

# Wyoming Basin Outlook Report March 1, 2004



# 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 either above or below, the predicted 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 their operational decisions. 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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# Wyoming Water Supply Outlook Report

## General

Generally, snow water equivalent (SWE) across the state is below normal for this time of the year. SWE average for the State is about 89 percent of normal for this time of the year. SWE in the Northwest portion of the State is 91 of percent normal. SWE in Northeast Wyoming is 90 of percent normal, and in the southeast part of the State is 83 percent of average. SWE in Southwestern Wyoming is 90 percent of average for this time of the year.

Precipitation for February varied from 42 percent below to 51 percent below average for the State. Year-to-date precipitation is also well below average for the year. Reservoir levels vary from well above average to well below average. Reservoirs in the North Platte River basin are generally well below average. Reservoirs in the northeast have near average storage. Forecast runoff varies from 32 to 118 percent of average across the State.

## Snowpack

Snow water equivalent (SWE), across the State, is below average for this time of year. SWE in the northwestern portion of the State is now at 91 percent of average (107 percent of last year). Northeast Wyoming SWE is currently about 90 percent of average (98 percent of last year). The southeast portion is currently about 83 percent of average SWE (100 percent of last year). And the southwest snowpack is about 90 percent of average (115 percent of last year).

## Precipitation

Last month's precipitation was below normal across most of the State. The Shoshone and Clarks Fork was the lowest in percentage at 42 percent of average. The Powder and Tongue received the most in percent of average at 151 percent. The following table displays the major river basins and their departure from normal for this month.

Basin	Departure from normal	Basin	Departure from normal
Snake River	-36%	Upper North Platte River	0%
Yellowstone & Madison	-37%	Lower North Platte	13%
Wind River	+20%	Little Snake River	-14%
Big Horn	+38%	Upper Green River	-22%
Shoshone & Clarks Fork	-42%	Lower Green River	-18%
Powder & Tongue River	+51%	Upper Bear River	-23%
Belle Fourche & Cheyenne	-07%		

## Streams

Stream flow yield is expected to be below average across the State. Most probable yield for the State is forecast to be about 84 percent of average (varies from 32 to 118 percent of average). The northwest part of the State is expected to yield about 88 percent of normal -- yield estimates vary from 32 to 106 percent of normal. Yield from the northeast portion of Wyoming will be below average (about 93 percent of average) -- yield estimates vary from 76 to 118 percent of average for the various forecast points. The southeast portion of the state will be about 77 percent of normal -- yield estimates range from 32 to 106 percent of normal. The southwest portion of Wyoming varies from 46 to 100 percent of average -- mean estimated yield for the forecast points in southwest Wyoming is about 79 percent of average.

## Reservoirs

Only one reservoir did not report (Eden Reservoir), and Eden Reservoir water level is below the staff gage. Reservoir storage, for those reporting, is generally below average for this time of the year, however reservoir storage is improved from last year. See following table for further information about reservoir storage.

## Major Reservoirs in Wyoming

BASIN AREA RESERVOIR	CURRENT AS % CAPACITY	LAST YR AS % CAPACITY	AVERAGE AS % CAPACITY	CURRENT AS % AVERAGE	CURRENT AS % LAST YR
-----					
WYOMING AND SURROUNDING STATES					
ALCOVA	85	85	84	101	101
ANGOSTURA	69	65	83	82	105
BELLE FOURCHE	58	62	63	92	95
BIG SANDY	14	10	50	28	142
BIGHORN LAKE	50	44	61	83	115
BOYSEN	60	42	82	73	143
BUFFALO BILL	66	51	63	105	129
BULL LAKE	38	29	56	67	132
DEERFIELD	99	96	87	114	103
EDEN			NO REPORT		
ENNIS LAKE	71	69	77	93	104
FLAMING GORGE	69	70	78	89	100
FONTENELLE	45	54	45	100	84
GLENDO	49	41	75	65	120
GRASSY LAKE	65	84	79	82	78
GUERNSEY	40	30	31	128	132
HEBGEN LAKE	75	76	70	107	99
JACKSON LAKE	20	33	58	35	62
KEYHOLE	59	61	55	107	97
PACTOLA	87	84	84	104	103
PALISADES	37	40	74	50	93
PATHFINDER	30	32	70	42	91
PILOT BUTTE	76	77	63	120	98
SEMINOE	23	17	52	44	134
SHADEHILL	48	37	61	79	130
TONGUE RIVER	59	45	31	190	131
VIVA NAUGHTON RES	69	56	69	101	124
WHEATLAND #2	23	14	48	47	159
WOODRUFF NARROWS	13	14	48	27	94

# Basin Summary of Snow Course Data

LOST - Data current as of:03/08/04 10:00:06

## BASIN SUMMARY OF SNOW COURSE DATA

MARCH 2004

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 71-00
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WYOMING Snow Course and SNOTEL Stations						
ALBANY	9400	2/26/04	32	7.7	8.5	11.8
ASTER CREEK	7750	2/26/04	76	25.4	19.4	25.2
BALD MOUNTAIN SNOTEL	9380	3/01/04	65	14.4	14.6	16.0
BASE CAMP SNOTEL	7030	3/01/04	---	17.2	16.0	16.0
BATTLE MTN. SNOTEL	7440	3/01/04	37	13.3	11.6	9.7
BEARLODGE DIVIDE	4680	2/27/04	7	1.7	2.4	1.8
BEARTOOTH LK. SNOTEL	9280	3/01/04	60	16.2	19.7	19.7
BEAR TRAP SNOTEL	8200	3/01/04	34	5.7	4.4	4.3
BIG GOOSE	7760	2/29/04	32	4.8	5.0	5.1
BIG GOOSE SNOTEL	7760	3/01/04	41	7.2	7.1	7.7
BIG PARK	8620	2/24/04	42	12.0	12.8	16.2
BIG SANDY SNOTEL	9080	3/01/04	---	11.4	8.4	12.1
BLACKWATER SNOTEL	9780	3/01/04	---	17.3	16.9	20.4
BLIND BULL SNOTEL	8900	3/01/04	64	18.7	15.8	23.1
BLIND PARK SNOTEL	6870	3/01/04	30	4.9	6.9	7.1
BLUE RIDGE	9620	2/26/04	35	9.7	7.4	9.8
BONE SPGS. SNOTEL	9350	3/01/04	59	12.4	11.9	13.2
BROOKLYN LK. SNOTEL	10220	3/01/04	53	12.8	12.3	19.0
BUCK CREEK	7960	3/02/04	45	7.6	6.0	8.2
BURGESS JCT. SNOTEL	7880	3/01/04	---	8.4	8.0	9.0
BURROUGHS CRK SNOTEL	8750	3/01/04	40	9.6	13.2	12.6
CANYON SNOTEL	8090	3/01/04	43	10.7	10.5	11.3
CARTER MOUNTAIN	7950	2/26/04	14	2.6	2.8	3.6
CASPER MTN. SNOTEL	7850	3/01/04	53	10.8	7.9	11.3
CASTLE CREEK	8400	2/25/04	14	2.8	4.3	4.0
CCC CAMP	7000	2/25/04	35	9.6	8.8	11.0
CHALK CK #1 SNOTEL	9100	3/01/04	68	16.7	13.2	19.9
CHALK CK #2 SNOTEL	8200	3/01/04	48	11.7	10.0	12.9
CINNABAR PARK SNOTEL	9690	3/01/04	52	13.9	--	11.9
CLOUD PEAK SNOTEL	9850	3/01/04	61	11.4	10.3	10.0
COLE CANYON SNOTEL	5910	3/01/04	22	4.2	4.7	5.1
COLD SPRINGS SNOTEL	9630	3/01/04	30	5.6	6.3	7.2
COTTONWOOD CR SNOTEL	7700	3/01/04	---	17.5	17.9	18.5
CROW CREEK SNOTEL	8830	3/01/04	22	5.4	--	7.3
DARBY CANYON	8250	3/01/04	64	20.5	17.9	20.3
DEER PARK SNOTEL	9700	3/01/04	65	14.8	9.2	14.4
DITCH CREEK	6870	2/24/04	15	2.8	3.5	3.6
DIVIDE PEAK SNOTEL	8860	3/01/04	171	16.3	13.3	15.6
DOMELAKE SNOTEL	8880	3/01/04	42	9.1	8.6	9.5
DU NOIR	8760	2/25/04	21	4.4	5.7	6.8
EAST RIM DIV SNOTEL	7930	3/01/04	---	9.4	7.6	11.0
ELBO RANCH	7100	2/27/04	36	9.2	8.5	10.3

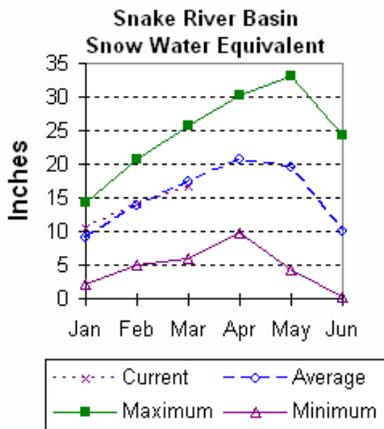
EVENING STAR SNOTEL	9200	3/01/04	66	18.1	21.6	25.0
FOUR MILE MEADOWS	7860	2/25/04	35	8.4	10.3	10.8
FOXPARK	9060	2/26/04	20	4.7	5.7	6.3
GEYSER CREEK	8500	2/25/04	16	3.7	4.7	6.0
GLADE CREEK	7040	2/26/04	65	21.6	17.5	20.9
GRANITE CRK SNOTEL	6770	3/01/04	---	15.5	11.6	16.1
GRANNIER MEADOWS	8860	2/26/04	37	10.5	6.6	11.7
GRASSY LAKE SNOTEL	7270	3/01/04	96	32.6	25.1	29.5
GRAVE SPRINGS SNOTEL	8550	3/01/04	40	8.5	4.1	7.3
GREYS BOUNDARY	5720	2/25/04	38	12.2	8.9	10.9
GROS VENTRE SNOTEL	8750	3/01/04	39	9.3	8.5	11.5
GROVER PARK DIVIDE	7000	2/25/04	30	8.3	8.4	10.0
HAIRPIN TURN	9480	2/26/04	34	8.6	8.9	13.9
HANSEN S.M. SNOTEL	8360	3/01/04	39	6.4	6.0	5.2
HAMS FORK SNOTEL	7840	3/01/04	---	9.4	9.1	11.0
HASKINS CREEK	8980	2/26/04	71	25.5	25.1	25.9
HOBBS PARK SNOTEL	10100	3/01/04	---	11.0	9.2	11.9
HUCKLEBERRY DIVIDE	7300	2/26/04	59	18.5	16.1	18.5
INDIAN CREEK SNOTEL	9430	3/01/04	---	19.3	16.3	22.3
JACKPINE CREEK	7350	3/01/04	66	21.0	17.5	19.4
KELLEY R.S. SNOTEL	8180	3/01/04	---	12.6	10.3	14.0
KENDALL R.S. SNOTEL	7740	3/01/04	---	11.8	9.2	12.4
KIRWIN SNOTEL	9550	3/01/04	30	5.3	7.8	9.1
LAKE CAMP	7780	2/28/04	35	8.8	7.8	8.7
LA PRELE SNOTEL	8380	3/01/04	32	7.0	5.4	8.9
LARSEN CREEK	9020	2/25/04	34	8.8	5.5	11.0
LEWIS LAKE SNOTEL	7850	3/01/04	---	28.7	26.8	29.7
LIBBY LODGE	8750	2/26/04	26	6.2	6.3	9.6
LITTLE BEAR RUN	6240	2/24/04	14	3.2	4.0	3.4
LITTLE WARM SNOTEL	9370	3/01/04	32	6.7	7.6	9.5
LOOMIS PARK SNOTEL	8240	3/01/04	---	13.8	13.4	14.5
LUPINE CREEK	7380	2/27/04	33	7.8	6.1	8.5
MALLO	6420	2/25/04	25	5.0	6.3	6.6
MARQUETTE SNOTEL	8760	3/01/04	43	6.5	7.6	6.9
MEDICINE LODGE LAKES	9340	2/28/04	40	8.6	9.2	9.2
MIDDLE FORK	7420	2/26/04	24	5.7	5.6	4.8
MIDDLE POWDER SNOTEL	7760	3/01/04	---	9.2	5.1	9.0
MORAN	6750	2/25/04	37	9.8	9.0	11.8
MOSS LAKE	9800	2/25/04	47	14.0	15.2	19.9
NEW FORK SNOTEL	8340	3/01/04	---	9.0	7.9	9.6
NORRIS BASIN	7500	2/29/04	33	8.3	6.4	9.6
NORTH BARRETT CREEK	9400	2/25/04	46	13.2	19.7	17.5
NORTH FRENCH SNOTEL	10130	3/01/04	75	18.3	22.3	22.7
NORTH RAPID CK SNTL	6130	3/01/04	26	4.9	5.8	6.8
NORTH TONGUE	8450	2/29/04	41	7.8	9.2	10.3
OLD BATTLE SNOTEL	9920	3/01/04	83	24.9	20.4	26.3
OLD FAITHFUL	7400	2/29/04	46	13.6	7.6	12.9
ONION GULCH	8780	2/28/04	27	4.4	3.8	6.7
OWL CREEK SNOTEL	8980	3/01/04	24	3.7	5.4	4.1
PARKERS PEAK SNOTEL	9400	3/01/04	53	15.3	17.7	18.2

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 71-00
PHILLIPS BENCH SNTL	8200	3/01/04	74	22.0	18.5	23.9
POCKET CREEK	9350	2/25/04	35	8.9	7.9	10.9
POLE MOUNTAIN	8700	2/25/04	26	6.5	4.3	6.8
POWDER RVR.PASS SNTL	9480	3/01/04	41	9.0	8.1	8.7
PURGATORY GULCH	8970	2/26/04	35	3.4	5.0	9.5
RANGER CREEK	8120	2/28/04	31	6.4	7.4	7.3
RENO HILL SNOTEL	8500	3/01/04	---	10.7	7.7	10.4
REUTER CANYON	6280	2/27/04	19	4.9	6.2	8.4
ROWDY CREEK	8300	2/26/04	50	16.6	13.4	18.5
RYAN PARK	8400	2/25/04	30	7.0	10.5	9.7
SAGE CK BASIN SNTL	7850	3/01/04	51	12.5	8.0	9.0
SALT RIVER SNOTEL	7600	3/01/04	---	11.8	9.4	12.2
SAND LAKE SNOTEL	10050	3/01/04	80	18.2	16.1	25.2
SANDSTONE RS SNOTEL	8150	3/01/04	185	10.3	10.0	12.5
SAWMILL DIVIDE	9260	2/29/04	47	9.7	9.8	10.2
SHELL CREEK SNOTEL	9580	3/01/04	53	11.3	11.8	11.8
SHERIDAN R.S.	7750	2/25/04	18	4.0	4.2	5.2
SNAKE RIVER STATION	6920	2/26/04	56	19.1	16.2	18.3
SNAKE RV STA SNOTEL	6920	3/01/04	---	18.1	14.9	16.6
SNIDER BASIN SNOTEL	8060	3/01/04	47	10.7	9.5	12.4
SNOW KING MTN	7660	2/24/04	39	12.3	9.8	12.6
SOLDIER PARK	8780	2/28/04	26	2.8	3.2	4.4
SOUR DOUGH	8460	2/28/04	29	4.3	5.0	5.4
SOUTH BRUSH SNOTEL	8440	3/01/04	49	9.2	10.8	10.0
SOUTH PASS SNOTEL	9040	3/01/04	65	14.5	9.0	14.0
SPRING CRK. SNOTEL	9000	3/01/04	68	18.5	18.6	22.2
ST LAWRENCE ALT SNTL	8620	3/01/04	---	5.8	5.3	5.9
SUCKER CREEK SNOTEL	8880	3/01/04	54	9.9	9.3	9.1
SYLVAN LAKE SNOTEL	8420	3/01/04	50	14.2	16.5	18.8
SYLVAN ROAD SNOTEL	7120	3/01/04	37	9.5	11.2	11.4
T CROSS RANCH	7900	2/25/04	21	5.1	5.9	6.8
TETON PASS W.S.	7740	3/01/04	70	21.1	20.8	23.4
THUMB DIVIDE SNOTEL	7980	3/01/04	---	16.4	11.3	15.4
THUMB DIVIDE	7980	2/26/04	50	14.8	10.7	15.8
TIE CREEK SNOTEL	6870	3/01/04	42	7.0	4.7	4.9
TIMBER CREEK SNOTEL	7950	3/01/04	29	4.1	4.0	4.2
TOGWOTEE PASS SNOTEL	9580	3/01/04	60	16.7	17.7	20.7
TOWNSEND CRK SNOTEL	8700	3/01/04	52	9.0	6.6	6.9
TRIPLE PEAK SNOTEL	8500	3/01/04	---	17.6	16.8	20.9
TURPIN MEADOWS	6900	2/25/04	32	8.1	9.9	9.4
TWO OCEAN SNOTEL	9240	3/01/04	---	22.8	22.4	23.3
TYRELL RANGER STA.	8300	2/28/04	28	4.4	3.8	6.2
UPPER SPEARFISH	6500	2/25/04	20	4.7	5.6	5.9
WEBBER SPRING SNOTEL	9250	3/01/04	156	19.5	15.0	21.3
WHISKEY PARK SNOTEL	8950	3/01/04	70	22.0	21.4	23.8
WILLOW CREEK SNOTEL	8450	3/01/04	---	24.4	21.7	25.4
WINDY PEAK SNOTEL	7900	3/01/04	5	4.5	5.1	6.0
WOLVERINE SNOTEL	7650	3/01/04	31	7.6	10.1	10.6
WOOD ROCK G.S.	8440	2/29/04	39	6.4	7.0	7.8
YOUNTS PEAK SNOTEL	8350	3/01/04	34	6.3	11.3	14.6

# Snake River Basin (1)

## Snow

The Snake River basin snow water equivalent (SWE) is below normal. Snake above Jackson Lake is 102 percent (119% of last year at this time). Pacific Creek SWE is 97 percent of average (105% of last year at this time). Gros Ventre River SWE is 86 percent of average (107% of last year at this time). SWE in the Hoback River drainage is 88 percent of average (117% of last year at this time), SWE in the Greys River drainage is 89 percent of average (112% of last year at this time). In the Salt River area, SWE is 93 percent of average (108% of last year at this time). SWE in the Snake River Basin above Palisades is 95 percent of average (113% of last year at this time). See the Basin Summary of Snow Courses at the beginning of this report for a detailed listing of snow course information.



in the basin, is below average. Grassy Lake storage is about 82 percent of average (9,900 acre feet compared to 12,700 last year). Jackson Lake storage is 35 percent of average (171,600 acre feet compared to 276,300 acre feet last year). Palisades Reservoir storage is about 50 percent of average (514,000 acre feet compared to 553,200 acre feet last year).

## Streamflow.

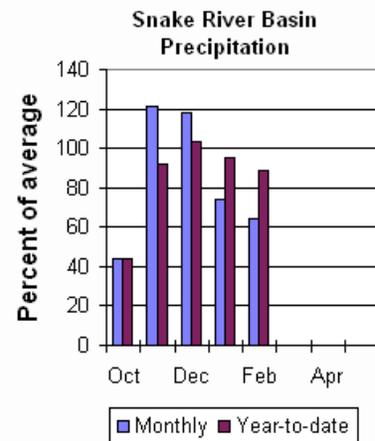
The most probable, 50 percent chance, April through September runoff yield forecast is below average for the basin. The Snake near Moran is expected to yield 855,000 acre-feet (95% of normal). Yield from the Snake River above Palisades Reservoir is estimated to be 2,530,000 acre-feet (93% of normal). Palisades reservoir inflow is expected to be about 3,450,000 acre feet (89% of average). The 50 percent chance yield near Heise is expected to be 3,690,000 acre-feet (89% of normal). Pacific Creek at Moran is expected to yield about 162,000 acre-feet (91% of average). Greys River above Palisades Reservoir is estimated to yield 315,000 acre-feet (80% of normal). Salt River near Etna is estimated to have a yield of 325,000 acre-feet (77% of normal).

## Precipitation.

Precipitation across the basin was below average last month. Monthly precipitation, for the basin, was 64 percent of average (78 percent of last year). Last months percentages range from 46 to 130 percent of average. Water-year-to-date precipitation is 89 percent of normal for the Snake River basin (11 percent of last year at this time) Year-to-date percentages range from 78 to 100 percent of average.

## Reservoir.

Currently, usable reservoir storage, compared to average for the three storage reservoirs



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SNAKE RIVER BASIN  
Streamflow Forecasts - March 1, 2004

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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)	
SNAKE near Moran (1,2)	APR-JUL	610	720	770	95	820	930	815		
	APR-SEP	675	800	855	95	910	1030	905		
SNAKE above Palisades (2)	APR-JUL	1880	2070	2200	93	2330	2520	2370		
	APR-SEP	2170	2380	2530	93	2680	2890	2730		
PALISADES RESERVOIR INFLOW (1,2)	APR-JUL	2330	2770	2970	89	3170	3610	3330		
	APR-SEP	2740	3230	3450	89	3670	4160	3870		
SNAKE near Heise (2)	APR-JUL	2610	2940	3160	89	3380	3710	3560		
	APR-SEP	3070	3440	3690	89	3940	4310	4160		
PACIFIC CREEK at Moran	APR-JUL	123	142	156	91	170	189	171		
	APR-SEP	127	148	162	91	176	197	178		
GREYS above Palisades	APR-JUL	205	245	270	79	295	335	340		
	APR-SEP	240	285	315	80	345	390	395		
SALT near Etna	APR-JUL	175	230	265	78	300	355	340		
	APR-SEP	220	280	325	77	370	430	420		

SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of February					SNAKE RIVER BASIN Watershed Snowpack Analysis - March 1, 2004			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
GRASSY LAKE	15.2	9.9	12.7	12.0	SNAKE above Jackson Lake	9	119	102
JACKSON LAKE	847.0	171.6	276.3	494.0	PACIFIC CREEK	3	105	97
PALISADES	1400.0	514.0	553.2	1033.1	GROS VENTRE RIVER	4	106	86
					HOBACK RIVER	5	117	88
					GREYS RIVER	5	112	89
					SALT RIVER	5	108	93
					SNAKE above Palisades	29	112	95

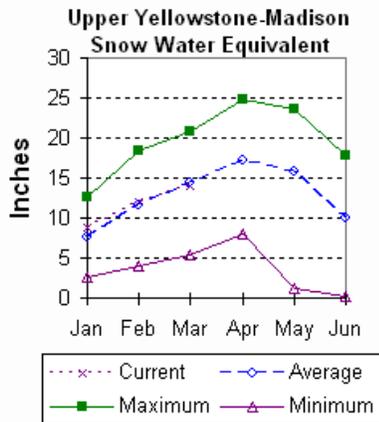
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

- (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 Yellowstone and Madison River Basins (2)

### Snow

Snowfall in these basins has been mixed this year, Yellowstone snowfall has been below normal and the Madison drainage snowfall has been above average. Snow water equivalent (SWE) is about 106 percent of average (147 percent of last year) in the Madison drainage. SWE in the Yellowstone drainage is about 86 percent of average (100 percent of last year at this time). See the "Snow Course Basin Summary" at the beginning of this document for more details on specific sites.



acre-feet of water (75 percent of capacity) – 107 percent of average. Hebgen Lake is storing about 99 percent and Ennis Lake is storing about 104 percent of last year's volume.

### Streamflow

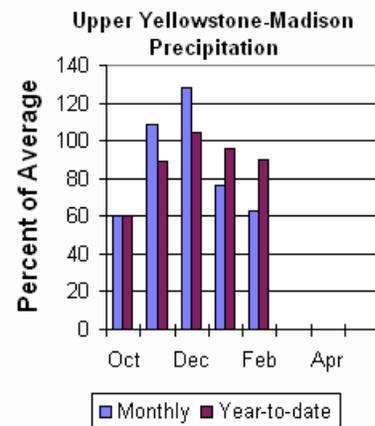
All the following forecasts are the 50 percent chance runoff for the April through September runoff period. Yellowstone at Lake Outlet is expected to yield about 735,000 acre feet (91 percent of normal). Yellowstone at Corwin Springs will yield about 1,880,000 acre-feet (95 percent of normal). Yellowstone near Livingston will yield about 2,180,000 acre feet (96 percent of normal). Hebgen lake inflow is estimated to be 530,000 acre feet (106 percent of normal). See the following page for detailed runoff volumes.

### Precipitation

Last month precipitation in the Madison and Yellowstone drainage was about 63 percent of average (65 percent of previous year) for the 5 reporting stations -- percentage range was from 54 to 270 percent of average. Water-year-to-date precipitation is about 90 percent of average (102 percent of last year's amount). Year to date percentage ranges from 87 to 94 percent

### Reservoir

Usable storage in Ennis Lake is estimated to be 29,200 acre-feet (71 percent of capacity) – 93 percent of average. Hebgen Lake is storing about 283,900



UPPER YELLOWSTONE & MADISON RIVER BASINS  
Streamflow Forecasts - March 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)	
YELLOWSTONE at Lake Outlet	APR-JUL	405	490	545	92	600	685	590		
	APR-SEP	550	660	735	91	810	920	805		
YELLOWSTONE RIVER at Corwin Springs	APR-JUL	1290	1450	1570	95	1690	1850	1650		
	APR-SEP	1550	1750	1880	95	2010	2210	1970		
YELLOWSTONE RIVER near Livingston	APR-JUL	1570	1710	1810	95	1910	2050	1900		
	APR-SEP	1900	2070	2180	96	2290	2460	2280		
HEBGEN Reservoir Inflow	APR-JUL	340	385	415	106	445	490	390		
	APR-SEP	445	495	530	106	565	615	500		

UPPER YELLOWSTONE & MADISON RIVER BASINS

UPPER YELLOWSTONE & MADISON RIVER BASINS

Reservoir Storage (1000 AF) - End of February

Watershed Snowpack Analysis - March 1, 2004

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ENNIS LAKE	41.0	29.2	28.2	31.4	MADISON RIVER in WY	9	147	106
HEBGEN LAKE	377.5	283.9	286.3	265.2	YELLOWSTONE RIVER in WY	12	100	86

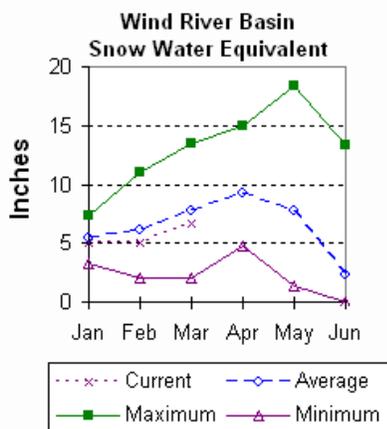
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

- (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.

## Wind River Basin (3)

### Snow

The Wind River basin has below average snow water equivalent (SWE) for this time of the year. SWE in the Wind River above Dubois is 74 percent of average (83 percent of last year). The Little Wind SWE is 91 percent of average water content (116 percent of last year), and the Popo Agie drainage SWE is about 102 percent of average (140 percent of last year). The Wind River basin, above Boysen Reservoir, SWE is about 87 percent of average (about 105 percent of last year). See the Basin Summary of Snow Course Data at the front of this report for details.



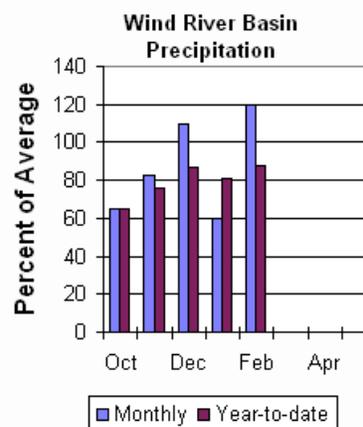
### Precipitation

Last months precipitation in the basin varied from 19 to 611 percent of average at Diversion Dam. Precipitation, for the basin, was about 120 percent of average for the 8 reporting stations; that is about 95 percent of last year's amount. Water year-to-date precipitation is 88 percent of normal and about 103 percent of last year at this time. Year to date percentages range from 69 to 110 percent of average.

### Reservoirs

Current storage varies from 67 to 119 percent of average.

Usable storage in Bull Lake is currently about 57,400 acre feet (38 percent of capacity) -- normally the reservoir is at 56 percent of capacity at this time of the year. Boysen Reservoir is storing about 60 percent of capacity (356,600 acre feet) -- normally the reservoir is at 82 percent of capacity at this time of the year. Pilot Butte is storing 76 percent of capacity (23,900 acre feet) -- normally the reservoir is at 76 percent of capacity at this time of the year.



### Streamflow

Water supply is estimated to be well below normal this year. The following values reflect the 50 percent chance yields for the April through September runoff period. Dinwoody Creek near Burris is estimated to yield 86,000 acre feet (92% of average). The Wind River above Bull Lake Creek is expected to yield 470,000 acre feet (88 percent of average). Bull Lake Creek near Lenore is expected to yield about 163,000 acre feet (90 percent of average). Wind River at Riverton will yield about 550,000 acre feet (86 percent of average). Little Popo Agie River near Lander is expected to yield about 45,000 acre feet (85 percent of average). South Fork of Little Wind near Fort Washakie will yield about 70,000 acre feet (83 percent of average). Little Wind River near Riverton will yield about 325,000 acre feet (103 percent of average). Boysen Reservoir inflow will yield about 725,000 acre feet (90 percent of normal).

WIND RIVER BASIN  
Streamflow Forecasts - March 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)	
DINWOODY CREEK nr Burris	APR-JUL	41	52	59	89	66	77	67		
	APR-SEP	64	77	86	92	95	108	94		
WIND RIVER abv Bull Lake Cr (2)	APR-JUL	270	335	380	87	425	490	435		
	APR-SEP	350	420	470	88	520	590	535		
BULL LAKE CR near Lenore (2)	APR-JUL	90	115	132	89	149	174	148		
	APR-SEP	110	141	163	90	185	214	182		
WIND RIVER at Riverton (2)	APR-JUL	255	380	465	85	550	675	545		
	APR-SEP	330	460	550	86	640	770	640		
LT POPO AGIE RIVER nr Lander	APR-JUL	22	33	40	87	47	58	46		
	APR-SEP	26	37	45	85	53	64	53		
SF LT WIND nr Fort Washakie	APR-JUL	37	52	62	85	72	87	73		
	APR-SEP	42	59	70	83	81	98	84		
LT WIND RIVER nr Riverton	APR-JUL	146	230	290	104	350	435	280		
	APR-SEP	173	265	325	103	385	475	315		
BOYSEN RESERVOIR Inflow (2)	APR-JUL	350	525	645	90	765	940	717		
	APR-SEP	405	595	725	90	855	1045	809		

WIND RIVER BASIN Reservoir Storage (1000 AF) - End of February					WIND RIVER BASIN Watershed Snowpack Analysis - March 1, 2004			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BULL LAKE	151.8	57.4	43.4	85.4	WIND RIVER above Dubios	7	85	74
BOYSEN	596.0	356.6	248.7	487.9	LITTLE WIND	2	116	94
PILOT BUTTE	31.6	23.9	24.3	19.9	POPO AGIE	7	140	102
					WIND above Boysen Resv	14	104	86

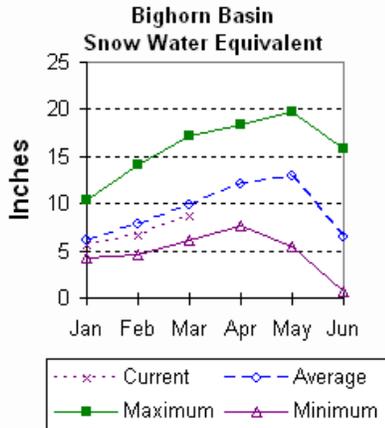
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

- (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.

# Bighorn River Basin (4)

## Snow

Snowpack in this basin is below average for this time of year. The Nowood drainage SWE is 89 percent of average (119 percent of last year). Greybull River SWE is 71 percent of average (80 percent of last year). Shell Creek SWE is 92 percent of average (97 percent of last year). The basin SWE, as a whole, is currently 88 percent of average (102 percent of last year). For more information see Basin Summary of Snow Courses at beginning of report.



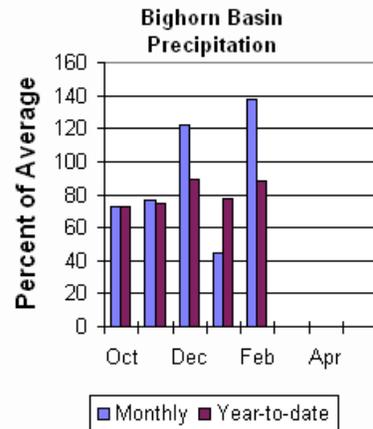
## Precipitation

Last month's precipitation was 138 percent of the monthly average (90 percent of last year). Sites ranged from 42 to 402 percent of average for the month. Year-to-date precipitation is 88 percent of normal; that is 100 percent of last year at this time. Year to date percentages, from the 10 reporting stations, range from 68 to 109.

## Reservoir

Boysen Reservoir is currently storing 356,600-acre feet (73 percent of average). Bighorn

Lake is now at 81 percent of average (683,400-acre feet). Boysen is currently storing 143 percent of last year at this time and Big Horn Lake is storing 115 percent of last year's volume.



## Streamflow

The 50 percent chance April through September runoff is anticipated to be below normal. The Boysen Reservoir inflow is forecast to yield 725,000 acre feet (90 percent of average); the Greybull River nr Meeteese should yield 166,000 acre feet (83 percent of average); Shell Creek near Shell should yield 72,000 acre feet (100 percent of average) and the Bighorn River at Kane should yield 970,000 acre feet (87 percent of average).

BIGHORN RIVER BASIN  
Streamflow Forecasts - March 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)	
BOYSEN RESERVOIR Inflow (2)	APR-JUL	350	525	645	90	765	940	717		
	APR-SEP	405	595	725	90	855	1045	809		
GREYBULL RIVER nr Meeteetse	APR-JUL	93	108	119	80	130	145	148		
	APR-SEP	132	152	166	83	180	200	200		
SHELL CREEK nr Shell	APR-JUL	49	56	60	100	64	71	60		
	APR-SEP	61	68	72	100	76	83	72		
BIGHORN RIVER at Kane (2)	APR-JUL	620	775	880	88	985	1140	1000		
	APR-SEP	680	850	970	87	1090	1260	1110		

BIGHORN RIVER BASIN Reservoir Storage (1000 AF) - End of February				BIGHORN RIVER BASIN Watershed Snowpack Analysis - March 1, 2004				
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BOYSEN	596.0	356.6	248.7	487.9	NOWOOD RIVER	5	119	89
BIGHORN LAKE	1356.0	683.4	595.5	826.3	GREYBULL RIVER	2	80	71
					SHELL CREEK	4	97	92
					BIGHORN (Boysen-Bighorn)	11	102	88

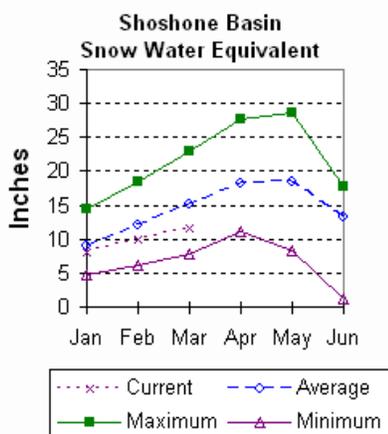
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

- (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.

## Shoshone and Clarks Fork River Basin (5)

### Snow.

Snow Water Equivalent (SWE) is 74 percent of average (85 percent of last year) in the Shoshone River basin. The Clarks Fork River basin SWE is 79 percent of average (84 percent of last year). For more information see the Basin Summary of Snow Course Data at the beginning of this report.



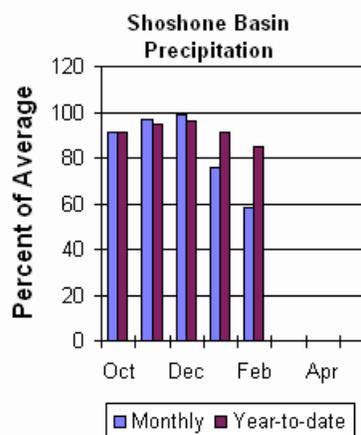
### Precipitation.

Precipitation for last month was 58 percent of normal (55 percent of last year). Monthly percentages range from 5 to 475 percent of average. The basin year-to-date precipitation is now 85 percent of average (88 percent of last year). Year-to-date percentages range from 68 to 96 percent of average.

### Reservoir.

Current usable storage in Buffalo Bill Reservoir is about 105 percent of average (129

percent of last year's storage) – the reservoir is about 66 percent of capacity. Currently, about 426,900 acre-feet are stored in the reservoir compared to 331,500 acre feet last year. Detailed reservoir data is shown on the following page and on the reservoir storage summary at the beginning of this report.



### Streamflow

The fifty percent yield (April through September period) for the North Fork Shoshone River at Wapiti is expected to be 500,000 acre-feet (96 percent of average). South Fork of the Shoshone River near Valley is estimated to yield of 195,000 acre-feet (74 percent of average), and South Fork above Buffalo Bill Reservoir is expected to be 137,000 acre-feet (61 percent of average). At the Buffalo Bill Reservoir, the fifty percent chance yield for the Shoshone River is expected to be about 620,000 acre-feet (77 percent of average). The fifty-percent chance yield for the Clarks Fork of the Yellowstone near Belfry, Montana is expected to be about 540,000 acre-feet (91 percent of average).

SHOSHONE & CLARKS FORK RIVER BASINS  
Streamflow Forecasts - March 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)	
NF SHOSHONE RIVER at Wapiti	APR-JUL APR-SEP	385 425	425 470	450 500	98 96	475 530	515 575	460 520
SF SHOSHONE RIVER nr Valley	APR-JUL APR-SEP	124 140	151 173	170 195	76 74	189 217	217 252	225 265
SF SHOSHONE RIVER abv Buffalo Bill	APR-JUL APR-SEP	54 49	102 101	134 137	62 61	166 173	214 224	215 225
BUFFALO BILL DAM Inflow (2)	APR-JUL APR-SEP	420 470	505 560	560 620	78 77	615 680	700 770	720 805
CLARKS FORK RIVER nr Belfry	APR-JUL APR-SEP	405 445	460 500	495 540	92 91	530 580	585 635	540 595

SHOSHONE & CLARKS FORK RIVER BASINS Reservoir Storage (1000 AF) - End of February					SHOSHONE & CLARKS FORK RIVER BASINS Watershed Snowpack Analysis - March 1, 2004			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BUFFALO BILL	646.6	426.9	331.5	405.8	SHOSHONE RIVER	7	85	74
					CLARKS FORK in WY	7	84	79

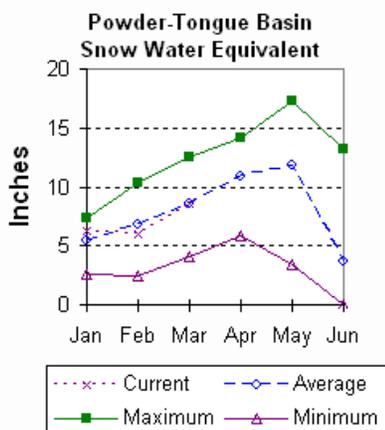
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

- (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.

## Powder and Tongue River Basins (6)

### Snow

Snow water equivalent (SWE) in the Upper Tongue River drainage is 95 percent of normal (102 percent of last year). The Goose Creek drainage SWE is 95 percent of average (102 percent of last year). SWE in the Clear Creek drainage is 100 percent of normal SWE (102 percent of last year). Crazy Woman Creek drainage SWE is 85 percent of average (105 percent of last year). The Upper Powder River drainage SWE is 85 percent of average (105 percent of last year). The Powder River basin SWE, in Wyoming, is about 99 percent of average (116 percent of last year). For more information see Basin Summary of Snow Courses at beginning of report.



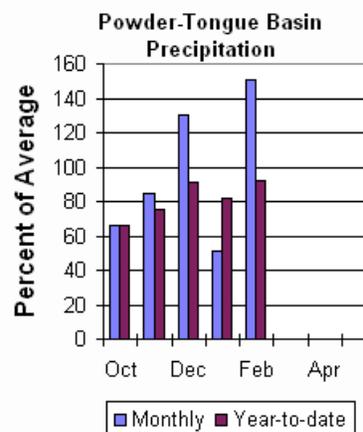
### Precipitation

Last month's precipitation was 151 percent of average for the 9 reporting stations (102 percent of last year). Monthly percentages range from 18 to 271 percent of average. Year-to-date precipitation is about 92 percent of average in the basin; this is 108 percent of last year at this time. Precipitation for the year ranges from 72 to 109 percent of average at the reporting stations.

### Reservoir

Tongue River Reservoir has a total capacity of 79,100 acre feet and is currently storing

46,800 acre feet. Current reservoir storage is 190 percent of average. The current reservoir is about 59 percent of capacity. Last year at this time the reservoir was storing about 35,800 acre feet – average storage is about 24,600 acre feet for this time of the year. Detailed reservoir data is shown on the following page and on the reservoir storage summary at the beginning of this report.



### Streamflow

The following runoff values are for the 50 percent probability during the April through September forecast period. The estimated yield for Tongue River near Dayton is 91,000-acre feet (84 percent of normal). Big Goose Creek near Sheridan is expected to yield about 51,000 acre feet (85 percent of average), while Little Goose Creek nr Big Horn is expected to yield about 36,000 acre feet (86 percent of average). Middle Fork of the Powder River near Barnum is estimated to yield 14,400 acre feet (77 percent of average). The North Fork of the Powder near Hazelton should yield about 10,500 acre-feet (94 percent of normal). The estimated yield for Clear Creek near Buffalo is 46,000 acre-feet (118 percent of average). Rock Creek near Buffalo will yield about 25,000 acre-feet (104 percent of normal), and Piney Creek at Kearny should yield about 49,000 acre-feet (94 percent of average).

POWDER & TONGUE RIVER BASINS  
Streamflow Forecasts - March 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)	
TONGUE RIVER nr Dayton (2)	APR-JUL	51	68	79	82	90	107	96
	APR-SEP	61	79	91	84	103	121	109
BIG GOOSE CREEK nr Sheridan	APR-JUL	20	34	43	83	52	66	52
	APR-SEP	28	42	51	85	60	74	60
LITTLE GOOSE CREEK nr Big Horn	APR-JUL	17.7	24	29	85	34	40	34
	APR-SEP	23	31	36	86	41	49	42
TONGUE RIVER RESERVOIR Inflow (2)	APR-JUL	81	137	175	80	213	267	220
	APR-SEP	97	156	197	79	240	295	250
MIDDLE FORK POWDER nr Barnum	APR-JUL	6.6	10.7	13.5	76	16.3	20	17.8
	APR-SEP	7.2	11.5	14.4	77	17.3	22	18.7
NORTH FORK POWDER nr Hazelton	APR-JUL	7.20	8.60	9.60	100	10.60	12.00	9.60
	APR-SEP	7.9	9.5	10.5	101	11.5	13.1	10.4
CLEAR CREEK nr Buffalo	APR-JUL	29	36	40	118	44	51	34
	APR-SEP	34	41	46	118	51	58	39
ROCK CREEK nr Buffalo	APR-JUL	15.6	18.8	21	106	23	27	19.9
	APR-SEP	19.4	23	25	104	27	31	24
PINEY CREEK at Kearny	APR-JUL	19.7	35	46	94	57	72	49
	APR-SEP	22	38	49	94	60	76	52
POWDER RIVER at Moorehead	MAR-JUL	125	194	240	100	285	355	240
	MAR-SEP	145	213	260	98	305	375	265
POWDER RIVER near Locate	MAR-JUL	184	230	265	86	300	345	310
	MAR-SEP	197	250	285	85	320	375	335

POWDER & TONGUE RIVER BASINS Reservoir Storage (1000 AF) - End of February					POWDER & TONGUE RIVER BASINS Watershed Snowpack Analysis - March 1, 2004			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
TONGUE RIVER	79.1	46.8	35.8	24.6	UPPER TONGUE RIVER	10	102	95
					GOOSE CREEK	3	102	95
					CLEAR CREEK	4	102	100
					CRAZY WOMAN CREEK	3	105	85
					UPPER POWDER RIVER	4	132	99
					POWDER RIVER in WY	8	116	99

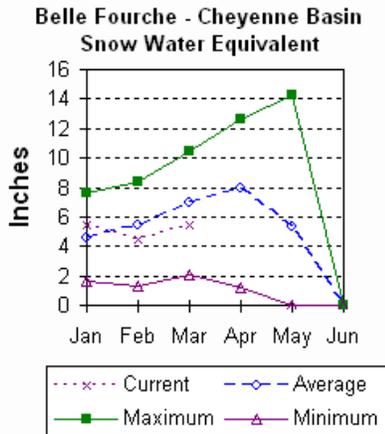
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- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural volume - actual volume may be affected by upstream water management.

## Belle Fourche and Cheyenne River Basins (7)

### Snow.

The Belle Fourche River Basin snow water equivalent (SWE) is below average. SWE is currently 78 percent of average snow pack; 83 percent of last years amount at this time. See Basin summary of Snow Course Data at the beginning of this report for a detailed listing.



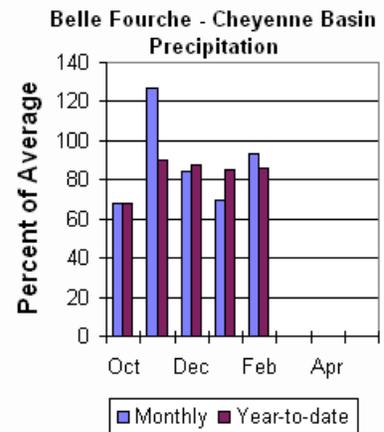
### Precipitation.

Precipitation, for last month was 93 percent of average in the Black Hills. Monthly percentages range from 50 to 174 percent. Year-to-date precipitation is 86 percent of average and 93 percent of last year's amount.

### Reservoir.

Usable reservoir storage is generally near average in the basin. Angostura is currently storing 82 percent of average

(83,700-acre feet), about 69 percent of capacity. Belle Fourche reservoir is storing 92 percent of average (104,100-acre feet), about 58 percent of capacity. Deerfield reservoir is storing 114 percent of average (15,000-acre feet), about 99 percent of capacity. Keyhole reservoir is storing 107 percent of average (113,800-acre feet), 59 percent of capacity. Pactola reservoir is storing 104 percent of average (47,700-acre feet), 87 percent of capacity. Shadehill reservoir is storing 79 percent of average (39,400-acre feet), 48 percent of capacity.



### Streamflow

Water supply is estimated to be near normal this year. The following values reflect the 50 percent chance yields for the March through July runoff period. Deerfield Reservoir inflow is forecast at 6,000 acre feet (95 percent of average). Pactola is forecast at 20,000 acre feet (95 percent of average).

BELLE FOURCHE & CHEYENNE RIVER BASINS  
Streamflow Forecasts - March 1, 2004

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>								
		90% (1000AF)		70% (1000AF)		50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF) 10% (1000AF)		30-Yr Avg. (1000AF)
DEERFIELD RESERVOIR Inflow	MAR-JUL	2.70	4.70	6.00	95	7.30	9.30	6.30		
	APR-JUL			5.00	94			5.32		
PACTOLA RESERVOIR Inflow	MAR-JUL	2.2	12.8	20	95	27	38	21		
	APR-JUL	0.7	11.0	18.0	95	25	35	18.9		

BELLE FOURCHE & CHEYENNE RIVER BASINS  
Reservoir Storage (1000 AF) - End of February

BELLE FOURCHE & CHEYENNE RIVER BASINS  
Watershed Snowpack Analysis - March 1, 2004

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ANGOSTURA	122.1	83.7	79.9	101.7	BELLE FOURCHE	8	82	77
BELLE FOURCHE	178.4	104.1	110.0	113.0				
DEERFIELD	15.2	15.0	14.6	13.2				
KEYHOLE	193.8	113.8	117.3	105.9				
PACTOLA	55.0	47.7	46.3	46.0				
SHADEHILL	81.4	39.4	30.4	50.0				

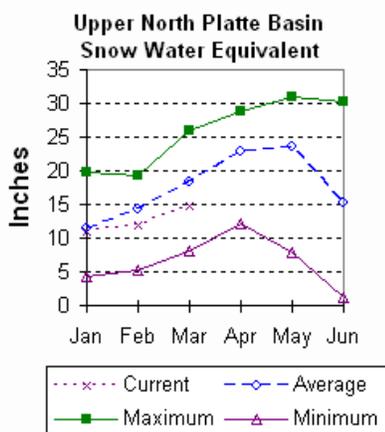
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

- (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 North Platte River Basin (8)

### Snow

The snow courses above Seminoe Reservoir have about 84 percent of average snow water equivalent (SWE) recorded for this time of the year (116 percent of last year). SWE in the drainage area above Northgate is about 78 percent of average and 89 percent of last year at this time. SWE in the Encampment River drainage is about 86 percent of normal and 113 percent of last year. Brush Creek SWE for the year is about 77 percent of normal and 79 percent of last year's SWE. Medicine Bow and Rock Creek drainage SWE is about 70 percent of average and 103 percent of last year at this time. For more information see Basin Summary of Snow Courses at the beginning of this report.

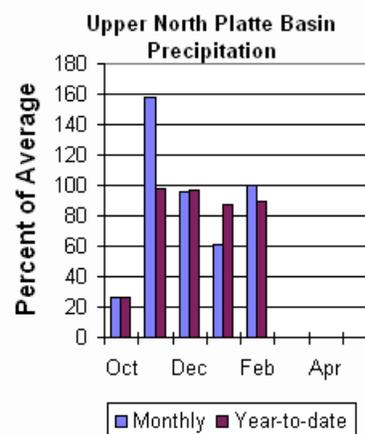


### Precipitation

Eight reporting stations indicate last month's precipitation was 100 percent of average and about 76 percent of last year's amount. Precipitation varied from 71 to 170 percent of average last month. Total water-year-to-date precipitation is about 90 percent of average for the basin, which is about 102 percent of last year's amount. Year to date percentage ranges from 71 to 97 percent of average.

### Reservoirs

Seminoe Reservoir is currently storing about 44 percent of normal for this time of the year. Currently, the reservoir is storing 134 percent of last year's amount. Seminoe Reservoir is estimated to be storing 232,200 acre-feet (23 percent of capacity). Last year, at this time, the reservoir had 173,700 acre-feet in storage.



### Streamflow

All the following yields are based on the fifty percent chance April through September yield. Yield for the North Platte River near Northgate is expected to be about 215,000 acre-feet (80 percent of average). Encampment River near Encampment is estimated to yield 174,000 acre-feet (106 percent of normal). Rock Creek near Arlington is estimated to yield 43,000 acre-feet (75 percent of average). Seminoe Reservoir inflow should be about 725,000 acre-feet (84 percent of normal). See the following table for more detailed information on projected runoff.

UPPER NORTH PLATTE RIVER BASIN  
Streamflow Forecasts - March 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-JUL	112	157	193	79	232	296	245		
	APR-SEP	99	168	215	80	260	330	270		
ENCAMPMENT RIVER nr Encampment	APR-JUL	116	141	158	101	175	200	156		
	APR-SEP	130	156	174	106	192	220	165		
ROCK CREEK nr Arlington	APR-JUL	25	34	40	76	47	58	53		
	APR-SEP	28	36	43	75	50	62	57		
SWEETWATER RIVER nr Alcova	APR-JUL	24	49	66	89	83	108	74		
	APR-SEP	27	53	71	89	89	115	80		
SEMINOE RESERVOIR Inflow	APR-JUL	370	550	670	84	790	970	800		
	APR-SEP	410	600	725	84	850	1040	860		

UPPER NORTH PLATTE RIVER BASIN Reservoir Storage (1000 AF) - End of February					UPPER NORTH PLATTE RIVER BASIN Watershed Snowpack Analysis - March 1, 2004			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
SEMINOE	1016.7	232.2	173.7	527.4	N PLATTE above Northgate	7	89	78
					ENCAMPMENT RIVER	4	113	86
					BRUSH CREEK	5	79	77
					MEDICINE BOW & ROCK CREEK	3	103	70
					N PLATTE above Seminoe	19	95	80

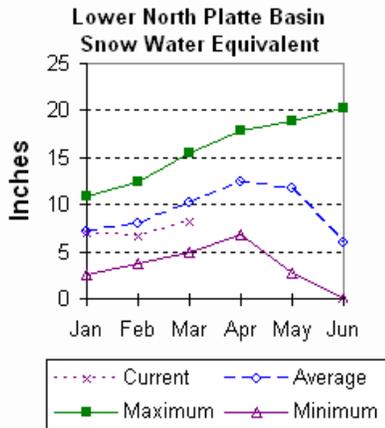
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

- (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.

# Lower North Platte River Basin (9)

## Snow

SWE for the North Platte River basin in Wyoming averages 80 percent of normal (101 % of last year). The Sweetwater drainage SWE is currently 95 percent (160 percent of last year). Deer and LaPrele Creek SWE is 92 percent of average (132 percent of last year). SWE for the North Platte above the Laramie River drainage is 83 percent of average (102 % of last year). SWE for the Laramie River above Laramie is 73 percent of average (94 % of last year). SWE for the Little Laramie River is 65 percent of average (98 percent of last year). For the entire Laramie River drainage, Laramie River above mouth, SWE is 70 percent of average (96% of last year). For more information see Basin Summary of Snow Courses at beginning of report.



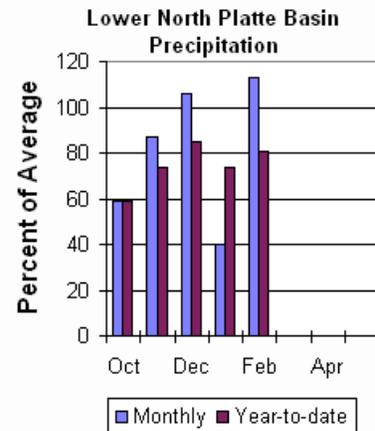
## Precipitation

Of the 6 reporting stations, percentages for the month range from 5 to 463. Last month's precipitation for the basin was 113 percent of average (109 percent of last year). The water year-to-date precipitation for the basin is currently 81 percent of average (116 percent of last year). Year to date percentages range from 70 to 97.

## Reservoir

The Lower North Platte River basin reservoir storage is well below average, except for Alcova and Guernsey

reservoirs. Reservoir storage is as follows: Alcova 156,800 acre feet (101 percent of average); Glendo 246,100 acre feet (65 percent of average); Guernsey 18,200 acre feet (128 percent of average); Pathfinder 301,200 acre feet (42 percent of average); Seminoe 232,200 acre feet (44 percent of average), and Wheatland No.2 22,600 acre feet (47 percent of average).



## Streamflow

Yields from 32 to 89 percent are expected in the basin during the forecast period. The following yields are based on the fifty percent chance probability runoff for the April through September forecast period. The Sweetwater near Alcova is forecast to yield about 71,000 acre-feet (89% of average). Deer Creek at Glenrock is expected to yield about 24,000 acre feet (59% of average). LaPrele Creek above the reservoir is estimated to yield 13,900 acre-feet (58% of average). North Platte River below Guernsey Reservoir is expected to yield about 810,000 acre-feet (82% of normal), and below Glendo Reservoir is anticipated to yield about 835,000 acre-feet (83% of average). Laramie River near Woods Landing should yield about 100,000 acre-feet (74% of average). The Little Laramie near Filmore should produce about 44,000 acre-feet (69 percent of average).

LOWER NORTH PLATTE, SWEETWATER & LARAMIE RIVER BASINS  
Streamflow Forecasts - March 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)	
SWEETWATER RIVER nr Alcova	APR-JUL	24	49	66	89	83	108	74		
	APR-SEP	27	53	71	89	89	115	80		
DEER CREEK at Glenrock	APR-JUL	11.6	19.0	24	64	29	36	38		
	APR-SEP	11.3	18.9	24	59	29	37	41		
LAPRELE CREEK abv Reservoir	APR-JUL	1.0	7.5	13.8	58	20	29	24		
	APR-SEP	1.0	7.5	13.9	58	20	30	24		
NORTH PLATTE - Alcova to Orin Gain	APR-JUL	5.0	13.0	50	33	87	141	152		
	APR-SEP	5.0	15.0	52	32	89	144	161		
NORTH PLATTE RIVER blw Glendo Res	APR-JUL	520	680	785	82	890	1050	960		
	APR-SEP	530	700	810	82	920	1090	990		
NORTH PLATTE RIVER blw Guernsey Res	APR-JUL	470	665	800	83	935	1130	970		
	APR-SEP	495	695	835	83	975	1170	1010		
LARAMIE RIVER nr Woods	APR-JUL	31	67	91	74	115	151	123		
	APR-SEP	34	73	100	74	127	166	135		
LITTLE LARAMIE RIVER nr Filmore	APR-JUL	22	33	41	70	49	60	59		
	APR-SEP	23	36	44	69	52	65	64		

LOWER NORTH PLATTE, SWEETWATER & LARAMIE RIVER BASINS  
Reservoir Storage (1000 AF) - End of February

LOWER NORTH PLATTE, SWEETWATER & LARAMIE RIVER BASINS  
Watershed Snowpack Analysis - March 1, 2004

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ALCOVA	184.3	156.8	156.0	155.6	SWEETWATER	4	160	95
GLENDO	506.4	246.1	205.7	381.4	DEER & LAPRELE CREEKS	3	132	92
GUERNSEY	45.6	18.2	13.8	14.2	N PLATTE abv Laramie R.	26	102	83
PATHFINDER	1016.5	301.2	329.2	712.4	LARAMIE RIVER abv Laramie	10	94	77
SEMINOE	1016.7	232.2	173.7	527.4	LITTLE LARAMIE RIVER	5	98	74
WHEATLAND #2	98.9	22.6	14.2	47.7	LARAMIE RIVER above mouth	13	96	74
					NORTH PLATTE	32	101	80

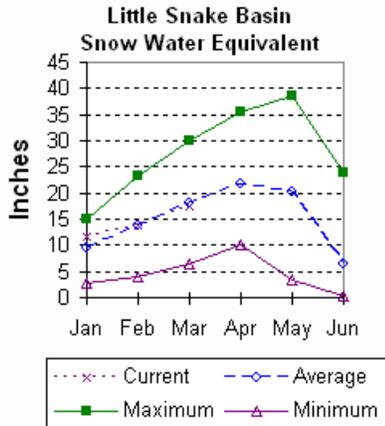
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

- (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.

# Little Snake River Basin (10)

## Snow

Snowfall has been near average across the basin this year. Currently, snow water equivalent (SWE) in the Little Snake River drainage is 97 percent of average (110 percent of last year at this time). For more information see Basin Summary of Snow Courses at beginning of this report.

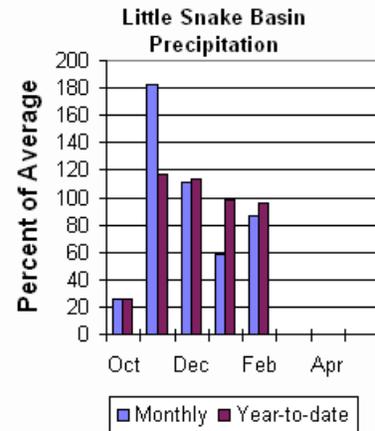


## Precipitation

Precipitation across the basin was below average this past month. Last Month's precipitation was 86 percent of average (73 percent of last year) for the 5 reporting stations. Last month's precipitation ranged from 71 to 135 percent of average. The Little Snake River basin water-year-to-date precipitation is currently 96 percent of average (107 percent of last year). Year-to-date percentages range from 87 to 104 percent of average.

## Streamflow

Runoff yield in the Little Snake River drainage is expected to be below normal this year. Stream yield is based on the 50 percent probability for the April through July forecast period. The Little Snake River near Slater should yield about 159,000 acre-feet (100 percent of normal). Little Snake River near Dixon is estimated to yield 330,000 acre-feet (100 percent of normal).



LITTLE SNAKE RIVER BASIN  
Streamflow Forecasts - March 1, 2004

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		Chance Of Exceeding *		===== Wetter =====>>		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Little Snake River nr Slater	APR-JUL	105	136	159	100	184	224	159
LITTLE SNAKE R nr Dixon	APR-JUL	218	285	330	100	375	440	330

LITTLE SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of February				LITTLE SNAKE RIVER BASIN Watershed Snowpack Analysis - March 1, 2004				
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					LITTLE SNAKE RIVER	8	110	97

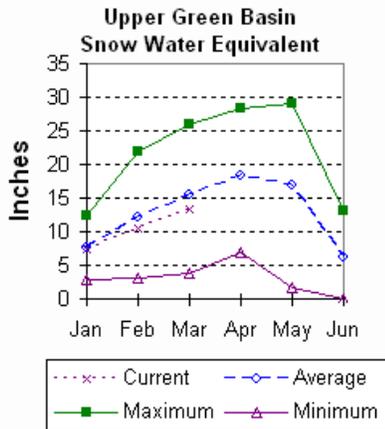
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

## Upper Green River Basin (11)

### Snow.

Snow water equivalent (SWE) is below normal in the upper Green River drainage this year. The Green River basin SWE above Warren Bridge is 90 percent of normal (114 percent of last year). SWE on the west side of the Upper Green River basin is about 84 percent of normal, 110 percent of this time last year. Newfork River SWE is now about 90 percent of normal (111 percent of last year). Big Sandy-Eden Valley SWE is about 87 percent of average (145 percent of last year). SWE in the Green River above Fontenelle Reservoir is about 86 percent of average (111 percent of last year). For more information see the Basin Summary of Snow Courses at the beginning of this report.



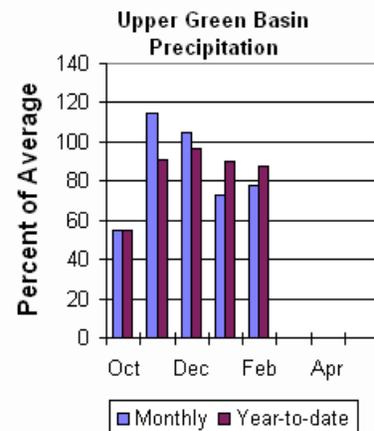
### Precipitation.

The 11 reporting precipitation sites in the basin were 78 percent of average last month (96 percent of last year at this time). Last month's precipitation varied from 44 to 274 percent of average. Water year-to-date precipitation is about 88 percent of average (114 percent of last year). Year to date percentage of average ranges from 78 to 100 percent for the reporting stations.

### Reservoir.

Usable storage in Big Sandy Reservoir is currently about 5,400 acre feet (28 percent of

average) -- 142 percent of last year and 14 percent of capacity. Eden Reservoir is too low to measure. Fontenelle Reservoir is storing 155,600 acre-feet (100 percent of average and 45 percent of the total capacity). Detailed reservoir data is shown on the following page and on the reservoir storage summary at the beginning of this report.



### Streamflow

The fifty-percent chance April through July runoff in the Upper Green River basin is forecast below average. Green River at Warren Bridge is expected to yield about 220,000 acre-feet (83 percent of normal). Pine Creek above Fremont Lake is expected to yield 85,000 acre-feet (82 percent of normal). New Fork River near Big Piney is expected to yield about 300,000 acre-feet (76 percent of normal). Fontenelle Reservoir Inflow is estimated to be 625,000 acre-feet (73 percent of average), and Big Sandy near Farson is expected to be about 47,000 acre-feet (81 percent of normal).

UPPER GREEN RIVER BASIN  
Streamflow Forecasts - March 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)	
Green River at Warren Bridge	APR-JUL	161	195	220	83	245	280	265		
Pine Creek abv Fremont Lake	APR-JUL	69	78	85	82	92	101	104		
New Fork River nr Big Piney	APR-JUL	195	255	300	76	345	405	395		
Fontenelle Reservoir Inflow	APR-JUL	465	557	625	73	697	809	860		
Big Sandy River nr Farson	APR-JUL	29	40	47	81	54	65	58		

UPPER GREEN RIVER BASIN Reservoir Storage (1000 AF) - End of February					UPPER GREEN RIVER BASIN Watershed Snowpack Analysis - March 1, 2004			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BIG SANDY	38.3	5.4	3.8	19.1	GREEN above Warren Bridge	4	112	90
EDEN		NO REPORT			UPPER GREEN (West Side)	7	110	84
FONTENELLE	344.8	155.6	185.2	156.1	NEWFORK RIVER	3	111	90
					BIG SANDY/EDEN VALLEY	2	145	87
					GREEN above Fontenelle	14	111	86

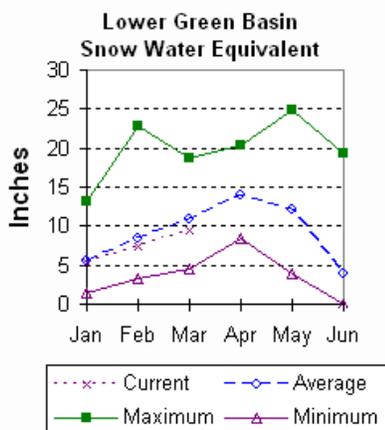
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

## Lower Green River Basin (12)

### Snow

The Henrys Fork drainage is currently 91 percent of average (117% of last year). SWE in the Hams Fork is 84 percent of average (110% of last year). Blacks Fork SWE is currently 90 percent of average (121 percent of last year). The basin, as a whole, is 87 percent of average (115 percent of last year). For more information see Basin Summary of Snow Courses at beginning of this report.

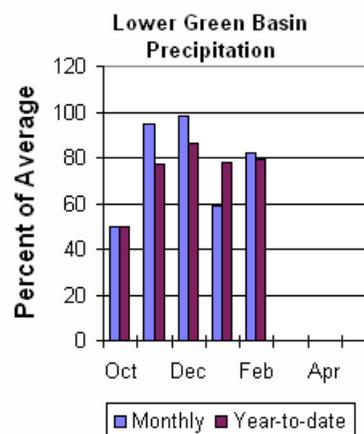


### Precipitation

Precipitation was below average for the 3 reporting stations during last month (82 percent of average). Precipitation ranged from 25 to 106 percent of average for the month. The basin year-to-date precipitation is currently 79 percent of average (113 percent of last year). Year to date percentages range from 78 to 82.

### Reservoir

Fontenelle Reservoir is currently storing 155,600 acre feet; this is 100 percent of average (84 percent of last year). Flaming Gorge is currently storing 2,600,000 acre feet, this is 89 percent of average (100 percent of last year). Viva Naughton is currently storing 29,400 acre feet, this is 101 percent of average (124 percent of last year).



### Streamflow

Expected yields vary from 69 to 78 percent of average across the basin. The following forecast values are based on a 50 percent chance probability for the April through July forecast period. Green River near Green River is forecast to yield about 635,000-acre feet (73 percent of average). Blacks Fork near Robertson is forecast to yield 74,000-acre feet (78 percent of average). East Fork of Smiths Fork near Robertson is estimated to yield 22,000 acre-feet (71 percent of average). The estimated yield for Hams Fork near Frontier is 48,000-acre feet (74 percent of average). Flaming Gorge Reservoir inflow will be about 825,000-acre feet (69 percent of average).

LOWER GREEN RIVER BASIN  
Streamflow Forecasts - March 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)	
Green River nr Green River, WY	APR-JUL	400	540	635	73	730	870	875		
Blacks Fork nr Robertson	APR-JUL	46	63	74	78	85	102	95		
EF of Smiths Fork nr Robertson	APR-JUL	16.7	19.7	22	71	25	29	31		
Hams Fk blw Pole Ck nr Frontier	APR-JUL	30	40	48	74	56	70	65		
Hams Fk Inflow to Viva Naughton Res	APR-JUL	30	49	62	70	75	94	89		
Flaming Gorge Reservoir Inflow	APR-JUL	500	690	825	69	960	1150	1190		

LOWER GREEN RIVER BASIN  
Reservoir Storage (1000 AF) - End of February

LOWER GREEN RIVER BASIN  
Watershed Snowpack Analysis - March 1, 2004

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
FONTENELLE	344.8	155.6	185.2	156.1	HAMS FORK RIVER	4	110	84
VIVA NAUGHTON RES		NO REPORT			BLACKS FORK	5	121	90
					HENRYS FORK	3	117	91
					GREEN above Flaming Gorge	26	115	87

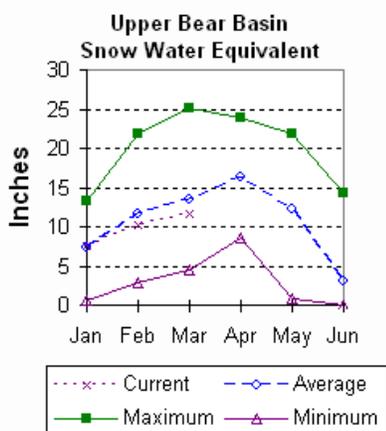
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

# Upper Bear River Basin (13)

## Snow

Snow water equivalent (SWE) in the Bear River basin in Utah is estimated to be 85 percent of average; that is about 119 percent of last year at this time. SWE in the Wyoming portion of the Bear River drainage (Smiths and Thomas Forks) is estimated at 86 percent of average (114 percent of last year at this time.). Bear River basin SWE, above the Idaho State line, is 87 percent of average (21 percent of last year). See the Basin Summary of Snow Course Data at the beginning of this report for more detailed information.



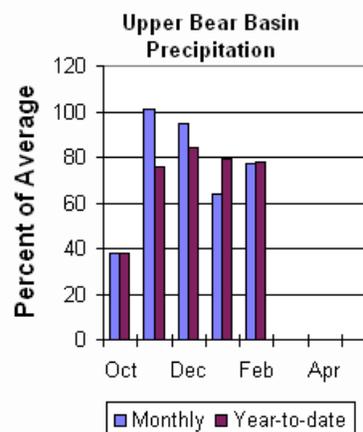
capacity. The reservoir is storing about 500 acre feet more than last year at this time.

## Precipitation

Precipitation for last month was 77 percent of average for the 2 reporting stations; this is 82 percent of the precipitation received last year. The year-to-date precipitation, for the basin, is 78 percent of average; this is 116 percent of last year's amount.

## Reservoir

Usable storage in Woodruff Narrows reservoir is about 7,500 acre feet ( 27 percent of average). Current reservoir storage is about 13 percent of



## Streamflow

The following 50 percent chance stream flow yields are for the April through September period. Smiths Fork near Border is estimated to yield 90,000 acre-feet (74 percent of normal). Bear River above the Utah-Wyoming State Line is expected to yield about 93,000 acre feet ( 74 percent of average), The Bear River near Woodruff is expected to yield about 65,000 acre-feet (about 46 percent of normal).

UPPER BEAR RIVER BASIN  
Streamflow Forecasts - March 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)	
Smiths Fork nr Border	APR-JUL	54	68	77	75	86	100	103
	APR-SEP	64	80	90	74	100	116	121
Bear River nr UT-WY State Line	APR-JUL	55	72	84	74	96	113	113
	APR-SEP	60	79	93	74	107	126	125
Bear River ab Reservoir nr Woodruff	APR-JUL	42	55	64	47	83	111	136
	APR-SEP	43	56	65	46	85	113	142

UPPER BEAR RIVER BASIN Reservoir Storage (1000 AF) - End of February				UPPER BEAR RIVER BASIN Watershed Snowpack Analysis - March 1, 2004				
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					UPPER BEAR RIVER in Utah	7	119	85
					SMITHS & THOMAS FORKS	4	114	86
					BEAR RIVER abv ID line	9	121	87
					NORTHWEST	77	107	91
					NORTHEAST	23	98	90
					SOUTHEAST	36	100	83
					SOUTHWEST	35	115	90

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

- (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.