



SETTLEMENT AGREEMENT QUARTERLY REPORT

April – June 2018

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Compliance Assessment & Reporting Section
Water Quality Bureau

Technical Oversight Committee
October 30, 2018



SUMMARY

Month	Geometric Mean TP Concentration (ppb)	Long-Term Level (ppb)	Mean Stage (feet NGVD29)	Number of Samples	
Arthur R. Marshall Loxahatchee National Wildlife Refuge					
Apr 2018	9.2	12.5	16.00	9	
May 2018	6.3	11.6	16.13	9	
Jun 2018	7.4	8.9	16.66	14	
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 – <i>PROVISIONAL DATA and RESULTS</i>					
Apr 2018	1,852.6 (1,857.3)	7.8 (7.8)	7.6 (7.6)	40.1 (40.1)	34.6 (34.6)
May 2018	1,892.2 (1,897.8)	8.5 (8.5)	7.6 (7.6)	40.1 (40.1)	34.6 (34.6)
Jun 2018	1,892.4 (1,898.0)	7.2 (7.2)	7.6 (7.6)	40.1 (40.1)	30.8 (30.8)
Everglades National Park – Taylor Slough and Coastal Basins					
Apr 2018	503.0 (584.1, 559.0)	6.1 (6.1, 6.0)	11.0	53.1	4.3 (4.3, 4.3)
May 2018	526.0 (607.0, 581.9)	6.1 (6.2, 6.1)	11.0	53.1	3.8 (3.8, 3.8)
Jun 2018	512.2 (592.9, 574.2)	6.1 (6.2, 6.0)	11.0	53.1	3.8 (3.8, 3.8)

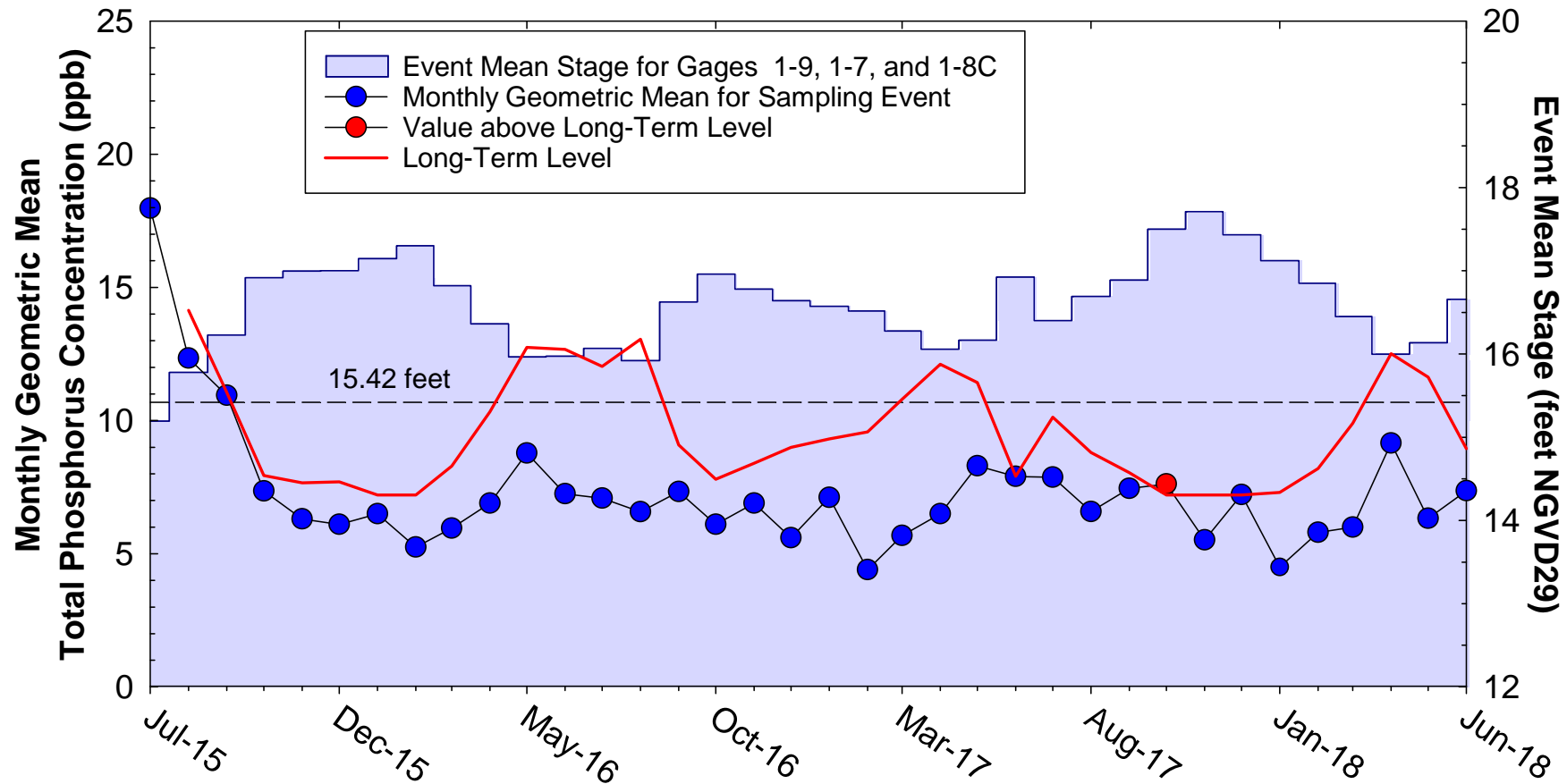
SRS - Method 1 (left values) computed as S12s+(S333+S355A+S355B-S334) and Method 2 (values in parentheses) computed as S12s+(S333+S355A+S355B+S356-S334)

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.

A.R.M Loxahatchee National Wildlife Refuge

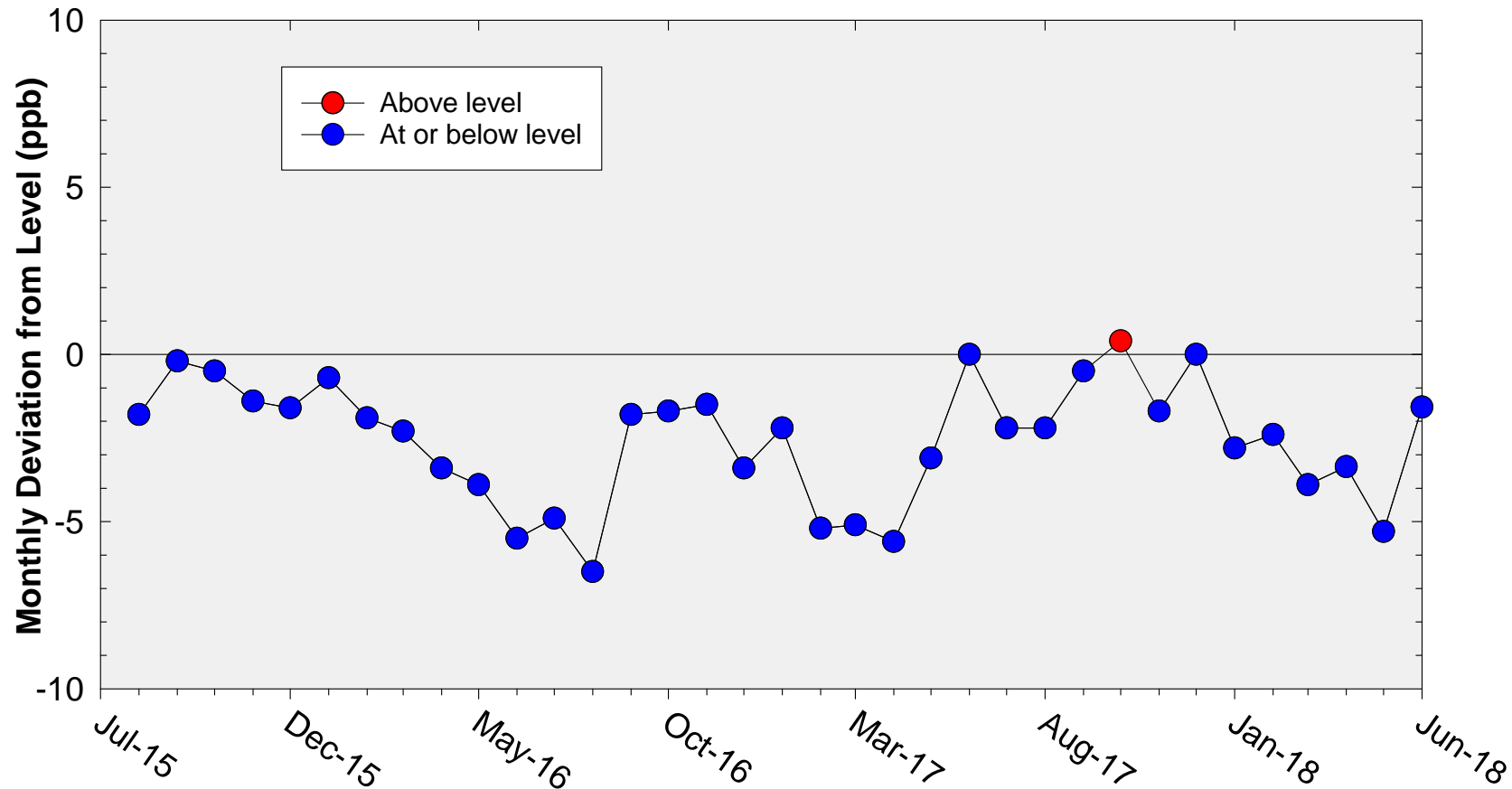
Monthly Total Phosphorus Geometric Mean Concentrations



Average TP geometric mean = 7.1 ppb
 (35 months excluding July 2015)

A.R.M Loxahatchee National Wildlife Refuge

Deviation of monthly geometric mean total phosphorus concentrations with calculated long-term levels



Average TP geometric mean = 2.8 ppb below the Long-Term Level
(35 months excluding July 2015)

Refuge TP Compliance Tracking

For April 2018 - September 2018

Month	Geometric Mean TP Concentration (ppb)	Long-Term Level (ppb) Effective 12/31/2006	Average Stage (feet NGVD 29)	Number of Samples
2nd Quarter Compliance Tracking				
Apr-2018	9.2	12.5	16.00	9
May-2018	6.3	11.6	16.13	9
Jun-2018	7.4	8.9	16.66	14
Preliminary Data Outlook				
Jul-2018	7.6	10.1	16.41	13
Aug-2018	7.0	10.8	16.27	12
Sep-2018	6.1	9.0	16.64	14

Note: Samples collected only if site water depth is at least 10 centimeters.

Shark River Slough

TP Concentration Compliance Tracking

(October 2017 - June 2018 Flow Data are Provisional)

12-Month Period	Total Flow (kac-ft)	Flow-Weighted Mean TP Concentration (ppb)	Long-Term Limit (ppb) <i>Effective 12/31/2006</i>	Percent of Sampling Events Greater than 10 ppb	
				Guideline	Observed
May 2017 - Apr 2018	1,852.6 (1,857.3)	7.8 (7.8)	7.6 (7.6)	40.1 (40.1)	34.6 (34.6)
Jun 2017 - May 2018	1,892.2 (1,897.8)	8.5 (8.5)	7.6 (7.6)	40.1 (40.1)	34.6 (34.6)
Jul 2017 - Jun 2018	1,892.4 (1,898.0)	7.2 (7.2)	7.6 (7.6)	40.1 (40.1)	30.8 (30.8)

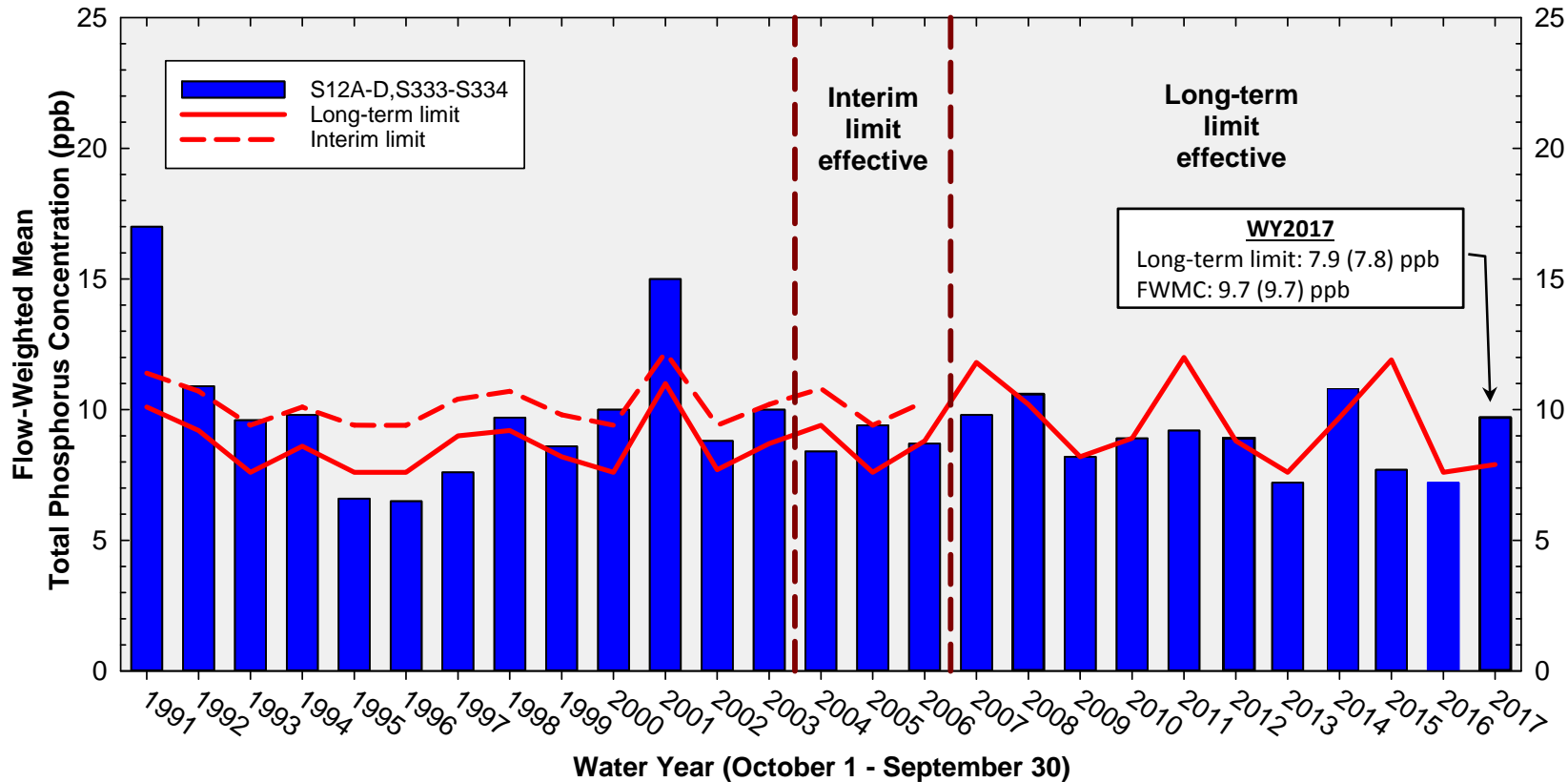
Shark River Slough PROVISIONAL RESULTS:

Method 1 (left values) FWMC computed as $S12s + (S333 + S355A\&B - S334)$ and

Method 2 (in parenthesis) FWMC computed as $S12s + (S333 + S355A\&B + S356 - S334)$ using all flow and TP grabs on bi-weekly compliance sampling dates.

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

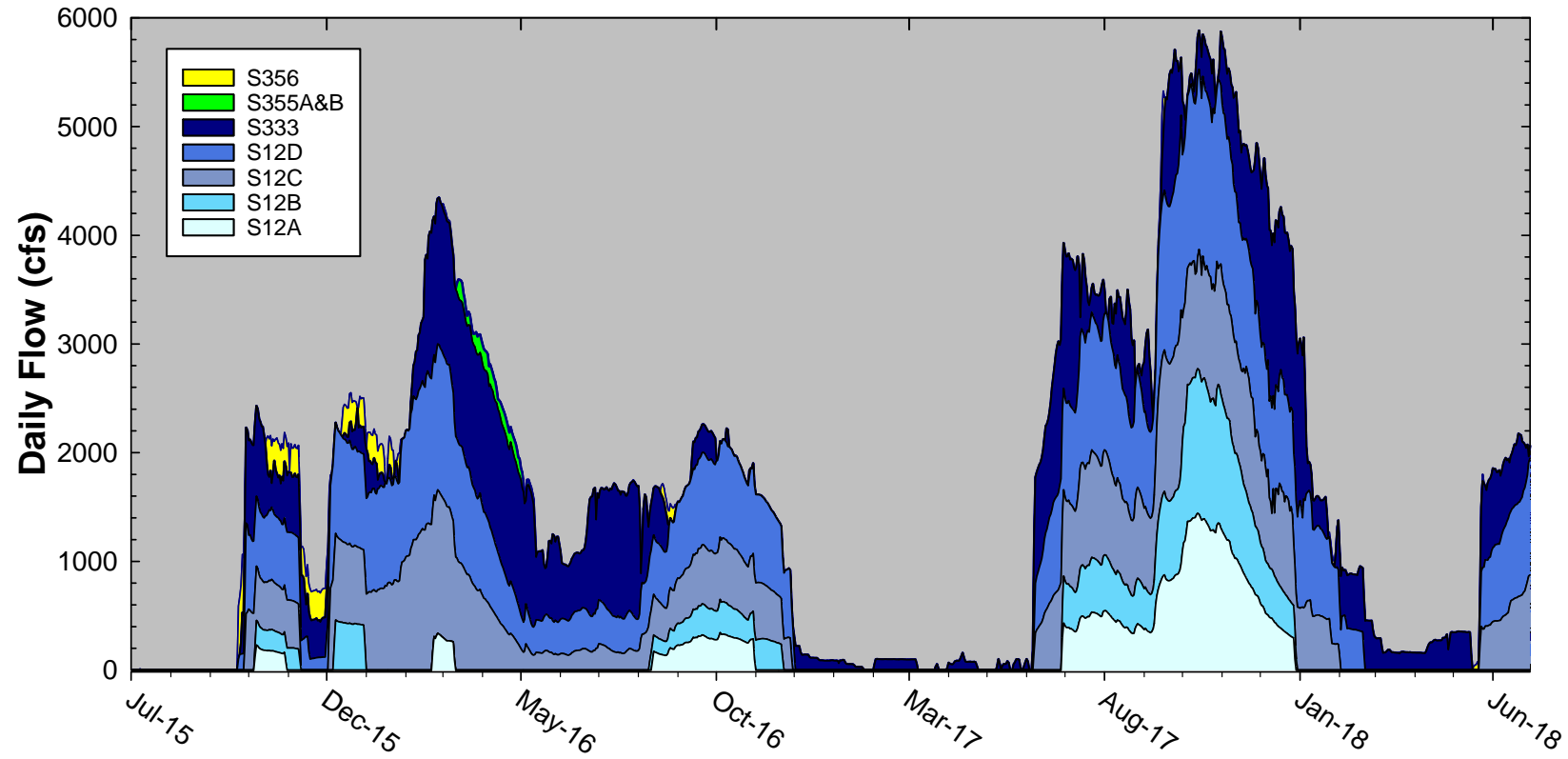
Annual Flow-weighted Mean Concentrations Inflows to ENP through Shark River Slough



12-month FWMC at the end of each water year
compared to the TP interim and long-term limits

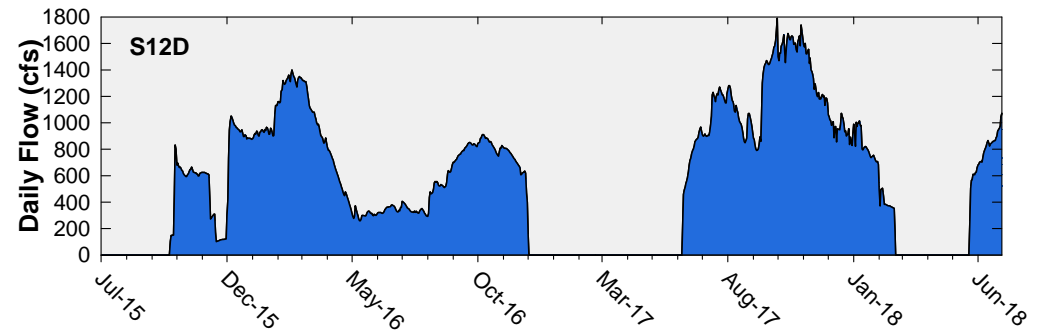
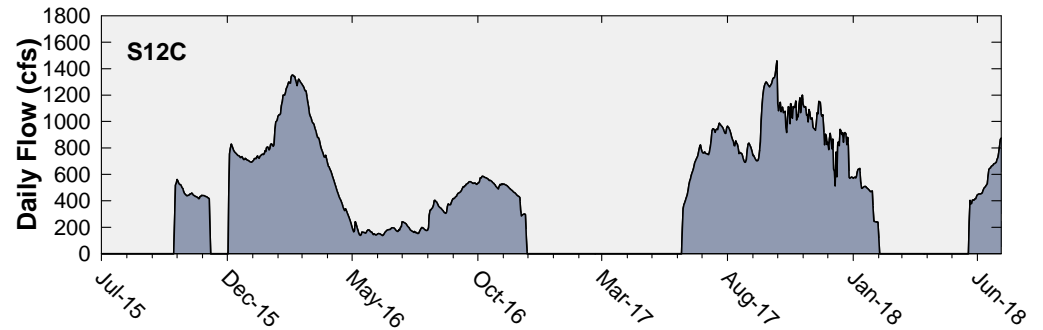
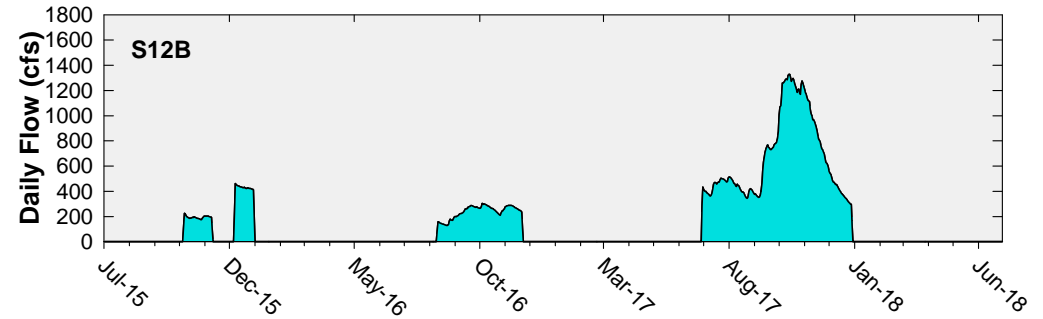
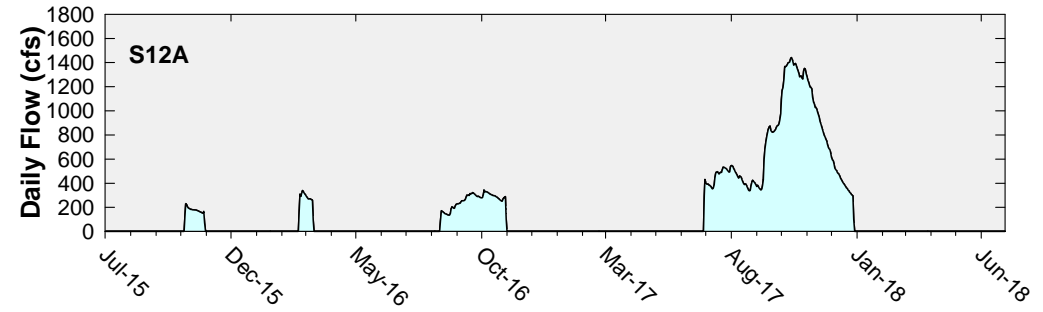
Shark River Slough Daily Flows

(October 2017 – June 2018 Flow Data are Provisional)

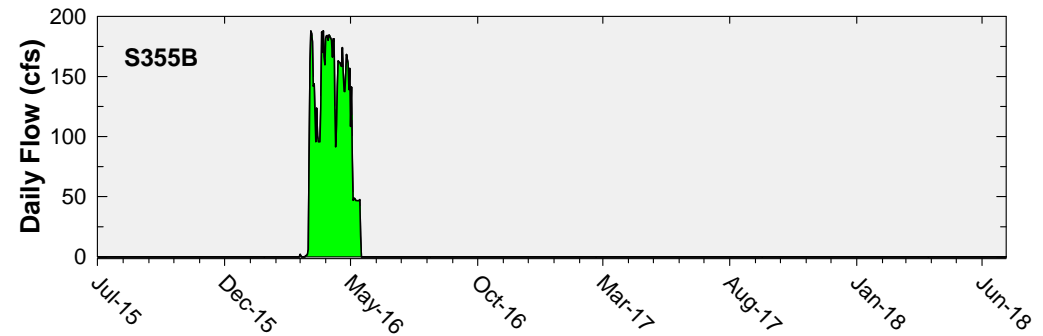
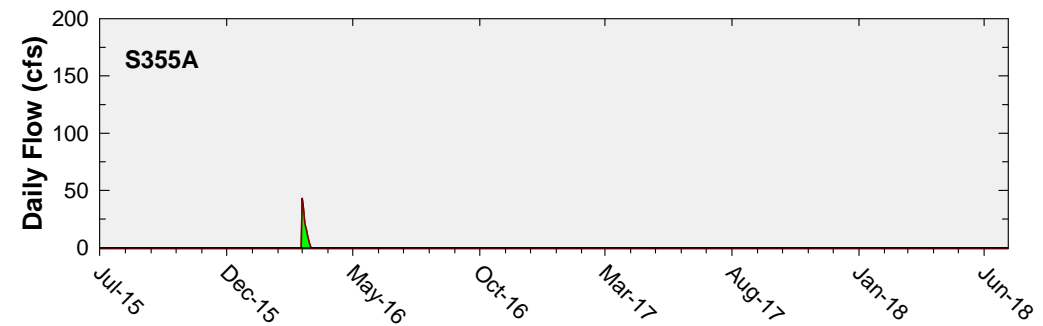
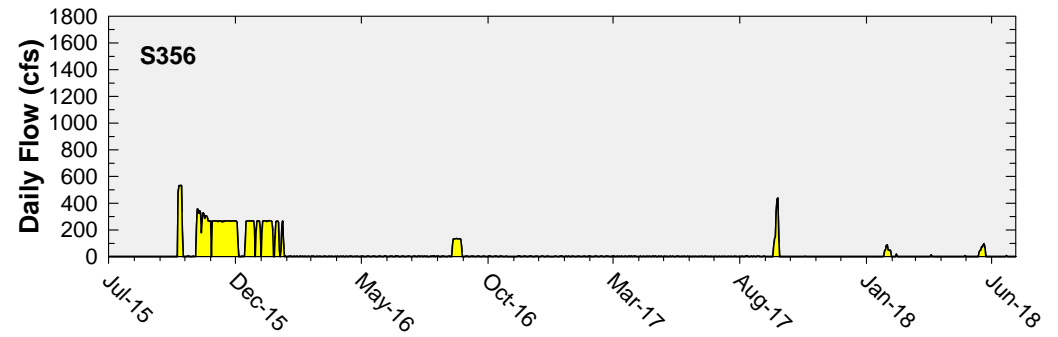
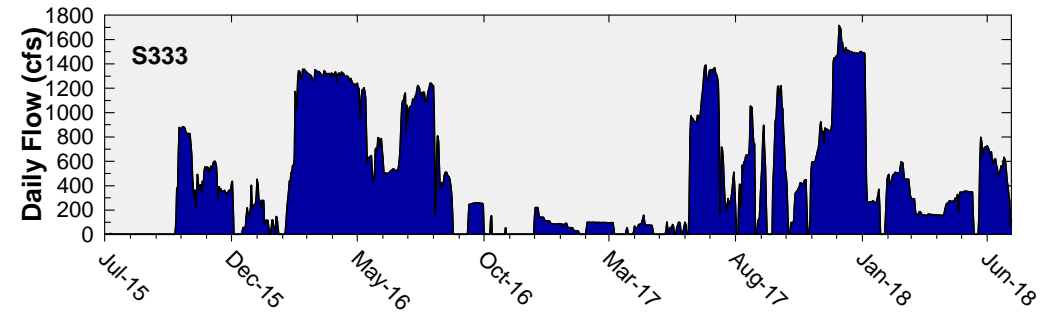


Daily Flows at S12 Structures to Shark River Slough

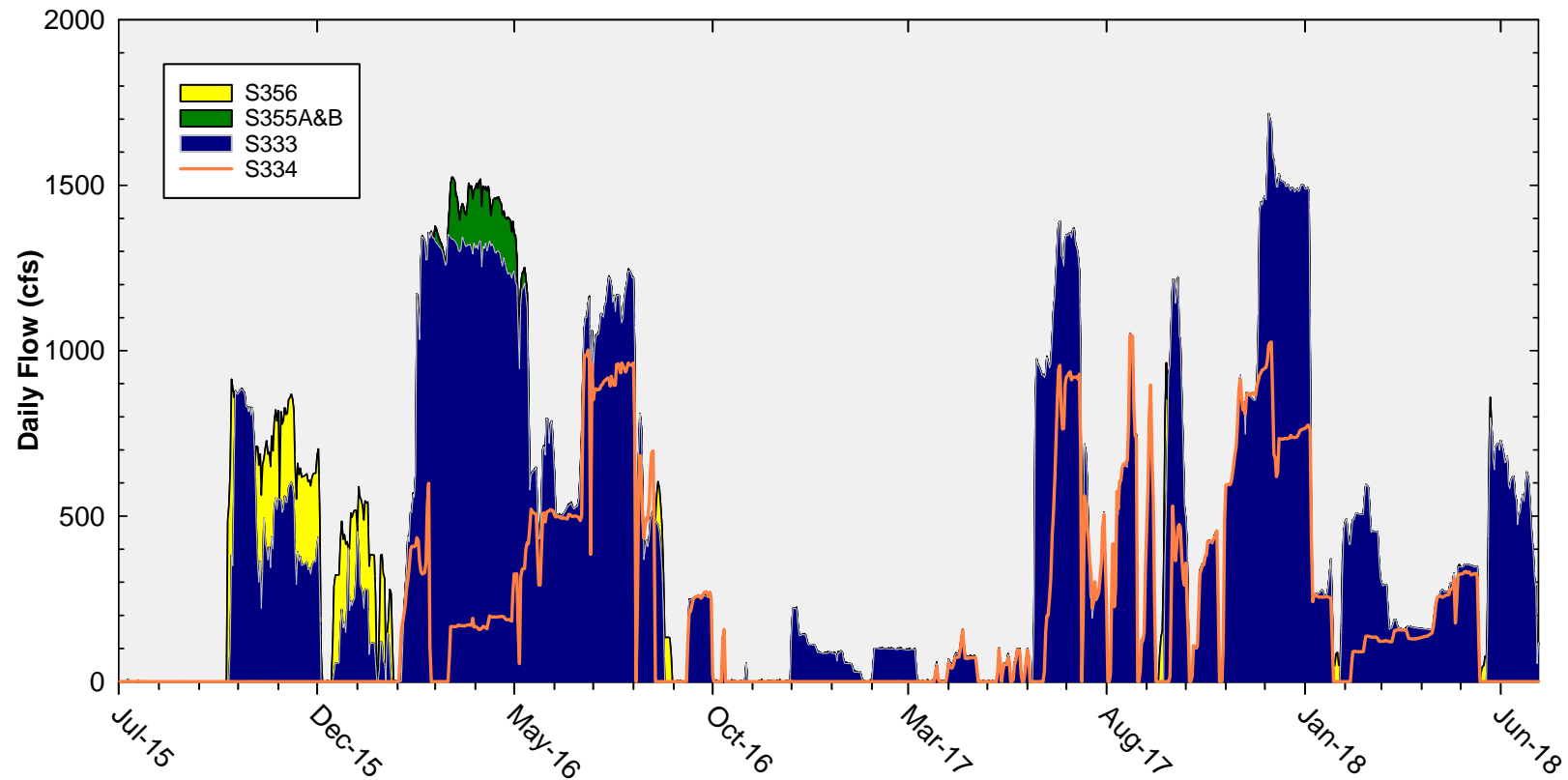
(October – June 2018 Flow
Data are Provisional)



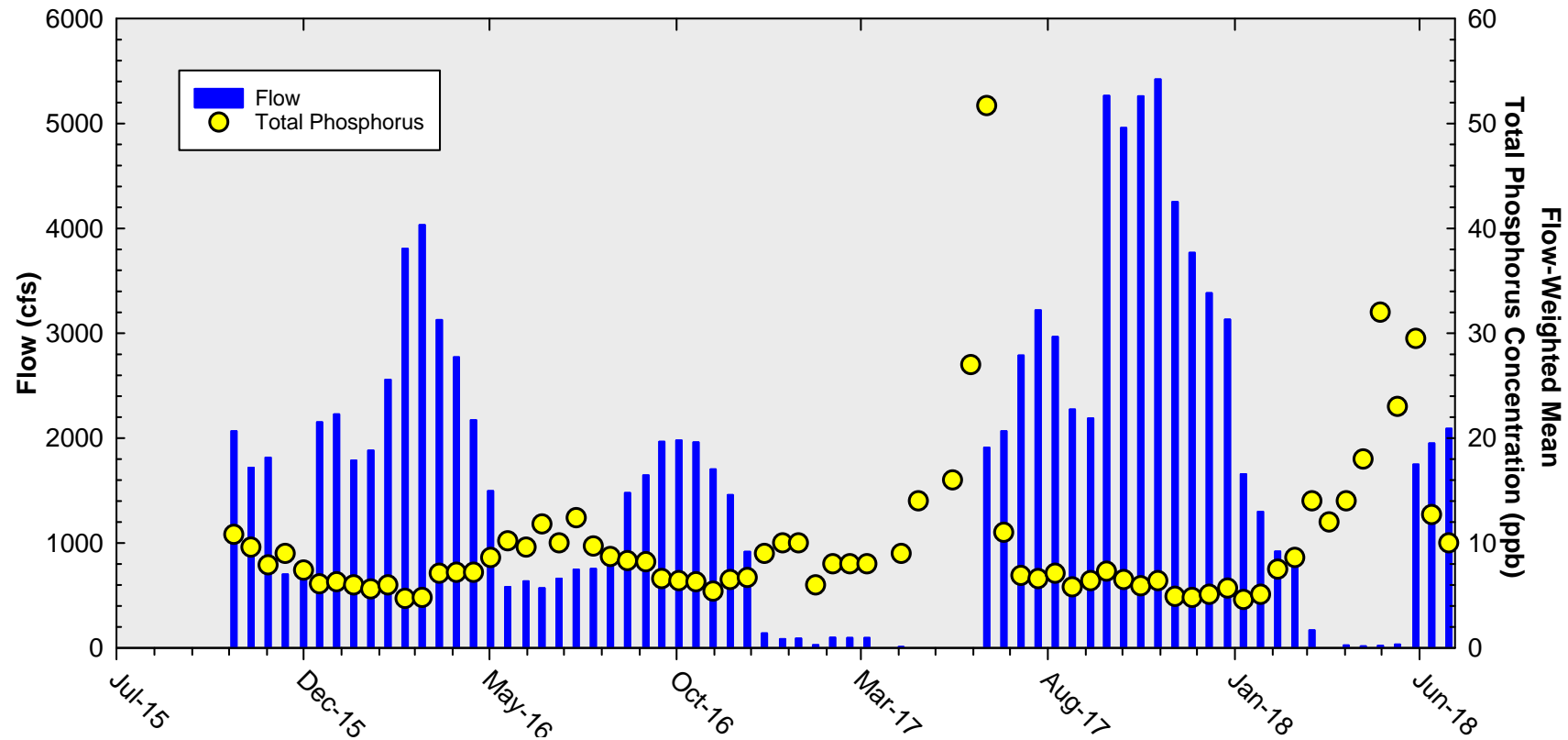
Daily Flows at Individual Inflow Structures to Shark River Slough



Daily Flows Into Shark River Slough through S333, S355A&B, and S356 and Out through S334



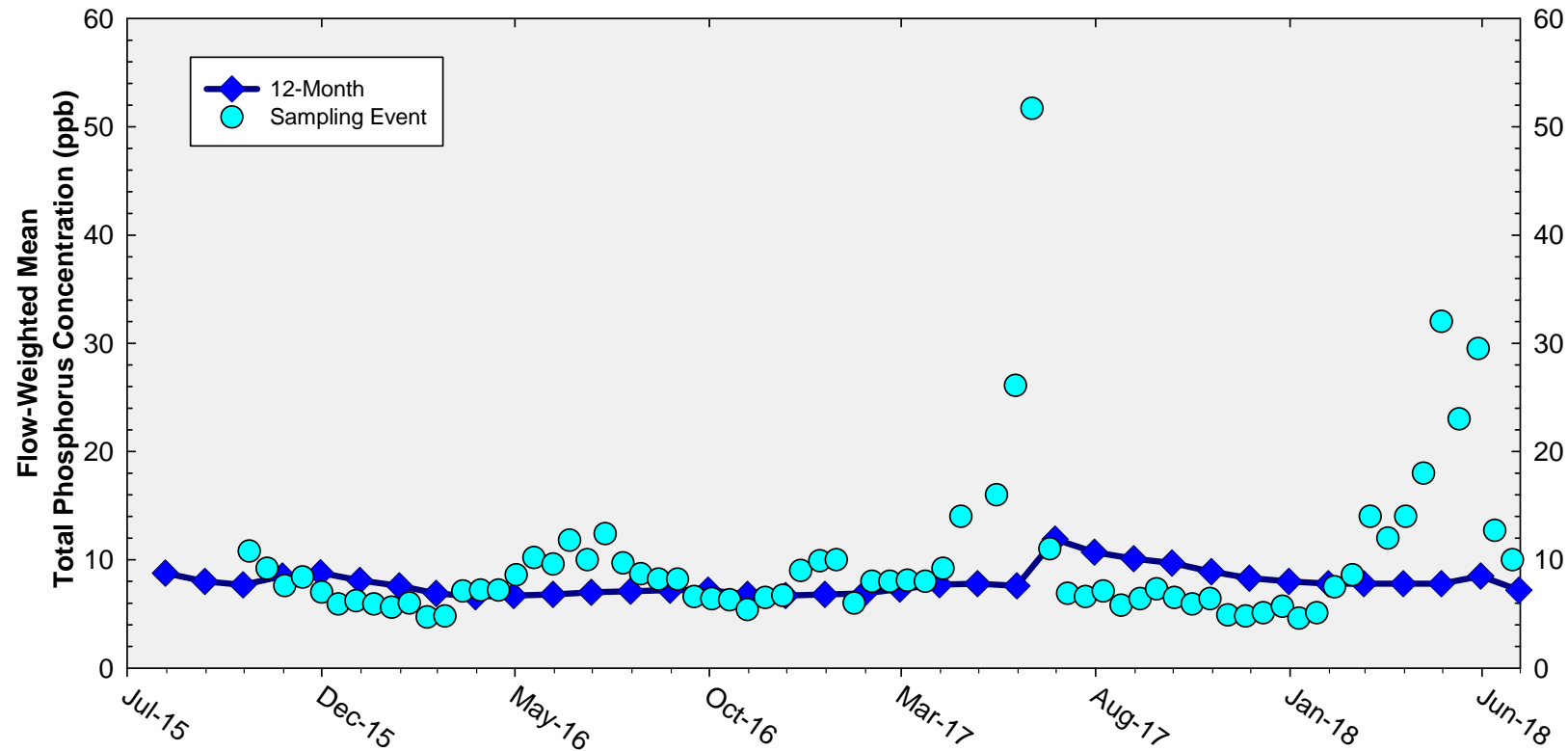
Shark River Slough Sampling Event Flow and FWMC



Flow at Shark River Slough structures and the corresponding TP FWMCs for individual sampling events

Note: Method 1 results illustrated

Flow-Weighted Mean Concentrations Inflows to ENP through Shark River Slough

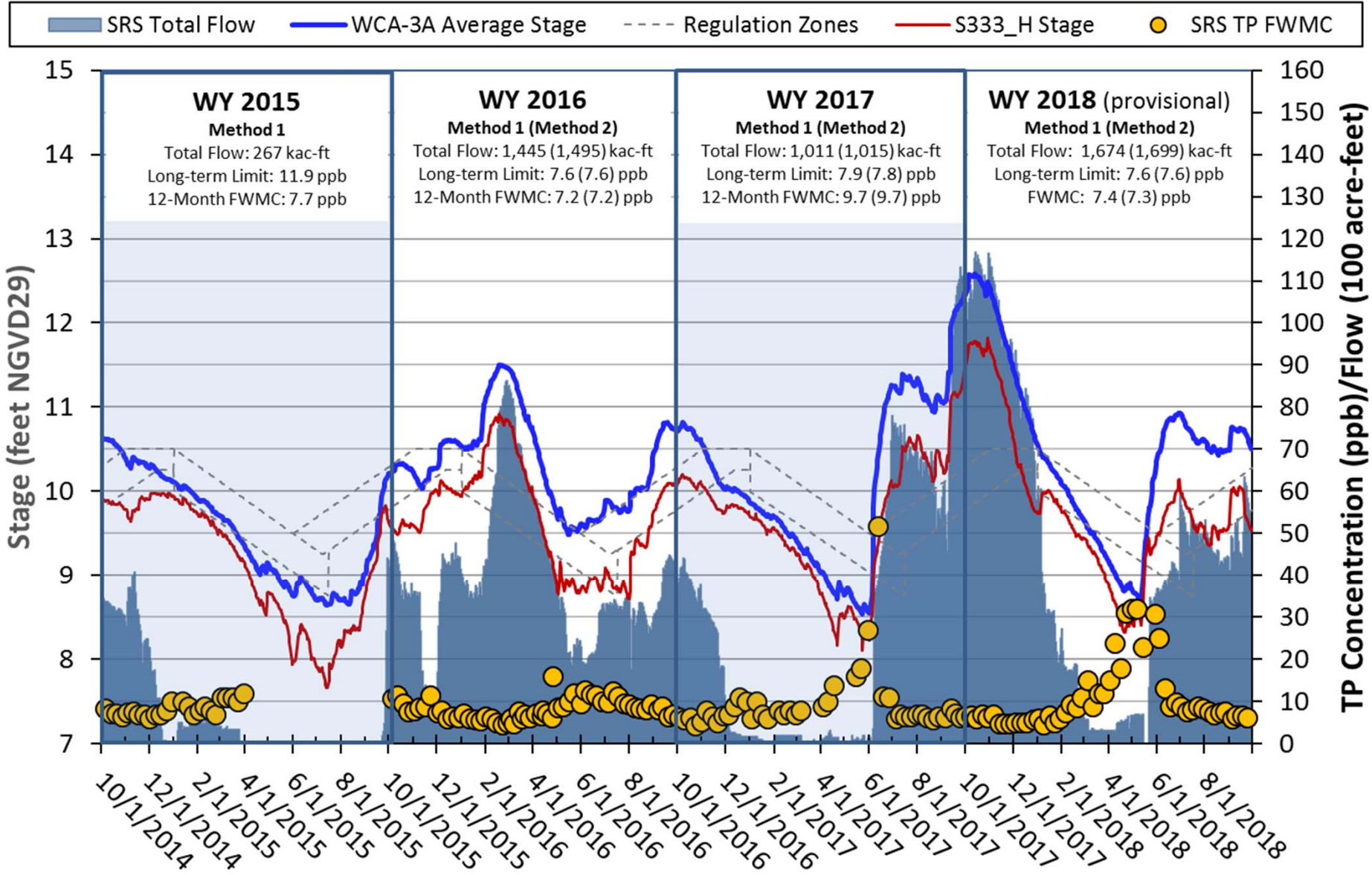


The composite TP concentration and 12-month FwMC at the end of each month for each sampling event

Note: Method 1 results illustrated

WCA-3A Average Stage, S333_H Stage, 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)].



Taylor Slough and Coastal Basins

TP Concentration Compliance Tracking

12-Month Period	Total Flow in kac-ft	Flow-Weighted Mean TP Concentration in ppb LTL = 11.0 ppb Effective 12/31/2006	Observed Percent of Sampling Events Greater than 10 ppb Guideline = 53.1%
May 2017 - Apr 2018	503.0 (584.1, 559.0)	6.1 (6.1, 6.0)	4.3 (4.3, 4.3)
Jun 2017 - May 2018	526.0 (607.0, 581.9)	6.1 (6.2, 6.1)	3.8 (3.8, 3.8)
Jul 2017 - Jun 2018	512.2 (592.9, 574.2)	6.1 (6.2, 6.0)	3.8 (3.8, 3.8)

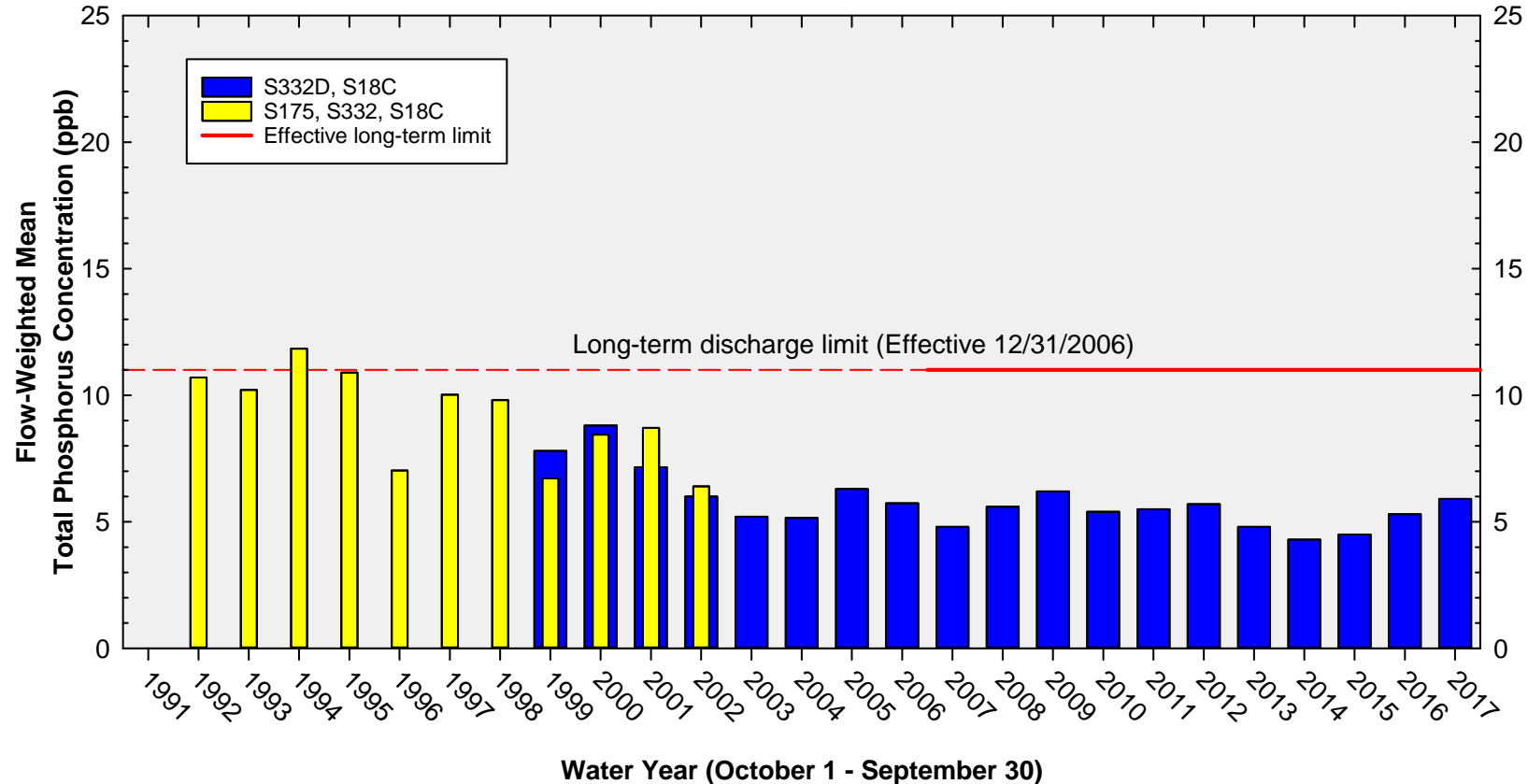
Method 1 (S332D+S18C) results are the left most values.

Method 2 (S332D+S18C+G737) results are the first values in parentheses.

Method 3 [(S332D-S332DX1-S328)+S328+G737+S18C] results are the second values in parentheses.

Annual Flow-Weighted Mean Concentrations

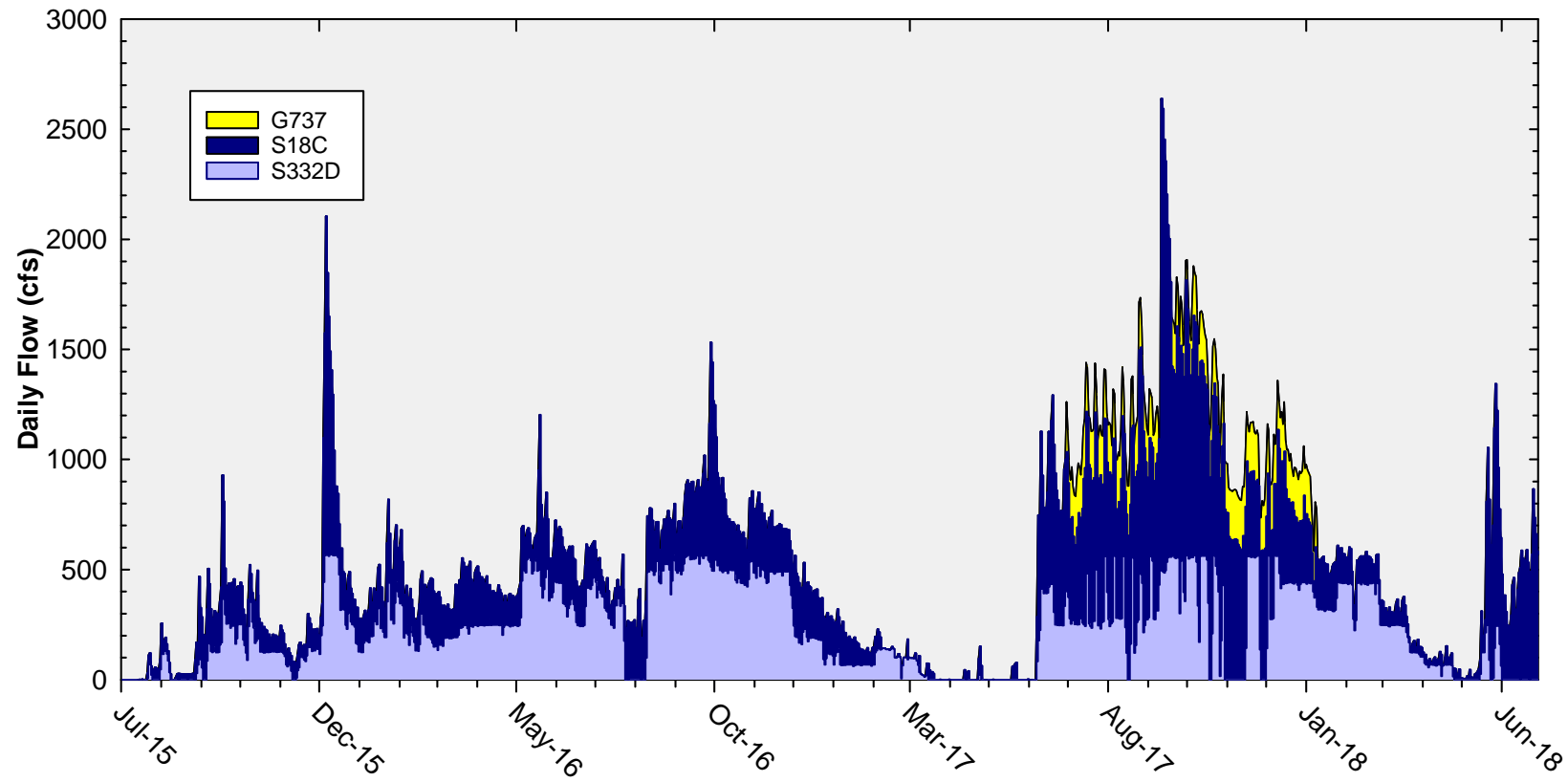
Inflows to the ENP through Taylor Slough and Coastal Basins



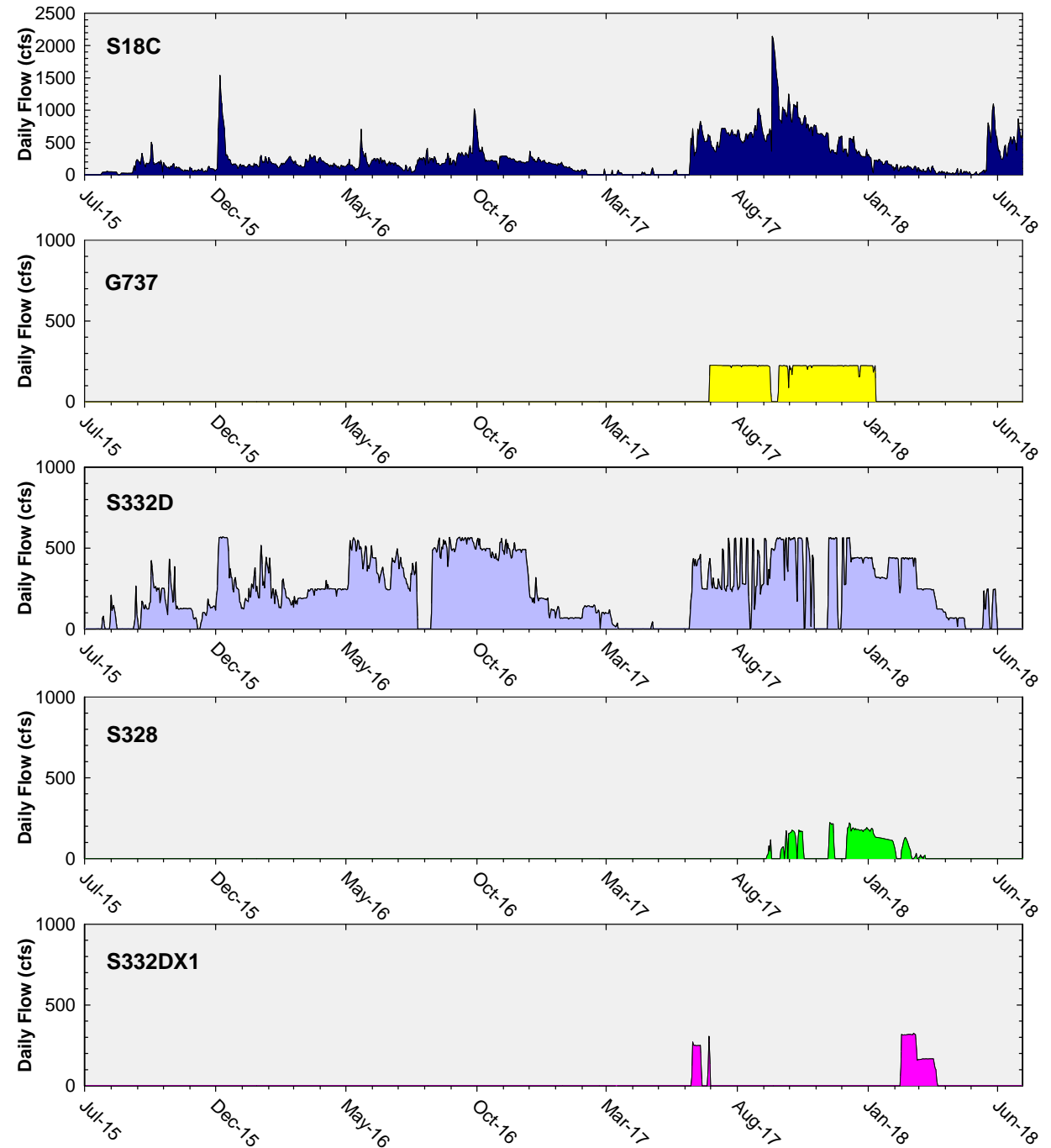
The 12-month FWMC at the end of each water year compared to the 11 ppb long-term TP limit

Note: Blue bars show S332D, S18C, & S174 until September 2007 when S174 was plugged.

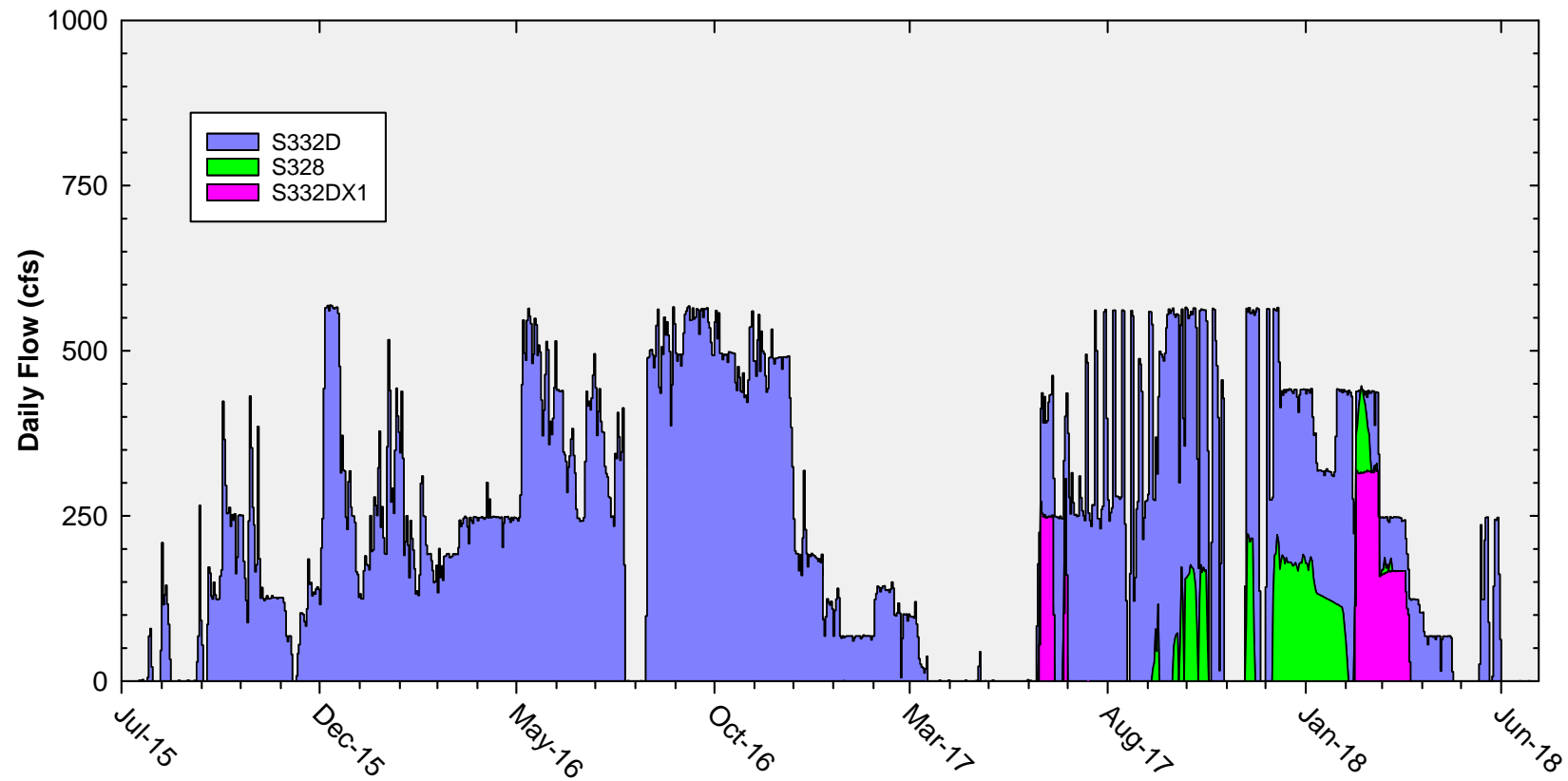
Daily Flows at Taylor Slough and Coastal Basins Structures into ENP



Daily Flows at Individual Taylor Slough and Coastal Basins Structures into ENP

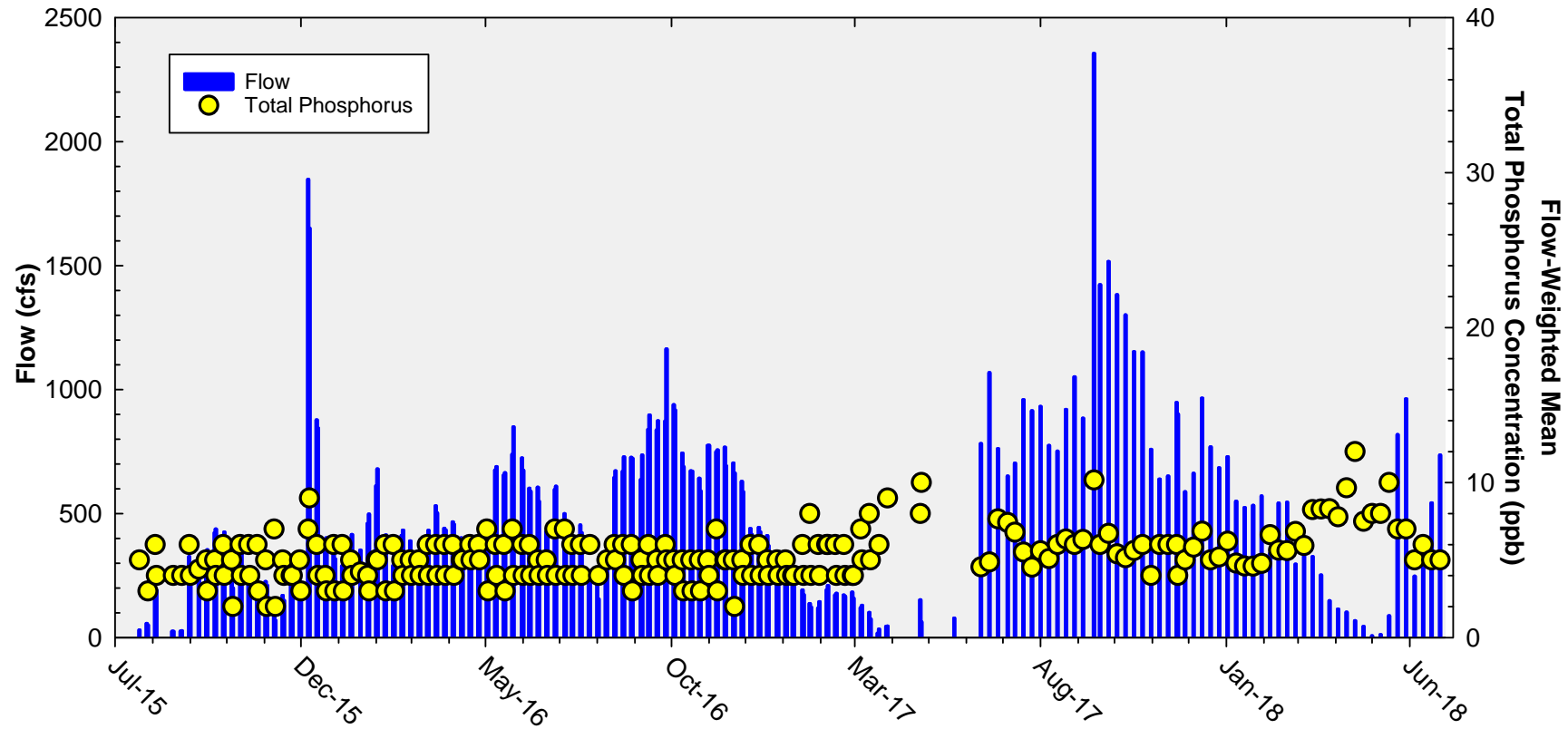


Daily Flows Into and Out of C-111 Detention Area



Taylor Slough and Coastal Basins

Sampling Event Flow and FWMC

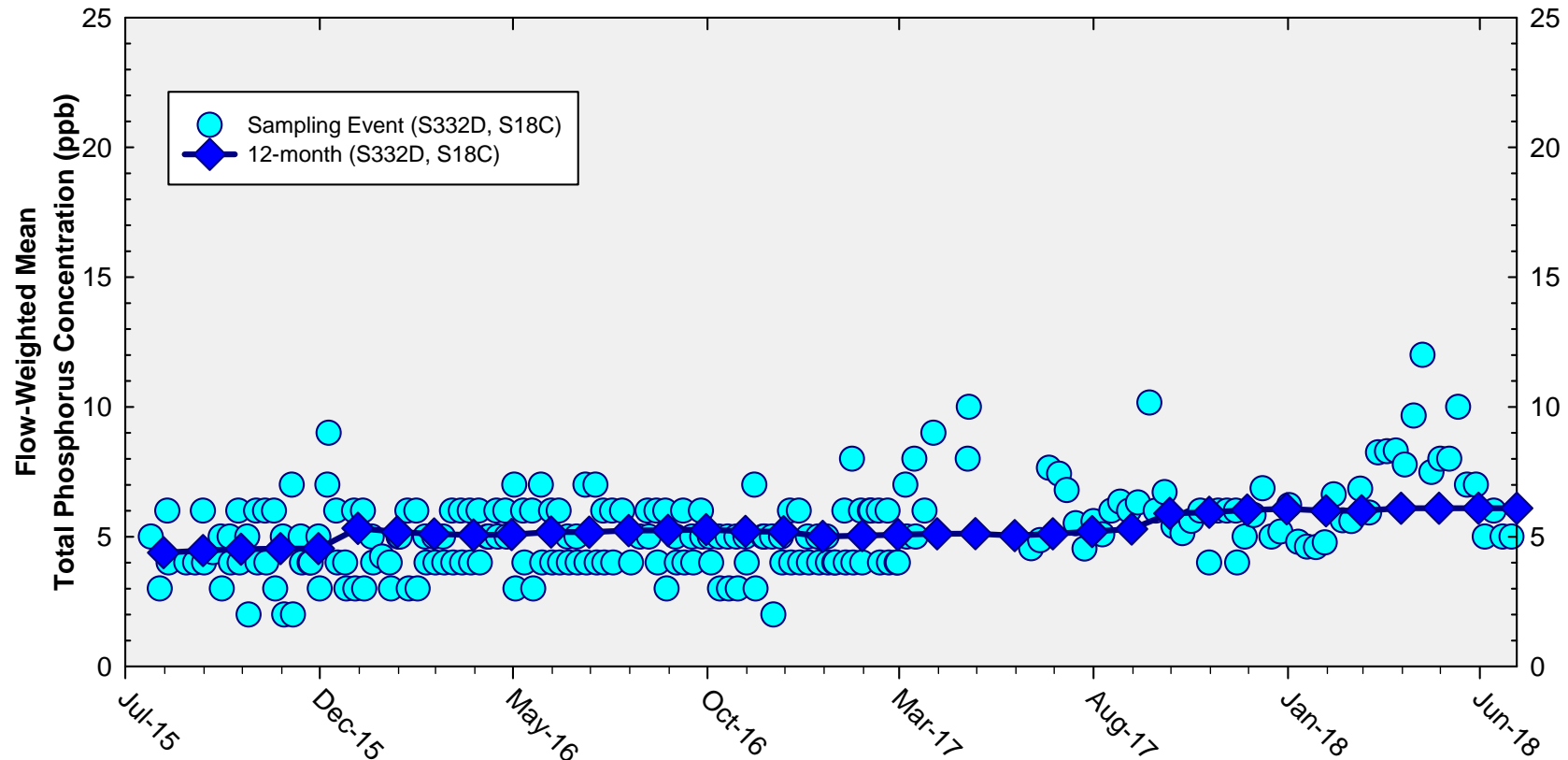


Flow at Taylor Slough and Coastal Basins structures and the corresponding TP FWMCs for individual sampling events

Note: Method 1 results illustrated

Flow-Weighted Mean Concentrations

Inflows to the ENP through Taylor Slough and Coastal Basins



The 12-month FWMC at the end of each month and the composite TP concentration for each sampling event

Note: Method 1 results illustrated

Thank You

