

# Lake Okeechobee Regulation Schedule

## STA-3/4 Performance Evaluation



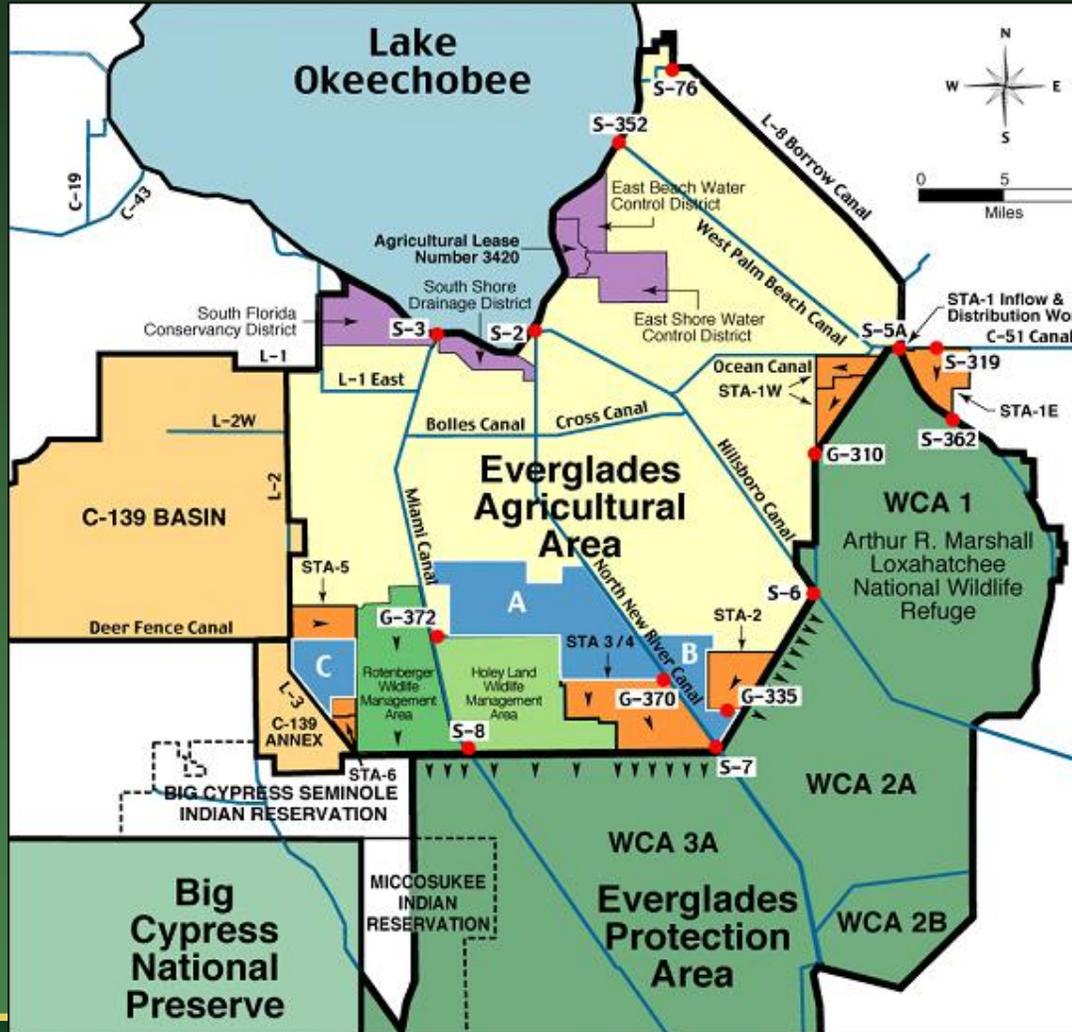
*Prepared for the  
South Florida Water Management District  
U.S. Army Corps of Engineers*



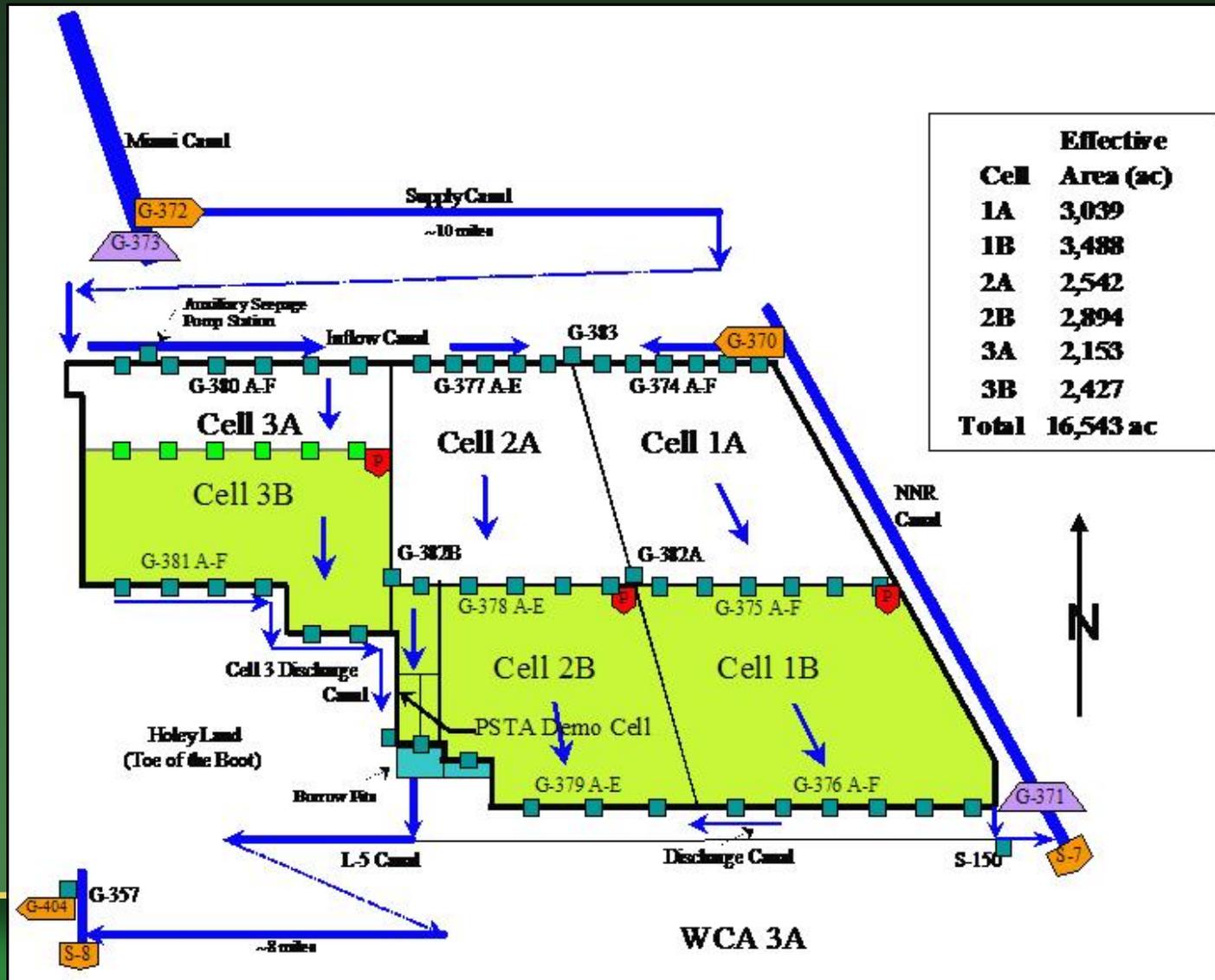
*Gary Goforth, P.E., Ph.D.  
July 26, 2006*



## Overview of Everglades Construction Project



## Schematic of STA-3/4



## Summary: Base and TSP Did Well

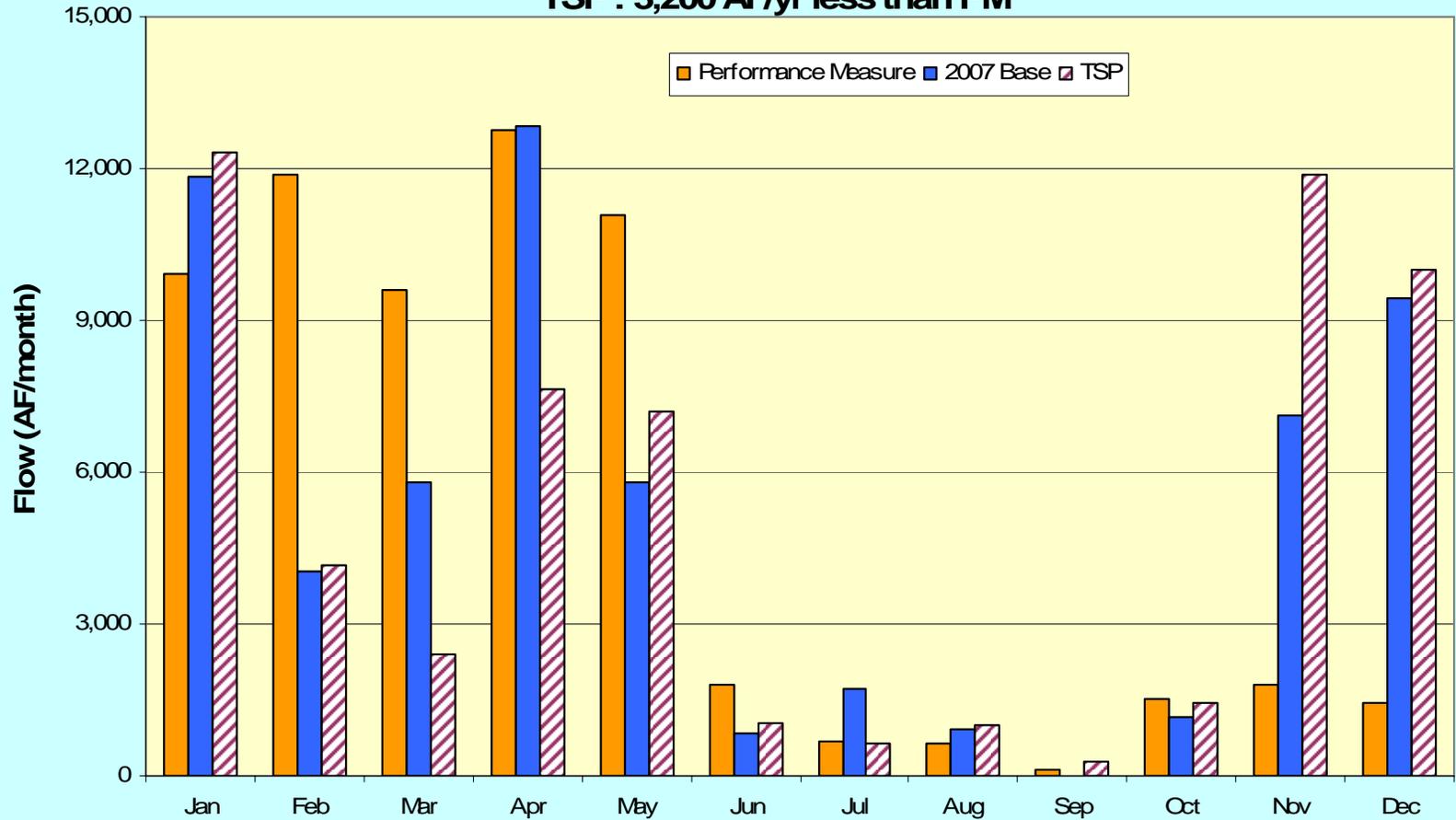
1. Evaluated Lake releases to STA-3/4 against Performance Measure (PM)
  - PM based on TP loads to STA-3/4 from recent EAA Regional Feasibility Study
    - ~76,000 AF/yr lower Lake releases due to higher TP
  - 2007 Base yielded 1,650 AF/yr less than PM
  - TSP yielded 3,200 AF/yr less than PM
2. Evaluated influence on STA-3/4 performance
  - Inflow
    - Alternatives had slightly higher basin runoff estimates
    - Net inflow was 60,000-63,000 AF/yr less than EAA RFS
    - TP load was 1.0-1.4 metric tons/yr more than EAA RFS
  - Outflow
    - Used DMSTA2 model (Walker and Kaldec)
    - TP concentrations were 21 ppb, 1 ppb higher than EAA RFS due to simulated increase in basin runoff – not Lake flows
    - TP loads were 1.5-1.9 MT/yr less than EAA RFS due to reduced net inflows

# Lake Okeechobee Regulation Schedule: STA-3/4 Performance

WY1966-2000 Comparison with Performance Measure: LOK Flow to STA-3/4

2007 Base : 1,650 AF/yr less than PM

TSP : 3,200 AF/yr less than PM

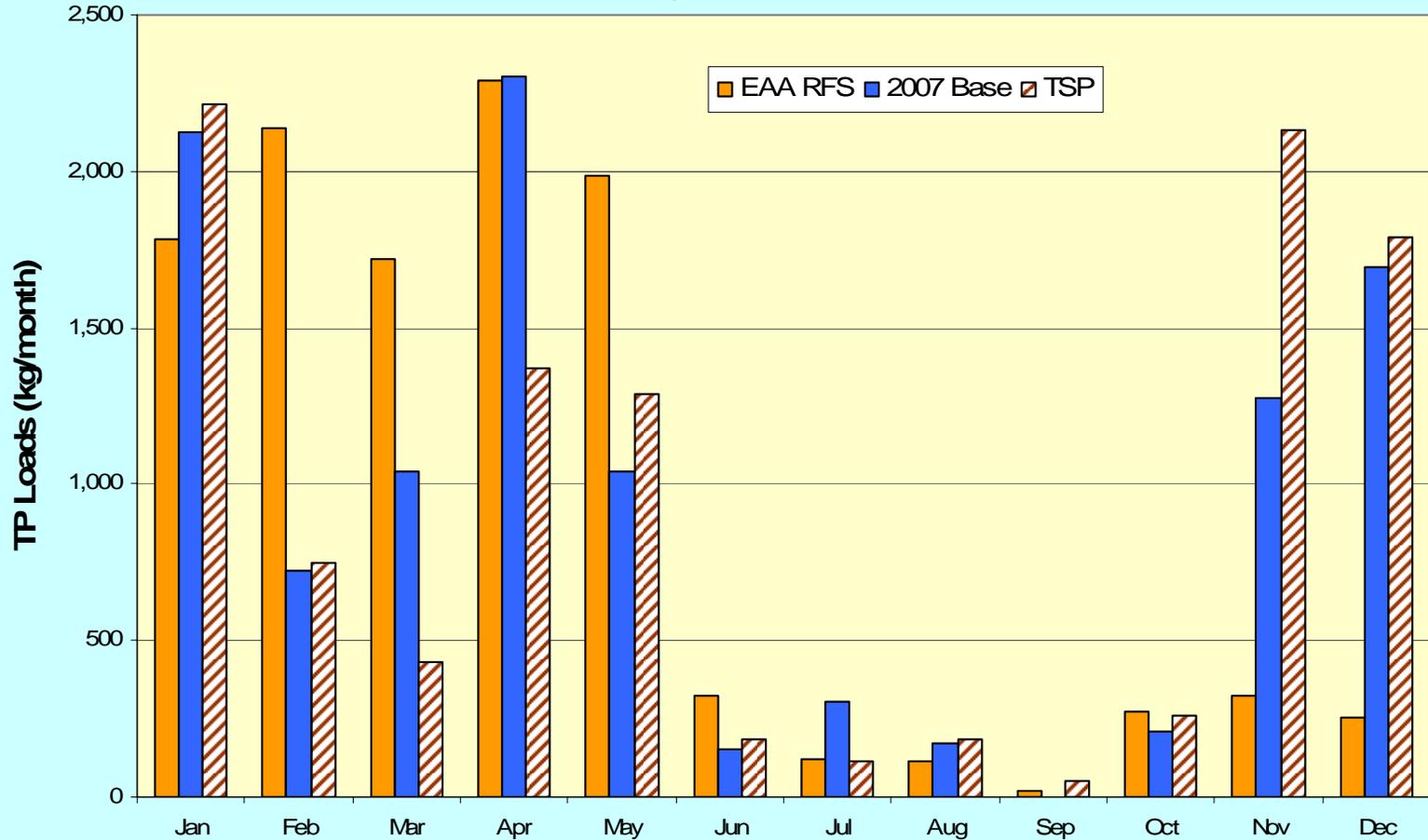


# Lake Okeechobee Regulation Schedule: STA-3/4 Performance

WY1966-2000 Comparison with EAA RFS : LOK TP Loads to STA-3/4

2007 Base : 0.3 MT/yr less than EAA RFS

TSP : 0.6 MT/yr less than EAA RFS



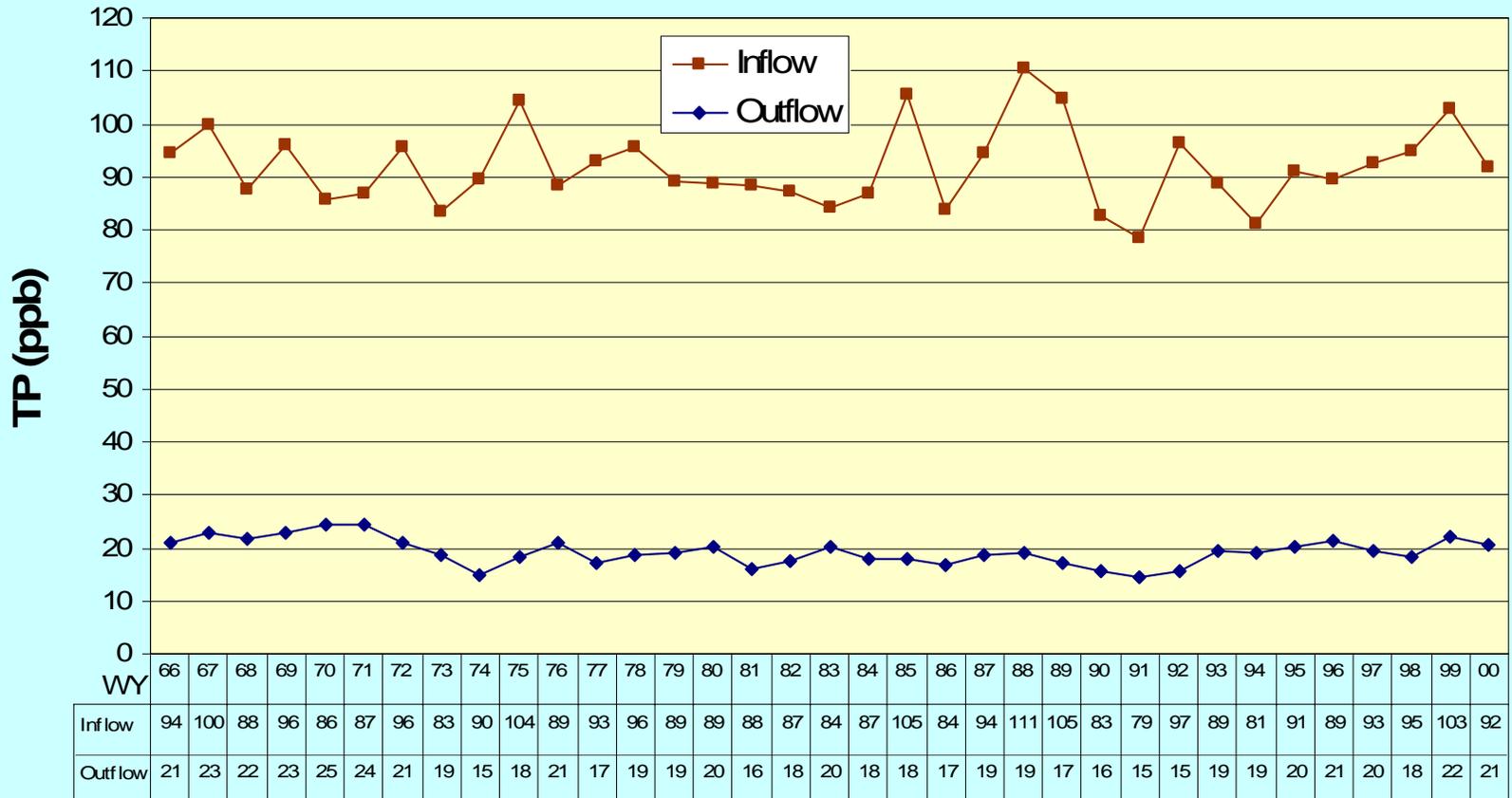
# Lake Okeechobee Regulation Schedule: STA-3/4 Performance

		EAA RFS	2007LORS	Alt1bS2-m
		Table 4.1	Base	TSP
<b>Average Annual Inflow</b>				
Volume	AF/yr	643,100	583,502	580,414
Load	kg/yr	64,940	66,379	65,946
Concentration	ppb	82	92	92
<b>Average Annual Outflow</b>				
Volume	AF/yr	624,132	564,839	561,720
<b>Flow-weighted Mean TP Concentration</b>				
Upper Confidence Limit	ppb	16.2	16	16
Mean Estimate	ppb	20.1	20.0	19.6
Lower Confidence Limit	ppb	24.8	25.0	24.6
<b>Geometric Mean TP Concentration</b>				
Upper Confidence Limit	ppb	11.9	12	15
Mean Estimate	ppb	15.6	19.3	19.0
Lower Confidence Limit	ppb	20.1	21.1	21.1
TP Load Using Mean Conc.	kg/yr	15,459	13,938	13,601
TP Load Reduction	kg/yr	49,481	52,441	52,345
<b>Untreated Water Supply Diversions<sup>1</sup></b>				
Volume	AF/yr	50,700	62,827	56,458
Load	kg/yr	4,730	12,829	12,195
Concentration	ppb	76	166	175

Note: 1. From S-351, S-352 & S-354 to all places

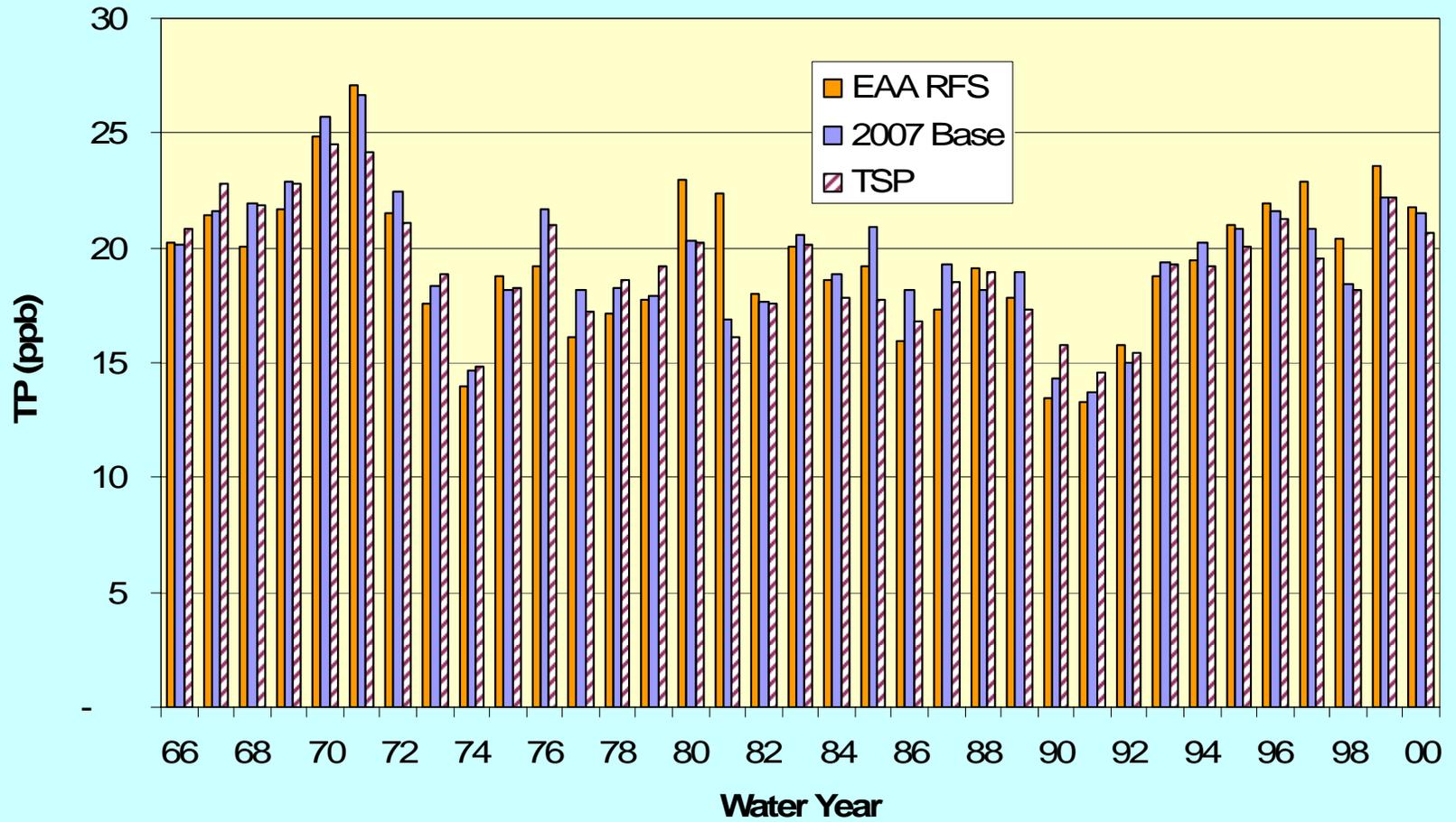
## TSP Simulation Result

### STA-3/4 Mean Estimate of TP Concentration - TSP



# Lake Okeechobee Regulation Schedule: STA-3/4 Performance

Comparison of 2007 Base and TSP with EAA RFS: STA-3/4 TP Outflow Conc.  
Long-term Difference = 1 ppb



# Lake Okeechobee Regulation Schedule: STA-3/4 Performance

TP loads discharged from STA-3/4 were 1.5-1.9 MT/yr less than EAA RFS due to reduced net inflows

Comparison of 2007 Base and TSP with EAA RFS: STA-3/4 TP Outflow Load

