



SETTLEMENT AGREEMENT QUARTERLY REPORT

July – September 2022

Chelsea Qiu, P.E., Ph.D.

Lead Engineer

Compliance Assessment & Reporting Section

Water Quality Bureau

Technical Oversight Committee

February 28, 2023



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 2022	7.6	10.3	16.36	12	
Aug 2022	6.7	9.4	16.56	13	
Sept 2022	7.3	10.1	16.41	11	
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	
				Observed (%)	Guideline (%)
Everglades National Park – Shark River Slough – <i>PROVISIONAL DATA and RESULTS</i>					
Jul 2022	1,055.2	10.4	7.7	53.8	40.2
Aug 2022	1,081.9	10.2	7.6	46.2	39.7
Sep 2022	1,064.0	10.2	7.6	50.0	40.1
Everglades National Park – Taylor Slough and Coastal Basins					
Jul 2022	300.2	5.1	11.0	4.2	53.1
Aug 2022	315.2	5.2	11.0	4.2	53.1
Sep 2022	323.0	5.1	11.0	4.2	53.1

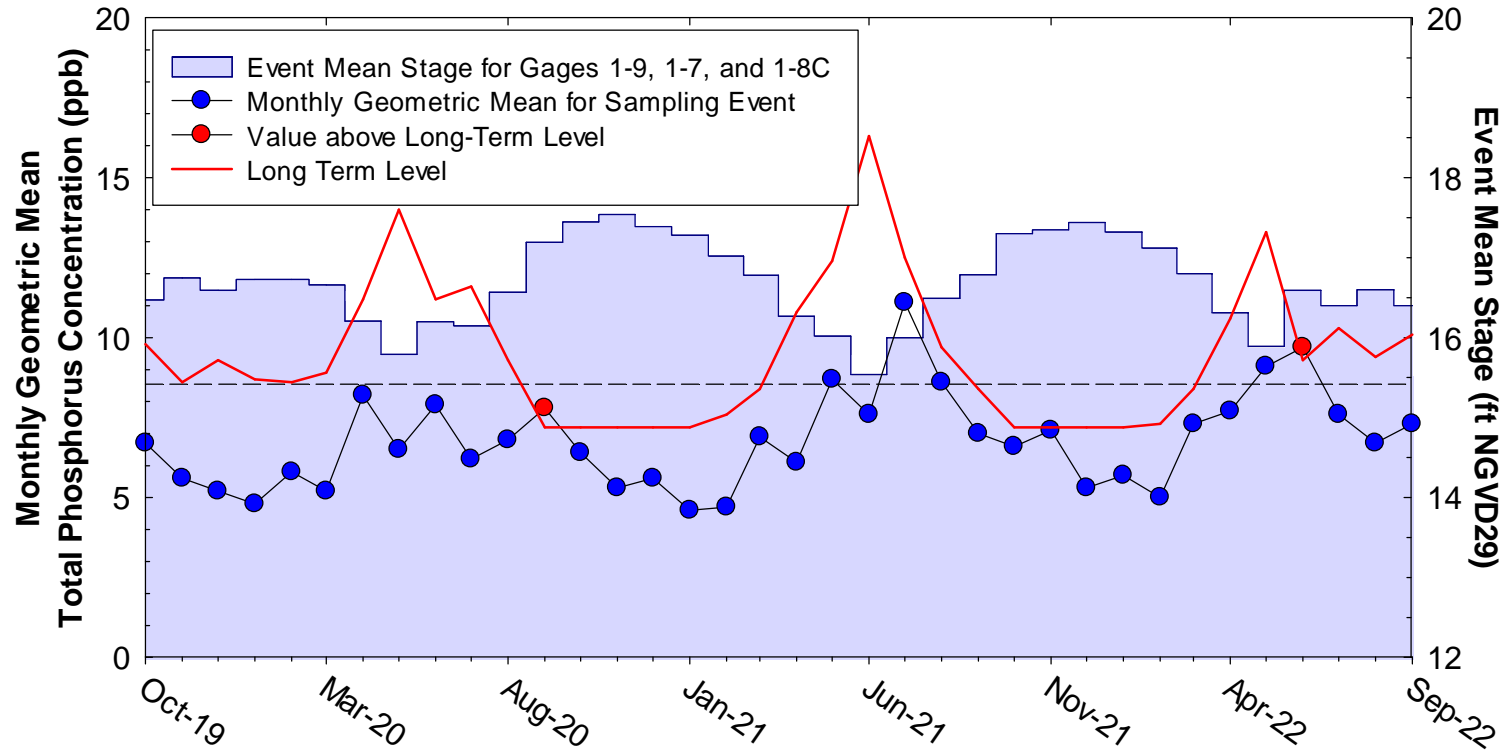
FWMC for SRS - computed as $S12s + [S333 + S333N + S355A + S355B + \min(S356, S335) - S334]$.

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

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

A.R.M Loxahatchee National Wildlife Refuge

Monthly Total Phosphorus Geometric Mean Concentrations

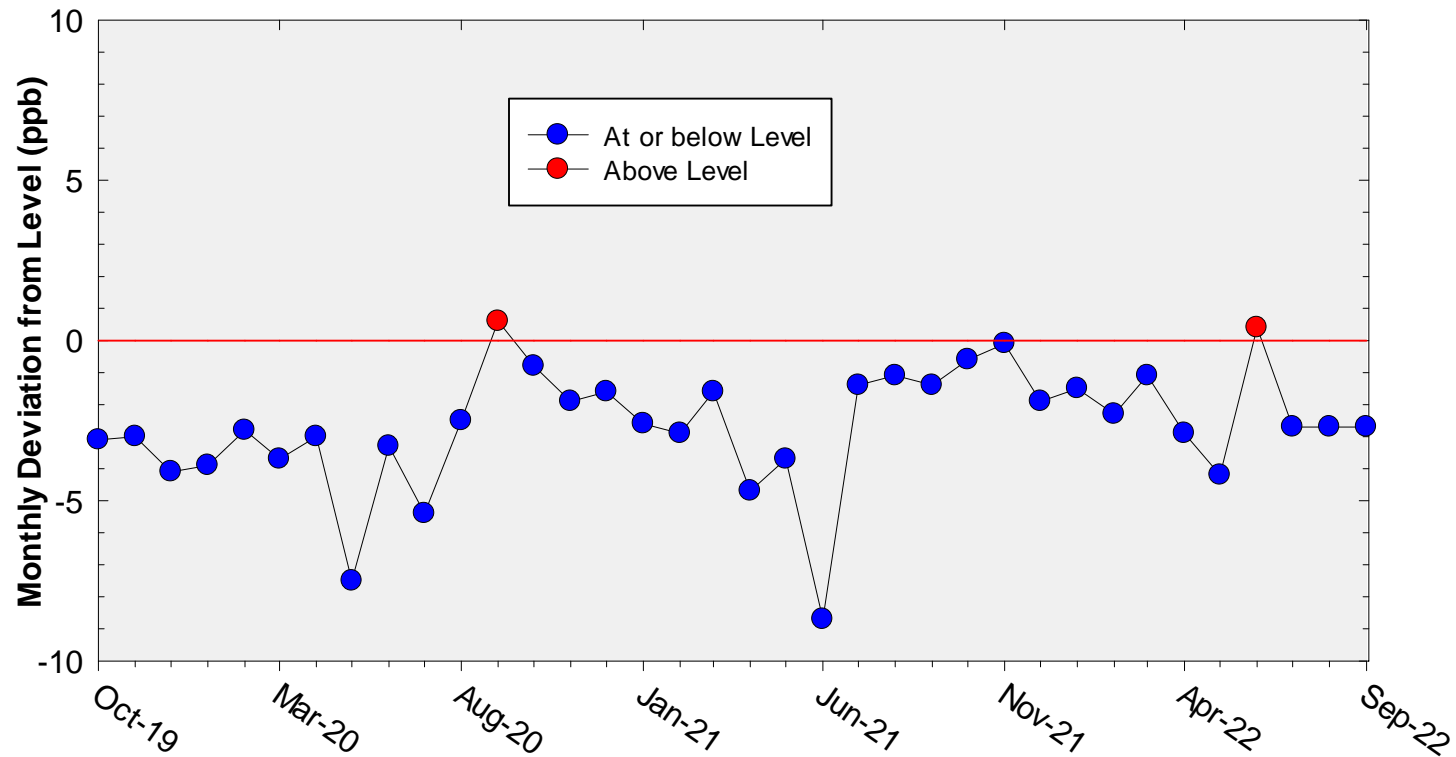


36-Month Average TP Geometric Mean = 6.8 ppb

36-Month Average TP Long-term Level is = 9.4 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 = 2.6 ppb below the Long-Term Level

Refuge TP Compliance Tracking

For July 2022 – February 2023

Month	Geometric Mean TP Concentration (ppb)	Long-Term Level (ppb) Effective 12/31/2006	Average Stage (feet NGVD29)	Number of Samples
3rd Quarter 2022 Compliance Tracking				
Jul-2022	7.6	10.3	16.36	12
Aug-2022	6.7	9.4	16.56	13
Sep-2022	7.3	10.1	16.41	11
Preliminary Data Outlook				
Oct-2022	6.5	7.2	17.16	14
Nov-2022	6.7	7.2	17.20	14
Dec-2022	5.9	7.2	17.39	14
Jan-2023	5.5	7.2	17.25	14
Feb-2023	5.3	7.8	16.95	14

Note: 17.14 ft NGVD29 was used for the long-term level calculation for the period from October 2022 to January 2023, as the average stage of each month exceeded the threshold of 17.14 ft.

Shark River Slough

TP Concentration Compliance Tracking

WY2022 (October 2021 to September 2022) Flow Data for S12s are Provisional.

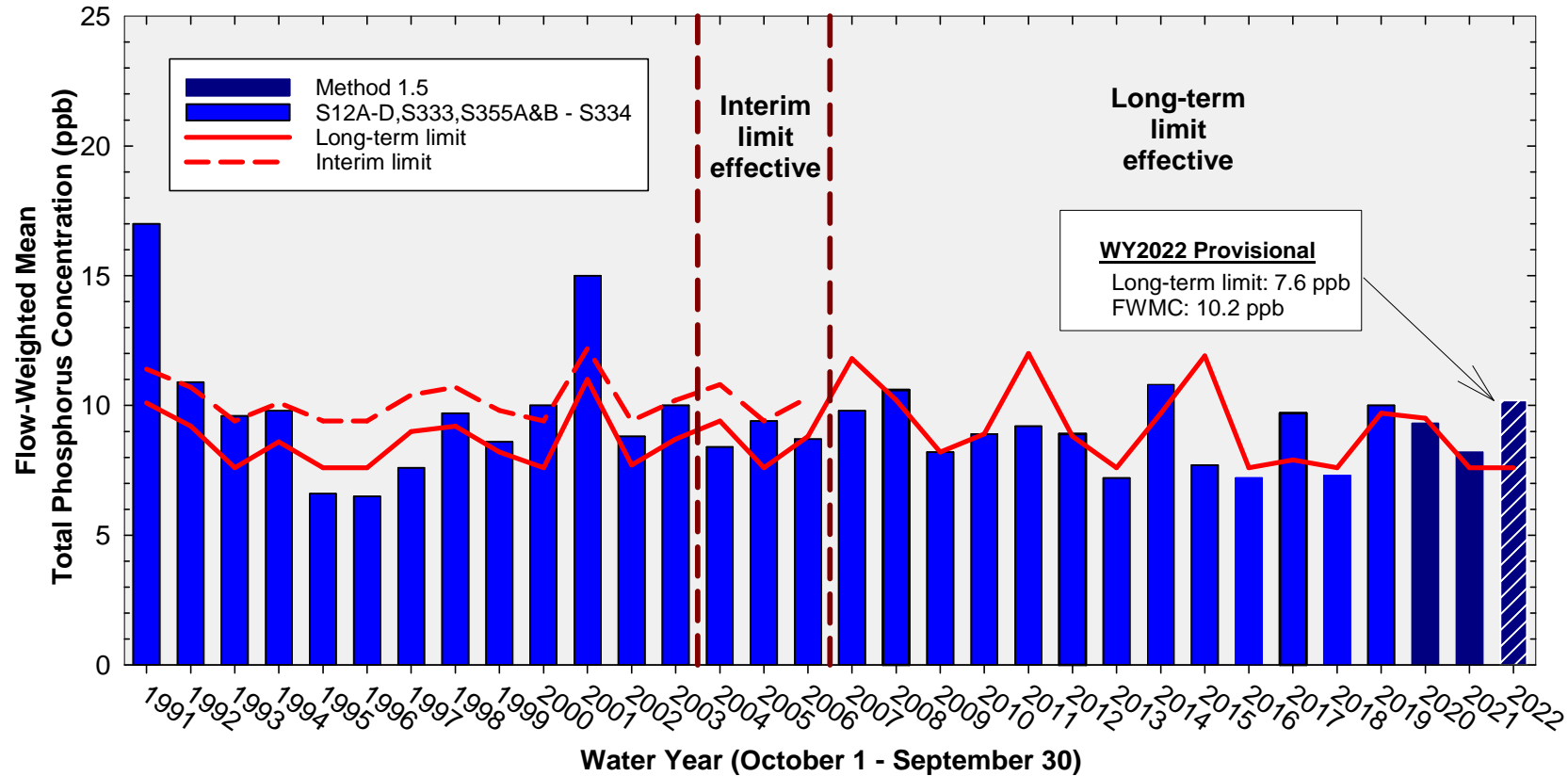
12-Month Period	Total Flow (kac-ft)	Flow-Weighted Mean TP Concentration (ppb)	Long-Term Limit (ppb) <i>Effective 12/31/2006</i>	Percent of Sampling Events Greater than 10 ppb	
				Observed (%)	Guideline (%)
Aug 2021 - Jul 2022	1,055.2	10.4	7.7	53.8	40.2
Sep 2021 - Aug 2022	1,081.9	10.2	7.6	46.2	39.7
Oct 2021 - Sep 2022	1,064.0	10.2	7.6	50.0	40.1

Shark River Slough PROVISIONAL RESULTS:

FWMC computed as S12s + [S333 + S333N + 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.

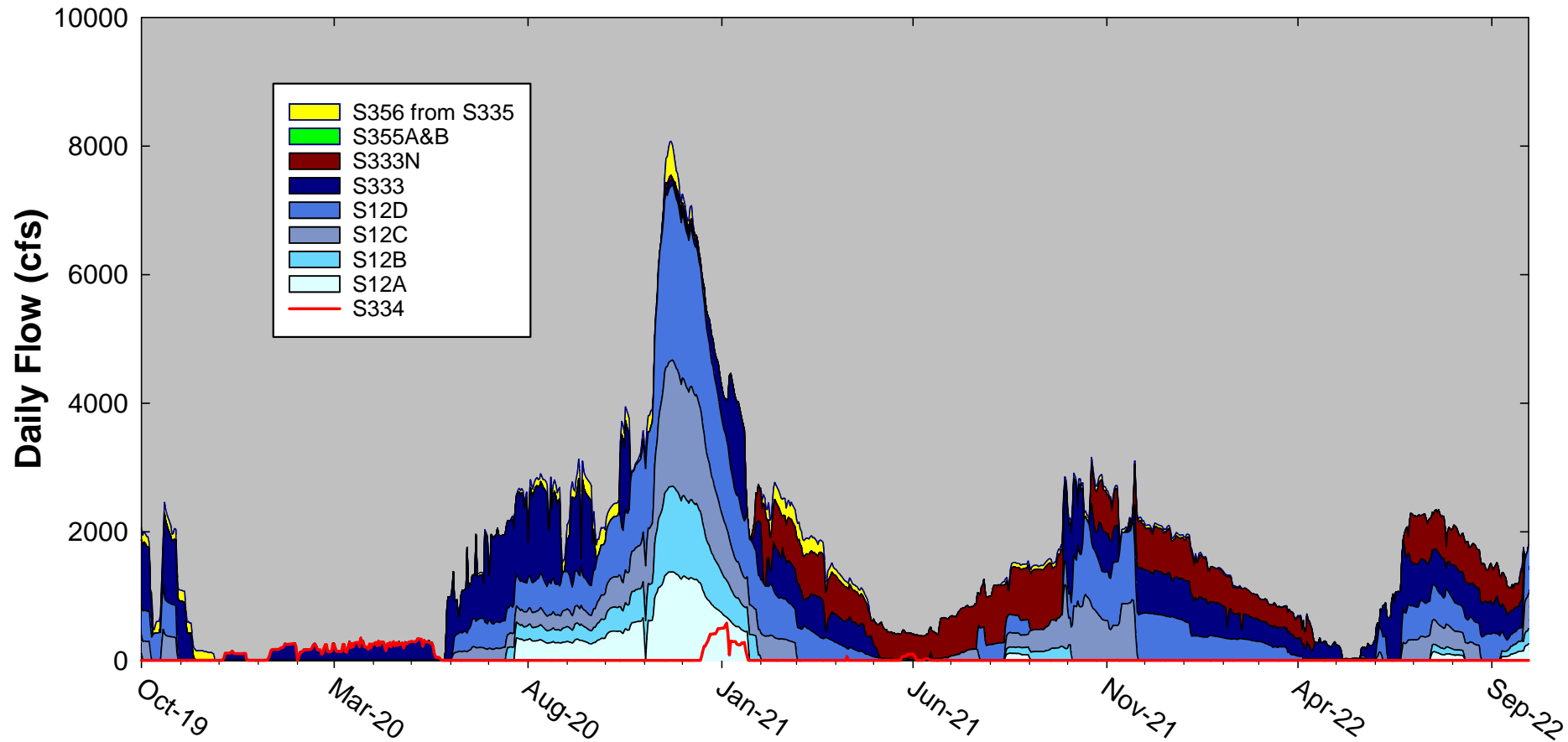
Annual Flow-weighted Mean Concentrations Inflows to ENP through Shark River Slough



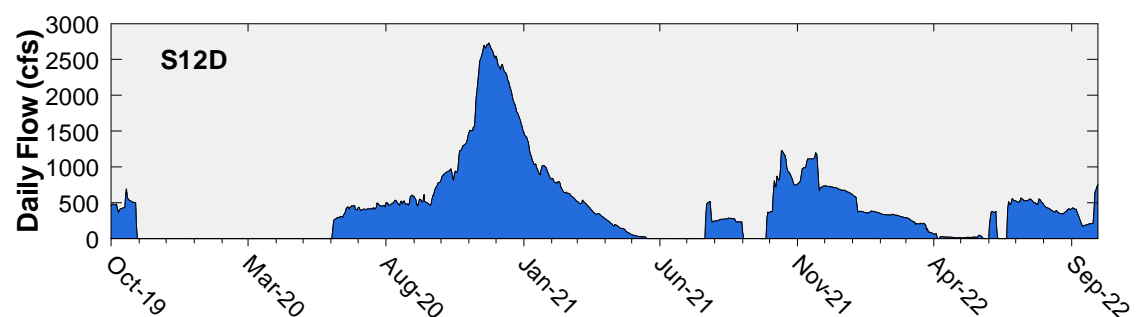
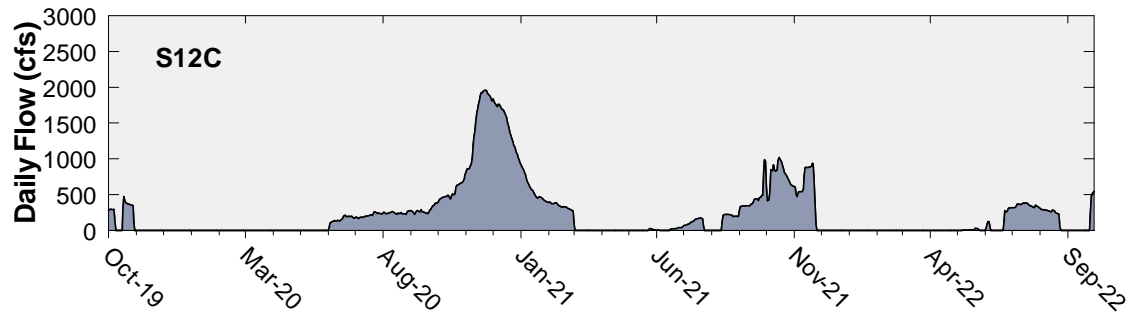
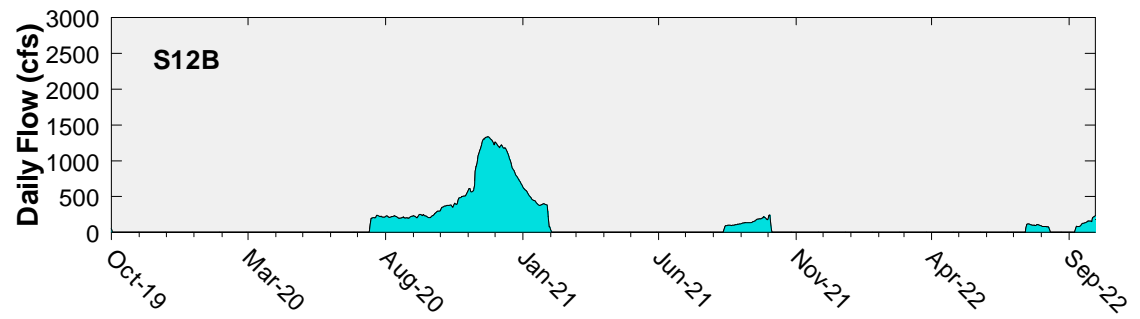
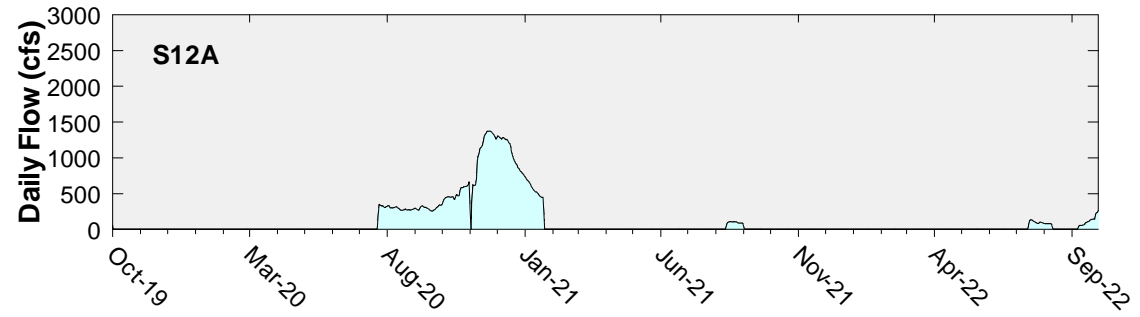
12-month FWMC at the end of each water year compared to the TP interim and long-term limits

Shark River Slough Structure Daily Flows

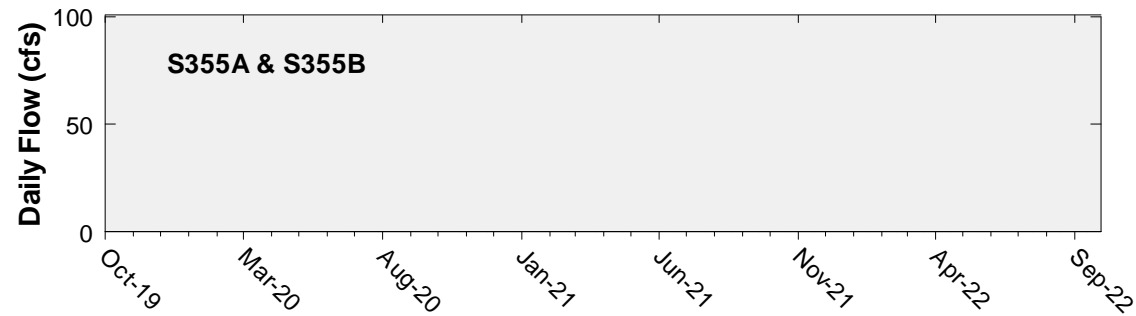
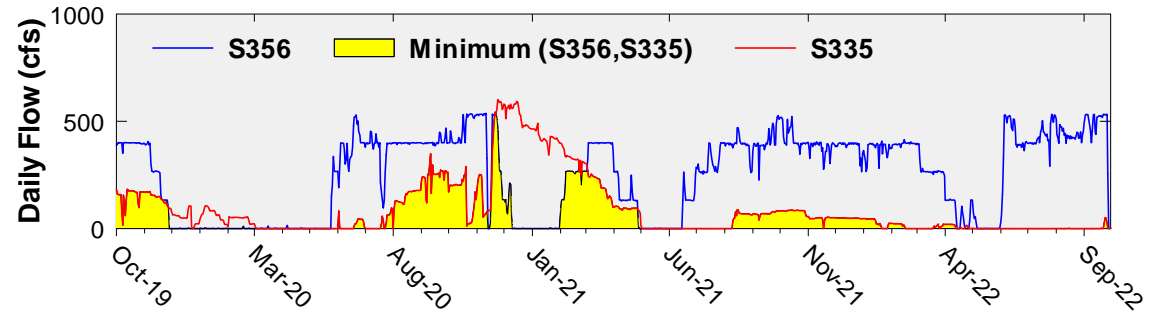
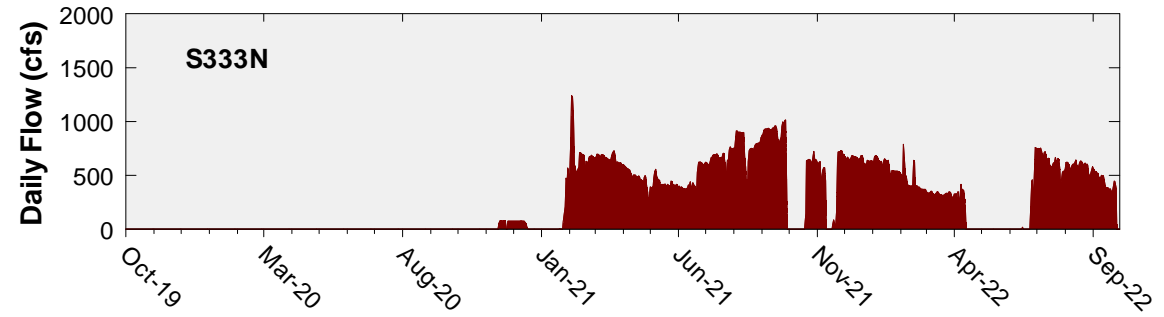
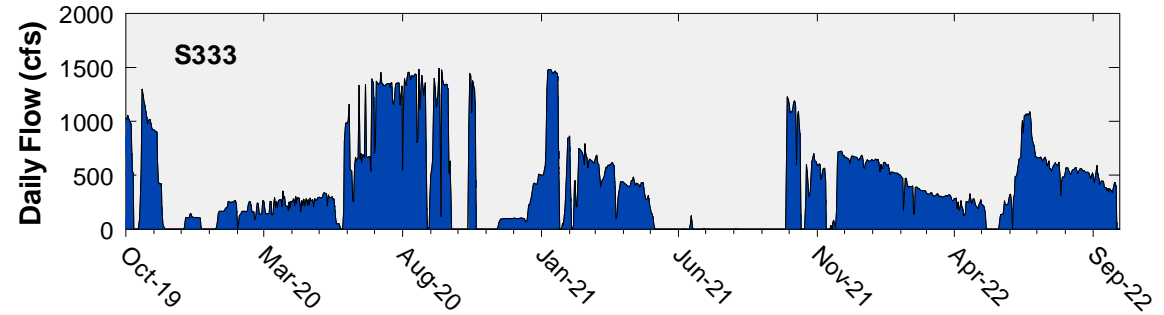
WY2022 Flow Data for S12s are Provisional.



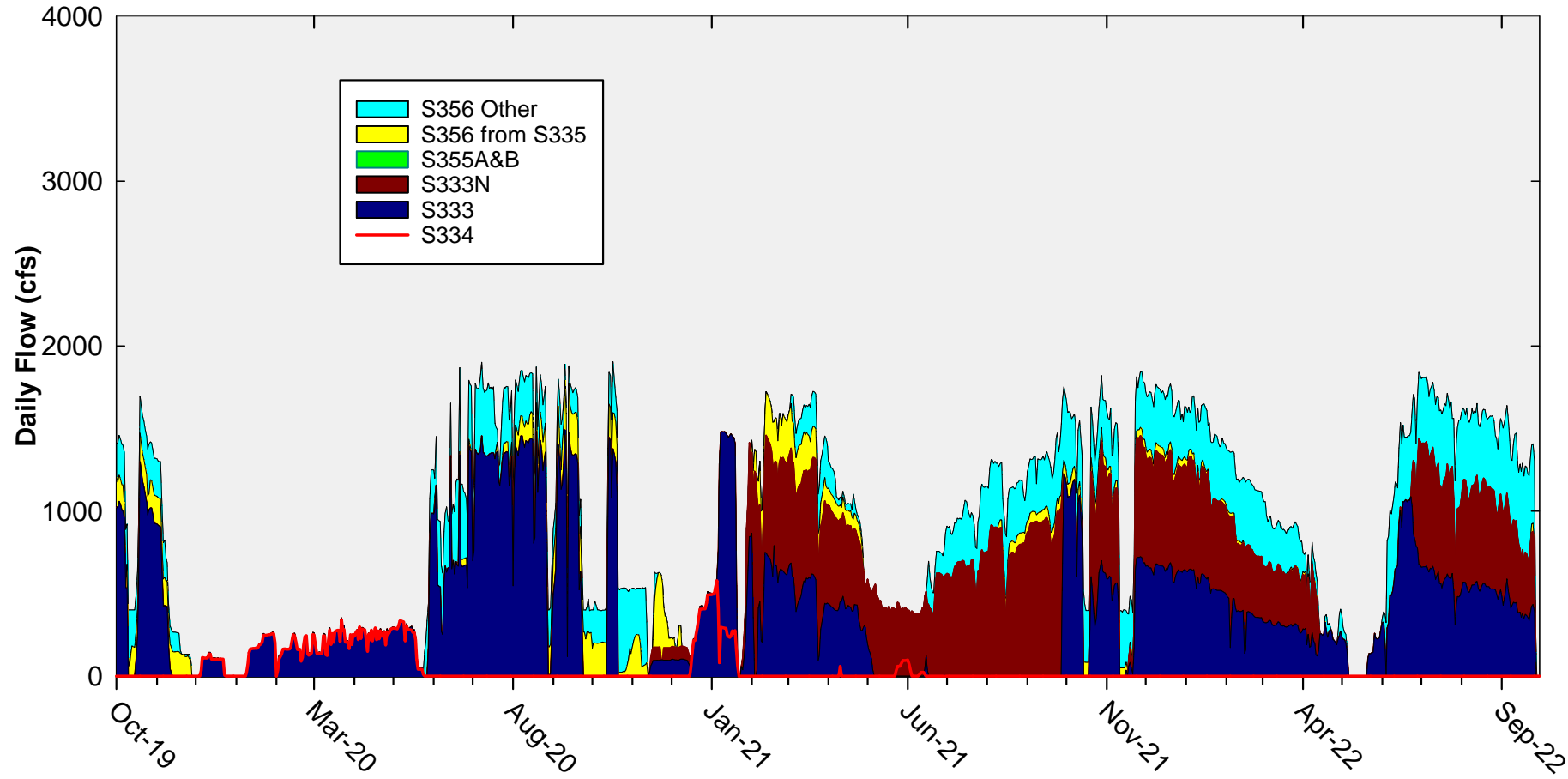
Daily Flows at S12 Structures to Shark River Slough



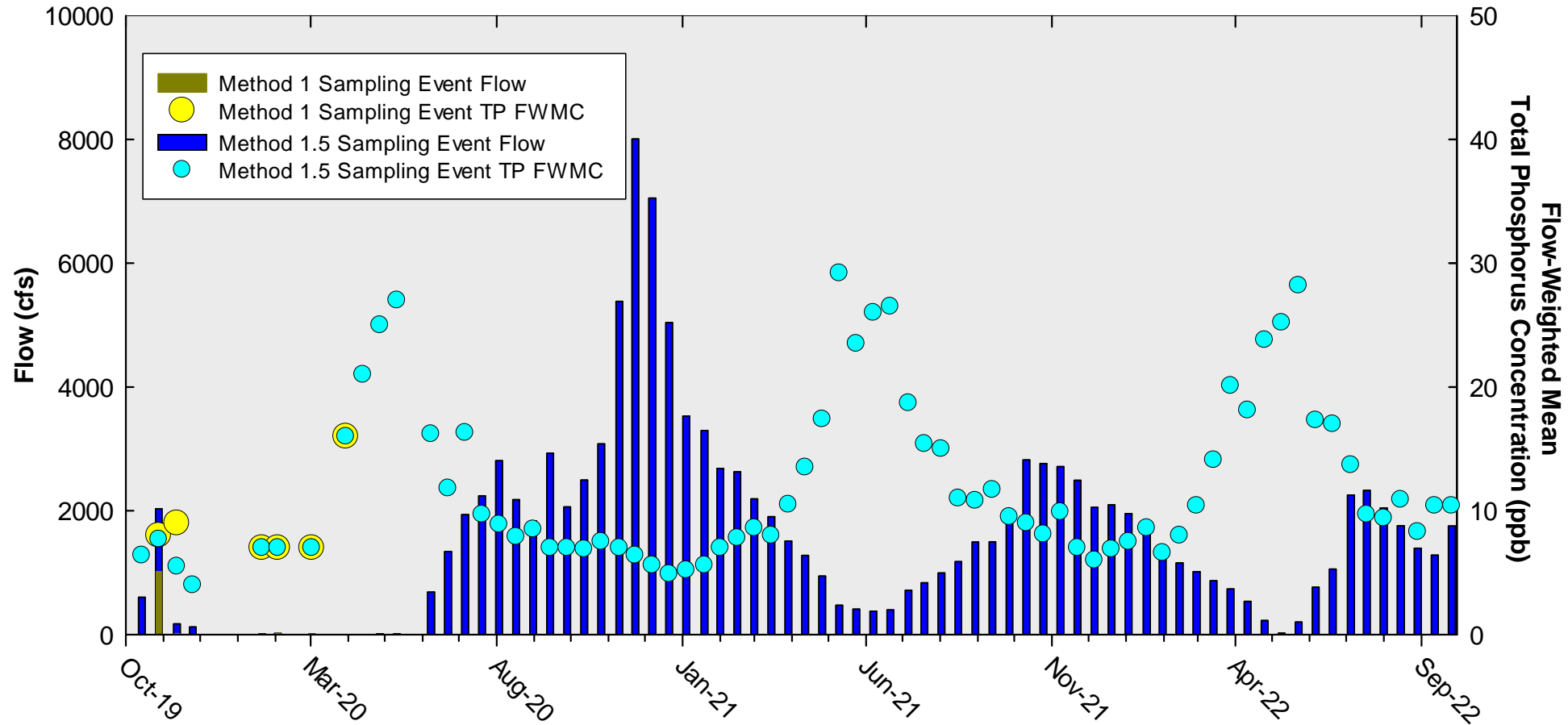
Daily Flows at Individual Inflow Structures to Shark River Slough



Daily Flows Into Shark River Slough through S333&S333N, S355A&B, and S356 and Out through S334



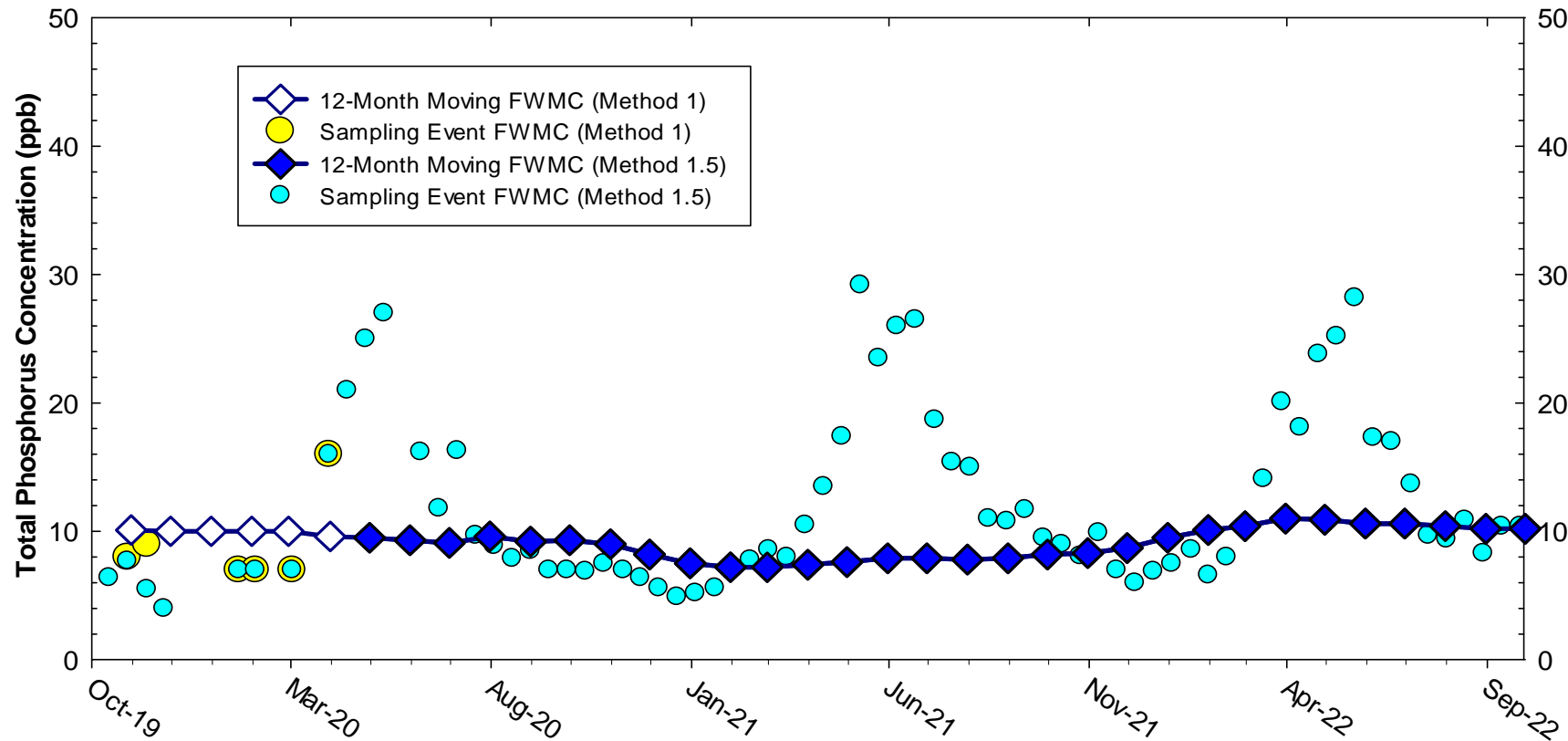
Shark River Slough Sampling Event Flow and FWMC



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

Note: WY2022 Flow Data for S12s are Provisional.

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

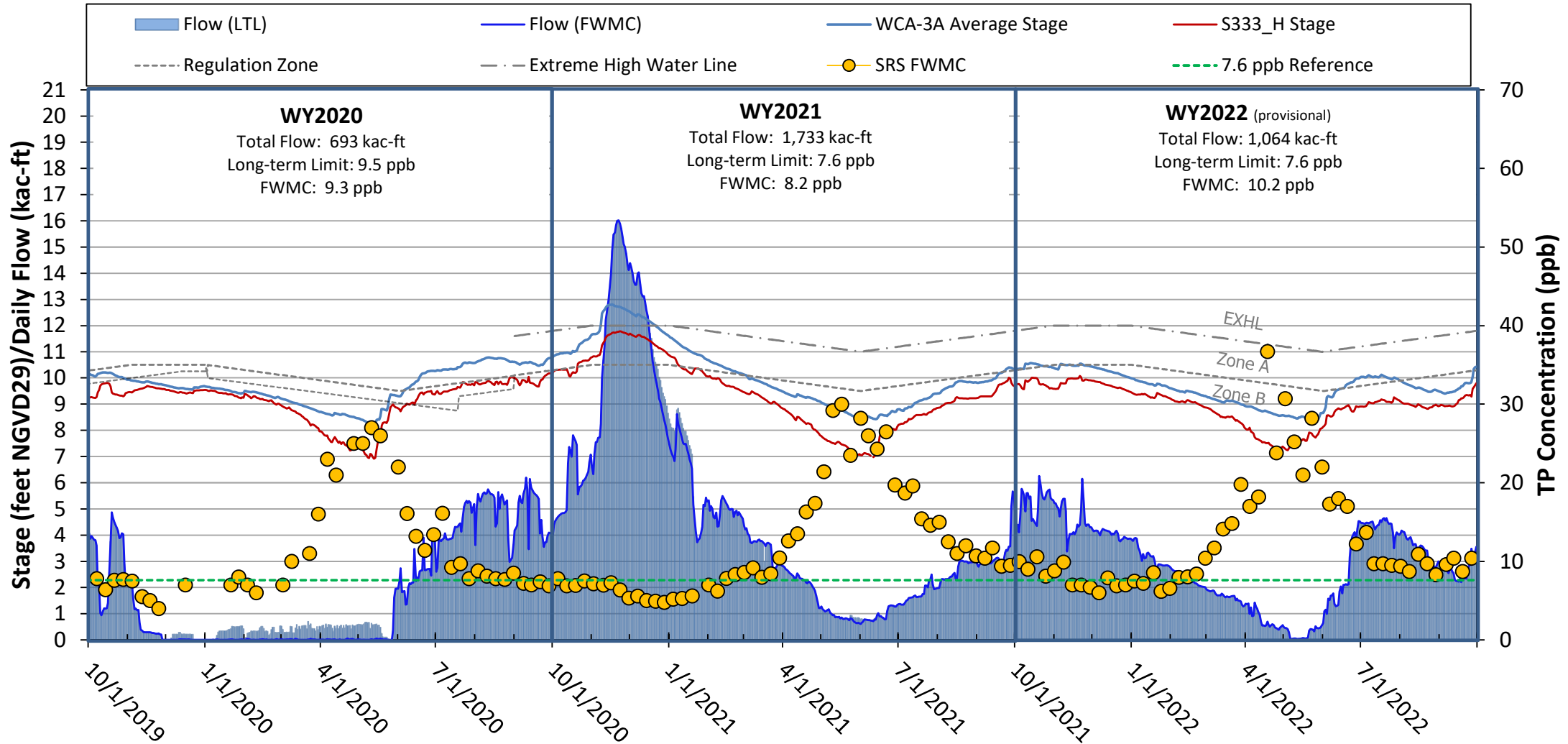


The composite TP concentration and 12-month FWMC at the end of each month for each sampling event

WY2022 Flow Data for S12s are Provisional.

WY2020, 2021 & 2022* Stage, Flow, and TP FWMC

Inflows to ENP through Shark River Slough



* WY2022 results are Provisional

Taylor Slough and Coastal Basins

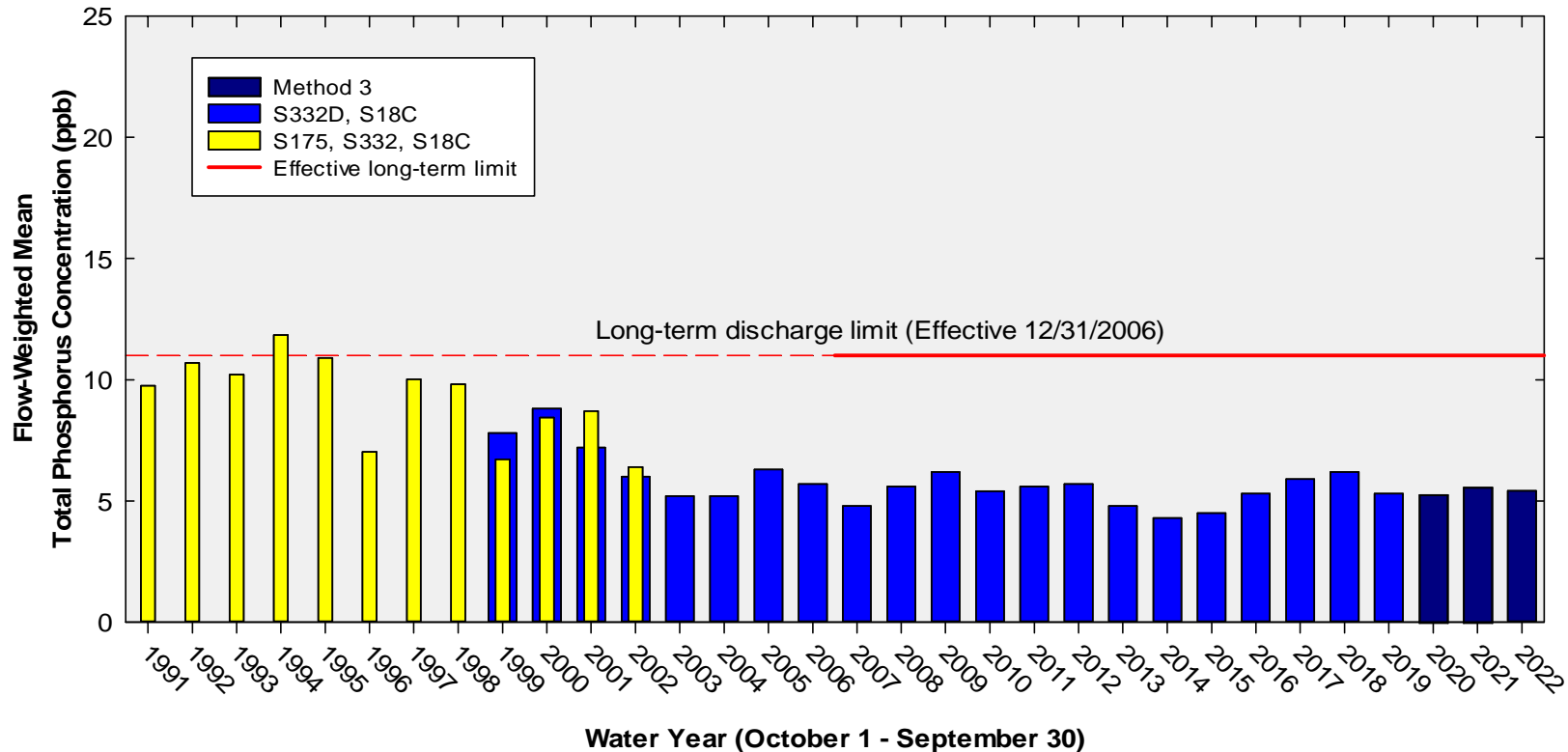
TP Concentration Compliance Tracking

12-Month Period	Total Flow (kac-ft)	Flow-Weighted Mean TP Concentration in ppb LTL = 11.0 ppb Effective 12/31/2006	Observed Percent of Sampling Events Greater than 10 ppb Guideline = 53.1%
Aug 2021 - Jul 2022	300.2	5.1	4.2
Sep 2021 - Aug 2022	315.2	5.2	4.2
Oct 2021 - Sep 2022	323.0	5.1	4.2

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]

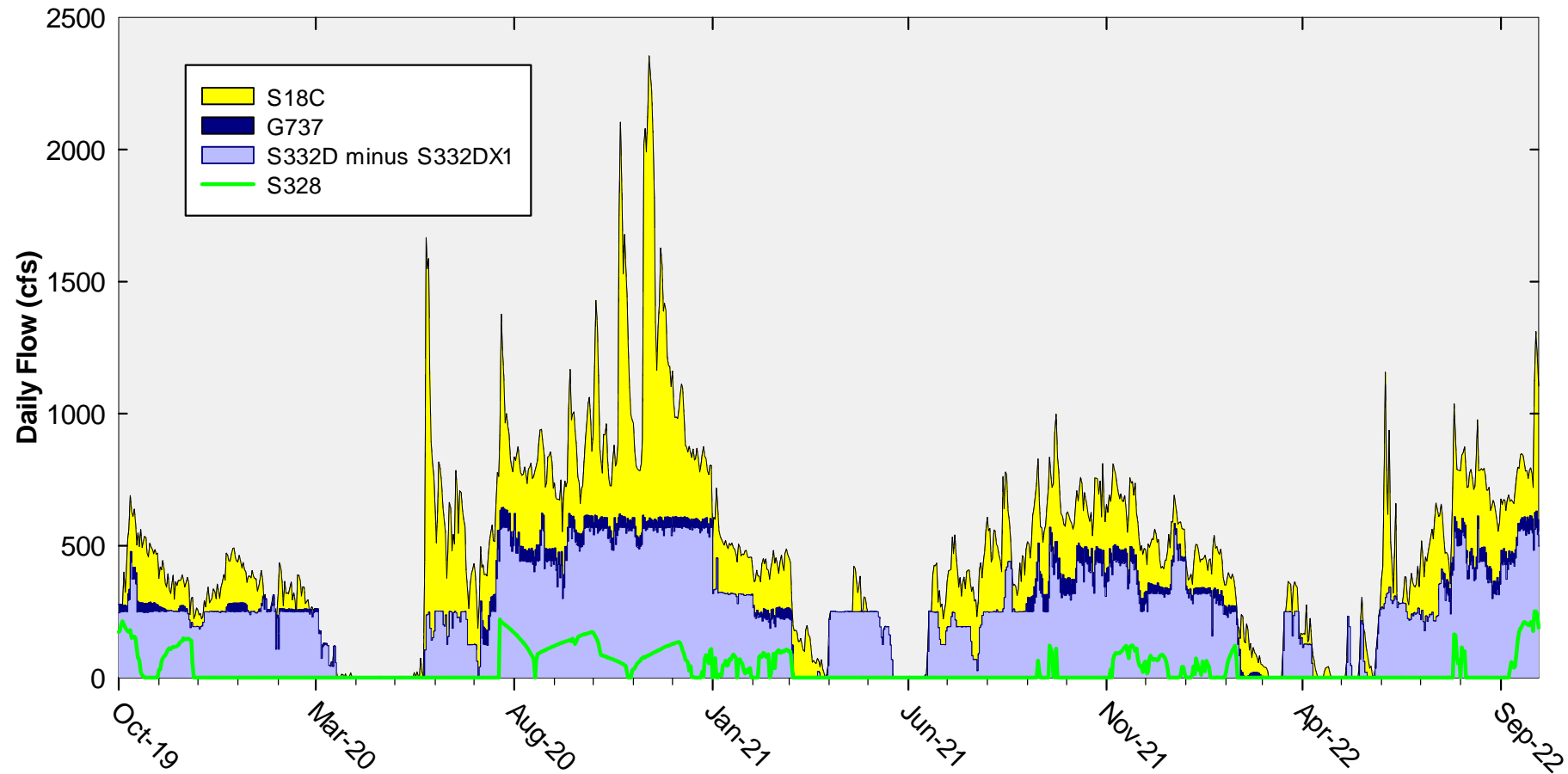
Annual Flow-Weighted Mean Concentrations Inflows to the ENP through Taylor Slough and Coastal Basins



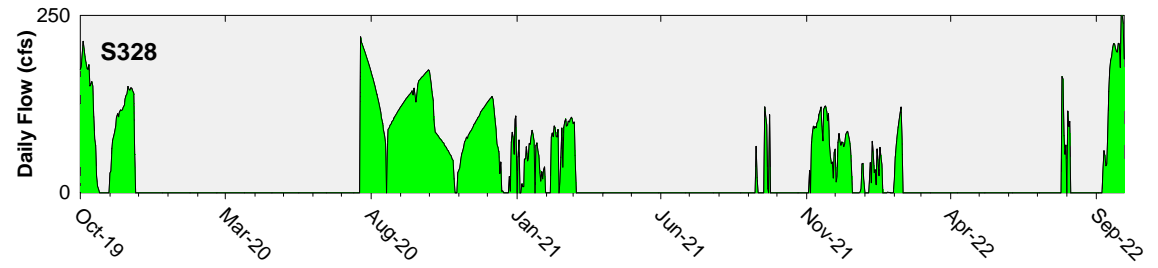
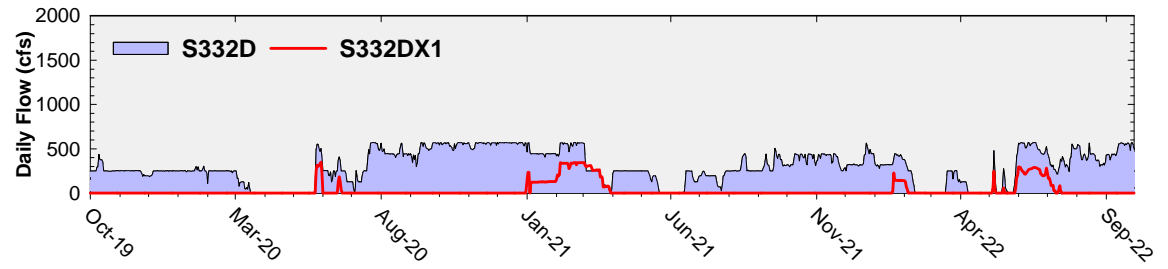
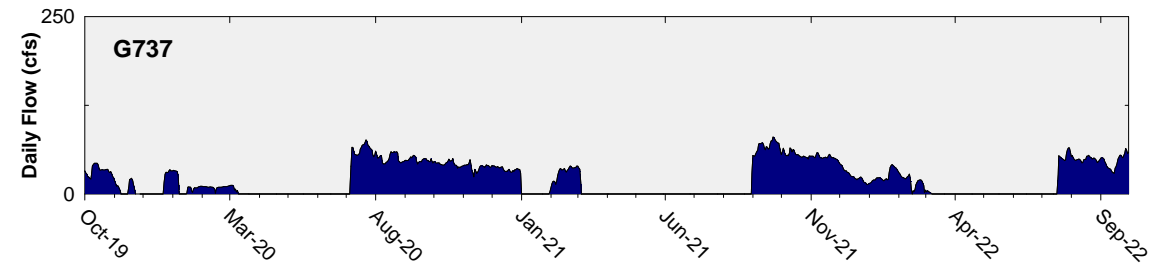
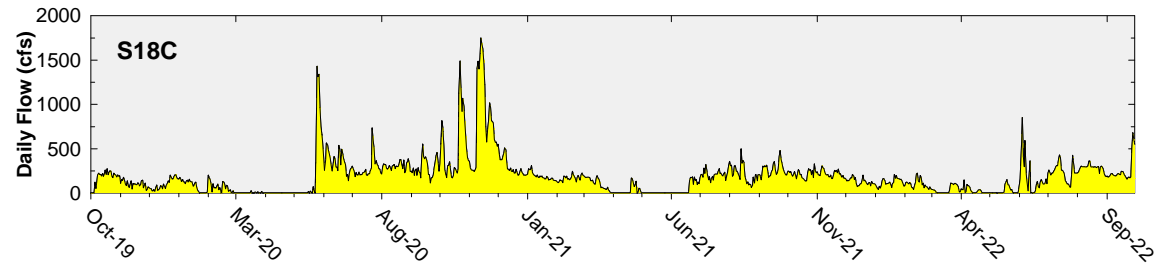
The 12-month FWMC at the end of each water year compared to the 11 ppb long-term TP limit

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

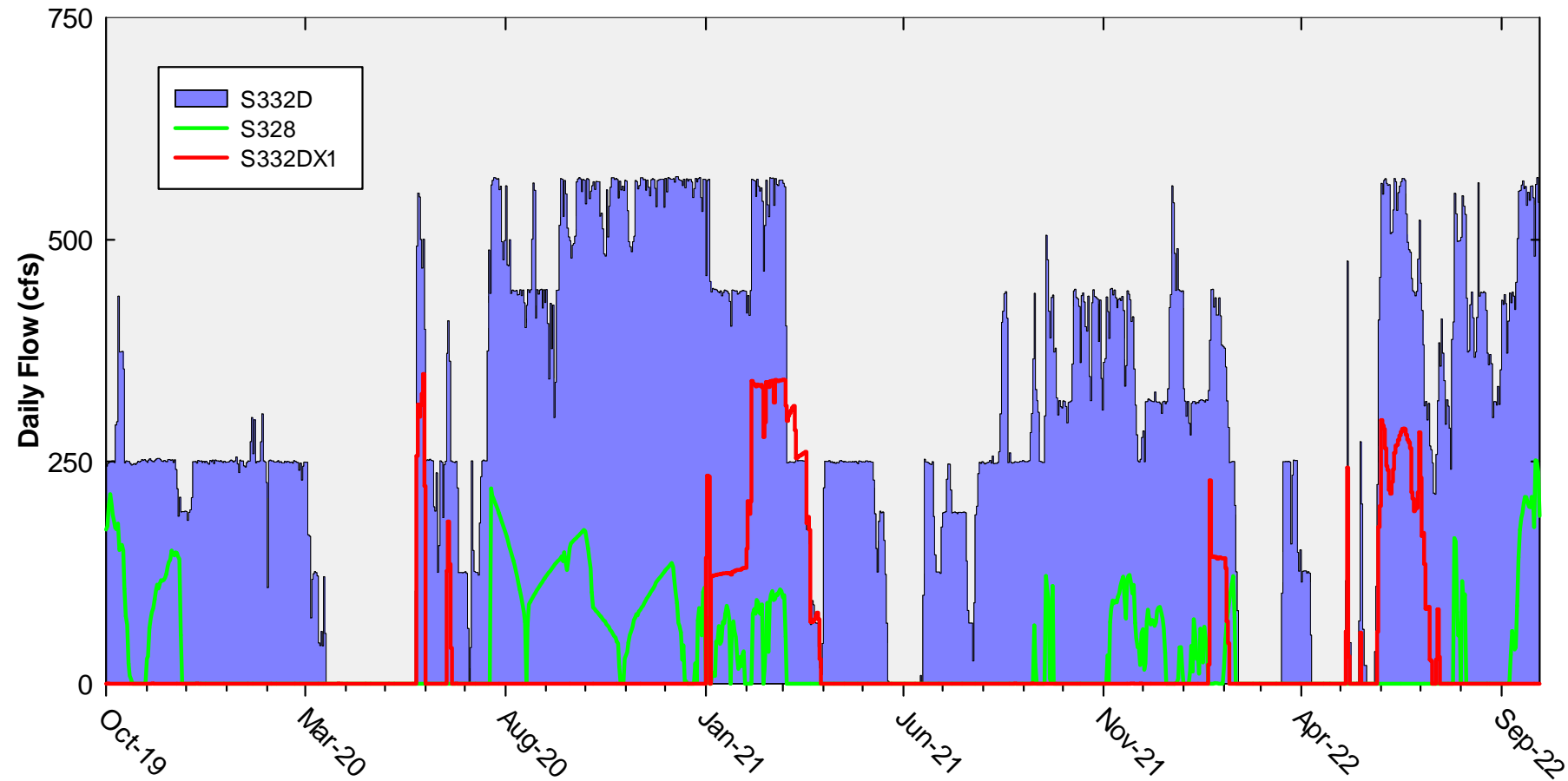
Daily Flows at Taylor Slough and Coastal Basins Structures into ENP



Daily Flows at Individual Taylor Slough and Coastal Basins Structures

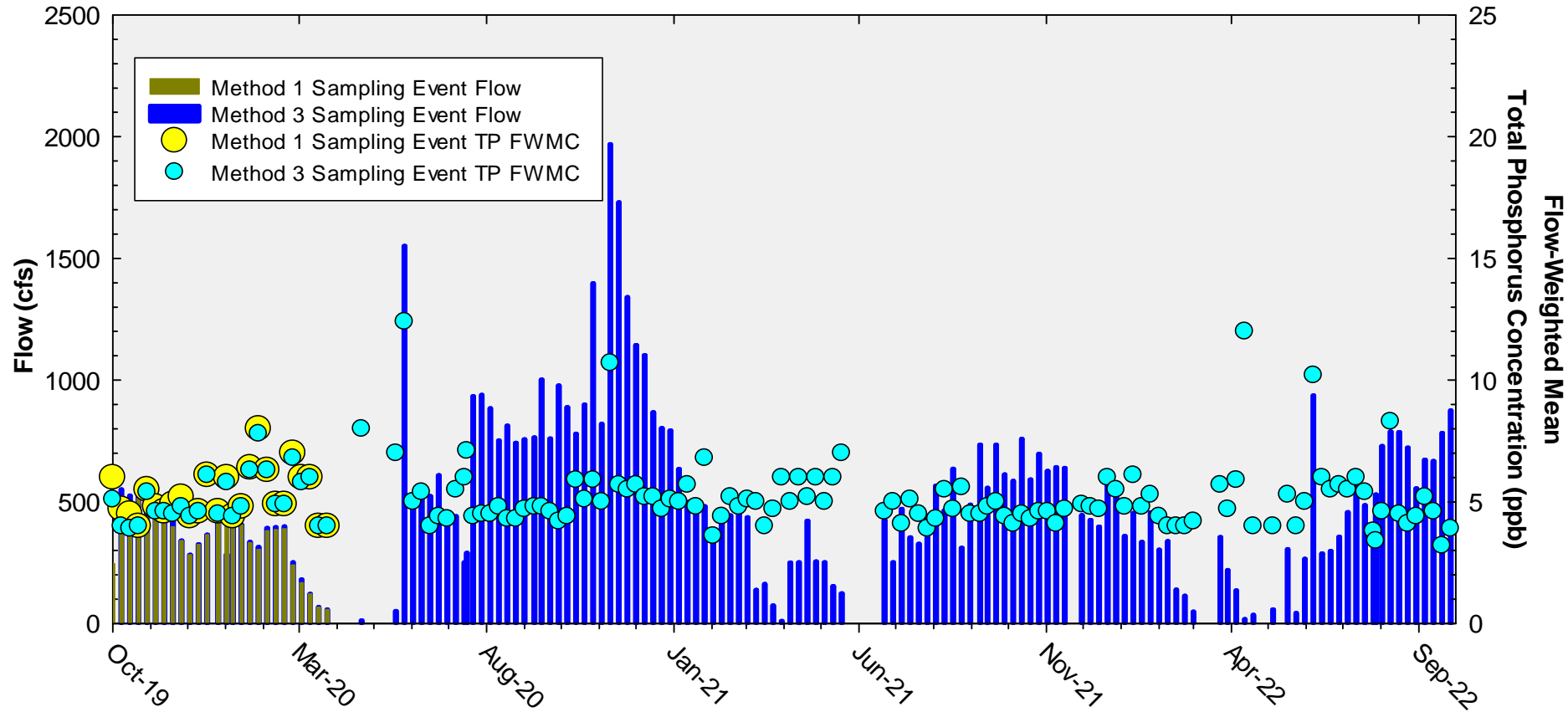


Daily Flows In and Out of S332D Flowway



Taylor Slough and Coastal Basins

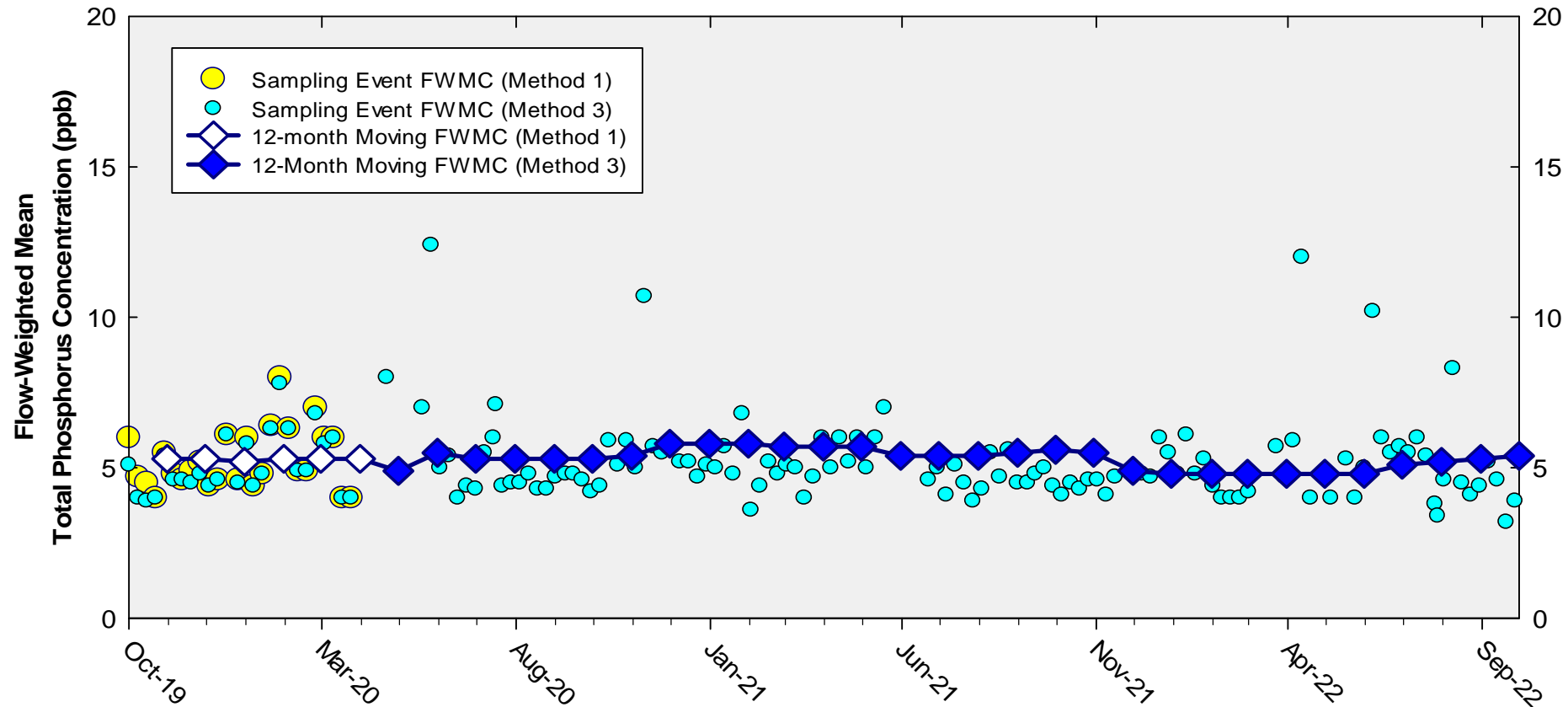
Sampling Event Flow and FWMC



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

