

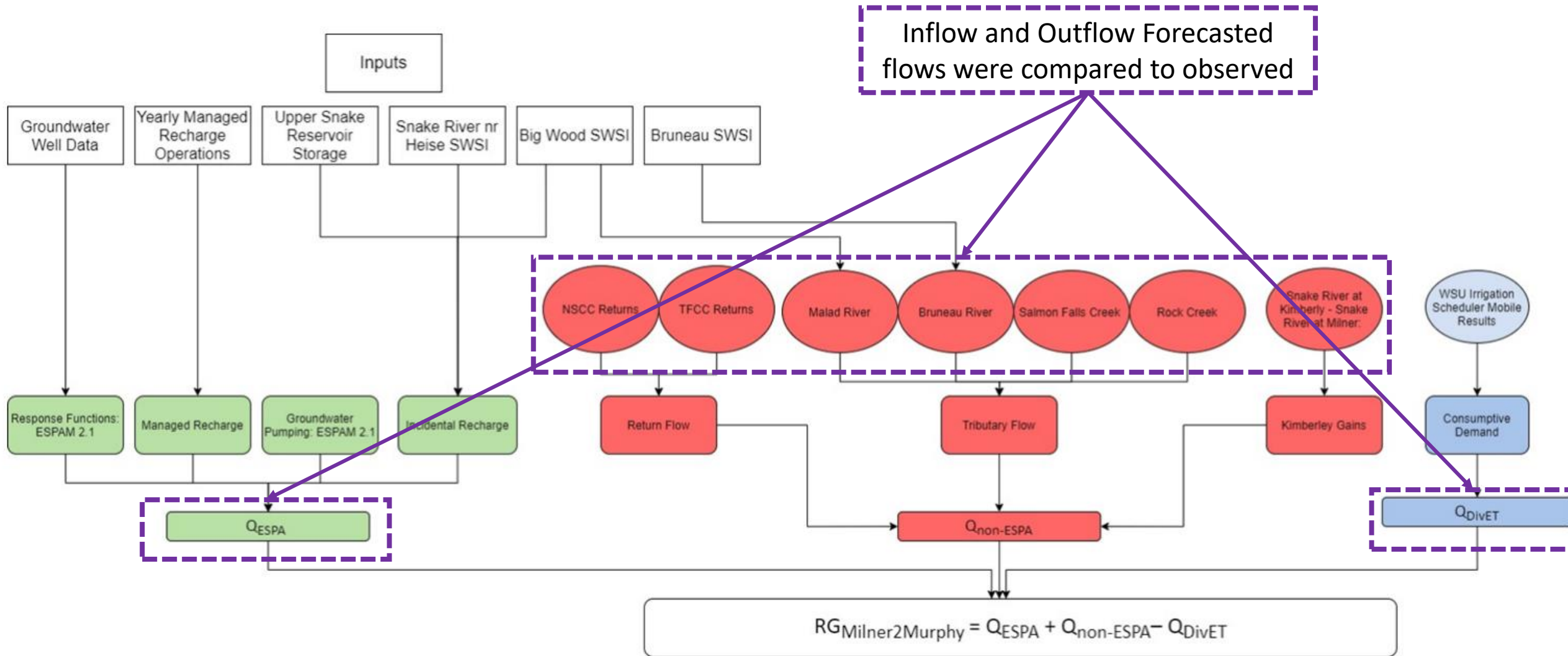
Swan Falls AADF Update – Component Analysis

Presented by Mac Beers

October 10th, 2024



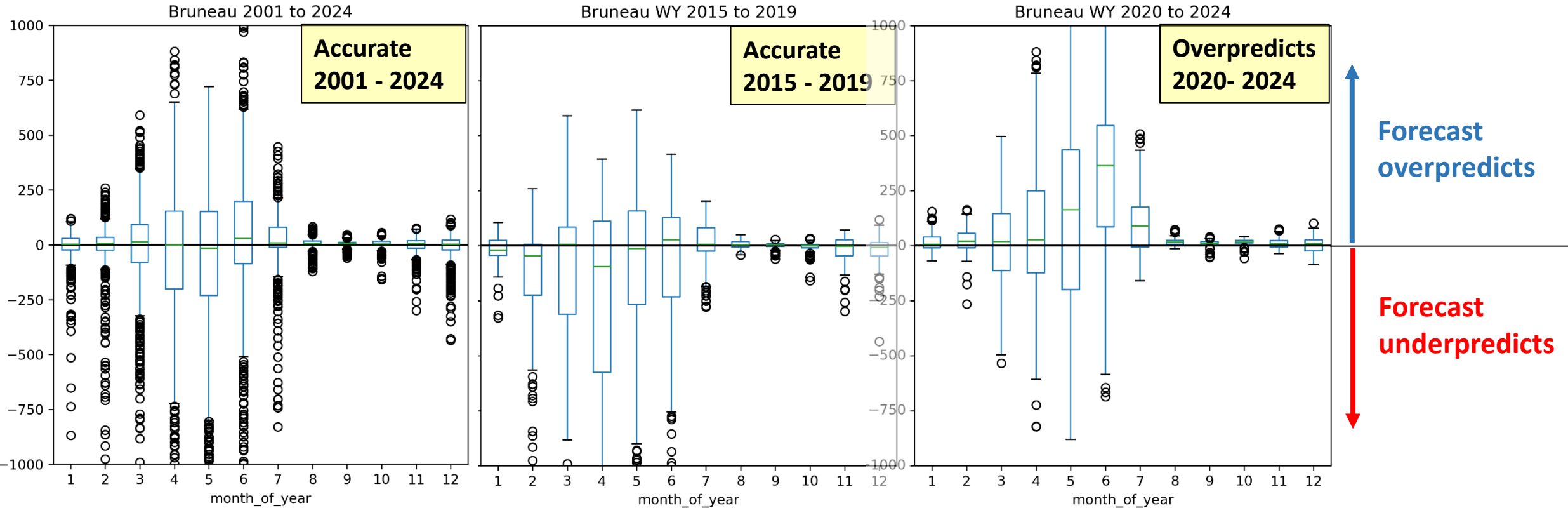
Swan Falls Forecast Inflow and Outflow



Bruneau



Forecast	Actual
Median daily flow of 6 most similar SWSI years as of May	USGS 13168500

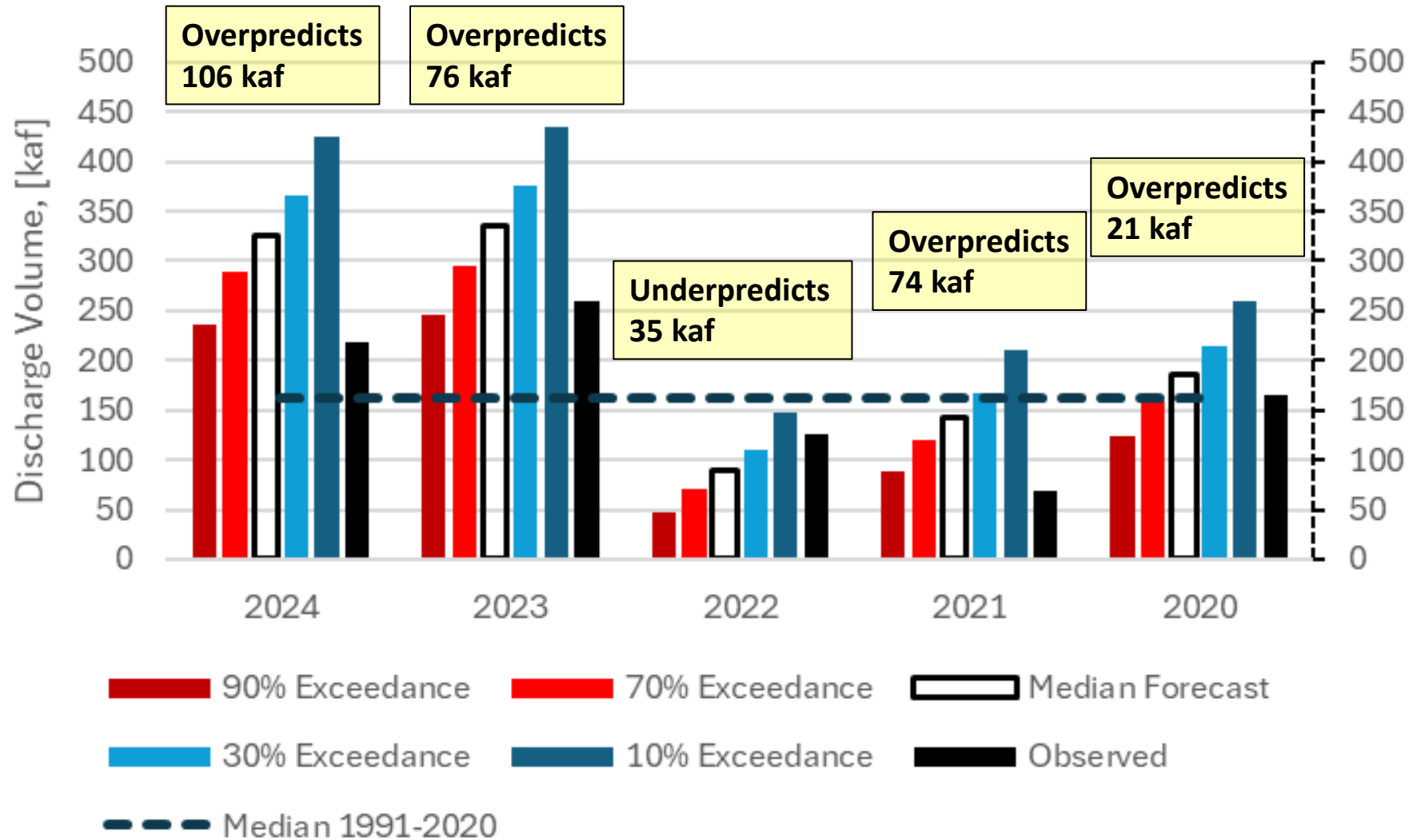


Bruneau

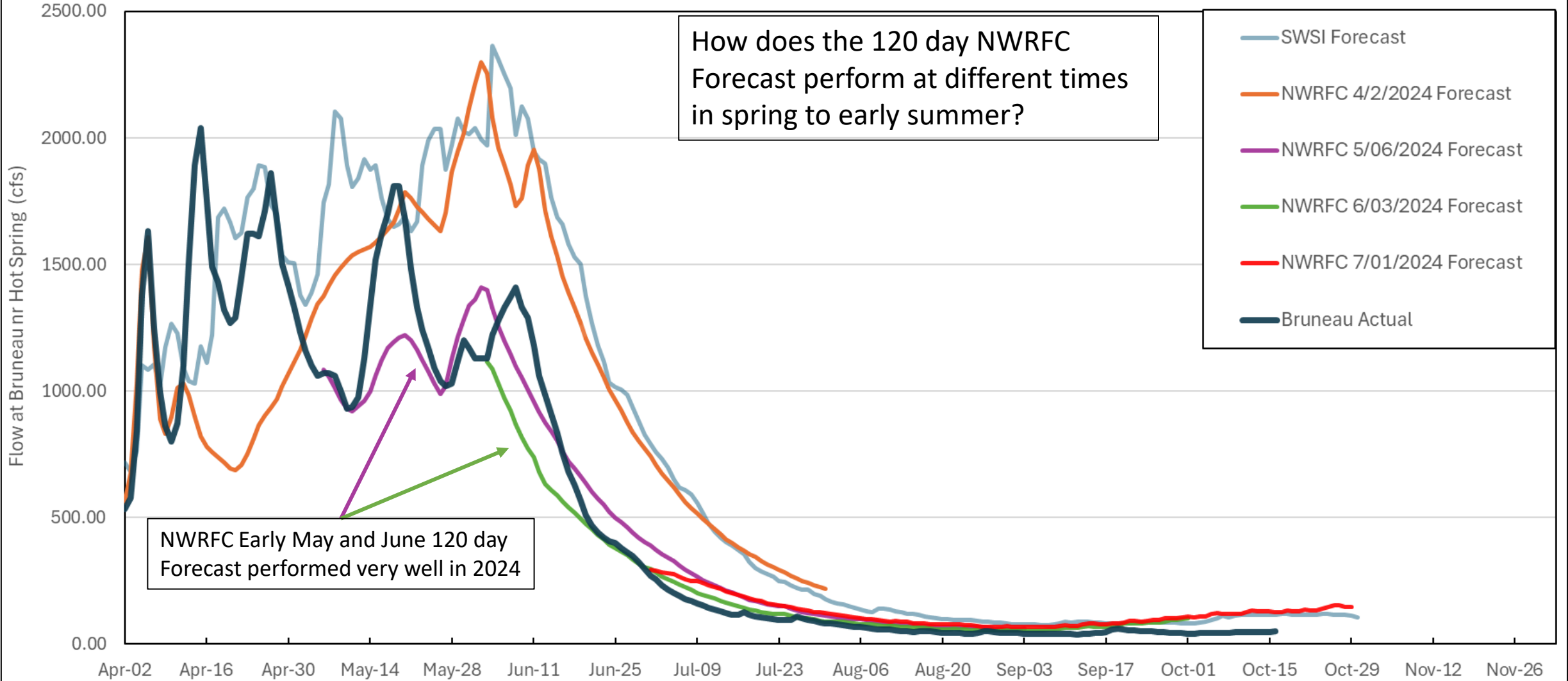
Recent trend of over prediction is particularly inaccurate in 2021, 2023, and 2024

Both the NRCS seasonal forecast and SWSI daily forecast (in Swan Falls Forecast Tool) have overpredicted discharge in recent years

NRCS Forecast vs Observed April-September discharge (kaf)



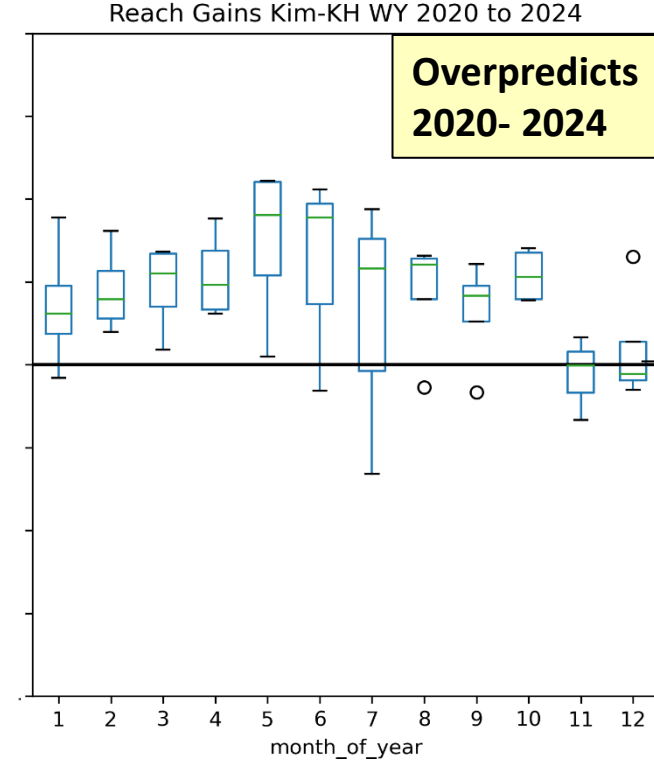
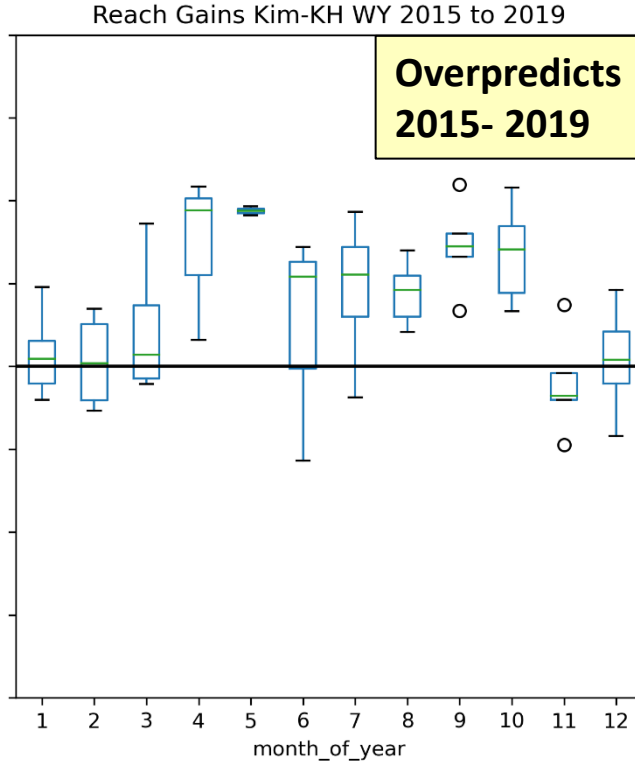
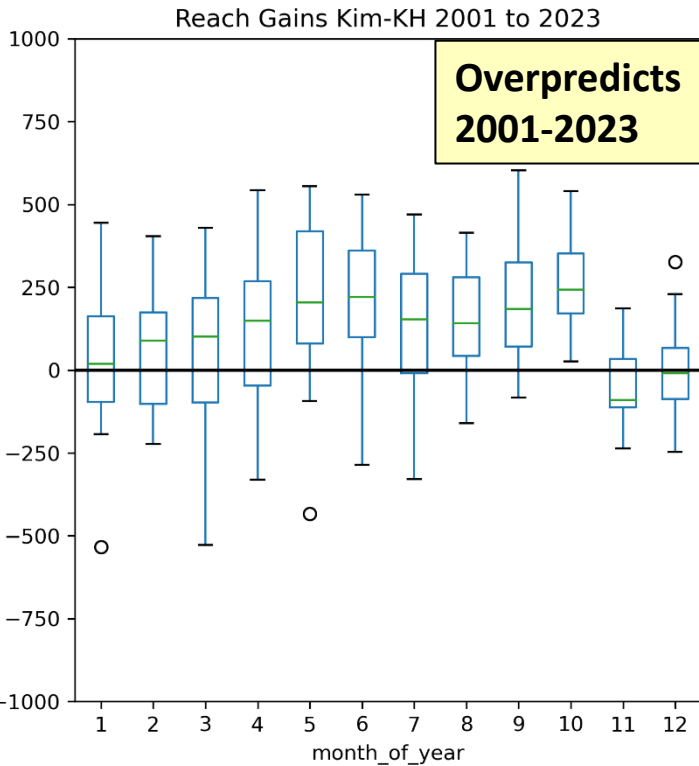
Bruneau 2024 Forecast Comparison



Reach Gains/ Q ESPA

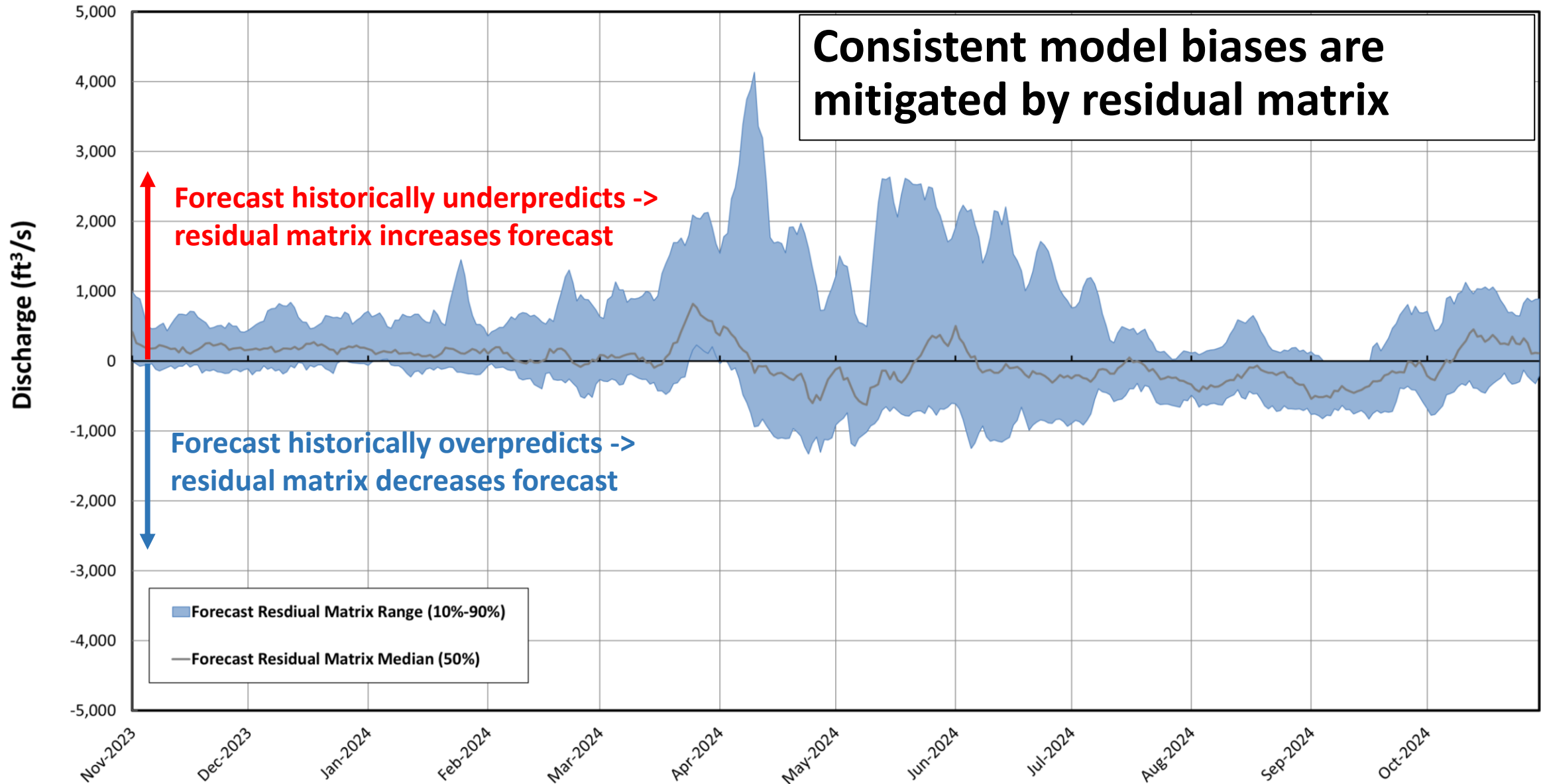


Forecast	Actual
<p>Forecast Output</p> <ul style="list-style-type: none"> • Response Functions • Managed recharge • Groundwater pumping ESPAM • Incidental recharge 	<p>Calculated by J. Sukow. Reach gains from Kimberly to King Hill</p>



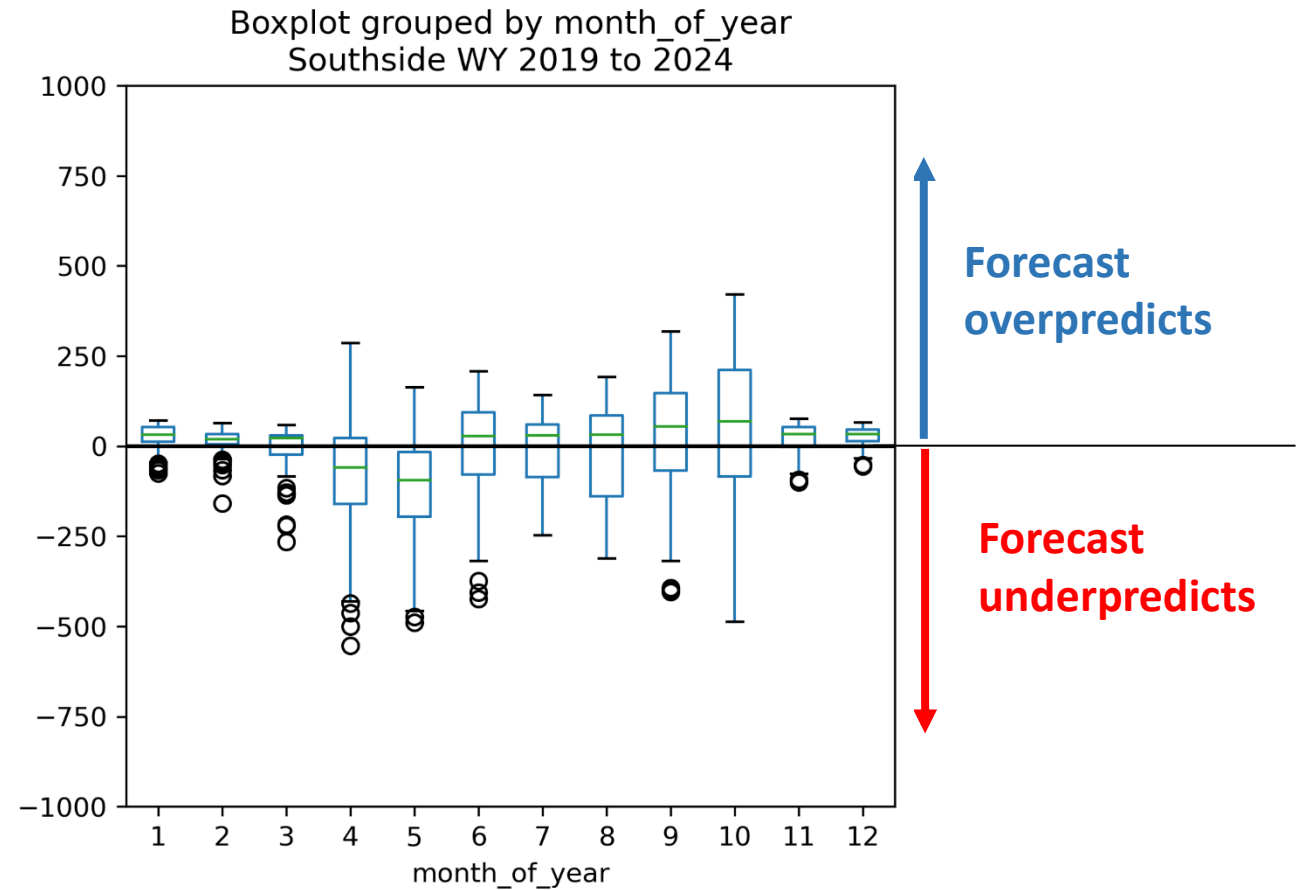
Forecast overpredicts

Forecast underpredicts



Southside

Forecast	Actual
Period of record median (2002 - current)	Daily calculated return flows

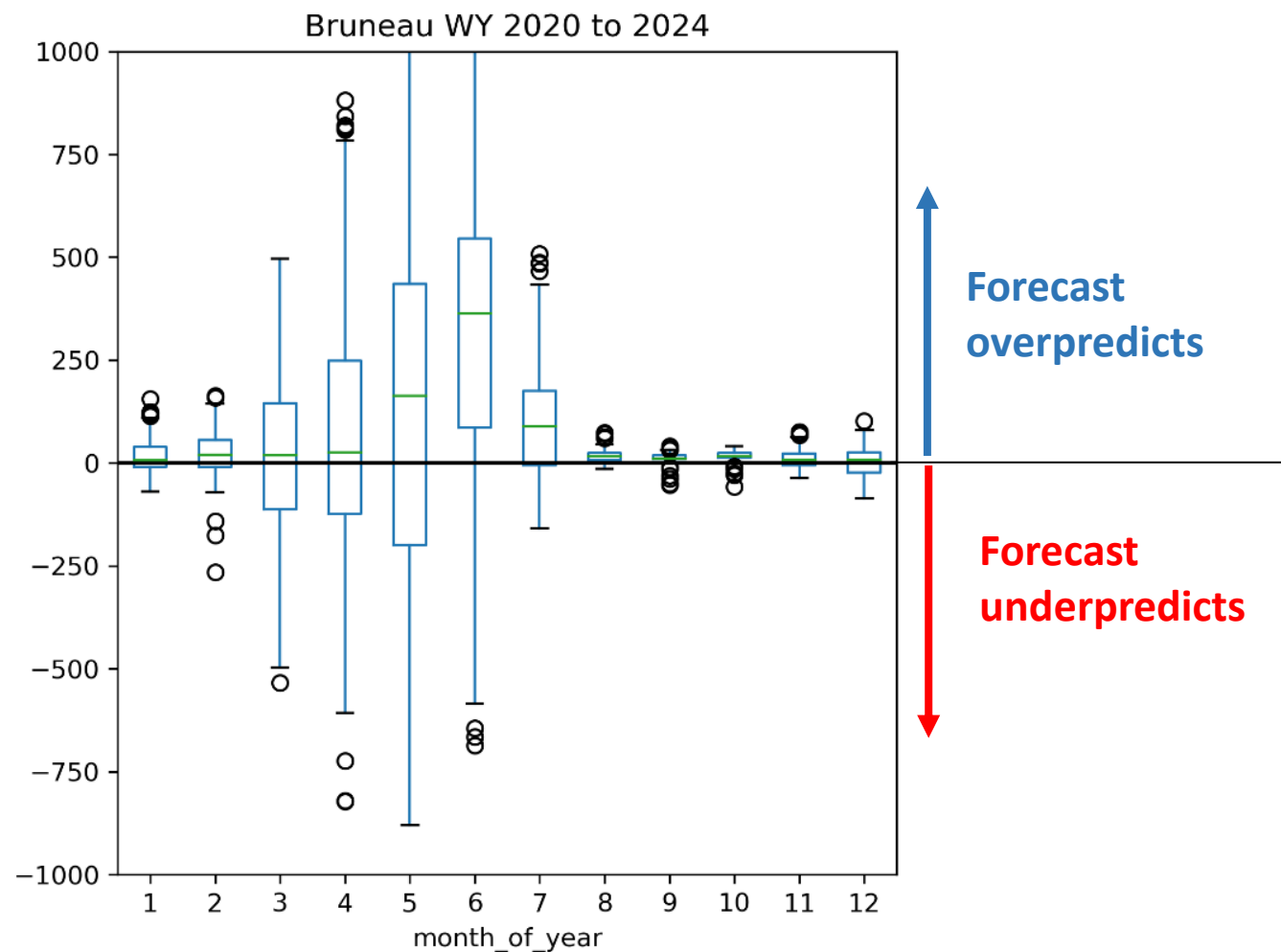


Steps forward to improve forecast interpretation

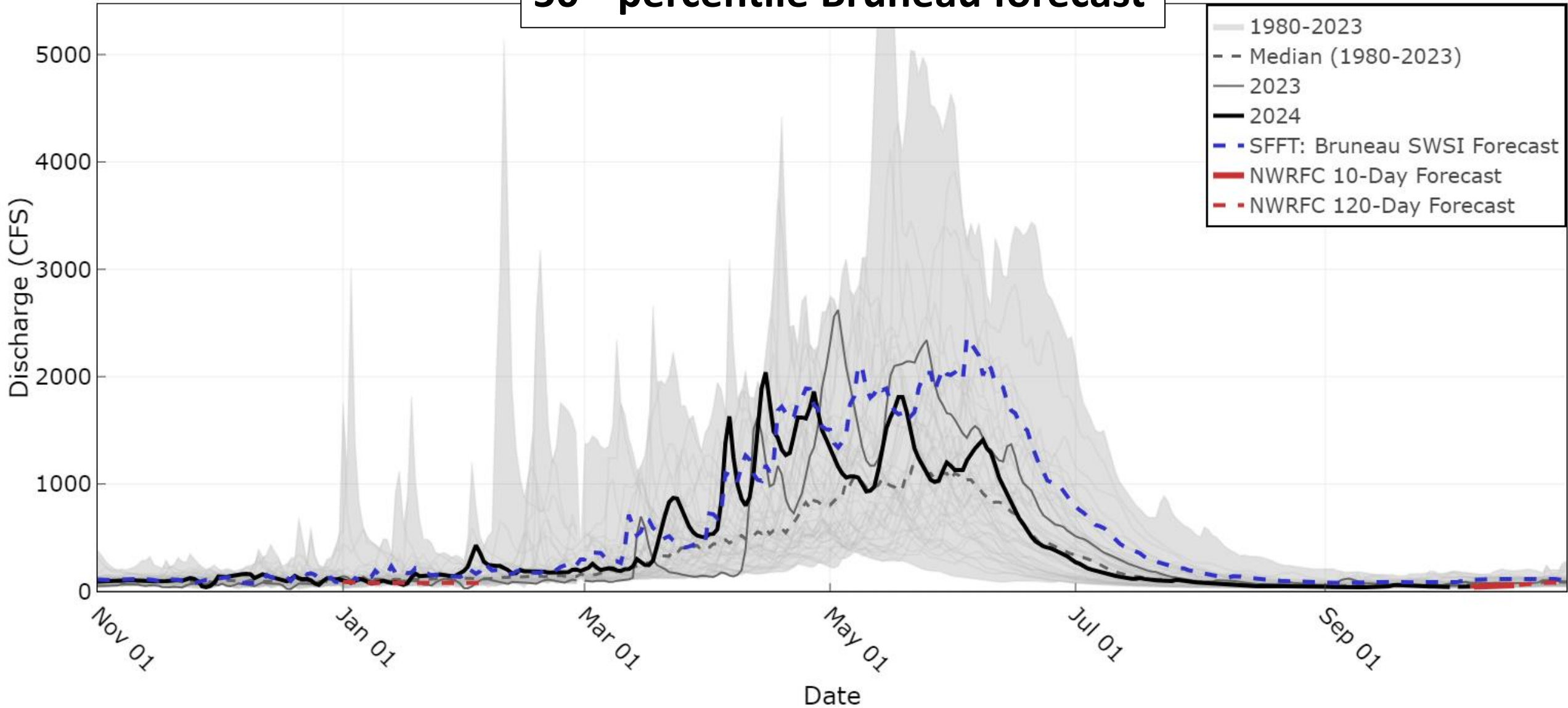
Bias correction doesn't capture Bruneau's recent overpredictions because changes are recent and not consistent over the entire period of record.

Solution 1: Add recent year data to the residual matrix to capture changing conditions. Currently, the residual matrix is updated through 2021. This would change the forecast very slightly.

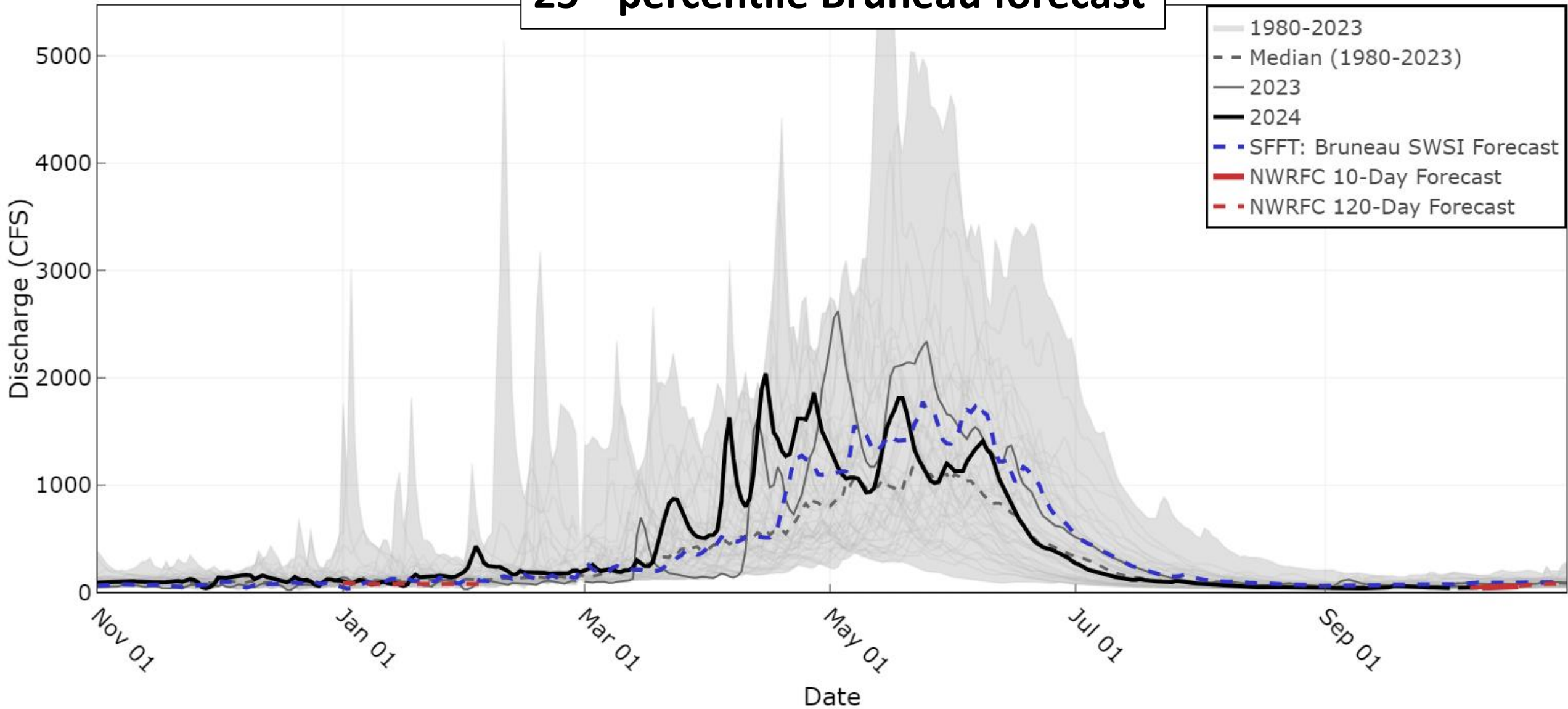
Solution 2: Consider producing a Swan Falls Forecast plot next year that uses the 25th percentile SWSI prediction of Bruneau flow. This would be a more conservative estimate of Bruneau flow than the current method which uses the median.



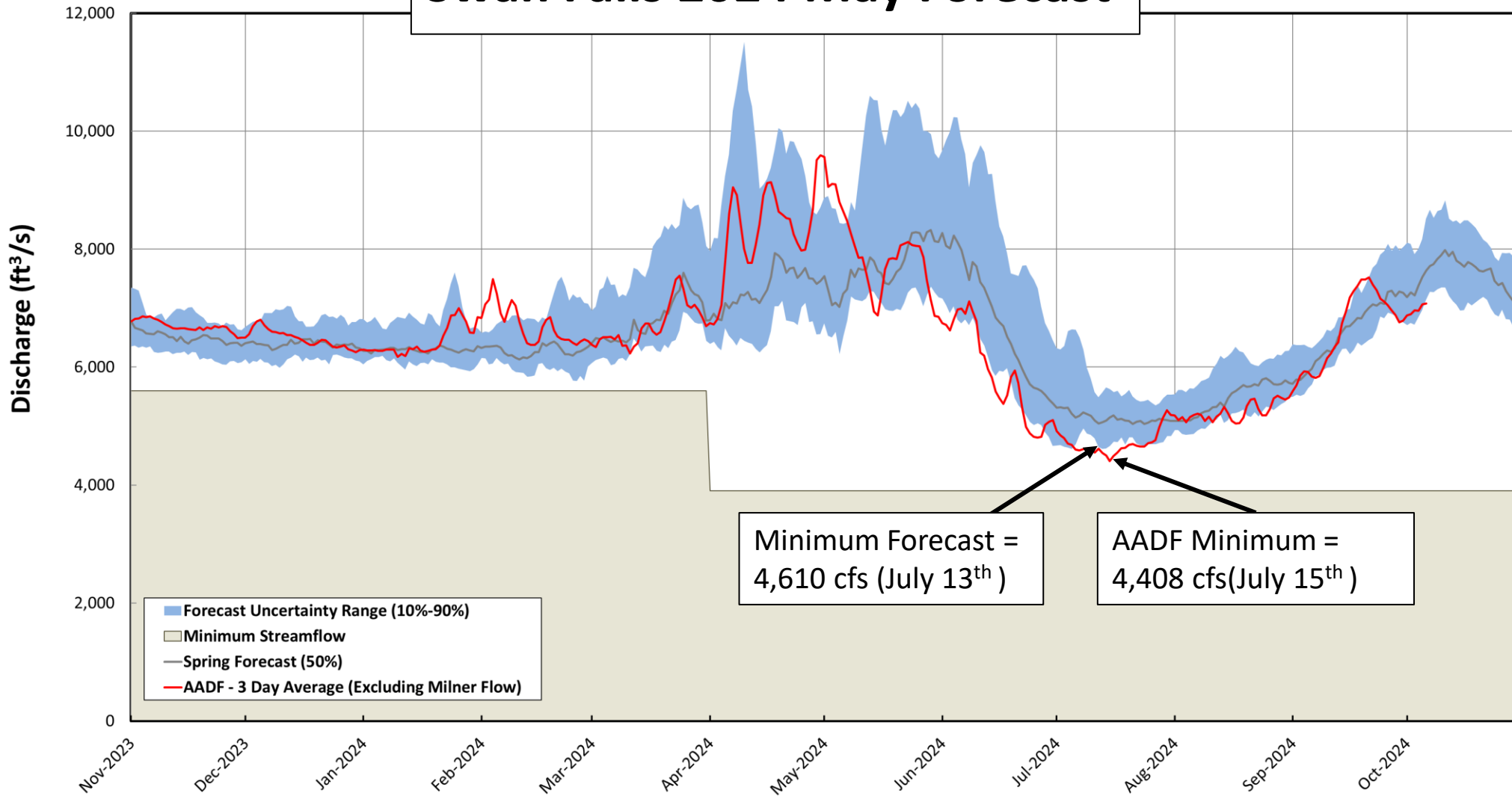
50th percentile Bruneau forecast



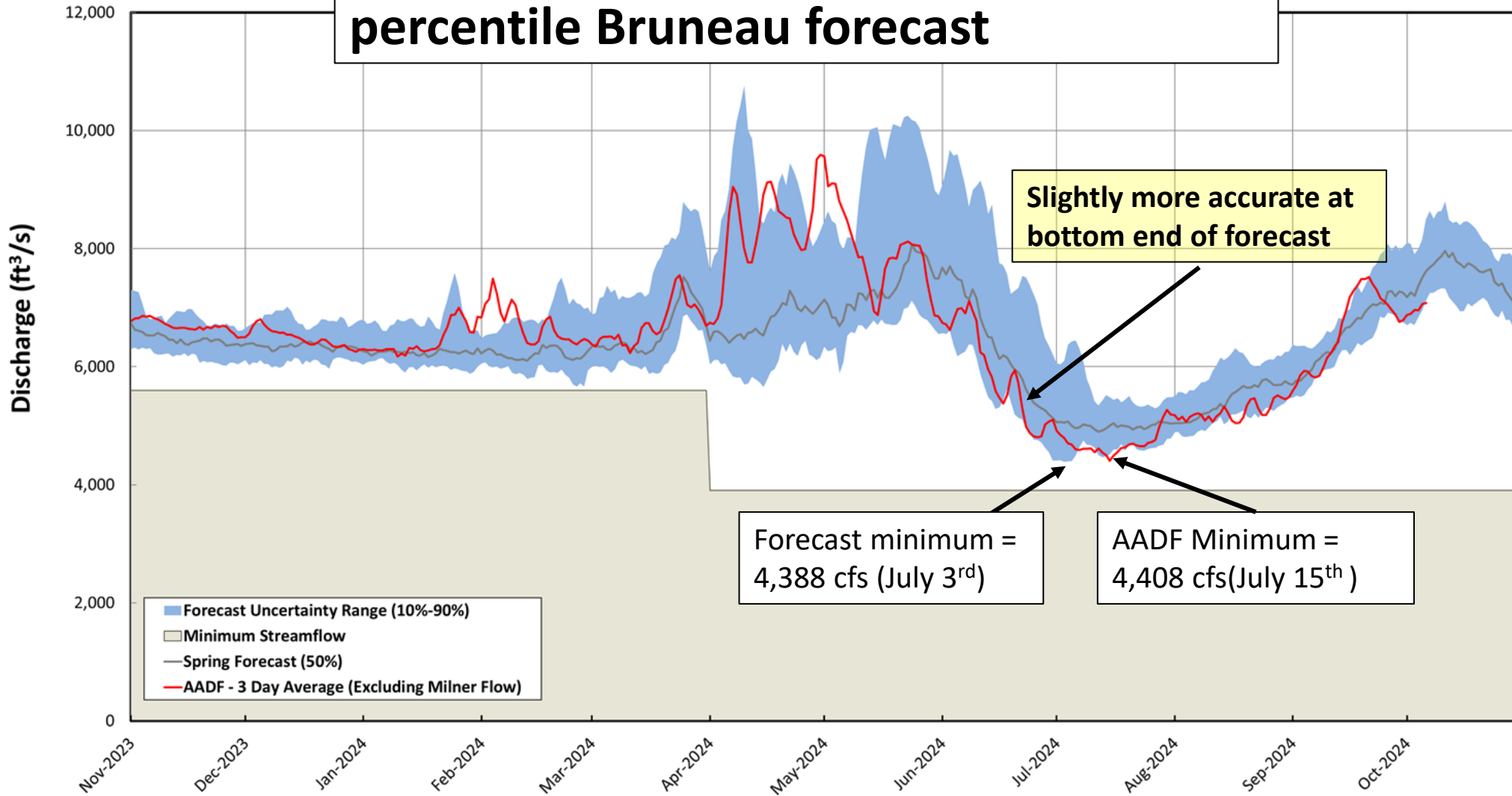
25th percentile Bruneau forecast



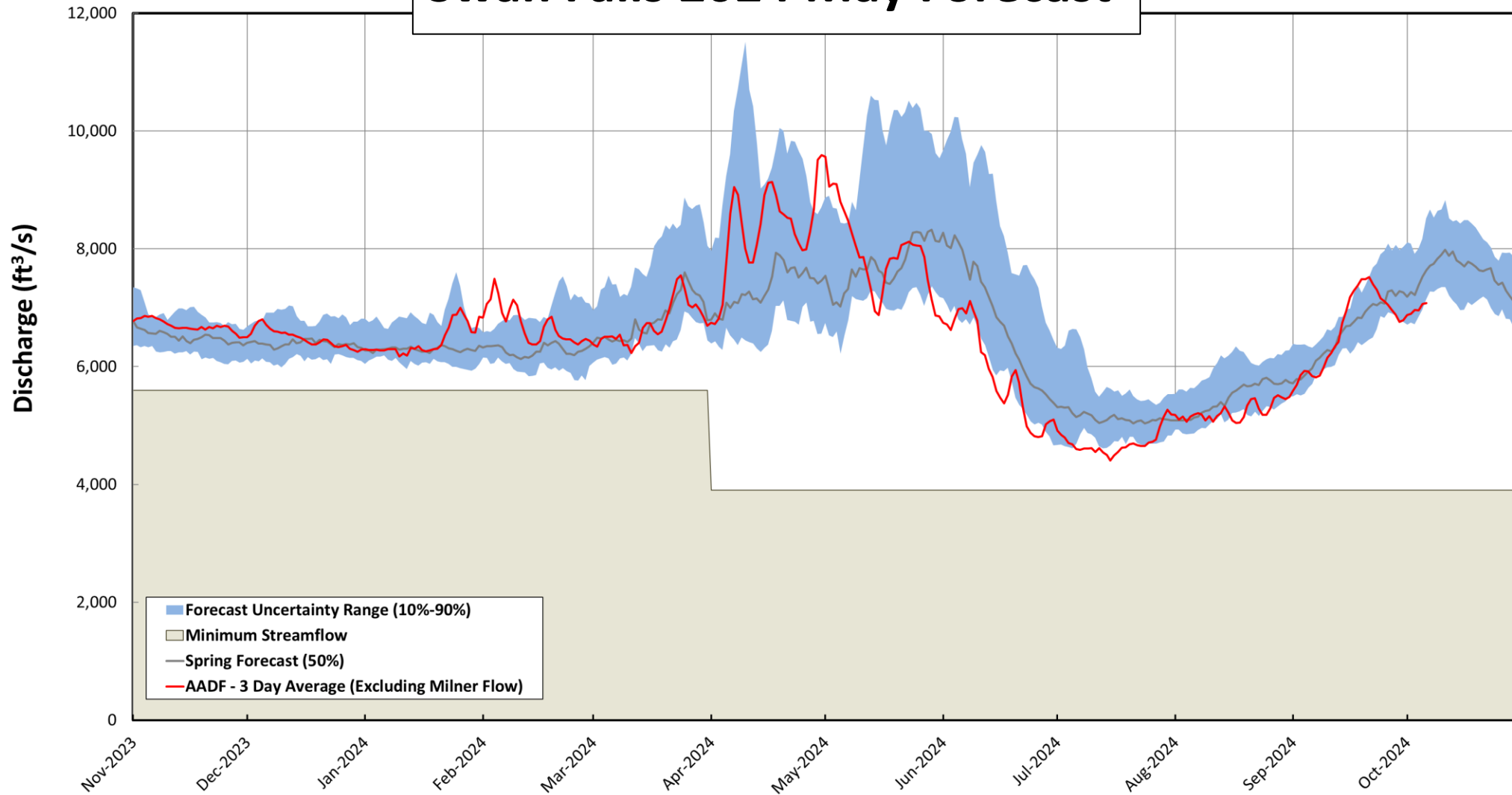
Swan Falls 2024 May Forecast



Swan Falls 2024 May Forecast with 25th percentile Bruneau forecast



Swan Falls 2024 May Forecast



Swan Falls 2024 May Forecast with 25th percentile Bruneau forecast

