

Restoration Administrator Flow Recommendation

To: Ali Forsythe, Chad Moore, Emily Thomas, Elizabeth Vasquez
CC: Michael Jackson, Rufino Gonzalez, Doug Obegi, Steve Ottemoeller, Jeff Payne, TAC
Date: January 31, 2017
From: Tom Johnson, Restoration Administrator
Subject: Recommendations for 2017 Restoration Flows

The following is a recommendation by the Restoration Administrator (RA) for 2017 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 dated January 20, 2017 which provides an allocation of Restoration Flows of 556,542 acre-feet for 2017, as measured at Gravelly Ford. The Allocation also specifies certain contractual and operational constraints on flow releases for 2017.

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.

In general, the focus of this year's Restoration Flow releases will be threefold:

1. Continuing year-round connectivity of the river from Friant Dam to the Merced River confluence;
2. Maximizing Restoration Flows, limited only by the limiting flow constraint between Friant Dam and the Merced River;
3. Refining operations of the Restoration Program in conjunction with operations on the San Joaquin River.

In addition to being a requirement of the Settlement, the fully connected river allows continuation of the monitoring effort, including better information on geomorphic process, flow losses, water temperature changes, and flow attenuation. Biologically, the connected river supports the food web and other native fish production. Additionally, this wet year type may result in very food juvenile and smolt production and outmigration success. Depending on flood control releases, it is possible that we may see adult Spring-run Chinook salmon return to the system this year.

This is the first Wet year type since the commencement of Restoration Flows on January 1, 2014; there will be much to learn about river response in Reaches 3 – 5 as the river transitions between flood

control releases and Restoration Flows. Management of flow transitions and coordination with flood control releases will provide useful insights for future restoration actions.

Recommendation

Assuming numerous updates and changes to the river operations and hydrology as we progress through the Restoration Year, Restoration Flow recommendations will be updated in response to subsequent Allocations, flood control releases, and other changing conditions. At this time, I am recommending the following Restoration Flows for 2017:

- At this time, the best anticipated flood control release schedule for Friant Dam calls for releases to the river throughout February to accomplish management of reservoir inflows and evacuation of flood space. The Restoration Flow table included in this recommendation assumes flood control releases throughout February.
- In the event that flood control releases to the San Joaquin River (SJR or River) cease prior to March 1, 2017, the October 17, 2016 RA Recommendation calls for 270 cfs at Gravelly Ford and 150 cfs at Sack Dam. Move additional 2017 Allocation water forward to target 415 cfs at Gravelly Ford and 300 cfs of Restoration Flows at Sack Dam to reduce the stage difference between flood release flows and Restoration Flows. Maintain these target flow levels through February 28, 2017.
- On March 1, 2017, target 415 cfs at Gravelly Ford which should yield 300 cfs of Restoration Flows at Sack Dam. This assumes Exhibit B riparian contract demands in Reach 1 and seepage losses in Reach 2, and a negotiated 5% loss rate through the Mendota Pool complex. Maintain these target flow levels through June 30, 2017.
- From July 1, 2017 through February 28, 2018, target the Exhibit B GRF flows for a Wet year type:
 - 125 cfs July 1 – Aug 31
 - 145 cfs Sept 1 – Sept 30
 - 195 cfs Oct 1 – Oct 31
 - 575 cfs Nov 1 – Nov 10
 - 235 cfs Nov 11 – Dec 31
 - 255 cfs Jan 1 – Feb 28
- I will work closely with Reclamation and river operators to adjust flows as needed during this period, 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 Sack Dam.
- I will revise the Fall pulse later in the summer after observing Delta and Lower San Joaquin River conditions, and consulting with TAC and Program fisheries biologists.
- In the event that additional seepage easements are acquired timely, Restoration Flows prior to June 30 may be revised upward.
- In the event that flow bench evaluations dictate that seepage impacts are of concern, Restoration Flows prior to June 30 may be revised downward.
- This Restoration Flow recommendation is anticipated to produce over 350,000 acre-feet of URF's.

- 250,000 acre-feet of URF's are released immediately, for disposition as soon as practical through sale by Reclamation.
- The balance of URF's (approximately 100,000 acre-feet) are withheld at this time in the event there is a change in the Allocation, in case hydrologic conditions turn dry, to accommodate increased channel capacity from the timely securing of additional seepage easements, or other factors. It is anticipated that a second block of URF's will be allocated and released in a timely manner to reduce the risk of their spilling; the intent at this time is to allocate all URF's, other than minor withholding to account for changing conditions, prior to June 30, 2017.

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. I look forward to Reclamation's additional Restoration Flow allocations, and managing the anticipated high runoff situation.

Wet								RA RECOMMENDED FLOW SCHEDULE		
Schedule Start	Default Friant Flow (cfs)	SJR Capacity Constraint (Reach 2B, cfs) ¹	Default Friant Flow with Reach 2B Constraints (cfs)	Gravelly Ford Flow Targets with Reach 2B Constraints (cfs)	Exhibit B Riparian Holding Contract Demand (cfs)	Reclamation GRF Default Flow with Reach 2B Constraints (acre-ft)	SJR Capacity Constraint (River constraint, cfs) ²	RA Flow Recommendation Friant Dam Release (cfs)	RA Recommendation Gravelly Ford Flow Targets (cfs)	Restoration Flow at GRF (acre-ft)
1-Mar	500	1,390	500	375	130	11,008	540	540	415	12,198
16-Mar	1,500	1,390	1,390	1,265	130	39,987	540	540	415	13,012
1-Apr	2,500	1,390	1,390	1,245	150	36,893	560	560	415	12,198
16-Apr	4,000	1,390	1,390	1,245	150	36,893	560	560	415	12,198
1-May	2,000	1,390	1,390	1,205	190	73,785	600	600	415	25,210
1-Jun	2,000	1,390	1,390	1,205	190	71,405	600	600	415	24,397
1-Jul	350	1,480	350	125	230	3,570	640	350	125	3,570
16-Jul	350	1,480	350	125	230	11,187	640	350	125	11,187
1-Sep	350	1,460	350	145	210	8,331	620	350	145	8,331
1-Oct	350	1,410	350	195	160	11,683	570	350	195	11,683
1-Nov	700	1,380	700	575	130	6,783	540	350	225	2,618
7-Nov	700	1,380	700	575	130	4,522	540	350	225	1,745
11-Nov	350	1,370	350	235	120	9,124	530	350	235	9,124
1-Dec	350	1,370	350	235	120	14,142	530	350	235	14,142
1-Jan	350	1,350	350	255	100	15,372	510	350	255	15,372
1-Feb	350	1,350	350	255	100	13,884	510	350	255	13,884
TOTAL RELEASE VOLUME (ac-ft):						368,569	TOTAL RELEASE VOLUME (ac-ft):			190,869
TOTAL RESTORATION FLOW RELEASE VOLUME (ac-ft):							TOTAL RESTORATION FLOW RELEASE VOLUME (ac-ft):			190,869
TOTAL DEFAULT FLOW RELEASE VOLUME (ac-ft):						556,542	DIFFERENCE WITH CONSTRAINED VOLUME (ac-ft):			177,699
TOTAL DEFAULT FLOW RELEASE VOLUME WITH CONVEYANCE CONSTRAINTS (ac-ft):						368,569	DIFFERENCE WITH DEFAULT VOLUME (ac-ft):			365,673
URF's due to Conveyance Constraints (ac-ft):						187,974				
Notes:										
Current Restoration Flow capacity limitations by Reach from 2017 Channel Capacity Report, cfs:										
2A = 2,140; 2B = 1,120; 3 = 900; 4A = 300, 4B2 = 930, 5 = 2,350, MESB = 580; LESB = 2,890; Mariposa = 350										
¹ Reach 2B constraint assumes recapture of excess water at Mendota Pool										
² River Flow Limitation is dictated by the constraining reach, in this case 300 cfs seepage limitation in Reach 4, which in turn dictates approximately 415 cfs at GRF and approx. 510 to 640 cfs at Friant dependng on Holding Contracts										