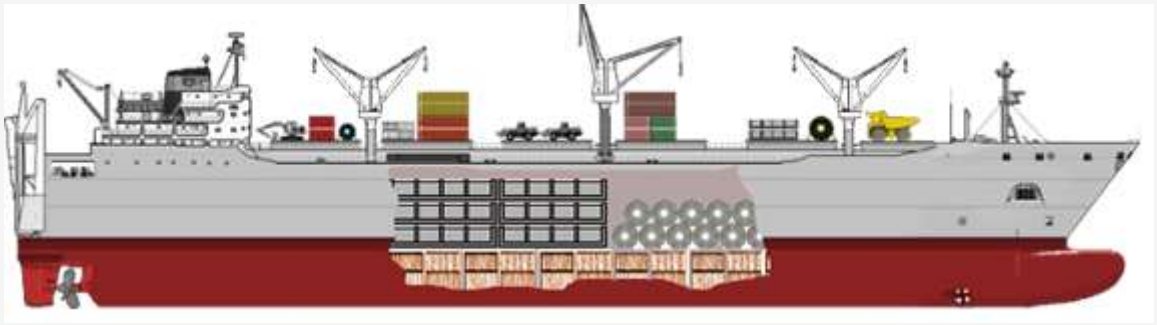
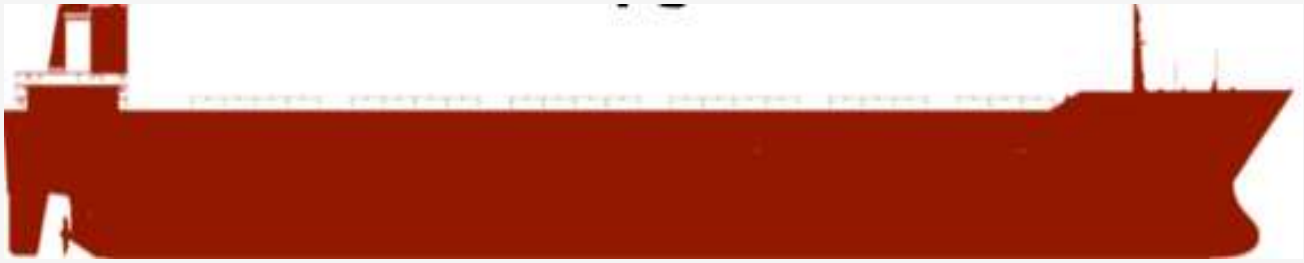
Understanding Bulk Cargoes and its insuranc





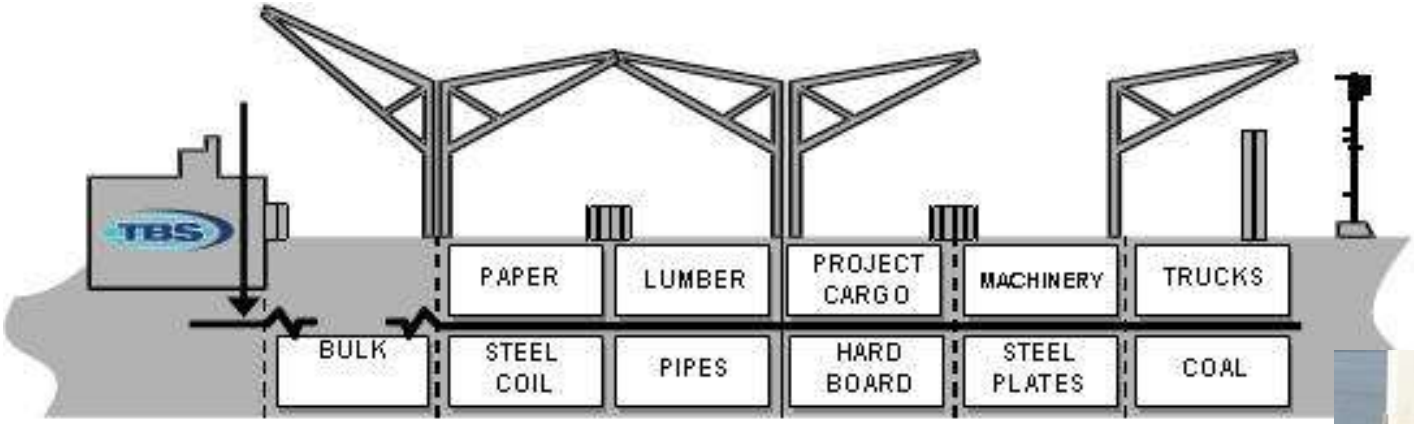
Discussion with Capt. Azhar @ PII

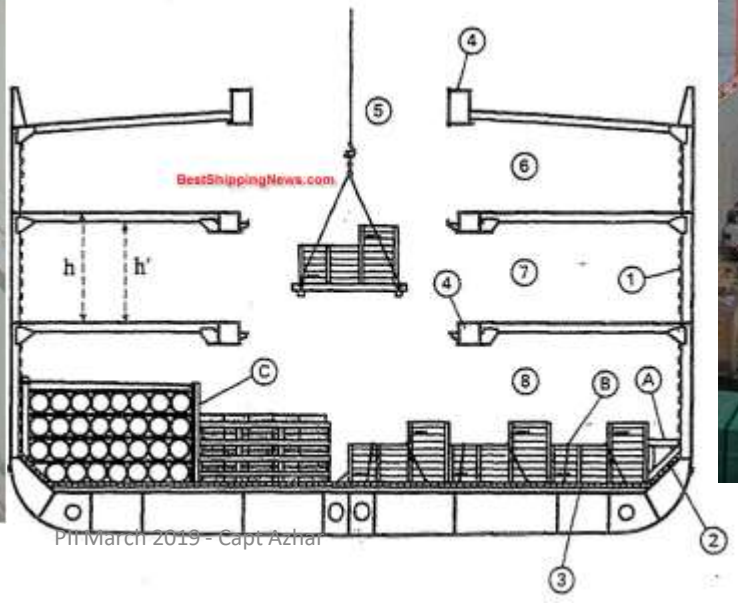
Agenda

- Break Bulk and Bulk
- Why Specialized Bulk Carriers
- Type of Bulk Cargoes
  - Dry
  - Liquid (Liquid Gas)
- Brief on insuring clauses
- Common Losses

A General cargo Jetty

Tween Decker – General Cargo





Break Bulk Handling - constraints

Time consuming

Torn Bags, Tally issues, expensive transportation.

Liquid Cargo

- Leaking drums
- Separate stowage
- Expensive handling
- Limited quantity

Rolling Stock

- In-secure handling
- Space constraints
- Time consuming

Small items

- Breakage
- Height restriction
- Wastage of space
- Theft, Pilferage

from Break bulk to Bulk/BOX

All Marine Cargo

- **Packed** General Cargo
  - **Break Bulk Cargo**
    - Bags
    - Barrels
    - Drums
    - Pallets
    - Boxes
    - Crates
  - **Neo Bulk Cargo**
    - Lumber
    - Paper
    - Steel
    - Cars
    - Trucks
  - **Unitizised Cargo**
    - Container
- **Unpacked** Bulk Cargo
  - **Liquid Bulk**
    - Petroleum
    - Gasolin
    - LNG
    - Chemicals
    - Juice
    - Wine
  - **Dry Bulk**
    - Coal
    - Grain
    - Iron ore
    - Bauxit
    - Cement

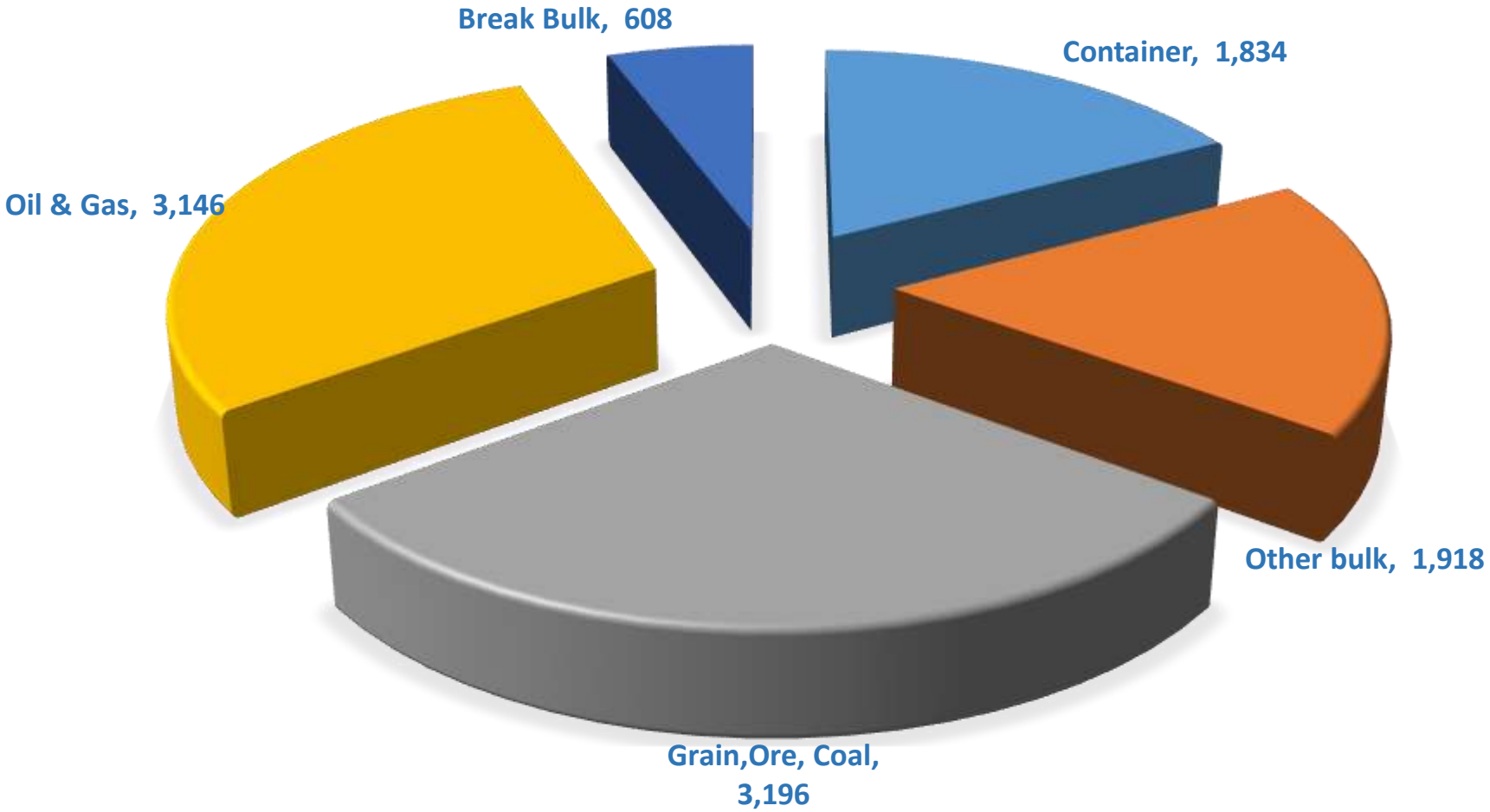
Courtsey Hammami Livestock

Bulk Trade – the need

- Electricity and automobiles needed more energy – fuel, coal
- Increase in population required more grain.
- The limitation of land and water necessitated greater yields, hence fertilizers.
- Industrliazation demanded raw material – ore, Bauxaite.
- Construction boon – cement

- Larger Quantities.
- Lesser port stays.
- Safer carriage.

WORLD EXPORT BY SEA 2017 - TOTAL 10.7 BN. TONS



Source UNCTAD 2018

John Bowes the first Bulk Carrier

- 1852 to 1993
- Built in England
- Iron Hull,
- steam powered topsail schooner
- 149 X 25.7 X 15.6 ft
- Steam 2 Cylinder
- 9 knots.

Bulk Cargoes – Peculiar Nature

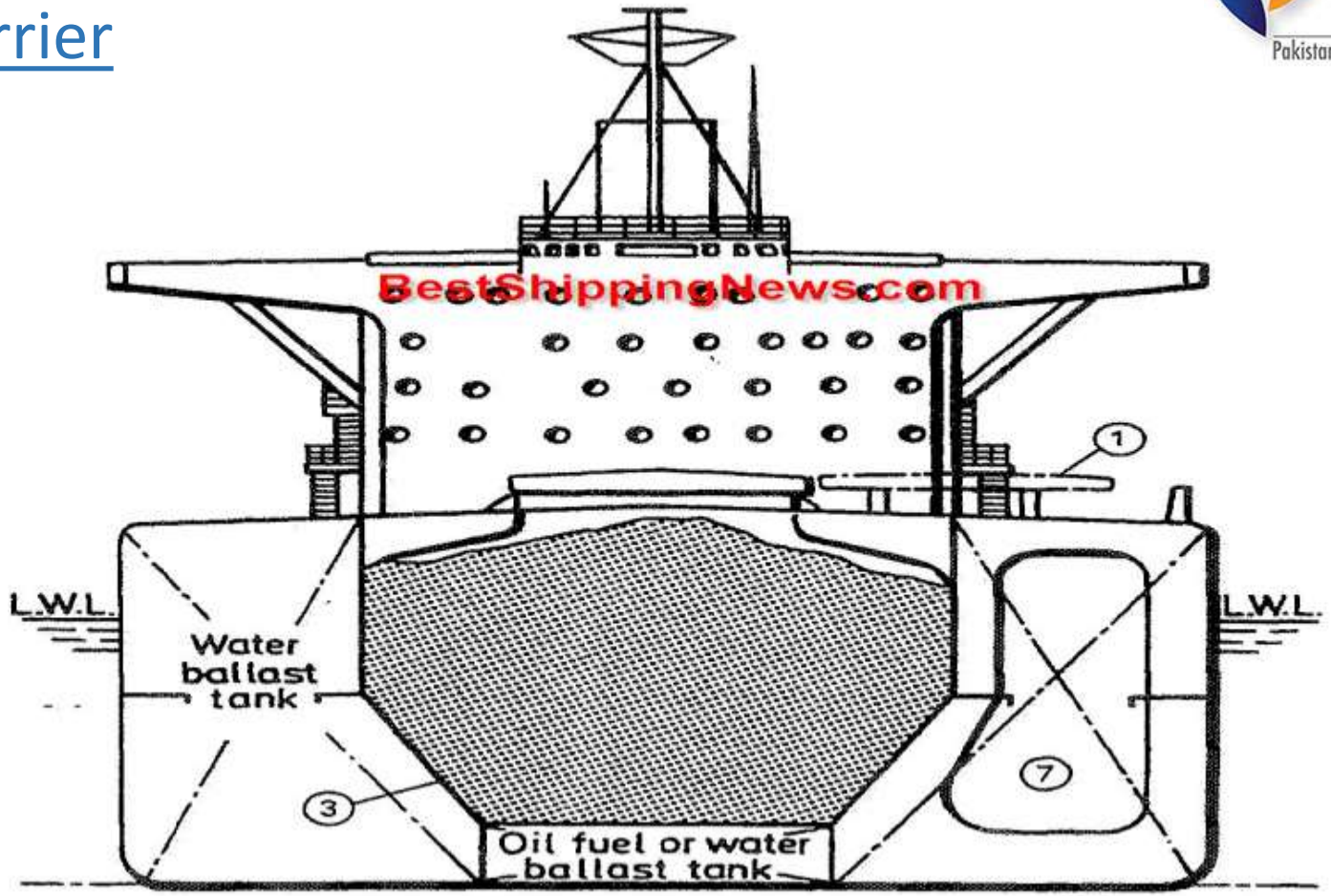
Iron Ore	• 4.5 times heavier than water – requiring special ships
Grain	• Prone to shift during transit
Coal	• Spontaneous combustion • Dirty Cargo
Crude Oil	• Very Large quantities to transport, off shore loadings etc.
Other Liquid Cargoes	• Smaller quantities • Segregated tanks, cleanliness etc.
LPG	• Specialized tanks • Low temperatures, high pressures
LNG	• Very low temperatures and very high pressure • Special metal non corrosive tanks

Bulk Carriers - Types

Vessel Categories – by Size

Handy Size	Upto 60,000 Tons DW	easy access to Ports
Panamax	75,000	Max 32.3 M beam (49 M)
Suezmax	< 200,000	21 Mtrs Draft
Cape Size	0ver 200,000	or other configuration
Valemax Or China Max	400,000 Tons Ore	special for Brazil – China Trade

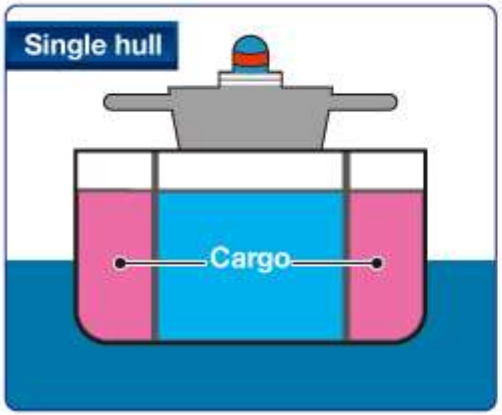
Ore Carrier

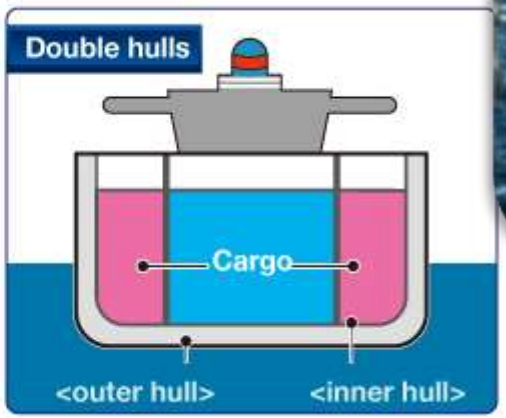


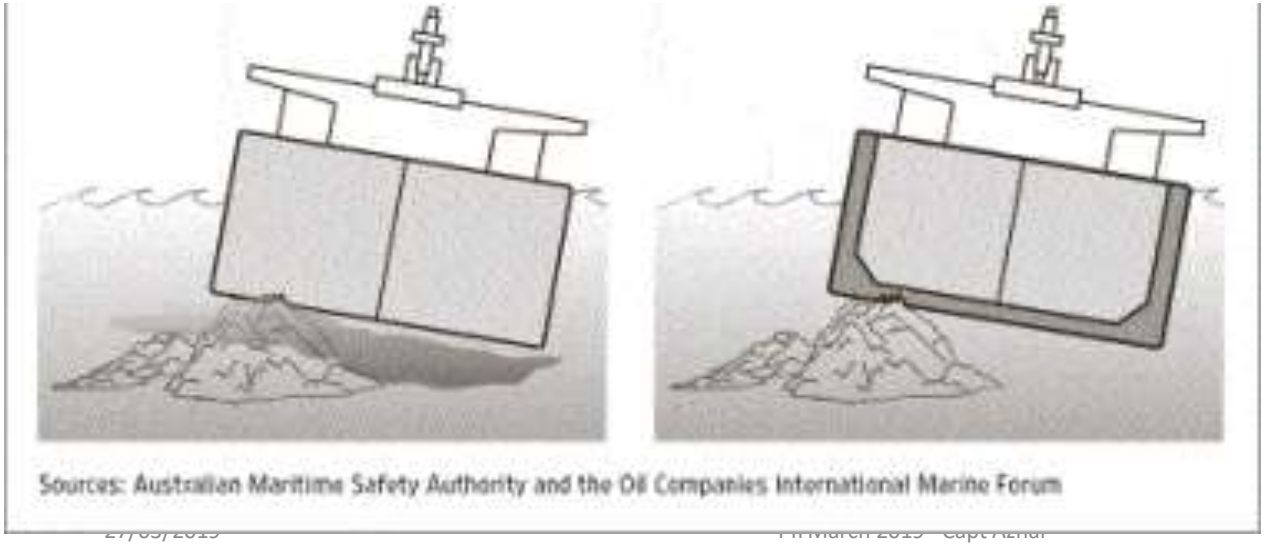
- Ore is 4.5 times heavier than water
- It is stored high to raise the center of gravity.
- A normal ship will lower the center of gravity resulting in a stiff ship

Off Shore Loading SBM

Double Hull Tankers – post Exx... grounding





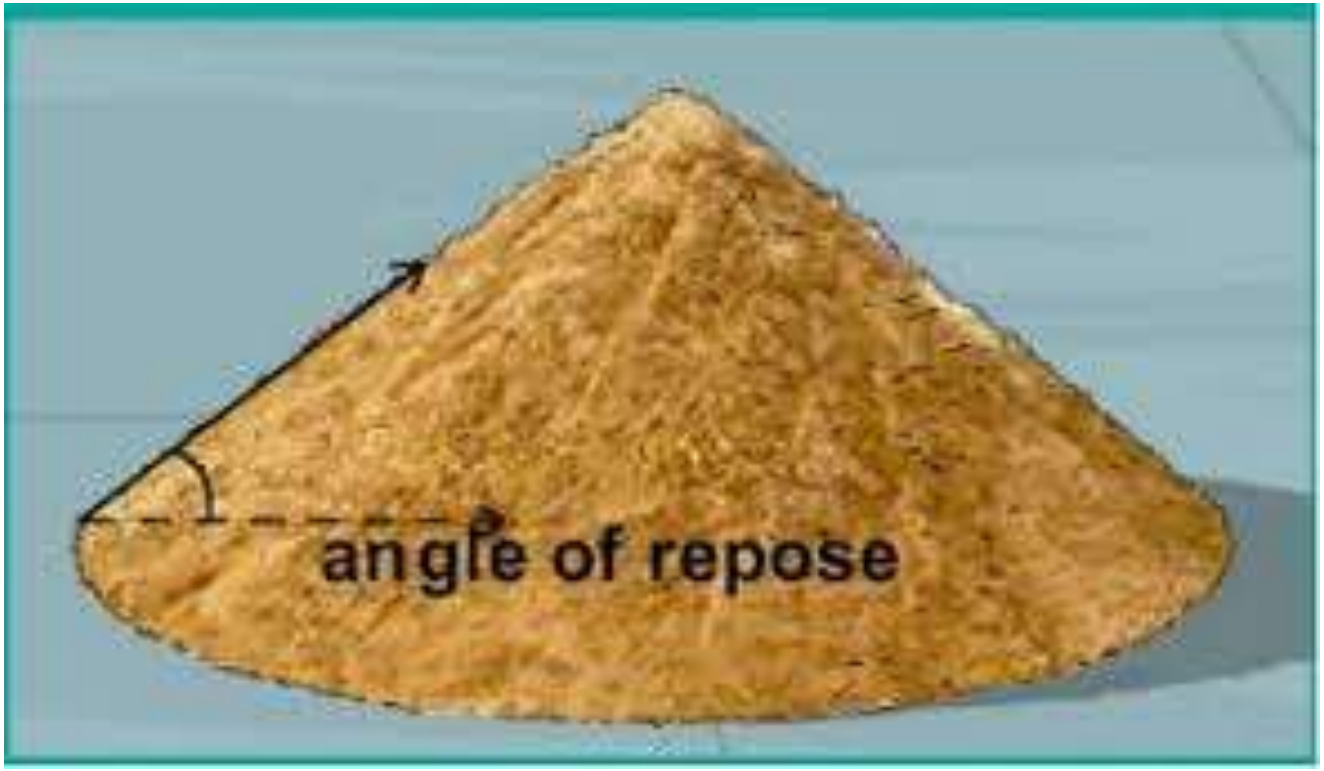


- 1990 pollution act was eacted
- Double skin tanker construction mandated.

Carriage of Grain

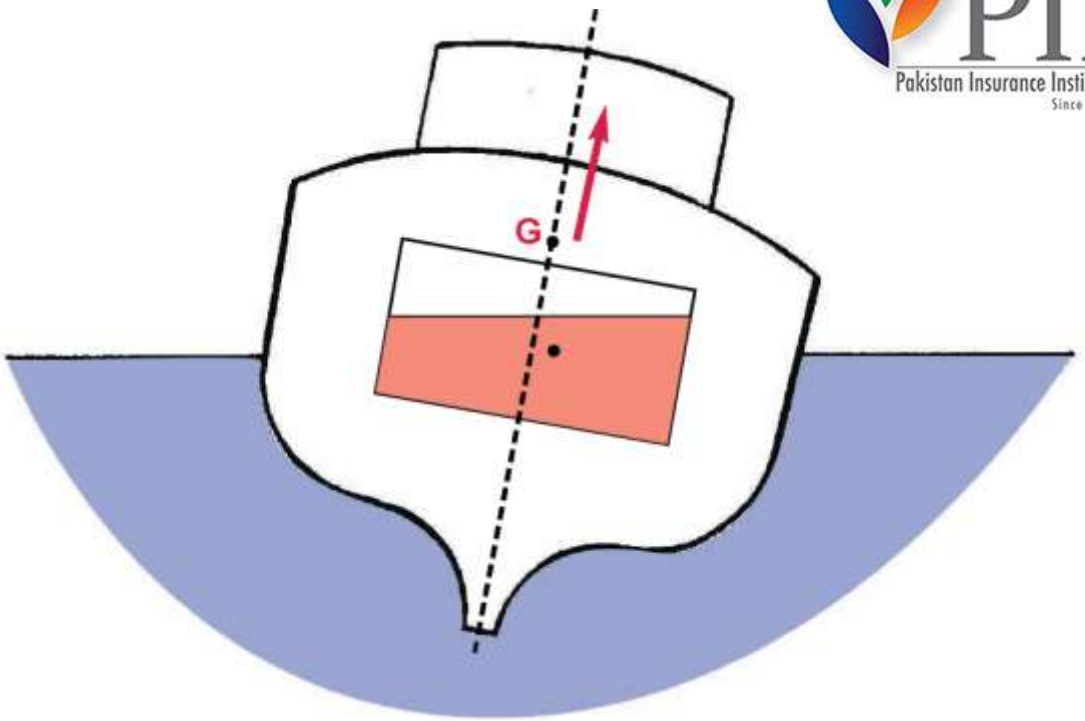
Has been in trade for last 3,000 years starting off in flat bottom boats

Angle of repose – angle of heel

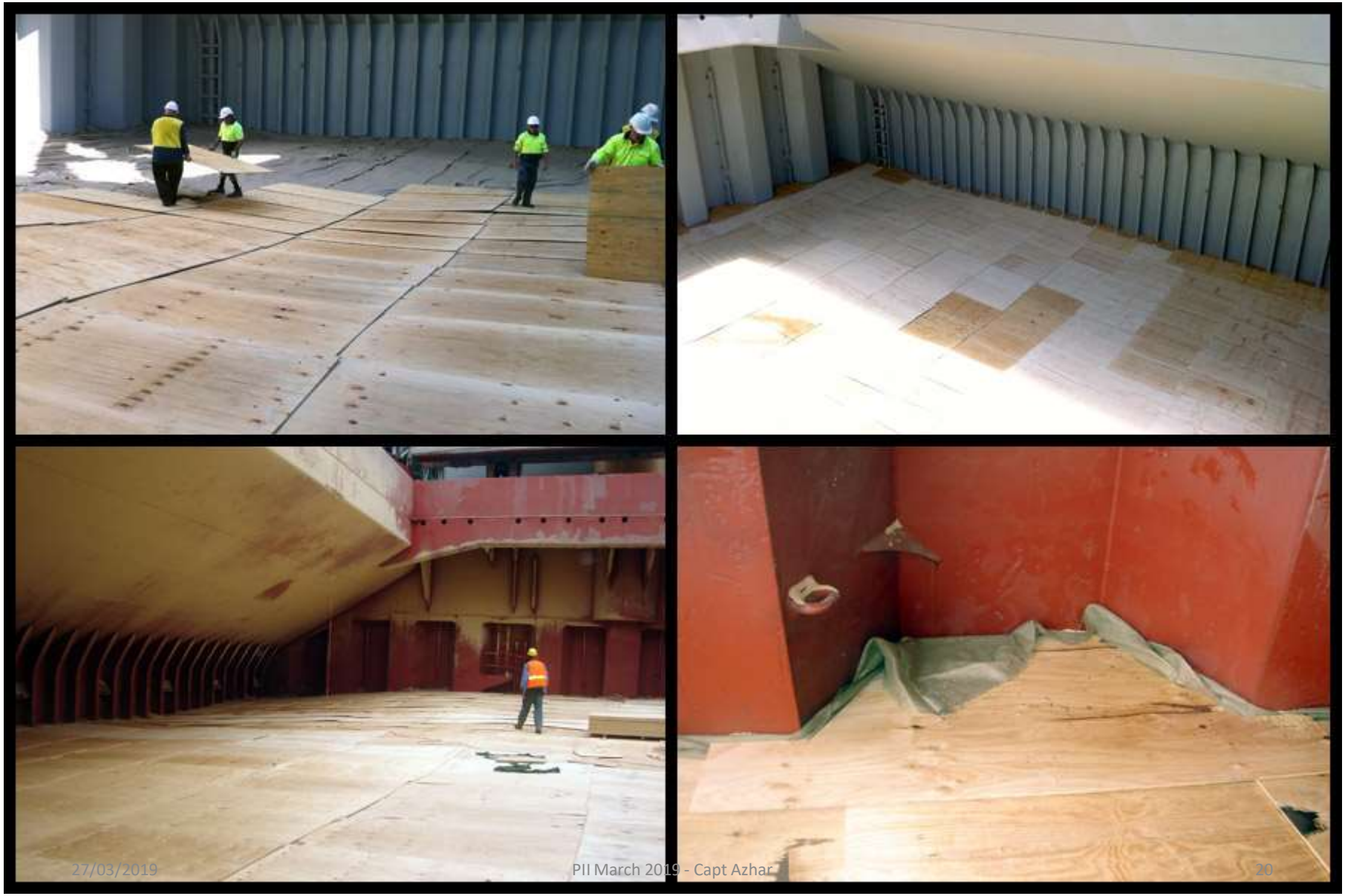


1. the angle of heel due to the shift of grain shall not be greater than 12° or in the case of ships constructed on or after 1 January 1994 the angle at which the deck edge is immersed, whichever is the lesser;

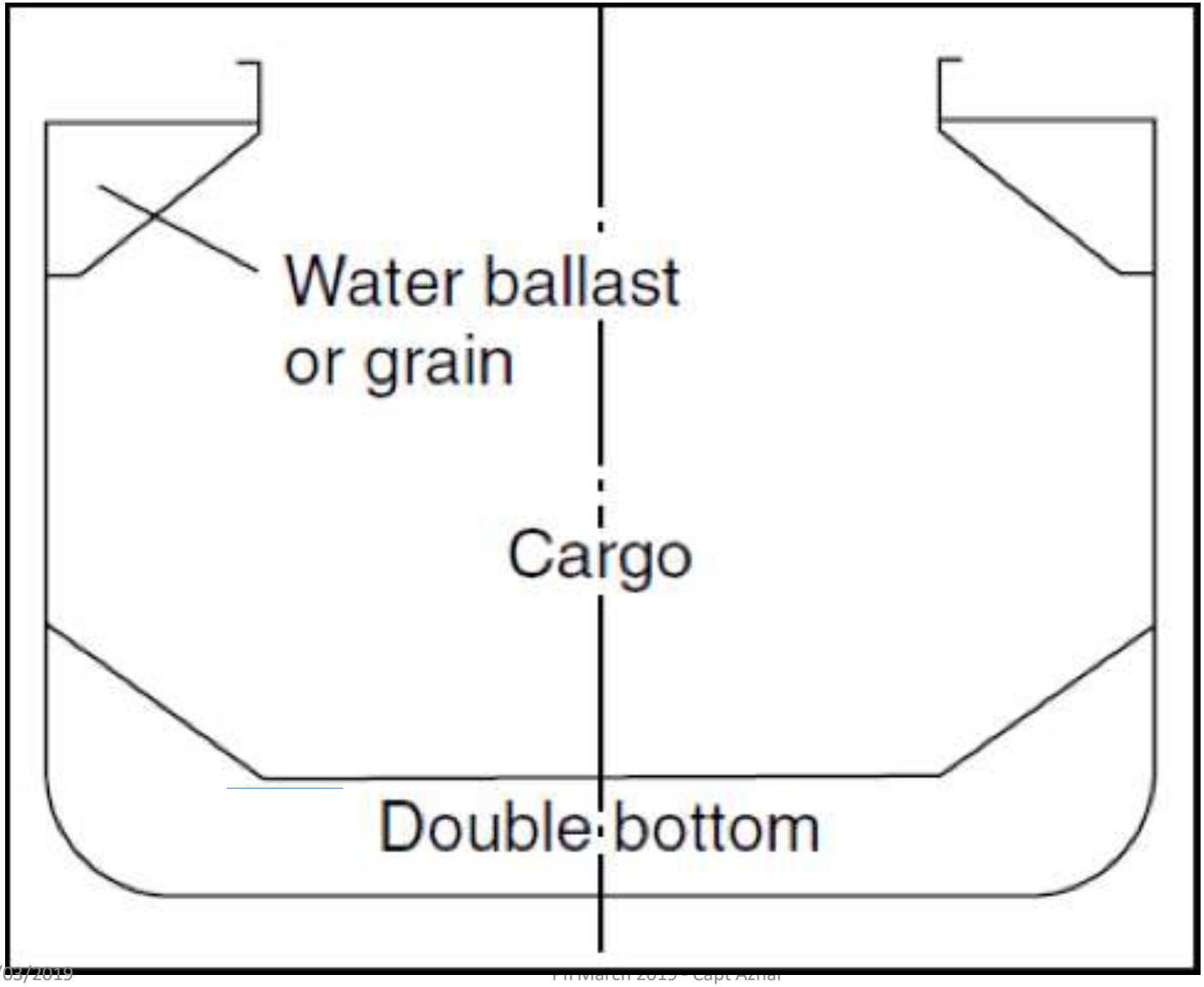
Effect of Heel due to grain shift



Shifting Boards to control grain shift



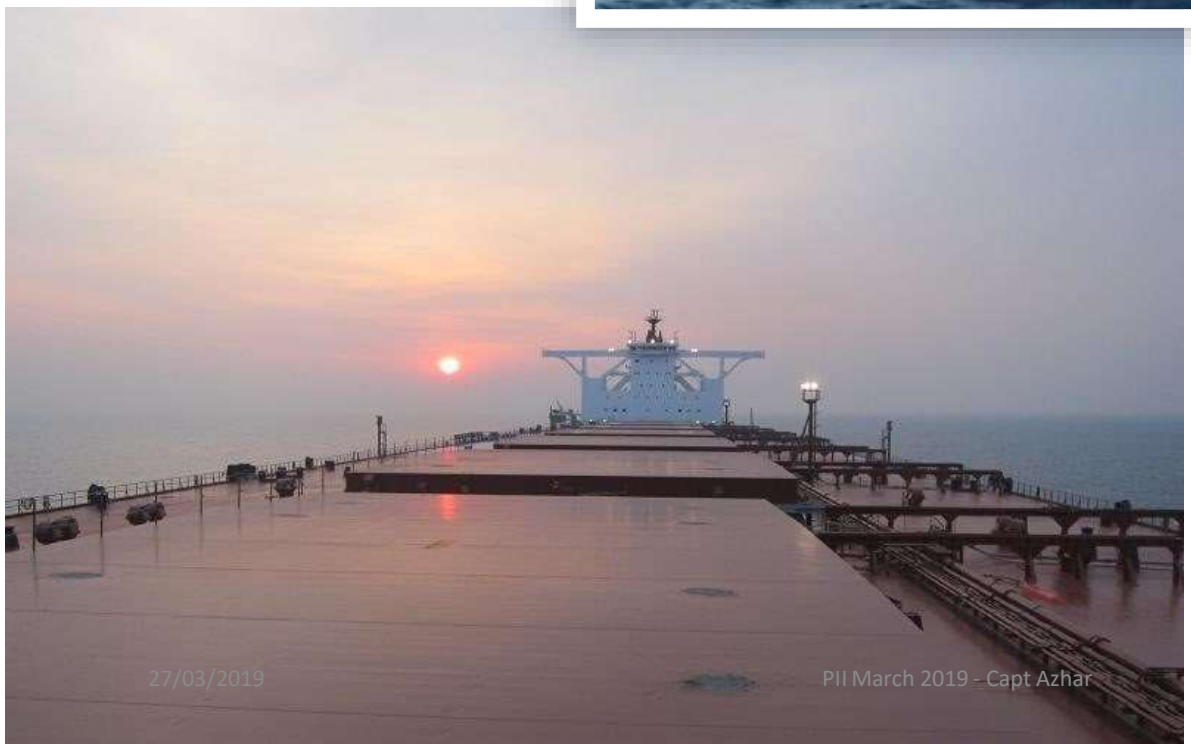
Self Trimming Bulk Carrier



Courtsey marine insight

Sea does not respect the Size ☺

Vale Brasil largest Dry Bulk



- Daewoo Shipping 2011
- 140 million $
- 402,347 DWT Ore Carrier
- 1,188 ft X 213 ft. draft 75'
- Speed 15.4 kts
- Crew 33

"underwriting"

Session 2

Insurance Cover – Broad Outline

Clause A is an all risks Form and covers all damages or loss of fortuitous nature unless excluded.

Clause B and C are named perils Clauses which cover following;

- Total Loss Actual or Constructive
- Partial loss to cargo by an insured peril in case of B and C and by any fortuity/accidental cause(s) in the case of (A).
- General Average Sacrifice
- General Average and Salvage Contributions
- Collision Liability (Both to Blame)
- Expenses such as :
  - Survey Fee and Reconditioning costs
  - Sue & Labour expenses (Loss mitigation)
  - Forwarding Expenses (when transit is terminated short of destination)

Institute Bulk Oil Clause

- RISKS COVERED 1 This insurance covers, except as provided in Clauses 4, 5, 6 and 7 below,
- 1.1 loss of or contamination of the subject-matter insured reasonably attributable to (direct)
  - 1.1.1 fire or explosion
  - 1.1.2 vessel or craft being stranded grounded sunk or capsized
  - 1.1.3 collision or contact of vessel or craft with any external object other than water
  - 1.1.4 discharge of cargo at a port or place of distress
  - 1.1.5 earthquake volcanic eruption or lightning,
- 1.2 loss of or contamination of the subject-matter insured caused by (in-direct)
  - 1.2.1 general average sacrifice
  - 1.2.2 jettison
  - 1.2.3 leakage from connecting pipelines in loading transshipment or discharge
  - 1.2.4 negligence of Master Officers or Crew in pumping cargo ballast or fuel,
- 1.3 contamination of the subject-matter insured resulting from stress of weather.

Institute Cargo Clause 'A'
All Risk

This insurance covers all risks of loss of or damage to the subject-matter insured except as excluded by the provisions of Clauses 4, 5, 6 and 7.

Examples of some typical perils;

- fire or explosion
- Grounding, Sinking, capsizing, Collision
- Accident to land Conveyance
- General average sacrifice or jettisoning.
- Forwarding Expenses (when transit is terminated short of destination) Theft
- Piracy, Theft
- Short Landing
- Water Damage, Contamination
- Heavy weather

That which has been sacrificed for the benefit of
shall be made good by the contribution of all

General Average

This insurance covers general average and salvage charges,

adjusted or determined according to the contract of carriage and/or the governing law and practice,

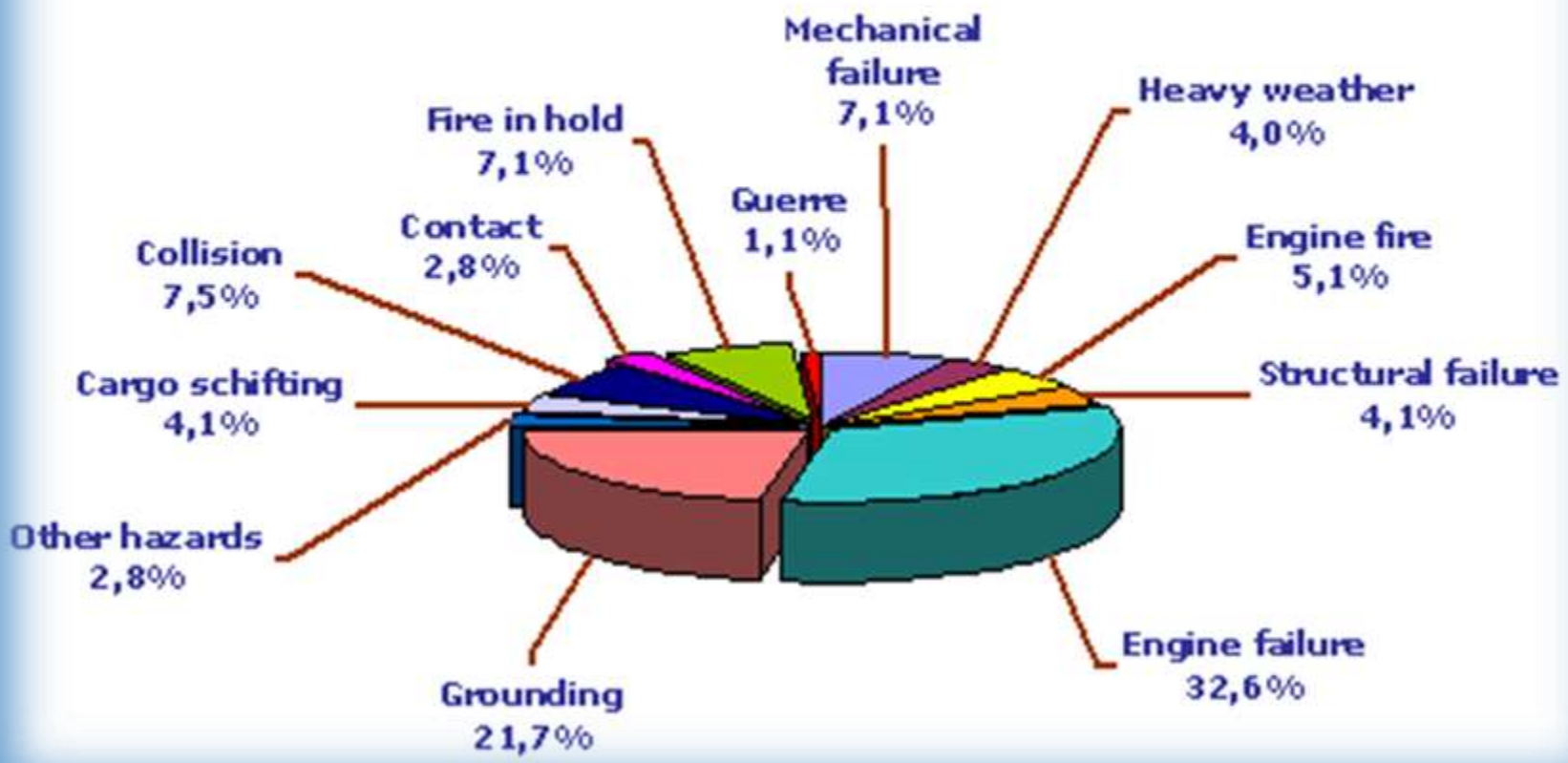
incurred to avoid or in connection with the avoidance of loss from any cause except those excluded in Clauses 4, 5, 6 and 7'

TYPICAL EXAMPLES

I. Jettison of cargo (throwing cargo overboard to lighten the vessel)
II. Hull and engine damage caused by efforts to refloat
III. Tugs engaged to assist refloating
IV. Hull and cargo damage caused by fire fighting
V. Discharge and reloading of cargo at a port of refuge
VI. Port of refuge expenses.

The causes of General Average by number of Claims

(Statistiques IUMI)



Both to Blame Collision clause

- Two ships collide.
- The cargo damage in ship A claims damages in full from ship B.
- Ship B pays 100% to Cargo ‘A’ and recovers 50% from Ship A.
- Ship A pays 50% to ship B and recovers that amount from the cargo Owner ‘A’ (he is indemnified by both to blame clause in B/L)

Exclusions in A,B & C

- Willful misconduct of the Assured
- ordinary leakage, ordinary loss in weight or volume, or ordinary wear and tear
- Insufficiency or unsuitability of packing. Only applies if the packing was done by the insured employees or it was done before the attachment.
- Inherent vice (self heating, oxidation, sweating)
- caused by delay, even though the delay be caused by a risk insured against (except expenses payable under Clause 2 above) G.AV
- Caused by insolvency or financial default of the owners managers charterers or operators of the vessel where the assured were privy to such default. Shall not apply if the insurance was assigned to a party who accepted in Good faith. (Hanjin shipping 2 bn)
- Atomic Weapon

Exclusions.....

- Clause 5 - Unseaworthiness (implied)
  - Basically applies if insured is privy to unseaworthiness of vessel or container does not apply to a assignee.
  - Warranty of seaworthiness in the course of transit
- Clause 6;
  - War, mines etc.
  - Capture, seizure, restraint (Piracy excepted Clause 'A' only)
- 7, excludes Strike, Riot, Terrorism etc.

8. DURATION (Transit Clause)

8.1 Subject to Clause 11 below, this insurance attaches from the time the subject-matter insured is first moved in the warehouse or at the place of storage (at the place named in the contract of insurance) for the purpose of the immediate loading into or onto the carrying vehicle or other conveyance for the commencement of transit, continues during the ordinary course of transit and terminates either

8.1.1 on unloading at the final warehouse or place of storage at the destination named.

8.1.2 on completion of unloading at any other warehouse, which the Assured elects to use either for **storage other than in the ordinary course of transit** or for allocation or distribution, or

8.1.3 when the Assured or their employees elect to use any carrying vehicle any container for storage other than in the ordinary course of transit or;

8.1.4 on the expiry of 60 days after completion of discharge over side of the subject-matter insured from the oversea vessel at the final port of discharge,

whichever shall first occur.

8. Duration Cont.....

8.2; In case of change of final destination, the insurance ceases the moment goods are moved to that destination.

8.3 cover extends during the delay beyond control, deviation, forced discharge trans shipment*, the duration is covered not the charges.*

(conditions of 8.1 remain effective)

9. Termination of Contract of Carriage.

The insurance terminates if transit terminates before destination under circumstances beyond control of insured however,

the insurance may be extended by underwriters on additional premium if so required and agreed.

10. Change of Voyage (destination)

Any change of destination shall be declared to insurers who may review the rates and terms.

11. Claims – insurable Interest

Insured must have an insurable interest to recover a loss

An insured who has an insurable interest can recover even if the loss has occurred before the attachment as long as he is not privy to it.

Subject to no loss ☹ ???

12. Forwarding Charges

Unloading, storing and forwarding charges are paid if the venture is terminated before destination by operation of an insured peril

Other clauses

Clauses 13 to 19 Cover miscellaneous aspects of Insurance most of which are of explanatory nature to the contract.

What is “Sue and Labor” ?

16.1; To take such measures as may be reasonable for the purpose of averting or minimizing such loss.

These expenses are, in general, paid in addition to any loss and at times may not attract any franchise or deductible.

War Clause

The Cover

- war civil war revolution rebellion insurrection, or civil strife
- capture seizure arrest restraint or detainment, arising from above.
- Derelict mines torpedoes bombs or other derelict weapons of war.

Other Peculiarities.

- Arrival is deemed to have occurred when the vessel first anchors, moors or otherwise secures either at or off the intended port or place of discharge.
- DURATION. The risk attaches after loading on ship and terminates max 15 days after discharge.
- Duration against Derelict mines etc. while cargo is on a craft in transit to or from overseas vessel, is extended to 60 days

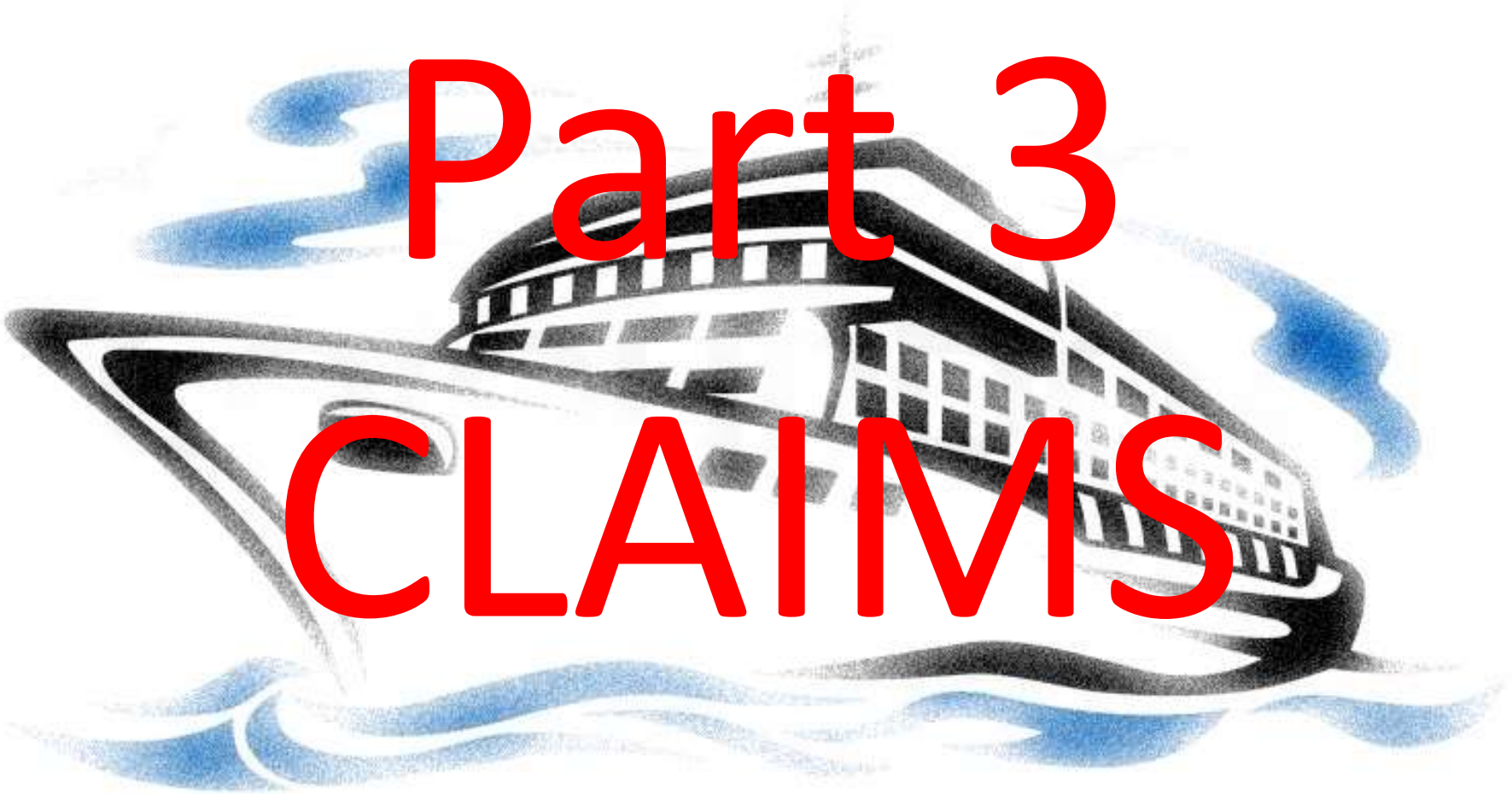
Strike Clause

The Cover:

- 1.1 strikers, locked-out workmen, or persons taking part in labour disturbances, riots or civil commotions
- 1.2 any act of Terrorism.
- General Average: due to the above act(s)

All other clauses, exclusions etc., are similar to Clause A.

Only direct damages are covered



Part 3
CLAIMS

Common Claims

1) Grounding, Sinking
2) Fire, explosion.
3) Heavy Weather.
4) Collision.
5) Spontaneous Combustion

6) Theft, Pilferage, mishandling, water ingress.
7) Short Landing
8) General Average.
9) Liquid cargoes- contamination, pollution liability

Sources of Damage to Dry Bulk

Wet Damage

- Defective water tightness of Hatch covers.
- Water Ingress through bilge pipes or tank top.
- Leakage through sounding pipes or vents in heavy weather.
- Rain. During loading, discharging and at port
- Sweating damage

Contamination

- Paint
- Poor Hold preparation, rusty holds, Fert and soda ash etc are most susceptible
- Poor stowage
- Pipe Leak, bunker
- Hold Leak, water or fuel.
- Residual cargo left in certain pockets, rots and mixes with new

Short Landing

Sinking

- July 6 2013 FU Sheng Hai
- China Sea.
- Cargo of steel

- Atlantic Confidence 31.03.2013
- Sank Off Masirah.
- 11,980 tones of steel for Karachi of 700 million Rs.

https://en.wikipedia.org/wiki/List_of_shipwrecks_in_2017#January

Grounding

- 28.03.2003, ran aground in Karachi Harbor
- 67,535 tns Crude, over 27,000 spilled
- Smith Salvage removed the wreck
- General Average declared

Tasman Spirit

General Average

Port of Refuge – the Concept

Typical G. Ave. Calculation

Expense	PA	G.Av
Original Dist and time on Passage		1,524
revised distance/time		1,979
difference		455
Salvage Contract		100,000
Ship repair cost	350,000	
detention in port 15 days for repairs		
Fuel and stores	20,000	50,000
crew wages		60,000
Surve fee, Misc		100,000
over time		15,000
port Charges		50,000
misc stores etc		20,000
Toatal	170,000	395,000
apportionment		
Cost of Ship		6,000,000
Cargo 50,000 tons seed		15,000,000
		21,000,000
Contribution Of Ship	29	112,857.14
Contribution of cargo	71	282,142.86
Total		395,000.00
as percantage of cargo value		1.88%

Purely indicative

Short Landing
Dry Bulk Weighment

No technical means to determine the exact weight of a dry bulk cargo on a ship .

- Approximate weights may be found by space measurement on ship or by draught survey but none is accurate enough to verify shippers weight or loss in transit.
- The accuracy of shore weighing scale of bagged and bulk cargo is + - 0.2%.
- Conveyor weigh-belt systems are ±2.0%.
- Draft Surveys are generally accepted as being accurate to + - 0.5%.
- Loss of moisture?

The problem arises when the B/L contains shore weighment and discharging could be a hybrid of shore weighment/draft survey

Source : https://safewatersmarine.com/dry-bulk-measurements-and-other-challenges-facing-the-marine-industry/

Draft Survey of M.V Tambakto loaded 48,500 M.T of Ca

	ARRIVAL	DEP
Draft	7.55	11.68
Corresponding Disp in S.W	21,746	58,690
Density of Discharge port	1.005	1.005
Sea Water Density	1.025	1.025
Disp. Corrected for density	21,322	57,545

Displacement on Departure	57,544
Displacement on arrival	21,321
Difference 'A'	36,223
Add Ballast water discharged 'B'	12,320
Add Fuel & water Consumed 'C'	24
Total Cargo Loaded = A+B+C	48,567

Liquid Bulk Shortages; In general

- Oil shortage claims are based on B/L quantity and actual out turn at discharge Port.

- Both these figures are frequently derived from shore tank calibration data.

- Most Common argument;
  - The ship is bound B/L figures.
  - The shore tank calibrations are more accurate than the ship's tank calibrations.
  - The oil, if contaminated. has become so by water after loading or;
- Some oil remains on board the ship.

https://www.ukpandi.com/fileadmin/uploads

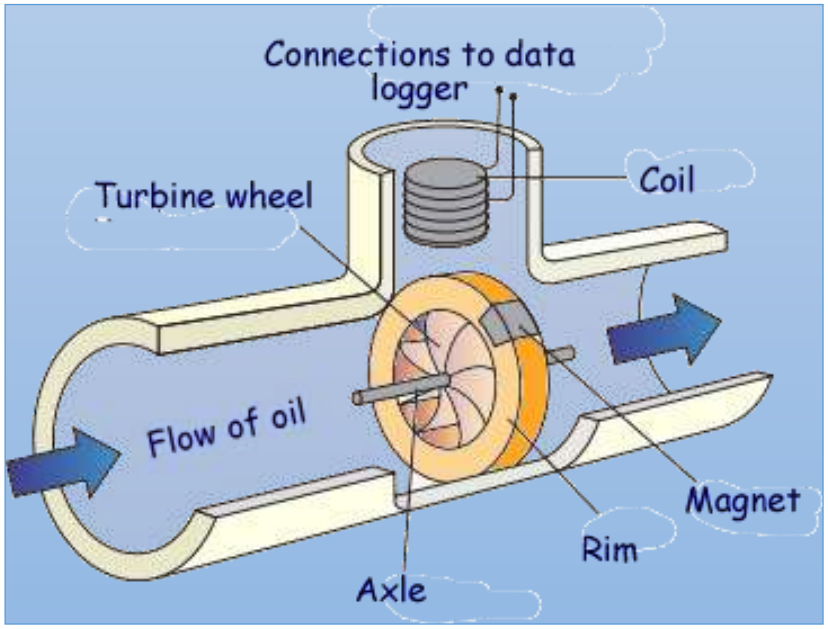
Short Landing – Liquid Bulk

- Volumetric Measurement
  - Loading – discharging by flow meter
  - Ullage/density readings
  - Very fine density calculation – temperature
- Weight Measure
  - Draft survey
- Other Factors
  - Discharging order
  - Pigging
  - Length of pipeline. Live example
  - Tank certificate

Oil Terminal - discharge system

https://corporate.exxonmobil.com/en/Locations/Hong-Kong/Hong-Kong-operations#tsingYiTerminals

Typical flow meter- Oil Volume Measurem



PIG in oil line

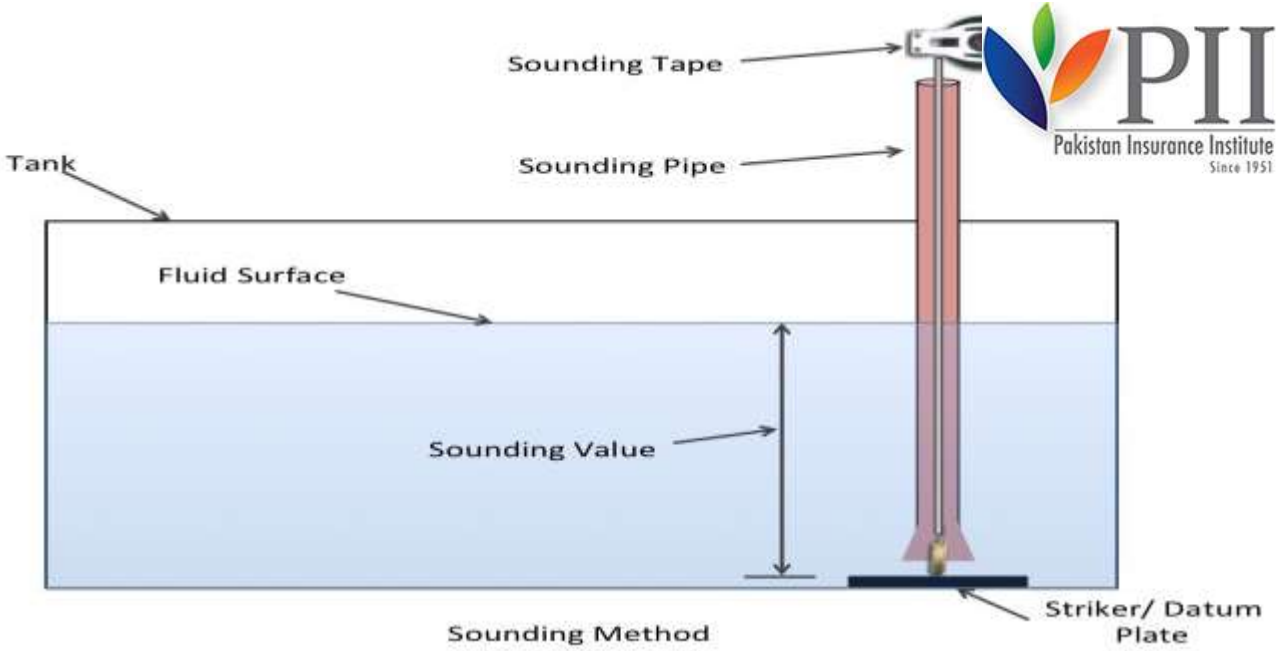
https://broiltech.com/oil-flow-meter/47 sonar flow meter on gas line

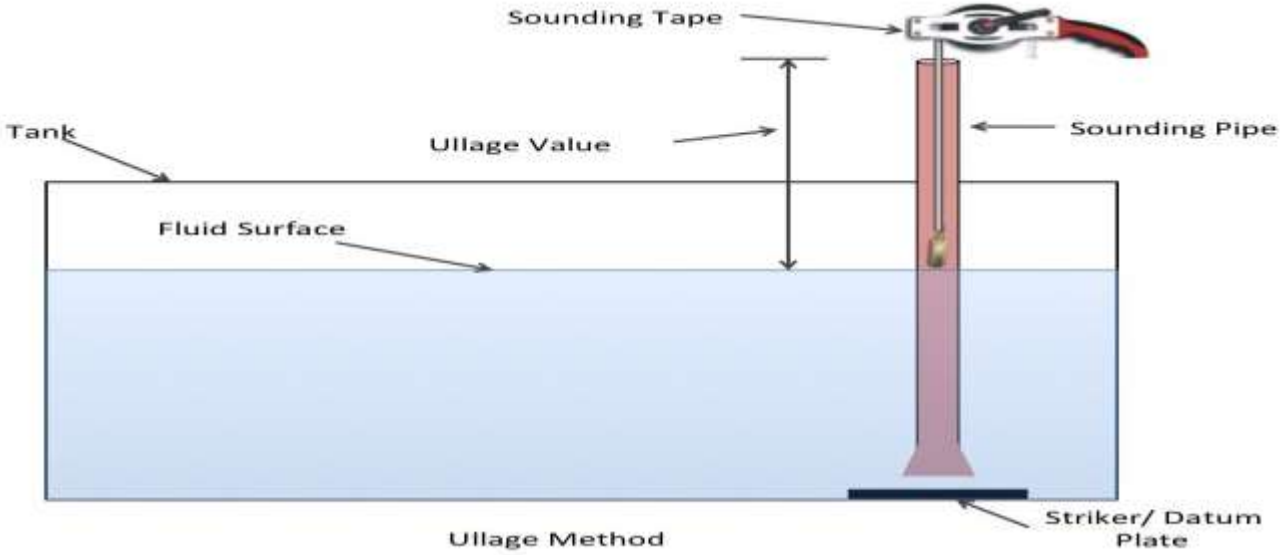
www.omega.com/techref/flowcontrol.html
http://www.fueldump.co.uk/blog/guide-choosing-correct-fuel-flow-meter/

Oil Tank

Volume calculation by

ULLAGE





https://www.marineinsight.com/guidelines/how-and-why-to-take-manual-sounding-on-a-ship

Thank You