BUREAU OF RECLAMATION

Stanislaus Watershed Team

March 15, 2023

Members Attending

- USBR: Liz Kiteck, Zarela Guerrero, Peggy Manza, Claire Hsu, Spencer Marshall, Melissa Vignau, Bradley Hubbard
- USFWS: JD Wikert, Craig Anderson
- CDFW: Gretchen Murphey, Crystal Rigby, Steve Tsao, Ryan Kok
- NFMS: Barb Byrne, Evan Sawyer
- DWR: Mike Ford, Matthew Meyers, Vinh Giang
- SWRCB: Chris Carr, Yongxuan Gao, Erin Foresman
- Stockton East: Justin Hopkins
- PSMFC: Hunter Morris, Logan Day
- SSJID: Brandon Nakagawa
- Fishbio: Jason Guignard
- Other:
- Kearns & West: Karis Johnston, Bethany Taylor

Action Items

- Flow Planning – Barb Byrne, NFMS, to pull flow data for a strawman spring pulse flow plan
- Fish Monitoring – Logan Day, PSMFC, to reach out to FWS for a pit-tag reader to record any pit-tagged fish at Caswell

Announcements

SWT is looking to possibly resume in-person meetings in the upcoming months. Additional information will be shared once venue and schedule information become available.

SacPass Update

- Updates can be found at the Columbia Basin Research Website.

Operations Update and Forecasts / Hydrology

New Melones

- Total accumulated precipitation at New Melones was 41.59 inches during the previous month.
- Storage at New Melones is 1.226 MAF and is increasing daily.
- Accumulated inflow for WY 2023 is 716 TAF.
- January data is now included in the tables for New Melones.

Tulloch

- Releases decreased from 1,500 cfs to 500 cfs and increased back to 1,500 cfs with precipitation from the atmospheric rivers. An additional 300 cfs was added to release amounts for contractors performing pre-irrigation and watering their canal system.

Goodwin

- Releases from Goodwin Dam track closely with those from Tulloch Dam, except when delivering to the canals.
- Current releases are at 1,500 cfs.

Forecast

- Interpretation of the snowfall data has not been clear; impending water levels resulting from melted snowpack are not fully.
- The San Joaquin year type based on the 60-20-20 Index is Wet, even at the 99 precent exceedance level.
- All planned pulse-flow actions must be evaluated for downstream impacts and risks to health and safety.

Comments/Questions:

- Please clarify the evaporation data on 3/10/23. It seems unusually high given the precipitation on the same day.
    - Reclamation responded the number could be an error, but there were warmer temperatures during these storm days.

- From an operations standpoint, a threshold of 1.9 MAF must be reached by November 1. What does that mean for the projected summer flows in 2023?
    - Reclamation responded it is a good possibility that we see water levels higher than required minimum flows in the SRP. We are tracking closer to 10 percent hydrology and very wet conditions. Forecasts tare currently on the conservative side; higher storage levels are expected. There may be releases above the SRP minimum flow requirement.
- Are there additional downstream thresholds we need to be aware of?
    - Reclamation responded there may be control points in the interior Delta past Vernalis, but Vernalis is the one closest to New Melones that we are tracking.
    - Ideally, the river stage at Vernalis remains below monitor stage.
    - SWT discussed and acknowledged that Reclamation may need to deviate from the SRP minimum flows in consideration of public safety, levee stability, and flood risk.
- Is our 90% forecast only showing 2MAF? If the target is 1.9 MAF, will irrigation districts have issues with us dumping water? If we dump water, will we be short next time?
    - Reclamation responded current estimates are 2 MAF of water on the hills. While the forecasts are not ready to be shared, we are iterating using the most conservative estimates. It is likely that levels will be well above 1.6 MAF. I don't think we are dumping water inappropriately and would push back if that were the case.

Water Temperature Updates

- Water temperatures at Orange Blossom Bridge (OBB) averaged between 48 – 50 degrees Fahrenheit between 1/7/23 – 3/9/23. The highest recorded temperature was approximately 59 degrees Fahrenheit; the lowest was approximately 47 degrees Fahrenheit.

Flow Planning

- Cramer Fish Sciences plans to pull egg chambers during the weeks of March 26 and April 16. Flows under 400 cfs are ideal for this task, and they will likely need two days to complete the removal.
- Fishbio would also like a flow reduction to either remove the weir or bring it back into operation, depending on expected flows through the spring-summer.

Stanislaus River Forum (SRF) Call Review

- Covered similar information as covered during SWT.

- One member of the public attended the meeting but left before sharing any comments.

Fish Monitoring

- Steelhead redd surveys began the first week of January. However, only six surveys were able to be performed due to flows and turbidity levels. Researchers are waiting for conditions to improve to resume surveys but are not expecting to be able to perform many more.
- Thirteen steelhead redds and one lamprey redd were observed this season.
- The weir is currently submerged from the last storm pulse. It is currently inoperable until flow levels are reduced.
- Fishbio captured and tagged two additional adult steelhead on 3/5/23, bringing the total to five steelhead (all adipose-clipped) to-date.
- The Oakdale Rotary Screw Trap has caught 17. *O.mykiss* and 47,000 Chinook salmon.
- The Caswell Rotary Screw Trap has caught over 700 fall-run Chinook from 3/13/23 – 3/14/23, bringing the seasonal total to 1,264 unmarked Chinook salmon. One unmarked *O.mykiss* was caught.
- **Action Item:** Logan Day, PSMFC, to reach out to FWS for a pit-tag reader to record any pit-tagged fish that passes through.

Restoration Project Updates

- No update.

Progress Update on Proposed Action Elements

- No update.

Other Discussion Items

Curtailments

- All curtailments are temporarily suspended due to loss of precipitation.
- Steelhead Survival Study (i.e., Six-Year Steelhead Study).
    - The study cannot be implemented due to unavailability of study fish.
    - As an alternative, a pilot study with Cramer Fish Sciences, USFWS, and NOAA's Southwest Fisheries Science Center, will be implemented to acoustically tag wild, juvenile steelhead on the Stanislaus River during Spring 2023. The goals of the study are to monitor migratory movement and rates during Summer 2023 on the

lower Stanislaus River, validate observations from other methods that few fish are migrating, and estimate route and survival of fish through the Delta.

- Ideally, tags with a longer life span would be used, but researchers acknowledge the limitations of tag capacity.

Annual Reporting

- No update.

Items to elevate to WOMT

- No items for WOMT.

Next Meeting

Wednesday, April 19, 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

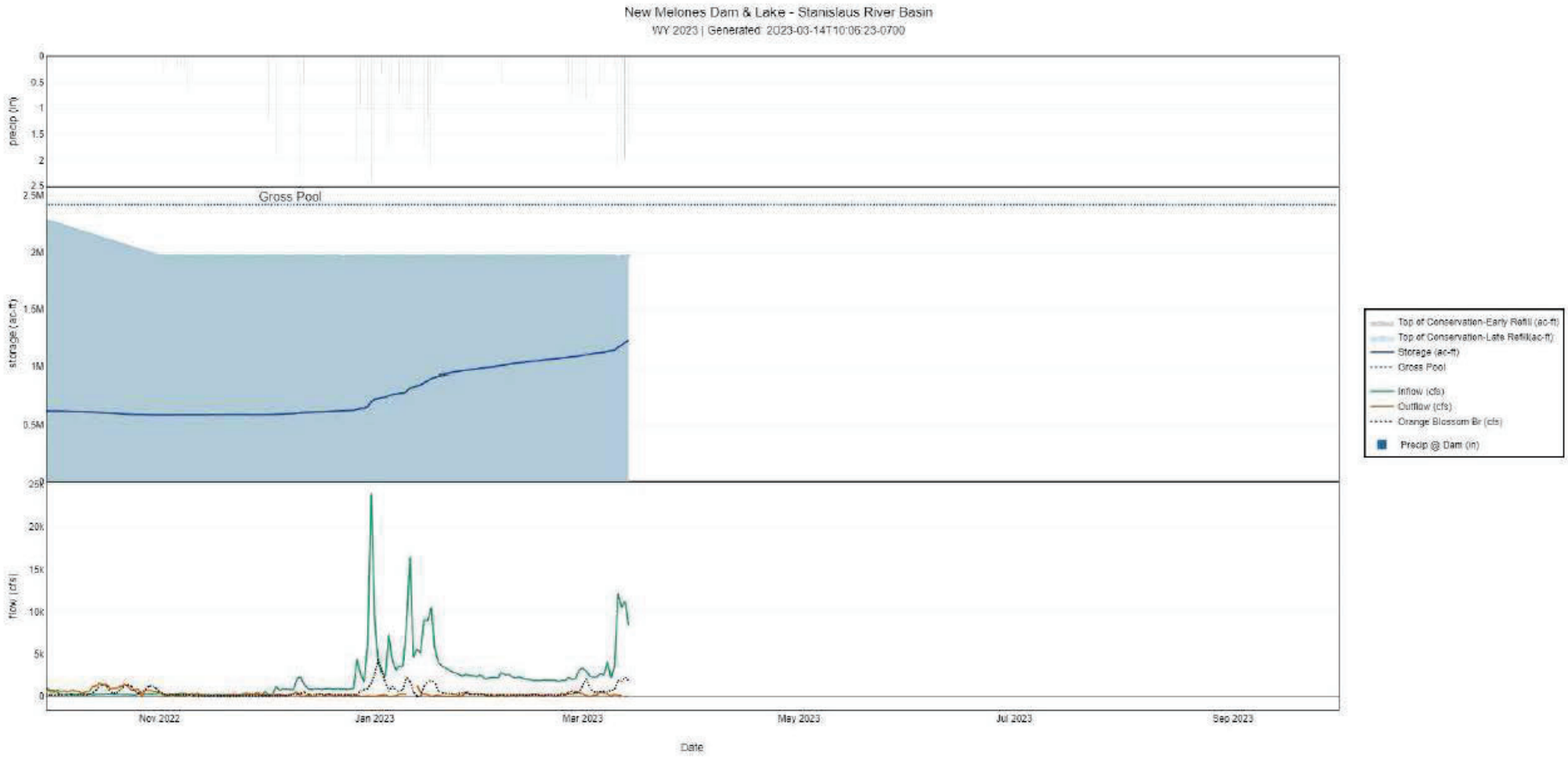
Wednesday, March 15, 2023

Agenda

1. Introductions
2. Ground Rules[1]
3. Announcements
    a. In person meeting update, Kearns & West
    b. Meeting will be recorded for notetaking purposes
4. Operations Update and Forecasts/Hydrology
5. Temperature Updates
6. Flow Planning
7. Stanislaus River Forum (SRF) Call Review
8. Fish Monitoring and Studies

[1] The Stanislaus Watershed Team's Ground Rules are as follows:
1. Seek to understand and respect opposing views and suggestions for change (within 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
10. Progress Update on Proposed Action Elements
    a. Spawning and rearing habitat restoration
    b. Temperature management study
    c. Yellow-bellied cuckoo survey
11. Other Discussion Items
    a. Curtailment Updates
    b. Items to elevate to WOMT
12. Review Action Items
13. Next Meeting Wednesday, April 19, 2023 (10am-12pm)



New Melones Dam & Lake – Stanislaus River Basin
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Tables for BDO

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

March 13, 2023
Run Date: March 14, 2023

Table 4. Reservoir Releases in Cubic Feet Per Second

Reservoir	Dam	WY 2020	WY 2021	15-Year Median
Trinity	Lewiston	291	773	301
Sacramento	Keswick	3,240	3,319	3,481
Feather	Oroville (SWP)	3,500	0	1,750
American	Nimbus	2,071	29,999	1,888
Stanislaus	Goodwin	501	1,512	310
San Joaquin	Friant	632	6,085	365

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

Reservoir	Capacity	15-Yr Avg	WY 2021	WY 2021	% O 15 Yr Avg
Trinity	2,448	1,487	795	815	55
Shasta	4,552	3,117	1,708	2,952	95
Folsom	977	520	520	555	107
New Melones	2,420	1,420	959	1,226	86
Fed. San Luis	966	641	309	783	122
Total North CVP	11,363	7,185	4,291	6,331	88
Millerton	521	306	286	358	117
Oroville (SWP)	3,538	2,125	1,614	0	0

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

Reservoir	Current WY 2021	WY 1977	WY 1983	15-Yr Avg	% O 15 Yr Avg
Trinity	377	246	1,116	422	89
Shasta	2,293	1,794	5,078	2,417	95
Folsom	1,830	644	2,920	1,130	162
New Melones	716	N/A	770	391	183
Millerton	849	371	669	414	205

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

Reservoir	Current WY 2021	WY 1977	WY 1983	Avg (N Yrs)	% of Avg	Last 24 Hours
Trinity at Fish Hatchery	29.17	18.16	33.66	23.72 (63)	123	0.69
Sacramento at Shasta Dam	47.42	27.01	66.05	45.59 (68)	104	1.20
American at Blue Canyon	68.21	N/A	87.37	49.52 (49)	138	1.75
Stanislaus at New Melones	41,59	N/A	26.44	20.71 (46)	201	1.68
San Joaquin at Huntington LK	54.89	11.50	45.80	30.24 (50)	182	0.47

UNITED STATES DEPARTMENT OF THE INTERIOR

U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA

MARCH 2023 **NEW MELONES LAKE DAILY OPERATIONS** RUN DATE: 03/14/2023

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	NA	1,097.50	NA	NA	NA	NA	NA	NA	NA	NA
1	956.31	1,103.30	5.7	3,005	103	0	0	7	0.03	0.85
2	956.91	1,07.9	4.6	2,378	31	0	0	25	0.10	0.03
3	957.45	1,112.0	4.2	2,275	147	0	0	30	0.12	0.00
4	958.00	1,116.30	4.2	2,309	161	0	0	10	0.04	0.00
5	958.54	1,120.50	4.2	2,669	546	0	0	15	0.06	0.55
6	959.07	1,124.60	4.1	2,524	446	0	0	8	0.03	0.46
7	960.05	1,132.20	7.6	4,130	263	0	0	23	0.09	0.06
8	960.59	1,136.40	4.2	2,195	48	0	0	20	0.08	0.01
9	961.42	1,142.90	6.5	3,557	268	0	0	13	0.05	0.19
10	964.42	1,166.60	23.7	12,136	152	0	0	44	0.17	2.21
11	967.01	1,187.30	20.7	10,532	98	0	0	3	0.01	0.13
12	969.75	1,209.40	22.1	11,220	32	0	0	24	0.09	1.98
13	971.79	1,226.10	16.7	8,426	30	0	0	0	0.00	1.68
TOTALS	NA	NA	**128.5**	**67,356**	**32**	**0**	**0**	**222**	**0.87**	**8.15**
ACRE-FEET	NA	NA	**128,500**	**133,601**	**4,612**	**0**	**0**	**440**	**NA**	NA

COMMENTS:

* COMPUTED INFLOW IS THE SUM OF CHANGE IN STORAGE, RELEASES, PUMPING AND EVAPORATION.

SUMMARY PRECIPITATION

TIME	PRECIPITATION
THIS MONTH	8.15
OCT 1, 2022 TO DATE	41.59

SUMMARY: RELEASE (ACRE FEET)

CATEGORY	RELEASE ACRE-FEET
POWER	4,612
SPILL	0
OUTLET	0
TOTAL	4,612

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U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA

FEBRUARY 2023 **NEW MELONES LAKE DAILY OPERATIONS** RUN DATE: 03/01/2023

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	986.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	941.12	990.6	4.1	2,103	32	0	0	16	0.07	0.00
2	941.73	995.0	4.4	2,271	48	0	0	16	0.07	0.00
3	942.32	999.2	4.2	2,240	86	0	0	14	0.06	0.01
4	942.89	1,003.3	4.1	2,220	136	0	0	12	0.05	0.01
5	943.61	1,008.6	5.2	2,881	240	0	0	14	0.06	0.47
6	944.28	1,013.4	4.9	2,532	74	0	0	7	0.03	0.18
7	944.98	1,018.5	5.1	2,603	26	0	0	9	0.04	0.00
8	945.53	1,022.5	4.0	2,309	269	0	0	14	0.06	0.01
9	946.12	1,026.8	4.3	2,212	22	0	0	14	0.06	0.00
10	946.68	1,031.0	4.1	2,317	227	0	0	17	0.07	0.00
11	947.19	1,034.7	3.8	2,139	227	0	0	21	0.09	0.00
12	947.72	1,038.6	3.9	2,051	68	0	0	12	0.05	0.00
13	948.20	1,042.2	3.5	2,042	237	0	0	17	0.07	0.00
14	948.62	1,045.3	3.1	1,872	285	0	0	19	0.08	0.00
15	949.05	1,048.5	3.2	1,899	282	0	0	10	0.04	0.00
16	949.50	1,051.8	3.3	1,886	152	0	0	46	0.19	0.00
17	950.01	1,055.6	3.8	1,977	36	0	0	27	0.11	0.00
18	950.46	1,059.0	3.4	1,964	241	0	0	27	0.11	0.00
19	950.91	1,062.3	3.4	1,933	219	0	0	19	0.08	0.00
20	951.41	1,066.1	3.8	1,968	52	0	0	24	0.10	0.00
21	951.86	1,069.5	3.4	1,770	42	0	0	24	0.10	0.00
22	952.26	1,072.5	3.0	1,922	379	0	0	24	0.10	0.01
23	952.69	1,075.7	3.2	1,892	247	0	0	10	0.04	0.28
24	953.20	1,079.6	3.9	2,264	311	0	0	10	0.04	0.28
25	953.67	1,083.1	3.6	2,027	232	0	0	0	0.00	0.85
26	954.06	1,086.1	3.0	2,117	624	0	0	2	0.01	0.1
27	954.76	1',091.4	5.3	3,125	438	0	0	2	0.01	0.83
28	955.56	1',097.5	6.1	3,357	274	0	0	5	0.02	0.51
TOTALS	**N/A**	**N/A**	**111.1**	**61,893**	**5,506**	**0**	**0**	**432**	**1.81**	**3.54**
ACRE-FEET	**N/A**	**N/A**	**111,100**	**122,765**	**10,921**	**0**	**0**	**857**	**N/A**	**N/A**

COMMENTS:

* COMPUTED INFLOW IS THE SUM OF THE CHANGE IN STORAGE, RELEASES, PUMPING AND EVAPORATION.

SUMMARY: RELEASE (ACRE-FEET)

CATEGORY	RELEASE (ACRE FEET)
POWER	10,921
SPILL	0
OUTLET	0
TOTAL	10,921

SUMMARY PRECIPITATION

TIME	PRECIPITATION
THIS MONTH	4
OCT 1, 2021 TO DATE	33.16

UNITED STATES DEPARTMENT OF THE INTERIOR

U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA

JANUARY 2023 **NEW MELONES LAKE DAILY OPERATIONS** RUN DATE: 02/09/2023

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	702.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	899.65	721.0	18.2	9,228	49	0	0	4	0.02	2.02
2	900.93	728.5	7.5	3,899	83	0	0	23	0.12	0.00
3	901.82	733.7	5.3	2,858	187	0	0	17	0.09	0.35
4	902.60	738.40	4.6	2,393	57	0	0	0	0.00	0.00
5	905.02	752.90	14.5	7,320	18	0	0	0	0.00	1.81
6	906.43	761.40	8.5	4,337	39	0	0	0	0.00	0.54
7	907.41	767.30	6.0	3,100	84	0	0	12	0.06	0.01
8	908.48	773.9	6.5	3,616	297	0	0	22	0.11	0.66
9	911.07	789.9	16.0	8,314	246	0	0	16	0.08	1.01
10	916.10	821.5	31.6	16,445	482	0	0	23	0.11	1.17
11	917.41	829.80	8.4	4,636	419	0	0	0	0.00	0.70
12	918.73	838.30	8.5	5,629	1,348	0	0	6	0.03	0.14
13	920.17	847.60	9.3	5,097	392	0	0	10	0.05	0.02
14	922.83	865.0	17.4	9,052	291	0	0	0	0.00	1.75
15	925.43	882.2	17.2	8,921	248	0	0	0	0.00	1.21
16	928.53	903.0	20.8	10,526	36	0	0	9	0.04	2.14
17	930.16	914.1	11.1	5,689	91	0	0	26	0.12	0.44
18	931.29	921.8	7.7	4,062	163	0	0	9	0.04	0.00
19	932.33	928.90	7.1	3,659	50	0	0	11	0.05	-0.29
20	933.30	935.6	6.7	3,409	31	0	0	7	0.03	0.01
21	934.20	941.8	6.2	3,183	33	0	0	9	0.04	0.00
22	935.01	947.4	5.6	2,878	32	0	0	9	0.04	0.00
23	935.77	952.8	5.3	2,783	90	0	0	18	0.08	0.00
24	936.46	957.6	4.8	2,555	112	0	0	7	0.03	0.00
25	937.10	962.1	4.5	2,379	91	0	0	23	0.10	0.00
26	937.67	966.1	4.0	2,633	606	0	0	2	0.01	0.00
27	938.27	970.30	4.2	2,421	272	0	0	14	0.06	0.00
28	938.87	974.60	4.2	2,437	281	0	0	14	0.06	0.00
29	939.41	978.40	3.8	2,295	352	0	0	9	0.04	0.00
30	940.04	982.90	4.5	2,540	272	0	0	9	0.04	0.03
31	940.55	986.50	3.6	2,157	315	0	0	5	0.02	0.00
TOTALS	**N/A**	**N/A**	**283.6**	**150,451**	**7,066**	**0**	**0**	**314**	**1.47**	**14.30**
ACRE-FEET	**N/A**	**N/A**	**283,600**	**298,420**	**14,015**	**0**	**0**	**623**	**N/A**	**N/A**

COMMENTS:

* COMPUTED INFLOW IS THE SUM OF THE CHANGE IN STORAGE, RELEASES, PUMPING AND EVAPORATION.

SUMMARY: RELEASE (ACRE-FEET)

CATEGORY	RELEASE (ACRE FEET)
POWER	14,015
SPILL	0
OUTLET	0
TOTAL	14,015

SUMMARY PRECIPITATION

TIME	PRECIPITATION
THIS MONTH	14.30
OCT 1, 2021 TO DATE	29.62

U.S. BUREAU OF RECLAMATION- CENTRAL VALLEY PROJECT- CALIFORNIA

MARCH 2023 **TULLOCH RESERVOIR DAILY OPERATIONS** RUN DATE: 03/14/2023

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. CFS (1)
N/A	N/A	57,658	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	501.03	56,420	-1,238	809	103	1,432	0	0	1
2	500.24	55,563	-857	272	31	701	0	0	3
3	499.88	55,175	-388	308	147	500	0	0	4
4	499.55	54,823	-352	324	161	500	0	0	1
5	500.31	55,639	816	913	546	500	0	0	2
6	500.66	56,018	379	693	446	501	0	0	1
7	500.50	55,845	-173	416	263	500	0	0	3
8	499.46	54,727	-1,118	185	48	746	0	0	3
9	499.05	54,289	-438	727	268	946	0	0	2
10	500.59	55,943	1,654	2,367	152	1,527	0	0	6
11	500.47	55,812	-131	1,743	98	1,809	0	0	0
12	501.61	57,060	1,248	2,446	32	1,814	0	0	3
13	499.71	54,994	-2,066	764	30	1,806	0	0	0
TOTALS	N/A	N/A	**-2,664**	**11,967**	**2,325**	**13,282**	**0**	**0**	**29**
ACRE-FEET	N/A	N/A	**-2,664**	**23,737**	**4,612**	**26,345**	**0**	**0**	**58**

*COMPUTED INFLOW IS SUM OF CHANGE IN STORAGE, RELEASES, AND EVAPORATION.

* EVAPORATION RECORDS TAKEN FROM NEW MELONES PAN.

SUMMARY: RELEASE (ACRE FEET)

CATEGORY	RELEASE (ACRE-FEET)
POWER	26,345
SPILL	0
OUTLET	0
TOTAL	26,345

UNITED STATES DEPARTMENT OF THE INTERIOR

U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA

FEBRUARY 2023 **TULLOCH RESERVOIR DAILY OPERATIONS** RUN DATE: 03/01/2023

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. CFS (1)
N/A	N/A	56,398	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	500.75	56,116	-282	82	32	222	0	0	2
2	500.49	55,834	-282	83	48	223	0	0	2
3	500.33	55,661	-173	138	86	223	0	0	2
4	500.26	55,585	-76	185	136	221	0	0	2
5	500.51	55,856	271	359	240	220	0	0	2
6	500.39	55,726	-130	156	74	221	0	0	1
7	500.15	55,466	-260	90	26	220	0	0	1
8	500.33	55,661	195	319	269	219	0	0	2
9	500.05	55,357	-304	68	22	219	0	0	2
10	500.14	55,455	98	270	227	219	0	0	2
11	500.22	55,541	86	265	227	219	0	0	3
12	500.00	55,303	-238	101	68	219	0	0	2
13	500.09	55,401	98	272	237	221	0	0	2
14	500.27	55,596	195	324	285	223	0	0	3
15	500.43	55,769	173	311	282	223	0	0	1
16	500.35	55,682	-87	186	152	223	0	0	7
17	500.06	55,368	-314	66	36	220	0	0	4
18	500.16	55,476	108	277	241	219	0	0	4
19	499.92	55,218	-258	91	219	218	0	0	3
20	499.62	54,898	-320	64	52	222	0	0	3
21	499.62	54,898	0	225	42	222	0	0	3
22	500.05	55,357	459	457	370	223	0	0	3
23	499.80	55,090	-267	465	247	599	0	0	1
24	499.96	55,260	170	533	311	446	0	0	1
25	499.96	55,260	0	446	232	446	0	0	0
26	500.80	56,170	910	796	624	337	0	0	0
27	502.52	58,084	1,914	1,306	438	341	0	0	0
28	502.15	57,658	-426	1,128	274	1,342	0	0	1
TOTALS	NA	NA	**1,260**	**9,063**	**5,506**	**8,370**	**0**	**0**	**59**
ACRE-FEET	NA	NA	**1,260**	**17,976**	**10,921**	**16,602**	**0**	**0**	**117**

COMMENTS:

* COMPUTED INFLOW IS THE SUM OF CHANGE IN STORAGE, RELEASES AND EVAPORATION.

*EVAPORATION RECORDS TAKEN FROM NEW MELONES PAN.

SUMMARY: RELEASE (ACRE FEET)

CATEGORY	RELEASE ACRE-FEET
POWER	16,602
SPILL	0
OUTLET	0
TOTAL	16,602

UNITED STATES DEPARTMENT OF THE INTERIOR

U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA

JANUARY 2023 **TULLOCH RESERVOIR DAILY OPERATIONS** RUN DATE: 02/09/2023

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. CFS (1)
N/A	N/A	62,620	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	503.69	59,397	-3,223	1,390	49	2,462	0	552	1
2	499.79	55,079	-4,318	326	83	2,231	0	268	4
3	498.54	53,753	-1,326	391	187	1,057	0	0	3
4	498.25	53,448	-305	252	57	406	0	0	0
5	500.76	56,127	2,679	1,758	18	407	0	0	0
6	502.02	56,409	282	550	39	408	0	0	0
7	500.82	56,192	-217	301	84	408	0	0	2
8	501.32	56,740	548	0	297	657	0	0	0
9	500.55	55,899	-841	1,905	246	1,659	0	220	3
10	499.79	55,079	-820	1,778	482	1,556	0	225	4
11	499.97	55,271	192	1,048	419	949	0	2	0
12	502.30	57,826	2,555	1,692	1,348	403	0	0	1
13	502.55	58,106	280	705	392	562	0	0	2
14	502.49	58,039	-67	1,912	291	1,554	0	392	0
15	501.68	57,137	-902	1,481	248	1,553	0	383	0
16	503.76	59,476	-2,339	3,009	36	1,512	0	317	1
17	501.71	57,170	-2,306	671	91	1,522	0	308	4
18	501.29	56,707	-463	478	163	710	0	0	1
19	501.27	56,685	-22	394	50	403	0	0	2
20	500.89	56,269	-417	194	31	403	0	0	1
21	500.60	55,953	-315	244	33	402	0	0	1
22	500.15	55,466	-487	157	32	402	0	0	1
23	499.79	55,079	-387	209	90	401	0	0	3
24	499.43	54,695	-384	208	112	234	0	167	1
25	498.99	54,225	-470	168	91	402	0	0	3
26	499.72	55,004	779	691	606	298	0	0	0
27	499.95	55,250	246	345	271	219	0	0	2
28	500.20	55,520	270	359	281	221	0	0	2
29	500.55	55,899	379	414	352	222	0	0	1
30	500.75	56,116	217	332	272	222	0	0	1
31	501.01	56,398	282	365	315	222	0	0	1
TOTALS	NA	NA	**-6,222**	**23,727**	**7,066**	**24,067**	**853**	**2,834**	**45**
ACRE-FEET	NA	NA	**-6,222**	**47,063**	**14,015**	**47,737**	**1,692**	**5,621**	**89**

COMMENTS:

* COMPUTED INFLOW IS THE SUM OF CHANGE IN STORAGE, RELEASES AND EVAPORATION.

*EVAPORATION RECORDS TAKEN FROM NEW MELONES PAN.

SUMMARY: RELEASE (ACRE FEET)

CATEGORY	RELEASE ACRE-FEET
POWER	47,737
SPILL	1,692
OUTLET	5,621
TOTAL	55,050

OAKDALE IRRIGATION DISTRICT

SOUTH SAN JOAQUIN IRRIGATION DISTRICT

TRI DAMS PROJECT-CALIFORNIA

MARCH 2023 **GOODWIN RESERVOIR DAILY OPERATIONS** RUN DATE: 03/14/2022

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	360.33	560	-16	1,432	0	1,444	0	0
2	359.98	536	-24	701	0	718	0	0
3	359.98	536	0	500	0	504	0	0
4	359.98	536	0	500	0	501	0	0
5	359.99	536	0	500	0	50	0	0
6	359.99	536	0	501	0	506	0	0
7	359.99	536	0	500	0	501	0	0
8	360.15	548	12	746	0	740	0	0
9	360.17	549	1	946	0	764	166	0
10	360.55	576	27	1,527	0	1,243	295	0
11	360.55	576	0	1,809	0	1,523	291	0
12	360.55	576	0	1,814	0	1,543	299	0
13	360.54	575	-1	1,806	0	1,512	301	0
TOTALS	N/A	N/A	**-1**	**13,282**	**0**	**12,009**	**1,352**	**0**
ACRE-FEET	N/A	N/A	**-1**	**26,345**	**0**	**23,820**	**2,682**	**0**

JOINT MAIN OPERATED BY SSJID AND OID.

SUMMARY: RELEASE (ACRE FEET)

CATEGORY	ACRE-FEET
JOINT MAIN CANAL	2,682
SOUTH MAIN CANAL	0
OUTLET	0
SPILL	23,820
TOTAL	26501.5435

OAKDALE IRRIGATION DISTRICT

SOUTH SAN JOAQUIN IRRIGATION DISTRICT

TRI-DAMS PROJECT-CALIFORNIA

FEBRUARY 2023 **GOODWIN RESERVOIR DAILY OPERATIONS** RUN DATE: 03/01/2023

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	521	N/A	N/A	N/A	N/A	N/A	N/A
1	359.77	521	0	222	0	203	0	0
2	359.77	521	0	223	0	206	0	0
3	359.77	521	0	223	0	207	0	0
4	359.77	521	0	221	0	205	0	0
5	359.77	521	0	220	0	210	0	0
6	359.77	521	0	221	0	208	0	0
7	359.76	520	-1	220	0	205	0	0
8	359.77	521	1	219	0	205	0	0
9	359.77	521	0	219	0	205	0	0
10	359.77	521	0	219	0	205	0	0
11	359.77	521	0	219	0	203	0	0
12	359.77	521	0	219	0	203	0	0
13	359.79	522	1	221	0	203	0	0
14	359.79	522	0	223	0	202	0	0
15	359.79	522	0	223	0	202	0	0
16	359.79	522	0	223	0	203	0	0
17	359.79	522	0	220	0	200	0	0
18	359.79	522	0	219	0	200	0	0
19	359.80	523	1	218	0	200	0	0
20	359.80	523	0	222	0	201	0	0
21	359.80	523	0	222	0	202	0	0
22	359.80	523	0	223	0	205	0	0
23	359.77	521	-2	599	0	207	0	0
24	360.05	541	20	446	0	587	0	0
25	359.92	531	-10	446	0	462	0	0
26	359.85	527	-4	337	0	340	0	0
27	360.01	538	11	341	0	339	0	0
28	360.55	576	38	1,342	0	1,329	0	0
TOTALS	N/A	N/A	**55**	**8,370**	**0**	**7,747**	0	**0**
ACRE-FEET	N/A	N/A	**55**	**16,602**	**0**	**15,366**	0	**0**

JOINT MAIN OPERATED BY SSJID AND OID.

SUMMARY: RELEASE (ACRE FEET)

CATEGORY	ACRE-FEET
JOINT MAIN CANAL	0
SOUTH MAIN CANAL	0
OUTLET	0
SPILL	15,366
TOTAL	15366.1745

OAKDALE IRRIGATION DISTRICT

SOUTH SAN JOAQUIN IRRIGATION DISTRICT

TRI-DAMS PROJECT-CALIFORNIA

JANUARY 2023 **GOODWIN RESERVOIR DAILY OPERATIONS** RUN DATE: 02/09/2023

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	547	N/A	N/A	N/A	N/A	N/A	N/A
1	361.13	616	69	3,014	0	3,123	0	0
2	360.58	578	-38	2,499	0	2,559	0	0
3	259.92	531	-47	1,057	0	1,085	0	0
4	359.86	527	-4	406	0	417	0	0
5	359.89	529	2	407	0	443	0	0
6	359.89	529	0	408	0	425	0	0
7	359.89	529	0	408	0	418	0	0
8	360.46	569	40	657	0	657	0	0
9	360.92	601	32	2,326	0	2,367	0	0
10	360.55	576	-25	2,187	0	2,230	0	0
11	359.89	529	-47	951	0	992	0	0
12	359.89	529	0	403	0	408	0	0
13	360.39	564	35	562	0	549	0	0
14	360.74	589	25	1,946	0	1,981	0	0
15	360.58	578	-11	1,936	0	1,987	0	0
16	360.80	593	15	1,829	0	1,900	0	0
17	360.43	567	-26	1,830	0	1,874	0	0
18	359.89	529	-38	710	0	738	0	0
19	359.89	529	0	403	0	417	0	0
20	359.89	529	0	403	0	410	0	0
21	359.89	529	0	402	0	409	0	0
22	359.89	529	0	402	0	407	0	0
23	359.89	529	0	401	0	403	0	0
24	359.89	529	0	401	0	403	0	0
25	359.90	530	1	402	0	401	0	0
26	359.76	520	-10	298	0	298	0	0
27	359.77	521	1	219	0	201	0	0
28	359.77	521	0	221	0	202	0	0
29	359.77	521	0	222	0	205	0	0
30	359.77	521	0	222	0	205	0	0
31	359.77	521	0	222	0	204	0	0
TOTALS	N/A	N/A	**-26**	**27,754**	**0**	**28,318**	0	**0**
ACRE-FEET	N/A	N/A	**-26**	**55,050**	**0**	**56,169**	0	**0**

JOINT MAIN OPERATED BY SSJID AND OID.

SUMMARY: RELEASE (ACRE FEET)

CATEGORY	ACRE-FEET
JOINT MAIN CANAL	0
SOUTH MAIN CANAL	0
OUTLET	0
SPILL	56,169
TOTAL	56168.753

March 2023 Water Temperature and Fish Monitoring Update

Year-to-Date Flows

Goodwin releases since October 1, 2022 are shown in Figure 1. The releases greater than 200 cfs that occurred in December and early January were for storage management at Tulloch Reservoir due to side flows from storm events.

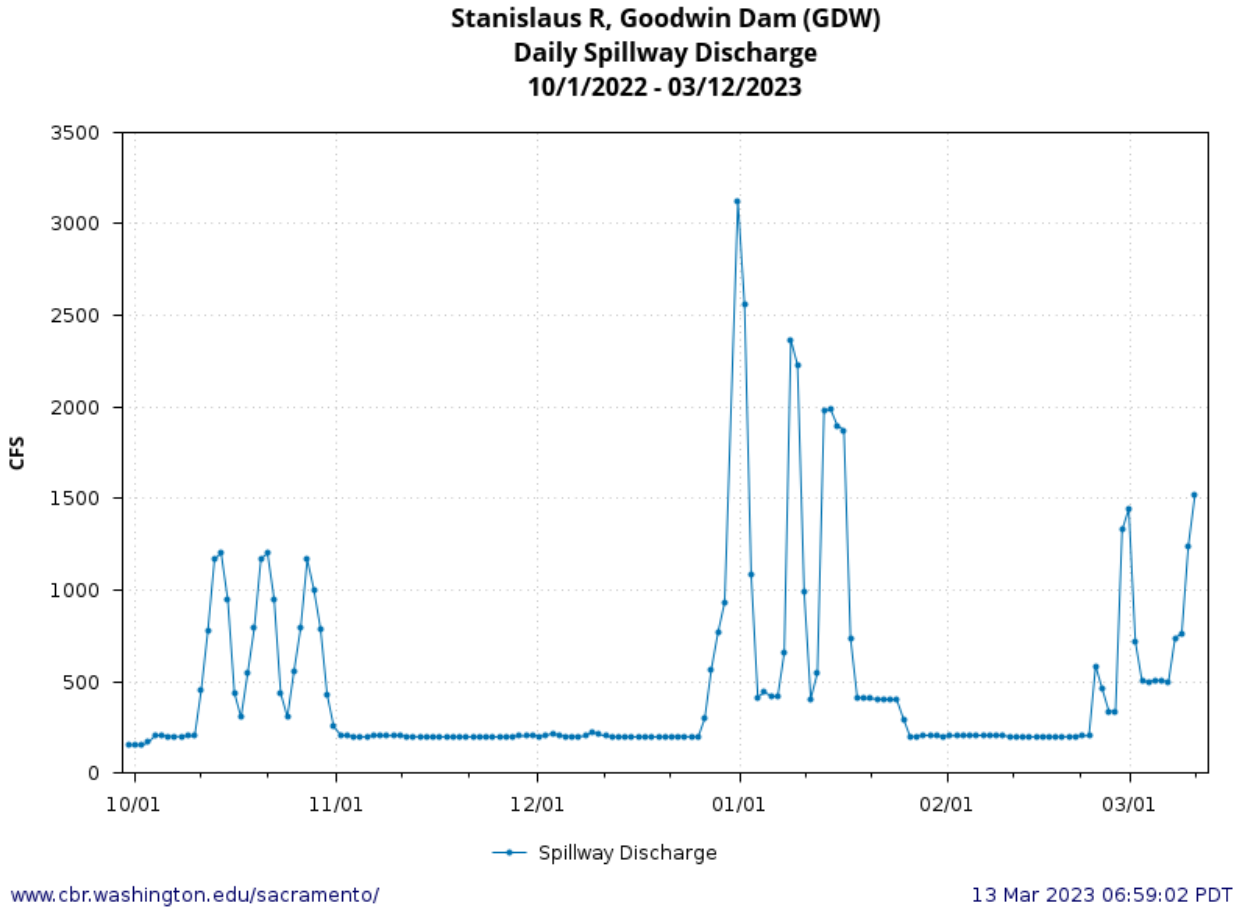

Figure 1. Goodwin (daily) releases to the Stanislaus River since October 1, 2022. Data from GDW station on CDEC.

Water Temperature

The temperature thresholds included in Figures 2-9, below, are the thresholds used in the 2019 NMFS LTO BiOp[1] (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*

[1] The 2019 NMFS LTO BiOp is available online at: https://www.fisheries.noaa.gov/resource/document/biological-opinion-reinitiation-consultation-long-term-operation-central-valley

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 July 1, 2022 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 March 1, 2022 are shown below at Vernalis (Figure 5). Current-year water temperatures are plotted along with historical temperatures for Orange Blossom Bridge (Figure 6), Ripon (Figure 7), and Vernalis (Figure 8). A compilation of Stanislaus River water temperatures and Goodwin releases for calendar year 2022 is provided in Figure 9.

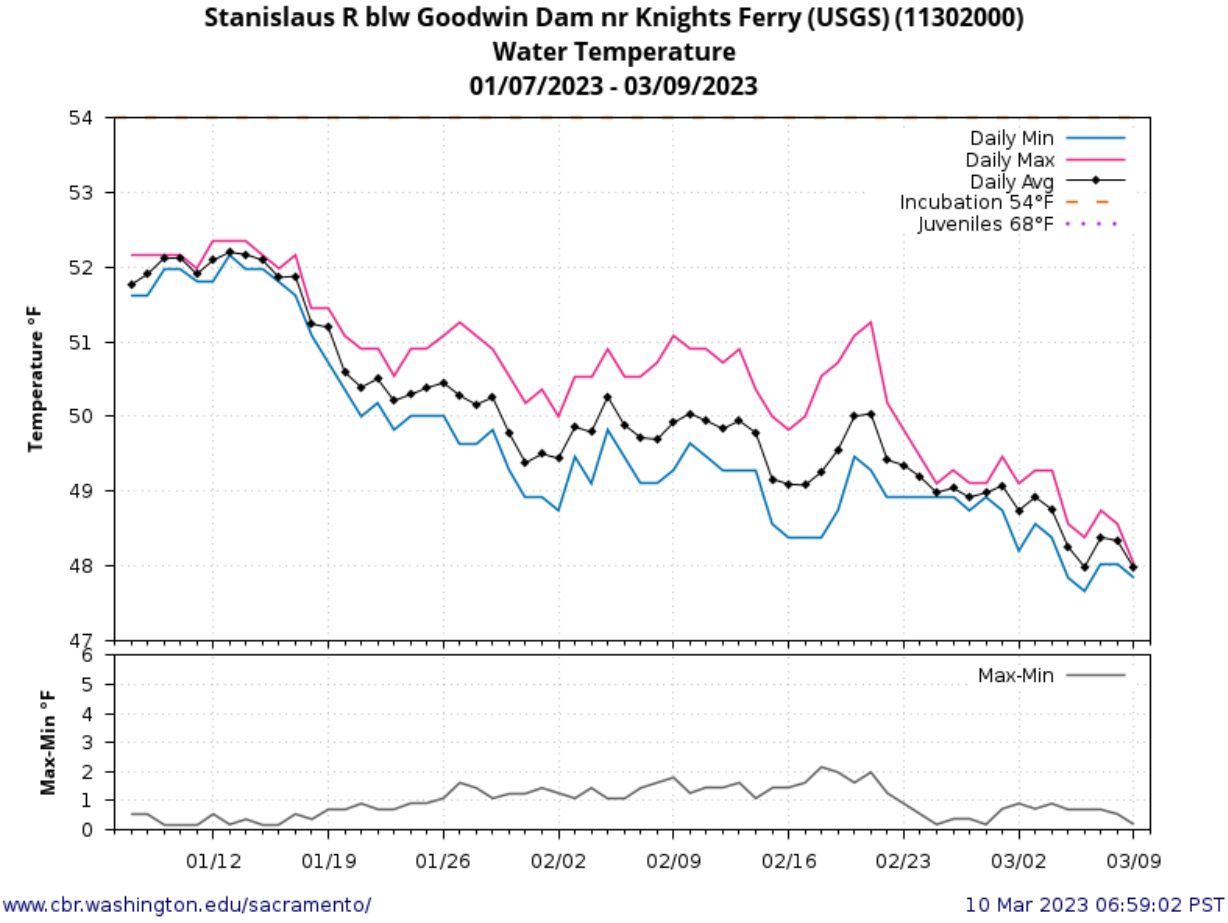

Figure 2. Daily water temperatures on the Stanislaus River upstream of Knights Ferry since January 2023. Data from USGS gage 11302000 on NWIS; temperature threshold reference line added by SWT.

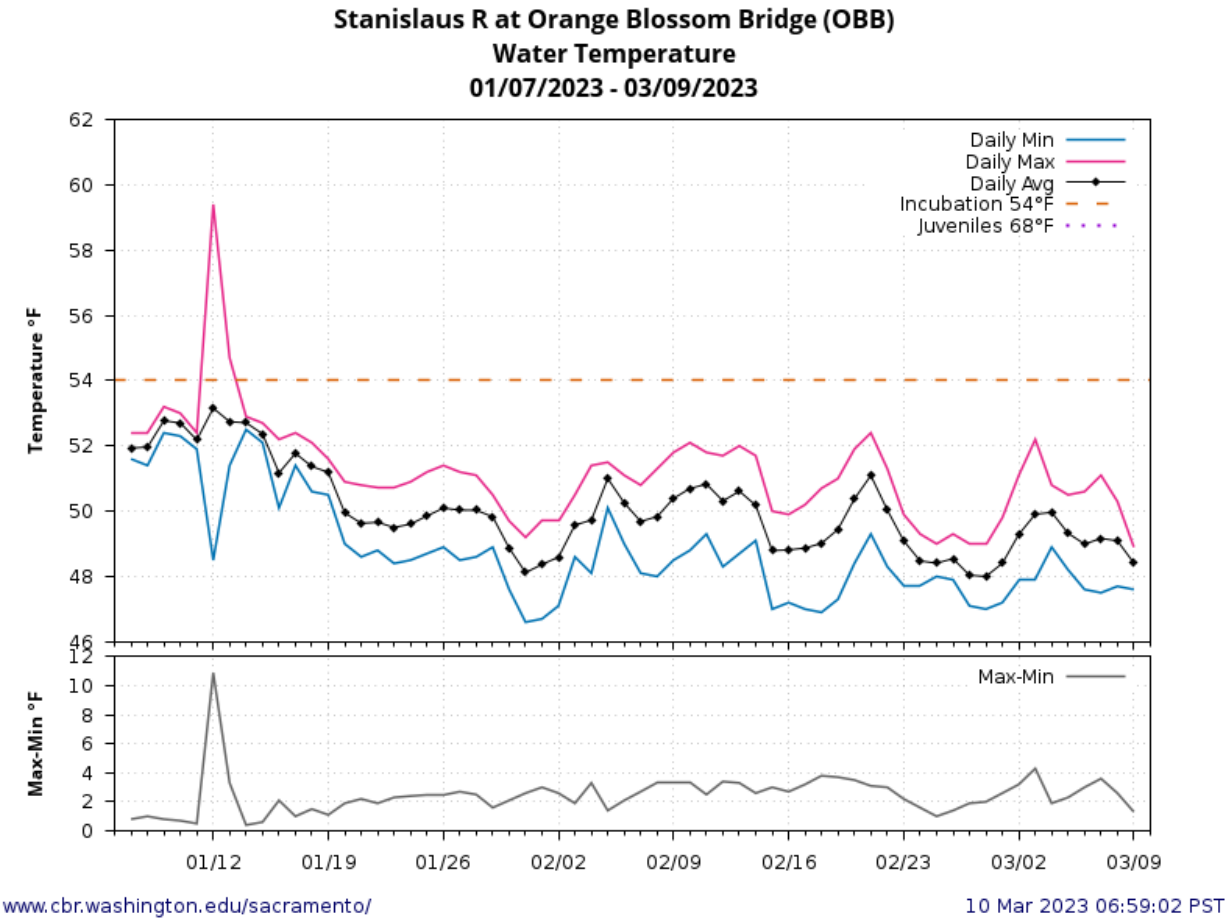

Chart: Vertical axis shows hourly water temperature (in Fahrenheit degrees) at Orange Blossom Bridge on the Stanislaus River. The horizontal axis shows date from 01-12-2023 through 03-09-23. Hourly water temperatures since 01-12-23 have ranged between approximately >48 and 59.4 degrees Fahrenheit. For more information, please call (916) 414-2400.

Figure 3. Stanislaus (hourly) water temperatures at Orange Blossom Bridge since January 12, 2023. Data from OBB station on CDEC.

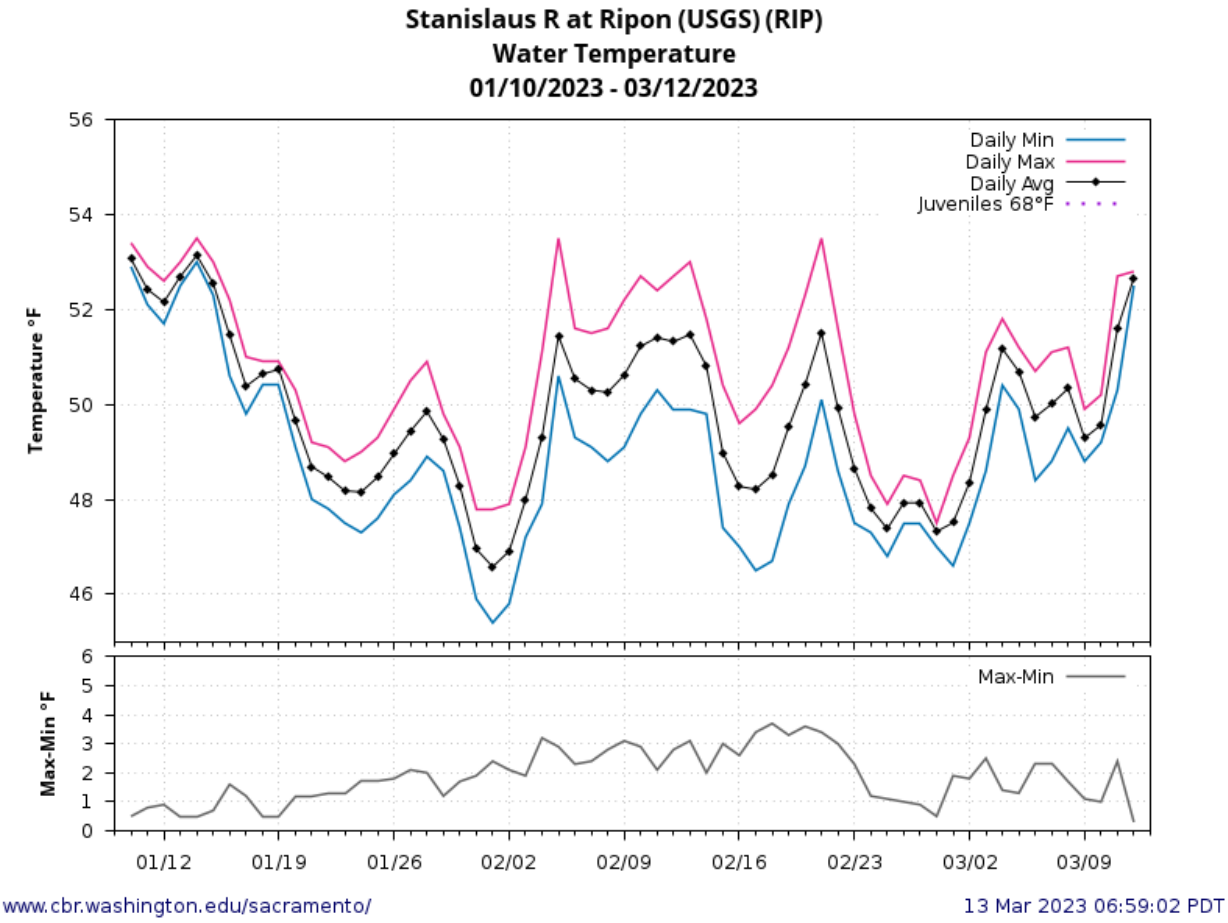

Figure 4. Stanislaus (15-minute) water temperatures at Ripon since January 12, 2023. Data from RIP station on CDEC.

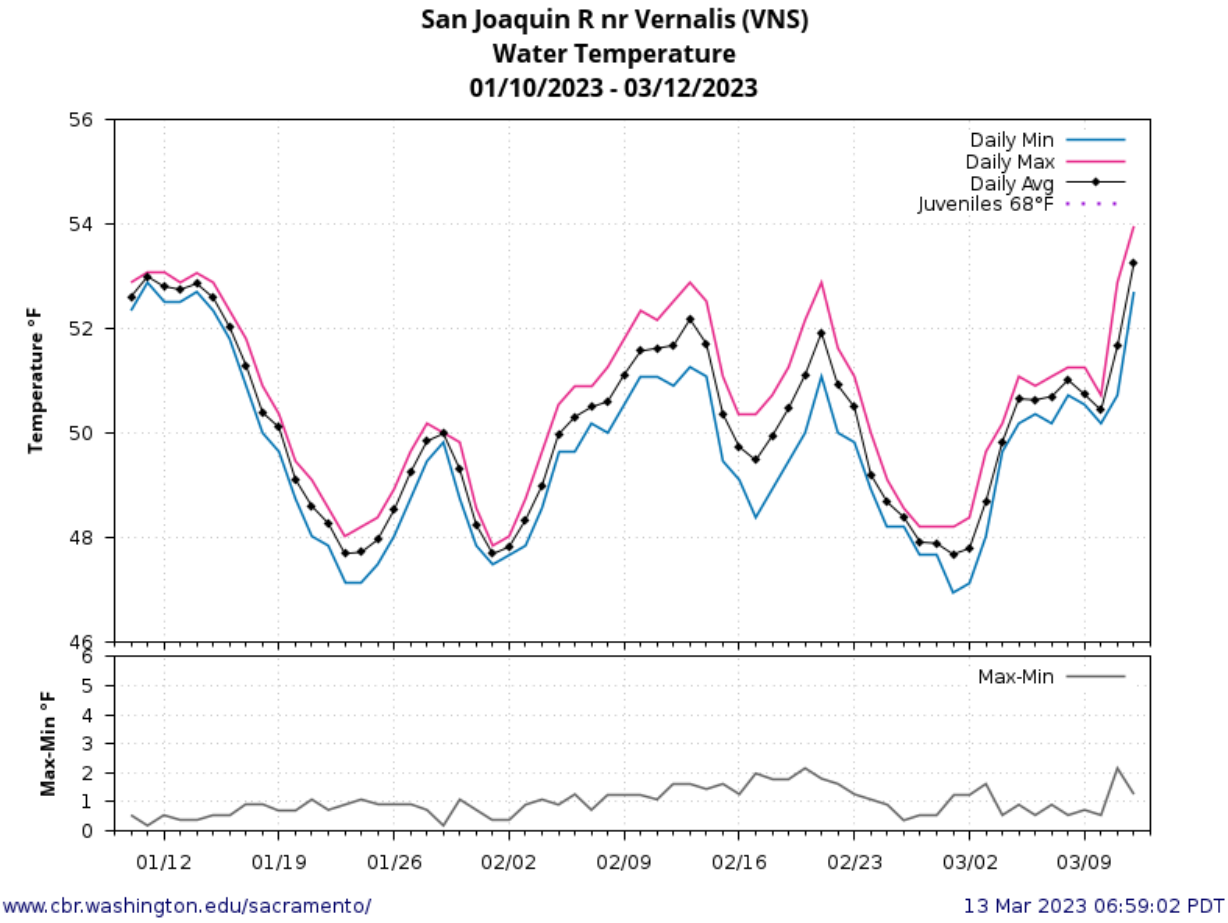

Figure 5. San Joaquin River (15-minute) water temperatures at Vernalis since January 12, 2023. Data from VNS station on CDEC. Note that, unlike in the previous figures, temperature is reported in degrees Celsius. 8°C=46.4°F; 10°C=50°F; 12°C=53.6°F; 14°C=57.2°F; 16°C=60.8°F; 18°C=64.4°F; 20°C=68.0°F;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

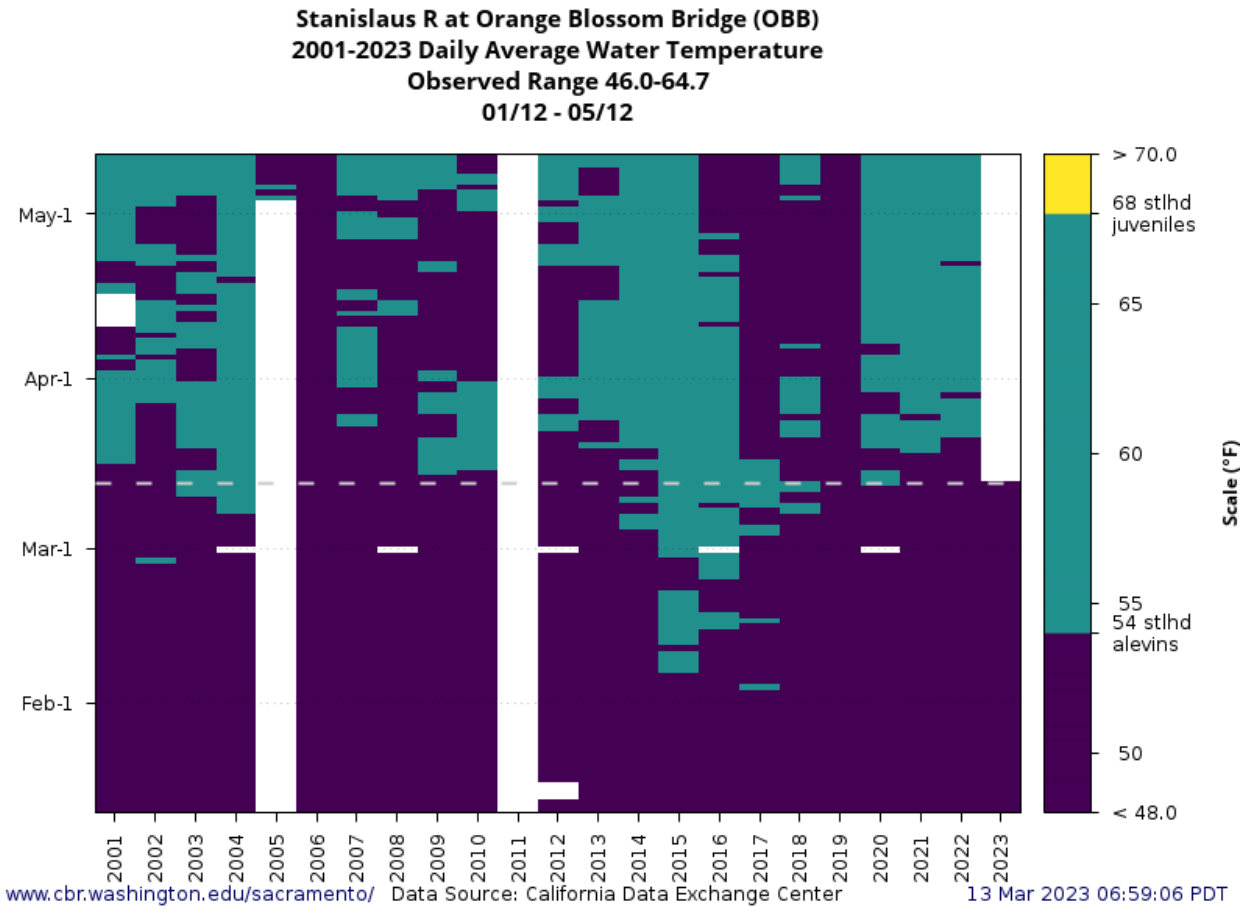

Figure 6. Stanislaus River water temperatures at Orange Blossom Bridge for December through December from WY 2001 to present. Data from SacPAS; temperature threshold reference lines added by SWT. http://www.cbr.washington.edu/sacramento/data/query_river_allyears.html

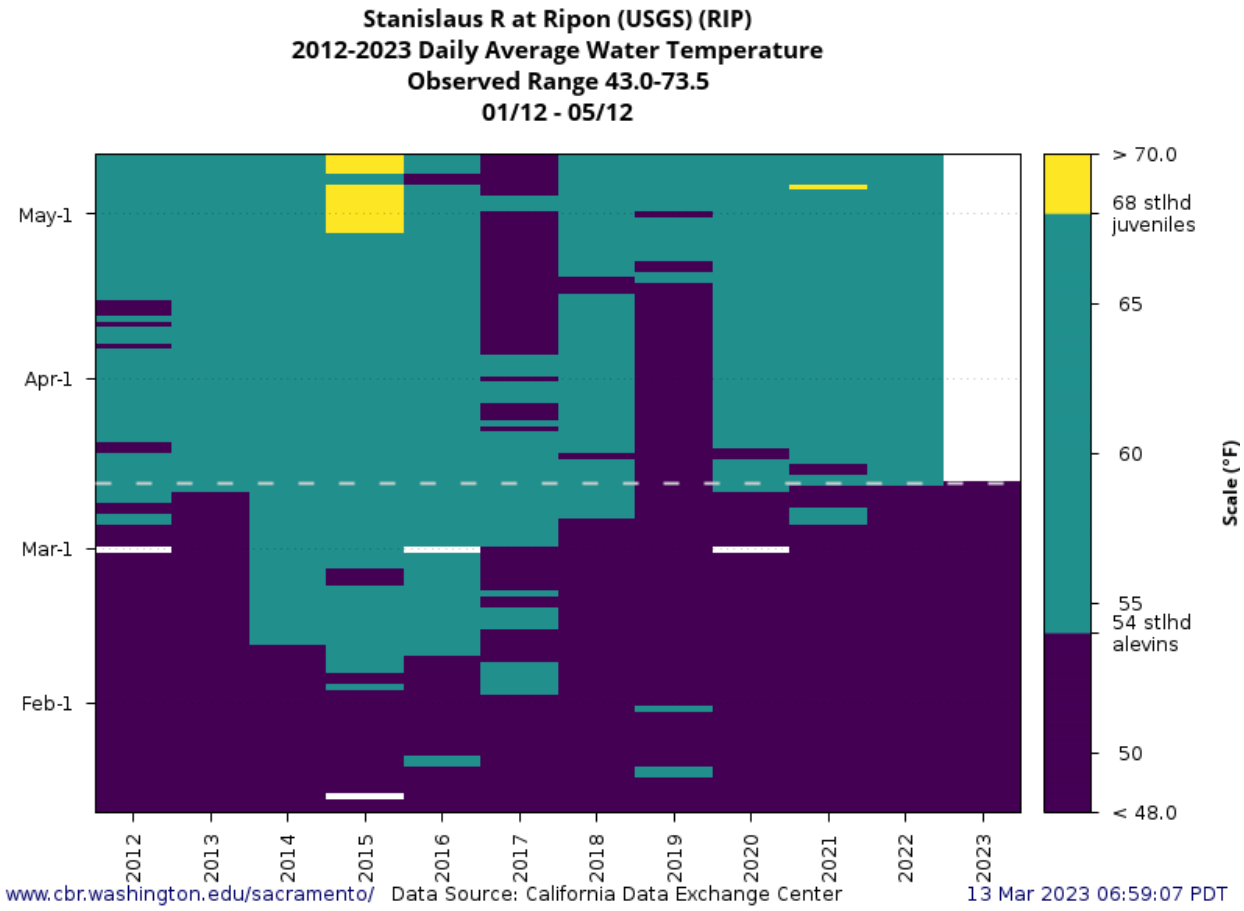

Figure 7. Stanislaus River water temperatures at Ripon for December through January from Water Year 2012 to present. Figure from SacPAS using RIP station data from CDEC; temperature threshold reference line added by SWT. http://www.cbr.washington.edu/sacramento/data/query_river_allyears.html

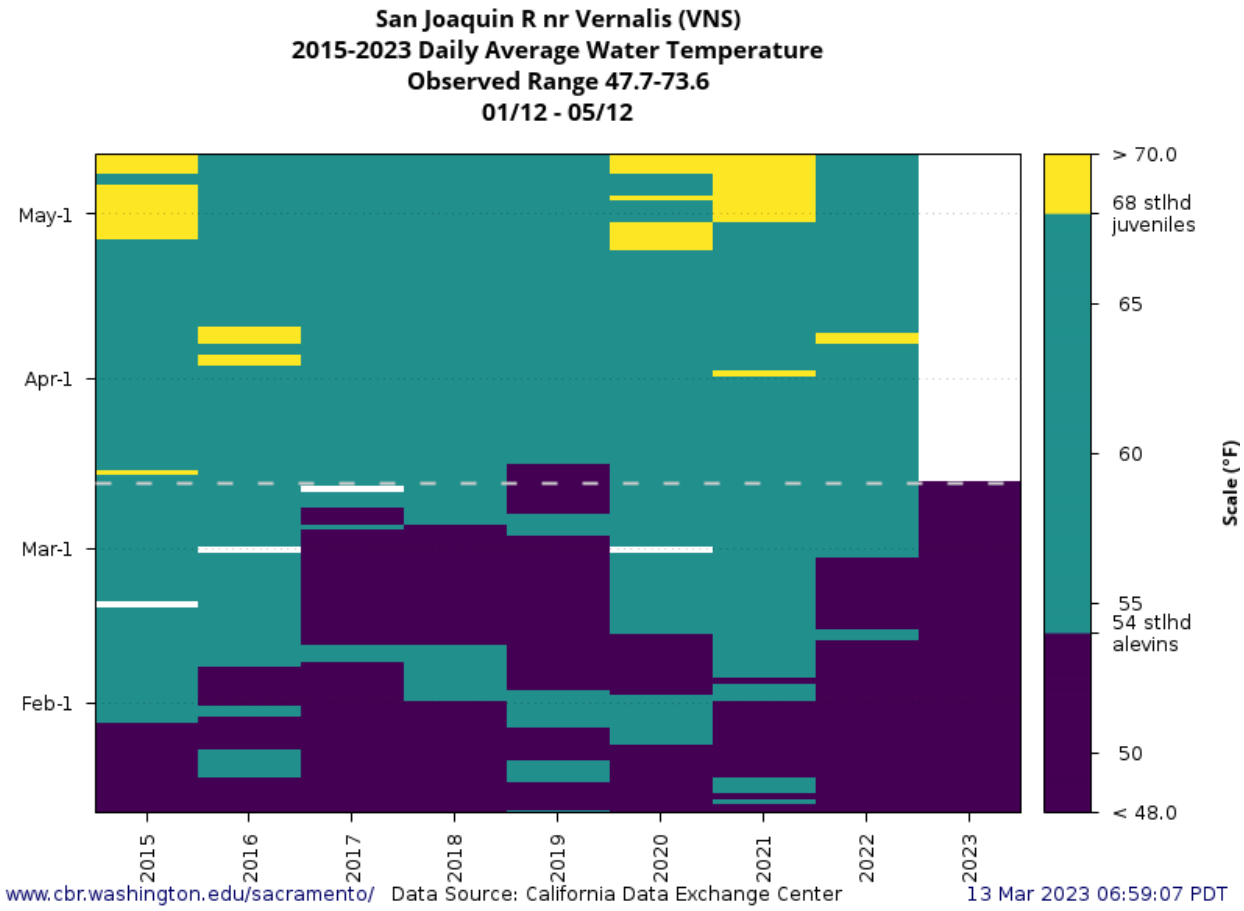

Figure 8. San Joaquin River water temperatures at Vernalis for December through January from Water Year 2015 to present. Figure from SacPAS using VNS station data from CDEC; temperature threshold reference line added by SWT. http://www.cbr.washington.edu/sacramento/data/query_river_allyears.html

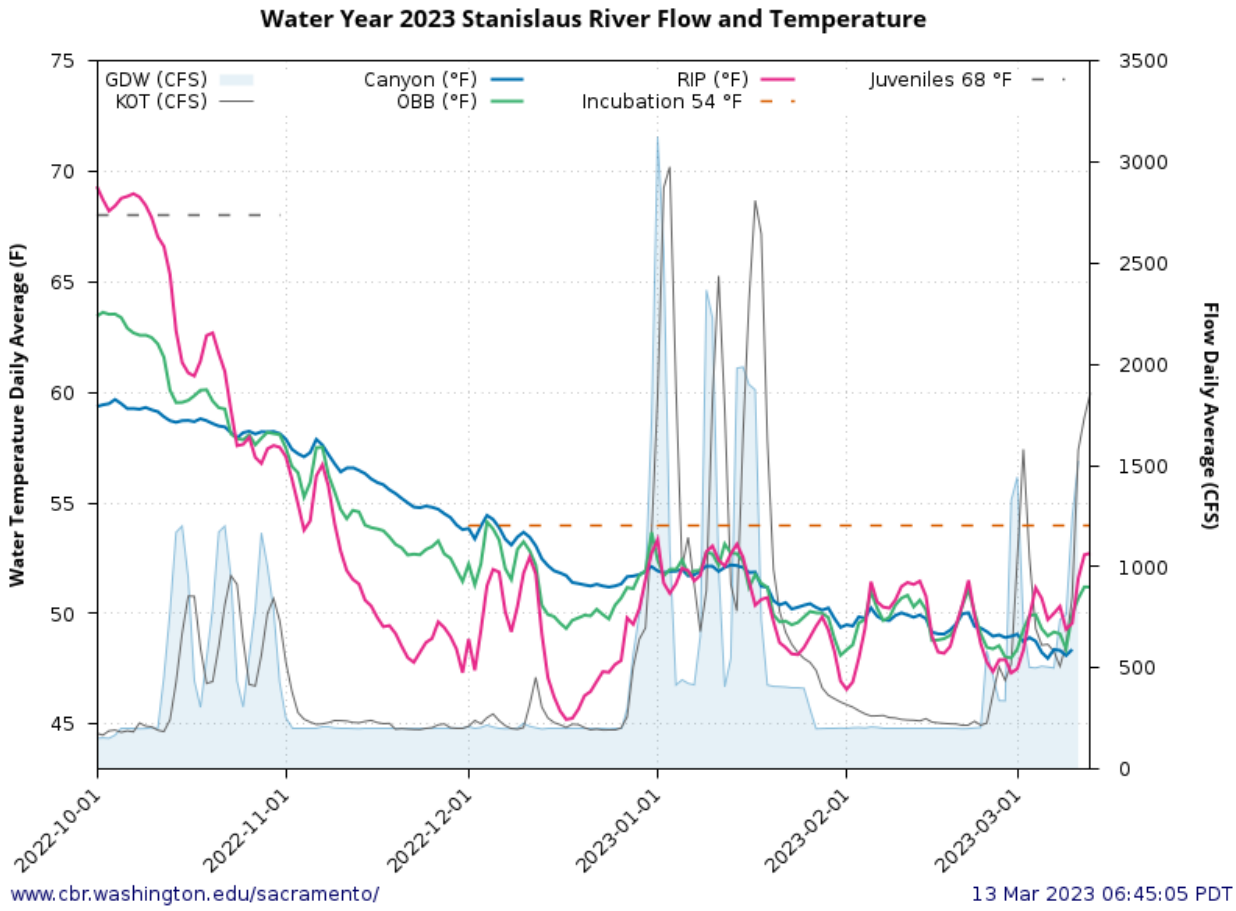

Figure 9. Stanislaus River flow and water temperatures from October 1, 2022 to March 1, 2023. Data (including temperature threshold reference lines) from SacPAS: http://www.cbr.washington.edu/sacramento/data/tc_stanislaus.html

Update on Fish Monitoring (Adults)

Chinook carcass and redd surveys

Annual Escapement Surveys complete, estimates are in progress.

Table F-1. Results from the CDFW's *O mykiss* redd surveys, SH- *O mykiss*, CHN- Chinook, PL-Pacific Lamprey.

Date	Week	# SH Live >40	# SH Live <40	# SH Redds	# CHN Live	# CHN Redds	# PL Live	# PL Redds	Comments
1/2/23	1	0	0	0	1	2	0	0	None
1/9/23	2	0	0	0	0	0	0	0	**No Survey – too turbid
1/16/23	3	NA	NA	NA	NA	NA	NA	NA	**No Survey – too turbid
1-23-23	4	NA	NA	NA	NA	NA	NA	NA	**No Survey – too turbid
1-30-23	5	1	1	1	1	0	0	0	SH Redd with 1 fish on (>40 cm)
2-6-23	6	3	2	1	0	0	0	0	SH redd with 2 fish on (1 >40, 1<40). 2 >40 fish at redd from week 5
2-13-23	7	0	3	5	0	0	0	0	NA
2-20-23	8	0	3	6	0	0	0	1	NA
2-27-23	NA	NA	NA	NA	NA	NA	NA	NA	**No Survey - high flows/turbidity
3-6-23	NA	NA	NA	NA	NA	NA	NA	NA	**No Survey – too turbid
3-13-23	NA	NA	NA	NA	NA	NA	NA	NA	**No Survey – high flows/turbidity

Mossdale Trawl:

Table F-2. Counts of Chinook catch from Mossdale trawl.

Date	Catch	Comments
1-3-2023	NA	fry
1-3-2023	1 (190 FL PIT tagged, ad-clipped)	Spring Run from SJRRP
1-4-2023	1	fry
1-6-2023	1	fry
1-11-2023	2	fry
1-17-2023	1	fry
1-18-2023	3	2 fry, 1 sac fry
1-20-2023	1	1 sac fry
2-3-2023	1	1 fry

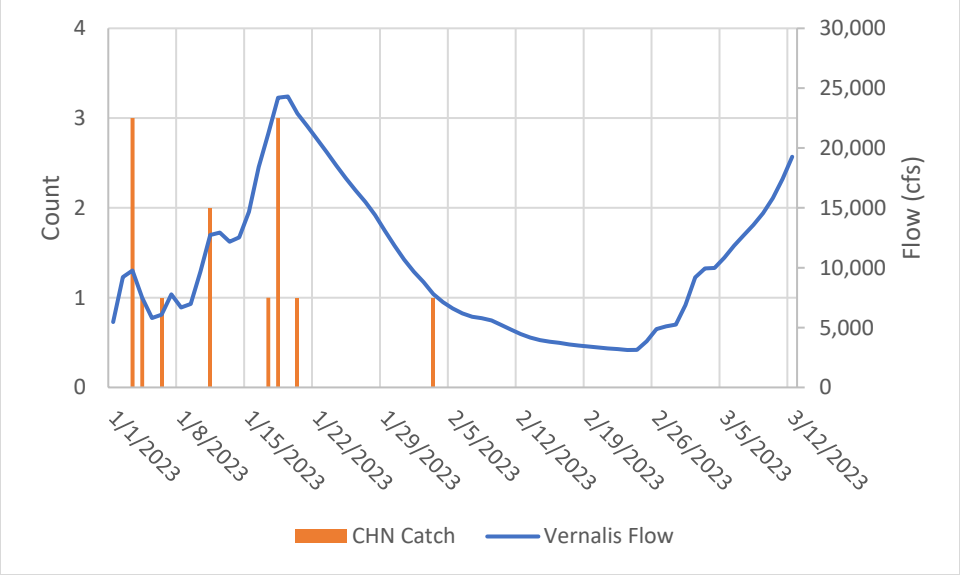

Figure 10. Graph of Chinook catch at Mossdale and flow at Vernalis.

NMFS updates:

Weir near Riverbank:
No weir update received since early February.

Rotary Screw Traps

Rotary screw trapping is conducted at Oakdale (by FISHBIO) and Caswell [by the Pacific States Marine Fisheries Commission (PSMFC)] for monitoring of outmigrating juvenile salmonids). For the 2023 outmigration season, sampling began at Oakdale on January 20, 2023 and at Caswell on January 21, 2023.

Chinook catch at each location is summarized in Figure F-1 (Oakdale) and Figure F-2 (Caswell); fish lengths and life stages are provided in Figure F-3 for the Chinook catch at Caswell. Through March 7, 2023, the trap at Caswell has captured a total of 269 unmarked Chinook Salmon, 1 unmarked *O. mykiss*, and 132 lamprey. 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/S acramentoValleyTributaryMonitoring/StanislausRiver-RSTMonitoring.aspx

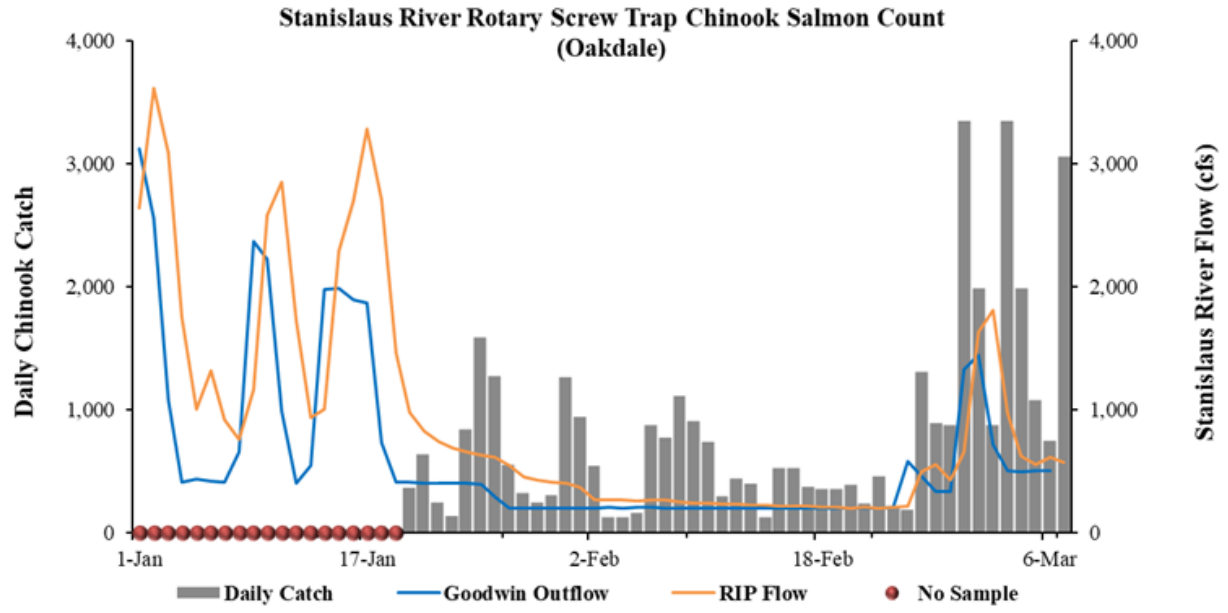

Figure 11. Daily juvenile Chinook catch through March 7, 2023, at the rotary screw trap near Oakdale. Figure courtesy of Fishbio.

Stanislaus River at Caswell Memorial State Park (RSTs):
Daily catch of unmarked Chinook Salmon and daily average discharge at Ripon during the 2023 Stanislaus River rotary screw trap survey season.

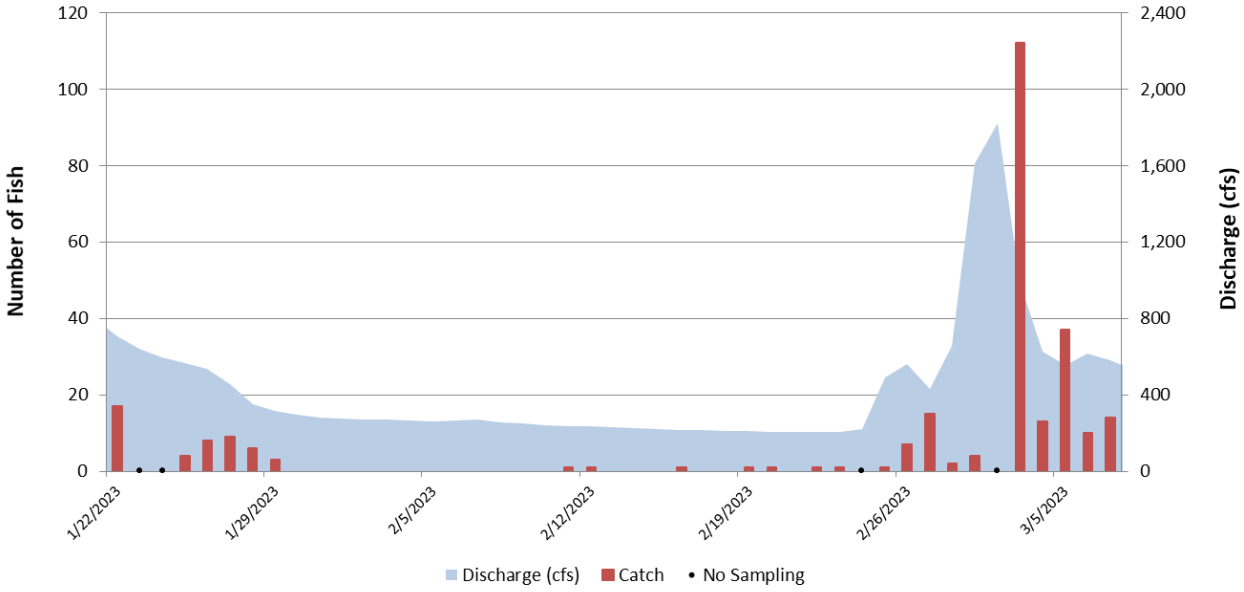

Figure 12. Daily juvenile Chinook catch through March 7, 2023, at the rotary screw trap near Caswell State Park. Discharge data is at Ripon. Figure courtesy of Pacific States Marine Fisheries Commission.

Stanislaus River at Caswell Memorial State Park (RSTs):
Daily fork length distribution by life stage of unmarked Chinook Salmon measured during the 2023 Stanislaus River rotary screw trap survey season.

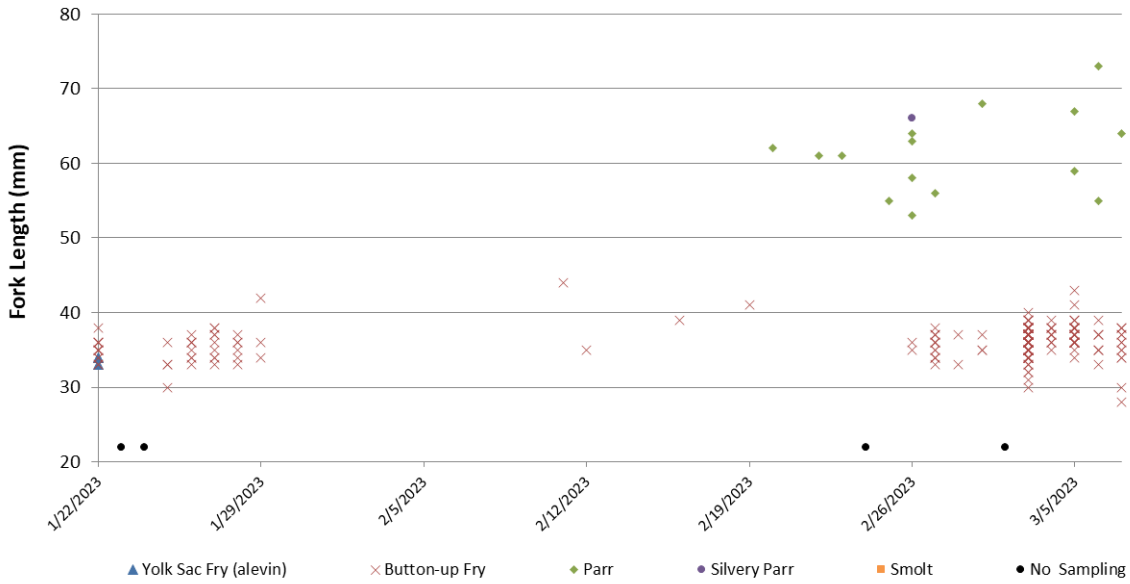

Figure 13. Daily juvenile Chinook catch (plotted by fork length and life stage) through March 7, 2023, at the rotary screw trap near Caswell State Park. Figure courtesy of Pacific States Marine Fisheries Commission.