



— BUREAU OF —
RECLAMATION

Stanislaus Stepped Release Plan Water Year 2024- Fall Pulse Flow Operations Plan

September 29, 2023

This Stanislaus Stepped Release Plan (SRP) – Water Year (WY) 2024 Final Operations Plan details the U.S. Bureau of Reclamation’s (Reclamation) plan for operating the Stanislaus River to meet WY 2024 fall pulse flow requirements. The Final Operations Plan incorporates feedback from the Stanislaus Watershed Team (SWT) who discussed a pulse flow alternative on September 20, 2023 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 NMFS’s 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 2024.

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 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 “Wet” based on the May 2023 forecast. The total required instream flow volume pursuant to the SRP for the October 1-November 3, 2023, 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)
10/1/23-10/15/23	Wet	23,405	9,322
10/16/23-11/3/23	Wet	26,777	40,860
	Total*	50,182	50,182

Reshaping

For WY 2024, 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 September 20, 2023, SWT meeting, the technical team discussed the alternative for the fall pulse flow schedule. Based on discussion, and in order to accommodate flows needed for important carcass studies, 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 (50,182 AF, including base flows) for the October 1 through November 3 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 4 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 by the 2nd 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 seepage¹.
- Weekend flows are designed to provide flows suitable for recreational rafting.

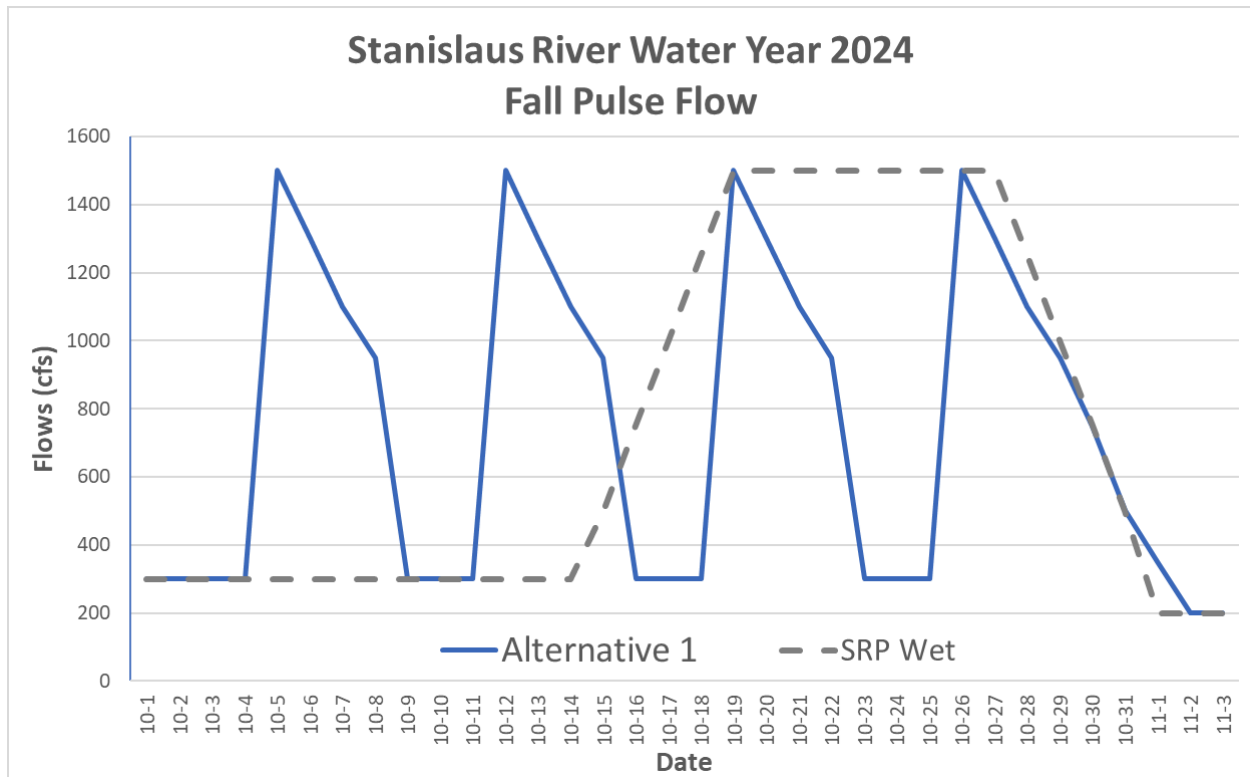


Figure 1. Recommended flows in the default SRP and proposed Alternative schedule for a Wet water year type.

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

Date	Alternative 1 Daily Flow (cfs)	SRP Wet Daily Flow (cfs)
10/1/2023	300	300
10/2/2023	300	300
10/3/2023	300	300
10/4/2023	300	300
10/5/2023	1,500	300
10/6/2023	1,300	300
10/7/2023	1,100	300
10/8/2023	950	300

¹ Note that in wetter years, flows >1,500 cfs cannot be avoided entirely, but may be limited in duration.

10/9/2023	300	300
10/10/2023	300	300
10/11/2023	300	300
10/12/2023	1,500	300
10/13/2023	1,300	300
10/14/2023	1,100	300
10/15/2023	950	500
10/16/2023	300	750
10/17/2023	300	1,000
10/18/2023	300	1,250
10/19/2023	1,500	1,500
10/20/2023	1,300	1,500
10/21/2023	1,100	1,500
10/22/2023	950	1,500
10/23/2023	300	1,500
10/24/2023	300	1,500
10/25/2023	300	1,500
10/26/2023	1,500	1,500
10/27/2023	1,300	1,500
10/28/2023	1,100	1,250
10/29/2023	950	1,000
10/30/2023	750	750
10/31/2023	500	500
11/1/2023	350	200
11/2/2023	200	200
11/3/2023	200	200
Total cfs	25,300	25,300