

Stanislaus Watershed Team

February 21, 2024

Members Attending

- USBR: Amanda Snow, Armin Halston, Catarina Pien, Chase Ehlo, Claire Hsu, Elissa Buttermore, Peggy Manza, Spencer Marshall, Zarela Guerrero
- USFWS: Craig Anderson, J.D. Wikert
- CDFW: Crystal Rigby, Gretchen Murphey, Ryan Kok, Travis Apgar, Steve Tsao
- NMFS: Barb Byrne, Sam Pyros
- DWR: Bryant Giorgi
- SWRCB: Yongxuan Gao, Chris Carr
- PSMFC: Hunter Morris, Logan Day
- SSJID: Brandon Nakagawa
- Fishbio: N/A
- Stockton East Water District (SEWD): N/A
- WAPA: N/A
- Herum/Crabtree/Suntag Attorneys: Lilliana Selke
- Kearns & West: Karis Johnston, Bethany Taylor

Action Items

- All - brief respective WOMT members regarding the “steady vs. variable storage management releases” discussion
- SWT members (as assigned) – send respective Annual Report items to USBR
- Zarela Guerrero - provide data link to the SWT Teams channel for all members to access or send to Kearns and West to post
- Kearns & West
 - Double-check WOMT notification process (see above)
 - Move Stanley Wakefield presentation to the March meeting agenda
 - Add reminders to calendars for meeting packet contributions
 - Add SacPAS topic item to agenda

Announcements

- New SWT member Samantha (Sam) Pyros joining from NMFS
- Housekeeping
 - Feedback on packet compilation
 - Kearns & West to add hold on the contributors' calendars
- Restoring the Stanislaus Watershed Symposium on Saturday, 4/6/2024
 - Location: Elks Lodge, [100 Elk Drive, Sonora, CA 95370](#)
 - If interested, please [register to attend](#)
 - Contact [J.D. Wikert](#), USFWS, if interested in carpooling

Operations Update and Forecasts/ Hydrology

New Melones Reservoir Update

- The current San Joaquin water year type for SRP implementation (based on the 60-20-20 Index and the February 90% exceedance forecast) is Dry.
- New Melones storage is slightly encroached. Storage dropped to 1.97 MAF the previous week with flood control releases (1,500 cfs for the last six weeks) but as inflow spiked due to precipitation the previous weekend, storage increased to 1.978 MAF (just over the encroachment threshold).

Daily CVP Water Supply

- As of 2/16/2024, storage in New Melones is 1.969 MAF.
- Accumulated inflow at New Melones for Water Year 2024 is 256 TAF, or 84% of the 15-year average.
- Accumulated precipitation is at 14.62 inches, or 89% of the 15-year average.

Tulloch

- Tulloch Dam is in the process of refilling from its drawdown and will refill to its normal winter level, and then refill again in the spring as is typical.
- The refilling has been accomplished using storage management releases from New Melones.

Goodwin

- Releases from Goodwin Dam are holding at a daily average of 1,500 cfs since late January.

Questions

- CDFW asked about the 75% exceedance and current water year type to meet Vernalis requirements in D-1641.
 - USBR responded that the current San Joaquin water year type for Vernalis flow implementation (based on the 60-20-20 Index and the February 75% exceedance forecast) is Below Normal, compared to the Dry water year type based on the February 90% exceedance forecast.
- CDFW asked if a change order has been distributed for the 1,500 cfs release flows.
 - USBR confirmed that a change order was sent out, and double-checked to ensure that CDFW was on the communication distribution list.

Water Temperature Updates

- The water temperature figure shows that the increase in Goodwin releases above winter base flows in early January (for storage management) causes a buffering of water temperatures, i.e. less variation in water temperature between upstream and downstream locations.
- Water temperatures have remained in the low 50s°F since early January, making conditions suitable for spawning Steelhead, incubating Chinook salmon and Steelhead eggs, and rearing salmonids.
- Introducing flow variability and moving fish onto floodplains temporarily can provide food benefits for fish as well as the food web. In addition, time spent on the floodplain (and in shallower, possibly slightly warmer, water) can help with fish growth.

Flow Planning

- After extensive discussion (details below), there was agreement to proceed with a simplified WIF schedule as follows:
 - USBR proposes to drop the base flow to 1,000 cfs for 24 hours the day prior to the start of the WIF.
 - The WIF schedule ramps flows up to a peak of 2,500 cfs, hold for a partial day, and then gradually decrease back down to 1,000 cfs.
 - In terms of biological benefits, there's flow for fry mobility, floodplain inundation for fish food, and variability. USBR has shared that from an operational perspective, variability is not something we can pursue to the degree that we might want.
 - It would have been ideal to coincide the WIF with a storm event, but Reclamation has concerns about “stacking” the WIF on top of storm runoff. Reclamation will schedule the WIF for the week of 2/26, after the weekend storms.
 - USBR committed to doing a final adjustment to ensure consistency with the volume of the SRP.

- Questions/Comments

- **Storage management releases beyond the WIF:** The fish agencies noted that the storage management releases from New Melones are above and beyond the minimum SRP volume, and asked if those ongoing storage management releases could be more variable, which would provide some additional fish benefits while being volume neutral. USBR noted that this will need to be collaboratively discussed with all agencies, and perhaps taken up with WOMT due to differences in opinion and preference. Ultimately, SWT members decided to bring up the subject of flow variability for the storage management releases beyond the WIF to WOMT.
- **Doubled ramping rates:** USBR shared a variation of a WIF schedule with faster ramping rates, based on discussions earlier in the year. The fish agencies noted that that discussions on this topic started in January before flood control releases, when Goodwin releases were lower. As the situation has changed, the fish agencies no longer see the need to ask for a variation to allow for doubled ramping rates.
- **Finalizing the WIF schedule:** While acknowledging some complications given storage management releases and uncertain hydrology, SWT did agree that in future years it would be helpful to nail down the relevant variables sooner (acknowledging that USFWS did try to get the ball rolling sooner).
- **Flow shaping decision process:** NMFS shared some of the decision-making guidelines from USBR's Proposed Action in the 2019 Biological Assessment with the SWT: "the SWT will also provide input on the shaping and timing of monthly or seasonal flow volumes to optimize biological benefits." NMFS also noted that, per USBR's Proposed Action, Reclamation makes the decision on whether/how to shape the SRP volume, in consideration of feedback from the SWT.
- USFWS clarified that the rationale for increasing the ramping rate (i.e., to get flows up to elevations with a small pool of water) is no longer relevant given sustained inundations in those areas, therefore the doubled rate is not worth pursuing. USFWS would generally like to see more flow variability. An example that could maintain the average release flows would be to increase flows by 500 cfs on Day 1, then down by 500 cfs on Days 2 and 3 and repeat that cycle. That variability could provide benefits for fish without putting even more time and energy into a Dry year WIF.
 - USBR shared that they thought the doubled ramping rate would be better for USFWS rather than the "sawtooth" pattern because increasing by 500 cfs is going to get attenuated right below Orange Blossom so we may not see results from that.
 - USFWS responded that the schedule doesn't have to be 500 up and down; we could go higher and have more days that remain at flows of 1,000 cfs. What USFWS is looking for is variability that triggers environmental changes. The WIF volume is not the most important detail; it's more about

the variability. USFWS offered to provide a functional flow shaping schedule.

- NMFS asked about a one-time pattern that wouldn't change the entire system.
- USFWS reiterated that flatline flows aren't beneficial to fish, citing a study by Cramer Fish Sciences that theorizes that flow volume and variability are the factors driving juvenile survival. Changes of 1,000 cfs will stretch much farther down the river system than changes of 100 cfs. Releases under 1,000 cfs also could diminish connectivity.
 - CDFW agreed that relatively flat flow is unlikely to yield much benefit.
- USFWS expressed concern regarding minimizing interference with operations.
- PSMFC shared that with the last flow bump, flows varied up and down by about 600 cfs. About 1,100 fish were caught at the Caswell RST during this variable flow.
- NMFS commented that some natural variability should be expected from run-off. Also, once New Melones is no longer encroached, USBR could drop flows to allow for CDFW canyon surveys. This could also create some variability in the near future.
- USBR reminded folks that the WIF is typically a 2-3 day event and suggested comparing the sawtooth pulse with the doubled rate schedule.
- CDFW shared that Ryan Kok has already put forth a strawman flow proposal that flexes around 1,000 cfs; USFWS doesn't necessarily need to spend time on putting one together. CDFW can resend this proposal to the SWT.
 - One proposed flow would accommodate a canyon survey, and another would cap at 1,200 cfs, as this was the maximum recommended flow at the time the proposal was created.
- USBR management has instructed not to schedule down to 300 cfs (or below) for any survey until New Melones storage is out of encroachment. This is the rationale behind not being able to use some of the shared proposed schedules. USBR management prefers a flatter ramp rate because it helps with planning and provides a clearer understanding of reservoir storage status. They are happy to allocate water for the WIF, but the ongoing variability, especially related to flood control releases, was not embraced by management.
- USBR wondered what kind of juvenile stranding monitoring might be occurring and if there is a plan to address that.
 - NMFS suggested including stranding concerns in the proposal.

- CDFW responded that they don't have the staff necessary to conduct the stranding surveys, but that there are known areas for stranding once flows drop below a certain level. CDFW clarified that the Goodwin Canyon surveys are for the *O. mykiss* redd survey for life cycle monitoring.
- USBR asked if there might be potential for redd scouring; there appears to be no data on redds.
 - CDFW responded that they haven't seen redds yet, but turbidity has been high. Last year, they didn't see redds until flows dropped between 200-300 cfs. It's not clear if this was solely due to the turbidity making it difficult for researchers to spot them, or if they waited for flows to diminish before they started spawning.

Stanislaus River Forum (SRF) Call Review

- There were no comments received from members of the public at the SRF February meeting.
- Much of the meeting discussion centered around flow planning.

Fish Monitoring

CDFW Fish Monitoring

- Escapement surveys concluded in January.
 - Merced River – completed 1/11/2024
 - Stanislaus River – completed 1/25/2024
 - Tuolumne River – completed 2/1/2024
- There was no canyon access in late January due to flood control releases.
- Turbidity has been an ongoing challenge in observations.
- The last two weeks of surveying have not included some areas due to high turbidity and or high flows.

Mossdale Trawl

- CDFW and USFWS began cooperative trawl operations on January 3, which will continue through March. CDFW will then operate it independently through June.
- As of 2/16/24, 12 Chinook have been captured, with one being ad-clipped. Two *O. mykiss* have also been captured during this time.

Stanislaus Weir Update

- *O. mykiss* were observed moving through the weir, but trapping has been difficult due to

turbidity. 75% of *O. mykiss* were adipose-clipped.

- FISHBIO is planning to continue operations through the spring but might need to suspend sampling if storage management at New Melones results in higher flows. higher flood control flows.

Rotary Screw Trap (RST) Updates

- Traps were offline for a few days in early Feb due to high winds and excessive river debris.
- As of 2/20/2024, PSMFC has captured 2,552 unmarked LAD fall-run Chinook salmon and 1 adipose-clipped *O. mykiss* (measuring 239 mm).
- Peak catch day was 2/20/2024 with 668 Chinook salmon captured. This peak day coincided with flows of 600 cfs. This was also the highest turbidity recorded at the RSTs this season.
- All but 1 captured Chinook salmon have been yolk sac fry and button up fry with an average measurement of 35 mm.
- One screw trap efficiency trial was completed in February using unmarked, natural-origin Chinook salmon. Flows were approximately 1,600 cfs and capture efficiency was around 3%.
- Questions
 - CDFW asked about the origin of the unclipped *O. mykiss*.
 - The crew at the time did not have a pit-tag reader on hand, but usually have them ready to take measurements.
 - USBR asked about the uncertainty of the *O. mykiss*' tag. CDFW asked if they would have been adipose-clipped.
 - No one on the call was able to answer this question definitively.

Restoration Project Updates

- Chinook fry are showing up at the Wakefield Wilderness Area site. A video will be shown during next month's presentation on the restoration site.
- USFWS is continuing to work on the CVPIA NOFO.
- USBR is planning to install 5,000 tons of gravel at Goodwin Canyon this summer, pending availability of federal funding.

Progress Update on Proposed Action Elements

- N/A

Other Discussion Items

Curtailments

- N/A

Annual Reporting

- USBR is still waiting on a final section to compile the Annual Report.

Items to elevate to WOMT

- SWT members agreed to brief their agencies' WOMT members regarding the flow variability discussion.

Next Meeting

Wednesday, March 20, 10:00 am –12:00 pm.



— BUREAU OF —
RECLAMATION

Stanislaus Watershed Team

10:00 AM – 12:00 PM

Conference Line: 1 (321) 209-6143; Meeting ID: 901 988 581#

Webinar: [Join Microsoft Teams Meeting](#)

Wednesday, February 21, 2024

Agenda

1. Introductions
2. Ground Rules¹
3. Announcements
 - a. Meeting will be recorded for notetaking purposes – Karis Johnson, Kearns & West
 - b. The NGO Restoring the Stanislaus is hosting a workshop in Sonora on April 6th. Details can be found at <https://restoringthestanislaus.org/index.php/restoring-our-stanislaus/restoring-the-stanislaus-watershed-symposium>
4. Operations Update and Forecasts/Hydrology - Peggy Manza, USBR
5. Temperature Updates – Barbara Byrne, NMFS
6. Flow Planning – JD (John) Wikert, USFWS
7. Stanislaus River Forum (SRF) Call Review - Amanda Snow, USBR
8. Fish Monitoring and Studies - CDFW, FISHBIO, NMFS, PSMFC

The Stanislaus Watershed Team's Ground Rules are as follows:

1. Seek to understand and respect opposing views and suggestions for change (w/in the parameters of the Guidance Document).
2. Seek to leverage collective expertise (including from agencies' & stakeholders' consultants).
3. Hold questions/discussion at the discretion of the presenter.
4. Honor time limits - keep comments and discussion succinct and focused on meeting objectives as needed.
5. Make constructive proposals and suggestions to seek mutually agreeable solutions for all parties.
6. Keep a record of discussion and dialogue.
7. One speaker at a time
8. Take space/make space

9. Restoration Project Updates

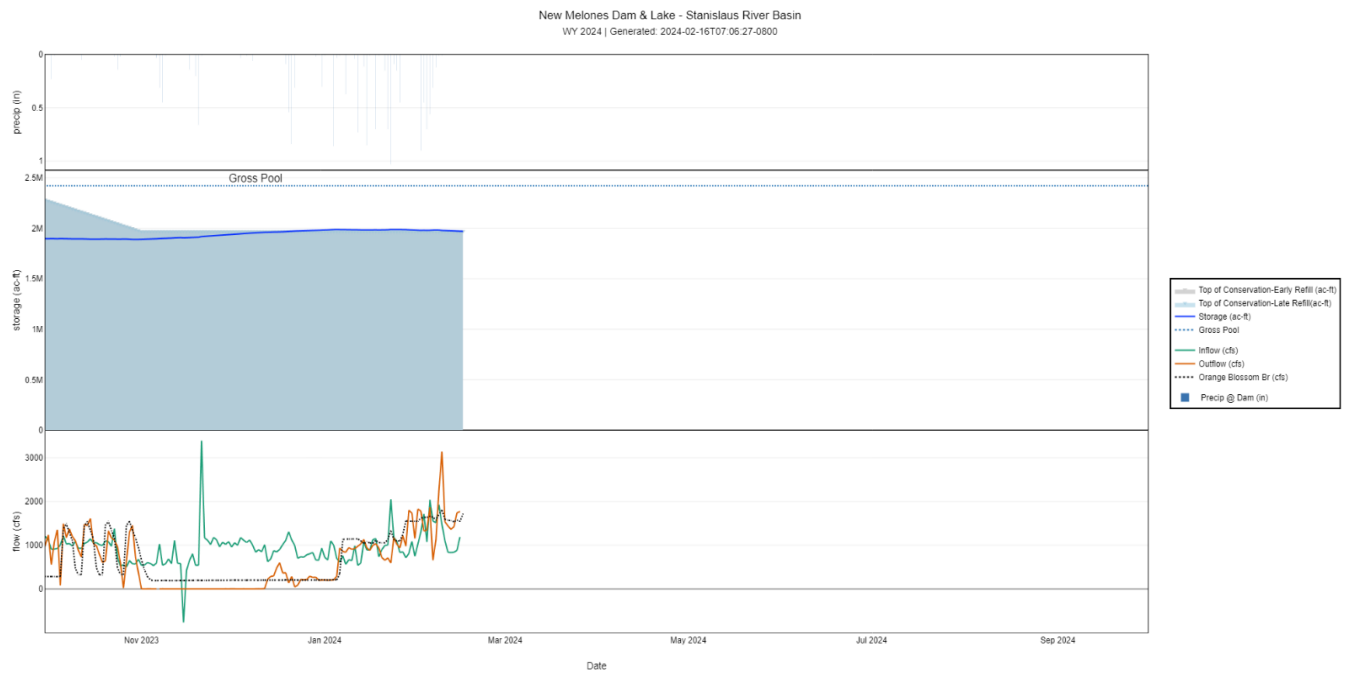
- a. Presentation on the Stanley Wakefield Wilderness Area, – JD (John) Wikert, USFWS
- b. Restoration Tracker – JD (John) Wikert, USFWS
- c. Caterina Pien, USBR

10. Other Discussion Items

- a. WY23 Summary of Activities Report Update - Amanda Snow, USBR
- b. SWRCB Updates - Erin Foreman, Resa, Yongxuan Gao, Michael Macon, SWRCB
- c. Items to elevate to WOMT - Karis Johnston, Kearns & West

11. Review Action Items - Karis Johnston, Kearns & West

12. Next Meeting: Wednesday, March 20, 2024 (10am-12pm)



Flow (csf), storage (ac-ft) and precipitation (in) for New Melones Dam and Lake at Stanislaus River Basin from November 2023 to February 2024.

The figure is a stacked line and bar chart showing flow and precipitation for New Melones Dam and Lake with different colored lines, and total storage in a gray bar for November 2023 to February 2024.



Tables for BDO

United States Department of the Interior
Bureau of Reclamation, Central Valley Project-
California Daily CVP Water Supply Report

February 15, 2024

Run Date: February 16, 2024

Table 4. Reservoir Releases in Cubic Feet Per Second

Reservoir	Dam	WY 2023	WY 2024	15-Year Median
Trinity	Lewiston	475	318	306
Sacramento	Keswick	3,295	14,876	3,389
Feather	Oroville (SWP)	950	6,000	1,750
American	Nimbus	4,015	6,042	2,253
Stanislaus	Goodwin	202	1,504	406
San Joaquin	Friant	498	0	399

Table 5. Storage in Major Reservoirs in Thousands of Acre-Feet

Reservoir	Capacity	15-Yr Avg	WY 2023	WY 2024	% O 15 Yr Avg
Trinity	2,448	1,443	789	1,642	114
Shasta	4,552	2,986	2,664	3,773	126
Folsom	977	498	522	595	119
New Melones	2,420	1,424	1,048	1,969	138
Fed. San Luis	966	646	603	881	136
Total North CVP	11,363	6,997	5,626	8,860	127
Millerton	521	290	275	0	0
Oroville (SWP)	3,538	2,047	2,453	2,812	137

Table 6. Accumulated Inflow for water Year to Date in Thousands of Acre-Feet

Reservoir	Current WY 2024	WY 1977	WY 1983	15-Yr Avg	% O 15 Yr Avg
Trinity	510	172	813	334	153
Shasta	2,040	1,311	3,737	1,872	109
Folsom	547	498	2,052	865	63
New Melones	256	---	516	305	84

Reservoir	Current WY 2024	WY 1977	WY 1983	15-Yr Avg	% O 15 Yr Avg
Millerton	451	315	455	322	140

Table 7. Accumulated Precipitation for Water Year to Date in Inches

Reservoir	Current WY 2024	WY 1977	WY 1983	Avg (N Yrs)	% of Avg	Last 24 Hours
Trinity at Fish Hatchery	23.09	12.68	30.10	19.86 (64)	116	0.52
Sacramento at Shasta Dam	40.93	16.37	56.01	37.03 (69)	111	1.30
American at Blue Canyon	24.32	---	74.54	38.87 (50)	63	0.82
Stanislaus at New Melones	14.62	---	22.38	16.41 (47)	89	0.78
San Joaquin at Huntington LK	15.19	11.50	35.60	23.33 (51)	65	0.00

United States Department of the Interior
 Bureau of Reclamation-Central Valley Project- California
 New Melones Lake Daily Operations, February 2024, Run Date: 02/20/2024

Day	Elev	Storage 1000- Acre- Feet in Lake	Storage 1000- Acre- Feet Change	Computed Inflow C.F.S.	Release C.F.S. Power	Release C.F.S. Spill	Release C.F.S. Outlet	Evap. C.F.S.	Evap. Inches	Precip Inches
N/A	N/A	1,979.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	1,050.36	1,979.0	-1.0	1,303	1,781	0	0	21	0.06	0.90
2	1,050.43	1,979.7	0.8	1,716	1,324	0	0	4	0.01	0.45
3	1,050.38	1,979.2	-0.6	1,076	1,349	0	0	4	0.01	0.70
4	1,050.41	1,979.5	0.3	2,040	1,870	0	0	4	0.01	0.56
5	1,050.57	1,981.3	1.8	1,551	657	0	0	7	0.02	0.31
6	1,050.64	1,982.0	0.8	1,518	1,123	0	0	7	0.02	0.12
7	1,050.58	1,981.4	-0.7	1,926	2,255	0	0	4	0.01	0.01
8	1,050.28	1,978.1	-3.3	1,480	3,140	0	0	4	0.01	0.01
9	1,050.20	1,977.2	-0.9	1,103	1,536	0	0	11	0.03	0.00
10	1,050.09	1,976.0	-1.2	841	1,444	0	0	7	0.02	0.00
11	1,049.99	1,974.9	-1.1	835	1,362	0	0	28	0.08	0.00
12	1,049.88	1,973.7	-1.2	842	1,425	0	0	25	0.07	0.00
13	1,049.72	1,971.9	-1.8	882	1,741	0	0	25	0.07	0.00
14	1,049.61	1,970.7	-1.2	1,188	1,771	0	0	25	0.07	0.00
15	1,049.46	1,969.1	-1.6	1,472	2,297	0	0	4	0.01	0.78
16	1,049.34	1,967.8	-1.3	941	1,600	0	0	4	0.01	0.78
17	1,049.25	1,966.8	-1.0	893	1,383	0	0	7	0.02	0.00
18	1,049.32	1,967.5	0.8	1,781	1,387	0	0	7	0.02	0.14
19	1,049.77	1,972.5	4.9	3,898	1,383	0	0	28	0.08	1.36
Totals	N/A	N/A	-7.5	27,286	30,828	0	0	226	0.63	6.12
Acre- Feet	N/A	N/A	-7,500	54,122	61,147	0	0	448	N/A	N/A

Comments:

* Computed inflow is the sum of change in storage, releases, and evaporation.

Summary Precipitation

This Month 6.12
 October 1, 2023 to Date 16.90

**Summary: Release
(acre- feet)**

Power	61,147
Spill	0
Outlet	0
Total	61,147

United States Department of the Interior
 Bureau of Reclamation-Central Valley Project- California
 New Melones Lake Daily Operations, January 2024, Run Date: 02/10/2024

Day	Elev	Storage 1000- Acre- Feet in Lake	Storage 1000- Acre- Feet Change	Computed Inflow C.F.S.	Release C.F.S. Power	Release C.F.S. Spill	Release C.F.S. Outlet	Evap. C.F.S.	Evap. Inches	Precip. Inches
N/A	N/A	1,982.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	1,050.74	1,983.1	0.9	664	202	0	0	18	0.05	0.00
2	1,050.90	1,984.9	1.8	1,100	206	0	0	7	0.02	0.00
3	1,051.04	1,986.4	1.5	999	208	0	0	14	0.04	0.86
4	1,051.11	1,987.2	0.8	698	294	0	0	14	0.04	0.03
5	1,051.05	1,986.5	-0.7	616	939	0	0	11	0.03	0.01
6	1,051.03	1,986.3	-0.2	762	859	0	0	14	0.04	0.00
7	1,050.98	1,985.8	-0.6	563	841	0	0	0	0.00	0.37
8	1,050.93	1,985.2	-0.6	670	947	0	0	0	0.00	0.00
9	1,050.88	1,984.7	-0.6	648	907	0	0	18	0.05	0.00
10	1,050.89	1,984.8	0.1	986	924	0	0	7	0.02	0.04
11	1,050.81	1,983.9	-0.9	541	978	0	0	7	0.02	0.73
12	1,050.73	1,983.0	-0.9	594	1,031	0	0	7	0.02	0.00
13	1,050.72	1,982.9	-0.1	1,082	1,133	0	0	4	0.01	0.11
14	1,050.71	1,982.8	-0.1	892	943	0	0	4	0.01	0.85
15	1,050.71	1,982.8	0.0	892	881	0	0	11	0.03	0.01
16	1,050.73	1,983.0	0.2	1,128	999	0	0	18	0.05	0.00
17	1,050.75	1,983.2	0.2	1,150	1,035	0	0	4	0.01	0.70
18	1,050.71	1,982.8	-0.4	738	939	0	0	21	0.06	0.01
19	1,050.74	1,983.1	0.3	898	721	0	0	11	0.03	0.00
20	1,050.80	1,983.8	0.7	997	657	0	0	7	0.02	0.15
21	1,050.85	1,984.3	0.6	1,006	711	0	0	18	0.05	0.70
22	1,051.11	1,987.2	2.9	2,049	598	0	0	7	0.02	1.03
23	1,051.11	1,987.2	0.0	1,176	1,172	0	0	4	0.01	0.09
24	1,051.12	1,987.3	0.1	1,090	1,021	0	0	14	0.04	0.15
25	1,051.10	1,987.1	-0.2	837	941	0	0	7	0.02	0.45
26	1,051.03	1,986.3	-0.8	850	1,222	0	0	18	0.05	0.00
27	1,050.98	1,985.8	-0.6	714	978	0	0	14	0.04	0.00
28	1,050.80	1,983.8	-2.0	813	1,800	0	0	11	0.03	0.00
29	1,050.68	1,982.5	-1.3	1,088	1,735	0	0	18	0.05	0.00
30	1,050.60	1,981.6	-0.9	750	1,155	0	0	39	0.11	0.00
31	1,050.45	1,979.9	-1.6	1,028	1,828	0	0	32	0.09	0.00
Totals	N/A	N/A	-2.4	28,019	28,805	0	0	379	1.06	6.29

Day	Elev	Storage 1000- Acre- Feet in Lake	Storage 1000- Acre- Feet Change	Computed Inflow C.F.S.	Release C.F.S. Power	Release C.F.S. Spill	Release C.F.S. Outlet	Evap. C.F.S.	Evap. Inches	Precip. Inches
Acre- Feet	N/A	N/A	-2,400	55,576	57,135	0	0	752	N/A	N/A

Comments:

* Computed inflow is the sum of change in storage, releases, and evaporation.

Summary Precipitation

This Month 6.29
October 1, 2023 to Date 10.78

Summary: Release (acre-feet)

Power 57,135
Spill 0
Outlet 0
Total 57,135

United States Department of the Interior
 Bureau of Reclamation-Central Valley Project- California
 Tulloch Reservoir Daily Operations, February 2024, Run Date: 02/20/2024

Day	Elev	Storage (Acre Feet) Reservoir	Storage (Acre-Feet) Change	Computed Inflow C.F.S.	New Melones Release	Release C.F.S. Power	Release C.F.S. Spill	Release C.F.S. Outlet	Evap. C.F.S. (1)
N/A	N/A	34,333	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	477.87	35,194	861	1,925	1,781	1,490	0	0	1
2	477.88	35,202	8	1,495	1,324	1,491	0	0	0
3	477.79	35,134	-68	1,457	1,349	1,491	0	0	0
4	479.52	36,461	1,327	2,161	1,870	1,056	0	436	0
5	477.79	35,134	-1,327	816	657	388	0	1,097	0
6	477.00	34,540	-594	1,192	1,123	1,491	0	0	0
7	480.26	37,038	2,498	2,751	2,255	1,492	0	0	0
8	485.08	40,987	3,949	3,483	3,140	1,492	0	0	0
9	485.58	41,416	429	1,709	1,536	1,492	0	0	1
10	485.68	41,501	85	1,537	1,444	1,493	0	0	1
11	485.54	41,381	-120	1,434	1,362	1,492	0	0	2
12	485.51	41,356	-25	1,510	1,425	436	1,085	0	2
13	486.07	41,837	481	1,817	1,741	0	1,572	0	2
14	486.89	42,550	713	1,891	1,771	435	1,064	31	2
15	489.14	44,556	2,006	2,502	2,297	1,491	0	0	0
16	489.59	44,965	409	1,698	1,600	1,492	0	0	0
17	489.51	44,893	-72	1,457	1,383	1,492	0	0	1
18	489.49	44,874	-19	1,485	1,387	1,494	0	0	1
19	491.54	46,773	1,899	2,453	1,383	1,494	0	0	2
Totals	N/A	N/A	12,440	34,773	30,828	23,202	3,721	1,564	15
Acre-Feet	N/A	N/A	12,440	68,972	61,147	46,021	7,381	3,102	30

Comments:

* Computed inflow is the sum of change in storage, releases, and evaporation.

(1) Evaporation records taken from New Melones Pan.

Summary: Release (acre-feet)

Power	46,021
Spill	7,381
Outlet	3,102
Total	56,504

United States Department of the Interior
 Bureau of Reclamation-Central Valley Project- California
 Tulloch Reservoir Daily Operations, January 2024, Run Date: 02/10/2024

Day	Elev	Storage (Acre Feet) Res.	Storage (Acre-Feet) Change	Computed Inflow C.F.S.	New Melones Release	Release C.F.S. Power	Release C.F.S. Spill	Release C.F.S. Outlet	Evap. C.F.S. (1)
N/A	N/A	33,941	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	476.16	33,918	-23	201	202	212	0	0	1
2	476.19	33,941	23	224	206	212	0	0	0
3	476.25	33,985	44	235	208	212	0	0	1
4	476.48	34,155	170	299	294	212	0	0	1
5	477.54	34,946	791	968	939	568	0	0	1
6	477.20	34,690	-256	867	859	995	0	0	1
7	476.78	34,377	-313	837	841	995	0	0	0
8	476.67	34,296	-81	955	947	996	0	0	0
9	476.38	34,081	-215	888	907	995	0	0	1
10	476.22	33,963	-118	936	924	995	0	0	0
11	476.19	33,941	-22	983	978	994	0	0	0
12	476.30	34,022	81	996	1,031	955	0	0	0
13	476.75	34,355	333	1,163	1,133	995	0	0	0
14	476.85	34,429	74	1,031	943	994	0	0	0
15	476.58	34,229	-200	894	881	994	0	0	1
16	476.70	34,318	89	1,043	999	997	0	0	1
17	477.08	34,600	282	1,137	1,035	995	0	0	0
18	476.99	34,533	-67	962	939	995	0	0	1
19	476.26	33,992	-541	723	721	995	0	0	1
20	475.47	33,414	-578	701	657	992	0	0	0
21	474.96	33,043	-371	805	711	991	0	0	1
22	475.19	33,210	167	1,076	598	992	0	0	0
23	475.96	33,771	561	1,275	1,172	992	0	0	0
24	476.38	34,081	310	1,150	1,021	993	0	0	1
25	476.50	34,170	89	1,037	941	992	0	0	0
26	476.43	34,118	-52	1,277	1,222	1,235	0	67	1
27	475.08	33,130	-988	981	978	1,365	0	113	1
28	475.99	33,793	663	1,817	1,800	1,366	0	116	1
29	476.60	34,244	451	1,709	1,735	1,371	0	110	1
30	475.88	33,713	-531	1,216	1,155	1,370	0	111	3
31	476.72	34,333	620	1,802	1,828	1,441	0	46	2

Day	Elev	Storage (Acre Feet) Res.	Storage (Acre- Feet) Change	Computed Inflow C.F.S.	New Melones Release	Release C.F.S. Power	Release C.F.S. Spill	Release C.F.S. Outlet	Evap. C.F.S. (1)
Totals	NA	NA	392	30,188	28,805	29,406	0	563	21
Acre-Feet	NA	NA	392	59,878	57,135	58,327	0	1,117	42

Comments:

* Computed inflow is the sum of change in storage, releases, and evaporation.

(1) Evaporation records taken from New Melones Pan.

Summary: Release (acre-feet)

Power	58,327
Spill	0
Outlet	1,117
Total	59,444

Oakdale Irrigation District
 South San Joaquin Irrigation
 District Tri Dams Project-California
 Goodwin Reservoir Daily Operations, February 2024, Run Date: 02/20/2024

Day	Elev	Storage (1000 Acre-Feet) in Lake	Storage (1000 Acre-Feet) Change	Tulloch Release	Release C.F.S. - River Outlet	Release C.F.S. – Spill	Canals-Joint Main	Canals-South Main
N/A	N/A	576	N/A	N/A	N/A	N/A	N/A	N/A
1	360.55	576	0	1,490	0	1,504	0	0
2	360.55	576	0	1,491	0	1,503	0	0
3	360.55	576	0	1,491	0	1,501	0	0
4	360.55	576	0	1,492	0	1,510	0	0
5	360.54	575	-1	1,485	0	1,511	0	0
6	360.54	575	0	1,491	0	1,504	0	0
7	360.55	576	1	1,492	0	1,513	0	0
8	360.54	575	-1	1,492	0	1,502	0	0
9	360.54	575	0	1,492	0	1,501	0	0
10	360.54	575	0	1,493	0	1,500	0	0
11	360.54	575	0	1,492	0	1,503	0	0
12	360.55	576	1	1,521	0	1,501	0	0
13	360.58	578	2	1,572	0	1,548	0	0
14	360.55	576	-2	1,530	0	1,517	0	0
15	360.54	575	-1	1,491	0	1,504	0	0
16	360.54	575	0	1,492	0	1,500	0	0
17	360.54	575	0	1,492	0	1,503	0	0
18	360.57	577	2	1,494	0	1,505	0	0
19	360.55	576	-1	1,494	0	1,521	0	0
Totals	N/A	N/A	0	28,487	0	28,651	0	0
Acre-Feet	N/A	N/A	0	56,504	0	56,829	0	0

Joint Main Operated by SSJID and OID.

Summary: Release (acre-feet)

Joint Main Canal	0
South Main Canal	0
Outlet	0
Spill	56,829
Total	56829.2585

Oakdale Irrigation District
 South San Joaquin Irrigation
 District Tri Dams Project-California
 Goodwin Reservoir Daily Operations, January 2024, Run Date: 02/10/2024

Day	Elev	Storage (1000 Acre- Feet) in Lake	Storage (1000 Acre- Feet) Change	Tulloch Release	Release C.F.S. - River Outlet	Release C.F.S. – Spill	Canals - Joint Main	Canals - South Main
N/A	N/A	523	N/A	N/A	N/A	N/A	N/A	N/A
1	359.79	522	-1	212	0	204	0	0
2	359.80	523	1	212	0	206	0	0
3	359.77	521	-2	212	0	206	0	0
4	359.77	521	0	212	0	205	0	0
5	360.27	556	35	568	0	549	0	0
6	360.27	556	0	995	0	1,003	0	0
7	360.27	556	0	995	0	1,001	0	0
8	360.27	556	0	996	0	1,002	0	0
9	360.27	556	0	995	0	1,003	0	0
10	360.27	556	0	995	0	1,004	0	0
11	360.27	556	0	994	0	1,002	0	0
12	360.27	556	0	955	0	1,001	0	0
13	360.29	557	1	995	0	1,005	0	0
14	360.27	556	-1	994	0	1,005	0	0
15	360.27	556	0	994	0	1,002	0	0
16	360.30	558	2	997	0	1,007	0	0
17	360.29	557	-1	995	0	1,006	0	0
18	360.29	557	0	995	0	1,004	0	0
19	360.30	558	1	995	0	1,004	0	0
20	360.30	558	0	992	0	1,011	0	0
21	360.30	558	0	991	0	1,007	0	0
22	360.30	558	0	992	0	1,020	0	0
23	360.30	558	0	992	0	1,007	0	0
24	360.30	558	0	993	0	1,007	0	0
25	360.30	558	0	992	0	1,006	0	0
26	360.55	576	18	1,302	0	1,311	0	0
27	360.55	576	0	1,478	0	1,502	0	0
28	360.55	576	0	1,482	0	1,503	0	0
29	360.55	576	0	1,481	0	1,501	0	0
30	360.55	576	0	1,481	0	1,501	0	0
31	360.55	576	0	1,487	0	1,502	0	0

Day	Elev	Storage (1000 Acre- Feet) in Lake	Storage (1000 Acre- Feet) Change	Tulloch Release	Release C.F.S. - River Outlet	Release C.F.S. – Spill	Canals - Joint Main	Canals - South Main
Totals	N/A	N/A	53	29,969	0	30,297	0	0
Acre-Feet	N/A	N/A	53	59,444	0	60,094	0	0

Joint Main Operated by SSJID and OID.

Summary: Release (acre-feet)

Joint Main Canal	0
South Main Canal	0
Outlet	0
Spill	60,094
Total	60094.0995

December 2023 Water Temperature and Fish Monitoring Update

Year-to-Date Flows

Goodwin releases since October 1, 2023, are shown in Figure 1.

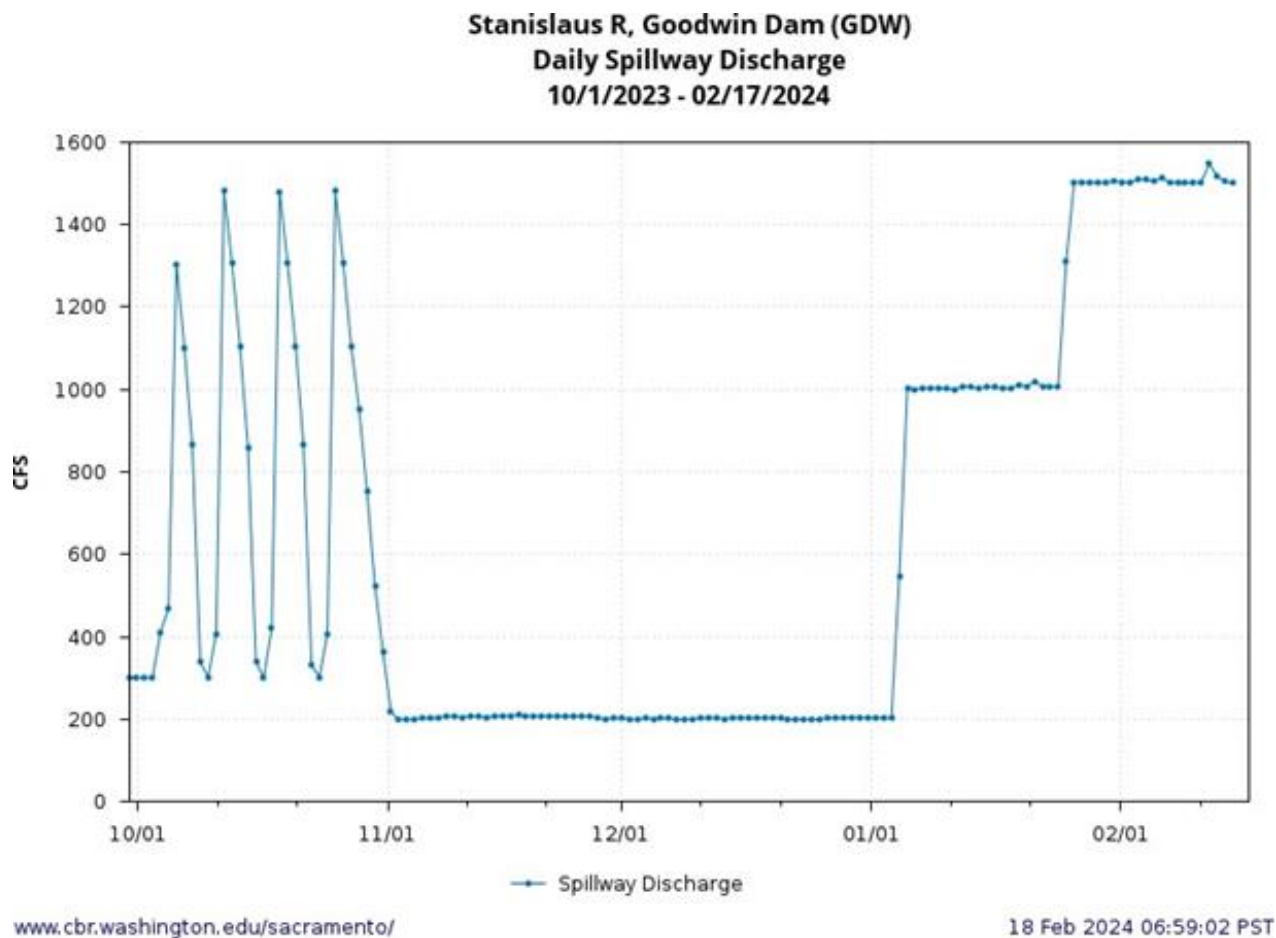


Figure 1. Goodwin (daily) releases to the Stanislaus River since October 1, 2023. Data from GDW station on CDEC.

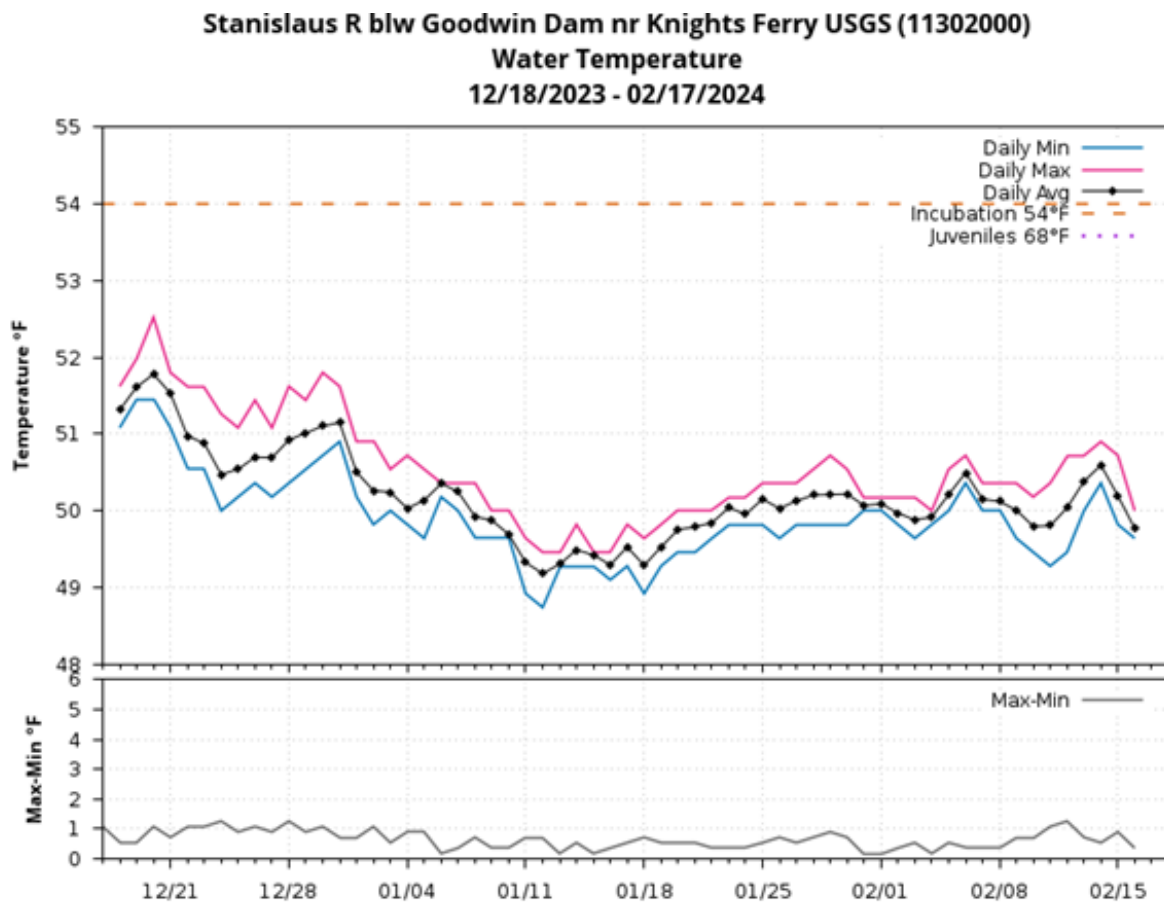
Figure 1 is a line graph showing Goodwin Dam daily spillway discharge. The graph shows weekly peaks of releases 1,300 – 1,500 cfs starting October 6th with discharges staying at 200 cfs November 1st – January 2nd.

Water Temperature

The temperature thresholds included in Figures 2-10, below, are the thresholds used in the 2019 NMFS LTO BiOp1 (see Incidental Take Statement on p. 807) to define the extent of take anticipated from water temperature effects in the Stanislaus River. *It is important to note that many of the temperature figures provide subdaily information or information at locations other than Orange Blossom Bridge and thus don't reflect the specific metrics for take in the 2019 NMFS LTO BiOp.* Temperature thresholds have been added to these figures at the request of

Stanislaus Watershed Team members to provide a general reference of water temperature suitability.

Water temperatures in the Stanislaus River since December 2023 are shown below at Goodwin Canyon (Figure 2), Orange Blossom Bridge (Figure 3), and at Ripon (Figure 4). Water temperatures in the San Joaquin River since December 2023 are shown below at Vernalis (Figure 5). Current-year water temperatures are plotted along with historical temperatures for upstream of Knights Ferry (Figure 6), Orange Blossom Bridge (Figure 7), Ripon (Figure 8), and Vernalis (Figure 9). A compilation of Stanislaus River water temperatures and Goodwin releases for water year 2024 is provided in Figure 10.



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Figure 2. Daily water temperatures on the Stanislaus River upstream of Knights Ferry since December 18, 2023. Data from USGS gage 11302000 on NWIS; temperature threshold reference line added by SWT.

Figure 2 is a line graph showing Goodwin Dam daily minimum, maximum and average water temperature. The graph shows maximum peak in temperature of 54° Fahrenheit on December 19th with steady decrease to 50° Fahrenheit up to February 15th.

**Stanislaus R at Orange Blossom Bridge (OBB)
Water Temperature
12/18/2023 - 02/17/2024**

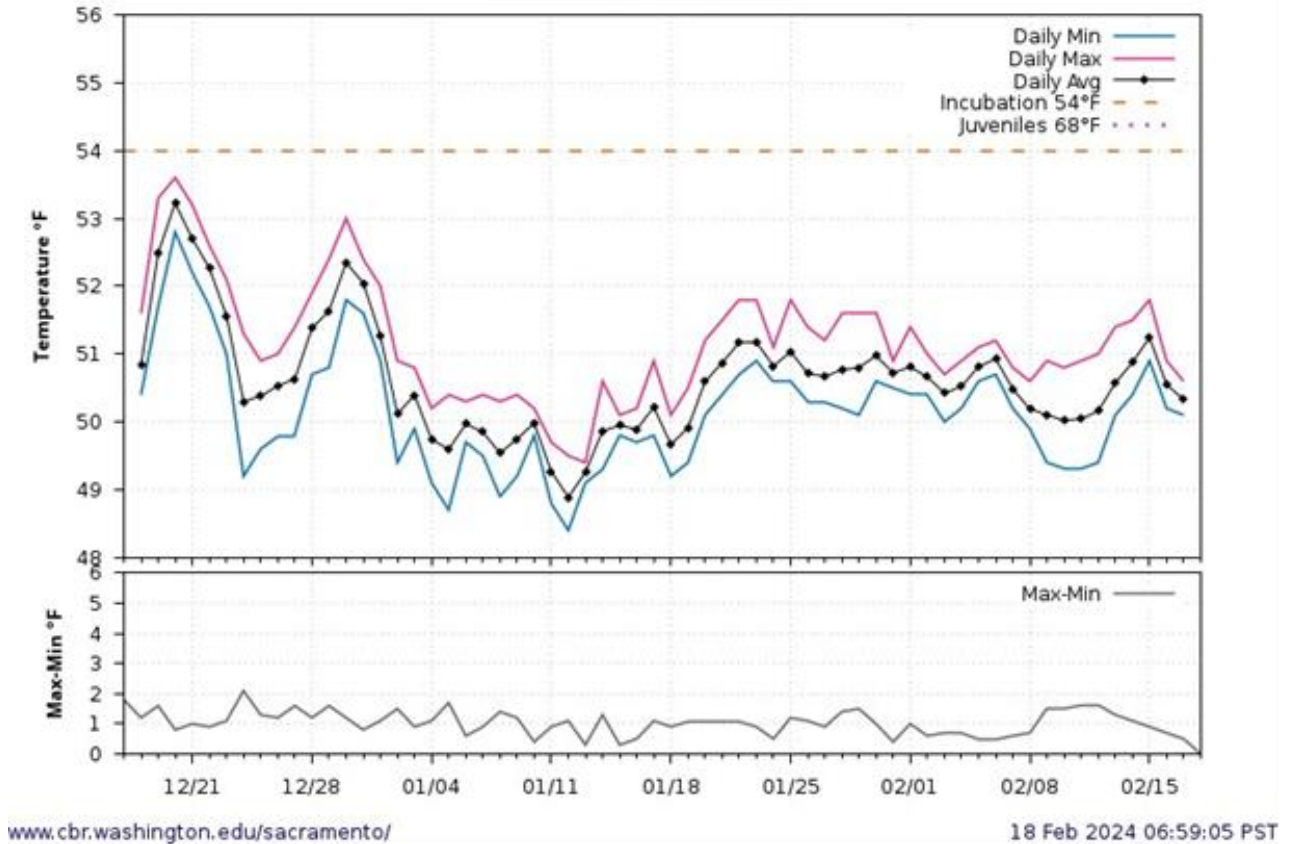
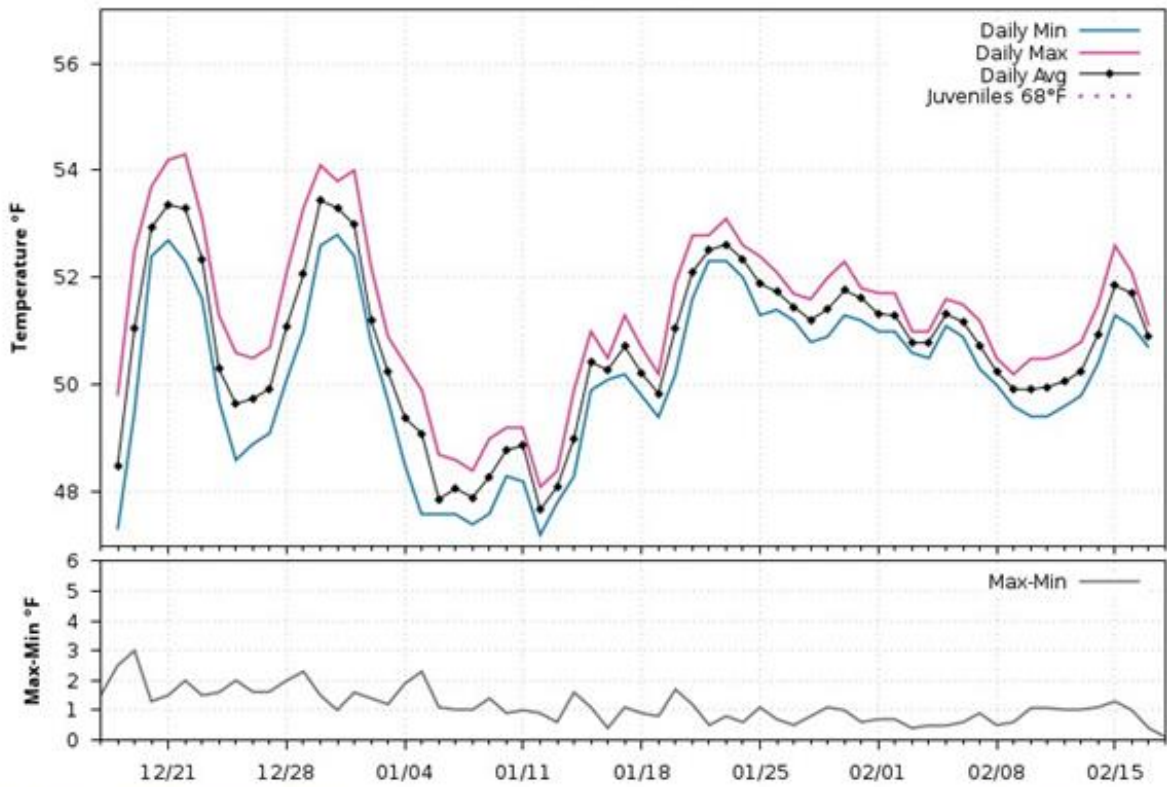


Figure 3. Stanislaus (hourly) water temperatures at Orange Blossom Bridge since December 18, 2023. Data from OBB station on CDEC.

Figure 3 is a line graph showing Orange Blossom Bridge daily minimum, maximum and average water temperature. The graph shows maximum peak in temperature of 54° Fahrenheit on December 19th with a decrease to about 50° Fahrenheit up to February 17th.

Chart: Stacked chart for daily water temperatures Stanislaus River at Orange Blossom Bridge for current 60 days period. Top chart: Daily Min, Max and average water temperatures (in degrees Fahrenheit). Bottom chart: Daily difference between Max and Min measured water temperature in degrees Fahrenheit. Data from OBB station retrieved from CDEC; figure generated by SacPAS (including date-based water temperature threshold reference lines). For more information, please call (916) 414-2400.

Stanislaus R at Ripon (USGS) (RIP)
Water Temperature
12/18/2023 - 02/17/2024

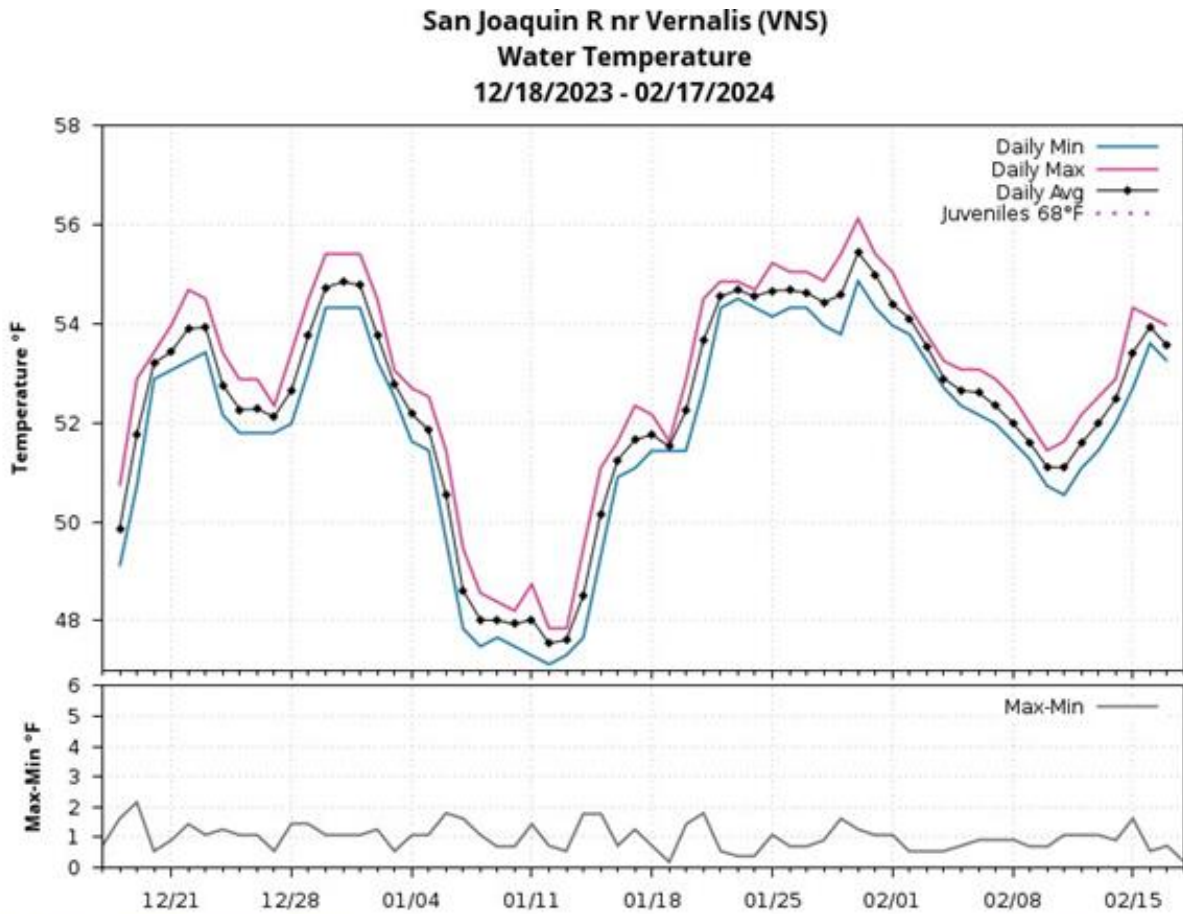


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Figure 4. Stanislaus water temperatures at Ripon since December 18, 2023. Data from RIP station on CDEC.

Figure 4 is a line graph showing Ripon daily minimum, maximum and average water temperature. The graph shows maximum peak in temperature over 54° Fahrenheit on December 21st with a decrease under 50° Fahrenheit starting on January 5th and a gradual increase to up 52° Fahrenheit on February 15th.



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Figure 5. San Joaquin River (15-minute) water temperatures at Vernalis since December 18, 2023. Data from VNS station on CDEC. Note that, unlike in the previous figures, temperature is reported in degrees Celsius. 8°C=46.4°F; 10°C=50°F; 12°C=53.6°F; 14°C=57.2°F; 16°C=60.8°F; 18°C=64.4°F; 20°C=68.0°F; 22°C=71.6°F; 24°C=75.2°F; 26°C=78.8°F; 28°C=82.4°F.

Figure 5 is a line graph showing Vernalis daily minimum, maximum and average water temperature. The graph shows a decrease in temperature under 50° Fahrenheit on January 11th and a maximum peak in temperature of 56° Fahrenheit on January 28th with a decrease to 53° Fahrenheit until February 15th.

**Stanislaus R at Orange Blossom Bridge (OBB)
2000-2023 Daily Average Water Temperature
Observed Range 46.0-59.3
12/20 - 04/19**

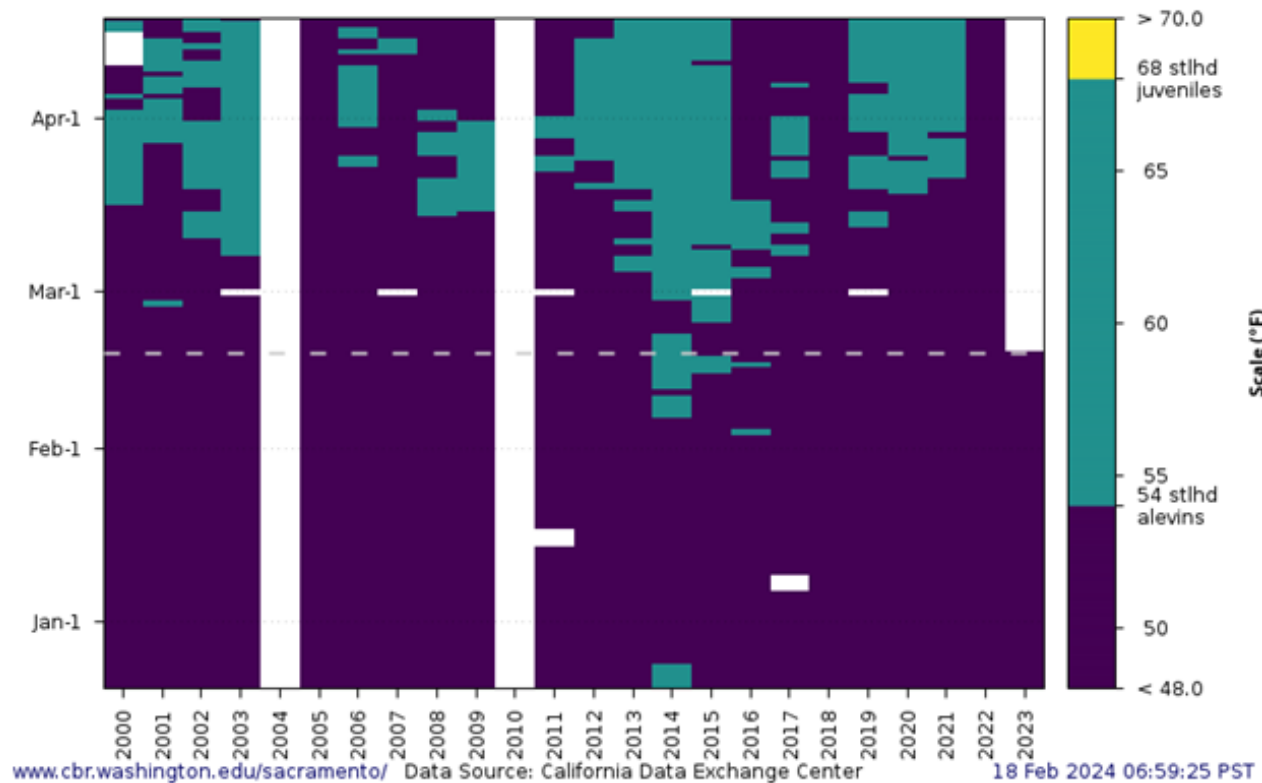


Figure 6. Stanislaus River water temperatures at Orange Blossom Bridge for WY 2000 to present. Data from SacPAS; temperature threshold reference lines added by SWT.
http://www.cbr.washington.edu/sacramento/data/query_river_allyears.html

Figure 6 is a bar chart showing water temperatures at Orange Blossom Bridge for WY 2000 to present for January to April. The chart shows during this time, temperature remained above 60° Fahrenheit outside of a brief period in January and February of 2014.

Stanislaus R at Ripon (USGS) (RIP)
2011-2023 Daily Average Water Temperature
Observed Range 43.0-67.6
12/20 - 04/19



Figure 7. Stanislaus River water temperatures at Ripon for WY 2011 to present. Figure from SacPAS using RIP station data from CDEC; temperature threshold reference line added by SWT. http://www.cbr.washington.edu/sacramento/data/query_river_allyears.html

Figure 7 is a bar chart showing water temperatures at Ripon for WY 2011 to present for January to April. The chart shows that during this time, the daily average water temperature was mostly below 68° mid-October to mid-February.

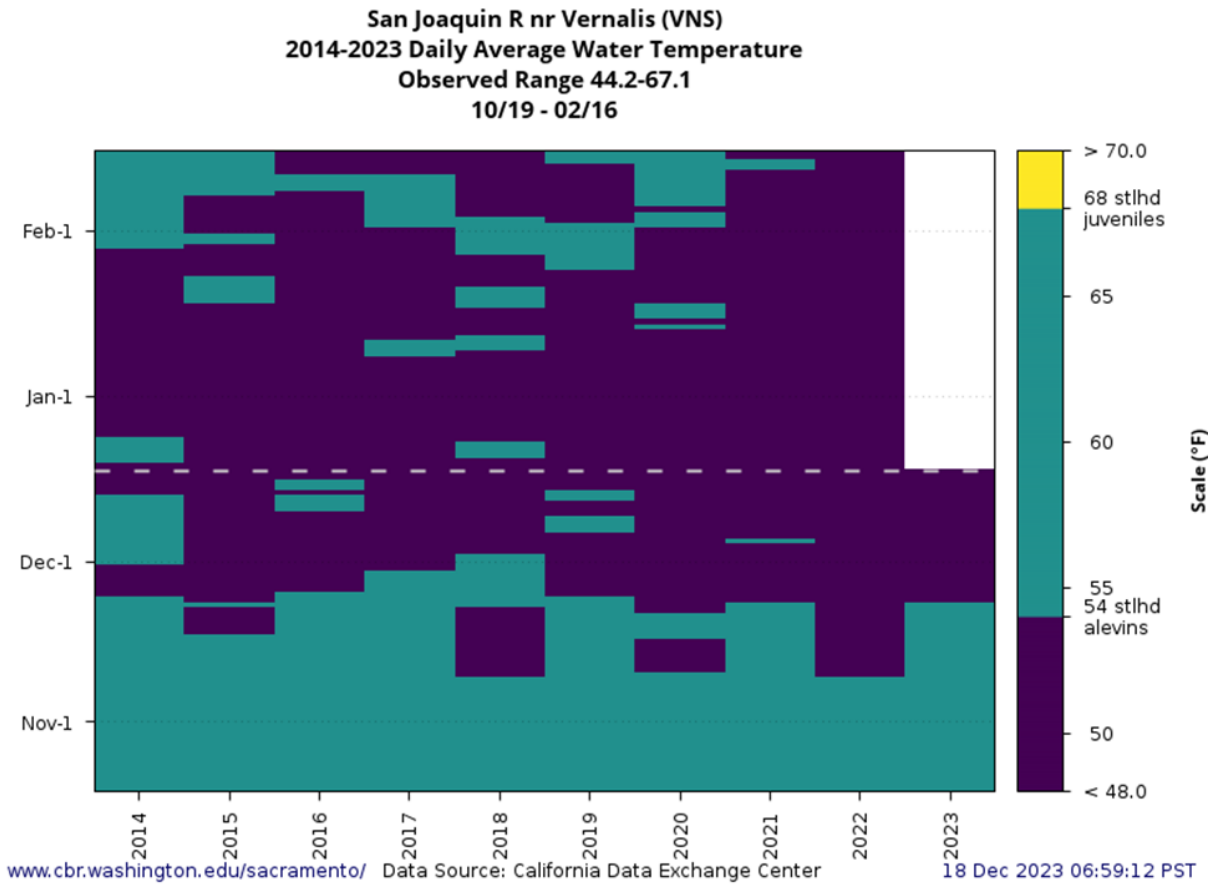


Figure 8. San Joaquin River water temperatures at Vernalis for WY 2014 to present. Figure from SacPAS using VNS station data from CDEC; temperature threshold reference line added by SWT. http://www.cbr.washington.edu/sacramento/data/query_river_allyears.html

Figure 8 is a bar chart showing water temperatures at Vernalis for WY 2014 to present. The chart shows that during this time, the daily average water temperature was mostly below 68° Fahrenheit for mid-February to April.

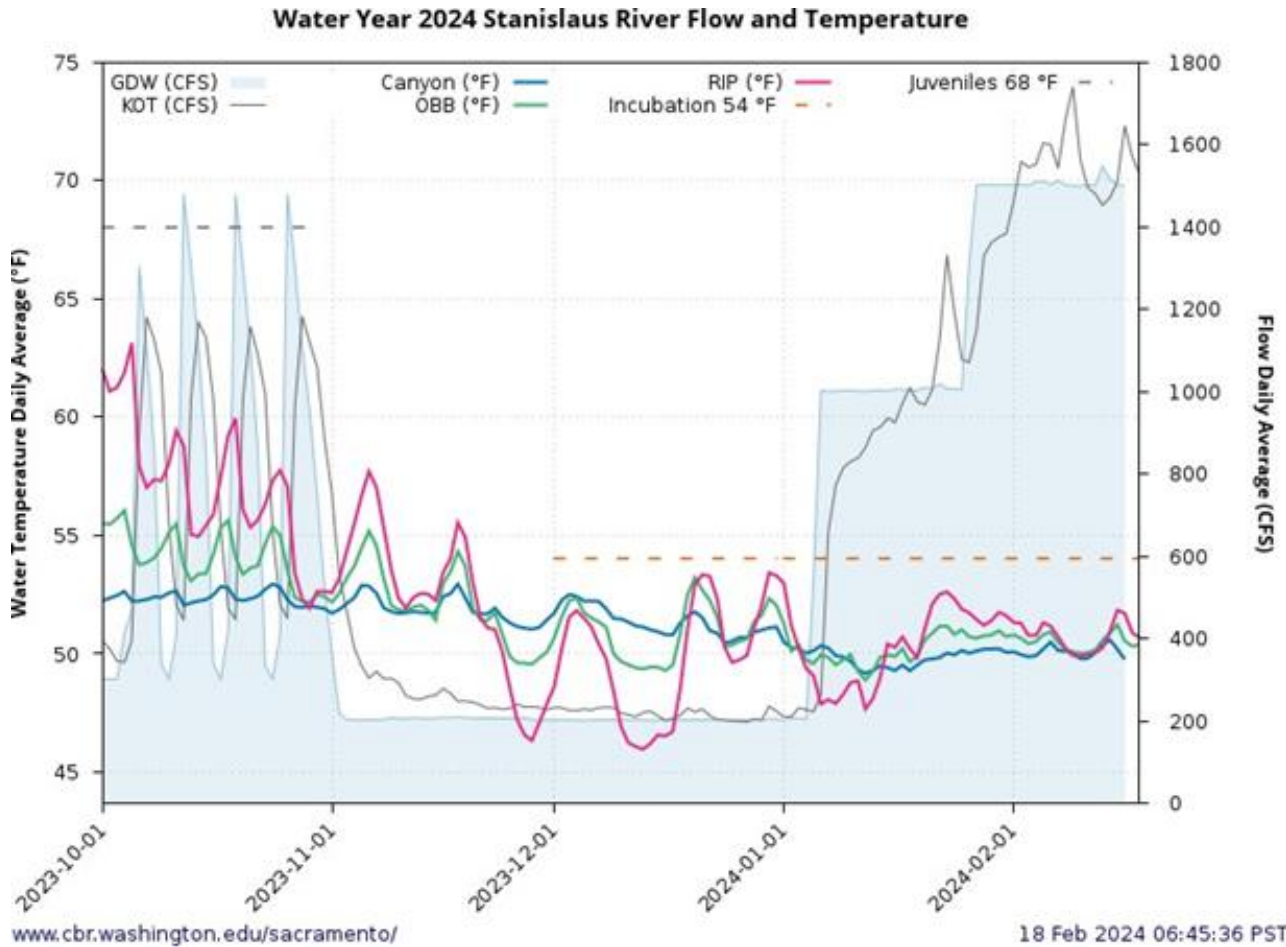


Figure 9. Stanislaus River flow and water temperatures from October 1, 2023 to February 18, 2023. Data (including temperature threshold reference lines) from SacPAS: http://www.cbr.washington.edu/sacramento/data/tc_stanislaus.html

Figure 9 is a line chart showing river flow and water temperatures on the Stanislaus River. The graph shows oscillating peaks of daily flow and water temperature.

Flow Planning

USFWS Updates: Please refer to the next tables for the WIF discussion.

WIF with Double Down Ramp Rates (Q<2000 cfs)

Time	From (cfs)	To (cfs)	Total cfs
600	1000	1250	250
800	1250	1500	500
1000	1500	1750	750
1200	1750	2000	1000
1400	2000	2500	1500

Time	From (cfs)	To (cfs)	Total cfs
1600	2500	2500	1500
1800	N/A	2500	1500
2000	N/A	2500	1500
2200	N/A	2500	1500
2400	N/A	2500	1500
200	N/A	2500	1500
400	N/A	2500	1500
600	2500	2250	1250
800	2250	2000	1000
1000	2000	1800	800
1200	1800	1600	600
1400	1600	1400	400
1600	1400	1200	200
1800	1200	1000	0
2000	1000	1000	0
2200	1000	hold	N/A
2400	N/A	N/A	N/A
200	N/A	N/A	N/A

WIF with Standard Ramp Rates

Hour	Time	From (cfs)	To (cfs)	Total cfs
1	600	1000	1250	250
3	800	1250	1500	500
5	1000	1500	1750	750
7	1200	1750	2000	1000
9	1400	2000	2500	1500
11	1600	2500	2500	1500
13	1800	N/A	2500	1500
15	2000	N/A	2500	1500
17	2200	N/A	2500	1500
19	2400	N/A	2500	1500
21	200	N/A	2500	1500
23	400	2500	2250	1250
25	600	2250	2000	1000
27	800	2000	1800	800
29	1000	1800	1800	800

Hour	Time	From (cfs)	To (cfs)	Total cfs
31	1200	1800	1600	600
33	1400	1600	1600	600
35	1600	1600	1400	400
37	1800	1400	1400	400
39	2000	1400	1200	200
41	2200	1200	1200	200
43	2400	1200	1000	0
45	200	1000	hold	N/A
47	400	N/A	N/A	N/A

Forum (SRF) Call Review

USBR Updates: Receive live update from Amanda Snow on the 02/20/24 call.

Fish Monitoring and Studies

CDFW Update on Fish Monitoring

Adults:

Chinook Carcass and redd surveys: The California Department of Fish & Wildlife (CDFW) began conducting fall-run Chinook salmon carcass and redd surveys the week of 10/2/2023 for the Stanislaus River and Merced River. The Tuolumne carcass survey started on 9/18/2023. Carcass survey data for all three San Joaquin River tributaries through the week of 1/8/2024 are reported in Table 1. Spawning at the Merced Hatchery is complete for 2023, a total of 394 females were spawned. The Merced River carcass survey was completed on 1/11/2024, Stanislaus survey on 1/22/2024, and the Tuolumne on 1/29/24.

Table 1. Data from the fall 2023 CDFW carcass survey for the San Joaquin tributaries.

River	Wk	Date	# Live	# Redds	# Skeletons	# Tagged	# Ad-Clipped	# Scale Samples	# Recovered	Avg Flow (cfs)
Stanislaus	1	10/2/2023	1	0	0	0	0	0	0	695
Stanislaus	2	10/9/2023	0	0	0	0	0	0	0	763
Stanislaus	3	10/16/2023	4	0	0	0	0	0	0	320
Stanislaus	4	10/23/2023	39	2	0	0	0	0	0	320
Stanislaus	5	10/30/2023	185	64	2	0	0	0	0	367

River	Wk	Date	# Live	# Redds	# Skeletons	# Tagged	# Ad-Clipped	# Scale Samples	# Recovered	Avg Flow (cfs)
Stanislaus	6	11/6/2023	314	177	9	16	1	16	0	200
Stanislaus	7	11/13/2023	387	362	24	52	14	52	2	200
Stanislaus	8	11/20/2023	433	477	39	84	22	83	22	200
Stanislaus	9	11/27/2023	423	459	59	95	28	95	37	203
Stanislaus	10	12/4/2023	254	369	73	96	28	96	38	200
Stanislaus	11	12/11/2023	114	187	34	36	12	36	33	200
Stanislaus	12	12/18/2023	94	223	52	28	11	28	46	203
Stanislaus	13	12/25/2023	80	145	28	15	1	15	27	200
Stanislaus	14	1/1/2024	51	149	22	14	3	14	9	200
Stanislaus	15	1/8/2024	1	22	1	1	0	1	0	1150
Stanislaus	16	1/15/2024	1	3	1	1	0	0	0	1100
Stanislaus	17	1/22/2024	1	0	0	0	0	0	1	1100
Tuolumne	1	9/18/2023	0	0	1	0	0	0	0	550
Tuolumne	2	9/25/2023	0	0	0	0	0	0	0	560
Tuolumne	3	10/2/2023	2	0	0	1	0	0	0	550
Tuolumne	4	10/9/2023	4	2	0	2	1	2	0	350
Tuolumne	5	10/16/2023	5	1	1	3	3	3	0	350
Tuolumne	6	10/23/2023	20	8	1	0	0	0	1	347.5
Tuolumne	7	10/30/2023	31	10	2	4	2	4	2	352.5
Tuolumne	8	11/6/2023	75	42	2	6	4	6	0	345
Tuolumne	9	11/13/2023	122	80	0	18	4	18	0	350
Tuolumne	10	11/20/2023	238	212	10	38	8	38	5	354
Tuolumne	11	11/27/2023	297	272	27	61	23	61	17	350
Tuolumne	12	12/4/2023	250	453	46	122	32	122	24	350
Tuolumne	13	12/11/2023	160	331	52	93	34	93	67	356
Tuolumne	14	12/18/2023	96	309	42	70	23	70	49	350
Tuolumne	15	12/25/2023	86	282	31	35	12	35	43	342.5
Tuolumne	16	1/1/2024	36	197	29	36	9	36	35	344
Tuolumne	17	1/8/2024	6	257	13	14	6	14	30	353.5

River	Wk	Date	# Live	# Redds	# Skeletons	# Tagged	# Ad-Clipped	# Scale Samples	# Recovered	Avg Flow (cfs)
Tuolumne	18	1/15/2024	4	149	5	0	0	0	10	348
Tuolumne	19	1/22/2024	1	107	0	0	0	0	2	351
Tuolumne	20	1/29/2024	0	95	2	2	1	2	1	458
Merced	1	10/2/2023	3	1	0	0	0	0	0	262
Merced	2	10/9/2023	5	0	0	0	0	0	0	324.5
Merced	3	10/16/2023	28	0	0	1	1	1	0	244.5
Merced	4	10/23/2023	57	6	0	0	0	0	0	250
Merced	5	10/30/2023	253	96	3	1	0	1	0	185
Merced	6	11/6/2023	473	292	17	33	6	33	0	136
Merced	7	11/13/2023	527	567	81	118	39	118	8	178.25
Merced	8	11/20/2023	555	584	83	106	29	106	47	182.75
Merced	9	11/27/2023	442	597	226	221	57	221	61	196
Merced	10	12/4/2023	331	472	146	135	44	135	112	180
Merced	11	12/11/2023	151	463	78	62	16	62	112	159
Merced	12	12/18/2023	51	182	47	29	9	29	58	176
Merced	13	12/25/2023	29	40	19	4	4	4	19	175
Merced	14	1/1/2024	6	9	11	0	0	0	5	177.5
Merced	15	1/8/2024	5	1	9	0	0	0	3	164.7

* Section 3 and 4 not surveyed

** Section 4 not surveyed

*** Section 1 not surveyed

Steelhead reed surveys: CDFW began steelhead reed surveys in January 2024. The surveys conducted up to February 12th, 2024 are shown in Table 2.

Table 2: Steelhead reed surveys, CDFW began steelhead reed surveys in January 2024.

Week	Date	# RBT Live >40	# RBT Live <40	# RBT Redds	# RBT Carcass	# CHN Live	# CHN Redds	# CHN Carcass	# PL Live	# PL Redds	# PL Carcass	# SASU Redds	Average Flow (cfs)
1	1/1/2024	1	23	0	1	51	149	36	0	0	0	0	200
2*	1/8/2024	0	0	0	0	1	22	2	0	0	0	0	1150

Week	Date	# RBT Live >40	# RBT Live <40	# RBT Redds	# RBT Carcass	# CHN Live	# CHN Redds	# CHN Carcass	# PL Live	# PL Redds	# PL Carcass	# SASU Redds	Average Flow (cfs)
3*	1/15/2024	1	1	0	0	1	3	1	0	0	0	0	1100
4*	1/22/2024	0	1	0	0	1	0	0	0	0	0	0	1100
5*	1/29/2024	0	0	0	0	0	0	0	0	0	0	0	1575
6**	2/5/2024	0	0	0	0	0	0	0	0	0	0	0	1625
7**	2/12/2024	0	0	0	0	0	0	0	0	0	0	0	1550

* Section 1 not surveyed

RBT – *O. mykiss* CHN – Chinook Salmon PL- Pacific Lamprey SASU – Sacramento Sucker

Juveniles:

Mossdale Trawl: CDFW and USFWS began cooperative trawl operations on 1/3/2024, which will continue until April, when CDFW will operate it independently for 3 months.

Table 3. Data from Mossdale Trawl catches

Date	CHN catch	Comments
1/3/2024	1	Ad- clipped FL 195
1/8/2024	1	FL 158
1/24/2024	1	FL 36
1/26/2024	-	1 RBT FL 200
1/31/2024	2	FL 34 (both)
2/5/2024	-	1 RBT FL 224
2/7/2024	5	FL 33,35,35,36,133
2/9/2024	2	FL 37,41

* Data from week of 2/22/2024 not included

FishBio Updates

Weir Updates

Stanislaus River Weir: As of February 12, 2024, a total of 2,403 adult Chinook salmon have passed upstream of the Stanislaus River Weir (Table 4). 642 (27%) of the adults were adipose fin clipped (indicating hatchery origin). The last upstream Chinook passage was on February 4. We are currently monitoring *O. mykiss* passage through the RiverWatcher since flows are currently too high to trap. As soon as flows allow, we will resume trapping through the spring targeting *O. mykiss*. A total of 36 *O. mykiss* have been observed passing the Stanislaus River weir as of February 12, with all except four being over 16 inches. Twenty-seven out of 36 (75%) of the *O. mykiss* were adipose fin clipped.

Table 4. Chinook passage at the Stanislaus River Weir as of February 12 of each year and the season totals.

Year	Monitoring Start Date	Net Passage to Date	Season Total
2023	9/6/23	2,403	2,403
2022	9/15/22	3,798	3,798
2021	9/8/21	6,024	6,032
2020	9/10/20	1,906	1,906
2019	8/29/19	2,594	2,594
2018	9/5/18	4,777	4,777
2017	9/15/17	8,500	8,500
2016	9/8/16	14,399	14,399
2015	9/15/15	12,707	12,707
2014	9/5/14	5,526	5,527
2013	9/3/13	5,448	5,452
2012	9/11/12	7,136	7,248
2011	11/8/11	774	776
2010	9/7/10	1,364	1,364
2009	9/9/09	1,277	1,303
2008	9/9/08	928	928
2007	9/22/07	439	439
2006	9/8/06	3,059	3,074
2005	9/8/05	4,124	4,124
2004	9/10/04	4,448	4,448
2003	9/5/03	4,848	4,848

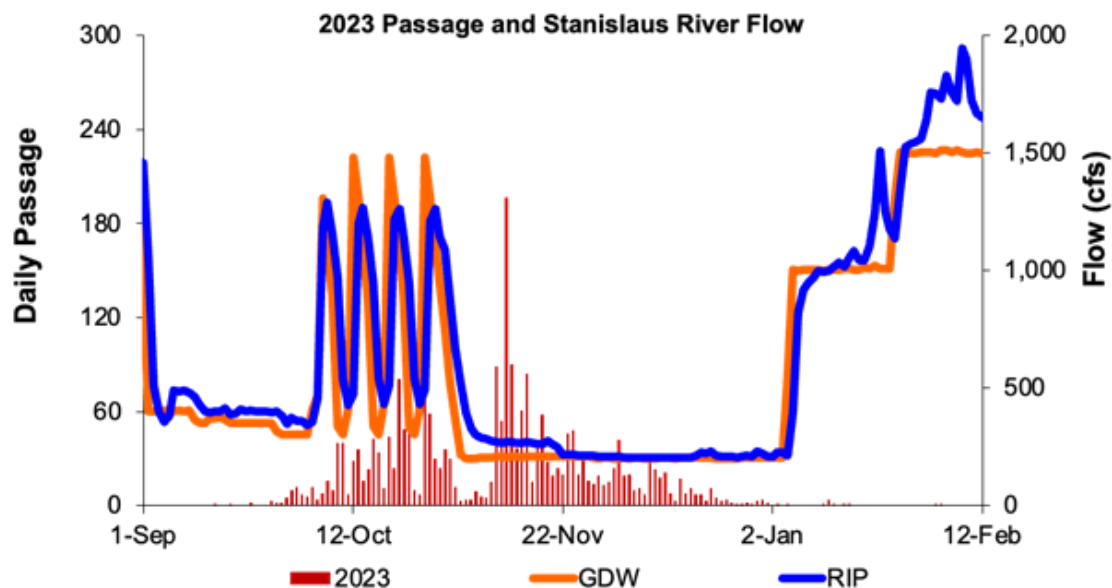


Figure 10. Daily Chinook passage at the Stanislaus River weir and river flow at Goodwin (GDW) and Ripon (RIP), 2023.

Figure 10 is a line graph depicting daily passage and flow (cfs) on the Stanislaus River at Goodwin and Ripon. The graph shows receding flows in late September, holding near 500 cfs September 5 to October 5. Flow October 5 to October 29 shows 4 peaks over 1,000 cfs. Passage on the graph begins in late September and mimics the peaks of flow in October. The passage spikes to over 1,500 cfs starting in January.

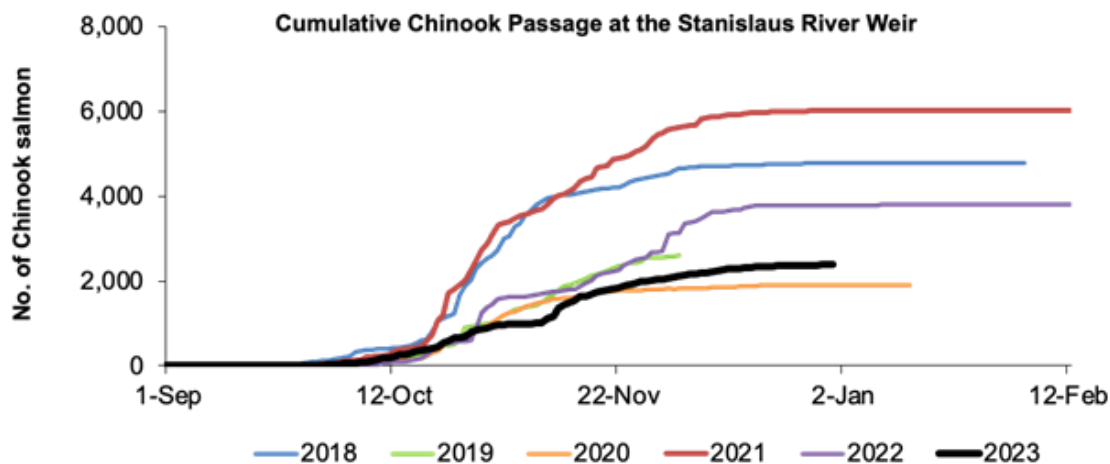


Figure 11. Cumulative Chinook passage at the Stanislaus River weir during 2018-2023.

Figure 11 is a line graph Chinook passage at the Stanislaus River Weir September - February 2018-2023. The graph shows passage for all years beginning in late September or early October. The most cumulative passage occurred during 2021. The current year, 2020, has the lowest passage to-date from previous years.

Rotary Screw Traps Update:

Caswell Rotary Screw Trap: Rotary screw trapping is conducted at Caswell Memorial State Park by Pacific States Marine Fisheries Commission (PSMFC) for monitoring of outmigrating juvenile salmonids. The Caswell rotary screw traps (RSTs) were installed on January 2 and January 3 with daily sampling beginning on January 5.

RSTs were offline on 2/1 – 2/2/2024 and 2/3 – 2/5/2024 due to high winds and heavy rain resulting in excessive and large debris coming downstream.

As of 2/13/2024, we have captured a total of 1,545 unmarked Chinook salmon. The current peak in daily unmarked Chinook salmon catch occurred on 2/9/2024 with a total of 447 captured.

Also, 1 adipose-clipped *O. mykiss* was captured on 1/18/2024 and measured to be 239 mm.

One RST efficiency trial is currently being conducted at the Caswell RST site using unmarked Chinook salmon with the release occurring on 2/10/2024. The efficiency trial has resulted in a trap efficiency of approximately 3%.

Stanislaus River RSTs at Caswell Memorial State Park:

Daily catch of unmarked Chinook Salmon and daily average discharge at Ripon during the 2024 Stanislaus River rotary screw trap sampling season.

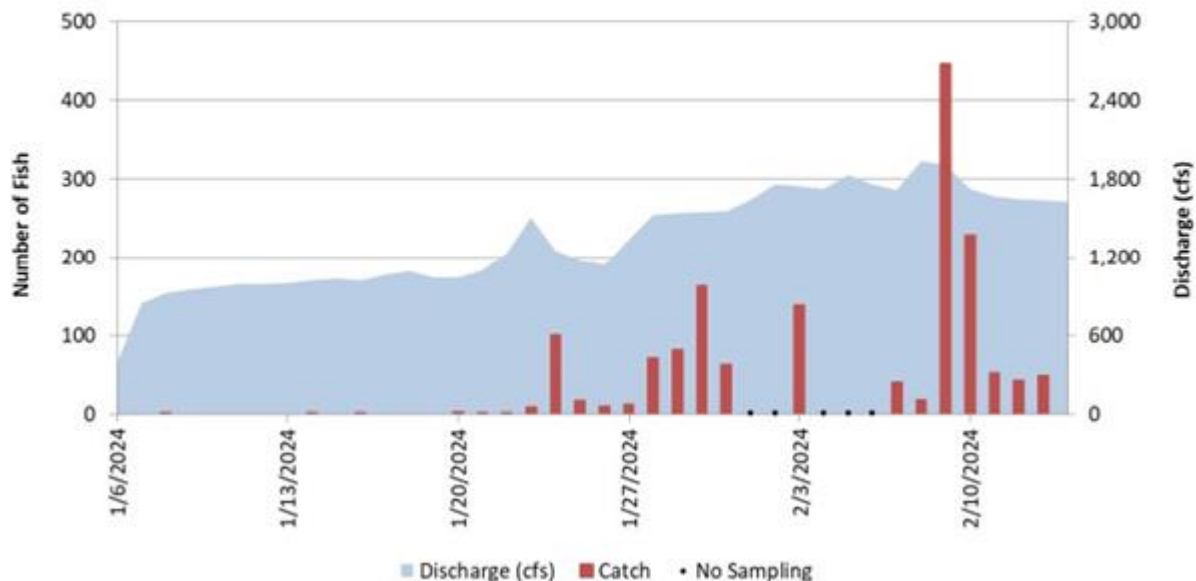


Figure 12. Stanislaus River RSTs at Caswell Memorial State Park 2024.

Figure 12 is a bar graph of the Stanislaus River RSTs at Caswell Memorial Park Chinook from January-February 2024. The graph shows the daily catch of unmarked Chinook Salmon and daily average discharge at Ripon during the 2024 Stanislaus River rotary screw trap sampling season, with a peak of over 400 fish on February 9th.

Stanislaus River RSTs at Caswell Memorial State Park:

Daily fork length distribution by life stage of unmarked Chinook Salmon measured during the 2024 Stanislaus River rotary screw trap sampling season.

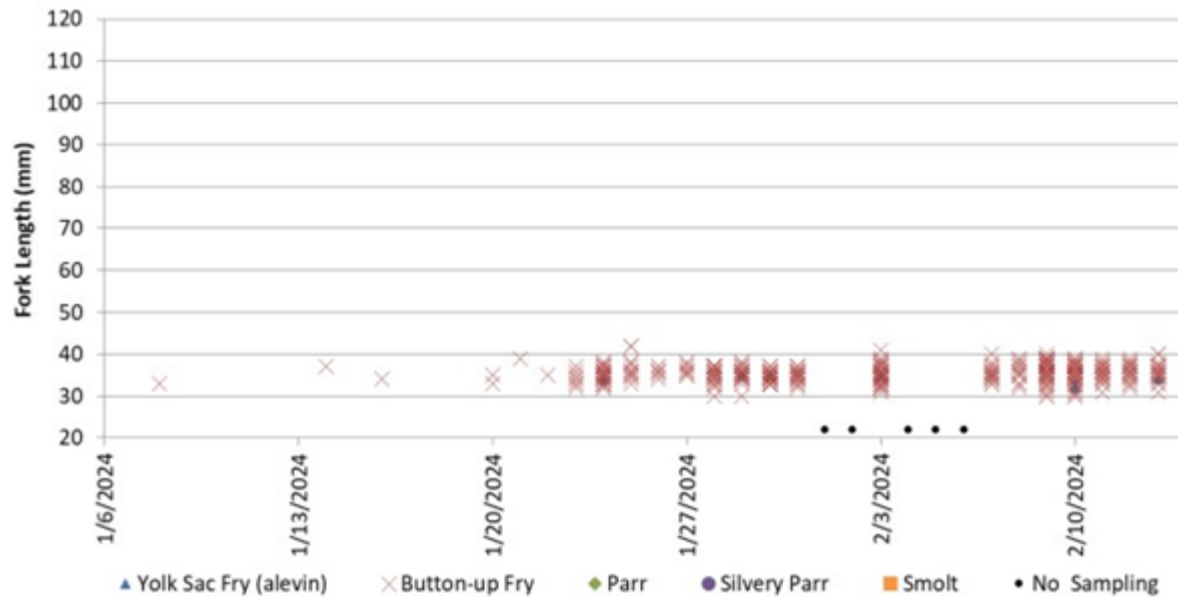


Figure 13. Daily Fork Length Distribution at Stanislaus River RSTs at Caswell Memorial State Park.

Figure 13 is a graph of the daily fork length distribution by life stage of unmarked Chinook Salmon measured during the 2024 Stanislaus River rotary screw trap sampling season. The graph shows the daily fork length distribution staying between 30-40 mm from mid-January to mid-February.

More detailed information can be found at the Caswell RST CalFish webpage, which includes catch spreadsheets, annual reports, and other project information:

<https://www.calfish.org/ProgramsData/ConservationandManagement/CentralValleyMonitoring/StanislausRiver-RSTMonitoring.aspx>

Restoration Project Updates

USBR: *(No new updates)* We are still ahead of schedule in meeting our goals for spawning habitat restoration targets. We are interested in continuing gravel injection projects in Goodwin Canyon and planning for a project in 2024. We are getting behind schedule for meeting the rearing habitat goals. The Mohler and Tortuga rearing habitat restoration projects are conducting pre- project monitoring. Implementation of the construction phase is anticipated to begin in 2025.