

Water Quality Conditions for Everglades National Park, Water Year 2017 Shark River Slough

Technical Oversight Committee Quarterly Meeting
January 23, 2018

Water Quality Conditions – WY2017 Shark River Slough

Month	Geometric Mean TP Concentration (ppb)	Long-term Level (ppb)	Mean Stage (feet NGVD 29)	Number of Samples	
Arthur R. Marshall Loxahatchee National Wildlife Refuge					
Jul 2017	7.9	10.1	16.40	13	
Aug 2017	6.6	8.8	16.69	14	
Sep 2017	7.5	8.0	16.89	13	
12-Month Period Ending	Total Flow (kac-ft)	12-Month FWM TP Concentration (ppb)	Long-term Limit (ppb)	Percent of Sampling Events Greater than 10 ppb	
				Guideline	Observed
Everglades National Park – Shark River Slough – <i>PROVISIONAL DATA and RESULTS</i>					

PROVISIONAL WY2017 RESULTS

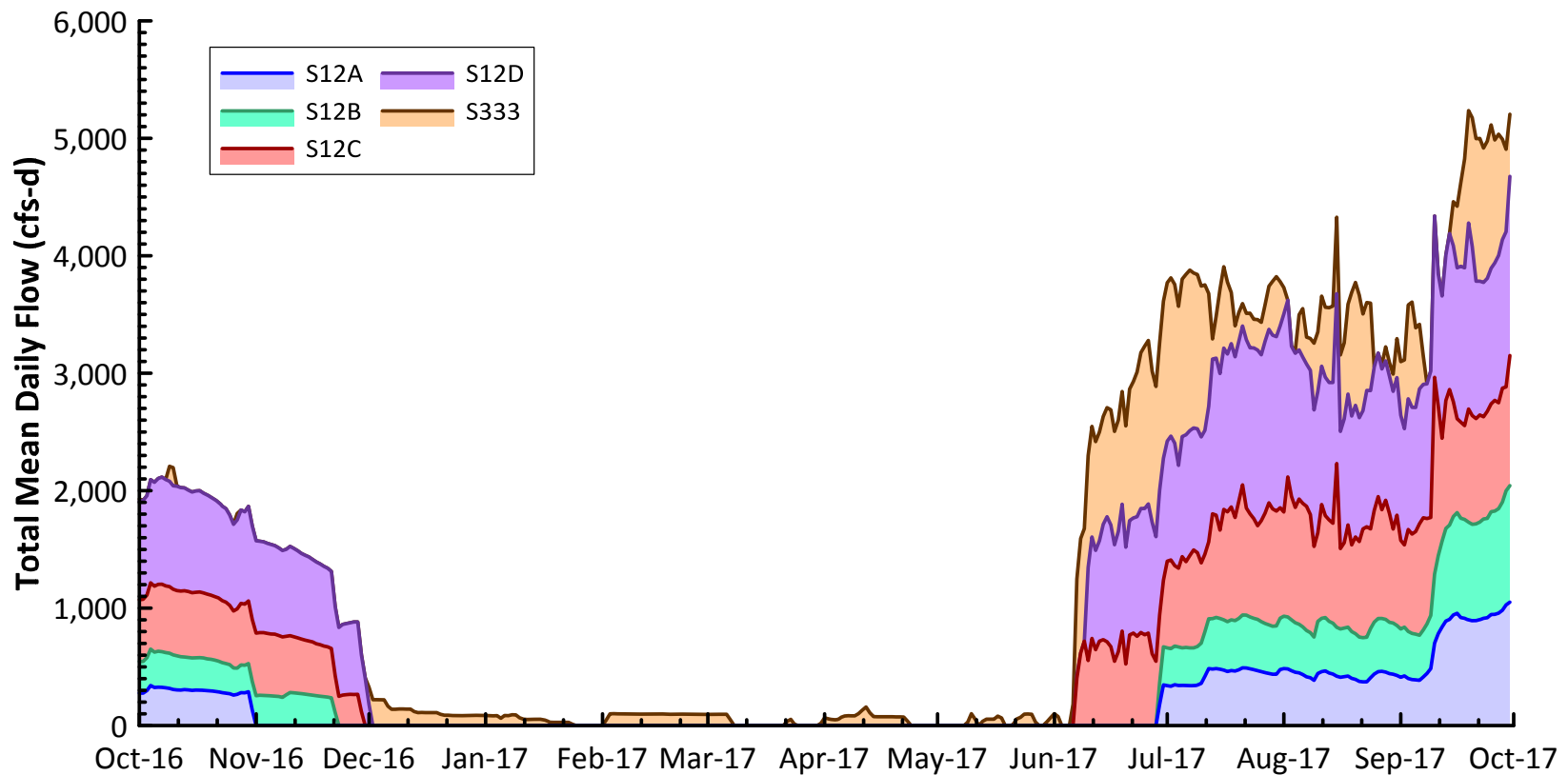
Sep 2017	1038.0 (1042.2)	9.8 (9.8)	7.7 (7.7)	40.6 (40.5)	20.8 (20.0)
Everglades National Park – Taylor Slough and Coastal Basins					
Jul 2017	322.1 (336.4, 329.9)	5.2 (5.2, 5.2)	11.0	53.1	0.0 (0.0, 0.0)
Aug 2017	346.6 (374.6, 368.2)	5.3 (5.3, 5.3)	11.0	53.1	0.0 (0.0, 0.0)
Sep 2017	383.3 (420.1, 413.7)	5.9 (5.9, 6.0)	11.0	53.1	1.6 (1.6, 1.6)

SRS - Method 1 (left values) computed as S12s+(S333+S355A+S355B-S334) and Method 2 (values in parentheses) computed as S12s+(S333+S355A+S355B+S356-S334)
Neither method excludes S334 flow from the total flow for long-term limit calculations.

TS and CB - Method 1 (left values) computed as S332D+S18C, Method 2 (first values in parentheses) computed as S332D+S18C+G737, and Method 3 as (S332D-S332DX1-S328)+S328+G737+S18C.

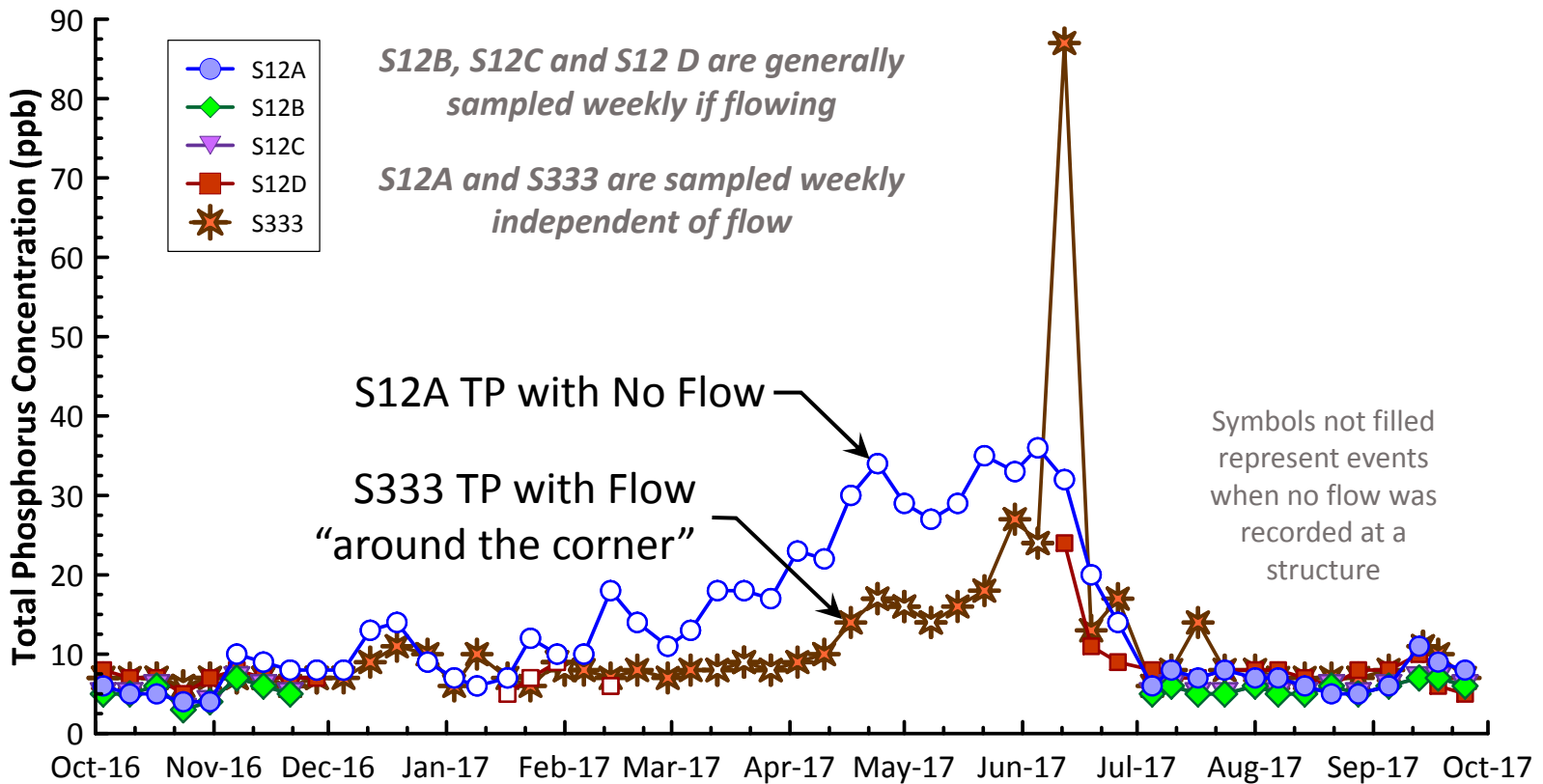
Water Quality Conditions – WY2017 Shark River Slough

- Prolonged dry conditions January-early June 2017
- Extreme rainfall June 2017 resulting in flow to SRS



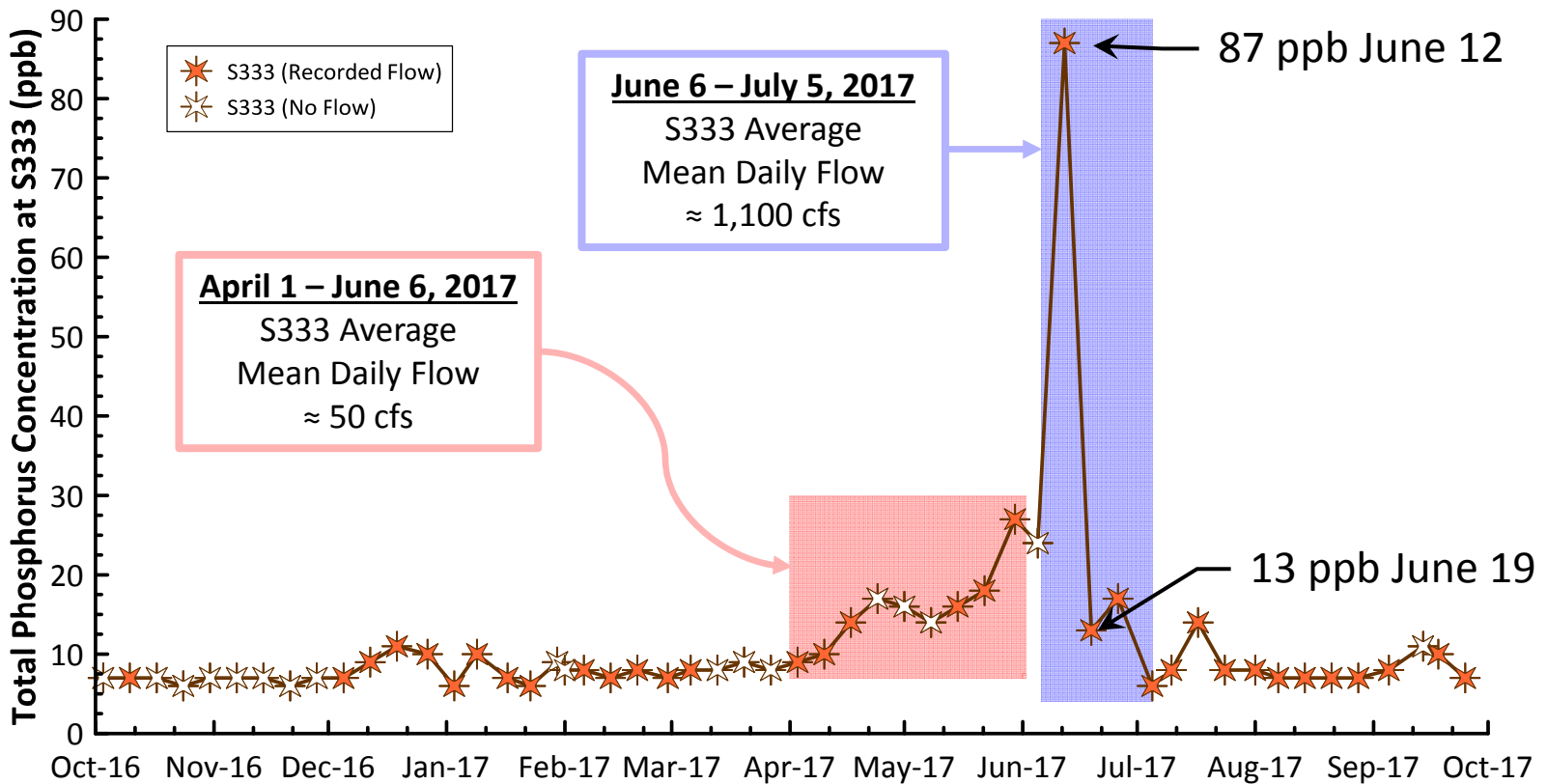
Water Quality Conditions – WY2017 Shark River Slough

- WY2017 TP results with and without flow
- TP grab June 12 at S333 = 87 ppb



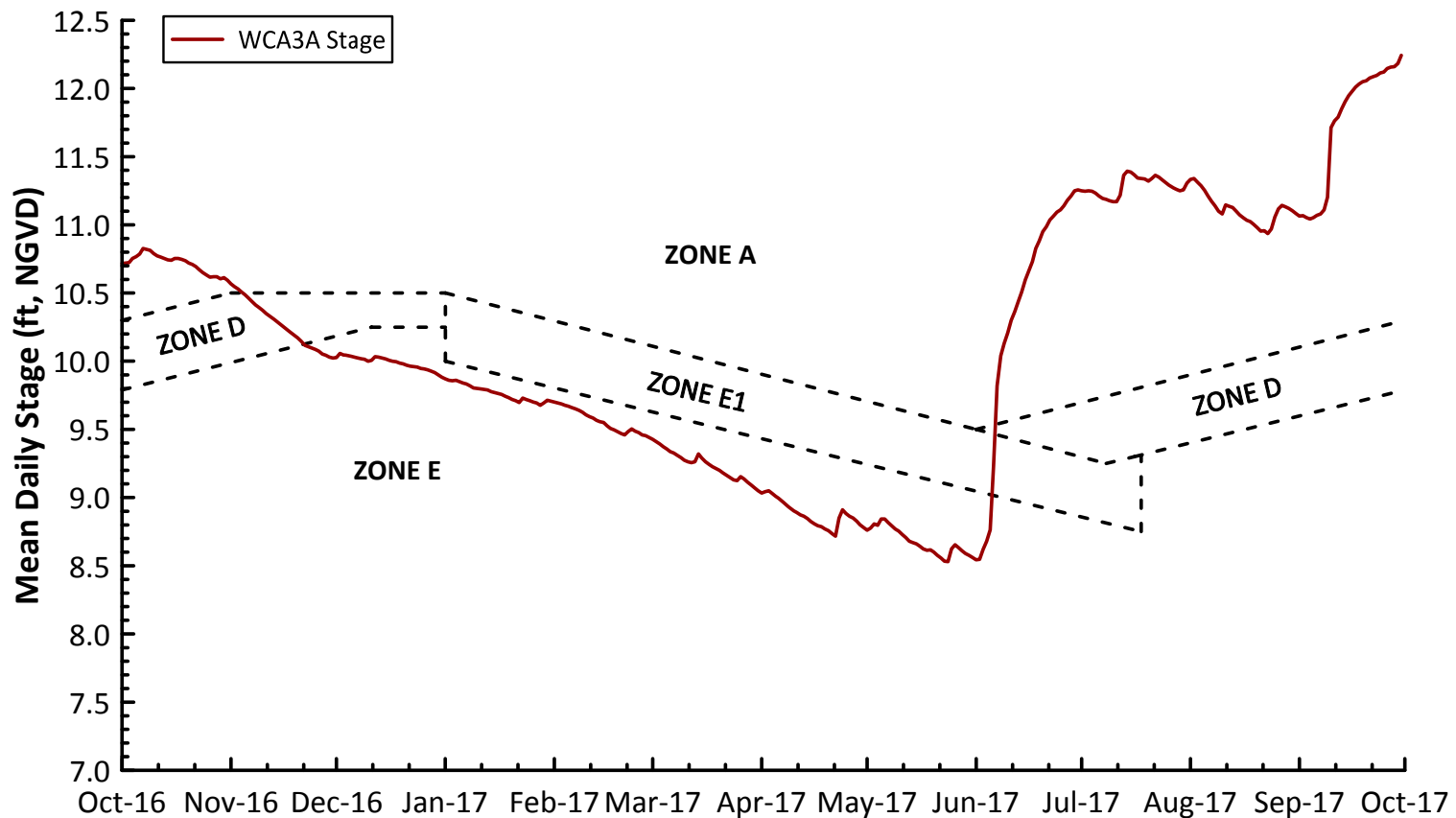
Water Quality Conditions – WY2017 Shark River Slough

- Little to no flow to SRS leading up to June 6, 2017
- ~1,100 cfs through S333 beginning June 6



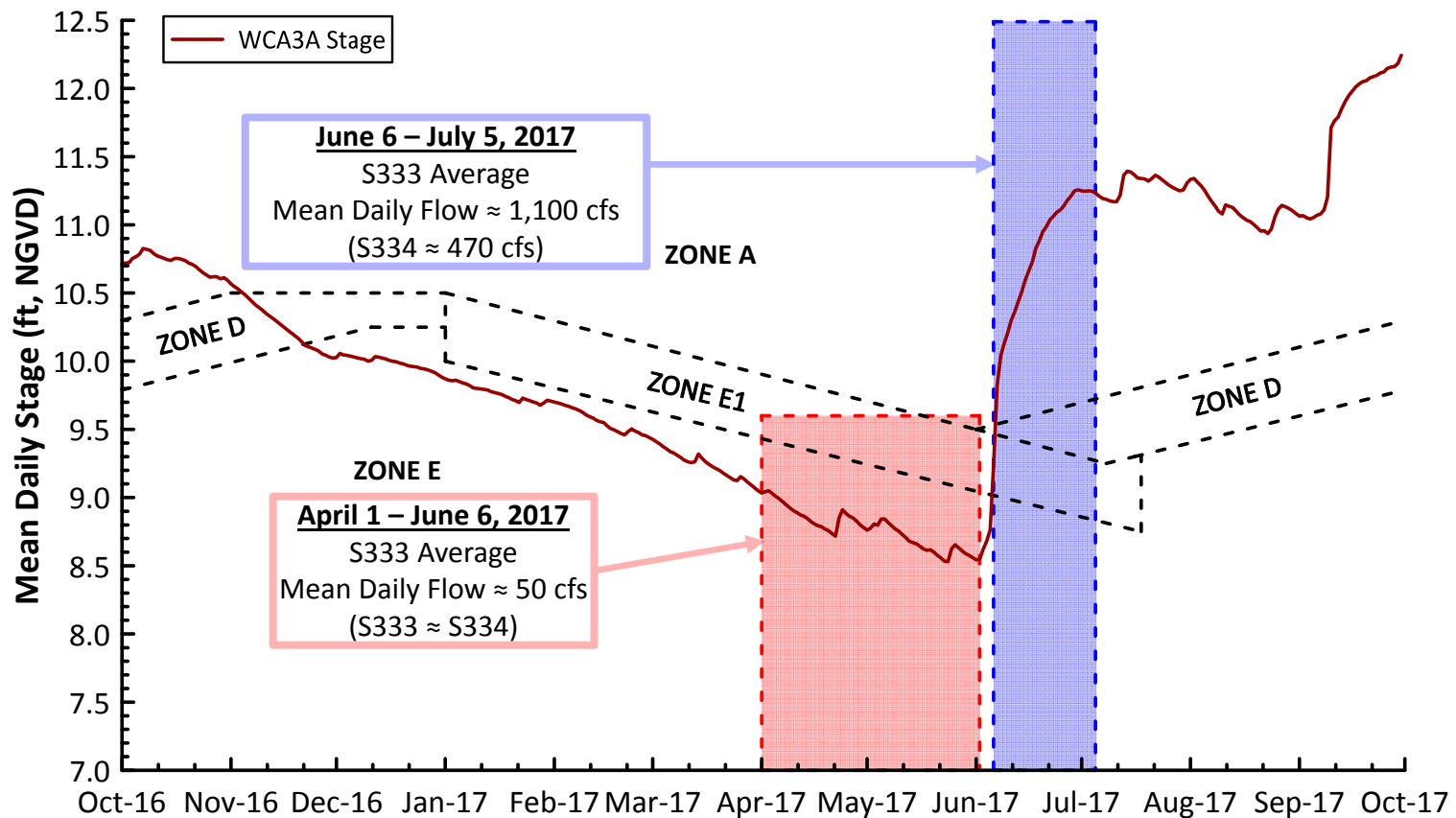
Water Quality Conditions – WY2017 Shark River Slough

- Dry conditions dropped WCA3 stage to 8.5' NGVD
- 3" rainfall June 6... 8" rainfall June 7
- EDEN12 marsh station stage rose 10" in 20 hours



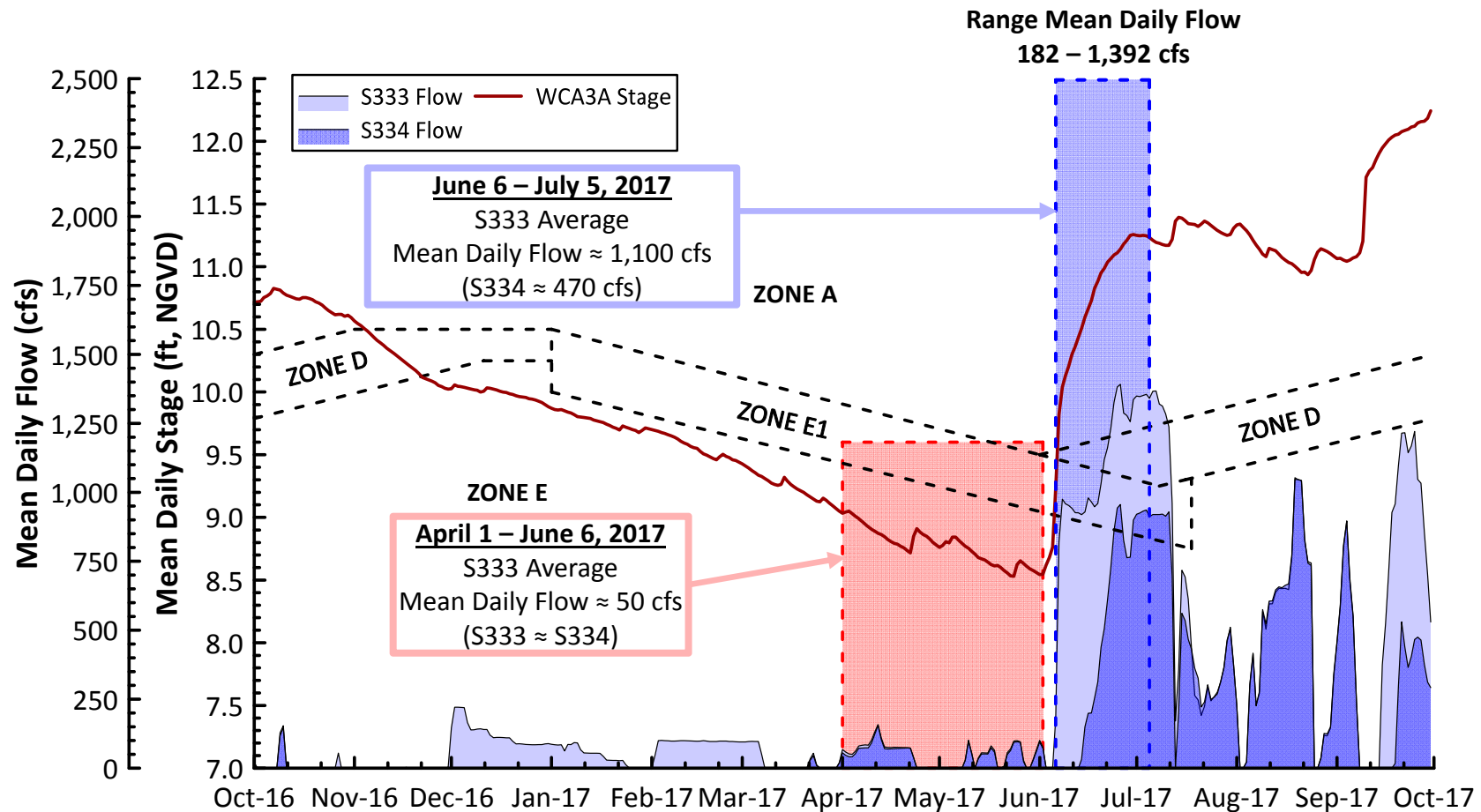
Water Quality Conditions – WY2017 Shark River Slough

- ~470 cfs of the ~1,100 cfs at S333 flowed to S334
- Low flow and dropping stage up to June 6



Water Quality Conditions – WY2017 Shark River Slough

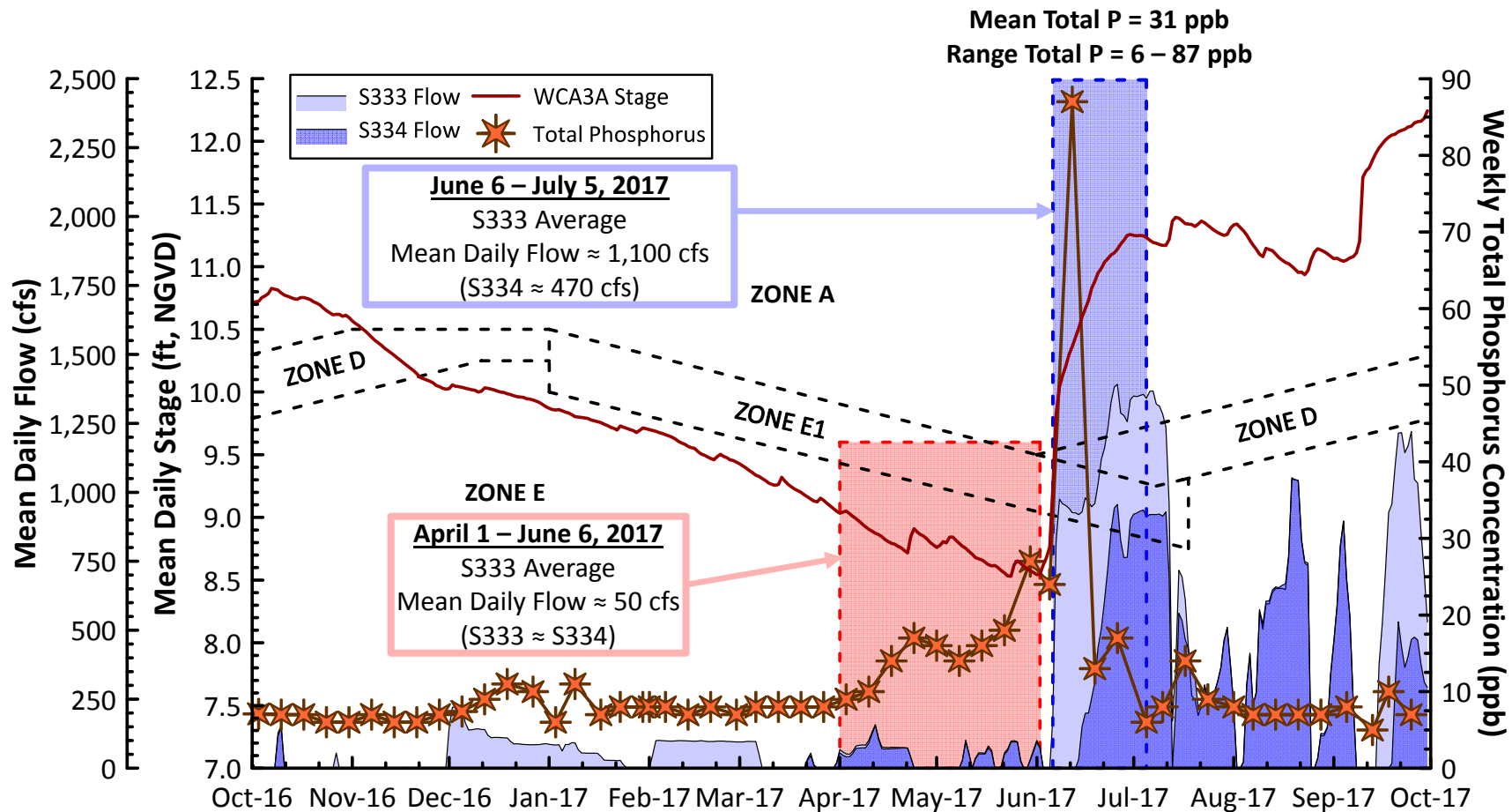
- Daily flows at S333 and S334
- 630 cfs to SRS June 6 – July 5, on average



WCA3A Stage = 3 Gage Mean

Water Quality Conditions – WY2017 Shark River Slough

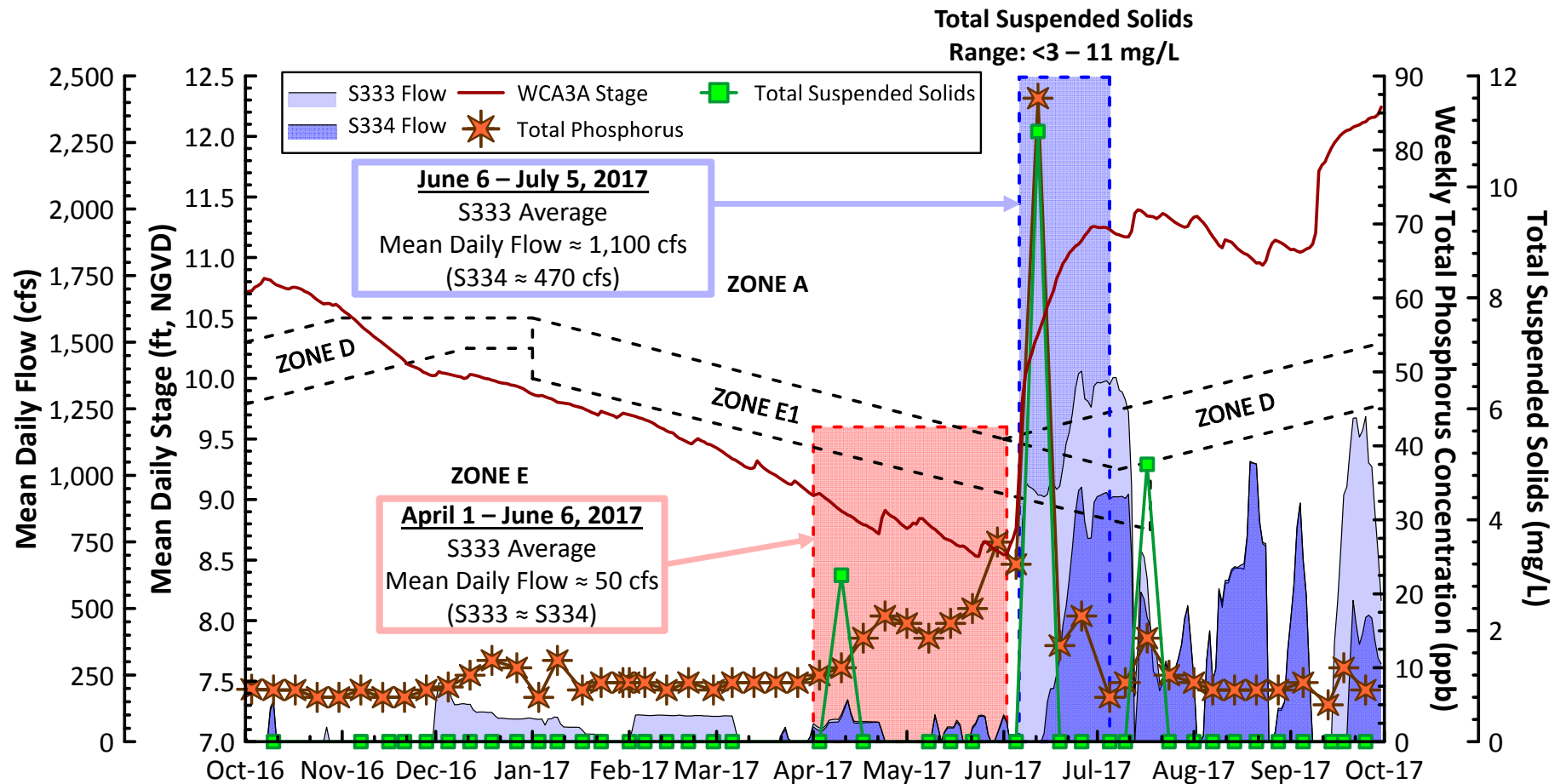
- TP levels rising as WCA3 stage falls
- High TP June 12 following stage and flow increase



WCA3A Stage = 3 Gage Mean

Water Quality Conditions – WY2017 Shark River Slough

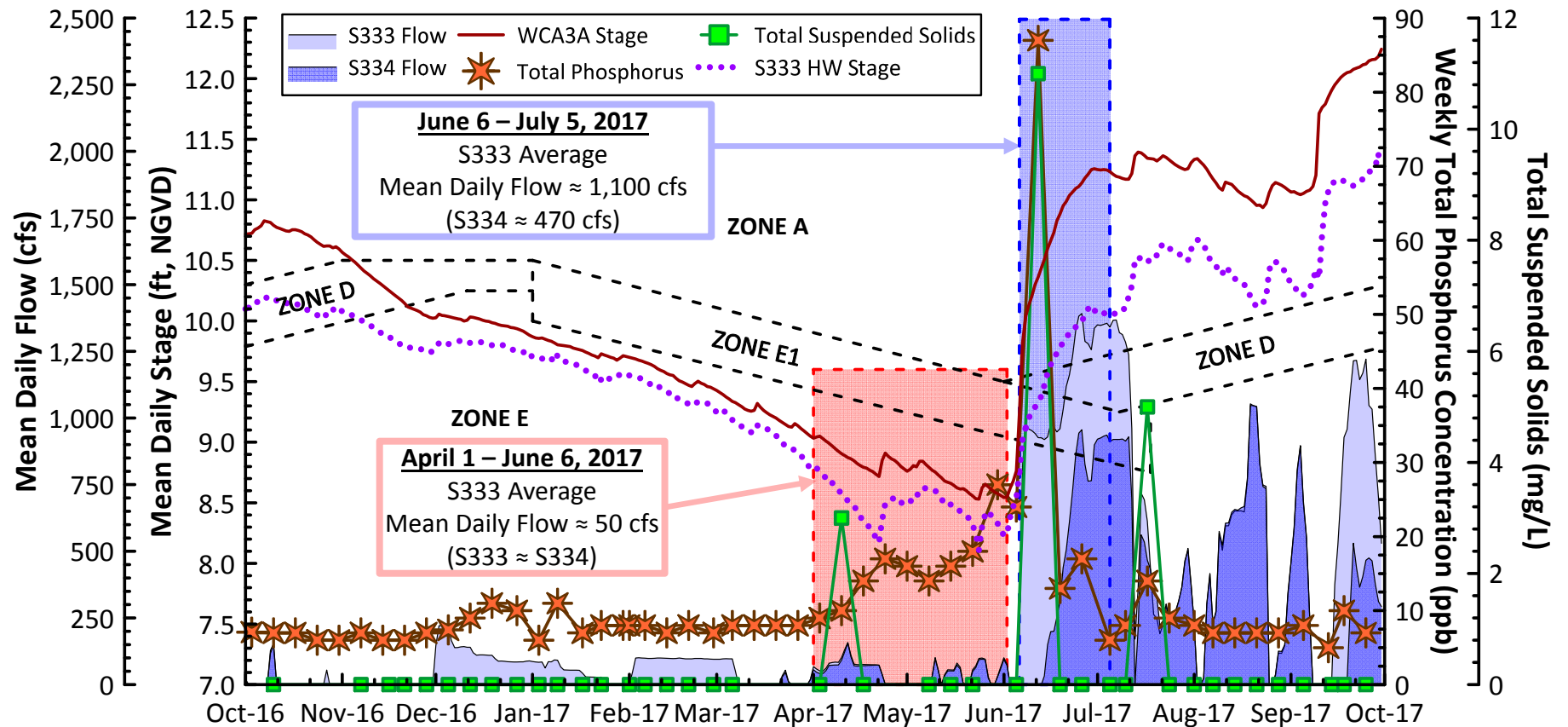
- June 12 grab sample TSS spiked at 11 mg/L



WCA3A Stage = 3 Gage Mean

Water Quality Conditions – WY2017 Shark River Slough

- S333 phosphorus more directly related to S333 HW

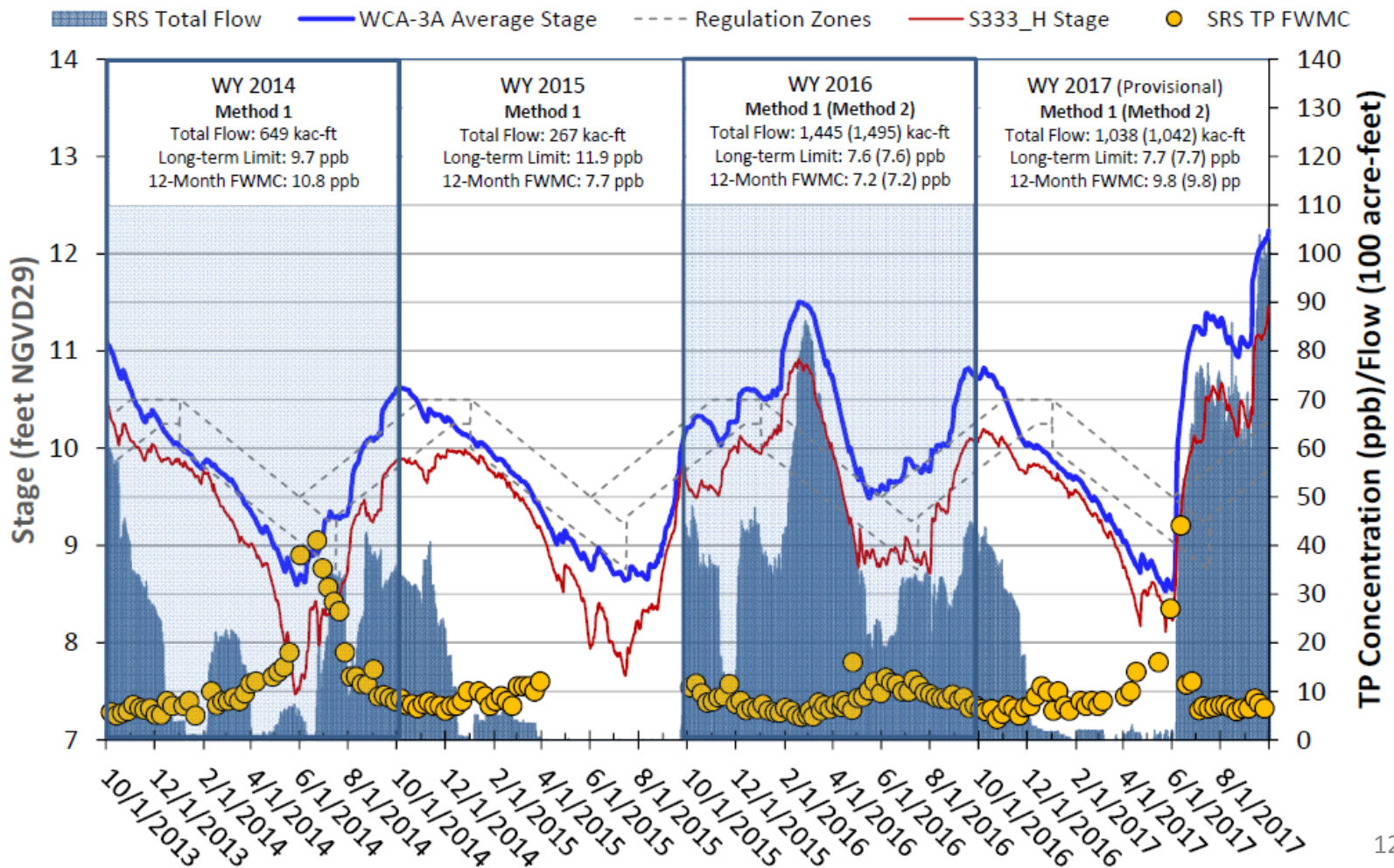


WCA3A Stage = 3 Gage Mean

Water Quality Conditions – WY2017 Shark River Slough

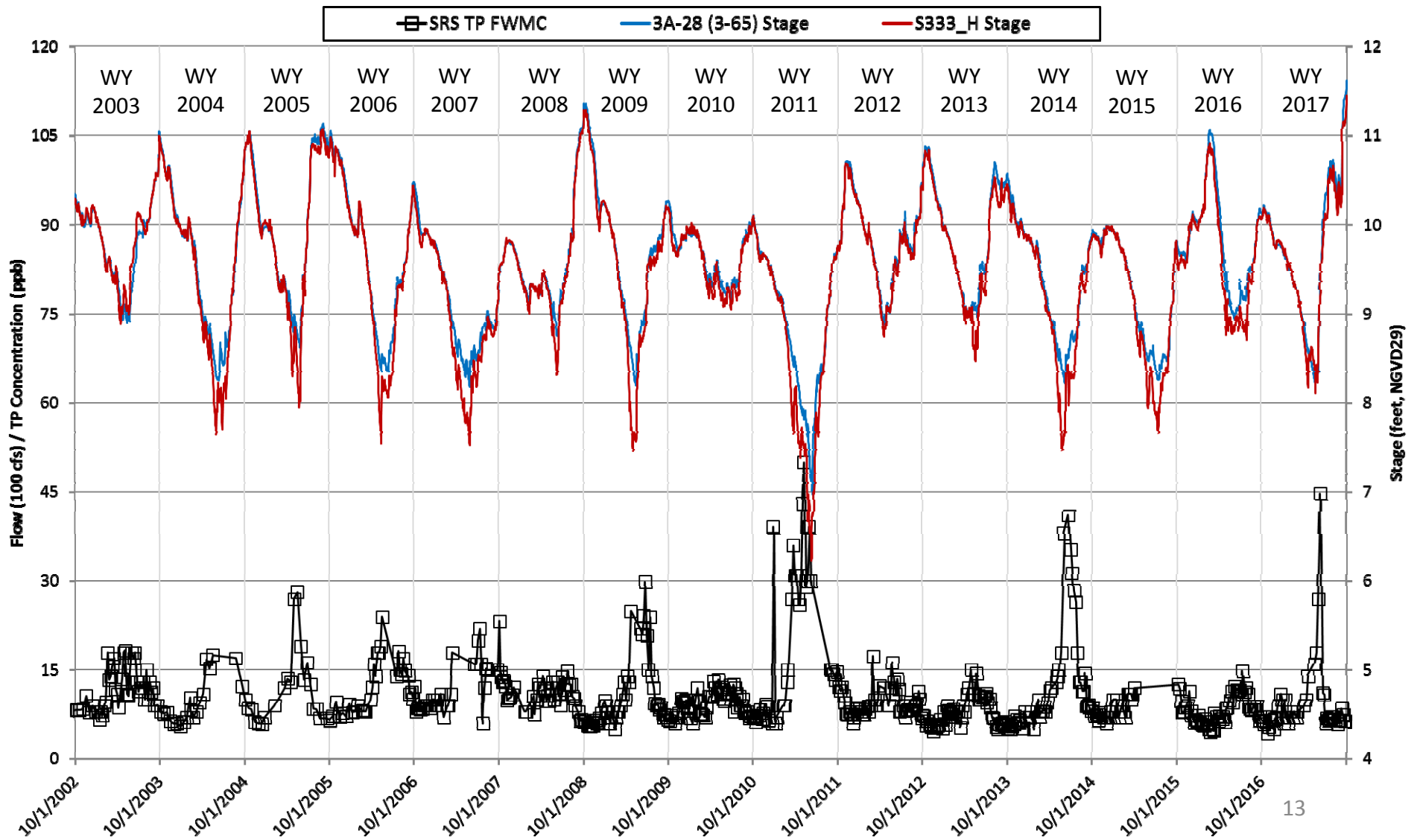
WCA-3A Average Stage and Flow and TP Flow-weighted Mean Concentration to Shark River Slough

(Plot shows Method 1 Total Flow (S12s+S333+S355A&B) and FWMC [S12s+(S333+S355A&B-S334)].



Water Quality Conditions – WY2017 Shark River Slough

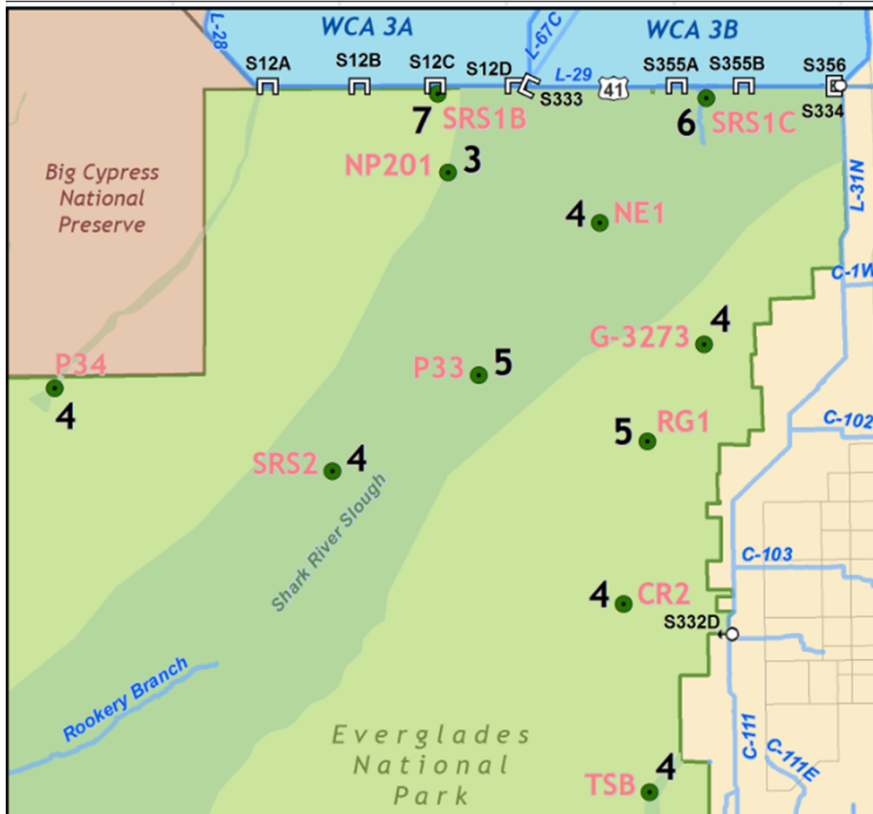
Stage and TP Concentrations at SRS During the Period (WY2003-WY2017)



Water Quality Conditions – WY2017 Shark River Slough

	SRS1B	SRS1C	SRS2	G-3273
May2017-Sep2017 Geomean	0.008	0.007	0.005	0.005
Oct2016-Sep2017 Geomean	0.008	0.006	0.004	0.004
Average of WY13-17 Geomeans	0.007	0.005	0.004	0.003

	SRS1B	SRS1C	SRS2	G-3273
Sep-15			0.004	0.004
Oct-15	0.007	0.009	0.004	0.005
Nov-15	0.022	0.006	0.003	0.003
Dec-15	0.006	0.008	0.004	0.004
Jan-16	0.006	0.004	0.003	0.004



	SRS1B	SRS1C	SRS2	G-3273
Oct-16	0.007	0.004	0.003	0.004
Nov-16	0.005	0.004	0.003	0.005
Dec-16	0.011	0.012	0.003	0.003
Jan-17		0.005	0.003	
Feb-17		0.004	0.005	
Mar-17			0.007	
Apr-17				
May-17				
Jun-17	0.014	0.011	0.009	0.006
Jul-17	0.007	0.006	0.006	0.004
Aug-17				
Sep-17	0.005	0.006	0.003	0.004

Note: June ENP sampling – 6/13 & 6/14

Water Quality Conditions – WY2017 Shark River Slough

- Summary of Water Year 2017:
 - Water Year 2017 conditions are representative of the previously documented dynamic between stage and total phosphorus concentration observed
 - Long-term water quality conditions and trends in Everglades Protection Area Continue to improve
 - The long-term, downward trend in the flow-weighted mean total phosphorus concentration for the inflow structures to Everglades National Park continued through Water Year 2017