

# Montana Water Supply Outlook Report May 1, 2013



**Picture: Madison Plateau SNOTEL Site near West Yellowstone**

# Water Supply Outlook Report and Federal - State - Private Cooperative Snow Surveys

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*How forecasts are made*

**Most of the annual streamflow in the Western United States originates as snowfall that has accumulated 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 May 1, 2013

In Montana, if you don't like the weather just wait a day. The month of April was a dramatic change from the warm and dry weather experienced during the latter half of March, with cool wet weather under northwest flow dominating the month across most of the state. March started the transition to a ripe and isothermal spring snowpack at low to mid-elevations however April all but stopped this trend and even added snow water to our seasonal snowpack.

This spring has similarities to the spring of 2011 where increased April and May precipitation with cooler temperatures caused the statewide snowpack to peak later than normal, delaying peak river flows significantly. However, unlike 2011 this year the weather has only slightly delayed the snowpack peak and even though there were good gains in snowpack averages this month, below average snowfall and precipitation during the early parts of the water year will not likely yield the magnitudes and timing experienced in 2011.

If cool wet weather further delays snowmelt there is a greater opportunity for higher than average snowpack melt rates this spring, as the coming months offer increased solar radiation, longer days, higher average daily temperatures and warmer overnight low temperatures. The ideal scenario for the coming months would be a return to more seasonal temperatures that functions more like a dimmer switch, slowly transitioning into our runoff season, not like a light switch turning the temperatures up abruptly.

## Snowpack

Across the state all but one major basin experienced a gain in percentage of normal snowpack, most notably the Sun-Teton-Marias River basins which saw an increase from 88 to 110 percent. Also of note is the increase in the Lower Yellowstone River basin which increased from below normal at 85 percent to above normal at 107 percent. The Jefferson River basin in Southwest Montana saw the least amount of snowfall during the month, seeing no improvement from last month remaining, at 89 percent of average, the lowest basin average in the state. State-wide snowpack percentages rose 14 percent from 91 percent on April 1 to 105 percent on May 1. Overall the increased snowfall during the month of April helped streamflow prospects with the basins seeing an increase in the range of 2 to 21 percent.

Across the Northwest part of the state, late April into May is typically the time when peak snowmelt driven peak stream flows typically occur in the river systems. The cool weather has added additional water to the snowpack and has delayed the slow release and melt of snow water into the systems. Because of this delay in our seasonal melt the weather during the month of May will certainly be a major driver in the timing and volumes of water in our river systems through June. To view individual basin reports online goto: <http://www.mt.nrcs.usda.gov/snow/>

RIVER BASIN	% OF MEDIAN	% LAST YEAR	APRIL % CHANGE
COLUMBIA	108	92	+15
KOOTENAI	115	81	+15
FLATHEAD	115	98	+16
UPPER CLARK FORK	95	96	+10
BITTERROOT	95	88	+11
LOWER CLARK FORK	114	88	+20
MISSOURI	98	113	+7
MISSOURI HEADWATERS	95	118	+6
JEFFERSON	89	128	0
MADISON	94	100	+6
GALLATIN	105	116	+11
MISSOURI MAINSTEM	105	106	+10
HEADWATERS MAINSTEM	97	115	+2
SMITH-JUDITH-MUSSELSHELL	103	105	+8
SUN-TETON-MARIAS	110	98	+22
MILK (Bearpaw Mtns)	129	95	-30
ST. MARY	118	86	+19
ST. MARY & MILK	118	86	+12
YELLOWSTONE	105	124	+17
UPPER YELLOWSTONE	100	104	+10
LOWER YELLOWSTONE	107	147	+22
STATE-WIDE	105	104	+14

## Precipitation

The increased precipitation during the month of April has been a blessing across the state, with many areas having experienced significantly below average precipitation during February and March receiving above average precipitation during the month of April. While these increases in water year precipitation are more than welcome, it should be remembered that both February and March were far below average in the far Southwest part of the state. The Jefferson River basin as of March 1 was near normal at 95 percent of average, dropping to 89 percent of average on April 1, and falling to 86 percent of average on May 1. Because of this lack of precipitation the Jefferson River basin continues to have the lowest basin water year-to-date precipitation average in the state.

Many areas saw mountain snowfall during the month and valley rain during the storms that happened during April. This pattern is typical for our spring events and helps to improve any soil moisture deficits experienced. Most areas, aside from the Northwest part of the state, are still making up for soil moisture deficits from the lack of precipitation last summer and fall going in to this water year. The change to the moist weather pattern has certainly helped irrigators across Montana, but the deficits experienced in the last year will take substantial precipitation for any tangible improvements to be seen. To view individual reports online goto: <http://www.mt.nrcs.usda.gov/snow/>

## Reservoirs

State-wide reservoir storage was 105 percent of average and 89 percent of last year. Reservoir storage west of the divide was 122 percent of average and 99 percent of last year. East of the Divide, reservoir storage was 98 percent of average and 85 percent of last year.

RIVER BASIN	% OF AVERAGE	% OF LAST YEAR
COLUMBIA	122	99
KOOTENAI	132	113
FLATHEAD	116	89
UPPER CLARK FORK	95	73
BITTERROOT	109	75
LOWER CLARK FORK	101	94
MISSOURI	100	86
JEFFERSON	102	81
MADISON	99	91
GALLATIN	84	88
MISSOURI MAINSTEM	97	84
SMITH-JUDITH-MUSSELSHELL	101	73
SUN-TETON-MARIAS	99	93
MILK	129	103
ST. MARY	183	99
YELLOWSTONE	113	108
UPPER YELLOWSTONE	92	87
LOWER YELLOWSTONE	113	108
STATEWIDE	105	89

## Streamflow

State-wide, streamflows are forecast to be 96 percent of average. West of the divide streamflows are forecast to be 104 percent of average and east of the divide are forecast to be 86 percent of average.

Following are streamflow forecasts for the period May 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.

RIVER BASIN	MAY-JULY THIS YEAR % OF AVERAGE	MAY-JULY FORECAST % OF LAST YEAR OBSERVED
COLUMBIA .....	104 .....	83
KOOTENAI .....	102 .....	64
FLATHEAD .....	115 .....	87
UPPER CLARK FORK .....	74 .....	68
BITTERROOT .....	89 .....	82
LOWER CLARK FORK .....	101 .....	81
MISSOURI .....	84 .....	82
JEFFERSON .....	67 .....	101
MADISON .....	89 .....	97
GALLATIN .....	93 .....	112
MISSOURI MAINSTEM .....	85 .....	107
SMITH-JUDITH-MUSSELSHELL .	76 .....	141
SUN-TETON-MARIAS .....	103 .....	105
MILK .....	126 .....	98
ST. MARY .....	112 .....	88
YELLOWSTONE .....	87 .....	83
UPPER YELLOWSTONE .....	90 .....	95
LOWER YELLOWSTONE .....	85 .....	119
STATE-WIDE .....	96 .....	89

NOTE: The MAY-JULY FORECAST % OF LAST YEAR OBSERVED column above reflects current forecasts as a percent of last year observed streamflow, using only those locations which have data available for last year.

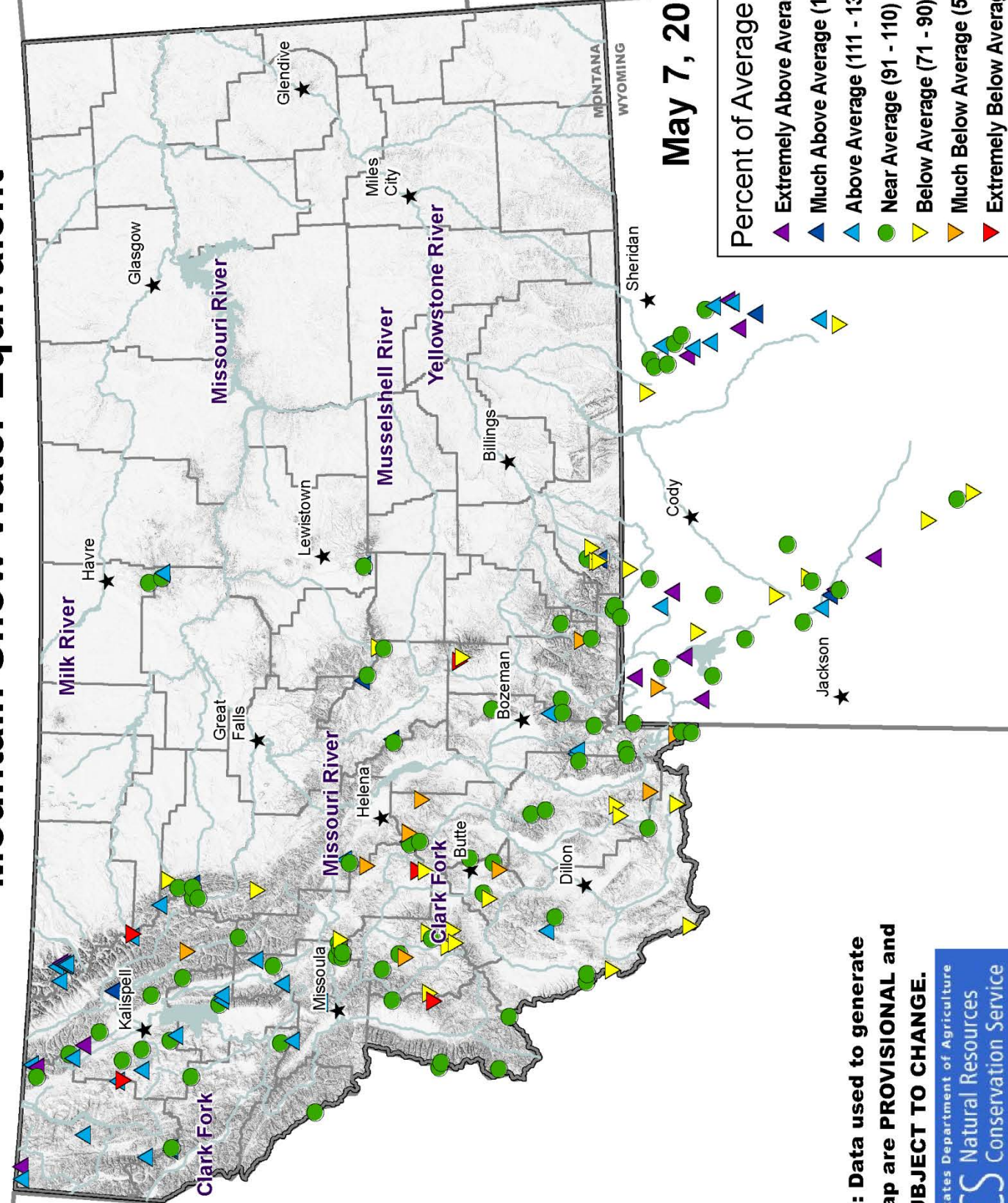
## Surface Water Supply Index

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 RATING	SURFACE WATER CONDITION
+3.0 to +4.0	Extremely Wet
+2.0 to +3.0	Moderately Wet
+1.0 to +2.0	Slightly Wet
-1.0 to +1.0	Near Average
-1.0 to -2.0	Slightly Dry
-2.0 to -3.0	Moderately Dry
-3.0 to -4.0	Extremely Dry

This Year SWSI	Last Year SWSI	Basin
+0.3	+2.9	Tobacco River
+0.6	+2.6	Kootenai Ft. Steele to Libby Dam
+2.1	+3.9	Kootenai River below Libby Dam
+0.2	+2.4	Fisher River
+1.2	+3.4	Yaak River
+1.6	+2.5	North Fork Flathead River
+1.6	+2.2	Middle Fork Flathead River
+4.0	+4.0	South Fork Flathead River
+2.2	+3.4	Flathead River at Columbia Falls
+0.5	+2.5	Swan River
+1.3	+2.7	Flathead River at Polson
-3.6	+2.4	Mission Valley
+1.8	+2.0	Little Bitterroot River
-2.4	+1.0	Clark Fork River above Milltown
-2.1	+1.3	Clark Fork above Missoula
-0.6	+2.3	Blackfoot River
-1.4	+1.9	Bitterroot River
-1.9	+1.5	Clark Fork River below Bitterroot River
+0.2	+2.3	Clark Fork River below Flathead River
-1.5	-0.3	Beaverhead River
-2.5	-0.7	Ruby River
-1.1	-1.0	Big Hole River
-1.8	0.0	Boulder River (Jefferson)
-0.7	+0.4	Jefferson River
-1.6	+0.3	Madison River
-1.2	0.0	Gallatin River
-0.6	+0.2	Missouri River above Canyon Ferry
-0.9	+0.3	Missouri River below Canyon Ferry
+0.1	+2.8	Smith River
-0.4	+1.3	Sun River
+0.3	+1.2	Teton River
-1.6	+1.7	Birch/Dupuyer Creeks
-2.7	-1.2	Upper Judith River
-1.4	+0.7	Marias River above Tiber
+0.2	+2.2	Marias River below Tiber
-1.1	+1.6	Musselshell River
-0.3	+1.5	Missouri River above Ft. Peck
-1.6	+0.3	Missouri River below Ft. Peck
+1.7	+2.6	St. Mary River
+1.2	+2.0	Milk River
-1.0	+0.1	Dearborn River near Craig
-1.2	+0.5	Yellowstone River above Livingston
-2.3	+0.9	Shields River
-1.1	-1.0	Boulder River (Yellowstone)
-2.1	-0.7	Stillwater River
-2.4	-2.3	Rock/Red Lodge Creeks
-1.2	+1.8	Clarks Fork River
-1.3	+0.4	Yellowstone River above Bighorn River
-1.1	-0.9	Bighorn River below Bighorn Lake
-2.5	-0.1	Little Bighorn River
-1.2	-0.2	Yellowstone River below Bighorn River
-1.0	-0.3	Tongue River
-0.1	-0.8	Powder River

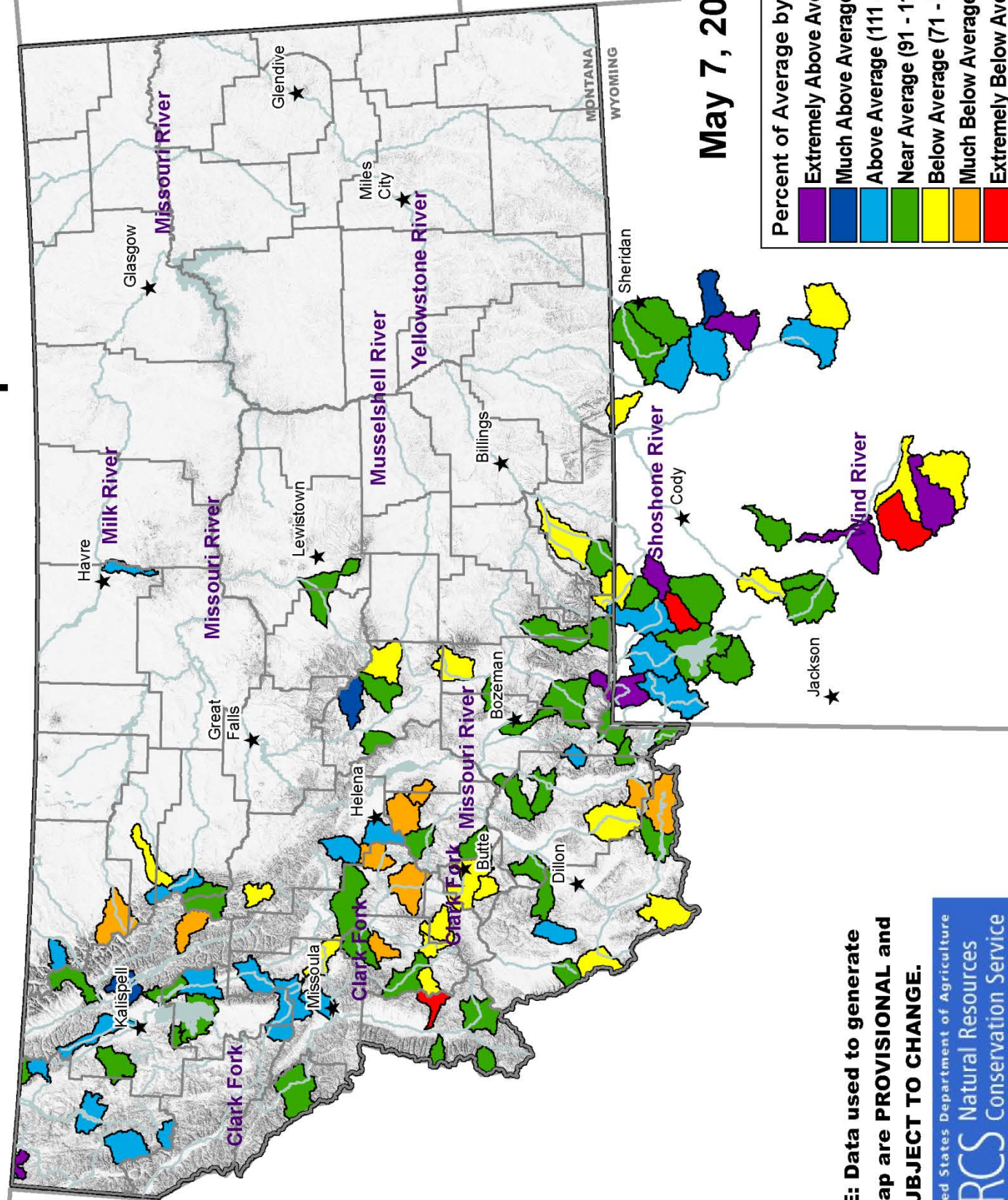
# Mountain Snow Water Equivalent



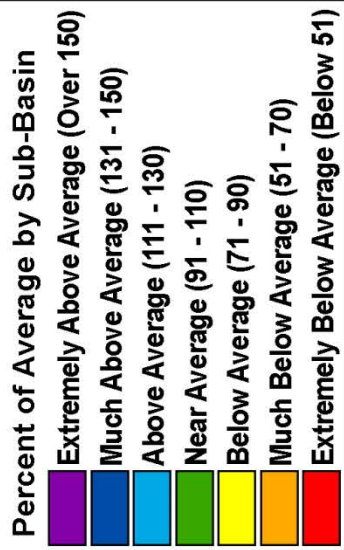
**May 7, 2013**

**NOTE: Data used to generate this map are PROVISIONAL and SUBJECT TO CHANGE.**

# Mountain Snow Water Equivalent



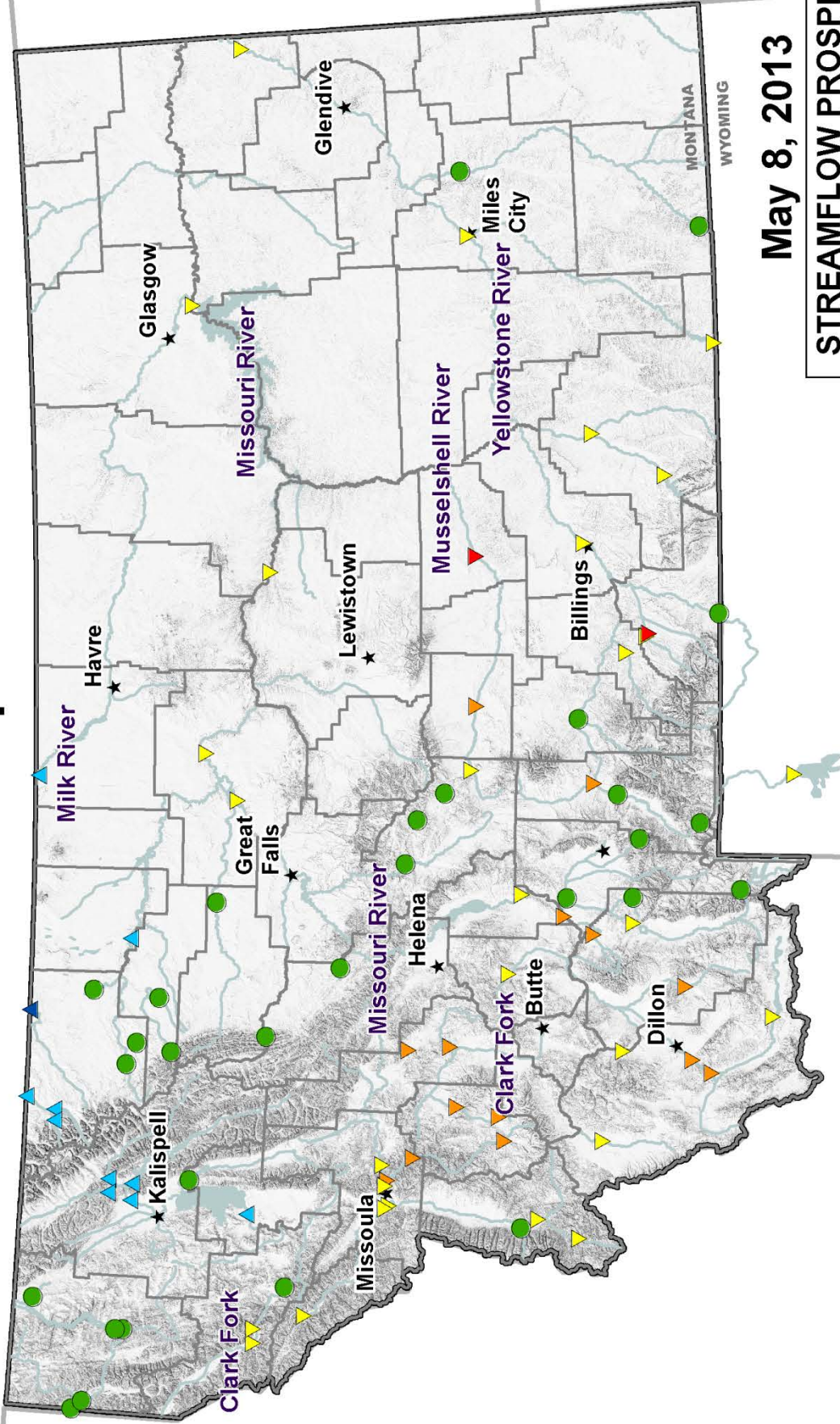
May 7, 2013



**NOTE: Data used to generate this map are PROVISIONAL and SUBJECT TO CHANGE.**



# Streamflow Prospects for Montana



May 8, 2013

## STREAMFLOW PROSPECTS

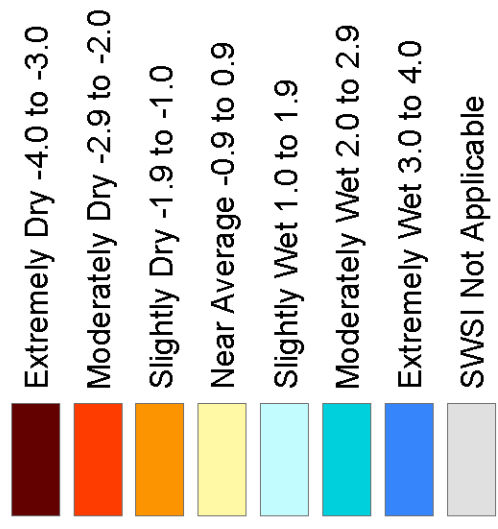
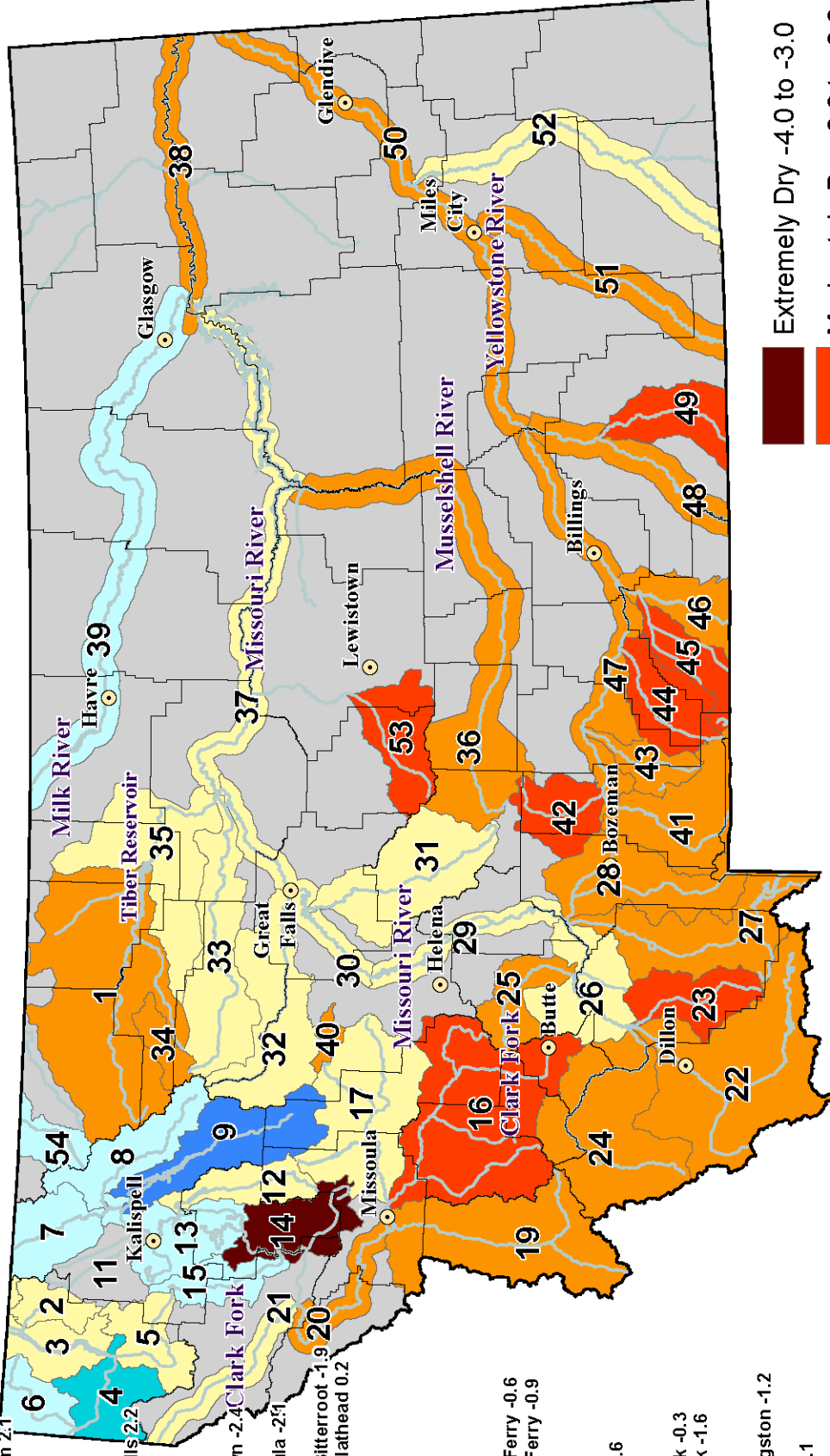
- ▲ Extremely Above Average (Over 150)
- ▲ Much Above Average (131 - 150)
- ▲ Above Average (111 - 130)
- Near Average (91 - 110)
- ▲ Below Average (71 - 90)
- ▲ Much Below Average (51 - 70)
- ▲ Extremely Below Average (Below 51)

**NOTE: Data used to generate this map are PROVISIONAL and SUBJECT TO CHANGE.**

# Surface Water Supply Index (SWSI) Values

## RIVER INDEX & SWSI VALUES

- 1 Marias above Tiber Reservoir -1.4
- 2 Tobacco 0.3
- 3 Kootenai Ft. Steele to Libby Dam 0.6
- 4 Kootenai below Libby Dam 2.1
- 5 Fisher 0.2
- 6 Yaak 1.2
- 7 North FK. Flathead 1.6
- 8 Middle FK. Flathead 1.6
- 9 South FK. Flathead 4.0
- 10 Flathead at Columbia Falls 2.2
- 11 Kalispell
- 12 Swan 0.5
- 13 Flathead at Polson 1.3
- 14 Mission Valley -3.6
- 15 Little Bitterroot 1.8
- 16 Clark Fork above Milltown -2.4
- 17 Clark Fork above Missoula -2.1
- 18 Blackfoot -0.6
- 19 Clark Fork above Bitterroot -1.9
- 20 Clark Fork River below Bitterroot 0.2
- 21 Clark Fork River below Flathead 0.2
- 22 Beaverhead -1.5
- 23 Ruby -2.5
- 24 Big Hole -1.1
- 25 Boulder (Jefferson) -1.8
- 26 Jefferson -0.7
- 27 Madison -1.6
- 28 Gallatin -1.2
- 29 Missouri above Canyon Ferry -0.6
- 30 Missouri below Canyon Ferry -0.9
- 31 Smith 0.1
- 32 Sun -0.4
- 33 Teton 0.3
- 34 Birch/Dupuyer Creeks -1.6
- 35 Marias 0.2
- 36 Musselshell -1.1
- 37 Missouri above Fort Peck -0.3
- 38 Missouri below Fort Peck -1.6
- 39 Milk 1.2
- 40 Dearborn near Craig -1.0
- 41 Yellowstone above Livingston -1.2
- 42 Shields -2.3
- 43 Boulder (Yellowstone) -1.1
- 44 Stillwater -2.1
- 45 Rock/Red Lodge Creeks -2.4
- 46 Clarks Fork Yellowstone -1.2
- 47 Yellowstone above Bighorn River -1.3
- 48 Bighorn below Bighorn Lake -1.1
- 49 Little Bighorn -2.5
- 50 Yellowstone below Bighorn -1.2
- 51 Tongue -1.0
- 52 Powder -0.1
- 53 Upper Judith -2.7
- 54 Saint Mary 1.7



**May 7, 2013**

**NOTE: Data used to generate this map are PROVISIONAL and SUBJECT TO CHANGE.**

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

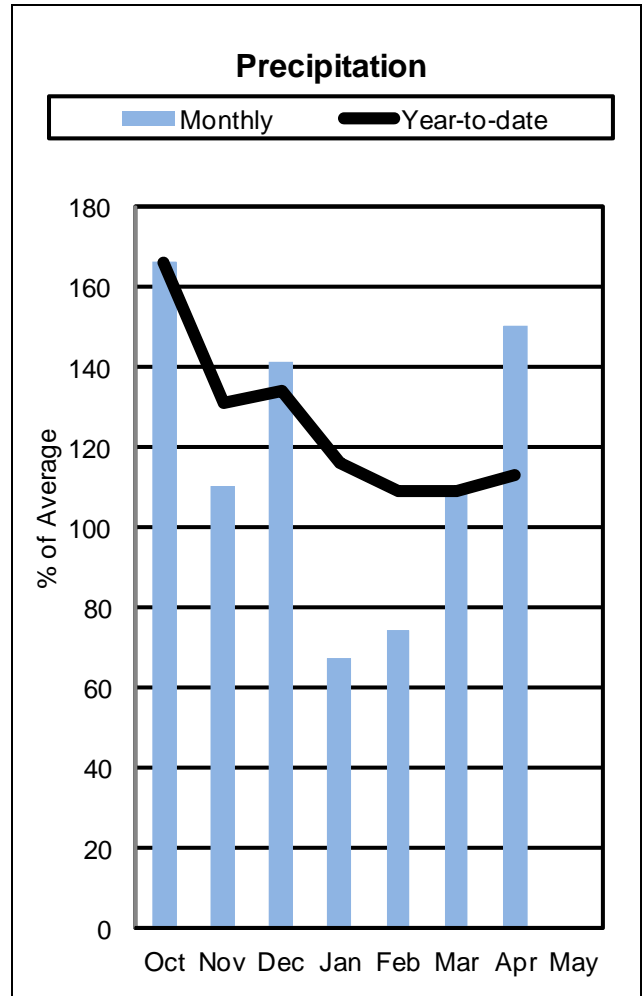
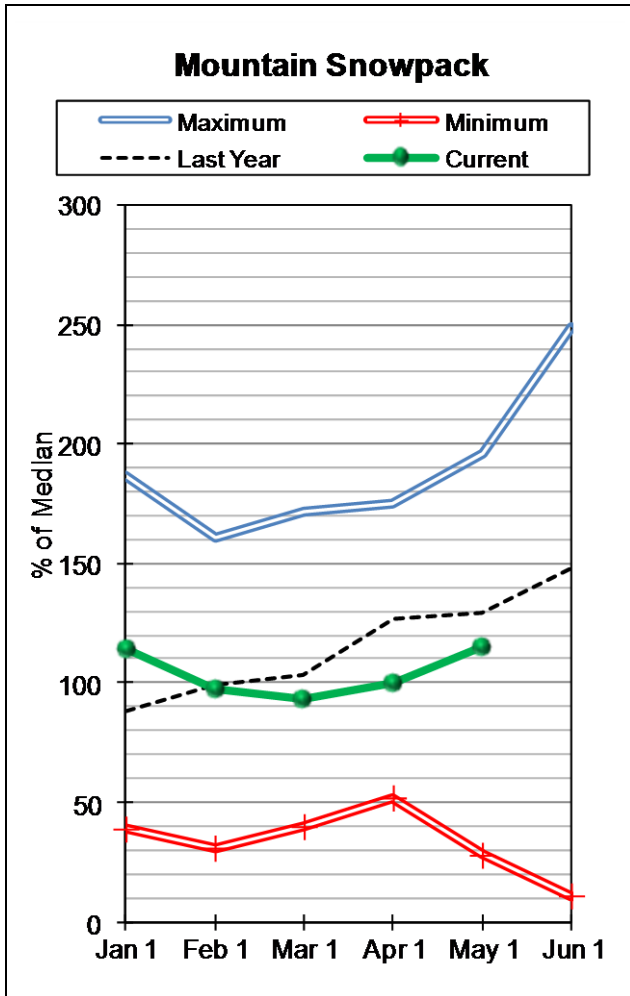
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SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	MEDIAN 81-10
ALBRO LAKE SNOTEL	8300	5/01/13	48	17.2	16.4	18.9
AMBROSE	6480	4/28/13	28	9.1	--	9.6
ARCH FALLS	7350	4/25/13	36	11.1	9.1	10.7
ASHLEY DIVIDE	4820	4/26/13	0	.0	.0	.0
BADGER PASS SNOTEL	6900	5/01/13	92	36.5	38.9	29.4
BANFIELD MTN SNOTEL	5600	5/01/13	42	16.8	20.0	13.1
BAREE CREEK	5500	4/25/13	90	39.1	44.8	34.8
BAREE MIDWAY	4600	4/25/13	69	29.1	33.6	22.7
BAREE TRAIL	3800	4/25/13	5	2.3	1.2	.0
BARKER LAKES SNOTEL	8250	5/01/13	44	13.9	12.6	16.3
BASIN CREEK SNOTEL	7180	5/01/13	20	6.1	4.3	9.0
BASSOO PEAK	5150	4/29/13	9	3.7	1.4	.0
BEAGLE SPGS SNOTEL	8850	5/01/13	24	7.4	2.9	8.7
BEAR BASIN	8150	4/26/13	56	21.1	15.7	17.2
BEAVER CREEK SNOTEL	7850	5/01/13	51	18.3	16.1	18.2
BIG SNOWY	7150	4/30/13	58	19.7	20.0	20.6
BISSON CREEK SNOTEL	4920	5/01/13	13	4.3	3.4	4.3
BLACK BEAR SNOTEL	7950	5/01/13	88	40.0	42.1	37.4
BLACK MOUNTAIN	7750	5/04/13	35	12.3	15.3	15.9
BLACK PINE SNOTEL	7100	5/01/13	13	5.1	3.0	8.5
BLACKTAIL	5650	4/26/13	20	7.7	7.4	7.0
BLACKTAIL MTN SNOTEL	5650	5/01/13	19	6.6	7.0	--
BLOODY DICK SNOTEL	7550	5/01/13	22	8.3	5.6	8.5
BOTS SOTS	7750	4/26/13	14	3.8	.0	4.5
BOULDER MTN SNOTEL	7950	5/01/13	56	19.2	21.9	20.9
BOX CANYON SNOTEL	6700	5/01/13	4	2.0	.0	3.0
BOXELDER CREEK	5100	4/25/13	5	2.0	.0	1.6
BRACKETT CR SNOTEL	7320	5/01/13	54	21.1	21.6	20.1
BRUSH CREEK TIMBER	5000	4/30/13	3	1.2	5.4	1.0
BULL MOUNTAIN	6600	4/26/13	0	.0	--	.0
BURNT MTN SNOTEL	5880	5/01/13	0	.0	.0	.0
CABIN CREEK	5200	4/28/13	0	.0	.0	.2
CALVERT CR SNOTEL	6430	5/01/13	0	.0	.0	.7
CAMP SENIA	7890	4/26/13	31	7.2	5.0	5.4
CARROT BASIN SNOTEL	9000	5/01/13	74	27.3	28.2	28.6
CHESSMAN RESERVOIR	6200	4/29/13	0	.0	.0	.4
CHICKEN CREEK	4060	4/24/13	27	10.7	10.1	4.8
CLOVER MDW SNOTEL	8800	5/01/13	48	14.9	15.5	17.4
COLE CREEK SNOTEL	7850	5/01/13	49	14.5	12.8	16.6
COMBINATION SNOTEL	5600	5/01/13	0	.0	.0	.0
COPPER BOTTOM SNOTEL	5200	5/01/13	1	.2	.0	--
COPPER CAMP SNOTEL	6950	5/01/13	84	38.1	48.4	--
COPPER MOUNTAIN	7700	4/26/13	27	9.8	7.6	9.6
COTTONWOOD CREEK	6400	5/04/13	8	2.7	.5	7.8
COYOTE HILL	4200	4/30/13	2	.5	.0	.0
CRYSTAL LAKE SNOTEL	6050	5/01/13	37	13.9	11.1	11.3
DAISY PEAK SNOTEL	7600	5/01/13	29	9.0	9.2	10.2
DALY CREEK SNOTEL	5780	5/01/13	2	.7	.0	3.3
DARKHORSE LK. SNOTEL	8700	5/01/13	78	30.3	29.7	30.1
DEADMAN CR SNOTEL	6450	5/01/13	19	7.0	1.9	5.2
DISCOVERY BASIN	7050	4/26/13	22	8.2	7.8	8.8
DIVIDE SNOTEL	7800	5/01/13	31	10.1	4.4	11.1
DIX HILL	6400	4/28/13	0	.0	--	.2
DUPUYER CREEK SNOTEL	5750	5/01/13	17	4.8	.4	6.7
ELK HORN SPRINGS	7800	5/02/13	25	8.4	.0	6.7
EMERY CREEK SNOTEL	4350	5/01/13	---	7.6	3.8	5.7
FATTY CREEK	5500	4/24/13	66	24.2	25.9	20.9

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	MEDIAN 81-10
FISHER CREEK SNOTEL	9100	5/01/13	97	32.9	39.7	32.7
FLATTOP MTN SNOTEL	6300	5/01/13	129	52.4	53.1	42.2
FLEECER RIDGE	7500	4/26/13	18	7.1	2.4	8.0
FREIGHT CREEK	6000	4/26/13	27	9.4	13.1	9.0
FROHNER MDWS SNOTEL	6480	5/01/13	12	3.4	.0	6.4
GARVER CREEK SNOTEL	4250	5/01/13	9	4.0	10.2	1.9
GRAVE CRK SNOTEL	4300	5/01/13	22	9.9	10.4	5.0
GRIFFIN CR DIVIDE	5150	4/29/13	6	2.4	.0	2.0
HAND CREEK SNOTEL	5030	5/01/13	6	2.2	3.8	5.5
HAWKINS LAKE SNOTEL	6450	5/01/13	72	29.1	41.2	25.9
HELL ROARING DIVIDE	5770	4/26/13	60	24.3	30.1	26.6
HERRIG JUNCTION	4850	4/24/13	54	21.4	25.6	20.9
HOLBROOK	4530	5/03/13	0	.0	--	.0
HOODOO BASIN SNOTEL	6050	5/01/13	111	40.6	46.2	39.8
JOHNSON PARK	6450	5/01/13	0	.0	--	.0
JOSEPHINE LOWER NO 9	4900	4/29/13	27	11.7	16.0	8.2
KRAFT CREEK SNOTEL	4750	5/01/13	7	2.9	.0	--
LAKEVIEW CANYON	6930	5/02/13	12	4.2	--	8.5
LAKEVIEW RDG. SNOTEL	7400	5/01/13	12	5.7	.0	7.9
LEMHI RIDGE SNOTEL	8100	5/01/13	19	7.3	.6	10.0
LICK CREEK SNOTEL	6860	5/01/13	29	10.3	7.1	8.7
LITTLE PARK	7400	4/25/13	42	15.2	6.8	12.6
LOGAN CREEK	4300	4/24/13	8	2.7	.9	.0
LONE MOUNTAIN SNOTEL	8880	5/01/13	52	18.9	16.0	18.5
LOWER TWIN SNOTEL	7900	5/01/13	52	17.4	18.0	18.4
LUBRECHT SNOTEL	4680	5/01/13	0	.0	.0	.0
LUBRECHT FOREST NO 3	5450	5/01/13	---	.0E	.0	.0
LUBRECHT FOREST NO 4	4650	5/01/13	---	.0E	.0	.0
LUBRECHT FOREST NO 6	4040	5/01/13	---	.0E	.0	.0
LUBRECHT HYDROPLOT	4200	5/01/13	---	.0E	.0	.0
MADISON PLT SNOTEL	7750	5/01/13	50	20.6	25.0	21.3
MANY GLACIER SNOTEL	4900	5/01/13	11	1.7	1.3	.6
MARIAS PASS	5250	5/04/13	29	12.2	14.1	10.4
MINERAL CREEK	4000	4/29/13	0	.0	--	6.5
MONUMENT PK SNOTEL	8850	5/01/13	59	21.3	20.7	21.0
MOSS PEAK SNOTEL	6780	5/01/13	109	44.2	45.7	38.7
MOUNT ALLEN NO 7	5700	4/29/13	100	41.7	55.9	35.0
MT LOCKHART SNOTEL	6400	5/01/13	44	17.9	20.9	16.9
MULE CREEK SNOTEL	8300	5/01/13	53	15.9	12.8	16.1
N.E. ENTRANCE SNOTEL	7350	5/01/13	9	3.3	.5	3.0
NEVADA RIDGE SNOTEL	7020	5/01/13	39	13.3	15.9	12.3
NEW WORLD	6900	4/30/13	26	10.3	8.7	--
NEZ PERCE CMP SNOTEL	5650	5/01/13	24	9.2	8.5	9.7
N.F. ELK CR SNOTEL	6250	5/01/13	20	6.6	9.2	7.5
NF JOCKO SNOTEL	6330	5/01/13	105	45.6	45.2	38.2
NOISY BASIN SNOTEL	6040	5/01/13	108	47.9	39.9	44.0
OPHIR PARK	7150	4/28/13	23	8.4	--	13.8
PETERSON MDW SNOTEL	7200	5/01/13	25	8.3	6.7	10.7
PICKFOOT CRK SNOTEL	6650	5/01/13	17	5.5	.0	3.7
PIEGAN PASS NO 6	5500	4/29/13	83	37.0	47.0	29.8
PIKE CREEK SNOTEL	5930	5/01/13	28	7.3	6.0	19.6
PIPESTONE PASS	7200	4/26/13	9	3.2	.0	3.4
PLACER BASIN SNOTEL	8830	5/01/13	62	18.1	17.0	17.6
POORMAN CR SNOTEL	5100	5/01/13	74	32.8	41.0	28.2
PORCUPINE SNOTEL	6500	5/01/13	1	.2	2.4	.8
PTARMIGAN	5800	4/30/13	82	33.9	35.1	29.0
REVAIS CREEK	4800	4/24/13	0	.0	.0	.0
ROCK CREEK MEADOW	8160	4/30/13	64	21.2	17.6	19.6
ROCKER PEAK SNOTEL	8000	5/01/13	46	13.9	15.5	14.9
ROCKY BOY SNOTEL	4700	5/01/13	0	.0	2.1	.0
SACAJAWEA SNOTEL	6550	5/01/13	26	10.4	9.1	10.3
SADDLE MTN SNOTEL	7900	5/01/13	56	22.3	21.7	22.5
S.F. SHIELDS SNOTEL	8100	5/01/13	45	13.5	19.0	17.8

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	MEDIAN 81-10
SHORT CREEK SNOTEL	7000	5/01/13	8	3.0	.0	3.8
SHOWER FALLS SNOTEL	8100	5/01/13	72	24.3	25.2	23.9
SKALKAHO SNOTEL	7260	5/01/13	42	17.0	20.5	22.1
SLEEPING WOMAN SNTL	6150	5/01/13	37	12.6	13.3	11.0
SLIDE ROCK MOUNTAIN	7100	4/27/13	35	12.8	--	13.0
SPOTTED BEAR MTN.	7000	5/01/13	---	4.8E	5.9	7.7
SPUR PARK SNOTEL	8100	5/01/13	66	22.9	26.6	22.4
STAHL PEAK SNOTEL	6030	5/01/13	95	38.1	41.9	35.4
STEMPLE PASS	6600	5/01/13	28	8.0	7.9	6.9
STORM LAKE	7780	4/26/13	35	11.6	10.6	14.4
STRYKER BASIN	6180	4/24/13	87	35.5	35.7	30.3
STUART MOUNTAIN SNTL	7400	5/01/13	84	33.3	34.7	29.4
TAYLOR ROAD	4080	4/25/13	0	.0	.0	.0
TEN MILE LOWER	6600	4/25/13	18	5.8	.0	2.7
TEN MILE MIDDLE	6800	4/25/13	38	10.2	7.8	9.4
TEPEE CREEK SNOTEL	8000	5/01/13	25	9.2	6.8	13.4
TIMBERLINE CREEK	8850	4/26/13	41	11.5	6.9	13.8
TIZER BASIN SNOTEL	6840	5/01/13	16	5.5	.0	8.2
TRINKUS LAKE	6100	4/24/13	110	41.6	44.7	38.8
TRUMAN CREEK	4060	4/26/13	0	.0	.0	.0
TWELVEMILE SNOTEL	5600	5/01/13	13	3.4	8.0	3.4
TWENTY-ONE MILE	7150	4/29/13	29	11.3	8.0	11.3
TWIN LAKES SNOTEL	6400	5/01/13	77	34.9	39.2	33.0
UPPER HOLLAND LAKE	6200	4/24/13	88	35.2	30.7	30.4
WALDRON SNOTEL	5600	5/01/13	21	6.8	7.0	4.8
WARM SPRINGS SNOTEL	7800	5/01/13	55	18.6	25.5	21.4
WEASEL DIVIDE	5450	4/29/13	71	31.8	37.2	28.8
WEST YELL 'ST SNOTEL	6700	5/01/13	0	.0	.0	1.8
WHISKEY CREEK SNOTEL	6800	5/01/13	26	9.8	12.9	14.6
WHITE MILL SNOTEL	8700	5/01/13	65	24.7	26.2	23.8
WOOD CREEK SNOTEL	5960	5/01/13	20	5.5	4.7	6.8
WRONG CREEK	5700	5/01/13	---	4.7E	3.8	4.7
WRONG RIDGE	6800	5/01/13	---	14.2E	12.7	13.0

# Kootenai River Basin in Montana



Snowpack conditions in the Kootenai River Basin peaked at 100 percent of normal. On May 1 snow water content was 115 percent of median and 81 percent of last year.

Mountain precipitation according to SNOTEL stations during April was 150 percent of average and 110 percent of last year. Water year precipitation, beginning October 1, 2012, was 113 percent of average and 95 percent of last year.

Lake Koocanusa storage at the end of April was 132 percent of average and 113 percent of last year.

Assuming average precipitation, May through July streamflows are forecast to average 102 percent.

KOOTENAI RIVER BASIN in Montana  
Streamflow Forecasts - May 1, 2013

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90%		50%		30%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Tobacco R nr Eureka	MAY-JUL	78	94	105	104	116	132	101
	MAY-SEP	88	106	119	104	132	150	114
Libby Reservoir Inflow (1,2)	MAY-JUL	4110	4710	4980	103	5250	5850	4820
	MAY-SEP	4950	5580	5870	102	6160	6790	5730
Fisher River nr Libby	MAY-JUL	91	114	130	96	146	169	136
	MAY-SEP	102	127	144	96	161	186	150
Yaak River nr Troy	MAY-JUL	235	285	320	103	355	405	310
	MAY-SEP	250	305	340	103	375	430	330
Kootenai R at Leonia (1,2)	MAY-JUL	4449	5371	5790	101	6209	7131	5730
	MAY-SEP	5653	6517	6910	103	7303	8167	6730

KOOTENAI RIVER BASIN in Montana  
Reservoir Storage (1000 AF) - End of April

KOOTENAI RIVER BASIN in Montana  
Watershed Snowpack Analysis - May 1, 2013

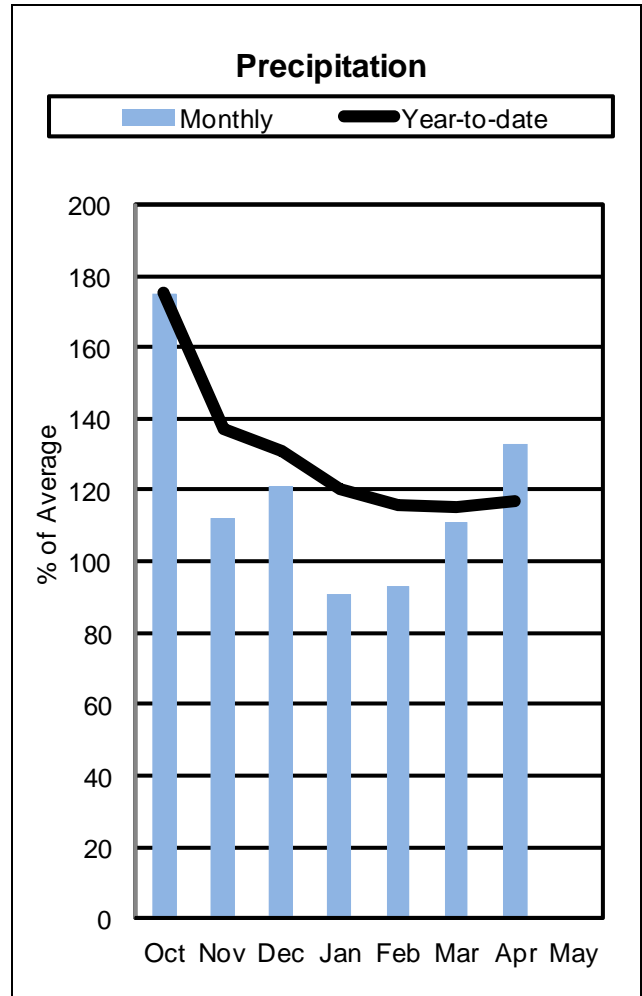
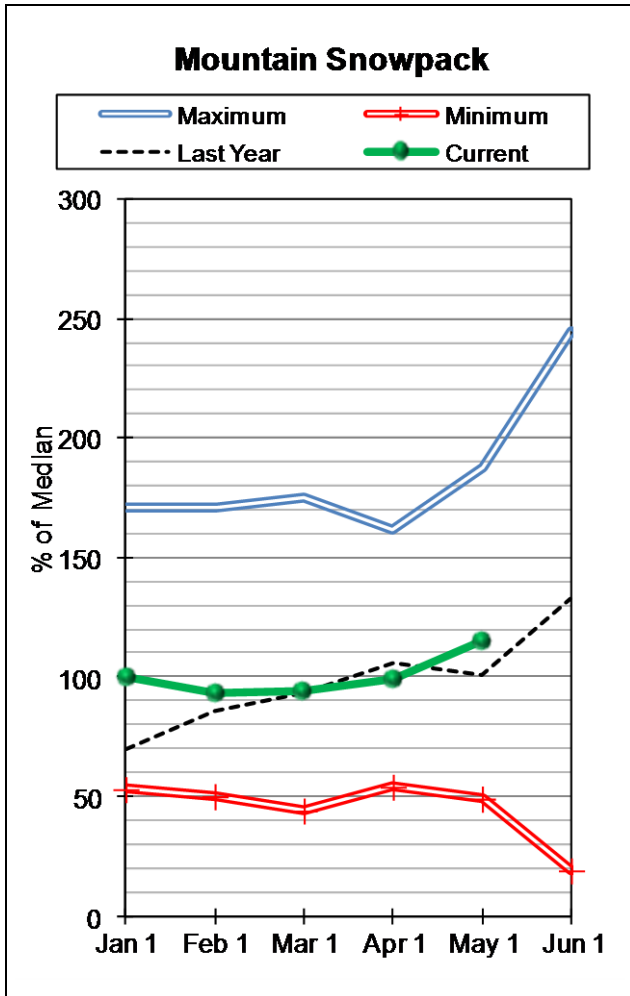
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
LAKE KOOCANUSA	5748.0	3453.0	3047.0	2614.0	KOOTENAY in CANADA	16	83	112
					KOOTENAI MAINTSTEM	3	80	113
					TOBACCO	3	89	115
					FISHER	5	83	115
					YAAK	2	64	119
					KOOTENAI in MONTANA	13	81	115
					KOOTENAI ab BONNERS FERRY	29	82	114

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

The average is computed for the 1981-2010 base period.

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

# Flathead River Basin



Snowpack conditions in the Flathead River Basin peaked at 103 percent of normal. On May 1 snow water content was 115 percent of median and 98 percent of last year.

Mountain precipitation during April was 133 percent of average and 110 percent of last year. Water year precipitation, beginning October 1, 2012, was 117 percent of average and 99 percent of last year.

Hungry Horse Reservoir storage at the end of April was 123 percent of average and 96 percent of last year. Flathead Lake storage at the end of April was 103 percent of average and 77 percent of last year.

Assuming average precipitation, May through July streamflows are forecast to average 115 percent.



FLATHEAD RIVER BASIN  
Streamflow Forecasts - May 1, 2013

Forecast Point	Forecast Period	<<==== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90%		50%		10%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
NF Flathead R nr Columbia Falls	MAY-JUL	1330	1440	1520	115	1600	1710	1320
	MAY-SEP	1480	1610	1700	115	1790	1920	1480
MF Flathead R nr West Glacier	MAY-JUL	1290	1420	1510	116	1600	1730	1300
	MAY-SEP	1410	1550	1650	115	1750	1890	1430
SF Flathead R nr Hungry Horse	MAY-JUL	1030	1120	1180	116	1240	1330	1020
	MAY-SEP	1100	1200	1260	115	1320	1420	1100
Hungry Horse Reservoir Inflow (1,2)	MAY-JUL	1520	1730	1820	115	1910	2120	1580
	MAY-SEP	1620	1850	1950	115	2050	2280	1690
Flathead R at Columbia Falls (2)	MAY-JUL	4380	4720	4960	116	5200	5540	4290
	MAY-SEP	4780	5170	5430	115	5690	6080	4720
Ashley Ck nr Marion (2)	MAY	1.8	2.4	2.8	108	3.2	3.9	2.6
Swan R nr Bigfork	MAY-JUL	395	435	465	107	495	535	435
	MAY-SEP	465	515	545	107	575	625	510
Flathead Lake Inflow (1,2)	MAY-JUL	4790	5420	5700	115	5980	6610	4940
	MAY-SEP	5180	5890	6220	115	6550	7260	5400
Mill Ck ab Bassoo Ck nr Niarada	MAY-JUL	1.3	2.1	2.6	90	3.1	3.9	2.9
	MAY-SEP	1.6	2.4	2.9	91	3.4	4.2	3.2
South Crow Ck nr Ronan	MAY-JUL	7.5	8.7	9.5	103	10.3	11.5	9.2
	MAY-SEP	8.8	10.1	11.0	104	11.9	13.2	10.6
Mission Ck nr St. Ignatius	MAY-JUL	21	23	24	100	25	27	24
	MAY-SEP	25	27	29	100	31	33	29
Sf Jocko R nr Arlee	MAY-JUL	26	29	31	107	33	36	29
	MAY-SEP	29	33	35	106	37	41	33
NF Jocko R bl Tabor Feeder Canal	MAY-JUL	26	28	29	104	30	32	28
	MAY-SEP	27	30	31	103	32	35	30

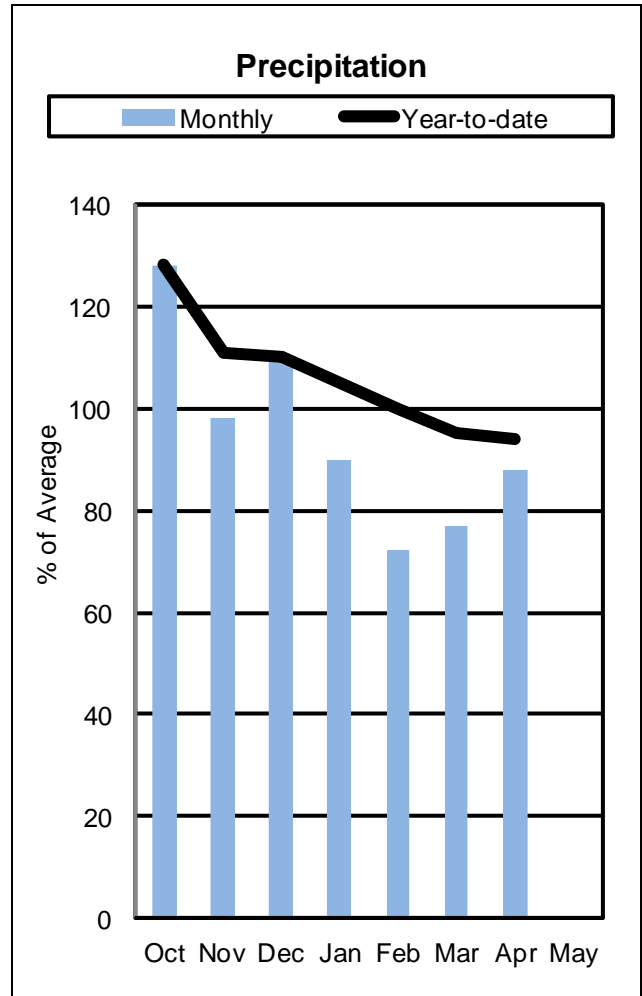
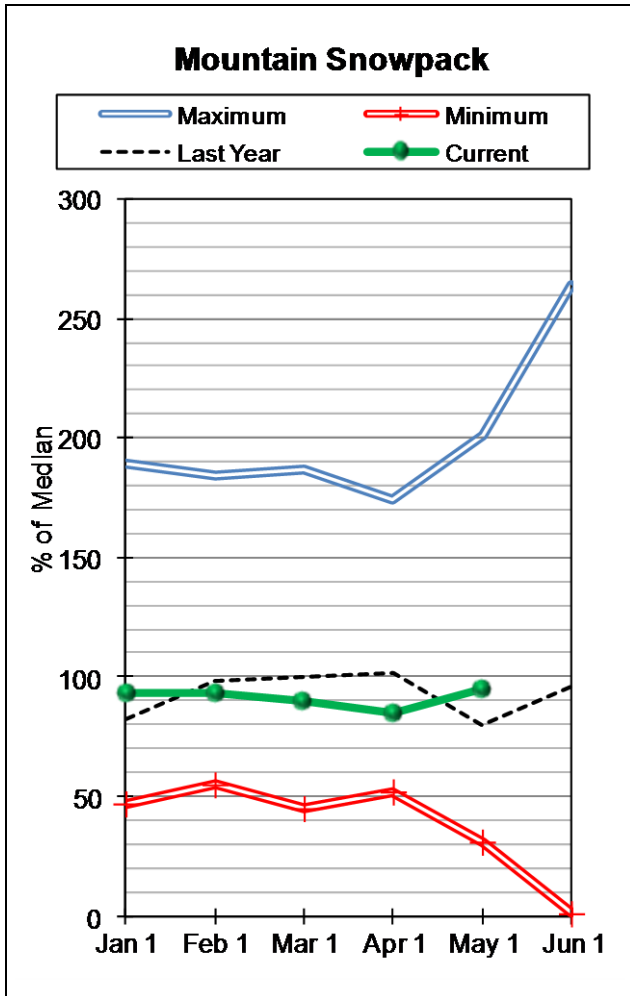
FLATHEAD RIVER BASIN Reservoir Storage (1000 AF) - End of April					FLATHEAD RIVER BASIN Watershed Snowpack Analysis - May 1, 2013			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
CAMAS (4)	45.2	38.4	39.0	26.9	NF FLATHEAD in CANADA	2	72	108
LOWER JOCKO LAKE	6.4	0.9	2.4	0.8	NF FLATHEAD in MONTANA	8	90	108
MISSION VALLEY (8)	100.0	24.1	44.9	40.1	MIDDLE FORK FLATHEAD	5	100	108
HUNGRY HORSE	3451.0	2690.6	2805.0	2188.0	SOUTH FORK FLATHEAD	6	110	108
FLATHEAD LAKE	1791.0	999.1	1303.0	971.5	STILLWATER-WHITEFISH	9	90	110
					SWAN	6	104	113
					MISSION VALLEY	4	97	113
					LITTLE BITTERROOT-ASHLEY	5	129	153
					JOCKO	4	98	116
					FLATHEAD in MONTANA	34	98	111
					FLATHEAD RIVER BASIN	36	97	110

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

The average is computed for the 1981-2010 base period.

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

# Upper Clark Fork River Basin



Snowpack conditions in the Upper Clark Fork River Basin were peaked at 95 percent of normal. On May 1 snow water content was 95 percent of median and 96 percent of last year.

Mountain precipitation according to SNOTEL stations during April was 88 percent of average and 85 percent of last year. Water year precipitation, beginning October 1, 2012, was 94 percent of average and 83 percent of last year.

East Fork Rock Creek storage was 116 percent of average and 80 percent of last year; and Nevada Creek storage was 75 percent of average and 64 percent of last year.

Assuming average precipitation, May through July streamflows are forecast to average 74 percent.

UPPER CLARK FORK RIVER BASIN  
Streamflow Forecasts - May 1, 2013

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90%		50%		30%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Little Blackfoot R nr Garrison	MAY-JUL	11.6	27	37	66	47	62	56
	MAY-SEP	14.2	31	42	67	53	70	63
Flint Ck nr Southern Cross	MAY-JUL	0.5	3.7	5.9	56	8.1	11.3	10.5
	MAY-SEP	0.1	4.1	6.8	54	9.5	13.5	12.7
Flint Ck bl Boulder Ck	MAY-JUL	7.7	19.8	28	62	36	48	45
	MAY-SEP	13.9	28	38	64	48	62	59
Lower Willow Ck Reservoir Inflow (2)	MAY	0.2	0.6	1.6	33	2.8	4.5	5.0
	MAY-JUL	0.3	1.0	2.2	26	3.9	6.5	8.5
MF Rock Ck nr Philipsburg	MAY-JUL	17.9	29	36	68	43	54	53
	MAY-SEP	22	34	42	70	50	62	60
Rock Ck nr Clinton	MAY-JUL	51	101	135	61	169	220	220
	MAY-SEP	72	126	163	65	200	255	250
Clark Fork R ab Milltown	MAY-JUL	31	167	260	58	355	490	445
	MAY-SEP	73	225	325	61	425	575	530
Nevada Ck nr Helmville	MAY	0.0	2.3	3.8	73	5.3	7.6	5.2
	MAY-JUL	0.5	4.8	7.7	70	10.6	14.9	11.0
Blackfoot R nr Bonner	MAY-JUL	390	475	530	90	585	670	590
	MAY-SEP	455	545	605	90	665	755	675
Clark Fork R ab Missoula	MAY-JUL	440	650	795	77	940	1150	1030
	MAY-SEP	560	785	940	78	1090	1320	1200

UPPER CLARK FORK RIVER BASIN  
Reservoir Storage (1000 AF) - End of April

UPPER CLARK FORK RIVER BASIN  
Watershed Snowpack Analysis - May 1, 2013

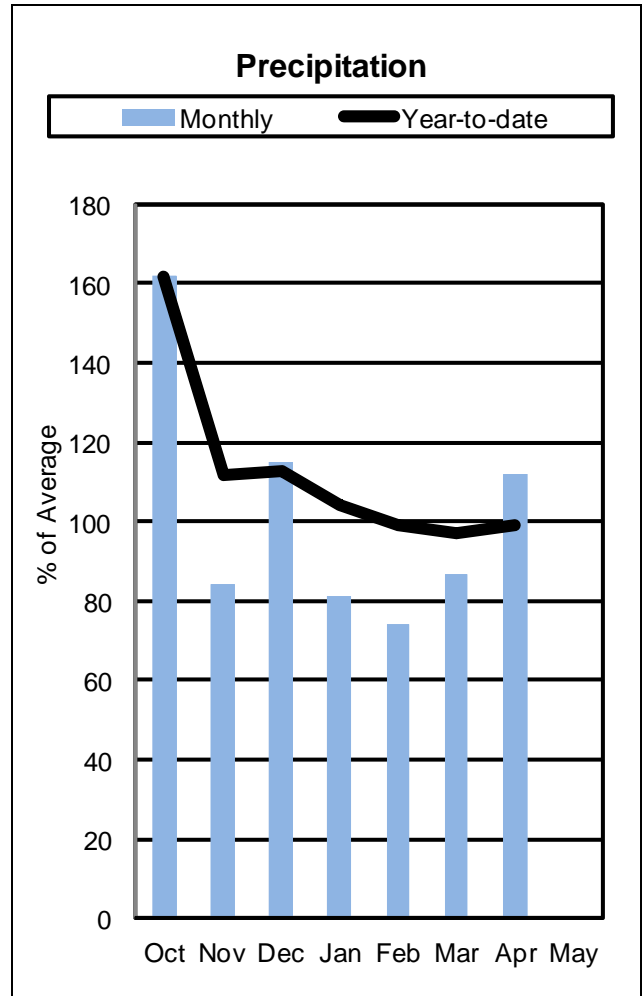
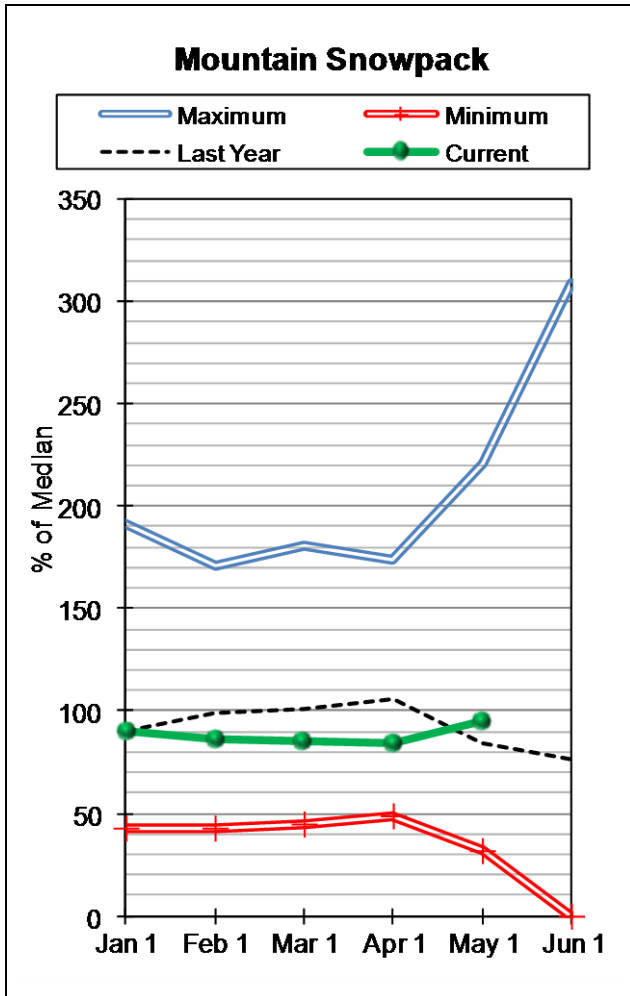
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
EAST FORK ROCK CREEK	15.6	10.7	13.3	9.2	CLARK FORK ab FLINT CREEK	12	99	85
GEORGETOWN LAKE		NO REPORT			FLINT CREEK	5	118	78
LOWER WILLOW CREEK		NO REPORT			ROCK CREEK	5	98	84
NEVADA CREEK	12.6	7.4	11.5	9.9	CLARK FORK ab BLACKFOOT	20	101	84
					BLACKFOOT	13	90	107
					UPPER CLARK FORK BASIN	30	96	93

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

The average is computed for the 1981-2010 base period.

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

# Bitterroot River Basin



Snowpack conditions in the Bitterroot River Basin peaked at 83 percent of normal. On May 1 snow water content was 85 percent of median and 88 percent of last year.

Mountain precipitation according to SNOTEL stations during April was 112 percent of average and 109 percent of last year. Water year precipitation, beginning October 1, 2012, was 99 percent of average and 87 percent of last year.

Como storage was 98 percent of average and 79 percent of last year.

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

BITTERROOT RIVER BASIN  
Streamflow Forecasts - May 1, 2013

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90%		50%		30%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
WF Bitterroot R nr Conner (2)	MAY-JUL	58	79	93	85	107	128	109
	MAY-SEP	61	86	103	86	120	145	120
Bitterroot R nr Darby	MAY-JUL	210	270	310	86	350	410	360
	MAY-SEP	265	325	370	88	415	475	420
Como Reservoir Inflow (2)	MAY-JUL	51	58	63	96	68	75	66
	MAY-SEP	53	61	66	96	71	79	69
Bitterroot R nr Missoula	MAY-JUL	675	800	890	90	980	1110	990
	MAY-SEP	750	895	990	91	1090	1230	1090

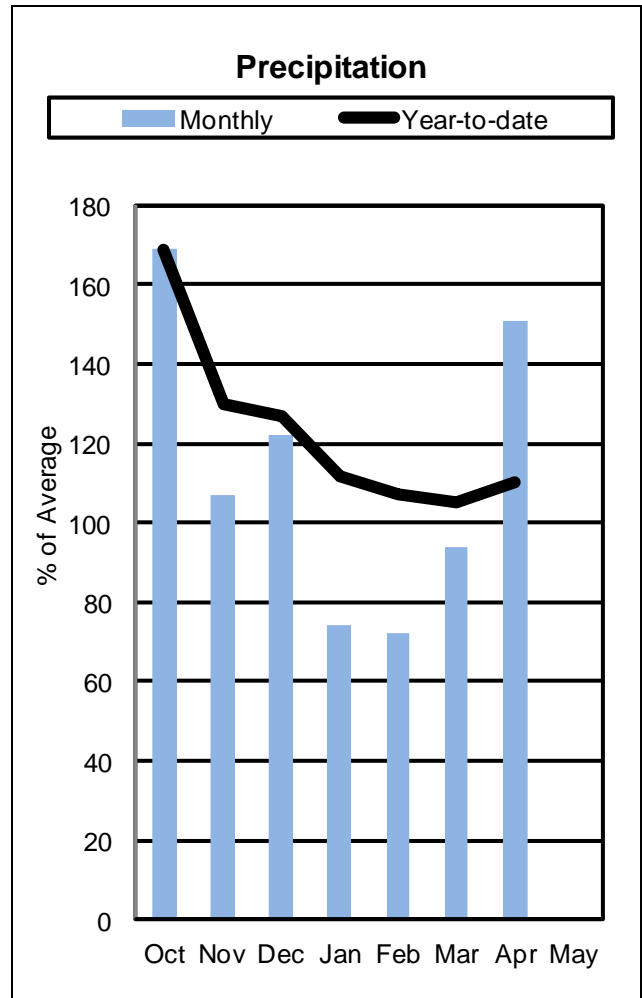
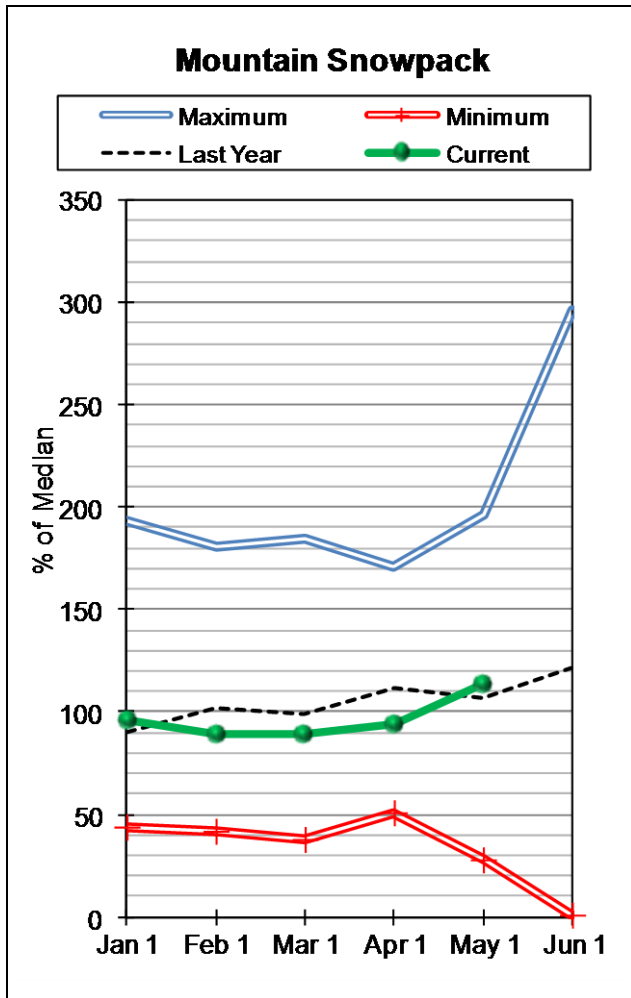
BITTERROOT RIVER BASIN Reservoir Storage (1000 AF) - End of April					BITTERROOT RIVER BASIN Watershed Snowpack Analysis - May 1, 2013			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
PAINTED ROCKS LAKE	31.7	23.0	32.4	18.7	WEST FORK BITTERROOT	2	104	98
COMO	34.9	21.6	27.3	22.1	EAST SIDE BITTERROOT	4	95	85
					WEST SIDE BITTERROOT	3	82	105
					BITTERROOT RIVER BASIN	8	88	95

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

The average is computed for the 1981-2010 base period.

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

# Lower Clark Fork River Basin



Snowpack conditions in the Lower Clark Fork River Basin peaked at 88 percent of normal. On May 1 snow water content was 114 percent of median and 88 percent of last year.

Mountain precipitation according to SNOTEL stations during April was 151 percent of average and 128 percent of last year. Water year precipitation, beginning October 1, 2012, was 110 percent of average and 98 percent of last year.

Storage at the end of April in Noxon Rapids was 101 percent of average and 94 percent of last year.

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

LOWER CLARK FORK RIVER BASIN  
Streamflow Forecasts - May 1, 2013

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>				30-Yr Avg. (1000AF)						
		90% (1000AF)		70% (1000AF)			Chance Of Exceeding * 50% (1000AF) (% AVG.)		30% (1000AF)		10% (1000AF)	
Clark Fork R bl Missoula	MAY-JUL	1170	1490	1710	84	1930	2250	2030				
	MAY-SEP	1360	1710	1950	85	2190	2540	2300				
Clark Fork R at St. Regis (1)	MAY-JUL	1390	1970	2240	85	2510	3090	2640				
	MAY-SEP	1630	2270	2560	86	2850	3490	2990				
Clark Fork R nr Plains (1,2)	MAY-JUL	6510	7690	8220	106	8750	9930	7780				
	MAY-SEP	7160	8500	9110	105	9720	11100	8650				
Thompson R nr Thompson Falls	MAY-JUL	71	99	118	86	137	165	138				
	MAY-SEP	88	119	140	87	161	192	161				
Prospect Ck at Thompson Falls	MAY-JUL	47	59	67	88	75	87	76				
	MAY-SEP	54	66	74	88	82	94	84				
Clark Fork at Whitehorse Rpds (1,2)	MAY-JUL	7350	8620	9190	105	9760	11000	8740				
	MAY-SEP	8120	9550	10200	105	10900	12300	9760				

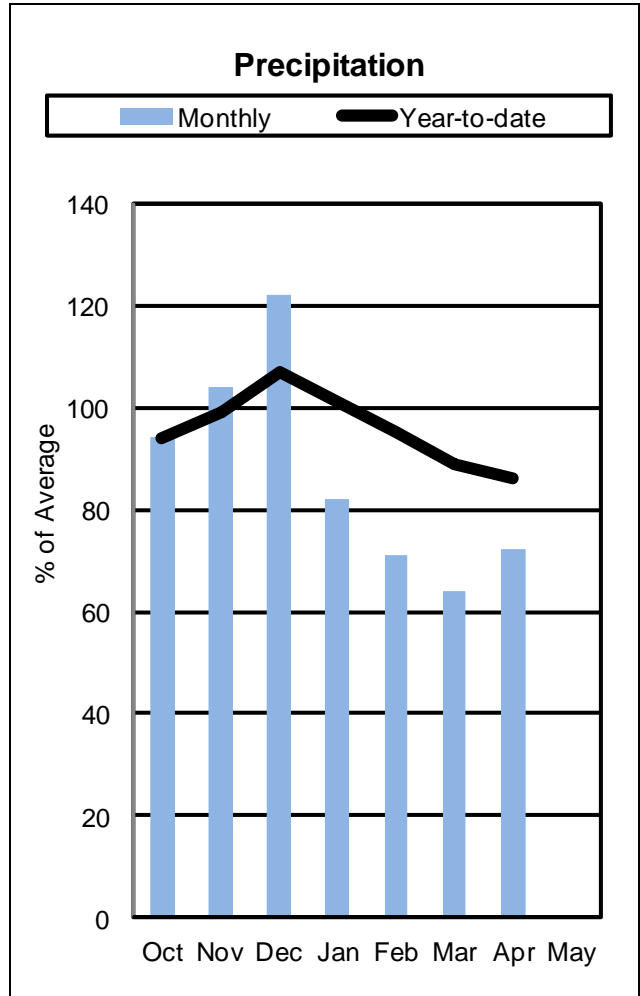
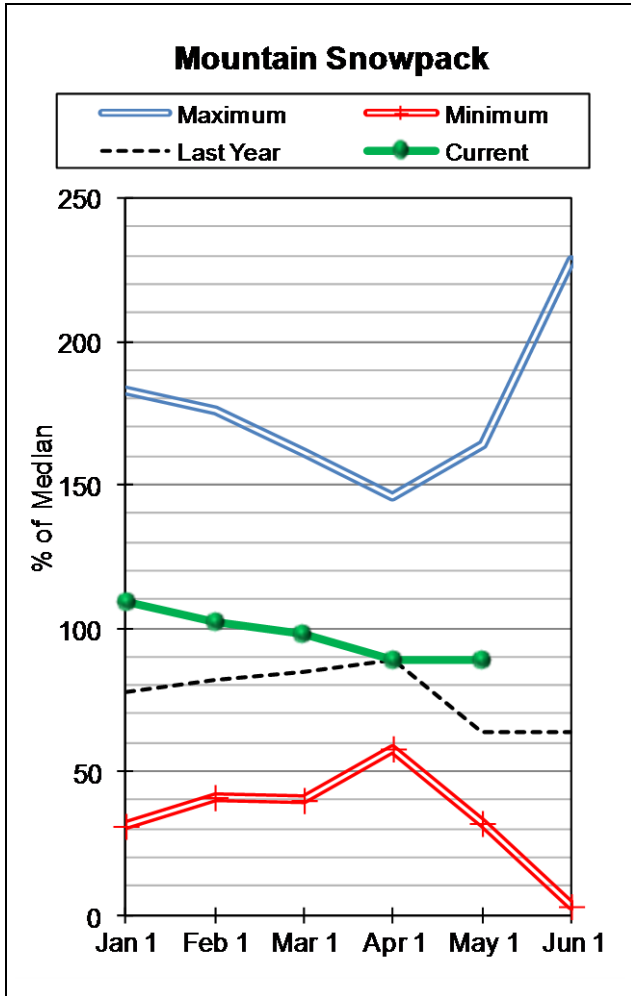
LOWER CLARK FORK RIVER BASIN Reservoir Storage (1000 AF) - End of April					LOWER CLARK FORK RIVER BASIN Watershed Snowpack Analysis - May 1, 2013			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
NOXON RAPIDS	335.0	310.8	329.8	307.4	LOWER CLARK FORK BASIN	11	88	114

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

The average is computed for the 1981-2010 base period.

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

# Jefferson River Basin



Snowpack conditions in the Jefferson River Basin peaked at 88 percent of normal. On May 1 snow water content was 89 percent of median and 128 percent of last year.

Mountain precipitation according to SNOTEL stations during April was 72 percent of average and 72 percent of last year. Water year precipitation, beginning October 1, 2012, was 86 percent of average and 82 percent of last year.

Lima storage was 115 percent of average and 81 percent of last year; Clark Canyon storage was 97 percent of average and 78 percent of last year.

Assuming average precipitation, May through July streamflows are forecast to average 67 percent.



JEFFERSON RIVER BASIN  
Streamflow Forecasts - May 1, 2013

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90%		50%		10%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Lima Reservoir Inflow (2)	MAY-JUL	21	32	40	70	48	59	57
	MAY-SEP	23	36	45	70	54	67	64
Clark Canyon Reservoir Inflow (2)	MAY-JUL	-25.0	10.3	34	53	58	93	64
	MAY-SEP	-12.4	25	51	61	77	114	83
Beaverhead R at Barretts (2)	MAY-JUL	-5.0	13.2	51	60	89	144	85
	MAY-SEP	4.0	24	69	62	114	181	111
Ruby R Reservoir Inflow (2)	MAY-JUL	19.9	34	43	64	52	66	67
	MAY-SEP	28	44	55	67	66	82	82
Big Hole R at Wisdom	MAY-JUL	8.5	35	53	71	71	98	75
	MAY-SEP	6.4	35	55	69	75	104	80
Big Hole R nr Melrose	MAY-JUL	235	295	335	76	375	435	440
	MAY-SEP	260	330	375	78	420	490	480
Jefferson R nr Twin Bridges (2)	MAY-JUL	71	230	340	66	450	610	515
	MAY-SEP	62	250	380	69	510	700	555
Boulder R nr Boulder	MAY-JUL	27	38	45	75	52	63	60
	MAY-SEP	28	41	49	75	57	70	65
Willow Ck Reservoir Inflow (2)	MAY-JUL	0.8	5.5	8.7	60	11.9	16.6	14.4
	MAY-SEP	1.6	6.7	10.1	60	13.5	18.6	16.8
Jefferson R nr Three Forks (2)	MAY-JUL	64	235	355	62	475	645	575
	MAY-SEP	55	250	385	61	520	715	635

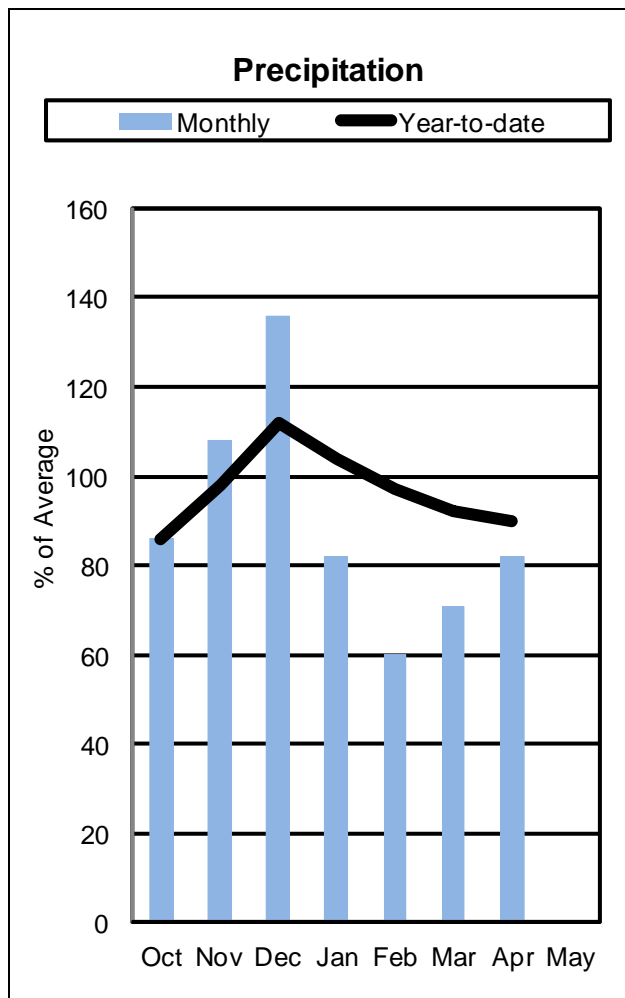
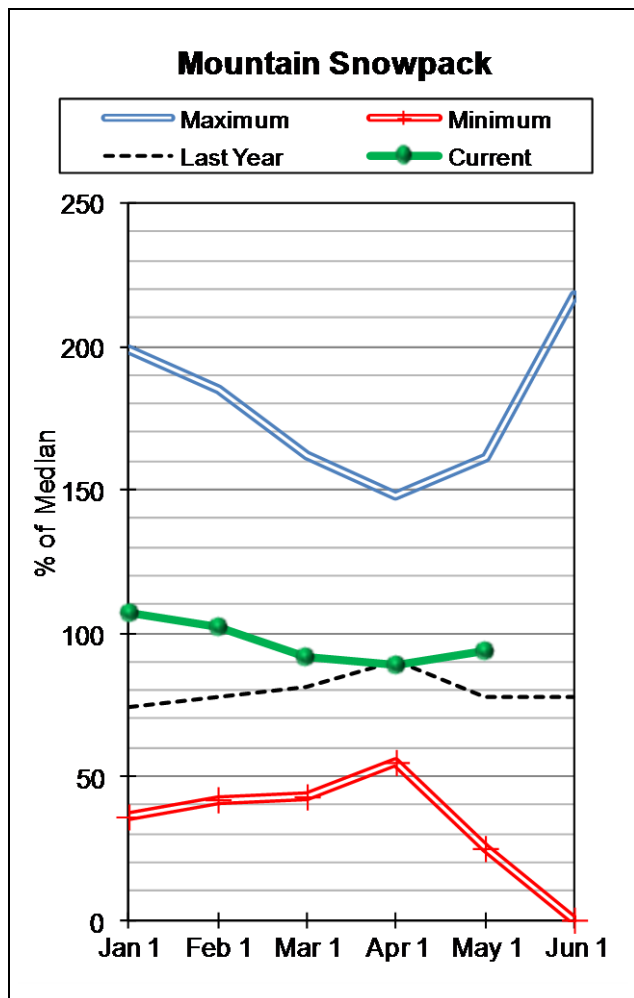
JEFFERSON RIVER BASIN Reservoir Storage (1000 AF) - End of April					JEFFERSON RIVER BASIN Watershed Snowpack Analysis - May 1, 2013			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
LIMA	84.0	62.3	77.2	54.4	BEAVERHEAD	10	146	93
CLARK CANYON	255.6	137.9	175.7	141.6	RUBY	5	115	90
RUBY RIVER	38.8	36.1	38.0	36.7	BIGHOLE	12	125	90
					BOULDER	6	132	88
					JEFFERSON RIVER BASIN	27	128	89

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

The average is computed for the 1981-2010 base period.

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

# Madison River Basin



Snowpack conditions in the Madison River Basin peaked at 93 percent of normal. On May 1 snow water content was 94 percent of median and 100 percent of last year.

Mountain precipitation according to SNOTEL stations during April was 81 percent of average and 63 percent of last year. Water year precipitation, beginning October 1, 2012, was 90 percent of average and 80 percent of last year.

Ennis Lake storage at the end of April was 95 percent of average and 98 percent of last year and Hebgen Lake storage was 100 percent of average and 90 percent of last year.

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

MADISON RIVER BASIN  
Streamflow Forecasts - May 1, 2013

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90%		50%		30%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Hebgen Reservoir Inflow (2)	MAY-JUL	230	260	280	92	300	330	305
	MAY-SEP	315	350	375	93	400	435	405
Ennis Reservoir Inflow (2)	MAY-JUL	355	420	465	88	510	575	530
	MAY-SEP	475	550	605	89	660	735	680

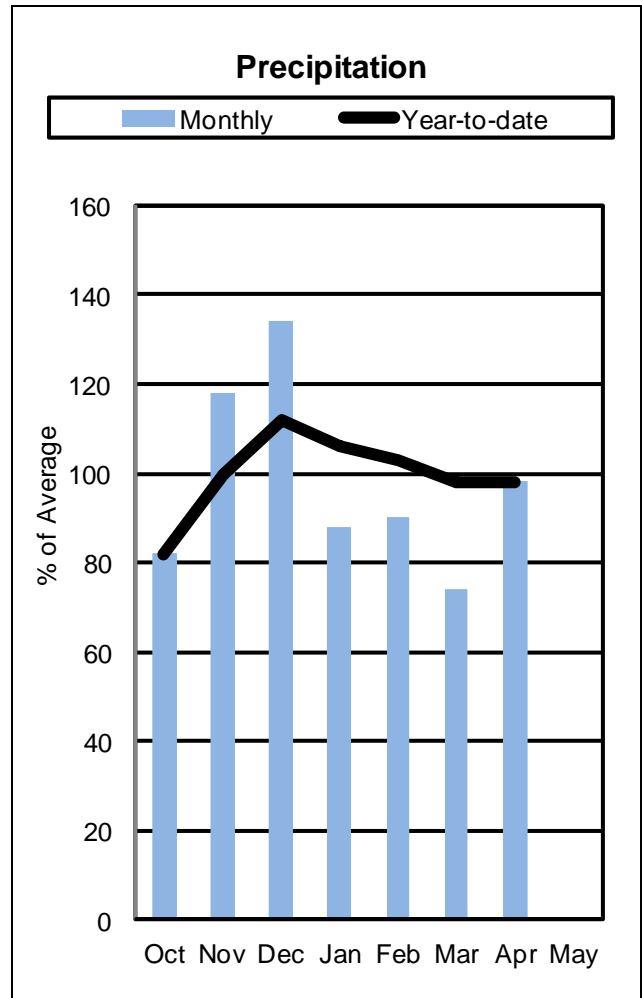
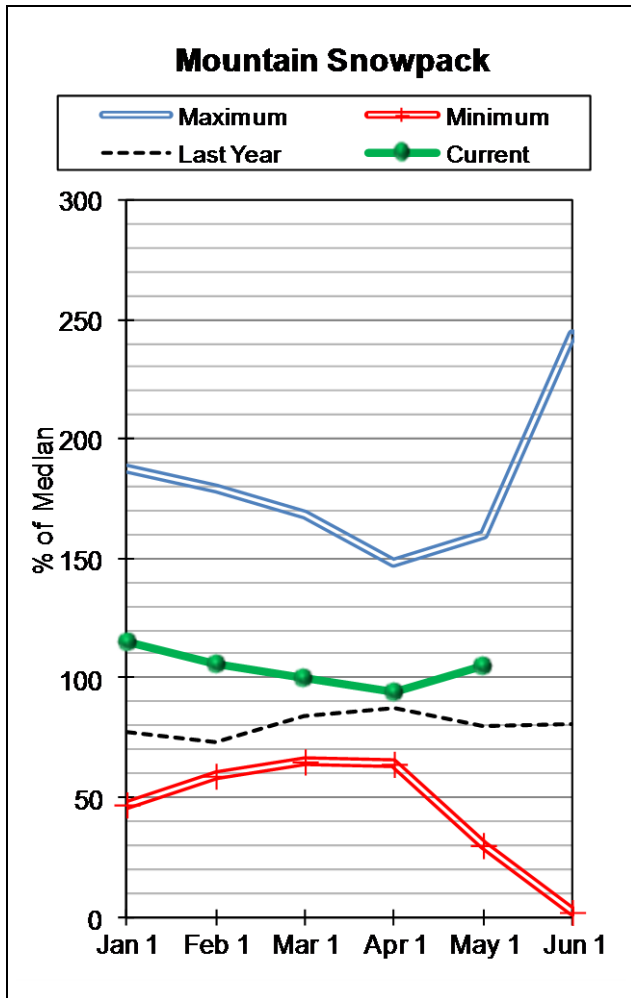
Reservoir	MADISON RIVER BASIN Reservoir Storage (1000 AF) - End of April				MADISON RIVER BASIN Watershed Snowpack Analysis - May 1, 2013			
	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg	Watershed	Number of Data Sites	This Year as % of Last Yr	as % of Median
ENNIS LAKE	41.0	30.7	31.4	32.4	MADISON abv HEBGEN LAKE	6	92	97
HEBGEN LAKE	377.5	276.4	307.0	276.7	MADISON blw HEBGEN LAKE	7	105	92
					MADISON RIVER BASIN	13	100	94

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

The average is computed for the 1981-2010 base period.

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

# Gallatin River Basin



Snowpack conditions in the Gallatin River Basin peak at 100 percent of normal. On May 1 snow water content was 105 percent of median and 116 percent of last year.

Mountain precipitation according to SNOTEL stations during April was 98 percent of average and 64 percent of last year. Water year precipitation, beginning October 1, 2012, was 98 percent of average and 86 percent of last year.

Middle Creek storage was 84 percent of average and 88 percent of last year.

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

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GALLATIN RIVER BASIN  
Streamflow Forecasts - May 1, 2013

=====

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90%		50%		30%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Gallatin R nr Gateway	MAY-JUL	280	325	350	95	375	420	370
	MAY-SEP	330	380	410	93	440	490	440
Hyalite Reservoir Inflow (2)	MAY-JUL	14.8	16.6	17.8	96	19.0	21	18.5
	MAY-SEP	16.6	18.6	20	95	21	23	21
Gallatin R at Logan	MAY-JUL	215	295	345	91	395	475	380
	MAY-SEP	250	340	405	91	470	560	445

GALLATIN RIVER BASIN Reservoir Storage (1000 AF) - End of April					GALLATIN RIVER BASIN Watershed Snowpack Analysis - May 1, 2013			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
MIDDLE CREEK	10.2	5.2	5.9	6.2	UPPER GALLATIN	7	123	106
					HYALITE	3	112	106
					BRIDGER	2	103	104
					GALLATIN RIVER BASIN	12	117	105

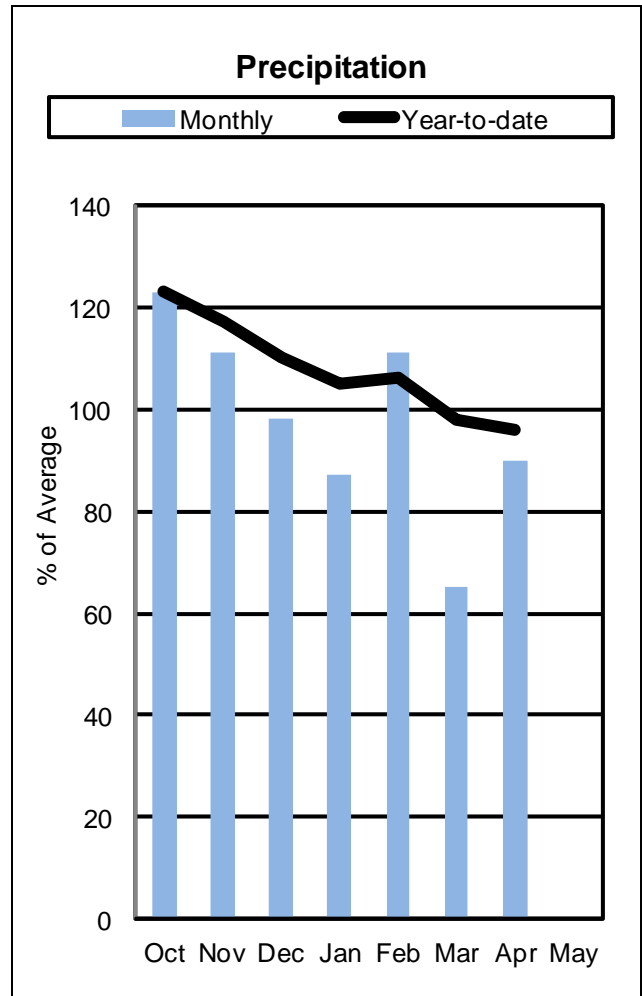
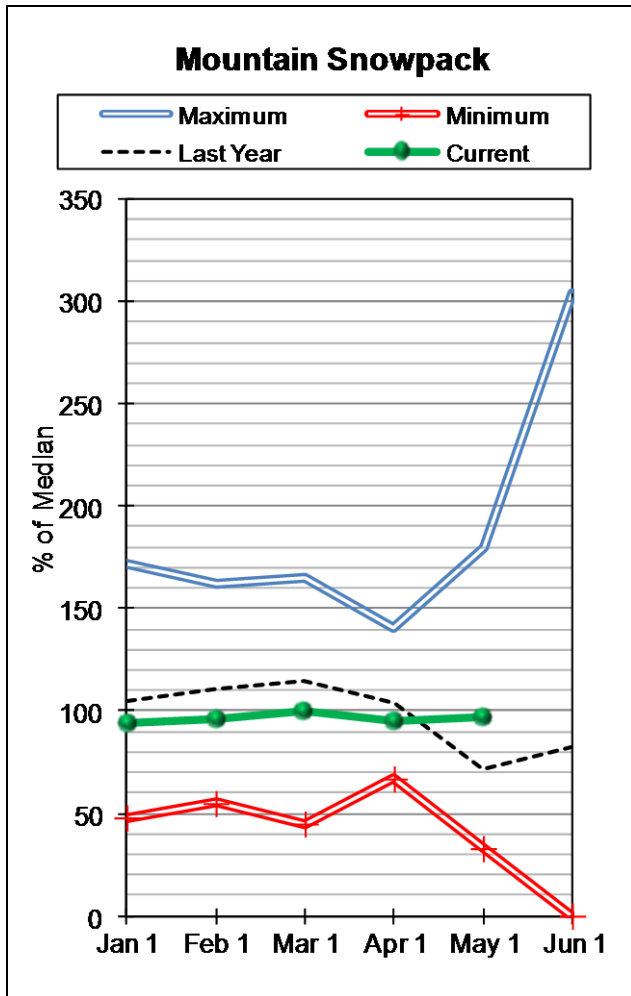
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\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period.

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

# Missouri Mainstem River Basin



Snowpack conditions in the Headwaters Missouri Mainstem River Basin peaked at 92 percent of normal. On May 1 snow water content was 97 percent of median and 115 percent of last year.

Mountain precipitation according to SNOTEL stations during April was 90 percent of average and 85 percent of last year. Water year precipitation, beginning October 1, 2012, was 96 percent of average and 80 percent of last year.

Canyon Ferry Lake storage was 96 percent of average and 89 percent of last year; Helena Valley storage was 112 percent of average and 131 percent of last year; Lake Helena storage was 101 percent of average and 98 percent of last year; Hauser & Helena storage was 99 percent of average and 99 percent of last year; Holter Lake storage was 101 percent of average and 100 percent of last year; and Fort Peck Lake storage was 97 percent of average and 83 percent of last year.

Assuming average precipitation, May through July streamflows are forecast to average 85 percent.

MISSOURI MAINSTEM RIVER BASIN  
Streamflow Forecasts - May 1, 2013

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		===== Wetter =====>				
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Missouri R at Toston (2)	MAY-JUL	755	1030	1220	82	1410	1680	1480
	MAY-SEP	875	1220	1450	82	1680	2020	1760
Dearborn R nr Craig	MAY-JUL	34	60	77	101	94	120	76
	MAY-SEP	39	66	84	102	102	129	82
Missouri R at Fort Benton (2)	MAY-JUL	1160	1550	1820	83	2090	2480	2190
	MAY-SEP	1400	1910	2250	84	2590	3100	2680
Missouri R nr Virgelle (2)	MAY-JUL	1400	1850	2150	86	2450	2900	2510
	MAY-SEP	1590	2180	2580	85	2980	3570	3030
Missouri R nr Landusky (2)	MAY-JUL	1540	1980	2270	86	2560	3000	2650
	MAY-SEP	1770	2350	2740	86	3130	3710	3200
Missouri R Blw Ft Peck Dam (2)	MAY-JUL	1400	1930	2280	84	2630	3160	2700
	MAY-SEP	1420	2140	2620	83	3100	3820	3160
Lake Sakakawea Inflow (2)	MAY-JUL	4360	5420	6140	85	6860	7920	7230
	MAY-SEP	4320	5890	6950	84	8010	9580	8320

MISSOURI MAINSTEM RIVER BASIN  
Reservoir Storage (1000 AF) - End of April

MISSOURI MAINSTEM RIVER BASIN  
Watershed Snowpack Analysis - May 1, 2013

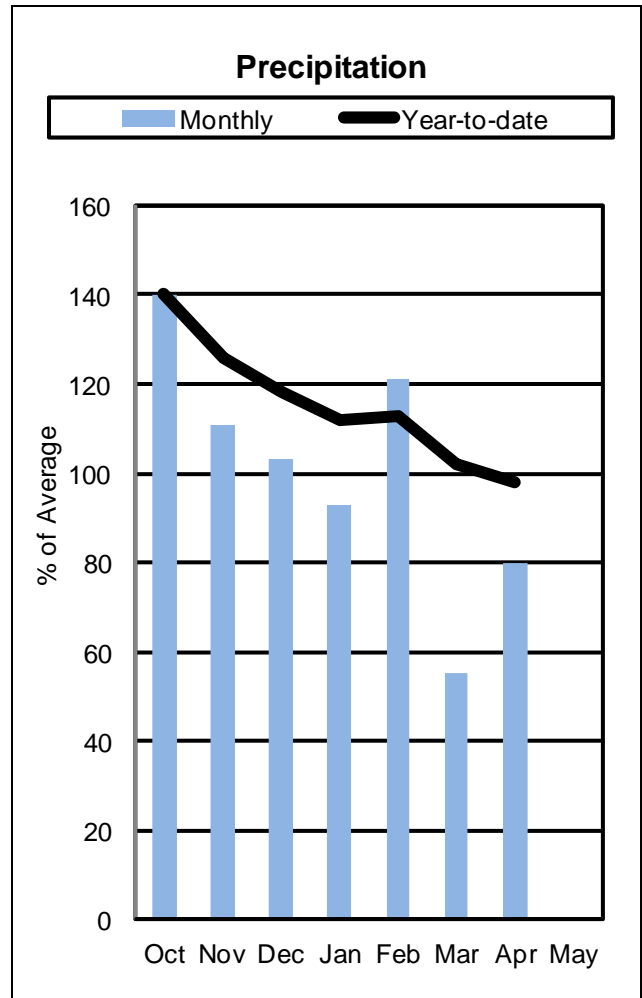
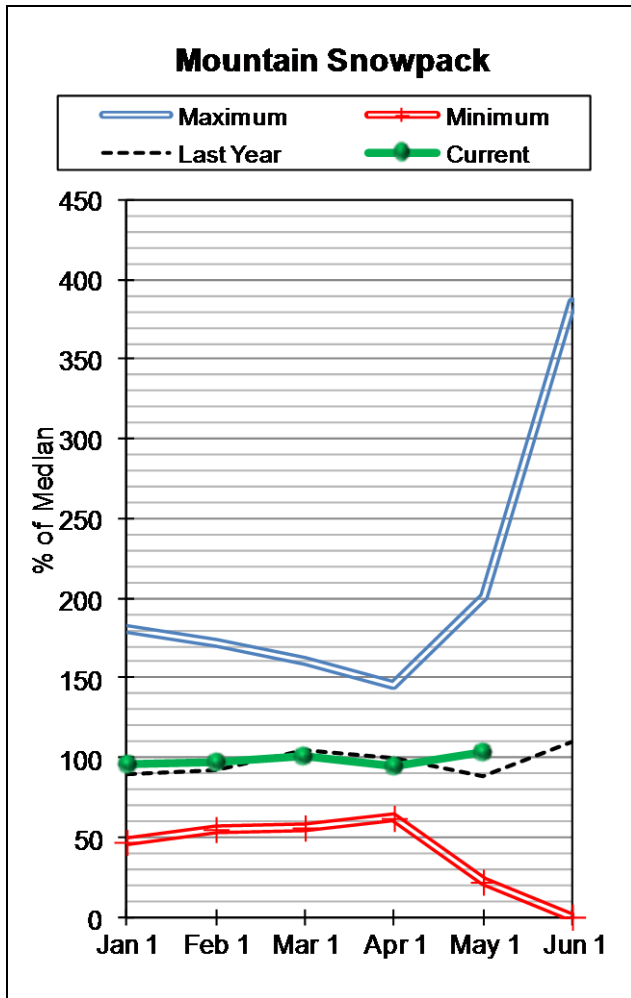
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
CANYON FERRY LAKE	2043.0	1425.4	1610.0	1480.0	HEADWATERS MAINSTEM	9	115	97
HELENA VALLEY	9.2	9.2	7.0	8.2	SMITH-JUDITH-MUSSELSHELL	11	104	103
LAKE HELENA	12.7	10.9	11.0	10.8	SUN-TETON-MARIAS	11	98	98
HAUSER & HELENA	74.6	73.8	74.4	74.2	MAINSTEM ab FT PECK RES	30	105	100
HOLTER LAKE	81.9	81.2	81.1	80.6	MILK RIVER BASIN	3	95	125
FORT PECK LAKE	18910.0	12777.0	15370.0	13138.0	MISSOURI MAINSTEM BASIN	32	105	105

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

The average is computed for the 1981-2010 base period.

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

# Smith-Judith-Musselshell River Basins



Snowpack conditions in the Smith-Judith-Musselshell River Basins peak at 99 percent of normal. On May 1 snow water content was 103 percent of median and 105 percent of last year. Snow water content in the Smith River Basin was 105 percent of median and 108 percent of last year; the Judith River Basin was 104 percent of median and 105 percent of last year; and the Musselshell Basin River was 83 percent of median and 79 percent of last year.

Mountain precipitation according to SNOTEL stations during April in all three basins was 80 percent of average and 60 percent of last year. Water year precipitation for the greater basin, beginning October 1, 2012, was 98 percent of average and 81 percent of last year.

Ackley storage was 88 percent of average and 69 percent of last year; Bair storage was 109 percent of average and 68 percent of last year; Martinsdale storage was 64 percent of average and 45 percent of last year.

Assuming average precipitation, May through July streamflows are forecast to average 76 percent.



SMITH-JUDITH-MUSSELSHELL RIVER BASINS  
Streamflow Forecasts - May 1, 2013

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90%		50%		10%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Sheep Ck nr White Sulphur Springs	MAY-JUL	8.0	11.0	13.0	97	15.0	18.0	13.4
	MAY-SEP	9.7	13.3	15.8	98	18.3	22	16.2
Smith R bl Eagle Ck (2)	MAY-JUL	40	67	86	97	105	132	89
	MAY-SEP	41	74	97	98	120	153	99
NF Musselshell R nr Delpine	MAY-JUL	0.6	2.0	3.0	91	4.0	5.4	3.3
	MAY-SEP	0.9	2.6	3.7	90	4.8	6.5	4.1
SF Musselshell R ab Martinsdale	MAY-JUL	7.5	14.2	27	73	40	59	37
	MAY-SEP	7.5	15.7	29	73	42	62	40
Musselshell R at Harlowton (2)	MAY-JUL	-5.0	12.2	33	69	54	85	48
	MAY-SEP	-4.0	10.6	33	66	55	88	50
Musselshell R nr Roundup (2)	MAY-JUL	1.0	12.7	25	46	37	55	54
	MAY-SEP	1.0	8.2	21	39	34	52	54

SMITH-JUDITH-MUSSELSHELL RIVER BASINS  
Reservoir Storage (1000 AF) - End of April

SMITH-JUDITH-MUSSELSHELL RIVER BASINS  
Watershed Snowpack Analysis - May 1, 2013

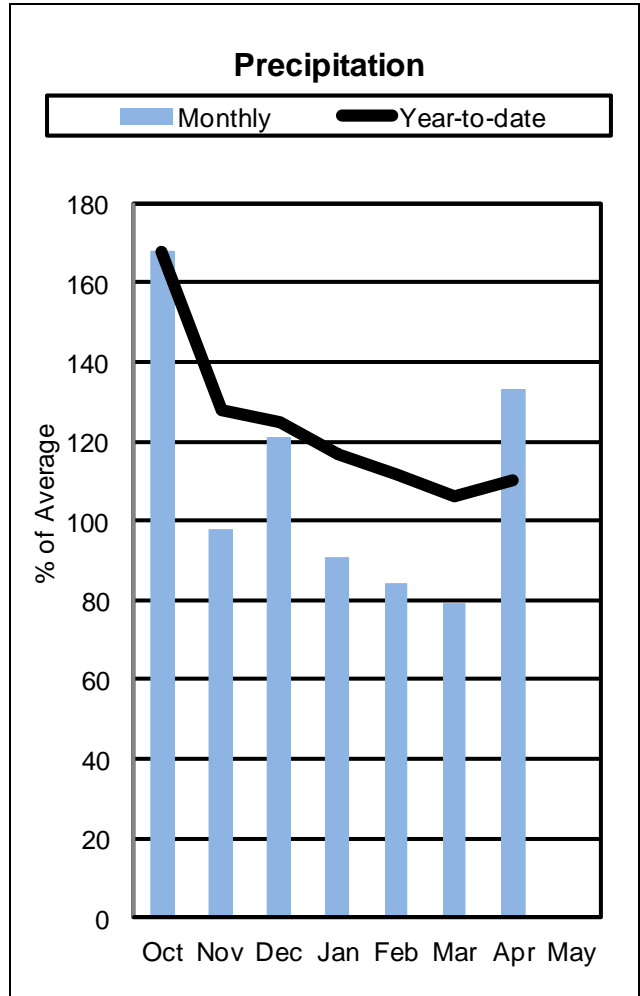
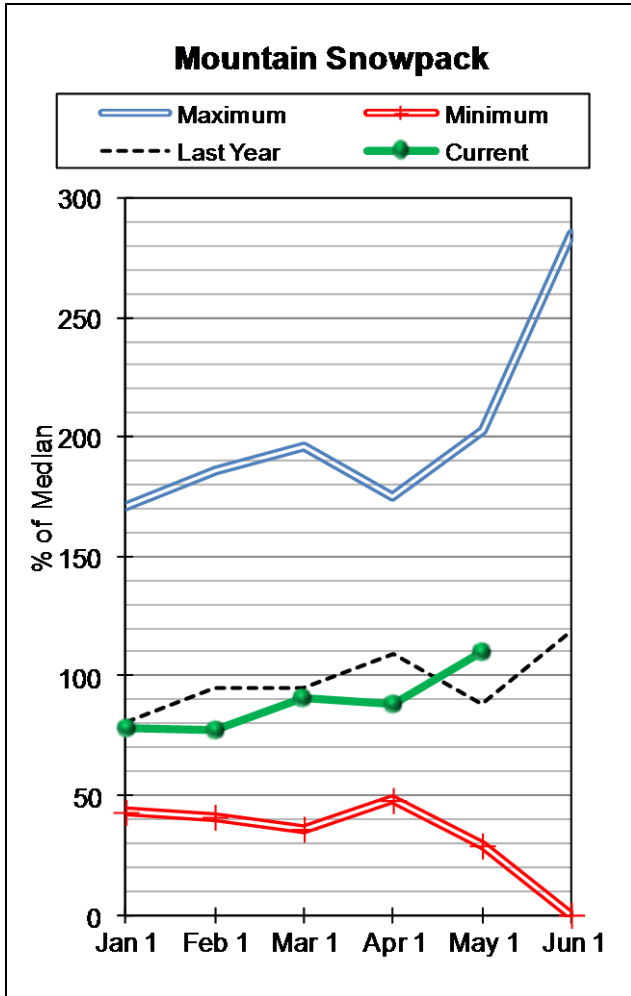
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
SMITH RIVER	10.6	8.6	10.3	8.3	SMITH	6	105	105
ACKLEY LAKE	7.0	2.9	4.2	3.3	HIGHWOOD	0	0	0
BAIR	7.0	4.9	7.2	4.5	JUDITH	5	105	104
MARTINSDALE	23.1	7.5	16.6	11.8	MUSSELSHELL	3	91	84
DEADMAN'S BASIN	72.2	55.9	70.5	51.0	SMITH-JUDITH-MUSSELSHELL	11	104	103

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

The average is computed for the 1981-2010 base period.

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

# Sun-Teton-Marias River Basins



Snowpack conditions in the Sun-Teton-Marias River Basins peaked at 97 percent of normal. On May 1 snow water content was 110 percent of median and 98 percent of last year. Snow water content in the Sun River Basin was 102 percent of median and 100 percent of last year; the Teton River Basin was 104 percent of median and 94 percent of last year; and the Marias River Basin was 113 percent of median and 97 percent of last year.

Mountain precipitation according to SNOTEL stations during April in all three basins was 133 percent of average and 183 percent of last year. Mountain water year precipitation for the greater basin according to SNOTEL stations, beginning October 1, 2012, was 110 percent of average and 98 percent of last year.

Gibson storage was 63 percent of average and 54 percent of last year; Pishkun storage was 84 percent of average and 83 percent of last year; Willow Creek storage was 109 percent of average and 95 percent of last year; Swift storage was 87 percent of average and 108 percent of last year; Lake Frances storage was 75 percent of average and 54 percent of last year; and Lake Elwell (Tiber) storage was 105 percent of average and 101 percent of last year.

Assuming average precipitation, May through July streamflows are forecast to average 103 percent.

SUN-TETON-MARIAS RIVER BASINS  
Streamflow Forecasts - May 1, 2013

Forecast Point	Forecast Period	Future Conditions				Wetter		30-Yr Avg. (1000AF)
		<<===== Drier =====>>		=====		=====		
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Gibson Reservoir Inflow (2)	MAY-JUL	285	325	350	99	375	415	355
	MAY-SEP	320	360	390	99	420	460	395
Two Medicine R nr Browning (2)	MAY-JUL	123	143	156	102	169	189	153
	MAY-SEP	131	152	167	102	182	205	164
Badger Ck nr Browning	MAY-JUL	56	67	74	96	81	92	77
	MAY-SEP	65	78	87	95	96	109	92
Swift Reservoir Inflow (2)	MAY-JUL	37	47	53	108	59	69	49
	MAY-SEP	45	56	64	107	72	83	60
Dupuyer Ck nr Valier	MAY-JUL	1.0	5.4	9.8	108	14.2	21	9.1
	MAY-SEP	1.0	6.3	11.2	105	16.1	23	10.7
Cut Bank Ck nr Browning	MAY-JUL	45	56	63	102	70	81	62
	MAY-SEP	48	60	68	100	76	88	68
Marias R nr Shelby (2)	MAY-JUL	171	255	315	111	375	460	285
	MAY-SEP	164	260	325	108	390	485	300
Teton R nr Dutton	MAY-JUL	2.9	20	35	100	50	72	35
	MAY-SEP	3.0	24	40	98	56	80	41

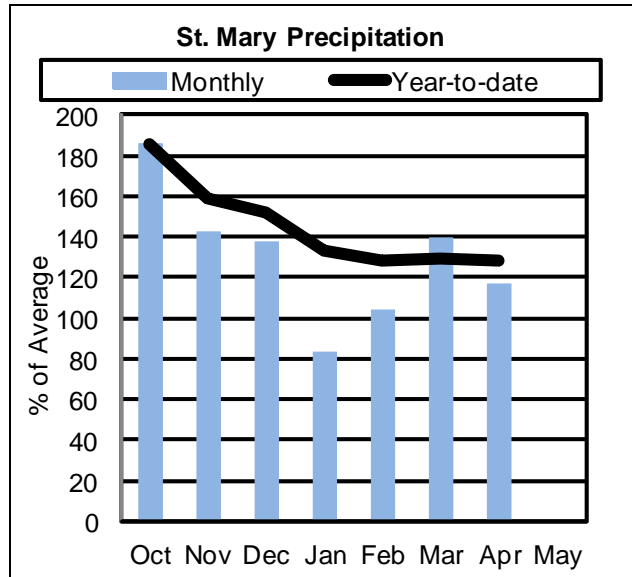
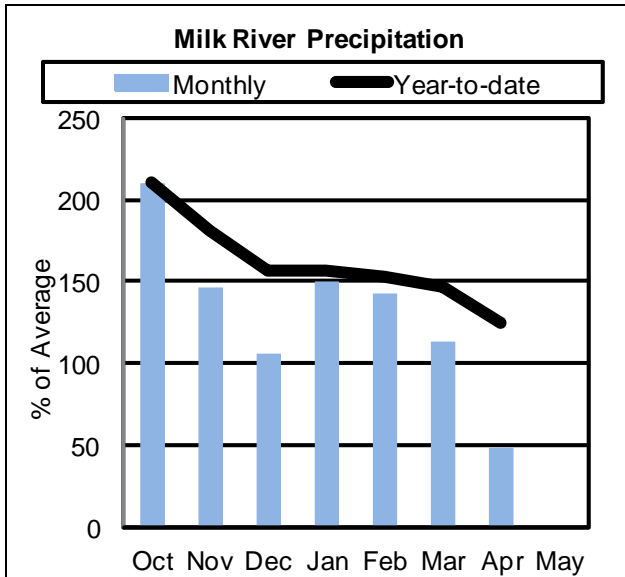
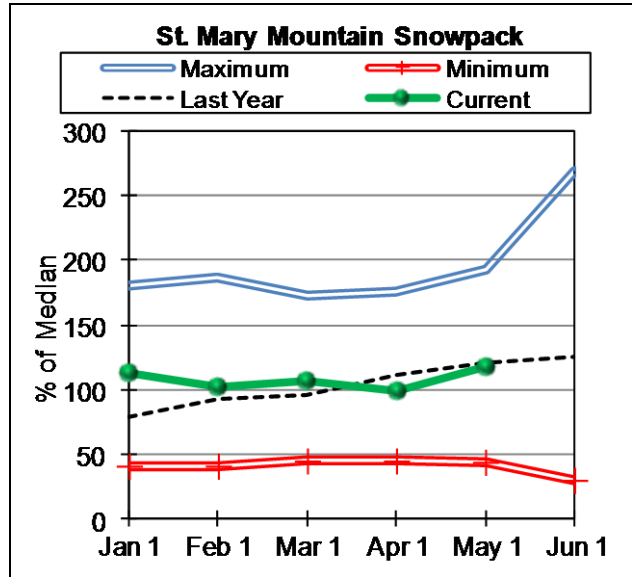
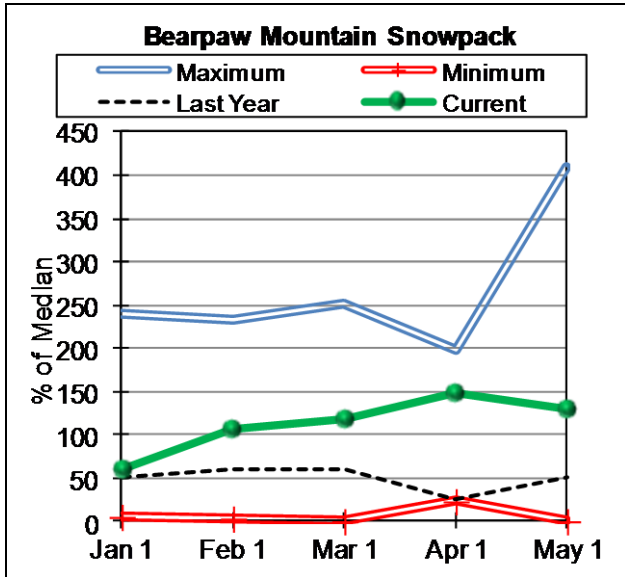
SUN-TETON-MARIAS RIVER BASINS Reservoir Storage (1000 AF) - End of April					SUN-TETON-MARIAS RIVER BASINS Watershed Snowpack Analysis - May 1, 2013			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
GIBSON	99.1	39.5	73.1	62.6	SUN	5	100	102
PISHKUN	32.0	19.5	23.4	23.3	TETON	4	94	104
WILLOW CREEK	32.2	27.9	29.3	25.6	MARIAS	5	97	93
LOWER TWO MEDICINE LAKE		NO REPORT			SUN-TETON-MARIAS	11	98	98
FOUR HORNS LAKE		NO REPORT						
SWIFT	30.0	15.7	14.5	18.1				
LAKE FRANCES	112.0	50.2	93.7	66.6				
LAKE ELWELL (TIBER)	1347.0	748.6	737.9	716.2				

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

The average is computed for the 1981-2010 base period.

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

# St. Mary and Milk River Basins



Snowpack in the Saint Mary & Milk River Basins peaked at 113 percent of normal. On May 1 snow water content in the Saint Mary Basin was 118 percent of median and 86 percent of last year. Snowpack in the Milk River Basin was near normal at 129 percent of median and 95 percent of last year. The combined basins had a snowpack at 118 percent of median and 86 percent of last year.

Mountain precipitation, according to SNOTEL stations, in the St. Mary River Basin during April was 117 percent of average and 120 percent of last year; and in the Milk River Basin during March was 48 percent of average and 23 percent of last year. Water year precipitation for both basins, beginning October 1, 2012, was 128 percent of average and 103 percent of last year.

Lake Sherburne storage was 183 percent of average and 99 percent of last year; Fresno storage was 123 percent of average and 98 percent of last year; and Nelson storage was 140 percent of average and 114 percent of last year.

Assuming average precipitation, May through July streamflows in the St. Mary are forecast to average 106 percent. Assuming average precipitation, April through July streamflows in the Milk are forecast to average 113 percent.

ST. MARY and MILK RIVER BASINS  
Streamflow Forecasts - May 1, 2013

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		===== Wetter =====>				
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Lake Sherburne Inflow	MAY-JUL	83	91	97	113	103	111	86
	MAY-SEP	97	106	113	112	120	129	101
St. Mary R nr Babb (2)	MAY-JUL	325	360	385	113	410	445	340
	MAY-SEP	380	420	450	114	480	520	395
St. Mary R at Int'l Boundary (2)	MAY-JUL	360	410	445	111	480	530	400
	MAY-SEP	420	475	515	110	555	610	470
Milk R at Western Crossing	MAY-JUL	1.6	17.9	29	132	40	56	22
	MAY-SEP	2.1	19.9	32	128	44	62	25
Milk R at Eastern Crossing	MAY-JUL	-5.0	16.8	43	123	69	108	35
	MAY-SEP	3.0	21	50	122	79	123	41

ST. MARY and MILK RIVER BASINS  
Reservoir Storage (1000 AF) - End of April

ST. MARY and MILK RIVER BASINS  
Watershed Snowpack Analysis - May 1, 2013

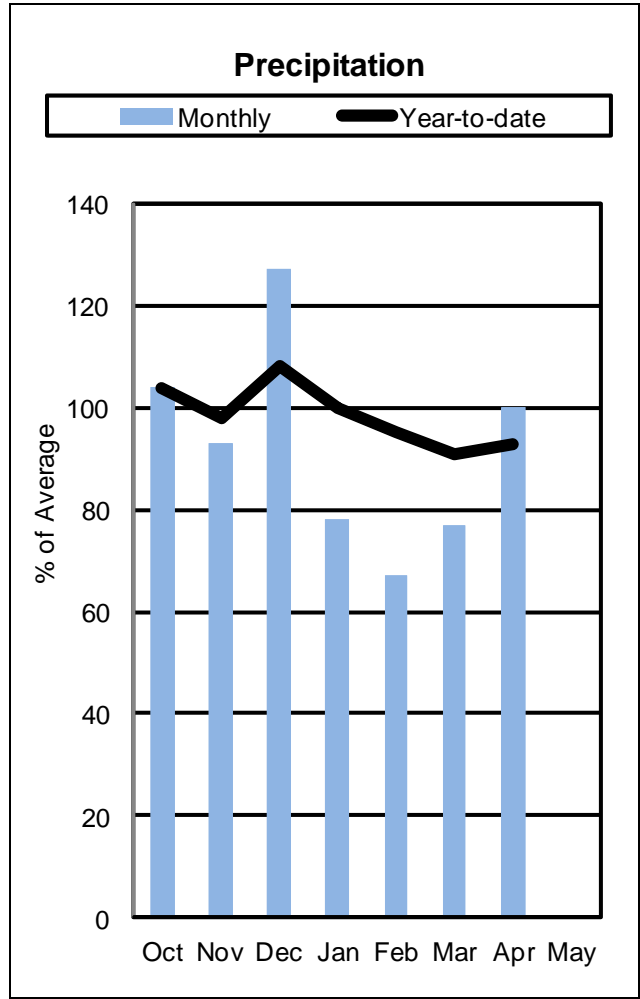
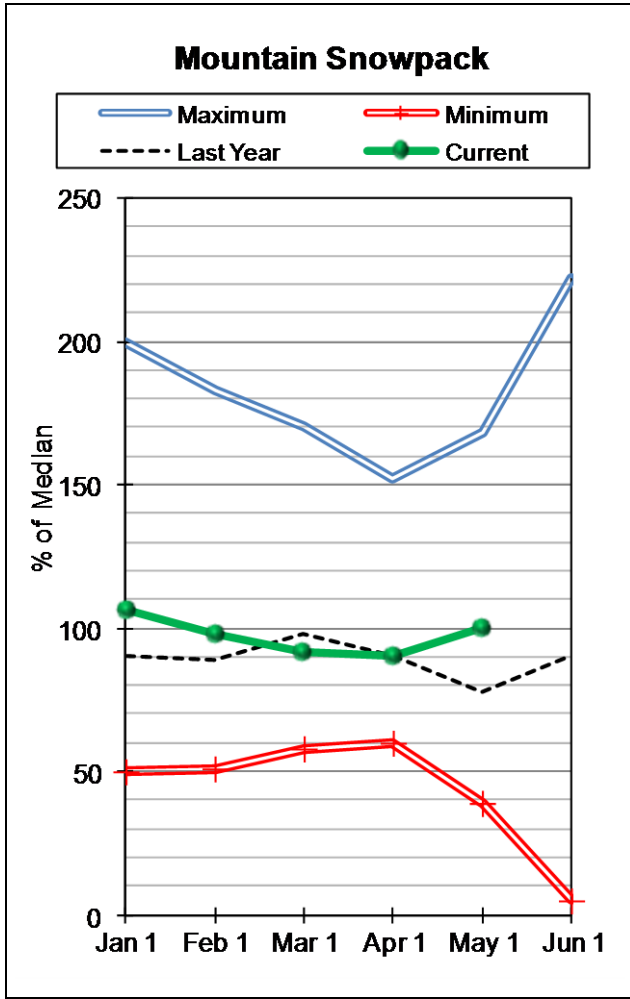
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
LAKE SHERBURNE	64.3	32.9	33.4	18.0	ST. MARY	7	86	118
FRESNO	127.0	92.4	94.4	74.9	BEARPAW MOUNTAINS	3	95	125
BEAVER CREEK		NO REPORT			CYPRESS HILLS, CANADA	0	0	0
NELSON	66.8	59.3	52.2	42.4	MILK RIVER BASIN	3	95	125
					ST. MARY & MILK BASINS	10	86	118

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

The average is computed for the 1981-2010 base period.

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

# Upper Yellowstone River Basin



Snowpack conditions in the Upper Yellowstone River Basin peaked at 97 percent of normal. On May 1 snow water content was 100 percent of median and 104 percent of last year.

Mountain precipitation according to SNOTEL stations during April was 100 percent of average and 73 percent of last year. Water year precipitation, beginning October 1, 2012, was 93 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 94 percent of average and 90 percent of last year.

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

UPPER YELLOWSTONE RIVER BASIN  
Streamflow Forecasts - May 1, 2013

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90%		50%		30%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Yellowstone R at Yellowstone Lake	MAY-JUL	375	435	475	87	515	575	545
	MAY-SEP	510	585	635	86	685	760	735
Yellowstone R at Corwin Springs	MAY-JUL	1100	1260	1360	92	1460	1620	1480
	MAY-SEP	1300	1480	1610	91	1740	1920	1770
Yellowstone R at Livingston	MAY-JUL	1220	1410	1540	92	1670	1860	1670
	MAY-SEP	1450	1680	1830	91	1980	2210	2010
Shields R nr Livingston	MAY-JUL	3.0	42	69	64	96	135	108
	MAY-SEP	2.0	47	77	63	107	152	123
Boulder R at Big Timber	MAY-JUL	199	230	250	93	270	300	270
	MAY-SEP	210	245	270	93	295	330	290
West Rosebud Ck nr Roscoe (2)	MAY-JUL	42	46	49	86	52	56	57
	MAY-SEP	53	60	64	89	68	75	72
Stillwater R nr Absarokee (2)	MAY-JUL	280	330	365	87	400	450	420
	MAY-SEP	330	395	435	88	475	540	495
Clarks Fk Yellowstone R nr Belfry	MAY-JUL	390	430	460	96	490	530	480
	MAY-SEP	415	465	500	95	535	585	525
Cooney Reservoir Inflow	MAY-JUL	7.3	17.2	24	73	31	41	33
	MAY-SEP	13.8	25	32	75	39	50	43
Yellowstone R at Billings	MAY-JUL	1970	2380	2660	89	2940	3350	3000
	MAY-SEP	2230	2740	3080	88	3420	3930	3490

UPPER YELLOWSTONE RIVER BASIN  
Reservoir Storage (1000 AF) - End of April

UPPER YELLOWSTONE RIVER BASIN  
Watershed Snowpack Analysis - May 1, 2013

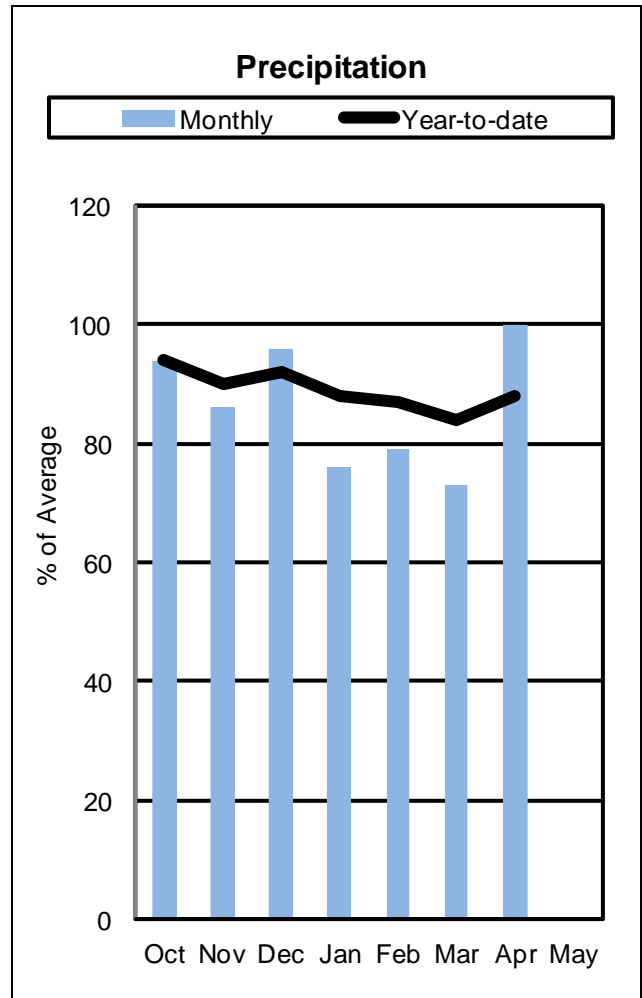
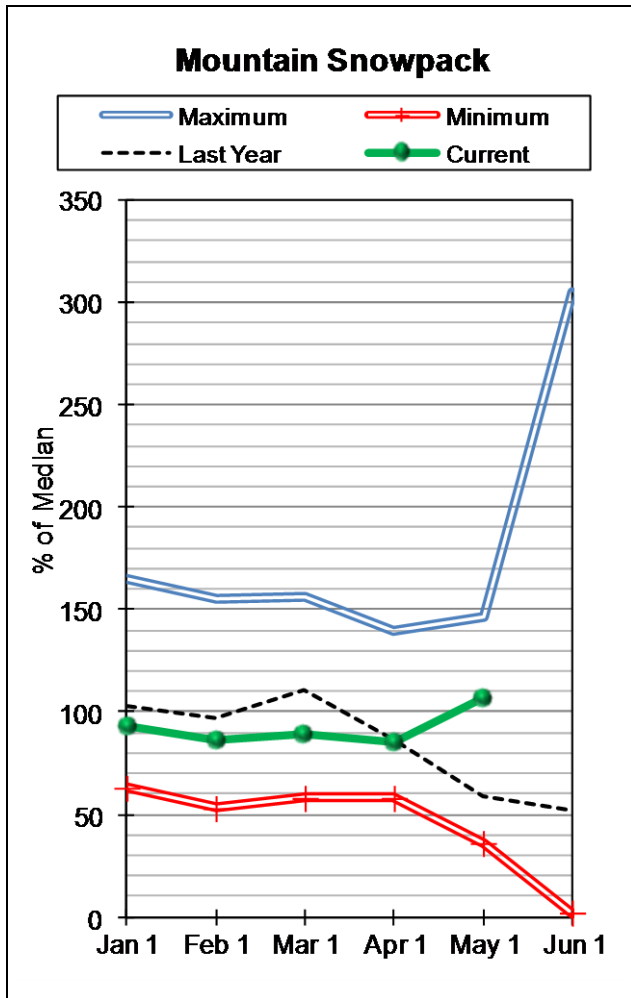
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
MYSTIC LAKE	21.0	0.0	0.9	0.6	YELLOWSTONE ab LIVINGSTON	15	105	103
COONEY	27.4	20.6	22.8	21.9	SHIELDS	4	87	92
					BOULDER-STILLWATER	3	110	100
					RED LODGE-ROCK CREEK	5	150	92
					CLARK'S FORK	7	94	106
					UPPER YELLOWSTONE BASIN	30	104	100

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

The average is computed for the 1981-2010 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
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- (3) - Median value used in place of average.

# Lower Yellowstone River Basin



Snowpack conditions in the Lower Yellowstone River Basin peaked at 95 percent of normal. On May 1 snow water content was 107 percent of median and 147 percent of last year.

Mountain precipitation according to SNOTEL stations during April was 100 percent of average and 123 percent of last year. Water year precipitation, beginning October 1, 2012, was 88 percent of average and 86 percent of last year.

Bighorn Lake storage was 111 percent of average and 104 percent of last year and Tongue River storage was 168 percent of average and 88 percent of last year.

Assuming average precipitation, May through July streamflows are forecast to average 85 percent.



LOWER YELLOWSTONE RIVER BASIN  
Streamflow Forecasts - May 1, 2013

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90%		50%		30%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Bighorn R nr St. Xavier (2)	MAY-JUL	595	830	990	79	1150	1380	1260
	MAY-SEP	580	840	1020	76	1200	1460	1340
Little Bighorn R nr Hardin	MAY-JUL	32	50	62	73	74	92	85
	MAY-SEP	40	59	72	74	85	104	97
Tongue R nr Dayton (2)	MAY-JUL	47	63	74	93	85	101	80
	MAY-SEP	57	74	86	94	98	115	92
Big Goose Ck nr Sheridan	MAY-JUL	22	31	36	82	41	50	44
	MAY-SEP	30	38	44	85	50	58	52
Little Goose Ck nr Bighorn	MAY-JUL	15.6	21	24	83	27	32	29
	MAY-SEP	22	27	31	84	35	40	37
Tongue River Reservoir Inflow (2)	MAY-JUL	55	109	145	83	181	235	175
	MAY-SEP	70	127	166	84	205	260	198
Yellowstone R at Miles City (2)	MAY-JUL	2780	3350	3730	85	4110	4680	4370
	MAY-SEP	3010	3750	4260	85	4770	5510	5030
Powder R at Moorhead	MAY-JUL	70	121	156	103	191	240	151
	MAY-SEP	88	142	178	105	215	270	170
Powder R nr Locate	MAY-JUL	62	127	171	104	215	280	164
	MAY-SEP	76	147	195	105	245	315	185
Yellowstone R nr Sidney (2)	MAY-JUL	2610	3280	3740	85	4200	4870	4380
	MAY-SEP	2680	3570	4180	84	4790	5680	4980

LOWER YELLOWSTONE RIVER BASIN  
Reservoir Storage (1000 AF) - End of April

LOWER YELLOWSTONE RIVER BASIN  
Watershed Snowpack Analysis - May 1, 2013

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
BIGHORN LAKE	1356.0	857.9	824.3	773.6	WIND RIVER (Wyoming)	18	191	104
TONGUE RIVER	79.1	58.3	66.1	34.7	SHOSHONE RIVER (Wyoming)	5	112	93
					BIGHORN RIVER (Wyoming)	19	123	110
					LITTLE BIGHORN (Wyoming)	3	94	93
					TONGUE RIVER (Wyoming)	10	135	104
					POWDER RIVER (Wyoming)	9	224	130
					LOWER YELLOWSTONE BASIN (	46	152	107

\* 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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- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average.

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

