



— BUREAU OF —
RECLAMATION

Stanislaus Stepped Release Plan – Water Year 2022 Winter Instability Flows Operations Plan (January 2022 Flows)

January 28, 2022

This Stanislaus Stepped Release Plan (SRP) – Water Year (WY) 2022 Operations Plan (January 2022 Flows) details Reclamation’s plan for operations to meet WY 2022 winter instability flows (WIF) requirements for January 2022. February 2022 WIF requirements will be addressed in a separate Operations Plan. This Operations Plan (January 2022 Flows) incorporates feedback from the Stanislaus Watershed Team (SWT) who discussed a WY 2022 WIF proposal on January 19, 2022, and December 15, 2021.

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 2022.

Water Volume Accounting

For January 2022, Reclamation plans to implement a WIF that is reshaped according to the alternative flow schedule for the water year type in effect (dry), described in Table 1 and Figure 1.

The alternative flow schedules have the same volumes (1.19 TAF) as the default SRP schedule for the Dry water year type but have been reshaped to include higher peak flows and variability. The SWT reviewed and provided feedback on this flow alternative to provide greater variability in the winter hydrograph, which simulates a small storm pulse.

Reshaping

The shape of the alternative flow schedule, with an increased rapidly rising limb and decreased descending limb, is a flow pattern associated with storm events. Reshaping the sub-daily flow

pattern to increase the peak flow to 1,100 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 (e.g., 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 annual 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 (i.e., runoff, turbidity, meteorological conditions) associated with a natural storm event co-occurring 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 2022, the SWT proposed to double these rates at Goodwin Dam (for both increases and decreases) because the current ramping rates limit the ability to reshape the WIF volume in the SRP into a high-peaked, stormy hydrograph – especially in Critical and Dry years. This doubling only applies to rates below 2,000 cfs and the change does not alter the water budget. Doubling the rates allows for more biological benefits, as mentioned above. Reclamation concurred with the SWT proposal and the double ramping rates were used to reshape the alternative flow schedule (Alt-Dry 1). The internal and interagency coordination as well as dry weather conditions caused the timing of the WIF to be pushed to the end of the month.

The Alt-Dry 1 was developed with support of the SWT that included a Day 1 peak of 1,100 cfs that reached SRP base flows by day 3.

Reclamation intends to implement Alt-Dry 1.

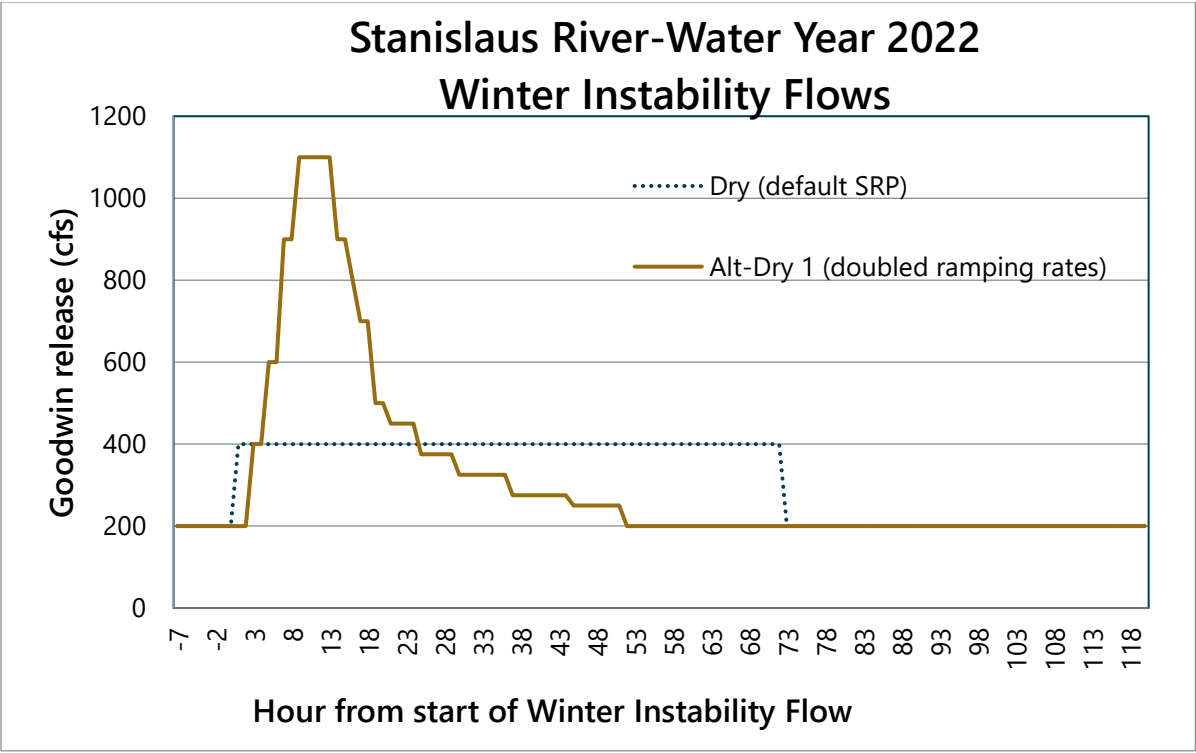


Figure 1. Hourly flows in the default SRP and proposed Alternative Dry 1 schedules for a Dry water year type.

Table 1. Hourly Flow Schedule for the default SRP Dry and Alternative Dry 1.

Day	Hour	SRP Dry	Alt-Dry 1
0	-7	200	200
0	-6	200	200
1	-5	200	200
1	-4	200	200
1	-3	200	200
1	-2	200	200
1	-1	200	200
1	0	200	200
1	1	400	200
1	2	400	200
1	3	400	400
1	4	400	400
1	5	400	600
1	6	400	600
1	7	400	900
1	8	400	900

Day	Hour	SRP Dry	Alt-Dry 1
1	9	400	1100
1	10	400	1100
1	11	400	1100
1	12	400	1100
1	13	400	1100
1	14	400	900
1	15	400	900
1	16	400	800
1	17	400	700
1	18	400	700
2	19	400	500
2	20	400	500
2	21	400	450
2	22	400	450
2	23	400	450
2	24	400	450
2	25	400	375
2	26	400	375
2	27	400	375
2	28	400	375
2	29	400	375
2	30	400	325
2	31	400	325
2	32	400	325
2	33	400	325
2	34	400	325
2	35	400	325
2	36	400	325
2	37	400	275
2	38	400	275
2	39	400	275
2	40	400	275
2	41	400	275
2	42	400	275
3	43	400	275
3	44	400	275
3	45	400	250
3	46	400	250

Day	Hour	SRP Dry	Alt-Dry 1
3	47	400	250
3	48	400	250
3	49	400	250
3	50	400	250
3	51	400	250
3	52	400	200
3	53	400	200
3	54	400	200
3	55	400	200
3	56	400	200
3	57	400	200
3	58	400	200
3	59	400	200
3	60	400	200
3	61	400	200
3	62	400	200
3	63	400	200
3	64	400	200
3	65	400	200
3	66	400	200