

TRUCKEE RIVER BASIN WATER GROUP (TRBWG)

TROA UPDATE & SCHEDULING SUMMARY

04/26/2017

David Willoughby – *Department of Water Resources*

Tom Scott – *Department of Water Resources*



Overview

- California Guidelines
- Water Year to Date
- Forecasts
- Reservoirs

Truckee River Operating Agreement
**2016 California Annual Guidelines for
Truckee River Reservoir Operations**



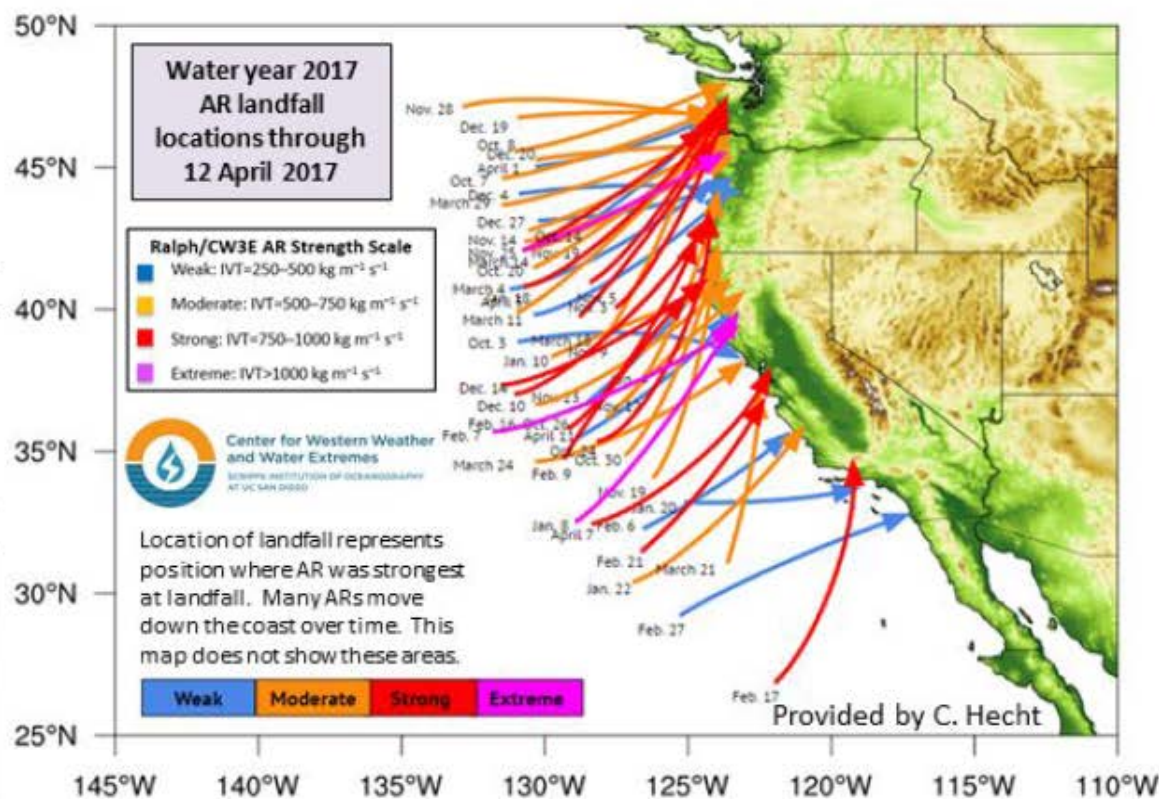
The Record Breaking Water Year 2017

A major contributor to the anomalous precipitation over California has been the numerous landfalls of atmospheric rivers over the U.S. West Coast

49 Atmospheric Rivers have made landfall over the West Coast thus far during the 2017 water year (1 Oct. – 12 April 2017), which is much greater than normal

Of the 49 total atmospheric rivers that made landfall this year, 1/3 have been “strong” or “extreme” based on the AR strength scale.

AR Strength	AR Count*
Weak	12
Moderate	21
Strong	13
Extreme	3



Center for Western Weather
and Water Extremes

SCRIPPS INSTITUTION OF OCEANOGRAPHY
AT UC SAN DIEGO

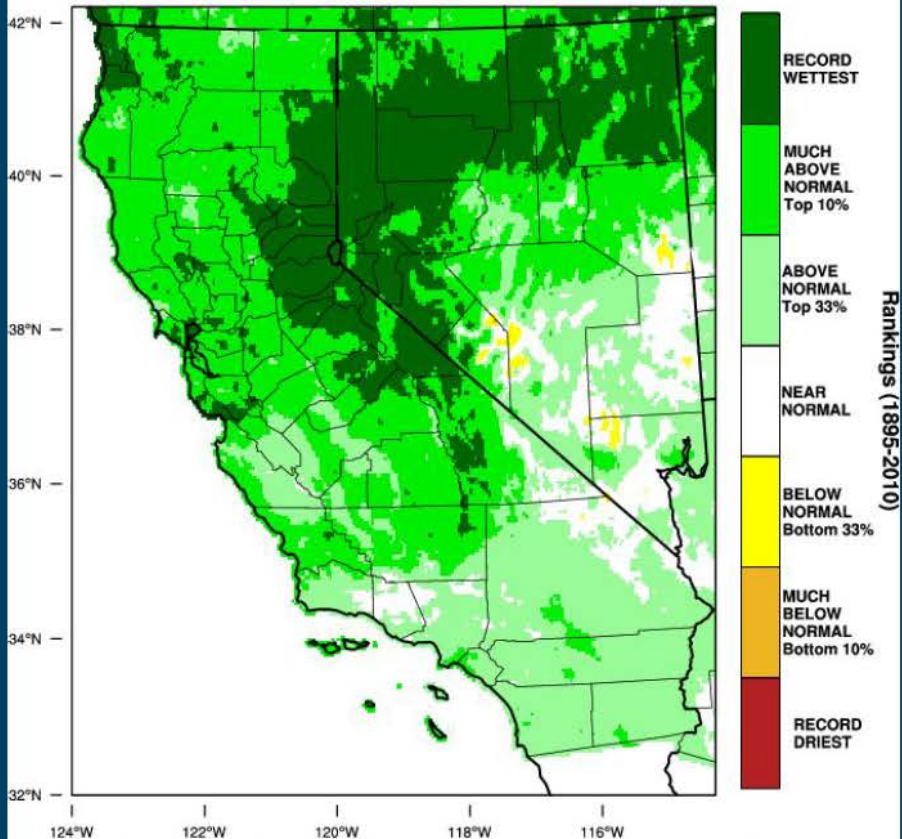


By F.M. Ralph, D. Pierce, C. Hecht, M. Dettinger, D. Cayan

Experimental

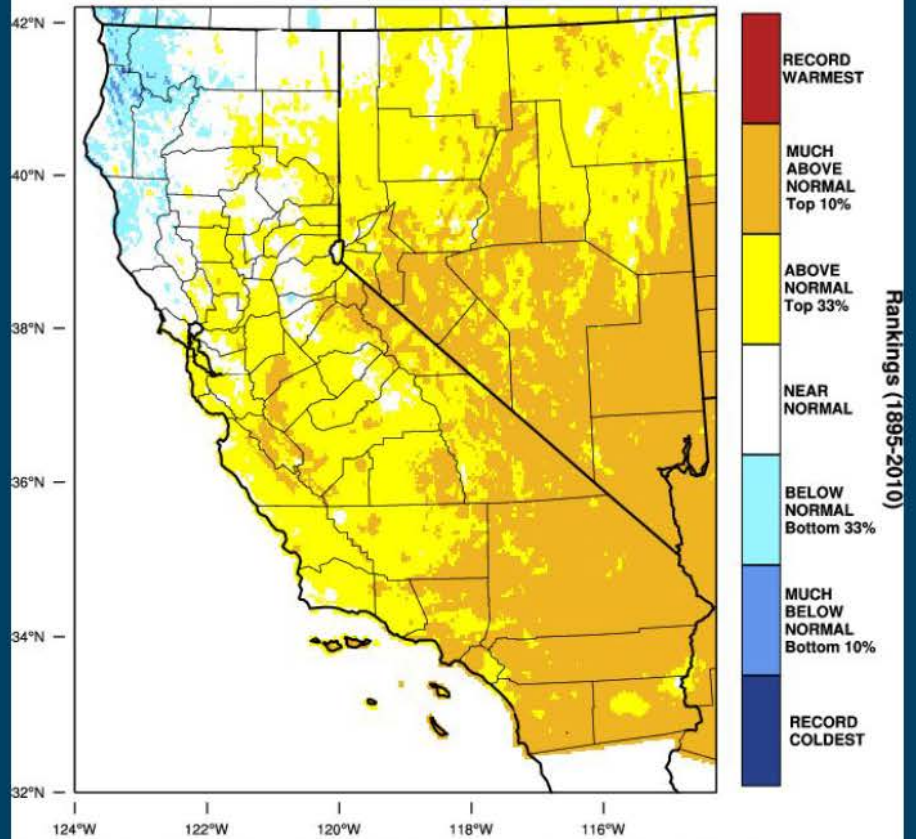
Winter 2016-17: the I-80 Atmospheric River Alley

California - Precipitation
October-March 2017 Percentile



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 5 APR 2017

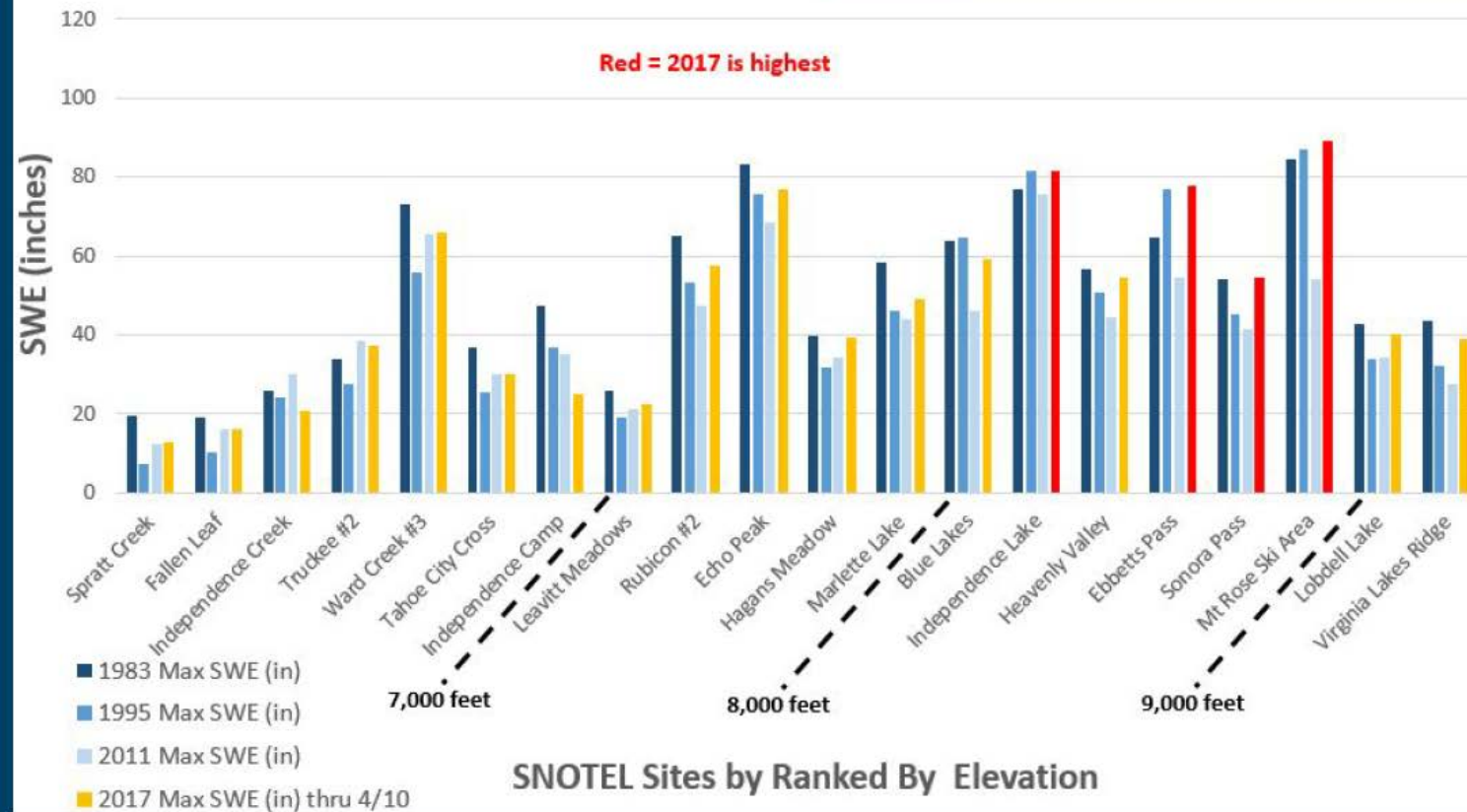
California - Mean Temperature
October-March 2017 Percentile



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 5 APR 2017

Snow Records - Elevation Matters

SNOTEL Water Year Max SWE for
1983, 1995, 2011 vs 2017 (thru April 10)



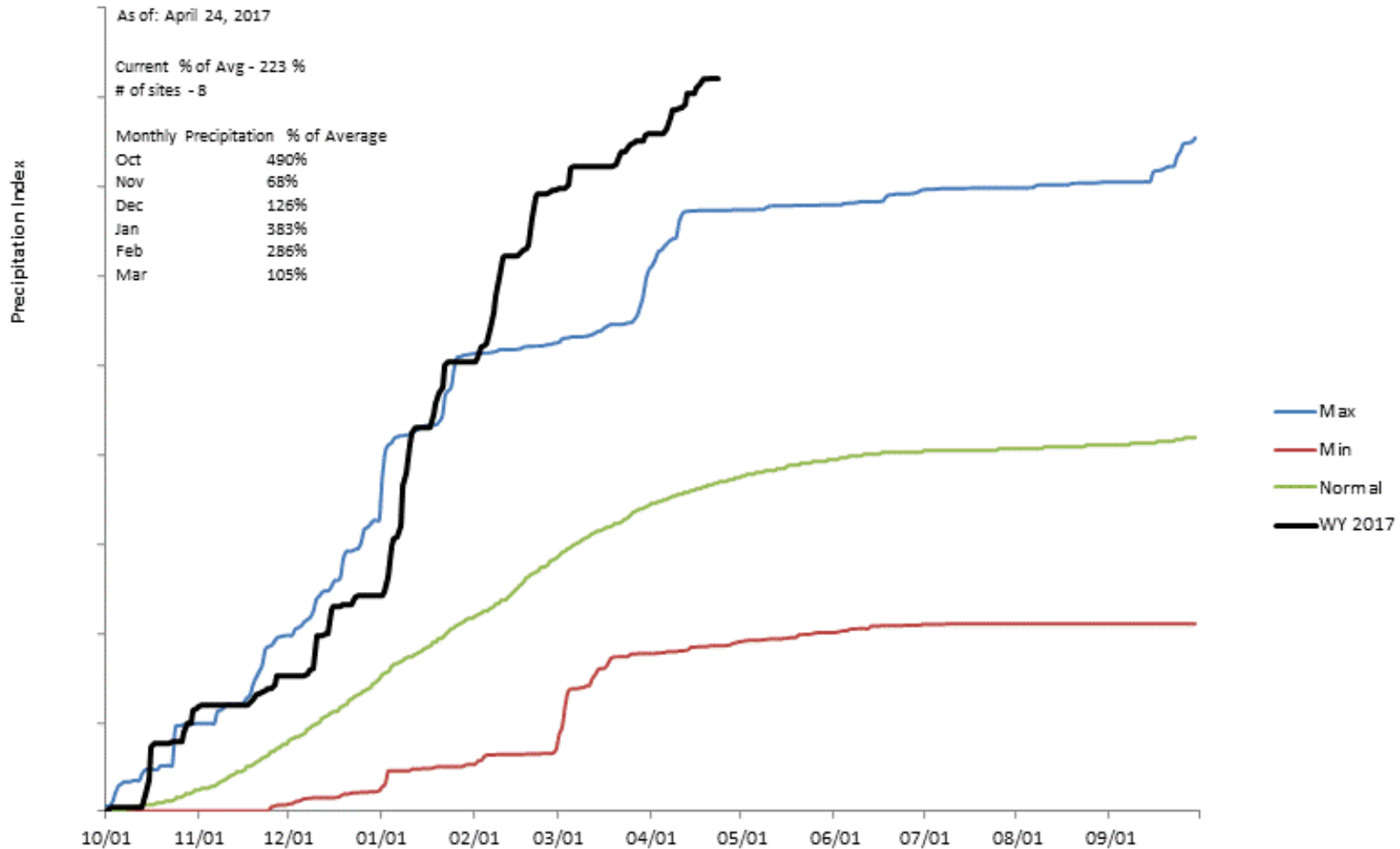
Data - Jeff Anderson, Nevada NRCS

Reno National Weather Service
Forecasting for the Sierra and western Nevada since 1905



2017 Precipitation “Lake Tahoe Basin”

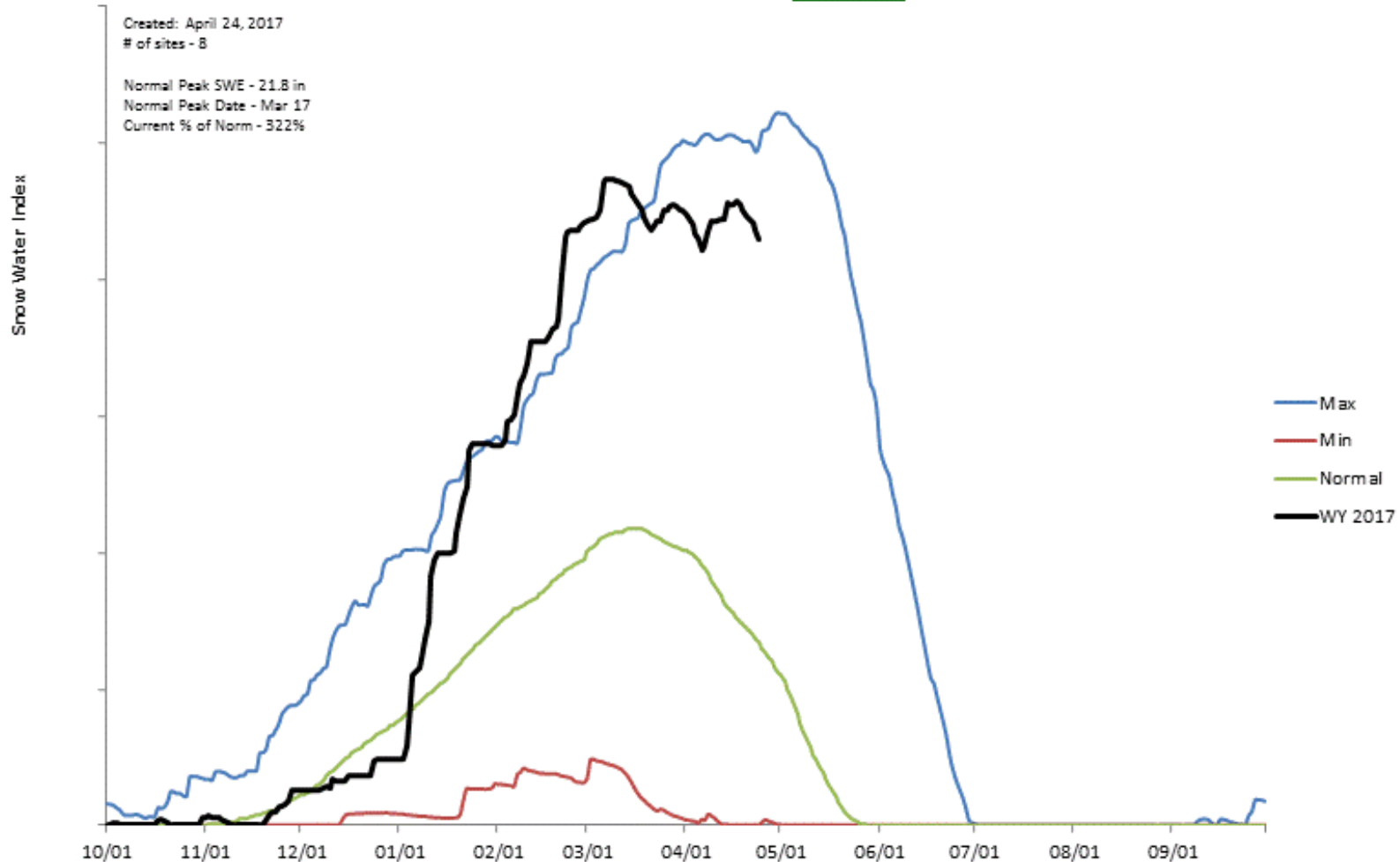
Lake Tahoe Basin Precipitation



<https://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/>

2017 Snow “Lake Tahoe Basin”

Lake Tahoe Basin - SWE Index



<http://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/>

Precipitation Forecast

Precipitation Outlook for the Conterminous U.S.

Related Maps: Climate outlook for [Temperature](#) and [Soil Moisture](#)

Precipitation Forecasts

Precipitation (in)
during the period:

Tue, 25 APR 2017 at 00Z

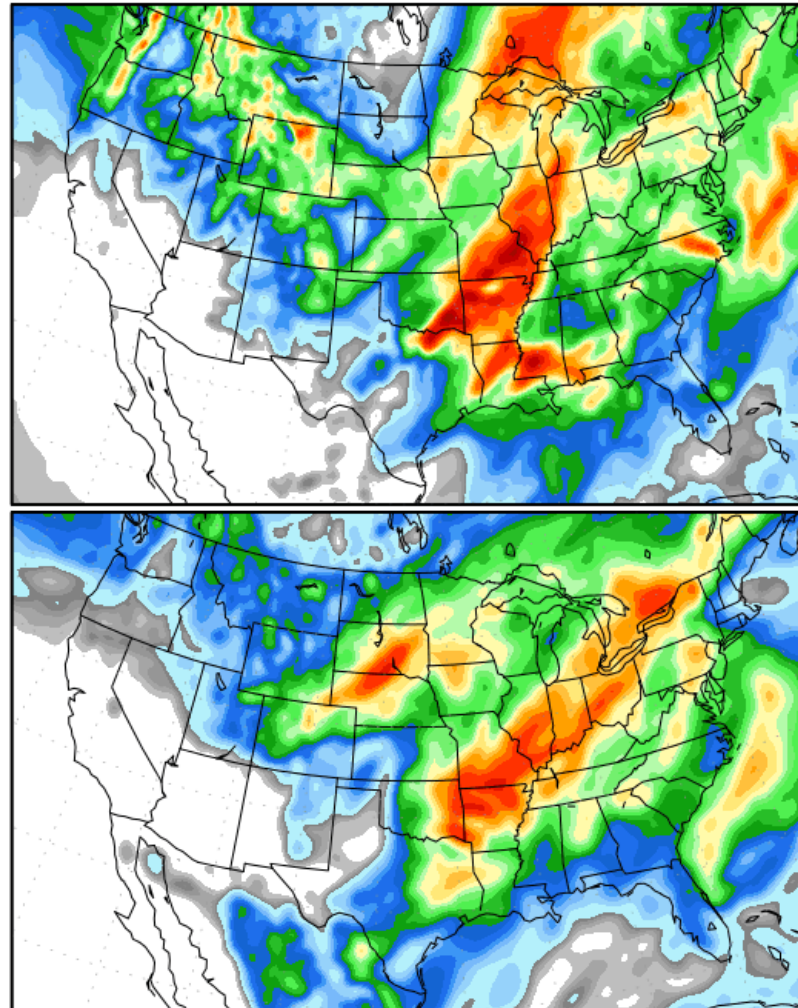
-to-

Wed, 03 MAY 2017 at 00Z

Wed, 03 MAY 2017 at 00Z

-to-

Thu, 11 MAY 2017 at 00Z



April 1 - Lake Tahoe Forecast

Data Current as of: 4/5/2017 5:02:36 PM

Lake Tahoe Basin Streamflow Forecasts - April 1, 2017

Lake Tahoe Basin	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						30yr Avg (KAF)
		90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	
Marlette Lake Inflow (acre-feet) ²	APR-JUL	1690	2100	2300	277%	2500	2900	830
	MAY-JUL	1310	1660	1900	352%	2100	2500	540
Lake Tahoe Rise - Gates Closed (feet) ¹	APR-HIGH	2.5	2.8	3.1	237%	3.2	3.7	1.31
	MAY-HIGH	1.92	2.3	2.5	231%	2.7	3.1	1.08
Lake Tahoe Net Inflow ²	APR-JUL	285	325	350	242%	375	415	144.6

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/>

April 1 – Truckee River Basin

Data Current as of: 4/5/2017 5:02:40 PM

Truckee River Basin Streamflow Forecasts - April 1, 2017

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

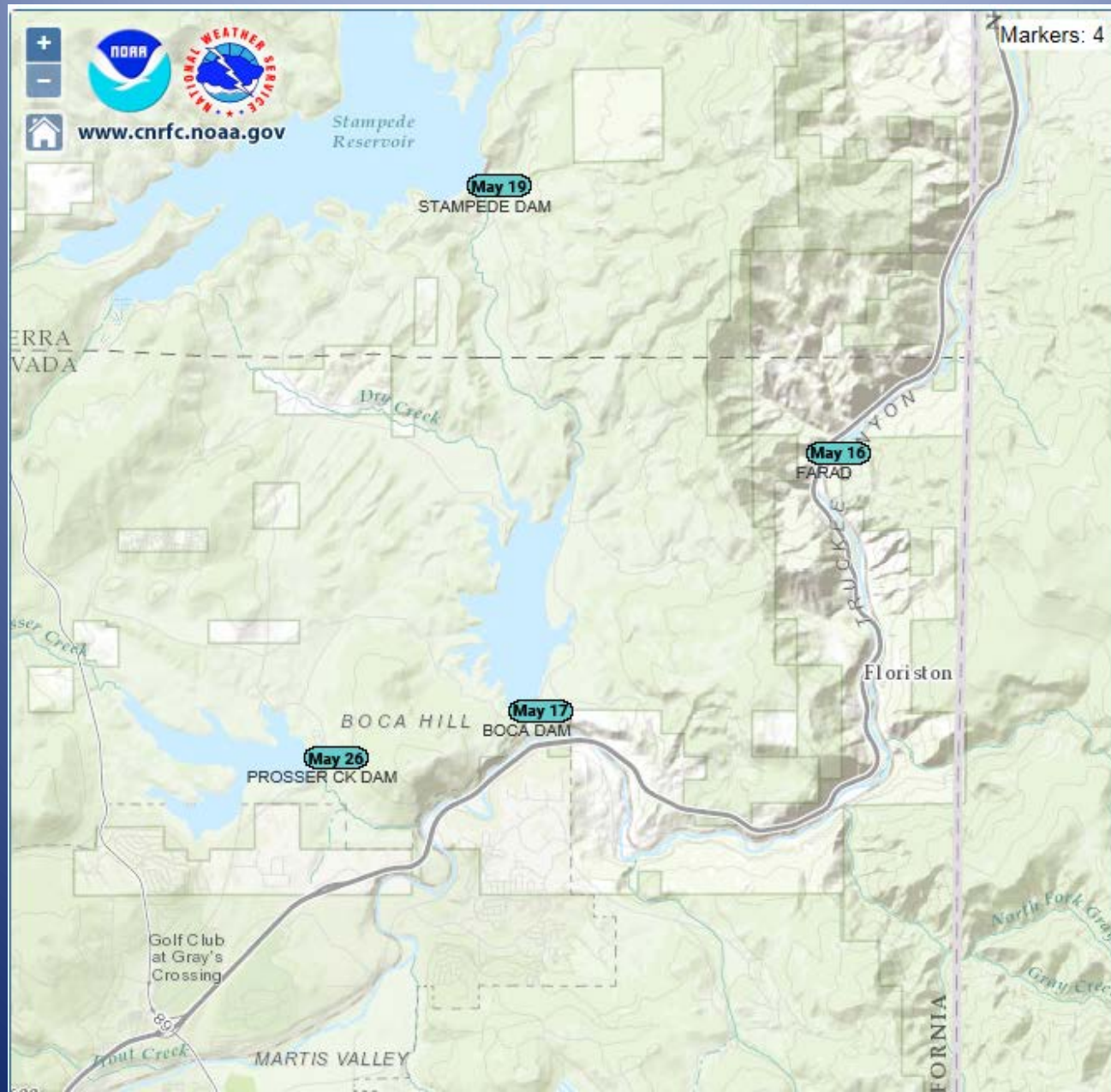
Truckee River Basin	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Donner Lake Inflow ²	APR-JUL	27	29	31	174%	33	35	17.84
	MAY-JUL	18.7	21	23	188%	25	27	12.24
Martis Ck Res Inflow ²	APR-JUL	19	21	23	245%	25	27	9.39
	MAY-JUL	12.9	15.2	16.8	297%	18.4	21	5.66
Prosser Ck Res Inflow ²	APR-JUL	61	66	69	161%	72	77	42.84
	MAY-JUL	47	52	55	178%	58	63	30.84
Independence Res Inflow ²	APR-JUL	18.2	19.9	21	174%	22	24	12.1
	MAY-JUL	15.8	17.4	18.5	187%	19.6	21	9.88
Sagehen Ck nr Truckee	APR-JUL	11.3	13	14.3	255%	15.8	18.2	5.6
	MAY-JUL	9.6	10.9	12	286%	13.2	15.1	4.2
Stampede Res Local Inflow ²	APR-JUL	168	181	190	248%	199	210	76.5
	MAY-JUL	121	137	147	270%	157	173	54.47
L Truckee R ab Boca Reservoir ²	APR-JUL	191	215	220	262%	230	260	84
	MAY-JUL	151	168	180	286%	192	210	63
Boca Res Local Inflow ²	APR-JUL	13.3	15.5	17	309%	18.5	21	5.5
	MAY-JUL	5	6.2	7	347%	7.8	9	2.02
Truckee R at Farad ²	APR-JUL	580	595	610	239%	625	695	255
	MAY-JUL	410	450	475	260%	500	540	183
Truckee R ab Farad Sidewater ²	APR-JUL	215	230	240	222%	250	265	108.09
	MAY-JUL	168	184	195	237%	205	220	82.14
Galena Ck at Galena Ck State Pk	APR-JUL	9.9	10.6	11.1	254%	11.6	12.3	4.37
	MAY-JUL	9.2	10	10.5	288%	11	11.8	3.65
Steamboat Ck at Steamboat	APR-JUL	14	21	26	338%	32	43	7.7
	MAY-JUL	13.8	18.9	23	390%	28	36	5.9
Pyramid Lake Elevation Change (feet) ¹	LOW-HIGH	5.4	7.3	8.2	482%	9.1	11	1.7

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

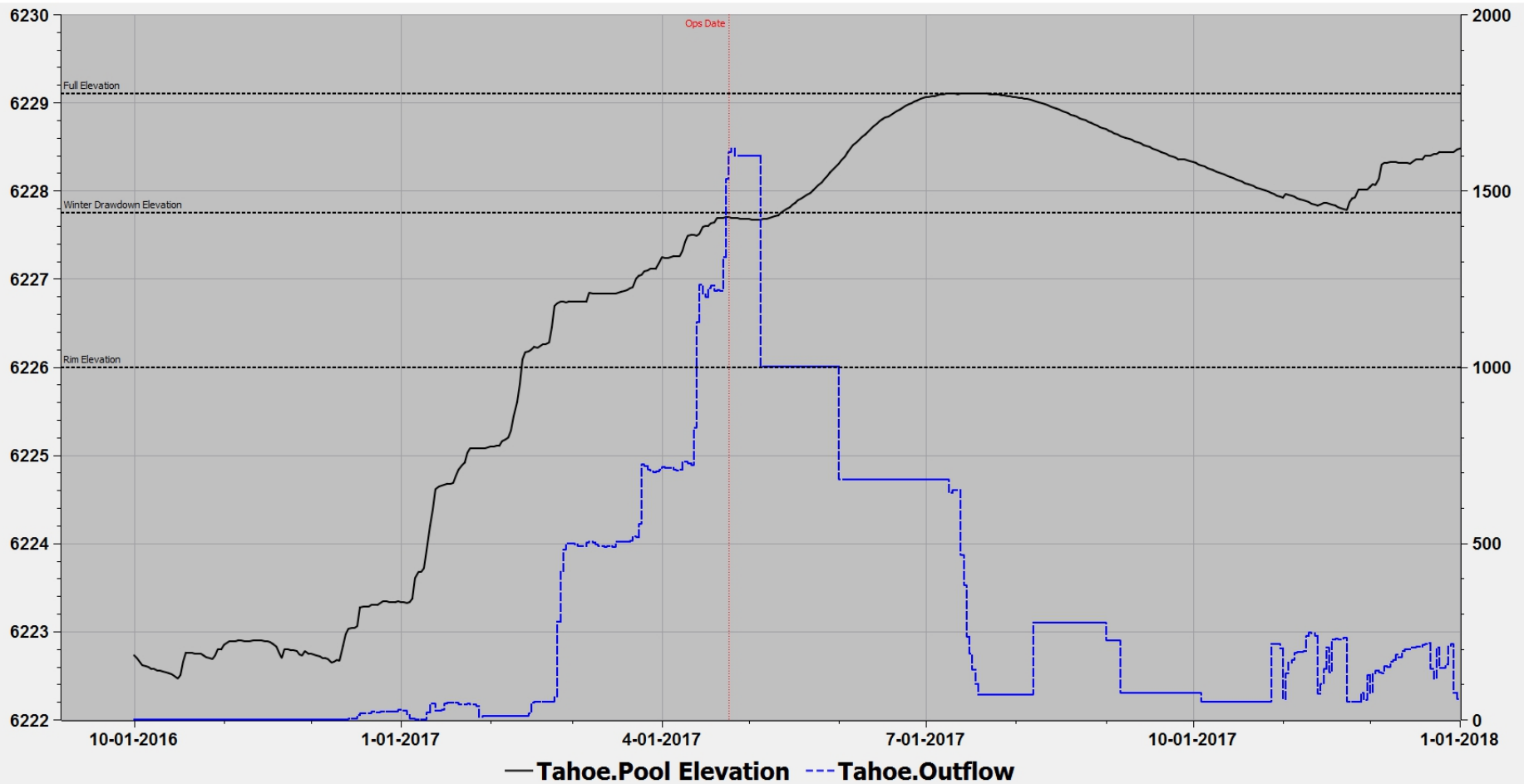
3) Median value used in place of average

April 1 – Peak Dates

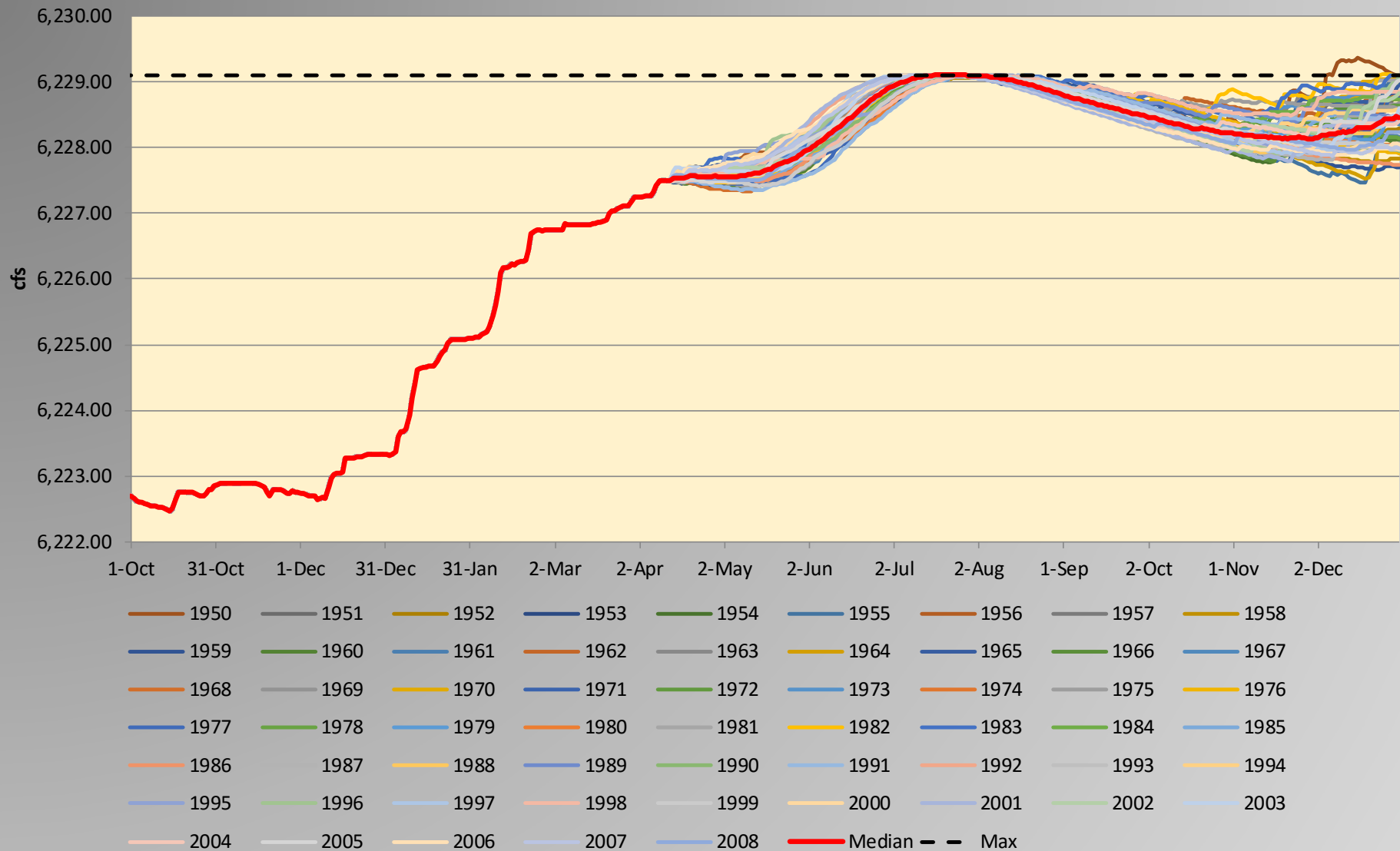


Tahoe 50% Forecast

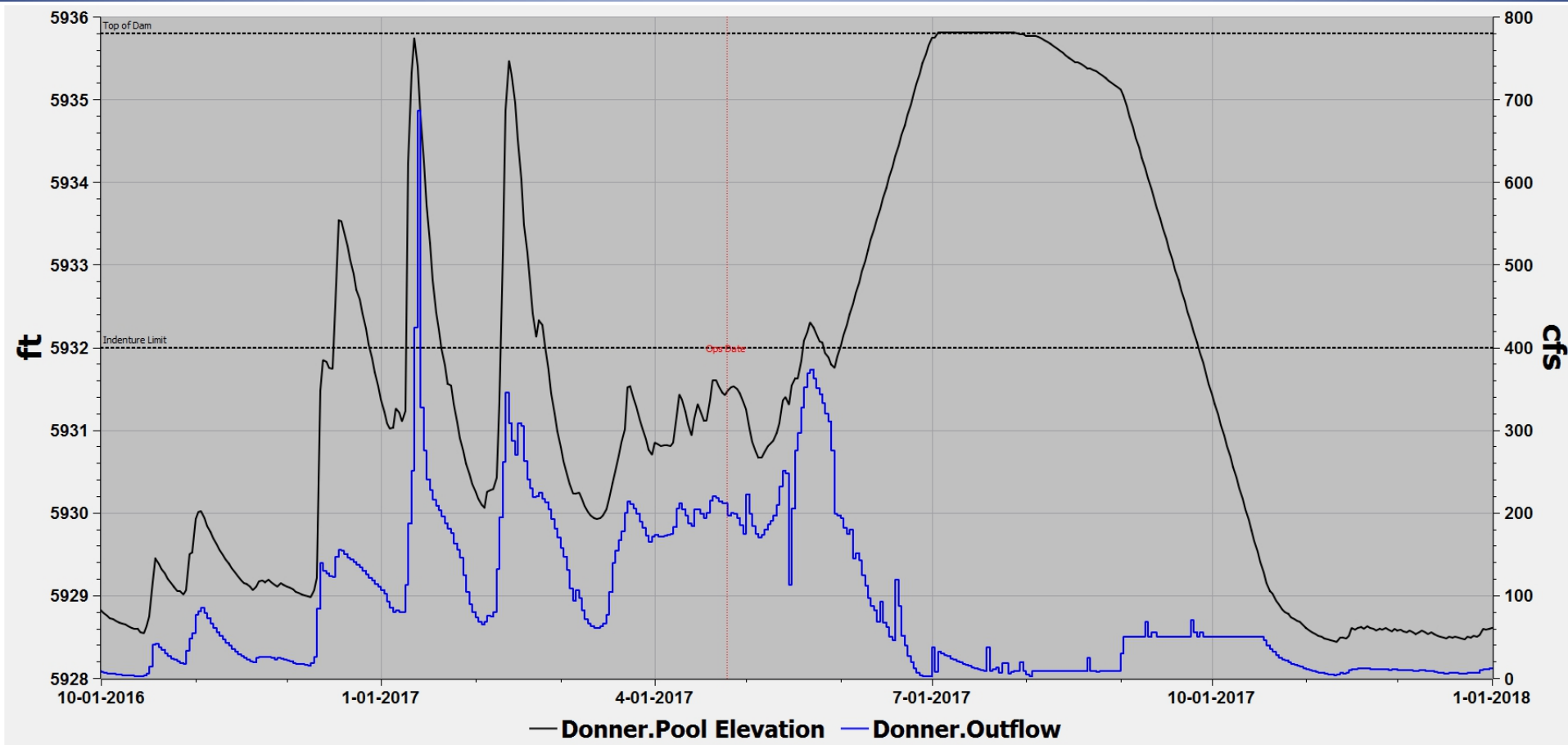
April 25, 2017



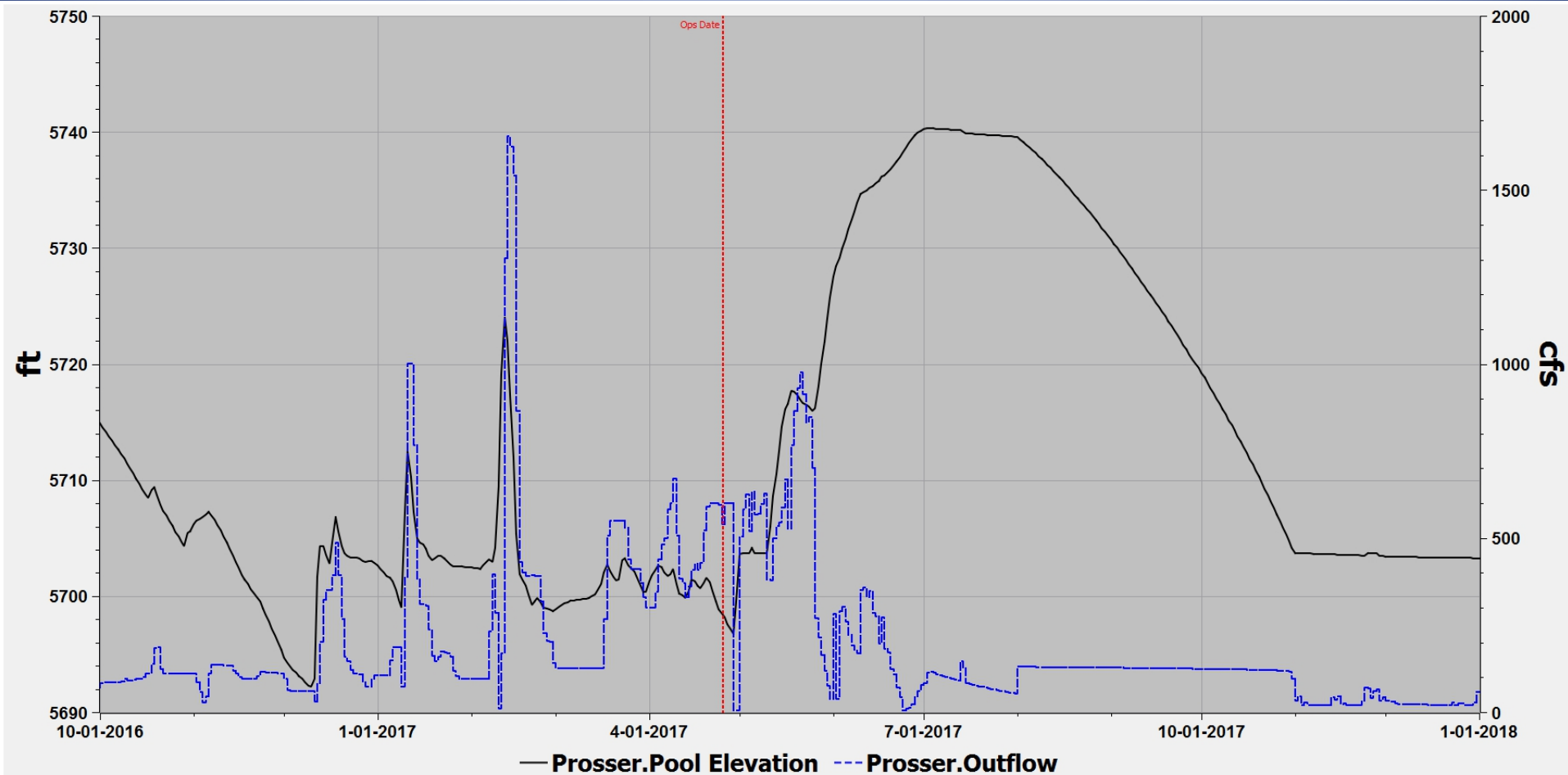
Probabilistic Results: Tahoe Pool Elevation



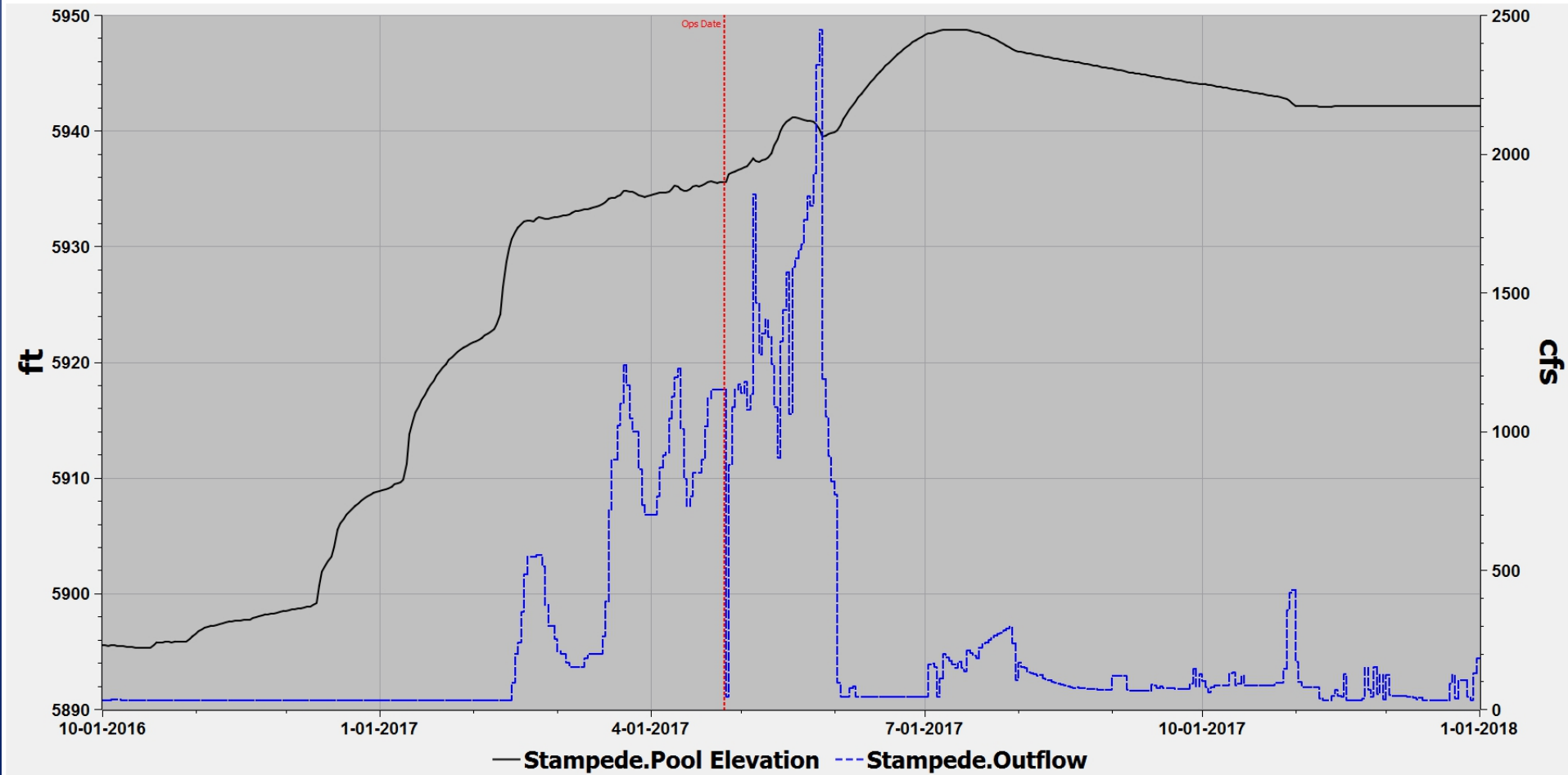
Donner Lake



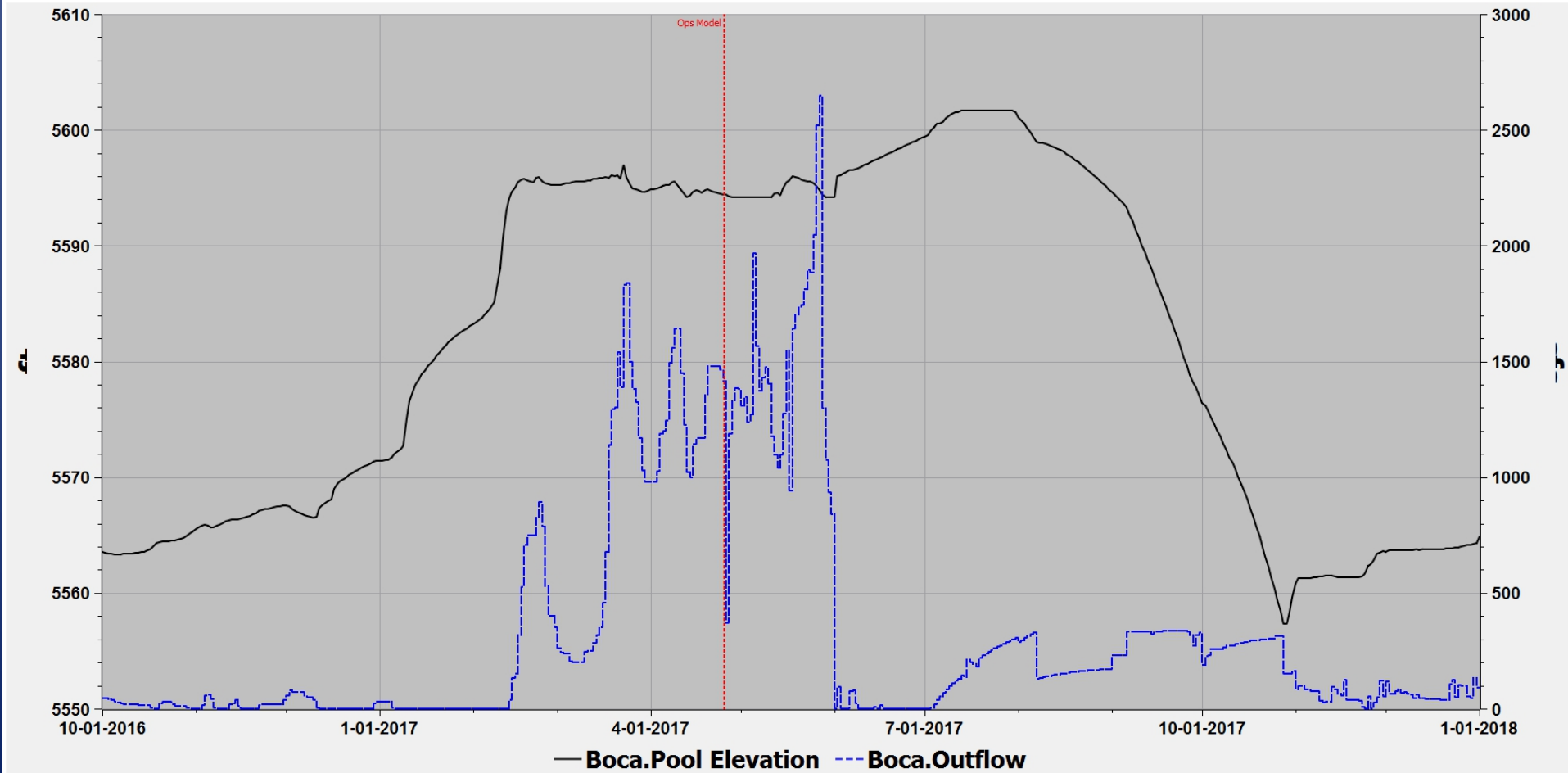
Prosser



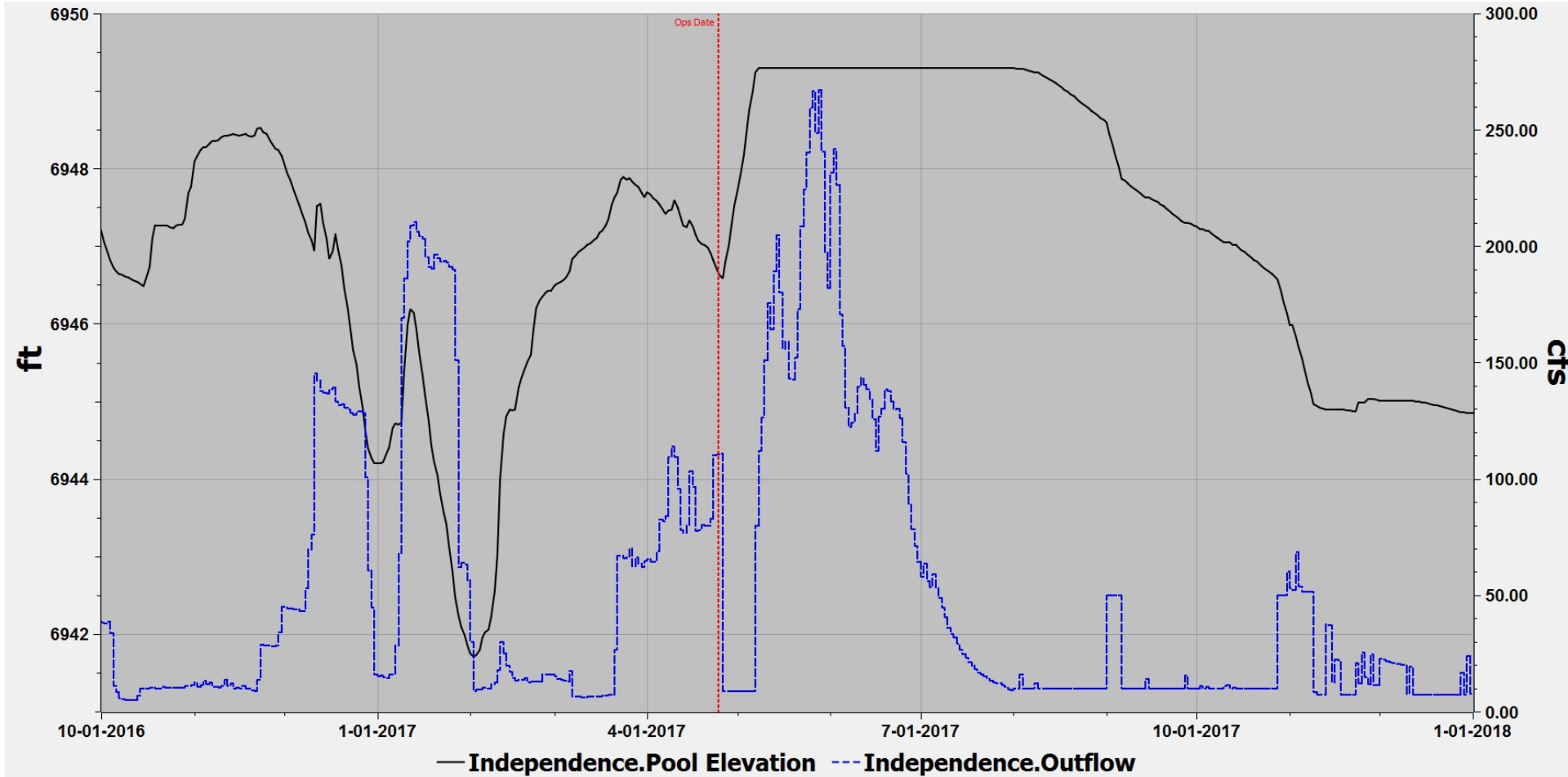
Stampede



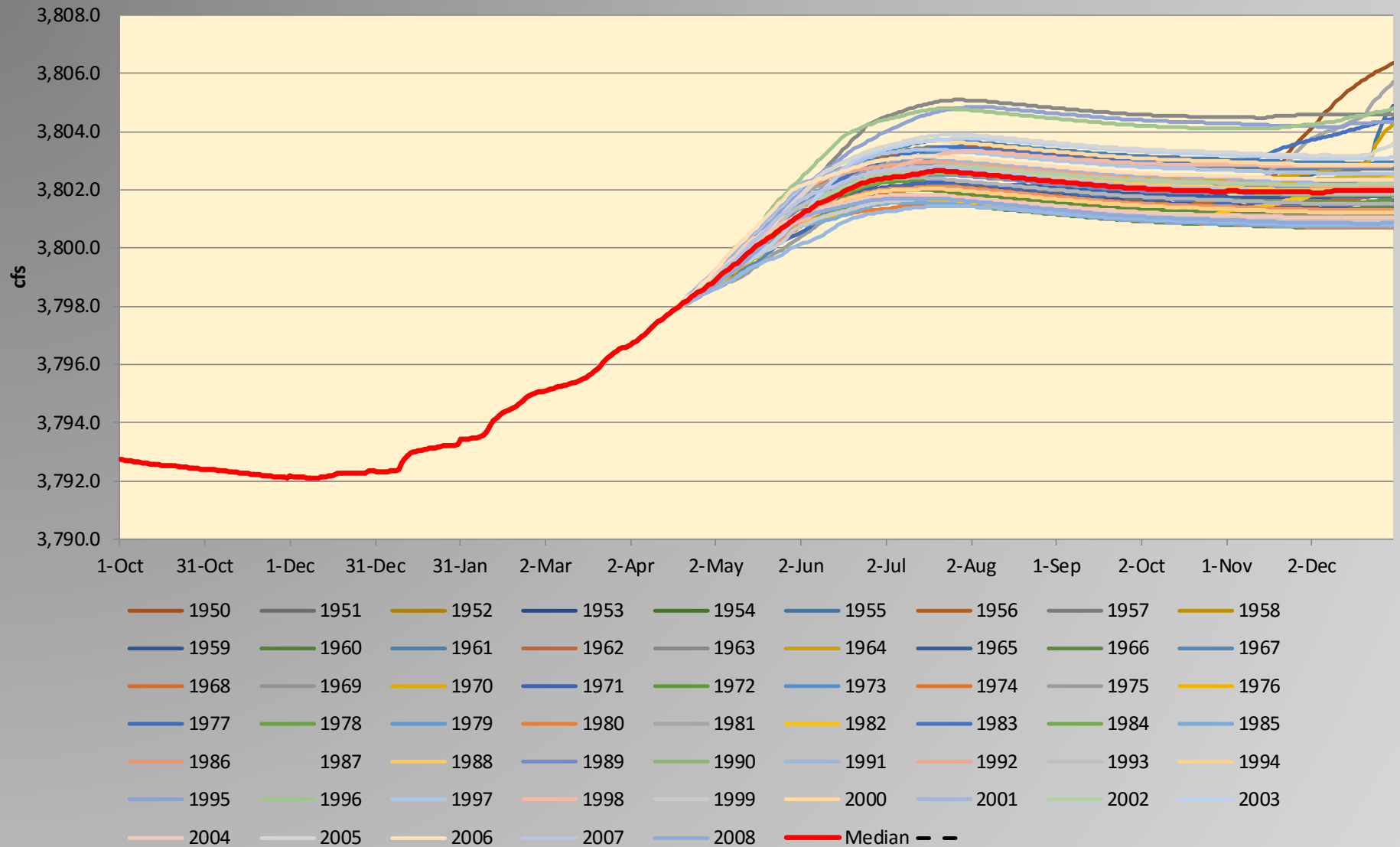
Boca



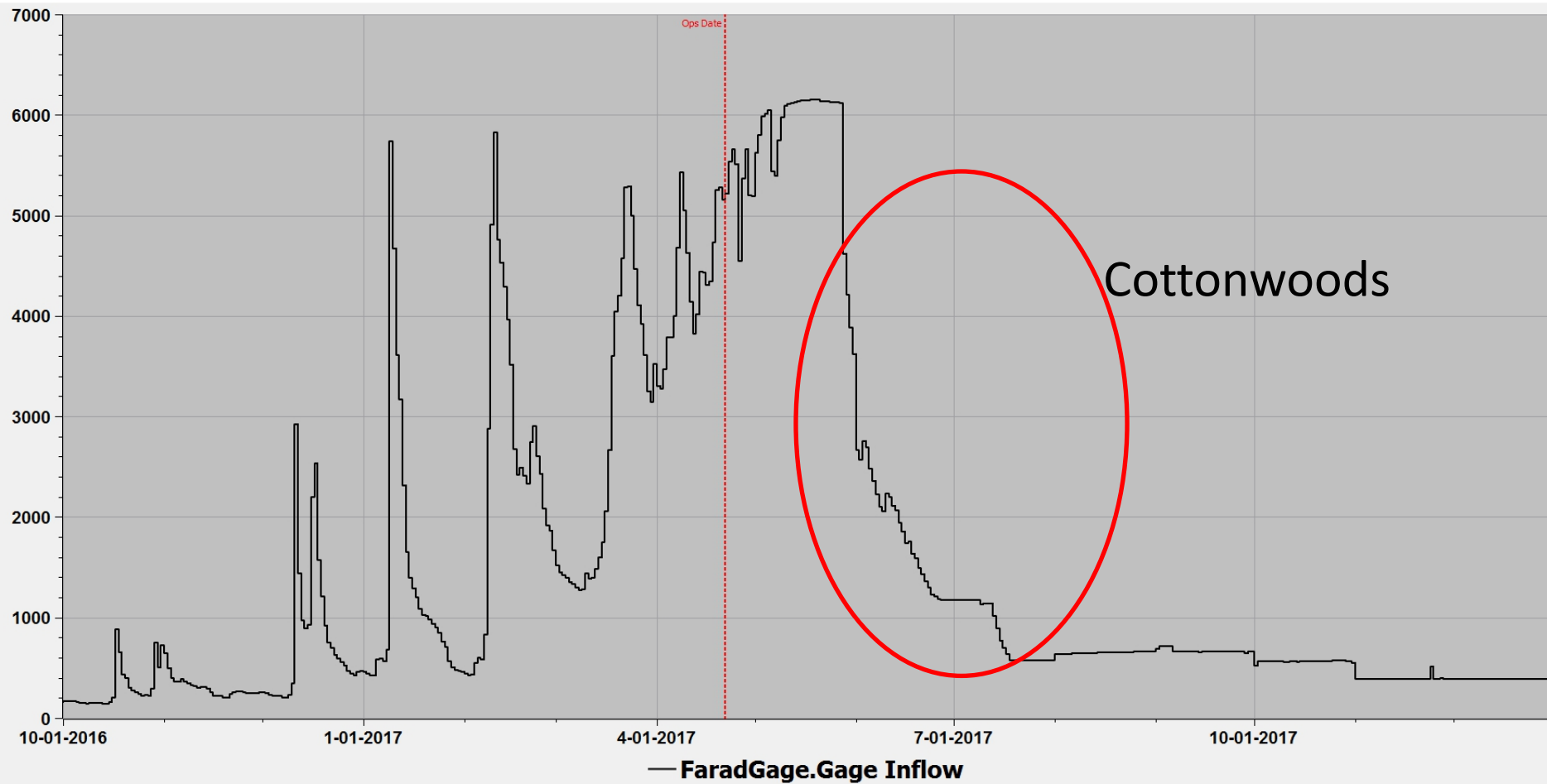
Independence



Probabilistic Results: Pyramid Pool Elevation



Farad



U.S. DISTRICT COURT WATER MASTER'S DAILY WORKSHEET

DATE: Tuesday, April 25, 2017

[illegible]

CANAL@HEAD			FLOW (CFS)			COMP. INFLOW 492.9 CFS								
GH	3.70	05:52	113	DONNER	6:00 AM	TODAY	5882	AF	TIME	GH	SHIFT	RELEASE	CHANGE	AVG
SHIFT	-0.32			TODAY'S ELEVATION		PREVIOUS	5874	AF	04:00	5.14		213	1	213.7
ADJ GH	4.02	DIFF	-1			CHANGE	8	AF						
CANAL@WADS			FLOW (CFS)	5931.48		- 1.983	4.0	cfs	COMP. INFLOW 217.7 CFS					
GH	5.44	06:00	41											
Note		DIFF	2	INDEPENDENCE	6:00 AM	TODAY	15585	AF	TIME	GH	SHIFT	RELEASE	CHANGE	AVG
CANAL@HAZEN			FLOW (CFS)	TODAY'S ELEVATION		PREVIOUS	15632	AF	06:00	4.42		108	-5	109.4
GH	6.78	06:15	2			CHANGE	-47	AF						
Note		DIFF	-1	6946.54		- 1.983	-23.7	cfs	COMP. INFLOW 85.7 CFS					
WADSWORTH			FLOW (CFS)											
GH	11.07	06:15	5360	MARTIS	5:00 AM	TODAY	1064	AF	TIME	GH	SHIFT	RELEASE	CHANGE	AVG
Note		DIFF	40	TODAY'S ELEVATION		PREVIOUS	1071.2	AF	04:30	4.24		220	-15	226.0
NIXON			FLOW (CFS)			CHANGE	-7.2	AF						
GH	9.02	05:15	5460	5784.10		- 1.983	-3.6	cfs	COMP. INFLOW 222.4 CFS					
Note		DIFF	-20											
				LAHONTAN	6:00 AM	TODAY	210516	AF	TIME	GH	SHIFT	RELEASE	CHANGE	AVG
				TODAY'S ELEVATION		PREVIOUS	212686	AF	06:00	8.74		2900	20	2897.6
				4154.38		CHANGE	-2170	AF	COMP. INFLOW 1803.3 CFS					
CARSON RIVER				PYRAMID ELEV.	Date									
				3796.56	3/31									

Questions?