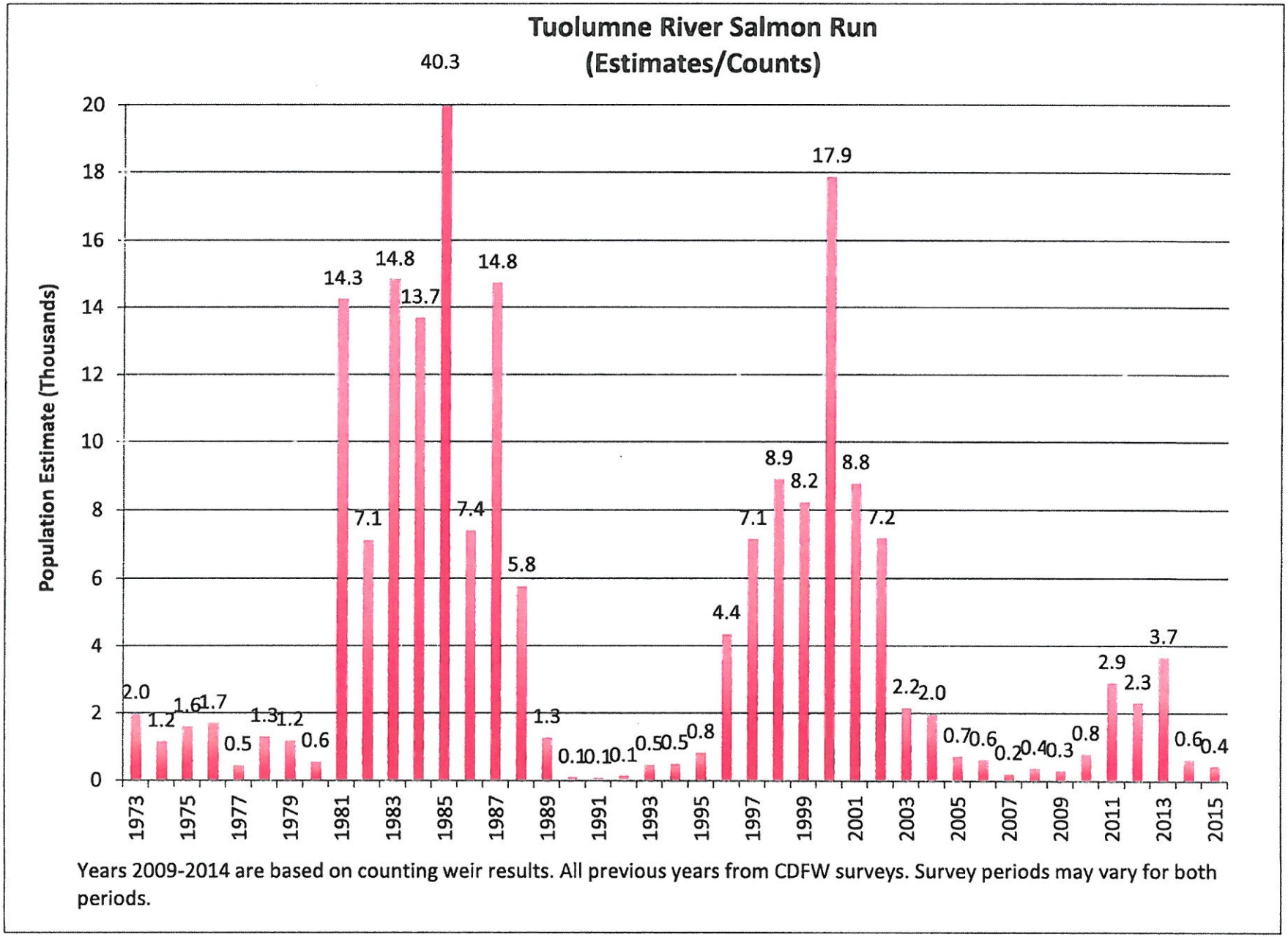
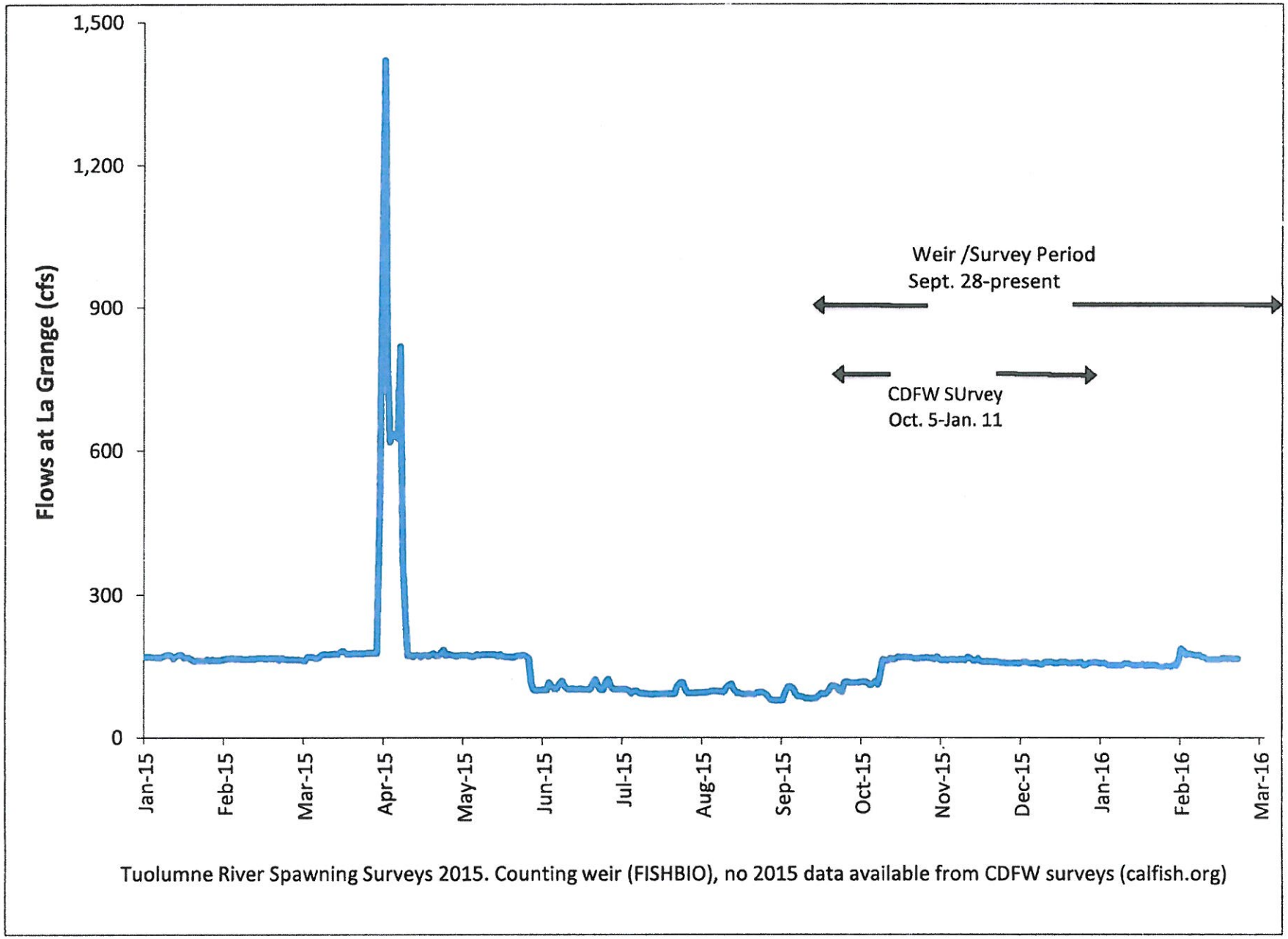
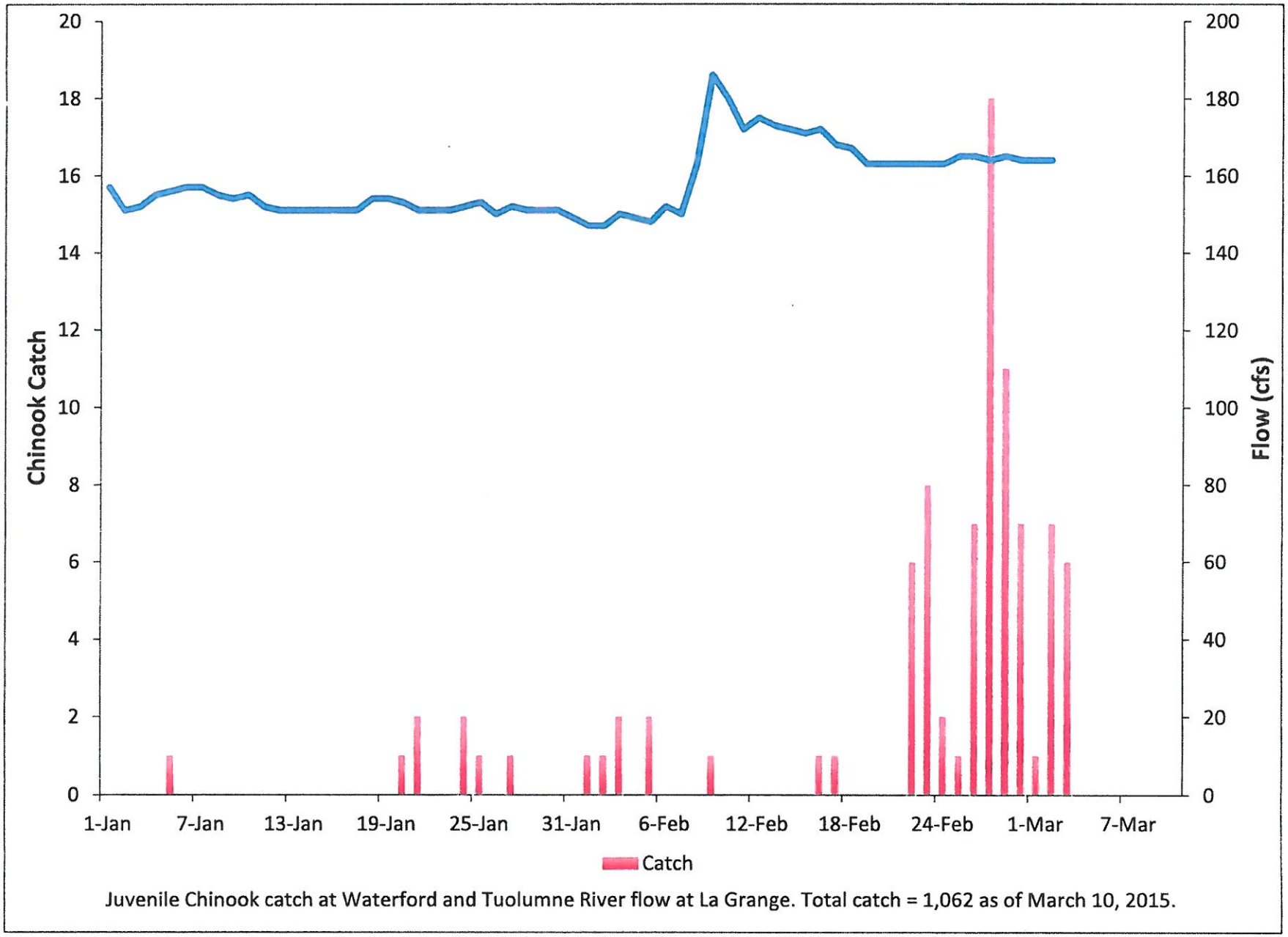


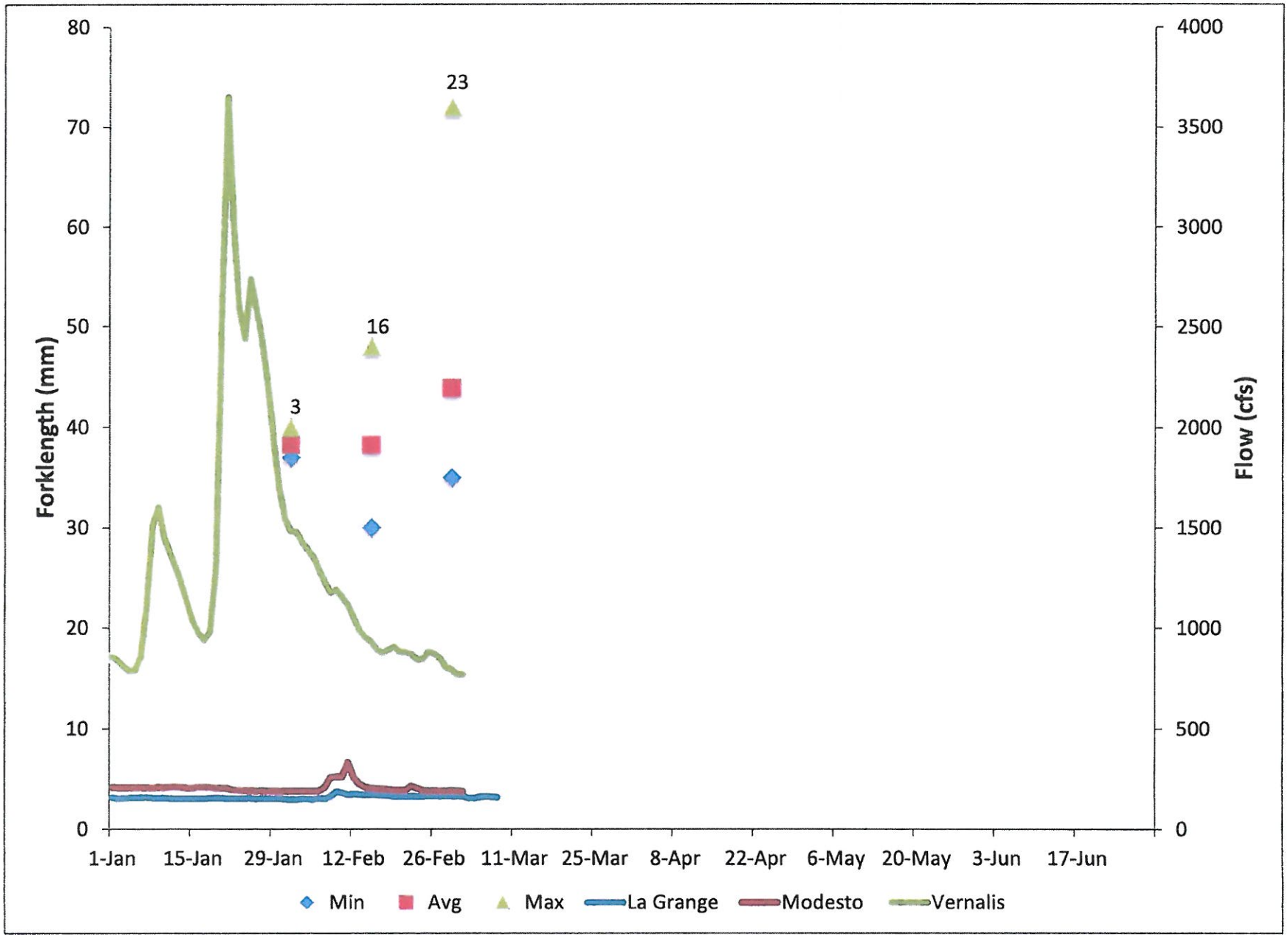
Years 2009-2014 are based on counting weir results. All previous years from CDFW surveys. Survey periods may vary for both periods.



Tuolumne River Spawning Surveys 2015. Counting weir (FISHBIO), no 2015 data available from CDFW surveys (calfish.org)



Juvenile Chinook catch at Waterford and Tuolumne River flow at La Grange. Total catch = 1,062 as of March 10, 2015.


80
70
60
50
40
30
20
10
0
Forklength (mm)
4000
3500
3000
2500
2000
1500
1000
500
0
Flow (cfs)
23
16
3
1-Jan
15-Jan
29-Jan
12-Feb
26-Feb
11-Mar
25-Mar
8-Apr
22-Apr
6-May
20-May
3-Jun
17-Jun
Min
Avg
Max
La Grange
Modesto
Vernalis

Mar 2016 SNOW COURSE READINGS

TUOLUMNE BASIN SNOW COURSE SURVEY DATA

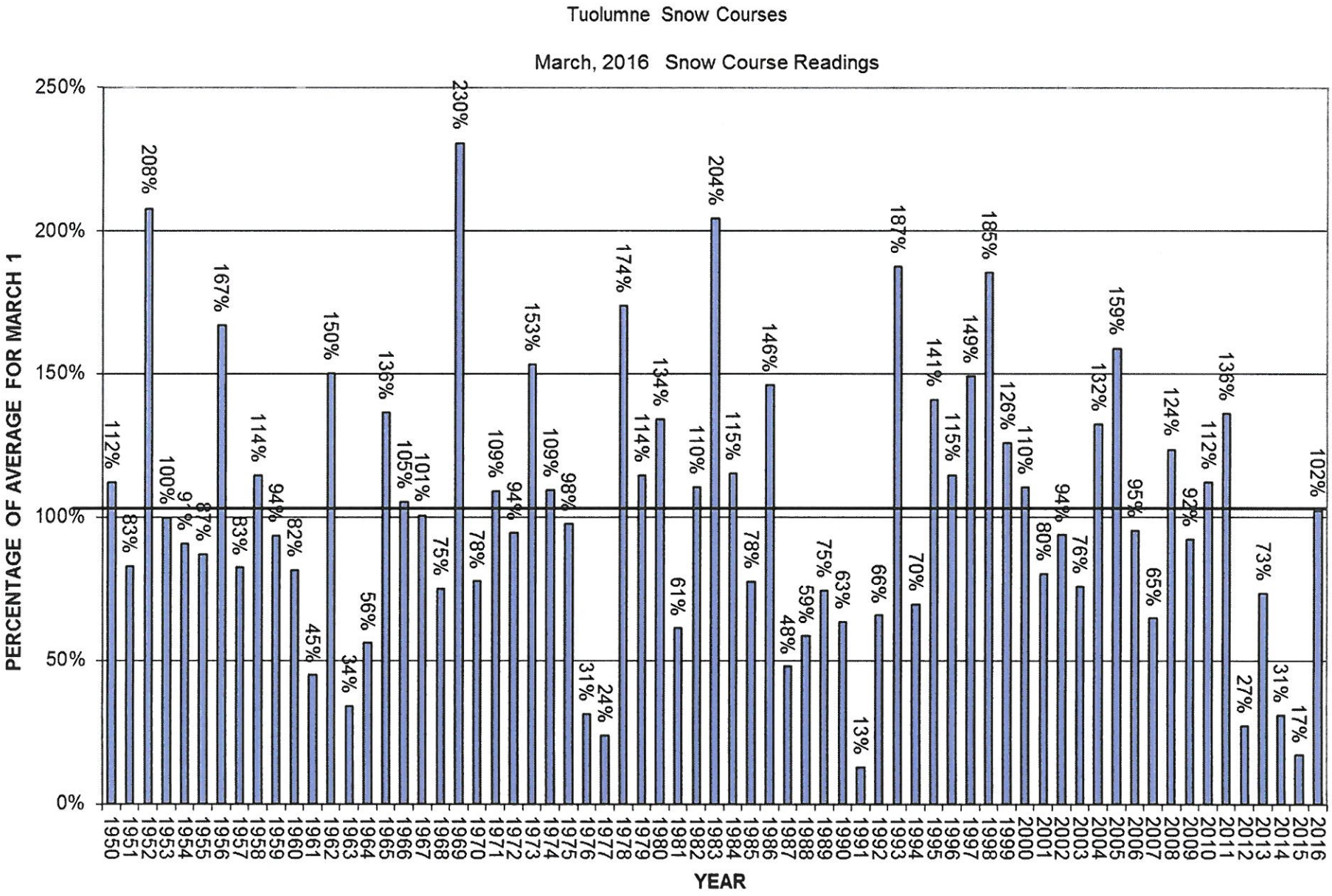
Snow Course	Number	Elevation	Ave. W. C. on 01APR	Date	Depth	W. C.	Density	% of 01APR	% of 01Mar
DANA MEADOWS	157	9,800	30.7	24-Feb	65.0	23.5	36%	77%	95%
RAFFERTY MEADOWS	158	9,400	32.7						
BOND PASS	159	9,300	43.9	23-Feb	84.5	35.5	42%	81%	105%
NEW GRACE MEADOW	368	8,900	48.0	25-Feb	94.5	41.0	43%	85%	108%
TUOLUMNE MEADOWS	161	8,600	22.9	26-Feb	52.0	19.5	38%	85%	94%
HORSE MEADOW	162	8,400	45.9	23-Feb	86.5	37.5	43%	82%	105%
WILMER LAKE	163	8,000	43.5	25-Feb	91.0	38.0	42%	87%	109%
SACHSE SPRINGS	165	7,900	37.6	23-Feb	73.0	31.0	42%	82%	99%
HUCKLEBERRY LAKE	166	7,800	41.2	23-Feb	71.0	31.0	44%	75%	95%
SPOTTED FAWN	164	7,800	44.8	23-Feb	88.0	32.0	36%	71%	89%
PARADISE MEADOW	167	7,650	39.6	24-Feb	89.5	39.0	44%	98%	125%
KERRICK CORRAL	348	7,000	23.7	25-Feb	62.5	26.5	42%	112%	117%
UPPER KIBBIE RIDGE	168	6,700	18.4	23-Feb	33.5	15.0	45%	82%	84%
VERNON LAKE	169	6,700	21.9	24-Feb	54.5	23.0	42%	105%	116%
LOWER KIBBIE RIDGE	173	6,700	25.0	23-Feb	47.0	19.5	41%	78%	85%
BELL MEADOW	172	6,500	15.7	25-Feb	40.5	16.5	41%	105%	109%
BEEHIVE MEADOW	171	6,500	23.5	23-Feb	54.5	23.0	42%	98%	103%
Average	17 TOT.	7,862			68.0	28.2	41.4%	88%	102.3%

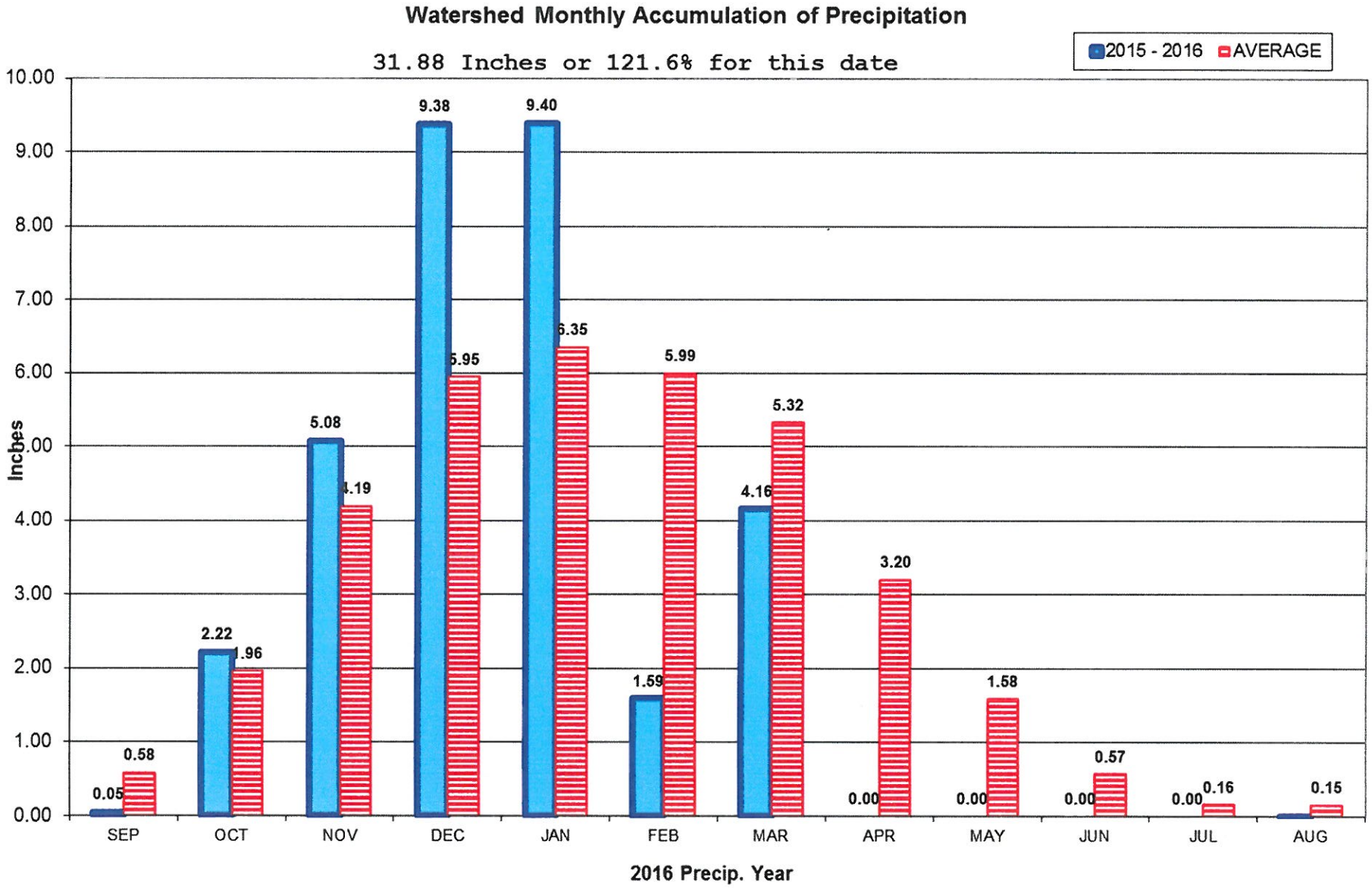
MERCED BASIN SNOW COURSE SURVEY DATA

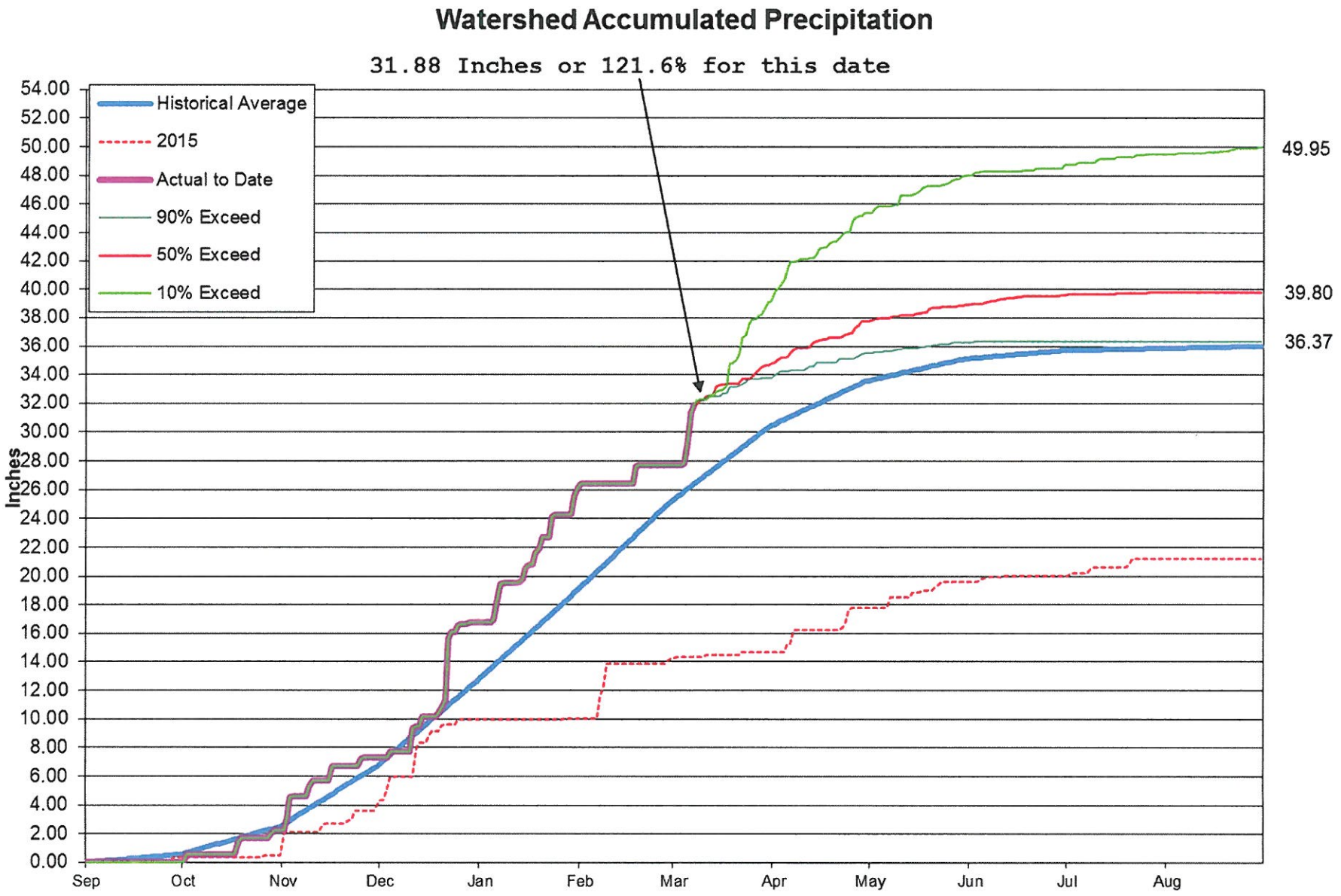
Snow Course	Number	Elevation	Ave. W. C. on 01APR	Date	Depth	W. C.	Density	% of 01APR Ave.	
SNOW FLAT	176	8,700	43.5	23-Feb	93.0	34.5	37%	79%	101%
OSTRANDER LAKE	177	8,200	34.5	24-Feb	67.5	27.5	41%	80%	100%
LAKE TENAYA	178	8,150	32.4	23-Feb	70.5	26.5	38%	82%	97%
GIN FLAT	179	7,000	32.3	28-Feb	62.0	23.0	37%	71%	82%
PEREGOY MEADOWS	180	7,000	29.0	25-Feb	54.5	22.0	40%	76%	90%
Average	5 TOT.	7,810			69.5	26.7	38.6%	78%	94%

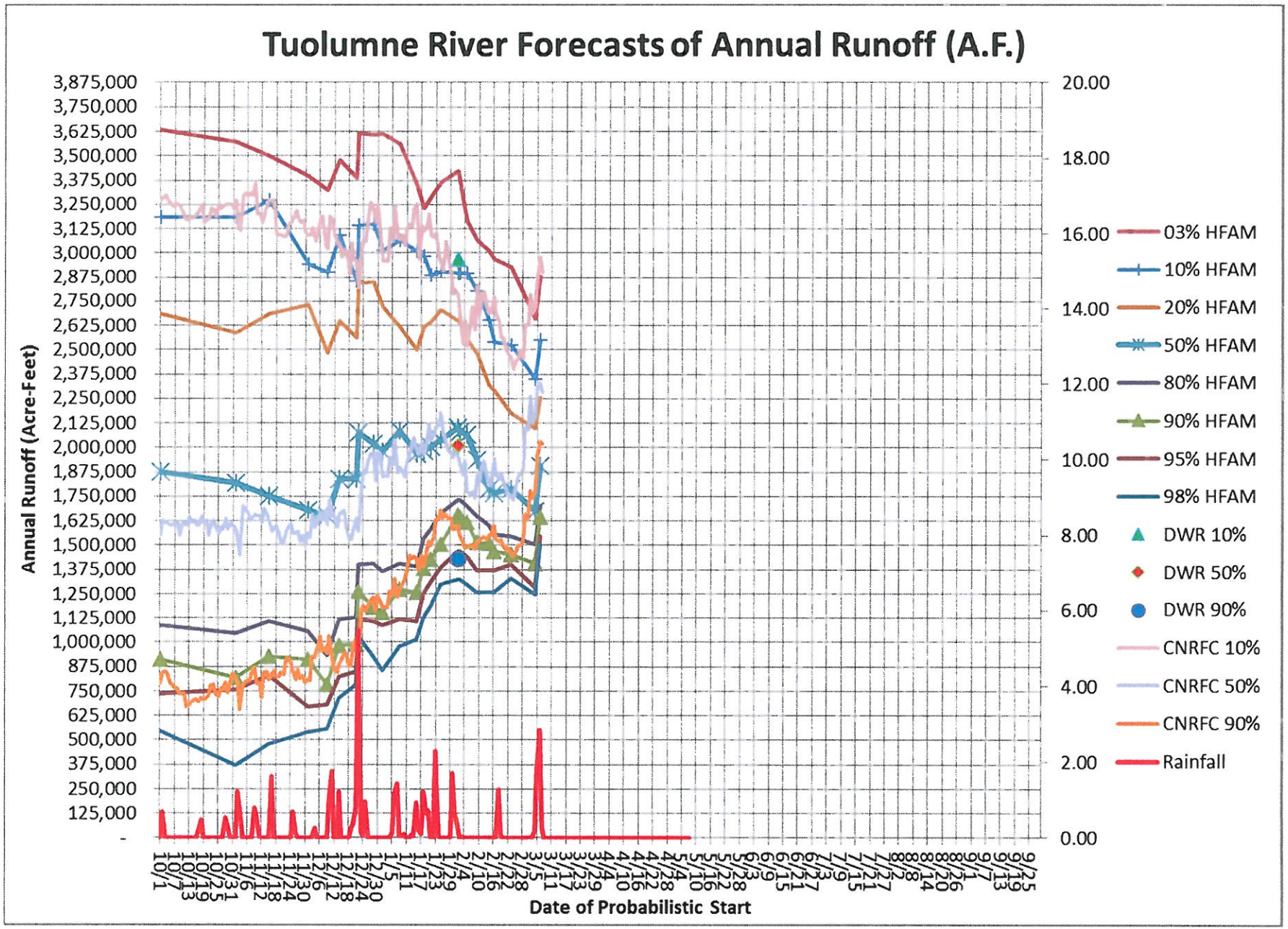
STANISLAUS BASIN SNOW COURSE SURVEY DATA

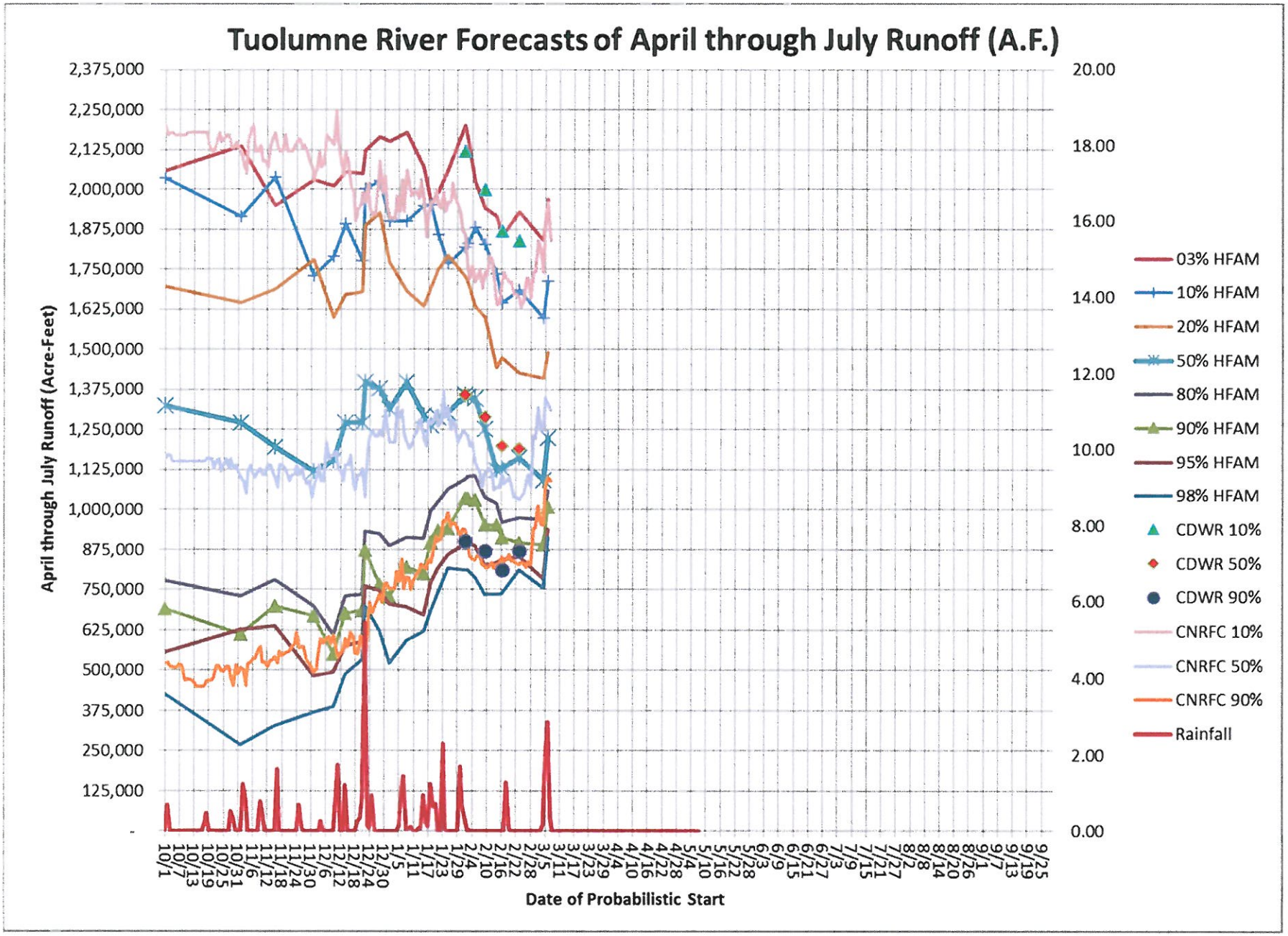
Snow Course	Number	Elevation	Ave. W. C. on 01APR	Date	Depth	W. C.	Density	% of 01APR Ave.	
DEADMAN CREEK	345	9,250	34.5	25-Feb	71.0	26.0	37%	75%	103%
CLARK FORK MEADOW	344	8,900	39.2	25-Feb	81.0	33.5	41%	85%	112%
GIANELLI MEADOW	427	8,400	47.7						
LOWER RELIEF VALLEY	138	8,100	39.9	25-Feb	75.5	34.5	46%	86%	107%
SODA CREEK FLAT	139	7,800	22.1	25-Feb	47.5	19.5	41%	88%	106%
STANISLAUS MEADOW	384	7,750	45.6	23-Feb	87.0	36.5	42%	80%	98%
EAGLE MEADOW	140	7,500	24.9	25-Feb	51.5	20.5	40%	82%	99%
HERRING CREEK	142	7,300	27.6	25-Feb	62.5	27.5	44%	100%	115%
RELIEF DAM	143	7,250	19.8	25-Feb	45.0	18.0	40%	91%	104%
BLOODS CREEK	416	7,200	32.5	24-Feb	71.0	29.0	41%	89%	108%
CORRAL MEADOW	430	6,650	19.8						
HELLS KITCHEN	373	6,550	20.9	24-Feb	41.0	18.0	44%	86%	92%
NIAGARA FLAT	145	6,500	19.2	25-Feb	46.0	20.0	43%	104%	112%
BLACK SPRINGS	386	6,500	22.4	24-Feb	50.0	22.0	44%	98%	104%
Average	13 TOT.	7,546			60.8	25.4	41.9%	89%	105%


Tuolumne Snow Courses
March, 2016 Snow Course Readings
PERCENTAGE OF AVERAGE FOR MARCH 1
250%
200%
150%
100%
50%
0%
YEAR
1950 112%
1951 83%
1952 208%
1953 100%
1954 91%
1955 87%
1956 167%
1957 83%
1958 114%
1959 94%
1960 82%
1961 45%
1962 150%
1963 34%
1964 56%
1965 136%
1966 105%
1967 101%
1968 75%
1969 230%
1970 78%
1971 109%
1972 94%
1973 153%
1974 109%
1975 98%
1976 31%
1977 24%
1978 174%
1979 114%
1980 134%
1981 61%
1982 110%
1983 204%
1984 115%
1985 78%
1986 146%
1987 48%
1988 59%
1989 75%
1990 63%
1991 13%
1992 66%
1993 187%
1994 70%
1995 141%
1996 115%
1997 149%
1998 185%
1999 126%
2000 110%
2001 80%
2002 94%
2003 76%
2004 132%
2005 159%
2006 95%
2007 65%
2008 124%
2009 92%
2010 112%
2011 135%
2012 27%
2013 73%
2014 31%
2015 17%
2016 102%


Watershed Monthly Accumulation of Precipitation
31.88 Inches or 121.6% for this date
2015 - 2016
AVERAGE
Inches
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0.05
0.58
2.22
1.96
5.08
4.19
9.38
5.95
9.40
6.35
1.59
5.99
4.16
5.32
0.00
3.20
0.00
1.58
0.00
0.57
0.00
0.16
0.15
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
2016 Precip. Year


Watershed Accumulated Precipitation
31.88 Inches or 121.6% for this date
Historical Average
2015
Actual to Date
90% Exceed
50% Exceed
10% Exceed
Inches
54.00
52.00
50.00
48.00
46.00
44.00
42.00
40.00
38.00
36.00
34.00
32.00
30.00
28.00
26.00
24.00
22.00
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
49.95
39.80
36.37


Tuolumne River Forecasts of Annual Runoff (A.F.)
Annual Runoff (Acre-Feet)
3,875,000
3,750,000
3,625,000
3,500,000
3,375,000
3,250,000
3,125,000
3,000,000
2,875,000
2,750,000
2,625,000
2,500,000
2,375,000
2,250,000
2,125,000
2,000,000
1,875,000
1,750,000
1,625,000
1,500,000
1,375,000
1,250,000
1,125,000
1,000,000
875,000
750,000
625,000
500,000
375,000
250,000
125,000
-
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Date of Probabilistic Start
03% HFAM
10% HFAM
20% HFAM
50% HFAM
80% HFAM
90% HFAM
95% HFAM
98% HFAM
DWR 10%
DWR 50%
DWR 90%
CNRFC 10%
CNRFC 50%
CNRFC 90%
Rainfall

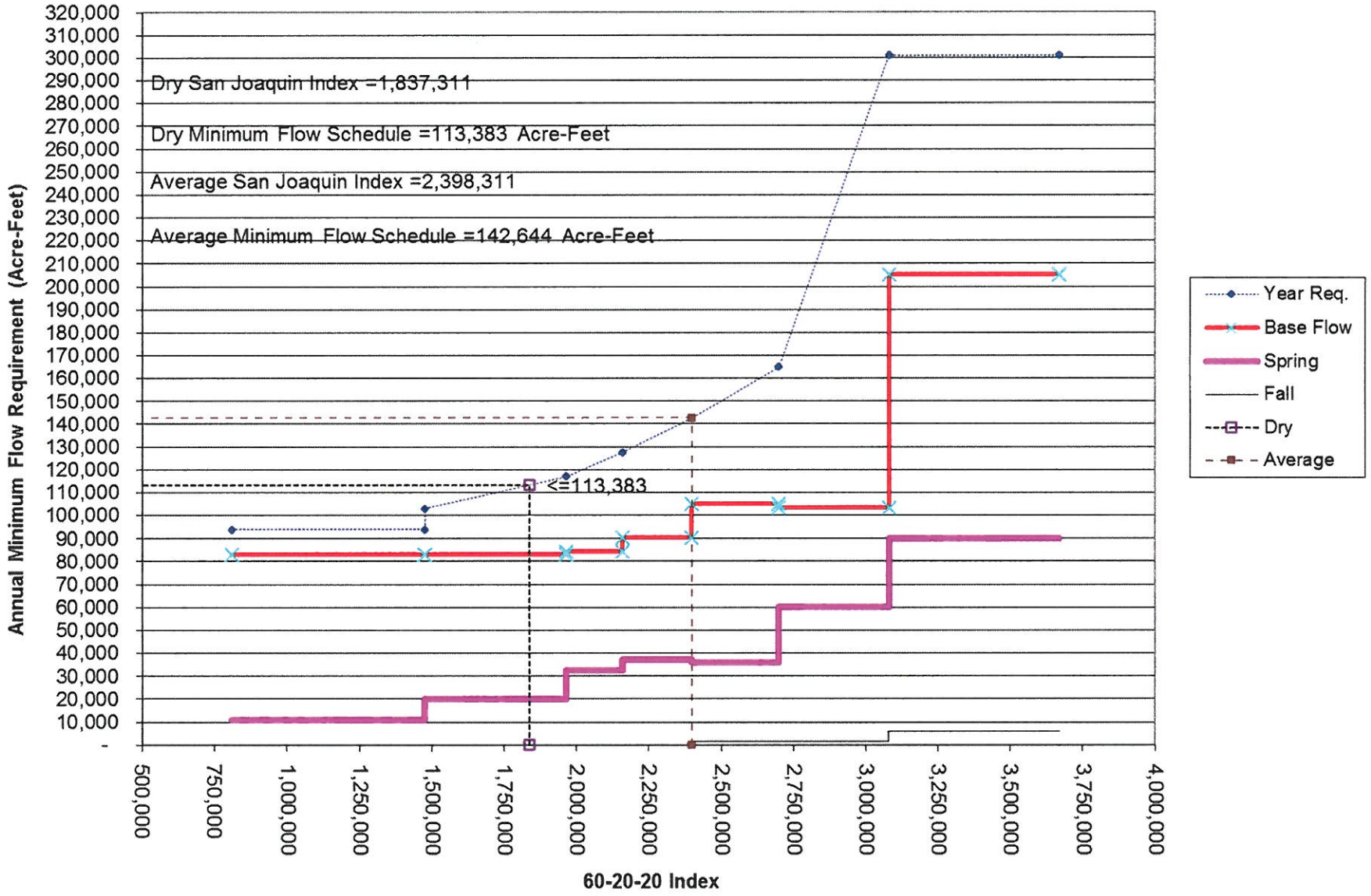

Tuolumne River Forecasts of April through July Runoff (A.F.)
April through July Runoff (Acre-Feet)
2,375,000
2,250,000
2,125,000
2,000,000
1,875,000
1,750,000
1,625,000
1,500,000
1,375,000
1,250,000
1,125,000
1,000,000
875,000
750,000
625,000
500,000
375,000
250,000
125,000
-
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Date of Probabilistic Start
03% HFAM
10% HFAM
20% HFAM
50% HFAM
80% HFAM
90% HFAM
95% HFAM
98% HFAM
CDWR 10%
CDWR 50%
CDWR 90%
CNRFC 10%
CNRFC 50%
CNRFC 90%
Rainfall

SAN JOAQUIN VALLEY WATER YEAR HYDROLOGIC CLASSIFICATION

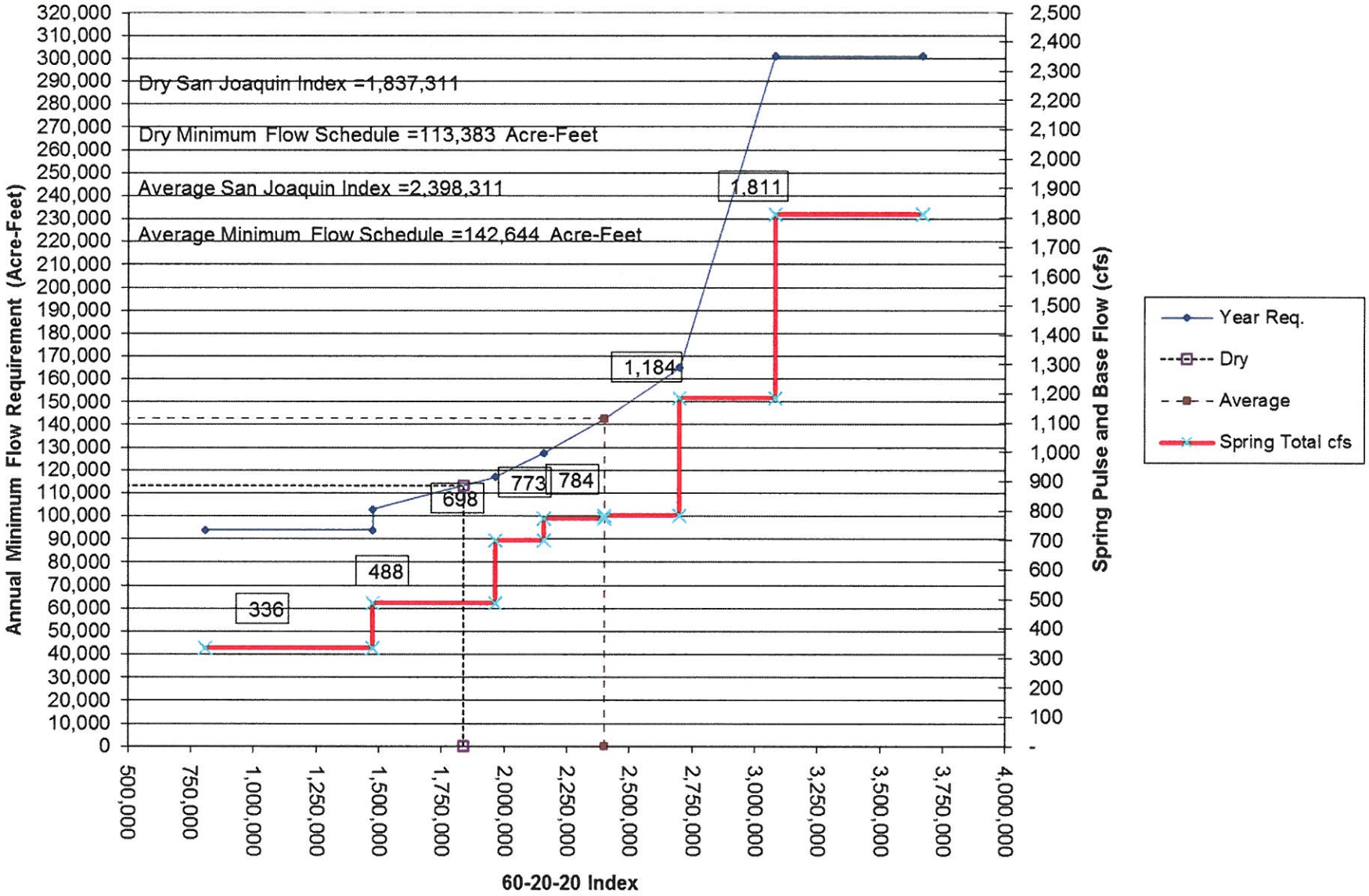
602020 INDEX

	APRIL-JULY RUNOFF (AF)					OCTOBER-MARCH RUNOFF (AF)					602020	TUOLUMNE RIVER	San Joaquin Index (not the FERC Index)
YEAR	STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	INDEX	MINIMUM FLOW REQUIREMENT	
15	134,645	308,062	103,856	192,518	739,081	193,001	276,982	66,375	123,674	660,032	807,554	94,000	Critical
16	700,000	1,190,000	540,000	1,010,000	3,440,000	374,000	615,000	269,000	338,000	1,596,000	2,544,711	153,559	Below Normal
Feb 1 Forecast													
Dry	510,000	900,000	440,000	790,000	2,640,000	294,000	495,000	214,000	243,000	1,246,000	1,994,711	118,683	Critical
Average	770,000	1,360,000	620,000	1,170,000	3,920,000	374,000	615,000	269,000	338,000	1,596,000	2,832,711	212,949	Below Normal
Wet	1,230,000	2,120,000	1,130,000	1,990,000	6,470,000	514,000	815,000	414,000	533,000	2,276,000	4,498,711	300,923	Wet
Feb 09 Update													
Dry	500,000	870,000	420,000	750,000	2,540,000	294,000	495,000	214,000	243,000	1,246,000	1,934,711	116,183	Critical
Average	740,000	1,290,000	590,000	1,110,000	3,730,000	374,000	615,000	269,000	338,000	1,596,000	2,718,711	172,313	Below Normal
Wet	1,180,000	2,000,000	1,060,000	1,870,000	6,110,000	514,000	815,000	414,000	533,000	2,276,000	4,282,711	300,923	Wet
Feb 16 Update													
Dry	470,000	810,000	390,000	680,000	2,350,000	294,000	495,000	214,000	243,000	1,246,000	1,820,711	112,905	Critical
Average	700,000	1,200,000	550,000	1,020,000	3,470,000	374,000	615,000	269,000	338,000	1,596,000	2,562,711	154,901	Below Normal
Wet	1,120,000	1,870,000	980,000	1,720,000	5,690,000	514,000	815,000	414,000	533,000	2,276,000	4,030,711	300,923	Wet
Feb 23 Update													
Dry	500,000	870,000	390,000	700,000	2,460,000	294,000	495,000	214,000	243,000	1,246,000	1,886,711	114,803	Critical
Average	700,000	1,190,000	540,000	1,010,000	3,440,000	374,000	615,000	269,000	338,000	1,596,000	2,544,711	153,559	Below Normal
Wet	1,110,000	1,840,000	930,000	1,660,000	5,540,000	514,000	815,000	414,000	533,000	2,276,000	3,940,711	300,923	Wet
Mar 1 Forecast													
Dry	470,000	820,000	360,000	670,000	2,320,000	354,000	557,000	235,000	273,000	1,419,000	1,837,311	113,383	Critical
Average	640,000	1,090,000	500,000	950,000	3,180,000	399,000	642,000	275,000	328,000	1,644,000	2,398,311	142,644	Dry
Wet	1,030,000	1,710,000	850,000	1,540,000	5,130,000	504,000	782,000	355,000	433,000	2,074,000	3,654,311	300,923	Above Normal

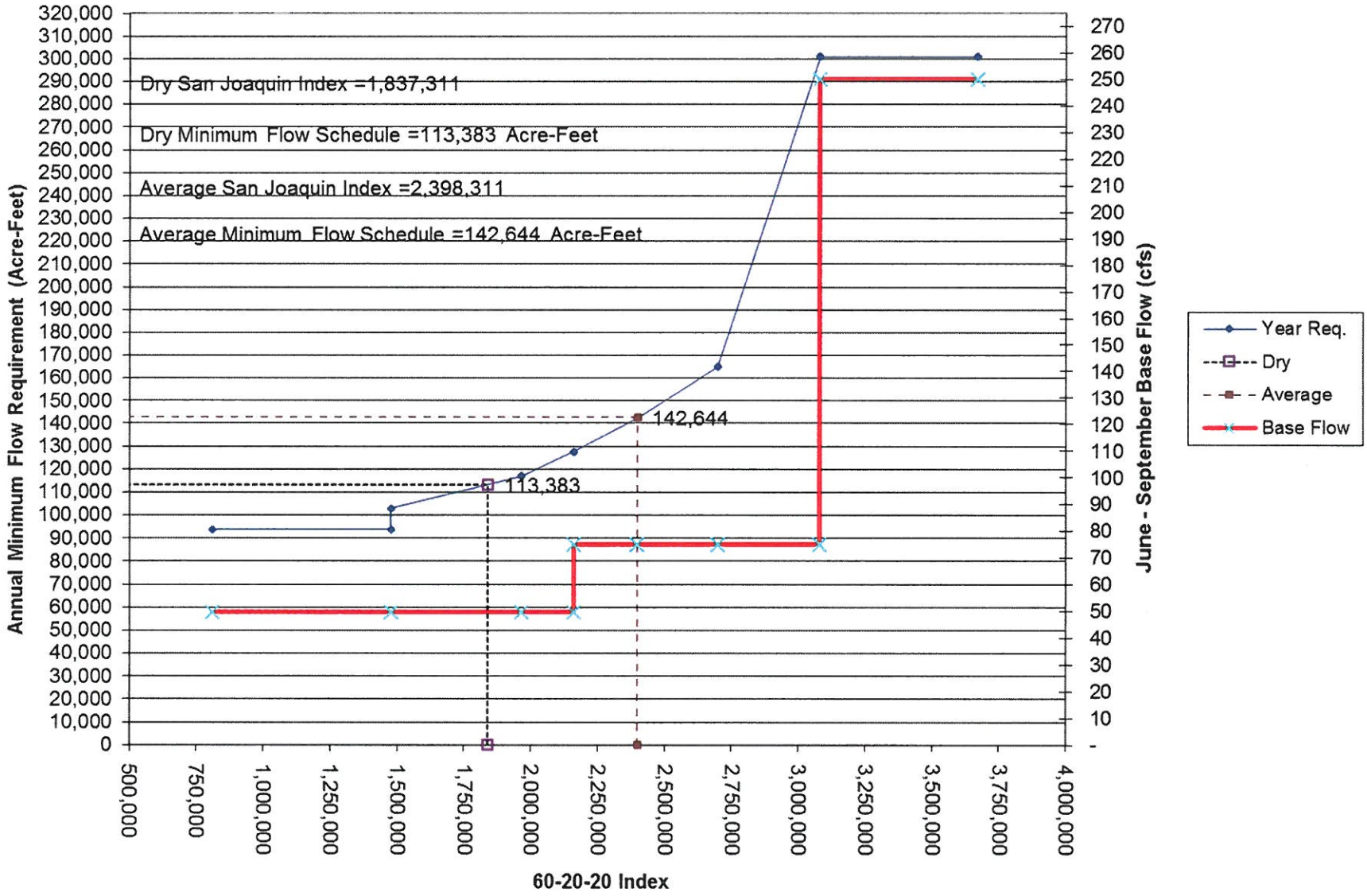
TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT (Figure 1)
Annual Flow Requirement



TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT (Figure 2)
(Spring Pulse Flow Plus Base Flow)



TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT (Figure 3)
(Summer Base Flow)



TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT (Figure 4)
Interpolation Volume