

Tuolumne River Technical Advisory Committee

Don Pedro Project – FERC License 2299

Modesto Irrigation District
Turlock Irrigation District
City & County of San Francisco
California Department of Fish & Wildlife
U.S. Fish & Wildlife Service

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TECHNICAL ADVISORY COMMITTEE MEETING

SEPTEMBER 14, 2023 AT 9:30 AM

VIA ZOOM

SUMMARY

1. INTRODUCTION AND ANNOUNCEMENTS

- Participants made self-introductions, a list of attendees follows.
- J. D. Wikert announced that the Stanislaus River Salmon Festival will take place on 11/11/23 from 10:00 am to 3:00 pm.
- Andrea Hamilton announced that construction on Bocat Flat is scheduled to go through the first week of October. She will send out the suitable habitat appendix for Reclamation.
- Chris Guptil announced that on October 14th there will be a river cleanup in conjunction with CA Climate Corp, where they will also be removing invasive species in preparation for Rec Fest. Rec Fest is a free family event scheduled for 10/21/23 from 9:00 am to 3:00 pm.

2. ADMINISTRATIVE ITEMS:

- Today's agenda and notes from the June 2023 meeting were reviewed and approved.
- J. D. Wikert asked Pat to send out a full calendar year of invites for future meetings and Pat agreed to do so.
- Peter Drekmeier advised that the State Water Board adopted the Biological Goals baseline for the lower Tuolumne, San Joaquin and Merced rivers. Also the Paddle with the Salmon trips are coming up the first two weekends in November.

3. MONITORING REPORTS:

- Pat Maloney advised that the routine snorkel surveys will be postponed due to the high water levels and the thermographs will be available to download after the fall pulse.
- Chrissy Sonke advised that this week they have been putting in at the weir and the panels are in and should be on-line today. They plan to do redd surveys prior to the fall pulse, probably in the next two weeks. They just completed calculations for the juveniles out migration for 2023 and the numbers came back a lot better than they have in the last few years. Waterford came back at 176,967 juveniles and Grayson, after three years of not being able to do an estimate because of so few fish, came back at 56,858. This is about a 32% survival rate.
- Pat Maloney shared data and photos for the ramp down study for the cottonwood/willow recruitment and discussion followed.

4. FLOW OPERATIONS:

- Peter Drekmeier asked if there is any chance that the fall pulse will be higher and Pat advised that it will be.
- Pat Maloney shared the Final Basin Index, the Annual Fish Flow Volume and the Fall Flow Schedule. Discussion followed.

5. AGENCY/NGO UPDATES:
 - Chris Guptil shared that they have noticed issues with large, mature cottonwood trees. They have been dying or have browning of leaves that occurred soon after the high water receded between the 9th Street Bridge and 7th Street Bridge.
 - Andrea Hamilton will reach out to John to see if he has any information regarding this.
 - Pat Maloney asked Peter if they will be starting the upstream project next summer. Sara Sacks advised that they will be starting next summer, if conditions allow.
6. ADDITIONAL ITEMS:
 - none
7. NEXT MEETING DATE: DECEMBER 14, 2023

TRTAC Meeting Attendees

	<u>Name</u>	<u>Organization</u>
1.	Patrick Maloney	TID
2.	Dana Ortolan	TID
3.	Bernard Aguilar	CDFW
4.	Peter Drekmeier	TRT
5.	Sara Sacks	TRT
6.	CeCe Hurst-Hart	TRT
7.	J. D. Wikert	USFWS
8.	John Mauterer	MID
9.	Andrea Hamilton	McBain & Associates
10.	Chris Guptill	9 to 99
11.	Chrissy Sonke	FishBio
12.	Chris Carr	State Water Board
13.	Stephen Louie	State Water Board

Table 3
Tuolumne River Flow Schedule
Based on DWR Values, 60-20-20 Index for 2023, Hydrologic Conditions
Schedule For 2023-2024 Fish Flow Year

DATE		Number of DAYS	BASE FLOW ¹			PULSE FLOW ²			INTERPOLATION FLOW			Other Adjusted Flow			TOTAL FERC FLOW	
From:	To:		CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	ACCUM. ¹ A.F.
15-Apr-2023 Sat	15-Apr-2023 Sat	1	300	595	595	0	0	0	0	0	0	0	0	0	300	595
16-Apr-2023 Sun	16-Apr-2023 Sun	1	300	595	1,190	300	595	595	0	0	0	0	0	0	600	1,785
17-Apr-2023 Mon	17-Apr-2023 Mon	1	300	595	1,785	600	1,190	1,785	0	0	0	0	0	0	900	3,570
18-Apr-2023 Tue	18-Apr-2023 Tue	1	300	595	2,380	900	1,785	3,570	0	0	0	0	0	0	1,200	5,950
19-Apr-2023 Wed	19-Apr-2023 Wed	1	300	595	2,975	1,200	2,380	5,950	0	0	0	0	0	0	1,500	8,926
20-Apr-2023 Thu	20-Apr-2023 Thu	1	300	595	3,570	1,500	2,975	8,926	0	0	0	0	0	0	1,800	12,496
21-Apr-2023 Fri	21-Apr-2023 Fri	1	300	595	4,165	1,800	3,570	12,496	0	0	0	0	0	0	2,100	16,661
22-Apr-2023 Sat	22-Apr-2023 Sat	1	300	595	4,760	2,100	4,165	16,661	0	0	0	0	0	0	2,400	21,421
23-Apr-2023 Sun	23-Apr-2023 Sun	1	300	595	5,355	2,400	4,760	21,421	0	0	0	0	0	0	2,700	26,777
24-Apr-2023 Mon	24-Apr-2023 Mon	1	300	595	5,950	2,700	5,355	26,777	0	0	0	0	0	0	3,000	32,727
25-Apr-2023 Tue	25-Apr-2023 Tue	1	300	595	6,545	3,000	5,950	32,727	0	0	0	0	0	0	3,300	39,273
26-Apr-2023 Wed	26-Apr-2023 Wed	1	300	595	7,140	3,000	5,950	38,678	0	0	0	0	0	0	3,300	45,818
27-Apr-2023 Thu	27-Apr-2023 Thu	1	300	595	7,736	3,000	5,950	44,628	0	0	0	0	0	0	3,300	52,364
28-Apr-2023 Fri	28-Apr-2023 Fri	1	300	595	8,331	2,490	4,939	49,567	0	0	0	0	0	0	2,790	57,898
29-Apr-2023 Sat	29-Apr-2023 Sat	1	300	595	8,926	2,070	4,106	53,673	0	0	0	0	0	0	2,370	62,598
30-Apr-2023 Sun	30-Apr-2023 Sun	1	300	595	9,521	1,690	3,352	57,025	0	0	0	0	0	0	1,990	66,545
01-May-2023 Mon	01-May-2023 Mon	1	300	595	10,116	1,350	2,678	59,702	0	0	0	0	0	0	1,650	69,818
02-May-2023 Tue	02-May-2023 Tue	1	300	595	10,711	1,050	2,083	61,785	0	0	0	0	0	0	1,350	72,496
03-May-2023 Wed	03-May-2023 Wed	1	300	595	11,306	750	1,488	63,273	0	0	0	0	0	0	1,050	74,579
04-May-2023 Thu	04-May-2023 Thu	1	300	595	11,901	490	972	64,245	0	0	0	0	0	0	790	76,145
05-May-2023 Fri	05-May-2023 Fri	1	300	595	12,496	790	1,567	65,812	0	0	0	0	0	0	1,090	78,307
06-May-2023 Sat	06-May-2023 Sat	1	300	595	13,091	1,090	2,162	67,974	0	0	0	0	0	0	1,390	81,064
07-May-2023 Sun	07-May-2023 Sun	1	300	595	13,686	1,390	2,757	70,731	0	0	0	0	0	0	1,690	84,417
08-May-2023 Mon	08-May-2023 Mon	1	300	595	14,281	1,690	3,352	74,083	0	0	0	0	0	0	1,990	88,364
09-May-2023 Tue	09-May-2023 Tue	1	300	595	14,876	1,690	3,352	77,435	0	0	0	0	0	0	1,990	92,311
10-May-2023 Wed	10-May-2023 Wed	1	300	595	15,471	1,350	2,678	80,112	0	0	0	0	0	0	1,650	95,583
11-May-2023 Thu	11-May-2023 Thu	1	300	595	16,066	1,010	2,003	82,116	0	0	0	0	0	0	1,310	98,182
12-May-2023 Fri	12-May-2023 Fri	1	300	595	16,661	710	1,408	83,524	0	0	0	0	0	0	1,010	100,185
13-May-2023 Sat	13-May-2023 Sat	1	300	595	17,256	490	972	84,496	0	0	0	0	0	0	790	101,752
14-May-2023 Sun	14-May-2023 Sun	1	300	595	17,851	310	615	85,111	0	0	0	0	0	0	610	102,962
15-May-2023 Mon	15-May-2023 Mon	1	300	595	18,446	170	337	85,448	0	0	0	0	0	0	470	103,894
16-May-2023 Tue	16-May-2023 Tue	1	300	595	19,041	40	79	85,527	0	0	0	0	0	0	340	104,569
17-May-2023 Wed	17-May-2023 Wed	1	300	595	19,636	300	595	86,122	0	0	0	0	0	0	600	105,759
18-May-2023 Thu	18-May-2023 Thu	1	300	595	20,231	600	1,190	87,312	0	0	0	0	0	0	900	107,544
19-May-2023 Fri	19-May-2023 Fri	1	300	595	20,826	600	1,190	88,502	0	0	0	0	0	0	900	109,329
20-May-2023 Sat	20-May-2023 Sat	1	300	595	21,421	380	754	89,256	0	0	0	0	0	0	680	110,678
21-May-2023 Sun	21-May-2023 Sun	1	300	595	22,017	240	476	89,732	0	0	0	0	0	0	540	111,749
22-May-2023 Mon	22-May-2023 Mon	1	300	595	22,612	50	99	89,831	0	0	0	0	0	0	350	112,443
23-May-2023 Tue	23-May-2023 Tue	1	300	595	23,207	26	51	89,882	0	0	0	0	0	0	326	113,089
24-May-2023 Wed	24-May-2023 Wed	1	300	595	23,802	0	0	89,882	0	0	0	0	0	0	300	113,684
25-May-2023 Thu	25-May-2023 Thu	1	300	595	24,397	0	0	89,882	0	0	0	0	0	0	300	114,279
26-May-2023 Fri	26-May-2023 Fri	1	300	595	24,992	0	0	89,882	0	0	0	0	0	0	300	114,874
27-May-2023 Sat	27-May-2023 Sat	1	300	595	25,587	0	0	89,882	0	0	0	0	0	0	300	115,469
28-May-2023 Sun	28-May-2023 Sun	1	300	595	26,182	0	0	89,882	0	0	0	0	0	0	300	116,064
29-May-2023 Mon	29-May-2023 Mon	1	300	595	26,777	0	0	89,882	0	0	0	0	0	0	300	116,659
30-May-2023 Tue	30-May-2023 Tue	1	300	595	27,372	0	0	89,882	0	0	0	0	0	0	300	117,254
31-May-2023 Wed	31-May-2023 Wed	1	300	595	27,967	0	0	89,882	0	0	0	0	0	0	300	117,849
01-Jun-2023 Thu	01-Jun-2023 Thu	1	250	496	28,463	0	0	89,882	0	0	0	0	0	0	250	118,345
02-Jun-2023 Fri	02-Jun-2023 Fri	1	250	496	28,959	0	0	89,882	0	0	0	0	0	0	250	118,841
03-Jun-2023 Sat	03-Jun-2023 Sat	1	250	496	29,455	0	0	89,882	0	0	0	0	0	0	250	119,337
04-Jun-2023 Sun	04-Jun-2023 Sun	1	250	496	29,950	0	0	89,882	0	0	0	0	0	0	250	119,832
05-Jun-2023 Mon	05-Jun-2023 Mon	1	250	496	30,446	0	0	89,882	0	0	0	0	0	0	250	120,328
06-Jun-2023 Tue	06-Jun-2023 Tue	1	250	496	30,942	0	0	89,882	0	0	0	0	0	0	250	120,824
07-Jun-2023 Wed	07-Jun-2023 Wed	1	250	496	31,438	0	0	89,882	0	0	0	0	0	0	250	121,320
08-Jun-2023 Thu	30-Jun-2023 Fri	23	250	11,405	42,843	0	0	89,882	0	0	0	0	0	0	250	132,725
01-Jul-2023 Sat	31-Jul-2023 Mon	31	250	15,372	58,215	0	0	89,882	0	0	0	0	0	0	250	148,097
01-Aug-2023 Tue	31-Aug-2023 Thu	31	250	15,372	73,587	0	0	89,882	0	0	0	0	0	0	250	163,469
01-Sep-2023 Fri	30-Sep-2023 Sat	30	250	14,876	88,463	0	0	89,882	0	0	0	0	0	0	250	178,345

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From:	To:		CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	ACCUM. ¹ A.F.
01-Oct-2023	Sun	01-Oct-2023	Sun	1	300	595	89,058	0	0	0	89,882	0	0	0	300	178,940
02-Oct-2023	Mon	02-Oct-2023	Mon	1	300	595	89,653	0	0	0	89,882	0	0	0	300	179,535
03-Oct-2023	Tue	03-Oct-2023	Tue	1	300	595	90,248	0	0	0	89,882	0	0	0	300	180,130
04-Oct-2023	Wed	04-Oct-2023	Wed	1	300	595	90,843	0	0	0	89,882	0	0	0	300	180,725
05-Oct-2023	Thu	05-Oct-2023	Thu	1	300	595	91,438	750	1,488	91,370	92,659	0	0	0	1,050	182,808
06-Oct-2023	Fri	06-Oct-2023	Fri	1	300	595	92,033	650	1,289	92,659	92,659	0	0	0	950	184,692
07-Oct-2023	Sat	07-Oct-2023	Sat	1	300	595	92,628	100	198	92,857	92,857	0	0	0	400	185,485
08-Oct-2023	Sun	08-Oct-2023	Sun	1	300	595	93,223	0	0	0	92,857	0	0	0	300	186,080
09-Oct-2023	Mon	09-Oct-2023	Mon	1	300	595	93,818	0	0	0	92,857	0	0	0	300	186,675
10-Oct-2023	Tue	10-Oct-2023	Tue	1	300	595	94,413	0	0	0	92,857	0	0	0	300	187,270
11-Oct-2023	Wed	11-Oct-2023	Wed	1	300	595	95,008	0	0	0	92,857	0	0	0	300	187,865
12-Oct-2023	Thu	12-Oct-2023	Thu	1	300	595	95,603	750	1,488	94,345	95,634	0	0	0	1,050	189,948
13-Oct-2023	Fri	13-Oct-2023	Fri	1	300	595	96,198	650	1,289	95,634	95,634	0	0	0	950	191,832
14-Oct-2023	Sat	14-Oct-2023	Sat	1	300	595	96,793	100	198	95,832	95,832	0	0	0	400	192,626
15-Oct-2023	Sun	15-Oct-2023	Sun	1	300	595	97,388	0	0	0	95,832	0	0	0	300	193,221
16-Oct-2023	Mon	16-Oct-2023	Mon	1	300	595	97,983	0	0	0	95,832	0	0	0	300	193,816
17-Oct-2023	Tue	17-Oct-2023	Tue	1	300	595	98,578	0	0	0	95,832	0	0	0	300	194,411
18-Oct-2023	Wed	18-Oct-2023	Wed	1	300	595	99,174	0	0	0	95,832	0	0	0	300	195,006
19-Oct-2023	Thu	19-Oct-2023	Thu	1	300	595	99,769	0	0	0	95,832	0	0	0	300	195,601
20-Oct-2023	Fri	20-Oct-2023	Fri	1	300	595	100,364	0	0	0	95,832	0	0	0	300	196,196
21-Oct-2023	Sat	21-Oct-2023	Sat	1	300	595	100,959	0	0	0	95,832	0	0	0	300	196,791
22-Oct-2023	Sun	22-Oct-2023	Sun	1	300	595	101,554	0	0	0	95,832	0	0	0	300	197,386
23-Oct-2023	Mon	23-Oct-2023	Mon	1	300	595	102,149	0	0	0	95,832	0	0	0	300	197,981
24-Oct-2023	Tue	24-Oct-2023	Tue	1	300	595	102,744	0	0	0	95,832	0	0	0	300	198,576
25-Oct-2023	Wed	25-Oct-2023	Wed	1	300	595	103,339	0	0	0	95,832	0	0	0	300	199,171
26-Oct-2023	Thu	26-Oct-2023	Thu	1	300	595	103,934	0	0	0	95,832	0	0	0	300	199,766
27-Oct-2023	Fri	27-Oct-2023	Fri	1	300	595	104,529	0	0	0	95,832	0	0	0	300	200,361
28-Oct-2023	Sat	28-Oct-2023	Sat	1	300	595	105,124	0	0	0	95,832	0	0	0	300	200,956
29-Oct-2023	Sun	29-Oct-2023	Sun	1	300	595	105,719	0	0	0	95,832	0	0	0	300	201,551
30-Oct-2023	Mon	30-Oct-2023	Mon	1	300	595	106,314	0	0	0	95,832	0	0	0	300	202,146
31-Oct-2023	Tue	31-Oct-2023	Tue	1	300	595	106,909	0	0	0	95,832	0	0	0	300	202,741
01-Nov-2023	Wed	01-Nov-2023	Wed	1	300	595	107,504	0	0	0	95,832	0	0	0	300	203,337
02-Nov-2023	Thu	02-Nov-2023	Thu	1	300	595	108,099	0	0	0	95,832	0	0	0	300	203,932
03-Nov-2023	Fri	03-Nov-2023	Fri	1	300	595	108,694	0	0	0	95,832	0	0	0	300	204,527
04-Nov-2023	Sat	04-Nov-2023	Sat	1	300	595	109,289	0	0	0	95,832	0	0	0	300	205,122
05-Nov-2023	Sun	05-Nov-2023	Sun	1	300	595	109,884	0	0	0	95,832	0	0	0	300	205,717
06-Nov-2023	Mon	06-Nov-2023	Mon	1	300	595	110,479	0	0	0	95,832	0	0	0	300	206,312
07-Nov-2023	Tue	07-Nov-2023	Tue	1	300	595	111,074	0	0	0	95,832	0	0	0	300	206,907
08-Nov-2023	Wed	08-Nov-2023	Wed	1	300	595	111,669	0	0	0	95,832	0	0	0	300	207,502
09-Nov-2023	Thu	09-Nov-2023	Thu	1	300	595	112,264	0	0	0	95,832	0	0	0	300	208,097
10-Nov-2023	Fri	10-Nov-2023	Fri	1	300	595	112,859	0	0	0	95,832	0	0	0	300	208,692
11-Nov-2023	Sat	11-Nov-2023	Sat	1	300	595	113,455	0	0	0	95,832	0	0	0	300	209,287
12-Nov-2023	Sun	12-Nov-2023	Sun	1	300	595	114,050	0	0	0	95,832	0	0	0	300	209,882
13-Nov-2023	Mon	13-Nov-2023	Mon	1	300	595	114,645	0	0	0	95,832	0	0	0	300	210,477
14-Nov-2023	Tue	14-Nov-2023	Tue	1	300	595	115,240	0	0	0	95,832	0	0	0	300	211,072
15-Nov-2023	Wed	15-Nov-2023	Wed	1	300	595	115,835	0	0	0	95,832	0	0	0	300	211,667
16-Nov-2023	Thu	16-Nov-2023	Thu	1	300	595	116,430	0	0	0	95,832	0	0	0	300	212,262
17-Nov-2023	Fri	17-Nov-2023	Fri	1	300	595	117,025	0	0	0	95,832	0	0	0	300	212,857
18-Nov-2023	Sat	18-Nov-2023	Sat	1	300	595	117,620	0	0	0	95,832	0	0	0	300	213,452
19-Nov-2023	Sun	19-Nov-2023	Sun	1	300	595	118,215	0	0	0	95,832	0	0	0	300	214,047
20-Nov-2023	Mon	20-Nov-2023	Mon	1	300	595	118,810	0	0	0	95,832	0	0	0	300	214,642
21-Nov-2023	Tue	21-Nov-2023	Tue	1	300	595	119,405	0	0	0	95,832	0	0	0	300	215,237
22-Nov-2023	Wed	22-Nov-2023	Wed	1	300	595	120,000	0	0	0	95,832	0	0	0	300	215,832
23-Nov-2023	Thu	23-Nov-2023	Thu	1	300	595	120,595	0	0	0	95,832	0	0	0	300	216,427
24-Nov-2023	Fri	24-Nov-2023	Fri	1	300	595	121,190	0	0	0	95,832	0	0	0	300	217,022
25-Nov-2023	Sat	25-Nov-2023	Sat	1	300	595	121,785	0	0	0	95,832	0	0	0	300	217,618
26-Nov-2023	Sun	26-Nov-2023	Sun	1	300	595	122,380	0	0	0	95,832	0	0	0	300	218,213

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From:	To:		CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	ACCUM. ¹ A.F.
27-Nov-2023	Mon	27-Nov-2023	Mon	1	300	595	122,975	0	0	95,832	0	0	0	0	300	218,808
28-Nov-2023	Tue	28-Nov-2023	Tue	1	300	595	123,570	0	0	95,832	0	0	0	0	300	219,403
29-Nov-2023	Wed	29-Nov-2023	Wed	1	300	595	124,165	0	0	95,832	0	0	0	0	300	219,998
30-Nov-2023	Thu	30-Nov-2023	Thu	1	300	595	124,760	0	0	95,832	0	0	0	0	300	220,593
01-Dec-2023	Fri	01-Dec-2023	Fri	1	300	595	125,355	0	0	95,832	0	0	0	0	300	221,188
02-Dec-2023	Sat	02-Dec-2023	Sat	1	300	595	125,950	0	0	95,832	0	0	0	0	300	221,783
03-Dec-2023	Sun	03-Dec-2023	Sun	1	300	595	126,545	0	0	95,832	0	0	0	0	300	222,378
04-Dec-2023	Mon	04-Dec-2023	Mon	1	300	595	127,140	0	0	95,832	0	0	0	0	300	222,973
05-Dec-2023	Tue	05-Dec-2023	Tue	1	300	595	127,736	0	0	95,832	0	0	0	0	300	223,568
06-Dec-2023	Wed	06-Dec-2023	Wed	1	300	595	128,331	0	0	95,832	0	0	0	0	300	224,163
07-Dec-2023	Thu	07-Dec-2023	Thu	1	300	595	128,926	0	0	95,832	0	0	0	0	300	224,758
08-Dec-2023	Fri	08-Dec-2023	Fri	1	300	595	129,521	0	0	95,832	0	0	0	0	300	225,353
09-Dec-2023	Sat	09-Dec-2023	Sat	1	300	595	130,116	0	0	95,832	0	0	0	0	300	225,948
10-Dec-2023	Sun	10-Dec-2023	Sun	1	300	595	130,711	0	0	95,832	0	0	0	0	300	226,543
11-Dec-2023	Mon	11-Dec-2023	Mon	1	300	595	131,306	0	0	95,832	0	0	0	0	300	227,138
12-Dec-2023	Tue	12-Dec-2023	Tue	1	300	595	131,901	0	0	95,832	0	0	0	0	300	227,733
13-Dec-2023	Wed	13-Dec-2023	Wed	1	300	595	132,496	0	0	95,832	0	0	0	0	300	228,328
14-Dec-2023	Thu	14-Dec-2023	Thu	1	300	595	133,091	0	0	95,832	0	0	0	0	300	228,923
15-Dec-2023	Fri	15-Dec-2023	Fri	1	300	595	133,686	0	0	95,832	0	0	0	0	300	229,518
16-Dec-2023	Sat	16-Dec-2023	Sat	1	300	595	134,281	0	0	95,832	0	0	0	0	300	230,113
17-Dec-2023	Sun	17-Dec-2023	Sun	1	300	595	134,876	0	0	95,832	0	0	0	0	300	230,708
18-Dec-2023	Mon	18-Dec-2023	Mon	1	300	595	135,471	0	0	95,832	0	0	0	0	300	231,303
19-Dec-2023	Tue	19-Dec-2023	Tue	1	300	595	136,066	0	0	95,832	0	0	0	0	300	231,899
20-Dec-2023	Wed	20-Dec-2023	Wed	1	300	595	136,661	0	0	95,832	0	0	0	0	300	232,494
21-Dec-2023	Thu	21-Dec-2023	Thu	1	300	595	137,256	0	0	95,832	0	0	0	0	300	233,089
22-Dec-2023	Fri	22-Dec-2023	Fri	1	300	595	137,851	0	0	95,832	0	0	0	0	300	233,684
23-Dec-2023	Sat	23-Dec-2023	Sat	1	300	595	138,446	0	0	95,832	0	0	0	0	300	234,279
24-Dec-2023	Sun	24-Dec-2023	Sun	1	300	595	139,041	0	0	95,832	0	0	0	0	300	234,874
25-Dec-2023	Mon	25-Dec-2023	Mon	1	300	595	139,636	0	0	95,832	0	0	0	0	300	235,469
26-Dec-2023	Tue	26-Dec-2023	Tue	1	300	595	140,231	0	0	95,832	0	0	0	0	300	236,064
27-Dec-2023	Wed	27-Dec-2023	Wed	1	300	595	140,826	0	0	95,832	0	0	0	0	300	236,659
28-Dec-2023	Thu	28-Dec-2023	Thu	1	300	595	141,421	0	0	95,832	0	0	0	0	300	237,254
29-Dec-2023	Fri	29-Dec-2023	Fri	1	300	595	142,017	0	0	95,832	0	0	0	0	300	237,849
30-Dec-2023	Sat	30-Dec-2023	Sat	1	300	595	142,612	0	0	95,832	0	0	0	0	300	238,444
31-Dec-2023	Sun	31-Dec-2023	Sun	1	300	595	143,207	0	0	95,832	0	0	0	0	300	239,039
01-Jan-2024	Mon	01-Jan-2024	Mon	1	300	595	143,802	0	0	95,832	0	0	0	0	300	239,634
02-Jan-2024	Tue	02-Jan-2024	Tue	1	300	595	144,397	0	0	95,832	0	0	0	0	300	240,229
03-Jan-2024	Wed	03-Jan-2024	Wed	1	300	595	144,992	0	0	95,832	0	0	0	0	300	240,824
04-Jan-2024	Thu	04-Jan-2024	Thu	1	300	595	145,587	0	0	95,832	0	0	0	0	300	241,419
05-Jan-2024	Fri	05-Jan-2024	Fri	1	300	595	146,182	0	0	95,832	0	0	0	0	300	242,014
06-Jan-2024	Sat	06-Jan-2024	Sat	1	300	595	146,777	0	0	95,832	0	0	0	0	300	242,609
07-Jan-2024	Sun	07-Jan-2024	Sun	1	300	595	147,372	0	0	95,832	0	0	0	0	300	243,204
08-Jan-2024	Mon	08-Jan-2024	Mon	1	300	595	147,967	0	0	95,832	0	0	0	0	300	243,799
09-Jan-2024	Tue	09-Jan-2024	Tue	1	300	595	148,562	0	0	95,832	0	0	0	0	300	244,394
10-Jan-2024	Wed	10-Jan-2024	Wed	1	300	595	149,157	0	0	95,832	0	0	0	0	300	244,989
11-Jan-2024	Thu	11-Jan-2024	Thu	1	300	595	149,752	0	0	95,832	0	0	0	0	300	245,584
12-Jan-2024	Fri	12-Jan-2024	Fri	1	300	595	150,347	0	0	95,832	0	0	0	0	300	246,179
13-Jan-2024	Sat	13-Jan-2024	Sat	1	300	595	150,942	0	0	95,832	0	0	0	0	300	246,775
14-Jan-2024	Sun	14-Jan-2024	Sun	1	300	595	151,537	0	0	95,832	0	0	0	0	300	247,370
15-Jan-2024	Mon	15-Jan-2024	Mon	1	300	595	152,132	0	0	95,832	0	0	0	0	300	247,965
16-Jan-2024	Tue	16-Jan-2024	Tue	1	300	595	152,727	0	0	95,832	0	0	0	0	300	248,560
17-Jan-2024	Wed	17-Jan-2024	Wed	1	300	595	153,322	0	0	95,832	0	0	0	0	300	249,155
18-Jan-2024	Thu	18-Jan-2024	Thu	1	300	595	153,917	0	0	95,832	0	0	0	0	300	249,750
19-Jan-2024	Fri	19-Jan-2024	Fri	1	300	595	154,512	0	0	95,832	0	0	0	0	300	250,345
20-Jan-2024	Sat	20-Jan-2024	Sat	1	300	595	155,107	0	0	95,832	0	0	0	0	300	250,940
21-Jan-2024	Sun	21-Jan-2024	Sun	1	300	595	155,702	0	0	95,832	0	0	0	0	300	251,535
22-Jan-2024	Mon	22-Jan-2024	Mon	1	300	595	156,298	0	0	95,832	0	0	0	0	300	252,130
23-Jan-2024	Tue	23-Jan-2024	Tue	1	300	595	156,893	0	0	95,832	0	0	0	0	300	252,725

Table 3
Tuolumne River Flow Schedule
Based on DWR Values, 60-20-20 Index for 2023, Hydrologic Conditions
Schedule For 2023-2024 Fish Flow Year

DATE		Number of DAYS	BASE FLOW ¹			PULSE FLOW ²			INTERPOLATION FLOW			Other Adjusted Flow			TOTAL FERC FLOW	
			CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	ACCUM. ¹ A.F.
24-Jan-2024 Wed	24-Jan-2024 Wed	1	300	595	157,488	0	0	95,832	0	0	0	0	0	0	300	253,320
25-Jan-2024 Thu	25-Jan-2024 Thu	1	300	595	158,083	0	0	95,832	0	0	0	0	0	0	300	253,915
26-Jan-2024 Fri	26-Jan-2024 Fri	1	300	595	158,678	0	0	95,832	0	0	0	0	0	0	300	254,510
27-Jan-2024 Sat	27-Jan-2024 Sat	1	300	595	159,273	0	0	95,832	0	0	0	0	0	0	300	255,105
28-Jan-2024 Sun	28-Jan-2024 Sun	1	300	595	159,868	0	0	95,832	0	0	0	0	0	0	300	255,700
29-Jan-2024 Mon	29-Jan-2024 Mon	1	300	595	160,463	0	0	95,832	0	0	0	0	0	0	300	256,295
30-Jan-2024 Tue	30-Jan-2024 Tue	1	300	595	161,058	0	0	95,832	0	0	0	0	0	0	300	256,890
31-Jan-2024 Wed	31-Jan-2024 Wed	1	300	595	161,653	0	0	95,832	0	0	0	0	0	0	300	257,485
01-Feb-2024 Thu	01-Feb-2024 Thu	1	300	595	162,248	0	0	95,832	0	0	0	0	0	0	300	258,080
02-Feb-2024 Fri	02-Feb-2024 Fri	1	300	595	162,843	0	0	95,832	0	0	0	0	0	0	300	258,675
03-Feb-2024 Sat	03-Feb-2024 Sat	1	300	595	163,438	0	0	95,832	0	0	0	0	0	0	300	259,270
04-Feb-2024 Sun	04-Feb-2024 Sun	1	300	595	164,033	0	0	95,832	0	0	0	0	0	0	300	259,865
05-Feb-2024 Mon	05-Feb-2024 Mon	1	300	595	164,628	0	0	95,832	0	0	0	0	0	0	300	260,460
06-Feb-2024 Tue	06-Feb-2024 Tue	1	300	595	165,223	0	0	95,832	0	0	0	0	0	0	300	261,056
07-Feb-2024 Wed	07-Feb-2024 Wed	1	300	595	165,818	0	0	95,832	0	0	0	0	0	0	300	261,651
08-Feb-2024 Thu	08-Feb-2024 Thu	1	300	595	166,413	0	0	95,832	0	0	0	0	0	0	300	262,246
09-Feb-2024 Fri	09-Feb-2024 Fri	1	300	595	167,008	0	0	95,832	0	0	0	0	0	0	300	262,841
10-Feb-2024 Sat	10-Feb-2024 Sat	1	300	595	167,603	0	0	95,832	0	0	0	0	0	0	300	263,436
11-Feb-2024 Sun	11-Feb-2024 Sun	1	300	595	168,198	0	0	95,832	0	0	0	0	0	0	300	264,031
12-Feb-2024 Mon	12-Feb-2024 Mon	1	300	595	168,793	0	0	95,832	0	0	0	0	0	0	300	264,626
13-Feb-2024 Tue	13-Feb-2024 Tue	1	300	595	169,388	0	0	95,832	0	0	0	0	0	0	300	265,221
14-Feb-2024 Wed	14-Feb-2024 Wed	1	300	595	169,983	0	0	95,832	0	0	0	0	0	0	300	265,816
15-Feb-2024 Thu	15-Feb-2024 Thu	1	300	595	170,579	0	0	95,832	0	0	0	0	0	0	300	266,411
16-Feb-2024 Fri	16-Feb-2024 Fri	1	300	595	171,174	0	0	95,832	0	0	0	0	0	0	300	267,006
17-Feb-2024 Sat	17-Feb-2024 Sat	1	300	595	171,769	0	0	95,832	0	0	0	0	0	0	300	267,601
18-Feb-2024 Sun	18-Feb-2024 Sun	1	300	595	172,364	0	0	95,832	0	0	0	0	0	0	300	268,196
19-Feb-2024 Mon	19-Feb-2024 Mon	1	300	595	172,959	0	0	95,832	0	0	0	0	0	0	300	268,791
20-Feb-2024 Tue	20-Feb-2024 Tue	1	300	595	173,554	0	0	95,832	0	0	0	0	0	0	300	269,386
21-Feb-2024 Wed	21-Feb-2024 Wed	1	300	595	174,149	0	0	95,832	0	0	0	0	0	0	300	269,981
22-Feb-2024 Thu	22-Feb-2024 Thu	1	300	595	174,744	0	0	95,832	0	0	0	0	0	0	300	270,576
23-Feb-2024 Fri	23-Feb-2024 Fri	1	300	595	175,339	0	0	95,832	0	0	0	0	0	0	300	271,171
24-Feb-2024 Sat	24-Feb-2024 Sat	1	300	595	175,934	0	0	95,832	0	0	0	0	0	0	300	271,766
25-Feb-2024 Sun	25-Feb-2024 Sun	1	300	595	176,529	0	0	95,832	0	0	0	0	0	0	300	272,361
26-Feb-2024 Mon	26-Feb-2024 Mon	1	300	595	177,124	0	0	95,832	0	0	0	0	0	0	300	272,956
27-Feb-2024 Tue	27-Feb-2024 Tue	1	300	595	177,719	0	0	95,832	0	0	0	0	0	0	300	273,551
28-Feb-2024 Wed	28-Feb-2024 Wed	1	300	595	178,314	0	0	95,832	0	0	0	0	0	0	300	274,146
29-Feb-2024 Thu	29-Feb-2024 Thu	1	300	595	178,909	0	0	95,832	0	0	0	0	0	0	300	274,741
01-Mar-2024 Fri	01-Mar-2024 Fri	1	300	595	179,504	0	0	95,832	0	0	0	0	0	0	300	275,337
02-Mar-2024 Sat	02-Mar-2024 Sat	1	300	595	180,099	0	0	95,832	0	0	0	0	0	0	300	275,932
03-Mar-2024 Sun	03-Mar-2024 Sun	1	300	595	180,694	0	0	95,832	0	0	0	0	0	0	300	276,527
04-Mar-2024 Mon	04-Mar-2024 Mon	1	300	595	181,289	0	0	95,832	0	0	0	0	0	0	300	277,122
05-Mar-2024 Tue	05-Mar-2024 Tue	1	300	595	181,884	0	0	95,832	0	0	0	0	0	0	300	277,717
06-Mar-2024 Wed	06-Mar-2024 Wed	1	300	595	182,479	0	0	95,832	0	0	0	0	0	0	300	278,312
07-Mar-2024 Thu	07-Mar-2024 Thu	1	300	595	183,074	0	0	95,832	0	0	0	0	0	0	300	278,907
08-Mar-2024 Fri	08-Mar-2024 Fri	1	300	595	183,669	0	0	95,832	0	0	0	0	0	0	300	279,502
09-Mar-2024 Sat	09-Mar-2024 Sat	1	300	595	184,264	0	0	95,832	0	0	0	0	0	0	300	280,097
10-Mar-2024 Sun	10-Mar-2024 Sun	1	300	595	184,859	0	0	95,832	0	0	0	0	0	0	300	280,692
11-Mar-2024 Mon	11-Mar-2024 Mon	1	300	595	185,455	0	0	95,832	0	0	0	0	0	0	300	281,287
12-Mar-2024 Tue	12-Mar-2024 Tue	1	300	595	186,050	0	0	95,832	0	0	0	0	0	0	300	281,882
13-Mar-2024 Wed	13-Mar-2024 Wed	1	300	595	186,645	0	0	95,832	0	0	0	0	0	0	300	282,477
14-Mar-2024 Thu	14-Mar-2024 Thu	1	300	595	187,240	0	0	95,832	0	0	0	0	0	0	300	283,072
15-Mar-2024 Fri	15-Mar-2024 Fri	1	300	595	187,835	0	0	95,832	0	0	0	0	0	0	300	283,667
16-Mar-2024 Sat	16-Mar-2024 Sat	1	300	595	188,430	0	0	95,832	0	0	0	0	0	0	300	284,262
17-Mar-2024 Sun	17-Mar-2024 Sun	1	300	595	189,025	0	0	95,832	0	0	0	0	0	0	300	284,857
18-Mar-2024 Mon	18-Mar-2024 Mon	1	300	595	189,620	0	0	95,832	0	0	0	0	0	0	300	285,452
19-Mar-2024 Tue	19-Mar-2024 Tue	1	300	595	190,215	0	0	95,832	0	0	0	0	0	0	300	286,047
20-Mar-2024 Wed	20-Mar-2024 Wed	1	300	595	190,810	0	0	95,832	0	0	0	0	0	0	300	286,642
21-Mar-2024 Thu	21-Mar-2024 Thu	1	300	595	191,405	0	0	95,832	0	0	0	0	0	0	300	287,237

Table 3
Tuolumne River Flow Schedule
Based on DWR Values, 60-20-20 Index for 2023, Hydrologic Conditions
Schedule For 2023-2024 Fish Flow Year

DATE		Number of DAYS	BASE FLOW ¹			PULSE FLOW ²			INTERPOLATION FLOW			Other Adjusted Flow			TOTAL FERC FLOW	
From:	To:		CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	ACCUM. ¹ A.F.
22-Mar-2024	Fri	22-Mar-2024	Fri	1	300	595	192,000	0	0	0	95,832	0	0	0	300	287,832
23-Mar-2024	Sat	23-Mar-2024	Sat	1	300	595	192,595	0	0	0	95,832	0	0	0	300	288,427
24-Mar-2024	Sun	24-Mar-2024	Sun	1	300	595	193,190	0	0	0	95,832	0	0	0	300	289,022
25-Mar-2024	Mon	25-Mar-2024	Mon	1	300	595	193,785	0	0	0	95,832	0	0	0	300	289,618
26-Mar-2024	Tue	26-Mar-2024	Tue	1	300	595	194,380	0	0	0	95,832	0	0	0	300	290,213
27-Mar-2024	Wed	27-Mar-2024	Wed	1	300	595	194,975	0	0	0	95,832	0	0	0	300	290,808
28-Mar-2024	Thu	28-Mar-2024	Thu	1	300	595	195,570	0	0	0	95,832	0	0	0	300	291,403
29-Mar-2024	Fri	29-Mar-2024	Fri	1	300	595	196,165	0	0	0	95,832	0	0	0	300	291,998
30-Mar-2024	Sat	30-Mar-2024	Sat	1	300	595	196,760	0	0	0	95,832	0	0	0	300	292,593
31-Mar-2024	Sun	31-Mar-2024	Sun	1	300	595	197,355	0	0	0	95,832	0	0	0	300	293,188
01-Apr-2024	Mon	01-Apr-2024	Mon	1	300	595	197,950	0	0	0	95,832	0	0	0	300	293,783
02-Apr-2024	Tue	02-Apr-2024	Tue	1	300	595	198,545	0	0	0	95,832	0	0	0	300	294,378
03-Apr-2024	Wed	03-Apr-2024	Wed	1	300	595	199,140	0	0	0	95,832	0	0	0	300	294,973
04-Apr-2024	Thu	04-Apr-2024	Thu	1	300	595	199,736	0	0	0	95,832	0	0	0	300	295,568
05-Apr-2024	Fri	05-Apr-2024	Fri	1	300	595	200,331	0	0	0	95,832	0	0	0	300	296,163
06-Apr-2024	Sat	06-Apr-2024	Sat	1	300	595	200,926	0	0	0	95,832	0	0	0	300	296,758
07-Apr-2024	Sun	07-Apr-2024	Sun	1	300	595	201,521	0	0	0	95,832	0	0	0	300	297,353
08-Apr-2024	Mon	08-Apr-2024	Mon	1	300	595	202,116	0	0	0	95,832	0	0	0	300	297,948
09-Apr-2024	Tue	09-Apr-2024	Tue	1	300	595	202,711	0	0	0	95,832	0	0	0	300	298,543
10-Apr-2024	Wed	10-Apr-2024	Wed	1	300	595	203,306	0	0	0	95,832	0	0	0	300	299,138
11-Apr-2024	Thu	11-Apr-2024	Thu	1	300	595	203,901	0	0	0	95,832	0	0	0	300	299,733
12-Apr-2024	Fri	12-Apr-2024	Fri	1	300	595	204,496	0	0	0	95,832	0	0	0	300	300,328
13-Apr-2024	Sat	13-Apr-2024	Sat	1	300	595	205,091	0	0	0	95,832	0	0	0	300	300,923
No. of days		365														

1 cfs day = 1.983471 acre-feet (af)

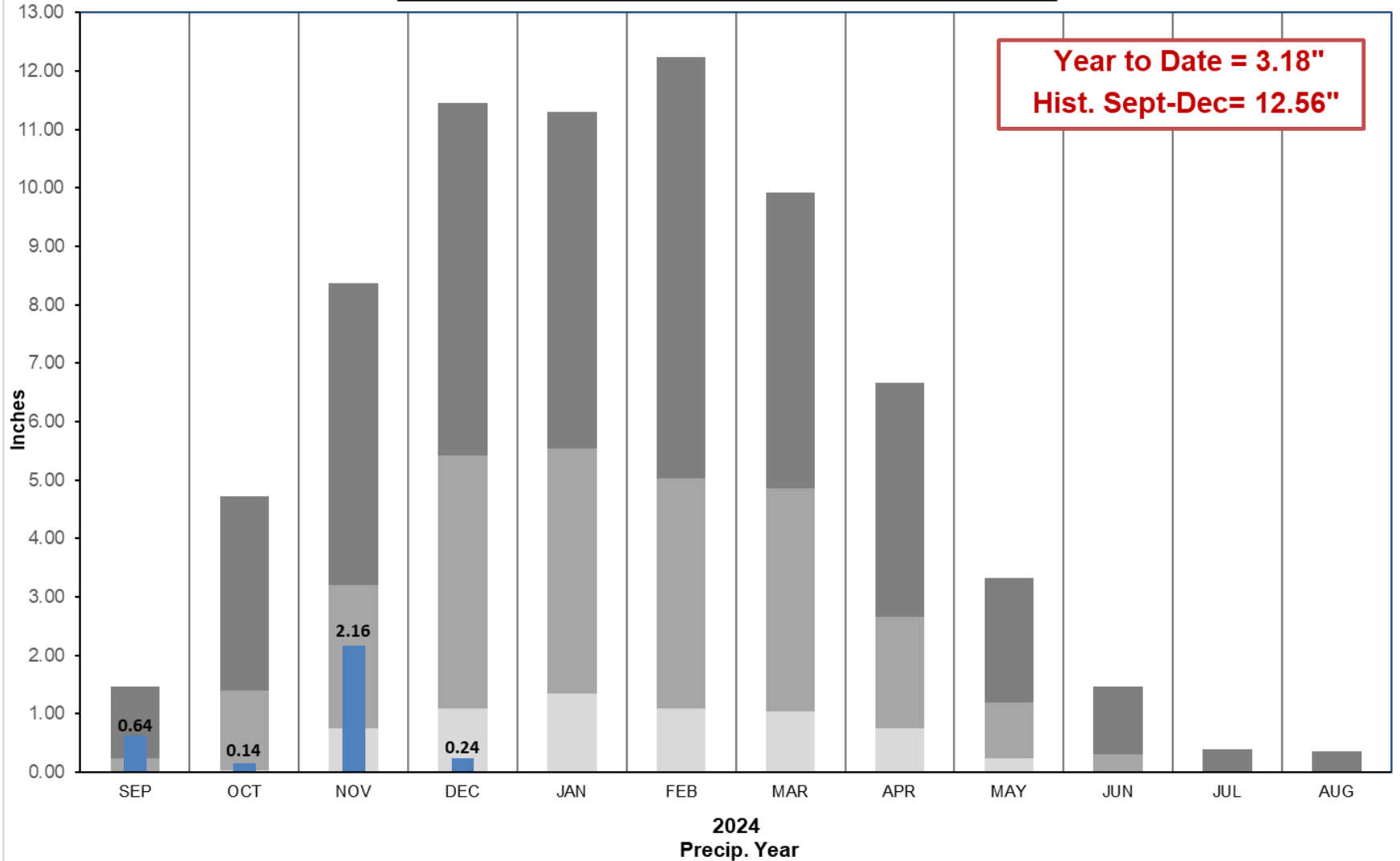
- Total accumulation amount pertains to 2023-2024 Fish Year only.
- The pulse flows are a target that represents a daily average target. The actual operational data will be adjusted to attain the annual requirement.

Based on an hourly calculation schedule for the target flows. This represents a daily average.

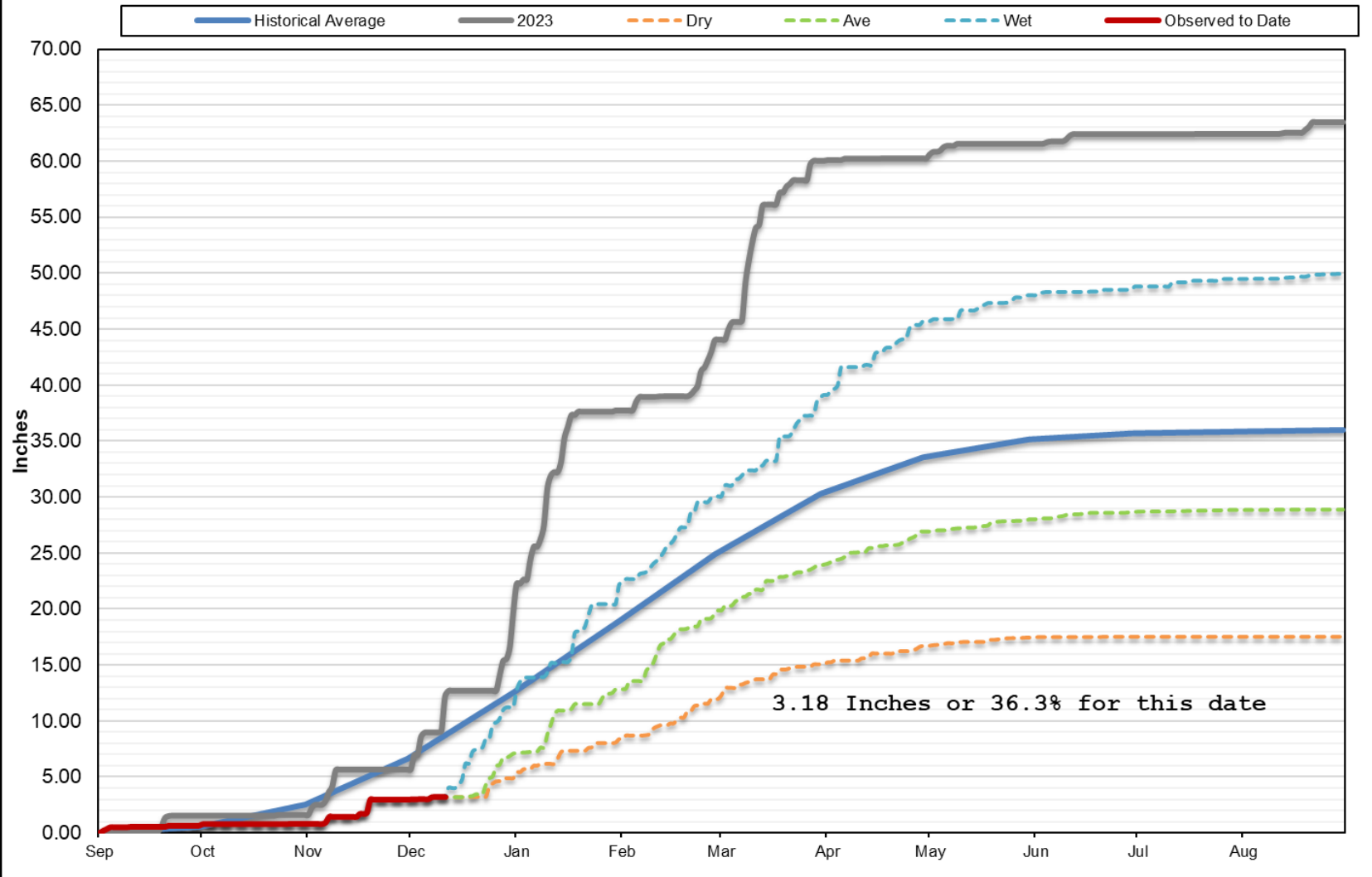
Case	60-20-20 Index		Base Total		Pulse Total		Interpolation Total		Adjustment Total		FERC Total
90%	6.232,187	60-20-20 Index	205,091		95,832		-				300,923
		Scheduled Above	205,091		95,832		-		-		300,923
		Difference	0		(0)		-		-		(0)

Tuolumne River Watershed Monthly Accumulation of Precipitation

Dry Ave Wet 2023-2024



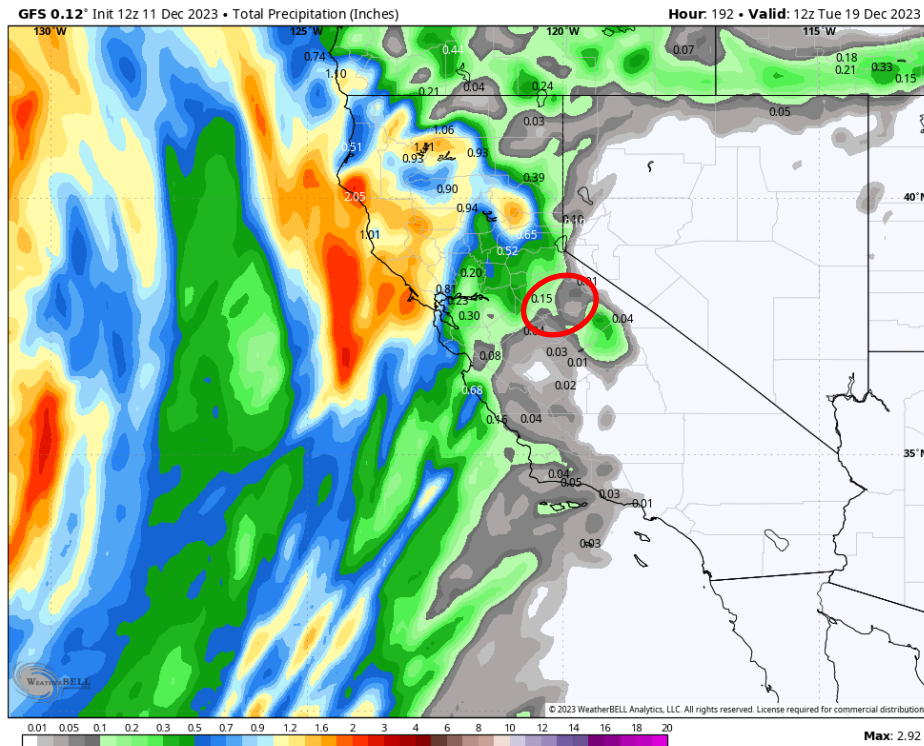
Tuolumne River Watershed Accumulated Precipitation



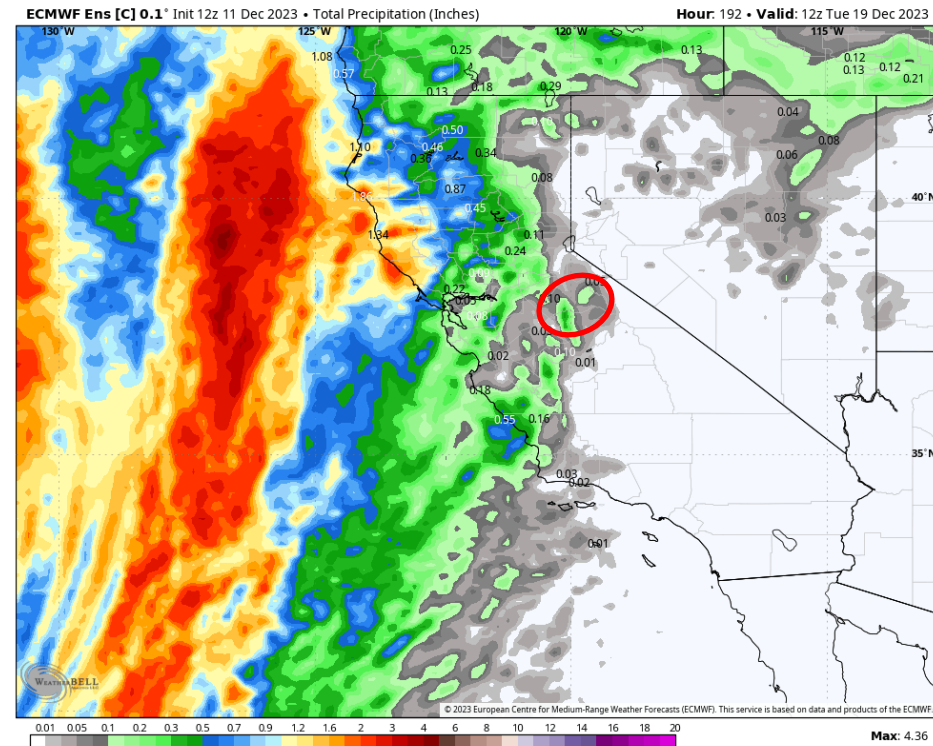
9-Day Local Forecast (Turlock)									
Date	12/12	12/13	12/14	12/15	12/16	12/17	12/18	12/19	12/20
Precip (in)	0	0	0	0	0	0.06	0.07	0.12	0.14
Temp (max) (min)	59 31	61 33	64 34	65 35	67 39	62 46	64 47	64 44	63 45

8 Day Precipitation Forecast

US MODEL

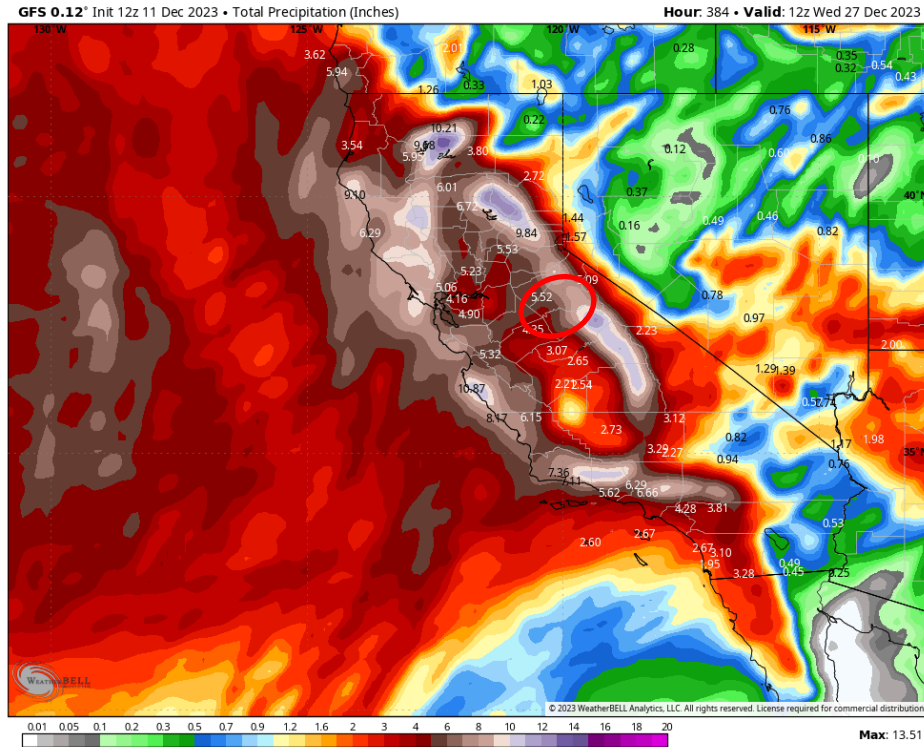


EURO MODEL

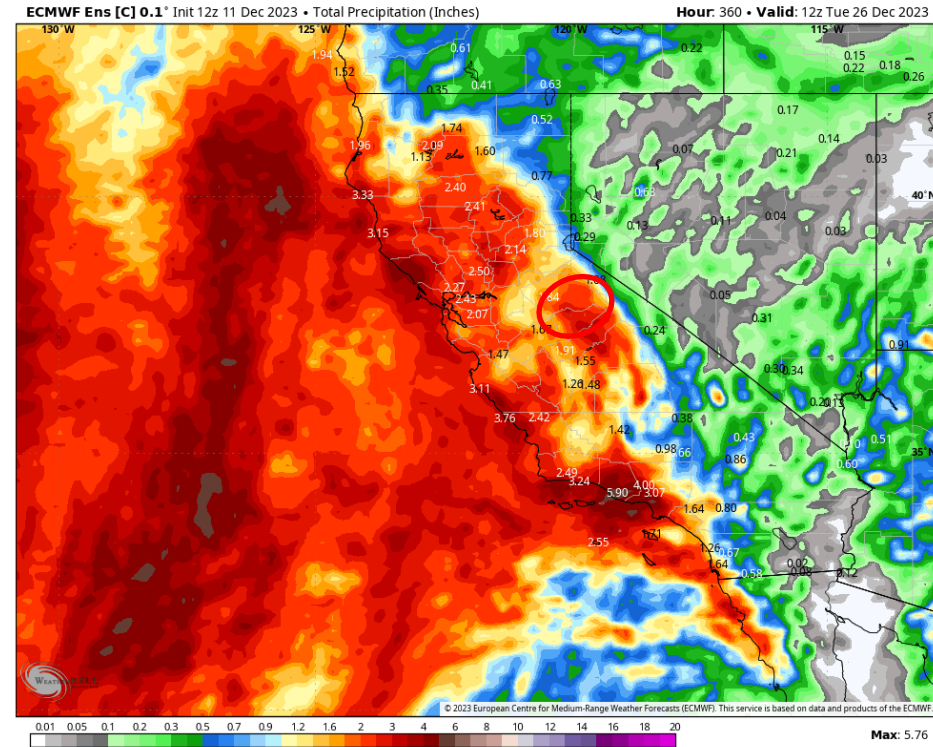


16 Day Precipitation Forecast

US MODEL



EURO MODEL



Patrick E. Maloney

From: FISHBIO Updates <updates@fishbio.com>
Sent: Wednesday, December 13, 2023 2:26 PM
To: FISHBIO Updates
Subject: Tuolumne River Weir Update through 12/12/2023
Attachments: Tuolumne Weir Update 2023.xlsx

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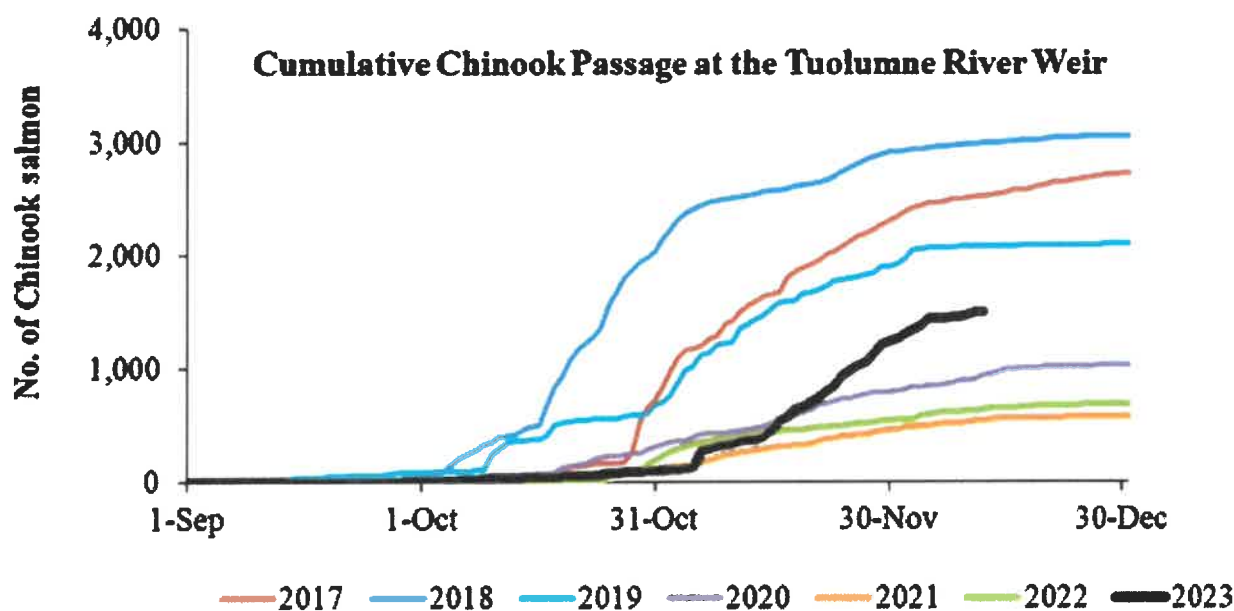
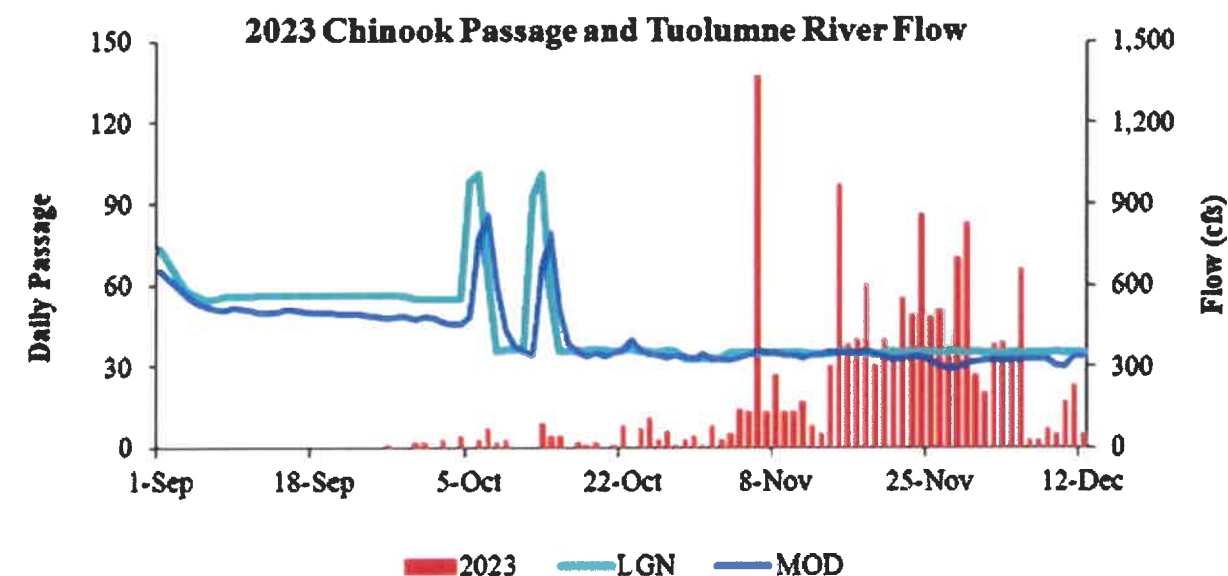
Hi All,

The VAKI RiverWatcher recorded 28 adult Chinook salmon and zero adult *O. mykiss* passages at the Tuolumne River weir between 12:00 AM on December 11 and 11:59 PM on December 12, 2023.

Regards, **FISHBIO**

Updated Through 12/12/23

Year	Monitoring Start Date	Net Passage to Date	Season Total
2023	9/12/2023	1,502	1,502
2022	9/30/2022	639	689
2021	9/29/2021	541	573
2020	9/28/2020	934	1,061
2019	9/10/2019	2,081	2,123
2018	9/12/2018	2,992	3,072
2017	9/26/2017	2,524	2,769
2016	9/19/2016	3,388	3,559
2015	9/28/2015	339	436
2014	9/29/2014	622	672
2013	9/24/2013	3,545	3,738
2012	9/24/2012	2,151	2,305
2011	9/16/2011	2,738	2,891
2010	9/9/2010	792	792
2009	9/22/2009	243	299




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Patrick E. Maloney

From: FISHBIO Updates <updates@fishbio.com>
Sent: Wednesday, December 13, 2023 2:23 PM
To: FISHBIO Updates
Subject: Stanislaus River Weir Update through 12/12/2023
Attachments: Stanislaus Weir Update 2023.xlsx

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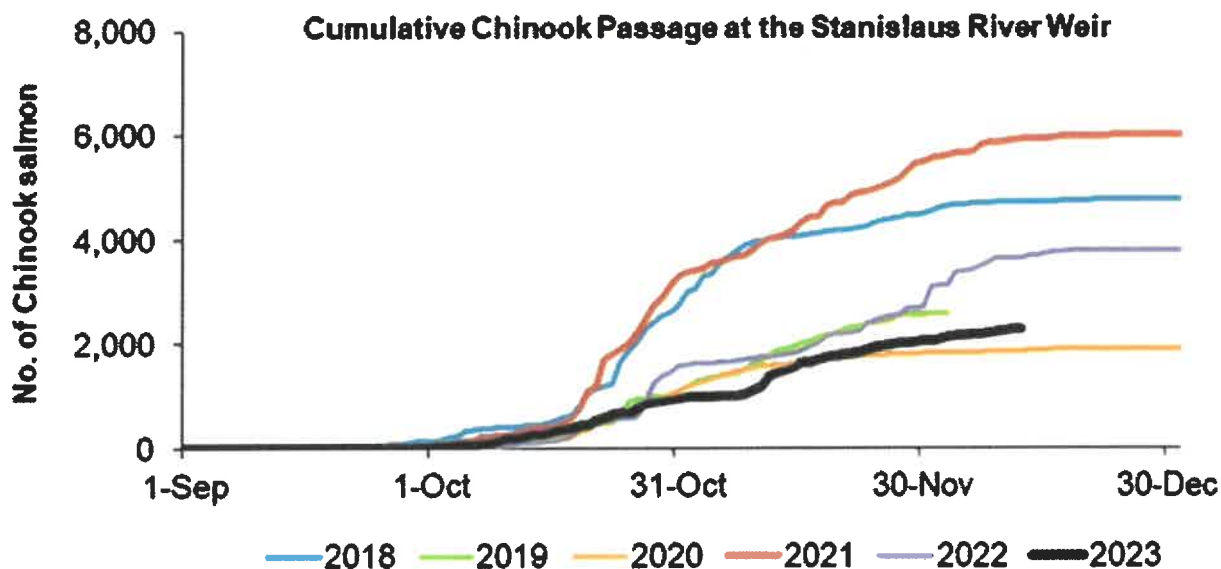
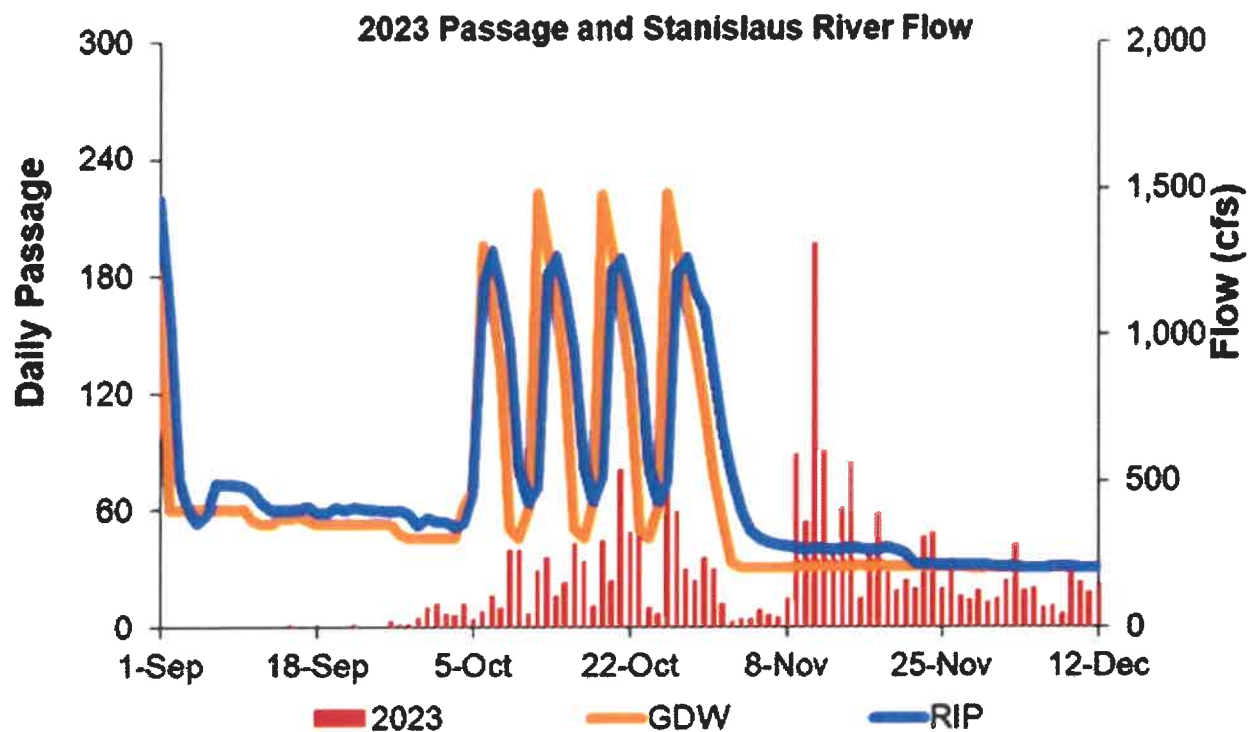
Hi All,

The VAKI RiverWatcher recorded 40 adult Chinook salmon and zero adult *O. mykiss* passages at the Stanislaus River weir between 12:00 AM on December 11 and 11:59 PM on December 12, 2023.

Regards, **FISHBIO**

Updated through: 12/12/2023

Year	Monitoring Start date	Net Passage To Date	Season Total
2023	9/6/2023	2,288	2,288
2022	9/15/2022	3,649	3,798
2021	9/8/2021	5,932	6,032
2020	9/10/2020	1,851	1,906
2019	8/29/2019	2,594	2,594
2018	9/5/2018	4,722	4,777
2017	9/15/2017	8,259	8,500
2016	9/8/2016	13,924	14,399
2015	9/15/2015	11,446	12,707
2014	9/5/2014	5,413	5,527
2013	9/3/2013	5,382	5,452
2012	9/11/2012	7,107	7,248
2011	11/8/2011	704	776
2010	9/7/2010	1,327	1,364
2009	9/9/2009	1,234	1,303
2008	9/9/2008	878	928
2007	9/22/2007	429	439
2006	9/8/2006	2,871	3,074
2005	9/8/2005	4,025	4,124
2004	9/10/2004	4,417	4,448
2003	9/5/2003	4,669	4,848



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