

MODIFIED WATER DELIVERIES INCREMENT 3 – COMBINED OPERATIONAL PLAN (COP)

Project Overview and Water Quality Evaluation Methodology
Technical Oversight Committee
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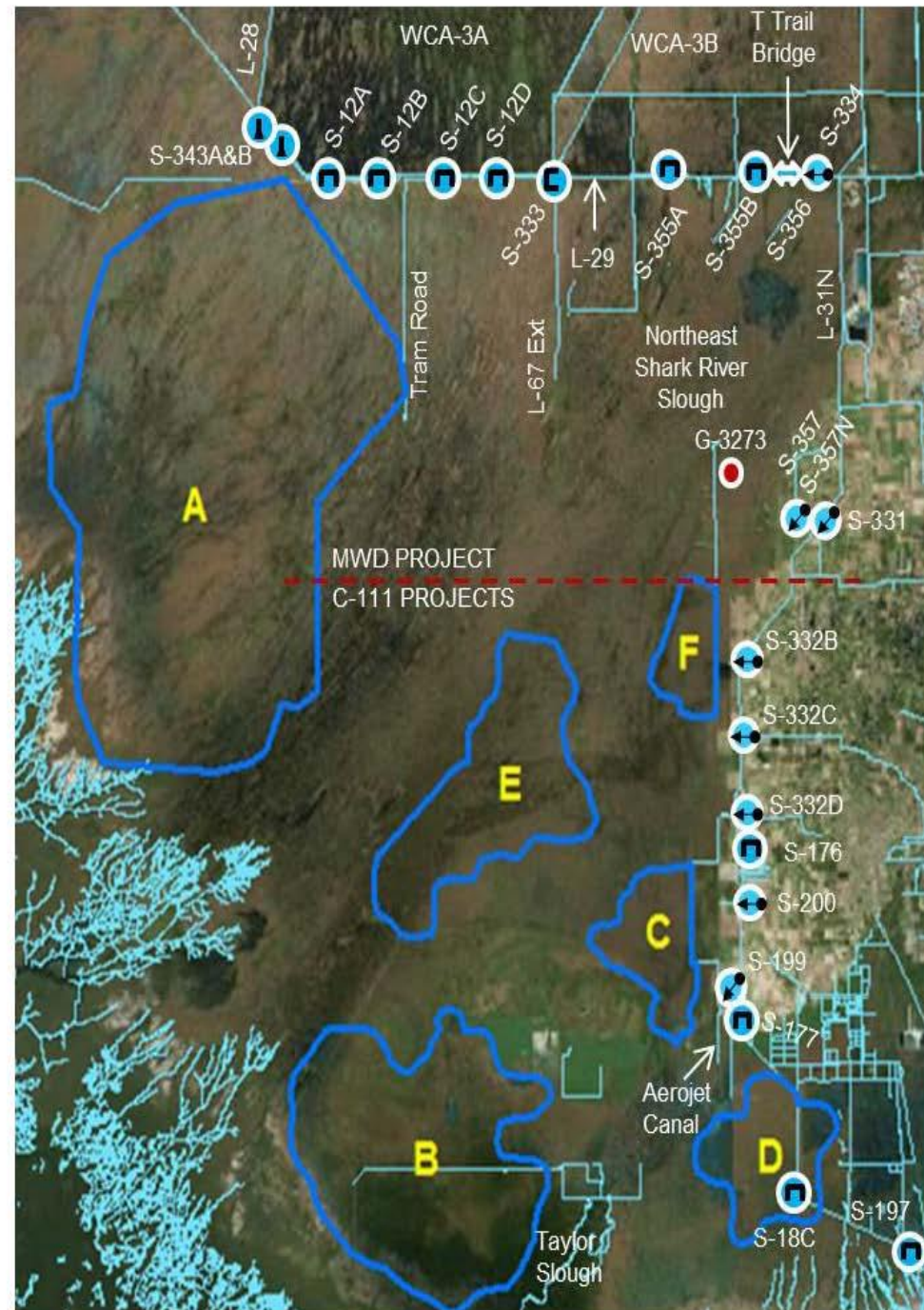
THE COMBINED OPERATIONAL PLAN (COP)

- Requirement of the 2016 ERTP Biological Opinion
- Informed by a series of operational field tests (Increment 1, Increments 1.1 and 1.2, and Increment 2) conducted under the authority of the MWD Project.
- Defines operations for the constructed features of the Modified Water Deliveries (MWD) to Everglades National Park (ENP) and Canal 111 (C-111) South Dade Projects, while maintaining the congressionally authorized purposes of the Central and Southern Florida (C&SF) Project.
- Results in an update to the 2012 Water Control Plan



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COP SCOPE

- Raising the maximum operational limit in the L-29 canal up to 8.5 feet NGVD (Operational limit based on the Tamiami Trail LRR).
- Relaxing the 6.8 foot NGVD constraint at G-3273 and evaluate whether the previous G-3273 constraint can be removed, or if an alternate constraint and location is warranted as a protective measure for residential areas to the east, particularly the 8.5 SMA.
- Operating pump station S-356 to manage seepage and water stages in the L-30 and L-31N canal levels between S-335 and G-211.
- Modifying to the Rainfall Plan for discharges from WCA-3A



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COP SCOPE - CONT

- Modifications to the WCA-3A Regulation Schedule below Zone A (including IOP/ERTP Column 1 and Column 2 operations) pending results of the Baseline and Modification Modeling (BAMM) Flood Routing study of the WCAs
- Modifications to operation of the C&SF structures for flood protection (including S-197)
- Operations of S-328 (proposed under the SFWMD Florida Bay Initiative in 2016)
- Ecological water deliveries to Taylor Slough (Page 5-1 of the C-111 SD GRR)

COP OBJECTIVES

1. Improve water deliveries (timing, location, volume) into ENP and take steps to restore natural hydrologic conditions in ENP given current C&SF infrastructure and features expected to be completed by the time of implementation , to the extent practicable by
 - a) Changing schedule of water deliveries so that it fluctuates in consonance with local meteorological conditions, including providing for long term and annual variation in ecosystem conditions in the Everglades (Timing) (P.L. 101-229, Section 101b)
 - b) Restoring NESRS as a functioning component of the Everglades hydrologic system (Location) (P.L. 101-229, Section 101b)
 - c) Adjusting the magnitude of water discharged to ENP to minimize effects of too much or too little water (Volume) (1992 MWD GDM, Section 44)



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COP OBJECTIVES - CONT

2. Maximize progress toward restoring historic hydrologic conditions in the Taylor Slough, Rocky Glades, & eastern Panhandle of ENP.
3. Protect the intrinsic ecological values associated with WCA-3A and ENP.
4. Minimize the damaging freshwater flows to Manatee Bay/Barnes Sound through the S197 structure and increase flows through Taylor Slough and coastal creeks (1994 C-111 GRR, Section 5.2)
5. Include consideration of cultural values and tribal interests & concerns within WCA-3A and ENP.



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COP CONSTRAINTS

1. C&SF project purposes
2. 1962 Flood Control Act (P.L. 87-874) Authorizing Project Works in South Dade County
3. 1968 Flood Control Act (P.L. 9-483) Authorizing the SDCS
4. 1989 ENP Expansion Act (Everglades National Park Protection and Expansion Act of 1989, P.L. 101-229)
5. 1992 MWD GDM (1992 General Design Memorandum): maintain the mitigation for project induced flood damages in the East Everglades, including 8.5 SMA, the Osceola Indian Camp, and the Tiger Tail Indian Camp
6. 1994 C-111 GRR: maintain the level of flood mitigation associated with the 1994 C-111 GRR recommended plan
7. 2000 General Re-evaluation Report for the 8.5 SMA
8. L-29 Canal maximum stage (8.5 ft NGVD)(2008 Tamiami Trail LRR)



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COP CONSTRAINTS – CONT

9. 2008 Tamiami Trail Modifications Relocation Agreement (FDOT/USA): Operate L-29 Canal to ensure the stability and safety of the U.S. 41 Highway between S-333 and S-334; inflow structures operated to avoid exceeding 8.5 feet NGVD, with stages above 8.3 feet limited to a maximum of 90 days for each water year (pending Increment 2 monitoring results)
10. ERTP WCA-3A Regulation Schedule: maintain Zone A of the WCA-3A regulation schedule to not exceed the 1960 WCA-3A 9.5 to 10.5 feet NGVD regulation schedule as specified in the 2012 ERTP Water Control Plan (pending results of the BAMB)
11. 2016 Canal 111 South Dade Final LRR: Documentation of C-111 design modifications following the 1994 GRR



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COP CONSTRAINTS - CONT

12. 2016 MWD Completion Technical Analysis and May 2017 EA/FONSI: Removal of the authorized conveyance and seepage control features (CSCF) originally included in the MWD Project CSCF components that have not been constructed. Specifically, the components to be removed from the authorized project and associated Project Cooperation Agreement (PCA) include:

- (1) gated culvert structures S-345A, B, and C through the L-67A;
- (2) gated concrete headwall structures S-349A, B, and C in the L-67A Borrow Canal; and
- (3) degradation of the remaining 5.5 miles of the L-67 Extension



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MODELING ROUNDS

Three distinct rounds of modeling will be performed to inform selection of operations plan

- Round 1 is complete and alternatives have been adjusted based on information gained in this round
- Round 2 modeling is currently underway and will lead to the selection of one alternative for optimization
- Round 3 will seek to optimize the alternative recommended from Round 2

The optimized alternative will become the tentatively selected operational plan



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KEY SCHEDULE DATES

Activity	Forecast
1. PDT Develop Round 2 Alternatives	29 Aug 18
2. Round 2 Modeling (2 Alts) RSM-GL, MD-RSM	06 Sep – 27 Oct 18
3. Round 3 Optimization Modeling (RSM-GL, MD-RSM)	10 Jan – 08 Feb 19
4. Water Quality Evaluation of Preliminary Preferred Alternative	11 Feb – 08 Mar 19
5. Recommend Preliminary Preferred Alternative	11 Mar – 24 Mar 19
6. State/Agency/Tribe Public Review: Draft Systems Operating Manual/Environmental Impact Statement	12 Sep – 26 Oct 19
7. Receive Biological Opinion	24 Jan 20
8. State/Agency/Tribe Public Review: Final Systems Operating Manual/Environmental Impact Statement	20 Feb – 19 Apr 20
9. Sign Record of Decision	25 May 20



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COP ALTERNATIVES: WATER QUALITY EVALUATION METHODOLOGY



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COP WQ ALTERNATIVE EVALUATION METHODOLOGY

Goal of WQ Subteam:

Shark River Slough

- Develop an evaluation methodology to compare Shark River Slough long term flow weighted mean (FWM) for each alternative.
- Long-Term Limit exceedance frequencies will not be used as a primary metric because their predictions have substantially higher uncertainties.
- Plan is to use a regression analysis approach to develop predictive eqns.

Taylor Slough/Shark River Slough

- FWM for region is well below Settlement Agreement wq limit. Alternatives not expected to increase FWM for this region. Evaluation will be performed by comparing source water such as seepage from ENP (lower total P), S334 bypasses (potentially higher total P dependent on conditions) etc. for each alternative. Alternatives will be ranked by highest percentage of low phosphorus source water/lowest % of potentially higher total P water.



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SHARK RIVER SLOUGH EVALUATION METHODOLOGY

- CEPP and E RTP used regression model approach to evaluate water quality between alternatives.
- Plan is to use similar approach for COP alternatives.
- What is the regression model approach? For this approach, eqns are developed to “fit” the data for a given time period and tested against data from another time period (also called “hind casting”).
- Those eqns are then used to predict key structure phosphorus concentrations for the different alternative model runs. With those concentrations and modeled flow output for key structures, a FWM can be calculated for each alternative. Long term FWM is the metric used to compare alternatives. Lower is better. Not intended to predict the actual long term fwm but to rank outcomes for each alternative.
- Subteam started discussions in Nov 2017 and regression approach was discussed and considered as path forward for SRS alternative evaluation. DOI (Dr. Walker) initiated development of new predictive eqns for COP WQ alt analysis.



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SHARK RIVER SLOUGH EVALUATION METHODOLOGY CONTINUED

- Updated predictive eqns presented in April 2018. Concerns were raised about the RSM existing condition baseline (ECB) not matching current conditions (such as flows at S334 and S356). Modelers indicated they would update model to have better match modeled ECB to actual conditions by 30 June. Further evaluation of predictive eqns required this updated modeling. Questions also raised about data linkage/uncertainty concerns based on period of record used to develop predictive eqns.
- DOI (Dr Walker), following the June 30 model update, initiated development of new predictive eqns using longer period of record. These revised eqns were finalized and made available by end of July 2018. Run time is short, think minutes not days or hours. Hard part is getting the closeness of fit for the eqns with the actual data for period of record used.



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SUMMARY

Using similar method for SRS as previously used for ERTP and CEPP WQ alternative evaluation.

QUESTIONS?



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