## COLORADO WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES ROOM 818, 1313 SHERMAN ST., DENVER, CO 80203 303-866-3581; <u>www.water.state.co.us</u>

November 1, 2019

The Surface Water Supply Index (SWSI) is used as an indicator of water supply conditions in the seven major river basins of the state and in each of the 41 smaller watersheds, or HUCs. The Colorado Water Conservation Board (CWCB) completed a major revision to the Colorado Drought Plan in 2010. At that time, Colorado adopted a revised SWSI analysis based on the components shown below, which vary depending on the time of year. The revised SWSI is based on a ranking of total volume in a HUC or major river basin ranked against similar volumes in historical years. For instance, in January, the total volume in a HUC is based on the forecasted runoff at specific locations plus the volume in storage in specific reservoirs, all within the HUC. That total volume is ranked against similar total volumes that occurred each January between 1970 and 2010.

| Time Period          | SWSI Components                                 |
|----------------------|---|
| February 1 - June 1  | Forecasted Runoff + Reservoir Storage           |
| July 1 - September 1 | Previous Month's Streamflow + Reservoir Storage |
| October 1 -January 1 | Reservoir Storage                               |

In 2015, CWCB and the Division of Water Resources (DWR) (both Divisions of the Colorado Department of Natural Resources) completed a software project to implement an automated calculation of the SWSI and to document the underlying hydrologic data. July 1, 2015 was the first month that the automated DNR SWSI was published. The results of each month's analysis are summarized within this report and additional information, maps & data are available at: <u>http://water.state.co.us/DWRDocs/Reports/Pages/SWSIReport.aspx</u>. This report also contains updates about current regional conditions and water matters prepared by each DWR Division Office.

The SWSI calculation for the fall season (October 1 to January 1) is based solely on reservoir storage at the end of last month, in this case October 31. The following SWSI values were computed for each of the seven major basins for November 1, 2019. Water supply conditions, as represented by water in storage, are normal to above normal in all the river basins and well above normal in the Yampa-White and South Platte River Basins.

| Basin            | November 1 SWSI | Change from<br>Previous Month | Change from<br>Previous Year |  |
|------------------|-----------------|-------------------------------|------------------------------|--|
| Arkansas         | 2.0             | 0.0                           | 0.0                          |  |
| Colorado         | 0.9             | -2.3                          | 3.7                          |  |
| Gunnison         | 2.9             | 0.0                           | 6.8                          |  |
| Rio Grande       | 2.3             | -0.4                          | 0.3                          |  |
| San Juan-Dolores | 2.4             | -0.1                          | 3.3                          |  |
| South Platte     | 3.1             | -0.1                          | 3.5                          |  |
| Yampa-White      | 4.0             | 0.0                           | 2.6                          |  |

|         |    |          |    | SWSI Scale  |   |              |    |         |
|---------|----|----------|----|-------------|---|--------------|----|---------|
| -4      | -3 | -2       | -1 | 0           | 1 | 2            | 3  | 4       |
| Severe  |    | Moderate |    | Near Normal |   | Above Normal | At | oundant |
| Drought |    | Drought  |    | Supply      |   | Supply       |    | Supply  |



SURFACE WATER SUPPLY INDEX FOR COLORADO BY MAJOR RIVER BASIN

November 1, 2019

## SURFACE WATER SUPPLY INDEX FOR COLORADO BY HUC



| Basin  | HUC ID        | HUC Name                             | SWSI  | Reservoir<br>Storage NEP | Total Vol (AF) |  |
|--------|---------------|--------------------------------------|-------|--------------------------|----------------|--|
| А      | 11020006      | Huerfano                             | -2.38 | 21                       | 0              |  |
|        | 11020010      | Purgatoire                           | 2.07  | 75                       | 19,050         |  |
| rka    | 11020005      | Upper Arkansas-Lake Meredith         | 1.80  | 72                       | 31,081         |  |
| Insa   | 11020009      | Upper Arkansas-John Martin Reservoir | 1.81  | 72                       | 82,208         |  |
| St     | 11020002      | Upper Arkansas                       | 2.08  | 75                       | 186,100        |  |
|        | 11020001      | Arkansas Headwaters                  | 3.12  | 87                       | 228,441        |  |
|        | 14010005      | Colorado Headwaters-Plateau          | 1.90  | 73                       | 12,937         |  |
| S      | 14010002      | Blue                                 | -1.89 | 27                       | 76,233         |  |
| lora   | 14010004      | Roaring Fork                         | -2.24 | 23                       | 79,125         |  |
| ldo    | 14010001      | Colorado Headwaters                  | 2.77  | 83                       | 132,950        |  |
|        | 14010003      | Eagle                                |       | N/A                      |                |  |
|        | 14020004      | North Fork Gunnison                  | -4.04 | 1                        | 242            |  |
|        | 14020003      | Tomichi                              | 1.34  | 66                       | 343            |  |
| Gu     | 14020006      | Uncompahgre                          | 0.09  | 51                       | 61,260         |  |
| nnis   | 14020001      | East-Taylor                          | 2.37  | 78                       | 77,079         |  |
| son    | 14020002      | Upper Gunnison                       | 1.52  | 68                       | 796,611        |  |
|        | 14020005      | Lower Gunnison                       |       | N/A                      |                |  |
|        | 14030003      | San Miguel                           | N/A   |                          |                |  |
| Rio    | 13010002      | Alamosa-Trinchera                    | 2.24  | 77                       | 9,957          |  |
| 0<br>G | 13010005      | Conejos                              | 0.95  | 61                       | 21,333         |  |
| ran    | 13010001      | Rio Grande Headwaters                | 3.08  | 87                       | 38,700         |  |
| de     | 13010004      | Saguache N/A                         |       |                          |                |  |
| Sa     | 14080105      | Middle San Juan                      | 0.00  | 50                       | 3,089          |  |
| ոյլ    | 14080107      | Mancos                               | -1.33 | 34                       | 3,738          |  |
| Jan    | 14080104      | Animas                               | -0.69 | 42                       | 18,314         |  |
| -Do    | 14080101      | Upper San Juan                       | 2.17  | 76                       | 71,077         |  |
| lor    | 14030002      | Upper Dolores                        | 2.07  | 75                       | 307,495        |  |
| es     | Piedra Piedra |                                      |       | N/A                      |                |  |
|        | 10190005      | St. Vrain                            | 2.20  | 76                       | 59,723         |  |
|        | 10190003      | Middle South Platte-Cherry Creek     | -0.44 | 45                       | 62,100         |  |
| Sor    | 10190012      | Middle South Platte-Sterling         | 3.37  | 90                       | 114,800        |  |
| lth    | 10190001      | South Platte Headwater               | 1.40  | 67                       | 154,300        |  |
| Pla    | 10190007      | Cache La Poudre                      | 4.00  | 98                       | 169,975        |  |
| tte    | 10190002      | Upper South Platte                   | -0.16 | 48                       | 291,708        |  |
|        | 10190006      | Big Thompson                         | 1.57  | 69                       | 515,442        |  |
|        | 10190004      | Clear                                | N/A   |                          |                |  |
| Ya     | 14050001      | Upper Yampa                          | 4.04  | 99                       | 44,062         |  |
| mp     | 10180001      | North Platte Headwaters              | N/A   |                          |                |  |
| a-V    | 14050002      | Lower Yampa                          |       | N/A                      |                |  |
| Vhit   | 14050003      | Little Snake                         |       | N/A                      |                |  |
| te     | 14050005      | Upper White                          | N/A   |                          |                |  |

### November 1, 2019 SWSI Values by HUC and Non Exceedance Probabilities (NEP)

NEP is non exceedance percentage for total reservoir storage and streamflow forecast in HUC. Some HUCs do not have any reservoirs considered in the SWSI and are shown as "N/A". Total Vol is the volume of reservoir storage in the HUC plus the streamflow forecast. NEP is calculated compared to the volume historically occurring this month during the period 1970-2010. The following table lists each component considered in each HUC.

SWSI Color Scale:

| -4.0 (Severe Drought)                 | 0.0 (Normal) | 4.0 (Abundant Supply)                 |
|---------------------------------------|--------------|---------------------------------------|
| · · · · · · · · · · · · · · · · · · · |              | · · · · · · · · · · · · · · · · · · · |

| HUC ID   | HUC Name                      | Component Name                  | Component<br>Volume (AF) | Component NEP<br>for Month |
|----------|-------------------------------|---------------------------------|--------------------------|----------------------------|
| 11020001 |                               | CLEAR CREEK RESERVOIR           | 6,254                    | 57                         |
|          |                               | HOMESTAKE RESERVOIR             | 41,363                   | 74                         |
|          | Alkalisas Headwaters          | TWIN LAKES RESERVOIR            | 61,737                   | 76                         |
|          |                               | TURQUOISE LAKE                  | 120,357                  | 73                         |
| 11020006 | Huerfano                      | CUCHARAS RESERVOIR*             | 0                        | 18                         |
| 11020010 | Purgatoire                    | TRINIDAD LAKE                   | 18,700                   | 68                         |
| 11020002 | Upper Arkansas                | PUEBLO RESERVOIR                | 192,000                  | 76                         |
| 11020000 | Upper Arkansas-John Martin    | ADOBE CREEK RESERVOIR           | 12,242                   | 55                         |
| 11020009 | Reservoir                     | JOHN MARTIN RESERVOIR           | 78,125                   | 70                         |
| 11020005 | Lippor Arkansas Lako Morodith | LAKE HENRY                      | 6,871                    | 99                         |
| 11020005 | Opper Arkansas-Lake Mereulti  | MEREDITH RESERVOIR              | 26,604                   | 69                         |
| 14010002 | Blue                          | GREEN MOUNTAIN RESERVOIR        | 110,945                  | 47                         |
| 14010001 | Colorado Hoadwators           | WOLFORD MOUNTAIN RESERVOIR      | 54,330                   | 88                         |
| 14010001 | Colorado Headwaters           | WILLIAMS FORK RESERVOIR         | 81,900                   | 66                         |
| 14010005 | Colorado Headwaters-Plateau   | VEGA RESERVOIR                  | 12,647                   | 83                         |
| 14010004 | Roaring Fork                  | RUEDI RESERVOIR                 | 83,982                   | 27                         |
| 14020001 | East-Taylor                   | TAYLOR PARK RESERVOIR           | 80,575                   | 66                         |
| 14020004 | North Fork Gunnison           | PAONIA RESERVOIR                | 2,591                    | 56                         |
| 14020003 | Tomichi                       | VOUGA RESERVOIR NEAR DOYLEVILLE | 267                      | 63                         |
| 14020006 | Uncompahgre                   | RIDGEWAY RESERVOIR              | 60,739                   | 55                         |
|          | Upper Gunnison                | FRUITLAND RESERVOIR             | 666                      | 73                         |
|          |                               | SILVER JACK RESERVOIR           | 2,449                    | 11                         |
| 14020002 |                               | CRAWFORD RESERVOIR              | 6,133                    | 72                         |
|          |                               | MORROW POINT RESERVOIR          | 109,924                  | 14                         |
|          |                               | BLUE MESA RESERVOIR             | 735,807                  | 78                         |
| 13010002 | Alamosa-Trinchera             | MOUNTAIN HOME                   | 3,706                    | 81                         |
|          |                               | TERRACE RESERVOIR               | 7,868                    | 89                         |
| 13010005 | Conejos                       | PLATORO RESERVOIR               | 26,046                   | 63                         |
|          |                               | RIO GRANDE RESERVOIR            | 3,971                    | 33                         |
| 13010001 | Rio Grande Headwaters         | CONTINENTAL RESERVOIR           | 12,989                   | 99                         |
|          |                               | SANTA MARIA RESERVOIR           | 21,224                   | 93                         |
| 14080104 | Animas                        | LEMON RESERVOIR                 | 18,495                   | 44                         |
| 14080107 | Mancos                        | JACKSON GULCH RESERVOIR         | 4,326                    | 50                         |
| 14080105 | Middle San Juan               | LONG HOLLOW RESERVOIR           | 3,076                    | 50                         |
| 14020002 | Upper Deleres                 | GROUNDHOG RESERVOIR             | 17,700                   | 99                         |
| 14030002 | opper bolores                 | MCPHEE RESERVOIR                | 300,946                  | 78                         |
| 14080101 | Upper San Juan                | VALLECITO RESERVOIR             | 79,456                   | 79                         |
|          |                               | MARIANO RESERVOIR               | 600                      | 49                         |
|          |                               | LONE TREE RESERVOIR             | 2,600                    | 41                         |
|          |                               | LAKE LOVELAND RESERVOIR         | 3,500                    | 10                         |
| 10190006 | Big Thompson                  | WILLOW CREEK RESERVOIR          | 7,900                    | 71                         |
|          |                               | BOYD LAKE                       | 36,351                   | 80                         |
|          |                               | CARTER LAKE                     | 80,445                   | 96                         |
|          |                               | LAKE GRANBY                     | 411,512                  | 64                         |

| HUC ID   | HUC Name                     | Component Name                     | Component<br>Volume (AF) | Component NEP<br>for Month |
|----------|------------------------------|------------------------------------|--------------------------|----------------------------|
|          |                              | HALLIGAN RESERVOIR                 | 1,000                    | 55                         |
|          |                              | WINDSOR RESERVOIR                  | 2,800                    | 13                         |
|          |                              | CACHE LA POUDRE                    | 4,000                    | 69                         |
| 1010007  | Casha La Daudra              | BLACK HOLLOW RESERVOIR             | 4,100                    | 99                         |
| 10190007 | Cache La Poudre              | CHAMBERS LAKE                      | 5,700                    | 92                         |
|          |                              | FOSSIL CREEK RESERVOIR             | 6,900                    | 91                         |
|          |                              | COBB LAKE                          | 18,600                   | 84                         |
|          |                              | HORSETOOTH RESERVOIR               | 121,539                  | 99                         |
|          |                              | HORSECREEK RESERVOIR               | 0                        | 1                          |
| 10100002 | Middle South Platte-Cherry   | MILTON RESERVOIR                   | 10,200                   | 63                         |
| 10190003 | Creek                        | BARR LAKE                          | 11,100                   | 52                         |
|          |                              | STANDLEY RESERVOIR                 | 37,900                   | 82                         |
|          | Middle South Platte-Sterling | EMPIRE RESERVOIR                   | 8,600                    | 57                         |
|          |                              | JULESBURG RESERVOIR                | 10,500                   | 73                         |
| 10100012 |                              | RIVERSIDE RESERVOIR                | 14,700                   | 82                         |
| 10190012 |                              | PREWITT RESERVOIR                  | 16,000                   | 77                         |
|          |                              | JACKSON LAKE RESERVOIR             | 20,300                   | 98                         |
|          |                              | POINT OF ROCKS RESERVOIR           | 24,500                   | 98                         |
|          | South Platte Headwater       | ANTERO RESERVOIR                   | 19,400                   | 59                         |
| 10190001 |                              | SPINNEY MOUNTAIN RESERVOIR         | 40,000                   | 71                         |
|          |                              | ELEVENMILE CANYON RESERVOIR        | 99,700                   | 69                         |
|          | St. Vrain                    | TERRY RESERVOIR                    | 2,600                    | 8                          |
|          |                              | MARSHALL RESERVOIR                 | 4,800                    | 54                         |
| 10190005 |                              | UNION RESERVOIR                    | 10,559                   | 57                         |
|          |                              | BUTTONROCK (RALPH PRICE) RESERVOIR | 16,200                   | 78                         |
|          |                              | GROSS RESERVOIR                    | 27,512                   | 94                         |
| 10100002 | Lippor South Platta          | CHEESMAN LAKE                      | 62,924                   | 45                         |
| 10190002 |                              | DILLON RESERVOIR                   | 236,700                  | 51                         |
| 14050001 |                              | YAMCOLO RESERVOIR                  | 8,746                    | 97                         |
| 14050001 | Opper Yampa                  | STAGECOACH RESERVOIR NR OAK CREEK  | 34,400                   | 99                         |

NEP is non exceedance percentage (percentile) for volume of the component compared to this month during the historical period 1970-2010.

\*No longer exists

Water Volume NEP Color Scale:

0 (Well Below Normal)

50 (Normal)

100 (Well Above Normal)

### Basinwide Conditions Assessment

The SWSI value for the month was +3.1.

During the month of October, the South Platte River Basin located in Northeastern Colorado experienced above average precipitation in the foothills and higher elevations, however below average monthly precipitation controlled throughout much of the easterly plains. The NRCS National Water and Climate Center report indicates that precipitation for the South Platte River Basin SNOTEL Sites (foothills and mountainous areas) was 139% of the average for the month of October. Overall the temperatures during the month of October were below normal throughout the basin between 4 and 8 degrees Fahrenheit below the monthly average. Reservoir releases during October slowed due to the end of the irrigation season and irrigation demands, with some reservoirs diverting water to storage.

The drought conditions in northeastern Colorado continued into October with the USDA Drought Monitor rating for northeast Colorado identifying several counties with the majority or entire county with a rating of DO (abnormally dry) in the westerly (mountainous/foothill areas) areas including: Larimer, Boulder, Gilpin, Clear Creek, Jefferson, Denver, and Broomfield Counties and a portion of Park County with a rating of D1 (moderate drought). The drought conditions spread through much of October with a rating of D0 extending into parts of Douglas, Lincoln, Weld, Elbert, Adams, Yuma and Washington Counties; and a rating of D1 extending into Clear Creek, Elbert and Lincoln Counties; and a rating of D2 extending into parts of Park County. However, precipitation in the northern portion of the basin towards the end of October provided some relief resulting in no drought conditions in Larimer, Boulder and Weld Counties and retreating to only portions of Douglas and Adams Counties.

The month of October started and ended the month with slightly below average flows, but experienced above average flows during the middle of October due to several precipitation events above the Kersey stream gage. The flows at the Kersey gage downstream of the City of Greeley, experienced average daily flows for the month of October of approximately 699 cfs, 103% of the historic mean value of 680 cfs. The daily flows at the Julesburg gage, located near the state line, for the month of October were below average resulting in average flow of 265 cfs, 58% of the historic mean monthly value of 457 cfs. Several tributaries in higher elevations continue the pattern from September with below average streamflows during the month of October, with some relief from much needed precipitation towards the end of October.

The first snowfall of the year occurred shortly after the middle of October in the high country and foothills. Below average temperatures, below average precipitation, and the end of the irrigation season provide for more junior water rights controlling the call on the South Platte River mainstem during October. The controlling call on the South Platte River mainstem started the month with the 1909 Burlington Canal located just downstream of Denver metro area and a circa 1936 call controlling the lower end of the river at the Prewit Reservoir Inlet Canal located near Sterling, Colorado. The 1909

Burling Canal call controlled the upper part of the mainstem through the end of October until it was removed on November 1st. The lower portion of the mainstem went more junior from a 1936 call at the Prewit Inlet Canal to a 2004 Bijou bypass call at the Prewit Inlet Canal until being removed on October 29th. November starts the reservoir fill season with a 1910 Riverside call on the lower end of the mainstem.

Reservoir releases continued from September into the month of October, with the early portion of the month experiencing warm temperatures and dry weather pattern. However the welcomed precipitation events during the middle to later portions of October lessened demand and allowed some reservoirs to divert water to storage. Reservoir storage levels throughout the South Platte River mainstem ended the month of October above the average at the 6 SWSI Representative Reservoirs at 568,604 acre-feet volume, which

is 120% of the long term average of 472,915 acre-feet. Additionally, 32 indexed reservoirs throughout Division 1 basin at 130% of the long term average (1981 - 2010) with a storage volume of 794,048 acre-feet at the end of October, representing approximately 70% of full capacity. This is ahead of the long term average of 53% of full capacity for the end of October storage in the 32 indexed reservoirs throughout Division 1. Reservoir fill season begins on November 1 each year, with this year starting out with storage levels and outlook well above average for the upcoming 2020 Irrigation Season.

The temperature and precipitation outlook into November and December 2019, and January 2020 prepared by the National Weather Service, in northeastern Colorado indicates a trend toward slightly above average temperatures and above average precipitation in the South Platte River Basin.



South Platte-DataComposite-SWSI



### Basinwide Conditions Assessment

The SWSI value for the month was +2.0.

### <u>Outlook</u>

River calls during October ranged from the senior Fort Lyon Canal 4/15/1884 call to the junior Fort Lyon Canal call of 3/1/1887 upstream of John Martin Reservoir. There was a short duration precipitation event in the basin towards the beginning of the month that allowed the junior right of the Amity Canal 2/21/1887 to take native water from September 9<sup>th</sup> through the 10<sup>th</sup>. Return flows above John Martin Reservoir allowed the junior X-Y Irrigating Ditch Canal call of 7/22/1889 call in District 67 to come into priority during October.

The Winter Water Board of Directors met on October 18, 2019. Planning for the upcoming Winter Water storage season, which runs from November 15, 2019 through March 14, 2020, was the topic at this meeting.

Winter Compact storage in John Martin Reservoir began at midnight on October 31, 2019. Storage in Trinidad Reservoir began on October 15, 2019.

### Administrative Concerns

The Winter Water Meeting further discussed the concern mentioned in last month's report that Winter Water storage in Pueblo Reservoir combined with the movement of Fryingpan-Arkansas Project water from

Turquoise and Twin Lake to make room for 2020 Transmountain imports, will likely cause a spill to occur from accounts in Pueblo Reservoir. This will likely occur in April or May of 2020 unless the excess capacity in the affected accounts is not moved out voluntarily.

An online well metering tool that allows users to submit readings via the DWR website is online and available for use. This tool is one component of the ArkDSS project that will improve monthly well meter reporting for thousands of wells in the Arkansas Basin.

Phase III of a feasibility study that looks at

implementing a Colorado Multi-Use storage account in John Martin Reservoir has been started. This project seeks to identify participants and eligible water that can be captured low in the system and exchanged back upstream when conditions allow.

The House Bill 1248 lease fallow project between Colorado Springs Utilities and Superditch was submitted and is under review with anticipation for approval by the 2020 irrigation season.



Pueblo

Ava. 10/31 Contents

Turquoise

■ 10/31/19 Contents

Twin Lakes

0

John Martin

Arkansas-DataComposite-SWSI



The SWSI value for the month was +2.3.

Flow at the gaging station Rio Grande near Del Norte averaged only 438 cfs (90% of normal). The Conejos River near Mogote had a mean flow of 208 cfs (179% of normal). Precipitation during October in Alamosa was only 0.07 inches, 0.61 inches below normal. A small amount of snow fell in the local mountains during October. The San Juan mountains did not get the same heavy snowfall seen in other parts of the state during the month.

The above average stream flow in the Conejos River was due mostly to the release of pre-Compact irrigation rights stored in Platoro Reservoir. Once the storage water was evacuated, the Conejos River flow dropped to slightly below normal levels.

Streamflow levels in other parts of the upper Rio Grande basin continued to be below normal. This has been the general trend since July. This is an indication of how rainfall dependent streamflow in the basin is after the snowpack is melted out. It's quite alarming to see significantly below average streamflow conditions after such a bountiful runoff throughout the upper Rio Grande basin.

### <u>Outlook</u>

Weather forecasts are calling for above normal temperatures the next several months, but are inconclusive on

the expected precipitation. A glance at the snowpack conditions during the first week of November indicates snowpack in most of the upper Rio Grande basin is slightly above average.

### Administrative/Management Concerns

Reservoirs in the basin reduced outflows and began storing inflow as October came to a close. The summer irrigation demand significantly decreased the storage in most of the basin's reservoirs.

Colorado may slightly over-deliver on the amount required to meet the Rio Grande Compact delivery requirement to New Mexico and Texas during 2019. The final, precise credit status won't be determined

until March, 2020.

### Public Use Impact

Mild weather conditions allowed those water users in priority to continue irrigation through the end of October. The end of the irrigation season was officially set for November 1<sup>st</sup> in all sub-drainages of Water Division No. 3 with the exception of the Conejos River, where the irrigation season ended on October 18.





Rio Grande-DataComposite-SWSI



### **Basin Wide Conditions Outlook**

The areal October precipitation map from the Colorado Basin River Forecast Center looks like a rainbow across the Gunnison basin. Areas on the far west side of the basin, such as the Uncompany Plateau, received less than 30% of average precipitation while far eastern areas, such as upper Tomichi Creek near Monarch Pass, received up to 130% of average for the month. While snowpack percentages at the beginning of November rarely portend the type of winter we will have, snowpack in the basin is generally below average. For example, the Snotel station at Red Mountain Pass contained 62% of average snow water equivalent (SWE) on November 1st. The exception to this are areas above Taylor Park and in the headwaters of Tomichi Creek where up to 200% of average SWE existed on November 1st. Temperatures were one to five degrees below average basin wide in October.

### <u>Outlook</u>

During the December to February period the National Weather Service is forecasting above average temperatures and equal chances of above average precipitation in the Gunnison basin.

### Administrative/Management Concerns

The Gunnison Tunnel continued to divert over 1000 cfs until the end of October. This is unusual because typically demand for irrigation water decreases at this time and diversions through the Tunnel are correspondingly decreased. The Uncompany Valley Water Users Association (UVWUA), however, has constructed multiple hydropower units on the South Canal and one on the Montrose and Delta (M & D) Canal during the past 8 years. Both the South Canal and M & D Canal have hydropower rights that allow the UVWUA to use up to 900 cfs for hydropower and the new units generate revenue so there is incentive to generate as much power as possible prior to shutting the canals down at

the end of irrigation season. Demand continued to exceed inflows for most of October resulting in the use of 30,000 acre-feet of first fill storage. Taylor Park Reservoir will carryover a full first fill account (106,230 acre-feet), which will consist of the 77,026 acre-feet in storage on November 1st and 29,154 acrefeet of first fill account in Blue Mesa pursuant to accounting conditions in 86CW203.

Blue Mesa Reservoir contains 687,000 acrefeet and is 12 feet above the 7,490 feet water surface elevation target to prevent icing above the reservoir.

The controlling senior water right on the San Miguel at the Highline Canal decided to forgo placing a call even though the river at their head gate was well below the amount that would typically require them to call. Instead, they reduced deliveries to get by during the end of the season.

Administration of the Slate River instream flow call, including releases from Meridian Lake for the basin wide augmentation plan operated by the Upper Gunnison River Water Conservancy District (UGRWCD) continued until the storm during the last week in October.

Despite heavy use of storage at the end of the season, carryover storage on the Grand Mesa ended at 44% of capacity in Surface Creek, which is much better than the 8% that was carried over into 2019.

### Public Use Impacts

Crested Butte received significant snowfall from a storm during the last week of October and began snowmaking operations on November 1st. The other large ski resort in Division 4, Telluride, received very little snow during October and began making snow on higher terrain in late October.



Avg. 10/31 Contents

■ 10/31/19 Contents

Gunnison-DataComposite-SWSI



Dec-19

Basinwide Conditions Assessment The SWSI value for the month was +0.9.

## <u>Outlook</u>

Colorado River flows are running about average and tributary flows are running below average to average. River flows are forecasted to continue at average to below average throughout October. Above average precipitation with below average temperature is forecast for western Colorado through November.

### Administrative/Management Concerns

The call on the Colorado River mainstem is the Senior Shoshone (1250cfs) water right. Grand Valley Irrigation diversions (Government Highline/Orchard Mesa Irrigation, Grand Valley Irrigation

canals) have discontinued irrigating for the season although are still running some water for power generation. Green Mountain is releasing to pass inflows, release contract water, CB-T replacement water and HUP water. Wolford Mountain is releasing inflows and contract water and meeting their winter storage target.

### Public Use Impacts

Ski areas are opening for the 2019-20 ski season, with some opening early thanks to the early season snowfall. As the weather cools down, most, if not all of the ski areas will be making snow and will continue through November.





Colorado-DataComposite-SWSI



## Basinwide Conditions Assessment

The SWSI value for the month was +4.0.

*Precipitation* - Entire Yampa, White, and North Platte basins were 115% of the average, putting the basin at 115% of average for the water year to date. Which is up from last year' of 107% of average during the same time. For the month, the lowest percent of average, at 72%, was the Burro Mountain station. The highest, at 183%, was the Whiskey Park station.

*Temperatures* - The average temperature for Colorado Climate Division 2: Colorado River Drainage was **38.9**° **F**. This is -4.6° F from the 1901-2000 average of 43.5° F or 11% below average. This temperature ranks 5<sup>th</sup> lowest of the previous 125 years of data. For the Platte Drainage, Colorado Climate Division 4, the average temperature was **39.9° F**, -6.3° F or 14% below average for the 20<sup>th</sup> century average of 46.2° F, ranking 5<sup>th</sup> also.

### Reservoir Outlook

Elkhead Reservoir - October 31<sup>st</sup>, 2019 elevation was 71.2' and 18,924 AF of 25,550 AF - 74% capacity

Fish Creek Reservoir - October 31<sup>st</sup>, 2019 elevation was 9874.48' at 2,740 AF of 4,170 AF - 65.7% capacity.

Stagecoach Reservoir - October 31<sup>st</sup>, 2019 elevation was 7202.8' at 35,478 AF of 36,439 - 97% capacity, 116% average.

Yamcolo Reservoir - October 31<sup>st</sup>, 2019 elevation was 72.12' at 8,600 AF of 8,700 - 99% capacity, 197% average.

## Public Use Impacts

Steamboat Ski Resort recorded a record 44 inches of snowfall on the mountain for the month of

October. Although Steamboat Springs did break records for amount of in the month, warm temperatures and sunshine have melted the majority of snow in the Yampa Valley.

### Administrative Concerns

The call has come off of Talamantes Creek, it had been active since 8/7/2019 at 12:00 for the 'Prestopitz Ditch' water right with a priority date of 4/1/1882. It was taken off on October 11<sup>th</sup>, 2019. The call for the Elk River was taken off at 10/15/2019 8:00 AM. It was placed on 9/4/2019 at 14:00 for the 'Elk River Minimum Streamflow, Lower' water right with a priority date of 9/23/1977.



Yampa-White-DataComposite-SWSI



## Basinwide Conditions Assessment

The SWSI value for the month was +2.4.

Flow at the Animas River at Durango averaged 247 cfs (60% of average). The flow at the Dolores River at Dolores averaged 70 cfs (53% of average). The La Plata River at Hesperus averaged 5.4 cfs (35% of average). Precipitation in Durango was 0.28 inches for the month, 14% of the 30-year average of 1.93 inches. Precipitation to date in Durango, for the water year is 0.28 inches, 14% of the 30-year average of 1.93 inches. The average high and low temperatures for the month of October in Durango were 69° and 30°. In comparison, the 30-year average high and low for the month is 66° and 34°. At the end of the month Vallecito Reservoir contained 71,888 acre-feet compared to its average content of 52,943 acre-feet (136% of average). McPhee Reservoir was up to 291,800 acre-feet compared to its average content of 259,906 (112% of average), while Lemon Reservoir was up to 18,650 acre-feet as compared to its average content of 19,045 acre-feet (98% of average).

### <u>Outlook</u>

Precipitation (0.28 inches) was well below average for October in Durango. There were 109 years out of 125 years of record where there was more precipitation than this year. The monsoon rains usually start in July and end in October in Durango, but that is not the case this year. Very little monsoon rain fell this summer. The flows in the rivers within the basin remained well below average for this time of the year. There are 86 out of 109 years of record where the total flow past the Animas River at Durango stream gauge was more than this year. There were 83 out of 111 years of record where the total flow past the Dolores stream gauge was more than this year and 96 out of 103 years of record where the total flow past the La Plata River at Hesperus gauge was more than this year. Most of the reservoirs within the basin are above average for this time of year.





San Juan-Dolores-DataComposite-SWSI





HUC:14080107-NOV-PrevMoStreamflow-SWSI HUC:14080107-NOV-ForecastedRunoff-SWSI HUC:14080107-NOV-ReservoirStorage-SWSI HUC:14080107-NOV-DataComposite-SWSI

# HUC 10180001 (North Platte Headwaters) Surface Water Supply - NOV



HUC:10180001-NOV-PrevMoStreamflow-SWSI HUC:10180001-NOV-ForecastedRunoff-SWSI HUC:10180001-NOV-ReservoirStorage-SWSI HUC:10180001-NOV-DataComposite-SWSI







# HUC 10190004 (Clear) Surface Water Supply - NOV



## HUC 10190004 (Clear) SWSI Values - NOV

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.





- HUC:10190005-NOV-FreeMosteam100-SWS HUC:10190005-NOV-ForecastedRunoff-SWSI HUC:10190005-NOV-ReservoirStorage-SWSI HUC:10190005-NOV-DataComposite-SWSI







HUC:10190012-NOV-DataComposite-SWSI











HUC:11020009-NOV-DataComposite-SWSI







# HUC 13010004 (Saguache) Surface Water Supply - NOV



## HUC 13010004 (Saguache) SWSI Values - NOV Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.









# HUC 14010003 (Eagle) Surface Water Supply - NOV



HUC 14010003 (Eagle) SWSI Values - NOV Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



HUC:14010003-NOV-Previolstream100-SWS HUC:14010003-NOV-ForecastedRunoff-SWSI HUC:14010003-NOV-DataComposite-SWSI









# HUC 14020003 (Tomichi) Surface Water Supply - NOV



HUC:14020003-NOV-PrevMoStreamflow-SWSI HUC:14020003-NOV-ForecastedRunoff-SWSI HUC:14020003-NOV-ReservoirStorage-SWSI

HUC:14020003-NOV-DataComposite-SWSI



# HUC 14020005 (Lower Gunnison) Surface Water Supply - NOV



0.00 HUC:14020005-NOV-PrevMoStreamflow-SWSI HUC:14020005-NOV-FreeMosteam100-SWS HUC:14020005-NOV-ForecastedRunoff-SWSI HUC:14020005-NOV-DataComposite-SWSI

0.40

0.20





# HUC 14030003 (San Miguel) Surface Water Supply - NOV



HUC 14030003 (San Miguel) SWSI Values - NOV Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.





# HUC 14050002 (Lower Yampa) Surface Water Supply - NOV



HUC:14050002-NOV-PrevMoStreamflow-SWSI HUC:14050002-NOV-ForecastedRunoff-SWSI HUC:14050002-NOV-ReservoirStorage-SWSI HUC:14050002-NOV-DataComposite-SWSI

0.40

0.20

0.00

## HUC 14050003 (Little Snake) Surface Water Supply - NOV



Monthly component volumes

## HUC 14050003 (Little Snake) SWSI Values - NOV

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



HUC:14050003-NOV-ForecastedRunoff-SWSI HUC:14050003-NOV-ReservoirStorage-SWSI

HUC:14050003-NOV-DataComposite-SWSI

# HUC 14050005 (Upper White) Surface Water Supply - NOV







# HUC 14080102 (Piedra) Surface Water Supply - NOV



## HUC 14080102 (Piedra) SWSI Values - NOV

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



HUC:14080102-NOV-PrevMoStreamflow-SWSI HUC:14080102-NOV-ForecastedRunoff-SWSI HUC:14080102-NOV-ReservoirStorage-SWSI HUC:14080102-NOV-DataComposite-SWSI



# HUC 14080105 (Middle San Juan) Surface Water Supply - NOV



0.80 0.60 0.40 0.20 0.00 HUC:14080105-NOV-PrevMoStreamflow-SWSI

HUC:14080105-NOV-FreeMostream1000-SWS HUC:14080105-NOV-ForecastedRunoff-SWSI HUC:14080105-NOV-DataComposite-SWSI