

USDA United States
Department of
Agriculture

**Natural
Resources
Conservation
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Colorado Basin Outlook Report April 1, 2004



Basin Outlook Reports

and

Federal - State - Private

Cooperative Snow Surveys

For more water supply and resource management information, contact:

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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, 2004

Summary

Hopes of ending the drought in 2004 evaporated along with the state's snowpack as warm and dry weather dominated the weather picture during March. Water supply shortages are now almost a certainty for water users across the state this summer. The warm and dry March weather has had a devastating impact on this year's runoff forecasts. In many basins this year's low volumes may rival those of 2002. Since reservoir storage has yet to significantly recover from past drought years, supplemental flows will be limited. While the early melt has helped soil moisture conditions at lower elevations, additional losses are anticipated as the higher elevation snowpack melts off.

Snowpack

Colorado experienced a record breaking March weather pattern which brought record high temperatures to various locations around the state and induced snowmelt at mid to low mountain elevations. Accompanying the warm temperatures was an expanse of very dry weather. All this, at a time when the state's water users were banking on just the opposite conditions. Plummeting snowpack levels produced record low April 1 readings at sites with more than 60 years of data across the northern mountains. Snowpack readings are now well below average across the state with portions of northern Colorado exceeding the dry conditions of 2002. Statewide, snowpack readings dropped from 90% of average on March 1, to only 65% of average on April 1. These readings are far below those of last year, at only 69% of the 2003 readings. Those basins which recorded the greatest decreases in percent of average snowpack from last month include the Gunnison, down 29 percentage points to 74% of average, the Arkansas, down 30 percentage points to 60% of average, the Rio Grande, down 31 percentage points to 77% of average, and the combined San Juan, Animas, Dolores, and San Miguel basins, down 35 percentage points to 70% of average. Across the basins of northern Colorado the declines were less severe, yet the seasonal accumulations in these basins have been the poorest throughout the winter. The South Platte Basin continues to report the lowest percent of average snowpack in the state, at only 51% of average. This year's snowpack in the South Platte Basin has dipped to less than that measured on April 1, 2002. While snowpack conditions can improve with cool and wet weather during April, it remains an extremely remote chance that those improvements can make a significant difference for the state's water supplies.

Precipitation

Accompanying the warm temperatures during March, was a dry weather pattern which will have lasting impacts for Colorado's water users. Monthly precipitation totals at Colorado SNOTEL sites was a disappointing 81% of average. Basinwide percentages ranged from only 69% of average in the South Platte Basin, to 92% of average in the Rio Grande Basin. For the first half of the 2004 water year, which began on October 1, 2003, the state's precipitation totals remain at only 87% of average. Most of the state's major river basins are reporting below average water year totals as well. The South Platte Basin is reporting the lowest percentage at only 61% of average. Only the Rio Grande and combined San Juan, Animas, Dolores, and San Miguel basins can boast of having an above average water year total at this time.

Reservoir Storage

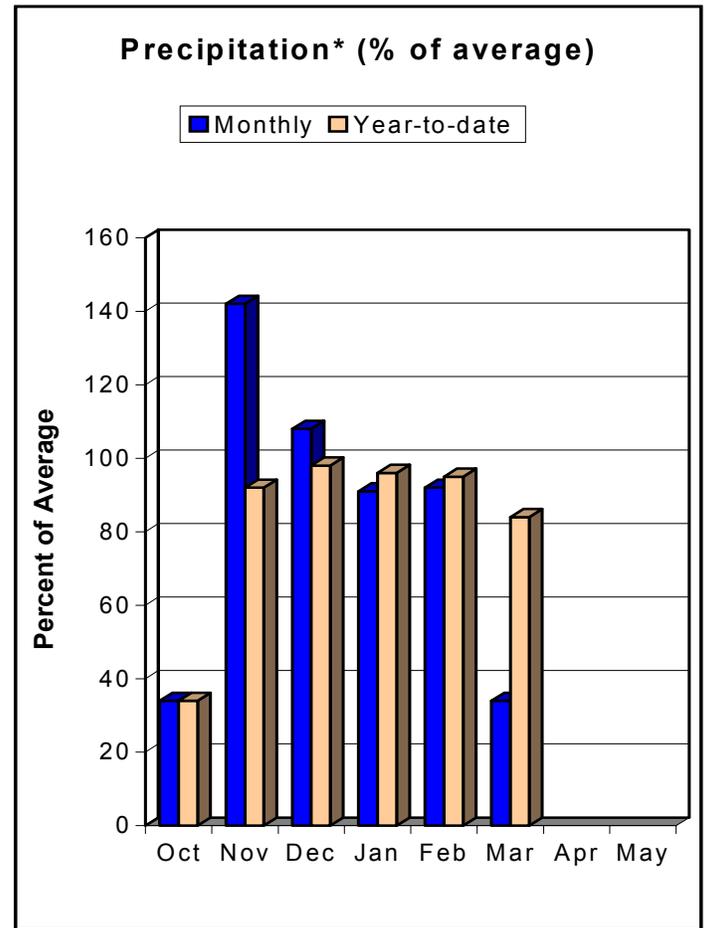
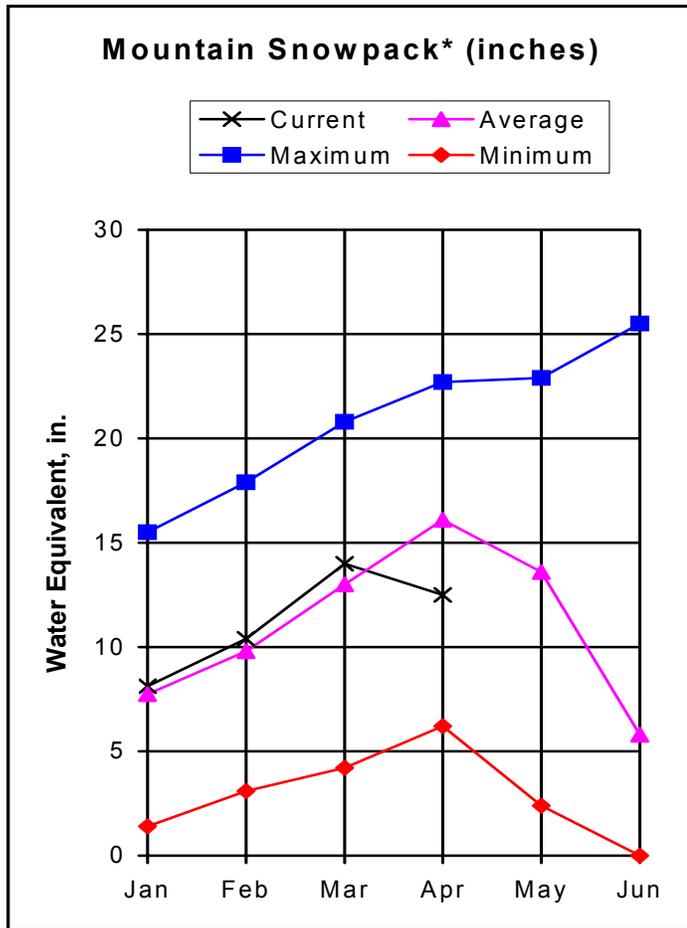
Reservoir storage across Colorado saw slight improvements during March. The greatest improvements were seen in the Gunnison Basin, which improved by more than 43,000 acre-feet during the month. These improvements were enough to boost storage in the Gunnison basin to 105% of average. This is the highest percent of average storage in the state, and the highest in this basin since May, 2002. Statewide, storage improved during March by slightly more than 110,000 acre-feet. During March, the average statewide storage actually decreases slightly. This has yielded an increase in the statewide storage from 78% of average on March 1, to 81% of average on April 1. Basinwide storage is below average in all of the major basins of the state. The Arkansas Basin is reporting the greatest deficit storage, with current volumes at 274,000 acre-feet below the average for April 1. As a rule, this year's April 1 storage is tracking above last year's across the state. All basins, with the only exception of the Rio Grande, are reporting volumes greater than those of last year at this time.

Streamflow

A warm and dry March has had a dramatic impact on the state's water supply picture for 2004. Sharp decreases in expected runoff volumes have occurred statewide this month. Even in those basins, which just a month ago were forecast at near to slightly above average, can now expect well below normal volumes this year. Most forecasts across western Colorado have dipped to 50% to 70% of average for the 2004 runoff season. Across the Rio Grande and San Juan Basins, which have had the best runoff prospects throughout this season, can now only expect volumes of 70% to 85% percent of average. Some of the lowest forecasts in the state continue along the Front Range tributaries of the South Platte River, where less than 50% of average volumes are forecast in several basins. While it remains possible to see improvements in snowpack and runoff during April and May, its impact is almost certain to be minimal at this point in the water year.

GUNNISON RIVER BASIN

as of April 1, 2004



*Based on selected stations

Warm, dry conditions during March have reduced the snowpack measurements in the Gunnison Basin from slightly above average levels on March 1, to only 74% of average on April 1. This drop is a result of the combination of lack of additional snowfall, as well as a significant loss of existing snowpack due to melting. The drop in snowpack percent of average is one of the largest March decreases on record. Measurements range from 71% of average in the Uncompahgre Watershed, to 84% of average in the Surface Creek Watershed. Precipitation during March was only 34% of average. The total precipitation this water year has been 84% of average. Reservoirs have been taking advantage of the early runoff, improving their storage amounts from 93% of average on March 1, to 105% of average on April 1. The storage amount is 29% above last year's storage. Unfortunately, the runoff forecasts have been significantly lowered relative to last month's forecasts. Most of the forecasts are much below average, and range from only 44% of average on Tomichi Creek at Gunnison, to 78% of average at the Inflow to Ridgeway Reservoir.

GUNNISON RIVER BASIN
Streamflow Forecasts - April 1, 2004

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<----- Drier ----->>		----->>>		----->>>		
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Taylor River blw Taylor Park Resv	APR-JUL	45	60	70	68	80	95	103
Slate River nr Crested Butte	APR-JUL	50	59	65	73	71	80	89
East River at Almont	APR-JUL	89	114	130	68	146	171	192
Gunnison River nr Gunnison	APR-JUL	165	215	250	64	285	335	390
Tomichi Creek at Sargents	APR-JUL	5.2	12.2	17.0	53	22	29	32
Cochetopa Creek blw Rock Creek	APR-JUL	2.2	6.9	10.0	58	13.1	17.8	17.3
Tomichi Creek at Gunnison	APR-JUL	17.3	28	36	44	46	62	81
Lake Fork at Gateview	APR-JUL	54	77	92	73	107	130	126
Blue Mesa Reservoir Inflow	APR-JUL	265	380	460	64	540	655	720
Paonia Reservoir Inflow	MAR-JUN	43	56	65	65	75	91	100
	APR-JUL	34	50	62	61	75	98	102
N.F. Gunnison River nr Somerset	APR-JUL	159	194	220	72	247	291	305
Surface Creek nr Cedaredge	APR-JUL	9.0	10.9	12.5	73	14.3	17.5	17.1
Ridgway Reservoir Inflow	APR-JUL	60	71	80	78	90	107	102
Uncompahgre River at Colona	APR-JUL	64	82	95	68	110	133	139
Gunnison River nr Grand Junction	APR-JUL	585	835	1000	64	1165	1415	1560

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

GUNNISON RIVER BASIN
Watershed Snowpack Analysis - April 1, 2004

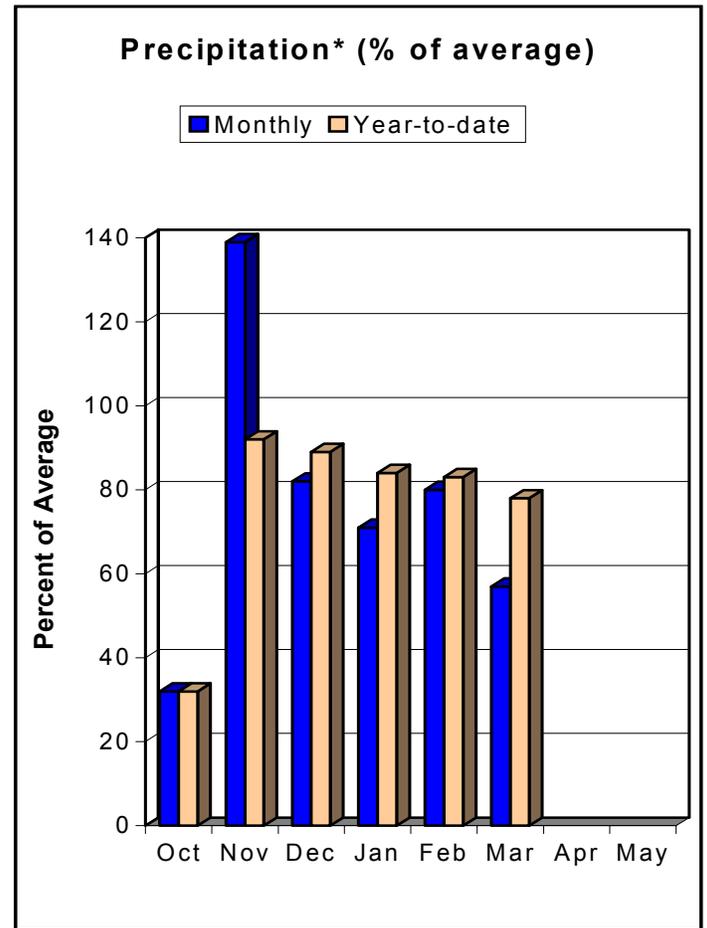
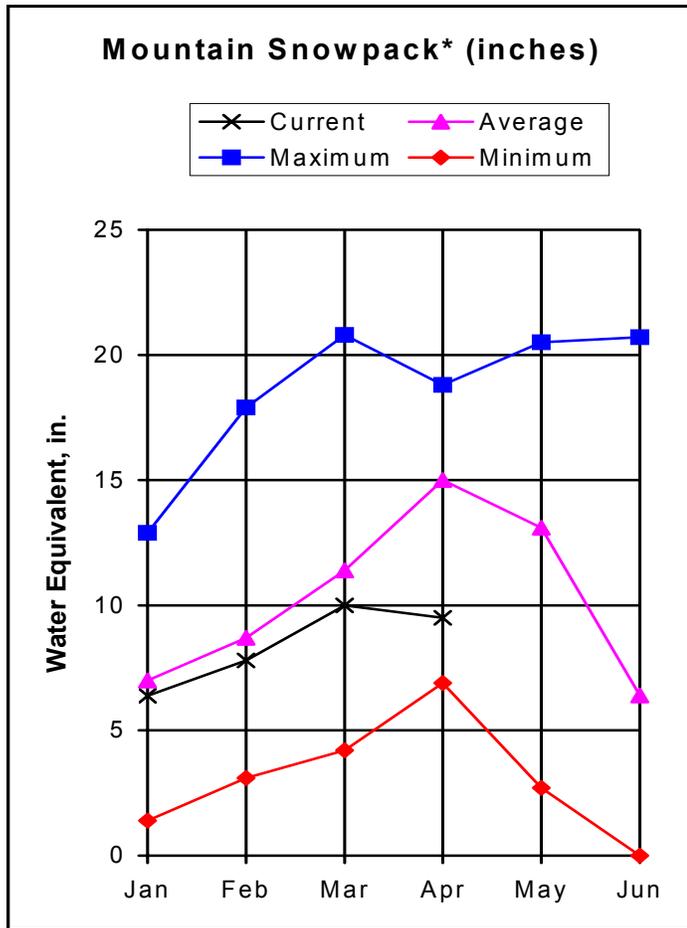
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BLUE MESA	830.0	423.2	310.3	404.5	UPPER GUNNISON BASIN	15	86	72
CRAWFORD	14.3	6.2	5.4	10.8	SURFACE CREEK BASIN	3	99	82
FRUITGROWERS	4.3	3.1	2.5	4.0	UNCOMPAHGRE BASIN	4	88	71
FRUITLAND	9.2	2.0	1.2	2.5	TOTAL GUNNISON RIVER BASIN	19	86	72
MORROW POINT	121.0	110.0	108.0	113.6				
PAONIA	18.0	4.3	7.9	4.6				
RIDGWAY	83.2	75.5	64.9	60.9				
TAYLOR PARK	106.0	72.6	39.2	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, 2004



*Based on selected stations

Extremely warm, dry conditions during March have decreased the snowpack measurements from 83% of on March 1, to only 64% of average on April 1. March can usually be depended on for additional accumulation to the snowpack, but this year there was no additional snow, and to make matters worse there was significant melting. Measurements show one of the largest decreases in snowpack on record in this basin. They range from only 47% of average in the Willow Creek Watershed, to 84% of average in the Plateau Creek Watershed. The precipitation during March was only 57% of average, and the water year total is now only 78% of average. Although there was melting in the basin, reservoirs have yet to realize any benefit from runoff, as storage is only 87% of average on April 1. There is 244% of the storage there was last year at this time. The runoff forecasts for the quickly approaching runoff season have been lowered below last month's forecasts. They range from only 50% of average at Muddy Creek below Wolford Mtn. Reservoir, to 65% of average at the Inflow to Williams Fork Reservoir.

UPPER COLORADO RIVER BASIN
Streamflow Forecasts - April 1, 2004

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Lake Granby Inflow	APR-JUL	99	117	130	58	145	170	225
Willow Creek Reservoir Inflow	APR-JUL	15.5	22	27	53	33	42	51
Williams Fork Reservoir inflow	APR-JUL	46	55	62	65	69	81	95
Dillon Reservoir Inflow	APR-JUL	51	80	100	60	120	149	167
Green Mountain Reservoir inflow	APR-JUL	145	165	180	64	195	219	280
Muddy Creek blw Wolford Mtn. Resv.	APR-JUL	19.7	25	30	50	36	46	60
Eagle River blw Gypsum	APR-JUL	145	176	200	60	228	275	335
Colorado River nr Dotsero	APR-JUL	355	635	825	57	1015	1295	1440
Ruedi Reservoir Inflow	APR-JUL	59	71	80	57	91	109	141
Roaring Fork at Glenwood Springs	APR-JUL	302	373	425	60	481	569	710
Colorado River nr Cameo	APR-JUL	595	1035	1330	55	1630	2060	2420

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

UPPER COLORADO RIVER BASIN
Watershed Snowpack Analysis - April 1, 2004

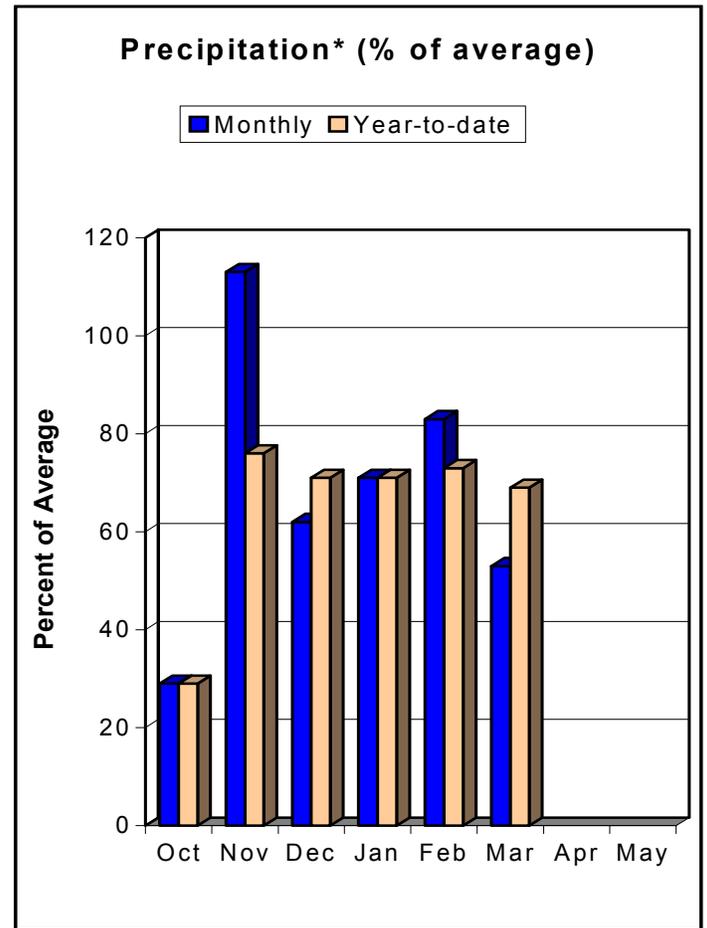
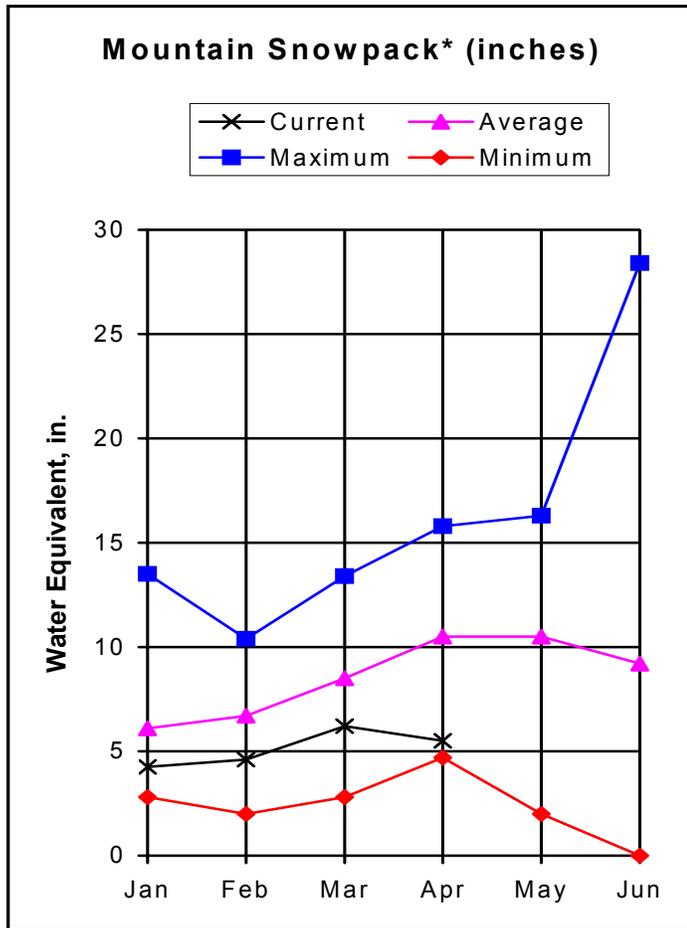
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DILLON	250.8	212.1	120.8	214.5	BLUE RIVER BASIN	9	60	66
LAKE GRANBY	465.6	174.0	15.4	263.7	UPPER COLORADO RIVER BASIN	37	57	60
GREEN MOUNTAIN	139.0	61.4	29.4	59.8	MUDDY CREEK BASIN	4	64	59
HOMESTAKE	43.0	21.9	17.0	22.5	PLATEAU CREEK BASIN	3	99	82
RUEDI	102.0	61.2	46.1	61.9	ROARING FORK BASIN	8	75	61
VEGA	32.0	12.1	5.1	13.1	WILLIAMS FORK BASIN	4	58	66
WILLIAMS FORK	96.8	58.2	7.7	54.8	WILLOW CREEK BASIN	4	39	47
WILLOW CREEK	9.0	6.6	7.5	6.8	TOTAL COLORADO RIVER BASIN	48	63	62

* 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, 2004



*Based on selected stations

Snowpack conditions in the South Platte Basin have gone from bad to worse during March. The April 1 measurements are only 51% of average, which is nearly 20% of average lower than last month. The extremely warm and dry conditions during March have caused conditions more representative of what would be found on May 1, when the meltout is normally well under way. Measurements range from only 36% of average in the St. Vrain Watershed, to 62% of average in the Clear Creek Watershed. Precipitation during March was only 53% of average, and the water year total is only 69% of average. Although, melting of the snowpack began in mid-March, very little runoff has been realized, and as a result the reservoir storage in the basin remains at only 83% of average. There is about 43% more storage than last year at this time. Most of the streamflow forecasts for this runoff season are below 50% of average. They range from only 17% of average at the Inflow to Antero Reservoir, to 83% of average on Boulder Creek near Orodell.

SOUTH PLATTE RIVER BASIN
Streamflow Forecasts - April 1, 2004

Forecast Point	Forecast Period	Future Conditions				Wetter		30-Yr Avg. (1000AF)
		<<===== Drier =====>>		=====		=====		
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Antero Reservoir inflow	APR-JUL	1.5	2.2	2.9	17	3.8	5.5	17.5
Spinney Mountain Reservoir inflow	APR-JUL	9.4	12.4	15.0	26	18.1	24	57
Elevenmile Canyon Reservoir inflow	APR-JUL	0.9	8.1	12.9	22	17.7	25	59
Cheesman Lake inflow	APR-JUL	24	29	34	30	39	48	114
South Platte River at South Platte	APR-SEP	53	94	122	48	150	191	254
Bear Creek abv Evergreen	APR-SEP	5.4	8.4	11.4	46	15.5	24	25
Bear Creek at Morrison	APR-SEP	5.2	8.9	12.8	41	18.5	32	31
Clear Creek at Golden	APR-SEP	23	48	65	49	82	107	134
St. Vrain Creek at Lyons	APR-SEP	27	39	47	56	55	67	84
Boulder Creek nr Orodell	APR-SEP	29	38	44	83	50	59	53
South Boulder nr Eldorado Spgs	APR-SEP	16.7	23	28	61	33	39	46
Big Thompson River at mouth nr Drake	APR-SEP	42	58	69	59	80	96	117
CACHE LAPOUDRE at Canyon Mouth	APR-SEP	112	164	200	73	235	290	275

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

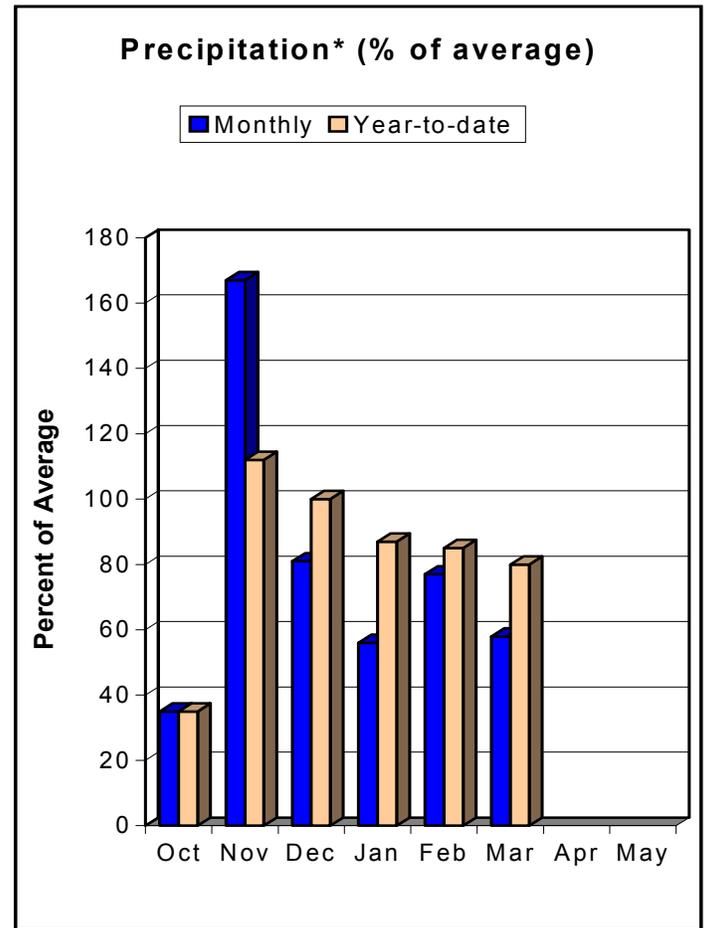
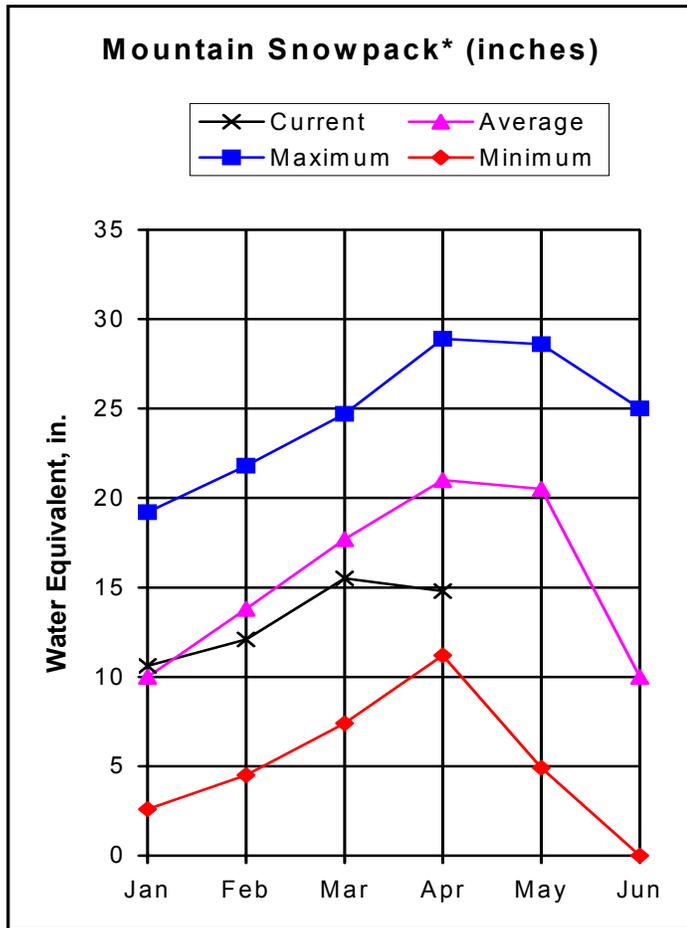
SOUTH PLATTE RIVER BASIN
Watershed Snowpack Analysis - April 1, 2004

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	0.0	0.0	15.9	BIG THOMPSON BASIN	7	48	55
BARR LAKE	32.0	19.5	20.7	27.9	BOULDER CREEK BASIN	5	37	48
BLACK HOLLOW	8.0	2.7	2.0	4.0	CACHE LA POUUDRE BASIN	8	42	50
BOYD LAKE	49.0	30.9	6.0	33.0	CLEAR CREEK BASIN	4	53	62
CACHE LA POUUDRE	10.0	4.0	3.5	8.6	SAINT VRAIN BASIN	4	29	36
CARTER	108.9	49.1	99.9	100.9	UPPER SOUTH PLATTE BASIN	15	49	46
CHAMBERS LAKE	9.0	5.3	1.7	3.3	TOTAL SOUTH PLATTE BASIN	43	44	50
CHEESMAN	79.0	60.3	46.2	60.8				
COBB LAKE	34.0	5.2	2.5	13.9				
ELEVEN MILE	97.8	75.0	44.9	96.4				
EMPIRE	38.0	23.8	26.4	31.8				
FOSSIL CREEK	12.0	7.0	8.3	7.9				
GROSS	41.8	22.0	16.5	23.9				
HALLIGAN	6.4	1.1	3.8	4.7				
HORSECREEK	16.0	12.0	1.4	13.9				
HORSETOOTH	149.7	149.7	29.9	119.1				
JACKSON	35.0	24.8	24.7	29.9				
JULESBURG	28.0	19.5	21.7	20.8				
LAKE LOVELAND	14.0	10.6	8.5	9.0				
LONE TREE	9.0	8.8	8.5	7.2				
MARIANO	6.0	1.3	0.5	4.5				
MARSHALL	10.0	6.7	4.9	6.0				
MARSTON	13.0	6.8	9.7	13.3				
MILTON	24.0	17.8	4.9	18.3				
POINT OF ROCKS	70.0	57.9	38.1	68.8				
PREWITT	33.0	8.9	8.9	25.0				
RIVERSIDE	63.1	51.5	46.4	58.2				
SPINNEY MOUNTAIN	48.7	19.5	12.6	32.1				
STANDLEY	42.0	38.8	20.7	34.6				
TERRY LAKE	8.0	5.7	2.5	5.4				
UNION	13.0	9.6	6.3	11.1				
WINDSOR	19.0	9.1	0.8	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, 2004



*Based on selected stations

Even these northern basins were not immune to the effect of very warm temperatures and dry conditions that characterized the month of March. Lack of additional snow and even melting of the snowpack has caused measurements to drop to only 69% of average in the Yampa, White, and North Platte basins. This is a drop of up to 20% of average at some measuring points, which is one of the largest drops recorded during March. The measurements range from only 60% of average in the Laramie Watershed, to 75% in the Little Snake Watershed. Precipitation in these basins during March was only 58% of average, which brought the water year total down to only 80% of average. The two major reservoirs in these basins remain at 110% of average storage volume for this time of year, which is 119% of the storage volume last year at this time. Streamflow forecasts for the runoff season are lower than last month at all of the forecast points, and all are well below average. Forecasts range from only 54% of average on Elkhead Creek near Elkhead, to 70% of average at Little Snake River near Dixon.

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS
Streamflow Forecasts - April 1, 2004

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)		
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)			30% (1000AF)	10% (1000AF)
NORTH PLATTE RIVER nr Northgate	APR-SEP	9.0	67	107	40	147	205	270		
LARAMIE RIVER nr Woods	APR-SEP	18.0	55	81	60	107	144	135		
Yampa R abv Stagecoach Res	APR-JUL	9.2	15.1	19.1	66	23	29	29		
Yampa River at Steamboat Springs	APR-JUL	108	148	175	63	201	241	280		
Elk River nr Milner	APR-JUL	100	142	175	54	211	271	325		
Elkhead Creek nr Elkhead	APR-JUL	11.0	16.2	21	54	27	40	39		
ELKHEAD CREEK blw Maynard Gulch	APR-JUL	13.7	26	34	58	42	54	59		
Fortification Ck nr Fortification	MAR-JUN	0.75	1.80	3.50	47	5.20	7.70	7.50		
Yampa River nr Maybell	APR-JUL	230	415	535	54	655	840	990		
Little Snake River nr Slater	APR-JUL	72	94	110	69	128	156	159		
LITTLE SNAKE R nr Dixon	APR-JUL	120	186	230	70	275	340	330		
LITTLE SNAKE R nr Lily	APR-JUL	116	185	230	63	275	345	365		
White River nr Meeker	APR-JUL	120	148	170	59	196	241	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, 2004

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	29.0	26.0	24.6	LARAMIE RIVER BASIN	4	59	60
YAMCOLO	9.1	5.5	3.0	6.9	NORTH PLATTE RIVER BASIN	11	71	69
					TOTAL NORTH PLATTE BASIN	14	71	69
					ELK RIVER BASIN	2	75	66
					YAMPA RIVER BASIN	12	72	68
					WHITE RIVER BASIN	6	86	69
					TOTAL YAMPA AND WHITE RIV	17	75	67
					LITTLE SNAKE RIVER BASIN	8	78	75

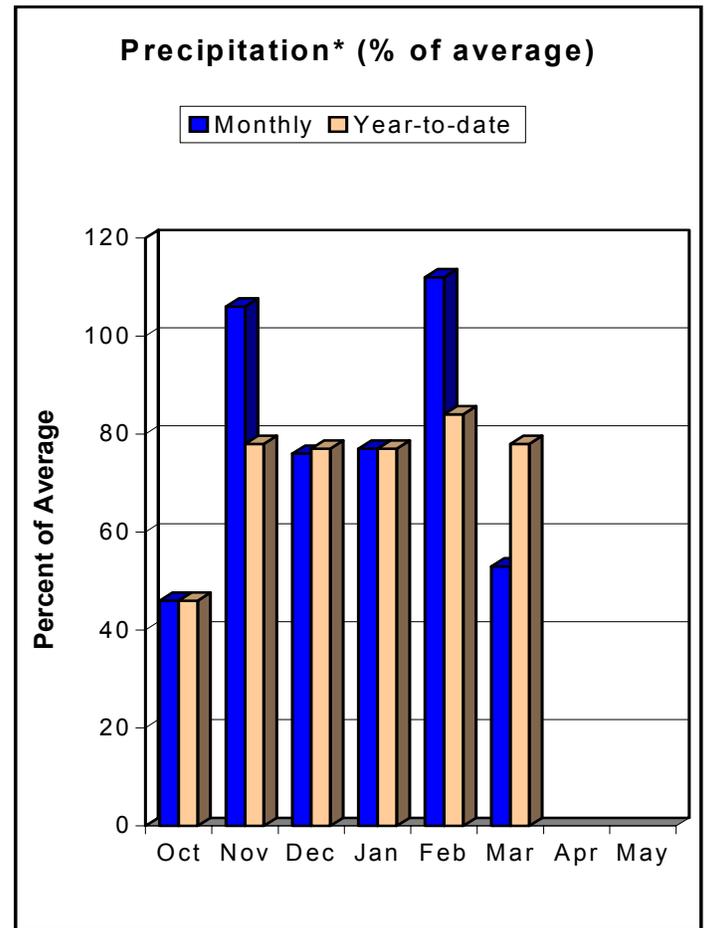
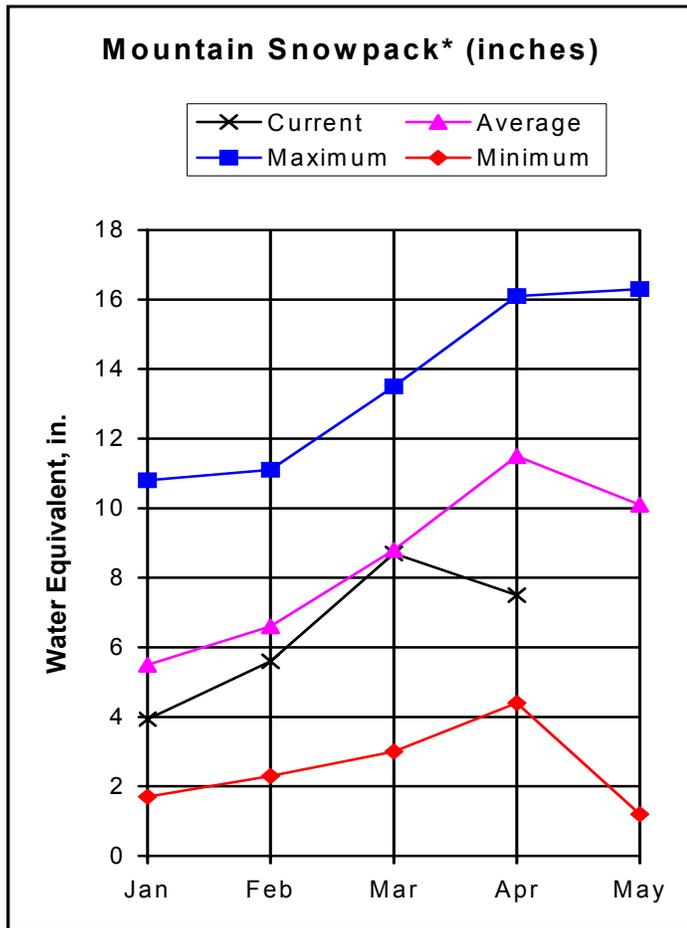
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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.

ARKANSAS RIVER BASIN

as of April 1, 2004



*Based on selected stations

While February brought an increase of 14% of average to the snowpack measurements in the Arkansas Basin, March has countered with extremely warm, dry conditions that have driven the snowpack measurements down 30% of average from March 1 to April 1. This is one of the largest decreases ever recorded in the month, and has caused conditions that are more representative of May 1 than April 1. Measurements throughout the basin, as a whole, are 60% of average, and range from only 28% of average in the Purgatoire Watershed, to 65% of average in the Upper Arkansas Watershed. The precipitation during March was only 53% of average. The water year total is now at 78% of average. With all of the snowmelt, the reservoirs have yet to realize any storage benefit from runoff, and the combined reservoir storage remains at only 53% of average. The streamflow forecasts for this runoff season are far less promising than last month. All of the forecasts are much below average, and range from only 41% of average at the Cucharas River near La Veta, to 77% of average on the Arkansas River at Salida.

ARKANSAS RIVER BASIN
Streamflow Forecasts - April 1, 2004

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>								
		90%		70%		50% (Most Probable)		30%	10%	30-Yr Avg.
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)			
Chalk Creek nr Nathrop	APR-SEP	6.6	14.3	19.5	72	25	32	27		
Arkansas River at Salida	APR-SEP	147	200	240	77	280	335	310		
Grape Creek nr Westcliffe	APR-SEP	2.9	5.2	12.0	61	18.4	28	19.6		
Pueblo Reservoir Inflow	APR-SEP	190	270	320	74	370	450	430		
Huerfano River nr Redwing	APR-SEP	3.9	7.3	10.3	67	13.3	17.7	15.5		
Cucharas River nr La Veta	APR-SEP	1.3	2.5	5.3	41	8.1	12.3	13.0		
Trinidad Lake Inflow	APR-SEP	8.8	13.2	24	55	36	54	44		

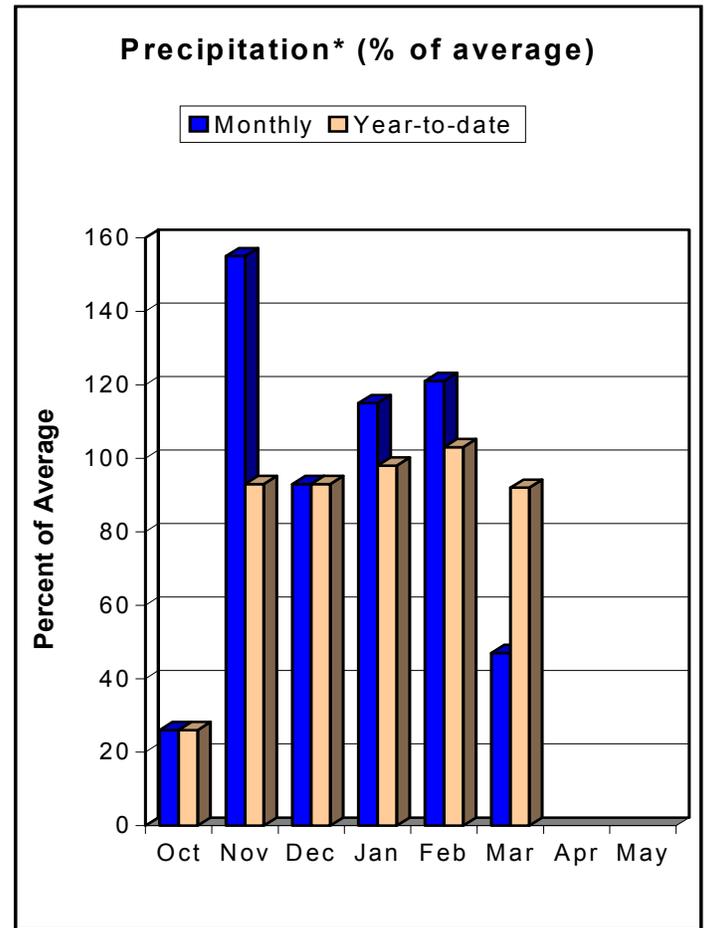
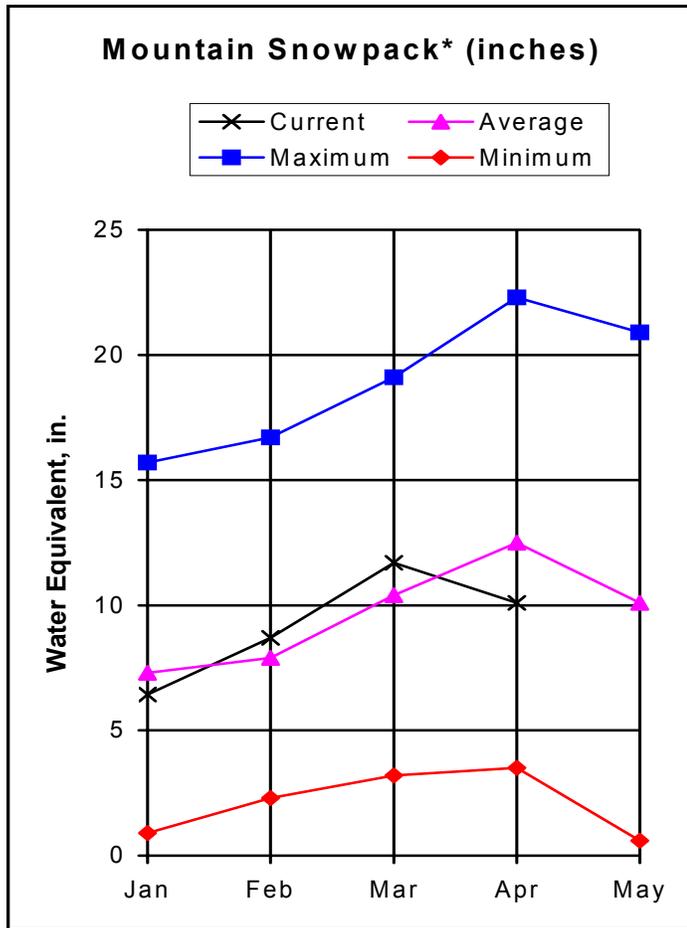
ARKANSAS RIVER BASIN Reservoir Storage (1000 AF) - End of March					ARKANSAS RIVER BASIN Watershed Snowpack Analysis - April 1, 2004			
Reservoir	Usable Capacity	*** This Year	Usable Storage Last Year	*** Avg	Watershed	Number of Data Sites	This Year as % of Last Yr Average	
ADOBE	70.0	0.0	0.0	37.0	UPPER ARKANSAS BASIN	9	65	62
CLEAR CREEK	11.0	8.4	7.0	6.7	CUCHARAS & HUERFANO RIVER	4	53	54
GREAT PLAINS	150.0	0.0	2.8	41.9	PURGATOIRE RIVER BASIN	2	26	28
HOLBROOK	7.0	0.0	2.9	4.9	TOTAL ARKANSAS RIVER BASIN	14	58	59
HORSE CREEK	28.0	0.0	0.0	12.6				
JOHN MARTIN	335.7	33.8	43.7	137.3				
LAKE HENRY	8.0	6.6	6.5	6.7				
MEREDITH	42.0	30.1	17.7	19.0				
PUEBLO	236.7	114.2	111.4	173.3				
TRINIDAD	72.3	19.2	17.5	27.5				
TURQUOISE	126.6	63.5	32.3	74.0				
TWIN LAKES	86.0	33.6	28.3	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.

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

UPPER RIO GRANDE BASIN as of April 1, 2004



*Based on selected stations

The Rio Grande Basin continues to have the highest snowpack measurements in the state, although they have been diminished significantly from last month. Extremely warm, dry conditions have reduced the snow measurements from 108% of average on March 1, to only 77% of average on April 1. This is one of the largest March decreases in snowpack measurements ever recorded. Measurements range from only 53% of average in the Alamosa Creek Watershed, to 85% of average in the Conejos and Rio San Antonio Watersheds. The precipitation during March was only 47% of average, and the water year total is now 92% of average. Reservoirs are seeing some benefit from the snowmelt in the form of runoff, and have improved their storage volumes from 43% of average on March 1, to 52% of average on April 1. There is only 84% of last year's storage. Runoff forecasts have been lowered significantly relative to last month's forecasts. They are all below average, and range from only 67% of average at Costilla Creek near Costilla, to 93% of average at La Jara Creek near Capulin.

UPPER RIO GRANDE BASIN
Streamflow Forecasts - April 1, 2004

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<----- Drier ----->>		----->>		----->>		
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Rio Grande at Thirty Mile Bridge	APR-SEP	87	105	120	88	137	166	136
Rio Grande Reservoir Inflow	APR-JUL	77	90	101	86	113	133	118
Rio Grande at Wagon Wheel Gap	APR-SEP	185	250	295	86	340	405	345
South Fork Rio Grande at South Fork	APR-SEP	84	105	120	91	135	156	132
Rio Grande nr Del Norte	APR-SEP	300	395	460	87	525	620	531
Saguache Creek nr Saguache	APR-SEP	11.9	19.0	25	76	31	40	33
Alamosa Creek abv Terrace Reservoir	APR-SEP	44	55	62	89	69	80	70
La Jara Creek nr Capulin	MAR-JUL	3.60	6.30	8.10	93	9.90	12.60	8.70
Trinchera Creek	APR-SEP	4.1	7.2	9.3	78	11.4	14.5	12.0
Sangre de Cristo Creek	APR-SEP	2.20	4.40	6.80	77	9.20	12.80	8.80
Ute Creek	APR-SEP	3.5	7.0	9.3	76	11.6	15.1	12.2
Platoro Reservoir Inflow	APR-JUL	44	52	57	89	62	70	64
	APR-SEP	49	57	63	89	69	77	71
Conejos River nr Mogote	APR-SEP	132	162	182	91	204	234	200
San Antonio River at Ortiz	APR-SEP	8.8	11.8	14.0	85	16.4	20	16.4
Los Pinos River nr Ortiz	APR-SEP	47	58	65	88	72	83	74
Culebra Creek at San Luis	APR-SEP	4.6	10.5	16.0	70	22	30	23
Costilla Reservoir inflow	MAR-JUL	4.4	5.6	7.3	69	9.0	11.4	10.6
Costilla Creek nr Costilla	MAR-JUL	9.7	13.5	17.5	67	22	27	26

UPPER RIO GRANDE BASIN
Reservoir Storage (1000 AF) - End of March

UPPER RIO GRANDE BASIN
Watershed Snowpack Analysis - April 1, 2004

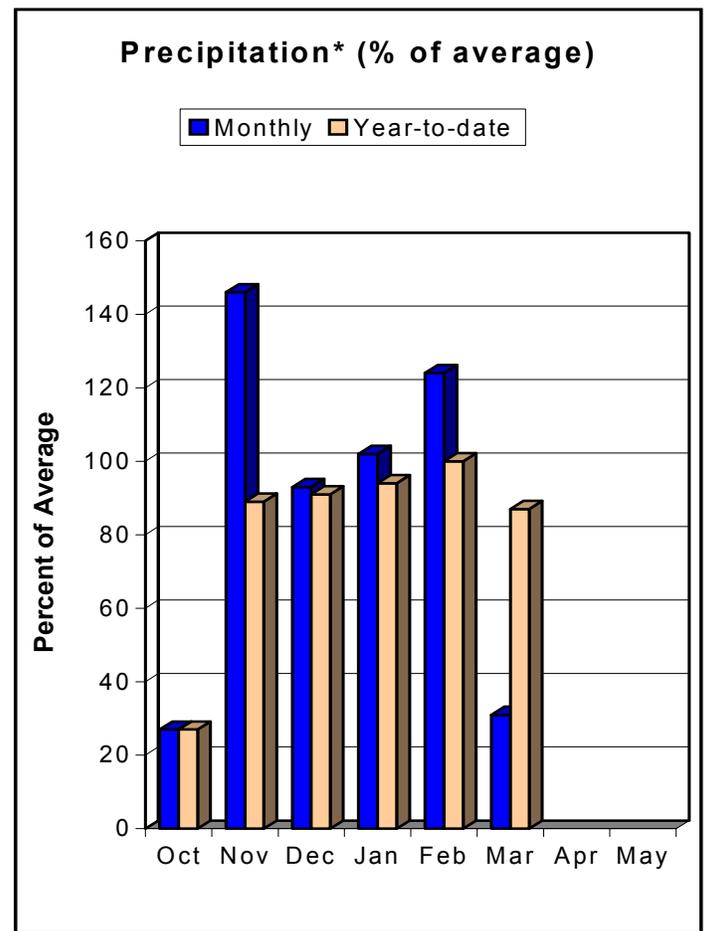
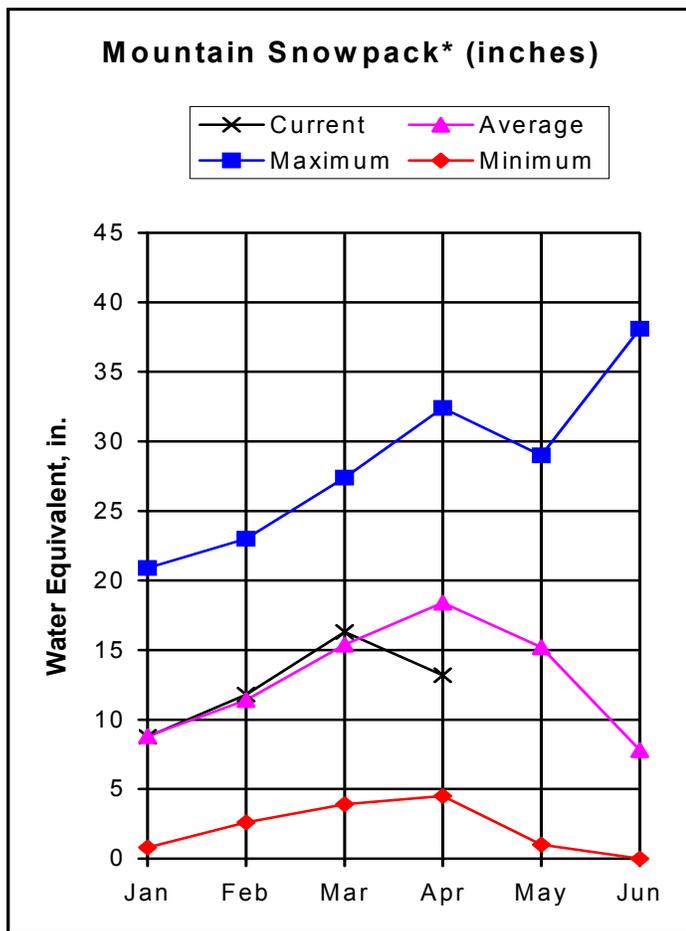
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CONTINENTAL	15.0	4.2	3.7	5.9	ALAMOSA CREEK BASIN	2	131	53
PLATORO	53.7	5.6	8.0	24.5	CONEJOS & RIO SAN ANTONIO	4	110	85
RIO GRANDE	51.0	14.4	19.0	19.3	CULEBRA & TRINCHERA CREEK	5	52	62
SANCHEZ	103.0	14.6	12.5	24.9	UPPER RIO GRANDE BASIN	12	142	83
SANTA MARIA	45.0	5.6	10.8	10.8	TOTAL UPPER RIO GRANDE BA	23	103	77
TERRACE	13.1	3.5	2.7	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.

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- (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, 2004



*Based on selected stations

Extremely dry and warm conditions during March have caused the snowpack to start melting nearly a full month ahead of normal, and has driven the measurements from 5% above average on March 1, to 30% below average on April 1. This is the largest drop in percent of average measurements in the state, and one of the largest March decreases ever recorded in these basins. Measurements range from only 56% of average in the Dolores Basin, to 89% of average in the San Juan Basin. Precipitation during March was only 31% of the average, and the water year total is now 87% of average. Fortunately, the reservoirs have been able to benefit modestly from the early snowmelt in the form of runoff, and the combined storage has gone from only 67% of average on March 1, to 75% of average on April 1. Unfortunately, all of the forecast points have been significantly lowered relative to last month's forecast. They are all below average, and range from only 50% of average on the Mancos River near Mancos, to 81% of average on the Navajo River at Oso Diversion.

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS
Streamflow Forecasts - April 1, 2004

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)				
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)			30% (1000AF)		10% (1000AF)	
Dolores River at Dolores	APR-JUL	77	135	175	66	216	271	265				
McPhee Reservoir inflow	APR-JUL	96	161	205	64	250	315	320				
San Miguel River nr Placerville	APR-JUL	45	75	95	72	115	145	132				
Gurley Reservoir Inlet	APR-JUL	7.0	9.5	11.3	69	13.1	15.6	16.5				
	APRIL			2.00	121			1.66				
	MAY			6.90	78			8.83				
	JUNE			2.10	45			4.67				
	JULY			0.33	25			1.32				
Cone Reservoir Inlet	APR-JUL	1.44	1.95	2.30	65	2.65	3.15	3.53				
	APRIL			0.50	109			0.46				
	MAY			1.22	74			1.64				
	JUNE			0.50	48			1.04				
	JULY			0.10	26			0.38				
Lilylands Reservoir Inlet	APR-JUL	0.90	1.50	1.90	66	2.34	2.94	2.86				
	APRIL			0.40	100			0.40				
	MAY			1.00	76			1.32				
	JUNE			0.43	49			0.87				
	JULY			0.10	37			0.27				
Rio Blanco at Blanco Diversion	APR-JUL	25	35	42	79	49	59	53				
Navajo River at Oso Diversion	APR-JUL	34	47	56	81	65	78	69				
San Juan River nr Carracus	APR-JUL	173	239	290	72	346	437	405				
Piedra River nr Arboles	APR-JUL	119	155	180	78	205	242	230				
Vallecito Reservoir Inflow	APR-JUL	76	133	150	73	185	225	205				
Navajo Reservoir Inflow	APR-JUL	350	490	600	75	710	850	800				
Animas River at Durango	APR-JUL	194	285	330	75	375	465	440				
Lemon Reservoir Inflow	APR-JUL	18.0	30	38	66	46	58	58				
La Plata River at Hesperus	APR-JUL	7.3	11.3	14.0	56	16.7	21	25				
Mancos River nr Mancos	APR-JUL	6.0	13.0	20	50	27	38	40				
	APRIL			5.00	86			5.80				
	MAY			9.4	59			15.9				
	JUNE			5.1	37			13.7				
	JULY			0.85	19			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, 2004

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	7.3	3.8	12.2	ANIMAS RIVER BASIN	9	105	73
JACKSON GULCH	10.0	3.6	4.5	5.1	DOLORES RIVER BASIN	7	69	56
LEMON	40.0	12.0	6.3	21.2	SAN MIGUEL RIVER BASIN	5	77	66
MCPHEE	381.2	179.0	168.0	273.6	SAN JUAN RIVER BASIN	4	122	91
NARRAGUINNEP	19.0	18.3	7.9	15.5	TOTAL SAN MIGUEL, DOLORES	24	93	72
VALLECITO	126.0	70.4	41.8	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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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>.

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Colorado
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