



SETTLEMENT AGREEMENT QUARTERLY REPORT

October - December 2023

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Water Quality Bureau

Technical Oversight Committee

June 25, 2024



sfwmd.gov

SUMMARY

| Month | Mean Stage (ft NGVD29) | Long-Term Level (ppb) | Geometric Mean TP Concentration (ppb) | Number of Samples | |
|--|---------------------------|--------------------------|---|---|--------------|
| Arthur R. Marshall Loxahatchee National Wildlife Refuge | | | | | |
| Oct-23 | 17.55 | 7.2 | 6.8 | 14 | |
| Nov-23 | 17.15 | 7.2 | 6.3 | 8 | |
| Dec-23 | 17.29 | 7.2 | 6.9 | 14 | |
| 12-Month Period Ending | Total Flow (kac-ft) | Long-Term Limit (ppb) | 12-Month TP FWMC (ppb) | Percent of Sampling Events Greater than 10 ppb | |
| | | | | Guideline (%) | Observed (%) |
| Everglades National Park – Shark River Slough – <i>PROVISIONAL DATA and RESULTS</i> | | | | | |
| Oct-23 | 1,250.4 | 7.6 | 9.0 | 40.1 | 42.3 |
| Nov-23 | 1,251.2 | 7.6 | 9.1 | 40.1 | 46.2 |
| Dec-23 | 1,278.4 | 7.6 | 9.1 | 40.1 | 48.0 |
| Everglades National Park – Taylor Slough and Coastal Basins | | | | | |
| Oct-23 | 347.8 | 11.0 | 4.8 | 53.1 | 0.0 |
| Nov-23 | 358.2 | 11.0 | 4.8 | 53.1 | 0.0 |
| Dec-23 | 363.3 | 11.0 | 4.8 | 53.1 | 0.0 |

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 $(S332D - S332DX1 - S328) + S328 + G737 + S18C$.

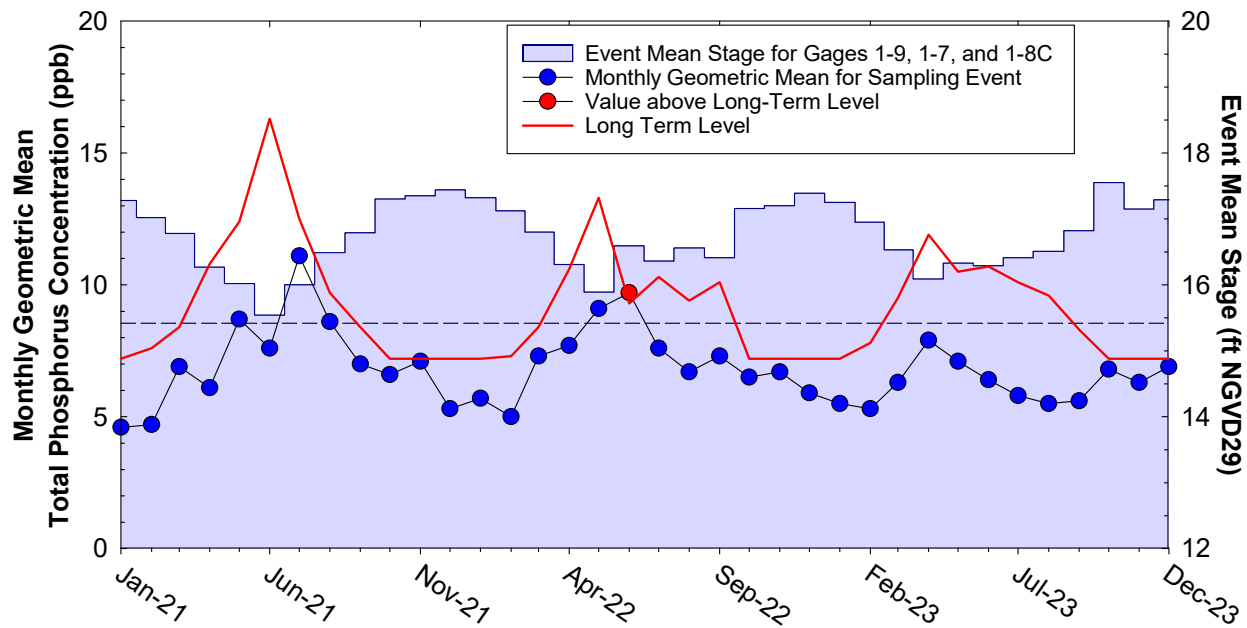
Refuge TP Compliance Tracking with Outlook

| Month | Geometric Mean TP Concentration (ppb) | Long-Term Level (ppb) Effective 12/31/2006 | Average Stage (feet NGVD29) | Number of Samples |
|---|---------------------------------------|--|-----------------------------|-------------------|
| 4th Quarter 2023 Compliance Tracking | | | | |
| Oct-2023 | 6.8 | 7.2 | 17.55 | 14 |
| Nov-2023 | 6.3 | 7.2 | 17.15 | 8 |
| Dec-2023 | 6.9 | 7.2 | 17.29 | 14 |
| Preliminary Data Outlook | | | | |
| Jan-2024 | 4.3 | 7.2 | 17.44 | 14 |
| Feb-2024 | 6.1 | 8.1 | 16.87 | 14 |
| Mar-2024 | 6.9 | 8.3 | 16.82 | 14 |
| Apr-2024 | 6.7 | 10.5 | 16.32 | 12 |
| May-2024 | 10.6 | 14.2 | 15.78 | 6 |

Note: 17.14 ft NGVD29 was used for the long-term level calculation when the average stage of the month exceeded the threshold of 17.14 ft.

Only 8 stations were sampled in November 2023 due to bad weather conditions at LOX6 and LOX11 through LOX16.

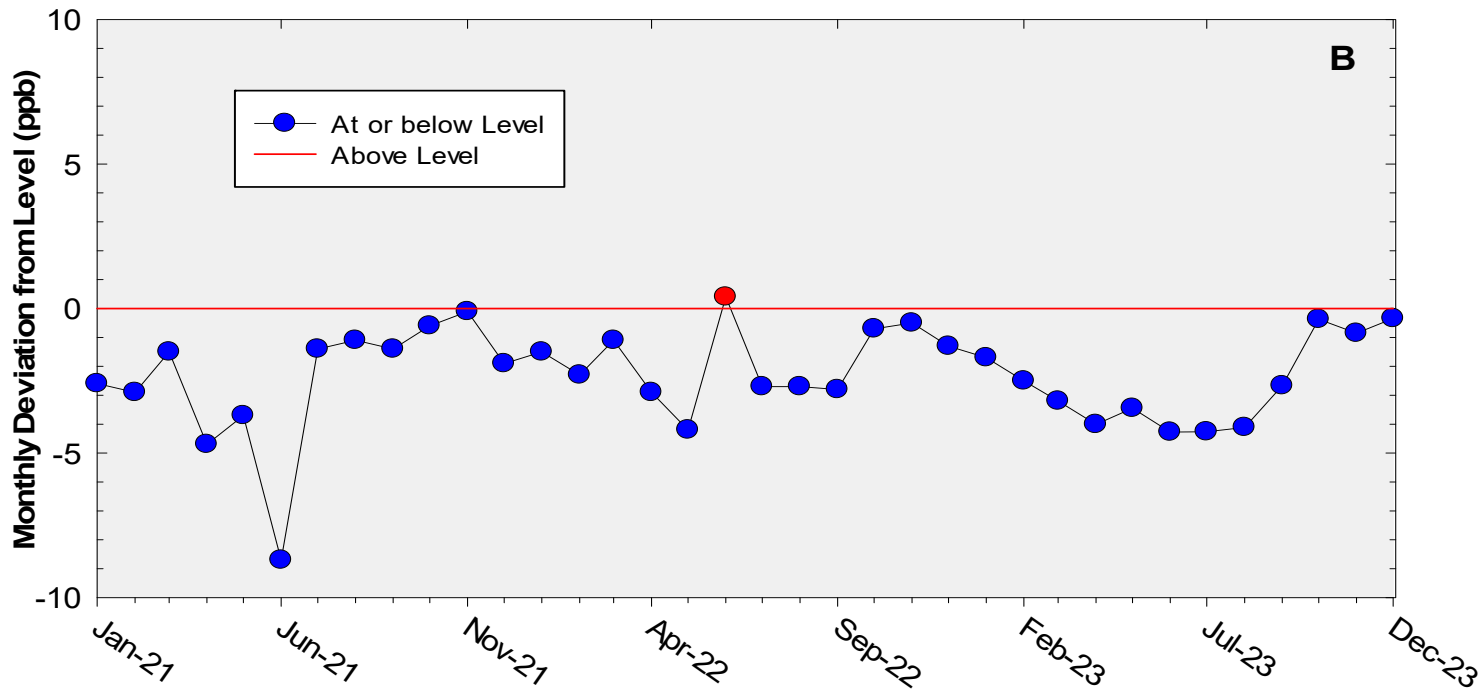
A.R.M Loxahatchee National Wildlife Refuge Monthly Total Phosphorus Geometric Mean Concentrations



36-Month Average TP Geometric Mean = 6.8 ppb

36-Month Average TP Long-term Level is = 9.2 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 = 2.4 ppb below the Long-Term Level

Shark River Slough

TP Concentration Compliance Tracking and Outlook

WY2024 Flow Data for S12s are Provisional.

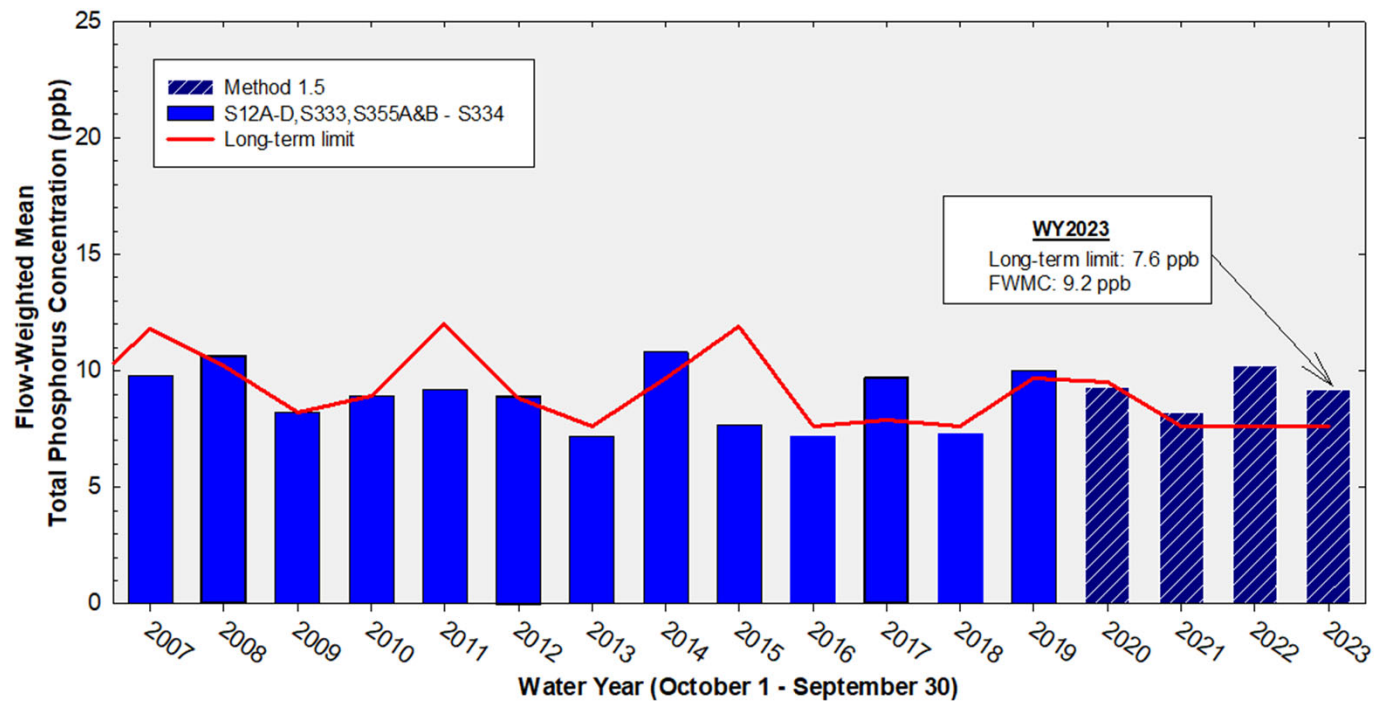
| 12-Month Period | Total Flow (kac-ft) | Long-Term Limit (ppb) <i>Effective 12/31/2006</i> | Flow-Weighted Mean TP Concentration (ppb) | Percent of Sampling Events Greater than 10 ppb | |
|---|------------------------|---|---|--|-----------------|
| | | | | Guideline (%) | Observed (%) |
| 4th Quarter 2023 Compliance Tracking | | | | | |
| Nov 2022 - Oct 2023 | 1,250.4 | 7.6 | 9.0 | 40.1 | 42.3 |
| Dec 2022 - Nov 2023 | 1,251.2 | 7.6 | 9.1 | 40.1 | 46.2 |
| Jan 2023 - Dec 2023 | 1,278.4 | 7.6 | 9.1 | 40.1 | 46.2 |
| Outlook | | | | | |
| Feb 2023 - Jan 2024 | 1,322.9 | 7.6 | 8.8 | 40.1 | 46.2 |
| Mar 2023 - Feb 2024 | 1,381.4 | 7.6 | 8.6 | 40.1 | 42.3 |
| Apr 2023 - Mar 2024 | 1,445.7 | 7.6 | 8.2 | 40.1 | 36.0 |
| May 2023 - Apr 2024 | 1,493.8 | 7.6 | 7.9 | 40.1 | 28.0 |
| Jun 2023 - May 2024 | 1,486.0 | 7.6 | 7.6 | 40.1 | 28.0 |

Shark River Slough PROVISIONAL RESULTS:

FWMC computed as S12A + S12B + S12C + S12D + [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.

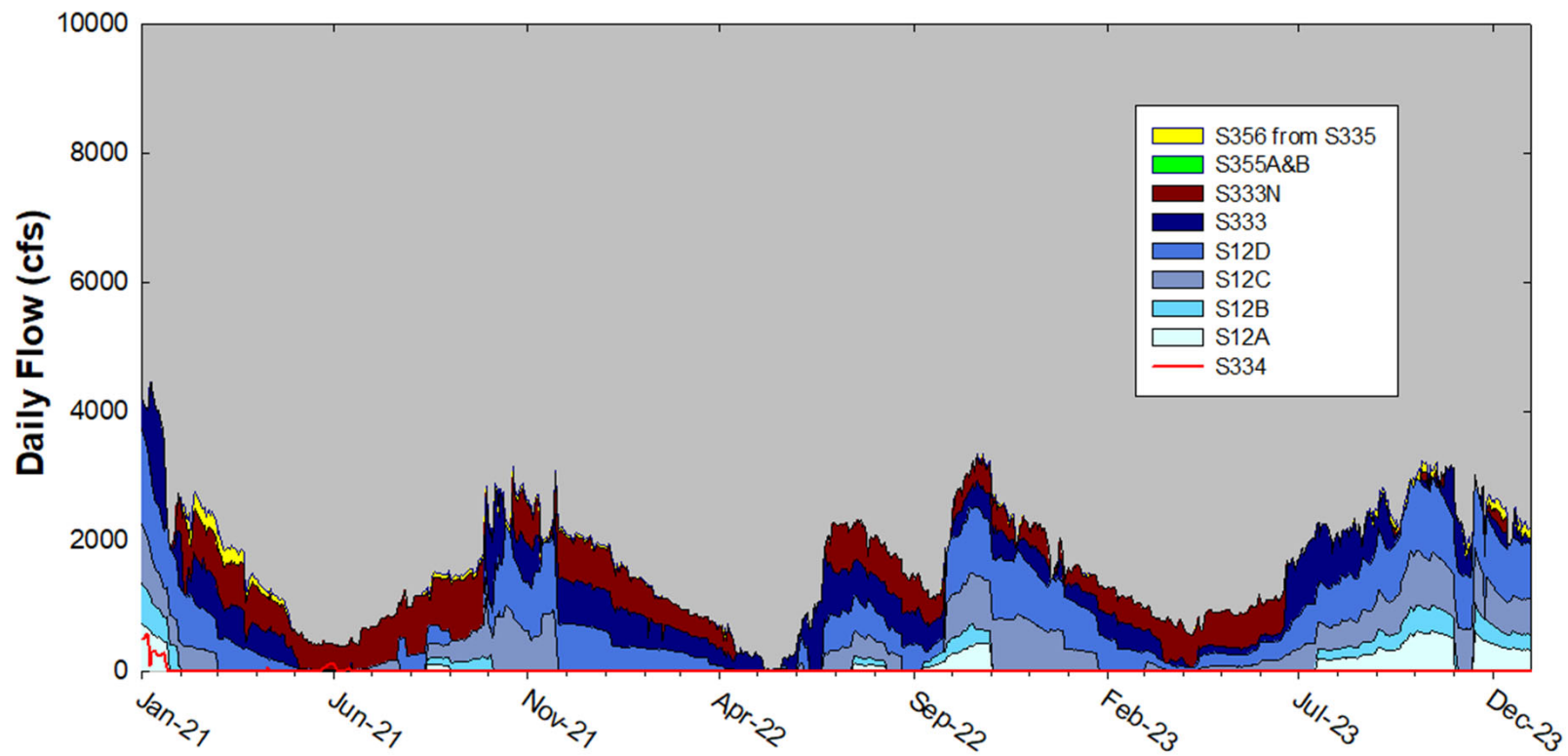
Annual Flow-weighted Mean Concentrations of Inflows to ENP through Shark River Slough



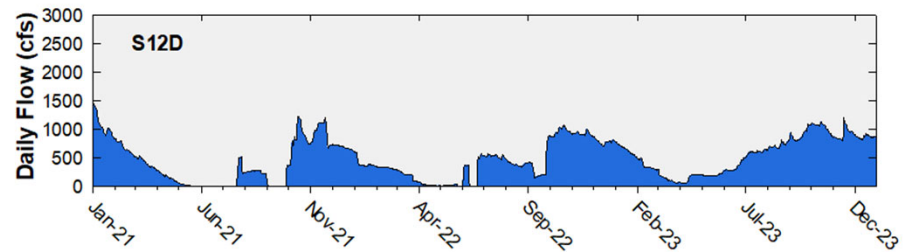
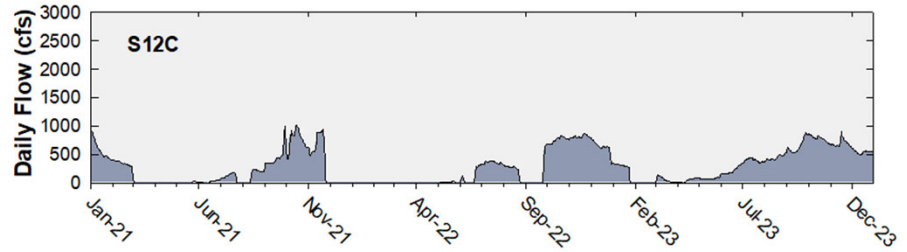
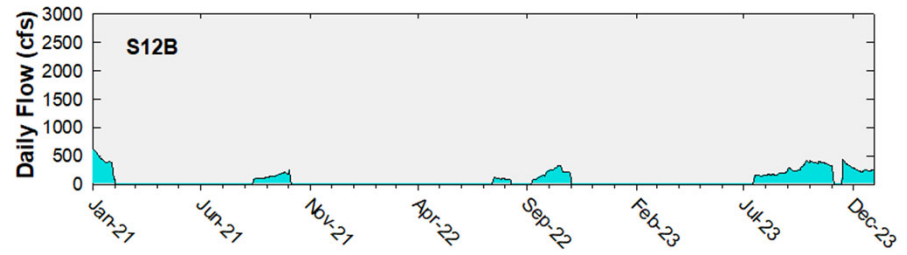
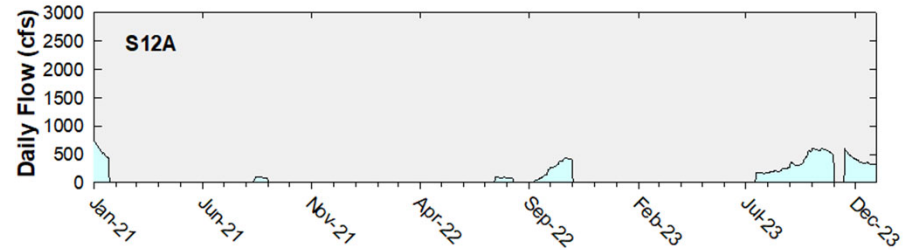
12-month FWMC at the end of each water year compared to the TP interim and long-term limits

Shark River Slough Structure Daily Flows

WY2024 Flow Data for S12s are Provisional.

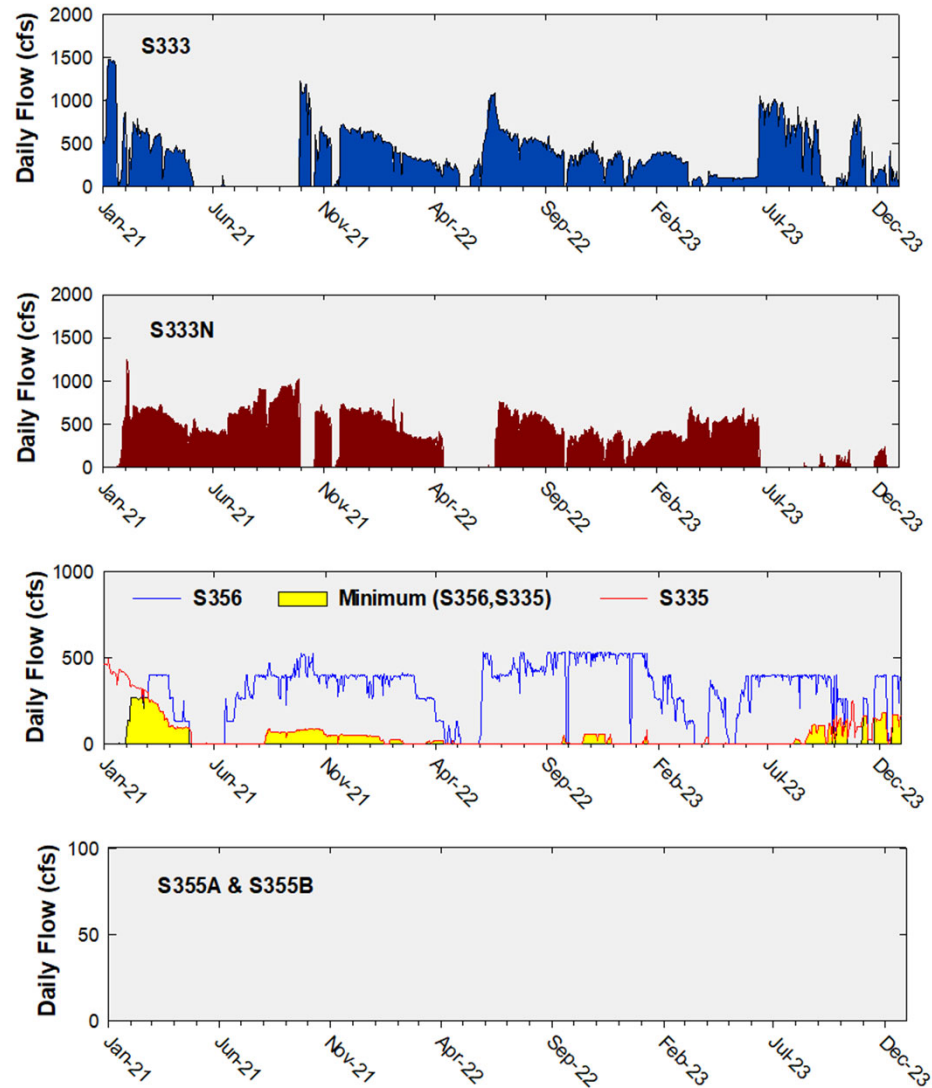


Daily Flows at S12 Structures to Shark River Slough

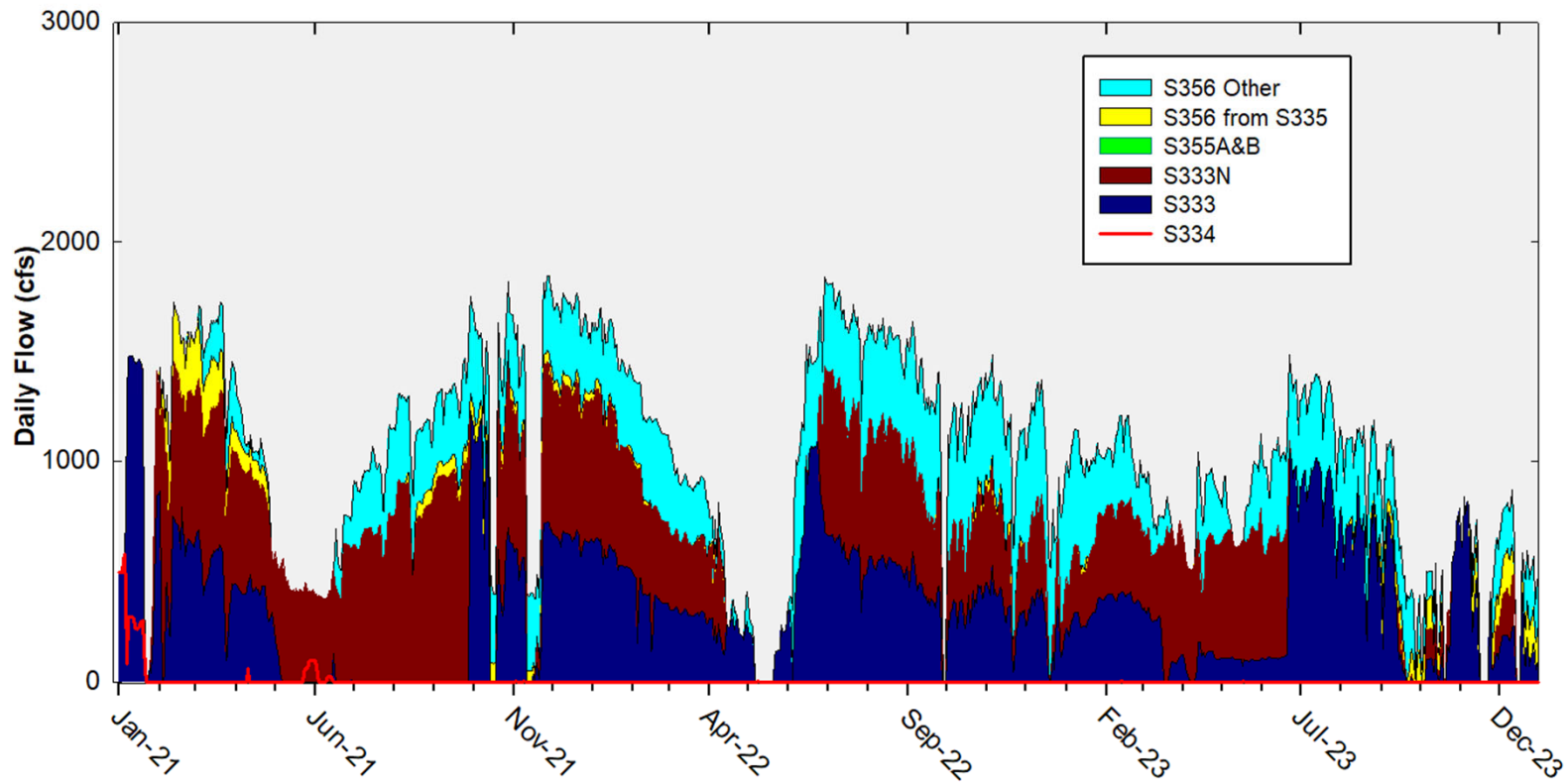


Daily Flows at Individual Inflow Structures to Shark River Slough

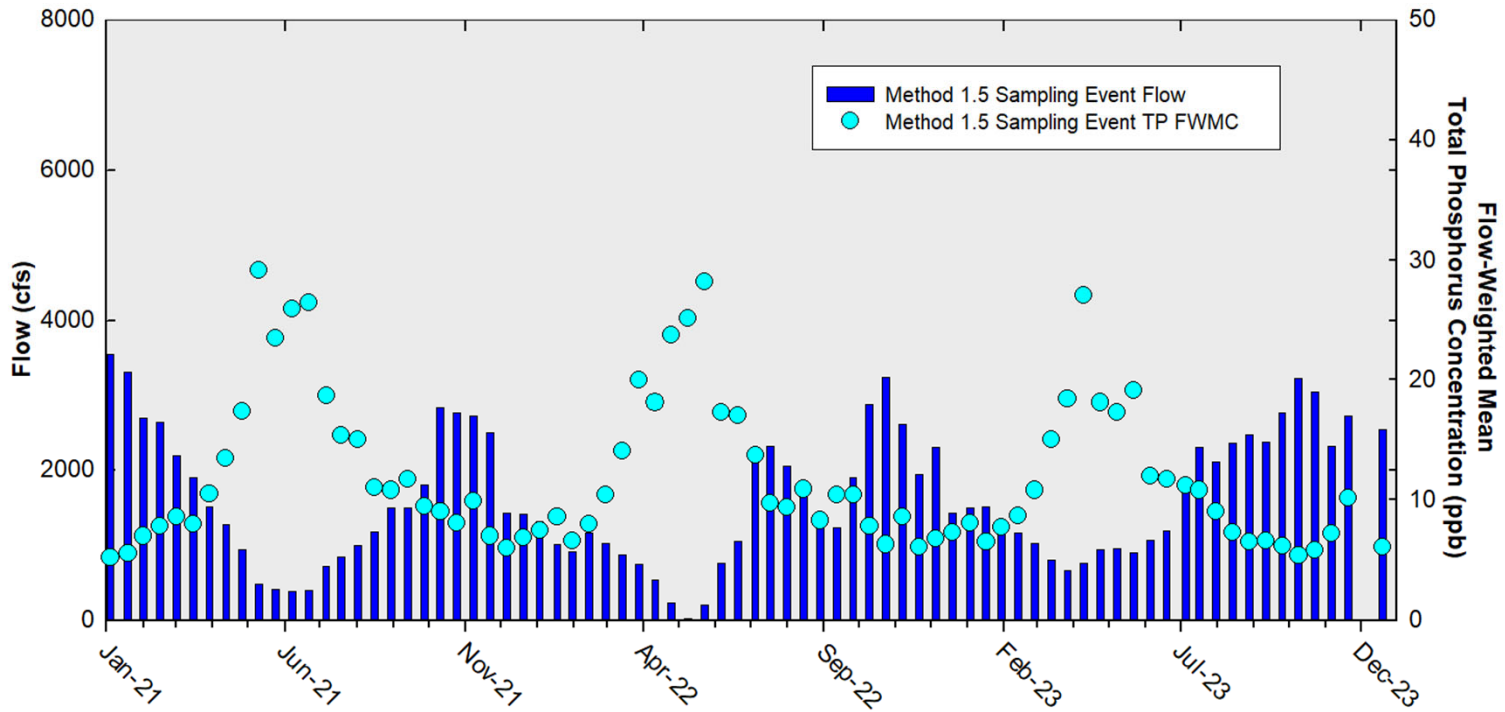
(Note: There was no flow at S355A or S355B during the period)



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



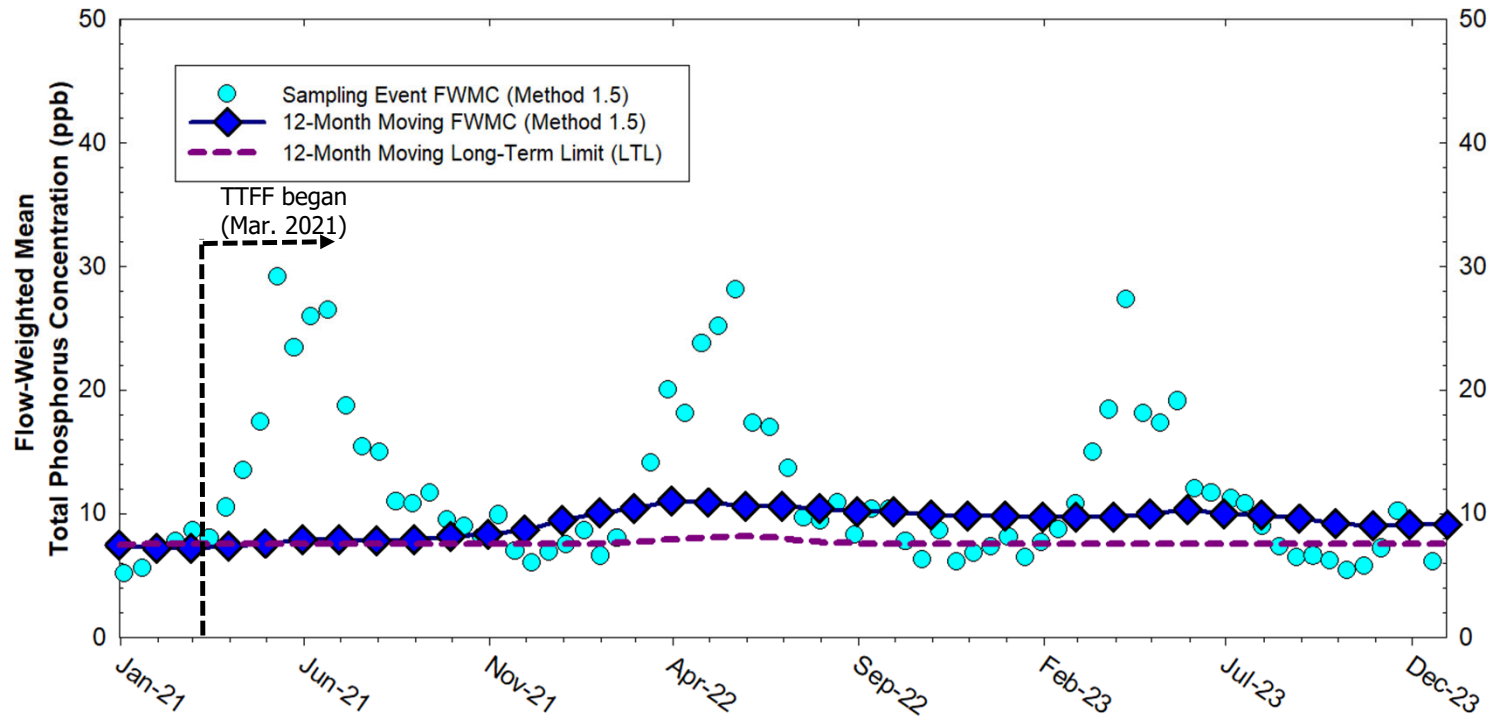
Shark River Slough Sampling Event Flow and FWMC



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

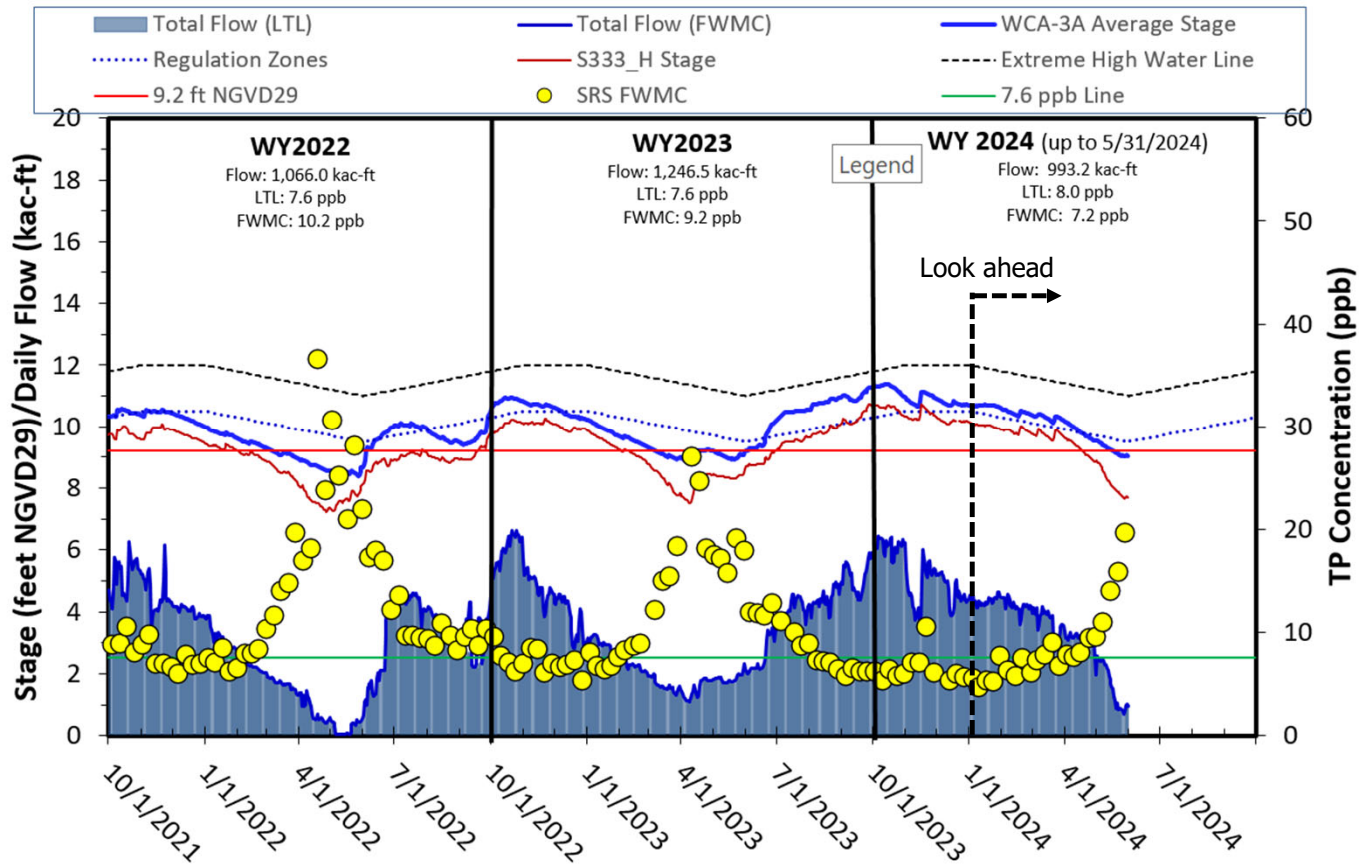
Shark River Slough

12-month Moving Flow-Weighted Mean TP and Long-Term Limit



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

Stage, Flow, and TP FWMC Inflows to ENP through Shark River Slough



* WY2024 results are Provisional

Taylor Slough and Coastal Basins

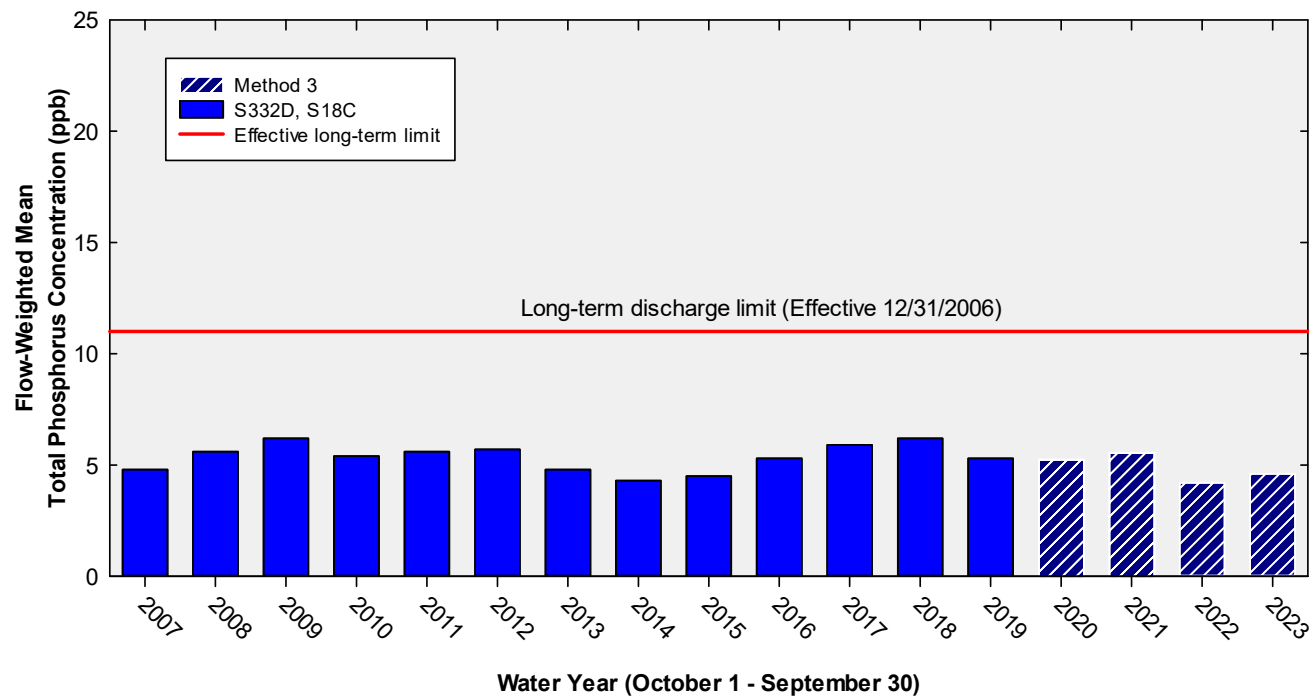
TP Concentration Compliance Tracking

| 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% |
|----------------------------|---------------------|--|--|
| Nov 2022 - Oct 2023 | 347.8 | 4.8 | 0.0 |
| Dec 2022 - Nov 2023 | 358.2 | 4.8 | 0.0 |
| Jan 2023 - Dec 2023 | 363.3 | 4.8 | 0.0 |

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

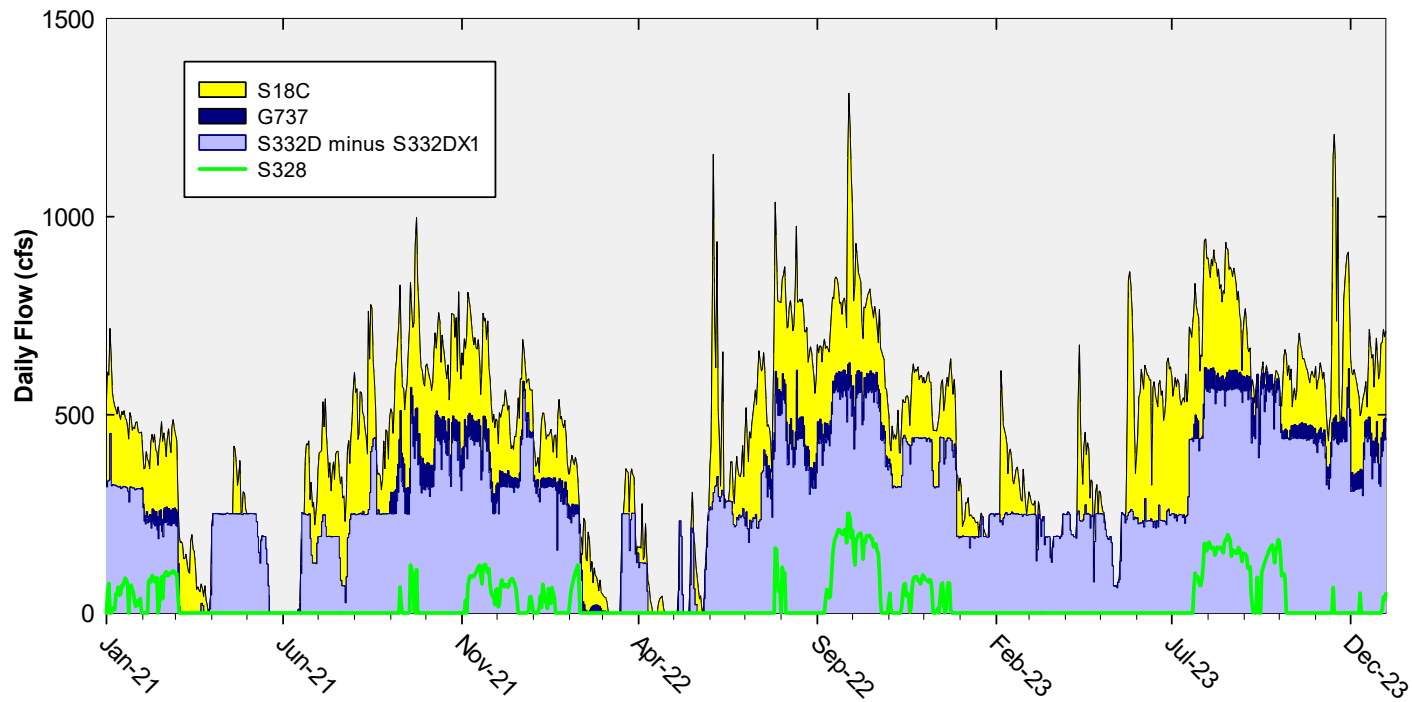
Total flow is $(S332D-S332DX1)+G737+S18C]$

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

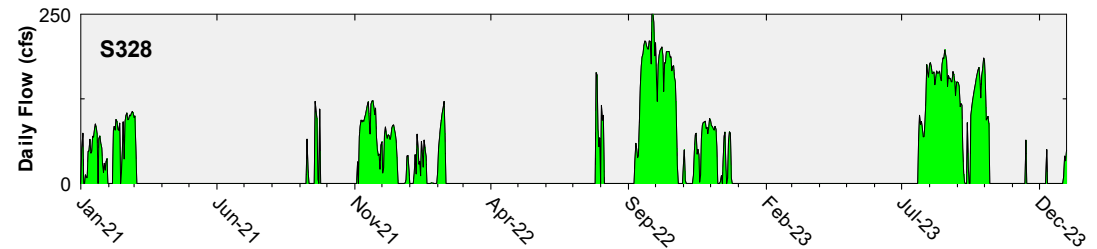
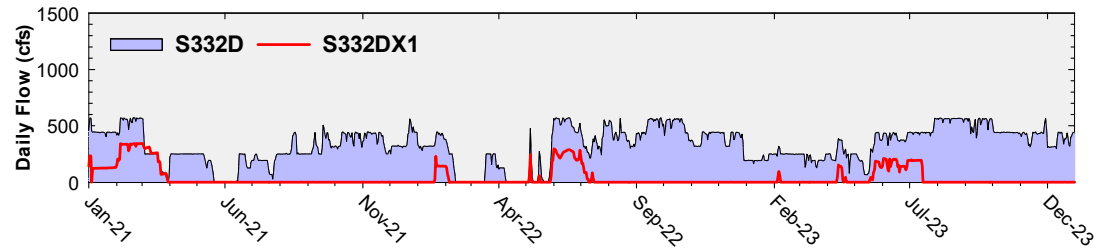
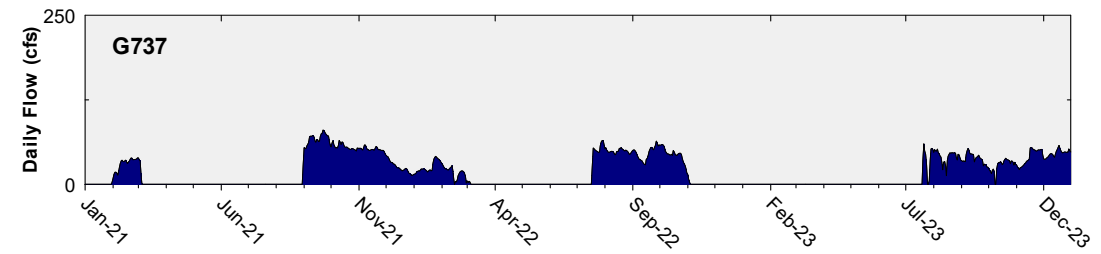
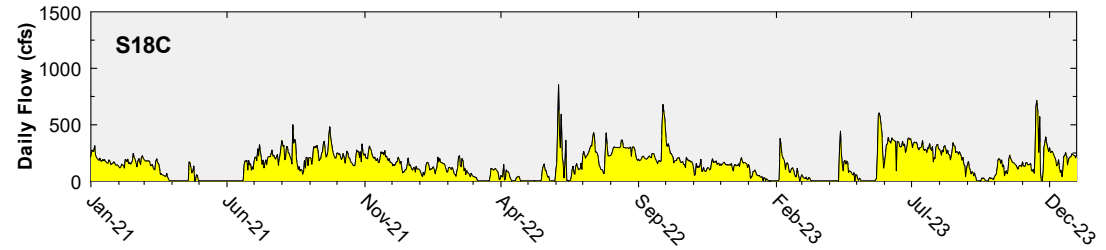


The 12-month FWMC at the end of each water year compared to the 11 ppb long-term TP limit

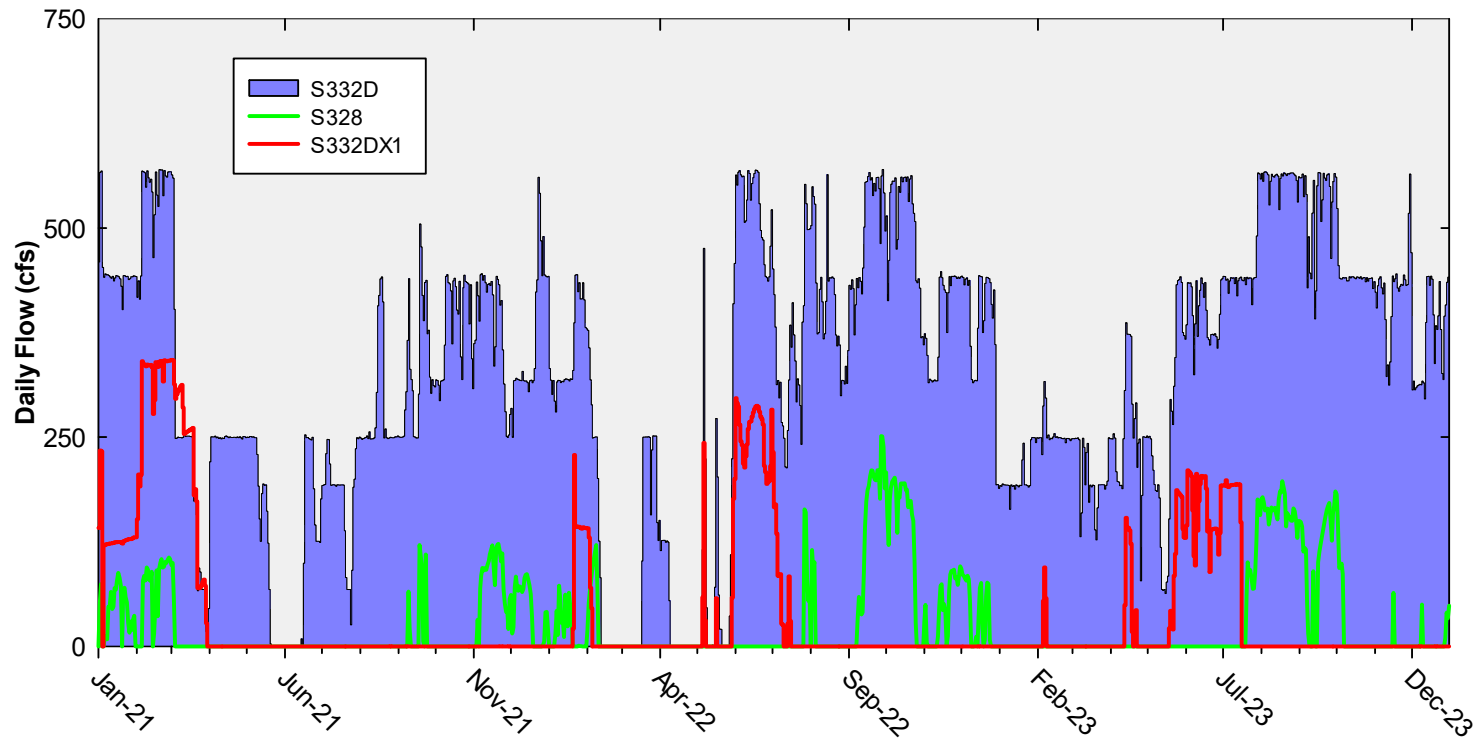
Daily Flows at Taylor Slough and Coastal Basins Structures into ENP



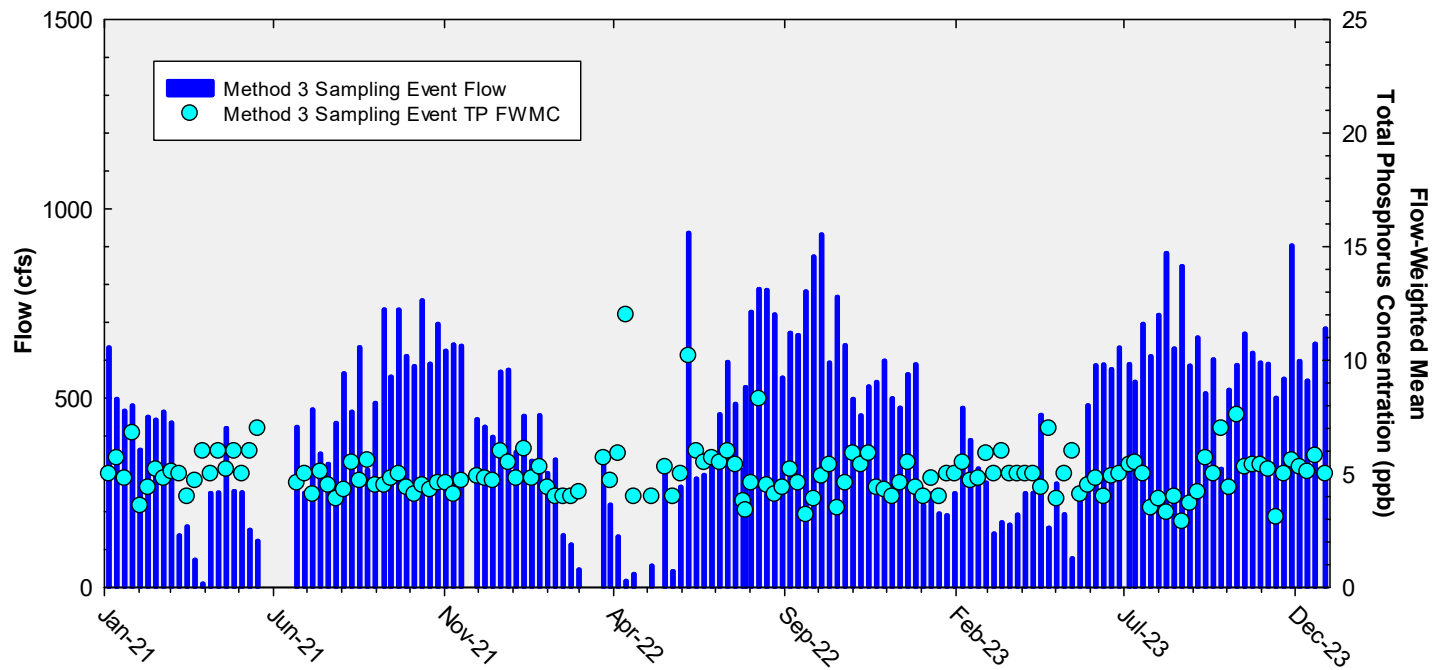
Daily Flows at Individual Taylor Slough and Coastal Basins Structures



Daily Flows In and Out of S332D Flowway



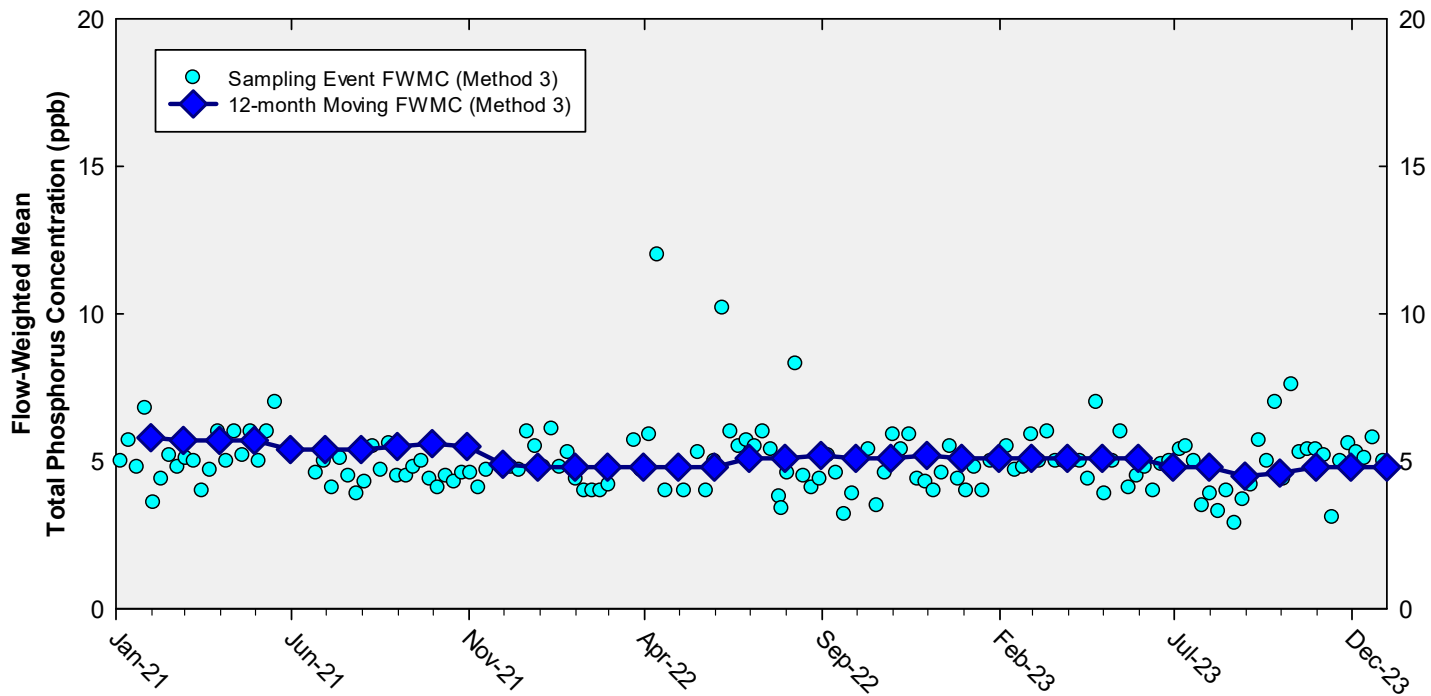
Taylor Slough and Coastal Basins Sampling Event Flow and FWMC



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

Taylor Slough and Coastal Basins

12-month Moving Flow-Weighted Mean TP and Long-Term Limit



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

Thank You

