SAN JOAQUIN RIVER
RESTORATION PROGRAM

Bureau of Reclamation
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Updated 2026 Restoration Allocation and Default Flow Schedule March 16, 2026

Summary

The updated Restoration Allocation is based on an Unimpaired Runoff Forecast at the 75% probability of exceedance of 1,397 Thousands of Acre-Feet (TAF). This results in a Normal-Dry Water Year Type. This value for the runoff forecast was arrived at by blending the Department of Water Resources (DWR) and National Weather Service (NWS) forecasts with a 30/70 ratio, respectively, and using professional judgment to scale the forecast down and shift the distribution of possible runoff values. Accordingly, 276.220 TAF is allocated to the Restoration Program as measured at Gravelly Ford. The Restoration Administrator is asked to return a recommendation by March 25, 2026.

Overview

The following transmits the updated 2026 Restoration Allocation and Default Flow Schedule to the Restoration Administrator for the San Joaquin River Restoration Program (SJRRP), consistent with the January 2020 (Version 2.1) Restoration Flow Guidelines (Guidelines or RFG). This Restoration Allocation and Default Flow Schedule provides the following:

- Forecasted water year Unimpaired Runoff: the estimated annual flows that would occur absent regulation on the river. This value is also known as the “Natural River,” “Unimpaired Runoff,” “Unimpaired Inflow,” or “Full Natural Flow,” and is utilized to identify the water year type.
- Hydrograph Volumes: the annual allocation hydrograph based on water year Unimpaired Runoff, utilizing Method 3.1 with the Gamma Pathway (RFG-Appendix C, Figure C3) agreed to by the Parties in December 2008.
- Default Flow Schedule: the schedule of Restoration Flows in the absence of a recommendation from the Restoration Administrator.
- Additional Allocations: the hypothetical Restoration Allocations that would result from 50%, 75%, and 90% probability of exceedance (often shortened as “% exceedance”) of the Unimpaired Runoff Forecast. The 98%, 25%, 10%, and 2% exceedances may also be included.
- Unreleased Restoration Flows: the amount of Restoration Flows not released due to channel capacity constraints, or without delaying completion of Phase 1 improvements.

- Flow targets at Gravelly Ford: the flows at the head of Reach 2, and estimated scheduled releases from Friant Dam adjusted for the assumed Holding Contract demands and losses in Exhibit B.
- Restoration Budget: the volumes for the annual allocation, spring flexible flow, base flow, riparian recruitment, and fall flexible flow.
- Remaining Flow Volume: the volume of Restoration Flows released, the remaining volume available, and associated limitations and flexibility.
- Operational Constraints: the flow release limitations based on downstream channel capacity, regulatory, or legal constraints.

Consistent with Paragraph 18 of the Settlement, the Restoration Administrator shall make recommendations to the Secretary of the Interior concerning the manner in which the hydrographs shall be implemented. As described in the Guidelines, the Restoration Administrator is requested to recommend a flow schedule showing the use of the entire annual allocation during the upcoming Restoration Year or otherwise identify Unreleased Restoration Flows and categorize recommended flows by account. If a recommendation is not provided by the Restoration Administrator, the Capacity Constrained Default Flow Schedule (Table 8b) or the most recently approved schedule will be implemented. The Restoration Administrator is asked to return a recommendation on March 25.

Forecasted Unimpaired Runoff

Unimpaired Runoff represents the natural water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds (a.k.a. "Unimpaired Inflow" or "Natural River" or "Full Natural Flow"). It is calculated for the period of a water year and for shorter periods (e.g. April–July). The forecast of Unimpaired Runoff for the entire water year determines the volume of Restoration Flows available for the Restoration Year (i.e., the Restoration Allocation) (see Table 1). Information for forecasting the Unimpaired Runoff includes:

- Observation of Unimpaired Runoff into Millerton Lake to support the water supply allocation
- The California DWR Bulletin 120 (B120) latest update for San Joaquin River inflow to Millerton Lake Unimpaired Flow, and/or the most current DWR Bulletin Water Supply Index (WSI)
- The NWS Ensemble Streamflow Prediction (ESP) Water Supply Forecast for the San Joaquin River at Millerton Lake
- Other forecast models, ground-based observations, remotely-sensed observations, hydrologic models, analysis of historic patterns, and short-term weather forecasts as appropriate.

Table 1 shows the 2026 water year (October 1, 2025 to September 30, 2026) observed accumulated water year Unimpaired Runoff into Millerton Lake. Table 2 includes the published

DWR forecast (with updates when available), the NWS forecast, and the NWS forecast with a 7-day smoothing function applied to remove the day-to-day variance. Figure 1a plots DWR and NWS forecast values over the entire water year, while Figure 1b shows the most recent period in detail. The DWR B120 forecast for March 1 (issued March 10) is developed from snow course information supported by other information such as snowpack modeling and Airborne Snow Observatory (ASO) surveys.

In 2026, Reclamation's Joint Forecasting Team is using revised forecasting procedures which adjusts monthly runoff forecasts in a different manner than previous years. The steps now being used are described in the section "Creating a Hybrid Forecast" below.

Table 1. San Joaquin River Water Year Observed Unimpaired Runoff

Statistic	Value
Accumulated Unimpaired Runoff ("Natural River") March 12, 2026 [1]	539.4 TAF
Accumulated Unimpaired Runoff as percent of normal [2]	144%

1. Full Natural Flow Monthly_MILFN
2. Based on average accumulation of Unimpaired Runoff totaling 1,830 TAF.

Table 2. Water Year Forecasted Unimpaired Runoff at Millerton Lake (in TAF) for various probabilities of exceedance

Runoff Forecast	98% [7]	90%	75%	50%	25%	10%	2% [7]
DWR B120, March 1, 2026 [3,6] (Published Value)	1,150	1,250	1,430	1,645	1,940	2,270	—
DWR B120 update, March 10, 2026 [3,6] (converted to Water Year)	—	1,205	1,345	1,525	1,790	1,180	—
NWS, March 12, 2026 [4] (Published Daily Value)	1,380	1,440	1,520	1,650	1,780	1,940	2,410
Smoothed NWS, March 12, 2026 [5] (7-day Smoothing)	1,383	1,448	1,535	1,654	1,815	2,003	2,460

3. B120: Bulletin 120 - WSI. When only April-July runoff forecasts are available, they are converted to Water Year equivalents in this table.
4. CNRFC - Ensemble Products - FRAC1\
5. The NWS smoothed data uses a 7-day triangular weighted moving average, where the most recent day (n) is given greater weight than each previous forecast day (n-1, 2, 3, etc.); this reduces noise stemming from ESP model input. The following formula is used: $((Forecast_n * 1) + (Forecast_{n-1} * 0.857) + (Forecast_{n-2} * 0.714) + (Forecast_{n-3} * 0.571) + (Forecast_{n-4} * 0.429) + (Forecast_{n-5} * 0.286) + (Forecast_{n-6} * 0.143)) / 4$
6. DWR values at the 75% exceedance and 25% exceedance are interpolated if they are not published.
7. DWR does not issue a 2% exceedance forecast. Also, DWR uses a 99% exceedance statistic whereas the NWS statistic is closer to 98%. For simplicity, they are labeled as 98% and 2% regardless of origination.

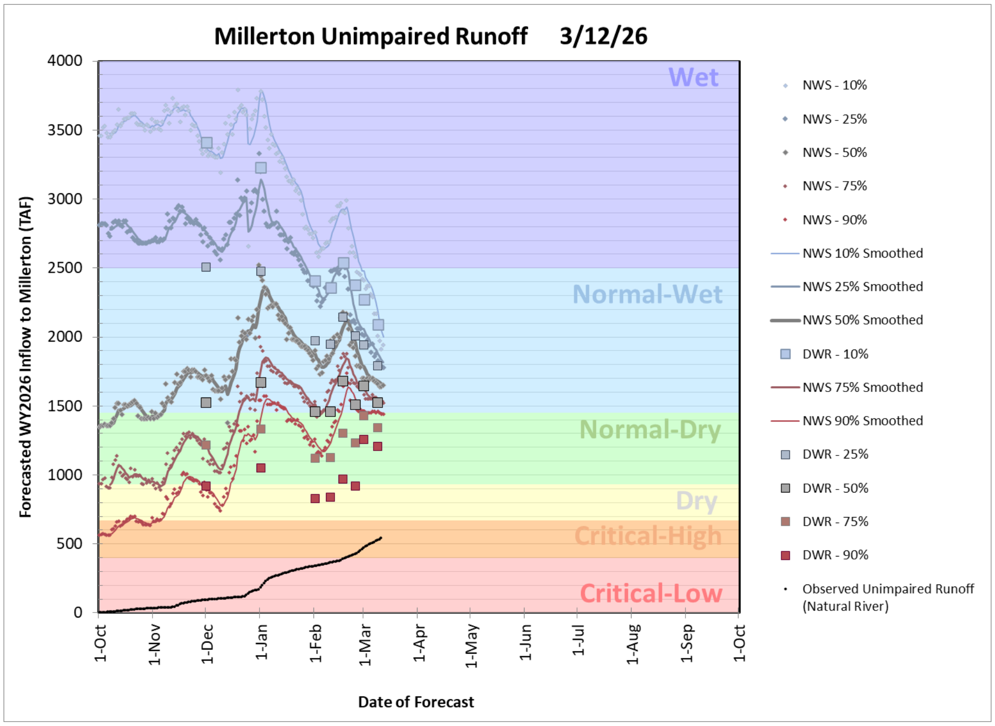


Figure 1a. Plot of 2026 Water Year forecasts. This includes both NWS Ensemble Streamflow Prediction Forecasts and DWR Forecasts at the 90%, 75%, 50%, 25%, and 10% exceedances (shown as shaded bands for NWS and squares for DWR).

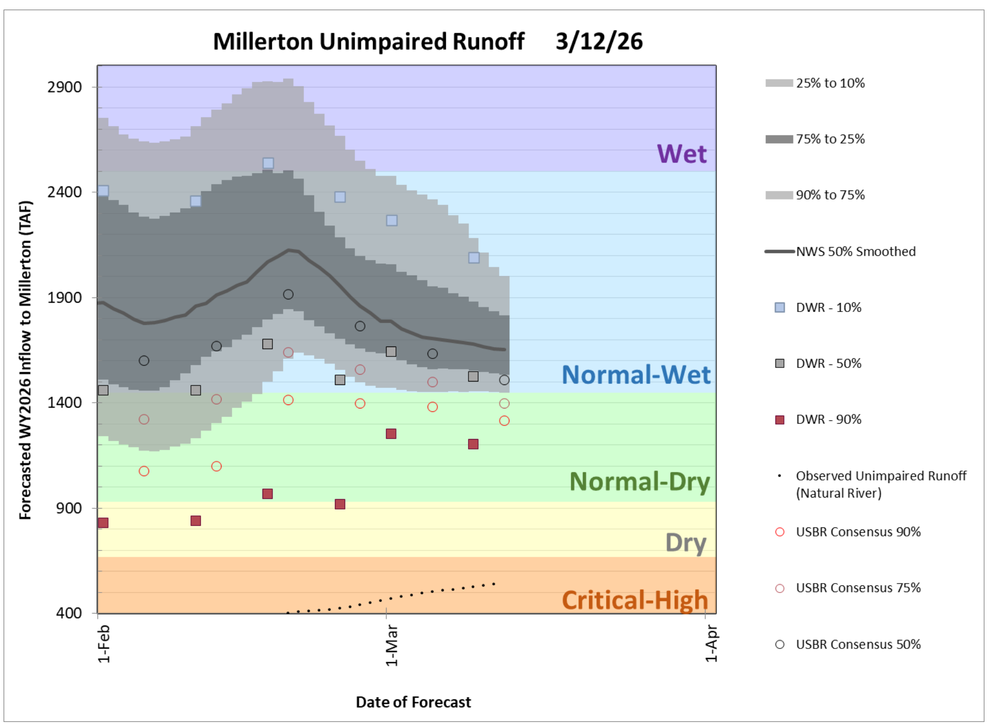


Figure 1b. Detail plot of most recent forecasts. Also shown are Reclamation's "hybrid" forecast with open circles.

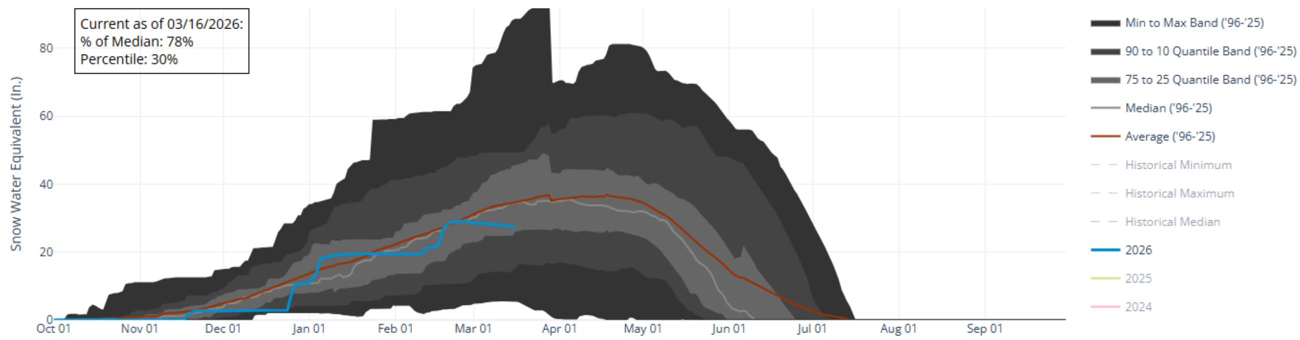
Hydrologic Narrative

From October 2025 to present, the Upper San Joaquin watershed has experienced near average precipitation. However, the distribution of the precipitation and runoff (both observed and expected) has been atypical. This is due to two primary factors: 1) most of the precipitation so far this year has fallen during warm storms with high freezing elevations, and 2) March 2026 is forecast to be among the driest and hottest on record. The result is that while precipitation is near-normal, runoff has been above normal and snowpack has been below normal.

Snowpack reached peak snow water equivalent (SWE) volume of about 1,000 TAF on February 20 (see Table 3 for snowpack tabulation) and is unlikely to rebound above that value shy of an extremely wet spring. Since that date, snowpack has declined whereas historically snowpack would be expected to continue growing throughout March. Table 2 traces snowpack at two ground-based monitoring snow pillows. The higher elevation snow pillow shows only modest melting since February 20, while the lower elevation snow pillow is expected to melt-out in the next few days.

Runoff has trended above normal throughout the water year. While snowmelt runoff typically occurs April through July (with May typically being the highest month), in 2026 snowmelt runoff is likely to peak in March. At present, 2026 is forecast to have the lowest or second lowest fraction of runoff occurring in the typical April through July snowmelt period, on par with the 1997 water year during which only 46% of runoff occurred April through July.

As of this issuance, an unseasonably warm period is forecast to occur in late March, which will further accelerate snowmelt. There is roughly a 30% chance that the month of March will close with zero or near zero precipitation. This unusual pattern is more than just a historical curiosity as it creates a challenging forecast as unfolding conditions lie outside historic patterns which are the basis for today's weather forecasts. Using historical analog years to guide the 2026 runoff forecast is likewise complex as it requires the shifting of timing to align snowmelt conditions. For example, the snowpack on March 3, 2026 is nearly identical to the snowpack on March 26, 2025, a year with otherwise similar hydrology. So compared to last year's relatively fast snowmelt, 2026 pattern is shifted 23 days earlier. The pending warm spell will widen that time shift even further. Verification of snowpack at more frequent intervals, though measurements at snow courses and remote sensing such as Airborne Snow Observatory (ASO), will aid in tuning the runoff forecast and is planned to occur in late March.



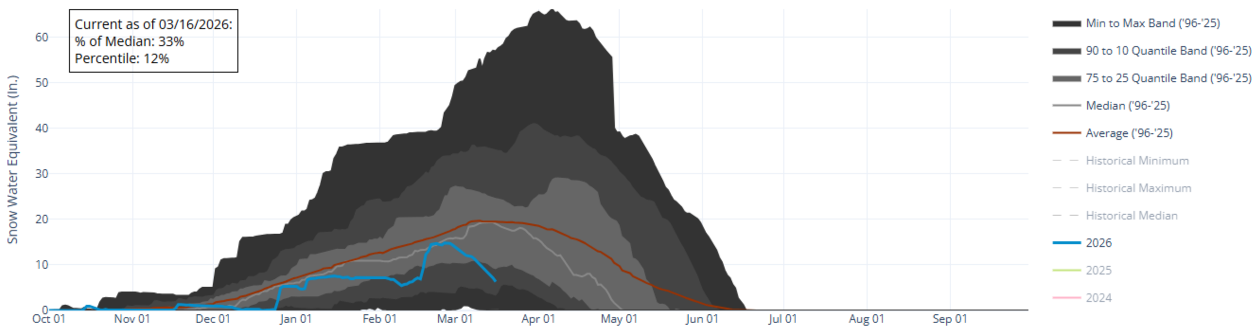


Figure 2. Mammoth Pass Snow Pillow trace (top) compared to Graveyard Meadow Snow Pillow trace (bottom). 2026 Snow Water Equivalent (SWE) is plotted here as blue line against historic probabilities at two of the many snow pillows. The orange line traces the 30-year average. Mammoth Pass (9,300’ elevation) SWE has approached median conditions (gray line) in February and has since gradually declined, whereas Graveyard Meadow SWE (6,900’ elevation) also approached median conditions and is now declining rapidly.

Table 3. Total snowpack volume (TAF of Snow Water Equivalent) depicted by models and remote sensing, and consensus estimates made by Reclamation

	Snowpack Model SWE Volumes (TAF)						
Date	**NWS CNRFC (Snow-17)**	**NOHRSC (SNODAS)**	**CU Boulder (Real-time SWE) [8]**	**DWR iSnobal**	**M3W iSnobal [9]**	**ASO Inc. (Aerial Snow Survey) [10]**	**Reclamation Consensus**
Jan 15, 2026	861	733	Not Available	Not Available	Not Available	Not Available	**773**
Feb 17, 2026	1063	1192	581 (Feb 15)	891	958	573 (Jan 27)	**958**
Mar 12, 2026	829	1040	878 (Mar 8)	—	799 (Mar 11)	849 (Jan 27)	**787**

8. CU Boulder “Real-time SWE” model began issuances February 8.
9. The “iSnobal” model for the San Joaquin is produced by M3Works under a contract with ASO.
10. The first ASO survey occurred January 27. The total survey volume was 573 TAF without snow cover on frozen water bodies and approximately 584 TAF including snow over frozen water bodies. The second ASO survey occurred March 3. The total survey volume was 849 TAF without snow cover on frozen water bodies and approximately 864 TAF including snow over frozen water bodies

Creating a Hybrid Forecast

Staff from the South-Central California Area Office of Reclamation, Reclamation's SJRRP office, and Friant Water Authority jointly track and evaluate the accuracy of runoff forecasts on a regular basis. Based on the age of these forecasts, the historic performance of these forecasts, the short-term and long-term weather forecasts, the climatological outlook, observed Unimpaired Runoff, and other available information, a hybrid forecast is generated. The blending of the different forecasts and any other adjustments are regularly evaluated and selected using the best available information and professional judgment. A new process[1] of combining and adjusting forecasts is in use in 2026. The adjustment steps used to create Reclamation's hybrid forecast is summarized in Table 4 and the resulting hybrid forecast values are shown in Table 5.

Monthly Manual Override

Prior to blending and adjusting, Reclamation may "override" runoff forecasts in particular months of the year based on current runoff trends, runoff models other than the DWR and NWS products, or historic patterns. If a particular month is manually adjusted in this manner, the remaining months are revised such that the total water year runoff volume is unchanged. These manually adjusted values are retained through the hybrid forecast process and are unaffected by subsequent scaling or adjustments. Most commonly this is applied to the current month**. For this allocation (based on an analysis conducted on March 12), a manual override was applied to the month of March. The inserted values were slightly lower at all exceedances than the published values. The rationale for this is that the snowpack assumption underpinning the short-term runoff forecast is too high compared to recent ASO measurements.**

Blending of DWR & NWS forecasts

Reclamation considers the DWR runoff forecast products and the NWS runoff forecast products as primary sources for guidance. Each has their strengths and weaknesses, and experience has shown that the correct value (in hindsight) often lies between these two forecast products. The next step in creating a hybrid forecast is to blend these two products together using professional judgment and by referencing auxiliary information. **For the current allocation, the DWR WSI forecast for April – July and NWS "smoothed and runoff adjusted" forecast for April – July are combined with a 30/70 blending, respectively (i.e., 30% DWR, 70% NWS) (Table 4). The blending ratio effectively scales the NWS forecast at all exceedances to 101% of its original value since the DWR forecast is slightly higher at the 50% exceedance. As the winter and spring progresses, it is typical to give greater weight the DWR forecast each month.**

[1] With the new hybrid forecast procedures being implemented in 2026, the NWS forecast is treated as the "backbone" forecast and then adjusted in the manner described. This treatment of the NWS forecast is because the NWS forecast is issued daily, is available for a broader range of exceedances, and is comprehensive by including water year, A-J, monthly, and daily values at each issuance.

Additional Forecast Scaling

Other runoff forecast products have become available for the Upper San Joaquin watershed in recent years. While these are often considered "experimental" in nature or lack a long period of operation to demonstrate their reliability, they nonetheless can provide additional guidance when properly evaluated and weighted. Sometimes these additional forecast products lie outside the range bracketed by the DWR and NWS forecast. The Joint Forecast Team may adjust the forecast by applying an additional scaling function to bring the hybrid forecast more in-line with these newer forecast products. **For this allocation, an additional scaling factor of 83% (multiplying by 0.830) was applied to this forecast. This scaling factor was applied to bring the resulting forecast closer in-line with the Reclamation water budget model, Reclamation historic analogs, and WRF-Hydro runoff forecasts, all of which were lower than both the DWR and NWS published forecasts. The cumulative scaling from both the blending and the additional scaling is 83.6%**

Dispersion Adjustment

The term "dispersion" describes the breadth of the values across various probabilities of exceedance. Often this is quantified by finding the range between the 10% and 90% exceedance values. Models which are under-dispersed convey a false sense of confidence in how dry or wet future conditions may be, even if the 50% exceedance is accurately forecasted. Models which are over-dispersed unnecessarily inject uncertainty into the forecast and all operations which rely upon that forecast. Because the NWS runoff forecast product does not incorporate hydrologic uncertainty (for example, it assumes a single soil moisture value and does not ascribe any uncertainty in that parameter), sometimes it is beneficial to increase the dispersion in the hybrid forecast which stretches the extreme probabilities. Dispersion adjustments do not affect the 50% exceedance value. **For this allocation, no additional dispersion was applied to this forecast.** This results in a range between the 10% April –July (A–J) and the 90% A–J of 337 TAF. This compares to the NWS published range of 474 TAF and the DWR published range of 620 TAF.

Skew Adjustment

The final step in creating a hybrid forecast is to optionally apply additional skew to the distribution. "Positive skew" describes how the range between the 50% and 10% exceedances is larger than the range between the 90% and 50% exceedances. Occasionally, it may be warranted to increase or decrease the skew in the hybrid forecast suite. Skew adjustments do not affect the 50% exceedance value. **For this allocation, a -20 TAF adjustment was applied to this forecast, bringing the extreme probabilities (e.g. 98%, 2%) lower and correspondingly less reduction to the central probabilities (e.g. 75%, 25%).**

Table 4. Current Blending and Adjustments to create a Hybrid Forecast

Adjustment Step	Adjustment Applied to All Probability of Exceedances
Monthly Manual Override	Yes — March
Blending Ratio	30/70 (DWR/NWS) which is equivalent to a 101% scaling of NWS
Additional Scaling	83% (combined with blending effective scale is 83.6%)
Dispersion Adjustment	0%
Skew Adjustment	-20 TAF

Table 5. Current Hybrid Unimpaired Runoff Forecasts (TAF)

Runoff Forecast	98%	90%	75%	50%	25%	10%	2%
Reclamation's Hybrid Unimpaired Runoff Forecast	1,252	1,315	1,397	1,511	1,639	1,784	2,130

Restoration Allocation

As per the Guidelines, the **75% probability of exceedance** forecast is used under current hydrologic conditions to set the Restoration Flow Allocation. Table 6 below, from the Guidelines Version 2.1, depicts the progression of forecast exceedances used to set the Restoration Allocation. The final allocation issuance is made in May or June as per the Guidelines. First, use the current 50% forecast to select which row is applicable to the current hydrology situation. Then, move across columns to the appropriate month and find the applicable probability of exceedance that should be used to generate the Restoration Allocation.

Table 6. Guidance on Percent Probability of Exceedance Forecast to Use for Restoration Allocation.

		January	February	March	April	May	June
If the 50% forecast is:	Above 2,200 TAF	50	50	50	50	50	—
	1,600 to 2,200 TAF	75	75	50	50	50	—
	900 to 1,599 TAF	75	75	**75**	50	50	—
	500 to 899 TAF	90	90	75	50	50	50
	Below 500 TAF	90	90	90	90	75	50

Applying the forecast blending and adjustments determined by Reclamation and using the 75% probability of exceedance forecast dictated by the Guidelines, Reclamation calculates an **Unimpaired Runoff hybrid forecast of 1,397 TAF and a Normal-Dry Water Year Type. This provides a Restoration Allocation of 276.220 TAF as measured at Gravelly Ford (GRF).** Combined with Holding Contracts on the San Joaquin River, **this results in a Friant Dam release of approximately 393.165 TAF (Table 7)**. Other hypothetical allocations are presented in Table 7 and indicate the range of possible forecasts and the resulting Restoration Allocations.

Table 7. SJRRP Water Year Type and Allocation for 2026 Restoration Year (highlighted in blue) shown with other hypothetical values for each probability of exceedance forecast.

	98%	90%	75%	50%	25%	10%	2%
Reclamation's Hybrid Unimpaired Runoff Forecast (TAF)	1,252	1,315	**1,397**	1,511	1,639	1,784	2,130
Water Year Type	Normal-Dry	Normal-Dry	**Normal-Dry**	Normal-Wet	Normal-Wet	Normal-Wet	Normal-Wet
Restoration Allocation at GRF (TAF)	256.701	265.182	**276.220**	291.901	309.833	330.147	378.620
Friant Dam Flow Releases (TAF)	373.646	382.127	**393.165**	408.846	426.778	447.092	495.565

Unreleased Restoration Flow Pricing

The first allocation issued after March 21 sets the price for 2026 Tier 2 Unreleased Restoration Flows (URFs) which may be made available to Friant Contractors. Tier 1 URF pricing is independent of hydrology and fixed at $25.00 per acre-foot in 2026.

Contractual Obligation Considerations

Consistent with Section 10004(j) of the San Joaquin River Restoration Settlement Act, the Settlement and the Settlement Act do not modify the rights and obligations of the United States under the Purchase Contract between Miller and Lux and the United States (Purchase Contract) and the Second Amended Exchange Contact (Exchange Contract), between the United States Department of the Interior, Bureau of Reclamation and Central California Irrigation District (CCID), San Luis Canal Company (SLCC), Firebaugh Canal Water District (FCWD), and Columbia Canal Company (CCC). These four districts are collectively known as the San Joaquin River Exchange Contractors (SJREC). Reclamation’s obligations in the Purchase Contract and Exchange Contract remain unchanged by this allocation, which is consistent with Condition 17 of Reclamation’s 2013 Water Rights Order addressing Restoration Flows.

Hydrologic conditions in Northern California, where the SJREC water supply is typically generated, are trending above average. 2026 is expected to be a “Non-Shasta Critical” allocation for SJREC. Federal storage in San Luis Reservoir now exceeds 75% and is on track to meet the 2026 Exchange Contract supply.

Default Flow Schedule

The Default Flow Schedule, derived from Exhibit B in the Settlement, identifies how Reclamation will schedule the Restoration Allocation for the current Water Year Type and Unimpaired Runoff volume absent a recommendation from the Restoration Administrator. The Guidelines provide detail on how a Default Flow Schedule is parsed from the allocation volume. This approved method of distributing water throughout the year is referred to as "Method 3.1" with the "gamma pathway."

Exhibit B Method 3.1 Default Flow Schedules

Table 8a shows the Basic Default Flow Schedule flows and corresponding Restoration Allocation volumes for the entire year absent channel capacity and seepage constraints, including releases from Friant Dam and Restoration Flow releases in excess of Holding Contracts. Volume is distributed as various flow rates across the year as per methods explained in the Guidelines.

Table 8a. Basic Default Flow Schedule

Flow Period	Friant Dam Release Flow (cfs)	Holding Contracts [11] Flow (cfs)	Flow Target at GRF Flow (cfs)	Restoration Flow at GRF Flow (cfs)	Friant Dam Release Volume (TAF)	Restoration Flow at GRF Volume (TAF)
Mar 1–Mar 15	500	130	375	370	14.876	11.008
Mar 16–Mar 31	1500	130	1375	1370	47.603	43.478
Apr 1–Apr 15	2500	150	2355	2350	74.380	69.917
Apr 16–Apr 30	1288	150	1143	1138	38.323	33.860
May 1–May 28	350	190	165	160	19.438	8.886
May 29–Jun 30	350	190	165	160	22.909	10.473
July 1–July 29	350	230	125	120	20.132	6.902
Jul 30–Aug 31	350	230	125	120	22.909	7.855
Sep 1–Sep 30	350	210	145	140	20.826	8.331
Oct 1–Oct 31	350	160	195	190	21.521	11.683
Nov 1–Nov 6	700	130	575	570	8.331	6.783
Nov 7–Nov 10	700	130	575	570	5.554	4.522
Nov 11–Nov 30	350	120	235	230	13.884	9.124
Dec 1–Dec 31	350	120	235	230	21.521	14.142
Jan 1–Jan 31	350	100	255	250	21.521	15.372
Feb 1–Feb 28	350	100	255	250	19.438	13.884
				Totals:	**393.165**	**276.220**

11. In recent years, Holding Contract demands have been higher than assumed under Exhibit B of the Settlement, in which case, flows at Friant are increased to achieve the Gravelly Ford Flow Target.

Table 8b shows the Capacity Constrained Default Flow Schedule volumes with all expected operational constraints, including seepage limitations and construction. Any volume within the Spring Flexible Flow Account and Fall Flexible Flow Account that cannot be released on the default schedule is shifted to other times during the flexible flow period with available capacity as per the Guidelines. This Capacity Constrained Default Flow Schedule depicted in Table 8b will be implemented in the absence of a specific recommendation by the Restoration Administrator. Table 8b uses Exhibit B losses; actual losses are greater in most cases. **With these known constraints[2], a Restoration Flow volume of 42.456 TAF is generated that cannot be scheduled for release without shifting outside of the flexible flow periods (which would require a Water Supply Test). This volume would become URFs under the Capacity Constrained Default Flow Schedule using Exhibit B losses.** Note that this estimate is based on the Reach 3 seepage capacity of approximately 895 cfs and an approximate Reach 4A seepage capacity of 950 cfs[3] (see section on Channel Capacity). This is an estimated volume of water, actual URF volumes will depend on several factors including the Restoration Administrator Recommendation, flow schedule to date, recapture of Restoration Flows at Mendota Pool, any Friant Dam releases made for the Exchange Contract, real-time assessments of groundwater constraints, actual river losses, and in-river construction projects.

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[2] As shown by Table 14, the estimated seepage capacity in Reach 3 is dynamic because it is dependent upon water deliveries to Arroyo Canal. For the purposes of Table 8b, an annual mean Reach 3 capacity for Restoration Flows was assumed to be 600 cfs.

[3] Reach 4A seepage limitation of 950 cfs is an approximate seepage capacity flow rate. Higher flows conducted in 2026 may help refine this estimate. As always, seepage constraints are driven by real-time groundwater conditions and may be above or below the estimated flow rates shown here.

Table 8b. Capacity Constrained Default Flow Schedule

Flow Period	Flow (cfs)				Volume (TAF)		
	Friant Dam Release	Holding Contracts [12]	Flow Target at GRF	Restoration Flow at GRF	Friant Dam Release	Restoration Flow at GRF	Unreleased Restoration Flow [13]
Mar 1–Mar 15	847	130	722	717	25.189	21.322	-10.313
Mar 16–Mar 31	847	130	722	717	26.869	22.743	20.735
Apr 1–Apr 15	867	150	722	717	25.784	21.322	48.596
Apr 16–Apr 30	867	150	722	717	25.784	21.322	12.538
May 1–May 28	907	190	722	717	50.352	39.800	-30.917
May 29–Jun 30	346	190	161	156	22.630	10.194	0.279
Jul 1–Jul 29	346	230	121	116	19.887	6.658	0.245
Jul 30–Aug 31	346	230	121	116	22.630	7.576	0.279
Sep 1–Sep 30	346	210	141	136	20.573	8.077	0.253
Oct 1–Oct 31	346	160	191	186	21.259	11.421	0.262
Nov 1–Nov 6	739	130	614	609	8.795	7.248	-0.464
Nov 7 –Nov 10	696	130	571	566	5.520	4.489	0.034
Nov 11–Nov 30	346	120	231	226	13.715	8.955	0.169
Dec 1–Dec 31	346	120	231	226	21.259	13.880	0.262
Jan 1–Jan 31	346	100	251	246	21.259	15.110	0.262
Feb 1–Feb 28	346	100	251	246	19.202	13.648	0.236
				Totals:	**350.709**	**233.764**	**42.456**

12. In recent years, Holding Contract demands have been higher than assumed under Exhibit B of the Settlement, in which case, flows at Friant are increased to achieve the Gravelly Ford Flow Target.
13. This estimate of URF volume is based on the most constraining reach, with Spring Flexible Flows redistributed March 1 through May 28 as necessary and Fall Flexible Flows redistributed September 3 through December 28 as necessary up to channel capacity constraints. Constrained values are based on actual losses, not Exhibit B losses. Actual URF volume will depend on the Restoration Administrator's recommendations.

Exhibit B Restoration Flow Budget

Table 9 shows the components of the annual water budget for February 1, 2026, through February 28, 2027 (i.e., the Restoration Year including the spring flexible flow period). The Continuity Flow Account, Spring Flexible Flow Account, Riparian Recruitment Flow Account, and Fall Flexible Flow Account reflect the Exhibit B hydrograph for the current Restoration Allocation. The Exhibit B value of 116.945 TAF for Holding Contracts is shown. The volume for each flow account may change with subsequent Restoration Allocations.

Table 9. Restoration Budget with Flow Accounts

<table>
<tr><th>Period</th><th>Holding Contract Demand (TAF)</th><th>Continuity Flow Account (TAF)</th><th>Spring Flexible Flow Account (TAF)</th><th>Riparian Recruitment Flow Account (TAF)</th><th>Fall Flexible Flow Account (TAF)</th></tr>
<tr><td>Feb 1–Feb 28</td><td>–</td><td>0</td><td rowspan="3">132.835</td><td>–</td><td>–</td></tr>
<tr><td>Mar 1–Apr 30</td><td>16.919</td><td>25.428</td><td>–</td><td>–</td></tr>
<tr><td>May 1–May 28</td><td>10.552</td><td>8.886</td><td>0</td><td>–</td></tr>
<tr><td>May 29–Jul 29</td><td>25.666</td><td>17.375</td><td>–</td><td>0</td><td>–</td></tr>
<tr><td>Jul 30–Aug 31</td><td>15.055</td><td>7.855</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>Sep 1–Sep 30</td><td>12.496</td><td>8.331</td><td>–</td><td>–</td><td rowspan="3">6.942</td></tr>
<tr><td>Oct 1–Nov 30</td><td>17.177</td><td>25.170</td><td>–</td><td>–</td></tr>
<tr><td>Dec 1–Dec 31</td><td>7.379</td><td>14.142</td><td>–</td><td>–</td></tr>
<tr><td>Jan 1–Feb 28</td><td>11.702</td><td>29.256</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td rowspan="3">Totals</td><td rowspan="2">116.945 [14]</td><td>136.443</td><td>132.835</td><td>0</td><td>6.942</td></tr>
<tr><td colspan="4">276.220 (Base Flow volume)</td></tr>
<tr><td colspan="5">393.165 (Approximate Friant Release Volume) [13]</td></tr>
</table>

14. Since the early 2000s, Holding Contract demands have been higher than assumed under Exhibit B of the Settlement, in which case, flows at Friant are increased to achieve the Gravelly Ford Flow Target.

Remaining Flow Volumes

The amount of water remaining for scheduling is the volume of flows released from Friant Dam in excess of releases required to meet Holding Contract demands, less past releases. Table 10 tracks these balances among the four flow accounts. Tracking these four flow accounts is necessary for application of the Water Supply Test. The released-to-date volumes are derived from quality assurance/quality control (QA/QC) daily average data when available, and partly from provisional data posted to CDEC, and thus may have future adjustments. Such adjustments may also affect the remaining flow volume.

Table 10. Estimated Restoration Flow Volume Remaining and Released to Date

Flow Account		Yearly Allocation (TAF)	Released to River to Date [15] (TAF)	Removed as URFs to Date [15] (TAF)	Remaining Flow Volume (TAF)
Base Flows	Continuity Flow Account (Mar 1– Feb 28)	136.443	5.236	0	131.207
	Spring Flexible Flows (Feb 1–May 28)	132.835	4.114	0	128.721
	Riparian Recruitment Flows (May 1–Jul 29)	0	0	0	0
	Fall Flexible Flows (Sep 3–Dec 28)	6.942	0	0	6.942
Buffer Flows [16]		—	—	0	0
Unreleased Restoration Flows (Returned Exchanges)		—	—	0	—
Purchased Water		—	—	0	—
Totals:		**276.220**	**9.350**	**0**	**266.870**

15. These are "Base Flow" releases through March 12, 2026
16. Buffer Flow volumes are based on actual releases, and are not an allocated volume per se.

Unreleased Restoration Flows

Unreleased Restoration Flows are created when inadequate channel capacity exists or other limitations which prevent the release of the entire Restoration Allocation volume. This extra volume may be sold or exchanged in a manner which benefits the Restoration Goal of the Settlement. URFs which are exchanged become available at another time (typically in the future) and thus may augment the current Restoration Allocation volume. Occasionally, URF exchange agreements may be structured in such a way to require a commitment of URFs in the future. The accounting of URF involved in exchanges is described below.

Available URF Exchange Returns

SJRRP has renegotiated two URF Exchange Agreements which are available for calling upon in 2026. SJRRP is working on extending a third agreement (Table 11).

Table 11. Volume available from URF Exchange Returns

Exchange Partner	Period of Return [16]	Minimum Required Return (TAF)	Maximum Annual Return (TAF)	Notes
FID	Apr–Sep [17]	— [17],	Up to 2.362 TAF	Return volume decreased 10% per year. Expires at end of Restoration Year 2027. Available Critical-High through Wet year types. 60-day advanced notice.
AEWSD	Apr–Feb [17]	— [17]	Up to 5.521 TAF 3,312 TAF in Dry 2,366 TAF in C-H	Expires at end of Contract Year 2029. Available Critical-High through Wet year types. Must notify prior to July 1
OCID		— [17], [18]		Currently being renegotiated

17. Unused water is purchased by District
18. Unless otherwise by mutual agreement or modification of agreement

URF Exchange Commitments

There are currently no commitments or encumbrances to any URF inventory (Table 12).

Table 12. Volume Committed to URF Exchanges

Exchange Partner	Exchange Terms	Notes
—	—	—

Operational Constraints

Operating criteria, such as channel conveyance capacity, ramping rate constraints, scheduled maintenance or construction, reservoir storage, flood management, contractual obligations, and downstream seepage concerns, may restrict the release of Restoration Flows. Table 13 summarizes known 2026 Restoration Year operational constraints.

Table 13. Summary of Operational Constraints

Type of Constraint	Period	Flow Limitation
Levee Stability	Currently in effect	1,210 cfs in Reach 2B
	Currently in effect	2,600 cfs in Middle Eastside Bypass
	Currently in effect	2,350 cfs in Reach 5
Seepage Limitation	Currently in effect	Reach 3: Approximately 895 cfs at MEN [19]
USFWS Biological Opinion	Currently in effect (Until consultation for "Phase 2")	1,660 cfs of Restoration Flows released at Friant Dam
Construction — Arroyo Canal Fish Screen and Sack Dam Fish Passage [20]	February 1 – May 14, 2026	Contract requires ability to pass a minimum of 230 cfs. At time of issuance, the contractor estimates approximately 700 cfs can be passed. Flow at construction site is apt to be limited at most times by the Reach 3 seepage limitation.
	May 15, 2026 – May 25, 2026	Contract requires ability to pass a minimum of 230 cfs. In-water work window begins on May 15th; contractor requests flow rates below 230 cfs.
	May 26, 2026 – August 31, 2026	Contract requires ability to pass a minimum of 0 cfs. The contractor estimates the previous recommended flow schedule rate of 130 cfs can be passed. Related to the construction project, PG&E work to remove a gas line begins on June 8th and is planned to avoid in-water activities; should in-water work become necessary, lowest possible flows (i.e. zero cfs) may be required to avoid delays.
	September 1, 2026 – October 31, 2026	Contract requires ability to pass a minimum of 150 cfs.
	November 1, 2026 – February 28, 2027	Contract requires ability to pass a minimum of 230 cfs.

19. A seepage easement was signed in March 2025 increasing the seepage limitation to the current estimate of 895 cfs at MEN. Reach 3 must accommodate both Arroyo Canal water deliveries and Restoration Flows, see Table 14 for estimated rate for only Restoration Flows. Seepage constraints are driven by real-time groundwater conditions and may be above or below the estimated flow rates shown here.
20. Flow limitations will be iterative and determined in coordination with the construction contractor so as not to delay completion of the Phase 1 Settlement improvements (Paragraph 11(a) and Paragraph 13(i) of the Settlement).

The 2026 Channel Capacity Report identifies a maximum flow in Reach 2B of 1,210 cfs due to levee stability constraints. This results in a maximum release from Friant Dam between 1,460 cfs and 1,590 cfs depending on the time of year. The 2026 Channel Capacity Report also identifies a maximum flow in the Middle Eastside Bypass of 2,600 cfs, which was increased from the 2022

Channel Capacity Report value of 1,070 cfs due to the completion of the DWR Reach O levee improvements project and the removal of two weirs within the Eastside Bypass.

With active construction in the San Joaquin River corridor to complete Settlement Phase 1 projects, there are expected to be periods over the next several years where channel capacity through construction sites becomes the most limiting constraint. Reclamation will coordinate with construction contractors to maximize the amount of Restoration Flows that can be passed through project sites but will also ensure that completion of Phase 1 projects are not delayed by Restoration Flow passage. As with other aspects of channel capacity, flow constraints through construction sites cannot be guaranteed or predicted far into the future. Reclamation will update channel capacities as new information becomes available.

For the period February 1 – May 14, 2026, the contractor has advised Reclamation that that the Arroyo Canal Fish Screen and Sack Dam Fish Passage construction site can accommodate flows of at least 700 cfs, However, there may be other factors which affect flow considerations. Fisheries monitoring limitations within this flow range are not considered a channel capacity constraint but have been provided separately to the Restoration Administration for further consideration in scheduling flows. Fisheries monitoring limitations are relevant for the period March 15 – June 1, 2026. Additionally, the manner in which hyacinth aquatic weeds are (or are not) flushed pass Sack Dam may affect some operations and flow limitations.

Given the capacity of the construction site through May 14^{th}, the Reach 3 seepage limitation is projected to be controlling for that period of time. Since Reach 3 must accommodate Restoration Flows as well as water deliveries to Arroyo Canal, the expected flow rate specific to Restoration Flows is complex. Table 14 uses historic delivery patterns to Arroyo Canal and assumed Reach 3 losses and flow variability to arrive at an estimated Restoration Flow rate at the end of Reach 3. Fluctuations in Arroyo Canal water deliveries may occasionally result in the need to reduce Restoration Flows at Friant Dam or recapture Restoration Flow at Mendota Pool to remain below seepage limitations, which are themselves dynamic and respond to local groundwater conditions.

Table 14. Expected Reach 3 capacity for Restoration Flows. Since Arroyo Canal deliveries can be forecasted based on historical data, one can estimate what remaining capacity in Reach 3 is available to Restoration Flows. Actual capacity may be limited by other factors.

Period	Reach 3 Seepage Limitation (cfs)	HMRD Typical Historic Max Delivery (cfs)	Reach 3 Losses (cfs)	Assumed Flow Variability (cfs)	Estimated Capacity for Restoration Flows at Sack Dam (cfs)
Feb 1–15	Approx. 895	200	50	25	630
Feb 16–28	Approx. 895	320	50	25	510
Mar 1–15	Approx. 895	320	50	25	510
Mar 15–31	Approx. 895	160	50	25	670
Apr 1–15	Approx. 895	160	50	25	670
Apr 16–30	Approx. 895	240	50	25	590
May 1–15	Approx. 895	280	50	25	550
May 16–25	Approx. 895	360	50	25	470
May 26–31	Approx. 895	400	50	25	430
Jun 1–15	Approx. 895	480	50	25	350
Jun 16–30	Approx. 895	520	50	25	310
Jul 1–15	Approx. 895	540	50	25	290
Jul 16–31	Approx. 895	540	50	25	290
Aug 1–15	Approx. 895	540	50	25	290
Aug 16–31	Approx. 895	540	50	25	290
Sep 1–15	Approx. 895	300	50	25	530
Sep 16–30	Approx. 895	360	50	25	470
Oct 1–15	Approx. 895	360	50	25	470
Oct 16–31	Approx. 895	340	50	25	490
Nov 1–15	Approx. 895	300	50	25	530
Nov 16–30	Approx. 895	260	50	25	570
Dec 1–15	Approx. 895	200	50	25	630
Dec 16–31	Approx. 895	180	50	25	650
Jan 1–15	Approx. 895	100	50	25	730
Jan 16–31	Approx. 895	100	50	25	730
Feb 1–15	Approx. 895	200	50	25	630
Feb 16–28	Approx. 895	320	50	25	510

2026 Allocation History

The Restoration Allocation is adjusted multiple times between the date of the initial allocation and the final allocation; issuances will generally take place on a monthly schedule but may also be issued based on rapidly changing hydrologic conditions. The Restoration Administrator is responsible for contingency planning and managing flow schedules to stay within the current allocation to the extent possible, in accordance with the Guidelines. Table 15 summarizes the full allocation history for this Restoration Year.

Table 15. Allocation History

Allocation Type	Issue Date	DWR: NWS Blending	Cumu-lative Scaling	Dispersion Adj. / Skew Adj.	Unimpaired Runoff Forecast (at forecast exceedance)	Year Type	Restoration Allocation at Gravelly Ford	Restoration Flows and URFs Expended
Initial	January 16, 2026	20/80	95.6%	+10% / 0	1,606 TAF (@ 75%)	Normal-Wet	305.210 TAF	0 TAF (through 1/16/2026)
Updated	February 20, 2026	20/80	87.1%	+12% / 0	1,642 TAF (@ 75%)	Normal-Wet	310.253 TAF	0 TAF (through 2/19/2026)
Updated	March 16, 2026	30/80	83.6%	0% / -20	1397 TAF (@ 75%)	Normal-Dry	276.220 TAF	9.350 TAF (through 3/12/2026)

Appendix A: Abbreviations, Acronyms, and Glossary

AEWSD	Arvin–Edison Water Storage District
af	acre-feet
A-J	April through July period
ASO	Airborne Snow Observatory
B120	DWR Bulletin No. 120 which forecasts water supply
CCC	Columbia Canal Company
CCID	Central California Irrigation District
CDEC	California Data Exchange Center
cfs	cubic feet per second
CVP	Central Valley Project
DEID	Delano–Earlimart Irrigation District
Delta	Sacramento–San Joaquin Delta
DWR	California Department of Water Resources
ESP	Ensemble Streamflow Prediction
Exhibit B	Exhibit B of the Settlement depicting Default Hydrograph
FCWD	Firebaugh Canal Water District
GRF	Gravelly Ford Flow Gauge
FID	Fresno Irrigation District
Guidelines	Restoration Flow Guidelines
NWS	National Weather Service
QA/QC	Quality Assurance/Quality Control (i.e., finalized)
OCID	Orange Cove Irrigation District
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
Restoration Year	the cycle of Restoration Flows, March 1 through February 28/29
RFG	Restoration Flow Guidelines
RWA	SJRRP Reclaimed Water Account
Secretary	U.S. Secretary of the Interior
Settlement	Stipulation of Settlement in NRDC, et al., v. Kirk Rodgers, et al.
SJREC	San Joaquin River Exchange Contractors
SJRRP	San Joaquin River Restoration Program
SLCC	San Luis Canal Company
SMP	Seepage Management Plan

SWE	Snow Water Equivalent
TAF	thousand acre-feet
URF	Unreleased Restoration Flows
WSI	DWR Water Supply Index
WY	Water year, October 1 through September 30

Appendix B: Previous Year (2024) Flow Accounting

Table B1. Annual Restoration Flow Accounting and Unreleased Restoration Flows, and Holding Contracts, for the period February 2024 through February 2025. The Restoration Allocation had a year-end balance of +0.158 TAF.

<table>
<tr><th rowspan="2">Gravelly Ford 5 cfs Requirement (TAF)</th><th rowspan="2">Other Flows Passing GRF (TAF)</th><th rowspan="2">URF Sold or Exch</th><th colspan="7">Released Restoration Flow Volumes (TAF)</th></tr>
<tr><th>Continuity Flow</th><th>Spring Flexible Flow</th><th>Fall Flexible Flow</th><th>Riparian Recruitment Flow</th><th>Buffer Flow</th><th>Flexible Buffer Flow</th><th>URF Returned</th></tr>
<tr><td rowspan="5">150.520 [A1]</td><td rowspan="5">12.623</td><td rowspan="4">150.473</td><td>141.068</td><td>34.788</td><td>2.539</td><td>0</td><td>3.822</td><td>0.625</td><td rowspan="3">8.700</td></tr>
<tr><td colspan="4">178.395 (Base Restoration Flows)</td><td colspan="2">4.447 (all Buffer Flows)</td></tr>
<tr><td colspan="6">182.842 (Restoration Flows affecting Friant water supply)</td></tr>
<tr><td colspan="7">191.542 (Restoration Flows released to river)</td></tr>
<tr><td colspan="5">328.868 (Restoration Allocation used)</td><td colspan="3"></td></tr>
<tr><td colspan="2"></td><td></td><td colspan="7">355.515 (Friant Dam releases — excludes removed URFs, Restoration Flows advanced info February, and excludes contributions from tributary inflows)</td></tr>
</table>

A1. Calculations of the 5 cfs requirement are sensitive to gauge error at GRF or imprecision in Friant Dam release.

Table B2. Monthly Restoration Flow Accounting and Unreleased Restoration Flows, and Holding Contracts, for the period February 2024 through February 2025. Flood management releases to San Joaquin River occurred January 5–February 5, 2023, and March 8–July 26, 2023. No releases for the Exchange Contract occurred during this Restoration Year. The final Restoration Allocation was 557.038 TAF. URF Sales and Exchanges removed from the Allocation totaled 373.849 TAF. Additionally, Unreleased Restoration Flow exchange returns of 10.167 TAF were released to the San Joaquin River, and 0 TAF of Buffer Flows. A total of 0 TAF was advanced into February 2024.

<table>
<tr><th rowspan="2">Flow Period</th><th rowspan="2">Gravelly Ford 5 cfs Requirement (TAF)</th><th rowspan="2">Other Flows Passing GRF (TAF)</th><th rowspan="2">URF Sold or Exch</th><th colspan="7">Released Restoration Flow Volumes (TAF)</th><th rowspan="2">Combined Released Restoration Flow</th></tr>
<tr><th>Continuity Flow</th><th>Spring Flexible Flow</th><th>Fall Flexible Flow</th><th>Riparian Recruitment Flow</th><th>Buffer Flow</th><th>Flexible Buffer Flow</th><th>URF Returned</th></tr>
<tr><td>Feb 1– Feb 29</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0</td></tr>
<tr><td>Mar 1– Mar 31</td><td>9.935</td><td>0</td><td>0</td><td>13.527</td><td>9.558</td><td>–</td><td>–</td><td>0</td><td>–</td><td>0</td><td>23.086</td></tr>
<tr><td>Apr 1– Apr 30</td><td>10.530 [A1]</td><td>0</td><td>42.105</td><td>11.901</td><td>11.619</td><td>–</td><td>–</td><td>0</td><td>–</td><td>0</td><td>23.520</td></tr>
<tr><td>May 1– May 31</td><td>17.040 [A1]</td><td>9.989</td><td>108.368</td><td>9.927</td><td>13.611</td><td>–</td><td rowspan="3">0</td><td>0</td><td rowspan="5">0.625</td><td>0</td><td>23.538</td></tr>
<tr><td>Jun 1– Jun 30</td><td>12.760</td><td>2.634</td><td>0</td><td>9.642</td><td>–</td><td>–</td><td>0.571</td><td>0.238</td><td>10.451</td></tr>
<tr><td>Jul 1– Jul 31</td><td>14.229</td><td>0</td><td>0</td><td>7.529</td><td>–</td><td>–</td><td>0.738</td><td>3.259</td><td>11.526</td></tr>
<tr><td>Aug 1– Aug 31</td><td>15.134</td><td>0</td><td>0</td><td>7.597</td><td>–</td><td>–</td><td>–</td><td>0.738</td><td>3.715</td><td>12.050</td></tr>
<tr><td>Sep 1– Sep 30</td><td>14.384</td><td>0</td><td>0</td><td>8.279</td><td>–</td><td>10626</td><td>–</td><td>1.160</td><td>1.488</td><td>13.178</td></tr>
<tr><td>Oct 1– Oct 31</td><td>13.240</td><td>0</td><td>0</td><td>11.476</td><td>–</td><td>0.099</td><td>–</td><td>0.615</td><td rowspan="3">0</td><td>0</td><td>12.190</td></tr>
<tr><td>Nov 1– Nov 30</td><td>12.254</td><td>0</td><td>0</td><td>13.470</td><td>–</td><td>0.367</td><td>–</td><td>0</td><td>0</td><td>13.837</td></tr>
<tr><td>Dec 1– Dec 31</td><td>11.449</td><td>0</td><td>0</td><td>14.231</td><td>–</td><td>0.446</td><td>–</td><td>0</td><td>0</td><td>14.678</td></tr>
<tr><td>Jan 1– Jan 31</td><td>11.228</td><td>0</td><td>0</td><td>15.421</td><td>–</td><td>–</td><td>–</td><td>0</td><td>–</td><td>0</td><td>15.421</td></tr>
<tr><td>Feb 1– Feb 28</td><td>8.337</td><td>0</td><td>0</td><td>18.067</td><td>–</td><td>–</td><td>–</td><td>0</td><td>–</td><td>0</td><td>18.067</td></tr>
</table>

Appendix C: History of Millerton Unimpaired Runoff

Table C. Water Year Totals in Thousand Acre-Feet

Water Year [A2]	Unimpaired Runoff [A3]	SJRRP Water Year Type [A4]
1873	1063.6	Normal-Dry
1874	1743.0	Normal-Wet
1875	837.0	Dry
1876	2493.0	Normal-Wet
1877	758.0	Dry
1888	2218.0	Normal-Wet
1889	1452.2	Normal-Wet
1890	3117.0	Wet
1891	2626.5	Wet
1892	1670.4	Normal-Wet
1893	1286.7	Normal-Dry
1894	3207.8	Wet
1895	1175.5	Normal-Dry
1896	3905.0	Wet
1897	1412.0	Normal-Dry
1898	906.0	Dry
1899	1517.0	Normal-Wet

Water Year [A2]	Unimpaired Runoff [A3]	SJRRP Water Year Type [A4]
1900	1337.1	Normal-Dry
1901	2988.8	Wet
1902	1704.0	Normal-Wet
1903	1727.0	Normal-Wet
1904	2062.0	Normal-Wet
1905	1795.4	Normal-Wet
1906	4367.8	Wet
1907	3113.9	Wet
1908	1163.4	Normal-Dry
1909	2900.7	Wet
1910	2041.5	Normal-Wet
1911	3586.0	Wet
1912	1043.9	Normal-Dry
1913	879.4	Dry
1914	2883.4	Wet
1915	1966.3	Normal-Wet
1916	2760.5	Wet
1917	1936.2	Normal-Wet
1918	1466.8	Normal-Wet
1919	1297.5	Normal-Dry
1920	1322.5	Normal-Dry
1921	1604.4	Normal-Wet
1922	2355.1	Normal-Wet

Water Year [A2]	Unimpaired Runoff [A3]	SJRRP Water Year Type [A4]
1923	1654.3	Normal-Wet
1924	444.1	Critical-High
1925	1438.7	Normal-Dry
1926	1161.4	Normal-Dry
1927	2001.3	Normal-Wet
1928	1153.7	Normal-Dry
1929	862.4	Dry
1930	859.1	Dry
1931	480.2	Critical-High
1932	2047.4	Normal-Wet
1933	1111.4	Normal-Dry
1934	691.5	Dry
1935	1923.2	Normal-Wet
1936	1853.3	Normal-Wet
1937	2208.0	Normal-Wet
1938	3688.4	Wet
1939	920.8	Dry
1940	1880.6	Normal-Wet
1941	2652.5	Wet
1942	2254.0	Normal-Wet
1943	2053.7	Normal-Wet
1944	1264.4	Normal-Dry
1945	2134.633	Normal-Wet

Water Year [A2]	Unimpaired Runoff [A3]	SJRRP Water Year Type [A4]
1946	1727.115	Normal-Wet
1947	1121.564	Normal-Dry
1948	1201.390	Normal-Dry
1949	1167.008	Normal-Dry
1950	1317.457	Normal-Dry
1951	1827.254	Normal-Wet
1952	2840.854	Wet
1953	1226.830	Normal-Dry
1954	1313.993	Normal-Dry
1955	1161.161	Normal-Dry
1956	2959.812	Wet
1957	1326.573	Normal-Dry
1958	2631.392	Wet
1959	949.456	Normal-Dry
1960	826.021	Dry
1961	647.428	Critical-High
1962	1924.066	Normal-Wet
1963	1945.266	Normal-Wet
1964	922.351	Dry
1965	2271.191	Normal-Wet
1966	1298.792	Normal-Dry
1967	3233.097	Wet
1968	861.894	Dry

Water Year [A2]	Unimpaired Runoff [A3]	SJRRP Water Year Type [A4]
1969	4040.864	Wet
1970	1445.837	Normal-Dry
1971	1416.812	Normal-Dry
1972	1039.249	Normal-Dry
1973	2047.585	Normal-Wet
1974	2190.308	Normal-Wet
1975	1795.922	Normal-Wet
1976	629.234	Critical-High
1977	361.253	Critical-Low
1978	3402.805	Wet
1979	1829.988	Normal-Wet
1980	2973.169	Wet
1981	1067.757	Normal-Dry
1982	3317.171	Wet
1983	4643.090	Wet
1984	2042.750	Normal-Wet
1985	1135.975	Normal-Dry
1986	3031.600	Wet
1987	756.853	Dry
1988	862.124	Dry
1989	939.168	Normal-Dry
1990	742.824	Dry
1991	1027.209	Normal-Dry
1992	807.759	Dry
1993	2672.322	Wet
1994	824.097	Dry
1995	3876.370	Wet
1996	2200.707	Normal-Wet
1997	2817.670	Wet
1998	3160.759	Wet
1999	1527.040	Normal-Wet
2000	1735.653	Normal-Wet
2001	1065.318	Normal-Dry
2002	1171.457	Normal-Dry
2003	1449.954	Normal-Dry
2004	1130.823	Normal-Dry
2005	2826.872	Wet
2006	3180.816	Wet
2007	684.333	Dry
2008	1116.790	Normal-Dry
2009	1455.379	Normal-Wet
2010	2028.706	Normal-Wet
2011	3304.824	Wet
2012	831.582	Dry
2013	856.626	Dry
2014	509.579	Critical-High
2015	327.410	Critical-Low
2016	1300.613	Normal-Dry
2017	4395.400	Wet
2018	1348.980	Normal-Dry
2019	2734.772	Wet
2020	886.025	Dry
2021	521.853	Critical-High
2022	1059.492	Normal-Dry
2023	4506.923	Wet
2024	1757.111	Normal-Wet
2025	1280.766	Normal-Dry

A2. Water year is from Oct 1 through Sept 30, for example the 2010 water year began Oct 1, 2009. Unimpaired Runoff is based on Reclamation calculations, and hypothetical water year types are shown here; actual Restoration water year types are based on the final allocation, which may sometimes differ slightly from the calculated water year total.

A3. Also known as “Natural River” or “Unimpaired Runoff into Millerton”–This is the total runoff that would flow into Millerton Lake if there were no dams or diversions upstream. There was a lower level of precision prior to 1945. Friant Dam uses 1.9835 conversion from cfs to AF.

A4. The six SJRRP Water Year Types are based on Unimpaired Runoff and are not updated as climatology changes as per the Settlement. Critical-Low= <400 TAF, Critical-High=400-669.999 TAF, Dry= 670-929.999 TAF, Normal-Dry 930-1,449.999, Normal-Wet 1,450-2,500, Wet>2,500.

Appendix D: Final Restoration Allocations and Errors

Table D1. History of Restoration Allocations

Year	Type	Date of Final Allocation Issuance [A6]	Unimpaired Runoff Forecast in Final Allocation (TAF)	Final Restoration Allocation (TAF)	Observed Unimpaired Runoff on September 30 (TAF)	Unimpaired Runoff Forecast Error	Allocation Error
2009	Interim Flows			261.5	1,455.379	—	—
2010	Interim Flows			98.2	2,028.706	—	—
2011	Interim Flows			152.4	3,304.824	—	—
2012	Interim Flows			183	831.582	—	—
2013	Interim Flows			65.5	856.626	—	—
2014	Restoration Flows	Mar 3	518	0 [A5]	509.579	+8.421 (+1.6%)	0 [A5]
2015	Restoration Flows	Sep 28	327	0	327.410	-0.410 (-0.1%)	0
2016	Restoration Flows	Sep 30	1,300.986	263.295	1,300.986	0 (0%)	0
2017	Restoration Flows	Jul 10	4,444	556.542	4,395.400	+48.600 (+1.1%)	0
2018	Restoration Flows	May 22	1,427	280.258	1,348.979	+78.021 (+5.8%)	+10.503
2019	Restoration Flows	May 20	2,690	556.542	2,734.772	-44.772 (-1.6%)	0
2020	Restoration Flows	June 19	880	202.197	886.025	-6.025 (-0.7%)	-1.345
2021	Restoration Flows	June 25	529	70.919	521.853	+7.147 (+1.4%)	0
2022	Restoration Flows	May 13	1,072	232.470	1,059.492	+12.508 (+1.2%)	+1.684
2023	Restoration Flows	May 18	4,664	557.038	4,506.923	+157.077 (+3.5%)	0
2024	Restoration Flows	May 17	1,776	329.026	1,757.111	+18.889 (+1.1%)	+2.646
2025	Restoration Flows	May 18	1,346	269.355	1280.766	+65.234 (+5.1%)	+8.602

A5. No water was provided under this Critical-High designation due to necessity for Friant Dam to release flows for the Exchange Contract.

A6. In 2018 with the completion of Version 2.0 of the Restoration Flows Guidelines, the date of final Restoration Allocation issuance was advanced from September 30 to May (or June under dry hydrologic conditions). This results in greater Unimpaired Runoff Forecast error, and sometimes in greater Allocation Error.

Table D2. History of Restoration Flow Releases

Year	Year Type	Final Restoration Allocation (TAF)	URFs Removed from Allocation (TAF)	URF Exchange Returns (TAF)	Buffer Flows Utilized (TAF)	Restoration Flows Passing Gravelly Ford (TAF) [A7]	Restoration Allocation Utilization (TAF)	Release Error (TAF)
2014	Critical-High	0	0	0	0	0	0	0
2015	Critical-Low	0	0	0	0	0	0	0
2016	Normal-Dry	263.295	*pending*	*pending*	*pending*	*pending*	*pending*	*pending*
2017	Wet	556.542	367.458	0	0	*pending*	*pending*	*pending*
2018	Normal-Dry	280.258	124.791	2.129	0	157.596	280.258	0
2019	Wet	556.542	365.760	0	0	190.666	556.426	-0.116
2020	Dry	202.197	63.502	0.487	0.605	139.517	201.927	-0.270
2021	Critical-High	70.919	0	10.425	0.902	82.247	70.919	0
2022	Normal-Dry	232.470	101.076	3.500	0	135.094	232.670	+0.200
2023	Wet	557.038	373.944	10.167	0	193.263	557.040	+0.002
2024	Normal-Wet	329.026	150.473	8.700	4.447	191.542	328.868	-0.158
2025	Normal-Dry	269.355	87.696	0	0	*pending*	*pending*	*pending*

A7. Restoration Flows passing Gravelly Ford includes flood management releases which were accounted for as meeting the Restoration Flow Schedule at Gravelly Ford.

Appendix E: Unreleased Restoration Flow History

Table E1. URF Distributions (TAF)

Restoration Year	Gross Volume of URF Sales to Class 1	Gross Volume of URF Sales to Class 2	Net Volume of URF Sales to Class 1	Net Volume of URF Sales to Class 2	Gross Volume of URF put into Exchanges	Net Volume of URF put into Exchanges	Gross Volume of URFs Spilled	Gross Total URF
2013	—	—	—	—	12.694	12.694	—	12.694
2014	11.219	—	11.219	—	—	—	0.206	11.425
2015	—	—	—	—	—	—	—	0
2016	70.860	56.959	67.317	54.111	18.947	18.000	—	146.766
2017	5.474	364.967	5.200	346.716	2.491	2.366	—	372.932
2018	65.249	40.000	61.986	38.000	19.543	18.565	—	124.792
2019	—	326.954	—	310.607	16.298	15.482	22.509	365.761
2020	43.500	—	41.325	—	20.002	19.697	—	63.502
2021	—	—	—	—	—	—	—	0
2022	75.178	—	71.419	—	26.951	25.603	—	102.128
2023	—	372.048	—	353.446	—	—	—	372.049
2024	—	150.474	—	142.950	—	—	—	150.474
2025	42.100	37.894	39.995	35.999	7.702	7.321	—	87.696
2026	—	—	—	—	—	—	—	—
Total	**313.58**	**1349.296**	**298.461**	**1281.829**	**124.628**	**119.728**	**22.715**	**1810.219**

2026: URF actions are not completed for this year

Table E2. Expected URF Revenue for the Restoration Fund

Restoration Year	Revenue Expected from URF Sales	Revenue Expected from URF Exchanges	Total Expected URF Revenue
2013	—	—	—
2014	$3,470,650	—	$3,470,650
2015	—	—	—
2016	$9,686,790	—	$9,686,790
2017	$6,990,680	—	$6,990,680
2018	$6,123,858	$494,504	$6,618,362
2019	$6,393,286	$306,680	$6,699,966
2020	$8,922,481	$1,251,630	$10,174,111
2021	—	$525,000	$525,000
2022	$13,488,907	$1,909,267	$15,398,173
2023	$8,129,258	—	$8,129,258
2024	$3,287,850	$188,870	$3,476,720
2025	$7,103,145	—	$7,103,145
2026	—	—	—
Total	**$73,596,905**	**$4,675,951**	**$78,272,855**

Table E3. URF Exchanges Returned to the Program

Restoration Year	Volume Returned (TAF)	Notes
2013	0	—
2014	11.425	From 2013 URF Exchange with FID, used for 2014 sales
2015	0	—
2016	0	—
2017	5.474	Returned from San Luis Reservoir, 5.200 net URF sold
2018	2.129	Returned from 2018 DEID exchange
2019	9.000	Returned to SLR from 2019 AEWSD and LTRID exchange, transferred to CVO for San Luis Unit supply
2020	0.487	Returned from FID from 2019 exchange
2021	10.425	Returned from multi-party 2020 exchange
2022	3.500	From 2016 URF Exchange with AEWSD
2023	10.167	3.500 AEWSD, 2.000 FID, 4.667 OCID
2024	8.700	3.500 AEWSD, 0.822 DEID, 0.378 SWID, 3.000 OCID
2025	0	—
2026	*Pending*	
Total	**61.307**	

Appendix F: Water Management Goal

Table F1. Final Friant Water Contract Supply

Contract Year	Class 1 Total Supply 800 TAF		Class 2 Total Supply 1,401.475 TAF	
	Class 1 Declaration	Volume of Class 1 as Uncontrolled Season	Class 2 Residual Declaration	Volume of Class 2 as Uncontrolled Season
2009	100%	0%	10%	21%. Including residual allocation is equivalent to 31%
2010	100%	0%	10%	32%. With residual allocation is equivalent to 42%
2011	100%	0%	5%	38%. With residual allocation is equivalent to 43%
2012	57%	0%	0%	0%
2013	62%	0%	0%	0%
2014	0%	0%	0%	0%
2015	0%	0%	0%	0%
2016	75% Residual	12.5% (100 TAF used, mostly in April)	0%	7%
2017	100%	0%	3%	30%. UcS through mid-July. With residual allocation equivalent to 33%
2018	88% Residual	11% (88 TAF used April-May)	0%	9%.
2019	100%	0%	0%	49%
2020	65%	0%	0%	0%
2021	40%	0%	0%	0%
2022	35%	0%	0%	0%
2023	100%	0%	15%	18%. UcS through late-July. With residual allocation equivalent to 33%
2024	90%	*pending*	0%	*pending*
2025	100%	0%	0%	0%

Notes

2009: C1/C2 declaration on 6/12/209 was 77/18, increased to 100/10 once SJRRP Interim Flows were scheduled for 10/1/2009 release.

2010: Class 2 declaration changed from 15% to 10%, but this did not impact RWA calculation which uses growing season allocation of 15%.

2011: Class 2 declaration changed from 20% to 5%, but this did not impact RWA calculation which uses growing season allocation of 20%.

2012: Class 1 declaration changed from 50% to 57% on 4/27/2012, but this did not impact RWA calculation which uses growing season allocation of 50%.

2013: Final declaration made 7/15/2013.

2014, 2015: Friant Dam releases to satisfy Exchange Contract at Mendota Pool. 2014 final declaration made 5/13/2014. 2015 final declaration made 2/27/2015.

2016: 12.5% of Class 1 was released as Uncontrolled Season water. Class 1 allocation was reduced from 100% to 87.5% (including UcS) at final allocation on 7/18/2016.

2017: Uncontrolled Season through mid-July. Flood flows 1/42017–7/20/2017.

2018: 11% of Class 1 was released as Uncontrolled Season water. Class 1 allocation was reduced from 100% to 99% (including UcS) before final allocation on 9/26/2018.

2019: Uncontrolled season through 7/15/2019. Flood flows 3/15/2019–4/5/2019 and 5/21/2023–7/10/2019.

2020: Final declaration 6/24/2020.

2021: Class 1 declaration increased from 20% to 25% in November, increased to 40% in December. Late change did not affect apportionment of RWA impact.

2022: Class 1 declaration increased from 30% to 35% in January associated with 2023 flood flows.

2023: Flood flows 1/5/2023–2/5/2023 and 3/8/2023–7/26/2023.
2024: Final Friant declarations are pending verification

Table F2. Additional Water Supply

Restoration Year	Gross Volume of URF Sales to Class 1	Gross Volume of URF Sales to Class 2	Net Volume of URF Sales to Class 1	Net Volume of URF Sales to Class 2	Gross Volume of URF put into Exchanges	Net Volume of URF put into Exchanges	Gross Volume of URFs Spilled	Gross Total URF
2013	Table Under Development							
2014								
2015								
2016								
2017								
2018								
2019								
2020								
2021								
2022								
2023								
2024								
Total								

Table F3. URF Reconciliation (URF Distribution to incorrect Class, all values TAF) [A8] [A9]

Restoration Year	URFs Sales Distributed to Class 1 Which Should Have Been Distributed to Class 2	Error Extinguished	URFs Sales Distributed to Class 2 Which Should Have Been Distributed to Class 1	Error Extinguished
2020	0	Not Applicable	0	Not Applicable
2021	0	Not Applicable	0	Not Applicable
2022	0	Not Applicable	0	Not Applicable
2023	0	Not Applicable	0	Not Applicable
2024	0	Not Applicable	Tier 1 (50.474)	Not Applicable
2025	0	Not Applicable	0	39.995 Tier 1 extinguished

A8. Reconciliation of URFs was instituted in 2020 and will be codified in Restoration Flow Guidelines Version 2.2.

A9. All values are net (not gross) URF sales.