NORTHEAST FLORIDA BAY MINIMUM FLOWS AND LEVELS UPDATE, 2013 USING THE REGIONAL SIMULATION MODEL

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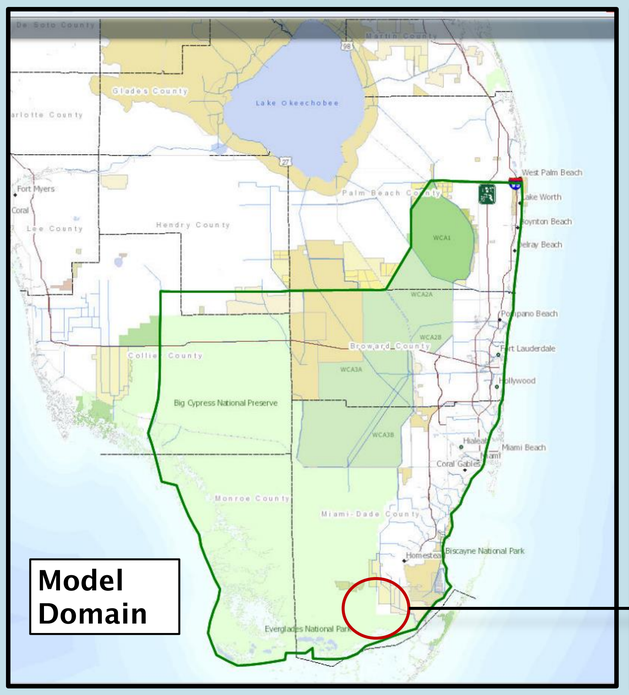
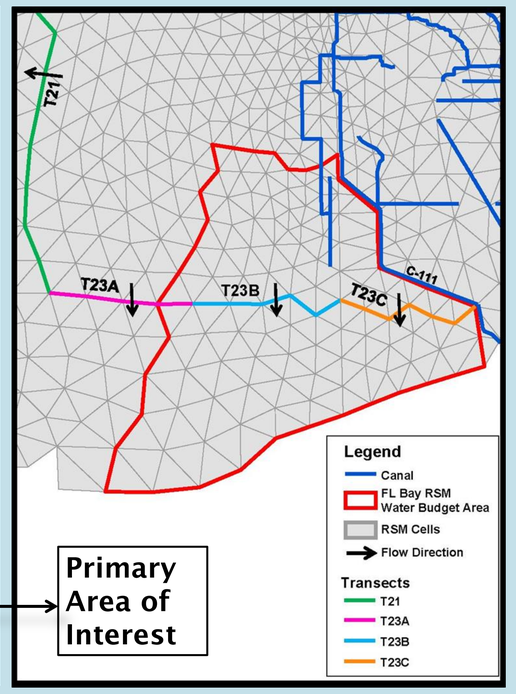
OBJECTIVE: Florida Bay is an internationally recognized ecosystem that is adjacent to the Everglades, the largest subtropical wetland in the United States. Minimum Flows and Levels (MFLs) were established by rule in 2006 for northeast Florida Bay to prevent significant harm to the water resources, ecology, and ecosystem resulting from water withdrawals.

One objective of the Florida Bay MFL update 2013 is to evaluate the effects of three distinct infrastructure and operational changes upstream of northeast Florida Bay that have recently been implemented and were not in place in 2006.

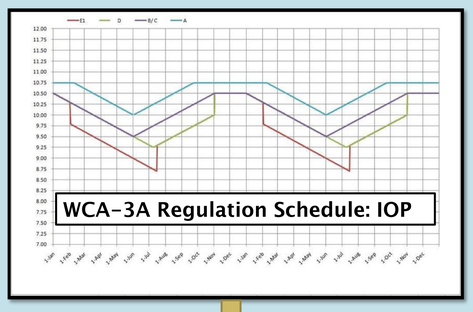


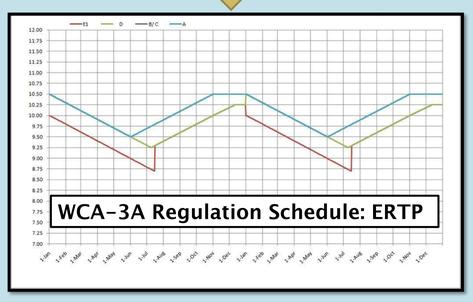


MODEL AND MODEL DOMAIN: The Regional Simulation Model (RSM), a finite volume and object-oriented hydrologic model, implemented for the Everglades and the Lower East Coast Service Areas, was used for this evaluation.

PRIMARY AREA OF INTEREST: The drainage basin of northeast Florida Bay.

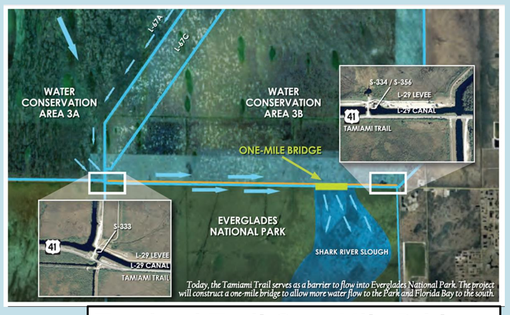
CLIMATIC PERIOD OF SIMULATION: 1965-2005 to reflect a wide range of climatic conditions.



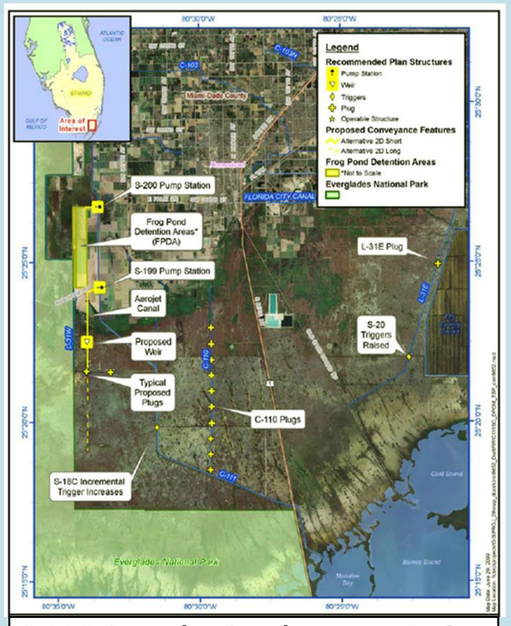


SCENARIOS: A baseline simulation (called ECB1) represents the 2006 condition when the MFL was adopted. A simulation with projects (called ECB2) is identical to the baseline simulation with the addition of three projects:

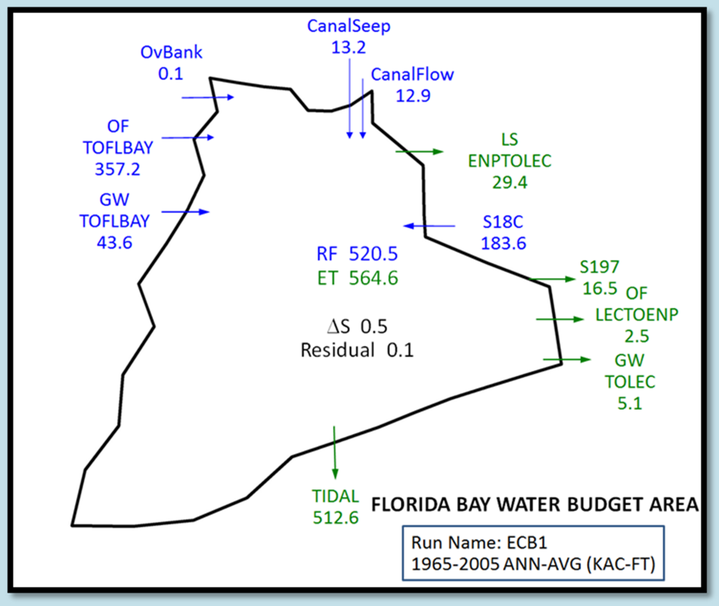
1. Everglades Restoration Transition Plan (ERTP) in place of Interim Operational Plan (IOP)
2. C-111 Spreader Canal Western Project
3. Tamiami Trail One-Mile Bridge

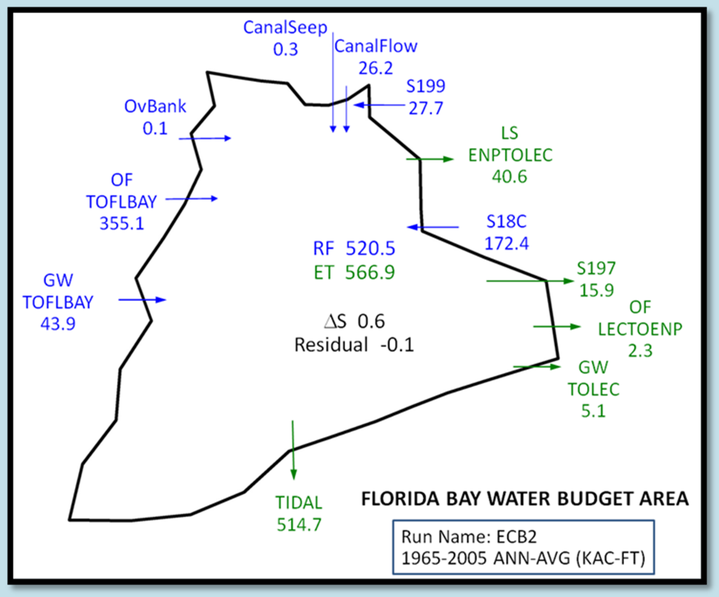


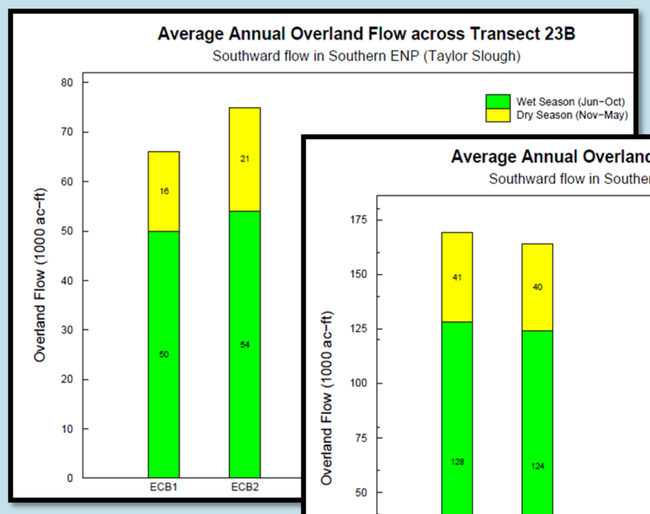
Tamiami Trail One-Mile Bridge

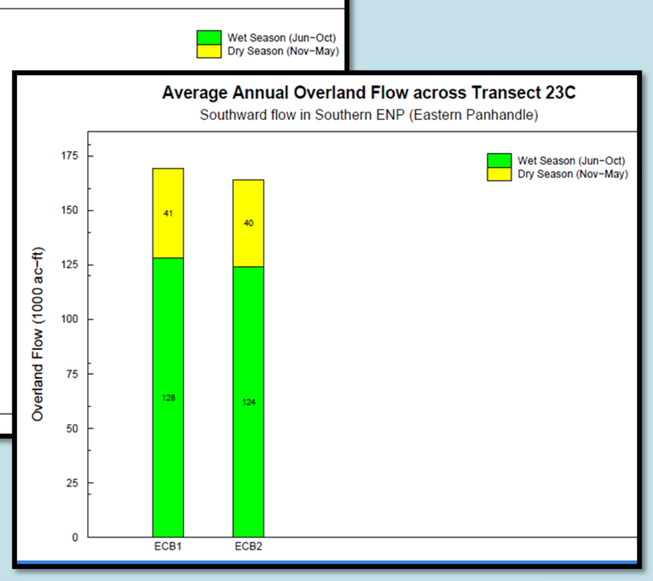


C-111 Spreader Canal Western Project









Transects	Average Annual Overland Flow (1000 ac-ft)						Percent Difference
	Simulation of Baseline (ECB1)			Simulation of Projects (ECB2)			Projects Relative To Baseline
	Wet Season	Dry Season	Water Year	Wet Season	Dry Season	Water Year	Water Year
T23B	50	16	66	54	21	75	13.6%
T23C	128	41	169	124	40	164	-3.0%
T23B+ T23C	178	57	235	178	61	239	1.7%

EFFECTS OF ERTP AND C-111 SPREADER CANAL WESTERN PROJECT: Due to the implementation of ERTP, the volume of flow for the S-332D pump was increased during the Cape Sable Seaside Sparrow breeding season causing additional diversion in flows from the L-31N canal to the headwaters of Taylor Slough. In addition, the C-111 Spreader Canal Western Project diverts flows from the C-111 canal to Everglades National Park (ENP) which produces a hydraulic ridge at the headwater of the Taylor Slough. Therefore, increased overland flows in Taylor Slough and reduced overland flows in the ENP eastern panhandle were noticed. Flows toward Taylor Slough increased by 13.6% and toward the eastern panhandle decreased by 3%. The combined flows toward Taylor Slough and the eastern panhandle show a net increase of 1.7%.

EFFECTS OF TAMIAMI TRAIL ONE-MILE BRIDGE PROJECT: Since Tamiami Trail One-Mile Bridge is located further north of the northeast Florida Bay drainage basin and L-29 maximum canal stage is not raised to allow more S-333 flows into L-29, no significant change in flow pattern was observed in the drainage basin of northeast Florida Bay due to the implementation of this project.

CONCLUSION: Evaluation of future conditions showed there will be no reduction in flows to northeast Florida Bay as a result of the implementation of three recent projects. No changes to the MFL rule criteria or prevention strategy for Florida Bay are necessary at this time.

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