STAs and Related Projects Update

Quarterly Meeting of the Technical Oversight Committee

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STA Performance Data

Updated 5/18/07 - Contains Preliminary Data

- **STA-1E (9/2004 – 4/2007)**
  - **Average inflow = 214 ppb**
  - **24 m tons removed; average outflow = 125 ppb**
- **STA-1W (8/1994 – 4/2007)**
  - **Average inflow = 163 ppb**
  - **338 m tons removed; average outflow = 55 ppb**
- **STA-2 (7/1999 – 4/2007)**
  - **Average inflow = 105 ppb**
  - **181 m tons removed; average outflow = 21 ppb**
- **STA-3/4 (10/2003 – 4/2007)**
  - **Average inflow = 120 ppb**
  - **222 m tons removed; average outflow = 19 ppb**
- **STA-5 (9/1999 – 4/2007)**
  - **Average inflow = 235 ppb**
  - **160 m tons removed; average outflow = 106 ppb**
- **STA-6 (10/1997– 4/2007)**
  - **Average inflow = 80 ppb**
  - **36 m tons removed; average outflow = 20 ppb**

Drought Operations for the STAs

- Goal is to maintain 6” water in SAV cells as long as possible
- Using emergent cells as source of water for SAV cells
  - STA enhancements included installation of small permanent pumps in some cells
  - Also installed portable pumps to help maintain 6” depth in SAV cells
- 18,000 acre-feet of supplemental water from Lake Okeechobee was sent to STAs in March/April 2007
- All 6 STAs have experienced drought impacts
  - Most cells have reached minimum or below minimum depths

STA-1W Cell 5B

Everglades Protection Area Tributary Basins
Long-Term Plan for Achieving Water Quality Goals

STA-2 Cell 3 Pump

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STA-3/4 Cell 3A

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STA-3/4 Cell 2A Pump

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STA-5 Cell 1B

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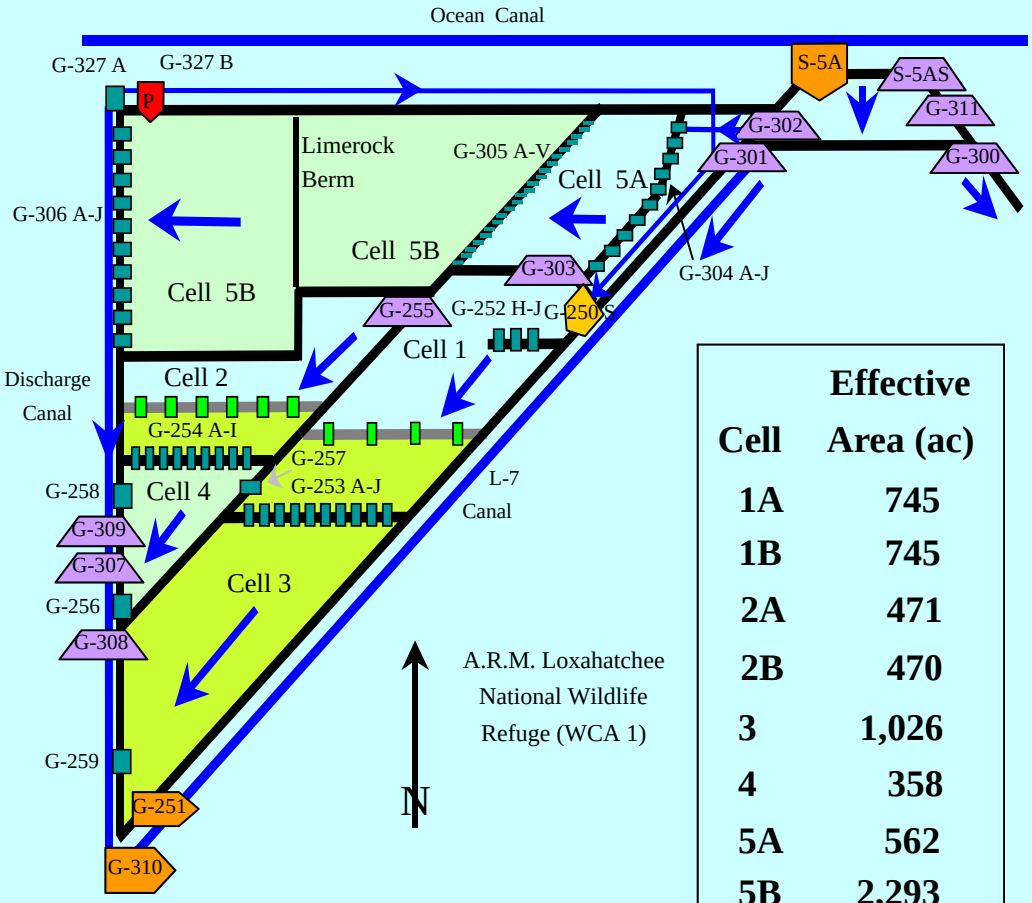
STA-5 Cell 2B

Everglades Protection Area Tributary Basins
Long-Term Plan for Achieving Water Quality Goals

STA-1W Enhancements

- **Components completed in previous years:**
  - **Cell 2A/2B levee**
  - **G-255, G-307, G-249 A-H structures**
  - **G-327B Pump Station**
  - **G-304 Automation**



Cell	Effective Area (ac)
1A	745
1B	745
2A	471
2B	470
3	1,026
4	358
5A	562
5B	2,293
Total	6,670 ac

STA-1W Enhancements

- Cell 1A/1B Levee complete
- G-248 A-D Structures - concrete work complete, gates installed, actuators installed
- Levee collection and distribution canals excavated
- 30% complete with levee slope grading
- FPL on site installing distribution power

STA-1W Enhancements

STA-1W Cells 1B, 2B and 4 Rehabilitation Effort

- Took advantage of drought conditions to implement
- Majority of accrued sediment removed down to historic peat layer in Cells 1B and 4
- Cell 2B disked to incorporate top layer with historic peat layer
- Cells 1B, 2B and 4 rice planting completed
  - Further stabilize sediments and jump start SAV grow-in
- SAV inoculation and grow-in to follow
- Chemical and mechanical control of pigweed
- Total project cost approximately $1.5 million
- Completed two months ahead of schedule

STA-1W Enhancements

- Initiated Cells 1B, 2B and 4 drawdown by cleaning/excavating ditches and installing pumps
- Over 8 miles of ditches were cleaned or excavated, and 8 dewatering pumps were installed and operated 24 hours/day for 7 days/week for about 2-1/2 months

STA-1W Enhancements

- Stockpiled, loaded and hauled approximately 95-100 acres of tussock material from Cell 1B to District owned 99-acre stockpile area
- Constructed access/haul roads using approximately 5,000 cy of pea rock and 3,200 cy of fill material
- Aerial applications of herbicide were used to control emergent pigweed through the sediment removal process

STA-1W Enhancements

- Detailed topographic surveys conducted in Cells 1B, 2B & 4 to determine depth of accrued sediment layer
- Grade stakes set to benchmark laser leveling for mechanical sediment removal
- Cell 1B scrape to elevation set at 9.4’ NGVD
- Cell 4 scrape to elevation set at 9.3’ NGVD
- Post-hydration surveys will be needed to confirm bottom elevations

STA-1W Enhancements

- Approximately 700 acres of Cells 1B and 4 were scraped using pan scrapers (aka drag-all)
- An estimated 375,000 cy of accrued sediment material was hauled and stockpiled along the FPL Easement on east side of Cell 1

STA-1W Enhancements

- In preparation for rice planting, approximately 250 acres of Cell 1B and 450 acres of Cell 2B were mowed and disked
- This also served as weed control and to incorporate the accrued layer into the organic layer

STA-1W Enhancements

- **Other miscellaneous improvement activities included:**
  - **Canal silt removal**
  - **Filling ditches parallel to flow to minimize short-circuiting**
  - **Degrading of various high spots south of G-309, south of G-254 and along the NW section of Cell 2B**

STA-1W Enhancements

STA-1W Cell 5 Rehabilitation Effort

- Completed in 2006
- Cell dried out to consolidate sediments
- Rice planted to stabilize sediments for SAV grow-in
- Emergent vegetation strips planted to reduce wind/wave impacts on SAV
- Monitoring has shown successful SAV re-establishment
- Emergent vegetation strips have also successfully established
- Total project cost approximately $1 million

STA-1W Enhancements

STA-1W Cell 3

- Long-Term Plan scheduled conversion
- Chop existing emergent vegetation and disk into the soil layer
- SAV inoculation is planned as soon as cell is re-hydrated

Acknowledgements

- Hongying Zhao, Guy Germain and Kathy Pietro: STA Water Quality Data
- Neil Larson: STA Drought Operations and Impacts
- Kevin Snell, Mike Korvela, Delia Ivanoff, Deborah Drum: STA-1W Enhancements and Rehabilitation