Savannah Harbor Expansion Project - Wetland/Marsh Impact Evaluation

USGS/USFWS Savannah Marsh Succession Model CART 2005 Predicted Ecological Community
Existing Depth

Values Based on EFDC and M2M Output using Historic Average Flow, Temperature, and Tidal Conditions
1 March through 1 October 1997 (1997 best represents average historic conditions from the available data set)
25 cm Sea Level Rise Conditions

March 2007
Savannah Harbor Expansion Project - Wetland/Marsh Impact Evaluation

USGS/USFWS Savannah Marsh Succession Model CART 2005 Predicted Ecological Community
44 Foot Deepening

Values Based on EFDC and M2M Output using Historic Average Flow, Temperature, and Tidal Conditions
1 March through 1 October 1997 (1997 best represents average historic conditions from the available data set)
25 cm Sea Level Rise Conditions
Legend

M2M971Mar1OctEFDC3Slr25
CART_2005

- 100% ELEMO_GALTI_SAGLT
- 78% SCIVA
- 78% SPASP_SCIRO_ASTTE
- 80% ZIZMI_POLSP_MURKE
- 45% ZIZMI_POLSP_MURKE, 29% ELEMO_GALTI_SAGLT, 26% SCIVA

Savannah Harbor Expansion Project - Wetland/Marsh Impact Evaluation
USGS/USFWS Savannah Marsh Succession Model CART 2005 Predicted Ecological Community
45 Foot Deepening

Values Based on EFDC and M2M Output using Historic Average Flow, Temperature, and Tidal Conditions
1 March through 1 October 1997 (1997 best represents average historic conditions from the available data set)
25 cm Sea Level Rise Conditions
USGS/USFWS Savannah Marsh Succession Model CART 2005 Predicted Ecological Community
46 Foot Deepening

Values Based on EFDC and M2M Output using Historic Average Flow, Temperature, and Tidal Conditions
1 March through 1 October 1997 (1997 best represents average historic conditions from the available data set)
25 cm Sea Level Rise Conditions
USGS/USFWS Savannah Marsh Succession Model CART 2002 Predicted Ecological Community
48 Foot Deepening

Values Based on EFDC and M2M Output using Historic Average Flow, Temperature, and Tidal Conditions
1 March through 1 October 1997 (1997 best represents average historic conditions from the available data set)
25 cm Sea Level Rise Conditions
Savannah Harbor Expansion Project - Wetland/Marsh Impact Evaluation

USGS/USFWS Savannah Marsh Succession Model CART 2005 Predicted Ecological Community Shift

44 Foot Deepening

Values Based on EFDC and M2M Output using Historic Average Flow, Temperature, and Tidal Conditions
1 March through 1 October 1997 (1997 best represents average historic conditions from the available data set)
25 cm Sea Level Rise Conditions

Legend

Ecological Community Shift (M2M971Mar1OctEFDC2Slr25)

No Community Shift

Existing Condition; Deepening

- 100% ELEMO_GALTI_SAGLT, 45% ZIZMI_POLSP_MURKE, 29% ELEMO_GALTI_SAGLT, 26% SCIVA
- 45% ZIZMI_POLSP_MURKE, 29% ELEMO_GALTI_SAGLT, 26% SCIVA, 78% SCIVA
- 78% SCIVA; 78% SPASP_SCIRO_ASTTE
- 80% ZIZMI_POLSP_MURKE, 78% SCIVA
Legend
Ecological Community Shift (M2M971Mar1OctEFDC3Slr25)

- No Community Shift

Existing Condition; Deepening
- 100% ELEMO_GALTI_SAGLT, 45% ZIPMI_POLSP_MURKE, 29% ELEMO_GALTI_SAGLT, 26% SCIVA
- 45% ZIPMI_POLSP_MURKE, 29% ELEMO_GALTI_SAGLT, 26% SCIVA, 78% SCIVA
- 78% SCIVA, 78% SPASP_SCIRO_ASTTE
- 80% ZIPMI_POLSP_MURKE, 78% SCIVA

Savannah Harbor Expansion Project - Wetland/Marsh Impact Evaluation

USGS/USFWS Savannah Marsh Succession Model CART 2005 Predicted Ecological Community Shift
45 Foot Deepening

Values Based on EFDC and M2M Output using Historic Average Flow, Temperature, and Tidal Conditions
1 March through 1 October 1997 (1997 best represents average historic conditions from the available data set)
25 cm Sea Level Rise Conditions

March 2007
USGS/USFWS Savannah Marsh Succession Model CART 2005 Predicted Ecological Community Shift
46 Foot Deepening

Values Based on EFDC and M2M Output using Historic Average Flow, Temperature, and Tidal Conditions
1 March through 1 October 1997 (1997 best represents average historic conditions from the available data set)
25 cm Sea Level Rise Conditions

Legend
Ecological Community Shift (M2M971Mar1OctEFDC4Slr25)
- No Community Shift
- Existing Condition; Deepening
  - 100% ELEMO_GALT_SAGLT, 45% ZIZMI_POLSP_MURKE, 29% ELEMO_GALT_SAGLT, 26% SCIWA
  - 45% ZIZMI_POLSP_MURKE, 29% ELEMO_GALT_SAGLT, 26% SCIWA, 78% SCIWA
  - 78% SCIWA, 78% SPASP_SCIRO_ASTTE
  - 80% ZIZMI_POLSP_MURKE, 78% SCIWA
Legend
Ecological Community Shift (M2M971MarOctEFDC6Slr25)

- No Community Shift

Existing Condition; Deepening
- 100% ELEMO_GALTI_SAGLT; 45% ELEMO, 23% SCIVA, 31% ZIZMI_POLSP
- 100% ELEMO_GALTI_SAGLT; 86% SCIVA
- 45% ZIZMI_POLSP_MURKE, 29% ELEMO_GALTI_SAGLT, 26% SCIVA; 86% SCIVA
- 78% SCIVA; 78% SPASP_SCIRO, 22% SCIVA
- 80% ZIZMI_POLSP_MURKE; 86% SCIVA

Savannah Harbor Expansion Project - Wetland/Marsh Impact Evaluation

USGS/USFWS Savannah Marsh Succession Model CART 2005/2002 Predicted Ecological Community Shift
48 Foot Deepening

Values Based on EFDC and M2M Output using Historic Average Flow, Temperature, and Tidal Conditions
1 March through 1 October 1997 (1997 best represents average historic conditions from the available data set)
25 cm Sea Level Rise Conditions

March 2007
## Savannah Harbor Expansion Project
### USGS/USFWS MSM Wetland/Marsh Impact Evaluation
#### Predicted Vegetation Community Shifts

<table>
<thead>
<tr>
<th>Community</th>
<th>CART2005</th>
<th>No Deepening 25 cm Sea Level Rise Associated Acreages</th>
<th>44 ft Deepening 25 cm Sea Level Rise Associated Acreages</th>
<th>Net Change (net negative), net positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% Elemo_Galti_Saglt</td>
<td>2003</td>
<td>1527</td>
<td>(476)</td>
<td></td>
</tr>
<tr>
<td>80% Zizmi_Polsp</td>
<td>805</td>
<td>711</td>
<td>(94)</td>
<td></td>
</tr>
<tr>
<td>45% Zizmi_Polsp, 29% Elemo_Galti_Saglt, 26% Sciva</td>
<td>446</td>
<td>793</td>
<td>348</td>
<td></td>
</tr>
<tr>
<td>78% Sciva</td>
<td>2165</td>
<td>2149</td>
<td>(16)</td>
<td></td>
</tr>
<tr>
<td>78% Spasp_Sciro_Astte</td>
<td>3428</td>
<td>3666</td>
<td>238</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>8847</td>
<td>8847</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community</th>
<th>CART2005</th>
<th>No Deepening 25 cm Sea Level Rise Associated Acreages</th>
<th>45 ft Deepening 25 cm Sea Level Rise Associated Acreages</th>
<th>Net Change (net negative), net positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% Elemo_Galti_Saglt</td>
<td>2003</td>
<td>1374</td>
<td>(628)</td>
<td></td>
</tr>
<tr>
<td>80% Zizmi_Polsp</td>
<td>805</td>
<td>669</td>
<td>(136)</td>
<td></td>
</tr>
<tr>
<td>45% Zizmi_Polsp, 29% Elemo_Galti_Saglt, 26% Sciva</td>
<td>446</td>
<td>863</td>
<td>418</td>
<td></td>
</tr>
<tr>
<td>78% Sciva</td>
<td>2165</td>
<td>2168</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>78% Spasp_Sciro_Astte</td>
<td>3428</td>
<td>3772</td>
<td>343</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>8847</td>
<td>8847</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community</th>
<th>CART2005/2002</th>
<th>No Deepening 25 cm Sea Level Rise Associated Acreages</th>
<th>46 ft Deepening 25 cm Sea Level Rise Associated Acreages</th>
<th>Net Change (net negative), net positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% Elemo_Galti_Saglt/ 91% Elemo</td>
<td>2003</td>
<td>1159</td>
<td>(843)</td>
<td></td>
</tr>
<tr>
<td>80% Zizmi_Polsp/ 100% Zizmi_Polsp</td>
<td>805</td>
<td>598</td>
<td>(207)</td>
<td></td>
</tr>
<tr>
<td>45% Zizmi_Polsp, 29% Elemo_Galti_Saglt, 26% Sciva/45% Elemo,23% Sciva, 31% Zizmi_Polsp</td>
<td>446</td>
<td>986</td>
<td>540</td>
<td></td>
</tr>
<tr>
<td>78% Sciva/ 86% Sciva</td>
<td>2165</td>
<td>2214</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>78% Spasp_Sciro_Astte/ 78% Spasp_Sciro, 22% Sciva</td>
<td>3428</td>
<td>3889</td>
<td>461</td>
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</tr>
<tr>
<td>TOTAL</td>
<td>8847</td>
<td>8847</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Values Based on EFDC and M2M Marsh Pore Water Salinity Input for Historic Average Flow, Temperature, and Tidal Conditions

1 March through 1 October 1997 (1997 best represents average historic conditions from the available data set).

**25 cm Sea Level Rise Conditions.

**25 cm sea level rise conditions with 48 ft. deepening was modeled using the CART 2002 MSM due to predicted salinity increases showing similarities to drought conditions.