



#### **'CMA-CGM Marco Polo'**





# 'Maersk Mc-Kinney Moller'







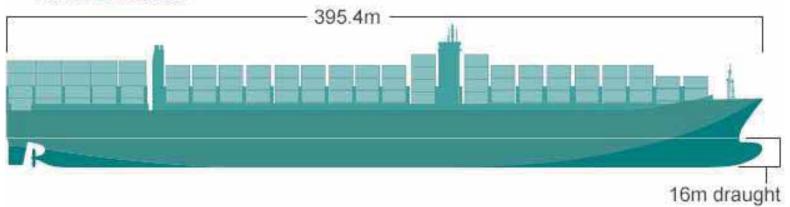


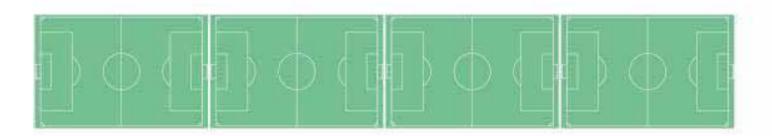


# MSC Oscar is the biggest container ship in the world

Capacity: 19,224 containers

Width: 59 metres









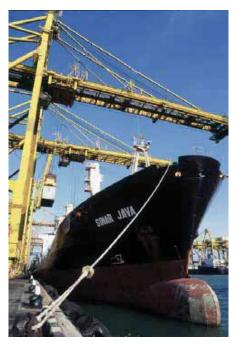
#### Overall impact of increasing ship size

#### **Shipping Lines:**

- Benefits of
  - reduced ship operating costs
  - lower cost per container moved
  - improved environmental impact
- Risks of
  - reduced manoeuvrability & increased 'windage'
  - potential single loss of ship and cargo
  - missing optimum capacity targets

#### **Ports and Terminals:**

- Risks of
  - initial & maintained berth & channel dredging
  - capex for longer berths, craneage & yard infrastructure
  - berthing challenges (tugs, mooring lines & bollards)
  - congestion within & outside terminal





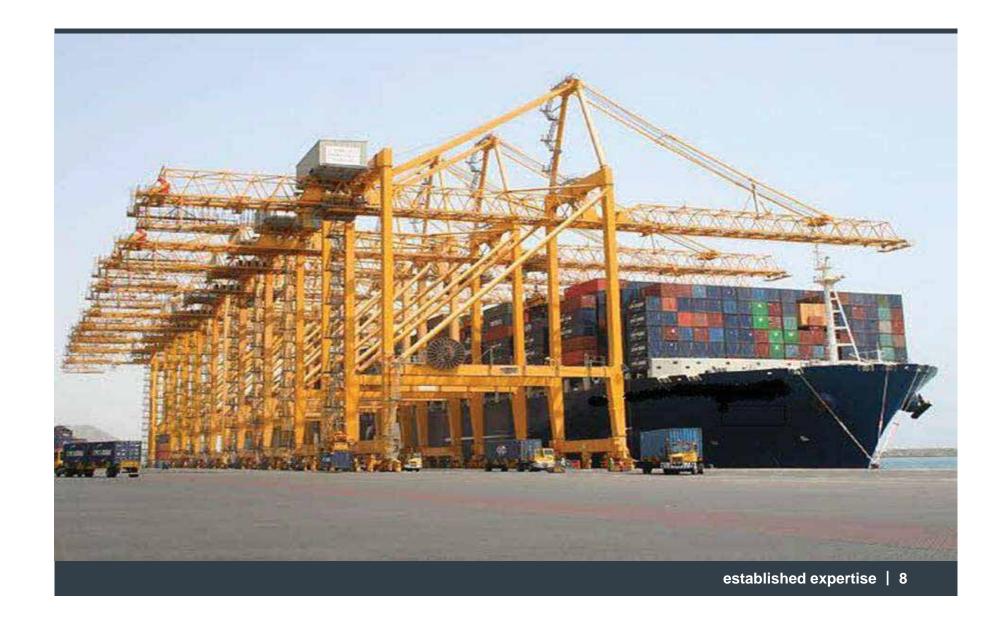




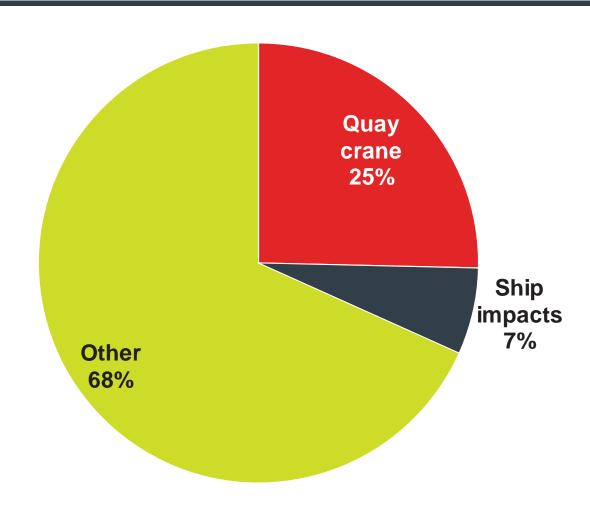
Impact of bigger ships	
Typical incidents at ports & terminals	08
Impact of incidents at sea	18
Loss prevention actions & Conclusions	21



# Bigger ships require bigger and more cranes







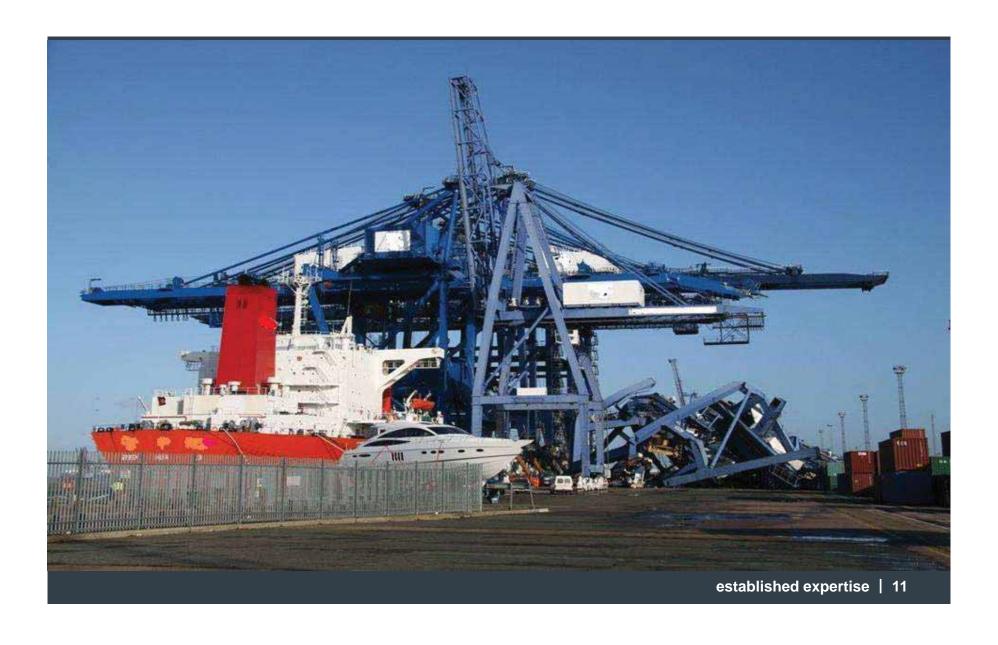


# Ship collisions with berth

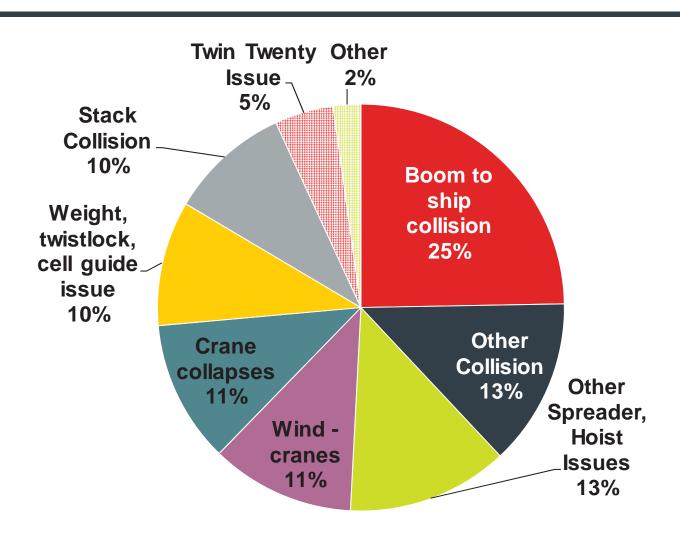




# Ship collisions with cranes















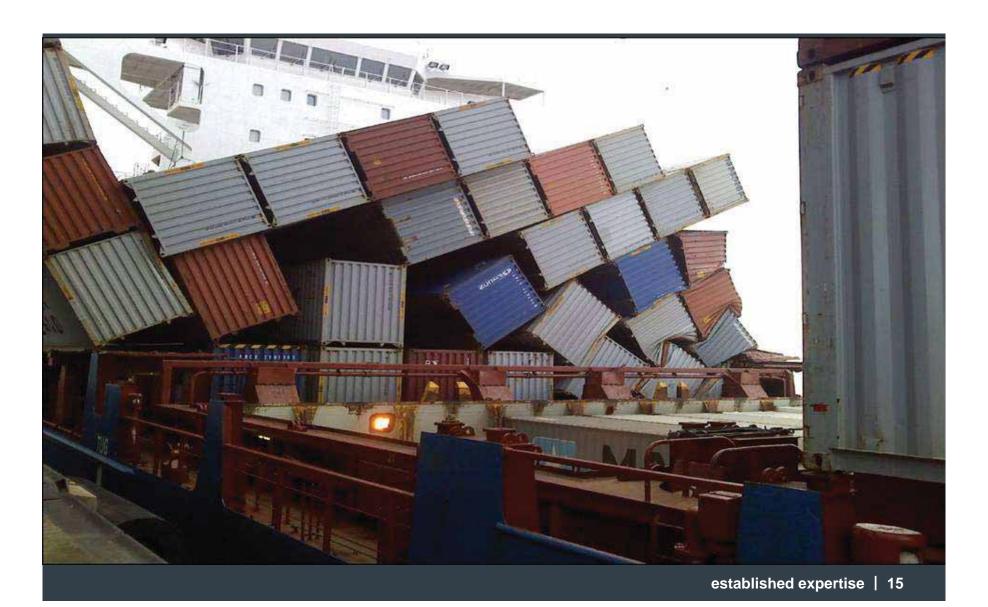


# Windstorm – crane blown along wharf



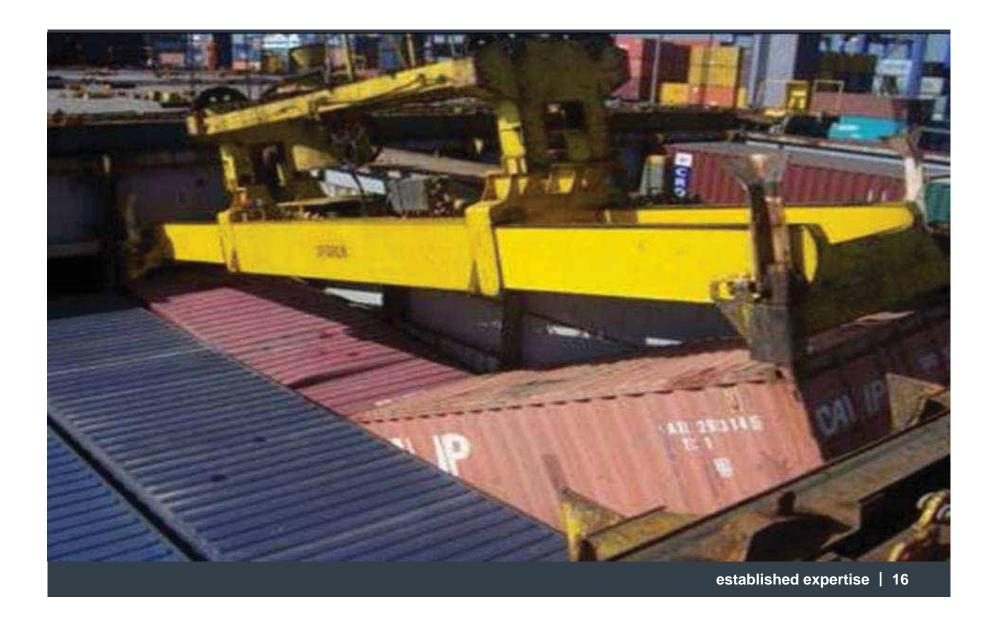












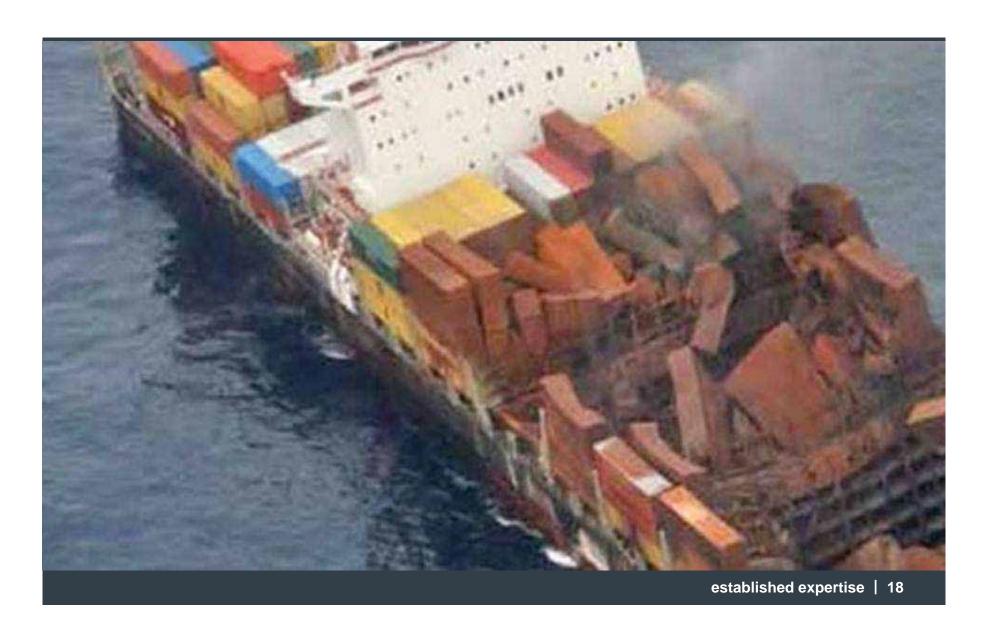




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### 'Emma Maersk', Suez Canal, Feb 2013







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#### **Loss prevention actions & Conclusions**

#### **Shipping Lines:**

- Ensure good master / pilot communications
- Contract for tugs of sufficient capacity & number
- Expect to go to sea when storm forecast

#### **Ports and Terminals:**

- Position quay cranes in the centre of the berth
- Specify & maintain cranes appropriately
- Expect & plan for storm conditions
- Consider automation







# Thank you Any questions?

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