

LAKE ISTOKPOGA SUBWATERSHED TECHNICAL SHEET			
Subwatershed:	Lake Istokpoga		
Basins:		Flow Issues ¹ : MAYBE	Water Quality Issues ² : YES

Monitored Structure(s): S68

Inflow loads: None

Acreage: 394,203

Percentage of Subwatershed Acreage: N/A

Percentage of Lake Okeechobee Watershed: 11.4%

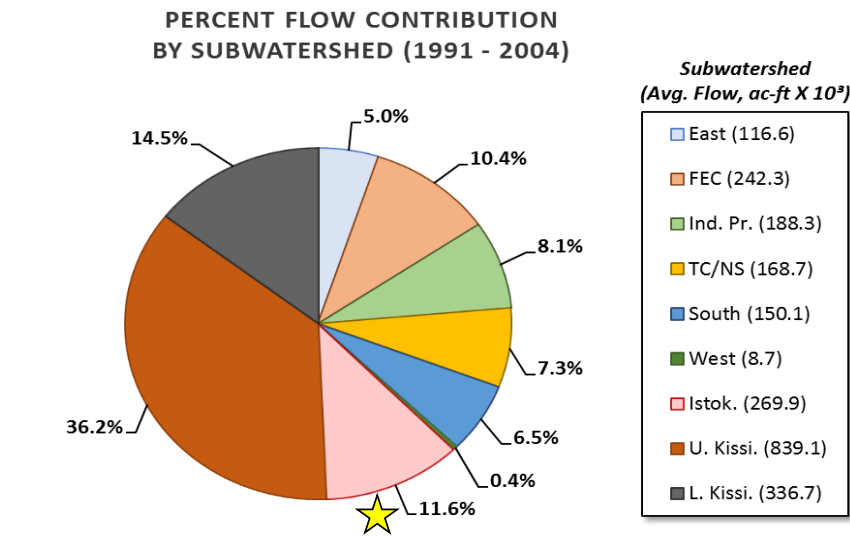
¹Flow Issues:

- Changes in operation or in the S-68 outfall structure may have occurred. Need to investigate further.
- A portion of this subwatershed is outside of the SFWMD boundaries, therefore is out of SFWMD’s control.

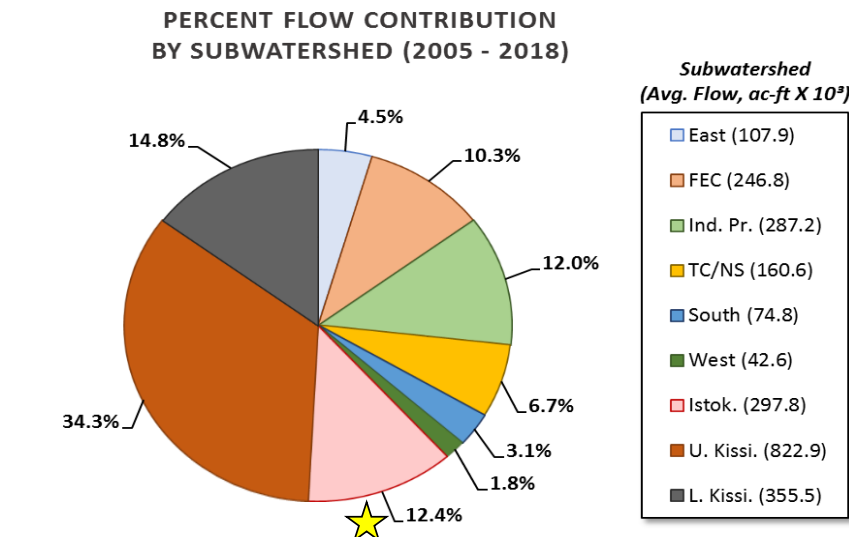
²Water Quality Issues:

- There was a statistically significant increasing trend in total phosphorus (TP) load and flow-weighted mean concentrations (FWMC) for all periods. There was also a statistically significant increase in FWMC between the pre and post-protection plan period.
- TP Loads and FWMC doubled in post-protection plan period. Although, the post-protection plan TP FWMC is still relatively low at (108 µg/L) and it only contributes 8% of the total load to LOW.
- Lake Istokpoga is immediately upstream of monitoring location; may need to investigate if the samples represent runoff upstream of the lake and to identify sources.
- Need to confirm only grab samples were used for the load calculation due to issues with false triggering of the auto sampler.

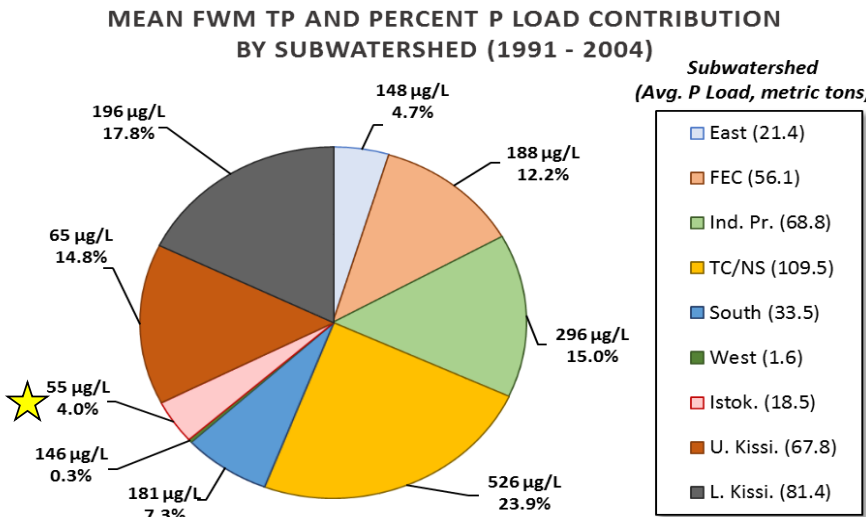
Pre-Protection Plan Flows



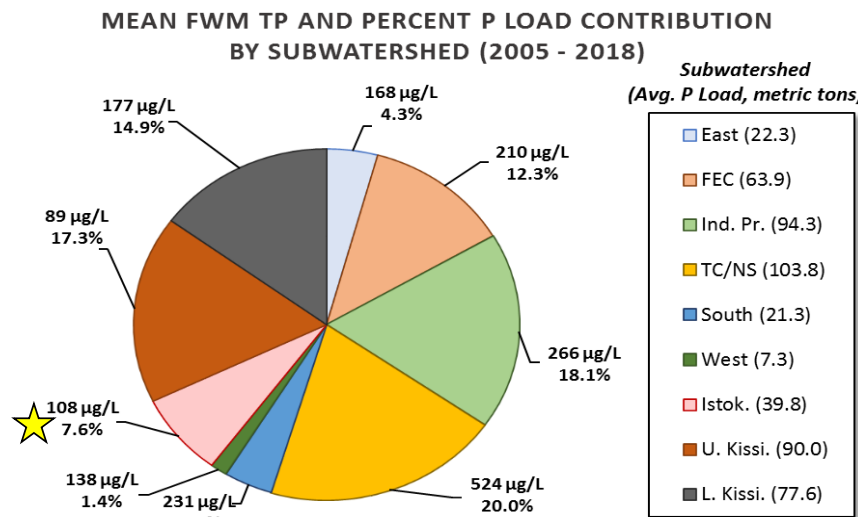
Post-Protection Plan Flows



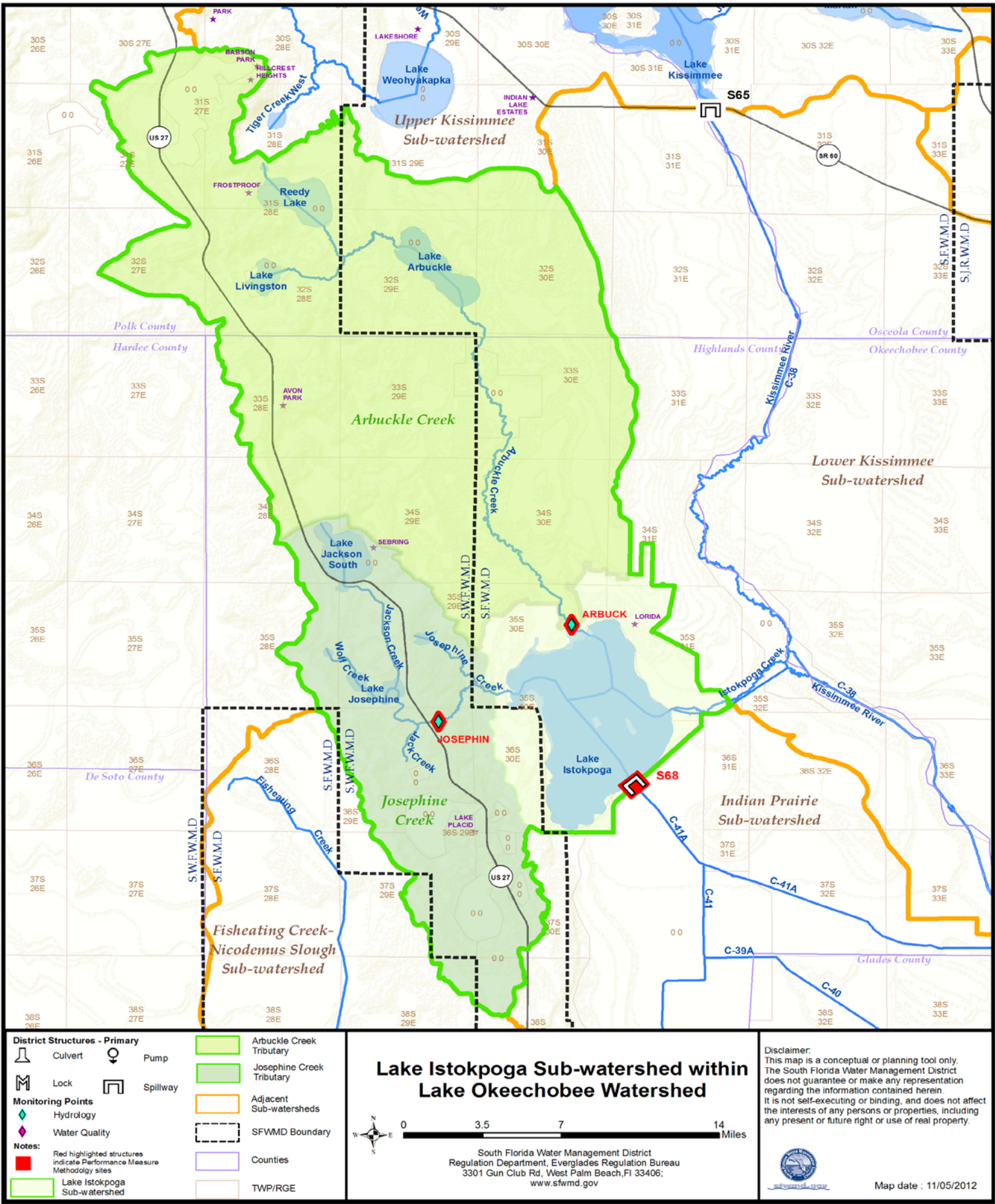
Pre-Protection Plan Loads



Post-Protection Plan Loads



LAKE ISTOKPOGA SUBWATERSHED - MAP



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LAKE ISTOKPOGA SUBWATERSHED - STATISTICS

Summary Statistics				
	Period of Record	Pre-Protection Plan	Post-Protection Plan	
	WY1991-WY2018	WY1991-WY2004	WY2005-WY2018	
Averages				
Avg. Flow (acft/yr)	283,811	269,852	297,771	
Avg. Load (mt/yr)	29.10	18.50	39.80	
FWMC (ug/L)	83	56	108	
Avg. UAL (lbs/acre/yr)	0.16	0.10	0.22	
Medians				Mann-Whitney Results p-values ³
Median Flow (acft/yr)	278,913	247,957	304,373	0.4907
Median Load (mt/yr)	23.57	9.98	31.80	0.0661
Median FWMC (ug/L)	70	43	91	0.0007
Median UAL (lbs/acre/yr)	0.13	0.06	0.18	0.0620
Highlighted cells indicate statistical significance				

³The Mann-Whitney test is a non-parametric test alternative to the two sample t-test. It is used to test the equality around the central tendency of two data sets (pre-protection plan period and post-protection plan period). A p-value of less than 0.05 indicates that a significant difference between pre-protection plan period and post-protection plan period exists. A comparison of the median values identifies which period is higher. A median is a value at the mid-point of a distribution of observed data.

Seasonal Kendall τ Results for Total Monthly Flow (ac-ft) by Sub-watershed over Three Water Year Ranges

Sub-Watershed Name	1991-2018					1991-2004					2005-2018				
	% Missing Months	Kendall's τ	Sen Slope	Intercept	p-value	% Missing Months	Kendall's τ	Sen Slope	Intercept	p-value	% Missing Months	Kendall's τ	Sen Slope	Intercept	p-value
Istokpoga	0.0%	0.060	105.23	11523	0.471	0.0%	0.129	567.52	9068	0.282	0.0%	0.119	556.76	8726	0.360

Seasonal Kendall τ Results for Total Monthly P Load (kg) by Sub-watershed over Three Water Year Ranges

Sub-Watershed Name	1991-2018					1991-2004					2005-2018				
	% Missing Months	Kendall's τ	Sen Slope	Intercept	p-value	% Missing Months	Kendall's τ	Sen Slope	Intercept	p-value	% Missing Months	Kendall's τ	Sen Slope	Intercept	p-value
Istokpoga	0.0%	0.216	47.02	208	0.018	0.0%	0.298	103.04	-114	0.026	0.0%	0.126	55.76	949	0.030

Seasonal Kendall τ Results for Monthly FWM TP (µg/L) by Sub-watershed over Three Water Year Ranges

Sub-Watershed Name	1991-2018					1991-2004					2005-2018				
	% Missing Months	Kendall's τ	Sen Slope	Intercept	p-value	% Missing Months	Kendall's τ	Sen Slope	Intercept	p-value	% Missing Months	Kendall's τ	Sen Slope	Intercept	p-value
Istokpoga	8.6%	0.451	3	27	<0.001	11.3%	0.425	4	16	0.013	6.0%	0.180	2	66	0.003

Italic red font cells indicate statistical significance

Note: The Seasonal Kendall Tau analyzes data for monotonic trends (consistent upward or downward trend) and accounts for seasonality. Typically monthly data are used to identify seasons. Probability values (p-values) are derived from the tau-statistic which identifies the direction of the trend. A p-value less than 0.05 detects statistically significant trends for a period of interest. The Sen Slope provides an indication of the magnitude of the observed trend.

LAKE ISTOKPOGA SUBWATERSHED - MONTHLY DATA AND SKT TRENDS

