Restoration Administrator Flow Recommendation

To: Don Portz, Chad Moore, Emily Thomas, Heather Casillas
CC: Michael Jackson, Rufino Gonzalez, Doug Obegi, Steve Ottemoeller, Ian Buck-Macleod, TAC
Date: June 1, 2021
From: Tom Johnson, Restoration Administrator
Subject: Revised Recommendation for 2021 Restoration Flows

The following is a Restoration Flow Recommendation by the Restoration Administrator (RA) for the 2021 Restoration Year Flows pursuant to the Restoration Flow Guidelines (RFG) Ver. 2.1, as amended, and Exhibit B of the Settlement.

Background

The SJRRP has issued an Updated 2021 Restoration Allocation (Allocation) dated May 21, 2021, which designates 2021 as a **Critical-High** Water Year Type with an Unimpaired Inflow hybrid forecast of 524 TAF and provides an allocation of Restoration Flows of 70.919 thousand acre-feet (TAF) as measured at Gravelly Ford (GRF). The Allocation also specified certain contractual and operational constraints on Restoration Flow releases for 2021.

Since the April Updated Allocation and May 12, 2021 Flow Recommendation (currently in review by the Program), additional runoff forecast information has demonstrated a) the potential for a Millerton Reservoir low point constraint some time in mid-July to late August, and b) the continued potential for an Exchange Contractor (EC) call on Friant and potential releases to the river to supply Exchange Contractor demands. In anticipation of the potential for either a low point constraint or an EC call, the RA, TAC and a small technical work group was reviewing alternative release strategies and corresponding reservoir and river temperature impacts.

The flow recommendation put forth in this Flow Recommendation is the result of that analysis of alternative strategies. The empirical data available to the RA, TAC and technical work group for this specific scenario is limited, as are the modeling tools for flow and temperature. However, based on careful analysis with the data and tools available, the flow schedule included in this Recommendation will achieve the following objectives:

1. Retain cold water in the reservoir for use in the critical mid-September to mid-November spawning and early incubation period;
2. Utilize less total water volume than the current approved February 22 or May 12 Recommendations;
3. Allow “disconnection” of the river downstream of Gravelly Ford and Sack Dam in early June, and subsequent “reconnection” by mid-November of 2021;
4. Potentially reduce the quality of suitable holding habitat for Spring Run Chinook in Reach 1 in the June to early September time frame, but then increase and improve spawning and incubation habitat from mid-September through the end of 2021;

5. Reduce the potential for a low point operational constraint by holding additional water from early June until mid-September.

Compared to the approved February 22, 2021 Recommendation, this Recommendation still utilizes the Restoration Flow allocation plus URF exchanges, but does not utilize Buffer Flows.

This Recommendation is in accordance with the Settlement[1], including the provisions contained therein regarding Restoration Flows during Critical High years, the use of Unreleased Restoration Flows (URF) exchanges, and the use of Buffer Flows.

Additional Considerations

This Recommendation proposes an experimental approach to managing flows in the San Joaquin River during periods of extremely low flows. If successful, this approach could offer an approach to allow successful immigration, spawning and emigration of one or two runs of Chinook salmon, even though the river would have dry reaches in the Restoration area for a portion of the Restoration year. If this approach appears beneficial, future use of a flow Recommendation similar to this will allow for further refinement of timing and flows, and additional analysis of temperature benefits and constraints.

This Recommendation would require shifting of a considerable volume of Restoration Flows from the spring flexible flow period to the fall and winter, possibly a more substantial shift than has previously be evaluated. I anticipate that this Recommendation should successfully pass a water supply test; however, the appropriate evaluations will need to be undertaken to confirm that outcome. I request that the SJRRP undertake the appropriate reviews as expeditiously as possible.

Recommendation for Restoration Year 2021

This Recommendation makes substantial adjustments to the current approved February 22 Flow Recommendation, and the May 12 Recommendation under review.

For the balance of the 2021 Restoration Year, I recommend Restoration Flows as shown in Table 1. The recommended Friant Release and GRF targets include Restoration Flows and water returned (Returned Exchanges) from 2016 and 2020 URF Exchanges. Tables at the end of this Recommendation provide the relative division between Restoration Flows and Returned Exchanges. The SJRRP is currently working with the URF Exchange contractors to develop more detailed Returned Exchanges schedules.

[1] Stipulation of Settlement, NRDC et. al. v. Kirk Rodgers et. al. October 2006.

Table 1. Summary of Restoration Flow Recommendations for June 1, 2021 through February 28, 2022.

Date Range	***Friant Release****	***Buffer Flow Release***	***Restoration Flows at Gravelly Ford*****	***Total Flow at Gravelly Ford******	***Target Flow at Sack Dam***
June 1 through June 3, 2021	As necessary, est. at 330 cfs	0 cfs	135 cfs	140 cfs	48 cfs
June 4 through June 30, 2021	As necessary, est. at 190 - 290 cfs	0 cfs	0 cfs	5 cfs	48 to 0 cfs[1]
July 1 through August 31, 2021	As necessary, est. at 230 - 300 cfs	0 cfs	0 cfs	5 cfs	0 cfs
September 1 through September 9, 2021	As necessary, est. at 210 - 285 cfs	0 cfs	0 cfs	5 cfs	0 cfs
September 10 September 11 September 12 September 13 September 14 September 15	As necessary, est. at 210 - 570 cfs	0 cfs	50 cfs 100 cfs 150 cfs 200 cfs 250 cfs 300 cfs	55 cfs 105 cfs 155 cfs 205 cfs 255 cfs 305 cfs	0 cfs[2]
September 16 through September 30, 2021	As necessary, est. at 565 – 620 cfs	0 cfs	350 cfs	355 cfs	0 cfs[2]
October 1 through October 15, 2021	As necessary, est. at 490 - 550 cfs	0 cfs	325 cfs	330 cfs	0 to 50 cfs[2]
October 16 through October 31, 2021	As necessary, est. at 465 - 520 cfs	0 cfs	300 cfs	305 cfs	30 to 100 cfs[2]
November 1 through November 11, 2021	As necessary, est. at 400 - 470 cfs	0 cfs	275 cfs	280 cfs	80 to 195 cfs[2]
November 12 through November 17, 2021	As necessary, est. at 350 - 420 cfs	0 cfs	225 cfs	230 cfs	55 to 170 cfs[2]
November 18 through November 30, 2021	As necessary, est. at 300 – 370 cfs	0 cfs	175 cfs	180 cfs	86 cfs[2]

Date Range	*Friant Release**	*Buffer Flow Release*	*Restoration Flows at Gravelly Ford***	*Total Flow at Gravelly Ford****	*Target Flow at Sack Dam*
December 1 through December 31, 2021	As necessary, est. at 275 - 335 cfs	0 cfs	150 cfs	155 cfs	62 cfs
January 1 through January 31, 2022	As necessary, est. at 250 - 310 cfs	0 cfs	145 cfs	150 cfs	62 cfs
February 1 through February 28, 2021	As necessary, est. at 240 - 300 cfs	0 cfs	135 cfs	140 cfs	52 cfs

**** Estimated releases at Friant Dam are based upon Exhibit B estimates of Riparian/Holding Contract releases and Reach 1 losses. In recent years those required releases have generally been running higher than Exhibit B estimates by 20 to 70+ cfs.***

***** Restoration Flows include Buffer Flows and URF Exchanges (where utilized)***

******Total Flow includes the minimum Holding Contract flows of 5 cfs required at Gravelly Ford***

[1] Restoration Flows will ramp down at Sack Dam for a few days, as Restoration Flows in the river between Friant Dam and Sack Dam move down the system. The SJRRP Flow Coordinator will need to closely coordinate with Mendota Pool and Sack Dam operators, to specify a daily Sack Dam release in accordance with that ramp down.

[2] It is anticipated that Restoration Flows will not reach Sack Dam for at least two weeks. Then, Restoration Flows will gradually increase as losses in Reaches 2A & 2B are overcome and more Restoration Flow makes it to Sack Dam. The SJRRP Flow Coordinator will need to closely coordinate with Mendota Pool and Sack Dam operators, to specify a daily Sack Dam release. During the period of September 16 through November 15 (when additional Restoration Flows are deployed to re-wet the dry reaches of the river), flow targets at Sack Dam will range from 0 to 195 cfs.

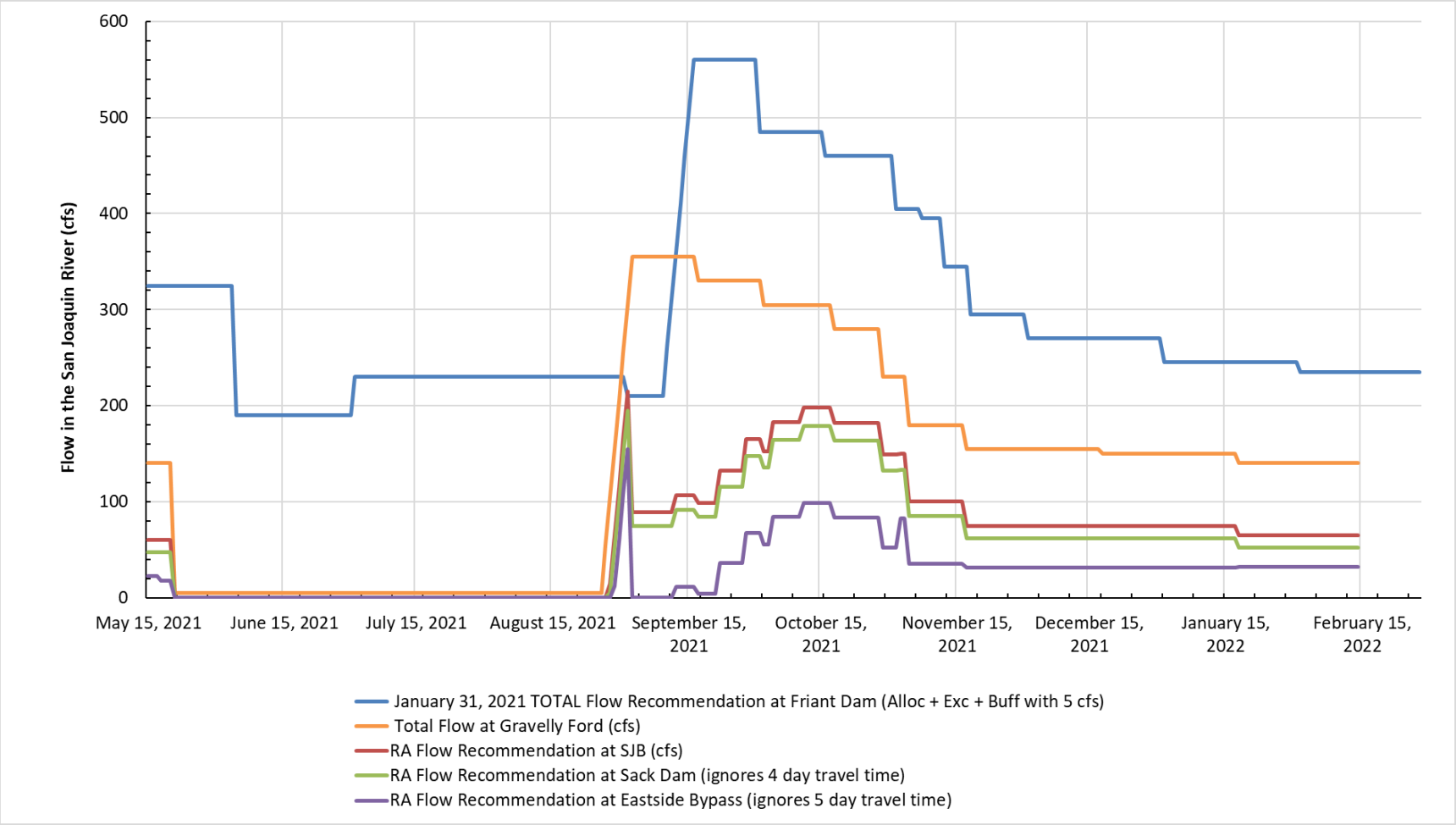
- This Recommendation uses ***21.425 TAF*** of water that is returned from URF exchanges with Friant Contractors. The returned exchange water is not differentiated from Restoration Flows in Table 1 of this Recommendation. I will coordinate with the Program and the exchanged water returning entities as to the precise timing and accounting for the returned water as a part of this schedule.
- I have not allocated approximately 1,000 acre-feet of the Restoration Flow allocation to account for over- and under-release at GRF, and for flow changes at different times of day (a flow change of 50 cfs at 8:00 AM uses approximately 33 acre-feet more water than a flow change at 4:00 PM the same day). I anticipate all of the Restoration Flows will be released by the end of the Restoration Year.

Figure 1 below show the anticipated Flow Recommendation for this year at key locations in the Restoration Area.

Additional Consultation

I will continue to coordinate with the TAC, Program Office, and Implementing Agencies to monitor hydrologic conditions, fish population conditions, uncontrolled season releases, operational conditions, and other factors, and will update the Restoration Flow Recommendation as conditions change.

Figure 1. 2021 Restoration Flows, May 15, 2021 – February 28, 2022



Restoration Flow Tables

Summary Volumes			
GRAVELLY FORD FLOWS AVAILABLE VERSUS RA RECOMMENDATION			
	Available	**Used**	**Balance**
Total GRF River Flow Target without 5 cfs (March 1, 2020 - Feb 28, 2021	**102.417 TAF**	**92.162 TAF**	**10.255 TAF**
Allocation Flow	70.919 TAF	69.957 TAF	**0.962 TAF**
Exchange Flow	21.425 TAF	21.421 TAF	**0.004 TAF**
Buffer Flows	10.073 TAF	0.783 TAF	**9.290 TAF**

BUFFER FLOWS (Volumes per RFG V2.1 Section 9.3)			
	Available	**Used**	**Balance**
Cumulative FLEXIBLE Buffer Flows May 1 - Sept 30 =	3.642 TAF	0.000 TAF	**3.642 TAF**
Cumulative FIXED + FLEXIBLE Buffer Flows May 1 - Sept 30 =	7.284 TAF	0.783 TAF	**6.501 TAF**
Cumulative Buffer Flows Oct 1 - Dec 31 (Flex==>Sept 3-Jan 28) =	2.789 TAF	0.000 TAF	**2.789 TAF**
Total Buffer Flows =	10.073 TAF	0.783 TAF	**9.290 TAF**

ACCOUNTS SUMMARY at Gravelly Ford, this Restoration Year			
	Available	**Used**	**Balance**
Continuity (Baseflows):	29.365 TAF	61.379 TAF	-32.013 TAF
Spring Flexible Flows:	40.959 TAF	0.000 TAF	40.959 TAF
Fall Flexible Flows:	0.595 TAF	0.000 TAF	0.595 TAF
Riparian Recruitment Flows:	0.000 TAF	0.000 TAF	0.000 TAF
Extra Summer Flow (Water Supply	0.000 TAF	8.579 TAF	-8.579 TAF
Total:	**70.919 TAF**	**69.957 TAF**	**22.387 TAF**
URF Exchanges Scheduled:	21.425 TAF	21.421 TAF	10.077 TAF
Buffer Flows:	10.073 TAF	0.783 TAF	9.290 TAF
Last Year Feb Flows:	0.000 TAF	0.000 TAF	0.000 TAF