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> January 1, 2017

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 new SWSI analysis based on the components shown below, which vary depending on the time of year. The new 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. 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 revised DNR SWSI was published. The results are summarized within this monthly report and additional information, maps & data are available at: <u>http://water.state.co.us/DWRDocs/Reports/Pages/SWSIReport.aspx</u>. This document also contains reports about regional conditions prepared by each DWR Division Office.

The SWSI calculation for the winter season (January 1 to June 1) is based on forecasted runoff (total volume for runoff season) combined with reservoir storage at the end of last month, in this case December 31. The statewide SWSI values for January 1 are generally close to average and range from a low of -0.6 in the Yampa-White Basin a high of 1.7 in the Arkansas River Basin. The following SWSI values were computed for each of the seven major basins for January 1, 2017. The results for each HUC are summarized on the following pages.

Basin	January 1 SWSI	Change from Previous Month	Change from Previous Year
Arkansas	1.7	N/A	-0.4
Colorado	0.0	N/A	0.2
Gunnison	0.5	N/A	0.2
Rio Grande	-0.2	N/A	-0.6
San Juan-Dolores	0.7	N/A	1.2
South Platte	0.9	N/A	-1.0
Yampa-White	-0.6	N/A	-0.9

The December 1 SWSI was based only on reservoir storage, therefore, a comparison from this month's SWSI, which also considers streamflow forecasts, to last month's SWSI is not applicable and marked N/A.

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



SURFACE WATER SUPPLY INDEX FOR COLORADO BY MAJOR RIVER BASIN

SURFACE WATER SUPPLY INDEX FOR COLORADO BY HUC



January 1, 2017

Basin	HUC ID	HUC Name	SWSI	Reservoir	Streamflow	Total Vol
	44020004		0.0	Storage NEP	Forecast NEP	(AF)
	11020001	Arkansas Headwaters	0.8	52	59	422,000
as	11020002	Upper Arkansas	1.8	/5	61	570,100
11020005		Upper Arkansas-Lake Meredith	1.1	66	60	415,100
Ark	11020006	Huerfano River	-1.1	16	47	21,000
	11020009	Upper Arkansas-John Martin Reservoir	1.6	76	62	592,700
	11020010	Purgatoire River	0.5	77	46	64,900
0	14010001	Colorado Headwaters	0.8	84	53	1,537,000
ado	14010002	Blue River	-0.5	15	50	340,900
lor	14010003	Eagle River	0.1	N/A	51	320,000
ů č	14010004	Roaring Fork	0.0	9	51	744,600
	14010005	Colorado Headwaters-Plateau	0.2	48	52	2,340,200
	14020001	East-Taylor	1.0	53	57	358,200
_	14020002	Upper Gunnison	0.5	64	53	1,471,500
sor	14020003	Tomichi Creek	0.4	93	54	64,800
nni	14020004	North Fork Gunnison	0.5	10	56	286,500
Gu	14020005	Lower Gunnison	0.2	N/A	52	1,390,000
	14020006	Uncompahgre River	0.6	51	46	185,200
	14030003	San Miguel	0.0	N/A	50	123,000
io nde	13010001	Rio Grande Headwaters	0.0	88	47	516,700
	13010002	Alamosa-Trinchera	-0.6	52	43	125,617
Gra R	13010004	Saguache Creek	0.4	N/A	55	30,000
	13010005	Conejos River	-0.1	37	50	199,400
	14030002	Upper Dolores	2.2	80	53	591,000
έs	14080101	Upper San Juan	0.1	99	51	642,300
Juai Dre:	14080102	Piedra River	-0.3	N/A	46	184,000
oloc	14080104	Animas River	-0.3	53	49	447,200
- S	14080105	Middle San Juan	0.5	50	56	23,454
	14080107	Mancos River	0.5	63	57	37,000
	10190001	South Platte Headwaters	-1.0	51	34	184,100
	10190002	Upper South Platte	-0.8	58	34	443,200
tte	10190003	Middle South Platte-Cherry Creek	-0.9	27	41	809,000
Pla	10190004	Clear Creek	0.6	N/A	57	105,000
ith	10190005	St. Vrain River	-0.2	40	49	225,000
Sol	10190006	Big Thompson River	0.6	53	51	563,400
	10190007	Cache La Poudre	1.2	87	43	373,800
	10190012	Middle South Platte-Sterling	-0.4	89	41	913,800
	10180001	North Platte Headwaters	-0.1	N/A	49	235,000
e a	14050001	Upper Yampa	-0.7	99	39	661,000
mp 'hit	14050002	Lower Yampa	-0.8	N/A	41	875,000
₹ A	14050003	Little Snake	-0.4	N/A	45	310,000
	14050005	Upper White	-0.5	N/A	44	255,000

January 1, 2017 SWSI Values by HUC and Non Exceedance Probabilities (NEP)

NEP is non exceedance percentage for total reservoir storage and streamflow forecast in each HUC. NEP is calculated compared to either the actual volumes in storage historically occurring this month or streamflow during the runoff period for the years 1970-2010. Some HUCs do not have any reservoirs considered in the SWSI. Total Vol is the volume of reservoir storage and streamflow forecast in the HUC. The following table lists each component considered in each HUC.

HUC ID	HUC Name	Component Name	Component Volume (AF)	Component NEP for Month
		CLEAR CREEK RESERVOIR	7,000	58
		HOMESTAKE RESERVOIR	42,000	82
11020001	Arkansas Headwaters	TWIN LAKES RESERVOIR	42,600	37
		TURQUOISE LAKE	85,400	45
		ARKANSAS RIVER AT SALIDA	245,000	59
11020002	Linner Arkansas	PUEBLO RESERVOIR	205,100	75
11020002	opper Arkansas	PUEBLO RESERVOIR INFLOW	365,000	61
		LAKE HENRY	6,300	90
	Upper Arkansas Lako	HUERFANO RIVER NEAR REDWING	9,900	32
11020005	Meredith	CUCHARAS RIVER AT BOYD RANCH NR LA VETA	11,100	53
	merculen	MEREDITH RESERVOIR	22,800	63
		PUEBLO RESERVOIR INFLOW	365,000	61
		CUCHARAS RESERVOIR	0*	16
11020006	Huerfano River	HUERFANO RIVER NEAR REDWING	9,900	32
		CUCHARAS RIVER AT BOYD RANCH NR LA VETA	11,100	53
		HUERFANO RIVER NEAR REDWING	9,900	32
		CUCHARAS RIVER AT BOYD RANCH NR LA VETA	11,100	53
11020000	Upper Arkansas-John	PURGATOIRE RIVER AT TRINIDAD	42,000	46
11020009	Martin Reservoir	ADOBE CREEK RESERVOIR	54,300	88
		JOHN MARTIN RESERVOIR	110,400	74
		PUEBLO RESERVOIR INFLOW	365,000	61
11020010	Durgataira Divar	TRINIDAD LAKE	22,900	77
11020010	Purgatoire River	PURGATOIRE RIVER AT TRINIDAD	42,000	46
	Colorado Headwaters	WOLFORD MOUNTAIN RESERVOIR	51,200	89
14010001		WILLIAMS FORK RESERVOIR	75,800	80
		COLORADO RIVER NEAR DOTSERO	1,410,000	53
1 40 4 00 0 2	Dive Diver	GREEN MOUNTAIN RESERVOIR	65,900	15
14010002	blue River	BLUE RIVER INFLOW TO GREEN MOUNTAIN RES	275,000	50
14010003	Eagle River	EAGLE RIVER BELOW GYPSUM	320,000	51
14010004	Dearing Fork	RUEDI RESERVOIR	69,600	9
14010004	Rodring Fork	ROARING FORK AT GLENWOOD SPRINGS	675,000	51
14040005	Colorado Headwaters-	VEGA RESERVOIR	10,200	48
14010005	Plateau	COLORADO RIVER NEAR CAMEO	2,330,000	52
		TAYLOR PARK RESERVOIR	69,200	53
14020001	East-Taylor	TAYLOR R INF TO TAYLOR PARK RESERVOIR	101,000	59
		EAST RIVER AT ALMONT	188,000	56
		FRUITLAND RESERVOIR	700	51
		SILVER JACK RESERVOIR	1,900	10
14020002		CRAWFORD RESERVOIR	5,000	25
	Upper Gunnison	MORROW POINT RESERVOIR	109,400	14
		LAKE FORK AT GATEVIEW, CO	117,000	47
		BLUE MESA RESERVOIR	592,500	78
		GUNNISON R INF TO BLUE MESA RESERVOIR	645,000	53
14020002	Tomichi Crook	VOUGA RESERVOIR NEAR DOYLEVILLE	800	93
14020003	romichi Creek	TOMICHI CREEK AT GUNNISON, CO	64,000	54

January 1, 2017 SWSI Component Information By HUC

HUC ID	HUC Name	Component Name	Component Volume (AF)	Component NEP for Month
14020004	North Fork Guppison	PAONIA RESERVOIR	1,500	10
14020004		NORTH FORK GUNNISON R NR SOMERSET	285,000	56
14020005	Lower Gunnison	GUNNISON RIVER NR GRAND JUNCTION	1,390,000	52
14020006	Uncompandere Piver	RIDGEWAY RESERVOIR	62,200	51
14020000	Uncompangre River	UNCOMPAHGRE RIVER AT COLONA	123,000	46
14030003	San Miguel	SAN MIGUEL RIVER NEAR PLACERVILLE	123,000	50
		CONTINENTAL RESERVOIR	8,100	91
13010001	Rio Grande	SANTA MARIA RESERVOIR	16,100	88
13010001	Headwaters	RIO GRANDE RESERVOIR	22,500	78
		RIO GRANDE NEAR DEL NORTE	470,000	47
		MOUNTAIN HOME	3,317	70
		TERRACE RESERVOIR	4,000	33
		TRINCHERA CK	11,200	49
13010002	Alamosa-Trinchera	UTE CREEK	12,300	53
		SANGRE DE CRISTO	13,900	49
		CULEBRA CREEK AT SAN LUIS	19,900	49
		ALAMOSA CREEK ABOVE TERRACE RESERVOIR	61,000	43
13010004	Saguache Creek	SAGUACHE CREEK NEAR SAGUACHE, CO	30,000	55
12010005	Conejos River	PLATORO RESERVOIR	15,400	37
13010005		CONEJOS RIVER NEAR MOGOTE	184,000	50
14030002	Upper Dolores	GROUNDHOG RESERVOIR	17,800	99
		DOLORES RIVER BELOW MCPHEE RESERVOIR	280,000	53
		MCPHEE RESERVOIR	293,200	76
		VALLECITO RESERVOIR	82,300	99
14080101	Upper San Juan	LOS PINOS RIVER NEAR BAYFIELD	175,000	48
		SAN JUAN RIVER NEAR CARRACAS	385,000	52
14080102	Piedra River	PIEDRA RIVER NEAR ARBOLES	184,000	46
		LEMON RESERVOIR	20,200	53
14080104	Animas River	FLORIDA RIVER INFLOW TO LEMON RESERVOIR	47,000	48
		ANIMAS RIVER AT DURANGO	380,000	49
1/080105	Middle San Juan	LONG HOLLOW RESERVOIR	454	50
14000105	Middle Sail Sdall	LA PLATA RIVER AT HESPERUS	23,000	56
1/080107	Mancos Pivor	JACKSON GULCH RESERVOIR	5,000	63
14000107	Maricos River	MANCOS RIVER NEAR MANCOS	32,000	57
		ANTERO RESERVOIR	14,000	16
10190001	South Platte	SPINNEY MOUNTAIN RESERVOIR	27,400	49
	Headwaters	ELEVENMILE CANYON RESV INFLOW	43,000	34
		ELEVENMILE CANYON RESERVOIR	99,700	81
		BEAR CREEK ABV EVERGREEN	12,800	48
10100002	Lipper South Platta	CHEESMAN LAKE	67,900	63
10170002	Upper South Platte	SOUTH PLATTE RIVER AT SOUTH PLATTE	139,000	39
		DILLON RESERVOIR	223,500	44

HUC ID	HUC Name	Component Name	Component Volume (AF)	Component NEP for Month
		HORSECREEK RESERVOIR	1,300	8
		BEAR CREEK ABV EVERGREEN	12,800	48
		MILTON RESERVOIR	16,100	66
		BARR LAKE	21,700	33
		STANDLEY RESERVOIR	32,100	36
10100003	Middle South Platte-	SOUTH BOULDER CK NR ELDORADO SPRINGS	37,000	49
10190003	Cherry Creek	BOULDER CREEK NEAR ORODELL	54,000	48
		BIG THOMPSON R AT MOUTH, NR DRAKE, CO	87,000	51
		SAINT VRAIN CREEK AT LYONS	88,000	49
		CLEAR CREEK AT GOLDEN	105,000	57
		SOUTH PLATTE RIVER AT SOUTH PLATTE	139,000	39
		CACHE LA POUDRE R AT CANYON MOUTH	215,000	43
10190004	Clear Creek	CLEAR CREEK AT GOLDEN	105,000	57
		TERRY RESERVOIR	4,900	40
		MARSHALL RESERVOIR	5,400	54
	St. Vrain River	UNION RESERVOIR	9,600	38
10100005		BUTTONROCK (RALPH PRICE) RESERVOIR	12,000	11
10190005		GROSS RESERVOIR	14,100	44
		SOUTH BOULDER CK NR ELDORADO SPRINGS	37,000	49
		BOULDER CREEK NEAR ORODELL	54,000	48
		SAINT VRAIN CREEK AT LYONS	88,000	49
	Big Thompson River	MARIANO RESERVOIR	800	10
		LONE TREE RESERVOIR	3,900	18
		LAKE LOVELAND RESERVOIR	4,100	8
10100006		WILLOW CREEK RESERVOIR	6,300	46
10190000		BOYD LAKE	27,600	40
		CARTER LAKE	51,800	17
		BIG THOMPSON R AT MOUTH, NR DRAKE, CO	87,000	51
		LAKE GRANBY	381,900	67
		CHAMBERS LAKE	2,800	49
		BLACK HOLLOW RESERVOIR	3,300	74
10190007		CACHE LA POUDRE	3,900	20
	Cache La Poudre	HALLIGAN RESERVOIR	6,400	99
		FOSSIL CREEK RESERVOIR	9,000	87
		WINDSOR RESERVOIR	10,300	85
		COBB LAKE	17,000	69
		HORSETOOTH RESERVOIR	106,100	83
		CACHE LA POUDRE R AT CANYON MOUTH	215,000	43

HUC ID	HUC Name	Component Name	Component Volume (AF)	Component NEP for Month
		BEAR CREEK ABV EVERGREEN	12,800	48
		JULESBURG RESERVOIR	13,300	4
		PREWITT RESERVOIR	22,500	93
		JACKSON LAKE RESERVOIR	24,000	67
		EMPIRE RESERVOIR	24,100	66
		SOUTH BOULDER CK NR ELDORADO SPRINGS, CO	37,000	49
10190012	Middle South Platte-	POINT OF ROCKS RESERVOIR	43,600	50
	Sterling	RIVERSIDE RESERVOIR	48,500	99
		BOULDER CREEK NEAR ORODELL	54,000	48
		BIG THOMPSON R AT MOUTH, NR DRAKE, CO	87,000	51
		SAINT VRAIN CREEK AT LYONS	88,000	49
		CLEAR CREEK AT GOLDEN	105,000	57
		SOUTH PLATTE RIVER AT SOUTH PLATTE	139,000	39
		CACHE LA POUDRE R AT CANYON MOUTH	215,000	43
10180001	North Platte Headwaters	NORTH PLATTE R NR NORTHGATE	235,000	49
	Upper Yampa	YAMCOLO RESERVOIR	6,400	76
		STAGECOACH RESERVOIR NR OAK CREEK	34,600	99
14050001		ELKHEAD CREEK ABOVE LONG GULCH	70,000	47
		YAMPA RIVER AT STEAMBOAT SPRINGS	225,000	30
		ELK RIVER NEAR MILNER, CO	325,000	41
14050002	Lower Yampa	YAMPA RIVER NEAR MAYBELL	875,000	41
14050003	Little Snake	LITTLE SNAKE RIVER NEAR LILY	310,000	45
14050005	Upper White	WHITE RIVER NEAR MEEKER	255,000	44

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

Basinwide Conditions Assessment

The SWSI value for the month was +0.9. December continued and accelerated the shift from the mild dry weather experienced up until about mid-November to the more seasonal weather experienced in the last half of November. In fact, the acceleration was so strong that virtually all of northeastern Colorado went from above average temperatures in November to below average temperatures in December. As is not uncommon, precipitation was much less uniform over the area, but was generally near to above normal during December. In fact, the South Platte basin snowpack moved from 45% of normal on December 1 to 105% of normal on January 1.

Despite the much more normal precipitation and the increase in snowpack, the USDA Drought Monitor indicated a slight worsening of drought conditions in northeast Colorado. Thankfully, the area of "Severe Drought (D2)" rating remained unchanged. The worsening came as an expansion of the D1 "Moderate Drought" category and corresponding decrease of the D0 "Abnormally Dry" category over portions of the plains area in Washington, Yuma, Phillips, Sedgwick, and Logan Counties.

The December flows in the South Platte River at the Julesburg and Kersey index gages were below the long term average. The overall December mean flow at the Julesburg gage was about 296 cfs or approximately

74% of the period of record mean flow of 401 cfs. The overall December mean flow at the Kersey gage was approximately 504 cfs and the period of record mean flow was 685 cfs. This is, like Julesburg, approximately 74% of the period of record mean flow.

The calls on the South Platte mainstem were fairly "normal" for December. However, a deep cold snap around December 10 resulted in free river downstream of Greeley as ice conditions reduced the amount reservoirs could safely divert into their fill ditches. In general, the major South Platte tributaries had typical December calls and were internally controlled for the month.

Even with the mid-December reduction in fill rates for the major reservoirs east of Greeley, the overall storage in the South Platte was slightly ahead of "normal" by the end of December. The end of December 2016 storage was at 69% of capacity, as compared to the long term average end of December storage of 66% of capacity.





South Platte-DataComposite-SWSI



Basinwide Conditions Assessment

The SWSI value for the month was +1.7.

<u>Outlook</u>

The Pueblo Winter Water system grand total was 55,391 acre-feet at the end of December representing a decrease from last year's storage to date, which was 67,061 acre-feet. The previous five-year average for this period is 52,393 acre-feet and the average since 1995 for this period has been 57,563 acre-feet, indicating approximately average storage so far this year.

Conservation storage in John Martin Reservoir is about 70% of last year's storage at the end of December. Storage since November 1st has been 11,375 acre-feet while storage a year ago for the same time period was 16,619 acre-feet.

Administrative/Management Concerns

The Arkansas River Compact Administration meeting was held in Lamar, Colorado on December 8th and 9th. Colorado and Kansas staff continues to work to support the efforts of the Special Engineering Committee having conducted meetings in November and December. This committee included the Colorado State Engineer and Kansas Chief Engineer and is tasked with reviewing disputes and attempting to resolve them including the review of a new source of water for the John Martin Permanent Pool.









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

RIO GRANDE BASIN

Basinwide Conditions Assessment

The SWSI value for the month was -0.2. Flow at the gaging station Rio Grande near Del Norte averaged 192 cfs (100% of normal) during December. The Rio Grande 2016 annual volume was 108% of the long-term average. The Conejos River near Mogote had a mean flow of 65 cfs (125% of normal) during the month. The above average streamflow in the Conejos was the result of a release from Platoro Reservoir for Compact delivery needs. The Conejos annual was 95% of the long-term average, the 7th consecutive year of below average annual runoff. The Alamosa River and La Jara Creek runoffs during 2016 were very disappointing and well below average. The northern part of the San Luis Valley received much better runoff in 2016 than the southern portion. Saguache Creek recorded 135% of the average annual runoff.

Alamosa received 1.08 inches of precipitation during December, 0.73 inches above normal. Alamosa's total precipitation of 9.17 inches during 2016 was 1.86 inches above the annual average. For the year, the average temperature was 1.5 degrees above normal.

<u>Outlook</u>

Stream flow in the basin should be near average for the next few months. Currently, the Natural Resources Conservation Service (NRCS) forecasts the 2017 runoff to be in the range of 110% (the Rio de los Pinos in the far southern end of the San Luis Valley) to 87% (Culebra Creek near San Luis) of average for key streams in the Upper Rio Grande Basin. And these forecasts did not include the heavy snowfall in the basin during the first week of January.

Recent National Weather Service climate forecasts call for warmer and drier than normal conditions in the San Luis Valley for the remainder of the winter with a chance for typical April and May snowstorms.

Administrative/Management Concerns

Pursuant to the provisions of the Rio Grande Compact, Colorado delivered approximately 275,000 acre-feet to New Mexico and Texas and easily met the delivery requirement for 2016. A small delivery credit will be available for the 2017 delivery requirement. Closed Basin Project delivery to the Rio Grande totaled 8,500 acre-feet.

2016 saw very little snowpack accumulation in February and March, an erratic April and some help in May. Runoff timing and amount mimicked historic patterns very well in May and June. But a miserable July runoff throughout much of the basin led to a dry Fall with little monsoonal activity during August and September. The start of snowpack 2016 - 2017 was delayed until late November when snow finally returned to the surrounding mountains. Reservoir storage is generally fair, with a basinwide storage total of about 86% of average.

The State Engineer filed the long-awaited Groundwater Use Rules for Water Division 3 during September, 2015. A total of 30 statements of opposition were filed, but many of those were in support of rule promulgation. The State Engineer and his staff have had productive meetings with the opposers during 2016 with the hopes that a stipulated decree could avoid a lengthy Rules trial set for early 2018. Groundwater Management Subdistrict No. 1 continued well depletion replacement in 2016 with a mixture of reservoir releases, headgate bypasses, and Closed Basin Project production delivered to the Rio Grande. Formation of the other six or seven subdistricts is progressing.

Public Use Impact

In summary, 2016 was a fair to good year for runoff depending on the drainage location. Precipitation during the early irrigation season eased the need for irrigation well pumping from the Valley's aquifers. These aquifers made modest recovery during 2016. Crop yields were good in areas with sufficient water supplies. Commodity prices continued to disappoint local growers.









Basinwide Conditions Assessment

The SWSI value for the month was +0.5. Things certainly turned around in the Gunnison basin during December with the basin as a whole receiving 170% of the 30-year average precipitation. Some areas, such as the Taylor River basin, received upwards of 200% of the average precipitation for the month. Temperatures across the basin during December were right around average for the month. The extremely wet December brought the Gunnison basin from 70% to 118% of the 30 year median snowpack. In fact, the Snotel station on Schofield Pass recorded that it received 10.2 inches of snow water equivalent (SWE) during the month.

<u>Outlook</u>

The NWS precipitation forecast for January through March remains uncertain with equal chances of below or above average precipitation forecast. This is due to the weak La Nina that has developed and it's lack of a definitive effect on Gunnison basin precipitation in the past. Above average temperatures are expected for that same period.

Administrative/Management Concerns

The Gunnison Tunnel was opened twice during December to provide municipal supplies for the Project 7 Water Authority. This is a typical practice where the Tunnel is opened and runs 50 to 60 cfs of water into Fairview Reservoir, which supplies raw water to the Project 7 water treatment plant (WTP). This WTP treats water for seven entities that provide municipal water to most of the Uncompany Valley.

As of January 1st, Taylor Park Reservoir contained 69,211 acre-feet in storage, of which, 59,701 acre-feet was stored under it's first fill right and 9,510 acre-feet was stored under it's second fill right. The first fill account in the Aspinall Unit

contains 46,154 acre-fit, of which, just over 10,000 acre-feet is water that has been released from Taylor Park since November 1, 2016, and stored in the Aspinall Unit pursuant to the decree in 86CW0203. Blue Mesa Reservoir sits at 7491.40 feet, which is 1.4 feet above the target to prevent icing impacts upstream. Given temperatures that have been warmer than last year it appears that the Gunnison area will not see the same icing impacts that they did last year when temperatures were significantly colder for an extended period of time in December.

The instream flow (ISF) water right for the the Slate River drops from 23 cfs to 12 cfs on December 1st, which meant that the Slate River ISF call went off at the beginning of the month. In addition, the Fruitgrowers Reservoir call discussed in last month's report went off in December. As a result, on January 1st there were no active calls in the Gunnison River basin.

The only call reported in CDSS for Water Division 4, which also includes the San Miguel and Lower Dolores Rivers, is an ISF call on a reach of the Dolores River that extends from McPhee Dam to the confluence of the Dolores with the San Miguel River. The call on this reach, which spans two Divisions since it begins at McPhee Dam in Division 7, will remain on through the winter, but has not required administration by Division 4 staff because there are no diversions to curtail from the Division boundary to the lower terminus (confluence with the San Miguel).

Public Use Impacts

As one might imagine, ski conditions at Crested Butte and Telluride improved greatly by Christmas with the number of winter storms received from Thanksgiving onward. It appears that this trend will continue with major winter storms forecast for the first week of the New Year.









<u>Basinwide Conditions Assessment</u> The SWSI value for the month was 0.0.

<u>Outlook</u>

Colorado River flows continue near average or slightly below average with tributary flows running slightly above average throughout January. As of January 13, the Upper Colorado River Basin snowpack was 161 percent of median snow water equivalent and 134 percent of average precipitation. Forecasts call for above average precipitation above average temperatures for western Colorado through January.

Administrative/Management Concerns

The call on the Colorado River main stem remains the Shoshone Hydro Power right for 1250cfs. Accordingly, Green Mountain Reservoir is releasing to pass inflows, provide contract and HUP obligations and make C-BT replacements. Wolford Reservoir is bypassing inflows and releasing for contracts. Inflows and therefore outflows have generally been increasing in most reservoirs with the increased precipitation.

Public Use Impacts

For the 16th year, the ESPN Winter X-Games return to Aspen January 26-29. Buttermilk Ski Mountain, part of Aspen Snowmass makes a significant amount of snow to accommodate the large jumps needed for the events and the super pipe. The games also have a massive economic impact in the Roaring Fork Valley and make it the highest occupancy weekend of the year in Aspen Snowmass.





Colorado-DataComposite-SWSI



Basinwide Conditions Assessment

The SWSI value for the month was -0.6. December precipitation was well above 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 148% 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 December was 100%.

Snowpack for the combined basins as of January 1st, 2017 was at 106% of average. The snow water equivalent (SWE) as of December 31, 2016 was 108% of average for the North Platte River basin and 103% of average for the Yampa River basin and White River basin.

NRCS predicts average to slightly below average spring and summer streamflows in the Yampa, White, and North Platte River basins. The latest runoff forecasts from the NRCS for the April through July period are 104% of average for the North Platte River at Northgate, 94% of average for the Yampa River near Maybell, 90% of average for the Little Snake River near Lily, and 91% of average for the White River near Meeker.

Due to extremely cold temperatures and consistent snowfall, all Division 6 stream gages were either closed for the winter season or ice/snow-affected at the end of December 2016.

Outlook

As of December 31st Fish Creek Reservoir was storing approximately 3,284 AF, 79% of capacity. The capacity of Fish Creek Reservoir is 4,167 AF. Yamcolo Reservoir was storing 6,400 AF at the end of December 2016. The capacity of Yamcolo Reservoir is 8,700 AF. On December 31st Elkhead Creek Reservoir was storing 24,062 AF. The capacity of Elkhead Creek Reservoir is 24,778 AF. On December 31, 2016, Stagecoach Reservoir was storing 34,600 AF, 95% 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

December and January snowfall helped Steamboat Ski Resort to have very good conditions with a 64 inch base and 187 inches of snowfall since early November.

Stagecoach Reservoir has not updated the conditions since last month. There is no report on ice cover so anglers should use extreme caution when venturing onto the ice and snowmobiles are not recommended.

Steamboat Lake is reporting 5-6 inches of ice with slush below a snow layer. Fishing in the Marina area has been reported as great. Caution is advised. Roads are all closed in the park except for the Marina access.

Yampa-White-DataComposite-SWSI



SAN JUAN-DOLORES BASIN

The SWSI value for the month was +0.7. Flow at the Animas River at Durango averaged 239 cfs (84% of average). The flow at the Dolores River at Dolores was estimated to average 60 cfs (73% of average). The La Plata River at Hesperus averaged 6.6 cfs (33% of average). Precipitation in Durango was 2.70 inches for the month, 158% of the 30-year average of 1.71 inches. Precipitation was the 18th highest amount recorded in November, in Durango, out of 122 years of record. Precipitation to date in Durango, for the water year, is 3.77 inches, 113% of the 30-year average of 3.34 inches. End of last month precipitation to date, for the water year was 55% of average. The average high and low temperatures for the month of November in Durango were 560 and 280. In comparison, the 30-year average high and low for the month is 510 and 240. At the end of the month Vallecito Reservoir contained 79,589 acre-feet compared to its average content of 53,998 acre-feet (147% of average). McPhee Reservoir was up to 296,371 acre-feet compared to its average to its average content of 19,484 acre-feet (104% of average).

<u>Outlook</u>

Precipitation (2.70 inches) was well above average for November in Durango. There were only 18 years out of 122 years of record where there was more precipitation than this year. Ninety two percent of the moisture for the month was in the form of rain. The remaining 8% of the moisture was in the form of snow. Flows in the rivers within the basin remained below average. There were 63 out of 106 years of record where the total flow past the Animas River at Durango stream gauge was more than this year. There were 63 out of 107 years of record where the total flow past the Dolores stream gauge was more than this year and 70 out of 100 years of record where the total flow past the La Plata River at Hesperus gauge was more than this year.









San Juan-Dolores Basin SWSI History Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.







– HUC:14010004-JAN-PrevMoStreamflow-SWSI – HUC:14010004-JAN-ForecastedRunoff-SWSI – HUC:14010004-JAN-ReservoirStorage-SWSI **–** HUC:14010004-JAN-DataComposite-SWSI





HUC:14020001-JAN-DataComposite HUC:14020001-JAN-PrevMoStreamflow HUC:14020001-JAN-ForeoastedRunoff HUC:14020001-JAN-ReservoirStorage

HUC 14020001 (East-Taylor) SWSI Values - JAN Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.







HUC:14020002-JAN-DataComposite
HUC:14020002-JAN-PrevMoStreamflow
HUC:14020002-JAN-ForecastedRunoff
HUC:14020002-JAN-ReservoirStorage

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



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



























– HUC:14080104-JAN-PrevMoStreamflow-SWSI – HUC:14080104-JAN-ForecastedRunoff-SWSI – HUC:14080104-JAN-ReservoirStorage-SWSI – HUC:14080104-JAN-DataComposite-SWSI







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

- HUC:10180001-JAN-ReservoirStorage-SWSI = HUC:10180001-JAN-DataComposite-SWSI





= HUC:10190002-JAN-PrevMoStreamflow-SWSI = HUC:10190002-JAN-ForecastedRunoff-SWSI = HUC:10190002-JAN-ReservoirStorage-SWSI = HUC:10190002-JAN-DataComposite-SWSI

-2.00 -4.00 -6.00







– HUC:10190004-JAN-PrevMoStreamflow-SWSI – HUC:10190004-JAN-ForecastedRunoff-SWSI – HUC:10190004-JAN-ReservoirStorage-SWSI **–** HUC:10190004-JAN-DataComposite-SWSI



HUC:10190005-JAN-DataComposite
HUC:10190005-JAN-PrevMoStreamflow
HUC:10190005-JAN-ForecastedRunoff
HUC:10190005-JAN-ReservoirStorage

HUC 10190005 (St. Vrain) SWSI Values - JAN Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



– HUC:10190005-JAN-PrevMoStreamflow-SWSI – HUC:10190005-JAN-ForecastedRunoff-SWSI – HUC:10190005-JAN-ReservoirStorage-SWSI **–** HUC:10190005-JAN-DataComposite-SWSI



HUC:10190008-JAN-DataComposite HUC:10190008-JAN-PrevMoStreamflow HUC:10190008-JAN-ForeoastedRunoff HUC:10190008-JAN-ReservoirStorage

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



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

























HUC:13010005-JAN-DataComposite HUC:13010005-JAN-PrevMoStreamflow HUC:13010006-JAN-ForeoastedRunoff HUC:13010006-JAN-ReservoirStorage

HUC 13010005 (Conejos) SWSI Values - JAN Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.







HUC:14010002-JAN-DataComposite HUC:14010002-JAN-PrevMoStreamflow HUC:14010002-JAN-ForeoastedRunoff HUC:14010002-JAN-ReservoirStorage

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



– HUC:14010002-JAN-PrevMoStreamflow-SWSI – HUC:14010002-JAN-ForecastedRunoff-SWSI – HUC:14010002-JAN-ReservoirStorage-SWSI **–** HUC:14010002-JAN-DataComposite-SWSI

