



— BUREAU OF —
RECLAMATION

Stanislaus Stepped Release Plan – Water Year 2023 Winter Instability Flows Operations Plan

February 8, 2023

This Stanislaus Stepped Release Plan (SRP) – Water Year (WY) 2023 Operations Plan details Reclamation’s plan for operations to meet WY 2023 winter instability flows (WIF) requirements for January 2023. This Operations Plan incorporates feedback from the Stanislaus Watershed Team (SWT) who discussed a WY 2023 WIF proposal on December 21, 2022 and January 18, 2023.

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 the National Marine Fisheries Service’s (NMFS) 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 WY 2023.

For January 2023, Reclamation planned to implement a WIF that was reshaped according to the alternative flow schedule for the water year type in effect (dry). The numerous storms that took place during that month, required for Reclamation to operate Tulloch Reservoir to maintain its flood control conservation space. These flow fluctuations helped achieve the same biological objectives that would have occurred with the WIF. Reclamation in coordination with NMFS agreed that since the biological objectives had been met with the flood control flows, there was no need to implement the January WIF. The SWT was informed of this decision during the January 18 monthly meeting.

Water Volume Accounting

For February 2023, Reclamation plans to implement a WIF that is reshaped according to the alternative flow schedule (described in Table 1 and Figure 1) for the water year type in effect (dry).

The alternative flow schedule has the same volume (1.19 TAF) as the default SRP schedule for the Dry water year type but has 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 a rapidly rising limb and staggered descending limb, is a flow pattern associated with storm events. Reshaping the sub-daily flow pattern to increase the peak flow to 800 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 February WIF set to begin on the 3rd. In the past, WIFs, pulses of regulated flows, have been shifted in time to coincide with a natural storm event. This allows to better capture the characteristics of a natural hydrograph (i.e., runoff, turbidity, meteorological conditions) associated with a storm event. With this approach if no storm event occurs by the end of the third week of the month, Reclamation would schedule the WIF to be initiated by the end of the month. The SWT suggested Reclamation follows this method for the February WIF.

The Alt-Dry was developed with support of the SWT and included a Day 1 peak of 800 cfs. The flows decrease in a staggered manner after that until they reach SRP base flows (200 cfs) by the second hour of day 4.

Reclamation intends to implement Alt-Dry.

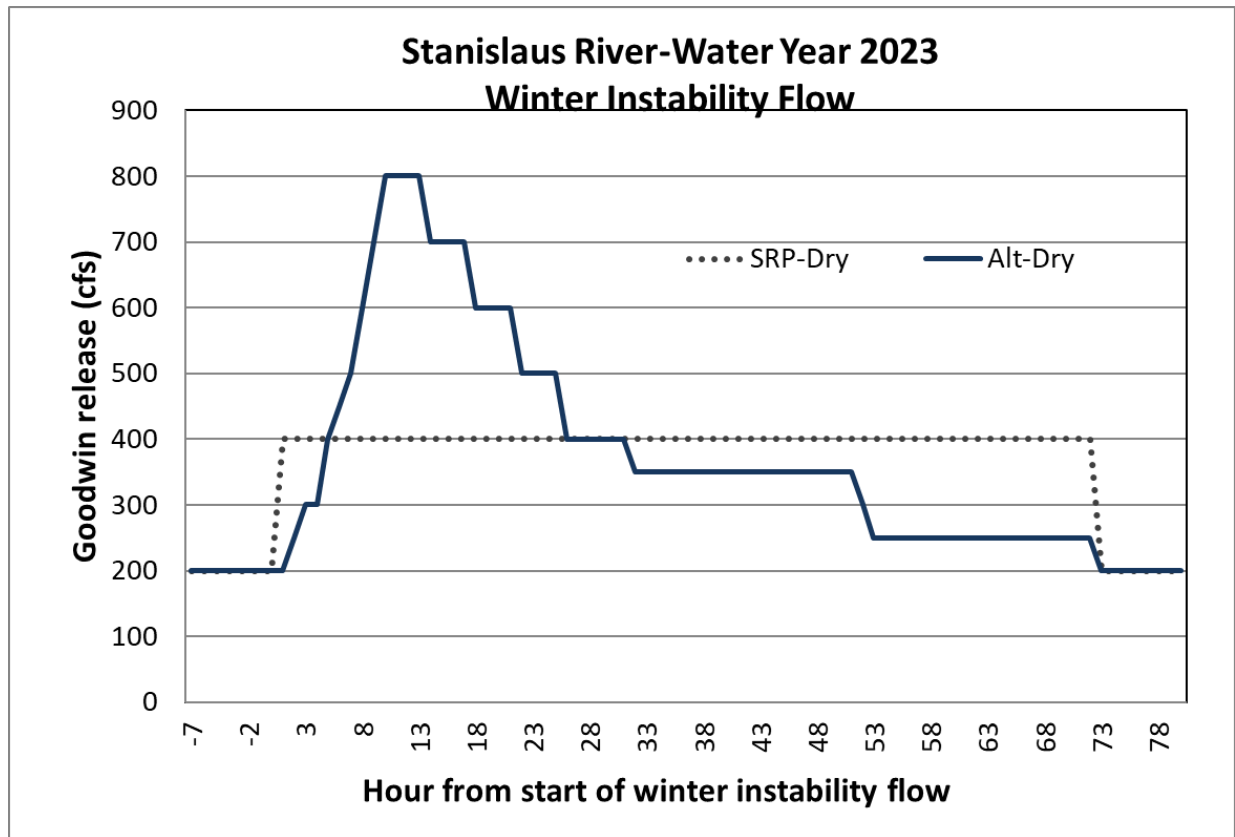


Figure 1. Hourly flows in the default SRP and proposed Alternative Dry schedules for a Dry water year type.

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

Day	Hour	Hour After pulse start	SRP Dry	Alt-Dry
0	23	-7	200	200
0	24	-6	200	200
1	1	-5	200	200
1	2	-4	200	200
1	3	-3	200	200
1	4	-2	200	200
1	5	-1	200	200
1	6	0	200	200
1	7	1	400	200
1	8	2	400	250
1	9	3	400	300
1	10	4	400	300
1	11	5	400	400
1	12	6	400	450
1	13	7	400	500

1	14	8	400	600
1	15	9	400	700
1	16	10	400	800
1	17	11	400	800
1	18	12	400	800
1	19	13	400	800
1	20	14	400	700
1	21	15	400	700
1	22	16	400	700
1	23	17	400	700
1	24	18	400	600
2	1	19	400	600
2	2	20	400	600
2	3	21	400	600
2	4	22	400	500
2	5	23	400	500
2	6	24	400	500
2	7	25	400	500
2	8	26	400	400
2	9	27	400	400
2	10	28	400	400
2	11	29	400	400
2	12	30	400	400
2	13	31	400	400
2	14	32	400	350
2	15	33	400	350
2	16	34	400	350
2	17	35	400	350
2	18	36	400	350
2	19	37	400	350
2	20	38	400	350
2	21	39	400	350
2	22	40	400	350
2	23	41	400	350
2	24	42	400	350
3	1	43	400	350
3	2	44	400	350
3	3	45	400	350
3	4	46	400	350
3	5	47	400	350
3	6	48	400	350
3	7	49	400	350
3	8	50	400	350

3	9	51	400	350
3	10	52	400	300
3	11	53	400	250
3	12	54	400	250
3	13	55	400	250
3	14	56	400	250
3	15	57	400	250
3	16	58	400	250
3	17	59	400	250
3	18	60	400	250
3	19	61	400	250
3	20	62	400	250
3	21	63	400	250
3	22	64	400	250
3	23	65	400	250
3	24	66	400	250
4	1	67	400	250
4	2	68	400	250
4	3	69	400	250
4	4	70	400	250
4	5	71	400	250
4	6	72	400	250
4	7	73	200	200
4	8	74	200	200
4	9	75	200	200
4	10	76	200	200
4	11	77	200	200
4	12	78	200	200
4	13	79	200	200
4	14	80	200	200