

# Utah Climate and Water Report

January 1, 2018



## **Bob Nault and Randy Julander at their Retirement Luncheon**

**With a combined 63 years of experience in the Snow Survey Program, Bob and Randy are retiring this month**

**Photo by Snow Survey Staff**

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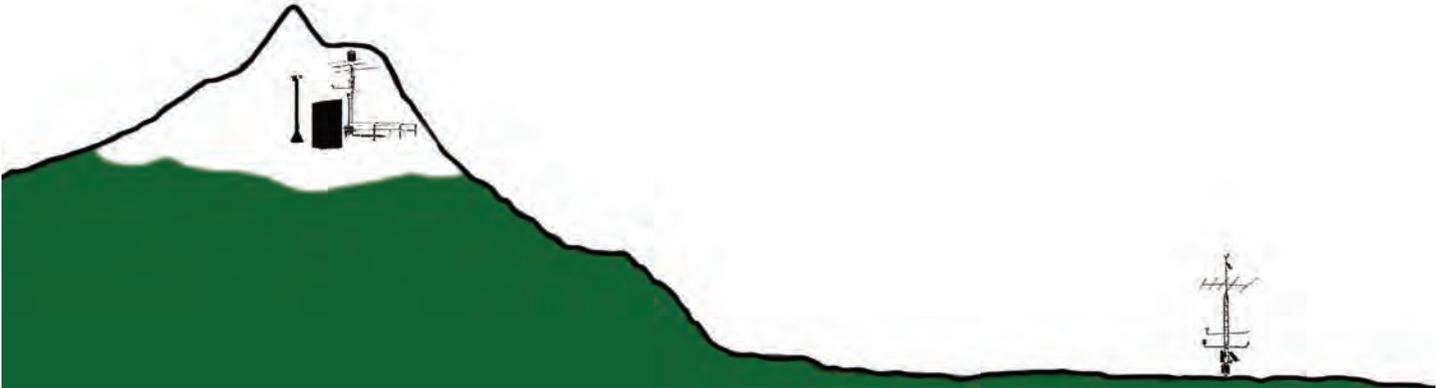
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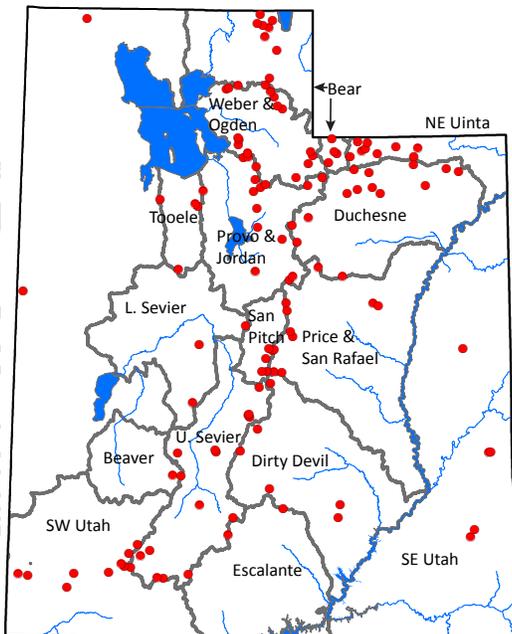
## Utah Climate and Water Report

The purpose of the Climate and Water Report is to provide a snapshot of current and immediate past climatic conditions and other information useful to agricultural and water user interests in Utah. The report utilizes data from several sources that represent specific parameters (streamflow data from the United States Geological Survey, reservoir data from the Bureau of Reclamation, and other sources), geography including high elevation United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Snowpack Telemetry (SNOTEL) data, and agriculturally important data from the USDA-NRCS Soil Climate Analysis Network (SCAN). Data on precipitation, soil moisture, soil temperature, reservoir storage, and streamflow are analyzed and presented. These data analyses can be used to increase irrigation efficiency and agricultural production. As with all data and analyses, there are limitations due to data quality, quantity, and spatial application.



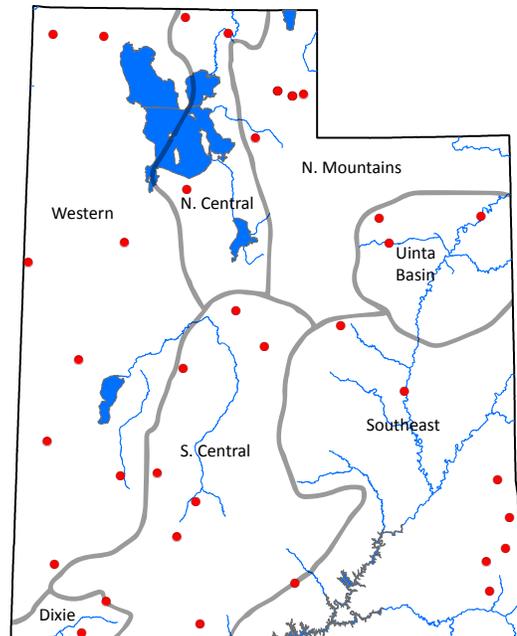
### SNOTEL

- Mountainous areas
- High elevation (>6,000 ft)
- Water supply forecasting
- Installed where snow pack represents the water supply



### SCAN

- Agricultural and range lands
- Mid elevation (3 – 7,000 ft).
- Irrigation efficiency and rangeland productivity
- Installed on spatially representative soils



## Utah General Summary

### January 1, 2018

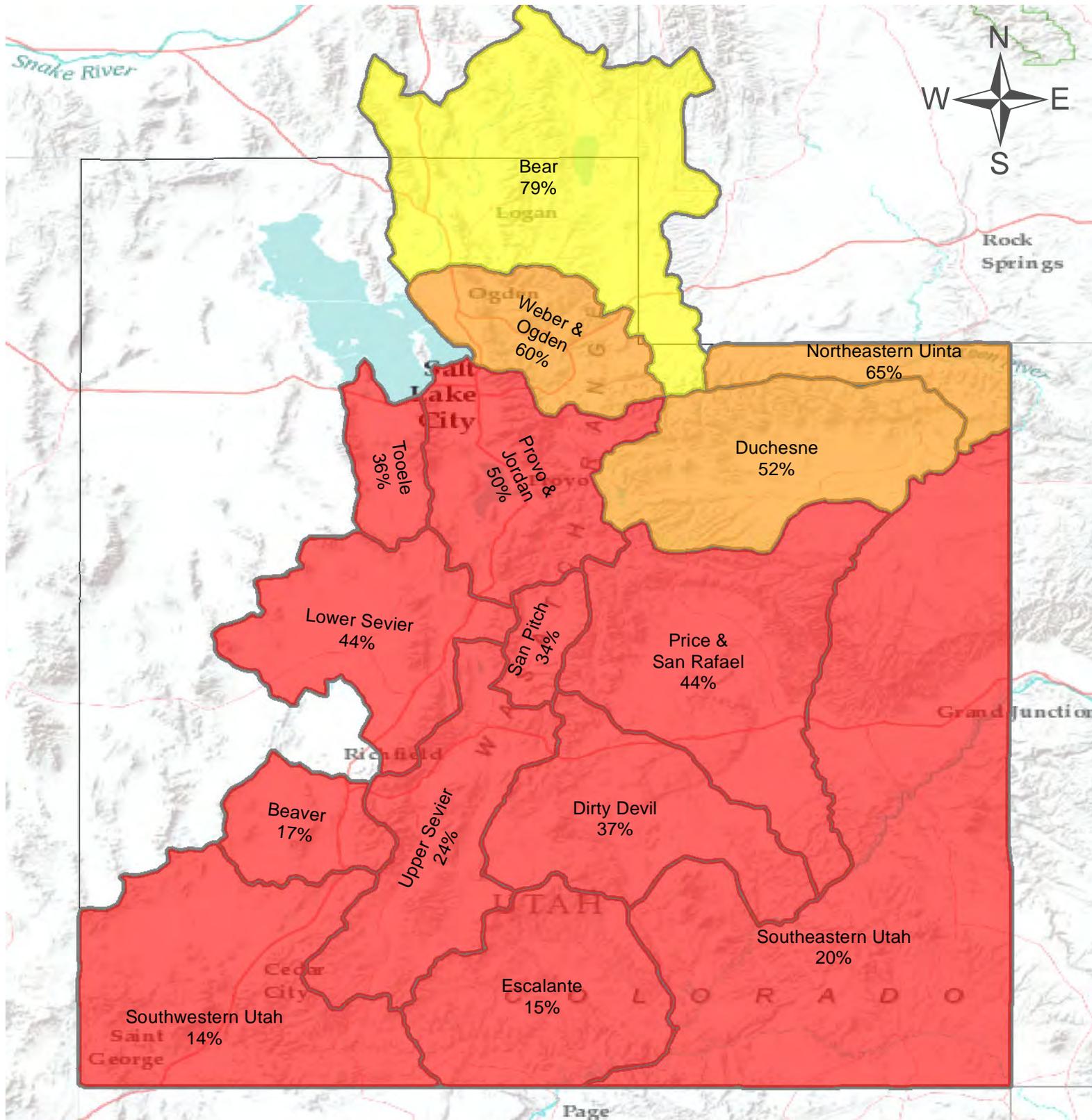
*This report has been reorganized to better reflect two distinct geographic areas being monitored – the low elevation valley sites (Soil Climate Analysis Network) that are critical for agricultural production and operations, and the high elevation mountainous areas where water supply is generated (SNOWTElemetry). Most of the graphs have been updated to utilize daily data versus the old monthly bar charts so that the timing and distribution of precipitation and other events can be seen. The timing distribution of precipitation can be as important as the overall amount in an agricultural context. These graphs are hyperlinked so that the user can simply click on the graph and be taken to the most recent version on the Snow Survey web page. Questions, comments and suggestions are welcome and should be directed to [Randy.Julander@ut.usda.gov](mailto:Randy.Julander@ut.usda.gov).*

### **Current Valley Conditions (SCAN)**

Unfortunately, the dismal mountain snowpack conditions discussed below reflect the conditions of Utah's lower elevations. December brought a dismal 0.1" of precipitation to Utah's Valley locations, on average. Consistent with previous months, there was a wide disparity between the Northern and Southern Utah, with the North fairing much better. Northern Utah accumulated 0.4" of precipitation, while the South Central and Southeast regions recorded virtually no precipitation during the month. That said, overall conditions are drier than normal statewide. Soil moisture conditions remain good in the North, due to hold-over moisture from previous months, but remain at or near record-low levels in all of the Southern regions. Generally, both air and soil temperatures have increased this past month, reflecting the mild overall conditions recently. As of the first of the year, both soil and air temperature were near normal (North and Uinta) to record warm (South) statewide at SCAN sites.

### **Current Mountain Conditions (SNOTEL)**

Snowpacks across the state are well below average and in Southern Utah, are at record lows. The 1977 water year was the previous worst year in recent memory (the year without snow) and in Southern Utah, they are below those values. Snowpacks in the South range from single digits (5%) to, in the best cases, 20% of normal. In Northern Utah, snowpack percentages are a bit higher, with the far northern areas near 80% of normal. However, the Weber, Provo and Duchesne are closer to 50% of normal. Statistically, if you are less than 75% of normal on January 1, there is only about a 20% chance of getting back to average by April 1, and the condition prevailing in Southern Utah isn't even remotely close to 75% right now. Seventy five percent in Southern Utah would be awesome given current conditions of about 5% to 35% of normal. Given the present La Nina conditions, the tendency is for Southern Utah to go dry. There is always a chance that conditions in Southern Utah might reverse, but the likelihood is very small. So, for all areas south of Provo (essentially), hope for better but prepare for a really bad runoff year as we will be primarily utilizing what we have in reservoir storage. In sum, the entire state has far below normal conditions with only a remote chance of getting back to average. Water managers should be developing strategies to deal with streamflows that could reach record low levels.



# Statewide Precipitation

As of January 1, 2018:

51% of Normal Precipitation

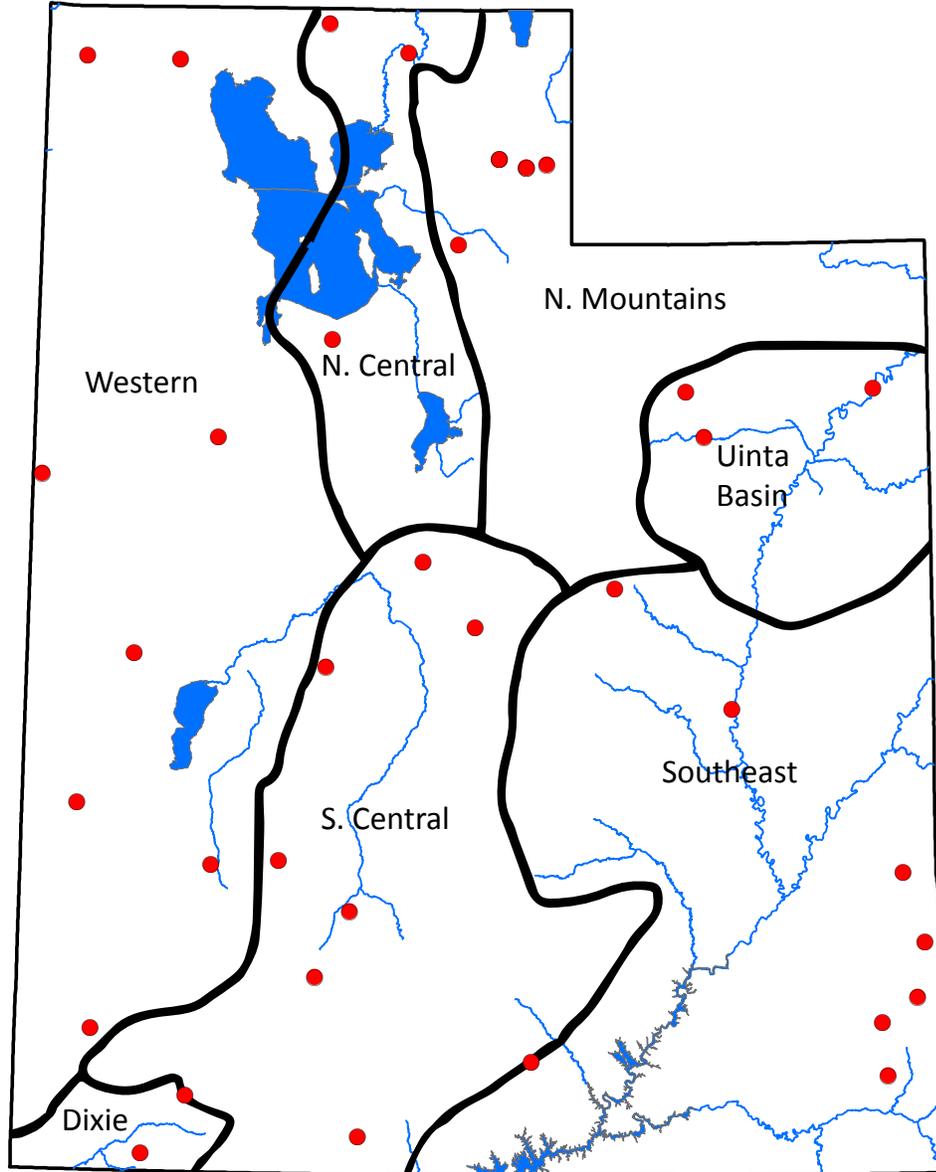
54% of Normal Precipitation Last Month

## % of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%



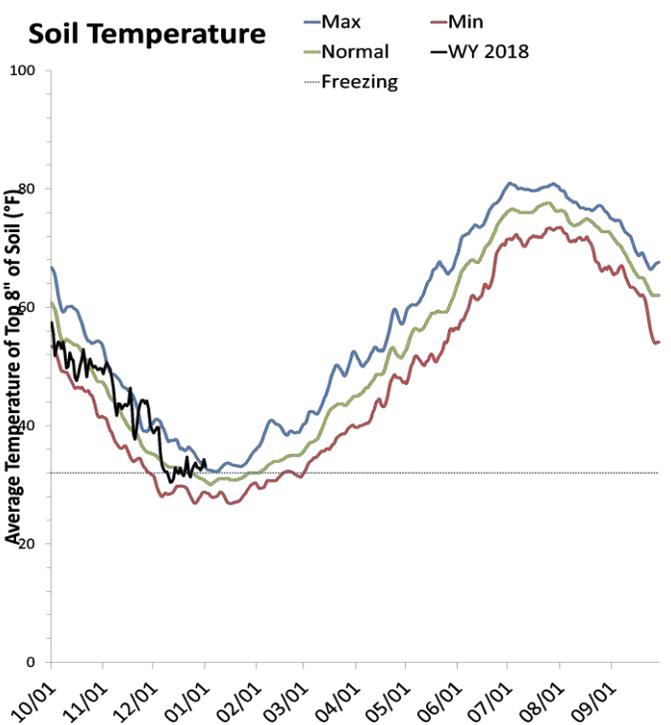
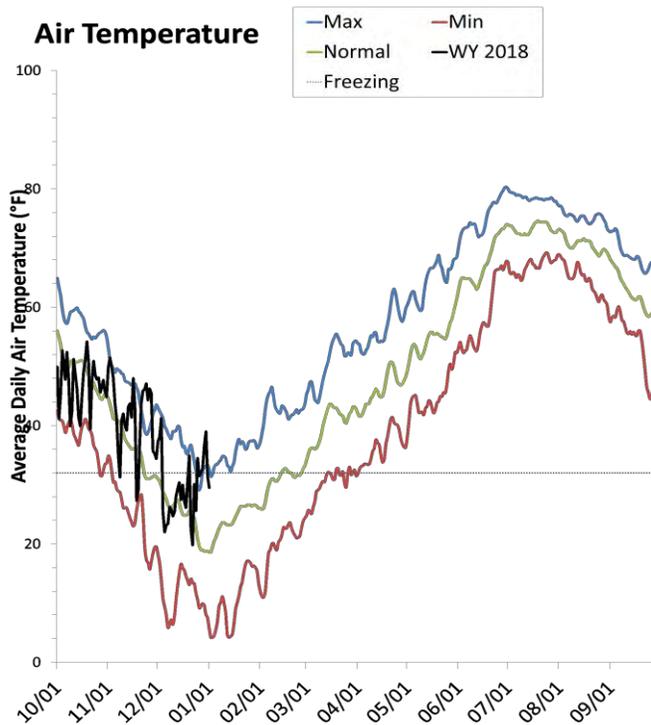
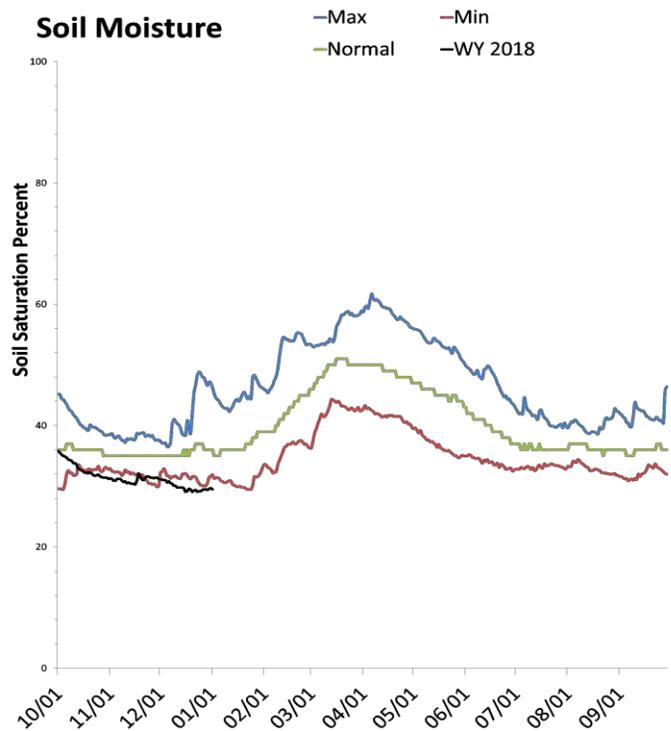
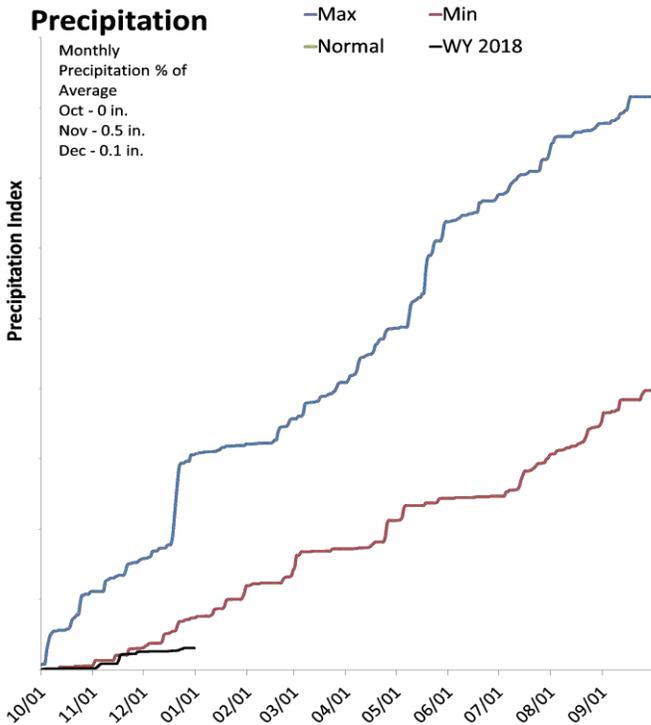
# SCAN portion of report



# Statewide SCAN

January 1, 2018

The average precipitation at SCAN sites within Utah was 0.1 inches in December, which brings the seasonal accumulation (Oct-Dec) to 0.6 inches. Soil moisture is at 29% compared to 38% last year.



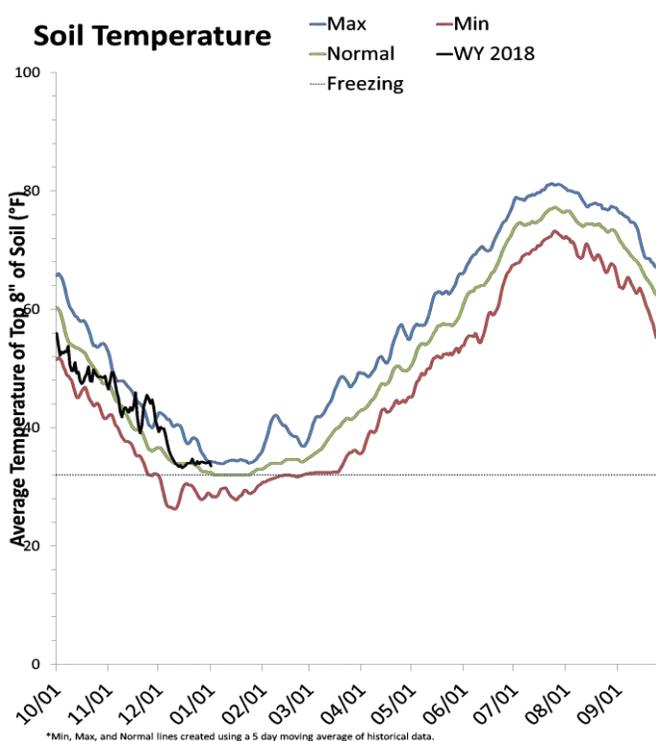
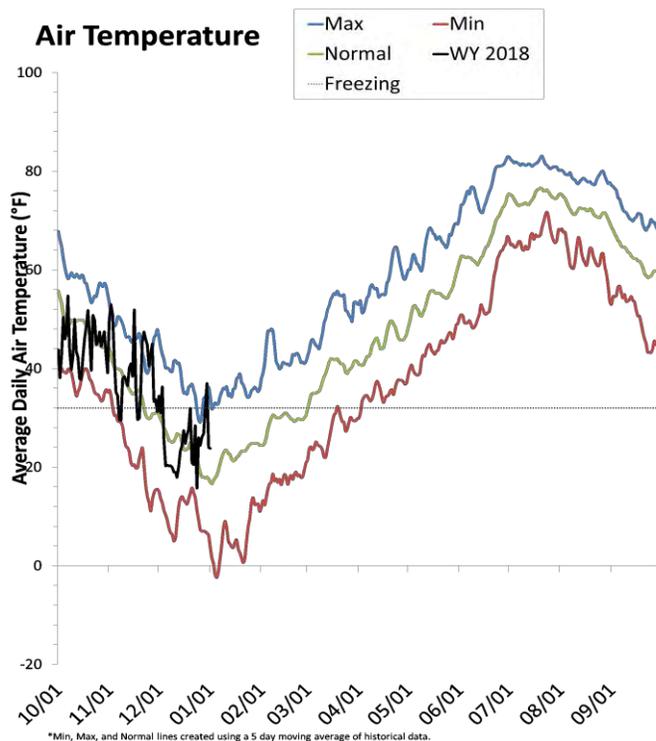
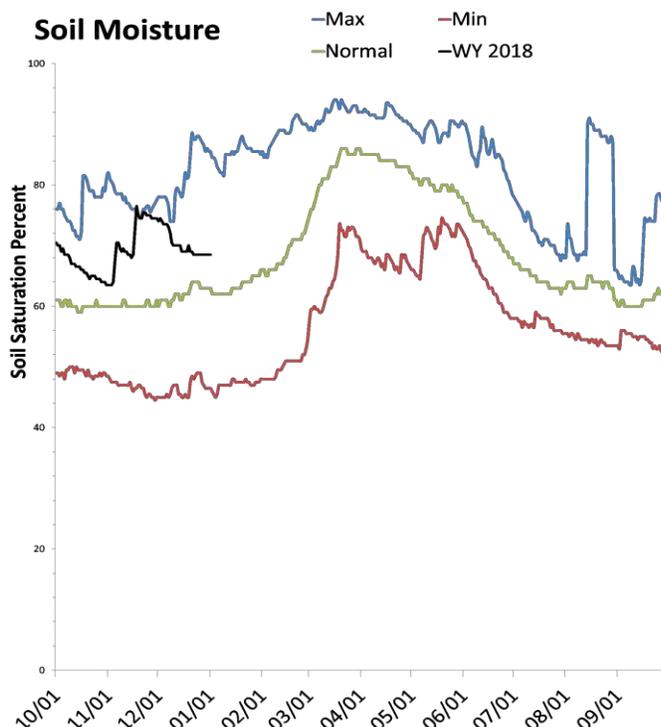
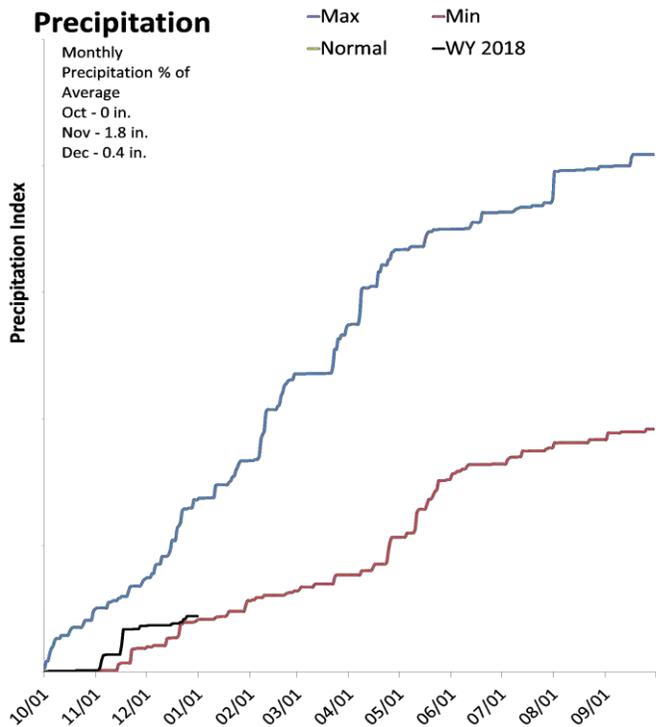
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

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# North Central

January 1, 2018

The average precipitation in December at SCAN sites within the basin was 0.4 inches, which brings the seasonal accumulation (Oct-Dec) to 2.2 inches. Soil moisture is at 69% compared to 82% last year.



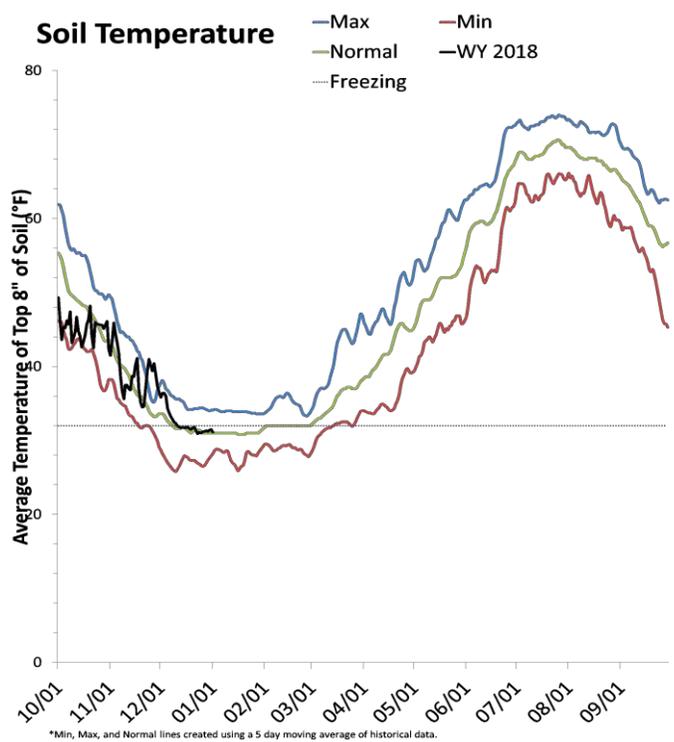
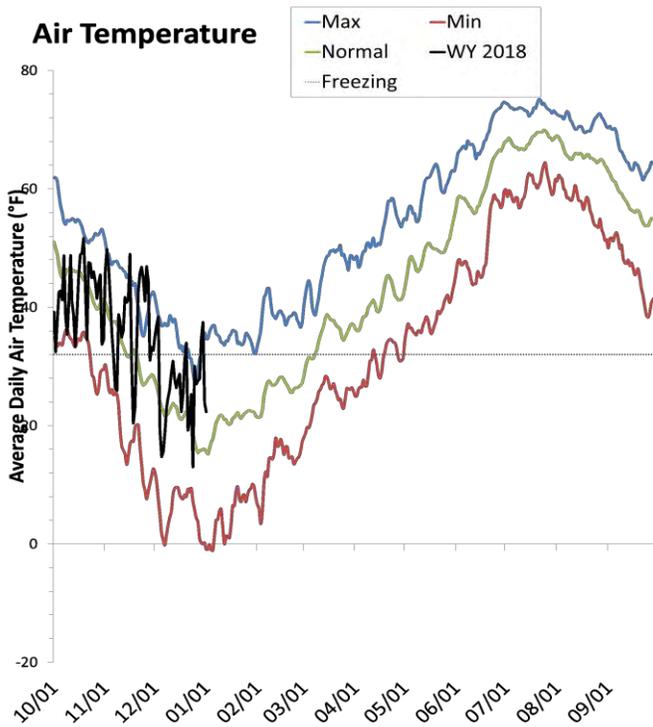
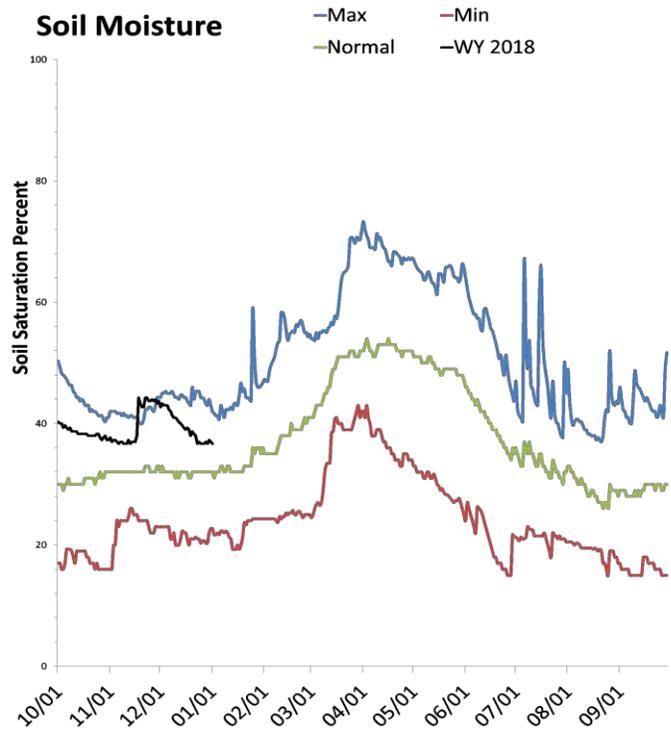
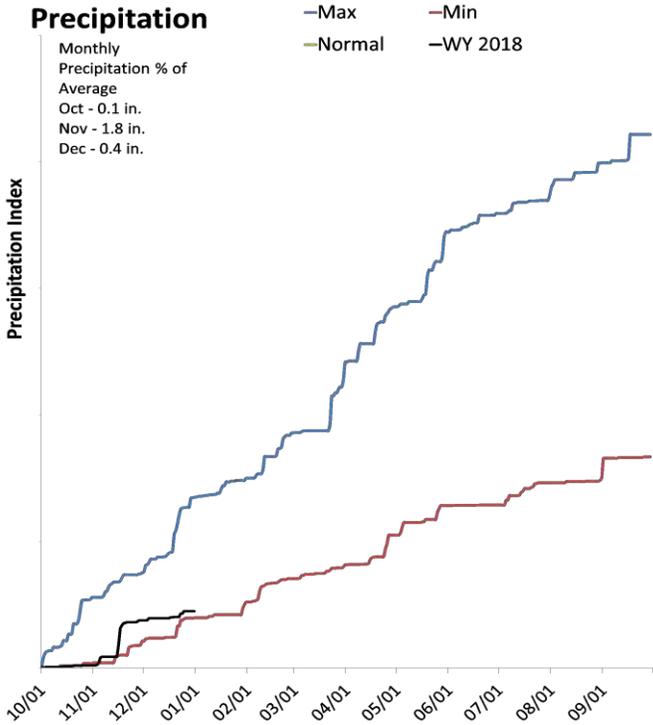
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# Northern Mountains

January 1, 2018

The average precipitation in December at SCAN sites within the basin was 0.4 inches, which brings the seasonal accumulation (Oct-Dec) to 2.2 inches. Soil moisture is at 37% compared to 35% last year.



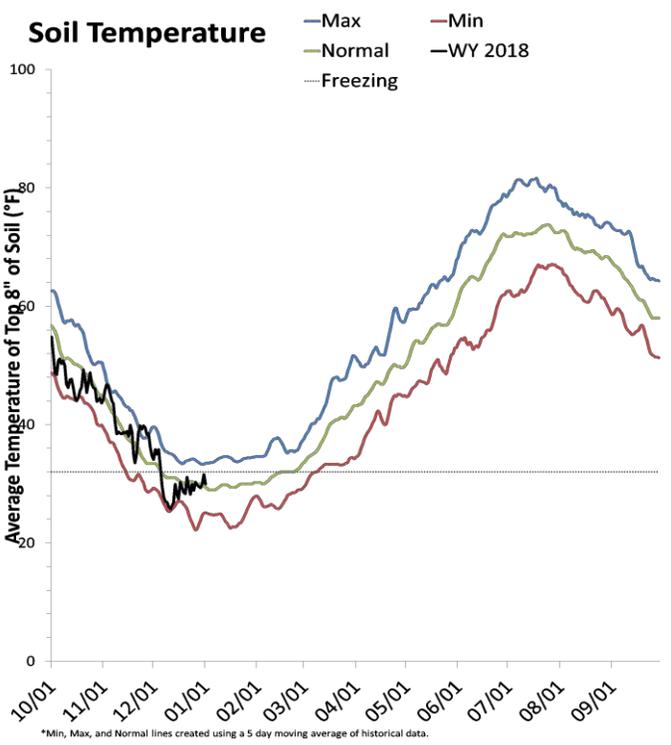
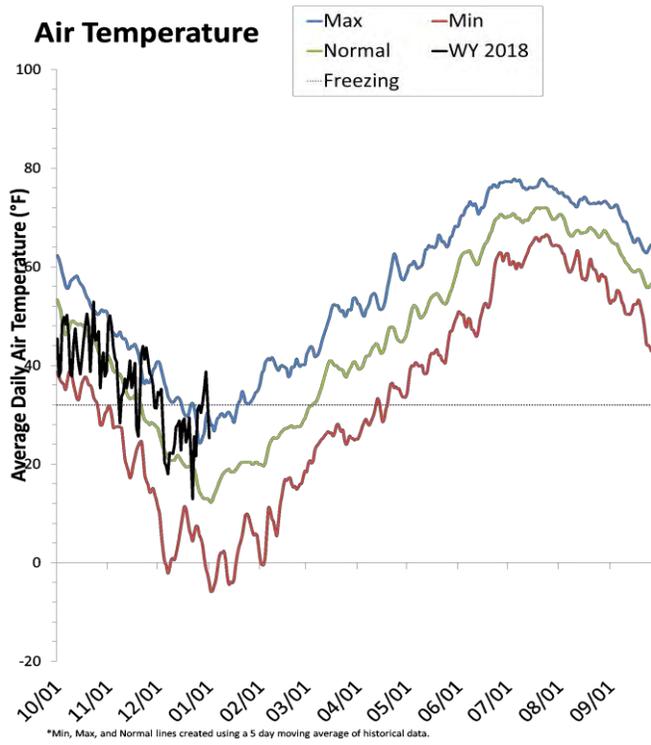
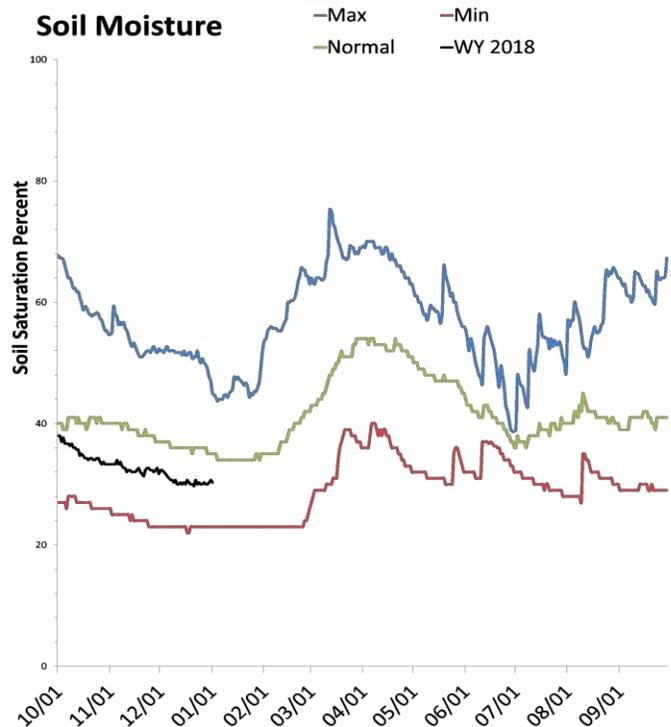
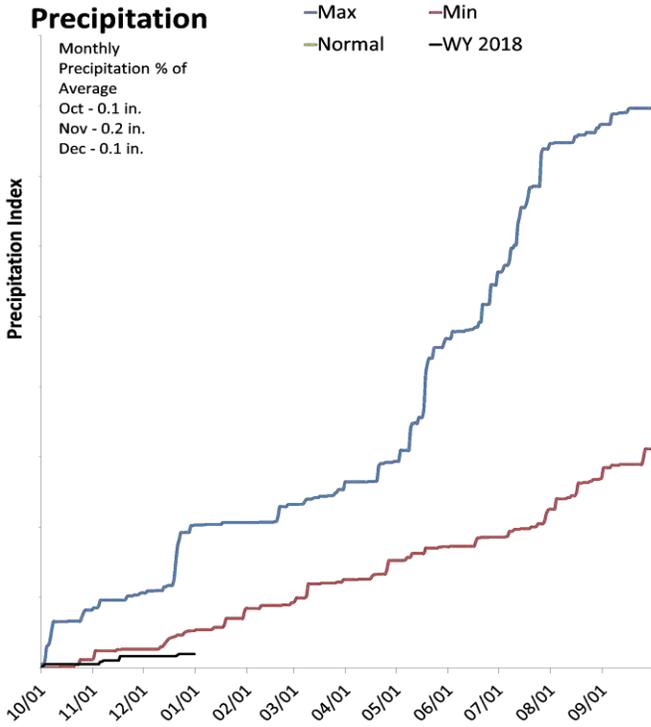
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# Uinta Basin

January 1, 2018

The average precipitation in December at SCAN sites within the basin was 0.1 inches, which brings the seasonal accumulation (Oct-Dec) to 0.4 inches. Soil moisture is at 30% compared to 43% last year.



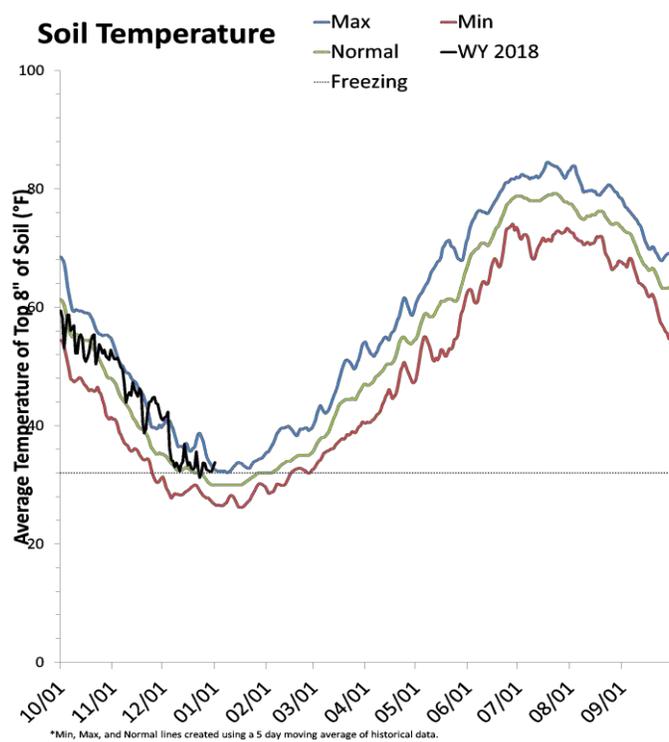
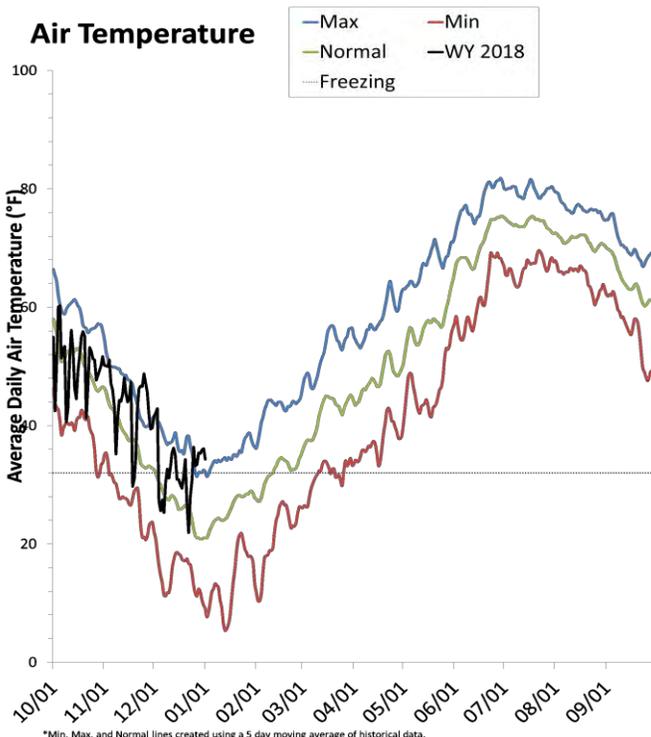
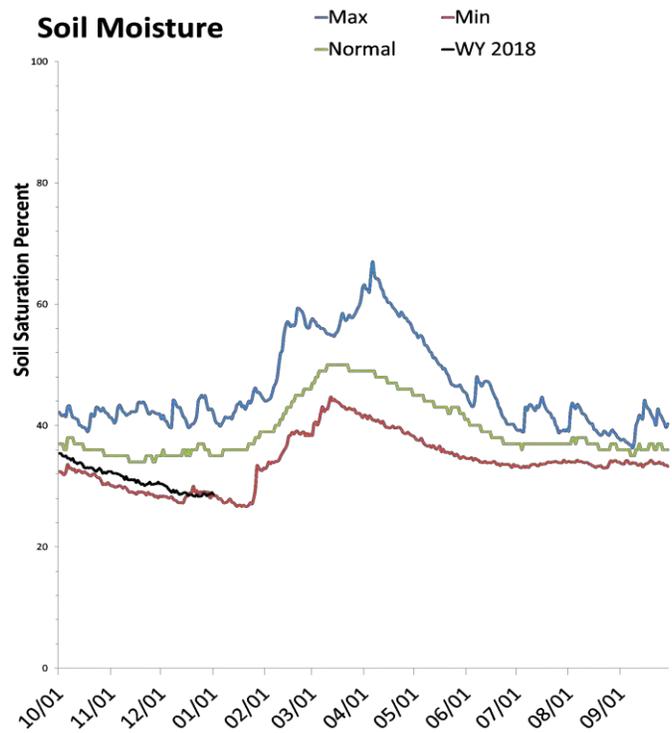
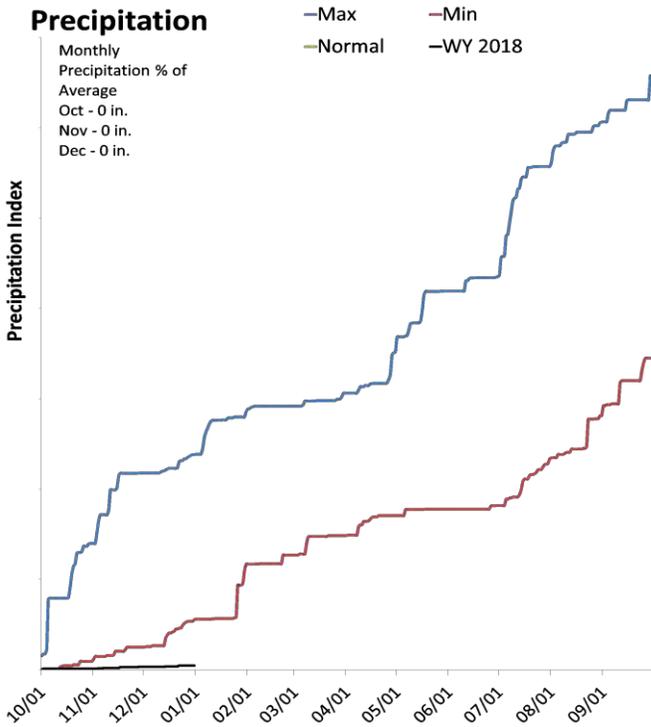
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# Southeast

January 1, 2018

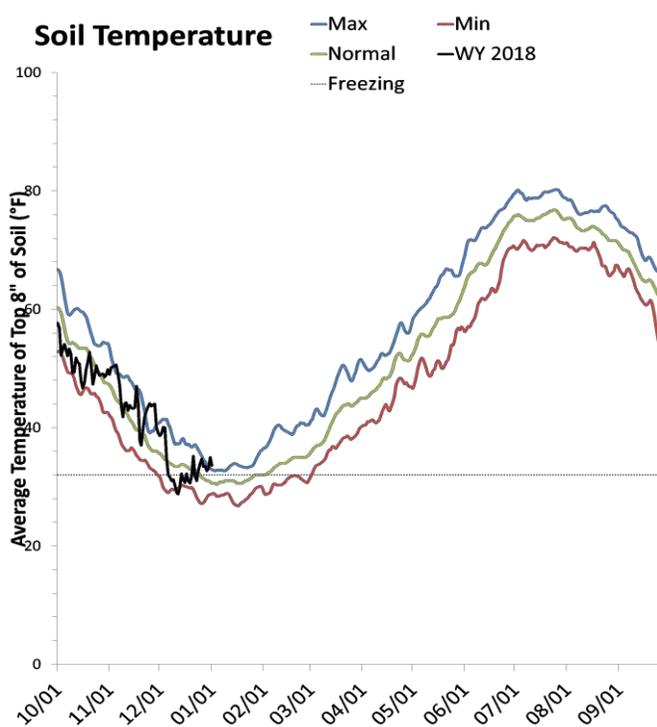
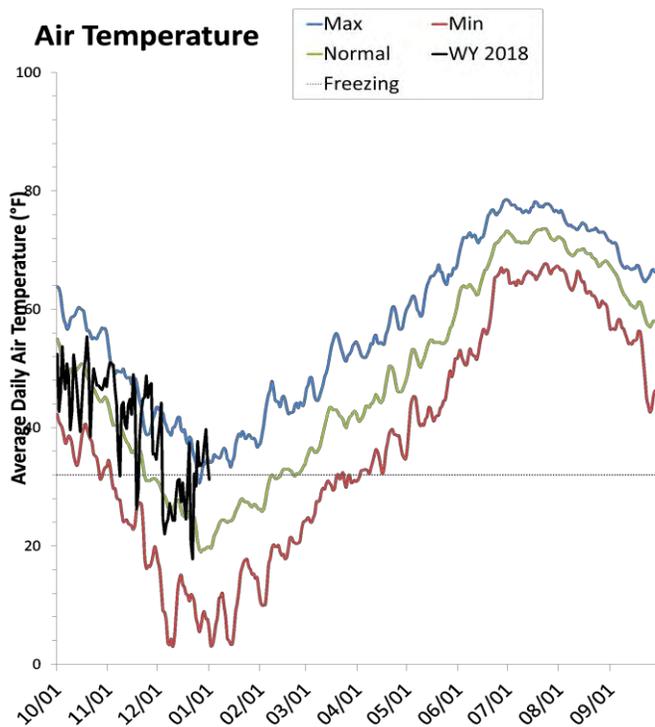
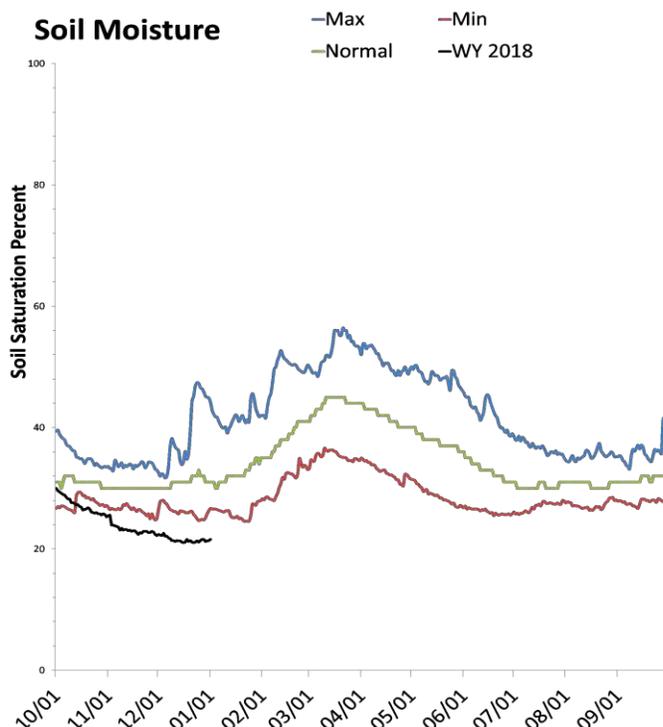
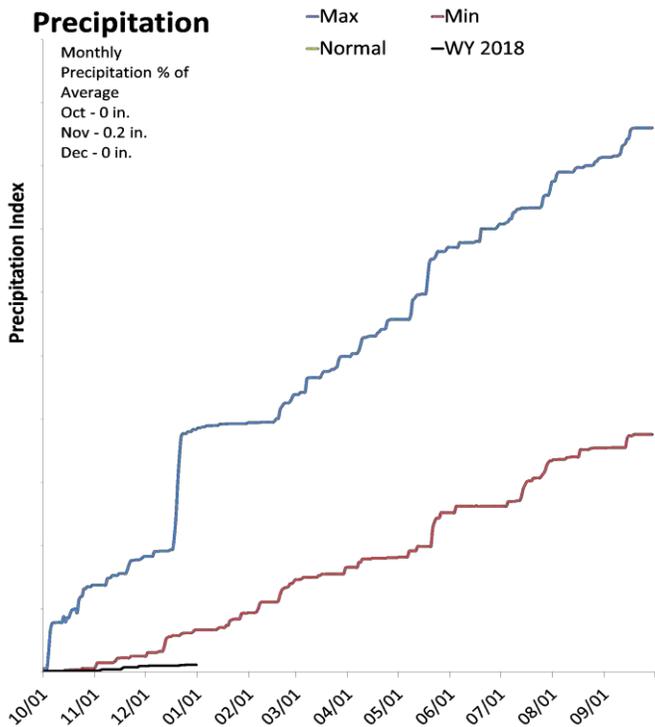
The average precipitation in December at SCAN sites within the basin was 0 inches, which brings the seasonal accumulation (Oct-Dec) to 0.1 inches. Soil moisture is at 29% compared to 39% last year.



# South Central

January 1, 2018

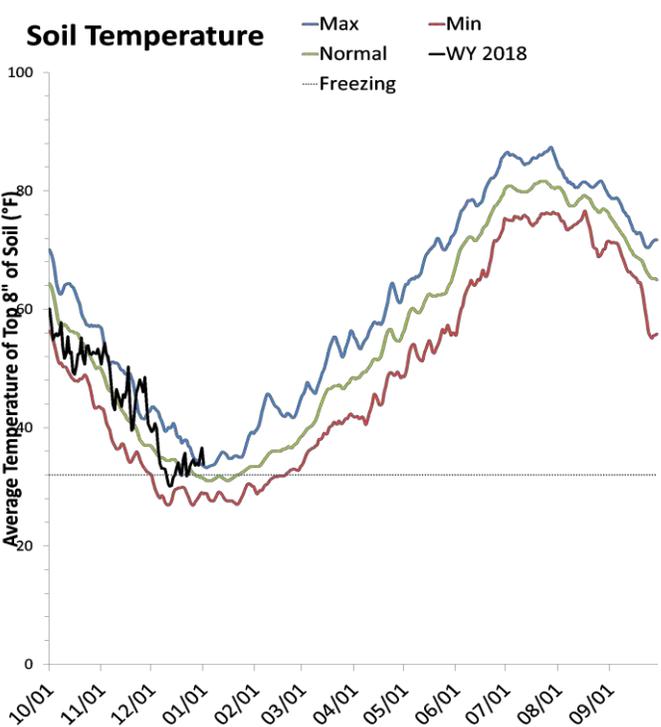
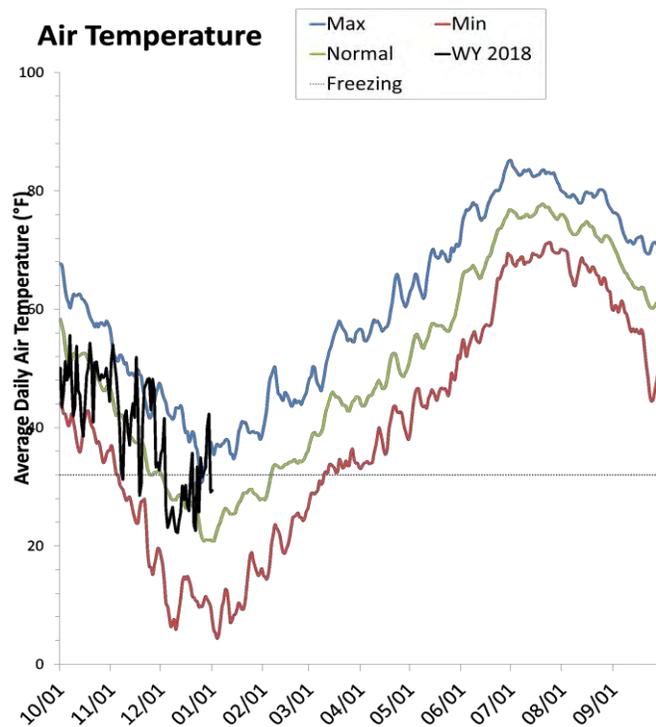
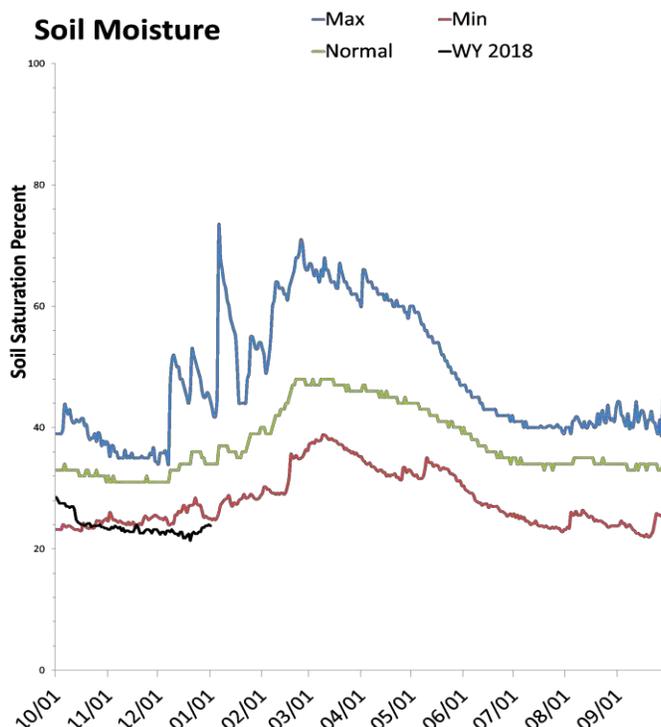
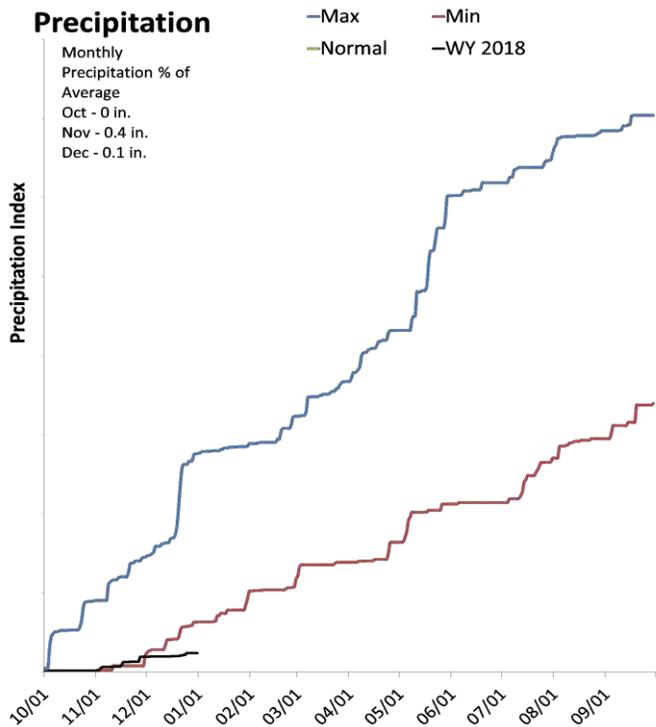
The average precipitation in December at SCAN sites within the basin was 0 inches, which brings the seasonal accumulation (Oct-Dec) to 0.2 inches. Soil moisture is at 21% compared to 31% last year.



# Western and Dixie

January 1, 2018

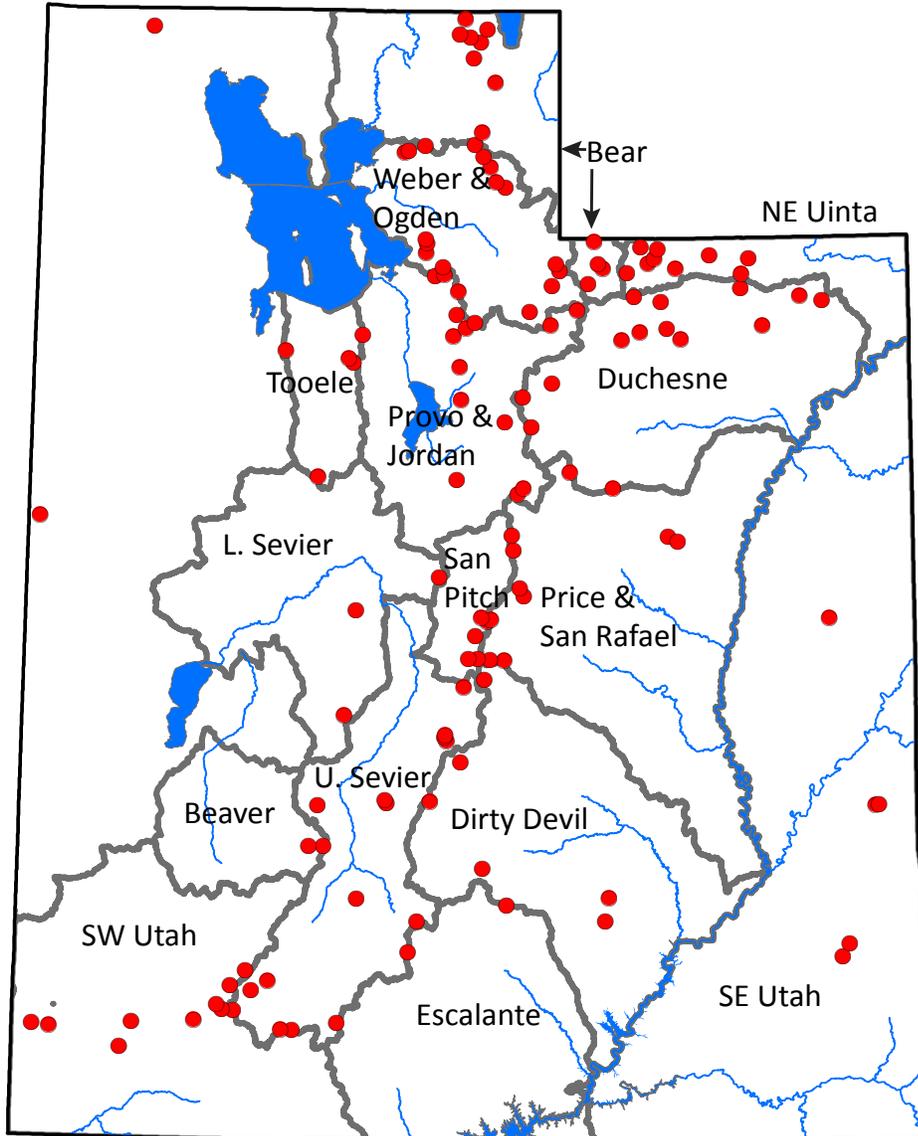
The average precipitation in December at SCAN sites within the basin was 0.1 inches, which brings the seasonal accumulation (Oct-Dec) to 0.5 inches. Soil moisture is at 23% compared to 30% last year.



\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

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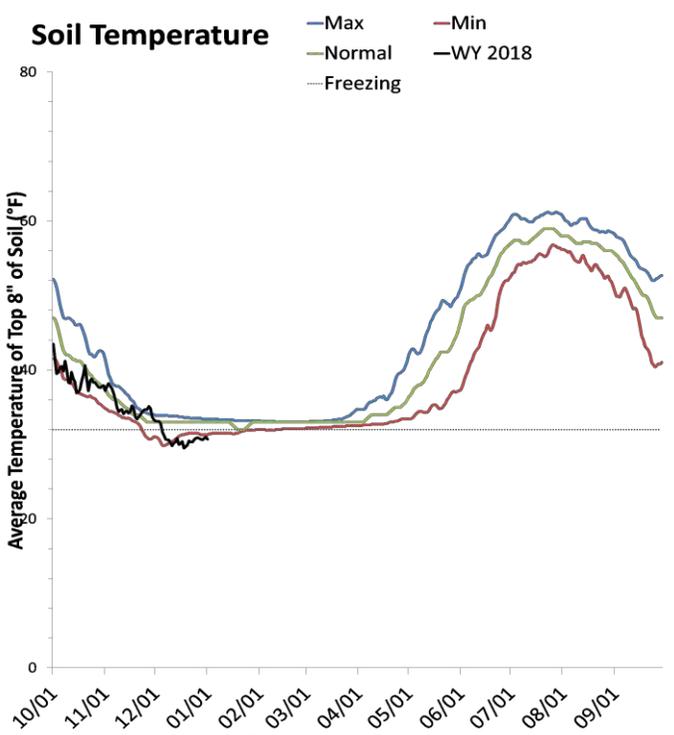
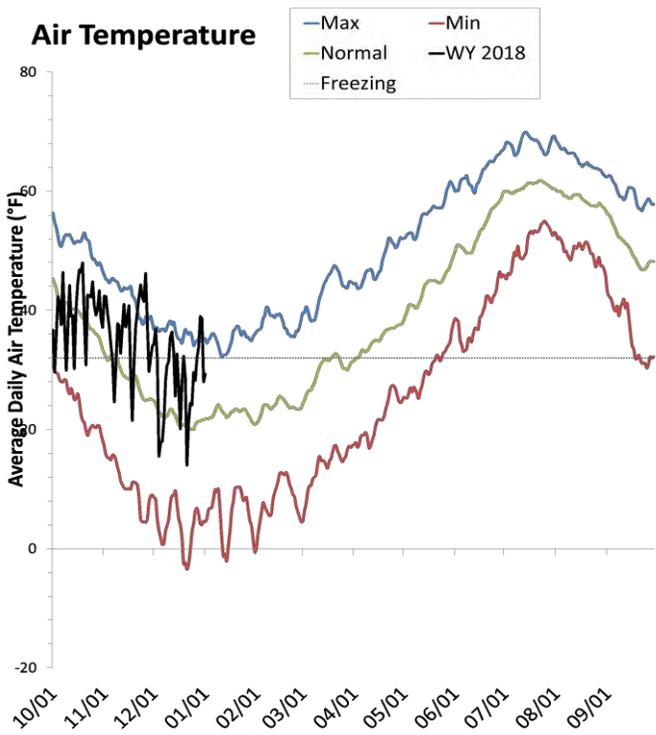
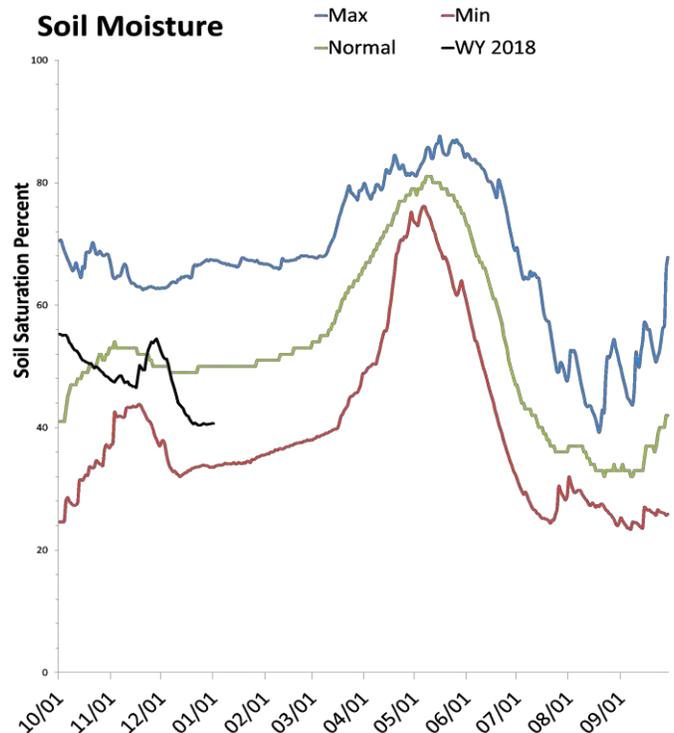
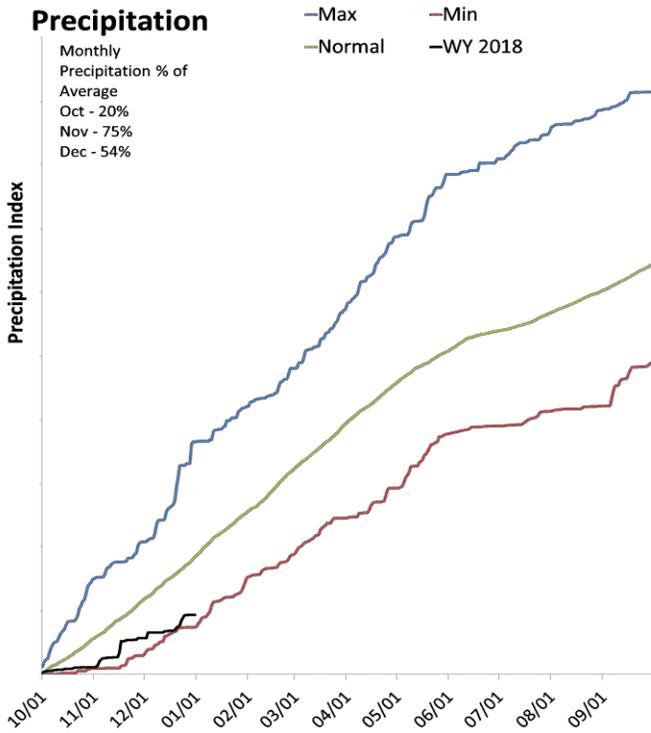
# SNOTEL portion of report



# Statewide SNOTEL

January 1, 2018

Precipitation at SNOTEL sites during December was much below average at 54%, which brings the seasonal accumulation (Oct-Dec) to 51% of average. Soil moisture is at 40% compared to 61% last year. Reservoir storage is at 72% of capacity, compared to 49% last year.



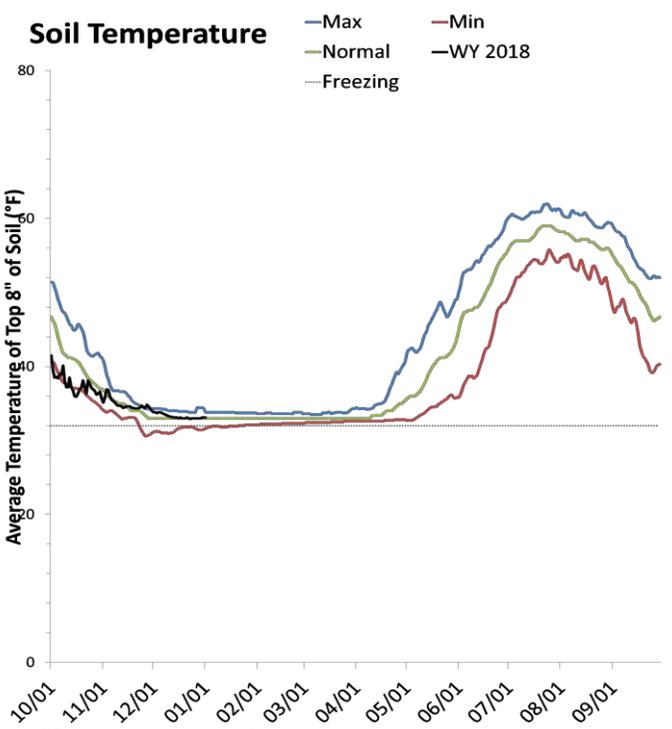
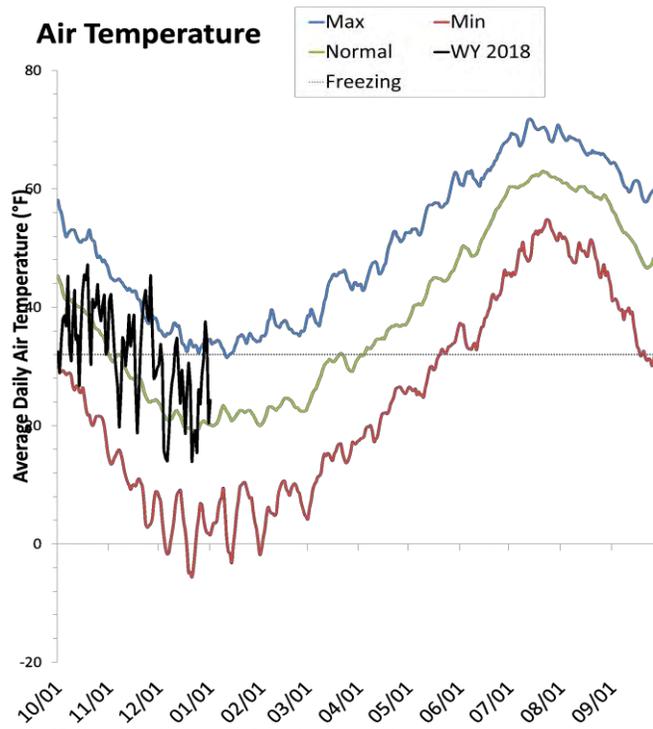
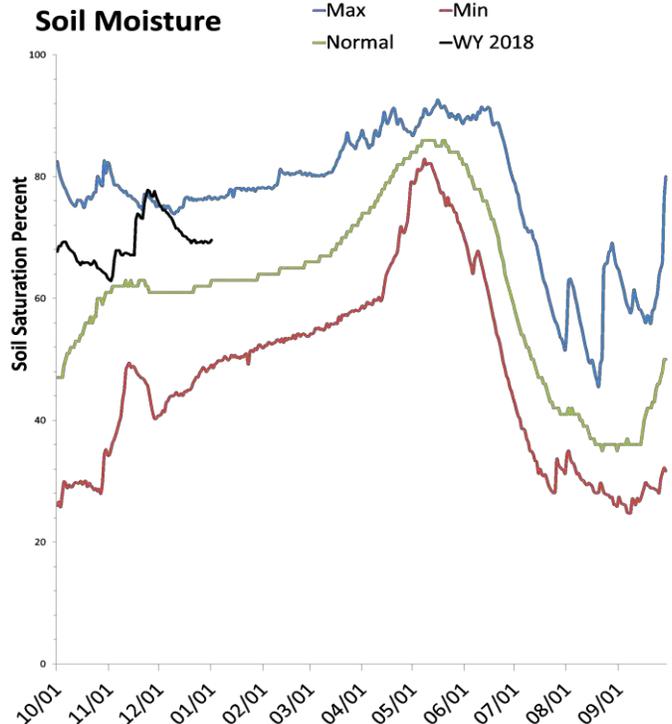
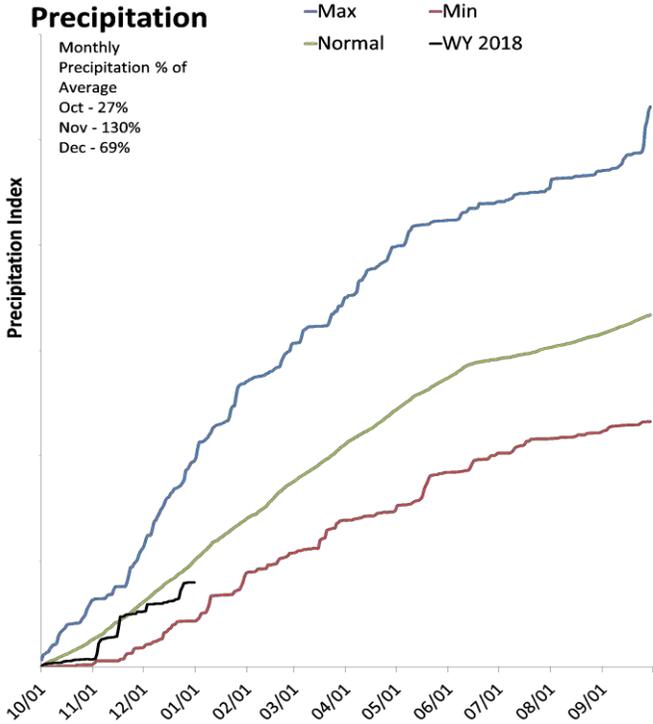
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

# Bear River Basin

January 1, 2018

Precipitation in December was much below average at 69%, which brings the seasonal accumulation (Oct-Dec) to 79% of average. Soil moisture is at 69% compared to 76% last year. Reservoir storage is at 79% of capacity, compared to 38% last year. The water availability index for the Bear River is 95%, 85% for Woodruff Narrows and 78% for the Little Bear.



\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

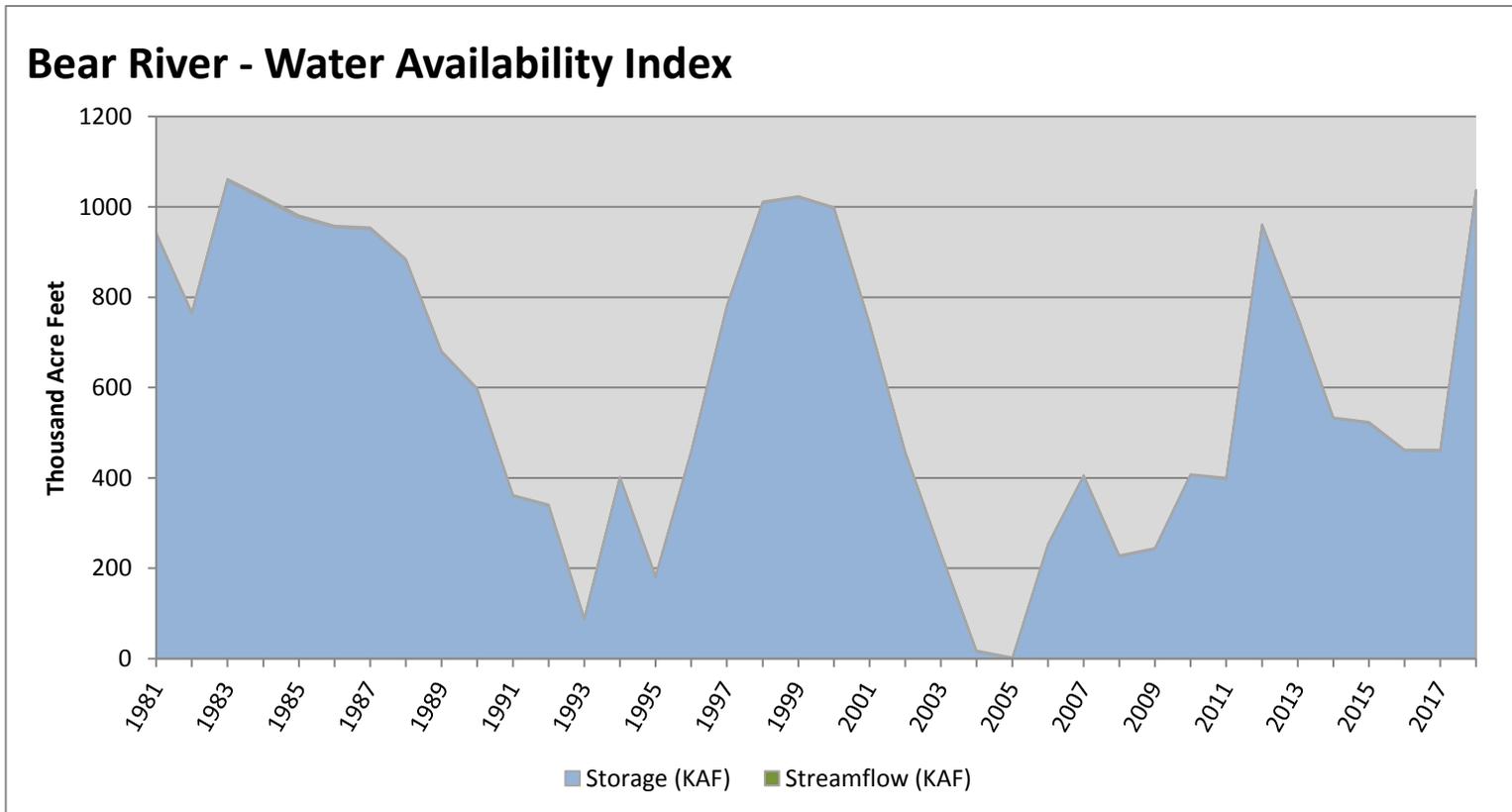
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

January 1, 2018

## Water Availability Index

| Basin or Region   | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similar WAI |
|-------------------|------------------------------|------------------|------------------|------------|------------------|------------------------|
|                   | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                        |
| <b>Bear River</b> | <b>1035.51</b>               | <b>2.50</b>      | <b>1038.01</b>   | <b>95</b>  | <b>3.74</b>      | <b>83, 99, 84, 98</b>  |

<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.

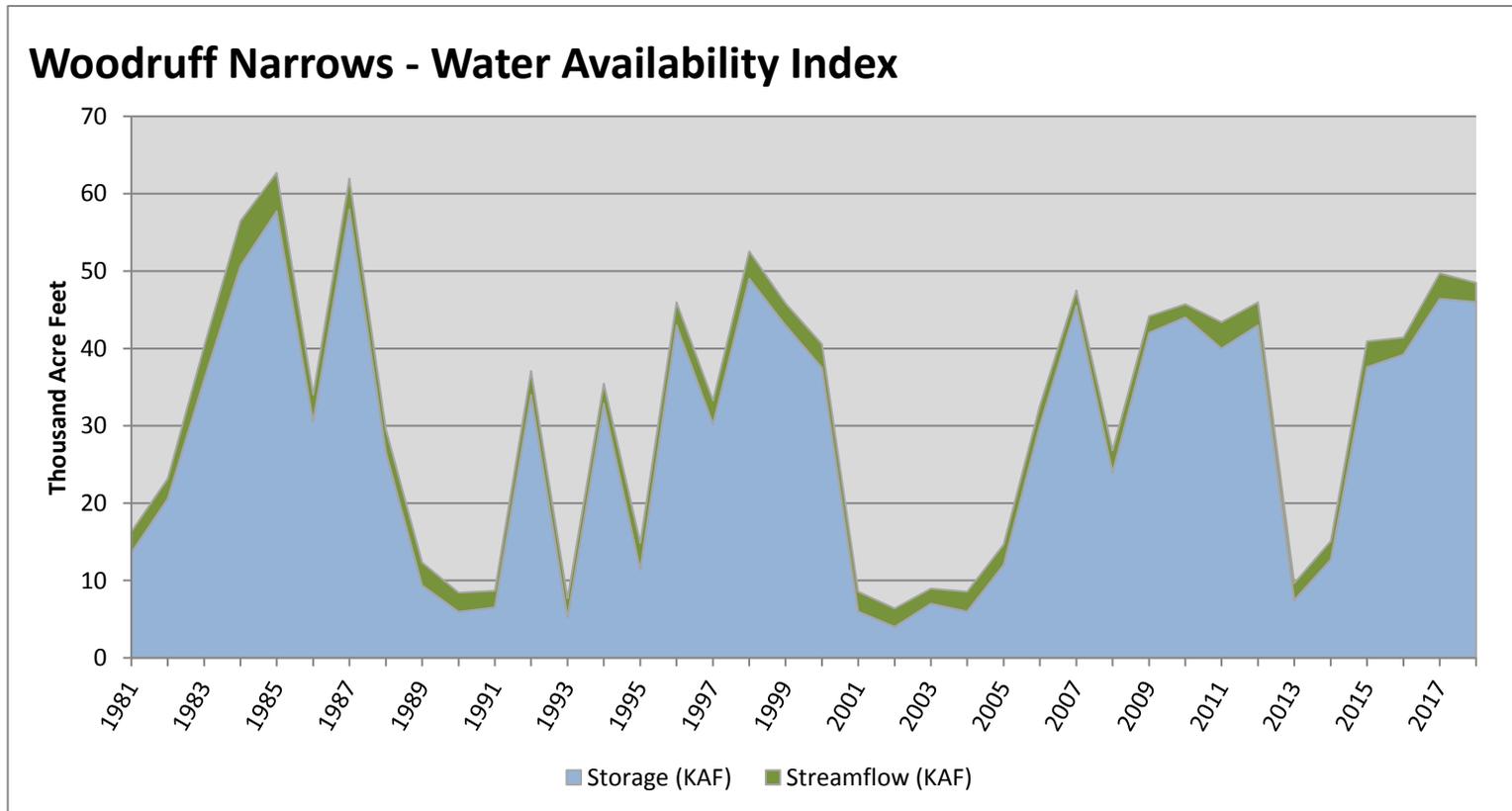


January 1, 2018

## Water Availability Index

| Basin or Region         | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|-------------------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                         | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>Woodruff Narrows</b> | <b>46.01</b>                 | <b>2.50</b>      | <b>48.51</b>     | <b>85</b>  | <b>2.88</b>      | <b>12, 07, 17, 98</b>   |

<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.

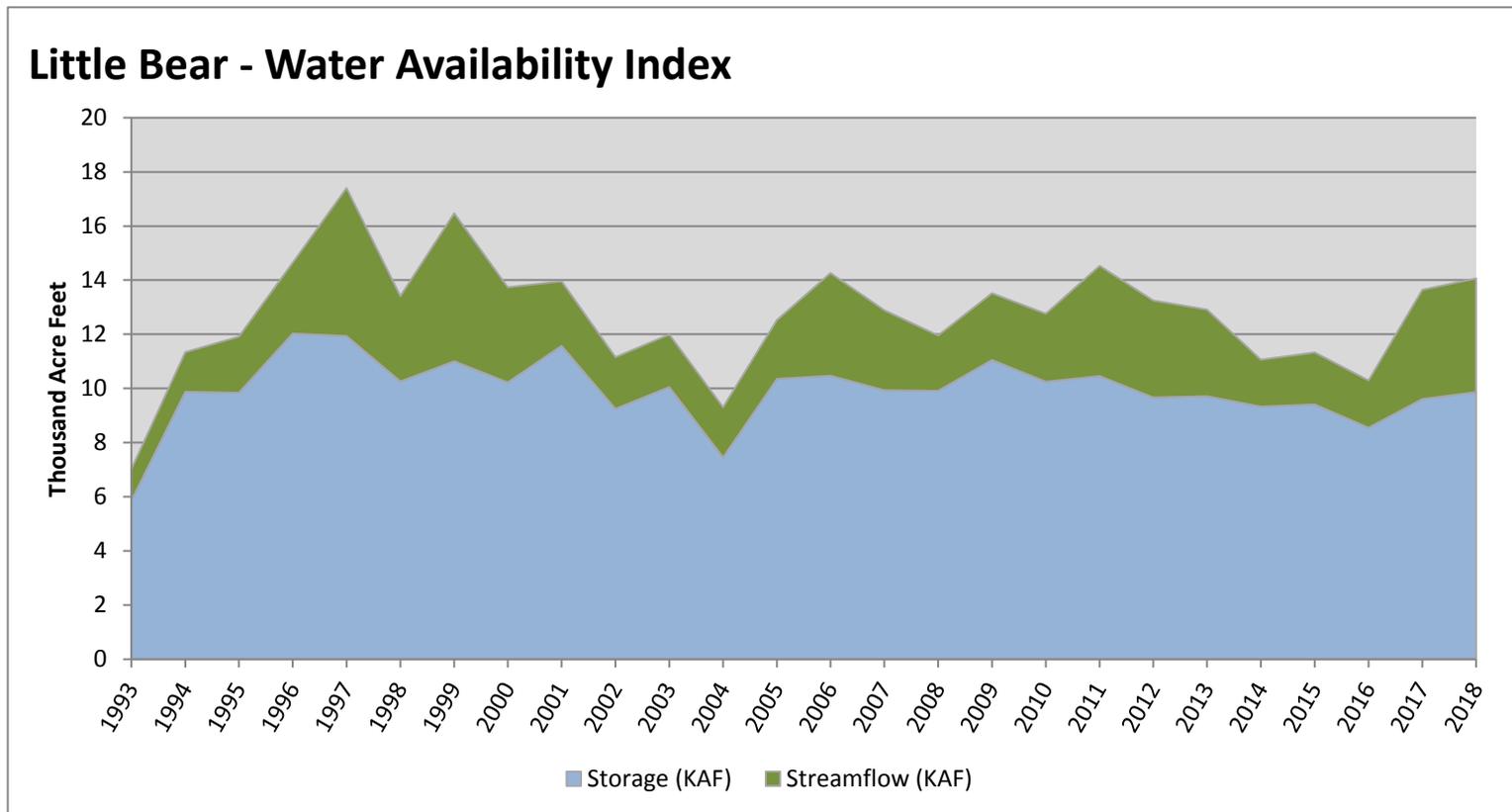


January 1, 2018

## Water Availability Index

| Basin or Region    | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|--------------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                    | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>Little Bear</b> | <b>9.86</b>                  | <b>4.20</b>      | <b>14.06</b>     | <b>78</b>  | <b>2.31</b>      | <b>00, 01, 06, 11</b>   |

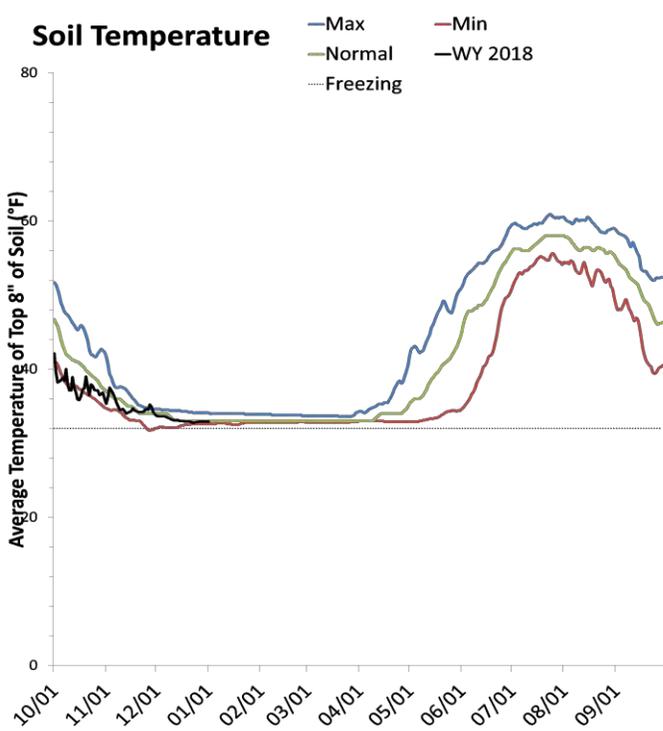
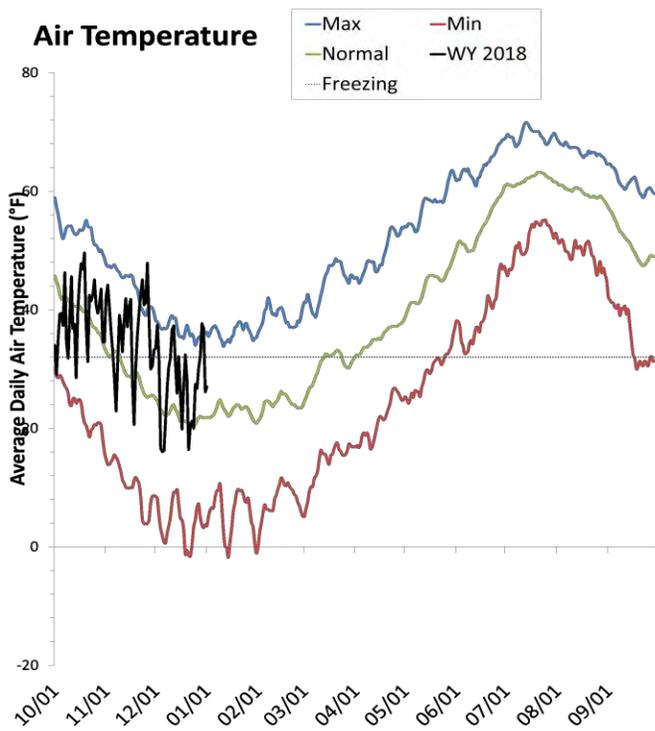
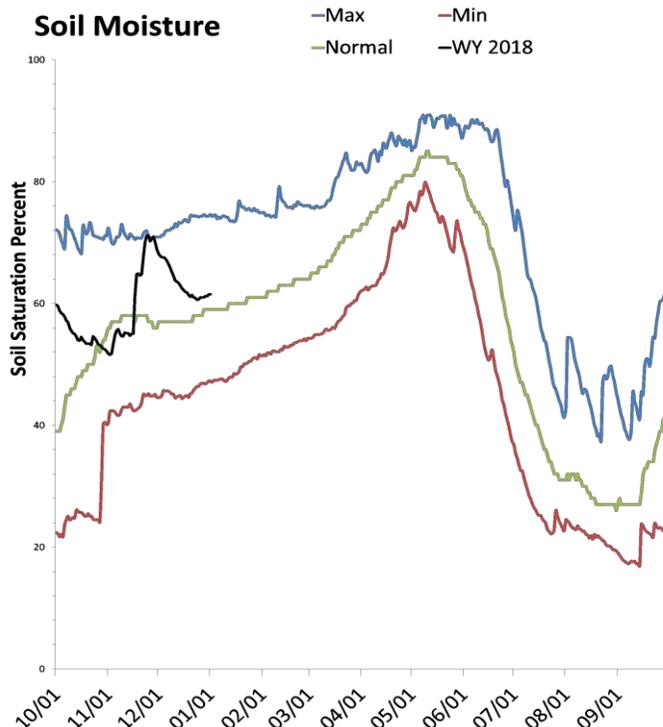
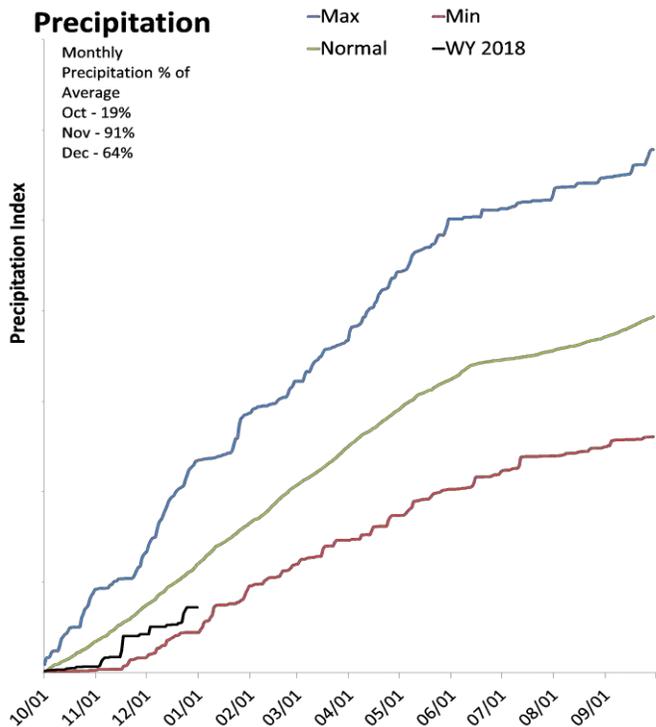
<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.



# Weber & Ogden River Basins

January 1, 2018

Precipitation in December was much below average at 64%, which brings the seasonal accumulation (Oct-Dec) to 60% of average. Soil moisture is at 61% compared to 70% last year. Reservoir storage is at 73% of capacity, compared to 57% last year. The water availability index for the Ogden River is 79% and 93% for the Weber River.



\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

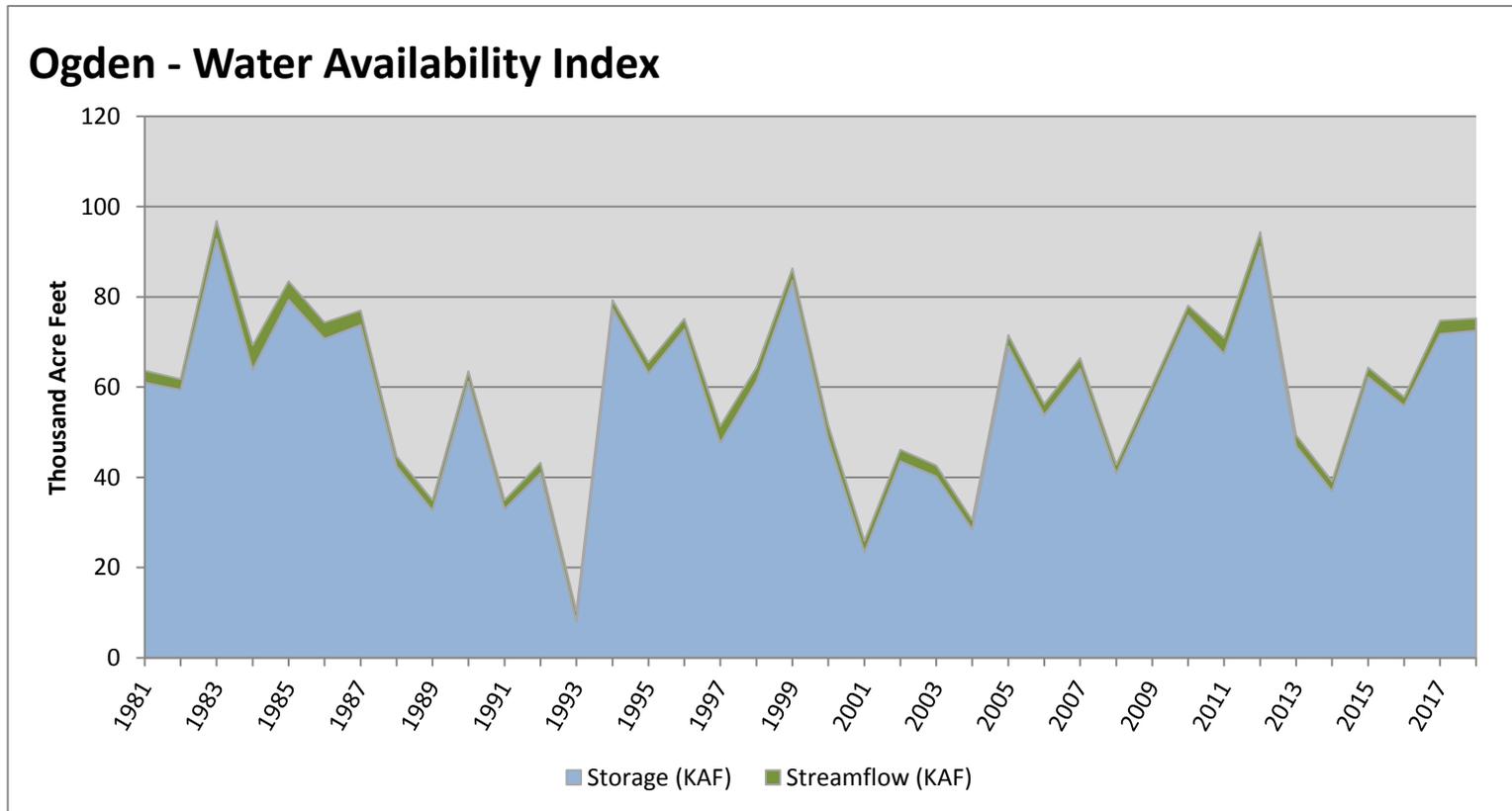
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

January 1, 2018

## Water Availability Index

| Basin or Region | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similar WAI |
|-----------------|------------------------------|------------------|------------------|------------|------------------|------------------------|
|                 | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                        |
| <b>Ogden</b>    | <b>72.54</b>                 | <b>2.72</b>      | <b>75.26</b>     | <b>79</b>  | <b>2.46</b>      | <b>17, 96, 87, 10</b>  |

<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.

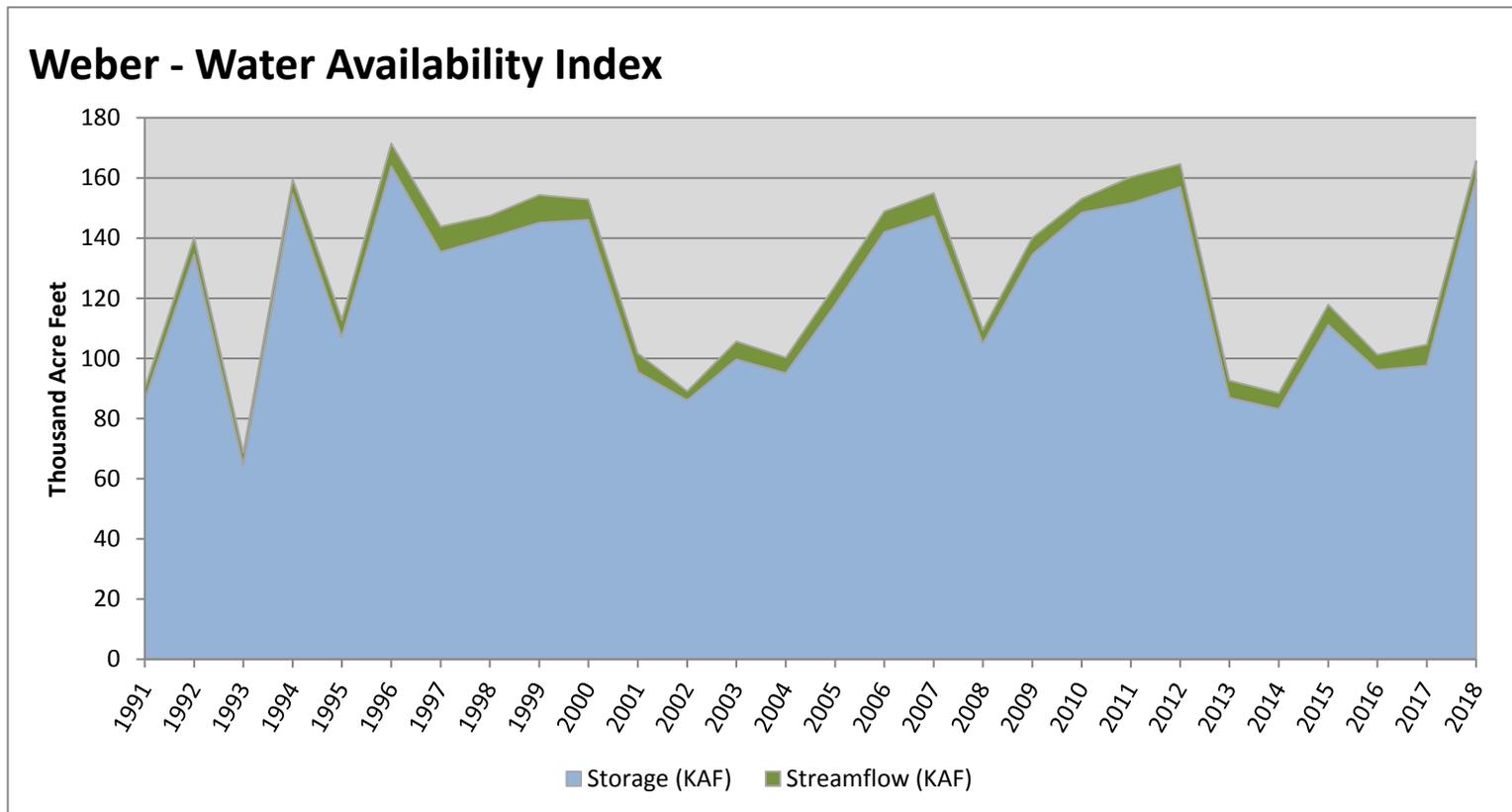


January 1, 2018

## Water Availability Index

| Basin or Region | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|-----------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                 | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>Weber</b>    | <b>159.59</b>                | <b>6.00</b>      | <b>165.59</b>    | <b>93</b>  | <b>3.59</b>      | <b>96, 12, 11, 94</b>   |

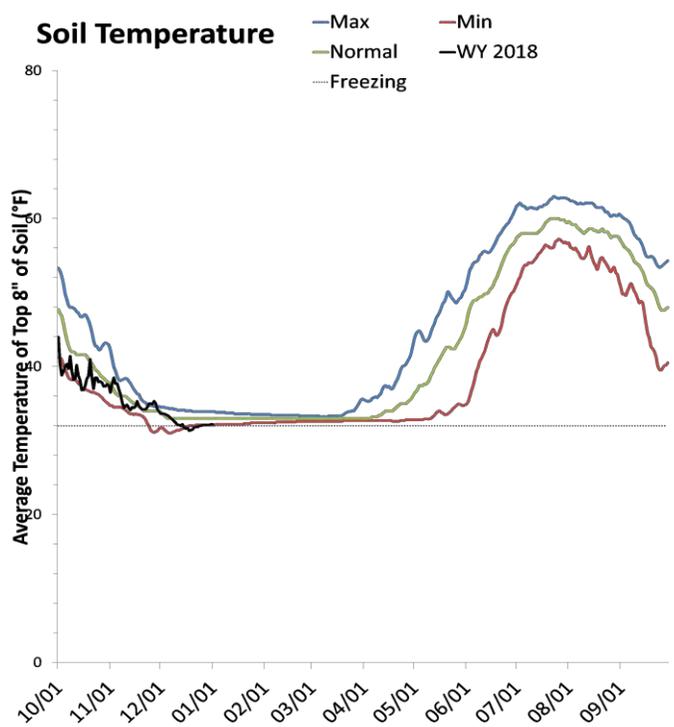
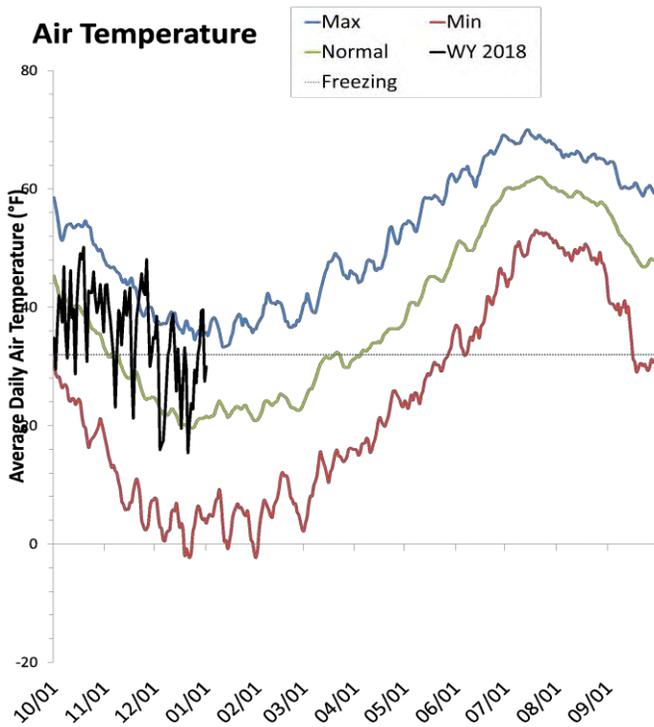
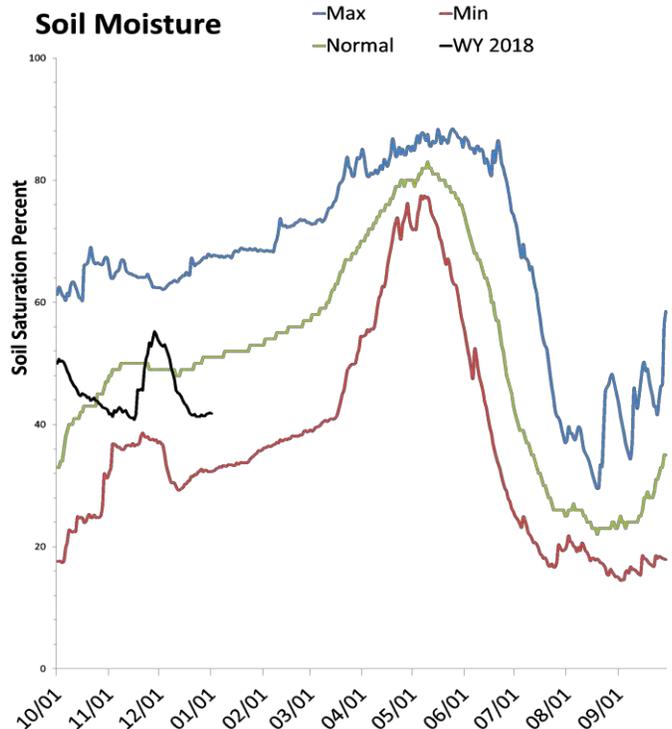
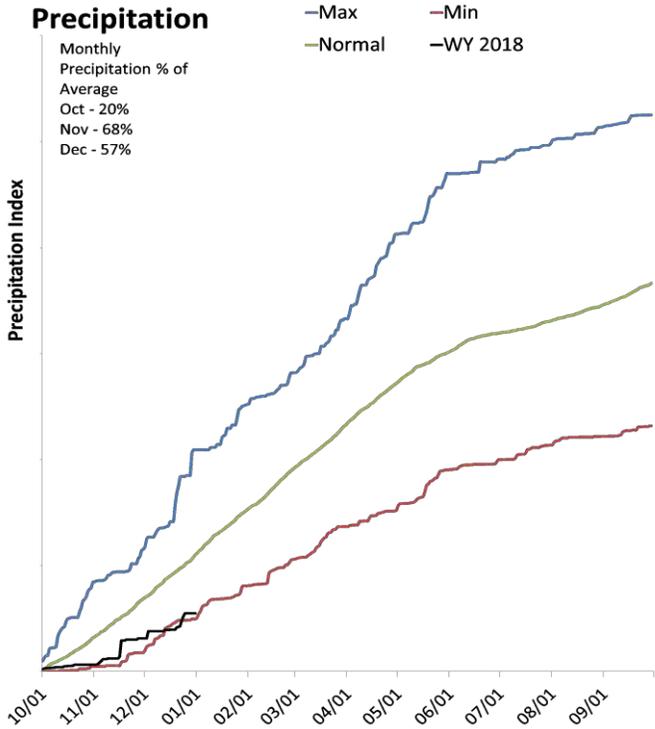
<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.



# Provo & Jordan River Basins

January 1, 2018

Precipitation in December was much below average at 57%, which brings the seasonal accumulation (Oct-Dec) to 50% of average. Soil moisture is at 42% compared to 66% last year. Reservoir storage is at 77% of capacity, compared to 58% last year. The water availability index for the Provo River is 79%.



\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

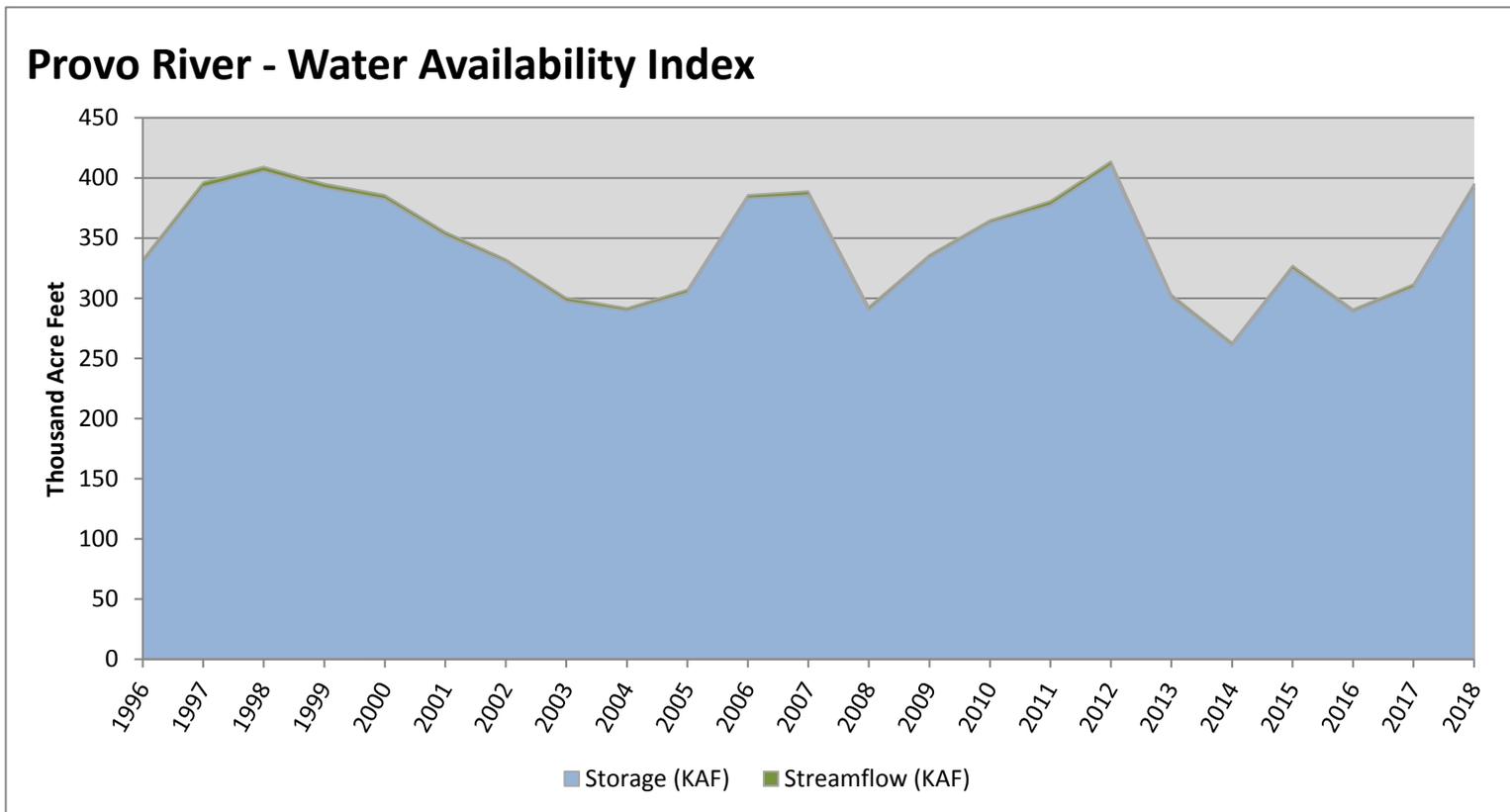
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

January 1, 2018

## Water Availability Index

| Basin or Region    | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|--------------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                    | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>Provo River</b> | <b>391.37</b>                | <b>3.51</b>      | <b>394.88</b>    | <b>79</b>  | <b>2.43</b>      | <b>06, 07, 99, 97</b>   |

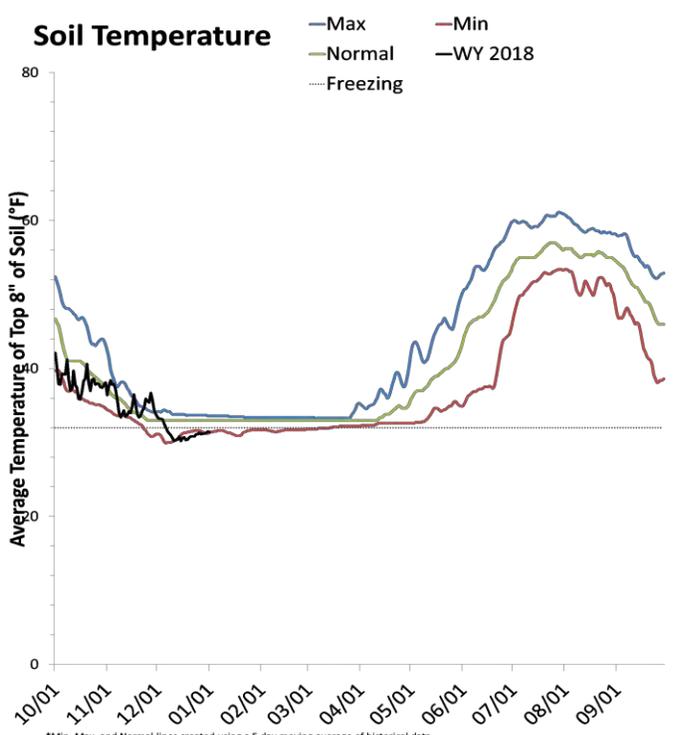
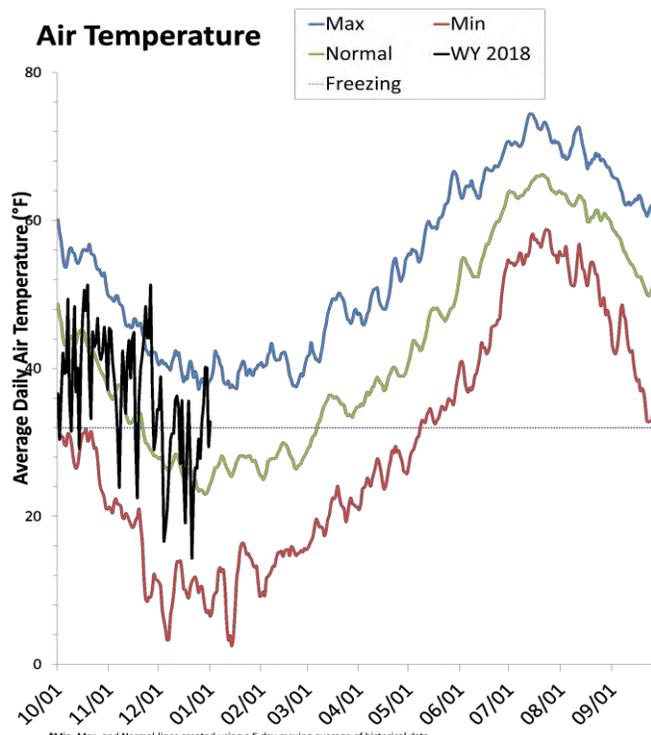
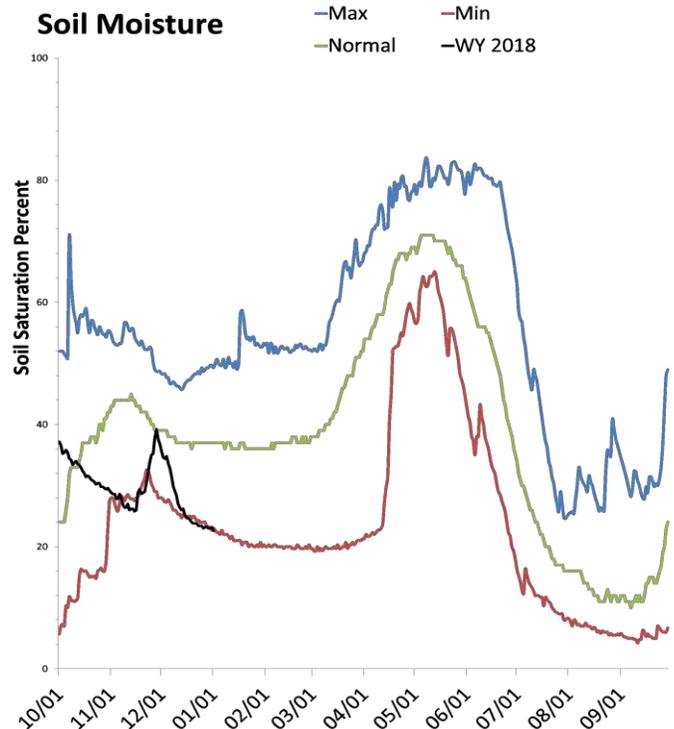
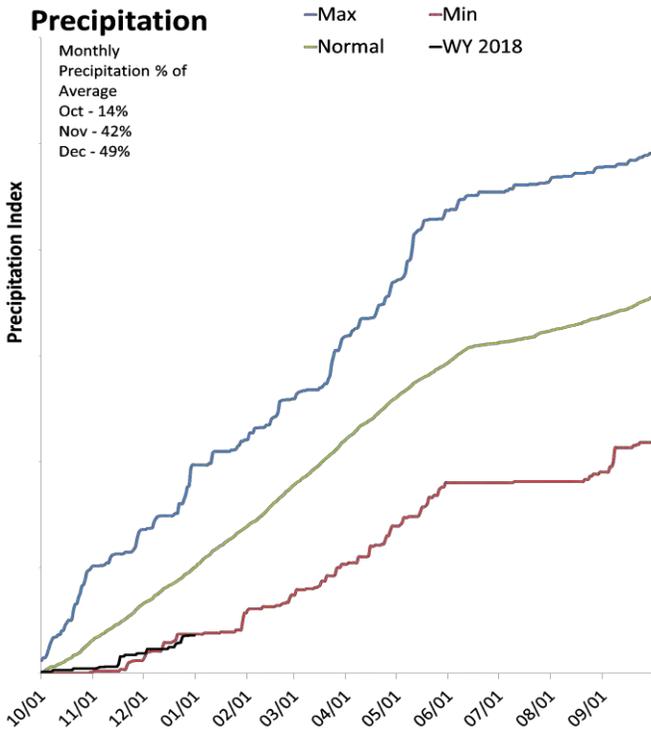
<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.



# Tooele Valley & West Desert Basins

January 1, 2018

Precipitation in December was much below average at 49%, which brings the seasonal accumulation (Oct-Dec) to 36% of average. Soil moisture is at 23% compared to 46% last year. Reservoir storage is at 30% of capacity, compared to 20% last year.



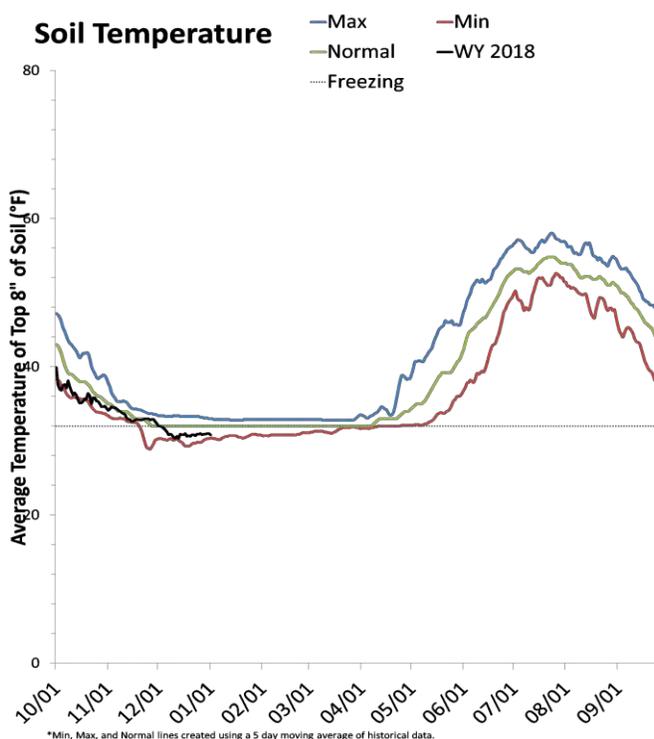
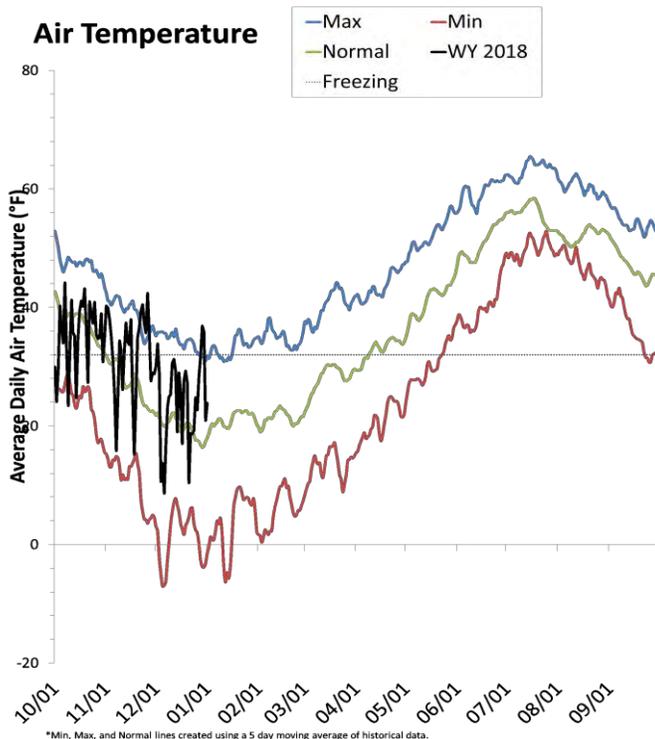
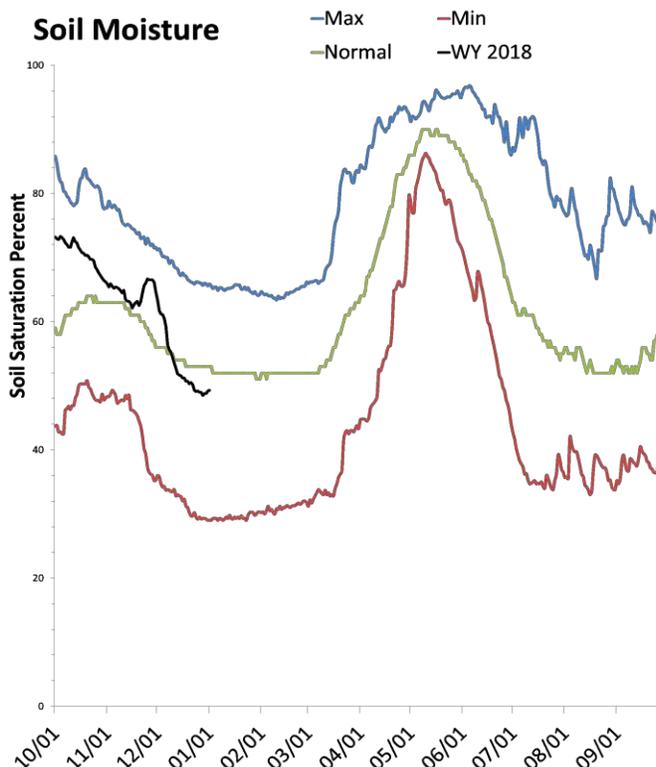
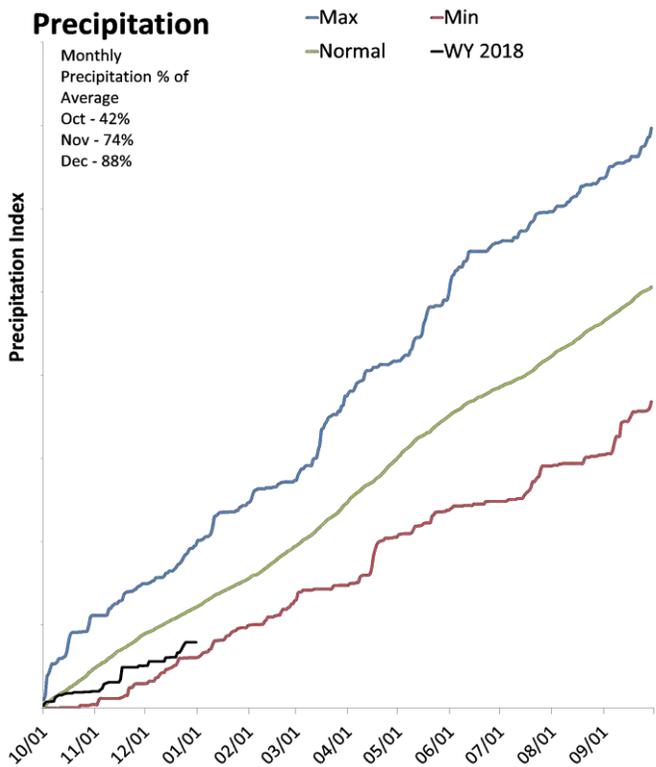
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

# Northeastern Uinta Basin

January 1, 2018

Precipitation in December was below average at 89%, which brings the seasonal accumulation (Oct-Dec) to 65% of average. Soil moisture is at 47% compared to 62% last year. Reservoir storage is at 89% of capacity, compared to 83% last year. The water availability index for Blacks Fork is 56% and 60% for Smiths Creek.



\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

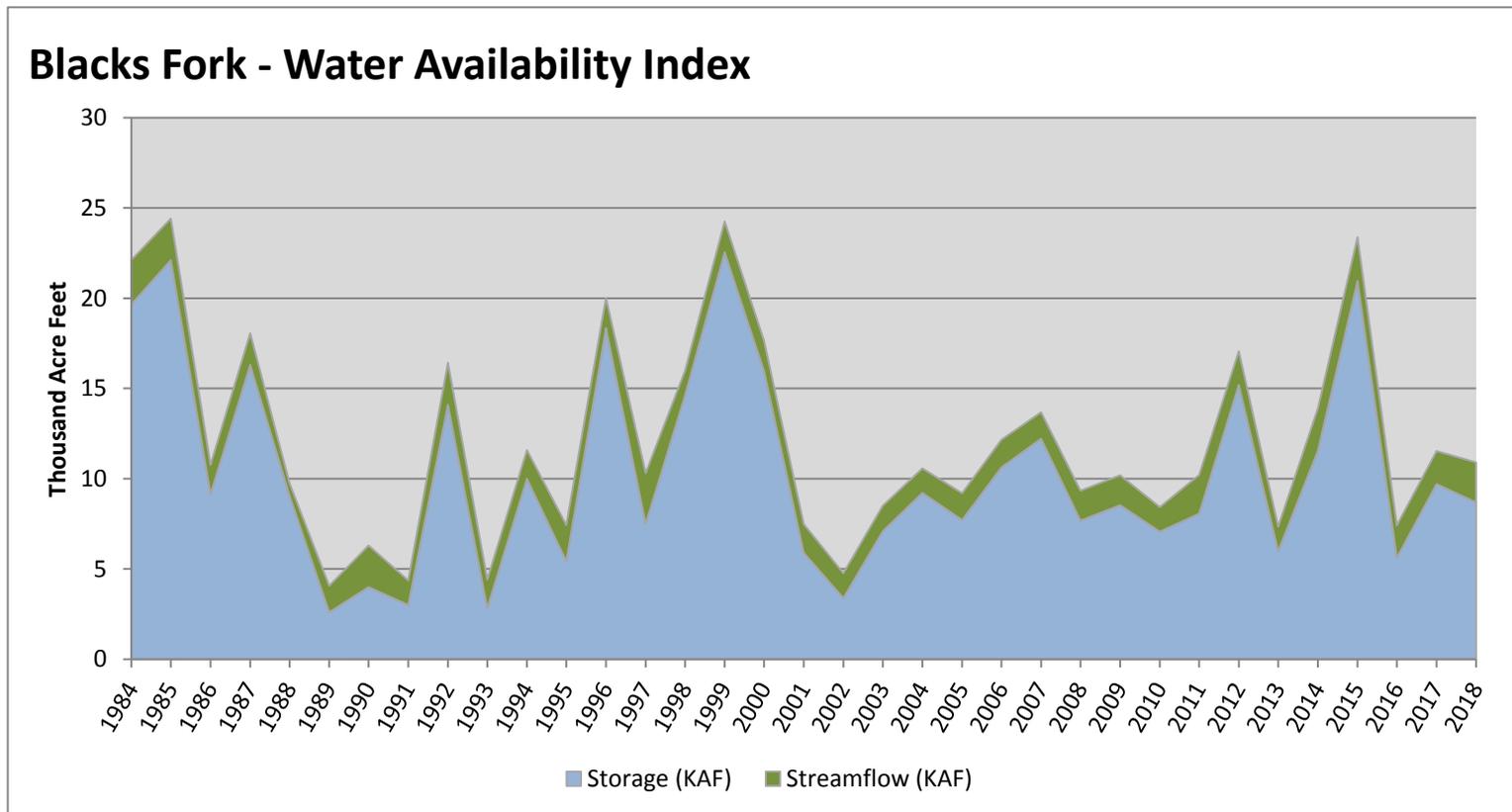
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

January 1, 2018

## Water Availability Index

| Basin or Region    | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|--------------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                    | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>Blacks Fork</b> | <b>8.69</b>                  | <b>2.22</b>      | <b>10.91</b>     | <b>56</b>  | <b>0.46</b>      | <b>04, 86, 17, 94</b>   |

<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.

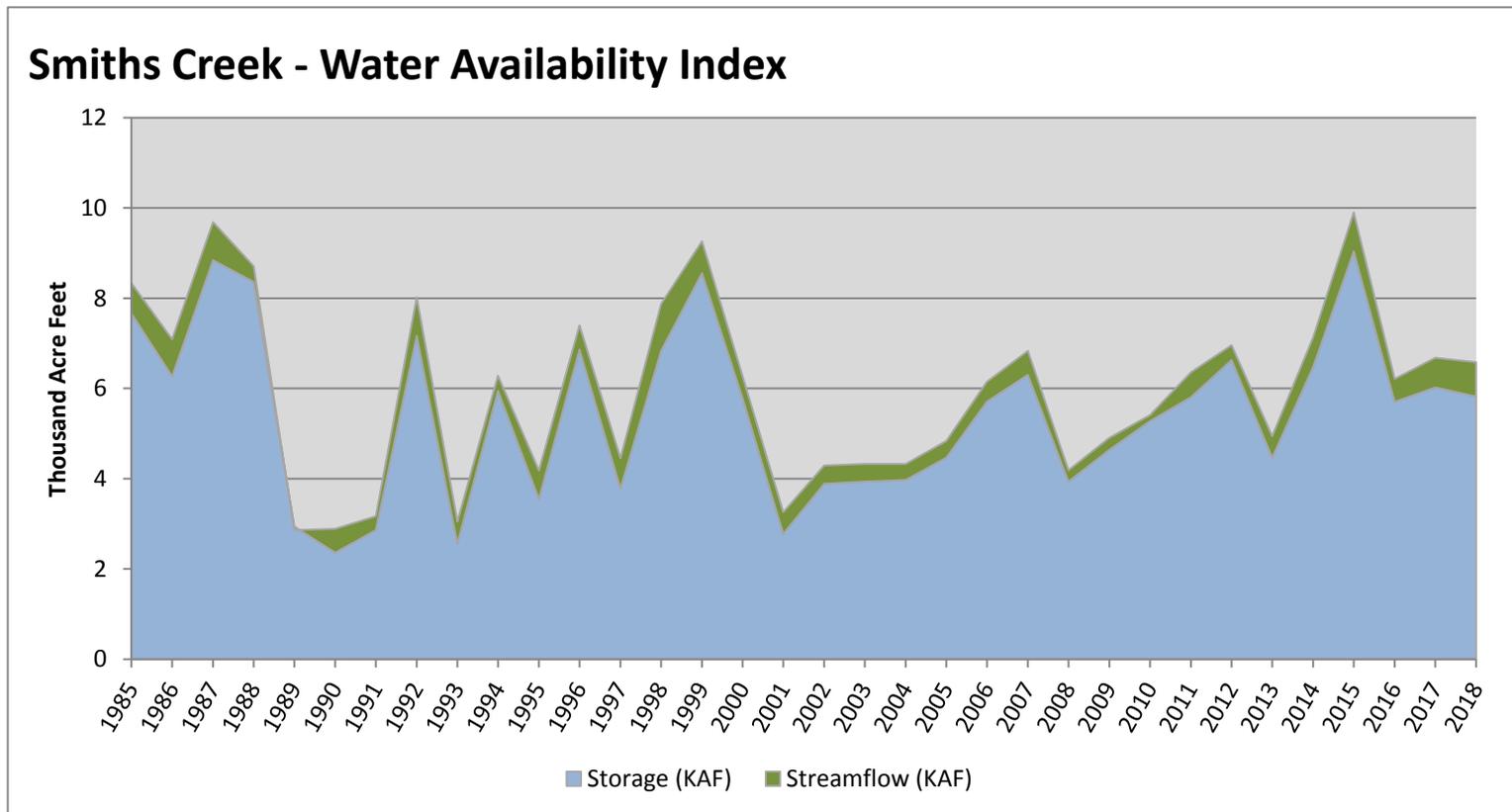


January 1, 2018

## Water Availability Index

| Basin or Region     | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|---------------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                     | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>Smiths Creek</b> | <b>5.82</b>                  | <b>0.76</b>      | <b>6.58</b>      | <b>60</b>  | <b>0.83</b>      | <b>94, 11, 17, 07</b>   |

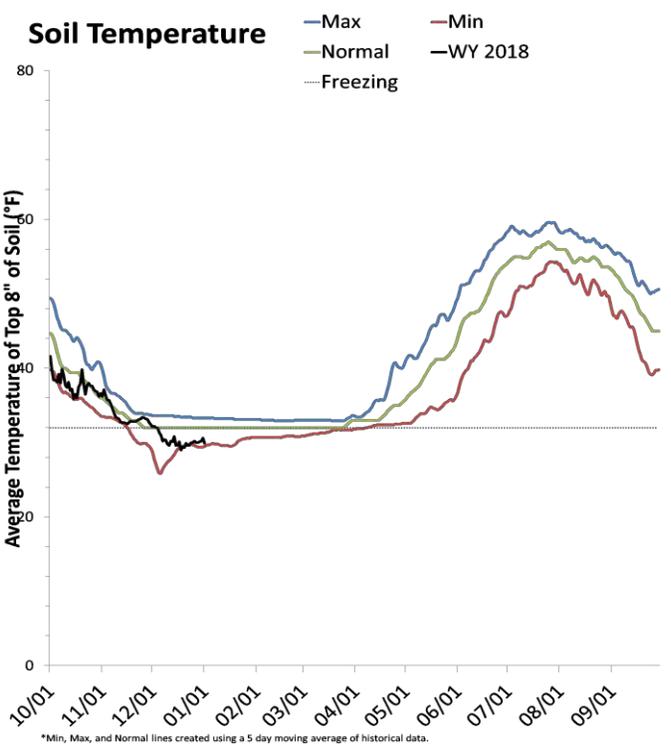
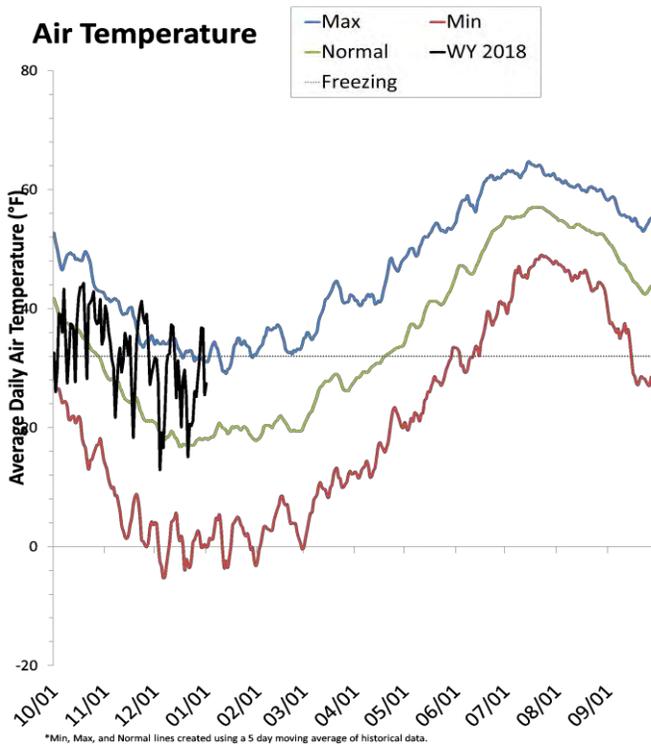
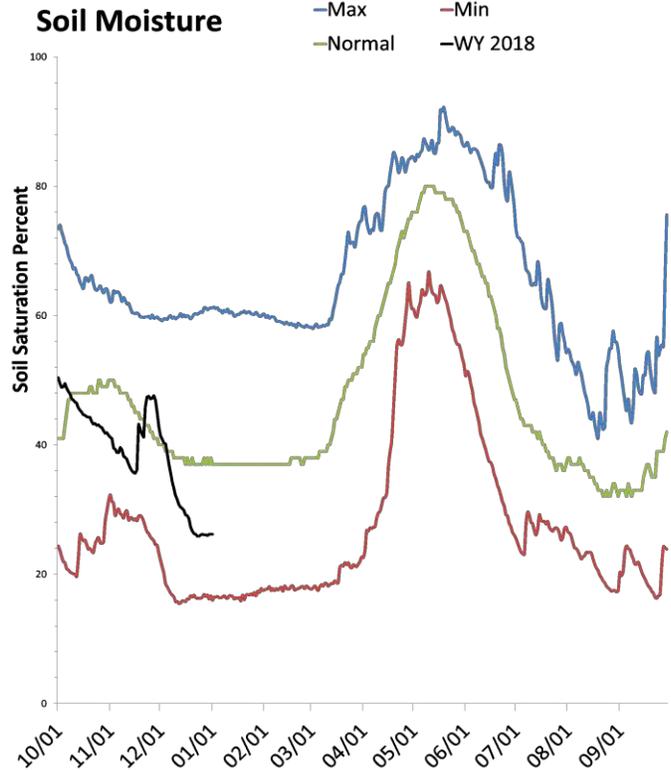
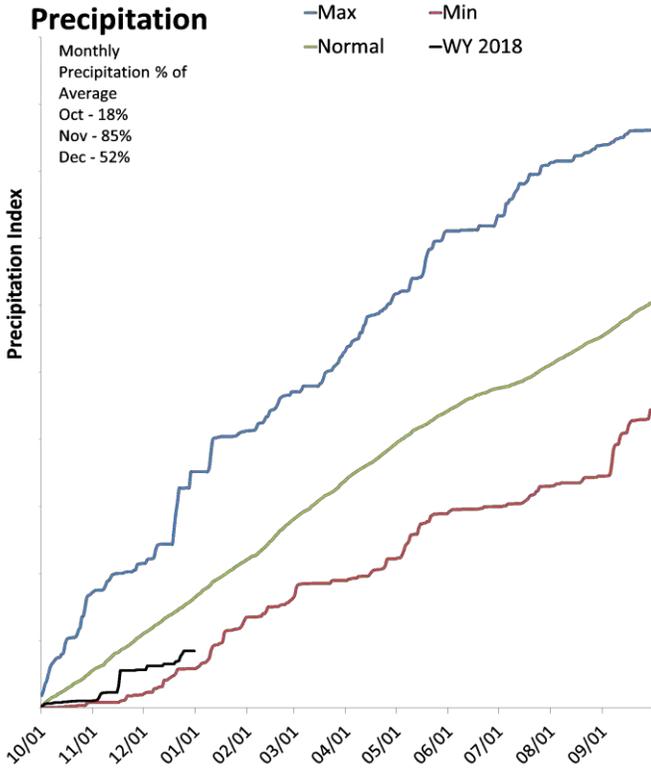
<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.



# Duchesne River Basin

January 1, 2018

Precipitation in December was much below average at 52%, which brings the seasonal accumulation (Oct-Dec) to 52% of average. Soil moisture is at 26% compared to 52% last year. Reservoir storage is at 82% of capacity, compared to 71% last year. The water availability index for the Western Uintas is 88% and 41% for the Eastern Uintas.



\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

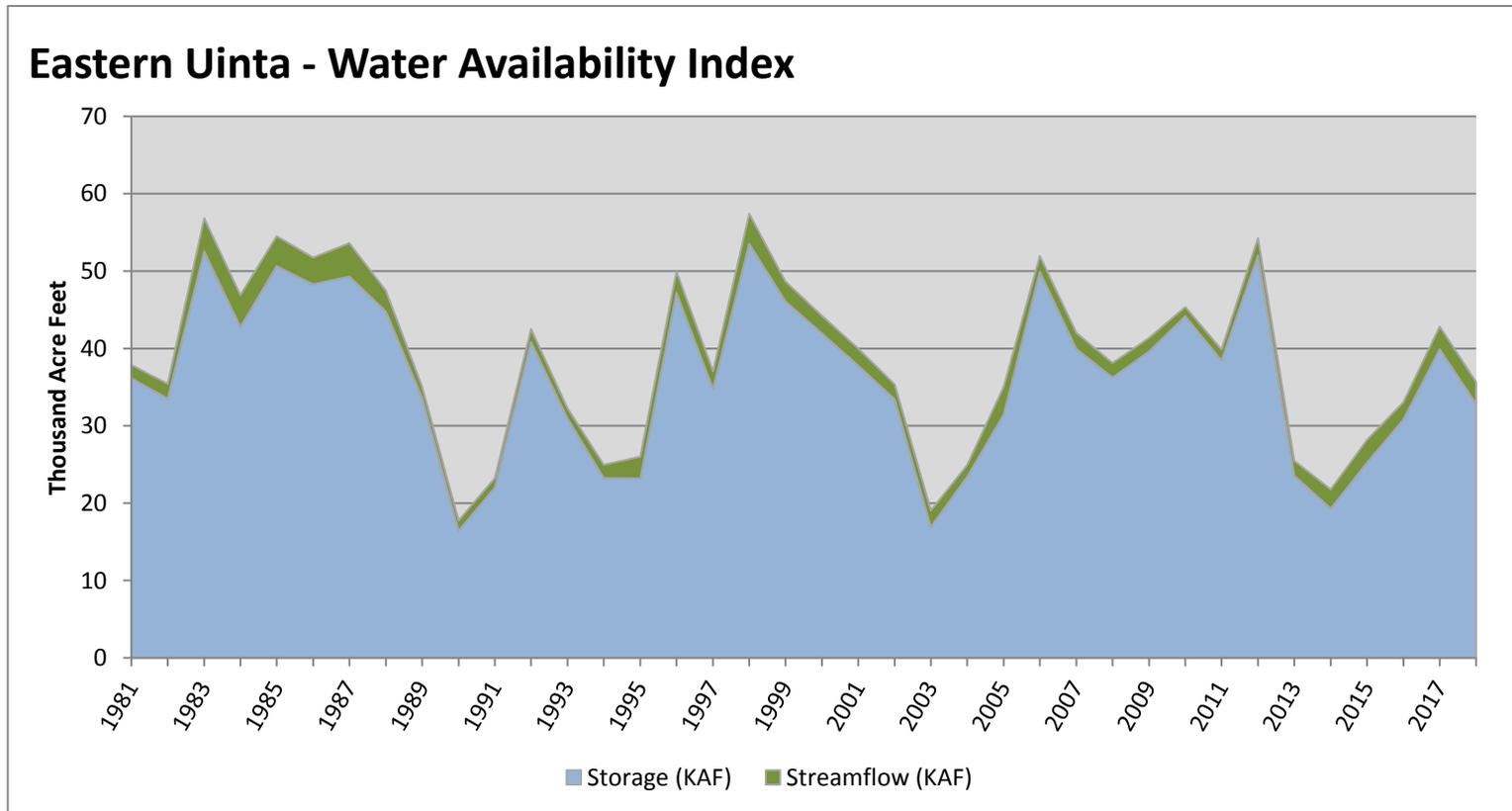
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

January 1, 2018

## Water Availability Index

| Basin or Region      | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|----------------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                      | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>Eastern Uinta</b> | <b>32.87</b>                 | <b>2.81</b>      | <b>35.68</b>     | <b>41</b>  | <b>-0.75</b>     | <b>02, 82, 97, 81</b>   |

<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.

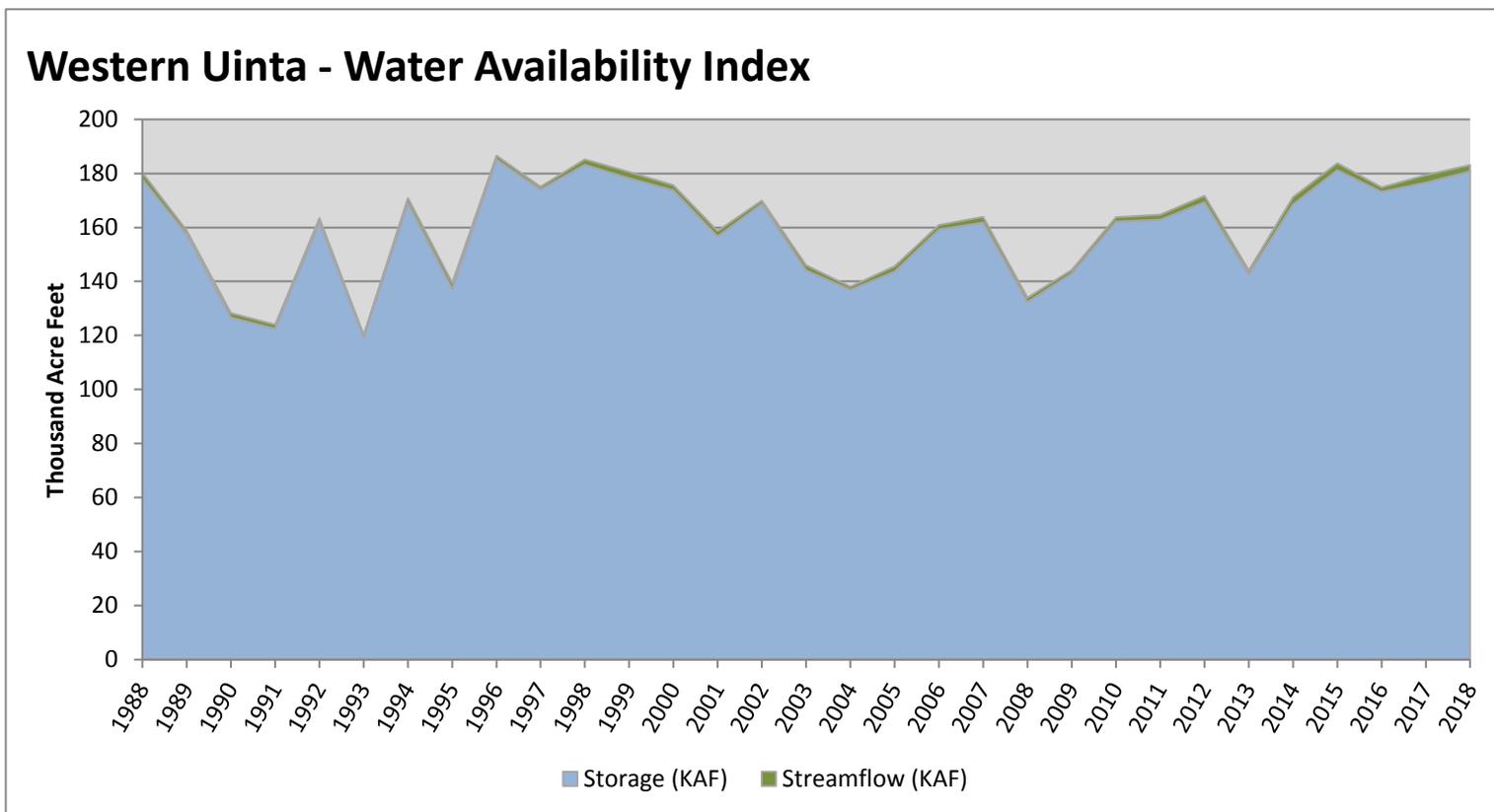


January 1, 2018

## Water Availability Index

| Basin or Region      | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|----------------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                      | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>Western Uinta</b> | <b>180.81</b>                | <b>2.26</b>      | <b>183.07</b>    | <b>88</b>  | <b>3.13</b>      | <b>88, 99, 15, 98</b>   |

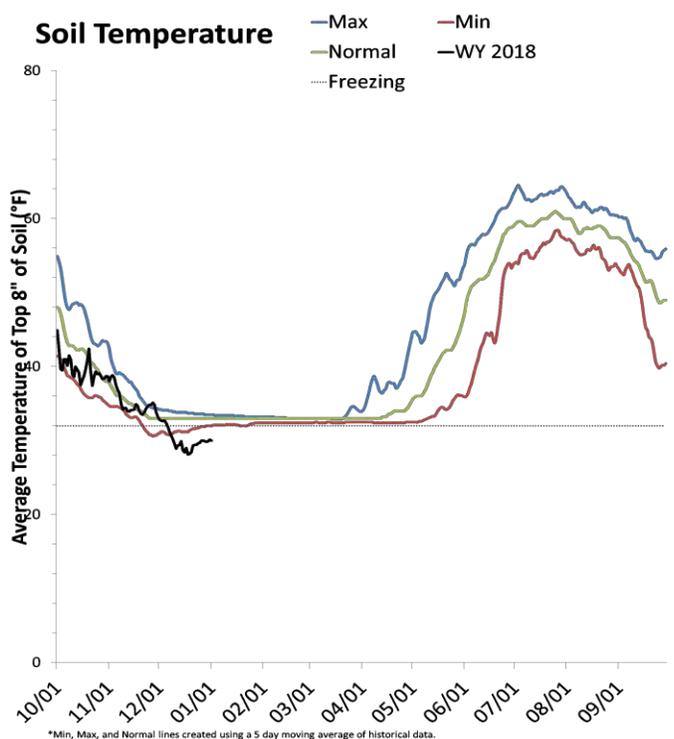
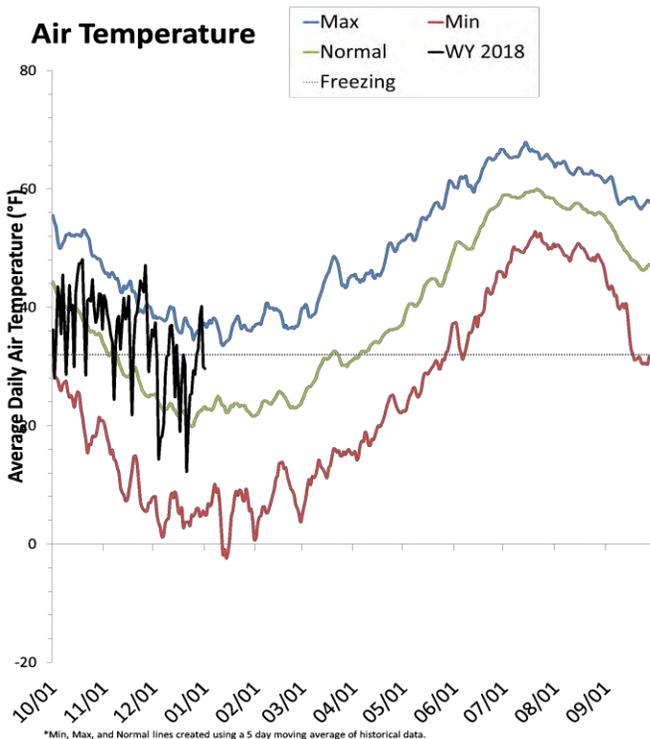
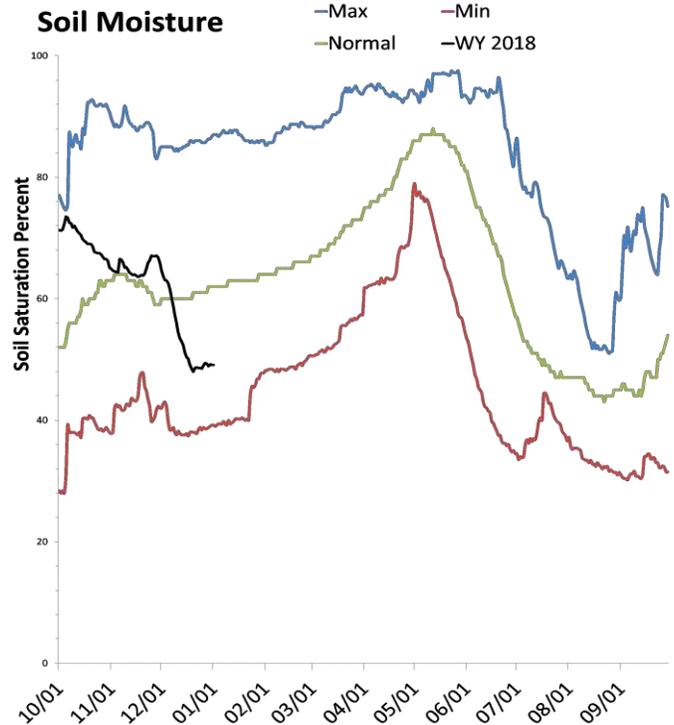
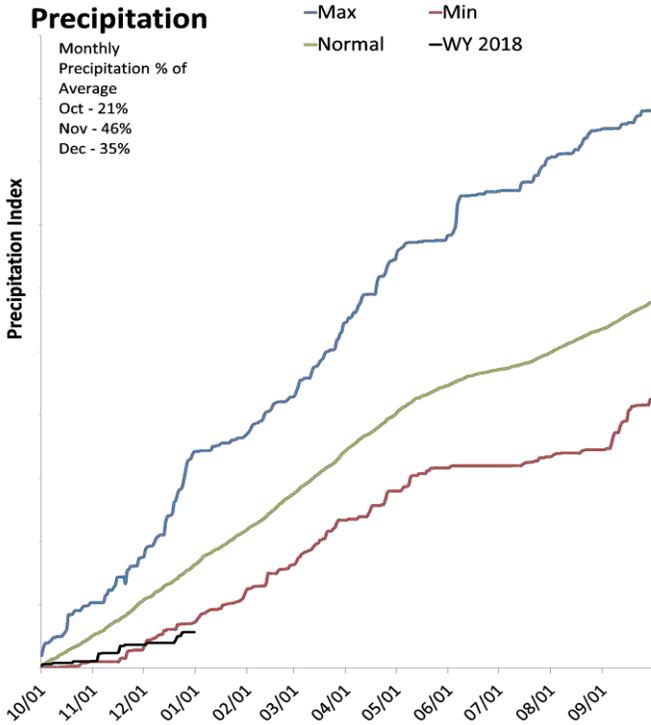
<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.



# San Pitch River Basin

January 1, 2018

Precipitation in December was much below average at 35%, which brings the seasonal accumulation (Oct-Dec) to 34% of average. Soil Moisture is at 49% compared to 78% last year. Reservoir storage is at 0% of capacity, compared to 1% last year. The water availability index for the San Pitch is 10%.



\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

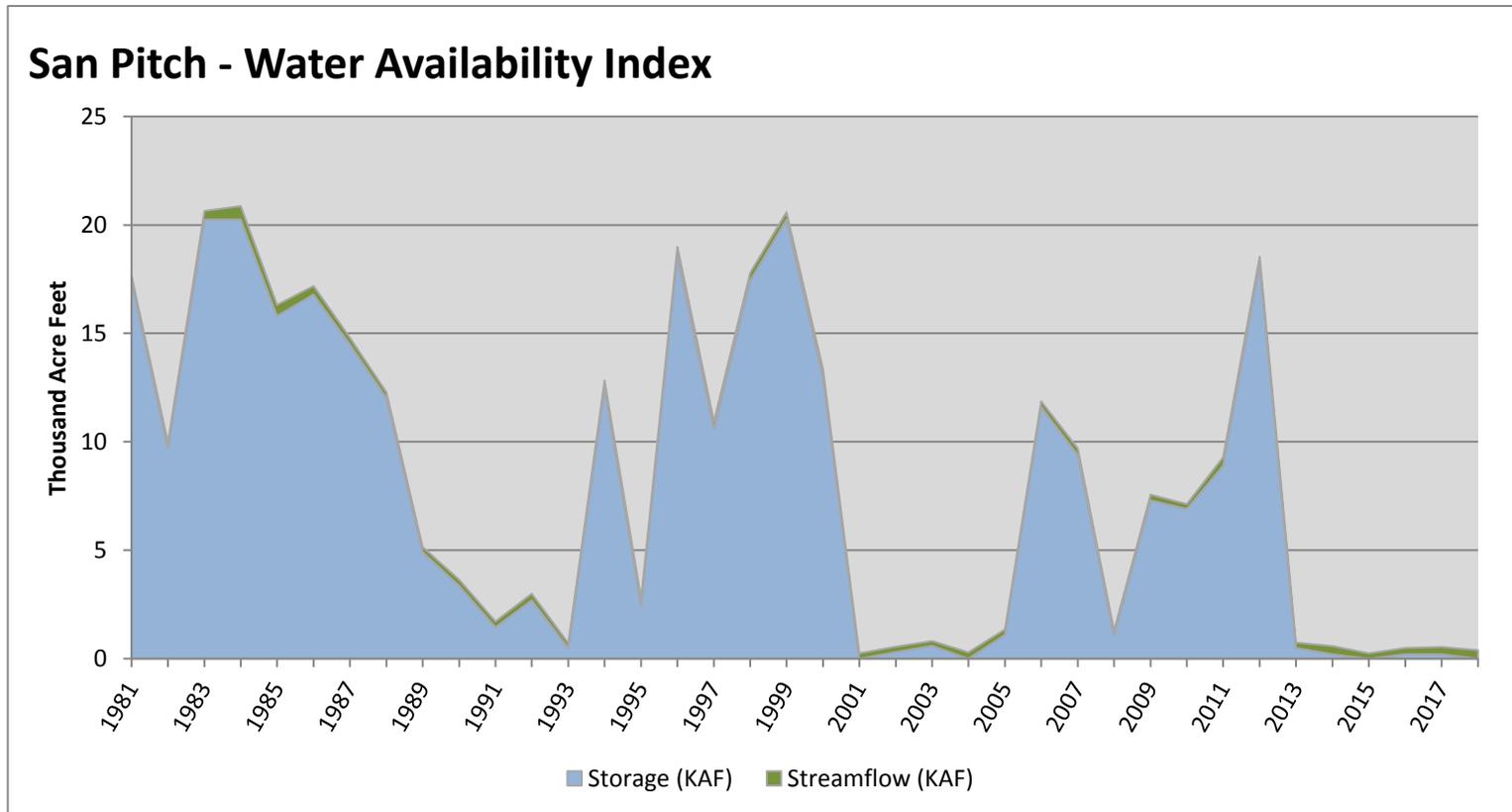
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

January 1, 2018

## Water Availability Index

| Basin or Region  | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|------------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                  | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>San Pitch</b> | <b>0.00</b>                  | <b>0.39</b>      | <b>0.39</b>      | <b>10</b>  | <b>-3.31</b>     | <b>15, 04, 16, 17</b>   |

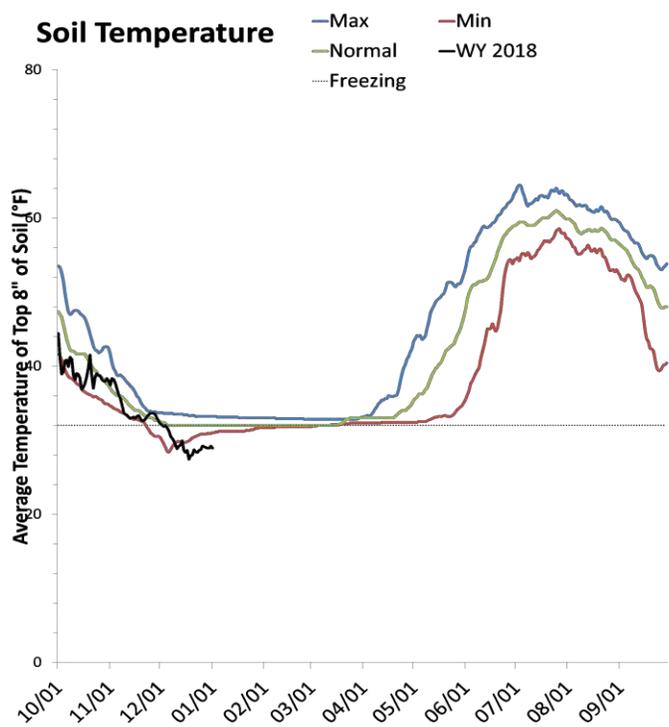
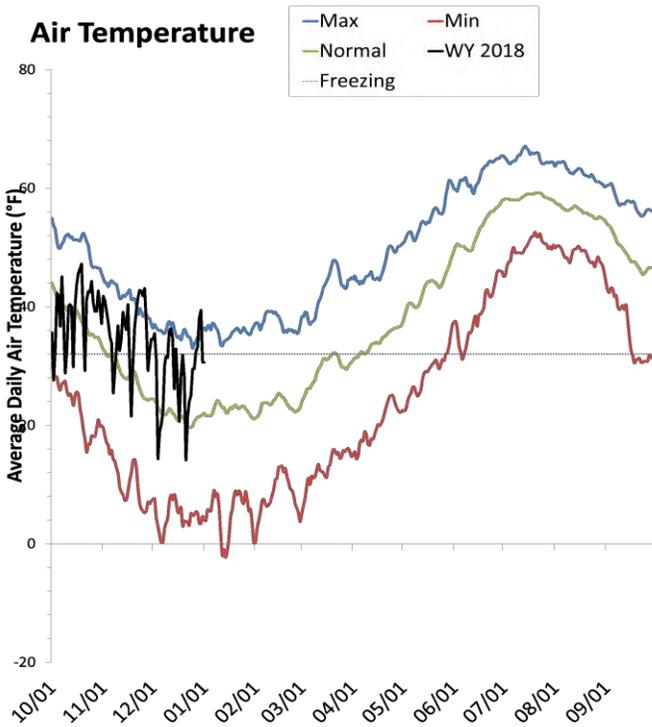
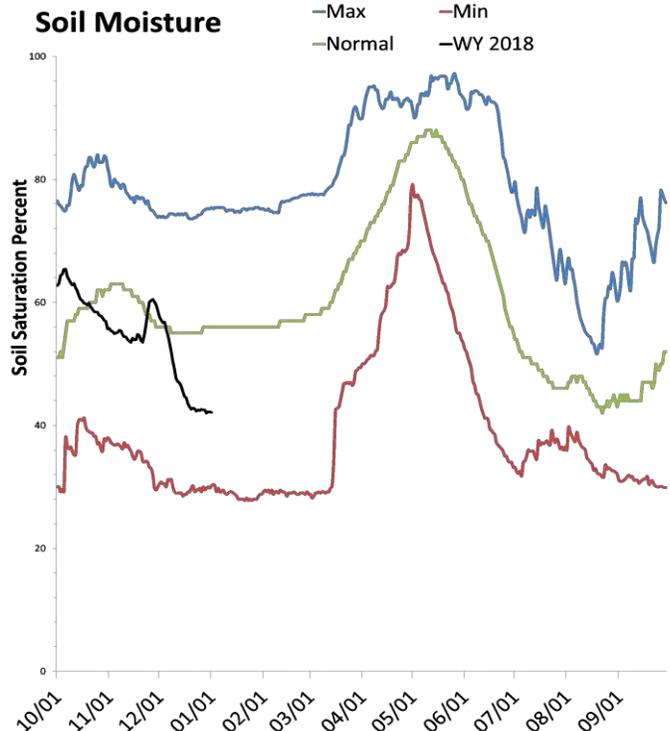
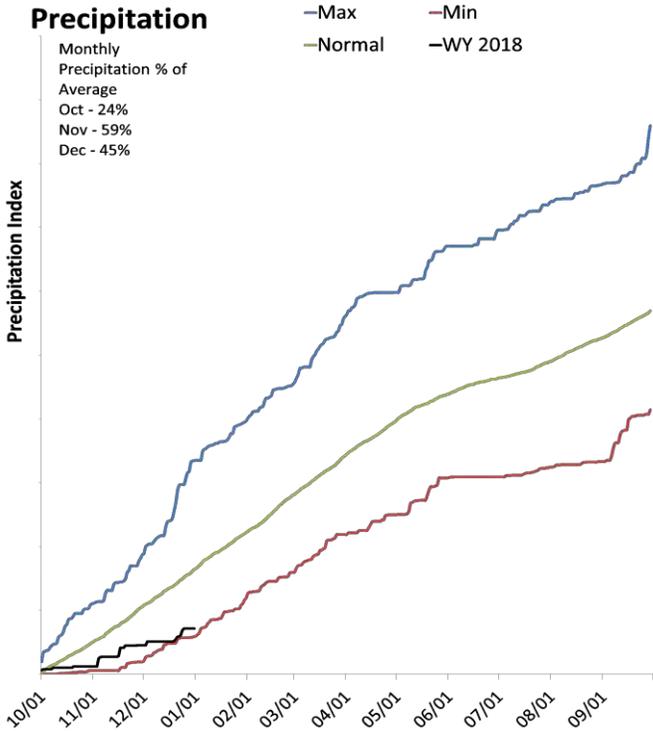
<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.



# Price & San Rafael Basins

January 1, 2018

Precipitation in December was much below average at 45%, which brings the seasonal accumulation (Oct-Dec) to 44% of average. Soil moisture is at 42% compared to 72% last year. Reservoir storage is at 67% of capacity, compared to 37% last year. The water availability index for the Price River is 87%, and 74% for Joe's Valley.



\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

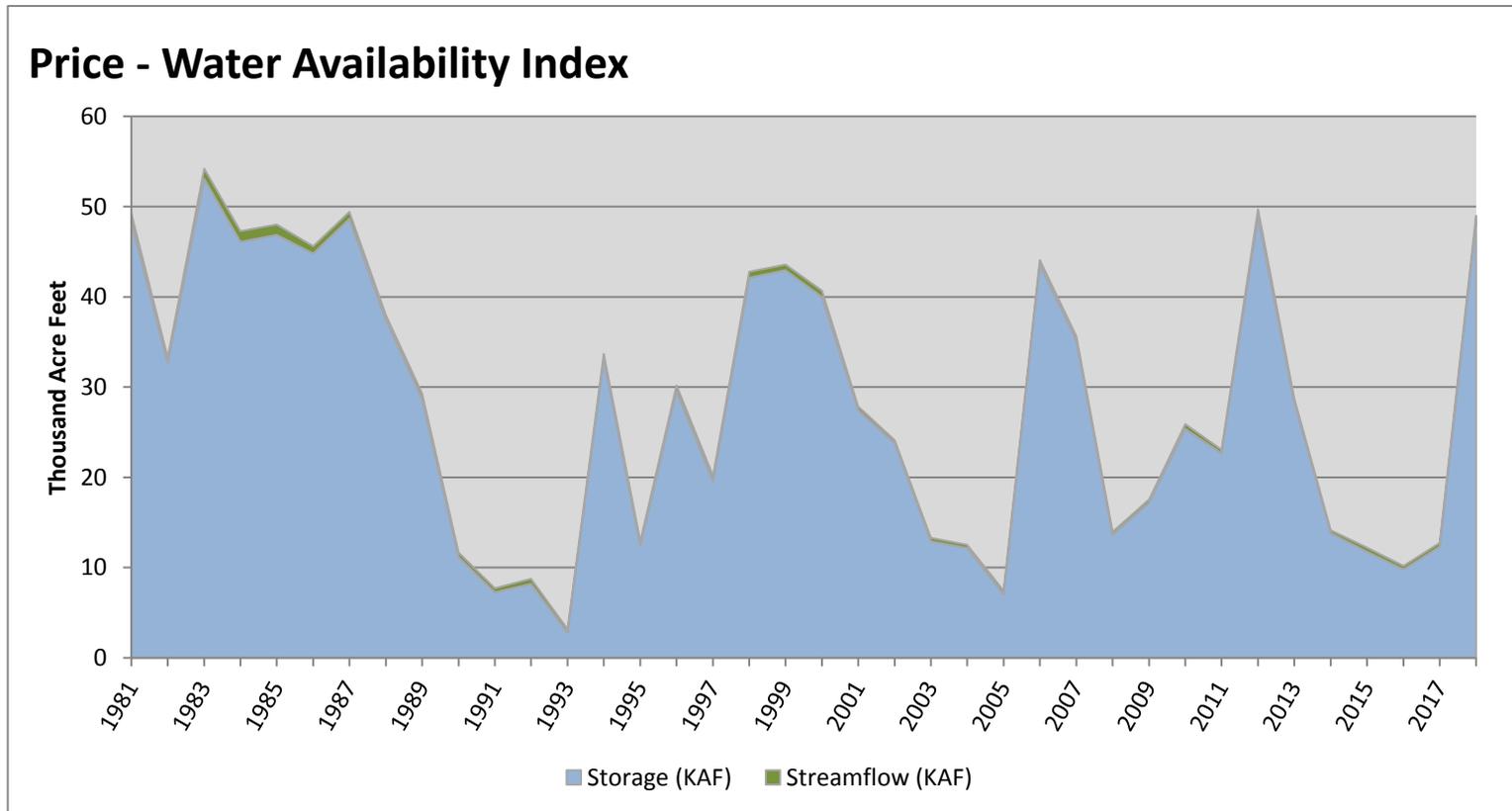
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

January 1, 2018

## Water Availability Index

| Basin or Region | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|-----------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                 | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>Price</b>    | <b>48.44</b>                 | <b>0.55</b>      | <b>48.99</b>     | <b>87</b>  | <b>3.1</b>       | <b>84, 85, 81, 87</b>   |

<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.

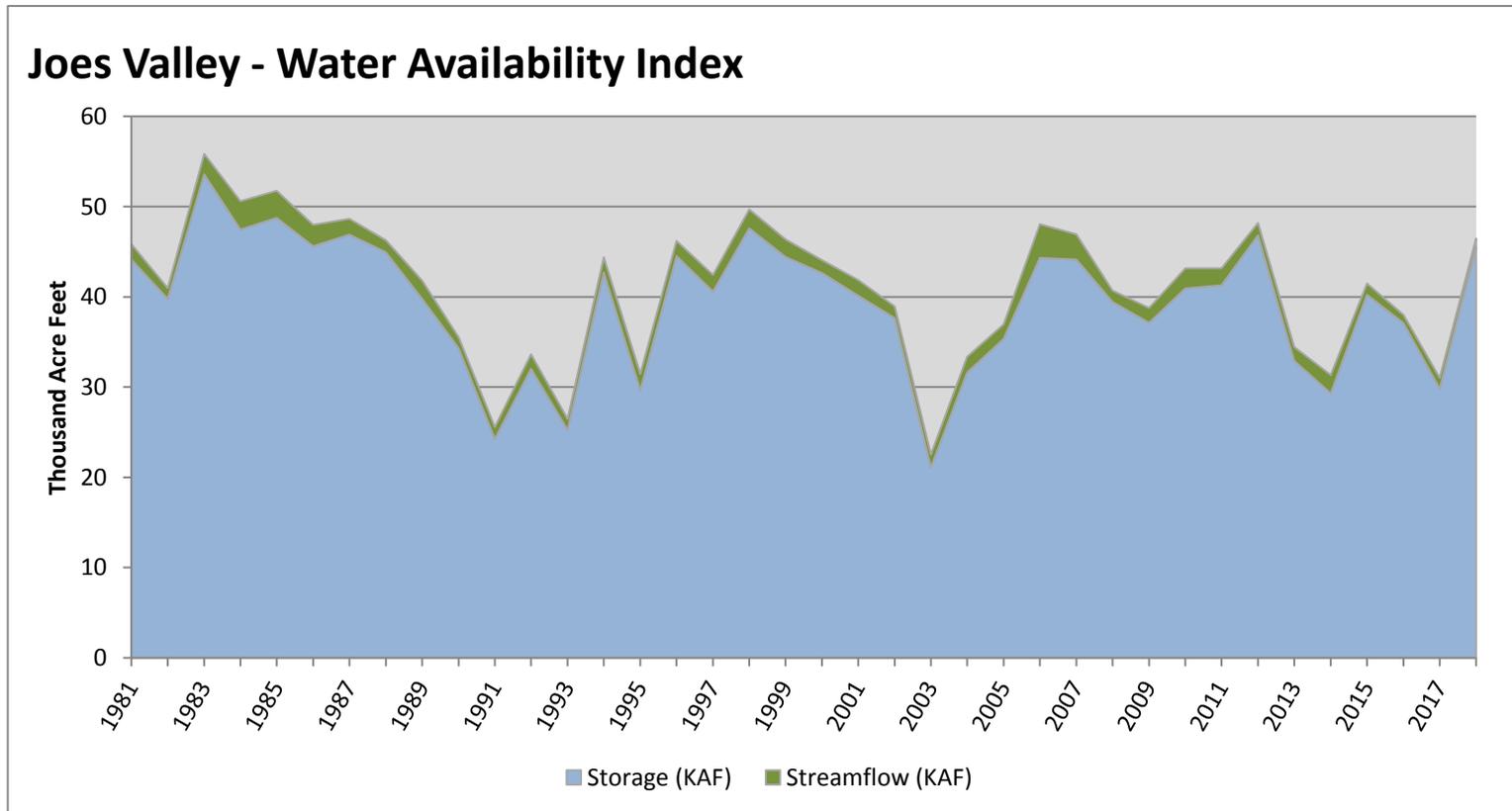


January 1, 2018

## Water Availability Index

| Basin or Region     | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|---------------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                     | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>Joese Valley</b> | <b>45.54</b>                 | <b>0.95</b>      | <b>46.49</b>     | <b>74</b>  | <b>2.03</b>      | <b>88, 99, 07, 86</b>   |

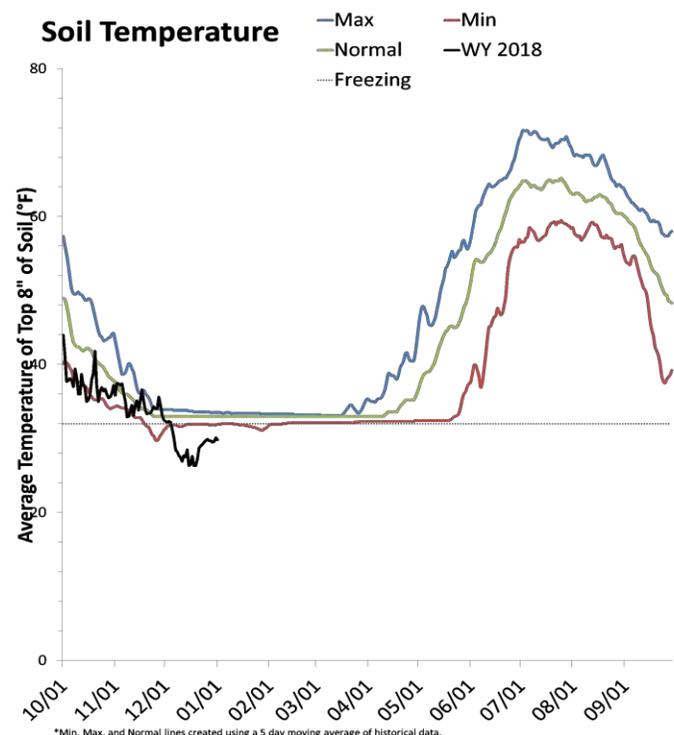
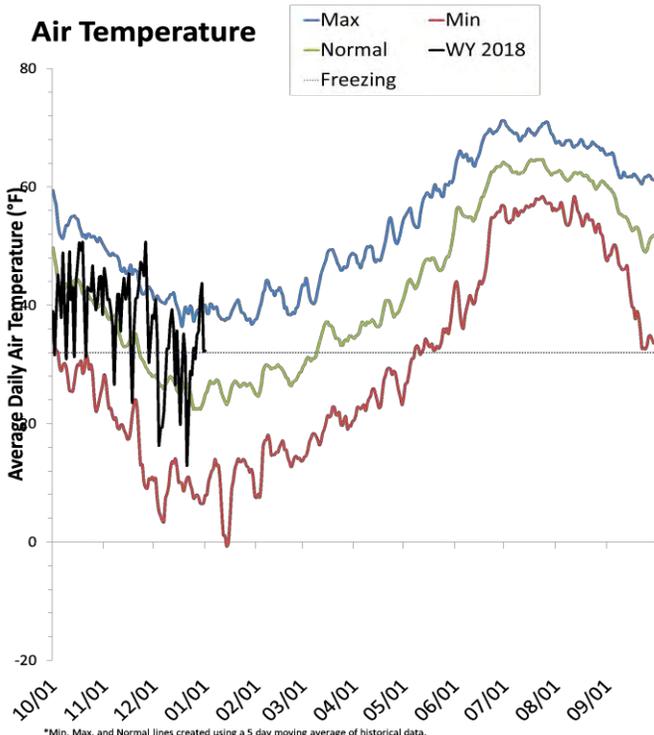
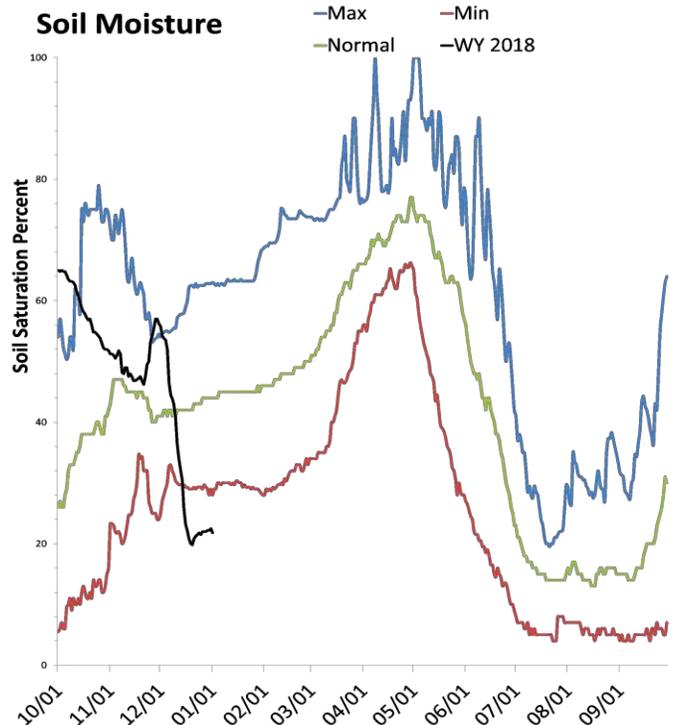
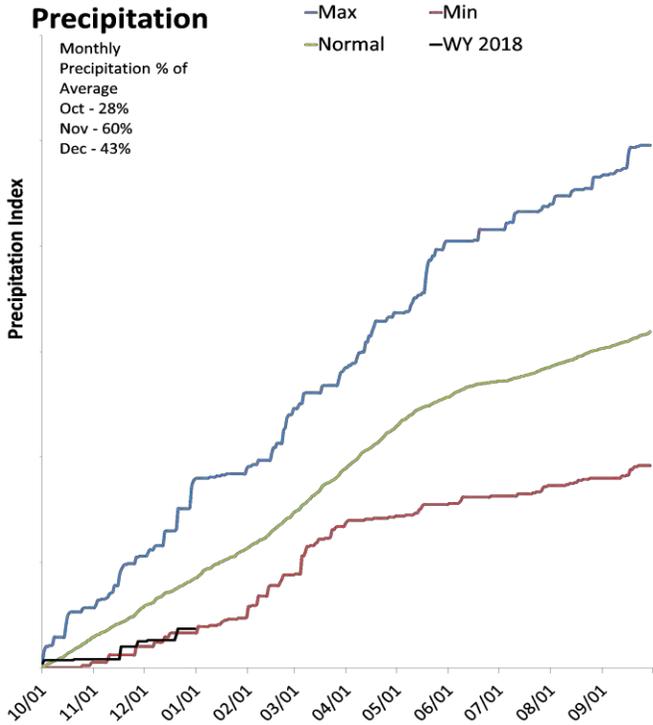
<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.



# Lower Sevier Basin

January 1, 2018

Precipitation in December was much below average at 43%, which brings the seasonal accumulation (Oct-Dec) to 44% of average. Soil moisture is at 22% compared to 60% last year. Reservoir storage is at 22% of capacity, compared to 4% last year. The water availability index for the Lower Sevier is 10%.



\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

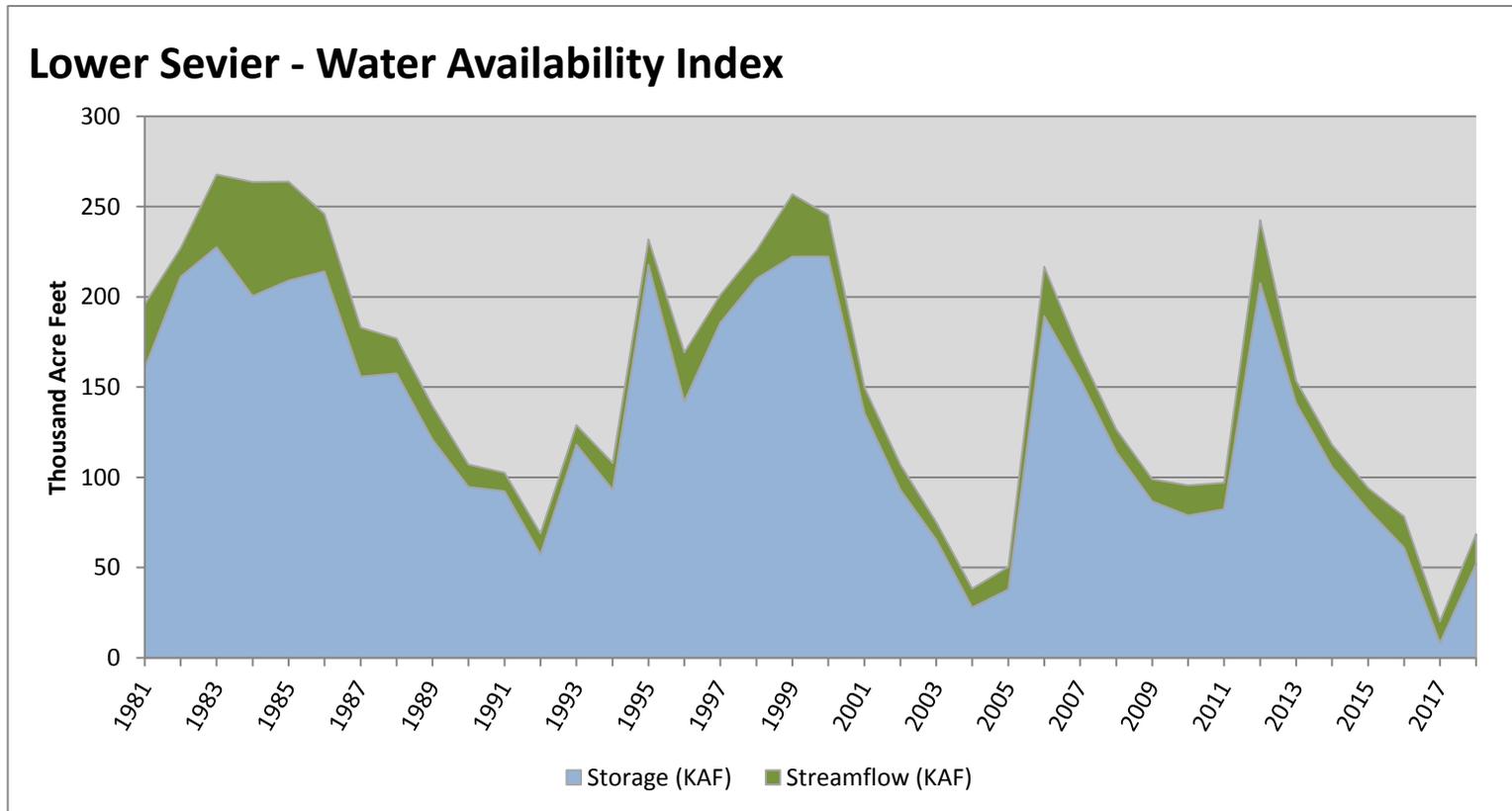
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

January 1, 2018

## Water Availability Index

| Basin or Region     | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|---------------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                     | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>Lower Sevier</b> | <b>51.93</b>                 | <b>16.58</b>     | <b>68.51</b>     | <b>10</b>  | <b>-3.31</b>     | <b>04, 05, 92, 03</b>   |

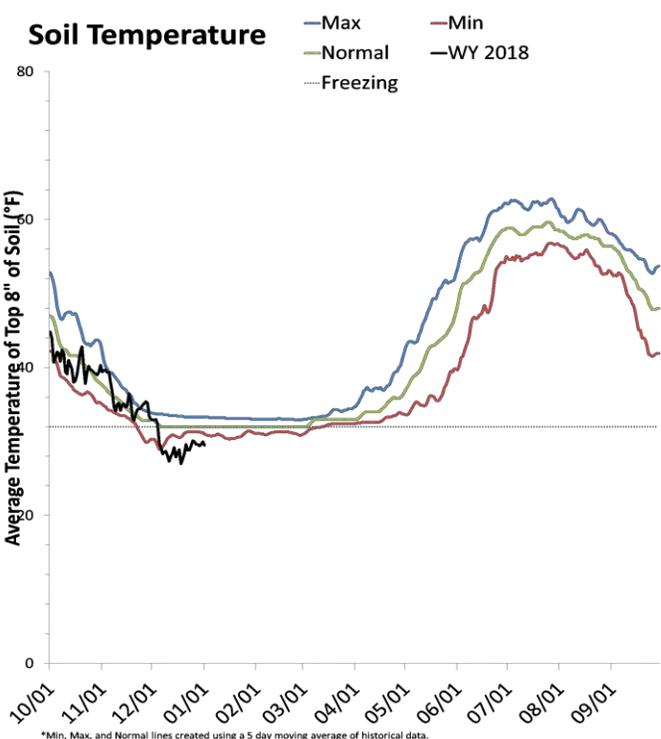
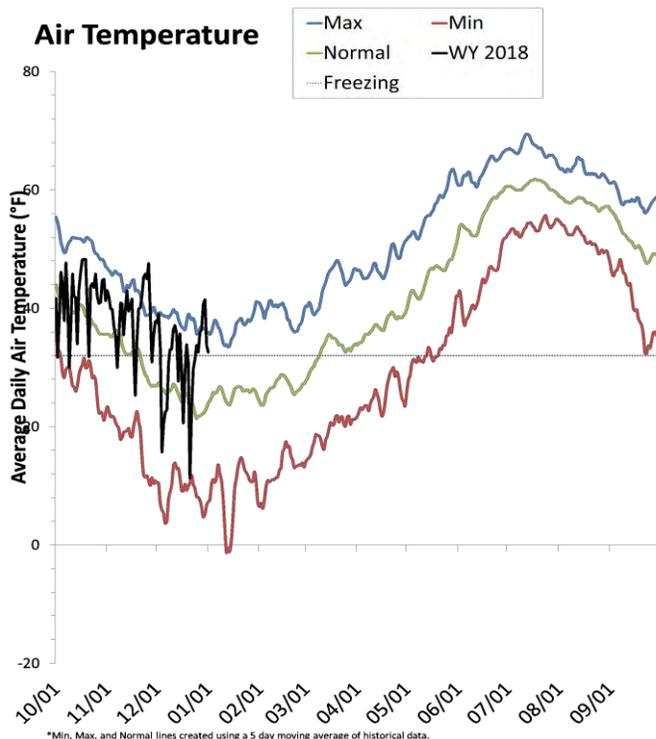
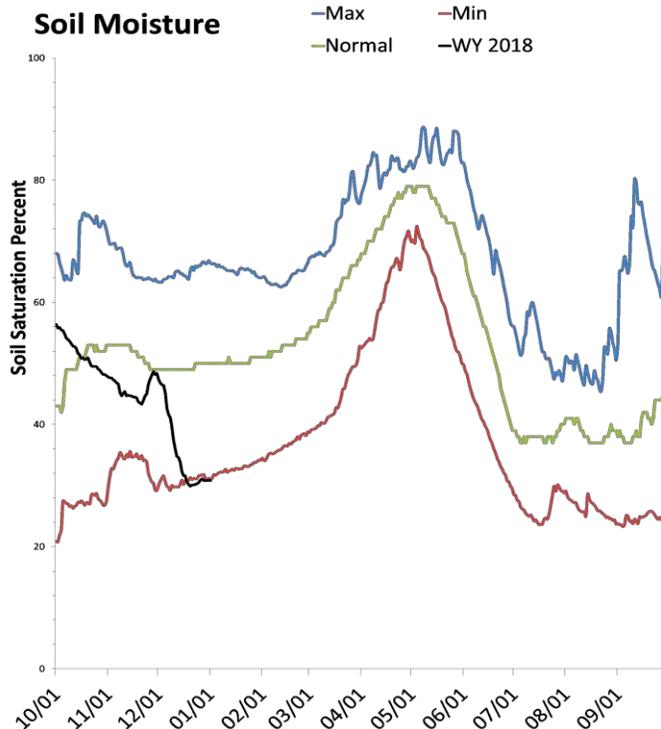
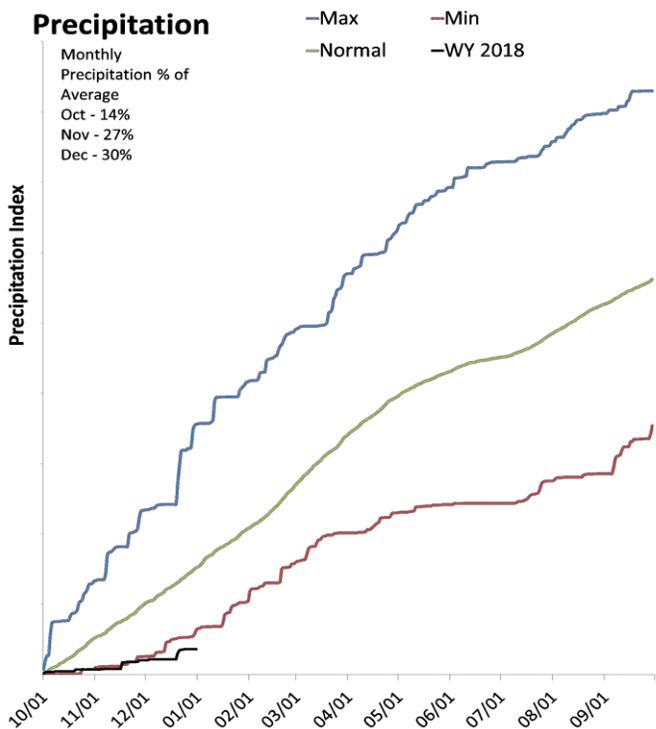
<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.



# Upper Sevier Basin

January 1, 2018

Precipitation in December was much below average at 30%, which brings the seasonal accumulation (Oct-Dec) to 24% of average. Soil moisture is at 31% compared to 55% last year. Reservoir storage is at 45% of capacity, compared to 39% last year. The water availability index for the Upper Sevier is 33%.



\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

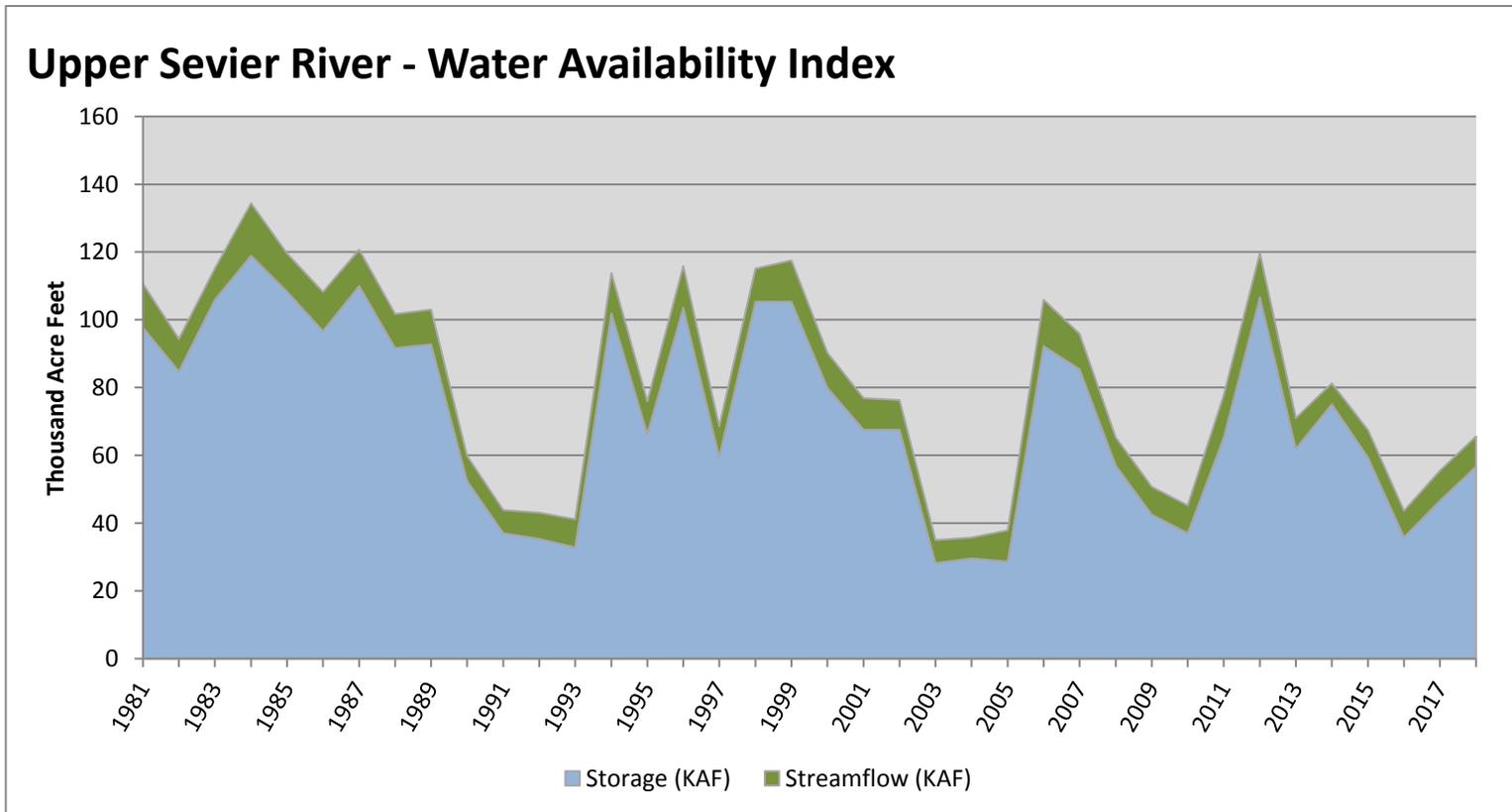
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

January 1, 2018

## Water Availability Index

| Basin or Region           | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|---------------------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                           | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>Upper Sevier River</b> | <b>56.72</b>                 | <b>8.86</b>      | <b>65.58</b>     | <b>33</b>  | <b>-1.39</b>     | <b>90, 08, 15, 97</b>   |

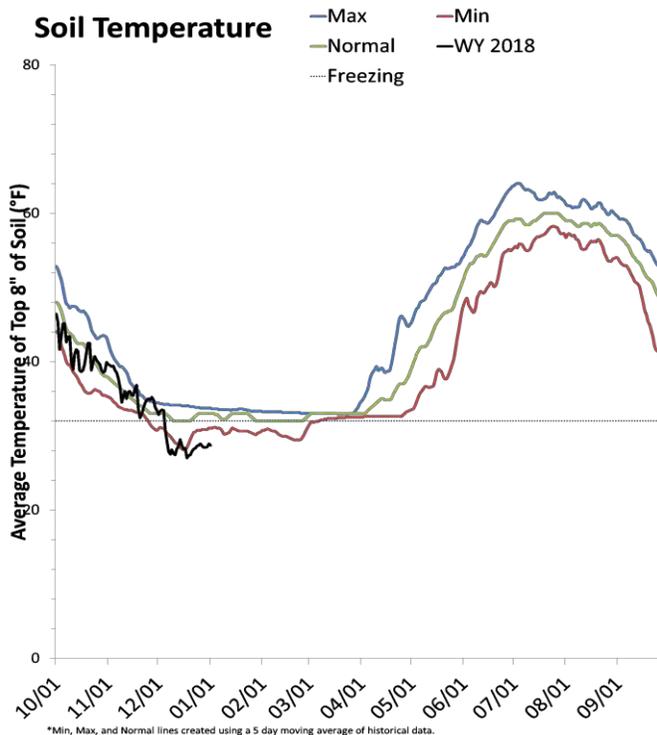
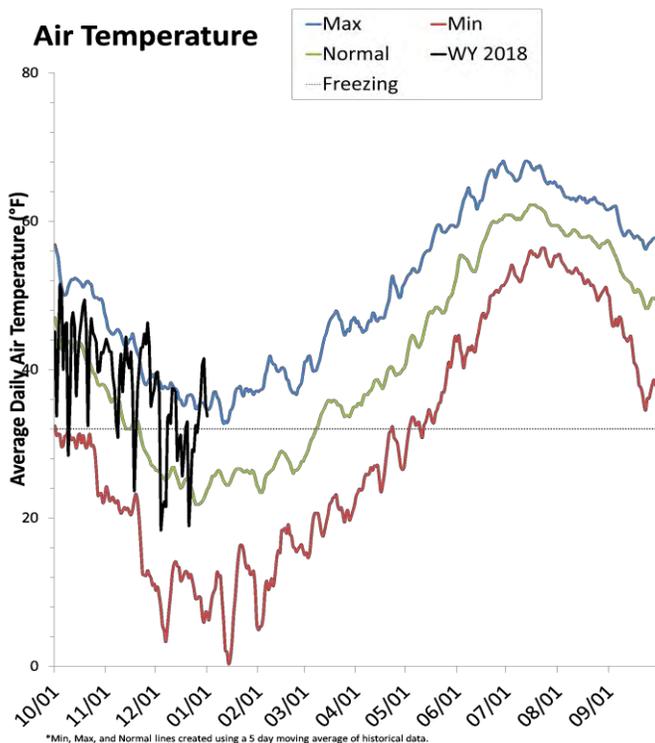
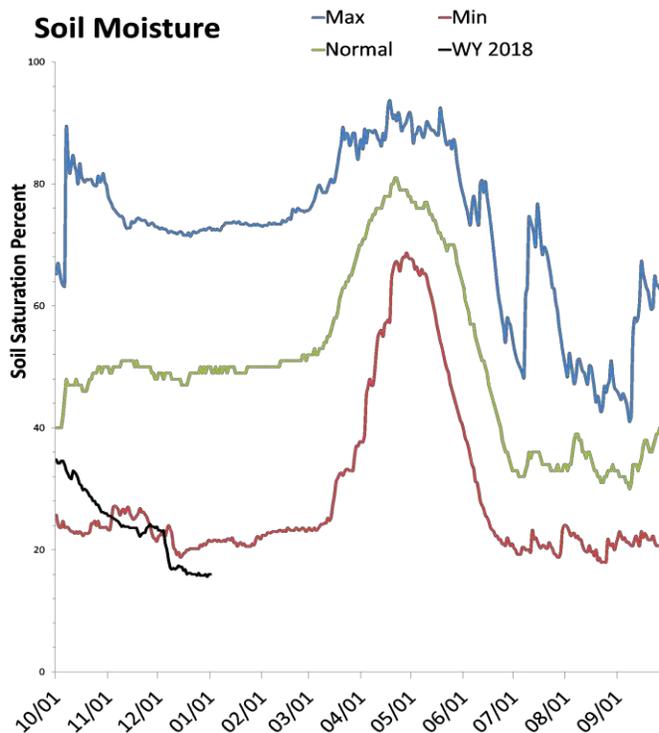
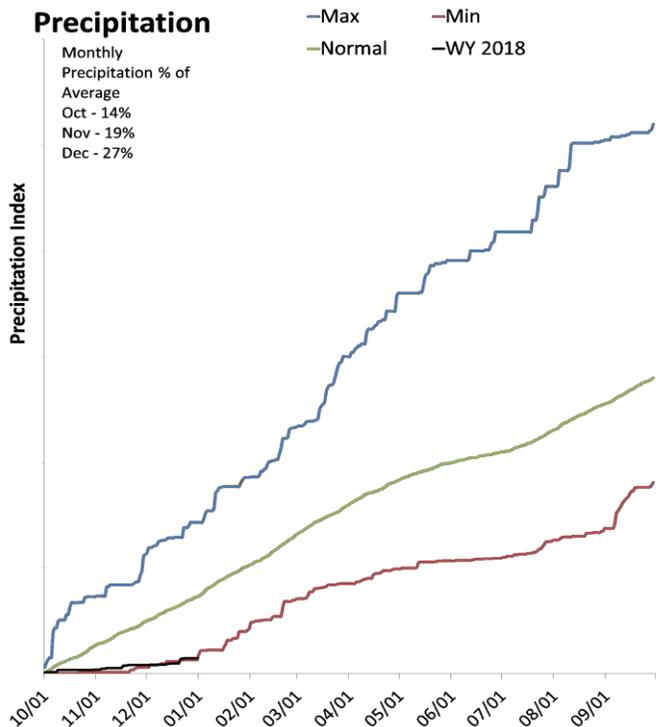
<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.



# Southeastern Utah

January 1, 2018

Precipitation in December was much below average at 27%, which brings the seasonal accumulation (Oct-Dec) to 20% of average. Soil moisture is at 16% compared to 58% last year. Reservoir storage is at 54% of capacity, compared to 76% last year. The water availability index for Moab is 66%.



\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

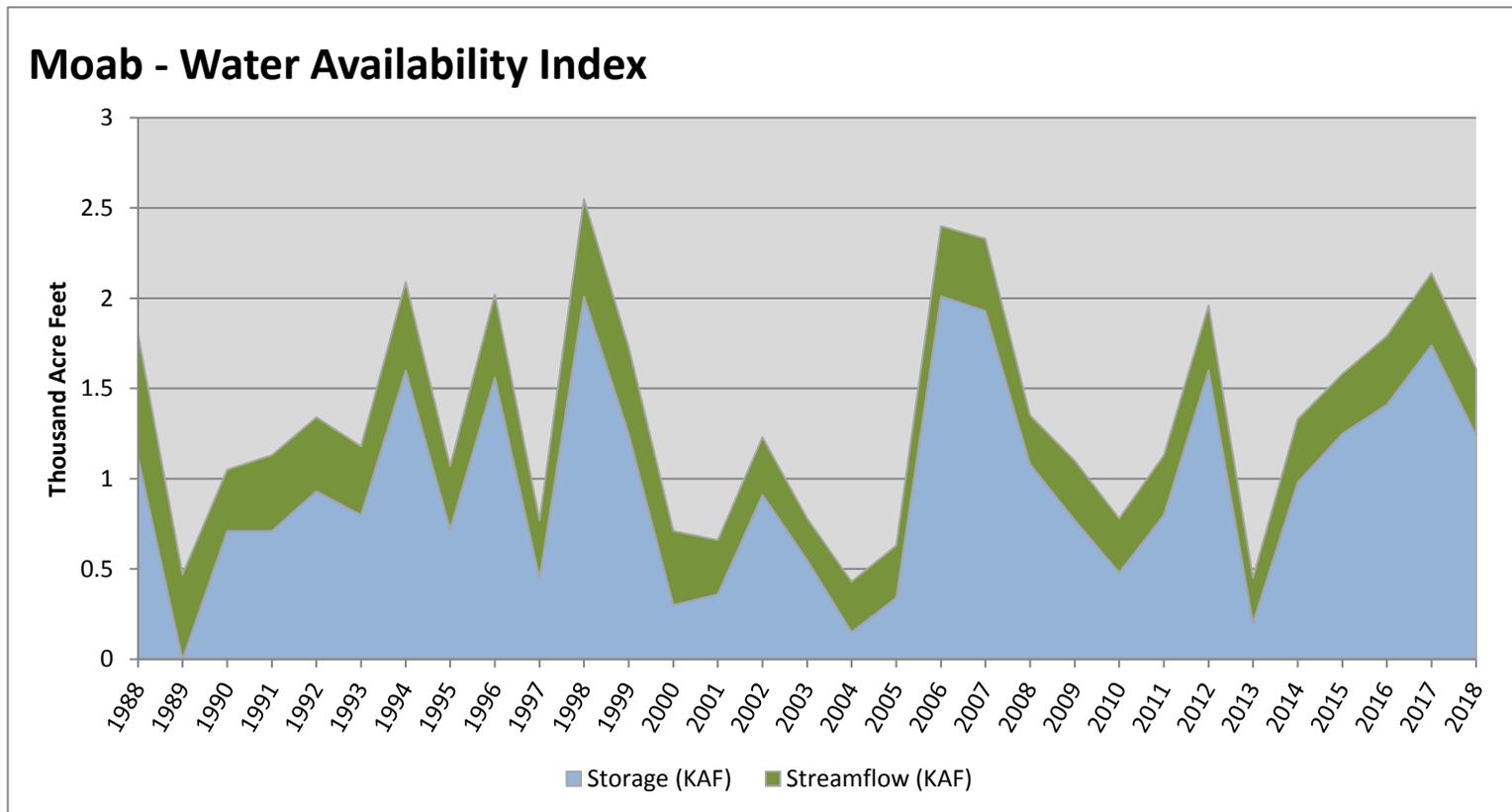
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

January 1, 2018

## Water Availability Index

| Basin or Region | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|-----------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                 | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>Moab</b>     | <b>1.24</b>                  | <b>0.37</b>      | <b>1.61</b>      | <b>66</b>  | <b>1.3</b>       | <b>08, 15, 99, 16</b>   |

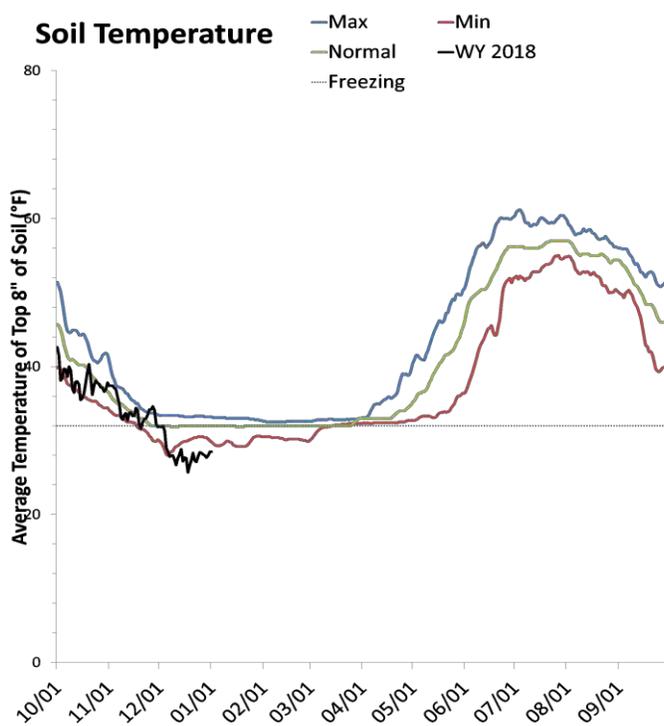
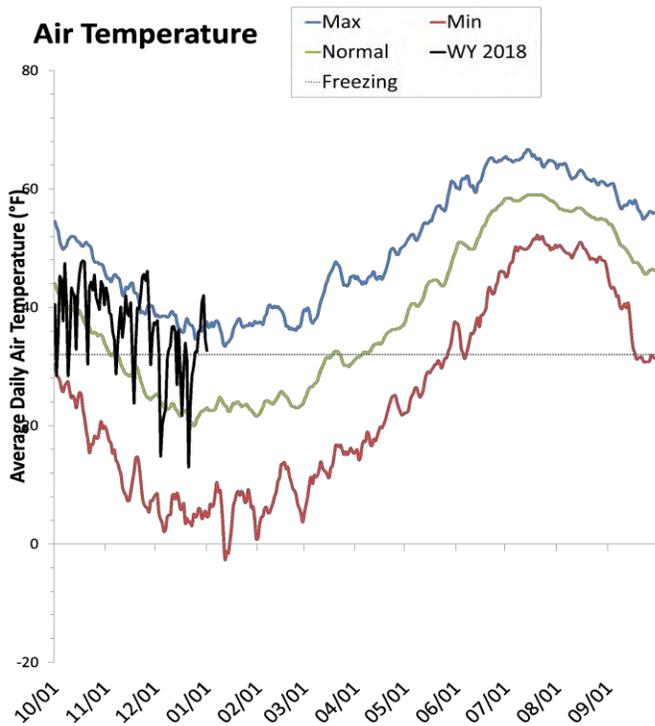
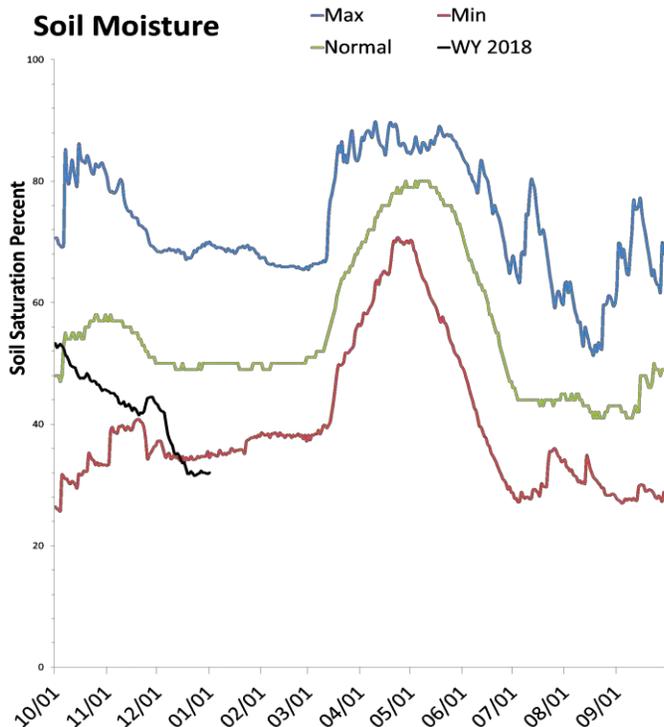
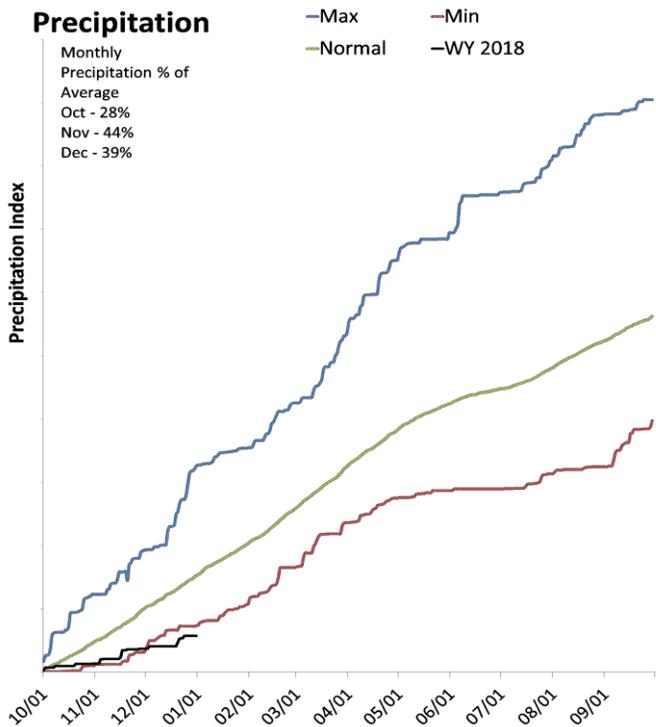
<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.



# Dirty Devil Basin

January 1, 2018

Precipitation in December was much below average at 39%, which brings the seasonal accumulation (Oct-Dec) to 37% of average. Soil moisture is at 32% compared to 46% last year.



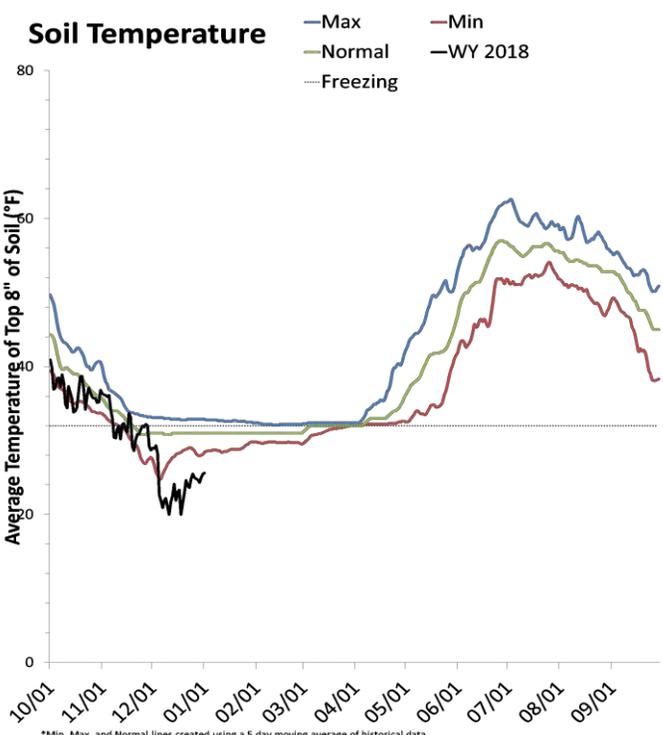
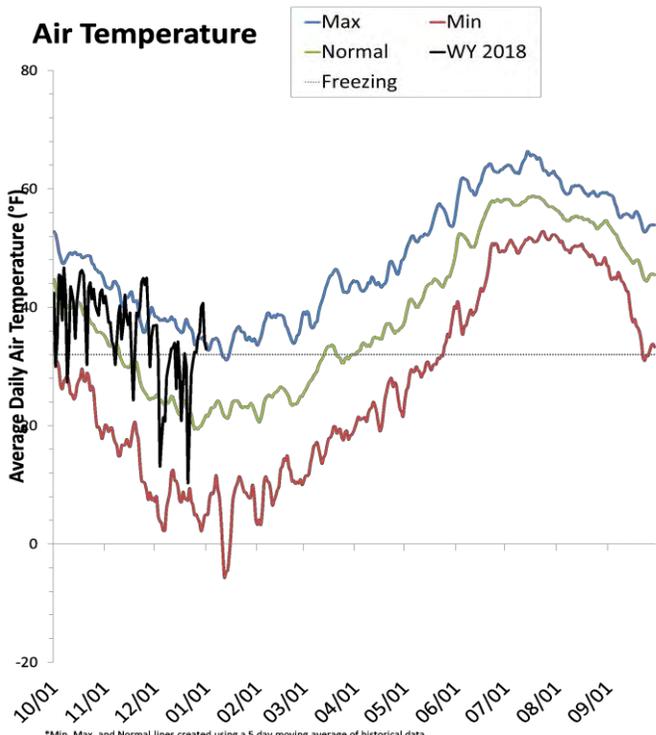
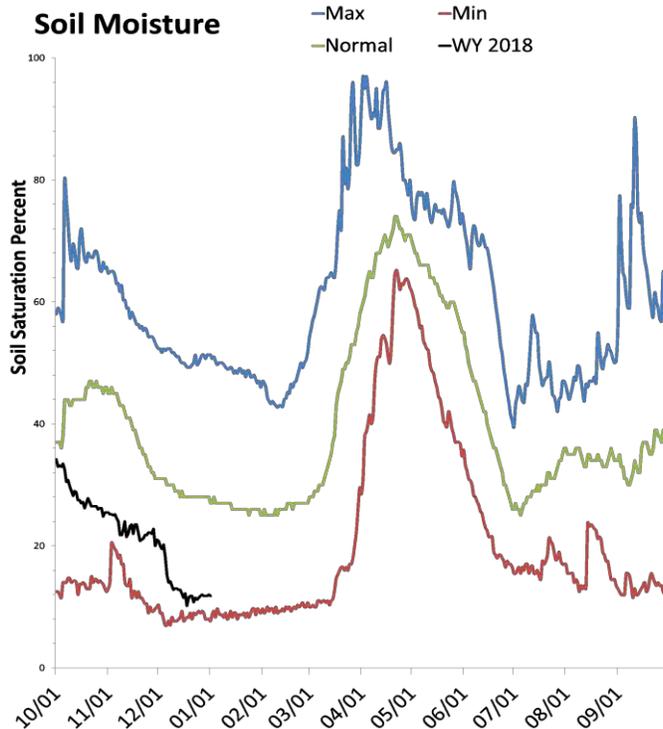
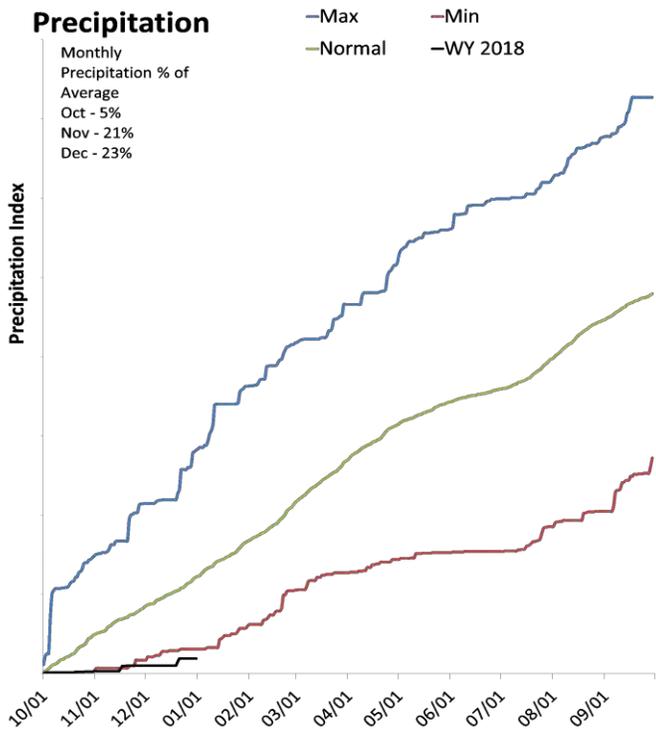
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

# Escalante River Basin

January 1, 2018

Precipitation in December was much below average at 23%, which brings the seasonal accumulation (Oct-Dec) to 15% of average. Soil moisture is at 12% compared to 31% last year.



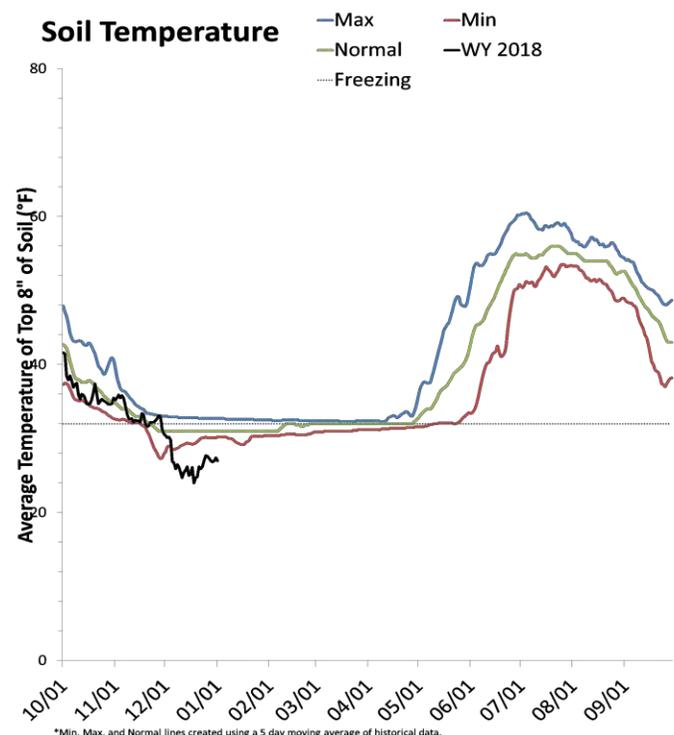
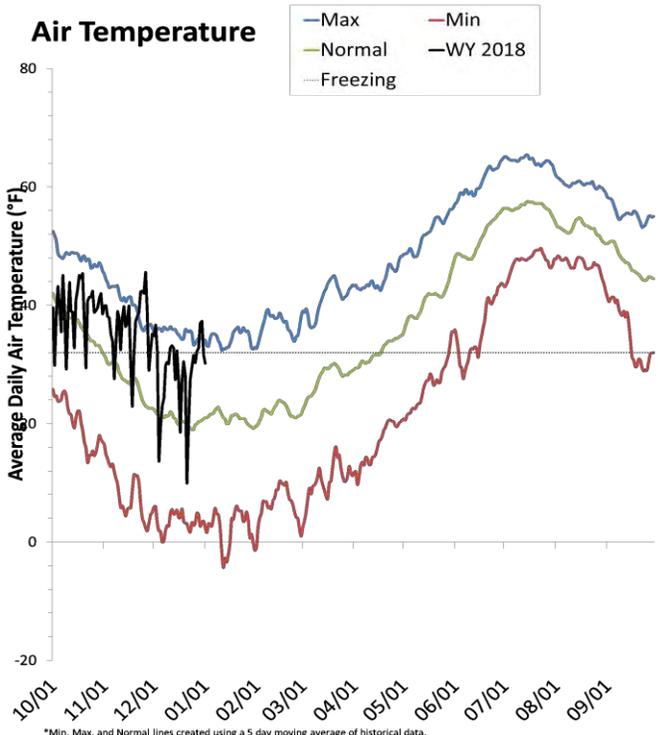
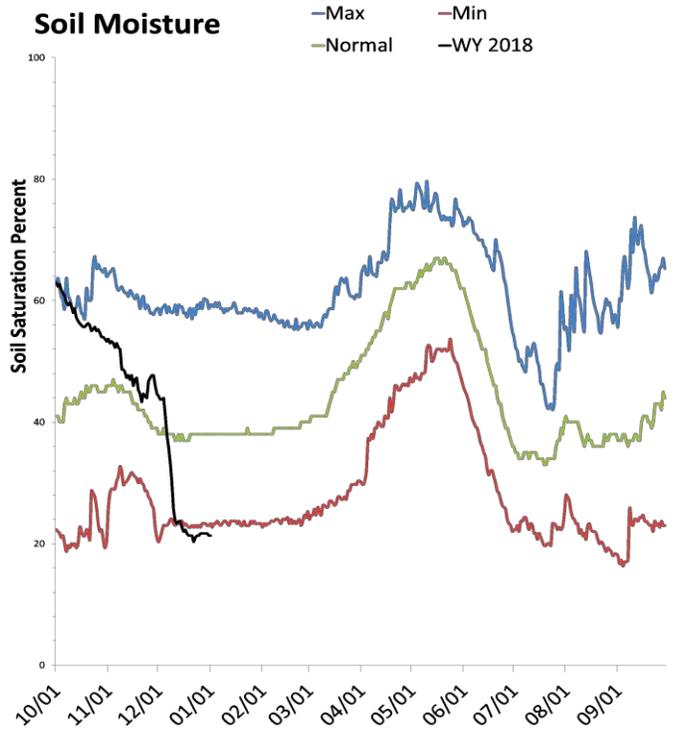
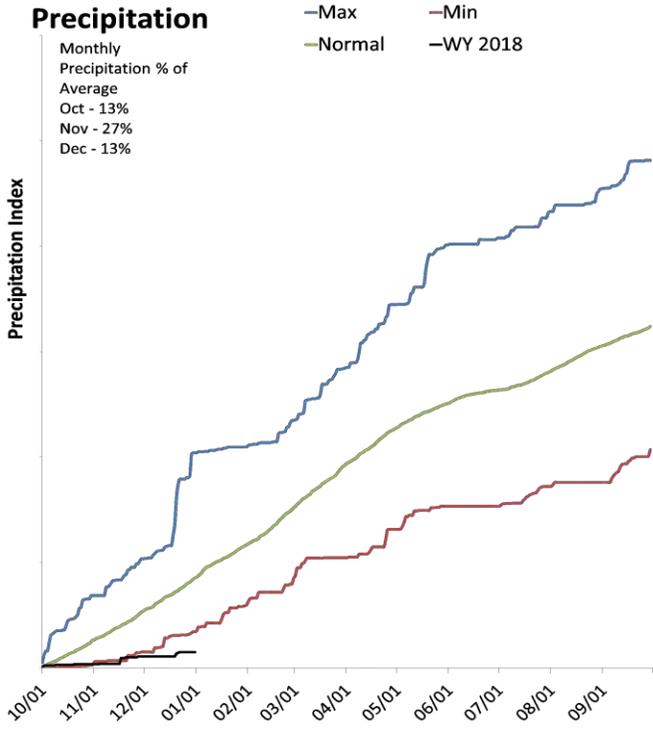
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

# Beaver River Basin

January 1, 2018

Precipitation in December was much below average at 13%, which brings the seasonal accumulation (Oct-Dec) to 17% of average. Soil moisture is at 22% compared to 48% last year. Reservoir storage is at 28% of capacity, compared to 28% last year. The water availability index for the Beaver River is 33%.



\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

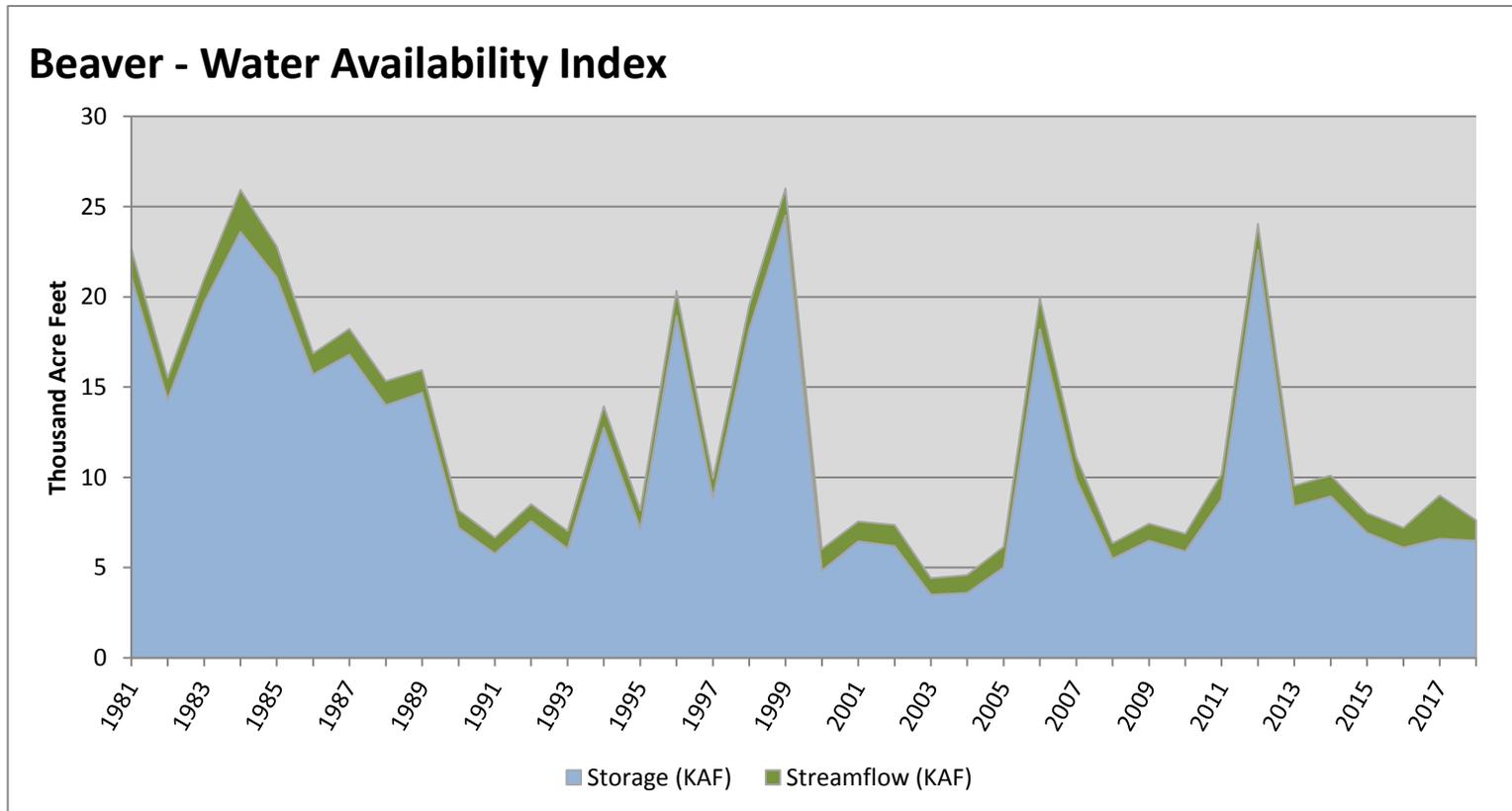
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

January 1, 2018

## Water Availability Index

| Basin or Region | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similar WAI |
|-----------------|------------------------------|------------------|------------------|------------|------------------|------------------------|
|                 | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                        |
| <b>Beaver</b>   | <b>6.50</b>                  | <b>1.12</b>      | <b>7.62</b>      | <b>33</b>  | <b>-1.39</b>     | <b>09, 01, 15, 90</b>  |

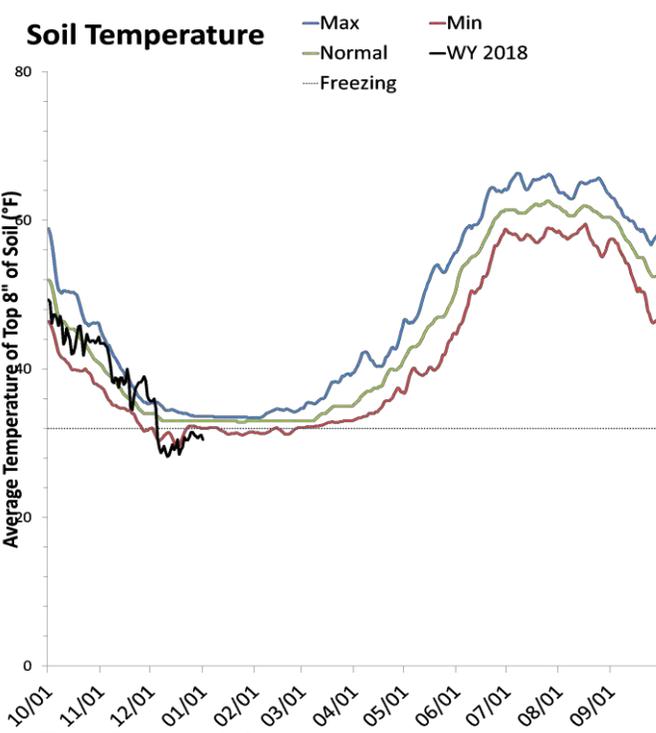
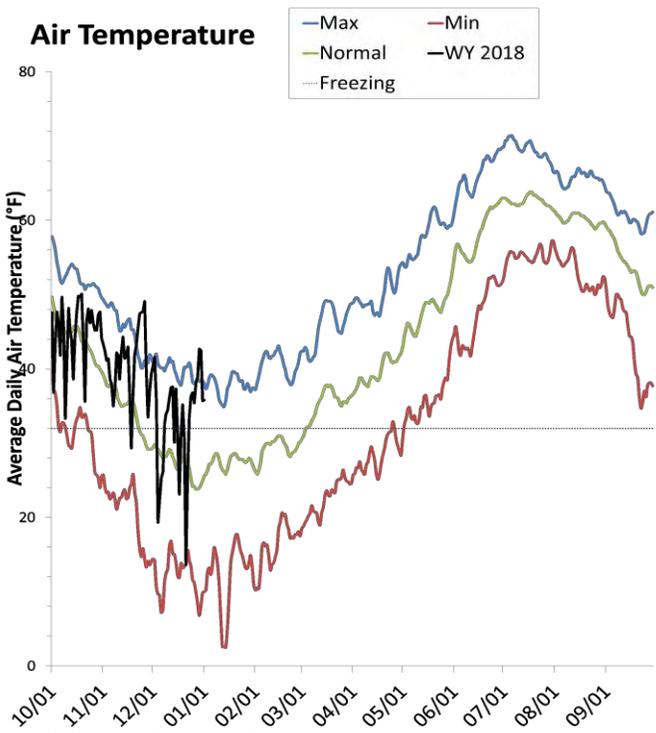
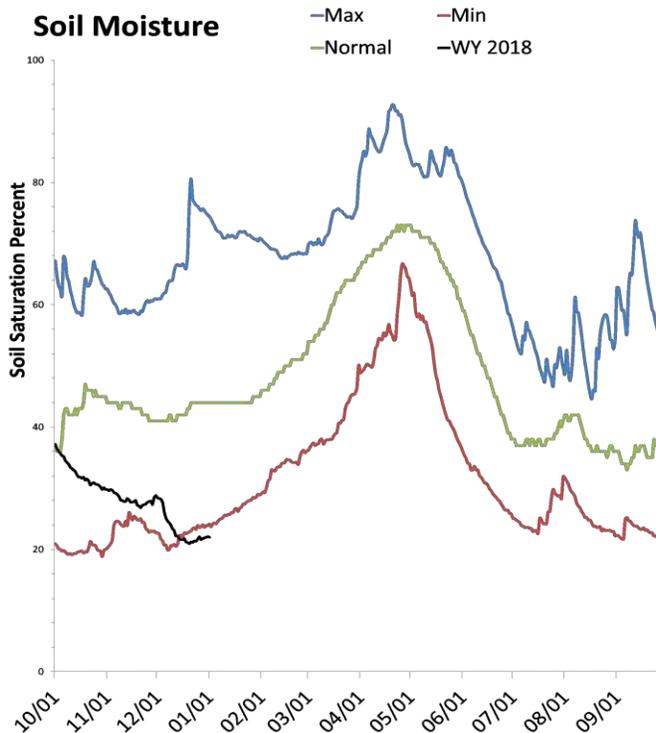
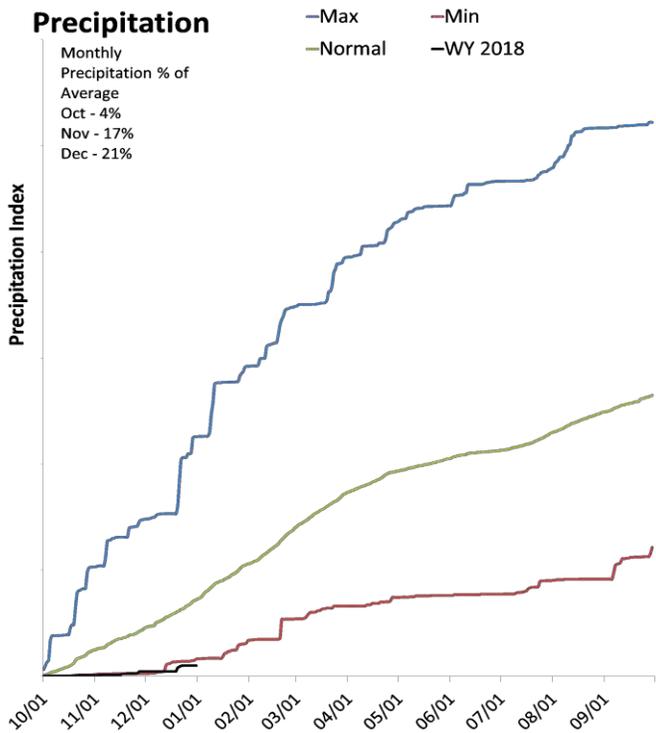
<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.



# Southwestern Utah

January 1, 2018

Precipitation in December was much below average at 21%, which brings the seasonal accumulation (Oct-Dec) to 14% of average. Soil moisture is at 22% compared to 45% last year. Reservoir storage is at 58% of capacity, compared to 49% last year. The water availability index for the Virgin River is 36%.



\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

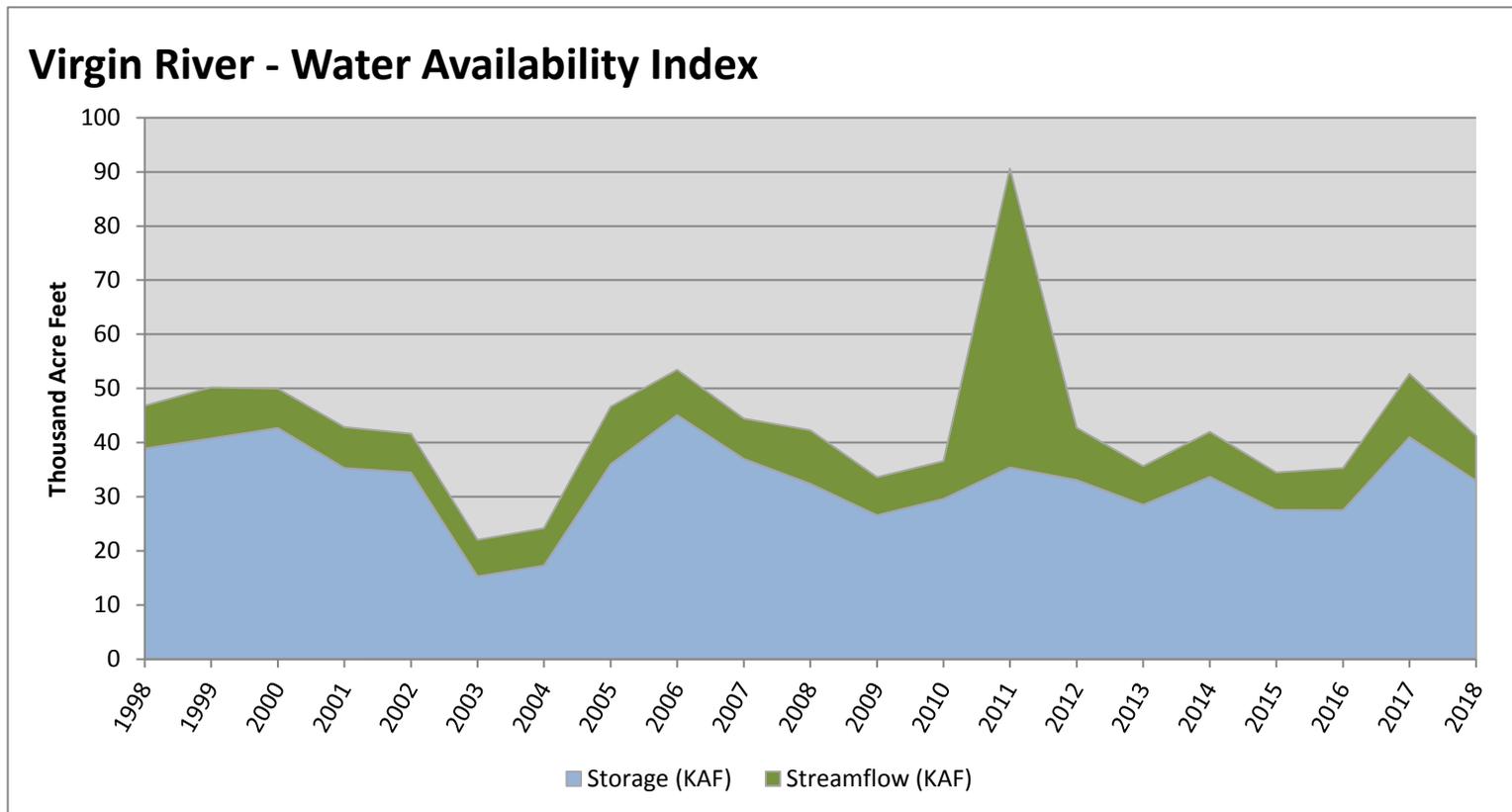
\*Min, Max, and Normal lines created using a 5 day moving average of historical data.

January 1, 2018

## Water Availability Index

| Basin or Region     | Dec EOM <sup>^</sup> Storage | December Flow    | Storage + Flow   | Percentile | WAI <sup>#</sup> | Years with similiar WAI |
|---------------------|------------------------------|------------------|------------------|------------|------------------|-------------------------|
|                     | KAF <sup>^</sup>             | KAF <sup>^</sup> | KAF <sup>^</sup> | %          |                  |                         |
| <b>Virgin River</b> | <b>32.96</b>                 | <b>8.29</b>      | <b>41.25</b>     | <b>36</b>  | <b>-1.14</b>     | <b>13, 10, 02, 14</b>   |

<sup>^</sup>EOM, end of month; <sup>#</sup>WAI, Water Availability Index; <sup>^</sup>KAF, thousand acre-feet.



January 1, 2018

## Water Availability Index

| Basin or Region           | Dec EOM*<br>Storage | December Flow | Storage + Flow | Percentile | WAI#        | Years with similiar WAI |
|---------------------------|---------------------|---------------|----------------|------------|-------------|-------------------------|
|                           | KAF^                | KAF^          | KAF^           | %          |             |                         |
| <b>Bear River</b>         | <b>1036</b>         | <b>2.5</b>    | <b>1038</b>    | <b>95</b>  | <b>3.7</b>  | <b>83, 99, 84, 98</b>   |
| <b>Woodruff Narrows</b>   | <b>46.0</b>         | <b>2.5</b>    | <b>48.5</b>    | <b>85</b>  | <b>2.9</b>  | <b>12, 07, 17, 98</b>   |
| <b>Little Bear</b>        | <b>9.9</b>          | <b>4.2</b>    | <b>14.1</b>    | <b>78</b>  | <b>2.3</b>  | <b>00, 01, 06, 11</b>   |
| <b>Ogden</b>              | <b>72.5</b>         | <b>2.7</b>    | <b>75.3</b>    | <b>79</b>  | <b>2.5</b>  | <b>17, 96, 87, 10</b>   |
| <b>Weber</b>              | <b>159.6</b>        | <b>6.0</b>    | <b>165.6</b>   | <b>93</b>  | <b>3.6</b>  | <b>96, 12, 11, 94</b>   |
| <b>Provo River</b>        | <b>391.4</b>        | <b>3.5</b>    | <b>394.9</b>   | <b>79</b>  | <b>2.4</b>  | <b>06, 07, 99, 97</b>   |
| <b>Western Uinta</b>      | <b>180.8</b>        | <b>2.3</b>    | <b>183.1</b>   | <b>88</b>  | <b>3.1</b>  | <b>88, 99, 15, 98</b>   |
| <b>Eastern Uinta</b>      | <b>32.9</b>         | <b>2.8</b>    | <b>35.7</b>    | <b>41</b>  | <b>-0.8</b> | <b>02, 82, 97, 81</b>   |
| <b>Blacks Fork</b>        | <b>8.7</b>          | <b>2.2</b>    | <b>10.9</b>    | <b>56</b>  | <b>0.5</b>  | <b>04, 86, 17, 94</b>   |
| <b>Price</b>              | <b>48.4</b>         | <b>0.6</b>    | <b>49.0</b>    | <b>87</b>  | <b>3.1</b>  | <b>84, 85, 81, 87</b>   |
| <b>Smiths Creek</b>       | <b>5.8</b>          | <b>0.8</b>    | <b>6.6</b>     | <b>60</b>  | <b>0.8</b>  | <b>94, 11, 17, 07</b>   |
| <b>Joes Valley</b>        | <b>45.5</b>         | <b>1.0</b>    | <b>46.5</b>    | <b>74</b>  | <b>2.0</b>  | <b>88, 99, 07, 86</b>   |
| <b>Moab</b>               | <b>1.2</b>          | <b>0.4</b>    | <b>1.6</b>     | <b>66</b>  | <b>1.3</b>  | <b>08, 15, 99, 16</b>   |
| <b>Upper Sevier River</b> | <b>56.7</b>         | <b>8.9</b>    | <b>65.6</b>    | <b>33</b>  | <b>-1.4</b> | <b>90, 08, 15, 97</b>   |
| <b>San Pitch</b>          | <b>0.0</b>          | <b>0.4</b>    | <b>0.4</b>     | <b>10</b>  | <b>-3.3</b> | <b>15, 04, 16, 17</b>   |
| <b>Lower Sevier</b>       | <b>51.9</b>         | <b>16.6</b>   | <b>68.5</b>    | <b>10</b>  | <b>-3.3</b> | <b>04, 05, 92, 03</b>   |
| <b>Beaver</b>             | <b>6.5</b>          | <b>1.1</b>    | <b>7.6</b>     | <b>33</b>  | <b>-1.4</b> | <b>09, 01, 15, 90</b>   |
| <b>Virgin River</b>       | <b>33.0</b>         | <b>8.3</b>    | <b>41.3</b>    | <b>36</b>  | <b>-1.1</b> | <b>13, 10, 02, 14</b>   |

\*EOM, end of month; # WAI, water availibilty index; ^KAF, thousand acre-feet.

### What is a Water Availability Index?

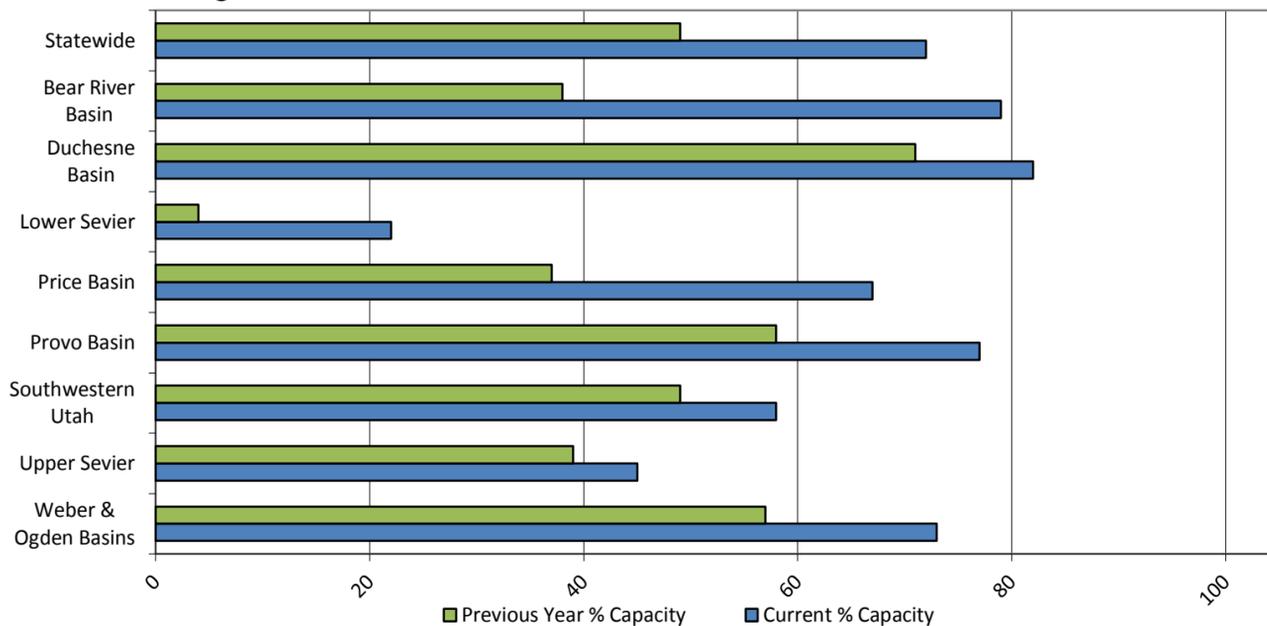
The Water Availability Index (WAI) is an observed hydrologic indicator of current surface water availability within a watershed. The index is calculated by combining current reservoir storage with the previous months streamflow. WAI values are scaled from +4.1 (abundant supply) to -4.1 (extremely dry) with a value of zero (0) indicating median water supply as compared to historical analysis. WAI's are calculated in this fashion to be consistent with other hydroclimatic indicators such as the Palmer Drought Index and the Precipitation index.

Utah Snow Surveys has also chosen to display the WAI value as well as a PERCENT CHANCE OF NON-EXCEEDANCE. While this is a cumbersome name, it has the simplest application. It can be best thought of as a scale of 1 to 99 with 1 being the drought of record (driest possible conditions) and 99 being the flood of record (wettest possible conditions) and a value of 50 representing average conditions. This rating scale is a percentile rating as well, for example a WAI of 75% means that this years water supply is greater than 75% of all historical events and that only 25% of the time has it been exceeded. Conversely a WAI of 10% means that 90% of historical events have been greater than this one and that only 10% have had less total water supply. This scale is comparable between basins: a SWSI of 50% means the same relative ranking on watershed A as it does on watershed B, which may not be strictly true of the +4 to -4 scale.

For more information on the WAI go to: [www.ut.nrcs.usda.gov/snow/](http://www.ut.nrcs.usda.gov/snow/) on the water supply page. The entire period of historical record for reservoir storage and streamflow is available.

| <b>Reservoir Storage Summary for the end of December 2018</b> | Current (KAF) | Last Year (KAF) | Average (KAF) | Capacity (KAF) | Current % Capacity | Last Year % Capacity | Average % Capacity | Current % Average | Last Year % Average |
|---|---------------|-----------------|---------------|----------------|--------------------|----------------------|--------------------|-------------------|---------------------|
| Big Sand Wash Reservoir                                       | 22.7          | 23.0            |               | 25.7           | 88%                | 89%                  |                    |                   |                     |
| Causey Reservoir  | 4.8           | 4.3             | 3.1           | 7.1            | 68%                | 60%                  | 44%                | 156%              | 137%                |
| Cleveland Lake  | 2.6           | 1.4             |               | 5.4            | 48%                | 26%                  |                    |                   |                     |
| Currant Creek Reservoir                                       | 14.9          | 14.1            | 14.9          | 15.5           | 96%                | 91%                  | 96%                | 100%              | 95%                 |
| Deer Creek Reservoir  | 135.0         | 123.6           | 103.1         | 149.7          | 90%                | 83%                  | 69%                | 131%              | 120%                |
| East Canyon Reservoir   | 38.5          | 23.5            | 34.1          | 49.5           | 78%                | 47%                  | 69%                | 113%              | 69%                 |
| Echo Reservoir  | 47.3          | 25.8            | 44.3          | 73.9           | 64%                | 35%                  | 60%                | 107%              | 58%                 |
| Grantsville Reservoir   | 1.0           | 0.6             | 1.5           | 3.3            | 30%                | 17%                  | 45%                | 68%               | 38%                 |
| Gunlock   | 5.8           | 4.6             | 6.2           | 10.4           | 56%                | 44%                  | 60%                | 94%               | 74%                 |
| Gunnison Reservoir  | 0.0           | 0.2             | 9.3           | 20.3           | 0%                 | 1%                   | 46%                | 0%                | 2%                  |
| Huntington North Reservoir                                    | 3.9           | 2.2             | 2.3           | 4.2            | 93%                | 53%                  | 55%                | 169%              | 97%                 |
| Hyrum Reservoir   | 9.9           | 9.6             | 10.1          | 15.3           | 64%                | 63%                  | 66%                | 98%               | 95%                 |
| Joes Valley Reservoir   | 45.5          | 29.8            | 39.7          | 61.6           | 74%                | 48%                  | 64%                | 115%              | 75%                 |
| Jordanelle Reservoir  | 256.4         | 185.2           | 244.5         | 320.0          | 80%                | 58%                  | 76%                | 105%              | 76%                 |
| Ken's Lake  | 1.2           | 1.7             | 1.0           | 2.3            | 54%                | 76%                  | 41%                | 130%              | 183%                |
| Kolob Reservoir   | 1.2           | 5.4             |               | 5.6            | 21%                | 97%                  |                    |                   |                     |
| Lost Creek Reservoir  | 18.1          | 14.6            | 12.4          | 22.5           | 80%                | 65%                  | 55%                | 146%              | 117%                |
| Lower Enterprise  | 0.6           | 0.4             | 0.5           | 2.6            | 23%                | 13%                  | 20%                | 113%              | 66%                 |
| Miller Flat Reservoir   | 3.6           | 1.8             |               | 5.2            | 69%                | 35%                  |                    |                   |                     |
| Millsite  | 1.2           | 10.0            | 10.0          | 16.7           | 7%                 | 60%                  | 60%                | 12%               | 100%                |
| Minersville Reservoir   | 6.5           | 6.6             | 11.8          | 23.3           | 28%                | 28%                  | 51%                | 55%               | 56%                 |
| Moon Lake Reservoir   | 23.7          | 22.3            | 22.4          | 35.8           | 66%                | 62%                  | 63%                | 106%              | 100%                |
| Otter Creek Reservoir   | 32.5          | 28.4            | 32.1          | 52.5           | 62%                | 54%                  | 61%                | 101%              | 88%                 |
| Panguitch Lake  | 9.4           | 9.9             | 11.6          | 22.3           | 42%                | 44%                  | 52%                | 81%               | 85%                 |
| Pineview Reservoir  | 67.7          | 67.5            | 52.4          | 110.1          | 61%                | 61%                  | 48%                | 129%              | 129%                |
| Piute Reservoir   | 24.2          | 18.2            | 42.0          | 71.8           | 34%                | 25%                  | 58%                | 58%               | 43%                 |
| Porcupine Reservoir   | 10.5          | 5.4             | 6.5           | 11.3           | 93%                | 48%                  | 58%                | 162%              | 83%                 |
| Quail Creek   | 27.1          | 36.4            | 25.3          | 40.0           | 68%                | 91%                  | 63%                | 107%              | 144%                |
| Red Fleet Reservoir   | 19.1          | 20.8            | 17.5          | 25.7           | 74%                | 81%                  | 68%                | 109%              | 119%                |
| Rockport Reservoir  | 51.0          | 28.2            | 34.8          | 60.9           | 84%                | 46%                  | 57%                | 146%              | 81%                 |
| Sand Hollow Reservoir   | 47.1          | 45.5            |               | 50.0           | 94%                | 91%                  |                    |                   |                     |
| Scofield Reservoir  | 48.4          | 12.3            | 28.5          | 65.8           | 74%                | 19%                  | 43%                | 170%              | 43%                 |
| Settlement Canyon Reservoir                                   | 0.3           | 0.3             | 0.6           | 1.0            | 30%                | 30%                  | 63%                | 48%               | 48%                 |
| Sevier Bridge Reservoir                                       | 51.9          | 8.3             | 143.2         | 236.0          | 22%                | 4%                   | 61%                | 36%               | 6%                  |
| Smith And Morehouse Reservoir                                 | 4.7           | 5.6             | 3.8           | 8.1            | 58%                | 69%                  | 47%                | 125%              | 148%                |
| Starvation Reservoir  | 148.4         | 140.4           | 134.1         | 165.3          | 90%                | 85%                  | 81%                | 111%              | 105%                |
| Stateline Reservoir   | 5.8           | 6.0             | 5.7           | 12.0           | 49%                | 50%                  | 48%                | 102%              | 106%                |
| Steinaker Reservoir   | 13.7          | 19.1            | 20.0          | 33.4           | 41%                | 57%                  | 60%                | 69%               | 95%                 |
| Strawberry Reservoir  | 928.9         | 766.8           | 657.4         | 1105.9         | 84%                | 69%                  | 59%                | 141%              | 117%                |
| Upper Enterprise  | 1.4           | 0.4             | 2.8           | 10.0           | 14%                | 4%                   | 28%                | 50%               | 14%                 |
| Upper Stillwater Reservoir                                    | 8.7           | 13.9            | 10.0          | 32.5           | 27%                | 43%                  | 31%                | 87%               | 139%                |
| Utah Lake   | 554.9         | 333.2           | 726.5         | 870.9          | 64%                | 38%                  | 83%                | 76%               | 46%                 |
| Vernon Creek Reservoir  |               | 0.1             | 0.4           | 0.6            |                    | 22%                  | 65%                |                   | 33%                 |
| Willard Bay   | 165.1         | 140.1           | 129.6         | 215.0          | 77%                | 65%                  | 60%                | 127%              | 108%                |
| Woodruff Creek  | 1.5           | 1.8             | 2.1           | 4.0            | 38%                | 46%                  | 53%                | 71%               | 88%                 |
| Woodruff Narrows Reservoir                                    | 46.0          | 46.4            | 27.3          | 57.3           | 80%                | 81%                  | 48%                | 169%              | 170%                |
| Meeks Cabin Reservoir   | 8.7           | 9.7             | 9.9           | 32.5           | 27%                | 30%                  | 30%                | 88%               | 98%                 |
| Bear Lake   | 1035.5        | 459.1           | 580.6         | 1302.0         | 80%                | 35%                  | 45%                | 178%              | 79%                 |
| <b>Basin-wide Total</b>                                       | <b>3880.0</b> | <b>2657.1</b>   | <b>3275.5</b> | <b>5380.3</b>  | <b>72%</b>         | <b>49%</b>           | <b>61%</b>         | <b>118%</b>       | <b>81%</b>          |
| <b># of reservoirs</b>  | <b>42</b>     | <b>42</b>       | <b>42</b>     | <b>42</b>      | <b>42</b>          | <b>42</b>            | <b>42</b>          | <b>42</b>         | <b>42</b>           |

### Reservoir Storage



*Issued by*

**Leonard Jordan**  
**Acting Chief**  
**Natural Resources Conservation**  
**Service U.S. Department of Agriculture**

*Prepared by*

**Snow Survey Staff:**  
**Randall Julander, Supervisor**  
**Troy Brosten, Assistant Supervisor**  
**Beau Uriona, Hydrologist**  
**Jordan Clayton, Hydrologist**  
**Kent Sutcliffe, Soil Scientist**  
**Bob Nault, Electronics Technician**

*Released by*

**Timothy Wilson**  
**State Conservationist**  
**Natural Resources Conservation Service**  
**Salt Lake City, Utah**



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Snow Survey, NRCS, USDA  
245 North Jimmy Doolittle Road  
Salt Lake City, UT 84116  
(801) 524-5213



**Utah Climate and**  
**Water Report**  
**Natural Resources Conservation Service**  
**Salt Lake City, UT**

