



SFWMD Program and Project Update

**South Florida Ecosystem Restoration
Task Force Meeting**

December 2, 2016

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Everglades Policy & Coordination Division, SFWMD*

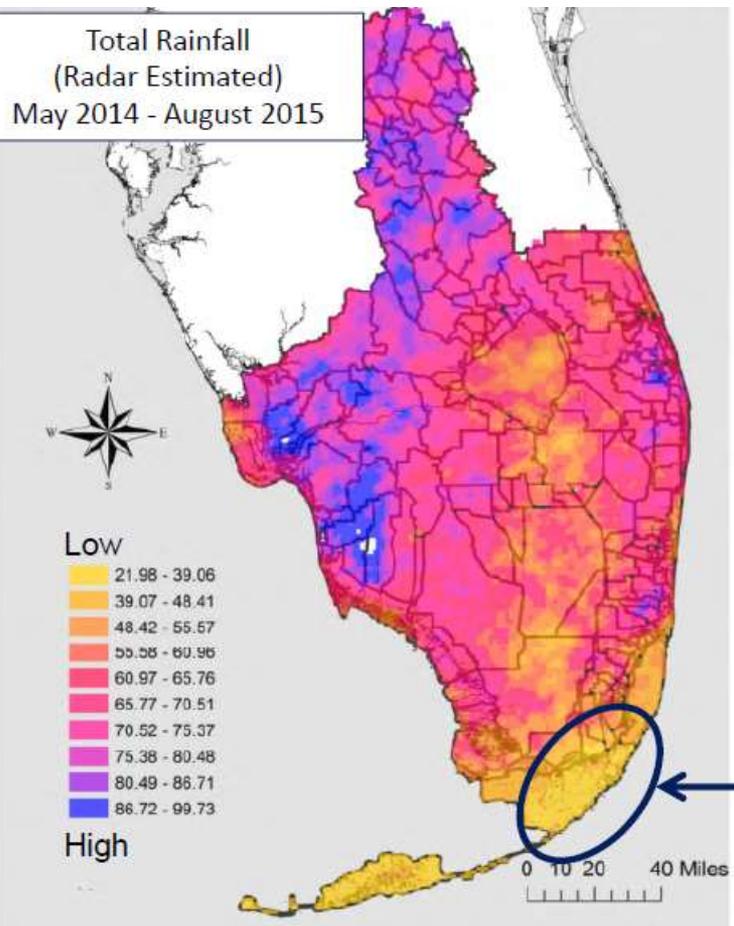
Presentation Outline

- Moving Freshwater South to Florida Bay
- Water Quality Treatment Features and Trends
- Recent CERP Construction Activities



Moving Freshwater South to Florida Bay

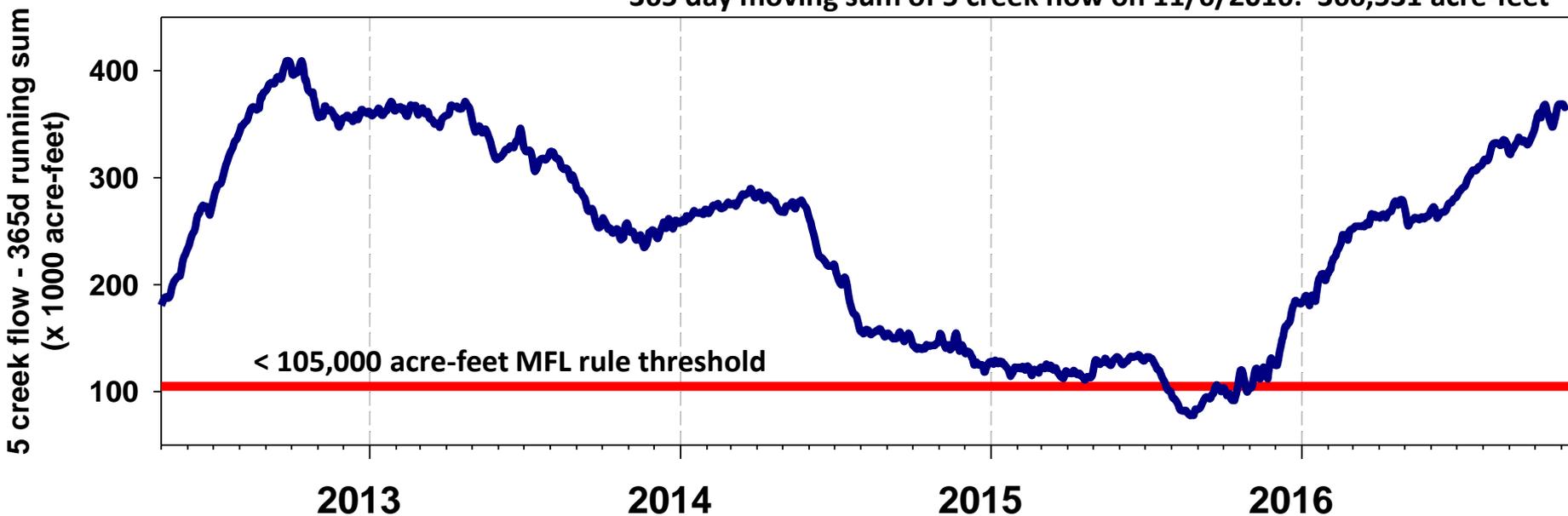
Localized Drought May 2014 - August 2015



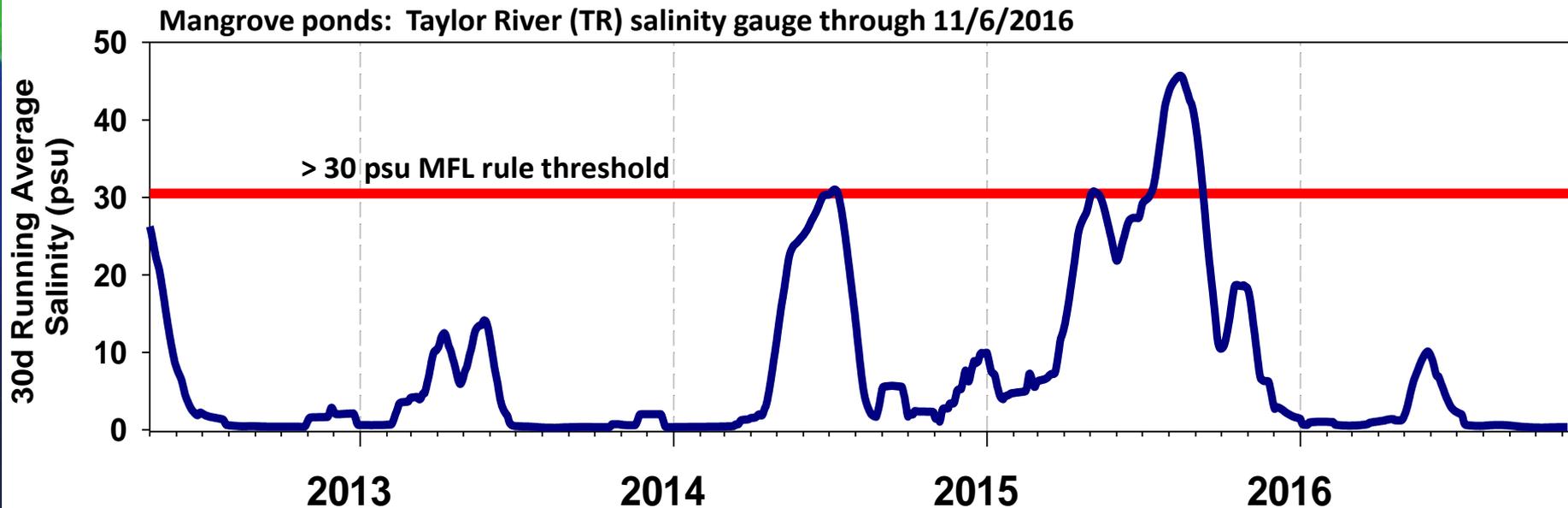
- Florida Bay depends on freshwater inputs
- 45% comes directly from rainfall
- 55% from run-off
- Dry conditions District-wide
- Very dry over Everglades National Park
- Taylor Slough and Florida Bay 25 to 35 inches of rain
- About half of the average annual rainfall
- 25-35 inches compared to 50-60 inches (wet year)

Florida Bay Flow Update

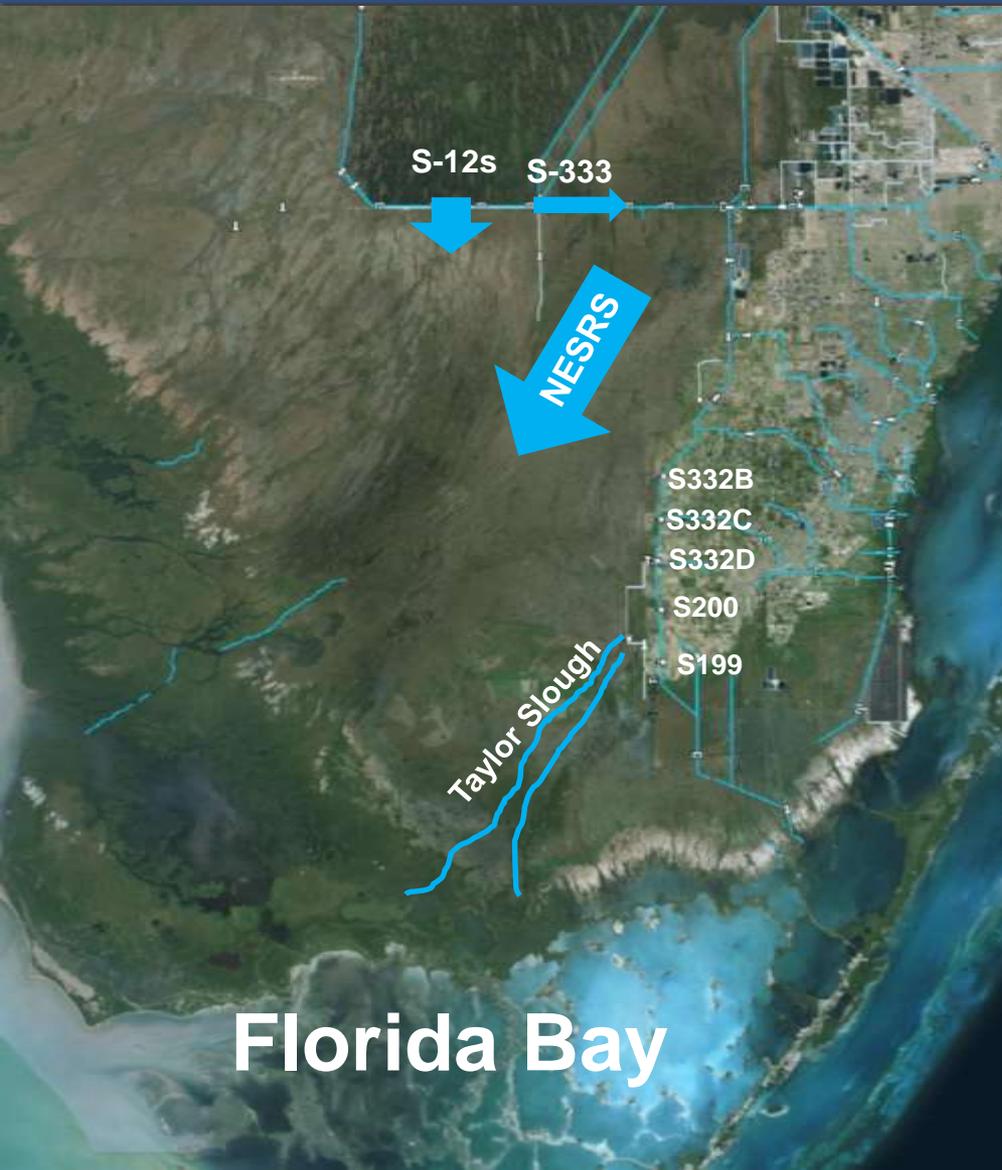
365 day moving sum of 5 creek flow on 11/6/2016: 366,531 acre-feet



Florida Bay Salinity Update



Ongoing Projects to Address Flows to Florida Bay



- **C-111 Spreader Canal Western Project**

- Uses S-200 and S-199 pump stations to move water towards and keep water in natural system

- **C-111 South Dade Project**

- Uses S-332 B, C and D pump stations to move water towards detention areas and keep water in natural system while maintaining flood protection

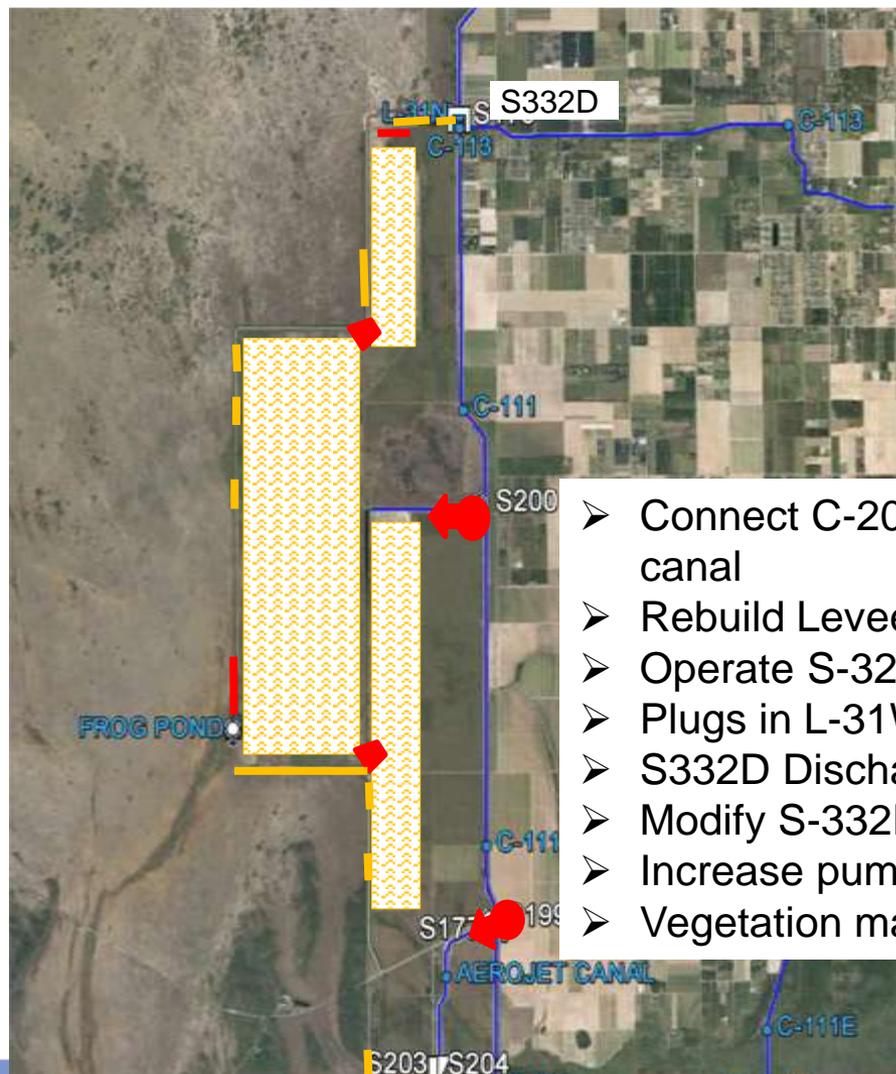
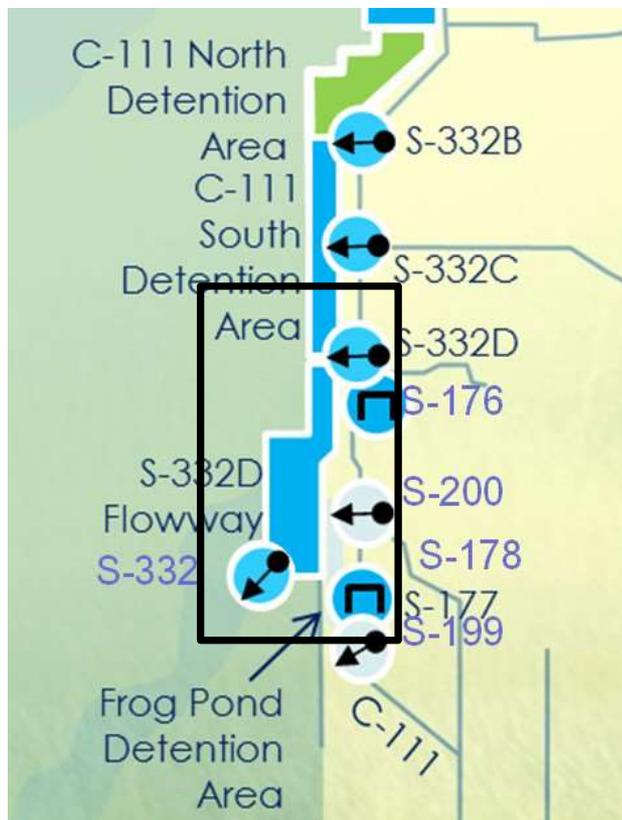
- **Modified Water Deliveries to Everglades National Park**

- Brings more water to North East Shark River Slough while mitigating flood impacts to 8.5 Square Mile Area

- **South Dade Study**

- Identified opportunities to operate existing infrastructure to benefit both agricultural land uses and natural systems. Identified operations and infrastructure modifications that promote flow towards Taylor Slough

Project Features to Move Water South to Florida Bay



- Connect C-200 to L-31W canal
- Rebuild Levee, Weir
- Operate S-328
- Plugs in L-31W canal
- S332D Discharge Basin
- Modify S-332D Weir
- Increase pump capacity
- Vegetation management

Progress

- ✓ Vegetation management ongoing
- ✓ Implemented more aggressive operations prior to and during rain events
- ✓ Modified operating range of S-200 and S-199 Pump Stations
- ✓ Modified S332D Weir
- ✓ Completed designs accounting for revisions discussed with other agencies
- ✓ Applied for all permits to USACE and FDEP based on refined designs
- ✓ Completed procurement process and opened bids based on refined designs
- Awaiting regulatory approvals prior to commencing construction activities



Water flowing from S-332D Pump Station over modified portion of S327 Weir

Moving Water to Florida Bay Project Features Schedule

Project Features	Permit and Approvals
Connect Canals C-200 and L31W	December 2016
Rebuild Levee along L-31W Canal	December 2016
Operate S-328 Structure	March 2017
Plugs in L31W at key locations	December 2016
Seal S332D Discharge Basin	December 2016
Increase S200 and S199 Pump Capacity	December 2016

Project Features	Construction Substantial Completion
Connect Canals C-200 and L31W	April 2017
Rebuild Levee along L-31W Canal	September 2017
Operate S-328 Structure	March 2017
Plugs in L31W at key locations	September 2017
Seal S332D Discharge Basin	September 2017
Increase S200 and S199 Pump Capacity	February 2018

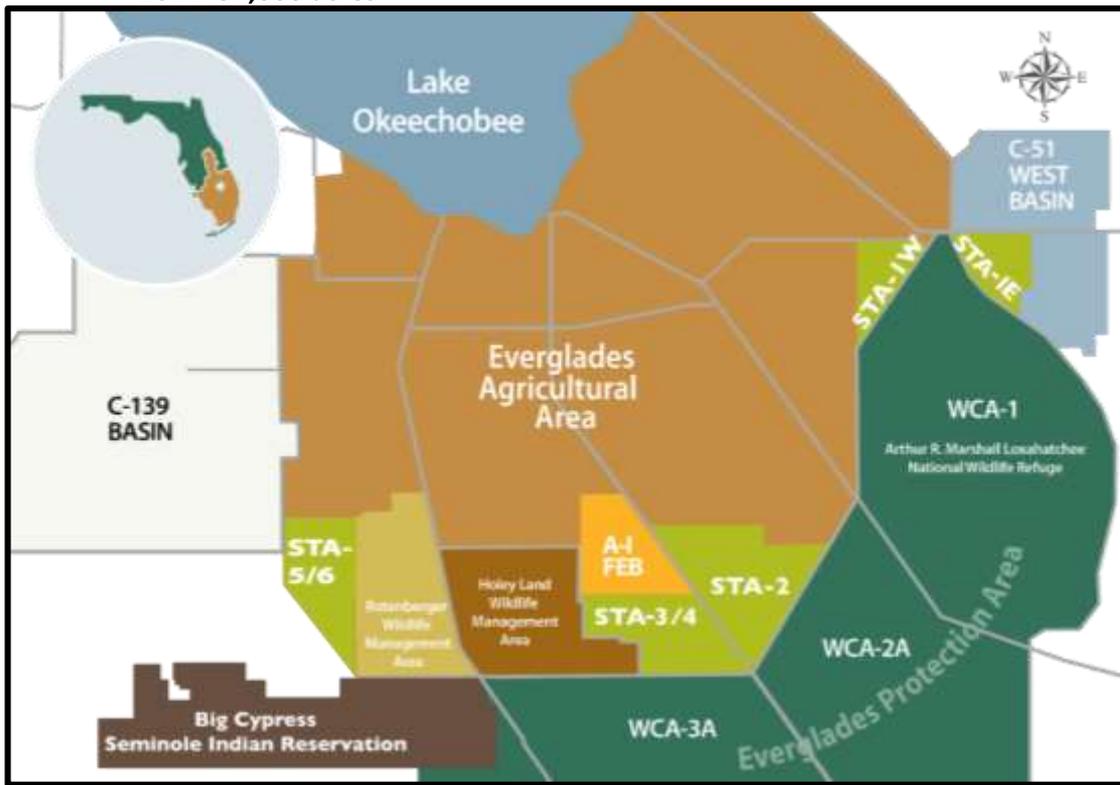
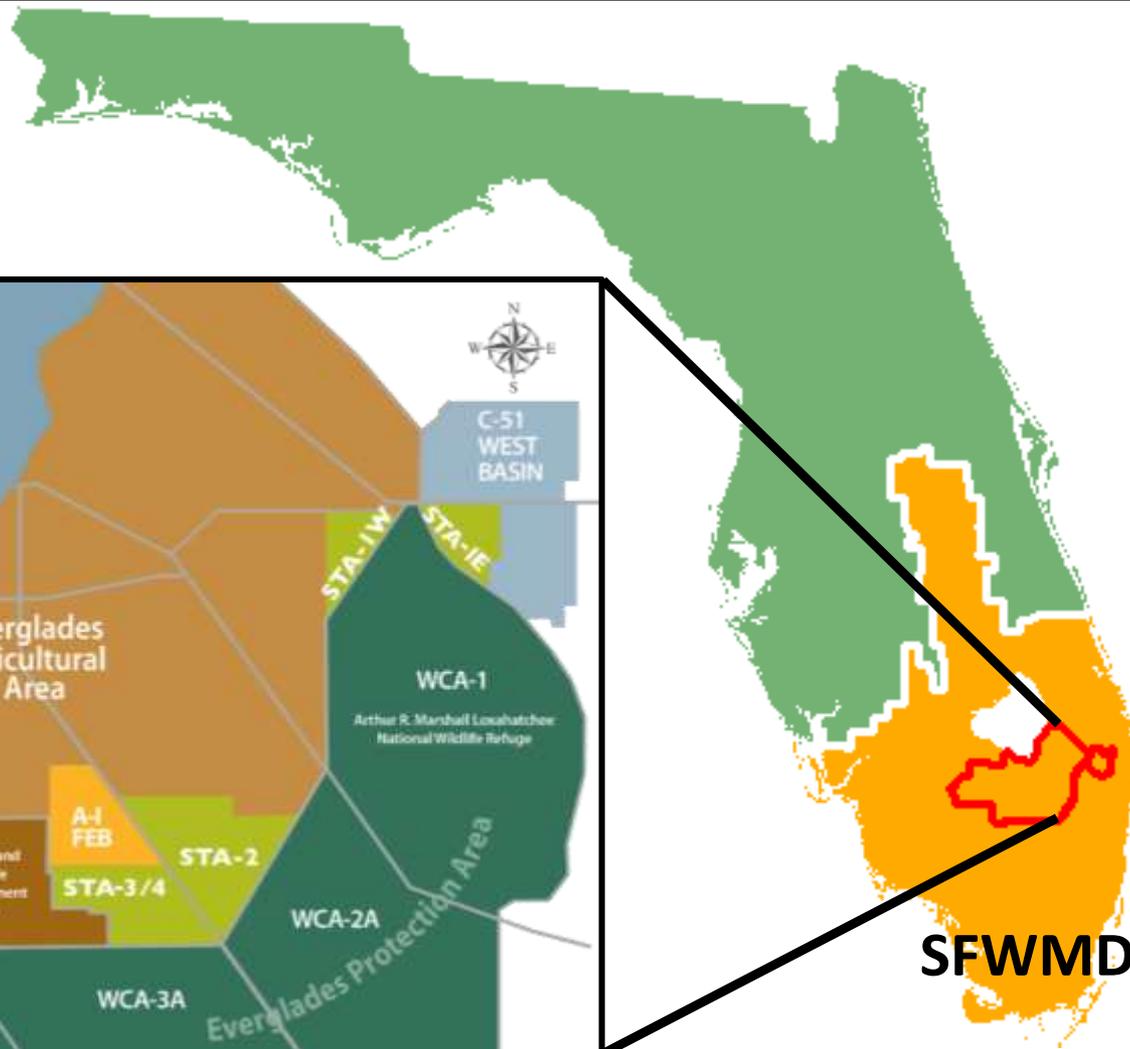


Water Quality Treatment Features and Trends

Stormwater Treatment Areas (STAs)

Permitted STA Area

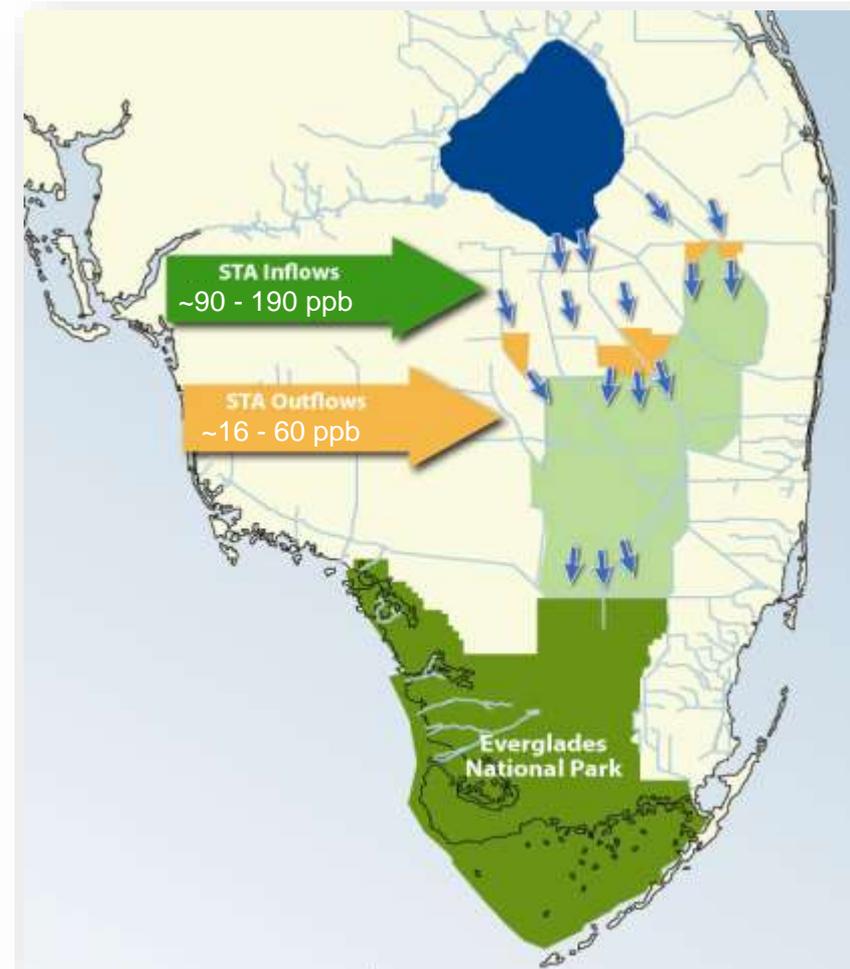
- 1994: 4,000 acres
- 1999: 9,000 acres
- 2000: 18,000 acres
- 2003: 35,000 acres
- 2004: 40,000 acres
- 2006: 45,000 acres
- 2012: 57,000 acres



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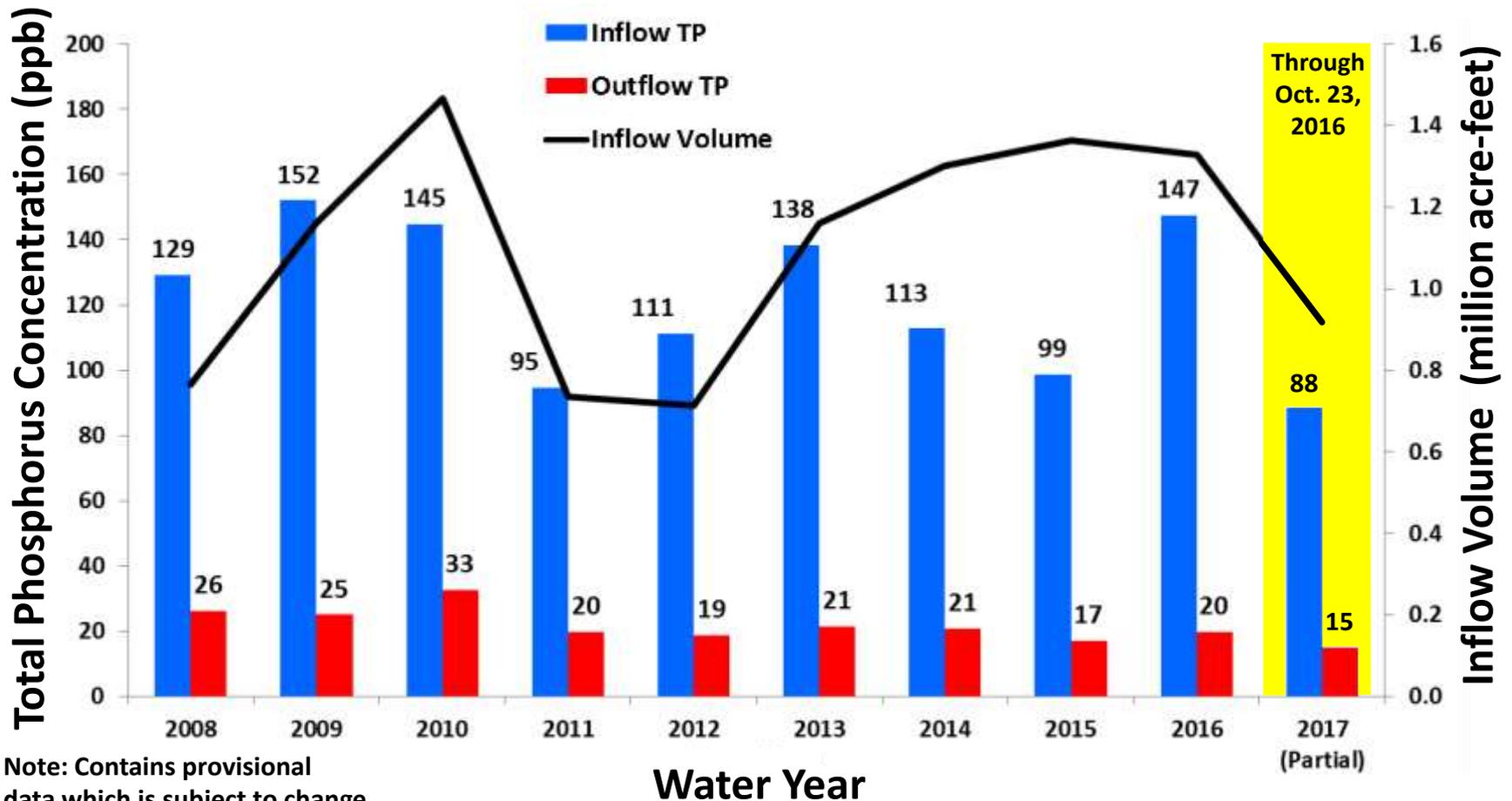
STA Performance Summary: 1995-2016

- 17.5 million acre-feet (5.7 trillion gallons) of water treated
- 2,220 metric tons of phosphorus removed (76% load reduction)
- STA-3/4 outflow phosphorus concentration averaging 16 parts per billion (ppb) since beginning operation in 2004
- STA-2 and STA-3/4 have achieved annual phosphorus concentrations as low as 12 ppb



STA Performance: 2008-2017

All STAs combined



Note: Contains provisional data which is subject to change

Restoration Strategies: Key Projects

2012

- 57,000 ac of STA

2012-2016

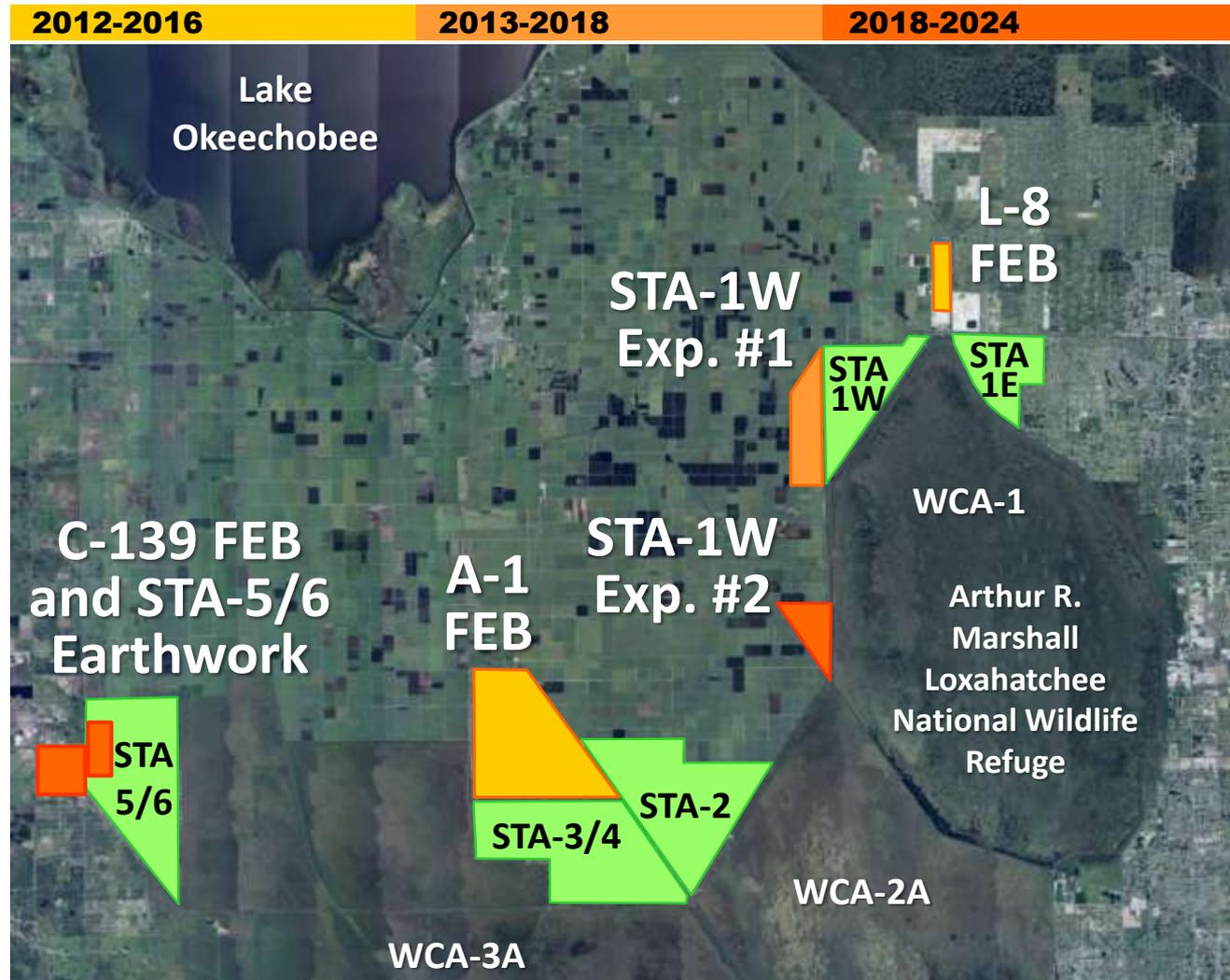
- L-8 FEB (45,000 ac-ft)
- A-1 FEB (60,000 ac-ft)

2013-2018

- STA (4,600 ac)

2018-2024

- STA (1,900 ac)
- C-139 FEB (11,000 ac-ft)
- STA Earthwork (800 ac)



A-1 Flow Equalization Basin (FEB)

- Designed to improve performance of STA-2 and STA-3/4
- 15,000 acres by 4 feet deep = ~60,000 acre-feet
- Operational Testing and Monitoring Phase ongoing

Operational Summary: Aug. 1, 2015 - Oct. 23, 2016

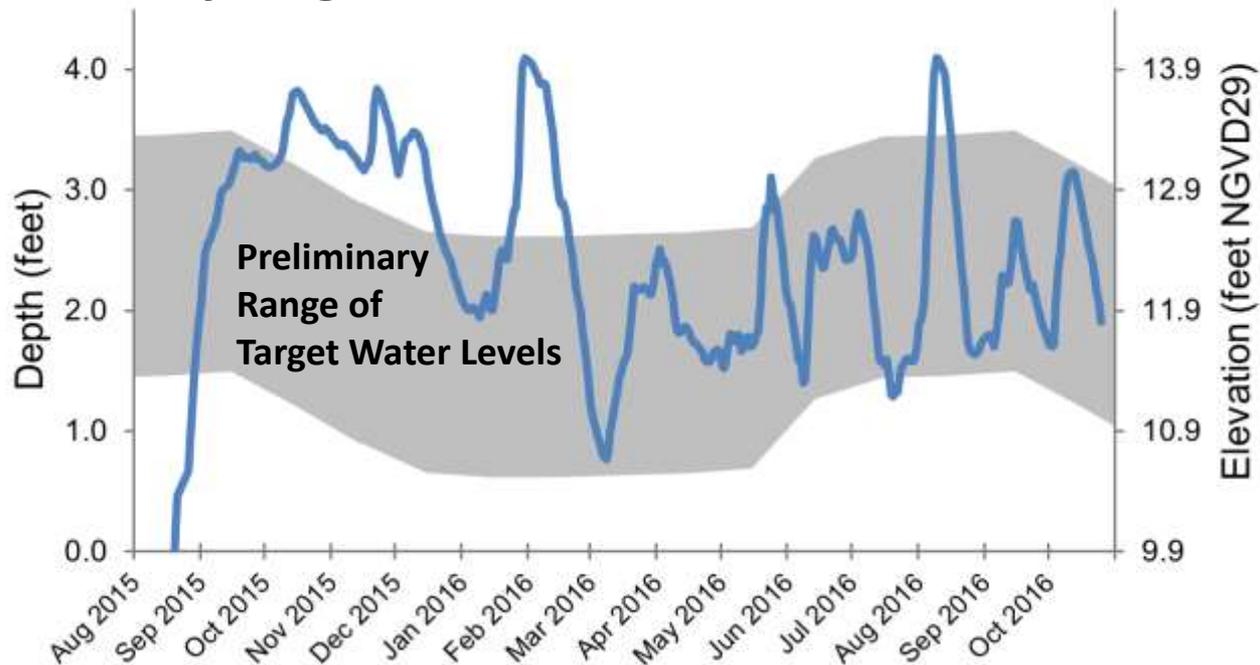
Inflow Volume
538,000 acre-feet

Inflow P Conc.
88 ppb

Outflow P Conc.
21 ppb

P Load Reduction
86%

Note: Contains provisional data which is subject to change



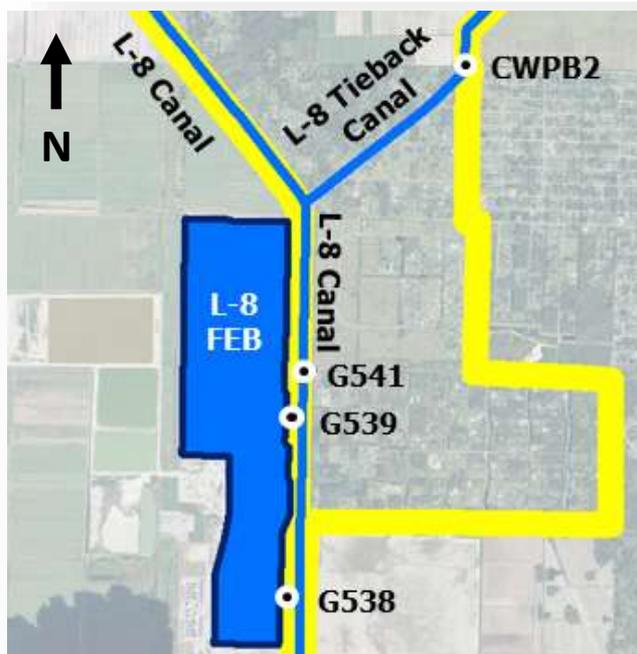
L-8 Flow Equalization Basin (FEB)

- Designed to improve performance of STA-1E and STA-1W
- 800 acres by 58 feet deep = ~45,000 acre-feet
- Construction 87% complete; completion expected by December 2016 (deadline is December 31, 2016)



L-8 Divide Structure (G-541)

- Enables efficient L-8 FEB inflow/outflow operations
- Construction completed July 2016 (more than two (2) years ahead of September 2018 deadline)



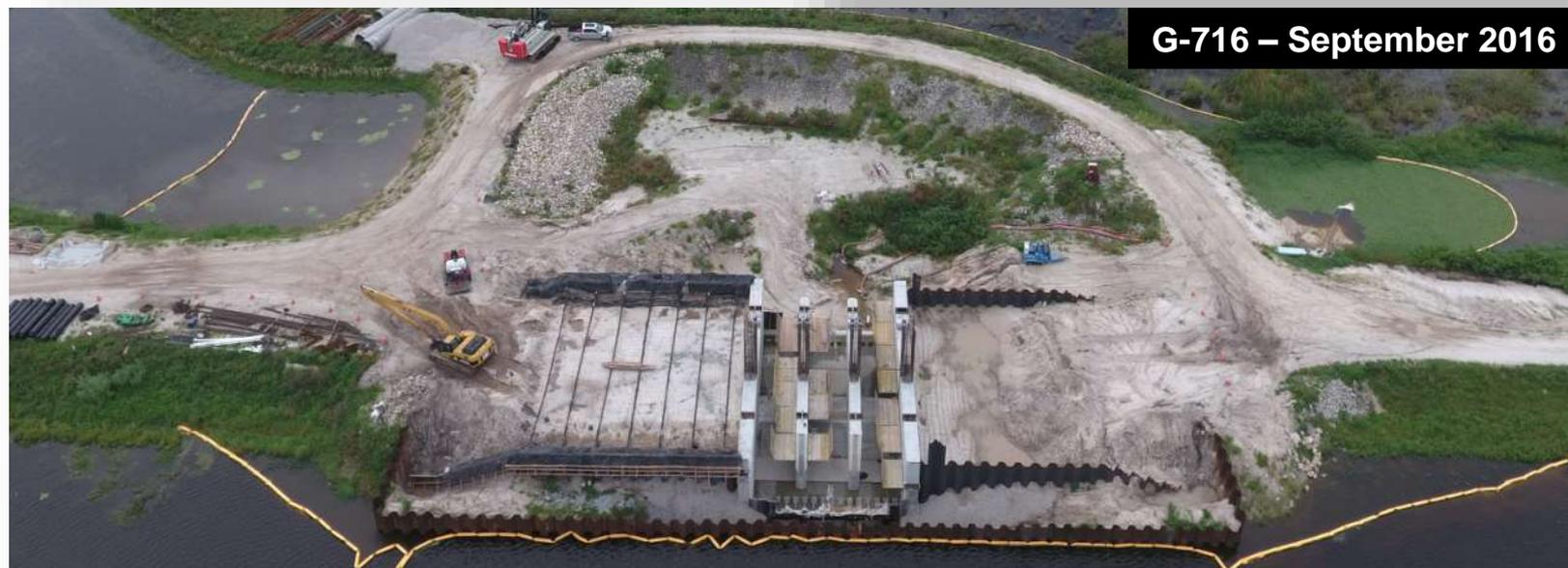
S-5AS Modifications

- Enable more efficient operations when directing flows to/from the L-8 FEB
- Construction completed May 2016 (four (4) months ahead of September 2016 deadline)



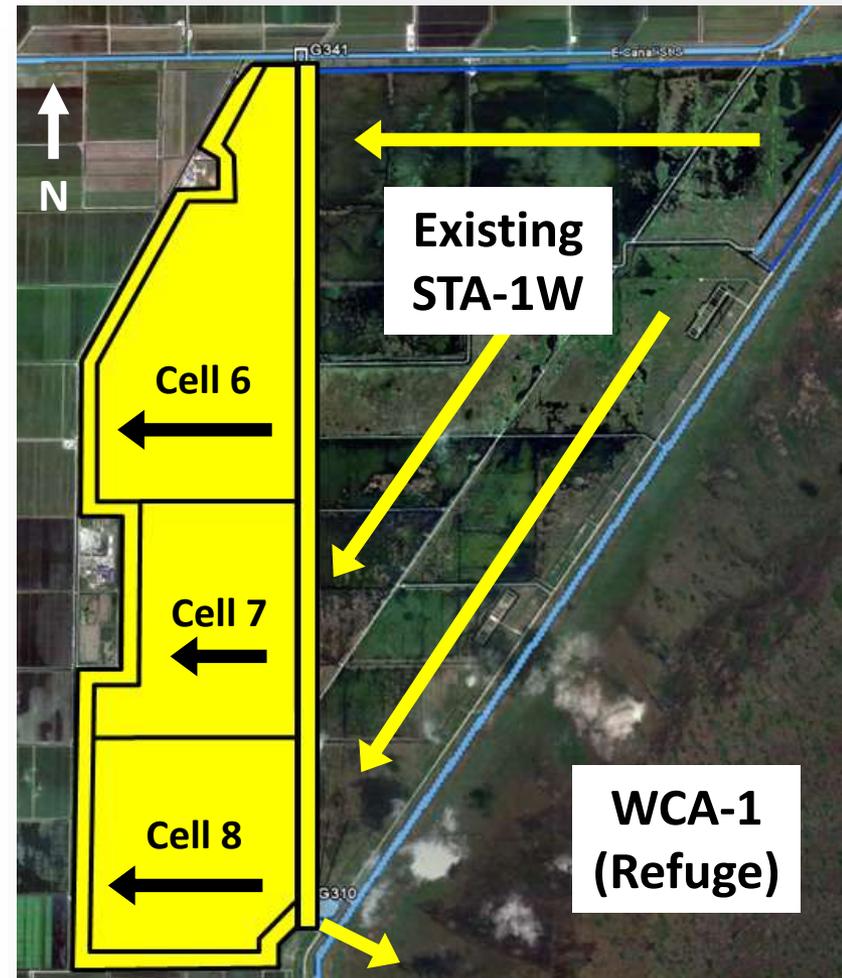
S-375 Expansion (G-716)

- Enables additional flow to be conveyed to L-8 FEB
- Construction is 65% complete
- Completion expected April 2017



STA-1W Expansion #1

- Designed to assist STA-1W and STA-1E
- 4,300 acres of additional effective stormwater treatment area
- Construction 25% complete
- Completion expected December 2018



STA-1W Expansion #1 (cont'd)

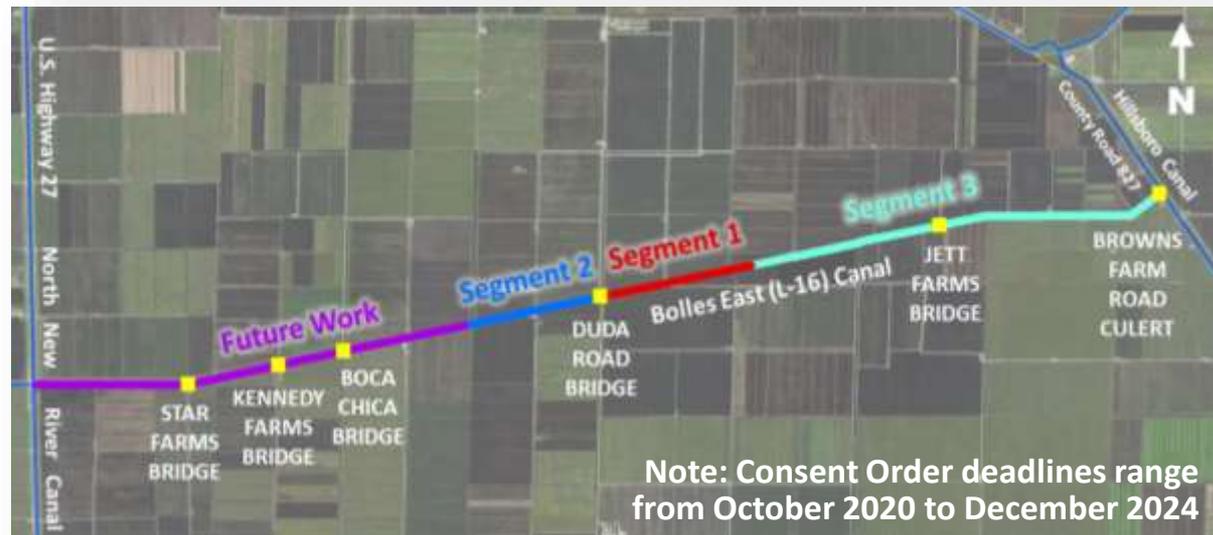


**STA-1W Expansion #1
Perimeter Levee and
Discharge Canal
Construction -
September 2016**

G-341 Related Conveyance Improvements

Phase 1: Bolles East (L-16) Canal

- Segment 1 (~1.2 miles) construction completed September 2016
- Segment 2 (~1 mile) construction started July 2016 and is 20% complete; completion expected March 2017
- Segment 3 (~3.2 miles) design ongoing; construction expected to start by June 2017
- Duda Road bridge replacement to be complete by November 2016



G-341 Related Conveyance Improvements (cont'd)



Bolles East (L-16) Canal Blasting Event

G-341 Related Conveyance Improvements (cont'd)

Bolles East (L-16) Canal - April 2016





CERP Construction Activities

C-44 Reservoir/STA

C-44 S-404 Spillway



C-44 STA



- S-404 Spillway Status:
 - Construction complete
- STA Status:
 - Construction Start: October 2014
 - Construction Finish: December 2017
 - 48% complete
- Pump Station Status:
 - Construction Start: April 2015
 - Construction Finish: September 2018
 - 31% complete

C-43 West Basin Storage Reservoir

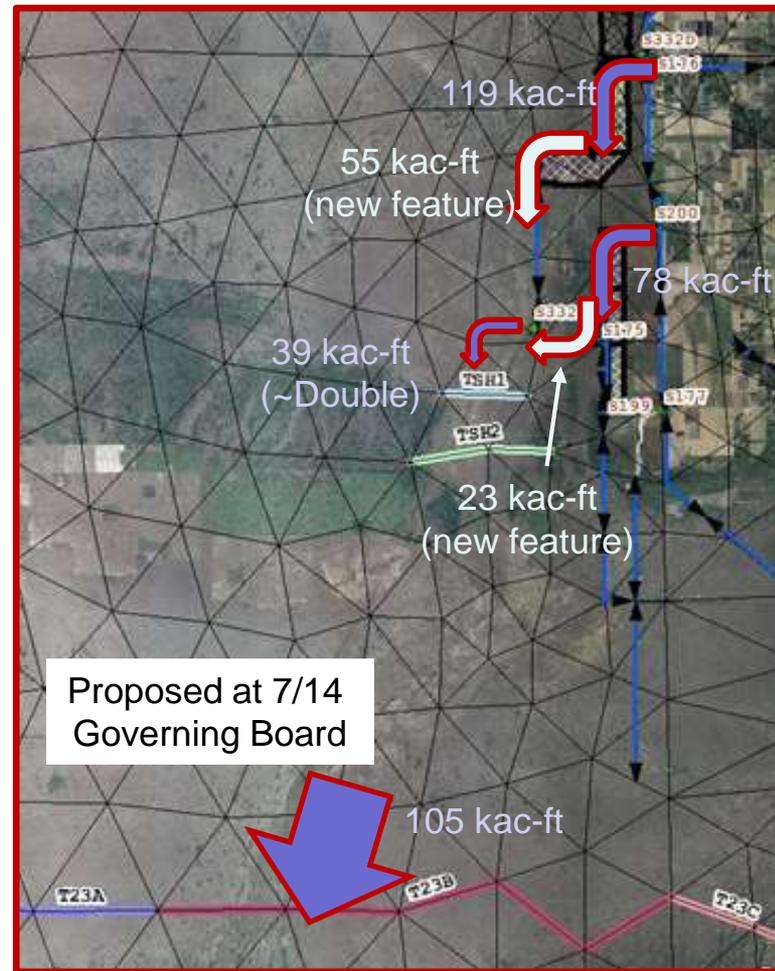
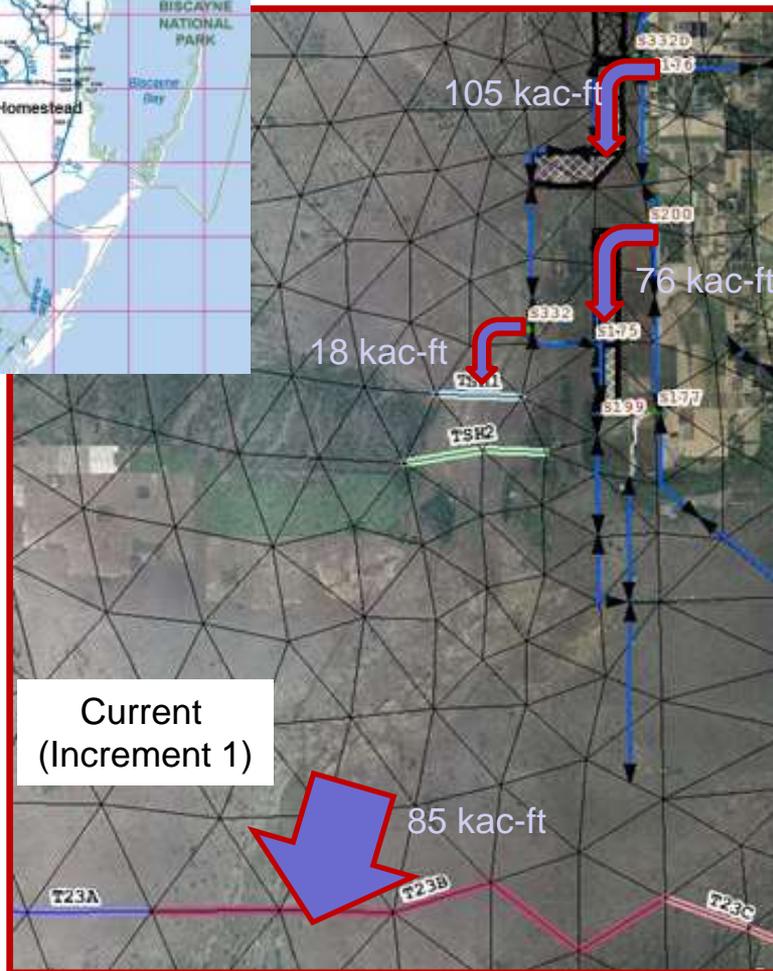


S476 - Installation of sheet pile

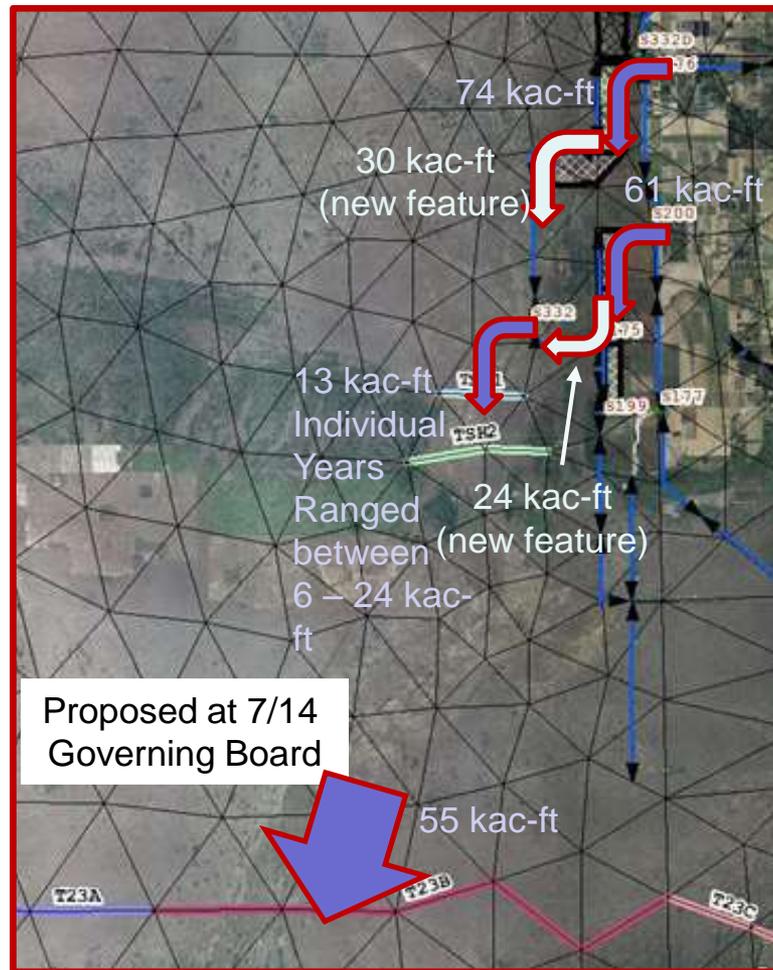
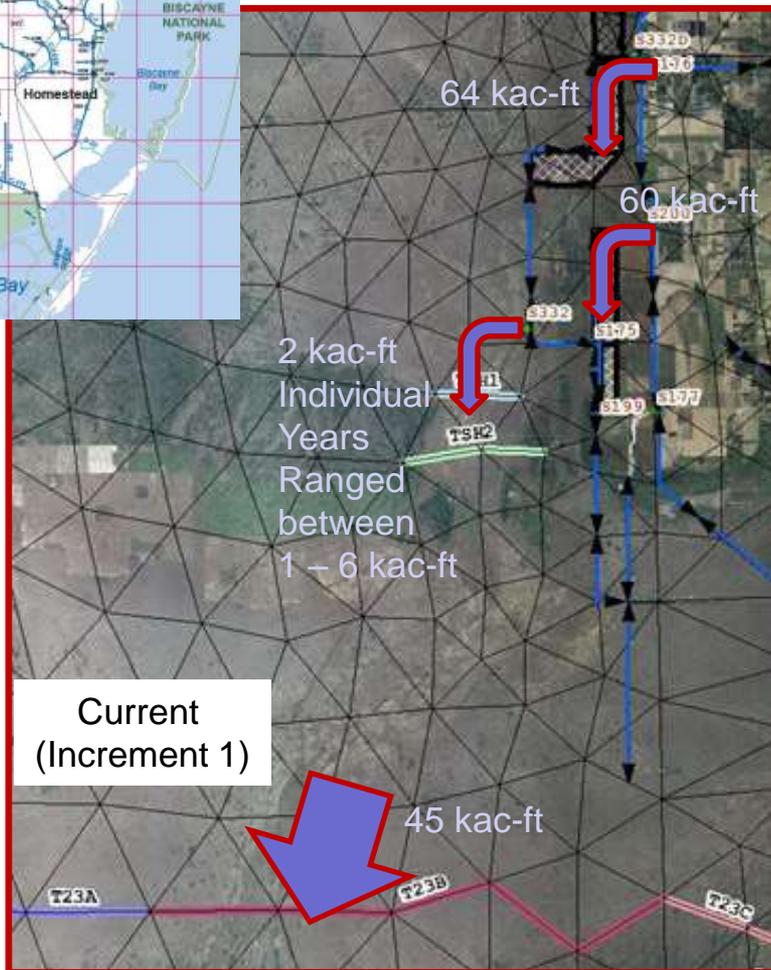
- Project is being delivered in 4 bid packages
- Package 1: Preload & Demolition
 - Construction Start: November 2015
 - Construction Finish: July 2017
 - 50% Complete
- Package 2: Pump Station S476
 - Construction Start: June 2016
 - Construction Finish: January 2018
 - 15% Complete
- Package 3: Pump Station S470 and Inflow Works
 - Construction Start: September 2017
 - Construction Finish: April 2020
- Package 4: Embankment/Civil Works
 - Construction Start: September 2018
 - Construction Finish: December 2022

Questions?

Average Performance



Average Performance During Dry Years (1971, 1975, 1981 & 1985)





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