# 2024 ARCA ENGINEERING COMMITTEE MEETING
# ARKANSAS RIVER BASIN REPORT

**Prakash Kaini, PE,** Chief, Water Management Section
**Morgan Humphrey,** Arkansas Basin Manager
**Kim Falen,** Trinidad Project Manager
**Paul Schoeninger,** John Martin Project Manager

John Martin Dam & Reservoir

Trinidad Dam & Lake


USACE, Albuquerque District

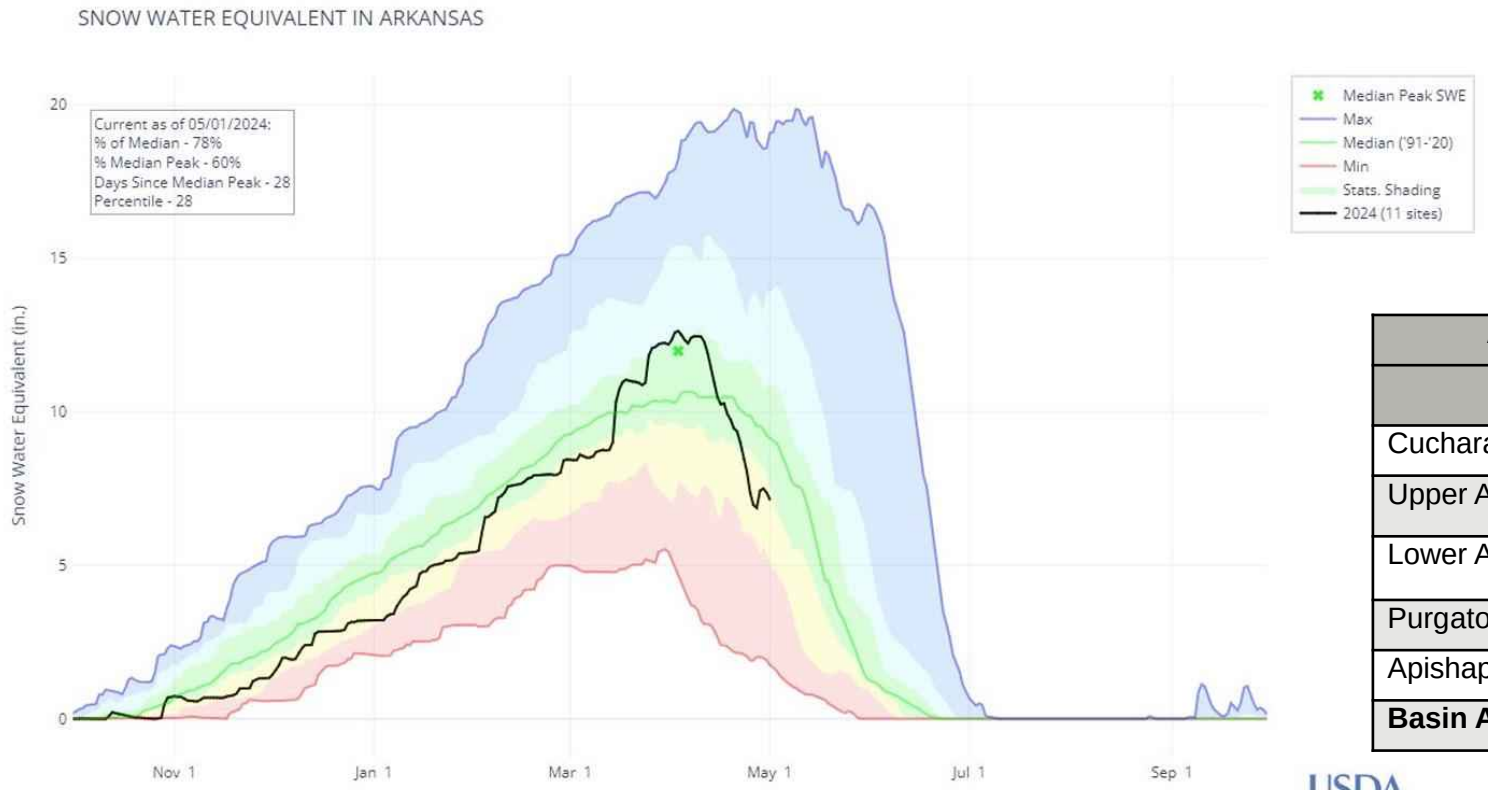
12 December 2024

US Army Corps of Engineers®

# TOPICS

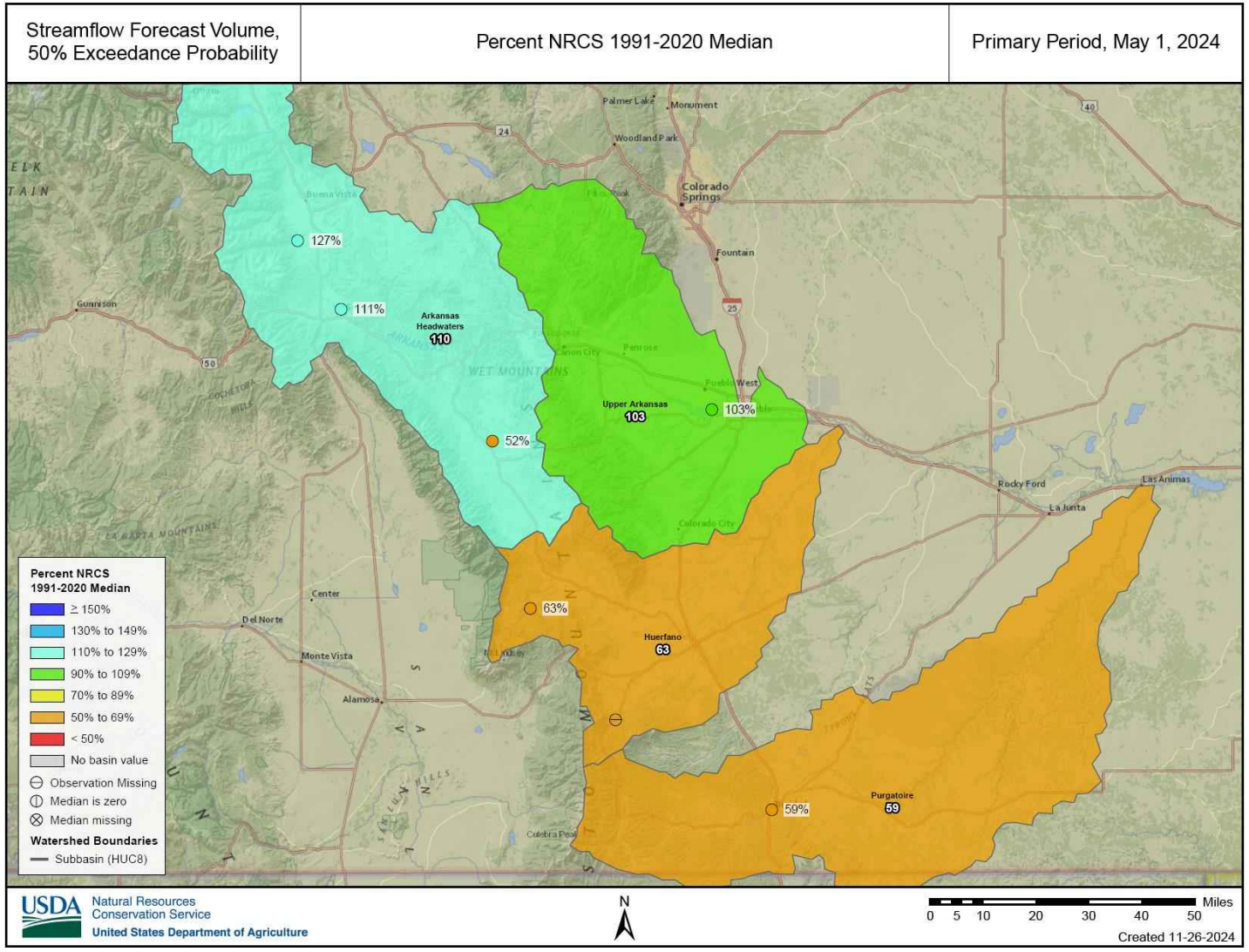
- Compact Year 2024 Water Management
- USACE Water Quality Monitoring
- John Martin Water Control Manual Updates
- Civil Works Project Authorizations
- Operation and Maintenance

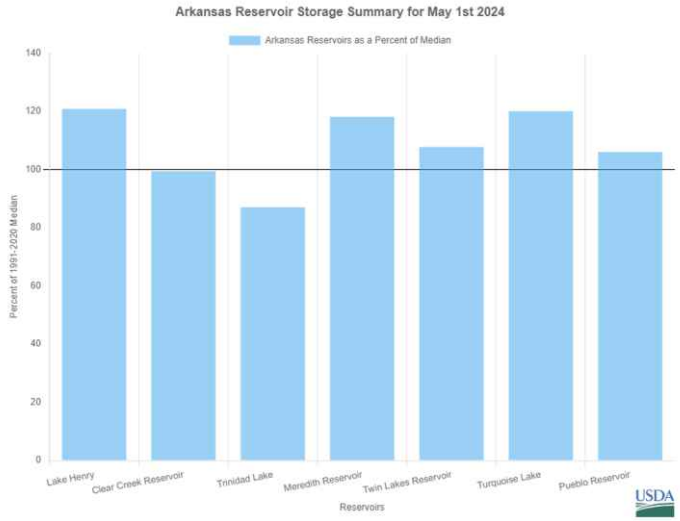
# COMPACT YEAR 2024 WATER MANAGEMENT
## Snowpack




| Arkansas River Basin Snowpack Analysis May 1st, 2024 | | |
|---|---|---|
| | **# of Sites** | **% of Median** |
| Cucharas & Huerfano | 5 | 4.4 |
| Upper Arkansas Headwaters | 8 | 102.3 |
| Lower Arkansas Headwaters | 3 | 77.8 |
| Purgatoire | 3 | 6.5 |
| Apishapa | 2 | 12.1 |
| **Basin Average** | **21** | **84** |

# COMPACT YEAR 2024 WATER MANAGEMENT
## Runoff



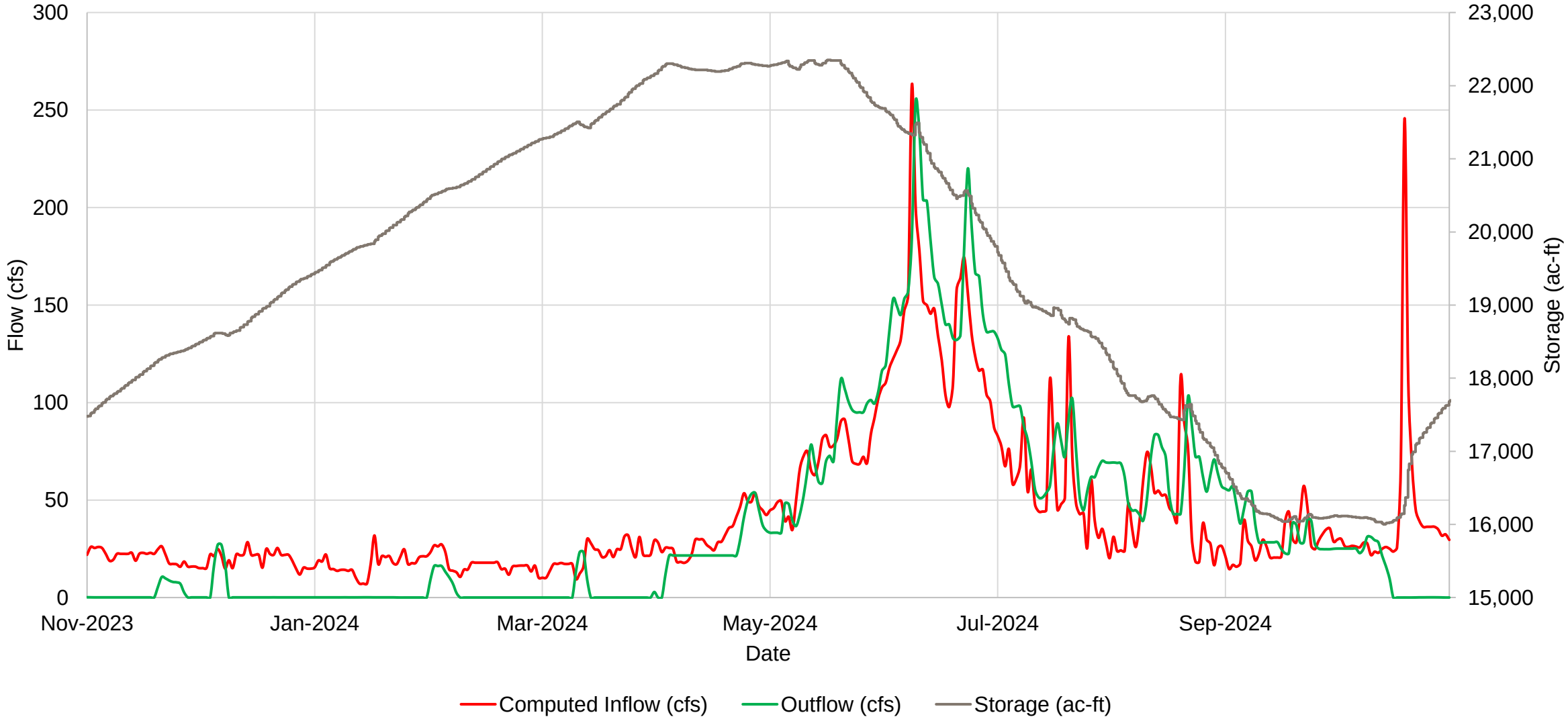

**Arkansas River Basin May 1st Most Probable Snowmelt Runoff Forecast**

**(April 1 – July 31 50% Exceedance)**

| Measurement Location | Snowmelt Runoff (x 1,000 Acre-Feet) | | Percent of Median/Normal | |
|---|---|---|---|---|
| | May Forecast | Actual | May Forecast | Actual |
| Pueblo Dam and Reservoir (Normal: 325 kaf) | 331.5 | 321 | 102% | 99% |
| Trinidad Dam and Lake (Normal: 29 kaf) | 17 | 18 | 59% | 62% |
| John Martin Dam and Reservoir (Normal: 172 kaf) | 212.7 | 117.5 | 124% | 68% |

# COMPACT YEAR 2024 WATER MANAGEMENT

## Trinidad Dam and Lake



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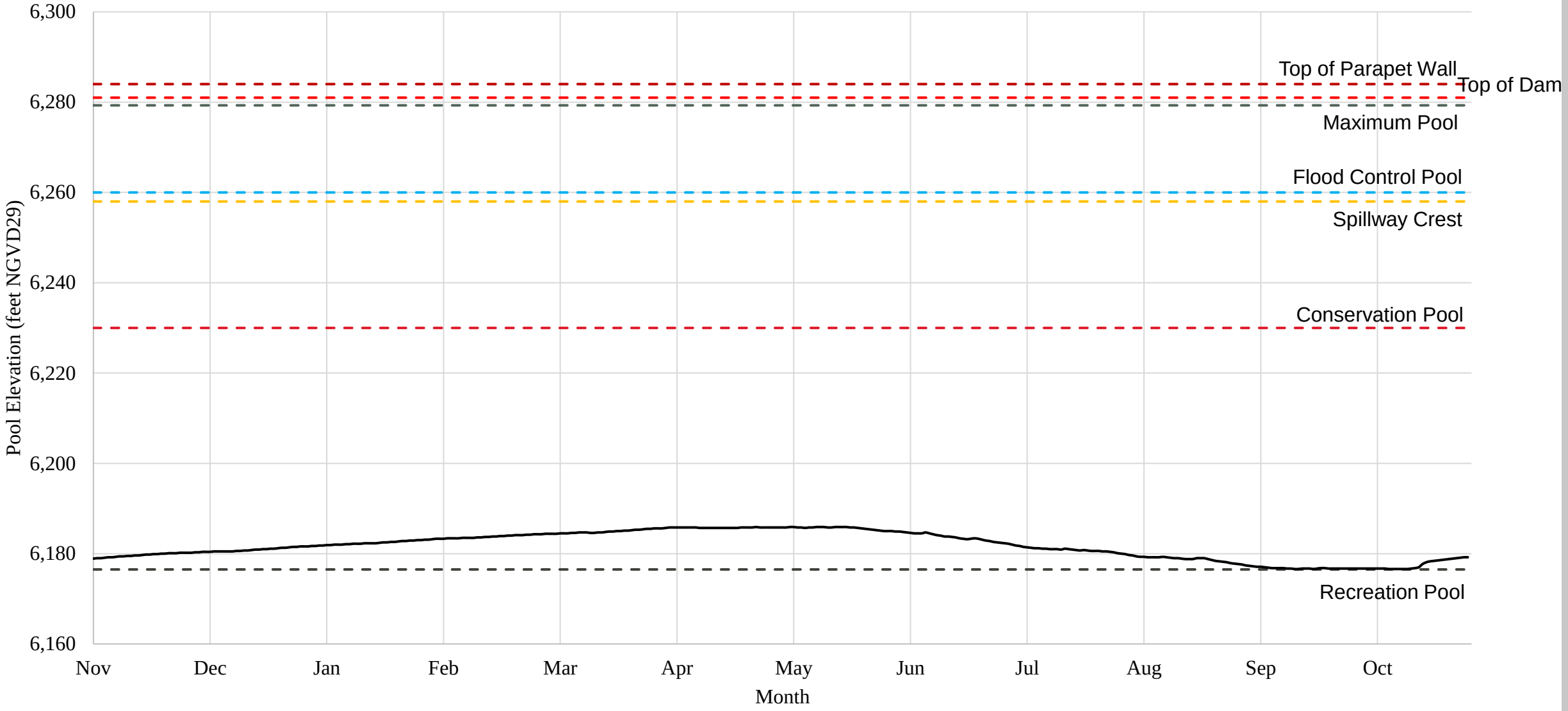
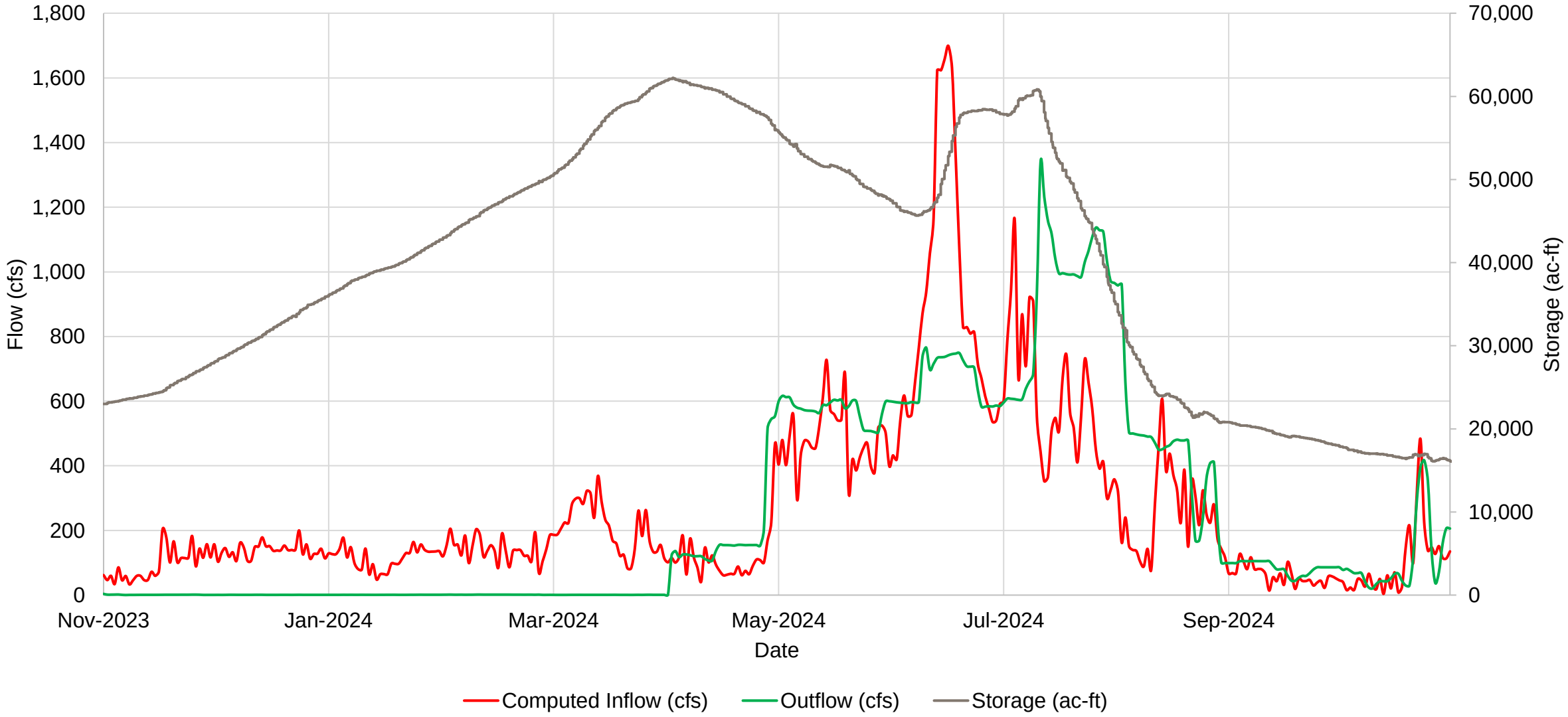
## Trinidad Dam and Lake



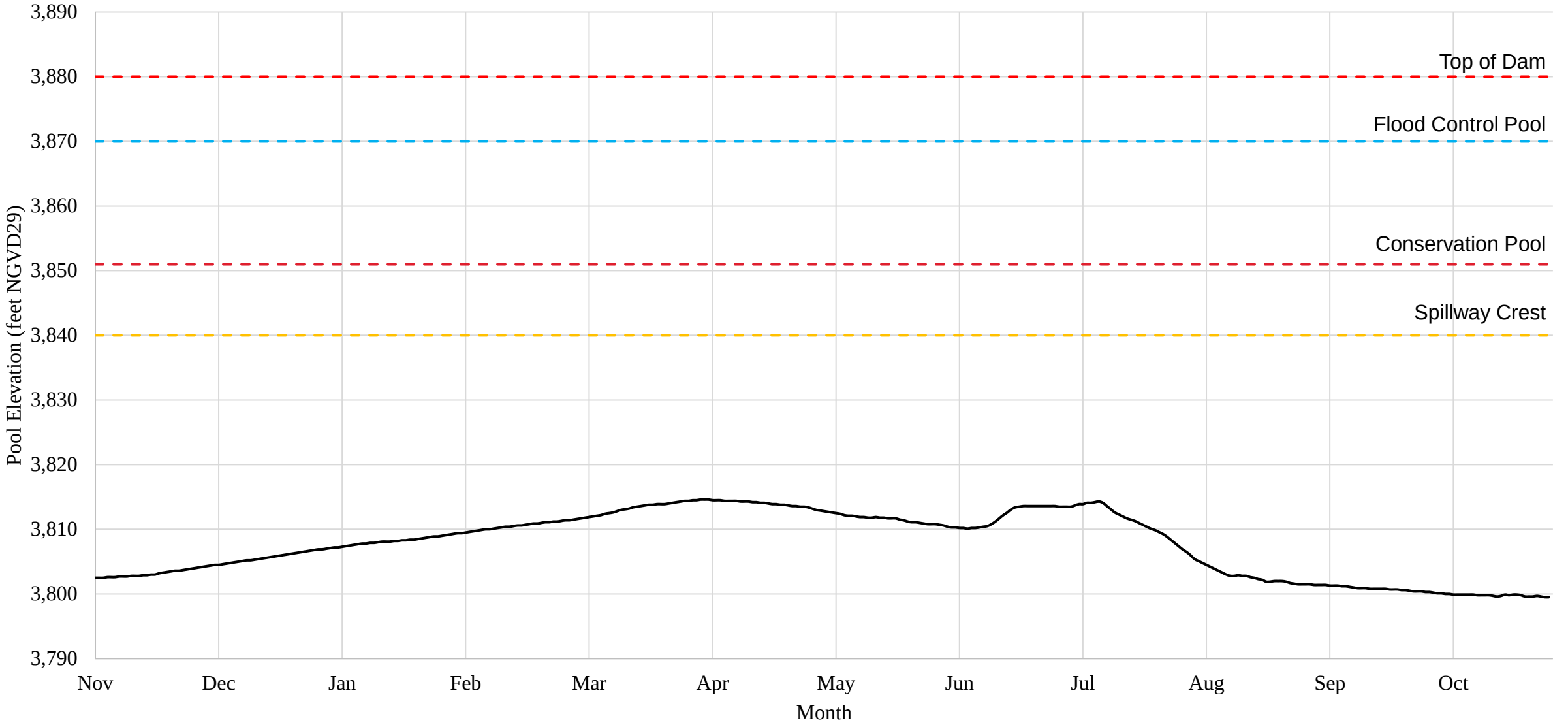
# COMPACT YEAR 2024 WATER MANAGEMENT

## John Martin Dam and Reservoir



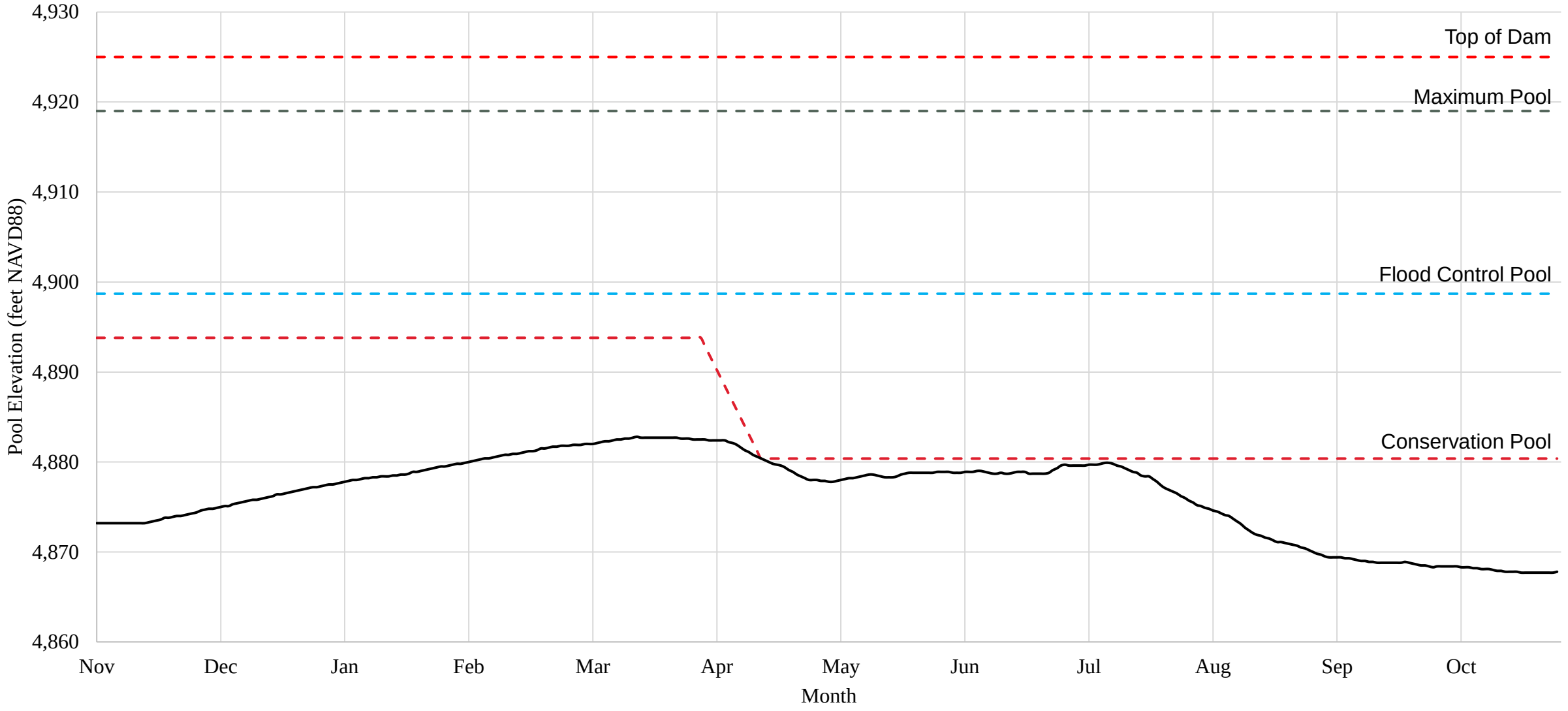
# COMPACT YEAR 2024 WATER MANAGEMENT

## John Martin Dam and Reservoir



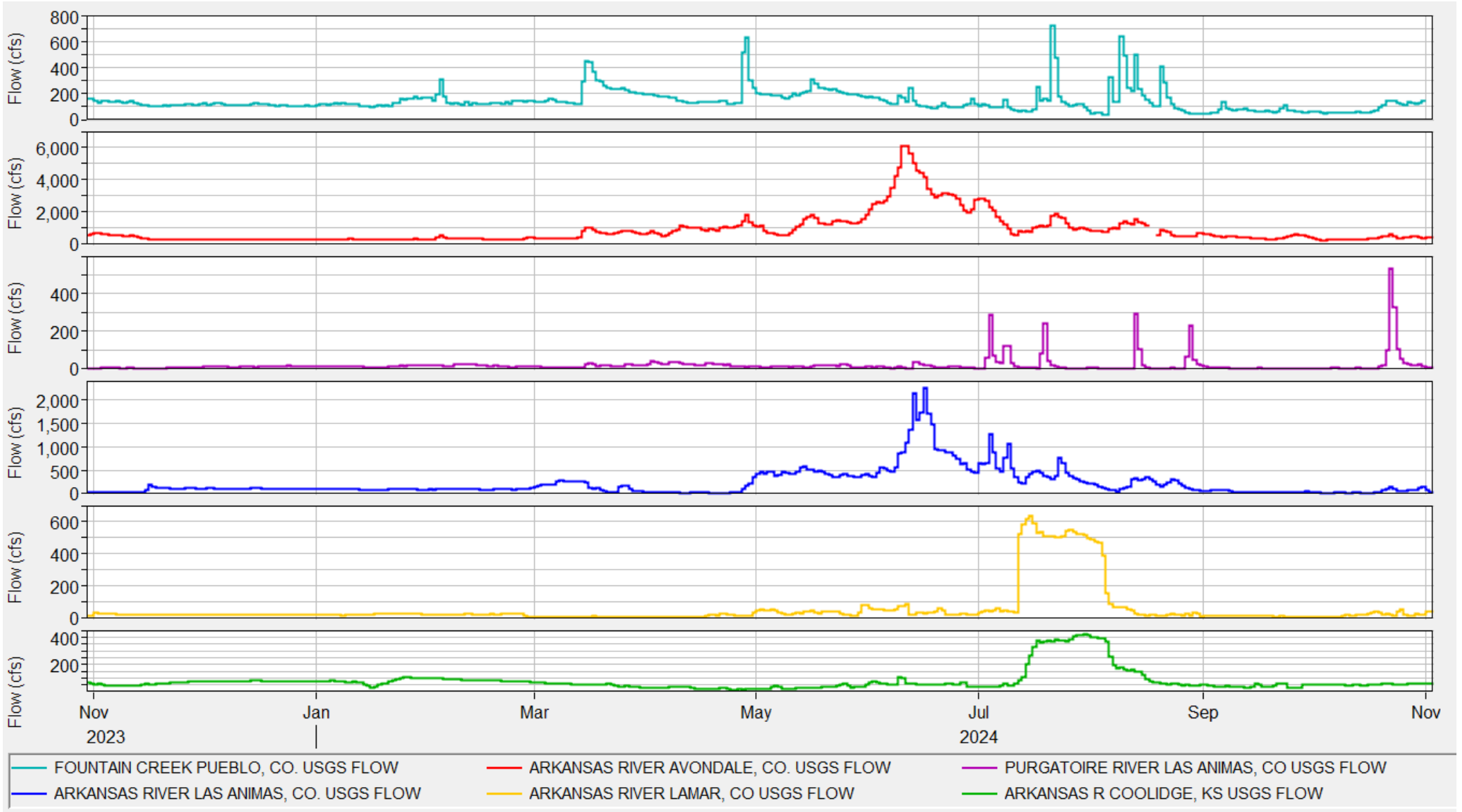
# COMPACT YEAR 2024 WATER MANAGEMENT

## Pueblo Dam and Reservoir



# COMPACT YEAR 2024 WATER MANAGEMENT

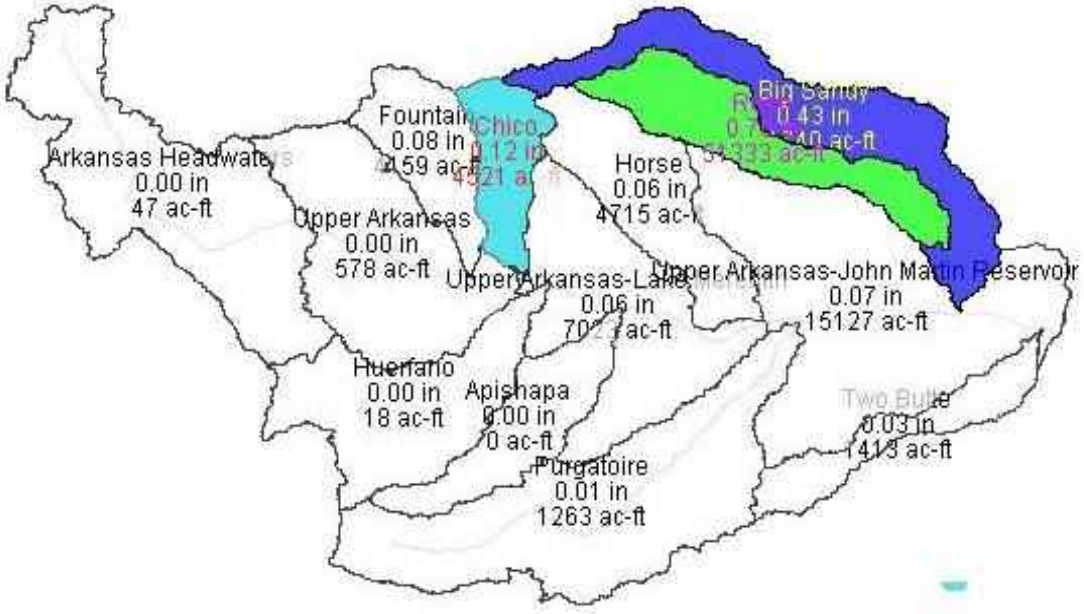
## Gages



# COMPACT YEAR 2024 WATER MANAGEMENT
## June High Flows

The USGS gage at Arkansas River nr Avondale, CO surpassed channel capacity of 6,000 cfs on June 10th, peaking at 6,870 cfs.

This was due to heavy precipitation across the basin, travelling east to west, with a subbasin average of 1.18 inches over the Upper Arkansas-Lake Meredith subbasin.



# COMPACT YEAR 2024 WATER MANAGEMENT
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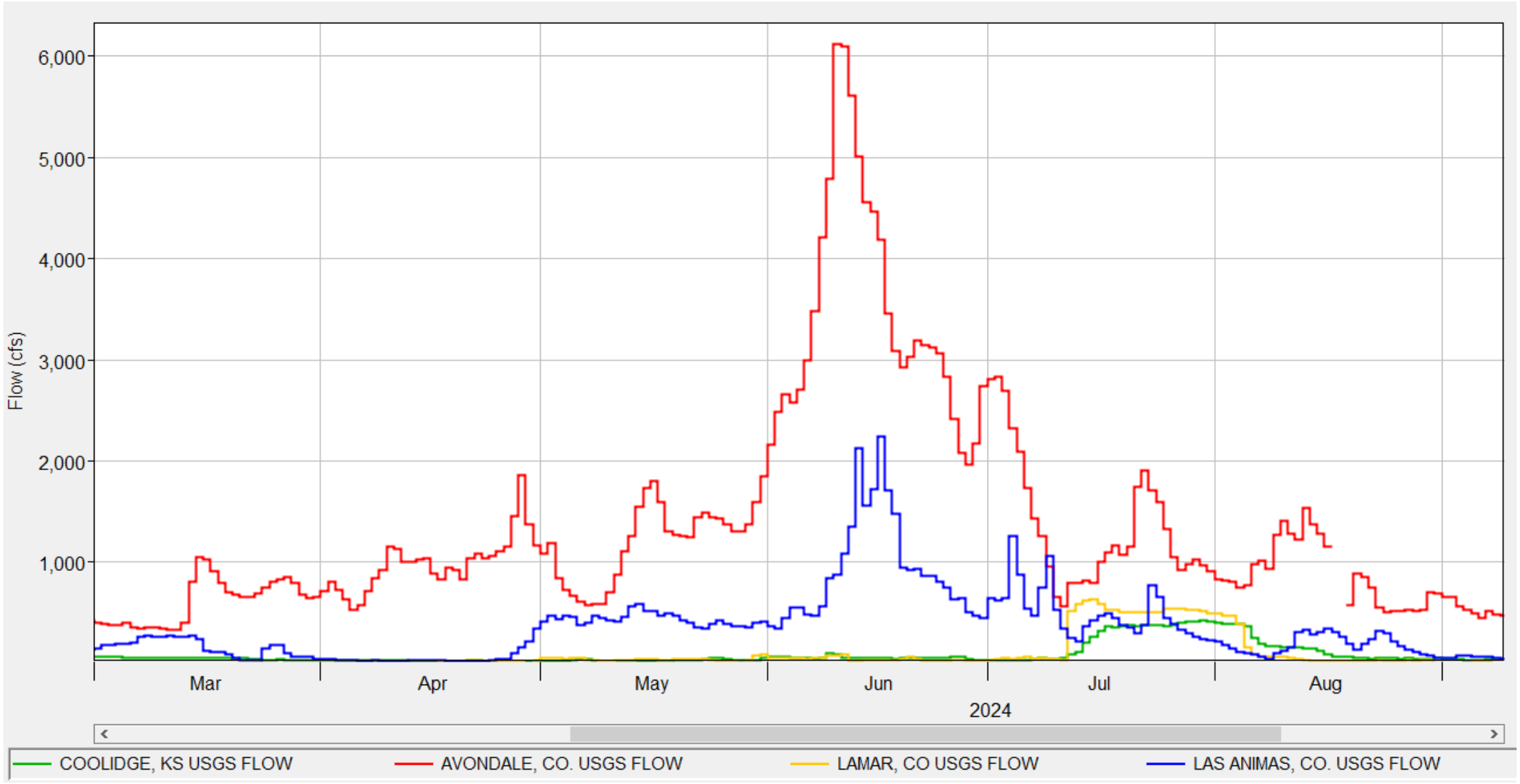
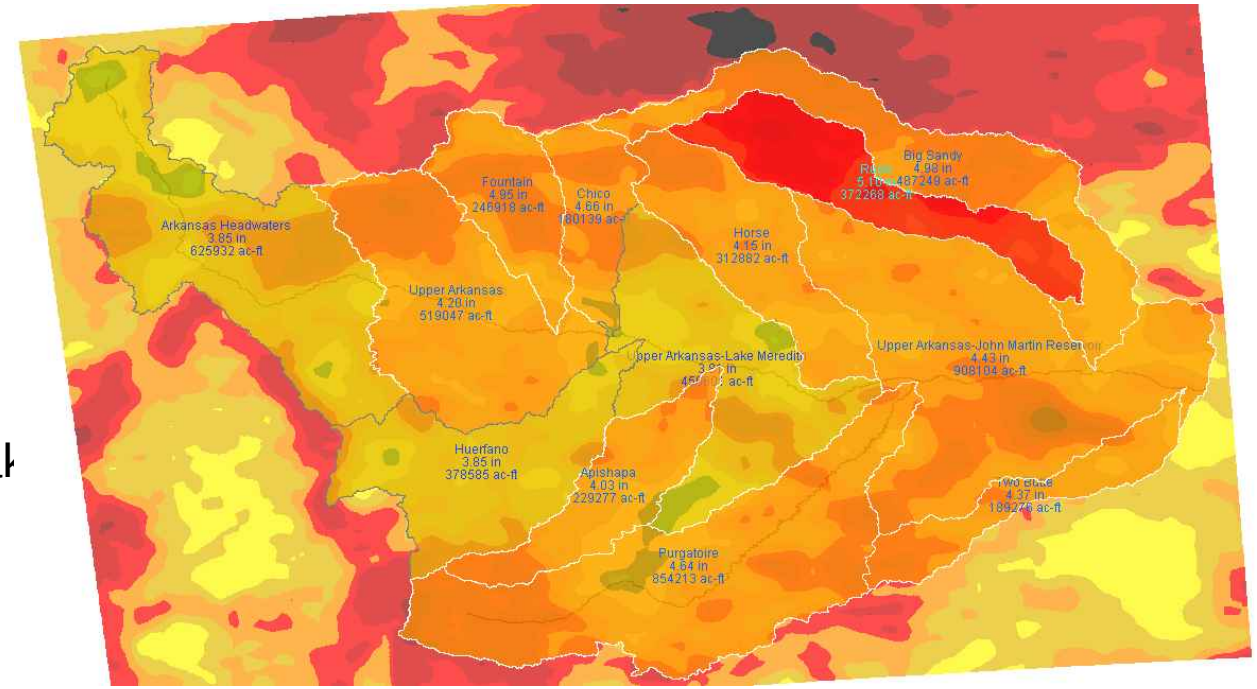
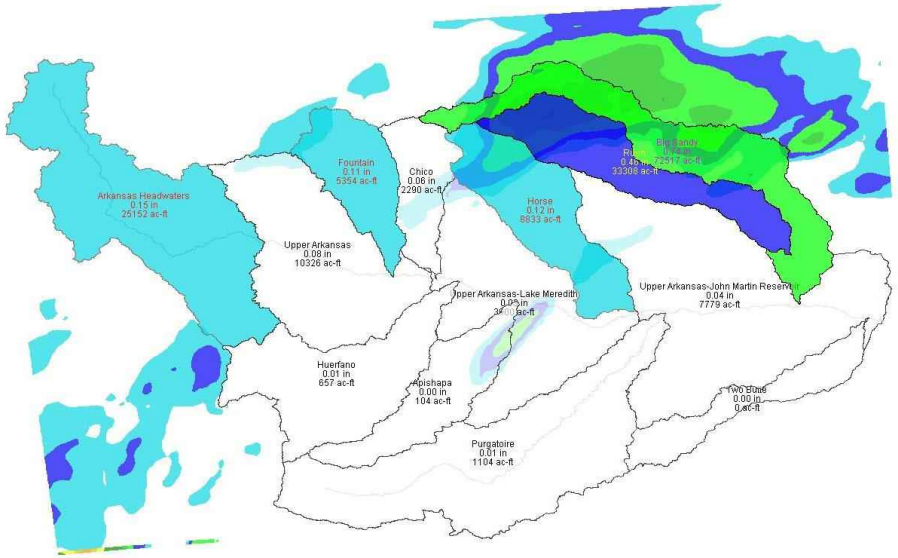


# COMPACT YEAR 2024 WATER MANAGEMENT
## July High Release

- The highest release from John Martin was 1,338.3 cfs on July 12th.
- This was during relatively heavy rainfall across the basin.
- The gage at Lamar, CO experienced its peak on July 15th (636 cfs).
- The gage at Coolidge, KS experienced its peak on July 30th (423 cfs).
- John Martin releases dropped off on August 3rd.
- None of these flows surpassed channel capacity (3,000 cfs).



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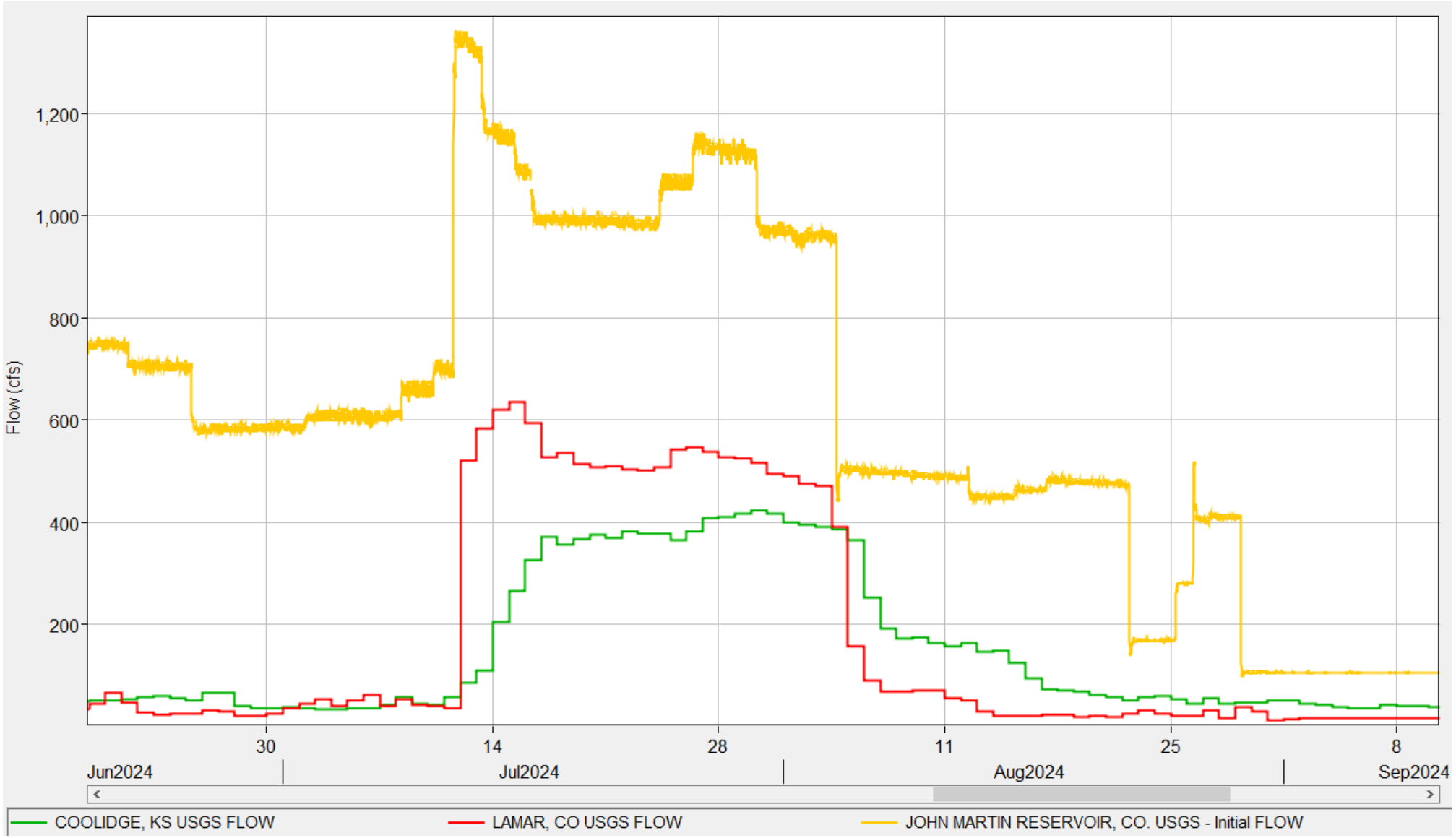
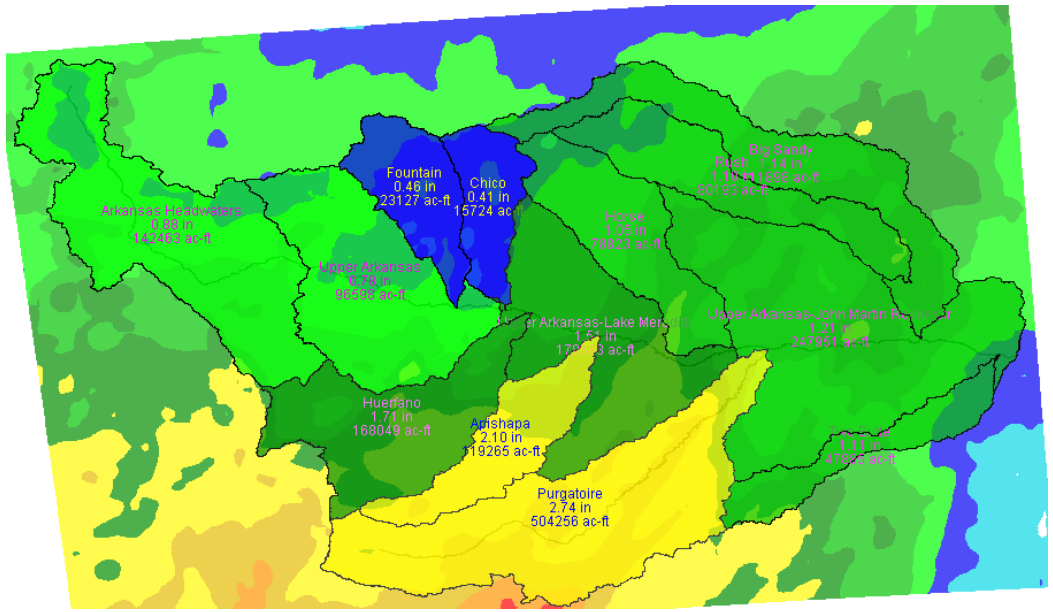
## July High Releases

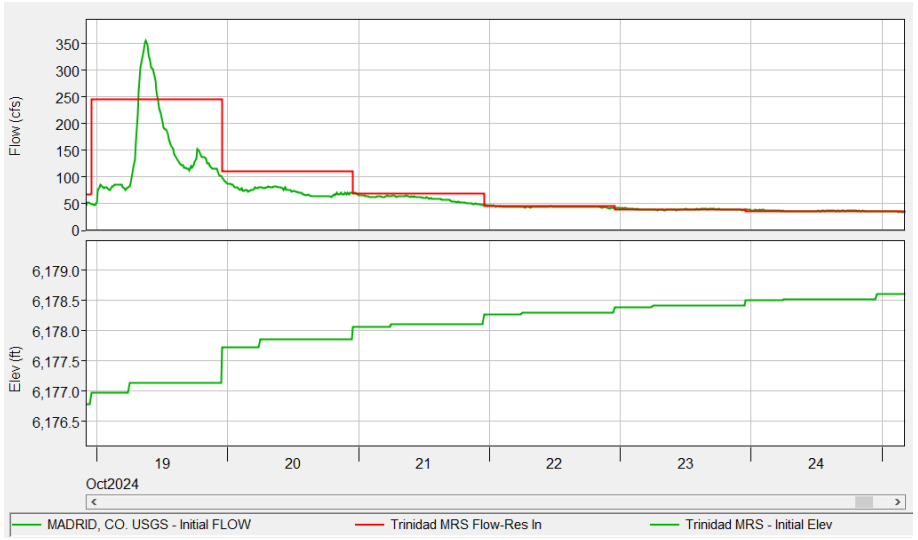


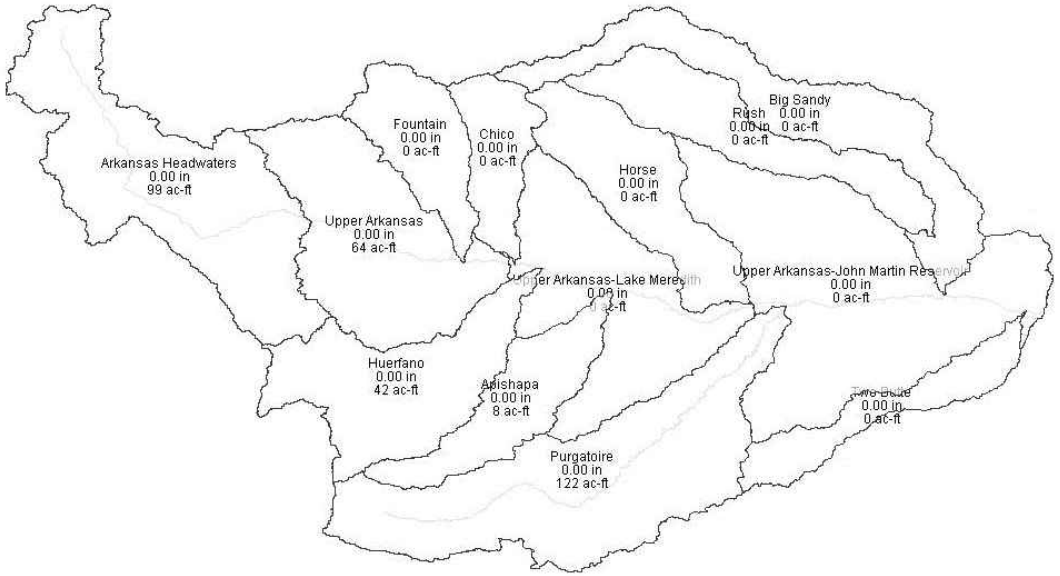
# COMPACT YEAR 2024 WATER MANAGEMENT
## October High Inflow

- A large spike in flow into Trinidad Lake occurs on October 19th, following a rainfall event centered over the Purgatoire and Apishapa subbasins.

- This was the second highest inflow to the lake in the compact year at 245.48 cfs. This caused the pool elevation to increase by 2.6 ft (1,794 ac-ft).



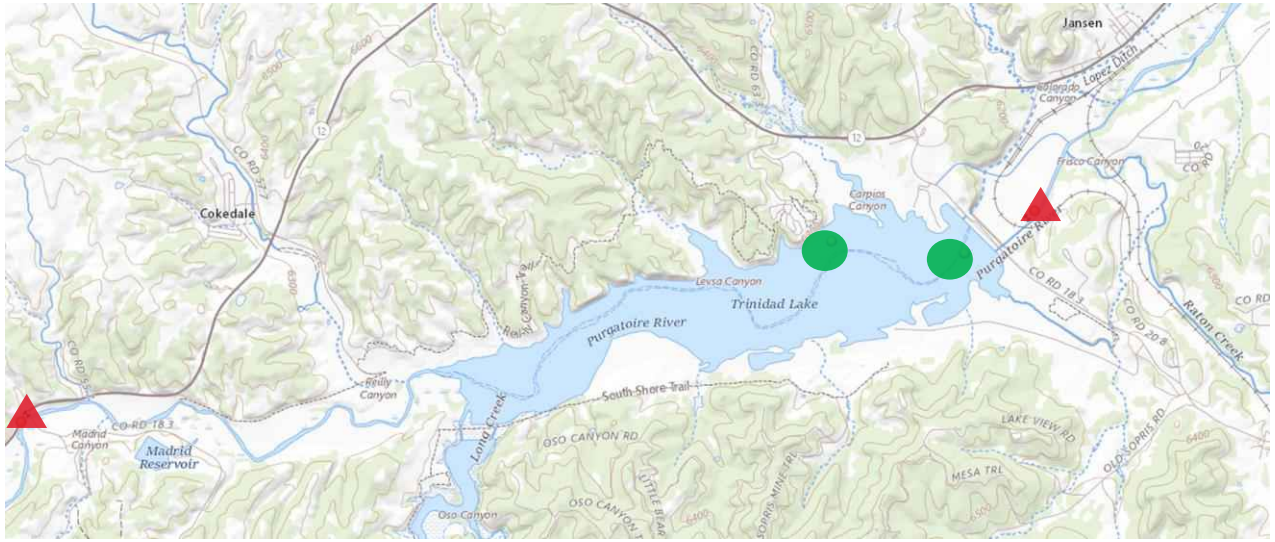



# ARKANSAS WATER QUALITY MONITORING

## Reservoir Stations (2012 – Current)

Monthly during ice-free period

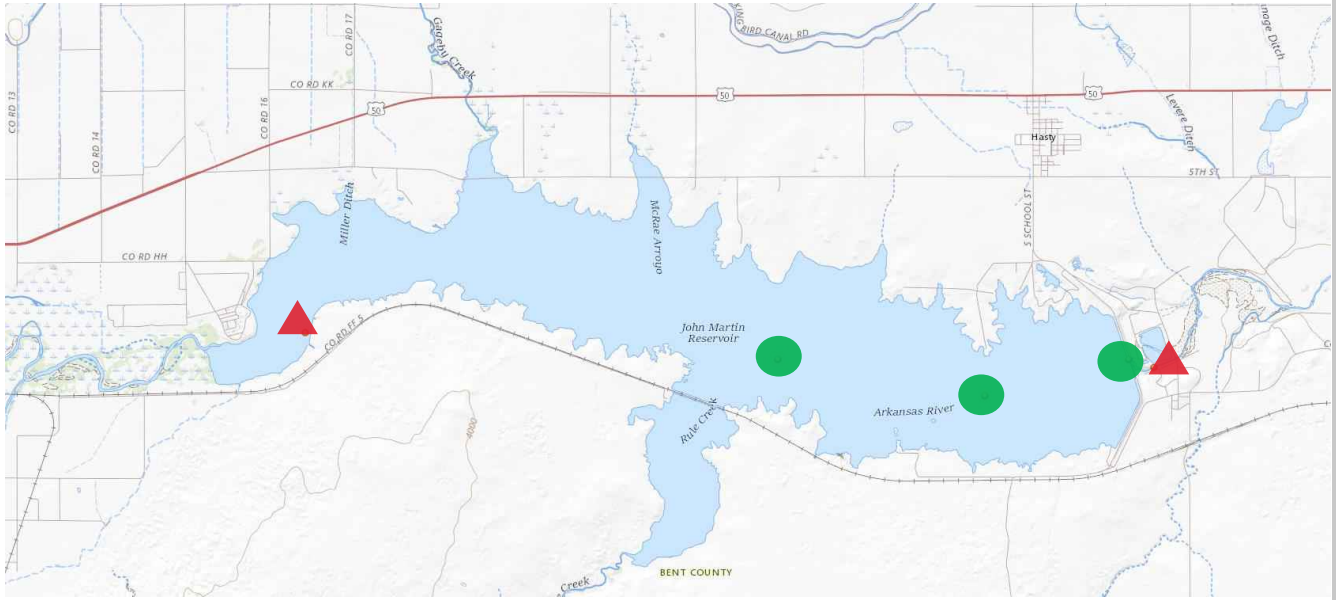
- Vertical profiles
  - Temperature
  - Dissolved oxygen
- Surface measurements
  - Turbidity
  - pH
  - Specific conductance
- Secchi depth
- Zebra and quagga mussel (June-October)




**Trinidad Dam and Lake**

## Riverine Stations (2020 – 2025)

- 15-minute interval
  - Water Temperature
  - Dissolved oxygen
  - Turbidity
  - pH
  - Specific conductance
- Monthly anions/cations and total suspended sediment

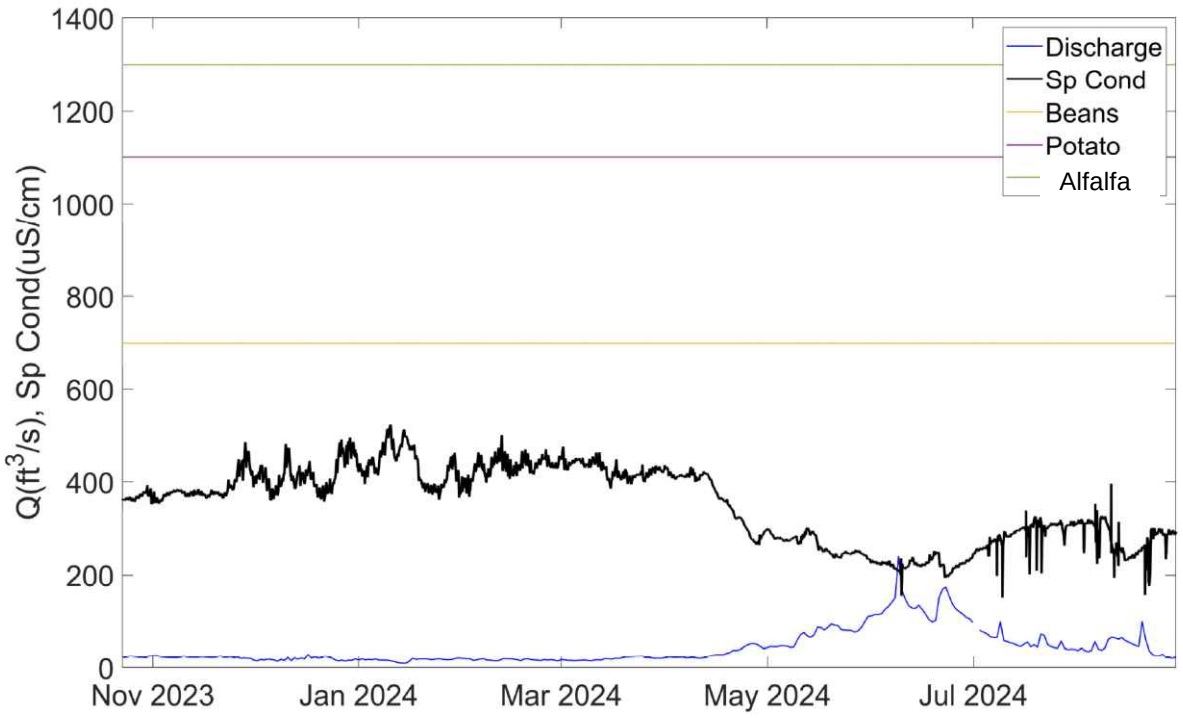



**John Martin Dam and Reservoir**

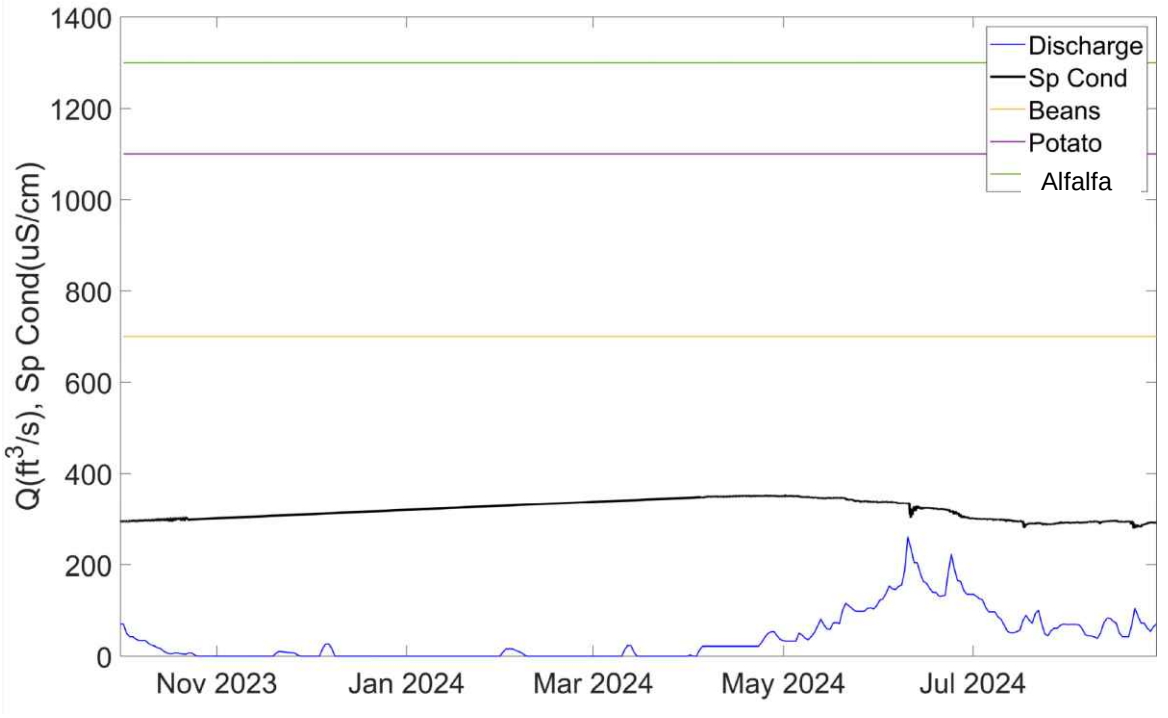
# ARKANSAS WATER QUALITY MONITORING DATA

2024 Discharge, Specific Conductance, and Crop thresholds

## Upstream of Trinidad Lake




## Downstream of Trinidad Lake



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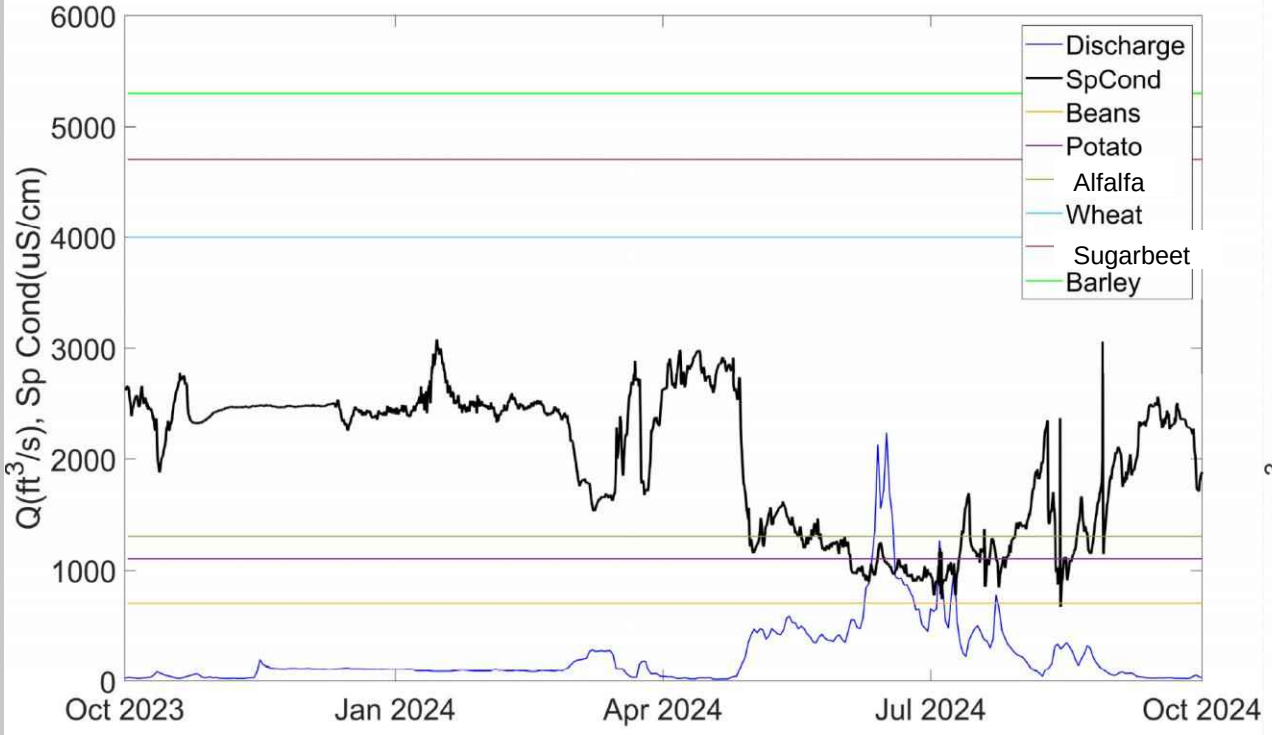
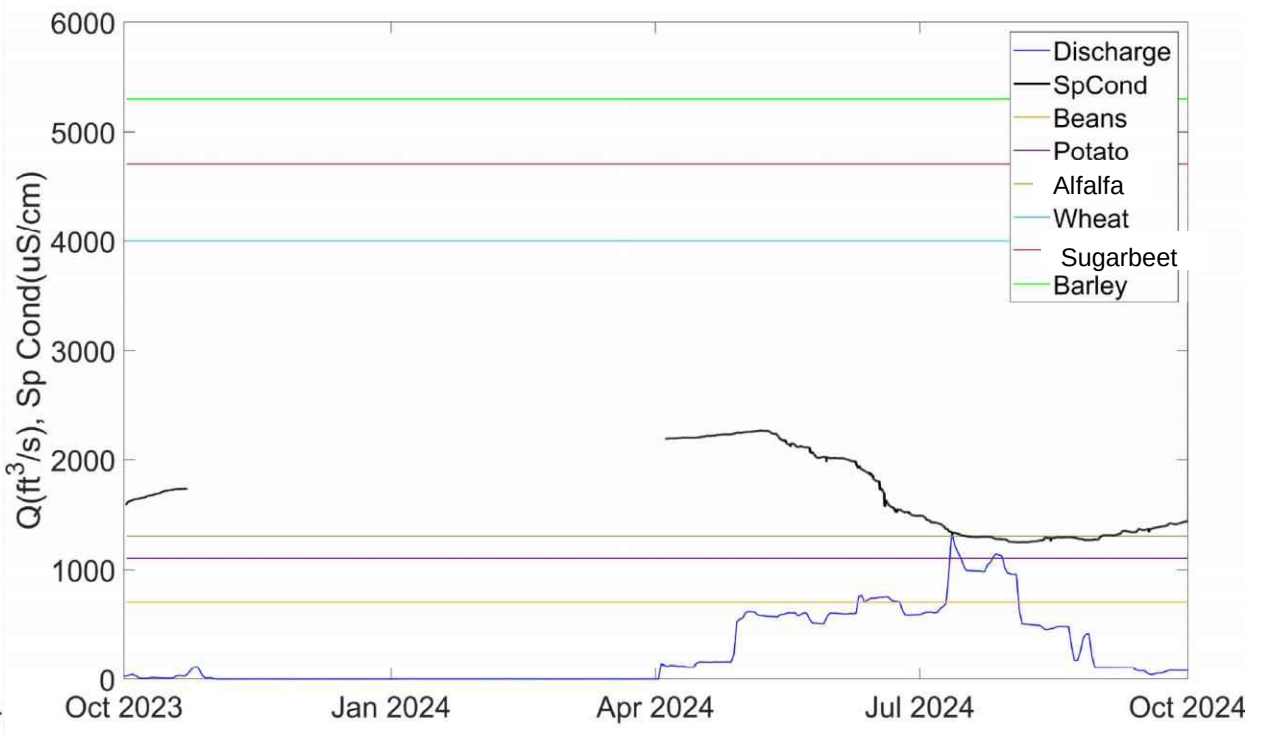
2024 Discharge, Specific Conductance, and Crop thresholds

## Upstream of John Martin Reservoir



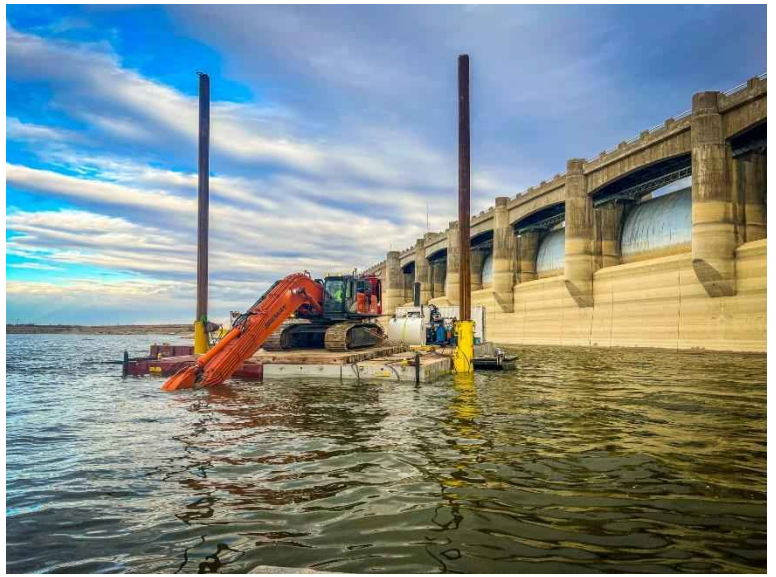

## Downstream of John Martin Reservoir



# OPERATIONS AND MAINTENANCE

## John Martin Dam and Reservoir

- Completed dredging of main conduits entries, replacement of bulkhead seal plates, and conduit inspections
- Completed crane repair work and inspections
- Partially completed Spillway Bridge Deck Repair
- Completed Sump Pump Replacements
- Work proceeding on various O&M projects



## Trinidad Dam and Lake

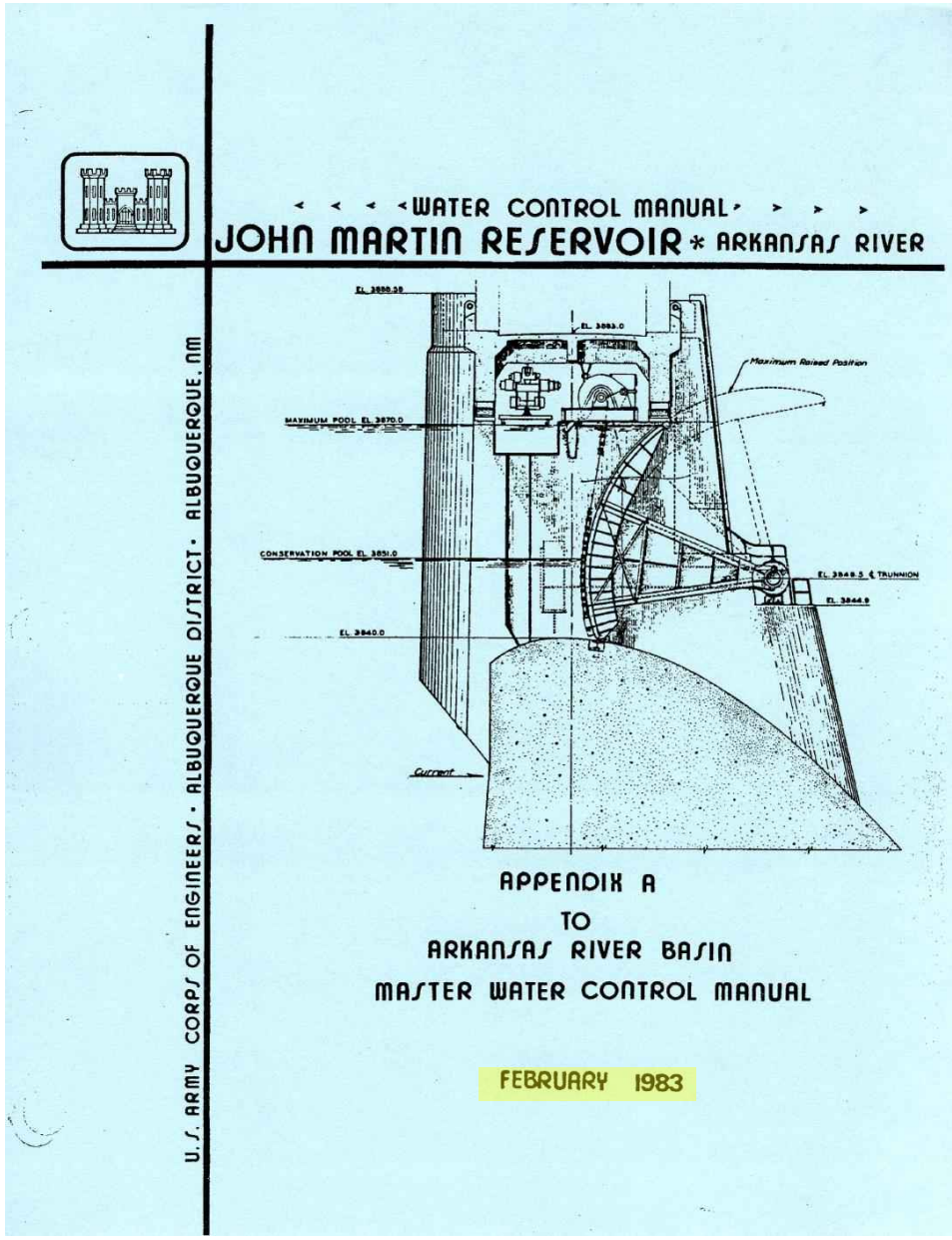
- Overlaying the sandstone on the dam with granite riprap
- Completed EAP
- Completed the Periodic Bulkhead Inspection
- Work proceeding on Boundary Survey
- Work proceeding on the Master Plan

# JOHN MARTIN WATER CONTROL MANUAL UPDATE

Current Status

- Thorough review of all content, with updates to:
  - Hydrology and climate data
  - Historic reservoir operations data
  - Flood Impact Analysis and Economics
  - All Exhibits, Plates, and Figures
- Two phases
  - Administrative Update
  - Update to Chapter 7 Water Control Plan to reflect how the project is actually operated for the recreation pool authorized by Public Law 89-298 (October 27, 1965)
- Project Delivery Team in place and work is progressing
- Environmental compliance review in progress
- Expected completion in Fiscal Year 26

Draft Water Control Plan (Chapter 7) will be provided to ARCA for review and comment



# CIVIL WORKS
# SECTION 206- ECOSYSTEM RESTORATION

Spring Creek, Colorado
Sponsor: City of Colorado Springs

- Only active CAP project, still ongoing
- The purpose of the project is to restore a wetland and bird sanctuary formerly managed by the Audubon Society.
- In FY21, funds were used to complete the Federal Interest Determination
- Feasibility Cost Share Agreement signed July 2022


Project site location in Colorado Springs, CO. Former wetland outlined in light blue.

# QUESTIONS / DISCUSSION