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Department of  
Agriculture

**Natural  
Resources  
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# Colorado Basin Outlook Report March 1, 2006



# 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

### MARCH 1, 2006

#### Summary

February was a dry month across Colorado. Across northern Colorado, which had accumulated an above average snowpack, the latest snowpack percentages show a significant decrease this month. Across southern Colorado, which has experienced an extremely dry winter, the current snowpack continues to raise concerns for water supplies. Now, with only 20% of the winter snowpack accumulation season remaining, hopes for any significant recovery to water supplies across southern Colorado have faded. While there remains some carryover reservoir storage from last year in portions of southern Colorado, the anticipated shortages dwarf any significant relief for most water users in these basins.

#### Snowpack

Snowpack percentages took sharp declines in all basins after a dry February. After an extremely productive early winter across northern Colorado, snowpack percentages have declined now for two consecutive months. Statewide snowpack readings this month decreased to 88% of average; down from last month's 99% of average. This year's March 1 snowpack is now only 80% of last year's on this date. While above average snowpack percentages remain in the Colorado, Yampa and White, North Platte and South Platte basins, they now range from 103% to 115% of average. Back on January 1, the snowpack percentages in those basins ranged from 132% to 134% of average. Similar declines have been measured in the Arkansas and Gunnison basins which were reporting near average totals in January, but are now only 88% and 84% of average, respectively. Across southern Colorado, conditions only continued to worsen after another dry month in February. Basinwide snowpack percentages are near record low in the Rio Grande and combined San Juan, Animas, Dolores, and San Miguel basins. The 40% of average snowpack measured in the Rio Grande basin is the lowest basinwide percent of average measured since 1977, when only 33% of average was measured. In the San Juan, Animas, Dolores, and San Miguel basins, this year's March 1 snowpack of 46% of average closely follows that of 2002 when 45% of average snowpack was measured on March 1. Across southern Colorado, the driest conditions occur along the eastern slope of the Sangre de Cristo Mountains. As an example, in the Purgatoire basin, one of the two sites measured this month had no snow. Not only is this the first time no snow was measured at this site on March 1, but the basin's average snowpack is now only 10% of average.

#### Precipitation

Below average precipitation was measured in all basins during February. Statewide, precipitation measured at SNOTEL sites was only 59% of average for the month. Once again, the lowest percentages for the month were measured across southern Colorado. Monthly totals ranging from 35% to 50% of average were measured in the Gunnison, Arkansas, Rio Grande and San Juan, Animas, Dolores, and San Miguel basins during the month. Well below average monthly totals were also reported across northern Colorado basins. Even the highest monthly percentages, which occurred across northern basins, were well below average. After a dry February, water year (since October 1, 2005) percentages show decreases in all basins this month. Statewide totals have now dipped to below average (99%) for the first time this year. Basinwide percents of average for the water year range from only 62% in the Rio Grande to 123% in the Colorado Basin.

## Reservoir Storage

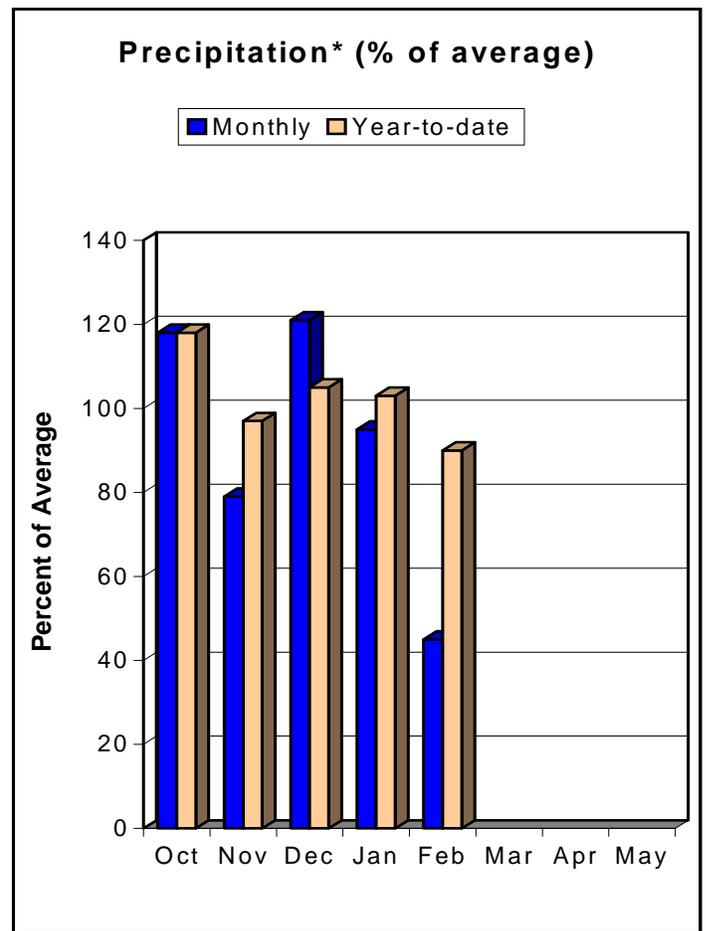
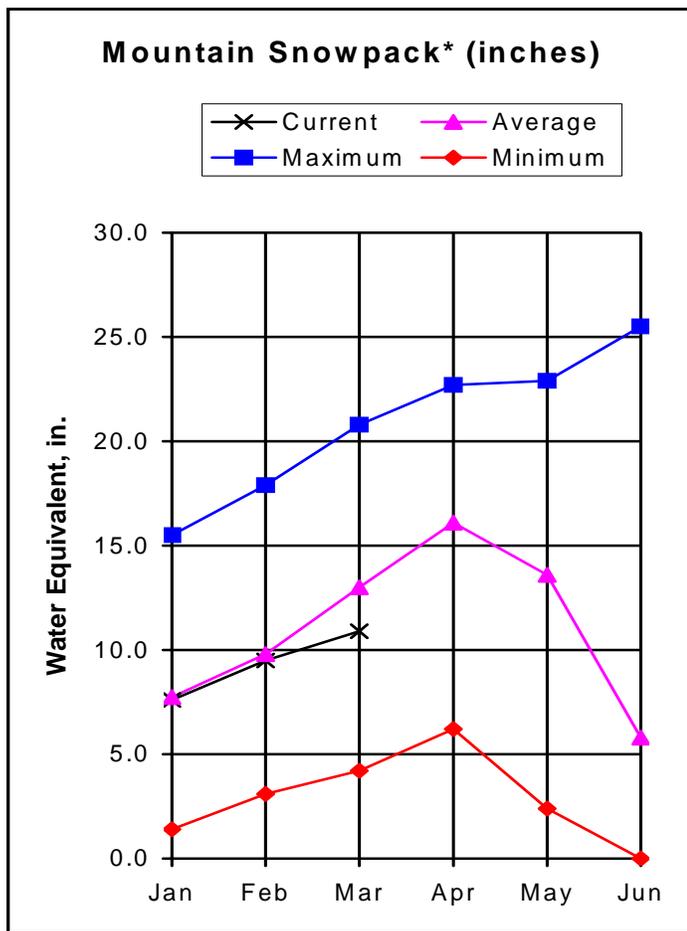
Colorado's statewide reservoir storage continues to track just slightly below average. Currently, storage volumes are 97% of average and are 113% of last year's volumes on this date. Across the state, storage volumes range from 118% of average in the Gunnison Basin to only 65% of average in the Arkansas Basin. Additional basins with above average storage include the Colorado, Yampa, and combined San Juan, Animas, Dolores, and San Miguel. As a rule, storage is currently in much better shape than last year at this time. Only the South Platte and Arkansas basins are reporting less volume than last year, and those volumes are just slightly less than a year ago. The Rio Grande and San Juan, Animas, Dolores, and San Miguel basins are reporting the greatest improvement from last year's storage, with slightly more than 30% greater volumes. While this is mainly a result of carry over storage from last year's good snowpack and runoff conditions, this additional water will be quickly consumed during this year's demand season.

## Streamflow

Dry weather patterns have taken a toll on expected runoff across northern Colorado. While nearly all forecast points continue to call for above average volumes in the Yampa, White, Colorado, and North and South Platte basins, those volumes have decreased significantly during the past two months. Only the Blue and Eagle Rivers are now forecast to exceed 130% of average volumes this year. Meanwhile, southern Colorado has seen no relief from the dry weather patterns, and can continue to expect another year of extremely low runoff volumes. Those southernmost streams, near the New Mexico border, are generally forecast to produce less than 50% of average volumes now. At this time, the only way to salvage the runoff season across southern Colorado would be an exceptionally wet spring. Given this year's weather patterns thus far; the probability of that occurring seems extremely remote. Water users across southern Colorado should continue to prepare for extremely limited supplies even with additional moisture.

# GUNNISON RIVER BASIN

## as of March 1, 2006



\*Based on selected stations

February was not a good month for the Gunnison River Basin in terms of snowpack accumulation. Despite a good start over the first few days of the month, the basin ended up accumulating less than half its normal snowfall. The basin normally accumulates 19 percent of its snowpack during March (based on SNOTEL data) -- this year's accumulation was around 8 percent. As a result, basin snowpacks dropped to 84 percent of average, based on March 1 snow surveys. This year's March 1 measurements are only 63 percent of those taken a year ago. Snowpack conditions within the basin ranged from a low of 69 percent of average in the Uncompahgre Basin to a high of 89 percent of average in the Upper Gunnison. Mountain precipitation was well below normal during February at 45 percent of average. Total precipitation for the water year (beginning October 1, 2005) dropped to 90 percent of average due to the lack of precipitation during the month. On the bright side, reservoir storage improved to 118 percent of average. This is a 15 percent increase in the amount of water stored last year at this time. Reflecting the changes in snowpack, streamflow forecasts have been lowered somewhat from the forecasts issued last month. Runoff is expected to be below average for most of the forecast points in the basin. Forecasts range from 67 percent of average for both Cochetopa Creek below Rock Creek and the North Fork Gunnison River near Somerset to 103 percent of average for the Gunnison River near Gunnison.

GUNNISON RIVER BASIN  
Streamflow Forecasts - March 1, 2006

Forecast Point	Forecast Period	<<==== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Taylor Park blw Taylor Park Res (2)	APR-JUL	82	95	105	102	115	131	103
Slate River nr Crested Butte	APR-JUL	68	80	89	100	99	113	89
East River at Almont	APR-JUL	148	175	195	102	216	249	192
Gunnison River near Gunnison (2)	APR-JUL	296	356	400	103	446	519	390
Tomichi Creek at Sargents	APR-JUL	12.1	18.2	23	72	28	37	32
Cochetopa Creek Blw Rock Ck Nr Parli	APR-JUL	4.7	8.3	11.5	67	15.5	23	17.3
Tomichi Creek at Gunnison	APR-JUL	32	48	61	75	76	103	81
Lake Fork at Gateview	APR-JUL	75	92	105	83	119	140	126
Blue Mesa Reservoir Inflow (2)	APR-JUL	492	607	695	97	791	948	720
Paonia Reservoir Inflow	MAR-JUN	43	59	72	72	87	111	100
	APR-JUL	41	58	72	71	88	115	102
North Fork Gunnison R Nr Somerset (2)	APR-JUL	158	201	235	77	272	334	305
Surface Creek at Cedaredge	APR-JUL	7.4	9.7	11.5	67	13.5	16.9	17.1
Ridgway Reservoir Inflow	APR-JUL	52	68	80	78	94	117	102
Uncompahgre River At Colona (2)	APR-JUL	55	80	100	72	124	165	139
Gunnison River Nr Grand Junction (2)	APR-JUL	660	1070	1350	87	1630	2040	1560

GUNNISON RIVER BASIN Reservoir Storage (1000 AF) - End of February					GUNNISON RIVER BASIN Watershed Snowpack Analysis - March 1, 2006			
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	569.4	460.4	446.5	UPPER GUNNISON BASIN	15	65	89
CRAWFORD	14.3	8.7	3.8	9.2	SURFACE CREEK BASIN	3	44	73
FRUITGROWERS	4.3	4.5	4.4	3.7	UNCOMPAHGRE BASIN	4	58	69
FRUITLAND	9.2	0.9	0.5	2.1	TOTAL GUNNISON RIVER BASIN	19	63	84
MORROW POINT	121.0	108.3	108.9	113.4				
PAONIA	18.0	2.2	3.4	4.9				
RIDGWAY	83.2	70.0	76.3	60.5				
TAYLOR PARK	106.0	71.3	68.5	65.5				

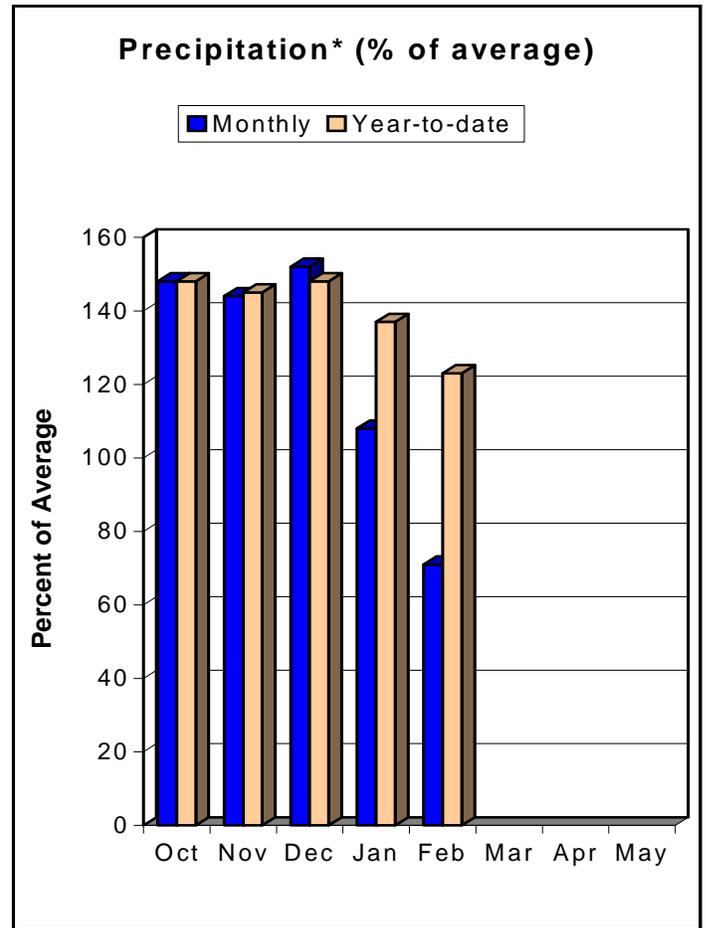
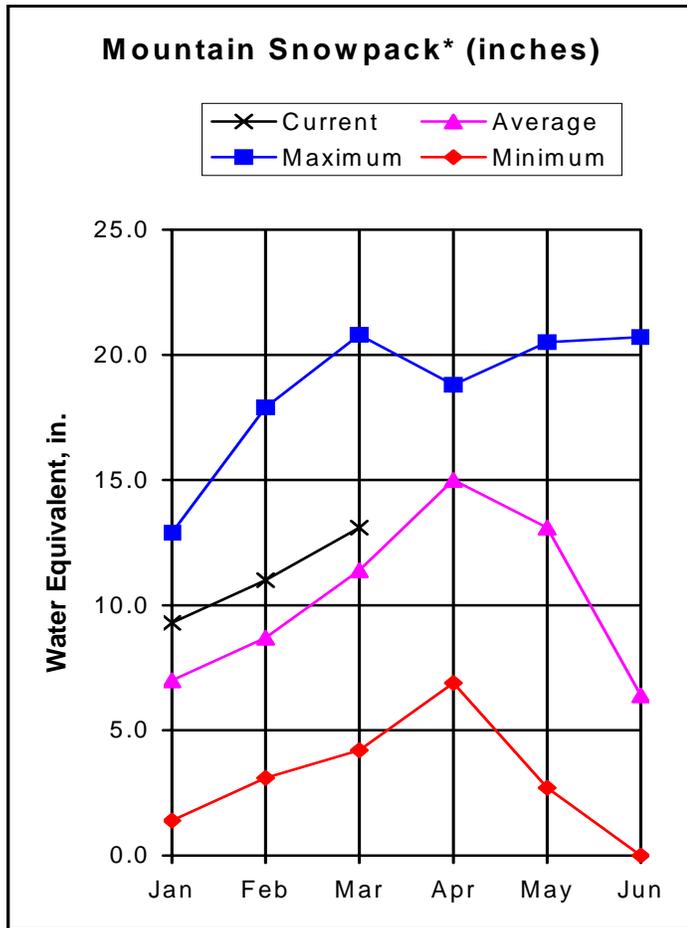
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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 March 1, 2006



\*Based on selected stations

The Upper Colorado River Basin saw periods of good snowfall followed by periods of inactivity during the month of February. When all was said and done, the basin finished the month with 73% of its normal February snowpack accumulation. March 1 snow surveys show the basin snowpack is currently at 115 percent of average, down somewhat in terms of percentages from last month, but 17 percent higher than the snowpacks measured a year ago. This is also the first March 1 snowpack to be above average since 1997. Snowpacks for the watersheds within the basin ranged from 73 percent of average in the Plateau Creek Basin to 142 percent of average in the Blue River Basin. Mountain precipitation during February was below average at 71 percent of normal. Despite the low monthly precipitation figures, total precipitation for the water year, which began October 1, 2005, remains above average (123 percent of average) and is 25 percent higher than the precipitation totals recorded last year at this time. Reservoir storage at the end of February was slightly above normal at 105 percent of average. Storage this year is 34 percent higher than it was a year ago. Down slightly from last month's figures, forecasts call for near average to well above average spring and summer streamflows throughout the basin. Runoff volumes range from 102 percent of average for the Lake Granby Inflow to 134 percent of average for Eagle River below Gypsum.

UPPER COLORADO RIVER BASIN  
Streamflow Forecasts - March 1, 2006

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding *		30% (1000AF)	10% (1000AF)	
				(1000AF)	(% AVG.)			
Lake Granby Inflow (2)	APR-JUL	180	209	230	102	252	286	225
Willow Creek Reservoir Inflow	APR-JUL	38	47	53	104	60	71	51
Williams Fork Reservoir Inflow (2)	APR-JUL	86	100	110	116	121	139	95
Dillon Reservoir Inflow (2)	APR-JUL	172	200	220	132	242	276	167
Green Mountain Reservoir Inflow (2)	APR-JUL	282	327	360	129	395	452	280
Muddy Creek blw Wolford Mtn Resv (2)	APR-JUL	51	65	75	125	87	106	60
Eagle River below Gypsum (2)	APR-JUL	347	407	450	134	495	566	335
Colorado River Near Dotsero (2)	APR-JUL	1355	1584	1750	122	1924	2195	1440
Ruedi Reservoir Inflow (2)	APR-JUL	128	149	165	117	182	207	141
Roaring Fork At Glenwood Springs (2)	APR-JUL	558	669	750	106	836	970	710
Colorado River Near Cameo (2)	APR-JUL	1990	2470	2800	116	3130	3610	2420

UPPER COLORADO RIVER BASIN Reservoir Storage (1000 AF) - End of February					UPPER COLORADO RIVER BASIN Watershed Snowpack Analysis - March 1, 2006			
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	225.9	200.7	216.8	BLUE RIVER BASIN	9	175	142
LAKE GRANBY	465.6	277.0	132.5	281.1	UPPER COLORADO RIVER BASI	36	143	123
GREEN MOUNTAIN	139.0	69.1	66.6	70.0	MUDDY CREEK BASIN	4	149	122
HOMESTAKE	43.0	30.5	34.9	26.6	PLATEAU CREEK BASIN	3	44	73
RUEDI	102.0	70.7	67.1	68.0	ROARING FORK BASIN	8	92	104
VEGA	32.0	20.1	16.0	12.2	WILLIAMS FORK BASIN	4	166	130
WILLIAMS FORK	96.8	72.8	51.0	57.3	WILLOW CREEK BASIN	4	114	115
WILLOW CREEK	9.0	7.1	8.3	6.7	TOTAL COLORADO RIVER BASI	47	117	115

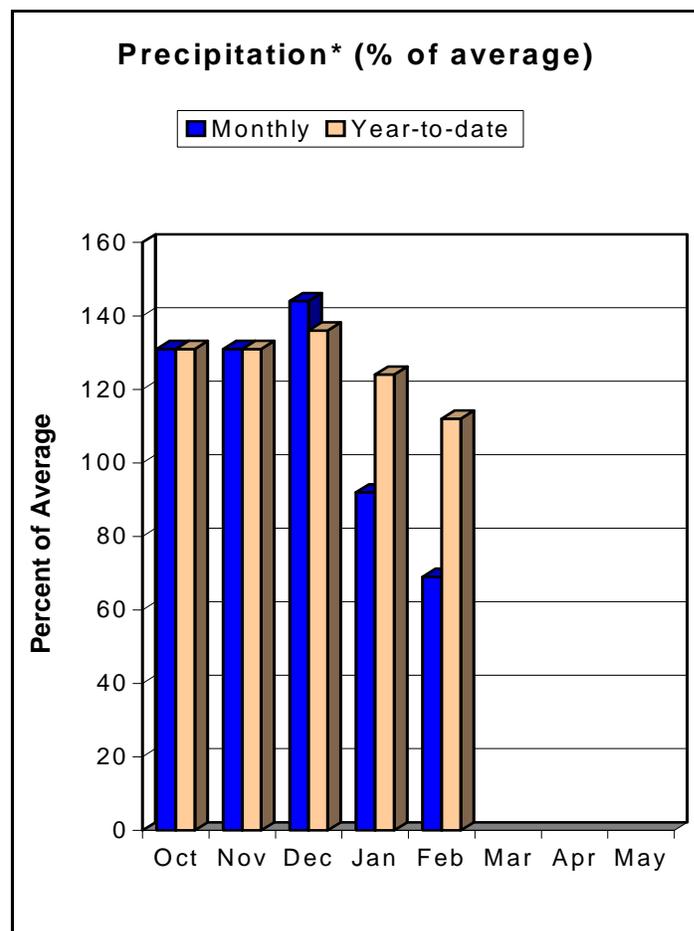
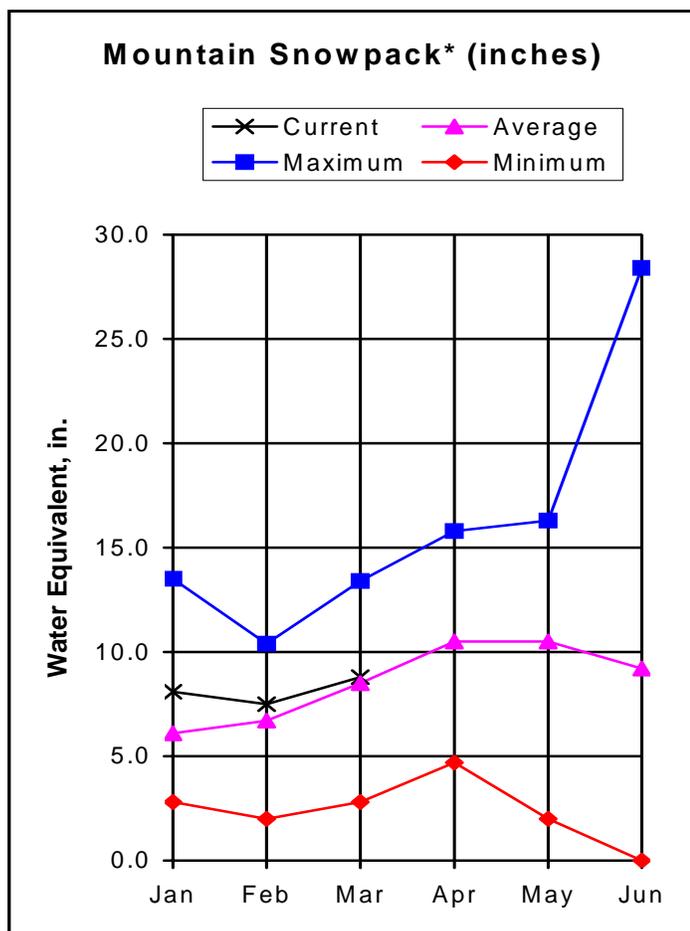
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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 March 1, 2006



\*Based on selected stations

A continuing decrease in precipitation is taking its toll on the snowpack in the South Platte River basin. In the wake of three months of above average precipitation (October, November, December) and a January that saw slightly less than average precipitation, February precipitation was a mere 69% of average. The dry February hurt the year to date precipitation, bringing it down from 124% of average on February 1 to 112% of average on March 1. It also had a negative effect on snow levels in the basin. After reaching 132% of average on January 1, snow levels dropped to 112% of average on February 1. Snowpack is currently down to 103% of average as of March 1. The good news is that it is still at 129% of the snowpack this time last year, and the last time March 1 snowpack was greater than average was in 1997. The Clear Creek basin continues to lead the South Platte with 133% of its average snowpack based on data from four observing sites. Reservoir levels in the basin remain strong at 93% of their average storage based on reports from 33 reservoirs. Look for Clear Creek at Golden to show 112% of its average April through July streamflow, the Cache la Poudre to run 100% of average at the Canyon Mouth, and inflow to Antero Reservoir to be 116% of average.

SOUTH PLATTE RIVER BASIN  
Streamflow Forecasts - March 1, 2006

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)				
		90%		70%		50%			30%		10%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)		(1000AF)	(1000AF)		
Antero Reservoir inflow	APR-JUL	10.0	14.9	19.5	116	26	38	16.8				
	APR-SEP	12.4	18.8	25	121	33	51	21				
Spinney Mountain Reservoir inflow	APR-JUL	32	47	61	109	79	117	56				
	APR-SEP	38	58	77	112	102	154	69				
Elevenmile Canyon Reservoir inflow	APR-JUL	32	48	63	109	83	125	58				
	APR-SEP	38	60	81	113	110	171	72				
Cheesman Lake inflow	APR-JUL	63	98	133	116	180	280	115				
	APR-SEP	77	122	166	117	226	357	142				
South Platte River at South Platte	APR-JUL	108	169	230	112	313	492	205				
	APR-SEP	132	208	285	112	390	617	255				
Bear Creek abv Evergreen	APR-JUL	10.0	16.4	23	119	32	53	19.3				
	APR-SEP	13.5	22	30	120	41	67	25				
Bear Creek at Morrison	APR-JUL	10.8	19.4	29	116	43	78	25				
	APR-SEP	13.8	24	36	116	53	94	31				
Clear Creek at Golden	APR-JUL	86	107	123	112	143	177	110				
	APR-SEP	102	127	150	112	176	220	134				
St. Vrain Creek at Lyons	APR-JUL	43	70	96	104	132	210	92				
	APR-SEP	52	82	112	105	153	240	107				
Boulder Creek nr Orodell	APR-JUL	38	46	53	115	61	74	46				
	APR-SEP	43	53	61	115	70	86	53				
South Boulder nr Eldorado Spgs	APR-JUL	28	36	42	102	50	65	41				
	APR-SEP	30	39	47	103	56	73	46				
Big Thompson River at mouth nr Drake	APR-JUL	53	74	95	97	121	172	98				
	APR-SEP	67	92	115	98	143	198	117				
CACHE LAPOUDRE at Canyon Mouth	APR-JUL	154	205	245	100	295	390	245				
	APR-SEP	173	230	275	100	335	435	275				

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

SOUTH PLATTE RIVER BASIN  
Watershed Snowpack Analysis - March 1, 2006

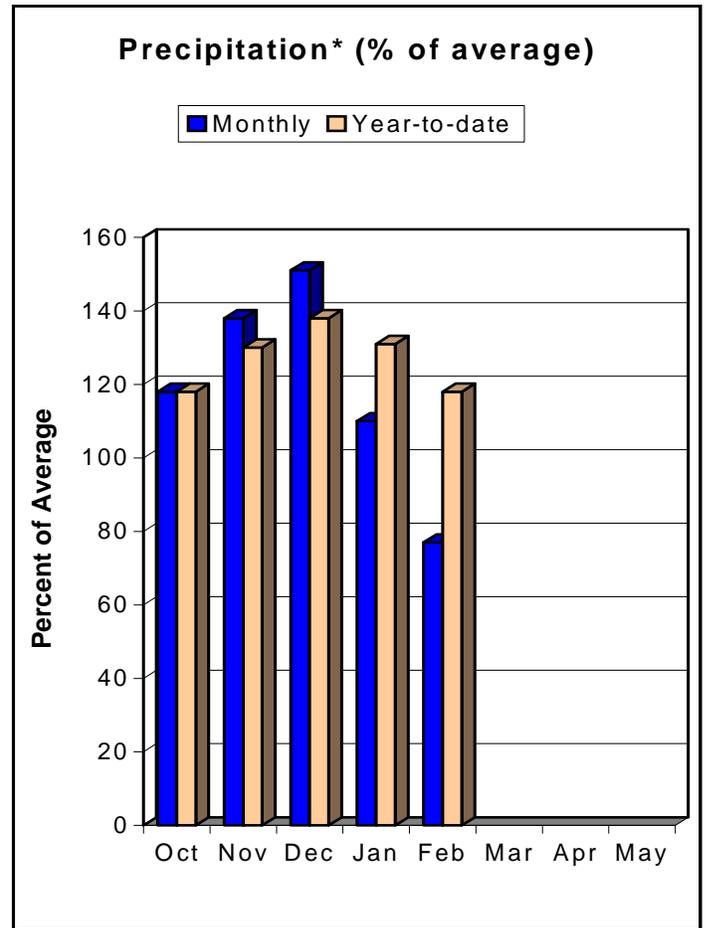
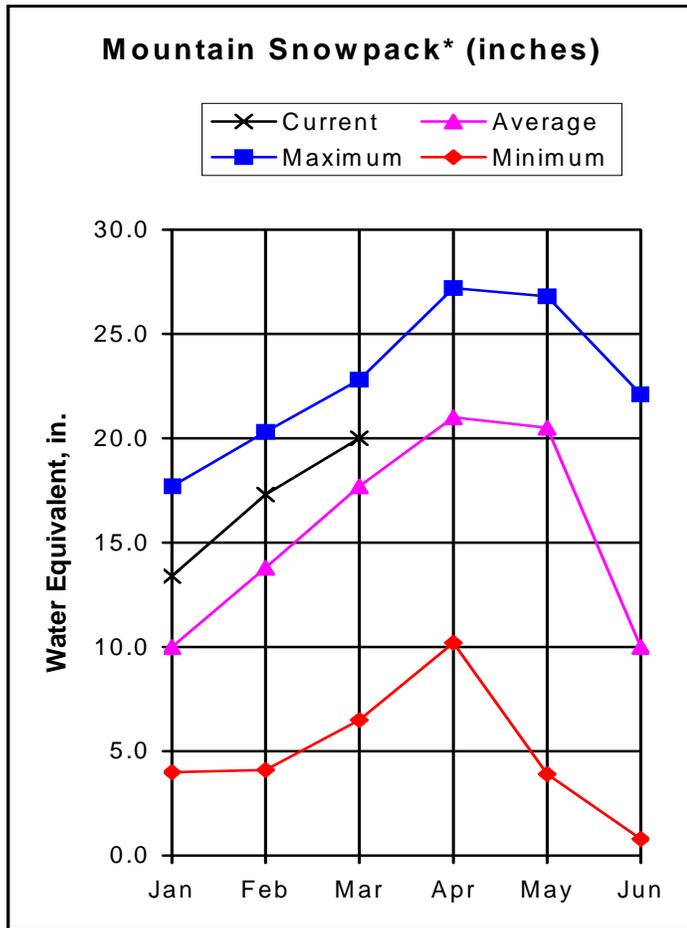
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ANTERO	20.0	6.8	0.8	16.3	BIG THOMPSON BASIN	7	122	100
BARR LAKE	32.0	28.9	30.7	26.0	BOULDER CREEK BASIN	5	127	107
BLACK HOLLOW	8.0	1.5	1.4	3.9	CACHE LA POUFRE BASIN	8	130	103
BOYD LAKE	49.0	30.4	43.1	32.4	CLEAR CREEK BASIN	4	144	133
BUTTON ROCK/RALPH PRICE	16.2	13.9	14.9	12.4	SAINT VRAIN BASIN	4	121	92
CACHE LA POUFRE	10.0	6.3	9.0	7.8	UPPER SOUTH PLATTE BASIN	15	130	94
CARTER	108.9	56.7	85.9	93.4	TOTAL SOUTH PLATTE BASIN	43	129	103
CHAMBERS LAKE	9.0	4.0	5.6	3.1				
CHEESMAN	79.0	70.7	69.8	59.0				
COBB LAKE	34.0	9.0	3.5	13.9				
ELEVEN MILE	97.8	99.3	98.5	95.8				
EMPIRE	38.0	29.0	23.1	25.6				
FOSSIL CREEK	12.0	8.8	9.7	7.4				
GROSS	41.8	21.8	27.4	25.3				
HALLIGAN	6.4	4.8	6.0	4.8				
HORSECREEK	16.0	13.3	14.6	12.5				
HORSETOOTH	149.7	96.7	113.0	109.2				
JACKSON	35.0	22.1	21.1	27.3				
JULESBURG	28.0	16.6	14.3	18.9				
LAKE LOVELAND	14.0	11.4	11.5	8.8				
LONE TREE	9.0	7.3	8.2	6.7				
MARIANO	6.0	4.1	4.9	4.3				
MARSHALL	10.0	5.3	9.4	5.4				
MARSTON	13.0	1.7	7.0	12.9				
MILTON	24.0	18.9	19.4	17.1				
POINT OF ROCKS	70.0	60.8	62.4	65.4				
PREWITT	28.2	23.3	21.9	21.0				
RIVERSIDE	63.1	49.8	48.9	48.9				
SPINNEY MOUNTAIN	48.7	34.7	18.2	32.2				
STANDLEY	42.0	35.4	38.8	33.6				
TERRY LAKE	8.0	5.4	4.3	5.3				
UNION	13.0	9.7	12.5	11.0				
WINDSOR	19.0	7.0	10.8	11.5				

\* 90%, 70%, 50%, 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 March 1, 2006



\*Based on selected stations

March 1 snow surveys indicate snowpacks in the Yampa, White, North Platte and Laramie River basins are 113 percent of average, overall. Snow accumulation during February was below average, with the basin picking up about three-quarters of its normal snowfall. Normally, the Yampa & White basins accumulate 18 percent of their total snowpack during February; the North Platte basin usually picks up 17 percent. Basin snowpack accumulation in those basins during February was 14 percent and 13 percent, respectively. Despite this, the overall March 1 snowpack figures are the best the basin has seen since 1997. Snowpack conditions in the sub-basins range from 99 percent of average in the Laramie River Basin to 120 percent of average in the Yampa River Basin. Mountain precipitation during February was below normal at 77 percent of average. As a result, total precipitation percentages for the water year dropped from 131 percent of average last month to 118 percent of average this month. However, this year's totals are still 31 percent higher than those reported last year. Overall, reservoir storage in the basin is slightly above average for this time of year. End of February reservoir storage was 100 percent of average at Stagecoach and 115 percent of average at Yamcolo. Streamflow forecasts call for slightly above to well above average runoff. Streamflow volumes are expected to range from 103 percent of average for the White River near Meeker to 148 percent of average for the Yampa River above Stagecoach Reservoir.

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS  
Streamflow Forecasts - March 1, 2006

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		90%		50%		10%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
NORTH PLATTE RIVER nr Northgate	APR-JUL	180	237	280	114	327	385	245
	APR-SEP	194	265	310	115	355	425	270
LARAMIE RIVER nr Woods	APR-JUL	82	118	142	115	166	200	123
	APR-SEP	89	128	155	115	182	219	135
Yampa R ab Stagecoach Reservoir (2)	APR-JUL	27	36	43	148	51	64	29
Yampa River at Steamboat Springs (2)	APR-JUL	266	315	350	125	387	445	280
Elk River nr Milner	APR-JUL	316	370	410	126	452	517	325
Elkhead Creek nr Elkhead	APR-JUL	29	38	44	113	51	62	39
Elkhead Creek blw Maynard Gulch (2)	APR-JUL	43	60	72	122	84	101	59
Fortification Ck nr Fortification	MAR-JUN	3.41	6.08	8.50	113	11.49	17.09	7.50
Yampa River Near Maybell (2)	APR-JUL	904	1086	1220	123	1361	1583	990
Little Snake River nr Slater	APR-JUL	136	164	185	116	207	242	159
Little Snake River nr Dixon	APR-JUL	254	326	380	112	438	532	340
Little Snake River nr Lily	APR-JUL	272	356	420	114	489	600	370
White River nr Meeker	APR-JUL	216	264	300	103	338	398	290

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

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS  
Watershed Snowpack Analysis - March 1, 2006

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	24.0	27.3	24.0	LARAMIE RIVER BASIN	3	119	99
YAMCOLO	9.1	7.5	3.5	6.5	NORTH PLATTE RIVER BASIN	12	128	112
					TOTAL NORTH PLATTE BASIN	14	125	110
					ELK RIVER BASIN	2	103	110
					YAMPA RIVER BASIN	12	145	120
					WHITE RIVER BASIN	6	125	108
					TOTAL YAMPA AND WHITE RIV	17	138	115
					LITTLE SNAKE RIVER BASIN	8	113	115
TOTAL YAMPA, WHITE AND NO	36	126	113					

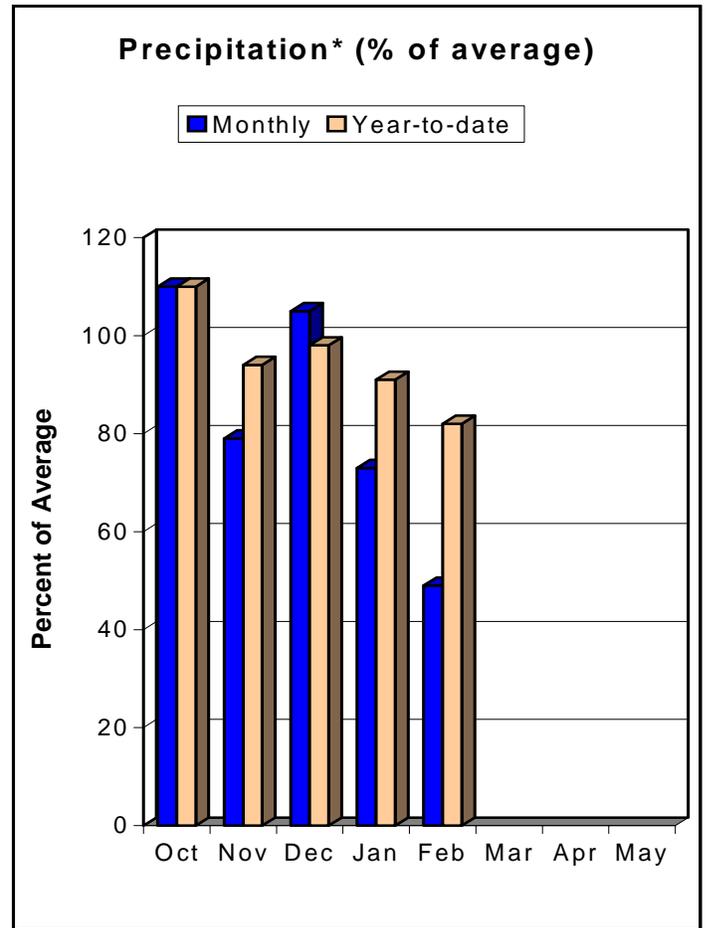
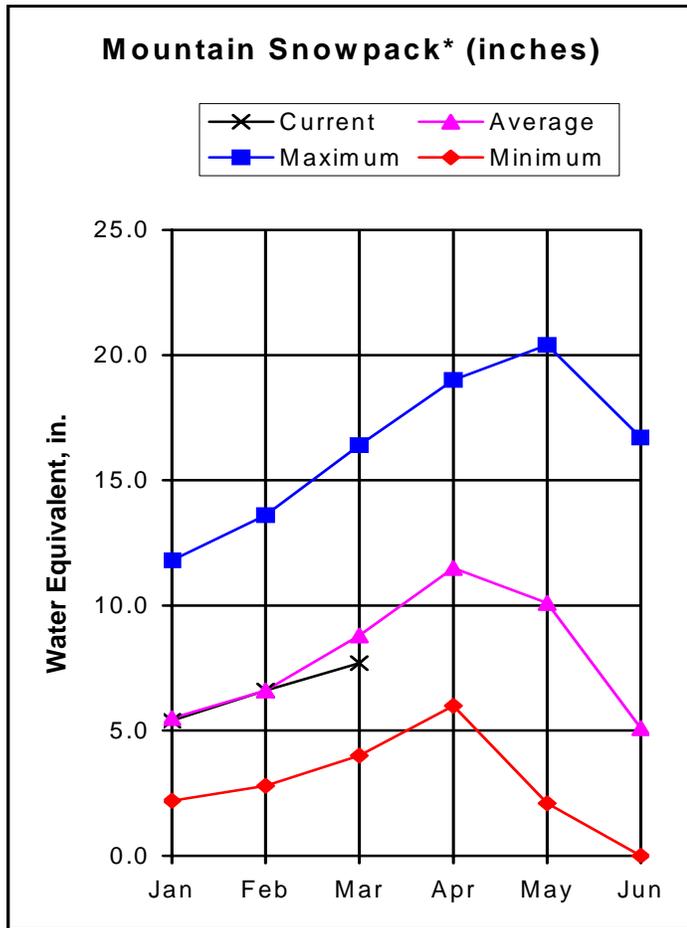
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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 March 1, 2006



\*Based on selected stations

Dismal snow levels in the Sangre de Cristo Mountains continue to hurt the Arkansas River basin in terms of overall snowpack. Snow levels are down from 100% of average on February 1 to 88% of average on March 1. The Upper Arkansas, more consistent with the adjacent Colorado River basin in terms of snowpack, continues to carry load, with 113% of its average snowpack. Snow levels in the Cucharas and Huerfano basins are at a mere 34% of average based on data from four measuring sites, and the Purgatoire River basin is showing only at 10% of its average snowpack based on data from two Snotel sites, one of which has no snow at all. Not surprisingly, precipitation for the month of February was only 49% of average, bringing the year to date precipitation down from 91% of average on February 1 to 82% of average on March 1. Reservoirs in the basin are only at 65% of their average storage based on reports from 13 reservoirs. As usual, expected streamflow in the Arkansas reflects snow distribution and should be considerably more abundant in the upper reaches of the basin. The Arkansas at Salida looks to run at 116% of its average April through July streamflow, while the Cucharas River should only reach 27% of its average.

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ARKANSAS RIVER BASIN  
Streamflow Forecasts - March 1, 2006

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Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		90%		50%		10%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Chalk Ck At Nathrop	APR-JUL	14.0	19.6	24	104	29	37	23
	APR-SEP	17.3	24	29	107	35	44	27
Arkansas River At Salida (2)	APR-JUL	221	264	295	116	328	380	255
	APR-SEP	266	320	360	116	402	468	310
Grape Creek Near Westcliffe	APR-JUL	1.0	3.5	7.3	45	12.4	22	16.1
	APR-SEP	1.2	5.0	9.0	46	14.2	24	19.6
Pueblo Reservoir Inflow (2)	APR-JUL	245	330	395	103	466	580	385
	APR-SEP	316	418	495	102	579	714	485
Huerfano River Near Redwing	APR-JUL	4.1	4.9	6.1	50	8.0	11.4	12.3
	APR-SEP	6.5	7.0	8.0	52	10.3	14.3	15.5
Cucharas River At Boyd Ranch Nr La V	APR-JUL	1.5	1.9	3.1	27	5.0	8.5	11.3
	APR-SEP	2.2	2.4	4.1	32	6.2	10.0	13.0
Trinidad Lake Inflow	MAR-JUL	3.7	5.7	11.0	32	18.0	32	34
	APR-SEP	7.9	13.6	22	50	33	52	44

ARKANSAS RIVER BASIN Reservoir Storage (1000 AF) - End of February					ARKANSAS RIVER BASIN Watershed Snowpack Analysis - March 1, 2006			
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	23.4	0.0	36.0	UPPER ARKANSAS BASIN	9	113	113
CLEAR CREEK	11.0	9.0	8.9	6.8	CUCHARAS & HUERFANO RIVER	4	23	34
CUCHARAS RESERVOIR	40.0	1.7	2.6	4.7	PURGATOIRE RIVER BASIN	2	6	10
GREAT PLAINS	150.0	0.0	0.0	38.9	TOTAL ARKANSAS RIVER BASIN	14	76	88
HOLBROOK	7.0	0.0	0.0	4.8				
HORSE CREEK	28.0	0.0	0.0	12.7				
JOHN MARTIN	335.7	33.0	57.9	132.2				
LAKE HENRY	8.0	5.4	6.6	5.6				
MEREDITH	42.0	12.1	34.7	18.1				
PUEBLO	236.7	148.1	138.1	168.7				
TRINIDAD	72.3	19.9	26.2	26.2				
TURQUOISE	126.6	64.9	68.3	77.3				
TWIN LAKES	86.0	56.2	32.8	44.0				

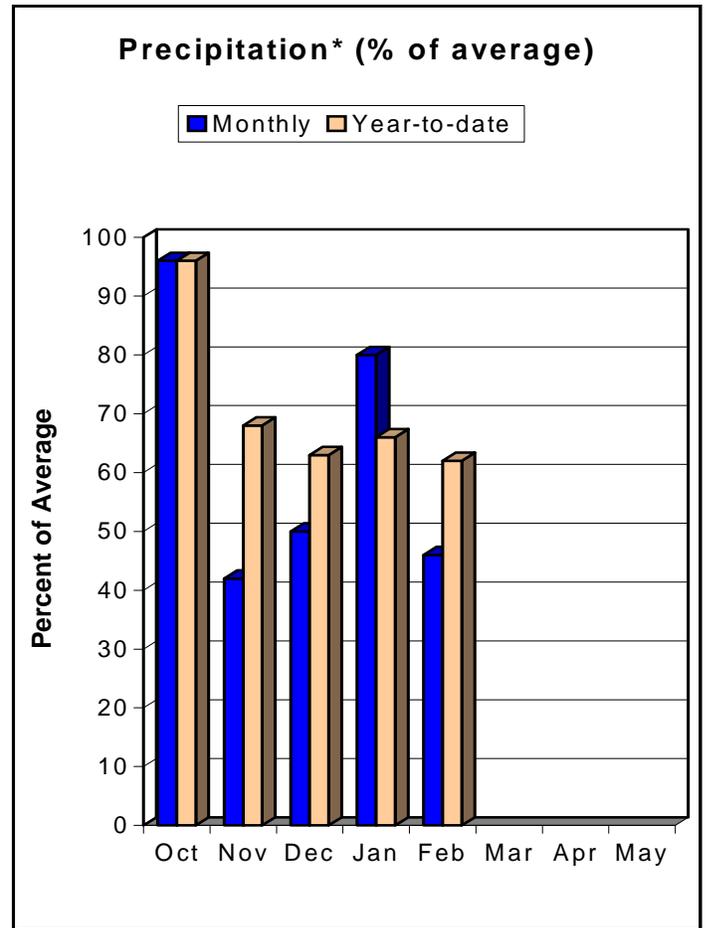
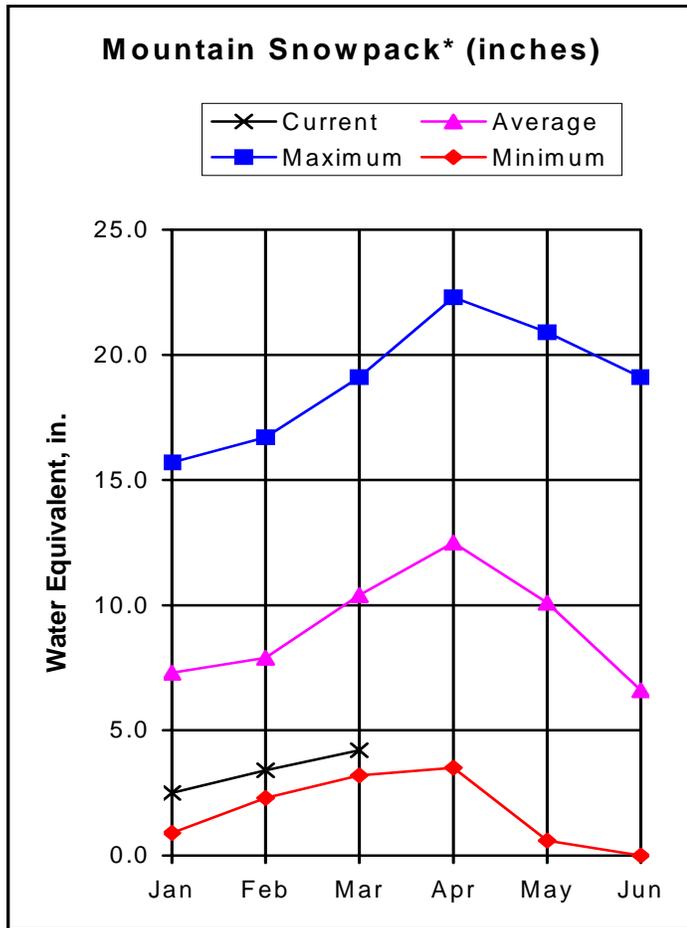
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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 RIVER BASIN

## as of March 1, 2006



\*Based on selected stations

The last time there was less snow in the Upper Rio Grande basin this time of year than there is now was 1977, and, at 40% of average, there is slightly less snow now than there was at this time in 2002. Like the case in the Arkansas, snow levels in the Sangre de Cristos are the bleakest in the basin at 34% of average along Culebra and Trinchera Creeks. Unfortunately, the picture does not get much prettier in the western portions of the watershed, as the upper sections of the Rio Grande River are only at 41% of average based on data from 12 measuring sites. February, a dry month throughout Colorado, yielded only 46% of its average precipitation and brought the year to date precipitation down from 67% of average on February 1 to 62% of average on March 1. Based on reports from six reservoirs, reservoirs in the basin are at 72% of their average storage and should not expect much augmentation from melting snow this spring. Expect April through September streamflows to range from 28% of average on the San Antonio River to 67% of average on Saguache Creek.

UPPER RIO GRANDE BASIN  
Streamflow Forecasts - March 1, 2006

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding *		30% (1000AF)	10% (1000AF)	
				(1000AF)	(% AVG.)			
Rio Grande At Thirty Mile Bridge (2)	APR-SEP	54	71	84	62	98	120	136
Rio Grande Reservoir Inflow	APR-JUL	51	63	73	62	84	101	118
Rio Grande At Wagon Wheel Gap (2)	APR-SEP	121	166	200	58	238	299	345
South Fork Rio Grande at South Fork	APR-SEP	42	55	65	49	76	95	132
Rio Grande nr Del Norte (2)	APR-SEP	176	234	280	53	331	418	531
Saguache Creek nr Saguache (2)	APR-SEP	11.5	17.3	22	67	27	36	33
Alamosa Creek Abv Terrace Reservoir	APR-SEP	22	29	35	50	42	53	70
La Jara Creek nr Capulin	MAR-JUL	2.20	3.24	4.30	49	5.57	7.88	8.70
Trinchera Creek abv Turners Ranch	APR-SEP	3.1	3.8	5.5	46	7.9	11.5	12.0
Sangre de Cristo Creek	APR-SEP	0.97	1.76	2.50	28	5.28	9.48	8.80
Ute Ck nr Fort Garland	APR-SEP	2.0	3.6	5.0	41	6.8	10.0	12.2
Platoro Reservoir Inflow	APR-JUL	23	29	33	52	38	46	64
	APR-SEP	25	31	36	51	42	50	71
Conejos River Near Mogote (2)	APR-SEP	65	86	103	52	122	153	200
San Antonio River at Ortiz	APR-SEP	1.8	3.2	4.6	28	6.3	9.5	16.4
Los Pinos River nr Ortiz	APR-SEP	19.9	28	35	47	43	56	74
Culebra Creek at San Luis (2)	APR-SEP	4.6	6.8	10.0	44	14.0	22	23
Costilla Reservoir Inflow	MAR-JUL	1.7	3.1	4.3	41	5.8	8.6	10.6
Costilla Creek Near Costilla (2)	MAR-JUL	3.9	6.0	8.1	31	11.4	17.8	26

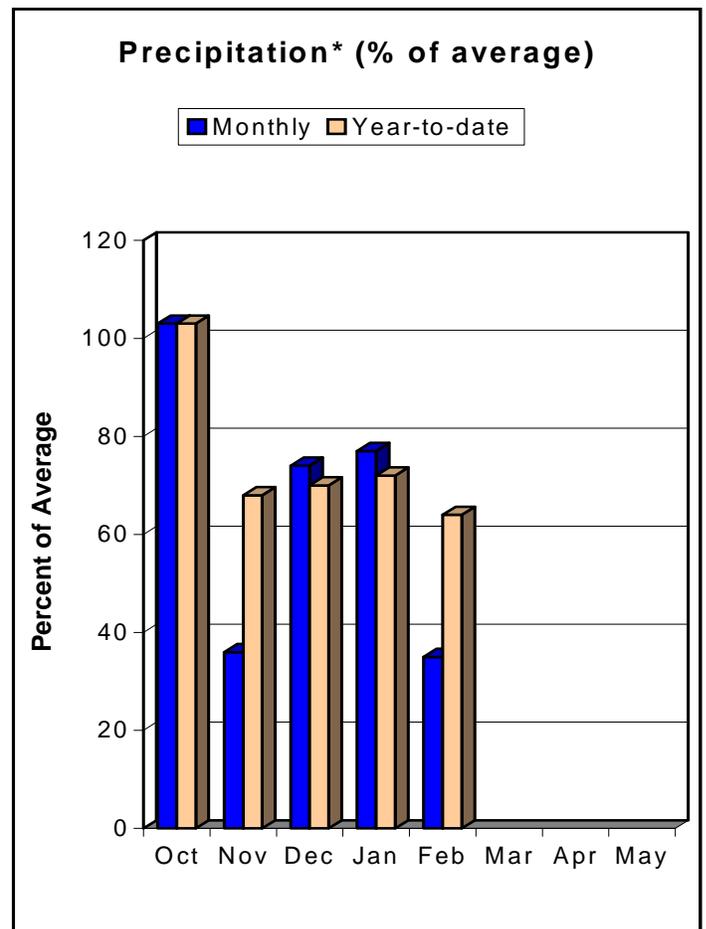
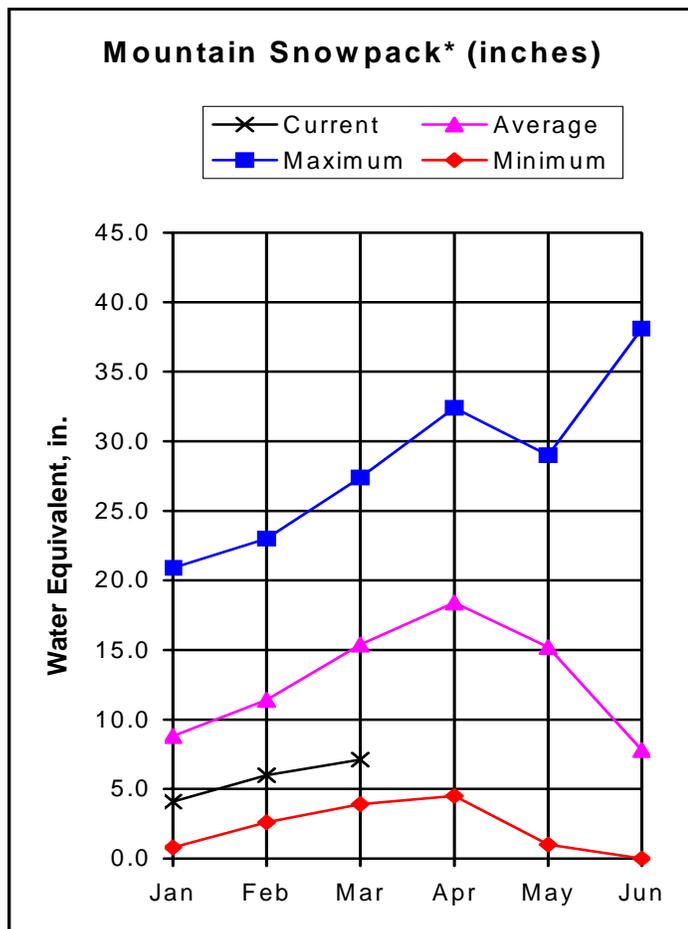
UPPER RIO GRANDE BASIN Reservoir Storage (1000 AF) - End of February					UPPER RIO GRANDE BASIN Watershed Snowpack Analysis - March 1, 2006			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CONTINENTAL	15.0	2.0	3.8	5.3	ALAMOSA CREEK BASIN	2	30	42
PLATORO	53.7	4.7	6.9	24.3	CONEJOS & RIO SAN ANTONIO	4	31	44
RIO GRANDE	51.0	23.4	17.3	17.6	CULEBRA & TRINCHERA CREEK	5	24	34
SANCHEZ	103.0	21.0	9.4	24.1	UPPER RIO GRANDE BASIN	12	27	41
SANTA MARIA	45.0	7.7	6.1	10.6	TOTAL UPPER RIO GRANDE BA	23	27	40
TERRACE	13.1	5.0	4.6	6.7				

\* 90%, 70%, 50%, 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 March 1, 2006



\*Based on selected stations

The combined San Miguel, Dolores, Animas and San Juan River basins were plagued with yet another month of extremely poor snowpack accumulation. SNOTEL data indicates the combined basins usually get 20 percent of their total average snowpack during February. However, this year, February only managed to produce about 6 percent of the total average snowpack. March 1 snow surveys indicate the overall basin snowpack is 46 percent of average. This is less than one-third of the snow present last year at this same time. Looking back to 1968, there are only four years (1977, 1981, 1990 and 2002) that had lower March 1 snowpack figures. Snowpacks in the individual watersheds ranged from a low of 34 percent of average in the San Juan River Basin to a high of 57 percent of average in the San Miguel River Basin. Mountain precipitation during February was a mere 35 percent of average. The low monthly totals brought the year-to-date precipitation totals (starting October 1, 2005) down to 64 percent of average (less than half the precipitation reported at this time last year). The only good news for the combined basins is that reservoir storage remains above normal at 109 percent of average. This is 35 percent more stored water than was present at the end of February 2005. Not surprisingly, spring and summer streamflows are expected to be well below average. Forecasts range from 32 percent of average for the Navajo Reservoir Inflow to 68 percent of average for the San Miguel River near Placerville.

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS  
Streamflow Forecasts - March 1, 2006

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Dolores River at Dolores	APR-JUL	88	122	150	57	181	235	265
McPhee Reservoir Inflow	APR-JUL	107	148	180	56	217	280	320
San Miguel River nr Placerville	APR-JUL	55	74	90	68	108	138	132
Gurley Reservoir Inlet	APR-JUL	2.7	6.5	9.0	55	11.5	15.3	16.5
	APRIL			1.00	60			1.66
	MAY			4.80	54			8.83
	JUNE			2.50	54			4.67
	JULY			0.70	53			1.32
Cone Reservoir Inlet	APR-JUL	0.64	0.88	1.70	48	2.59	3.89	3.53
	APRIL			0.20	44			0.46
	MAY			0.85	52			1.64
	JUNE			0.50	48			1.04
	JULY			0.15	40			0.38
Lilylands Reservoir Inlet	APR-JUL	0.37	0.86	1.30	46	1.74	2.38	2.86
	APRIL			0.20	50			0.40
	MAY			0.60	46			1.32
	JUNE			0.38	44			0.87
	JULY			0.12	44			0.27
Rio Blanco At Blanco Diversion (2)	APR-JUL	18.5	24	29	55	34	43	53
	APR-JUL	29	29	29	55	29	29	53
Navajo River At Oso Diversion (2)	APR-JUL	21	28	34	49	41	52	69
San Juan River Near Carracas (2)	APR-JUL	91	131	165	41	204	271	405
Piedra River near Arboles	APR-JUL	40	62	80	35	102	140	230
Vallecito Reservoir Inflow	APR-JUL	78	99	115	56	133	162	205
Navajo Reservoir Inflow (2)	APR-JUL	130	195	250	32	315	428	785
Animas River at Durango	APR-JUL	177	232	275	63	323	404	440
Lemon Reservoir Inflow	APR-JUL	21	26	30	52	34	42	58
La Plata River at Hesperus	APR-JUL	6.2	8.9	11.0	44	13.5	17.7	25
Mancos River nr Mancos	APR-JUL	6.0	9.7	19.0	48	28	42	40
	APRIL			3.00	52			5.80
	MAY			7.8	49			15.9
	JUNE			6.3	46			13.7
	JULY			1.90	41			4.60

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

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS  
Watershed Snowpack Analysis - March 1, 2006

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	14.8	0.1	12.0	ANIMAS RIVER BASIN	9	32	49
JACKSON GULCH	10.0	4.7	4.0	4.6	DOLORES RIVER BASIN	7	35	47
LEMON	40.0	23.0	19.4	20.4	SAN MIGUEL RIVER BASIN	5	46	57
MCPHEE	381.2	291.4	216.1	276.3	SAN JUAN RIVER BASIN	4	20	34
NARRAGUINNEP	19.0	14.1	18.2	13.5	TOTAL SAN MIGUEL, DOLORES	24	31	46
VALLECITO	126.0	76.1	56.4	60.8	AN JUAN RIVER BASINS			

\* 90%, 70%, 50%, 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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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/wsf/westwide.html>.

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