

COMPREHENSIVE EVERGLADES RESTORATION PLAN

# WESTERN EVERGLADES RESTORATION PROJECT (WERP)

## INTEGRATED PROJECT IMPLEMENTATION REPORT & ENVIRONMENTAL IMPACT STATEMENT

Project Delivery Team (PDT) Meeting

September 21, 2020



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**U.S. ARMY**



US Army Corps of Engineers  
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# INTRODUCTION



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- Welcome to the June 2020 PDT meeting for the Western Everglades Restoration Project
- Attendance – PDT and Public
- Housekeeping Items:
  - Please keep phones on mute unless you are talking
  - Please state your name and who you are representing before making a statement or asking a question
  - REMINDER: WERP PDT meetings fall within an exception to FACA (2 U.S.C.A. 1534(b)). PDT members include federal officials and elected state, local, and tribal officers and designated employees. A Public Comment period has been established at the end of our agenda.
- Agenda Overview





# AGENDA



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**Meeting Objective:** The intent of the meeting is to present Alternative Hr RSM-GL modeling results to the Project Delivery Team (PDT).

1. Roll Call– Submit using Chat Feature in WebEx	Steve Baisden, USACE	0900
2. Overview – Project Status	Steve Baisden, USACE	0910
3. Alt Hr Modeling Assumptions Overview	Larry Brion, SFWMD	0920
4. Alt Hr Modeling Results Discussion	Karin Smith, SFWMD	0940
5. Plan Formulation Sub-team Update	Zulamet Vega-Liriano, USACE	1000
6. Real Estate Sub-team Update	Don Nelson, USACE	1010
7. EN/Modeling Sub-team Update	Joel Gaillard, USACE	1020
8. Environmental Sub-team Update	Melissa Nasuti, USACE	1030
9. Stakeholder Comments		1040
10. Public Comments		1050
11. Adjourn		1100





# PROJECT STATUS & SCHEDULE



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**BLUF: Completed Alt Hr Modeling. USACE is awaiting approval of Second Exemption for Section 1001 WRRDA 2014 (3x3x3 requirements) for additional time and budget to complete the study.**

<u>Project Schedule Tasks</u>	<u>Start Date*</u>	<u>End Date*</u>
SFWMD Topographic Survey Field Work		Completed - 31 August (A)
Prelim Real Estate Analysis	Started	30 September
Habitat Unit Calculations	Started	30 September
SFWMD Topographic Survey Report	Started	5 October
Hydraulic Modeling	Started	16 October
CE/ICA	Started	16 October
EN Conceptual Design	Started	30 October
Real Estate Policy Waiver	1 October	30 October
Tentatively Selected Plan (TSP)		March 2021
Release DRAFT PIR/EIS for Public Review		May 2021
Agency Decision Milestone (ADM)		July 2021
Final PIR/EIS		December 2021
Chief's Report		March 2022

**\*pending Waiver request approval**





# WERP STUDY OBJECTIVES



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- 1. Restore freshwater flow paths, flow volumes and timing**, seasonal hydroperiods, and historic distributions of sheetflow to re-establish ecological connectivity and ecological resilience of the wetland/upland mosaic.
2. Restore water levels to **reduce wildfires** associated with altered hydrology, which damage the geomorphic and associated ecological conditions of the western Everglades.
- 3. Restore aquatic low nutrient (oligotrophic) conditions** to reestablish and sustain native flora and fauna.





# ALT HR MODELING ASSUMPTIONS OVERVIEW



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- Definition of WERP Updated Base Conditions
  - WECBR (Western Everglades Current Base Conditions) and IORBL (Interim Operating Regime BaseLine)
- WERP Alternative Hybrid Revised
  - ALTHR (ALternative H Revised) main features
  - Relative comparison of model performance vs updated base conditions
- Review of Some Model Output Summaries
- Results can be found at  
[ftp://ftppub.sfwmd.gov/outgoing/WesternEverglades/31Jul2020\\_Set2/](ftp://ftppub.sfwmd.gov/outgoing/WesternEverglades/31Jul2020_Set2/)





# WERP WECBR & IORBL MAIN FEATURES/MODEL ASSUMPTIONS



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- WECBR – WERP Existing Conditions Baseline Revised
  - System as currently simulated: up to 2015 Land-use coverage, 2011 Consumptive Use Permits; circa 2016 Operations; uses data from WERP LiDAR project of 2017
- IORBL- Interim Operating Regime BaseLine; future w/o WERP project
  - Includes all of CEPP projects (circa ~2014) excluding feature changes from more recent projects such as CEPP PACR EAA RES, CEPP\_South, etc.
  - Includes Abiaki Restoration Project in C139 Annex Basin: the citrus was replaced with wetlands, drainage canals were removed





ALTERNATIVE Hr: RESTORE RAIN-DRIVEN SYSTEM WITH EXISTING WATER / PASSIVE MANAGEMENT

LEGEND

- Seminole Tribe of Florida Reservation
- Miccosukee Tribe of Indians of Florida Reservations
- Measures\***
- Water Treatment
- Weir
- Adjustable Control Structure
- Pump
- Culvert
- Plug
- Treated Water
- Backfill
- Backfill/Degrade Levee
- Vegetation Restoration
- Existing Culverts
- Existing Structures
- Embankment
- Retained Levee

\*Features are not to scale and do not represent final placement

\*The need for additional culverts along 11-mile Rd, US-41, Loop Rd, and the Jetport will be evaluated following final modeling



# CONCEPTUAL PLAN FOR WERP STUDY AREA: ALTERNATIVE HR (ALTHR)



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# WERP ALTHR MAIN FEATURES/MODEL ASSUMPTIONS



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ALTERNATIVE H: RESTORE RAIN-DRIVEN SYSTEM WITH EXISTING WATER / PASSIVE MANAGEMENT



## Region 1:

- No new connection to Lake Okeechobee
- North Feeder STA (3,420 acre eff. area) located within the C139 Annex basin

## Region 2:

- Wingate-Mill STA (4,050 acres eff. area) located on the western end of the Wingate Mill canal
- Canal plugs: along Lardcan canal north of West Weir, along North Feeder Canal south of PC17A, along L28N just upstream of USSO

## Region 3:

- Degrade levees and backfill canal on southern end of L28i canal (from ~1.8 miles north of I-75 to the confluence with L-28N canal)
- Degrade levees and backfill canal on southern end of L28N canal (from I-75 to the confluence with L-28i canal)
- Canal plug: ~1.8 miles north of I-75 along L28i canal

## Region 4:

- Degrade levee and backfill L28Tieback canal
- Backfill southern portion of L28S canal (from S344 to confluence with Tamiami Road canal)
- Canal plug: on Tamiami Road canal at confluence with L28S canal
- Install controllable structure across L28S canal (flow from WCA-3A to BCNP & vice-versa)



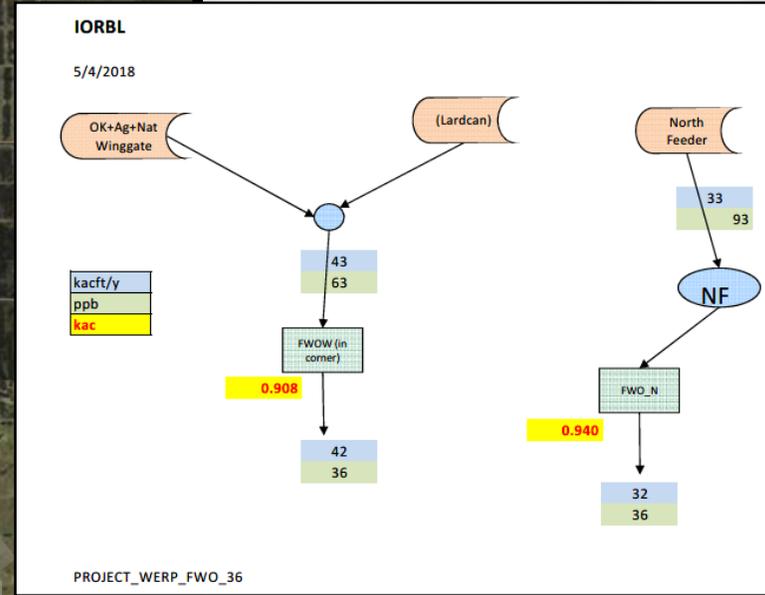
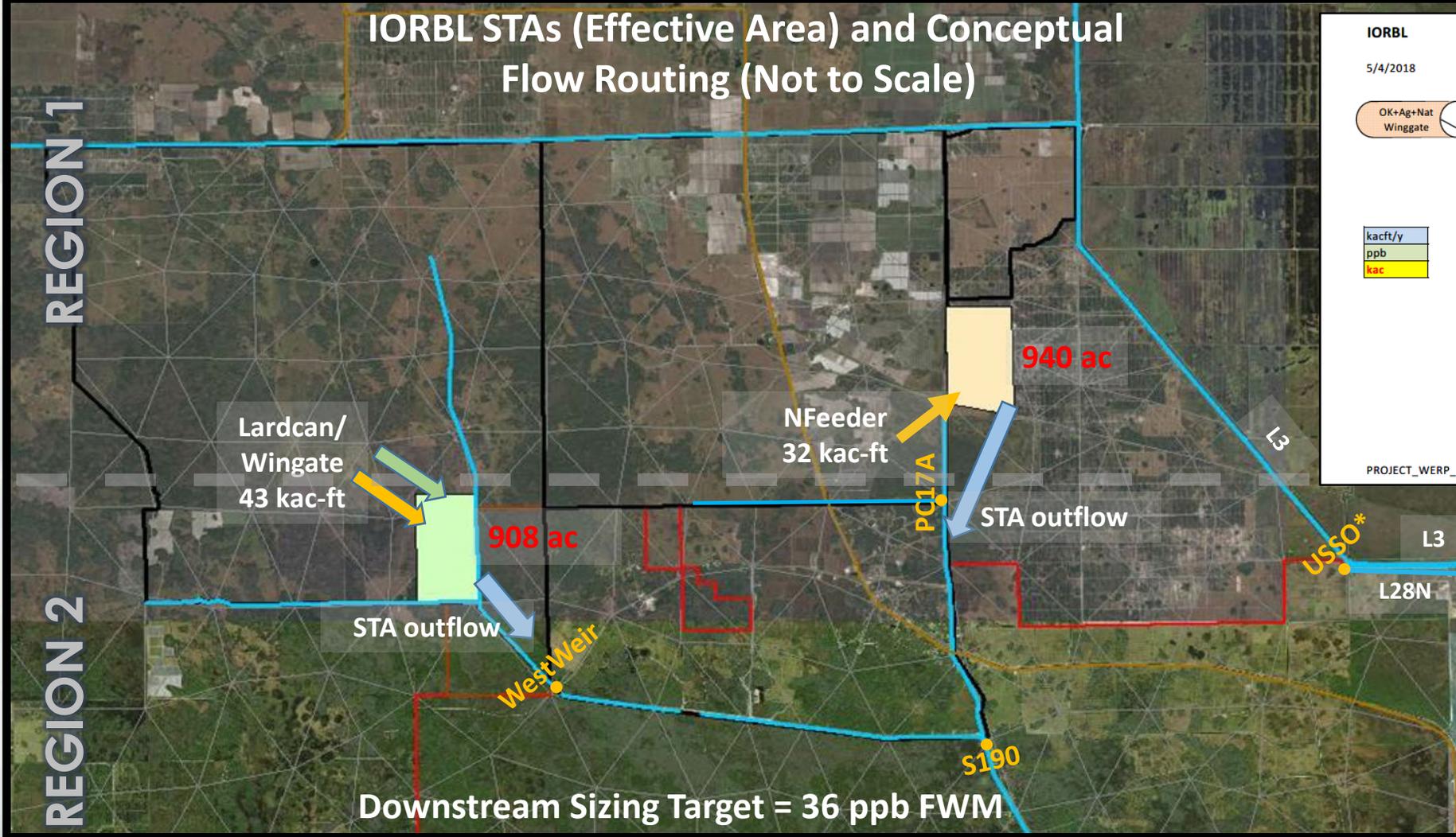
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# WERP MODELING (IORBL FEATURES IN REGIONS 1 & 2)



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IORBL

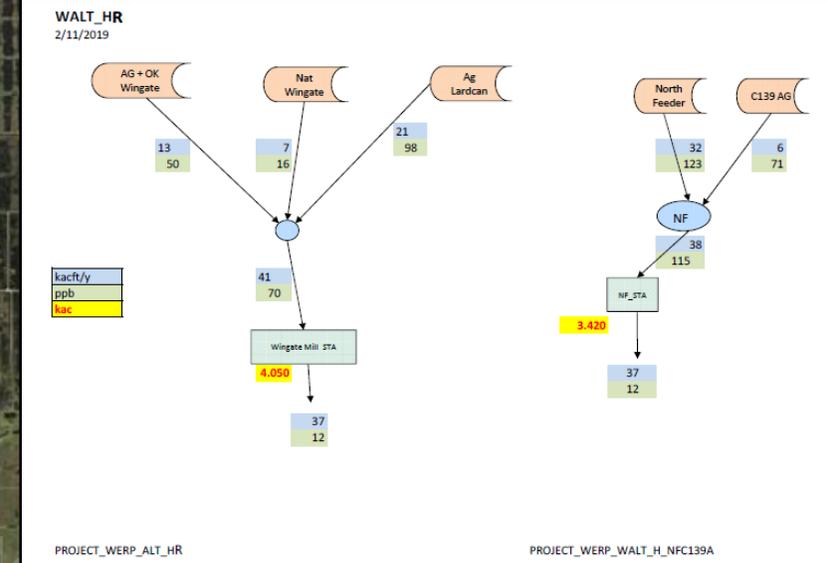
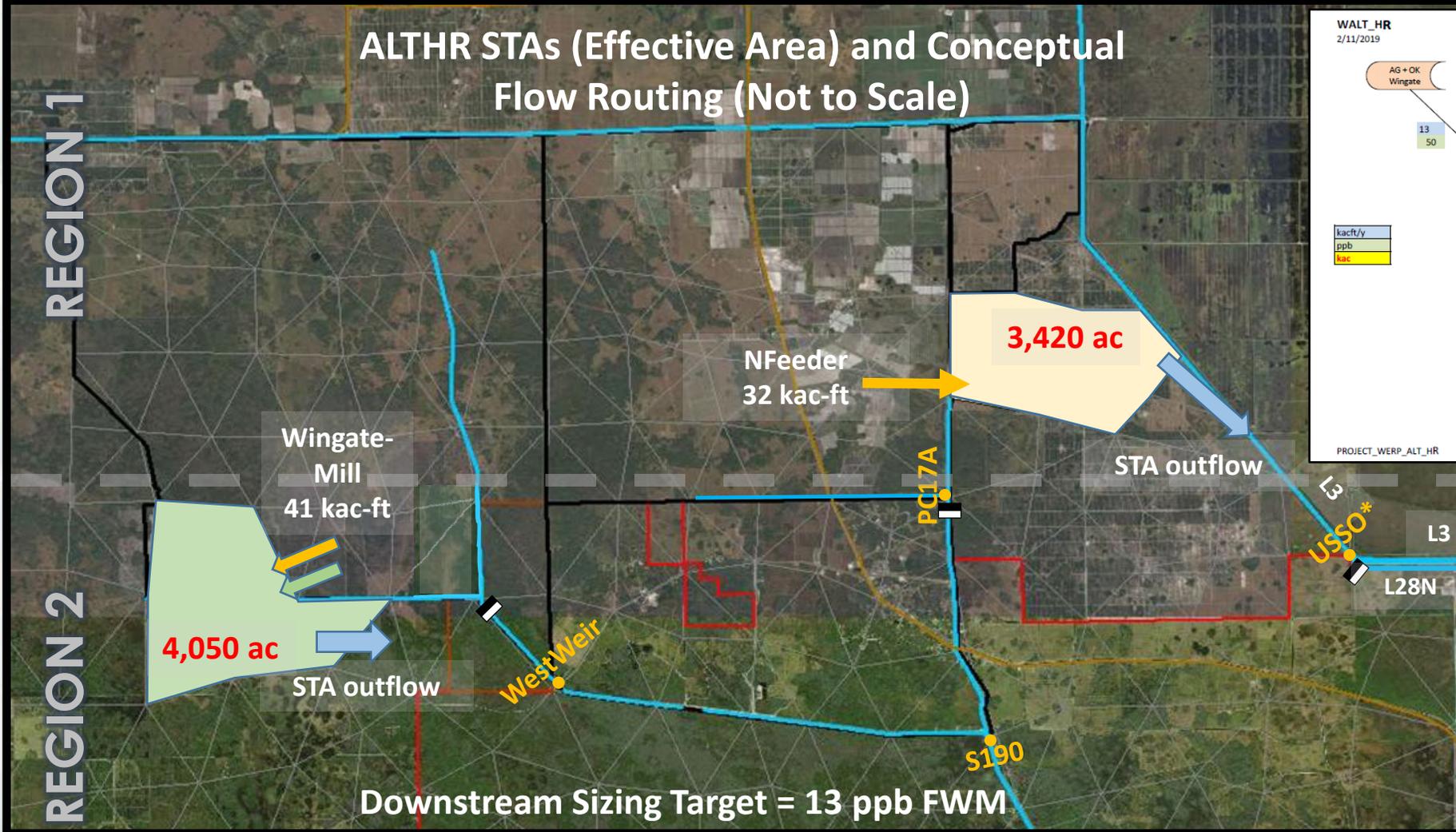




# WERP MODELING (PROJECT FEATURES IN REGIONS 1 & 2)



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WALT HR

Runoff from More Developed Areas

Runoff from Less Developed Areas

Treated Water

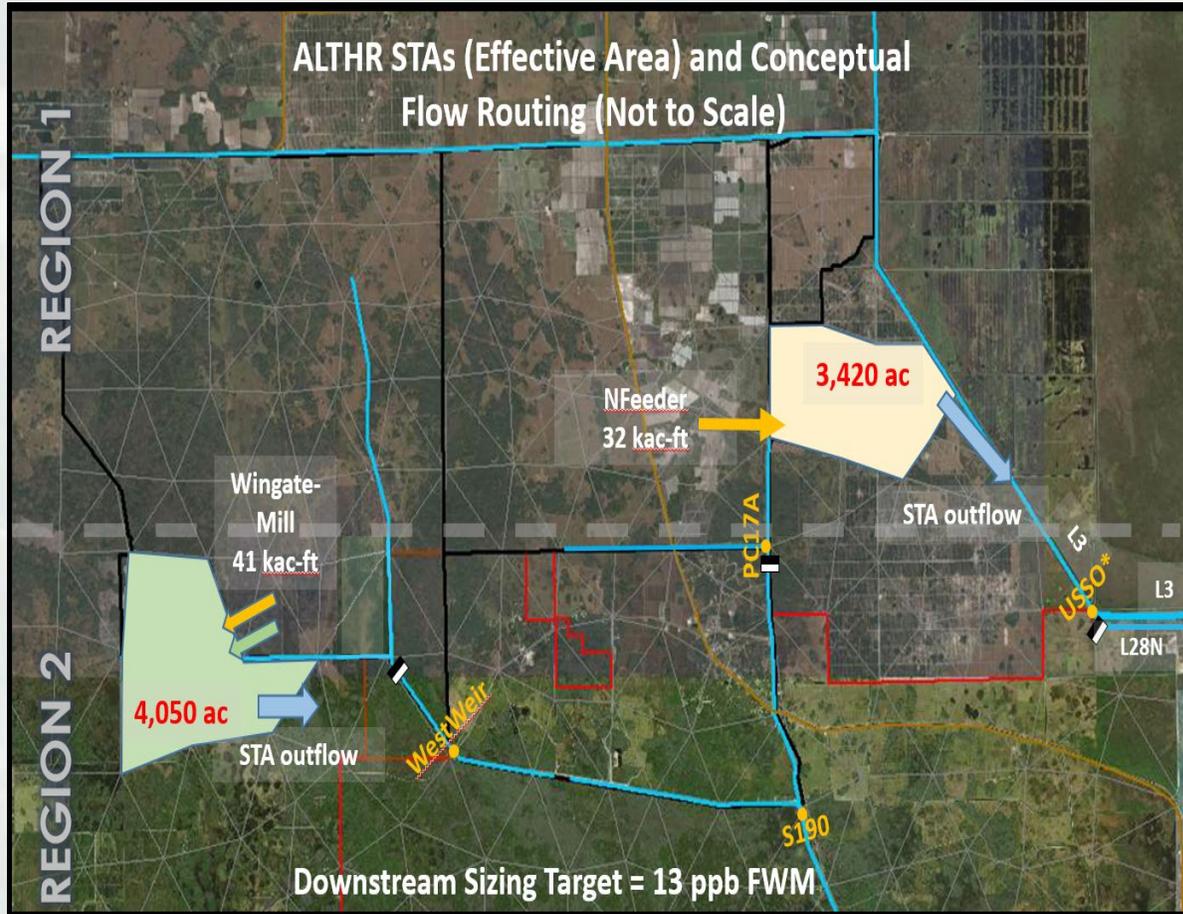




# WERP MODELING RESULTS IN REGIONS 1 & 2



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Discharges (1000 ac-ft/yr) at Selected Western Basins Structures for Period of Simulation (1965-2005)

	WECBR	IORBL	ALTHR
WESTWEIR	47.4	42.8	0.5
PC17A	18.1	18.7	19.2
S190	75.4	58.3	17.3
S140	134.8	134.2	122.8
USSO*	34.8	17.2	7.6
S344	6.6	10.0	4.0
S343A	7.0	9.9	9.8
S343B	7.0	9.9	9.8
SL28s			27.8

USSO\* = C139 Annex Basin outlet that discharges into L28 canal for WECBR & IORBL, and into L3 canal for ALTHR.

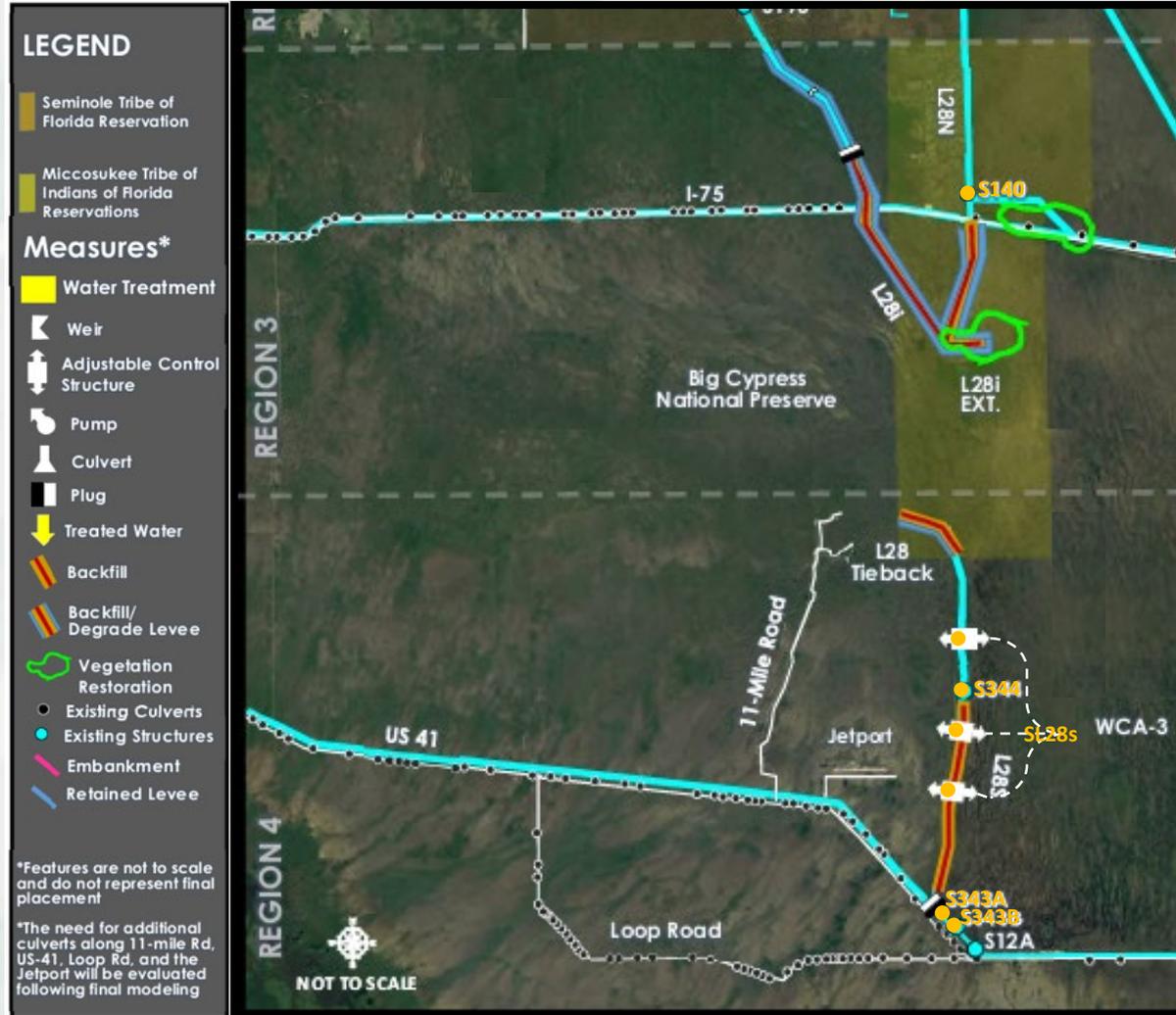




# WERP MODELING (PROJECT FEATURES IN REGIONS 3 & 4)



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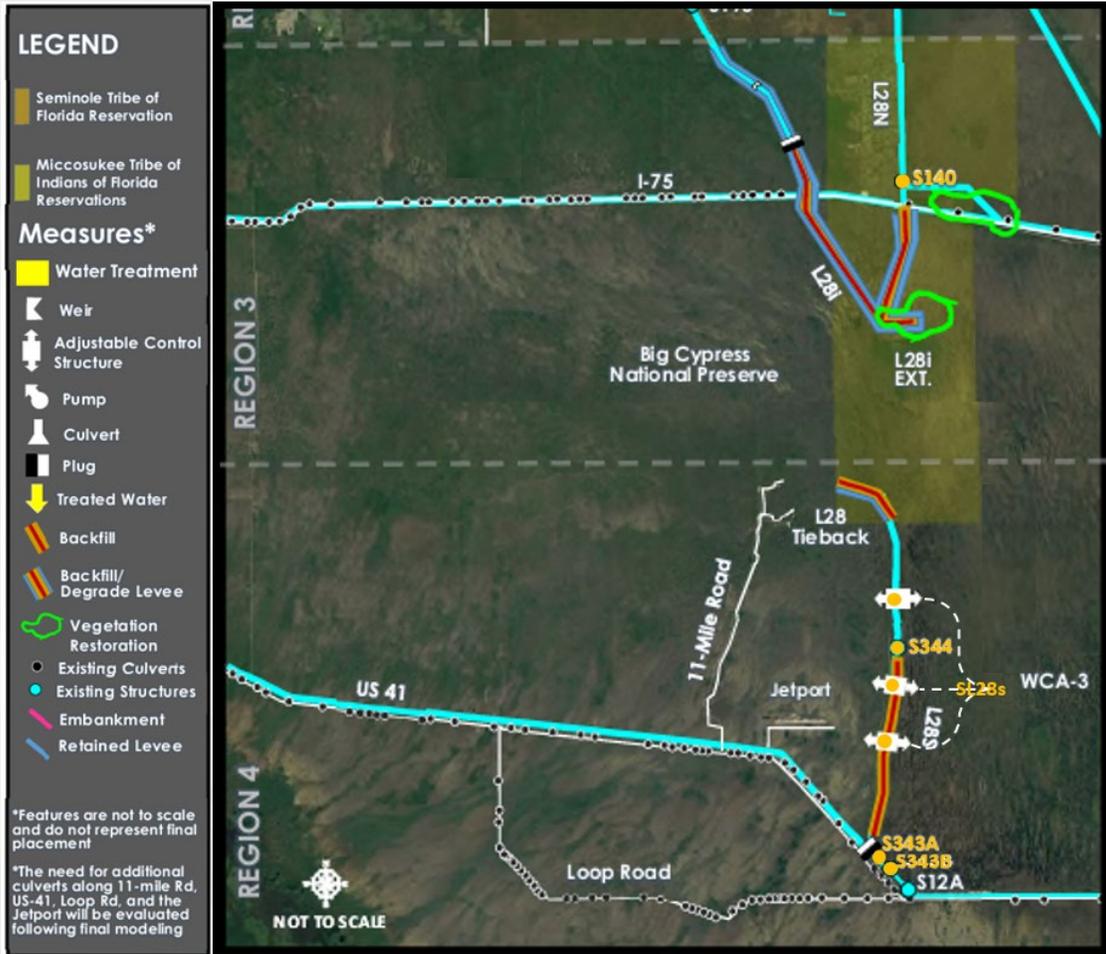




# WERP MODELING RESULTS IN REGIONS 3 & 4



BUILDING STRONG



Discharges (1000 ac-ft/yr) at Selected Western Basins Structures for Period of Simulation (1965-2005)

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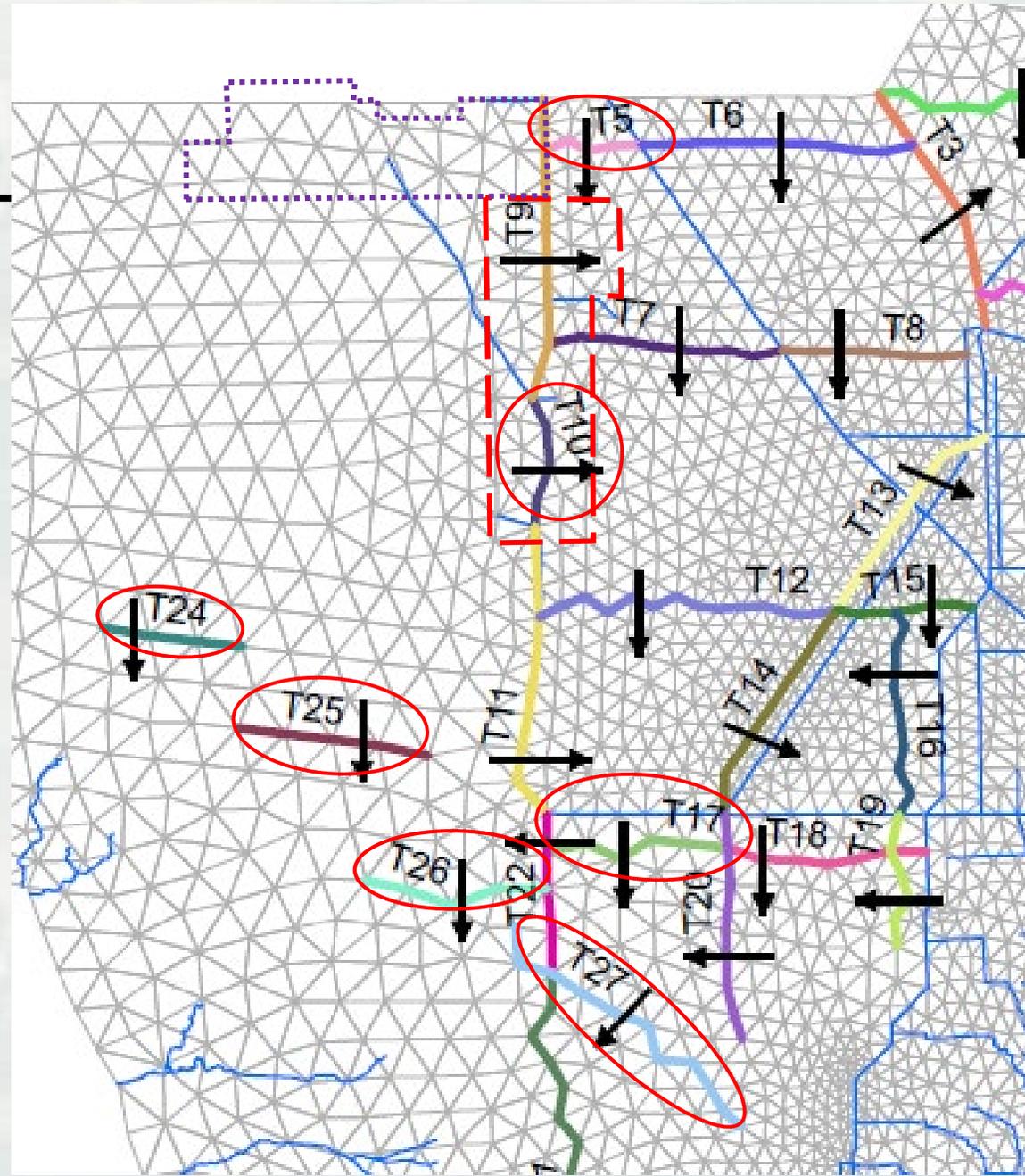
USSO\* = C139 Annex Basin outlet that discharges into L28 canal for WECBR & IORBL, and into L3 canal for ALTHR.





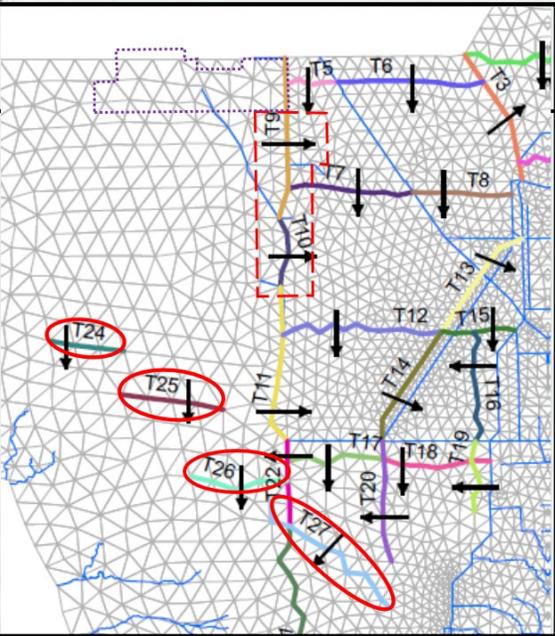
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# MODELING TRANSECTS

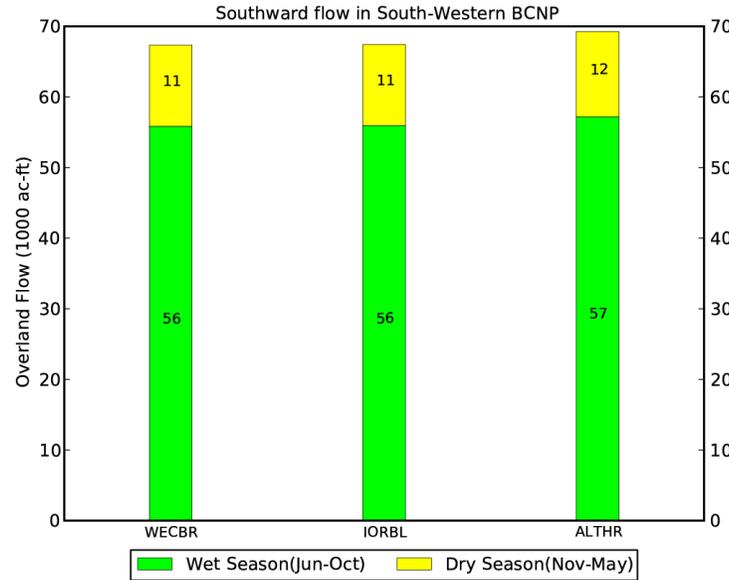


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**Average Annual Overland Flow across Transect T24 [01JAN1965 - 31DEC2005]**

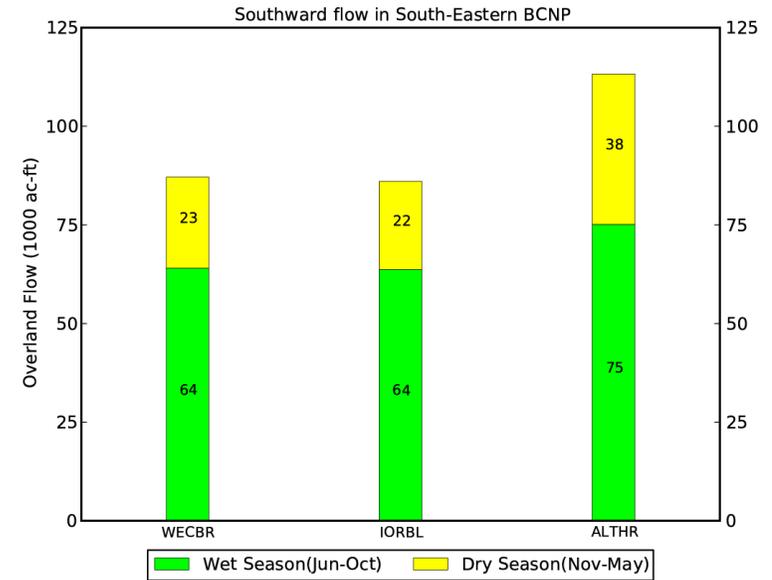


**T24**

Overland Flow  
IORBL → ALTHR  
(1000 ac-ft)

+1  
+1  
+2

**Average Annual Overland Flow across Transect T25 [01JAN1965 - 31DEC2005]**

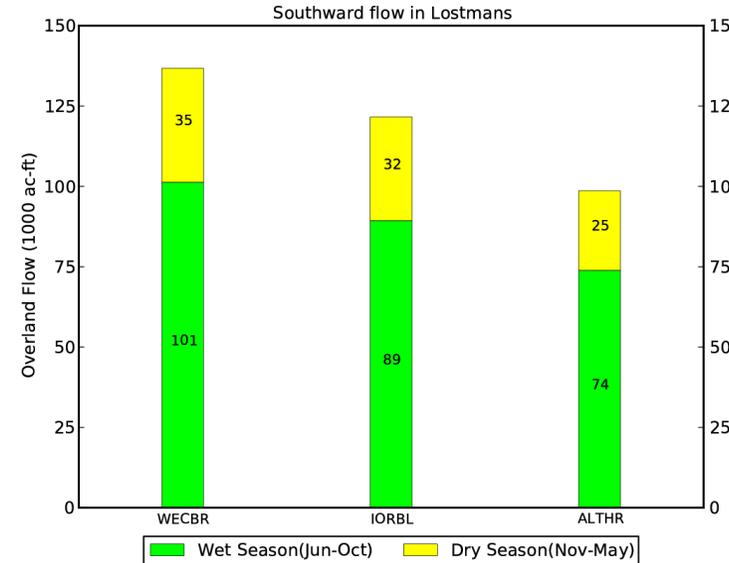


**T25**

Overland Flow  
IORBL → ALTHR  
(1000 ac-ft)

+16  
+11  
+27

**Average Annual Overland Flow across Transect T26 [01JAN1965 - 31DEC2005]**

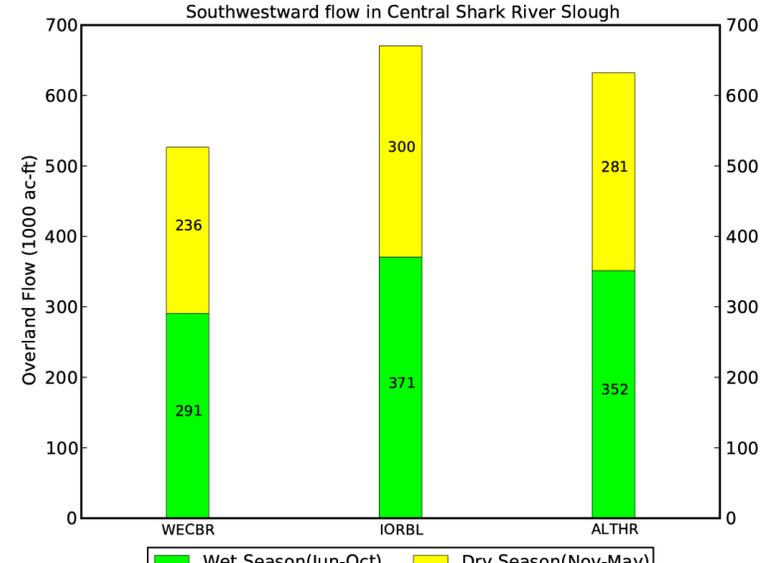


**T26**

Overland Flow  
IORBL → ALTHR  
(1000 ac-ft)

-7  
-15  
-22

**Average Annual Overland Flow across Transect T27 [01JAN1965 - 31DEC2005]**

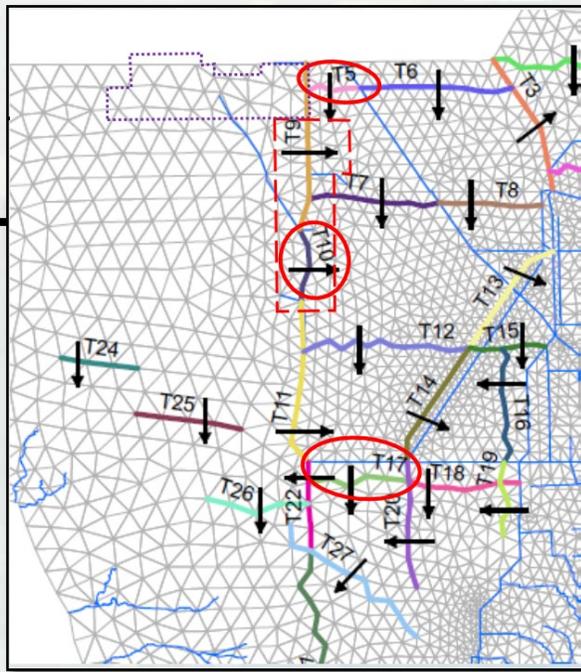


**T27**

Overland Flow  
IORBL → ALTHR  
(1000 ac-ft)

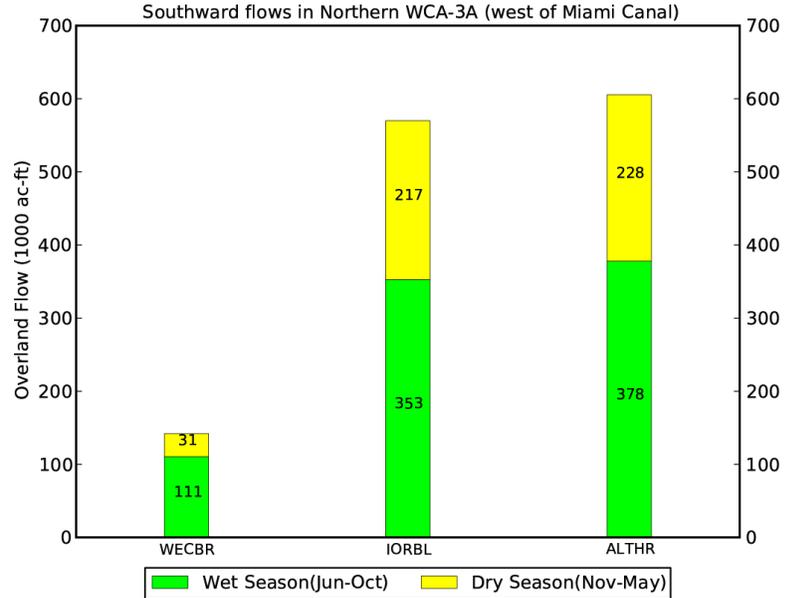
-19  
-19  
-38

**MODELING  
TRANSECTS**



# MODELING TRANSECTS

**Average Annual Overland Flow across Transect T5 [01JAN1965 - 31DEC2005]**



**T5**

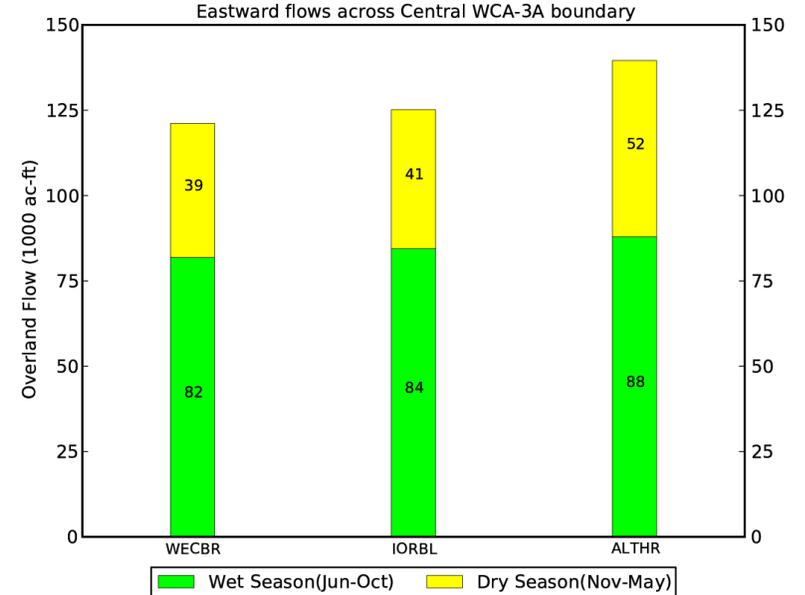
Overland Flow  
IORBL → ALTHR  
(1000 ac-ft)

+11  
+25  
+36



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**Average Annual Overland Flow across Transect T10 [01JAN1965 - 31DEC2005]**

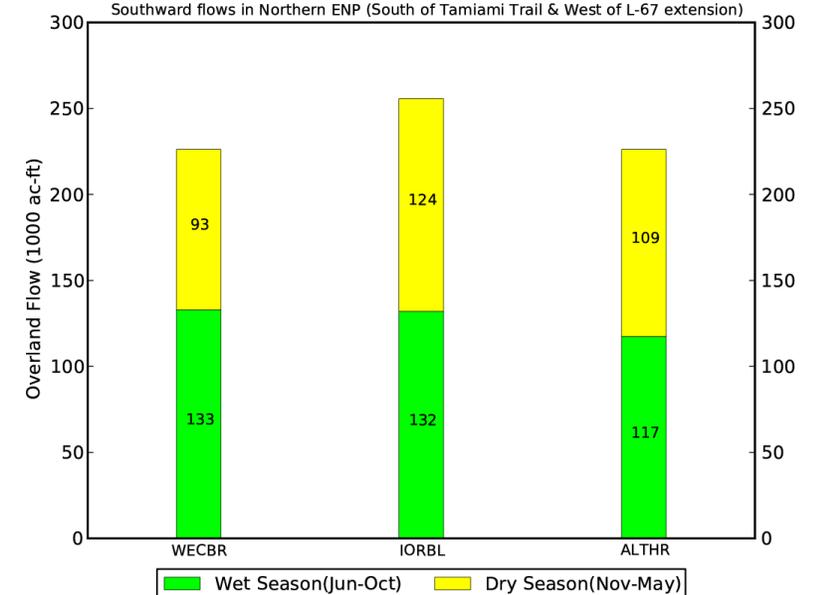


**T10**

Overland Flow  
IORBL → ALTHR  
(1000 ac-ft)

+11  
+4  
+15

**Average Annual Overland Flow across Transect T17 [01JAN1965 - 31DEC2005]**



**T17**

Overland Flow  
IORBL → ALTHR  
(1000 ac-ft)

-15  
-15  
-30



# PHYSICAL AND ECOLOGICAL CHALLENGES



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- Divided habitat
- Changed natural flow
- Loss of native plants and animals
- More wildfire
- Poor water quality
- Impact to traditional practices



Loss of ecological connectivity – I-75



Poor water quality



Fire risk – BCNP Moon Fish Wildfire 2020



Canals and levees disrupting flows – L28S



# RESTORE WATER LEVELS

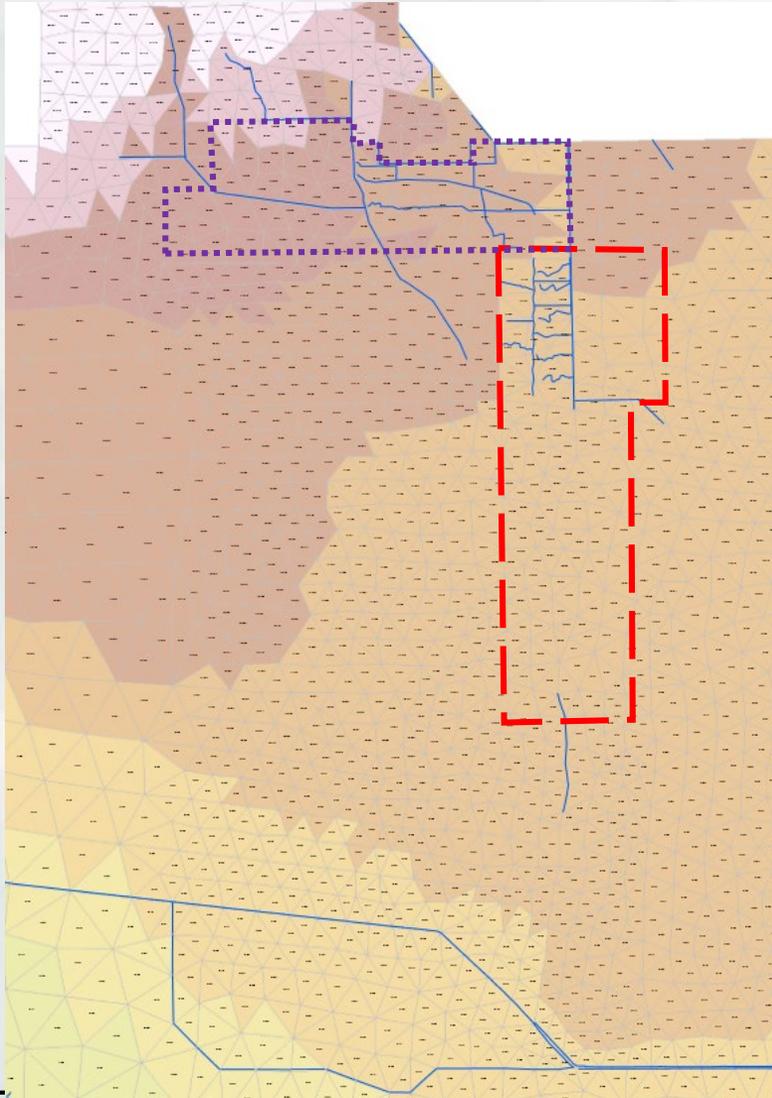
1965-2005 Period-of-Record Mean Annual Stage



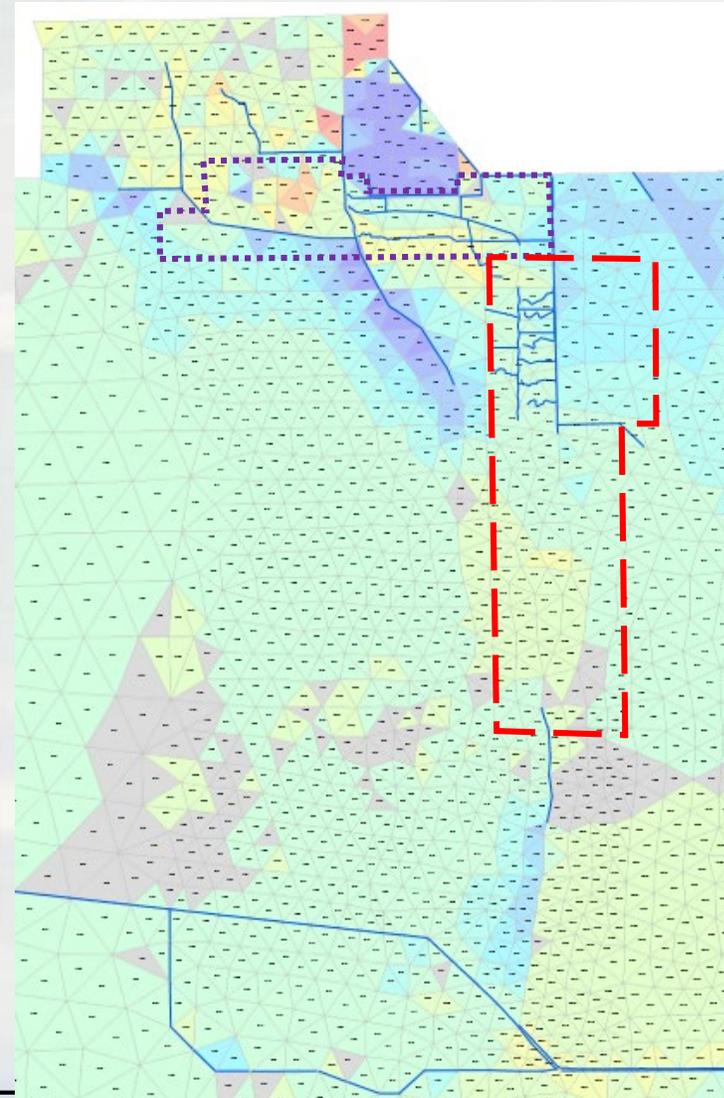
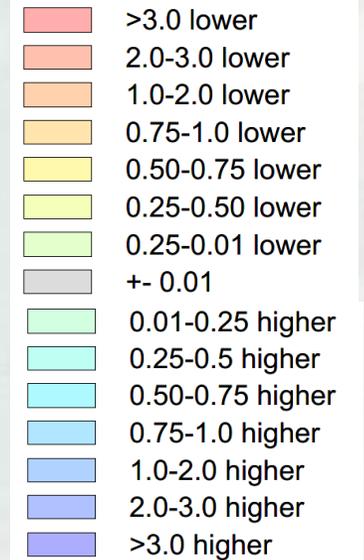
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## ALTHR Stage

### Stage (ft NGVD29)



## ALTHR-WECBR Stage Diff



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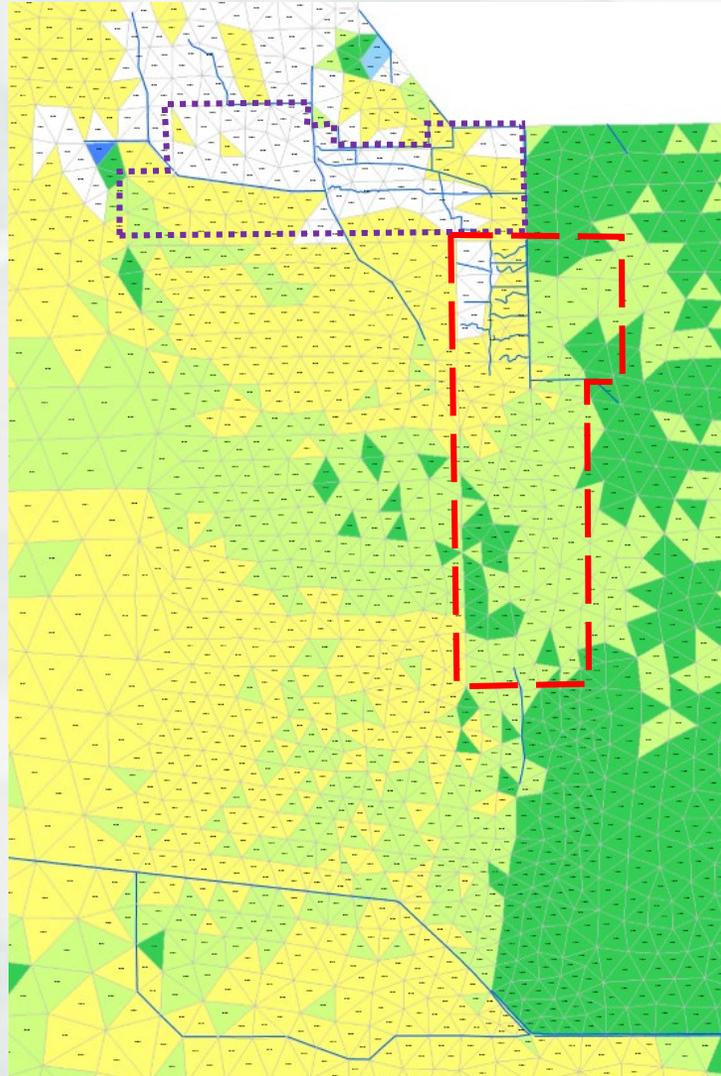
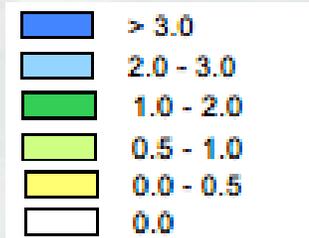
# RESTORE WATER LEVELS TO REDUCE WILDFIRES



1965-2005 Period-of-Record Mean Annual Ponding

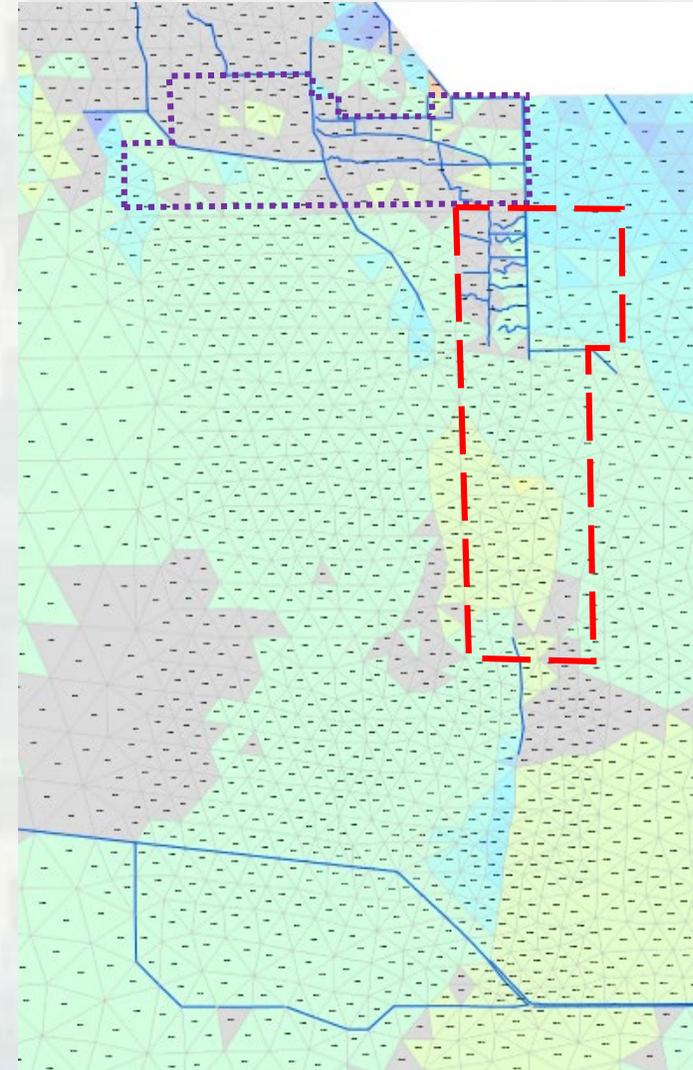
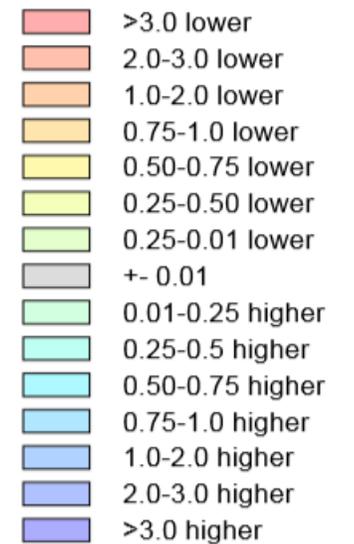
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**ALTHR**  
Water Levels  
above land  
surface



**ALTHR – WECBR**  
Change in water levels  
above land surface

Ponding Difference (ft)



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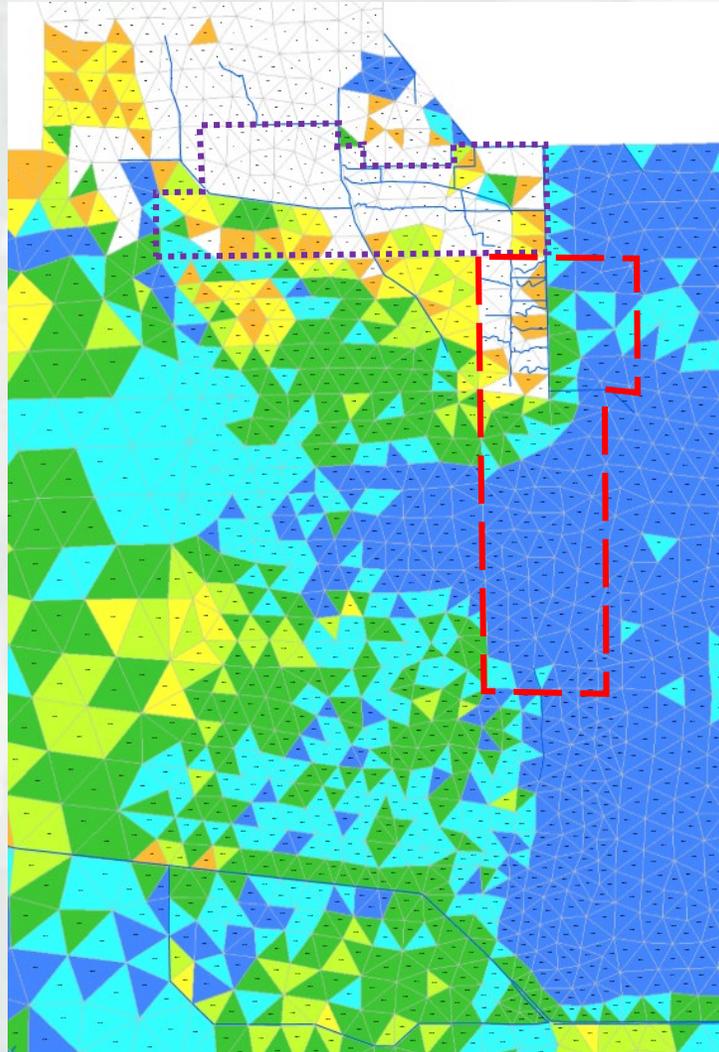
# RESTORE SEASONAL HYDROPERIODS

1965-2005 Period-of-Record Mean Annual Hydroperiod



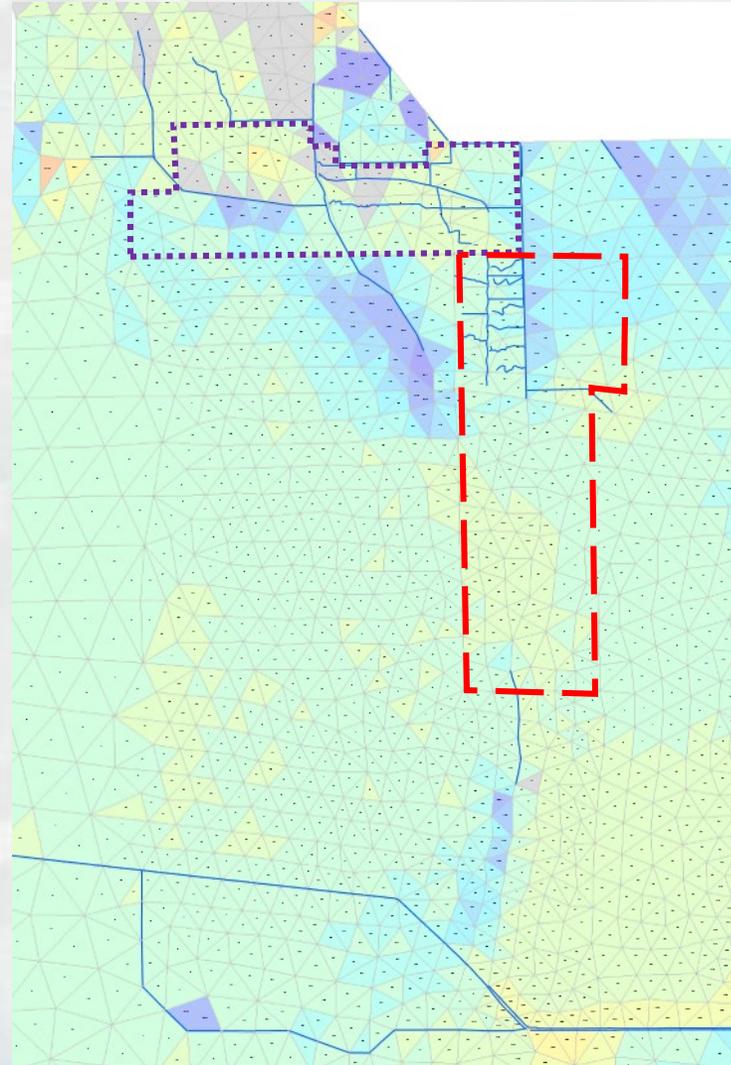
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**ALTHR**  
Days above  
land surface



**ALTHR – WECBR**  
Change in days  
above land surface

Hydroperiod Class



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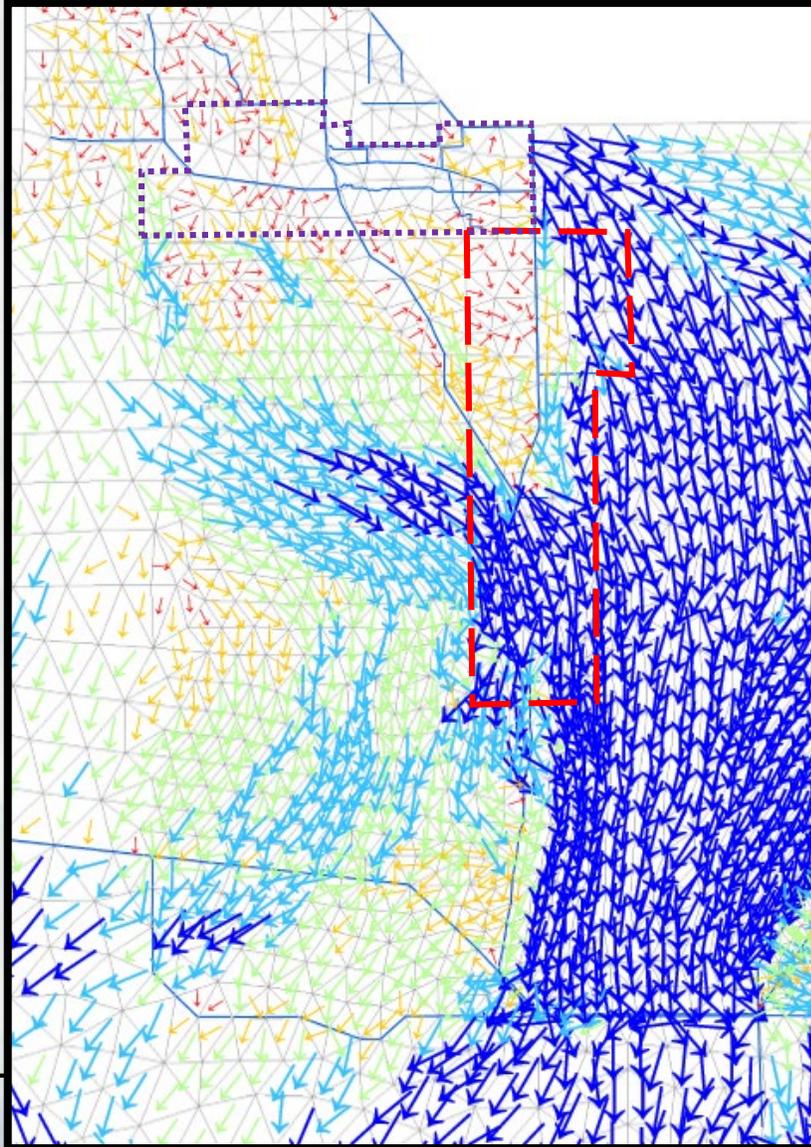
# RESTORE HISTORIC DISTRIBUTION OF SHEETFLOW

Mean Annual Surface Flow

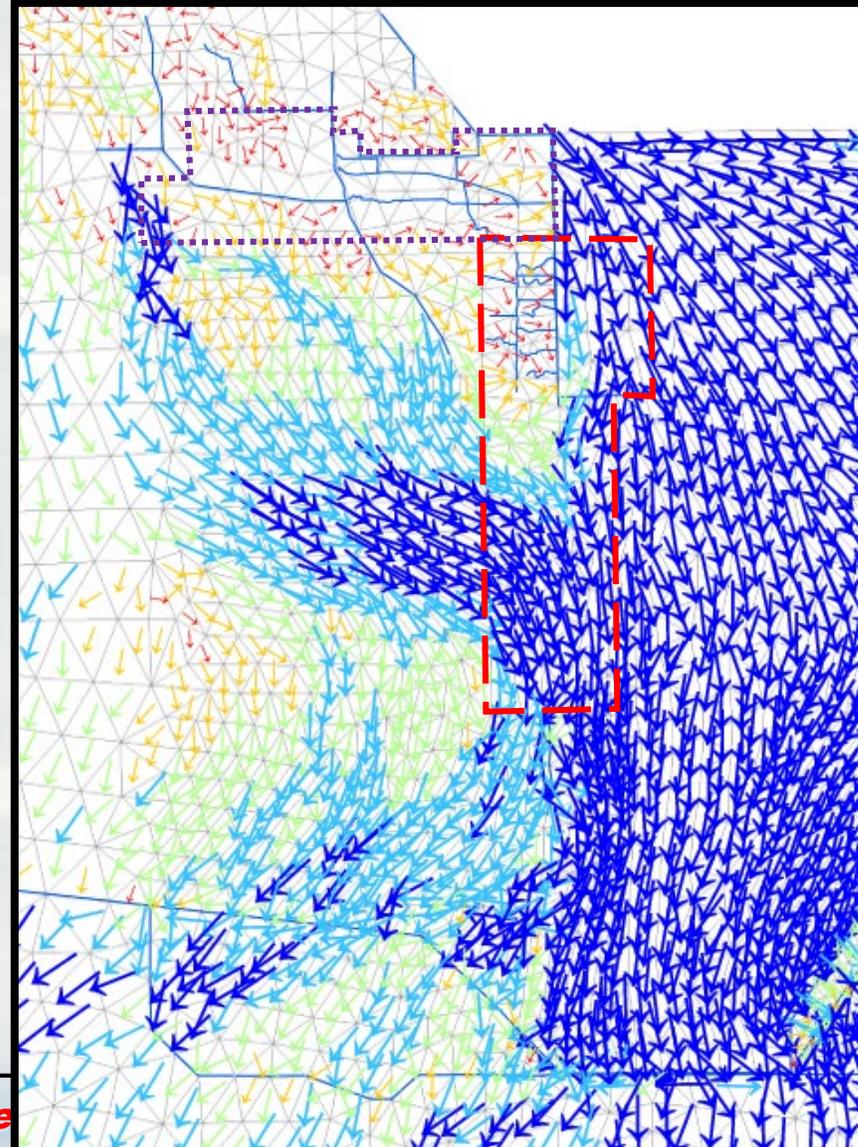


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WECBR  
Wet Year  
(1994)



ALTHR  
Wet Year  
(1994)



Value



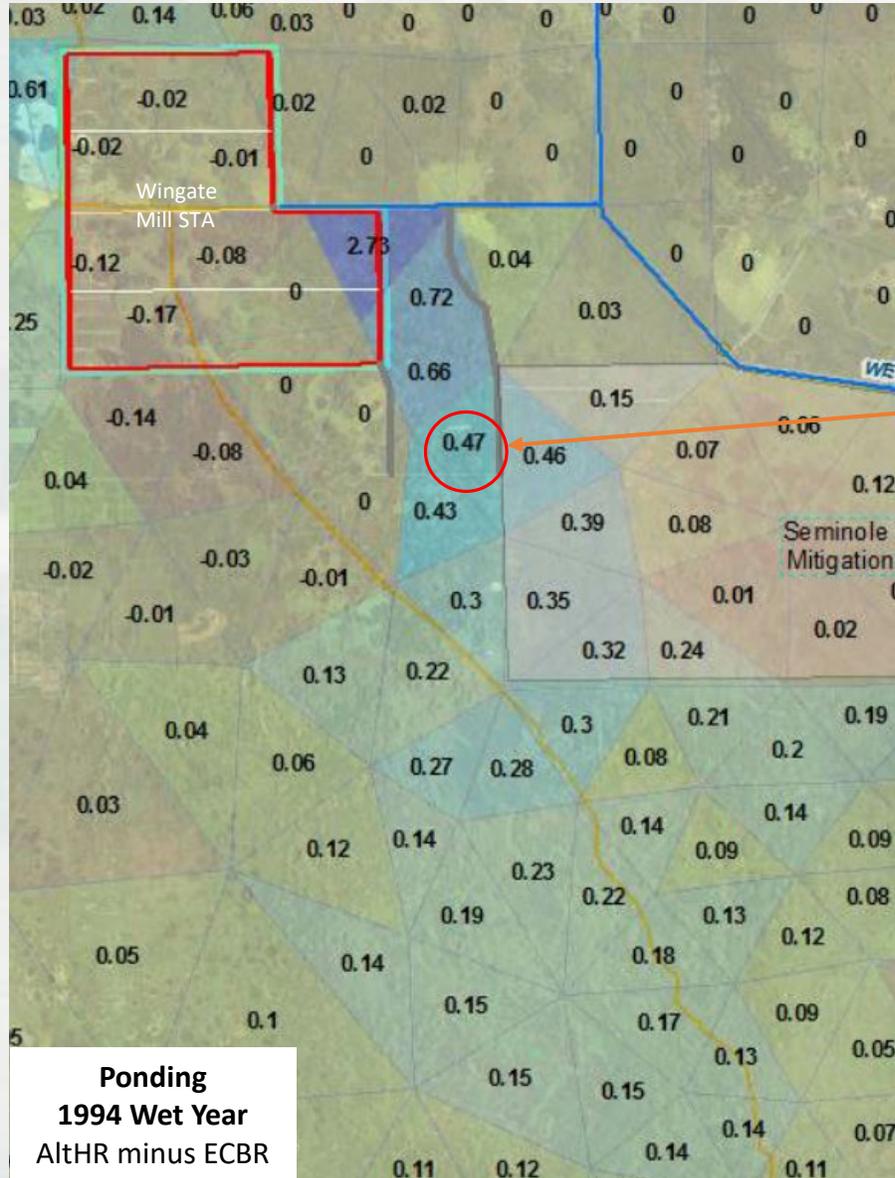


# WERP MODELING RESULTS

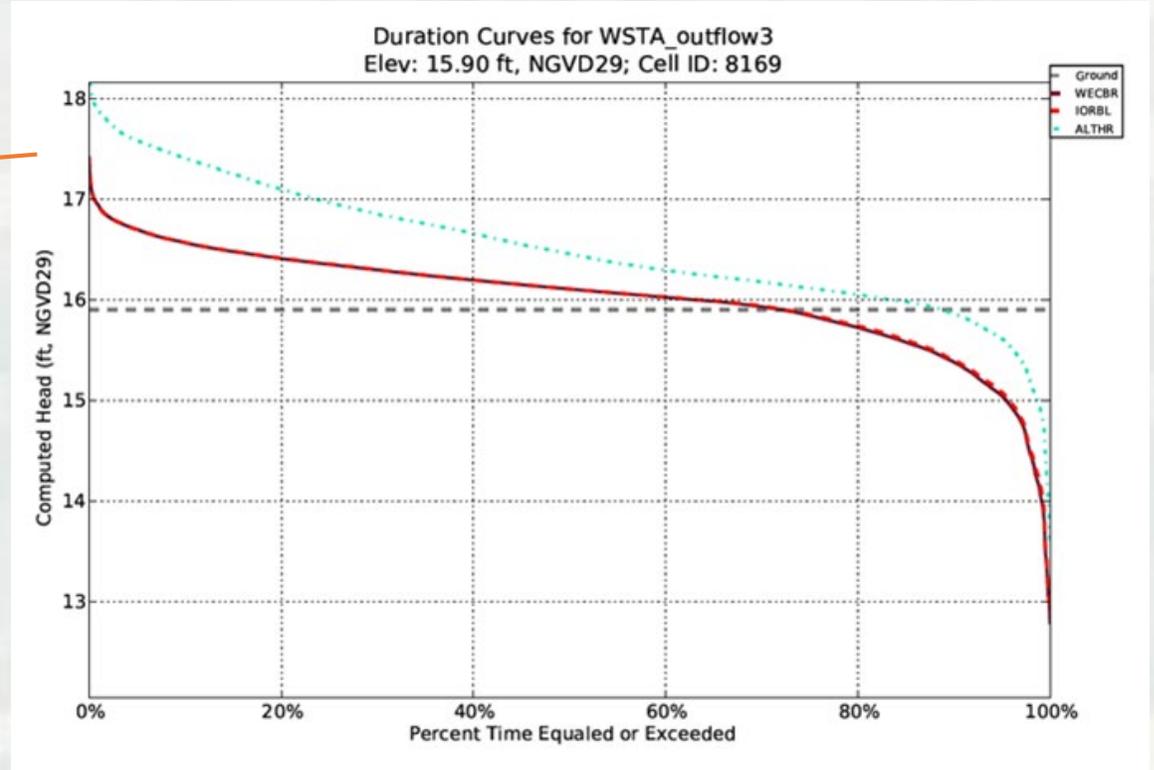


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## Wingate Mill Area



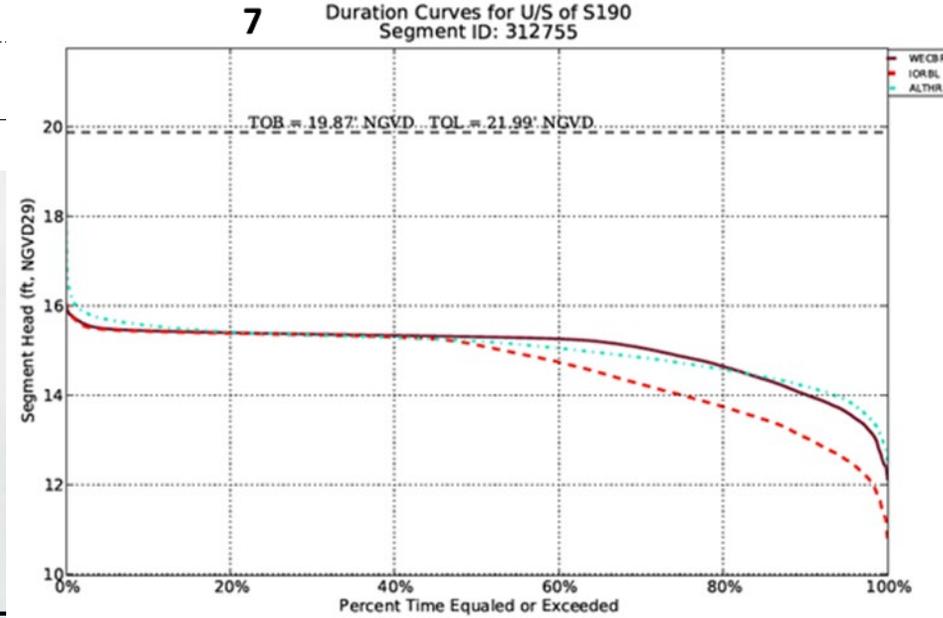
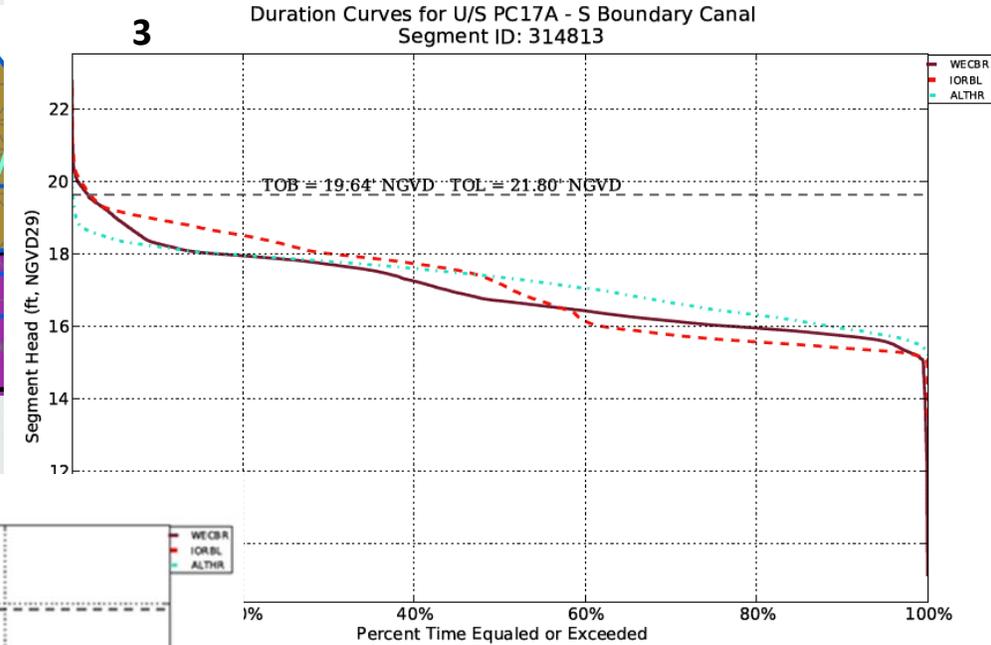
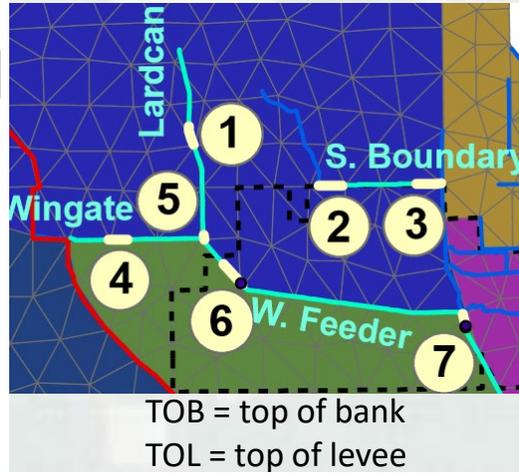
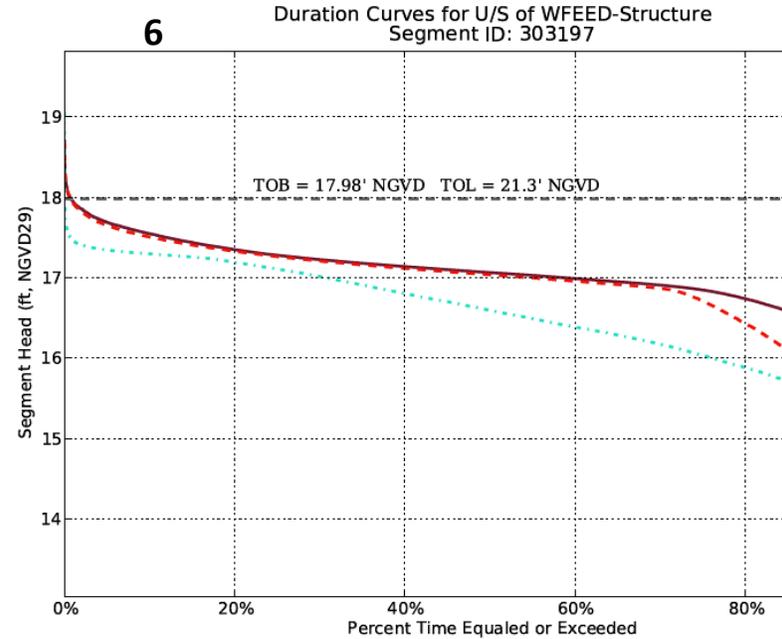
**Ponding**  
1994 Wet Year  
AlTHR minus ECBR





# WERP ALTHR MODELING RESULTS

## Canal analysis

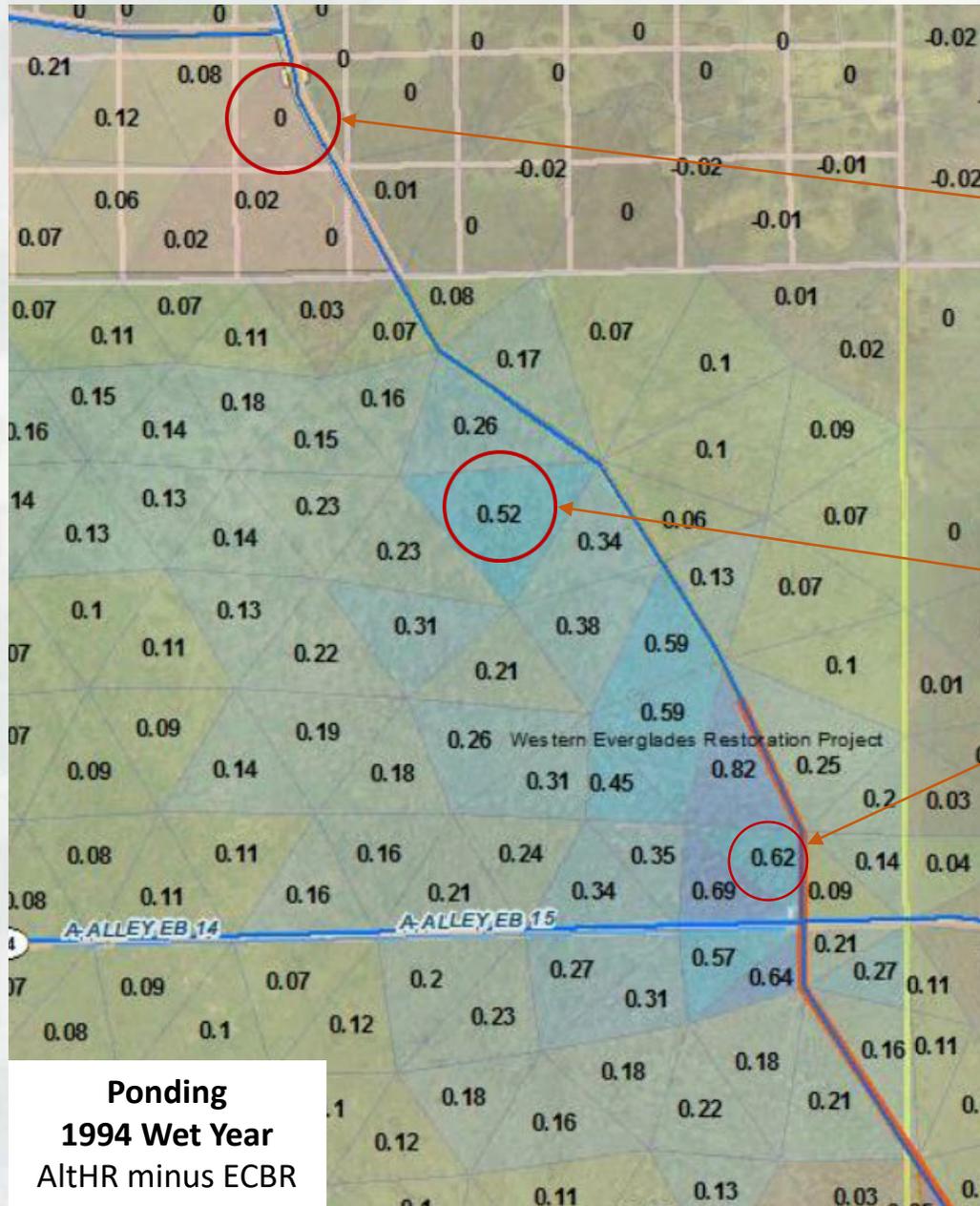


# WERP MODELING RESULTS

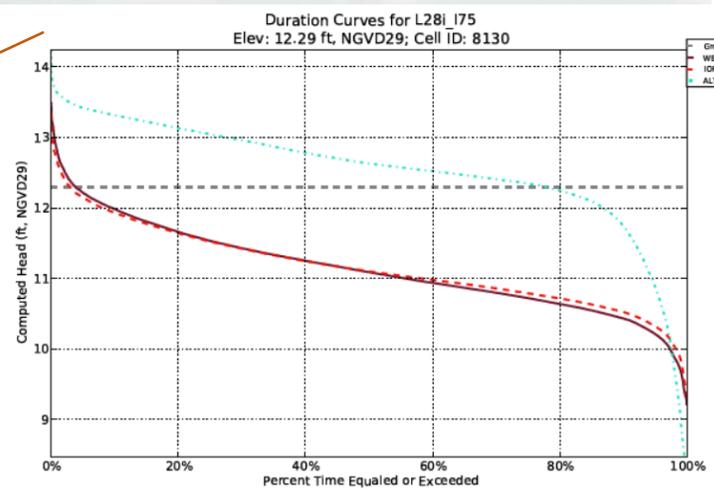
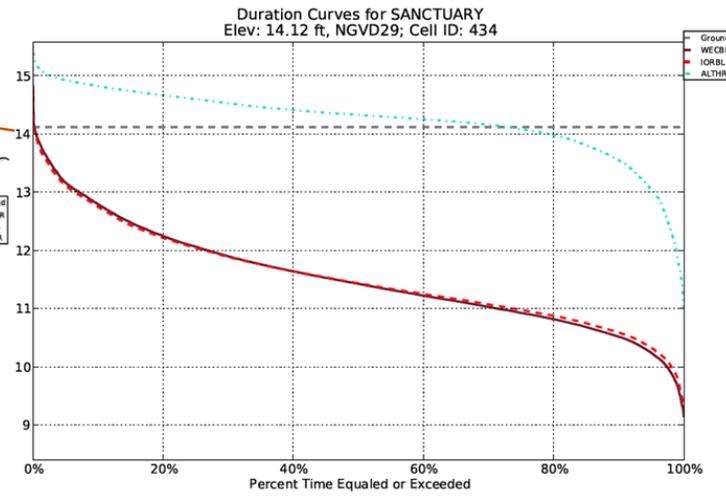
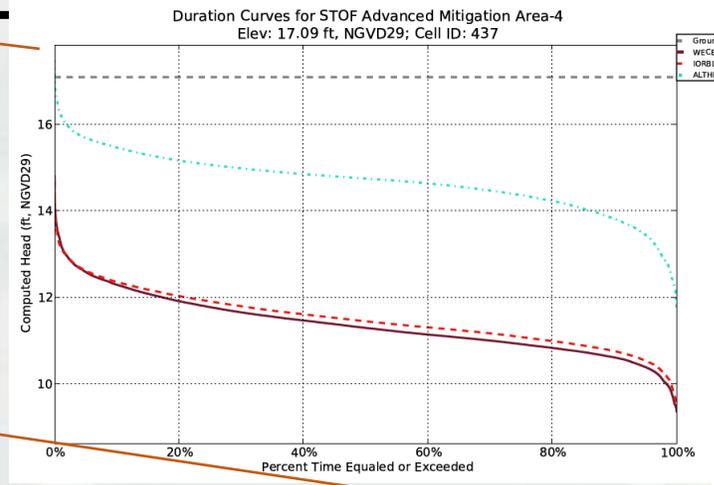
## L28i modification effects



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**Ponding**  
1994 Wet Year  
AltHR minus ECBR



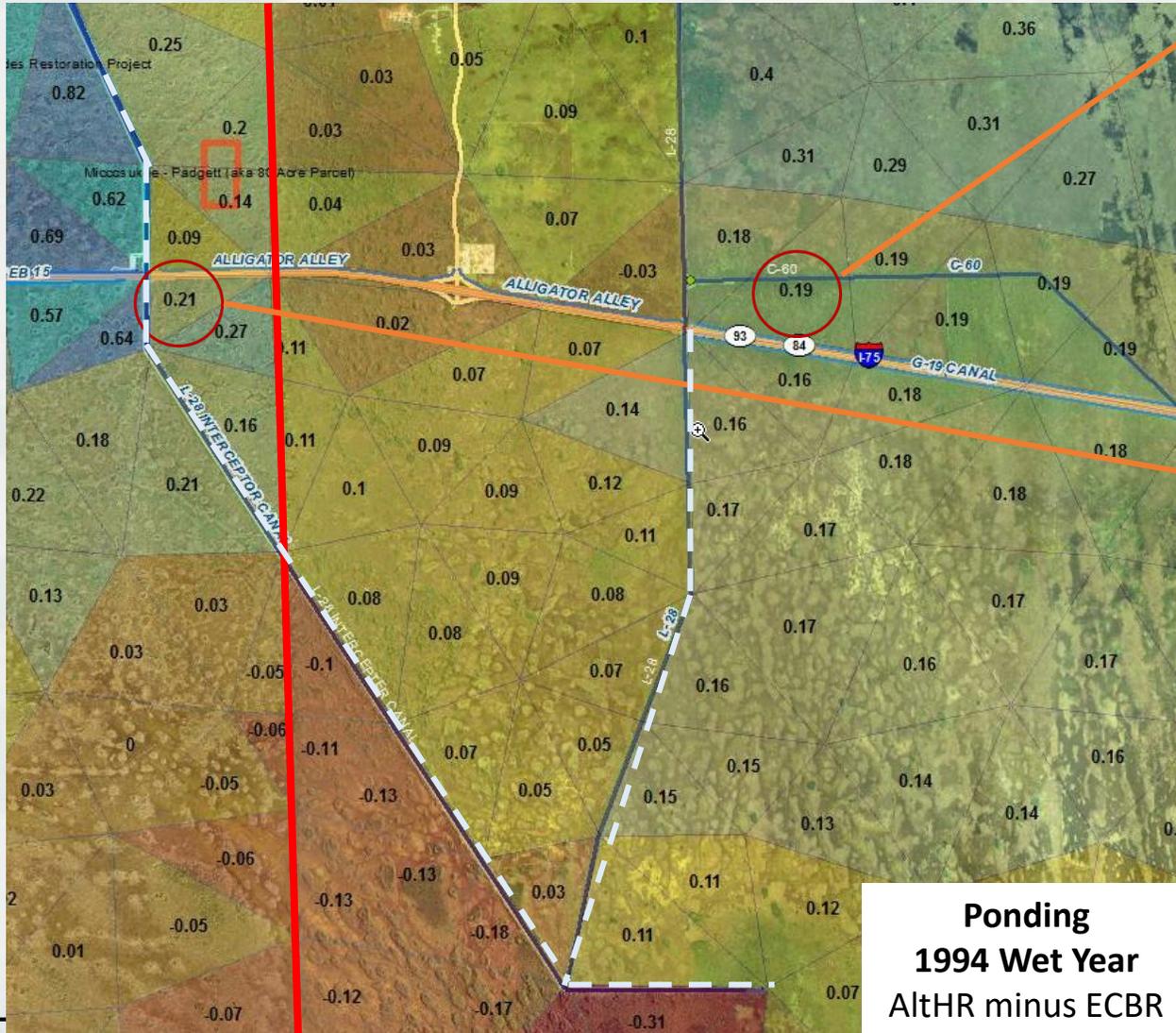
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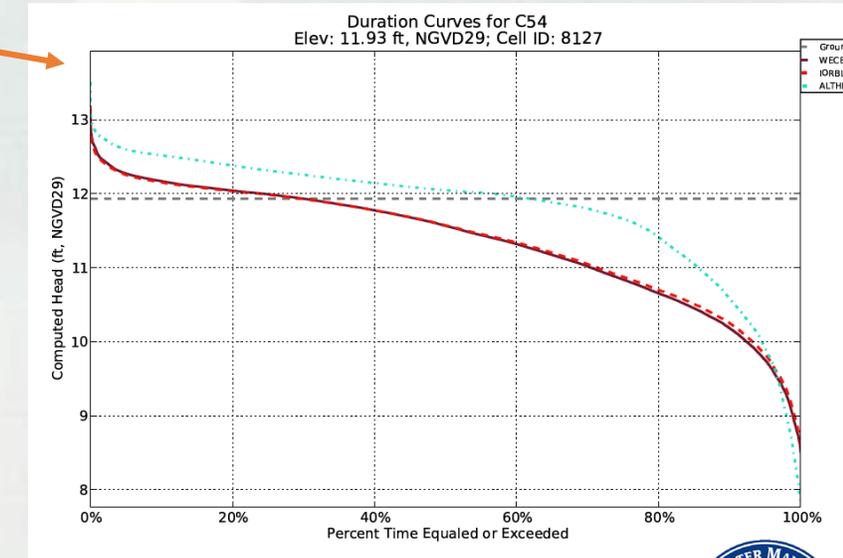
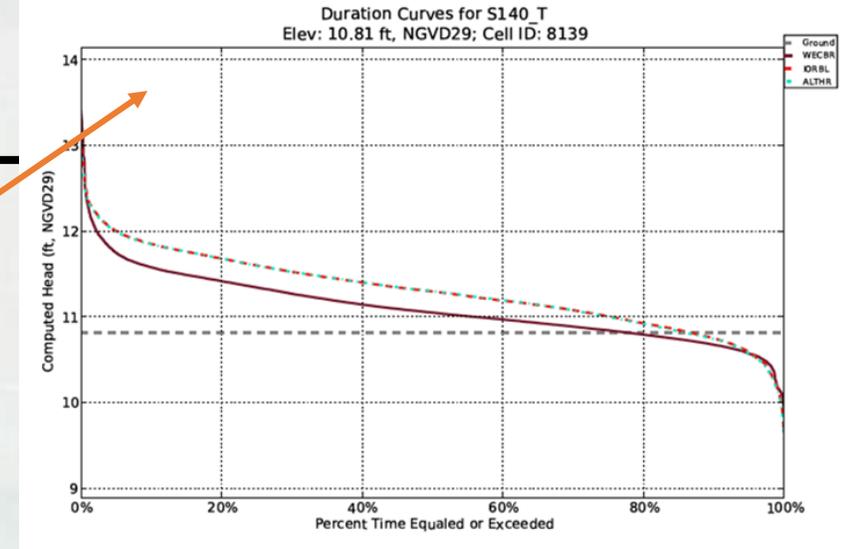


# WERP MODELING RESULTS

L-28i Triangle area



**Ponding**  
1994 Wet Year  
AltHR minus ECBR



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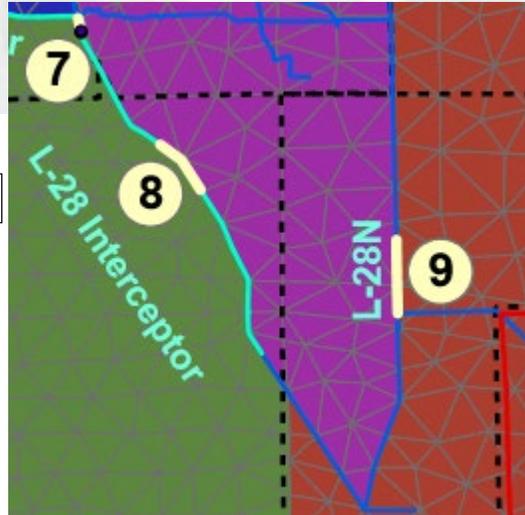
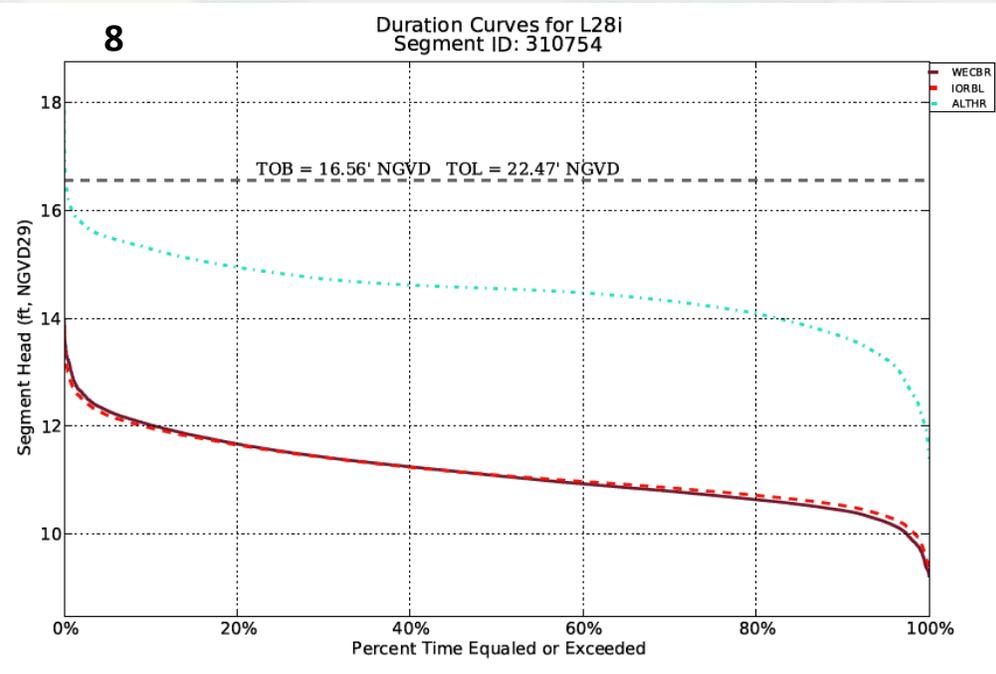


# WERP ALTHR MODELING RESULTS

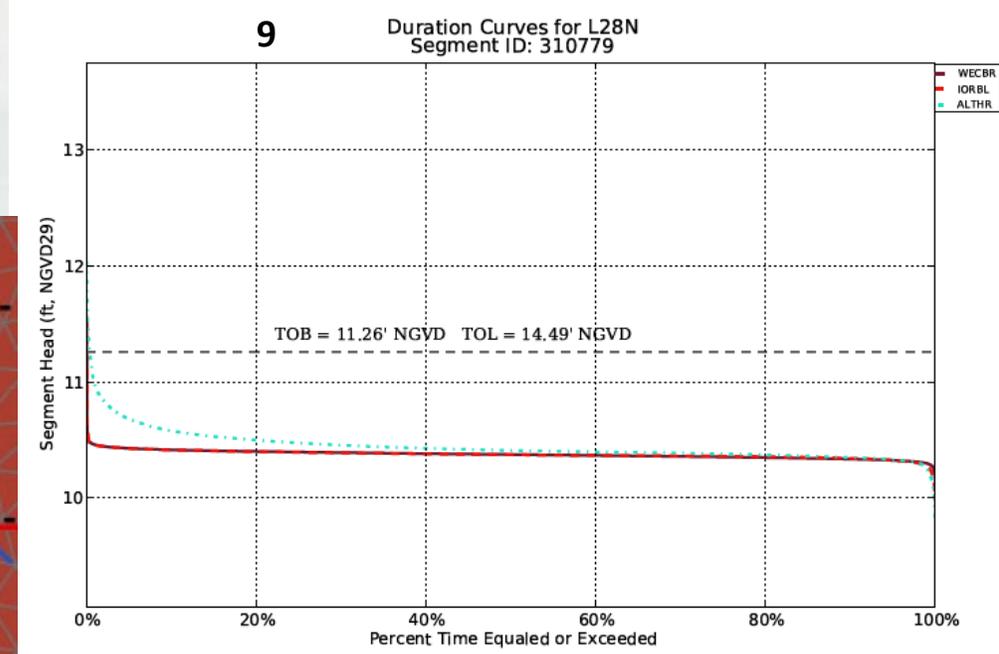
## Canal analysis



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TOB = top of bank  
TOL = top of levee

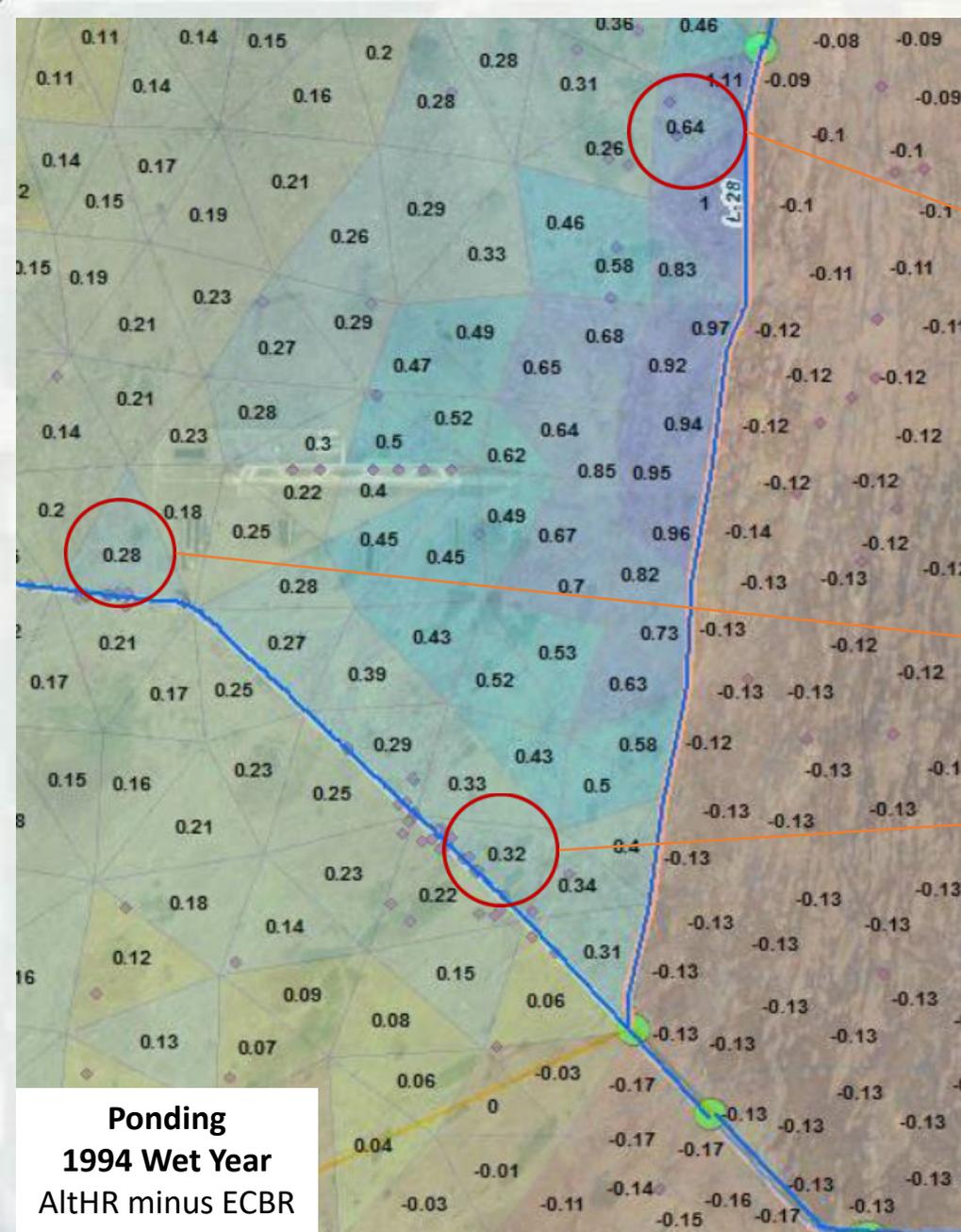


# WERP MODELING RESULTS

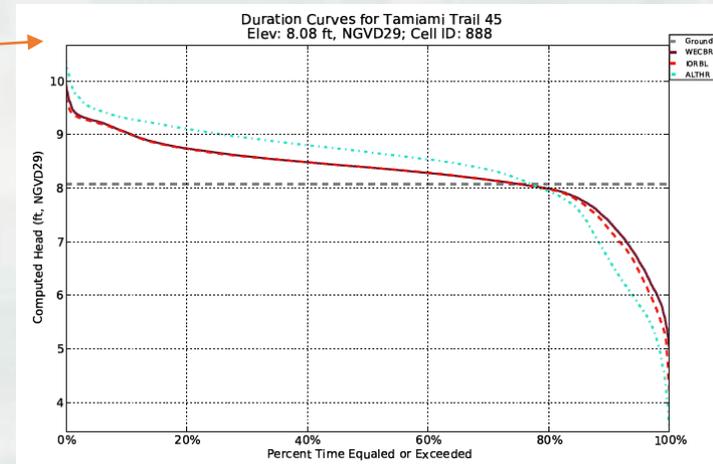
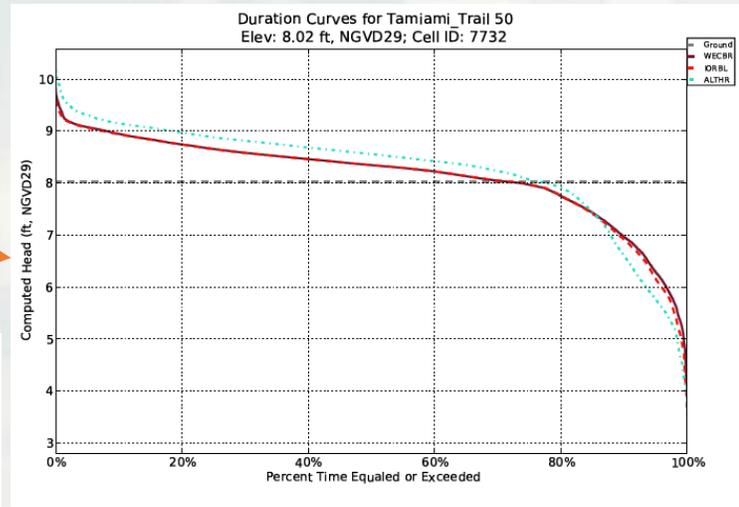
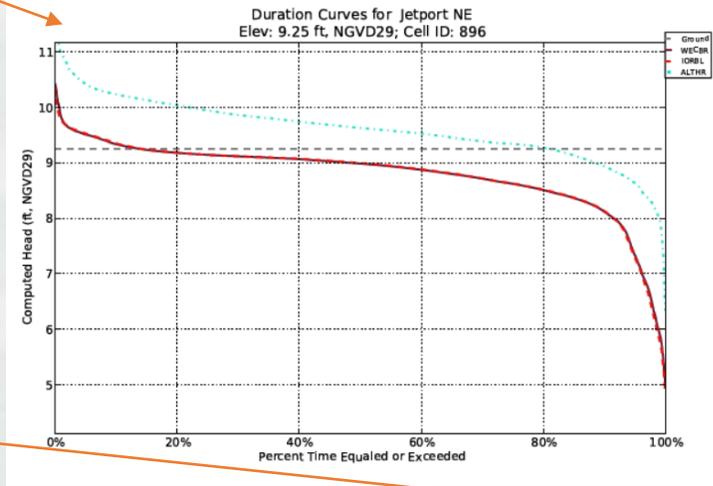
## Tamiami Trail and Jetport



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**Ponding  
1994 Wet Year  
AltHR minus ECBR**



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# WERP ALTHR MODELING RESULTS

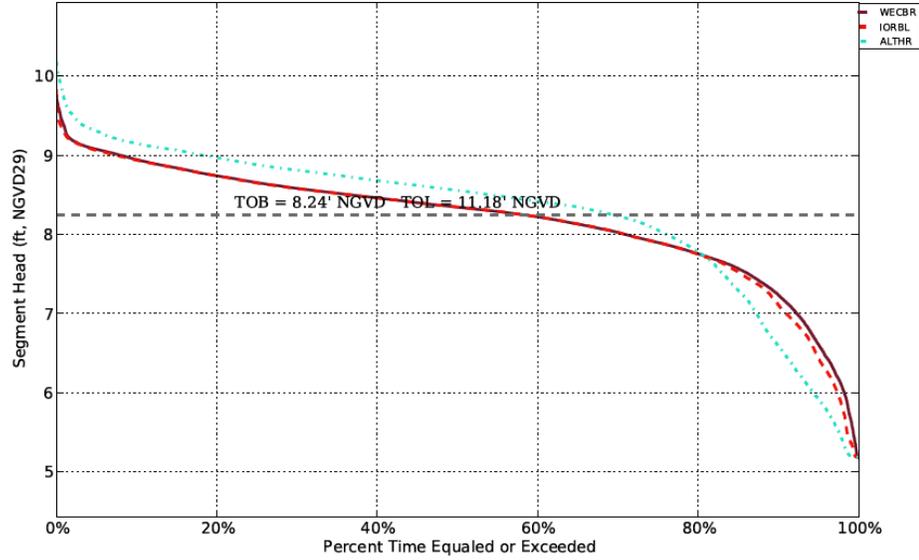
## Canal analysis



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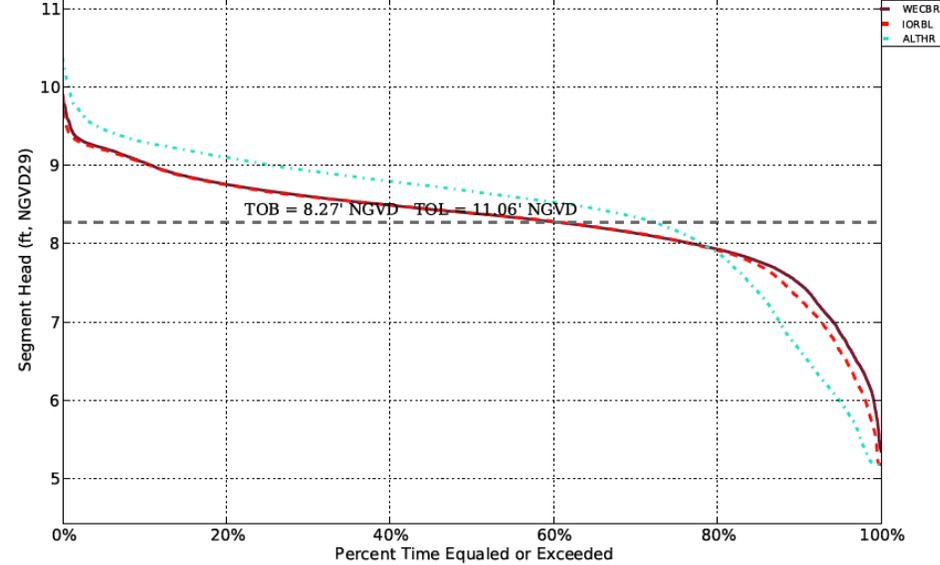
11

Duration Curves for Tamiami Trail (West of Jetport)  
Segment ID: 314636

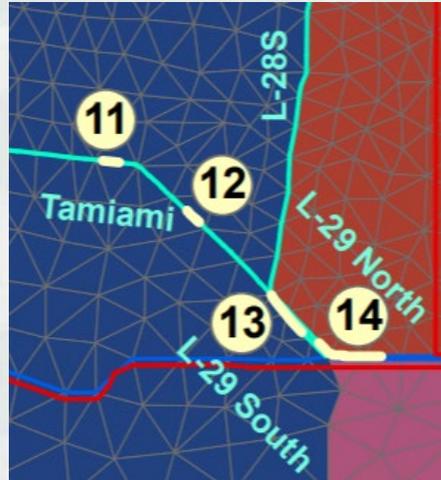


Duration Curves for Tamiami Trail (Jetport to S343A)-Midway  
Segment ID: 314644

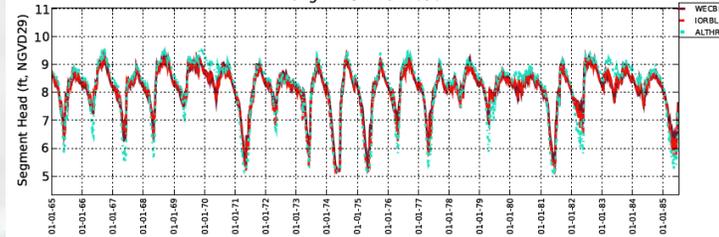
12



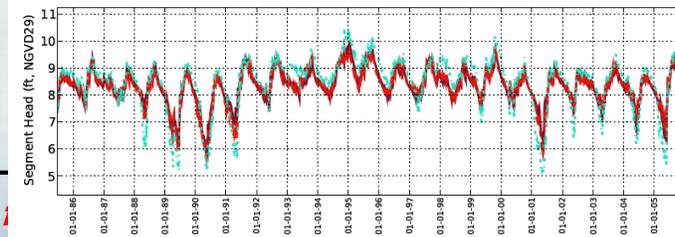
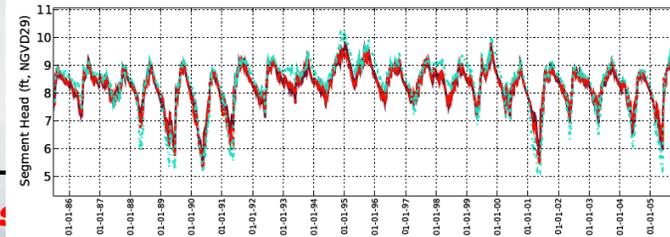
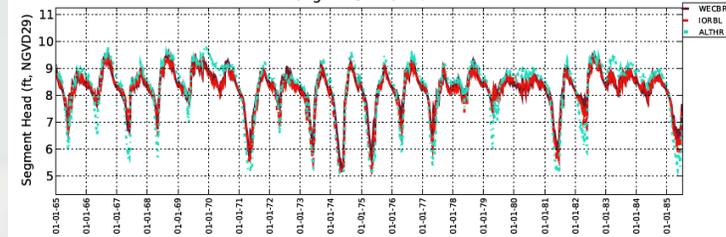
TOB = top of bank  
TOL = top of levee



Hydrographs for Tamiami Trail (West of Jetport)  
Segment ID: 314636



Hydrographs for Tamiami Trail (Jetport to S343A)-Midway  
Segment ID: 314644



Tru





# PLAN FORMULATION SUB-TEAM UPDATE



BUILDING STRONG

## Tasks completed:

- USACE 2<sup>nd</sup> Waiver package
- Draft Detailed Schedule

## Ongoing tasks:

- Water Quality cost share documentation
- Updates to Planning Appendix
- Coordinate DRAFT PIR/EIS input

## 30/60 days look ahead:

- WERP PDT Meeting – October 2020

## Plan Formulation Sub-team Meetings

- Not currently active
- First Meeting in October 2020

## Email

[Zulamet.Z.Vega-Liriano@usace.army.mil](mailto:Zulamet.Z.Vega-Liriano@usace.army.mil)

## Leads:

- Zulamet Vega-Liriano, USACE
- Mindy Parrott, SFWMD





# SAVINGS/ASSURANCES SUB-TEAM UPDATE



BUILDING STRONG

## Tasks completed:

- Received RSM modeling data
- Received Ownership info
- Water Supply/Assurances

## Ongoing tasks:

- RE/Savings Clause-Flood Analysis

## 30/60 days look ahead:

- Complete RE analysis
- Draft Estates
- Send RE Policy Waiver to HQ

## Savings/Assurances Sub-team Meetings

- Not currently active
- Meeting in October 2020

Email

[Donald.G.Nelson@usace.army.mil](mailto:Donald.G.Nelson@usace.army.mil)

## Leads:

- Don Nelson, USACE
- Karin Smith, SFWMD
- David Colangelo, SFWMD





# ENGINEERING SUB-TEAM UPDATE



BUILDING STRONG

## Tasks completed:

- RSM Modeling: Alt Hr
- HEC-RAS Modeling: Region 2
- ROM Cost Estimate

## Ongoing tasks:

- HEC-RAS Modeling: Regions 1, 3, and 4
- DRAFT EN Conceptual Design and Engineering Appendix

## 30/60 days look ahead:

- September 20: RAS Regions 1 and 3
- October 20: RAS Region 4

## Engineering Sub-team Meetings

- Times to be determined
- Leads:
  - Mitchell Thomas, USACE
  - Holly Jarvinen, SFWMD





# ENVIRONMENTAL SUB-TEAM UPDATE



BUILDING STRONG

## Tasks completed:

- Coordinate USGS Ecological Planning Tools on ALTHR

## Ongoing tasks:

- Review modeling output for ALTHR
- Complete portions WERP PIR/EIS

## 30/60 days look ahead:

- Calculate Habitat Units (HUs) to inform of Cost Effectiveness/Incremental Cost Analysis (CE/ICA)
- Review Adaptive Management and Ecological Monitoring Plan

## Environmental Sub-team Meetings

- October 2020  
Email  
[Melissa.A.Nasuti@usace.army.mil](mailto:Melissa.A.Nasuti@usace.army.mil)
- Leads:
  - Melissa Nasuti, USACE
  - Eric Cline, SFWMD





# COMMENT PERIOD



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REMINDER: WERP PDT meetings fall within an exception to FACA (2 U.S.C.A. 1534(b)). PDT members include federal officials and elected state, local, and tribal officers and designated employees. A Public Comment period has been established at the end of our agenda.

- Stakeholder Comments 1040
- Public Comments 1050





# THANK YOU



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Mindy Parrott [mparrott@sfwmd.gov](mailto:mparrott@sfwmd.gov)



## Projected Project Timeline



\* Pending 2<sup>nd</sup> Waiver Approval

