



— BUREAU OF —
RECLAMATION

American River Group

1:30 PM – 3:30 PM

Conference Line: +1 (321) 209-6143; Access Code: 780 506

355# Webinar: [Join Microsoft Teams Meeting](#)

Thursday, December 16, 2021

Notes

1. Action Items
 - a. All – provide feedback to Spencer on draft annual report by 12/20
2. Introductions:
 - a. USBR: Spencer Marshall, Zarela Guerrero, Thuy Washburn, Gary Pitzer, Ian Smith, Carolyn Bragg, Todd Plain
 - b. NMFS: Barb Byrne, Katrina Poremba
 - c. USFWS: Paul Cadrett, Craig Anderson
 - d. CDFW: Tracy Grimes, Crystal Rigby, Ken Kundargi, Emily Fisher, Joel Craven, Duane Linander, Mike Healey, Chris McKibbin
 - e. SWRCB: Lauren Beaudin
 - f. PCWA: Ben Ransom, Craig Addley, Vanessa Martinez
 - g. EBMUD: I-Pei Hsiu
 - h. SMUD: Ansel Lundberg
 - i. City of Folsom: NA
 - j. City of Sacramento: Brian Sanders, Lauren Groves, Brett Ewart
 - k. San Juan Water District: Greg Zlotnick
 - l. Westlands Water District: Tom Boardman
 - m. City of Roseville: Sean Bigley

- n. DWR: John Ford
 - o. WAPA: Ammon Danielson
 - p. FishBio: NA
 - q. Water Forum: Ashlee Casey, Erica Bishop, Kirsten Sellheim, Chris Hammersmark
 - r. PSMFC: Logan Day
 - s. Shingle Springs Miwok Band: Krystal Moreno
 - t. Bartkiewicz Kronick & Shanahan: Jennifer Buckman
 - u. Kearns & West: Rafael Silberblatt
 - v. Other: Rod Hall, Amanda Ransom
3. Housekeeping & Announcements
- a. The following links were provided to the Central Valley Project Water Temperature Modeling Platform Project:
 - i. [Central Valley Project Water Temperature Modeling Platform](#)
 - ii. To join the stakeholder meeting distribution list, email: mppublicaffairs@usbr.gov or yung-hsin.sun@stantec.com
4. Fisheries Update
- a. CDFW
 - i. The carcass survey is in its 9th week with 4353 carcasses processed thus far (similar numbers to 2015). It appears that the peak was in week 7. Most of the carcasses were recovered in section 1 (likely due to the weir not being in place this year). Pre-spawn mortality over the season to date is roughly 15%; this seasonal average is lower than the 100% pre-spawn mortality observed early in the season as more fish started spawning once the temperature dropped. An escapement estimate is not yet available. It appears there is a lower recapture rate than previous years (potentially due to water clarity). Carcasses have been decomposing faster and have presented more algae growth on them.
 - ii. The redd survey is in its 11th week with 105 redds measured (note: actively defended redds are counted but the dimensions of those redds are not measured). It was not possible to take measurements in Nimbus basin last week due to turbidity. Flight photos were just received, it will likely take a few months to develop preliminary estimates of total redds from the photos.
 - iii. Today (12/16/21) is the last day of Chinook salmon hatchery spawning. This year's egg collection goal was surpassed.

- iv. Steelhead hatchery spawning to begin on 12/20/21.
- b. CFS
 - i. Steelhead redd surveying to begin next month.
- c. PSFMC
 - ii. Rotary screw traps will be going in at Watt Ave the first week of January.

Questions/Comments:

- Bartkiewicz, Kronick & Shanahan expressed concern that there be a consistent approach to redd surveying from year to year
 - CDFW noted that this is the first year of redd surveying and Standard Operating Procedures are being developed to ensure consistency from year to year. While the dimensions of defended redds aren't being measured, they are still being counted (i.e., they're included in the total)
- The Water Forum asked whether there is any evidence of superimposition (particularly at sailor bar).
 - CDFW indicated that there is some evidence which will be recorded once it is identified.
- NMFS asked whether thiamine supplements are currently being used at Nimbus Hatchery. If yes, is this due to evidence or just as a precautionary measure?
 - CDFW noted that thiamine supplements have been added to prevent any potential issues. Not sure if there's evidence of any deficiencies.

5. Operations Forecast

- a. SMUD provided an update on its operations. See handout for details.
 - i. Significant precipitation events are underway. Current trends indicate December may finish above average for rain/snow.
 - ii. Soil moisture is looking better than last year.
 - iii. Storage is roughly average for this time of year (57% full, 98% historic average).
 - iv. Chili Bar total releases so far are at 6,452 AF for December. There has not been a high degree of inflow recorded.
- b. PCWA provided an update on its operations. See handout for details.
 - i. Combined storage is around 40% capacity, 80% of average. Inflows are moderate (recent storms have been cold, precipitation has come in the form of snow).

- ii. Trending above average for December with more precipitation on its way.
6. Central Valley Operations (CVO) (see handout for details)
 - a. All reservoirs are still in “conservative mode” and releasing their minimum. Storage has increased.
 - b. Temperature at Hazel didn’t reach 56° F consistently until the end of November. As a result, USBR kept the bypass going until 12/5/21. Destratification didn’t occur until roughly 12/6/21. All of the cold water in the dam was used this year.
 - c. Currently releasing 550 cfs. Shutters on the temperature control device have not changed. Currently anticipating lowering all shutters in late January or early February.
 - d. As storage increases, it’s possible USBR will be in flood control-mode by late January or February which would necessitate increasing releases (i.e., if storage were to surpass 566 TAF).

Question/Discussion

- NMFS inquired if it would be possible to include both the index-based calculations and the steelhead redd protective adjustment in next month’s handout in regards to the January minimum release requirement. As a reminder, the January MRR can’t be higher than the December MRR. When does the Sacramento River index become available?
 - USBR noted that Bulletin 120 should be available by the 8th of the month
- CDFW noted that there is a discrepancy on CDEC between Natomas and AFO
 - USBR postulated that this could be a result of water taken into the hatchery and then released back to the river.
- CDFW expressed concern regarding the 4000 cfs projection as it would not be beneficial to steelhead to have such a precipitous drop.
 - USBR noted that 4000 cfs is a monthly average forecast, the actual release could look more like a pulse flow. The intent is to shape it strategically. While USBR is open to discussing potential adjustments to ramping down, it is not inclined to pre-release flood control and must abide by US Army Corps release requirements.
 - NMFS noted that very high pulse flows could be problematic (for example, leading to redd scouring). At the same time, chronic high flows during steelhead spawning could also be a problem if the high flows don’t extend through the end of April. Between the two concerns, shorter high flows create fewer issues.

- The Water Forum noted that at 30,000 cfs gravel becomes mobile. We start to see mobility at 10,000 cfs, but it's not clear if it would be deep enough to scour redds.
- CDFW noted that other river systems have modified releases either daily or every other day to prevent redd building at higher releases. Would that be a consideration for the American River?
 - USBR expressed a willingness to consider this strategy if it's feasible
- NFMS asked whether it might be possible to release flood control water from Folsom/Nimbus for groundwater recharge.
 - Bartkiewicz, Kronick & Shanahan noted that this is a potential component of a proposed regional groundwater bank. In the process of trying to fund research to further explore this possibility.
- NMFS asked how much of Folsom's encroachment comes from upper reservoirs and if it would be possible to push variability upstream.
 - PCWA noted that the upper reservoirs are incorporated differently in the flood control diagram now. While they do capture water during high flow events and help reduce the amount of lost water out of the system, it's still hard to do anything with high-flow events.

7. Discussion

- a. Review/Revise Ops Outlook Table Section
 - i. The ARG updated the Environmental & Fish conditions described in the Operations Outlook document.
- b. Annual reporting update
 - i. USBR distributed a draft report to the ARG for comments by 12/20
- c. Next Meeting:
 - i. Thursday, January 20, 1:30-3:30pm



— BUREAU OF —
RECLAMATION

American River Group

1:30 PM – 3:30 PM

Conference Line: +1 (321) 209-6143; Access Code: 985 598 947#

Webinar: [Join Microsoft Teams Meeting](#)

Thursday, December 16, 2021

Agenda

- Introductions
- Housekeeping
- Fisheries Update
- Operations Forecast
 - a. SMUD
 - b. PCWA
- Central Valley Operations
 - a. Temperature management
 - b. Exceedance forecast & temperature schedules
- Discussion
 - a. Annual reporting
- Next Meetings:
 - a. Thursday, January 20, 1:30-3:30pm

SMUD Upper American River Project Update

Conditions – Monday 13 December, 2021:

- There is a series of storms coming through the area this week.
- December precipitation through 12/13/2021 7:00:00 AM is 2.41 in., which is 26% of the December average of 9.14”.
- Precip for the water year to date is 18.57” which is 133% of average to date (14.00”) and 32% of the entire water year average of 57.32”
- Runoff into the storage reservoir basins is 392% of median to date through Dec 12.
- The snowpack is 62% of average at selected snow sensors (est. 11.4” at Schneiders on Monday 12/13 – 8,750’)

Combined reservoir storage for Loon Lake, Union Valley and Ice House Reservoirs

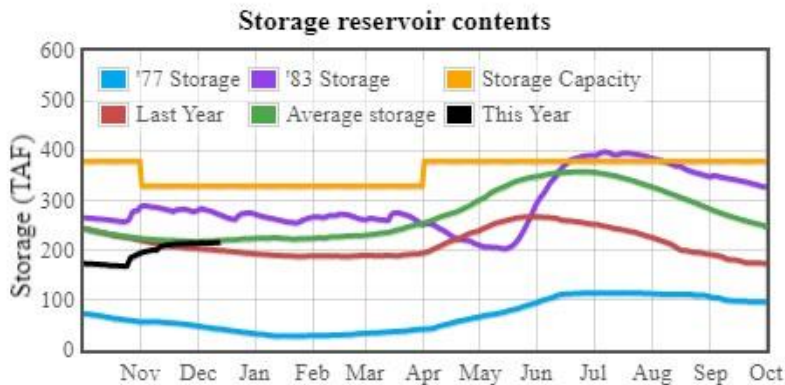
- 216,536 acre-feet (Storage this time last month: 211,515 acre feet)
- 57% full, 1% increase in storage since last week
- 98% of historical average (13 December historical average: 216,536 AF / 57%)

Individual Reservoir Storage

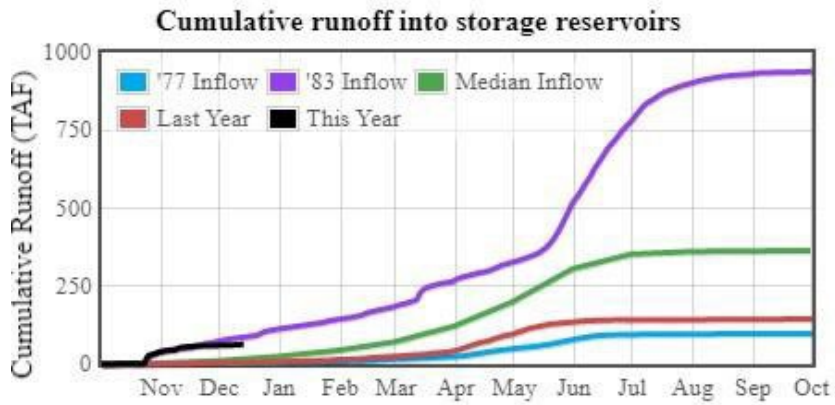
- Loon Lake: 37,615 AF
- Ice House: 30,893 AF
- Union Valley: 148,028 AF

Last year (on December 13, 2020), storage was at 53% (199,762 AF). *Total capacity: 329,210 AF.

December 13, 2021 reservoir storage: (Figure 1)



December 13, 2021 runoff: (Figure 2)



Chili Bar releases into the South Fork American River

November 2021 releases:

- Average daily flow: 383 cfs
 - Peak daily average flow - Nov 10: 821 cfs
- Total releases: 22,814 AF

December 2021 releases (Dec 1-12):

- Daily average flow so far: 271 cfs
- Total releases so far: 6,452 AF

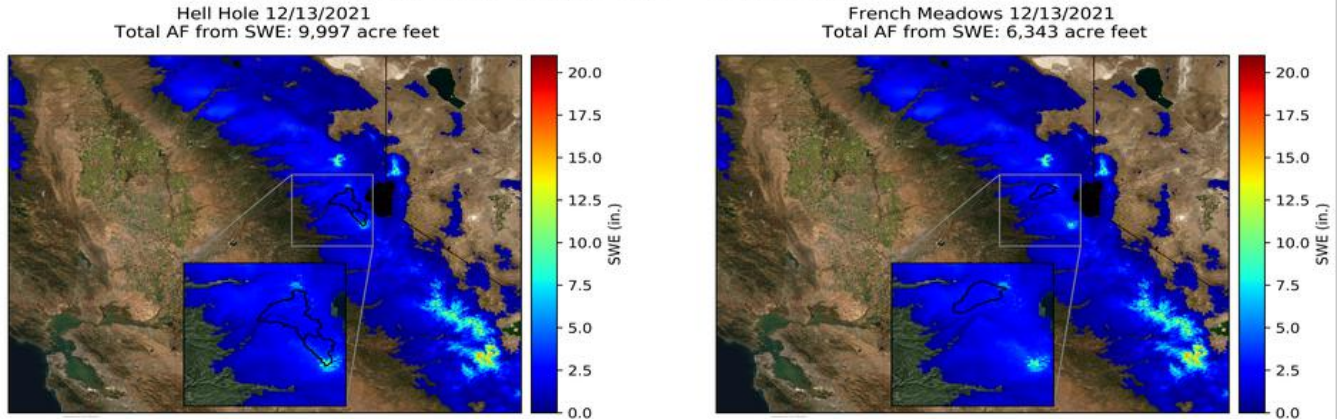
South Fork American River Natural Runoff Forecast (in cfs, daily average forecasted flow, forecast 2021-12-13) (Figure 3)

<i>BASIN</i>	Fri Dec 17	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec
SFA above Slab	269.7	264.7	259.6	254.5	249.4	244.4
Slab Creek Reservoir	666.4	467.8	412.1	410.1	930.3	1019.1
Combined South Fork	936	733	672	665	1180	1264

PCWA MFP OPERATIONS OVERVIEW for American River Operations Group (Real Time Data as of December 15, 2021)

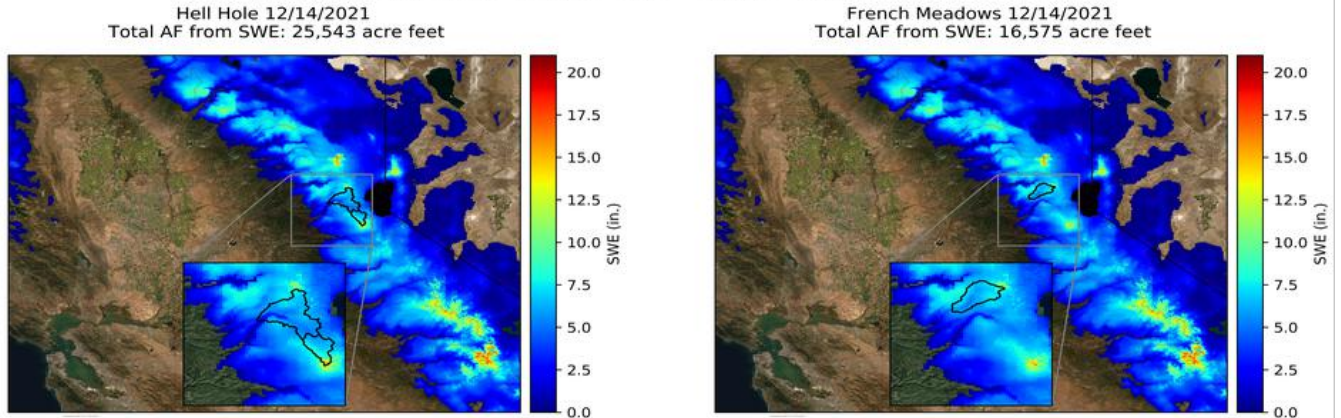
- ❖ **French Meadows Storage = 53,000 AF of 136,405 AF = 39% Capacity**
 - MFAR above FM Inflow (R24) = 7-day AVG 60 cfs
- ❖ **Hell Hole Storage = 82,000 AF of 207,590 AF = 39% Capacity**
 - Five Lakes Inflow (R23) = 7-day AVG 10 cfs
 - Rubicon Inflow (R22) = 7-day AVG 70 cfs
- ❖ **Combined Storage (FM+HH) = 135,000 AF/342,590 AF = 39% Capacity; 82% of AVG**
 - 7 Day Change = -1,000 AF
- ❖ **MFAR @ R11: 7-day daily average 775 cfs**
- ❖ **Dolly Creek Snow Sensor (6,600' msl) => 43"**

Combined Total Acre Feet = 16,341 AF



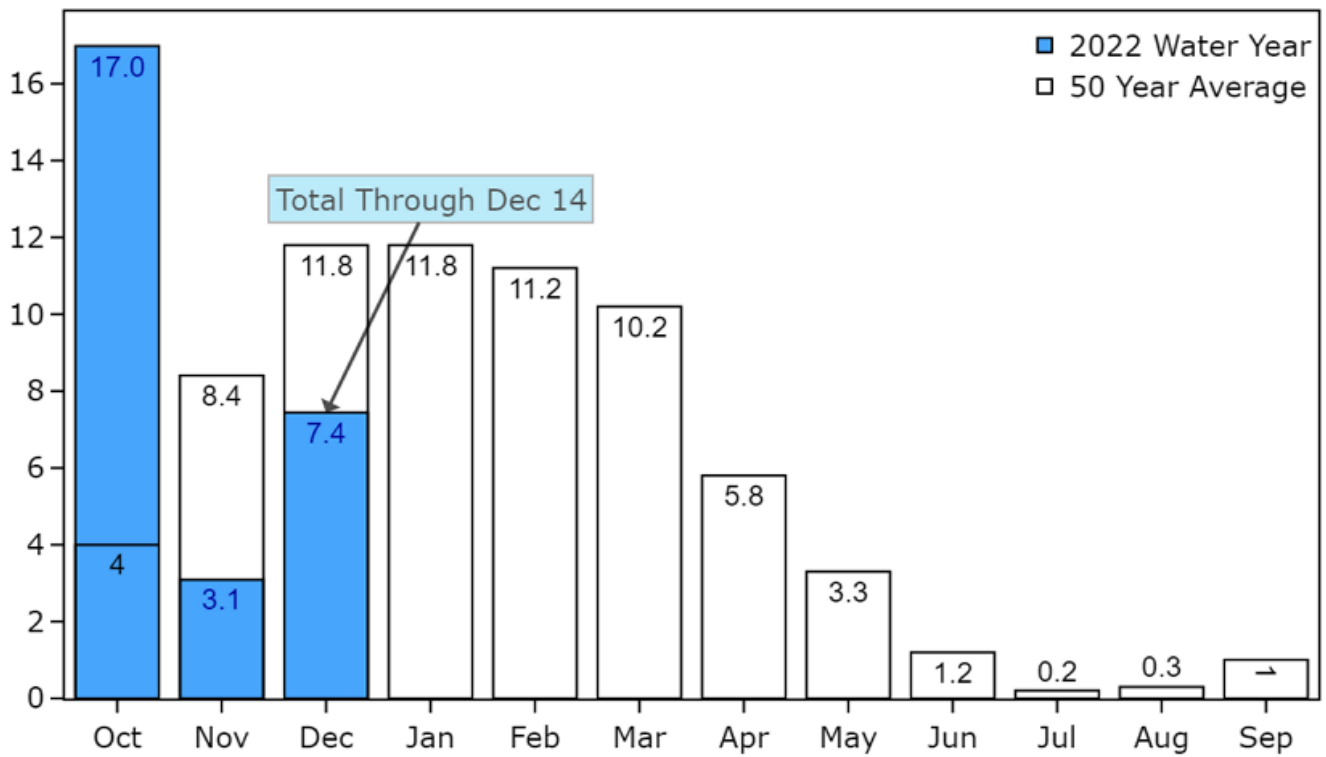
Combined 7 Day Change = +16,286 AF

Combined Total Acre Feet = 42,118 AF

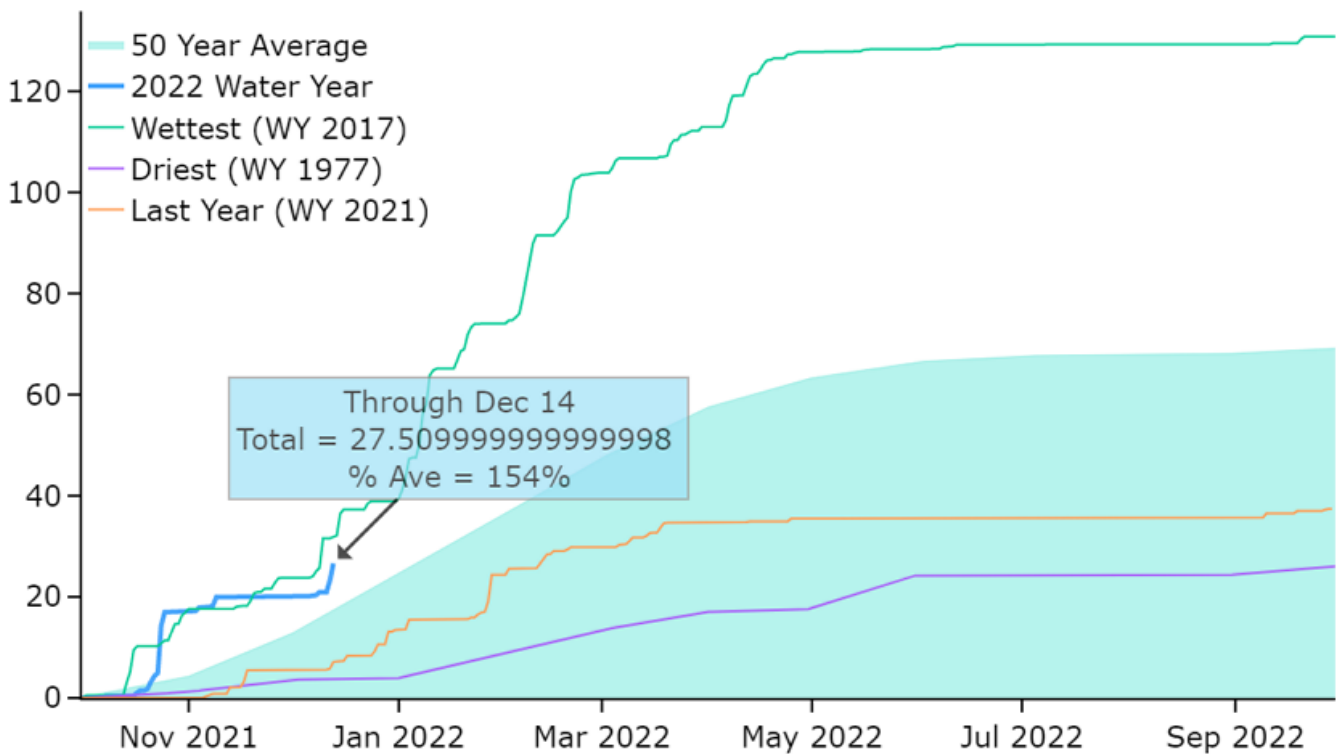


Combined 7 Day Change = +41,088 AF

Lake Spaulding Precipitation: Water Year 2022



Lake Spaulding Precipitation: Water Year 2022



FALL-RUN CHINOOK CARCASS SURVEY

Presented by Tracy Grimes, CDFW, 916-597-6913, tracy.grimes@wildlife.ca.gov

Survey began 10/18/2021, currently in week 9

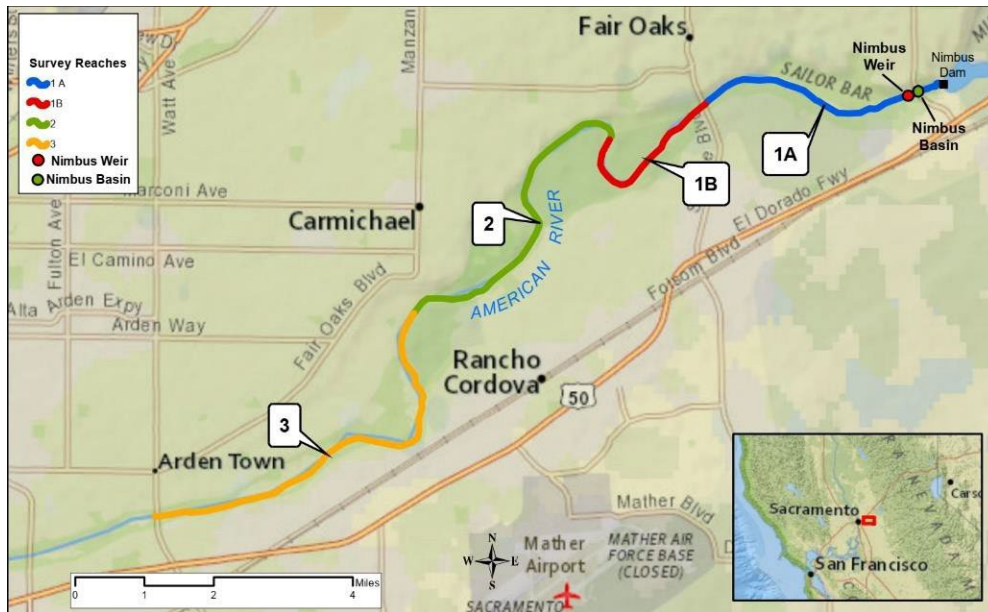


Figure 1. Map of survey sections for the lower American River Chinook salmon escapement survey.

Table 1. Preliminary count of Chinook salmon carcasses processed during the 2021 lower American River escapement survey.

Survey Week	Ladder Rock-Channel	NB	1a	1b	2	3	Total Carcasses Processed
1	15	3	0	0	0	0	18
2	0	3	5	2	1	1	12
3	0	5	10	3	1	0	19
4	0	2	19	6	3	0	30
5	0	18	155	90	18	1	282
6	0	12	349	203	84	12	660
7	0	37	937	589	295	28	1886
8	0	29	799	410	179	29	1446
Total	15	109	2274	1303	581	71	4353

Provisional Data Subject to Revision

Table 2. Preliminary count of female Chinook salmon carcasses assessed for spawning condition during the 2021 lower American River escapement survey.

Survey Week	Not spawned	Partially spawned	Fully spawned	Total
1	2	0	0	2
2	3	0	0	3
3	1	0	0	1
4	0	0	5	5
5	1	9	38	48
6	14	7	57	78
7	25	25	130	180
8	16	7	76	99
Total	62	48	306	416
N/A	14.9%	11.5%	73.6%	N/A

Data and annual reports available on CalFish:

<https://www.calfish.org/ProgramsData/ConservationandManagement/CentralValleyMonitoring/SacramentoValleyTributaryMonitoring/LowerAmericanRiver.aspx>

Provisional Data Subject to Revision

CHINOOK REDD SURVEY

Presented by Emily Fisher, CDFW, 916-272-4113, emily.fisher@wildlife.ca.gov

- Redd surveys began October 4, 2021
- Total of 105 Redds Measured

Table 2. Preliminary count of redds measured during the 2021 lower American River Chinook salmon redd survey. Note: Redds that are still being built or are actively guarded are not measured.

Week	NB	1A	1B	2	3	Total
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	1	1	0	0	0	2
4	0	1	0	0	0	1
5	0	1	1	0	0	2
6	0	0	0	0	0	0
7	1	2	11	7	0	21
8	1	5	5	4	2	17
9	1	15	5	12	0	33
10	N/A	9	14	6	0	29

* We were unable to measure Redds in Nimbus Basin due to poor visibility



Provisional Data Subject to Revision

NIMBUS HATCHERY

- Chinook spawning ends 12/16
- Steelhead spawning begins 12/20
- Egg Collection Goal: 9,075,000
- Egg Collection Actual: 9,231,039
- Eyed Egg Goal: 1,019,130
- Eyed Eggs Actual: 1,021,258

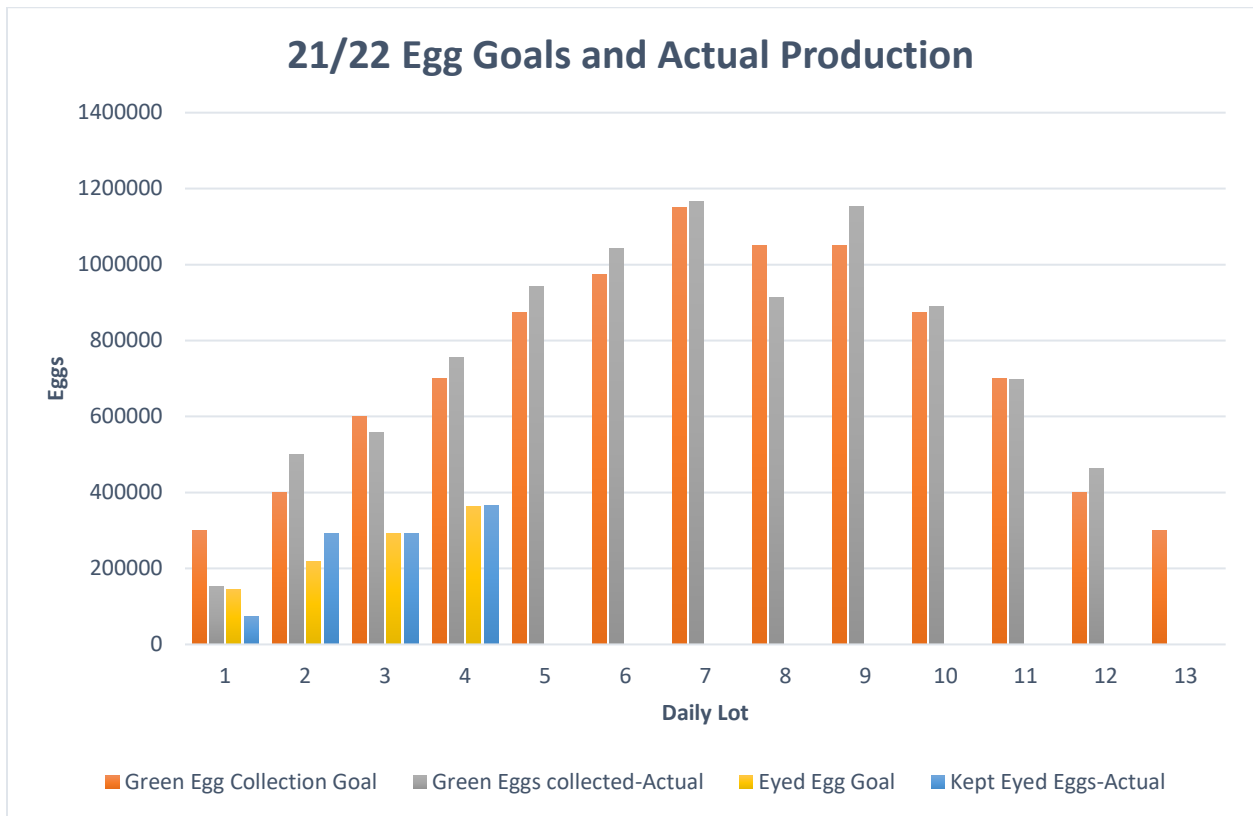


Figure 1. Comparison of fall-run Chinook salmon egg goals and actual egg production at Nimbus Fish Hatchery

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA
DAILY CVP WATER SUPPLY REPORT

NOVEMBER 16, 2021

RUN DATE: NOVEMBER 17, 2021

TABLE 1. RESERVOIR RELEASES IN CUBIC FEET/SECOND

RESERVOIR	DAM	WY 2021	WY 2022	15 YR MEDIAN
TRINITY	LEWISTON	315	299	306
SACRAMENTO	KESWICK	3,509	3,308	4,139
FEATHER	OROVILLE (SWP)	1,650	1,500	1,750
AMERICAN	NIMBUS	1,273	559	1,785
STANISLAUS	GOODWIN	205	210	212
SAN JOAQUIN	FRIANT	404	601	171

TABLE 2. STORAGE IN MAJOR RESERVOIRS IN THOUSANDS OF ACRE-FEET

RESEVOIR	CAPACITY	15 YR AVG	WY 2021	WY 2022	% O 15 YR AVG
TRINITY	2,448	1,290	1,261	707	55
SHASTA	4,552	2,238	2,016	1,146	51
FOLSOM	977	383	305	377	98
NEWMLEONES	2,420	1,274	1,529	877	69
FED. SAN LUIS	966	427	381	52	12
TOTAL NORTH CVP	11,363	5,612	5,492	3,159	56
MILLERTON	520	249	181	318	128
OROVILLE (SWP)	3,538	1,443	1,263	1,089	75

TABLE 3. ACCUMULATED INFLOW FOR WATER YEAR TO DATE IN THOUSANDS OF ACRE-FEET

RESERVOIR	CURRENT WY 2022	WY 1997	WY 1983	15 YR AVG	% O 15 YR AVG
TRINITY	113	22	130	90	126
SHASTA	629	560	818	637	99
FOLSOM	236	97	640	216	109
NEW MELONES	100		274	97	103
MILLERTON	101	60	345	112	90

TABLE 4. ACCUMULATED PRECIPITATION FOR WATER YEAR TO DATE IN INCHES

RESERVOIR	CURRENT WY 2022	WY 1977	WY 1983	AVG (IN YRS)	% OF AVG	LAST 24 HRS
TRINITY AT FISH HATCHERY	8.47	1.25	12.25	8.84 (5.9)	96	0.34
SACRAMENTO AT SHASTA DAM	20.23	1.63	16.37	15.53 (6.4)	130	1.93
AMERICAN AT BLUE CANYON	27.72	3.27	27.65	17.01 (4.6)	163	3.17
STANISLAUS AT NEW MELONES	7.39	N/A	11.38	6.40 (4.3)	115	0.95
SAN JOAQUIN AT HUNTINGTON LK	6.64	1.80	20.00	8.47 (4.6)	78	0.02

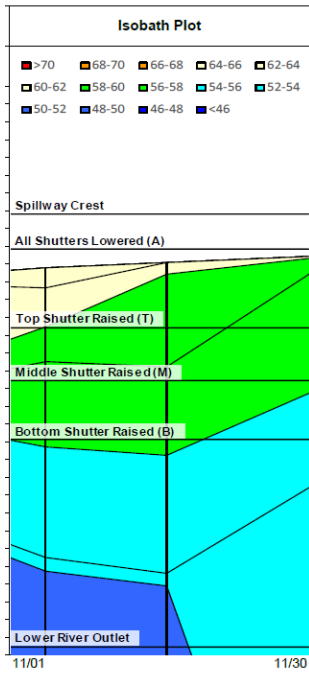


Figure 1. Isobath Plot 11/01- 11/31.

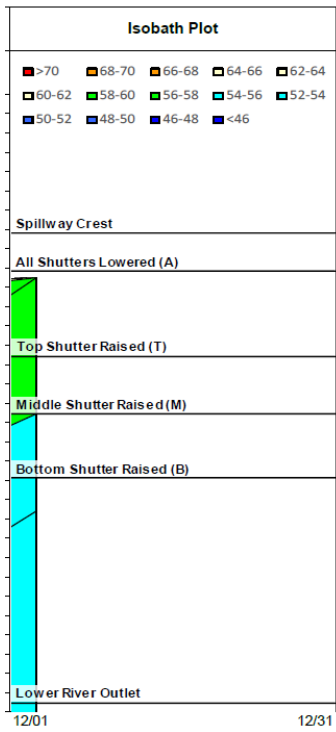


Figure 2. Isobath Plot 12/01- 12/31

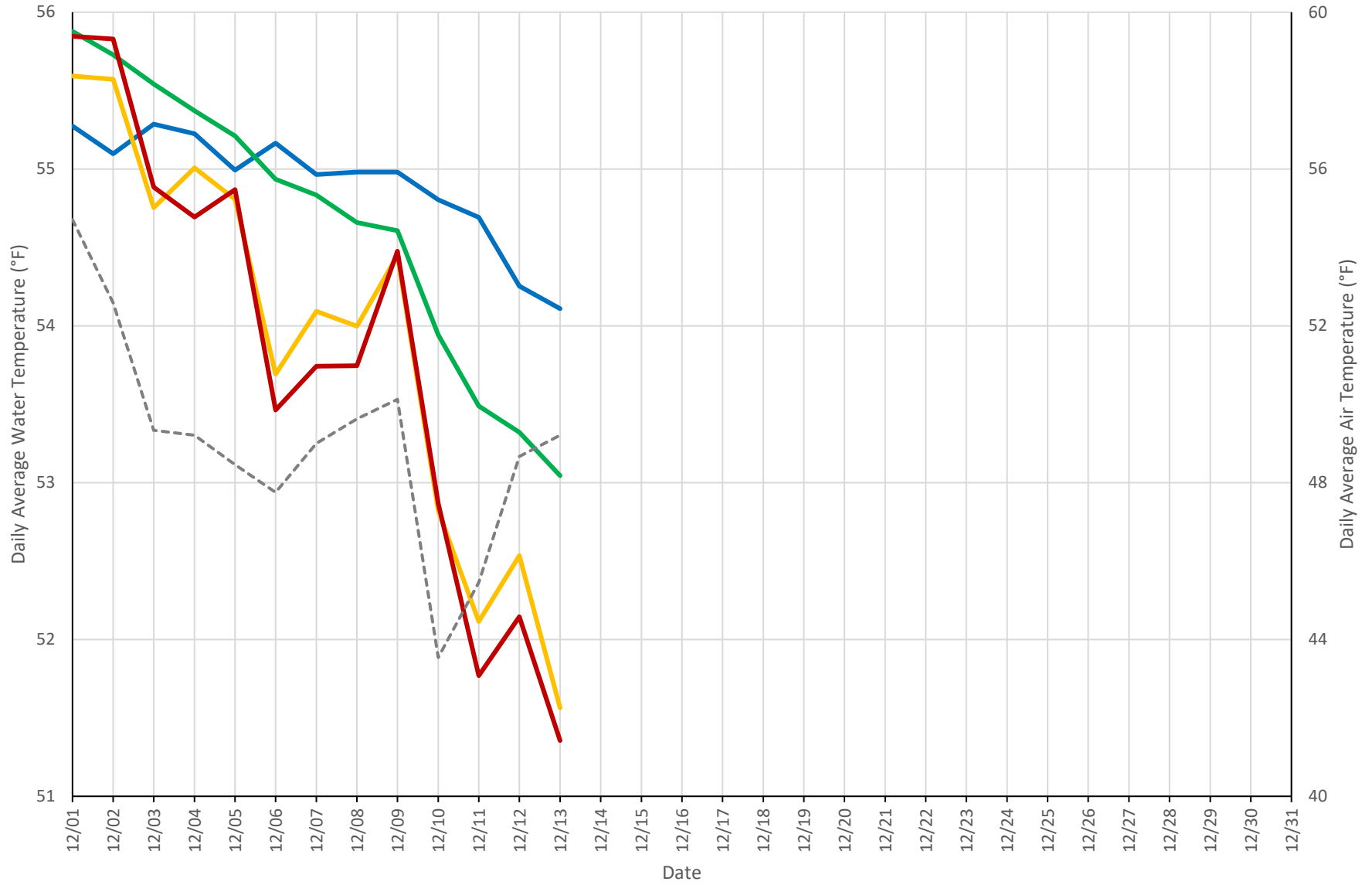
Table 5. Isobath Plot 11/01- 11/31

Mean Daily Temperatures (°F) = MDT, Unit Shutter Position = USP, Load Percentage = LP, A= All Shutters Lowered, B= Bottom Shutter Raised, and T= Top Shutter Raised

Date	MDT Water NFA	MDT Water ARP	MDT Water AFD	MDT Water AFO	MDT Water AWP	MDT Water AWB	MDT Air CSU	Release (CFS) Nimbus	Storage (TAF) Folsom	USP Unit 1	LP Unit 1	USP Unit 2	LP Unit 2	USP Unit 3	LP Unit 3
Oct	58.2	57.1	60.6	63.3	63.8	64.1	61.6	614	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/1	55.3	52.4	53	57.5	58.5	59.2	59.8	549	319	B	35	B	35	B	30
11/2	56	53	54.8	57.7	58.9	59.6	61.8	531	320	B	90	B	5	B	5
11/3	55.9	53.1	54.9	57.8	59	60	60.3	537	322	B	89	B	6	B	5
11/4	56.4	53.4	55.3	57.4	59.7	60.9	61.7	587	323	B	90	B	5	B	5
11/5	55.8	52.8	55.7	57.1	57.9	59.4	56.6	601	324	B	92	B	4	B	4
11/6	55.5	52.7	55.6	56.9	57.5	58	56.8	602	325	B	89	B	5	B	6
11/7	54.7	52.1	55.6	57	57	57.2	52.2	598	325	B	90	B	5	B	5
11/8	53.5	51.7	55.6	57	56.6	56.7	52.8	601	325	B	87	B	6	B	7
11/9	53.8	52.6	56.1	56.6	56.9	57	56.2	605	327	B	89	B	5	B	6
11/10	53.1	53.4	56.3	56.9	56.9	57.3	56.7	609	331	B	71	B	24	B	5
11/11	52.8	53	56.1	57	57.5	57.7	55.1	604	334	B	87	B	8	B	6
11/12	53.1	53.5	56.4	57	57.6	58.2	54.7	590	335	B	89	B	6	B	5
11/13	52.8	52.7	55.7	57.1	58	58.7	54.3	590	337	B	31	B	39	B	30
11/14	52.6	52.3	55.7	57.2	57.5	57.9	53.7	579	338	B	31	B	39	B	30
11/15	52.4	52.5	56.2	57	57.5	58	55.9	570	338	B	6	B	89	B	5
11/16	52.5	52.1	56.3	56.9	57.2	57.7	55.8	577	339	B	4	B	92	B	4
11/17	52.1	51.5	56.2	57	56.5	56.7	51.7	580	340	B	5	B	72	B	23
11/18	51.7	50.2	56.3	56.7	55.9	55.8	51.7	582	340	B	28	B	68	B	5
11/19	52.6	51.6	56.3	56.8	57	56.9	55.7	588	341	B	85	B	8	B	7
11/20	52.4	52.1	56.3	56.7	56.9	57.4	53	587	343	B	86	B	8	B	7
11/21	50.9	50.1	56.3	56.6	56.1	56.5	51	588	344	B	8	B	85	B	7
11/22	50	49.2	56.3	56.4	56	56	51	587	346	B	6	B	87	B	6
11/23	49.8	48.6	56.2	56.3	55.9	55.9	51.8	582	348	B	72	B	8	B	20
11/24	49.1	48.1	56.1	55.8	55	55	51.8	580	349	B	76	B	17	B	6
11/25	48.2	46.7	56.1	55.8	54.8	54.5	49	580	351	B	87	B	7	B	6
11/26	48.5	46.9	55.8	55.7	55.2	55.1	51.2	581	352	B	88	B	6	B	6
11/27	48.7	47.7	56.3	55.5	55.3	55.5	52.9	579	353	B	94	B	3	B	3
11/28	48.7	47.7	56.3	55.6	55.3	55.6	52.6	586	355	B	93	B	4	B	4
11/29	48.8	47.6	55.3	55.7	55.3	55.6	53	573	356	B	83	B	10	B	7

American River Daily Average Water and Air Temperatures (2021)

AFD AHZ AWP AWB CSU (Air)



UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA

NOVEMBER 2021

FOLSOM LAKE DAILY OPERATIONS

RUN DATE: December 2, 2021

Day	ELEV	Storage-In Lake (1000 Acre-Feet)	Storage-Change (1000 Acre-Feet)	Computed Inflow* C.F.S.	Power	Release-C.F.S. River Spill	Outlet	Pumping Plant	Evaporation-C.F.S.	Evaporation-Inches	Precip Inches
N/A	N/A	316.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	390.33	318.6	+2.3	1,541	34	0	352	17	0	0	0.04
2	390.64	320.4	+1.8	1,513	214	0	352	17	0	0	0
3	390.85	321.7	+1.2	1,218	210	0	352	26	0	0	0
4	391.08	323	+1.4	1,309	226	0	353	37	0	0	0
5	391.21	323.8	+0.8	1,160	363	0	353	37	12	0.06	0
6	391.37	324.8	+1	1,103	212	0	353	41	10	0.05	0
7	391.4	325	+0.2	703	216	0	353	43	0	0	0
8	391.43	325.2	+0.2	716	208	0	353	52	12	0.06	0.22
9	391.7	326.8	+1.6	1,476	243	0	353	60	0	0	0.65
10	392.44	331.3	+4.5	2,925	257	0	353	50	0	0	0
11	392.82	333.6	+2.3	1,763	200	0	354	41	0	0	0
12	393.04	334.9	+1.3	1,337	248	0	354	43	14	0.07	0
13	393.37	337	+2	1,468	39	0	354	38	10	0.05	0
14	393.52	337.9	+0.9	911	39	0	355	41	10	0.05	0
15	393.59	338.3	+0.4	919	295	1	355	38	12	0.06	0
16	393.75	339.3	+1	1,106	212	1	352	35	8	0.04	0
17	393.82	339.8	+0.4	868	252	0	349	41	8	0.04	0
18	393.88	340.1	+0.4	880	299	0	349	41	4	0.02	0
19	394	340.9	+0.7	975	199	0	349	43	10	0.05	0
20	394.37	343.2	+2.3	1,773	205	2	349	42	10	0.05	0
21	394.56	344.4	+1.2	1,198	196	0	349	45	10	0.05	0
22	394.8	345.9	+1.5	1,392	229	0	349	45	13	0.06	0
23	395.12	347.9	+2	1,615	196	0	350	40	17	0.08	0
24	395.31	349.1	+1.2	1,257	239	0	350	48	15	0.07	0
25	395.55	350.6	+1.5	1,410	237	0	350	48	11	0.05	0
26	395.76	351.9	+1.3	1,307	278	0	294	55	11	0.05	0
27	395.96	353.2	+1.3	1,257	461	0	96	52	11	0.05	0
28	396.17	354.5	+1.3	1,289	425	0	123	55	11	0.05	0
29	396.42	356.1	+1.6	1,280	209	0	198	52	15	0.07	0
30	396.61	357.3	+1.2	1,202	348	0	199	34	9	0.04	0
TOTAL S	N/A	N/A	+40.8	38,869	6,989	2	9,705	1,257	243	1.17	0.91
ACRE- FEET	N/A	N/A	+40800	77,097	13,863	4	19,250	2,493	482	N/A	N/A

COMMENTS:

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

SUMMARY:

RELEASE (ACRES- FEET)	N/A
POWER	13,863
SPILL	4
OUTLET	19,250
PUMPING PLANT	2,493
TOTAL	35,610

TIME	PERCIPITATION
THIS MONTH	0.91
JULY 1, 2021 TO DATE	8.53
OCT 1, 2021 TO DATE	8.48

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA

FOLSOM LAKE DAILY OPERATIONS

DECEMBER 2021

RUN DATE: December 14, 2021

Day	ELEV	Storage-In Lake (1000 Acre-Feet)	Storage-Change (1000 Acre-Feet)	Computed Inflow* C.F.S.	Power	Release-C.F.S. River Spill	Outlet	Pumping Plant	Evaporation-C.F.S.	Evaporation-Inches	Precip Inches
N/A	N/A	357.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	396.68	357.8	+0.4	982	531	0	199	21	6	0.03	0
2	396.92	359.3	+1.5	1,329	331	0	198	18	9	0.04	0
3	397.14	360.7	+1.4	1,354	470	0	135	16	20	0.09	0
4	397.42	362.5	+1.8	1,451	421	0	97	17	4	0.02	0
5	397.53	363.2	+0.7	1,055	628	0	48	17	4	0.02	0
6	397.59	363.6	+0.4	971	755	0	0	21	0	0	0.06
7	397.73	364.5	+0.9	1,006	530	3	0	17	0	0	0.02
8	397.84	365.2	+0.7	1,084	715	2	0	9	0	0	0
9	398.04	366.5	+1.3	1,320	649	4	0	14	0	0	0.26
10	398.25	367.9	+1.4	1,237	531	0	0	14	0	0	0.26
11	398.47	369.3	+1.4	1,284	545	0	0	13	2	0.01	0
12	398.69	370.8	+1.4	1,140	402	0	0	14	0	0	0.5
13	399.59	376.7	+5.9	3,302	300	3	0	14	0	0	2.23
TOTALS	N/A	N/A	+19.2	17,515	6,808	12	677	205	45	0.21	3.33
ACRE- FEET	N/A	N/A	+19200	34,741	13,504	24	1,343	407	89	N/A	N/A

COMMENTS:

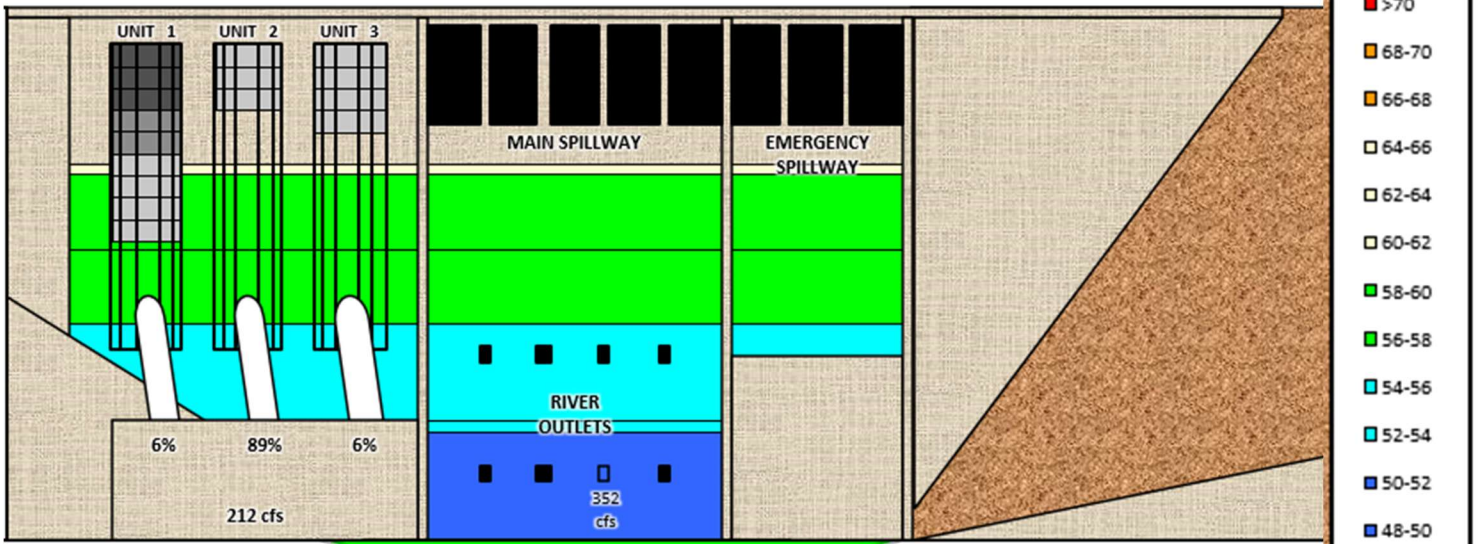
* COMPUTED INFLOW IS THE SUM OF CHANGE IN STORAGE, RELEASES, PUMPING AND EVAPORATION.

SUMMARY

RELEASE (ACRES- FEET)	N/A
POWER	13,504
SPILL	24
OUTLET	1,343
PUMPING PLANT	407
TOTAL	15,278

TIME	PERCIPITATION
THIS MONTH	3.33
JULY 1, 2021 TO DATE	11.86
OCT 1, 2021 TO DATE	11.81

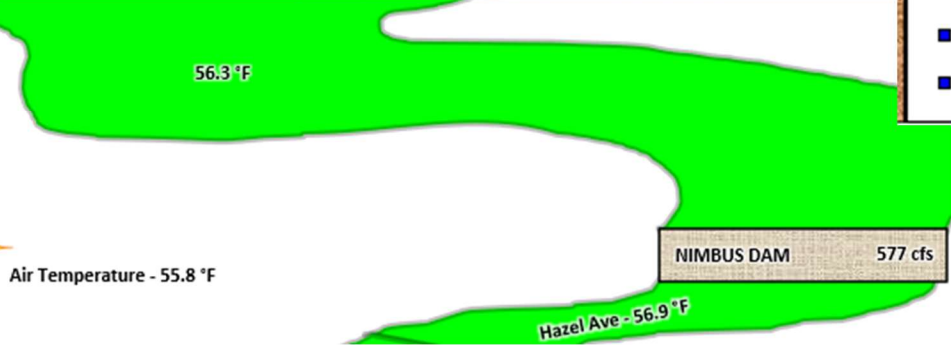
FOLSOM DAM



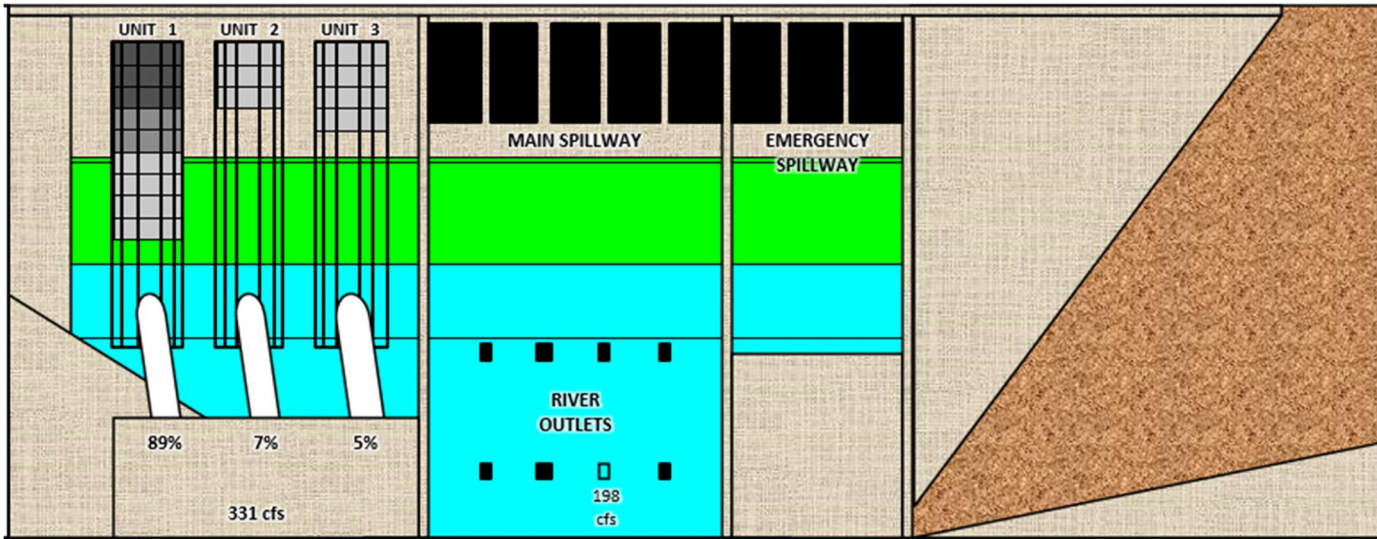
11/16/21



Air Temperature - 55.8 °F



FOLSOM DAM



12/2/21



Air Temperature - 52.6 °F



American River Summary Conditions – December (On-going)

Storage/Release Management Conditions

- Releases are currently at 550 cfs to conserve storage

Temperature Management:

- Top Shutters: Units 1, 2, & 3 – raised
- Middle Shutters: Units 1, 2 and 3 -- raised,
- Bottom Shutters: Units 1,2 and Unit 3 – raised

Folsom Shutter Configuration and Changes:

*Next action – Lower Shutters in Jan/Feb depending on Lake elevation

American River 90% Outlook:

American River Release Outlook for November

Table 7. Federal End of the Month Storage/Elevation (TAF/Feet)

Reservoir	End of 2021 Carryover Storage Volume	Nov	Dec	Jan	Feb	Mar
Folsom Storage	316	341	360	389	461	600
Folsom Elevation	N/A	394	397	401	412	428

Table 8. Monthly River Release (TAF/cfs)

Reservoir	Nov	Dec	Jan	Feb	Mar
American TAF	33	34	34	31	34
American cfs	555	553	550	550	550

American River Release Outlook for December

Table 9. Federal End of the Month Storage/Elevation (TAF/Feet)

Reservoir	End of 2021 Carryover Storage Volume	Dec	Jan	Feb	Mar	Apr	May
Folsom Storage	357	452	582	559	743	798	882
Folsom Elevation	N/A	410	426	424	444	449	457

Table 10. Monthly River Release (TAF/cfs)

Reservoir	Dec	Jan	Feb	Mar	Apr	May
American TAF	34	34	222	92	199	132
American cfs	550	550	4000	1500	3351	2142

Table 11. Operations Outlook

River	Notes
American River	Fall-run Chinook Salmon holding and spawning. Eggs are in gravel.
American River	Juvenile and adult steelhead are present.