BUREAU OF RECLAMATION

Stanislaus Stepped Release Plan Water Year 2025 – Fall Pulse Flow Operations Plan

October 2, 2024

This Stanislaus Stepped Release Plan (SRP) – Water Year (WY) 2025 Final Operations Plan details the U.S. Bureau of Reclamation's (Reclamation) plan for operating the Stanislaus River to meet WY 2025 Fall Pulse Flow requirements. The Final Operations Plan incorporates feedback from the Stanislaus Watershed Team (SWT) who discussed a pulse flow alternative on August 21, 2024 during its scheduled monthly meeting.

Background

A Fall Pulse Flow is one component of the daily flow schedule in the SRP proposed in Reclamation's October 2019 Biological Assessment (2019 BA), evaluated in National Marine Fisheries Service (NMFS) October 2019 Biological Opinion (2019 BiOp), and implemented per the February 2020 Record of Decision. As noted in the 2019 BA (p. 4-81), the "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." The 2019 BA further notes (p. 4-82) that "the Stanislaus Watershed Team will also provide input on the shaping and timing of monthly or seasonal flow volumes to optimize biological benefits."

Below, Reclamation summarizes the Operations Plan for implementation of the Fall Pulse Flow of WY 2025.

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 Watershed Team 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 earlier 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 "Above Normal" based on the May 2024 forecast. The total required

instream flow volume pursuant to the SRP for the October 8 through November 6, 2024, period is detailed below:

Date Range	Water Year Type	Total Water Volume in Default Schedule in SRP (acre-feet)	Total Water Volume in Alt-1 (acre-feet)
10/8/24 – 10/15/24	Above Normal	4,463	11,207
10/16/24 – 11/6/24	Above Normal	42,050	35,306
N/A	Total	46,513	46,513

Reshaping

For WY 2025, Reclamation intends to implement a reshaped Fall Pulse Flow according to the flow schedule described in Alternative 1 (Alt-1) (see details in Figure 1 and Table 1).

At the August 21 and September 18, 2024 SWT meeting, the technical team discussed the alternative for the Fall Pulse Flow schedule. Based on discussion, and to accommodate flows needed for important biological processes, recreational activities, and other stakeholder interests on the Stanislaus River, the SWT provided feedback on this option.

The Alt-1 schedule (Figure 1 and Table 1) has the same total volume (46,513 AF, including base flows) for the October 8 through November 6 period as the default SRP Wet schedule, as described in the Water 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 on October 8 and extending it 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 by the 7th of November, before peak spawning is expected to occur. The higher flows will also inundate some shallow water habitat which may provide rearing juvenile steelhead with short-term growth benefits as well as potential refuge from predation.

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 a four-peak pulse period increases flow variability within the season. This variability 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 has an earlier start, and is slightly longer in duration, compared to the default SRP schedule) is expected to provide temperature buffering from early October into early November.
- Other considerations for in-basin interests:

- No flows >1,500 cfs are scheduled in consideration of concerns regarding agricultural seepage,
- Weekend flows are designed to provide flows suitable for recreational rafting.

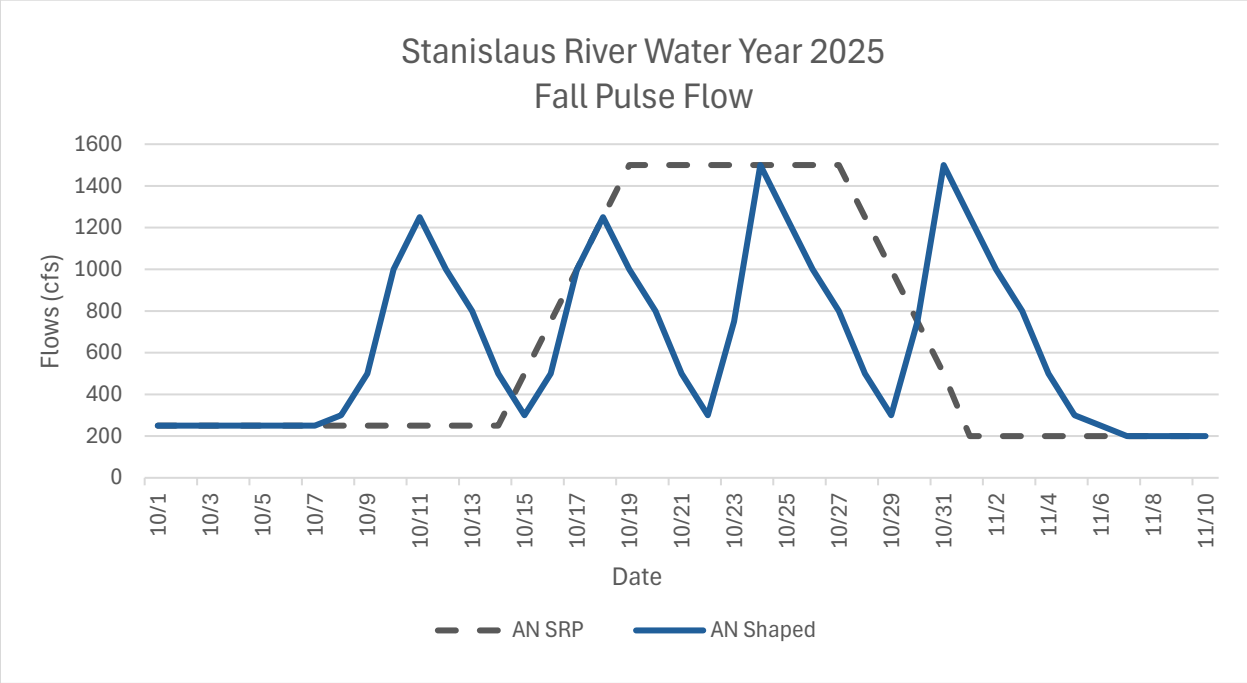

Figure 1. Recommended flows in the default SRP and proposed Alternative schedule for an Above Normal water year type.

Figure 1 is a line graph depicting the timing and flow in cubic-feet-per-second (cfs) of the default SRP and alternative schedule for an above normal water year type. The above normal water year type SRP is shown as a dotted line with a ramp up starting on October 14th with a peak at 1500 cfs established between October 19 to October 27 returning to baseline on November 1st. The above normal water year type shaped fall pulse flow includes two small peaks of 1300 cfs occurring on October 11th and 18th followed by two peaks at 1500 cfs on October 24th and November 1st.

Table 1. Daily Flow Schedule for the Alternative 1 and the default Above Normal SRP flow schedule.

Date	SRP AN (cfs)	Alternative 1 (cfs)
10/8/2024	250	300
10/9/2024	250	500
10/10/2024	250	1000
10/11/2024	250	1250
10/12/2024	250	1000
10/13/2024	250	800
10/14/2024	250	500
10/15/2024	500	300
10/16/2024	750	500
10/17/2024	1000	1000

Date	SRP AN (cfs)	Alternative 1 (cfs)
10/18/2024	1250	1250
10/19/2024	1500	1000
10/20/2024	1500	800
10/21/2024	1500	500
10/22/2024	1500	300
10/23/2024	1500	750
10/24/2024	1500	1500
10/25/2024	1500	1250
10/26/2024	1500	1000
10/27/2024	1500	800
10/28/2024	1250	500
10/29/2024	1000	300
10/30/2024	750	750
10/31/2024	500	1500
11/1/2024	200	1250
11/2/2024	200	1000
11/3/2024	200	800
11/4/2024	200	500
11/5/2024	200	300
11/6/2024	200	250
11/7/2024	200	200
Total TAF	**46,513**	**46,513**