Restoration Administrator Flow Recommendation

To: Anne Lubas-Williams, Chad Moore, Emily Thomas, Elizabeth Vasquez
CC: Michael Jackson, Rufino Gonzalez, Doug Obegi, Steve Ottemoeller, Jeff Payne, TAC
Date: February 26, 2018
From: Tom Johnson, Restoration Administrator
Subject: Updated Recommendations for 2018 Restoration Flows

The following is a recommendation by the Restoration Administrator (RA) for 2018 Restoration Flows, pursuant to the December 2013 Restoration Flow Guidelines (RFG), as amended, and Exhibit B of the Settlement.

Background

I am in receipt of the Restoration Allocation (Allocation) dated February 16, 2018 which designates 2018 as a **Critical High** Water Year Type and provides an allocation of Restoration Flows of 70,919 acre-feet as measured at Gravelly Ford. The Allocation also specifies certain contractual and operational constraints on Restoration Flow releases (Recommendation) for 2018.

Additional Considerations

In addition to receiving the Allocation and analyzing hydrologic conditions and forecasts, I have consulted with the Technical Advisory Committee (TAC), Reclamation, and the Settling Parties with regards to potential recommendations, operational and biological implications, and water supply impacts. Several considerations factored in the Restoration Flow Recommendation.

- The San Joaquin River Restoration Program (SJRRP) is currently undertaking juvenile salmon releases for rotary screw trap (RST) testing. The release program will continue throughout at least March. Higher river flows facilitate both RSDT operation and testing.
- Although the current forecast is “Critical-High”, there is reasonable possibility that with even modest precipitation, subsequent Allocations may increase back up to “Dry” conditions. Holding releases at levels similar to late February levels for a period of time into March will allow for increasing flows back up to at least “Dry” year type base flows without a substantial dip in flows, should the March allocation be “Dry”.
- A key focus of the 2017 Restoration Flow Recommendation is to retain flow connectivity through all reaches. Flow connectivity provides water to support the extant non-salmonid native fish populations, support riparian vegetation, evaluate microhabitat and water temperatures under low flow conditions, and evaluate flow losses under steady-flow conditions across seasons. Maintaining river connectivity via a target flow downstream of Sack Dam remains a focus of this Recommendation.
- The SJRRP is planning on releasing tagged spring-run Chinook salmon adults below Friant Dam during the summer (May to September time frame, dates TBD). This release will be a repeat of last year’s successful release of adult spring-run Chinook salmon, and will support additional studies of movement, spawning location, and spawning and emergence success. Dam release temperatures for 2018 are anticipated to be cooler than in 2017 (even with this Critical-High

year type); analysis supporting this Recommendation considered preservation of the Millerton Lake cold water pool to support the adult release and holding through the summer in Reach 1A.
- Approximately 2,400 acre-feet of Restoration Year 2017 water can be exchanged for a net release of approximately 2,040 acre-feet of Restoration Year 2018 releases.
- Up to 4,900 acre-feet of water from prior-year URF exchanges with Friant Contractors may be called upon for this Recommendation.
- Buffer Flows are not utilized in this Recommendation, but may be utilized in updated Recommendations later this year depending on flow conditions.

This Recommendation includes an update to the February 1, 2017 Recommendation that will pertain to the balance of Restoration Year 2017 (February 2018), plus a Recommendation for Restoration Year 2018 that supersedes the Default Flow contained in my February 1, 2017 Recommendation.

Updated Recommendation for Balance of Restoration Year 2017 (February 2018)

The February 1 Recommendation deployed ONLY Restoration Year 2017 flows. I am updating the February 1, 2018 Recommendation with minor adjustments in response to the February 16 "Critical-High" water year Allocation.

- On February 20th, 2018, increase flow to the river from Millerton Dam to 500 cfs, timing of change is at Friant Dam operator's discretion.
- After 72 hours, lower flow in the river to 300 cfs.
- The pulse flow created by this February 20th, 2018 increase is intended to pass through Mendota Pool and past Sack Dam. Reclamation will need to coordinate the timing of appropriate release changes at Mendota Pool and Sack Dam with the operators of those facilities.
- A 2017 Restoration Year Restoration Flow balance of approximately 2,400 AF is anticipated at the end of February 2018. Reclamation should undertake a URF exchange for this 2017 residual amount, for repayment in early Restoration Year 2018.
- I do not recommend moving any Restoration Year 2018 water into February under the Spring Flexible Flow guidelines.

Recommendation for Restoration Year 2018 (Commencing March 1, 2018)

For the 2018 Restoration Year commencing on March 1 of 2018, I am recommending the following:

- From March 1 through March 15, release 300 cfs from Friant Dam.
- From March 16, 2018 through February 28, 2019, release flows from Friant Dam to achieve a flow target of 105 cfs of Restoration Flows and 5 cfs of Holding Contract flow at Gravelly Ford (GRF).
- Based on anticipated seepage losses from GRF through Mendota Pool to Sack Dam, this March 16, 2018-February 28, 2019 Friant Dam release should provide for approximately 30 cfs in the river below Sack Dam. The SJRRP will monitor actual Restoration Flow deliveries to Mendota Pool, and coordinate adjustment of Mendota Pool and Sack Dam releases to ensure that all Restoration Flow arriving at Mendota Pool is released below Sack Dam (with appropriate loss

adjustments). There should be no recapture of Restoration Flow at Mendota Pool whatsoever between March 1, 2018 and February 28, 2019; all Restoration Flows arriving at Mendota Pool should be released downstream.

Implementation of this Recommendation will include several unique operational and accounting aspects, including release of exchanged 2017 URF's in early March of 2018, shifting of spring flexible flow water to late spring and summer, shifting of fall pulse flow water to late fall and winter, and deployment of up to 5,000 acre-feet of water from prior-year URF exchanges with Friant Contractors. SJRRP will undertake a water supply test for this Recommendation in accordance with the current RFG's, and will undertake other exchange and operational coordination actions as necessary to achieve the Recommendations above. I will continue to coordinate closely with the SJRRP, and adjust this Recommendation as necessary to accommodate operational challenges and changing allocations based on runoff evolution.

Table 1 below compares the default Exhibit B flow schedule and the Recommended Flow Schedule.

Additional Consultation

I will continue to coordinate with the TAC, Program Office, and technical study leads to monitor hydrologic conditions, fish population conditions, flood control releases, operational conditions, and other factors. I look forward to Reclamation's additional Restoration Flow allocations, and forthcoming Restoration Year.

Table 1 – Restoration Year 2018 Flow Recommendation

Critical-High		RECLAMATION DEFAULT FLOW SCHEDULE					RA RECOMMENDED FLOW SCHEDULE					
Schedule Start	Friant Default Flow (cfs)	Gravelly Ford Flow Targets (cfs)	Exhibit B Riparian Holding Contract Demand (cfs)	Base Flow (acre-ft)	Spring Flexible Flow (acre-ft)	Fall Flexible Flow (ac-ft)	RA Flow Recommendation Friant Dam Release (cfs)	RA Recommendation Gravelly Ford Flow Targets (cfs)	Base Flow (acre-ft)	Spring Flexible Flow (acre-ft)	Fall Flexible Flow (ac-ft)	Difference from Default Flow Schedule (ac-ft)
1-Mar	500	375	130		11,008		300	175		5,058		-5,950
16-Mar	1,500	1,255	130		43,478		235	110		3,332		-40,145
1-Apr	200	55	150		2,975		255	110		6,248		3,273
1-May	215	30	190	1,537			295	110	6,456			4,919
1-Jun	215	30	190	1,488			295	110	6,248			4,760
1-Jul	255	30	230	744			335	110	3,124			2,380
16-Jul	255	30	230	2,331			335	110	9,788			7,458
1-Sep	260	55	210	2,975			315	110	6,248			3,273
1-Oct	160	5	160			0	265	110			6,456	6,456
1-Nov	400	275	130			3,213	235	110			1,250	-1,964
7-Nov	120	5	120			0	225	110			833	833
11-Nov	120	5	120			0	225	110			4,165	4,165
1-Dec	120	5	120	0			225	110	6,456			6,456
1-Jan	110	15	100	615			205	110	6,456			5,841
1-Feb	110	15	100	555			205	110	5,831			5,276
		TOTAL RELEASE VOLUME (ac-ft):		10,245	57,461	3,213	TOTAL RELEASE VOLUME (ac-ft):		50,608	14,638	12,704	7,031
								DIFFERENCE (ac-ft):	-40,364	42,823	-9,491	
	TOTAL DEFAULT FLOW RELEASE VOLUME (ac-ft):			**70,919**					**77,950**	**TOTAL RESTORATION FLOW RELEASE VOLUME (ac-ft)**		
									-7,031	**DIFFERENCE WITH DEFAULT VOLUME (ac-ft)**		
									2,160	**EXCHANGE WITH 2017 URF'S (ac-ft)**		
									4,871	**CALL ON 2016 URF EXCHANGE CONTRACTS (ac-ft)**		
									0	**BALANCE (ac-ft)**		