Modified Water Deliveries to Everglades National Park

Incremental Approach to the Integrated Operational Plan for the MWD and C-111SD Projects

Increment 1

October 15, 2014

Presentation Overview

S-356 Pump Test Status Update

Eco Sub Team Report

- **T&E Species**

WQ Surface/Ground Water Sub Team Reports

- **Surface Water Monitoring**
- **Ground Water Monitoring**
- **Water Quality**

H&H Operations Sub Team Report

- **Operational Strategy**
- **Hydrologic Effects Evaluation**

Alternatives Evaluation

PDT Discussion

Next Steps/Closing Comments

S-356 Pump Test Status Update

S-356 Repairs

- Repair at S-356 needed prior to operation of the pumps
  - Repair intake apron
- USACE Contracting identified the effort as construction not O&M repairs
  - SAJ-EN is working on Plans and Specs
  - PM to meet with CT to understand the details

Eco Sub Team Report

T&E Species

Eco Sub Team Update – Current Draft

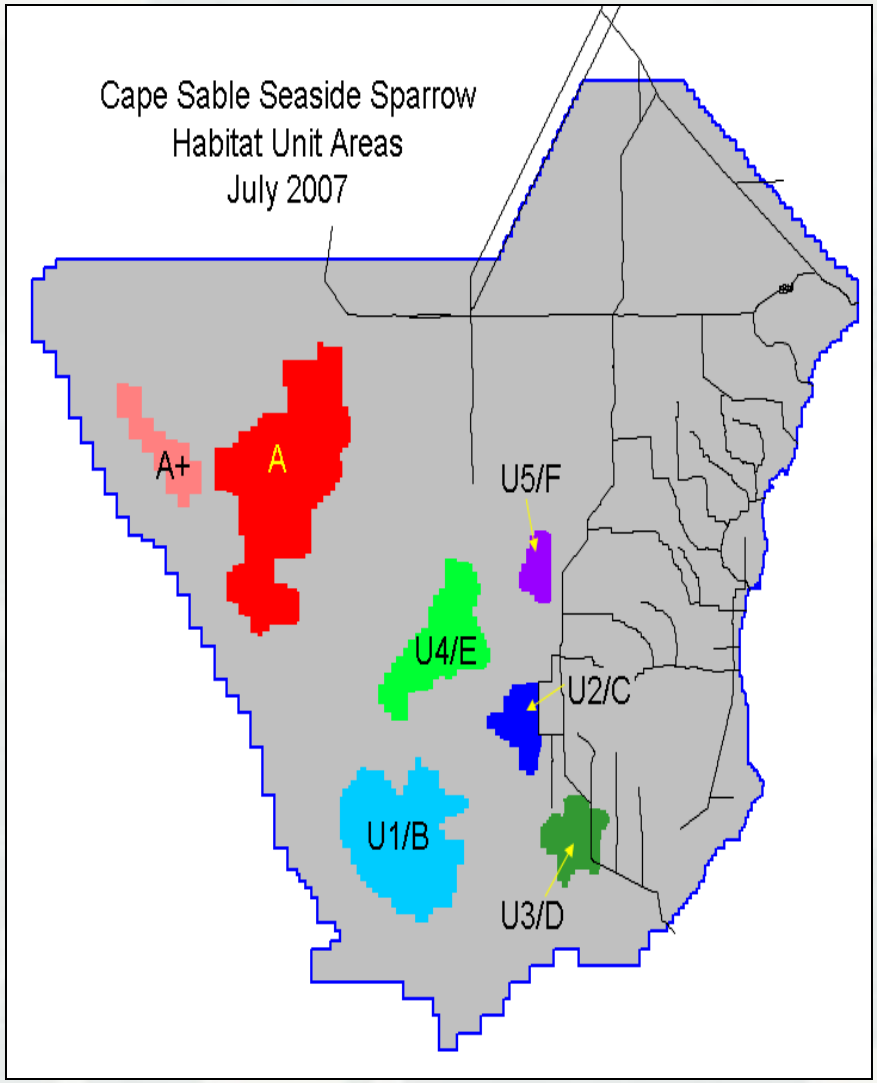
- Eco Sub Team met on August 11th, 25th and September 8th, 22nd, and 6th to discuss proposed field test species monitoring to measure potential hydrologic impacts within CSSS subpopulations and wood stork colonies located adjacent to Tamiami Trail and within NESRS.
- USACE and SFWMD will continue existing hydrologic and species monitoring plans to ensure that the Incidental Take as defined within the FWS 2009 BO for C-111 Western Spreader Canal Project and 2010 BO for ERTP is not exceeded.
- Eco Sub Team has not defined constraints/triggers to be incorporated into the operational strategy.
- ERTP Periodic Scientists Calls will continue to be conducted throughout the G-3273 Constraint Relaxation and S-356/S-357N Field Test to ensure wildlife recommendations are considered during the water management decision process.
- Eco Sub Team to reconvene October 20th to finalize details.

Cape Sable Seaside Sparrow

Monitor existing hydrological gages to measure potential hydrologic impacts within CSSS-subpopulations:

1. ***Dry nesting days at related gages within CSSS-E, CSSS-F, and CSSS-C between March 1 and July 15.***
2. ***Annual hydroperiod or number of days water is above ground surface during the water year.***

Sub-Population	Gages
E	NP-206, , CR3, A13, NP62, NP44
F	RG1, RG2, RG3
C	E112, R3110, NTS10, NTS1, NTS18, NTS14



CSSS sub-populations (A-F) and designated Critical Habitat Units

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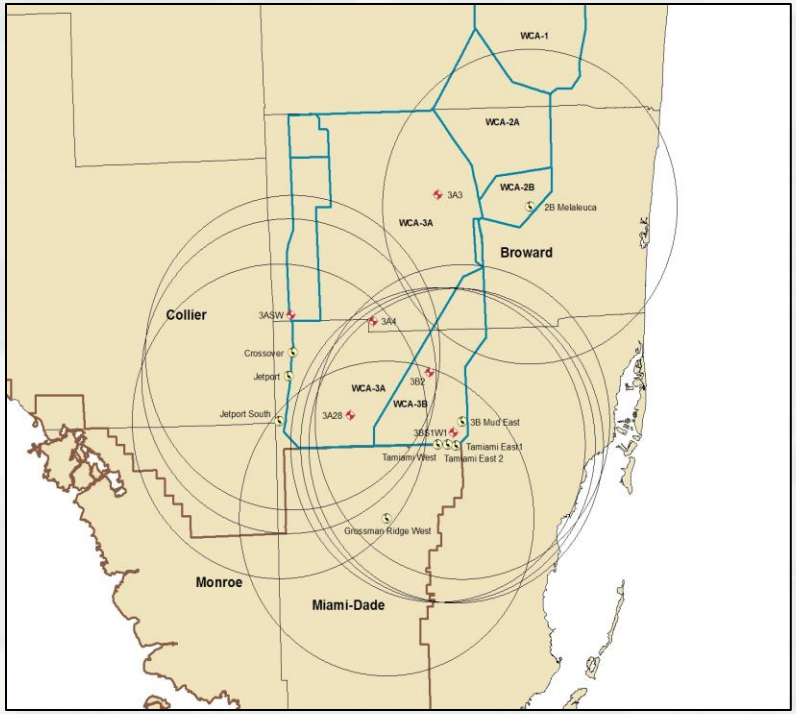
Wood Stork



Monitor existing hydrological gages to measure foraging depths and recession rates within TT-West, TT-East, TT-East 2, and Grossman Ridge West

Water Depth (centimeters)
< -9 cm
-9 to 4 cm
5 to 25 cm
26 to 40 cm
> 40 cm

Recession Rate (feet per week)
< 0.17
> 0.07 but ≤ 0.17
Preferred 0.06-0.07
≥ -0.05 but < 0.06
< -0.05

1. ***Water depths (5-25 cm) within the Core Foraging Area (18.6 mile radius, CFA) of any active wood stork colony***
2. ***Recession rates (optimal range of 0.06 to 0.07 feet per week), from January 1 to June 1.***

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COASTAL SALINITY MONITORING

- Corps will monitor existing salinity gages to measure potential hydrologic impacts associated with operational criteria included within the field test for S-197 (S-18C HW).
- Salinity gages
  - Joe Bay, Long Sound, Manatee Bay and Barnes Sound (ENP Marine Monitoring Network)
  - Manatee Bay and Barnes Sound (Biscayne National Park)

Field Test Salinity Monitoring Stations
ENP Marine Monitoring Network
ENP JB, ENPLS, MBTS and TPTS

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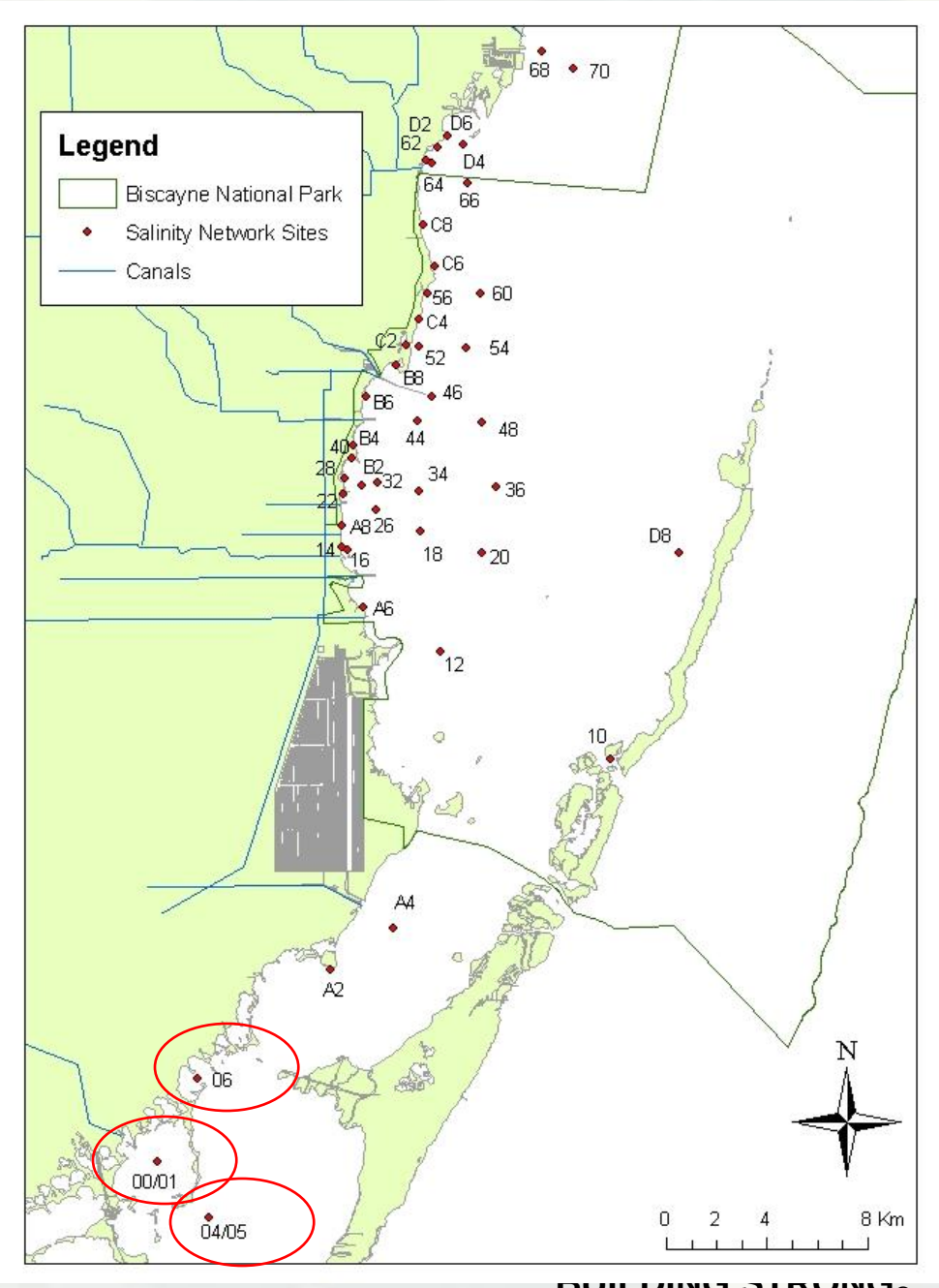
Field Test Salinity Monitoring Stations – Biscayne National Park

Pertinent Salinity Monitoring Stations
BISC 00; BISC 01; BISC 04; BISC 05; BISC 06



WQ Surface/Ground Water Sub Team Reports

Surface Water Monitoring

Status of plan

- Surface water quality monitoring stations agreed to
- Surface water quality monitoring parameters agreed to
- GW/SW Monitoring plan being put into CERP monitoring plan format
- Final edits being made to the surface water quality monitoring plan section of the monitoring plan

S356 Pump Test Surface Water Quality Monitoring

SRS1B is west of L67-Extension

Surface Water Quality Monitoring Plan

Table C.6. Proposed Surface Water Quality Monitoring for G3273/S356 Increment 1 Test

Station	Location	Water Quality Parameters	Frequency and Sample Type	
			Flowing	Non-Flowing
TAMBR1	L29 north bank, directly across from culvert under US 41; 0.3 mi. west of S-334; a.k.a. FDOT Culvert 59	TPO_4, OPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, DO, SC, T & pH	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
TAMBR4	L29 north bank, directly across from culvert under US 41; 2.2 mi. west of S334; a.k.a. Culvert 56	TPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, DO, SC, T & pH	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
NE0	NESS marsh site 0.5 km south of FDOT Culvert 59 (TAMBR1)	TPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, DO, SC, T & pH	Monthly; grab; collection by ENP and analyses by SFWMD	Monthly; grab; collection by ENP and analyses by SFWMD
S355A	Approximately 5.5 mi. west of S-356. Tail Water	TPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, DO, SC, T & pH	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
S355B	Approximately 3.25 mi. west of S-356. Tail Water	TPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, DO, SC, T & pH	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
SAFARI	Downstream of culvert south of L29, approximately 8 mi. west of L31N.	TPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, DO, SC, T & pH	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
GLADER	Downstream of culvert south of L29, approximately 5-1/4 mi. west of L31N.	TPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, DO, SC, T & pH	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
COOPERTN	Downstream of culvert south of L29, approximately 4 mi. west of L31N.	TPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, DO, SC, T & pH	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
S333	SE Corner of WCA3A at L29.	DO, SC, pH, Turb, TSS, NO_x, TKN, OPO_4, TPO_4, Na, K, Ca, Mg, Cl, SO_4, Alk	Weekly when flowing; otherwise monthly; grab	Monthly grab; collection and analyses by SFWMD
		TPO_4, TKN, NO_x	Time-proportional autosampler: weekly	
S334	On L29 approximately 1/4 mile west of L31N. Head Water.	TPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, DO, SC, T & pH	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
S335	On L30 north of L29. Tail Water (and Head Water).	TPO_4, OPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, SC, DO, pH, SC, T	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
S356	On L29 approximately 1/4 mi. west of L31N.	DO, SC, pH, Turb, TSS, NO_x, TKN, OPO_4, TPO_4, Na, K, Ca, Mg, Cl, SO_4, Alk	Weekly when flowing; otherwise monthly; grab	Monthly grab; collection and analyses by SFWMD
	NOTE: Autosampler on site.	TPO_4, TKN, NO_x	Time-proportional autosampler: weekly	

Comment [jnr11]: Add OP4?

Comment [SPS12]: Add OPO4

Surface Water Quality Monitoring Plan -- *continued*

Station	Location	Water Quality Parameters	Frequency and Sample Type	
			Flowing	Non-Flowing
S197	On C111 approx .15mile east of US 1/C111 juncture: 25° 17' 13.46" N, 80° 26' 29.94" W	*DO, SC, pH, TSS, NO_x, TKN, OPO_4, TPO_4, Na, K, Ca, Mg, Cl, SO_4,* *TURB, SO4*	Biweekly if flowing	Quarterly Quarterly
L31NMile0	0.06 miles south of the intersection of L29 and L31N – Stage gage; 25° 45' 36.25" N, 80° 29' 53.32" W	*TPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, SC, DO, pH, SC, T*	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
L31NMile1	One mile south of the intersection of L29 and L31N - miles south of the intersection of L29 and L31N – Stage gage; 25° 44' 46.75" N, 80° 29' 51.46" W	*TPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, SC, DO, pH, SC, T*	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
L31NMile2	Two miles south of the intersection of L29 and L31N - miles south of the intersection of L29 and L31N – Stage gage; 25° 43' 54.75" N, 80° 29' 48.72" W	*TPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, SC, DO, pH, SC, T*	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
L31NMile3	Three miles south of the intersection of L29 and L31N - miles south of the intersection of L29 and L31N – Stage gage; 25° 43' 03.32" N, 80° 29' 47.57" W	*TPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, SC, DO, pH, SC, T*	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
L31NMile4	Four miles south of the intersection of L29 and L31N - miles south of the intersection of L29 and L31N – Stage gage; 25° 42' 06.82" N, 80° 29' 45.23" W	*TPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, SC, DO, pH, SC, T*	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
L31NMile5	Five miles south of the intersection of L29 and L31N – Stage gage; 25° 41' 09.81" N, 80° 29' 50.10" W	*TPO_4, Na, Ca, Mg, K, Cl, SO_4, Alk, SC, DO, pH, SC, T*	Biweekly; grab; collection and analyses by SFWMD	Monthly grab; collection and analyses by SFWMD
NE1	In the Park marsh, 4.67 miles south of the L29 canal	*Turb, TSS, NOX, NO2, NH4, TKN, OPO4, TPO4, Na, K, Ca, Mg, Cl, SO4, (Hard), Alk, (NO3), T, DO, SC, pH*	Monthly; grab; collection by ENP, and analysis by SFWMD	Monthly; grab; collection by ENP, and analysis by SFWMD
SRS1C	In the Park marsh, 0.42 miles south of L29 canal	*TPO_4, DO, pH, SC, T*	Monthly; grab; collection by ENP, and analysis by SFWMD	Monthly; grab; collection by ENP, and analysis by SFWMD
SRS1B	In the Park marsh, 0.31 miles south of L29 canal	*TPO_4, DO, pH, SC, T*	Monthly; grab; collection by ENP, and analysis by SFWMD	Monthly; grab; collection by ENP, and analysis by SFWMD

LEGEND		
Color Code	Description	Parameters
Blue	Station currently being monitored	Red text: added analytes
Green	Proposed station; many stations were previously monitored by SFWMD	
Yellow	Collection by ENP, Analysis by SFWMD	

Ground Water Monitoring

Groundwater Monitoring Plan

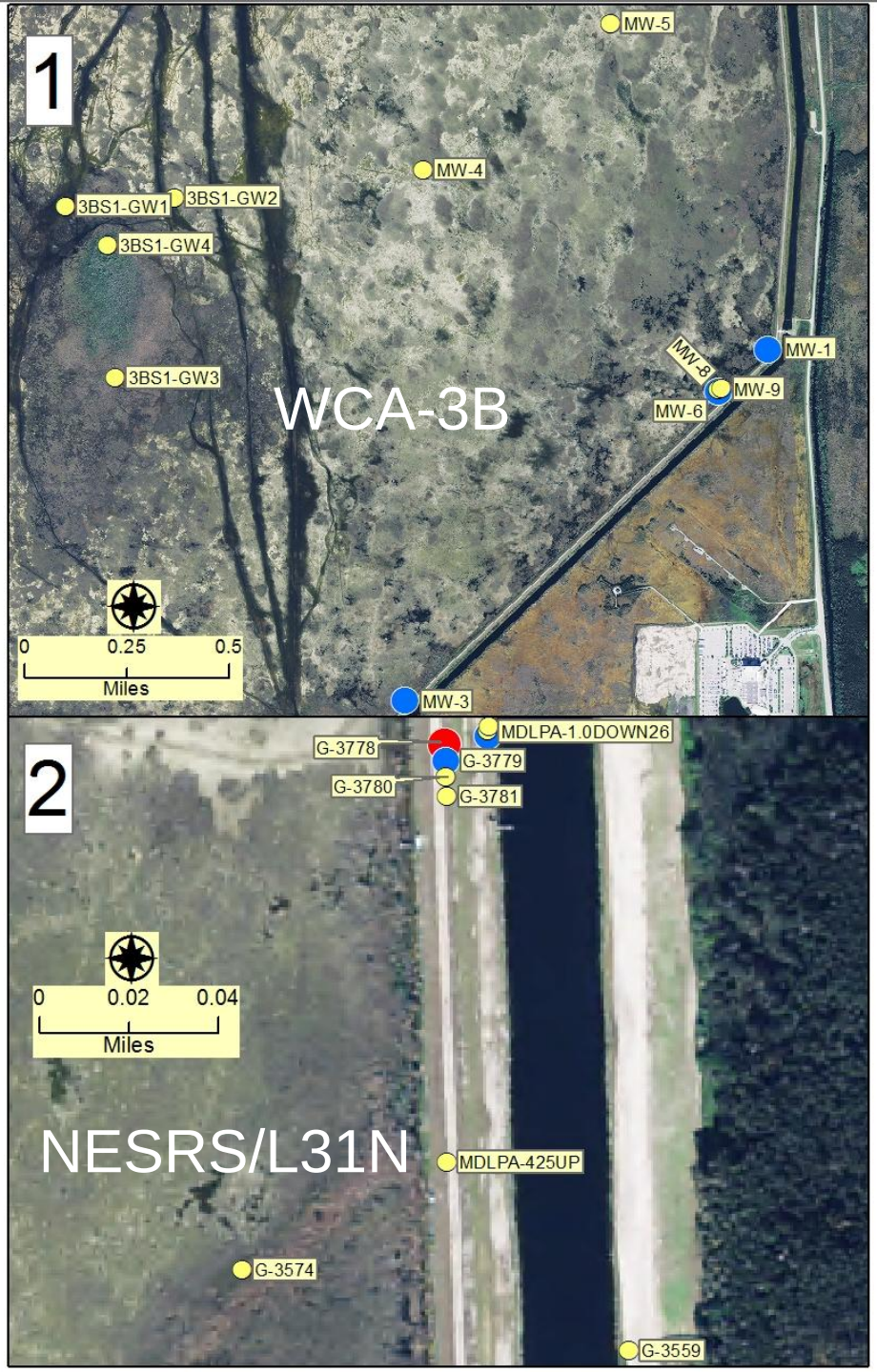
L-30 Instrumented Wellfield

Groundwater Monitoring Plan

- Groundwater Monitoring will include
  - Groundwater Level
  - Groundwater Flow Rate (Selected wells)
  - Groundwater Flow Direction (Selected wells)
  - Groundwater Quality (Selected wells)
- **Objectives**
  - Define area of influence of the S-356 Pump Station during operations
  - Quantify seepage component to surface water flows

Groundwater Monitoring Well Network

- WCA-3B and L-30 Wells
  - Upgradient conditions, before and during test
  - Wells screened at different depths within the Biscayne Aquifer
- L31N Wells and Well Clusters
  - Quantify seepage into L31N canal, also screened at different depths in the Biscayne Aquifer
- Northeast Shark River Slough Wells
  - Quantify surface water-groundwater interactions
- Background Wells
  - Determine pumping effects of the MDWASD Northwest wellfield and other pumping stresses


1
MW-5
MW-4
3BS1-GW1
3BS1-GW2
3BS1-GW4
3BS1-GW3
WCA-3B
MW-8
MW-1
MW-9
MW-6
MW-3
0 0.25 0.5
Miles

2
G-3778
MDLPA-1.0DOWN26
G-3779
G-3780
G-3781
0 0.02 0.04
Miles
NESRS/L31N
MDLPA-425UP
G-3574
G-3559

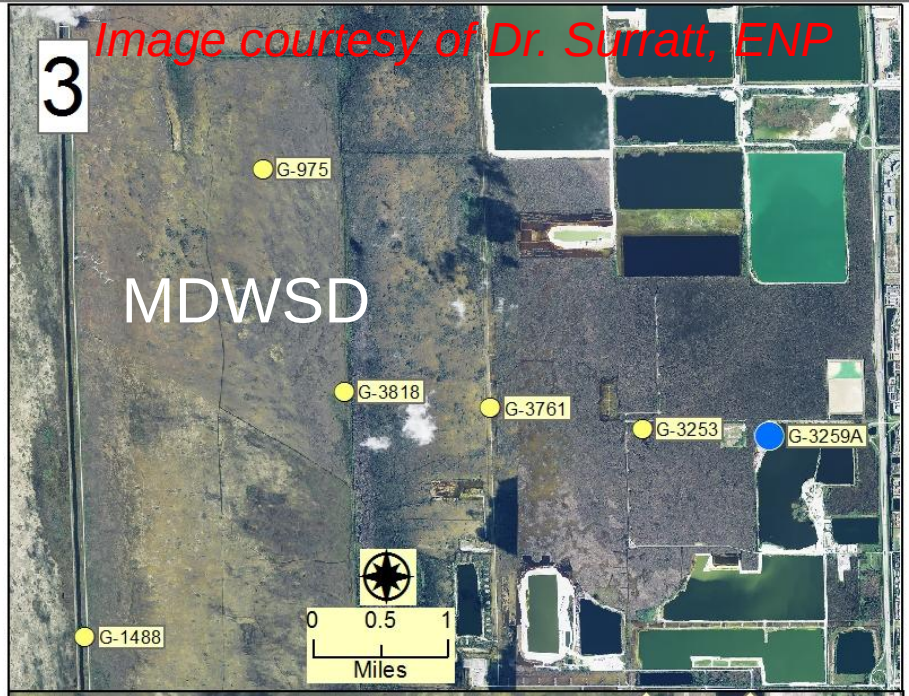
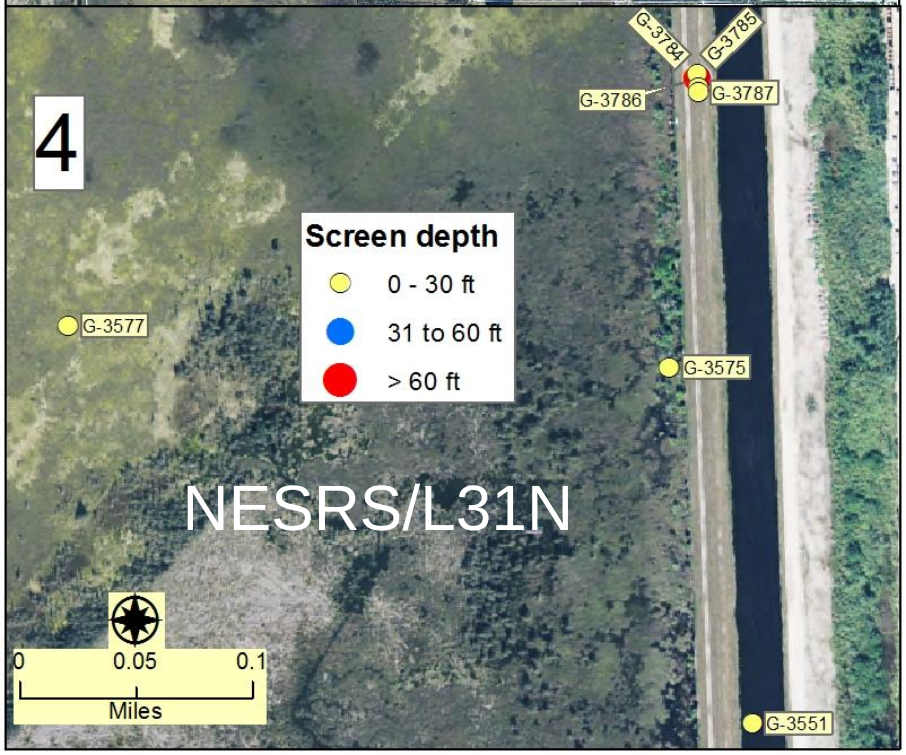


Image courtesy of Dr. Surratt, ENP
3
G-975
MDWSD
G-3818
G-3761
G-3253
G-3259A
G-1488
0 0.5 1
Miles


4
G-3784
G-3785
G-3786
G-3787
Screen depth
0 - 30 ft
31 to 60 ft
> 60 ft
G-3577
G-3575
NESRS/L31N
0 0.05 0.1
Miles
G-3551

S356 Pump Test Groundwater Quality Monitoring

Image courtesy of Dr. Surratt, ENP

Groundwater Monitoring Plan Status

- Surface water and groundwater monitoring plans are an operational permit requirement
  - Documents are an Appendix to the Environmental Assessment (NEPA permit requirement)
- **Multi-agency internal reviews conducted from August to October 2014**
  - Result is clarification among agencies on project objectives
- **Draft final Monitoring Plan to be submitted to agencies in the next two weeks, prior to EA listing**
  - Pending resolution of issues in this meeting

Thank You! Questions?

Water Quality

H&H/Operations
Sub Team Report
Operational Strategy

Public Comment

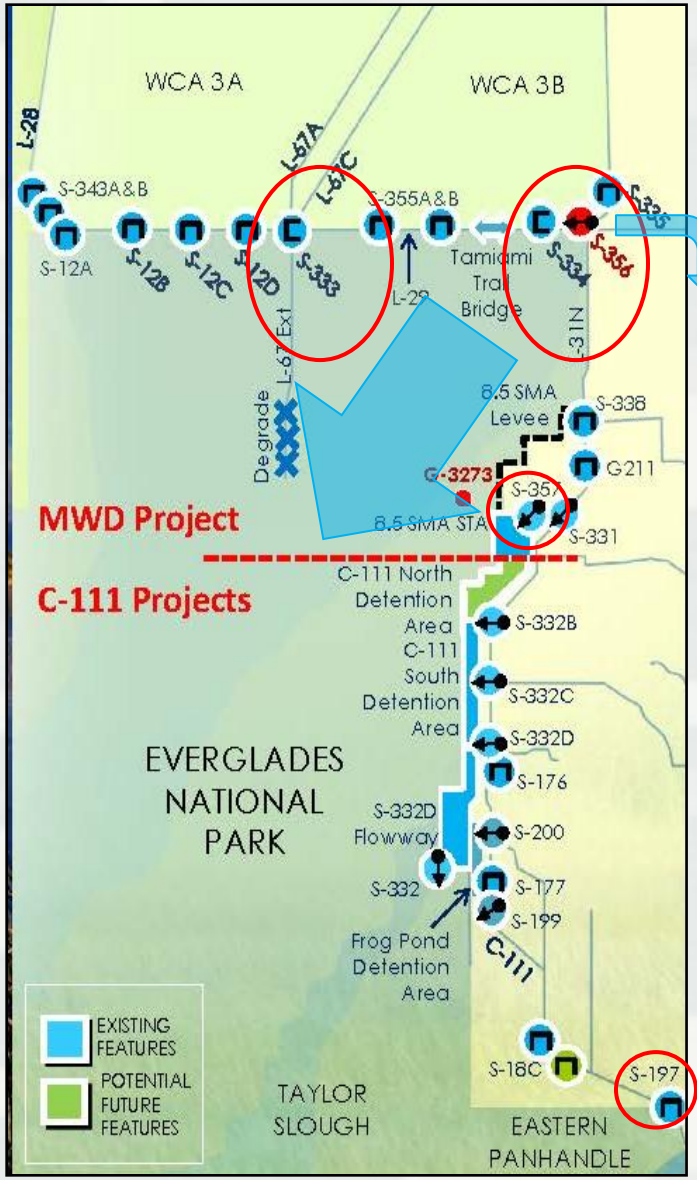
Lunch

H&H/Operations
Sub Team Report
Hydrologic Effects Evaluation

Alternatives Evaluation

Alternatives for NEPA Assessment

- Overarching project need is to increase the availability of S-333 to increase water deliveries from WCA 3A to ENP through NESRS.
- Reduce the number of times S-333 discharges are limited by the existing G-3273 stage constraint of 6.8 feet NGVD.
- Relaxation of G-3273 to the L-29 stage limit of 7.5 feet NGVD and operation of S-356 to return seepage from the L-31N to the L-29 will increase water deliveries to NESRS.
- Delivery of water to NESRS by S-333 must be reduced or discontinued when the stage at G-3273 exceeds 6.8 feet NGVD, except under Column 2 Operations (S-334 must match S-333).

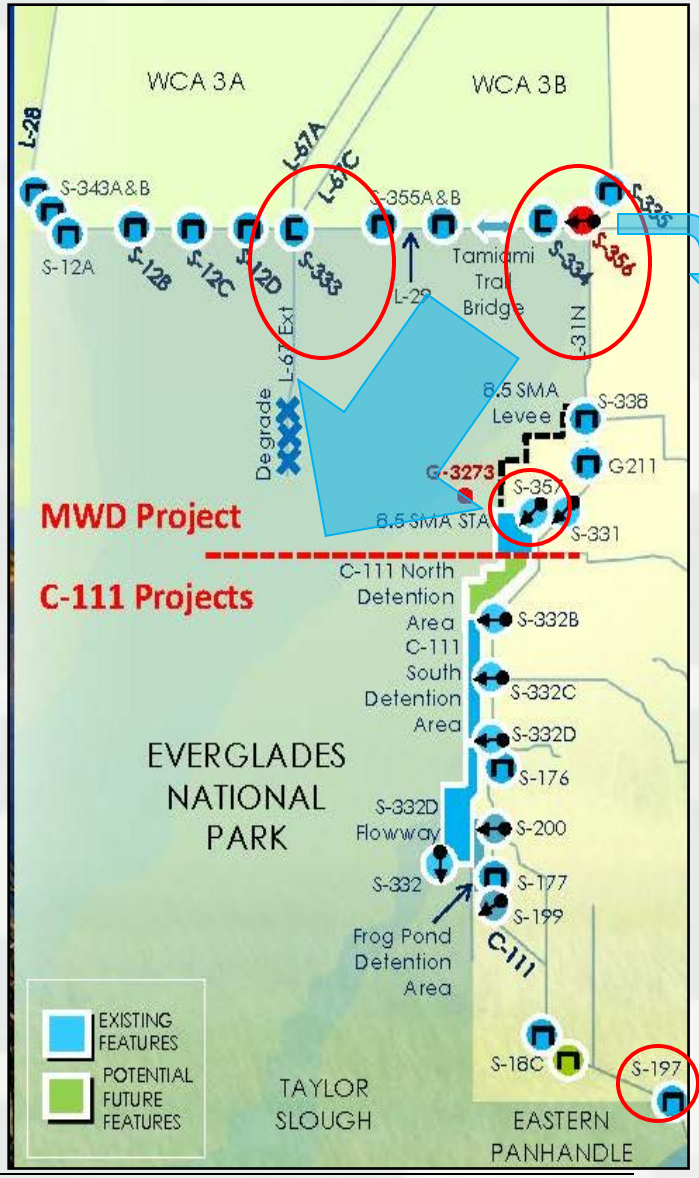


Alternatives for NEPA Assessment

- Column 2 is the condition when regulatory releases from WCA 3A are made via S-333 to the L-29 Canal and via S-334 to the L-31N Canal and the SDCS.
  - Reliance on S-334 to lower stages in WCA 3A is expected to decrease due to the increased availability of discharge to NESRS.

- Alternatives differ based on:
  - Degree of relaxation of G-3273 stage constraint
  - Use of Column 2 Operations
  - Inclusion of operational changes to C-111 Canal

    structures S-197 (S-18C HW)



Objectives of Increment 1 Field Test

A. Improve hydrological conditions in NESRS through the relaxation of the G-3273 stage criteria to increase water deliveries from WCA 3A to NESRS, while maintaining other C&SF Project authorized purposes.

B. Use the S-356 pump station to return seepage to NESRS and manage seepage from NESRS to the L-31N Canal resulting from the relaxation of the G-3273 stage constraint on S-333, in conjunction with increased flows through the S-333 spillway to NESRS via the L-29 Canal.

C. Improve hydrological conditions in NESRS by maximizing the flexibility and efficiency of the existing infrastructure, including use of seepage management (e.g., S-356) to complement inflows to NESRS from WCA 3A.

D. Gather and analyze infrastructure performance, ecologic, hydrologic and water quality data sufficient to support Increment 2, resulting in the following:
   i. Data gathering sufficient to support water quality certification
   ii. Refined operational criteria for the MWD and C-111 South Dade Projects
   iii. Updates to the 2012 Water Control Plan

Constraints of Increment 1 Field Test

A. L-29 Canal maximum operating limit of 7.5 ft NGVD, pending acquisition of real estate interests along Tamiami Trail

B. Maintain the authorized purposes of the C&SF Project and subsequent modifications to include:
   I. MWD Project
   II. C-111 South Dade Project
   III. CERP

C. No reduction in current flood protection

D. Maintain the current multi-species objectives of the 2012 Water Control Plan and comply with the requirements of the current biological opinions from the USFWS to include ERTP and CERP C-111 Spreader Canal Western Project

Alternatives for NEPA Assessment

A) No Action

B) Incremental Relaxation of G-3273 Constraint

C) Relaxation of G-3273 Constraint up to 7.5 feet NGVD

D) Relaxation of G-3273 Constraint and Removal of Column 2 Operations at S-334

E) Relaxation of G-3273 Constraint and Operational Criteria Changes at S-197

F) Relaxation of G-3273 Constraint Without Operational Criteria Changes at S-197

Common Components of All Action Alternatives

- The field test will maintain the current operating limit constraint of 7.5 feet NGVD in L-29 Canal, while relaxing the G-3273 constraint for S-333, and utilizing S-356 for management of seepage to the L-31N Canal.

- During the field test, the combined flows to NESRS through S-333 and S-356 will be more than what would have otherwise been discharged through S-333 under current operations.

- It is expected that under typical conditions, the combined flows through S-173 and S-331 to the C-111 Basin will be less than what would have been discharged through these features currently.

- No changes to water supply operations are proposed.

- S-355A and S-355B may be utilized to discharge to the L-29 as indicated under current operations and other future associated permit requirements, if available for use.

Common Components of All Action Alternatives

- The 2012 Water Conservation Areas, Everglades National Park, ENP-South Dade Conveyance System (WCAs, ENP, ENP-SDCS) Water Control Plan does not contain water management operating criteria for the planned spillway S-357N. All Action Alternatives include a testing protocol for S-357N.

- Field test duration will be a minimum of one year. If weather conditions do not provide sufficient data for a conclusive field test or other conditions warrant, the field test may be extended up to one year for a maximum of two years.

- The Corps does not plan to impose operational constraints for water quality that could restrict or otherwise limit inflows to NESRS.

- Approval of operational strategy and completion of NEPA documentation anticipated in March 2015. Initiation of operational testing will be dependent on weather conditions.

Alternatives for NEPA Assessment

ALTERNATIVE	G-3273 STAGE CONSTRAINT	C&SF OPS CHANGES	COLUMN 2 OPERATIONS
A	NO	NO	Column 2 Operations to manage WCA 3A during S-12 seasonal closures and high water as conducted under IOP/ERTP
B	Calendar Based Restrictions	S-333, S-334, S-356, S-357N	Same as A
C	Relaxed up to 7.5 Feet NGVD No Calendar Based Restrictions	Same as B	Column 2 Operations to manage WCA 3A during S-12 Seasonal Closure Period
D	Same as C	Same as B	No Column 2 Operations at S-334
E	Same as C	S-333, S-334, S-356, S-357N, S-197	Limited Column 2 Operations during S-12 Seasonal Closure Period and conditional extension to August 15th
F	Same as C	Same as B	Same as E

Magnitude of Change Column 2 Operations

A) No Action

- Current Central & Southern Florida Project Operations as defined in the 2012 Water WCAs, ENP, ENP-SDCS Water Control Plan, including use of Column 2 Operations to manage WCA 3A during S-12 seasonal closures and high water as conducted under IOP/ERTP

- Environmental effects as discussed in 2011 ERTP Final Environmental Impact Statement

B) Incremental Relaxation of G-3273 Constraint

- 2012 WCAs, ENP, ENP-SDCS Water Control Plan
- Changes to S-333, S-334, S-356 and testing protocol for S-357N
- Column 2 Operations to manage WCA 3A during S-12 seasonal closures and high water as conducted under IOP/ERTP
- G-3273 stage constraint modified to include calendar based restrictions

Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
7.2	7.2	7.0	7.0	6.9	6.9	7.0	7.1	7.3	7.5	7.4	7.3

C) Relaxation of G-3273 Constraint up to 7.5 feet NGVD

- 2012 WCAs, ENP, ENP-SDCS Water Control Plan
- Changes to S-333, S-334, S-356 and testing protocol for S-357N
- Column 2 Operations to manage WCA-3A during S-12A seasonal closure period
- G-3273 constraint relaxed up to 7.5 feet NGVD, with no calendar based restrictions

D) Relaxation of G-3273 Constraint and Removal of Column 2 Operations at S-334

- 2012 WCAs, ENP, ENP-SDCS Water Control Plan
- Changes to S-333, S-334, S-356 and testing protocol for S-357N
- No Column 2 Operations at S-334
- G-3273 constraint relaxed up to 7.5 feet NGVD, with no calendar based restrictions

E) Relaxation of G-3273 Constraint and Operational Criteria Changes at S-197

- 2012 WCAs, ENP, ENP-SDCS Water Control Plan
- Changes to S-333, S-334, S-356, S-197 (S-18C HW) and testing protocol for S-357N
- Limited Column 2 Operations during S-12 Seasonal Closure Period and conditional extension to August 15th
- G-3273 constraint relaxed up to 7.5 feet NGVD, with no calendar based restrictions
- Revised operational criteria at S-18C and S-197 removed after C-111 SD Contracts 8 & 9 are complete

F) Relaxation of G-3273 Constraint Without Operational Criteria Changes at S-197

- 2012 WCAs, ENP,ENP-SDCS Water Control Plan
- Changes to S-333, S-334, S-356 and testing protocol for S-357N
- Limited Column 2 Operations during S-12 Seasonal Closure Period and conditional extension to August 15th
- G-3273 constraint relaxed up to 7.5 feet NGVD, with no calendar based restrictions

Issues and Basis for Choice: Alternatives B, C, D

- Alternatives were evaluated based on achievement of field test objectives and constraints and potential environmental effects.
- Currently, the delivery of water to NESRS by S-333 must be reduced or discontinued when the stage at G-3273 exceeds 6.8 feet NGVD, except under Column 2 Operations (S-334 must match S-333).
- Relaxation of G-3273 to the L-29 stage limit of 7.5 feet NGVD and operation of S-356 will increase water deliveries to NESRS.
- Reliance on S-334 to lower stages in WCA 3A is expected to decrease due to the increased availability of discharge to NESRS.
- Alternatives which did not maximize hydrologic improvements to NESRS while modifying Column 2 Operations to maintain required regulatory releases from WCA 3A were eliminated from detailed evaluation (Alternatives B and D).

Issues and Basis for Choice: Alternatives B, C, D

- Alternative C was identified as a potentially viable alternative pending further refinement to the operational criteria.

- Continued coordination and modifications to the operational criteria with members of the hydrology and hydraulics sub team and project delivery team led to the revision of Alternative C into Alternative E and Alternative F with and without S-197.

- The No Action Alternative, Alternative E, and Alternative F will be carried through the environmental effects analysis.

Issues and Basis for Choice: Alternatives B, C, D

ALTERNATIVE	REASON FOR ELIMINATION
Alternative B	▪ Includes calendar based restrictions throughout the year, ranging from an elevation of 6.9 feet NGVD up to 7.5 feet NGVD. **Inflows to NESRS would continue to be limited during approximately 8 months of the year (when G-3273 constraint < 7.3).** ▪ With limited opportunity to utilize additional storage in NESRS for WCA-3A releases, need for Column 2 releases through S-334 to the SDCS, including outside of the S-12A seasonal closure period, would not be able to be significantly reduced in order to avoid increasing the magnitude and frequency of high water conditions in WCA-3A.
Alternative D	▪ **Removal of Column 2 operations at S-334 may result in an inability to make WCA 3A releases to the SDCS** when water storage capacity is available in the C-111 detention areas, resulting in **potentially increased magnitude and frequency of high water levels in WCA 3A** as a result of decreased S-333/S-334 releases from WCA-3A.

Issues and Basis for Choice: Alternatives B, C, D

Alternative	Reason for Elimination
Alternative C	▪ Under Column 2 operations, if G-3273 is above 6.8 feet, operations are targeted to match S-333 flows with S-334 flows. Relaxation of G-3273 to the L-29 stage limit of 7.5 feet NGVD and operation of S-356 will increase water deliveries to NESRS. Reliance on S-334 to lower stages in WCA 3A is expected to decrease due to increased availability of discharge to NESRS. ▪ Alternative **does not include criteria restricting when and how S-334 is used** to pass S-333 flows during Column 2 operations, although use of S-334 is restricted to the S-12A seasonal closure period. ▪ **Column 2 releases from WCA 3A to the SDCS via S-334 cannot be conducted concurrently while S-356 is pumping** and Column 2 operations include concurrent lowering of the L-31N Canal and C-111 Canal operating stages with associated increased seepage losses from ENP: further assessment of S-334 Column 2 criteria is desirable. ▪ **Additional water that could be passed to NESRS may be sent to the SDCS due to lack of modification at S-334.** ▪ Refinements should further reduce use of S-334 Column 2 Operations to maximize opportunity to increase flows to NESRS, while maintaining limited Column 2 capability for WCA-3A regulatory releases during S-12 seasonal closure period.

Preliminary Evaluation of Alternatives E and F

- Compared to No Action Alternative, given the hydrological conditions experienced during IOP/ERTP, Alternatives E/F are anticipated to:
  - Increase number of days with WCA-3A unconstrained discharges to NESRS by up to 1176 days (up to 64% increase)
  - Increase the frequency and duration of L-29 Canal stages approaching the maximum operating limit of 7.5 feet NGVD (IOP/ERTP stage > 7.3 ~29%)
  - Reduce the total duration of WCA-3A regulatory releases to the SDCS by an estimated 832 days (81% reduction; frequency reduced from 23.5% to 4.5% of period of analysis), while also reducing seepage losses caused by lowered Column 2 canal operating levels (used if S-356 is closed)
  - Reduce the volume of WCA-3A regulatory releases to the SDCS by an estimated 85% (735 kAF under IOP/ERTP to 112 kAF)
  - Increase flood control releases from S-331 for 8.5 SMA mitigation and increase seepage to L-31N south of S-331, prior to completion of C-111 South Dade North Detention Area
    - Additional volume to L-31N Canal is expected to be primarily managed with the C-111 South Detention Area using S-332 B,S-332C, and S-332D, given the significant reduction in WCA-3A regulatory releases to the SDCS

Suggested Next Steps

- Look to better incorporate recently authorized C-111 Western Spreader Canal Project
- Develop hybrid from Alternatives E and F
  - No reduction at S-18C headwater
  - Consider monitoring plan from C-111 SC including flood control "backstop" for raising S-18C headwater
  - Minimal Releases at S-197
    - ▶ Trigger(s) for S-197 releases to be developed with H&H/Ops Sub team
    - ▶ Revised operational criteria at S-197 removed when C-111 SD Contracts 8 & 9 are complete
  - Slip schedule to allow for hybrid development
  - Final PDT meeting mid November

PDT Discussion

Public Comment

Next Steps/Closing Comments

Next Steps

- PDT Meeting mid Nov
- Post Documents to Website