



Utah Climate and Water Report

October 1, 2023



View of Lakefork Basin from Porcupine Pass, Uinta Mountains

Photo by Logan Jamison

Utah General Summary

October 1, 2023

*****NOTE: The webpage for the NRCS-Utah Snow Survey has been updated and has a new location. Please use this link: <https://www.nrcs.usda.gov/conservation-basics/conservation-by-state/utah/utah-snow-survey-program>. There is an automatic redirect from the old webpage for now, but please update your links accordingly. The new webpage has the same functionality as the previous version, but the layout is different. Please don't hesitate to reach out if we can help you find content on the new site.*****

Valley Conditions (SCAN) as of October 1st: Welcome to the 2024 water year! The historic 2023 water year ended on September 30th and went out with a bang. Utah received 1.2 inches of precipitation in our valley locations during September, which was well above normal (132%). This brought Utah's water-year-to-date precipitation for valley locations to 126% of median. As noted in last month's report, this summer has provided significant moisture across the state- a trend that continued last month due to active monsoonal storms. Statewide soil moisture at Utah's SCAN sites ended the month above normal at 39% of saturation, which was 3% higher than last year at this time. Soils at our SCAN sites were not universally-moist, however; while much of the state was close to normal, the Uinta Basin had very dry soils and South Central had the opposite, with soil moisture levels in the top 10th percentile.

Mountain Conditions (SNOTEL) as of October 1st: The month of September provided Utah's mountains with well above normal precipitation as well. The state's SNOTEL sites received 2.3" of rainfall, which was 138% of normal for the month. Utah ended the water year at 136% of median precipitation. Statewide soil moisture in Utah's mountains ended the water year at 42% of saturation, which was also above normal. Utah's reservoir storage has remained high; as of October 1st the state was at 73% of capacity, which was 31% higher than last year's value. Water Availability Indices (WAIs) for Utah basins combine current reservoir conditions with observed streamflow for each region. WAIs are in the top 25th percentile for 14 of Utah's 18 major basins, again reflecting the statewide benefit of our record-breaking snowpack last winter. Now what is needed is for Utahns to continue to conserve our precious water resources and for nature to provide us with another above-average snowpack. While we ended the 2023 water year with many positives, the condition of the Great Salt Lake and the ongoing low level of Lake Powell (among other waterbodies) suggest that we are not out of the woods just yet...

Highlights from the 2023 Water Year: While we keep fingers crossed for a bountiful snowpack season this winter, it is worthwhile to look back and celebrate the amazing water year Utah just experienced. Listed below are some highlights:

Snowpack

1. Statewide snow water equivalent (SWE) peaked on April 8th at 30.0", which was 216% of normal. This was a new record for Utah, beating the previous record from SNOTEL data (26.0" in 1983)

as well as the long term snow course record (28.8" in 1952), making 2023 the all-time high for SWE going back to the beginning of our historical measurements which began in the 1920s.

2. Nine of Utah's 16 major watersheds reached record-high levels of SWE.
3. The SNOTEL site with the highest peak SWE was Ben Lomond Peak at 82.8".
4. In early April, 41 of Utah's 138 SNOTEL sites reported an all-time record high amount of SWE; 16 more were second-highest. 32 SNOTEL sites had at least double the amount of SWE that they would have at their typical peak; 4 had more than triple their typical peak SWE! 45 of Utah's SNOTEL sites had more than 100" of snow depth. 7 of those were deeper than 150".
5. The best months for statewide snow accumulation were December, January, and March. Utah received so much snow in March (8.6" SWE) that we broke the monthly record.
6. Snowpack timing was favorable: the snowpack peak was several weeks late for around a third of Utah's SNOTEL sites, and over a month late for 3 sites. Similarly, melt-out dates were late for the majority of sites in the state.

Precipitation

1. Utah ended the 2023 water year on September 30th with 39.7" of accumulated precipitation at our SNOTEL sites, which was 136% of normal and around the 83rd percentile. Our water year total was 10.4" greater than for the 2022 water year.
2. The best 3 months in 2023 were the same as noted for snowpack above: December, January, and March.

Soil moisture

1. As of mid May, statewide soil moisture conditions measured at Utah's SNOTEL sites were setting new records. Peak saturation reached 83% which was a record for any date since the sensors were installed at a large number of sites in the early 2000s.
2. At the end of the water year, soils were 42% saturated, which was 114% of normal.

Reservoirs

1. Utah ended the 2023 water year with its reservoir system 73% full (not including Lake Powell or Flaming Gorge), which is 31% higher than at the end of 2022. Back in November, Utah's reservoir system was only 42% full, which was the least amount of storage since at least 2016. From May to July, the state increased its storage by 29%, which was the most rapid increase in many years. Peak storage was reached in early July, with Utah's reservoirs at 86% of capacity.
2. All of Utah's major basins increased their storage during the 2023 water year, with the largest proportionate increases in the Beaver and San Pitch watersheds. In early July, several basins were at their capacity for reservoir storage (Weber-Ogden, Price, Southeastern Utah, and Beaver watersheds).

Streamflow

1. Streamflow measured from April through July was well above normal in all major basins (a welcome change from the snowmelt runoff in 2022 which was below normal in all basins). The Sevier watershed and Southwestern Utah fared best with greater than 400% of normal flow during that 4 month period. Other watersheds (Weber-Ogden, Tooele Valley-Vernon Creek, Provo-Utah Lake-Jordan, Duchesne, Price-San Rafael, and Beaver) had greater than 200% of normal flow. While still above normal, the Escalante-Paria had the lowest percentage (121% normal).

2. According to the U.S. Geological Survey, in late May 84% of Utah's streamgages were reporting above normal flow levels, with 43% at 'much above normal' and 6% setting new record highs. Statewide, Utah ended the water year just above the 75% percentile for cumulative runoff.

*This report is organized to 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 (**SNOW TElemetry**).*

Questions, comments and suggestions are welcome and should be directed to jordan.clayton@usda.gov.

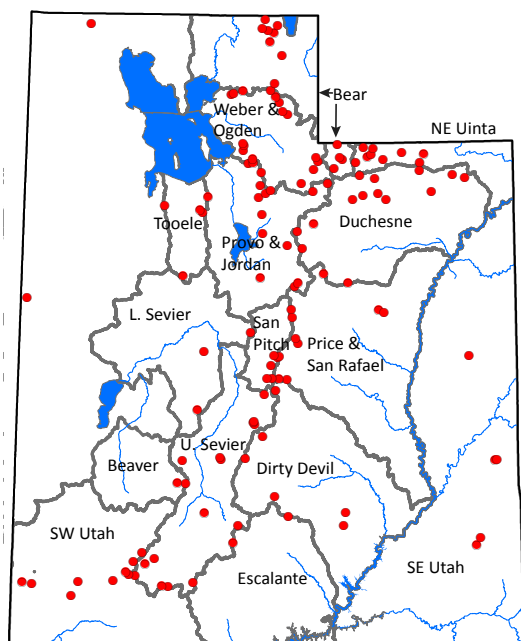
Utah Climate and Water Report

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.



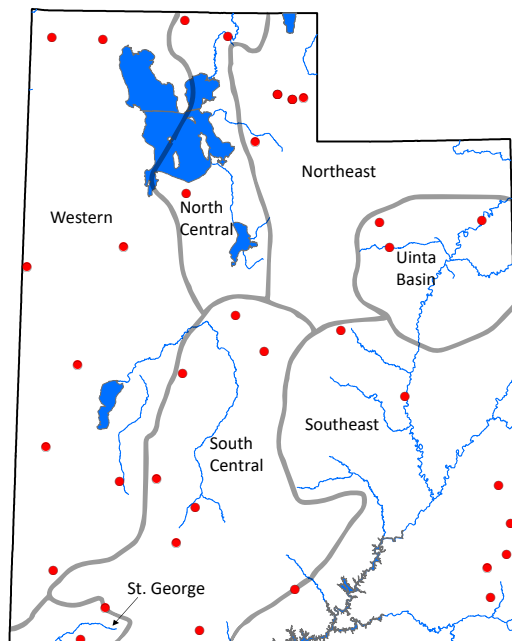
SNOTEL

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

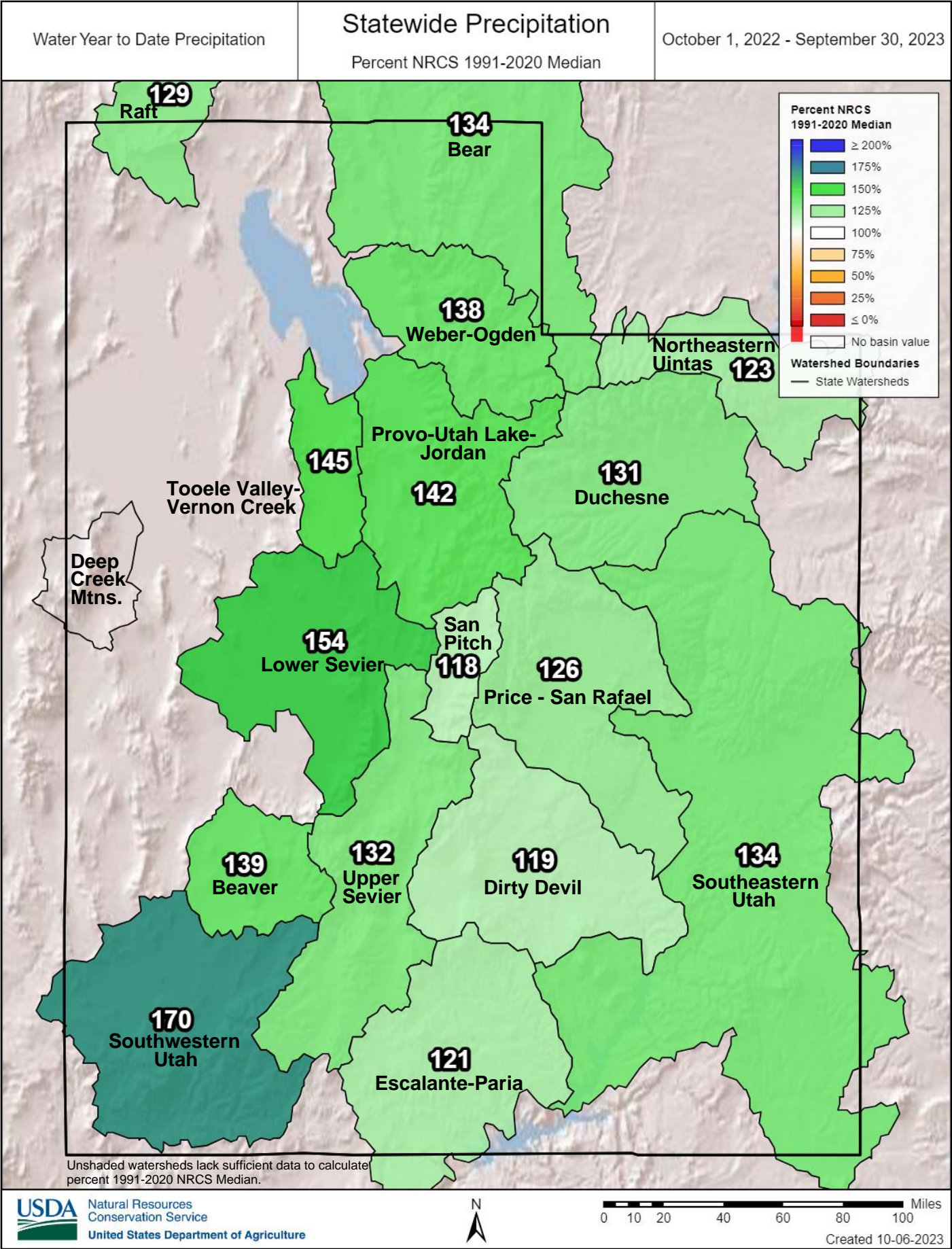


SCAN

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



Utah Precipitation (Snotel)



Oct 1, 2023 | Utah Reservoir Summary

Watershed/Region	Current Storage (Basinwide KAF)	Reservoir Capacity (Basinwide KAF)	Last Yr % Capacity (Basinwide)	This Yr % Capacity (Basinwide)
Utah (Statewide)	4038	5465	42	73
Utah (Statewide) Incl. Flaming G. & Lk. Powell	16085	33536	32	47
Bear	847	1389	29	60
Weber-Ogden	438	547	40	80
Northeastern Uintas	3319	3852	70	86
Tooele Valley	1	4	19	39
Duchesne	1193	1379	68	86
Provo	1120	1334	43	83
San Pitch	5	20	0	27
Price	127	158	35	80
Upper Sevier	126	382	4	33
Southeast UT	2	2	70	93
Beaver	13	23	5	59
Southwest Utah	98	118	53	83

Red (green) shading indicates >5% decrease (increase) in % capacity from this time last year.

Reservoir	Current Storage (KAF)	Reservoir Capacity (KAF)	Last Yr % Capacity	This Yr % Capacity
Bear Lake	777	1302	29	59
Big Sand Wash Reservoir	11	25	11	44
Causey Reservoir	4	7	29	64
Cleveland Lake	4	5	54	80
Currant Creek Reservoir	14	15	97	94
Deer Creek Reservoir	126	149	42	84
East Canyon Reservoir	39	49	50	78
Echo Reservoir	50	73	49	68
Flaming Gorge Reservoir	3256	3749	71	86
Grantsville Reservoir	1	3	20	37
Gunlock	8	10	36	80
Gunnison Reservoir	5	20	0	27
Huntington North Reservoir	2	4	46	67
Hyrum Reservoir	9	15	33	61
Joes Valley Reservoir	50	61	48	81
Jordanelle Reservoir	265	314	62	84
Ken's Lake	2	2	70	93
Kolob Reservoir	5	5	94	100
Lake Powell	8790	24322	23	36
Lost Creek Reservoir	16	22	39	73
Lower Enterprise	1	2	13	67
Meeks Cabin Reservoir	12	32	18	39
Miller Flat Reservoir	3	5	24	70
Millsite	11	16	50	68
Minersville Reservoir	13	23	5	59
Moon Lake Reservoir	23	35	42	65
Otter Creek Reservoir	39	52	7	74
Panguitch Lake	21	22	26	94
Pineview Reservoir	84	110	33	77
Piute Reservoir	35	71	2	49
Porcupine Reservoir	9	11	44	82
Quail Creek	29	40	61	73
Red Fleet Reservoir	19	25	29	77
Rockport Reservoir	48	60	55	79
Sand Hollow Reservoir	46	50	58	93
Scofield Reservoir	54	65	17	82
Settlement Canyon Reservoir	0	1	17	46
Sevier Bridge Reservoir	31	236	1	13
Smith and Morehouse	5	8	61	73
Starvation Reservoir	142	164	60	86
Stateline Reservoir	7	12	43	62
Steinaker Reservoir	22	33	26	67
Strawberry Reservoir	971	1105	72	87
Upper Enterprise	6	10	5	66
Upper Stillwater Reservoir	30	32	41	93
Utah Lake	728	870	36	83
Willard Bay	188	215	33	87
Woodruff Creek	1	4	43	26
Woodruff Narrows Reservoir	50	57	20	87

Red (green) shading indicates >5% decrease (increase) in % capacity from this time last year.

Oct 1, 2023 | Water Availability Index (WAI)

Basin or Region	Reservoir Storage ¹ (KAF) ²	Monthly Flow	Flow + Storage (KAF) ²	WAI ³	Percentile ⁴ (%)	Similar Years
Bear	777.0	7.5	784.5	1.33	66	[1981, 2020]
Woodruff Narrows	50.3	6.4	56.7	3.41	91	[1984, 1986]
Little Bear	9.5	2.8	12.3	2.86	84	[2006, 2017]
Ogden	89.6	4.1	93.6	3.6	93	[1984, 2011]
Weber	160.1	16.2	176.2	3.7	94	[1993, 2011]
Provo	392.1	4.5	396.6	2.86	84	[1997, 2005]
Western Uintas	195.8	19.4	215.2	3.41	91	[1998, 1999]
Eastern Uintas	42.4	13.1	55.5	1.89	73	[1991, 1998]
Blacks Fork	12.9	6.3	19.2	2.34	78	[1991, 1997]
Smiths Fork	7.5	4.4	11.9	2.95	85	[1986, 1999]
Price	54.5	2.2	56.6	3.98	98	[1983, 1984]
Joes Valley	50.5	5.9	56.4	3.41	91	[1984, 2011]
Ferron Creek	11.5	1.3	12.8	0.76	59	[1983, 2016]
Moab	2.1	0.5	2.6	3.72	95	[2005, 2011]
Upper Sevier	74.4	5.5	80.0	2.84	84	[1995, 1998]
San Pitch	5.6	0.8	6.4	1.52	68	[1993, 2019]
Lower Sevier	31.5	4.0	35.5	-2.65	18	[1992, 2017]
Beaver River	13.8	3.4	17.3	3.22	89	[1984, 1995]
Virgin River	37.6	8.6	46.2	3.12	88	[1999, 2006]

¹ End of Month Reservoir Storage; ² KAF, Thousand Acre-Feet; ³ WAI, Water Availability Index; ⁴ Threshold for coloring: >75% Green, <25% Red

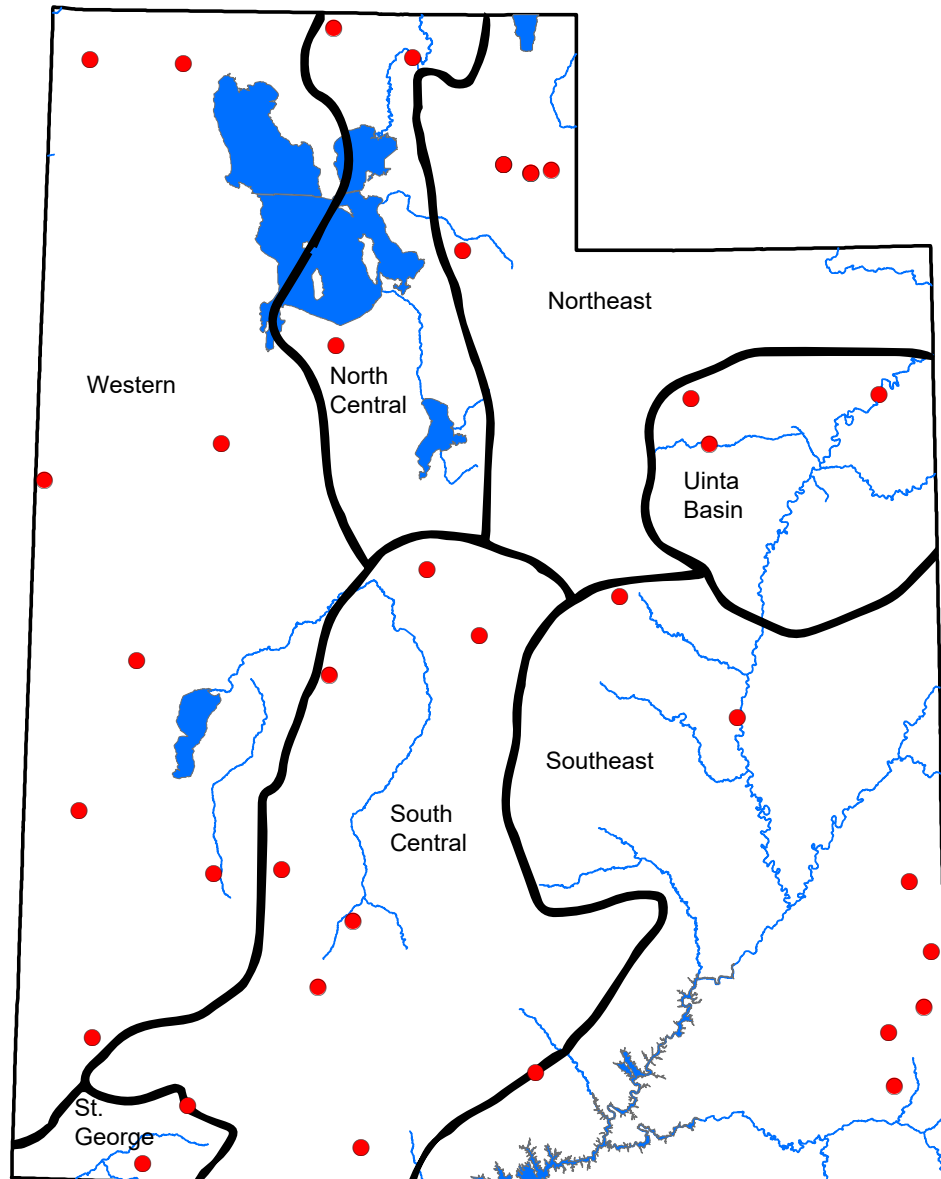
What is a Water Availability Index?

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 month's streamflow. Note that starting in June, 2022, un-adjusted streamflow values are used in this calculation. Prior to this date, 'naturalized' or 'adjusted' values were used. Please contact Jordan Clayton for details and rationale concerning this methodological change. See Appendix A for details on specific stream gauges and reservoirs used in WAI calculations.

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.

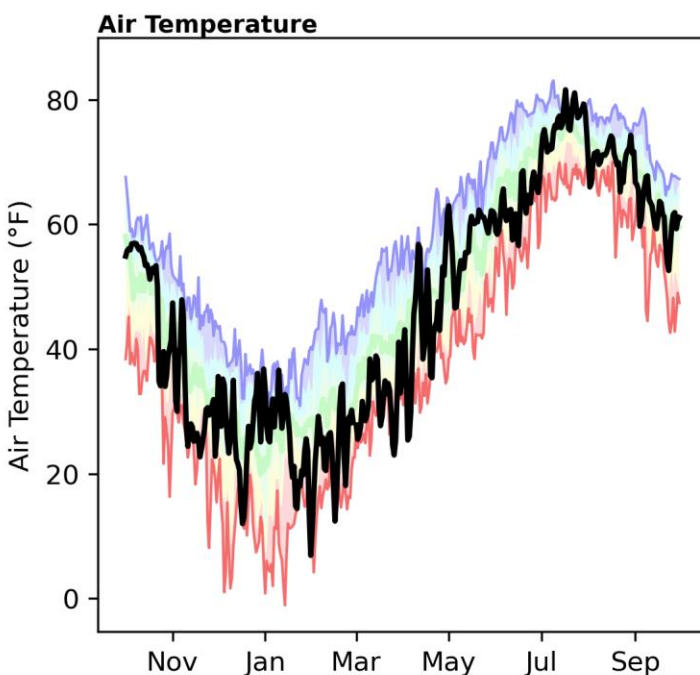
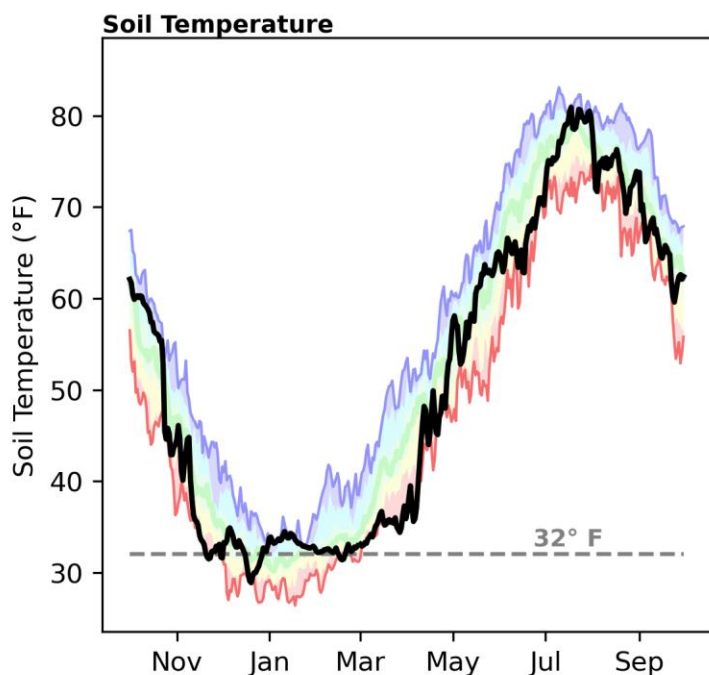
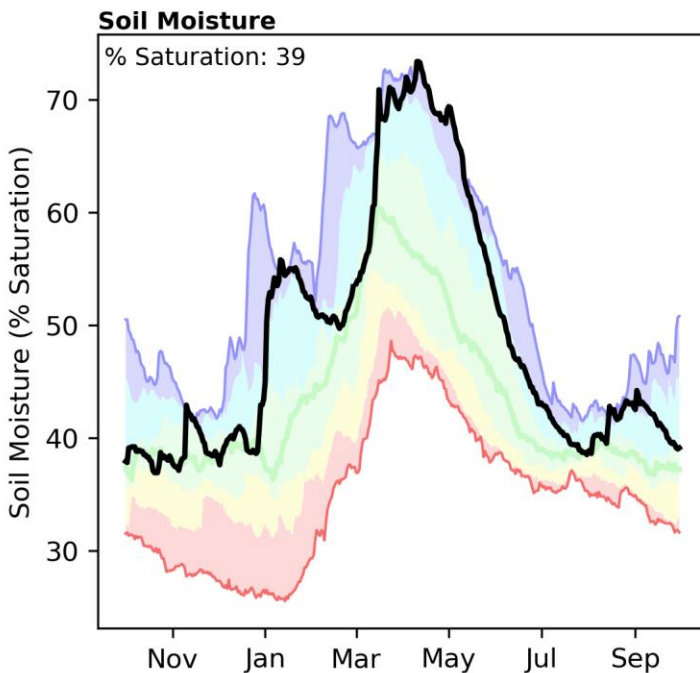
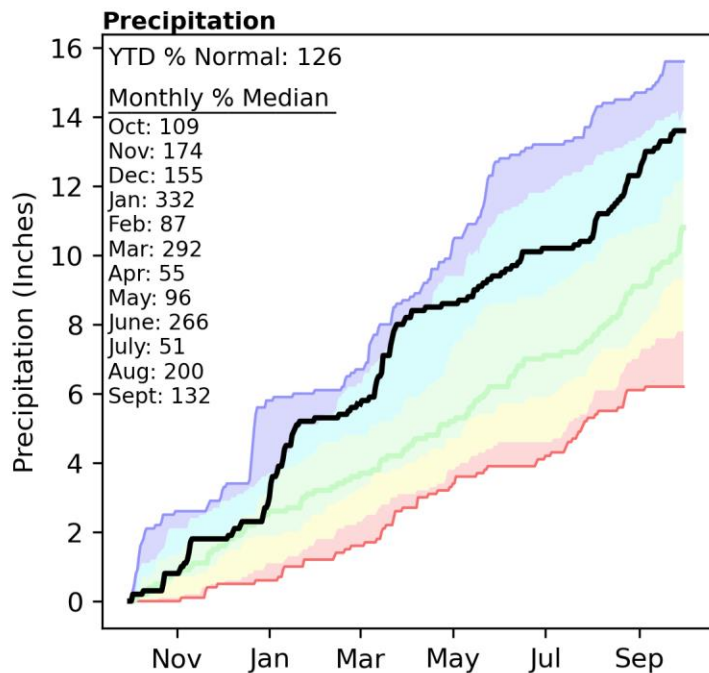
The Utah Snow Survey has also chosen to display the WAI value as well as a PERCENT CHANCE OF NON-EXCEEDANCE. While this is a cumbersome name, it has a simple application. It can be best thought of as a scale of 1 to 99 with 1 being the drought of record (driest possible conditions) and 99 being the flood 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 WAI 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.

SCAN portion of report



Statewide SCAN | October 1, 2023

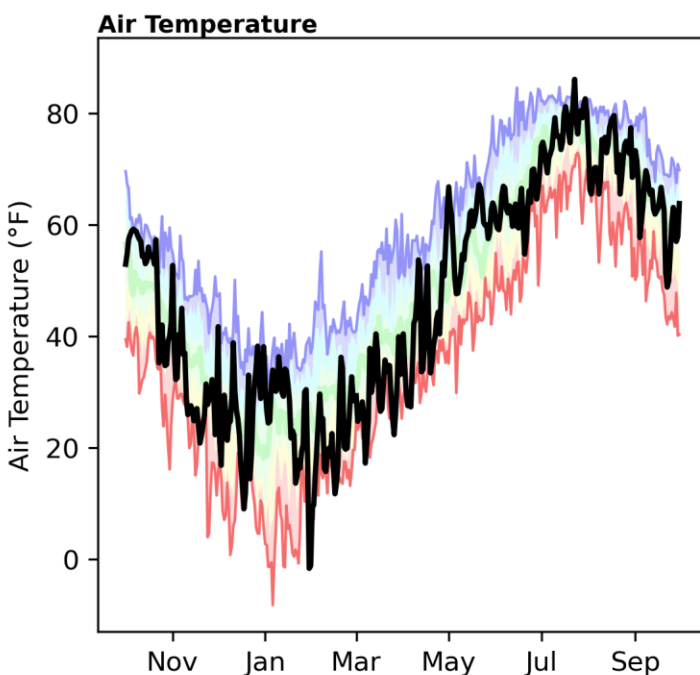
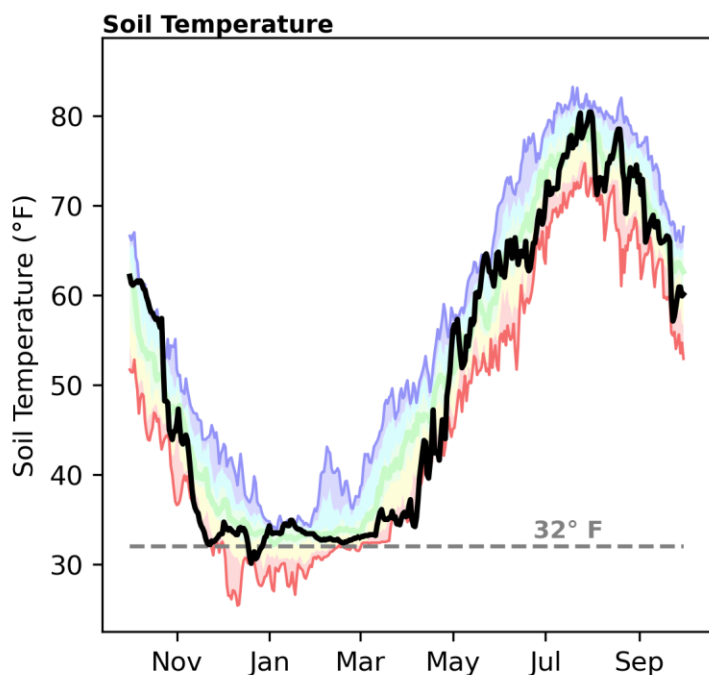
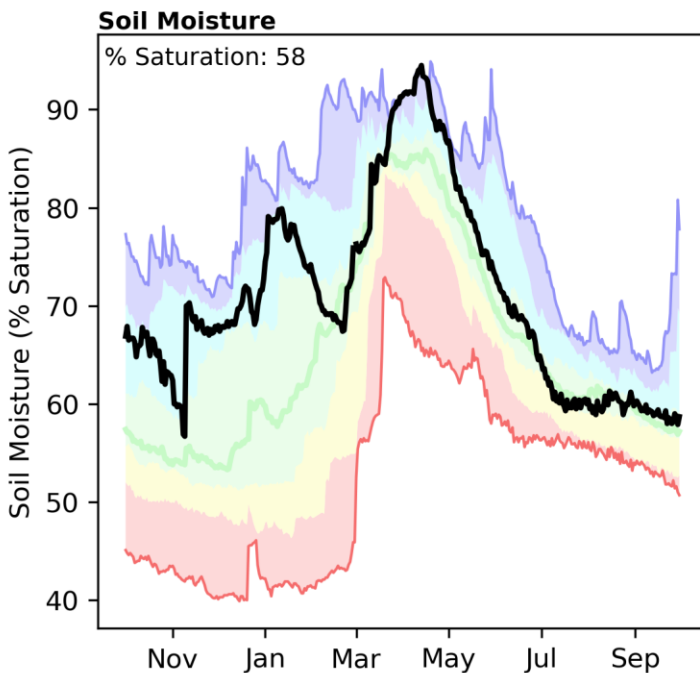
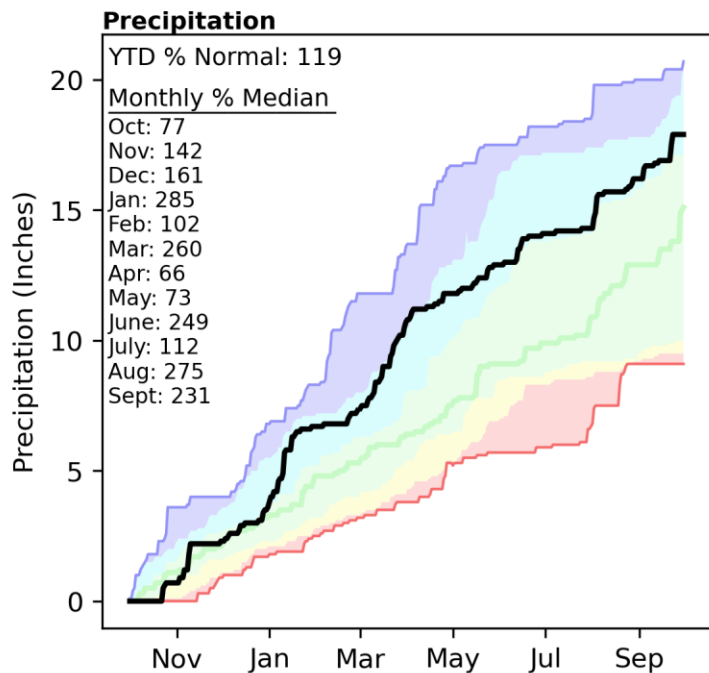
Precipitation in September was well above normal, with an average of 1.2" falling region-wide (132% of normal). This brings the water year accumulation (October-September) to 126% of median. Depth averaged soil moisture was calculated to be 39% of saturation compared to 36% at this time last year.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

North Central Utah | October 1, 2023

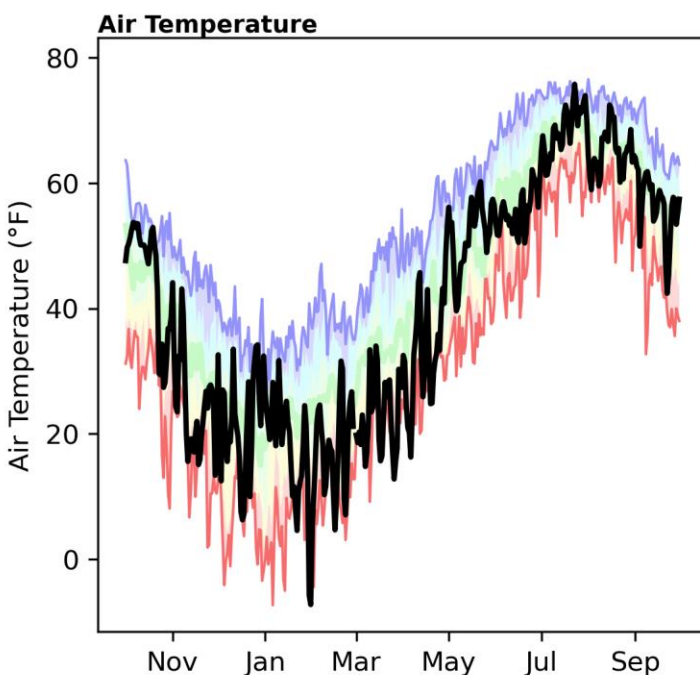
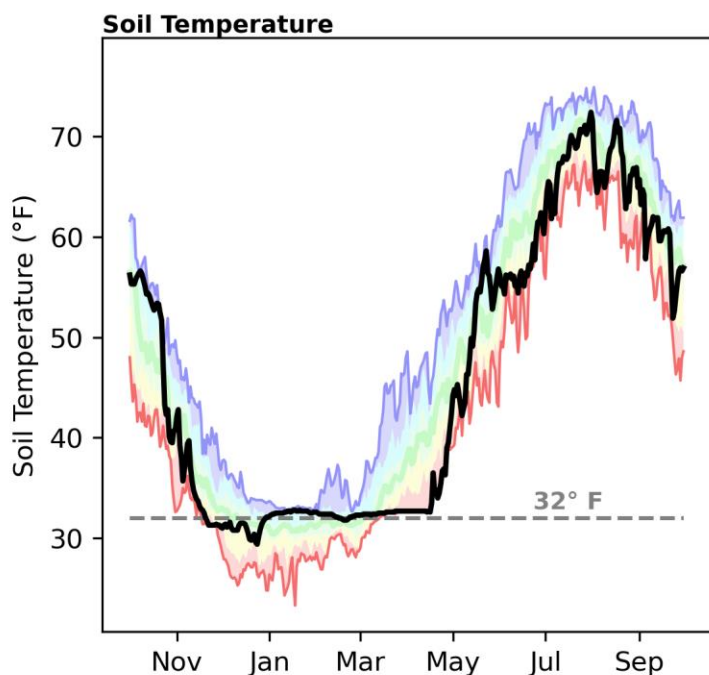
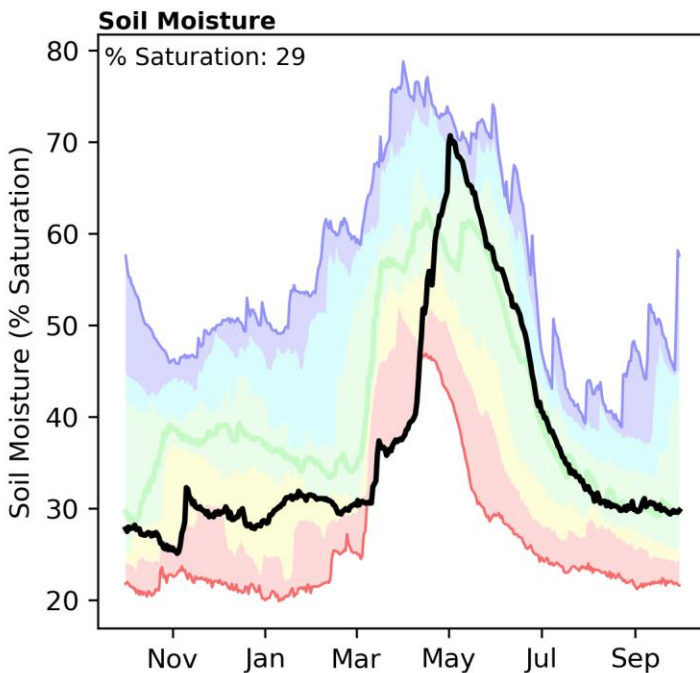
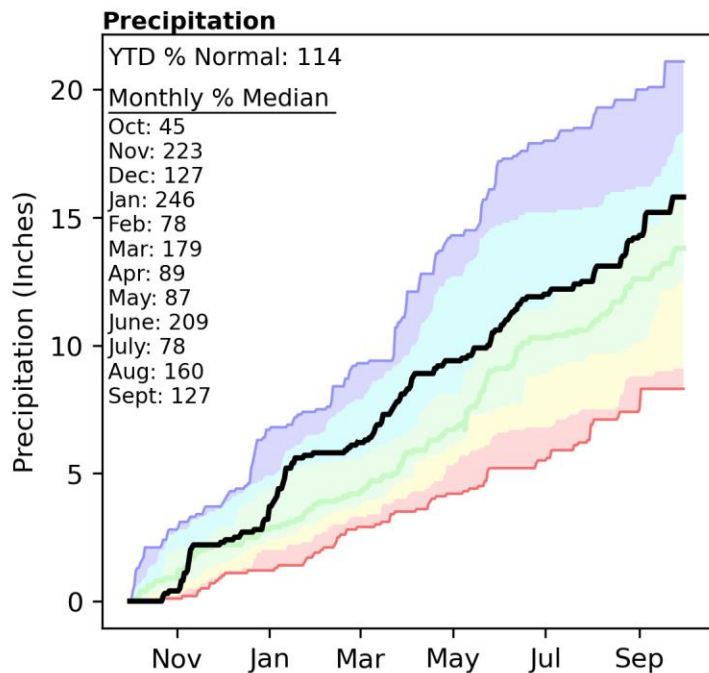
Precipitation in September was well above normal, with an average of 1.7" falling region-wide (231% of normal). This brings the water year accumulation (October-September) to 119% of median. Depth averaged soil moisture was calculated to be 58% of saturation compared to 57% at this time last year.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

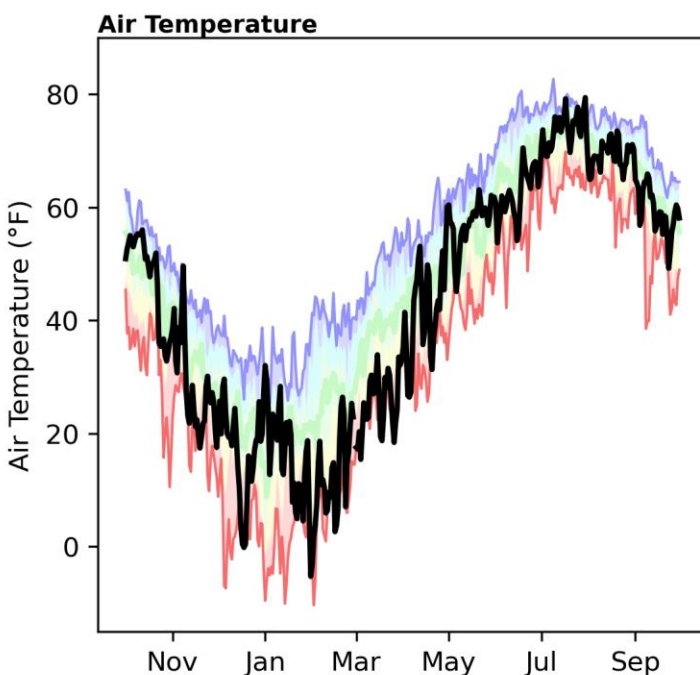
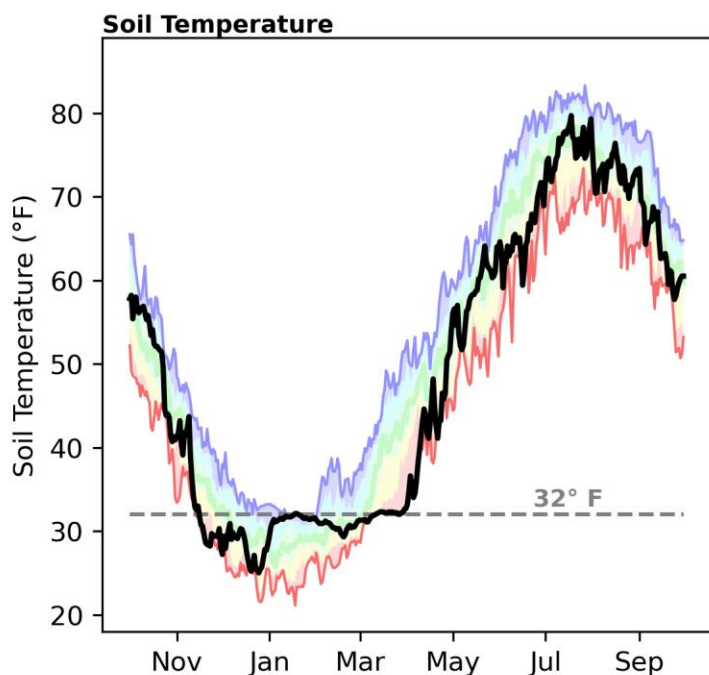
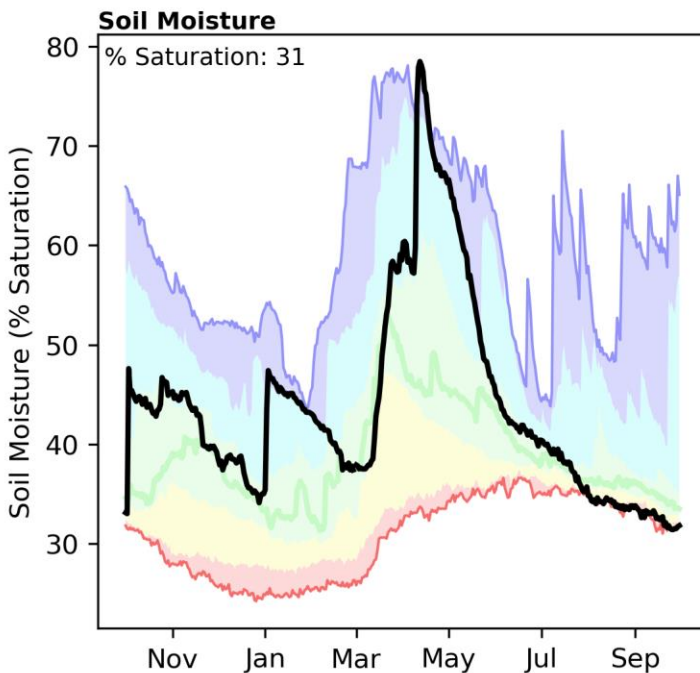
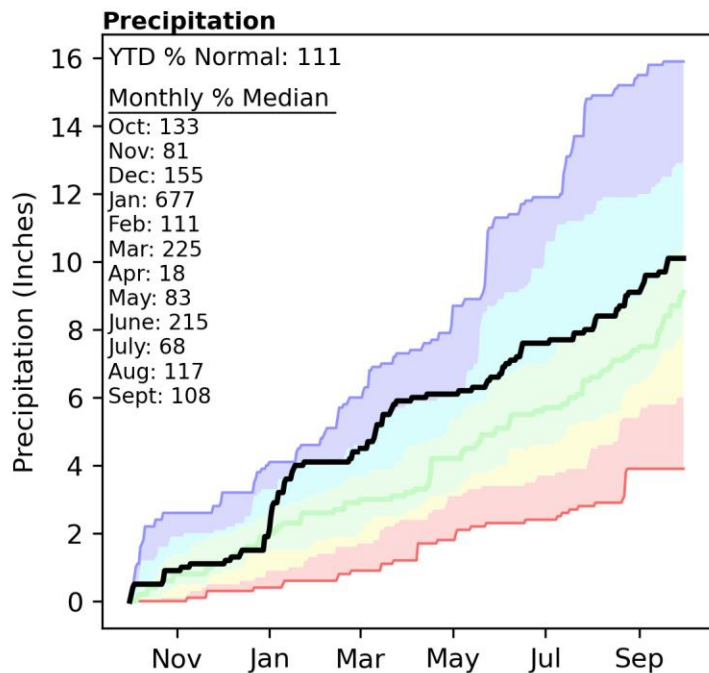
Northeast Utah | October 1, 2023

Precipitation in September was above normal, with an average of 1.5" falling region-wide (127% of normal). This brings the water year accumulation (October-September) to 114% of median. Depth averaged soil moisture was calculated to be 29% of saturation compared to 28% at this time last year.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

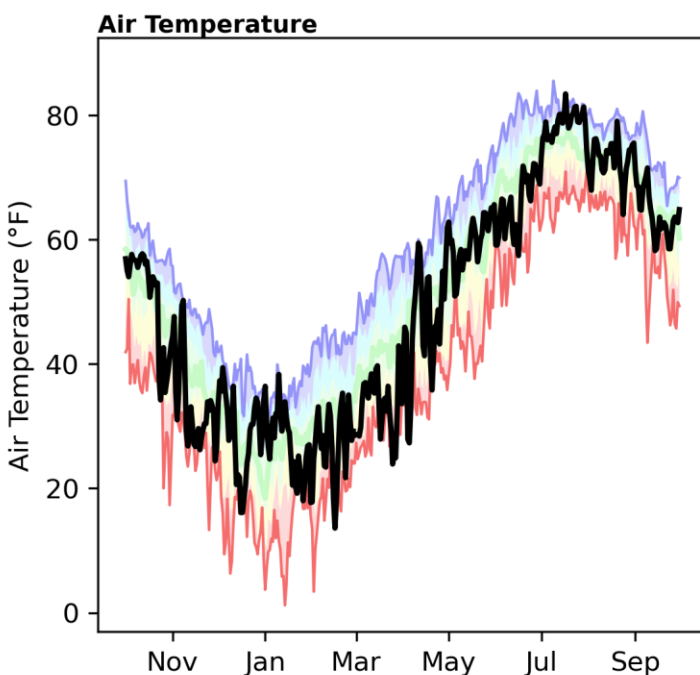
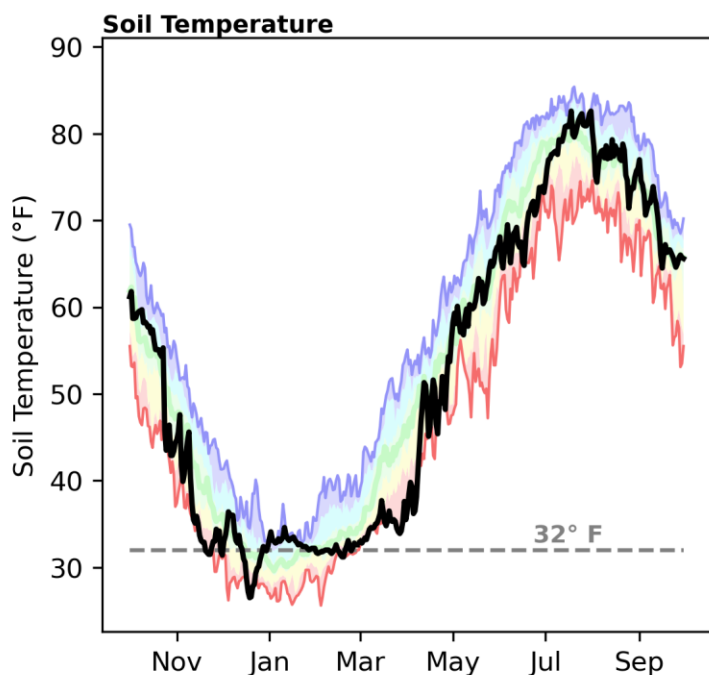
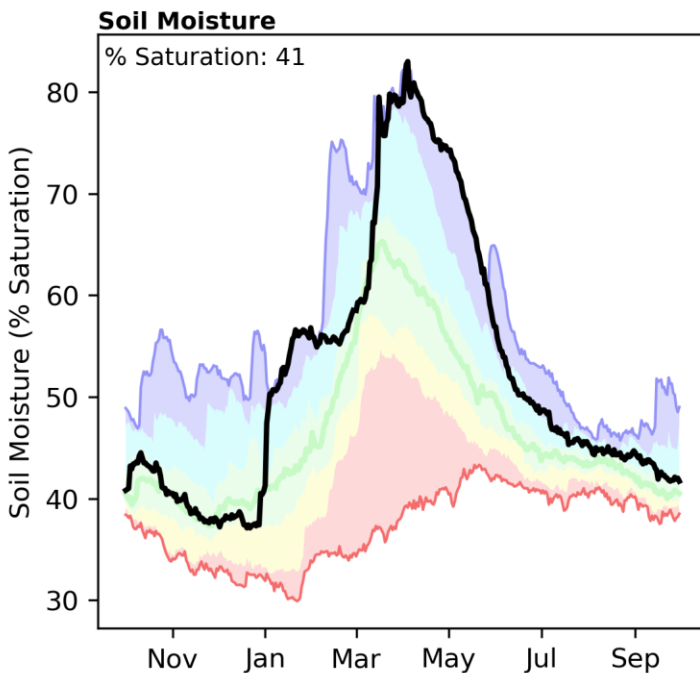
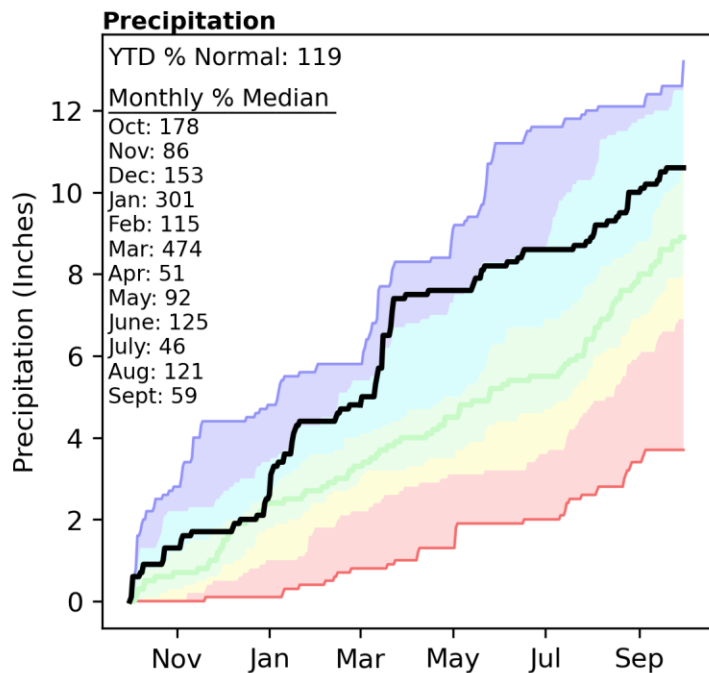
Precipitation in September was about normal, with an average of 1.0" falling region-wide (108% of normal). This brings the water year accumulation (October-September) to 111% of median. Depth averaged soil moisture was calculated to be 31% of saturation compared to 32% at this time last year.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

Southeast Utah | October 1, 2023

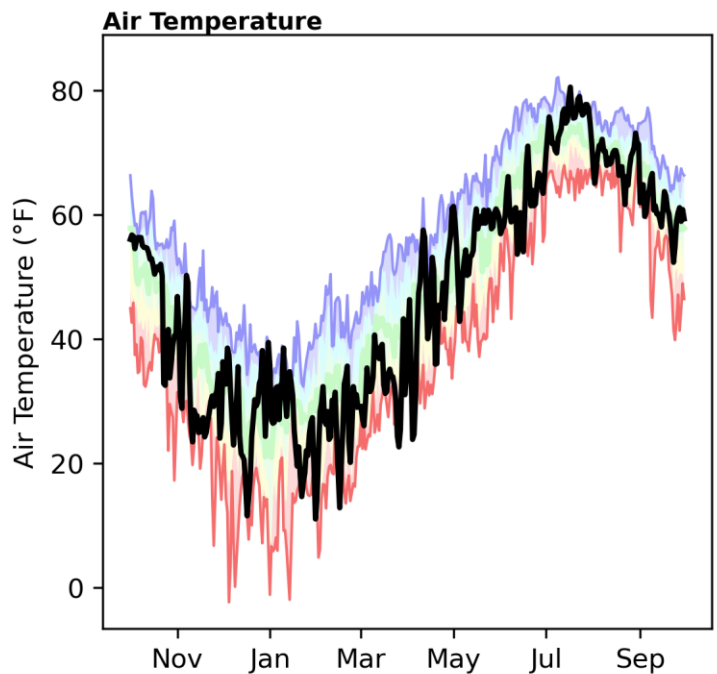
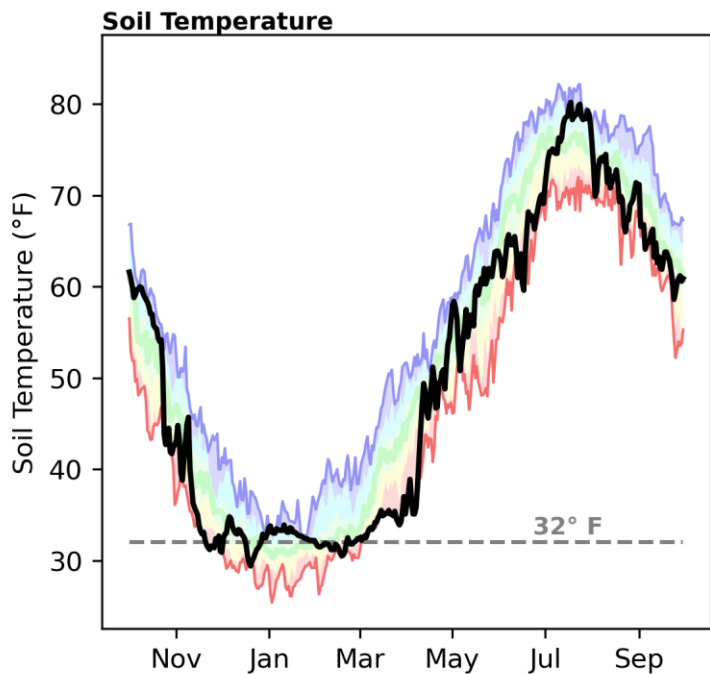
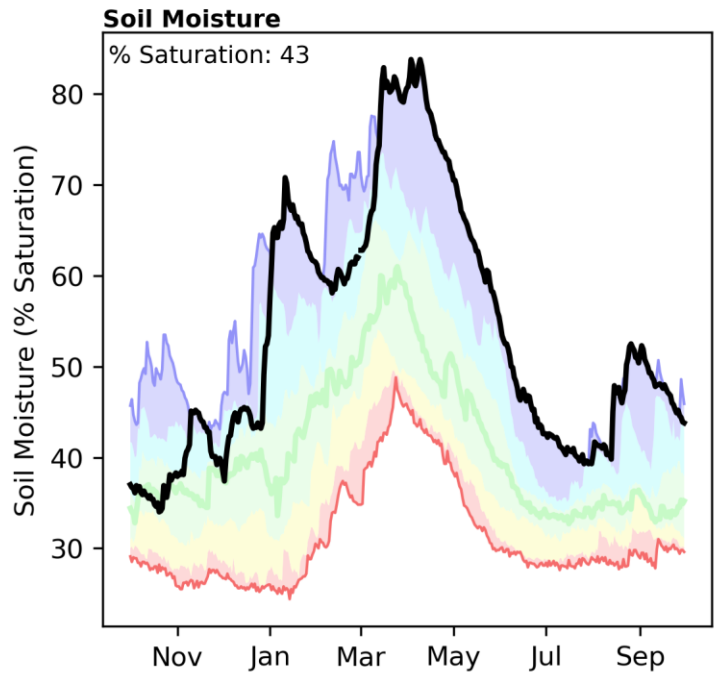
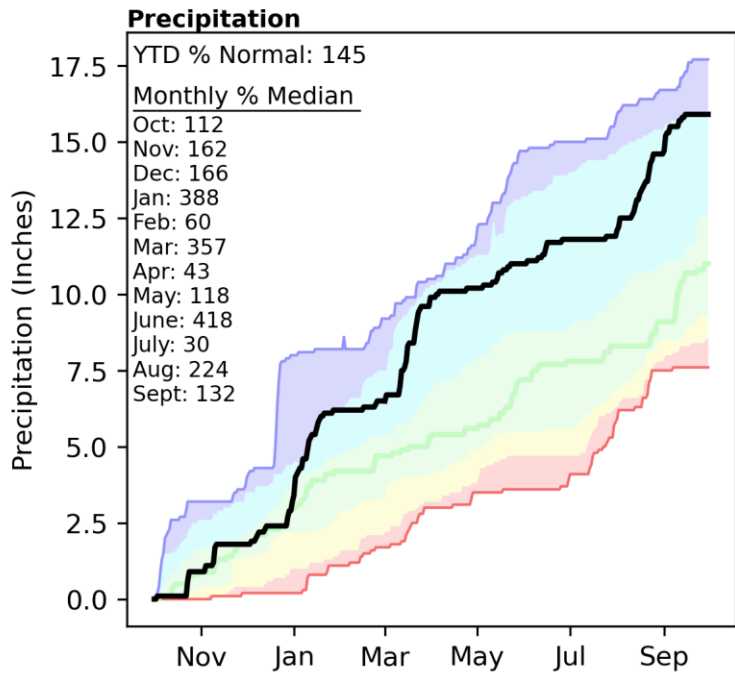
Precipitation in September was well below normal, with an average of 0.5" falling region-wide (59% of normal). This brings the water year accumulation (October-September) to 119% of median. Depth averaged soil moisture was calculated to be 41% of saturation compared to 41% at this time last year.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

South Central Utah | October 1, 2023

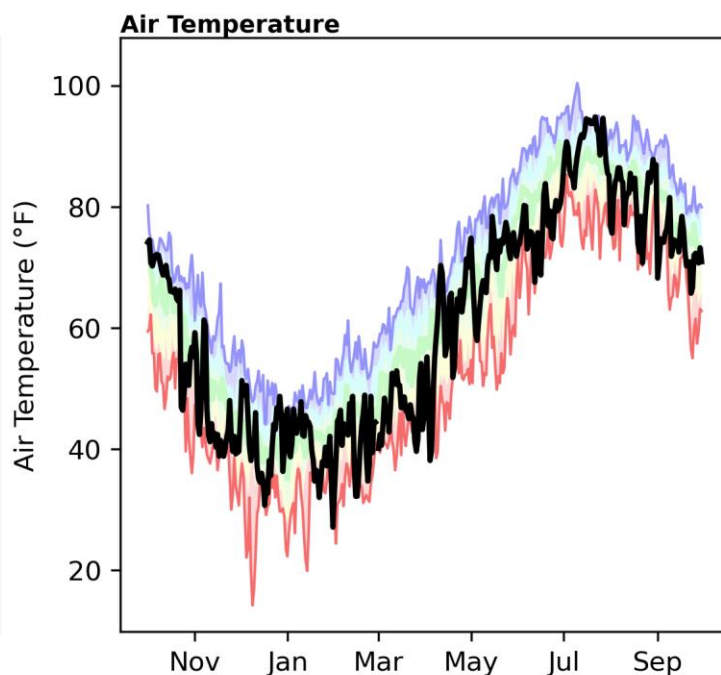
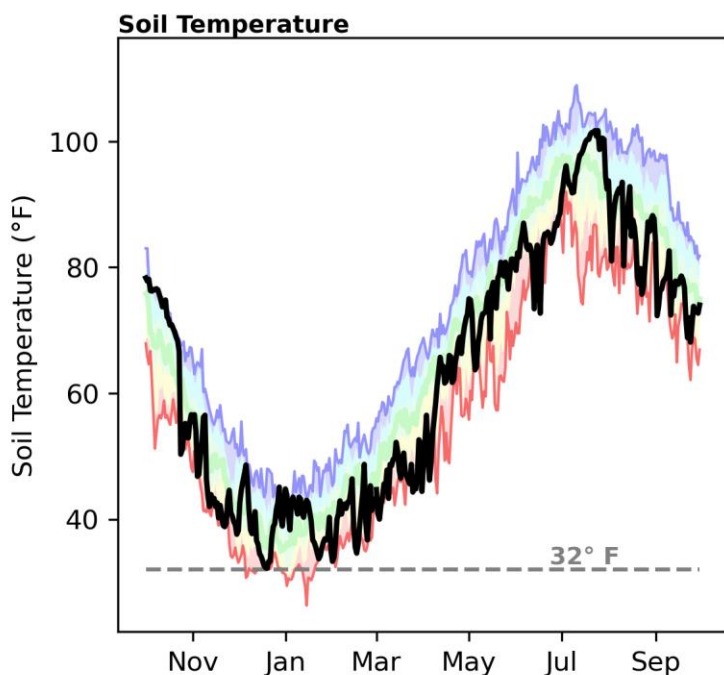
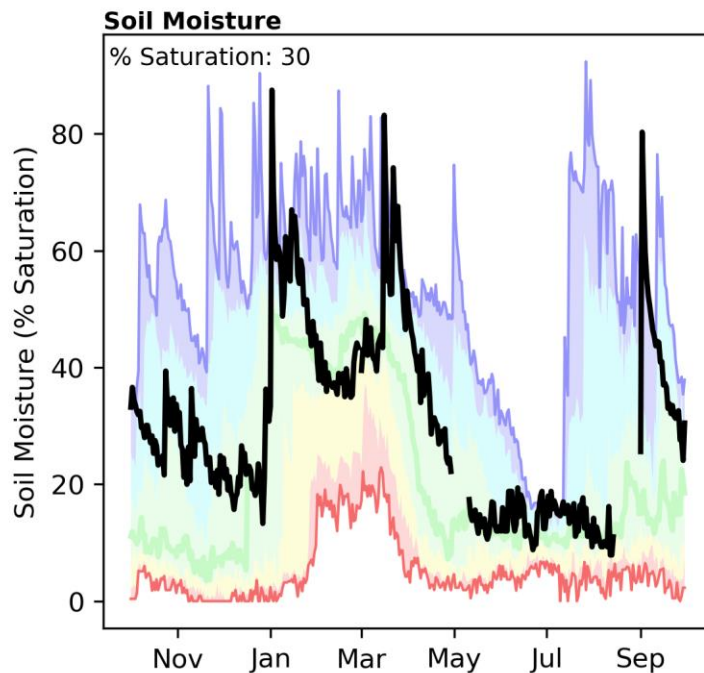
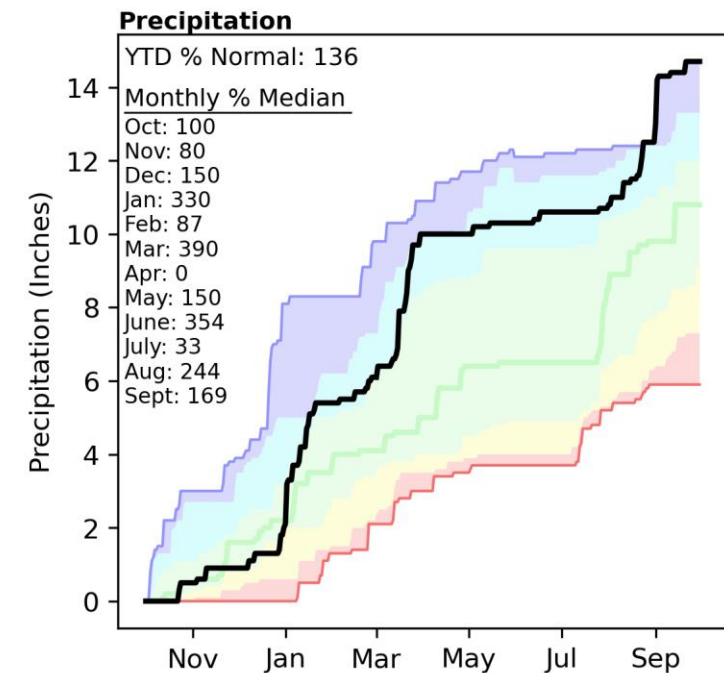
Precipitation in September was well above normal, with an average of 1.2" falling region-wide (132% of normal). This brings the water year accumulation (October-September) to 145% of median. Depth averaged soil moisture was calculated to be 43% of saturation compared to 37% at this time last year.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

St. George Region | October 1, 2023

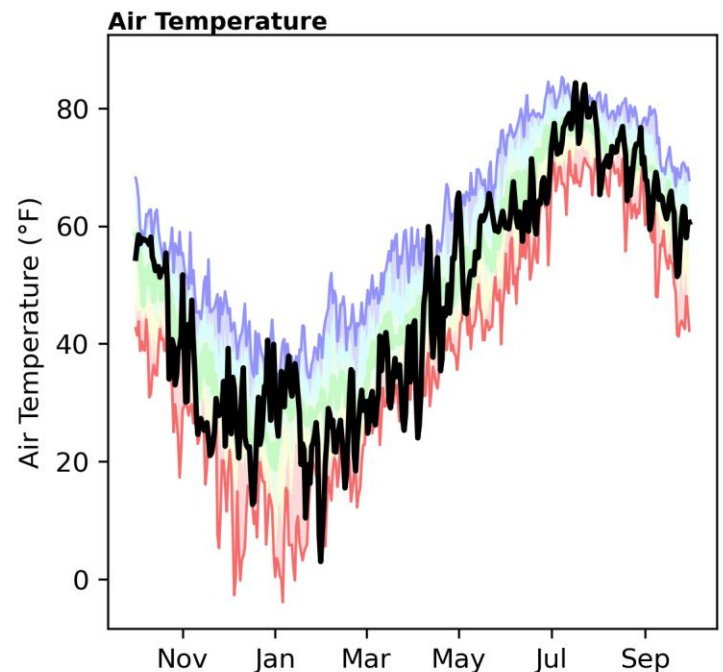
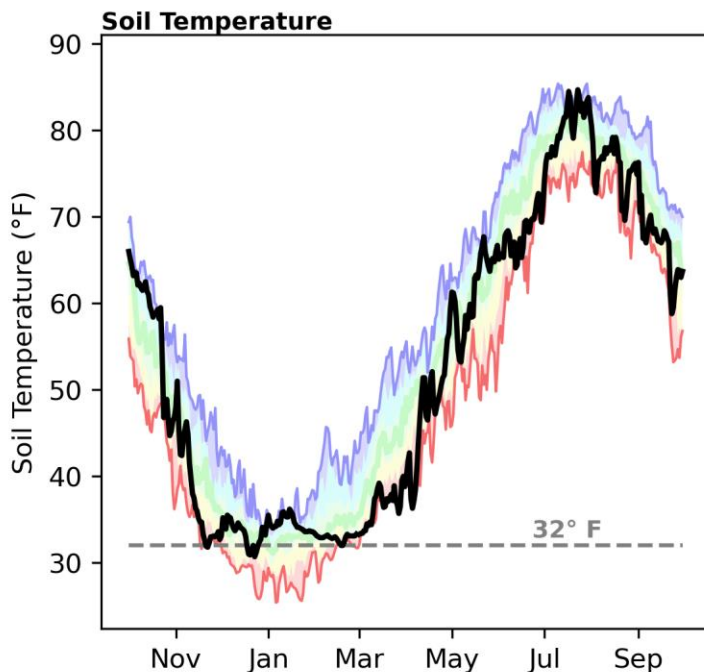
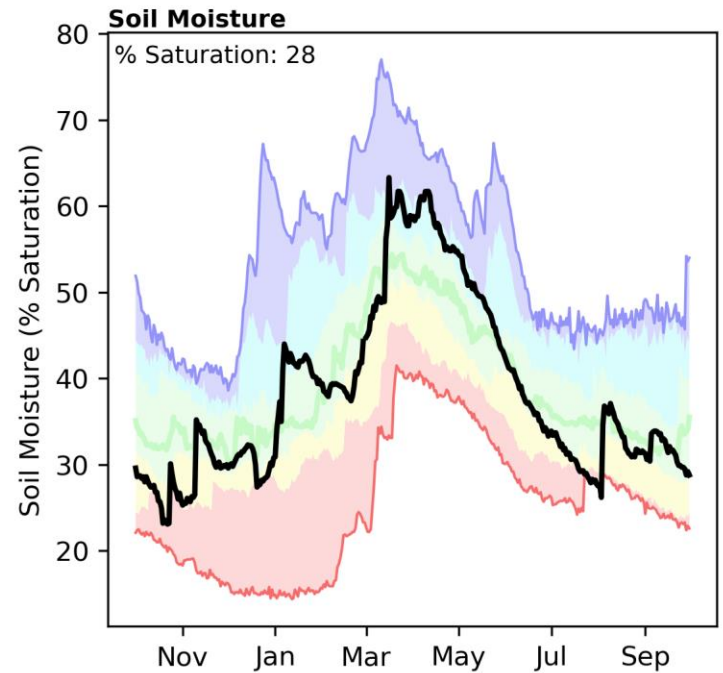
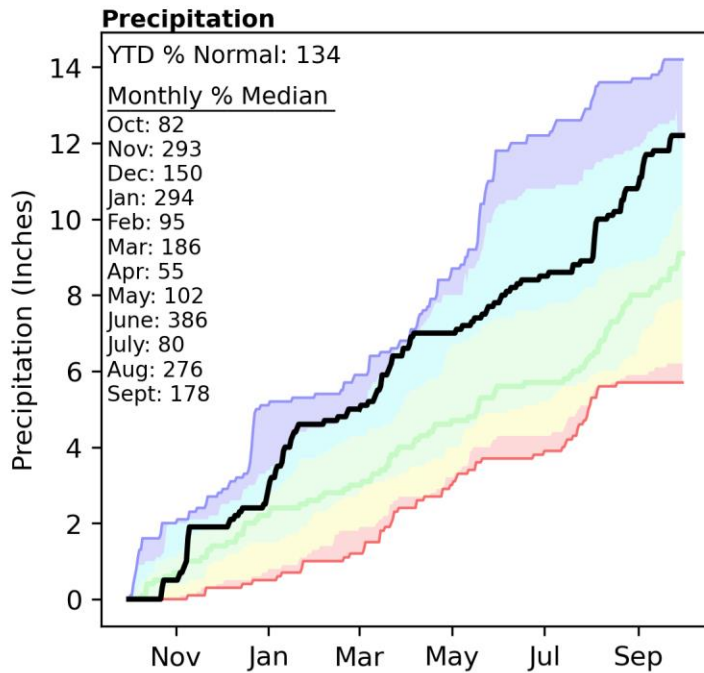
Precipitation in September was well above normal, with an average of 1.7" falling region-wide (169% of normal). This brings the water year accumulation (October-September) to 136% of median. Depth averaged soil moisture was calculated to be 30% of saturation compared to 37% at this time last year.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

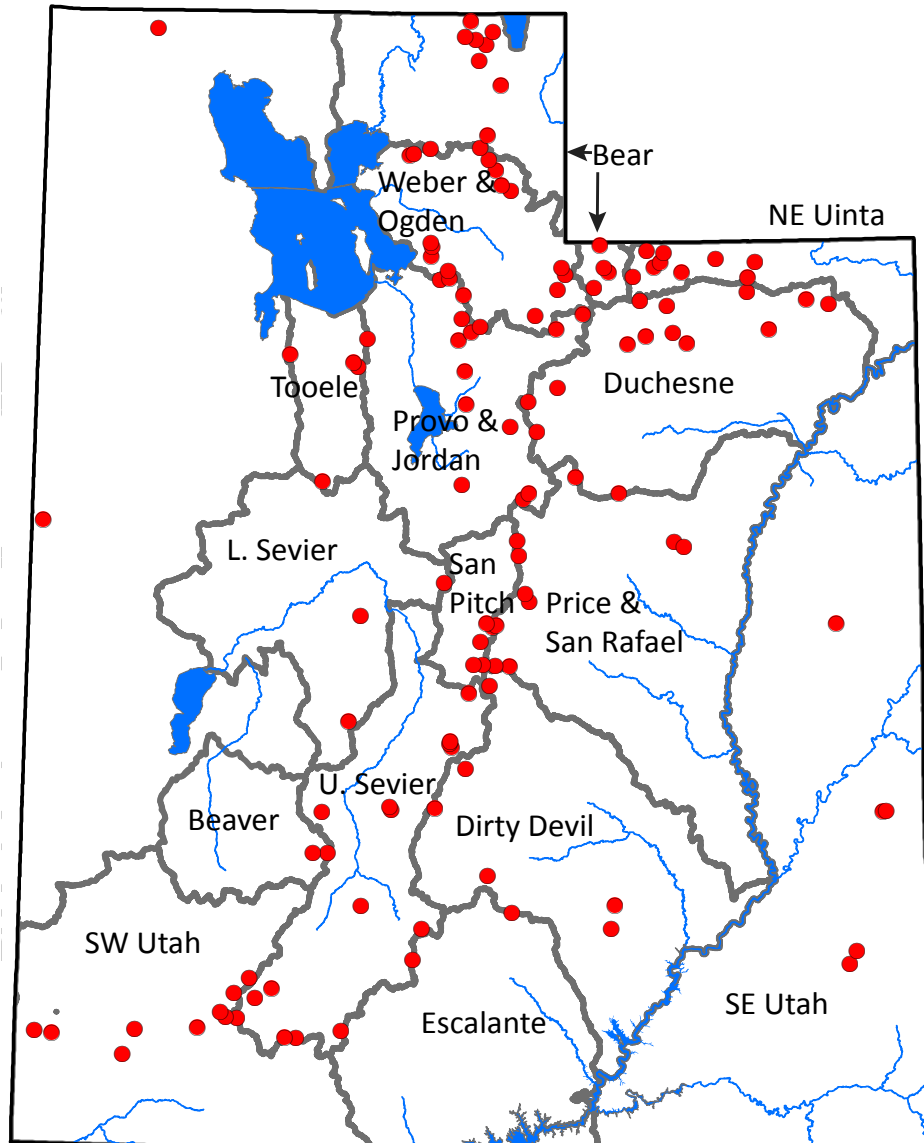
Western Utah | October 1, 2023

Precipitation in September was well above normal, with an average of 1.4" falling region-wide (178% of normal). This brings the water year accumulation (October-September) to 134% of median. Depth averaged soil moisture was calculated to be 28% of saturation compared to 29% at this time last year.



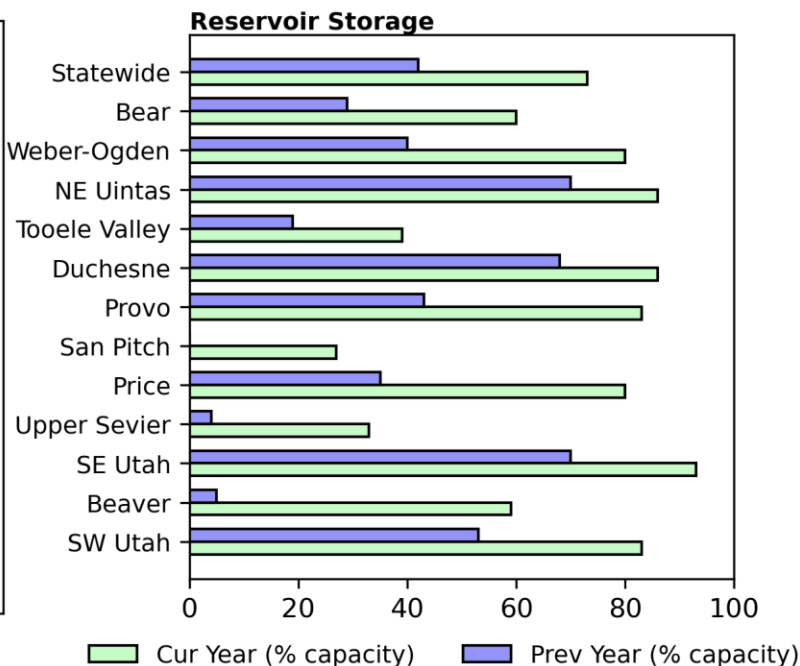
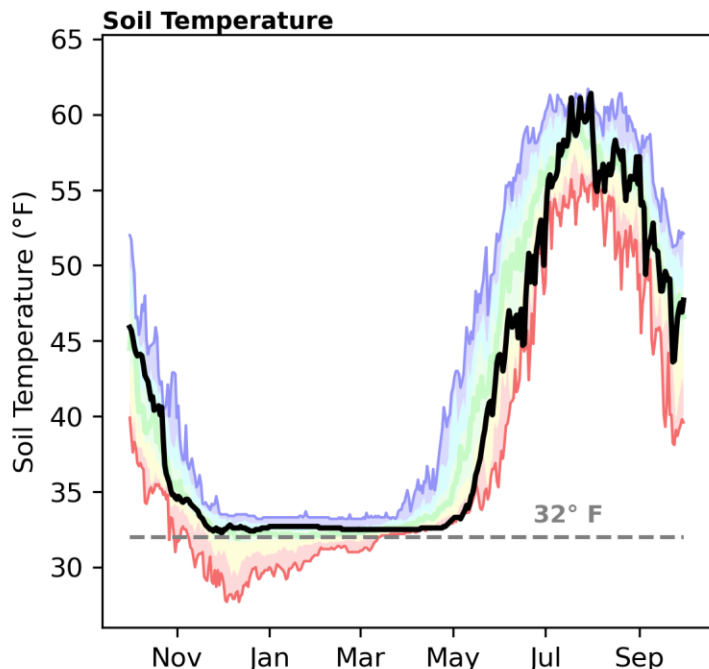
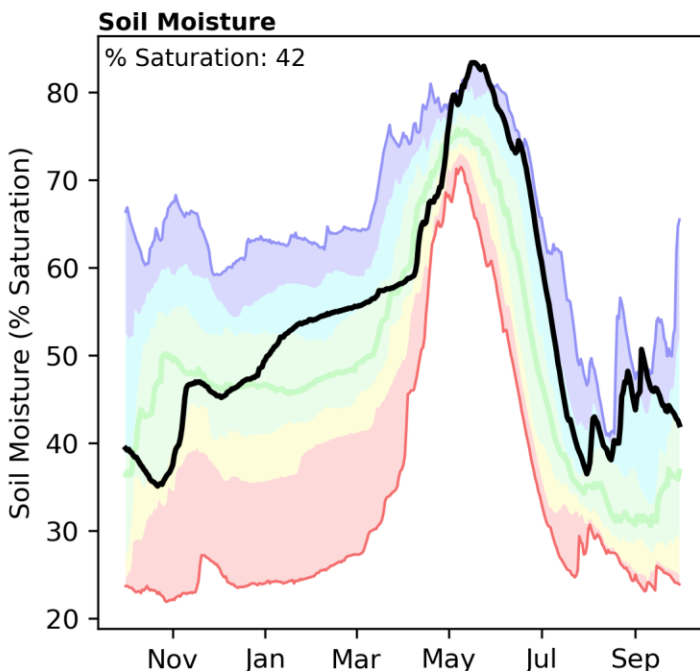
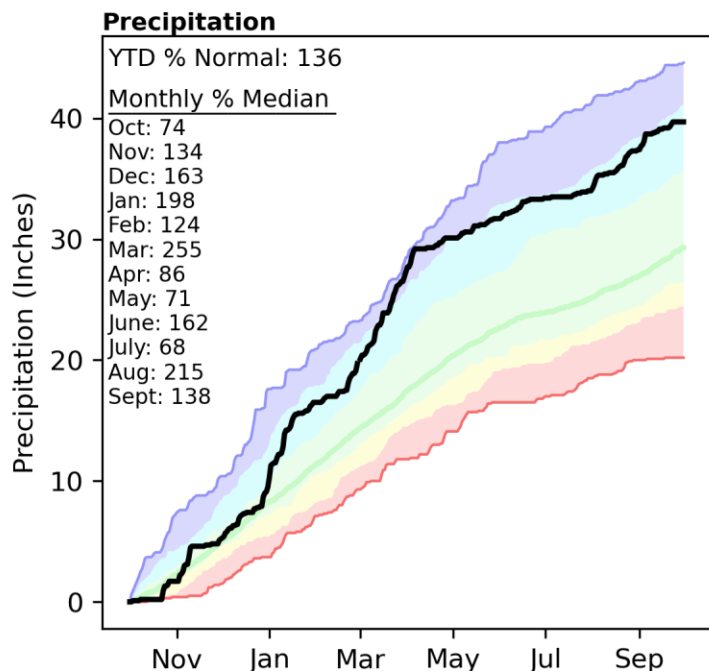
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

SNOTEL portion of report



Statewide Snotel | October 1, 2023

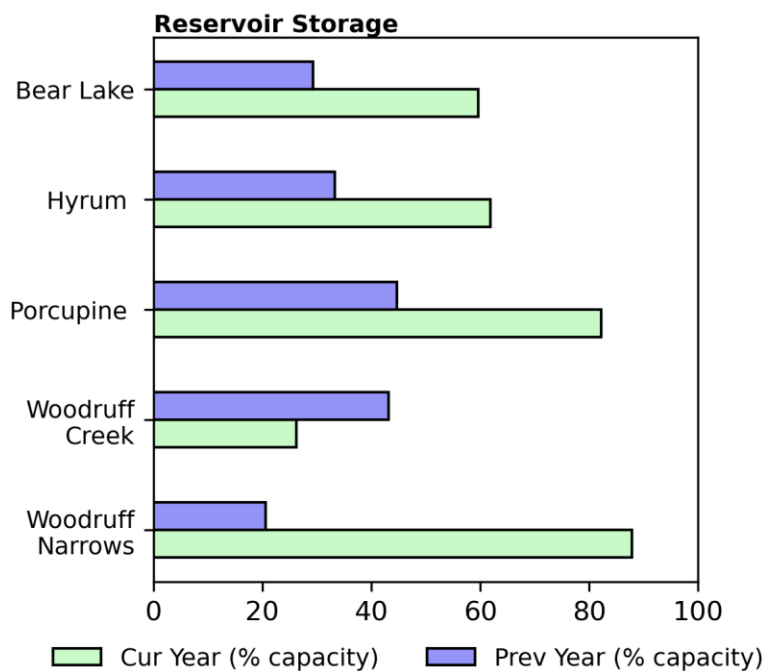
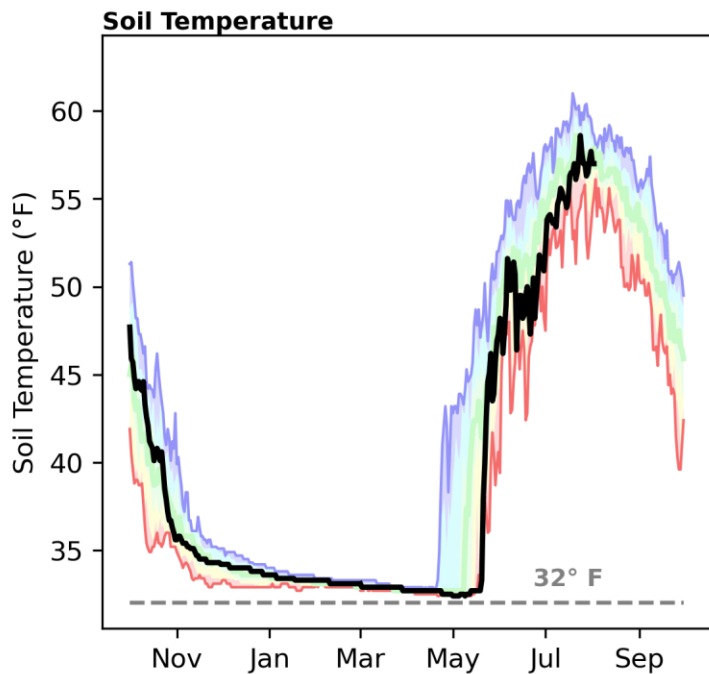
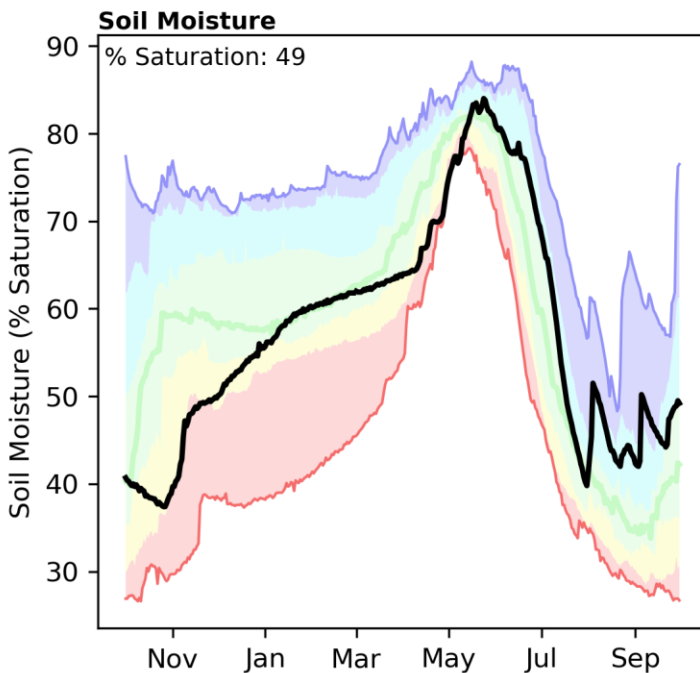
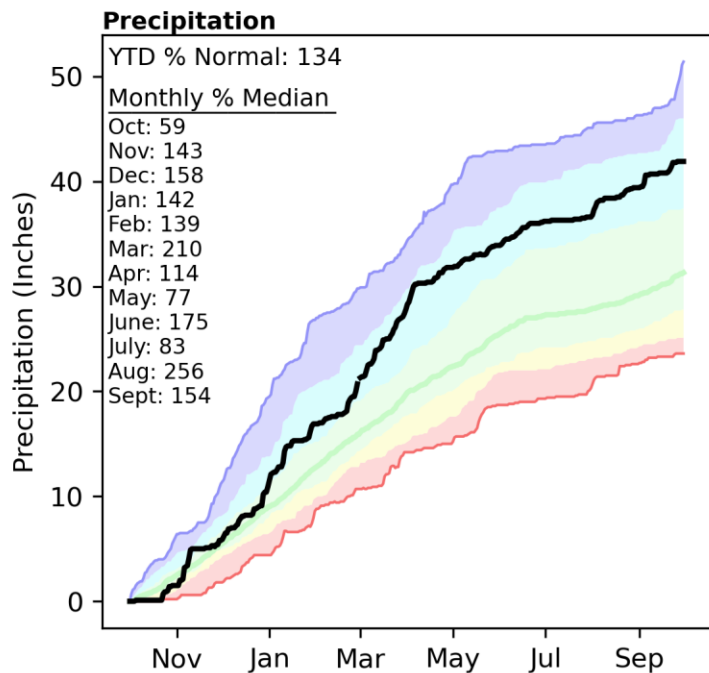
Precipitation in September was well above normal, with an average of 2.3" falling region-wide (138% of normal). This brings the water year accumulation (October-September) to 136% of median. Depth averaged soil moisture was calculated to be 42% of saturation compared to 39% at this time last year. Statewide, reservoir storage is 73% of capacity, compared to 42% last year¹.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

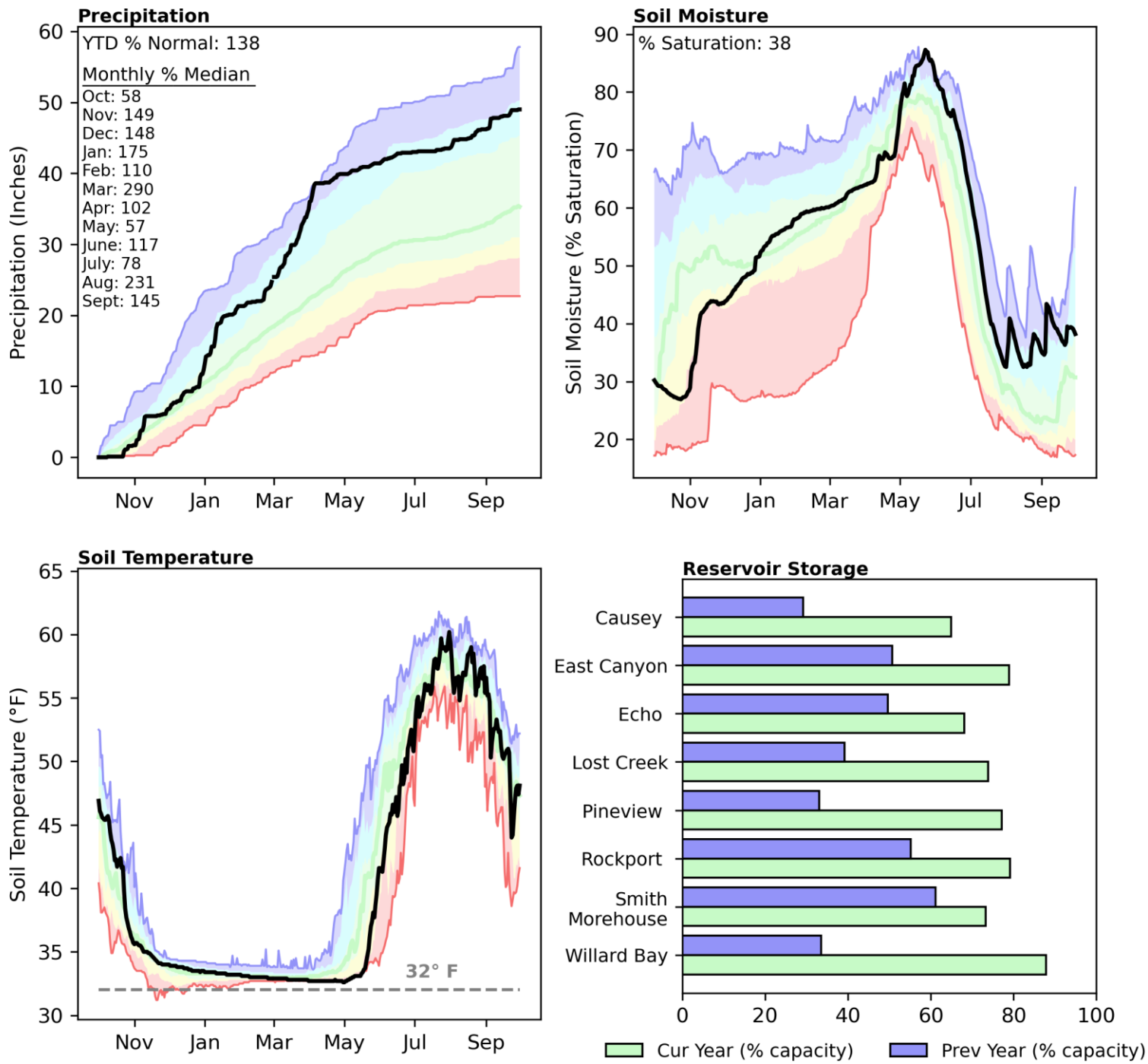
¹Statewide reservoir percentages exclude Lake Powell and Flaming Gorge Reservoirs.

Precipitation in September was well above normal, with an average of 2.5" falling region-wide (154% of normal). This brings the water year accumulation (October-September) to 134% of median. Depth averaged soil moisture was calculated to be 49% of saturation compared to 41% at this time last year. Reservoir storage is 60% of capacity, compared to 29% last year. The Water Availability Index percentiles are 66% for the Bear, 84% for the Little Bear, and 91% for Woodruff Narrows.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

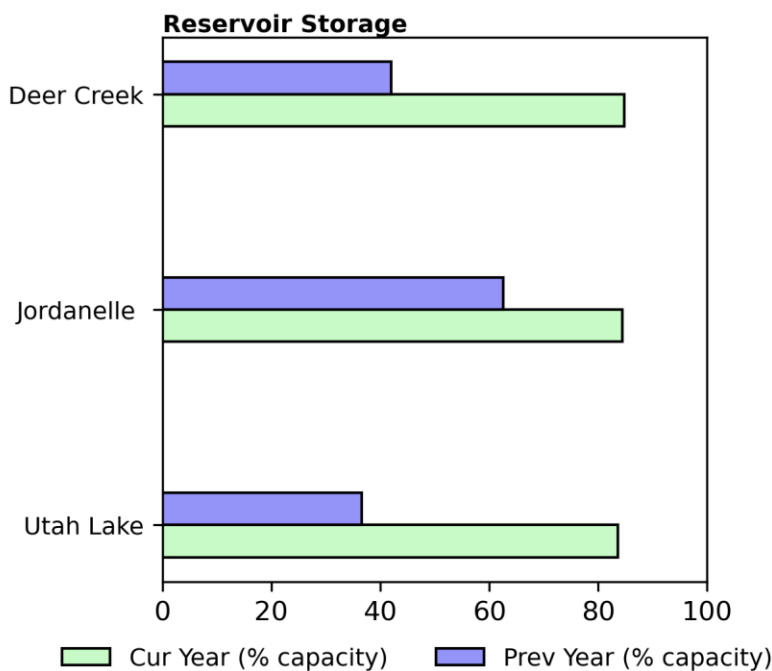
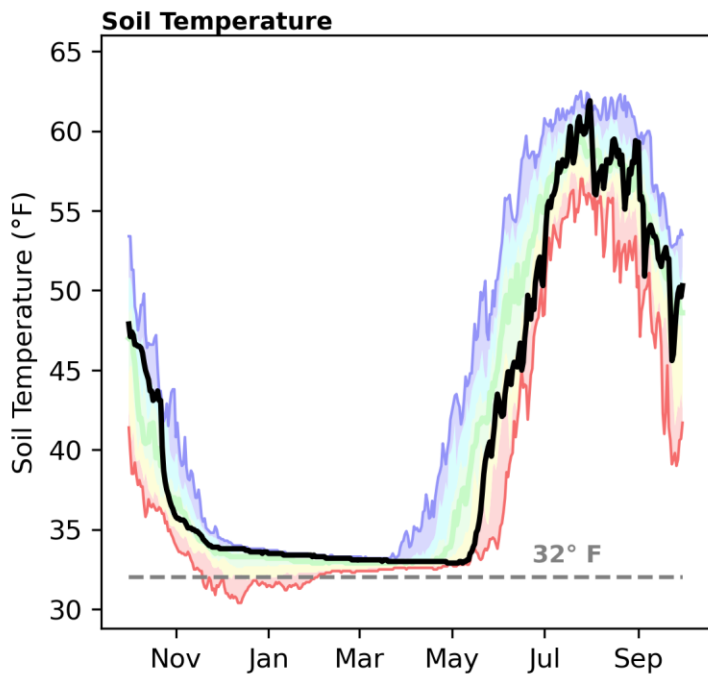
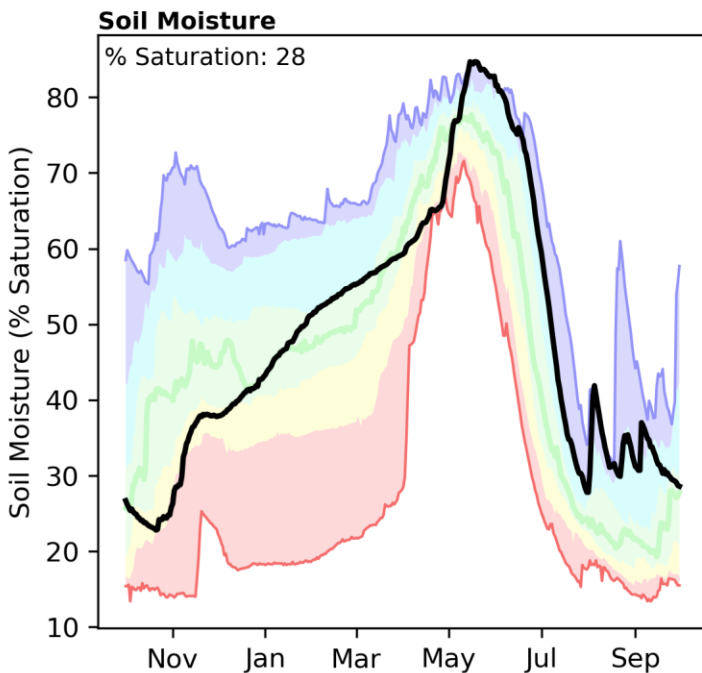
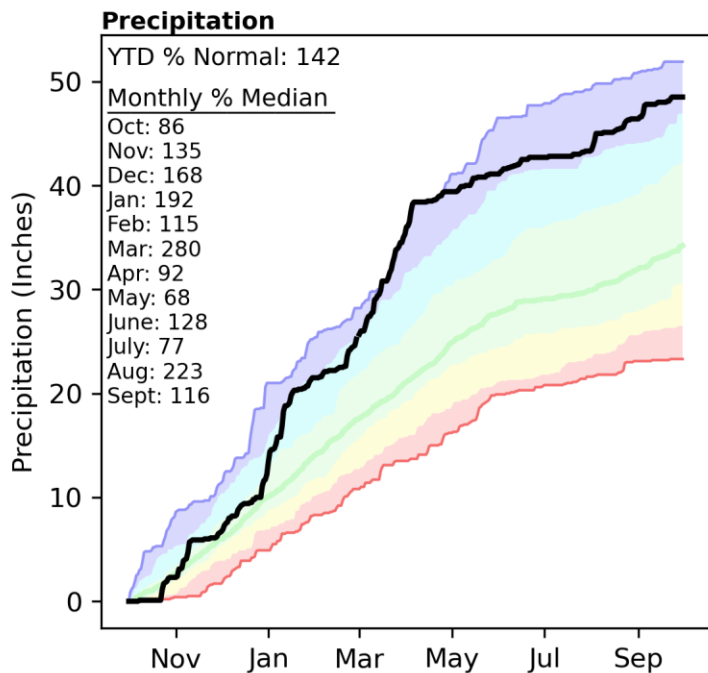
Precipitation in September was well above normal, with an average of 2.8" falling region-wide (145% of normal). This brings the water year accumulation (October-September) to 138% of median. Depth averaged soil moisture was calculated to be 38% of saturation compared to 30% at this time last year. Reservoir storage is 80% of capacity, compared to 40% last year. The Water Availability Index percentiles are 94% for the Weber, and 93% for the Ogden.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

Provo-Jordan-Utah Lake | October 1, 2023

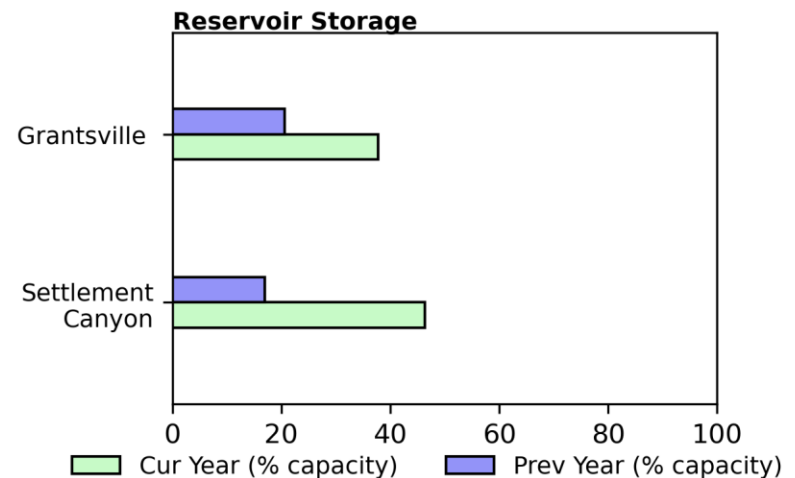
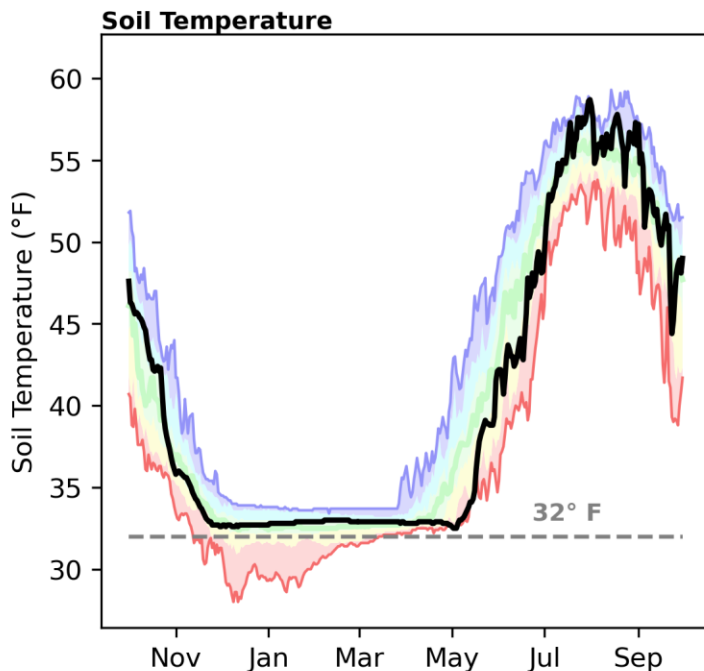
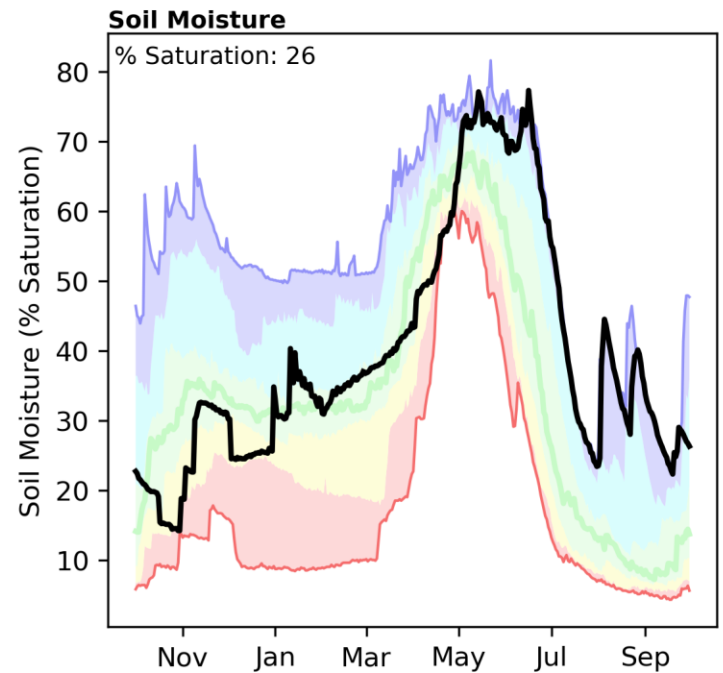
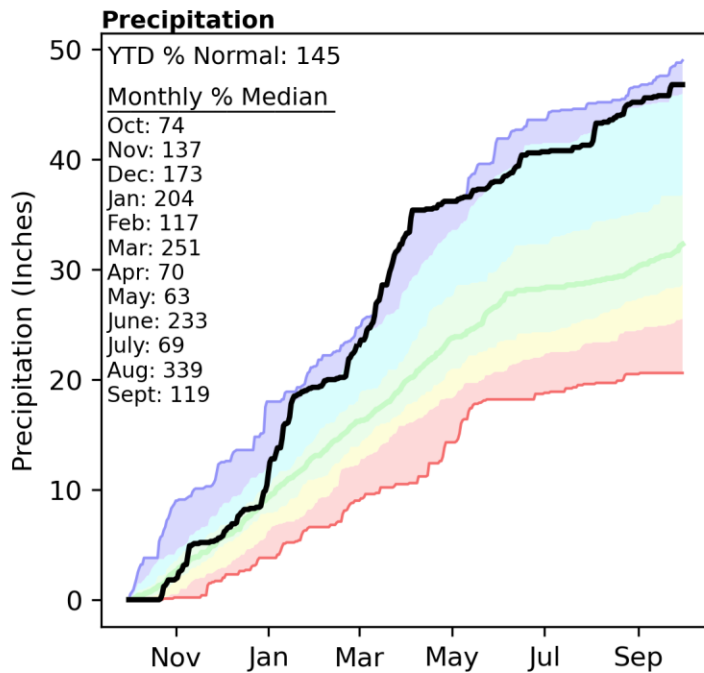
Precipitation in September was above normal, with an average of 2.1" falling region-wide (116% of normal). This brings the water year accumulation (October-September) to 142% of median. Depth averaged soil moisture was calculated to be 28% of saturation compared to 28% at this time last year. Reservoir storage is 83% of capacity, compared to 43% last year. The Water Availability Index percentile is 84% for the Provo.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

Tooele Valley-Vernon Creek | October 1, 2023

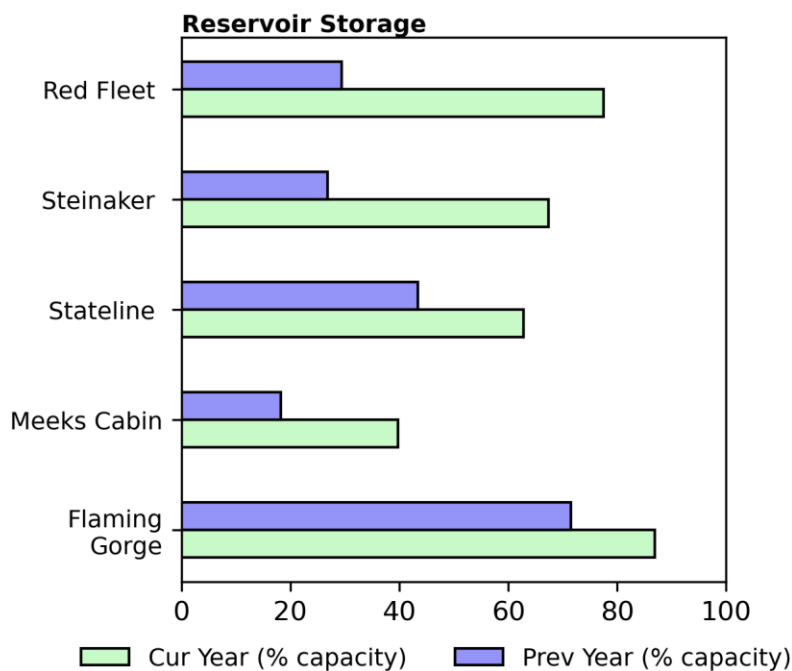
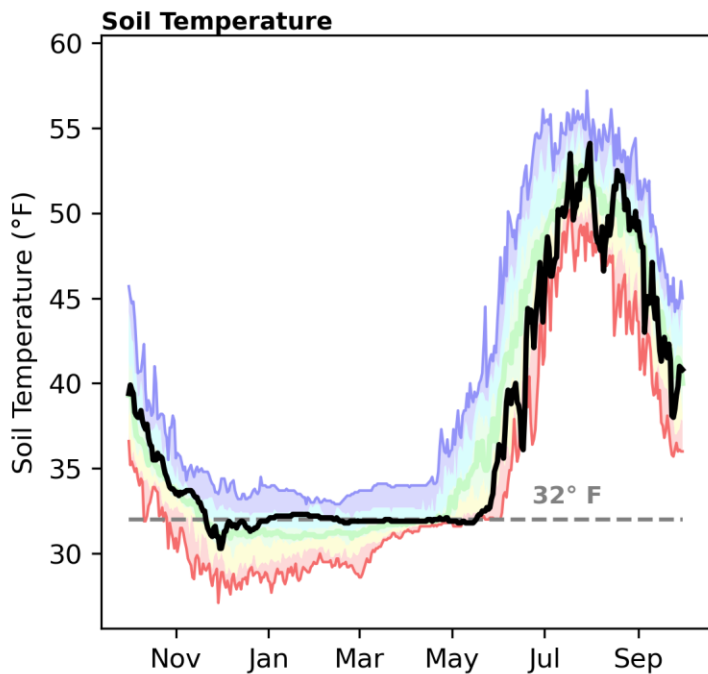
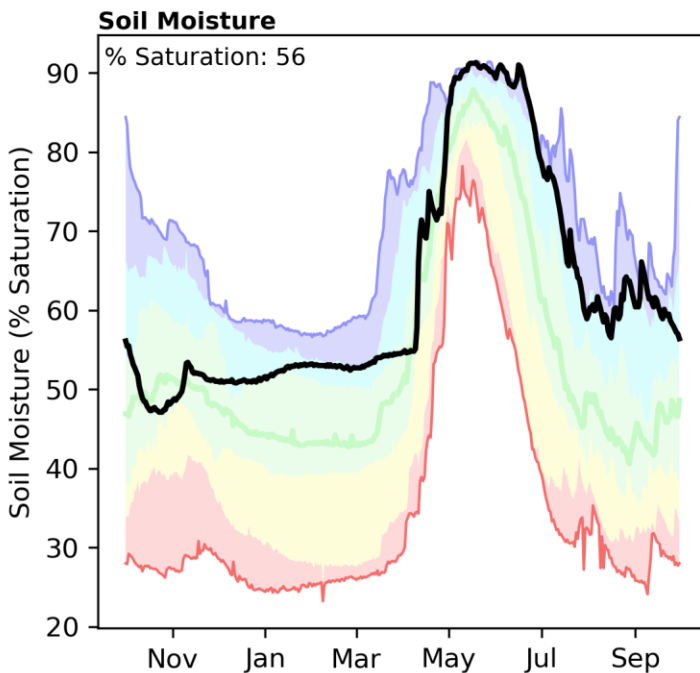
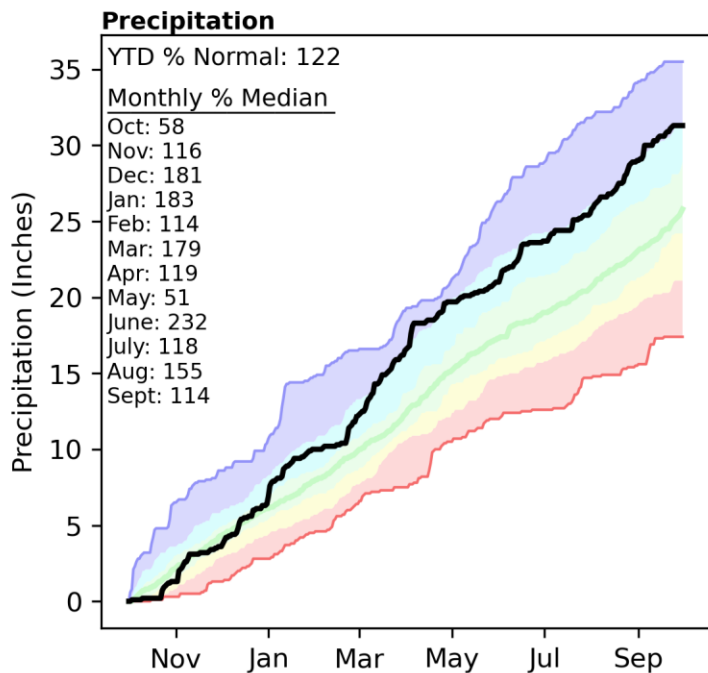
Precipitation in September was above normal, with an average of 1.6" falling region-wide (119% of normal). This brings the water year accumulation (October-September) to 145% of median. Depth averaged soil moisture was calculated to be 26% of saturation compared to 18% at this time last year. Reservoir storage is 39% of capacity, compared to 19% last year.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

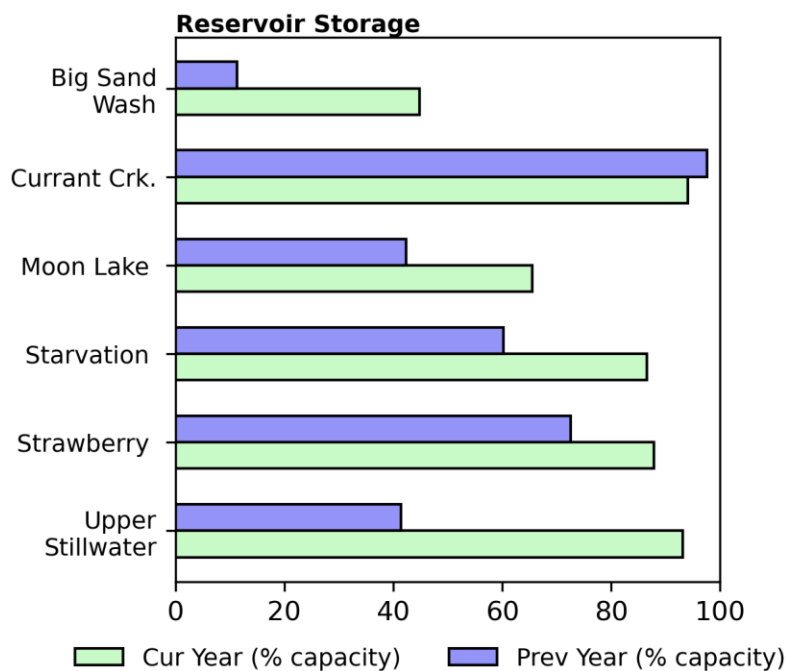
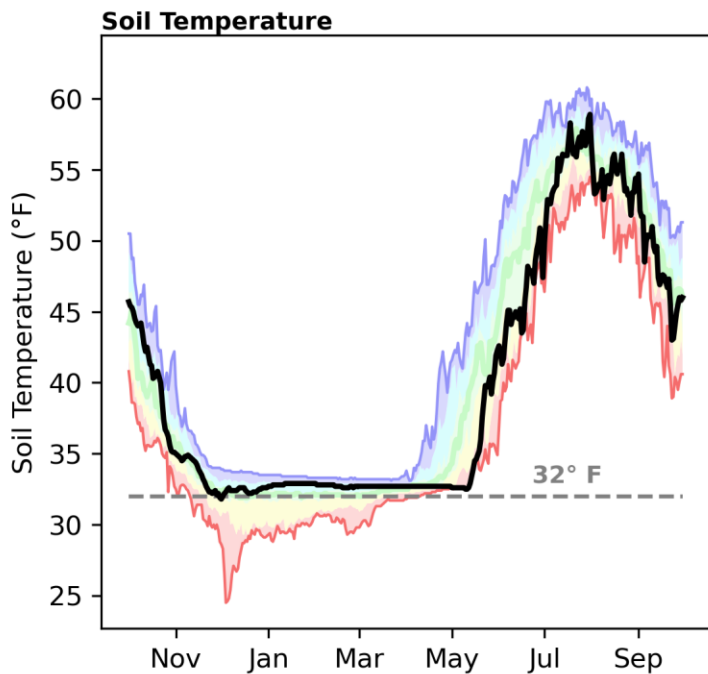
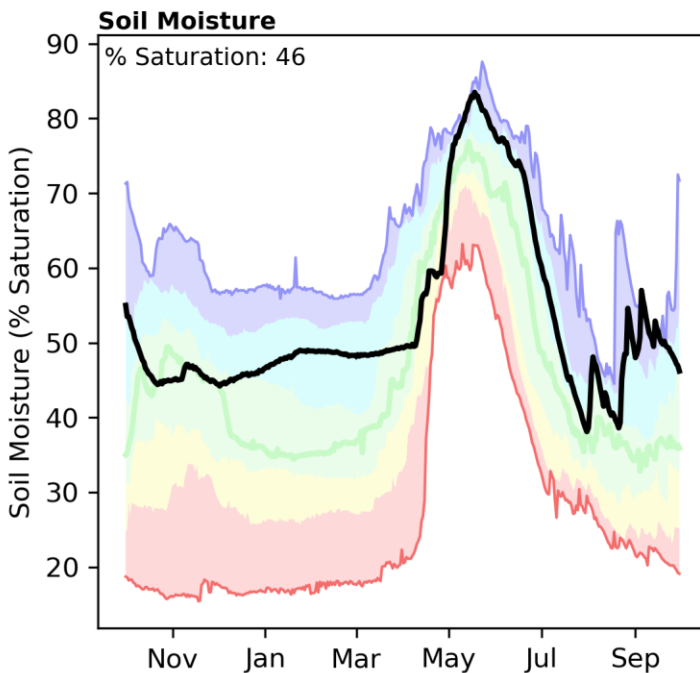
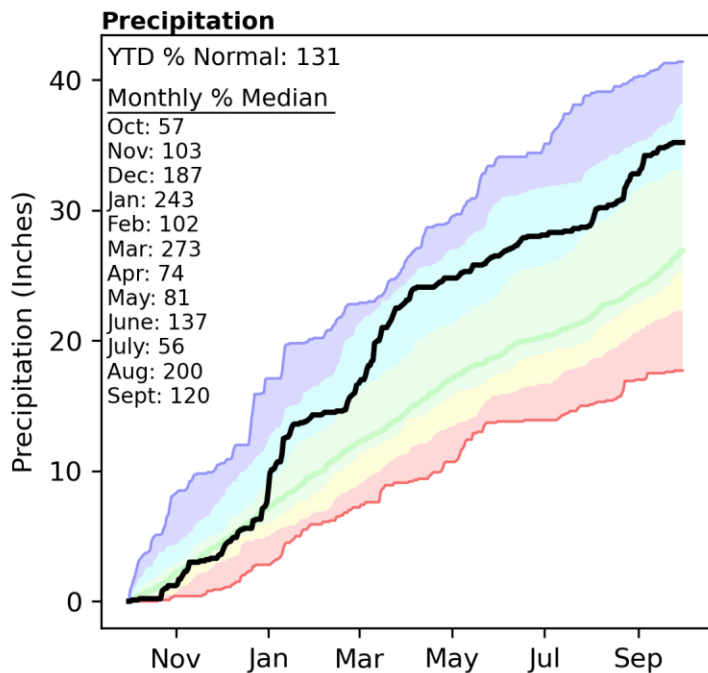
Northeastern Uintas | October 1, 2023

Precipitation in September was above normal, with an average of 2.3" falling region-wide (114% of normal). This brings the water year accumulation (October-September) to 122% of median. Depth averaged soil moisture was calculated to be 56% of saturation compared to 51% at this time last year. Reservoir storage is 86% of capacity, compared to 70% last year. The Water Availability Index percentiles are 78% for the Blacks Fork, and 85% for the Smiths Fork.



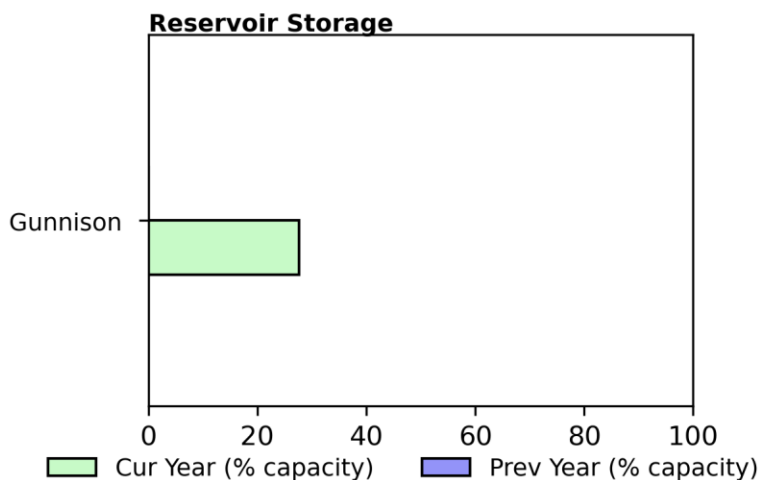
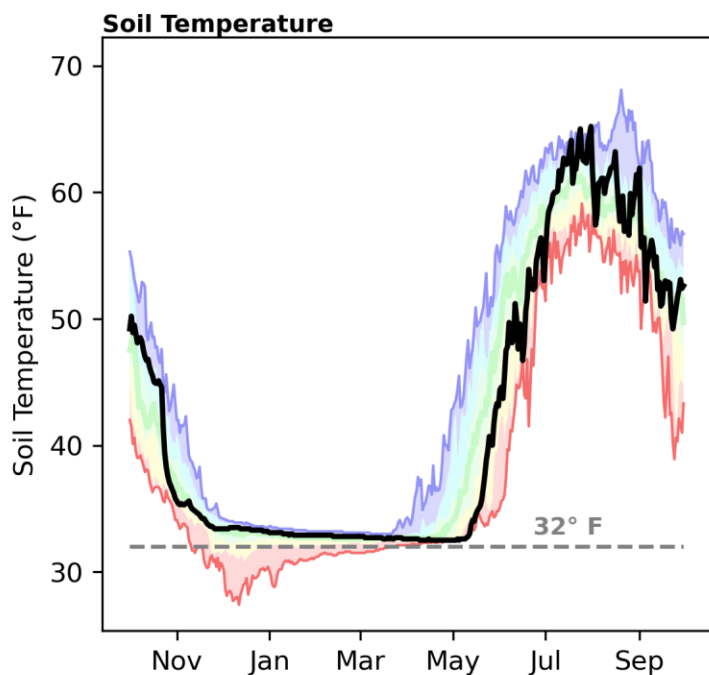
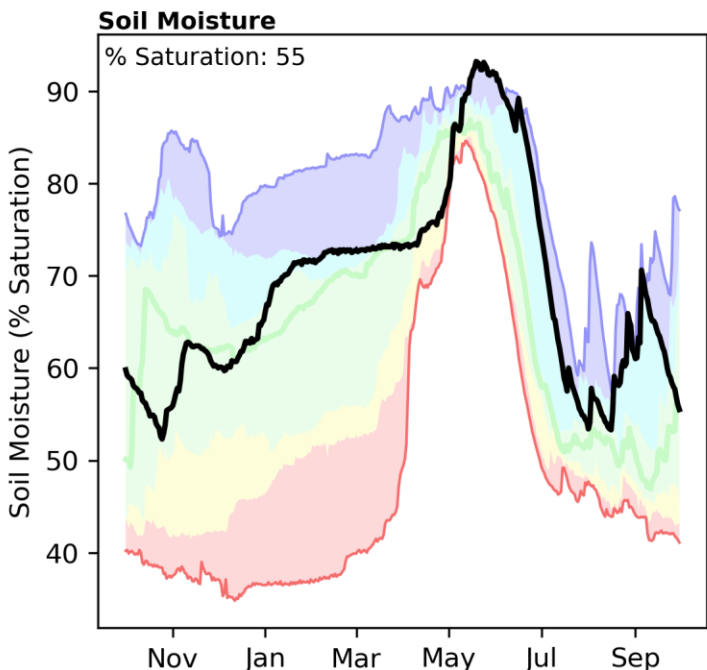
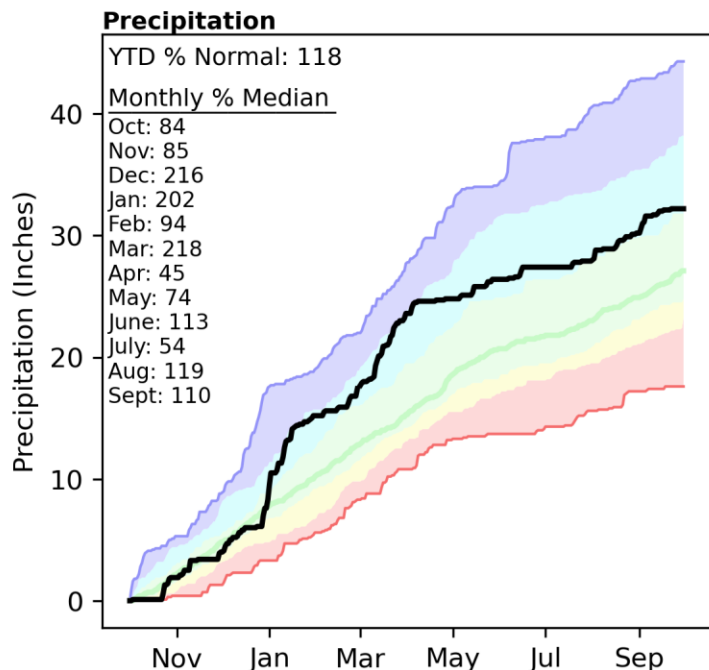
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

Precipitation in September was above normal, with an average of 2.4" falling region-wide (120% of normal). This brings the water year accumulation (October-September) to 131% of median. Depth averaged soil moisture was calculated to be 46% of saturation compared to 54% at this time last year. Reservoir storage is 86% of capacity, compared to 68% last year. The Water Availability Index percentiles are 91% for the Western Uintas, and 73% for the Eastern Uintas.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

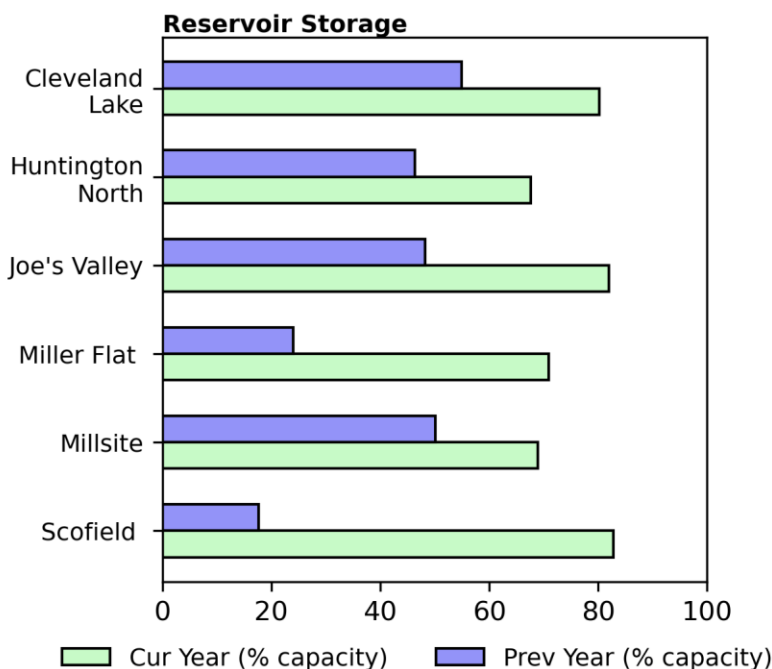
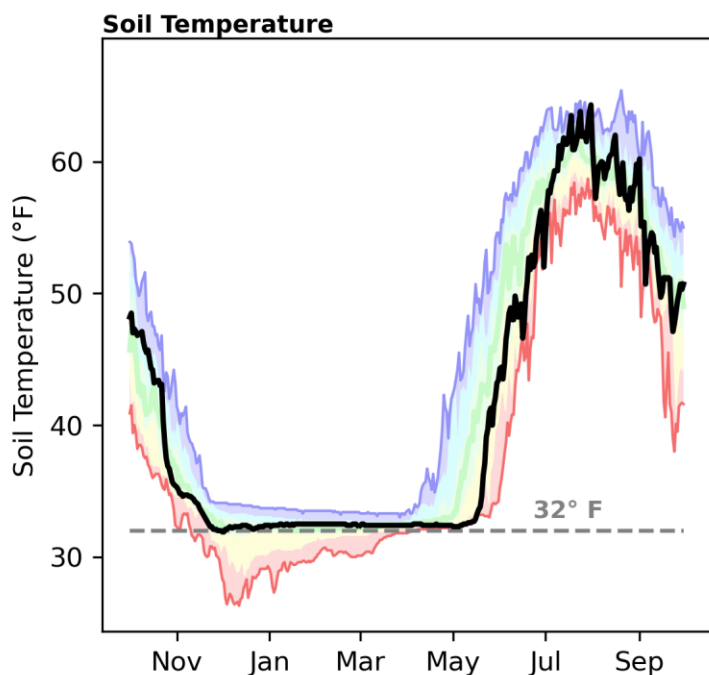
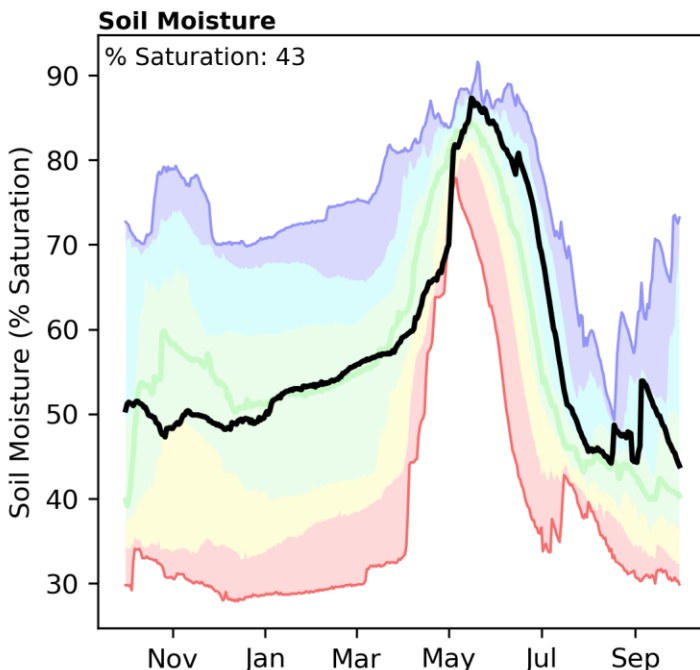
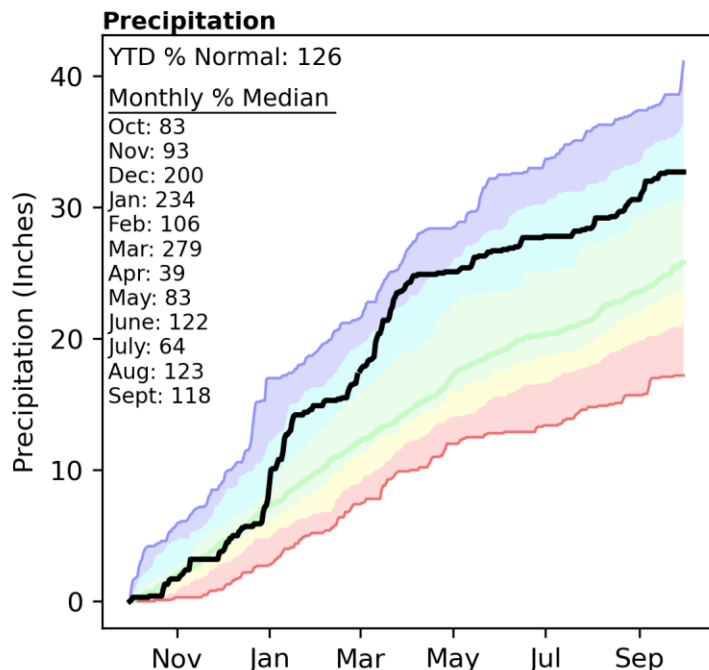
Precipitation in September was about normal, with an average of 2.0" falling region-wide (110% of normal). This brings the water year accumulation (October-September) to 118% of median. Depth averaged soil moisture was calculated to be 55% of saturation compared to 57% at this time last year. Reservoir storage is 27% of capacity, compared to 0% last year. The Water Availability Index percentile is 68% for the San Pitch.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

Price-San Rafael | October 1, 2023

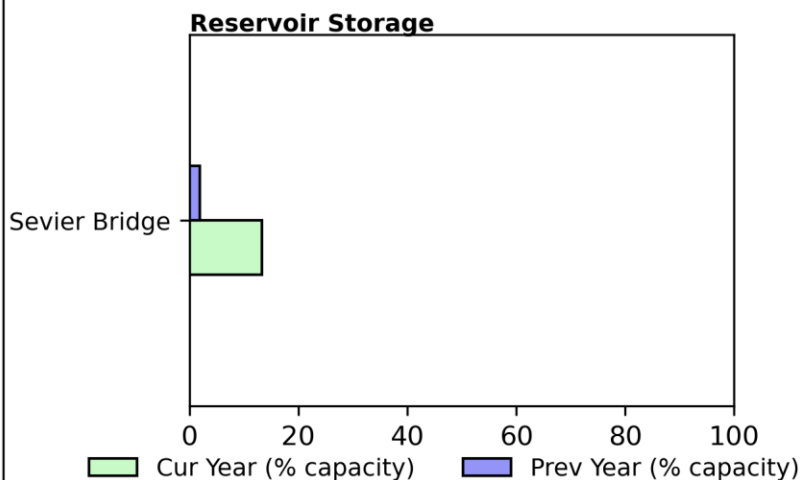
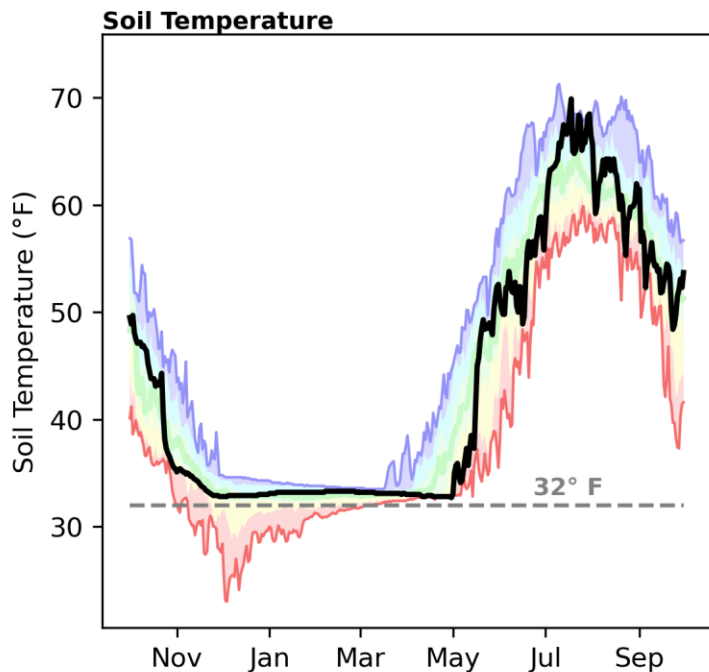
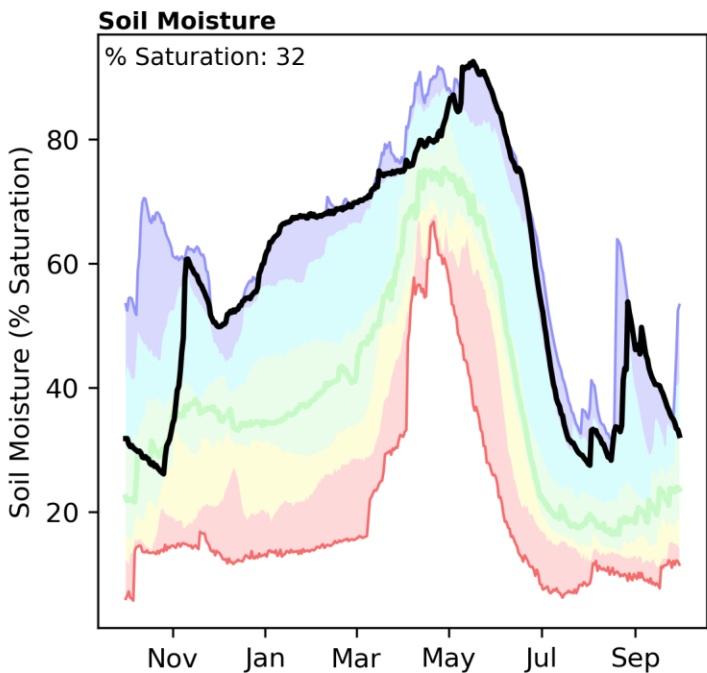
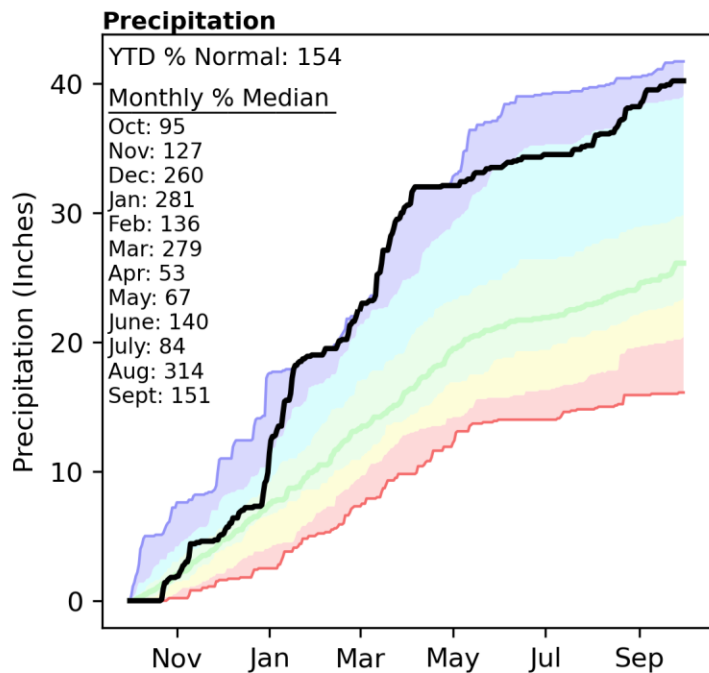
Precipitation in September was above normal, with an average of 2.1" falling region-wide (118% of normal). This brings the water year accumulation (October-September) to 126% of median. Depth averaged soil moisture was calculated to be 43% of saturation compared to 50% at this time last year. Reservoir storage is 80% of capacity, compared to 35% last year. The Water Availability Index percentiles are 98% for the Price, 91% for Joes Valley, and 59% for Ferron Creek.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

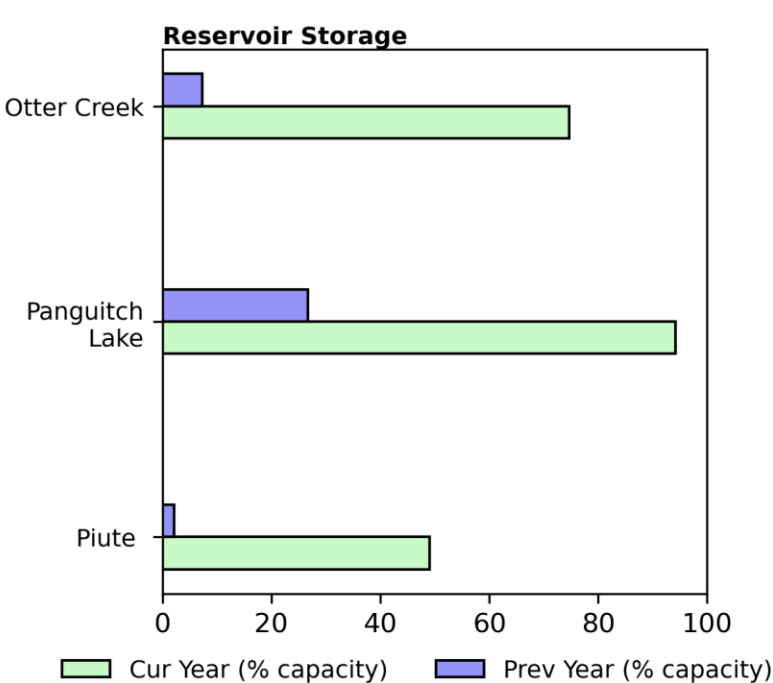
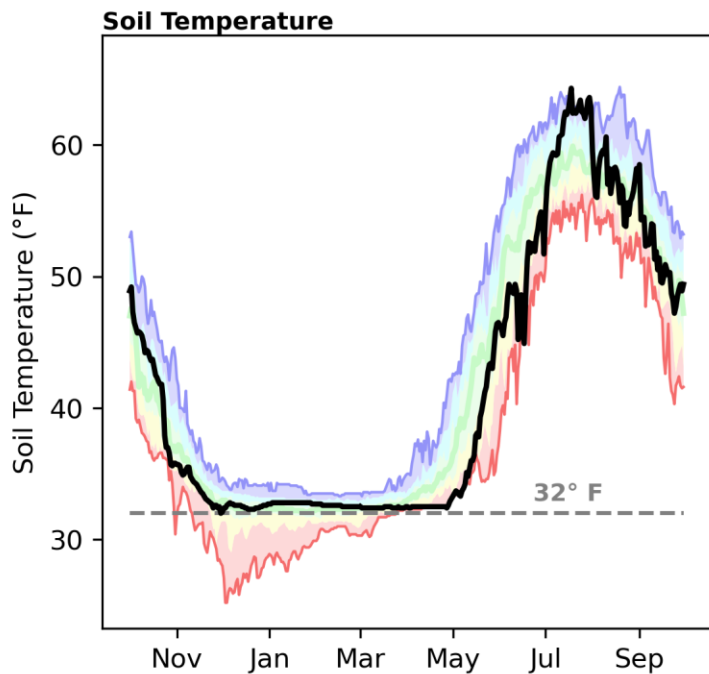
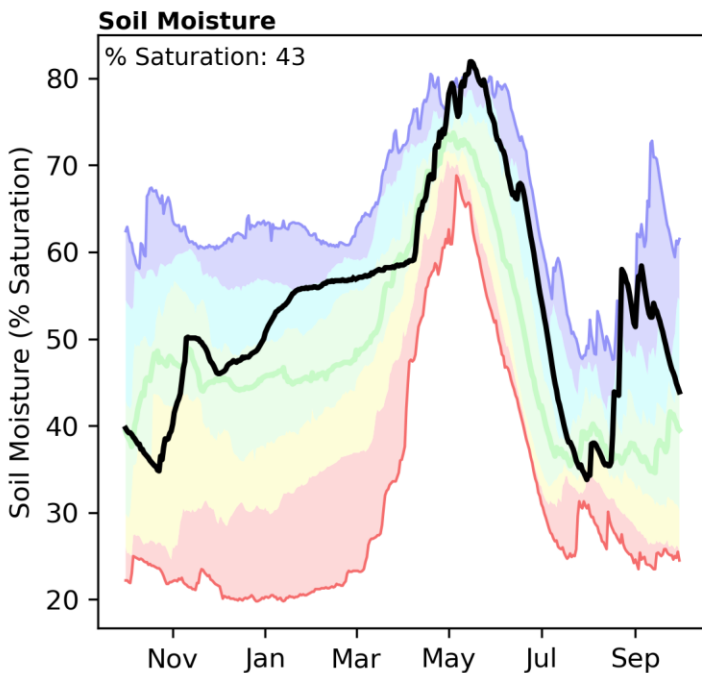
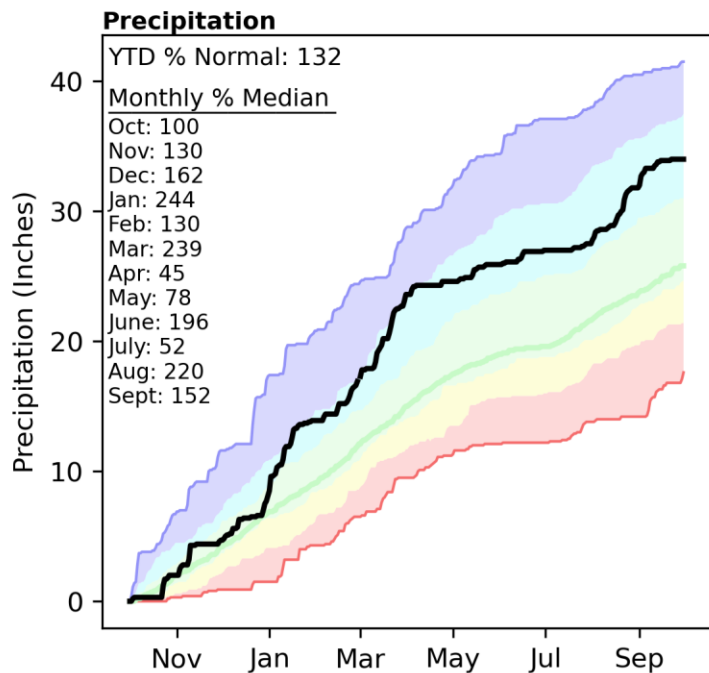
Lower Sevier | October 1, 2023

Precipitation in September was well above normal, with an average of 2.0" falling region-wide (151% of normal). This brings the water year accumulation (October-September) to 154% of median. Depth averaged soil moisture was calculated to be 32% of saturation compared to 32% at this time last year. Reservoir storage is 13% of capacity, compared to 1% last year. The Water Availability Index percentile is 18% for the Lower Sevier.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

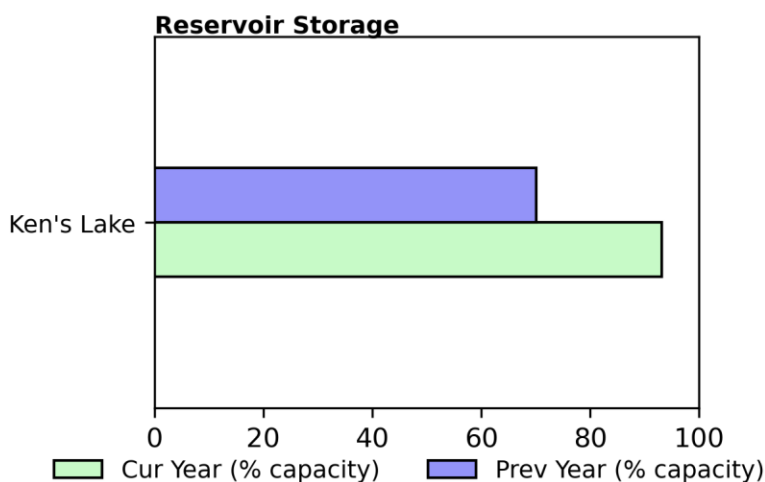
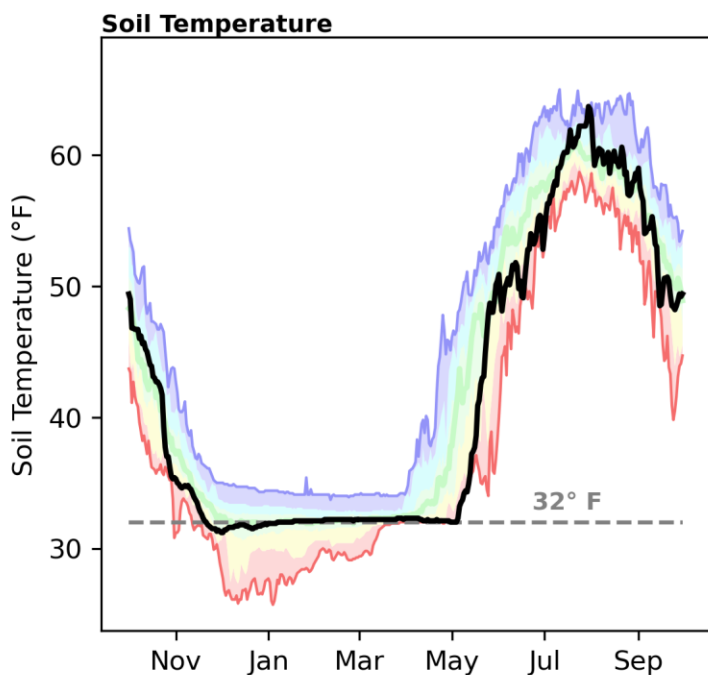
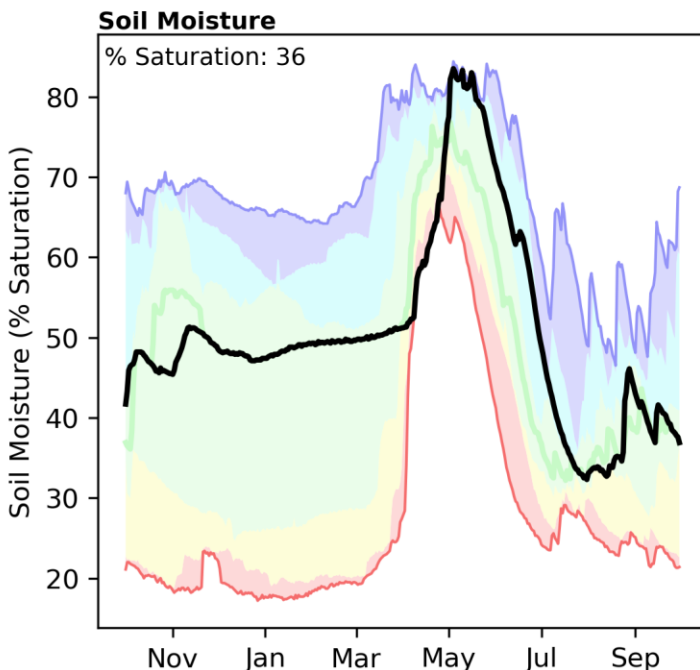
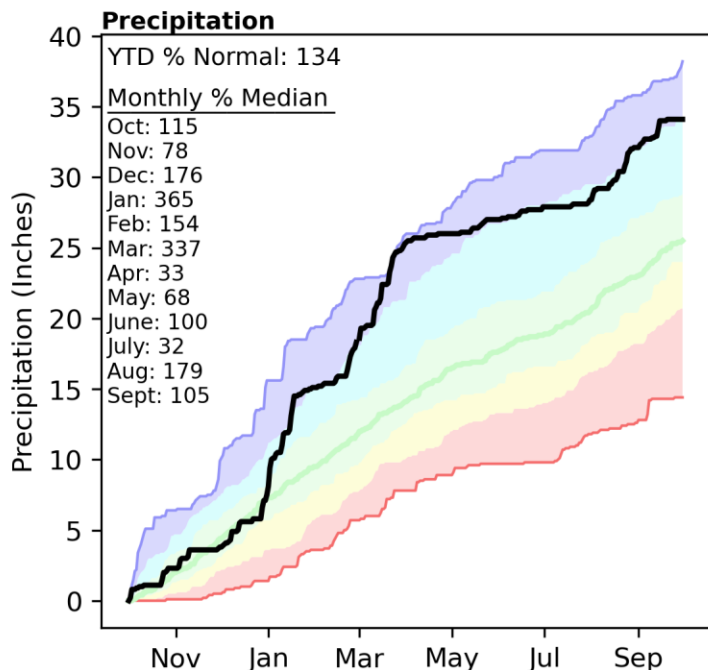
Precipitation in September was well above normal, with an average of 2.0" falling region-wide (152% of normal). This brings the water year accumulation (October-September) to 132% of median. Depth averaged soil moisture was calculated to be 43% of saturation compared to 41% at this time last year. Reservoir storage is 65% of capacity, compared to 7% last year. The Water Availability Index percentile is 84% for the Upper Sevier.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

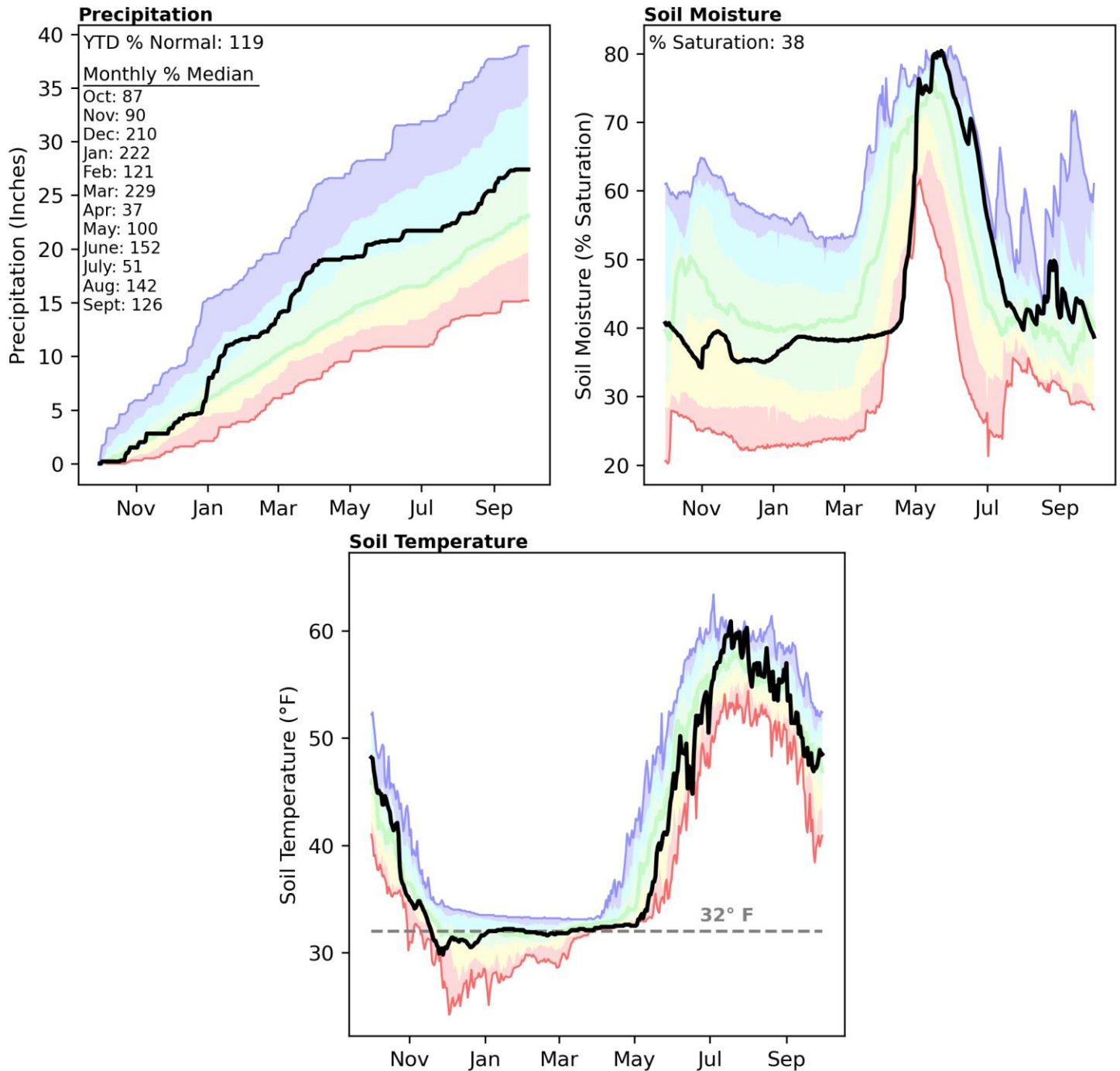
Southeastern Utah | October 1, 2023

Precipitation in September was about normal, with an average of 2.0" falling region-wide (105% of normal). This brings the water year accumulation (October-September) to 134% of median. Depth averaged soil moisture was calculated to be 36% of saturation compared to 40% at this time last year. Reservoir storage is 93% of capacity, compared to 70% last year. The Water Availability Index percentile is 95% for Moab.



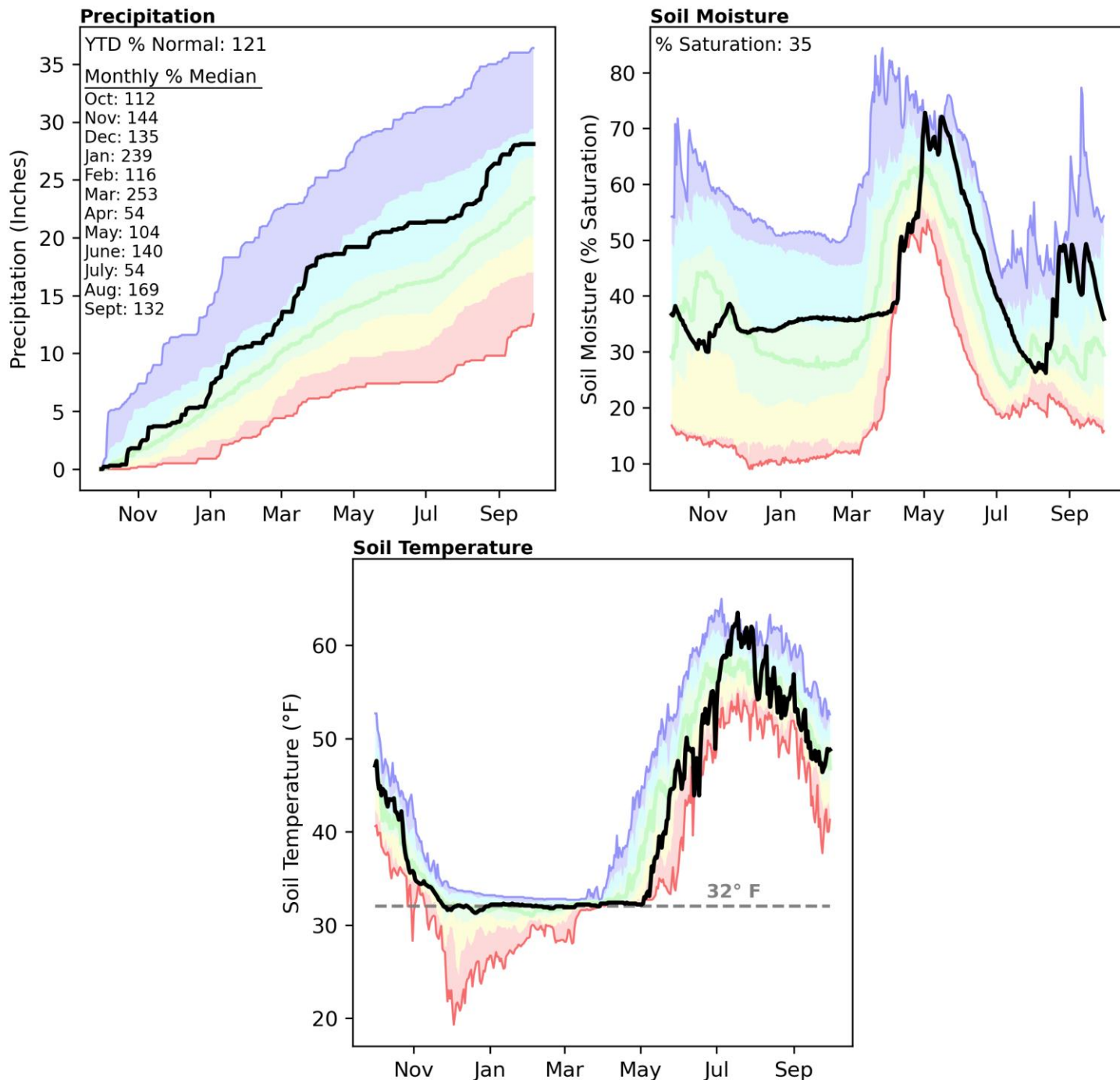
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

Precipitation in September was above normal, with an average of 2.0" falling region-wide (126% of normal). This brings the water year accumulation (October-September) to 119% of median. Depth averaged soil moisture was calculated to be 38% of saturation compared to 40% at this time last year.



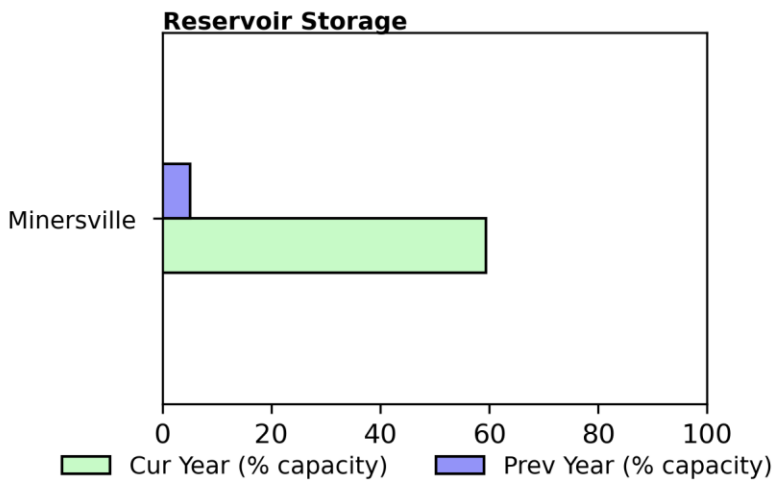
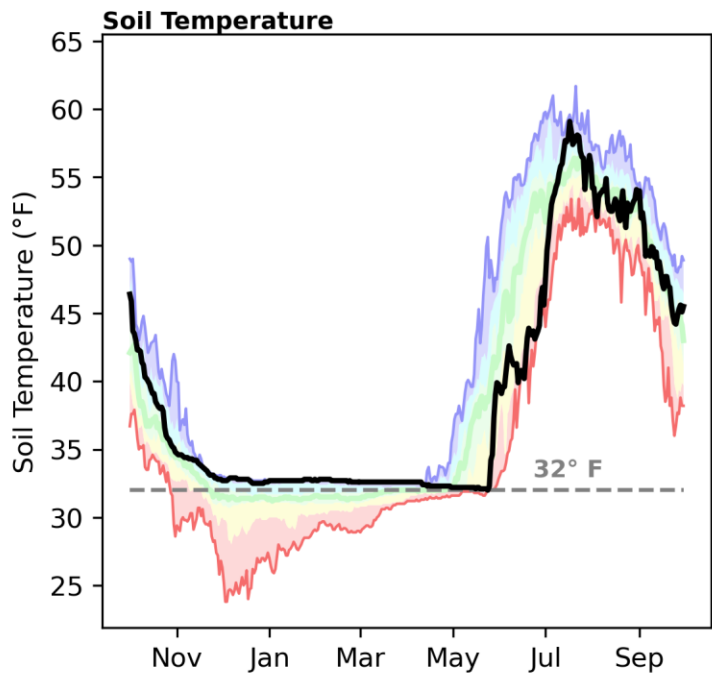
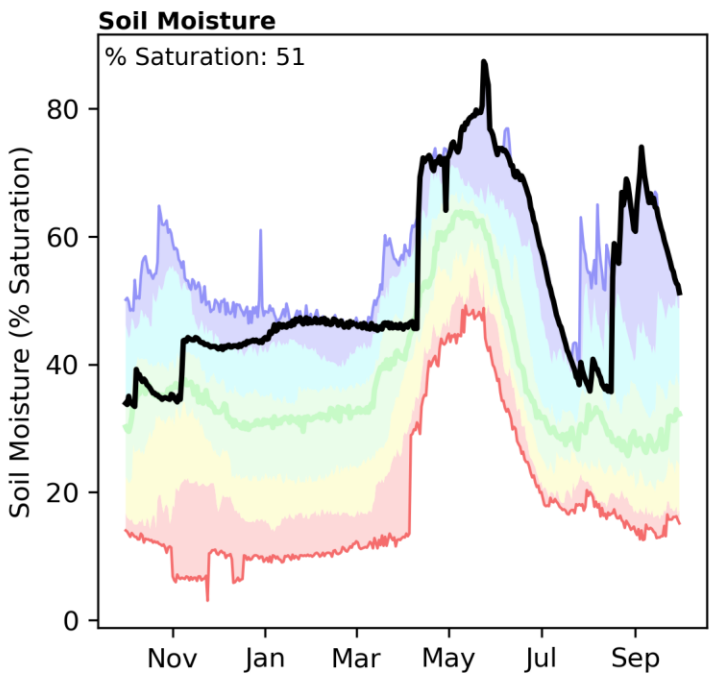
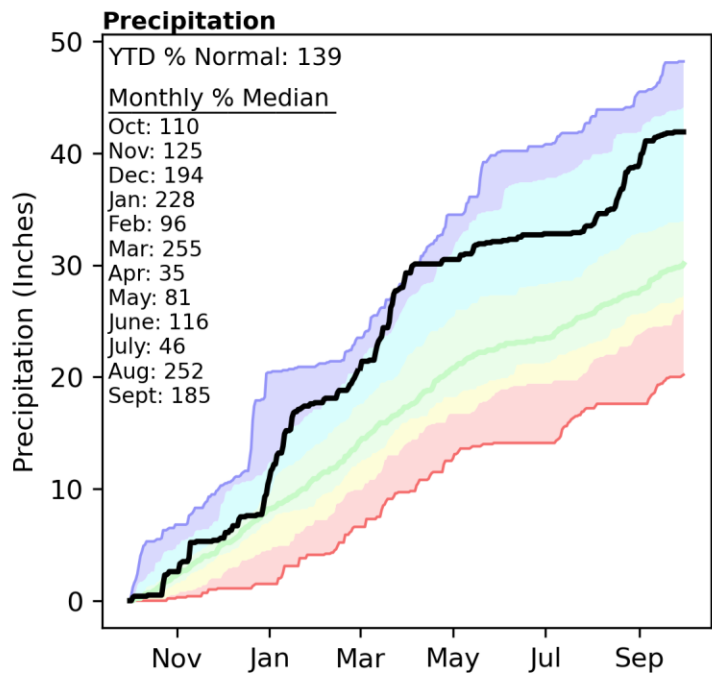
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

Precipitation in September was well above normal, with an average of 1.7" falling region-wide (132% of normal). This brings the water year accumulation (October-September) to 121% of median. Depth averaged soil moisture was calculated to be 35% of saturation compared to 36% at this time last year.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

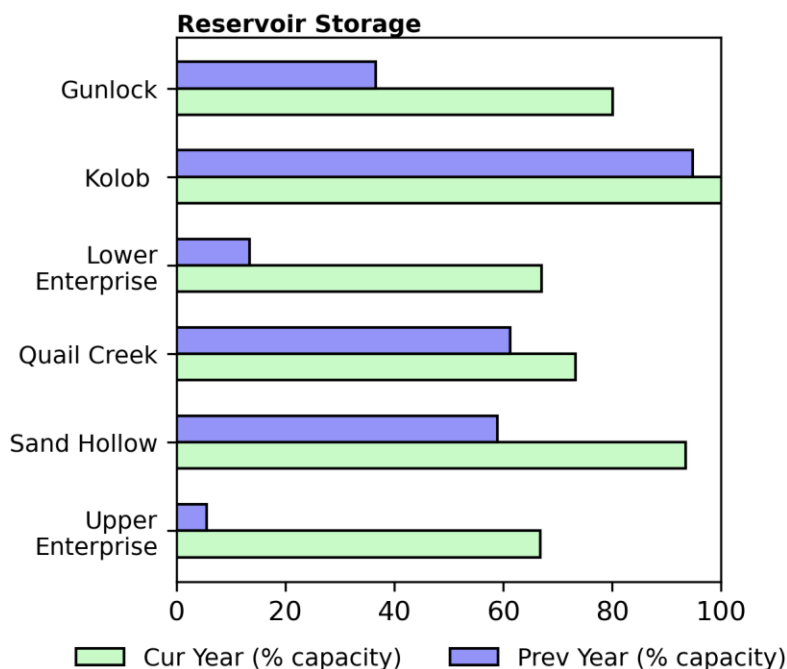
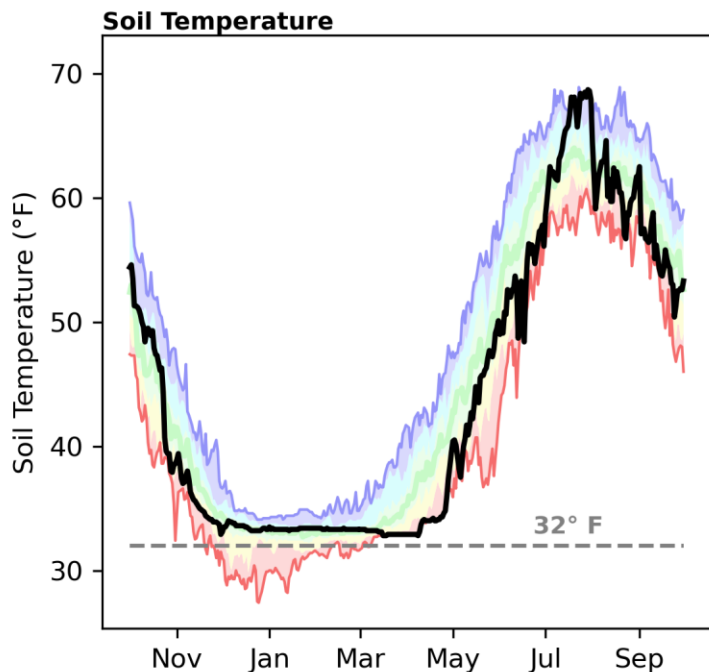
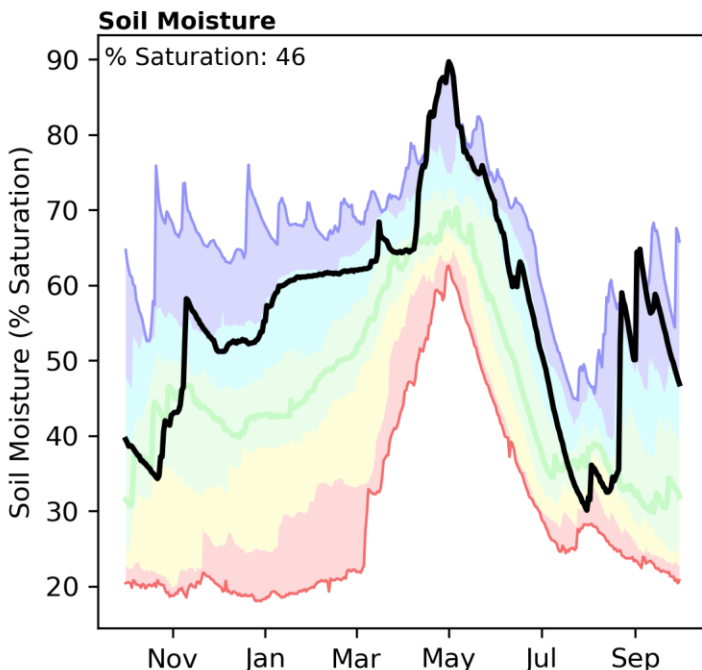
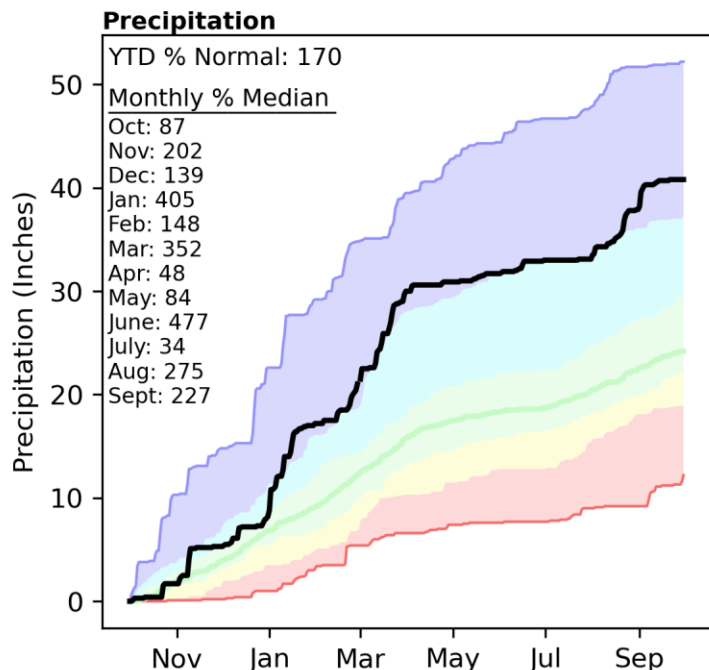
Precipitation in September was well above normal, with an average of 2.8" falling region-wide (185% of normal). This brings the water year accumulation (October-September) to 139% of median. Depth averaged soil moisture was calculated to be 51% of saturation compared to 33% at this time last year. Reservoir storage is 59% of capacity, compared to 5% last year. The Water Availability Index percentile is 89% for the Beaver River.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

Southwestern Utah | October 1, 2023

Precipitation in September was well above normal, with an average of 2.6" falling region-wide (227% of normal). This brings the water year accumulation (October-September) to 170% of median. Depth averaged soil moisture was calculated to be 46% of saturation compared to 40% at this time last year. Reservoir storage is 83% of capacity, compared to 53% last year. The Water Availability Index percentile is 88% for the Virgin River.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.
For more information visit: [30 year normal calculation description](#)

Appendix A: Data used in WAI Calculations

Watershed/ Region	USGS Gauging Station(s)	Reservoir(s)	Start Date
Bear	Bear R nr Ut-Wy State Line	Bear Lake	1981
Woodruff Narrows	Bear R ab Resv nr Woodruff	Woodruff Narrows Reservoir	1981
Little Bear	Little Bear R at Paradise	Hyrum Reservoir	1993
Ogden	SF Ogden R nr Huntsville	Pineview Reservoir, Causey Reservoir	1981
Weber	Weber R nr Oakley, Chalk Ck at Coalville, East Canyon Ck nr Morgan	East Canyon Reservoir, Echo Reservoir, Lost Creek Reservoir, Rockport Reservoir, Smith And Morehouse Reservoir	1989
Provo	Provo R at Woodland	Deer Creek Reservoir, Jordanelle Reservoir	1993
Western Uintas	Lake Fk R ab Moon Lk nr Mountain Home, Rock Ck nr Mountain Home, Yellowstone R nr Altonah	Starvation Reservoir, Moon Lake Reservoir, Upper Stillwater Reservoir	1988
Eastern Uintas	Big Brush Ck ab Red Fleet Reservoir, Ashley Ck nr Vernal, Whiterocks R nr Whiterocks	Red Fleet Reservoir, Steinaker Reservoir	1981
Blacks Fork	Blacks Fk nr Robertson	Meeks Cabin Reservoir	1984
Smiths Fork	EF of Smiths Fork nr Robertson	Stateline Reservoir	1984
Price	Fish Ck ab Reservoir nr Scofield	Scofield Reservoir	1981
Joes Valley	Seely Ck bl Joes Valley Resv	Joes Valley Reservoir	1981
Ferron Creek	Ferron Ck Upper Station nr Ferron	Millsite	1981
Moab	Mill Ck at Sheley Tunnel nr Moab	Ken's Lake	1988
Upper Sevier	Sevier R nr Kingston	Piute Reservoir, Otter Creek Reservoir	1981
San Pitch	Manti Ck bl Dugway Ck nr Manti	Gunnison Reservoir	1981
Lower Sevier	Sevier R nr Gunnison	Sevier Bridge Reservoir	1981
Beaver River	Beaver R nr Beaver	Minersville Reservoir	1981
Virgin River	Virgin R at Virgin, Santa Clara R nr Pine Valley	Quail Creek, Gunlock	1993

Issued by
Terry Cosby
Chief, Natural Resources Conservation Service
U.S. Department of Agriculture

Released by
Emily Fife
State Conservationist
Natural Resources Conservation
Service Salt Lake City, Utah

Prepared by
Snow Survey Staff:
Jordan Clayton, Data Collection Officer
Troy Brosten, Assistant Supervisor
Dave Eiriksson, Hydrologist
Logan Jamison, Hydrologist
Doug Neff, Electronic Technician

SCAN Staff:
Kent Sutcliffe, West Region SCAN Coordinator
Joel Burley, Soil Scientist
Shari Rockenbach, Data Quality Analyst



YOU MAY OBTAIN THIS PRODUCT AS WELL AS CURENT SNOW, PRECIPITATION,
TEMPERATURE AND SOIL MOISTURE, RESERVOIR, SURFACE WATER SUPPLY INDEX, AND
OTHER DATA BY VISITING OUR WEB SITE @:
<https://www.nrcs.usda.gov/wps/portal/nrcs/main/ut/snow/>

Snow Survey, NRCS, USDA
245 North Jimmy Doolittle Road
Salt Lake City, UT 84116
(385) 285-3118



Utah Water Supply Outlook Report

Natural Resources Conservation Service
Salt Lake City, UT

