

Patrick E. Maloney

From: FISHBIO Updates <updates@fishbio.com>
Sent: Monday, December 11, 2017 9:59 AM
To: FISHBIO Updates
Subject: Tuolumne Weir Update Through 12/10/17
Attachments: pastedGraphic.pdf; pastedGraphic.pdf; Tuolumne Weir Update 2017 .xlsx

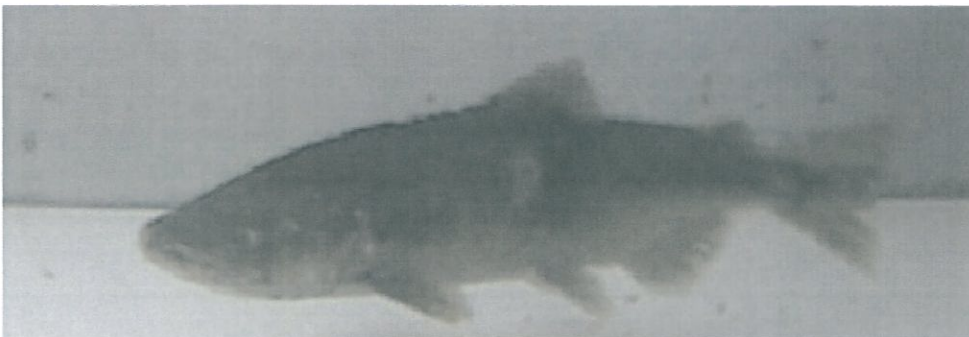
Updated Through:
12/10/17

Year	Monitoring Start Date	Net Passage to Date	Season Total
2017	9/26/17	2502	-
2016	9/19/16	3334	3531
2015	9/28/15	319	438
2014	9/29/14	594	673
2013	9/24/13	3532	3744
2012	9/24/12	2147	2302
2011	9/16/11	2725	2907
2010	9/9/10	790	790
2009	9/22/09	234	301

To All:

The Riverwatcher recorded 27 Chinook salmon passages at the Tuolumne River weir between 12:00 AM on December 8 and 11:59 PM on December 10, 2017.

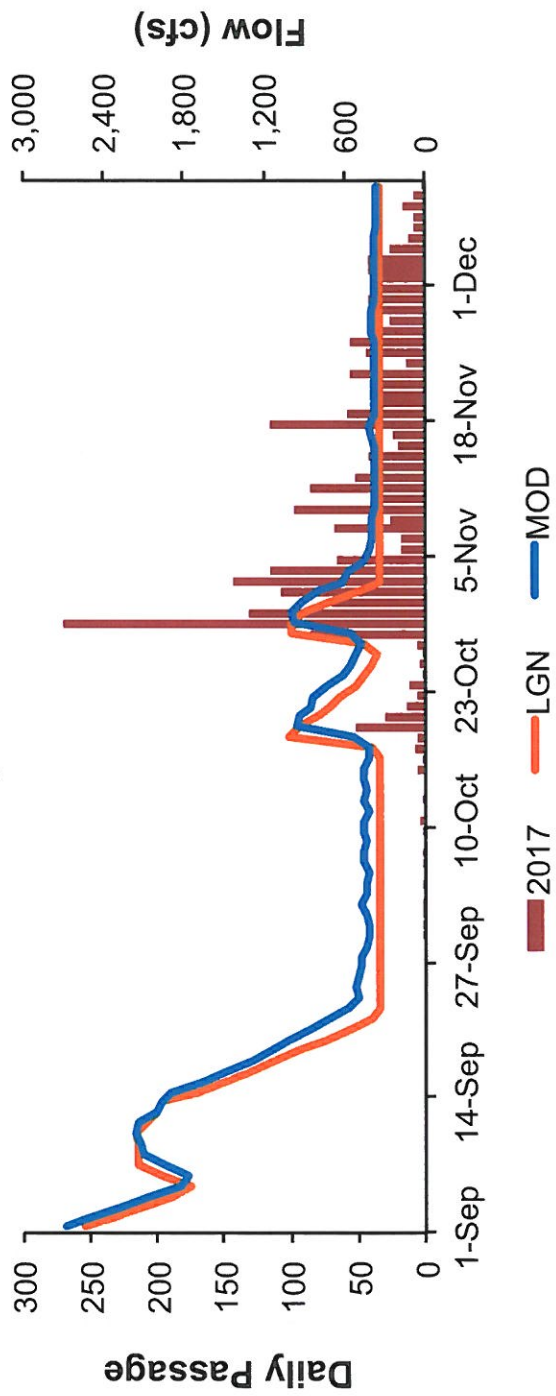
Regards, ***FISHBIO***

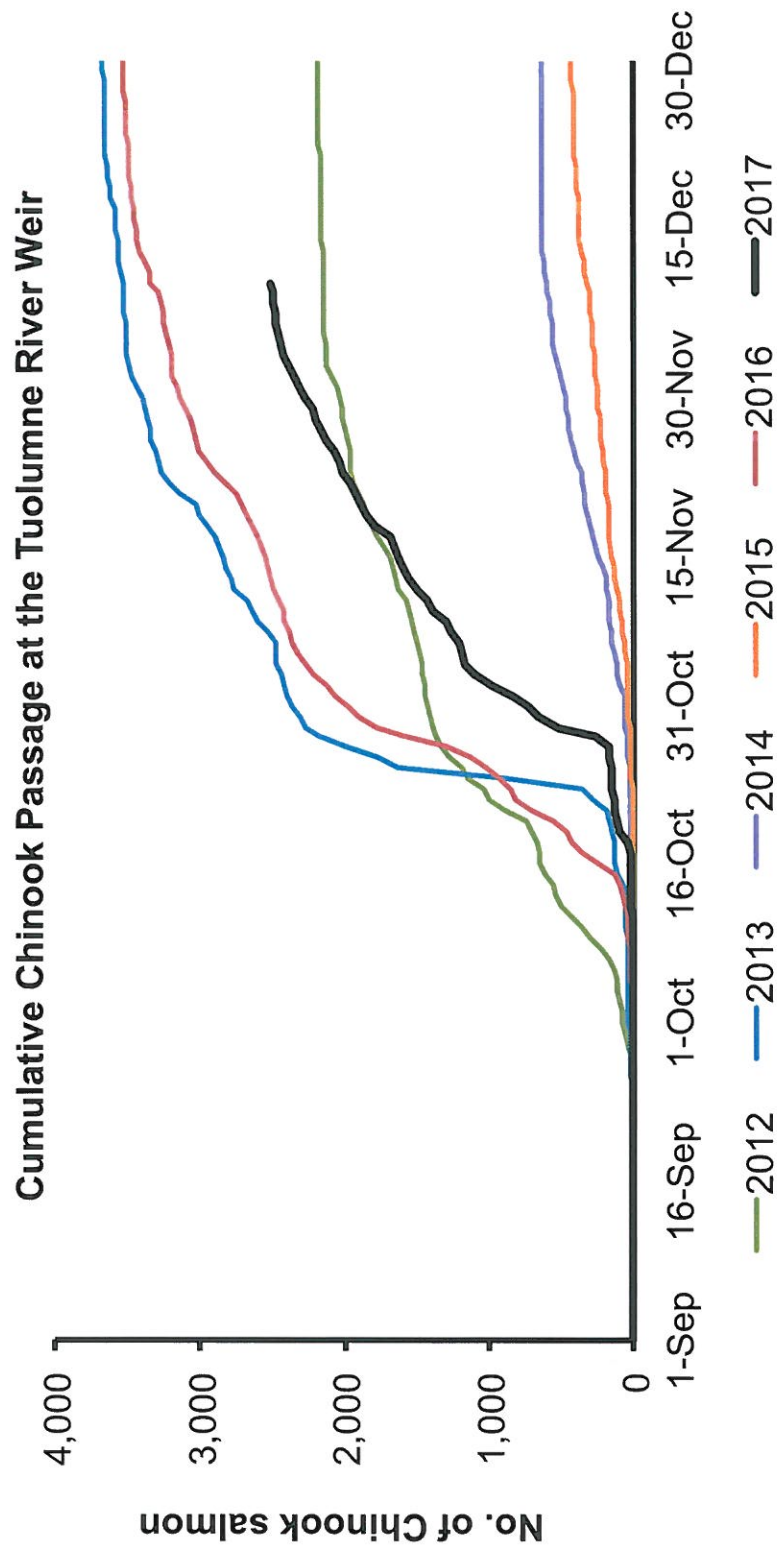


FISHBIO
update@fishbio.com
(209) 847-6300
www.fishbio.com

Data Disclaimer: The data provided by [FISHBIO](#) are courtesy of Stockton East Water District (SEWD), Tri-dam Project (TDP), Oakdale Irrigation District (OID), South San Joaquin Irrigation District (SSJID), Turlock Irrigation District (TID), Modesto Irrigation District (MID) and U.S. Fish and Wildlife Service (USFWS). Data are intended to be current, but are preliminary and are not guaranteed to be accurate. Source data are compiled and provided by FISHBIO, from whom [further information](#) can be obtained. Use or reproduction of this data is prohibited without prior permission. If you wish to be removed from the email, reply "[unsubscribe](#)."

2017 Chinook Passage and Tuolumne River Flow





Final Tuolumne River Flow Schedule
Based on DWR Values, 60-20-20 Index for 2017, Hydrologic Conditions
Schedule For 2017-2018 Fish Flow Year

DATE		Number of DAYS	BASE FLOW ¹			PULSE FLOW ¹			INTERPOLATION FLOW			Other Adjusted Flow			TOTAL FERC FLOW		Agreed Upon
From:	To:		CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	ACCUM. A.F.	
15-Apr-2017	27-Apr-2017	13	300	7,736	7,736	0	0	0	0	0	0	0	0	0	300	7,736	1
28-Apr-2017	28-Apr-2017	1	300	595	8,331	310	615	615	0	0	0	0	0	0	610	8,946	1
29-Apr-2017	29-Apr-2017	1	300	595	8,926	810	1,606	2,221	0	0	0	0	0	0	1,110	11,146	1
30-Apr-2017	30-Apr-2017	1	300	595	9,521	2,392	4,745	6,966	0	0	0	0	0	0	2,692	16,487	1
01-May-2017	01-May-2017	1	300	595	10,116	1,590	3,154	10,120	0	0	0	0	0	0	1,890	20,236	1
02-May-2017	02-May-2017	1	300	595	10,711	1,055	2,092	12,212	0	0	0	0	0	0	1,355	22,923	1
03-May-2017	03-May-2017	1	300	595	11,306	591	1,172	13,384	0	0	0	0	0	0	891	24,690	1
04-May-2017	04-May-2017	1	300	595	11,901	345	684	14,068	0	0	0	0	0	0	645	25,969	1
05-May-2017	05-May-2017	1	300	595	12,496	339	672	14,740	0	0	0	0	0	0	639	27,236	1
06-May-2017	06-May-2017	1	300	595	13,091	342	678	15,418	0	0	0	0	0	0	642	28,509	1
07-May-2017	07-May-2017	1	300	595	13,686	1,384	2,744	18,162	0	0	0	0	0	0	1,684	31,848	1
08-May-2017	08-May-2017	1	300	595	14,281	1,051	2,084	20,247	0	0	0	0	0	0	1,351	34,528	1
09-May-2017	09-May-2017	1	300	595	14,876	570	1,130	21,376	0	0	0	0	0	0	870	36,252	1
10-May-2017	10-May-2017	1	300	595	15,471	539	1,069	22,445	0	0	0	0	0	0	839	37,916	1
11-May-2017	11-May-2017	1	300	595	16,066	357	709	23,154	0	0	0	0	0	0	657	39,220	1
12-May-2017	12-May-2017	1	300	595	16,661	1,220	2,420	25,574	0	0	0	0	0	0	1,520	42,235	1
13-May-2017	13-May-2017	1	300	595	17,256	2,993	5,937	31,511	0	0	0	0	0	0	3,293	48,767	1
14-May-2017	14-May-2017	1	300	595	17,851	1,782	3,536	35,047	0	0	0	0	0	0	2,082	52,898	1
15-May-2017	15-May-2017	1	300	595	18,446	1,070	2,121	37,168	0	0	0	0	0	0	1,370	55,614	1
16-May-2017	16-May-2017	1	300	595	19,041	849	1,684	38,852	0	0	0	0	0	0	1,149	57,894	1
17-May-2017	17-May-2017	1	300	595	19,636	557	1,106	39,958	0	0	0	0	0	0	857	59,595	1
18-May-2017	18-May-2017	1	300	595	20,231	539	1,069	41,027	0	0	0	0	0	0	839	61,258	1
19-May-2017	19-May-2017	1	300	595	20,826	544	1,079	42,106	0	0	0	0	0	0	844	62,932	1
20-May-2017	20-May-2017	1	300	595	21,421	1,039	2,061	44,167	0	0	0	0	0	0	1,339	65,588	1
21-May-2017	21-May-2017	1	300	595	22,017	1,999	3,964	48,131	0	0	0	0	0	0	2,299	70,147	1
22-May-2017	22-May-2017	1	300	595	22,612	1,306	2,590	50,721	0	0	0	0	0	0	1,606	73,332	1
23-May-2017	23-May-2017	1	300	595	23,207	856	1,698	52,418	0	0	0	0	0	0	1,156	75,625	1
24-May-2017	24-May-2017	1	300	595	23,802	411	816	53,234	0	0	0	0	0	0	711	77,036	1
25-May-2017	25-May-2017	1	300	595	24,397	293	581	53,815	0	0	0	0	0	0	593	78,212	1
26-May-2017	26-May-2017	1	300	595	24,992	385	763	54,578	0	0	0	0	0	0	685	79,570	1
27-May-2017	27-May-2017	1	300	595	25,587	389	771	55,349	0	0	0	0	0	0	689	80,936	1
28-May-2017	28-May-2017	1	300	595	26,182	532	1,056	56,405	0	0	0	0	0	0	832	82,587	1
29-May-2017	29-May-2017	1	300	595	26,777	1,013	2,009	58,414	0	0	0	0	0	0	1,313	85,191	1
30-May-2017	30-May-2017	1	300	595	27,372	1,528	3,031	61,446	0	0	0	0	0	0	1,828	88,818	1
31-May-2017	31-May-2017	1	300	595	27,967	1,395	2,767	64,213	0	0	0	0	0	0	1,695	92,180	1
01-Jun-2017	01-Jun-2017	1	250	496	28,463	1,259	2,498	66,711	0	0	0	0	0	0	1,509	95,173	1
02-Jun-2017	02-Jun-2017	1	250	496	28,959	1,137	2,256	68,966	0	0	0	0	0	0	1,387	97,925	1
03-Jun-2017	03-Jun-2017	1	250	496	29,455	1,027	2,038	71,004	0	0	0	0	0	0	1,277	100,459	1
04-Jun-2017	04-Jun-2017	1	250	496	29,950	929	1,842	72,846	0	0	0	0	0	0	1,179	102,797	1
05-Jun-2017	05-Jun-2017	1	250	496	30,446	840	1,665	74,511	0	0	0	0	0	0	1,090	104,958	1
06-Jun-2017	06-Jun-2017	1	250	496	30,942	760	1,506	76,018	0	0	0	0	0	0	1,010	106,960	1
07-Jun-2017	07-Jun-2017	1	250	496	31,438	687	1,364	77,381	0	0	0	0	0	0	937	108,819	1
08-Jun-2017	08-Jun-2017	1	250	496	31,934	623	1,235	78,616	0	0	0	0	0	0	873	110,550	1
09-Jun-2017	09-Jun-2017	1	250	496	32,430	564	1,119	79,735	0	0	0	0	0	0	814	112,165	1
10-Jun-2017	10-Jun-2017	1	250	496	32,926	512	1,015	80,750	0	0	0	0	0	0	762	113,676	1
11-Jun-2017	11-Jun-2017	1	250	496	33,421	464	921	81,671	0	0	0	0	0	0	714	115,093	1
12-Jun-2017	12-Jun-2017	1	250	496	33,917	422	837	82,508	0	0	0	0	0	0	672	116,425	1
13-Jun-2017	13-Jun-2017	1	250	496	34,413	383	761	83,268	0	0	0	0	0	0	633	117,682	1
14-Jun-2017	14-Jun-2017	1	250	496	34,909	349	692	83,961	0	0	0	0	0	0	599	118,870	1
15-Jun-2017	15-Jun-2017	1	250	496	35,405	318	631	84,591	0	0	0	0	0	0	568	119,996	1
16-Jun-2017	16-Jun-2017	1	250	496	35,901	290	575	85,167	0	0	0	0	0	0	540	121,068	1
17-Jun-2017	17-Jun-2017	1	250	496	36,397	265	525	85,692	0	0	0	0	0	0	515	122,089	1
18-Jun-2017	18-Jun-2017	1	250	496	36,893	242	481	86,173	0	0	0	0	0	0	492	123,065	1
19-Jun-2017	19-Jun-2017	1	250	496	37,388	222	440	86,613	0	0	0	0	0	0	472	124,001	1
20-Jun-2017	20-Jun-2017	1	250	496	37,884	204	404	87,017	0	0	0	0	0	0	454	124,901	1
21-Jun-2017	21-Jun-2017	1	250	496	38,380	187	371	87,388	0	0	0	0	0	0	437	125,768	1
22-Jun-2017	22-Jun-2017	1	250	496	38,876	172	342	87,730	0	0	0	0	0	0	422	126,606	1
23-Jun-2017	23-Jun-2017	1	250	496	39,372	159	315	88,045	0	0	0	0	0	0	409	127,417	1
24-Jun-2017	24-Jun-2017	1	250	496	39,868	147	291	88,337	0	0	0	0	0	0	397	128,204	1
25-Jun-2017	25-Jun-2017	1	250	496	40,364	136	270	88,607	0	0	0	0	0	0	386	128,970	1
26-Jun-2017	26-Jun-2017	1	250	496	40,860	126	251	88,857	0	0	0	0	0	0	376	129,717	1
27-Jun-2017	27-Jun-2017	1	250	496	41,355	118	233	89,090	0	0	0	0	0	0	368	130,446	1
28-Jun-2017	28-Jun-2017	1	250	496	41,851	110	218	89,308	0	0	0	0	0	0	360	131,159	1
29-Jun-2017	29-Jun-2017	1	250	496	42,347	103	204	89,512	0	0	0	0	0	0	353	131,859	1
30-Jun-2017	30-Jun-2017	1	250	496	42,843	96	191	89,703	0	0	0	0	0	0	346	132,545	1
01-Jul-2017	01-Jul-2017	1	250	496	43,339	90	179	89,882	0	0	0	0	0	0	340	133,221	1
02-Jul-2017	01-Jul-2017	30	250	14,876	58,215	0											

DON PEDRO / TUOLUMNE RIVER WATERSHED

	12/11/2017 Monday	12/10/2017 Sunday	12/9/2017 Saturday	12/8/2017 Friday	12/7/2017 Thursday	12/6/2017 Wednesday	12/5/2017 Tuesday
* Computed Natural Flow (cfs)	248	381	980	663	358	715	658
Don Pedro							
Elevation (Feet) ^(1)Max = 830.0, Min = 600.0)	797.0	796.9	796.8	796.6	796.5	796.5	796.4
Storage (AF) ^(2)Max = 2,030,000 Min=309,000)	1,635,781	1,634,683	1,633,586	1,631,394	1,630,298	1,630,298	1,629,203
Gain/(-Loss) (AF)	1,098	1,097	2,192	1,096	0	1,095	1,094
** Avg. Inflow (cfs)	887	885	1,436	883	330	883	879
Avg. Flows at La Grange							
TID Canal (cfs) ^(3)Max = 2500)	1	1	1	1	1	1	1
MID Canal (cfs) ^(4)Max = 1900)	0	0	0	0	0	0	0
River (cfs) ^(5)Max = 9000)	332	330	330	329	329	329	326
Total (cfs)	333	332	331	331	330	331	327
Hetch Hetchy Reservoir							
Elevation (Feet) ^(1)Max = 3606 Min = 3520)	3,788.4	3,788.6	3,788.7	3,788.8	3,788.9	3,789.0	3,789.1
Storage (AF) ^(2)Max = 360,360 Min=410)	326,244	326,626	326,817	327,008	327,199	327,390	327,581
Gain/(-Loss) (AF)	-382	-191	-191	-191	-191	-191	-191
Avg. Release (cfs)	312	302	316	330	322	322	309
** Avg. Inflow (cfs)	119	206	220	234	226	226	213
Cherry Valley Reservoir							
Elevation (Feet) ^(1)Max = 4700 Min = 4440)	4,511.7	4,513.4	4,515.0	4,516.6	4,517.5	4,517.9	4,518.9
Storage (AF) ^(2)Max = 270,270 Min=0)	13,104	14,463	15,743	17,022	17,741	18,061	18,861
Gain/(-Loss) (AF)	-1,359	-1,280	-1,279	-719	-320	-800	-719
Avg. Release (cfs)	745	760	712	352	195	591	473
** Avg. Inflow (cfs)	60	115	67	-10	34	188	111
Lake Eleanor Reservoir							
Elevation (Feet) ^(1)Max = 4680.9 Min = 4620.9)	4,658.9	4,658.9	4,658.9	4,658.8	4,658.8	4,658.7	4,658.5
Storage (AF) ^(2)Max = 27,016 Min=0)	25,123	25,123	25,123	25,030	25,030	24,937	24,751
Gain/(-Loss) (AF)	0	0	93	0	93	186	0
Avg. Release (cfs)	15	15	15	16	28	28	29
** Avg. Inflow (cfs)	15	15	62	16	75	122	29
Avg. Div. to S.F. Pipeline (mgd) ^(3)Max = 300)	155	155	155	155	155	155	155
Rain Fall (Inches)							
Hetch Hetchy	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cherry Valley	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moccasin	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sonora	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yosemite	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Don Pedro	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* Computed Natural Flow is a calculated value representing what the flow in the river at La Grange would be without human diversion, storage, or release. Due to the nature of the calculation, this value may be negative.

** Inflow is a calculated value representing the flow of water into a reservoir. Inflow to a reservoir is not necessarily equal to the Computed Natural Flow. Due to the nature of the calculation, this value may be negative.

Note: cfs is a rate of flow in cubic feet per second; a flow of 1 cfs over a 24-hour period (cfs/day) = 1.98 acre-feet (AF); mgd is a rate of flow in million gallons per day (megagallons per day); a flow rate of 1 mgd = 1.55 cfs; a flow of 1 mgd over a 24-hour period = 3.1 AF.

Accumulated Precipitation
2017 through 2018
Calculated Through: 12-Dec-17
INCHES OF PRECIPITATION

MONTH	HETCH-HETCHY		SONORA		YOSEMITE		WEIGHT ACCUM. *	
	MEAN	2017-18	MEAN	2017-18	MEAN	2017-18	MEAN	2017-18
September	0.66	1.84	0.40	0.15	0.63	1.19	0.58	1.09
October	2.05	0.59	1.66	0.30	1.93	0.50	2.57	1.56
November	4.09	6.15	3.68	4.32	4.19	4.22	6.76	6.85
December	5.58	0.19	5.19	0.00	6.24	0.07	12.66	6.94
January	6.02	0.00	6.01	0.00	6.64	0.00	19.09	6.94
February	5.67	0.00	5.50	0.00	6.27	0.00	25.12	6.94
March	5.05	0.00	4.98	0.00	5.15	0.00	30.42	6.94
April	3.34	0.00	2.84	0.00	3.05	0.00	33.66	6.94
May	1.85	0.00	1.13	0.00	1.48	0.00	35.21	6.94
June	0.75	0.00	0.29	0.00	0.56	0.00	35.78	6.94
July	0.20	0.00	0.04	0.00	0.28	0.00	35.94	6.94
August	0.19	0.00	0.08	0.00	0.17	0.00	36.08	6.94
TOTALS	35.45	8.77	31.80	4.77	36.58	5.98		

* Weight Accumulated Mean is from September 1 to end of month. Weight Mean is calculated by averaging Hetch-Hetchy and Sonora with a weight of 2 with Yosemite and multiplying the total by 1.05.

Actual precipitation as a % of for this date: $6.94/9.04 = 76.77\%$
 Actual precipitation as a % of total for water year: $6.94/36.08 = 19.23\%$
 If normal for remainder of season: $36.08 - 9.04 + 6.94 = 33.98$ inches
 or 94.18%

12/12/2017

TURLOCK IRRIGATION DISTRICT

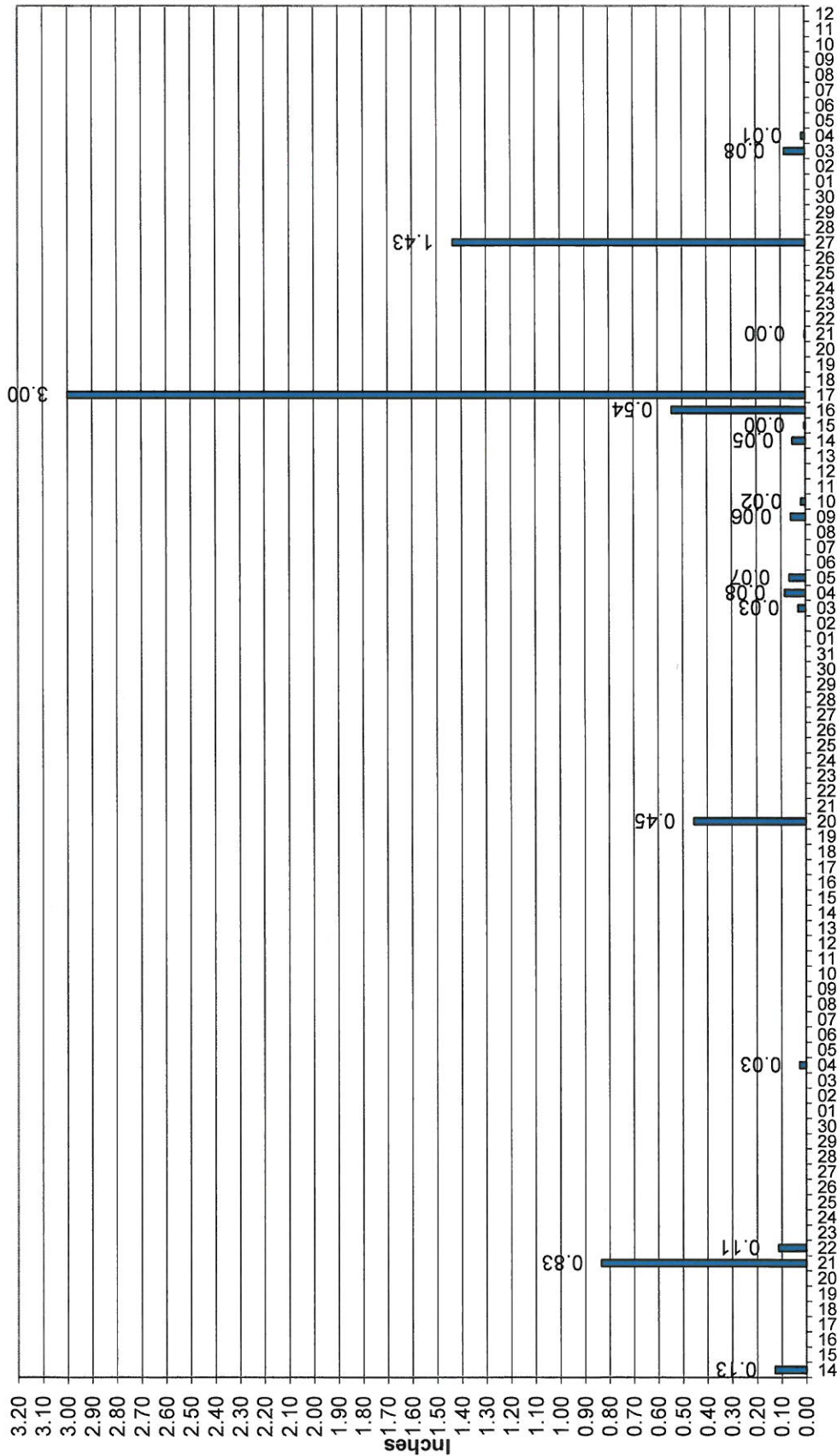
(fwm)

			0
Multiple Reg.	Dry	21.64	670754 acre-feet
Multiple Reg.	Average	33.98	1631715 acre-feet
HFAM	Average		#REF!
			#REF!
			#REF!
Corps	Average		750000
			#REF!
			#REF!
			881715
			118%
		36.08	1795205
90 % Forecast		21.64	670754
50 % Forecast		32.58	1522212
10 % Forecast		50.70	2932971

TURLOCK IRRIGATION DISTRICT

(fwm)

Watershed Daily Precipitation
Past 90 Days



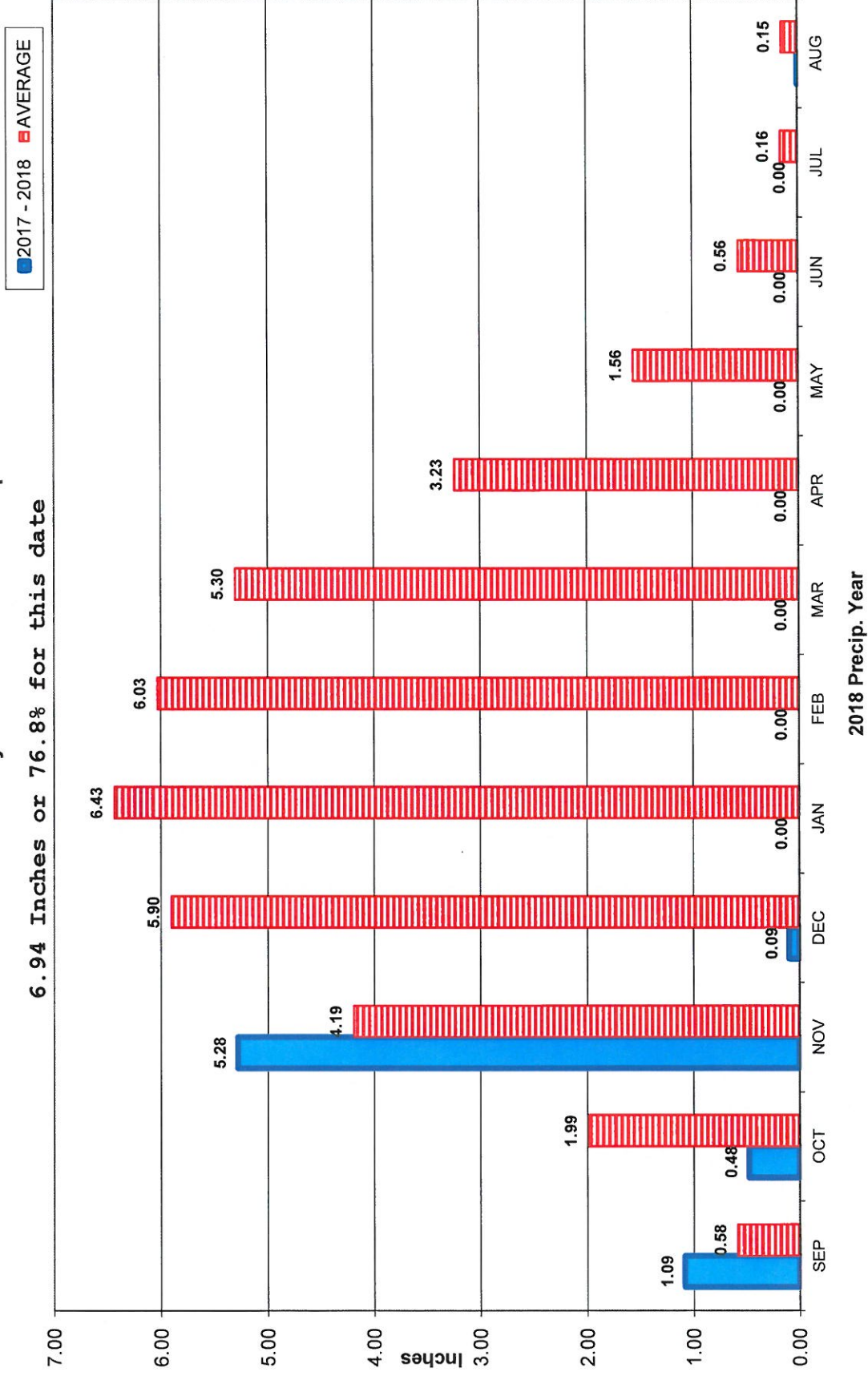
September 14---December 12

TURLOCK IRRIGATION DISTRICT

(fwm)

Watershed Monthly Accumulation of Precipitation

6.94 Inches or 76.8% for this date



TURLOCK IRRIGATION DISTRICT

(fwm)

Watershed Accumulated Precipitation

6.94 Inches or 76.8% for this date

