Christopher Frabotta
Chief, Navigation Branch
U.S. Army Corps of Engineers
Galveston District
July 24, 2012
Navigation Mission

Provide safe, reliable, efficient and environmentally sustainable waterborne transportation systems (channels, harbors, and waterways) for movement of commerce, national security needs, and recreation.
Galveston District Facts

- 50,000 sq-mile district boundary
- 460 miles of coastline
- 48 Texas Counties
- 18 Counties – Coastal Bay Estuaries
- 3 LNG
- 346 full time employees
- 760 miles shallow draft
- 240 miles deep draft
- 13 shallow draft ports
- 15 deep draft ports
- Texas Ports and Waterways moved 575M
- 3 Strategic Ports
O&M Project Map Book
Galveston District
Deep-Draft Channels

Texas

Galveston District

- Sabine River
- Sabine Neches Waterway
- Houston Ship Channel
- Galveston Harbor & Entrance
- Texas City Ship Channel
- Matagorda Ship Channel
- La Quinta Ship Channel
- Corpus Christi Ship Channel
- Brazos Island Harbor (BIH), Brownsville Ship Channel
Tonnage for Top Ten U.S. Ports in 2010
(Millions of Tons)

- South Louisiana, LA: 236.3
- Houston, TX: 227.1
- New York, NY: 139.2
- Beaumont, TX: 77.0
- Long Beach, CA: 75.4
- Corpus Christi, TX: 73.7
- New Orleans, LA: 72.4
- Los Angeles, CA: 62.4
- Huntington, Tristate: 61.5
- Texas City, TX: 56.6
Tonnage of Commerce – U.S. Inland Waterways

### Tonnage Data

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Internal**</th>
<th>Mississippi***</th>
<th>Ohio</th>
<th>Tennessee</th>
<th>Illinois</th>
<th>GIWW***</th>
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<tr>
<td>1999</td>
<td>624.57</td>
<td>329.64</td>
<td>240.79</td>
<td>51.81</td>
<td>43.72</td>
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<td>2000</td>
<td>628.44</td>
<td>327.40</td>
<td>236.30</td>
<td>49.55</td>
<td>44.22</td>
<td>113.76</td>
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<td>2001</td>
<td>619.78</td>
<td>316.55</td>
<td>242.50</td>
<td>47.92</td>
<td>43.49</td>
<td>112.18</td>
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<td>2002</td>
<td>608.04</td>
<td>316.21</td>
<td>243.15</td>
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<td>2003</td>
<td>609.60</td>
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<td>228.77</td>
<td>49.83</td>
<td>43.99</td>
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<td>626.25</td>
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<td>238.98</td>
<td>53.34</td>
<td>45.23</td>
<td>123.30</td>
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<td>2005</td>
<td>623.98</td>
<td>299.14</td>
<td>249.21</td>
<td>53.23</td>
<td>44.02</td>
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<td>53.97</td>
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<td>122.57</td>
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<td>621.90</td>
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<td>230.84</td>
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<td>588.48</td>
<td>295.18</td>
<td>230.80</td>
<td>49.67</td>
<td>37.28</td>
<td>115.88</td>
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**Total Internal excludes waterway improvement materials, and beginning in 1996, excludes fish.
***Includes domestic coastwise tonnage.
DREDGING METHODS
TYPES OF DREDGES

- **Mechanical Dredges**
  - Clamshell
  - Backhoe
  - Dipper
  - Dragline

- **Pipeline Dredges**
  - Cutterhead
  - Dustpan

- **Trailing Suction Hopper Dredge**
Mechanical Dredges

Clamshell Dredge with Scow

Dipper Dredge

Backhoe Dredge

Source: IHC Holland
Clamshell Dredges

Source: The Dutra Group

Source: Great Lakes Dredge & Dock
Clamshell Dredge

Source: Manson Construction and Engineering Co.
Backhoe Dredge

Source: The Dutra Group
Dragline Dredging

Source: The Dutra Group
Hydraulic Pipeline Dredge
(Cutterhead Dredge)
Cutterhead Suction Dredges
Cutterhead Dredge in Operation
Types of Cutterheads
Cutterhead with Rock Teeth

Source: Great Lakes Dredge and Dock Co.
Hydraulic Pipeline Dredge
(Dustpan Dredge)
Dustpan Dredge in Operation
Trailing Suction Hopper Dredge

(Hopper Dredge)
# U.S. Hopper Fleet

<table>
<thead>
<tr>
<th></th>
<th>Name</th>
<th>Capacity (CY)</th>
<th>Year</th>
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<tbody>
<tr>
<td>1.</td>
<td>Glenn Edwards</td>
<td>13,800</td>
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<td>Stuyvesant</td>
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<td>3.</td>
<td>Wheeler</td>
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<td>4.</td>
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<td>6,540</td>
<td>2001</td>
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<tr>
<td>5.</td>
<td>Terrapin Island</td>
<td>6,400</td>
<td>1981</td>
</tr>
<tr>
<td>6.</td>
<td>Essayons</td>
<td>6,000</td>
<td>1983</td>
</tr>
<tr>
<td>7.</td>
<td>Bayport</td>
<td>5,000</td>
<td>1999</td>
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<tr>
<td>8.</td>
<td>Columbia</td>
<td>4,425</td>
<td>1944</td>
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<tr>
<td>9.</td>
<td>Newport</td>
<td>4,000</td>
<td>1982</td>
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<tr>
<td>10.</td>
<td>BE Lindholm</td>
<td>4,000</td>
<td>1985</td>
</tr>
<tr>
<td>11.</td>
<td>RN Weeks</td>
<td>4,000</td>
<td>1987</td>
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<td>Padre Island</td>
<td>3,600</td>
<td>1981</td>
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<tr>
<td>13.</td>
<td>Dodge Island</td>
<td>3,600</td>
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<td>15.</td>
<td>Westport</td>
<td>1,500</td>
<td>1980</td>
</tr>
<tr>
<td>16.</td>
<td>Atchafalaya</td>
<td>1,300</td>
<td>1980</td>
</tr>
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</table>
Trailing Suction Hopper Dredge
(Hopper Dredge)
Hopper Dredge in Operation

Source: Great Lakes Dredge and Dock Co.
Split-Hull Hopper Dredge

Source: Bean-Stuyvesant Dredging
Hopper Dredge with Hydraulic Disposal Doors
A stylized turtle's face adorns the draghead deflector designed by MDC. The deflector is positioned on the front of the draghead, so as the dredge moves forward, the deflector pushes turtles out of the way, keeping them from being sucked into the draghead. (Photo courtesy of Jacksonville District Public Affairs Office.)
Disposal Methods

- **Mechanical Dredges**
  - Scow to Offshore Dredged Material Disposal Site (ODMDS)
  - Mechanically hauled

- **Pipeline Dredges**
  - Upland Confined Placement Area (CPA)
  - Semi-Confined (Control-of-Effluent Placement)
  - Beach Placement
  - Scow-to-ODMDS

- **Trailing Suction Hopper Dredge**
  - ODMDS
  - Near-Shore Feeder Berm
  - Pump-out
    - Beach Placement
    - CPA
    - Semi-Confined, etc.
Mechanical Dredging with Scow Disposal to ODMDS
Disposal Methods

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Aerial of Confined Placement Area
(Houston Ship Channel - Lost Lake Placement Area)
Aerial of Confined Placement Area
(Houston Ship Channel - Lost Lake Placement Area)
Aerials of Spillway Structures
(Houston Ship Channel - Lost Lake Placement Area)
Interior of Confined Placement Area
(Levees & Spillway Structure)
Interior of Confined Placement Area
(Levees & Spillway Structure)
Semi-Confined Placement Area
(Bolivar Marsh Creation – Beneficial Use of Dredged Material)
Semi-Confined Placement Area
(Bolivar Marsh Creation – Beneficial Use of Dredged Material)
Semi-Confined Placement Area
(Bolivar Marsh Creation – Beneficial Use of Dredged Material)
Semi-Confined Placement Area
(Bolivar Marsh Creation – Beneficial Use of Dredged Material)
Pipeline Dredge with Beach Placement
Pipeline Dredge with Beach Placement
Disposal Methods

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  - ODMDS
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  - Pump-out
    - Beach Placement
    - CPA
    - Semi-Confined, etc.
Hopper Dredge with Pump out to Beach
Hopper Dredge with Pump out
**Budget Cycle Timeline**

**FY+2 (Planning Phase)**
- **Oct**: OMB, ASA(CW), HQ, Guidance developed
- **Nov**: Districst submits
- **Dec**: MSC's submit to HQ
- **Jan**: HQ submits to ASA(CW)
- **Feb**: OMB review

**FY+1 (Defending Phase)**
- **Oct**: OMB review (cont)
- **Nov**: Districts and MSC's prepare budget testimony
- **Dec**: Congressional Subcommittee Hearings
- **Jan**: President signs appropriation act
- **Feb**: Congress develops and passes appropriation act
- **Mar**: OMB appropriates $ (cont)
- **Apr**: If no appropriations act = CRA until then
- **May**: Congress develops and passes appropriation act into law
- **June**: President signs appropriations act into law
- **July**: Congress develops and passes appropriation act
- **Aug**: OMB appropriates $ (cont)
- **Sept**: Congress develops and passes appropriation act

**Current FY (Execution Phase)**
- **Oct**: Districts receive FY project funding (or CRA if no appropriations bill signed)
- **Nov**: End of FY
Questions
ON FACEBOOK
www.facebook.com/GalvestonDistrict

ON TWITTER
www.twitter.com/USACEgalveston

ON YOUTUBE
www.YouTube.com/GalvestonDistrict

ON DVIDS
www.dvidshub.net/units/USACE-GD

ONLINE
www.swg.usace.army.mil