



## **CSOP Advisory Team "Expectations for Success"**

**By: USACE**

**Date: 21 October 2004**



**US Army Corps  
of Engineers**



## **Model Comparisons**

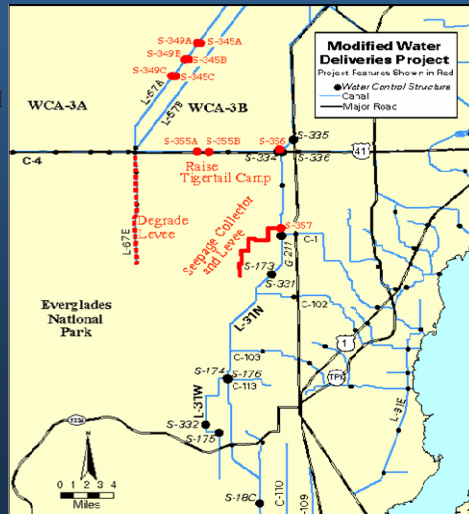
### **■ SFWMM Modeling of Alt7R5, No Action, Base 83, CSOP Base & C-111 GRR**

- *These are planning conditions that will be used to compare with future alternatives*
- *Comparisons between planning conditions are for informational purposes only*
- *For this exercise, comparisons are made between these 4 conditions and NSM, if possible*



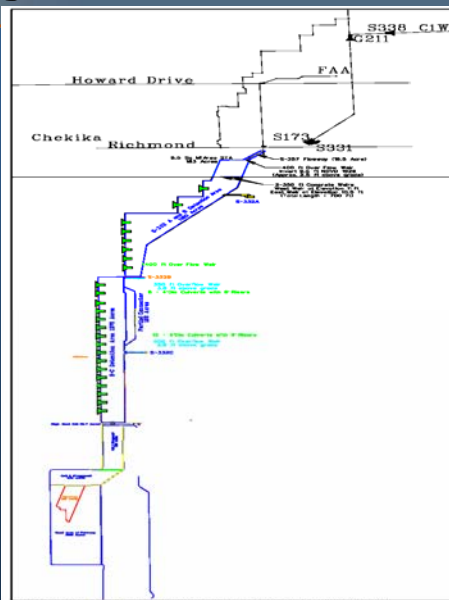
## MWD Project Features

- 1992 MWD GDM
- 2000 8.5 SMA GRR
- 2004 Tamiami Trail GRR
  - S-345s / S-349s in L-67A Canal
  - S-355s in L-29 Levee
  - 8.5 SMA Modifications
    - Modified in 2000 8.5 SMA GRR
    - Seepage Canal, S-357
    - S-357 to L-31N in 1992 GDM; S-357 to 8.5 SMA STA in 2000 and 2004 plans
  - S-356 pump station
    - Capacity change with 8.5 SMA GRR
  - Removal of L-67 extension
  - Tamiami Trail Bridge



## C-111 Project Features

- 1994 C-111 GRR
- 2002 GRR Supplement
- 2004 GRR Supplement
  - C-111 detention area reservoirs and pump stations from 8.5 SMA to Frog Pond
    - Culverts discharge to ENP
  - L-31W Canal backfill
  - C-111 Connector Canal
  - S-332E Spreader Canal
  - C-109 / C-110 Canals backfilled
  - 2002, 2004 supplements include levee tie-in to 8.5 SMA
  - Minimum deliveries to Taylor Slough in 1994 C-111 GRR





## **CSOP 'No Action'**

- MWD Project features assumed in place
- C-111 Project features assumed in place
- Operations
  - 1992 MWD GDM
  - 8.5 SMA GRR
  - 2002 IOP FEIS



## **CSOP 'ALT7R5'**

- ALT7R per the IOP FEIS recommended plan, updated to version 5.0 of the SFWMM
  - Authorized S-356 and S-355s were assumed in place and operated under ALT7R
  - Assumed C-111 detention area configuration assumed the land swap in place, detention area levee did not tie-in to 8.5 SMA, no backfilling of L-31W Canal
  - USFWS Biological Opinion for protection of CSSS
  - Did not include marsh operations



## **CSOP 'Base 83'**

- **Approved canal levels and operations pre-Experimental Deliveries Program (EDP):**
  - **Lake Okeechobee and WCA schedules in place prior to Experimental Program**
  - **STAs are not included**



## **'CSOP Base'**

- **'Base 83' with the addition of regional changes that occurred :**
  - **WSE**
  - **Updated WCA regulation schedules**
  - **Operation of STA (April 2004 configuration)**
  - **Construction of G-211**



## '1994 C-111 GRR'

- C-111 project modifications authorized in the 1994 C-111 GRR
  - S-331 serves as a basin divide structure
  - Lake Okeechobee and WCA schedules in place at time of authorization
  - 1992 MWD GDM assumed existing condition
    - Later 8.5 SMA modifications not included
  - STAs are not included



## WCA 3A/3B Expectations

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹; Doesn't address = ☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(1) <u>Move towards rainfall driven natural flows and levels and move toward natural connectivity of WCA 3A/3B and NE Shark River Slough while reducing unnatural frequencies and duration of extreme high and low events.</u>	☹☹	☹/☹	☹☹	☹☹	☹/☹
	☹☹	☹	☹☹	☹☹	☹
	☹☹	☹/☹	☹☹	☹☹	☹/☹

### Primary reason for ranking:

- No Action and GRR are closer to natural flows relative to other planning conditions because of directing more flow from 3A into 3B via S345s and S349s
- No Action and GRR stages are higher than Natural System Model (NSM) run in WCA 3B



## WCA 3A/3B cont'd

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(2) Consistent with restoration goals, maintain and improve public access to and connectivity within WCA 3A and WCA 3B for current recreational and other activities which are vital to the traditional Everglades "sportsperson" culture. Emphasis should be placed on modifications to the L-67 canals.	☹	☹	☹	☹	☹

### Primary reason for ranking:

- Base 83, Alt 7R5, and CSOP Base do not change configuration of L-67 canals
- No Action and GRR includes S345s and S349s and assumes 1992 MWD GDM provisions for boat access



## WCA 3A / 3B

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(3) If and when CSOP induces additional flows into and through WCA 3A, WCA 3B, and Everglades National Park to improve water deliveries and provide ecological benefits, ensure that these inflows meet all applicable water quality standards.	☹	☹	☹☹	☹☹	☹

### Primary reason for ranking:

- Borg Imperative – we will comply! Real-time water quality monitoring data will be considered during actual operations



## WCA 3A/3B cont'd

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(4) Move toward restoration of all natural habitats within WCA 3A and WCA 3B to include tree islands and ridge and slough, and strive to restore historical hydrologic/ecological connection throughout the South Florida ecosystem.	☹☹	☹	☹☹	☹☹	☹
	☹☹	☹	☹☹	☹☹	☹

### Primary reason for ranking:

- Peaks and peak durations are lower in WCA 3A for No Action and GRR than other planning conditions
- Peak stages and durations are higher (above NSM) in WCA 3B for No Action



## WCA 3A

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹; Doesn't address = ☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(5) Protect Tribal natural and trust resources vital to their traditional culture and way of life by restoring more natural water levels in WCA 3A.	☹	☹	☹☹	☹☹	☹

### Primary reason for ranking:

- No Action and GRR have lowest stages in WCA 3A during wet periods



## WCA 3B seepage

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(6) <u>Reduce flooding impacts on nearby agricultural and urban area. Project induced flood impacts to be avoided include seepage out of WCA-3B and diversion of flow to the S. Dade conveyance system.</u>	☹	☹☹	☹	☹	☹☹
	☹☹	☹	☹	☹	☹

### Primary reason for ranking:

- No Action and GRR runs increase stages in WCA 3B and increases seepage into L-30
- Only Alt7R5 passes flow to S. Dade




## 8.5 SMA

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(1) Consistent with the benefits of both Mod Waters and C-111 projects, the operations of S-357 and its STA will minimize seepage into L-31 N.	☹☹☹	☹	☹☹☹	☹☹☹	☹

### Primary reason for ranking:

- Features only included in No Action




## 8.5 SMA

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(2) The CSOP will be developed so that there will be no reduction in flood protection due to project implementation east of the 8.5 SMA (between G-211 and S-331).	☹	☹	☹☹	☹☹	☹

**Primary reason for ranking:**

- **GRR has higher canal and groundwater stages between G-211 and S-331 than AltR5 and No Action, but lower than Base 83 and CSOP Base**



## 8.5 SMA

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(3) The Corps and/or SFWMD will comply with all applicable water quality standards for the water bodies receiving outflows from the 8.5 SMA.	☹	☹	☹☹☹	☹☹☹	☹

**Primary reason for ranking:**

- **Real-time water quality monitoring data will be considered during actual operations**



## 8.5 SMA

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(4) <u>The Plan will provide flood protection for the residents of the 8.5 Square Mile Area and hydrological benefits for Everglades National Park, as authorized by Congress.</u>	☹	☹	☹☹	☹☹	☹
	☹☹	☹	☹☹	☹☹	☹

### Primary reason for ranking:

- Stages west of 8.5 SMA seepage levee are higher with No Action and C-111 GRR, but not higher in 8.5 SMA
- Stages in 8.5 SMA are higher in Base83 and CSOP base



## Detention and Buffer Areas

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(1) Performance of the buffer and detention areas is dependent on <u>reduction of inter-basin transfers of seepage water from the Everglades, including S-331. Seepage from ENP should be returned to ENP, in the same general area from which it came.</u>	☹	☹	☹☹	☹☹	☹
	☹	☹	☹☹	☹☹	☹

### Primary reason for ranking:

- Alt7R5, No Action and GRR have seepage reservoirs and S-356 to return/prevent L-31N seepage



## Detention and Buffer Areas

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(2) These project elements were designed to restore historic hydrologic conditions in the Taylor Slough and Rocky Glades while providing flood protection. It is our expectation that objectives of <u>better flood protection for the area east of the L-31N Canal and more natural hydrology along Eastern boundary of ENP</u> will be met in accordance with the project design.	☹	☹	☹☹	☹☹	☹
	☹	☹	☹☹	☹☹	☹

### Primary reason for ranking:

- GRR generally performs better than Base 83 and CSOP Base but generally worse than Alt7R5 and No Action
- Alt7R5 not designed for “better flood protection” or “more natural hydrology” but is interim plan for protection of CSSS



## Taylor Slough

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(1) The CSOP should <u>restore historic hydrologic conditions in the Taylor Slough and Rocky Glades</u> basins within ENP, and will be evaluated using a combination of hydrological and ecological measures. The Corps and/or SFWMD <u>will comply with all applicable water quality standards.</u>	☹☹	☹	☹☹	☹☹	☹
	☹☹	☹	☹☹	☹☹	☹
	☹	☹	☹☹	☹☹	☹

### Primary reason for ranking:

- No Action and C-111 GRR designed to restore Taylor Slough but not restore Rocky Glades
- Will comply with applicable WQ standards. Real-time water quality monitoring data will be considered during actual operations



## Shark River Slough (SRS)

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹; Doesn't address = ☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(1) The CSOP will <u>restore more natural hydrologic conditions in Shark River Slough and its downstream estuaries</u> and will be evaluated using a combination of hydrological and ecological performance measures. The Corps and/or SFWMD <u>will comply with all applicable water quality standards.</u>	☹☹	☹	☹☹	☹☹	☹
	☹	☹	☹☹	☹☹	☹

### Primary reason for ranking:

- No Action and GRR include MWD & C-111 modifications designed improve natural conditions in NESRS (reduce seepage), to improve distribution to SRS and downstream estuaries



## Shark River Slough (SRS)

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹; Doesn't address = ☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(2) CSOP should consider whether water quality features are needed at the 356 pump station for Shark River Slough.	☹	☹	☹☹	☹☹	☹

### Primary reason for ranking:

- S-356 collects seepage water of good quality



## Shark River Slough (SRS)

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(3) The facilities of the Airboat Association of Florida will be provided appropriate flood mitigation.	☹	☹	☹☹	☹☹	☹

### Primary reason for ranking:

- No changes in Alt7R5
- Changes included in No Action and GRR are assumed to be addressed per MWD plan




## Shark River Slough (SRS)

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(4) Majority support - Tamiami Trail improvements must be completed, including the 3000 foot bridge and elevation of the remaining eastern segment of the road, before allowing significantly more water into Northeast Shark River Slough. This project component must be expedited and the remainder of the project components must be sequenced subject to this constraint. CSOP will analyze whether and how much water can be restored to Shark River Slough prior to full completion of the project without compromising flood protection.					

### Primary reason for ranking:

Not a modeling expectation (no ranking)



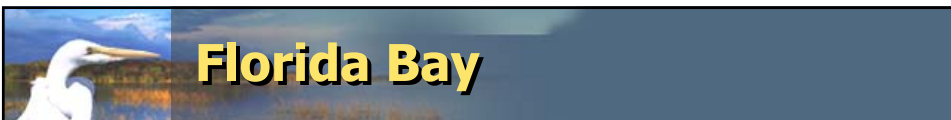
# Florida Bay

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹; Doesn't address = ☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
<p>(1) The plan should restore historic hydrologic conditions in the eastern panhandle basin of Everglades National Park by redirecting flows from C-111 basin to Taylor Slough. This will move towards appropriate salinity levels in <u>Central and Northeast Florida Bay</u>, while <u>restoring historic hydrologic conditions in Taylor Slough and complying with applicable water quality standards.</u></p>	☹☹	☹	☹☹	☹☹	☹
	☹☹	☹	☹☹	☹☹	☹
	☹	☹	☹☹	☹☹	☹

**Primary reason for ranking:**

- Only the No Action and GRR included spreader canal to model lands; GRR did not restore Taylor Slough
- Real-time water quality monitoring data will be considered during actual operations



# Florida Bay

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹; Doesn't address = ☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
<p>(2) The effects on Water Quality from changing flows to FL Bay, including potential nitrogen effects will be monitored. If a problem is detected, appropriate action will be taken.</p>	☹☹	☹	☹☹	☹☹	☹

**Primary reason for ranking:**

- Will comply with applicable WQ standards. Real-time water quality monitoring data will be considered during actual operations



# Florida Bay

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(3) The CSOP will eliminate damaging freshwater flows to Manatee Bay/Barnes Sound by <u>reducing the need for discharges from S-197.</u>	☹☹	☹	☹☹	☹☹	☹

## Primary reason for ranking:

- No Action has slightly less S-197 discharges than does Alt7R5, the GRR almost eliminated the discharges completely



# Florida Bay

Ranking Key: Exceeds expectation = ☺; Meets expectation = ☹; Falls short of expectation = ☹☹; Doesn't address = ☹☹

2x2 Planning Condition Model Runs	Alt7R5	No Action	Base 83	CSOP Base	C-111 GRR
(4) The C-111 N spreader canal will be constructed, as per the C-111 1994 GRR, as soon as possible.					

## Primary reason for ranking:

- Not a modeling issue (no ranking)



# Questions

