

Hydrology & Hydraulics Bureau and Interagency Modeling Center

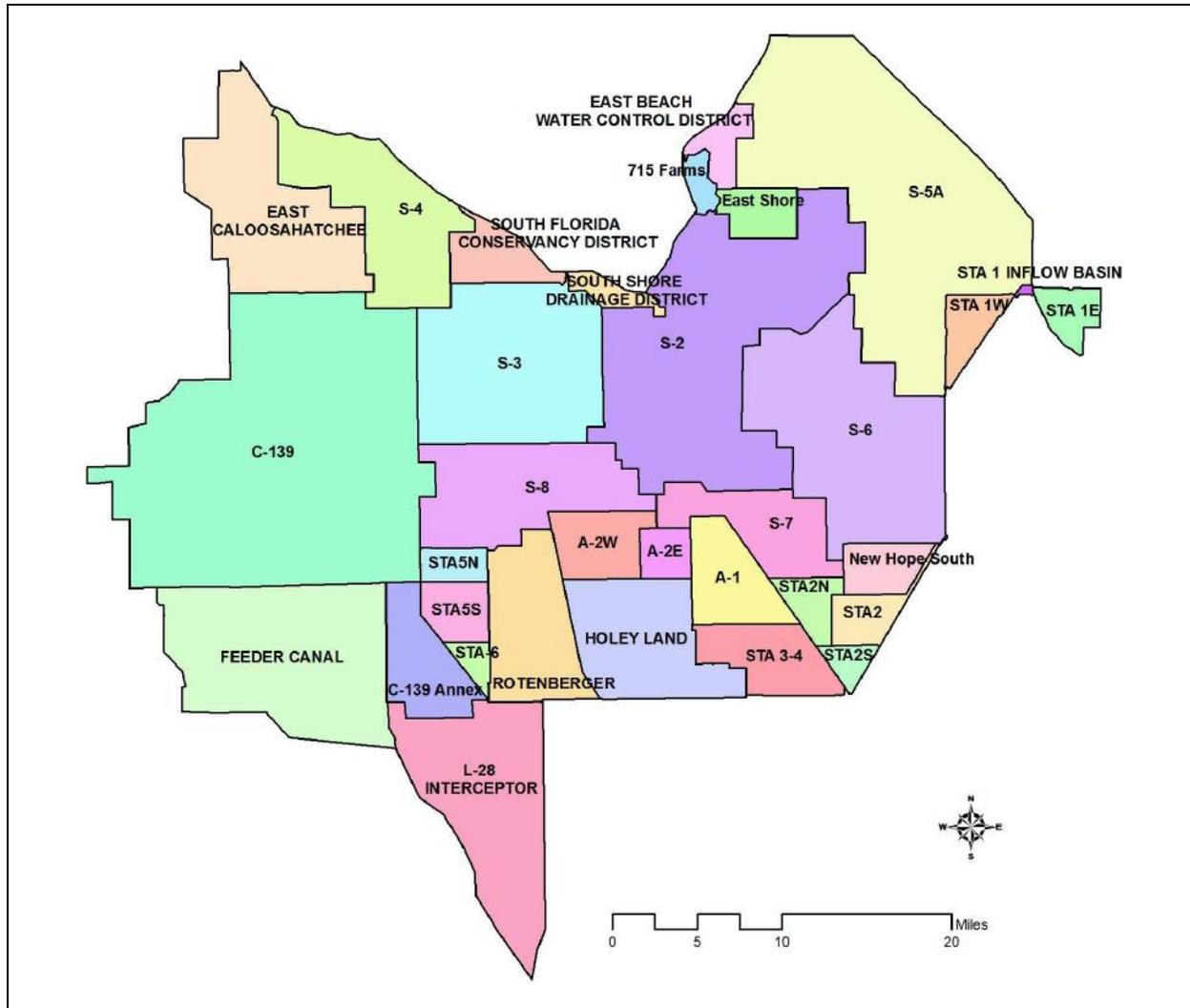
Regional Simulation Model Basins (RSMBN) Lake Okeechobee Watershed Project 2016 Existing Conditions Baseline (ECB) Table of Assumptions

Feature	
Climate	<ul style="list-style-type: none"> • The climatic period of record is from 1965 to 2005 • Rainfall estimates have been revised and updated for 1965-2005 • Revised evapotranspiration methods have been used for 1965-2005
Topography	<p>The Topography dataset for RSM was Updated in 2009 using the following datasets:</p> <ul style="list-style-type: none"> • South Florida Digital Elevation Model, USACE, 2004 • High Accuracy Elevation Data , US Geological Survey 2007 • Loxahatchee River LiDAR Study, Dewberry and Davis, 2004 • St. Lucie North Fork LiDAR, Dewberry and Davis, 2007 • Palm Beach County LiDAR Survey, Dewberry and Davis, 2004 • Stormwater Treatment Area stage-storage-area relationships based on G. Goforth spreadsheets.
Land Use	<ul style="list-style-type: none"> • Lake Okeechobee Service Area (LOSA) Basins were updated using consumptive use permit information as of 2/21/12, as reflected in the LOSA Ledger produced by the Water Use Bureau • C-43 Groundwater irrigated basins – Permitted as of 2010, the dataset was updated using land use, aerial imagery and 2010 consumptive use permit information • Dominant land use in EAA is sugar cane other land uses consist of shrub land, wet land, ridge and slough, and sawgrass
LOSA Basins	<ul style="list-style-type: none"> • Lower Istokpoga, North Lake Shore and Northeast Lake Shore demands and runoff estimated using the AFSIRS model and assumed permitted land use (see land use assumptions row).
Lake Okeechobee	<ul style="list-style-type: none"> • Lake Okeechobee Regulation Schedule 2008 (LORS 2008) <ul style="list-style-type: none"> ○ Includes Lake Okeechobee regulatory releases to tide via L8/C51 canals ○ Lake Okeechobee regulatory releases limited to 1,550 cfs for Miami Canal and 1,350 cfs for North New River Canal based on studies performed by USACE. ○ A regional hydrologic surrogate for the 2010 Adaptive Protocol operations utilized. This attempts to mimic desired timing of releases without estimating salinity criteria • Lake Okeechobee Water Shortage Management (LOWSM) Plan • Interim Action Plan (IAP) for Lake Okeechobee (under which backpumping to the lake at S-2 and S-3 is to be minimized) • “Temporary” forward pumps as follows: <ul style="list-style-type: none"> ○ S354 – 400 cfs ○ S351 – 600 cfs ○ S352 – 400 cfs

Feature	
	<ul style="list-style-type: none"> ○ All pumps reduce to the above capacities when Lake Okeechobee stage falls below 10.2 ft and turn off when stages recover to greater than 11.2 ft. • No reduction in EAA runoff associated with the implementation of Best Management Practices (BMPs); No BMP makeup water deliveries to the WCAs • Operational intent is to treat LOK regulatory releases to the south through STA-3/4 and A1 FEB (online as of July 2015). • Backpumping of 298 Districts and 715 Farms into lake minimized
Northern Lake Okeechobee Watershed Inflows	<ul style="list-style-type: none"> • Kissimmee River inflows based on interim schedule for Kissimmee Chain of Lakes using the UKISS model • Restored reaches / pools of Kissimmee River as of 2016 • Fisheating Creek, Istokpoga & Taylor Creek / Nubbin Slough Basin Inflows calculated from historical runoff estimates.
Caloosahatchee River Basin	<ul style="list-style-type: none"> • Caloosahatchee River Basin irrigation demands and runoff estimated using the AFSIRS model and assumed permitted land use as of February 2012 (see land use assumptions row). • Public water supply daily intake from the river is included in the analysis.
St. Lucie Canal Basin	<ul style="list-style-type: none"> • St. Lucie Canal Basin demands estimated using the AFSIRS model and assumed permitted land use as of February 2012(see land use assumptions row). • Excess C-44 basin runoff is allowed to backflow into the Lake if the lake stage is 0.25 ft below the Zone D pulse release line. • Basin demands include the Florida Power & Light reservoir at Indiantown. • Indian River Lagoon South Project features <ul style="list-style-type: none"> ○ As-built Ten-mile Creek Reservoir and STA: 1316 acre-feet maximum storage capacity at 2 maximum operating depth on 658 acre effective footprint; receives excess water from North Folk Basin; operations per TMC Preliminary Operating Plan (SFWMD, June 2015)
Seminole Brighton Reservation	<ul style="list-style-type: none"> • Brighton reservation demands were estimated using AFSIRS method based on existing planted acreage • The 2-in10 demand set forth in the Seminole Compact Work plan equals 2,262 MGM (million gallons per month). AFSIRS modeled 2-in-10 demands equaled 2,383 MGM • While estimated demands, and therefore deliveries, for every month of simulation do not equate to monthly entitlement quantities as per Table 7, Agreement 41-21 (Nov. 1992), tribal rights to these quantities are preserved • LOWSM applies to this agreement

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Seminole Big Cypress Reservation	<ul style="list-style-type: none"> • Big Cypress Reservation irrigation demands and runoff were estimated using the AFSIRS method based on existing planted acreage • The 2-in-10 demand set forth in the Seminole Compact Work Plan equals 2,606 MGM • AFSIRS modeled 2-in-10 demands equaled 2,659 MGM • While estimated demands, and therefore deliveries, for every month of simulation do not equate to monthly entitlement quantities as per the District’s Final Order and Tribe’s Resolution establishing the Big Cypress Reservation entitlement, tribal rights to these quantities are preserved • LOWSM applies to this agreement
Everglades Agricultural Area	<ul style="list-style-type: none"> • Model water-body components as shown in Figure 1. • Simulated runoff from the North New River – Hillsboro basin apportioned based on the relative size of contributing basins via S7 route vs. S6 route. • G-341 routes water from S-5A Basin to Hillsboro Basin. • RSMBN ECB EAA runoff and irrigation demand compared to SFWMM ECB simulated runoff and demand from 1965-2005 for reasonability.
Stormwater Treatment Areas	<ul style="list-style-type: none"> • STAs are simulated as single waterbodies • STA-1E: 6,546 acres total area • STA-1W: 7,488 acres total area • S-5A Basin runoff is to be treated in STA-1W first and when conveyance capacities are exceeded, rerouted to STA-1E • STA-2: cells 1,2 & 3: 7,681 acres total area • STA-2N: cells 4,5 & 6; refers to Comp B-North; 6,531 acres total area • STA-2S: cells 7 & 8; refers to Comp B-South; 3,570 acres total area • STA-3/4: 17,126 acres total area • STA-5N: includes cells 1 & 2: 5,081 acres total area • STA-5S: includes cells 3, 4 & 5; uses footprint of Compartment C: 8,469 acres total area • STA-6: expanded with phase 2: 3,054 acres total area • Assumed operations of STAs: <ul style="list-style-type: none"> ○ 0.5 ft minimum depth below which supply from external sources is triggered ○ 4 ft maximum depth above which inflows are discontinued ○ Inflow targets established for STA-3/4, STA-2N and STA-2S based on DMSTA simulation; met from local basin runoff, LOK regulatory discharge and available A1FEB storage. ○ STA-3/4 receives Lake Okeechobee regulation target releases approximately at 60,000 acre-feet annual average for the entire period of record. • A 15,853-acre Flow Equalization Basin (FEB) located north of STA-3/4 with assumed operations as follows:

Feature	
	<ul style="list-style-type: none"> ○ FEB inflows are from excess EAA basin runoff above the established inflow targets at STA-3/4, STA-2N, and STA-2S, and from LOK flood releases south. ○ FEB outflows are used to help meet established inflow targets (as estimated using the Dynamic Model for Stormwater Treatment Areas) at STA-3/4, STA-2N, and STA-2S if EAA basin runoff and LOK regulatory discharge are not sufficient. ○ 0.5 ft minimum depth below which no releases are allowed ○ 3.8 ft maximum depth above which inflows are discontinued ○ Assumed inlet pump from STA-3/4 supply canal with capacity equal to combined capacity of G-372 and G-370 structures. ○ Outflow weirs, with similar discharge characteristics as STA-3/4 outlet structure, discharging into lower North New River canal. ○ Structure capacities and water quality operating rules are consistent with modeling assumptions assumed during the A-1 FEB EIS application process.
Holey Land Wildlife Management Area	<ul style="list-style-type: none"> • S200A inflow structure operated to send lower Miami canal water into Holey Land. • G-372HL inflow structure for fire protection used for keeping the water table from going lower than half a foot below land surface elevation. • Operations are per the Holey Land Wildlife Management Area Draft Project Operations Manual (SFWMD, October 2015)
Rotenberger Wildlife Management Area	<ul style="list-style-type: none"> • Operational Schedule as defined in the Operation Plan for Rotenberger WMA (SFWMD, March 2010)
Public Water Supply and Irrigation	<ul style="list-style-type: none"> • Regional water supply demands to maintain Lower East Coast canals as simulated from RSMGL ECB.
Western Basins	<ul style="list-style-type: none"> • C139 RSM basin is being modeled. Period is 1965-2005. • C139 basin runoff is modeled as follows: G136 flows is routed to Miami Canal; G342A-D flows routed to STA5; G406 flows routed to STA6 • C139 basin demand is met primarily by local groundwater • C139 Annex flows routed to L28.
Water Shortage Rules	<ul style="list-style-type: none"> • Reflects the existing water shortage policies as in South Florida Water Management District Chapters 40E-21 and 40E-22, FAC, including Lake Okeechobee Water Shortage Management (LOWSM) Plan.



Water-Body Components:

Miami Water-Body = S3 + S8 + A-2W

NNR/HILLS Water-Body = S2 + S6 + S7 + A-2E + New Hope South

WPB Water-Body = S-5A

A1FEB = A-1

Fig. 1 RSMBN Basin Definition within the EAA: 2016 Existing Condition Simulation

