PRESENTATION OUTLINE

• Two mid-basin diversions: 50-year simulation
• Summary of model updates: Basinwide-V2
• Impact of vegetation on land change
• Synergy between diversions and marsh creation
• Optimization of operation plans (using historical hydrograph)
PROPOSED SEDIMENT DIVERSSIONS

Mid-Breton (35,000 CFS)

Mid-Barataria (75,000 CFS)

Lower Breton (50,000 CFS)

Lower Barataria (50,000 CFS)
OPERATION PLAN

Less-Aggressive Operations

MISSISSIPPI RIVER
DAVIS POND
CAERNARVON
MID-BRETON
MID-BARATARIA
LOWER-BARATARIA
LOWER BRETON

February 20th
July 5th

MRDM - Delft3D - Alternatives
WATER LEVEL DIFFERENCE

Difference Between Future Without Project and 4 Diversions (Year 2070)

Difference Between Future Without Project and 2 Diversions (Year 2070)
SALINITY - YEAR 2070

All Diversions – Future Without Project

April

October
SALINITY - YEAR 2070

Mid Diversions – Future Without Project

April

October
NITRATE: YEAR 2070

All Diversions – FWOP

Mid Diversions – FWOP

April

October
VEGETATION: YEAR 2070

FWOP

All Diversions
VEGETATION: YEAR 2070

FWOP

Mid Diversions
LAND CHANGE BY YEAR 2070
FUTURE WITHOUT PROJECT

Year 1 - Year 50 (FWOP)

Land = 10cm

- Pink: Land Lost
- Green: Land Gained

0 3 6 12 18 24 Miles
LAND CHANGE BY YEAR 2070
ALL DIVERSIONS

Net Land Gain
40,500 acres

All Diversions Year 50
Landscape Change Referenced to FWOP

- Land Loss
- Land Sustained
- Land Gained

0 3 6 9 12 18 24 Miles
LAND CHANGE BY YEAR 2070
MID DIVERSIONS

Net Land Gain
34,200 acres

Mid-Diversions Year 50
Landscape Change Referenced to FWOP
- Land Loss
- Land Sustained
- Land Gained

0 3 6 12 18 24 Miles
BED LEVEL CHANGE:
MID-BARATARIA

Land Change 02-24-2020
BED LEVEL CHANGE:
MID-BRETON
Land Change 02-24-2020
# MR Delta Management Land Change Summary - 2070

## Acreage: Land Loss

<table>
<thead>
<tr>
<th>Barataria</th>
<th>Breton Sound</th>
<th>MR Delta and NWR</th>
</tr>
</thead>
<tbody>
<tr>
<td>-152,810</td>
<td>-96,687</td>
<td>-59,287</td>
</tr>
</tbody>
</table>

## MR Delta Management Land Loss in FWOP: 2020 - 2070

## Acreage: Net Land Gain/Loss

### Reference to FWOP

<table>
<thead>
<tr>
<th>Name</th>
<th>Barataria</th>
<th>Breton Sound</th>
<th>MR Delta and NWR</th>
<th>Net</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Diversions - Less Aggressive</td>
<td>31,987</td>
<td>16,421</td>
<td>-7,888</td>
<td>40,520</td>
</tr>
<tr>
<td>Mid Diversions-Less Aggressive</td>
<td>23,704</td>
<td>14,855</td>
<td>-4,321</td>
<td>34,237</td>
</tr>
</tbody>
</table>
DREDGE ONLY: MARSH AREA

TOTAL MARSH CREATION (OVER FOUR DECADES): 13,890 ACRES

MARSH REMAINING BY YEAR 2070: 7,240 ACRES
MODEL UPDATES: BASINWIDE – V2

- Revisions to the grid design & initial land area
- Update of projects in the landscape
- Improved model calibration
- Improved coupling between veg & morph
- Update soil properties
- Real Time Control for Caernarvon and Davis Pond
## INITIAL ACREAGE

<table>
<thead>
<tr>
<th>Model and Version</th>
<th>Land Acreage (bed elevation &gt;= 0ft, NAVD 88)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Barataria</td>
</tr>
<tr>
<td>Delft3d V1</td>
<td>259,974</td>
</tr>
<tr>
<td>Delft3d V2 – EC*</td>
<td>341,571</td>
</tr>
<tr>
<td>Delft3d V2 – FWOP**</td>
<td>344,821</td>
</tr>
<tr>
<td>Master Plan</td>
<td>364,165</td>
</tr>
<tr>
<td>ADH</td>
<td>383,000</td>
</tr>
</tbody>
</table>

* EC: existing conditions.

** FWOP: includes projects under (or imminent) construction

*** approximate estimate from ERDC
REAL TIME CONTROL
RULES AND TRIGGER STATIONS

Davis Ponds
- Min discharge: 1000 cfs = 28.32 m³/s

Caernarvon
- Min discharge: 0 cfs = 0 m³/s

- USGS13 - Crooked B. NW of L. Cuatro Caballo near Delacroix
  - June - November (5 ppt)
- USGS16 - Black Bay nr Stone Island nr Pointe-A-La-Hache
  - December - May (15 ppt)
- USGS5 - Barataria Waterway S of Lafitte
  - June - November (5 ppt)
- USGS7 - Barataria Bay near Grand Terre Island
  - December - May (15 ppt)
FWOP: DAVIS POND DISCHARGE

Discharge and Salinity

- Discharge
- Salinity Dec.-May
- Salinity June-Nov.
- Salinity Trigger
- Trigger Pt.
- Break

Instantaneous Discharge (ft³/s)

Salinity (ppt)
FWP: DAVIS POND DISCHARGE
DAVIS POND DISCHARGES: FWOP & FWP
VEGETATION COVERAGE: OUTFALL MID BARATARIA
Typha spp. (Cattail)

Sagittaria lancifolia (Bulltongue)
Typha spp. (Cattail)

Sagittaria lancifolia (Bulltongue)
## VEGETATION TESTS
### (ONE DECADE SIMULATIONS)

<table>
<thead>
<tr>
<th></th>
<th>Acres (2020)</th>
<th>Acres (2030)</th>
<th>Y10 Loss (2030-2020)</th>
<th>% Loss Y10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barataria</td>
<td>273,950</td>
<td>268,807</td>
<td>5,143</td>
<td>2%</td>
</tr>
<tr>
<td>Breton</td>
<td>136,799</td>
<td>124,301</td>
<td>12,498</td>
<td>9%</td>
</tr>
<tr>
<td>MR Delta</td>
<td>52,752</td>
<td>42,022</td>
<td>10,730</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>463,501</strong></td>
<td><strong>435,130</strong></td>
<td><strong>28,371</strong></td>
<td><strong>6%</strong></td>
</tr>
</tbody>
</table>

### Test 2 - (80% height) representative hydrograph

<table>
<thead>
<tr>
<th></th>
<th>Acres (2020)</th>
<th>Acres (2030)</th>
<th>Y10 Loss (2030-2020)</th>
<th>% Loss Y10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barataria</td>
<td>273,950</td>
<td>168,272</td>
<td>105,678</td>
<td>39%</td>
</tr>
<tr>
<td>Breton</td>
<td>136,799</td>
<td>103,044</td>
<td>33,755</td>
<td>25%</td>
</tr>
<tr>
<td>MR Delta</td>
<td>52,752</td>
<td>20,605</td>
<td>32,147</td>
<td>61%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>463,501</strong></td>
<td><strong>291,921</strong></td>
<td><strong>171,580</strong></td>
<td><strong>37%</strong></td>
</tr>
</tbody>
</table>

### Test 4 - (50% height) representative hydrograph

<table>
<thead>
<tr>
<th></th>
<th>Acres (2020)</th>
<th>Acres (2030)</th>
<th>Y10 Loss (2030-2020)</th>
<th>% Loss Y10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barataria</td>
<td>273,950</td>
<td>239,617</td>
<td>34,333</td>
<td>13%</td>
</tr>
<tr>
<td>Breton</td>
<td>136,799</td>
<td>117,235</td>
<td>19,564</td>
<td>14%</td>
</tr>
<tr>
<td>MR Delta</td>
<td>52,752</td>
<td>38,177</td>
<td>14,575</td>
<td>28%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>463,501</strong></td>
<td><strong>395,029</strong></td>
<td><strong>68,472</strong></td>
<td><strong>15%</strong></td>
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</table>

### Test 3 - (20% height) representative hydrograph

<table>
<thead>
<tr>
<th></th>
<th>Acres (2020)</th>
<th>Acres (2030)</th>
<th>Y10 Loss (2030-2020)</th>
<th>% Loss Y10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barataria</td>
<td>273,950</td>
<td>168,272</td>
<td>105,678</td>
<td>39%</td>
</tr>
<tr>
<td>Breton</td>
<td>136,799</td>
<td>103,044</td>
<td>33,755</td>
<td>25%</td>
</tr>
<tr>
<td>MR Delta</td>
<td>52,752</td>
<td>20,605</td>
<td>32,147</td>
<td>61%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>463,501</strong></td>
<td><strong>291,921</strong></td>
<td><strong>171,580</strong></td>
<td><strong>37%</strong></td>
</tr>
</tbody>
</table>

### Elevation Criteria:
- **Year 1 (2020):** Land > 0.0295 mNAVD88
- **Year 10 (2030):** Land > 0.0644 mNAVD88
## SYNERGY:
### MARSH CREATION & DIVERSIONS

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Trigger Threshold</th>
<th>Model Naming Convention</th>
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<tbody>
<tr>
<td>FWOA-A</td>
<td>200,000 cfs</td>
<td>S04 - TO40G001</td>
</tr>
<tr>
<td>Alt2-A</td>
<td>200,000 cfs</td>
<td>S04 - TO40G002</td>
</tr>
<tr>
<td>Alt4-A</td>
<td>200,000 cfs</td>
<td>S04 - TO40G004</td>
</tr>
<tr>
<td>Alt5-A</td>
<td>200,000 cfs</td>
<td>S04 - TO40G005</td>
</tr>
<tr>
<td>Alt6-A</td>
<td>200,000 cfs</td>
<td>S04 - TO40G006</td>
</tr>
<tr>
<td>Alt7-A</td>
<td>200,000 cfs</td>
<td>S04 - TO40G007</td>
</tr>
<tr>
<td>Alt8-A</td>
<td>200,000 cfs</td>
<td>S04 - TO40G008</td>
</tr>
<tr>
<td>FWOA-B</td>
<td>600,000 cfs</td>
<td>S04 - TO40G100</td>
</tr>
<tr>
<td>Alt8-B</td>
<td>600,000 cfs</td>
<td>S04 - TO40G108</td>
</tr>
<tr>
<td>FWOA-C</td>
<td>High (S03)</td>
<td>S03 - TO40G001</td>
</tr>
<tr>
<td>Alt8-C</td>
<td>High (S03)</td>
<td>S03 - TO40G008</td>
</tr>
</tbody>
</table>
## TO40 – MARSH CREATION ALTERNATIVES

Land area in UBA, LBA, BRT ecoregions:

<table>
<thead>
<tr>
<th></th>
<th>Year 0</th>
<th>Year 1</th>
<th>Year 50</th>
<th>Year 50 Difference</th>
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<tbody>
<tr>
<td></td>
<td>acres</td>
<td>acres</td>
<td>acres</td>
<td></td>
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<tr>
<td>FWOA-A</td>
<td>1,080,296</td>
<td>1,071,103</td>
<td>754,982</td>
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<tr>
<td>Alt2-A</td>
<td>1,080,296</td>
<td>1,076,065</td>
<td>752,080</td>
<td>-2,902</td>
</tr>
<tr>
<td>Alt4-A</td>
<td>1,080,296</td>
<td>1,075,501</td>
<td>752,470</td>
<td>-2,512</td>
</tr>
<tr>
<td>Alt5-A</td>
<td>1,080,296</td>
<td>1,077,290</td>
<td>758,215</td>
<td>3,232</td>
</tr>
<tr>
<td>Alt6-A</td>
<td>1,080,296</td>
<td>1,075,895</td>
<td>759,969</td>
<td>4,986</td>
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<tr>
<td>Alt7-A</td>
<td>1,080,296</td>
<td>1,075,804</td>
<td>757,730</td>
<td>2,748</td>
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<tr>
<td>Alt8-A</td>
<td>1,080,296</td>
<td>1,074,786</td>
<td>762,195</td>
<td>7,213</td>
</tr>
<tr>
<td>FWOA-B</td>
<td>1,080,296</td>
<td>1,071,137</td>
<td>713,581</td>
<td></td>
</tr>
<tr>
<td>Alt8-B</td>
<td>1,080,296</td>
<td>1,074,819</td>
<td>719,846</td>
<td>6,266</td>
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<tr>
<td>FWOA-C</td>
<td>1,080,296</td>
<td>1,071,064</td>
<td>635,814</td>
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<tr>
<td>Alt8-C</td>
<td>1,080,296</td>
<td>1,074,260</td>
<td>633,719</td>
<td>-2,095</td>
</tr>
</tbody>
</table>
FUTURE WITHOUT ACTION A

2017 MP Medium Scenario (S04) Future Without Action plus:

– Mid Breton Sediment Diversion active from year 0
  • 0 cfs when Mississippi River Q < 200k cfs
  • 35k cfs when Mississippi River Q = 1.0m cfs

– Mid Barataria Sediment Diversion active from year 0
  • 0 cfs when Mississippi River Q < 200k cfs
  • 75k cfs when Mississippi River Q = 1.25m cfs

– Real time control on Davis Pond and Caernarvon
  • Use existing control rules based upon 5 ppt and 15 ppt thresholds in receiving basins
ALTERNATIVE 8-A
LAND CHANGE

S04 - TO40G008 Year 50

- Water FWA - Sustained FWOA - Starts Land
- Water FWA - Water FWOA - Starts Land
- Water FWA - Gain FWOA - Starts Water
- Always Water - Starts Water
- Always Land - Starts Land
- Gain FWA - Gain FWOA - Starts Water
- Sustain FWA - Loss FWOA - Starts Land
- Gain FWA - Water FWOA - Starts Water

Kilometers
0 5 10 20 30 40
ALTERNATIVE 8-A
SALINITY IMPACT

Salinity Differences

-5+  -2.0 -1.5  0.0 - 0.5  2.0 - 3.0
-5.0 -4.0  -1.5 -1.0  0.5 - 1.0  3.0 - 4.0
-4.0 -3.0  -1.0 -0.5  1.0 - 1.5  4.0 - 5.0
-3.0 -2.0  -0.5 -0.0  1.5 - 2.0  5+  

S04 - TO40G008  Year 10

Kilometers
ALTERNATIVE 8-A
SALINITY IMPACT

Salinity Differences
-5+  -1.5 - 1.0  0.0 - 0.5  2.0 - 3.0
-5.0 - 4.0  -1.5 - 1.0  0.5 - 1.0  3.0 - 4.0
-4.0 - 3.0  -1.0 - 0.5  1.0 - 1.5  4.0 - 5.0
-3.0 - 2.0  -0.5 - 0.0  1.5 - 2.0  5+

S04 - TO40G008  Year 50

Kilometers
FUTURE WITHOUT ACTION B

2017 MP **Medium Scenario (S04)** Future Without Action plus:

- Mid Breton Sediment Diversion active from year 0
  - 0 cfs when Mississippi River Q < **600k cfs**
  - 35k cfs when Mississippi River Q = 1.0m cfs

- Mid Barataria Sediment Diversion active from year 0
  - 0 cfs when Mississippi River Q < **600k cfs**
  - 75k cfs when Mississippi River Q = 1.25m cfs

- Real time control on Davis Pond and Caernarvon
  - Use existing control rules based upon 5 ppt and 15 ppt thresholds in receiving basins
ALTERNATIVE 8-B
LAND CHANGE

S04 - TO40G108  Year 50

Water FWA - Sustained FWOA - Starts Land
Water FWA - Water FWOA - Starts Land
Water FWA - Gain FWOA - Starts Water
Always Water - Starts Water

Always Land - Starts Land
Gain FWA - Gain FWOA - Starts Water
Sustain FWA - Loss FWOA - Starts Land
Gain FWA - Water FWOA - Starts Water

Kilometers
OPTIMIZING DIVERSION OPERATIONS

• Reference trigger: 600,000 cfs
• Parameters to be examined:
  – Trigger discharge
  – Opening time (relative to hydrograph)
  – Duration (how long a pulse should/need to be)
  – Frequency (how many times a year)
• Desired operation plan:
  – Simple
  – Practical
  – Implementable
RIVER-SIDE ANALYSIS

- **Objective:** Optimize the diversion operation – specifically determine “when”, “how often”, and “for how long”

- **Goal:** Max diverted sediment load & min water volume
RIVER-SIDE ANALYSIS

- Implications of using rating curve
- Importance of using Belle Chasse
Overview of tested combinations
(range of possible outcomes)

More sediment

Less water

Higher Efficiency

Diverted Water (m$^3$/yr) x 10$^{10}$

Rating Curve

Screening Operation: Feb 11 – July 6 (145 days)

600,000 cfs trigger discharge

4.24

1.73

3.26

2.319

45

5

5.5

6
TRIGGER DISCHARGE & RISING LIMB

- Trigger discharge
  - Stay open when river discharge is above $Q_{\text{trigger}}$

- Trigger discharge and rising limb only
  - Stay open when river discharge is above $Q_{\text{trigger}}$ and is on rising limb.

* Size of circle is proportional to trigger discharge.
**RISING LIMB TRIGGER + PULSING**

- **Rising Trigger + Pulsing**
  - Open when river discharge reaches $Q_{\text{trigger}}$ and is on rising limb
  - Stay open for no less than $T_{\text{open}}$ days
  - Stay close for no less than $T_{\text{close}}$ days
PRELIMINARY FINDINGS

- Trigger discharge could be lower than 600,000 cfs;
- Pulsing with rising limb yields higher efficiency.
- No limit on # of openings/yr

**Diverted Water (m$^3$/yr) x 10$^10$**

**Diverted sediment (mT/yr)**

- $Q_{\text{trigger}} = 600,000$ cfs (reference)
- $Q_{\text{trigger}} = 575,000$ cfs
- $Q_{\text{trigger}} = 550,000$ cfs
- $Q_{\text{trigger}} = 525,000$ cfs
- $Q_{\text{trigger}} = 500,000$ cfs
- $Q_{\text{trigger}} = 475,000$ cfs

Legend:
- ▲ Rising $Q_{\text{trigger}} = 525,000$ cfs, Open-25 day, Close-7 day
- ▲ Rising $Q_{\text{trigger}} = 500,000$ cfs, Open-25 day, Close-7 day
- ▲ Rising $Q_{\text{trigger}} = 475,000$ cfs, Open-25 day, Close-7 day
- ▲ Rising $Q_{\text{trigger}} = 450,000$ cfs, Open-25 day, Close-7 day
- ▲ Rising $Q_{\text{trigger}} = 525,000$ cfs, Open-30 day, Close-7 day
- ▲ Rising $Q_{\text{trigger}} = 500,000$ cfs, Open-30 day, Close-7 day
- ▲ Rising $Q_{\text{trigger}} = 475,000$ cfs, Open-30 day, Close-7 day
- ▲ Rising $Q_{\text{trigger}} = 450,000$ cfs, Open-30 day, Close-7 day
- ▲ Rising $Q_{\text{trigger}} = 525,000$ cfs, Open-35 day, Close-7 day
- ▲ Rising $Q_{\text{trigger}} = 500,000$ cfs, Open-35 day, Close-7 day
- ▲ Rising $Q_{\text{trigger}} = 475,000$ cfs, Open-35 day, Close-7 day
- ▲ Rising $Q_{\text{trigger}} = 450,000$ cfs, Open-35 day, Close-7 day
- ▲ Rising $Q_{\text{trigger}} = 525,000$ cfs, Open-35 day, Close-7 day

Mid-Barataria
PRELIMINARY FINDINGS

- Alternative approach:
  - Maximize sediment : water efficiency
  - More sediment for the same water as the reference value

![Graph showing diverted water vs. diverted sediment](image-url)
PRELIMINARY FINDINGS

- Alternative approach:
  - Balance between total available sediment and sediment : water efficiency
## Average opening days per year

<table>
<thead>
<tr>
<th></th>
<th>Q trigger</th>
<th>T open</th>
<th>T close</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>All years</th>
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<tbody>
<tr>
<td>A</td>
<td>475,000</td>
<td>25</td>
<td>7</td>
<td>186</td>
<td>135</td>
<td>93</td>
<td>198</td>
<td>218</td>
<td>166</td>
</tr>
<tr>
<td>B</td>
<td>500,000</td>
<td>25</td>
<td>7</td>
<td>140</td>
<td>130</td>
<td>52</td>
<td>167</td>
<td>210</td>
<td>140</td>
</tr>
<tr>
<td>C</td>
<td>525,000</td>
<td>25</td>
<td>7</td>
<td>166</td>
<td>124</td>
<td>62</td>
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<td>D</td>
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<td>7</td>
<td>141</td>
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<td>52</td>
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<td>E</td>
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<td>7</td>
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<td>123</td>
<td>63</td>
<td>165</td>
<td>219</td>
<td>147</td>
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<tr>
<td>F</td>
<td>500,000</td>
<td>30</td>
<td>7</td>
<td>136</td>
<td>130</td>
<td>52</td>
<td>140</td>
<td>198</td>
<td>131</td>
</tr>
<tr>
<td>G</td>
<td>525,000</td>
<td>30</td>
<td>7</td>
<td>166</td>
<td>123</td>
<td>63</td>
<td>165</td>
<td>176</td>
<td>139</td>
</tr>
<tr>
<td>All Operation Plans</td>
<td>157</td>
<td>128</td>
<td>62</td>
<td>167</td>
<td>207</td>
<td><strong>144</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Reference operation plan (600,000 cfs trigger discharge):
- Average opening days per year: 110;
- Average # of opening per year: 1~2

![Graph showing # of days open per year for different operation plans from 2010 to 2014.](image-url)
Average # of openings per year

<table>
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Reference operation plan (600,000 cfs trigger discharge):
- Average opening days per year: 110;
- Average # of opening per year: 1~2.
RECEIVING SIDE ANALYSIS: EXISTING CONDITIONS

USGS 29285909004000 Barataria Waterway S of Lafitte, LA

USGS 07380251 Barataria Bay N of Grand Isle, LA

USGS 29192908952600 Barataria Bay near Grand Terre Island, LA

USGS 073802516 Barataria Pass at Grand Isle, LA
Salinity Distribution: Barataria Bay

Barataria N of Grand Isle
10/1/07 - 2/12/16

Salinity Histogram

Salinity Histogram

Salinity Histogram

Salinity Distribution: Barataria Bay
Summary


- Events: 104
- Average Duration: 7 Days
- Max Duration: 78 Days
BARATARIA NEAR GRAND TERRE
10/01/07-09/10/15

Salinity Distribution: Barataria Bay

Salinity Histogram

Salinity Histogram

Salinity Histogram
BARATARIA BAY NEAR GRAND TERRE
10/01/07-09/10/15

Summary

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<td>Max Duration</td>
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Duration Histogram

Number of Observations

Duration Length (Days)
MODEL OUTPUTS: SALINITY

Barataria Bay N of Grand Isle, LA

Year 2031

Year 2058

Salinity (PPT)

[Graph showing salinity levels for Barataria Bay N of Grand Isle, LA for the years 2031 and 2058.]

[Map showing the location of Barataria Bay N of Grand Isle, LA within the Gulf of Mexico.]
MODEL OUTPUTS: SALINITY

Barataria Bay near Grand Terre Island, LA

Year 2031

Year 2058

Gulf of Mexico
MODEL OUTPUTS: SALINITY

Barataria Pass at Grand Isle, LA

Year 2031

Year 2058

Salinity (PPT)
SALINITY DYNAMICS: EXISTING CONDITIONS (2014)
SALINITY DYNAMICS: FUTURE WITH PROJECT
CLOSING REMARKS

• Optimize operation through simple and implementable plan will:
  – Enhance sediment capture
  – Optimize diverted fresh water volume

• Critical components:
  – Real time monitoring (river side) of water, turbidity (supported by frequent/periodical sediment measurements)
  – Real time monitoring (receiving areas) of salinity, water level, and perhaps select water quality parameters
  – Forecasting tools to support adaptive management of structures

• Operation plans should be balanced between river and receiving sides without losing sight of land building as the ultimate objective
THANK YOU