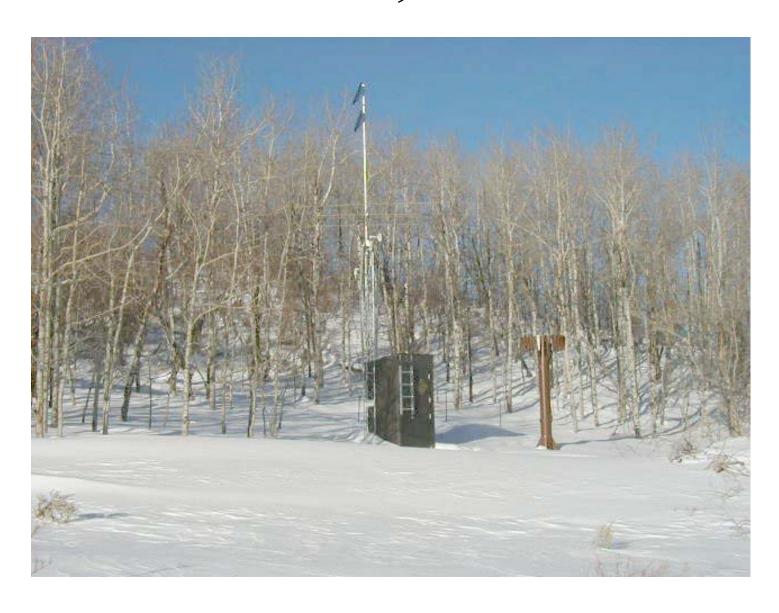


Natural Resources Conservation Service

# Wyoming Basin Outlook Report March 1, 2003



# 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 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 improved. SWE averages for the State are about 85 percent of normal for this time of the year. Precipitation for the month was generally very good across the State, except in the southwest portion. In the southwest we only received about 90 percent of normal for the month of February. Reservoir levels vary from below average to average – average to above average in the northeast. Many of the larger reservoirs are below average. Generally, forecast runoff is well below average. Forecast runoff varies from 11 to 106 percent of average. There may be some direct diversion irrigated areas that will be short of water.

## **Snowpack**

SWE is generally below average for the entire State. All areas of the State did improve in percent of average SWE during the past month. SWE in the northwestern portion of the State is now at 85 percent of average (116 percent of last year). Northeast Wyoming SWE is currently about 92 percent of average (133 percent of last year). The southeast portion is currently about 83 percent of average SWE (132 percent of last year). And the southwest is about 79 percent of average (109 percent of last year).

## **Precipitation**

February precipitation across the State was generally good. The west and southwest portions of Wyoming were the exceptions. Here the percentages ranged from 3 percent below normal in the Lower Green to 19 percent below normal in the Upper Green. The northeast area of the State received much above average with the Belle Fourche getting 71 percent above average precipitation and the Powder – Tongue and Bighorn river basins getting near 50 percent above normal. The following table displays the major river basins and their departure from normal for this month.

Basin	Departure	Basin	Departure
	from normal		from normal
Snake River	-17%	Upper North Platte	+31%
		River	
Yellowstone & Madison	-03%	Lower North Platte	+04%
Wind River	+26%	Little Snake River	+18%
Big Horn	+53%	Upper Green River	-19%
Shoshone & Clarks Fork	+10%	Lower Green River	-03%
Powder & Tongue River	+48%	Upper Bear River	-06%
Belle Fourche & Cheyenne	+71%		

#### **Streams**

Stream flow yield is expected to be below average to much below average across the State. Most probable yield for the State is forecast to be about 62 percent of average. The northwest part of the State is expected to yield about 69 percent of normal -- yield estimates vary from 42 to 83 percent of normal. Yield from the northeast portion of Wyoming will be below average (about 70 percent of average) -- yield estimates vary from 33 to 105 percent of average for the various forecast points. The southeast portion of the state will be about 47 percent of normal -- yield estimates range from 11 to 70 percent of normal. The southwest portion of Wyoming varies from 39 to 80 percent of average -- mean estimated yield for the forecast points in southwest Wyoming is about 63 percent of average.

## Reservoirs

Reservoir storage varies from above average to well below average for this time of the year. See following table for further information about reservoir storage.

Major Reservoirs in Wyoming

#### BASIN WIDE

#### RESERVOIR SUMMARY

#### FOR THE END OF FEBRUARY 2003

BASIN AREA	CURRENT AS	LAST YR AS	AVERAGE AS	CURRENT AS CUR	RENT AS
RESERVOIR	CAPACITY	% CAPACITY	% CAPACITY	% AVERAGE % :	LAST YR
WYOMING AND SURROUNI	TMC CHAMEC	•			
WIOMING AND SURROUND	JING SIAIES				
SHADEHILL	37	61	61	61	61
ANGOSTURA	65	83	83	79	79
DEERFIELD	96	97	87	111	99
PACTOLA	84	96	84	101	88
BELLE FOURCHE	62	81	63	97	76
JACKSON LAKE	33	18	58	56	180
GRASSY LAKE	84	63	79	106	132
FONTENELLE	54	39	45	119	138
BIG SANDY	10	12	50	20	83
EDEN			NO REPORT		
PILOT BUTTE	77	82	63	122	94
BULL LAKE	29	19	56	51	154
BOYSEN	42	45	82	51	93
BUFFALO BILL	51	43	63	82	118
KEYHOLE	61	80	55	111	76
SEMINOE	17	44	52	33	39
PATHFINDER	32	51	70	46	63
ALCOVA	85	85	84	100	100
GLENDO	41	64	75	54	64
GUERNSEY	30	33	31	97	91
WHEATLAND #2	14	19	48	30	75
PALISADES	40	38	74	54	105
HEBGEN LAKE	76	75	70	108	101
ENNIS LAKE	69	68	77	90	101
BIGHORN LAKE	44	49	61	72	89
TONGUE RIVER	45	29	31	146	154
FLAMING GORGE	70	76	78	89	92
WOODRUFF NARROWS	14	10	48	29	145
TOTAL OF 27 RESERVO	IRS 49	55	69	72	90
Raw KAF Totals Curre	ent= 6534	Last Year=	7273 Average	= 9076 Capacity	= 13245

# **Basin Summary of Snow Course Data**

# BASIN SUMMARY OF SNOW COURSE DATA

MARCH 2003

;	SNOW COURSE	ELEVATION		DEPTH	CONTENT	YEAR	AVERAGE 71-00
WYO	 MING Snow Course and	SNOTEL St	ations				
	ALBANY	9400		42	8.5	5.0	11.8
	ASTER CREEK	7750		64	19.4	19.9	
1	BALD MOUNTAIN SNOTEI	9380			14.6	12.9	16.0
		7030			16.0	10.7	16.0
1	BATTLE MTN. SNOTEL	7440	3/01/03		11.6	8.9	9.7
1	BEARLODGE DIVIDE	4680	2/25/03	11	2.4	1.2	1.8
1	BEARTOOTH LK. SNOTEI	9280	3/01/03		19.7	14.9	19.7
1	BEAR TRAP SNOTEL	8200	3/01/03		4.4	4.5	4.3
]	BIG GOOSE	7760	2/26/03	22	5.0	3.2	5.1
1	BIG GOOSE SNOTEL	7760	3/01/03	30	7.1	5.7	7.7
1	BIG PARK	8620	2/24/03	51	12.8	11.3	16.2
]	BIG SANDY SNOTEL	9080	3/01/03	39	8.4	9.9	12.1
1	BLACKWATER SNOTEL	9780	3/01/03		16.9	14.0	20.4
]	BLIND BULL SNOTEL	8900	3/01/03	59	15.8	16.5	23.1
1	BLIND PARK SNOTEL	6870	3/01/03		6.9	4.1	7.1
1	BLUE RIDGE	9620	2/27/03	33	7.4	6.4	9.8
1	BONE SPGS. SNOTEL	9350	3/01/03		11.9	9.8	13.2
1	BROOKLYN LK. SNOTEL	10220	3/01/03		12.3	8.9	19.0
1	BRYAN FLAT	6420	2/25/03	22	7.0	6.5	8.3
1	BUCK CREEK	7960	2/27/03		6.0	4.2	8.2
1	BURGESS JCT. SNOTEL	7880	3/01/03		8.0	6.3	9.0
1	BURROUGHS CRK SNOTEI	8750	3/01/03		13.2	10.0	12.6
(	CANYON SNOTEL	8090	3/01/03		10.5	10.8	11.3
(	CARTER MOUNTAIN	7950	2/26/03	16	2.8	1.1	3.6
(	CASPER MTN. SNOTEL	7850	3/01/03		7.9	7.5	11.3
(	CASTLE CREEK	8400	2/26/03	22	4.3	2.5	4.0
(	CCC CAMP	7000	2/25/03	40	8.8	9.2	11.0
(	CHALK CK #1 SNOTEL	9100	3/01/03	51	13.2	14.8	19.9
(	CHALK CK #2 SNOTEL	8200	3/01/03	39	10.0	10.6	12.9
(	CLOUD PEAK SNOTEL	9850	3/01/03		10.3	9.4	10.0
(	COLE CANYON SNOTEL	5910	3/01/03	19	4.7	3.2	
(	COLD SPRINGS SNOTEL	9630	3/01/03	29	6.3	3.5	7.2
(	COTTONWOOD CR SNOTEI	7700	3/01/03		17.9	15.0	18.5
1	DARBY CANYON	8250	2/26/03	59	17.9	14.5	20.3
1	DEER PARK SNOTEL	9700	3/01/03	37	9.2	9.6	14.4
1	DITCH CREEK	6870	2/26/03	16	3.5	1.8	3.6
1	DIVIDE PEAK SNOTEL	8860	3/01/03		13.3	11.0	15.6
1	DOME LAKE SNOTEL	8880	3/01/03		8.6	7.8	9.5
1	DU NOIR	8760	2/26/03	26	5.7	3.7	6.8
1	EAST RIM DIV SNOTEL	7930	3/01/03		7.6	8.2	11.0
	ELBO RANCH	7100	3/01/03	33	8.5	7.6	10.3
1	ELKHART PARK SNOTEL	9400	3/01/03		9.7	7.9	11.1
1	EVENING STAR SNOTEL	9200	3/01/03		21.6	17.8	25.0
1							

	ELEVATION		DEPTH	CONTENT	YEAR	AVERAGE 71-00
FOUR MILE MEADOWS		2/27/03	42	10.3	7.2	10.8
FOXPARK	9060	2/24/03	29	5.7	3.4	6.3
GEYSER CREEK	8500	2/26/03	22	4.7	3.3	6.0
GLADE CREEK	7040	2/26/03	61	17.5	15.0	20.9
GRANITE CRK SNOTEL	6770	3/01/03		11.6	10.8	16.1
GRANNIER MEADOWS	8860	2/27/03	30	6.6	6.5	11.7
GRASSY LAKE SNOTEL	7270	3/01/03	84	25.1	22.2	29.5
GRAVE SPRINGS SNOT	EL 8550	3/01/03		4.1	5.1	7.3
GREYS BOUNDARY	5720	2/25/03	33	8.9	9.3	10.9
GROS VENTRE SNOTEL	8750	3/01/03	35	8.5	9.6	11.5
GROVER PARK DIVIDE	7000	3/01/03 2/25/03	32	8.4	6.9	10.0
HAIRPIN TURN	9480	2/24/03	39	8.9	5.4	13.9
HANSEN S.M. SNOTEL	8360	3/01/03		6.0	3.4	5.2
HAMS FORK SNOTEL	7840	3/01/03		9.1	9.0	11.0
HASKINS CREEK	8980	2/26/03	85	25.1		
HOBBS PARK SNOTEL				9.2	7.3	11.9
HUCKLEBERRY DIVIDE	7300	2/26/03	58	16.1	13.4	18.5
INDIAN CREEK SNOTE	L 9430			16.3	16.9	
JACKPINE CREEK	7350	2/26/03		17.5	14.5	19.4
KELLEY R.S. SNOTEL		3/01/03		10.3	10.3	14.0
KENDALL R.S. SNOTE		3/01/03		9.2	8.1	12.4
KIRWIN SNOTEL	9550			7.8	6.5	9.1
LAKE CAMP	9550 7780	3/01/03 2/28/03	32	7.8	6.5	8.7
LA PRELE SNOTEL	8380	3/01/03		5.4	5.0	
LARSEN CREEK	9020	2/24/03			7.5	
LEWIS LAKE SNOTEL					21.9	
LIBBY LODGE	8750	1. 1.				9.6
	6240			4.0	1.7	
LITTLE WARM SNOTEL				7.6	7.3	9.5
LOOMIS PARK SNOTEL		3/01/03		13.4	12.2	14.5
LUPINE CREEK	7380		26	6.1	6.3	8.5
MALLO	6420	2/25/03	31	6.3	3.1	6.6
MARQUETTE SNOTEL	8760	3/01/03		7.6	4.0	6.9
MEDICINE LODGE LAK			42	9.2	5.4	9.2
MIDDLE FORK	7420	2/27/03	25	5.6	2.0	4.8
MIDDLE POWDER SNOT		3/01/03				
MORAN	6750	2/27/03	35	9.0	8.3	11.8
MOSS LAKE	9800	2/26/03	54	15.2	7.6	19.9
NEW FORK SNOTEL	8340	3/01/03		7.9	6.9	9.6
NORRIS BASIN	7500	2/27/03	29	6.4	7.4	9.6
NORTH BARRETT CREE		2/27/03	72	19.7	13.5	17.5
NORTH FRENCH SNOTE		3/01/03		22.3	13.9	22.7
NORTH RAPID CK SNT		3/01/03		5.8	4.4	6.8
NORTH TONGUE	8450	2/27/03	37	9.2	5.9	10.3
OLD BATTLE SNOTEL	9920	3/01/03		20.4	16.3	26.3
OLD FAITHFUL	7400	3/03/03	36	7.6	8.8	12.9
ONION GULCH	8780	2/25/03	23	3.8	4.0	6.7
OWL CREEK SNOTEL	8980	3/01/03		5.4	2.5	4.1
PARKERS PEAK SNOTE		3/01/03	63	17.7	14.4	18.2
PHILLIPS BENCH SNT		3/01/03	63	18.5	18.1	23.9
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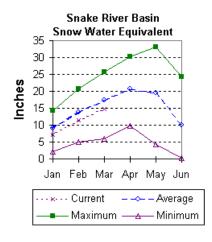
	SNOW COURSE	ELEVATION	DATE	SNOW DEPTH		YEAR	AVERAGE 71-00
	POCKET CREEK	9350	2/24/03	38	7.9	8.7	10.9
	POLE MOUNTAIN	8700	2/24/03	25	4.3	4.2	6.8
	POWDER RVR.PASS SNT		3/01/03		8.1	7.5	8.7
	PURGATORY GULCH	8970	2/26/03	28	5.0	6.5	9.5
	RANGER CREEK	8120	2/27/03	35	7.4	4.2	7.3
	RENO HILL SNOTEL	8500	3/01/03		7.7	7.2	10.4
	REUTER CANYON	6280	2/28/03	25	6.2	3.9	8.4
	ROWDY CREEK	8300	2/25/03	58	15.7	13.9	18.5
	RYAN PARK	8400	2/27/03	42	10.5	8.5	9.7
	SAGE CK BASIN SNTL	7850	3/01/03		8.0	7.9	9.0
	SALT RIVER SNOTEL	7600	3/01/03		9.4	8.8	12.2
	SAND LAKE SNOTEL	10050	3/01/03		16.1	10.4	25.2
	SANDSTONE RS SNOTEL	8150	3/01/03		10.0	6.3	12.5
	SAWMILL DIVIDE	9260	2/26/03	41	9.8	7.8	10.2
	SHELL CREEK SNOTEL	9580	3/01/03		11.8	10.5	11.8
	SHERIDAN R.S.	7750	2/24/03	22	4.2	3.3	5.2
	SNAKE RIVER STATION	6920	2/26/03	56	16.2	12.4	18.3
	SNAKE RV STA SNOTEL		3/01/03		14.9	13.0	16.6
	SNIDER BASIN SNOTEL		3/01/03	45	9.5	8.3	12.4
	SNOW KING MTN	7660	2/25/03	39	9.8	9.3	12.6
	SOLDIER PARK	8780	_, ,	19	3.2	1.7	4.4
	SOUR DOUGH	8460	2/25/03	27	5.0	2.1	5.4
	SOUTH BRUSH SNOTEL		3/01/03		10.8	8.2	10.0
	SOUTH PASS SNOTEL	9040	3/01/03		9.0	9.2	14.0
	SPRING CRK. SNOTEL			71	18.6	17.2	22.2
	ST LAWRENCE ALT SNT		3/01/03		5.3	2.9	5.9
	SUCKER CREEK SNOTEL		3/01/03		9.3	7.6	9.1
	SYLVAN LAKE SNOTEL		3/01/03		16.5	14.2	18.8
	SYLVAN ROAD SNOTEL	7120	3/01/03		11.2	7.9	11.4
	T CROSS RANCH	7900	2/25/03	29	5.9	5.2	6.8
	TETON PASS W.S.	7740	2/28/03	59	21.0	17.1	
	THUMB DIVIDE SNOTEL		3/01/03		11.3	11.0	15.4
	THUMB DIVIDE	7980	2/26/03	41	10.7		15.8
		6870		21	4.7	3.0	4.9
	TIMBER CREEK SNOTEL		3/01/03		4.0	1.5	4.2
	TOGWOTEE PASS SNOTE		3/01/03	70	17.7	16.2	
	TOWNSEND CRK SNOTEL	8700	3/01/03		6.6	4.2	6.9
	TRIPLE PEAK SNOTEL	8500	3/01/03		16.8	15.8	20.9
	TURPIN MEADOWS	6900	2/27/03	41	9.9	6.6	9.4
	TWO OCEAN SNOTEL	9240	3/01/03		22.4	20.7	23.3
	TYRELL RANGER STA.	8300	2/25/03	24	3.8	2.8	6.2
	UPPER SPEARFISH	6500	2/26/03	25	5.6	2.5	5.9
	WEBBER SPRING SNOTE		3/01/03		15.0	12.8	21.3
	WHISKEY PARK SNOTEL	8950	3/01/03		21.4	15.3	23.8
	WILLOW CREEK SNOTEL	8450	3/01/03		21.7	18.0	25.4
	WINDY PEAK SNOTEL	7900 7650	3/01/03		5.1	3.2	6.0
	WOLVERINE SNOTEL	7650 8440	3/01/03	36 21	10.1	5.9	10.6
	WOOD ROCK G.S. YOUNTS PEAK SNOTEL	8440 8350	2/26/03 3/01/03	31 46	7.0 11.3	5.3	7.8
( -1 \	denotes discontinue		3/01/03	40	11.3	10.1	14.6

<sup>(</sup>d) denotes discontinued site.

## **Snake River Basin (1)**

#### **Snow**

The Snake River basin snow water equivalent (SWE) is below normal. Snake above Jackson Lake is 85 percent of average (112% of last year at this time). Pacific Creek is 93 percent of average (119% of last year at this time). Gros Ventre River is 81 percent of average (104% of last year at this time). Hoback River is 76 percent of average (100% of last year at this time), Greys River is 80 percent of average (107% of last year at this time). Salt River is 86 percent of average (115% of last year at this time). Snake River Basin above Palisades is 84 percent of average (112% 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.



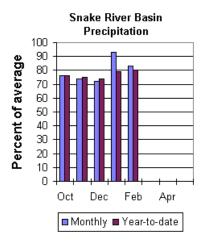
#### Precipitation.

Precipitation across the basin was below average last month. Monthly precipitation, for the basin, was 83 percent of average. Last months percentages range from 51 to 142 percent of average. Water-year-to-date precipitation is 80 percent of normal for the Snake River basin (101 percent of last year at this time) Year-to-date percentages range from 66 to 95 percent of average.

#### Reservoir.

Current reservoir storage compared to average for the three storage reservoirs in the

basin is below average. Grassy Lake storage is about 84 percent of capacity (12,700 acre feet compared to 9,600 last year). Jackson Lake storage is 33 percent of capacity (276,300 acre feet compared to 153,400 acre feet last year). Palisades Reservoir storage is about 40 percent of capacity (553,200 acre feet compared to 528,000 acre feet last year). Palisades Reservoir storage includes about 201,700 acre-feet designated as inactive storage.



#### Streamflow.

The most probable runoff, based on the 50 percent chance yield, for April through September runoff is forecast below average for the basin. The Snake near Moran is expected to yield 725,000 acre-feet (80 percent of normal). Yield from the Snake River above Palisades Reservoir is estimated to be 2,060,000 acre-feet (75 percent of normal). The 50 percent chance yield near Heise is expected to be 3,110,000 acre-feet (75 percent of normal). Pacific Creek at Moran is expected to yield about 136,000 acre-feet (76 percent of average). Greys River above Palisades Reservoir is estimated to yield 290,000 acre-feet (74 percent of normal). Salt River near Etna is estimated to have a yield of 280,000 acre-feet (67 percent of normal).

SNAKE RIVER BASIN

Streamflow	Forecasts	- March	1,	2003

		<<=====	Drier ====	== Future Co	onditions ==	===== Wetter	====>>	   
Forecast Point	Forecast   Period	90% (1000AF)	70% (1000AF)	= Chance Of E   50% (Most   (1000AF)		30%   (1000AF)	10% (1000AF)	   30-Yr Avg.   (1000AF)
SNAKE near Moran (1,2)	APR-JUL APR-SEP	495 545	605 670	=====================================	80 80	=========   705   780	815 905	815 904
SNAKE above Palisades (2)	APR-JUL APR-SEP	1470 1700	1660 1910	1790   2060	76 75	   1920   2210	2110 2420	2370 2735
PALISADES RESERVOIR INFLOW (1,2)	APR-JUL APR-SEP	1860 2210	2300 2700	   2500   2920	75 75	2700   3140	3140 3630	3331 3875
SNAKE near Heise (2)	APR-JUL APR-SEP	2120 2490	2450 2860	   2670   3110	75 75	   2890   3360	3220 3730	3561 4159
PACIFIC CREEK at Moran	APR-JUL APR-SEP	97 101	116 122	   130   136	76 76	   144   150	163 171	171 178
GREYS above Palisades	APR-JUL APR-SEP	184 215	225 260	   250   290	74 74	   275   320	315 365	338 394
SALT near Etna	APR-JUL APR-SEP	139 173	193 235	   230   280 	67 67	   265   325 	320 385	342 419

	SNAKE F Reservoir Storage (100	RIVER BASIN 00 AF) - End	 	SNAKE RIVER BASIN   Watershed Snowpack Analysis - March 1, 2003					
Reservoir		Usable   Capacity	*** Usa This Year	ble Stora Last Year	nge ***       	Watershed	Number of Data Sites		r as % of  Average
GRASSY LAKE		15.2		9.6	- :	SNAKE above Jackson La		112	85
JACKSON LAKE		847.0	276.3	153.4	494.0	PACIFIC CREEK	3	119	93
PALISADES		1400.0	553.2	528.0	1033.1	GROS VENTRE RIVER	4	103	81
					į	HOBACK RIVER	6	100	76
					į	GREYS RIVER	5	107	80
					į	SALT RIVER	5	114	86
					   	SNAKE above Palisades	30	111	84

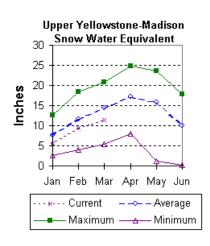
<sup>\* 90%, 70%, 30%,</sup> and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

 <sup>(1) -</sup> 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 this year has been below average for this time of the year, but better than last year. Snow water equivalent (SWE) is about 72 percent of average (87 percent of last year) in the Madison drainage. SWE in the Yellowstone drainage is about 86 percent of average (110 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.



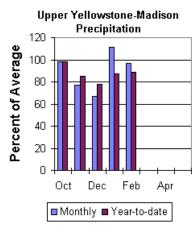
#### **Precipitation**

Last month's precipitation in the Madison and Yellowstone drainage was about 97 percent of average for the 5 reporting stations -- percentage range was from 51 to 127 percent of average. Water-year-to-date precipitation is about 89 percent of average (103 percent of last year's amount). Year to date percentage ranges from 75 to 110 percent

#### Reservoir

Current usable storage for Ennis Lake is about 28,200 acre-feet (69 percent of capacity) – 77 percent of average. Hebgen Lake is storing about 286,300 acre-feet

of water (76 percent of capacity) – 70 percent of average. Hebgen Lake is storing about 101 percent and Ennis Lake, last month, was storing about 101 percent of last year's volume.



#### **Streamflow**

All the following forecasts are based on the 50 percent chance runoff for the April through September runoff period. Yellowstone at Lake Outlet is expected to yield about 580,000 acre feet (72 percent of normal). Yellowstone at Corwin Springs will yield about 1,600,000 acre-feet (81 percent of normal). Yellowstone near Livingston will yield about 1,800,000 acre feet (79 percent of normal). Hebgen lake inflow is estimated to be 345,000 acre feet (69 percent of normal). See the following page for detailed runoff volumes.

## UPPER YELLOWSTONE & MADISON RIVER BASINS Streamflow Forecasts - March 1, 2003

	1	<<=====	Drier =====	= Future C	onditions =	===== Wetter	====>>	
	1						1	
Forecast Point	Forecast			Chance Of 1	Exceeding *			
	Period	90%	70% I	50% (Most	Probable)	J 30%	10%	30-Yr Avg.
	1	(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	(1000AF)
						-		
YELLOWSTONE at Lake Outlet	APR-JUL	290	375	430	73	485	570	590
	APR-SEP	395	505 I	580	72	655	765	805
			1			1		
YELLOWSTONE RIVER at Corwin Springs	APR-JUL	1020	1180	1300	79	1420	1580	1650
	APR-SEP	1270	1470	1600	81	1730	1930	1970
			1			1		
YELLOWSTONE RIVER near Livingston	APR-JUL	1240	1380	1480	78	1580	1720	1900
	APR-SEP	1520	1690	1800	79	1910	2080	2280
			1			1		
HEBGEN Reservoir Inflow	APR-JUL	190	235	265	68	295	340	390
	APR-SEP	260	310 I	345	69	1 380	430	500

UPPER YELLOWSTONE & MADISON RIVER BASINS Reservoir Storage (1000 AF) - End of February					UPPER YELLOWSTONE & MADISON RIVER BASINS   Watershed Snowpack Analysis - March 1, 2003				
Reservoir		Usable   Capacity  	*** Usak This Year	ole Storage Last Year	e ***     Avg	Watershed	Number of Data Sites	This Yea: Last Yr	r as % of 
ENNIS LAKE		41.0	28.2	27.8	31.4	MADISON RIVER in WY	9	87	72
HEBGEN LAKE		377.5	286.3	283.0	265.2   	YELLOWSTONE RIVER in W	Y 12	110	86

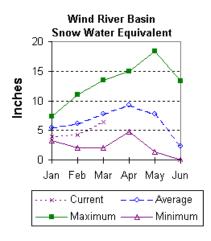
<sup>\* 90%, 70%, 30%,</sup> and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

 <sup>(1) -</sup> 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 89 percent of average (123 percent of last year). The Little Wind SWE is 81 percent of average water content (142 percent of last year), and the Popo Agie drainage SWE is about 73 percent of average (119 percent of last year). The Wind River basin, above Boysen Reservoir, SWE is about 83 percent of average (about 126 percent of last year). See the Basin Summary of Snow Course Data at the front of this report for details.



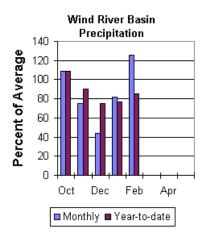
#### **Precipitation**

Last month's precipitation in the basin varied from 100 to 460 percent of average. Precipitation for the basin was about 126 percent of average for the 8 reporting stations. Water year-to-date precipitation is 85 percent of normal. The current water-year-to-date average is about 127 percent of last year at this time. Year to date figures range from 65 to 102 percent of average.

#### Reservoirs

Current usable storage varies from 29 to 77 percent of average. Bull Lake is currently

storing about 43,400 acre feet (29 percent of capacity) -- normally the reservoir is at 56 percent of capacity at this time of the year. Boysen Reservoir is storing about 42 percent of capacity 248,700 acre feet) -- normally the reservoir is at 82 percent of capacity at this time of the year. Pilot Butte is storing 77 percent of capacity (24,300 acre feet) -- normally the reservoir is at 63 percent of capacity at this time of the year.



#### **Streamflow**

Water supply is estimated to be much below normal this year. The following values reflect the 50 percent chance yields for the April through September runoff period. The Wind River above Bull Lake Creek is expected to yield 365,000 acre feet (65 percent of average). Wind River at Riverton will yield about 340,000 acre feet (53 percent of average). Boysen Reservoir inflow will yield about 385,000 acre feet (48 percent of normal). Bull Lake Creek near Lenore is expected to yield about 110,000 acre feet (60 percent of average). Little Popo Agie River near Lander is expected to yield about 30,000 acre feet (57 percent of average). South Fork of Little Wind near Fort Washakie will yield about 45,000 acre feet (54 percent of average). Little Wind River near Riverton will yield about 185,000 acre feet (59 percent of average).

## WIND RIVER BASIN Streamflow Forecasts - March 1, 2003

		<<===== 	Drier ====		onditions ===		i	
Forecast Point	Forecast				Exceeding * ==			
	Period	90%	70%	50% (Most	Probable)	30%	10%	30-Yr Avg.
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	(1000AF)
DINWOODY CREEK nr Burris	APR-JUL	24	35	42		49	60	67
DIMIOUDI GAMMA DALITO	APR-SEP	43	56	65	69	74	87	94
				!				
WIND RIVER abv Bull Lake Cr (2)	APR-JUL	180	245	290	67	335	400	435
	APR-SEP	245	315	365	68 I	415	485	535
BULL LAKE CR near Lenore (2)	APR-JUL	58	83	1 100	68	117	142	148
	APR-SEP	57	88	110	60 [	132	163	182
WIND RIVER at Riverton (2)	APR-JUL	112	235	I 320	59 I	405	530	545
WIND RIVER at Riverton (2)	APR-SEP	121	250	1 340	53 I	430	560	640
	APK-SEP	121	250	1 340	33	430	360	640
LT POPO AGIE RIVER nr Lander	APR-JUL	7.1	17.8	25	54 j	32	43	46
	APR-SEP	11.2	22	] 30	57 I	38	49	53
SF LT WIND nr Fort Washakie	APR-JUL	15.0	30	I I 40	55 I	50	65	73
or ar wind in rore madmana	APR-SEP	17.0	34	1 45	54	56	73	84
				1	1			
LT WIND RIVER nr Riverton	APR-JUL	21	107	165	59	225	310	280
	APR-SEP	33	124	185	59 I	245	335	315
BOYSEN RESERVOIR Inflow (2)	APR-JUL	60	235	I 355	50 I	475	650	717
	APR-SEP	63	255	385	48	515	705	809
				1	1			
WIND F	======================================					======================================	STN	
Reservoir Storage (10		of Februar	·y	i	Watershed Sno			1, 2003

	WIN	D RIVER BASIN			1	WIND I	RIVER BASIN		
R	Reservoir Storage	- 1	Watershed Snowpack	k Analysis -	March 1,	2003			
Reservoir		Usable   Capacity  	*** Usa This Year	ble Stora Last Year	ge ***       Avg	Watershed	Number of Data Sites	This Yea:  Last Yr	r as % of ======= Average
BULL LAKE		151.8	43.4	28.1	85.4	WIND RIVER above Dubio		119	89
BOYSEN		596.0	248.7	266.1	487.9	LITTLE WIND	2	142	81
PILOT BUTTE		31.6	24.3	25.8	19.9	POPO AGIE	7	119	73
					į	WIND above Boysen Resv	14	123	83

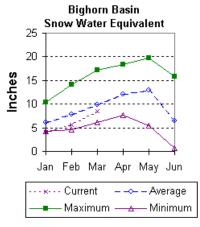
<sup>\* 90%, 70%, 30%,</sup> and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 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 75 percent of average (120 percent of last year). Greybull River SWE is 89 percent of average (148 percent of last year). Shell Creek SWE is 95 percent of average (122 percent of last year). The basin SWE, as a whole, is currently 86 percent of average (124 percent of last year). For more information see Basin Summary of Snow Courses at beginning of report.



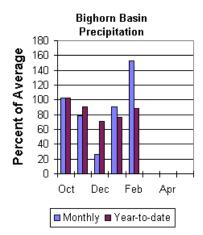
## **Precipitation**

February precipitation was 153 percent of the monthly average (180 percent of last year). Sites ranged from 80 to 361 percent of average for the month. Year-to-date precipitation is 88 percent of normal; that is 111 percent of last year at this time. Year to date percentages, from the 10 reporting stations, range from 53 to 107.

#### Reservoir

Boysen Reservoir is currently storing 248,700-acre feet (51 percent of average). Bighorn

Lake is now at 72 percent of average (595,500-acre feet). Boysen is currently storing 93 percent of last year at this time and Big Horn Lake is storing 89 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

385,000 acre feet (48 percent of average); the Greybull River nr Meeteese should yield 140,000 acre feet (70 percent of average); Shell Creek near Shell should yield 55,000 acre feet (76 percent of average) and the Bighorn River at Kane should yield 470,000 acre feet (42 percent of average).

## BIGHORN RIVER BASIN Streamflow Forecasts - March 1, 2003

Forecast Point	Forecast									
	Period	90%	70%	!		Probable)	1	30%	10%	30-Yr Avg.
=======================================		(1000AF) =======	(1000AF)	 = ≕	(1000AF)	(% AVG.)	( = ====	1000AF) =======	(1000AF)   ========	(1000AF)
BOYSEN RESERVOIR Inflow (2)	APR-JUL	60	235	i	355	50	i	475	650	717
	APR-SEP	63	255	1	385	48	1	515	705	809
GREYBULL RIVER nr Meeteetse	APR-JUL	74	89	-	100	68	1	111	126	148
GREIBUIL RIVER III Meeteetse	APR-SEP	106	126	i	140	70	i	154	174	200
				1			1			
SHELL CREEK nr Shell	APR-JUL	34	41	-	45	75	1	49	56	60
	APR-SEP	44	51	-1	55	76	1	59	66	72
				-1			1			
BIGHORN RIVER at Kane (2)	APR-JUL	193	350	1	455	46	1	560	715	1000
	APR-SEP	179	350	1	470	42	1	590	760	1110
				1			1			

Reservoir Storage (10				Watershed Snowpack	<del>-</del>	March 1,		
Reservoir	Usable   Capacity  	*** Usa This Year	ble Storac Last Year	ge ***	Watershed	Number of Data Sites	This Yea: ====== Last Yr	as % of Average
BOYSEN	596.0	248.7	266.1	487.9		5	120	75
BIGHORN LAKE	1356.0	595.5	669.5	826.3	GREYBULL RIVER	2	148	89
					SHELL CREEK	4	122	95
					BIGHORN (Boysen-Bighorn	1) 11	124	86

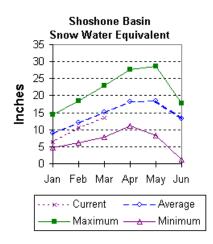
<sup>\* 90%, 70%, 30%,</sup> and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 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 87 percent of average (127 percent of last year) in the Shoshone River basin. The Clarks Fork River basin SWE is 93 percent of average (128 percent of last year). For more information see the Basin Summary of Snow Course Data at the beginning of this report.



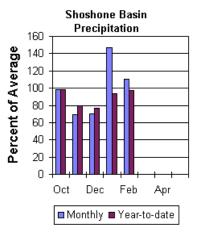
#### **Precipitation**

Precipitation for last month was 110 percent of normal (202% of last year). Monthly percentages range from 91 to 235 percent of average. The basin year-to-date precipitation is now 97 percent of average (126 percent of last year). Year-to-date percentages range from 83 to 112 percent of average.

#### Reservoir

Current storage in Buffalo Bill Reservoir is 82 percent of average (118 percent of last year's storage) – the reservoir is about 51 percent of capacity.

Currently, about 331,500 acre-feet are stored in the reservoir compared to 280,200 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 North Fork Shoshone River at Wapiti is expected to be 430,000 acre-feet (83 percent of average). South Fork of the Shoshone River near Valley is estimated to yield of 200,000 acre-feet (76 percent of average), and South Fork above Buffalo Bill Reservoir is expected to be 160,000 acre-feet (71 percent of average). At the Buffalo Bill Reservoir, the fifty percent chance yield for the Shoshone River is expected to be about 630,000 acre-feet (78 percent of average). The fifty-percent chance yield for the Clarks Fork of the Yellowstone near Belfry, Montana is expected to be about 430,000 acre-feet (72 percent of average).

## SHOSHONE & CLARKS FORK RIVER BASINS Streamflow Forecasts - March 1, 2003

		<<===== 	 Drier ====	== Future C	onditions ===	===== Wetter	: ====>>   	
Forecast Point	Forecast			= Chance Of 1	Exceeding * ==		i	
	Period	J 90%	70%	50% (Most	Probable)	30%	10%	30-Yr Avg.
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	(1000AF)
	APR-JUL	320	360	385	84	410	450	460
-	APR-SEP	355	400	430	83 I	460	505	520
SF SHOSHONE RIVER nr Valley	APR-JUL	129	156	   175	78 I	193	223	225
-	APR-SEP	145	180	200	76	220	255	265
SF SHOSHONE RIVER aby Buffalo Bill	APR-JUL	75	123	I I 155	72 I	188	233	215
	APR-SEP	72	124	160	71	196	246	225
BUFFALO BILL DAM Inflow (2)	APR-JUL	430	515	l I 570	79 I	625	710	720
	APR-SEP	480	570	630	78	690	780	805
CLARKS FORK RIVER nr Belfry	APR-JUL	310	365	I I 400	74 I	435	490	540
CHARLE TOTAL NITER HI BEILLY	APR-SEP	335	390	430	72	470	525	595
				1	1			

Re	SHOSHONE & CLARKS eservoir Storage (1000			ry	 	SHOSHONE & CI Watershed Snowpa	ARKS FORK RIVI ck Analysis -		2003
Reservoir		Usable   Capacity  		le Storag Last Year	Avg	Watershed	Number of Data Sites	This Yea	r as % of  Average
BUFFALO BILL		646.6	331.5	280.2	405.8	SHOSHONE RIVER	7	127	87
					i	CLARKS FORK in WY	7	128	93

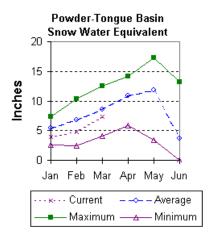
<sup>\* 90%, 70%, 30%,</sup> and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 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 93 percent of normal (125 percent of last year). The Goose Creek drainage is 93 percent of average (120 percent of last year). Clear Creek drainage is 98 percent of normal SWE (148 percent of last year). Crazy Woman Creek is 81 percent of average (124 percent of last year). The Upper Powder River drainage is 75 percent of average (101 percent of last year). The Powder River basin snow water equivalent (SWE), in Wyoming, is about 85 percent of average (121 percent of last year). For more information see Basin Summary of Snow Courses at beginning of report.



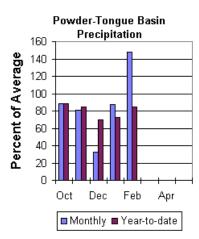
## **Precipitation**

February precipitation was 148 percent of average for the 9 reporting stations. Monthly percentages range from 65 to 200 percent of average. Precipitation for the year ranges from 53 to 100 percent of average at the reporting stations. Year-to-date precipitation is 85 percent of average in the basin; this is 100 percent of last year at this time.

#### Reservoir

Tongue River Reservoir is currently at 146 percent of average storage for this time of year (35,800 acre feet) – the

reservoir is about 45 percent of capacity (total capacity is 79,100 acre feet). Last year at this time the reservoir was storing about 23,200 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 77,000-acre feet (71 percent of normal). Middle Fork of the Powder River near Barnum is estimated to yield 6,100-acre feet (33 percent of average). The North Fork of the Powder near Hazelton should yield about 6,100 acre-feet (59 percent of normal). The estimated yield for Clear Creek near Buffalo is 30,000 acre-feet (77 percent of average). Rock Creek near Buffalo will yield about 17,400 acre-feet (73 percent of normal), and Piney Creek at Kearny should yield about 28,000 acre-feet (54 percent of average).

# POWDER & TONGUE RIVER BASINS Streamflow Forecasts - March 1, 2003

		<<=====	Drier ====	== Future Co	onditions ==	===== Wetter	====>>	
Forecast Point	Forecast Period	=======   90%   (1000AF)	70% (1000AF)	= Chance Of E   50% (Most   (1000AF)	Exceeding * == Probable)   (% AVG.)	30% (1000AF)	      10%     (1000AF)	30-Yr Avg. (1000AF)
TONGUE RIVER nr Dayton (2)	APR-JUL	 48	 59	=====================================		73	 84	96
101002 1121211 112 201 001 (2)	APR-SEP	59	70	77	71	84	95	109
TONGUE RIVER RESERVOIR Inflow (2)	APR-JUL	61	90	   110	50 I	130	159	220
101002 11121 1202110111 1111011 (2)	APR-SEP	82	111	130	52	149	178	250
MIDDLE FORK POWDER nr Barnum	APR-JUL	3.3	4.6	l I 5.4	30 I	8.2	12.3	17.8
	APR-SEP	3.7	5.1	6.1	33	9.0	13.3	18.7
NORTH FORK POWDER nr Hazelton	APR-JUL	3.10	4.50	I I 5.50	57 I	6.50	7.90	9.60
	APR-SEP	3.5	5.1	6.1	59	7.1	8.7	10.4
CLEAR CREEK nr Buffalo	APR-JUL	14.0	21	l   25	74 I	29	36	34
	APR-SEP	18.0	25	30	77	35	42	39
ROCK CREEK nr Buffalo	APR-JUL	8.2	11.4	1 13.6	68	15.6	18.6	19.9
	APR-SEP	11.8	15.4	17.4	73 I	19.4	23	24
PINEY CREEK at Kearny	APR-JUL	11.4	19.5	l   25	51 I	36	51	49
	APR-SEP	13.4	22	28	54	39	55	52
POWDER RIVER at Moorehead	MAR-JUL	49	76	I   95	40 I	141	210	240
	MAR-SEP	65	95	115	43	162	230	265
	APR-JUL	32	52	l 65	32	106	167	205
	APR-SEP	47	69	85	37	127	189	230
POWDER RIVER near Locate	MAR-JUL	34	82	115	37 I	148	196	310
	MAR-SEP	47	99	135	40	171	221	335
	APR-JUL	48	58	l 65	28	90	127	235
	APR-SEP	64	78	87 	34	115	155	260

Re	POWDER & TONGUE RIVER BASINS  Reservoir Storage (1000 AF) - End of February					POWDER & T Watershed Snowpa	ONGUE RIVER BA		:003
Reservoir		Usable   Capacity  	This Year	Last Year	Avg	Watershed	Number of Data Sites	This Year ======= Last Yr	Average
TONGUE RIVER		79.1	35.8	23.2	24.6	UPPER TONGUE RIVER	10	125	93
					į	GOOSE CREEK	3	120	93
					-	CLEAR CREEK	4	148	98
					-	CRAZY WOMAN CREEK	3	124	81
						UPPER POWDER RIVER	4	101	75
						POWDER RIVER in WY	8	121	85

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

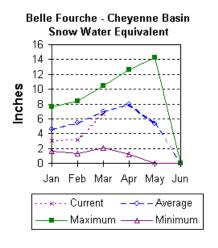
17

 <sup>(1) -</sup> 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 just below average. SWE is currently 95 percent of average snow pack; 193 percent of last year's amount at this time. See Basin summary of Snow Course Data at the beginning of this report for a detailed listing.



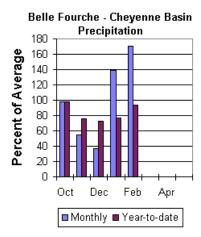
## Precipitation.

Precipitation, for the month of February was 171 percent of average in the Black Hills. Monthly percentages range from 59 to 254 percent. Year-to-date precipitation is 94 percent of average and 124 percent of last year's amount.

#### Reservoir.

Usable reservoir storage is generally above average in the basin. Angostura is currently storing 79 percent of average

(79,900-acre feet), about 65 percent of capacity. Belle Fourche reservoir is storing 97 percent of average (110,000-acre feet), about 62 percent of capacity. Deerfield reservoir is storing 111 percent of average (14,600-acre feet), about 96 percent of capacity. Keyhole reservoir is storing 111 percent of average (117,300-acre feet), 61 percent of capacity. Pactola reservoir is storing 101 percent of average (46,300-acre feet), 84 percent



of capacity. Shadehill reservoir is storing 61 percent of average (30,400-acre feet), 37 percent of capacity.

#### **Streamflow**

Water supply is estimated to be below 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 5,600 acre feet (89 percent of average). Pactola is forecast at 22,000 acre feet (105 percent of average).

## BELLE FOURCHE & CHEYENNE RIVER BASINS Streamflow Forecasts - March 1, 2003

		1	<<=====	Drier ====		= Future C	onditions		== Wetter	====>>	
		1								- 1	
Forecast Point	Forecast	1			==	Chance Of	Exceeding '	· =====			
	Period	1	90%	70%	1	50% (Most	Probable)	- 1	30%	10%	30-Yr Avg.
		1 (	(1000AF)	(1000AF)	Ţ	(1000AF)	(% AVG.)	!	(1000AF)	(1000AF)	(1000AF)
DEERFIELD RESERVOIR Inflow	MAR-JUL		2.30	4.30	=   =   	5.60	89	 !	6.90	8.90	6.30
PACTOLA RESERVOIR Inflow	MAR-JUL		4.2	15.0		22	105	i	29	40	21
	APR-JUL		3.0	13.0	1	20	106	- 1	27	37	18.9
					1			1			

BELLE FOURCHE & Reservoir Storage (1		    		E & CHEYENNE RI pack Analysis -				
Reservoir	Usable   Capacity  	/  This Last		ge ***   	Watershed	Number of Data Sites		r as % of  Average
ANGOSTURA	122.1	79.9	101.4	101.7	BELLE FOURCHE	7	193	95
BELLE FOURCHE	178.4	110.0	144.5	113.0				
DEERFIELD	15.2	14.6	14.8	13.2				
KEYHOLE	193.8	117.3	154.7	105.9				
PACTOLA	55.0	46.3	52.6	46.0				
SHADEHILL	81.4	30.4	49.9	50.0   				

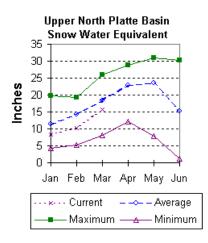
<sup>\* 90%, 70%, 30%,</sup> and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

 <sup>(1) -</sup> 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 85 percent of average snow water equivalent (SWE) recorded for this time of the year (138 percent of last year). SWE in the drainage area above Northgate is about 88 percent of average and 139 percent of last year at this time. SWE in the Encampment River drainage is about 76 percent of normal and 121 percent of last year. Brush Creek SWE for the year is about 98 percent of normal and 152 percent of last year's SWE. Medicine Bow and Rock Creek drainage SWE is about 68 percent of average and 162 percent of last year at this time. For more information see Basin Summary of Snow Courses at the beginning of this report.



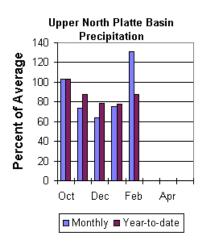
## **Precipitation**

Eight reporting stations indicate last month's precipitation was 131 percent of average and about 163 percent of last year's amount. Precipitation varied from a 90 to 195 percent of average. Total water-year-to-date precipitation is about 88 percent of average for the basin, which is about 127 percent of last year's amount. Year to date percentage ranges from 68 to 110 percent of average.

#### Reservoirs

Current usable storage in

Seminoe Reservoir is about 17 percent of capacity, and about 44 percent of last year's amount. Seminoe Reservoir is estimated to be storing 173,7100 acre-feet (41 percent of capacity). Last year, at this time, the reservoir had 445,700 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 160,000 acre-feet (59 percent of average). Encampment River near Encampment is estimated to yield

115,000 acre-feet (70 percent of normal). Rock Creek near Arlington is estimated to yield 36,000 acre-feet (63 percent of average). Seminoe Reservoir inflow should be about (525,000 acre-feet (61 percent of normal). See the following table for more detailed information on projected runoff.

## UPPER NORTH PLATTE RIVER BASIN Streamflow Forecasts - March 1, 2003

Forecast Point	Forecast	i	Drier ====		onditions == Exceeding * :	===== Wetter	====>>	
	Period	90%   (1000AF)	70% (1000AF)		Probable)	30%   (1000AF)	10%   (1000AF)	30-Yr Avg. (1000AF)
NORTH PLATTE RIVER nr Northgate	APR-JUL APR-SEP	80 44	119 113	150   160	61 59	185   205	242 275	245 270
ENCAMPMENT RIVER nr Encampment	APR-JUL APR-SEP	63 71	88 97	   105   115	67 70	122   133	147 159	156 165
ROCK CREEK nr Arlington	APR-JUL APR-SEP	21 22	29 30	35   36	66 63	42   43	52 53	53 57
SWEETWATER RIVER nr Alcova	APR-JUL APR-SEP	12.8 14.9	23 26	30   33	41 41	47   51	72 77	7 <b>4</b> 80
SEMINOE RESERVOIR Inflow	APR-JUL APR-SEP	185 210	365 400	485   525	61 61	605   650	785 840	800 860

	UPPER NORTH PLATTE RIVER BASIN   Reservoir Storage (1000 AF) - End of February					UPPER NORTH PLATTE RIVER BASIN Watershed Snowpack Analysis - March 1, 2003				
Reservoir		Usable   Capacity  	*** Usab This Year	ole Storag Last Year	e ***       Avg	Watershed	Number of ta Sites	This Year		
SEMINOE		1016.7	173.7	445.7	527.4	N PLATTE above Northgate	7	139	88	
					į	ENCAMPMENT RIVER	4	121	76	
					į	BRUSH CREEK	5	152	98	
						MEDICINE BOW & ROCK CREEK	3	162	68	
						N PLATTE above Seminoe	19	138	85	

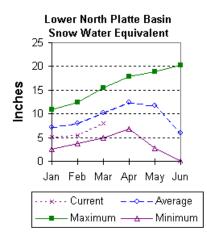
<sup>\* 90%, 70%, 30%,</sup> and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

 <sup>(1) -</sup> 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 79 percent of normal (133 % of last year). The Sweetwater drainage SWE is currently 59 percent of average (92 percent of last year). Deer and LaPrele Creek SWE is 69 percent of average (116 percent of last year). SWE for the North Platte above the Laramie River drainage is 81 percent of average (131 % of last year). SWE for the Laramie River above the mouth is 73 percent of average (135 % of last year). SWE for the Laramie River above Laramie is 77 percent of average (131 % of last year). SWE for the Little Laramie River is 66 percent of average (153 percent of last year). For more information see Basin Summary of Snow Courses at beginning of report.



#### **Precipitation**

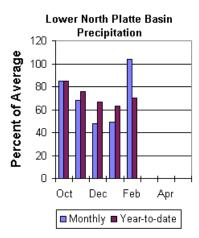
Of the 10 reporting stations, percentages for the month range from 66 to 168. February precipitation for the basin was 104 percent of average (199 percent of last year). The water year-to-date precipitation for the basin is currently 70 percent of average (107 percent of last year). Year to date percentages range from 62 to 85.

#### Reservoir

The Lower North Platte River basin reservoir storage is well below to near average.

Reservoir storage is as follows:

Alcova 156,000 acre feet (100 percent of average); Glendo 205,700 acre feet (54 percent of average); Guernsey 13,800 acre feet (97 percent of average); Pathfinder 329,200 acre feet (46 percent of average); Seminoe 173,700 acre feet (33 percent of average). Wheatland No.2 14,200 acre feet (30 percent of average).



#### **Streamflow**

Yields from 11 to 59 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 33,000 acre-feet (41 percent of average). Deer Creek at Glenrock is expected to yield about 11 percent of average (4,600 acre-feet). LaPrele Creek above the reservoir is estimated to yield 31 percent of average (7,400 acre-feet). North Platte River below Guernsey Reservoir is expected to yield about 52 percent of normal (520,000 acre-feet), and below Glendo Reservoir is anticipated to yield about 52 percent of average (510,000 acre-feet). Laramie River near Woods should yield about 52 percent of average (70,000 acre-feet). The Little Laramie near Filmore should produce about 38,000 acre-feet (59 percent of average).

## LOWER NORTH PLATTE, SWEETWATER & LARAMIE RIVER BASINS Streamflow Forecasts - March 1, 2003

	=======	   <<=====	= Drier ==	===== 1	Future Co	onditions =		Wetter	=====>	====== >	
Forecast Point	Forecast Period	=======   90%   (1000AF)	70% (1000AF)	50	0% (Most	Exceeding * Probable) (% AVG.)	I .	30% 1000AF)	10% (1000A	3	0-Yr Avg. (1000AF)
SWEETWATER RIVER nr Alcova	APR-JUL	12.8	23	, i	30	41		47	72		74
	APR-SEP	14.9	26	!	33	41	!	51	77		80
DEER CREEK at Glenrock	APR-JUL	4.0	5.2	-	6.0	16	i i	11.0	18.6		38
	APR-SEP	3.2	4.0	ļ.	4.6	11	!	9.6	17.6		41
LaPRELE CREEK abv Reservoir	APR-JUL	0.2	1.8		4.7	20	1	9.6	22		24
	APR-SEP	0.6	3.4	i	7.4	31	i	13.8	29		24
NORTH PLATTE - Alcova to Orin Gain	APR-JUL	8.0	16.0	-	21	14	!	58	112		152
NORTH TEMTE MICOVE CO OTTH GETT	APR-SEP	9.0	17.0	i	22	14	i	59	114		161
NORTH PLATTE RIVER blw Glendo	100 TIII	240	400	!	505	53	!	610	770		960
NORTH PLATTE RIVER DIW Glendo	APR-JUL APR-SEP	230	400	-	505 510	53 52	1	620	770 790		960
				i			İ				
NORTH PLATTE RIVER blw Guernsey	APR-JUL APR-SEP	177 180	370 380	- !	505 520	52 52	!	640 660	835 860		970 1010
	AFK-SEF	100	300	i	320	32	i	000	800		1010
LARAMIE RIVER nr Woods	APR-JUL	33	52	1	65	53	1	89	125		123
	APR-SEP	35	56	- !	70	52	!	97	136		135
LITTLE LARAMIE RIVER nr Filmore	APR-JUL	15.0	26	i	34	58	i	42	53		59
	APR-SEP	17.0	30	I	38	59	1	46	59		64
TOWER NORTH PLANTS GWEEN							  ======	=======		======	======================================
LOWER NORTH PLATTE, SWEET Reservoir Storage (100						NORTH PLATT Watershed S					
	Usable		le Storage	***	   : :	. ,		Numbe	-		======= r as % of
Reservoir	Capacity  	This Year	Last Year	Avg	Water 	rsned		of Data Si		ast Yr	Average
ALCOVA	184.3	156.0	156.5	155.6	=======   SWEE1	TWATER		4		92	59
CI TIMPO	F0.6.4	205 7	201 7	201 4				,		1.0	60

Reservoir	Capacity	This	Last	ا کو	Watershed	of	========	
		Year	Year	Avg		Data Sites	Last Yr	Average
ALCOVA	184.3	156.0	156.5	155.6	SWEETWATER	4	92	59
GLENDO	506.4	205.7	321.7	381.4	DEER & Laprele Creeks	3	116	69
GUERNSEY	45.6	13.8	15.2	14.2	N PLATTE abv Laramie R	26	131	81
PATHFINDER	1016.5	329.2	523.0	712.4	LARAMIE RIVER abv Laram	nie 8	131	77
SEMINOE	1016.7	173.7	445.7	527.4	LITTLE LARAMIE RIVER	4	153	66
WHEATLAND #2	98.9	14.2	19.0	47.7	LARAMIE RIVER above mou	th 11	135	73
					NORTH PLATTE	32	133	79
				ا 				

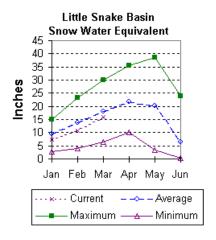
<sup>\* 90%, 70%, 30%,</sup> and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

## **Little Snake River Basin (10)**

#### **Snow**

Snowfall has been below average across the basin this year. Currently, snow water equivalent (SWE) in the Little Snake River drainage is 88 percent of average (128 percent of last year at this time). For more information see Basin Summary of Snow Courses at beginning of this report.



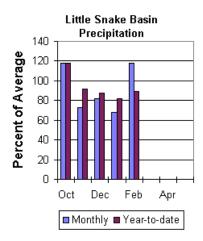
#### **Precipitation**

Precipitation across the basin was below average this past month. February precipitation was 118 percent of average (165 percent of last year) for the 5 reporting stations. February precipitation ranged from 98 to 188 percent of average. The Little Snake River basin water-year-to-date precipitation is currently 89 percent of average (124 percent of last year). Year-to-date percentages range from 83 to 97 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 118,000 acre-feet (74 percent of normal). Little Snake River near Dixon is estimated to yield 245,000 acre-feet (74 percent of normal).



## LITTLE SNAKE RIVER BASIN

		Streamflow	Forecasts	- Ma	arch 1, 20	003					
Forecast Point	   Forecast     Period		Drier === 70% (1000AF)	== Cl	hance Of I	exceeding * Probable) (% AVG.)	 I			•	r Avg.
Little Snake River nr Slater	APR-JUL	72	98	== === 	118	74	:= ===== !	140	175		159
LITTLE SNAKE R nr Dixon	APR-JUL	133	200		245	74		290	355		330
LITTLE SNAK Reservoir Storage (100			y		   	LI Watershed		KE RIVE		1, 200	)3
Reservoir	Usable   Capacity  	*** Usable This Year	Last	*** Avg	   Wate:	rshed		Number of Data Sit	====		as % of 
=======================================					======== LITT1	LE SNAKE RI	VER	8	128		88

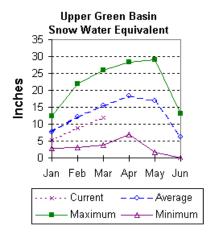
<sup>\* 90%, 70%, 30%,</sup> and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

## **Upper Green River Basin (11)**

#### **Snow**

The Upper Green River Basin snow water equivalent (SWE), above Fontenelle Reservoir, is 78 percent of average (105 percent of last year). The Green River basin SWE above Warren Bridge is 78 percent of normal (102 percent of last year). SWE on the west side of the Upper Green River basin is about 78 percent of normal, 106 percent of this time last year. Newfork River SWE is now 81 percent of normal (109 percent of last year). Big Sandy-Eden Valley SWE is about 60 percent of average (80 percent of last year). For more information see the Basin Summary of Snow Courses at the beginning of this report.



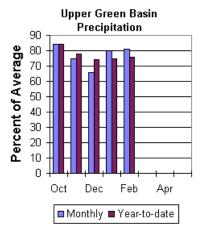
## **Precipitation**

The 11 reporting precipitation sites in the basin were 81 percent of average (179 percent of last month's average). Precipitation varied from 43 to 237 percent of average. Water year-to-date precipitation is about 76 percent of average (97 percent of last year). Year to date percentage of average ranges from 72 to 86 percent for the reporting stations.

#### Reservoir

Current usable storage in Big Sandy Reservoir is about 3,800 acre feet (10 percent of capacity) -- 20 percent of last

year. Eden Reservoir is below the gage used for measurement. Fontenelle Reservoir is storing 185,200 acre-feet (45 percent of average and 40 percent of the total capacity). Flaming Gorge Reservoir is currently storing 2,610,000 acre feet (78 percent of average) -- 89 percent of last year and 70 percent of capacity. Detailed reservoir data is shown on the following page and on the reservoir storage summary at the beginning of this report.



#### **Streamflow**

The following forecast is based on the fifty-percent chance April through July runoff in the Upper Green River basin. Runoff is forecast to be below average. Green River at Warren Bridge is expected to yield about 205,000 acre-feet (77 percent of normal). Pine Creek above Fremont Lake is expected to yield 83,000 acre-feet (80 percent of normal). New Fork River near Big Piney is expected to yield about 260,000 acre-feet (66 percent of normal). Fontenelle Reservoir Inflow is estimated to be 520,000 acre-feet (61 percent of average), and Big Sandy near Farson is expected to be about 38,000 acre-feet (66 percent of normal).

## UPPER GREEN RIVER BASIN Streamflow Forecasts - March 1, 2003

		<====== 	Drier ====	== Future C	onditions =	===== Wetter	: ====>>   	
Forecast Point	Forecast	======		= Chance Of	Exceeding *			
	Period	90%	70%	50% (Most	Probable)	J 30%	10%	30-Yr Avg.
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	(1000AF)
Green River at Warren Bridge	APR-JUL	146	180	205	77	230	265	265
Pine Creek abv Fremont Lake	APR-JUL	67	76	83	80	90	99	104
New Fork River nr Big Piney	APR-JUL	155	215	260	66	305	365	395
Fontenelle Reservoir Inflow	APR-JUL	375	458	520	61	585	689	860
Big Sandy River nr Farson	APR-JUL	20	31	1   38 	66	   45	56	58

	UPPER GREEN RIVER BASIN   Reservoir Storage (1000 AF) - End of February					UPPER GREEN RIVER BASIN Watershed Snowpack Analysis - March 1, 2003					
Reservoir		Usable   Capacity  	*** Usable Storage ***   This Last   Year Year Avg		Avg	Watershed	Number of ta Sites	Last Yr	r as % of  Average		
BIG SANDY		38.3	3.8	4.6	19.1	GREEN above Warren Bridge		101	78		
EDEN			NO REPOR	RT	į	UPPER GREEN (West Side)	7	106	78		
FONTENELLE		344.8	185.2	134.5	156.1	NEWFORK RIVER	3	109	81		
					į	BIG SANDY/EDEN VALLEY	2	80	60		
					 	GREEN above Fontenelle	14	105	78		

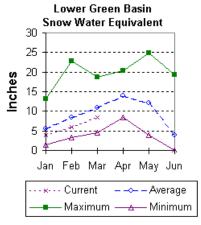
<sup>\* 90%, 70%, 30%,</sup> and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

## **Lower Green River Basin (12)**

#### **Snow**

The Blacks Fork and Henrys Fork drainage's are below average. SWE in the Hams Fork is currently 76 percent of average (102% of last year). Blacks Fork SWE is currently 75 percent of average (107 percent of last year). The Henry's Fork is now at 78 percent of average (115 percent of last year). The basin, as a whole, is 77 percent of average (104 percent of last year). For more information see Basin Summary of Snow Courses at beginning of this report.



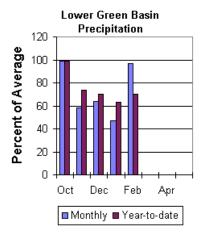
## Precipitation

Precipitation was near average for the month (97 percent) for the 3 reporting stations during February. Precipitation ranged from 17 to 117 percent of average for the month. The basin year-to-date precipitation is currently 70 percent of average (100 percent of last year). Year to date percentages range from 65 to 84.

#### Reservoir

Fontenelle Reservoir is currently storing 185,200 acre feet; this is 119 percent of

average (138 percent of last year). Flaming Gorge is currently storing 2,610,000 acre feet, this is 89 percent of average (92 percent of last year). Viva Naughton is currently storing 23,700 acre feet; this is 81 percent of average.



#### **Streamflow**

Expected yields vary from 56 to 63 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 520,000-acre feet (59 percent of average). Blacks Fork near Robertson is forecast to yield 57,000-acre feet (60 percent of average). East Fork of Smiths Fork near Robertson is estimated to yield 17,500 acre-feet (57 percent of average). The estimated yield for Hams Fork near Frontier is 41,000-acre feet (63 percent of average). Viva Naughton Reservoir inflow will be about 52,000-acre feet (58 percent of average). Flaming Gorge Reservoir inflow will be about 660,000-acre feet (56 percent of average).

#### LOWER GREEN RIVER BASIN

#### <<===== Drier ===== Future Conditions ====== Wetter ====>> Forecast Point Chance Of Exceeding 30-Yr Avg. 90% 70% 50% (Most Probable) 30% 10% Period (1000AF) (1000AF) (1000AF) (% AVG.) (1000AF) (1000AF) (1000AF) Green River nr Green River, WY APR-JUL 755 875 Blacks Fork nr Robertson APR-JUL 29 46 57 60 68 85 95 EF of Smiths Fork nr Robertson APR-JUL 13.3 15.7 17.5 57 19.6 23 31 Hams Fk blw Pole Ck nr Frontier APR-JUL 25 34 41 63 49 61 65 Hams Fk Inflow to Viva Naughton Res APR-JUL 20 39 52 65 84 89 Flaming Gorge Reservoir Inflow 525 660 795 1190

Streamflow Forecasts - March 1, 2003

LOWER GREI Reservoir Storage (100	EN RIVER BAS 00 AF) - End	LOWER GREEN RIVER BASIN   Watershed Snowpack Analysis - March 1, 2003						
Reservoir	Usable   Capacity		able Stora Last Year	Avg	Watershed Da	Number of ta Sites	This Year	r as % of Average
FONTENELLE	344.8	185.2	134.5	156.1	HAMS FORK RIVER	4	102	76
FLAMING GORGE	3749.0	2610.0	2834.9	2919.0	BLACKS FORK	5	107	75
VIVA NAUGHTON RES	42.4	23.7	27.4	29.1	HENRYS FORK	3	115	78
					GREEN above Flaming Gorge	26	104	77

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

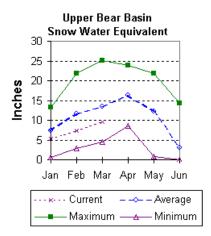
<sup>(1) -</sup> The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

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

## **Upper Bear River Basin (13)**

#### **Snow**

Snow water equivalent (SWE), at snow courses in the Bear River above the Idaho State line, is 72 percent of average (95 percent of last year). SWE for the Bear River in Utah is estimated to be 72 percent of average; that is about 94 percent of last year at this time. SWE in the Wyoming portion of the Bear River drainage (Smiths and Thomas Forks) is estimated at 75 percent of average (103 percent of last year at this time.). See the Basin Summary of Snow Course Data at the beginning of this report for more detailed information.



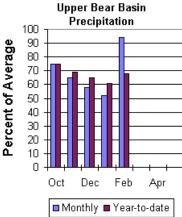
## Precipitation

Precipitation for last month was 94 percent of average for the 2 reporting stations. Last month was 265 percent of last year's amount. The year-to-date precipitation, for the basin, is 68 percent of average; this is 97 percent of last year's amount.

#### Reservoir

Woodruff Narrows reservoir is currently storing 8,000 acre feet (14 percent of capacity). Normally, the reservoir is storing 48 percent of capacity

at this time of the year. Current storage is 29 percent of average, and 145 percent of last year's amount.



#### **Streamflow**

The following is based on the 50 percent chance stream flow yields are for the April through September period. Smiths Fork near Border is estimated to yield 71,000 acre-feet (60 percent of normal. Bear River above the Utah-Wyoming State Line is expected to yield about 79,000 acre-feet (63 percent of average), Woodruff Narrows Reservoir inflow is expected to be about 56,000 acre-feet (about 39 percent of normal).

#### UPPER BEAR RIVER BASIN

## UPPER BEAR RIVER BASIN Streamflow Forecasts - March 1, 2003

Forecast Point	Forecast   Period		70% (1000AF)	== 0	Chance Of I	exceeding * Probable) (% AVG.)	====:     		10%   (1000AF)	30-Yr Avg. (1000AF)
Smiths Fork nr Border	MAR-JUL	46	56	- I	64	61	i	73	89	105
	MAR-SEP	55	66	1	75	62	1	85	103	122
	APR-JUL	42	52	1	60	58	1	69	86	103
	APR-SEP	51	62	1	71	60	1	81	99	118
Bear R nr UT-WY State Line	MAR-JUL	54	64	1	72	62	1	81	96	116
	MAR-SEP	60	72	1	81	63	I	91	109	128
	APR-JUL	52	62	1	70	60	1	79	94	116
	APR-SEP	58	70	1	79	63	1	89	107	125
Woodruff Narrows Res inflow	MAR-JUL	29	45	1	58	40	1	72	96	147
	MAR-SEP	31	47	1	61	40	I	76	102	153
	APR-JUL	26	41	1	53	39	1	67	90	136
	APR-SEP	27	43	1	56	39	1	70	95	142

UPPER BEAR Reservoir Storage (100	 	UPPER BEAR RIVER BASIN   Watershed Snowpack Analysis - March 1, 2003						
Reservoir	Usable   Capacity  	*** Usab This Year	ole Storage Last Year	***       Avg	Watershed	Number of Data Sites		r as % of 
WOODRUFF NARROWS	57.3	8.0	5.5	27.6	UPPER BEAR RIVER in Uta	h 7	94	72
				į	SMITHS & THOMAS FORKS	4	103	75
				į	BEAR RIVER abv ID line	9	95	72
				į	NORTHWEST	78	115	85
				-	NORTHEST	23	133	92
					SOUTHEAST	35	132	83
				į	SOUTHWEST	35	109	79

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

<sup>(1) -</sup> 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.