TCNS - S-154C BASIN TECHNICAL SHEET

Subwatershed:	Taylor Creek/Nubbin Slough		
Basin:	**S-154C**	**Flow Issues[1]:** **MAYBE**	**Water Quality Issues[2]:** **YES**

Monitored Structure(s): S154C

Inflow loads: None

Acreage: 2,134

Percentage of Subwatershed Acreage: 1%

Percentage of Lake Okeechobee Watershed: 0.1%

[1]Flow Issues:

- Flow measurements were not collected consistently at the S-154C structure until 10/1/98; as such the data included in the SKT analysis starts on this date. Flow measurements were collected by manually recorded observation until 5/12/08 and have since been collected using a CR10 (Campbell Scientific Inc. Measurement and Control Module).

- Flow measurement changes occurred in the S-154C Basin during the pre and post-protection plan period. Need to investigate whether samples are representative of runoff areas.

- Flow data from 2009-present could be evaluated further for changes in trends since the same methods were used during this period.

[2]Water Quality Issues:

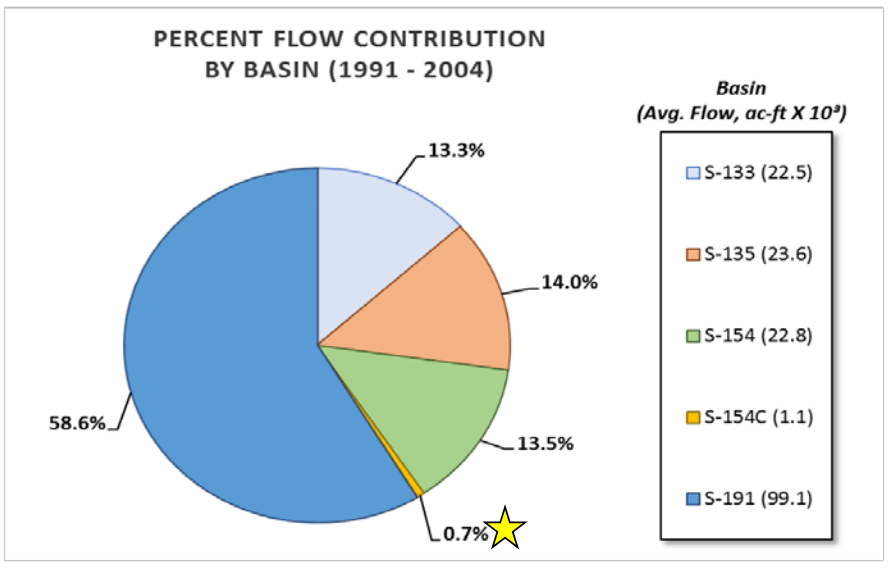
- This basin had high total phosphorus (TP) flow-weighted mean concentrations (FWMC) (696 µg/L during the post-protection plan period).

- The high TP unit area load (3.17 lbs/acre in the post-protection plan period) may be influenced by flow measurements and needs further investigation.

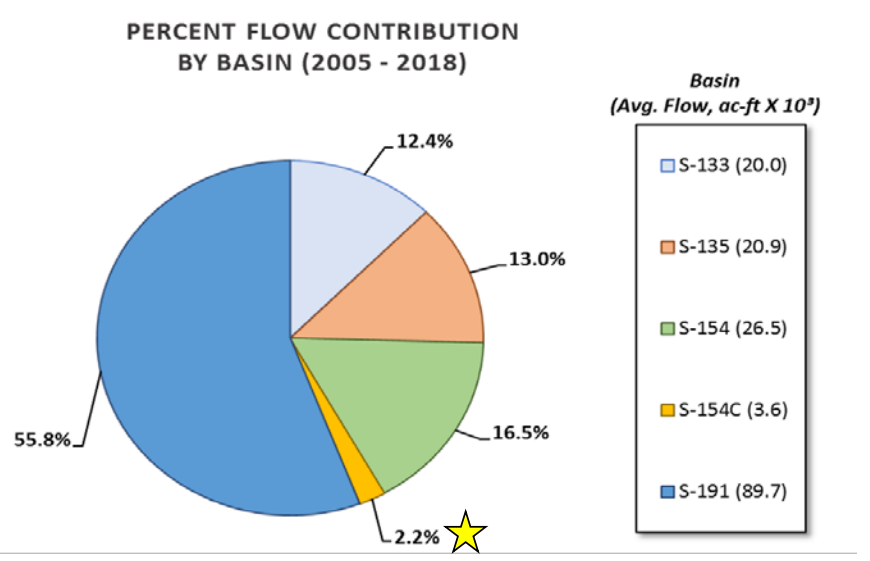
- This basin is only 1% of total subwatershed acreage (2,134 ac) and less that 0.1% of Lake Okeechobee Watershed acreage.

- This basin may be a good location for a project that captures runoff from S-154C and S-154 (FWMC also >600 µg/L) combined.

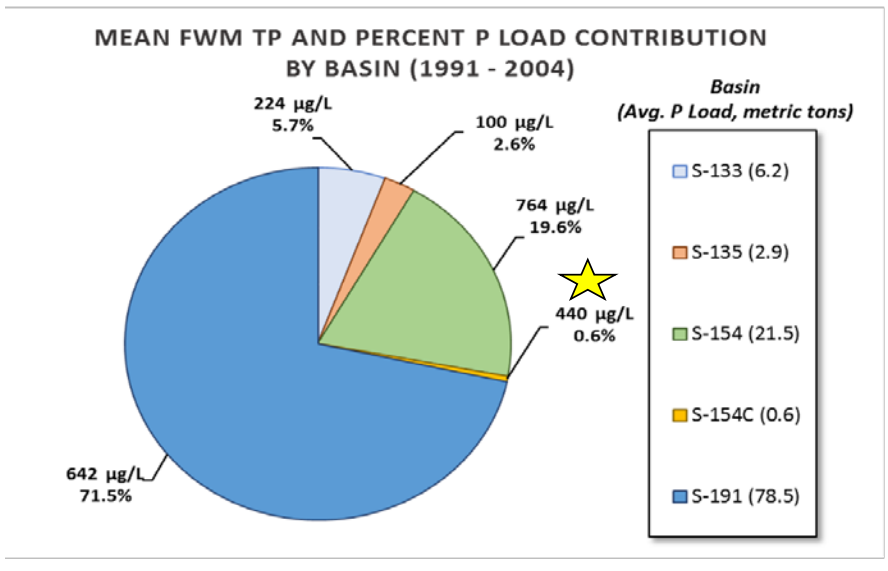
Pre-Protection Plan Flows



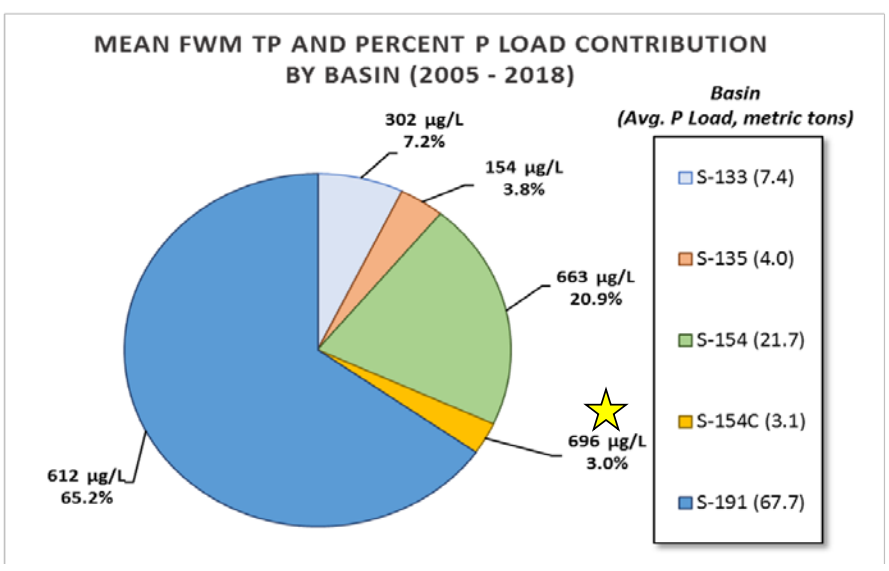
Post-Protection Plan Flows



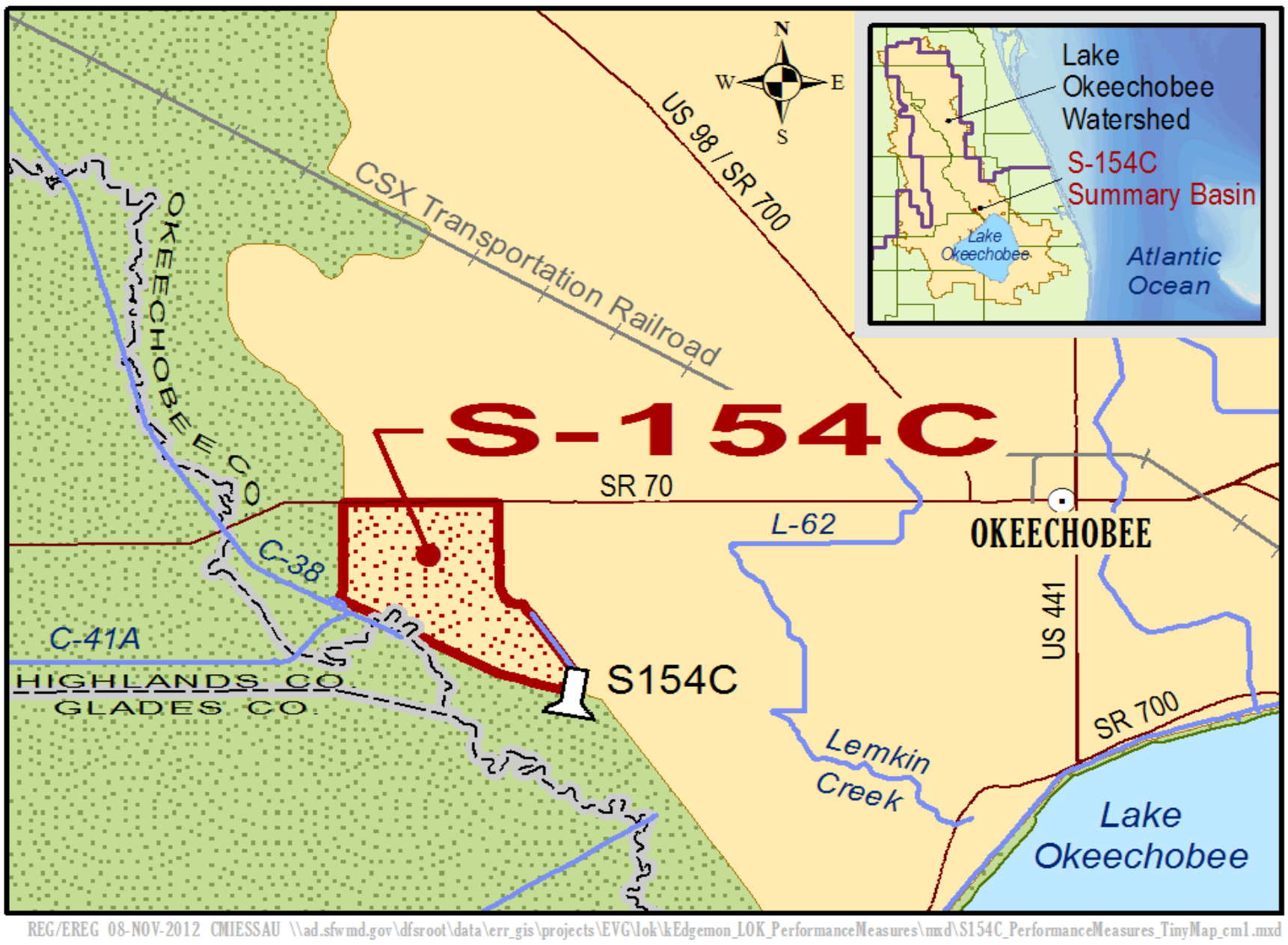
Pre-Protection Plan Loads



Post-Protection Plan Loads



S-154C BASIN - MAP



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S-154C BASIN - STATISTICS

Summary Statistics				
	Period of Record	Pre-Protection Plan	Post-Protection Plan	
	WY1991-WY2018	WY1991-WY2004	WY2005-WY2018	
Averages				
Avg. Flow (acft/yr)	2,677	1,115	3,569	
Avg. Load (mt/yr)	2.17	0.61	3.07	
FWMC (ug/L)	658	440	696	
Avg. UAL (lbs/acre/yr)	2.47	0.83	3.17	
Medians				**Mann-Whitney Results p-values[3]**
Median Flow (acft/yr)	2,258	552	2,868	0.0041
Median Load (mt/yr)	1.73	0.26	2.21	0.0033
Median FWMC (ug/L)	579	397	708	0.0170
Median UAL (lbs/acre/yr)	1.90	0.54	2.29	0.0168

Highlighted cells indicate statistical significance

[3]The 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.

Sub-watershed Taylor Creek/Nubbin Slough - Seasonal Kendall τ Results for Total Monthly Flow (ac-ft) by Basin over Three Water Year Ranges

Sub-watershed/*Basin*	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
S-154C Basin	***25.0%***	***0.270***	***1.80***	***13***	***<0.001***	50.0%	0.294	0.42	-3	0.089	0.0%	0.090	0.68	63	0.122

Sub-watershed Taylor Creek/Nubbin Slough - Seasonal Kendall τ Results for Total Monthly P Load (kg) by Basin over Three Water Year Ranges

Sub-watershed/*Basin*	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
S-154C Basin	***25.0%***	***0.297***	***0.92***	***5***	***<0.001***	50.0%	0.302	0.09	0	0.079	0.0%	0.099	0.43	31	0.142

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

Sub-watershed/*Basin*	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
S-154C Basin	***45.8%***	***0.214***	***12***	***252***	***0.021***	74.4%	0.065	11	215	0.796	17.3%	0.061	6	416	0.546

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.