Restoration Administrator Flow Recommendation

To: Ali Forsythe, Chad Moore, Emily Thomas, Elizabeth Vasquez
CC: Michael Jackson, Jerry Herman, Rufino Gonzalez, Ed Salazar, Doug Obegi, Steve Ottemoeller, Jeff Payne, TAC
Date: December 21, 2017
From: Tom Johnson, Restoration Administrator
Subject: Updated Recommendations for 2017 Restoration Flows

The following is an updated recommendation by the Restoration Administrator (RA) for 2017 Restoration Flows.

Background

This December 21, 2017Recommendation supplants the September 5, 2017 Recommendation, and provides an updated flow recommendation for a winter pulse flow.

Considerations

The focus of this year's Restoration Flow releases continues to be:

1. Continuing year-round connectivity of the river from Friant Dam to the Merced River confluence;
2. Maximizing Restoration Flow releases as necessary to achieve Restoration Goal, within flow constraint limitations, limited only by the limiting flow constraint between Friant Dam and the Merced River;
3. Continuing to refine coordination and operations of the Restoration Program in conjunction with operations on the San Joaquin River.

In addition to the considerations listed above, the San Joaquin River Restoration Program (Program) successfully released approximately 115 adult spring-run Chinook salmon into the upper portion of the San Joaquin River below Friant Dam. Those adults successfully built at least 15 redds, and recent rotary screw trap (RST) operations have confirmed the emergence and downstream migration of juvenile salmonids. The RST's are currently operating at less than full efficiency due to low flows, and slightly higher flows may improve capture efficiency. This updated Recommendation will provide additional flows up to safe seepage levels to improve RST efficiency during the next two months (approximately).

Recommendation

Restoration Flow recommendations will continue to be updated in response to biological and operational constraints, and changing conditions.

At this time, I am recommending the following Restoration Flows shown in Tables 1 and 2 for the balance of Restoration Year 2017, although additional refinements to the Flow Recommendation may be warranted at a later time.

TABLE 1. The following plan is outlined to maximize Restoration Flow releases from Sack Dam while adhering to the Seepage Management Plan and protecting agricultural fields adjacent to the San Joaquin River from seepage impacts.

Planned Mendota Dam Flow Change Date (0900)	**New Sack Dam Flow (cfs)**	Estimated Minimum Friant Release to support Sack Dam Release (cfs)	Date Flow Reaches Sack Dam	Date Flow Reaches Washington Avenue	10 days of stabilization	Planned date of in-field boring (within 1 day of stabilization)	Planned next notification to Mendota Pool and Sack Dam operators (1500)
12/12/17	**140**	375	12/13/17	12/14/17	12/23/17	12/22/17	12/22/17
12/23/17	**150**	380	12/24/17	12/25/17	1/3/18	1/4/18	1/4/18
1/5/18	**160**	390	1/6/18	1/7/18	1/16/18	1/17/18	1/18/18
1/19/18	**170**	405	1/20/18	1/21/18	1/30/18	1/31/18	2/1/18
2/2/18	**180**	415	2/3/18	2/4/18	2/13/18	2/14/18	2/15/18
2/16/18	**190**	425	2/17/18	2/18/18	2/27/18	2/28/18	3/1/18
3/1/18	2018 Restoration Year						

TABLE 2. The following plan is outlined to synchronize Friant Dam releases with the above Sack Dam schedules. This would supersede the existing flow recommendation. Note that Reach 1 and 2 losses are based on current observations, and are not Exhibit B losses.

Estimated Friant Dam Flow Change Date (0900)	**Estimated Friant Release to support Sack Dam Release (cfs)**	Assumed Reach 1 (these are NOT Ex.B)	Estimated Tributary Inflow (cfs)	**Gravelly Ford Target (cfs)**	Estimated Reach 2 Losses (these are NOT Ex.B)	Estimated Bifurcation Flow (cfs)	MP Negotiated Losses (-10 cfs, -5%)	Estimated MP Inflow Credit	Delta (cfs) with Default Hydrograph at GRF at time of change	Delta (AF) with Default Hydrograph at GRF
12/10/17	**375**	140	0	**235**	70	165	18	147	0	0
12/21/17	**380**	140	0	**240**	70	170	18	152	5	49
1/4/18	**395**	140	0	**255**	70	185	19	166	0	0
1/17/18	**405**	140	0	**260**	70	190	19	171	5	139
1/31/18	**415**	140	0	**270**	70	200	20	180	15	417
2/14/18	**425**	140	0	**280**	70	210	20	190	25	694
									total	**1299**

- Flow releases, targets and measurement protocols shall be in conformance with the Restoration Flow Guidelines.
- In the event that the net losses in Reach 1 from Riparian Releases/Holding Contract demands may be less than the Exhibit B amounts for a period of days or weeks after the transition from flood control releases to Restoration Flows, any additional flow that arrives at GRF above the target will be released past GRF.
- In the event that losses between GRF and Sack Dam are less than anticipated for a period of days or weeks after the transition from flood control releases to Restoration Flows, any additional flow that arrives at Sack Dam above the target will be released past Sack Dam.
- Reclamation will perform flow bench evaluations at locations and at times appropriate to monitor potential seepage impacts, and will inform me and river operators as to any flow limitations associated with seepage concerns.
- If Restoration Flow seepage limitations are imposed, then Restoration Flows will be reduced (if seepage limitations are upstream of Mendota Pool, or Restoration Flows will be recaptured at Mendota Pool (if seepage limitations are downstream of Mendota Pool).
- I will work closely with Reclamation and river operators to adjust Restoration Flows as needed, anticipating adjustments in Restoration Flow releases due to seepage constraints and variations in seepage losses as a result of groundwater levels. Flow releases from Friant Dam will be adjusted up or down as needed to achieve targets at GRF and Sack Dam.
- In the event that flow bench evaluations dictate that seepage impacts are of concern, Restoration Flows may be revised downward.

This fall pulse flow should use approximately 1,299 AF of the remaining 5,690 AF of fall pulse volume available above the base flows. The remaining fall pulse water (approximately 4,391 AF) shall be retained at this time in anticipation of one or more pulse flows in February 2018 to facilitate the movement and monitoring of juvenile spring-run salmon. For the purposes of any impact analysis, it can be assumed that the 4,391 AF will be released in February of 2018. In the coming weeks I will develop a more refined schedule of releases for February of 2018.

Additional Consultation

I will continue to coordinate with the TAC, Program Office, and technical study leads to monitor hydrologic conditions, fishery conditions, flood control releases, operational conditions, and other factors, and to adjust the Flow Recommendation as needed in response.