# 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> April 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 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.

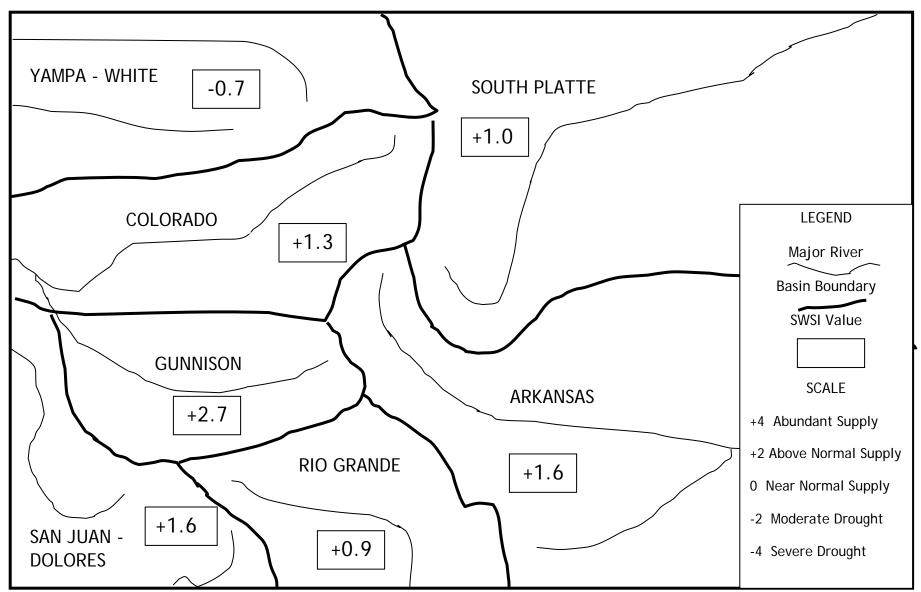
Time Period SWSI Components	
January 1 - June 1	Forecasted Runoff + Reservoir Storage
July 1 - September 1	Previous Month's Streamflow + Reservoir Storage
October 1 - December 1	Reservoir Storage

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 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 March 31. The statewide SWSI values for April 1 all declined from March 1 due largely to warm temperatures that caused snowmelt. The SWSI values range from a low of -0.7 in the Yampa-White Basin a high of +2.7 in the Gunnison Basin. The following SWSI values were computed for each of the seven major basins for April 1, 2017. The results for each HUC are summarized on the following pages.

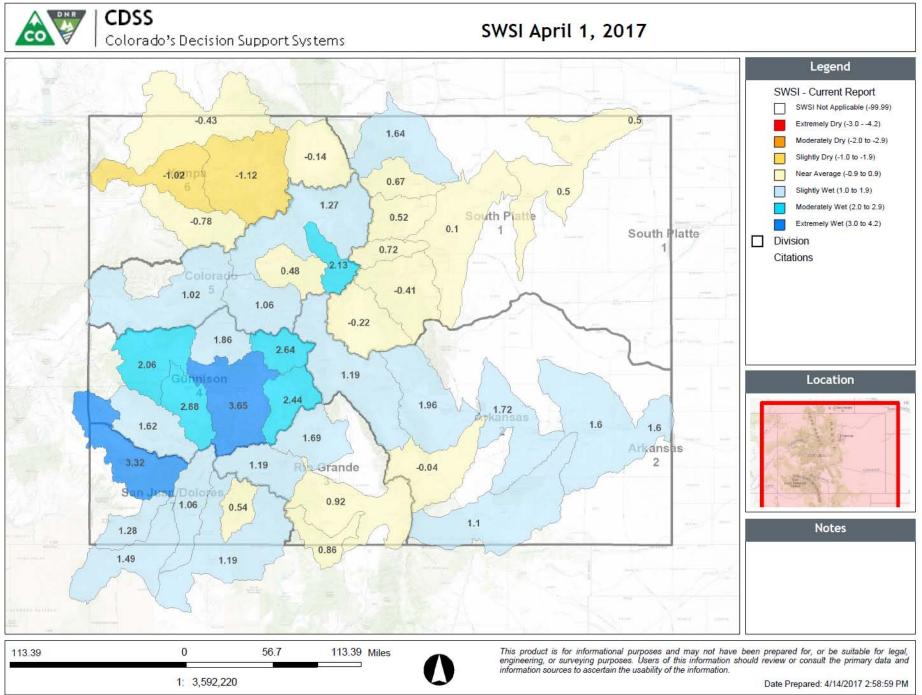
Basin	April 1 SWSI	Change from Previous Month	Change from Previous Year
Arkansas	1.6	-0.1	-0.3
Colorado	1.3	-1.2	1.4
Gunnison	2.7	-0.3	2.6
Rio Grande	0.9	-0.6	0.5
San Juan-Dolores	1.6	-0.6	2.2
South Platte	1.0	-0.6	-0.7
Yampa-White	-0.7	-1.1	-1.1

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



SURFACE WATER SUPPLY INDEX FOR COLORADO BY MAJOR RIVER BASIN

# SURFACE WATER SUPPLY INDEX FOR COLORADO BY HUC



	April 1, 2017 SWSI Values by HUC and Non Exceedance Probabilities (NEP)					
Basin	HUC ID	HUC Name	SWSI	Storage NEP	Forecast NEP	(AF)
	11020001	Arkansas Headwaters	1.2	29	69	402,800
▶ 11020002		Upper Arkansas	2.0	73	70	653,000
rka	11020005	Upper Arkansas-Lake Meredith	1.7	70	69	470,300
Arkansas	11020006	Huerfano River	0.0	14	59	25,300
S	11020009	Upper Arkansas-John Martin Reservoir	1.6	72	67	656,600
	11020010	Purgatoire River	1.1	71	55	74,000
	14010001	Colorado Headwaters	1.3	92	62	1,675,300
Colorado	14010002	Blue River	2.1	33	72	372,100
ora	14010003	Eagle River	0.5	NA	56	340,000
do	14010004	Roaring Fork	1.1	70	62	806,200
	14010005	Colorado Headwaters-Plateau	1.0	52	62	2,573,700
	14020001	East-Taylor	2.6	69	78	443,800
	14020002	Upper Gunnison	3.7	96	78	1,767,900
Gu	14020003	Tomichi Creek	2.4	73	79	109,600
Gunnison	14020004	North Fork Gunnison	1.9	46	72	377,400
son	14020005	Lower Gunnison	2.1	NA	75	1,940,000
	14020006	Uncompahgre River	2.9	57	74	225,600
	14030003	San Miguel	1.6	NA	69	150,000
-	13010001	Rio Grande Headwaters	1.2	90	59	619,700
GR 13	13010002	Alamosa-Trinchera	0.9	71	62	165,740
Rio Grande	13010004	Saguache Creek	1.7	NA	70	38,000
	13010005	Conejos River	0.9	40	64	246,100
	14030002	Upper Dolores	3.3	96	67	736,700
s 14080101		Upper San Juan	1.2	82	63	723,800
San Juan- Dolores	14080102	Piedra River	0.5	NA	57	210,000
luai ore	14080104	Animas River	1.1	66	63	557,700
s ¬	14080105	Middle San Juan	1.5	50	66	28,569
	14080107	Mancos River	1.3	87	64	44,800
	10190001	South Platte Headwaters	-0.2	64	34	189,000
	10190002	Upper South Platte	-0.4	60	48	449,100
Sol	10190003	Middle South Platte-Cherry Creek	0.1	44	52	898,900
South Platte	10190004	Clear Creek	0.7	NA	59	110,000
Pla	10190005	St. Vrain River	0.5	34	60	233,100
itte	10190006	Big Thompson River	0.7	64	59	550,800
	10190007	Cache La Poudre	1.6	89	61	429,100
	10190012	Middle South Platte-Sterling	0.5	87	52	1,033,300
	10180001	North Platte Headwaters	-0.1	NA	48	230,000
<	14050001	Upper Yampa	-1.1	99	32	614,300
Yampa- White	14050002	Lower Yampa	-1.0	NA	38	790,000
ie	14050003	Little Snake	-0.4	NA	45	310,000
	14050005	Upper White	-0.8	NA	41	250,000
						250,0

April 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.

SWSI Color Scale:-4.0 (Severe Drought)0 (Normal)4.0 (Abundant Supply)

HUC ID	HUC Name	Component Name	Component Volume (AF)	Component NEP for Month
		CLEAR CREEK RESERVOIR	8,100	65
	Arkoncoc	HOMESTAKE RESERVOIR	32,000	70
11020001	Arkansas Headwaters	TWIN LAKES RESERVOIR	41,200	46
	neauwaters	TURQUOISE LAKE	41,500	6
		ARKANSAS RIVER AT SALIDA	280,000	69
11020002		PUEBLO RESERVOIR	253,000	73
11020002	Upper Arkansas	PUEBLO RESERVOIR INFLOW	400,000	70
		LAKE HENRY	8,000	70
		HUERFANO RIVER NEAR REDWING	12,200	49
11020005	Upper Arkansas- Lake Meredith	CUCHARAS RIVER AT BOYD RANCH NR LA VETA	13,100	69
	Lake Meredith	MEREDITH RESERVOIR	37,000	69
		PUEBLO RESERVOIR INFLOW	400,000	70
		CUCHARAS RESERVOIR*	0	14
11020006	Huerfano River	HUERFANO RIVER NEAR REDWING	12,200	49
		CUCHARAS RIVER AT BOYD RANCH NR LA VETA	13,100	69
		HUERFANO RIVER NEAR REDWING	12,200	49
	Upper Arkansas- John Martin Reservoir	CUCHARAS RIVER AT BOYD RANCH NR LA VETA	13,100	69
11020000		PURGATOIRE RIVER AT TRINIDAD	47,000	55
11020009		ADOBE CREEK RESERVOIR	52,400	70
		JOHN MARTIN RESERVOIR	131,900	72
		PUEBLO RESERVOIR INFLOW	400,000	70
11020010	Durrectoire Diver	TRINIDAD LAKE	27,000	71
11020010	Purgatoire River	PURGATOIRE RIVER AT TRINIDAD	47,000	55
	Colored a	WOLFORD MOUNTAIN RESERVOIR	52,100	94
14010001	Colorado	WILLIAMS FORK RESERVOIR	73,200	90
	Headwaters	COLORADO RIVER NEAR DOTSERO	1,550,000	62
1 401 0002	Dhua Dhuan	GREEN MOUNTAIN RESERVOIR	57,100	33
14010002	Blue River	BLUE RIVER INFLOW TO GREEN MOUNTAIN RES	315,000	72
14010003	Eagle River	EAGLE RIVER BELOW GYPSUM	340,000	56
4 404 000 4		RUEDI RESERVOIR	66,200	70
14010004	Roaring Fork	ROARING FORK AT GLENWOOD SPRINGS	740,000	62
1 401 0005	Colorado	VEGA RESERVOIR	13,700	52
14010005	Headwaters-Plateau	COLORADO RIVER NEAR CAMEO	2,560,000	62
		TAYLOR PARK RESERVOIR	68,800	69
14020001	East-Taylor	TAYLOR R INF TO TAYLOR PARK RESERVOIR	130,000	80
		EAST RIVER AT ALMONT	245,000	78
		FRUITLAND RESERVOIR	3,400	84
		SILVER JACK RESERVOIR	3,600	27
14020002		CRAWFORD RESERVOIR	10,400	51
	Upper Gunnison	MORROW POINT RESERVOIR	108,200	12
		LAKE FORK AT GATEVIEW, CO	149,000	75
		BLUE MESA RESERVOIR	573,300	95
		GUNNISON R INF TO BLUE MESA RESERVOIR	920,000	78
4.4020000	To a la la la	VOUGA RESERVOIR NEAR DOYLEVILLE	600	73
14020003	Tomichi Creek	TOMICHI CREEK AT GUNNISON, CO	109,000	79

# April 1, 2017 SWSI Component Information By HUC

HUC ID	HUC Name	Component Name	Component Volume (AF)	Component NEP for Month
	North Fork	PAONIA RESERVOIR	2,400	46
14020004	Gunnison	NORTH FORK GUNNISON R NR SOMERSET	375,000	72
14020005	Lower Gunnison	GUNNISON RIVER NR GRAND JUNCTION	1,940,000	75
		RIDGEWAY RESERVOIR	65,600	57
14020006	Uncompahgre River	UNCOMPAHGRE RIVER AT COLONA	160,000	74
14030003	San Miguel	SAN MIGUEL RIVER NEAR PLACERVILLE	150,000	69
	0.1	CONTINENTAL RESERVOIR	10,600	93
	Rio Grande	SANTA MARIA RESERVOIR	17,200	89
13010001	Headwaters	RIO GRANDE RESERVOIR	31,900	89
		RIO GRANDE NEAR DEL NORTE	560,000	59
		MOUNTAIN HOME	4,140	68
		TERRACE RESERVOIR	9,900	74
		UTE CREEK	16,000	74
13010002	Alamosa-Trinchera	TRINCHERA CK	16,700	71
10010002		SANGRE DE CRISTO	21,000	63
		CULEBRA CREEK AT SAN LUIS	30,000	74
		ALAMOSA CREEK ABOVE TERRACE RESERVOIR	68,000	46
13010004	Saguache Creek	SAGUACHE CREEK NEAR SAGUACHE, CO	38,000	70
13010001	Sugure ereek	PLATORO RESERVOIR	16,100	40
13010005	Conejos River	CONEJOS RIVER NEAR MOGOTE	230,000	64
		GROUNDHOG RESERVOIR	19,700	99
14030002	Upper Dolores	MCPHEE RESERVOIR	347,000	95
14030002	opper Dolores	DOLORES RIVER BELOW MCPHEE RESERVOIR	370,000	67
		VALLECITO RESERVOIR	77,800	82
14080101	Upper San Juan	LOS PINOS RIVER NEAR BAYFIELD	196,000	58
14000101		SAN JUAN RIVER NEAR CARRACAS	450,000	67
14080102	Piedra River	PIEDRA RIVER NEAR ARBOLES	210,000	57
14000102		LEMON RESERVOIR	24,700	66
14080104	Animas River	FLORIDA RIVER INFLOW TO LEMON RESERVOIR	58,000	58
14000104	Animas River	ANIMAS RIVER AT DURANGO	475,000	63
		LONG HOLLOW RESERVOIR	1,569	50
14080105	Middle San Juan	LA PLATA RIVER AT HESPERUS	27,000	66
		JACKSON GULCH RESERVOIR	6,800	87
14080107	Mancos River	MANCOS RIVER NEAR MANCOS	38,000	64
		ANTERO RESERVOIR	15,400	23
	South Diatta	SPINNEY MOUNTAIN RESERVOIR		
10190001	South Platte Headwaters	ELEVENMILE CANYON RESV INFLOW	31,100	69 34
			43,000	
		ELEVENMILE CANYON RESERVOIR	99,500	59
		BEAR CREEK ABV EVERGREEN	13,400	50
10190002	Upper South Platte	CHEESMAN LAKE	73,600	76
		SOUTH PLATTE RIVER AT SOUTH PLATTE	153,000	48
		DILLON RESERVOIR	209,100	40

HUC ID	HUC Name	Component Name	Component Volume (AF)	Component NEP for Month
		HORSECREEK RESERVOIR	11,100	12
		BEAR CREEK ABV EVERGREEN	13,400	50
		MILTON RESERVOIR	22,700	99
		BARR LAKE	29,600	85
		STANDLEY RESERVOIR	31,100	22
10190003	Middle South Platte-	SOUTH BOULDER CK NR ELDORADO SPRINGS, CO	38,000	53
	Cherry Creek	BOULDER CREEK NEAR ORODELL	57,000	57
		BIG THOMPSON R AT MOUTH, NR DRAKE, CO	96,000	59
		SAINT VRAIN CREEK AT LYONS	97,000	65
		CLEAR CREEK AT GOLDEN	110,000	59
		SOUTH PLATTE RIVER AT SOUTH PLATTE	153,000	48
		CACHE LA POUDRE R AT CANYON MOUTH	240,000	61
10190004	Clear Creek	CLEAR CREEK AT GOLDEN	110,000	59
		TERRY RESERVOIR	4,400	25
		MARSHALL RESERVOIR	7,400	71
		UNION RESERVOIR	8,500	9
	St. Vrain River	GROSS RESERVOIR	10,000	56
10190005		BUTTONROCK (RALPH PRICE) RESERVOIR	10,800	11
		SOUTH BOULDER CK NR ELDORADO SPRINGS,		
		СО	38,000	53
		BOULDER CREEK NEAR ORODELL	57,000	57
		SAINT VRAIN CREEK AT LYONS	97,000	65
		MARIANO RESERVOIR	1,100	8
		LAKE LOVELAND RESERVOIR	3,500	10
		WILLOW CREEK RESERVOIR	5,800	11
10100000	Big Thompson River	LONE TREE RESERVOIR	8,600	97
10190006		BOYD LAKE	27,500	35
		BIG THOMPSON R AT MOUTH, NR DRAKE, CO	96,000	59
		CARTER LAKE	100,800	44
		LAKE GRANBY	307,500	63
		CHAMBERS LAKE	2,400	31
		BLACK HOLLOW RESERVOIR	3,200	61
		HALLIGAN RESERVOIR	6,400	95
	Cache La Poudre	FOSSIL CREEK RESERVOIR	9,600	77
10190007		CACHE LA POUDRE	10,000	94
		WINDSOR RESERVOIR	11,000	65
		COBB LAKE	16,900	66
		HORSETOOTH RESERVOIR	129,600	79
		CACHE LA POUDRE R AT CANYON MOUTH	240,000	61

HUC ID	HUC Name	Component Name	Component Volume (AF)	Component NEP for Month
		BEAR CREEK ABV EVERGREEN	13,400	50
		JULESBURG RESERVOIR	20,600	70
		PREWITT RESERVOIR	23,900	79
		JACKSON LAKE RESERVOIR	26,000	30
		EMPIRE RESERVOIR	36,500	99
		SOUTH BOULDER CK NR ELDORADO SPRINGS,		
	Middle Courth Diatta	СО	38,000	53
10190012	Middle South Platte- Sterling	RIVERSIDE RESERVOIR	52,600	51
	Sterning	BOULDER CREEK NEAR ORODELL	57,000	57
		POINT OF ROCKS RESERVOIR	69,300	88
		BIG THOMPSON R AT MOUTH, NR DRAKE, CO	96,000	59
		SAINT VRAIN CREEK AT LYONS	97,000	65
		CLEAR CREEK AT GOLDEN	110,000	59
		SOUTH PLATTE RIVER AT SOUTH PLATTE	153,000	48
		CACHE LA POUDRE R AT CANYON MOUTH	240,000	61
10180001	North Platte			
10180001	Headwaters	NORTH PLATTE R NR NORTHGATE	230,000	48
	Upper Yampa	YAMCOLO RESERVOIR	7,900	82
		STAGECOACH RESERVOIR NR OAK CREEK	33,400	99
14050001		ELKHEAD CREEK ABOVE LONG GULCH	58,000	37
		YAMPA RIVER AT STEAMBOAT SPRINGS	215,000	28
		ELK RIVER NEAR MILNER, CO	300,000	31
14050002	Lower Yampa	YAMPA RIVER NEAR MAYBELL	790,000	38
14050003	Little Snake	LITTLE SNAKE RIVER NEAR LILY	310,000	45
14050005	Upper White	WHITE RIVER NEAR MEEKER	250,000	41

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)

#### SOUTH PLATTE BASIN

## **Basinwide Conditions Assessment**

The SWSI value for the month was +1.0. March 2017 continued, but reversed the precipitation dichotomy observed in February over northeast Colorado. Precipitation in more-or-less the western half of the area was generally well below normal while the eastern half was near to above normal. Temperatures did not display any dichotomy over the area; they were uniformly significantly warmer than normal.

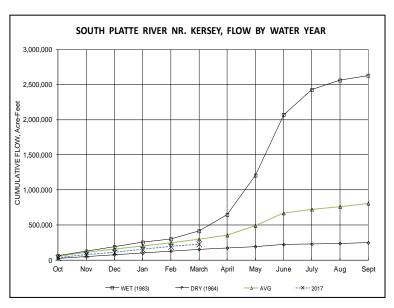
The snowpack, as measured by the snow water equivalent (SWE) did not gain much in March and declined significantly as a percentage of average. The SWE was 140% of normal on March 1, but had fallen to 103% of normal on April 1. The actual overall South Platte basin SWE did increase slightly from about 13.5 inches on March 1 to about 14 inches on April 1. The normal South Platte basin peak SWE is about 15 inches and generally happens near the end of April.

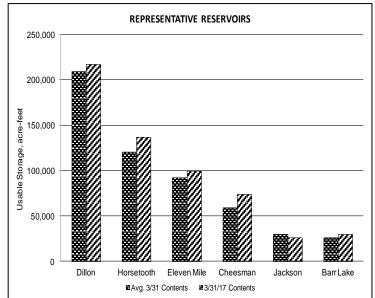
In another sign of the overall dryness in March, the USDA Drought Monitor indicated all of northeast Colorado remained at least in the D0 "Abnormally Dry" rating. A significant area along the northern Front Range slipped from the D1 "Moderate Drought" rating into the D2 "Severe Drought" rating by the end of March. As might be expected from the March precipitation pattern, the eastern portion of Division 1 moved from the D1 rating into the D0 rating by the end of the month.

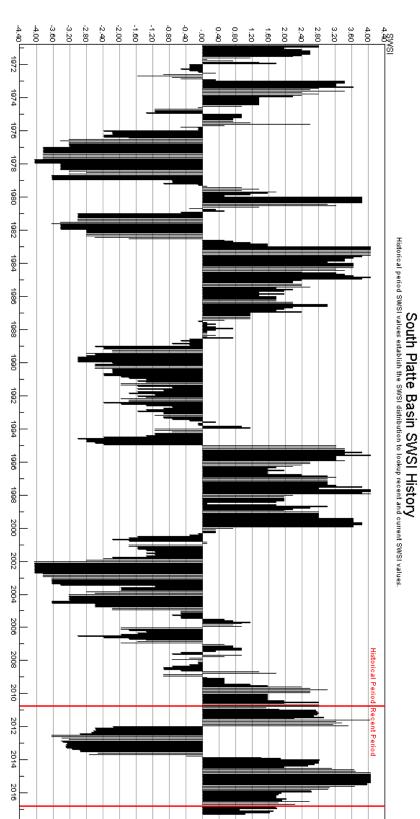
Not surprisingly, the flows in the South Platte River at the Julesburg and Kersey index gages were below the March long term average. The overall March mean flow at the Julesburg gage was about 130 cfs or approximately 25% of the period of record mean flow of 512 cfs. The overall March mean flow at the Kersey gage was approximately 545 cfs. This represents a flow of approximately 79% of the period of record mean flow of 688 cfs.

With the low stream flow, surprisingly, the calls on the South Platte mainstem remained more junior than normal in March. There was a continuous call on the mainstem from Denver upstream for the entire month and a nearly continuous call from approximately Crook upstream for the last half of March. The major South Platte tributaries were generally internally controlled in March with fairly normal calls.

Overall storage in the South Platte continued to be good, but the weather patterns discussed above do create some concern. The end of March 2017 storage was at 85% of capacity, as compared to the long term average end of March storage of 80% of capacity. While this is good, the declining snowpack and low stream flow numbers indicate that a significant portion of the spring runoff many reservoirs depend on to fill may be required by direct flow irrigators and not available to store. This could lead to a shortage of water later in the irrigation season when needed to finish crops.







South Platte-DataComposite-SWSI

## **Basinwide Conditions Assessment**

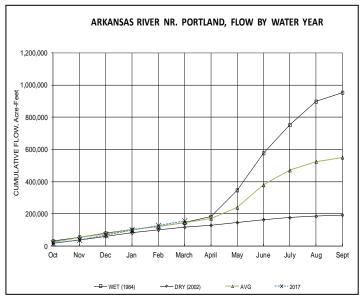
The SWSI value for the month was +1.6.

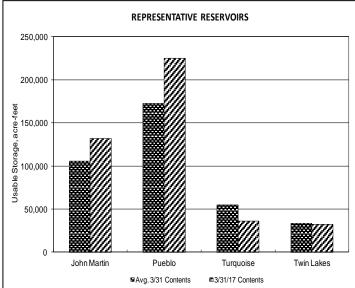
## Outlook

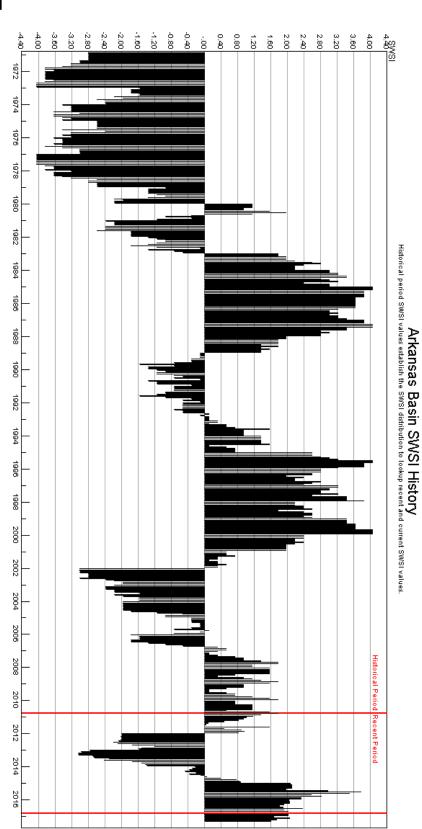
Total distributed reservoir storage following the Pueblo Winter Water Program was 130,962 acrefeet, including 43,718 acre-feet in Pueblo Reservoir, 76,580 acre-feet in diversions to off-channel reservoirs, and 10,664 acre-feet in John Martin Reservoir (after distribution to accounts). Conservation Storage in John Martin Reservoir through March 31, 2017 totaled 23,884 acre-feet. Storage values were near the 20-year average for the Pueblo Winter Water Program and above the 1950-1975 pre-Winter Water Storage average for Conservation Storage in John Martin Reservoir.

## Administrative/Management Concerns

Pueblo Reservoir has once again been the focus of management concerns due to the fact that water stored over the winter forced storage levels up into the flood control space. Under the flood control criteria for Pueblo Reservoir, this can occur during winter months, however the level of the reservoir has to be reduced to target levels each day between April 1st and 15th. This tough concern caused some management decisions to be made, however entities benefited from the similar experience in 2016 that caused significant advanced planning in preparation for a possible 2017 spill. It is anticipated that a spill will once again be able to be avoided by the diligent actions of those involved.







Arkansas-DataComposite-SWSI

## Basinwide Conditions Assessment

The SWSI value for the month was +0.9. Flow at the gaging station Rio Grande near Del Norte averaged 542 cfs (197% of normal). The Conejos River near Mogote had a mean flow of 233 cfs (263% of normal). Streamflow in the upper Rio Grande basin was generally above average during March as some low and mid-elevation snowpack melted out.

For the third year in a row, March temperatures in the San Luis Valley were much warmer than the long-term average. The warmth was enjoyable for residents and visitors. But the dry conditions melted out lower and mid-elevation snowpack, leaving less available for the irrigation season.

Although fresh snowfall in the San Luis Valley and the surrounding mountains was scarce during March, all areas of the upper Rio Grande basin have currently average or above average snowpack.

## <u>Outlook</u>

NOAA weather forecasts for the next three months call for normal precipitation and above normal temperatures.

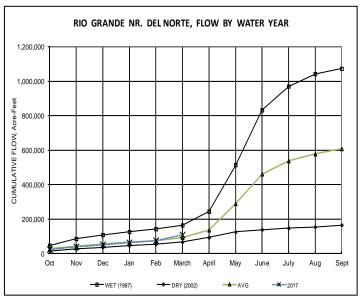
The recent coordinated forecast by the NRCS and NWS predicts above average runoff conditions throughout the upper Rio Grande basin. The best forecast within the basin is the Rio San Antonio at 141 of average. The Rio Grande at Del Norte is slated for 109%, the Conejos near Mogote at 119%, the Alamosa River at 100% and Culebra Creek at 130%.

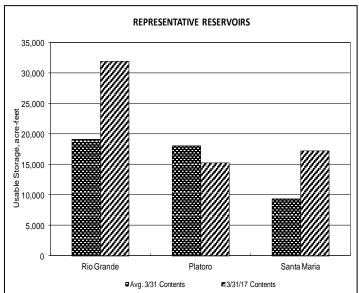
### Administrative/Management Concerns

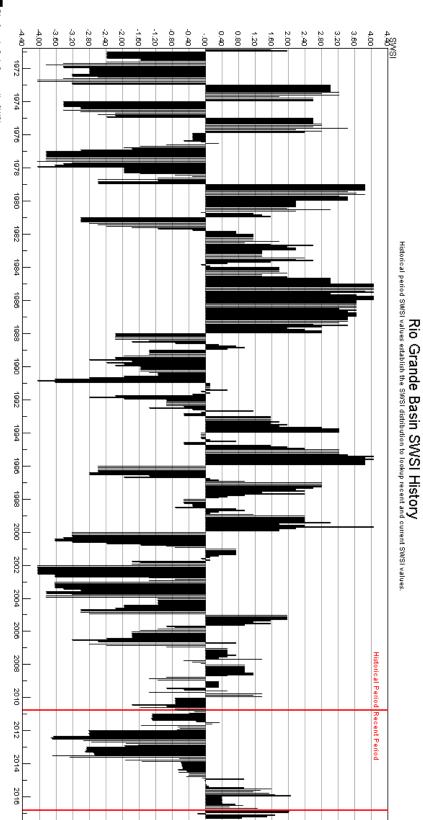
Water users and administrators are preparing for an irrigation season with a chance for average or better surface water supplies. This is a boon for the southern part of the San Luis Valley that has seen only below average runoffs for the past seven years or more. The Valley's strained aquifers have a chance at some recovery. Reservoir storage benefits a minority of water users in this basin. And most reservoirs in the basin are currently storing near the long-term average. Beaver Reservoir is once again operational - a bonus for fisherman and campers at this Colorado Parks and Wildlife facility.

## Administrative/Management Concerns

Due to the warm and dry conditions, La Jara Creek and Hot Creek opened irrigation season on March 16. The Conejos, the Rio Grande, and La Garita Creek opened up April 3. All other drainages in Water Division No. 3 began irrigation season diversions on April 1.







Rio Grande-DataComposite-SWSI

#### Basinwide Conditions Assessment

The SWSI value for the month was +2.7. Dry conditions continued over the Gunnison basin during March, especially in areas such as the North Fork Gunnison River where precipitation was 30-50% of the 30 year average. Southern areas, such as the Uncompany River basin fared better, receiving 90-100% of the average. Temperatures varied between 3 and 7 degrees above average during March, mostly caused by an extremely warm last two weeks of the month. This warm weather caused snow at most Snotel sites to begin melting and the streamflows to rise. In fact, the Snotel sites above Paonia Reservoir lost 5 inches of water content during the last two weeks of March.

Snowpack conditions on April 1st remain above average, at 124% of the 30-year median basin-wide. Areas like the basin above Blue Mesa and Taylor Park sit at much higher at 149% and 130% of the median respectively, while snowpack is only 86% of the median in the North Fork Gunnison River above Paonia Reservoir.

#### <u>Outlook</u>

The NWS precipitation forecast for April through June puts the Gunnison basin in an area with equal chances of below or above average precipitation, but greater chances of above average temperatures.

#### Administrative/Management Concerns

The Uncompandere Valley Water Users Association (UVWUA) opened the Gunnison Tunnel to begin flushing out their system on March 17th. As of April 1st the Gunnison Tunnel was taking around 400 cfs and water was being delivered to all seven of their delivery canals off of the Uncompander River.

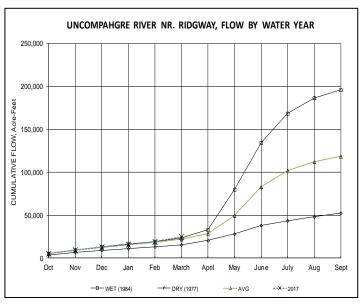
The April 1st inflow forecast for Blue Mesa Reservoir is for 930,000 acre-feet of runoff, which is 138% of the 30-year average. Target flows in the Record of Decision for the Aspinall Unit Operations EIS (to benefit four endangered fish species) are set by the inflow forecast on May 1st. Although we are not there yet, this inflow forecast is squarely in the middle of the moderately wet category so the amounts and durations should not change before May 1st. If the forecast remains at its current level, the spring target flows on the Gunnison River, as measured at Whitewater, would be 8,070 cfs for 40 days. The target for 10 of those 40 days would be a peak flow of 14,310 cfs. This will require large releases from the Aspinall Unit. As is typical, the USBR will attempt to time those releases with flows on the Uncompanyre and North Fork Gunnison Rivers in order to meet the target flows. As a result, timing for when these peak releases will be made cannot be determined until closer to a forecast peak runoff.

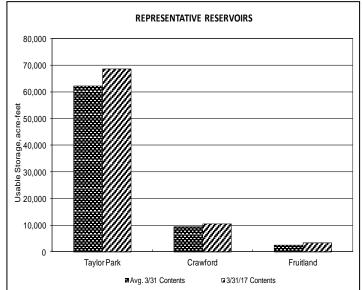
As of March 1st, Taylor Park Reservoir contained 43,653 acrefeet stored under it's first fill right and 25,113 acre-feet stored under it's second fill right. The first fill account in the Aspinall Unit contains 62,203 acre-feet.

#### Public Use Impacts

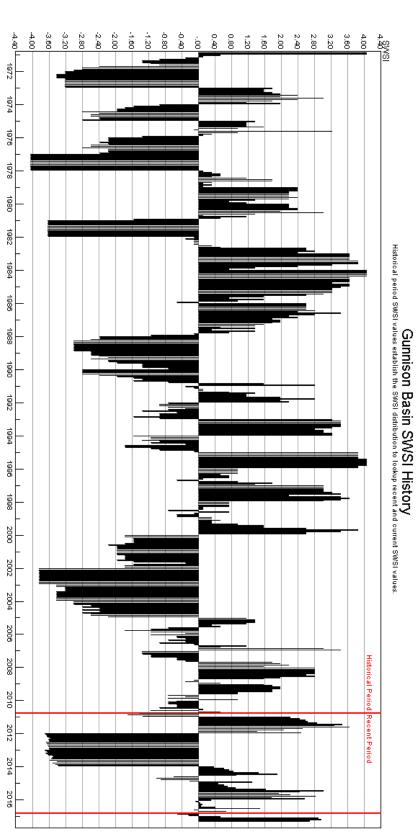
Most public use impact concerns at this time of year revolve around what the peak flows will be in the Gunnison Gorge during peak fly fishing periods as large flows have a detrimental effect on fishing conditions and by association, the river guide businesses. Unfortunately, as mentioned previously, the timing of peak releases will not be known until later.

Fruit crops, particularly cherries, in the North Fork and Surface Creek valleys were damaged by temperatures that dropped to 20 degrees in early April after the warm weather in late March caused them to blossom early. Hopefully the losses will be minimal to other fruit crops that are later bloomers, such as apples.









<u>Basinwide Conditions Assessment</u> The SWSI value for the month was +1.3.

# <u>Outlook</u>

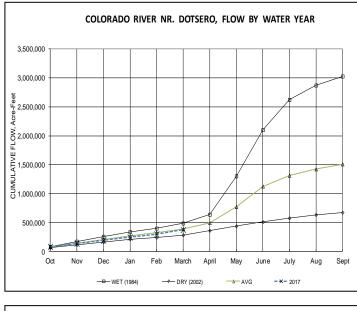
Colorado River flows are running above average likely due to the warmer temperatures. River flows are likely to remain consistent at above average to average throughout April. As of April 1st, Upper Colorado River Basin snowpack was down to 122 percent from 152 percent of median snow water equivalent last month and 125 percent from 136 percent of average precipitation. Above average temperatures and normal to below normal precipitation are forecast for April.

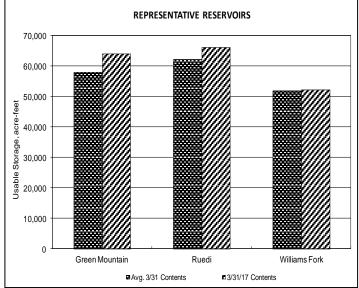
# Administrative/Management Concerns

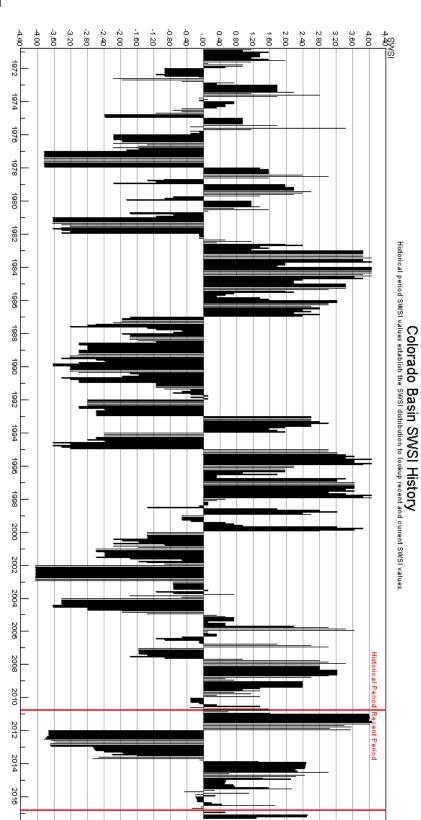
As of April 11, there is no longer a call on the Colorado River. Grand Valley Irrigation diversions (Government Highline/Orchard Mesa Irrigation, Grand Valley Irrigation canals) are now running and are at or near full capacity.

# Public Use Impacts

The snowpack remains above average in the Aspen area, although unseasonably high temperatures have eaten up a previously very high snowpack. Implications of the unseasonably warm temperatures could cause a quick peak runoff, stress on aquatic species, and land dry up creating susceptibility to wildfires.







Colorado-DataComposite-SWSI

# Basinwide Conditions Assessment

The SWSI value for the month was -0.7March 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 53% 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 March was 108%.

Snowpack for the combined basins as of April 1st, 2017 was at 86% of average. The snow water equivalent (SWE) as of March 31, 2017 was 104% of average for the North Platte River basin and 86% of average for the Yampa River basin and White River basin.

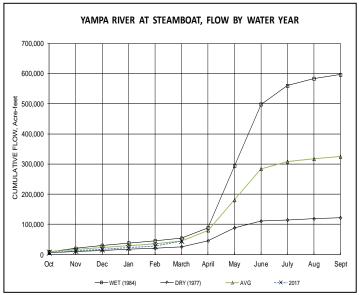
NRCS predicts average to below average spring and summer streamflows in the Yampa, White, and North Platte River basins. The latest runoff forecasts from the NRCS for the April through July period are 102% of average for the North Platte River at Northgate, 84% of average for the Yampa River near Maybell, 90% of average for the Little Snake River near Lily, and 89% of average for the White River near Meeker.

All Division 6 stream gages will be opened by the end of April.

# <u>Outlook</u>

As of March 31st Fish Creek Reservoir was storing approximately 3,602 AF, 86% of capacity. The capacity of Fish Creek Reservoir is 4,167 AF. Yamcolo Reservoir was storing 7,900 AF at the end of March 2017. The capacity of Yamcolo Reservoir is 8,700 AF. The G3 web server is not Elkhead functioning currently for Creek The capacity of Elkhead Reservoir. Creek Reservoir is 24,778 AF. On March 31, 2017, Stagecoach Reservoir was storing 33,400 AF, 91% of capacity.

Water stored in Fish Creek Reservoir is used primarily for municipal purposes, Yamcolo



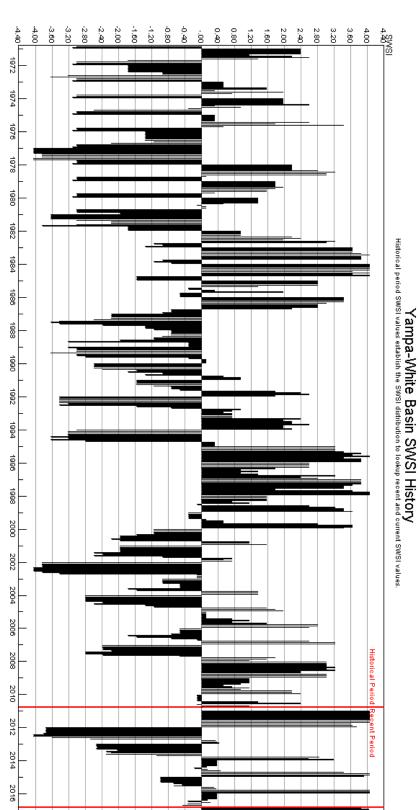
Reservoir for irrigation purposes, and Elkhead Creek Reservoir for municipal, industrial, recreational, and fish recovery releases. Stagecoach Reservoir is primarily used for recreation though a significant amount of stored water is allocated for municipal, industrial, irrigation and augmentation uses.

# Public Use Impacts

Steamboat Ski Resort currently enjoys spring conditions with a 48 inch base and 289 inches of snowfall since early November. The ski resort will close for the year on April 16th. Please check the website, www.steamboat.com, for spring and summer activities.

Boat ramps at Stagecoach Reservoir State Park will open May 1st. Campgrounds will open May 15th. Reservations are encouraged. The swim beach will also open on May 15th. Please check the Stagecoach Reservoir State Park website for the fishing report or call 970-879-6552 for the latest fishing conditions.

Steamboat Lake is reporting that ice fishing is done and no one will be allowed on the lake. Roads are all closed in the park except for the Marina access.





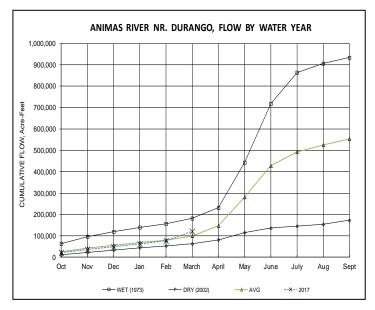
#### SAN JUAN-DOLORES BASIN

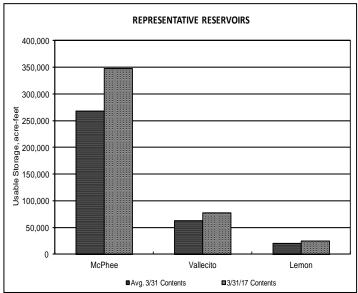
## **Basinwide Conditions Assessment**

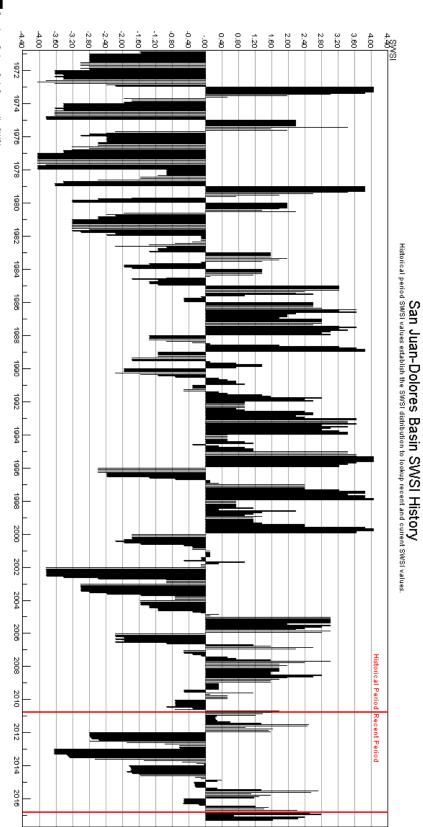
The SWSI value for the month was +1.6. Flow at the Animas River at Durango averaged 725 cfs (238% of average). The flow at the Dolores River at Dolores was estimated to average 523 cfs (386% of average). The La Plata River at Hesperus averaged 71.7 cfs (435% of average). Precipitation in Durango was 0.50 inches for the month, 40% of the 30-year average of 1.26 inches. Precipitation was the 102nd highest amount recorded in March, in Durango, out of 123 years of record. Precipitation to date in Durango, for the water year, is 12.54 inches, 127% of the 30-year average of 9.91 inches. End of last month precipitation to date, for the water year was 145% of average. The average high and low temperatures for the month of March in Durango were 620 and 280. In comparison, the 30-year average high and low for the month is 550 and 250. At the end of the month Vallecito Reservoir contained 77,795 acre-feet compared to its average content of 57,990 acre-feet (134% of average). McPhee Reservoir was up to 347,262 acre-feet compared to its average to its average content of 20,555 acre-feet (121% of average).

## Outlook

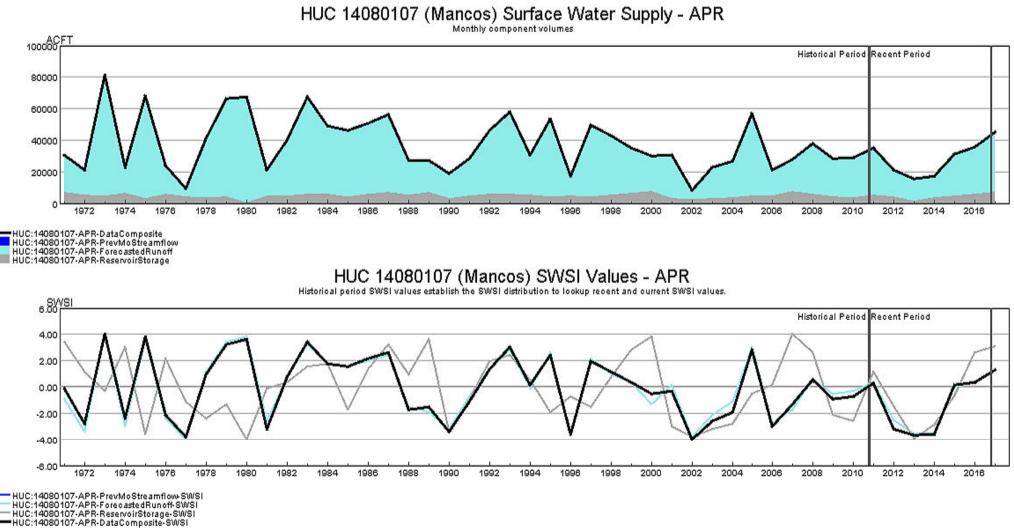
Precipitation (0.50 inches) was below average for March in Durango. There were 102 years out of 123 years of record where there was more precipitation than this year. With the warmer weather, flows in the rivers within the basin remained well above average. There was only 1 out of 107 years of record where the total flow past the Animas River at Durango stream gauge was more than this year. This was the most flow in the river for the month out of 106 years of record at the Dolores stream gauge. This was the most flow in the river for the month out of 100 years of record at the La Plata River at Hesperus gauge. On March 31, the NRCS SNOTEL sites reported an average snow-water-equivalent within the basin at 128%. End of last month the snow-water-equivalent was 152%.

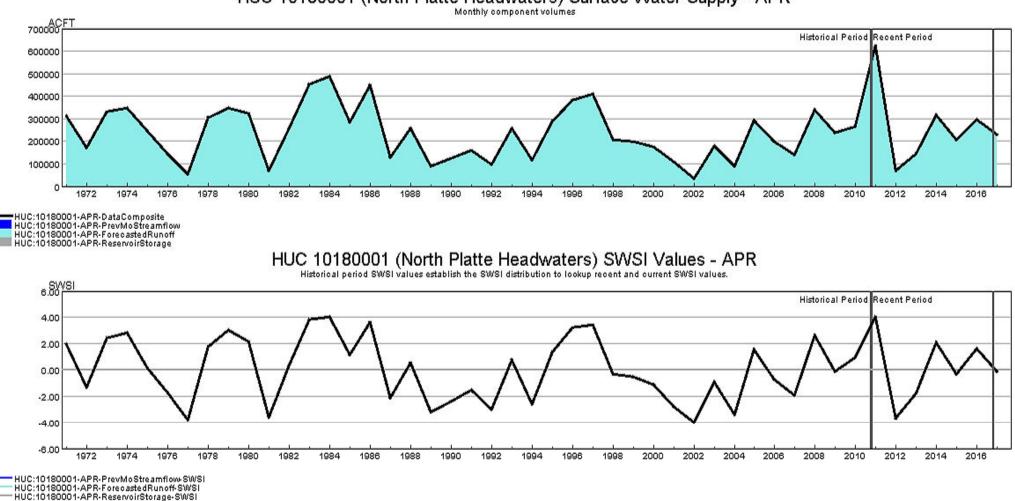






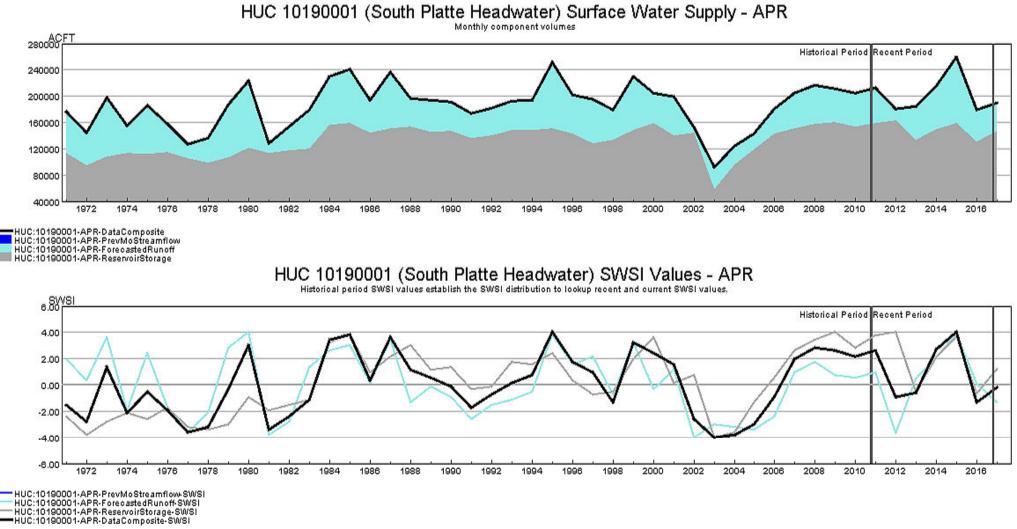
San Juan-Dolores-DataComposite-SWSI

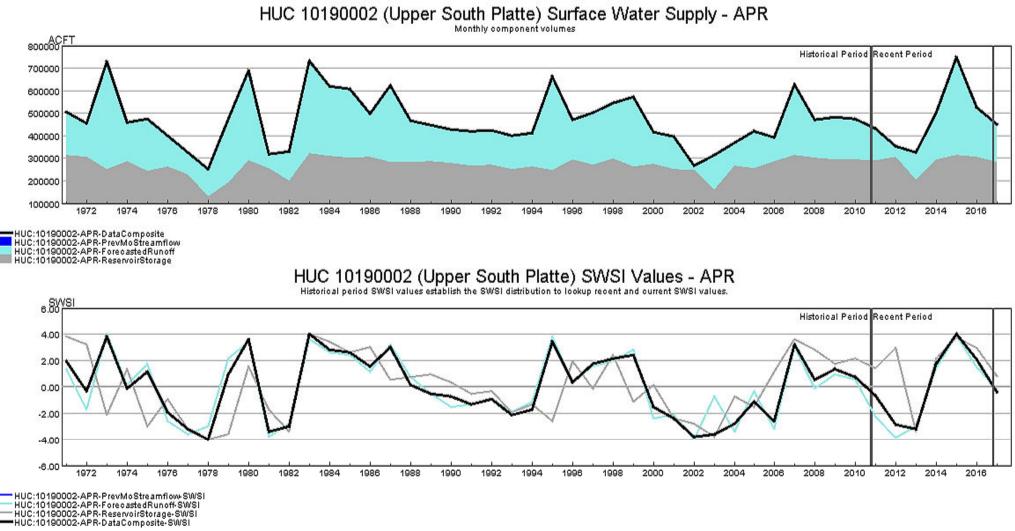


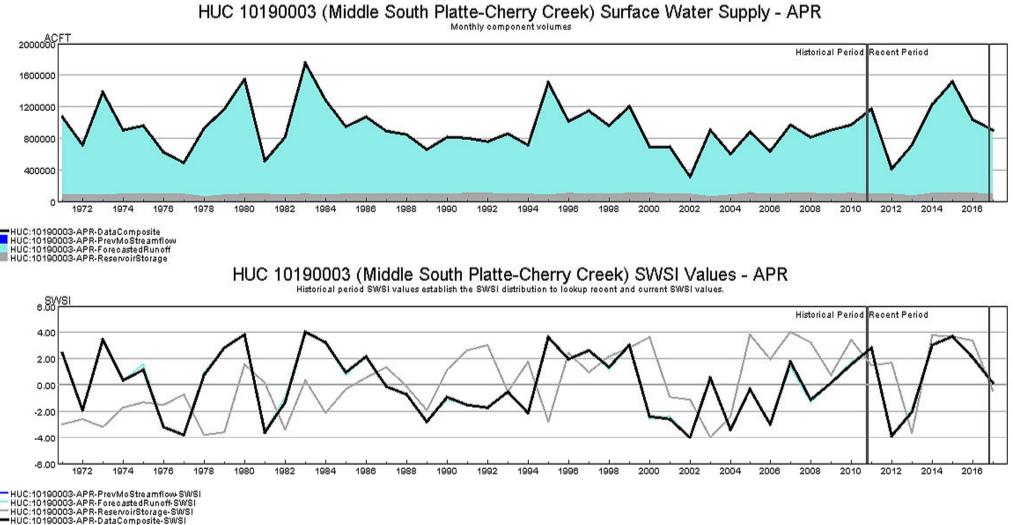


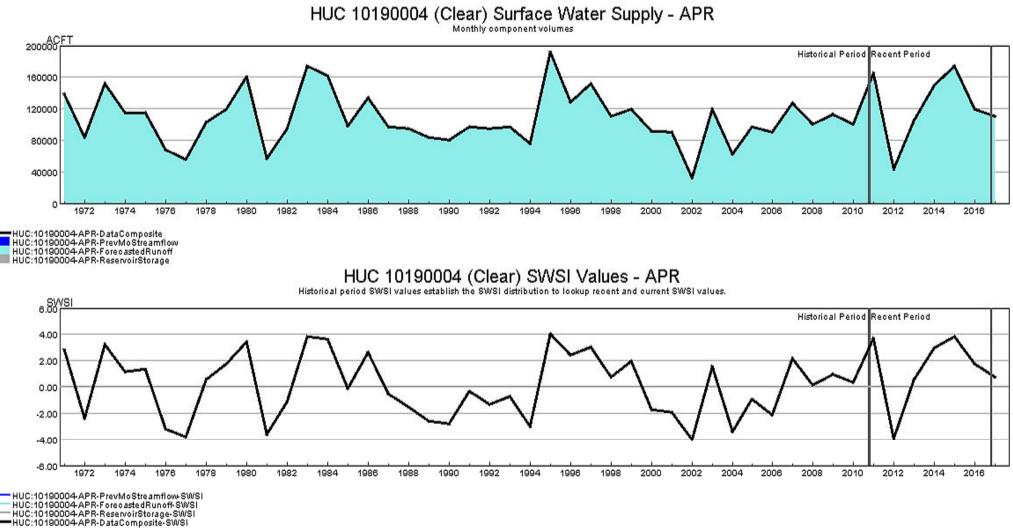
HUC 10180001 (North Platte Headwaters) Surface Water Supply - APR

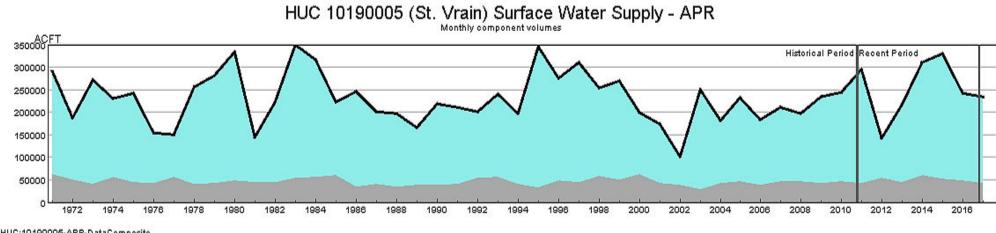
= HUC:10180001-APR-PrevMoStreamflow-SWSI = HUC:10180001-APR-ForeoastedRunoff-SWSI = HUC:10180001-APR-ReservoirStorage-SWSI = HUC:10180001-APR-DataComposite-SWSI





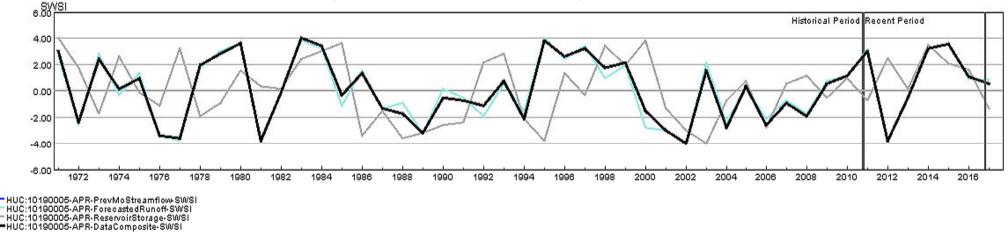


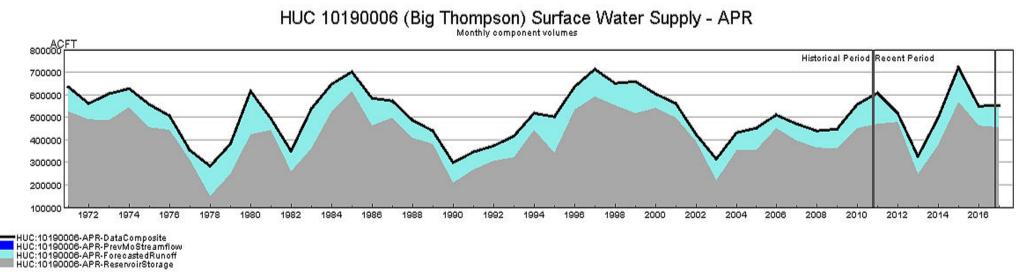




HUC:10190005-APR-DataComposite
 HUC:10190005-APR-PrevMoStreamflow
 HUC:10190005-APR-ForecastedRunoff
 HUC:10190005-APR-ReservoirStorage

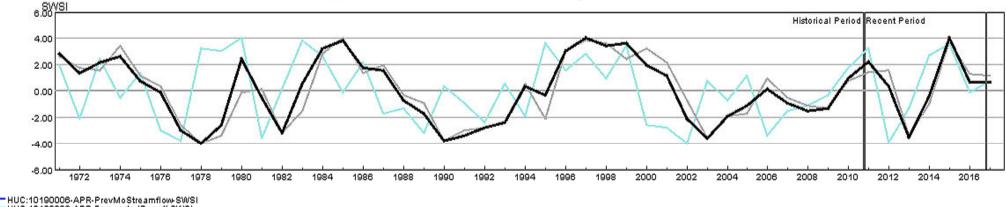
HUC 10190005 (St. Vrain) SWSI Values - APR Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



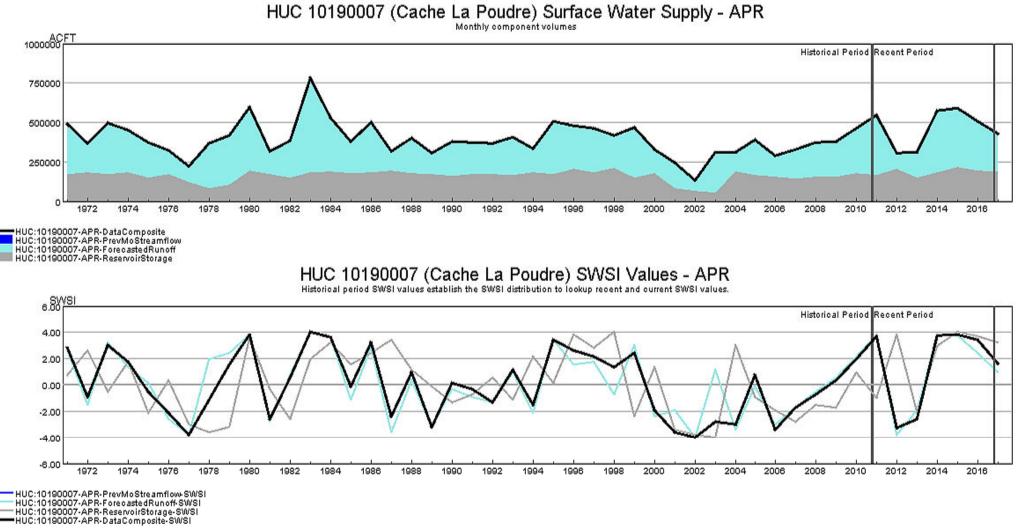


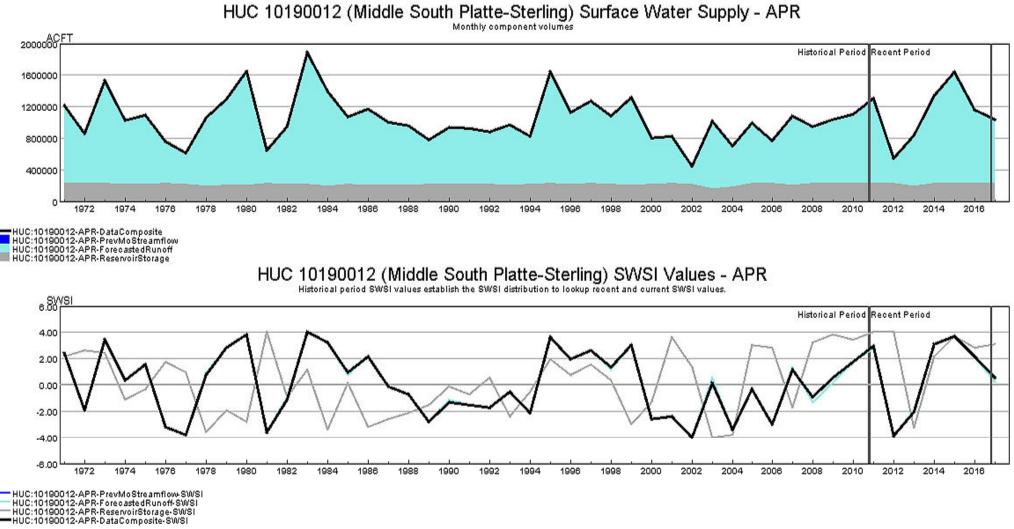
HUC 10190006 (Big Thompson) SWSI Values - APR Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.

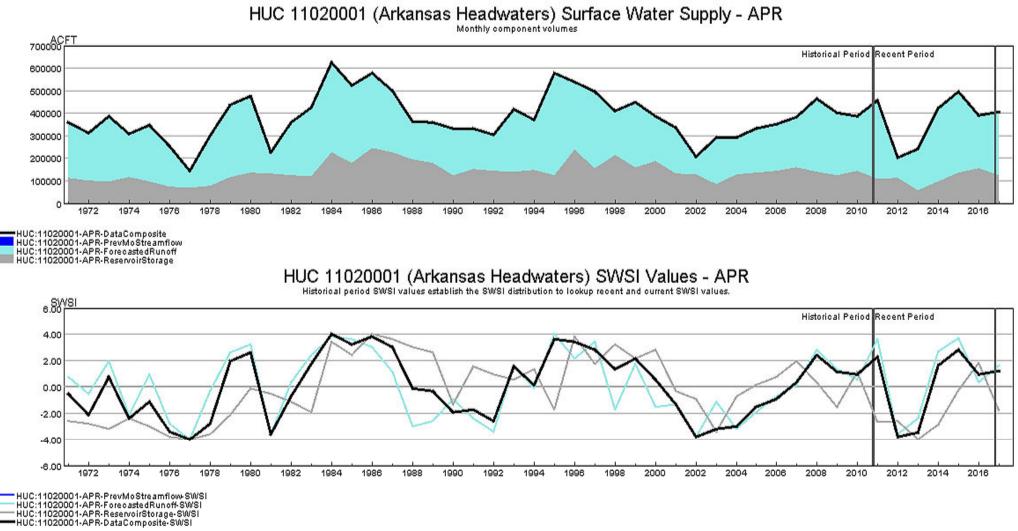


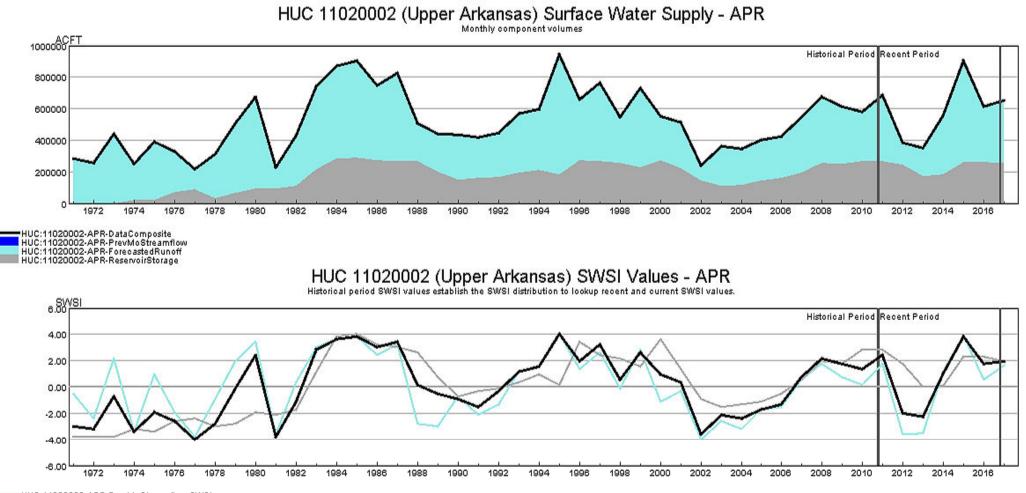


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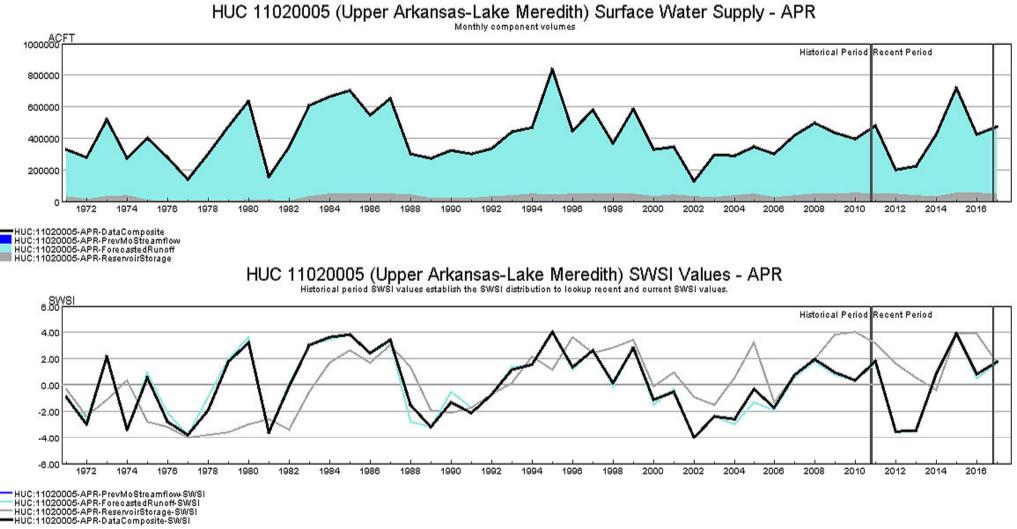


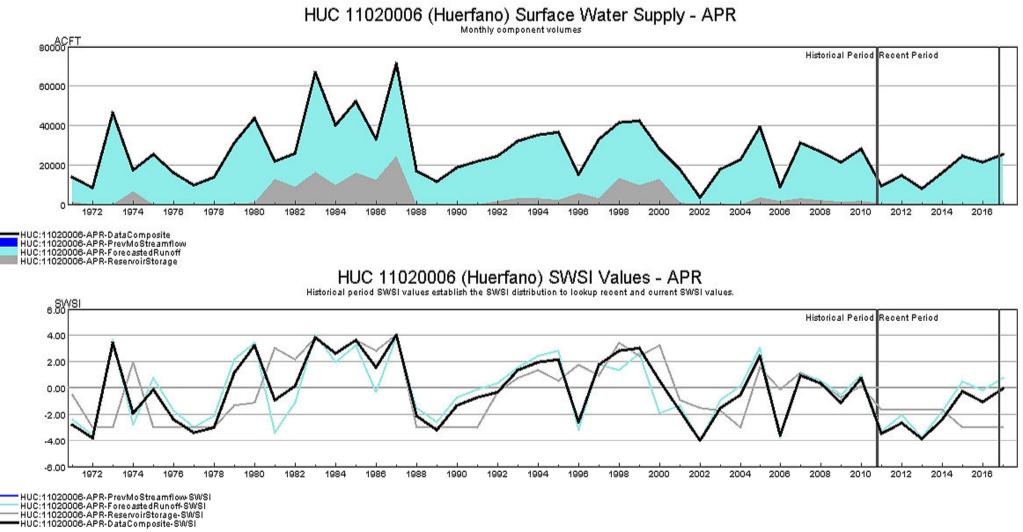


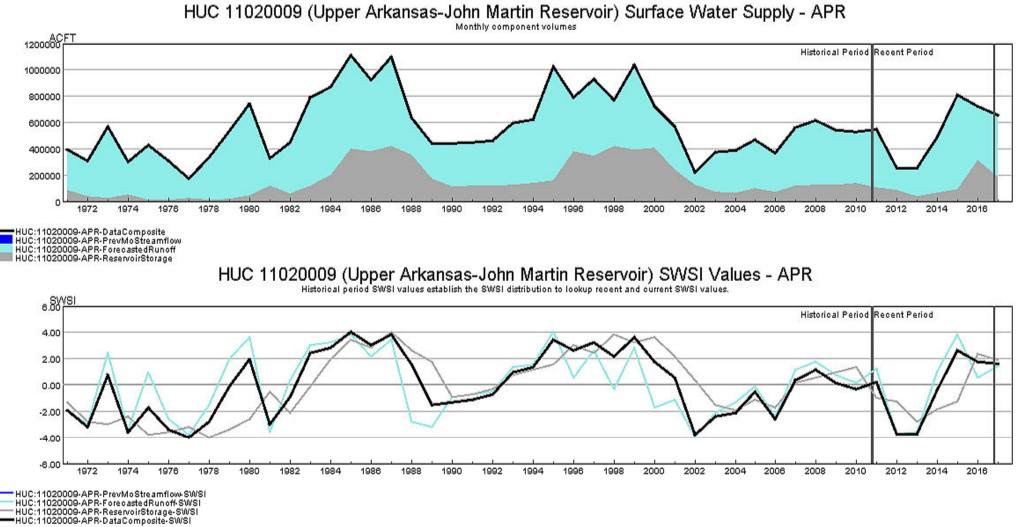


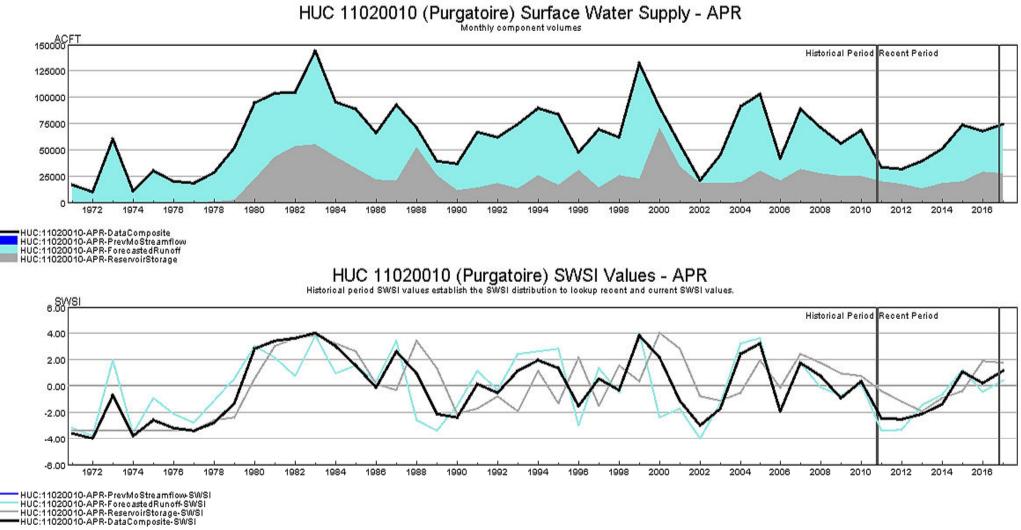


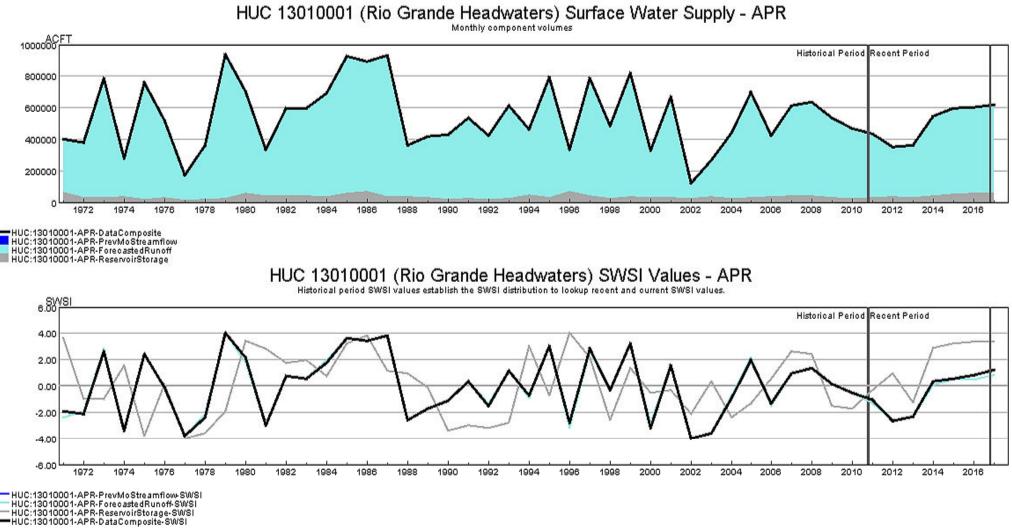
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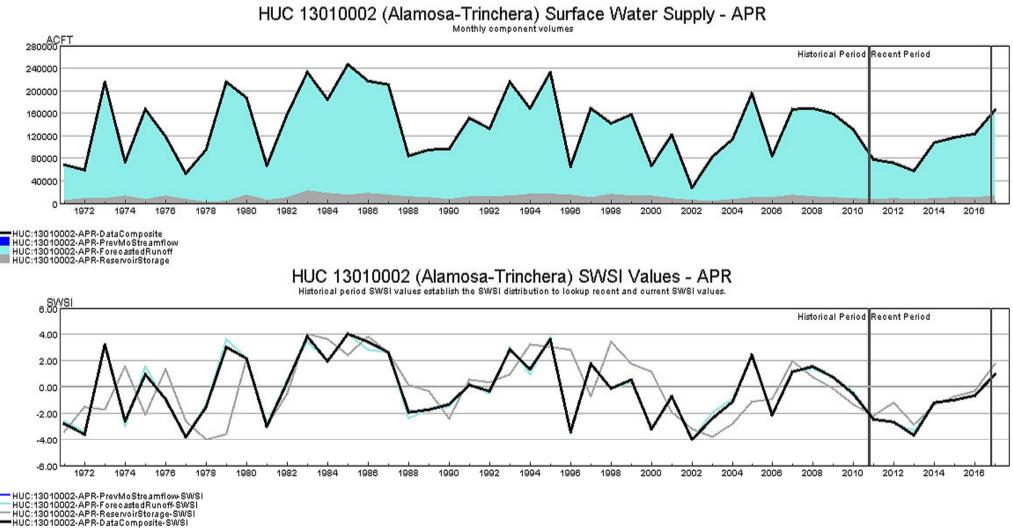


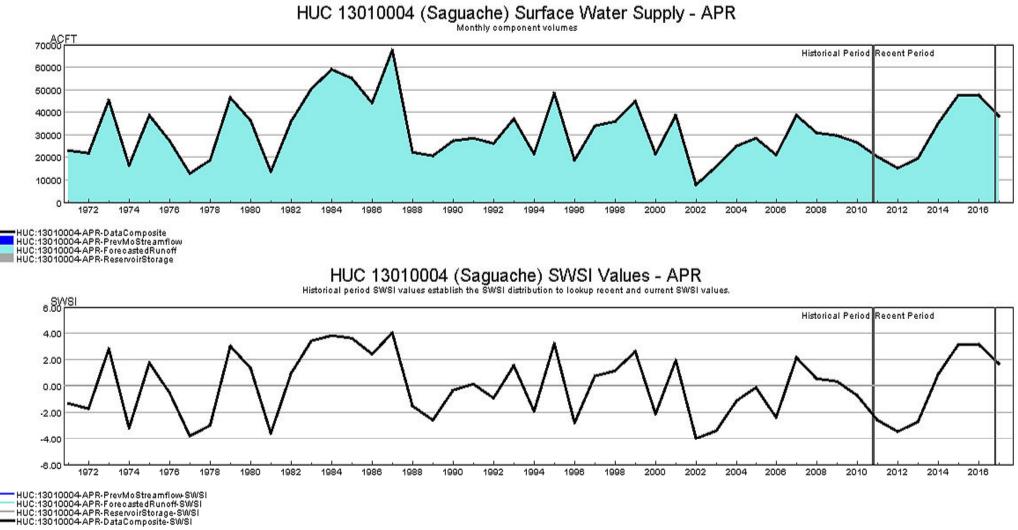


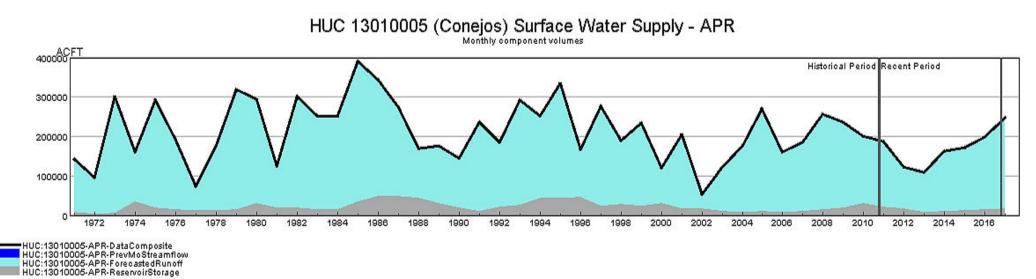




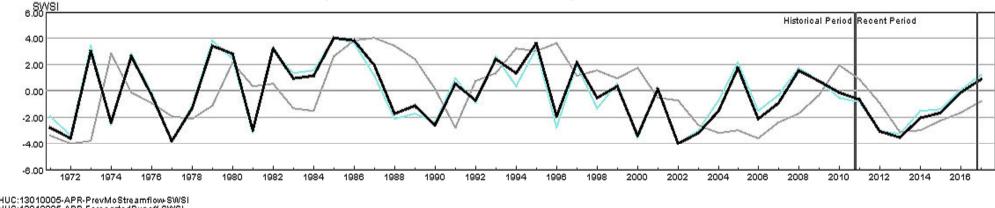




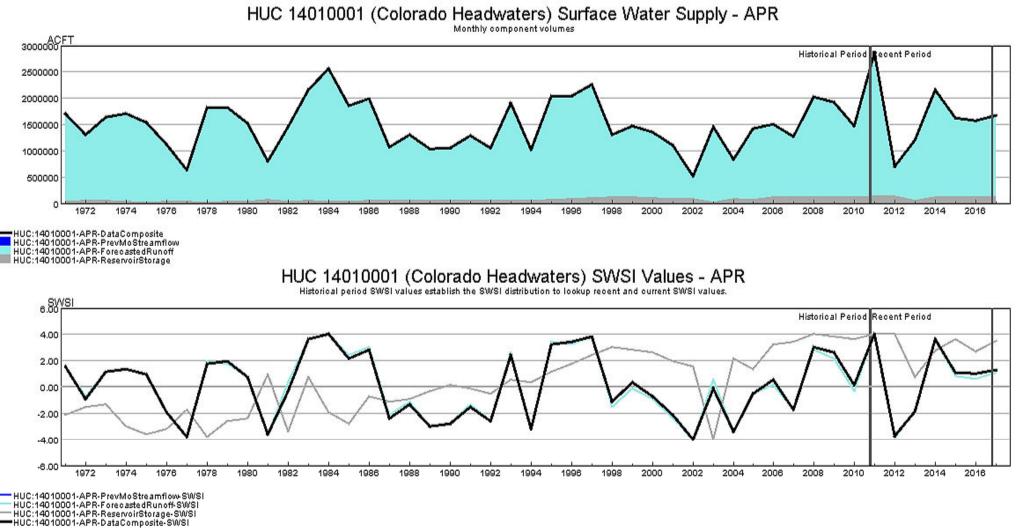


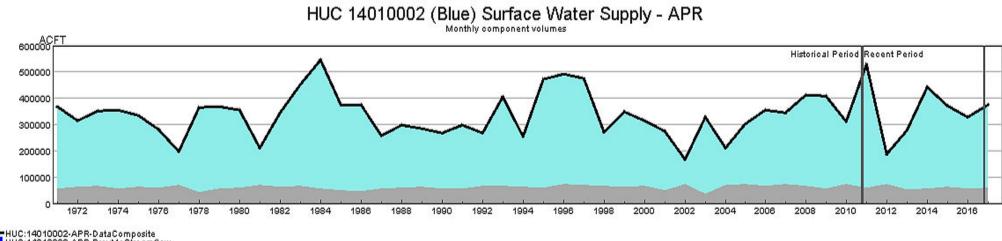


HUC 13010005 (Conejos) SWSI Values - APR Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



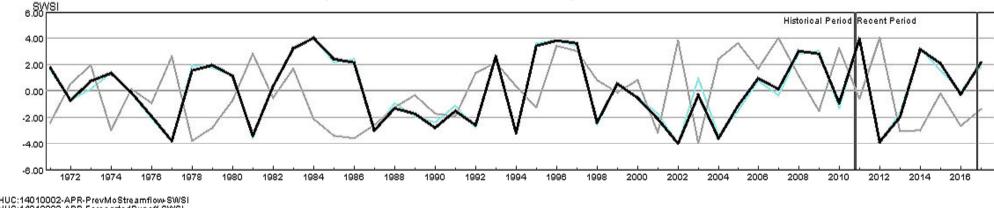
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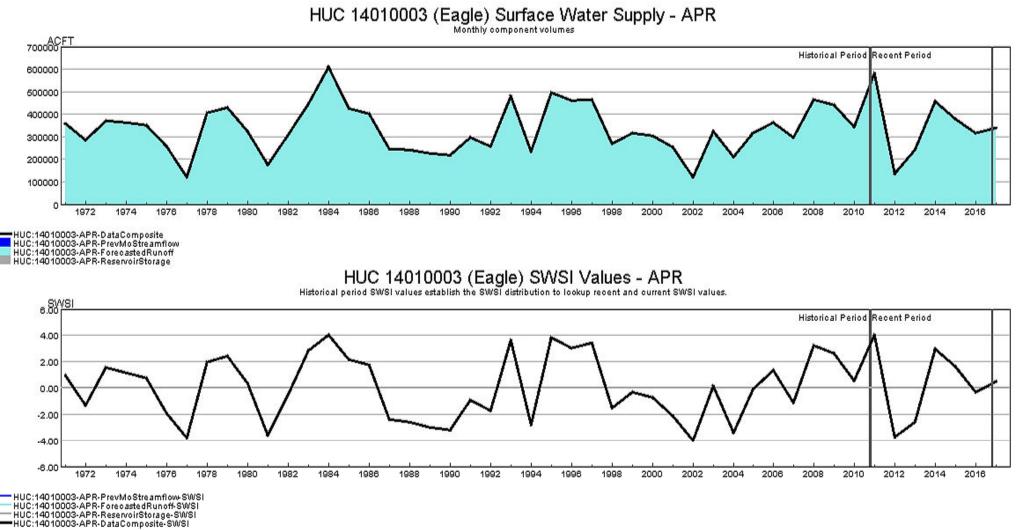


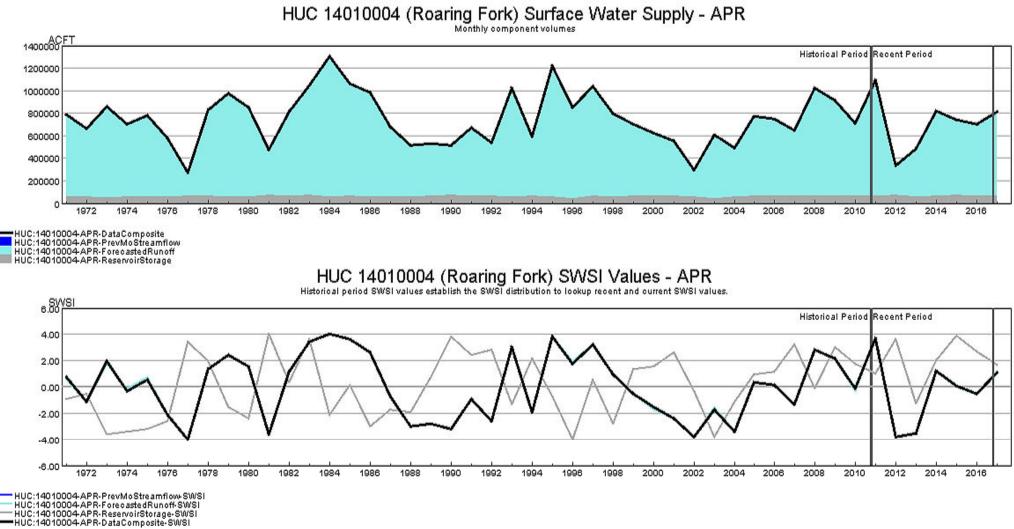
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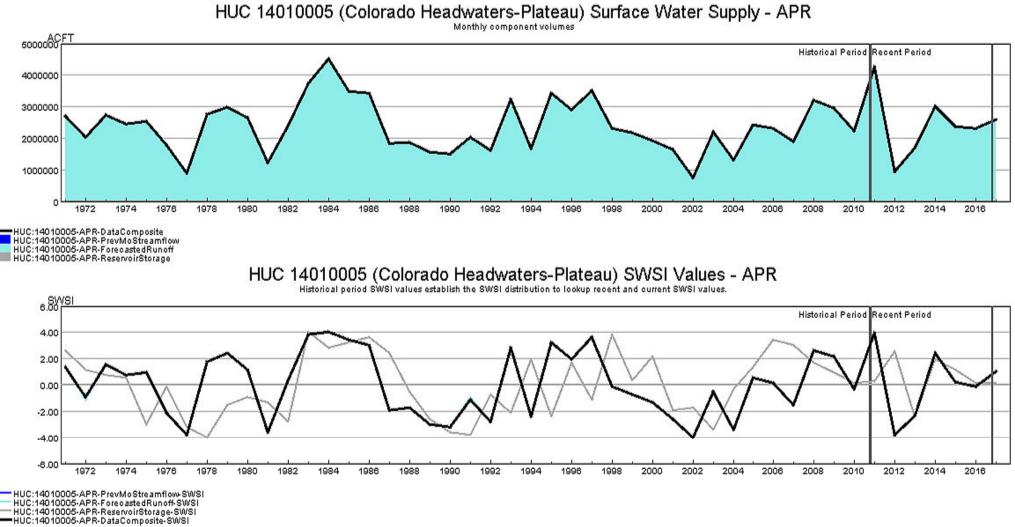
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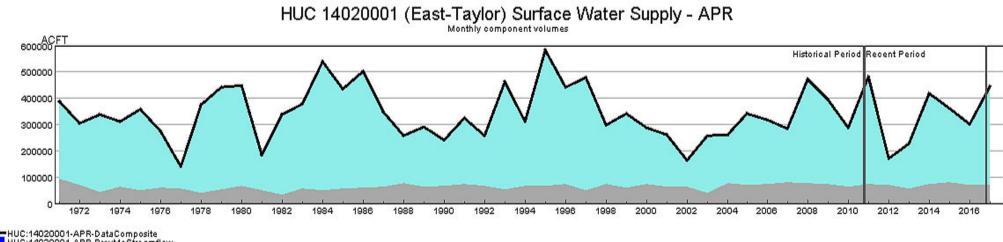


■ HUC:14010002-APR-PrevMoStreamflow-SWSI ■ HUC:14010002-APR-ForecastedRunoff-SWSI ■ HUC:14010002-APR-ReservoirStorage-SWSI ■ HUC:14010002-APR-DataComposite-SWSI





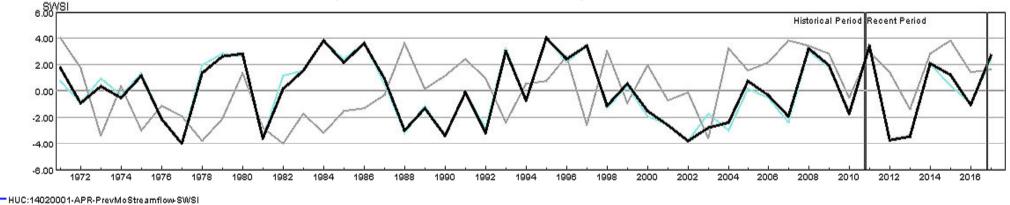




HUC:14020001-APR-DataComposite HUC:14020001-APR-PrevMoStreamflow HUC:14020001-APR-ForeoastedRunoff HUC:14020001-APR-ReservoirStorage

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





■ HUC:14020001-APR-PrevMoStreamflow-SWSI ■ HUC:14020001-APR-ForecastedRunoff-SWSI ■ HUC:14020001-APR-ReservoirStorage-SWSI ■ HUC:14020001-APR-DataComposite-SWSI

