



# Office of the Delaware River Master Balancing Adjustment Process Refinement

DRBC Regulated Flow Advisory Committee meeting – March 20, 2025

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# Recap Balancing Adjustment Study

- Recommended as part of FFMP2017
- Study completed in 2023
  - presentation of findings to RFAC August 2023
- Draft report in 2024
  - FFMP Studies update at RFAC April 2024



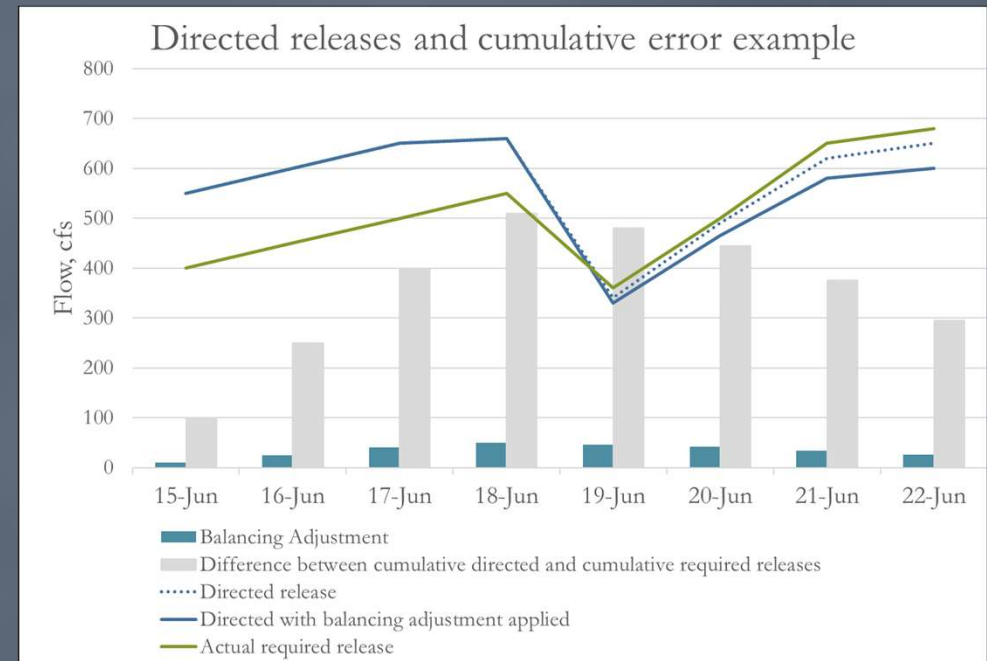


# Review: What is the Balancing Adjustment?

A correction for cumulative error in directed releases.  
Resets June 15 each year.

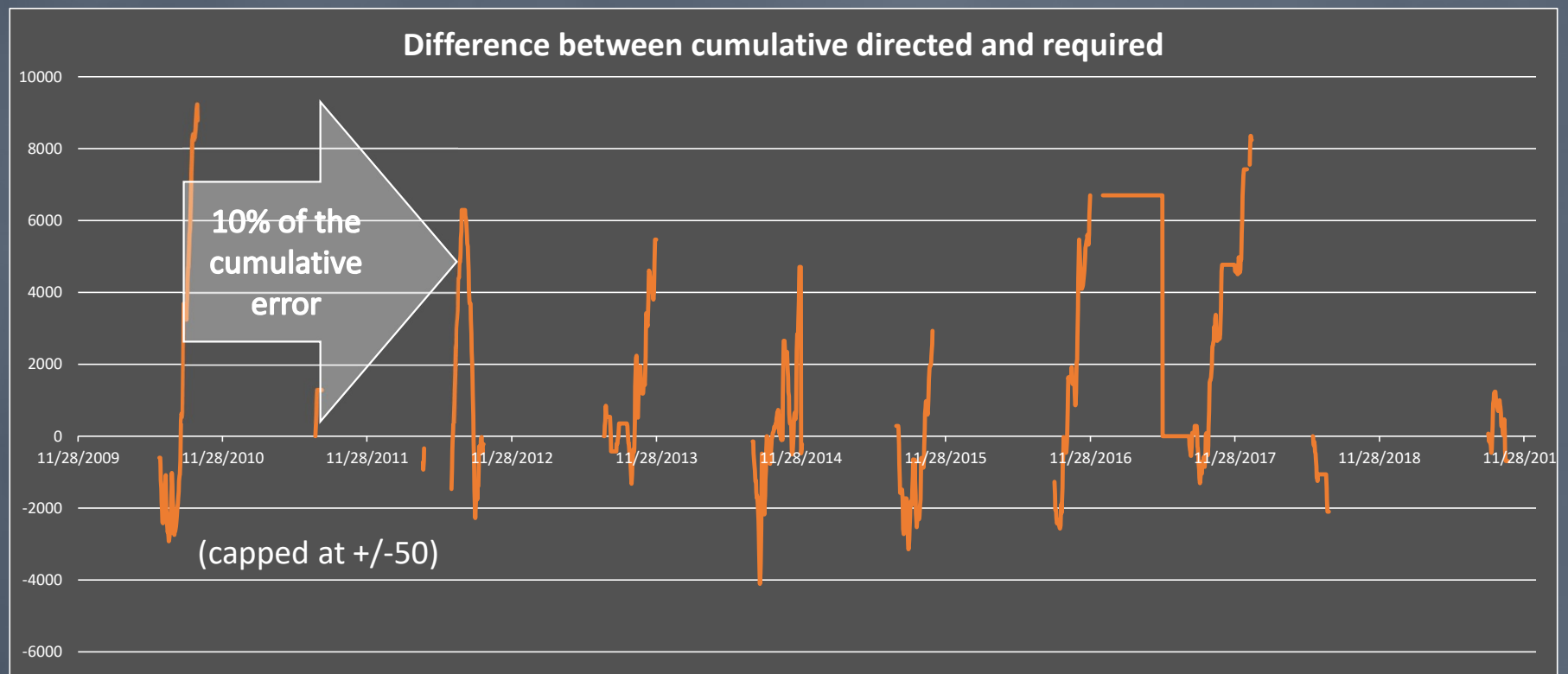
## Sources of forecast error

- Powerplants
- Runoff
- Baseflow behavior





# FFMP 2017 Balancing Adjustment Study: Focused on resolving the cumulative difference more efficiently





Recommended changes from FFMP2017 Study were  
implemented June 15, 2023 –  
*Simplify and increase effectiveness*

Remove the distribution (10%).  
Rely only on a max value (cap)

Dividing the cumulative error  
by 10 was found to overly  
distribute the error, to the  
point that it was  
unresolvable.

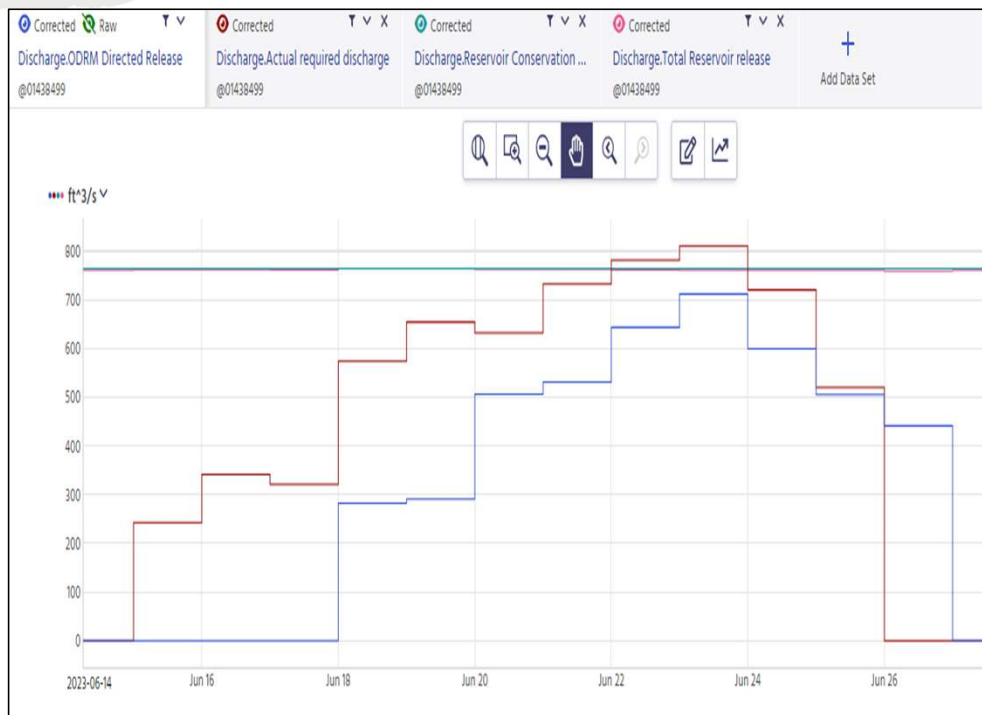
Increase the cap  
50 to 100 cfs

Increasing the cap will help  
resolve the cumulative error  
more efficiently.



# Error accumulates only when directed releases > conservation release

2023: only 2 days directed > conservation release.



2024: Many days directed > conservation release.  
First opportunity to review modifications.





## Observations of modified BA in action

In **removing** that **distribution** and increasing the cap to 100 cfs, a cumulative error within **+/-300** cfs could potentially be **resolved** to zero **within 3 days**.

However, the **current process does not consider** the effect of the balancing **adjustments** that may have been applied on days **(n, n+1, and n+2)** when computing the balancing adjustment for forecast day n+3, **resulting in an overcorrection of the error**.



# Example of BA overcorrection

Balancing Adjustment Process 2023				
Date	Forecast error	Computed Daily error	Cumulative error	Balancing Adjustment v1
10/29/2024	40	40	40	
10/30/2024	70	70	110	
10/31/2024	30	30	140	
11/1/2024	perfect	0	140	
11/2/2024	perfect	-40	100	-40
11/3/2024	perfect	-100	0	-100
11/4/2024	perfect	-100	-100	-100
11/5/2024	perfect	-100	-200	-100
11/6/2024	perfect	-100	-300	-100
11/7/2024	perfect	0	-300	0
				100
				100
				100
				100

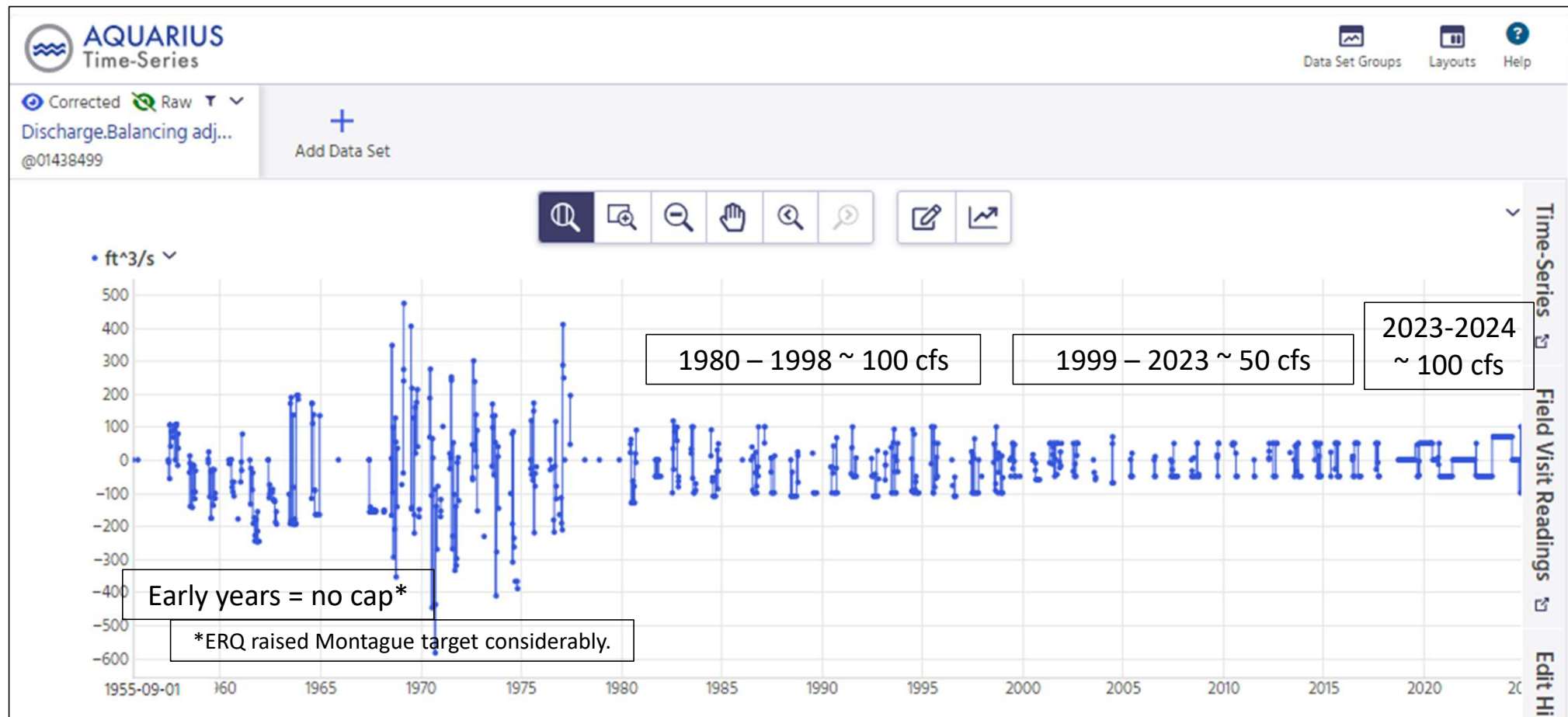


# Refined Process

Refined Balancing Adjustment Process 2024						
Date						Balancing Adjustment v2
10/29/2024	Oscillating overcorrection loop resolved.					
10/30/2024						
10/31/2024						
11/1/2024						
11/2/2024						-40
11/3/2024						-70
11/4/2024						-30
11/5/2024						0
11/6/2024						0
11/7/2024	perfect	0	0	0	0	0
11/8/2024	perfect	0	0	0	0	0

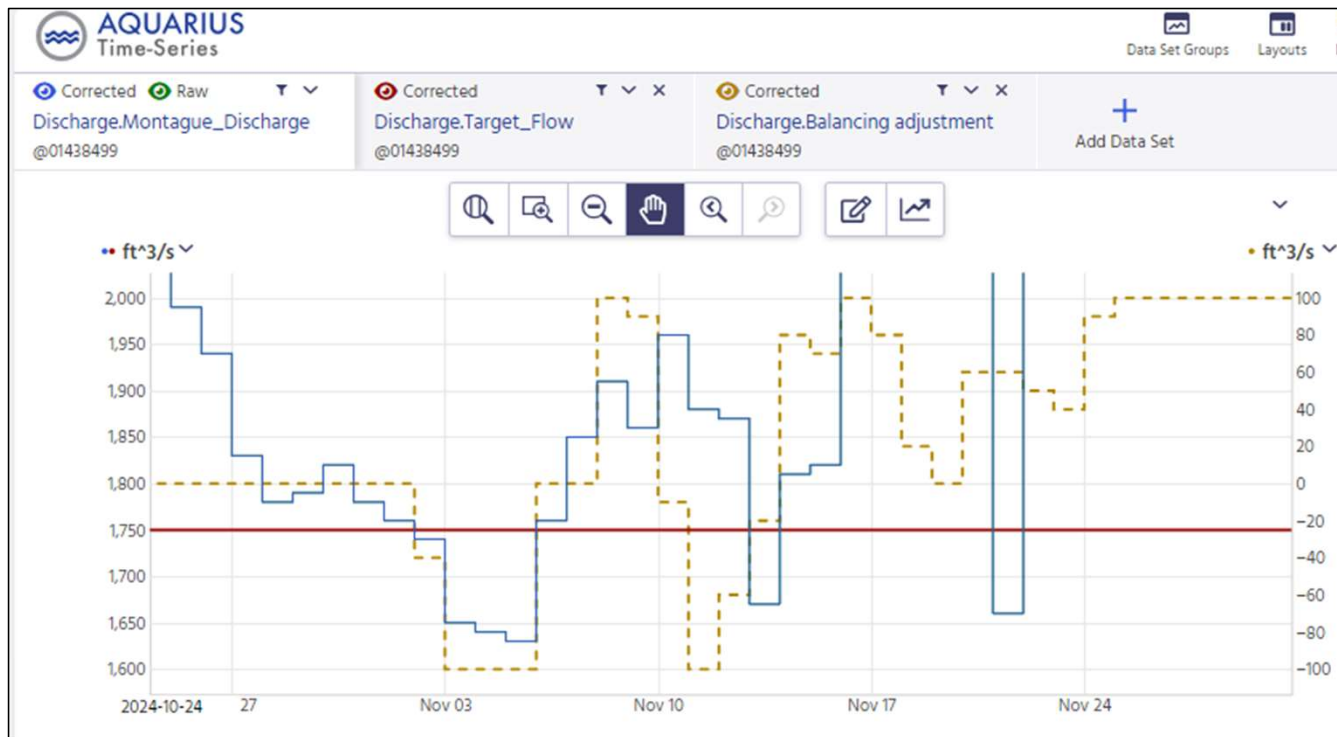


# Balancing adjustment cap through time





## Reverting the cap to the previous +/-50 cfs.



- A +/-100 cfs creates added difficulties in forecasting releases directed by DRBC to meet the Trenton flow target.
- Removal the 10% distribution appears to be sufficient for increasing the effectiveness of the balancing adjustment procedure.

TEFO Nov 11-12, 16-21



# Implementation

The adjustment to resolve the over-correction loop was applied manually for 2024 directed releases.

Reverting the cap to +/-50 cfs will take effect after updating the processors in the ODRM database (2025).



# Documentation

The FFMP2017 [Balancing Adjustment Study Report](#) and recommendations implemented in 2023 will be added as an appendix to the [ODRM 2023 annual report](#).

The [refined process](#) will be documented in the appendix of the [ODRM 2024 and 2025 annual reports](#).





Questions?