East Coast Ports are Mega-Ship Ready: Now What?

Monday, September 17th, 2018
11:30 am – 12:30 am
Long Beach Convention Center
Long Beach, CA
East Coast Ports are Mega-Ship Ready: Now What?

**Moderator:**
- David Adam, Chief Executive Officer, USMX

**Panelists:**
- Lawrence Burns, Senior Vice President of Trades, Hyundai Merchant Marine
- Argelis Moreno de Ducrues, Executive Vice President, Panama Canal Authority
- Jim Newsome, President & CEO, South Carolina Port Authority
- Eric Olafson, Director of Global Trade and Business Development, PortMiami
Expansion Plan (New Orders 1/2)

HMM to order eco-friendly mega containerships

- Orders placed for twelve 23,000 TEU & eight 14,000 TEU mega containerships
- Accelerate HMM’s ‘Capacity of 1 Million TEU’ strategy
- Seven 23,000 TEU at DSME
  - Five 23,000 TEU at Samsung Heavy Industries
  - Eight 14,000 TEU at Hyundai Heavy Industries

HMM has selected shipbuilders to build eco-friendly mega containerships which fulfill its ‘Capacity of 1 Million TEU’ strategy.

First, HMM chose Daewoo Shipbuilding & Marine Engineering (DSME) and Samsung Heavy Industries for seven and five 23,000 TEU containerships respectively which are expected to deliver in the second quarter of 2020. HMM also selected Hyundai Heavy Industries for eight 14,000 TEU containerships to be delivered in the second quarter of 2021.

HMM orders of total twenty mega vessels: **twelve above 20,000 TEU and eight 14,000 TEU vessels** which are considered to deploy in the Asia-North Europe and US East coast trades respectively.

The International Maritime Organization (IMO) is moving forward with a marked reduction in the maximum sulfur content bunker fuel oil from 3.5% to 0.5% on January 1, 2020. To comply with the new environmental regulations, HMM will opt for **scrubber installation or LNG bunkering** for all the newbuilding vessels after thorough discussions with the finally selected shipbuilder.
HMM launches two 11,000 TEU containerships equipped with scrubber systems

On July 5, HMM held a launching ceremony for a newly-built 11,000 TEU containership, HMM PROMISE in Busan in front of about 100 concerned persons, including C.K. YOO (HMM CEO), Hyun-Soo Bong (Hanjin Heavy Industries & Construction), and Biwon Kang (Busan Port Authority).

HMM PROMISE and her sister ship, HMM BLESSING which was also recently delivered to HMM were equipped with scrubber systems to significantly reduce sulfur emission.

The scrubber system was retrofitted to the ship after she was delivered to HMM last August from Subic-based Korean shipbuilder Hanjin Heavy Industries & Construction in the Philippines. This move was made in preparation of the 2020 environmental regulations.

The HMM PROMISE is the world’s first commercially operating mega container vessel of more than 11,000 TEUs equipped with a large scrubber system and her engine that ensures optimal economic speed and performance is expected to save fuel,” said an HMM official.

The HMM PROMISE will be deployed in East Coast of South America, while the HMM BLESSING, a sister vessel delivered from the same dockyard, will cover the West Coast of South America.
The Panama Canal Expansion and its Impact on the East Coast Ports

Argelis Moreno de Ducreux
Senior Specialist, Liner Services Segment
Panama Canal Authority
September 17, 2018
The Panama Canal
It’s all about Reliability, Connectivity, and Value Added Services

ASIA

PANAMA
Approximately 18 to 20 days at 18 knots

77% of container vessels that transit the Panama Canal call at a local port

Kingston (Jamaica)
1-2 days

Cartagena (Colombia)
Less than 1 day

Savannah, Charleston, Norfolk
3-4 days

Houston
1-2 days

Savannah, Charleston, Norfolk
3-4 days

San Antonio (Chile)
5-6 days

Santos (Brazil)
10-11 days

Lazaro Cardenas (Mexico)
3-4 days

Callow (Peru)
3-4 days

San Antonio (Chile)
5-6 days

Lazaro Cardenas (Mexico)
3-4 days

Santos (Brazil)
10-11 days

77% of container vessels that transit the Panama Canal call at a local port

NOT FOR DISTRIBUTION OF REPRODUCTION
The Expanded Panama Canal
Dimension of Locks and New-Panamax Vessels

Existing Locks Max Vessel: **4,400 TEU**
- Length: 33.5 m (110’)
- Width: 12.4 m (39.5’)
- Height: 12.8 m (42’)

Current Locks
- Length: 304.8 m (1,000’)
- Width: 32.3 m (106’)
- Height: 18.3 m (60’)

New Locks
- Length: 427 m (1,400’)
- Width: 15.2 m (50’)

New Locks Max Vessel Size: **14,900 TEU**
### Neopanamax Locks – Vessel Transits (From Jun/26/2016 – Sept 9, 2018)

<table>
<thead>
<tr>
<th>Type</th>
<th>Vessels</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container</td>
<td>1,945</td>
<td>52.3%</td>
</tr>
<tr>
<td>LPG</td>
<td>1,021</td>
<td>27.4%</td>
</tr>
<tr>
<td>LNG</td>
<td>370</td>
<td>9.9%</td>
</tr>
<tr>
<td>Dry Bulk</td>
<td>219</td>
<td>5.9%</td>
</tr>
<tr>
<td>Liquid Bulk*</td>
<td>79</td>
<td>2.1%</td>
</tr>
<tr>
<td>Ro Ro</td>
<td>58</td>
<td>1.6%</td>
</tr>
<tr>
<td>Passengers</td>
<td>20</td>
<td>0.5%</td>
</tr>
<tr>
<td>Others</td>
<td>8</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

**Total Neopanamax: 3,720**

*Graneles líquidos: Crudo, productos químicos y cisternas*
CMA CGM Theodore Roosevelt
August 22, 2017

Transit Record
Vessel Capacity: 14,863 TEU

Record Before Expansion
Vessel Capacity: 5,400 TEU
## Container Vessel Fleet

<table>
<thead>
<tr>
<th>Vessel size</th>
<th>Existing fleet as of August 2018</th>
<th>Orderbook 2018-2021</th>
<th>Estimated Fleet in 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of vessels</td>
<td>Capacity (thousands of TEUs)</td>
<td>No. of vessels</td>
</tr>
<tr>
<td>Panamax or less</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;1,000 &lt;=5,100</td>
<td>3,634</td>
<td>69.0%</td>
<td>7,019</td>
</tr>
<tr>
<td>Neopanamax</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;7,000</td>
<td>621</td>
<td>31.8%</td>
<td>3,413</td>
</tr>
<tr>
<td>&gt;=7,000 &lt;10,000</td>
<td>515</td>
<td>9.8%</td>
<td>4,477</td>
</tr>
<tr>
<td>&gt;=10,000 &lt;=14,000</td>
<td>301</td>
<td>5.7%</td>
<td>3,643</td>
</tr>
<tr>
<td>Post Panamax</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;=14,000 &lt;20,000</td>
<td>158</td>
<td>3.0%</td>
<td>2,535</td>
</tr>
<tr>
<td>&gt;= 20,000</td>
<td>34</td>
<td>0.6%</td>
<td>699</td>
</tr>
<tr>
<td>Total</td>
<td>5,263</td>
<td>100%</td>
<td>21,786</td>
</tr>
</tbody>
</table>

Source: Fairplay World Fleet as of August 2018.
Today,

- By 2021, 96% of all container vessels can transit the Panama Canal.
- It’s estimated that 82% of the world’s containerized capacity could transit the Panama Canal.
- USEC Ports that can serve the largest Neopanamax vessels transiting the Canal could also benefit.

**Source:** ACP MEMN, IHS Fairplay, August 2018.
Neopanamax Vessel Size by USEC Port
Deployed in Services through the Panama Canal

Vessel Size by USEC Port

Source: ACP MEMN, Compair Data, July 2018.
The expansion impact in container supply chain and customers

**Associated effects generated by larger vessels**

<table>
<thead>
<tr>
<th>Generates economies of scale to carriers = Transportation cost reduction</th>
<th>Reduction of CO2 Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The larger the vessels the fewer number of port calls</td>
<td>Modernization of Port Infrastructure</td>
</tr>
<tr>
<td>Increases/equates the Panama route competitiveness in relation to alternatives</td>
<td>Increases the competitiveness of a range of export commodities for some countries</td>
</tr>
</tbody>
</table>

20% less in first 10 years!
USEC Cargo Movements through the Panama Canal

Total TEU Moved through the Panama Canal from/to USEC Ports

- Transpacific shipping Alliances start operations.
- Revamped liner networks.

TEU


450,000 400,000 350,000 300,000 250,000 200,000 150,000 100,000 50,000 0

Headhaul Backhaul
Import Volumes of Major USEC Ports

Source: Global Port Tracker, September 2018.

*Second half of 2018 uses forecasted values.
Diversification Strategy: Business Development

- **Logistics Park**: Offers a strategic location for value-added services and cargo distribution.
- **Corozal Container Terminal**: More transshipment generates a necessity for larger capacity container terminals.
- **Bunkering**: Opportunities to increase market share in vessel fueling through efficient operations.
- **Energy Generation**: Economically competitive through the use of LNG as an alternate energy source.
- **LNG Terminal**: Capitalize on global LNG flows, offer LNG bunkering to vessels, regional redistribution opportunities.
- **Pipelines**: Petrochemical and refined products transport opportunities from one ocean to the other.
- **Ship Repair Services**: There is a need for facilities to provide major scheduled ship repairs, routine maintenance or emergency repairs.
- **Top-Off Operations**: Potential to develop ship-to-ship top-off operations in Panama.
Thank You!

AMDucreux@pancanal.com
East Coast Ports are Mega-Ship Ready: Now What?

Jim Newsome, President and CEO
Overview of SC Ports

- 9th Largest U.S. Container Port
- Fastest Growing Since 2009 → 8% CAGR
- Ample Capacity Planned Along with Significant Investment
- Harbor Deepening to Achieve 52 Feet (MLW) By 2021
- Significant Share of Cargo Move by Intermodal Container (24%)
- A Robust Inland Port Network
- Planning Longer Gate Hours
- Thought Leader in Terms of Demurrage/Chassis
- Significant State Support to Augment Investment Requirements
- A Progressive Port That Works Well, Anticipates Trends and Minimizes Supply Chain Risk
Status of Global Container Shipping

- Consolidation Largely Complete = 7 Major Lines
- Three Mega Alliances
- Continued Shift to U.S. East Coast
- Many Big Ships Delivered This Year
- Sulfur Cap in 2020 Leads to Further Scrapping
- Lines Will Need to Increase Rates to Survive
- More Favorable Supply vs. Demand Situation
## Top 10 U.S. Ports Container Volume Update 2009-2017

(in TEU x Millions)

<table>
<thead>
<tr>
<th>Port</th>
<th>2009</th>
<th>2016</th>
<th>2017</th>
<th>CAGR 2009-17</th>
<th>TEU Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Los Angeles</td>
<td>6.75</td>
<td>8.86</td>
<td>9.34</td>
<td>4.1%</td>
<td>2.59</td>
</tr>
<tr>
<td>Long Beach</td>
<td>5.07</td>
<td>6.78</td>
<td>7.54</td>
<td>5.1%</td>
<td>2.47</td>
</tr>
<tr>
<td>NY/NJ</td>
<td>4.56</td>
<td>6.25</td>
<td>6.71</td>
<td>4.9%</td>
<td>2.15</td>
</tr>
<tr>
<td>Savannah</td>
<td>2.36</td>
<td>3.64</td>
<td>4.05</td>
<td>7.0%</td>
<td>1.69</td>
</tr>
<tr>
<td>NWSA (Sea-Tac)</td>
<td>3.13</td>
<td>3.62</td>
<td>3.67</td>
<td>2.0%</td>
<td>0.54</td>
</tr>
<tr>
<td>Norfolk</td>
<td>1.75</td>
<td>2.66</td>
<td>2.84</td>
<td>6.2%</td>
<td>1.09</td>
</tr>
<tr>
<td>Houston</td>
<td>1.81</td>
<td>2.18</td>
<td>2.46</td>
<td>3.9%</td>
<td>0.65</td>
</tr>
<tr>
<td>Oakland</td>
<td>2.04</td>
<td>2.37</td>
<td>2.42</td>
<td>2.2%</td>
<td>0.38</td>
</tr>
<tr>
<td>Charleston</td>
<td>1.18</td>
<td>2.00</td>
<td>2.18</td>
<td>8.0%</td>
<td>1.00</td>
</tr>
<tr>
<td>Port Everglades</td>
<td>0.79</td>
<td>1.04</td>
<td>1.08</td>
<td>4.0%</td>
<td>0.29</td>
</tr>
<tr>
<td>Top 10</td>
<td>29.44</td>
<td>39.40</td>
<td>42.29</td>
<td>4.6%</td>
<td>12.85</td>
</tr>
<tr>
<td>All U.S. Ports</td>
<td>37.53</td>
<td>48.74</td>
<td>52.40</td>
<td>4.3%</td>
<td>14.87</td>
</tr>
<tr>
<td>Top 10 %</td>
<td>76%</td>
<td>81%</td>
<td>81%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: AAPA
FY 2018 in Review

- 1.25 Million Pier Containers
- $85 Million in Operating Cash Flow
- $240 Million Capital Investment
- Routinely Hitting 7,000 Gate Transactions Per Day
- Average Move Count in Excess of 1,000 Containers
- In Spite of BMW Model Changeover
- 125,000 Inland Port Rail Moves Inland Port Greer
- Opened Inland Port Dillon
U.S East Coast Services & the Panama Canal in Context

- WC/EC Split in Asia trade:
  - 2002 = 85% WC/15% EC/GC
  - 2018 = 65% WC/35% EC/GC
  - 2025 = 50% WC/50% EC/GC

- Multiple 13,000 TEU Strings Now on EC

- Ports Playing Catch Up on Infrastructure
  - Wharves
  - Crane Heights
  - Densification
  - Gates
  - Harbor Deepening
  - Port Dependent Land
  - Inland Ports

- 13,000 TEU ships will need deeper draft as more loads versus empties

- Panama Canal regained share

- Not all 13,000-14,000 TEU ships can go via Panama Canal
Wando Terminal Refurbishment Project

- Total $370 million project completed at end of 2019
- Adding about 700,000 TEU of capacity on existing footprint
- Following features once completed:
  - 13 STS cranes (9 with 155 feet of lift height)
  - 62 RTGs plus 23 empty handlers
  - 3800 feet of wharf = 3 Neo Panamax Ships
  - 40 Gates (27 inbound and 13 outbound)
  - New 35 acre chassis yard
  - Enhanced Traffic Flow Pattern
South Carolina
Inland Ports

Inland Port Greer

Inland Port Dillon

## Charleston Capacity Assumptions

### Original and Revised

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Original</th>
<th>Revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wando Welch</td>
<td>2.0 Million TEU</td>
<td>2.4 Million TEU</td>
</tr>
<tr>
<td>North Charleston</td>
<td>0.8 Million TEU</td>
<td>0.4 Million TEU</td>
</tr>
<tr>
<td>Hugh Leatherman Terminal</td>
<td>1.4 Million TEU</td>
<td>2.4 Million TEU</td>
</tr>
<tr>
<td>Total TEU</td>
<td>4.2 Million TEU</td>
<td>5.2 Million TEU</td>
</tr>
</tbody>
</table>

*North Charleston reduced due to bridge height for big ships.*
Harbor Deepening on Track

- Feasibility Study Completed in 6 Years = FAST
- Total Project Cost = $558 Million
  - $287 Million Federal
  - $271 million State
- SC Legislature Has Given $350 Million
- Federal Government Has Given $67 Million
- Deepening Has Started
  - Working in Entrance Channel with 3 Dredges
  - Will Let Contract to Wando Terminal by End of 2018
- Project Complete in March 2021
- A Deep Draft Navigation Project Completed in 10 Years
- Deepest Harbor on US East Coast at 52 ft MLW
**South Carolina Port Investments**

*In order to provide a clearer scope of the scale of SCPA CAPEX commitment, the expenses shown indicate initial and future expenses for these projects.*

---

### $2.3 Billion CAPEX Plan Supporting SC Ports

Recent & Planned Investments Through FY2022 (Shown in Millions of Dollars)

<table>
<thead>
<tr>
<th>South Carolina Ports Authority-Funded Investments</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hugh Leatherman Terminal Phase 1</td>
<td>749.8</td>
</tr>
<tr>
<td>HLT Port Access Road (SCPA Portion)</td>
<td>112.0</td>
</tr>
<tr>
<td>Wando Welch Terminal Improvements</td>
<td>288.1</td>
</tr>
<tr>
<td>Inland Port Greer (Initial &amp; Future)</td>
<td>81.5</td>
</tr>
<tr>
<td>Inland Port Dillon</td>
<td>41.0</td>
</tr>
<tr>
<td>All Other Terminal Investments</td>
<td>208.1</td>
</tr>
</tbody>
</table>

**SC Ports Authority CAPEX Total:** $1,480.5

### Capital Investments Not Funded By SCPA

| Harbor Deepening (State Contribution)                                                | 319.0 |
| Harbor Deepening (Federal Contribution)                                             | 66.5  |
| HLT Port Access Road (State Contribution)                                           | 220.0 |
| Wando Wharf Strengthening (TIGER Grant)                                             | 10.8  |
| Inland Port Greer (Norfolk Southern)                                                | 7.5   |
| Inland Port Dillon (CSX)                                                            | 9.5   |
| New Intermodal Rail Facility (Palmetto Railways)                                    | 250.0 |

**Other CAPEX Total:** $883.3

**Grand Total SC Port-Related Investment:** $2,363.8
MSC Oscar

Only South Atlantic Port Capable of Handling an 18,000 TEU+ Vessel
New Southern States Chassis Pool

- Joint Effort with GPA covering Southeast Region
- Current Fleet Approaching 20 Years in Age and No Growth in Quantity or Improvement in Quality
- 51,000 Chassis Currently in the Pool
  - 13,000 pre-1998 means no ABS brakes
- Aspiration is as Follows:
  - Immediate Addition of 10,000 Chassis
  - NACPC as Operator
  - New Standards → Radial Tires, LED Lights, ABS Brakes
  - At Cost “Utility” Model with Transparency
  - Ports on the Governing Committee
Summary

- East Coast will grow above US Port Market
- ILA Labor Settlement Very Helpful
- Sustained Investment is Critical
- Rail Infrastructure Enhancement is a Must
- Ports Need to Work Well to Assure Reliability
- Truck Capacity Must Be Assured
IANA EXPO 2018
OPENING NEW ROUTES

• First Neo-Panamax vessel arrived in July 2016
• PortMiami is the closest U.S. East Coast port to the expanded Panama Canal
• Once limited to 4,500 TEU vessels - Canal Expansion = 14,000 TEU vessels
• New opportunities for cascading of feeder services

FY 2017 TEUS

<table>
<thead>
<tr>
<th>Region</th>
<th>TEUs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Americas &amp; Caribbean</td>
<td>14%</td>
</tr>
<tr>
<td>Asia</td>
<td>46%</td>
</tr>
<tr>
<td>Middle East/India/Africa</td>
<td>36%</td>
</tr>
<tr>
<td>Europe/Med</td>
<td>4%</td>
</tr>
</tbody>
</table>

NOT FOR DISTRIBUTION OF REPRODUCTION
2017 CARGO BUSINESS GROWTH

- 1,024,388 TEUs

11% increase in containerized cargo from Asia in 2017

BIGGER SHIPS
312% increase in vessels over 5,100 TEUs since 2014

- Florida’s first 11,000 TEU Vessel - October 2017

- Over 200 Neo-Panamax vessels since 2016

- Best Month Ever Aug. 2017

THE SHIFT IS ON – WITH PORTMIAMI LEADING THE WAY!
• Top 5 fastest growing U.S. ports for imports/exports

• PortMiami’s Billion Dollar Club lead by China since 2004

• Investments follow trade – warehousing/logistics

<table>
<thead>
<tr>
<th>TOP 10 IMPORT COUNTRIES</th>
<th>TEUS (FY 2017)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>139,511</td>
</tr>
<tr>
<td>Honduras</td>
<td>23,156</td>
</tr>
<tr>
<td>Guatemala</td>
<td>19,509</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>16,951</td>
</tr>
<tr>
<td>Italy</td>
<td>14,099</td>
</tr>
<tr>
<td>Vietnam</td>
<td>13,588</td>
</tr>
<tr>
<td>Netherlands</td>
<td>11,559</td>
</tr>
<tr>
<td>Spain</td>
<td>11,286</td>
</tr>
<tr>
<td>Germany</td>
<td>9,983</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>9,692</td>
</tr>
</tbody>
</table>
PORTMIAMI – GEOGRAPHIC ADVANTAGES

MIAMI

• First -50/-52 ft. port of call
• First railhead
• First interstate highway access
• First port of entry for Florida and nearest to mega markets
• Top U.S. transshipment port
• Top US port in Latin America Caribbean trade
• Top in Backhaul
• Top Florida port in Asian trade
OVER $1 BILLION INFRASTRUCTURE COMPLETE

- 50/52 ft. depth deep dredge completed
- Intermodal On-dock Rail
- Fast Access Port Tunnel
- Super Post-Panamax Cranes
SUPER POST-PANAMAX CRANES

13 ship-to-shore

6 Super Post-Panamax:

- 22 containers wide
- 9 containers high above deck
- 11 containers below deck
- No height restrictions
- Largest cranes on the East Coast
5-YEAR INVESTMENT PLAN - ESTIMATED PRICE: $90 MILLION

$11m RFID TRUCK GATES

$4m REEFER RACKS

$36m E-RTG CRANES

$40m NEO-POST PANAMAX CRANES

NOT FOR DISTRIBUTION OF REPRODUCTION
**IMPORT OPPORTUNITIES**

**Diversification**

- Far-East Asian services have begun to process more cargo at Miami.

**Import Targets**

- Apparel, Textiles, Shoes, Perishables, Electronics, Furniture, Appliances

- New market trend - migration of West Coast traffic to East Coast
- Consolidation of services in Miami saves time and money
• 9,000 ft. of track (3 x 3,000 ft.)

• Double-stack daily train service for inland imports and exports
  ➢ Reach Southeast U.S. within 2 days \((\text{population: 67 million})\)
    ✓ Overnight service to Orlando
    ✓ \textit{Peachtree Express} to Atlanta
    ✓ \textit{Threads Express} to Charlotte

  ➢ Reach Midwest and Northeast U.S. in 3-4 days \((\text{population: 124 million})\)
INLAND PORT – SHUTTLE TRAIN

PortMiami-FEC-Quality CY shuttle train is now operational 120 weekly moves. Capacity for up to 5,000 forty foot TEU's.
FEC Transloading Yard

• Miami is the ideal location to transload from 40 ft. ocean boxes to 53 ft. domestic boxes.

• Stripping boxes near port avoids costly repositioning and allows for ocean boxes to be re-exported from nearby PortMiami.

• FECR is building a 60 door cross dock facility adjacent to MIA that can serve as a priority cross-dock facility (completion date: November 2018).

• FECR also provides daily shuttle trains—making off-port operations cost effective and more efficient.
THANK YOU

For Further information Contact:

Eric Olafson
Eric.Olafson@miamidade.gov
(305) 577-6427