



United States Department of Agriculture

# 2019 Snowpack Status and Streamflow Outlook for Walker Basin

April 8, 2019  
Walker River Irrigation District

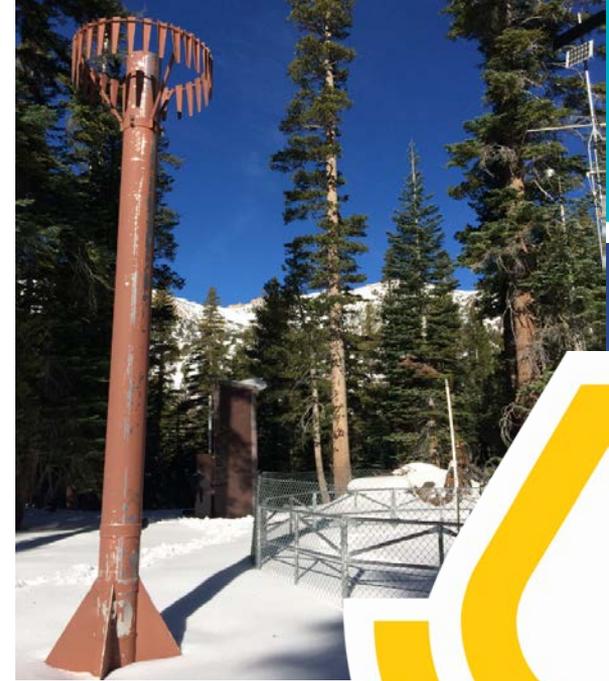
Leavitt Meadow SNOTEL 3/29/19

03/29/2019

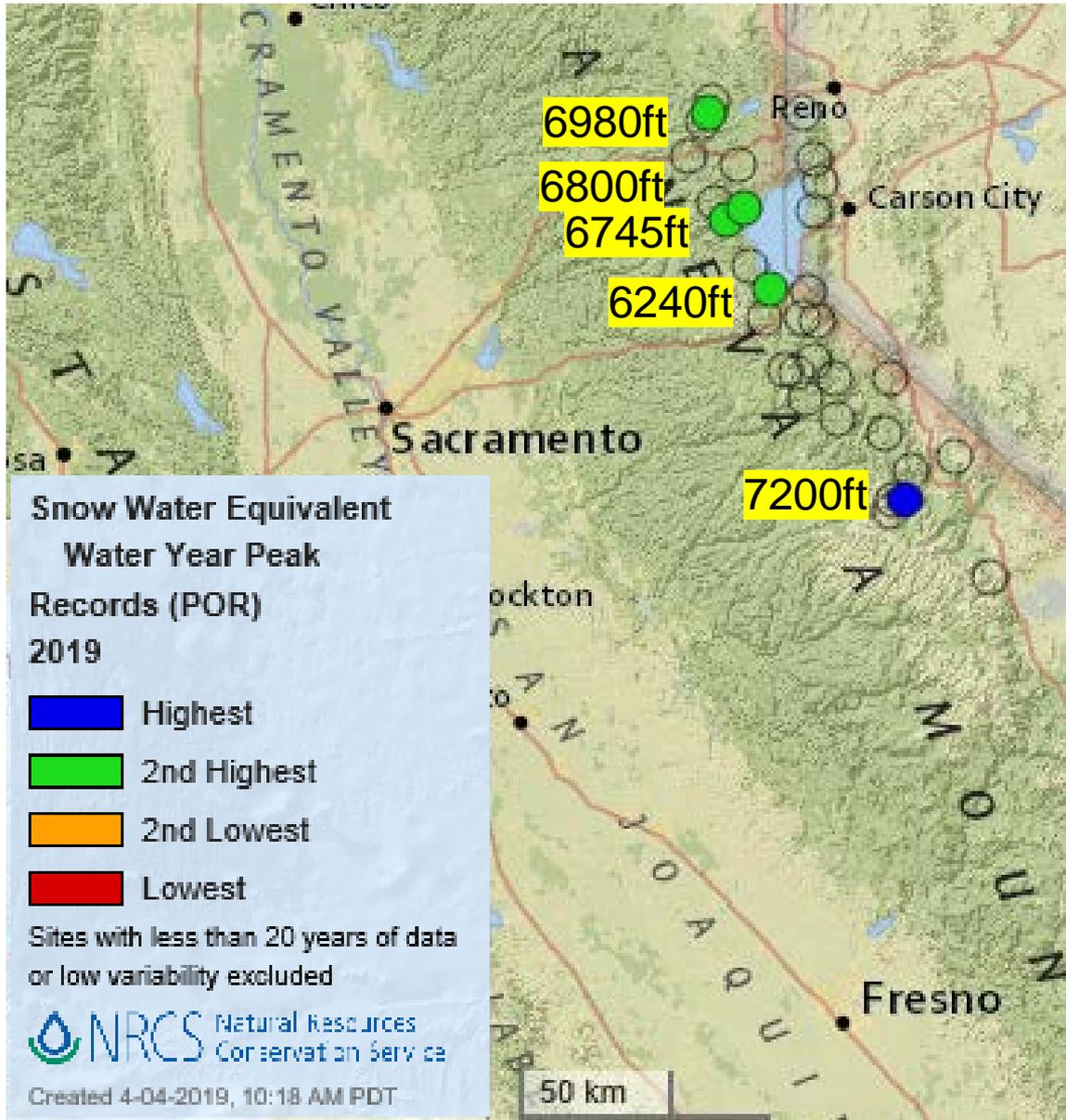
Jeff Anderson  
NRCS Snow Survey

775-857-8500 x152  
jeff.anderson@nv.usda.gov

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



Natural  
Resources  
Conservation  
Service



Mid-Elevations  
(6000-8000ft)  
near record high in  
Eastern Sierra, greater  
than 2017

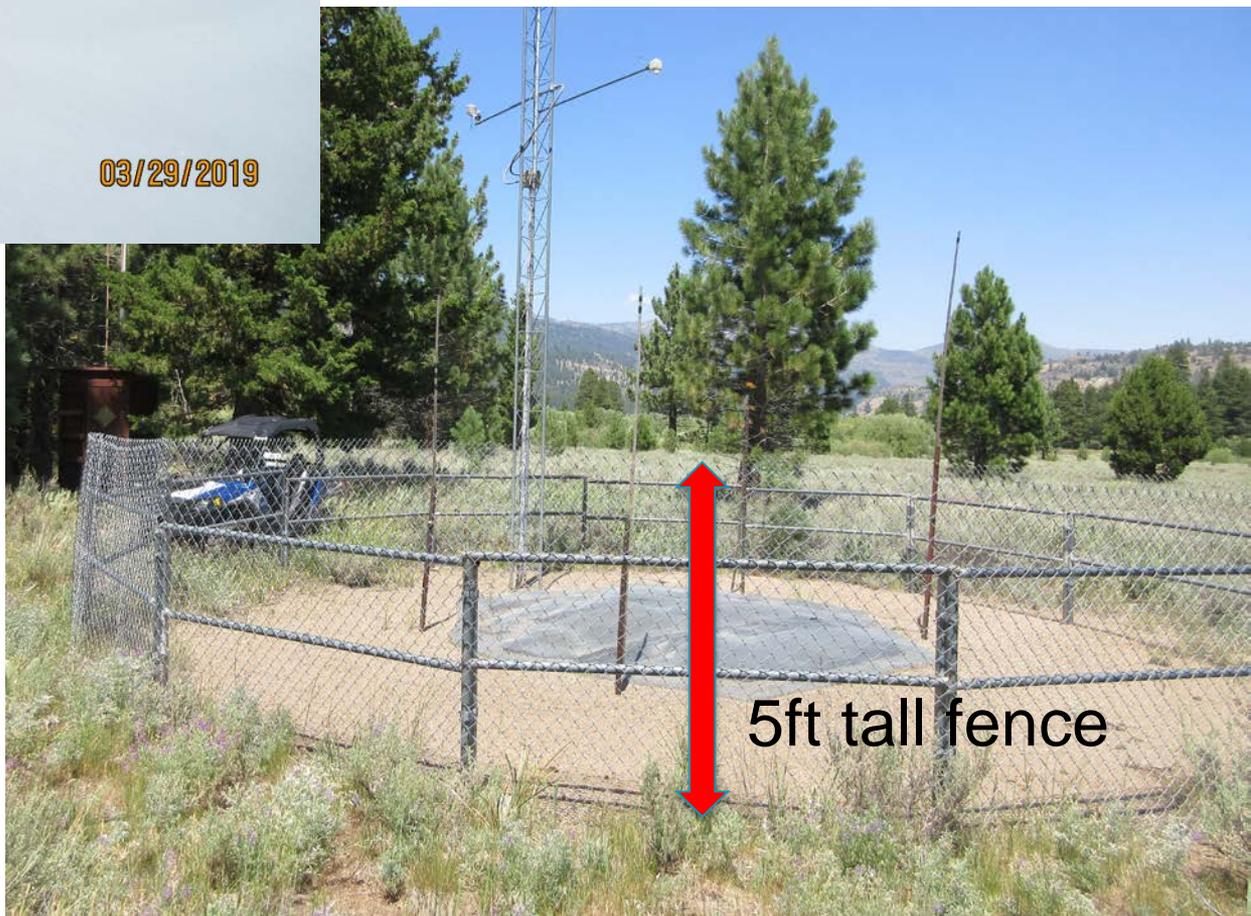


No drifting observed

03/29/2019

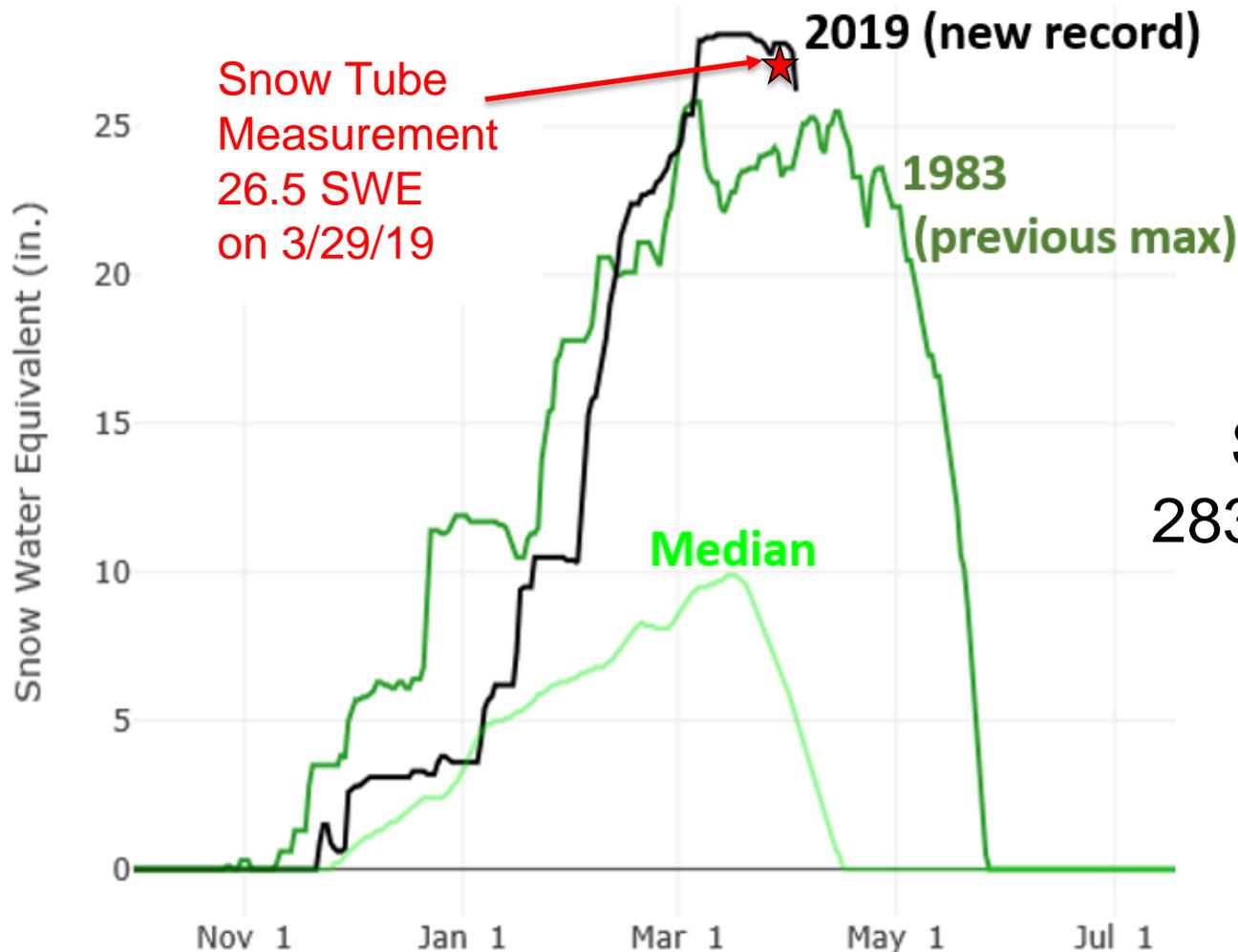
## Leavitt Meadow SNOTEL 7200 ft

Snow depth 3/29/19 = 63 inches



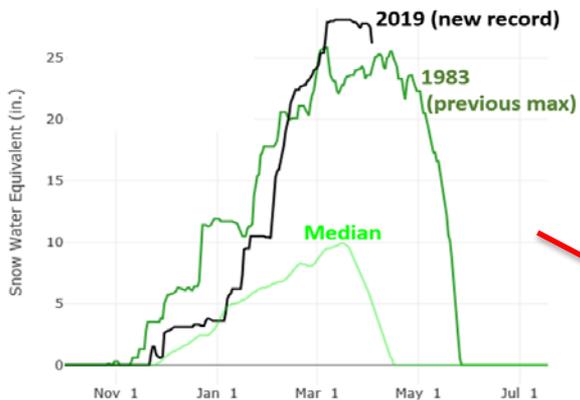
5ft tall fence

## Snow Water Equivalent at Leavitt Meadows SNOTEL

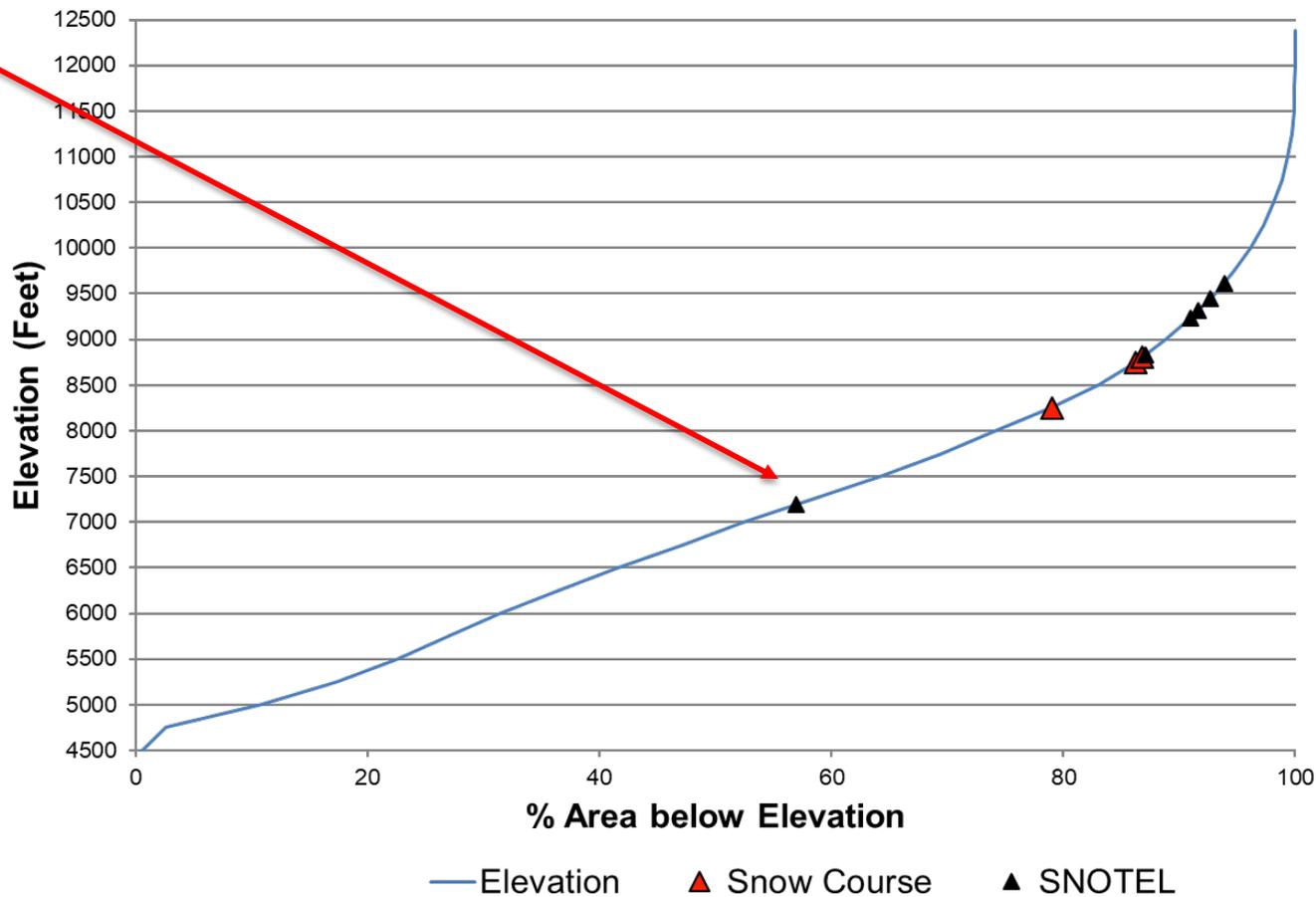


SWE peaked at 283% of median peak

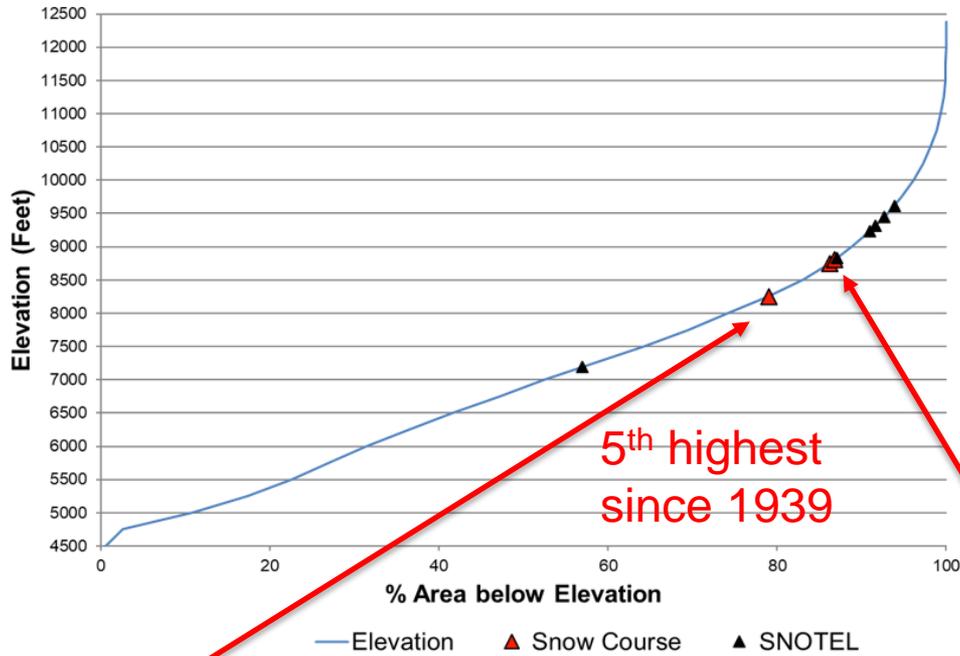
Snow Water Equivalent at  
Leavitt Meadows SNOTEL



## Walker Basin Area-Elevation and Site Distribution



## Walker Basin Area-Elevation and Site Distribution



**Willow Flat (19L09)**  
**California SNOW COURSE/AERIAL MARKER Site - 8231 ft**  
**Reporting Frequency: Semimonthly; Date Range: Period of Record**

(As of: Thu Apr 04 09:39:57 GMT-08:00 2019)  
 \*\*Provisional data, subject to revision\*\*

Water Year ▾	Apr 1st Half		
	Snow Depth Collection Date Start of Month Values ⚡	Snow Depth (in) Start of Month Values ⚡	Snow Water Equivalent (in) Start of Month Values ▲
1969	Mar 24	73	29.0
1983	Apr 01	59	25.0
1952	Mar 31	57	23.5
1995	Mar 28	59	23.2
2019	Mar 29	53	21.2
2017	Mar 26	47	21.1
2005	Mar 31	56	20.5
2011	Mar 29	49	19.5
1986	Mar 25	45	19.4

5<sup>th</sup> highest  
since 1930

**Sonora Pass (19L07)**  
**California SNOW COURSE/AERIAL MARKER Site - 8750 ft**  
**Reporting Frequency: Semimonthly; Date Range: Period of Record**

(As of: Thu Apr 04 09:42:35 GMT-08:00 2019)  
 \*\*Provisional data, subject to revision\*\*

Water Year ▾	Apr 1st Half		
	Snow Depth Collection Date Start of Month Values ⚡	Snow Depth (in) Start of Month Values ⚡	Snow Water Equivalent (in) Start of Month Values ▲
2017	Mar 26	111	53.0
1983	Apr 01	115	51.6
1969	Mar 25	120	51.4
1952	Apr 01	99	45.6
2019	Mar 29	106	44.5
1986	Mar 25	92	42.2
1982	Apr 08	112	41.7
2011	Mar 29	111	40.9
1980	Mar 26	97	40.2
2005	Mar 31	85	38.0



Basin Site Name	Elev (ft)	Median Peak Date	Percent Median Peak
<b>WALKER RIVER</b>			
Leavitt Lake	9604	May 02	141
Virginia Lakes Ridge	9445	Apr 07	163
Summit Meadow	9313	Apr 05	176
Lobdell Lake	9249	Apr 07	201
Sonora Pass	8770	Apr 05	170
Monitor Pass	8306	Mar 07	181
Leavitt Meadows	7198	Mar 16	257
<b>Basin Index (%)</b>			<b>169</b>

None of these sites have started to melt yet

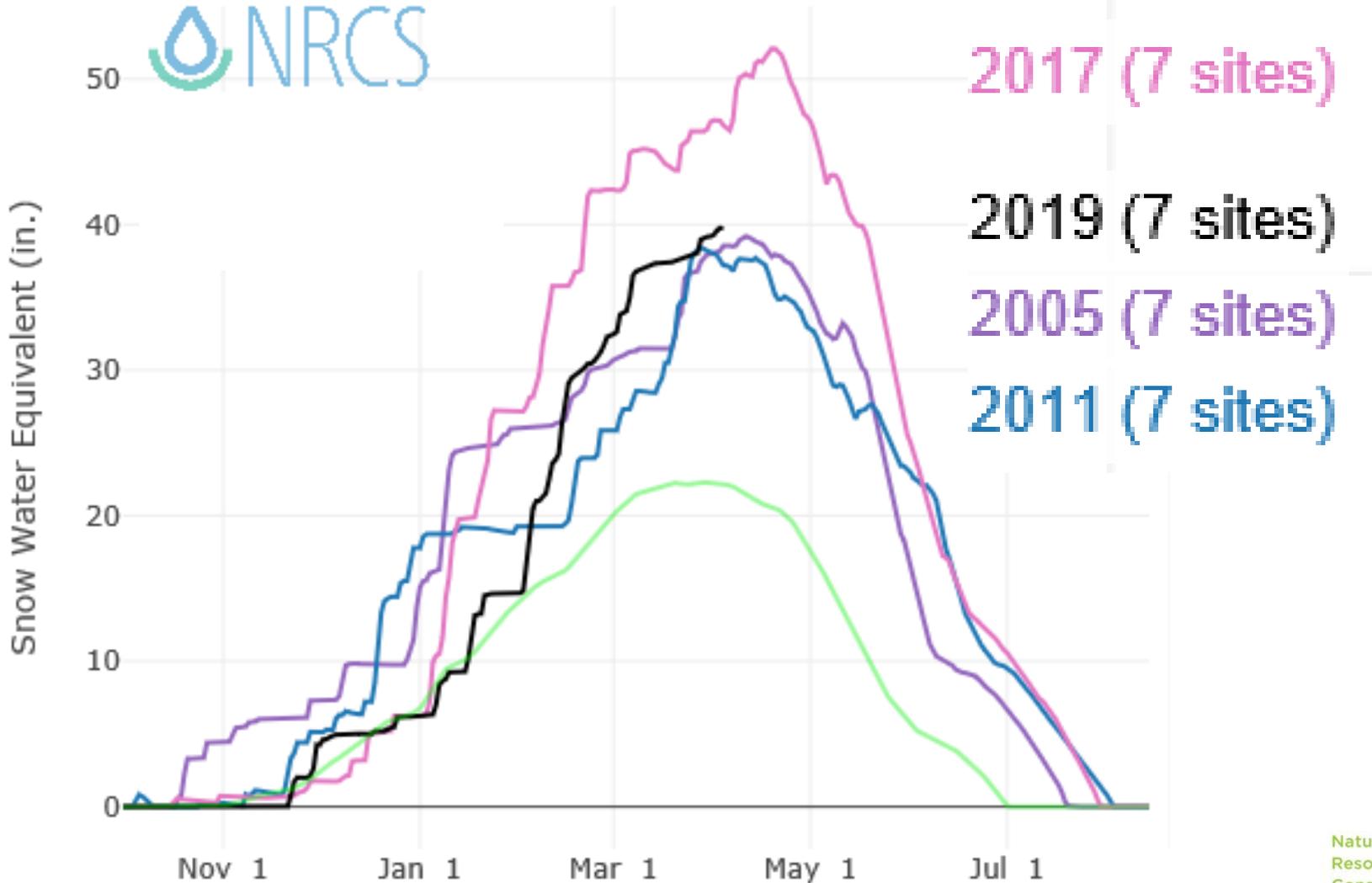
Peaked at 283% on 3/15, Started melting 4/1

Data based on the first reading of the day (typically 00:00) for Friday, April 05, 2019

## Snow Water Equivalent in Walker River Basin

4/5/19

Jan Apr July WY



# Precipitation in Walker River Basin

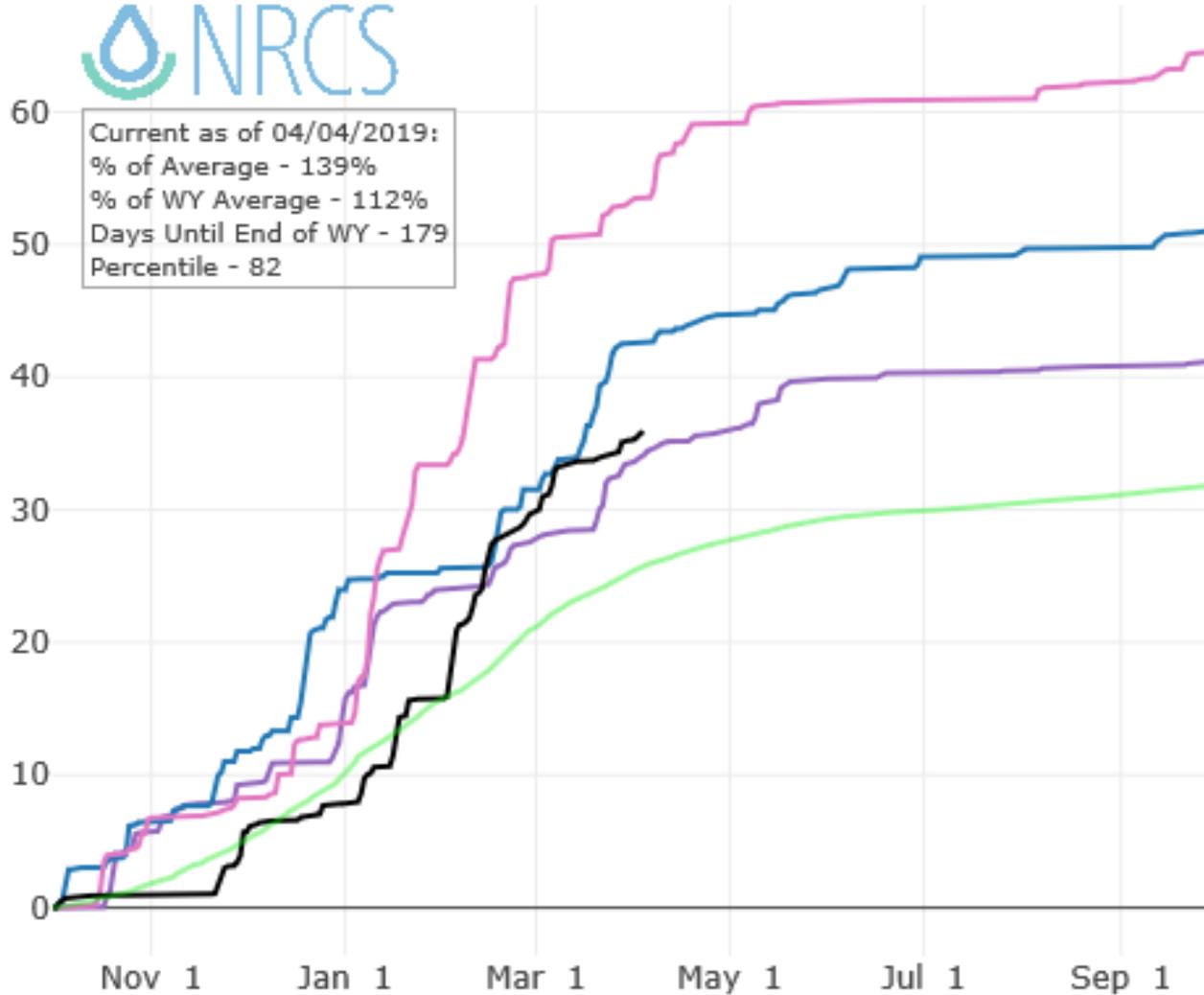
4/5/19

Jan Apr July WY



Current as of 04/04/2019:  
 % of Average - 139%  
 % of WY Average - 112%  
 Days Until End of WY - 179  
 Percentile - 82

WY Accumulated Precip. (in.)



2017 (7 sites)

2011 (7 sites)

2005 (7 sites)

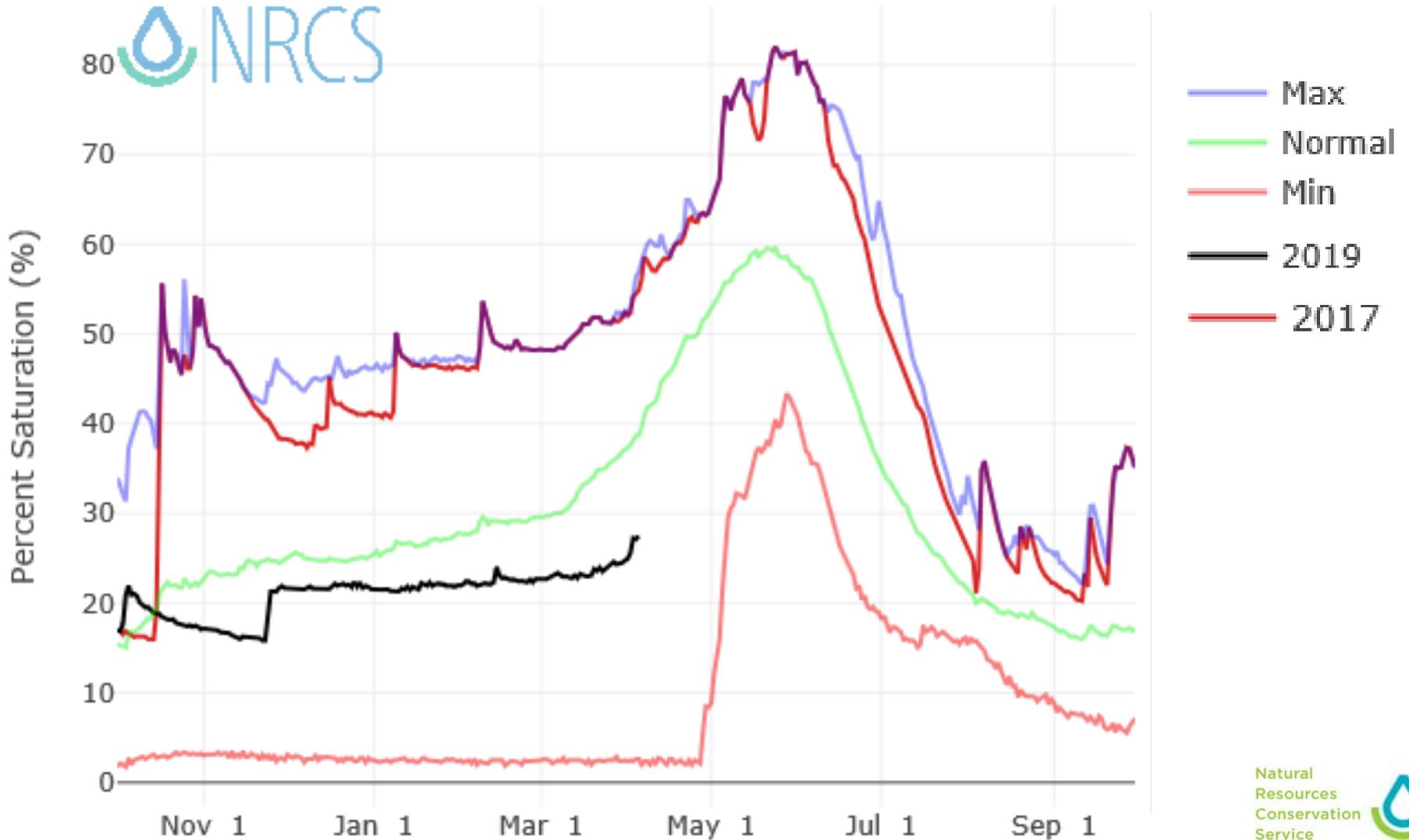
2019 (7 sites)

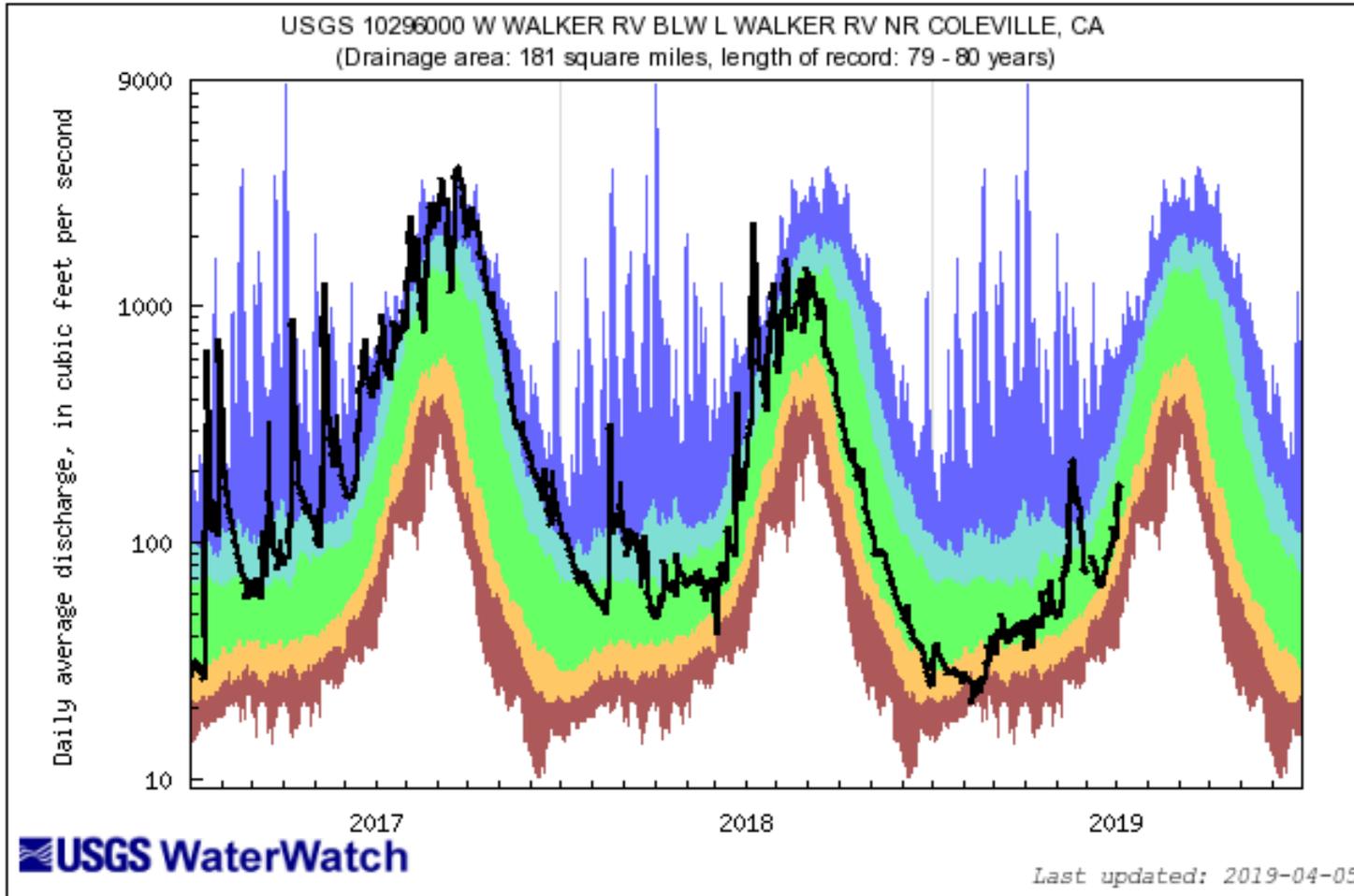


# Average Soil Saturation in Walker River Basin

4/5/19

Jan Apr July WY





2019 winter  
 streamflow  
 unimpressive

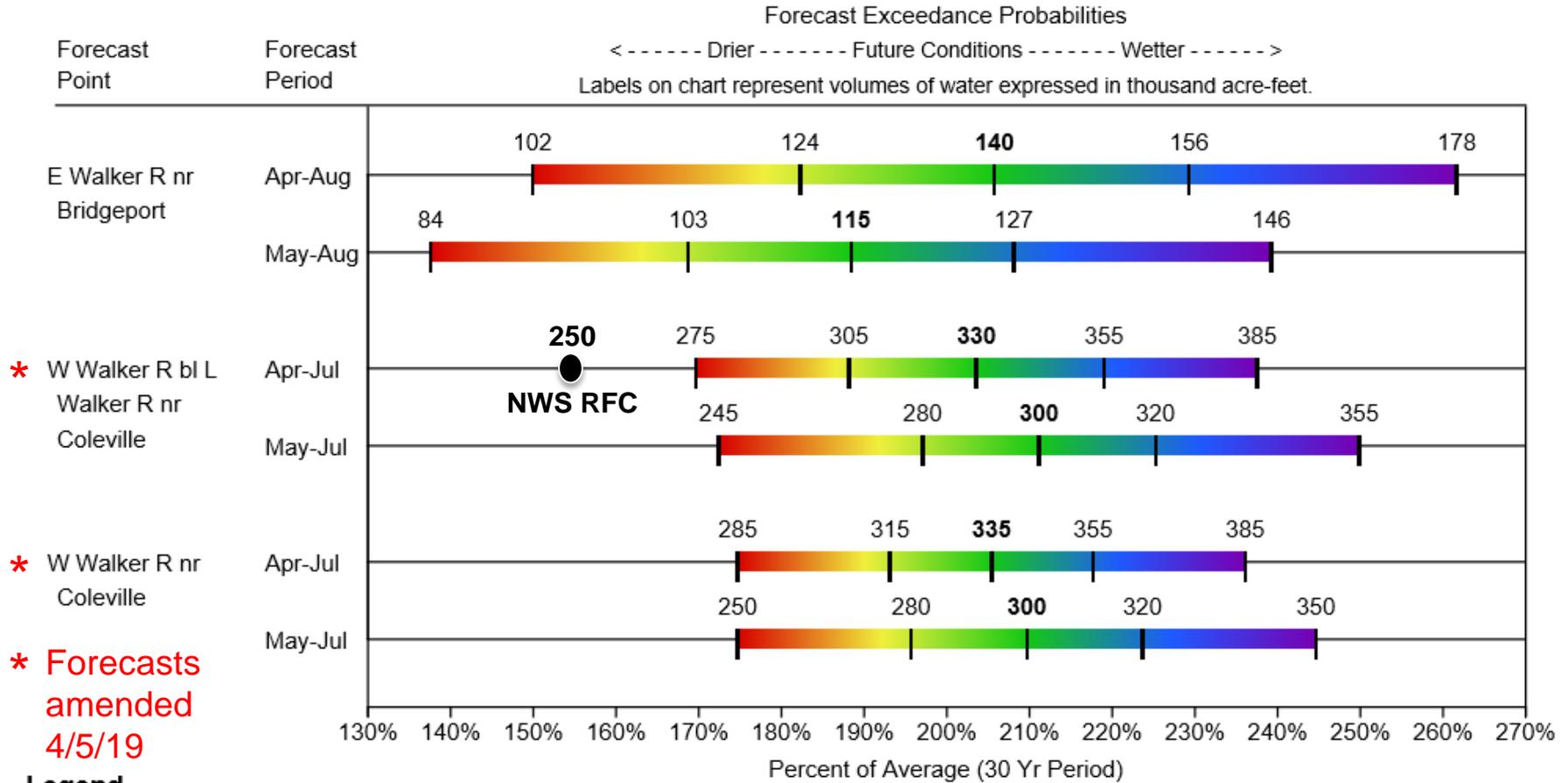
2017 ran  
 above the 90<sup>th</sup>  
 percentile  
 much of the  
 winter

Explanation - Percentile classes					
lowest-10th percentile	10-24	25-75	76-90	90th percentile-highest	Flow
Much below normal	Below normal	Normal	Above normal	Much above normal	



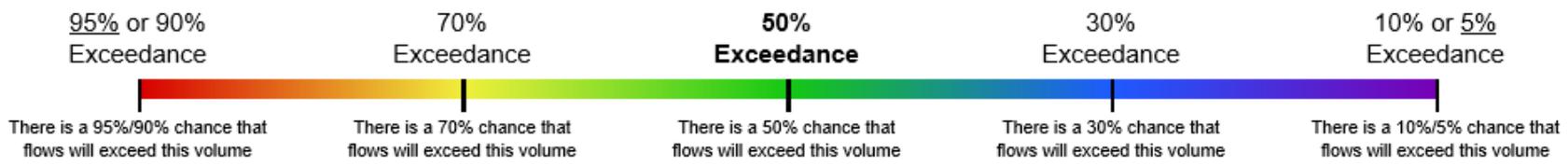
### Walker River Basin Water Supply Forecasts April 1, 2019

Forecasts increased  
40-60% from March 1



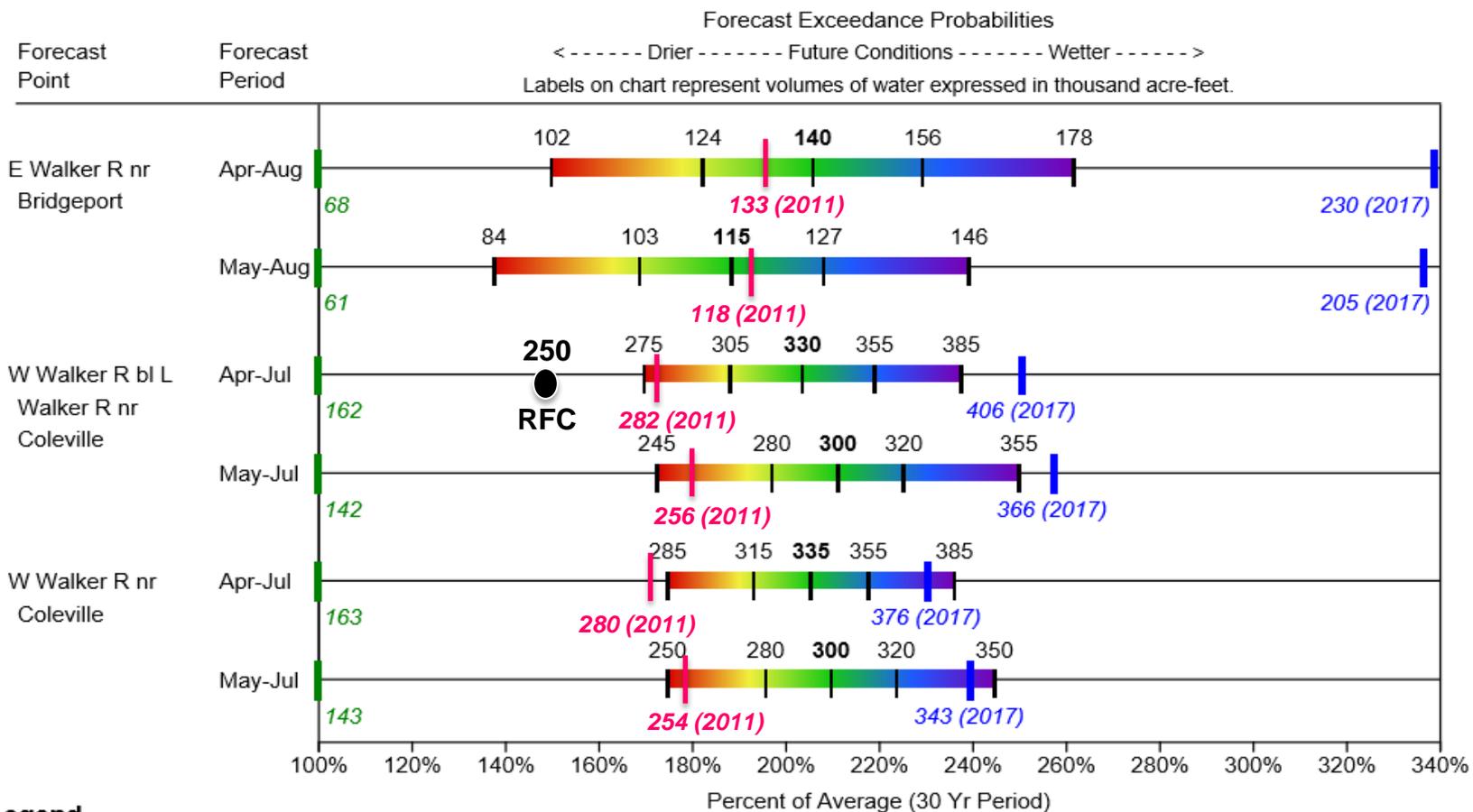
\* Forecasts amended 4/5/19

#### Legend

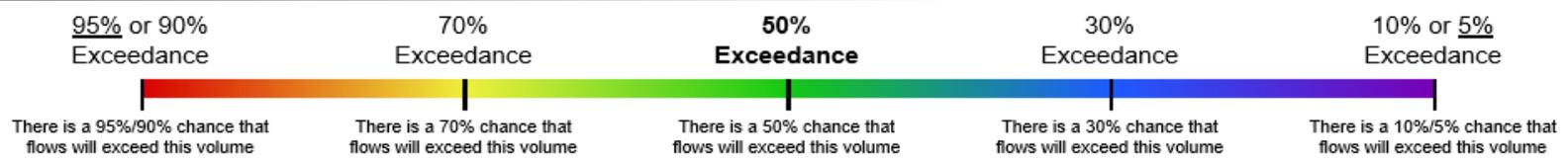




# Walker River Basin Water Supply Forecasts April 1, 2019



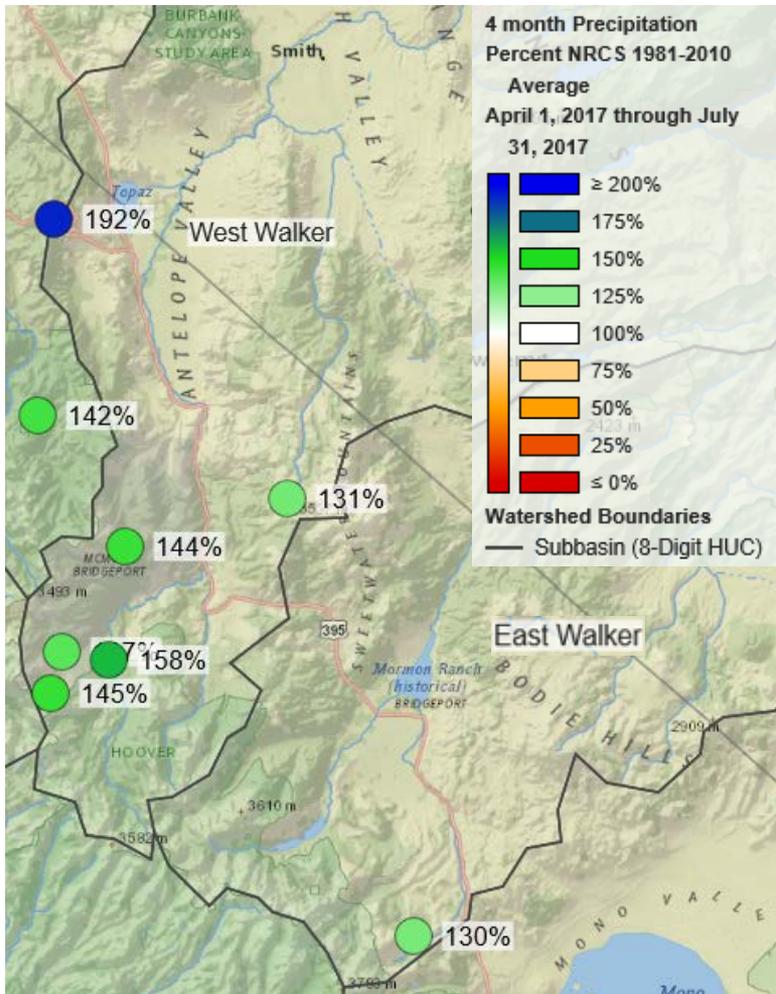
### Legend



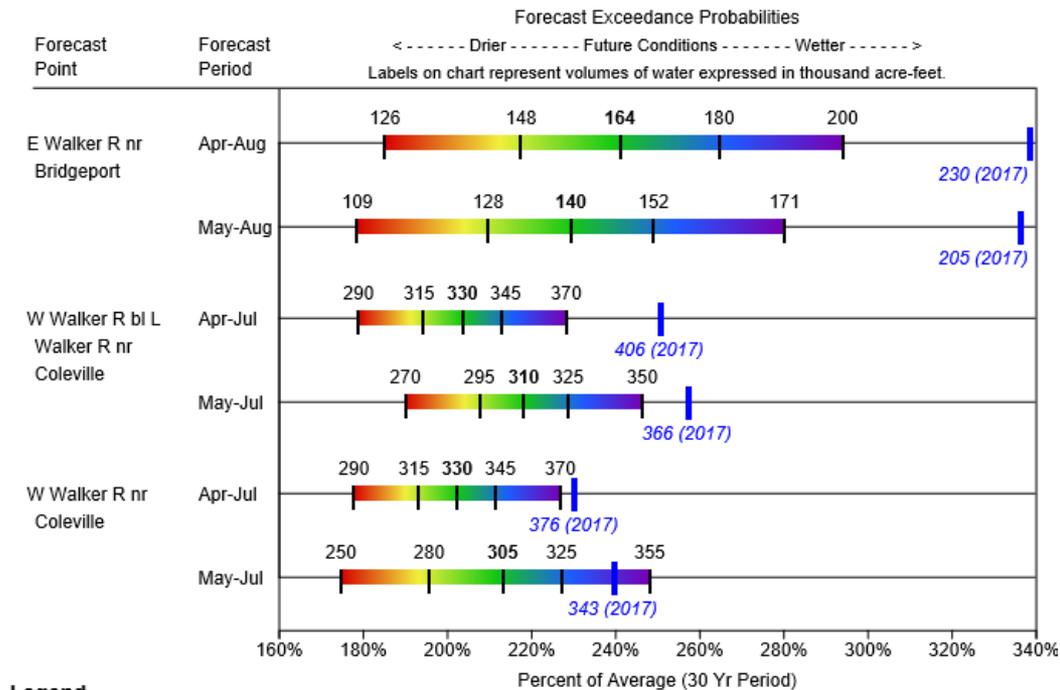
When selected, the following historic streamflow values and statistics will be shown.

 <i>Period of Record Minimum Streamflow KAF (Year)</i>	 <i>1981-2010 Normal Streamflow KAF</i>	 <i>Observed Streamflow KAF</i>	 <i>Period of Record Maximum Streamflow KAF (Year)</i>
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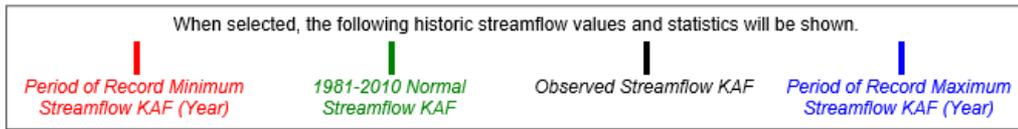
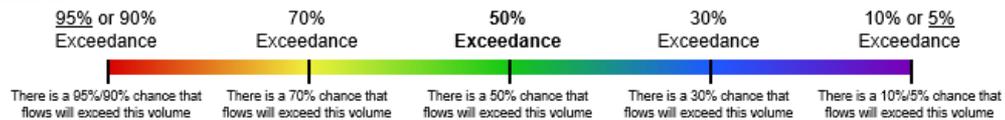




### Walker River Basin Water Supply Forecasts April 1, 2017



#### Legend



# Key Points:

## Snowpack:

- Another big year, similar to 2011 and 2005, not as big as 2017 except...
- Mid-Elevations (6000-8000ft) near record high in Eastern Sierra, greater than 2017
- Leavitt Meadow set all-time record (283% of med peak), currently 6x's normal for Apr 5
- Snowpack still increasing, only Leavitt Meadow has started melt.

## Precipitation:

- Walker basin already exceeded (112%) average annual total
- A lot of precipitation gage plugging issues this year, finally solved now
- Far less precipitation than in 2017, especially in Fall

## Soil Moisture:

- Well below average. Due to dry Fall, little winter rain, delayed snowmelt.

## Streamflow Forecasts:

- Forecasts increased +40-60% from March 1 due to high snow at lower elevations
- April-July forecasts are for >200% of average flows
  - E Walker 140KAF,
  - W Walker below Little Walker 330 KAF (NWS RFC is lower at 250KAF)
  - W Walker near Coleville 335 KAF
- Forecasts generally greater than 2011 and less than 2017 observed flows
- Observed flows often greater than 50% exceedances forecasts in big years

