FISHEATING CREEK SUBWATERSHED TECHNICAL SHEET

Subwatershed:	**Fisheating Creek**		
Basins:	Fisheating Creek, Nicodemus Slough North	**Flow Issues[1]:** **MAYBE**	**Water Quality Issues[2]:** **YES**

Monitored Structure(s): FECSR78 (Fisheating Creek Basin), CULV5 (Nicodemus Slough North)

Inflow loads: None

Acreage: 318,042

Percentage of Subwatershed Acreage: N/A

Percentage of Lake Okeechobee Watershed: 9.2%

[1]Flow Issues:

- Fisheating Creek (Lakeport) Basin: Flow measurements did not start at this location until WY1998. Prior to WY1998, flow was measured at Palmdale which is 12 miles upstream. To account for this change, data from the L-61W plus the Palmdale location were used for flows and loads for the period prior to WY1998 for the statistical analysis in this technical sheet.

- Nicodemus Slough North: The flow measurement data did not start until 2008. According to Cheol Mo the data are erratic. Prior to WY1995 flows were estimated. No measurements from WY1995-WY2008. WY2008 flow measurements began. The USACE is began working on Culvert 5 in WY2017 and the discharge is blocked.

- The flow is not monitored at a structure at the Fisheating Creek Basin. Monitoring is located within a flood plain, therefore it is not known if all flows are accounted for in the Fisheating Creek Basin. Suggest looking at individual flow readings at Palmdale and Lakeport to investigate.

- There were no statistically significant trends detected.

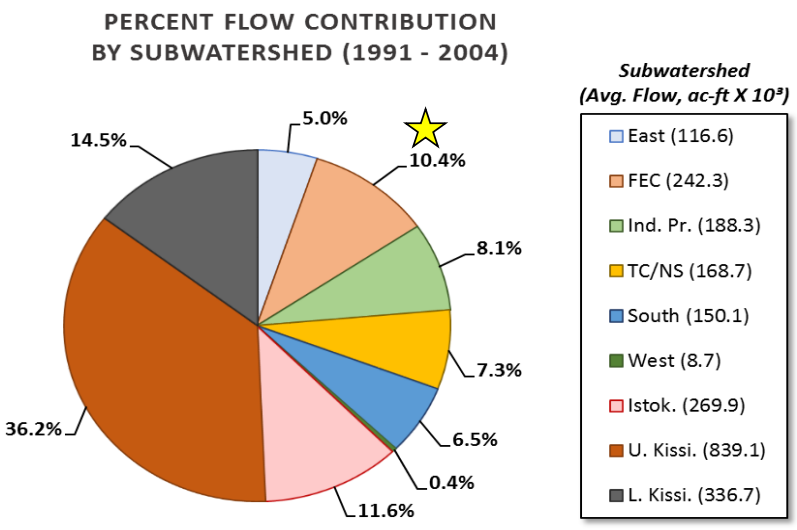
- It should be noted that there was a change in flow measurement methods during the period of record for both the Fisheating Creek and the Nicodemus Slough Basins.

[2]Water Quality Issues:

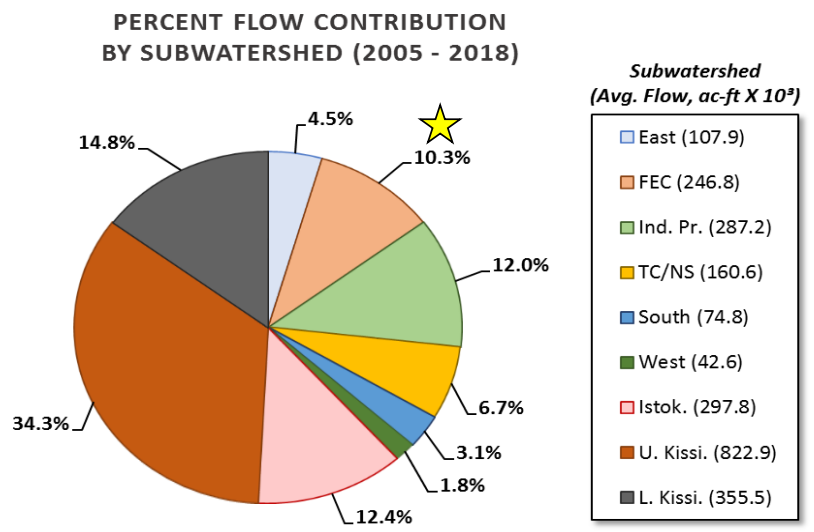
- The total phosphorus (TP) flow-weighted mean concentrations (FWMC) of 210 µg/L in post-protection plan period is relatively high.

- While there are no statistically significant trends in FWMC or TP loads, both had increasing slopes in all three periods. And there was an increase in FWMC and TP load between the pre and post-protection plan period, although it was not significant.

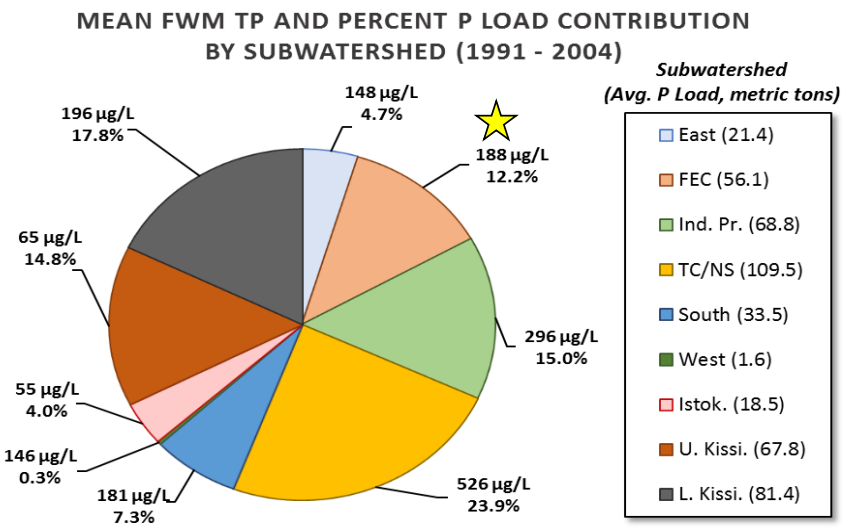
Pre-Protection Plan Flows



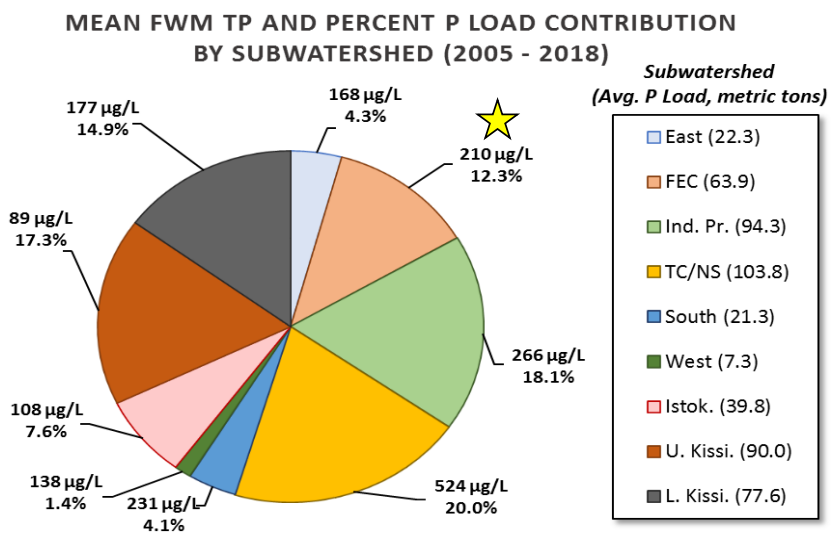
Post-Protection Plan Flows



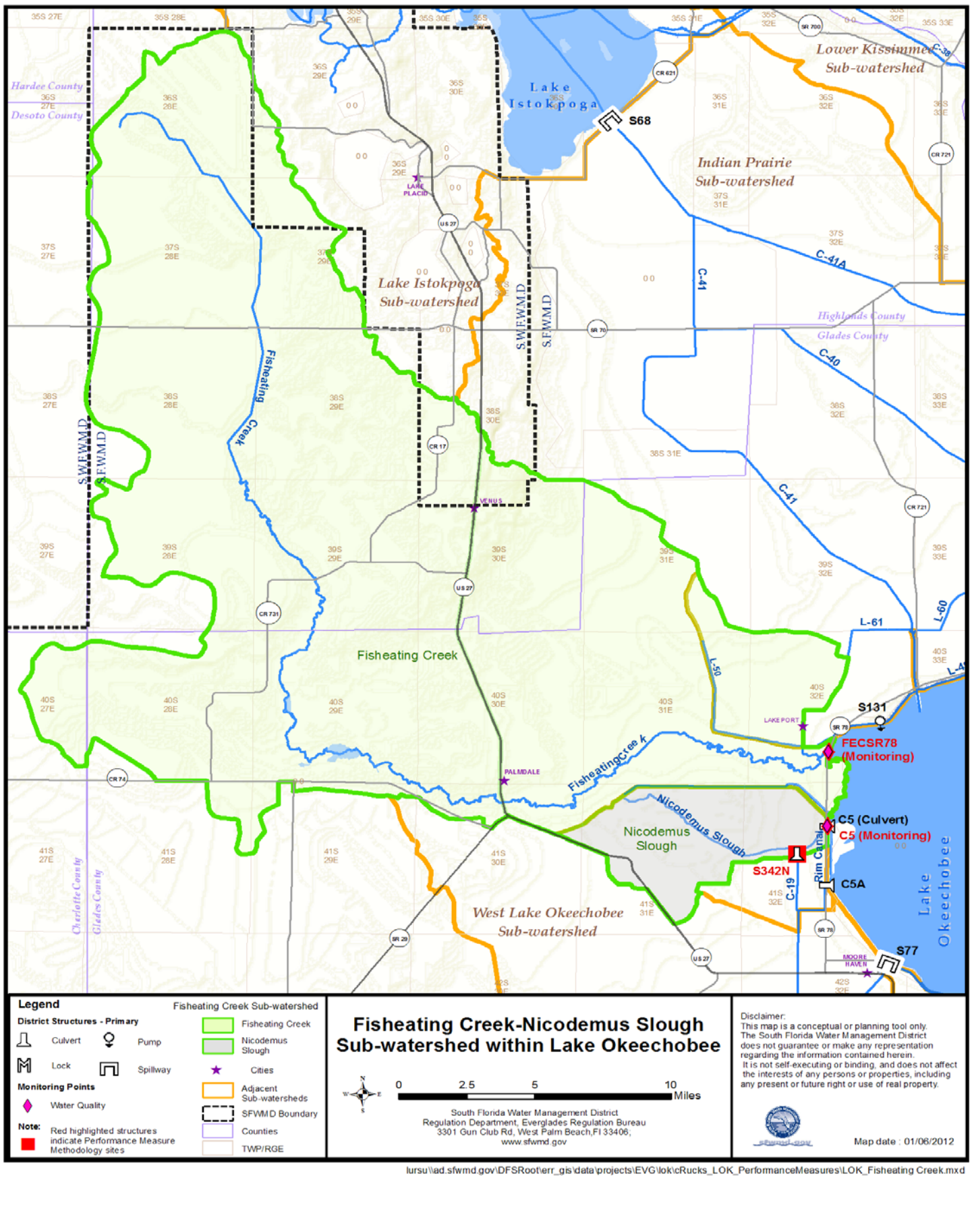
Pre-Protection Plan Loads



Post-Protection Plan Loads



FISHEATING CREEK SUBWATERSHED - MAP



FISHEATING CREEK SUBWATERSHED - STATISTICS

Summary Statistics				
	Period of Record	Pre-Protection Plan	Post-Protection Plan	
	WY1991-WY2018	WY1991-WY2004	WY2005-WY2018	
Averages				
Avg. Flow (acft/yr)	244,535	242,289	246,781	
Avg. Load (mt/yr)	60.00	56.10	63.90	
FWMC (ug/L)	199	188	210	
Avg. UAL (lbs/acre/yr)	0.42	0.39	0.44	
Medians				**Mann-Whitney Results p-values[3]**
Median Flow (acft/yr)	219,488	218,048	219,488	0.8542
Median Load (mt/yr)	48.30	46.50	67.70	0.3346
Median FWMC (ug/L)	193	169	203	0.3345
Median UAL (lbs/acre/yr)	0.34	0.32	0.47	0.3224

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 Fisheating Creek - Seasonal Kendall τ Results for Total Monthly Flow (ac-ft) by Basin over Three Water Year Ranges

	1991-2018					1991-2004					2005-2018				
Sub-watershed/*Basin*	% 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
Fisheating Creek	**0.0%**	**0.006**	**2**	**6418**	**0.939**	**0.0%**	**0.158**	**272**	**5485**	**0.181**	**0.0%**	**0.027**	**35**	**5906**	**0.818**

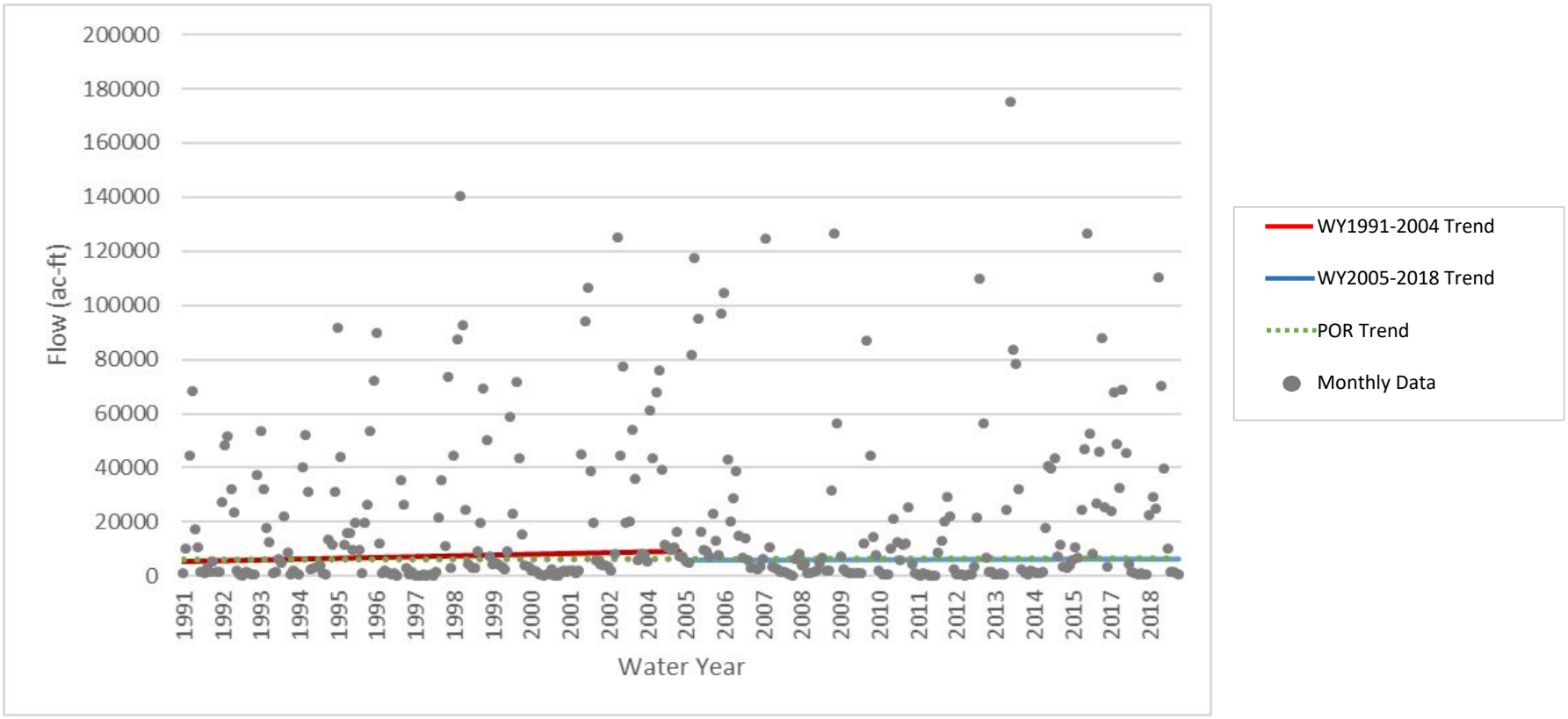
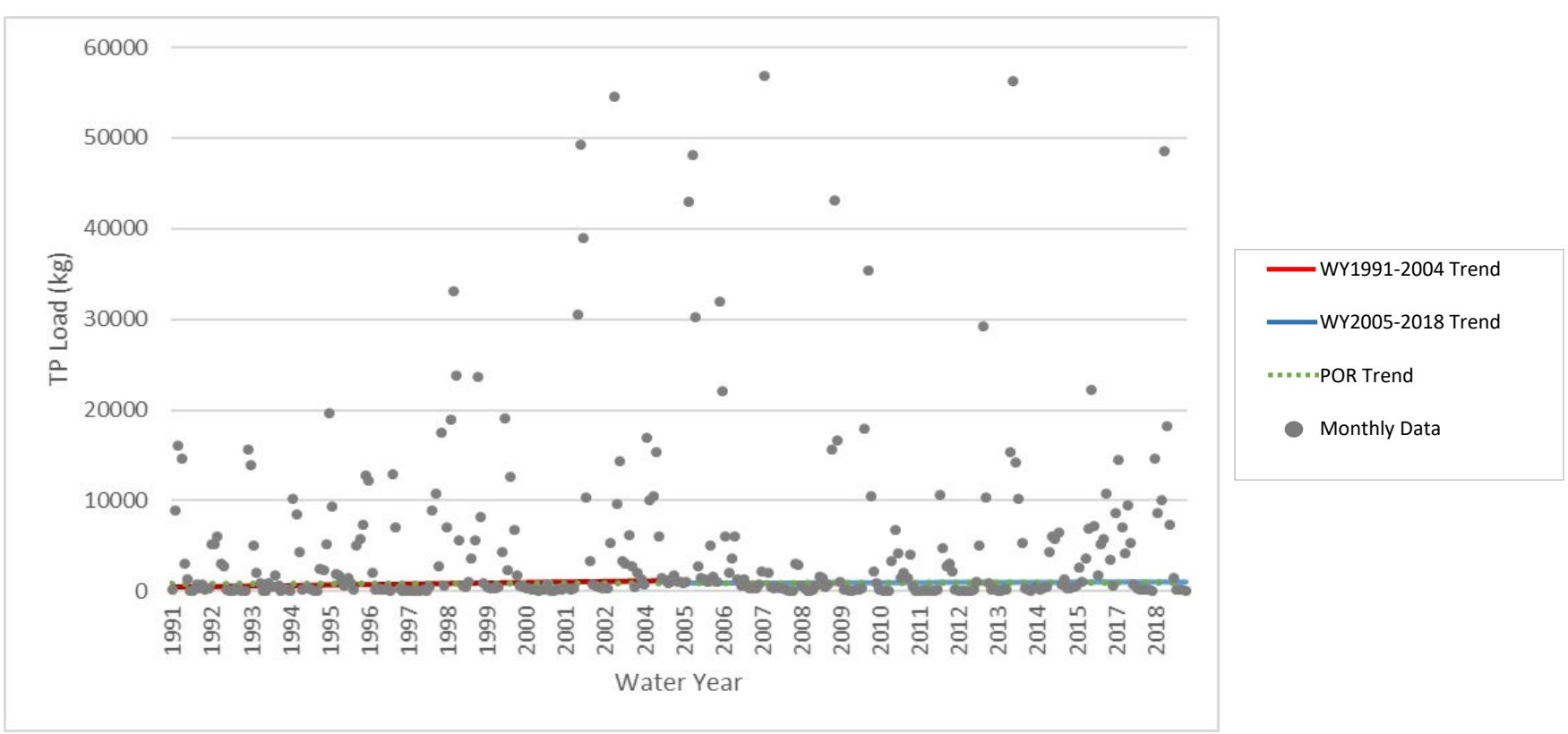
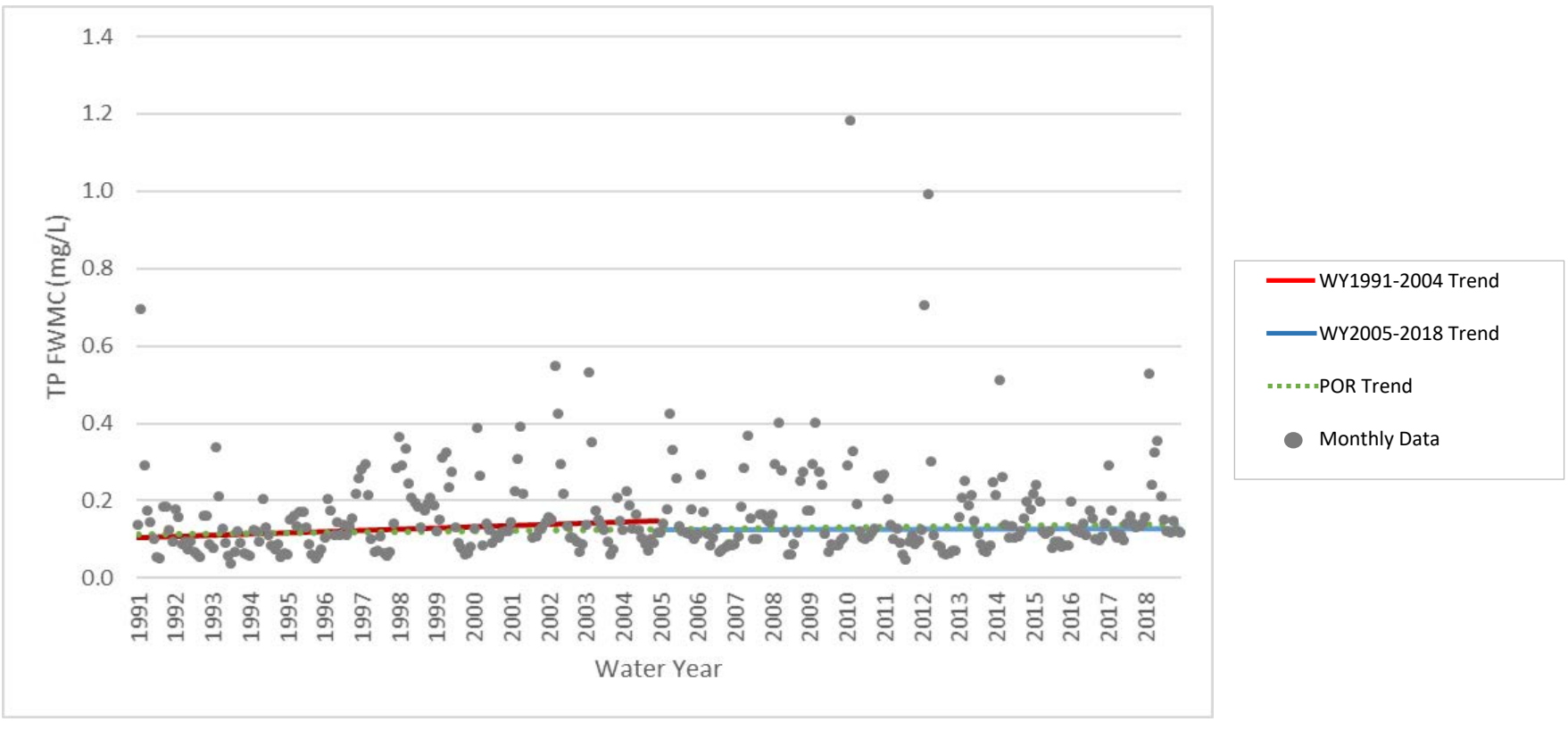
Sub-watershed Fisheating Creek - Seasonal Kendall τ Results for Total Monthly P Load (kg) by Basin over Three Water Year Ranges

	1991-2018					1991-2004					2005-2018				
Sub-watershed/*Basin*	% 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
Fisheating Creek	**0.0%**	**0.030**	**3.18**	**896**	**0.707**	**0.0%**	**0.203**	**43.65**	**539**	**0.110**	**0.0%**	**0.011**	**2.90**	**999**	**0.926**

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

	1991-2018					1991-2004					2005-2018				
Sub-watershed/*Basin*	% 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
Fisheating Creek	**0.6%**	**0.100**	**1**	**112**	**0.145**	**1.2%**	**0.187**	**3**	**105**	**0.095**	**0.0%**	**0.022**	**0**	**124**	**0.826**

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.

FISHEATING CREEK SUBWATERSHED - MONTHLY DATA AND SKT TRENDS