



# SETTLEMENT AGREEMENT QUARTERLY REPORT

July – September 2020

Jonathan P. Madden, P.E.  
Section Leader  
Compliance Assessment & Reporting Section  
Water Quality Bureau

Technical Oversight Committee

January 26, 2021



[sfwmd.gov](http://sfwmd.gov)

## SUMMARY

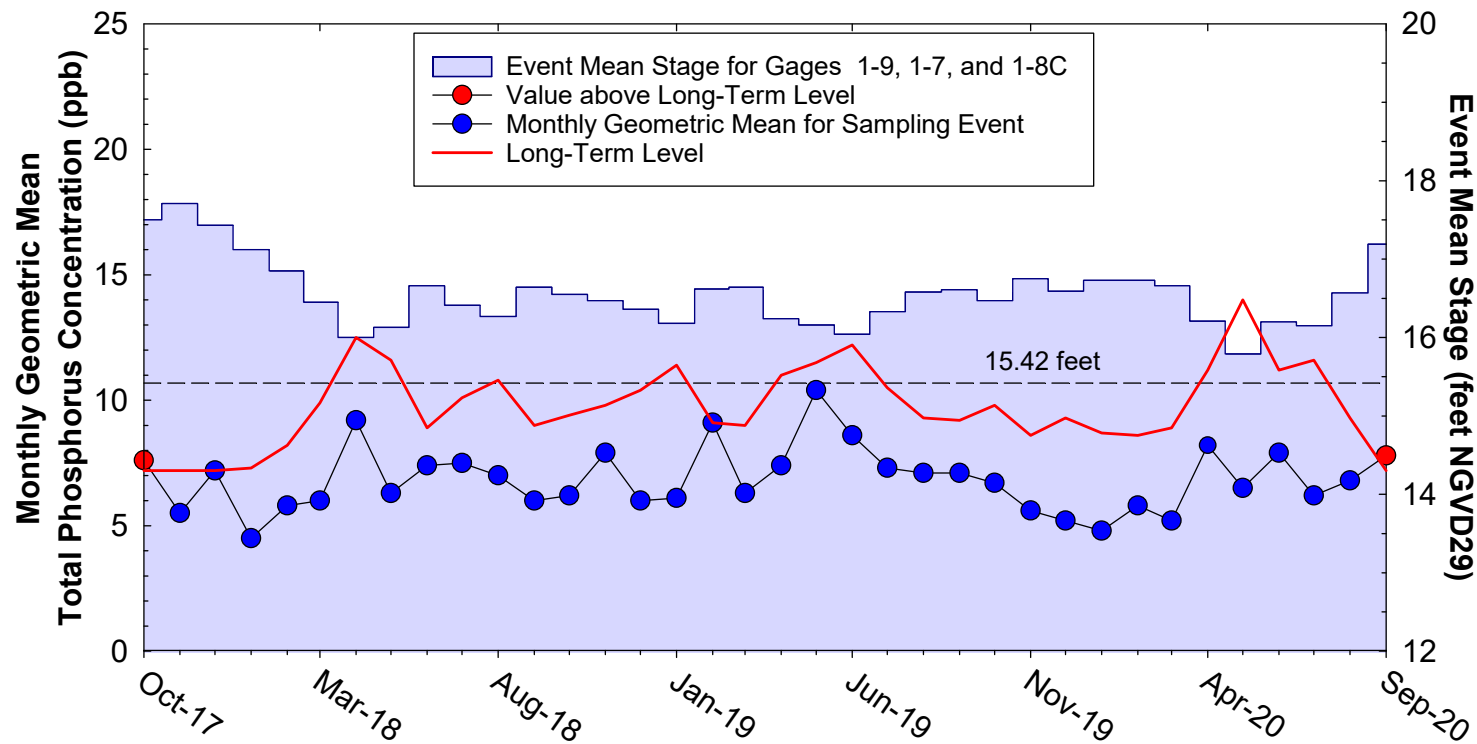
Month	Geometric Mean TP Concentration (ppb)	Long-Term Level (ppb)	Mean Stage (ft NGVD29)	Number of Samples	
Arthur R. Marshall Loxahatchee National Wildlife Refuge					
Jul 2020	6.2	11.6	16.15	12	
Aug 2020	6.8	9.3	16.57	14	
Sep 2020	7.8	7.2	17.19	14	
12-Month Period Ending	Total Flow (kac-ft)	12-Month 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>					
Jul 2020	671.9	9.6	9.6	49.9	40.0
Aug 2020	706.6	9.2	9.4	48.9	33.3
Sep 2020	703.9	9.3	9.4	49.0	35.0
Everglades National Park – Taylor Slough and Coastal Basins					
Jul 2020	291.6	5.3	11.0	53.1	2.1
Aug 2020	297.5	5.3	11.0	53.1	2.1
Sep 2020	318.5	5.3	11.0	53.1	2.1

SRS - computed as  $S12s + [S333 + S355A + S355B + \min(S356, S335) - S334]$ . S334 flow is not excluded from the total flow for long-term limit calculations.

TS and CB – computed as  $(S332D - S332DX1 - S328) + S328 + G737 + S18C$ .

## A.R.M Loxahatchee National Wildlife Refuge

### Monthly Total Phosphorus Geometric Mean Concentrations

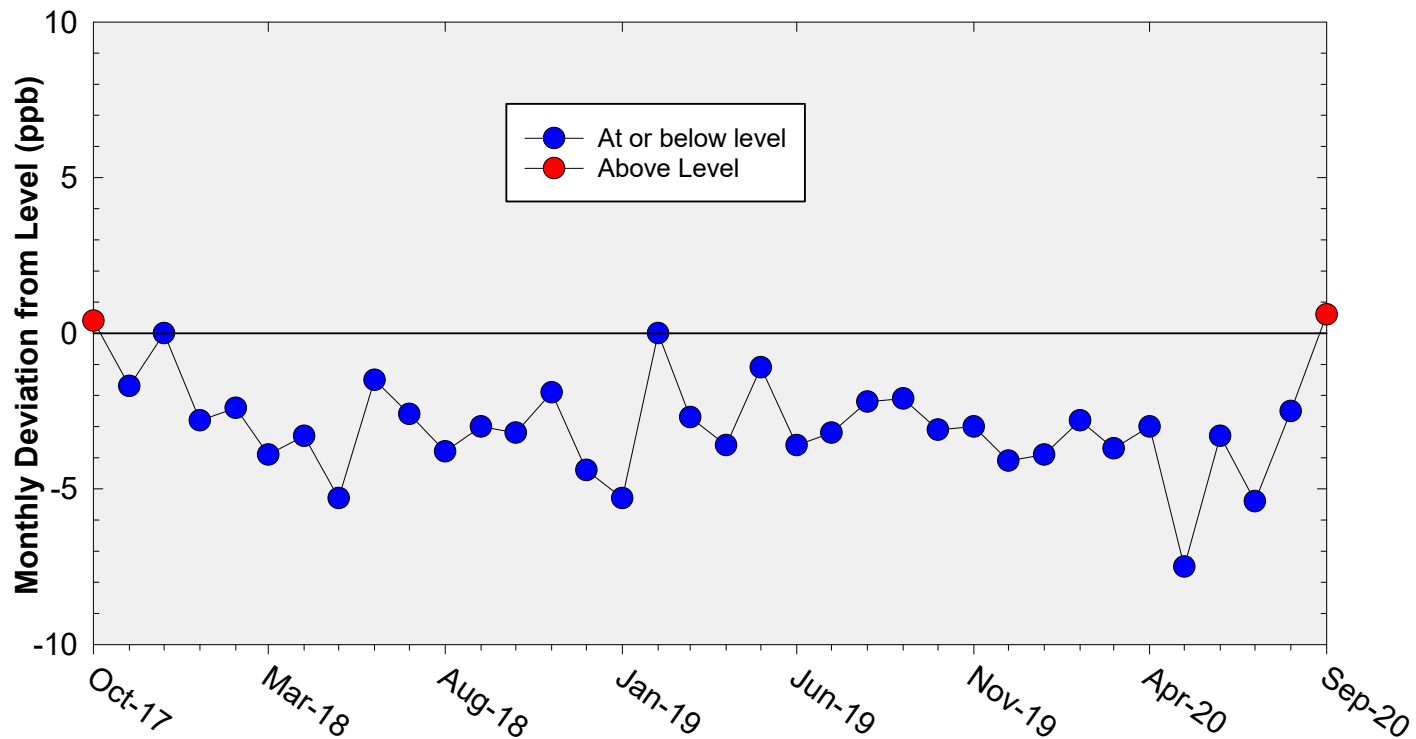


36-Month Average TP Geometric Mean = 6.8 ppb

36-Month Average TP Long-term Level is = 9.8 ppb

## A.R.M Loxahatchee National Wildlife Refuge

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



**36-Month Average TP geometric mean = 2.9 ppb below the Long-Term Level**

## Refuge TP Compliance Tracking

For July – January 2021

Month	Geometric Mean TP Concentration (ppb)	Long-Term Level (ppb) Effective 12/31/2006	Average Stage (feet NGVD29)	Number of Samples
<b>1st Quarter 2020 Compliance Tracking</b>				
<b>Jul-2020</b>	<b>6.2</b>	<b>11.6</b>	<b>16.15</b>	<b>12</b>
<b>Aug-2020</b>	<b>6.8</b>	<b>9.3</b>	<b>16.57</b>	<b>14</b>
<b><i>Sep-2020</i></b>	<b><i>7.8</i></b>	<b><i>7.2</i></b>	<b><i>17.19</i></b>	<b><i>14</i></b>
<b>Preliminary Data Outlook</b>				
<b>Oct-2020</b>	<b>6.4</b>	<b>7.2</b>	<b>17.45</b>	<b>14</b>
<b>Nov-2020</b>	<b>5.3</b>	<b>7.2</b>	<b>17.54</b>	<b>14</b>
<b>Dec-2020</b>	<b>5.6</b>	<b>7.2</b>	<b>17.39</b>	<b>14</b>
<b>Jan-2021</b>	<b>4.6</b>	<b>7.2</b>	<b>17.28</b>	<b>14</b>

Note: 17.14 ft NGVD29 was used for the long-term level calculation for September through January 2021.

## Shark River Slough TP Concentration Compliance Tracking

WY2020 (October 2019 to September 2020) Flow Data for S12s are Provisional.

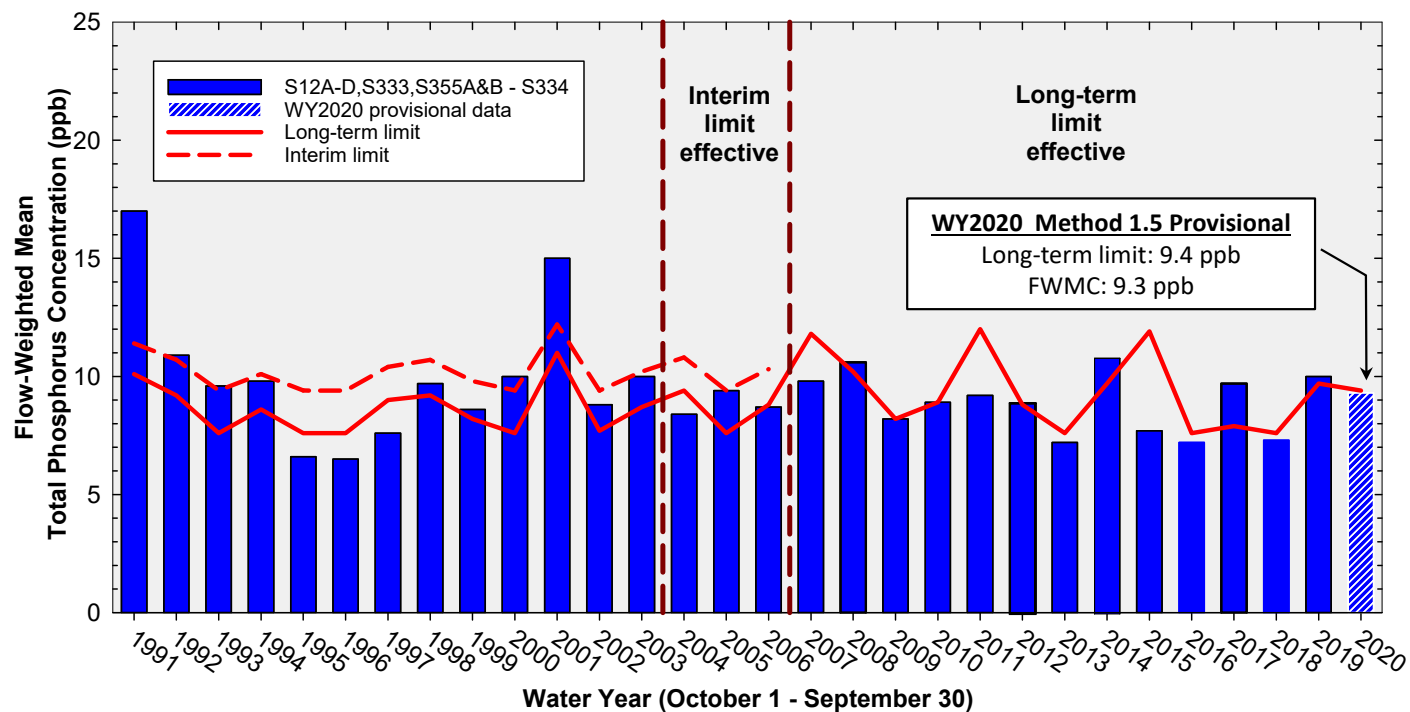
12-Month Period	Total Flow (kac-ft)	Flow-Weighted Mean TP Concentration (ppb)	Long-Term Limit (ppb) <i>Effective 12/31/2006</i>	Percent of Sampling Events Greater than 10 ppb	
				Guideline	Observed
<b>Aug 2019 - Jul 2020</b>	<b>671.9</b>	<b>9.6</b>	<b>9.6</b>	<b>49.9</b>	<b>40.0</b>
<b>Sep 2019 - Aug 2020</b>	<b>706.6</b>	<b>9.2</b>	<b>9.4</b>	<b>48.9</b>	<b>33.3</b>
<b><i>Oct 2019 - Sep 2020</i></b>	<b><i>703.9</i></b>	<b><i>9.3</i></b>	<b><i>9.4</i></b>	<b><i>49.0</i></b>	<b><i>35.0</i></b>

Shark River Slough PROVISIONAL RESULTS:

FWMC computed as S12s + [S333 + S355A + S355B + minimum of (S356, S335) – S334] using all flow and TP grabs on bi-weekly compliance sampling dates.

S334 flow was not excluded from the flow for long-term limit calculations.

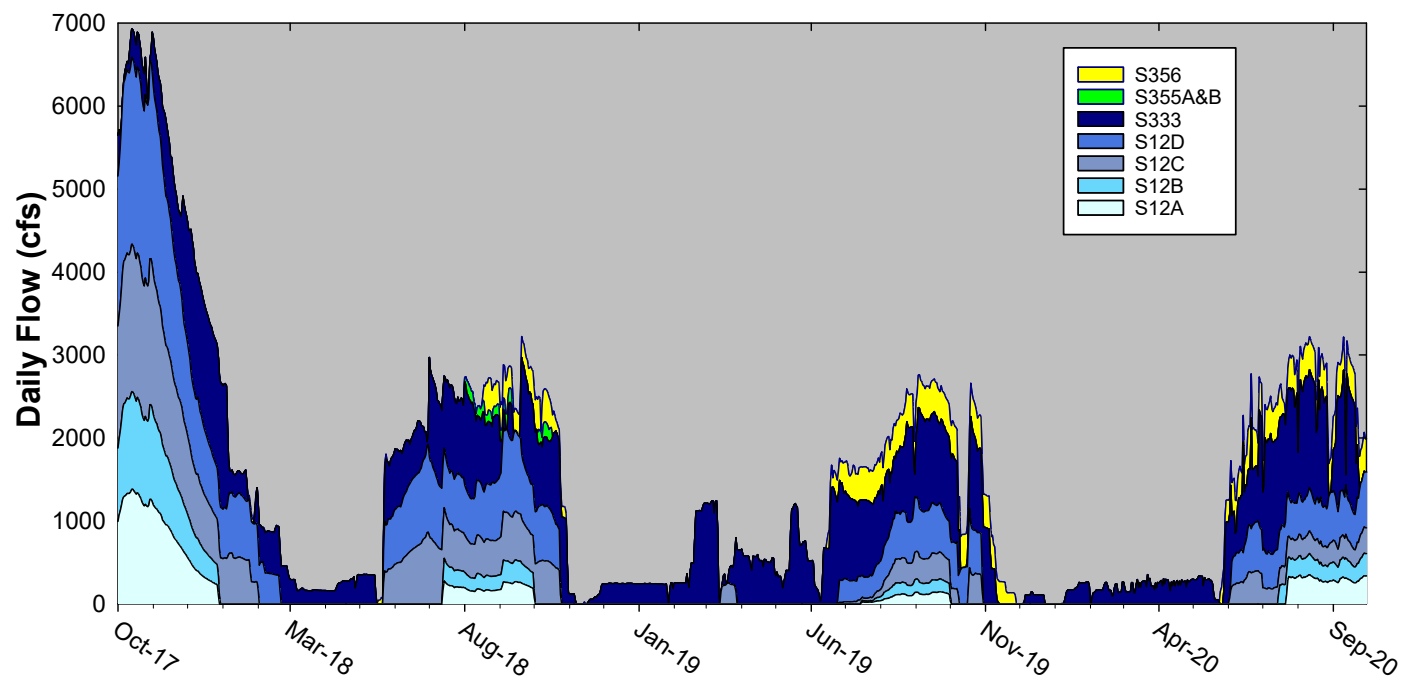
## Annual Flow-weighted Mean Concentrations Inflows to ENP through Shark River Slough



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

## Shark River Slough Structure Daily Flows

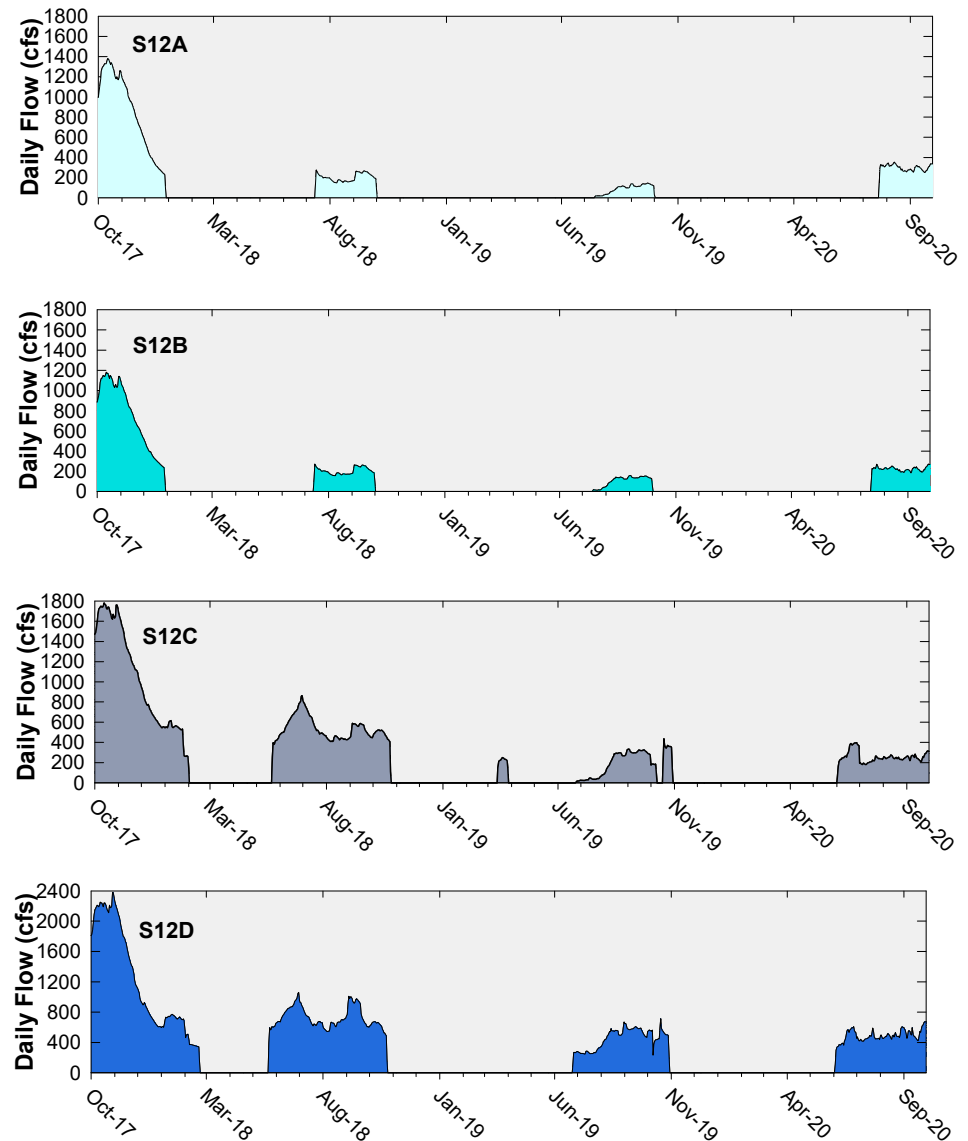
WY2020 (October 2019 to September 2020) Flow Data for S12s are Provisional.



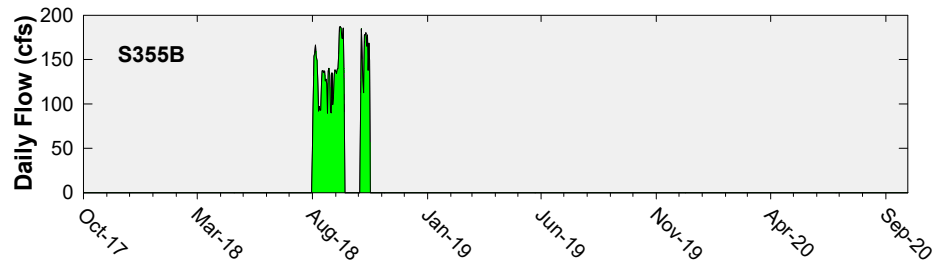
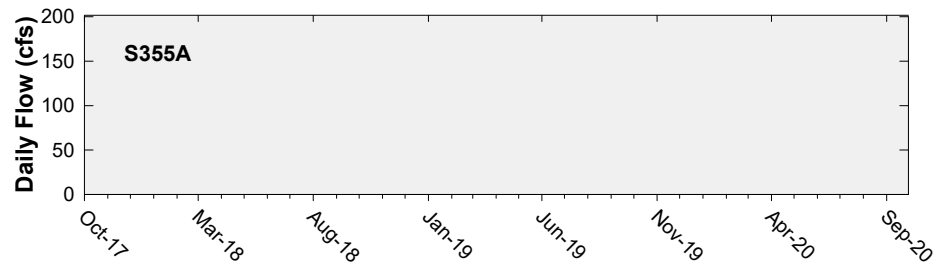
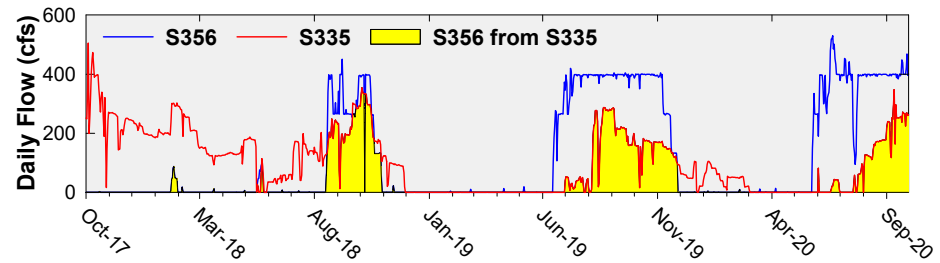
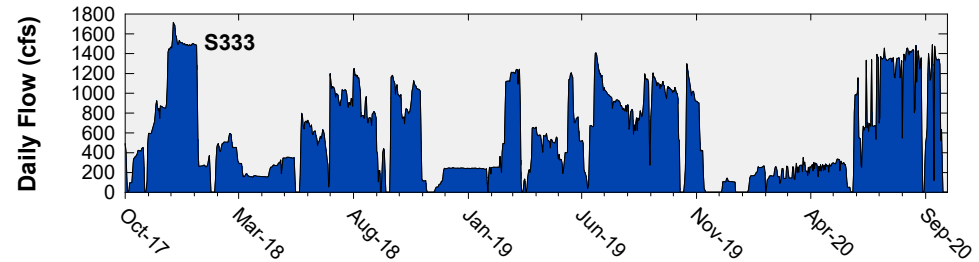


## Daily Flows at S12 Structures to Shark River Slough

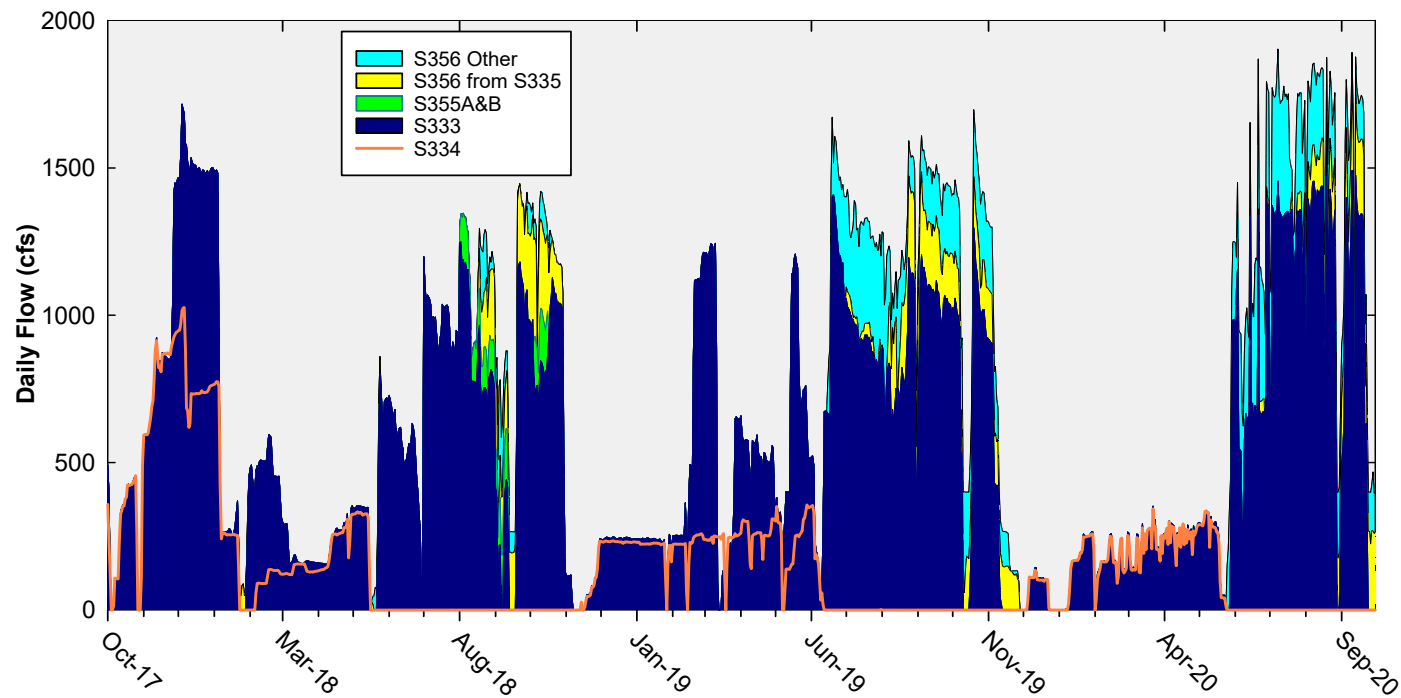
WY2020 (October 2019 to September 2020) Flow Data for S12s are Provisional.



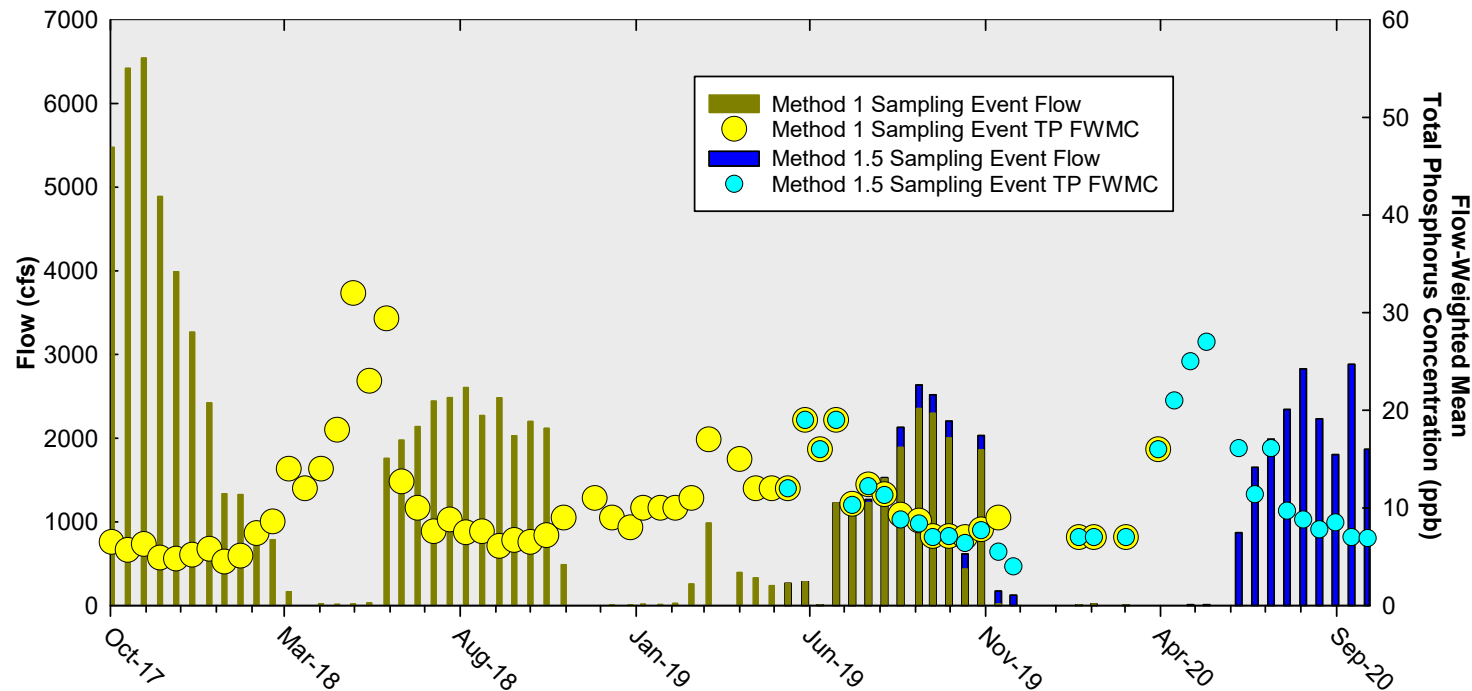
## Daily Flows at Individual Inflow Structures to Shark River Slough



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



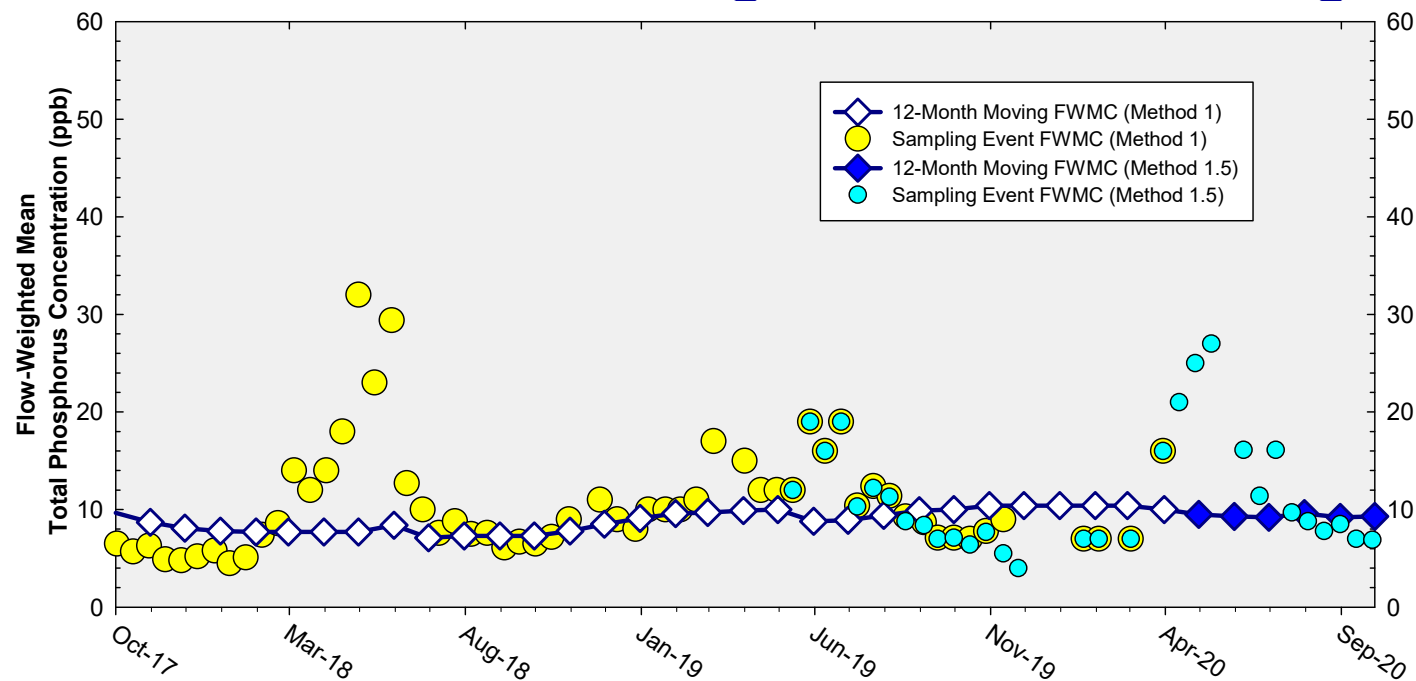
## Shark River Slough Sampling Event Flow and FWMC



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

Note: WY2020 (October 2019 to September 2020) Flow Data for S12s are Provisional.

## 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

WY2020 (October 2019 to September 2020) Flow Data for S12s are Provisional.

## Taylor Slough and Coastal Basins

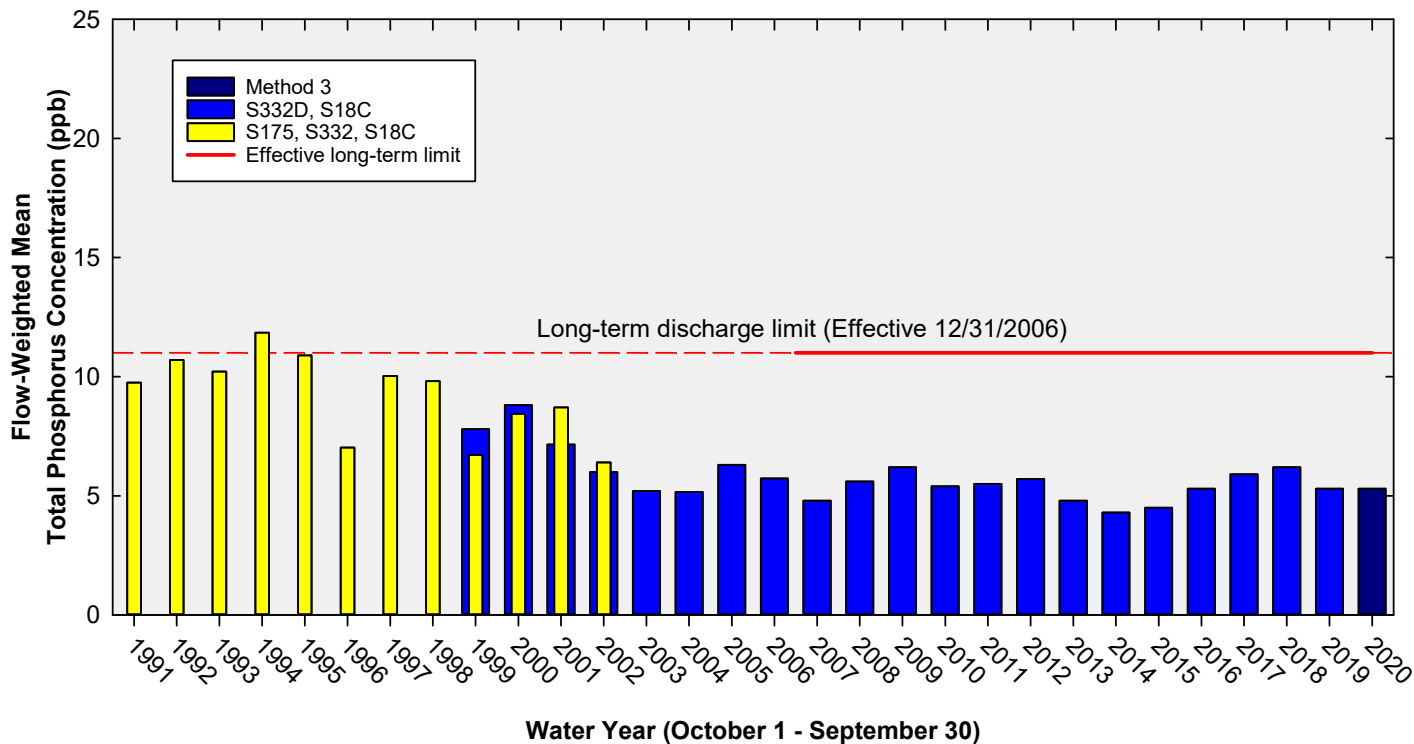
### TP Concentration Compliance Tracking

12-Month Period	Total Flow (kac-ft)	Flow-Weighted Mean TP Concentration in ppb LTL = 11.0 ppb	Observed Percent of Sampling Events Greater than 10 ppb Guideline = 53.1%
Aug 2019 - Jul 2020	291.6	5.3	2.1
Sep 2019 - Aug 2020	297.5	5.3	2.1
<i>Oct 2019 - Sep 2020</i>	<i>318.5</i>	<i>5.3</i>	<i>2.1</i>

FWMC computed as [(S332D-S332DX1-S328)+S328+G737+S18C] using all flow and TP grabs on weekly compliance sampling.

Total flow is (S332D-S332DX1)+G737+S18C]

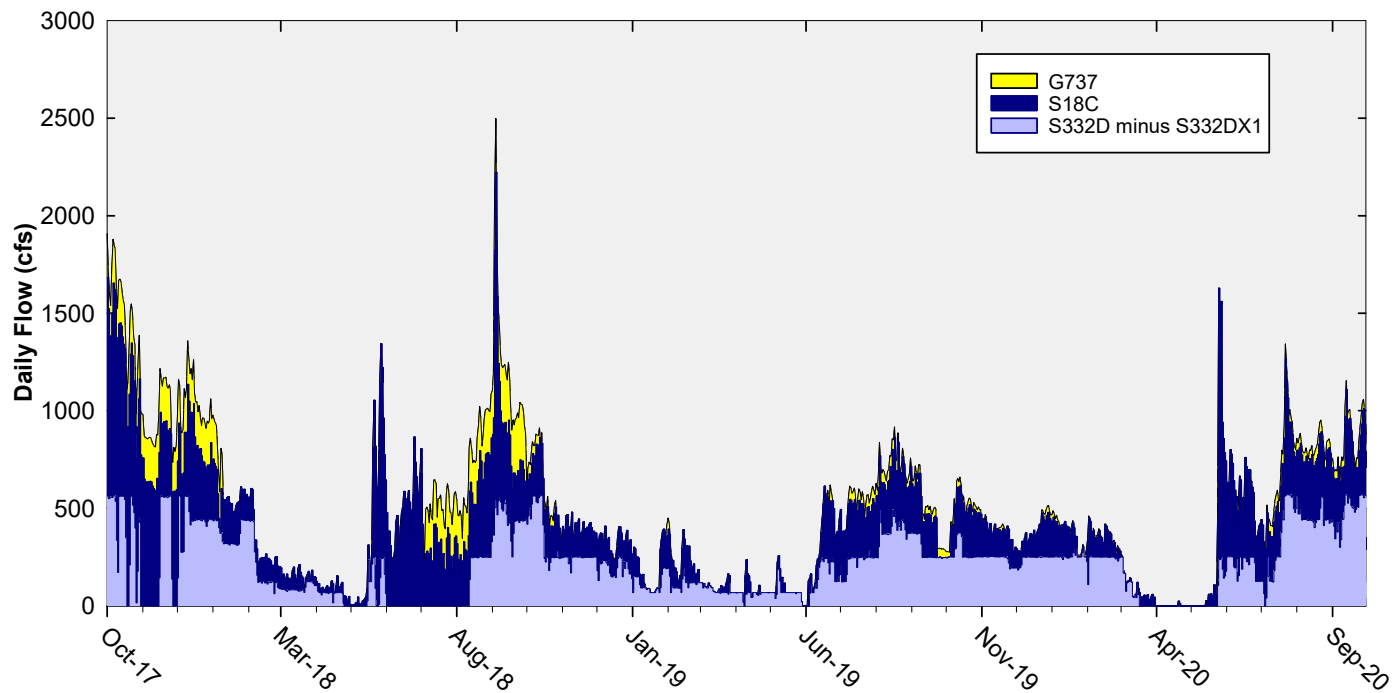
## Annual Flow-Weighted Mean Concentrations Inflows to the ENP through Taylor Slough and Coastal Basins



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.

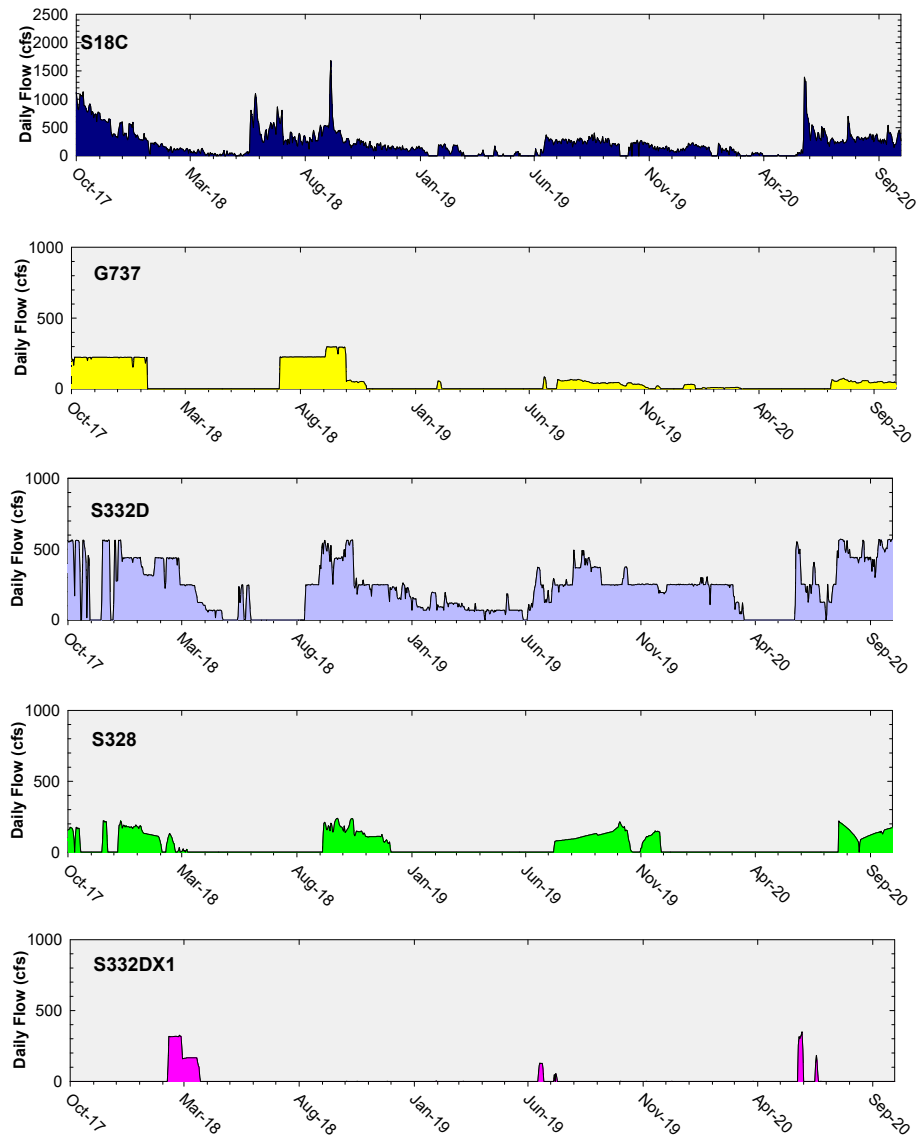
## Daily Flows at Taylor Slough and Coastal Basins Structures into ENP



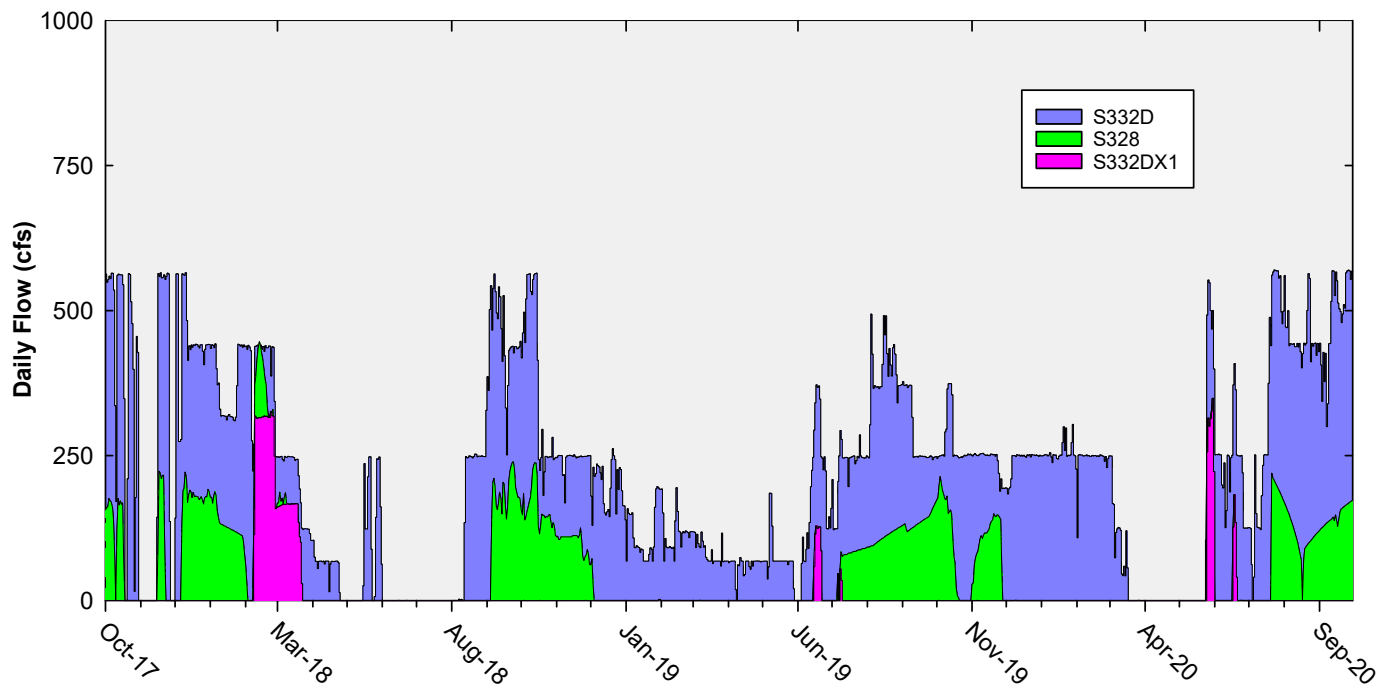
Note: Daily flow data are missing for S18C from September 23 to October 4, 2019.



## Daily Flows at Individual Taylor Slough and Coastal Basins Structures

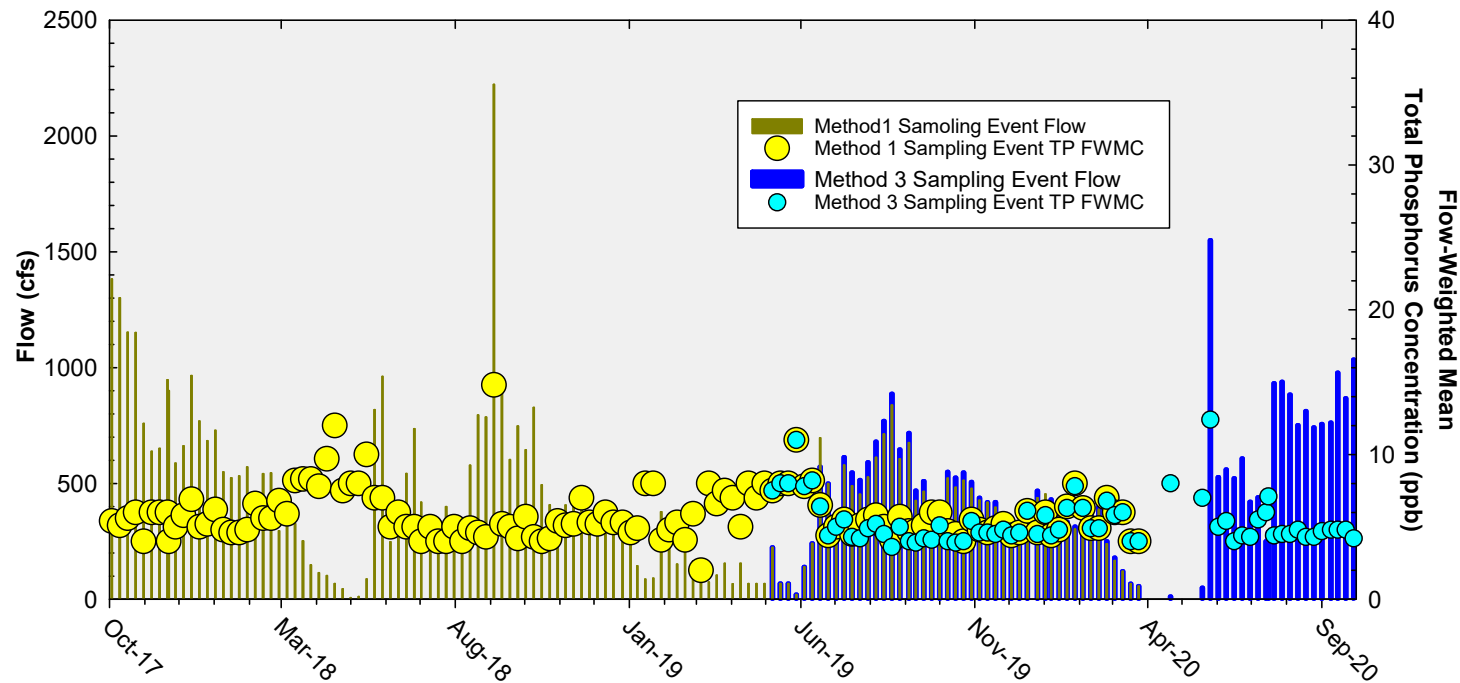


## Daily Flows Into and Out of C-111 Detention Area



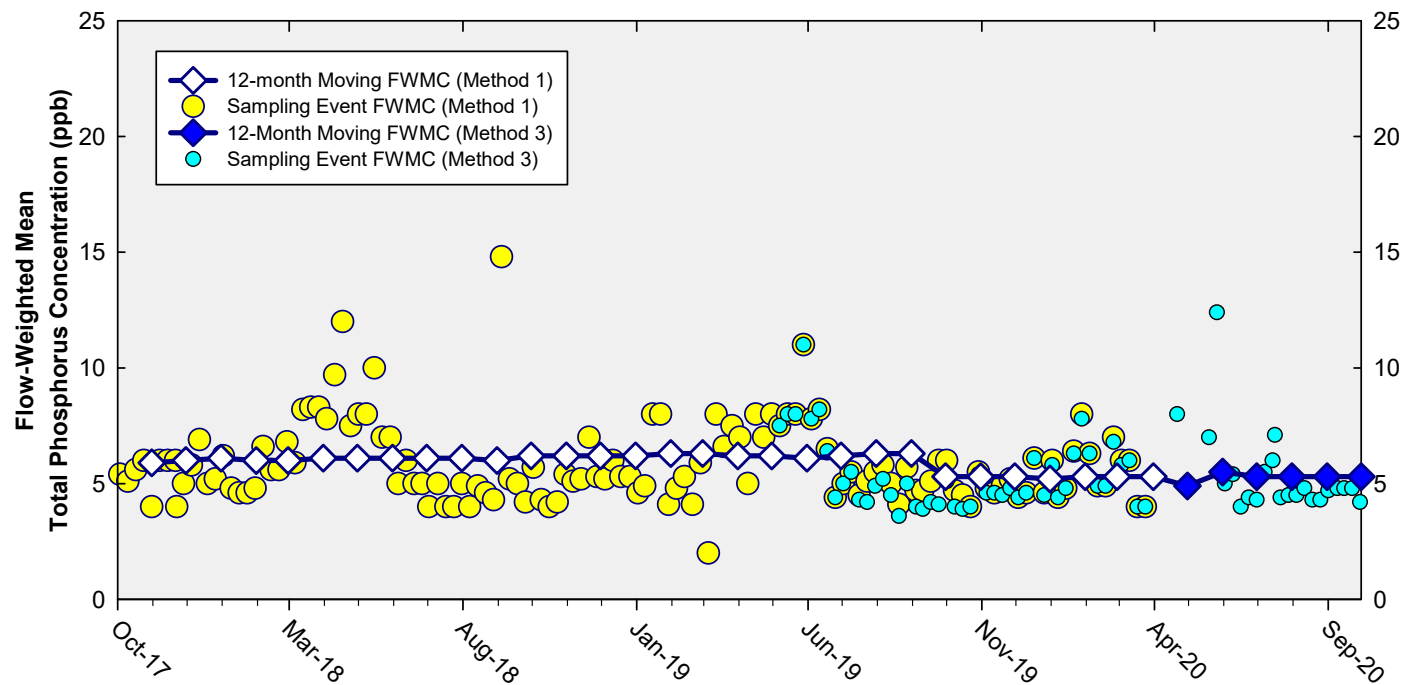
## Taylor Slough and Coastal Basins

### Sampling Event Flow and FWMC



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

## 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

Thank You

