

Natural Resources Conservation Service

# Montana Water Supply Outlook Report April 1, 2012



# **Water Supply Outlook Report**

# 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 high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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# Montana Water Supply Outlook Report as of April 1, 2012

The month of March could be best characterized with one word, variable. The weather patterns and storm activity across the state helped to bring the statewide snowpack average to above one-hundred percent, but the storms favored some parts of the state over others. The northern and western parts of the state saw well above average and consistent snowfall throughout the month, while some areas like the Milk River basin in north-central Montana were largely missed by the storms and continue to be well below average. This variability was very evident in southwest Montana where several storms helped to increase basin averages during the month, but this weather was quickly followed by extended periods of warm and dry weather. This warm weather pattern has had an impact on the low-elevation snow in the southwestern basins of Montana and in mountains of northern Wyoming, transitioning the low-elevation snow into an isothermal spring snowpack primed for runoff. The Lower Yellowstone River basin has seen the snowpack turn to a melt pattern at all but the high elevations during the second half of the month, decreasing basin averages and seasonal runoff forecasts. The weather patterns of April will help to dictate the timing and volumes of spring runoff, and we will monitor any snowpack accumulations or losses during the month.

### **Snowpack**

Typical snowpack accumulation on April 1 for the Columbia is 99 percent of yearly maximum snowpack; Missouri is 95 percent; and Yellowstone is 95 percent. State-wide mountain snow water content was 101 percent of average and 84 percent of last year. West of the Divide snowpack was 110 percent of average and 90 percent of last year. East of the Divide snowpack was 92 percent of average and 80 percent of last year.

	% OF	LAS	Γ YEAR	MARCH
RIVER BASIN	AVERAGE	% OF 2	AVERAGE	% CHANGE
COLUMBIA	110		122	+12
0020112211 1111111111111111111111111111				• • • = =
KOOTENAI			126	• • •
FLATHEAD			130	•• •
UPPER CLARK FORK			115	+2
BITTERROOT	106		107	+5
LOWER CLARK FORK	112		123	+13
MISSOURI	93		117	+2
MISSOURI HEADWATERS	90		113	+5
JEFFERSON	89		110	+3
MADISON	92		113	+11
GALLATIN	87		116	+3
MISSOURI MAINSTEM	104		125	+1
HEADWATERS MAINSTEM	115		114	0
SMITH-JUDITH-MUSSELSHELL	100		122	5
SUN-TETON-MARIAS	100		118	+6
MILK (Bearpaw Mtns)	=		170	-26
ST. MARY			111	+17
ST. MARY & MILK			140	+15
YELLOWSTONE			115	18
UPPER YELLOWSTONE			122	8
LOWER YELLOWSTONE	86		107	26
STATE-WIDE	101		120	+5

# **Precipitation**

March mountain and valley precipitation across the state was 140 percent of average and 105 percent of last year, while the water year precipitation was 103 percent of average and 89 percent of last year. West of the Continental Divide, March mountain and valley precipitation was 171 percent of average and 119 percent of last year and the water year precipitation was 109 percent of average and 91 percent of last year. East of the Divide, March mountain and valley precipitation was 118 percent of average and 93 percent of last year and the water year precipitation was 98 percent of average and 87 percent of last year.

RIVER BASIN	MARCH % OF AVERAGE	WATER YEAR % OF AVERAGE
COLUMBIA  KOOTENAI  FLATHEAD  UPPER CLARK FORK  BITTERROOT  LOWER CLARK FORK  MISSOURI  JEFFERSON  MADISON  GALLATIN  MISSOURI MAINSTEM  SMITH-JUDITH-MUSSELSHEL  SUN-TETON-MARIAS  MILK  ST. MARY  YELLOWSTONE  UPPER YELLOWSTONE	171	109 114 109 104 109 108 102 97 101 95 108 112 108 117 99 98
STATEWIDE	140	103

### Reservoirs

State-wide reservoir storage was 113 percent of average and 103 percent of last year. Reservoir storage west of the divide was 154 percent of average and 129 percent of last year. East of the Divide, reservoir storage was 102 percent of average and 96 percent of last year.

RIVER BASIN	% OF	AVERAGE	% OF LAST YEAR
COLUMBIA  KOOTENAI  FLATHEAD  UPPER CLARK FORK  BITTERROOT  LOWER CLARK FORK  MISSOURI		197	147 118 222 89 101
JEFFERSON		119 89 91	84
MISSOURI MAINSTEM SMITH-JUDITH-MUSSELSHELL SUN-TETON-MARIAS		102	95 94
MILK ST. MARY YELLOWSTONE UPPER YELLOWSTONE LOWER YELLOWSTONE		111	65 98
STATEWIDE		113	100

### **Streamflow**

State-wide, streamflows are forecast to be 101 percent of average. west of the divide streamflows are forecast to be 109 percent of average and east of the divide are forecast to be 94 percent of average.

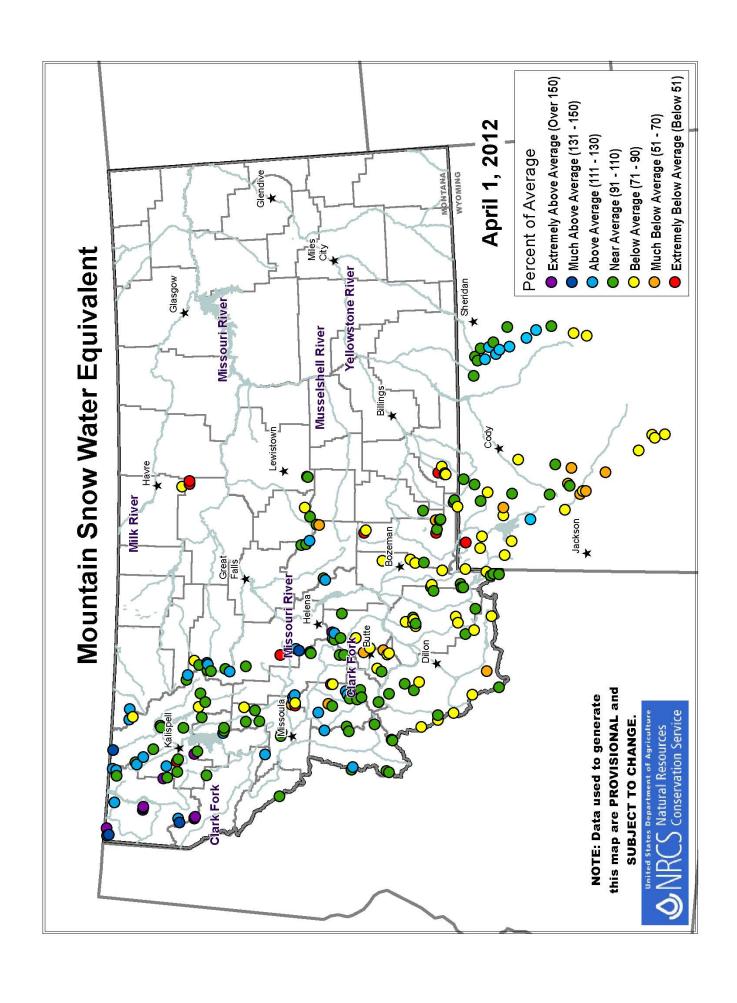
Following are streamflow forecasts for the period April 1 through July 31. THE FIGURES IN THE TABLE BELOW ARE AN AVERAGE OF ALL FORECASTS WITHIN THE PARTICULAR BASIN AT THE 50 PERCENT EXCEEDANCE ONLY. FOR FORECASTS ABOVE AND BELOW THE 50 PERCENT EXCEEDANCE, LOOK TO THE SPECIFIC BASIN REPORTS. The figures below are the combined averages of the individual forecast points within the particular basin. Specific forecast probabilities are available in each individual River Basin Report.

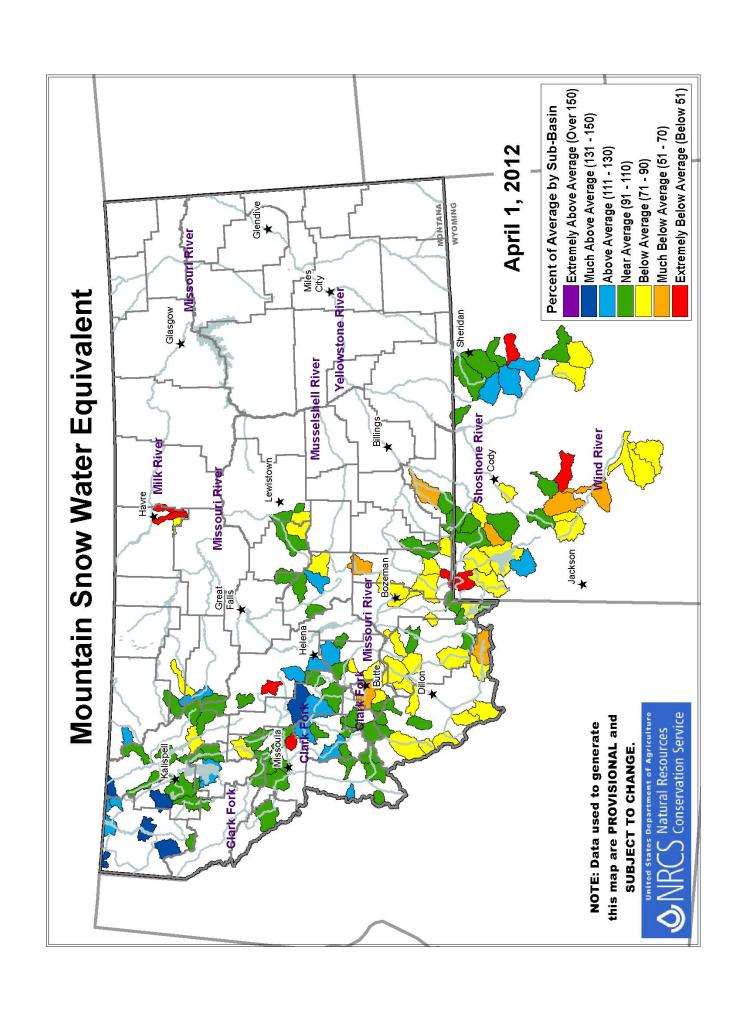
RIVER BASIN %	April-July THIS YEAR OF AVERAGE	April-Jul LAST YEAR % OF AVERA	
COLUMBIA  KOOTENAI  FLATHEAD  UPPER CLARK FORK  BITTERROOT  LOWER CLARK FORK	114 111 106 104		124 115 137 116 109 126
MISSOURI  JEFFERSON  MADISON  GALLATIN  MISSOURI MAINSTEM  SMITH-JUDITH-MUSSELSHELL  SUN-TETON-MARIAS  MILK			118 106 110 110 115 127 117
ST. MARY YELLOWSTONE UPPER YELLOWSTONE LOWER YELLOWSTONE STATE-WIDE	91 93		164 112 117 107 119

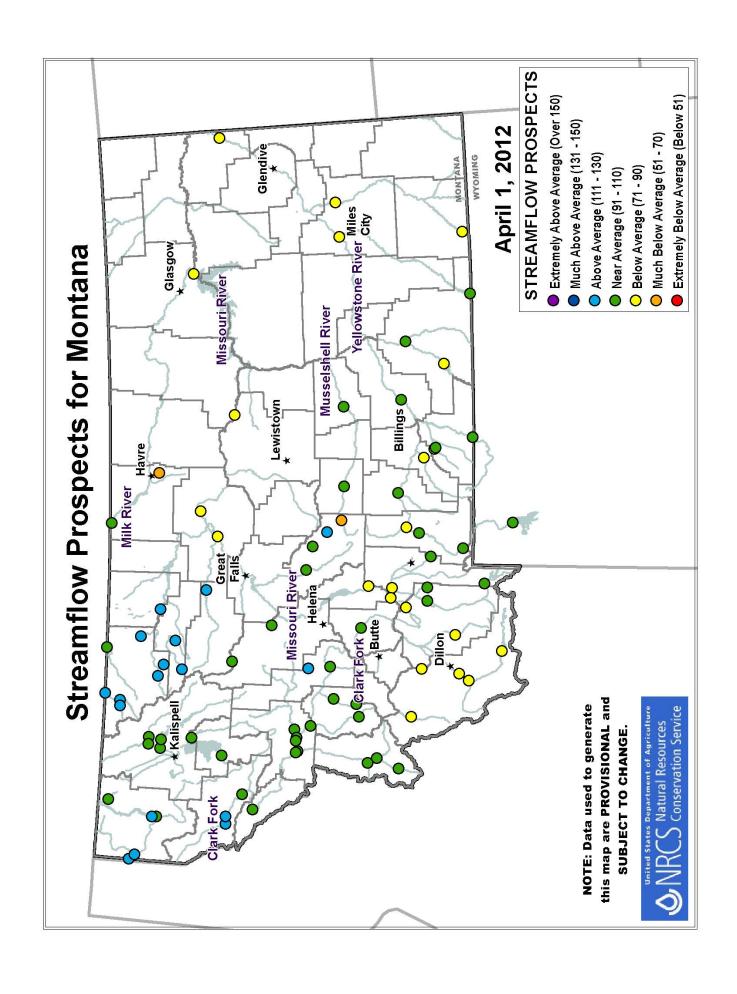
NOTE: The APRIL-JULY LAST YEAR % OF AVERAGE column above is what was forecast last year at this same time, NOT what actually occurred.

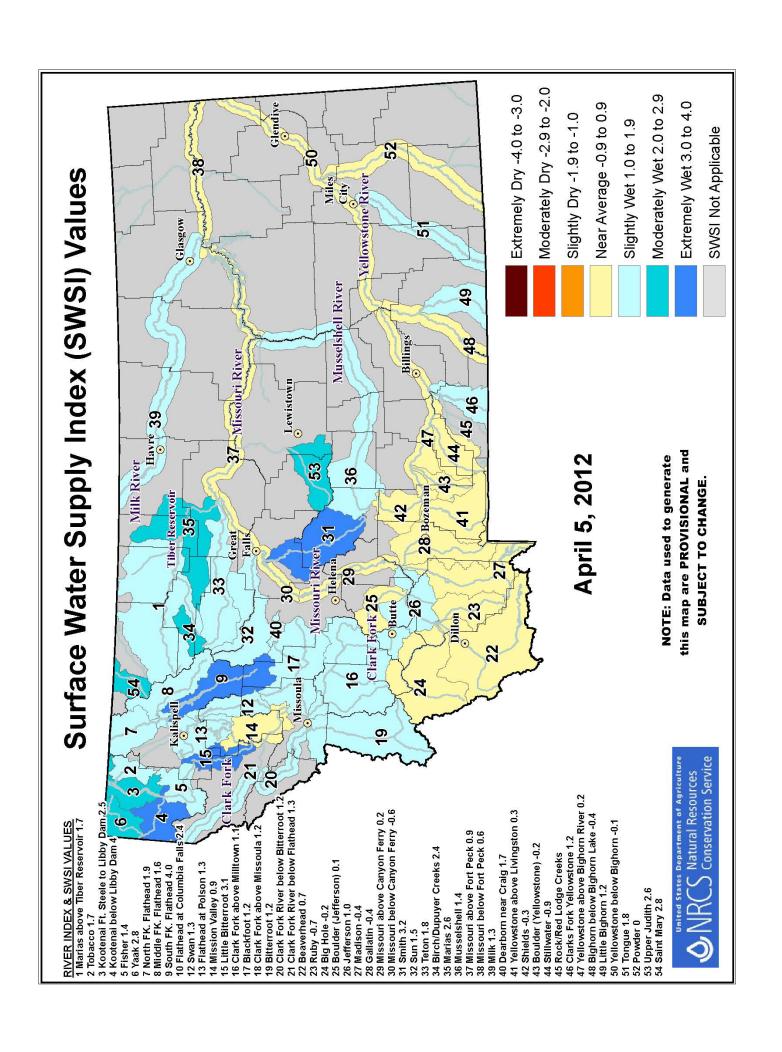
Surface Water Supply Index
The Surface Water Supply Index (SWSI) is a measure of available surface water availability for the spring and summer months. Water users that rely on mountain precipitation can use the index to evaluate seasonal surface water supplies. The SWSI accounts for mountain snowpack, mountain precipitation, streamflow, reservoir storage, and soil moisture.

	SWSI RATIN	IG SURFACE WATER CONDITION
	+3.0 to +4	.0 Extremely Wet
	+2.0 to $+3$	Moderately Wet
	+1.0 to $+2$	Slightly Wet
	-1.0 to $+1$	0 Near Average
	-1.0 to $-2$	Slightly Dry
	-2.0 to $-3$	Moderately Dry
	-3.0 to $-4$	.0 Extremely Dry
ml	T	
This Year SWSI	Last Year SWSI	Basin
DWDI	SMSI	Dasiii
+1.7	+2.4	Tobacco River
+2.5	+1.9	Kootenai Ft. Steele to Libby Dam
+4.0	+2.6	Kootenai River below Libby Dam
+1.4	+2.1	Fisher River
+2.8	+1.3	Yaak River
+1.9	+2.5	North Fork Flathead River
+1.6	+2.8 +3.9	Middle Fork Flathead River South Fork Flathead River
+4.0 +2.4	+3.9	Flathead River at Columbia Falls
+2.4	+3.5	Swan River
+1.3	+2.9	Flathead River at Polson
+0.9		Mission Valley
+3.1	+1.7	Little Bitterroot River
+1.1	+2.1	Clark Fork River above Milltown
+1.2		Clark Fork above Missoula
+1.2	+2.5	Blackfoot River
+1.2	+1.9	Bitterroot River
+1.2	+2.3	Clark Fork River below Bitterroot River
+1.3	+2.7	Clark Fork River below Flathead River
+0.7	+1.0	Beaverhead River
-0.7	+1.3	Ruby River
-0.2 +0.1	+1.5 +0.8	Big Hole River Boulder River (Jefferson)
+1.0	+1.9	Jefferson River
-0.4	+1.0	Madison River
-0.4	+2.1	Gallatin River
+0.2	+1.6	Missouri River above Canyon Ferry
-0.6	0.0	Missouri River below Canyon Ferry
+3.2	+2.2	Smith River
+1.5	+1.4	Sun River
+1.8	+1.8	Teton River
+2.4	+2.1	Birch/Dupuyer Creeks
+2.6	+3.6	Upper Judith River Marias River above Tiber
+1.7 +2.6	+1.2 +2.6	Marias River above liber Marias River below Tiber
+1.4	+2.8	Musselshell River
+0.9	+0.7	Missouri River above Ft. Peck
+0.6	+2.4	Missouri River below Ft. Peck
+2.8	+2.8	St. Mary River
+1.3	+2.9	Milk River
+1.7	+2.1	Dearborn River near Craig
+0.3	+2.2	Yellowstone River above Livingston
-0.3	+2.6	Shields River
-0.2	+3.1	Boulder River (Yellowstone)
-0.9 	+1.7	Stillwater River
+1.2	0.0 +2.6	Rock/Red Lodge Creeks Clarks Fork River
+1.2	+2.6	Yellowstone River above Bighorn River
-0.4	+1.4	Bighorn River below Bighorn Lake
+1.2	+1.2	Little Bighorn River
-0.1	+1.9	Yellowstone River below Bighorn River
+1.8	+2.4	Tongue River
0.0	+1.7	Powder River









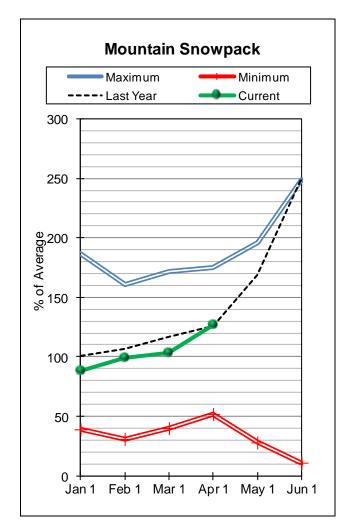
# B A S I N S U M M A R Y O F S N O W C O U R S E D A T A

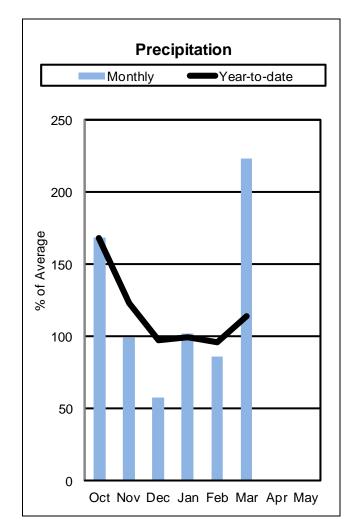
SNOW COURSE	ELEVATION		DEPTH	CONTENT	YEAR	71-00
ABUNDANCE LAKE	8800	3/27/12	59	19.4	24.0	20.6
ALBRO LAKE SNOTEL	8300	4/01/12	53		16.7	
AMBROSE	6480	3/28/12	11	14.2		
ASHLEY DIVIDE				6.6		
ASHLEY LAKE				2.1		
BADGER PASS SNOTEL				42.3		
BANFIELD MTN SNOTEL		4/01/12			21.1	
BAREE CREEK		3/27/12		42.7	51.7	43.1
BAREE MIDWAY		3/27/12 3/27/12	102	36.0	35.2	33.0 7.7
BAREE TRAIL BARKER LAKES SNOTEL	3800	3/2//12 4/01/12	30 17	12.2	14.3 15.3	14.6
BASIN CREEK SNOTEL	7180	4/01/12	20	6.4	8 2	8.7
BASSOO PEAK		3/29/12			14.3	
BEAGLE SPGS SNOTEL						
BEAR BASIN		3/30/12			25.2	
BEAVER CREEK SNOTEL					23.5	18.2
BERRY MEADOW	7000	3/26/12	20	6 2	6 7	7 /
BIG SNOWY	7150	3/29/12	55	10 7	24.2	20.2
BISSON CREEK SNOTEL	4920	4/01/12		11.3	18.∠	9.9
BLACK BEAR SNOTEL		4/01/12	112	41.3	48.5	
BLACK MOUNTAIN		3/28/12			16.2	
BLACK PINE SNOTEL					15.1	
		3/31/12			20.4	
BLACKTAIL MTN SNOTEI		4/01/12			21.5	10.6
BLOODY DICK SNOTEL BLUE LAKE	5900	4/01/12	3 / 6 F	12.4	13.5	12.6 23.7
BOTS SOTS		3/27/12	15	6.0	26.8 10.8	7.8
BOULDER MTN SNOTEL	7950	3/28/12 4/01/12	69	22.9	22.4	20.4
BOX CANYON SNOTEL	6700	4/01/12	2.0	7.3		
BOXELDER CREEK		3/28/12				7.6
BRACKETT CR SNOTEL					27.0	
BRANHAM LAKES	8850	3/28/12			29.2	28.9
BRISTOW CREEK	3900	3/26/12	41	13.3	12.1	8.4
BRUSH CREEK TIMBER				15.7		8.1
BULL MOUNTAIN	6600 5880	3/29/12	14	4.4	7.6	5.9
					5.9	6.2
CABIN CREEK	5200	3/27/12	17	5.2	8.2	5.4
CALVERT CR SNOTEL	6430	4/01/12	24	8.9	10.7	8.1
CAMP SENIA	7890	3/28/12	39	13.5	15.2	6.2
CARROT BASIN SNOTEL CEDAR GROVE	9000 3760	4/01/12 3/30/12	83 40	26.2 13.0	30.7 13.4	28.1 11.4
CHESSMAN RESERVOIR	6200	3/30/12	17	5.5	6.4	3.5
CHICKEN CREEK	4060	3/27/12	55	18.6	20.8	15.2
CLOVER MDW SNOTEL	8800	4/01/12	43	13.8	17.4	18.0
COLE CREEK SNOTEL	7850	4/01/12	39	13.5	12.1	16.4
COLLEY CREEK	6300	3/28/12	12	3.8	10.8	7.9
COMBINATION SNOTEL	5600	4/01/12	8	2.9	6.0	4.9
COPPER BOTTOM SNOTEI	5200	4/01/12	14	5.5	7.0	11.0
COPPER CAMP SNOTEL	6950	4/01/12	115	53.0	52.7	
COPPER MOUNTAIN	7700	3/27/12	31	8.7	14.0	11.2
COTTONWOOD CREEK	6400	3/28/12	27	8.0	8.0	8.3
COYOTE HILL	4200	3/30/12	26	9.1	11.2	8.7
CRYSTAL LAKE SNOTEL	6050	4/01/12	34	12.8	19.1	12.3
DAD CREEK LAKE	8400	3/27/12	48	13.0	17.4	14.9
DAISY PEAK SNOTEL DALY CREEK SNOTEL	7600 5780	4/01/12 4/01/12	34 33	10.3 11.2	10.8 12.4	11.0 11.1
DALY CREEK SNOTEL DARKHORSE LK. SNOTEI		4/01/12	33 87	27.7	34.9	32.5
DAKKHOKSE LK. SNOTEL DAVIS CREEK	5400	3/27/12	94	34.7	28.5	24.2
DEADMAN CR SNOTEL	6450	4/01/12	26	10.5	13.5	10.0
DESERT MOUNTAIN	5600	3/27/12	48	14.8	17.7	14.7
	-	-	-	-		

SNOW COUR	SE	ELEVATION		DEPTH	WATER CONTENT	YEAR	
DISCOVERY	BASIN	7050			11.8		
DIVIDE SN	OTEL	7800	4/01/12	32	9.7		11.3
DIX HILL		6400	4/01/12	28	9.7 10.4 8.7	12.1	10.3
	REEK SNOTEL	5750	4/01/12	27	8.7	12.3	9.9
EAST FORK					5.0		4.7 20.2
	MINE SPRINGS				16.3 8.3		20.2 9.1
	EK SNOTEL				14.6		15.3
FATTY CRE					26.8		24.3
FISH CREE	:K				7.9	10.7	9.9
FISHER CR	EEK SNOTEL	9100	4/01/12	102	36.6	42.9	35.4
FLATTOP M	ITN SNOTEL	6300	4/01/12 3/29/12	160	53.4	53.5	45.1
FLEECER R	LIDGE	7500	3/29/12 3/27/12	35	10.2	12.3	10.9 16.2
FOOLHEN FOUR MILE		8280 6900	3/2//12	5 I	15.6 8.2	18.6	16.2
FREIGHT (	: !REEK		3/2//12			16.1	
	IDWS SNOTEL				9.1		
	EEK SNOTEL	4250	4/01/12	52	16.4		9.9
GIBBONS F	ASS	7100	3/26/12	65	23.0	22.7	22.7
	TAIN	7000	3/26/12	36	11.3		9.7
GOLD CREE		7200	3/24/12 4/01/12	72	22.4	20.1	
GRAVE CRK	SNOTEL R DIVIDE	4300	4/01/12	51 24	18.3 9.7	21.1 14.1	15.6
GRIFFIN C	LAKE	6300	3/29/12	3 <del>4</del> 103	9.7 37.4	14.1 45.3	10.3 39.3
HAND CREE	K SNOTEL		4/01/12				11.7
	AKE SNOTEL				39.2		27.4
HAYMAKER			4/01/12				
HEBGEN DA		6550			6.2	13.4	12.0
HELL ROAR	ING DIVIDE	5770	3/28/12	88	29.8		
HERRIG JU	NCTION	4850	3/27/12 4/01/12	79	27.1	30.9	
	SIN SNOTEL	6050 7850	4/01/12 3/23/12	137	48.6 16.7	49.7	45.3 17.4
INDEPENDE INTERGAAR		6450	3/23/12			23.3 8.1	
	PARK				3.4		
KINGS HIL					13.8		
KISHENEHN			3/28/12		9.5		
	EK SNOTEL	4750	4/01/12	33	13.4	16.3	14.1
LAKEVIEW		6930	3/27/12	23	7.4	13.0	11.1
	RDG. SNOTEL		4/01/12	23	8.4	13.5	11.8
	GE SNOTEL K SNOTEL	8100 6860	4/01/12 4/01/12	34 25	9.8 9.4	13.3 12.2	11.2 13.0
LITTLE PA		7400	3/29/12	39	13.0	19.1	15.9
LOGAN CRE		4300	3/27/12	29	7.8	11.4	6.7
	TAIN SNOTEL		4/01/12	46	17.4	24.7	18.7
LOST SOUL	ı	4800	3/26/12	60	17.7	16.9	14.0
LOWER TWI		7900	4/01/12	52	17.0	17.6	19.0
LUBRECHT		4680	4/01/12	11	4.0	6.8	3.6
	FOREST NO 3		3/31/12	16	4.8	7.1	5.7
	FOREST NO 6		3/31/12 3/31/12	2 4	.6 1.1	2.5 4.9	1.3 1.6
	HYDROPLOT	4200	3/31/12	12	3.7	6.7	2.9
	LT SNOTEL	7750	4/01/12	70	25.6		25.5
	IER SNOTEL	4900	4/01/12	47	18.3	21.0	15.3
MIDDLE MI	LL CREEK	7850	3/28/12	45	15.4	16.6	15.6
MILL CREE		7500	3/28/12	33	11.6	18.5	12.6
MINERAL C		4000	3/29/12	40	15.4	21.2	17.4
	PK SNOTEL	8850	4/01/12	62 116	20.1	28.4	21.0
MOSS PEAK MOULTON R		6780 6850	4/01/12 3/29/12	116 20	41.1 $4.6$	56.0 10.3	38.2 6.9
	RT SNOTEL	6400	4/01/12	65	26.0	28.1	21.1
MULE CREE		8300	4/01/12	46	14.0	18.9	15.8
	ANCE SNOTEL		4/01/12		8.0	15.0	11.3
NEVADA RI	DGE SNOTEL	7020	4/01/12	54	20.3	19.4	15.5

SNOW COURSE	ELEVATION		DEPTH	WATER CONTENT	YEAR	
NEW WORLD		4/01/12		11.8		14.6
NEZ PERCE CMP SNOT		4/01/12		14.4	15.0	
NEZ PERCE PASS	6570	3/27/12	50	18.6	16.0	17.8
N.F. ELK CR SNOTEL	6250	4/01/12	45	14.2	15.9	
NF JOCKO SNOTEL		4/01/12				
NOISY BASIN SNOTEL		4/01/12				
NOTCH		3/27/12				
OPHIR PARK		4/01/12				
PETERSON MDW SNOTE	L 7200	4/01/12	34	10.2	10.5	
PICKFOOT CRK SNOTE	5L 6650	4/01/12			14.1	11.7
PIKE CREEK SNOTEL PIPESTONE PASS	5930 7200	4/01/12	4 / 1 E	3.8	21.7 7.8	 5.7
PLACER BASIN SNOTE	7200 T. 8830	3/27/12 4/01/12	50	17.4	22.3	17.8
POORMAN CR SNOTEL	5100	4/01/12	117	49 1	50.1	32.7
PORCUPINE SNOTEL				2.8		
POTOMAGETON PARK		4/03/12				
RED MOUNTAIN				23.8		
ROCK CREEK	5600	3/29/12		7.4		
ROCK CREEK MEADOW	8160	3/26/12	54			20.7
ROCKER PEAK SNOTEL	8000	4/01/12	49		16.4	
ROCKY BOY SNOTEL	4'/()()	4/01/12	2	.8	7.7	
SACAJAWEA SNOTEL	6550	4/01/12	29	11.5	18.3	
SADDLE MTN SNOTEL	7900	4/01/12	75			
S.F. SHIELDS SNOTE		4/01/12				
SHORT CREEK SNOTEL		4/01/12		4.5		
SHOWER FALLS SNOTE		4/01/12			24.7	
	7260	4/01/12 3/27/12		24.7	26.7	24.3 24.5
SLAG-A-MELT LAKE		4/01/12		21.2 20.5	28.6 23.4	
SLEEPING WOMAN SNT	N 7100	3/25/12			15.2	
SLIDE ROCK MOUNTAI SMUGGLER MINE	6960	3/28/12	27	8.6	11.4	9.7
SPOTTED BEAR MTN.		3/27/12	42	15.0	19.3	
SPUR PARK SNOTEL		4/01/12			26.7	
STAHL PEAK SNOTEL		4/01/12				
STEMPLE PASS	6600	3/27/12	45	12.7	12.7	10.2
STORM LAKE	7780	3/27/12	44	13.1	14.8	13.3
STRYKER BASIN	6180	3/27/12	97	35.9	40.9	31.9
STUART MOUNTAIN SN		4/01/12	93	34.1	44.7	34.2
TAYLOR ROAD	4080	3/28/12	5	1.4	6.2	1.7
TEN MILE LOWER	6600	3/27/12	28	8.9	8.6	7.0
TEN MILE MIDDLE	6800	3/27/12	40	11.4	11.0	11.4
TEPEE CREEK SNOTEL		4/01/12 3/28/12	38	12.3	15.6	13.5
TIMBERLINE CREEK TIZER BASIN SNOTEL	8850 6840	4/01/12	38 30	11.4 9.5	17.7 8.9	14.2 10.3
TRINKUS LAKE	6100	3/27/12	111	42.6	54.1	42.0
TRUMAN CREEK	4060	3/30/12	16	5.9	7.0	3.7
TV MOUNTAIN	6800	3/27/12	53	17.1	23.1	18.3
TWELVEMILE SNOTEL	5600	4/01/12	50	21.5	17.7	17.5
TWENTY-ONE MILE	7150	3/29/12	44	15.0	20.0	16.9
TWIN CREEKS	3580	3/27/12	27	8.1	11.7	9.6
TWIN LAKES SNOTEL	6400	4/01/12	100	43.0	41.9	39.7
UPPER HOLLAND LAKE	6200	3/27/12	82	30.5	46.5	34.6
WALDRON SNOTEL	5600	4/01/12	41	14.1	14.1	10.8
WARM SPRINGS SNOTE		4/01/12	72	23.6	25.3	21.2
WEASEL DIVIDE	5450	3/29/12	102	37.9	40.5	32.9
WEST YELL'ST SNOTE		4/01/12	29	9.7	15.1	12.8
WHISKEY CREEK SNOT		4/01/12	44	16.2	21.4	17.4
WHITE MILL SNOTEL	8700	4/01/12	65 17	23.4	29.5	24.6
WHITE PINE RIDGE WOOD CREEK SNOTEL	8850 5960	3/27/12 4/01/12	17 32	3.6 10.4	7.0 12.6	6.0 10.0
WRONG CREEK SNOTEL	5700	3/28/12		10.4 13.2	15.6	10.0 12.3
WRONG CREEK WRONG RIDGE	6800	3/20/12	45	16.5	21.4	18.0
WITCHO KIDOE	0000	J, ZJ, IZ	10	20.5	21.1	10.0

# Kootenai River Basin in Montana





Snowpack conditions in the Kootenai River Basin as of April 1 were well above average. Snow water content was 127 percent of average and 101 percent of last year. Snowpack in the Kootenai in Canada was well above average. Snow water content was 129 percent of average and 113 percent of last year.

Mountain precipitation during March was 220 percent of average and 124 percent of last year. Valley precipitation during March was 258 percent of average and 203 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2011, was 114 percent of average and 94 percent of last year.

Lake Koocanusa storage at the end of March was 197 percent of average and 147 percent of average.

Assuming average precipitation, April through July streamflows are forecast to average 114 percent.

Surface Water Supply Index (SWSI) was 1.7 in the Tobacco River; +2.5 in the Kootenai Ft. Steele to Libby Dam; +4.0 in the Kootenai River below Libby Dam; +1.4 in the Fisher River; and +2.8 in the Yaak River.

### \_\_\_\_\_\_\_ KOOTENAI RIVER BASIN in Montana

Streamflow Forecasts - April 1, 2012

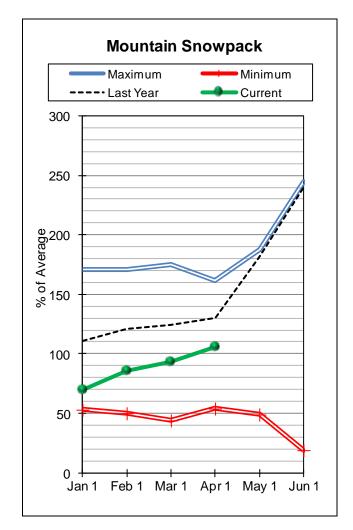
		<<=====	: Drier ====	== Futur	Cond:	itions ==	===== V	Wetter	====>>	
		İ								İ
Forecast Point	Forecast	i ======		= Chance	of Exce	eedina * =			=======	i
	Period	90%	70%	1	50%		3 (	ጋዬ	10%	30-Yr Avg.
		(1000AF)	(1000AF)	(1000	F) (S	% AVG.)	(100	00AF)	(1000AF)	(1000AF)
			(100011)		.=====	=======		=====	(100011)	(1000M)
Tobacco R nr Eureka	APR-JUL	112	131	14	,	105	1	155	174	136
TODACCO R III EUTERA	APR-SEP	122	144	1 15		105		172	194	150
	APR-SEP	122	144	1 12	)	105	-	1/2	194	150
Libby Reservoir Inflow (1,2)	APR-JUL	5780	6390	l 666	,	118	60	940	7540	5640
LIDDY RESERVOIR INITIOW (1,2)				1						
	APR-SEP	6910	7530	781	)	118	80	090	8710	6640
				ļ						
Fisher River nr Libby	APR-JUL	205	230	25		109		270	295	230
	APR-SEP	215	245	26	5	108	2	285	315	245
Yaak River nr Troy	APR-JUL	465	520	56	)	120	6	500	655	465
	APR-SEP	490	550	59	)	120	6	530	690	490
				Ì		j	İ			
Kootenai R at Leonia (1.2)	APR-JUL	7280	8010	835	)	119	86	590	9420	7040
	APR-SEP	8490	9240	958	)	118	99	920	10700	8120
				1						
				' =======			' 			
KOOTENAT RIV	ER BASIN in M	ontana				KOOTENA	AT RIVER	BASTN	in Montan	a
Reservoir Storage (1				i	Wat				is - April	
Rebelvoil beolage (i	Ena			'						
	Usable	*** IIcabl	e Storage *	**				Numbe	r This	Year as % of
Reservoir	Capacity	This	Last		tersh	~d		of		Tear as % Or
VERET AOTT	capacity			!	cersii	eu	De			
	I	Year	Year A	vg				ata Si		
	=========			==== ====	=====			=====		

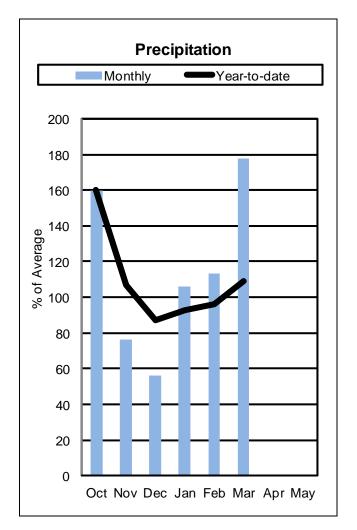
RESELVOIT	capacity	Year	Year	Avg	nacer shea	Data Sites	Last Yr	Average
LAKE KOOCANUSA	5748.0	3442.0	2345.0	1743.7	KOOTENAY in CANADA	20	115	132
					KOOTENAI MAINTSTEM	7	111	133
					TOBACCO	3	87	113
					FISHER	5	88	115
					YAAK	4	116	142
					KOOTENAI in MONTANA	18	101	127
					KOOTENAI ab BONNERS FERR	RY 38	106	129

<sup>\* 90%, 70%, 50%, 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.
   Median value used in place of average.

# **Flathead River Basin**





Snowpack conditions in the Flathead River Basin were near average on April 1. Snow water content was 106 percent of average and 80 percent of last year. Snowpack in the Flathead of Canada was well above average. Snow water content was 122 percent of average and 94 percent of last year.

Mountain precipitation during March was 178 percent of average and 115 percent of last year. Valley precipitation during March was 176 percent of average and 139 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2011, was 109 percent of average and 87 percent of last year.

Hungry Horse Reservoir storage at the end of March was 145 percent of average and 126 percent of last year. Flathead Lake storage at the end of March was 95 percent of average and 87 percent of last year.

Assuming average precipitation, April through July streamflows are forecast to average 111 percent.

Surface Water Supply Index (SWSI) was +1.9 in the North Fork Flathead River; +1.6 in the Middle Fork Flathead River; +4.0 in the South Fork Flathead River; +2.4 in the Flathead River at Columbia Falls; +1.3 in the Swan River; +1.3 in the Flathead River at Polson; +0.9 in the Mission Valley; +3.1 in the Little Bitterroot River.

### 

# FLATHEAD RIVER BASIN Streamflow Forecasts - April 1, 2012

Streamliow Forecasts - April 1, 2012									
						====== Wetter			
		į					į		
Forecast Point	Forecast	1							
	Period	90%	70%	50		30%	10%	30-Yr Avg.	
		(1000AF)	(1000AF)		(% AVG.)		(1000AF)	(1000AF)	
NF Flathead R nr Columbia Falls	APR-JUL	1580	1700	=====================================	110	===========   1860	1980	1620	
NF Flathead R HI COLUMDIA FAILS	APR-JUL APR-SEP	1740	1880	1970	109	1 2060	2200	1800	
	APR-SEP	1/40	1000	1970 	109	2000 	2200	1000	
MF Flathead R nr West Glacier	APR-JUL	1500	1630	1720	108	1810	1940	1590	
	APR-SEP	1660	1800	1900	109	2000	2140	1740	
SF Flathead R nr Hungry Horse	APR-JUL	1210	1300	1370	110	1440	1530	1250	
	APR-SEP	1280	1390	1460	110	1530	1640	1330	
Hungry Horse Reservoir Inflow (1,2)		1700	1950	2070	104	2190	2440	2000	
	APR-SEP	1800	2080	2200	104	2320	2600	2120	
Flathead R at Columbia Falls (2)	APR-JUL	5100	5490	5750	108	6010	6400	5350	
	APR-SEP	5500	5940	6240	107	6540	6980	5820	
2 1 2 61 14 (0)		- 4			105		10.0		
Ashley Ck nr Marion (2)	APR-JUL	5.4	6.8	7.7   2.8	107 104	8.6	10.0	7.2	
	APRIL	1.4	2.2	2.8 	104	3.4	4.2	2.7	
Swan R nr Bigfork	APR-JUL	500	555	l 590	104	l 625	680	565	
Swall K III BIGIOIK	APR-SEP	570	635	675	105	715	780	645	
	THIN DEL	370	033	l 073	103	1 713	700	015	
Flathead Lake Inflow (1,2)	APR-JUL	5520	6250	6570	106	6900	7630	6180	
	APR-SEP	6000	6820	7200	108	7580	8400	6700	
				1		İ			
Mill Ck ab Bassoo Ck nr Niarada	APR-JUL	3.9	4.7	5.2	127	5.7	6.5	4.1	
	APR-SEP	4.3	5.1	5.6	127	6.1	6.9	4.4	
South Crow Ck nr Ronan	APR-JUL	8.5	9.9	10.9	108	11.9	13.3	10.1	
	APR-SEP	9.7	11.3	12.4	108	13.5	15.1	11.5	
Mission Ck nr St. Ignatius	APR-JUL	22	24	26	104	28	30	25	
	APR-SEP	26	29	31	103	33	36	30	
Sf Jocko R nr Arlee	APR-JUL	30	34	l l 37	123	l 40	44	30	
DI GOCKO K HI MITEE	APR-SEP	34	39	37   42	124	40   45	50	34	
	ALK-DEL	34	33	1 42	127	1 43	90	34	
NF Jocko R bl Tabor Feeder Canal	APR-JUL	33	35	37	119	l 39	41	31	
	APR-SEP	35	37	39	118	41	43	33	
		~ ~							
				·		<u>'</u>			

Reservoir Storage (1000 AF) - End of March					Watershed Snowpack	Analysis -		2012
Reservoir	Usable   Capacity		able Stora Last Year	age *** Avg	Watershed	Number of Data Sites		Average
CAMAS (4)	45.2	28.9		25.4	NF FLATHEAD in CANADA	4	94	122
LOWER JOCKO LAKE	6.4	0.0		0.1	NF FLATHEAD in MONTANA	9	88	111
MISSION VALLEY (8)	100.0	33.7		38.8	MIDDLE FORK FLATHEAD	5	92	109
HUNGRY HORSE	3451.0	2734.0	2165.0	1886.7	SOUTH FORK FLATHEAD	7	73	96
FLATHEAD LAKE	1791.0	705.0	810.1	738.5	STILLWATER-WHITEFISH	10	81	110
					SWAN	7	73	100
					MISSION VALLEY	4	73	108
					LITTLE BITTERROOT-ASHLE	Y 6	69	100
					JOCKO	4	80	102
					FLATHEAD in MONTANA	37	80	106
					FLATHEAD RIVER BASIN	41	81	108
	.=======	:======			 -====================================	.=======	=======	=======

FIATHEAD RIVER BASIN

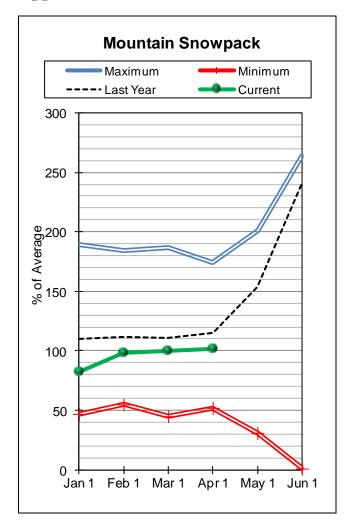
The average is computed for the 1971-2000 base period.

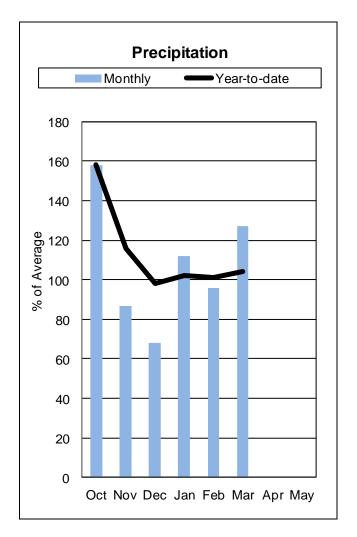
FI.ATHEAD RIVER BASIN

<sup>\* 90%, 70%, 50%, 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.
 Median value used in place of average.

# **Upper Clark Fork River Basin**





Snowpack conditions in the Upper Clark Fork River Basin were near average on April 1. Snow water content was 102 percent of average and 89 percent of last year.

Mountain precipitation during March was 126 percent of average and 105 percent of last year. Valley precipitation during March was 163 percent of average and 176 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2011, was 104 percent of average and 92 percent of last year.

East Fork Rock Creek storage was 126 percent of average and 102 percent of last year; and Nevada Creek storage was 147 percent of average and 100 percent of last year.

Assuming average precipitation, April through July streamflows are forecast to average 106 percent.

Surface Water Supply Index (SWSI) was +1.1 in the Clark Fork River above Milltown; and +1.2 in the Blackfoot River.

### UPPER CLARK FORK RIVER BASIN Streamflow Forecasts - April 1, 2012

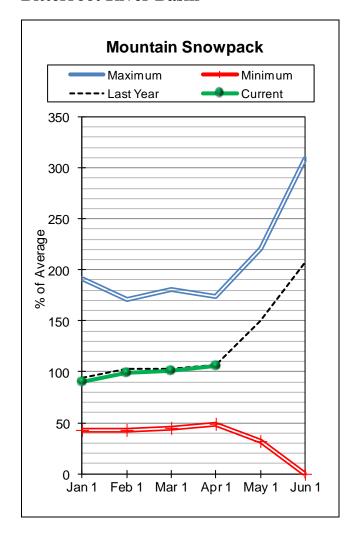
SCIENTILLOW FOLCASIS - APLIL 1, 2012												
		<<=====	Drier =====	== Future Co	onditions =:	===== Wetter	====>>					
Forecast Point	Forecast											
	Period	90%	70%		0%	30%	10%	30-Yr Avg.				
		(1000AF)	(1000AF)	,	(% AVG.)	(1000AF)	(1000AF)	(1000AF)				
Little Blackfoot R nr Garrison	APR-JUL	53	69	80	105	91	107	76				
	APR-SEP	57	75	87	104	99	117	84				
Flint Ck nr Southern Cross	APR-JUL	7.6	11.3	13.8	101	16.3	20	13.7				
	APR-SEP	8.5	13.1	16.3	101	19.5	24	16.2				
						İ						
Flint Ck bl Boulder Ck	APR-JUL	34	48	58	104	68	82	56				
	APR-SEP	44	61	73	103	85	102	71				
Lower Willow Ck Reservoir Inflow (2)	ADR-MAY	4.5	6.6	8.0	98	9.4	11.5	8.2				
	APR-JUL	6.4	9.7	12.0	96	14.3	17.6	12.5				
						İ						
MF Rock Ck nr Philipsburg	APR-JUL	50	60	66	103	72	82	64				
	APR-SEP	56	67	74	103	81	92	72				
Rock Ck nr Clinton	APR-JUL	215	260	290	107	320	365	270				
	APR-SEP	245	295	330	108	365	415	305				
Clark Fork R ab Milltown	APR-JUL	405	540	630	104	   720	855	605				
CIGIN FOIR II GD HILLICOWN	APR-SEP	480	630	730	104	830	980	705				
Nevada Ck nr Helmville	APR-MAY	7.3	10.4	12.5	121	14.6	17.7	10.3				
	APR-JUL	12.4	17.5	21	121	24	30	17.3				
			j			İ						
Blackfoot R nr Bonner	APR-JUL	685	790	860	107	930	1040	805				
	APR-SEP	760	875	950	107	1030	1140	890				
Clark Fork R ab Missoula	APR-JUL	1130	1350	1500	106	1650	1870	1410				
Clair for R ab Mibboara	APR-SEP	1300	1540	1700	106	1860	2100	1600				
	ILK DDF	1300	1310	1,00	100	1 1000	2100	1000				
UPPER CLARK FO				UPPER CLARK FORK RIVER BASIN								
Reservoir Storage (1000						nowpack Analys	-	•				

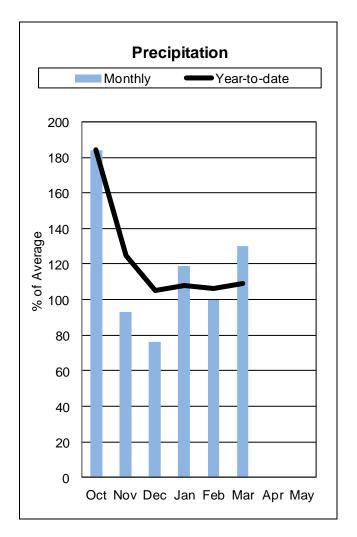
UPPER CLARK FOI				UPPER CLARK FORK RIVER BASIN Watershed Snowpack Analysis - April 1, 2012							
Reservoir Storage (1000	Ar) - End	or March			watershed showpack Analysis - April 1, 2012						
Reservoir	Usable   Capacity	*** Usable This Year	e Storage Last Year	***   Avg	Watershed	Number of Data Sites	This Year ====== Last Yr	as % of  Average			
EAST FORK ROCK CREEK	15.6	12.5	12.2	9.9	CLARK FORK ab FLINT CRE	EK 15	94	103			
GEORGETOWN LAKE	31.0	28.3		26.2	FLINT CREEK	6	88	99			
LOWER WILLOW CREEK		NO REPORT		i	ROCK CREEK	5	96	106			
NEVADA CREEK	12.6	11.2	11.2	7.6	CLARK FORK ab BLACKFOOT	24	94	104			
					BLACKFOOT	14	85	101			
					UPPER CLARK FORK BASIN	35	89	102			

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

- 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.
   Median value used in place of average.

# **Bitterroot River Basin**





Snowpack conditions in the Bitterroot River Basin were near average on April 1. Snow water content was 106 percent of average and 99 percent of last year.

Mountain precipitation during March was 128 percent of average and 95 percent of last year. Valley precipitation during March was 166 percent of average and 178 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2011, was 109 percent of average and 96 percent of last year.

Painted Rocks Lake storage was 160 percent of average and 92 percent of last year and Como storage was 103 percent of average and 86 percent of last year.

Assuming near average precipitation, April through July streamflows are forecast to average 104 percent.

Surface Water Supply Index (SWSI) was +1.2 in the Bitterroot River.

### BITTERROOT RIVER BASIN

Streamflow Forecasts - April 1, 2012

Streamflow Forecasts - April 1, 2012											
		<<=====	Drier ====	== Future	Conditions =:	===== Wette	r ====>>				
Forecast Point	Forecast			= Chance Of	Exceeding * :						
	Period	90%	70%		50%	30%	10%	30-Yr Avg.			
		(1000AF)	(1000AF)	(1000AF	7) (% AVG.)	(1000AF)	(1000AF)	(1000AF)			
WF Bitterroot R nr Conner (2)	APR-JUL	105	130	147	103	164	189	143			
	APR-SEP	116	142	160	102	178	205	157			
				İ		İ					
Bitterroot R nr Darby	APR-JUL	345	415	465	101	515	585	460			
•	APR-SEP	395	465	515	100	565	635	515			
Como Reservoir Inflow (2)	APR-JUL	71	78	83	106	I 88	95	78			
como nepervori iniriow (1)	APR-SEP	74	82	87	106	92	100	82			
	THE COLI	, 1	02	07	100	1	100	02			
Bitterroot R nr Missoula	APR-JUL	1060	1220	1320	106	1420	1580	1250			
Bitterroot K III Missoura	APR-SEP	1160	1330	1440	105	1550	1720	1370			
	AFR SEF	1100	1330	1 1110	103	1 1330	1/20	1370			
						l 					
ממשששם	OT RIVER BASI				T.T.	TTERROOT RIVE	D DACIN				
Reservoir Storage (1						nowpack Analy		1 2012			
Reservoir Storage (1		OI March			watershed Si		_	1, 2012			
	Usable	*** TTach	le Storage *			Numb		Year as % of			
Reservoir			_			Nullik Of					
Reservoir	Capacity	This	Last		ershed						
		Year	Year A	vg		Data S		Yr Average			
				==== =====							
PAINTED ROCKS LAKE	31.7	15.4	16.7	9.6   WES	ST FORK BITTER	ROOT 3	98	101			
				!		_					
COMO	34.9	15.3	17.7 1	4.9   EAS	ST SIDE BITTER	ROOT 6	93	103			
				1							

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

WEST SIDE BITTERROOT

BITTERROOT RIVER BASIN

105

99

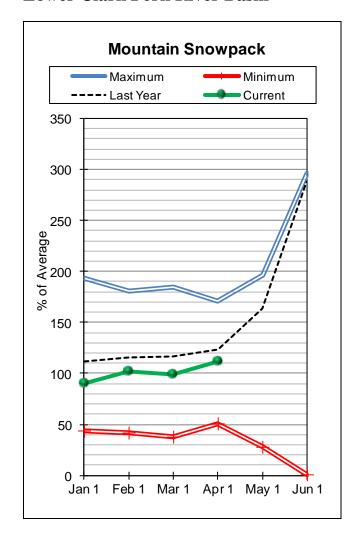
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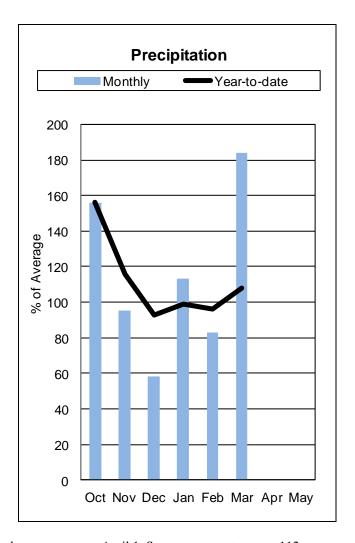
110

106

- 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.
   Median value used in place of average.

# **Lower Clark Fork River Basin**





Snowpack conditions in the Lower Clark Fork River Basin were above average on April 1. Snow water content was 112 percent of average and 91 percent of last year.

Mountain precipitation during March was 180 percent of average and 119 percent of last year. Valley precipitation during March was 210 percent of average and 143 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2011, was 108 percent of average and 89 percent of last year.

Storage at the end of March in Noxon Rapids was 113 percent of average and 101 percent of last year.

Assuming average precipitation, April through July streamflows are forecast to average 93 percent.

Surface Water Supply Index (SWSI) was +1.2 in the Clark Fork River below Bitterroot River and +1.3 in the Clark Fork River below Flathead River.

### LOWER CLARK FORK RIVER BASIN

Streamflow Forecasts - April 1, 2012

		<<=====	= Drier ====	== Fu	uture Co	nditions ==	===== Wette	r ====>>				
		ĺ										
Forecast Point	Forecast			== Char	nce Of E	xceeding * =			İ			
	Period	90%	70%		50	8	30%	10%	30-Yr Avg.			
		(1000AF)	(1000AF)	[ (1	1000AF)	(% AVG.)	(1000AF)	(1000AF)	(1000AF)			
				:   =====								
Clark Fork R bl Missoula	APR-JUL	2200	2560	İ	2800	105	3040	3400	2660			
	APR-SEP	2470	2860	İ	3120	105	3380	3770	2960			
				İ			İ					
Clark Fork R at St. Regis (1)	APR-JUL	2940	3570	Ì	3860	110	4150	4780	3520			
_	APR-SEP	3240	3930	i	4240	108	4550	5240	3910			
				i								
Clark Fork R nr Plains (1,2)	APR-JUL	8750	10100	j 1	10700	106	11300	12700	10100			
	APR-SEP	9570	11100	j 1	11800	106	12500	14000	11100			
				i								
Thompson R nr Thompson Falls	APR-JUL	180	215	i	235	115	255	290	205			
	APR-SEP	205	240	i	265	115	290	325	230			
				i								
Prospect Ck at Thompson Falls	APR-JUL	110	121	i	129	111	137	148	116			
rrospect on at mompour raris	APR-SEP	117	129	1	137	111	145	157	124			
	11111 021		127	1	10,			20,				
Clark Fork at Whitehorse Rpds (1,2)	APR-JUL	10200	11700	1	12300	109	12900	14400	11300			
crark rork at whitehorbe kpab (1,2)	APR-SEP	11200	12800		13500	108	14200	15800	12500			
	11111 021	11200	12000	"	13300	100	1 1200	13000	12300			
LOWER CLARK FO	DEK BIMEB B	ASTN				T.OWER	CLARK FORK R	TUER BASTN				
Reservoir Storage (1000					,		nowpack Analy		1 2012			
Reservoir Scorage (1000								_	•			
	Usable	*** IIsabl	le Storage '	***			Numb	er This	Year as % of			
Reservoir	Capacity	This	Last		Water	shed	of		==========			
MCDCI VOII	capacity	Year		Ava	water	biicu	Data S		Yr Average			
NOVON DADEDO		200 2		- 1			DAGIN 13					

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

LOWER CLARK FORK BASIN 13

91

112

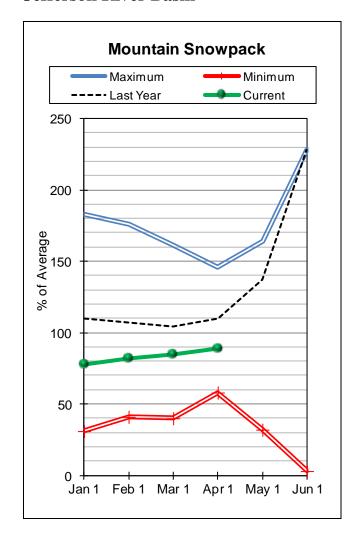
The average is computed for the 1971-2000 base period.

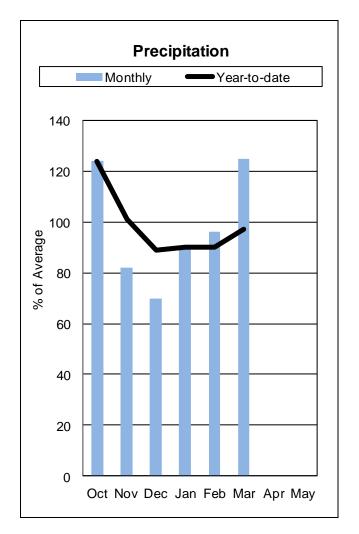
The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 The value is natural volume - actual volume may be affected by upstream water management.
 Median value used in place of average.

335.0 308.3 305.3 272.9

NOXON RAPIDS

# **Jefferson River Basin**





Snowpack conditions in the Jefferson River Basin were below average on April 1. Snow water content was 89 percent of average and 81 percent of last year.

Mountain precipitation during March was 126 percent of average and 94 percent of last year. Valley precipitation during March was 110 percent of average and 335 percent of last year based on one station. Mountain and valley water year precipitation, beginning October 1, 2011, was 97 percent of average and 87 percent of last year.

Lima storage was 156 percent of average and 121 percent of last year; Clark Canyon storage was 110 percent of average and 104 percent of last year; Ruby River storage was 120 percent of average and 115 percent of last year.

Assuming average precipitation, April through July streamflows are forecast to average 84 percent.

Surface Water Supply Index (SWSI) was +0.7 in the Beaverhead River; -0.7 in the Ruby River; -0.2 in the Big Hole River; +0.1 in the Boulder River; and +1.0 in the Jefferson River near Three Forks.

### JEFFERSON RIVER BASIN Streamflow Forecasts - April 1, 2012

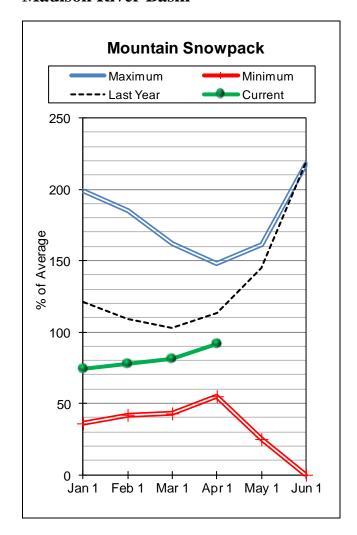
		<<=====	Drier ====	== Future Co	nditions =:	===== Wetter	====>>				
Forecast Point	Forecast										
	Period	90%	70%	50	)용	30%	10%	30-Yr Avg.			
		(1000AF)	(1000AF)	! '	(% AVG.)	(1000AF)	(1000AF)	(1000AF)			
				1		1					
Lima Reservoir Inflow (2)	APR-JUL	67	77	84	88	91	101	96			
	APR-SEP	69	81	89 	86	97	109	104			
Clark Canyon Reservoir Inflow (2)	APR-JUL	35	75	102	78	129	169	131			
	APR-SEP	48	90	119	76	148	190	156			
				İ		į					
Beaverhead R at Barretts (2)	APR-JUL	31	94	136	81	178	240	168			
	APR-SEP	35	109	159	80	210	285	200			
Ruby R Reservoir Inflow (2)	APR-JUL	42	56	65	77	74	88	84			
	APR-SEP	52	67	78	77	89	104	101			
Big Hole R at Wisdom	APR-JUL	34	73	99	82	125	164	121			
	APR-SEP	34	76	105	81	134	176	130			
n' w 1 n w 1		265	455		0.5		685	610			
Big Hole R nr Melrose	APR-JUL	365	455	520	85	585	675	610			
	APR-SEP	390	490	560	85	630	730	660			
Jefferson R nr Twin Bridges (2)	APR-JUL	320	515	l 650	83	785	980	785			
	APR-SEP	320	545	695	79	845	1070	880			
				İ		j					
Boulder R nr Boulder	APR-JUL	49	63	73	94	83	97	78			
	APR-SEP	52	68	79	93	90	106	85			
Willow Ck Reservoir Inflow (2)	APR-JUL	6.8	11.4	14.5	81	17.6	22	17.9			
	APR-SEP	7.6	12.7	16.2	81	19.7	25	20			
Jefferson R nr Three Forks (2)	APR-JUL	335	535	l l 675	87	   815	1020	780			
111111111111111111111111111111111111111	APR-SEP	345	570	725	84	880	1110	860			
	~			i	, -	i					
				=========	.=======						

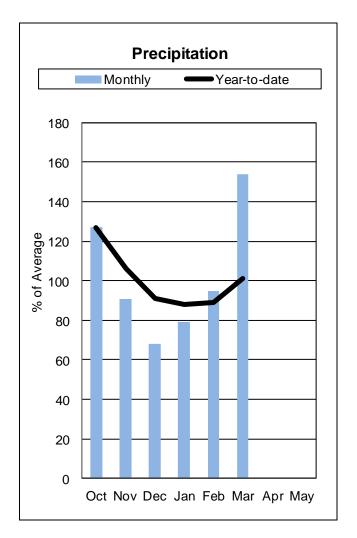
JEFFERSON	RIVER BASIN	JEFFERSON RIVER BASIN									
Reservoir Storage (1000	AF) - End	of March		İ	Watershed Snowpack Analysis - April 1, 2012						
				=======	.============						
	Usable	*** Usa	ble Stora	ge ***		Number	This Year	r as % of			
Reservoir	Capacity	This Last		İ	Watershed	of					
	į	Year	Year	Avg		Data Sites	Last Yr	Average			
	·=======			i							
LIMA	84.0	61.0	50.6	39.1	BEAVERHEAD	14	77	88			
				ĺ							
CLARK CANYON	255.6	167.1	160.5	152.0	RUBY	9	86	86			
				ĺ							
RUBY RIVER	38.8	37.7	32.9	31.5	BIGHOLE	17	82	92			
					BOULDER	8	79	89			
				ļ							
					JEFFERSON RIVER BASIN	41	81	89			
				i							

j \* 90%, 70%, 50%, 30%, 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.
   Median value used in place of average.

# **Madison River Basin**





Snowpack conditions in the Madison River Basin were below average on April 1. Snow water content was 92 percent of average and 81 percent of last year.

Mountain and valley precipitation during March was 154 percent of average and 110 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2011, was 101 percent of average and 90 percent of last year.

Ennis Lake storage was 95 percent of average and 100 percent of last year and Hebgen Lake storage was 88 percent of average and 82 percent of last year.

Assuming average precipitation, April through July streamflows are forecast to average 95 percent.

Surface Water Supply Index (SWSI) was -0.4 for the Madison River.

### MADISON RIVER BASIN

Streamflow Forecasts - April 1, 2012

Streaminow Forecasts - April 1, 2012												
							=====	=====	======		=====	=======
		<<=====	== Drier ===	:=== I	Future Co	ndition	s ===:	====	Wetter :	====>>		
		i									i	
Forecast Point		1		Gl-	OF D		4				1	
Forecast Point	Forecast	1		== Cna	ance Of E		g ^ ==:					
	Period	90%	70%		50	1용			30%	10%	30	-Yr Avg.
		(1000AF)	(1000AF)		(1000AF)	(% AVG	.)	(1	000AF)	(1000AF)		(1000AF)
		========		:=   ===:			====   =:		=======		:====	=======
Hebgen Reservoir Inflow (2)	APR-JUL	330	360	i	380	96	i		400	430		395
nebgen nebervor infrom (1)	APR-SEP	425	460	- 1	485	96	- 1		510	545		505
	APR-SEP	425	460	!	485	96	!		510	545		505
							- 1					
Ennis Reservoir Inflow (2)	APR-JUL	515	585		635	93			685	755		680
	APR-SEP	660	740	i	795	94	i		850	930		850
				i			i					
								=====				
	N RIVER BASIN								RIVER B			
Reservoir Storage (10	000 AF) - End	of March				Watersh	ed Snov	wpack	Analysi	s - April	. 1, 2	012
							=====	=====	=======		=====	=======
	Usable	*** Usak	ole Storage	***	I				Number	This	Year	as % of
Reservoir	Capacity	This	Last		Water	shed			of	====		
1100011011	capacity	Year		Avq	l Hacci	Direca			Data Sit	es Last	3720	Average
	1	Ieal	ieai	Avg					Data SIL	ев шаві	. 11	Average
							=====	=====	======	======	=====	=======
ENNIS LAKE	41.0	29.6	29.6	31.2	MADIS	ON abv 1	HEBGEN	LAKE	6	78		94
HEBGEN LAKE	377.5	227.8	276.8 2	259.6	i madts	ON blw 1	HEBGEN	LAKE	1.0	80		87
	277.5				!					00		

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

MADISON RIVER BASIN

79

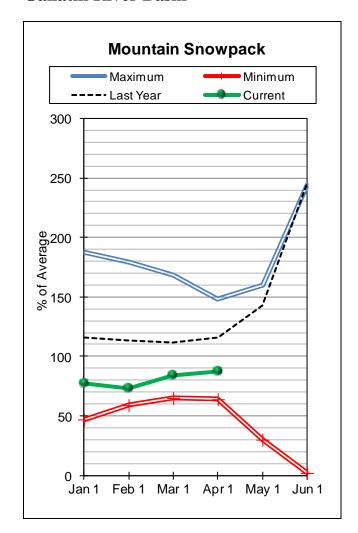
16

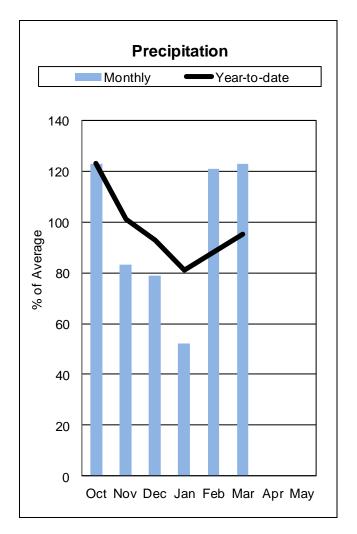
90

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

- 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.
   Median value used in place of average.

# **Gallatin River Basin**





Snowpack conditions in the Gallatin River Basin were below average on April 1. Snow water content was 87 percent of average and 75 percent of last year.

Mountain precipitation during March was 123 percent of average and 90 percent of last year. Valley precipitation during March was 121 percent of average and 111 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2011, was 95 percent of average and 82 percent of last year.

Middle Creek storage was 91 percent of average and 67 percent of last year.

Assuming average precipitation, April through July streamflows are forecast to average 90 percent.

Surface Water Supply Index (SWSI) was -0.4 for the Gallatin River.

### 

GALLATIN RIVER BASIN Streamflow Forecasts - April 1, 2012

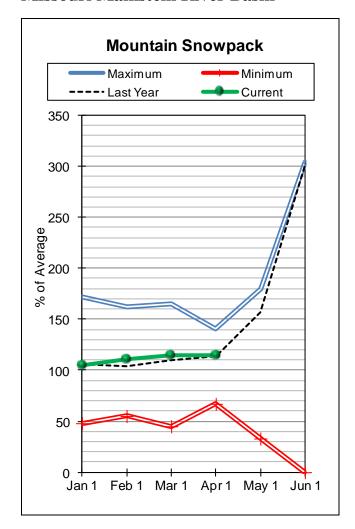
Forecast Point	Forecast	j		== Future Co = Chance Of E		===== Wetter	====>>				
rorecast roint								20 37 3			
	Period	90%	70%	50		30%	10%	30-Yr Avg.			
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	(1000AF)			
		=========									
Gallatin R nr Gateway	APR-JUL	310	365	400	91	435	490	440			
	APR-SEP	365	430	470	91	510	575	515			
Hyalite Reservoir Inflow (2)	APR-JUL	17.1	19.1	20	91	22	24	22			
	APR-SEP	19.5	22	23	92	24	26	25			
Gallatin R at Logan	APR-JUL	275	370	435	88	500	595	495			
	APR-SEP	325	435	510	90	585	695	570			

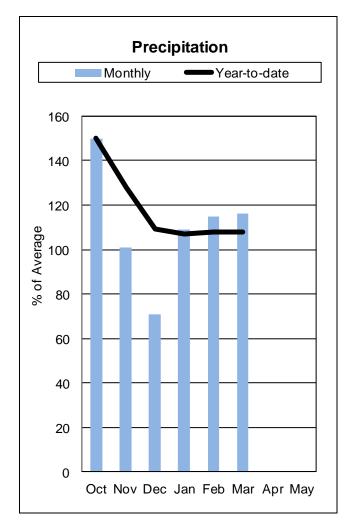
GALLATIN	RIVER BASIN				GALLATIN RIVER BASIN							
Reservoir Storage (100	0 AF) - End	of March		j	Watershed Snowpack Analysis - April 1, 2012							
			.===========		.=======							
	Usable	*** Usab	***		Number	This Year	as % of					
Reservoir	Capacity	This	This Last		Watershed	of	==========					
		Year	Year	Avg		Data Sites	Last Yr	Average				
MIDDLE CREEK	10.2	4.3	6.4	4.7	UPPER GALLATIN	7	75	89				
					HYALTTE	3	82	84				
				-	HIALILE	3	02	04				
					BRIDGER	2	67	84				
				j								
				j	GALLATIN RIVER BASIN	12	75	87				

<sup>\* 90%, 70%, 50%, 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.
   Median value used in place of average.

# Missouri Mainstem River Basin





Snowpack conditions in the Headwaters Missouri Mainstem River Basin were well above average on April 1. Snow water content was 115 percent of average and 101 percent of last year.

Mountain precipitation during March was 125 percent of average and 102 percent of last year. Valley precipitation during March was 89 percent of average and 120 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2011, was 108 percent of average and 93 percent of last year.

Canyon Ferry Lake storage was 104 percent of average and 110 percent of last year; Helena Valley storage was 141 percent of average and 104 percent of last year; Lake Helena storage was 76 percent of average and 100 percent of last year; Hauser & Helena storage was 112 percent of average and 100 percent of last year; Holter Lake storage was 110 percent of average and 101 percent of last year; and Fort Peck Lake storage was 101 percent of average and 95 percent of last year.

Assuming average precipitation, April through July streamflows are forecast to average 89 percent.

Surface Water Supply Index (SWSI) was +0.2 in the Missouri River above Canyon Ferry; -0.6 in the Missouri River below Canyon Ferry; +0.9 in the Missouri River above Fort Peck; and +0.6 in the Missouri River below Fort Peck.

### \_\_\_\_\_\_\_ MISSOURI MAINSTEM RIVER BASIN Streamflow Forecasts - April 1, 2012

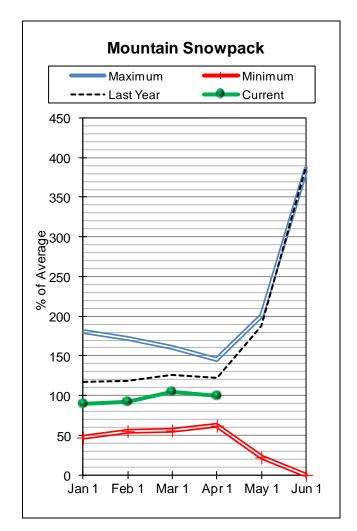
		<<=====	Drier ====	== Future Co	nditions ==	===== Wetter	====>>					
		ļ										
Forecast Point	Forecast											
	Period	90%	70%	50		30%	10%	30-Yr Avg.				
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	(1000AF)				
Missouri R at Toston (2)	APR-JUL	1210	1550	1780	87	2010	2350	2050				
	APR-SEP	1380	1790	2070	87	2350	2760	2390				
Dearborn R nr Craig	APR-JUL	70	99	   118	98	l l 137	166	121				
Dearborn k nr Craig		75	106	126	101	137	177					
	APR-SEP	/5	106	1 126	101	146	1//	125				
Missouri R at Fort Benton (2)	APR-JUL	1680	2260	l 2660	89	l 3060	3640	2990				
Middouri R at Fort Benton (2)	APR-SEP	2000	2710	3180	89	3650	4360	3570				
	THE COLL	2000	2710	] 3100	0,5	] 3030 	1500	3370				
Missouri R nr Virgelle (2)	APR-JUL	1970	2640	3100	90	3560	4230	3450				
3 , , ,	APR-SEP	2310	3110	3650	90	4190	4990	4060				
				İ		İ						
Missouri R nr Landusky (2)	APR-JUL	2070	2790	3280	89	3770	4490	3690				
	APR-SEP	2430	3290	3870	89	4450	5310	4350				
Missouri R bl Fort Peck Dam (2)	APR-JUL	2150	2870	3370	90	3870	4590	3740				
	APR-SEP	2470	3330	3900	90	4470	5330	4330				
Lake Sakakawea Inflow (2)	APR-JUL	4890	6790	8080	83	9370	11300	9740				
	APR-SEP	5550	7780	9260	83	10700	13000	11200				
MISSOURI MAINSTEM RIVER BASIN MISSOURI MAINSTEM RIVER BASIN												

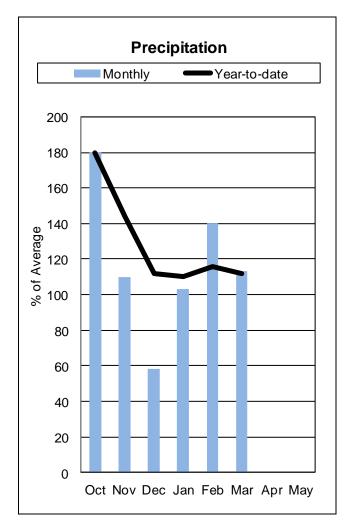
Reservoir Storage (10	000 AF) - En	Watershed Snowpack Analysis - April 1, 2012						
Reservoir	Usable Capacity	1	able Stor Last Year	age ***	   Watershed	Number of Data Sites	This Yea  Last Yr	r as % of  Average
CANYON FERRY LAKE	2043.0	1529.0	1390.0	1467.8	HEADWATERS MAINSTEM	9	101	115
HELENA VALLEY	9.2	5.5	5.3	3.9	   SMITH-JUDITH-MUSSELSHEL	L 16	82	100
LAKE HELENA	12.7	10.0	10.0	13.1	   SUN-TETON-MARIAS	11	89	109
HAUSER & HELENA	74.6	70.6	70.6	62.8	   MAINSTEM ab FT PECK RES	35	88	106
HOLTER LAKE	81.9	81.4	80.5	74.1	   MILK RIVER BASIN	3	15	25
FORT PECK LAKE	18910.0	15190.0	16020.0	14966.0	   MISSOURI MAINSTEM BASIN 	38	85	104

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

- (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.
  (3) Median value used in place of average.

### **Smith-Judith-Musselshell River Basins**





Snowpack conditions in the Smith-Judith-Musselshell River Basins were near average April 1. Snow water content was 100 percent of average and 82 percent of last year. Snow water content in the Smith River Basin was 109 percent of average and 91 percent of last year; the Judith River Basin was 101 percent of average and 82 percent of last year; and the Musselshell Basin River was 79 percent of average and 74 percent of last year.

Mountain and valley precipitation during March in the Smith-Belts was 127 percent of average and 130 percent of last year; in the Judith was 97 percent of average and 103 percent of last year; and in the Musselshell was 95 percent of average and 113 percent of last year. Mountain and valley water year precipitation for the greater basin, beginning October 1, 2011, was 112 percent of average and 97 percent of last year.

Smith River storage was 116 percent of average and 101 percent of last year; Ackley storage was 106 percent of average and 81 percent of last year; Bair storage was 140 percent of average and 102 percent of last year; Martinsdale storage was 102 percent of average and 62 percent of last year; and Deadman's Basin was 121 percent of average and 95 percent of last year.

Assuming average precipitation, April through July streamflows are forecast to average 101 percent.

Surface Water Supply Index (SWSI) was +3.2 in the Smith River, +2.6 in the Upper Judith River, and +1.4 in the Musselshell River.

### SMITH-JUDITH-MUSSELSHELL RIVER BASINS Streamflow Forecasts - April 1, 2012

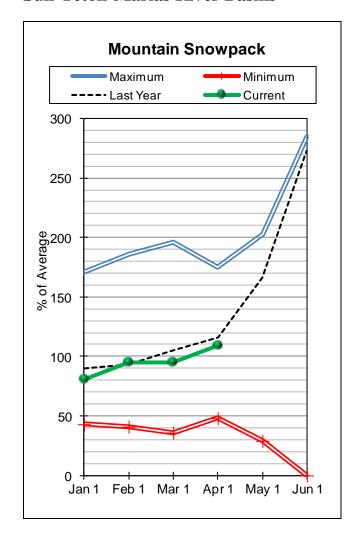
		<<=====	Drier ====	== Future Co	nditions ==	===== Wetter	====>>				
							ļ				
Forecast Point	Forecast			= Chance Of E	xceeding * =						
	Period	90%	70%	50	용	30%	10%	30-Yr Avg.			
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	(1000AF)			
Sheep Ck nr White Sulphur Springs	APR-JUL	13.1	16.3	18.5	108	21	24	17.1			
	APR-SEP	14.4	18.3	21	105	24	28	20			
				İ							
Smith R bl Eagle Ck (2)	APR-JUL	93	124	145	109	166	197	133			
	APR-SEP	95	132	158	106	184	220	149			
				İ		İ					
NF Musselshell R nr Delpine	APR-JUL	3.4	4.5	5.3	115	6.1	7.2	4.6			
_	APR-SEP	3.9	5.2	6.1	113	7.0	8.3	5.4			
				İ		İ					
SF Musselshell R ab Martinsdale	APR-JUL	8.8	25	36	69	47	63	52			
	APR-SEP	9.4	27	39	70	51	69	56			
				İ		İ					
Musselshell R at Harlowton (2)	APR-JUL	28	59	79	103	99	130	77			
	APR-SEP	24	57	j 79	98	101	134	81			
				İ		İ					
Musselshell R nr Roundup (2)	APR-JUL	40	60	102	103	144	205	99			
_	APR-SEP	39	56	98	96	140	200	102			
				İ		İ					
				===========			:=======				
SMITH-JUDITH-MUSS		SMITH-JUDITH-MUSSELSHELL RIVER BASINS									

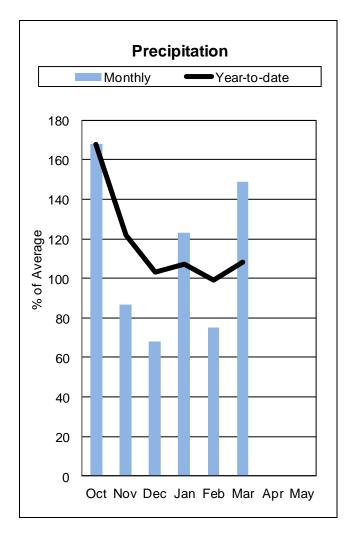
SMITH-JUDITH-MUSS Reservoir Storage (100	SMITH-JUDITH-MUSSELSHELL RIVER BASINS   Watershed Snowpack Analysis - April 1, 2012								
Reservoir Scorage (100	=========	========			watershed Showpack Analysis - April 1, 2012				
Reservoir	Usable   Capacity	*** Usak This Year	ole Storag Last Year	ge ***       Avg	Watershed	Number of Data Sites		r as % of ====== Average	
	=========					========			
SMITH RIVER	10.6	8.6	8.5	7.4	SMITH	7	91	109	
ACKLEY LAKE	7.0	3.4	4.2	3.2	HIGHWOOD	2	69	96	
BAIR	7.0	6.3	6.2	4.5	JUDITH	8	82	101	
MARTINSDALE	23.1	11.1	17.8	10.9	MUSSELSHELL	4	74	79	
DEADMAN'S BASIN	72.2	68.0	65.8	54.2	SMITH-JUDITH-MUSSELSHEL	L 16	82	100	
					· 				

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

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   Median value used in place of average.

### **Sun-Teton-Marias River Basins**





Snowpack conditions in the Sun-Teton-Marias River Basins were near average on April 1. Snow water content was 109 percent of average and 89 percent of last year. Snow water content in the Sun River Basin was 108 percent of average and 83 percent of last year; the Teton River Basin was 115 percent of average and 92 percent of last year; and the Marias River Basin was 108 percent of average and 93 percent of last year.

Mountain and valley precipitation during March in the Sun was 133 percent of average and 101 percent of last year; in the Teton was 148 percent of average and 100 percent of last year; and in the Marias was 152 percent of average and 120 percent of last year. Mountain and valley water year precipitation for the greater basin, beginning October 1, 2011, was 108 percent of average and 103 percent of last year.

Gibson storage was 40 percent of average and 132 percent of last year; Pishkun storage was 107 percent of average and 93 percent of last year; Willow Creek storage was 123 percent of average and 110 percent of last year; Lower Two Medicine Lake storage was 65 percent of average and 131 percent of last year; Swift storage was 76 percent of average and 92 percent of last year; Lake Frances storage was 123 percent of average and 110 percent of last year; and Lake Elwell (Tiber) storage was 110 percent of average and 92 percent of last year.

Assuming average precipitation, April through July streamflows are forecast to average 119 percent.

Surface Water Supply Index (SWSI) was +1.5 in the Sun River; +1.8 in the Teton River; +2.4 in the Birch/Dupuyer Creeks; +1.7 in the Marias above Tiber Reservoir.

### SUN-TETON-MARIAS RIVER BASINS

Streamflow Forecasts - April 1, 2012

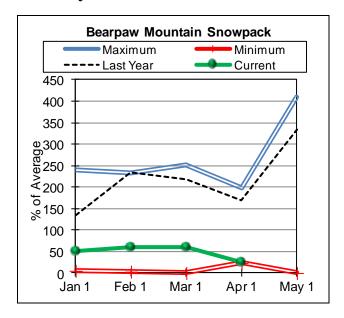
		<<=====	Drier ====	== Future Co	nditions ==	===== Wetter	====>>		
Forecast Point	Forecast								
	Period	90%	70%	50	)왕	30%	10%	30-Yr Avg.	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	(1000AF)	
				I					
Gibson Reservoir Inflow (2)	APR-JUL	420	470	505	110	535	585	460	
	APR-SEP	465	520	555	110	590	645	505	
Two Medicine R nr Browning (2)	APR-JUL	200	225	240	117	255	280	205	
	APR-SEP	210	235	255	119	270	295	215	
Badger Ck nr Browning	APR-JUL	82	95	104	121	113	126	86	
	APR-SEP	89	104	114	120	124	139	95	
Swift Reservoir Inflow (2)	APR-JUL	58	69	76	119	83	94	64	
	APR-SEP	68	80	89	116	98	110	77	
Dupuyer Ck nr Valier	APR-JUL	4.1	11.2	16.0	114	21	28	14.0	
	APR-SEP	4.8	12.7	18.0	115	23	31	15.7	
Cut Bank Ck nr Browning	APR-JUL	69	81	89	116	97	109	77	
	APR-SEP	75	88	97	116	106	119	84	
Marias R nr Shelby (2)	APR-JUL	355	455	520	125	585	685	415	
	APR-SEP	350	455	530	121	605	710	440	
Teton R nr Dutton	APR-JUL	22	48	66	129	84	110	51	
	APR-SEP	28	56	75	127	94	122	59	
SUN-TETON-MA	RIAS RIVER B	ASINS			SUN-TH	ETON-MARIAS RI	VER BASINS		
Reservoir Storage (10	00 AF) - End	of March		İ	Watershed Sr	nowpack Analys	sis - April	1, 2012	

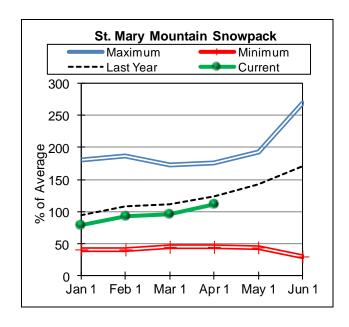
Reservoir Storage (100	00 AF) - End	of March			Watershed Snowpa	ck Analysis -	April 1,	2012
Reservoir	Usable   rvoir Capacity		ble Stora Last		     Watershed	Number Of	This Year as % of	
		Year	Year	Avg	 	Data Sites	Last Yr	Average
GIBSON	99.1	21.4	16.2	53.6	SUN	6	83	108
PISHKUN	32.0	19.5	21.0	18.3	   TETON	4	92	115
WILLOW CREEK	32.2	29.2	26.5	23.8	MARIAS	4	93	108
LOWER TWO MEDICINE LAKE	11.9	6.3	4.8	9.7	   SUN-TETON-MARIAS	12	89	109
FOUR HORNS LAKE	19.2	3.2	8.8	12.0				
SWIFT	30.0	13.3	14.5	17.4				
LAKE FRANCES	112.0	85.0	77.2	69.1				
LAKE ELWELL (TIBER)	1347.0	710.0	771.4	645.6				

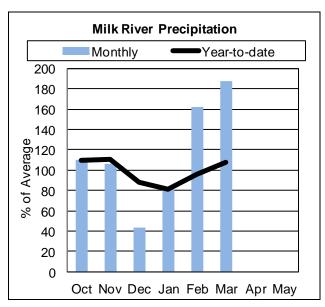
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

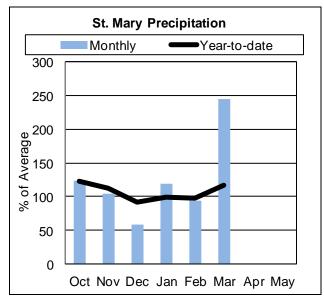
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   Median value used in place of average.

# St. Mary and Milk River Basins









Snowpack in the Saint Mary River Basin was above average on April 1. Snow water content was 112 percent of average and 91 percent of last year. The Milk River Basin (Bearpaw Mountains) was well below average. Snow water content was 25 percent of average and 15 percent of last year.

Mountain and valley precipitation in the St. Mary River Basin during March was 245 percent of average and 160 percent of last year; and in the Milk River Basin during March was 188 percent of average and 157 percent of last year. Mountain and valley water year precipitation for both basins, beginning October 1, 2011, was 114 percent of average and 91 percent of last year.

Assuming average precipitation, April through July streamflows in the St. Mary are forecast to average 119 percent and the Milk to average 87 percent.

Lake Sherburne storage was 116 percent of average and 65 percent of last year; Fresno storage was 99 percent of average and 87 percent of last year; Beaver Creek storage was not available; and Nelson storage was 135 percent of average and 100 percent of last year.

Surface Water Supply Index (SWSI) was +2.8 for the St. Mary and +1.3 for the Milk River.

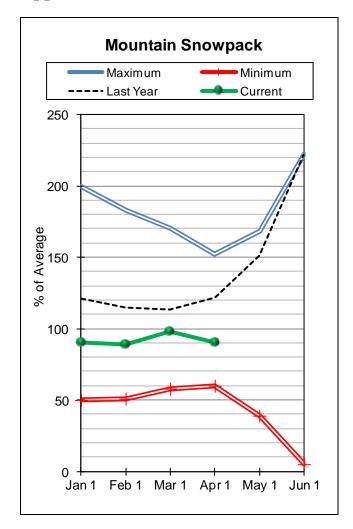
### ST. MARY and MILK RIVER BASINS Streamflow Forecasts - April 1, 2012

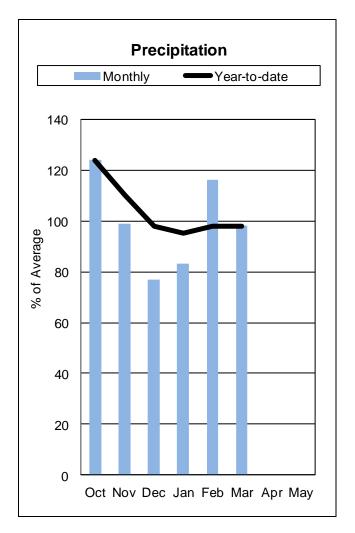
Streamflow Forecasts - April 1, 2012											
<<==== Drier ===== Future Conditions ====== Wetter ====>>											
			- DIICI		ucurc co.	idicions		WCCCCI			
Forecast Point	Forecast			== Cha	ance Of E	xceeding * =			======		
	Period	90%	70%		50	%	3	0%	10%	30-Yr Avg.	
			(1000AF)		,	(% AVG.)			(1000AF)	(1000AF)	
=======================================				= ====							
Lake Sherburne Inflow (2)	APR-JUL	107	115	!	121	115		127	135	105	
	APR-SEP	124	133		140	115		147	156	122	
St. Mary R nr Babb (2)	APR-JUL	385	425		450	117		475	515	385	
be. har a mr babb (2)	APR-SEP	450	495	1	525	117		555	600	450	
				İ							
St. Mary R at Int'l Boundary (2)	APR-JUL	445	500	i	540	124		580	635	435	
	APR-SEP	525	585		625	121		665	725	515	
				!							
Milk R at Western Crossing (3)	APR-JUL	23	30		34	103		38	45	33	
	APR-SEP	24	32		37	103		42	50	36	
Milk R at Eastern Crossing (2,3)	APR-JUL	19.2	44		61	101		78	103	61	
MIIR R de Edseell Clobbing (2,5)	APR-SEP	25	52		70	101		89	116	69	
				i							
Beaver Ck nr Havre	APR-JUL	0.4	3.1	j	4.9	56		6.7	9.4	8.7	
				=====	:						
ST. MARY and I					! ,				ER BASINS	1 2012	
Reservoir Storage (10					1	Watershed Sn	-	-	-	•	
	Usable		le Storage					Number		Year as % of	
Reservoir	Capacity	This	Last	i	Water	shed		of	====		
	j	Year	Year	Avg	į			ata Sit		Yr Average	
=======================================					I						
LAKE SHERBURNE	64.3	29.9	45.9	25.7	ST. M	ARY		3	91	112	
FRESNO	127.0	74.5	85.3	75.0	DEADD	AW MOUNTAINS		3	15	25	
PRESINO	127.0	74.5	65.5	/5.0	DEARF	AW MOUNTAINS		3	13	25	
BEAVER CREEK		NO REPOR	Г	i	CYPRE	SS HILLS, CA	NADA	0	0	0	
				İ	j	• -					
NELSON	66.8	47.9	47.7	35.6	MILK	RIVER BASIN		3	15	25	
					ST. M	ARY & MILK E	ASINS	6	76	99	

 $<sup>\</sup>star$  90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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# **Upper Yellowstone River Basin**





Snowpack conditions in the Upper Yellowstone River Basin were near average on April 1. Snow water content was 90 percent of average and 73 percent of last year.

Mountain precipitation during March was 102 percent of average and 65 percent of last year. Valley precipitation during March was 67 percent of average and 56 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2011, was 98 percent of average and 83 percent of last year.

Mystic Lake storage was 0 percent of average and 0 percent of last year and Cooney storage was not available.

Assuming average precipitation, April through July streamflows are forecast to average 93 percent.

Surface Water Supply Index (SWSI) was +0.3 in the Yellowstone River above Livingston; -0.3 in the Shields River; +0.2 in the Boulder River; -0.9 in the Stillwater River; insufficient data in the Rock/Red Lodge Creeks; +1.2 in the Clarks Fork River; and +0.2 in the Yellowstone River above Bighorn River.

### UPPER YELLOWSTONE RIVER BASIN Streamflow Forecasts - April 1, 2012

Streamflow Forecasts - April 1, 2012											
		((	Viller Future Conditions Wetter								
Forecast Point	Forecast			= Chance Of E	Exceeding * :		ˈ				
10100abt 101mt	Period	90%	70%	50		30%	10%	30-Yr Avg.			
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	(1000AF)			
							=======				
Yellowstone R at Yellowstone Lake	APR-JUL	500	555	595	101	635	690	590			
	APR-SEP	655	730	780	97	830	905	805			
Yellowstone R at Corwin Springs	APR-JUL	1390	1560	1670	101	1780	1950	1650			
	APR-SEP	1600	1810	1950	99	2090	2300	1970			
								4000			
Yellowstone R at Livingston	APR-JUL	1550	1760	1910	101	2060	2270	1900			
	APR-SEP	1800	2060	2230	98	2400	2660	2280			
Shields R nr Livingston	APR-JUL	49	89	   116	80	l l 143	183	145			
SHIELDS K HE LIVINGSCON	APR-SEP	54	99	130	80	143	205	162			
	APK-SEP	34	23	1 130	80	1 101	205	102			
Boulder R at Big Timber	APR-JUL	210	250	l 275	97	l 300	340	285			
boulder R de big ilmber	APR-SEP	215	265	295	94	325	375	315			
						1					
West Rosebud Ck nr Roscoe (2)	APR-JUL	48	52	l 55	92	l 58	62	60			
	APR-SEP	60	67	71	92	75	82	77			
				İ		İ					
Stillwater R nr Absarokee (2)	APR-JUL	335	390	430	87	470	525	495			
	APR-SEP	390	460	505	86	550	620	585			
Clarks Fk Yellowstone R nr Belfry	APR-JUL	475	525	560	104	595	645	540			
	APR-SEP	515	570	610	103	650	705	595			
a		0.4	2.0			1	4.4	4.5			
Cooney Reservoir Inflow (2)	APR-JUL	24	30	34	72	38	44	47			
	APR-SEP	31	38	43	75	48	55	57			
Yellowstone R at Billings	APR-JUL	2680	3090	l l 3370	96	   3650	4060	3510			
remowstone k at Billings	APR-SEP	2870	3610	3950	96	1 4290	5030	4120			
	AFR DEF	2070	3010	3230 	50	1 4250	3030	1120			
	========	========	.=======	 =========	.=======	 ==========	========				
UPPER YELLOWS				1		YELLOWSTONE R					
Reservoir Storage (100				i		nowpack Analys		1, 2012			
=======================================							-	•			
	12 [	1 7	G. 4.	and I			mi '				

Reservoir Storage (100				l	Watershed Snowpack A			2012
Reservoir	Usable   Capacity	*** Usab This Year	le Storag Last Year	Avg	Watershed	Number of ata Sites	This Year	r as % of ====== Average
MYSTIC LAKE	21.0	0.0	1.7	1.8	YELLOWSTONE ab LIVINGSTON	N 16	75	90
COONEY	27.4	20.1	22.1	18.3	SHIELDS	4	66	78
				į	BOULDER-STILLWATER	4	65	92
					RED LODGE-ROCK CREEK	5	72	87
					CLARK'S FORK	7	80	98
					UPPER YELLOWSTONE BASIN	32	73	90

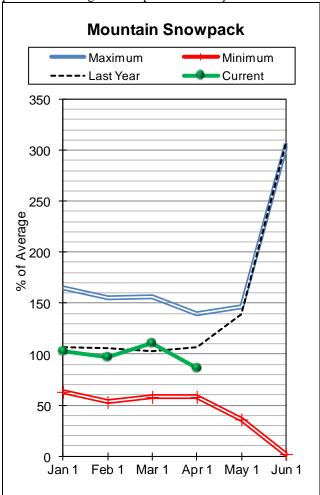
\_\_\_\_\_\_ \* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the

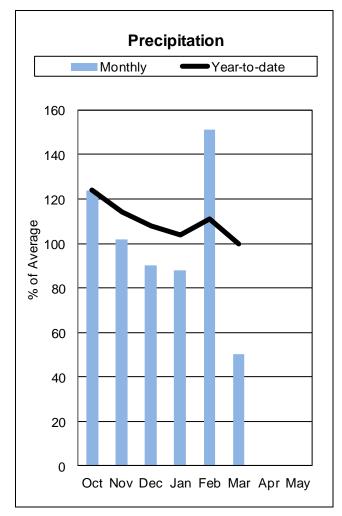
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### **Lower Yellowstone River Basin**

Snowpack conditions in the Lower Yellowstone River Basin were below average on April 1. Snow water content was 86

percent of average and 80 percent of last year.





Snowpack conditions in the Lower Yellowstone River Basin were well above average on March 1. Snow water content was 111 percent of average and 110 percent of last year.

Mountain and valley precipitation during March was 50 percent of average and 43 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2011, was 100 percent of average and 91 percent of last year.

Bighorn Lake storage was 105 percent of average and 99 percent of last year and Tongue River storage was 181 percent of average and 95 percent of last year.

Assuming average precipitation, April through July streamflows are forecast to average 89 percent.

Surface Water Supply Index (SWSI) was -0.4 in the Bighorn River below Bighorn Lake; +1.2 in the Little Bighorn River; -0.1 in the Yellowstone River below Bighorn River; +1.8 in the Tongue River; and 0.0 in the Powder River.

### LOWER YELLOWSTONE RIVER BASIN Streamflow Forecasts - April 1, 2012

				APIII I, 20							
<<===== Drier ===== Future Conditions ====== Wetter ====>>											
		\\	Tuesde Constitutions Weeter								
Forecast Point	Forecast			- Change Of E	wanadina *						
rolecast Point	Period	90%	70%	l 50		   30%	10%	30-Yr Avg.			
	Period	(1000AF)	(1000AF)	1	(% AVG.)	(1000AF)	(1000AF)	(1000AF)			
Bighorn R nr St. Xavier (2)	APR-JUL	590	955	1200	75	1450	1810	1610			
Bighorn R nr St. Mavier (2)	APR-SEP	540	960	1240	71	1520	1940	1760			
	APR-SEP	540	960	1240	/ 1	1520	1940	1760			
Little Bighorn R nr Hardin	APR-JUL	86	111	l l 128	100	l l 145	170	128			
bittle Bignorn k nr hardin	APR-SEP	98	125	144	100	163	190	144			
	APR-SEP	96	123	1 144	100	1 103	190	144			
Tonque R nr Dayton (2)	APR-JUL	66	82	93	97	104	120	96			
rongue k nr Daycon (2)	APR-SEP	76	94	106	97	118	136	109			
	APR-SEP	70	24	1 100	31	1 110	130	109			
Big Goose Ck nr Sheridan	APR-JUL	31	41	1 47	90	l 53	63	52			
Big Goose Ck III Sheridan	APR-SEP	39	48	55	92	62	71	60			
	AFK DEF	3,5	10	] 33	22	02 	/ 1	00			
Little Goose Ck nr Bighorn	APR-JUL	22	28	32	94	l 36	42	34			
niccie Goose CK ni bignoin	APR-SEP	29	36	40	95	1 44	51	42			
	HIR DDI	2,5	50	1	,,,	1	31	12			
Tonque River Reservoir Inflow (2)	APR-JUL	106	165	205	93	245	305	220			
longue River Rebervoir inflow (2)	APR-SEP	125	188	230	92	270	335	250			
	11111 021	123	200	1 230	72	1	333	230			
Yellowstone R at Miles City (2)	APR-JUL	3500	4190	4660	87	5130	5820	5360			
retrombeone it do nifeb ere/ (2)	APR-SEP	3800	4840	5420	87	6000	7040	6210			
					<del>-</del> .						
Powder R at Moorhead	APR-JUL	60	128	175	85	220	290	205			
	APR-SEP	78	149	197	86	245	315	230			
				i							
Powder R nr Locate	APR-JUL	60	142	198	84	255	335	235			
	APR-SEP	72	160	j 220	85	j 280	370	260			
				i		İ					
Yellowstone R nr Sidney (2)	APR-JUL	3210	4070	4660	85	5250	6110	5480			
• • •	APR-SEP	3720	4620	j 5360	85	i 6100	7000	6280			
				İ		İ					
			.=======	, =========		==========					
LOWER YELLOWS	STONE RIVER	BASIN			LOWER	YELLOWSTONE R	RIVER BASIN				

	ge (1000 AF) - End		L		LOWER YELLOW   Watershed Snowpack			2012
Reservoir	Usable   Capacity	*** Usa This Year	ble Stora Last Year	ige ***	     Watershed	Number of Data Sites	This Yea: Last Yr	r as % of  Average
BIGHORN LAKE	1356.0	854.4	864.7	809.9	=====================================	18	71	73
TONGUE RIVER	79.1	54.6	57.6	30.1	   SHOSHONE RIVER (Wyoming	) 6	86	90
					   BIGHORN RIVER (Wyoming)	20	85	94
					   LITTLE BIGHORN (Wyoming	) 3	94	100
					TONGUE RIVER (Wyoming)	10	91	98
					POWDER RIVER (Wyoming)	7	78	86
					LOWER YELLOWSTONE BASIN	( 45	80	86

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

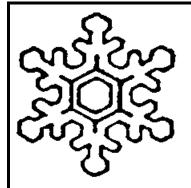
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Issued by: Released by:

Dave White Chief Natural Resources Conservation Service U.S. Department of Agriculture Joyce Swartzendruber State Conservationist Natural Resources Conservation Service Bozeman, Montana



Federal Building, Room 443 10 E. Babcock Bozeman, MT 59715



# **Montana Water Supply Outlook** Report Natural Resources Conservation Service

