Water Management Goal Technical Feedback Meeting

January 28, 2026

Reno, NV & Microsoft Teams

Agenda

- Introductions (name, affiliation)
- State of the Program
- Water Management Activities
- 2026 Operations
- Adjourn

Brief questions welcome throughout presentation

State of the Program

Regina Bricka (Story)

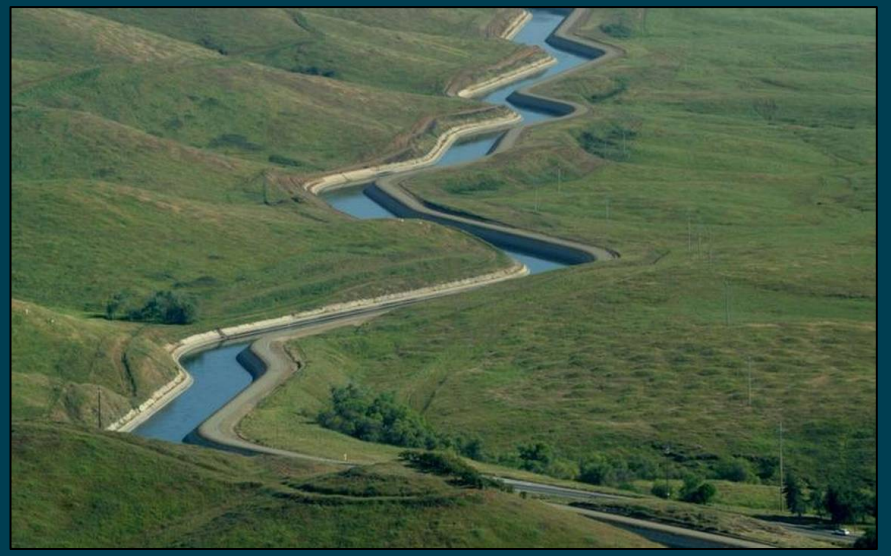
Settlement Goals

Restoration Goal

To restore and maintain fish populations in "good condition" in the main stem of the San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish.

Water Management Goal

To reduce or avoid adverse water supply impacts to all of the Friant Division long-term contractors that may result from the Interim Flows and Restoration Flows provided for in the Settlement.



Restoration Goal Activities

- Improve channel capacity and increase San Joaquin River flows
- Reintroduce spring-run and fall-run Chinook salmon
- Construct bypasses around existing infrastructure for flows and fish
- Improve habitat to support a self-sustaining fishery

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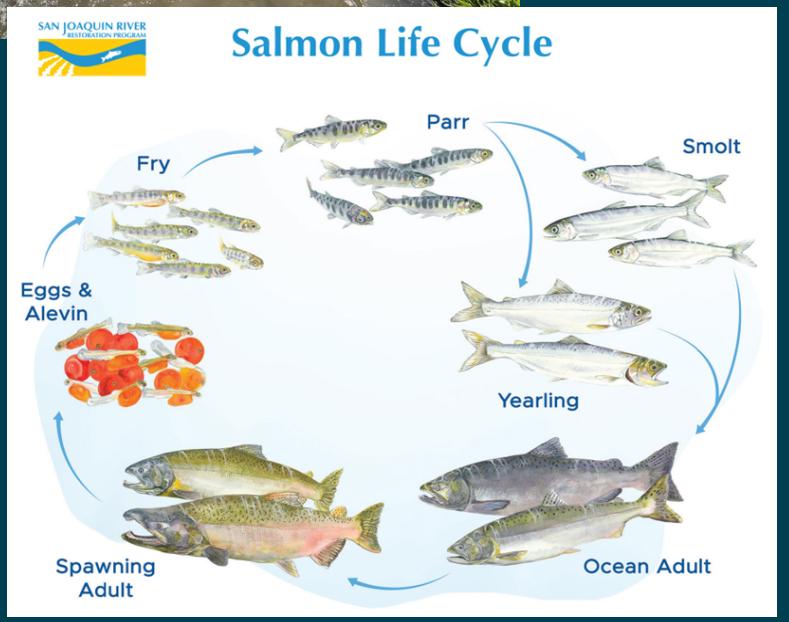
Improving Channel Capacity

- Seepage
  - Obtained a Reach 3 seepage easement in 2025 to support increased Restoration Flows
- Levee Stability
  - Updated 2026 Channel Capacity Report posted: https://restoresjr.net/flows/channel-capacity/
- Construction
  - Broke ground on Arroyo Canal Fish Screen & Sack Dam Fish Passage Facility, designed to pass up to 4500 cfs

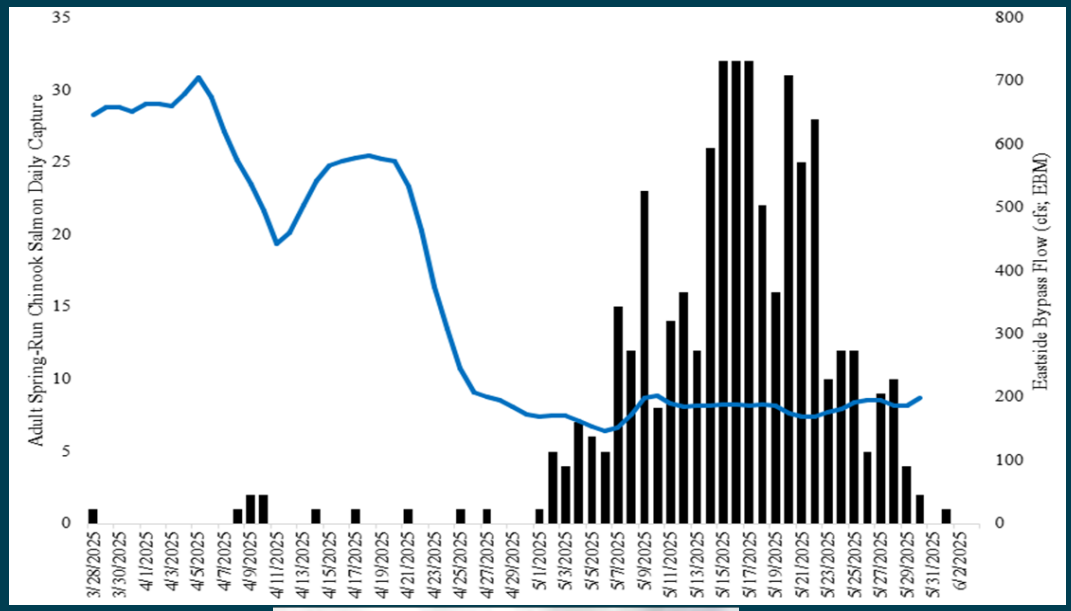
Reintroduction: Returns and Spawning

- Spring-run reintroduction began with hatchery releases in 2014
- Evidence of first adult returns during 2017 flood flows; first captured in 2019
- Adults are spawning in the Restoration Area to complete the salmon life cycle
- Adult spring-run have returned annually since 2019; the population is supplemented by hatchery releases and monitoring evaluates all life cycle stages



Reintroduction: Returns and Spawning

- **Record high adult spring-run returns to the Restoration Area in 2025**
- **Pending evidence suggests SJRRP fish also returned to other tributaries**
- **Record high likely a result of 2023 Wet Water Year leading to higher juvenile emigration survival to the ocean**
- **2025 escapement demonstrates the effectiveness of reintroduction and water management, which support spring-run recovery in the San Joaquin River**



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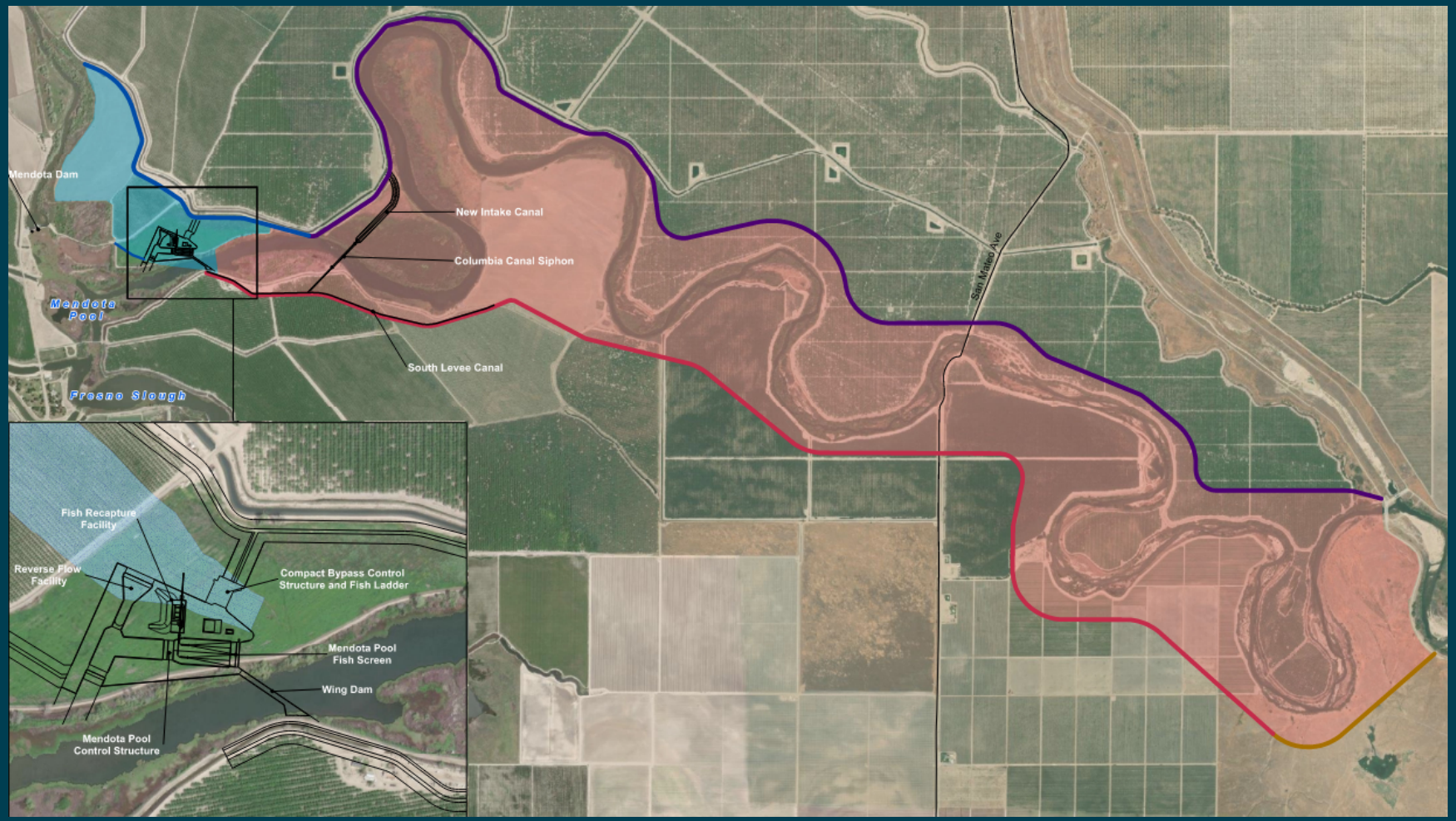
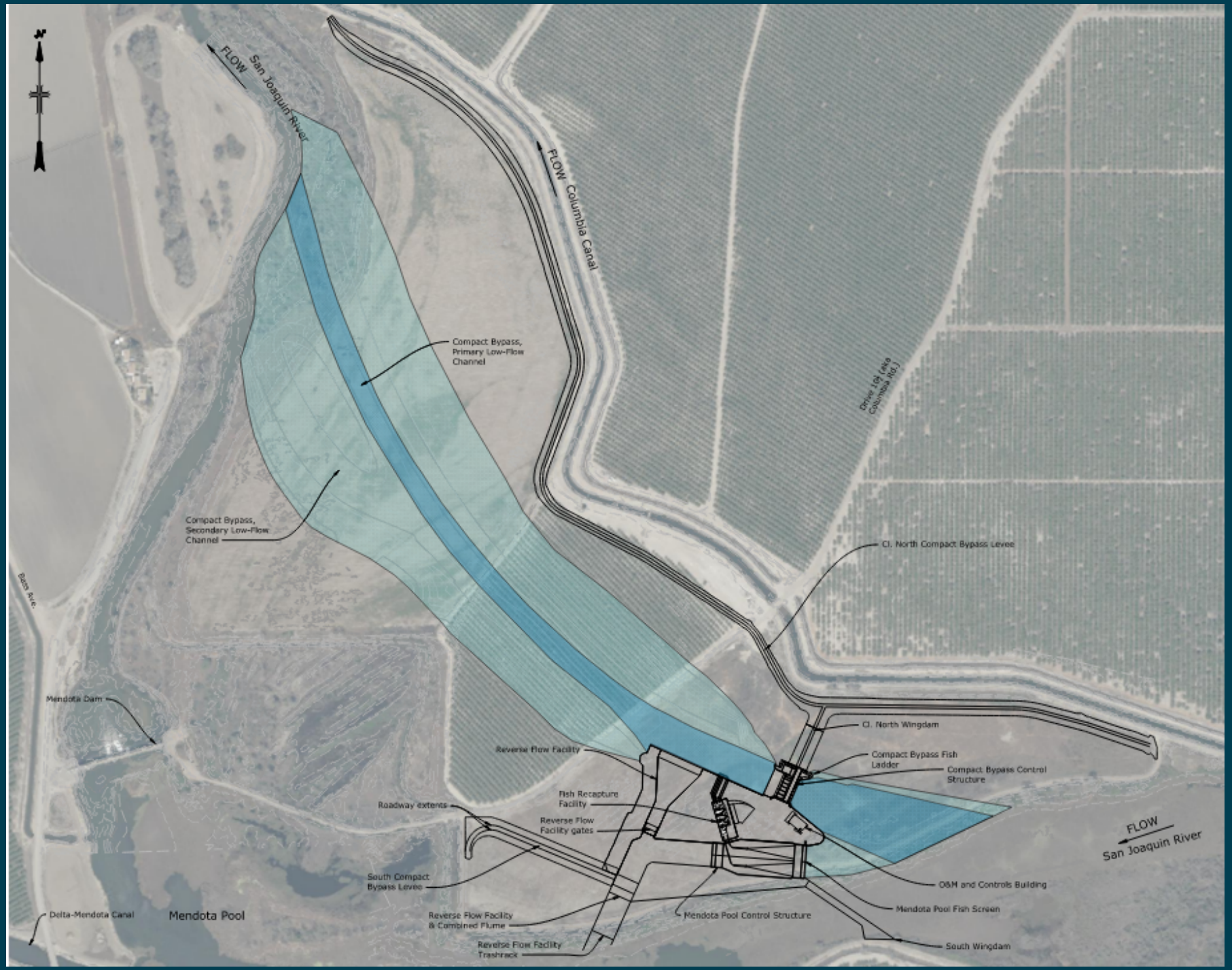
Construction: Mendota Pool Bypass and Reach 2B Improvements Project



Project Objectives

- Provide fish passage past Mendota Dam
- Increase Reach 2B channel capacity to 4500 cfs (1200 cfs currently)
- Provide floodplain habitat
- Preserve existing water delivery capabilities of Mendota Pool users



Construction: Mendota Pool Bypass, Fish Screen, and Associated Features

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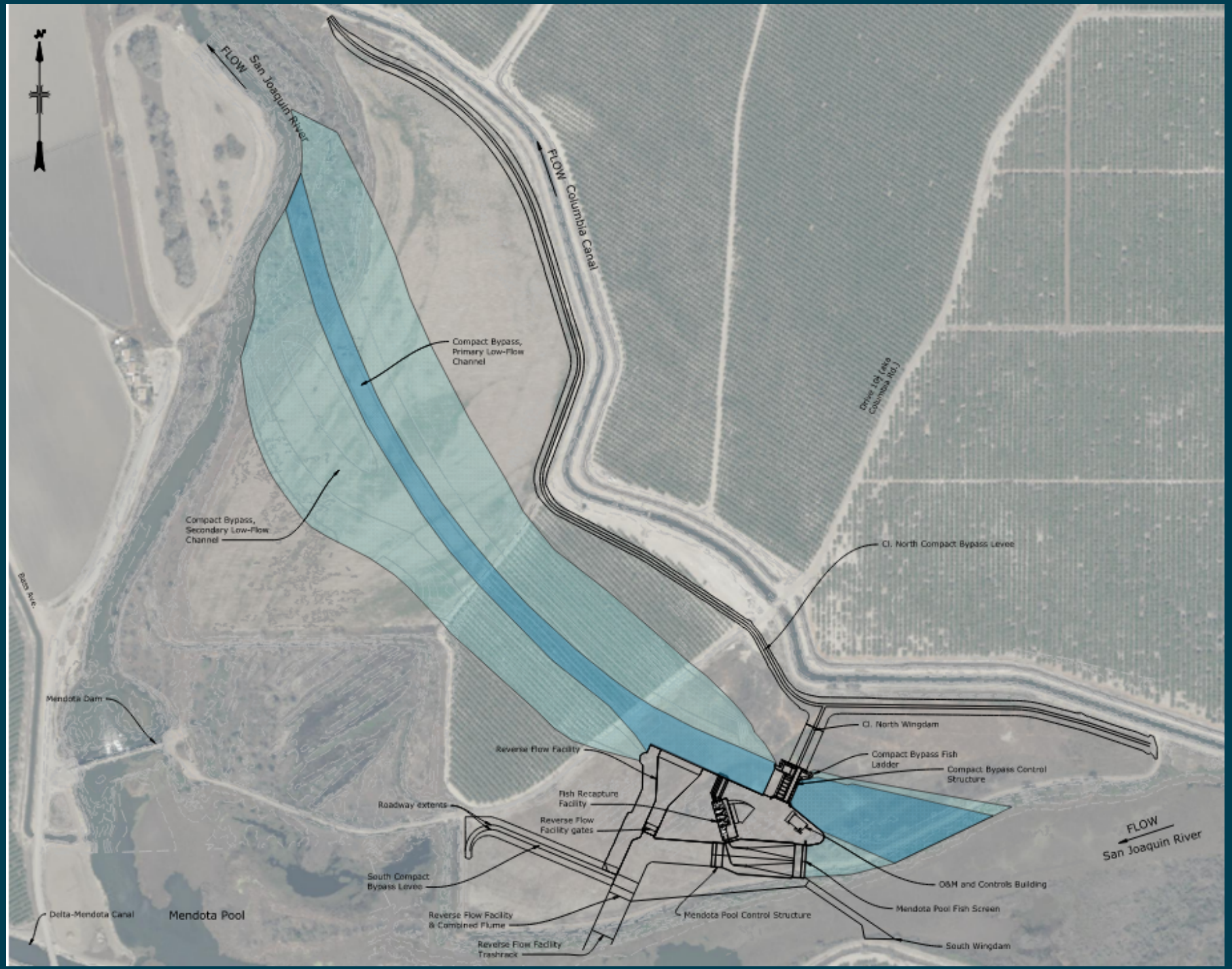

Phase 1A

(Mendota Pool Bypass)
<90% Design
Construction est. 2028

Phase 1B

(CCC MP connectivity)
30% Design
Planning DB Contract Award ~summer 2026
Construction est. 2028

Phase 2

(RFF, MPCS, MPFS, SWD)
90% Design spring 2026

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Construction:
Arroyo Canal Fish Screen & Sack Dam Fish Passage Facility
BEFORE

Construction:
Arroyo Canal Fish Screen & Sack Dam Fish Passage Facility

AFTER*

*Illustration by Stantec

Construction:
Arroyo Canal Fish Screen & Sack Dam Fish Passage Facility

RECENT

Water Management Activities

Regina Bricka
Erika Kegel
Chad Moore

SAN JOAQUIN RIVER RESTORATION PROGRAM

2025 Accomplishments

- ✓ Channel capacity improved up to 900 cfs in Reach 3
- ✓ FKC Pump-back EA/FONSI completed
- ✓ Delta recapture implemented
- ✓ Temporary lower SJR recapture permit renewed
- ✓ Historic Natural River Data report
- ✓ SacPAS data visualizations

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RY 2025 Operations Wrap-up

- Normal-Dry year type
- Peak Restoration Flow of nearly 900 cfs at Gravelly Ford
- 80 days of no Restoration Flows at Gravelly Ford to conserve Millerton cold pool
- May runoff forecast was 65.2 TAF too high, resulted in final Allocation which was 8.6 TAF higher than perfect hindsight
- 181.7 TAF of Restoration Flows expected to be released
- 87.7 TAF of URF (80.0 TAF gross as sales, 7.7 TAF gross as exchanges)
- About 195 TAF increase to Recovered Water Account balance

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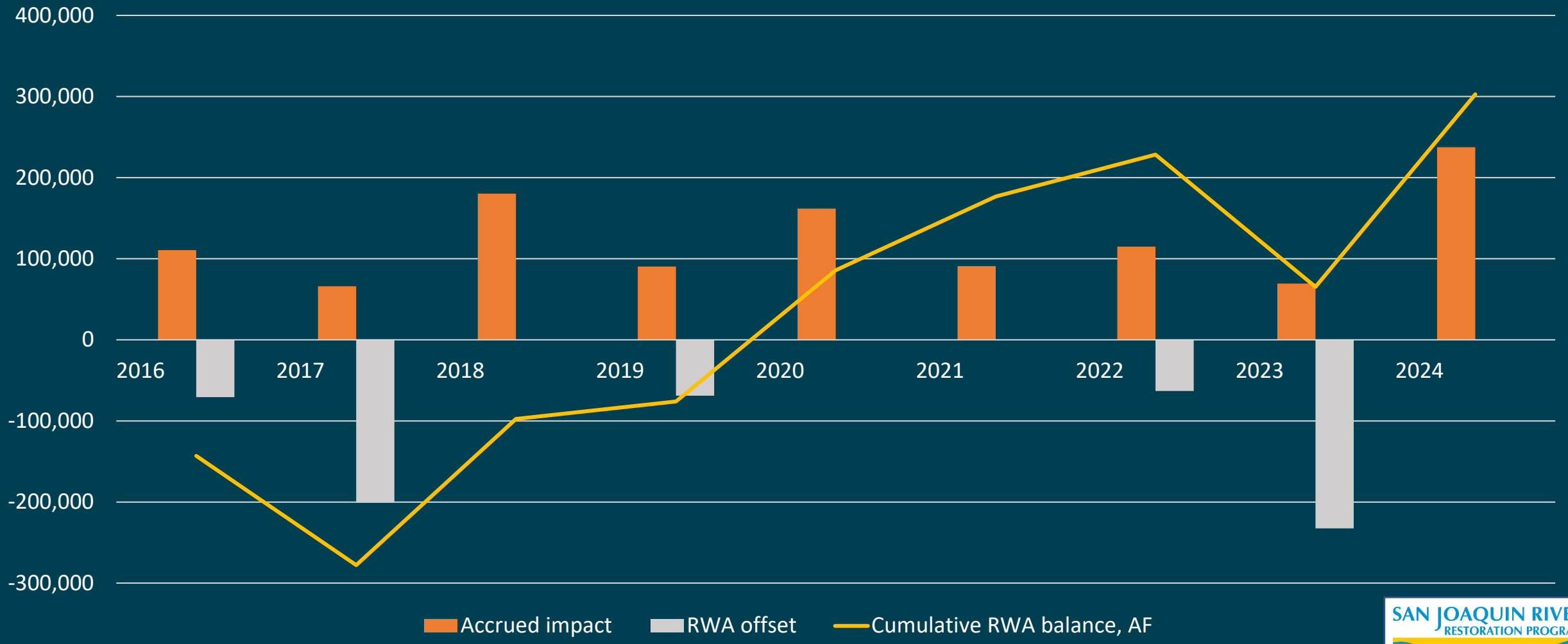
Friant-wide RWA Impacts and Offsets



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Recapture

- Most spring pulse Restoration Flows released to date
- Lower SJR Recapture about 20 TAF to date (~ 26%)
- First implementation of Delta Recapture
- Post-hoc accounting during OMR restricted conditions
  - Recoloring of permitted exports, not an increase in pumping
  - SJRRP credit for Restoration Flows that produce incremental improvement to Delta exports
  - Paused when CVP and SWP have different OMR requirements
- Delta Recapture about 12 TAF

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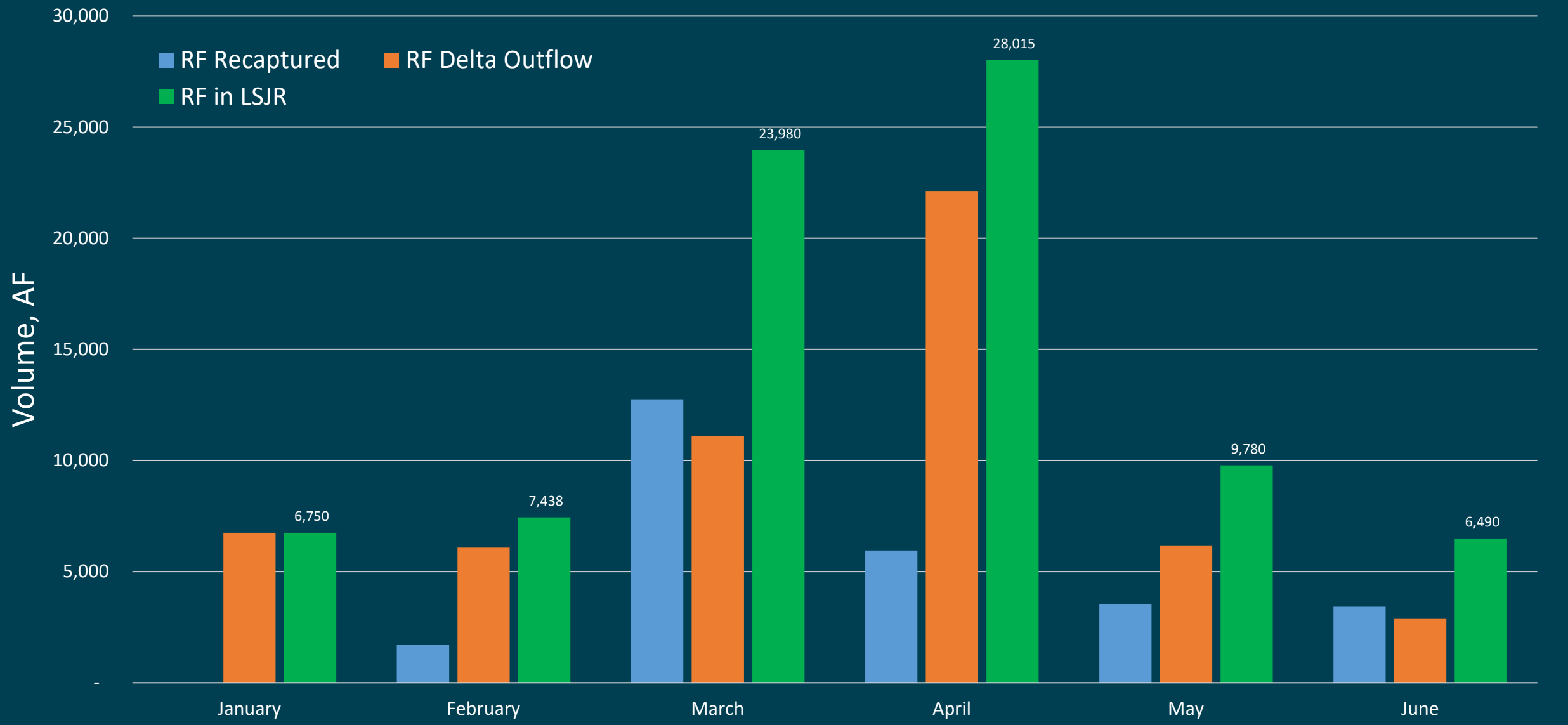
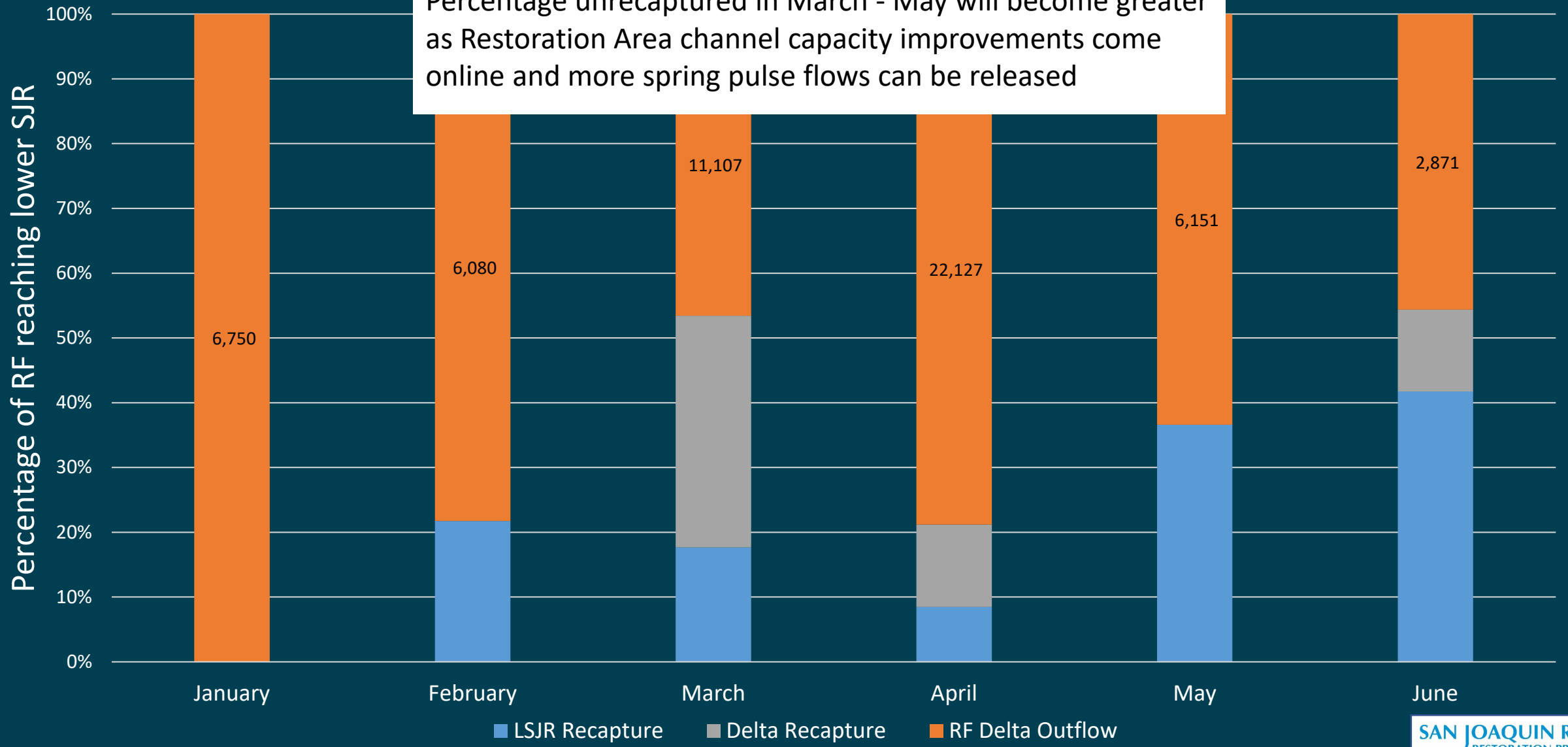

30,000
25,000
20,000
15,000
10,000
5,000
-
Volume, AF
RF Recaptured
RF Delta Outflow
RF in LSJR
6,750
7,438
23,980
28,015
9,780
6,490
January
February
March
April
May
June

Percentage unrecaptured in March - May will become greater as Restoration Area channel capacity improvements come online and more spring pulse flows can be released



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❑ = needs

Recapture Next Steps

- ✓ Implement Delta Recapture for OMR months
  - ❑ Complete prerequisite plans for the use of the Joint Points of Diversion
  - ❑ Continue to develop protocols for other Delta limiting conditions (Export : Inflow ratio; Delta Outflow; SJR Inflow : Export; Real-time demands)
- ✓ Implement temporary lower SJR recapture
  - ❑ Address Paragraph 16(a)(1) with Settling Parties
- ✓ Coordinate with Voluntary Agreements/Healthy Rivers & Landscapes developments
  - ❑ Decision tree for Lower SJR Recapture, Delta Recapture, HRL, and 16(a)(1)
  - ❑ Ensure consistency with Settlement, Settlement Act, and water rights

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Water Rights

- Temporary recapture permit conditions to improve accounting and tracking of Restoration Flows and Reclamation's Friant water rights
- Updates to California water measurement and reporting regulation
  - Expected to take effect in WY 2027
- Bay-Delta Plan implementation and HRL commitments…

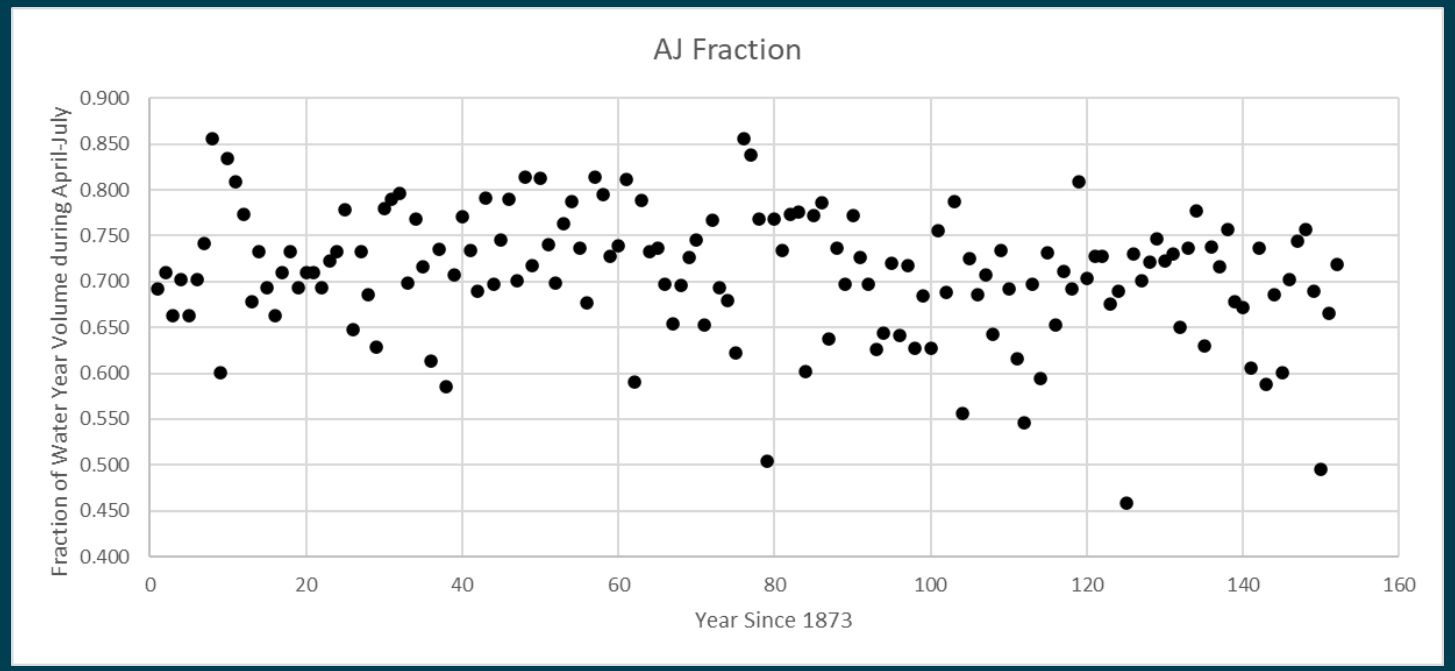
Healthy River & Landscapes (HRL)

- Friant Water Authority made voluntary agreement to reduce recapture up to 50% and up to 50,000 AF February–May to improve Delta Outflow
- First draft of State Board's accounting procedures misconstrued voluntary commitment
- After discussions with FWA and SJRRP, State Board revised accounting procedures more in-line with commitment
- Remaining challenge will be how to "operationalize" simultaneously meeting water rights orders, Settlement Act prohibition against affecting other CVP contractors, and HRL
- Use SacPAS and other tools to coordinate with Delta Ops

Historic Natural River Data Report

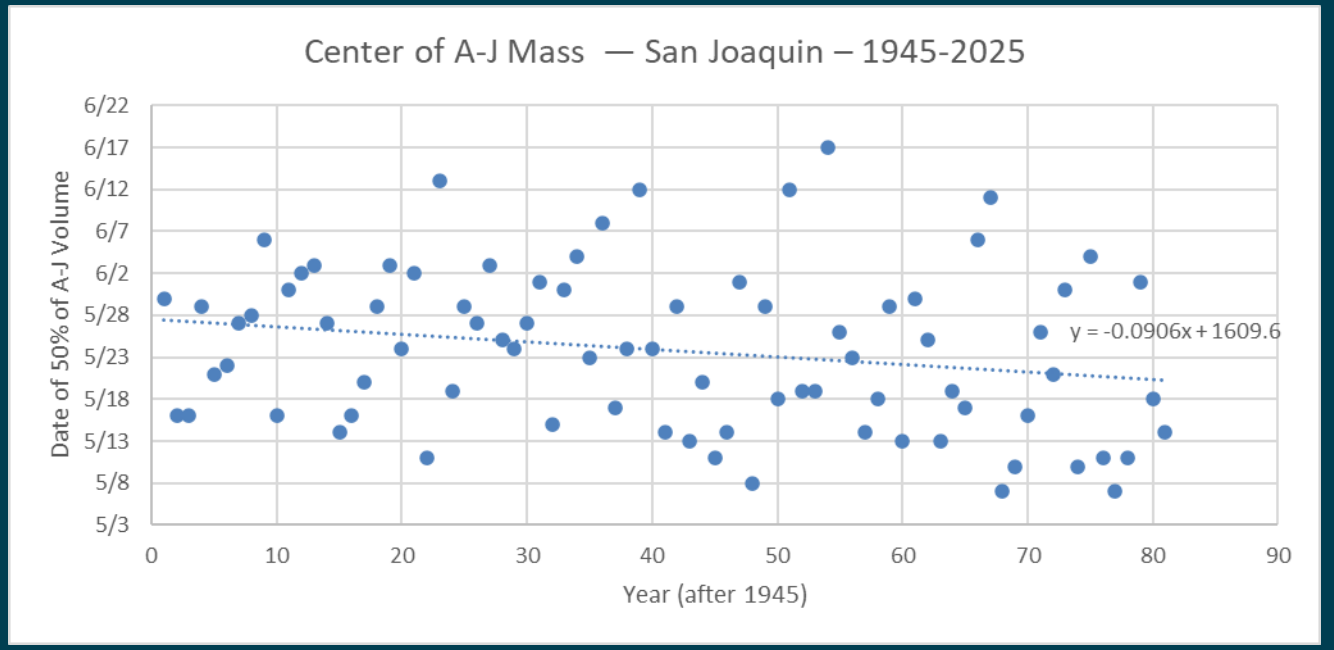
- Research and compilation of all available Natural River data for Friant/Friant Dam
- Clean-up of daily data back to 1944 and monthly data back to 1873
- Identify errors in CDEC record; retain negative NR values
- Describes how data was collected and how data collection changed over time
- Broadly useful for hydrology research and water rights

Report is going through peer-review now, available soon with historic data also posted to CDEC



Some interesting analyses are possible with a reliable dataset:

Decline in fraction of water year occurring April-July



Timing of runoff is occurring earlier

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Appendix A

Millerton Natural River Annual Data

Water Year	Unimpaired Runoff	SJRRP Water Year Type
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
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
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
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

SAN JOAQUIN RIVER RESTORATION PROGRAM

Appendix E

Least Daily Natural River (cfs) and date. Blue shaded values occurred during snowmelt recession (not pure baseflow)

Year	Minimum NR (cfs)	Date
1944	144	10/22/1944
1945	386	9/29/1945
1946	255	11/3/1946
1947	125	9/9/1947
1948	126	11/24/1948
1949	128	10/16/1949
1950	138	10/25/1950
1951	135	11/6/1951
1952	234	11/13/1952
1953	139	10/9/1953
1954	94	10/28/1954
1955	85	10/24/1955
1956	308	10/28/1956
1957	172	10/5/1957
1958	226	10/26/1958
1959	147	9/4/1959
1960	105	9/29/1960
1961	134	10/13/1961
1962	159	11/24/1962
1963	301	11/3/1963
1964	98	10/19/1964
1965	249	10/31/1965
1966	104	10/24/1966
1967	261	11/5/1967
1968	124	9/24/1968
1969	321	10/12/1969
1970	131	10/13/1970
1971	164	10/10/1971
1972	202	8/18/1972
1973	201	9/29/1973
1974	214	10/19/1974
1975	319	10/5/1975
1976	146	11/30/1976
1977	59	9/15/1977
1978	412	11/4/1978
1979	188	10/14/1979
1980	318	11/828/1980
1981	177	9/29/1981
1982	725	9/23/1982
1983	630	10/24/1983
1984	721	10/6/1984
1985	254	8/28/1985
1986	234	11/9/1986
1987	140	9/21/1987
1988	93	10/25/1988
1989	113	9/16/1989
1990	72	11/5/1990
1991	122	10/1/1991
1992	101	9/21/1992
1993	244	11/3/1993
1994	104	9/16/1994
1995	214	11/14/1995
1996	204	9/27/1996
1997	226	11/4/1997
1998	471	10/28/1998
1999	135	10/19/1999
2000	172	9/22/2000
2001	109	10/14/2001
2002	93	9/22/2002
2003	109	10/31/2003
2004	107	9/18/2004
2005	239	9/13/2005
2006	180	11/6/2006
2007	148	10/29/2007
2008	99	9/18/2008
2009	147	9/26/2009
2010	226	9/25/2010
2011	443	11/14/2011
2012	110	9/14/2012
2013	89	9/27/2013
2014	43	10/24/2014
2015	36	9/7/2015
2016	50	10/15/2016
2017	288	11/11/2017
2018	85	9/25/2018
2019	199	11/15/2019
2020	134	10/30/2020
2021	28	9/21/2021
2022	128	10/23/2022
2023	545	10/29/2023
2024	95	10/23/2024
2025	196	9/10/2025

SAN JOAQUIN RIVER RESTORATION PROGRAM

SacPAS Data Visualization

- SacPAS is a collaborative effort of Univ. of Washington Columbia Basin Research
- Originally focused on Sacramento River Prediction and Assessment of Salmon, now broadened to cover Central Valley fisheries and general water data
- Funding by Reclamation's Bay Delta Office has allowed SJRRP access to Univ of WA data visualization specialists
- Built an SJRRP "Team" page which allows wide audience to access Restoration Flow data
- Pulls data from SJRRP Operations Spreadsheet and CDEC
- Goal is to have critical SJRRP data available in web interface

SAN JOAQUIN RIVER RESTORATION PROGRAM

Overview

SacPAS | Data & Alerts | Workgroups & Teams | Tools & Models | Explore in Depth | About

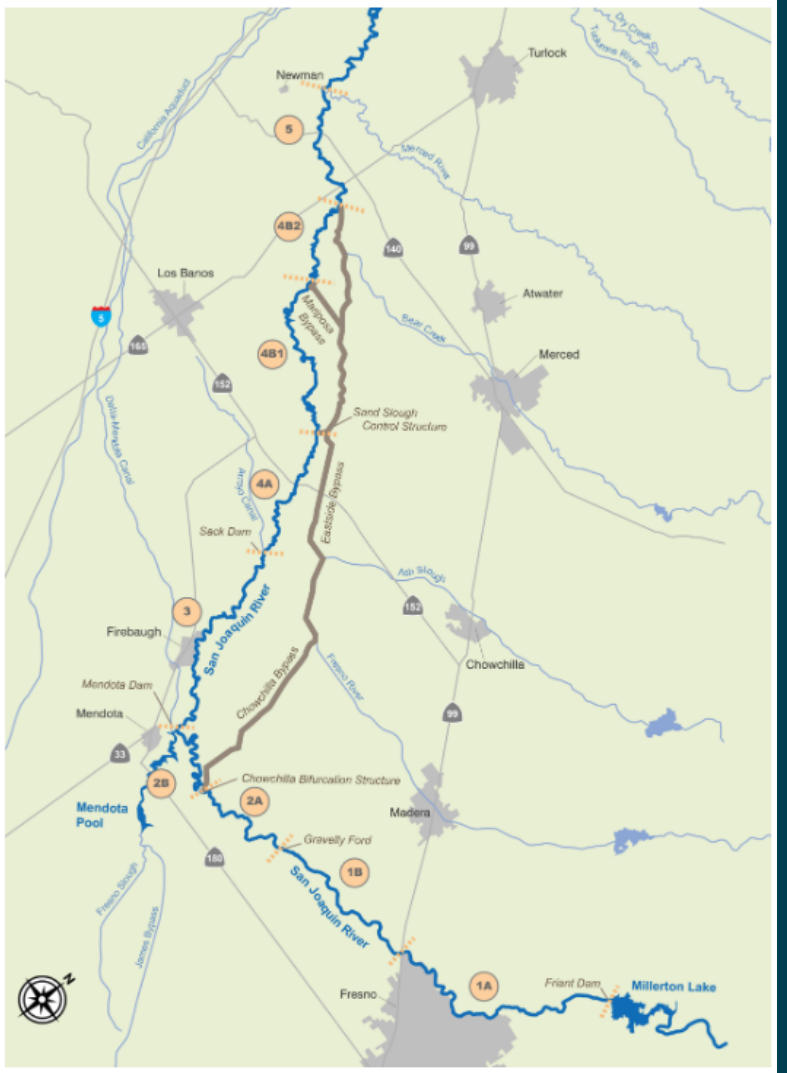
SJRRP Restoration Queries

Background | Allocation Management | Restoration Flow Volumes | Daily Flow Hydrograph

The San Joaquin River Restoration Program (SJRRP) is a long-term collaborative program to restore flows in the San Joaquin River, from Friant Dam to the confluence of the Merced River. It is a direct result of the San Joaquin River Restoration Settlement reached in 2006 by the U.S. Departments of the Interior and Commence, The Natural Resources Defense Council, et al., and the Friant Water Users Authority. Congress passed the San Joaquin River Restoration Settlement Act in 2009 authorizing Federal agencies to implement the Settlement. The Settlement has two primary goals: 1) To restore and maintain fish populations in the main stem of the San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish, and 2) To reduce or avoid adverse water supply impacts to all of the Friant Division long-term contractors (water users) that may result from the flows provided for in the Settlement.

Friant Dam was completed in 1942 and provides flood protection and water storage for irrigation in the San Joaquin Valley. Before the completion of Friant Dam, the San Joaquin River supported the southernmost populations of Central Valley spring-run Chinook salmon and fall-run Chinook salmon, where hundreds of thousands of Chinook salmon once returned from the ocean each year. After Friant Dam was completed, sections of the San Joaquin River were completely dewatered as the natural flow was stored and diverted into canals for agricultural and municipal use.

Under the SJRRP, Friant Dam releases more water to the San Joaquin River expressly for the restoration of fish. Restoration actions also include building new in-river structures downstream of Friant Dam designed to pass fish and flows around existing diversion structures and reintroduction of salmon back to the river to increase the population. The SJRRP is implemented by the U.S. Bureau of Reclamation (which serves as the lead agency), the U.S. Fish and Wildlife Service, National



Map of the San Joaquin River Restoration Program (SJRRP)

https://www.cbr.washington.edu/sacramento/workgroups/sjrrp.html

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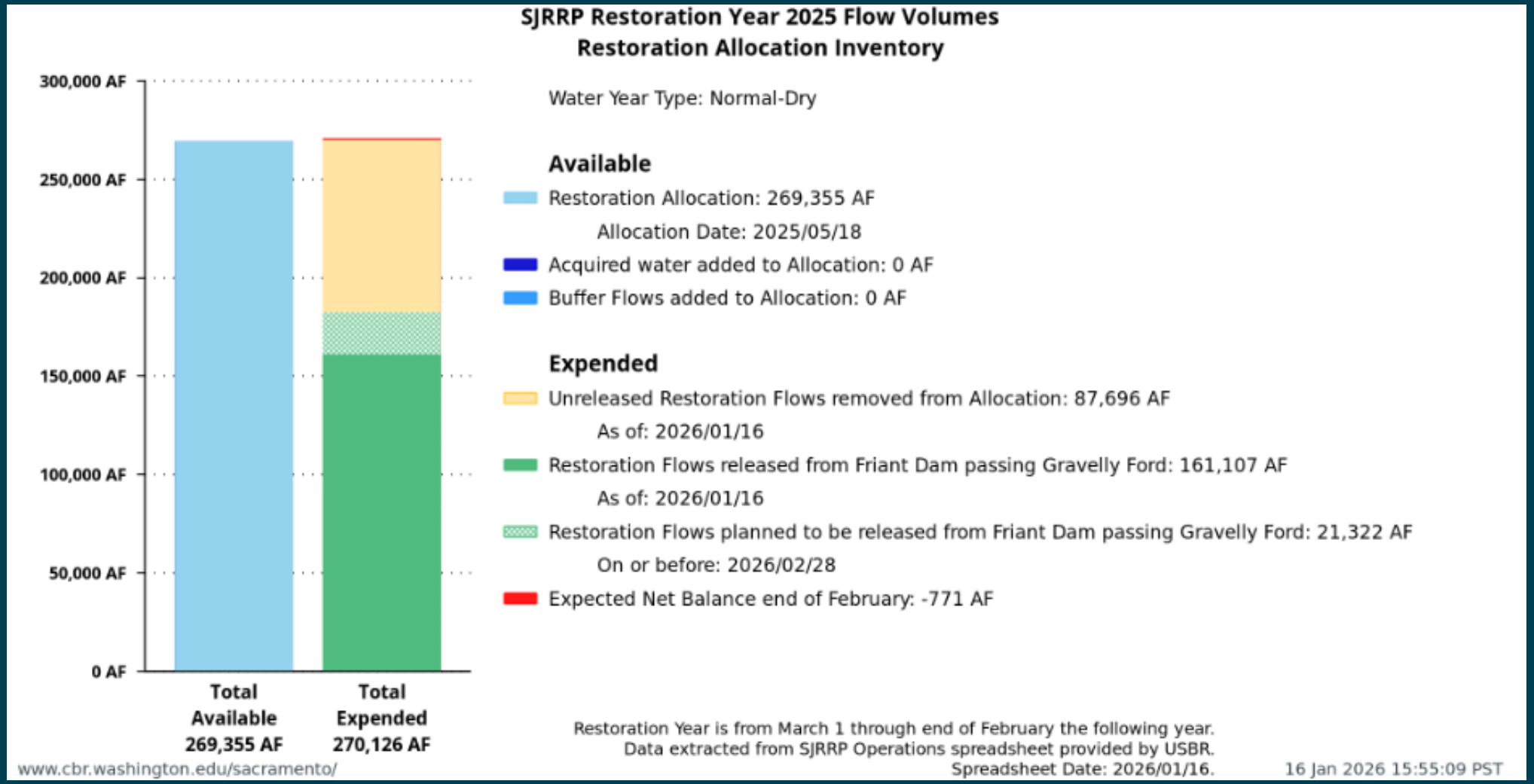
Restoration Allocation Balances



https://www.cbr.washington.edu/sacramento/workgroups/sjrrp_query_allocmgt.html

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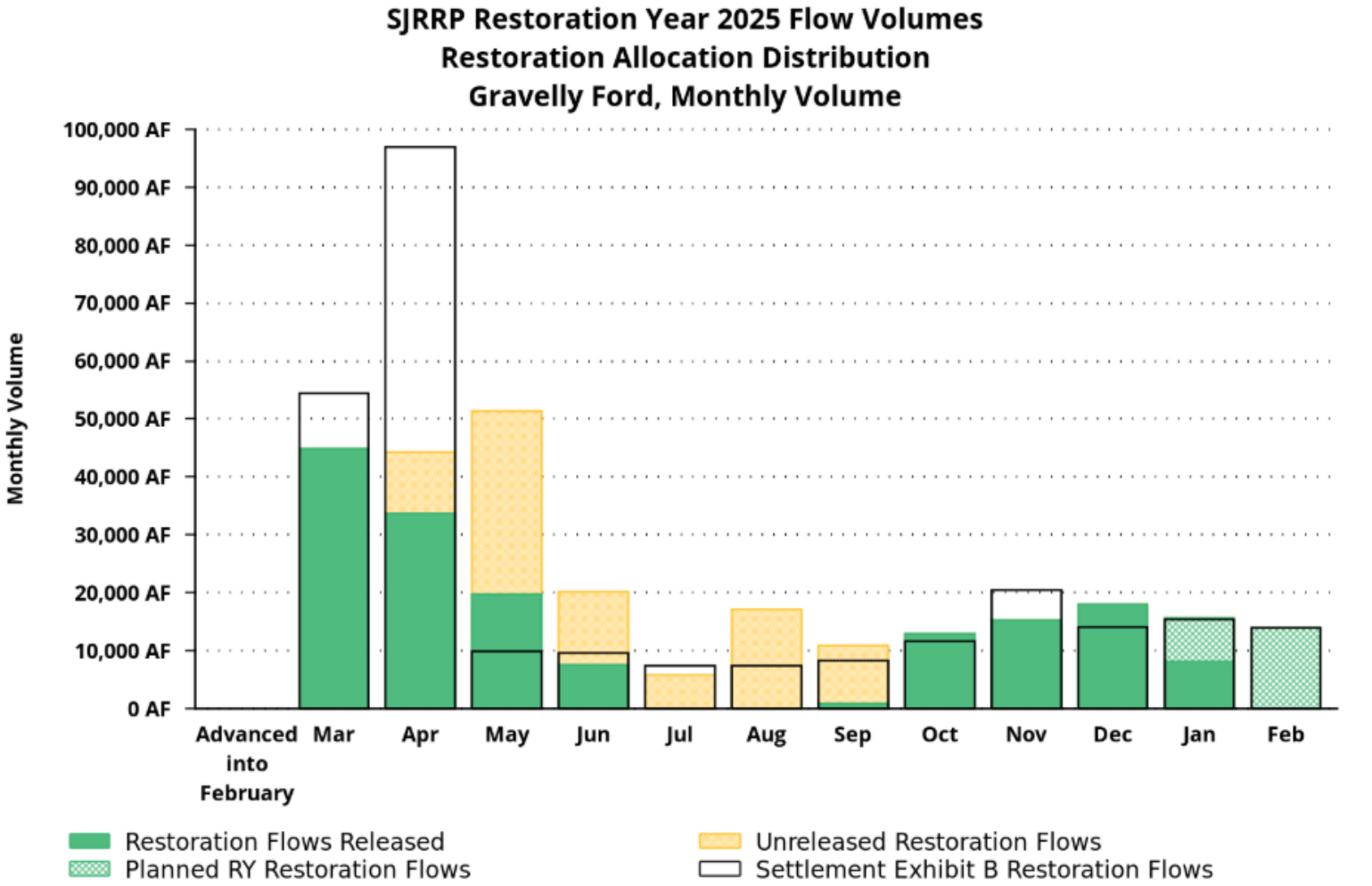
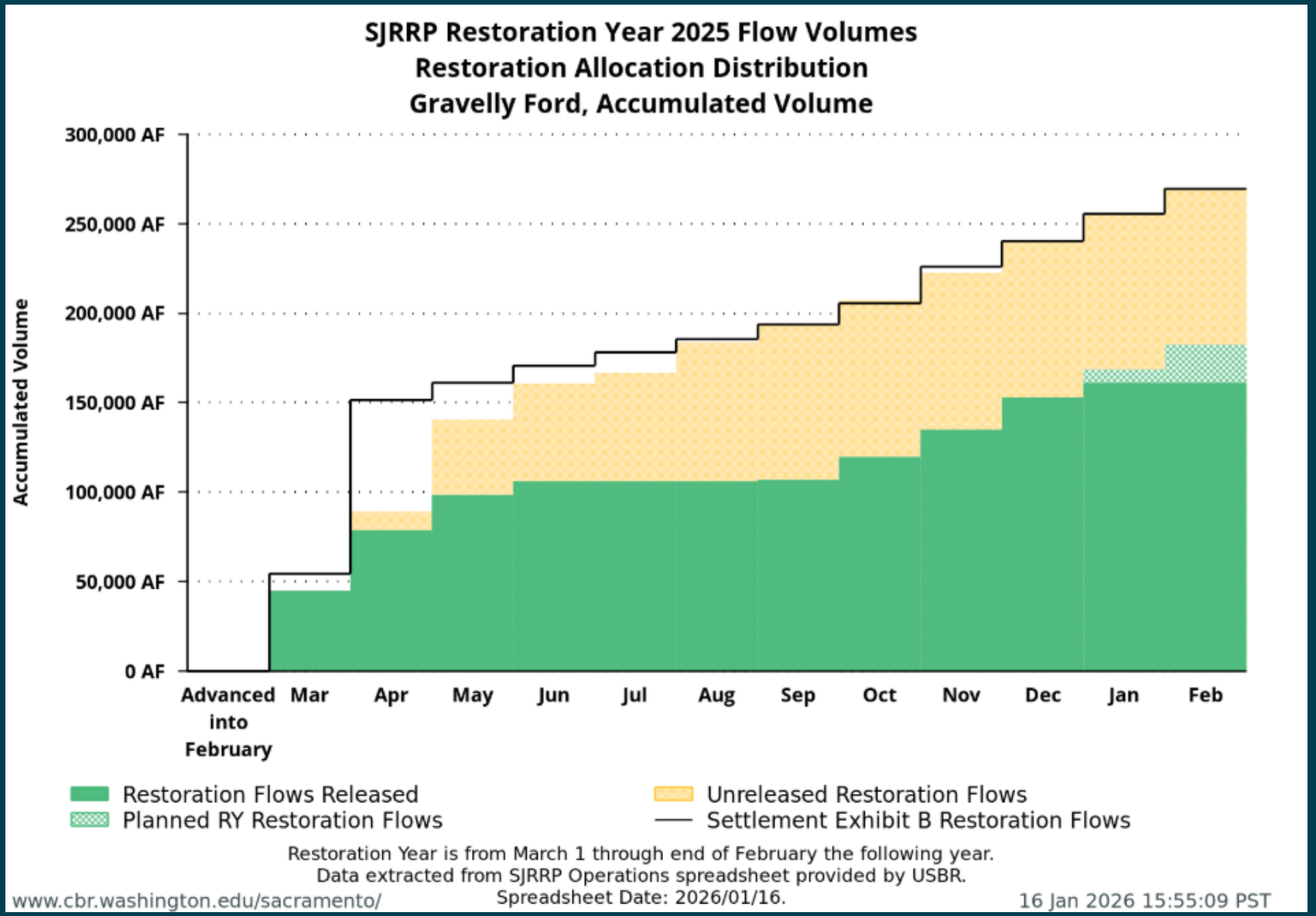
Monthly Distribution of Restoration Allocation

Monthly Distribution Figure



https://www.cbr.washington.edu/sacramento/workgroups/sjrrp_query_allocmgt.html

Cumulative Distribution of Restoration Allocation



https://www.cbr.washington.edu/sacramento/workgroups/sjrrp_query_allocmgt.html

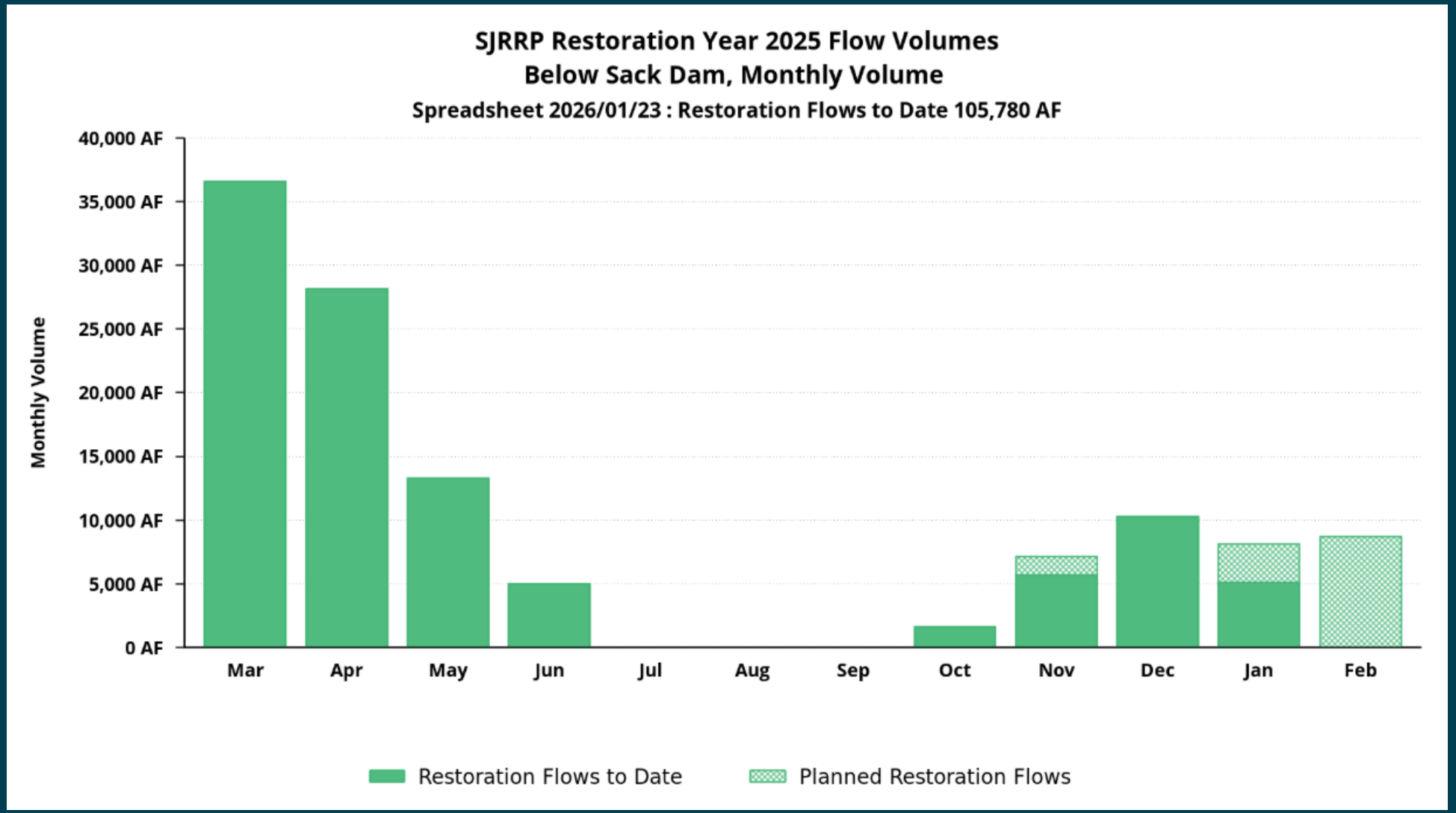
Tabular Data Available

SJRRP Operations Spreadsheed Date	Restoration Year	Restoration Month	Display Type	RY Restoration Flows at Gravelly Ford		Planned RY Restoration Flows at Gravelly Ford		Unreleased Restoration Flows Removed from Allocation		Exhibit B Restoration Flows at Gravelly Ford	
				Volume	Unit	Volume	Unit	Volume	Unit	Volume	Unit
2026/01/16	2025	Advanced into February	Accumulated	0	AF	0	AF	0	AF	NA	AF
2026/01/16	2025	March	Accumulated	44,902	AF	0	AF	0	AF	54,486	AF
2026/01/16	2025	April	Accumulated	78,637	AF	0	AF	10,527	AF	151,397	AF
2026/01/16	2025	May	Accumulated	98,392	AF	0	AF	42,100	AF	161,235	AF
2026/01/16	2025	June	Accumulated	105,977	AF	0	AF	54,732	AF	170,756	AF
2026/01/16	2025	July	Accumulated	105,977	AF	0	AF	60,544	AF	178,135	AF
2026/01/16	2025	August	Accumulated	105,977	AF	0	AF	77,697	AF	185,513	AF
2026/01/16	2025	September	Accumulated	106,810	AF	0	AF	87,696	AF	193,844	AF
2026/01/16	2025	October	Accumulated	119,667	AF	0	AF	87,696	AF	205,526	AF
2026/01/16	2025	November	Accumulated	134,892	AF	0	AF	87,696	AF	225,956	AF
2026/01/16	2025	December	Accumulated	152,918	AF	0	AF	87,696	AF	240,098	AF
2026/01/16	2025	January	Accumulated	161,107	AF	7,438	AF	87,696	AF	255,470	AF
2026/01/16	2025	February	Accumulated	161,107	AF	21,322	AF	87,696	AF	269,354	AF

https://www.cbr.washington.edu/sacramento/workgroups/sjrrp_query_allocmgt.html

SAN JOAQUIN RIVER RESTORATION PROGRAM

Restoration Flow Volumes available at multiple stations, can include recapture volume, and compared to Exhibit B.



https://www.cbr.washington.edu/sacramento/workgroups/sjrrp_query_restflow.html

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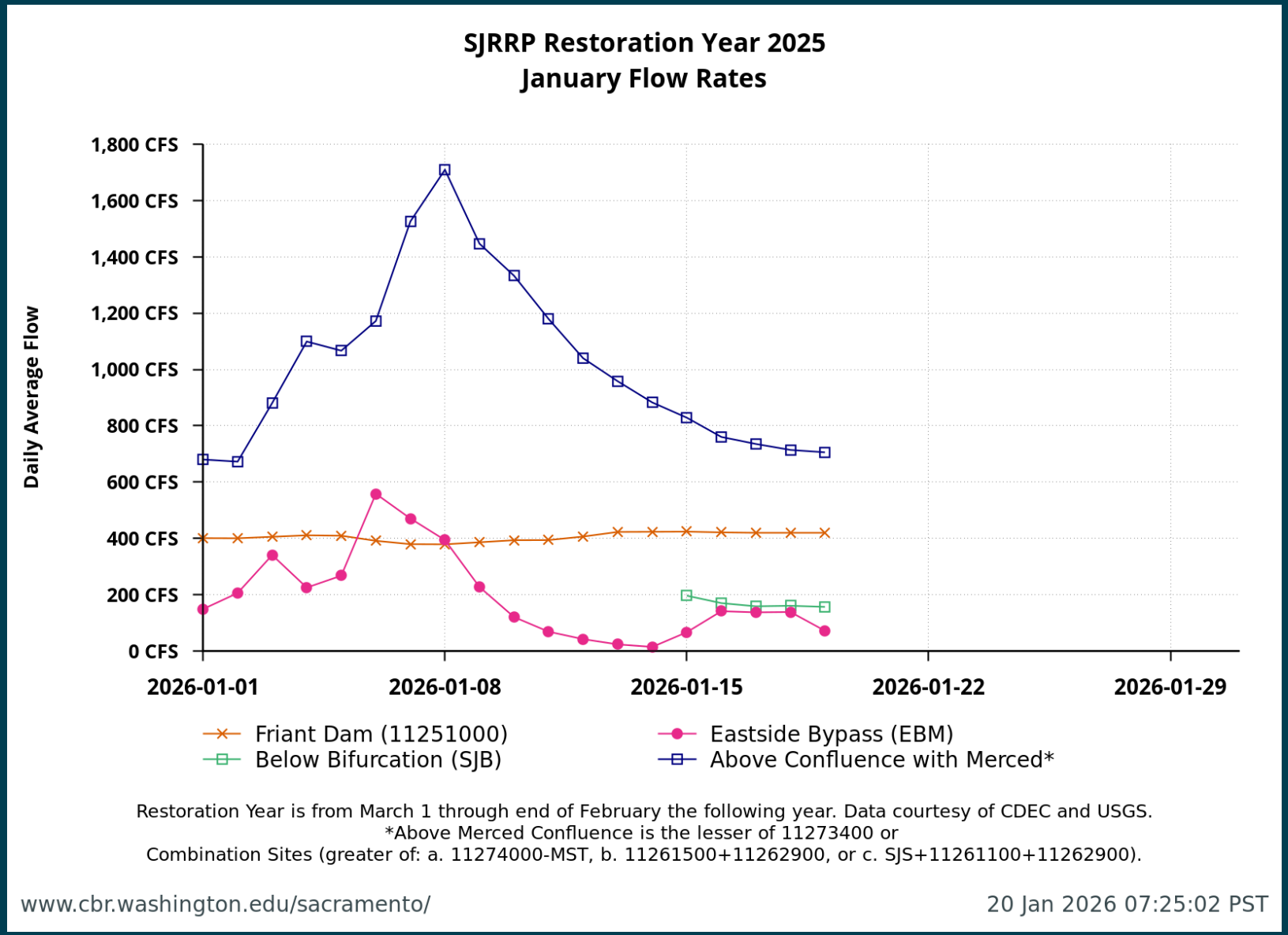
River Hydrographs available at multiple stations. Uses QA/QC data from SJRRP Operations Spreadsheet when available. CSV files available for download.



https://www.cbr.washington.edu/sacramento/workgroups/sjrrp_query_flows_hydro.html

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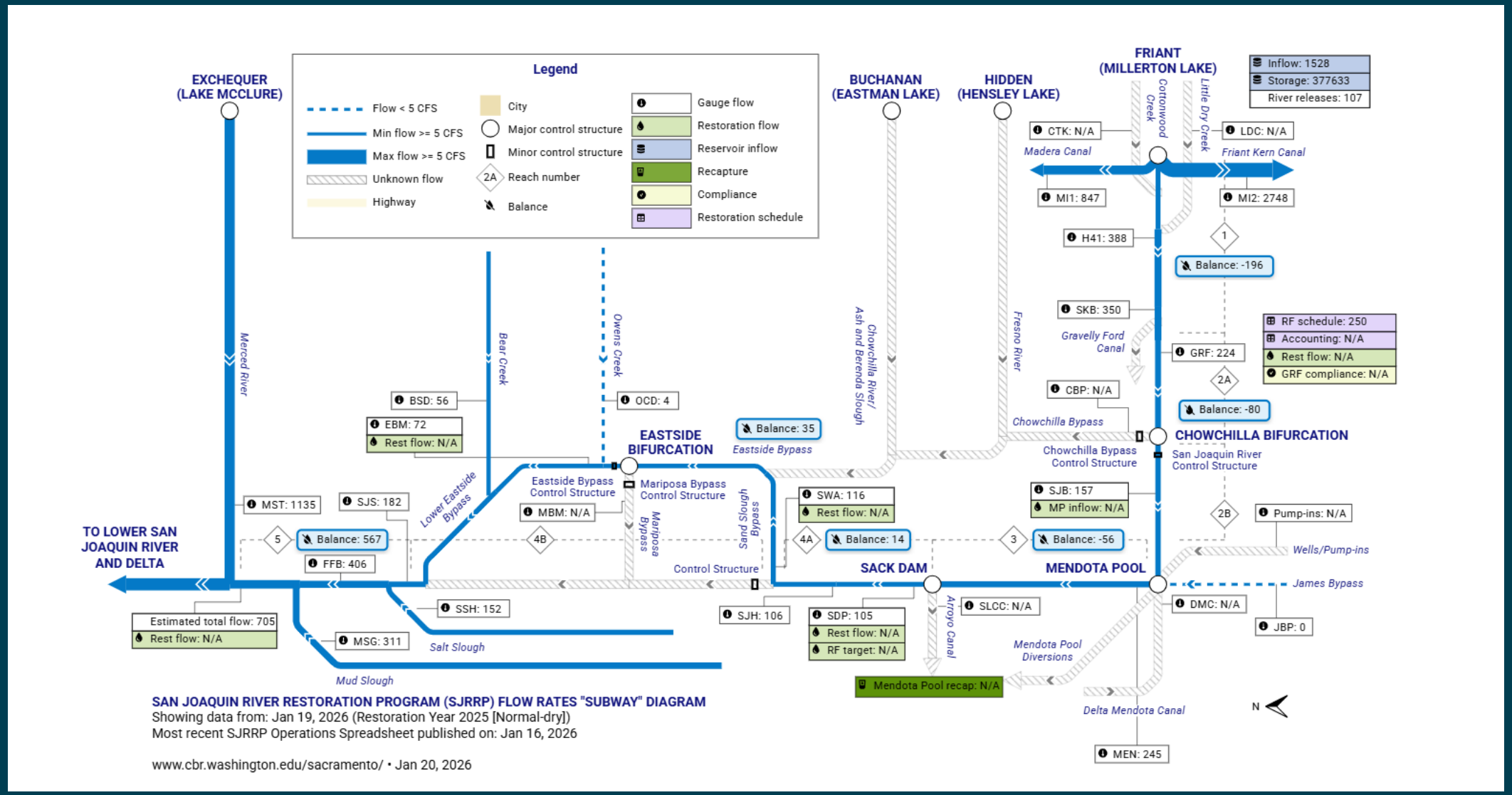
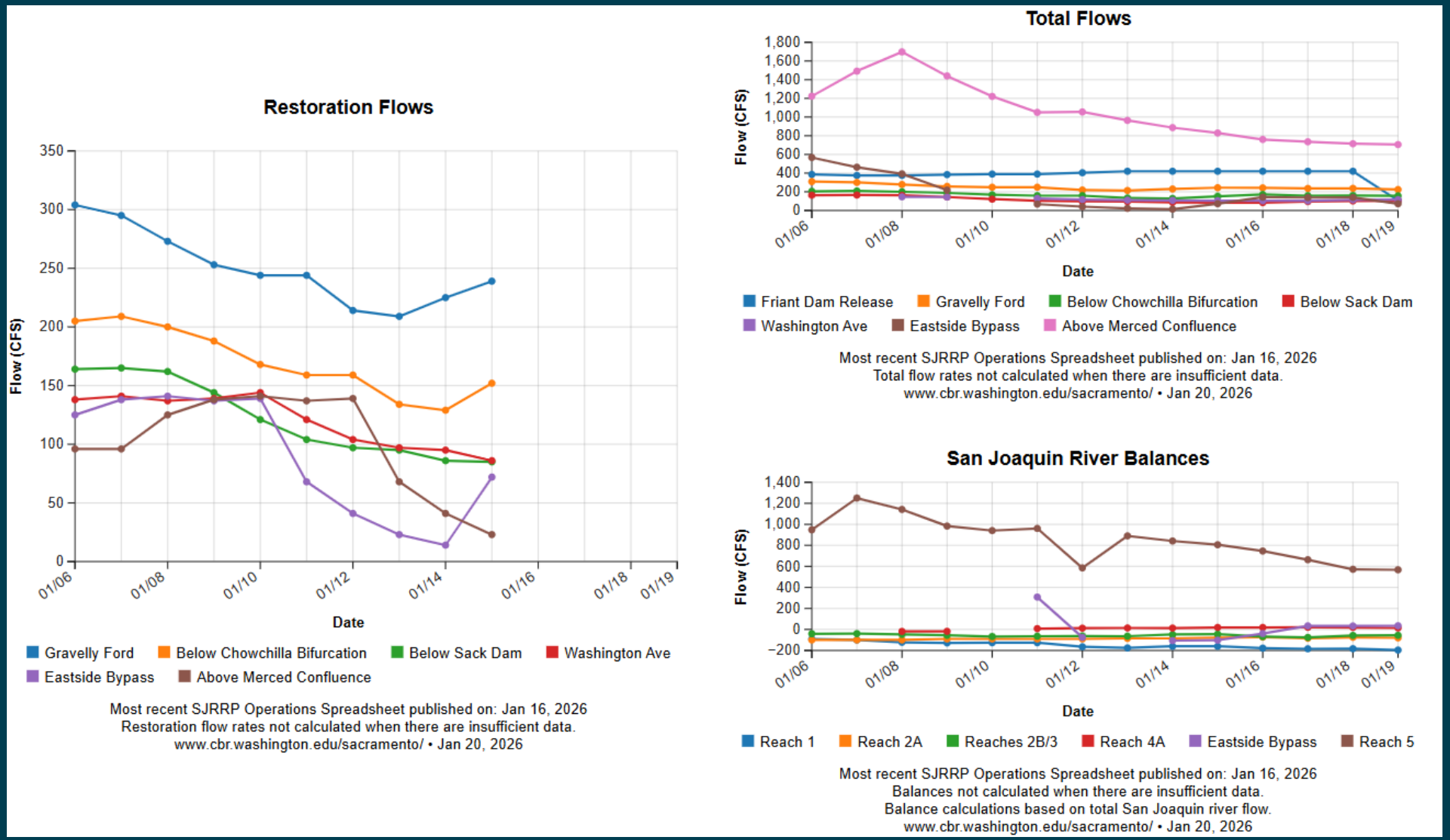
Subway Diagram



https://www.cbr.washington.edu/sacramento/workgroups/sjrrp_subway/

Can be depicted as a chart also



https://www.cbr.washington.edu/sacramento/workgroups/sjrrp_subway/

SAN JOAQUIN RIVER RESTORATION PROGRAM

SacPAS Data Visualization

Pending Additions:

- ❑ Add Restoration Flow rates (not just river flow rates) to hydrograph tool
- ❑ 30-day observed and 30-day forecast for Restoration Flows at Delta
- ❑ Recapture rates at PID, BCID, and Delta
- ❑ Water temperature maps for fisheries management

Planning to schedule a live SacPAS demo in coming months

SAN JOAQUIN RIVER RESTORATION PROGRAM

2026 Operations

Regina Bricka
Erika Kegel
Chad Moore

SAN JOAQUIN RIVER RESTORATION PROGRAM

Forecasting

- Accurate runoff forecasts pave the way for smooth operations, addressing both Restoration and Water Management Goals
- Revised method for “blending” forecasts this year.
- Communicating wider range of probability of exceedance (98% to 2%)
- New 10-day runoff forecast tool in use at several Reclamation sites (incl. Friant)
- 2026 may be a challenging year with more rain than snow in watershed (so far)
- Continued support of FWA “SNOFO” grant from Reclamation
  - Additional ASO surveys and ground-based measurements when conditions warrant
  - Historical snowpack reanalysis by M3Works
  - Historical snowpack reanalysis by NCAR
  - New NCAR SWE prediction tool from snow pillows

SAN JOAQUIN RIVER RESTORATION PROGRAM

Restoration Allocation

- Initial Restoration Allocation issued Jan 16 for Normal-Wet year type (1,606 TAF runoff resulting in 305 TAF Restoration Allocation)
- Next issuance planned for Feb 13 (would likely fall to Normal-Dry if conditions remain dry)
- February Allocation would be informed by ASO survey, DWR snow course measurements, and Bulletin 120 runoff forecast
- April Allocation typically sets the price for Tier 2 URFs
- Final Allocation to be issued in May (June under drought conditions)

SAN JOAQUIN RIVER RESTORATION PROGRAM

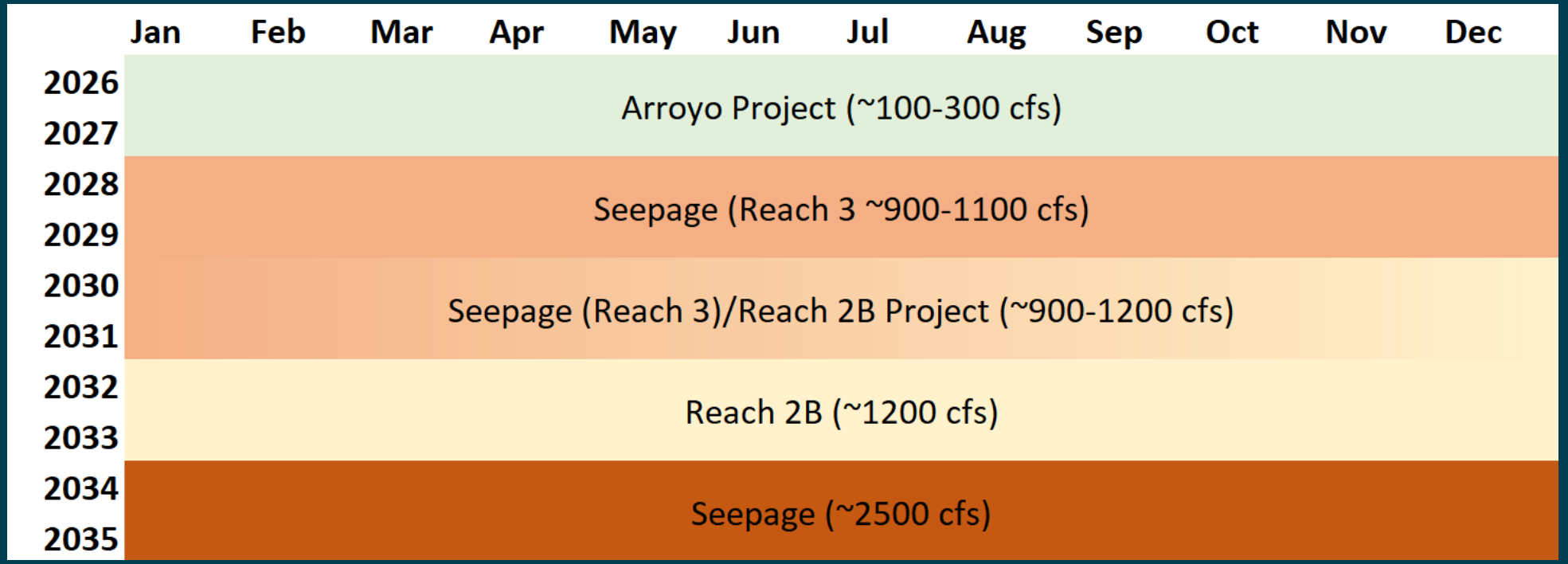
Unreleased Restoration Flows (URF)

- If “Normal-Wet” or “Wet” year type, expect URF sales
- If “Normal-Dry” year type, URFs dependent upon Sack Dam construction
- Tier 1 price remains at $25/AF
- Tier 2 price (2025-2027):
  - 1200 TAF unimpaired runoff = $185/AF
  - 1400 TAF unimpaired runoff = $167/AF
  - 1600 TAF unimpaired runoff = $151/AF
  - 1800 TAF unimpaired runoff = $138/AF
  - Formula: 325000/(Runoff Forecast in TAF (after March 21) +550)
- 7 district signatures outstanding for 2023-2027 URF master agreement – these districts are unable to receive URFs until agreement executed

SAN JOAQUIN RIVER RESTORATION PROGRAM

Channel Capacity

Estimates by Location



Construction Specifications

Maintain the following minimum flows in the San Joaquin River downstream of the contractor use area during construction:

	Dec 1 – Jan 31	Feb 1 – May 25	May 26 – Aug 31	Sep 1 – Oct 31	Nov 1 – 30
San Joaquin River Flow (CFS)	230	230	0	150	230

WMG Priorities for 2026

1. Operations (incl. monitoring support)
2. Recapture
3. Water Rights (incl. HRL)

WMG Team

Regina Bricka (Story) – WMG Deputy
Program mgmt., seepage mgmt.

Erika Kegel – Project Manager
Recapture, RWA, water rights

Chad Moore – Flow & Science Coordinator
Operations, forecasting, URFs

Thank you!

BUREAU OF RECLAMATION

SAN JOAQUIN RIVER RESTORATION PROGRAM

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