

OROVILLE DAM CITIZENS ADVISORY COMMISSION

**Meeting 22
April 10, 2026**

Hosted by the California Natural Resources Agency



ITEM 1

WELCOME

ROLL CALL

- Secretary of the California Natural Resources Agency
- California State Assembly
- California State Senate
- Director of the Department of Water Resources
- Director of the Office of Emergency Services
- Director of the Department of Parks and Recreation
- CHP Butte County Field Division Appointee
- City of Oroville Appointees
- County of Butte Appointees
- County of Sutter Appointees
- County of Yuba Appointees
- Butte County Sheriff Appointee
- Sutter County Sheriff Appointee
- Yuba County Sheriff Appointee

TRI-ANNUAL LEGISLATIVE REPORT UPDATE

- Report Content:
 - Material covered by the Commission between Q4 2022 and Q4 2025 has been summarized and organized based on the requirements outlined in SB 955, which established the Commission and mandated the report.
 - Feedback on the report, any written Commissioner reflections on the work of the last three years, and compiled Commissioner/public correspondence with CNRA over that period will be included in its own section of the report.
- Anticipated Timeline:
 - May 2026: Post DRAFT report to website for Commissioner and public comment (3 weeks)
 - June 2026: CNRA staff to make revisions, finalize report, share with legislature, and post on website

ITEM 2
OROVILLE LEVEE REPORT

Michael Gonia, USACE

Oroville CA Levee 1 Levee Review



**US Army Corps
of Engineers®**

NATIONAL LEVEE SAFETY PROGRAM

April 10, 2026

OROVILLE CITIZENS ADVISORY COMMISSION

Agenda

- Background
- Findings
 - Hazard
 - Performance
 - Consequences
 - Levee Risk
 - Other Risks
- Recommendations

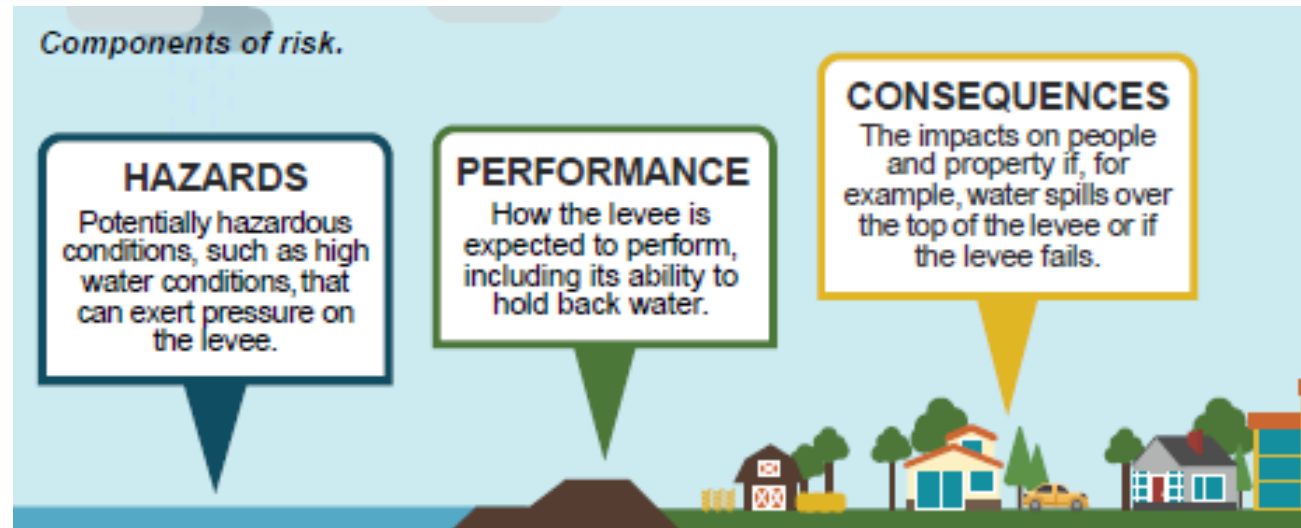


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NATIONAL LEVEE SAFETY PROGRAM

Levee Review Background

- Voluntary process in which USACE conducts a field visit and screening-level risk assessment
- Provides a basic understanding of levee risk
 - Flood hazard
 - Expected levee performance
 - Consequences of a levee breach



*FEMA levee accreditation process for NFIP is separate and independent for Levee Review

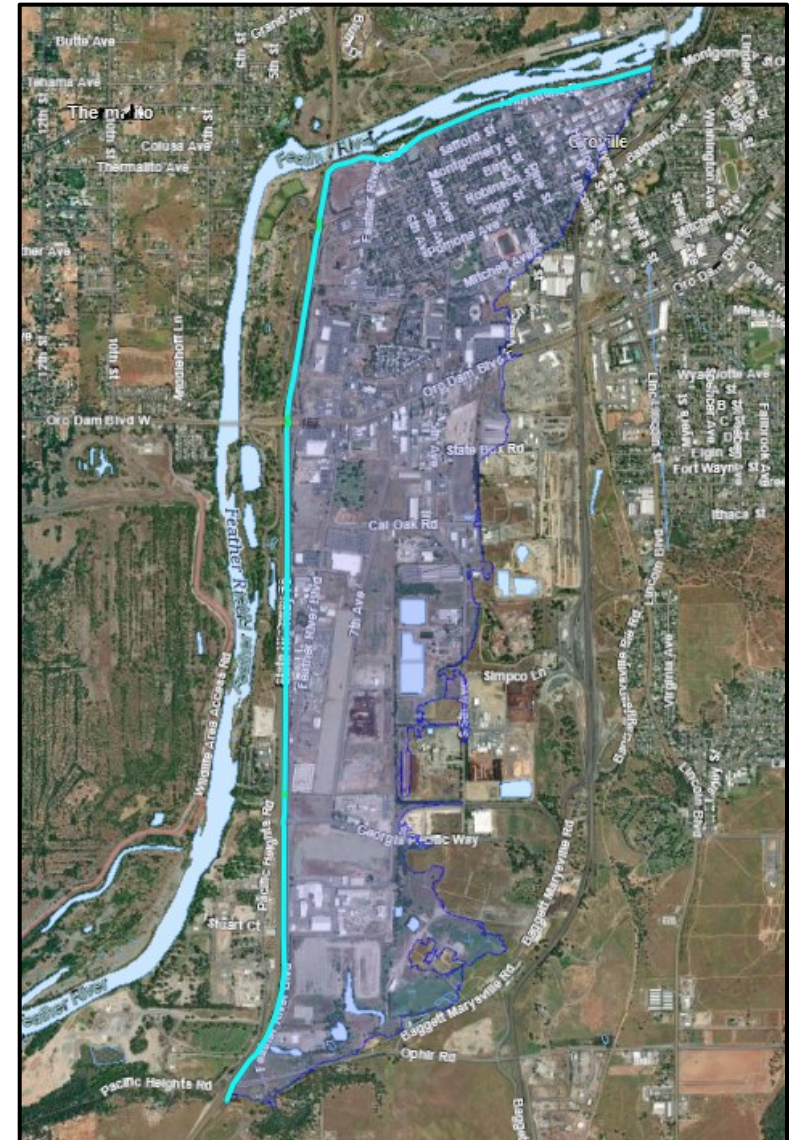


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NATIONAL LEVEE SAFETY PROGRAM

Levee Review Benefits

- Knowing a levee's risk can help:
 - **Levee Owner/Operator:** prioritize O&M, repairs, and emergency preparedness activities
 - **States:** Understand flood related vulnerabilities within their boundaries and establish management alternatives
 - **Emergency Managers:** Identify low or weak spots in the levee to inform emergency preparedness and floodfight activities
 - **Community Leaders:** Incorporate flood information if master planning, resilience planning, etc. Support investments
 - **Individuals:** Understand levee benefits and risks, improve preparedness



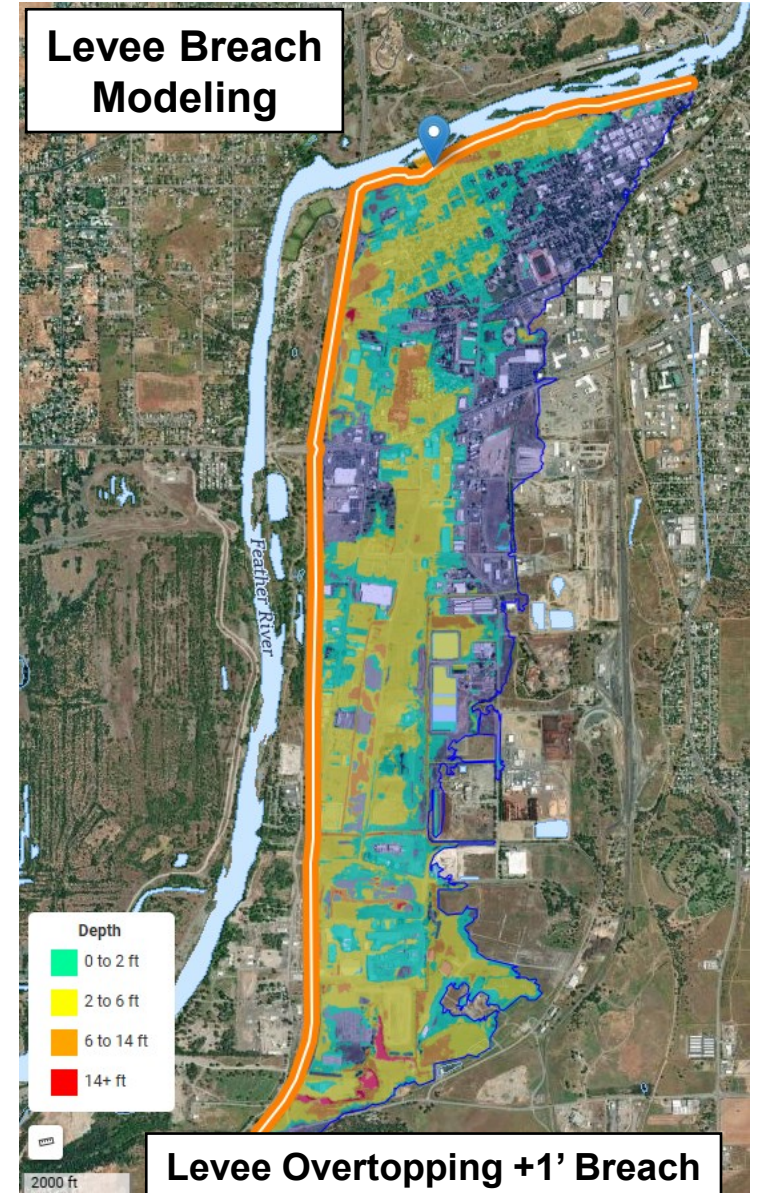
Levee Review

- Date: May 7-8, 2025
- Participating Agencies:
 - California Department of Water Resources (DWR)
 - City of Oroville
 - Sutter Butte Flood Control Association (SBFCA)
 - R&F Engineering
 - HDR
 - USACE
 - WSP
 - Geosyntec

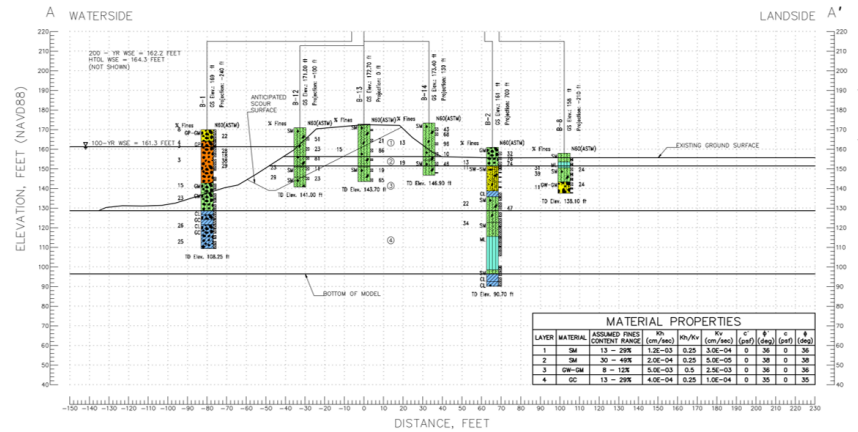


Bottom Line Up Front

- Levee Classification: Low risk
 - Emergency planning, community risk perception, and historic evacuations are major factor in low life safety risk.
 - Oroville Dam greatly reduces the frequency and severity of flooding on the levee by regulating flows in the Feather River.
 - Levee expected to perform adequately, but a critical levee reach is vulnerable.



Oroville CA Levee 1 Data Collection & Site Visit



Major Findings - Hazard

- Oroville Dam greatly reduces the frequency and severity of flooding
 - Levee overtopping at >300,000cfs.
- Lower levee elevations along Bedrock Park expected to be first overtopped
- Uncertainty: future water control manual updates and updated flow frequency



Photo Credit: CA DWR (Jan 2, 2026)

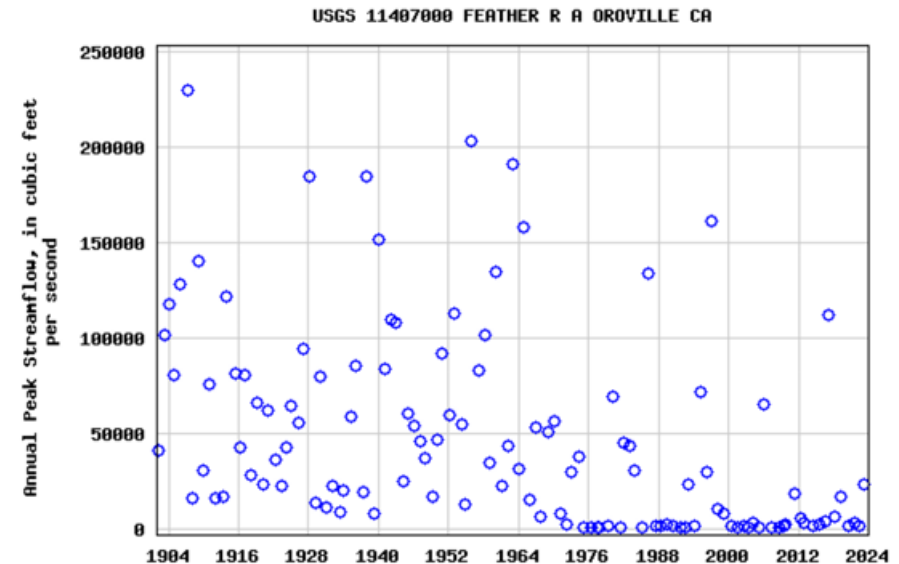


Figure 1. Peak Annual Discharges at USGS Gage 11407000

Major Findings - Performance

- Many levee sections are overbuilt with dredge tailings.
- Levee fill soil (dredge tailing) is porous; seepage probable
- Critical levee section at Bedrock Park
- Riverine erosion expected to initiate, particularly in the case of overturned tree



California Conservation Corps workers sandbag a levee boil along the Feather River in Oroville, California during the 1997 floods.

Photo taken January 2, 1997.

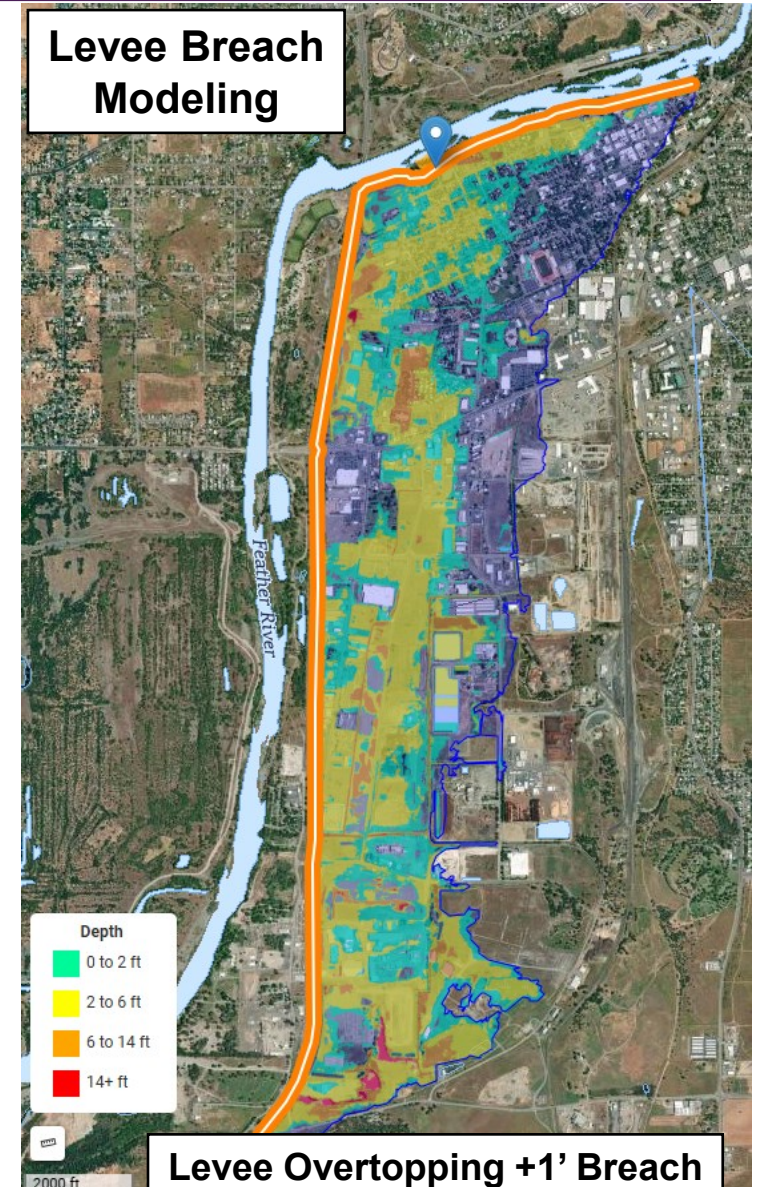


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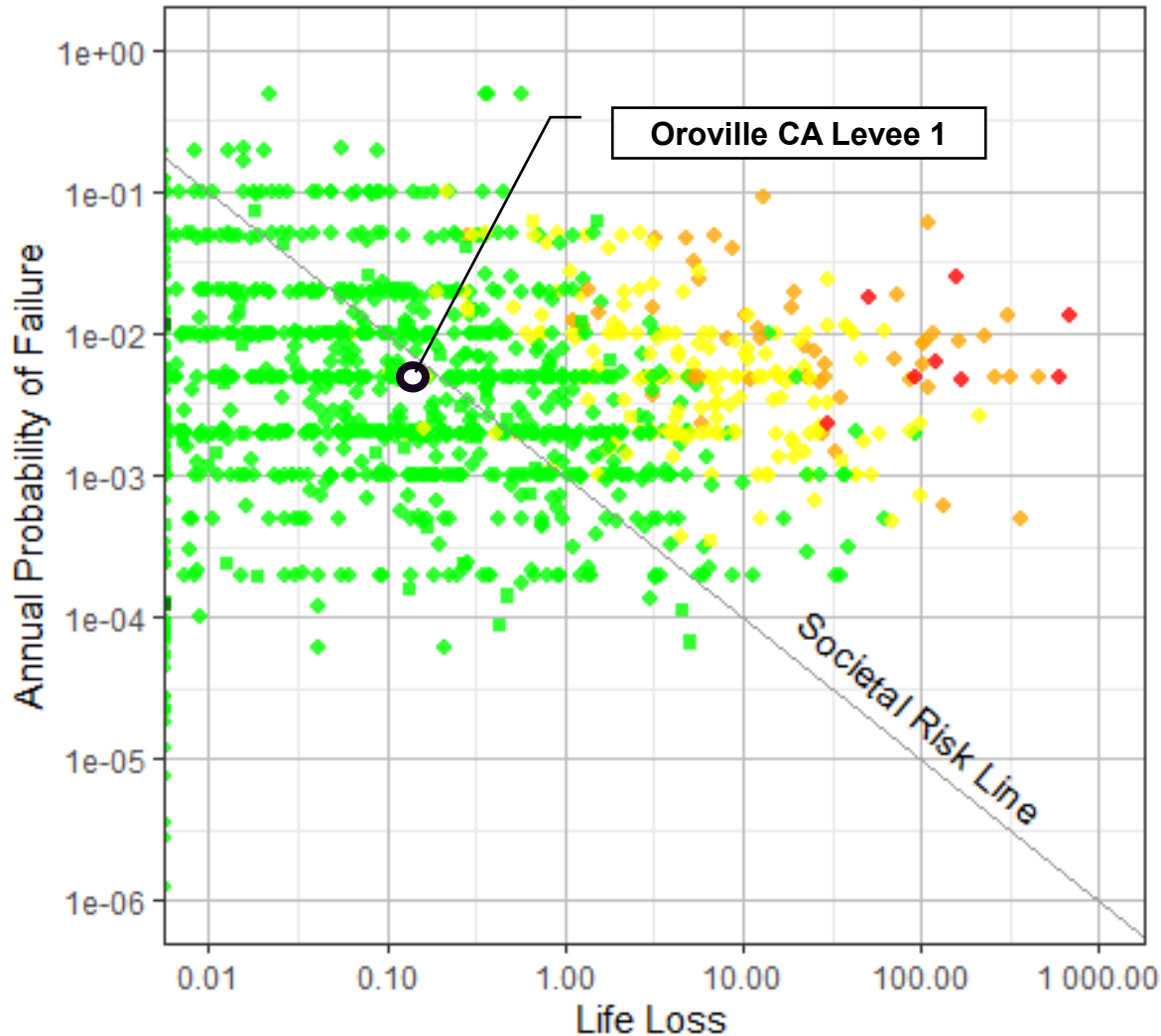
Major Findings - Consequences

- Model Inputs
 - Strong emergency planning, experience, and community risk perception
 - The City lacks a formal Emergency Action Plan (EAP) with specific triggers
- Results
 - Flood inundation depth: generally 0-6 feet with localized areas 6-14 feet
 - Average life loss: <1
 - Average Dollar Loss: >\$100 Million
 - Critical infrastructure at risk includes non-redundant utilities, schools, medical facilities, treatment plants, and evacuation routes



Levee Risk: National Levee Portfolio

Levee Societal Loss Plot - September 2025



LSAC

- 1: Very High
- 2: High
- 3: Moderate
- 4: Low
- 5: Very Low
- No Verdict

Dataset

- LST
- ◇ LST v1.0

USACE Levee Safety Action Classification (LSAC) (As of November 2025)

RISK	LEVEE SYSTEMS
VERY HIGH (1)	8
HIGH (2)	60
MODERATE (3)	264
LOW (4)	1759
VERY LOW (5)	6
NO VERDICT	0



Other Flood Risks

- This assessment assessed levee risk and did not quantify the magnitude and impacts of other flooding scenarios
 - Concerns about seepage quantity and interior drainage



Twin box culverts along dry Creek beneath Hwy 70



Recommendations

1. Update understanding of the hazard following the Oroville Dam Water Control Manual update.
2. Expand the City's flood fighting capability with training.
3. Prepare written levee Operation & Maintenance manual.
4. Perform additional subsurface exploration to further refine limits of critical levee section(s).
5. Complete structural levee improvements to critical levee section(s).
6. Complete detailed inventory of pipes through the levee.
7. Develop a levee specific Emergency Action Plan.
8. Quantify other flood risk(s). Interior drainage and seepage flow.



Questions and Discussion



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ITEM 3
NEW BULLARDS BAR OPERATIONS AND
COORDINATION

Wille Whittlesey, Yuba Water Agency



Flood Operations on the Yuba River

Oroville Dam Citizens Advisory Commission

April 10, 2026

New Bullards Bar Dam Safe and Fully Operational



Yuba Water Agency's Mission Areas



Flood Risk Reduction



Sustainable Water Supply



Hydropower Generation



Fisheries Protection
and Enhancement



Recreation at
New Bullards Bar

New Bullards Bar Dam and Reservoir

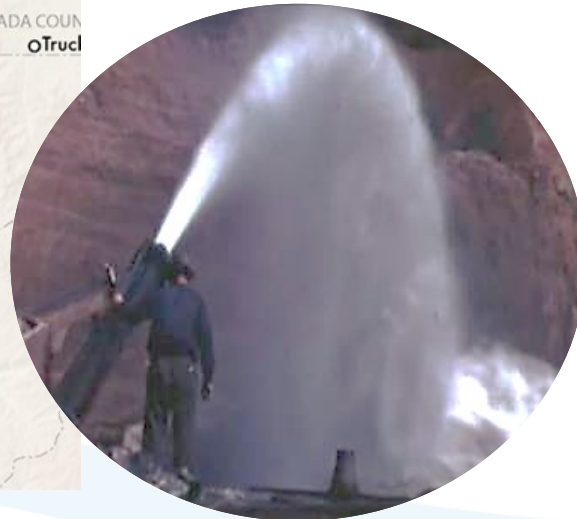
- 170,000 acre-feet of dedicated flood storage
- Stores 966,000 acre-feet of water
- 5th tallest dam in the U.S. at 645 feet high
- Provides water supply for Yuba County farmers and ranchers, resulting in a reliable, sustainable groundwater aquifer



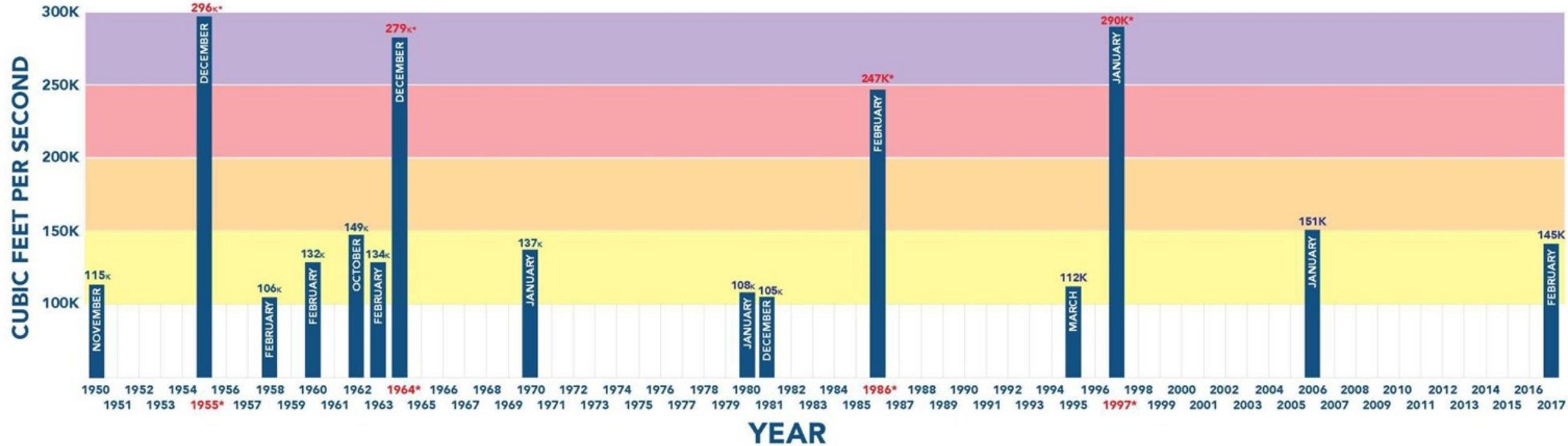
Yuba County Flood History: A Highly-Productive Watershed



- Highly-productive watershed surrounded by three major rivers (Yuba, Feather and Bear)
- Hydraulic mining legacy contributed to large sediment build-up, raised riverbeds
- Piecemeal, earthen levees built by early settlers



MAXIMUM FLOWS AT THE YUBA-FEATHER RIVERS CONFLUENCE



DATA KEY

■ HISTORICAL DATA

* Major Flood Events

STAGES KEY

■ EXTREME

■ CRITICAL

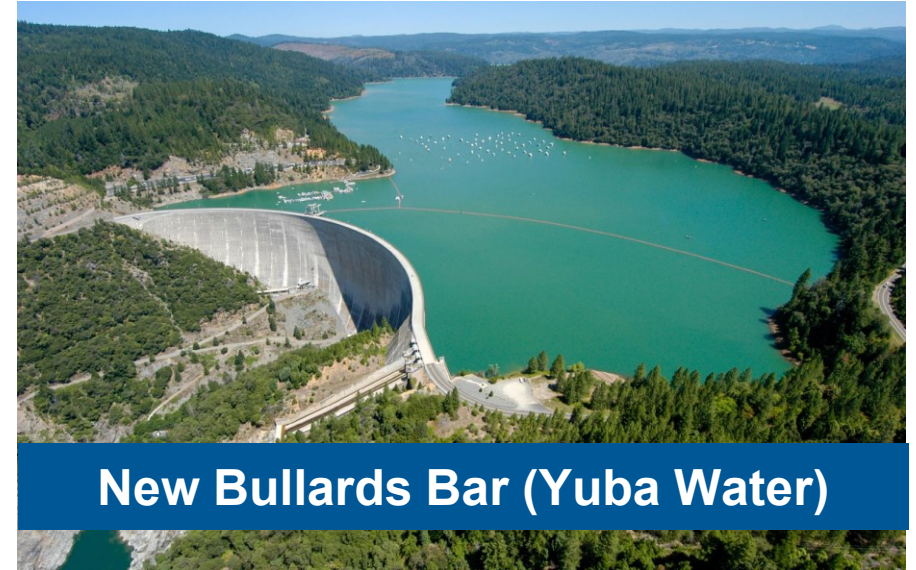
■ SEVERE

■ SIGNIFICANT

■ NORMAL FLOW

Since 1950, on average, every five years there has been an event that triggered flood monitoring due to high flows on the levees.

Forecast-Coordinated Operations (F-CO)



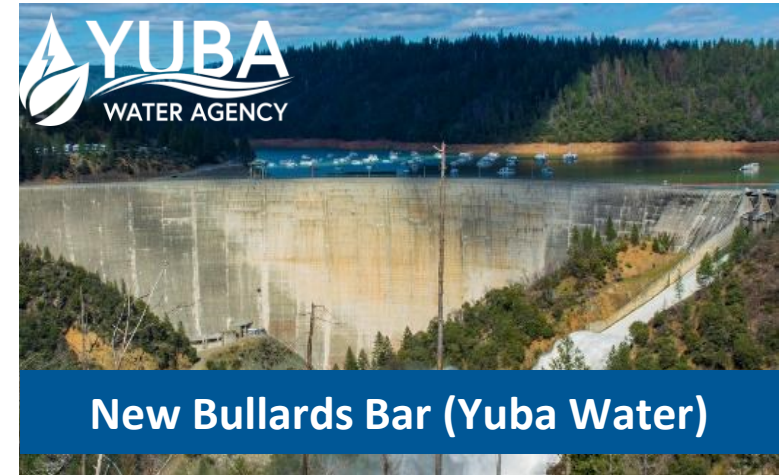
Launched in 2005, Forecast-Coordinated Operations expanded and improved monitoring and information-sharing among federal, state and local agencies in the Yuba-Feather watershed

Forecast-Informed Reservoir Operations (FIRO)

- F-CO laid the foundation for a new, forward-looking forecast and operations methodology called Forecast-Informed Reservoir Operations (FIRO)
- Uses improved forecasting to increase flexibility to store or release water
- Benefits include reduced flood risk, potential water supply improvements, resilience to changing conditions



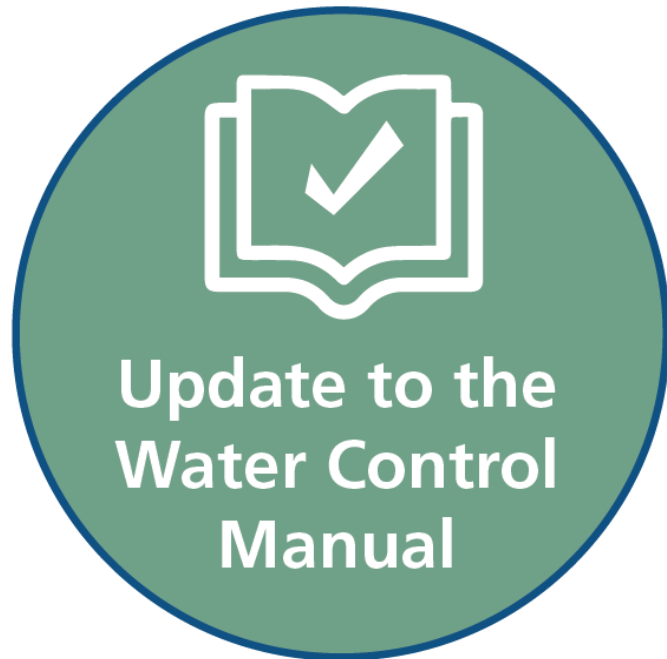
Yuba-Feather FIRO Program Partners



Center for Western Weather
and Water Extremes



U.S. Army Corps Water Control Manual Update

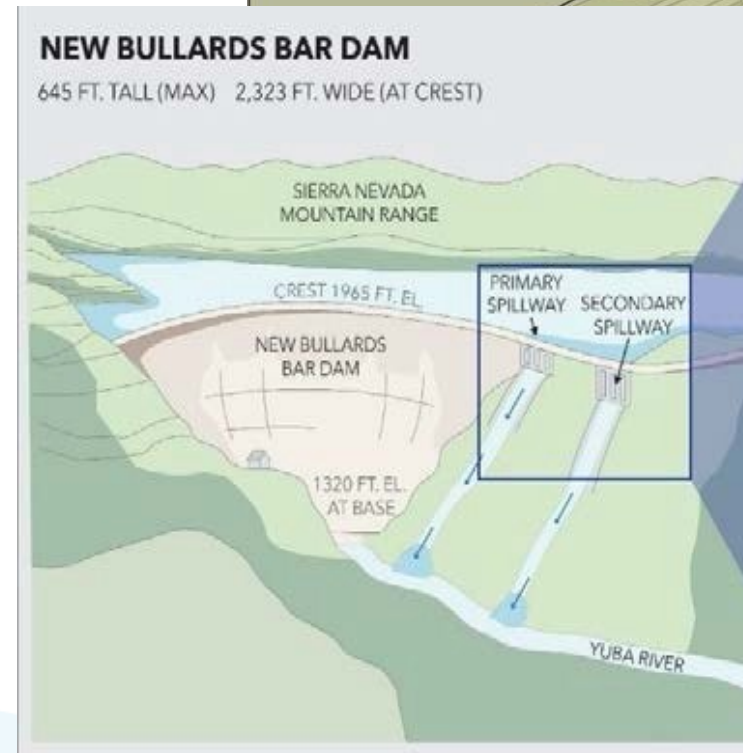
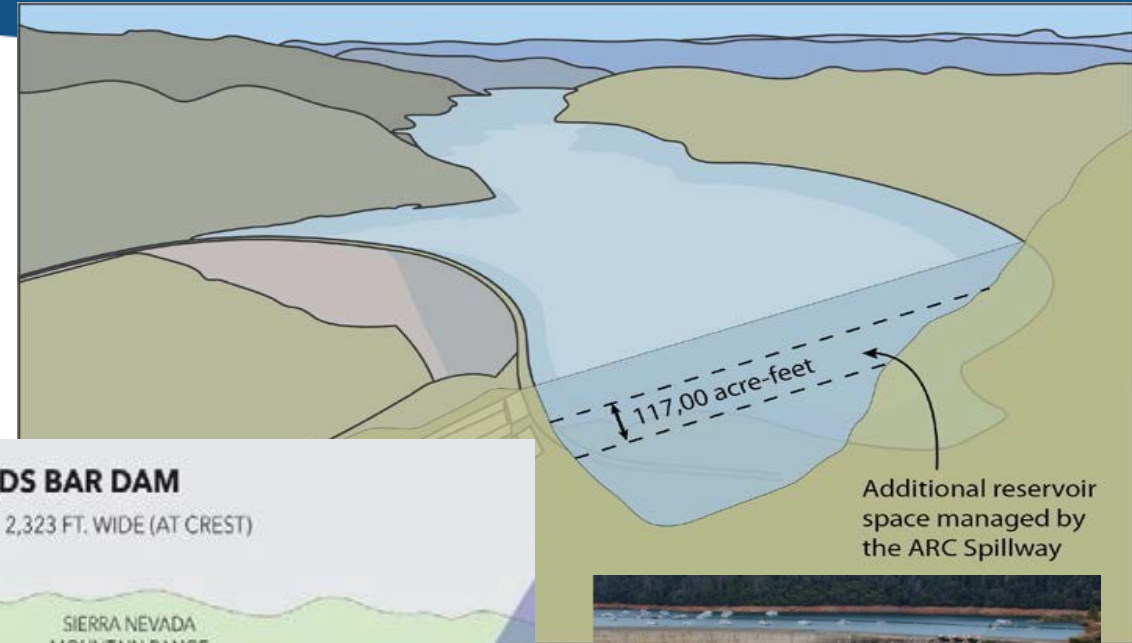


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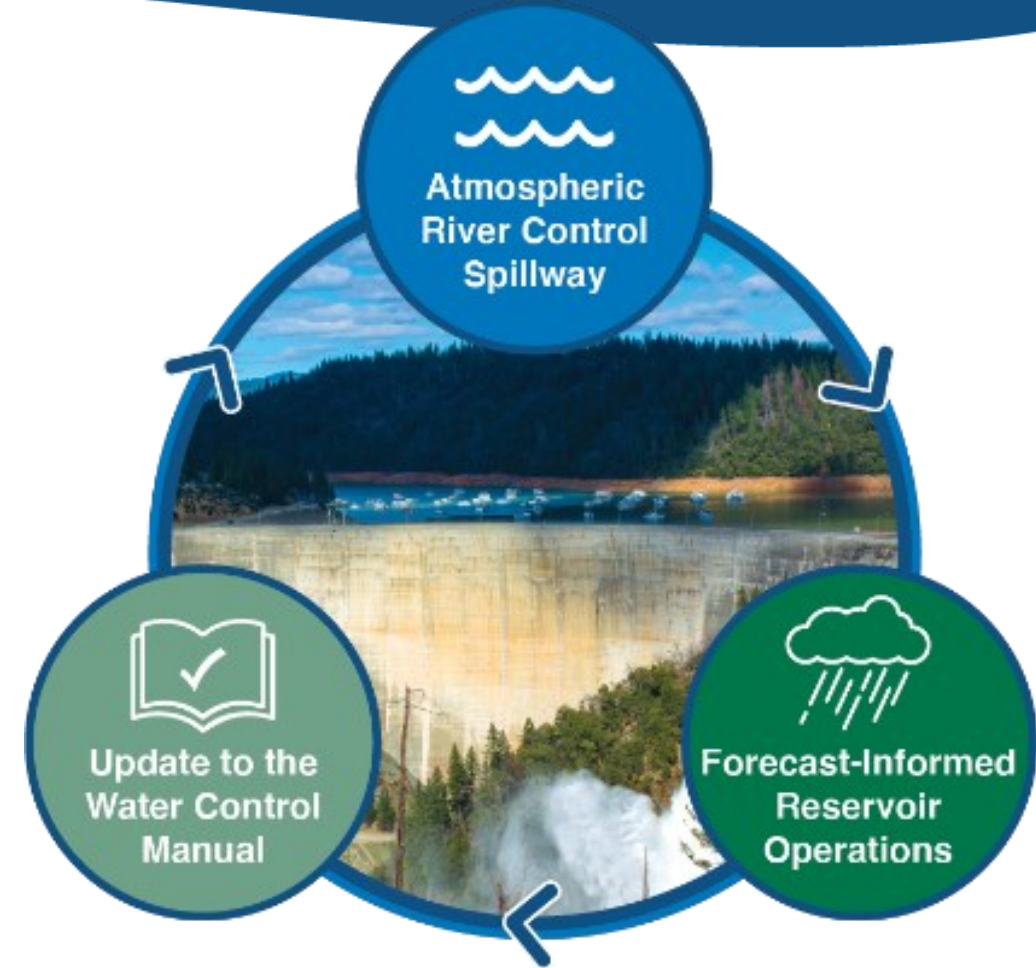
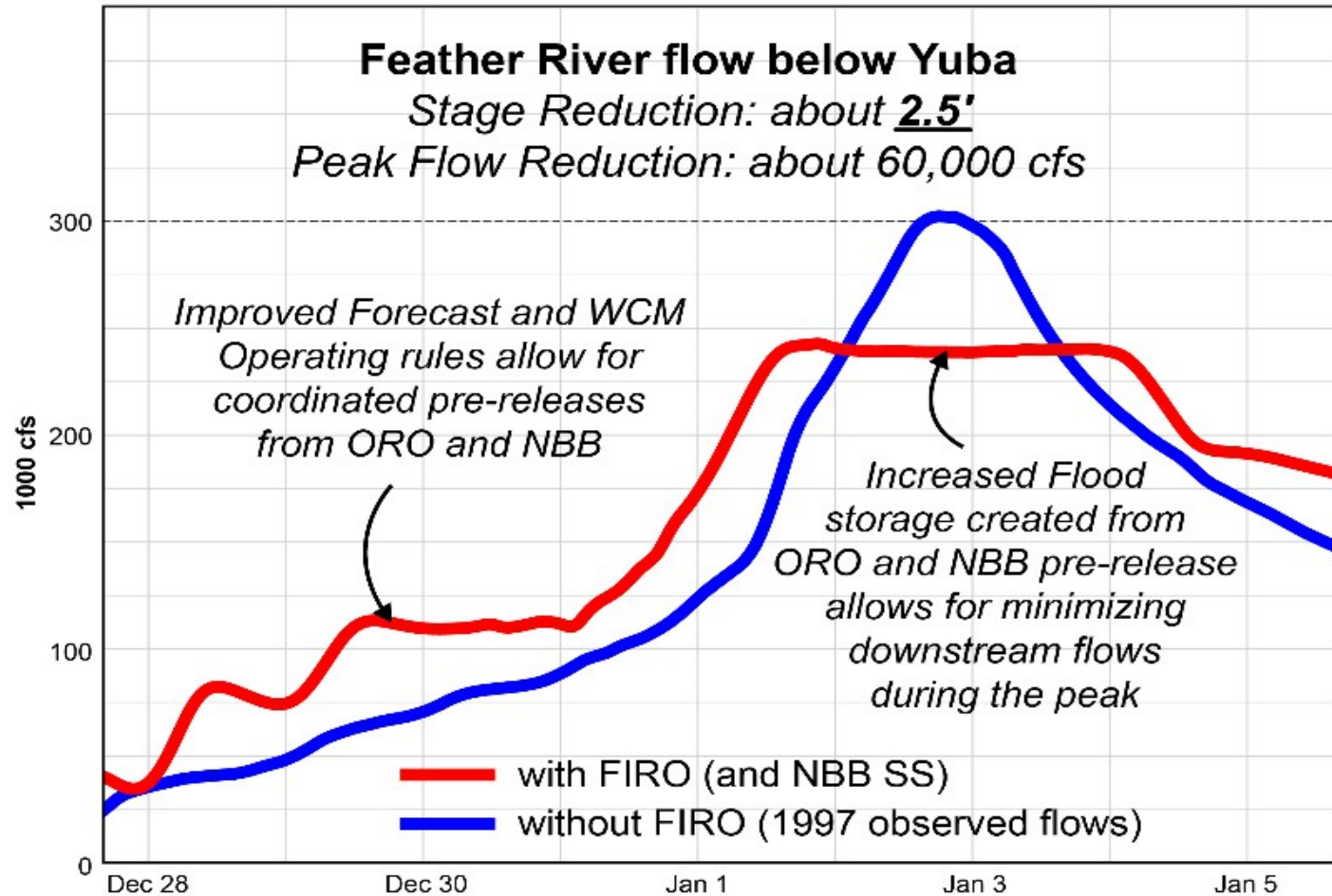


New Bullards Bar Atmospheric River Control Spillway

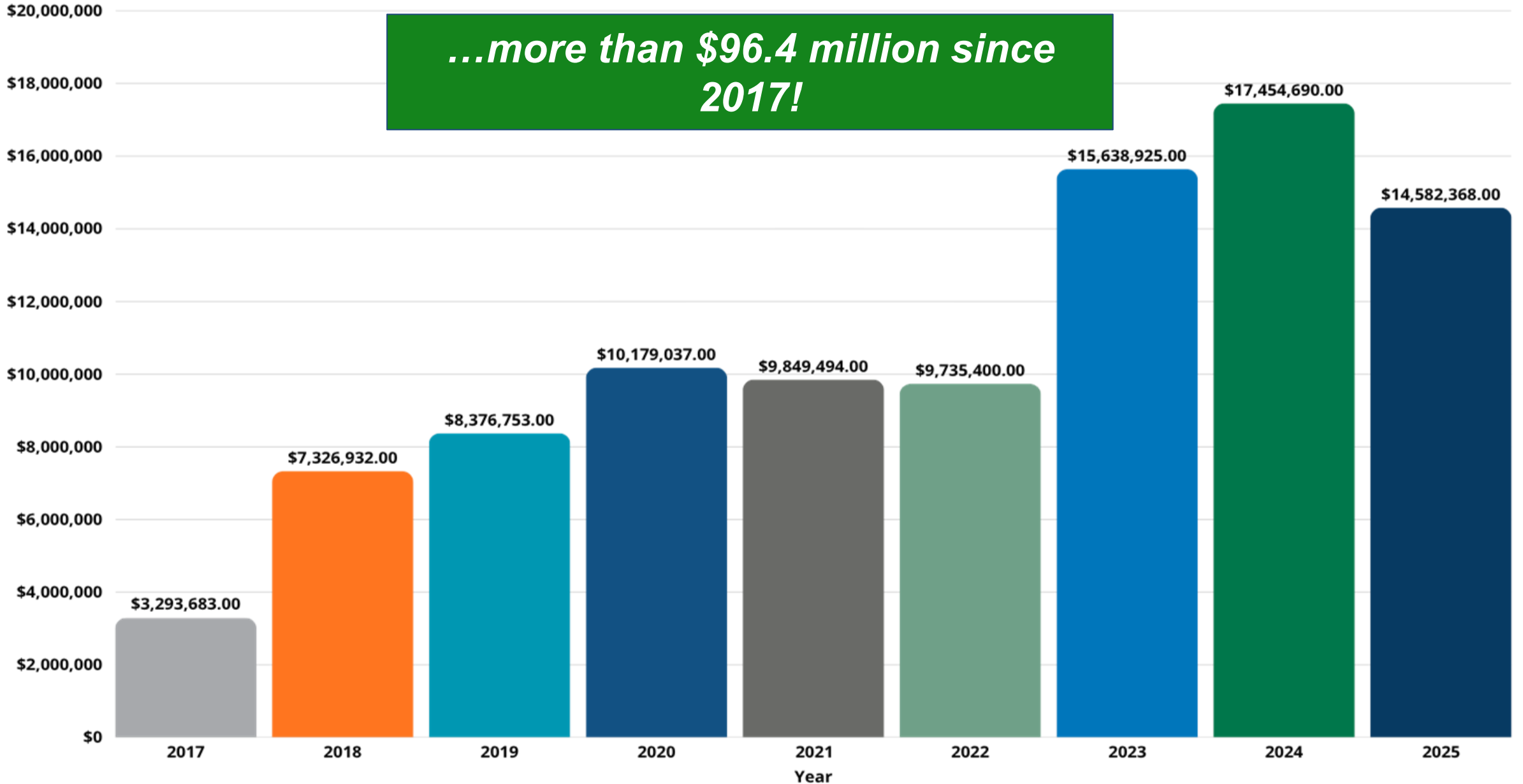
- Construction of second spillway 31.5 feet lower than current spillway
- Discharge capacity of 35,000 cubic-feet-per second (cfs)
- Ability to manage an additional 117,000 acre-feet of reservoir space
- Reduces pressure on downstream levees



Reducing Peak Flows During Flood Events



Yuba Water Flood Investments





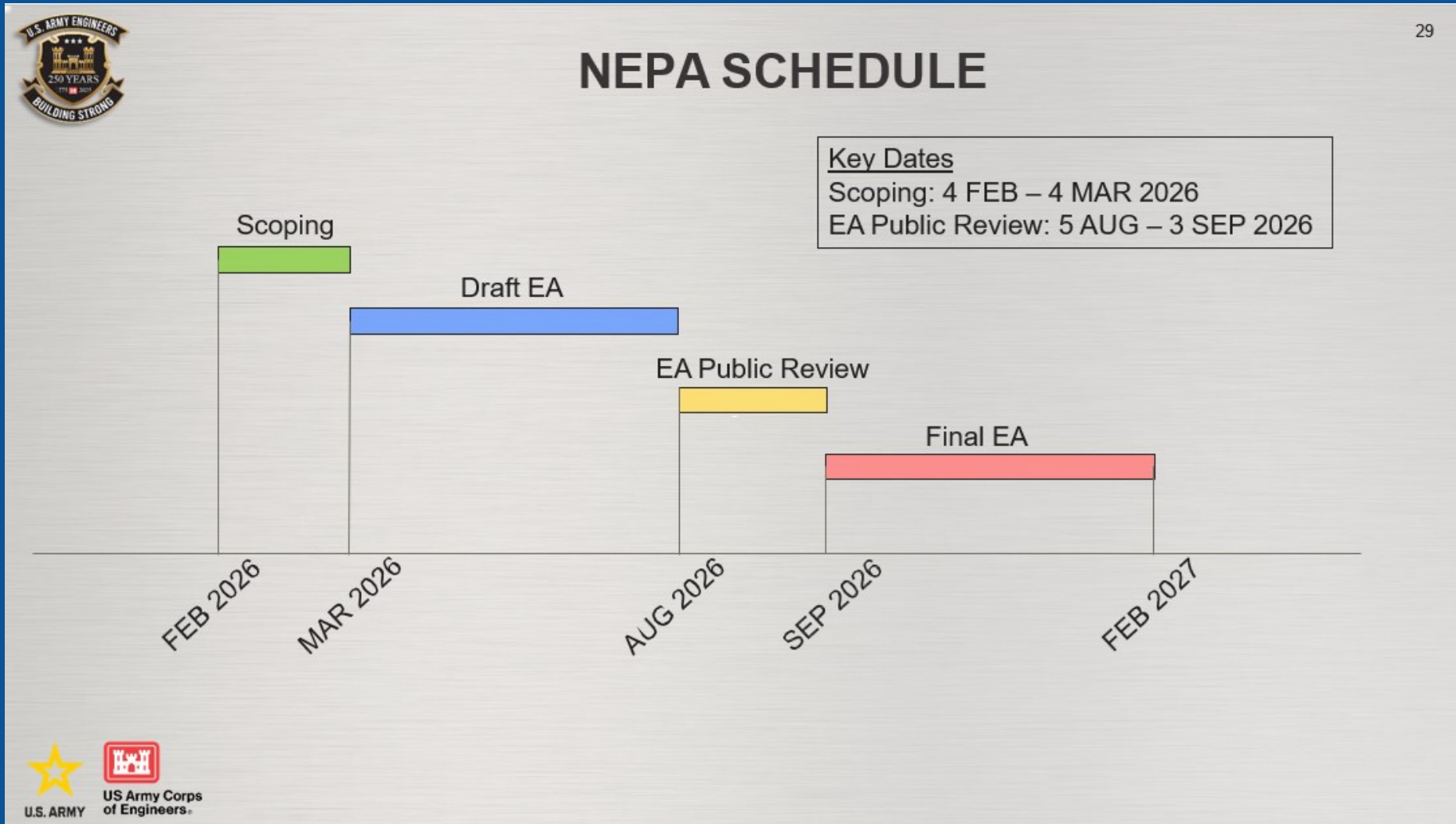
Questions?

ITEM 4
WATER CONTROL MANUAL UPDATE

WATER CONTROL MANUAL UPDATE

- **August 2026:** Draft NEPA documents, draft Water Control Manual, and a draft Engineering Report will be available for public review
- **Approximately 2 weeks later:** USACE will hold a public meeting where participants can ask questions and provide public comment
- At this time, the **comment period is 30 days from release of the draft documents**

WATER CONTROL MANUAL UPDATE



WATER CONTROL MANUAL UPDATE

FOR ADDITIONAL INFORMATION

For additional information on the New Bullards Bar and Oroville Dams Water Control Manual Updates, visit the project webpage by using the QR code or using the webpage address below.



[USACE Sacramento District Water Control Data System Website](#)

ITEM 5

DOWNSTREAM PERSPECTIVE ON WATER CONTROL MANUAL



Destructive floods have created social economic hardship on the communities

WATER CONTROL MANUAL UPDATES A DOWNSTREAM PERSPECTIVE

Commissioners Bill Connelly and Robert Bateman

April 10, 2026

**OROVILLE DAM CITIZENS ADVISARY COMMISSION
WATER CONTROL MANUAL UPDATES
DOWNSTREAM PERSPECTIVE
APRIL 10TH 2026**

Report on Discussions with the USACE and the DWR
Concerns, Conclusions, and Recommendations
Commissioner Robert Bateman

Safety as a Priority
Commissioner Bill Connelly

FEATHER RIVER RECOVERY ALLIANCE

([Not Just a Spillway website](#))

Formed in Oroville by local business people after 2017 to help recovery

Submitted a petition to FERC to “hold the DWR accountable” signed by 6,500 citizens

Has continued to raise concerns with FERC

Aims to assist in building trust in the DWR

Has coordinated OCAC Commissioners and concerned citizens in discussions with the USACE and DWR aimed at understating the water control manual

Advocates local communities' interest in minimizing risk of inundations and evacuations

WHAT WE HAVE LEARNED RELEVANT TO THE WCM UPGRADES

DWR and USACE personnel stressed that safety would be the top priority.

The science for forecasting atmospheric storms has radically improved.

The forecast informed reservoir operation study (FIRO) for Yuba-Oroville was completed last year. This outlines various alternatives for relating inflows to releases. The two using forecasts are ID3 and ID4 – see slide 3a. ID4 uses an iterative process to balance flood risk with water supply as inflows and inflow forecasts vary. Flood risk and water delivery are balanced simultaneously. ID3 preserves the current variable reservation space and requires specific early releases for specific inflows and leaves a lot to the DWR's discretion – see slide 3b – unlike ID4, ID3 does not make full use of science and offers less protection against extreme storms. Both plans will increase water storage in drought years and in the rare years of extreme storms, the lake will be full with ID4 since this includes the managed restoration of the reservoir after the storm peak.

Early releases in advance of storms are key to avoiding serious flooding.

If the Oroville Reservoir is lowered to the bottom of the gates (813 ft) before the peak of rare heavy storms, we would have the 1 in 500 year protection promised when the dam was built.

Implementation Overview

An overview of the alternatives being evaluated in the FVA are detailed in Table A-12. An overview of all implementation steps and subsequent actions are detailed in Table A-13.

ID	ORO At-Site	NBB At-Site	System Operation	Description
1	Existing F-CO	Existing F-CO	Existing F-CO	Representation of the current forecast-coordinated operations program. The 120/180 rules will be removed and set for 180k at Yuba City and 180k at Marysville
3	ID3	FIRO Guide Curve	Existing F-CO	Pairing of prescriptive alternatives at dams. The forecast ensemble is processed to a single inflow value (75 percent non-exceedance probability at dam) and is used to determine forecast-based top of conservation or guide curve and/or release magnitude based on pre-defined relationships. Considers forecast duration up to seven days.
4	Hybrid EFO	Hybrid EFO	Existing F-CO	Pairing of iterative alternatives at dams. A potential release from a dam is evaluated considering each forecast ensemble hydrograph. If the tolerable risk of a given outcome, such as exceeding a given reservoir elevation, is exceeded considering the full ensemble, a new release is evaluated. This process is repeated until the tolerable risk is not exceeded. Considers forecast duration up to 15 days.

Table A-12. FVA combined alternatives

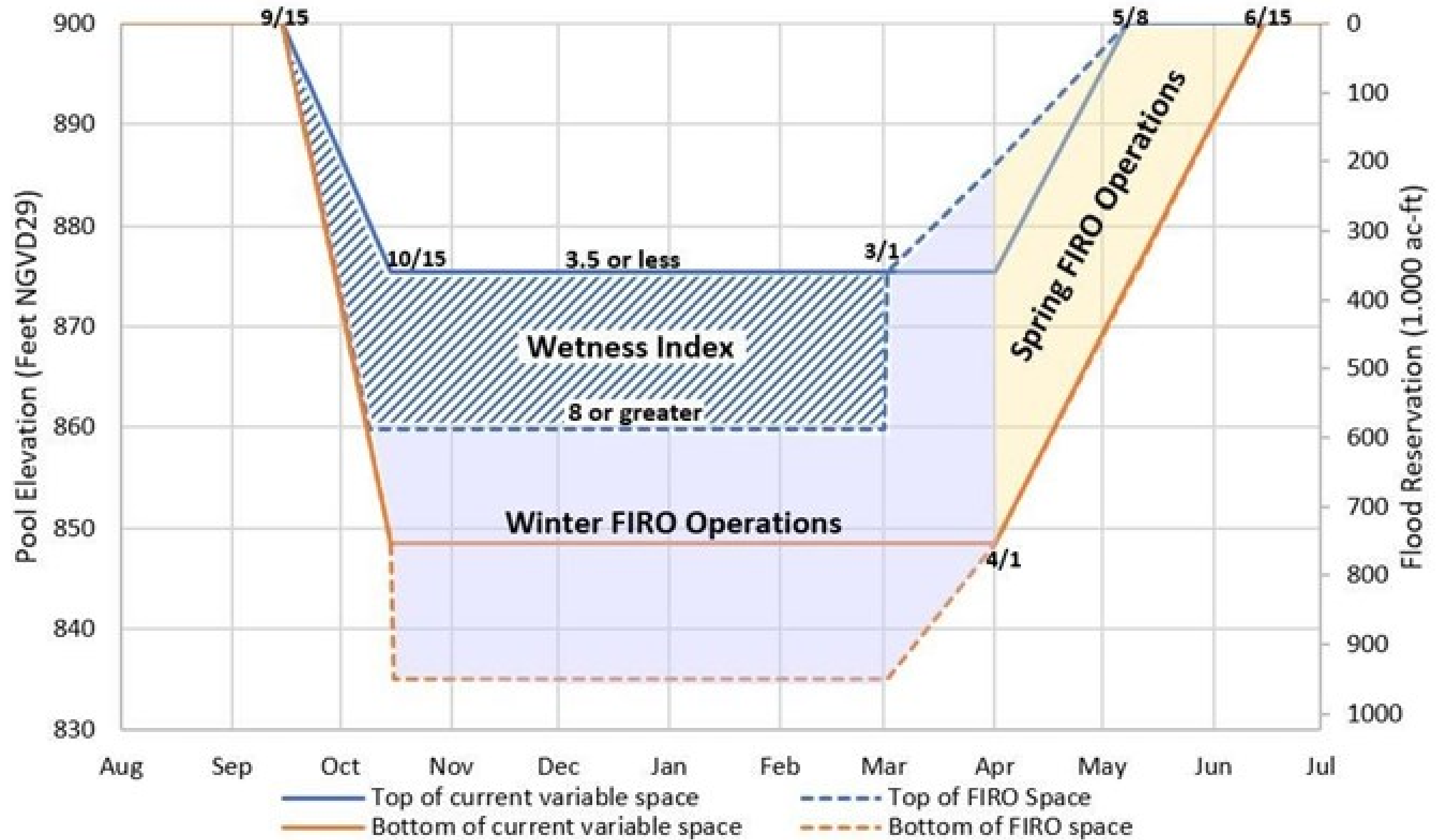


Figure 3-3. FIRO Space for ORO Reservoir.

INFLUENCE OF DWR'S 'POLICY'

In specifying the parameters for the FIRO study, the DWR had a perverse influence

- Limiting the FIRO study to lowering the reservoir to 835 ft as opposed to the bottom of the gates which approximately doubled the theoretical risk of damaging floods
- Specifying that only an additional 200,000 acre feet of flood pool would be offered in the study during years of heavy precipitation but asked that the flood pool would be reduced in drought years by 400,000 acre feet. This is not consistent with the declared policy that safety would be the priority
- Not setting an “aspirational goal” for the amount of flood protection to be provided but did have a goal for the increase in the retention of water

A late January email from the deputy director of DWR stated that **“the DWR is looking to use FIRO to gain more flood management and water supply benefits from the existing flood reservation space.”** This eliminated FIRO plan ID4 which involves a variable flood pool. He added that with climate change the protection downstream communities can expect will decrease.

Thus, DWR “policy” has caused the FIRO studies to be flawed and removed the possibility of the WCM updates providing protection from the most severe storms that can be expected in the next 500 years while at the same time increasing water storage.

DESTRUCTIVE PAST FLOODS AND THEIR COSTS

1964 flood caused \$49 million in damage

1986 flood caused \$263 million in damage

1997 caused \$567 million in damage

2017 spillway event had over \$1billion in repair costs from releases of 50,000 cfs

These costs are those that were paid in settlement of claims. The costs to downstream communities were much higher.

Evacuation of 180,000 people in 2017 is estimated to have cost \$50 - \$75 million, none of which was reimbursed. There were evaluations also in 1986 and 1997.

Over the last 60 years the protection less than for storms expected 1 year in 30

So, it is unacceptable to agree to a reduction in protection in future when there is science-based system which if applied will effectively eliminate serious floods from reservoir operations.

EXPLANATIONS AND INFORMATION NEEDED FROM THE DWR

1. An explanation why the FIRO studies were limited to lowering the reservoir to 835 ft and not to the bottom of the spillway gates.
2. Explain why the DWR's SWP Division would place a limit of only 200,000 acre feet flood flexible flood space during rare heavy precipitation events, yet request a reduction of 400,000 acre feet to mitigate drought conditions.
3. Explain whether consideration has been given to replacing the hard bottom of the flood space with recovery of the conservation pool as an objective in selecting the reservoir release volume so as to produce a win/win outcome for flood protection and water storage.
4. Publish the study which shows that lowering the reservoir to 813ft would eliminate dangerous floods from excessive precipitation and snowmelt.
5. Explain whether and why the SWP Division favored FIRO plan ID3 as opposed to FIRO plan ID4.

WHO DECIDES DWR POLICY AND WHAT IS THE REASONING BEHIND IT?

We have been told that “policy” is the reason for the seemingly illogical positions taken by the DWR. We have been told nothing about who makes the policy or given credible reasons for it. There is a profound lack of transparency.

Given that DWR “policy” generally favors the decisions which seem to be intended to favor the provision of water, it is not likely that the State Water Contractors (SWC) are the ultimate policy makers. The SWC’s rights were established 60 years ago and these rights will have to be relaxed, or renegotiated, if science is to be fully applied to minimizing the risks of the dam while maximizing water storage.

The SWC have influence and responsibility over the dam’s operation without accountability. The Oroville Dam may, because of its original financing, be the only major dam with this type of governance. The independent forensic team’s comprehensive report after the spillway incident concluded that the culture of the DWR was a reason for the errors made that caused and amplified the collapse of the spillway. Governance has a significant effect on culture.

CONCLUSIONS

The positions taken by the DWR with respect to the WCM updates are not consistent with their constant assurances that safety will be the priority.

The variance appears to result from policies made outside the SWR probably under the influence of the SWC.

The commission should ask the DWR to explain the policies that mean FIRO plan ID4 cannot be adopted and who makes these policies.

If for some reason FIRO plan ID4 cannot be included formally in the WCM updates, the DWR could, with the agreement of all stakeholders, including the SWC, adopt FIRO plan ID4 voluntarily so that science is used to make safety the propriety while increasing water storage.

Finally, we now believe that our petition to FERC to “hold the DWR responsible” was misdirected because the DWR cannot be held accountable if key decisions on managing the reservoir (and perhaps other things such as the maintenance budget) are made by some other party.

MEETING 23 AGENDA IDEAS

ITEM 7

PUBLIC COMMENT

The Oroville Dam Citizens Advisory Commission will now take public comment.

We appreciate your input.

ITEM 8

ADJOURN

Commission Meeting #23

Summer 2026