BUREAU OF RECLAMATION

Stanislaus Stepped Release Plan – Water Year 2025 Spring Pulse Flows Final Operations Plan

This Stanislaus Stepped Release Plan (SRP) – Water Year 2025 (WY25) Final Operations Plan details Reclamation's plan for operating the Stanislaus River to meet WY25 Spring Pulse Flow (SPF) requirements. This Operations Plan incorporates feedback from the Stanislaus Watershed Team (SWT) convened on March 19, 2025, to discuss a WY25.

Background

SPFs are a component of the daily flow schedule in the 2023 SRP proposed in Reclamation's October 2024 Biological Assessment (2024 BA), evaluated in the National Marine Fisheries Service's (NMFS's) December 2024 Biological Opinion (2024 BiOp), and implemented per the December 2024 Record of Decision (ROD). As noted in the 2024 BA (p. 3-84), the "Spring pulse flows address the outmigration and juvenile habitat stressors. Reclamation will release additional flows starting as early as March through as late as June." The 2024 BA further notes (p. 3-84) that "Reclamation, through the Stanislaus Watershed Team, will schedule spring pulse flow volumes consistent with volumes in the Stepped Release Plan."

To determine the water year type, Reclamation uses the San Joaquin Valley "60-20-20" Water Year Hydrologic Classification (60-20-20 Index) based on a 90% Probability of Exceedance forecast, per the 2024 ROD.

Below, Reclamation summarizes the Operations Plan for the implementation of the SPF of WY25.

Water Volume Accounting

Based on the March 2025 90% forecast, the water year type was "Critical". Assuming the water year type changes from Critical to Dry based on the April forecast at the 90%, the

total required instream flow volume pursuant to the SRP for the April 1 through June 30, 2025, period is detailed below (Table 1).

Table 1. Details of SRP for Dry water year type per month in comparison to the proposed alternate Dry schedule.

Date Range	Water Year Type (Month of forecast)	Total Water Volume in Default Schedule (acre-feet; AF)	Total Water Volume in Alternate Schedule (AF)
4/1/25 - 4/15/25	Dry* (March)	15,868	5,950
4/16/25 - 5/15/25	Dry* (April)	59,504	55,339
5/16/25 - 6/15/25	Dry* (May)	14,975	29,058
6/16/25 - 6/30/25	Dry* (June)	5,950	5,950
Total	N/A	96,298	96,298

*Assumes the water year type changes from Critical to Dry in response to the April 8th 90% forecast.

**Assumes the water year type does not change based on future forecasts.

Note: Water year type is updated mid-month based on snow surveys.

Reshaped Flows

For WY25, Reclamation intends to implement a reshaped spring pulse flow according to the flow schedule described in Alternative-Dry (Alt-Dry).

At the March 19, 2025, SWT meeting, the technical team discussed, reviewed, and provided feedback on the Alt-Dry option for WY25 SPF (Figure 1). Reclamation assumes that the water year type is going to change from Critical to Dry based on the April 8th forecast (B120 Bulletin) at 90% probability of exceedance. The default SRP Dry schedule has the same total volume (~96,298 AF) for the April 1 - June 30 period as the Alt-Dry (Table 1). Reclamation and the SWT believe that the Alt-Dry reshaping optimizes biological benefits by providing a pulse that may cue anadromy and improve migratory habitat in both the Stanislaus River and the mainstem San Joaquin River and southern delta. In the Stanislaus River, higher flows are expected to reduce water temperature (or at least buffer daily maximum water temperature) and inundate some shallow water habitat, which may provide juvenile salmonids with short-term growth benefits as well as potential refuge from predation. In the mainstem San Joaquin River and south delta, higher flows from the Stanislaus River (and other San Joaquin tributaries) are expected to convey out-migrating salmonids more rapidly along their migratory pathway, which may improve outmigration success.

Some key features of the Alt-Dry SPF include:

- As in the default schedule, higher spring flows (compared to winter base flows) are intended to cue outmigration and improve migratory habitat downstream.
- Reshaping the one pulse identified in the default SRP schedule into five peaks for the first two-thirds of the pulse period increases flow variability within the season. This variability is expected to provide opportunities for a broader range of salmonid outmigration timing since outmigration may be cued by variability as well as flow magnitude (Zeug et al. 2014).
- The time frame of the Alt-Dry pulse is expected to provide some inundation of shallow-water habitat and temperature buffering from mid-April through late May; the extent of such benefits will vary with flow throughout the spring pulse period. The timing of Alt-Dry puts most of the pulse volume in a 43-day window, which aligns better with the State Water Resources Control Board D-1641 Vernalis pulse flow period.
- Other considerations for in-basin interests:
    - No flows >2,500 cfs are scheduled in consideration of concerns regarding the stability of the weir at Riverbank, as well as attempting to minimize agricultural seepage.

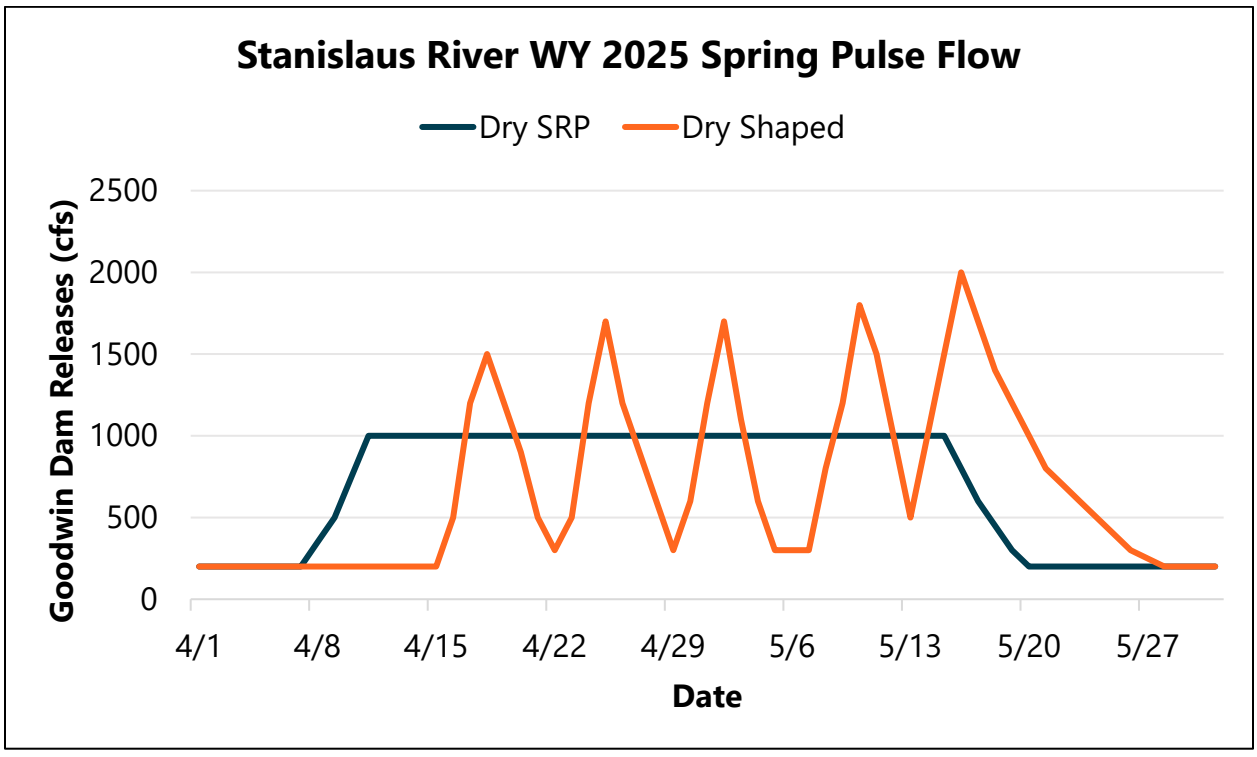

Figure 1. Daily flows in the default SRP (Dry SRP) and proposed Alt-Dry (Dry Shaped) schedule for a Dry water year.

Figure 1 is a line graph depicting daily flows in the default SRP (Dry SRP) and proposed Alt-Dry (Dry Shaped) schedule for a Dry water year. Dry SRP is represented by a dark blue line, and Dry Shaped is represented by an orange line. The y-axis is Goodwin Dam Releases (cfs) and the x-axis is Dates 4/1-5/27.

Table 2. Daily Flow Schedule for the SRP Dry and the shaped Alternate Dry (Alt-Dry)

Day	SRP Dry (cfs)	Alt-Dry (cfs)
4/1/2025	200	200
4/2/2025	200	200
4/3/2025	200	200
4/4/2025	200	200
4/5/2025	200	200
4/6/2025	200	200
4/7/2025	200	200
4/8/2025	350	200
4/9/2025	500	200
4/10/2025	750	200
4/11/2025	1000	200
4/12/2025	1000	200
4/13/2025	1000	200
4/14/2025	1000	200
4/15/2025	1000	200
4/16/2025	1000	500
4/17/2025	1000	1200
4/18/2025	1000	1500
4/19/2025	1000	1200
4/20/2025	1000	900
4/21/2025	1000	500
4/22/2025	1000	300
4/23/2025	1000	500
4/24/2025	1000	1200
4/25/2025	1000	1700
4/26/2025	1000	1200
4/27/2025	1000	900
4/28/2025	1000	600
4/29/2025	1000	300
4/30/2025	1000	600
5/1/2025	1000	1200
5/2/2025	1000	1700
5/3/2025	1000	1100
5/4/2025	1000	600
5/5/2025	1000	300
5/6/2025	1000	300
5/7/2025	1000	300

Day	SRP Dry (cfs)	Alt-Dry (cfs)
5/8/2025	1000	800
5/9/2025	1000	1200
5/10/2025	1000	1800
5/11/2025	1000	1500
5/12/2025	1000	1000
5/13/2025	1000	500
5/14/2025	1000	1000
5/15/2025	1000	1500
5/16/2025	800	2000
5/17/2025	600	1700
5/18/2025	450	1400
5/19/2025	300	1200
5/20/2025	200	1000
5/21/2025	200	800
5/22/2025	200	700
5/23/2025	200	600
5/24/2025	200	500
5/25/2025	200	400
5/26/2025	200	300
5/27/2025	200	250
5/28/2025	200	200
5/29/2025	200	200
5/30/2025	200	200
5/31/2025	200	200
6/1/2025	200	200
6/2/2025	200	200
6/3/2025	200	200
6/4/2025	200	200
6/5/2025	200	200
6/6/2025	200	200
6/7/2025	200	200
6/8/2025	200	200
6/9/2025	200	200
6/10/2025	200	200
6/11/2025	200	200
6/12/2025	200	200
6/13/2025	200	200
6/14/2025	200	200
6/15/2025	200	200
6/16/2025	200	200
6/17/2025	200	200
6/18/2025	200	200
6/19/2025	200	200
6/20/2025	200	200
6/21/2025	200	200
6/22/2025	200	200

Day	SRP Dry (cfs)	Alt-Dry (cfs)
6/23/2025	200	200
6/24/2025	200	200
6/25/2025	200	200
6/26/2025	200	200
6/27/2025	200	200
6/28/2025	200	200
6/29/2025	200	200
6/30/2025	200	200