Impact of Wetland and Estuaries on Louisiana Port Development

Estuary Conference
Joseph Berlin
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Louisiana’s Maritime Economy

• State Most Dependent Upon Maritime Trade
  – Petroleum Shipments Inbound and Outbound
  – Bulk Grain and Coal Shipments Outbound
  – Best Link the Inland Waterway System
  – Containerization Continues to Grow – LA Lags

• Ship Travel Distances are Minimized
  – Offshore Support Favors Ports Closer to Open Seas
  – Ships Transit to Best Intermodal Connections
Louisiana Port Map
LA Marine Transportation System

LOUISIANA’S MARINE TRANSPORTATION SYSTEM (MTS)

- Over 2,800 miles of navigable channels
- Over 1,000 port & terminal facilities
- 27 Locks/Dams
- 2/3 of all parishes are adjacent to navigable waterways
Navigation Economics

• Ship Size in the World Fleet has Increased
  – Larger Ships are More Efficient
  – Larger Ships Require Greater Depth
  – Containerization Continues to Grow

• Offshore Petroleum Platforms are Larger
  – Louisiana Shipbuilding Industry Services Platforms
  – Supplies Offshore Platforms from Coastal Ports
Historic Growth in Vessel Sizes
Panama Canal Vessel Sizes

<table>
<thead>
<tr>
<th>Ship Designation</th>
<th>Capacity</th>
<th>Year</th>
<th>Length</th>
<th>Beam</th>
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</thead>
<tbody>
<tr>
<td>Panamax</td>
<td>3,000-5,000 TEU</td>
<td>1980</td>
<td>965 ft</td>
<td>106 ft</td>
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<tr>
<td>Post-Panamax</td>
<td>5,000-6,000 TEU</td>
<td>1992</td>
<td>1,043 ft</td>
<td>128 - 138 ft</td>
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<tr>
<td>5th &amp; 6th generation</td>
<td>5,000-8,700 TEU</td>
<td>1997</td>
<td>1,148 ft</td>
<td>128 - 138 ft</td>
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<tr>
<td>New Panamax</td>
<td>10,000-13,000 TEU</td>
<td>2009</td>
<td>1,200 ft</td>
<td>160 ft</td>
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</tbody>
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Navigation Impact on Estuaries

• Channel Deepening
  – Saltwater Intrusion
  – Bank Erosion
  – Dredged Material Disposal

• Dock and Facility Construction
  – Mitigation Areas Required
  – Road and Rail Impacts
Mississippi River Gulf Outlet
MRGO Surge Barrier Construction
Southeast Louisiana Predicted Land Loss
River Sediment
Existing and Proposed Container Docks
Delta Container on Barge Loading Concept
Dredged Material Disposal

• Major Cost to Maintain Channel Depth
  – Federal - Least Cost Environmentally Acceptable
  – LA – Dredged Material Used to Restore Estuaries

• Disposal Method Depends Upon Location
  – Near Coast – Open Sea or Coastline
  – Inland – Marsh Restoration or Disposal Islands
Mississippi River Dredging
Dredged Material Disposal
Linking Existing & Proposed Projects to Re-establish Backbone of Barataria Landbridge
LA Coast Beneficial Use Placement

Total Cumulative Acres Created (1976-2013)
31,693 Acres
(~ 48 Square Miles of land)
Mississippi River Diversions
Dredged Material Management Plans

• Louisiana Ports are Sponsors with USACE
  – Adequate Storage for 40 Years Maintenance
  – Compensation for Construction on Wetlands
  – USACE Permits Required for Construction/Disposal

• Must be Consistent with Coastal Master Plan
  – Beneficial Use is Encouraged
  – Disposal in Gulf of Mexico is Discouraged
La Hwy 1 to Port Fourchon
Port Fouchon Dredge Material Disposal 1
Port Fouchon Dredge Material Disposal 2
Port Fouchon Dredge Material Disposal 3
Approved / Permitted Sites for Dredged Material Disposal with available Capacity
Calcasieu DMMP
Calcasieu DMMP Ocean Disposal