

**15th Annual Public Meeting on the Long-Term Plan for
Achieving Water Quality Goals for Everglades
Protection Area Tributary Basins**



**Vegetation Conditions in the Everglades
Stormwater Treatment Areas**



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February 23, 2018

sfwmd.gov



Vegetation Management Goals



- **Manage vegetation in the STAs in order to maintain sustainable phosphorus uptake processes and mechanisms**
- **Increase treatment redundancy and durability**
- **Increase the genetic and species diversity of beneficial plants for structural stability and P uptake**
- **Manage invasive/nuisance vegetation to minimize its spread throughout the STAs and downstream, and reduce the impact on desired vegetation and performance.**

STA 1 EAST



ISSUES	ACTIONS	STATUS
EASTERN FLOW-WAY		
<p>CONVERSION FROM USACE PASTA RESEARCH SITE TO AN ACTIVE FLOWWAY IS MOSTLY COMPLETE HEAVY FAV INFLOWS AND INVASIVE PLANTS</p>	<p>ESTABLISH EMERGENT VEGETATION IN CELL 1 AND SAV WITH VEGETATION STRIPS IN CELL2, CONTROL TORPEDO GRASS AN PRIMROSE WILLOW, INOCULATE CELL 2 WITH CHARA AND SOUTHERN NYAD</p>	<p>RESTORATION UNDER WAY, GROW- IN IS PROCEEDING NICELY AND PERFORMANCE IS EXCELLENT</p>
CENTRAL FLOW-WAY		
<p>HEAVY FAV INFLOWS, EXTENSIVE PRIMROSE WILLOW STANDS POOR TOPOGRAPHY, HYDRAULIC SHORT-CIRCUITING, POOR CATTAIL RECRUITMENT</p>	<p>ESTABLISH THALIA AND BULRUSH STANDS FOR EXPANSION, INCREASE TREATMENT OF PRIMROSE WILLOW, EXPAND PLANTINGS AND SPECIES DIVERSITY</p>	<p>THALIA AND BULRUSH PLANTINGS COMPLETED FOR FY 2017, ADITIONAL EAV AS WELL AS LOTUS AND LILY PLANTINGS SCHEDULED FOR FY 2018</p>
WESTERN FLOW-WAY		
<p>HEAVY FAV INFLOWS, CELLS 5 AND 7 HAVE HISTORICAL POOR CATTAIL SURVIVAL AND RECRUITMENT, EXCESSIVE FAV INFLOWS,WIDESPREAD SOIL DELAMINATION, HYDRAULIC SHORT CIRCUITS IN CELL 6</p>	<p>TREAT THE FAV AND HYDROCOTYLE BEDS, INCREASE COVER OF EAV IN CELSL 5 AND 7, ESTABLISH WATER LILY, LOTUS AND SAV BEDS IN CELL 6</p>	<p>RESTORATION PLANNED AND UNDERWAY FOR FY 2018 AND 2019</p>

Cell 7 Plantings





Cell 7 Plantings



new plants

STA 1 WEST



ISSUES

ACTIONS

STATUS

NORTHERN FLOW-WAY

HEAVY FAV INFLOWS, CELL 5A HAS TOPOGRAPHICAL AND HYDRAULIC SHORT CIRCUITING ISSUES, EXTENSIVE BEDS OF FLOATING VEGETATION, EASTERN AND SOUTHERN PORTIONS OF CELL 5B HAVE HAD DECREASING SAV COVER AND INCREASED FLOATING MUCK

ESTABLISH EMERGENT VEGETATION IN CELL 5B AND INCREASE THE NUMBER OF CUTS AT THE INFLOW BERM OF 5A TO BRING WATER INTO THE CELL

RESTORATION UNDER WAY IN CELL 5B , GROW- IN IS PROCEEDING NICELY AND PERFORMANCE IS STILL GOOD. SAV INNOCULATIONS PLANNED FOR SPRING OF 2018 AERIAL TREATMENT OF FLOATING VEGETATION AND EXTENSIVE PLANTING AND SEEDING OF THALIA, LOTUS, NUPHAR AND NYMPHAEA IS PLANNED FOR FY 2018-2019

EASTERN FLOW-WAY

HEAVY FAV INFLOWS, EXTENSIVE PRIMROSE WILLOW STANDS, POOR TOPOGRAPHY, HYDRAULIC SHORT-CIRCUITING, POOR CATTAIL RECRUITMENT, MOST OF CELL 1A IS COMPOSED OF FLOATING TUSSOCKS, RECOVERY AND GROW IN FOLOWING THE LEVEE CONSTRUCTION FOR THE WESTERN FLOW-WAY INFLOW CANAL

ESTABLISH THALIA AND BULRUSH STANDS FOR EXPANSION, INCREASE TREATMENT OF PRIMROSE WILLOW, EXPAND PLANTINGS AND SPECIES DIVERSITY, PLANT VEGETATION STRIPS IN CELL 1B AND 3, INCREASE SAV COVERAGE IN CELLS 1B AND 3

THALIA AND BULRUSH PLANTINGS BEGAN IN FY 2015, ADITIONAL EAV AS WELL AS LOTUS AND LILY PLANTINGS SCHEDULED FOR FY 2017-2018 CATTAIL CONVERSION UNDERWAY

WESTERN FLOW-WAY

HEAVY FAV INFLOWS, CELL 2A HAS TOPOGRAPHICAL ISSUES, POOR CATTAIL SURVIVAL AND RECRUITMENT, EXCESSIVE FAV, AND HYDROCOTYLE BEDS, CELL 2B

TREAT THE FAV AND HYDROCOTYLE BEDS, INCREASE COVER OF EAV, WATER LILY, AND LOTUS BEDS IN CELL 2A, INOCULATE SAV IN CELLS 2B AND 4, EXPAND VEGETATION STRIPS IN CELLS 2B AND 4

RESTORATION PLANNED FOR DRY SEASONS OF FY 2019 AND 2020

Cell 1A Repairs



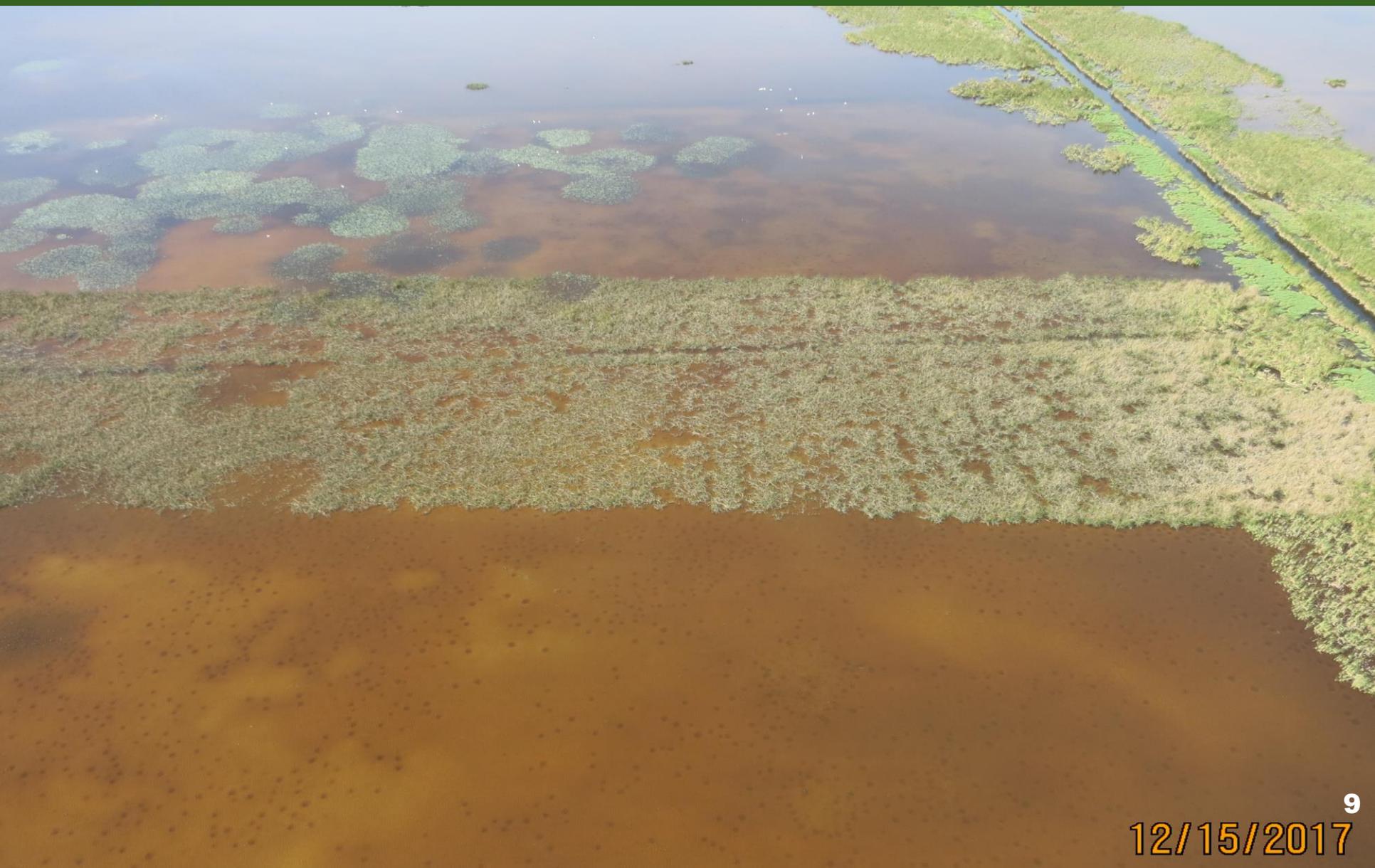
STA 2



ISSUES	ACTIONS	STATUS
FLOW-WAY 1		
<p>Cell 1, SHORT CIRCUITING, THINNING CATTAIL AND SAWGRASS ALONG WITH SPREADING INVASIVE PLANTS AT THE INFLOW AND ALONG THE TRAIL, CHARA POPULATIONS SEEM REDUCED ALONG THE TRAIL</p>	<p>OBSERVE, PLANT BULRUSH NYMPHAEA AND SAWGRASS AS NEEDED, REMOVE THE THE TRAIL TO MINIMISE DAMAGE TO THE CELL</p>	<p>UNDER OBSERVATION UNTIL RESTORATION WORK IS PRACTICAL</p>
FLOW-WAY 2 and 3		
<p>UNEVEN SAV BEDS, SOME COMPARTMENTS ARE CHARA MONOCULTURES, MULTIPLE SHORT CIRCUITS, DEEP UNVEGETATED REGIONS IN THE NORTH OF BOTH CELLS</p>	<p>TRANSPORT SAV FROM DENSE BEDS TO SPARSE AREAS, INTRODUCE SOUTHERN AND SPINY NAIAD INTO COMPARTMENTS WITH ONLY CHARA, REPAIR SHORT CIRCUITS</p>	<p>CELL 3 SAV WORK TO BEGIN WHEN THE P FLUX STUDY GROUP IS DONE, PLANTING TRIALS AND PLANS FOR THE UNVEGETATED REGIONS ARE UNDERWAY</p>
FLOW-WAY 4		
<p>HEAVY FAV INFLOWS, CELLS 5 AND 6 BOTH EXPERIENCED SEVERE SOIL DELAMINATION AND FLOATING CATTAILS IN THE NORTH ENDS. BOTH ALSO HAVE REGIONS OF DEEP WATER AND SEDIMENTS UNSUITABLE FOR CATTAIL GROWTH</p>	<p>ESTABLISH APPROPRIATE EMERGENT VEGETATION IN THE NORTH OF THE CELLS, AND EXPAND SAV IN THE SOUTH.</p>	<p>RESTORATION UNDER WAY, MORE WORK IS PLANNED FOR FY 2018, AND 2019 AS THE HEALTH OF THE EMERGENTS INCREASES IN THE NORTH, MORE OF THE SOUTH WILL BE CONVERTED TO SAV.</p>
FLOW-WAY 5		
<p>CELL 8 CONVERSION PROCESS UNDERWAY, NEW SHORT CIRCUITS THE LENGT OF CELL 8 MAY TAKE THIS FLOWWAY OFFLINE</p>	<p>CONTINUE CONVERTING TO SAV AND STRENGTHENING THE EAV AFTER THE NEW SHORT CIRCUITS ARE REPAIRED</p>	<p>TREATED CATTAIL IS FALLING OUT AND SAV INOCULATIONS HAVE BEEN INITIATED, MORE PLANNED FOR FY 2018-2019</p>



STA 2 Cell 3 Tilapia Beds



Short Circuit: STA 2 Cell 3



STA 3/4



ISSUES	ACTIONS	STATUS
FLOW-WAY 1		
<p>Cell 1A, SHORT CIRCUITING, THINNING CATTAIL IN THE NORTH AND EAST, OPEN WATER AREAS THROUGHOUT THE CELL, DEEP WATER IN THE NORTH PREVIOUS REPAIRS DAMAGED AT ALL THE MONITORING SITES</p>	<p>OBSERVE, TREAT FAV AND HYDROCOTYLE BEDS AS NEEDED CONTINUE TO EXPAND EAV PLANTINGS AS APPROPRIATE, REPAIR THE FRONT END WHEN MONITORING STOPS CONTINUE TO INCREASE SAV DIVERSITY AND INCREASE SAWGRASS IN THE SOUTH END OF CELL 1B</p>	<p>UNDER WAY, MORE DRY SEASON TREATMENTS / PLANTINGS PLANNED, HERBICIDE TREATMENTS PLANNED FOR THE END OF FY 2018</p>
FLOW-WAY 2		
<p>UNEVEN EAV IN 2A AND SAV IN 2B, SOME COMPARTMENTS ARE NOT AS THICK AS THEY COULD BE AND SOME STILL HAVE CHARA MONOCULTURES</p>	<p>EXPAND THALIA AND BULRUSH PLANTINGS IN 2A, REPAIR THE FRONT END WHEN MONITORING STOPS AND THICKEN VEG STRIPS IN 2B TRANSPORT SAV FROM DENSE BEDS TO SPARSE AREAS, INTRODUCE SOUTHERN AND SPINY NAIAD INTO COMPARTMENTS WITH ONLY CHARA, REPAIR SHORT CIRCUITS</p>	<p>PLANTING PLANS FOR THE UNVEGETATED REGIONS ARE UNDERWAY PLANNED DRAWDOWN FOR APRIL OF 2018 TO INCREASE EMERGENT COVER</p>
FLOW-WAY 3		
<p>HEAVY FAV INFLOWS, TRAILS MADE PARALLEL TO FLOW FROM INFLOW TO OUTFLOW CANALS</p>	<p>ESTABLISH EMERGENT VEGETATION IN THE NORTH OF THE CELLS AND ALONG THE WESTERN EDGES, EXPAND SAV DIVERSITY AND COVERAGE IN THE SOUTH</p>	<p>MAJOR WORK ON HOLD UNTIL P-FLUX STUDY IS COMPLETE</p>

STA 5/6



ISSUES	ACTIONS	STATUS
FLOW-WAY 1		
HEAVY FAV INFLOWS, EXTENSIVE PRIMROSE WILLOW AND WILLOW GROWTH IN THE A CELL, DEEP OPEN AREAS	OBSERVE, PLANT CATTAIL, BULRUSH, THALIA OR SAWGRASS AS NEEDED, CONTINUE TO EXPAND SAV	UNDER WAY, 200 ACRES OF PRIMROSE TREATED, BULRUSH AND THALIA PLANTINGS UNDER WAY, BULRUSH AND CATTAIL SEEDING COMPLETE FOR NOW
FLOW-WAY 2		
EXTENSIVE PRIMROSE WILLOW AND WILLOW GROWTH IN THE A CELL, HEAVY FAV INFLOWS, UNEVEN SAV BEDS, SOME COMPARTMENTS ARE CHARA MONOCULTURES, MULTIPLE SHORT CIRCUITS, DEEP UNVEGETATED REGIONS IN THE NORTH OF BOTH CELLS	REDUCE INVASIVES AND ESTABLISH MORE DESIRABLE EMERGENT VEGETATION IN THE A CELL, AND EXPAND SAV IN THE B CELL, ENHANCE VEGETATION STRIPS IN THE B CELL	RESTORATION UNDER WAY, MORE WORK IS PLANNED FOR FY 2018
FLOW-WAY 3		
HEAVY FAV INFLOWS, EXTENSIVE PRIMROSE WILLOW AND WILLOW GROWTH IN THE A CELL	REDUCE INVASIVES AND ESTABLISH MORE DESIRABLE EMERGENT VEGETATION IN THE A CELL, AND EXPAND SAV IN THE B CELL, ENHANCE VEGETATION STRIPS IN THE B CELL	RESTORATION UNDER WAY, MORE WORK IS PLANNED FOR FY 2018
FLOW-WAY 4		
HEAVY FAV INFLOWS, EXTENSIVE PRIMROSE WILLOW AND WILLOW GROWTH IN THE A CELL OPEN WATER AREAS	CONTINUE INCREMENTALLY PLANTING BULLRUSH AND THALIA IN THE A CELL AS THE LUDWIGIA IS REMOVED, CATTAIL AND BULRUSH SEEDING IN THE HIGH AREAS , EXPAND SAV IN THE B CELL	PLANTINGS COMING ALONG, SAV BECOMING WELL ESTABLISHED
FLOW-WAY 5		
HEAVY FAV INFLOWS, EXTENSIVE OPEN AREAS AND ZONES OF PRIMROSE WILLOW AND WILLOW GROWTH IN THE A CELL OPEN WATER AREAS	AERIAL HERBICIDE TREATMENTS AND SEEDING/ PLANTING OPERATIONS TO BE CONDUCTED DURING LOW WATER PERIODS.	PLANTINGS COMING ALONG, SAV BECOMING WELL ESTABLISHED, RESTORATION UNDER WAY, MORE WORK IS PLANNED FOR FY 2018

Control Invasives and Reduce Nutrient Levels



- **Plant the inflow regions in ways that trap and facilitate FAV control**
- **Increase the cover and diversity of native plants**
- **Change Herbicide application methodologies**
- **Focus on nutrient reduction, with reduced nutrients the natives often outcompete the invasive species**

Floating Plant Infestations: A-1 FEB



Aerial Herbicide Application A-1 FEB

