

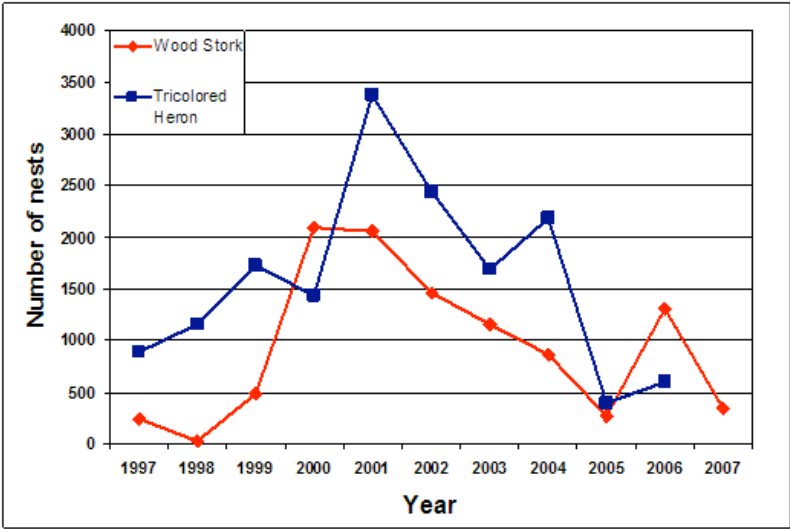
ERCP – Everglades & Southern Estuaries

Success Indicator:	1) Additional 11,473 acres of total Stormwater Treatment Area effective treatment area by December 2010
Definition:	The additional effective treatment area in acres made available for water quality treatment
Data Source(s):	Everglades Protection Area Tributary Basins Long-Term Plan for Achieving Water Quality Goals (Long-Term Plan) (Burns and McDonnell, 2003) and subsequent revisions, and the annual South Florida Environmental Report
Reporting Period:	Quarterly
Reporting Frequency:	Quarterly
Aligned Strategy:	Complete design and construction of flow-capable Stormwater Treatment Areas and construction of pump stations
Why Success Indicator Is Important:	Additional acres of Stormwater Treatment Areas (STAs) will further improve water quality discharges to the Everglades Protection Area (EPA)
Example:	For Fiscal Year 2009 (October 1, 2009 – September 30, 2009): <ul style="list-style-type: none"> • Compartment B: Initiate construction of 6,817 acres of STA • Compartment C: Initiate construction of 4,656 acres of STA • Complete design and initiate construction contracts for three pump stations at Compartment B and one pump station at Compartment C.
Target(s):	<ul style="list-style-type: none"> • Compartment B: 6,817 acres of STA constructed by December 2010; pump stations constructed by December 2011 • Compartment C: 4,656 acres of STA constructed by December 2010; pump stations constructed by December 2011
Target definition source:	Long-Term Plan
Subject matter expert(s):	Matt Alexander

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Success Indicator:	2) Water quality standards achieved in the Everglades Protection Area and compliance maintained with the Federal Everglades Settlement Agreement
Definition:	Optimize STA discharges to achieve compliance with state water quality standards including the phosphorus criterion of 10 parts per billion established in Rule 62-302.540 (F.A.C.)
Data Source(s):	Surveys, data collection, and analysis (water quality, soil, vegetation, hydrologic, visual field observations); applied studies
Reporting Period:	Water Year (May 1 – April 30)
Reporting Frequency:	Annually (end of water year) and periodic updates to the Everglades Technical Oversight Committee and at Long-Term Plan quarterly communication meetings
Aligned Strategy:	Implement the Long-Term Plan and other cost-effective solutions to improve water quality, reduce nutrient loads and achieve water quality standards
Why Success Indicator Is Important:	STA performance is being optimized according to approved operation plans, federal and state permits, and in accordance with the Long-Term Plan, the state's blueprint for achieving water quality standards in the Everglades Protection Area. The Long-Term Plan is being implemented to allow the District to maintain compliance with the Federal Everglades Settlement Agreement.
Example:	<ul style="list-style-type: none"> • Track the efficacy of each STA with continuous assessments of phosphorus inflow, outflow, and uptake/removal metrics as well as its environmental condition. • Adaptively implement operational and management measures to maintain or improve STA performance. • Report findings and assessments in the South Florida Environmental Report and periodically to interagency committee meetings.
Target(s):	Weekly evaluation of results for operational decisions; completion of data analysis and report for the South Florida Environmental Report; implementation of adaptive management strategies; adjustment of management strategies, as necessary, based on findings
Target definition source:	Everglades Protection Area Tributary Basins Long-Term Plan for Achieving Water Quality Goals (Long-Term Plan) (Burns and McDonnell, 2003) and subsequent revisions. Everglades Forever Act and associated STA permits
Subject matter expert(s):	Francois Laroche, Lou Toth, Delia Ivanoff, Tracey Piccone

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Success Indicator:	3) Sustainable restoration targets developed and achieved for wading bird populations in the Everglades																																				
Definition:	A three-year running average composite indicator that reflects reproductive success for the five dominant species [wood stork (<i>Mycteria americana</i>), white ibis (<i>Eudocimus albus</i>), great egret (<i>Casmerodius albus</i>), snowy egret (<i>Egretta thula</i>), and tri-colored heron (<i>Egretta tricolor</i>)																																				
Data Source(s):	Annual Wading Bird Reports																																				
Reporting Period:	Water Year (May 1 – April 30)																																				
Reporting Frequency:	Annually, end of calendar year																																				
Aligned Strategy:	Conduct applied research to restore the ecology of the Everglades																																				
Why Success Indicator Is Important:	Wading birds are the keystone indicator of Everglades health and resilience, and their success is dependent upon establishing hydrologic and water management criteria to meet their habitat and prey requirements. The allocation of hydrologic and water quality needs for the Everglades continues to be evaluated, and water supply and flood controls constrain the District's ability to achieve sustainable restoration targets for wading bird populations. The goal of Everglades research is to develop water management protocols that provide ecological function and recovery for wading birds within these constraints.																																				
Example:	Annual wading bird counts in the Everglades.  <table border="1" style="display: none;"> <caption>Annual Wading Bird Counts (Number of Nests)</caption> <thead> <tr> <th>Year</th> <th>Wood Stork</th> <th>Tricolored Heron</th> </tr> </thead> <tbody> <tr><td>1997</td><td>250</td><td>900</td></tr> <tr><td>1998</td><td>100</td><td>1150</td></tr> <tr><td>1999</td><td>500</td><td>1750</td></tr> <tr><td>2000</td><td>2100</td><td>1450</td></tr> <tr><td>2001</td><td>2100</td><td>3400</td></tr> <tr><td>2002</td><td>1450</td><td>2450</td></tr> <tr><td>2003</td><td>1150</td><td>1700</td></tr> <tr><td>2004</td><td>850</td><td>2200</td></tr> <tr><td>2005</td><td>300</td><td>400</td></tr> <tr><td>2006</td><td>1300</td><td>600</td></tr> <tr><td>2007</td><td>350</td><td>500</td></tr> </tbody> </table>	Year	Wood Stork	Tricolored Heron	1997	250	900	1998	100	1150	1999	500	1750	2000	2100	1450	2001	2100	3400	2002	1450	2450	2003	1150	1700	2004	850	2200	2005	300	400	2006	1300	600	2007	350	500
Year	Wood Stork	Tricolored Heron																																			
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2004	850	2200																																			
2005	300	400																																			
2006	1300	600																																			
2007	350	500																																			
Target(s):	Three-year average number of nests: <ul style="list-style-type: none"> • Great Egret = 4,000 • Snowy Egret and Tricolored Heron = 20,000 • White Ibis = 25,000 • Wood Stork = 5,000 																																				
Target definition source:	South Florida Wading Bird Report, October 2007																																				
Subject matter expert(s):	Mark Cook																																				

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Success Indicator:	4) All data gaps identified in Sulfur Action Plan filled and Sulfur White Paper management questions addressed
Definition:	<p>Assuring all data sampling events are executed and all hypotheses are addressed for each Sulfur Action Plan project</p> <p>Data Gaps and Management Questions <u>STA / WCA Internal Eutrophication Study</u></p> <ol style="list-style-type: none"> 1) Determine effects of elevated water column sulfate levels on microbial respiration and phosphorous release, using soils collected from un-impacted and impacted wetlands (with respect to both phosphorus and sulfur in South Florida) 2) Evaluate plant toxicity and phosphorus cycling effects for various water, vegetation, and soil types 3) Assess spatial and temporal variations in sediment porewater phosphorus and sulfur chemistry, and effects on wetland vegetation <p><u>Large-Scale Sulfur Mass Balance</u></p> <ol style="list-style-type: none"> 4) Determine the mass exchange of total sulfur between the main south Florida land-use areas (Everglades Agricultural Area, Lake Okeechobee, and the Water Conservation Areas, and how exchanges vary annually by dry and wet season) 5) Determine the approximate percent sulfur loss/gain from physical and biogeochemical processes 6) Evaluate the sulfur retention/source characteristics of the STAs 7) Evaluate how sulfur exchanges vary over three separate years: 2004 (a high precipitation year), 2007 (a low precipitation year), and 2006 (an intermediate scenario) 8) Investigate potential influence of all sulfur sources, for example, cattle grazing areas, suburban and urban areas that practice fertilizer application, and areas with intense animal operations. <p><u>Mercury Hot Spot Study</u></p> <ol style="list-style-type: none"> 9) Compare and assess potential differences in surface water and porewater analyses and biological community structure (flora and fauna characteristics) between areas that have high and low fish tissue total mercury levels in an effort to determine the cause of persistent mercury hot spots for fish 10) Provide investigation into the progressive increase (since the mid-1990s) in largemouth bass THg in the Holeyland WMA by assessing historical trends in important surface and pore water analytes. <p><u>Small-Scale Sulfur Mass Balance</u></p> <ol style="list-style-type: none"> 11) Determine water column-sediment sulfur fluxes 12) Determine reaction/process rates of sulfide production, sulfide oxidation, and plant uptake 13) Determine adsorption-desorption dynamics of sulfur species and what factors impact adsorption 14) Determine vertical transects levels of sulfur in sediment 15) Determine hydrogen sulfide air-water surface exchange
Data Source(s):	Evaluations of data collected; technical reports; external evaluations at annual technical workshops

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Reporting Period:	Fiscal Year (October 1 – September 30)
Reporting Frequency:	Annually, end of fiscal year
Aligned Strategy:	Coordinate and manage sulfur-related studies and data collection collaboratively with stakeholder groups
Why Success Indicator is important:	South Florida scientists and stakeholders have emphasized the need to investigate if elevated sulfur levels in the Environmental Protection Area are causing enhanced phosphorous liberation, mercury methylation, and plant toxicity impacts
Example:	Complete 64% of the success indicators by the end of FY2012 (includes success indicators 1,2,3,4,5,6,7,8 and 9 [1,3,4 and 7 are complete])
Target(s):	<ul style="list-style-type: none"> • Completion of 100% of all sample collection events for all projects under the Sulfur Action Plan by the end of FY2013 • Completion of technical papers documenting that management questions posed in the Sulfur Action Plan have been answered by the end of FY2014
Target definition source:	Sulfur White Paper (Sulfur as a Regional Water Quality Concern in South Florida in the 2008 South Florida Environmental Report – Volume I, Appendix 3B-2)
Subject matter expert(s):	Garth Redfield, Julianne LaRock

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Success Indicator:	5) Meet the established Minimum Flow and Level for the Northwest Fork of the Loxahatchee River
Definition:	A minimum flow violation occurs within the Northwest Fork of the Loxahatchee River when an exceedance occurs more than once every six years. An “exceedance” is defined as when Lainhart Dam flows decline below 35 cubic feet per second for more than 20 consecutive days within any given calendar year.
Data Source(s):	Mean daily flow estimated at Lainhart Dam (Station LNHRT_W)
Reporting Period:	January 1 through December 31 each year.
Reporting Frequency:	Annually.
Aligned Strategy:	Publish and implement restoration and protection plans of coastal water bodies and tributary watersheds
Why Success Indicator is important:	To prevent significant harm, a 35 cubic feet per second flow at the Lainhart Dam provides a flow regime at river mile 9.2 that maintains a healthy floodplain swamp. It should also be sufficient to maintain 2 practical salinity units at river mile 9.2. Salinity should not exceed 2 practical salinity units at river mile 9.2 for more than 20 days duration, more often than once every 6 years to maintain a healthy floodplain vegetative community. Note: The actual salinity measurement is taken at mile 9.1, which is closer to the ocean than mile 9.2,- and if 2 psu is achieved at mile 9.1, it will be even lower at 9.2.
Example:	In 2007, the flow over the Lainhart Dam was maintained above the MFL criterion of 35 cubic feet per second except in the month of May 2007. As a result of the low freshwater flow, salinity exceeded the 2 practical salinity unit threshold where it is measured at river mile 9.1 in May 2007, and the first few days of June 2007. Mean daily flows over Lainhart Dam in the Loxahatchee River were equal to or greater than 35 cubic feet per second 309 of 365 days (85%) in calendar year 2009.
Target(s):	Not less than 35 cubic feet per second mean daily flow at Lainhart Dam for more than 20 consecutive days, more than once every six years.
Target definition source:	Rules of the South Florida Water Management District; Minimum Flows and Levels; Chapter 40E-8, Florida Administrative Code.
Subject matter expert(s):	Peter Doering.

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Success Indicator:	6) Salinity within one kilometer of the western shoreline not to exceed 35 practical salinity units more than 5% of the time annually for South Central Biscayne Bay
Definition:	South Central Biscayne Bay is generally defined as the area of the Bay between Shoal Point and Turkey Point for the purposes of this indicator. The dry season is from November 1st through May 31st each year. Salinity is measured in multiple locations by the South Florida Water Management District, Miami-Dade County and Biscayne National Park.
Data Source(s):	Surface water salinity measured at stations BBCW8 and BBCW10
Reporting Period:	November 1 through May 31
Reporting Frequency:	Annually
Aligned Strategy:	Publish and implement restoration and protection plans of coastal water bodies and tributary watersheds
Why Success Indicator is important:	The near-shore area of South Central Biscayne Bay is an estuarine nursery area where many plants and animals require salinity year round between about 15 and 25 practical salinity units. Frequent salinity above 35 practical salinity units is detrimental to the estuarine community, and will shift it toward a marine community.
Example:	Mean daily bottom salinity at station BBCW8 exceeded 35 practical salinity units 0 of 212 days (0%), and at BBCW10 1 of 212 days (<1%) between November 2009 and May 2010.
Target(s):	Less than 11 days (5 percent) that mean daily salinity exceeds 35 practical salinity units.
Target definition source:	Comprehensive Everglades Restoration Program Southern Estuaries Salinity Documentation Sheet; Southern Estuaries Performance Measures
Subject matter expert(s):	Richard Alleman

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Success Indicator:	7) Salinity with Manatee Bay not to exceed 35 practical salinity units more than 5% of the time annually (Biscayne Bay Area)
Definition:	Manatee Bay is within the Florida Keys National Marine Sanctuary at the extreme southern reach of Biscayne Bay. Salinity is measured at multiple locations by the South Florida Water Management District, Miami-Dade County and Biscayne National Park.
Data Source(s):	Salinity estimated from mean daily specific conductance and water temperature at station MBTS
Reporting Period:	November 1 through May 31
Reporting Frequency:	Annually
Aligned Strategy:	Publish and implement restoration and protection plans of coastal water bodies and tributary watersheds
Why Success Indicator is important:	The near-shore area of Manatee Bay is an estuarine nursery area where many plants and animals require salinity year round between about 15 and 25 practical salinity units. Frequent salinity above 35 practical salinity units is detrimental to the estuarine community, and will shift it toward a marine community.
Example:	Mean daily salinity at station MBTS exceeded 35 practical salinity units 23 of 212 days (11%) between November 2008 and May 2009.
Target(s):	Less than 11 days (5 percent) that mean daily salinity exceeds 35 practical salinity units.
Target definition source:	Comprehensive Everglades Restoration Program Southern Estuaries Salinity Documentation Sheet; Southern Estuaries Performance Measures
Subject matter expert(s):	Richard Alleman

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Success Indicator:	8) Salinity within Highway Creek, Long Sound and Joe Bay remains between 5 and 15 practical salinity units; and within Little Madeira Bay within 15 and 25 practical salinity units 100% of the time (Everglades National Park/Florida Bay Area)
Definition:	Highway Creek, Long Sound, Joe Bay (Zone 1) and Little Madeira Bay (Zone 1a) are near-shore areas within Northeast Florida Bay.
Data Source(s):	Mean daily salinity measured at Everglades National Park stations LM, LS and HC; and South Florida Water Management District monitoring station JBTS
Reporting Period:	Calendar year
Reporting Frequency:	Annually
Aligned Strategy:	Publish and implement restoration and protection plans of coastal water bodies and tributary watersheds
Why Success Indicator is important:	Salinity within the ranges given maintain estuarine habitat for a variety of plants and animals.
Example:	Mean daily salinity within Zone 1 was between 5 and 15 practical salinity units 147 of 365 days (40%) in calendar year 2009.
Target(s):	Combined mean daily salinity within Highway Creek, Long Sound and Joe Bay is remains within 5 to 15 practical salinity units throughout the year, and between 15 and 25 practical salinity units within Little Madeira Bay.
Target definition source:	Comprehensive Everglades Restoration Program Southern Estuaries Salinity Documentation Sheet; Southern Estuaries Performance Measures.
Subject matter expert(s):	Robin Bennett

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Success Indicator:	9) Reservations, Minimum Flows and Levels and other rules completed on schedule
Definition:	A comparison of the schedule defined in the previous year's Minimum Flow and Level (MFL) Priority List and Schedule and the actual schedule accomplished
Data Source(s):	MFL Priority List and Schedule presentation to District's Governing Board
Reporting Period:	Fiscal Year (October 1 – September 30)
Reporting Frequency:	Annually, at the end of the fiscal year
Aligned Strategy:	Develop technical criteria for water reservations and Minimum Flows and Levels
Why Success Indicator is important:	Rulemaking, including for MFLs, Water Reservations and Restricted Allocation Rules, is a regulatory tool to ensure that management actions are meeting established ecological objectives of water resources. These rules provide an additional linkage between water use and ecology and are required by Chapters 373.042 and 373.470, Florida Statutes.
Example:	All planned MFLs and Water Reservation rules were adopted on schedule in Fiscal Year 2008.
Target(s):	<ul style="list-style-type: none"> • Initiate rule development for Biscayne Bay • Continue rule development for Kissimmee River and selected lakes in the Upper Kissimmee Chain of Lakes • Initiate rule development for Caloosahatchee Estuary • Initiate rule development for CERP Indian River Lagoon Project - South
Target definition source:	Minimum Flows and Levels Priority List and Schedule approved by the District's Governing Board in October 2009
Subject matter expert(s):	Brenda Mills, Dave Swift