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>

August 1, 2018

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
January 1 - June 1	Forecasted Runoff + Reservoir Storage
July 1 - September 1	Previous Month's Streamflow + Reservoir Storage
October 1 - December 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 summer season (July 1 to September 1) is based on the previous month's natural streamflow (the estimate of flow without the impacts of diversions and imports), combined with reservoir storage at the end of last month, in this case July 31. The following SWSI values were computed for each of the seven major basins for August 1, 2018. Water supply conditions are well below normal in all but the South Platte and Arkansas River basins. Those two basins have streamflow well below normal, but the SWSI is moderated by strong reservoir storage volumes, though the reservoir storage is declining in the Arkansas River basin. Reservoir storage is near normal to below normal statewide. Each basin, except for Rio Grande has declined since June 1.

Basin	August 1 SWSI	Change from Previous Month	Change from Previous Year
Arkansas	1.6	1.0	-1.1
Colorado	-3.7	-0.1	-3.7
Gunnison	-3.8	-0.1	-5.5
Rio Grande	-1.8	1.9	-3.3
San Juan-Dolores	-2.6	0.8	-5.0
South Platte	-0.2	-0.1	-2.8
Yampa-White	-3.4	0.2	-3.1

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



SURFACE WATER SUPPLY INDEX FOR COLORADO BY MAJOR RIVER BASIN

August 1, 2018

SURFACE WATER SUPPLY INDEX FOR COLORADO BY HUC



Basin	HUC ID	HUC Name	SWSI	Reservoir Storage NEP	Prev. Month Streamflow NEP	Total Vol (AF)
	11020006	Huerfano	-3.95	37	3	885
⊳	11020010	Purgatoire	-0.72	70	3	21,948
rka	11020005	Upper Arkansas-Lake Meredith	-2.82	57	6	61,933
nsa	11020001	Arkansas Headwaters	-2.79	11	6	213,576
SI	11020009	Upper Arkansas-John Martin Reservoir	1.45	72	5	228,138
	11020002	Upper Arkansas	0.71	64	6	240,805
	14010003	Eagle	-3.96	72	2	12,188
Co	14010005	Colorado Headwaters-Plateau	-3.83	12	4	116,729
lora	14010004	Roaring Fork	-3.80	N/A	4	120,249
opi	14010002	Blue	-3.21	5	5	150,874
	14010001	Colorado Headwaters	-3.07	6	4	224,950
	14020003	Tomichi	-4.04	7	1	1,493
	14030003	San Miguel	-3.96	5	3	4,932
Gui	14020004	North Fork Gunnison	-3.81	60	5	8,483
nni	14020005	Lower Gunnison	-4.00	4	2	24,786
son	14020006	Uncompahgre	-1.45	N/A	3	54,380
	14020001	East-Taylor	-3.71	41	4	83,652
	14020002	Upper Gunnison	-3.75	N/A	4	541,071
Rio	13010004	Saguache	-3.84	81	4	1,428
G	13010002	Alamosa-Trinchera	-2.84	36	6	10,907
ran	13010005	Conejos	-1.77	N/A	14	31,579
de	13010001	Rio Grande Headwaters	-0.73	42	3	58,886
Sa	14080105	Middle San Juan	-2.92	41	3	853
ոյ	14080102	Piedra	-3.87	6	4	2,322
Jan	14080107	Mancos	-4.04	N/A	10	2,582
þ	14080104	Animas	-3.86	6	3	23,620
lor	14080101	Upper San Juan	-3.75	50	3	48,125
es	14030002	Upper Dolores	-0.78	2	27	213,260
	10190004	Clear	-3.83	65	4	10,913
	10190005	St. Vrain	-3.45	18	3	82,698
Sou	10190003	Middle South Platte-Cherry Creek	-3.34	36	6	153,507
Ith	10190001	South Platte Headwater	0.06	N/A	11	171,171
Pla	10190007	Cache La Poudre	0.15	52	31	190,505
tte	10190012	Middle South Platte-Sterling	-2.77	59	6	223,007
	10190002	Upper South Platte	-3.07	62	4	313,896
	10190006	Big Thompson	0.64	55	7	588,010
Ya	14050003	Little Snake	-3.79	N/A	4	417
du	14050002	Lower Yampa	-3.61	81	7	7,806
a-V	14050005	Upper White	-3.67	N/A	6	12,774
Vhi	10180001	North Platte Headwaters	-3.04	N/A	14	14,316
te	14050001	Upper Yampa	-2.54	N/A	3	50,001

August 1, 2018 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)
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HUC Name	Component Name	Component Volume (AF)	Component NEP for Month
	CLEAR CREEK RESERVOIR	6,300	26
	ARKANSAS RIVER AT SALIDA	18,514	6
Arkansas Headwaters	HOMESTAKE RESERVOIR	41,700	67
	TWIN LAKES RESERVOIR	41,716	22
	TURQUOISE LAKE	105,346	35
	CUCHARAS RESERVOIR*	0	11
Huerfano	CUCHARAS RIVER AT BOYD RANCH NR LA VETA	300	3
	HUERFANO RIVER NEAR REDWING	585	5
Durgataira	PURGATOIRE RIVER AT TRINIDAD	938	3
Pulgatolle	TRINIDAD LAKE	21,010	64
Linner Arkonsos	PUEBLO RESERVOIR INFLOW	32,945	6
upper Arkansas	PUEBLO RESERVOIR	207,860	70
	CUCHARAS RIVER AT BOYD RANCH NR LA VETA	300	3
	HUERFANO RIVER NEAR REDWING	585	5
Upper Arkansas-John	PURGATOIRE RIVER AT TRINIDAD	938	3
Martin Reservoir	ADOBE CREEK RESERVOIR	22,168	39
	PUEBLO RESERVOIR INFLOW	32,945	6
	JOHN MARTIN RESERVOIR	171,202	73
	CUCHARAS RIVER AT BOYD RANCH NR LA VETA	300	3
	HUERFANO RIVER NEAR REDWING	585	5
Upper Arkansas-Lake Meredith	LAKE HENRY	6,235	63
meredien	MEREDITH RESERVOIR	21,868	56
	PUEBLO RESERVOIR INFLOW	32,945	6
Plue	BLUE RIVER INFLOW TO GREEN MOUNTAIN RES	22,389	5
Diue	GREEN MOUNTAIN RESERVOIR	128,485	12
	WOLFORD MOUNTAIN RESERVOIR	55,400	70
Colorado Headwaters	COLORADO RIVER NEAR DOTSERO	79,150	4
	WILLIAMS FORK RESERVOIR	90,400	48
Colorado Headwaters-	VEGA RESERVOIR	9,277	6
Plateau	COLORADO RIVER NEAR CAMEO	107,452	4
Eagle	EAGLE RIVER BELOW GYPSUM	12,188	2
Poaring Fork	ROARING FORK AT GLENWOOD SPRINGS	32,367	4
Roaring FOIR	RUEDI RESERVOIR	87,882	5
	TAYLOR R INF TO TAYLOR PARK RESERVOIR	4,949	4
East-Taylor	EAST RIVER AT ALMONT	6,056	2
	TAYLOR PARK RESERVOIR	72,647	7
Lower Gunnison	GUNNISON RIVER NR GRAND JUNCTION	24,786	2
North Fork Gunnison	PAONIA RESERVOIR	2,138	4
	NORTH FORK GUNNISON R NR SOMERSET	6,345	5
San Miguel	SAN MIGUEL RIVER NEAR PLACERVILLE	4,932	3
Tomichi	VOUGA RESERVOIR NEAR DOYLEVILLE	344	60
TOTTICIT	TOMICHI CREEK AT GUNNISON, CO	1,149	1

August 1, 2018 SWSI Component Information - Streamflow Forecast & Reservoir Storage - By HUC

HUC Name	Component Name	Component Volume (AF)	Component NEP for Month
Uncompahare	UNCOMPAHGRE RIVER AT COLONA	4,000	3
Uncompangre	RIDGEWAY RESERVOIR	50,380	41
	FRUITLAND RESERVOIR	155	34
	CRAWFORD RESERVOIR	2,497	6
	SILVER JACK RESERVOIR	6,652	7
Upper Gunnison	LAKE FORK AT GATEVIEW, CO	7,351	5
	GUNNISON RIVER NEAR GUNNISON, CO	11,902	3
	MORROW POINT RESERVOIR	113,401	59
	BLUE MESA RESERVOIR	399,113	5
	SANGRE DE CRISTO	96	8
	UTE CREEK	172	3
	TRINCHERA CK	206	2
Alamosa-Trinchera	CULEBRA CREEK AT SAN LUIS	1,109	31
	ALAMOSA CREEK ABOVE TERRACE RESERVOIR	2,110	8
	MOUNTAIN HOME	2,214	21
	TERRACE RESERVOIR	5,000	49
Coneios	CONEJOS RIVER NEAR MOGOTE	7,979	14
conejos	PLATORO RESERVOIR	23,600	42
	RIO GRANDE RESERVOIR	9,300	41
Pio Grando Hoadwators	RIO GRANDE NEAR DEL NORTE	11,686	3
Rio Granue rieduwaters	CONTINENTAL RESERVOIR	16,700	99
	SANTA MARIA RESERVOIR	21,200	88
Saguache	SAGUACHE CREEK NEAR SAGUACHE, CO	1,428	4
	FLORIDA RIVER INFLOW TO LEMON RESERVOIR	1,131	4
Animas	LEMON RESERVOIR	6,435	6
	ANIMAS RIVER AT DURANGO	16,054	3
Mancos	MANCOS RIVER NEAR MANCOS	492	10
Maricos	JACKSON GULCH RESERVOIR	2,090	2
Middle San Juan	LONG HOLLOW RESERVOIR	302	50
middle San Sdan	LA PLATA RIVER AT HESPERUS	551	3
Piedra	PIEDRA RIVER NEAR ARBOLES	2,322	4
	GROUNDHOG RESERVOIR	8,900	10
Upper Dolores	DOLORES RIVER BELOW MCPHEE RESERVOIR	10,889	27
	MCPHEE RESERVOIR	193,471	41
	SAN JUAN RIVER NEAR CARRACAS	5,418	4
Upper San Juan	LOS PINOS RIVER NEAR BAYFIELD	7,624	3
	VALLECITO RESERVOIR	35,083	6
	MARIANO RESERVOIR	1,400	8
	LONE TREE RESERVOIR	6,600	86
	WILLOW CREEK RESERVOIR	7,358	45
Big Thompson	LAKE LOVELAND RESERVOIR	7,600	34
	BIG THOMPSON R AT MOUTH, NR DRAKE, CO	11,000	7
	BOYD LAKE	37,900	53
	CARTER LAKE	86,032	66
	LAKE GRANBY	430,120	56

HUC Name	Component Name	Component Volume (AF)	Component NEP for Month
	BLACK HOLLOW RESERVOIR	5,090	96
	HALLIGAN RESERVOIR	5,370	60
	CACHE LA POUDRE	6,695	51
	CHAMBERS LAKE	6,720	60
Cache La Poudre	FOSSIL CREEK RESERVOIR	7,730	64
	WINDSOR RESERVOIR	7,940	30
	COBB LAKE	17,300	61
	CACHE LA POUDRE R AT CANYON MOUTH	27,000	31
	HORSETOOTH RESERVOIR	106,660	53
Clear	CLEAR CREEK AT GOLDEN	10,913	4
	SOUTH BOULDER CK NR ELDORADO SPRINGS, CO	2,698	7
	BOULDER CREEK NEAR ORODELL	2,800	1
	HORSECREEK RESERVOIR	5,300	15
	SAINT VRAIN CREEK AT LYONS	9,700	4
	CLEAR CREEK AT GOLDEN	10,913	4
Middle South Platte-	BIG THOMPSON R AT MOUTH, NR DRAKE, CO	11,000	7
Cherry Creek	SOUTH PLATTE RIVER AT SOUTH PLATTE	14,296	4
	MILTON RESERVOIR	14,300	75
	BARR LAKE	16,700	36
	CACHE LA POUDRE R AT CANYON MOUTH	27,000	31
	STANDLEY RESERVOIR	38,800	35
	SOUTH BOULDER CK NR ELDORADO SPRINGS, CO	2,698	7
	BOULDER CREEK NEAR ORODELL	2,800	1
	SAINT VRAIN CREEK AT LYONS	9,700	4
	CLEAR CREEK AT GOLDEN	10,913	4
	BIG THOMPSON R AT MOUTH, NR DRAKE, CO	11,000	7
	SOUTH PLATTE RIVER AT SOUTH PLATTE	14,296	4
Middle South Platte-	JULESBURG RESERVOIR	16,500	84
Sterting	PREWITT RESERVOIR	16,900	53
	JACKSON LAKE RESERVOIR	18,300	27
	EMPIRE RESERVOIR	19,600	55
	CACHE LA POUDRE R AT CANYON MOUTH	27,000	31
	RIVERSIDE RESERVOIR	32,400	58
	POINT OF ROCKS RESERVOIR	40,900	65
	ELEVENMILE CANYON RESV INFLOW	7,071	11
South Platta Headwater	ANTERO RESERVOIR	19,800	56
South Flatte Headwater	SPINNEY MOUNTAIN RESERVOIR	45,100	62
	ELEVENMILE CANYON RESERVOIR	99,200	31
	SOUTH BOULDER CK NR ELDORADO SPRINGS, CO	2,698	7
	BOULDER CREEK NEAR ORODELL	2,800	1
	TERRY RESERVOIR	5,400	48
St Vrain	MARSHALL RESERVOIR	7,600	45
	SAINT VRAIN CREEK AT LYONS	9,700	4
	UNION RESERVOIR	11,600	47
	BUTTONROCK (RALPH PRICE) RESERVOIR	16,200	65
	GROSS RESERVOIR	26,700	28

HUC Name	Component Name	Component Volume (AF)	Component NEP for Month
	SOUTH PLATTE RIVER AT SOUTH PLATTE	14,296	4
Upper South Platte	CHEESMAN LAKE	71,100	31
	DILLON RESERVOIR	228,500	13
Little Snake	LITTLE SNAKE RIVER NEAR LILY	417	4
Lower Yampa	YAMPA RIVER NEAR MAYBELL	7,806	7
North Platte Headwaters	NORTH PLATTE R NR NORTHGATE	14,316	14
Upper White	WHITE RIVER NEAR MEEKER	12,774	6
Upper Yampa	ELKHEAD CREEK ABOVE LONG GULCH	82	5
	YAMPA RIVER AT STEAMBOAT SPRINGS	2,790	4
	YAMCOLO RESERVOIR	2,856	35
	ELK RIVER NEAR MILNER, CO	8,473	3
	STAGECOACH RESERVOIR NR OAK CREEK	35,800	99

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

*Empty, filling restriction

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 -0.2.

July in northeast Colorado, like much of the state, has experienced above normal temperatures. The extremely dry weather pattern during July, except for intermittent monsoonal precipitation events in portions of the basin near the end of the month, resulted in below average stream flows throughout much of the South Platte River basin. Release of reservoir storage throughout the basin really ramped up during the first to middle part of July, with a slowdown in late July due to some welcomed precipitation in parts of the basins and harvesting activities resulting in a lower irrigation demands.

The USDA Drought Monitor rating for northeast Colorado remained constant during the month of July, with a rating of DO (abnormally dry) in the westerly (mountainous/foothill areas) areas of Larimer, Boulder, Jefferson, Douglas, Elbert and Arapaho Counties; a rating of D1 (moderate drought) in Gilpin, Clear Creek, and Park Counties. The one exception was portions of Lincoln, El Paso, Teller and Park Counties rated as D1-D2 (moderate to severe), which is an improvement for those counties rated as extreme drought during the month of June. The eastern plains in the South Platte and Republican River basins continue to receive average to above average precipitation and are not currently in a drought condition.

July temperatures in northeast Colorado were above normal. Much of the basin during the beginning of July was very dry, however late season monsoonal patterns arrived during the late portion of the month of July in Northeastern Colorado resulting in above average precipitation in much of the basin. However, with the dry conditions during the month of June and throughout most of July, these intermittent storms were short lived, resulting in short duration of above average flows in many of the South Platte and most tributaries throughout Division 1.

The warm temperatures, high demand and below average precipitation during the month of July resulted in

below average flows at the Kersey and Juleseburg gages. The average daily flows at the Kersey gage for the month of July was 309 cfs, 46% of the historic mean value of 675 cfs. The average daily flows at the Julesburg gage for the month of July was 113 cfs, 37% of the historic mean value of 311 cfs. The late July monsoonal precipitation provide a short duration of high daily flows at these gages that increased the monthly daily average, that would have been much lower without the short duration but intense precipitation events along the mainstem of the South Platte River basin.

The dry and warm weather during the end of June into early July resulted in the priority on the mainstem going more senior on the mainstem hinging around a priority date of 1871. The 1897 South Platte River Compact Call remained on for most of the month of July, being removed on July 28th thanks to the late July monsoonal precipitation and lower demand for irrigation (temporary during harvesting activities). However, the precipitation, mostly welcomed, on the eastern plains was not present in most of the foothill and mountainous areas in Division 1, resulting in the call for water becoming more and more senior through the month of July into August. The dry conditions in these areas is resulting in near to or historic low flows throughout the month of July in many tributaries.



South Platte-DataComposite-SWSI



Basinwide Conditions Assessment

The SWSI value for the month was +1.6.

<u>Outlook</u>

Steadily decreasing river flows the first part of the month of July brought the senior call to 3/31/1882 (Bessemer Ditch). Late month hydrologic events boosted flows in the Arkansas between the gages at Canon City and Portland. Unexpected large flows from Hardscrabble Creek in Wetmore brought the junior call to 8/1/1896 (Amity Canal) on the mainstem above John Martin Reservoir. This allowed water to be stored in the Great Plains Project. Increased flows on the Purgatoire River from hydrologic events put John Martin Reservoir into conservation storage for a short period of time at the end of the month as well. However, the watershed above Canon City remained very dry which has reduced native flows into Pueblo Reservoir at an alarming rate.

Administrative/Management Concerns

Some concern about flooding associated with the 2016 fire burn areas (Hayden Pass, Beulah Hills and Junkin) has existed in 2018 and some flood damage has occurred with the monsoonal moisture flow through southeastern Colorado dropping some rain on these areas.

Imports via the Fryingpan-Arkansas Project were less than projected causing the Southeastern Colorado Water Conservancy District to again freeze the final 20% of the 2018-19 allocation as occurred during 2017-18. They had originally planned to curtail at 72%, but were able to get an additional 8% of the allocation. This water supply provides supplemental irrigation water and well augmentation and return flow maintenance water that are important to the water rights within the SECWCD boundaries.







Basinwide Conditions Assessment

The SWSI value for the month was -1.8.

Flow at the gaging station Rio Grande near Del Norte averaged 213 cfs (17% of normal). The Conejos River near Mogote had a mean flow of 120 cfs (27% of normal). In general, the entire upper Rio Grande basin suffered through a poor runoff month during July, 2018. Streamflow was in the 10% to 40% of normal range. Sporadic rainstorms provided only temporary increases in runoff. Precipitation in Alamosa was 1.05 inches, just 0.08 inches below normal. The average temperature in Alamosa during July was 2.5 degree warmer than normal, marking the 11th consecutive month of above average temperatures.

<u>Outlook</u>

Stream flow levels throughout the basin will remain drastically low until significant rain arrives. Fortunately, the National Weather Service (NWS) is predicting an increase in precipitation for September through December.

Reservoir storage, both above ground and below ground, has suffered from the drought this year. A large change in the climate pattern must occur before these water sources recover.

Administrative/Management Concerns

Lack of precipitation resulted in further decrease of streamflow at the upper index gaging stations on the Rio Grande and Conejos systems. This required water administrators to adjust the expected annual index volumes. This did not require a change - there has been no curtailment of available native flow to meet Compact delivery requirements during 2018.

It's obvious, but drought years bring on a different set of challenges for water administrators. Routine inspection of irrigation ditches and wells is necessary to assure proper and legal use. Futile calls on streams become more prevalent. Water Commissioners work diligently to get as many ditch rights satisfied as possible. There's always the goal of maximizing beneficial use of the available water.

Public Use Impact

The reservoirs within the upper Rio Grande basin are dropping as the need for supplemental irrigation water increases. Reservoirs expected to be drained for water need and / or repair work this year include: Rio Grande, Mountain Home, and Smith Reservoirs. Reservoirs expected to be at extremely low volume by the end of the year include: Sanchez, Terrace, La Jara, and even Platoro Reservoirs. The expected low inflows during winter 2018 -19 won't come close to re-filling these vital vessels.



Rio Grande-DataComposite-SWSI



Basinwide Conditions Assessment

Assessment

The SWSI value for the month was -3.8.

While July was better than the previous two months when compared to average, it still only produced 30-50% of average precipitation in the northern parts of the Gunnison basin and near 70% in the southern portions. Streamflows remain consistently below the 25th percentile at gauge sites in the Basin. In fact, many gauge sites continue to report flows below record lows set in 2012, 2002, and 1977.

<u>Outlook</u>

NOAA climate forecasts continue to predict wetter than average conditions for the next 90 day period, which includes September, October and November.

Administrative/Management Concerns

Actual April to July runoff into Blue Mesa Reservoir ended at 239,000 acre-feet, which is 31% less than the 350,000 acre-feet forecast on May 1st and places 2018 as the third driest on record. Drought provisions in the Aspinall Operations EIS allow for a reduction in June and July baseflow targets at Whitewater from 1,050 cfs to 900 cfs when Blue Mesa Reservoir contains less than 600,000 acre-feet in storage. Although the Bureau of Reclamation reduced releases at Crystal Dam in mid-June to meet the drought year target, it was actually exceeded by approximately 100 cfs until July 23rd because a measurement on July 19th by the USGS at the Whitewater gauge (Gunnison at Grand Junction) determined that it was reading approximately 100 cfs lower than the actual discharge.

Gunnison Tunnel (GT) diversions exceeded inflow to the Aspinall Unit for all of July, which resulted in the use of 28,113 acrefeet of first fill to meet the demand. Accounting provisions in the 11CW31 decree allow the GT to concurrently divert UVWUA first fill and water released from Taylor Park second fill for fishery and recreation uses in the Upper Gunnison Water Conservancy District (UGRWCD) area. A Division of Water Resources model predicts that the GT will use all Taylor Park first

fill stored in the Aspinall Unit by September 14th, resulting in an exchange of Aspinall Unit water for first fill water that still stored in Taylor Park. Furthermore, based on projected diversions, the exchange may use all the remaining first fill in Taylor Park and result in carryover of 34,000 acre-feet, which is only 32% of capacity.

The Montrose & Delta Canal call remained on for all of July and resulted in curtailment of most irrigation water rights in Ouray County. In addition to the storage that the UVWUA used from Taylor Park, they used another 10,438 acre-feet of their storage in Ridgway Reservoir to fill demand at their seven main headgates. This leaves the UVWUA with only 5,718 acre-feet of storage remaining in Ridgway.

Tributary flows in the North Fork Gunnison Basin are dismal and

are supplying at best a few water rights. As a result, most irrigators are relying upon storage, which is also in short supply. The Grand Mesa Water Users Association (GMWUA) continued to only accept reservoir storage orders every other week to reduce the associated transit losses. Water Commissioners moved reservoir water from upper reservoirs to the lowest ones in each drainage in order to provide enough head pressure behind the outlet at the bottom reservoir to release the ordered amounts resulting in most reservoirs being drained to their dead pool level already at the beginning of August.

Public Use Impacts

In late July water temperatures in many trout streams became a concern for the Colorado Department of Parks and Wildlife (CPW) because they were exceeding 70 degrees in many locations due to low flows and hot and dry conditions. In some areas, such as the

Cimarron River, this is being mitigated by releases from a pool of water dedicated to boost streamflows to improve conditions for fish. One bright spot for public use is that despite the poor water year, the Montrose Water Sports Park has contained great flow all year due to the fact that the UVWUA delivers water to four of their main headgates below the City, thus keeping flows through the City adequate for boating.





Gunnison-DataComposite-SWSI



Basinwide Conditions Assessment

The SWSI value for the month was -3.7.

<u>Outlook</u>

Colorado River flows and tributary flows are running below average. River flows are forecasted to continue below average. Above average temperatures and above average precipitation are forecast for August.

Administrative/Management Concerns

The call on the Colorado River mainstem is the Grand Valley Project (730 cfs) water right. There is also a call at the Senior Shoshone Power Plant water right. Grand Valley Irrigation diversions (Government Highline/Orchard Mesa Irrigation, Grand Valley Irrigation canals) continue at or near full capacity. Ruedi Reservoir is releasing Grand Valley Irrigation Company Junior direct delivery to offset releases for HUP water from Green Mountain. Green Mountain is releasing contract and HUP water and some inflow.

Public Use Impacts

Colorado Parks and Wildlife put a voluntary closure in place due to drought conditions on the Colorado,

Roaring Fork, Frying Pan and Crystal Rivers. The closure in place is from 2 pm to midnight until further notice due to the warmer water temperatures putting a strain on fish.



Colorado-DataComposite-SWSI



Basinwide Conditions Assessment

The SWSI value for the month was -3.4.

July precipitation was well below average in the Yampa, White, and North Platte River basins. Precipitation for the month, as measured at the SNOTEL sites operated by NRCS, was reported at 42% of average for the Yampa, White, and North Platte River basins. Total precipitation for the water year as a percent of average to date in the combined basins at the end of July was 78%.

All Division 6 stream gages are now open with measurements ongoing. The Willow Creek site has been reopened and there are no longer any bypass flows going around the gage.

<u>Outlook</u>

As of July 31st Fish Creek Reservoir was storing approximately 3,682 AF, 88% of capacity. The capacity of Fish Creek Reservoir is 4,167 AF. Yamcolo Reservoir was storing 2,900 AF at the end of July 2018. The capacity of Yamcolo Reservoir is 8,700 AF. Elkhead Reservoir's storage on July 31st was 23,313 AF. The capacity of Elkhead Reservoir is 24,778 AF. On July 31, 2018, Stagecoach Reservoir was storing 35,800 AF, 98% of capacity.

Water stored in Fish Creek Reservoir is used primarily for municipal purposes, Yamcolo Reservoir for irrigation purposes, and Elkhead Creek Reservoir for municipal, industrial, recreational, and fish recovery releases. Stagecoach Reservoir is primarily used for recreation though a significant amount of stored water is allocated for municipal, industrial, irrigation and augmentation uses.

Public Use Impacts

Please check the Stagecoach Reservoir State Park website for the fishing report. Motorized boating is now allowed on the reservoir (June 1 - October 31). ANS inspections are available at the Marina/North/Main Boat

ramp. A pre-inspection is required prior to launching any vessel in to the reservoir. The swim beach is now open.

Steamboat Lake is now open for boating and you can stop by the visitor center for a mandatory boat inspection. Call 800-244-5613 for camping reservations. Reservations are recommended at all times. The swim beach is now open. Dam construction is currently underway. There is no public day use or access to the Sage Flats day use area.

Fire danger is high in Routt, Moffat and Rio Blanco counties. Routt County has enacted Stage 1 fire restrictions. Please view the park conditions website for either Stagecoach or Steamboat Lake.



Yampa-White-DataComposite-SWSI



Basinwide Conditions Assessment

The SWSI value for the month was -2.6.

Flow at the Animas River at Durango averaged 261 cfs (23% of average). The flow at the Dolores River at Dolores average is 119 cfs (31% of average). The La Plata River at Hesperus averaged 8.8 cfs (25% of average). Precipitation in Durango was 0.84 inches for the month, 44% of the 30-year average of 1.93 inches. Precipitation to date in Durango, for the water year, is 6.30 inches, 42% of the 30-year average of 15.11 inches. End of last month precipitation to date, for the water year was 41% of average. The average high and low temperatures for the month of August in Durango were 91° and 55°. In comparison, the 30-year average high and low for the month is 86° and 54°. At the end of the month Vallecito Reservoir contained 35,977 acre-feet compared to its average content of 89,944 acre-feet (40% of average). McPhee Reservoir was up to 193,531 acre-feet compared to its average content of 27,023 acre-feet (25% of average). As with all SWSI calculations, the NEP and SWSI values for the Upper Dolores are based on a comparison of water volumes available for water supply back to 1970. Although conditions in the Upper Dolores are comparable to 2002 and 2012, since McPhee Reservoir was not constructed until the 1980's, the earlier years of record do not have any water attributed to McPhee, resulting in an August 1 SWSI

closer to normal (-0.78) than what is being experienced by agricultural water users. In addition, the water in McPhee Reservoir below the active pool of 151,000 acre-feet is not available to irrigation users but only to the relatively minor demands for municipal, industrial, and fish and wildlife uses.

<u>Outlook</u>

Precipitation (0.84 inches) was below average for July in Durango. There were 105 years out of 124 years of record where there was more precipitation than this year. The flows in the rivers within the basin remained well below average for this time of year. There are 105 out of 107 years of record where the total flow past the Animas River at Durango stream gauge was more than this year. There were 102 out of 108 years of record where the total flow past the Dolores stream gauge was more than this year and 98 out of 101 years of record where the total flow past the La Plata River at Hesperus gauge was more than this year. Flows on the Dolores River were impacted by the release from Groundhog Reservoir. Flows on the Dolores would show much lower without the release.



San Juan-Dolores-DataComposite-SWSI





HUC:14080107-AUG-DataComposite HUC:14080107-AUG-PrevMoStreamflow HUC:14080107-AUG-ForeoastedRunoff HUC:14080107-AUG-ReservoirStorage

HUC 14080107 (Mancos) SWSI Values - AUG

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



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



HUC 10180001 (North Platte Headwaters) Surface Water Supply - AUG

HUC:10180001-AUO-PrevMoStreamflow-SWSI HUC:10180001-AUO-ForecastedRunoff-SWSI HUC:10180001-AUO-ReservoirStorage-SWSI HUC:10180001-AUG-DataComposite-SWSI



HUC:10190001-AUG-ReservoirStorage-SWSI





HUC:10190002-AU&-PrevMoStreamflow-SWSI HUC:10190002-AU&-ForeoastedRunoff-SWSI HUC:10190002-AU&-ReservoirStorage-SWSI HUC:10190002-AU&-DataComposite-SWSI



HUC:10190003-AUG-ReservoirStorage-SWS HUC:10190003-AUG-DataComposite-SWSI



HUC:10190004-AUG-DataComposite HUC:10190004-AUG-PrevMoStreamflow HUC:10190004-AUG-ForecastedRunoff HUC:10190004-AUG-ReservoirStorage

HUC 10190004 (Clear) SWSI Values - AUG Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



HUC:10190004-AUG-PrevMoStreamflow-SWSI HUC:10190004-AUG-ForecastedRunoff-SWSI HUC:10190004-AUG-ReservoirStorage-SWSI HUC:10190004-AUG-DataComposite-SWSI



HUC:10190005-AUG-DataComposite HUC:10190005-AUG-PrevMoStreamflow HUC:10190005-AUG-ForeoastedRunoff HUC:10190005-AUG-ReservoirStorage

HUC 10190005 (St. Vrain) SWSI Values - AUG





HUC:10190005-AUG-PrevMoStreamflow-SWSI HUC:10190005-AUG-ForecastedRunoff-SWSI HUC:10190005-AUG-ReservoirStorage-SWSI HUC:10190005-AUG-DataComposite-SWSI



HUC:10190006-AUG-DataComposite HUC:10190006-AUG-PrevMoStreamflow HUC:10190006-AUG-ForecastedRunoff HUC:10190006-AUG-ReservoirStorage

HUC 10190006 (Big Thompson) SWSI Values - AUG Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.





= HUC:10190006-AUG-PrevMoStreamflow-SWSI = HUC:10190006-AUG-ForecastedRunoff-SWSI = HUC:10190006-AUG-ReservoirStorage-SWSI = HUC:10190006-AUG-DataComposite-SWSI



HUC:10190007-AUG-PrevMoStreamflow-SWSI HUC:10190007-AUG-ForecastedRunoff-SWSI HUC:10190007-AUG-ReservoirStorage-SWSI

HUC:10190007-AUG-DataComposite-SWSI



HUC:10190012-AUG-ReservoirStorage-SWSI HUC:10190012-AUG-DataComposite-SWSI



HUC:11020001-AUG-ReservoirStorage-SWSI



⁼ HUC:11020002-AUG-PrevMoStreamflow-SWSI = HUC:11020002-AUG-ForecastedRunoff-SWSI = HUC:11020002-AUG-ReservoirStorage-SWSI = HUC:11020002-AUG-DataComposite-SWSI



HUC:11020005-AUG-DataComposite-SWSI



-6.00

HUC:11020006-AUG-PrevMoStreamflow-SWSI HUC:11020006-AUG-Fore-astedRunoff-SWSI HUC:11020006-AUG-ReservoirStorage-SWSI HUC:11020006-AUG-DataComposite-SWSI







HUC:13010001-AUG-ReservoirStorage-SWSI





HUC:13010004-AUG-DataComposite HUC:13010004-AUG-PrevMoStreamflow HUC:13010004-AUG-ForecastedRunoff HUC:13010004-AUG-ReservoirStorage

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



HUC:13010004-AUO-PrevMoStreamflow-SWSI HUC:13010004-AUO-ForecastedRunoff-SWSI HUC:13010004-AUO-ReservoirStorage-SWSI HUC:13010004AUG-DataComposite-SWSI



-2.00 -4.00 -6.00

⁼ HUC:13010005-AUG-PrevMoStreamflow-SWSI = HUC:13010005-AUG-ForecastedRunoff-SWSI = HUC:13010005-AUG-ReservoirStorage-SWSI = HUC:13010005-AUG-DataComposite-SWSI



HUC:14010001-AUG-DataComposite-SWSI



HUC 14010002 (Blue) SWSI Values - AUG Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



= HUC:14010002-AUG-PrevMoStreamflow-SWSI = HUC:14010002-AUG-ForecastedRunoff-SWSI = HUC:14010002-AUG-ReservoirStorage-SWSI = HUC:14010002-AUG-DataComposite-SWSI



HUC:14010003-AUG-DataComposite HUC:14010003-AUG-PrevMoStreamflow HUC:14010003-AUG-ForecastedRunoff HUC:14010003-AUG-ReservoirStorage

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



= HUC:14010003-AUG-PrevMoStreamflow-SWSI = HUC:14010003-AUG-ForecastedRunoff-SWSI = HUC:14010003-AUG-ReservoirStorage-SWSI = HUC:14010003-AUG-DataComposite-SWSI



HUC 14010004 (Roaring Fork) Surface Water Supply - AUG

HUC:14010004-AUG-PrevMoStreamflow-SWSI HUC:14010004-AUG-ForecastedRunoff/SWSI HUC:14010004-AUG-ReservoirStorage-SWSI HUC:14010004-AUG-DataComposite-SWSI



HUC:14010005-AUG-Reservoirstorage-SWS





2.00 0.00 -2.00 -4.00



HUC 14020002 (Upper Gunnison) SWSI Values - AUG Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.





= HUC:14020002-AUG-PrevMoStreamflow-SWSI = HUC:14020002-AUG-ForecastedRunoff-SWSI = HUC:14020002-AUG-ReservoirStorage-SWSI = HUC:14020002-AUG-DataComposite-SWSI



HUC:14020003-AUG-DataComposite HUC:14020003-AUG-PrevMoStreamflow HUC:14020003-AUG-ForecastedRunoff HUC:14020003-AUG-ReservoirStorage

HUC 14020003 (Tomichi) SWSI Values - AUG

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



HUC:14020003-AUO-PrevMoStreamflow-SWSI HUC:14020003-AUO-ForecastedRunoff-SWSI HUC:14020003-AUO-ReservoirStorage-SWSI HUC:14020003-AUG-DataComposite-SWSI



HUC:14020004-AUG-DataComposite-SWSI





= HUC:14020005-AUG-PrevMoStreamflow-SWSI = HUC:14020005-AUG-ForecastedRunoff-SWSI = HUC:14020005-AUG-ReservoirStorage-SWSI = HUC:14020005-AUG-DataComposite-SWSI



HUC:14020006-AUO-PrevMoStreamflow-SWSI HUC:14020006-AUO-ForecastedRunoff-SWSI HUC:14020006-AUO-ReservoirStorage-SWSI

-2.00 -4.00 -6.00

HUC:14020006-AUG-DataComposite-SWSI





HUC:14030003-AUG-DataComposite HUC:14030003-AUG-PrevMoStreamflow HUC:14030003-AUG-ForecastedRunoff HUC:14030003-AUG-ReservoirStorage

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



HUC:14030003-AUO-PrevMoStreamflow-SWSI HUC:14030003-AUO-ForecastedRunoff-SWSI HUC:14030003-AUO-ReservoirStorage-SWSI HUC:14030003-AUG-DataComposite-SWSI



HUC 14050001 (Upper Yampa) Surface Water Supply - AUG

HUC:14050001-AUG-PrevMoStreamflow-SWSI HUC:14050001-AUG-ForecastedRunoff-SWSI HUC:14050001-AUG-ReservoirStorage-SWSI HUC:14050001-AUG-DataComposite-SWSI





= HUC:14050003-AUG-PrevMoStreamflow-SWSI = HUC:14050003-AUG-ForecastedRunoff-SWSI = HUC:14050003-AUG-ReservoirStorage-SWSI = HUC:14050003-AUG-DataComposite-SWSI



HUC:14050005-AUG-DataComposite HUC:14050005-AUG-PrevMoStreamflow HUC:14050005-AUG-ForecastedRunoff HUC:14050005-AUG-ReservoirStorage

HUC 14050005 (Upper White) SWSI Values - AUG Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



HUC:14050005-AUO-PrevMoStreamflow-SWSI HUC:14050005-AUO-ForecastedRunoff-SWSI HUC:14050005-AUO-ReservoirStorage-SWSI HUC:14050005-AUG-DataComposite-SWSI



HUC:14080101-AUG-PrevMoStreamflow-SWSI HUC:14080101-AUG-ForecastedRunoff-SWSI HUC:14080101-AUG-ReservoirStorage-SWSI

HUC:14080101-AUG-DataComposite-SWSI



HUC:14080102-AUG-DataComposite HUC:14080102-AUG-PrevMoStreamflow HUC:14080102-AUG-ForecastedRunoff HUC:14080102-AUG-ReservoirStorage

HUC 14080102 (Piedra) SWSI Values - AUG Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



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



HUC:14080104-AUG-PrevMoStreamflow-SWSI HUC:14080104-AUG-ForeoastedRunoff-SWSI HUC:14080104-AUG-ReservoirStorage-SWSI HUC:14080104-AUG-DataComposite-SWSI

