



— BUREAU OF —
RECLAMATION

Stanislaus Stepped Release Plan – Water Year 2021 Winter Instability Flows Final Operations Plan (January 2021 Flows)

December 22, 2020 – REVISED January 5, 2021

This Stanislaus Stepped Release Plan (SRP) – Water Year (WY) 2021 Final Operations Plan (January 2021 Flows) details Reclamation’s plan for operating the Stanislaus River to meet WY 2021 winter instability flow (WIF) requirements for January 2021 (February 2021 WIF requirements will be addressed in a separate Operations Plan). The Final Operations Plan (January 2021 Flows) incorporates feedback from the Stanislaus Watershed Team (SWT) who convened November 18, 2020 and December 16, 2020 to discuss a WY 2021 WIF Draft Operations Plan.

Background

WIFs in January and February are a 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 WIFs in January of WY 2021.

Water Volume Accounting

For January 2021, Reclamation plans to implement a WIF that is: (a) reshaped according to the “Alternative” flow schedule for the water year type in effect (critical), described in Table 1 and Figures 1, and (b) shifted in time to coincide with timing of installation of the Caswell Rotary Screw Trap (RST) by Pacific States Marine Fisheries Commission (Pacific States).

The alternative flow schedules have the same volumes as the default SRP schedule for the Critical water year type (793 AF) but have been reshaped to include higher peak flows and variability. The SWT reviewed and provided feedback on an initial flow alternative to provide variability in the

winter hydrograph by simulating a small storm pulse. A second alternative was developed that incorporated correct ramping rates, resulting in fewer and more attenuated peaks.

Reshaping

The shape of each “Alternative” flow schedule, with its more rapidly rising limb and more slowly descending limb, is more typical of the flow pattern associated with storm events. Reshaping the sub-daily flow pattern to increase the peak flow to over 700 cfs for part of the first day of the pulse may help inundate a greater portion of the Honolulu Bar restoration area and will likely allow at least partial inundation of the Lancaster Road restoration area. Short-term inundation of shallow water habitat can provide benefits to rearing salmonids such as: temporary spatial refuges from large predators, increased temperatures that may allow short-term increases in growth rate, and increased capture of terrestrial food and nutrients to the main channel.

According to the SRP flow schedule, the January WIF is scheduled to begin on January 3rd. In the past, WIFs have been shifted in time to coincide with a natural storm event to better capture the characteristics of a natural hydrograph, as the runoff, turbidity, meteorological conditions, etc. associated with a natural storm event co-occur with the pulse of regulated flow. With this approach if no storm event occurred by the end of the third week of the month, Reclamation would schedule the WIF to be initiated by the end of the month.

For WY 2021, however, the timing of the January WIF will be shifted to coincide with needed installation of Caswell RST by Pacific States. RST installation will take approximately two days and the WIF is currently scheduled to occur between January 7 and January 9, 2021. The minimum ideal flow for RST installation is 350 cfs.

An initial Alternative (Alt-Critical 1) was developed with support of the SWT that included a Day 1 peak of 1,000 cfs followed by a second peak of 600 cfs. On day 2, a peak of 800 cfs was proposed for the morning hours followed by a 700 cfs peaks a few hours later.

A second Alternative (Alt-Critical 2) was developed by Reclamation to better adhere to specified ramping rate requirements. Alt-Critical 2 includes an initial peak of 750 cfs on Day 1 and a 550 cfs peak on Day 2 (Figure 1). Reclamation met with National Marine Fisheries Service and United States Fish and Wildlife Service to discuss this new proposed schedule and both agencies agreed that Alt-Critical 2 was the most adequate to implement given ramping rate restrictions.

Reclamation intends to implement Alt-Critical 2.

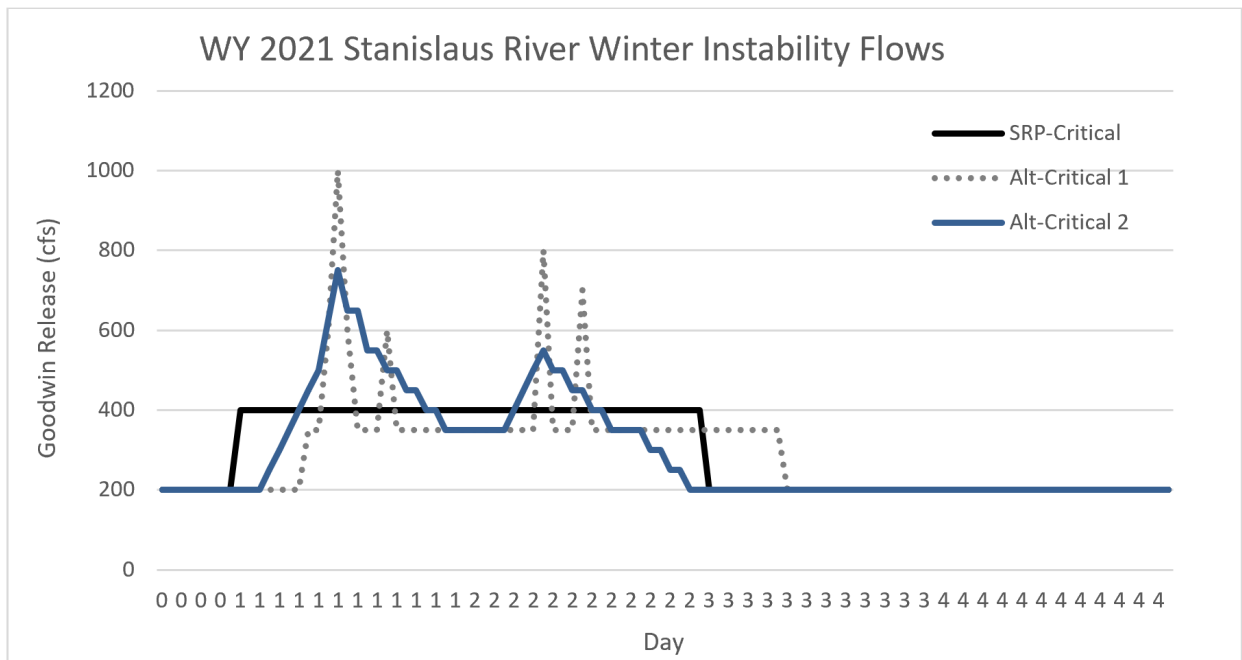


Figure 1. Hourly flows in the default SRP and proposed Alternative schedules for a Critical water year type.

Table 1. Hourly Flow Schedule for the SRP and Alternative Critical

Day	Hour	SRP Critical	Alt-Critical 1	Alt-Critical 2
0	17	200	200	200
0	18	200	200	200
0	19	200	200	200
0	20	200	200	200
0	21	200	200	200
0	22	200	200	200
0	23	200	200	200
0	24	200	200	200
1	1	400	200	200
1	2	400	200	200
1	3	400	200	200
1	4	400	200	250
1	5	400	200	300
1	6	400	200	350
1	7	400	200	400
1	8	400	350	450
1	9	400	350	500
1	10	400	600	625
1	11	400	1000	750
1	12	400	600	650
1	13	400	350	650
1	14	400	350	550
1	15	400	350	550
1	16	400	600	500
1	17	400	350	500
1	18	400	350	450
1	19	400	350	450
1	20	400	350	400
1	21	400	350	400
1	22	400	350	350
1	23	400	350	350
1	24	400	350	350
2	1	400	350	350
2	2	400	350	350
2	3	400	350	350
2	4	400	350	350
2	5	400	350	400
2	6	400	350	450
2	7	400	350	500
2	8	400	800	550

Day	Hour	SRP Critical	Alt-Critical 1	Alt-Critical 2
2	9	400	350	500
2	10	400	350	500
2	11	400	350	450
2	12	400	700	450
2	13	400	350	400
2	14	400	350	400
2	15	400	350	350
2	16	400	350	350
2	17	400	350	350
2	18	400	350	350
2	19	400	350	300
2	20	400	350	300
2	21	400	350	250
2	22	400	350	250
2	23	400	350	200
2	24	400	350	200
3	1	200	350	200
3	2	200	350	200
3	3	200	350	200
3	4	200	350	200
3	5	200	350	200
3	6	200	350	200
3	7	200	350	200
3	8	200	350	200
3	9	200	200	200
3	10	200	200	200
3	11	200	200	200
3	12	200	200	200
3	13	200	200	200
3	14	200	200	200
3	15	200	200	200
3	16	200	200	200
3	17	200	200	200
3	18	200	200	200
3	19	200	200	200
3	20	200	200	200
3	21	200	200	200
3	22	200	200	200
3	23	200	200	200
3	24	200	200	200
4	1	200	200	200
4	2	200	200	200

Day	Hour	SRP Critical	Alt-Critical 1	Alt-Critical 2
4	3	200	200	200
4	4	200	200	200
4	5	200	200	200
4	6	200	200	200
4	7	200	200	200
4	8	200	200	200
4	9	200	200	200
4	10	200	200	200
4	11	200	200	200
4	12	200	200	200
4	13	200	200	200
4	14	200	200	200
4	15	200	200	200
4	16	200	200	200
4	17	200	200	200
4	18	200	200	200
4	19	200	200	200
4	20	200	200	200
4	21	200	200	200
4	22	200	200	200
4	23	200	200	200
4	24	200	200	200