

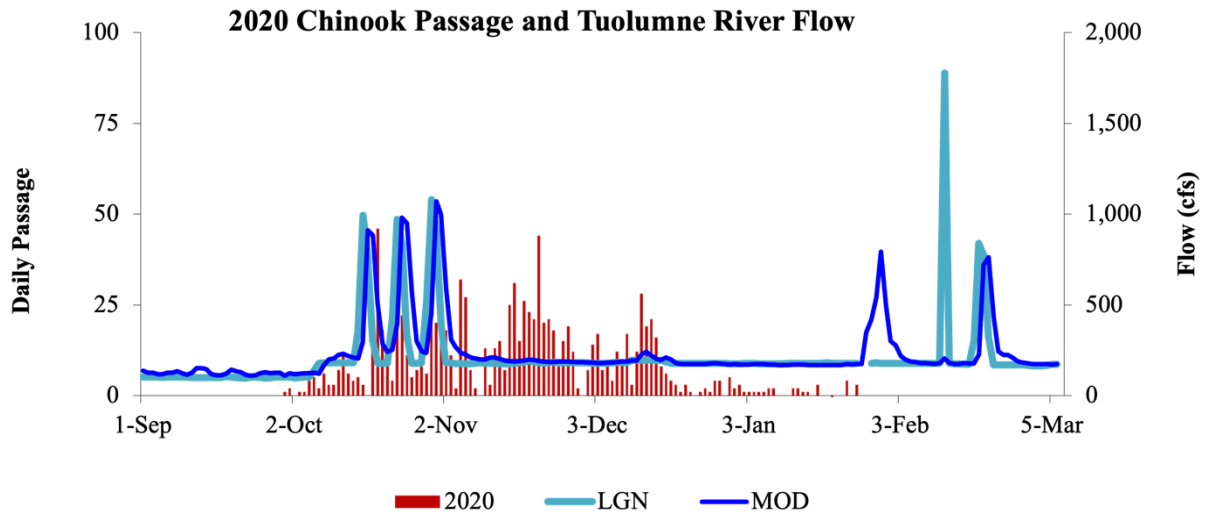


Figure 1. Daily adult Chinook passage and Tuolumne River flow at the Tuolumne River weir during 2020-21. Season total = 1,051. The last Chinook passage occurred on January 25, 2021.

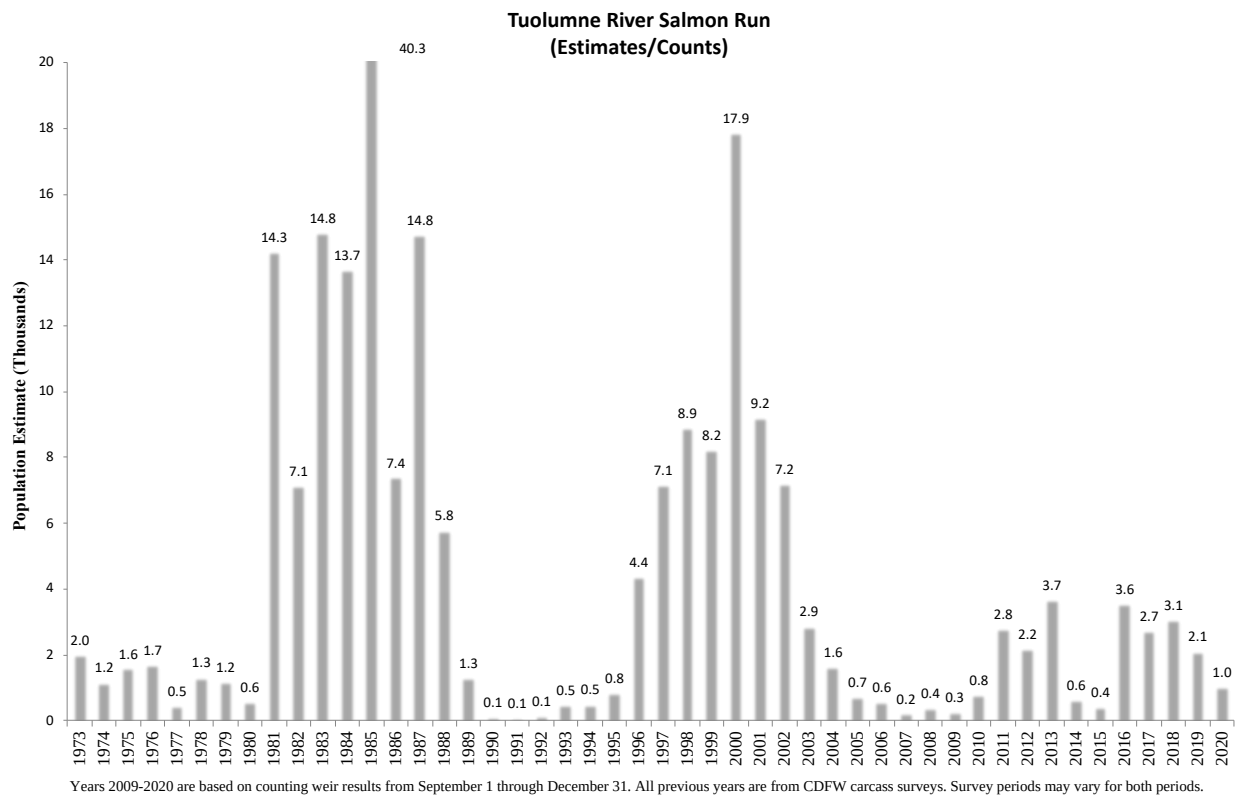


Figure 2. Total Chinook passage at the Tuolumne River Weir, 1973-2020.

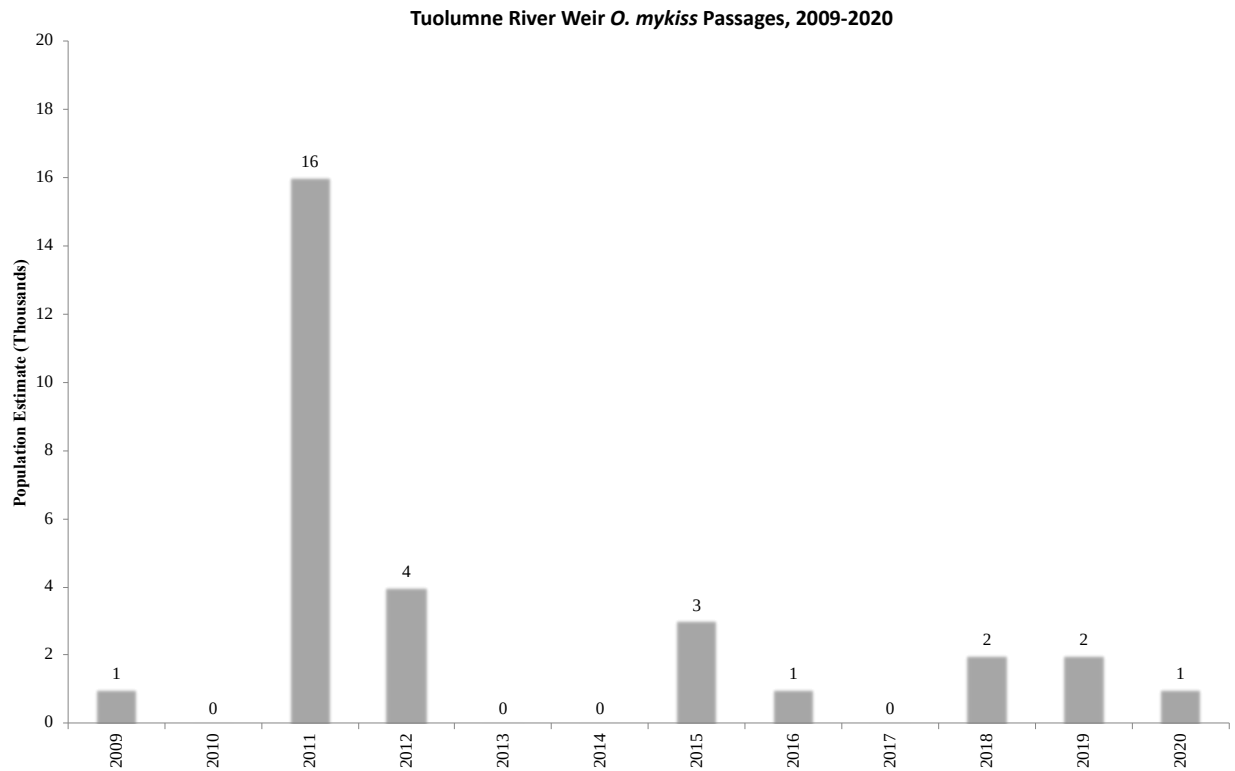


Figure 3. *O. mykiss* passages at the Tuolumne River weir during fall/winter monitoring, 2009-2020.



Figure 4. Large *O. mykiss* (~23 inches) passing through the Tuolumne River weir on February 11, 2021. Coloring suggests individual is likely a resident fish.

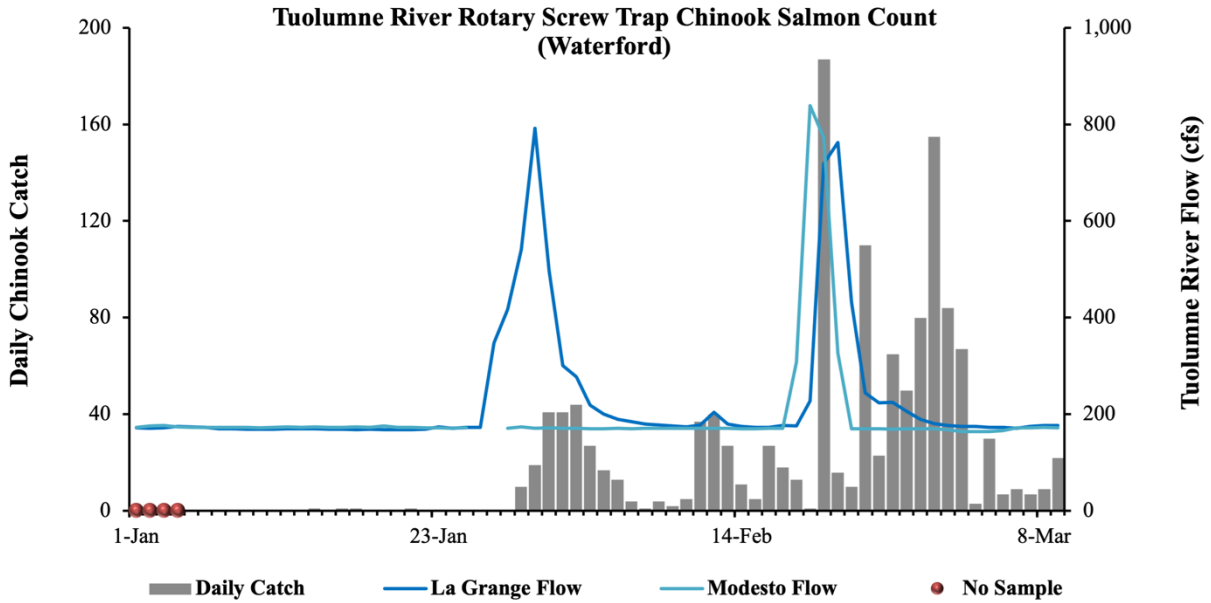


Figure 5. Daily juvenile Chinook salmon catch at the Waterford RST and river flow on the Tuolumne River, 2021. As of March 9, 1,345 Chinook have been captured.

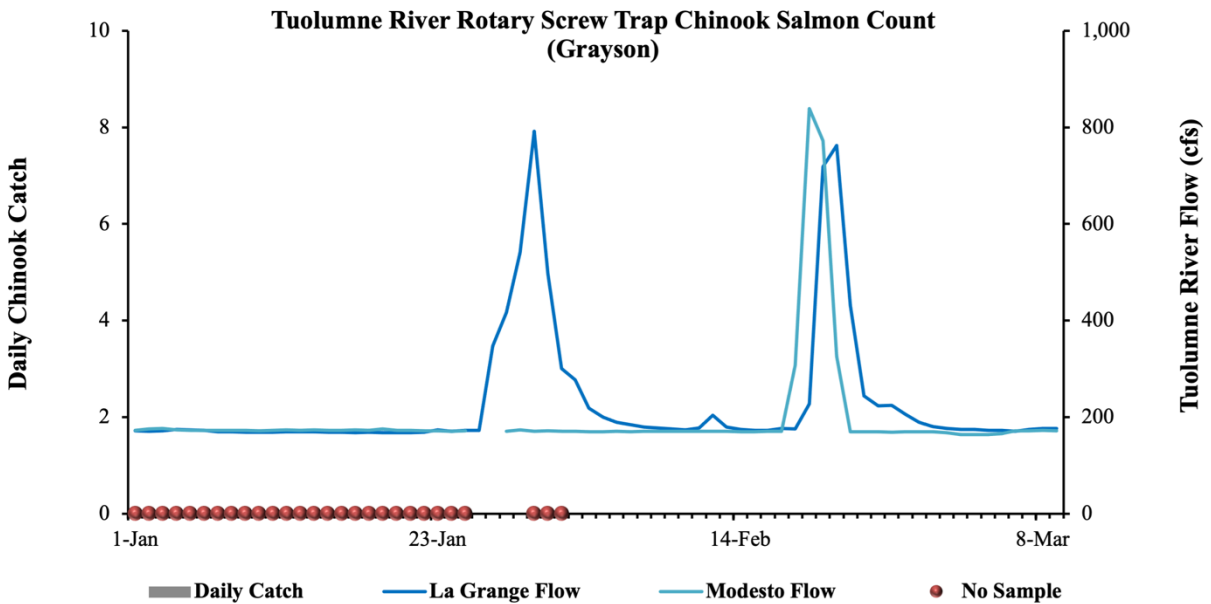


Figure 6. Daily juvenile Chinook salmon catch at the Grayson RST and river flow on the Tuolumne River, 2021. As of March 9, zero Chinook have been captured at Grayson in 2021.

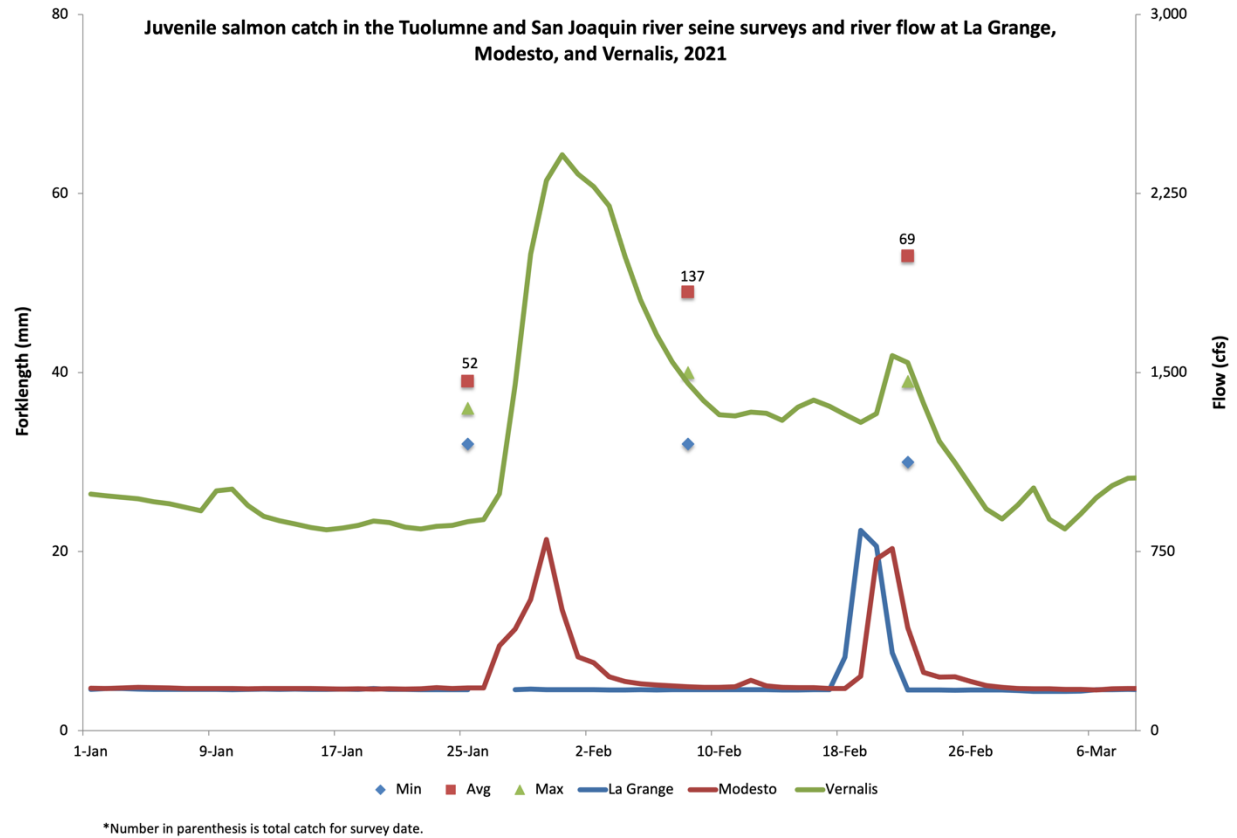


Figure 7. Juvenile salmon captured during the seine surveys and Tuolumne and San Joaquin river flow, 2021. As of 2/23/2021, 258 juvenile salmon have been captured in the Tuolumne River between Old La Grange Bridge and Charles Road. No salmon have been captured in the lower reach of the Tuolumne River or the San Joaquin River.

Infiltration Gallery and SRWA Project Update

03/10/2021

- Water quality studies lasting one year were completed last month
- Work at the site began last fall
- Conveyance pipes are currently being installed under TID laterals
- Mass grading of the Treatment Facility site will begin this spring
- The pump station will be built within the next two years
- Water is expected to be conveyed to the cities in 2023

Tuolumne River Flow Schedule
Based on DWR Values, 60-20-20 Index for 2020, Hydrologic Conditions
Schedule For 2020-2021 Fish Flow Year

DATE		Number of DAYS	BASE FLOW ¹			PULSE FLOW ²			INTERPOLATION FLOW			Other Adjusted Flow			TOTAL FERC FLOW		Agreed Upon
			CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	ACCUM. A.F.	
From:	To:																
11-Feb-2021	11-Feb-2021	1	150	298	72,000	0	0	32,619	0	0	5974	0	0	4440	150	115,033	Yes
12-Feb-2021	12-Feb-2021	1	150	298	72,298	0	0	32,619	0	0	5974	0	0	4440	150	115,331	Yes
13-Feb-2021	13-Feb-2021	1	150	298	72,595	0	0	32,619	0	0	5974	0	0	4440	150	115,628	Yes
14-Feb-2021	14-Feb-2021	1	150	298	72,893	0	0	32,619	0	0	5974	0	0	4440	150	115,926	Yes
15-Feb-2021	15-Feb-2021	1	150	298	73,190	0	0	32,619	0	0	5974	0	0	4440	150	116,224	Yes
16-Feb-2021	16-Feb-2021	1	150	298	73,488	0	0	32,619	0	0	5974	0	0	4440	150	116,521	Yes
17-Feb-2021	17-Feb-2021	1	150	298	73,785	0	0	32,619	0	0	5974	0	0	4440	150	116,819	Yes
18-Feb-2021	18-Feb-2021	1	150	298	74,083	0	0	32,619	150	298	6272	0	0	4440	300	117,414	Yes
19-Feb-2021	19-Feb-2021	1	150	298	74,380	0	0	32,619	600	1,190	7462	0	0	4440	750	118,901	Yes
20-Feb-2021	20-Feb-2021	1	150	298	74,678	0	0	32,619	581	1,152	8614	0	0	4440	731	120,351	Yes
21-Feb-2021	21-Feb-2021	1	150	298	74,975	0	0	32,619	164	326	8939	0	0	4440	314	120,974	Yes
22-Feb-2021	22-Feb-2021	1	150	298	75,273	0	0	32,619	0	0	8939	0	0	4440	150	121,271	Yes
23-Feb-2021	23-Feb-2021	1	150	298	75,570	0	0	32,619	0	0	8939	0	0	4440	150	121,569	Yes
24-Feb-2021	24-Feb-2021	1	150	298	75,868	0	0	32,619	0	0	8939	0	0	4440	150	121,866	Yes

Table 2
 Tuolumne River Flow Schedule
 Based on DWR Values, 60-20-20 Index for 2020, Hydrologic Conditions
 Schedule For 2020-2021 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.
28-Mar-2021	28-Mar-2021	1	150	298	85,388	0	0	32,619	0	0	8937	0	0	4441	150	131,385
29-Mar-2021	29-Mar-2021	1	150	298	85,685	0	0	32,619	0	0	8937	0	0	4441	150	131,682
30-Mar-2021	30-Mar-2021	1	150	298	85,983	0	0	32,619	0	0	8937	0	0	4441	150	131,980
31-Mar-2021	31-Mar-2021	1	150	298	86,280	0	0	32,619	0	0	8937	0	0	4441	150	132,277
01-Apr-2021	01-Apr-2021	1	150	298	86,578	0	0	32,619	0	0	8937	0	0	4441	150	132,575
02-Apr-2021	02-Apr-2021	1	150	298	86,875	0	0	32,619	0	0	8937	0	0	4441	150	132,872
03-Apr-2021	03-Apr-2021	1	150	298	87,173	0	0	32,619	0	0	8937	0	0	4441	150	133,170
04-Apr-2021	04-Apr-2021	1	150	298	87,470	0	0	32,619	0	0	8937	0	0	4441	150	133,468
05-Apr-2021	05-Apr-2021	1	150	298	87,768	0	0	32,619	0	0	8937	0	0	4441	150	133,765
06-Apr-2021	06-Apr-2021	1	150	298	88,065	0	0	32,619	0	0	8937	0	0	4441	150	134,063
07-Apr-2021	07-Apr-2021	1	150	298	88,363	0	0	32,619	0	0	8937	0	0	4441	150	134,360
08-Apr-2021	08-Apr-2021	1	150	298	88,660	0	0	32,619	0	0	8937	0	0	4441	150	134,658
09-Apr-2021	09-Apr-2021	1	150	298	88,958	0	0	32,619	0	0	8937	0	0	4441	150	134,955
10-Apr-2021	10-Apr-2021	1	150	298	89,255	0	0	32,619	0	0	8937	0	0	4441	150	135,253
11-Apr-2021	11-Apr-2021	1	150	298	89,553	0	0	32,619	116	230	9167	0	0	4441	266	135,780
12-Apr-2021	12-Apr-2021	1	150	298	89,850	0	0	32,619	288	571	9739	0	0	4441	438	136,649
13-Apr-2021	13-Apr-2021	1	150	298	90,148	0	0	32,619	408	809	10548	0	0	4441	558	137,756
14-Apr-2021	14-Apr-2021	1	150	298	90,445	0	0	32,619	683	1,355	11903	0	0	4441	833	139,408
No. of days		365														

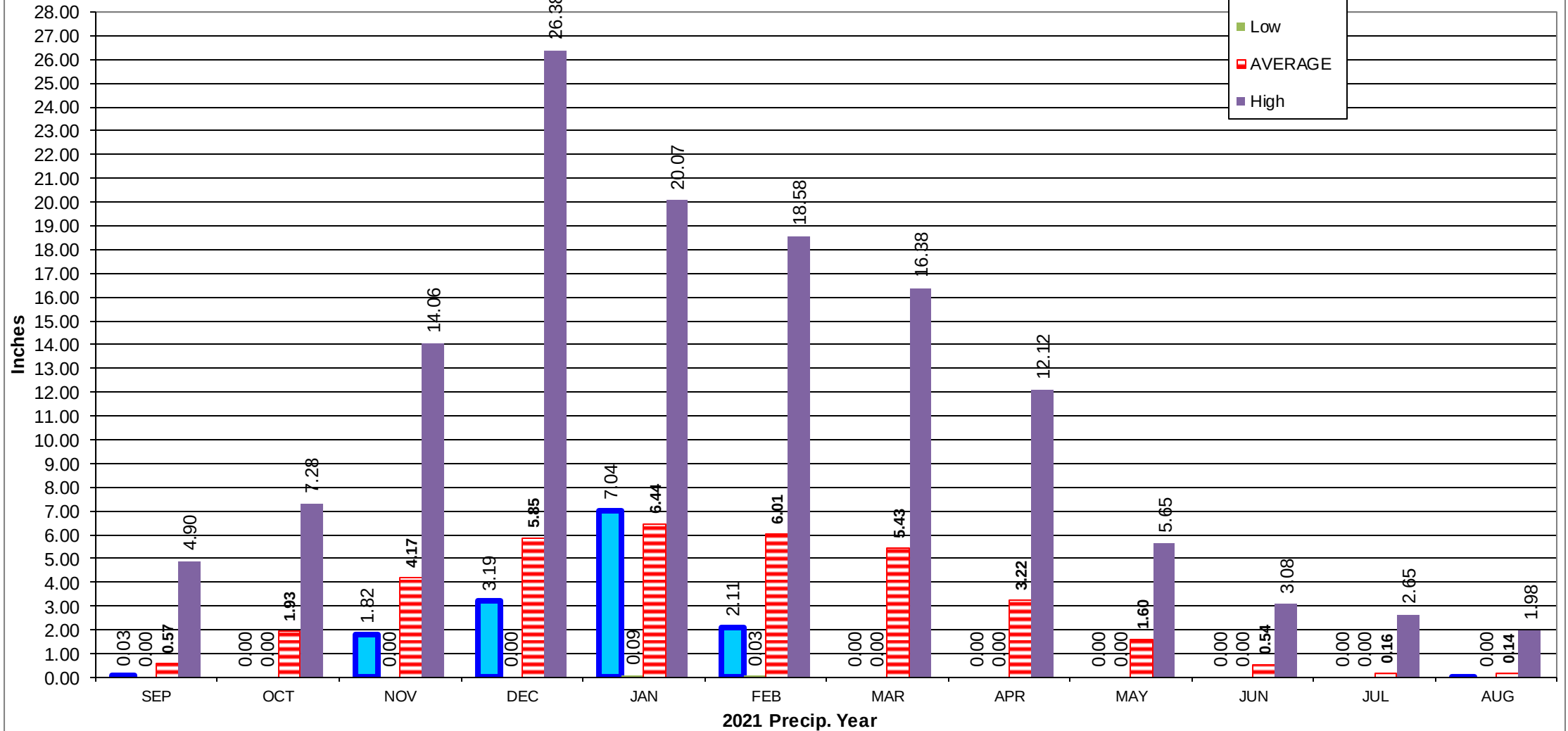
1 cfs day = 1.983471 acre-feet (af)

1. Total accumulation amount pertains to 2020-2021 Fish Year only.
2. The pulse flows are a target that represents a daily average target. The actual operational data will be adjusted to attain the annual requirement.
3. Based on an hourly calculation schedule for the target flows. This represents a daily average.

	Mar 2021 SNOW COURSE READINGS										
		TUOLUMNE BASIN SNOW COURSE SURVEY DATA									
				Ave. W. C.					% of	% of	% of
	Snow Course	Number	Elevation	on 01APR	Date	Depth	W. C.	Density	01APR	01Mar	01Apr
*	DANA MEADOWS	157	9,800	30.1	1-Mar	51.0	15.1	29.6%	50%	61%	50.8%
*	RAFFERTY MEADOWS	158	9,400	32.5							
*	BOND PASS	159	9,300	43.7	1-Mar	69.0	21.0	30.4%	48%	62%	48.1%
	NEW GRACE MEADOW	368	8,900	46.6	1-Mar	72.0	24.0	33.3%	52%	63%	51.4%
*	TUOLUMNE MEADOWS	161	8,600	22.3	1-Mar	44.0	12.5	28.4%	56%	64%	56.0%
*	HORSE MEADOW	162	8,400	45.8	1-Mar	72.0	24.0	33.3%	52%	66%	52.6%
	WILMER LAKE	163	8,000	42.9	1-Mar	70.0	21.5	30.7%	50%	61%	50.5%
*	SACHSE SPRINGS 2	441	7,900	36.7	1-Mar	54.0	19.0	35.2%	52%	60%	50.5%
*	HUCKLEBERRY LAKE	166	7,800	40.4	1-Mar	66.0	21.0	31.8%	52%	63%	51.4%
*	SPOTTED FAWN	164	7,800	44.8	1-Mar	70.0	21.0	30.0%	47%	57%	47.1%
*	PARADISE MEADOW	167	7,650	38.6	1-Mar	66.0	22.0	33.3%	57%	71%	56.8%
*	KERRICK CORRAL	348	7,000	23.0							
	UPPER KIBBIE RIDGE	168	6,700	17.8	1-Mar	33.0	11.5	34.8%	65%	65%	61.2%
*	VERNON LAKE	169	6,700	21.6	1-Mar	44.0	15.0	34.1%	69%	76%	68.1%
*	LOWER KIBBIE RIDGE	173	6,700	24.2	1-Mar	41.0	15.5	37.8%	64%	68%	60.9%
*	BELL MEADOW	172	6,500	14.8							
*	BEEHIVE MEADOW	171	6,500	22.2	1-Mar	48.0	16.0	33.3%	72%	74%	67.4%
	Average	17 TOT.	7,862			57.1	18.5	32.6%	56%	65.0%	55.2%

Watershed Monthly Accumulation of Precipitation

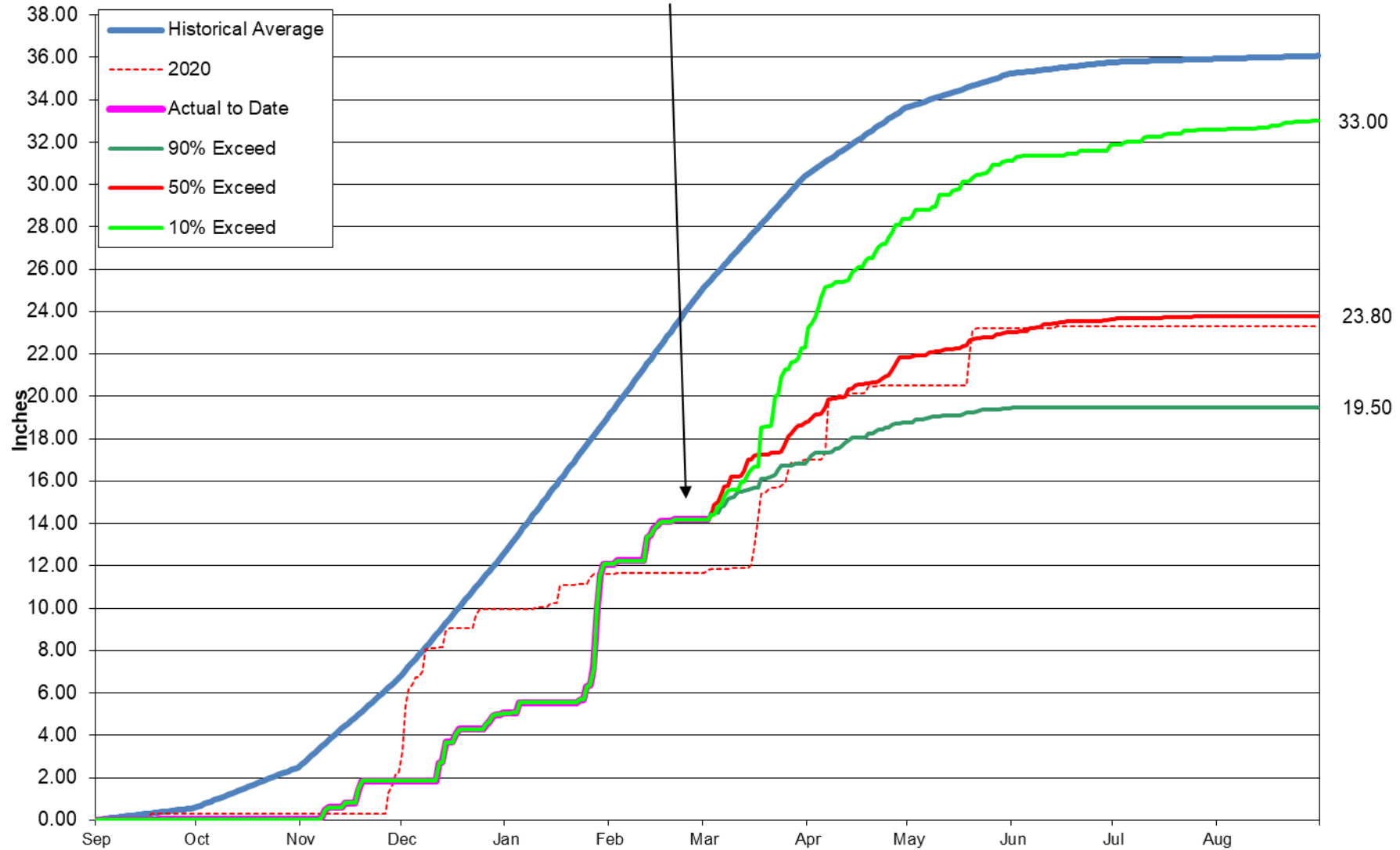
14.19 Inches or 56.0% for this date



Date	9/30/20	10/31/20	11/30/20	12/31/20	1/31/21	2/28/21	3/31/21	4/30/21	5/31/21	6/30/21	7/31/21	8/31/21
Low	0.00	0.00	0.00	0.00	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Average	0.57	1.93	4.17	5.85	6.44	6.01	5.43	3.22	1.60	0.54	0.16	0.14
High	4.90	7.28	14.06	26.38	20.07	18.58	16.38	12.12	5.65	3.08	2.65	1.98

Watershed Accumulated Precipitation

14.19 Inches or 56.0% for this date

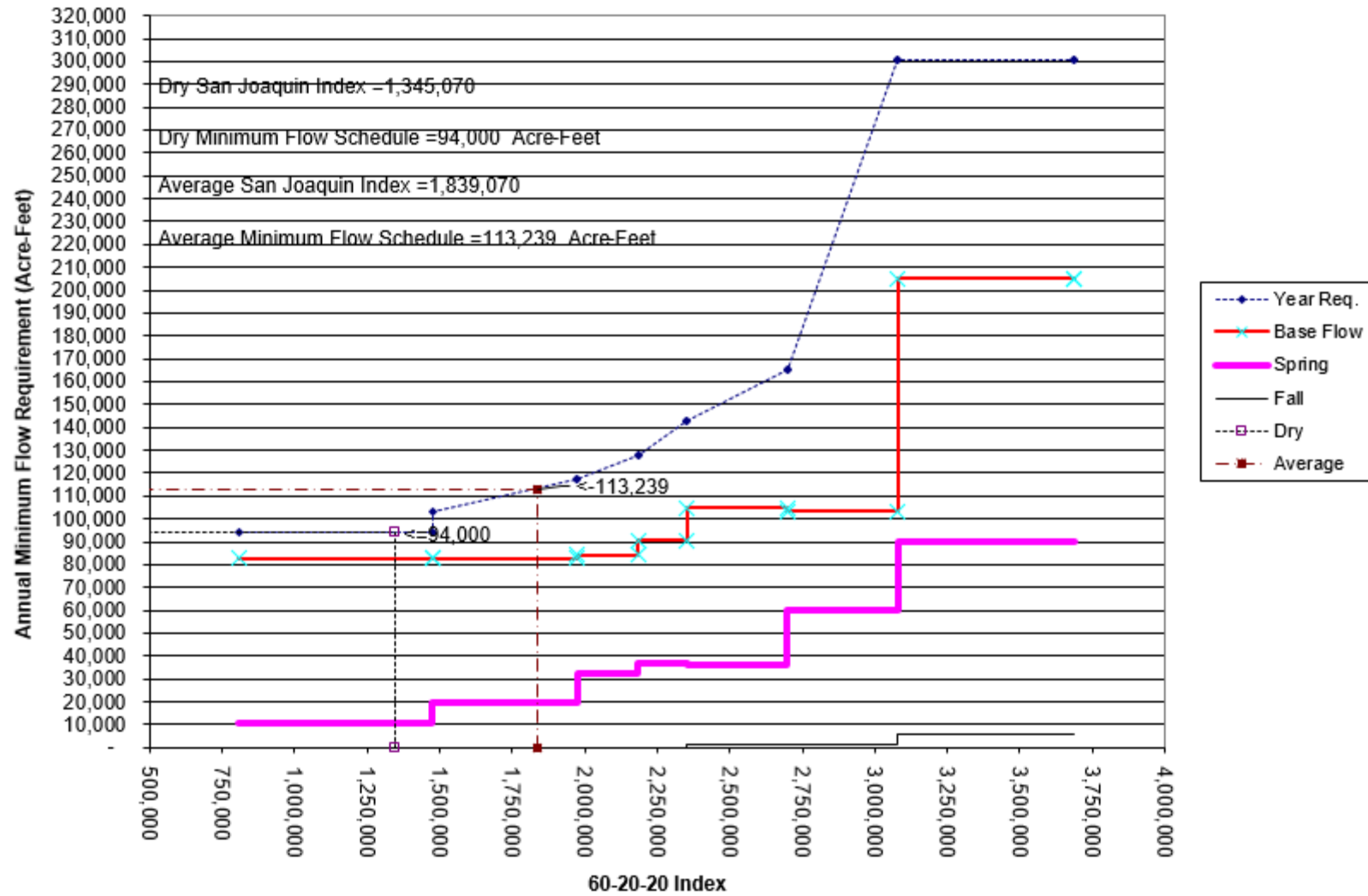


SAN JOAQUIN VALLEY WATER YEAR HYDROLOGIC CLASSIFICATION

602020 INDEX

60-20-20 YEAR	APRIL-JULY RUNOFF (AF)					OCTOBER-MARCH RUNOFF (AF)					602020 INDEX	TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT	San Joaquin Index (not the FERC Index)	FERC Index
	STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL			RANKING	
20	437,802	686,861	358,258	670,195	2,153,116	216,128	269,451	124,028	192,804	802,411	2,352,352	142,502	Dry	INTERMEDIATE D-BN
21	400,000	720,000	330,000	620,000	2,070,000	172,000	190,000	98,000	173,000	633,000	1,839,070	113,239	Critical	MEDIAN CRITICAL WATER YEAR
Feb 1 Forecast														
Dry	350,000	700,000	320,000	580,000	1,950,000	144,000	205,000	112,000	145,000	606,000	1,761,670	111,055	Critical	MEDIAN CRITICAL WATER YEAR
Average	500,000	930,000	470,000	840,000	2,740,000	209,000	295,000	152,000	235,000	891,000	2,292,670	137,217	Dry	MEDIAN DRY
Wet	790,000	1,350,000	710,000	1,180,000	4,030,000	304,000	420,000	222,000	325,000	1,271,000	3,142,670	300,923	Above Normal	INTERMEDIATE BN-AN
Feb 09 Update														
Dry	310,000	620,000	290,000	520,000	1,740,000	144,000	205,000	112,000	145,000	606,000	1,635,670	107,500	Critical	MEDIAN CRITICAL WATER YEAR
Average	460,000	850,000	440,000	780,000	2,530,000	209,000	295,000	152,000	235,000	891,000	2,166,670	126,690	Dry	INTERMEDIATE C-D WATER YEAR
Wet	730,000	1,260,000	670,000	1,110,000	3,770,000	304,000	420,000	222,000	325,000	1,271,000	2,986,670	267,829	Below Normal	MEDIAN BELOW NORMAL
Feb 16 Update														
Dry	310,000	610,000	290,000	520,000	1,730,000	144,000	205,000	112,000	145,000	606,000	1,629,670	107,331	Critical	MEDIAN CRITICAL WATER YEAR
Average	470,000	850,000	440,000	780,000	2,540,000	209,000	295,000	152,000	235,000	891,000	2,172,670	126,989	Dry	INTERMEDIATE C-D WATER YEAR
Wet	740,000	1,250,000	660,000	1,110,000	3,760,000	304,000	420,000	222,000	325,000	1,271,000	2,980,670	265,690	Below Normal	MEDIAN BELOW NORMAL
Feb 23 Update														
Dry	280,000	540,000	250,000	450,000	1,520,000	144,000	205,000	112,000	145,000	606,000	1,503,670	103,776	Critical	MEDIAN CRITICAL WATER YEAR
Average	440,000	780,000	400,000	710,000	2,330,000	209,000	295,000	152,000	235,000	891,000	2,046,670	120,697	Critical	INTERMEDIATE C-D WATER YEAR
Wet	700,000	1,170,000	610,000	1,030,000	3,510,000	304,000	420,000	222,000	325,000	1,271,000	2,830,670	212,222	Below Normal	MEDIAN BELOW NORMAL
Mar 01 Update														
Dry	250,000	490,000	190,000	370,000	1,300,000	131,000	150,000	64,000	128,000	473,000	1,345,070	94,000	Critical	CRITICAL WATER YEAR AND BELOW
Average	400,000	720,000	330,000	620,000	2,070,000	172,000	190,000	98,000	173,000	633,000	1,839,070	113,239	Critical	MEDIAN CRITICAL WATER YEAR
Wet	640,000	1,090,000	530,000	920,000	3,180,000	236,000	255,000	134,000	228,000	853,000	2,549,070	155,300	Below Normal	INTERMEDIATE D-BN

TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT (Figure 1)
Annual Flow Requirement



Model

GFS Ensemble

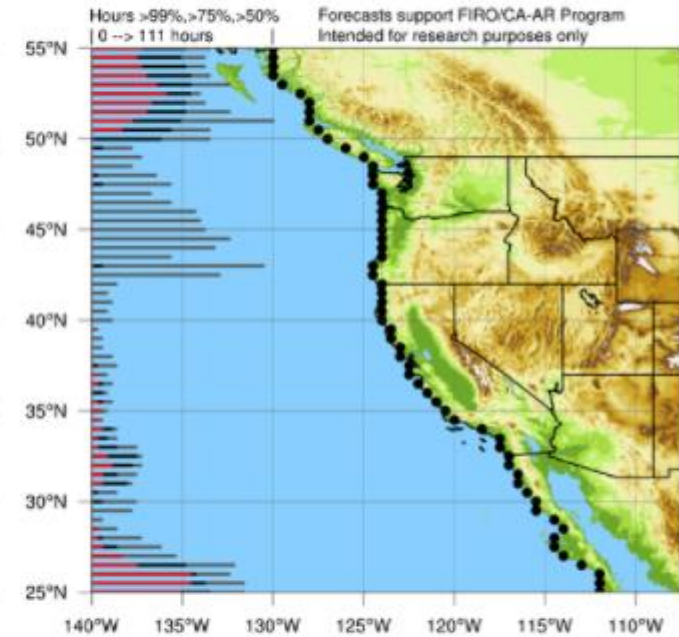
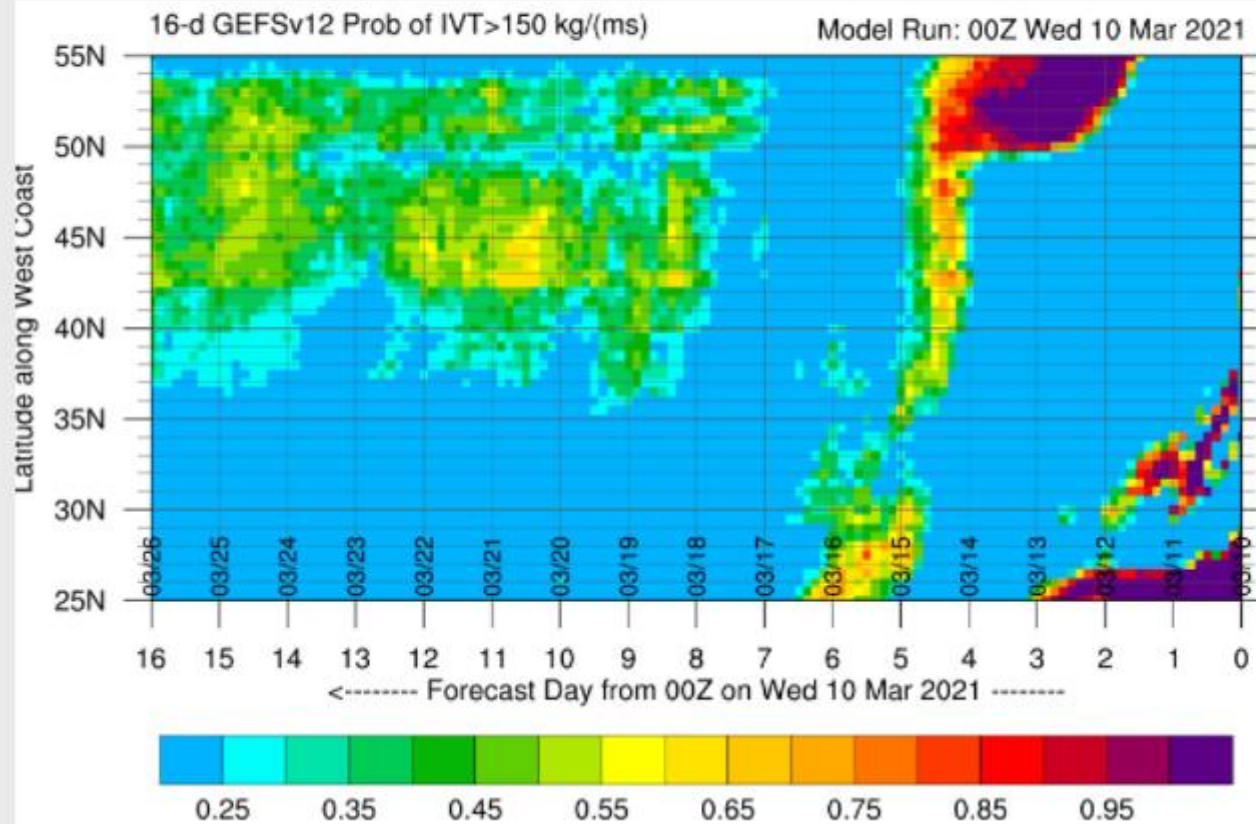
Type

Probability of IVT >150 kg/(ms)

Location

Coastal

dProg/dT



Center for Western Weather
and Water Extremes
JAMES H. HUSTON OF OREGON STATE
AT UC SAN DIEGO



Model

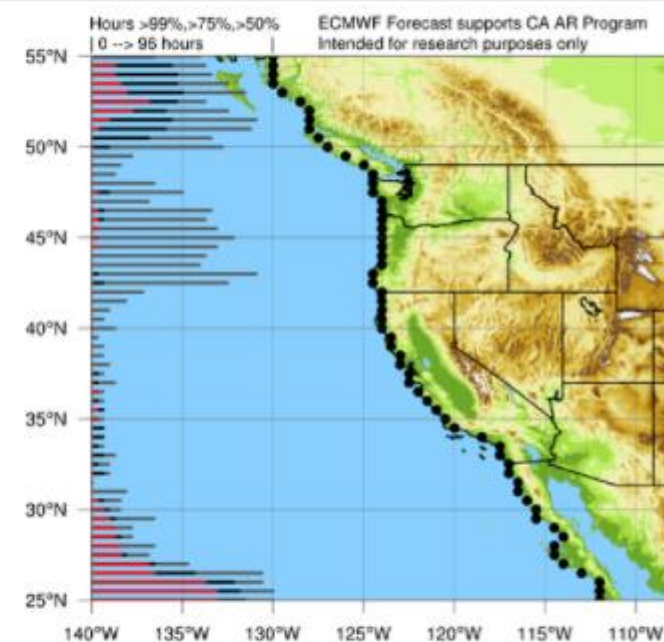
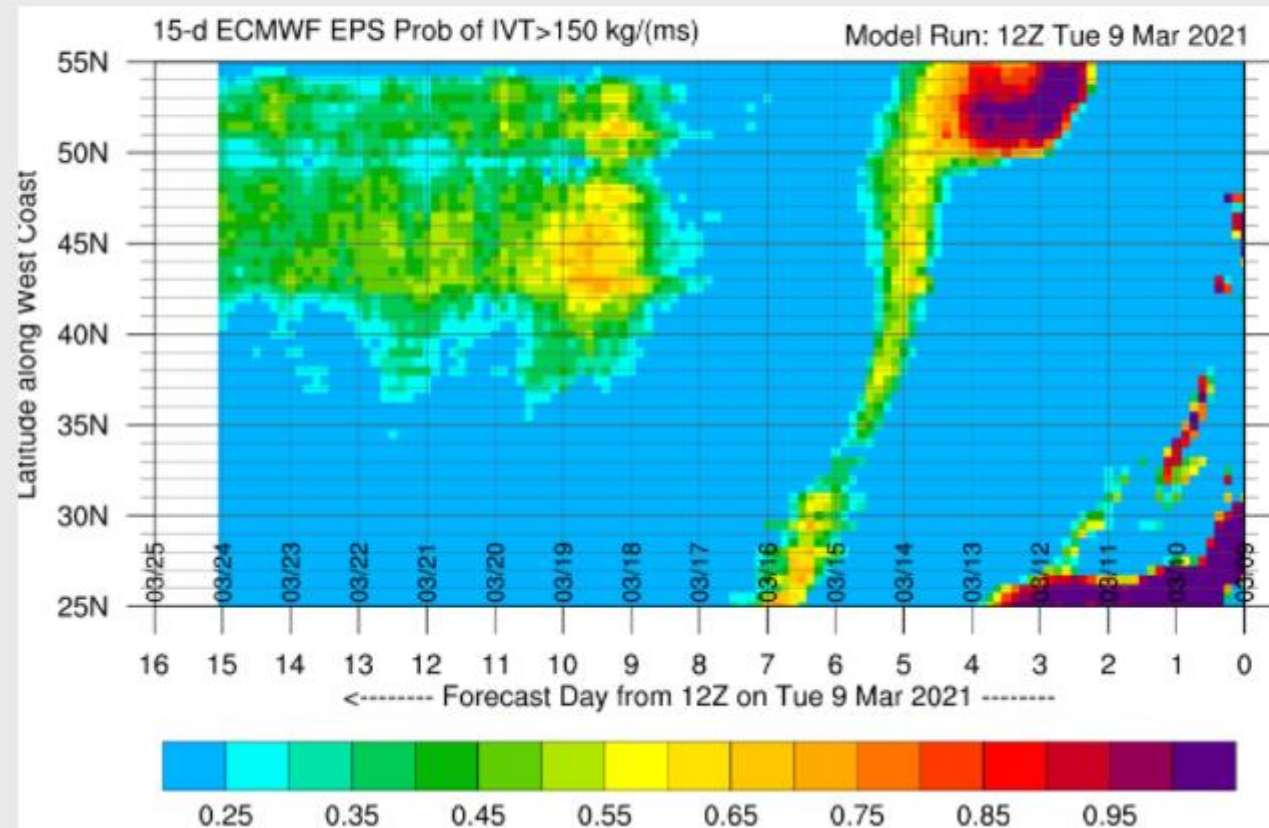
ECMWF Ensemble ▾

Type

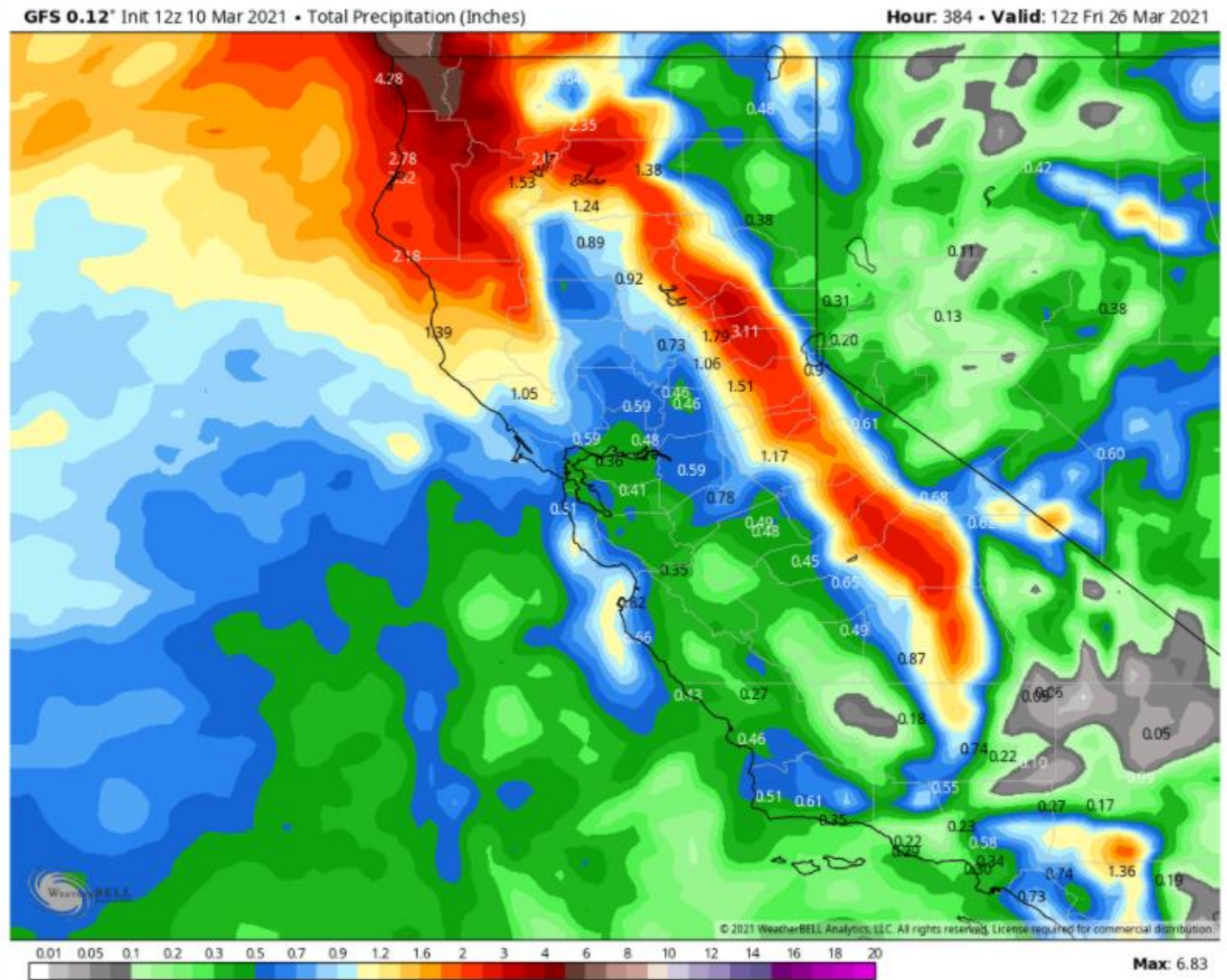
Probability of IVT >150 kg/(ms) ▾

Location

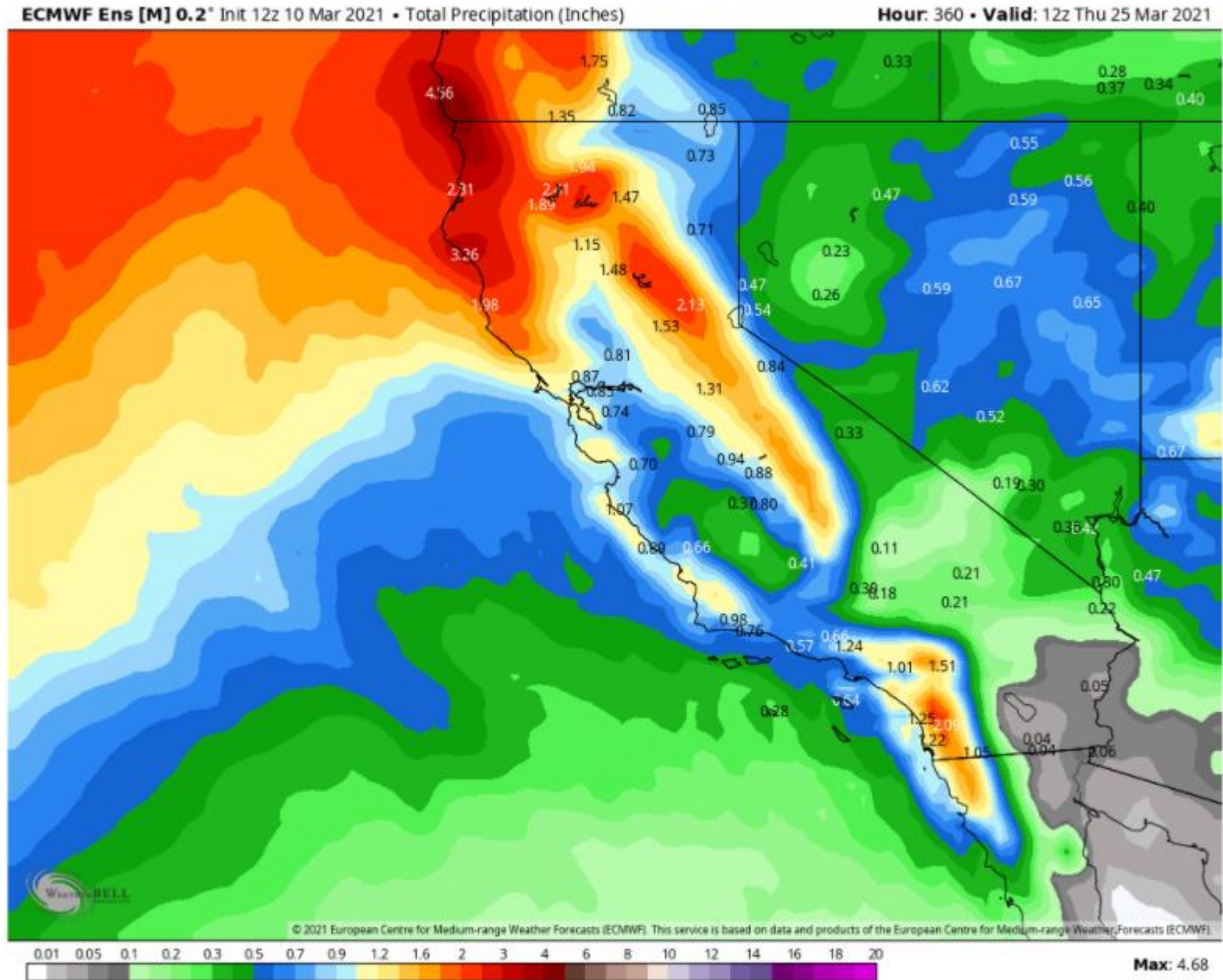
Coastal ▾



US Model



European



TUOLUMNE RIVER DRAFT SPRING FLOW SCHEDULE 2021

Proposal for using 11,091AF of Spring Pulse Water

Date	Daily Av CFS	Daily Total AF	AV Base CFS	AV Pulse CFS	AV Interpolation CFS	AV Other CFS
04/10/21	150	297.52	150	0	0	0
04/11/21	266	527.15	150	0	116	0
04/12/21	438	867.46	150	0	288	0
04/13/21	558	1107	150	0	408	0
04/14/21	833	1652.16	150	0	683	0
04/15/21	2090	4144.63	150	1940	0	0
04/16/21	976	1936.36	150	826	0	0
04/17/21	450	892.56	150	300	0	0
04/18/21	867	1719.01	150	717	0	0
04/19/21	1294	2566.12	150	1144	0	0
04/20/21	805	1569.69	150	655	0	0
04/21/21	160	318.31	150	10	0	0

Date	Time	Total CFS
04/10/21	0:00	150
04/11/21	9:00	270
04/11/21	10:00	280
04/11/21	11:00	300
04/11/21	12:00	330
04/11/21	13:00	350
04/12/21	10:00	500
04/13/21	10:00	600
04/14/21	10:00	1000
04/15/21	5:00	1500
04/15/21	6:00	2000
04/15/21	7:00	2500
04/15/21	21:00	2370
04/15/21	22:00	2200
04/15/21	23:00	2080
04/16/21	0:00	1960
04/15/21	1:00	1850
04/16/21	2:00	1740
04/16/21	3:00	1630
04/16/21	4:00	1530
04/16/21	5:00	1430
04/16/21	6:00	1330

Date	Time	Total CFS
04/16/21	7:00	1240
04/16/21	8:00	1150
04/16/21	9:00	1060
04/16/21	10:00	980
04/16/21	11:00	900
04/16/21	12:00	820
04/16/21	15:00	750
04/16/21	14:00	680
04/16/21	15:00	620
04/16/21	16:00	560
04/16/21	17:00	500
04/16/21	18:00	450
04/18/21	11:00	850
04/18/21	12:00	1050
04/18/21	13:00	1250
04/19/21	9:00	1450
04/19/21	14:00	1300
04/19/21	15:00	1250
04/20/21	8:00	1070
04/20/21	9:00	990
04/20/21	10:00	910
04/20/21	11:00	830
04/20/21	12:00	760
04/20/21	13:00	690
04/20/21	14:00	560
04/20/21	15:00	480
04/20/21	16:00	460
04/20/21	17:00	455
04/20/21	18:00	450
04/20/21	19:00	410
04/20/21	20:00	370
04/20/21	21:00	325
04/20/21	22:00	290
04/20/21	23:00	270
04/21/21	0:00	250
04/21/21	1:00	225
04/21/21	2:00	200
04/21/21	3:00	177
04/21/21	4:00	150

TUOLUMNE RIVER DRAFT SPRING FLOW SCHEDULE 2021

Proposal for using 20,091AF of Spring Pulse Water

Date	Daily Av CFS	Daily Total AF	AV Base CFS	AV Pulse CFS	AV Interpolation CFS	AV Other CFS
04/10/21	150	297.52	150	0	0	0
04/11/21	266	527.15	150	0	124	0
04/12/21	438	867.46	150	0	288	0
04/13/21	558	1107	150	0	408	0
04/14/21	833	1652.16	150	0	683	0
04/15/21	2090	4144.63	150	1940	0	0
04/16/21	976	1936.36	150	826	0	0
04/17/21	450	892.56	150	300	0	0
04/18/21	867	1719.01	150	717	0	0
04/19/21	1250	2479.34	150	1100	0	0
04/20/21	956	1896.69	150	806	0	0
04/21/21	740	1467.77	150	590	0	0
04/22/21	890	1766.12	150	740	0	0
04/23/21	885	1755.37	150	735	0	0
04/24/21	885	1754.55	150	735	0	0
04/25/21	893	1770.25	150	743	0	0
04/26/21	862	1710.33	150	712	0	0
4/27/2021	336	666.53	150	186	0	0

Date	Time	Total CFS
04/10/21	0:00	150
4/11/21	9:00	270
4/11/21	10:00	280
4/11/21	11:00	300
4/11/22	12:00	330
4/11/23	13:00	350
04/12/21	10:00	500
04/13/21	10:00	600
04/14/21	10:00	1000
04/15/21	5:00	1500
04/15/21	6:00	2000
04/15/21	7:00	2500
04/15/21	21:00	2370
04/15/21	22:00	2200
04/15/21	23:00	2080
04/16/21	0:00	1960

Date	Time	Total CFS
04/16/21	1:00	1850
04/16/21	2:00	1740
04/16/21	3:00	1630
04/16/21	4:00	1530
04/16/21	5:00	1430
04/16/21	6:00	1330
04/16/21	7:00	1240
04/16/21	8:00	1150
04/16/21	9:00	1060
04/16/21	10:00	980
04/16/21	11:00	900
04/16/21	12:00	820
04/16/21	13:00	750
04/16/21	14:00	680
04/16/21	15:00	620
04/16/21	16:00	560
04/16/21	17:00	500
04/16/21	18:00	450
04/18/21	10:00	650
04/18/21	11:00	850
04/18/21	12:00	1050
04/18/21	13:00	1250
04/20/21	10:00	1150
04/20/21	11:00	1070
04/20/21	12:00	990
04/20/21	13:00	910
04/20/21	14:00	830
04/20/21	15:00	760
04/20/21	16:00	690
04/20/21	17:00	630
04/20/21	18:00	570
04/21/21	16:00	770
04/21/21	17:00	970
04/21/21	18:00	1150
04/22/21	10:00	1070
04/22/21	11:00	990
04/22/21	12:00	910
04/22/21	13:00	830
04/22/21	14:00	760
04/22/21	15:00	690
04/22/21	16:00	630
04/22/21	17:00	570

Date	Time	Total CFS
04/23/21	10:00	770
04/23/21	11:00	970
04/23/21	12:00	1150
04/24/21	10:00	1070
04/24/21	11:00	990
04/24/21	12:00	910
04/24/21	13:00	830
04/24/21	14:00	760
04/24/21	15:00	690
04/24/21	16:00	630
04/24/21	17:00	550
04/25/21	10:00	970
04/25/21	11:00	1150
04/26/21	10:00	1070
04/26/21	11:00	990
04/26/21	12:00	910
04/26/21	13:00	830
04/26/21	14:00	760
04/26/21	15:00	690
04/26/21	16:00	630
04/26/21	17:00	560
04/26/21	18:00	480
04/26/21	19:00	460
04/26/21	20:00	455
04/26/21	23:00	450
04/27/21	11:00	410
04/27/21	12:00	370
04/27/21	13:00	325
04/27/21	14:00	290
04/27/21	15:00	270
04/27/21	16:00	250
04/27/21	17:00	225
04/27/21	18:00	200
04/27/21	19:00	175
04/27/21	20:00	150