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Department of
Agriculture

**Natural
Resources
Conservation
Service**

Colorado Basin Outlook Report APRIL 1, 2002



Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys

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How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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COLORADO

WATER SUPPLY OUTLOOK REPORT

APRIL 1, 2002

Summary

March was another dry month across Colorado, marking the seventh consecutive month of below average snowfall and precipitation for the state. As expected, statewide snowpack percentages declined again, leaving the state with the lowest snowpack percentage in 25 years. Runoff forecasts are extremely low across southern portions of the state. Elsewhere, forecasts improve, but remain well below average. Reservoir storage provides little additional optimism for boosting the low runoff this year. Most of the state's basins are reporting below average reservoir storage. Many of Colorado's water users are faced with one of the most difficult years in recent memory. Judicious use of existing supplies will be critical in minimizing impacts. Of course, a return to more normal climatic conditions can always help ease impacts.

Snowpack

Colorado's statewide snowpack percentages continued their steady decline during March. The current readings are now only 52% of average, statewide. These readings are only 60% of last year's April 1 snowpack. Not since the drought year of 1977, when the state had only a 46% of average snowpack, has the statewide conditions been this poor. Only making matters worse is the fact that by this date, nearly 100% of the seasonal accumulation is completed in an average year, leaving little, to no hope for any substantial improvements to the snowpack. Currently, the lowest snowpack percentages occur across southern Colorado. The combined San Juan, Animas, Dolores, and San Miguel basins are reporting the lowest readings, at only 34% of average. The Rio Grande Basin, at only 38% of average closely follows these basins. Also, this past month, the Arkansas Basin saw its percentage decrease sharply from last month and is now only 48% of average. Conditions improve towards the north, but remain well below average. The state's best snowpack percentages occur across the Colorado and North Platte basins, both reporting 63% of average readings. This year marks the fifth consecutive year with a below average statewide April 1 snowpack. Last year's statewide snowpack on this date was 87% of average. All basins are reporting percentages well below those of last year, and range from only 36% of last year in the Rio Grande Basin, to a high of 84% of last year in the Yampa and White basins. During late March, warm temperatures induced snowmelt at a number of SNOTEL sites. Across southern Colorado, a few lower elevation sites have already melted out, with melt even occurring at the higher elevation sites. At these melt rates, many sites will be completely melted out about a month earlier than normal.

Precipitation

Precipitation totals for March, measured at NRCS SNOTEL sites, were well below average across most of the state. Monthly accumulations exceeded 70% of average in only two basins. Those include the Gunnison at 81%, and the Colorado at 73% of average. Southern Colorado continued to report the lowest monthly percentages. Totals of only 53% to 56% of average were measured in the Arkansas, Rio Grande, and the combined San Juan, Animas, Dolores, and San Miguel basins. Statewide, March totals were only 65% of average. For the water year, which began on October 1, 2001, totals remain well below average in all basins. Basinwide water year totals range from only 49% of average in the San Juan, Animas, Dolores, and San Miguel basins, to a high of 70% of average in the Yampa and White, and Colorado basins. Statewide water year totals are now reported at only 63% of average.

Reservoir Storage

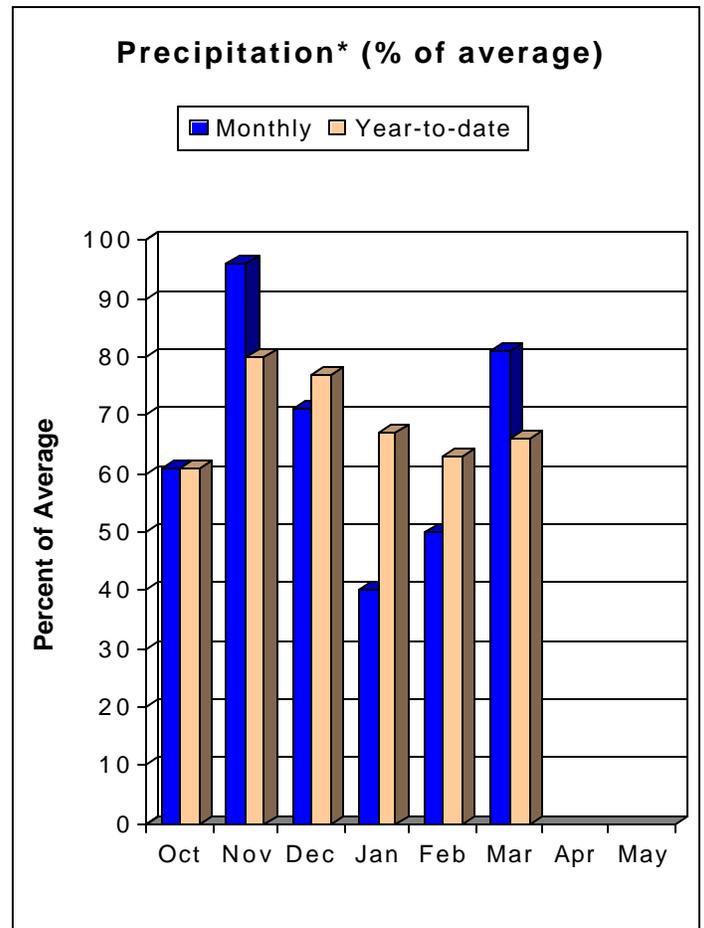
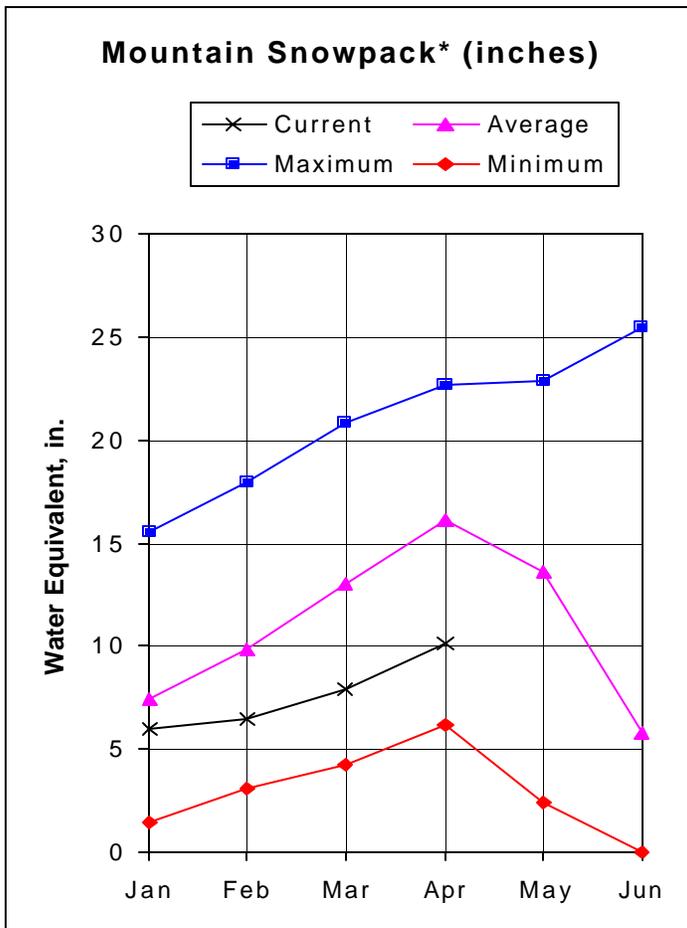
Most basins are reporting below average reservoir storage across the state. The exceptions include the Gunnison Basin, which is reporting 115% of average storage, and the Yampa and White basins, which are storing 101% of average volumes for this date. Storage volumes in the remaining basins range from only 76% of average in the Rio Grande Basin, to 85% of average in the South Platte Basin. Statewide, reservoir storage is 88% of average, nearly a 400,000 acre-foot deficit. As compared to last year, the 2002 volumes are lagging behind nearly statewide. Only the Gunnison Basin is storing slightly more than last year. Volumes in the Arkansas Basin are substantially down from last year, with the current volume only 65% of last year's. The current below average reservoir storage marks the first time in nearly 20 years since volumes have been below average.

Streamflow

Colorado's water users can anticipate very low streamflow volumes this summer. This is especially true across southern Colorado, where conditions are extremely poor, and volumes may be approaching minimum on record. The lowest forecasts occur along the San Juan River. With the projected inflow into Navajo Reservoir only at 26% of average, and upstream forecast points only slightly better. Other basins with extremely low forecasts include the Rio Grande, Animas, Dolores, San Miguel, Gunnison, North Platte and upper South Platte. Streams in all of these basins are expected to produce less than 50% of average this year. Forecasts are only slightly improved in the Colorado, Yampa, White, and the northern tributaries of the South Platte and the Arkansas mainstem. Volumes of 50% to 65% of average are forecast in these areas. All of these forecasts assume normal precipitation throughout the forecast period. Should the current weather trend continue into spring and summer, these forecasts will continue to decline even further.

GUNNISON RIVER BASIN

as of April 1, 2002



*Based on selected stations

The snow accumulation in the Gunnison Basin may have peaked for this season during the last days of March. The meager accumulation has started to slowly melt away and will likely begin to rapidly disappear unless there is a dramatic change in the weather patterns. The measurements on April 1 are only 57% of average, which is only 69% of the amount there was last year at this time. The accumulation ranges from only 49% of average in the Uncompahgre Watershed, to 60% of average in the Upper Gunnison Watershed. The monthly precipitation was 81% of average during March, which was the second highest monthly accumulation this water year, but the water year total still lags well below average, at only 66%. Fortunately, the combined reservoir storage level is 15% above average for this time of year, but this may dwindle rapidly as we move into the runoff season. There is 4% more storage than there was last year at this time. With the runoff season just beginning, most of the stream forecast points are forecasted to flow at below 50% of average volume this year. The forecasts range from only 24% of average flow at the Inflow to Paonia Reservoir, to 67% of average on the Slate River near Crested Butte.

GUNNISON RIVER BASIN
Streamflow Forecasts - April 1, 2002

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<----- Drier ----->>		----->>		----->>		
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Taylor River blw Taylor Park Resv	APR-JUL	25	40	50	49	60	75	103
Slate River nr Crested Butte	APR-JUL	45	54	60	67	66	75	89
East River at Almont	APR-JUL	69	89	105	55	121	146	192
Gunnison River nr Gunnison	APR-JUL	86	139	173	44	207	261	390
Tomichi Creek at Sargents	APR-JUL	6.2	9.7	12.0	38	16.8	24	32
Cochetopa Creek blw Rock Creek	APR-JUL	3.1	5.5	7.2	42	10.3	15.0	17.3
Tomichi Creek at Gunnison	APR-JUL	10.6	19.0	26	32	34	48	81
Lake Fork at Gateview	APR-JUL	32	48	63	50	78	95	126
Blue Mesa Reservoir Inflow	APR-JUL	173	231	310	43	390	518	720
Paonia Reservoir Inflow	MAR-JUN	12.0	19.0	25	24	31	42	105
	APR-JUL	10.0	18.0	26	25	35	51	106
N.F. Gunnison River nr Somerset	APR-JUL	61	110	130	43	151	201	305
Surface Creek nr Cedaredge	APR-JUL	3.9	6.8	7.8	46	8.9	10.9	17.1
Ridgway Reservoir Inflow	APR-JUL	40	47	53	52	60	80	102
Uncompahgre River at Colona	APR-JUL	31	49	60	43	72	110	139
Gunnison River nr Grand Junction	APR-JUL	296	543	600	39	767	998	1560

GUNNISON RIVER BASIN
Reservoir Storage (1000 AF) - End of March

GUNNISON RIVER BASIN
Watershed Snowpack Analysis - April 1, 2002

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BLUE MESA	830.0	513.2	476.3	404.5	UPPER GUNNISON BASIN	11	72	60
CRAWFORD	14.3	4.1	5.2	10.8	SURFACE CREEK BASIN	2	79	53
FRUITGROWERS	4.3	2.4	3.5	4.0	UNCOMPAGHRE BASIN	4	61	49
FRUITLAND	9.2	1.6	2.5	2.5	TOTAL GUNNISON RIVER BASIN	15	69	57
MORROW POINT	121.0	108.7	105.2	113.6				
PAONIA	18.0	3.7	5.3	4.6				
RIDGWAY	83.2	68.5	73.1	60.9				
TAYLOR PARK	106.0	62.5	62.4	61.9				

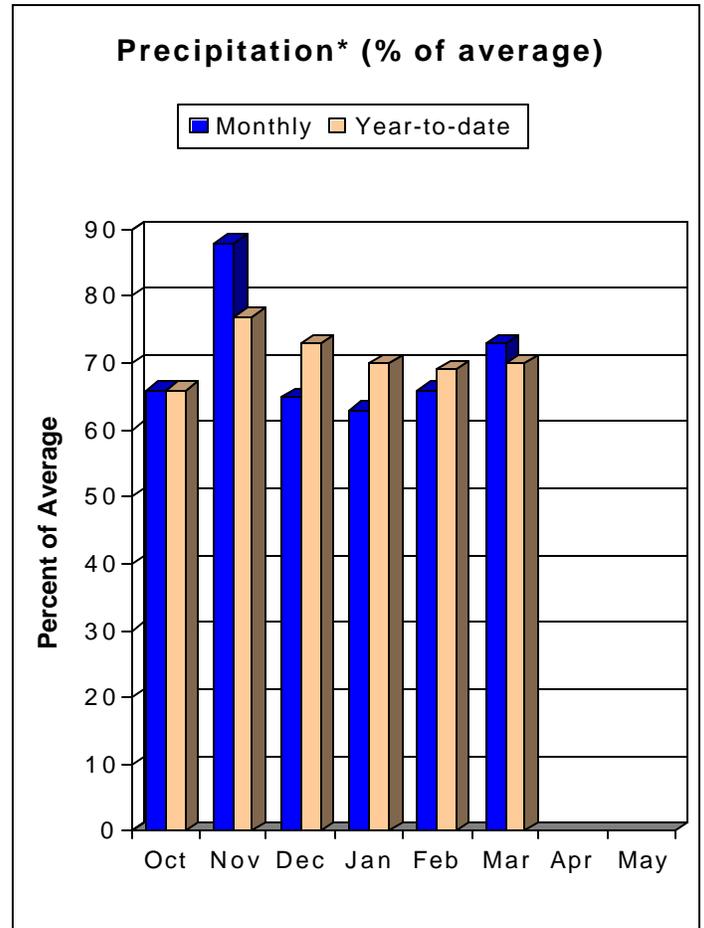
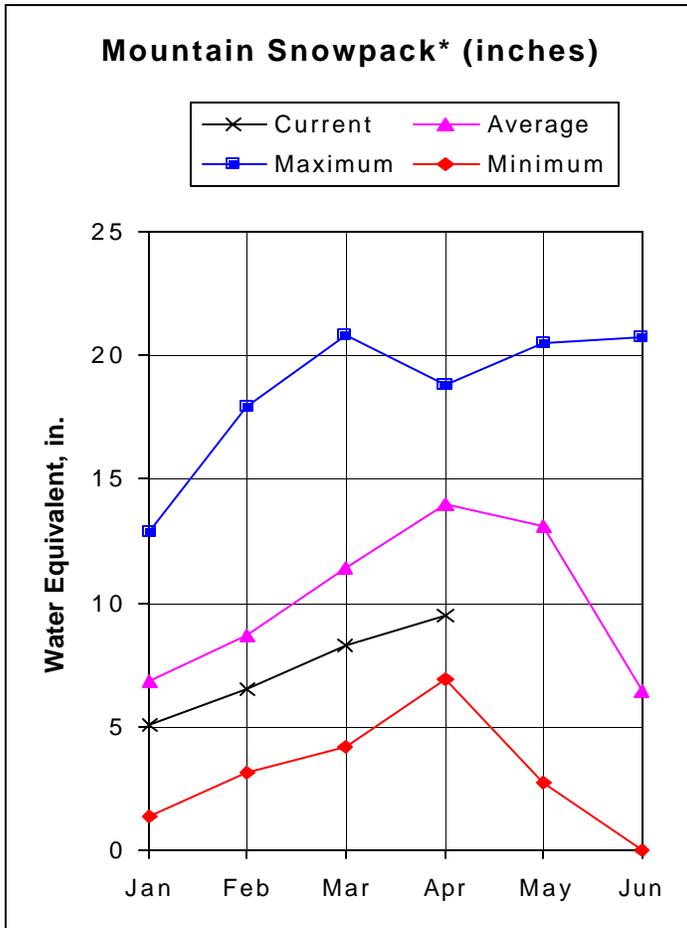
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural volume - actual volume may be affected by upstream water management.

UPPER COLORADO RIVER BASIN as of April 1, 2002



*Based on selected stations

The snowmelt has only just begun in the Colorado Basin, but if cooler temperatures and more snowfall does not arrive during April, the meager snowpack accumulation will rapidly disappear. The April 1 snowpack measurements are at only 63% of average for the entire basin, which is only 76% of the amount of snow there was last year at this time. Measurements range from only 53% of average in the Plateau Creek Watershed, to 69% of average in the Blue River Watershed. While the precipitation during March was only 73% of average, this was the second largest monthly accumulation during this water year. The water year total is only 70% of average. The combined reservoir storage is 84% of average on April 1, which is likely to diminish further as the runoff season progresses. There is only 84% of the amount of storage there was last year at this time. As the runoff season begins, all of the streamflow forecasts in the basin are much below average. Forecasts range from only 47% of average on the Muddy Creek below Wolford Mtn. Reservoir, to 66% of average at the Inflow to Green Mountain Reservoir.

UPPER COLORADO RIVER BASIN
Streamflow Forecasts - April 1, 2002

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Lake Granby Inflow	APR-JUL	111	130	145	64	162	190	225
Willow Creek Reservoir Inflow	APR-JUL	16.3	23	28	55	34	43	51
Williams Fork Reservoir inflow	APR-JUL	43	52	59	62	66	78	95
Dillon Reservoir Inflow	APR-JUL	56	85	105	63	125	154	167
Green Mountain Reservoir inflow	APR-JUL	150	170	185	66	200	224	280
Muddy Creek blw Wolford Mtn. Resv.	APR-JUL	18.3	24	28	47	33	43	60
Eagle River blw Gypsum	APR-JUL	145	176	200	60	228	275	335
Colorado River nr Dotsero	APR-JUL	353	634	825	57	1016	1297	1440
Ruedi Reservoir Inflow	APR-JUL	59	71	80	57	91	109	141
Roaring Fork at Glenwood Springs	APR-JUL	281	349	400	56	454	540	710
Colorado River nr Cameo	APR-JUL	606	1043	1340	55	1637	2074	2420

UPPER COLORADO RIVER BASIN
Reservoir Storage (1000 AF) - End of March

UPPER COLORADO RIVER BASIN
Watershed Snowpack Analysis - April 1, 2002

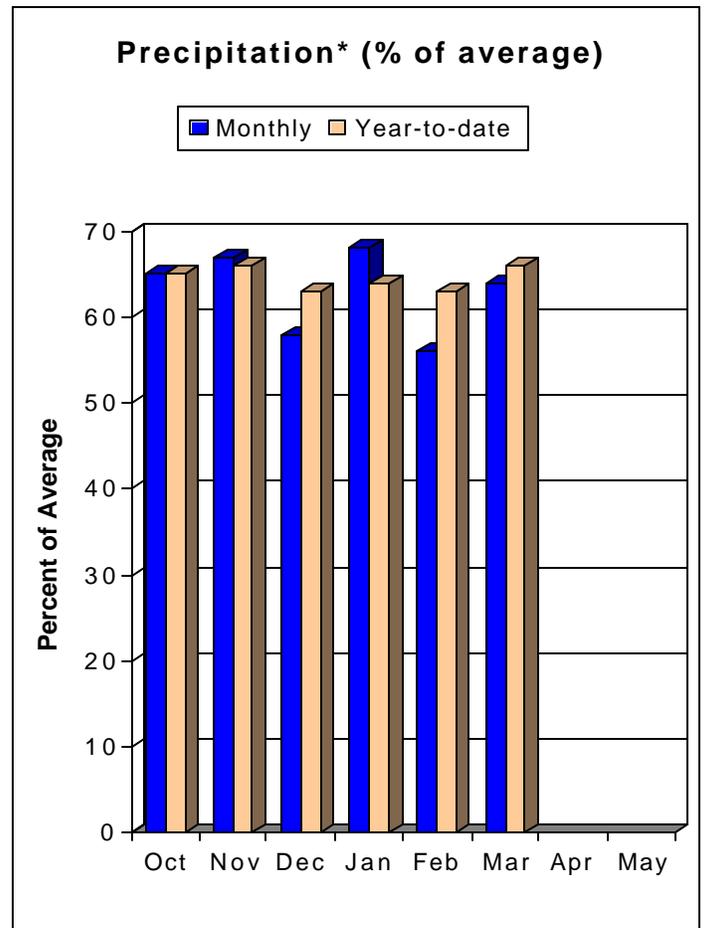
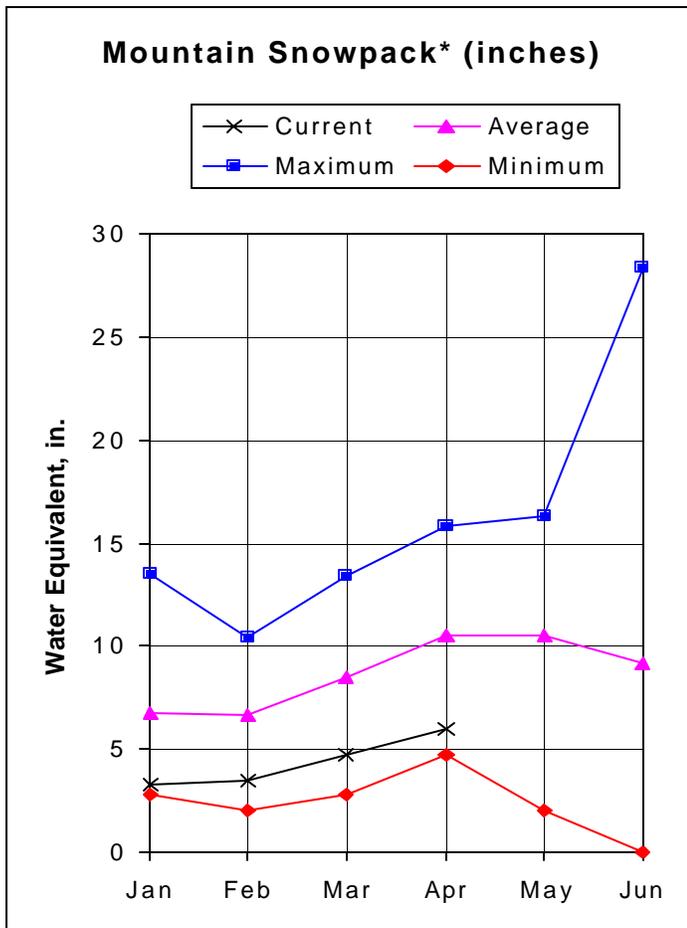
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DILLON	250.8	194.9	206.5	214.5	BLUE RIVER BASIN	8	74	69
LAKE GRANBY	465.6	167.6	267.0	263.7	UPPER COLORADO RIVER BASIN	31	74	64
GREEN MOUNTAIN	139.0	64.8	43.1	59.8	MUDDY CREEK BASIN	4	86	67
HOMESTAKE	43.0	25.0	35.6	22.5	PLATEAU CREEK BASIN	2	79	53
RUEDI	102.0	62.5	67.3	61.9	ROARING FORK BASIN	7	81	64
VEGA	32.0	10.2	10.1	13.1	WILLIAMS FORK BASIN	4	67	62
WILLIAMS FORK	96.8	53.4	56.5	54.8	WILLOW CREEK BASIN	4	80	64
WILLOW CREEK	9.0	7.1	7.7	6.8	TOTAL COLORADO RIVER BASIN	40	76	63

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

SOUTH PLATTE RIVER BASIN as of April 1, 2002



*Based on selected stations

With the snowmelt beginning, the snow accumulation in the South Platte Basin will likely peak at only 54% of average on April 1, which is only 67% of the amount of snow there was last year at this time. Measurements range from only 43% of average in the Upper South Platte Watershed, to 64% of average in the Cache La Poudre Watershed. If the warm temperatures, and lack of snowfall continue this spring, the snowpack could disappear as much as 60 days earlier than the normal melt out date in some locations. The precipitation during March was only 64% of average, and the water year total is now only 66% of average. The combined reservoir storage is about 85% of average on April 1, and is likely to diminish further during the runoff season. There is about the same amount of storage there was last year at this time. Many of the streamflow forecasts have been decreased even further from last month's dismal predictions. They range from only 25% of average at the Inflow to Antero Reservoir, to 61% of average on South Boulder Creek near Eldorado Springs.

SOUTH PLATTE RIVER BASIN
Streamflow Forecasts - April 1, 2002

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>					30-Yr Avg. (1000AF)	
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)		10% (1000AF)
Antero Reservoir inflow	APR-JUL	1.7	2.5	3.3	25	4.3	6.3	13.0
Spinney Mountain Reservoir inflow	APR-JUL	9.8	12.9	15.6	39	18.8	25	40
Elevenmile Canyon Reservoir inflow	APR-JUL	3.7	10.8	15.6	38	20	28	41
Cheesman Lake inflow	APR-JUL	19.7	24	28	32	32	40	89
South Platte River at South Platte	APR-SEP	65	82	93	40	121	162	230
Bear Creek at Morrison	APR-SEP	8.6	11.0	12.6	41	16.6	22	31
Clear Creek at Golden	APR-SEP	47	59	68	51	85	110	134
St. Vrain Creek at Lyons	APR-SEP	25	37	45	54	53	65	84
Boulder Creek nr Orodell	APR-SEP	17.0	24	29	55	34	41	53
South Boulder Creek nr Eldorado Spri	APR-SEP	8.3	20	28	61	36	48	46
Big Thompson River at mouth nr Drake	APR-SEP	41	57	68	58	79	95	117
Cache La Poudre at Canyon Mouth	APR-SEP	81	119	145	53	194	266	275

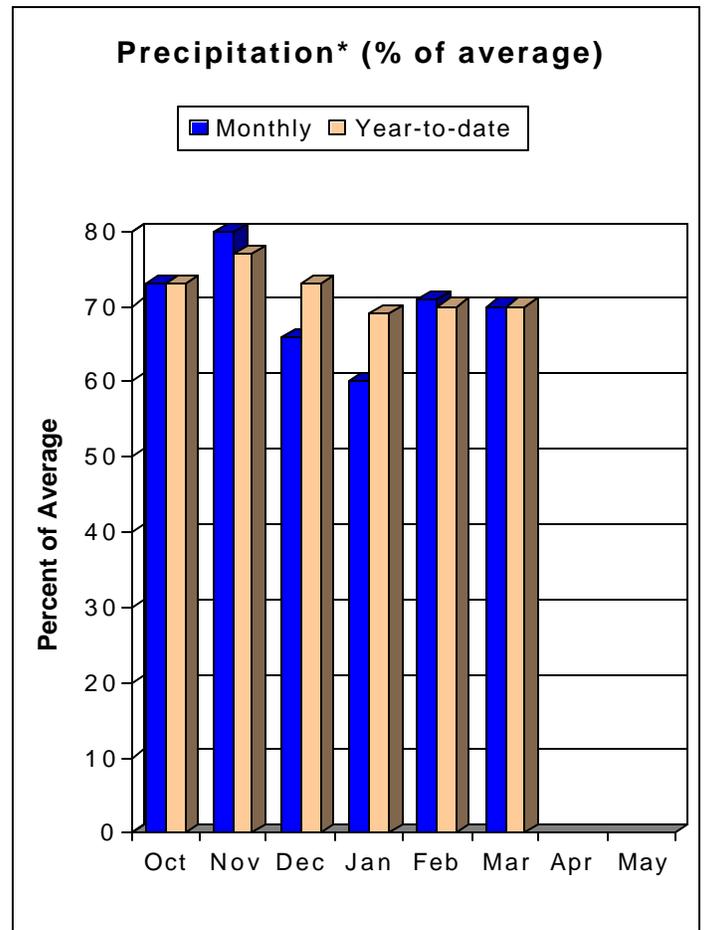
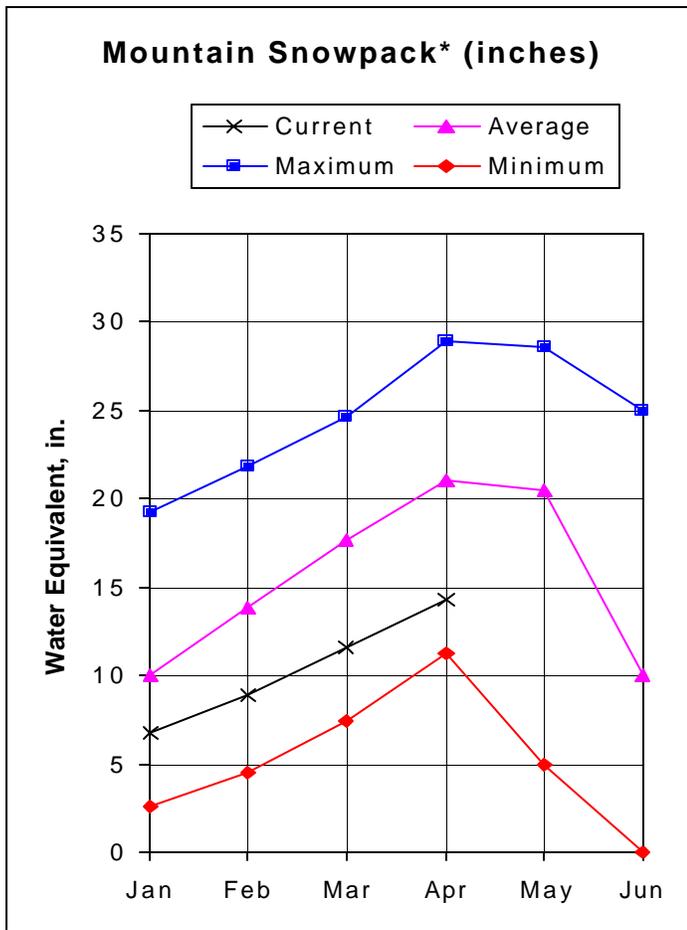
SOUTH PLATTE RIVER BASIN
Reservoir Storage (1000 AF) - End of March

SOUTH PLATTE RIVER BASIN
Watershed Snowpack Analysis - April 1, 2002

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ANTERO	20.0	20.0	20.0	15.9	BIG THOMPSON BASIN	6	81	61
BARR LAKE	32.0	27.4	20.0	27.9	BOULDER CREEK BASIN	5	63	50
BLACK HOLLOW	8.0	2.7	2.5	4.0	CACHE LA POUFRE BASIN	7	87	64
BOYD LAKE	49.0	20.5	22.6	33.0	CLEAR CREEK BASIN	4	59	53
CACHE LA POUFRE	10.0	4.2	7.7	8.6	SAINT VRAIN BASIN	3	75	43
CARTER	108.9	107.5	105.0	100.9	UPPER SOUTH PLATTE BASIN	16	50	46
CHAMBERS LAKE	9.0	4.0	3.0	3.3	TOTAL SOUTH PLATTE BASIN	39	66	53
CHEESMAN	79.0	59.0	52.5	60.8				
COBB LAKE	34.0	6.8	8.9	13.9				
ELEVEN MILE	97.8	99.6	99.7	96.4				
EMPIRE	38.0	33.7	33.7	31.8				
FOSSIL CREEK	12.0	9.9	9.0	7.9				
GROSS	41.8	19.2	18.9	23.9				
HALLIGAN	6.4	3.5	4.0	4.7				
HORSECREEK	16.0	14.5	14.7	13.9				
HORSETOOTH	149.7	26.5	39.0	119.1				
JACKSON	35.0	26.1	26.1	29.9				
JULESBURG	28.0	18.2	18.2	20.8				
LAKE LOVELAND	14.0	10.3	9.3	9.0				
LONE TREE	9.0	8.7	8.8	7.2				
MARIANO	6.0	3.2	5.3	4.5				
MARSHALL	10.0	5.0	6.2	6.0				
MARSTON	13.0	7.6	12.1	13.3				
MILTON	24.0	21.2	20.8	18.3				
POINT OF ROCKS	70.0	68.2	70.9	68.8				
PREWITT	33.0	21.2	24.6	25.0				
RIVERSIDE	63.1	55.6	55.6	58.2				
SPINNEY MOUNTAIN	48.7	23.3	19.9	32.1				
STANDLEY	42.0	31.1	31.1	34.6				
TERRY LAKE	8.0	5.1	5.3	5.4				
UNION	13.0	9.6	11.3	11.1				
WINDSOR	19.0	6.5	9.6	12.4				

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table. The average is computed for the 1971-2000 base period.
 (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

YAMPA, WHITE, NORTH PLATTE AND LARAMIE RIVER BASINS as of April 1, 2002



*Based on selected stations

For the third month in a row, these basins have received more snow accumulation than any of the other basins in Colorado, which has improved their snow measurements, but they still remain significantly below average on April 1. The North Platte Basin is only at 66% of average, while the Yampa and White basins combined are only at 68% of average. There is about 82% of the amount of snow in these basins as there was last year at this time. Snow accumulation ranges from 56% of average in the Laramie Watershed, to 73% of average in the Elk River Watershed. Precipitation in these basins during March was 70% of average. The water year total remains at 70% of average. The combined storage in the two major reservoirs in these basins is at 101% of average volume for this time of year, which is about 3% less storage volume than there was last year at this time. Most of the streamflow forecasts in these basins have been reduced from last month, ranging from only 43% of average on the Laramie River near Woods, to 62% of average on the Yampa River above Stagecoach Reservoir.

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS
Streamflow Forecasts - April 1, 2002

Forecast Point	Forecast Period	Future Conditions <<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
North Platte River nr Northgate	APR-SEP	23	81	121	45	161	219	270
Laramie River nr Woods	APR-SEP	31	47	58	43	84	121	135
Yampa R abv Stagecoach Res	APR-JUL	11.3	15.3	18.1	62	22	28	29
Yampa River at Steamboat Springs	APR-JUL	98	138	165	59	192	232	280
Elk River nr Milner	APR-JUL	89	129	160	49	195	252	325
Elkhead Creek nr Elkhead	APR-JUL	10.5	15.4	20	51	26	38	39
ELKHEAD CREEK blw Maynard Gulch	APR-JUL	13.7	26	34	58	42	54	59
Fortification Ck nr Fortification	MAR-JUN	1.82	2.42	4.10	55	5.78	8.25	7.50
Yampa River nr Maybell	APR-JUL	162	343	465	47	587	768	990
Little Snake River nr Slater	APR-JUL	47	64	78	49	93	117	159
LITTLE SNAKE R nr Dixon	APR-JUL	40	106	150	46	194	260	330
LITTLE SNAKE R nr Lily	APR-JUL	51	119	165	45	211	279	365
White River nr Meeker	APR-JUL	113	139	160	55	184	227	290

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS
Reservoir Storage (1000 AF) - End of March

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS
Watershed Snowpack Analysis - April 1, 2002

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
STAGECOACH	33.3	26.8	26.0	24.6	LARAMIE RIVER BASIN	4	78	56
YAMCOLO	9.1	5.1	7.0	6.9	NORTH PLATTE RIVER BASIN	5	80	66
					TOTAL NORTH PLATTE BASIN	8	80	63
					ELK RIVER BASIN	2	91	73
					YAMPA RIVER BASIN	11	85	69
					WHITE RIVER BASIN	4	78	64
					TOTAL YAMPA AND WHITE RIV	14	84	68
					LITTLE SNAKE RIVER BASIN	8	94	73

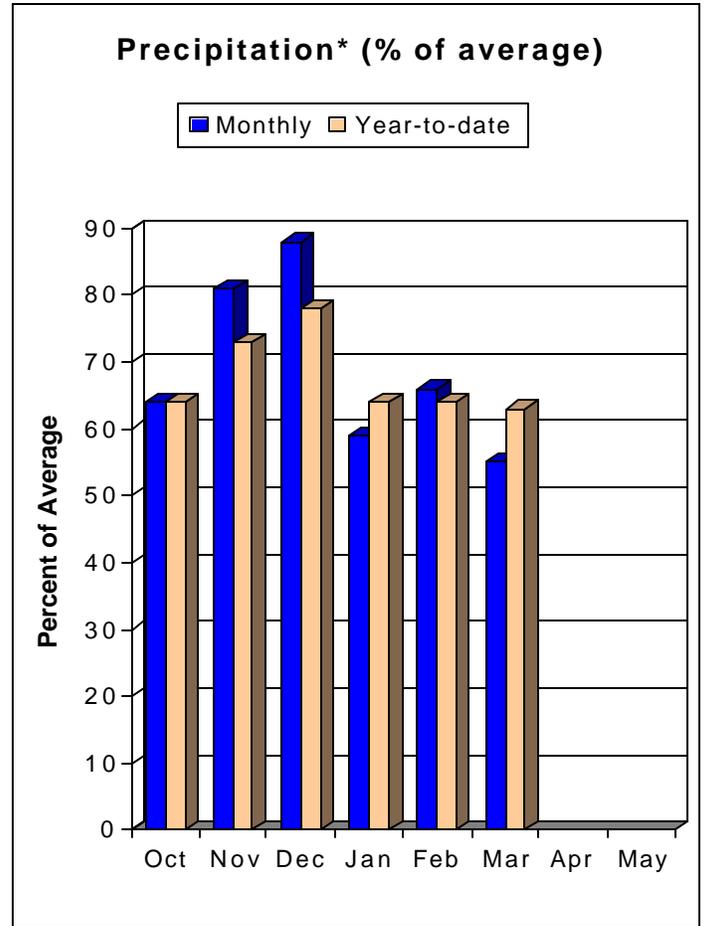
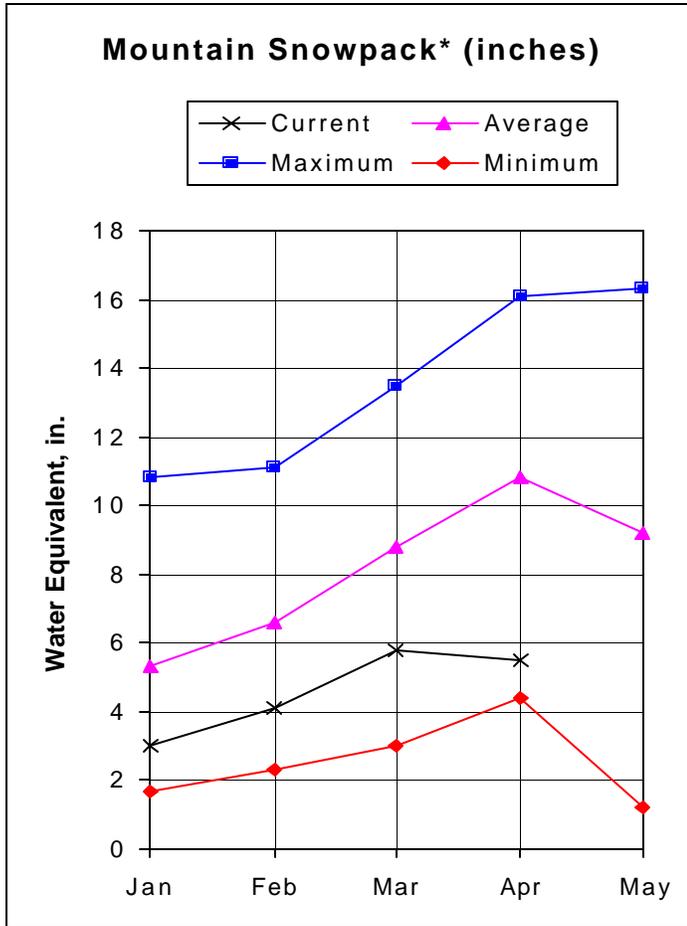
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

ARKANSAS RIVER BASIN

as of April 1, 2002



*Based on selected stations

The snowmelt and runoff season is well under way in the Arkansas Basin. Although the Arkansas Basin has received some additional snow accumulation during March, the early melting has reduced the April 1 measurements below those on March 1, leaving only 48% of average accumulation. There is only 58% of the amount of snow in the basin there was last year on April 1. The measurements range from only 28% of average in the Purgatoire Watershed, to 60% of average in the Upper Arkansas Watershed above Salida. The precipitation during March was only 55% of average, and the water year total is now only 63% of average. The combined reservoir storage is at 77% of average, which is slightly less than last month, and can be expected to fall much more as the runoff season progresses. There is 35% less water stored than there was last year at this time. All of the streamflow forecasts remain well below average at this time. They range from only 35% of average on Grape Creek near Westcliffe, to 65% of average on the Arkansas River at Salida.

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ARKANSAS RIVER BASIN
Streamflow Forecasts - April 1, 2002

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Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Chalk Creek nr Nathrop	APR-SEP	6.3	9.7	12.0	44	17.2	25	27
Arkansas River at Salida	APR-SEP	109	165	201	65	239	295	310
Grape Creek nr Westcliffe	APR-SEP	1.1	4.5	6.8	35	13.6	24	19.6
Pueblo Reservoir Inflow	APR-SEP	119	197	249	58	301	379	430
Huerfano River nr Redwing	APR-SEP	3.4	5.2	6.4	41	9.4	13.8	15.5
Cucharas River nr La Veta	APR-SEP	2.4	4.0	5.1	39	7.9	12.1	13.0
Trinidad Lake Inflow	APR-SEP	10.4	14.2	16.7	38	29	47	44

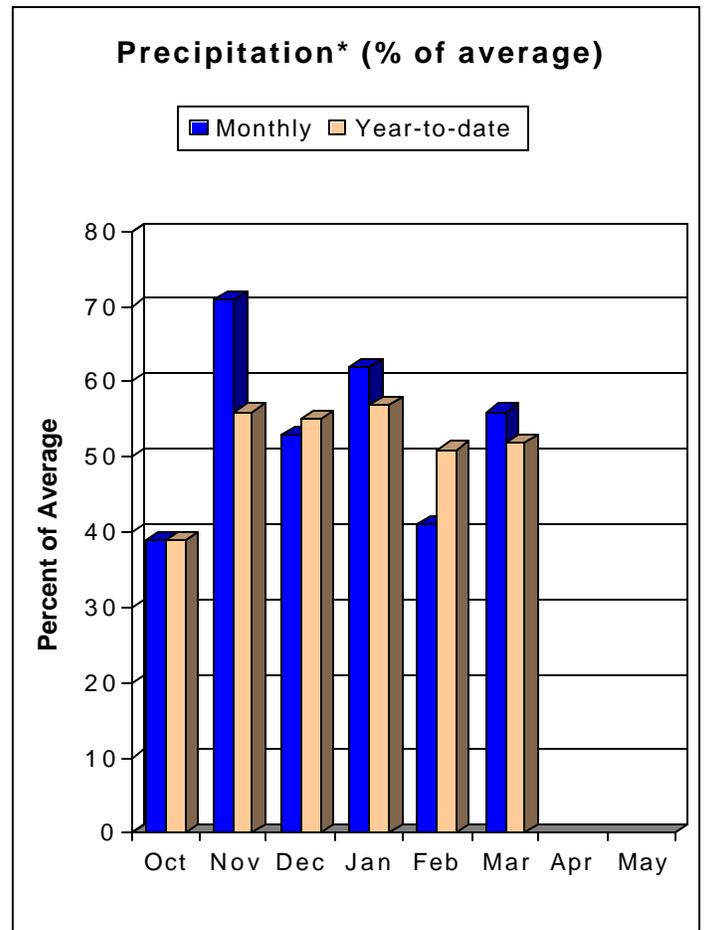
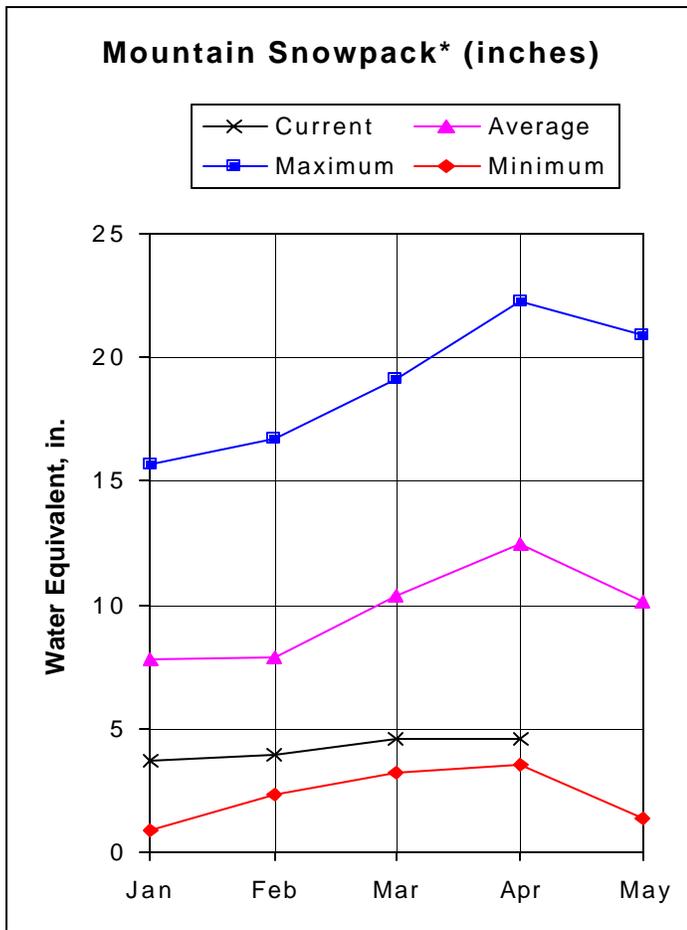
ARKANSAS RIVER BASIN Reservoir Storage (1000 AF) - End of March					ARKANSAS RIVER BASIN Watershed Snowpack Analysis - April 1, 2002			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ADOBE	70.0	31.2	59.5	37.0	UPPER ARKANSAS BASIN	3	66	60
CLEAR CREEK	11.0	6.5	5.9	6.7	CUCHARAS & HUERFANO RIVER	4	54	38
GREAT PLAINS	150.0	22.8	66.8	41.9	PURGATOIRE RIVER BASIN	2	32	28
HOLBROOK	7.0	6.1	5.5	4.9	TOTAL ARKANSAS RIVER BASIN	8	57	48
HORSE CREEK	28.0	0.0	0.0	12.6				
JOHN MARTIN	335.7	91.3	171.9	137.3				
LAKE HENRY	8.0	6.3	7.7	6.7				
MEREDITH	42.0	24.7	27.7	19.0				
PUEBLO	236.7	143.6	222.0	173.3				
TRINIDAD	72.3	18.2	34.0	27.5				
TURQUOISE	126.6	53.9	50.3	74.0				
TWIN LAKES	86.0	45.2	41.6	42.5				

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

UPPER RIO GRANDE BASIN as of April 1, 2002



*Based on selected stations

Although there was some additional snowfall during March, early snowmelt has reduced the amount of snow in the Rio Grande Basin to just slightly less than the amount on March 1. The measurements are only 38% of average on April 1, which is only 35% of the amount there was last year at this time. The snowpack measurements range from only 25% of average in the Alamosa Creek Watershed, to 45% of average in the Culebra and Trinchera Creek watersheds. If the warm temperatures and lack of snowfall continue this spring many of the snow measuring sites may melt out as much as 60 days ahead of the normal melt out date. The precipitation during March was only 56% of the average monthly amount. The water year total is now only 52% of average. Reservoirs in the basin have a storage level of only 76% of average on April 1. There is about 12% less storage than there was last year at this time. Streamflow forecasts for the runoff season are below 50% of average at all of the forecast points. They range from only 16% of average at San Antonio River at Ortiz, to 43% of average at the Inflow to Rio Grande Reservoir.

=====

UPPER RIO GRANDE BASIN
Streamflow Forecasts - April 1, 2002

=====

Forecast Point	Forecast Period	Future Conditions <<==== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Rio Grande at Thirty Mile Bridge	APR-SEP	39	47	54	40	62	75	136
Rio Grande Reservoir Inflow	APR-JUL	39	46	51	43	57	67	118
Rio Grande at Wagon Wheel Gap	APR-SEP	98	122	138	40	182	248	345
South Fork Rio Grande at South Fork	APR-SEP	35	41	45	34	60	81	132
Rio Grande nr Del Norte	APR-SEP	129	157	177	33	242	339	531
Saguache Creek nr Saguache	APR-SEP	8.3	11.7	14.0	42	19.9	29	33
Alamosa Creek abv Terrace Reservoir	APR-SEP	21	24	27	39	34	45	70
La Jara Creek nr Capulin	MAR-JUL	1.24	1.93	2.40	28	4.20	6.85	8.70
Trinchera Water Supply	APR-SEP	7.5	12.3	15.6	39	24	35	40
Platoro Reservoir Inflow	APR-JUL	12.0	19.7	25	39	30	38	64
	APR-SEP	23	27	29	41	35	43	71
Conejos River nr Mogote	APR-SEP	57	68	75	38	95	125	200
San Antonio River at Ortiz	APR-SEP	0.7	1.7	2.6	16	3.7	5.7	16.4
Los Pinos River nr Ortiz	APR-SEP	13.0	16.3	18.5	25	26	37	74
Culebra Creek at San Luis	APR-SEP	4.0	7.6	10.0	44	15.5	24	23
Costilla Reservoir inflow	MAR-JUL	0.0	2.4	4.1	39	5.8	8.2	10.6
Costilla Creek nr Costilla	MAR-JUL	5.2	7.2	8.5	33	12.5	18.4	26

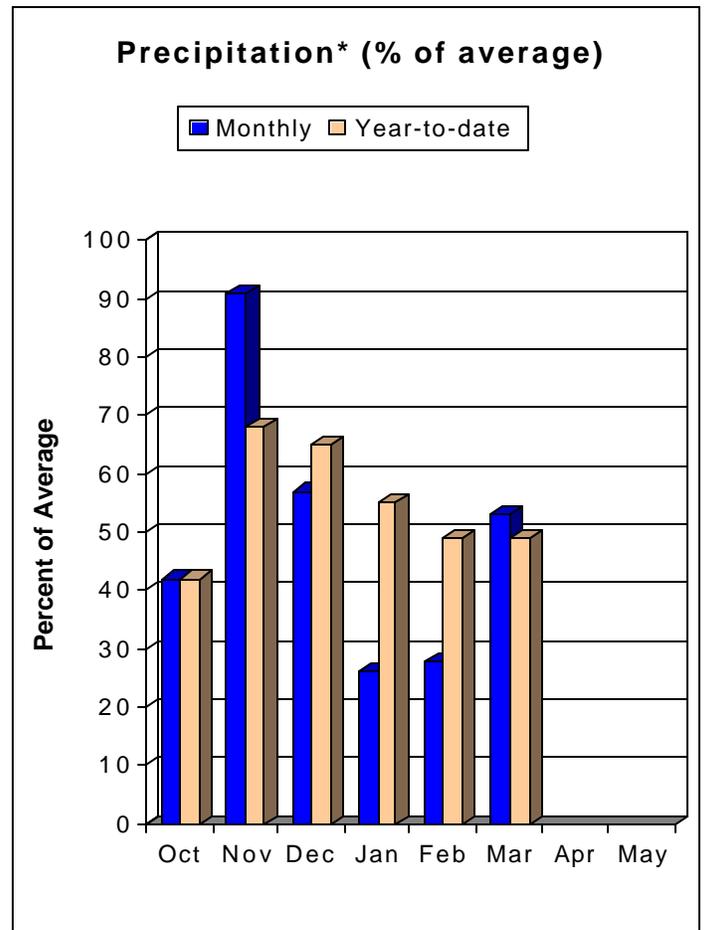
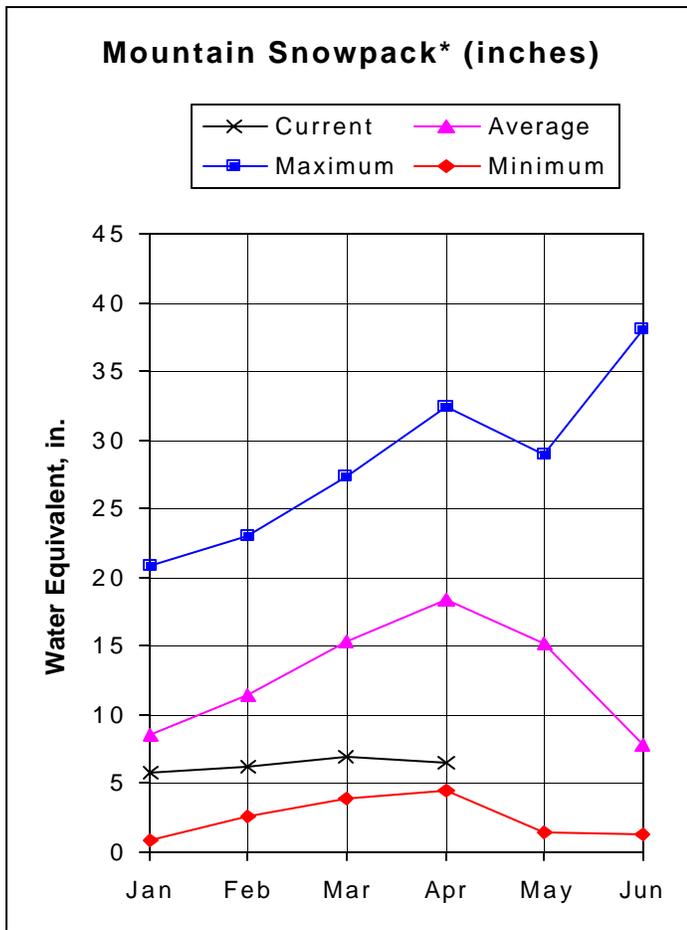
UPPER RIO GRANDE BASIN Reservoir Storage (1000 AF) - End of March					UPPER RIO GRANDE BASIN Watershed Snowpack Analysis - April 1, 2002			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CONTINENTAL	15.0	4.0	6.2	5.9	ALAMOSA CREEK BASIN	2	27	25
PLATORO	53.7	16.8	14.2	24.5	CONEJOS & RIO SAN ANTONIO	5	43	38
RIO GRANDE	51.0	13.8	15.9	19.3	CULEBRA & TRINCHERA CREEK	4	40	45
SANCHEZ	103.0	24.3	27.4	24.9	UPPER RIO GRANDE BASIN	11	32	38
SANTA MARIA	45.0	7.7	10.2	10.8	TOTAL UPPER RIO GRANDE BA	23	35	37
TERRACE	13.1	4.0	6.3	7.6				

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS as of April 1, 2002



*Based on selected stations

While these basins did receive some additional snow accumulation during March, the early snow melt that began late in the month has reduced the amount of snow to slightly less than last month. The April 1 measurements are only 34% of average for all the basins combined, and there is only 38% of the amount of snow there was last year at this time. The snowpack measurements range from only 27% of average in the San Juan Basin, to 46% of average in the San Miguel Basin. If the warm temperatures and lack of snowfall continue through the spring, many of the snow measuring sites may melt out up to 60 days ahead of the normal melt out date. Precipitation during March was only 53% of the average for the month. The water year total is only 49% of average. Reservoirs in the basins have a combined storage level of 77% of average, which is about 4% less than last year at this time. As the runoff season begins, the forecasted volumes are all below 50% of average. They range from only 22% of average on the Mancos River near Mancos, to 48% of average on the San Miguel River near Placerville.

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS
Streamflow Forecasts - April 1, 2002

Forecast Point	Forecast Period	Future Conditions					30-Yr Avg. (1000AF)	
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)	30% (1000AF)	10% (1000AF)		
Dolores River at Dolores	APR-JUL	40	80	100	38	140	186	265
McPhee Reservoir inflow	APR-JUL	51	89	110	34	154	202	320
San Miguel River nr Placerville	APR-JUL	36	51	63	48	83	100	132
Gurley Reservoir Inlet	APR-JUL	2.3	4.8	6.6	40	8.4	10.9	16.5
	APRIL			1.10	66			1.66
	MAY			4.50	51			8.83
	JUNE			0.90	19			4.67
	JULY			0.10	8			1.32
Cone Reservoir Inlet	APR-JUL	0.67	1.18	1.53	43	1.88	2.39	3.53
	APRIL			0.20	44			0.46
	MAY			1.10	67			1.64
	JUNE			0.18	17			1.04
	JULY			0.05	13			0.38
Lilylands Reservoir Inlet	APR-JUL	0.24	0.84	1.24	43	1.64	2.24	2.86
	APRIL			0.16	40			0.40
	MAY			0.89	67			1.32
	JUNE			0.15	17			0.87
	JULY			0.04	15			0.27
Rio Blanco at Blanco Diversion	APR-JUL	10.1	14.5	17.5	33	24	34	53
Navajo River at Oso Diversion	APR-JUL	13.1	19.0	23	33	32	45	69
San Juan River nr Carracus	APR-JUL	49	86	118	29	155	217	405
Piedra River nr Arboles	APR-JUL	50	59	65	28	90	126	230
Vallecito Reservoir Inflow	APR-JUL	32	46	55	27	79	115	205
Navajo Reservoir Inflow	APR-JUL	100	166	210	26	321	485	800
Animas River at Durango	APR-JUL	105	135	156	36	201	267	440
Lemon Reservoir Inflow	APR-JUL	8.4	13.5	17.0	29	25	37	58
La Plata River at Hesperus	APR-JUL	4.4	5.4	6.0	24	8.7	12.7	25
Mancos River nr Mancos	APR-JUL	4.8	7.1	8.7	22	15.8	26	40
	APRIL			2.00	35			5.80
	MAY			5.2	33			15.9
	JUNE			1.3	10			13.7
	JULY			0.20	4			4.60

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS
Reservoir Storage (1000 AF) - End of March

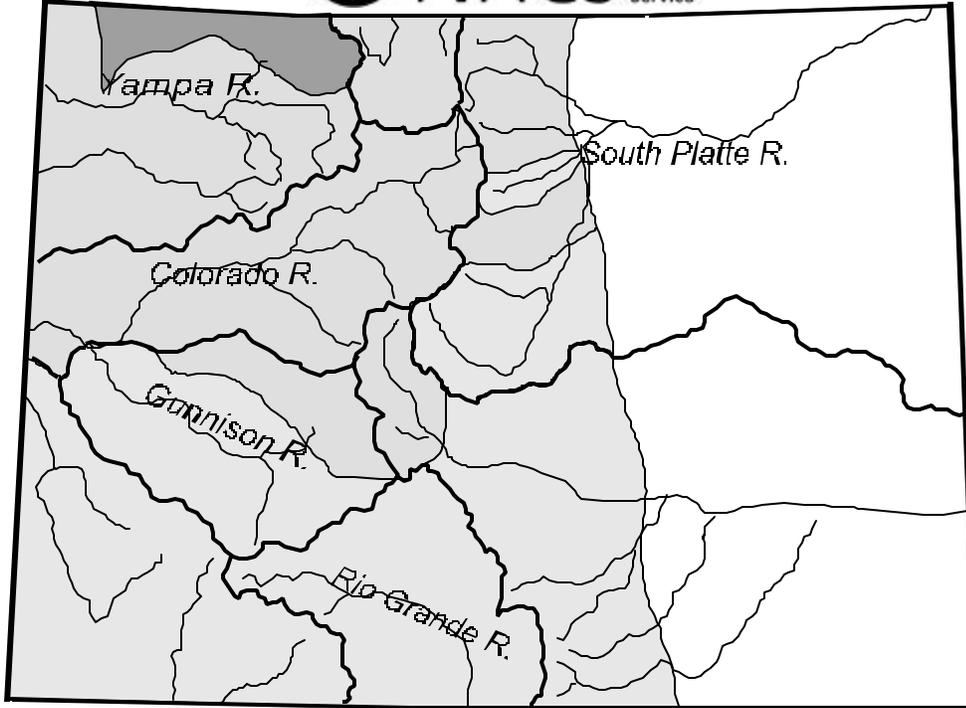
SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS
Watershed Snowpack Analysis - April 1, 2002

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
GROUNDHOG	21.7	11.1	11.3	12.2	ANIMAS RIVER BASIN	9	38	35
JACKSON GULCH	10.0	2.3	2.9	5.1	DOLORES RIVER BASIN	7	38	32
LEMON	40.0	4.6	10.6	21.2	SAN MIGUEL RIVER BASIN	5	57	46
MCPHEE	381.2	206.7	225.7	273.6	SAN JUAN RIVER BASIN	3	27	27
NARRAGUINNEP	19.0	17.6	17.0	15.5	TOTAL SAN MIGUEL, DOLORES	23	38	34
VALLECITO	126.0	57.2	45.5	62.0	AN JUAN RIVER BASINS			

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

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- (2) - The value is natural volume - actual volume may be affected by upstream water management.



**Snowpack
April 1, 2002**

**Statewide: 52% of Average
60% of Last Year**

-  **Much Above Average > 130%**
-  **Above Average 110% to 130%**
-  **Near Average 90% to 110%**
-  **Below Average 70% to 90%**
-  **Much Below Average 50% to 70%**
-  **Extremely Below Average < 50%**
-  **Not Measured**



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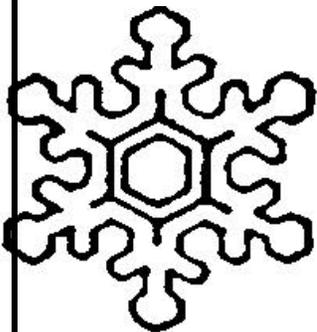
In addition to the basin outlook reports, water supply forecast information for the Western United States is available from the Natural Resources Conservation Service and the National Weather Service monthly, January through May. The information may be obtained from the National Resources Conservation Service web page at <http://www.wcc.nrcs.usda.gov/water/quantity/westwide.html>.

Issued by

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Colorado
Basin Outlook Report
Natural Resources Conservation Service
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