

Welcome to June!

NASA MODIS Satellite May 28 2017

Caltrans, District 10's Post



A Caltrans worker provides perspective on the depth of the snowpack with drifts that exceed 50' during the spring clearing after the historic winter of 2017.

river sediment into
Pyramid Lake

Mono Lake -
green algae
growth

www.monolake.org/today/2015/10/31/mono-lakes-green-mystery-continues/

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



Short Attention Span Brief

- **Short Range Weather:** Warming through Saturday, increased breezes with a brief cooldown Sunday-Monday (maybe not much cooling), then warming back into 90s Tues-Thurs next week.
- **Long Range Weather:** Signs for a trend back toward near to below normal temperatures following week - heat ridge has been hard pressed to sustain itself more than a few days.
- Oscillations in temperatures in spring have been good to mitigate flooding - heatwaves not lasting too long nor getting too intense.
- **Scenario:** If cooling late weekend is more tepid, that means we'd be in for a solid 7-day stretch of well above normal temps and sunshine which would lead to much higher snowmelt rates.

Short Attention Span Brief

- High elevation big snowpack remains stubborn. We probably need more prolonged and hotter temperatures to melt that snow rapidly enough for significant flooding (e.g. valley temps well into 90's for 5+ days). **Walker remains at a high risk through June** as a result. Eventually that stuff will melt, and could in a hurry. **Watch next week!**
- **Carson River has likely seen peak flows** due to diminishing snow contributing area. Our concern for significant flooding on Carson is decreasing rapidly. Will continue to have high flows, occasional minor flooding impacts through June and likely into July.
- Other river, stream systems - status quo through this week into next. No big issues.

Situational Awareness - When Should I Freakout?

Chris' 7-Day Regional Freakout Forecast for the Sierra and western Nevada

	Friday ^{6/2}	Saturday ^{6/3}	Sunday ^{6/4}	Monday ^{6/5}	Tuesday ^{6/6}	Wed. ^{6/7}	Thursday ^{6/8}
Wind	typical winds		stronger W/SW winds, afternoon	typical winds			
River & Snowmelt Flooding	mainly minor snowmelt flood issues along Walker, some small creeks		warmer temperatures leading to moderate flooding areas along Walker and some eastern Sierra creeks, minor flooding spots in upper Carson; potential for greater impacts on Walker if Sun-Mon cooldown is not as pronounced				
Flash Flooding (fast paced flooding of streams, poor drainage and steep terrain areas, rock slides, burn scar runoff)	no heavy rainfall						
Thunderstorms	a few buildups each afternoon over mountains but no meaningful storm signals						
Unusual Cold or Heat		hot day with heat issues for sensitive groups, outdoors	seasonably warm			another hot day, heat issues for sensitive groups, outdoors	
Fire Weather	waiting for new vegetation to cure, but carryover grasses are dry from recent heat		increased breezes with low RH - fast moving grass fires possible where dry	new grass crops should dry steadily in this heat; but no critical weather conditions anticipated			

What Does This Mean?
Integrates impacts and confidence

No worries



Low
freakoutness



Moderate
freakoutness



High
freakoutness

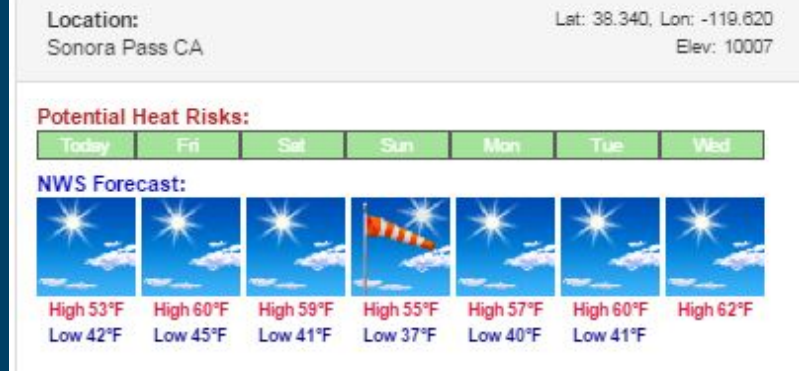
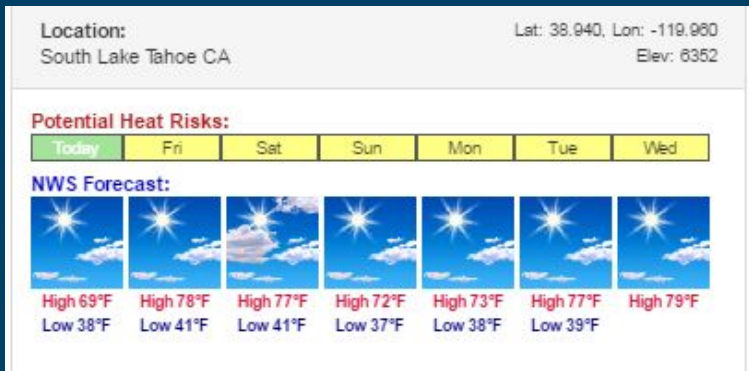
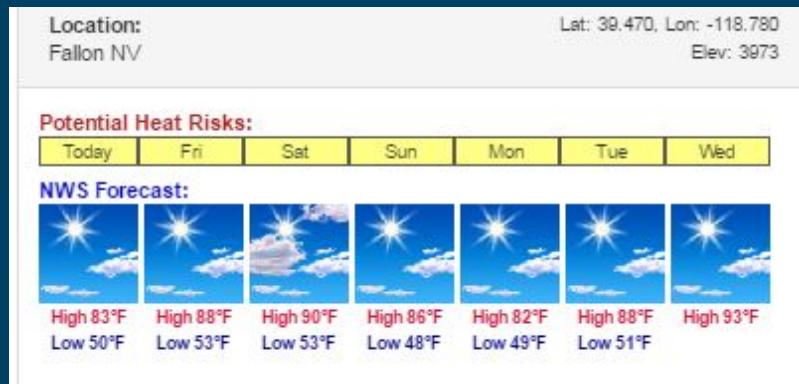


End of this (aka
really bad)



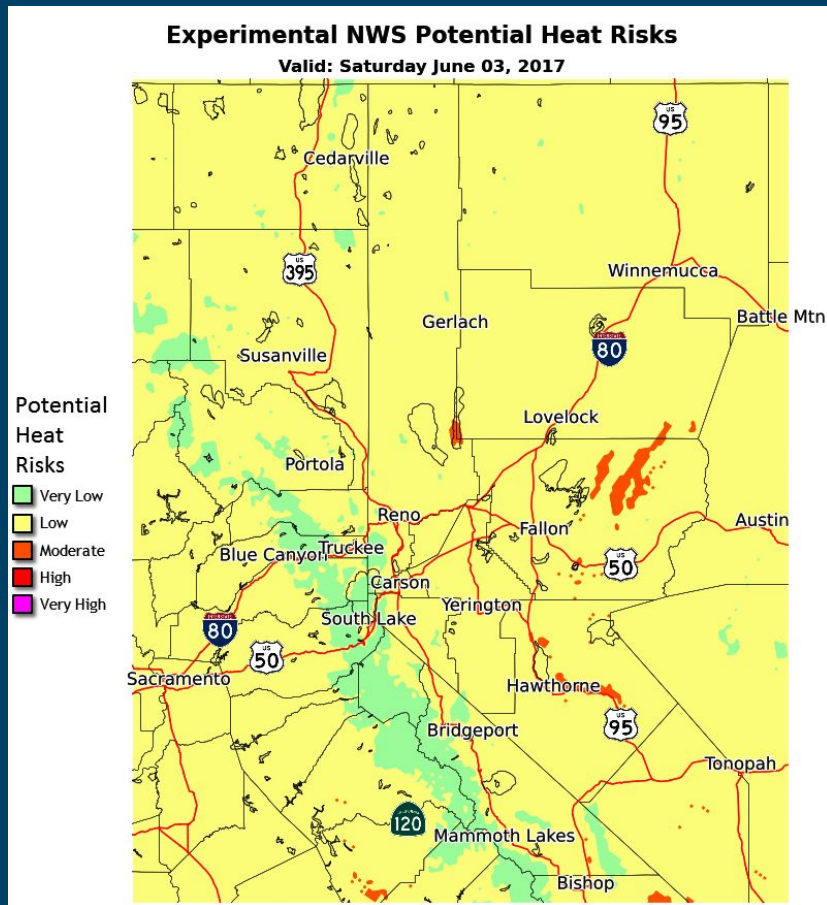
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Temperature Trends Hot Today, Cooling Wed-Thurs, Warm Again for Weekend



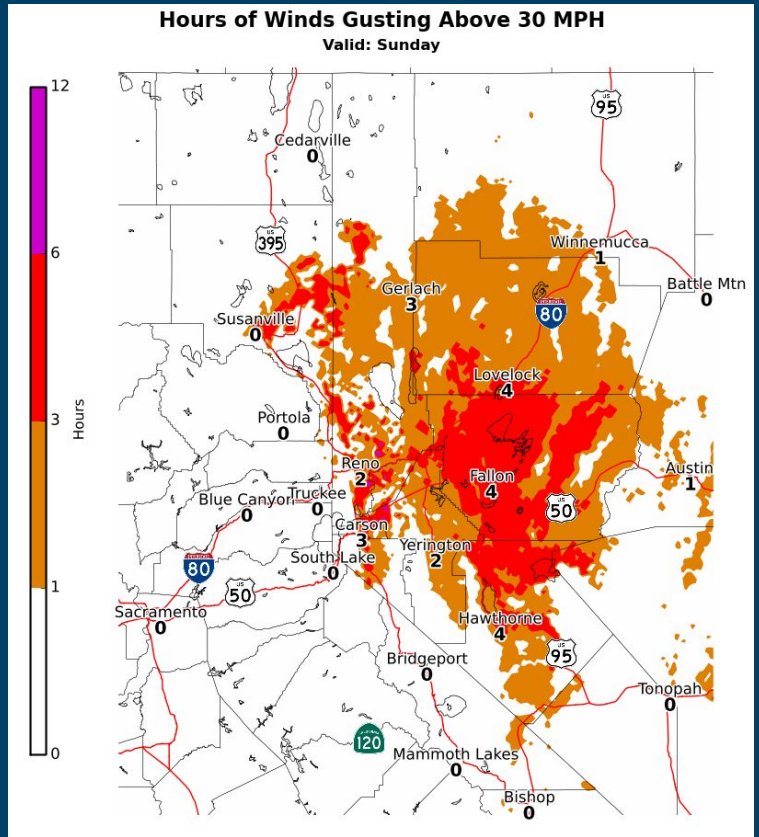
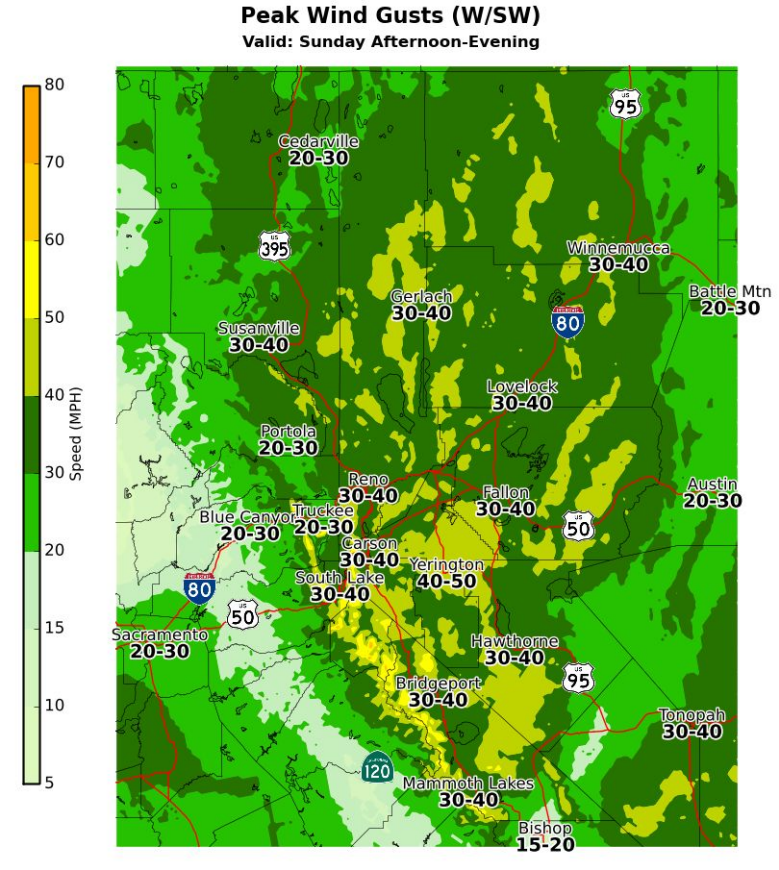
Saturday

Isolated Areas of Heat Risk for Sensitive Groups, Those Outdoors

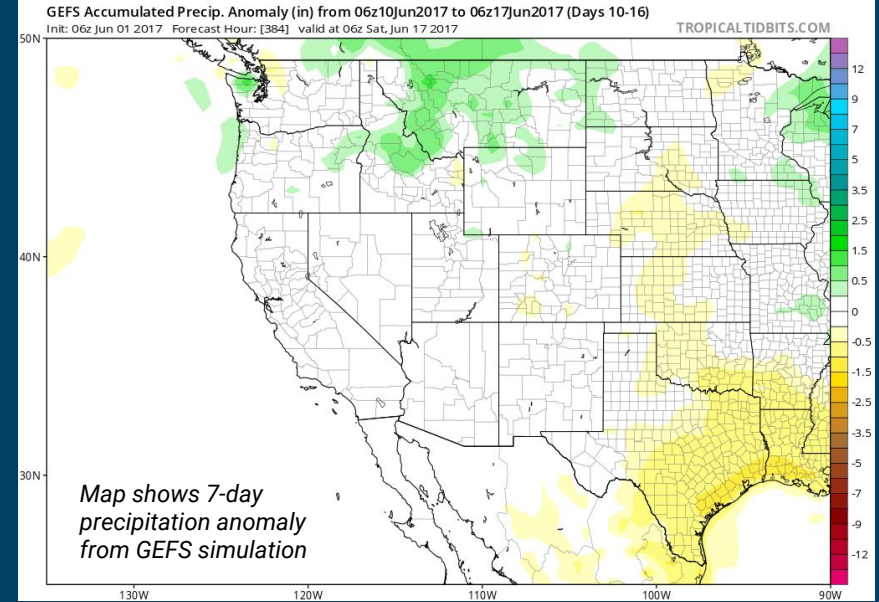
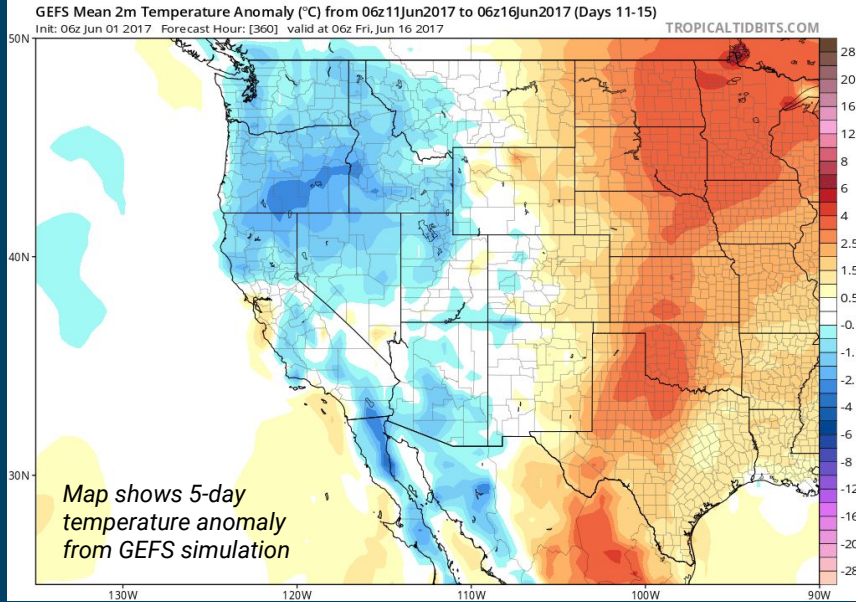


Category	Level	Meaning
Green	0	No Elevated Risk
Yellow	1	Low Risk for those extremely sensitive to heat, especially those without effective cooling and/or adequate hydration
Orange	2	Moderate Risk for those who are sensitive to heat, especially those without effective cooling and/or adequate hydration
Red	3	High Risk for much of the population, especially those who are heat sensitive and those without effective cooling and/or adequate hydration
Magenta	4	Very High Risk for entire population due to long duration heat, with little to no relief overnight

Sunday Breezy, Watch for Rapid Fire Growth in Dry Grass Areas



Week Two June 11-17 Trending Cooler



- After a week of well above normal temperatures next week, simulations favoring cooler temps for following week as heat-ridge struggles to maintain itself. Something we've seen all spring.
- Confidence is medium this far out, but low risk of another heatwave during this period.
- No clear signal on rain, thunderstorm chances.

Situational Awareness - When Should I Freakout?

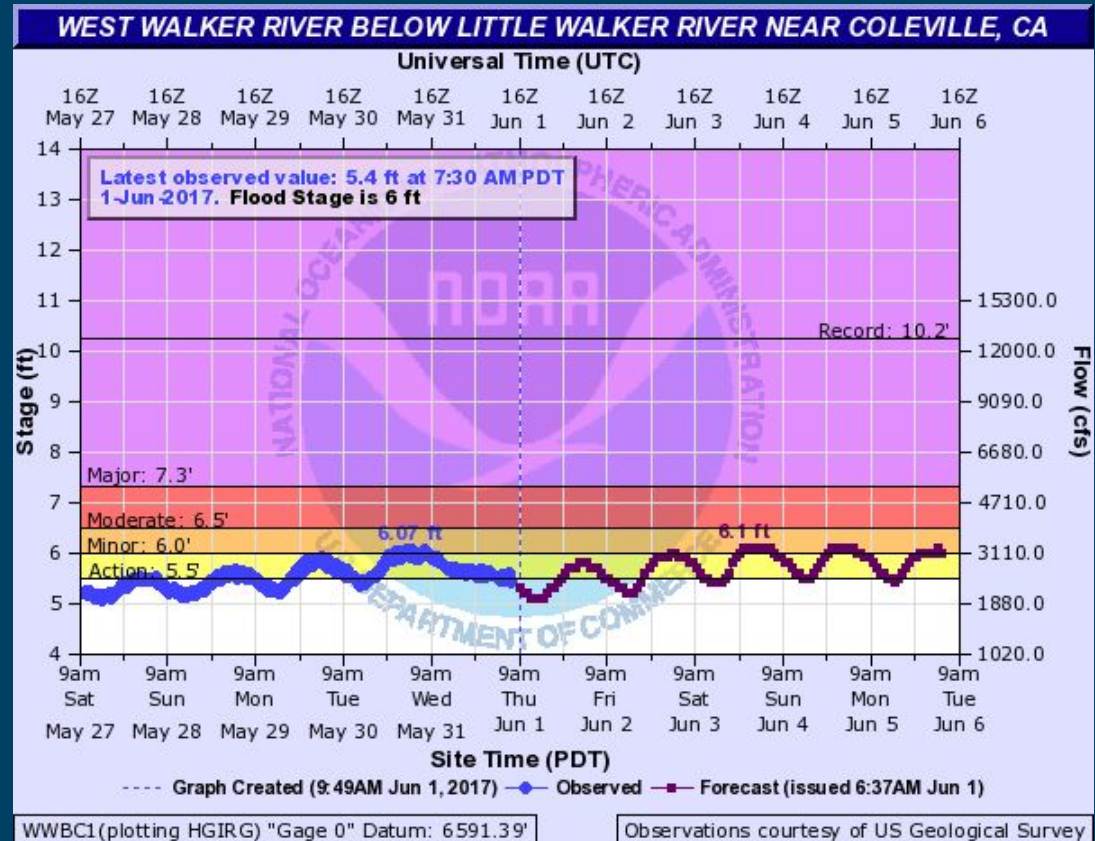
Chris & Tim's Rough Sketch on Timing the Highest Risks of Snowmelt Flooding

	Next Two Weeks	Rest of June	July	August	
Walker River Basin	basin at highest risk of significant flooding, excessive high elevation snowpack; significant flooding likely needs 5+ days hot temps; don't let your guard down		likely on a downward trend but uncertain how quickly	high water but likely on downward trend	
Carson River Basin	continued daily cycles of minor flooding upper Carson, but probably past peak risk for significant flooding	areas of minor flooding possible during warmer temperatures	above normal flows continue		
Truckee River Basin	heavily regulated system; main flood issues above Truckee, CA high flows persist; flood risk depends on heavy rain trigger		above normal flows continue		
Tahoe Basin Creeks/Streams	areas or minor to moderate flooding during heat periods		high water but likely on downward trend		
NE California Basins	past peak, localized minor flooding issues				
E Sierra Creeks/Streams	areas of minor to moderate flooding likely, possibly more significant if we get a 5+ day hot period; many unknowns; don't let your guard down		high water but likely on downward trend		
Lower Humboldt River Basin	slow moving flood; impacts most substantial Winnemucca eastward				
What Does This Mean? Integrates impacts and confidence	No worries 	Low freakoutness 	Moderate freakoutness 	High freakoutness 	End of this (aka really bad) 

5 Day Forecast West Walker @ Sonora Junction

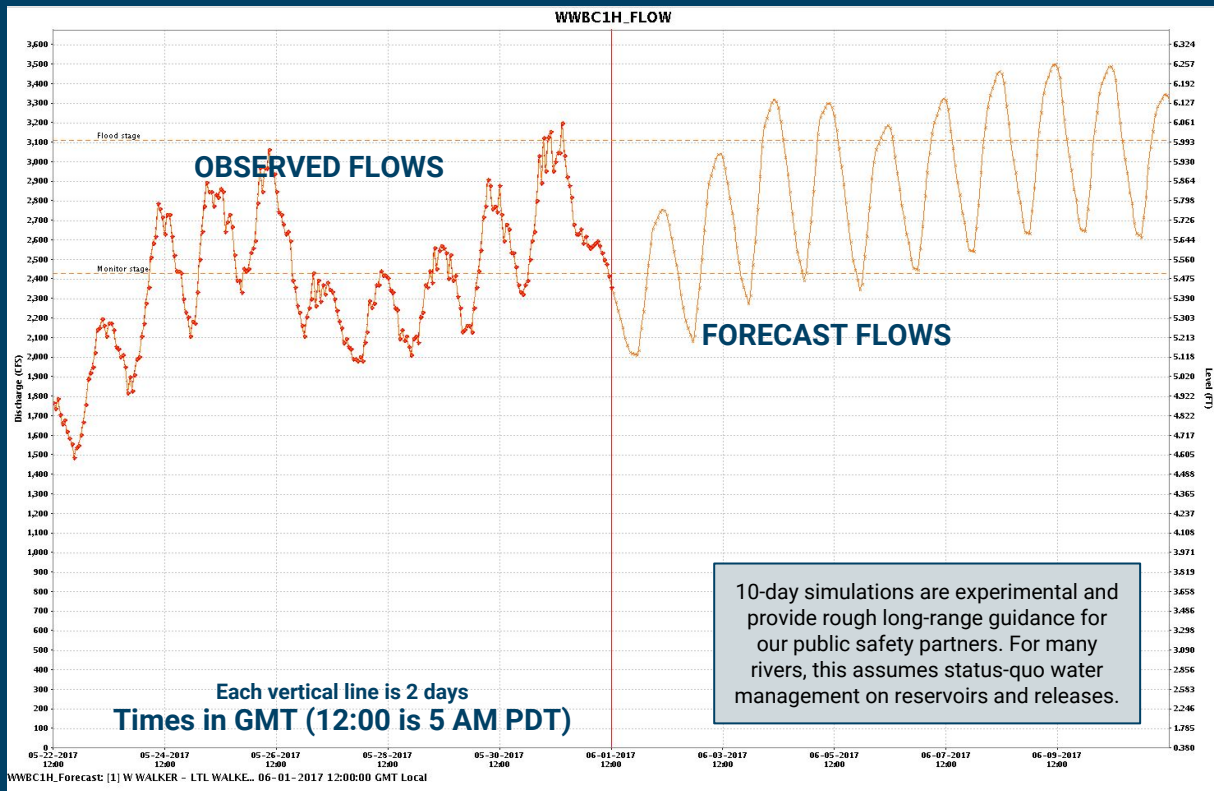
5-day official forecasts - [CNRFC](#) or [NWS Reno](#)

- Highest flow so far was observed Tuesday night
- Slight decrease in flows Today, but returning to near or above flood stage for the weekend. Higher flows likely by mid-next week.
- Minor flood impacts Antelope Valley, Topaz, Walker, Walker Canyon.
- If warm scenario for next week pans out then the peaks could get into moderate flood stages.
- Fast, cold flows until further notice.



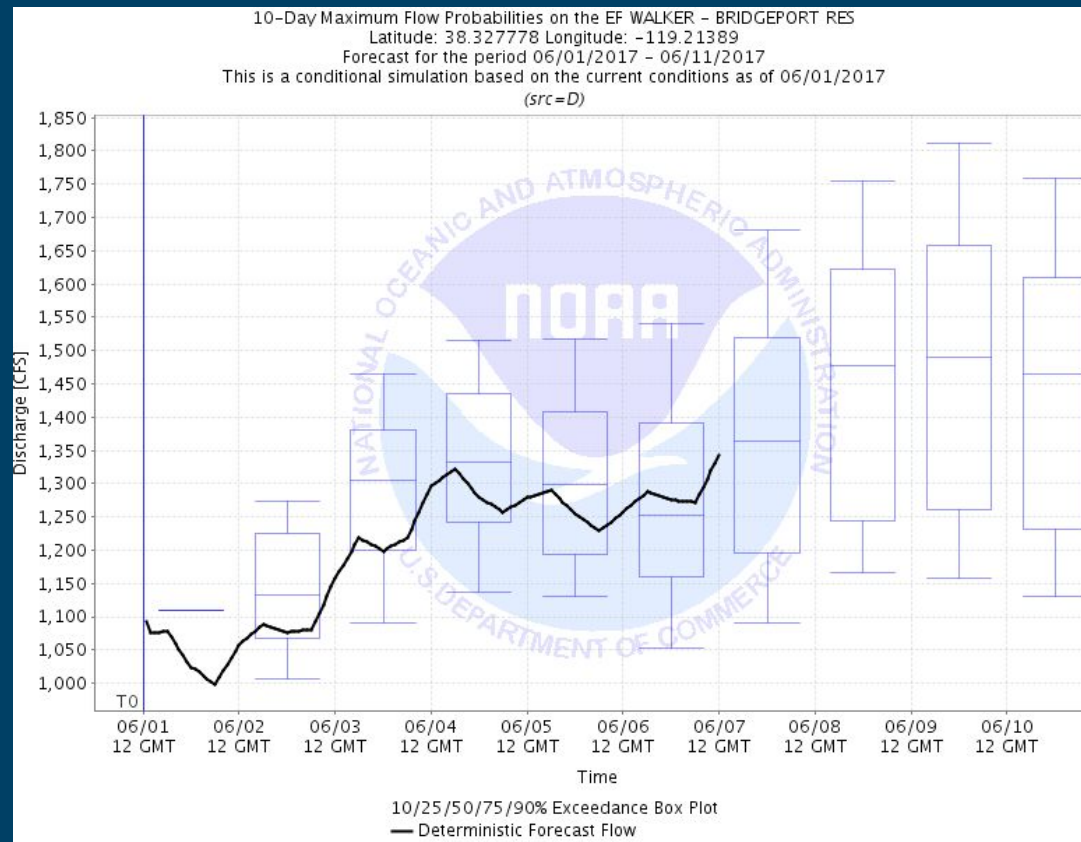
10 Day Simulation West Walker @ Sonora Jct

5-day official forecasts - [CNRFC](#) or [NWS Reno](#)



10- Day Ensemble Forecast East Walker Bridgeport inflow

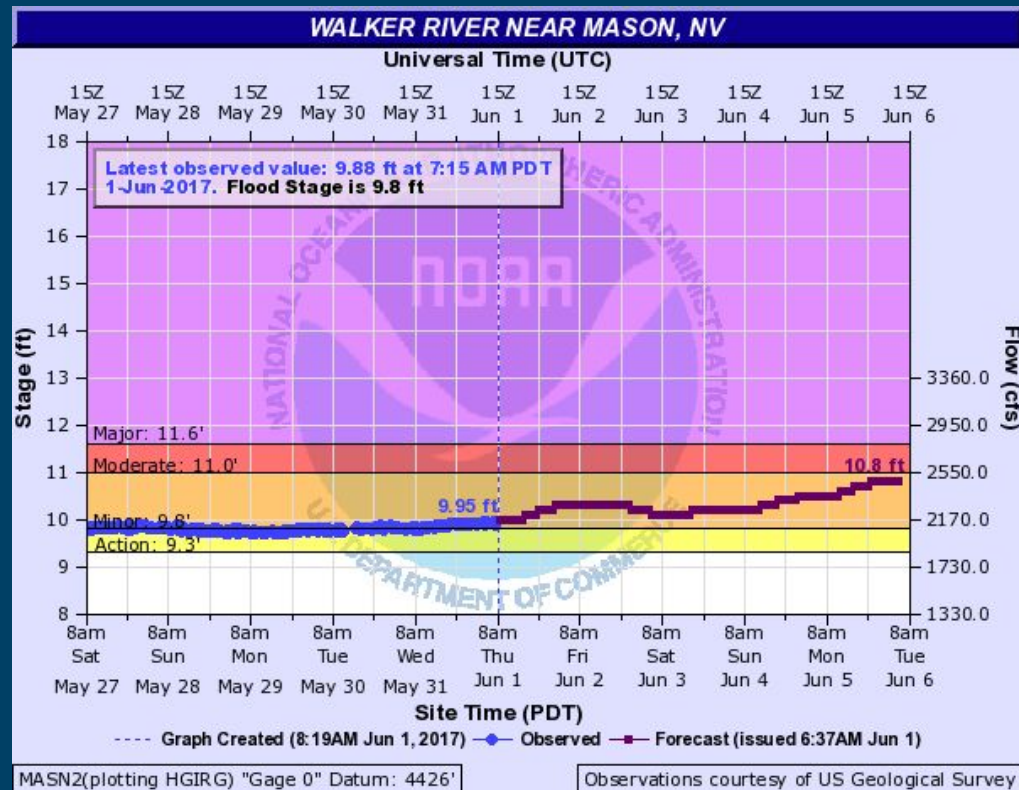
- **IMPORTANT:** These are estimated inflows, no gauging data to calibrate from so increased margin of error.
- Flows increasing for the weekend and into next week. Additional rises likely.
- Inflows consistently exceeding current releases.



5 Day Forecast Walker River @ Mason/Yerington

5-day official forecasts - [CNRFC](#) or [NWS Reno](#)

- Minor flooding ongoing, slow rise continuing into next week. Mainly minor flood impacts to low-lying areas in Mason and Smith Valleys.
- Possibly exceeding moderate stage next week.
- **IMPORTANT:** This new forecast factors in latest water management scenario, which may change depending on later forecasts and stream response.



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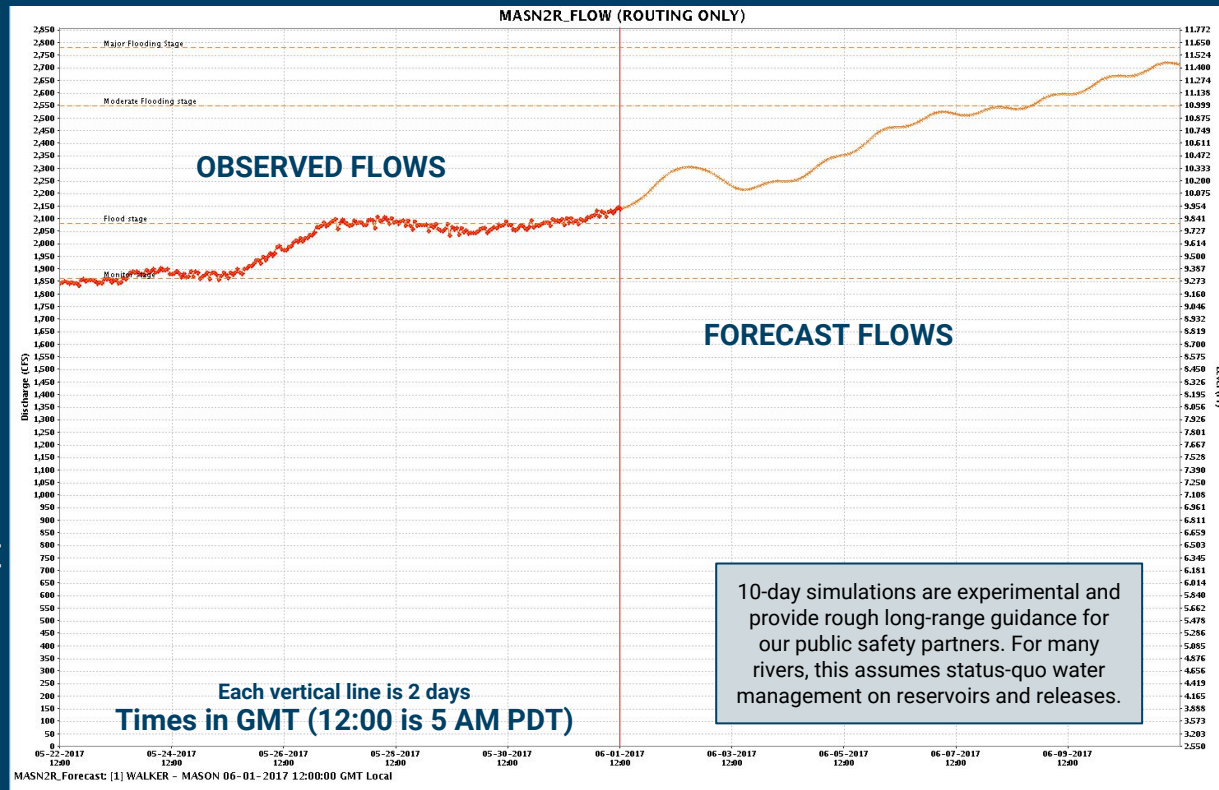
Forecasting for the Sierra and western Nevada since 1905



10 Day Simulation Walker @ Mason/Yerington

5-day official forecasts - [CNRFC](#) or [NWS Reno](#)

- **IMPORTANT:** Simulation assumes status quo water management and heat scenario for next week.
- Given this - it's a feasible scenario that we could approach major flood stage next week.
- The big unknown is when that high elevation snowpack will unlock and fully contribute to flows.
- **Confidence - low to medium.**



Reno National Weather Service

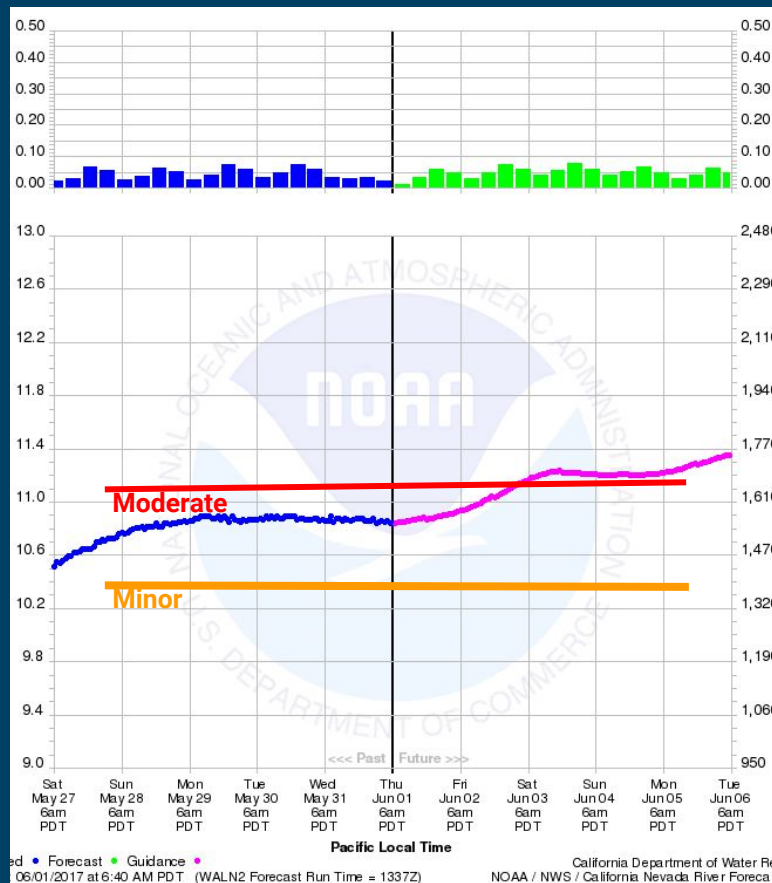
Forecasting for the Sierra and western Nevada since 1905



5 Day Forecast Walker River @ Wabuska

5-day official forecasts - [CNRFC](#) or [NWS Reno](#)

- High flows, minor-moderate flood stages this week.
- ~ 18 to 24 hour lag to Weber Reservoir.
- Long duration and high volume event may result in minor to moderate flood impacts below Weber Reservoir.



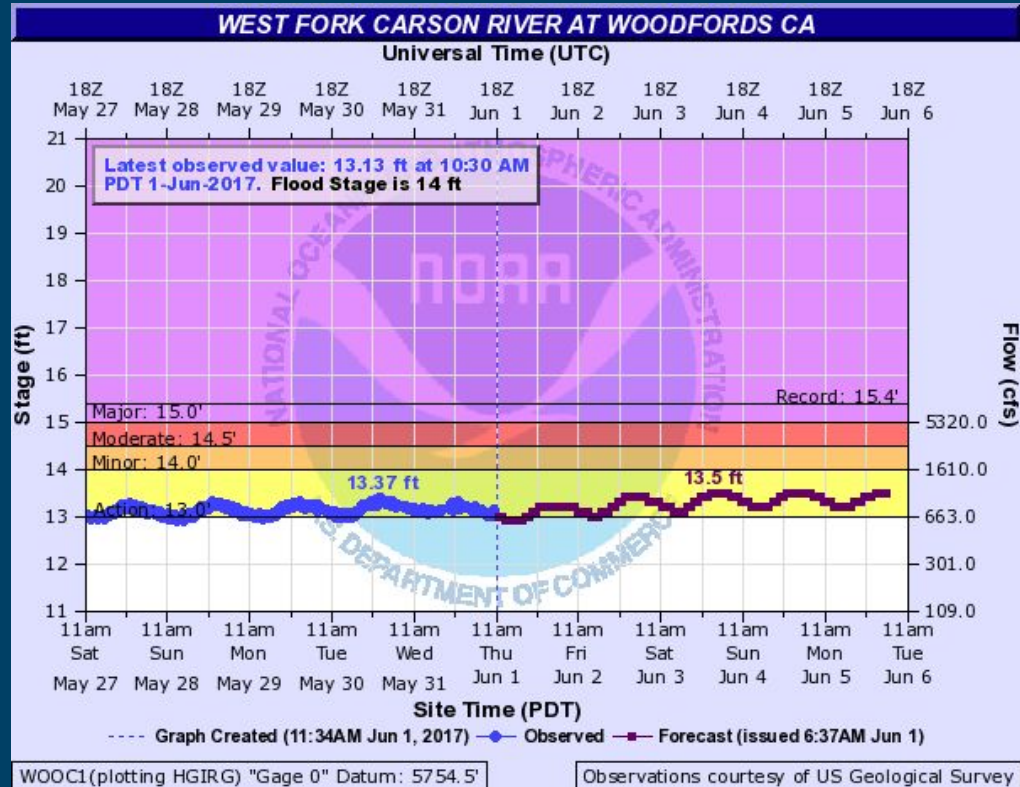
05/01/2017 at 6:40 AM PDT (WALN2 Forecast Run Time = 1337Z)



5 Day Forecast West Carson @ Woodfords

5-day official forecasts - [CNRFC](#) or [NWS Reno](#)

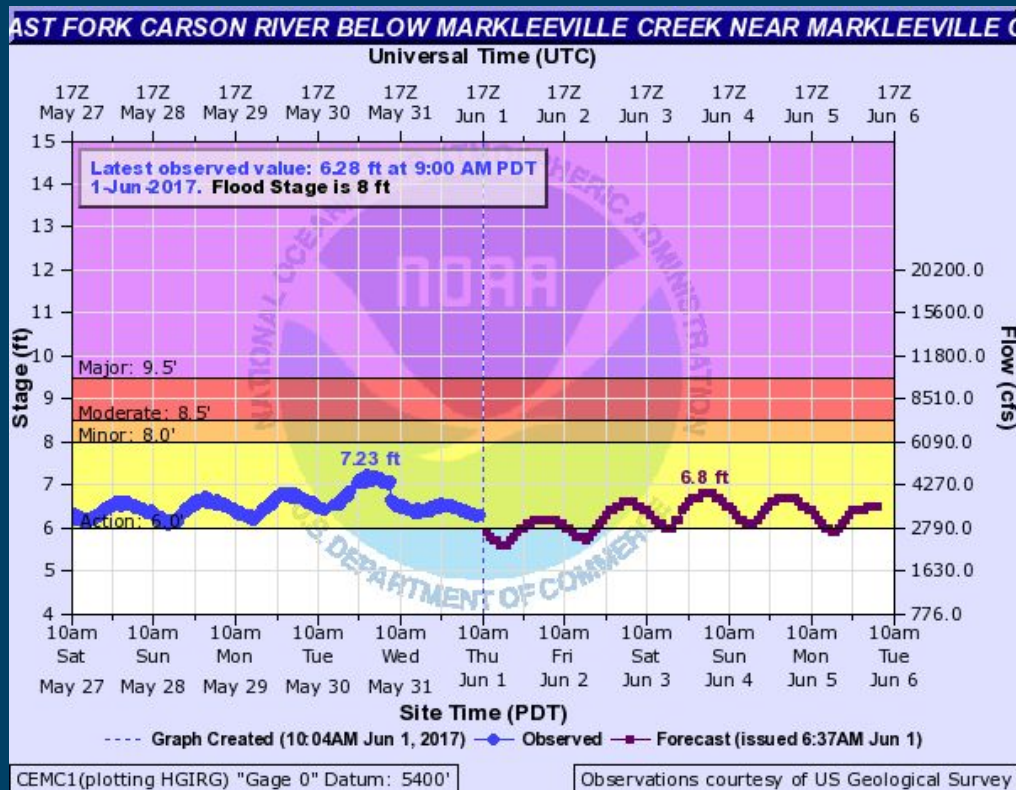
- Possible minor night-time flooding with diurnal peaks.
- Possible Impacts - Isolated minor flooding in the southwestern Carson Valley between Centerville and Genoa NV.
- Odds of being past peak flow are high due to decreasing contributing area, but high flows will continue for many weeks.



5 Day Forecast East Carson @ Markleeville

5-day official forecasts - [CNRFC](#) or [NWS Reno](#)

- Remaining in the monitor stages this week. Could still approach minor flood stage.
- Possible impacts - Isolated minor flooding in the southwestern Carson Valley between Centerville and Genoa NV.
- Odds of being past peak flow are moderate-high due to decreasing contributing area, but high flows will continue for many weeks.

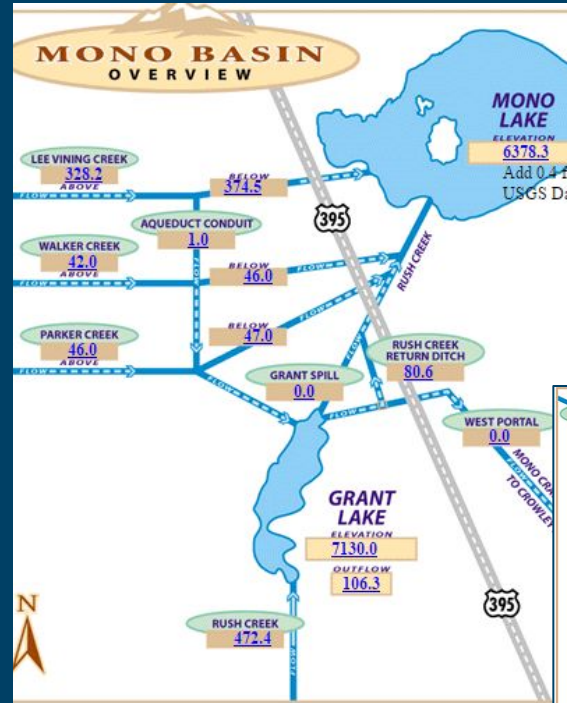


Eastern Sierra Outlook

General Guidance

- No real pearls of wisdom here. Peak flows dropping back some Thursday, Friday due to cooler temperatures. Rising again for weekend and all of next.
- Peak flow likely still ahead. Next week?
- Potential flood impacts haven't changed - most likely minor to moderate impacts for areas near creeks/streams. Areas that have flooded already this spring likely to see flooding.

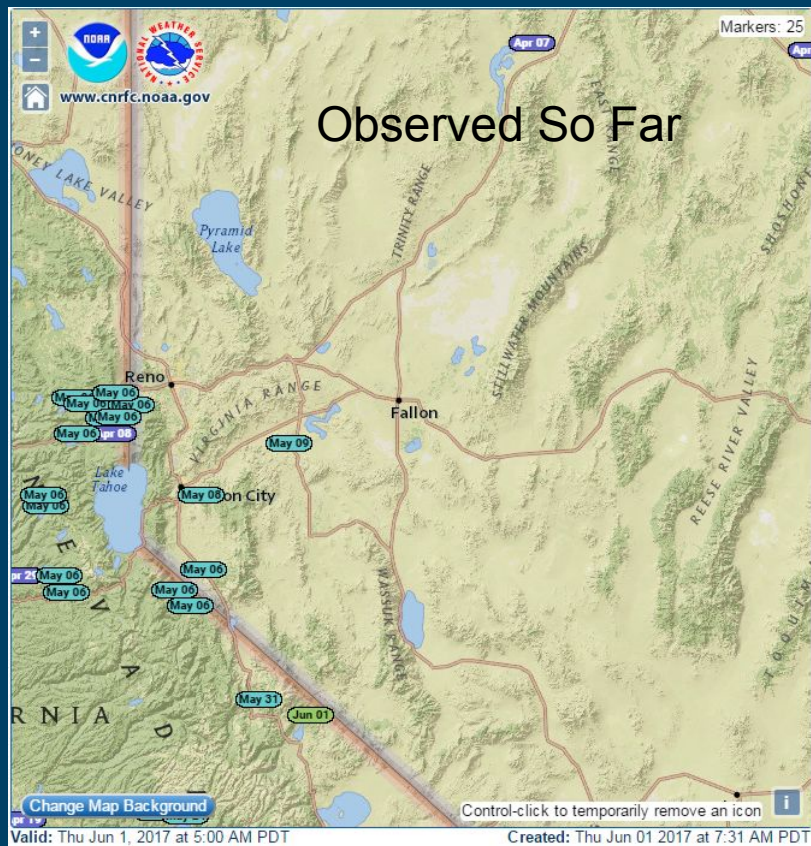
NWS does not have specific river simulations in the eastern Sierra, aside from Walker River basin. So we use projected rises on the Walker River and internal (highly) experimental National Water Model guidance.



Source - [LADWP Real-time data](#)



Peak Streamflow timing...



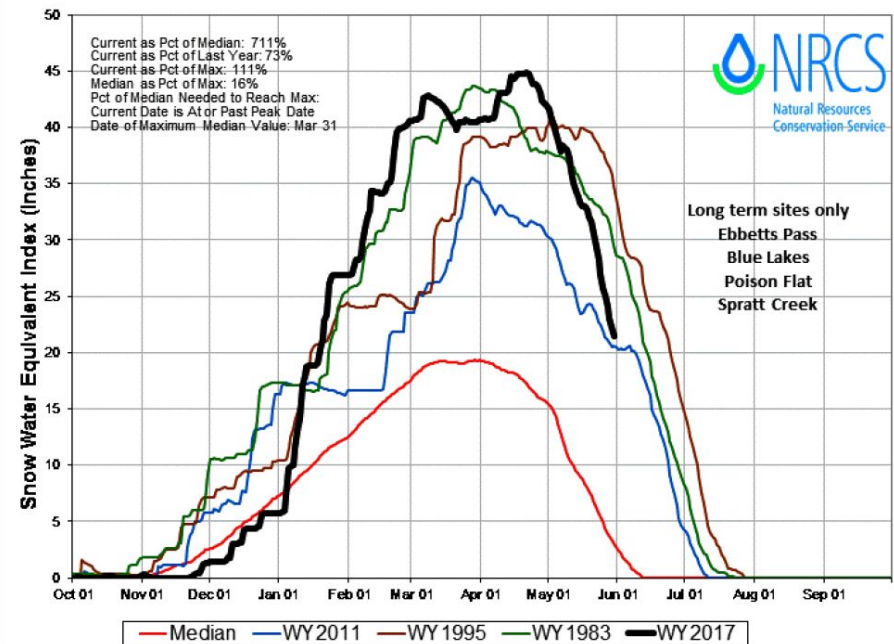
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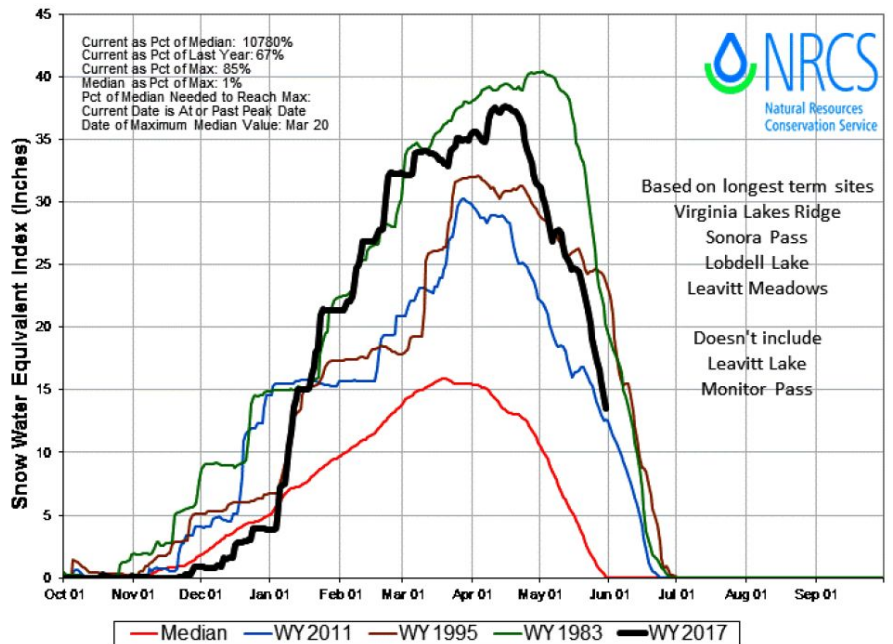


Snowpack update

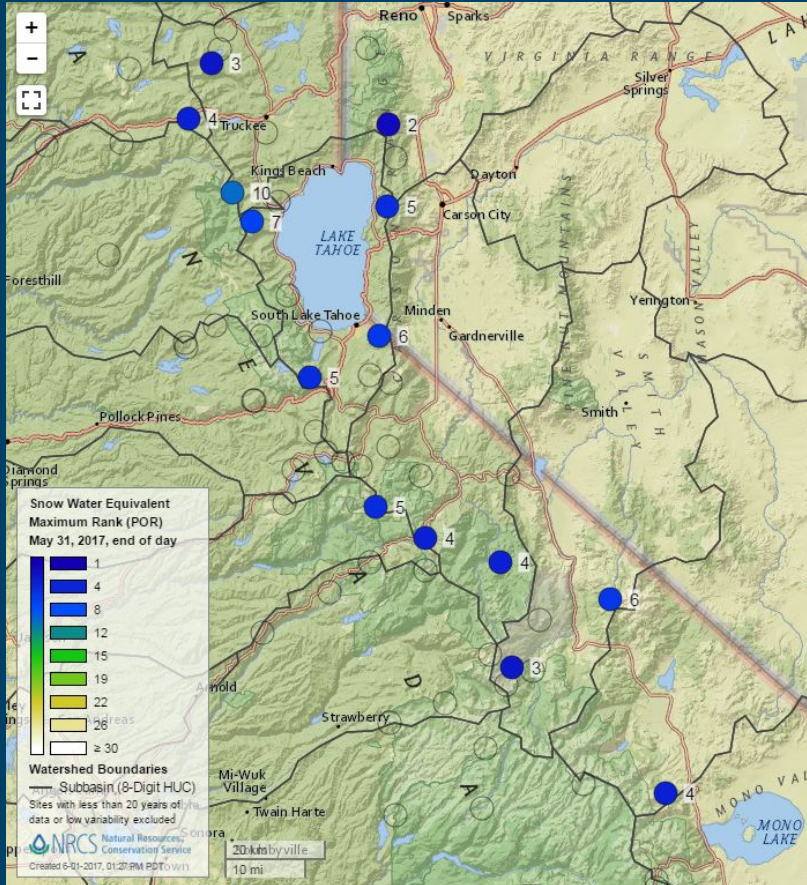
CARSON RIVER BASIN Time Series Snowpack Summary
Based on Provisional SNOTEL data as of May 30, 2017



WALKER RIVER BASIN Time Series Snowpack Summary
Based on Provisional SNOTEL data as of May 30, 2017



SWE Rankings As of May 31 2017



- Notes: Blank circles are either melted out or too short of a period of record. Leavitt Lake is missing data.

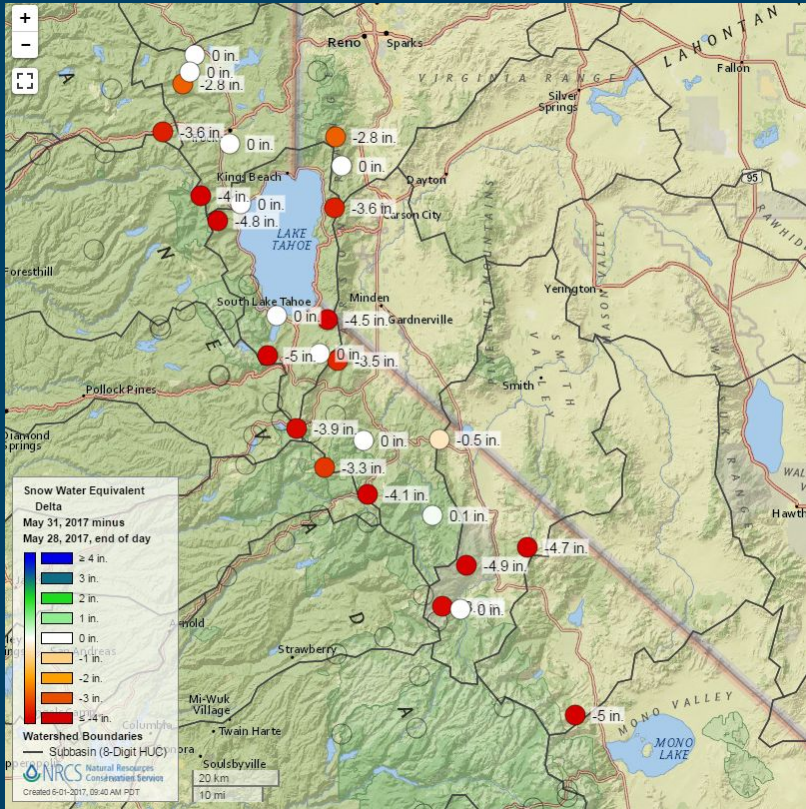
Snowpack update

[NRCS Update link](#)

- While a few of the lower elevations and more sun exposed SNOTELs are melted out, several sites still have more than their average peak SWE.
- An estimate of near 100" of water content still on the ground at Leavitt Lake!
- Typically on Leavitt Lake and Carson Pass would still have significant snow at this date.

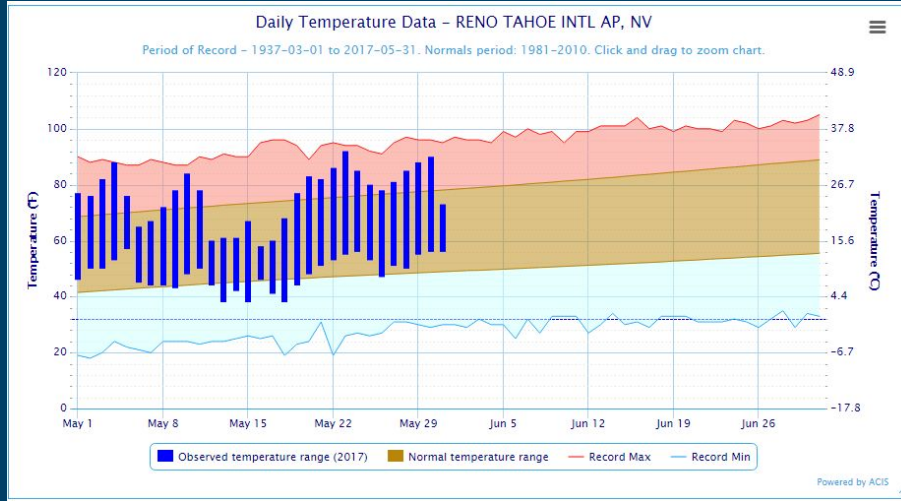
Data based on the first reading of the day (typically 00:00) for Thursday, June 01, 2017							
Basin Site Name	Elev (ft)	Snow Water Equivalent			Percent of		
		Current (in)	Today's Median (in)	Median Peak (in)	Median Peak Date	Today's Median	Median Peak
CARSON RIVER							
Ebbetts Pass	8661	43.5	0.4	33.2	Mar 27	10875*	131*
Horse Meadow	8557	24.3	0.0 _R	20.1 _R	Feb 29	*	121*
Carson Pass	8360	23.6	11.7 _R	31.3 _R	Apr 15	202	75
Monitor Pass	8306	0.0	0.0	15.2	Mar 07	*	0*
Burnside Lake	8129	16.9	0.0 _R	25.6 _R	Mar 19	*	66*
Blue Lakes	8067	37.7	9.3	27.9	Apr 28	405	135
Forestdale Creek	8017	34.0	0.0 _R	32.6 _R	Mar 26	*	104*
Poison Flat	7736	0.0	0.0	16.9	Mar 15	*	0*
Spratt Creek	6063	0.0	0.0	4.4	Feb 20	*	0*
Basin Index (%)		841*					87*
WALKER RIVER							
Leavitt Lake	9604	103.6	38.5	58.6	May 02	269	177
Virginia Lakes Ridge	9445	18.1	0.0	16.4	Apr 07	*	110*
Summit Meadow	9313	27.5	0.9 _R	23.9 _R	Apr 05	3056*	115*
Lobdell Lake	9249	0.4	0.0	15.9	Apr 07	*	3*
Sonora Pass	8770	26.3	0.2	24.5	Apr 05	13150*	107*
Monitor Pass	8306	0.0	0.0	15.2	Mar 07	*	0*
Leavitt Meadows	7198	0.0	0.0	9.9	Mar 16	*	0*
Basin Index (%)		444*					107*

Past 3 day melt rates

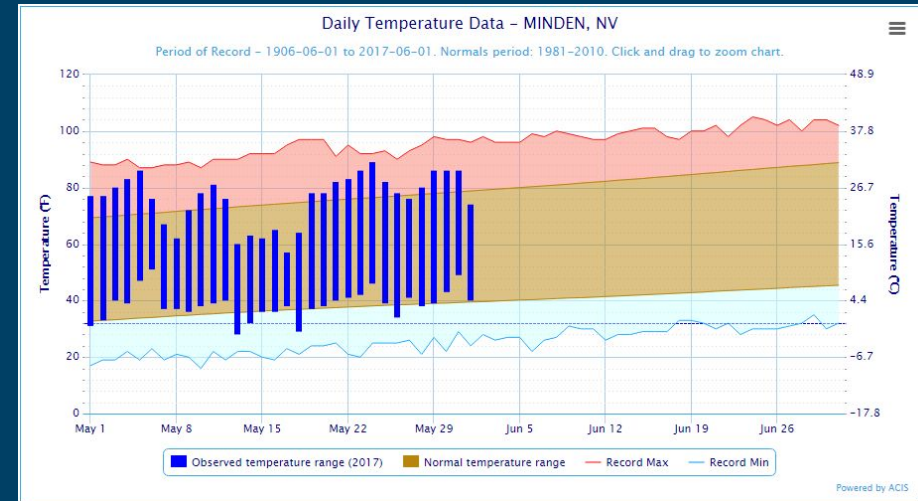


- Even with the cool down yesterday, most SNOTEL sites are still melting at rates averaging about 1-2"/day.
- Sites highlighted in white or beige are melted with the exception of Leavitt Lake.
- Little specific information on snow water content and melt status at highest elevations.

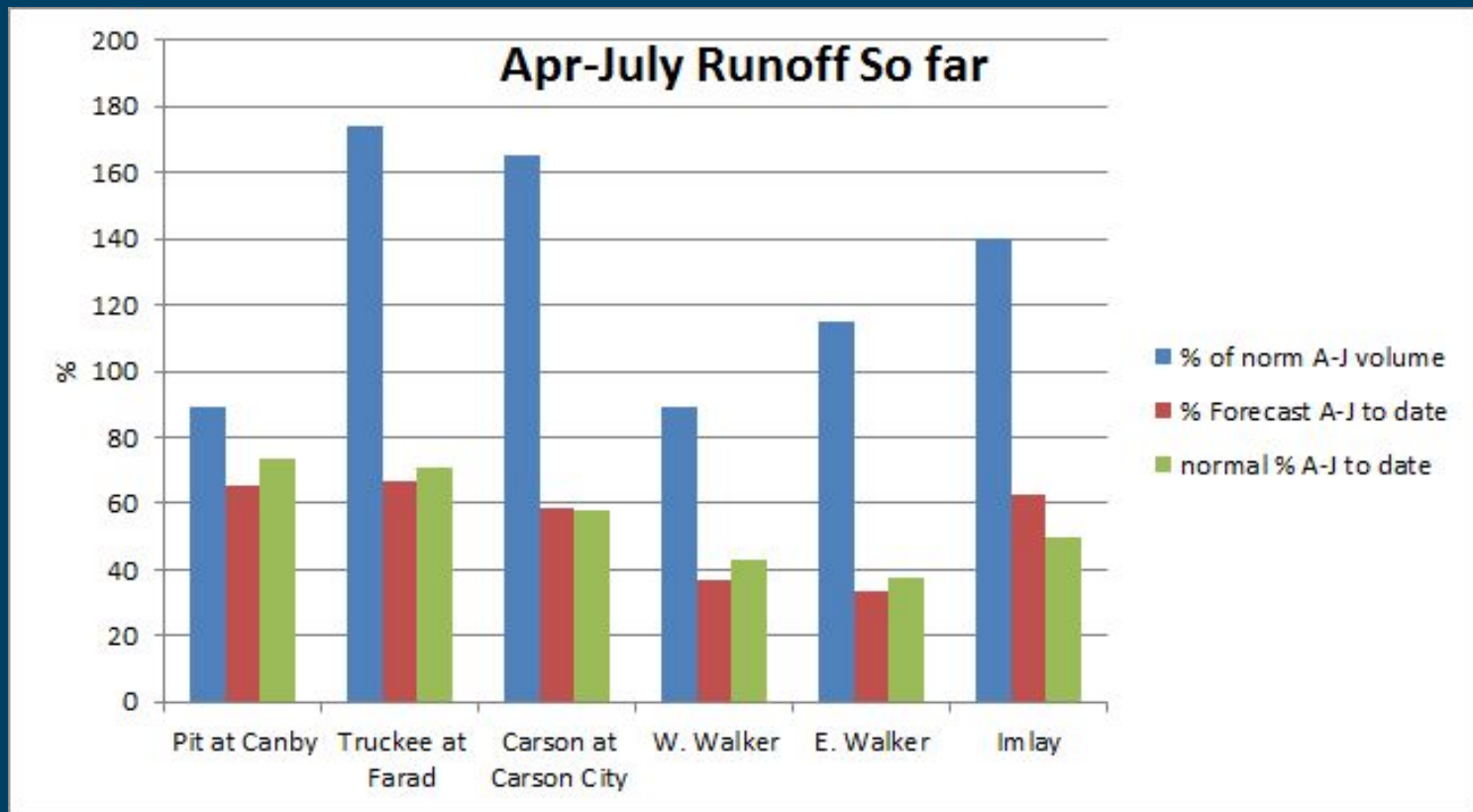
Temperatures so far....



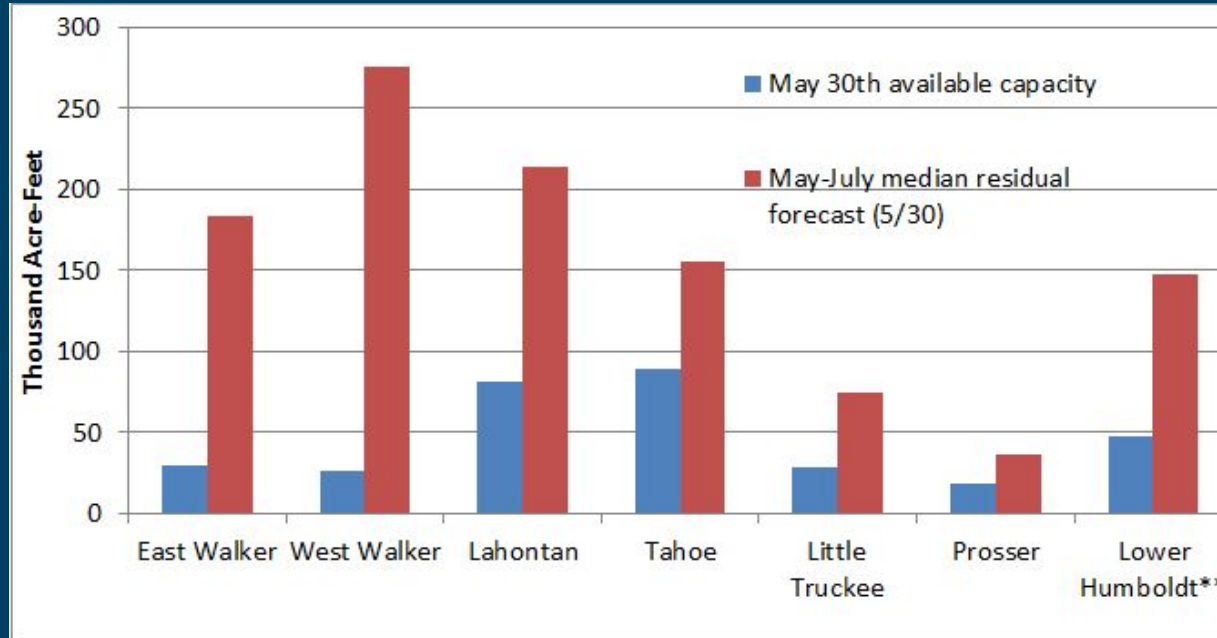
- No continuous long duration hot and Sunny periods so far.
- Conditions have been favorable for removing considerable mid-low elevation snow and reducing contributing area.



Already Exceeding Normal April-July Flows!



Reservoir Space vs What's Coming...



Reservoirs - With the exception of the Walker, Reservoir management transitioning towards water supply. Does not account for terminal lakes, new diversions.