

Water Quality Conditions for Everglades National Park, Water Year 2023 Shark River Slough

Technical Oversight Committee Quarterly Meeting
June 25, 2024

SRS Water Quality Conditions – WY2023 Results

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 (%)
3rd Quarter 2023 Compliance Tracking					
Aug 2022 - Jul 2023	1,146.3	7.6	9.9	40.1	51.9
Sep 2022 - Aug 2023	1,175.0	7.6	9.7	40.1	50.0
Oct 2022 - Sep 2023	1,246.5	7.6	9.2	40.1	42.3

WY2023 RESULTS

SRS FWMC- 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.

SRS Water Quality Conditions – Outline

Evaluation of the WY2023 Exceedance

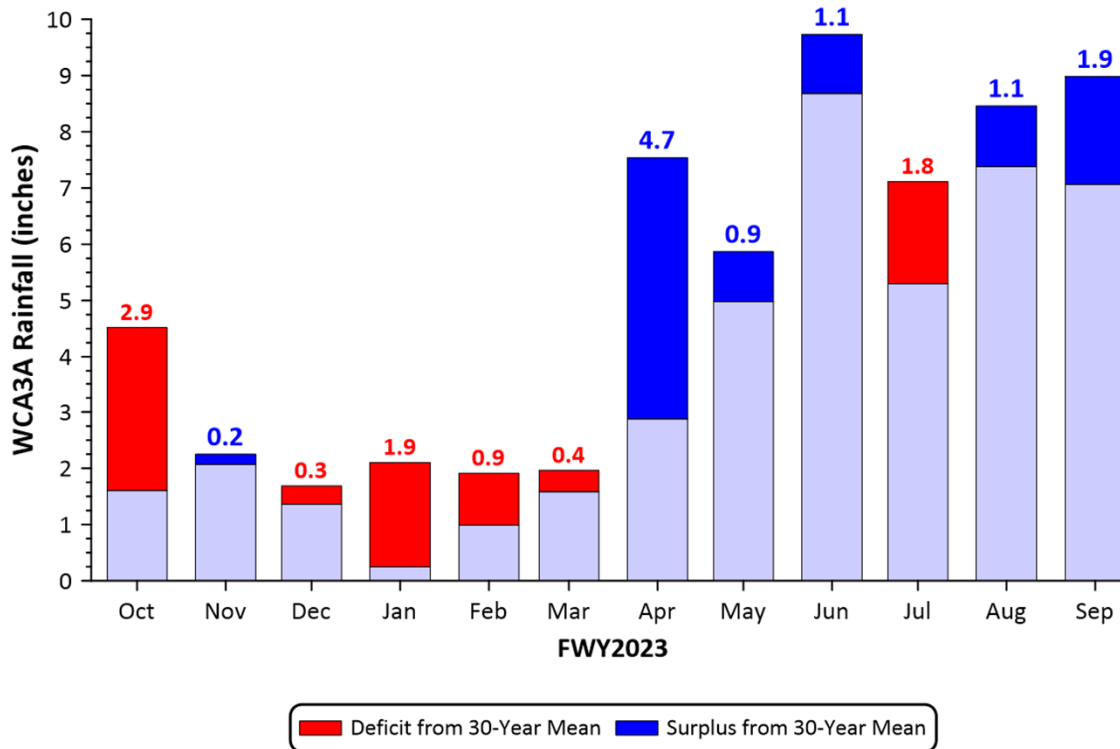
Evaluation under the Consent Decree	Data errors?
	Extraordinary natural phenomena?
What occurred throughout the year?	System operations

SRS Water Quality Conditions – Data Errors?

Evaluation of Data Errors

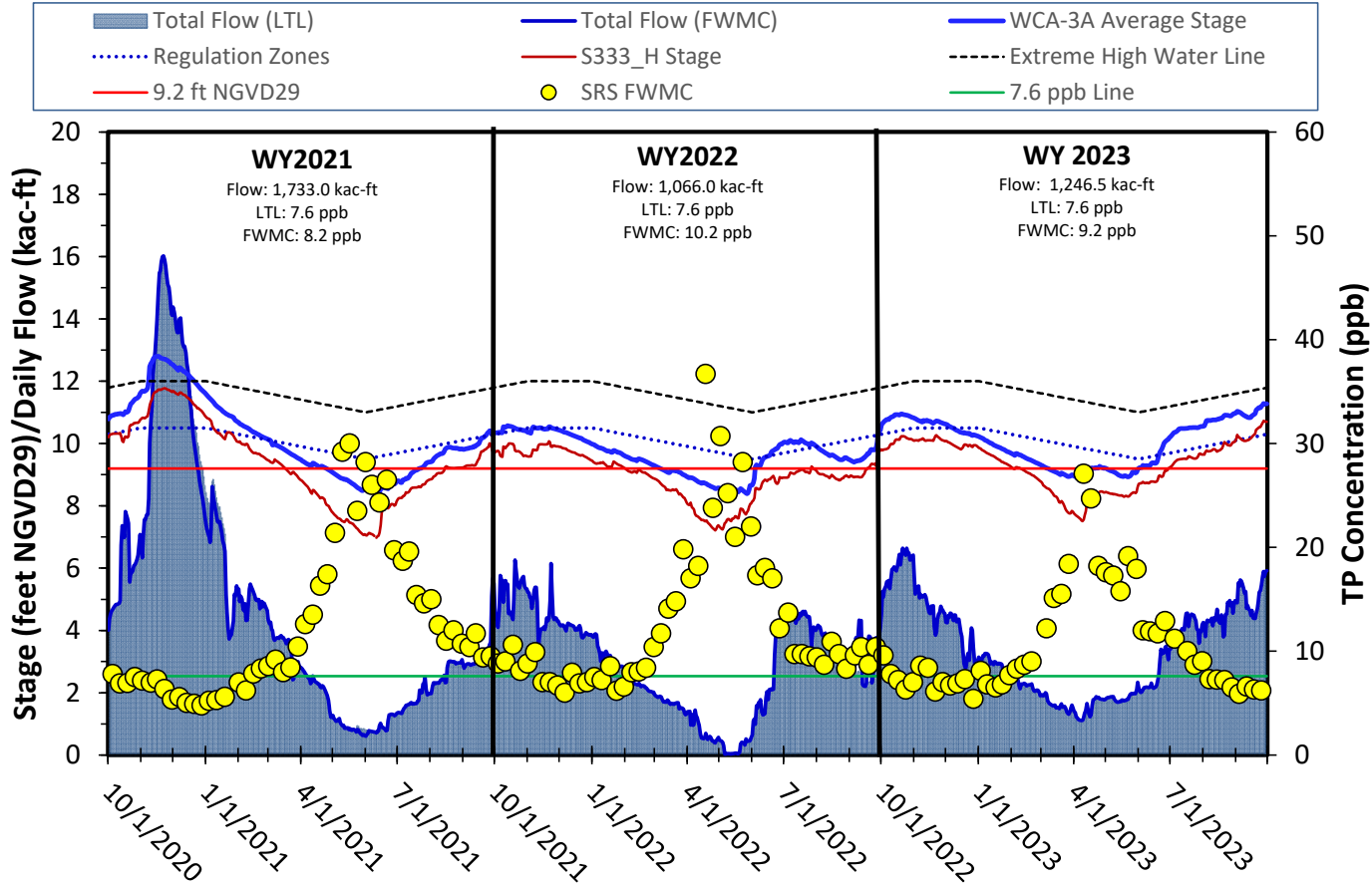
Potential Data Issues	Flow	Water Quality
Missing data	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> 0 samples
Suspicious (Qualified) data	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> 0 event

SRS Water Quality Conditions - Extraordinary Natural Phenomena?



- WY2023 rainfall: 53.9"
- Drier than the average dry season
- Wetter than the average wet season

System Operations



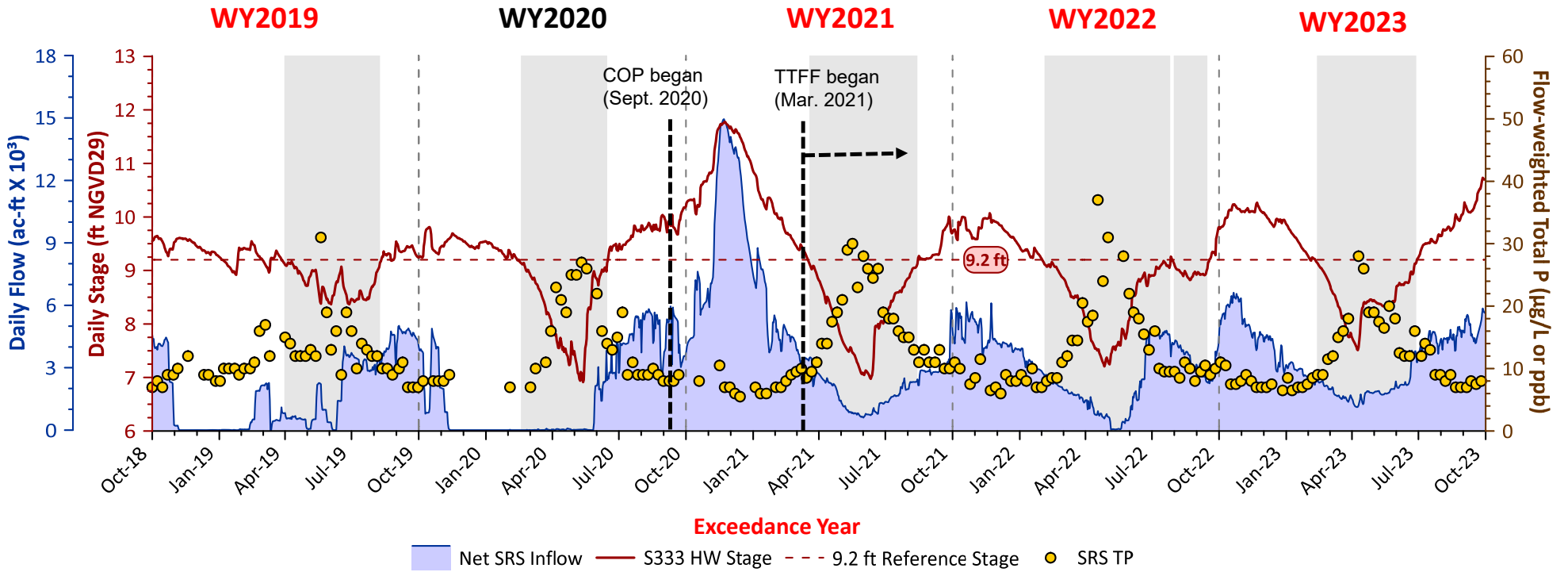
Units used in this presentation:
 Stage (headwater) – NGVD29 ft.
 TP concentration (TP) – ppb ($\mu\text{g/L}$).
 Flow – 1,000 ac-ft (kac-ft).

SRS Water Quality Conditions

The persistence of a localized phenomenon

- TP – stage relationship
- Flows during low stages
- Trends of the annual flow, LTL, and FWM TP

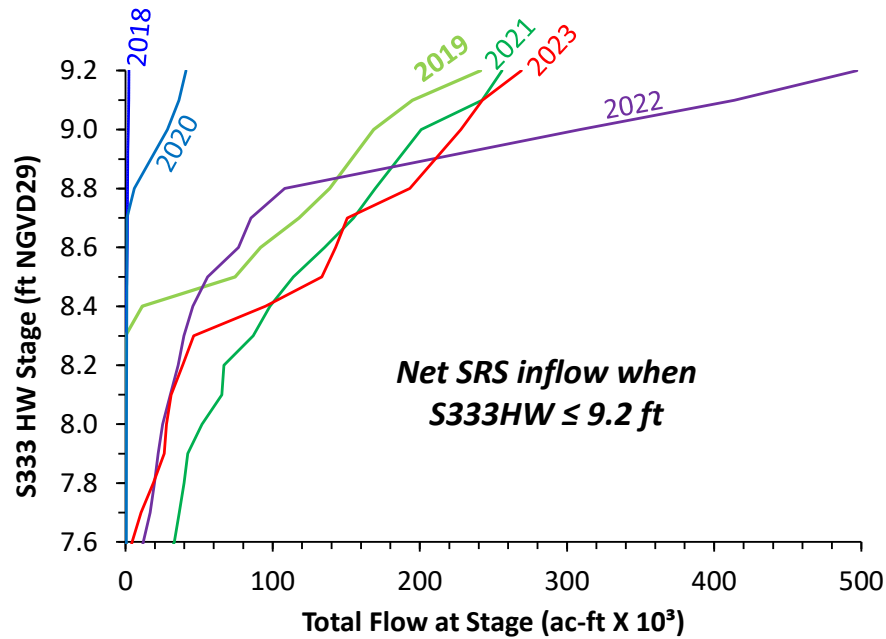
TP – Stage Relationship



Shaded region depicts the period where S333 HW stage was consistently below 9.2 ft

Net SRS inflow is computed as $S12s + [S333 + S333N + \min(S356, S335) - S334]$.

Flow during Low Stages



The top four years of the last 30 years with highest flows under low stages:

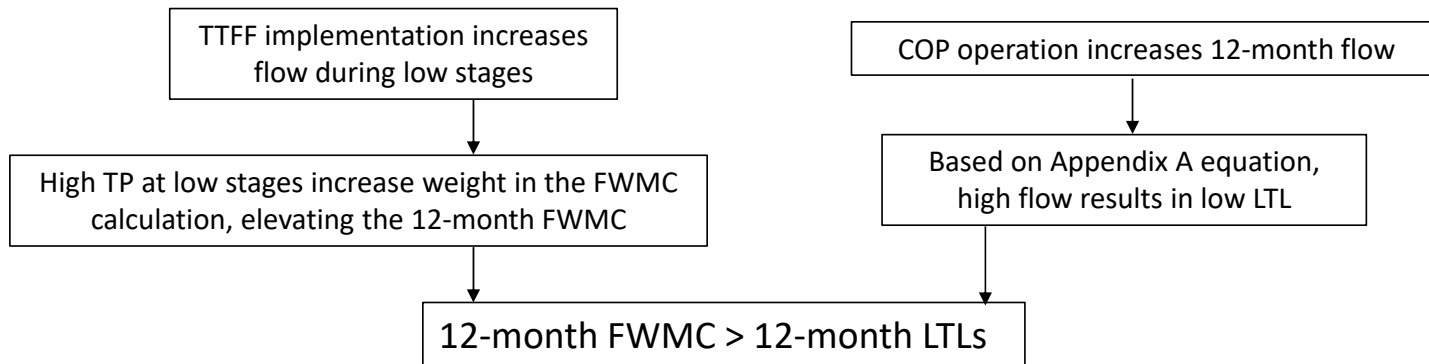
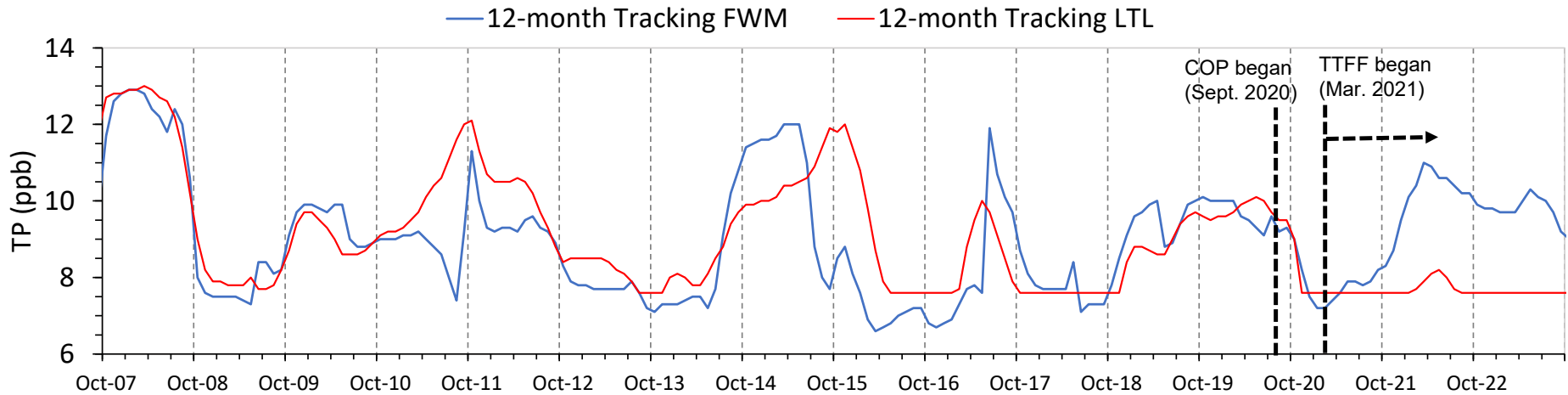
- 1st: 2022 (exceedance year)
- 2nd: 2023 (exceedance year)
- 3rd: 2021 (exceedance year)
- 4th: 2019 (exceedance year)

FWY	LTL	FWM TP	Net SRS inflow when $S333 \leq 9.2$ ft* (kac-ft)
	(ppb)		
2018	7.6	7.3	2
2019	9.7	10.0	241
2020	9.5	9.3	41
2021	7.6	8.2	256
2022	7.6	10.2	497
2023	7.6	9.2	269

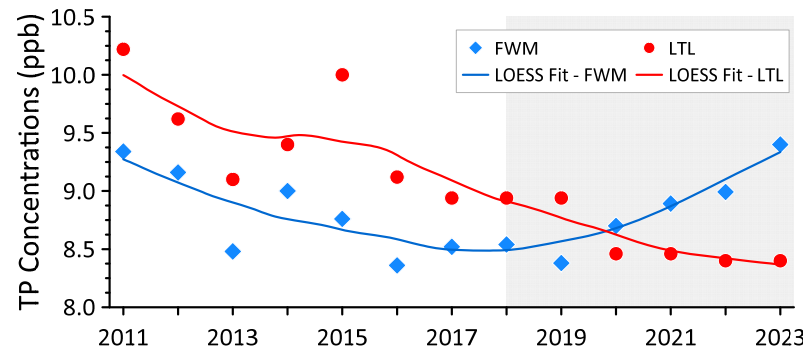
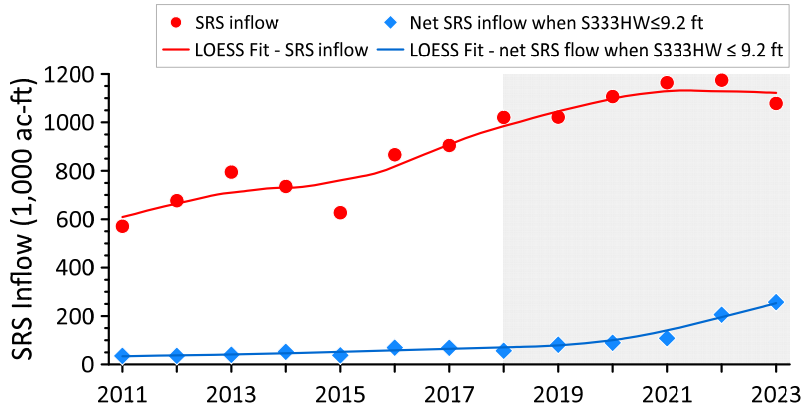
Exceedance year

* Net SRS inflow is computed as $S12s + [S333 + S333N + \min(S356, S335) - S334]$.

12-month Tracking LTL & FWMC Patterns



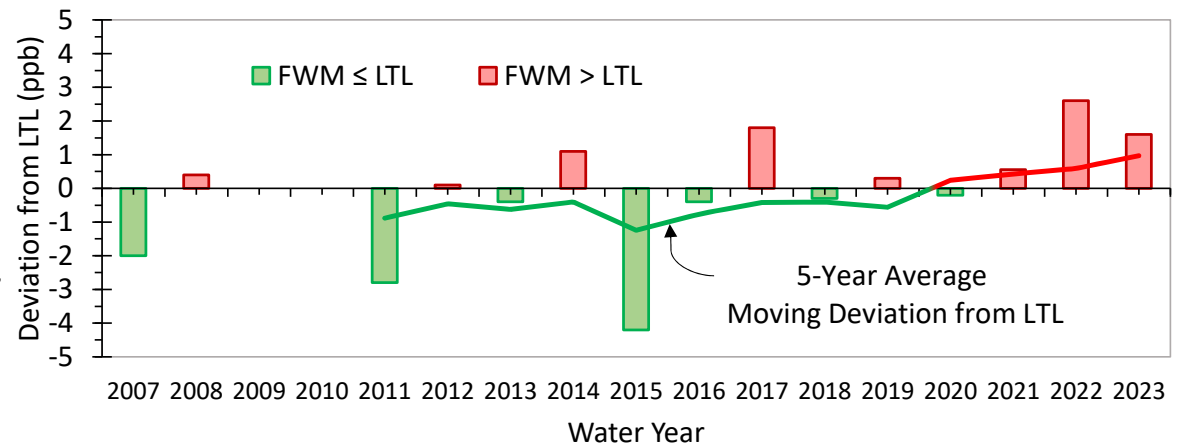
Trends of SRS Inflow, LTL, and Annual FWMC



The gray shaded area signals a shift in the previous trend, with a notable upward trajectory in the 5-year FWM following an inflection point in 2018.

Federal Water	5-year average of flow (kac-ft)		5-year average of TP (ppb)	
	SRS Inflow	* Net SRS inflow when S333HW ≤ 9.2 ft	LTL	FWM
2018	1021	56	8.9	8.5
2019	1022	82	8.9	8.4
2020	1107	90	8.5	8.7
2021	1164	110	8.5	8.9
2022	1176	207	8.4	9.0
2023	1078	261	8.4	9.4

* Net flow to SRS is computed as $S12s + [S333 + S333N + \min(S356, S335) - S334]$.



QUESTIONS