BUREAU OF RECLAMATION

Stanislaus Stepped Release Plan, Water Year 2021 Winter Instability Flows Final Operations Plan (February 2021 Flows)

February 10, 2021

This Stanislaus Stepped Release Plan (SRP) – Water Year (WY) 2021 Operations Plan (February 2021 Flows) details Reclamation's plan for operating the Stanislaus River to meet WY 2021 winter instability flow (WIF) requirements for February 2021 (January 2021 WIF requirements were addressed in a separate Operations Plan). The Final Operations Plan for February 2021 flows incorporates feedback from the Stanislaus Watershed Team (SWT) who convened January 20, 2021 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 Proposed Action (2019 PA), evaluated in NMFS's October 2019 Biological Opinion (2019 BiOp), and implemented per the February 2020 Record of Decision (ROD). As noted in the 2019 PA (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 PA 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."

On December 16, 2020, SWT advised a modified January 2021 WIF consistent with the intent of the February 2020 ROD. The January 2021 WIF was revised by Reclamation (with input from NMFS and USFWS) in a January 5, 2021, Operations Plan to better adhere to specified ramping rate requirements. The SWT decided to wait until its monthly meeting in January 2021 to advise an alternative flow schedule for February 2021. On January 7 and 8, 2021, Reclamation implemented a January 2021 WIF with peaks of 750 cfs on the first day and 550 cfs on the second day.

Below, Reclamation summarizes the Operations Plan for implementation of the February 2021 WIF.

Water Volume Accounting

Reclamation plans to implement a February 2021 WIF that is: (a) reshaped according to the "Alternative" flow schedule for the water year type in effect (critical), described in Table 1 and Figure 1, and (b) shifted in time to (i) the second half of February, and (ii) coincide with the timing

of a storm event, if possible, but with implementation to be completed no later than the last week of the month.

The alternative flow schedule has the same pulse volume as the default SRP schedule for the Critical water year type (793 acre-feet [AF], not including the base flow of 200 cfs) but has been reshaped to provide higher peak flows and variability.

Reshaping

The SWT reviewed and provided feedback on the flow alternative (Alternative 1) during its January meeting (January 21, 2021). The Alternative schedule was shaped to provide variability in the winter hydrograph by simulating a small storm-like pulse. The shape of the Alternative 1 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 950 cfs the first day of the pulse is intended to provide enhanced mobilization of juvenile fall-run Chinook in February, and 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 February WIFs are scheduled to begin February 5th. 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. For February 2021, SWT recommended that the February WIF be implemented in the second half of February, when more fall-run Chinook fry will have emerged from redds. If no storm event occurs by the end of the third week of February, Reclamation would schedule the WIF to be initiated before the end of the month.

Reclamation intends to implement Alternative 1 for the February 2021 WIF.

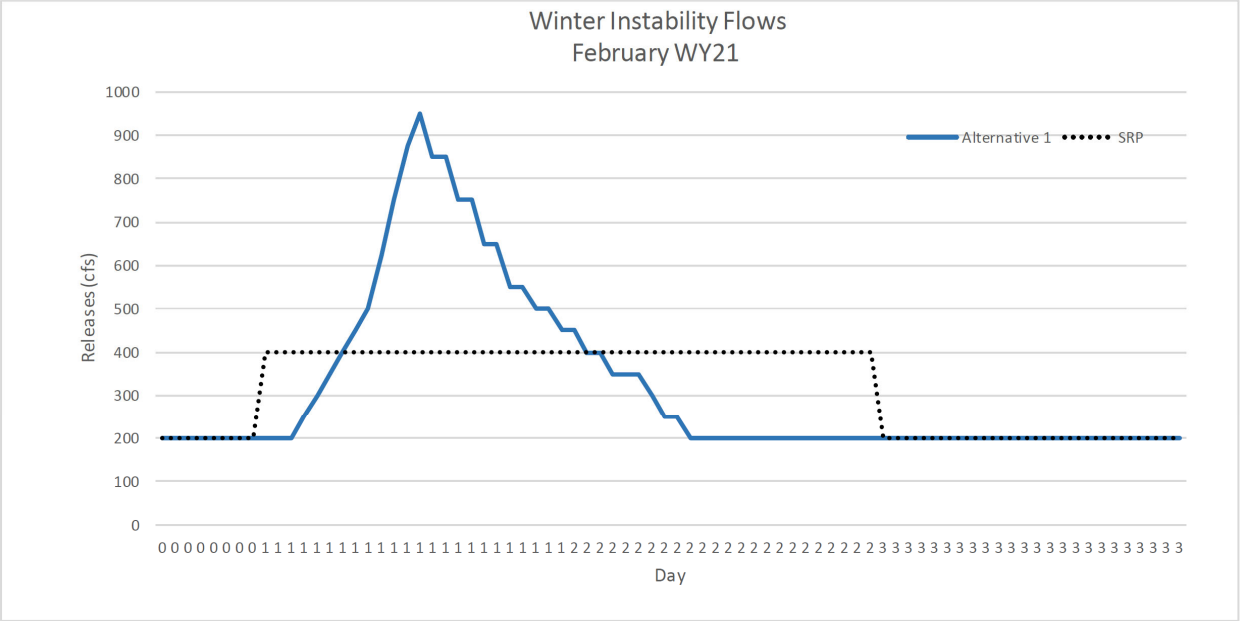

Figure 1. Figure showing daily flows from October 1 to December 31 in both the default SRP-Dry schedule and Alternative 1 schedule.

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

Day	Hour	SRP Critical	Alt-Critical 1
0	17	200	200
0	18	200	200
0	19	200	200
0	20	200	200
0	21	200	200
0	22	200	200
0	23	200	200
0	24	200	200
1	1	250	200
1	2	300	200
1	3	350	200
1	4	400	250
1	5	400	300
1	6	400	350
1	7	400	400
1	8	400	450
1	9	400	500
1	10	400	625
1	11	400	750
1	12	400	875

Day	Hour	SRP Critical	Alt-Critical 1
1	13	400	950
1	14	400	850
1	15	400	850
1	16	400	750
1	17	400	750
1	18	400	650
1	19	400	650
1	20	400	550
1	21	400	550
1	22	400	500
1	23	400	500
1	24	400	450
2	1	400	450
2	2	400	400
2	3	400	400
2	4	400	350
2	5	400	350
2	6	400	350
2	7	400	300
2	8	400	250
2	9	400	250
2	10	400	200
2	11	400	200
2	12	400	200
2	13	400	200
2	14	400	200
2	15	400	200
2	16	400	200
2	17	400	200
2	18	400	200
2	19	400	200
2	20	400	200
2	21	400	200
2	22	400	200
2	23	350	200
2	24	350	200
3	1	350	200
3	2	300	200
3	3	300	200
3	4	250	200
3	5	250	200
3	6	200	200

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