

Stanislaus Watershed Team

March 20, 2024

Members Attending

- USBR: Amanda Snow, Claire Hsu, Elissa Buttermore, Leeyan Mao, Peggy Manza, Spencer Marshall, Zarela Guerrero
- USFWS: J.D. Wikert
- CDFW: Crystal Rigby, Gretchen Murphey, Ryan Kok, Travis Apgar
- NMFS: Barb Byrne, Sam Pyros
- DWR: Bryant Giorgi
- SWRCB: Yongxuan Gao, Chris Carr
- PSMFC: Logan Day
- SSJID: Brandon Nakagawa, Peter Rietkerk
- 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

- CDFW to draft another flow schedule that begins as a Below Normal year and then transition to a Dry year beginning on 4/16/2024.
- NMFS and CDFW to coordinate an optional flow planning call for:
 - The week of 3/25/2024
 - 4/9/2024 or 4/10/2024 (after the forecast and water year type are released)
- NMFS, CDFW, USFWS generate form for USBR to fill out prior to flow shaping calls
- K&W coordinate in person meetings with USBR

Announcements

- SacPAS Updates
- SWT Links Added to USBR website

- Rotary Screw Trap (RST) information link
- SacPAS link
- Central Valley Operations (CVO) office information links

Operations Update and Forecasts/ Hydrology

New Melones Reservoir Update

- A consistent series of small storms has contributed to overall precipitation levels.
- The reservoir has been hovering near the flood control line since late December.
- By the end of March 2024, USBR expects to be out of encroachment due to the increase in the flood control rule, therefore allowing the amount of storage to increase.
- Additional precipitation is forecasted for the upcoming (3/22 – 3/24/24) weekend.

Daily CVP Water Supply

- As of 3/18/2024, storage at New Melones is 2.004 MAF.
- Accumulated inflow at New Melones for Water Year 2024 is 383 TAF, or 92% of the 15-year average.
- Accumulated precipitation is at 21.51 inches, or 101% of the 15-year average.

Tulloch

- Tulloch Dam is in the process of refilling and is expected to be full by late May 2024.

Goodwin

- Releases from Goodwin Dam were at 1,000 cfs for the first 5 days of March and are now holding at a daily average of 1,500 cfs.
- The Joint Main Canal came online 3/7/24 and the South Main Canal on 3/13/24 for water delivery to agricultural water users.

Questions

- CDFW asked for clarification on the water year type.
 - USBR responded we are now in a Below Normal water year type, both for the allocation on the Stanislaus River, based on the 90% exceedance and for the regulatory requirements at Vernalis, based on 75% exceedance. March has been drier than normal, so there is a chance the water year type will shift to Dry, depending on how much precipitation occurs through the end of March.

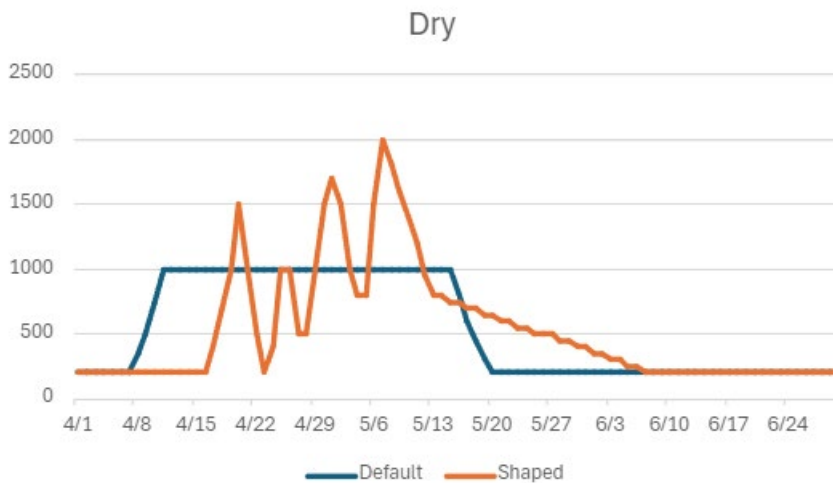
Water Temperature Updates

- Cool water temperatures continue to hold all the way downstream to Ripon.

- The seasonal shift has occurred such that water is now warming as it moves downstream, so Ripon will be warmer than water temperatures at Orange Blossom Bridge or in Goodwin Canyon.

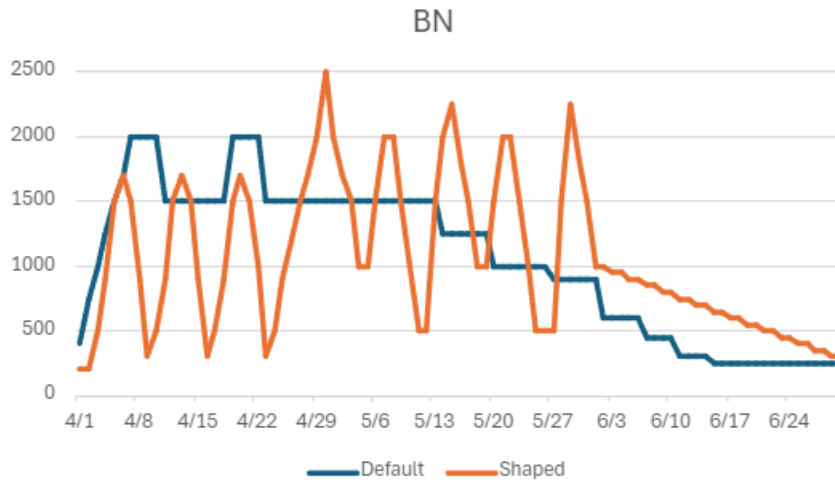
Flow Planning

- Ryan Kok, CDFW, presented two flow proposals to the SWT due to current uncertainty of the water year type. CDFW shared the following figures to illustrate the proposed flows:



Dry Year Proposal

The figure is a line graph showing the dry water year type flow proposal. The graph depicts two lines labeled “default” and “shaped” that range across the dates of April 1st to June 24th that vary in flows measured in cfs. The default line rises to 1,000 cfs on April 8th and remains there until dropping to around 100 cfs on March 20th. The shaped line rises to 1,500 cfs on April 21st and rises and falls three times, with dips between 100 and 900 cfs and peaks between 1,000 and 2,000 cfs before gradually tapering from 900 to 100 cfs between March 13th and June 10th.



Below Normal Year Proposal

The figure is a line graph showing the normal water year type flow proposal. The graph depicts two lines labeled “default” and “shaped” that range across the dates of April 1st to June 24th that vary in flows measured in cfs. The default line has eight peaks between 1700 cfs and 2500 cfs between the dates of April 1st and June 8th. The low points between the peaks are between 400 and 100 cfs before the line drops gradually to 400 cfs on June 24th. The shaped line rises to two 2,000 cfs peaks on April 8th and 22nd then drops to 1,500 cfs from April 22nd to March 13th before gradually falling to 200 cfs on June 17th.

- The flow schedule would begin 4/1/24 (if the year type remains Below Normal) or mid-April (if the year type shifts to Dry).
- Proposals include a drawdown on weekends for recreational safety.
- Final pulse would include a recession flow with daily changes of 50 cfs.
- CDFW noted that the Tuolumne pulse flow will likely be high-volume but cannot begin until 4/15/24.
- The Merced River does not have a spring pulse flow allotted.
- SWT asked CDFW to draft a revised flow schedule that begins as a Below Normal year and then transitions to a Dry year beginning on 4/16/2024.
- After extensive discussion, SWT recommended that Reclamation plan to implement the Below Normal schedule, with operations to be revisited if the water year type changed from Below Normal based on the April 90% exceedance forecast.
- Barb Byrne, NMFS, also presented a proposed flow schedule.
 - NMFS shared that Water Year 2018 was one of the only examples of a Below Normal year and that storage management complicated the water budgeting that year.
 - The NMFS proposal also included more spikes in flow levels than the default flow schedule.

- This proposal drops flows to 400 cfs every other week in order to include more flow volume overall.
- NMFS suggested that Steelhead are more likely to spawn earlier, and therefore was more willing to plan flows that sacrifice the redd surveys in May since it may be less likely to observe redds overall.
- CDFW noted the last redd survey is scheduled for the week of 4/23/24.
- NMFS proposed their schedule with the assumption that New Melones storage would be out of encroachment by early April and could be down to base.
- USBR noted that due to the Vernalis requirements, they will likely not be at base flow at that time.

Questions / Comments

- SWRCB asked how the volume of the Tuolumne River pulse flow will compare to the proposed Stanislaus River flows.
- CDFW could not confirm the specific volume of the planned Tuolumne flow since they are still awaiting confirmation of the water year type. However, 89 TAF is the maximum allowable volume for the Tuolumne River. If the water year is categorized as Below Normal, the Tuolumne River flow would likely be 60 TAF. Those discussions are scheduled to start the week of 4/1/2024.
- NMFS asked how high of flows would USBR allow, specifically when planning for a Below Normal flow schedule, including a potential flow peak in May.
 - USBR responded that a quick peak at approximately 3,000 cfs could be feasible, depending on the overall flow schedule.
 - NMFS noted that previous guidelines recommended that flows not exceed 1,500 cfs for more than 10 days. Would this be a reasonable constraint for revising the proposed Below Normal flow schedule?
 - USBR responded that it seems reasonable with the agricultural caveat that crops will be more sensitive as we move farther into the irrigation season. As an example, an average flow of 1,500 cfs with a brief peak of 3,000 cfs would look better overall for farming conditions. The rampdown schedule from 3,000 cfs is also a factor; a drawdown that is too gradual could cause issues.
- CDFW acknowledged that Vernalis requirements were not explicitly taken into account when drafting their proposed flow schedules. If those requirements are going to need additional water from the Stanislaus River in May or June, it could be unnecessary to ramp down a recession flow if the flow will need to immediately increase again.
- USBR added that both proposed flow schedules begin at base flow, but in reality, will not actually be starting at base flow. We're at 1,500 cfs now.

- CDFW asked if they could adjust the flow schedule assuming a starting point of 1,000 – 1,500 cfs.
 - USBR responded that a starting point of 750 – 1,000 cfs would be reasonable.
- USFWS shared support for CDFW’s proposed flow due to the high variability and deliberate flow shaping considerations.
- USFWS requested that the restored floodplains remain inundated through March. They noted that capping the pulse flow at 2,500 cfs in a Below Normal schedule may work best in regards to how much water the weir can manage.
- USFWS noted that high flows in June are not as beneficial to fish as high flows in March, April, and May would be. Moving fish through earlier may be more beneficial as water temperatures rise earlier in the year due to climate change. Higher flows in April would be preferable to late May.
- CDFW took note of this request in revising the proposed flow schedules and noted that the proposed flow schedules intended to avoid disruption of steelhead spawning.
- CDFW suggested meeting two weeks before the next SWT meeting to reevaluate the conditions and factor weather-related variables into the flow schedules.
- USBR countered with the possible challenge of operating to criteria other than the base flow during April, May, and/or June, such as flood control rules, the Vernalis base flow objectives, or the need to make a quick release from Tulloch Dam for flood control purposes if a major storm moves through the region. We receive the forecast on 4/8/2024. There’s a risk that if we start the Below Normal pattern on 4/1/2024 and it turns out to be a Dry year, we’d have to make urgent adjustments, which could lead to potentially running out of water. Suggest looking at Below Normal transitions to Dry in case that issue arises. Alternatively, we start the Below Normal schedule on 4/15/2024 and we avoid the issue, because at that point, we’ll have confirmed the year type.
- CDFW, NMFS, and USBR supported the suggestion of creating a new flow schedule that begins as a Below Normal year and then transitions to a Dry year beginning on 4/16/2024.
- NMFS collected the names of all interested in participating in a flow planning call during the week of 3/25/2024.
- USBR noted that a second ad hoc call may be needed after the 4/8/2024 forecast is released if the water year type changes (e.g., on 3/9 – 3/10/2024).
- K&W suggested a list of criteria (water year type, flow requirements, etc.) be generated into a form for USBR to fill out and send back to the agencies prior to SWT discussions. That way they could better inform their flow planning recommendations and the SWT could discuss pertinent scenarios to avoid duplicating their work and aid as a discussion tool.
- CDFW asked if the excess 800 cfs (from the new starting flow of 1,000 cfs minus the

formerly proposed 200 cfs) is getting counted against a pulse flow volume or if it's just seen as extra water moving down the river.

- USBR responded that the extra 800 cfs would be accounted for as water for storage management and not against the spring pulse flow volume.

Stanislaus River Forum (SRF) Call Review

- There were no comments received from members of the public at the SRF March meeting.
- NMFS did receive an inquiry from representatives of the rafting community asking about recreational flows during the summer months. NMFS agreed to share flow plan information with them once it is available.

Fish Monitoring

CDFW Fish Monitoring

- Chinook salmon carcass surveys
 - Chinook carcass surveys are complete with a preliminary estimate of 1,617 total fish.
- Steelhead *O. mykiss* redd surveys
 - Crews were only able to survey the Canyon during the first week in January due to higher flows.
 - The most recent survey observed 1 larger and 7 smaller *O. mykiss*.
- Zero redds have been observed so far during the 2024 surveys.
- CDFW continue surveying weekly through April.

Mossdale Trawl

- Operating in coordination with CDFW and USFWS.
- The trawl is catching both natural adipose-clipped Chinook and natural *O. mykiss*.

FISHBIO Monitoring

- Stanislaus Weir Update
 - *O. mykiss*
 - 52 *O. mykiss* have passed upstream of the weir.
 - 29 of these (56%) were adipose-clipped.
 - 37 of the adults were classified as steelhead.
- Chinook salmon

- None have been observed passing the weir since 2/4/2024.
- The season total remains at 2,403 fish.

PSMFC Monitoring

- Rotary Screw Trap (RST) Updates
- Traps were offline for a few days in early February due to high winds and excessive river debris.
- As of 3/17/2024, PSMFC has captured 4,565 unmarked Chinook salmon.
- The majority of salmon caught this season have been fry, although PSMFC has observed a steady increase in parr-sized fish beginning in early March.
- Two screw trap efficiency trials were completed. Trap efficiency was approximately 4%.

Questions/Comments

- USFWS shared that the irrigation districts are no longer funding the Oakdale RST. It will be up to agency folks to work to request funding for the next year.

Restoration Project Updates

- The East Stanislaus RCD submitted a proposal to the Year 3 CVPIA Notice of Funding Opportunity solicitation. This was a collaborative effort with Cramer Fish Sciences, the San Joaquin Irrigation District, FISHBIO, and cbec Engineering. The application is focused on Honolulu Bar Phase II, the Buttonbush Project, and completion of construction at Buffington.
- Tuolumne River Trust and Cramer Fish Sciences have submitted a preapplication to FRGP for a project on USACE property near Riverbank.
- About 50 people are registered for the Restoring the Stanislaus on 4/6/2024 in Sonoma, CA. USFWS encourages SWT members and others to attend.

Progress Update on Proposed Action Elements

- N/A

Other Discussion Items

SacPAS Update

- USFWS shared a newly added graph depicting full natural flow on the Stanislaus River at Goodwin Dam and the flow at Koetitz Ranch. There are also similar graphs for the Tuolumne and Merced rivers.
- Graphs with recent flow histories for various locations were also made available.
- Additional site filtering functionality was recently added.

Curtailments

- N/A

Annual Reporting

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

USBR website updates – Relevant Links

- [Main SWT page](#)
- [Central Valley Operations page](#)
- Of note: [2024 Reservoir Operations Monthly Reports](#)
- Of note: [RST Monitoring](#)
- Of note: [SacPAS Stanislaus River page](#)

In-Person Meeting Discussion

- USBR asked if in-person meetings are still an option. They suggested the Joint Operations facility as a potential location for hosting hybrid meetings. ARG is also planning to hold their March meeting there.

Items to elevate to WOMT

- N/A

Next Meeting

Wednesday, April 17, 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, March 20, 2024

Agenda

1. Introductions
2. Ground Rules¹
3. Announcements
 - a. Meeting will be recorded for notetaking purposes - Karis Johnston, Kearns & West
 - b. Discussion: updates to SacPas
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
9. Restoration Project Updates
 - a. Restoration Tracker - JD (John) Wikert, USFWS

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

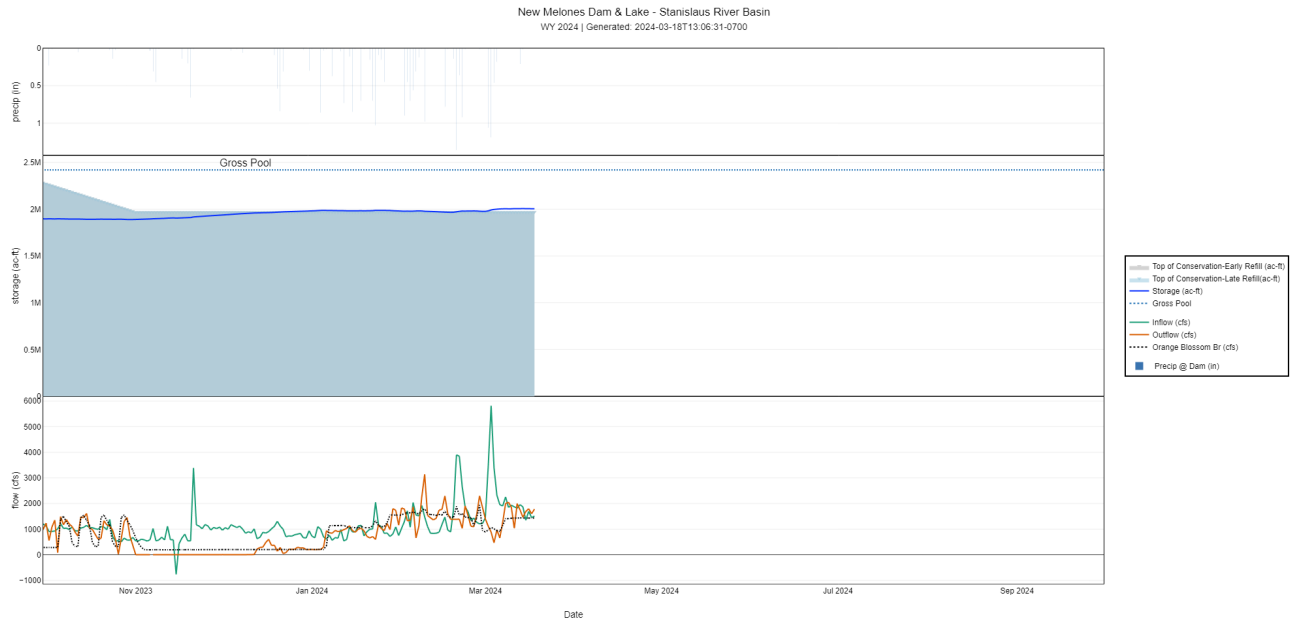
1. Seek to understand and respect opposing views and suggestions for change (w/in the parameters of the Guidance Document).
2. Seek to leverage collective expertise (including from agencies' & stakeholders' consultants).
3. Hold questions/discussion at the discretion of the presenter.
4. Honor time limits - 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

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, April 17, 2024 (10am-12pm) Other Discussion Items



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

The figure is a line graph showing the flow, storage, and precipitation for New Melones Dam and Lake from November 2023 to March 2024. The graph shows storage around 2M ac-ft from November to March with flow staying at 2000 cfs, except for peaks in early December at approximately 4000 cfs and in March at 6000 cfs.



Tables for BDO

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

March 17, 2024

Run Date: March 18, 2024

Table 4. Reservoir Releases in Cubic Feet Per Second

Reservoir	Dam	WY 2023	WY 2024	15-Year Median
Trinity	Lewiston	839	308	308
Sacramento	Keswick	4,444	8,205	4,444
Feather	Oroville (SWP)	20,000	10,000	1,750
American	Nimbus	18,582	4,941	1,680
Stanislaus	Goodwin	1,516	1,503	301
San Joaquin	Friant	7,539	526	400

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	1,555	860	1,866	120
Shasta	4,552	3,288	3,295	3,921	119
Folsom	977	550	629	645	117
New Melones	2,420	1,479	1,294	2,004	135
Fed. San Luis	966	687	813	964	140
Total North CVP	11,363	7,560	6,891	9,400	124
Millerton	521	312	417	363	116
Oroville (SWP)	3,538	2,318	2,957	3,006	130

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	747	256	1,137	475	157
Shasta	3,333	1,846	5,211	2,614	128
Folsom	967	664	3,020	1,220	79
New Melones	383	---	813	418	92
Millerton	573	381	711	455	126

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	31.25	18.16	34.10	24.35 (64)	128	128
Sacramento at Shasta Dam	54.97	27.01	67.31	47.23 (69)	116	116
American at Blue Canyon	49.89	N/A	89.85	50.91 (50)	98	98
Stanislaus at New Melones	21.51	N/A	29.05	21.40 (47)	101	101
San Joaquin at Huntington LK	22.85	11.50	49.50	30.90 (51)	74	74

United States Department of the Interior
 Bureau of Reclamation-Central Valley Project- California
 New Melones Lake Daily Operations, March 2024, Run Date: 03/18/2024

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	1,977.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	1,050.64	1,982.0	4.6	3,460	1,117	0	0	14	0.04	1.06
2	1,051.52	1,991.7	9.7	5,816	883	0	0	43	0.12	1.19
3	1,052.04	1,997.5	5.7	3,398	468	0	0	36	0.10	0.46
4	1,052.28	2,000.1	2.7	2,321	974	0	0	7	0.02	0.18
5	1,052.51	2,002.7	2.5	1,956	654	0	0	18	0.05	0.00
6	1,052.62	2,003.9	1.2	1,902	1,260	3	0	25	0.07	0.00
7	1,052.66	2,004.3	0.4	2,258	1,999	0	0	36	0.10	0.00
8	1,052.62	2,003.9	-0.4	1,849	2,050	0	0	22	0.06	0.00
9	1,052.63	2,004.0	0.1	1,936	1,858	0	0	22	0.06	0.00
10	1,052.77	2,005.6	1.6	1,871	1,040	0	0	50	0.14	0.00
11	1,052.73	2,005.1	-0.4	1,815	1,999	0	0	39	0.11	0.00
12	1,052.76	2,005.4	0.3	1,956	1,753	0	0	36	0.10	0.21
13	1,052.83	2,006.2	0.8	1,869	1,464	0	0	14	0.04	0.01
14	1,052.76	2,005.4	-0.8	1,348	1,689	0	0	50	0.14	0.00
15	1,052.73	2,005.1	-0.3	1,693	1,795	0	0	65	0.18	0.00
16	1,052.69	2,004.7	-0.4	1,454	1,602	0	0	75	0.21	0.00
17	1,052.63	2,004.0	-0.7	1,510	1,780	0	0	65	0.18	0.00
Totals	N/A	N/A	26.6	38,412	24,385	3	0	617	1.72	3.11
Acre- Feet	N/A	N/A	26,600	76,190	48,368	6	0	1,224	N/A	N/A

Comments:

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

Summary Precipitation

This Month 3.11
 October 1, 2023 to Date 21.51

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

Power	48,368
Spill	6
Outlet	0
Total Releases	48,374

United States Department of the Interior
 Bureau of Reclamation-Central Valley Project- California
 New Melones Lake Daily Operations, February 2024, Run Date: 03/16/2024

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	0.98
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	1,184	1,771	0	0	21	0.06	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	962	1,600	0	0	25	0.07	0.01
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
20	1,050.21	1,977.3	4.8	3,846	1,392	0	0	18	0.05	0.36
21	1,050.50	1,980.5	3.2	2,649	1,030	0	0	11	0.03	0.92
22	1,050.49	1,980.4	-0.1	1,872	1,906	0	0	21	0.06	0.01
23	1,050.51	1,980.6	0.2	1,680	1,533	0	0	36	0.10	0.00
24	1,050.55	1,981.0	0.4	1,337	1,115	0	0	0	0.00	0.00
25	1,050.60	1,981.6	0.6	1,434	1,093	0	0	64	0.18	0.00
26	1,050.54	1,980.9	-0.7	1,264	1,561	0	0	36	0.10	0.00
27	1,050.34	1,978.7	-2.2	1,211	2,299	0	0	21	0.06	0.01
28	1,050.22	1,977.4	-1.3	1,217	1,857	0	0	25	0.07	0.00
29	1,050.22	1,977.4	0.0	1,445	1,402	0	0	43	0.12	0.00
Totals	1,050.36	1,979.0	-1.0	1,303	1,781	0	0	21	0.06	0.90
Acre- Feet	N/A	N/A	-2,600	89,769	91,273	0	0	1,027	N/A	N/A

Comments:

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

Summary Precipitation

This Month	7.62
October 1, 2023 to Date	18.40

Summary: Release (acre-feet)

Power	91,273
Spill	0
Outlet	0
Total Releases	91,273

United States Department of the Interior
 Bureau of Reclamation-Central Valley Project- California
 Tulloch Reservoir Daily Operations, March 2024, Run Date: 03/18/2024

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	52,273	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	497.87	53,050	777	1,360	1,117	967	0	0	1
2	499.17	54,417	1,367	1,693	883	1,000	0	0	4
3	498.86	54,089	-328	805	468	967	0	0	3
4	499.23	54,481	392	1,165	974	966	0	0	1
5	498.88	54,110	-371	781	654	966	0	0	2
6	498.93	54,162	52	1,358	1,263	1,330	0	0	2
7	499.76	55,047	885	2,095	1,999	1,646	0	0	3
8	500.36	55,693	646	2,092	2,050	1,764	0	0	2
9	500.64	55,997	304	1,918	1,858	1,763	0	0	2
10	499.46	54,727	-1,270	1,127	1,040	1,762	0	0	5
11	499.96	55,260	533	2,037	1,999	1,764	0	0	4
12	499.94	55,239	-21	1,940	1,753	1,948	0	0	3
13	499.31	54,567	-672	1,728	1,464	2,066	0	0	1
14	499.08	54,321	-246	1,977	1,689	2,086	0	10	5
15	499.08	54,321	0	2,109	1,795	2,103	0	0	6
16	498.44	53,647	-674	0	1,602	2,213	0	0	0
17	498.21	53,406	-241	2,087	1,780	2,203	0	0	6
Totals	N/A	N/A	1,133	26,272	24,388	27,514	0	10	50
Acre- Feet	N/A	N/A	1,133	52,111	48,374	54,574	0	20	99

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	54,574
Spill	0
Outlet	20
Total	54,594

United States Department of the Interior
 Bureau of Reclamation-Central Valley Project- California
 Tulloch Reservoir Daily Operations, February 2024, Run Date: 03/10/2024

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	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
20	492.38	47,570	797	1,893	1,392	1,489	0	0	2
21	492.21	47,407	-163	1,409	1,030	1,490	0	0	1
22	493.38	48,533	1,126	2,059	1,906	1,489	0	0	2
23	493.75	48,893	360	1,667	1,533	1,484	0	0	2
24	493.23	48,387	-506	1,228	1,115	1,480	0	0	3
25	493.45	48,601	214	1,180	1,093	1,066	0	0	6
26	492.89	48,058	-543	1,594	1,561	1,827	0	38	3
27	494.25	49,383	1,325	2,329	2,299	1,655	0	4	2
28	496.11	51,241	1,858	1,905	1,857	966	0	0	2
29	497.12	52,273	1,032	1,491	1,402	967	0	0	4
Totals	NA	NA	17,940	51,528	46,016	37,115	3,721	1,606	42
Acre-Feet	NA	NA	17,940	102,206	91,273	73,618	7,381	3,186	83

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	73,618
Spill	7,381
Outlet	3,186
Total	84,184

Oakdale Irrigation District
 South San Joaquin Irrigation
 District Tri Dams Project-California
 Goodwin Reservoir Daily Operations, March 2024, Run Date: 03/18/2024

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	556	N/A	N/A	N/A	N/A	N/A	N/A
1	360.30	558	2	967	0	1,004	0	0
2	360.29	557	-1	1,000	0	1,004	0	0
3	360.29	557	0	967	0	1,005	0	0
4	360.29	557	0	966	0	1,002	0	0
5	360.29	557	0	966	0	1,002	0	0
6	360.54	575	18	1,330	0	1,355	0	0
7	360.54	575	0	1,646	0	1,506	167	0
8	360.54	575	0	1,764	0	1,503	295	0
9	360.54	575	0	1,763	0	1,502	298	0
10	360.54	575	0	1,762	0	1,502	300	0
11	360.54	575	0	1,764	0	1,501	300	0
12	360.54	575	0	1,948	0	1,507	439	0
13	360.54	575	0	2,066	0	1,504	530	123
14	360.54	575	0	2,096	0	1,502	554	31
15	360.54	575	0	2,103	0	1,502	565	31
16	360.54	575	0	2,213	0	1,505	614	97
17	360.54	575	0	2,203	0	1,503	602	110
Totals	N/A	N/A	19	27,524	0	22,909	4,664	392
Acre-Feet	N/A	N/A	19	54,594	0	45,440	9,251	778

Joint Main Operated by SSJID and OID.

Summary: Release (acre-feet)

Joint Main Canal	9,251
South Main Canal	778
Outlet	0
Spill	45,440
Total	55468.5775

Oakdale Irrigation District
 South San Joaquin Irrigation
 District Tri Dams Project-California
 Goodwin Reservoir Daily Operations, February 2024, Run Date: 03/10/2024

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	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
20	360.55	576	0	1,489	0	1,520	0	0
21	360.54	575	-1	1,490	0	1,525	0	0
22	360.54	575	0	1,489	0	1,522	0	0
23	360.54	575	0	1,484	0	1,516	0	0
24	360.51	573	-2	1,480	0	1,512	0	0
25	360.29	557	-16	1,066	0	1,097	0	0
26	360.93	602	45	1,865	0	1,907	0	0
27	360.30	558	-44	1,659	0	1,732	0	0
28	360.27	556	-2	966	0	1,002	0	0
29	360.27	556	0	967	0	1,001	0	0
Totals	N/A	N/A	-20	42,442	0	42,985	0	0
Acre-Feet	N/A	N/A	-20	84,184	0	85,261	0	0

Joint Main Operated by SSJID and OID.

Summary: Release (acre-feet)

Joint Main Canal	0
South Main Canal	0
Outlet	0
Spill	85,261
Total	85260.7475

March 2023 Water Temperature and Fish Monitoring Update

Year-to-Date Flows

Goodwin releases since October 1, 2022, are shown in Figure 1.

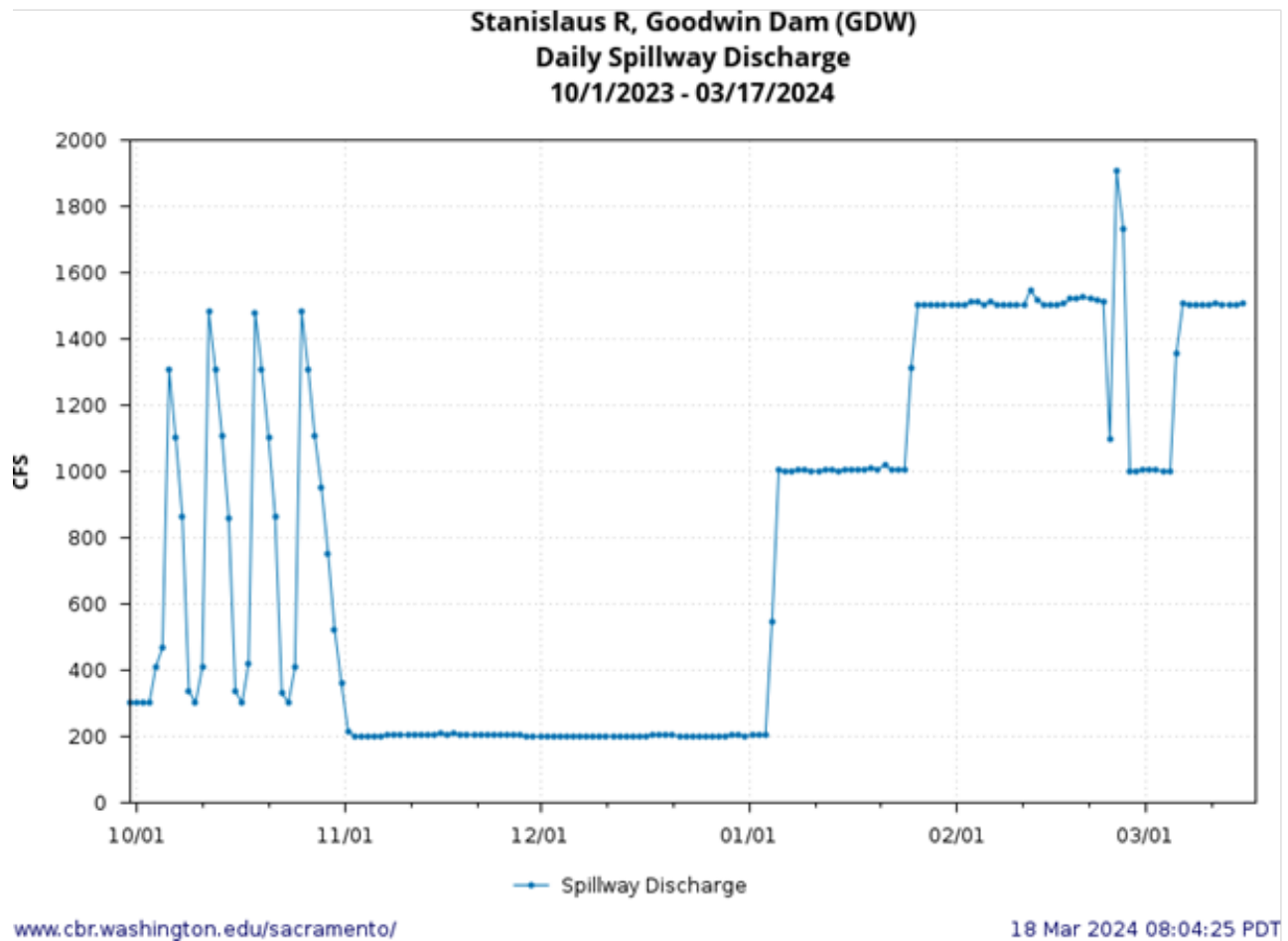


Figure 1. Goodwin (daily) releases to the Stanislaus River since October 1, 2023. Data from GDW station on CDEC.

Figure 1 is a line graph showing Goodwin Dam daily spillway discharge. The graph shows a peak of over 1,900 cfs in late February 2024, and weekly peaks of releases 1,300 – 1,500 cfs in October 2023.

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 January 2024 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 Orange Blossom Bridge (Figure 6), Ripon (Figure 7), and Vernalis (Figure 8). A compilation of Stanislaus River water temperatures and Goodwin releases for water year 2024 is provided in Figure 9.

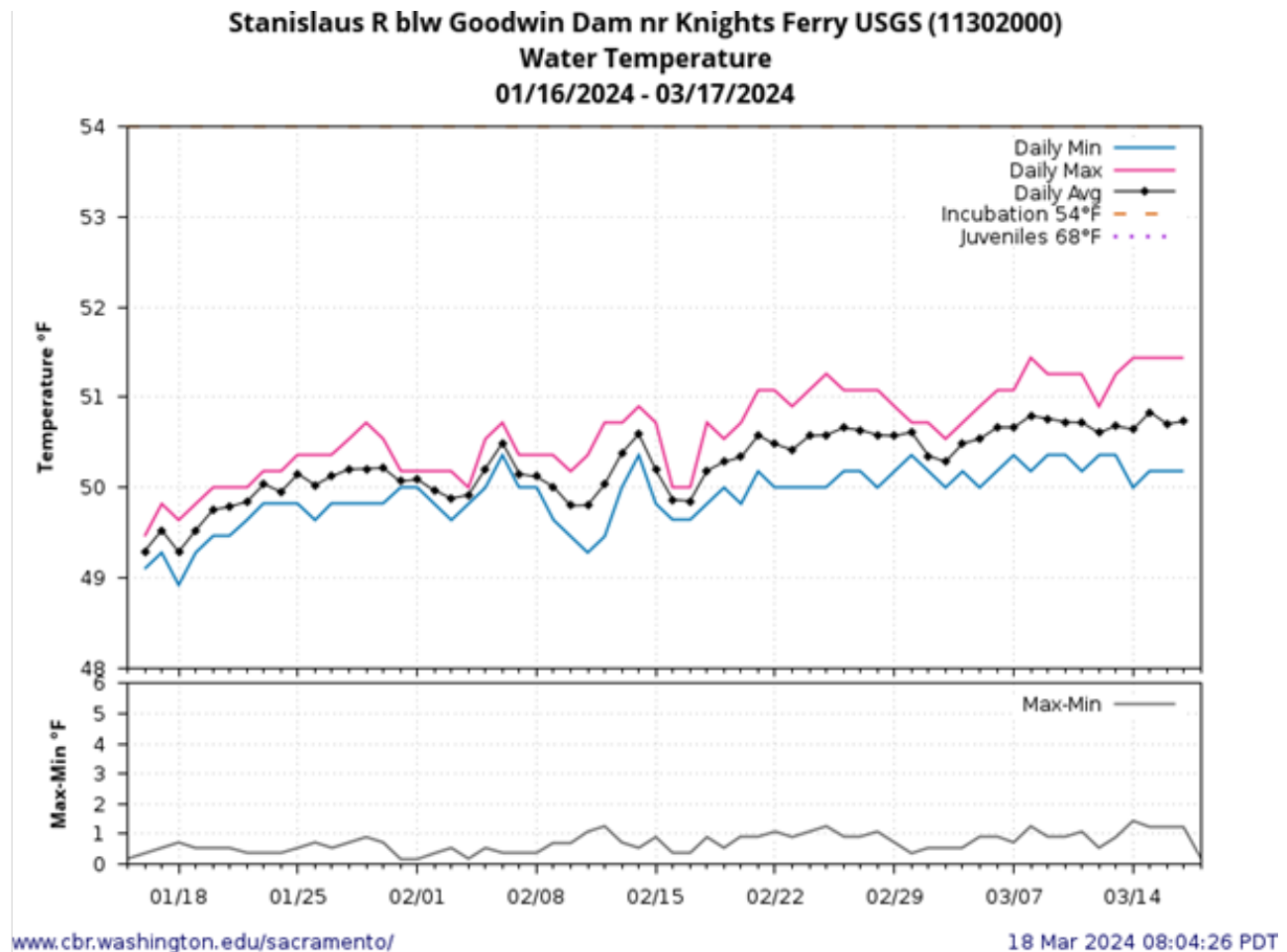


Figure 2. Daily water temperatures on the Stanislaus River upstream of Knights Ferry since July 16, 2024. Data from USGS gage 11302000 on NWIS; temperature threshold reference line added by SWT.

Figure 2 is a line graph showing Goodwin Dam daily minimum, maximum and average water temperature. The graph shows a temperature of 49.5° Fahrenheit on January 15th with steady increasing to over 51.5° Fahrenheit on March 18th.

**Stanislaus R at Orange Blossom Bridge (OBB)
Water Temperature
01/16/2024 - 03/17/2024**

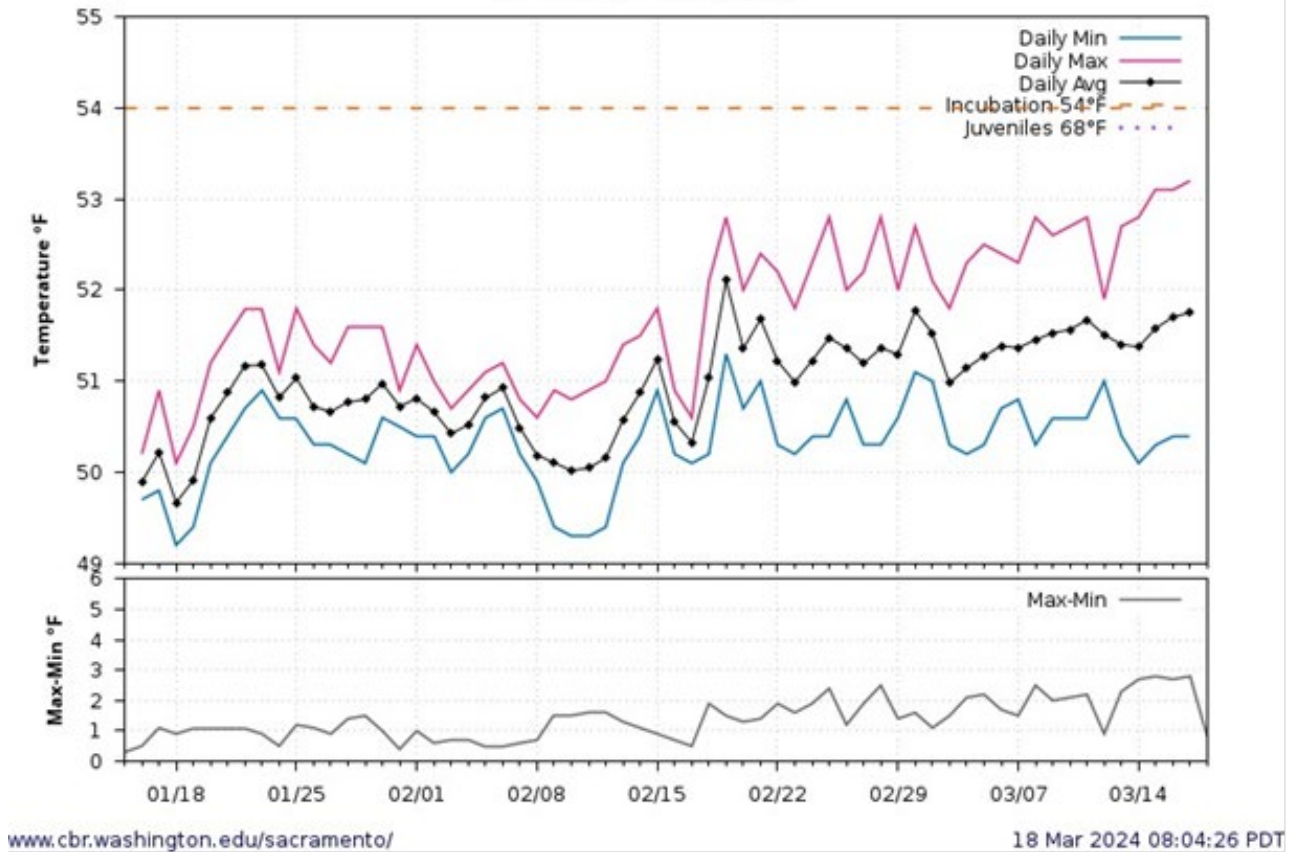
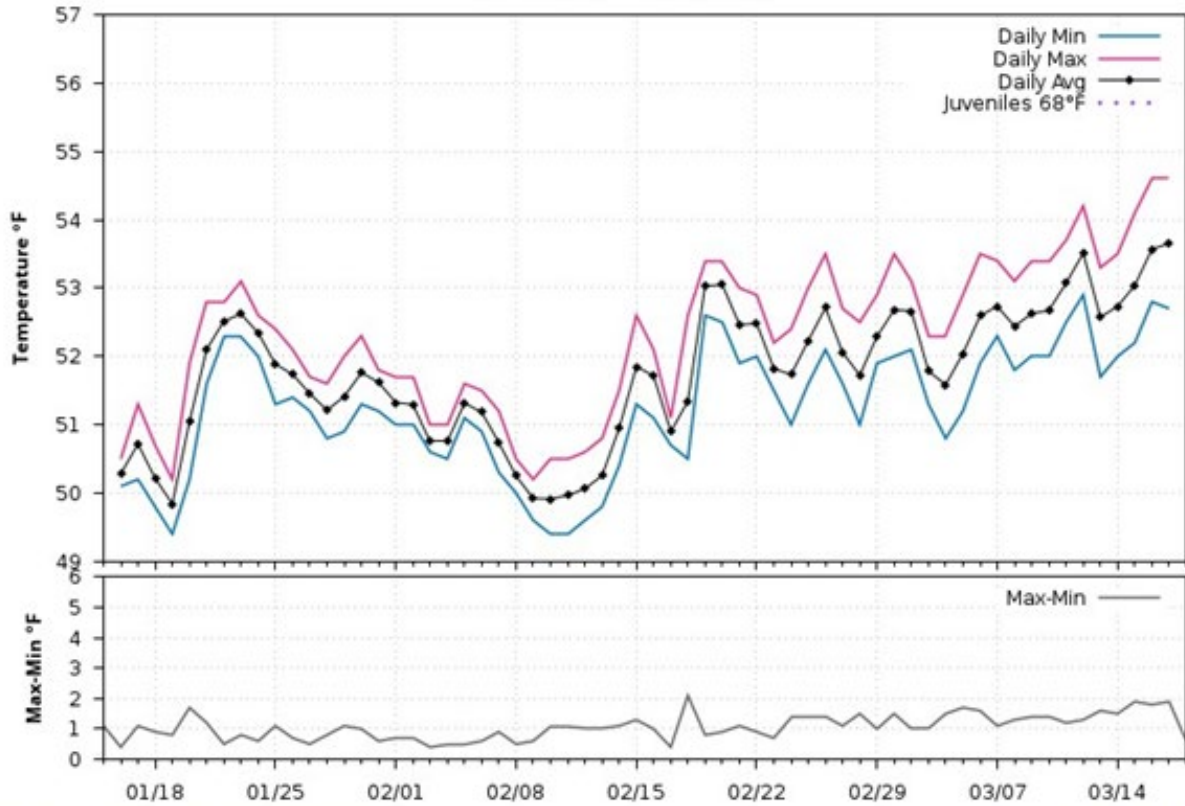


Figure 3. Stanislaus (hourly) water temperatures at Orange Blossom Bridge since January 16, 2024. Data from OBB station on CDEC.

Figure 3 is a line graph showing Orange Blossom Bridge daily minimum, maximum and average water temperature. The graph shows a starting temperature of just over 50° Fahrenheit on January 15th with increasing temperatures to over 53° Fahrenheit on March 18th.

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
01/16/2024 - 03/17/2024



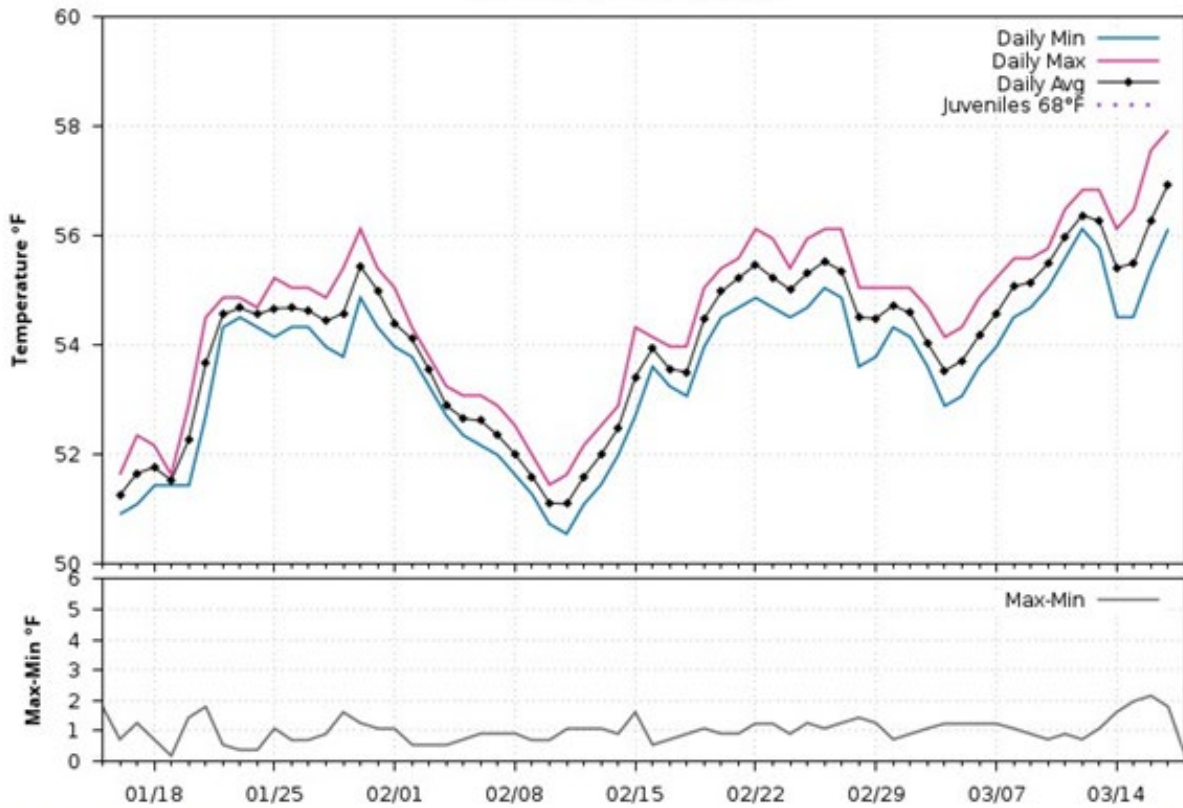
www.cbr.washington.edu/sacramento/

18 Mar 2024 08:04:26 PDT

Figure 4. Stanislaus water temperatures at Ripon since July 16, 2024. Data from RIP station on CDEC.

Figure 4 is a line graph showing Ripon daily minimum, maximum and average water temperature. The graph shows increasing temperatures from 54° Fahrenheit on January 15th to 53° Fahrenheit on January 23rd, a steady decrease to 50° Fahrenheit February 9, and fluctuating, but generally rising temperatures to a peak of almost 55° Fahrenheit on March 18th.

**San Joaquin R nr Vernalis (VNS)
Water Temperature
01/16/2024 - 03/17/2024**



www.cbr.washington.edu/sacramento/

18 Mar 2024 08:04:26 PDT

Figure 5. San Joaquin River (15-minute) water temperatures at Vernalis since January 16, 2024. 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 to under 52° Fahrenheit on February 10th, a rise to 56° Fahrenheit on February 22nd, and a dip before rising to a peak of 58° Fahrenheit until March 18th.

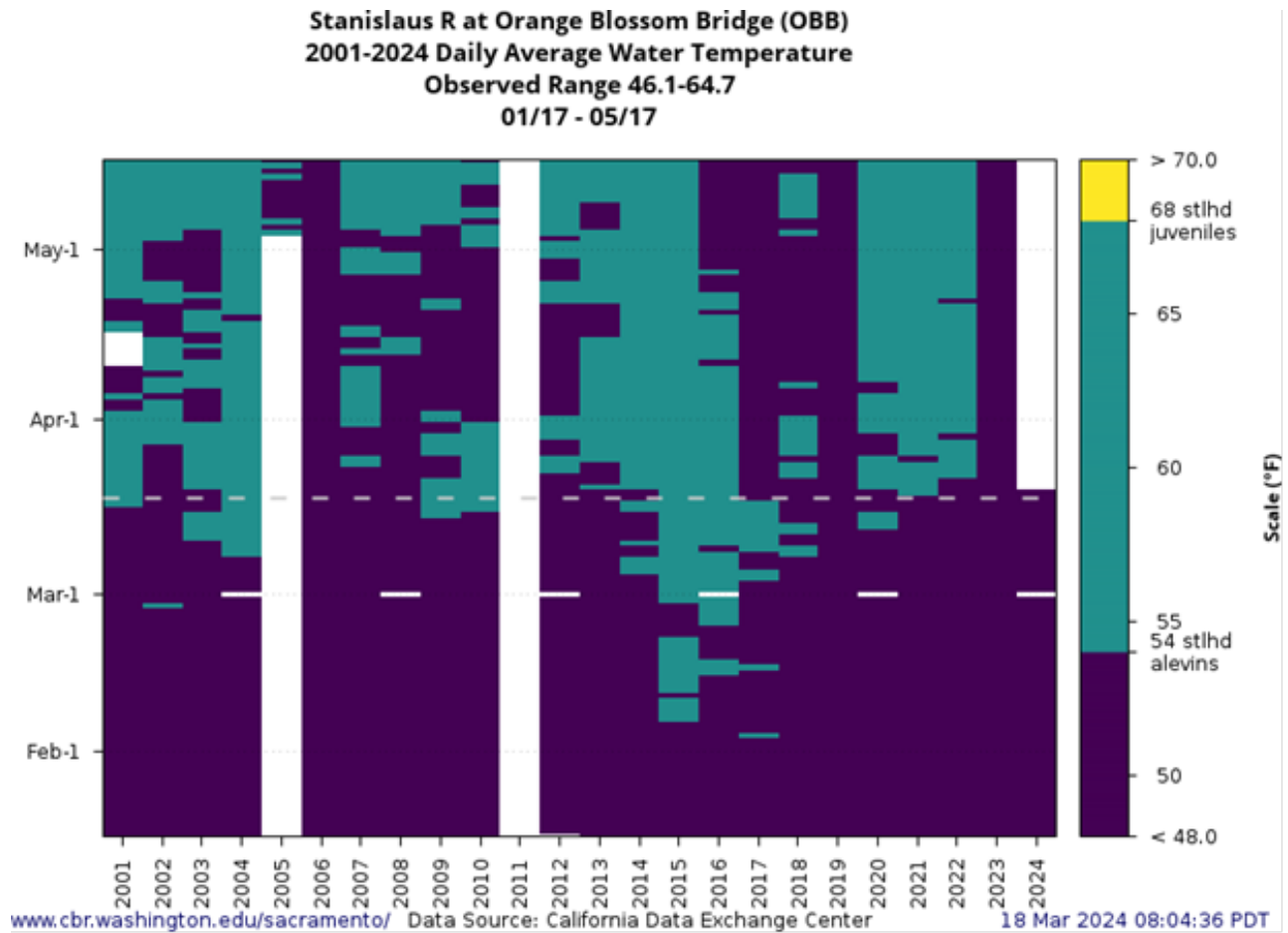


Figure 6. Stanislaus River water temperatures at Orange Blossom Bridge for WY 2000 to present. Data from SacPAS; temperature threshold reference lines added by SWT.
http://www.cbr.washington.edu/sacramento/data/query_river_allyears.html

Figure 6 is a bar chart showing water temperatures at Orange Blossom Bridge for WY 2001 to present for the months of January to March. The chart shows that during this time, the daily average water temperature was between 46.1 and 64.7°Fahrenheit.

Stanislaus R at Ripon (USGS) (RIP)
2012-2024 Daily Average Water Temperature
Observed Range 44.2-73.5
01/17 - 05/17



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 February to May. The chart shows that during this time, the daily average water temperature was mostly above 68 degrees Fahrenheit with WY2017 being the only year where water temperature remained below 68 degrees Fahrenheit.

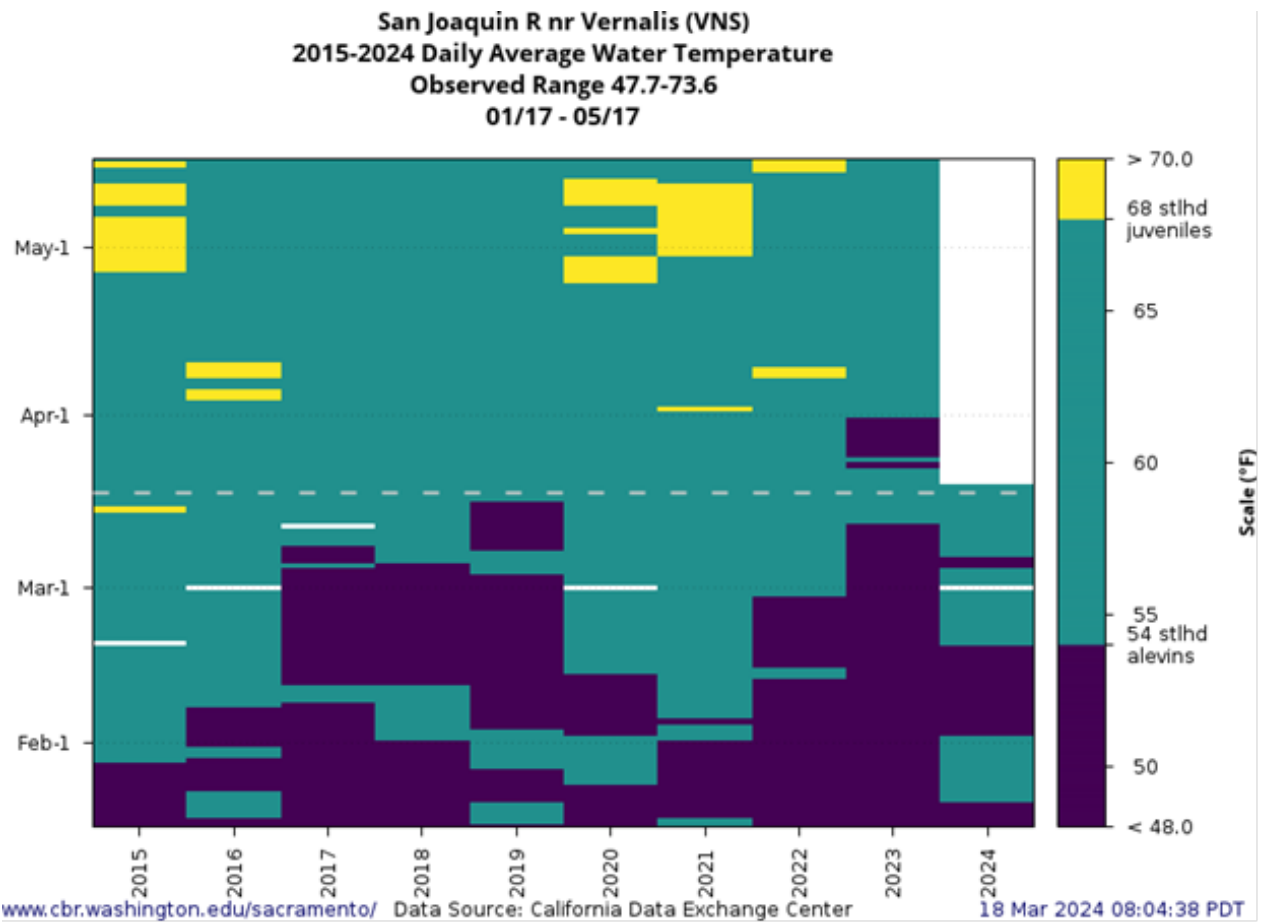


Figure 8. San Joaquin River water temperatures at Vernalis for WY 2014 to present. Figure from SacPAS using VNS station data from CDEC; temperature threshold reference line added by SWT. http://www.cbr.washington.edu/sacramento/data/query_river_allyears.html

Figure 8 is a bar chart showing water temperatures at Vernalis for WY 2015 to present for February to May. The chart shows that during this time, the daily average water temperature was mostly below 68° Fahrenheit for mid-February to April.

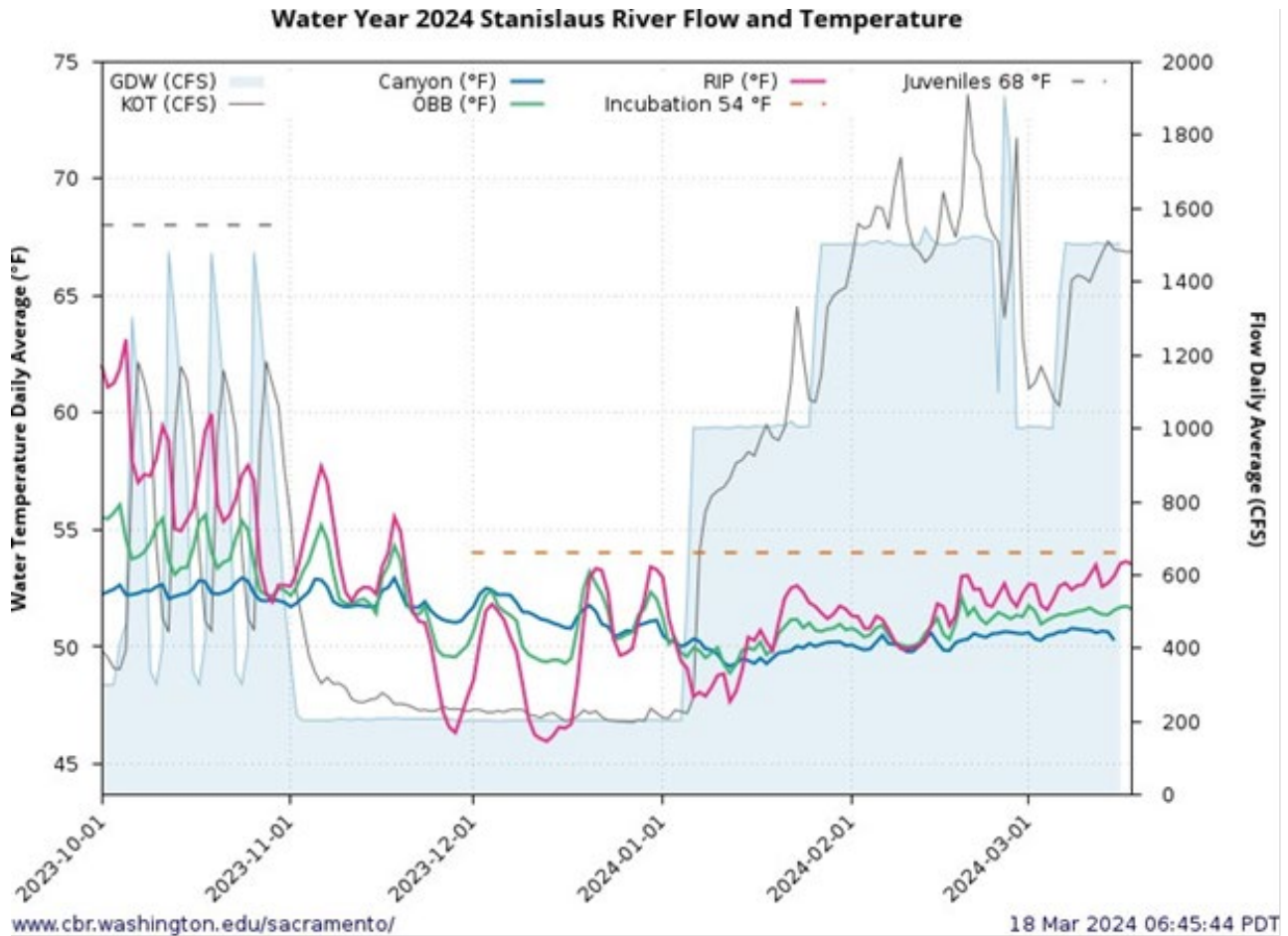


Figure 9. Stanislaus River flow and water temperatures from October 1, 2023 to March 18, 2024. Data (including temperature threshold reference lines) from SacPAS: http://www.cbr.washington.edu/sacramento/data/tc_stanislaus.html

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: To be discussed at the 3/20/24 meeting.

Stanislaus River Forum (SRF) Call Review

USBR Updates: Receive live update from Amanda Snow on the 3/19/24 call.

CDFW UPDATE

Update on Fish Monitoring (Adults)

Chinook Carcass and redd surveys: Preliminary escapement estimate is 1,617.

Steelhead redd surveys: CDFW began steelhead redd surveys in January 2024.

Table 1. Data from the Steelhead redd surveys

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
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
8*	2/19/2024	0	3	0	0	0	0	0	0	0	0	0	1562.5
9*	2/26/2024	0	3	0	0	0	0	0	0	0	0	0	1125
10*	3/4/2024	0	8	0	0	0	0	0	0	0	0	0	1250
11*	3/11/2024	1	7	0	0	0	0	0	0	0	0	0	1500

* Section 1 not surveyed

**Section 1 (flow) and N1-N2 not surveyed (turbidity)

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

Update on Fish Monitoring (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 2. 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
2/12/2024	3	FL 41,34,37
2/14/2024	1	FL 37
2/16/2024	1	FL 37

Date	CHN catch	Comments
2/21/2024*	33	FL 36,39,29,34,37,40,37,38,36,37,43,44,35,35,35,35,35,38,40,36,38,62,38,26,40,36,37,38,39,36,80,37,36
2/23/2024*	11 1 ad- clipped	FL 37,37,37,33,110,38,99,37,38,37,34 Ad-clipped FL 74
2/26/2024	2	FL 36,41
2/28/2024	1	Ad-clipped FL 73
2/28/2024	-	1 RBT FL 222
3/1/2024	1, 2 ad-clipped	FL 36 Ad- clipped FL 82,82
3/4/2024	1	FL 35
3/6/2024	3	FL 35,53,47
3/11/2024	1	FL 39
3/13/2024	4 2 ad-clipped	FL 37,49,82,89 Ad-clipped FL 90,103

*denotes CDFW operation

FishBio Updates

Weir Updates

Stanislaus River Weir: As of March 17, 2024, a total of 52 *O. mykiss* have passed upstream of the Stanislaus River weir (Table 3). Thirty-seven of the adults were greater than 16 inches, classifying them as steelhead. Twenty-nine out of 52 (56%) of the *O. mykiss* were adipose fin clipped.

No adult Chinook were observed passing the Stanislaus River weir since February 4. The season total remains at 2,403.

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	52	52
2022	9/15/22	6	6
2021	9/8/21	35	35
2020	9/10/20	8	8
2019	8/29/19	31	31
2018	9/5/18	25	25
2017	9/15/17	11	11

Year	Monitoring Start Date	Net Passage to Date	Season Total
2016	9/8/16	26	26
2015	9/15/15	5	5
2014	9/5/14	8	8
2013	9/3/13	38	39
2012	9/11/12	101	101
2011	11/8/11	79	85
2010	9/7/10	6	6
2009	9/9/09	8	9
2008	9/9/08	15	15
2007	9/22/07	2	2
2006	9/8/06	12	12
2005	9/8/05	1	1
2004	9/10/04	1	1
2003	9/5/03	0	0

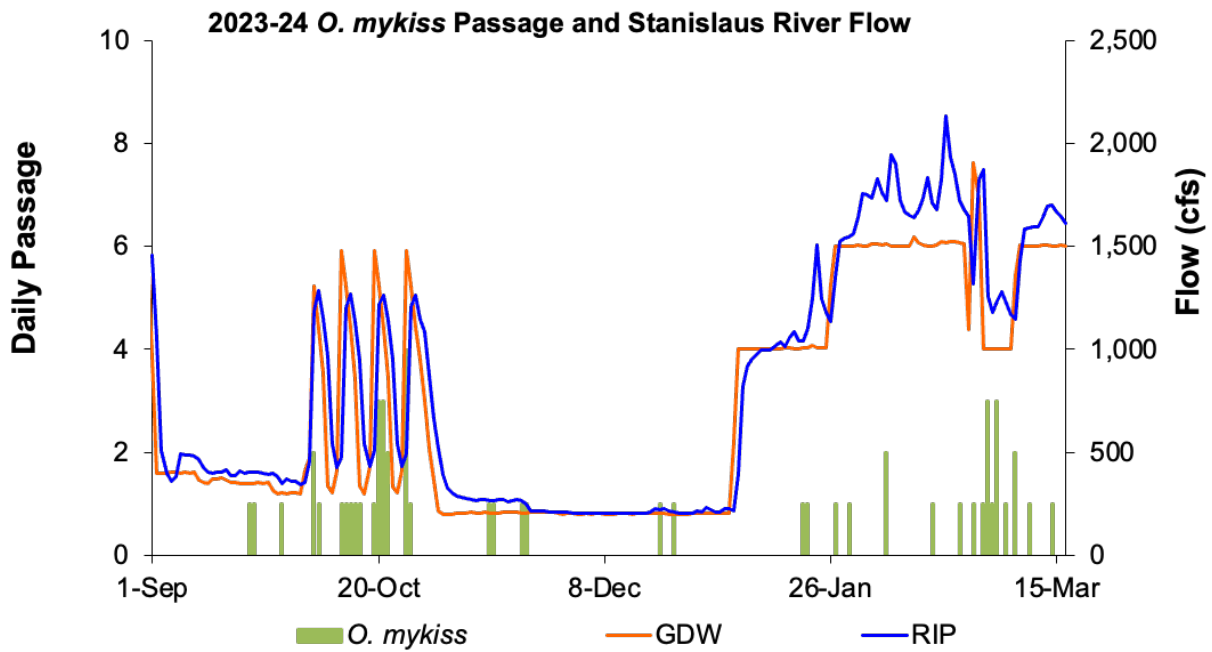


Figure 10. Daily *O. mykiss* passage at the Stanislaus River weir and river flow at Goodwin (GDW) and Ripon (RIP), 2023-24.

Figure 10 is a line graph of daily *O. mykiss* passage at the Stanislaus River weir and river flow at Goodwin (GDW) and Ripon (RIP), 2023-24. It shows a cluster of one to two fish passing daily in late September and early October when flows varied between 500-1700 cfs and one to three fish daily in between February and March 15th when flows were between 1,000 cfs and 2,200 cfs.

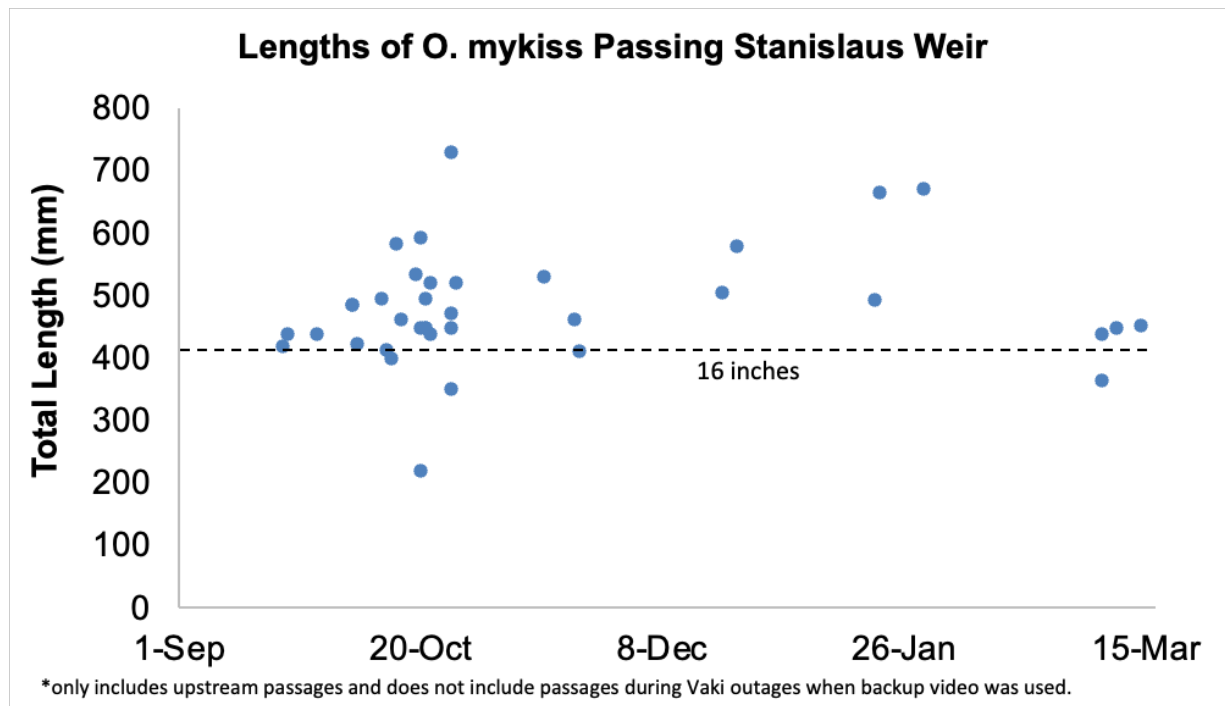


Figure 11. Fork lengths of *O. mykiss* passing the Stanislaus River weir during 2023-24.

Figure 11 is a graph that shows the fork lengths of *O. mykiss* passing the Stanislaus River weir during 2023-24. The most fish were recorded in September and October with total length between 200-700mm.

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.

As of 3/17/2024, we have captured a total of 4,565 unmarked Chinook salmon. The current peak in daily unmarked Chinook salmon catch occurred on 2/20/2024 with a total of 668 captured. The majority of salmon have been fry, though there has been a steady increase in parr-sized fish beginning in early March with fork lengths ranging from approximately 35-60 mm.

Two RST efficiency trials have been conducted at the Caswell RST site using unmarked, natural origin Chinook salmon fry at approximately 35-40 mm with the releases occurring on 2/10 and 2/29. The efficiency trials have resulted in a trap efficiency of approximately 4%.

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>

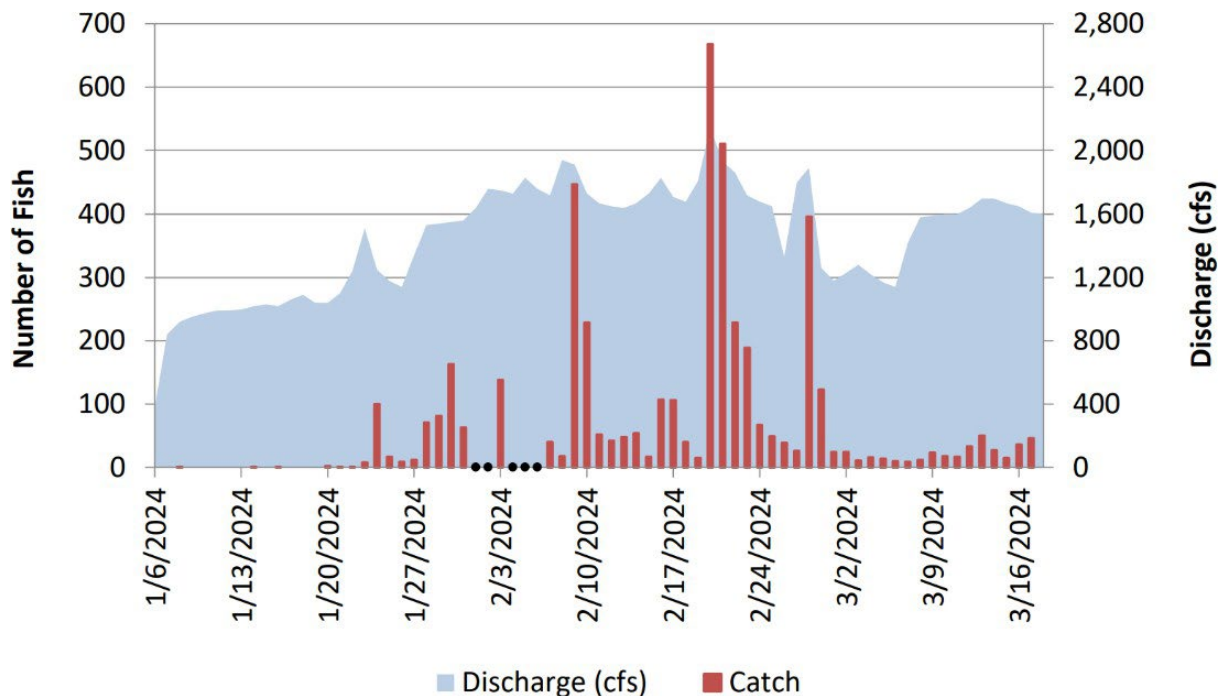


Figure 12. Daily catch of unmarked Chinook salmon and daily average discharge at Ripon during the 2024 Stanislaus River RST sampling season.

Figure 12 is a bar graph of the Stanislaus River RSTs at Caswell Memorial Park Chinook from January-March 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 almost 700 fish on February 20th.

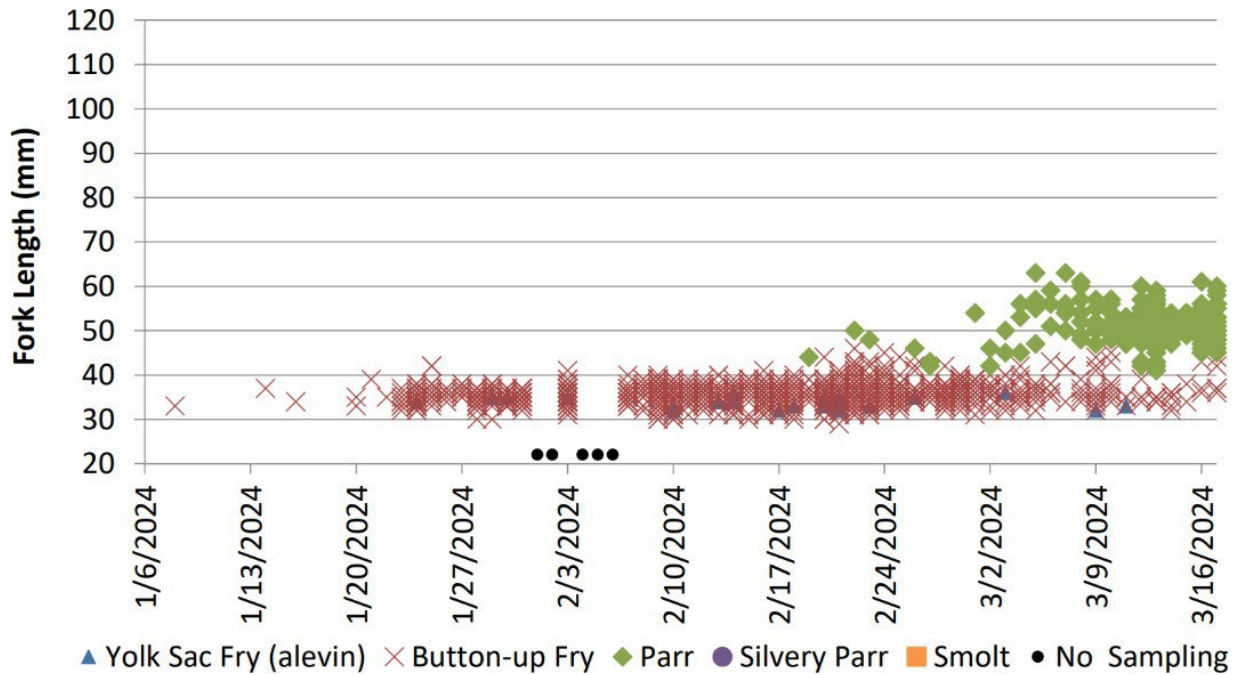


Figure 13. Daily fork length distribution by life stage of unmarked Chinook salmon measured during the 2024 Stanislaus River RST sampling season.

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 folk length distribution staying between 30-40 mm from mid-January to mid-February for Button-up Fry and between 40-65mm in March for Parr.

Restoration Project Updates

USBR: *(No new updates)* Previous update: 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.