Presentation Outline

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

< 105,000 acre-feet MFL rule threshold
Florida Bay Salinity Update

Mangrove ponds: Taylor River (TR) salinity gauge through 11/6/2016

> 30 psu MFL rule threshold

30d Running Average Salinity (psu)

Salinity gauge
Creek flow gauge
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
## Moving Water to Florida Bay

### Project Features Schedule

<table>
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<tr>
<th>Project Features</th>
<th>Permit and Approvals</th>
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<tr>
<td>Connect Canals C-200 and L31W</td>
<td>December 2016</td>
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<tr>
<td>Rebuild Levee along L-31W Canal</td>
<td>December 2016</td>
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<tr>
<td>Operate S-328 Structure</td>
<td>March 2017</td>
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<tr>
<td>Plugs in L31W at key locations</td>
<td>December 2016</td>
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<tr>
<td>Seal S332D Discharge Basin</td>
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<th>Project Features</th>
<th>Construction Substantial Completion</th>
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<tr>
<td>Connect Canals C-200 and L31W</td>
<td>April 2017</td>
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<tr>
<td>Rebuild Levee along L-31W Canal</td>
<td>September 2017</td>
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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
• 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
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

Note: Consent Order deadlines range from October 2020 to December 2024
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
C-44 Reservoir/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

- 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

Current (Increment 1)

Proposed at 7/14 Governing Board

- 105 kac-ft
- 18 kac-ft
- 76 kac-ft
- 85 kac-ft
- 55 kac-ft (new feature)
- 39 kac-ft (~Double)
- 23 kac-ft (new feature)
- 119 kac-ft
- 78 kac-ft
- 76 kac-ft

Current (Increment 1)
- Individual Years Ranged between 1 – 6 kac-ft
- 2 kac-ft

Proposed at 7/14 Governing Board
- Individual Years Ranged between 6 – 24 kac-ft
- 13 kac-ft
- 24 kac-ft (new feature)
- 30 kac-ft (new feature)
- 61 kac-ft

64 kac-ft
60 kac-ft
45 kac-ft
55 kac-ft