

Water Quality Conditions for Everglades National Park, Water Year 2019 Shark River Slough

Technical Oversight Committee Quarterly Meeting
May 5, 2020

Water Quality Conditions – WY2019 Shark River Slough

12-Month Period Ending	Total Flow (kac-ft)	12-Month TP FWMC (ppb)	Long-Term Limit (ppb)	Percent of Sampling Events Greater than 10 ppb	
				Guideline	Observed
Everglades National Park – Shark River Slough					
Jul 2019	707.7 (780.9)	9.4 (8.9)	9.4 (9.0)	48.9 (46.9)	50.0 (45.8)
Aug 2019	666.5 (755.3)	9.9 (9.2)	9.6 (9.1)	50.1 (47.6)	54.2 (50.0)
Sep 2019	654.1 (748.5)	10.0 (9.3)	9.7 (9.2)	50.5 (47.8)	52.0 (48.0)

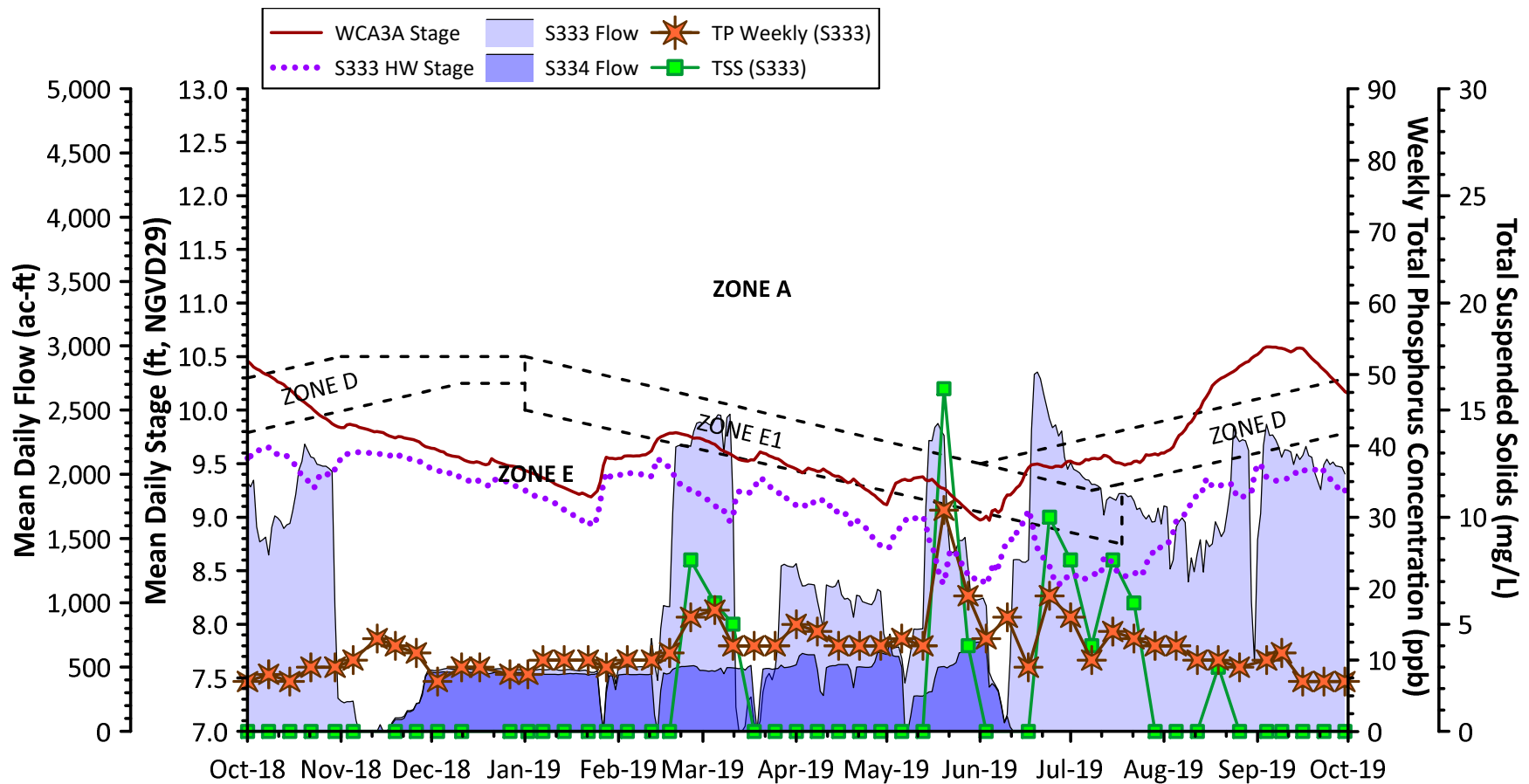
FINAL WY2019 RESULTS

Method 1 (left values) computed as $S_{12s} + (S_{333} + S_{355A} + S_{355B} - S_{334})$ and

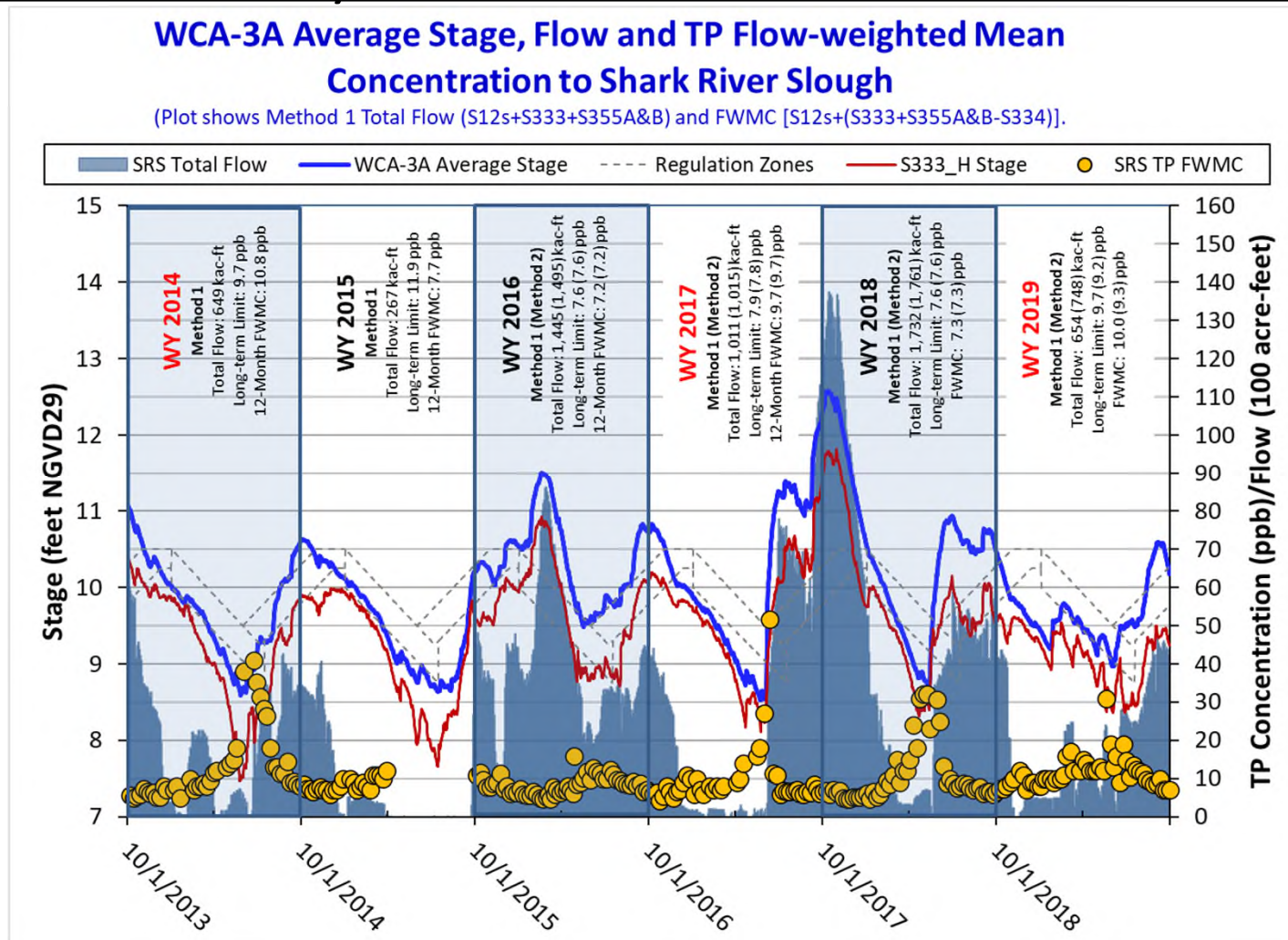
Method 2 (values in parentheses) computed as $S_{12s} + (S_{333} + S_{355A} + S_{355B} + S_{356} - S_{334})$

Neither method excludes S334 flow from the total flow for long-term limit calculations.

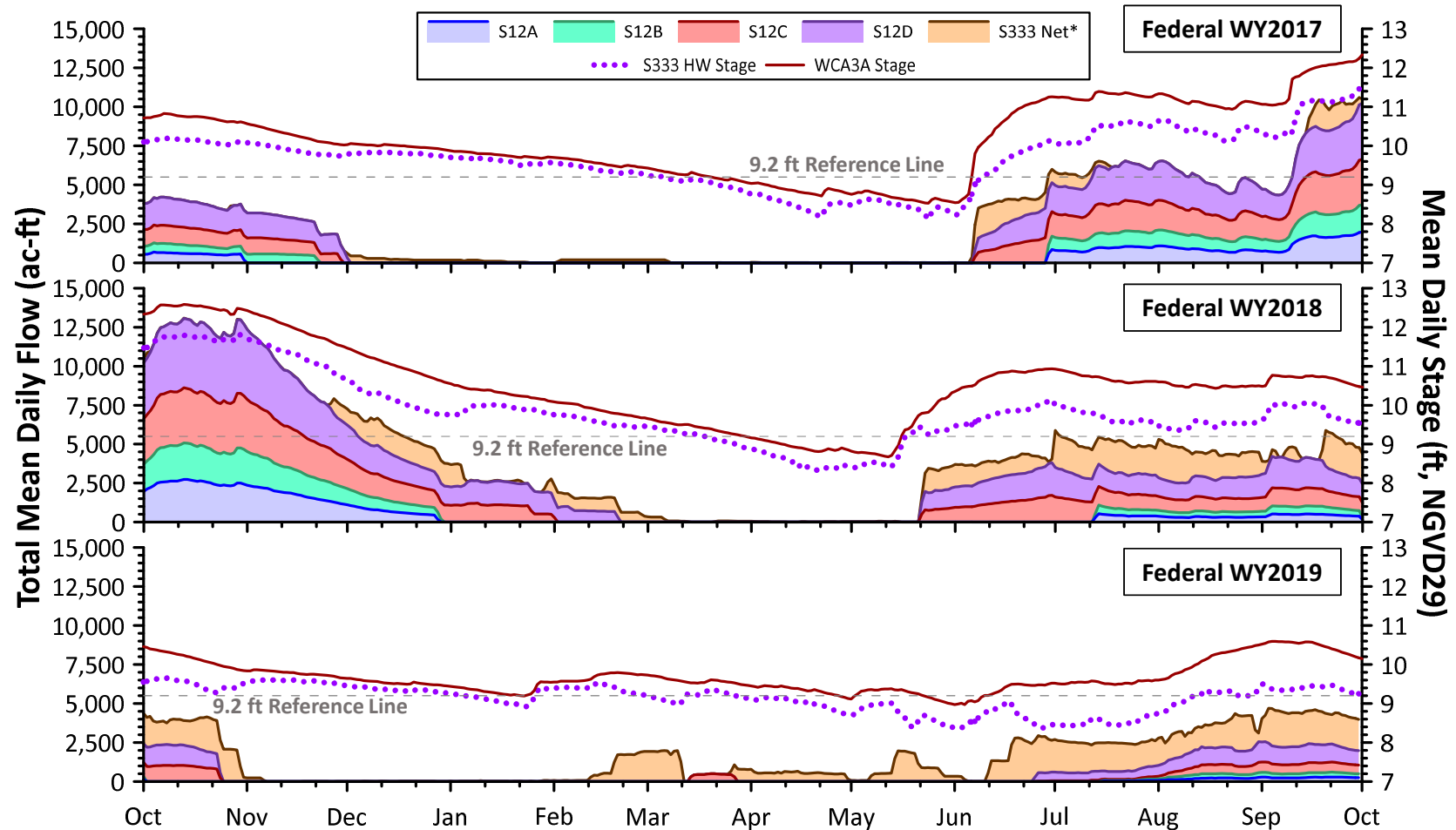
Water Quality Conditions – WY2019 Shark River Slough



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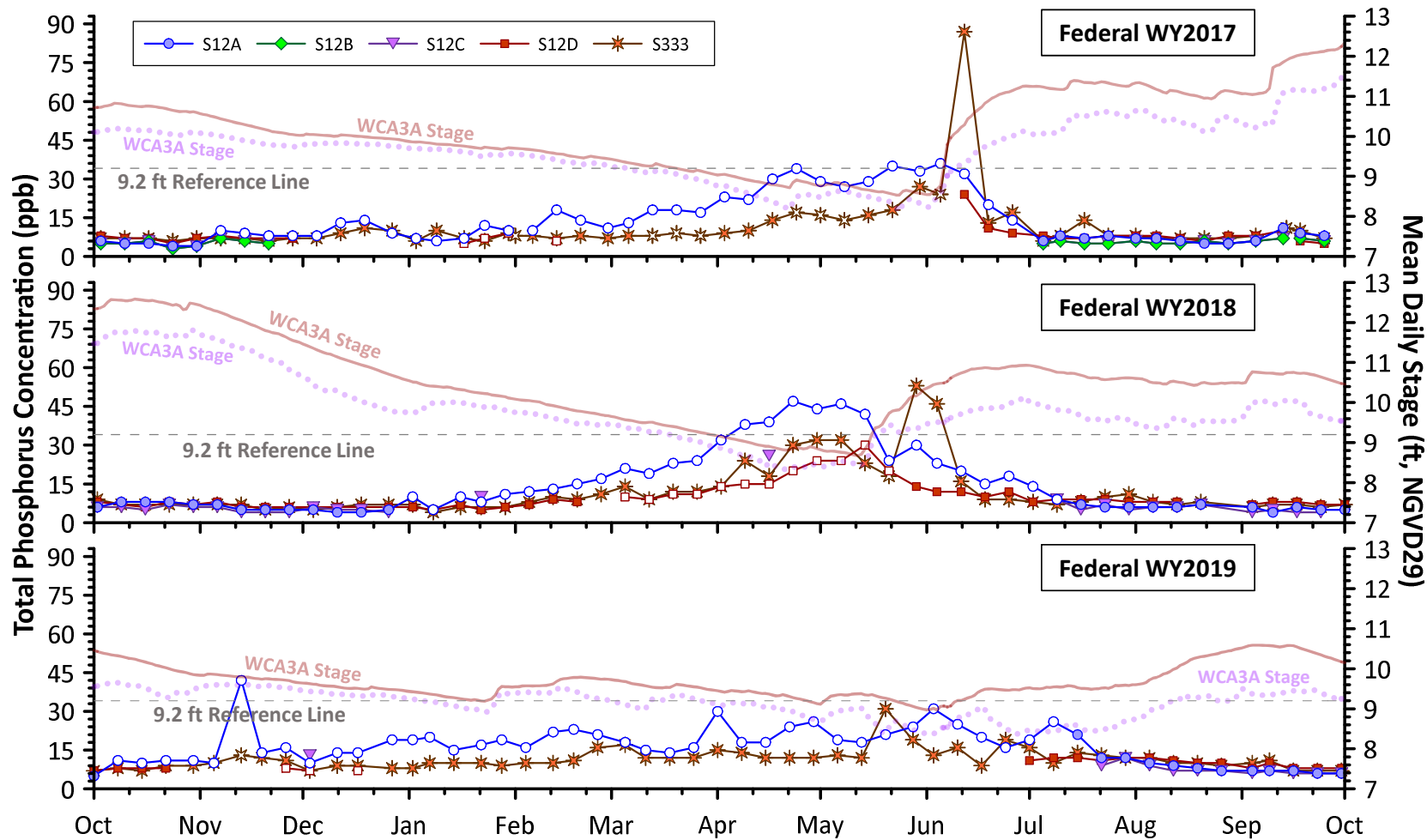


Water Quality Conditions – WY2019 Shark River Slough



*S333 Net Flow = S333 Flow – S334 Flow

Water Quality Conditions – WY2019 Shark River Slough

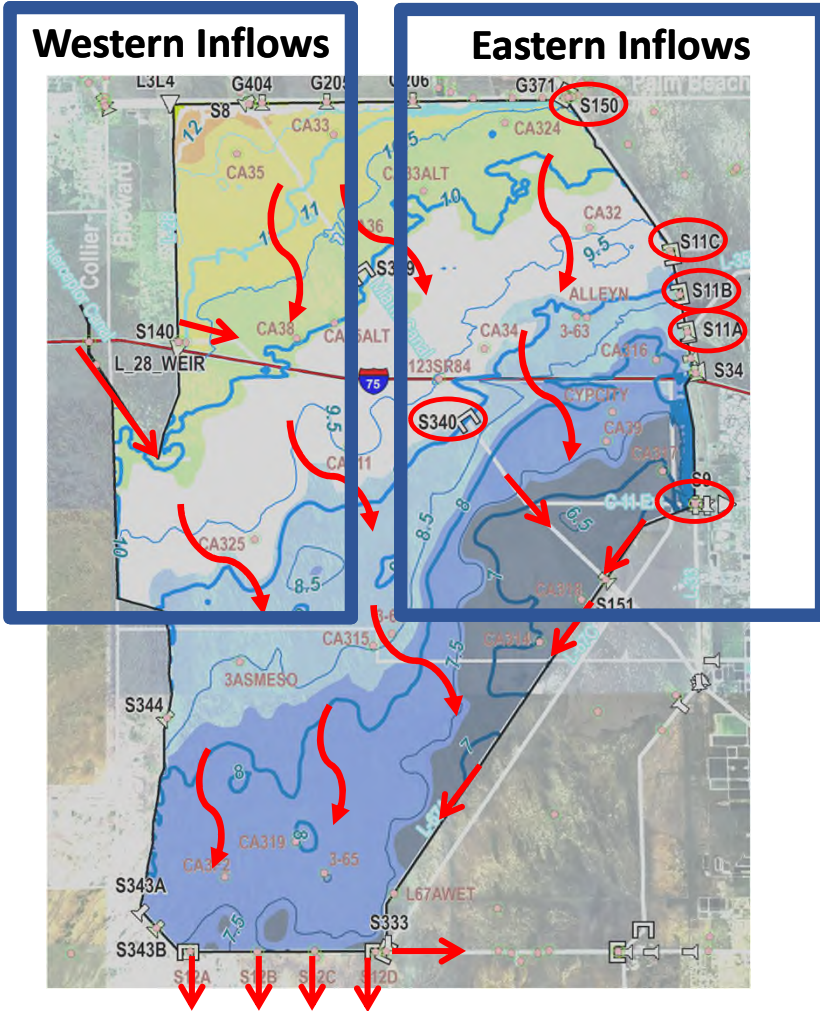


WY2017 TP FWMC	
S12A	7 ppb
S12B	6 ppb
S12C	6 ppb
S12D	8 ppb
S333	32 ppb
SRS	9.7 ppb

WY2018 TP FWMC	
S12A	6 ppb
S12B	5 ppb
S12C	6 ppb
S12D	7 ppb
S333	12 ppb
SRS	7.3 ppb

WY2019 TP FWMC	
S12A	7 ppb
S12B	6 ppb
S12C	6 ppb
S12D	9 ppb
S333	11 ppb
SRS	10.0 ppb

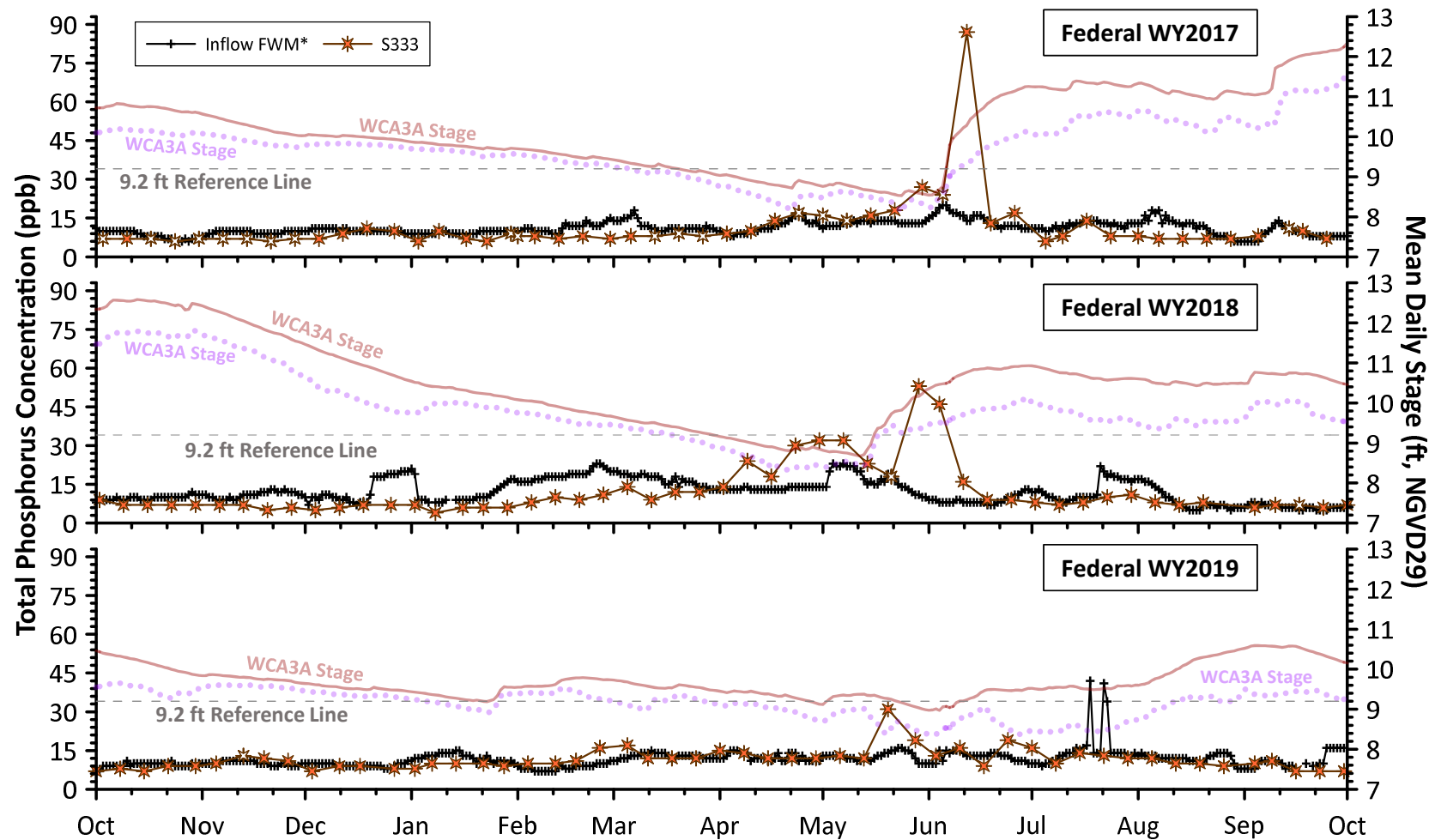
Water Quality Conditions – WY2019 Shark River Slough



WCA-3A Surface Water Inflows

- Eastern Inflows (included)
 - S150 from EAA STAs
 - S11A-C from WCA-2
 - S9 & S9A from Western Broward
 - S340 from Miami Canal & WCA-3A
- Western Inflows (excluded)
 - S8 from STA-3/4 and Rotenberger
 - L3/L4 Canals from STA-5/6
 - S140 from L-28 Canal
 - S190 from L-28 Interceptor Canal
 - Mullet Slough from Big Cypress

Water Quality Conditions – WY2019 Shark River Slough



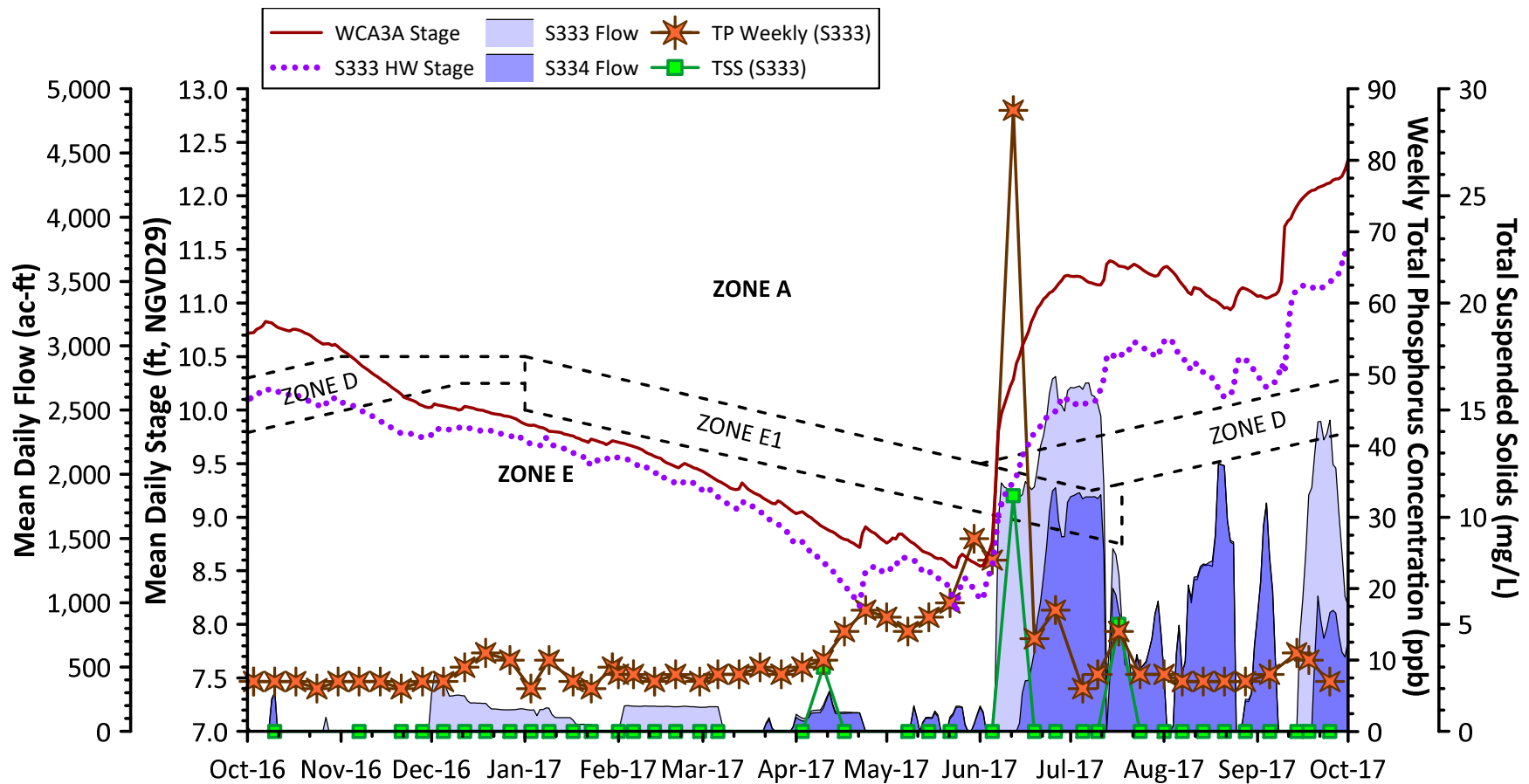
WY2017 TP FWMC	
S333	32 ppb
Eastern Inflow*	11 ppb

WY2018 TP FWMC	
S333	12 ppb
Eastern Inflow*	10 ppb

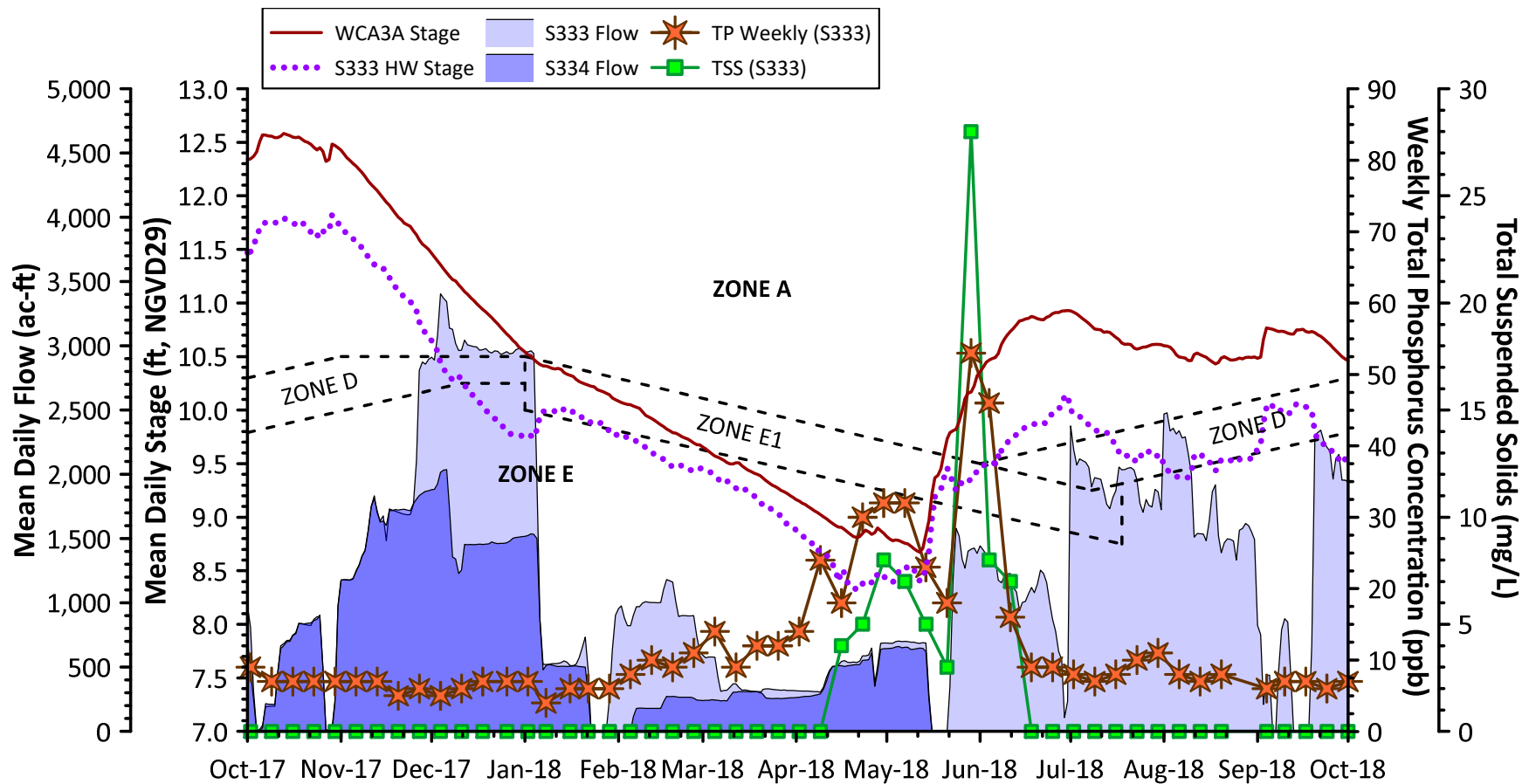
WY2019 TP FWMC	
S333	11 ppb
Eastern Inflow*	11 ppb

*Eastern Inflow FWM Aggregate (S11s, S150, S9, S9A, S340)

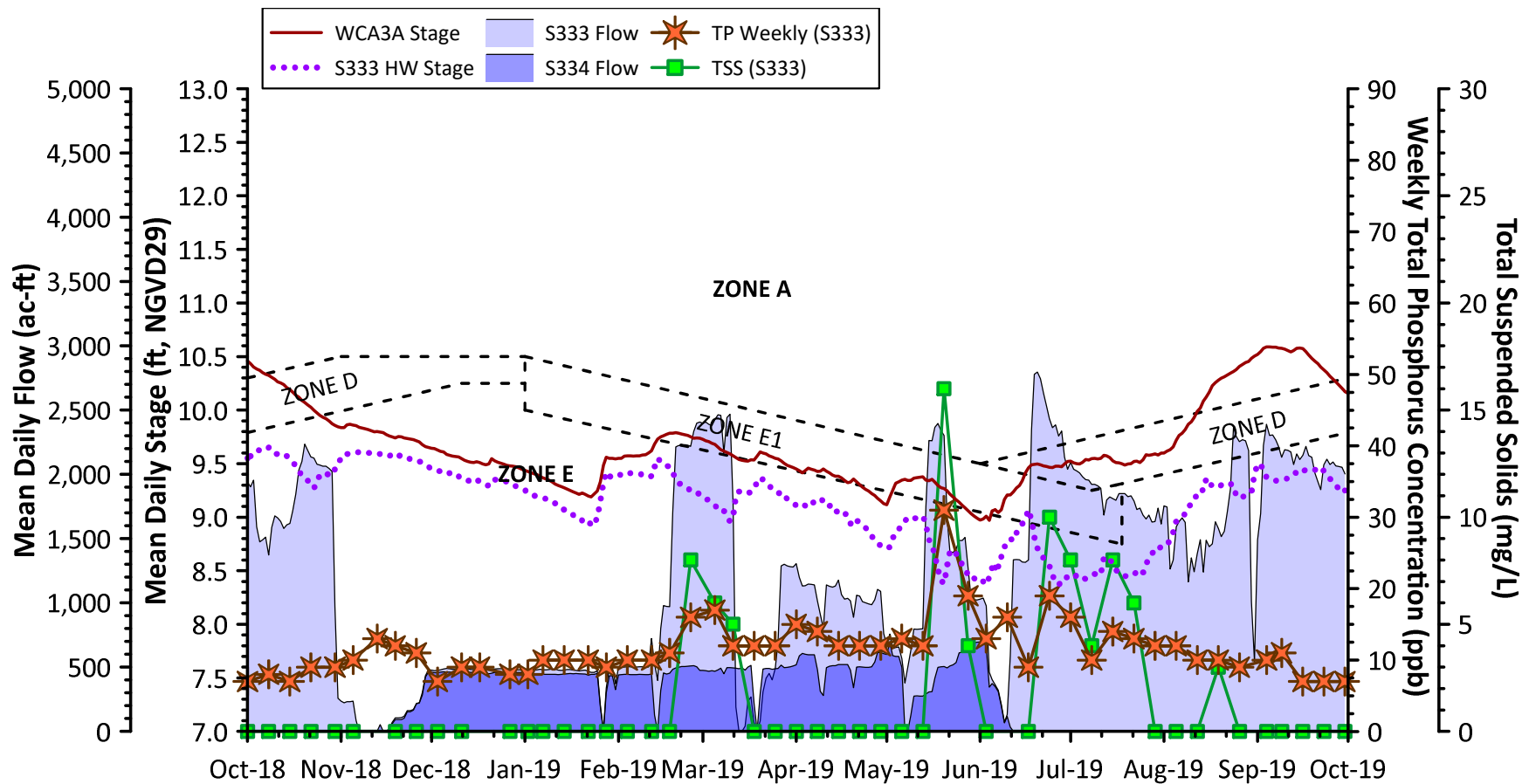
Water Quality Conditions – WY2017 Shark River Slough



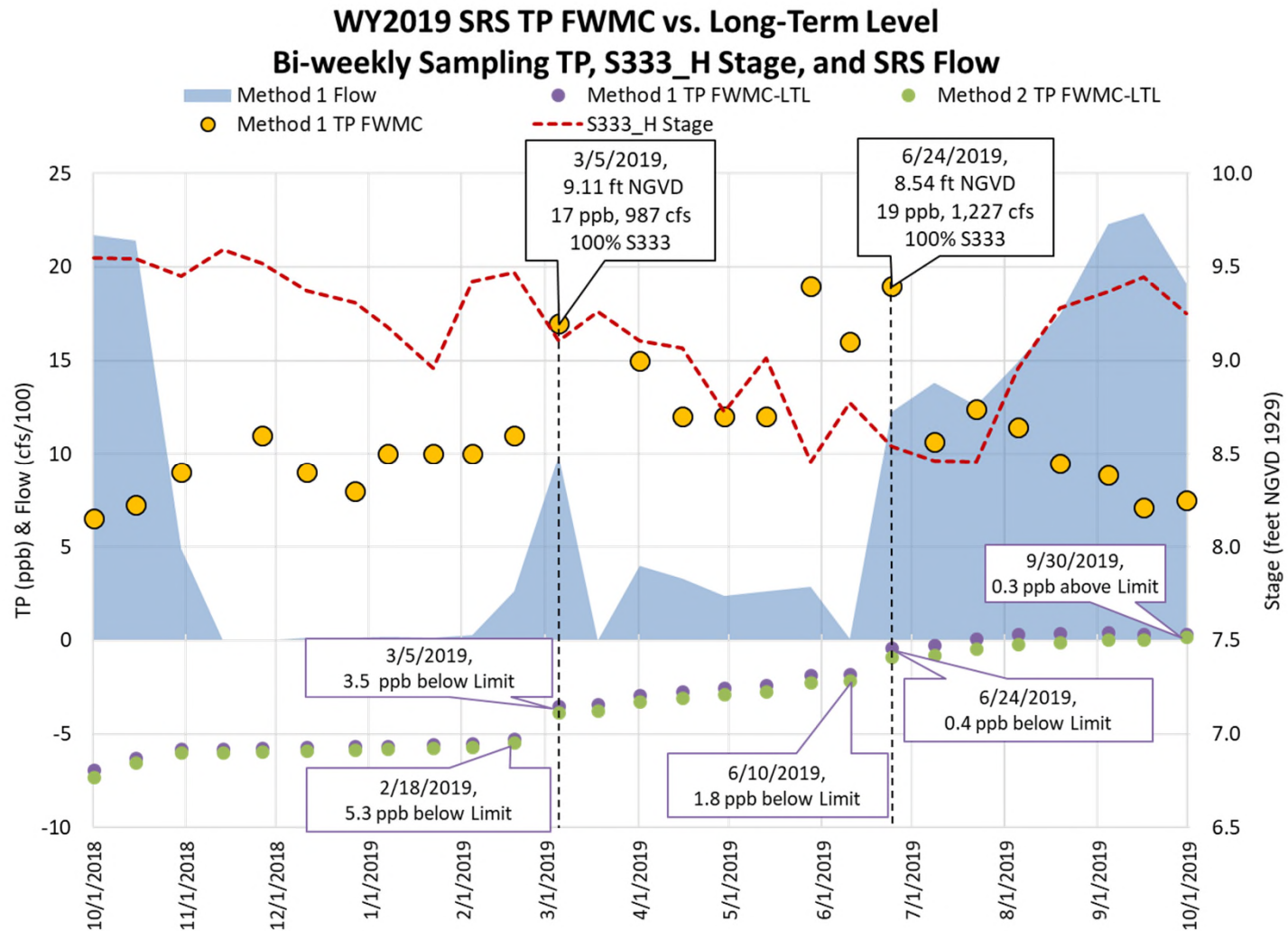
Water Quality Conditions – WY2018 Shark River Slough



Water Quality Conditions – WY2019 Shark River Slough



Water Quality Conditions – WY2019 Shark River Slough



Water Quality Conditions – WY2019 Shark River Slough

WY2008-2019 (12-year period with Long-Term Level effective)

- TP FWMC: 3rd highest
- Rainfall WCA3: 3rd lowest
- SRS Inflow: 5th lowest
- Canal stage at S333
 - Lowest maximum stage
 - Lowest FWM stage

TP (ppb)	SRS FWM TP	LTL	Exceedance	SRS Q (k ac-ft)	WCA3 rain (inch)
2014	10.8	9.7	1.1	649	49
2008	10.6	10.2	0.4	562	54
2019	10.0	9.7	0.3	654	44
2017	9.7	7.9	1.8	1011	64
2011	9.2	12.0	-2.8	247	39
2010	8.9	8.9	0.0	810	54
2012	8.9	8.8	0.1	818	63
2009	8.2	8.2	0.0	945	47
2015	7.7	11.9	-4.2	267	39
2018	7.3	7.6	-0.3	1732	49
2013	7.2	7.6	-0.4	1152	57
2016	7.2	7.6	-0.4	1445	64

Water Quality Conditions – WY2019 Shark River Slough

WY2019 S333 flow >60% of total, Historic WY2008-2018 range 9% - 30%

FWM TP (ppb)	SRS Inflow	S12A	S12B	S12C	S12D	S333*	% S333 Flow
2014	10.8	6	6	7	9	18	24%
2008	10.6	7	7	10	10	12	26%
2019	10.1	7	6	6	9	11	63%
2017	9.7	7	6	6	8	32	9%
2011	9.2	6	6	6	10	12	25%
2010	8.9	6	6	7	9	11	30%
2012	8.9	8	7	6	10	10	14%
2009	8.2	6	6	6	8	16	16%
2015	7.7	7	6	8	8	7	22%
2018	7.6	6	5	6	7	12	18%
2013	7.2	6	5	6	8	12	9%
2016	7.2	6	6	6	7	9	24%
Average	8.8	6.5	5.9	6.8	8.7	13.7	21%

FWM TP ≤ 7.6

7.7 ≤ FWM TP ≤ 9.2

9.2 < FWM TP

* Less S334

Water Quality Conditions – WY2019 Shark River Slough

- **Data error?**

- None apparent influencing compliance.

- **Extraordinary Natural Phenomenon?**

- More discharge at low stages (than WY2008-2019 LTL period)
 - Lowest WY max. canal stage
 - Lowest WY flow-weighted mean canal stage
 - More discharge at S-333 (>60%)
 - Rainfall over WCA-3 = 44.1" (3rd lowest in LTL period)
 - Rainfall in previous wet season also low (low initial stage)
 - First full WY under Increment 2 operations