

# Snowmelt has a long way to go!



20' of snow on  
the Sonora  
Pass 5/19/2017



South fork of Bishop Creek  
5/20/2017 Photo: Sue Burak

# Short Attention Span Brief

- **Weather:** Breezy today with a few showers/thunderstorms, “cooler” Thursday and Friday. Late spring heat returns Sunday to Wednesday. Some thunderstorm potential Monday-Wednesday of next week. **Main concern fast and cold creeks/rivers during the second half of Memorial Day weekend with “let’s cool off in the water” temperatures.**
- **Initial Analysis:** High Sierra snowpack is large, takes more heat/energy than usual to get a big melt off. It’s almost June, warm temperatures in the High Sierra are coming. Long range simulations not showing any big cool downs the next week or two. Favored scenarios: A steady rate of melting the next couple weeks, or **a lot more snowmelt response** and higher flows, flooding (especially on Walker Basin).



# Short Attention Span Brief

- **Walker River @ Mason/Yerington: Minor flood** impacts for main-stem Walker rest of this this week. Impacts confined to mainly rural, agricultural areas. Any decrease in flows Thursday-Saturday are temporary. **Secondary peak in flows likely Memorial Day week - monitor for potential higher impacts.**
- **Rest of the regional river and stream systems:** in the eastern Sierra, W Nevada will see **mainly minor flood impacts.** Tributaries and streams - flows peaking early Wednesday and Thursday mornings. **Localized flooding impacts along these streams.** Humboldt is starting another slow rise, but only localized impacts.

# Situational Awareness - When Should I Freakout?

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

	Wed. <sup>5/24</sup>	Thursday <sup>5/25</sup>	Friday <sup>5/26</sup>	Saturday <sup>5/27</sup>	Sunday <sup>5/28</sup>	Mem. Day <sup>5/29</sup>	Tuesday <sup>5/30</sup>
<b>Wind</b>	breezy W-SW winds, low-end impacts		generally light winds under 10-15 mph				
<b>Snow</b>	no snow						
<b>River &amp; Snowmelt Flooding</b>	increased snowmelt flows with mainly minor flooding impacts late night into the morning hours each day		minor-moderate flood impacts on mainstem Walker, otherwise mainly minor snowmelt flood issues around the region		don't let your guard down period - increased heating will raise snowmelt and flood potential but severity low confidence; hot weather will lead to more water rescues		
<b>Flash Flooding</b> (fast paced flooding of streams, poor drainage and steep terrain areas, rock slides, burn scar runoff)	no heavy rainfall signals, thankfully						
<b>Thunderstorms</b>	isolated storms possible portions of Sierra, W Nev	buildups or isolated mountain storms possible each afternoon but no widespread storm signals				isolated storms possible portions of Sierra, W Nev	
<b>Unusual Cold or Heat</b>	no widespread freezes or heat-health issues expected						
<b>Fire Weather</b>	carryover grasses could dry enough from heat to burn with gusty winds			Grasses drying out			

<b>What Does This Mean?</b> Integrates impacts and confidence	<b>No worries</b>		<b>Low freakoutness</b>		<b>Moderate freakoutness</b>		<b>High freakoutness</b>		<b>End of this (aka really bad)</b>	
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# Temperature Trends Cooling, then late spring heat for Memorial Day

Location: Reno Tahoe International Airport NV  
 Lat: 39.510, Lon: -119.780  
 Elev: 4438

**Potential Heat Risks:**

Today	Thu	Fri	Sat	Sun	Mon	Tue
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**NWS Forecast:**

High 85°F Low 53°F	High 80°F Low 50°F	High 77°F Low 51°F	High 82°F Low 53°F	High 87°F Low 54°F	High 90°F Low 57°F	High 90°F

Location: Yerington NV  
 Lat: 38.990, Lon: -119.160  
 Elev: 4398

**Potential Heat Risks:**

Today	Thu	Fri	Sat	Sun	Mon	Tue
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**NWS Forecast:**

High 87°F Low 51°F	High 82°F Low 49°F	High 79°F Low 49°F	High 85°F Low 50°F	High 89°F Low 51°F	High 93°F Low 54°F	High 93°F

Location: 2 Miles SW South Lake Tahoe CA  
 Lat: 38.910, Lon: -120.010  
 Elev: 6362

**Potential Heat Risks:**

Today	Thu	Fri	Sat	Sun	Mon	Tue
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**NWS Forecast:**

High 73°F Low 38°F	High 66°F Low 34°F	High 66°F Low 36°F	High 70°F Low 38°F	High 75°F Low 38°F	High 77°F Low 41°F	High 77°F

Location: Sonora Pass CA  
 Lat: 38.330, Lon: -119.640  
 Elev: 9793

**Potential Heat Risks:**

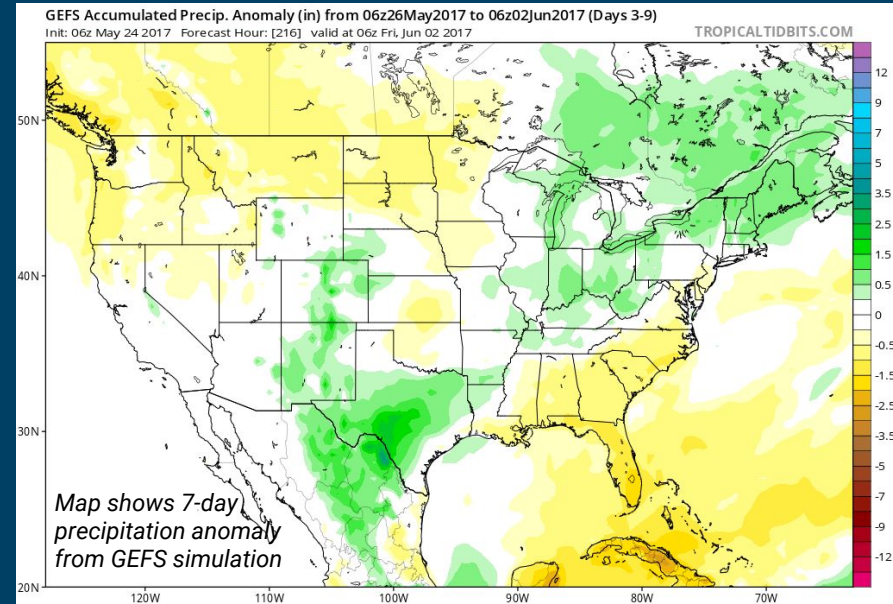
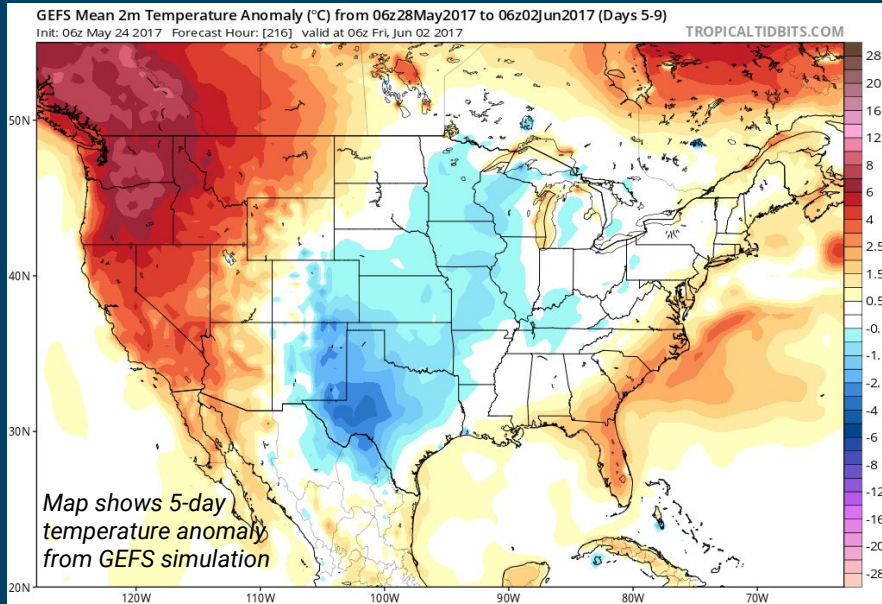
Today	Thu	Fri	Sat	Sun	Mon	Tue
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**NWS Forecast:**

High 60°F Low 39°F	High 54°F Low 33°F	High 48°F Low 35°F	High 54°F Low 36°F	High 56°F Low 40°F	High 58°F Low 42°F	High 58°F

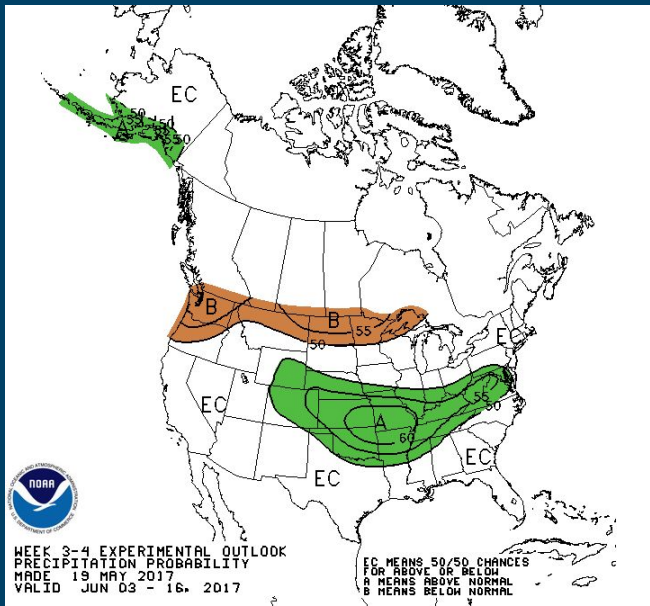
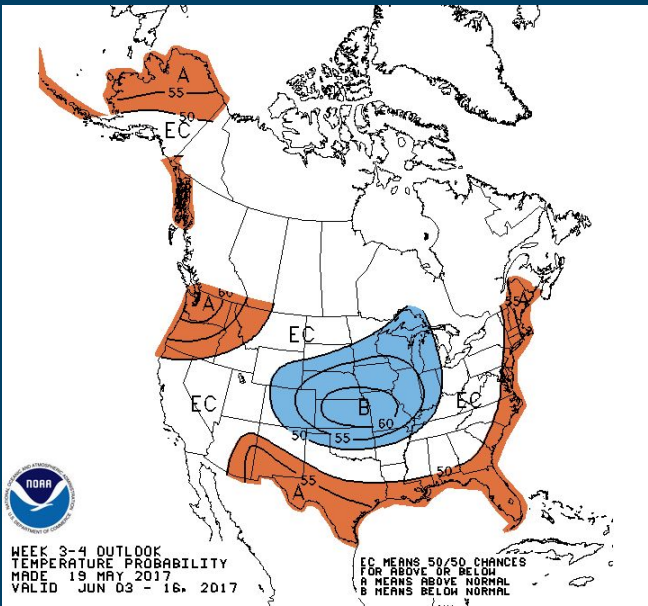


# Next Week May 29 - June 3 Favoring Continued Warm but Intensity Uncertain



- Simulations favor warming through Memorial Day weekend and mid-next week. Some show low pressure offshore breaking down heat-ridge late next week - small decrease in temperatures with gusty winds.
- Plan for continued flooding impacts (eastern Sierra, Walker Basin), high flows. Severity remains low confidence but we **could see a surge in flows second half Memorial Day weekend into the middle of next week!**

# June Heat? No Strong Signals Either Way June 3-16



- No favored temperature, precipitation scenario for our region first couple weeks of June. Sign of the transition to typical summer weather. Afternoon/evening breezes and start of thunderstorm season.
- Plan for continued high flows, possible flooding but little confidence in severity during this period.

# The Rivers

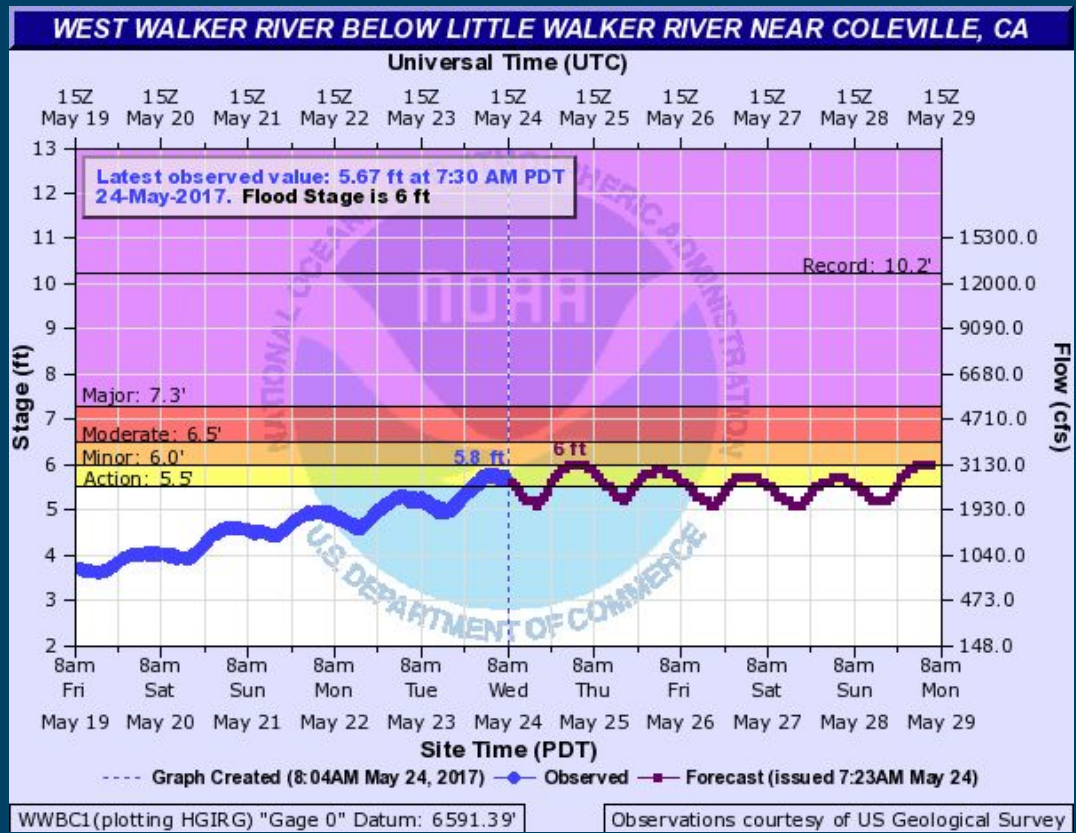
5-day forecasts



# 5 Day Forecast West Walker @ Sonora Junction

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

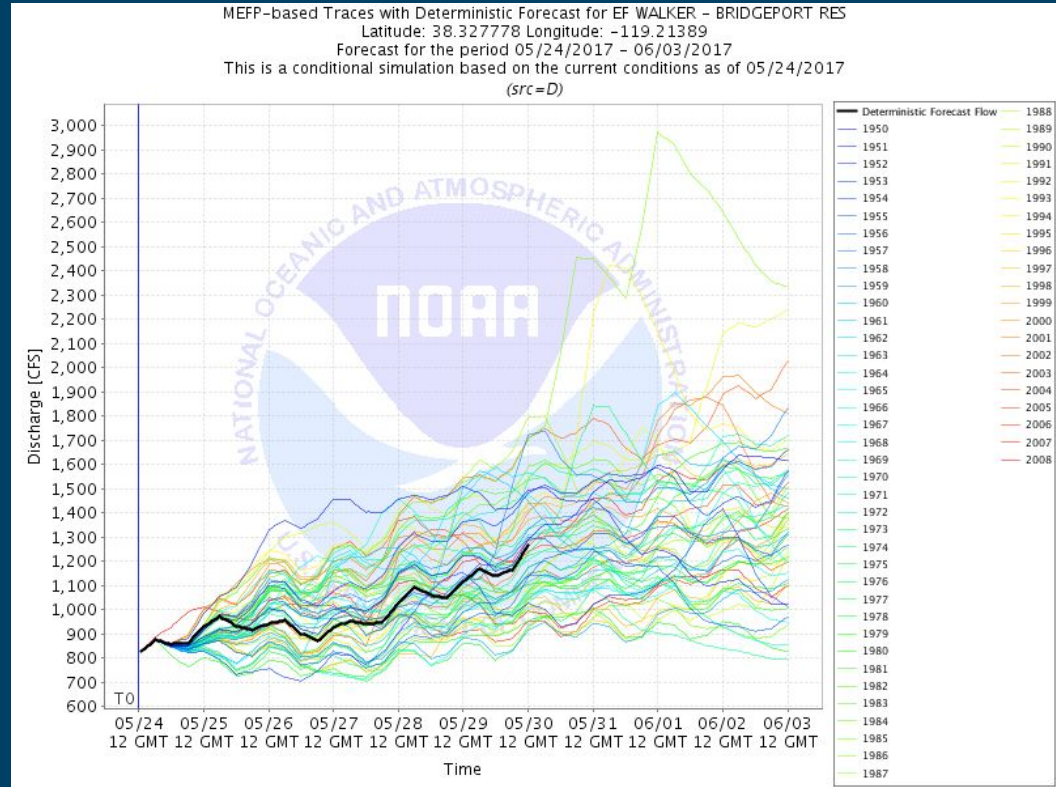
- Near minor flood stage Wednesday, Thursday, and perhaps Sunday nights. Remaining high with nighttime peaks each night. Watch for campers too close to river.
- Impacts - Minor flooding of pasture & rural roads in West Walker River Canyon and Antelope Valley, including Walker, Coleville, Topaz, and Smith Valley
- Strong diurnal signal with night-time peaks.



# Ensemble Plot East Walker @ Bridgeport Inflow

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

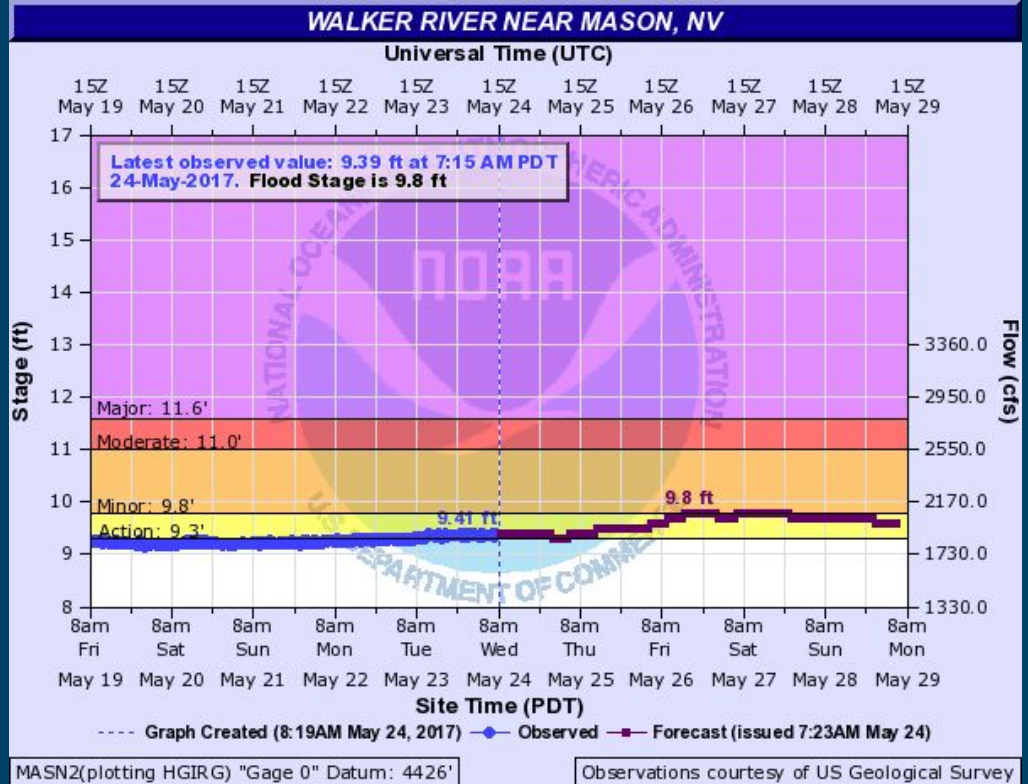
- **IMPORTANT:** These are estimated inflows, no gauging data to calibrate from so increased margin of error.
- Ensemble forecast product to represent uncertainty (59-years).
- 5-day deterministic forecast in black
- Increase in snowmelt flows into the reservoir. Most notably early next week.



# 5 Day Forecast Walker River @ Mason/Yerington

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

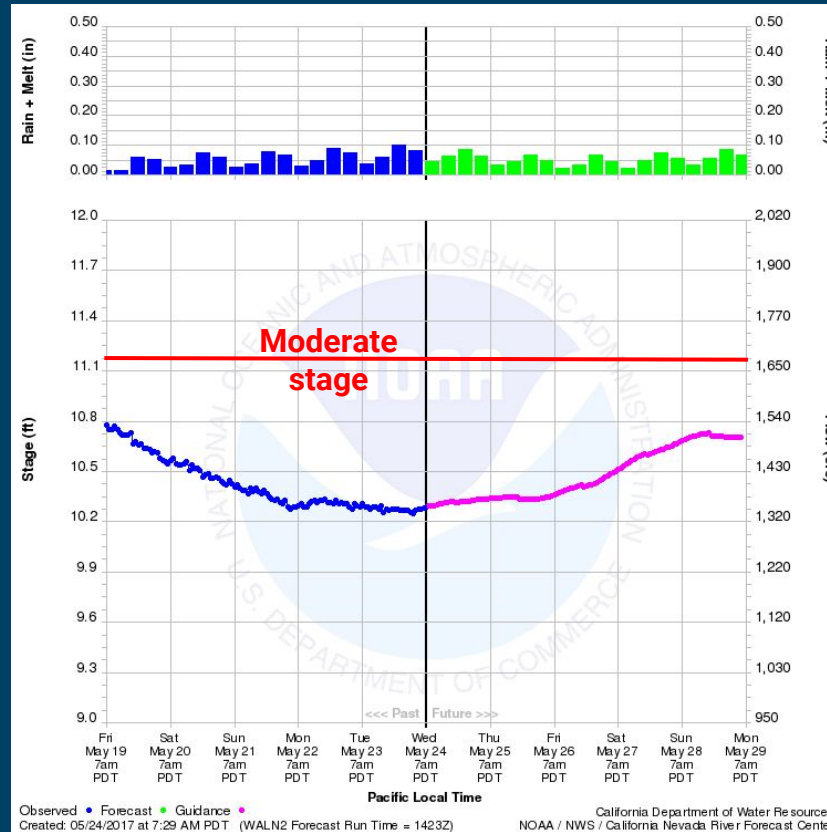
- **Big update:** Minor flooding impacts this week. Lasting through Memorial Day weekend!
- Based on new water management on Topaz and Bridgeport reservoirs, new gauging around Topaz, and slower snowmelt response.
- **IMPORTANT:** This new forecast factors in latest water management scenario, which may change depending on later forecasts and stream response.



# 5 Day Forecast Walker River @ Wabuska

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

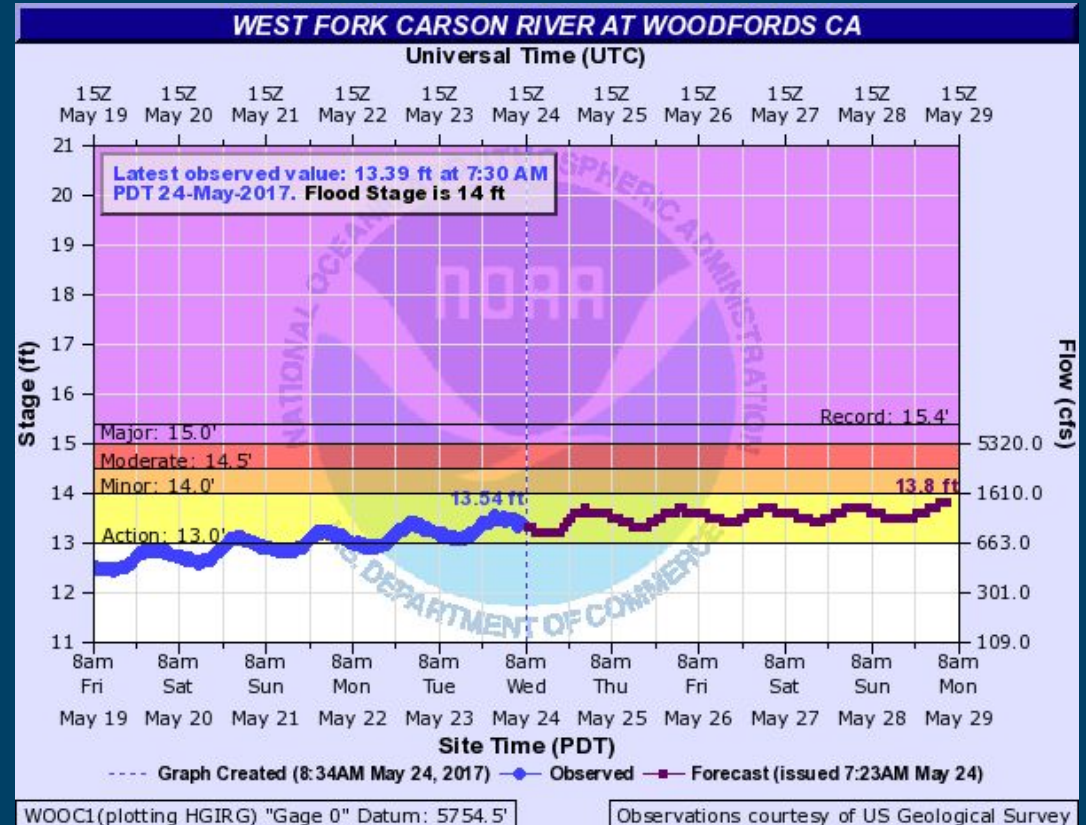
- High flows, with continued minor flooding expected.
- ~ 18 to 24 hour lag to Weber Reservoir.
- Long duration and high volume event. Higher rises likely in next few weeks.



# 5 Day Forecast West Carson @ Woodfords

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

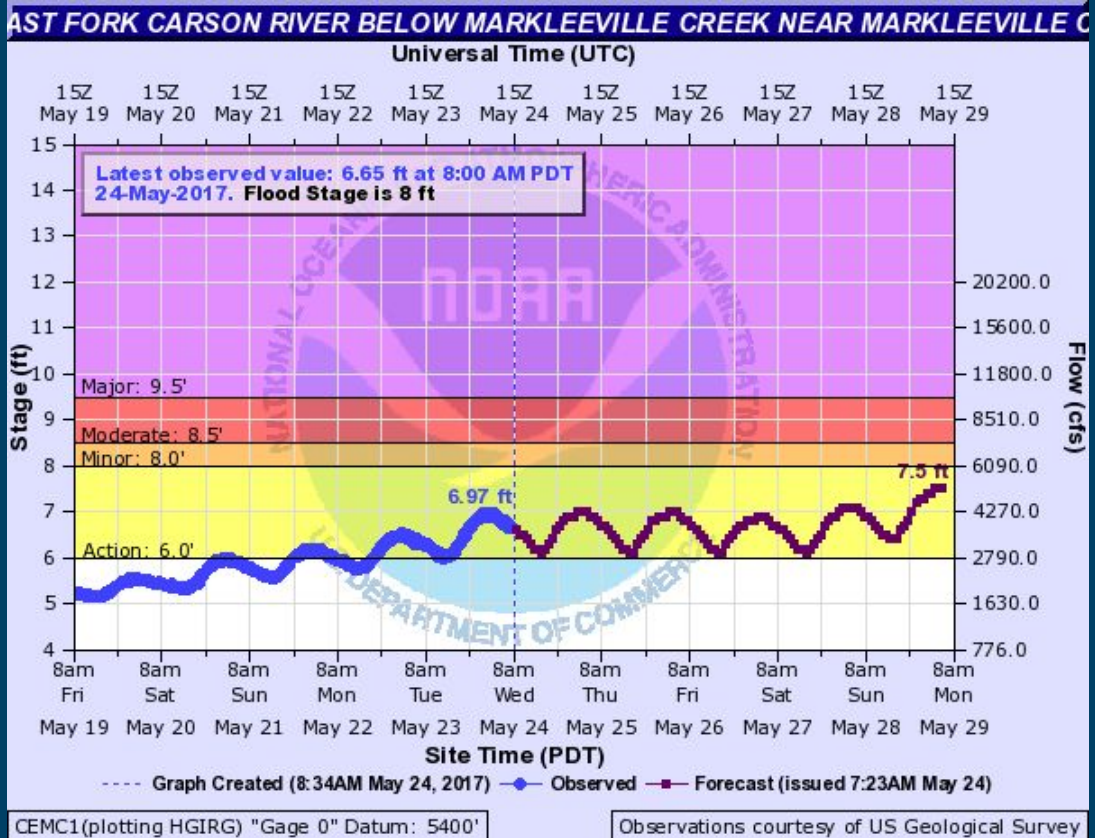
- Nearing minor flood stage every night.
- Impacts - possible minor flooding in the southwestern Carson Valley between Centerville and Genoa NV.
- Strong diurnal signal with night-time peaks.
- Somewhat higher flows early next week, but currently expected to be similar to earlier peak flows.
- Lots of snow gone below 7500 feet along Carson Pass.



# 5 Day Forecast East Carson @ Markleeville

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

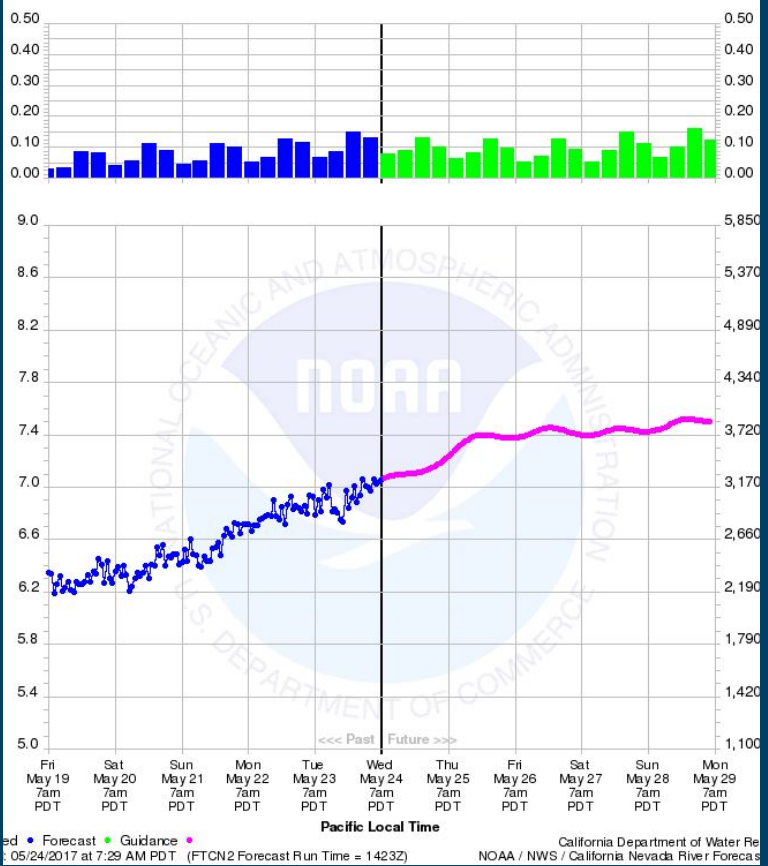
- Well into monitor stage all week, possibly approaching flood stage Saturday night.
- Impacts - Broad minor flooding in lowest, flood prone portions of Carson Valley.
- Strong diurnal signal with night-time peaks.
- Odds increasing that snowmelt peak flows may be experienced this weekend or early next week, but prolonged high flows still expected.



# 5 Day Forecast Carson River @ Ft. Churchill

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

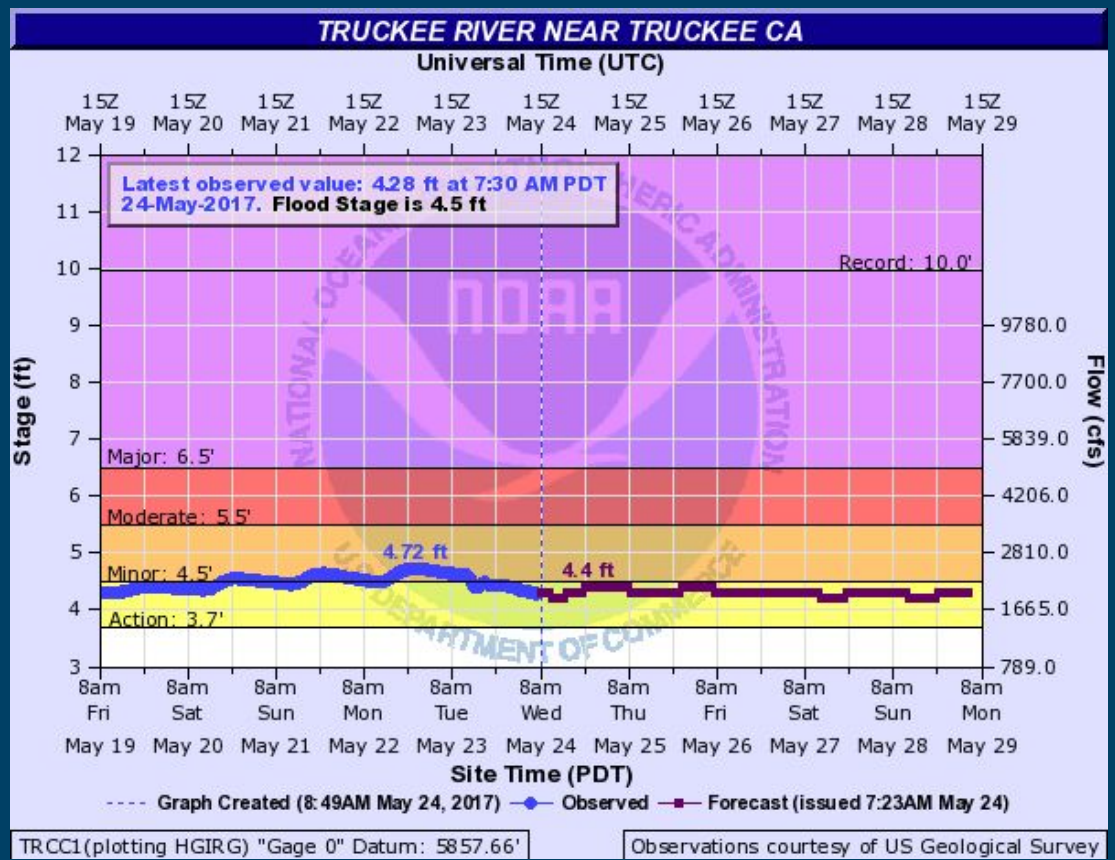
- Slowly increasing flows, expected to increase more significantly next week.
- Well below flood stage.
- Short range peak ~ mid-next week.



California Department of Water Resources  
 NOAA / NWS / California Nevada River Forecast Center  
 05/24/2017 at 7:29 AM PDT (FTCN2 Forecast Run Time = 1423Z)

# 5 Day Forecast Truckee River @ Truckee

- **IMPORTANT:** Simulation assumes status quo water management, which may change depending on later weather forecasts.
- Decrease in Tahoe release will **reduce and possibly eliminate flood impacts.**
- Nightly increasing, mainly due to increased snowmelt flows from tributaries.
- Odds increasing that we are near or just past peak flows for spring-summer.

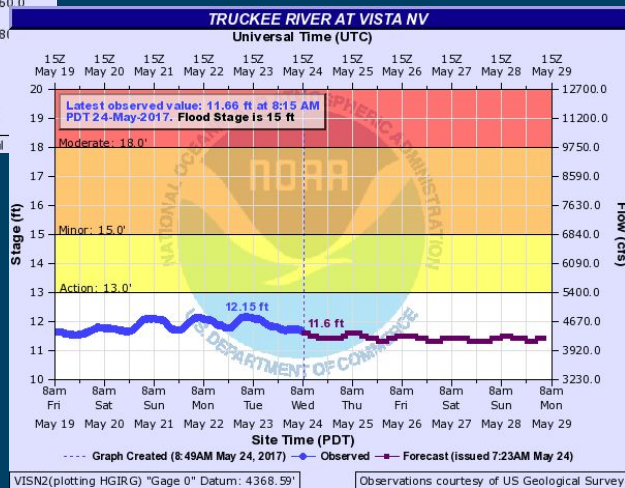
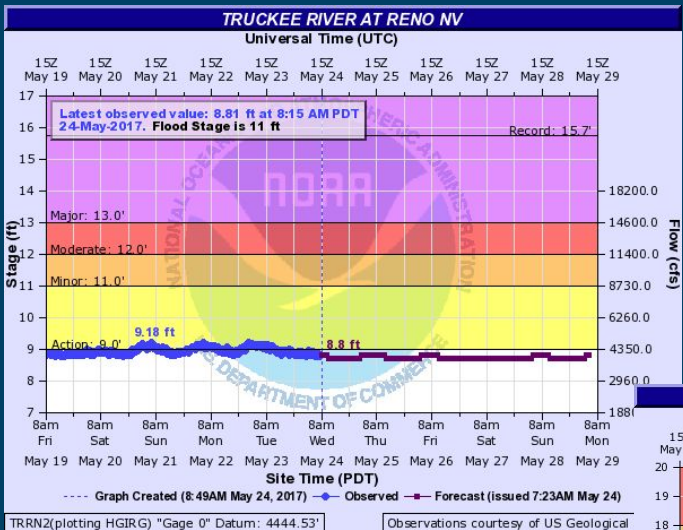




# 5 Day Forecast Truckee River @ Reno/Sparks

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

- **IMPORTANT:** Simulation assumes status quo water management, which may change depending on later river/weather forecasts.
- Snowmelt increases offset by changes in reservoir management. Resulting in slight decreases in flow.
- Minimal to no remaining impacts, but.. **Fast, cold water = increased rescue incidents when it gets warm out.**



TRRN2(plotting HGIRG) "Gage 0" Datum: 4444.53' Observations courtesy of US Geological Survey

VISN2(plotting HGIRG) "Gage 0" Datum: 4368.59' Observations courtesy of US Geological Survey

# Eastern Sierra Outlook General Guidance



Sunday AM

Wednesday AM



no - not available at this time



Monday AM

Sunday AM



no - not available at this time



# Eastern Sierra Outlook General Guidance

- Best estimate -- flows this week coming out of the unregulated eastern Sierra mountain streams and creeks are likely to continue to increase. ~ 2 times current flows. Smaller creeks likely ~ 3 times current flows.
- Peak flows from this heat episode likely Wednesday or Thursday nights. Higher Peak flows likely still to come.
- Flood impacts - most likely minor to moderate impacts for areas near creeks/streams. Areas that have flooded already this spring likely to see flooding, perhaps longer and more widespread.

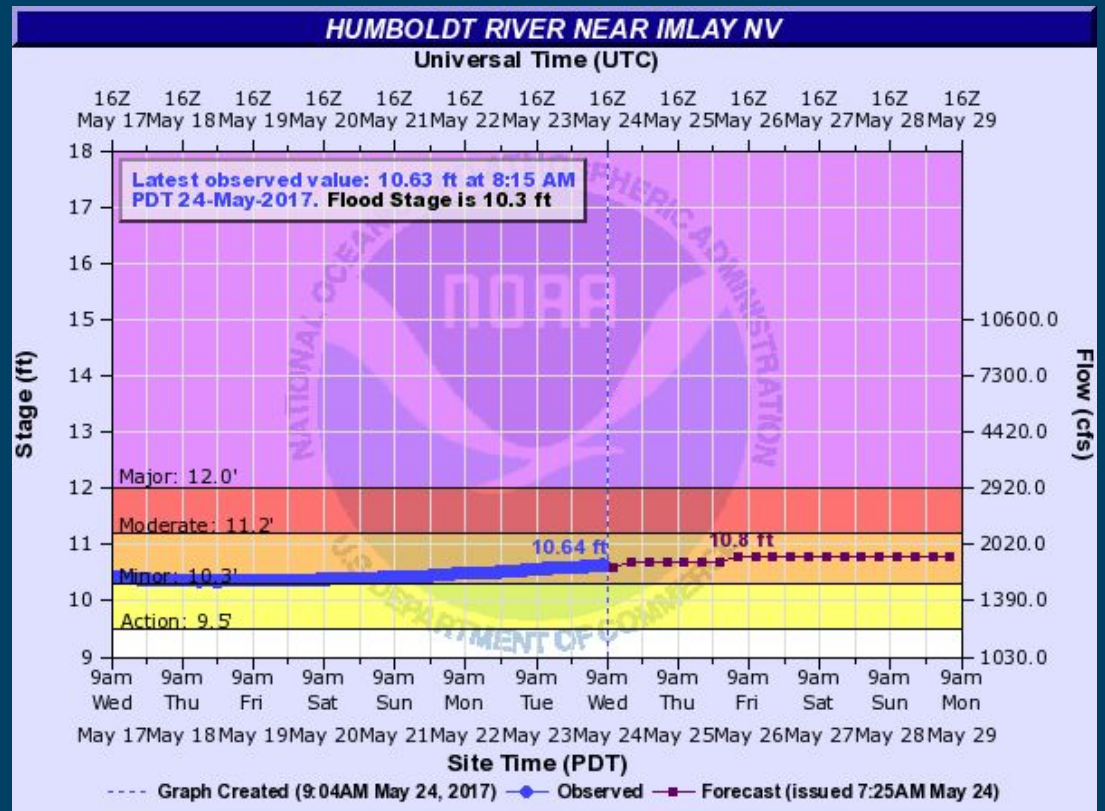
NWS does not have specific river simulations in the eastern Sierra, aside from Walker River basin. So we use projected rises on the Walker River and internal (highly) experimental National Water Model guidance.



# 5 Day Forecast Humboldt River @ Imlay/Rye Patch

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

- Currently in minor flood stages with localized impacts to rural roads upstream of Rye Patch.
- Upstream, Comus has crested, but will likely rise again.
- Slight rise for next few days, with continued high flows. Impacts remain localized to rural roads in Pershing County.
- More water into Humboldt Sink.



HRIN2(plotting HGIRG) "Gage 0" Datum: 4130'

Observations courtesy of US Geological Survey



# **Bonus Materials**

including 10-day simulations

# 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
<b>Walker, East &amp; West Forks</b>	minor to moderate flooding as snowmelt accelerates	mainly minor-moderate flood issues	mainly minor-moderate flood issues	high water but likely on downward trend
<b>Walker, Mainstem</b>	mainly minor-moderate flooding but concern for sudden increases during heatwaves - remain alert	<b>basin and timeframe of highest risk - good confidence of seeing major flooding at some point in June</b>	likely on a downward trend but uncertain how quickly, still prone to big heatwave melt-offs of high snowpack	high water but likely on downward trend
<b>Carson, East &amp; West Forks</b>	peak risk of seeing minor to moderate flooding as snowmelt accelerates	mainly minor flood issues but risk of more significant flooding lessening	mainly minor flood issues, flows likely on downward trend	
<b>Carson, Mainstem</b>	minimal issues unless we have a big heatwave	potential for minor-moderate flooding with prolonged heatwave overwhelming inflows/capacity to/of Lahontan	mainly minor flood issues, flows likely on downward trend	
<b>Truckee, Entire Reach</b>	heavily regulated system; minor flood issues above Truckee, CA	strong, cold flows persist into mid-summer; more widespread flooding requires heavy rain or prolonged big heatwave trigger		
<b>E Sierra, Tahoe Creeks</b>	minor-moderate flooding during warm periods; highest risk for Tahoe	minor-moderate flooding during warm periods; highest risk for E Sierra	mainly minor flood issues, flows likely on downward trend	
<b>NE California Creeks, Rivers</b>	low risk of significant flooding, most snow has melted; strong, cold flows continue in larger streams, rivers.			
<b>Humboldt, Entire Reach</b>	slow moving flood; impacts most substantial Winnemucca eastward			

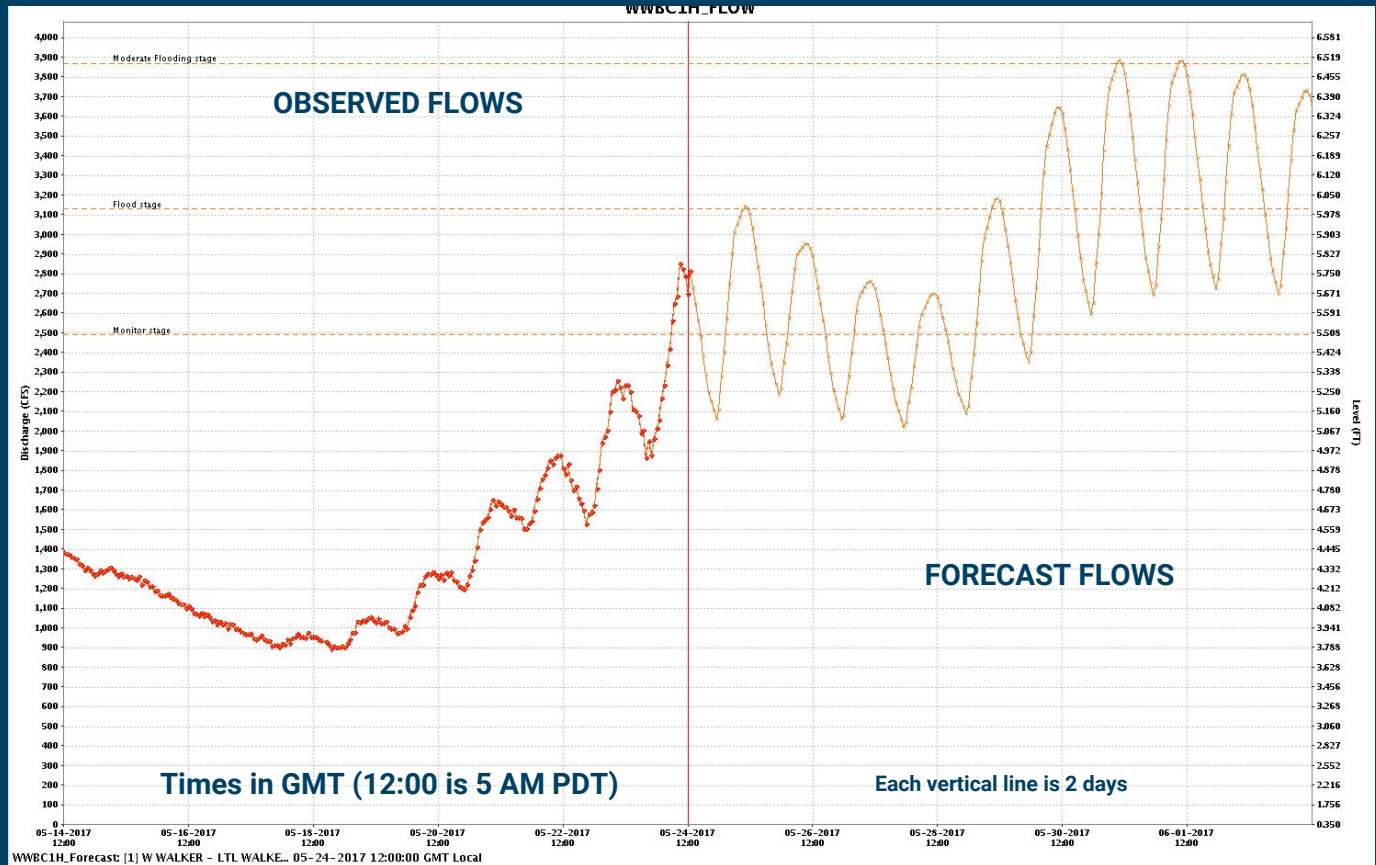
**What Does This Mean?**  
Integrates impacts and confidence

<b>No worries</b> 	<b>Low freakoutness</b> 	<b>Moderate freakoutness</b> 	<b>High freakoutness</b> 	<b>End of this (aka really bad)</b> 
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# 10 Day Simulation West Walker @ Sonora Jct

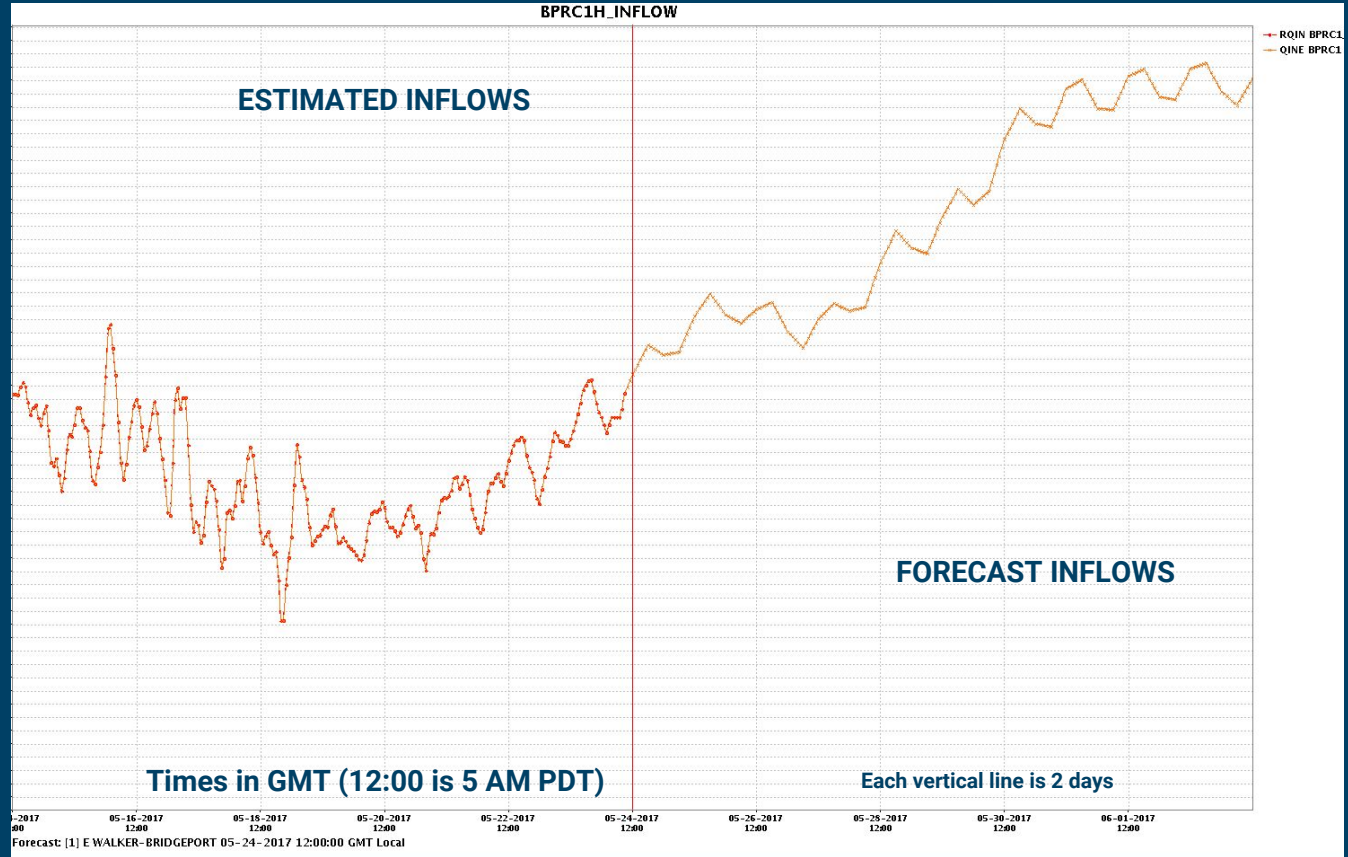
5-day official forecasts - [CNRFC](#) or [NWS Reno](#)

10-day simulations are experimental and provide rough long-range guidance for our public safety partners. For many rivers, this assumes status-quo water management on reservoirs and releases.



# 10 Day Simulation Bridgeport Inflow

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



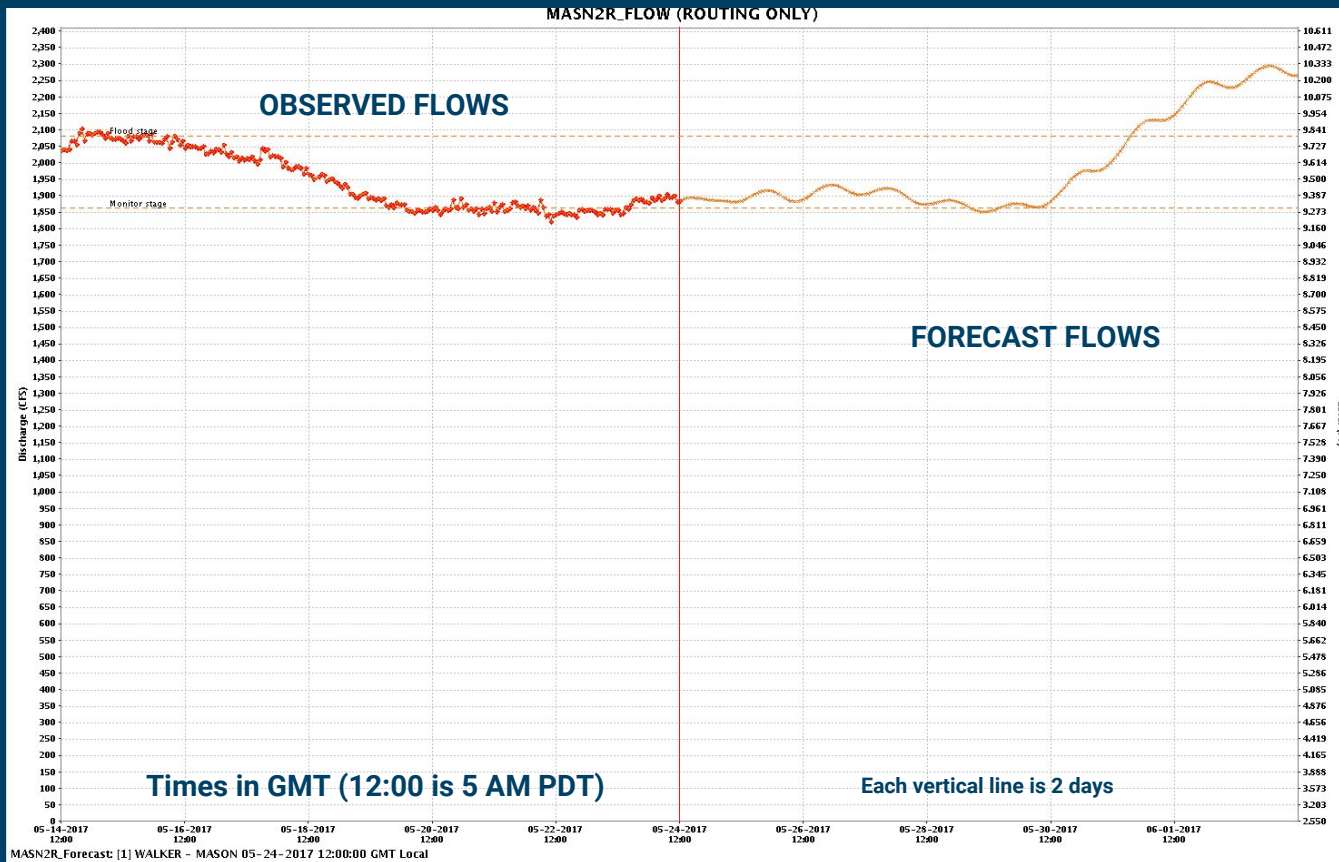
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# 10 Day Simulation Walker @ Mason

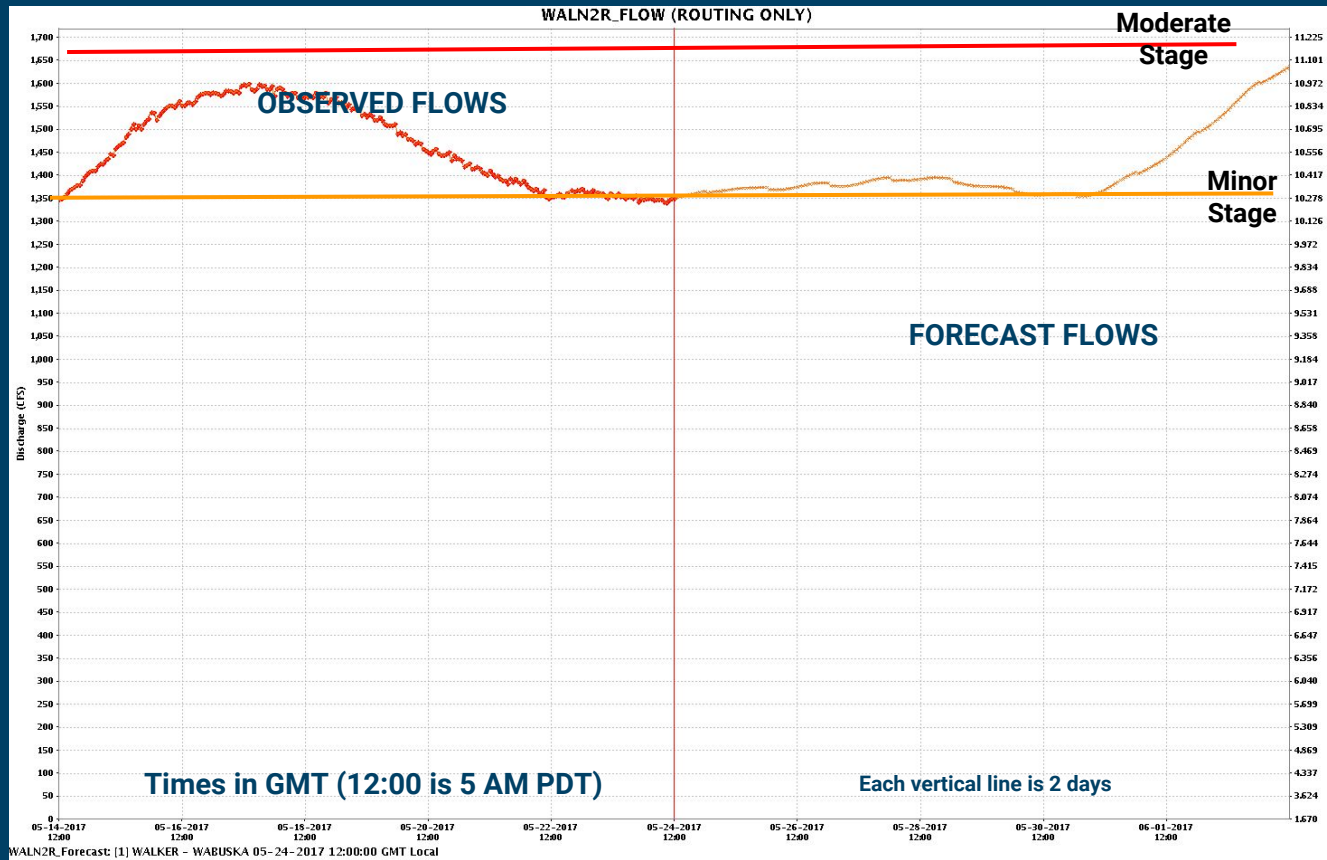
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# 10 Day Simulation Walker @ Wabuska

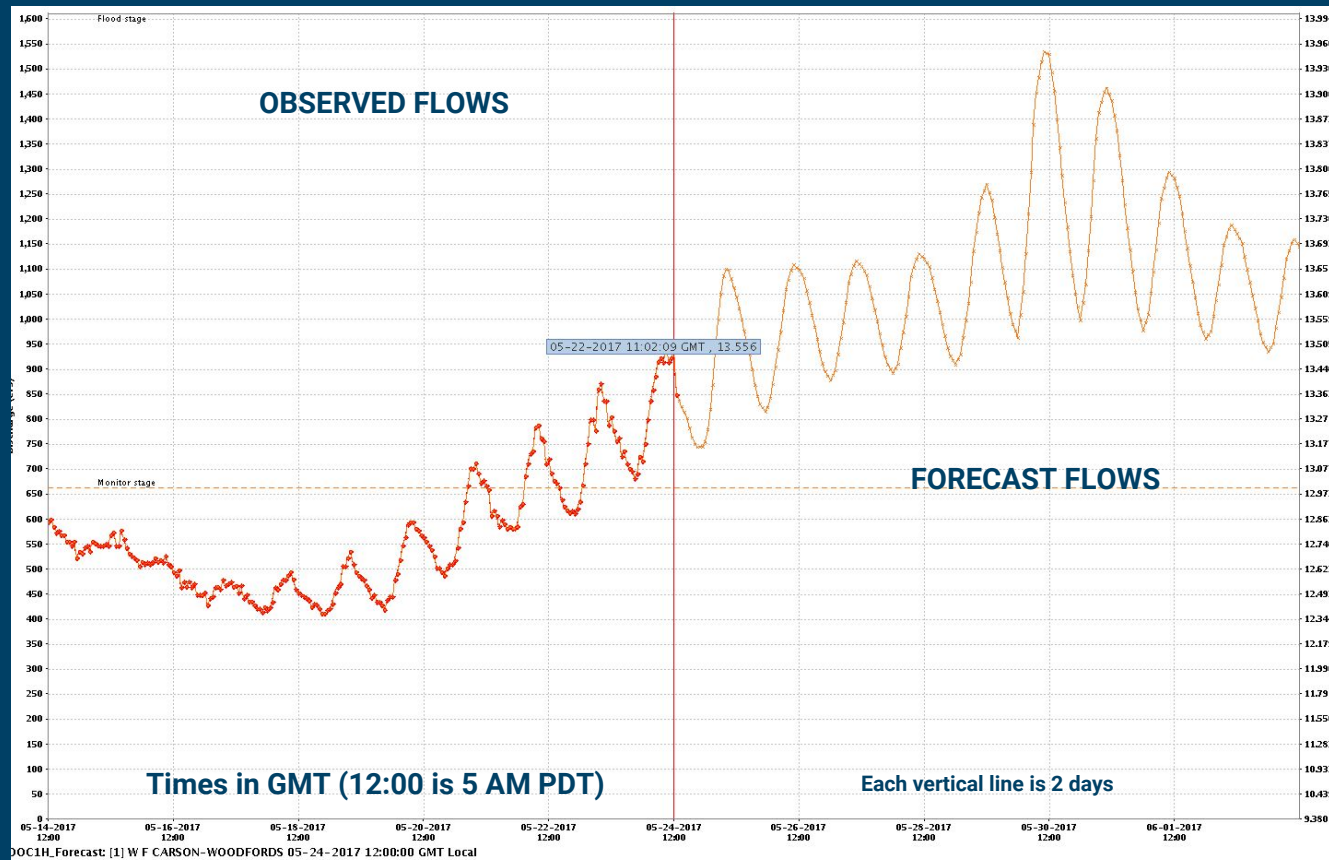
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# 10 Day Simulation West Carson @ Woodfords

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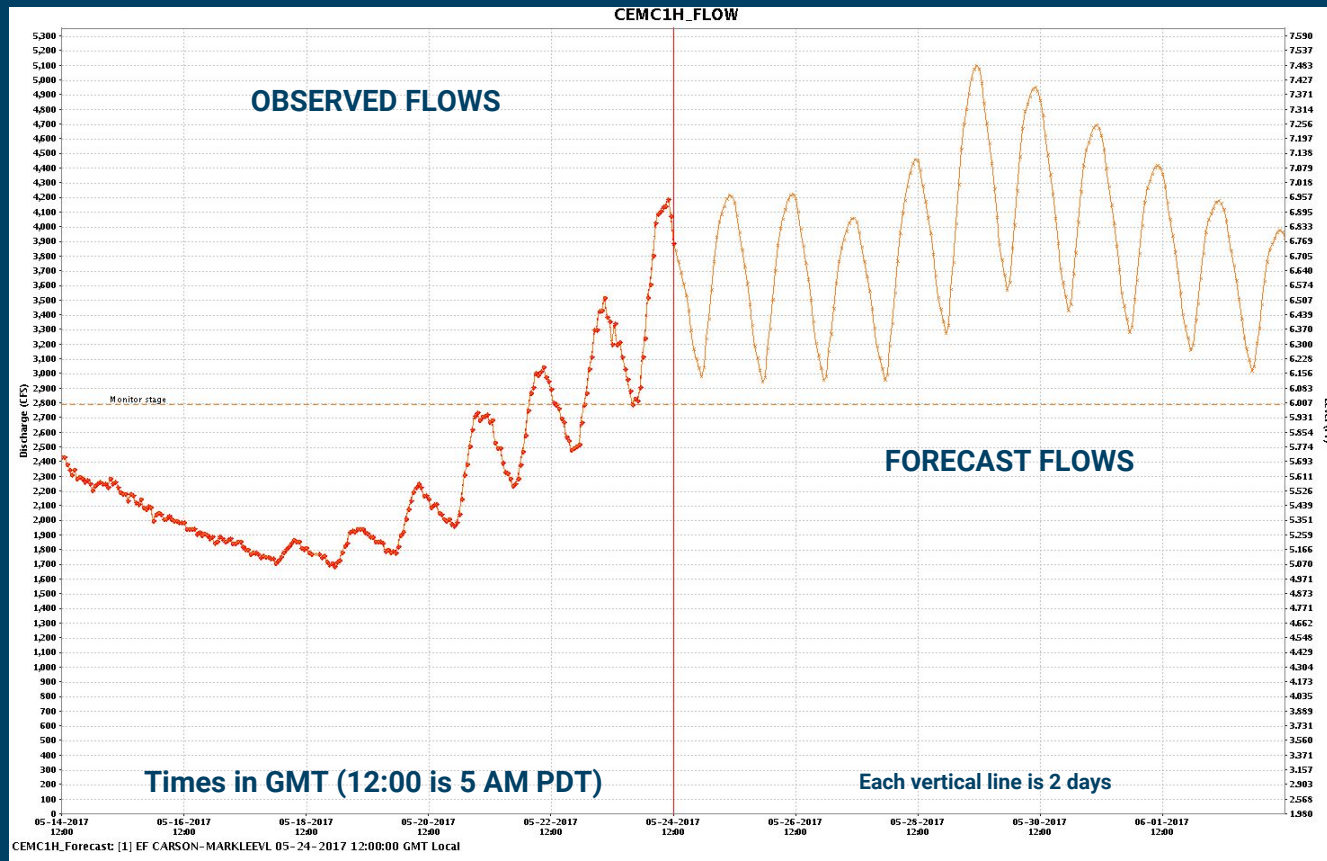
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# 10 Day Simulation East Carson @ Markleeville

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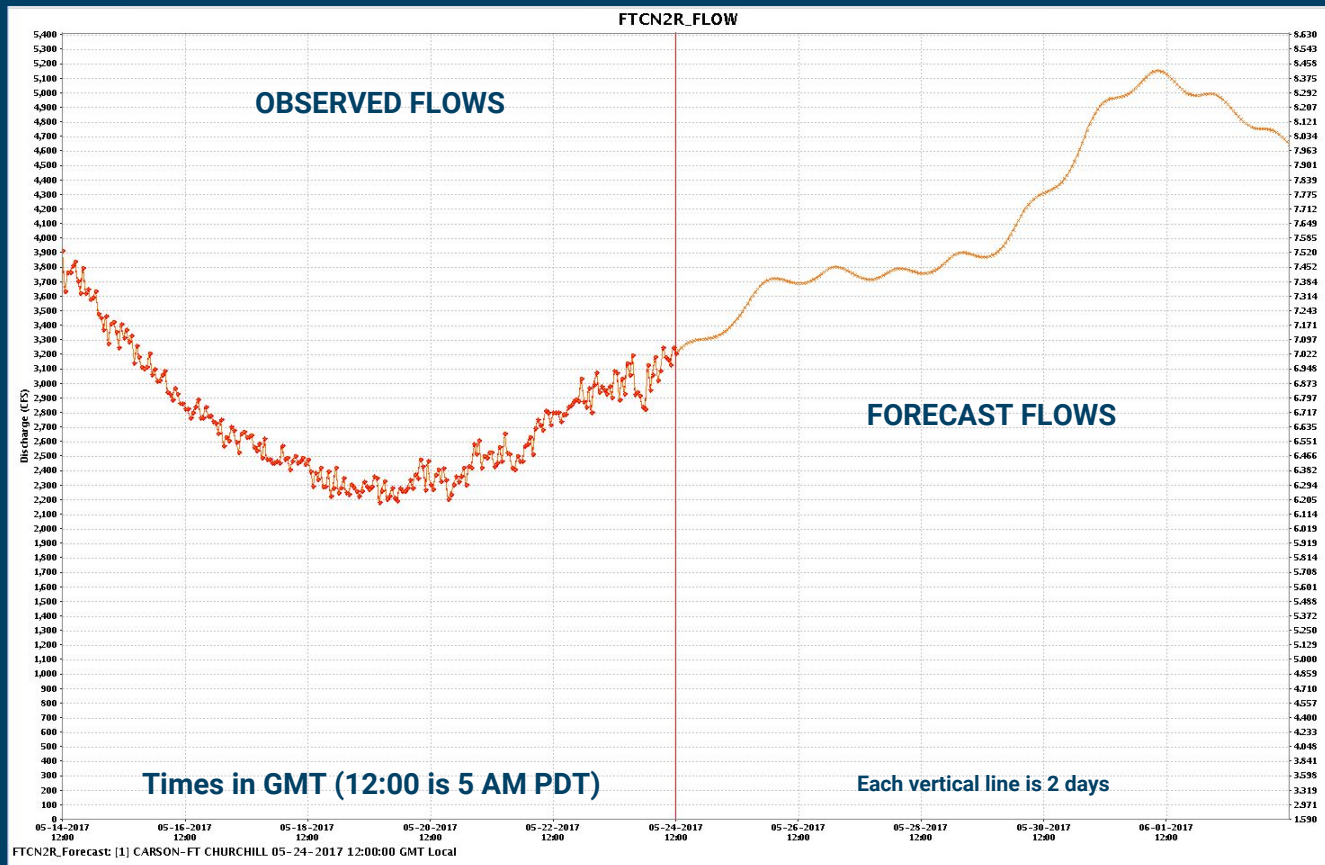


CEMC1H\_Forecast: [1] EF CARSON-MARKLEEVILLE 05-24-2017 12:00:00 GMT Local



# 10 Day Simulation Carson @ Ft Churchill

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



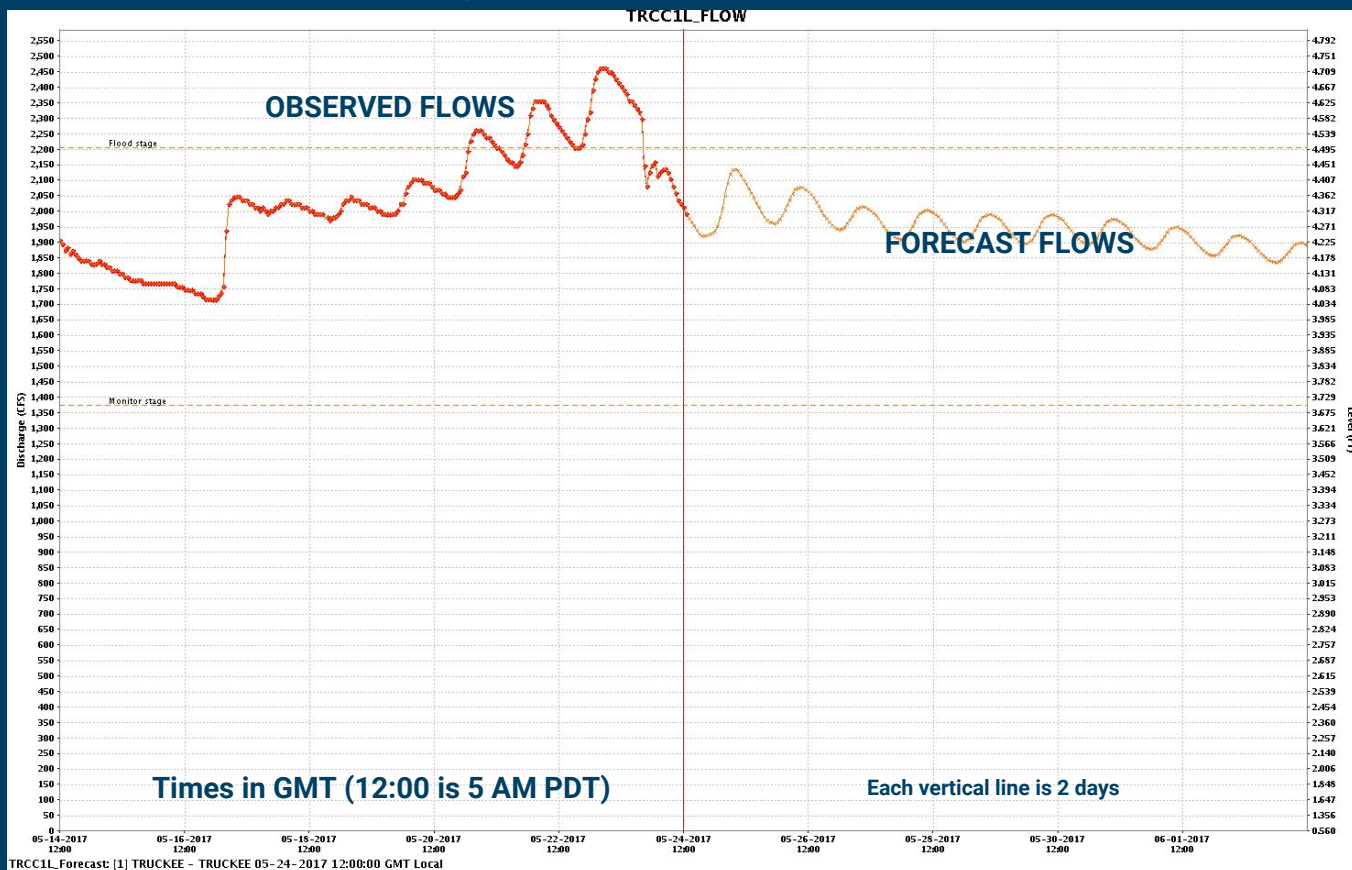
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# 10 Day Simulation Truckee @ Truckee

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

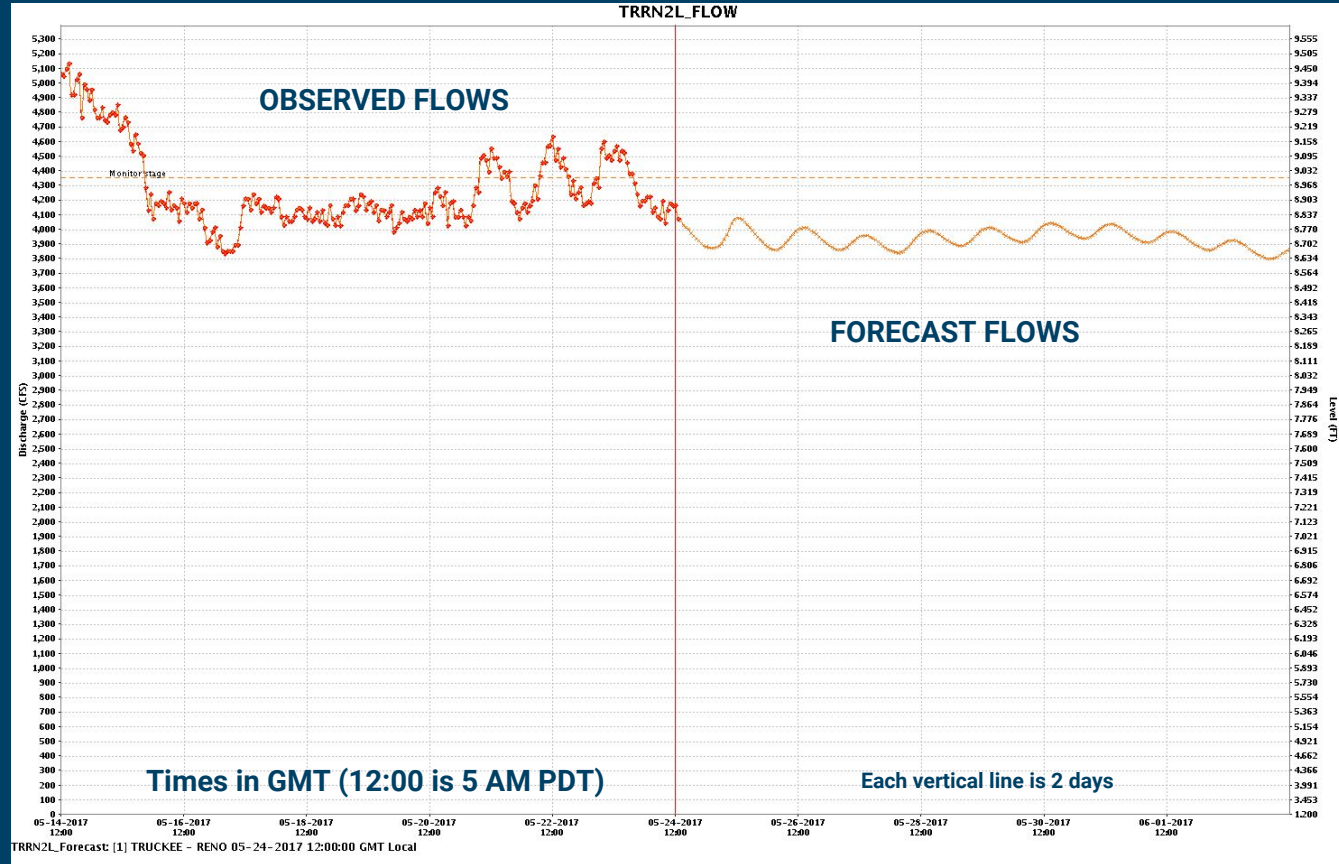
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# 10 Day Simulation Truckee @ Reno

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

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# 10 Day Simulation Humboldt @ Imlay

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

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