



— BUREAU OF —
RECLAMATION

Stanislaus Stepped Release Plan, Water Year 2021 Fall Pulse Flow Operations Plan

October 9, 2020

This Stanislaus Stepped Release Plan (SRP) – Water Year (WY) 2021 Final Operations Plan details Reclamation’s plan for operating the Stanislaus River to meet WY 2021 fall pulse flow requirements. The Final Operations Plan incorporates feedback from the Stanislaus Watershed Team (SWT) who convened September 16, 2020 to discuss a pulse flow Draft Operations Plan.

Background

A fall pulse flow is one component of the daily flow schedule in the Stanislaus River Stepped Release Plan (SRP) pursuant to Section 4.10.6.1 of the U.S. Bureau of Reclamation’s (Reclamation) and California Department of Water Resources’ (DWR) Proposed Action for the coordinated long term operation (LTO) of the Central Valley Project (CVP) and the State Water Project (SWP), dated October 2019 (Proposed Action, PA), and the corresponding Biological Opinion (BiOp) issued pursuant to section 7 of the federal Endangered Species Act (ESA) by NOAA’s National Marine Fisheries Service (NMFS), dated October 21, 2019. As noted on page 4-81 of the Biological Assessment, “the New Melones SRP will be implemented similarly to current operations under the 2009 biological opinion with a default daily hydrograph, and the ability to shape monthly and seasonal flow volumes to meet specific biological objectives.” On page 4-82 of the Biological Assessment, it is further described that “The Stanislaus Watershed Team will also provide input on the shaping and timing of monthly or seasonal flow volumes to optimize biological benefits.”

Water Volume Accounting

Reclamation intends to use the water accounting framework (which accommodates water year type changes in the winter and spring) used by the Stanislaus Operations Group (precursor to the SWT) to implement the SRP. Once snow surveys and hydrologic forecasting begins, the water year type is generally updated mid-month based on the snow surveys completed early in the month. To accommodate those potential changes in year type, the framework calculates the total required instream flow volume for a given period based on the default flow schedule in the SRP from the 16th of Month A to the 15th of Month B, based on the water year type determined by the Month A forecast. During the summer and fall, the water year type does not change but SWT will account for the SRP volume using this framework for consistency throughout the year.

The 60-20-20 San Joaquin Index (the index used to determine the water year type for SRP implementation) was “Dry” based on the May 1, 2020 forecast. The total required instream flow volume pursuant to the SRP for the October 1-December 31, 2020 period is detailed below:

Date Range	Water Year Type	Total Water Volume in Default Schedule in SRP (acre-feet)
10/1/20-10/15/20	Dry	6,545
10/16/20-11/15/20	Dry	38,479
11/16/20-12/15/20	Dry	11,901
12/16/20-12/31/20	Dry	6,347
Total		63,273

Reshaped SRP Flows

For WY 2021, Reclamation intends to implement a reshaped fall pulse flow according to the flow schedule described in Alternative 1 (Alt-1) (see details in Attachment 1).

At the September 16, 2020 SWT meeting, the technical team discussed the alternatives for the fall pulse flow schedule. Based on discussion, and in order to accommodate flows needed for important carcass surveys, gravel placement, recreational activities and other stakeholder interests on the Stanislaus River, the SWT supported Alternative 1 (with a minor change in timing made after the meeting to correctly align preferred rafting flows to the weekends, as originally intended).

The Alt-1 schedule has the same total volume (62, 373 AF, including base flows) for the October 1–December 31 period as the default SRP Dry schedule, as described in the Water Volume Accounting section of this plan. Reclamation, and the SWT, believe that the Alt-1 reshaping optimizes biological benefits by improving instream conditions and providing an attraction cue for adult salmonids returning to spawn in the Stanislaus River. Higher flows are expected to reduce water temperature (or at least buffer daily maximum water temperature) to provide conditions suitable for the migration and holding of adult salmonids. By starting the fall pulse flow the second week of October and extending the reshaped fall pulse flow into November, SWT expects the higher-than-base flows will help buffer water temperatures during the seasonal transition to cooler air temperatures. Scheduled flows in Alt-1 are down to base flows in early November, before peak spawning is expected to occur.

Some key features of the Alt-1 fall pulse include:

- As in the default schedule, **higher fall flows** (compared to base flows) are intended to provide an attraction cue for salmonids returning to spawn.
- Reshaping the single pulse identified in the default SRP schedule into **three-peaks increases flow variability** which is expected to deter spawning at the higher flows that will not be sustained through egg incubation and fry emergence.
- The **time frame** of the Alt-1 pulse (which is slightly longer in duration compared to the default SRP schedule) is expected to provide temperature buffering from mid-October through early November.

Attachment 1

Reshaped alternative 1 for the WY 2021 fall pulse flow schedule for October 1 – December 31, 2020.

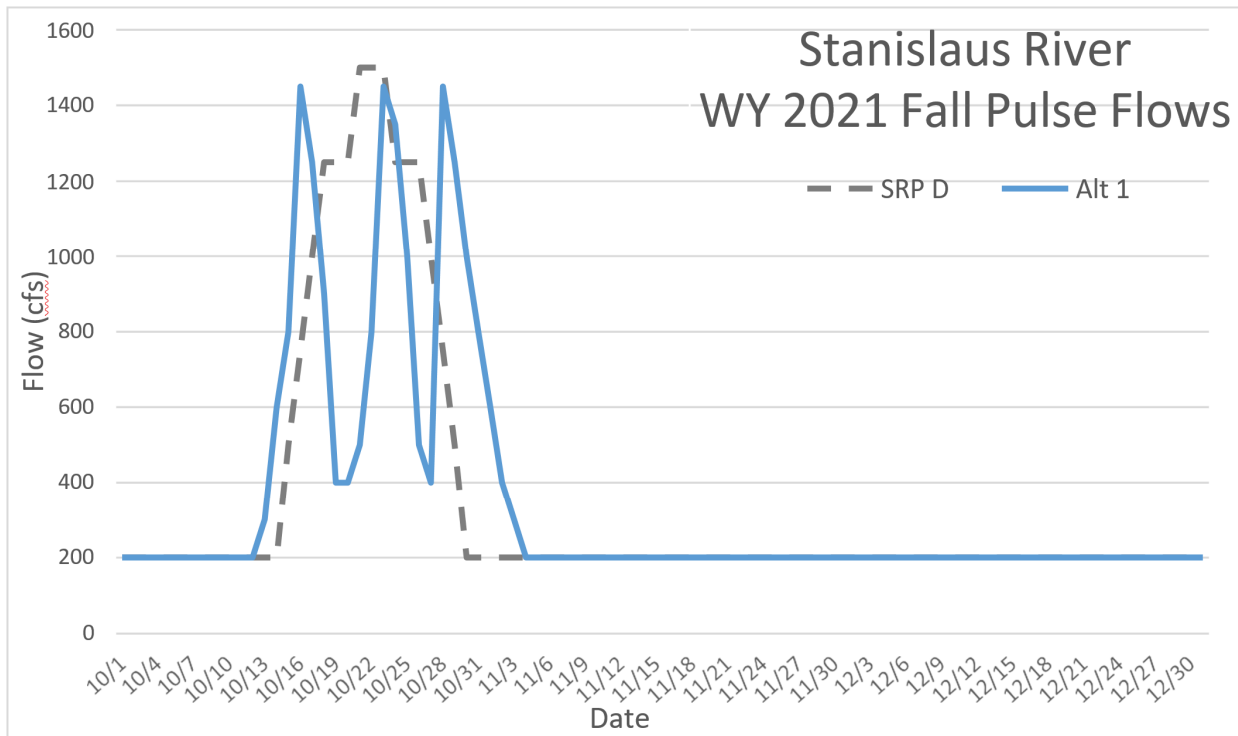


Figure 1. Figure showing daily flows from October 1 to December 31 in both the default SRP-Dry schedule and Alternative 1 schedule.

Table 1. Daily Flows under the SRP Dry and Alternative 1 for October–December 2020

Day	Date	SRP Dry Daily flow (cfs)	Alt 1 Daily flow (cfs)
T	10/1	200	200
F	10/2	200	200
S	10/3	200	200
S	10/4	200	200
M	10/5	200	200
T	10/6	200	200
W	10/7	200	200
T	10/8	200	200
F	10/9	200	200
S	10/10	200	200
S	10/11	200	200
M	10/12	200	200
T	10/13	200	300
W	10/14	200	600
T	10/15	500	800
F	10/16	750	1450
S	10/17	1000	1250
S	10/18	200	200

Day	Date	SRP Dry Daily flow (cfs)	Alt 1 Daily flow (cfs)
S	10/18	1250	900
M	10/19	1250	400
T	10/20	1250	400
W	10/21	1500	500
T	10/22	1500	800
F	10/23	1500	1450
S	10/24	1250	1350
S	10/25	1250	1000
M	10/26	1250	500
T	10/27	1000	400
W	10/28	750	1450
T	10/29	500	1250
F	10/30	200	1000
S	10/31	200	800
S	11/1	200	600
M	11/2	200	400
T	11/3	200	300
W	11/4	200	200
T	11/5	200	200
F	11/6	200	200
S	11/7	200	200
S	11/8	200	200
M	11/9	200	200
T	11/10	200	200
W	11/11	200	200
T	11/12	200	200
F	11/13	200	200
S	11/14	200	200
S	11/15	200	200
M	11/16	200	200
T	11/17	200	200
W	11/18	200	200
T	11/19	200	200
F	11/20	200	200
S	11/21	200	200
S	11/22	200	200
M	11/23	200	200
T	11/24	200	200
W	11/25	200	200
T	11/26	200	200
F	11/27	200	200
S	11/28	200	200

Day	Date	SRP Dry Daily flow (cfs)	Alt 1 Daily flow (cfs)
S	11/29	200	200
M	11/30	200	200
T	12/1	200	200
W	12/2	200	200
T	12/3	200	200
F	12/4	200	200
S	12/5	200	200
S	12/6	200	200
M	12/7	200	200
T	12/8	200	200
W	12/9	200	200
T	12/10	200	200
F	12/11	200	200
S	12/12	200	200
S	12/13	200	200
M	12/14	200	200
T	12/15	200	200
W	12/16	200	200
T	12/17	200	200
F	12/18	200	200
S	12/19	200	200
S	12/20	200	200
M	12/21	200	200
T	12/22	200	200
W	12/23	200	200
T	12/24	200	200
F	12/25	200	200
S	12/26	200	200
S	12/27	200	200
M	12/28	200	200
T	12/29	200	200
W	12/30	200	200
T	12/31	200	200
W	12/23	200	200
T	12/24	200	200
F	12/25	200	200
S	12/26	200	200
S	12/27	200	200

Table 2. Comparison of flows and water volumes between SRP Dry and Alt-1 from October 1 to December 31

Schedules	SRP Dry	Alt-1
Total cfs (October 1 - December 31)	31,900	31,900
Total acre-feet (October 1 - December 31)	63,273	63,273