Wiggins Pass Straightening Implementation:
Construction, Monitoring and Inlet Management

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Phases

- The Project
- Construction
- 1-Year Monitoring Results
- Inlet Management

Areas of Special Attention

- Straight Channel & Boating Ergonomics
- Flood Channel Relocation & Environmental
- Barefoot Beach
- Rock Substrate Mod
- Long Term Plan
Collier County Objectives

- Provide a safe channel for boating
- Address erosion at Barefoot Beach Park
- Lengthen the dredge cycle and accomplish it with the least effect on the environment
- Provide a solution that is economically effective
Construction

• Initial construction – 2013 Total 107,000 cy plus clean up
  – Dredge compatible sand from ebb channel (66,000c.y.)
  – Dredge compatible sand from flood channel (34,600c.y.)
  – Dredge incompatible sand & dispose offshore pit (6,670c.y.)
  – Build beach & scour repair with compatible sand (66,060c.y.)
  – Fill north meander with flood compatible sand (28,000 c.y.)

• Intermediate channel dredging (2015)
  – Side cast about 9,400 c.y to the north when needed
Boats parade on Completion
Post-Dredge Conditions May 2013

• After Land Phase
Rock Substrate
Construction

Dredging and Sample Rock
Flood Shoal Straightening

Turbidity Curtain
Dredge Conditions July 2013

After Clean Up Phase
Monitoring
Note: Barefoot Beach Sand spit forming in channel
Turbid waters make navigation more difficult
• Long Term Plan & Permit Accommodates

• Opportunistic Use of Natural Alignment
  – Reduces Dredging Volumes

• Major and Interim (small) Dredging Events
  – 9,400 cy in 2015

• Full Implementation is incremental process
  – Barefoot Beach is Long Term challenge and needs a mature ebb shoal.
1-Year Monitoring Results
(interim dredging locations in red)
Modeling Results
2010 vs 2014 Conditions Now Straighter
2013 FDEP Permit Condition:
Based on beach and inlet monitoring surveys, the dredged material will be Distributed to the disposal areas in order to balance the sediment budget between the inlet and the adjacent shorelines, offset erosion of the adjacent shorelines, and maintain the location and hydraulic stability of the navigation channel.
<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
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<tbody>
<tr>
<td>1990’s</td>
<td>Favor the South – Delnor Wiggins Park</td>
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<tr>
<td>2000’s</td>
<td>In practice – equal distribution north &amp; south</td>
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<tr>
<td>2014</td>
<td>Large imbalance in favor of south</td>
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<tr>
<td></td>
<td>More sand placement needed in north</td>
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## Volumetric Change (CY)
### North and South of Wiggins Pass

<table>
<thead>
<tr>
<th>Profile</th>
<th>Effective</th>
<th>1992</th>
<th>2001</th>
<th>1992</th>
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<tr>
<td></td>
<td>Distance (ft)</td>
<td>2001</td>
<td>2014</td>
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<tr>
<td>R-12</td>
<td>485</td>
<td>2,480</td>
<td>20,822.0</td>
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<td>R-13</td>
<td>971</td>
<td>966</td>
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<td>R-14</td>
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<td>R-16</td>
<td>537</td>
<td>-81,447</td>
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<td>Wiggins Pass</td>
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<tr>
<td>R-17</td>
<td>523</td>
<td>17,832</td>
<td>10,211.5</td>
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<td>1,006</td>
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<td>R-19</td>
<td>1,020</td>
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<td>R-20</td>
<td>1,010</td>
<td>12,289</td>
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<td>634</td>
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<td>R12 to R16</td>
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<tr>
<td>Delnor Wiggins</td>
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<td>34,481</td>
<td>12,772</td>
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<td>R17 to R21</td>
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Wiggins Pass: An Inlet Management

-13,500 cy/yr

1992 to 2009

2001 to 2014

+1,000 cy/yr

-13,500 cy/yr

NOTE:
ALL UNITS ARE 1,000s OF CUBIC YARDS PER YEAR

LEGEND:
+14.0
DREDGE AND FILL QUANTITY
LONGSHORE TRANSPORT
Questions?

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Straighter Channel