Mega-Ship Math –
Determining a Winning Formula

May 8, 2014
Setting the Table

• Ship sizes inevitably increase as carriers seek economies of scale and reduced costs on per box basis
• Mega vessels entering Asia-Europe trade forcing cascade of “former” mega vessels into TP trade
• Opening of new Panama Canal locks in 2015 to allow larger vessels to call U.S. East Coast without going via Suez
• East Coast ports competing to be gateway of choice for larger vessels
How Big are We Talking?

• Not the biggest ships in the world (those are in Asia-Europe)
• On average not significantly smaller than ships serving USWC ports
• Remains to be seen if demand will drive plethora of big ships to USEC
Maximum Vessel Size Asia-USWC

Source: BlueWater Reporting (as of April each year)
Average Vessel Size Asia-USWC

Source: BlueWater Reporting (as of April each year)
Maximum Vessel Size Asia-USEC

Source: BlueWater Reporting (as of April each year)
Average Vessel Size Asia-USEC

Source: BlueWater Reporting (as of April each year)
Biggest Ships by Carrier Asia-Pacific SW

Source: BlueWater Reporting (as of April 2014)
Biggest Ships by Carrier Asia-Pacific NW

Source: BlueWater Reporting (as of April 2014)
Biggest Ships by Carrier Asia-North Atlantic

Source: BlueWater Reporting (as of April 2014)
Biggest Ships by Carrier Asia-South Atlantic

Source: BlueWater Reporting (as of April 2014)
Implications of Big Ships on East Coast Ports

• Longer turn times or delayed cargo releases?
• Can inland infrastructure keep up with size of ships?
• Will larger ships exacerbate equipment issues?
• Will chassis problems worsen?
• Impact on shippers’ carrier diversification?
• Does risk for shippers rise with fewer ships handling more of their cargo?
Mega Ship Math
Virginia Maritime Association
May 8, 2014
Big Ship Evolution – The Trickle Down Effect

- 14,000 TEU
- 12,000 TEU
- 8,000 TEU
- 5,000 TEU
- 4,500 TEU
- 18,000 TEU
5,000 TEU
**NYK CONSTELLATION – PANAMAX CLASS**
4882 TEU Capacity, 650 Reefer Slots
DWT – 65,867, LOA – 294.10 M (669 feet)
Beam - 32.2 M (105 feet), Height ?
Draft - 13.5 M (44 feet)
Containers Across - 11

8,000 TEU
**OOCL LONG BEACH – PPX CLASS**
8063 TEU Capacity, 700 Reefer Slots
DWT – 99,500, LOA – 323 M (1059 feet)
Beam – 42.8 M (140 feet), Height ?
Draft - 14 M (46 feet), Containers Across – 13

12,000 TEU
**MSC FABIOLA – NPX CLASS**
12,562 TEU Capacity, 650 Reefer Slots
DWT – 65,867, LOA – 366 M (1,201 feet)
Beam - 48.2 M (158 feet), Height 195 - 210’ aprx.
Draft - 13.5 M (44 feet) Containers Across - 15
**18,000 TEU**

**MAJESTIC MAERSK TRIPLE E CLASS**
- 18,270 TEU Capacity, Reefer Slots
- DWT – 196,000, LOA – 399 M (1309 feet)
- Beam – 59 M (193.6 feet),
- Height – 73 M (239’ 6”)
- Draft - 14.5 M (48 feet)
- Containers Across - 23

**16,020 TEU**

**CMA CGM ALEXANDER VON HUMBOLDT ULCV CLASS**
- 16,020 TEU Capacity, Reefer Slots 1,100
- DWT – 157,092, LOA – 395 M (1296 feet)
- Beam – 54 M (177 feet),
- Height –
- Draft - 16 M (52’ 6”)
- Containers Across - 21
Locks and vessels sizes

Existing locks' maximum vessel size: 4,400 TEU

New locks' maximum vessel size: 12,600 TEU
**Typical Quayside Crane**
- **Gantry Span** – 15 – 35 M (49 – 115)
- **Outreach** – Typically 12 to 15 TEU
- **Backreach** – 25 M (82 feet)
- **Lift Height** – 24 M (78’) aprx
- **Clearance under Sill Beam** – 12 – 18 M (39’ – 59’)

**Panamax Quayside Crane**
- **Gantry Span** – 15 – 35 M (49 – 115 feet)
- **Outreach** – 30 to 40 M (98 to 131 feet)
- **Backreach** – 25 M (82 feet)
- **Lift Height** – 24 to 30 M (78’ to 98’)
  - Travel Speed – 25 M/min (82'/min)
  - SWL 40/50 T Single 65 T Twin

**Post Panamax Quayside Crane**
- **Gantry Span** – 15 – 35 M (49 – 115 feet)
- **Outreach** – 46 to 69 M (150’ to 226’)
- **Backreach** – 25 M (82 feet)
- **Lift Height** – 35 to 49 M (115’ to 161’)
  - Travel Speed – 45 M/min (147'/min)
  - SWL 40/50 T Single 65 T Twin

**Mega Max (SPP) Cranes**
- **Gantry Span** – 35 M (115 feet)
- **Outreach** – 46 to 69 M (150’ to 226’)
- **Backreach** – 25 M (82 feet)
- **Lift Height** – 35 to 49 M (115’ to 161’)
  - Travel Speed – 45 M/min (147'/min)
  - SWL 65 T Twin 80 T Tandem

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**From Liebherr Brochure**

A – Gantry Span  
B – Outreach  
C – Backreach  
D – Lift Height  
E – Clearance under Sill Beam  
SWL – Lift Weight

Travel Speed partially determines lifts per hour
Bayonne Bridge

Air Draft will be an issue for some East Coast Ports
Getting out the gate
SCIG is expected to handle approximately 570,800 TEUs (twenty-foot equivalent units).

By 2035, SCIG is projected to handle a maximum of 2.8 million TEUs.
Battle for Discretionary Cargo

- La/Lb
- Oak
- Sea/Tac
- Houston
- Savannah
- Norfolk
- NY/NJ
- Eastern Canada
- Prince Rupert
- Lazaro Cardenas

Depth 50' or greater
Depth 45' or less

Lazaro Cardenas
PANYNJ Greenville Expansion Project

Global Terminal
NY& NJ RR Carfloat Yard
Conrail Auto Rail Terminal
Proposed Intermodal Rail Facility
Additional Container Terminal
BMW Vehicle Processing
Global Terminal
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