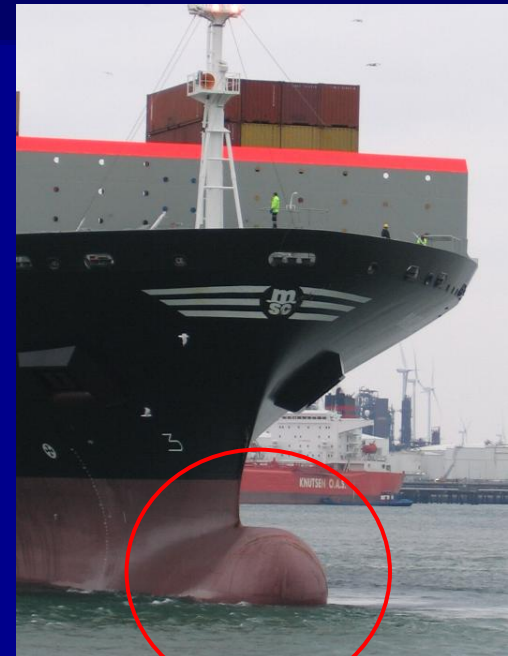


# Areas to look at

- Design / Construction
  - Small tip clearance of propeller
  - Cracks in flat stern
  - Cracks in longitudinals, etc.
  - Double Hull / Coating
- Propulsion
  - Main engine configuration
  - Failure of essential machinery parts
  - Propeller / Azipods
- Operation
  - Parametric rolling
  - Loss of cargo
  - Speed / Slamming
  - Safe speed / Squat / Interaction
  - Repair and Salvage
- Port Facilities



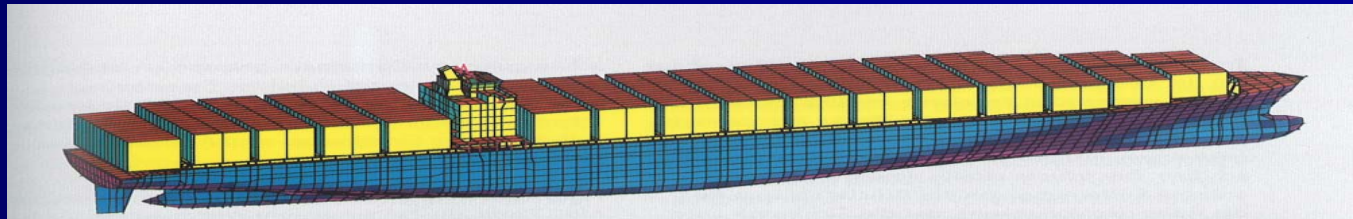
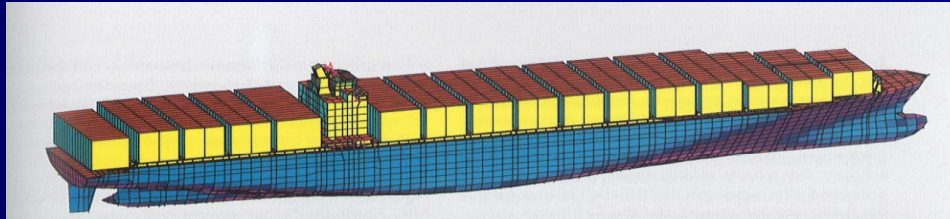
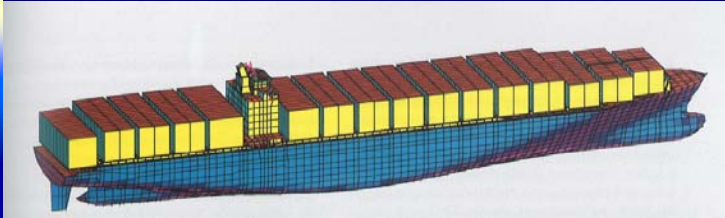
**Although designed for different purposes – the mechanical consequence of a bulbous bow still is destruction and mostly at the expense of the underwriters**



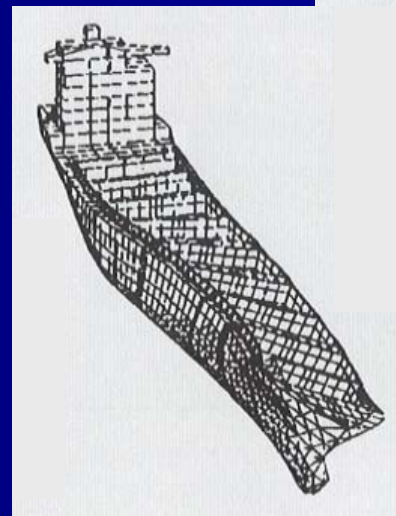
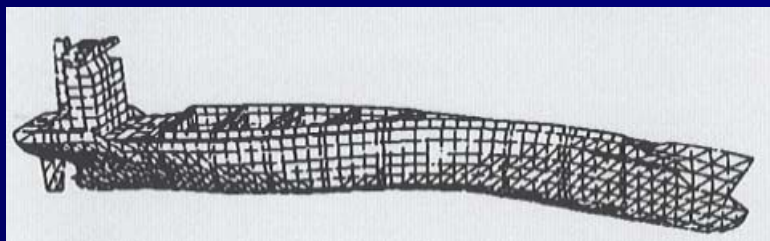
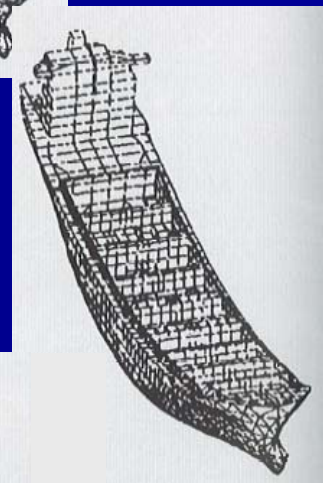
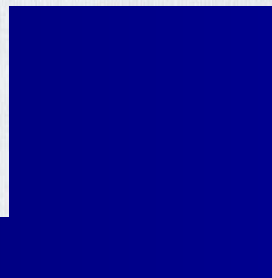
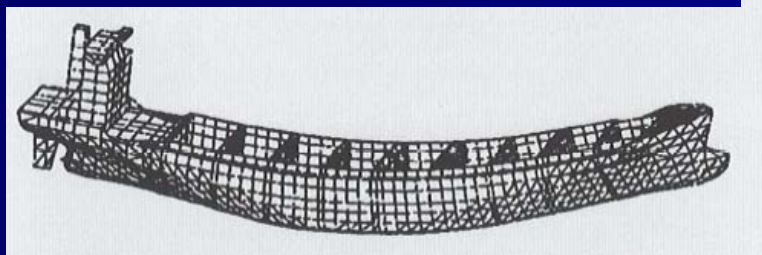
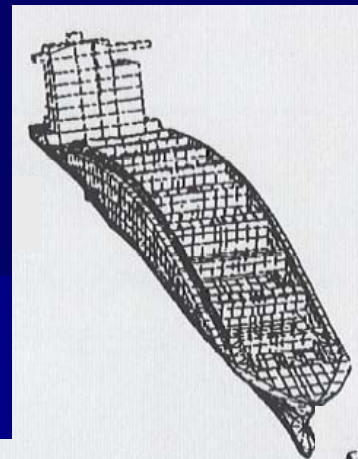
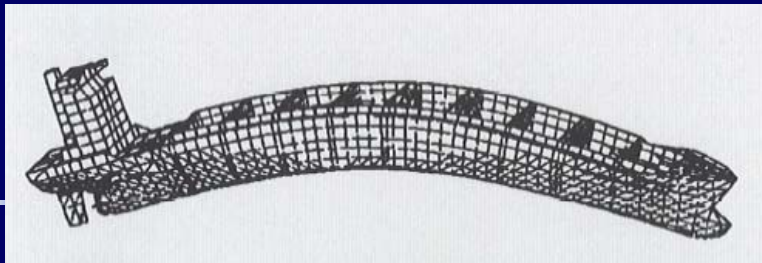




## Design / Construction



??????????????

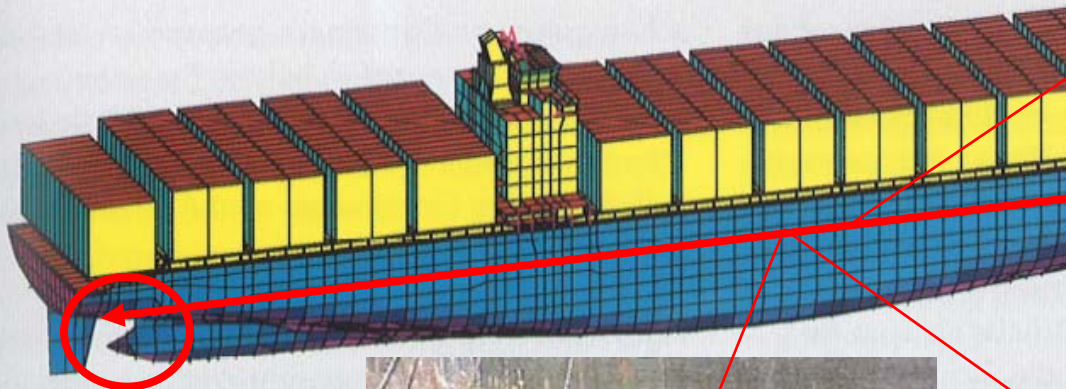


**There have been cases where elasticity was in short supply !**



# Cracks in longitudinals

## Cracks in flat stern

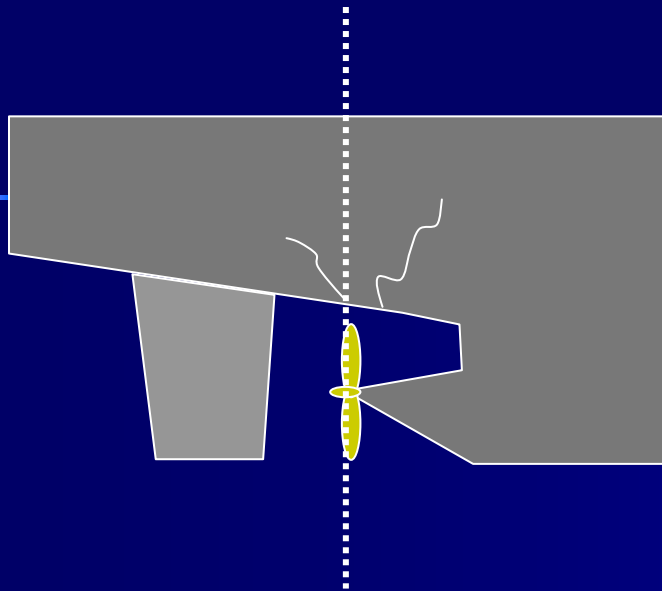


CONTAINER SHIPS		Guidelines for Surveys, Assessment and Repair of Hull Structures
PART 1	Cargo hold region	EXAMPLE No.
AREA 2	Side structure including tanks	4-a
Detail of damage		Fractures and buckling in way of a cut-out for the passage of a longitudinal through a transverse web
Sketch of damage		Sketch of repair
		<p><b>Repair A</b></p> <p><b>Repair B</b></p>
Notes on possible cause of damage		Notes on repairs
<p>1. Damage can be caused by general levels of corrosion and presence of stress concentration associated with the presence of a cut-out.</p>		<p>1. If fractures are significant then crop and part renew the web plating otherwise the fracture can be vee'd-out and welded provided the plating is not generally corroded.</p> <p>2. <b>Repair B</b> is to be incorporated if the lug proves to be ineffective.</p>



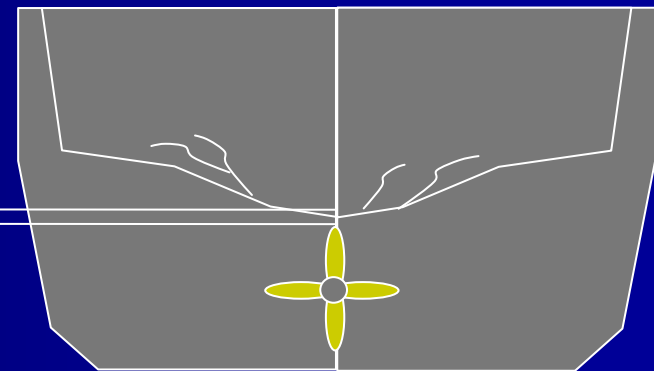


## Small tip clearance of propeller



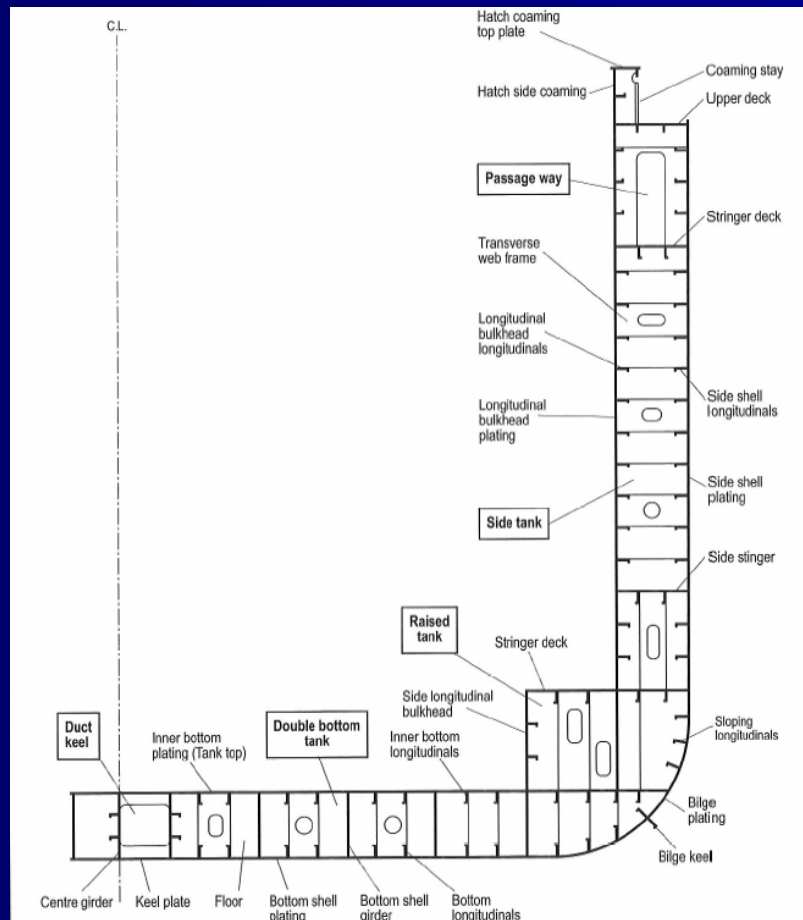
Prop. Tip  
Clearance

min. 40%  
of  
Propeller  
diameter



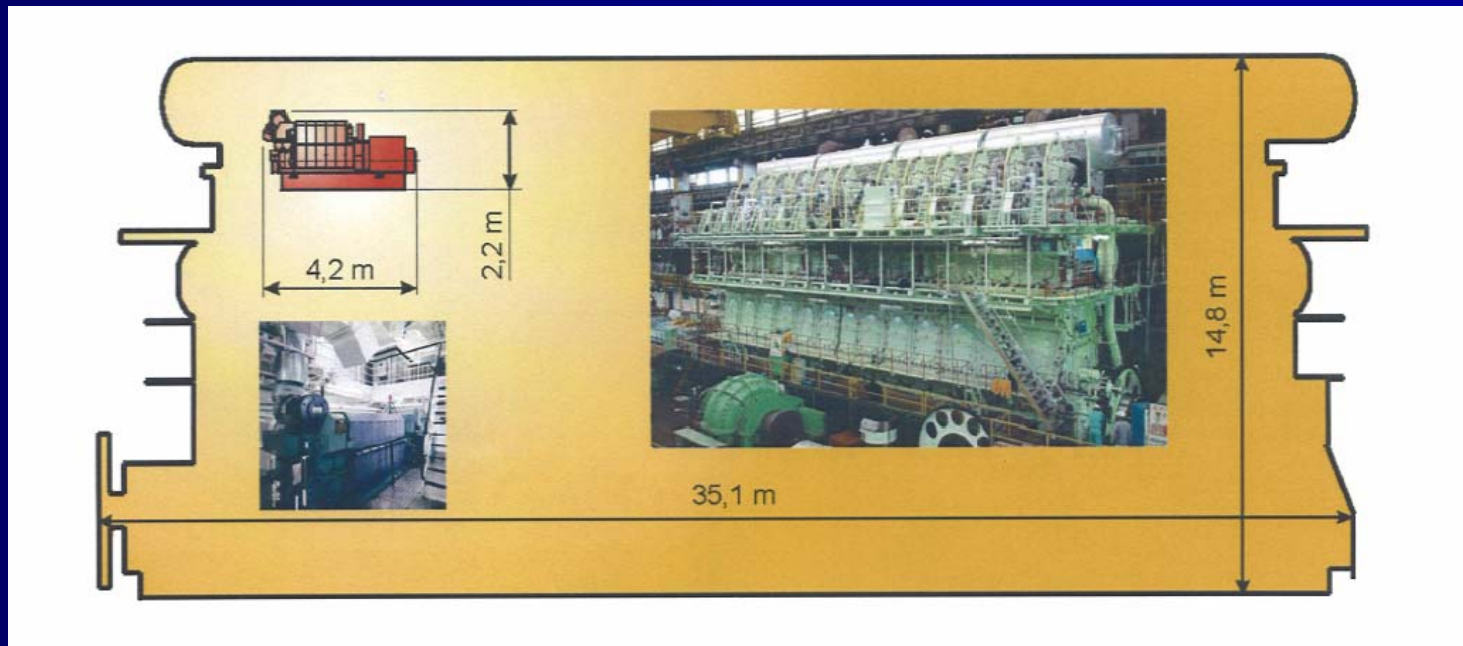


# Double hull = Double steelwork



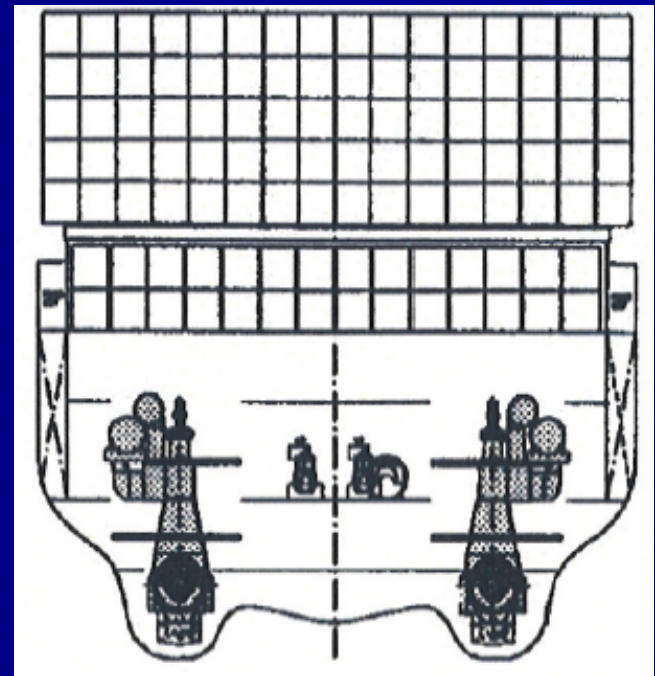
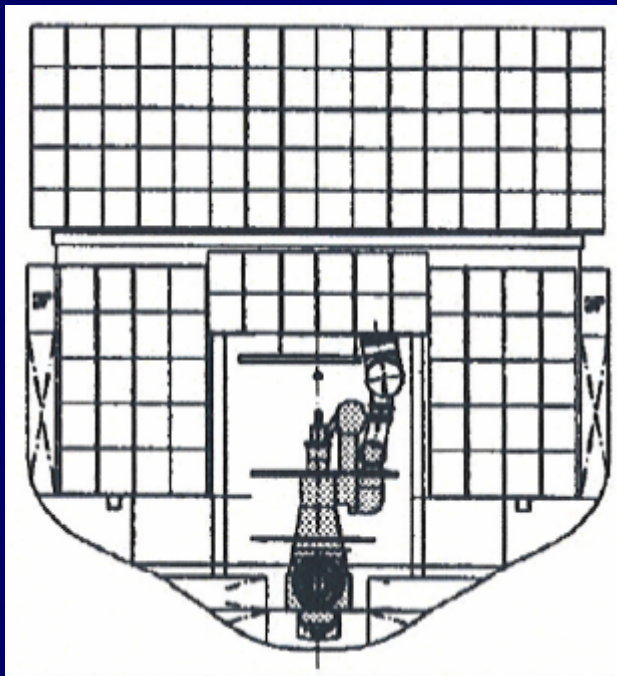
# Propulsion

## Size of Propulsion Plant



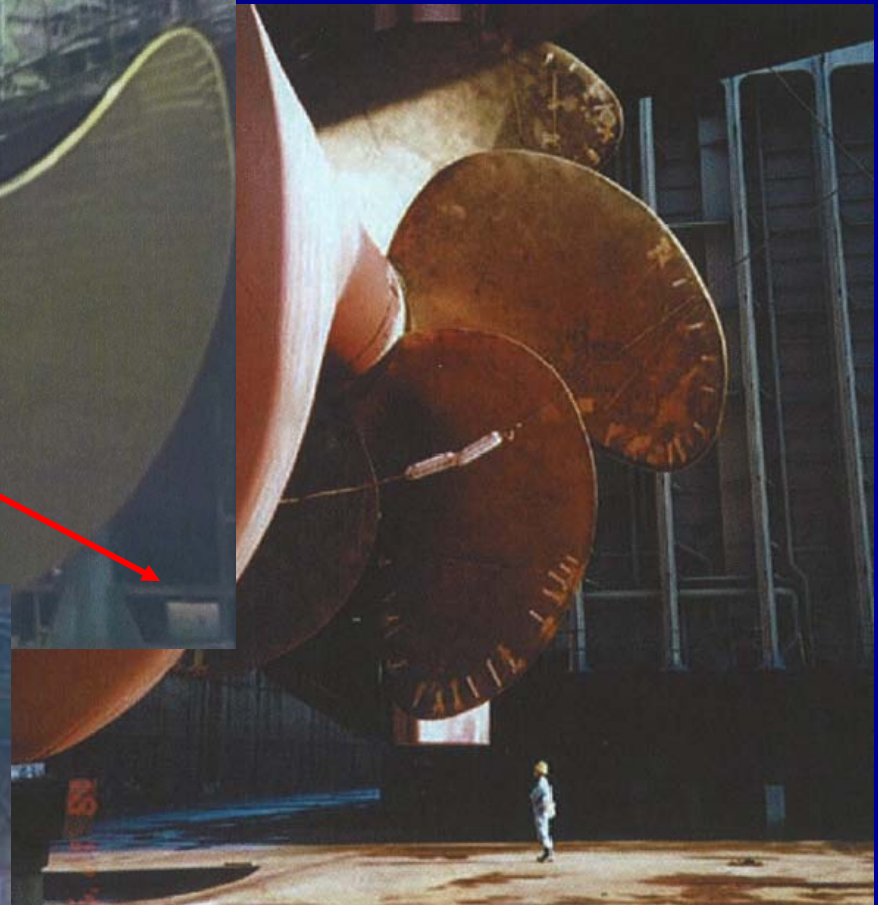
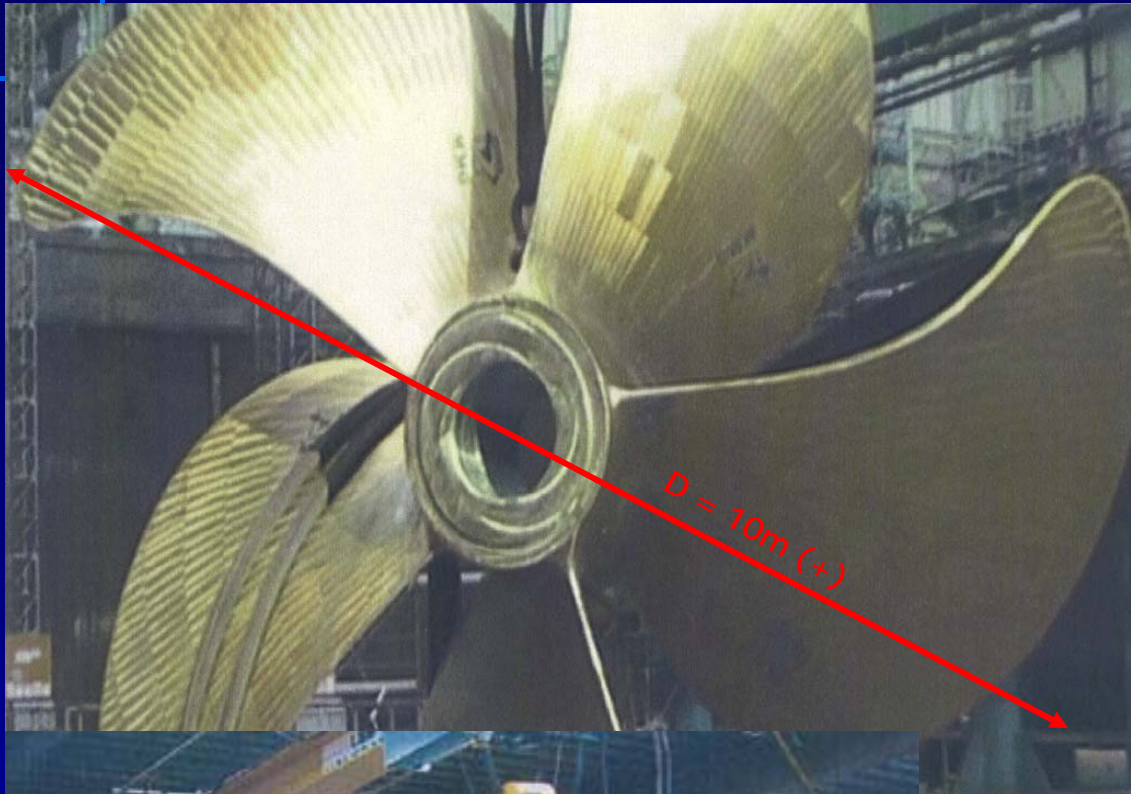
# Propulsion

## Configuration of Propulsion Plant



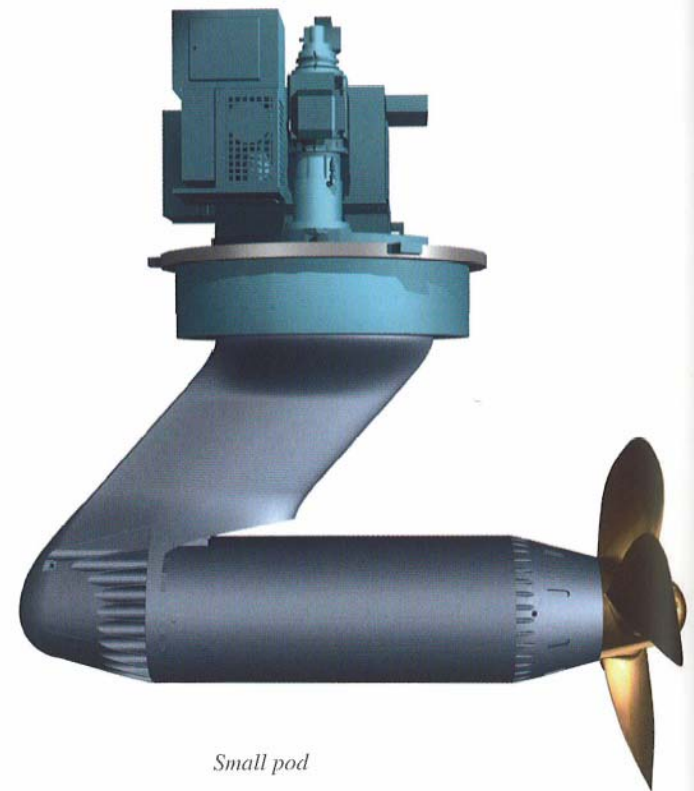
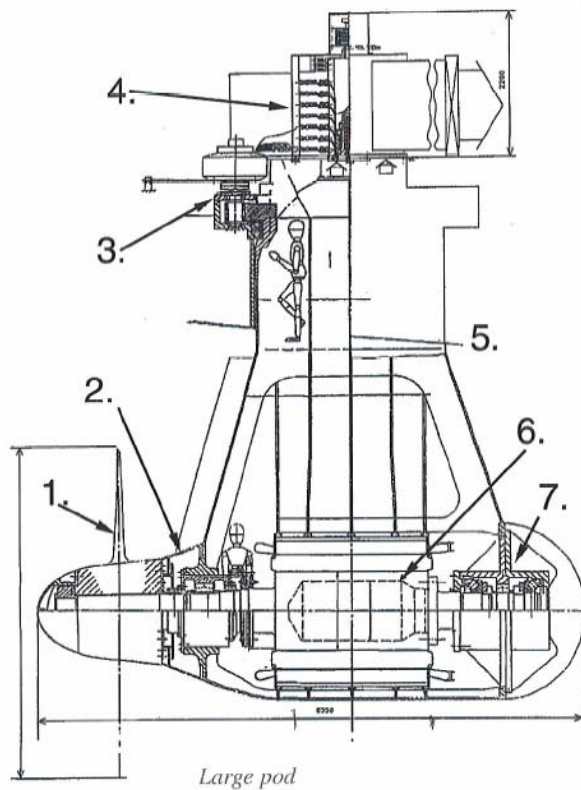
Single or two propeller plant ??

# Propeller / crankshaft dimensions





# AZIPODS



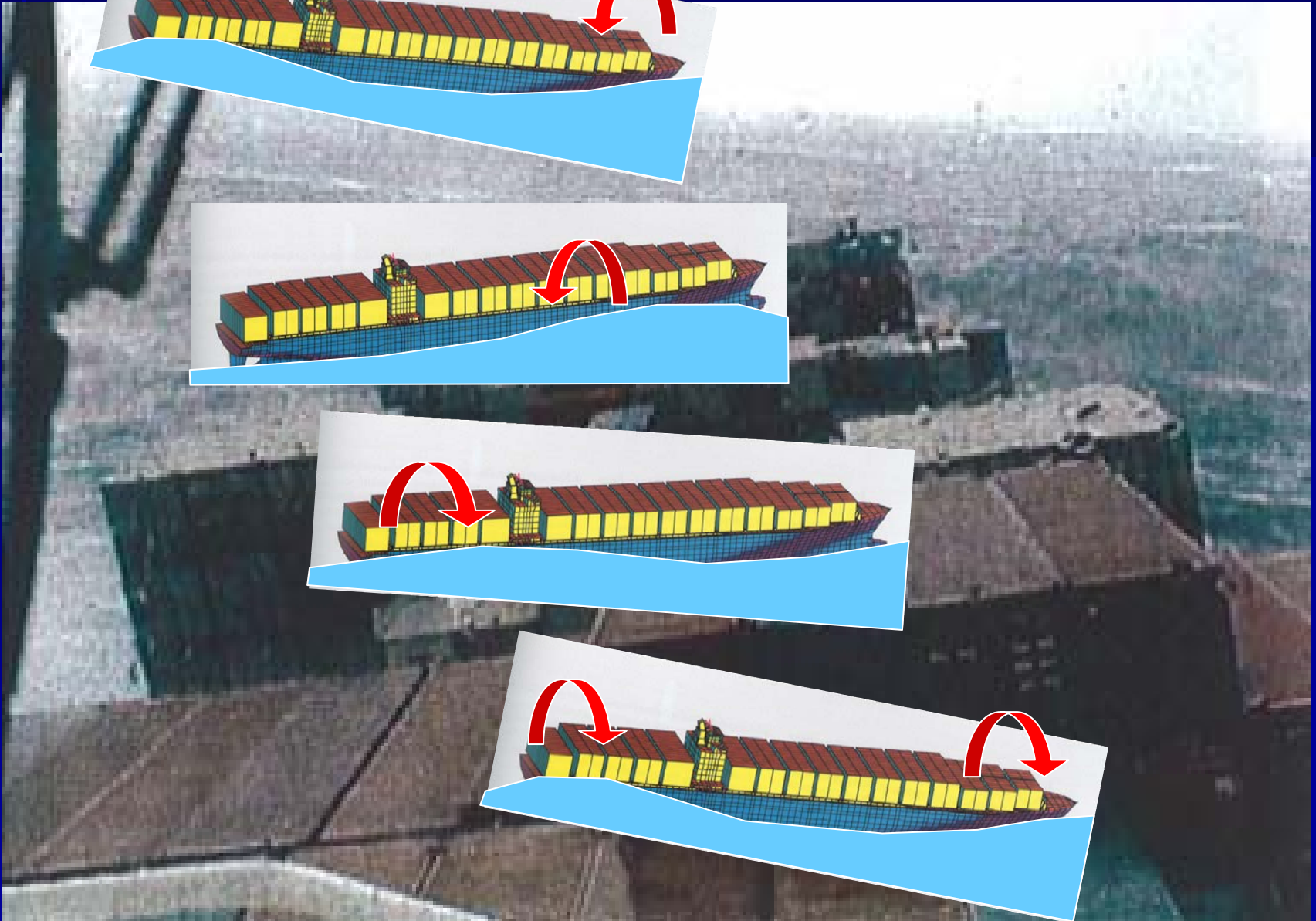
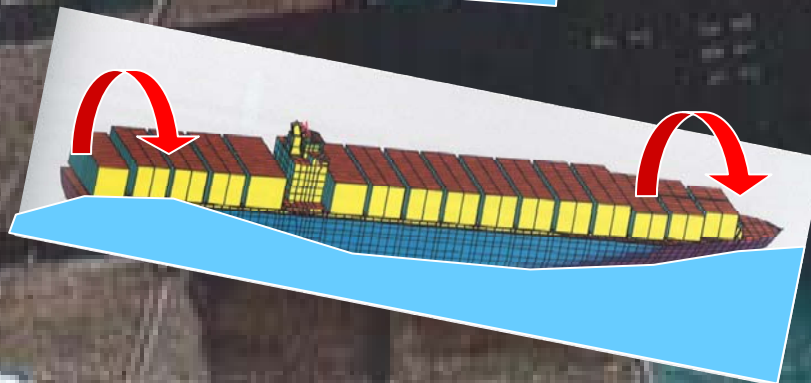
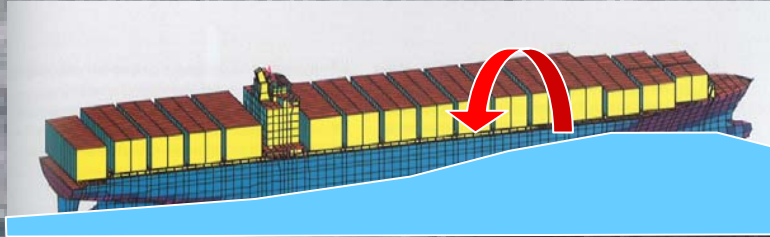
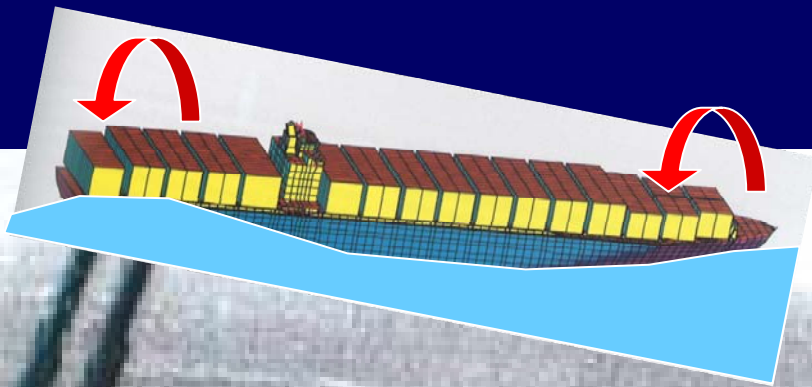


# Operation

## Pitch induced or Parametric Rolling



# Parametric Rolling



# Parametric Rolling





# Risk factor: CARGO

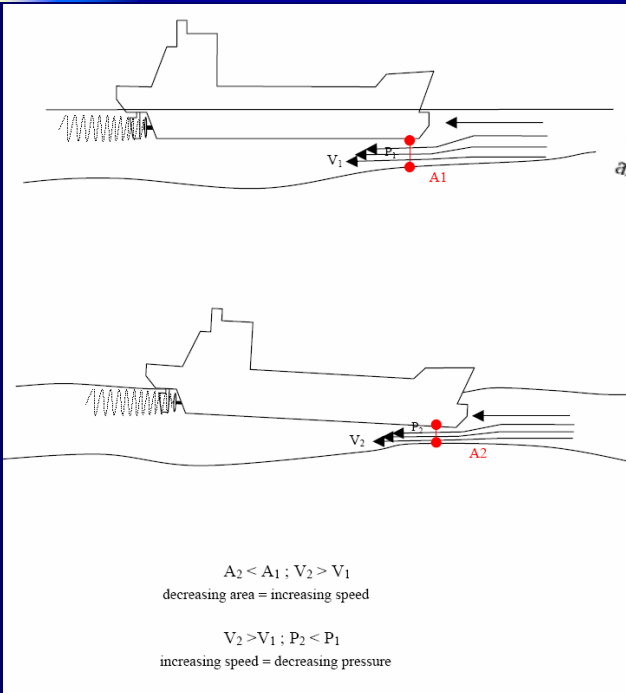


# Speed and slamming

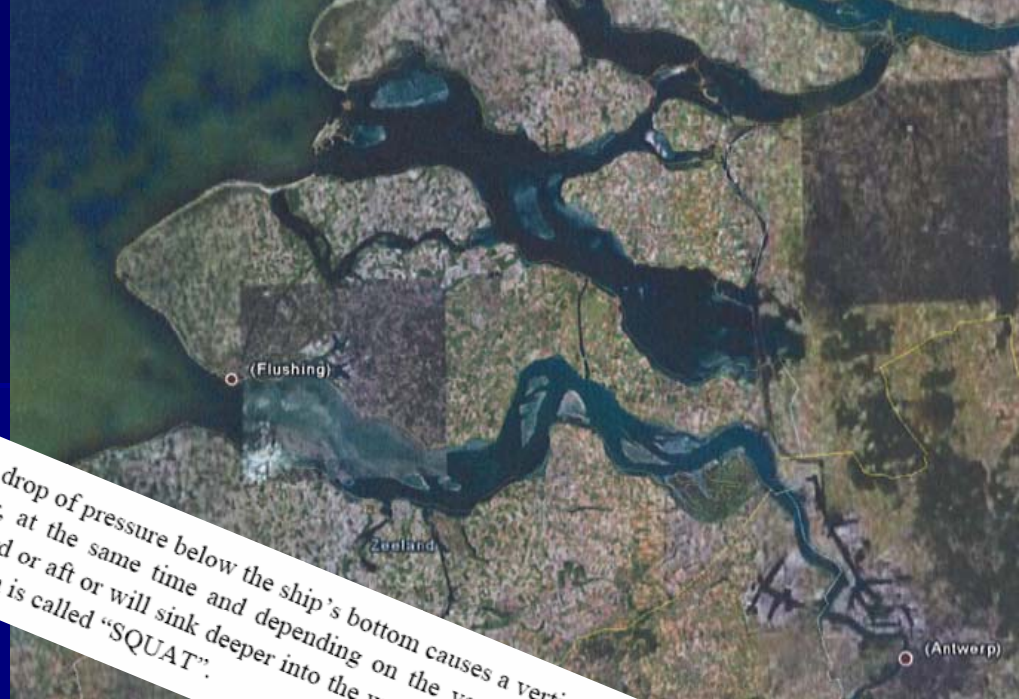




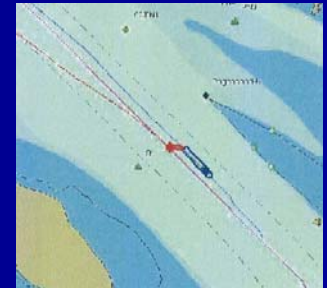
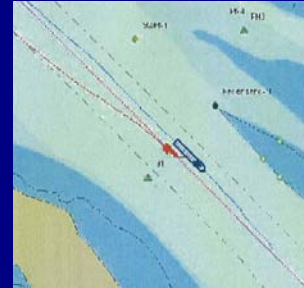
# Speed and Squat



The drop of pressure below the ship's bottom causes a vertical sinking of the ship's hull in the water, at the same time and depending on the vessel's block coefficient  $C_b$  she will trim forward or aft or will sink deeper into the water on even keel. The sum of all vertical sinking and trim is called "SQUAT".



# Speed and Hydrodynamic Interaction



## Repair and Salvage





# Port Facilities



