

Montana Water Supply Outlook Report April 1, 2014



Picture: Upper Slag-a-melt Lake, Beaverhead Range, Montana

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Taken: 3/26/2014 Lucas Zukiewicz

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 April 1, 2014

March snowpack accumulation continued the trend February set last month by increasing snowpack an average 13 percent across the watersheds of the state. Only two sub-basins showed minimal declines through March, the Wind River basin of Wyoming, leading into the Big Horn River, with a two percent decrease and the West Fork Bitterroot River at one percent. All other basins saw improvements, most notably west of the divide, the Kootenai and the Flathead. Increments this month were not as drastic as last month but snowpack is now requiring more vigilance than usual as state-wide snowpack is 143 percent of median. Precipitation in the mountains & valleys of Montana over the course of March was nearly exactly the same as it was last month state-wide. March precipitation ended the month at 180 percent of average bringing the year to date precipitation to 121 percent of average from 108 percent of average last month. Many mountain reservoirs are beginning to draw down storage in anticipation of above average spring runoff. Some larger valley reservoirs are already lower than normal due to the low streamflows of 2013 & 2012. Streamflow predictions increased significantly due to the climbing snowpack and the much improved forecast skill that comes with April 1 forecasts.

It is widely known from Lakeview, Montana to St Louis, Missouri snowpack in the mountains of the Upper Missouri River basin is well above average. Drawing similarities between April 1, 2011 and 2014 snowpack levels is easy, because mountain snowpack is reflective of those levels seen in 2011. Currently in most mountain locations snowpack is slightly above 2011 levels. But it is at this point in 2011 where the faucet turned on and snowpack started to accumulate at well above normal rates. In addition, several significant rain events in 2011 which fell on valley snow cause significant runoff in May. Finally, mountain snowpack in 2011 saw temperatures high enough to melt snow starting in late May and peaking in June which is later than usual. Currently there are no indications of weather that will cause the events seen in 2011. Regardless snowpack and streamflow runoff needs to be closely monitored for the remainder of this spring until the majority of mountain snow has run into the rivers of Montana.

Snowpack

From an analysis of 118 SNOTEL sites in Montana and northern Wyoming using April 3rd snowpack values, it was determined 30 locations were experiencing the highest snowpack levels of all historical snowpacks on April 1 with an average of 27 years in the period of record. On April 1 SNOTEL data indicates statewide snowpack is ranked 2nd of 34 years at 22.2 inches of snow water equivalent (SWE) with only 1997 exceeding this year at 26.1 inches, while 2011 snowpack levels were at 20.9 inches at this time. Snowpack currently most closely compares to 1982 at 21.7 inches of SWE. Watersheds currently at record high (dating back to 1981) snowpacks include: Tongue, Powder, Missouri Mainstem, Upper Yellowstone and the combine Smith-Judith-Musselshell. Five basins currently maintain snowpacks between the upper 70 & 90 percentiles which are: Kootenai, Lower Clark Fork, Madison, Wind and combined St Mary & Milk River basins.

River Basin	% of Median	% of Last Year
Columbia	141	150
Kootenai	122	120
Flathead	138	140
Upper Clark Fork	152	178
Bitterroot	155	184
Lower Clark Fork	136	137
Missouri	145	158
Missouri Headwaters	138	154
Jefferson	143	163
Madison	128	146
Gallatin	137	147
Missouri Mainstem	160	168
Headwaters Mainstem	171	180
Smith-Judith Musselshell	160	167
Sun-Teton-Marias	149	167
Milk	161	109
St. Mary	127	128
St. Mary & Milk	131	124
Yellowstone	150	171
Upper Yellowstone	157	174
Lower Yellowstone	143	168
Statewide	143	156

Precipitation

The basin that fared the “worst” across Montana with regards to precipitation over the course of March was the Jefferson River basin at 137 percent of average March precipitation ending year to date precipitation at 115 percent. Whittling down further into the Jefferson both the watersheds above the Ruby and Lima reservoirs saw better than 112 percent of average precipitation helping out the two areas of the state that need more precipitation. Both the Flathead and St. Mary rivers saw better than 200 percent of average precipitation last month.

River Basin	Monthly % of Average	Water Year % of Average
Columbia	196	114
Kootenai	196	100
Flathead	216	115
Upper Clark Fork	172	120
Bitterroot	199	127
Lower Clark Fork	188	106
Missouri	162	119
Jefferson	137	115
Madison	179	115
Gallatin	196	127
Missouri Mainstem	150	127
Smith-Judith Musselshell	150	129
Sun-Teton-Marias	191	118
Milk	139	108
St. Mary	264	113
St. Mary & Milk	207	111
Yellowstone	164	139
Upper Yellowstone	187	141
Lower Yellowstone	164	139
Statewide	180	121

Reservoirs

Reservoir storage west of the divide was 137 percent of average and 109 percent of last year. East of the Divide, reservoir storage was 101 percent of average and 101 percent of last year.

River Basin	% of Average	Current as % of Last Year
Columbia	137	109
Kootenai	169	128
Flathead	116	93
Upper Clark Fork	99	100
Bitterroot	126	104
Lower Clark Fork	103	101
Missouri	100	102
Missouri Headwaters	97	95
Jefferson	81	77
Madison	109	107
Gallatin	80	93
Missouri below Toston	100	102
Missouri Mainstem	100	102
Smith-Judith Musselshell	115	104
Sun-Teton-Marias	97	99
Milk	139	113
St. Mary	132	74
St. Mary & Milk	138	101
Yellowstone	105	94
Upper Yellowstone	106	117
Lower Yellowstone	105	94
Statewide	110	104

Streamflow

The added snowpack over the course of March improved all streamflow forecasts to near to well above average in all locations with the exception of one, that being the inflow into Lima reservoir. In general volumetric streamflows are predicted to be well above average, yet not record high because most gauges do not have record snowpacks above them. Ruby reservoir inflow projections saw a 19 percent increase since last month due to improved snowpack above the reservoir. The combine Smith-Judith-Musselshell watersheds projections increased 43 percent since March 1 to 215 percent of average April 1- July 31 flows.

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. ALL 50 PERCENT EXCEEDANCE FORECASTS ASSUME NEAR NORMAL WEATHER THROUGH THE END OF THE FORECAST PERIOD. FOR FORECASTS ABOVE AND BELOW THE 50 PERCENT EXCEEDANCE, LOOK TO THE SPECIFIC BASIN REPORTS.

April-July Streamflow Forecast Period		
River Basin	Forecast as % of Normal	This Year Forecast as % of Last Year Streamflow
Columbia	129	131
Kootenai	107	89
Flathead	123	112
Upper Clark Fork	164	204
Bitterroot	151	198
Lower Clark Fork	139	150
Missouri	146	203
Missouri Headwaters	134	239
Jefferson	146	327
Madison	108	149
Gallatin	129	180
Missouri Mainstem	148	196
Headwaters Mainstem	148	199
Smith-Judith Musselshell	215	420
Sun-Teton-Marias	136	147
Milk	112	95
St. Mary	112	103
St. Mary & Milk	112	102
Yellowstone	150	199
Upper Yellowstone	139	176
Lower Yellowstone	159	218
Statewide	137	155

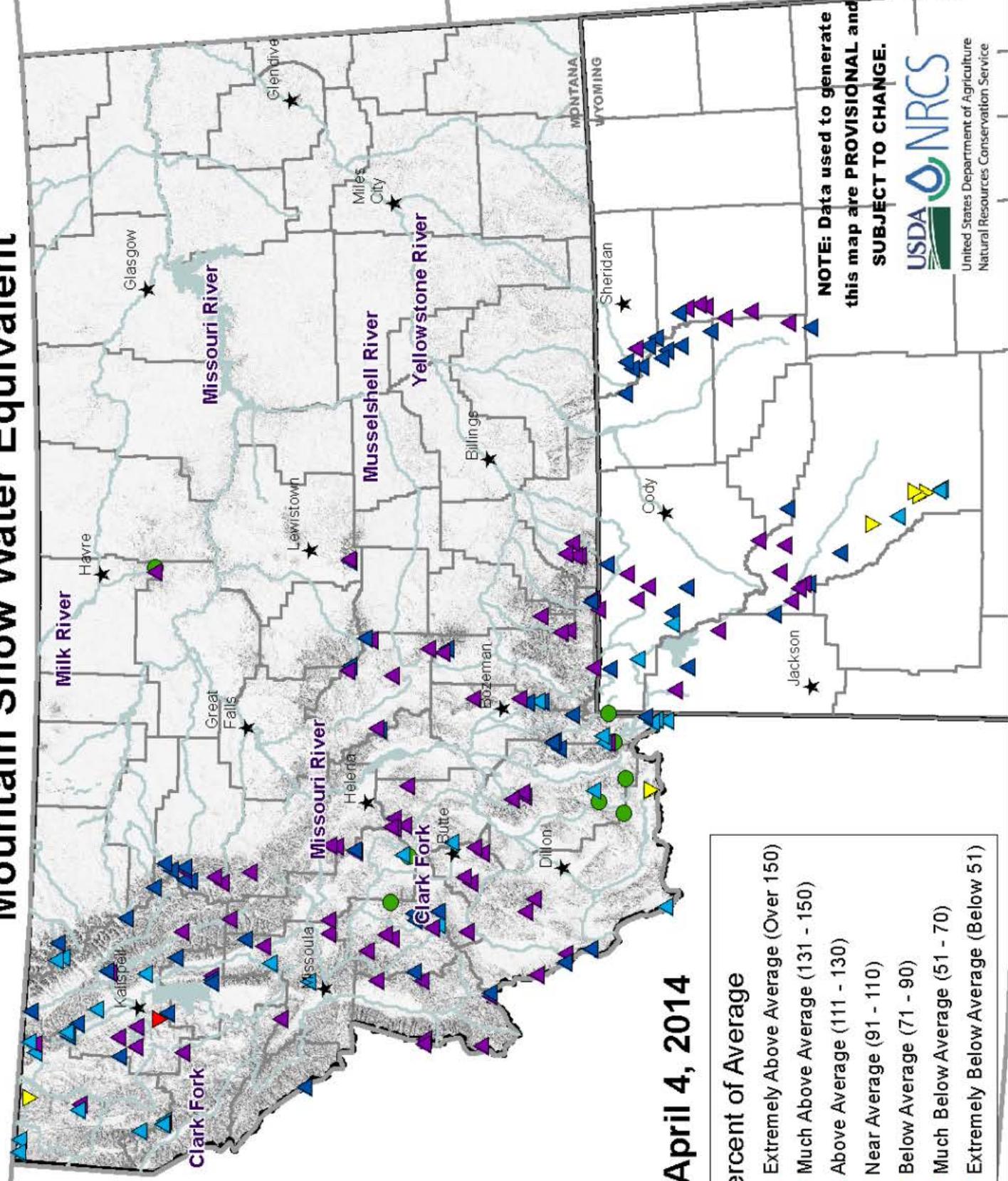
Surface Water Supply Index

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 Scale	
+3.0 to +4.0	Extremely Wet
+2.0 to +2.9	Moderately Wet
+1.0 to +1.9	Slightly Wet
+0.9 to -0.9	Near Average
-1.0 to -1.9	Slightly Dry
-2.0 to -2.9	Moderately Dry
-3.0 to -4.0	Extremely Dry

This Year's SWSI	Last Year's SWSI	Watershed
+0.4	+0.2	Tobacco River
+1.0	+0.3	Kootenai Ft. Steele to Libby Dam
+3.8	+2.0	Kootenai River below Libby Dam
1.6	-1.6	Fisher River
+0.8	+0.8	Yaak River
+1.7	+1.1	North Fork Flathead River
+2.0	+0.7	Middle Fork Flathead River
+4.0	+4.0	South Fork Flathead River
+2.9	+1.6	Flathead River at Columbia Falls
+3.3	-1.4	Swan River
+2.1	+0.7	Flathead River at Polson
+0.2	-3.3	Mission Valley
+3.2	-0.2	Little Bitterroot River
+3.3	-1.8	Clark Fork River above Milltown
+3.0	-2.2	Clark Fork River above Missoula
+2.6	-2.4	Blackfoot River
+2.6	-2.0	Bitterroot River
+2.9	-2.1	Clark Fork River below Bitterroot River
+2.4	-0.3	Clark Fork River below Flathead River
-1.0	-1.0	Beaverhead River
0.0	-1.6	Ruby River
+2.6	-1.5	Big Hole River
+2.9	-1.8	Boulder River (Jefferson)
+2.2	-0.7	Jefferson River
+0.3	-1.5	Madison River
+2.1	-1.2	Gallatin River
+1.9	-0.7	Missouri River above Canyon Ferry
+1.4	-0.6	Missouri River below Canyon Ferry
+3.0	+0.5	Smith River
+1.6	-1.8	Sun River
+1.9	+0.3	Teton River
-0.8	-2.4	Birch/Dupuyer Creeks
+2.4	-0.7	Upper Judith River
+0.6	-2.1	Marias River above Tiber
+2.3	-0.2	Marias River below Tiber
+3.0	-1.2	Musselshell River
+1.4	-1.2	Missouri River above Ft. Peck
+0.1	-1.7	Missouri River below Ft. Peck
+2.0	+1.7	St. Mary River
+1.2	+0.7	Milk River
+1.7	-1.5	Dearborn River near Craig
+3.2	-1.8	Yellowstone River above Livingston
+3.3	-1.8	Shields River
+3.5	-1.1	Boulder River (Yellowstone)
+3.0	-2.1	Stillwater River
+3.2	-2.8	Rock/Red Lodge Creeks
+3.3	-1.6	Clarks Fork River
+3.2	-1.8	Yellowstone River above Bighorn River
+3.8	-1.2	Bighorn River below Bighorn Lake
+2.1	-2.8	Little Bighorn River
+3.5	-1.5	Yellowstone River below Bighorn River
+3.0	-1.8	Tongue River
+3.3	-0.6	Powder River

Mountain Snow Water Equivalent



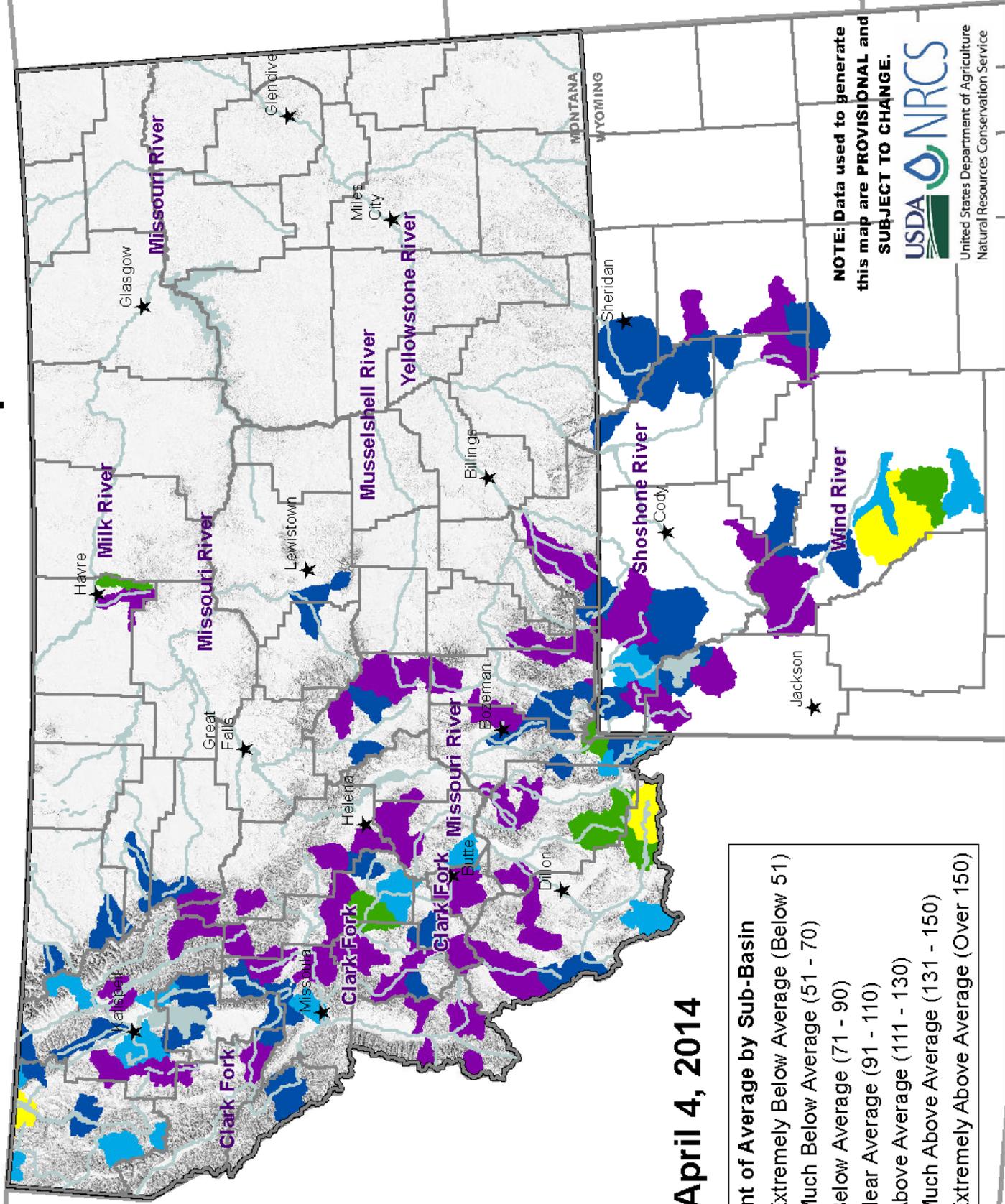
April 4, 2014

- Percent of Average**
- ▲ 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)

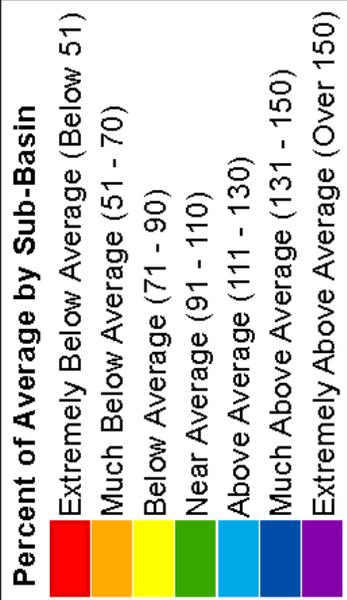
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Mountain Snow Water Equivalent



April 4, 2014

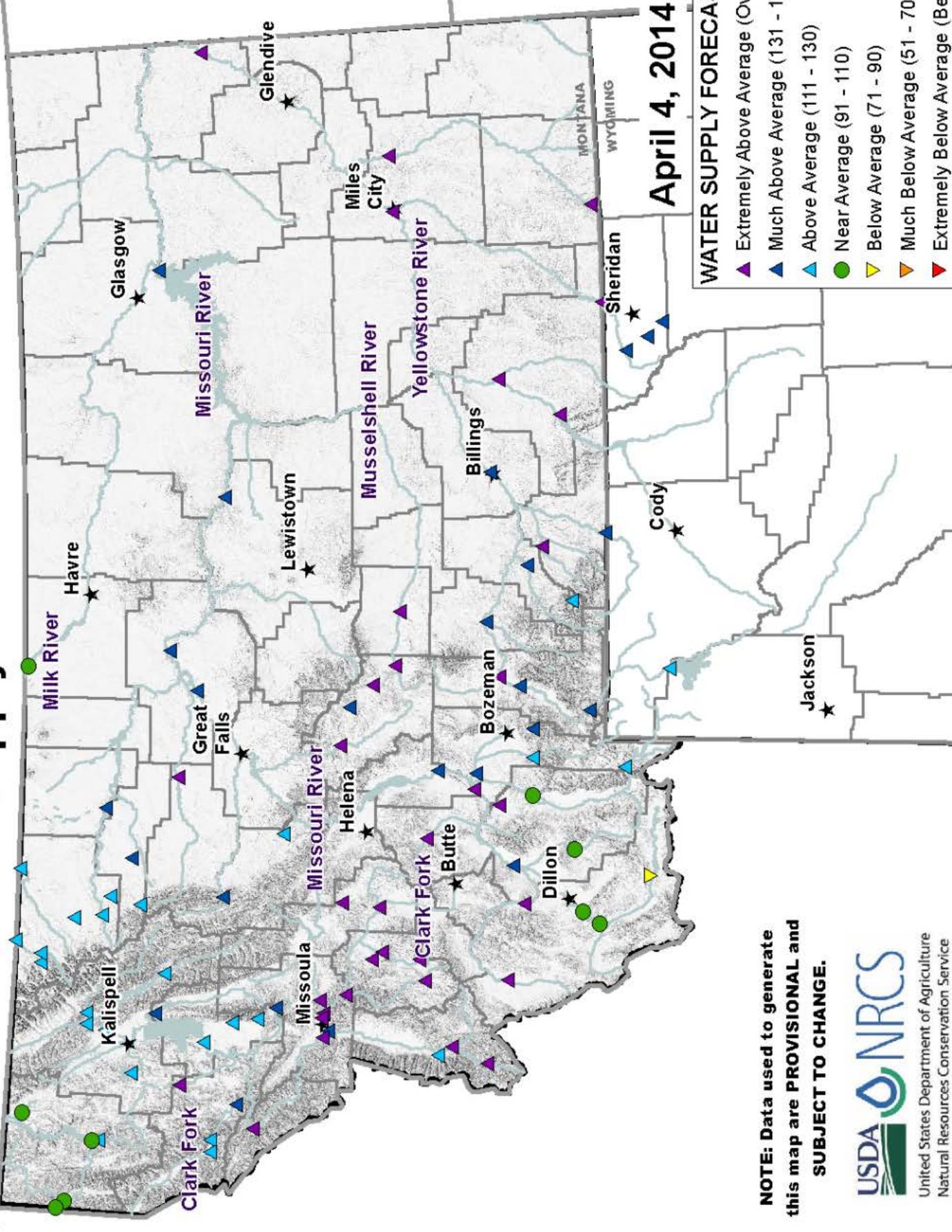


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United States Department of Agriculture
Natural Resources Conservation Service

Water Supply Forecast for Montana



April 4, 2014

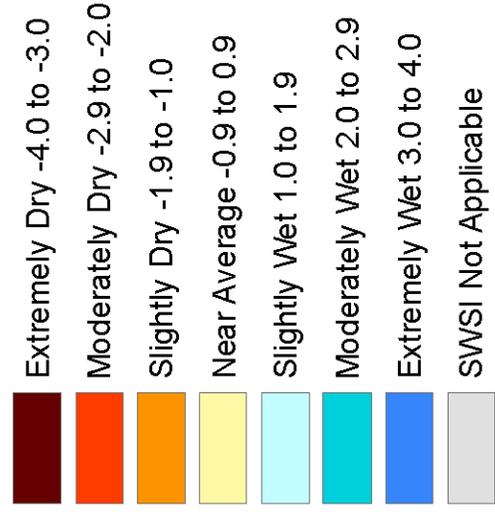
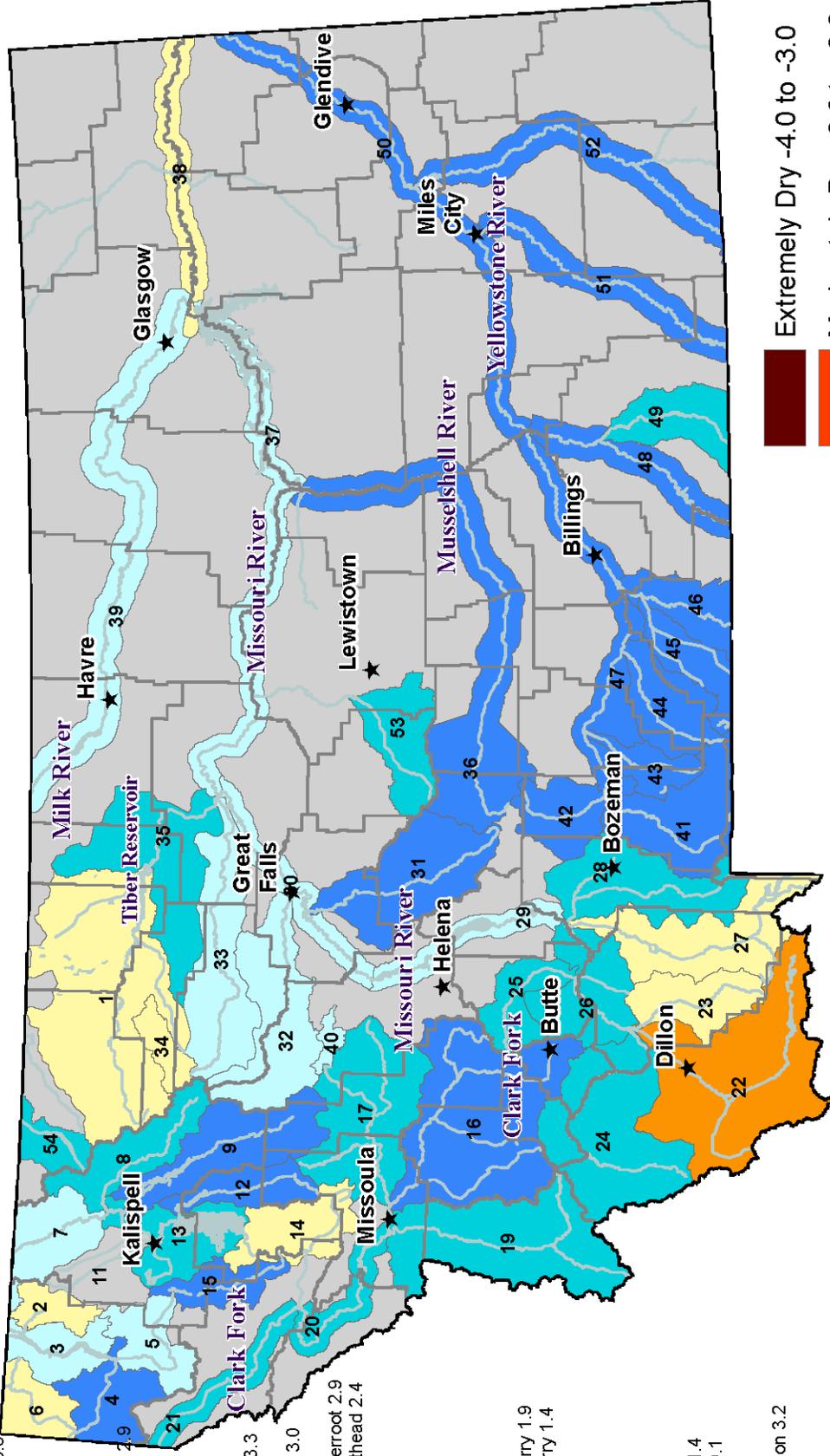
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Surface Water Supply Index (SWSI) Values

RIVER INDEX & SWSI VALUES

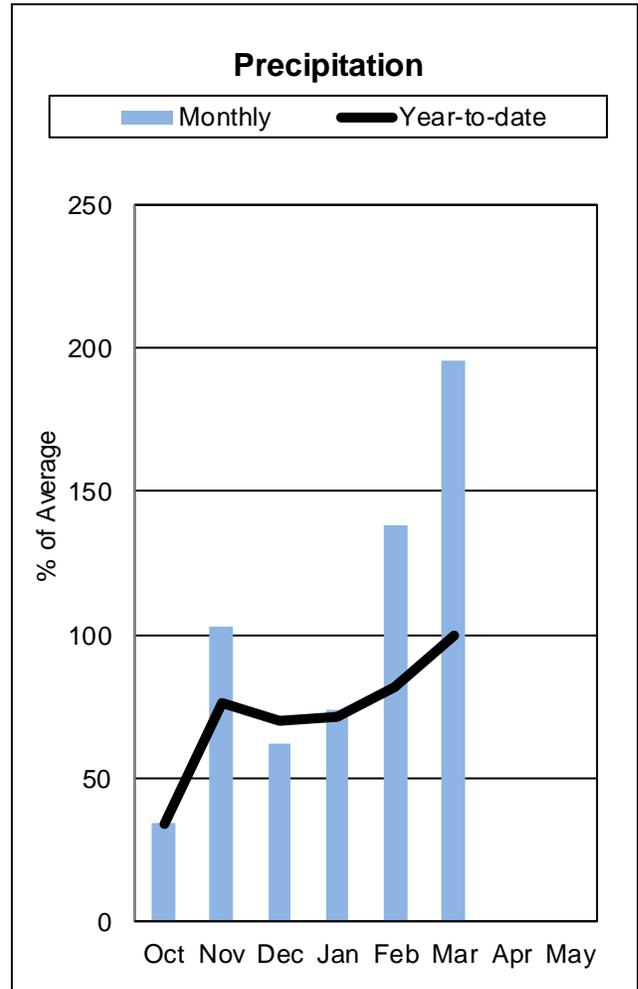
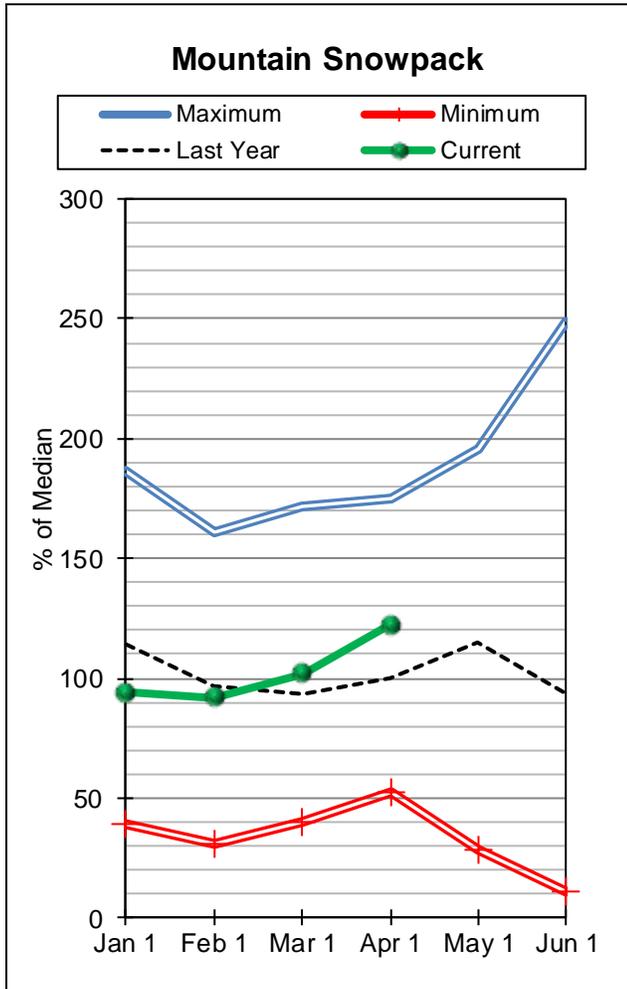
- 1 Marias above Tiber Reservoir 0.6
- 2 Tobacco 0.4
- 3 Kootenai Ft. Steele to Libby Dam 1.0
- 4 Kootenai below Libby Dam 3.8
- 5 Fisher 1.6
- 6 Yaak 0.8
- 7 North Fk. Flathead 1.7
- 8 Middle Fk. Flathead 2.0
- 9 South Fk. Flathead 4.0
- 10 Flathead at Columbia Falls 2.9
- 11 Stillwater/Whitefish Rivers
- 12 Swan 3.3
- 13 Flathead at Polson 2.1
- 14 Mission Valley 0.2
- 15 Little Bitterroot 3.2
- 16 Clark Fork above Milltown 3.3
- 17 Blackfoot 2.6
- 18 Clark Fork above Missoula 3.0
- 19 Bitterroot 2.6
- 20 Clark Fork River below Bitterroot 2.9
- 21 Clark Fork River below Flathead 2.4
- 22 Beaverhead -1.0
- 23 Ruby 0
- 24 Big Hole 2.6
- 25 Boulder (Jefferson) 2.9
- 26 Jefferson 2.2
- 27 Madison 0.3
- 28 Gallatin 2.1
- 29 Missouri above Canyon Ferry 1.9
- 30 Missouri below Canyon Ferry 1.4
- 31 Smith 3.0
- 32 Sun 1.6
- 33 Teton 1.9
- 34 Birch/Dupuyer Creeks -0.8
- 35 Marias 2.3
- 36 Musselshell 3.0
- 37 Missouri above Fort Peck 1.4
- 38 Missouri below Fort Peck 0.1
- 39 Milk 1.2
- 40 Dearborn near Craig 1.7
- 41 Yellowstone above Livingston 3.2
- 42 Shields 3.3
- 43 Boulder (Yellowstone) 3.5
- 44 Stillwater 3.0
- 45 Rock/Red Lodge Creeks 3.2
- 46 Clark Fork Yellowstone 3.3
- 47 Yellowstone above Bighorn River 3.2
- 48 Bighorn below Bighorn Lake 3.8
- 49 Little Bighorn 2.1
- 50 Yellowstone below Bighorn 3.5
- 51 Tongue 3.0
- 52 Powder 3.3
- 53 Upper Judith 2.4
- 54 Saint Mary 2.0



April 4, 2014

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

Kootenai River Basin in Montana



March was another banner month for snow accumulation across the Kootenai River Basin. Sub-basin snowpack percentages ranged from 108 percent of normal in the Yaak to 140 percent of normal in the Fisher. Snow courses in Canada saw well above snow accumulation at 259 percent of normal. Overall, the Kootenai Basin came in at 124 percent of normal and 126 percent of last year.

March precipitation for mountain and valley stations was well above average at 248 percent of average and 263 percent of last year. Precipitation from October 1 through March 31 is now 100 percent of average and 92 percent of last year. Ever so slowly the Basin precipitation is recovering from the well below averages of October and November.

Reservoir storage in Lake Koocanusa is 169 percent of average and 128 percent of last year.

Assuming average precipitation for April through July, streamflows are forecast to be 107 percent of average and 89 percent of last year.

Kootenai River Basin In Montana Streamflow Forecasts - April 1, 2014

KOOTENAI RIVER BASIN in MONTANA	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						30yr Avg (KAF)
		90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	
Tobacco R nr Eureka	APR-JUL	102	121	133	106%	145	164	126
	APR-SEP	111	133	147	105%	161	183	140
Libby Reservoir Inflow ¹	APR-JUL	4820	5430	5700	107%	5970	6580	5340
	APR-SEP	5720	6340	6620	106%	6900	7520	6250
Fisher R nr Libby	APR-JUL	215	240	260	127%	280	305	205
	APR-SEP	225	255	275	125%	295	325	220
Yaak R nr Troy	APR-JUL	320	375	415	99%	455	510	420
	APR-SEP	335	395	435	99%	475	535	440
Kootenai R at Leonia ^{1,2}	APR-JUL	5990	6720	7060	107%	7400	8130	6600
	APR-SEP	6970	7720	8060	106%	8400	9150	7590

1) 90% and 10% exceedance probabilities are actually 95% and 5%

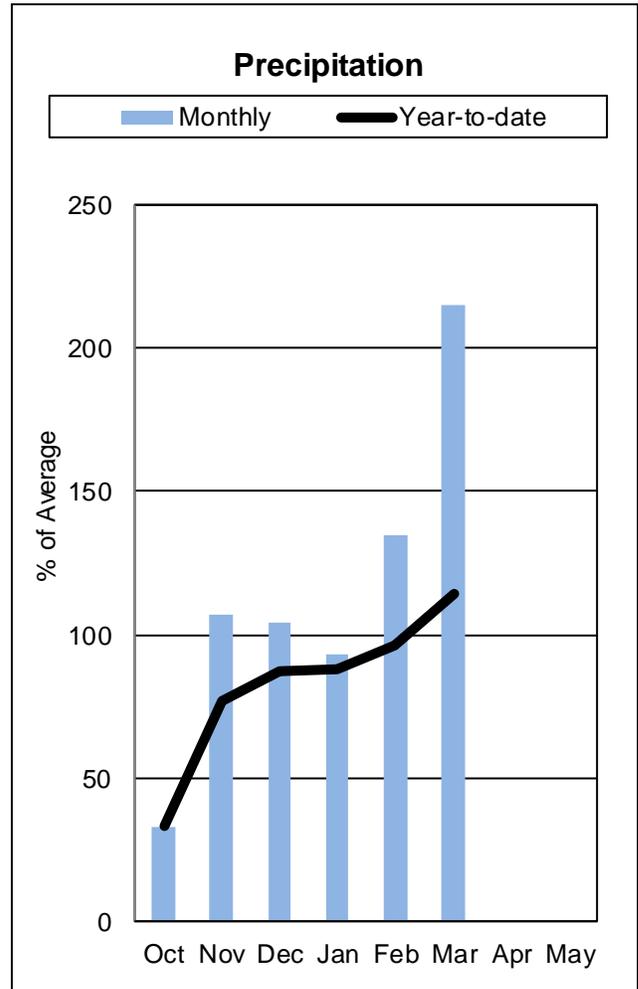
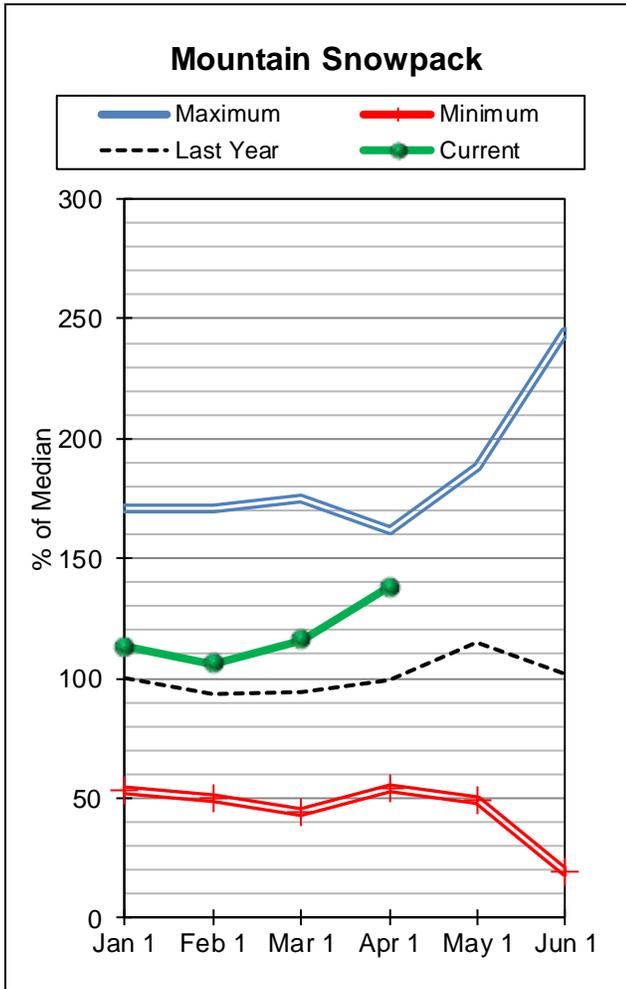
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
LAKE KOOCANUSA	4060.0	3180.0	2408.0	5748.0
Basin-wide Total	4060.0	3180.0	2408.0	5748.0
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
KOOTENAY in CANADA	16	122%	108%
KOOTENAI MAINSTEM	4	117%	96%
TOBACCO	3	126%	100%
FISHER	5	140%	100%
YAAK	2	117%	113%
KOOTENAI RIVER BASIN in MONTANA	14	126%	100%
KOOTENAI ab BONNERS FERRY	29	126%	104%

Flathead River Basin



The Flathead River Basin was hit with a barrage of storms throughout the month of March. All sub-basins reported well above normal snowpacks on April 1. Snowpacks ranged from 127 percent of normal in the North Fork Flathead Basin to 151 percent of normal in the Stillwater-Whitefish Basins. Basinwide the snowpack rounded out at 137 percent of normal and 141 percent of last year.

March was also generous with precipitation in the Flathead Basin. Mountain and valley stations reported well above average precipitation for the month with 215 percent of average and 197 percent of last year. The year to date precipitation is 114 percent of average and 99 percent of last year. Like the Kootenai, the Flathead is slowly recovering from the well below average precipitation of October and November.

Reservoir storages are 116 percent of average and 93 percent of last year.

Streamflows are forecast to be 123 percent of average and 112 percent of last year. This is assuming average precipitation for the April through July period.

Flathead River Basin Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

FLATHEAD RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
NF Flathead R nr Columbia Falls	APR-JUL	1570	1690	1770	115%	1850	1970	1540
	APR-SEP	1720	1860	1950	115%	2040	2180	1700
MF Flathead R nr West Glacier	APR-JUL	1620	1750	1840	123%	1930	2060	1500
	APR-SEP	1760	1900	2000	123%	2100	2240	1630
Sf Flathead R nr Hungry Horse	APR-JUL	1360	1450	1520	129%	1590	1680	1180
	APR-SEP	1430	1540	1610	128%	1680	1790	1260
Hungry Horse Reservoir Inflow ^{1,2}	APR-JUL	2030	2280	2400	129%	2520	2770	1860
	APR-SEP	2140	2420	2540	128%	2660	2940	1980
Flathead R at Columbia Falls ²	APR-JUL	5490	5880	6140	122%	6400	6790	5020
	APR-SEP	5910	6350	6650	122%	6950	7390	5450
Ashley Ck nr Marion ²	APR	1.38	2.2	2.8	108%	3.4	4.2	2.6
	APR-JUL	5.4	6.8	7.7	118%	8.6	10	6.5
Swan R nr Bigfork	APR-JUL	615	670	705	136%	740	795	520
	APR-SEP	695	760	800	134%	840	905	595
Flathead Lake Inflow ^{1,2}	APR-JUL	6080	6800	7130	123%	7460	8180	5810
	APR-SEP	6500	7320	7700	123%	8080	8900	6270
Mill Ck ab Bassoo ck nr Niarada	APR-JUL	5.9	6.7	7.2	180%	7.7	8.5	4
	APR-SEP	6.3	7.1	7.6	173%	8.1	8.9	4.4
South Crow Ck nr Ronan	APR-JUL	9.4	10.8	11.8	117%	12.8	14.2	10.1
	APR-SEP	10.8	12.4	13.5	116%	14.6	16.2	11.6
Mission Ck nr St. Ignatius	APR-JUL	24	26	28	112%	30	32	25
	APR-SEP	28	31	33	110%	35	38	30
SF Jocko R nr Arlee	APR-JUL	41	45	48	145%	51	55	33
	APR-SEP	45	50	53	143%	56	61	37
NF Jocko R bl Tabor Feeder Canal	APR-JUL	38	40	42	135%	44	46	31
	APR-SEP	40	42	44	133%	46	48	33

1) 90% and 10% exceedance probabilities are actually 95% and 5%

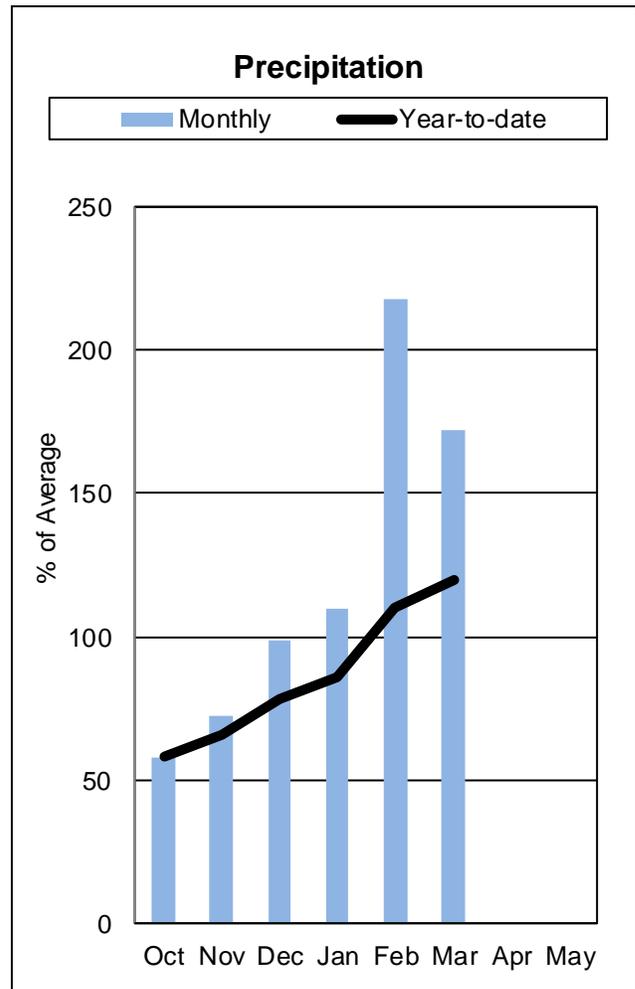
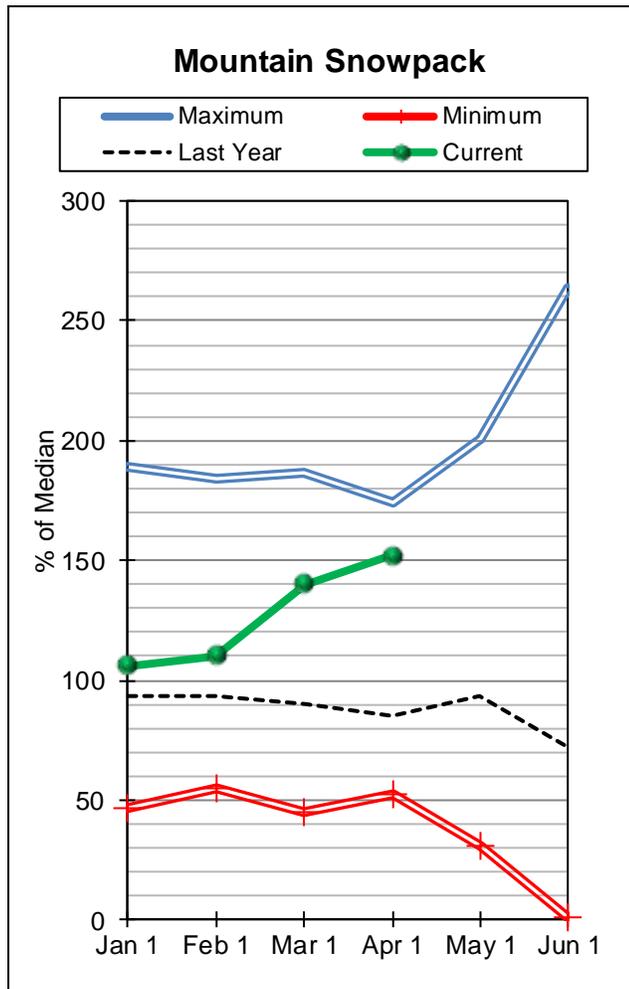
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
CAMAS (4)	27.7	31.8	22.5	45.2
LOWER JOCKO LAKE	0.0	0.0	0.0	6.4
MISSION VALLEY (8)	26.8	22.1	33.7	100.0
HUNGRY HORSE LAKE	2538.0	2896.0	2081.0	3451.0
FLATHEAD LAKE	762.3	644.5	762.6	1791.0
Basin-wide Total	3354.8	3594.3	2899.8	5393.6
# of reservoirs	5	5	5	5

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
NF FLATHEAD in CANADA	3	133%	102%
NF FLATHEAD in MONTANA	9	127%	100%
MIDDLE FORK FLATHEAD	5	138%	108%
SOUTH FORK FLATHEAD	6	137%	99%
STILLWATER-WHITEFISH	9	151%	101%
SWAN	6	134%	102%
MISSION VALLEY	4	142%	92%
LITTLE BITTERROOT-ASHLEY	5	145%	76%
JOCKO	6	134%	102%
FLATHEAD in MONTANA	9	127%	100%
FLATHEAD RIVER BASIN	37	138%	99%

Upper Clark Fork River Basin



Another banner month in the Upper Clark Fork drainages has brought the basin wide percent of normal up an additional 12 percent from March 1st to 152 percent of normal for April 1st, and 178 percent of last year at this time. An average of the SNOTEL sites in the basin yielded 235 percent of normal snowfall for the month, which builds on the significantly above normal snowfall received during the month of February. Snowfall across most elevations in the basin has left significant low-elevation snowcover at the end of March, where some low elevation SNOTEL sites below five thousand feet are seeing record snowpacks for this date in the Blackfoot River drainage. While a substantial amount of snow has fallen in the basin, the Upper Clark Fork is ranked 3rd for SWE basin total for this date, and 4th for annual Maximum SWE.

Precipitation in the basin mimics the trends seen in snowfall during the month, a well above average 172 percent of average was measured during March. This has helped to increase the water year to date precipitation total for the fourth straight month to 120 percent of average, up 10 percent from last month, and 128 percent of last year at this time.

Reservoir storage is currently 99 percent of average and 100 percent of last year.

Streamflow prospects this for the April-July time period in the major basin have risen since last month, with 164 percent of average flows are forecasted, up 16 percent from last month, and 204 percent of last year.

Upper Clark Fork River Basin Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

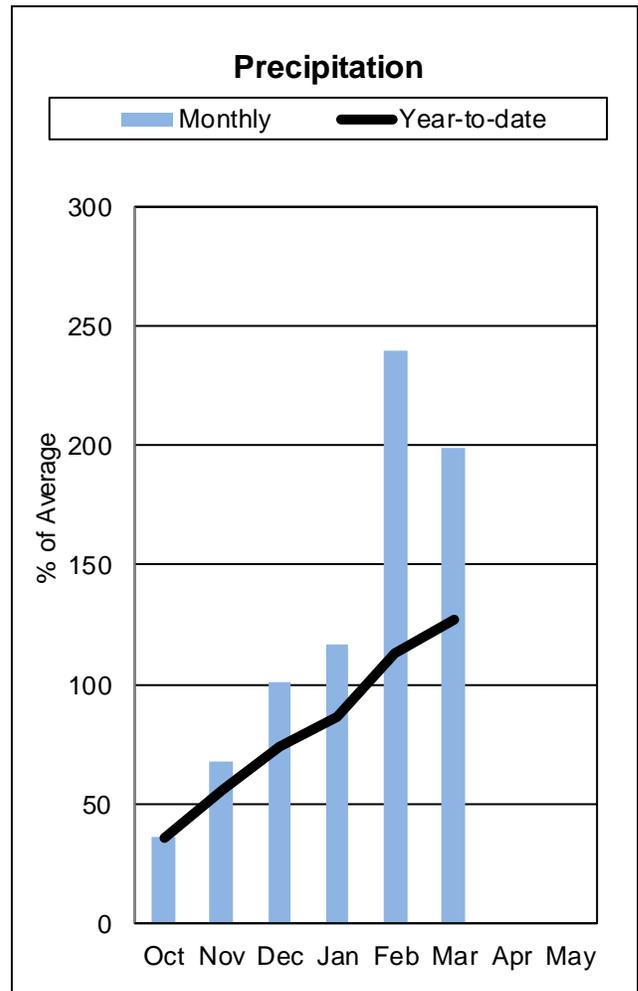
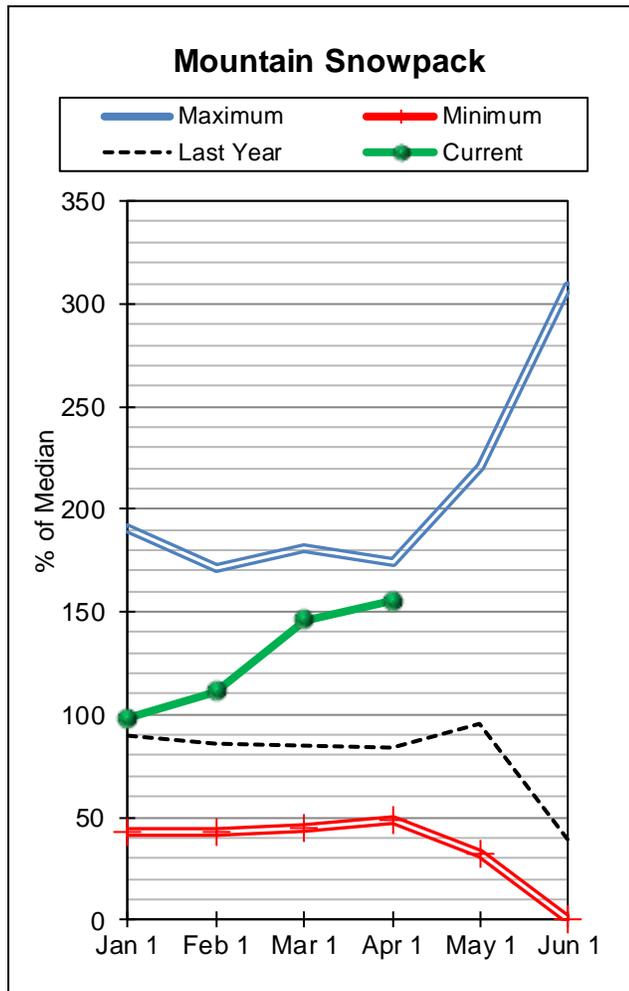
UPPER CLARK FORK RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Little Blackfoot nr Garrison	APR-JUL	98	114	125	179%	136	152	70
	APR-SEP	104	122	134	174%	146	164	77
Flint Ck nr Southern Cross	APR-JUL	13.8	17.5	20	161%	23	26	12.4
	APR-SEP	16.2	21	24	164%	27	32	14.6
Flint Ck bl Boulder Ck	APR-JUL	58	72	82	158%	92	106	52
	APR-SEP	72	89	101	153%	113	130	66
Lower Willow Ck Reservoir Inflow ²	APR-MAY	10.3	12.4	13.8	189%	15.2	17.3	7.3
	APR-JUL	15.4	18.7	21	198%	23	27	10.6
MF Rock Ck nr Philipsburg	APR-JUL	73	83	89	153%	95	105	58
	APR-SEP	80	91	98	151%	105	116	65
Rock Ck nr Clinton	APR-JUL	335	380	410	164%	440	485	250
	APR-SEP	365	415	450	161%	485	535	280
Clark Fork R ab Milltown	APR-JUL	715	850	940	177%	1030	1170	530
	APR-SEP	810	960	1060	172%	1160	1310	615
Nevada Ck nr Helmville	APR-MAY	14.4	17.5	19.6	233%	22	25	8.4
	APR-JUL	23	29	32	225%	35	41	14.2
Blackfoot R nr Bonner	APR-JUL	915	1020	1090	151%	1160	1270	720
	APR-SEP	1010	1120	1200	150%	1280	1390	800
Clark Fork R ab Missoula	APR-JUL	1690	1910	2060	165%	2210	2430	1250
	APR-SEP	1880	2120	2280	161%	2440	2680	1420

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
EAST FORK ROCK CREEK RES	9.7	10.2	9.1	15.6
GEORGETOWN LAKE	28.0	27.9	27.8	31.0
LOWER WILLOW CREEK RESERVOIR		2.3	3.0	4.9
NEVADA CREEK RES	6.5	6.3	7.7	12.6
Basin-wide Total	44.3	46.8	47.6	64.1
# of reservoirs	3	4	4	4

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
CLARK FORK ab FLINT CREEK	14	148%	80%
FLINT CREEK	14	148%	80%
ROCK CREEK	5	146%	90%
CLARK FORK ab BLACKFOOT	22	150%	83%
BLACKFOOT	22	150%	83%
UPPER CLARK FORK RIVER BASIN	33	151%	84%

Bitterroot River Basin



Deep is the best word to describe the snowpack in the Bitterroot River basin ending the month of March, where continued well above average snowfall continued to build the snowpack during the month. The month of March saw 200 percent of the normal monthly snowfall across the basin, building the basin wide snowpack an additional 9 percent since March 1st to 155 percent of normal on April 1st, and is 184 percent of last year at this time. A lot of snow has fallen in the basin since January 1st, but this is not record setting amount on April 1st for the basin. Currently the Bitterroot River basin is ranked 3rd for April 1st, behind both 1997 and 1982. This shouldn't take away from the point that the Bitterroot River basin is well above normal and will yield a substantial amount of water this runoff season.

The abundance of precipitation since January 1st, mostly as snowfall, in the Bitterroot River basin has had a major impact on the water year to date precipitation, and has helped to make up for the well below average October and November precipitation experienced. On January 1st water year to date precipitation was below average at 74 percent, but continued storms which dropped precipitation in the valleys and mountains has helped the basin to climb to 127 percent of average for April 1st, up 13 percent from last month on March 1st, and 125 percent of last year at this time. This is a substantial recovery from early in the season, and will certainly help make up for the deficits experienced earlier this water year.

Reservoir storage is currently 126 percent of average and 104 percent of last year.

Streamflow prospects for the April-July time period are currently 148 percent of average, up 3 percent from 145 percent on March 1st, and 200 percent of last year.

Bitterroot River Basin Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

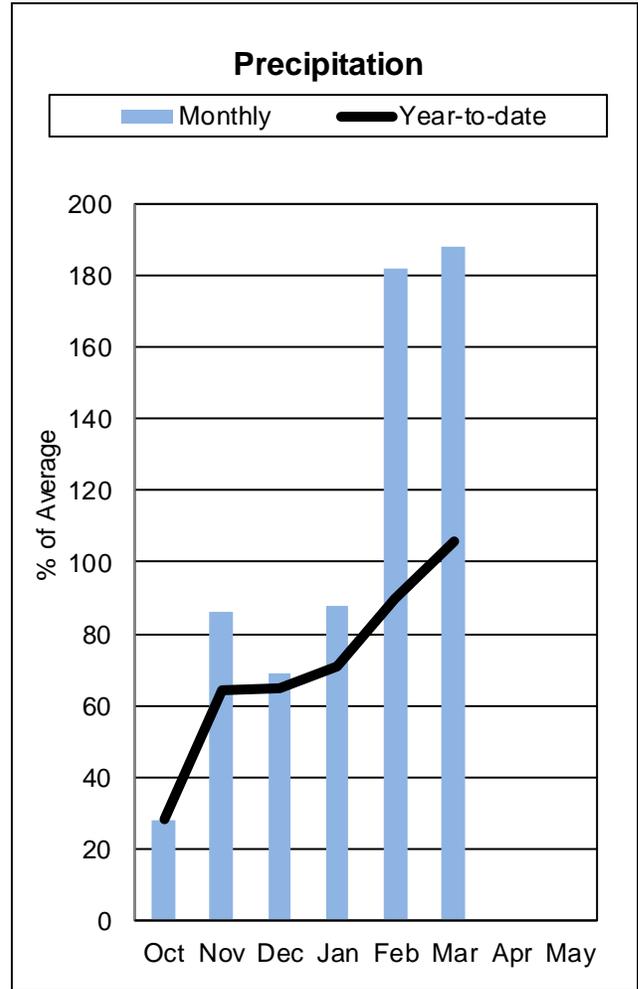
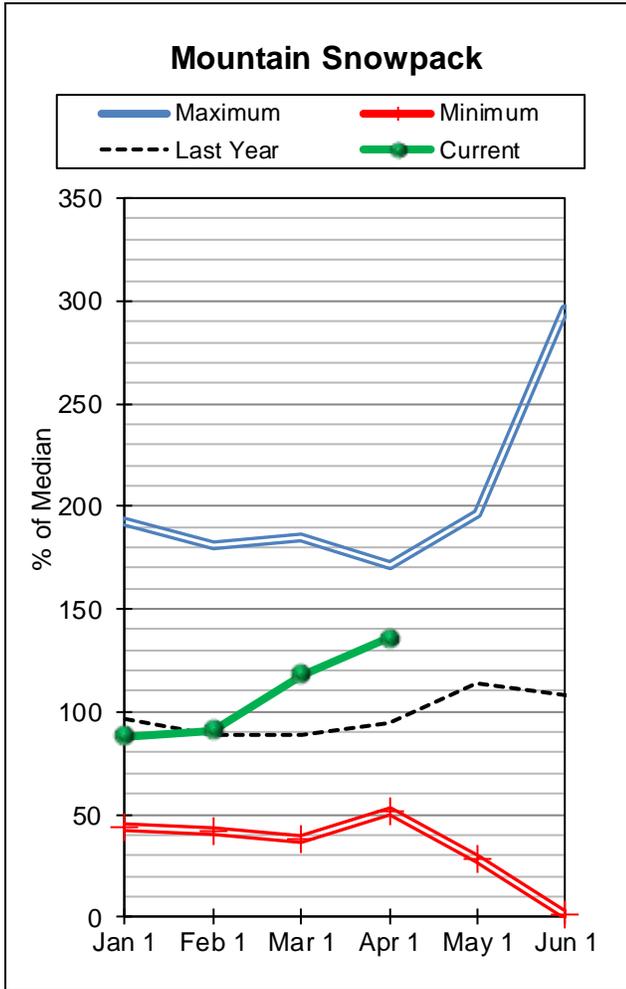
BITTERROOT RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
WF Bitterroot R Nr Conner ²	APR-JUL	163	188	205	160%	220	245	128
	APR-SEP	176	200	220	158%	240	265	139
Bitterroot R Nr Darby	APR-JUL	515	585	635	155%	685	755	410
	APR-SEP	570	640	690	147%	740	810	470
Como Reservoir Inflow ²	APR-JUL	84	91	96	126%	101	108	76
	APR-SEP	87	95	100	127%	105	113	79
Bitterroot R nr Missoula	APR-JUL	1460	1620	1720	150%	1820	1980	1150
	APR-SEP	1550	1720	1830	146%	1940	2110	1250

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
PAINTED ROCKS LAKE	14.1	12.3	8.7	31.7
LAKE COMO	16.4	16.9	15.6	34.9
Basin-wide Total	30.5	29.2	24.3	66.6
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
WEST FORK BITTERROOT	2	157%	89%
EAST SIDE BITTERROOT	5	155%	85%
WEST SIDE BITTERROOT	3	155%	81%
BITTERROOT RIVER BASIN	9	155%	84%

Lower Clark Fork River Basin



The Lower Clark Fork continued to receive well above normal snow for the month of March. Sites within the interior portion of the basin in Montana saw well above average snowpacks while the sites within the Idaho Panhandle area finally received well above normal snow. Overall, snowpack is 136 percent of normal and 137 percent of last year.

The continued well above average precipitation in March has again helped the basin recover from the well below average precipitation from last fall. Mountain precipitation was 183 percent of average while the valley stations were 215 percent of average. The combined March precipitation for the Lower Clark Fork Basin was 188 percent of average and 202 percent of last year. Year to date precipitation is 106 percent of average and 101 percent of last year.

Reservoir storage in Noxon Rapids is 103 percent of average and 101 percent of last year.

Assuming average precipitation for April through July, the streamflows are forecast to be 139 percent of average and 150 percent of last year.

Lower Clark Fork River Basin Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

LOWER CLARK FORK RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Clark Fork R bl Missoula	APR-JUL	3130	3490	3730	155%	3970	4330	2400
	APR-SEP	3410	3800	4060	152%	4320	4710	2670
Clark Fork R at St. Regis ¹	APR-JUL	3990	4620	4910	155%	5200	5830	3160
	APR-SEP	4330	5020	5330	152%	5640	6330	3510
Clark Fork R nr Plains ^{1,2}	APR-JUL	10400	11800	12400	135%	13000	14400	9200
	APR-SEP	11300	12800	13500	134%	14200	15700	10100
Thompson nr Thompson Falls	APR-JUL	175	210	230	127%	250	285	181
	APR-SEP	196	230	255	124%	280	315	205
Prospect Ck at Thompson Falls	APR-JUL	102	113	121	119%	129	140	102
	APR-SEP	110	122	130	118%	138	150	110
Clark Fork R at Whitehorse Rapids ^{1,2}	APR-JUL	11900	13400	14000	133%	14600	16100	10500
	APR-SEP	13000	14600	15300	133%	16000	17600	11500

1) 90% and 10% exceedance probabilities are actually 95% and 5%

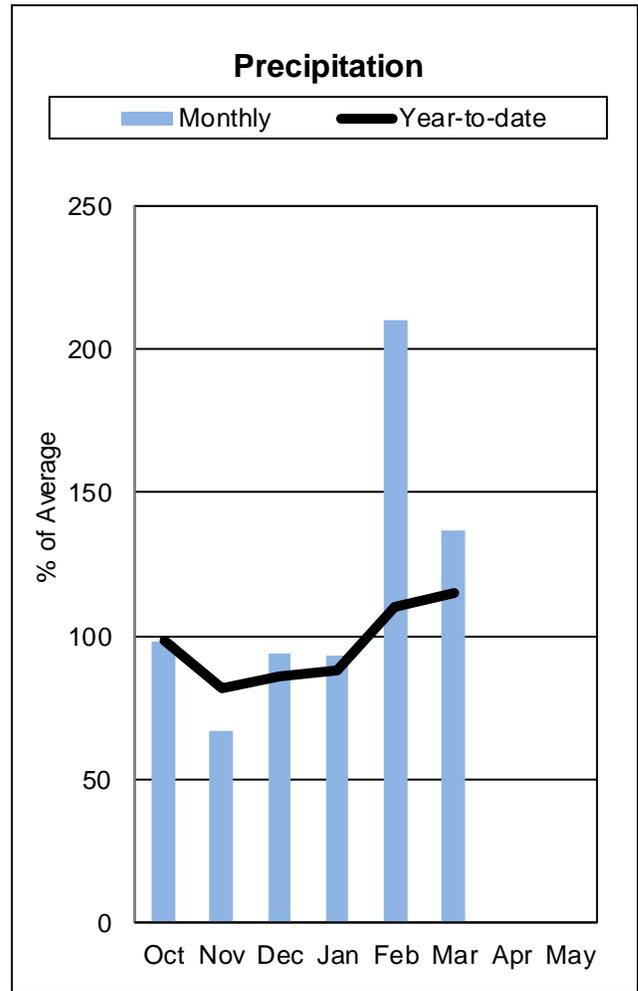
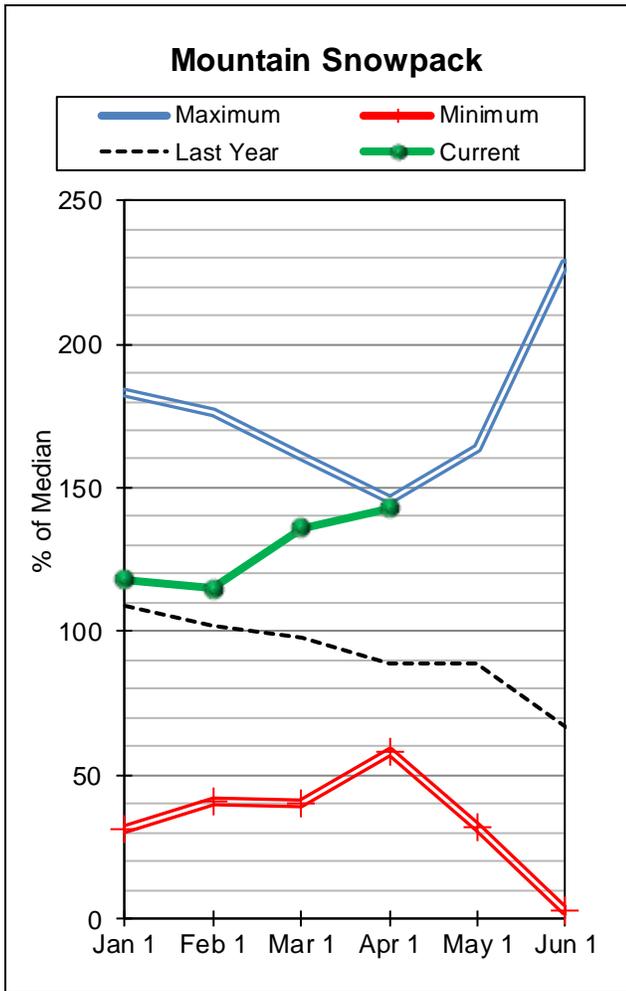
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
NOXON RAPIDS RES	319.1	317.5	309.9	335.0
Basin-wide Total	319.1	317.5	309.9	335.0
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
LOWER CLARK FORK RIVER BASIN	12	136%	94%

Jefferson River Basin



Certain parts of the Jefferson River basin saw some much needed snowfall this month, helping the basin to increase for the 2nd straight month for basin snow totals. As you move from south to north in this basin the snowpack percentages of normal improve, with the SNOTEL sites and snowcourses in the Bighole and Boulder drainages being highest at this time. In the southern end of the basin which has been well below normal for snowfall and precipitation this year, the upper reaches of the Ruby River basin above the Ruby Reservoir saw above average snowfall this month, and has helped the sub-basin to climb to slightly above normal for the first time this year. Just south in the Centennial Range feeding Lima Reservoir there was also some improvement, however the gains were not substantial enough to help the sub-basin improve to near average. Currently the Lakeview Ridge SNOTEL site is below normal at 85 percent, but did see a substantial increase from 61 percent of normal on March 1st. The continued above average snowfall in northern tributaries of the Jefferson have helped to improve the basin snowpack totals again this month, on April 1st the Jefferson River basin is 143 percent of normal, up 7 percent from 136 percent of normal on March 1st, and 163 percent of last year at this time.

After a dry November and December in the Jefferson River basin, recovery continues in most parts of the water year to date precipitation numbers. Overall the basin saw another gain this month, increasing 6 percent from March 1st to 115 percent of average on April 1st, and 129 percent of last year at this time. Once again, basin numbers tend to favor the northern parts of the basin, while the southern headwaters are still below average.

Reservoir storage is currently 81 percent of average and 77 percent of last year.

Streamflow prospects also tend to be lower in the southern part of the basin with inflow to Lima Reservoir the lowest at 80 percent of average. Substantial improvements are made as you move north along the Jefferson River, leaving the basin above average at 118 percent of average for the greater basin.

Jefferson River Basin Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

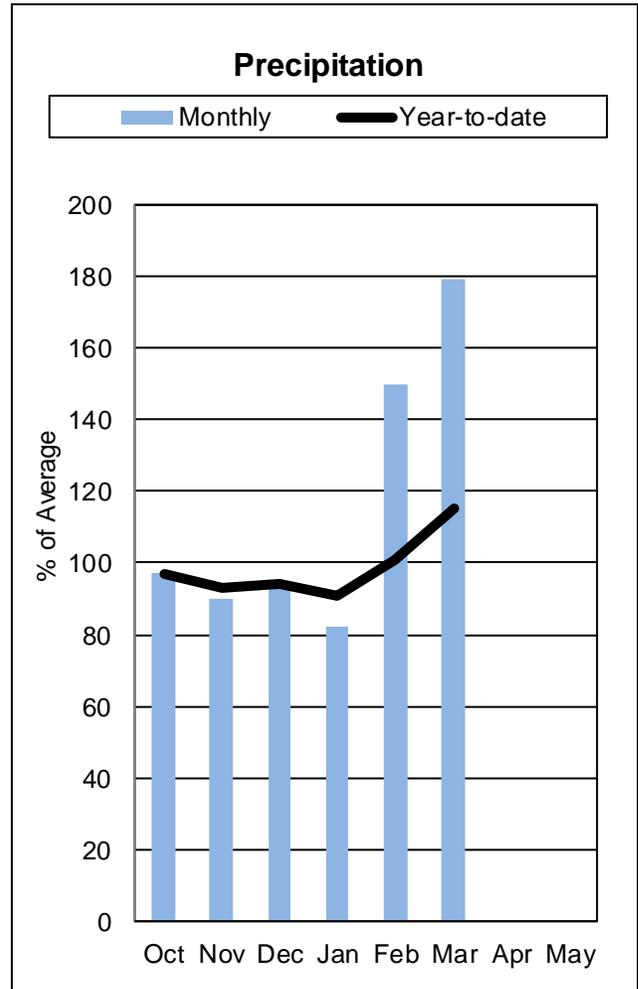
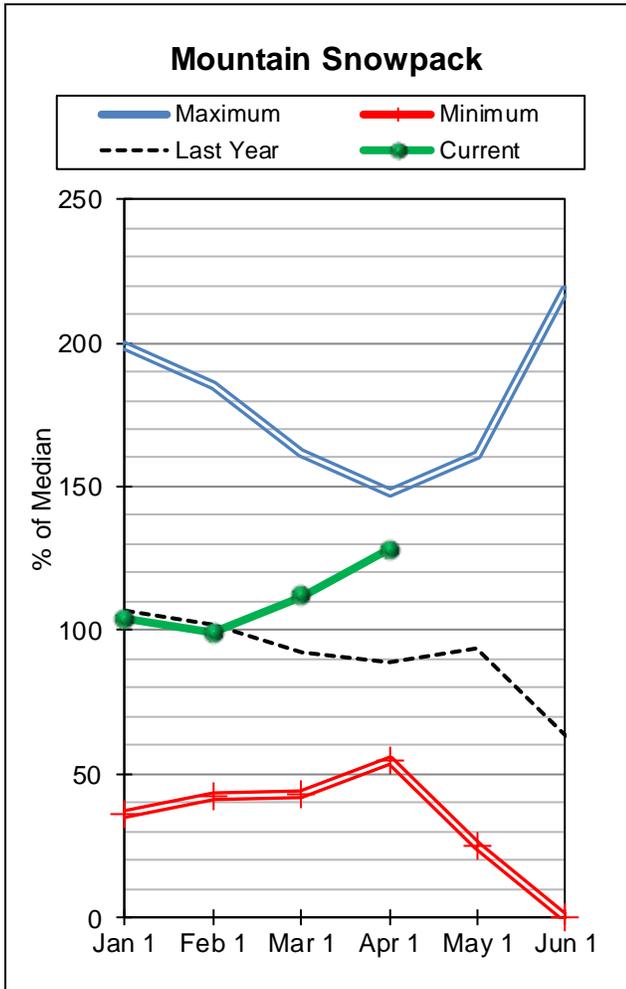
JEFFERSON RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Lima Reservoir Inflow ²	APR-JUL	49	59	66	80%	73	83	82
	APR-SEP	50	62	70	79%	78	90	89
Clark Canyon Inflow ²	APR-JUL	31	71	98	97%	125	165	101
	APR-SEP	48	90	119	99%	148	190	120
Beaverhead R at Barretts ²	APR-JUL	27	89	131	102%	174	235	129
	APR-SEP	35	109	159	102%	210	285	156
Ruby R Reservoir Inflow ²	APR-JUL	54	67	77	100%	86	99	77
	APR-SEP	65	80	91	100%	102	117	91
Big Hole R at Wisdom	APR-JUL	103	142	168	165%	194	235	102
	APR-SEP	106	149	178	165%	205	250	108
Big Hole R nr Melrose	APR-JUL	670	760	825	160%	890	980	515
	APR-SEP	715	820	890	159%	955	1060	560
Jefferson R nr Twin Bridges ²	APR-JUL	645	840	975	141%	1110	1300	690
	APR-SEP	685	910	1060	145%	1210	1430	730
Boulder R nr Boulder	APR-JUL	88	102	112	162%	122	136	69
	APR-SEP	92	108	118	159%	129	145	74
Willow Ck Reservoir Inflow ²	APR-JUL	26	30	34	202%	37	41	16.8
	APR-SEP	30	35	39	202%	42	47	19.3
Jefferson R nr Three Forks ²	APR-JUL	860	1070	1200	162%	1340	1550	740
	APR-SEP	915	1140	1300	163%	1450	1680	800

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
LIMA RESERVOIR	25.4	45.4	34.2	84.0
CLARK CANYON RES	101.7	132.7	134.5	255.6
RUBY RIVER RESERVOIR	34.5	31.7	31.5	38.8
Basin-wide Total	161.6	209.8	200.2	378.4
# of reservoirs	3	3	3	3

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
BEAVERHEAD	10	129%	98%
RUBY	5	135%	87%
BIGHOLE	14	153%	88%
BOULDER	7	165%	83%
JEFFERSON RIVER BASIN	30	144%	89%

Madison River Basin



Some of the best snowfall in relation to percentage of normal this month fell where it was needed most in the Madison River Basin. In the uppermost reaches above Hebgen Lake we continue to see improvement which has improved from below normal at 91 percent on February 1st, to now above normal at 123 percent on April 1st. West Yellowstone and the Madison Plateau south of town received well above average during the month, and basin wide SNOTEL sites in the basin showed 182 percent of normal snowfall for the month of March. This coupled with continued snowfall in the basin further north has helped the greater basin to go from near normal on February 1st to well above normal at 127 percent on April 1st, and is 142 percent of last year at this time.

Well below average precipitation in the Madison River basin during the months of December through January has kept the basin below to near normal for the water year to date precipitation. Things have since turned around with the abundance of moisture in February and March, aiding in climbing to 115 percent of average for April 1st, up 14 percent from 101 percent on March 1st, and 125 percent of last year at this time.

Reservoir storage is 109 percent of average and 107 percent of last year.

Streamflow prospects have also improved with the snowfall seen this month, with the April-July forecasts indicating 108 percent, rising 10 percent from 98 percent of average on March 1st, and 153 percent of last year.

Madison River Basin Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

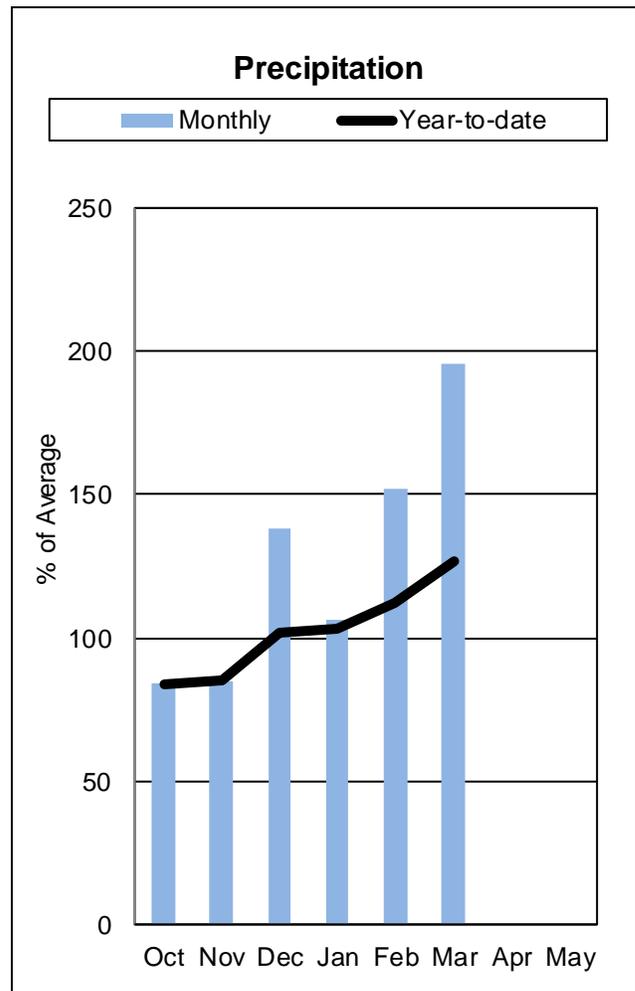
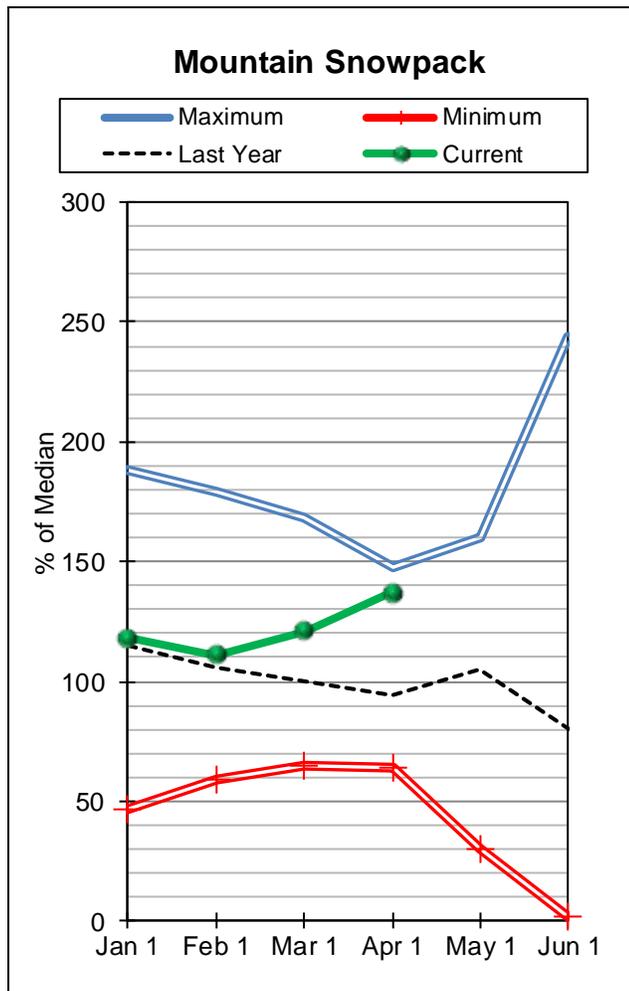
MADISON RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Hebgen Reservoir Inflow ²	APR-JUL	360	390	410	111%	430	460	370
	APR-SEP	455	490	515	110%	540	575	470
Ennis Reservoir Inflow ²	APR-JUL	545	615	665	106%	710	780	625
	APR-SEP	675	755	810	105%	865	950	775

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
ENNIS LAKE - LOWER MADISON RES	28.5	28.5	29.5	41.0
HEBGEN LAKE	297.0	276.6	270.4	377.5
Basin-wide Total	325.6	305.2	299.9	418.5
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
MADISON abv HEBGEN LAKE	5	123%	90%
MADISON blw HEBGEN LAKE	10	132%	87%
MADISON RIVER BASIN	15	128%	88%

Gallatin River Basin



It has snowed a lot in the Gallatin River Basin this year and a lot of residents are ready to stop shoveling their driveways. It's always important to remember that snow equals water, and there is a lot of water in the mountains. Currently the SNOTEL sites in the Bridger Range, Sacajawea and Brackett Creek, are ranked #1 and #2 respectively for snowpack on April 1st. The continued favorable storm patterns this month brought a whopping 196 percent of the normal March snowfall at SNOTEL sites. This year there had been less snowfall in the southern headwaters of the basin, but this month we saw ample snowfall in this region which has helped the basin wide snowpack percentages. The basin is currently ranked 2nd for snowpack on this date, and 138 percent of normal for April 1st, up 17 percent from March 1st, and 146 percent of last year at this time. It is important to remember that typically the peak SWE for this basin occurs in late April to early May, so another month of accumulation is certainly possible. That being said, the impressive snowpack totals so far are still ranked 7th out of 34 years for maximum SWE and the coming month will certainly dictate the timing and magnitude of the flows this year.

After a lack luster October and November the Gallatin River basin has done well in terms of water year to date precipitation. March continued this trend and raised the water year to date average an additional 15 percent from March 1st to 127 percent on April 1st, and is 133 percent of last year at this time.

Reservoir storage is currently 80 percent of average in Middle Creek Reservoir and 94 percent of last year.

April-July streamflow forecasts have also increased in the basin since last month due to the continued mountain and valley precipitation. Currently streamflow forecasts indicate 129 percent of average, up 19 percent from last month on March 1st and 180 percent of last year.

Gallatin River Basin Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

GALLATIN RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Gallatin R nr Gateway	APR-JUL	405	455	495	124%	530	580	400
	APR-SEP	470	530	570	121%	615	675	470
Hyalite Reservoir Inflow ²	APR-JUL	24	26	27	135%	28	30	20
	APR-SEP	28	30	31	135%	32	34	23
Gallatin R at Logan	APR-JUL	430	525	590	134%	650	745	440
	APR-SEP	485	595	665	132%	740	850	505

1) 90% and 10% exceedance probabilities are actually 95% and 5%

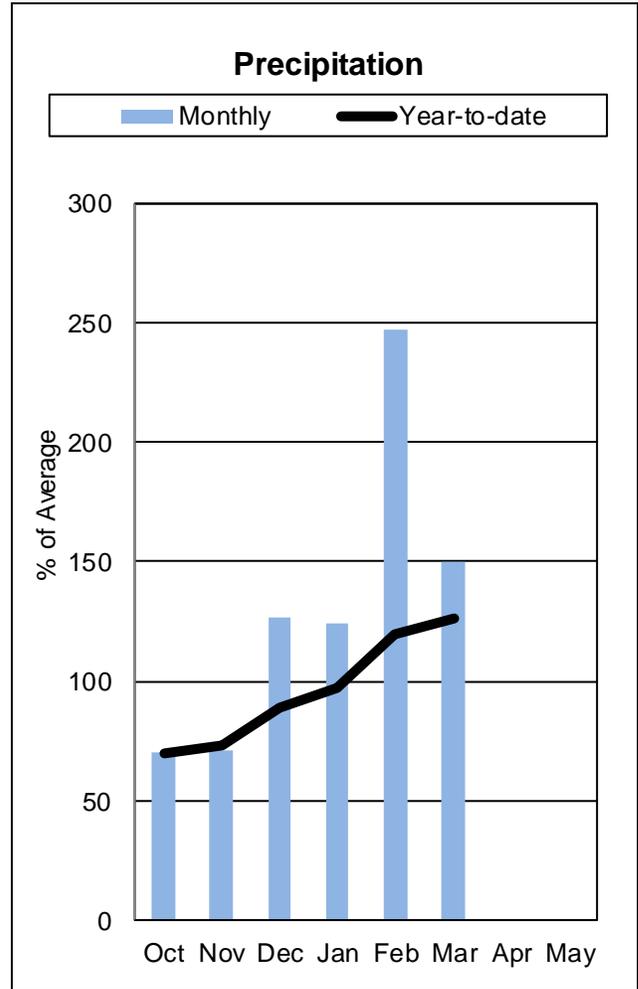
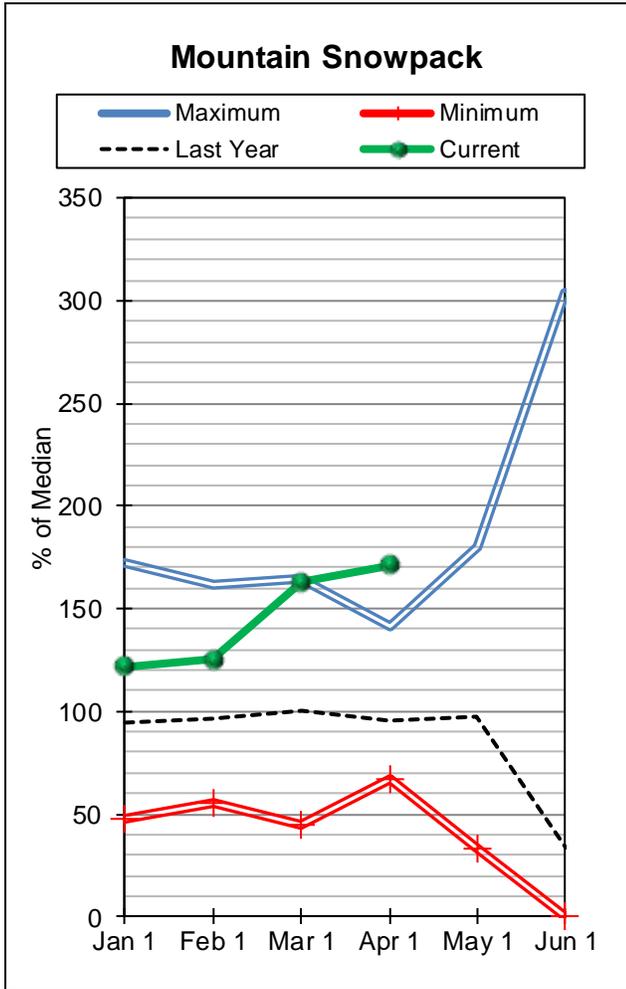
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
MIDDLE CREEK RES	4.5	4.8	5.6	10.2
Basin-wide Total	4.5	4.9	5.6	10.2
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
UPPER GALLATIN	6	127%	99%
HYALITE	4	142%	88%
BRIDGER	2	162%	88%
GALLATIN RIVER BASIN	12	137%	94%

Missouri Mainstem River Basin



The central mountains east of the Divide received nearly continuous snowfall during February and March, actually setting a new record for basin wide SWE for April 1st. The snowfall during February set the stage for this to happen, and the additional 173 percent of normal snowfall during the month of March has continued to rank the basin highest in SWE since March 1st. The snowpack in the basin has still yet to exceed the maximum SWE recorded which occurred in 2011, but continued snowfall in this basin could certainly exceed this value. Zones along the Continental Divide in the central mountains have been favored during the last two months, and the adjacent basin to the west the Upper Clark Fork has seen this similar trend in accumulation. A close eye will be on this basin this spring as April can easily produce snowfall in this area. Currently the Missouri Mainstem is 160 percent of normal, up 14 percent from last month on March 1st, and 168 percent of last year at this time.

October and November were well below average in the Missouri Mainstem River basin, but since December 1st there has been 4 consecutive months of above average precipitation. This trend has left the basin well above average for April 1st at 126 percent, up 7 percent from March 1st, and 113 percent of last year at this time.

Reservoir storage is 100 percent of average and 102 percent of last year.

With the abundance of precipitation April-July streamflow prospects are up yet again, with forecasts indicating 148 percent of average, up 26 percent from the March 1st forecasts and 199 percent of last year.

Missouri Mainstem Basin Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

MISSOURI MAINSTEM BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Missouri R at Toston ²	APR-JUL	1900	2240	2470	138%	2700	3040	1790
	APR-SEP	2120	2530	2810	136%	3080	3490	2070
Dearborn R nr Craig	APR-JUL	68	97	116	130%	136	165	89
	APR-SEP	75	105	126	133%	146	176	95
Missouri R at Fort Benton ²	APR-JUL	2810	3320	3670	141%	4020	4530	2610
	APR-SEP	3210	3840	4260	137%	4690	5320	3110
Missouri R nr Virgelle ²	APR-JUL	3200	3790	4190	140%	4600	5190	3000
	APR-SEP	3580	4300	4800	136%	5290	6010	3520
Missouri R nr Landusky ²	APR-JUL	3540	4140	4540	144%	4950	5550	3160
	APR-SEP	3950	4690	5190	140%	5700	6440	3720
Missouri R bl Fort Peck Dam ²	APR-JUL	3720	4400	4860	150%	5320	6000	3240
	APR-SEP	3960	4830	5430	147%	6020	6890	3700
Lake Sakakawea Inflow ²	APR-JUL	10200	11900	13000	156%	14100	15800	8310
	APR-SEP	11100	13200	14600	155%	16000	18200	9400

1) 90% and 10% exceedance probabilities are actually 95% and 5%

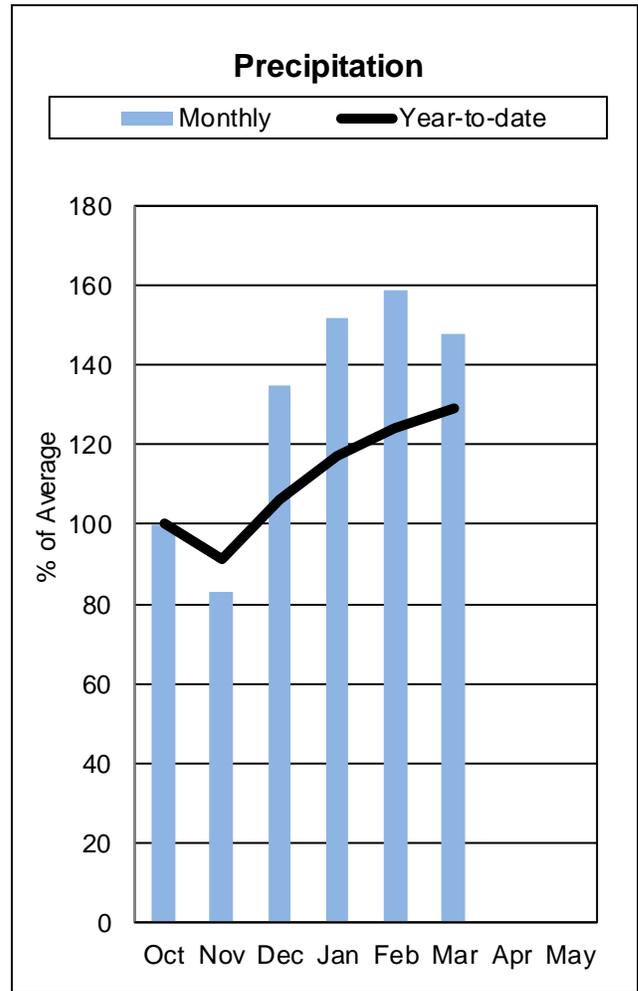
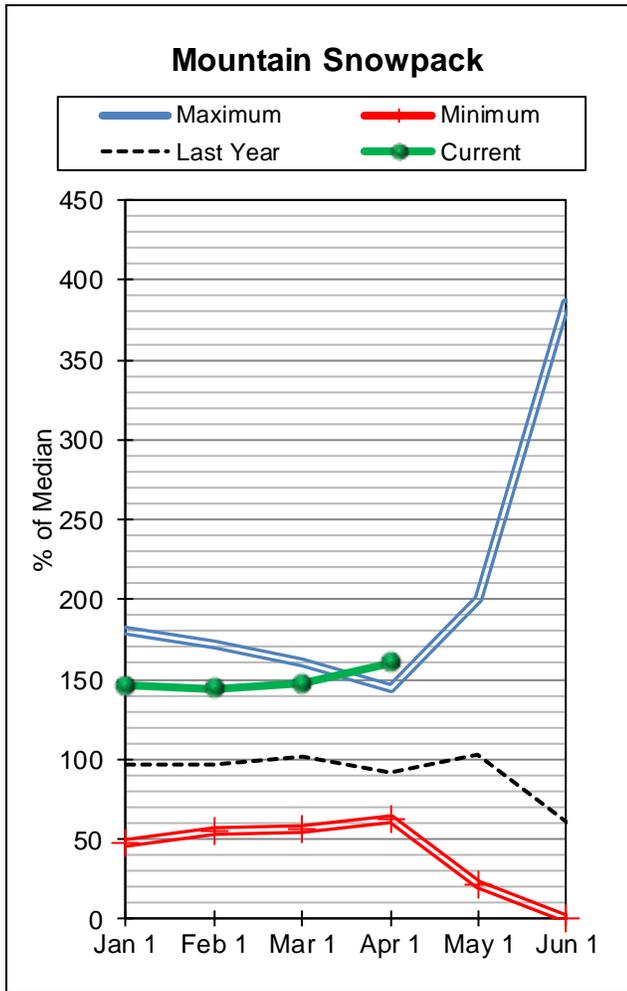
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
CANYON FERRY LAKE	1407.2	1452.1	1457.0	2043.0
HELENA VALLEY RESERVOIR	5.8	5.1	4.6	9.2
LAKE HELENA	10.0	10.3	10.9	12.7
HAUSER LAKE & LAKE HELENA	70.5	71.6	73.5	74.6
HOLTER LAKE	80.9	81.1	77.9	81.9
FORT PECK LAKE	13125.5	12745.4	13029.0	18910.0
Basin-wide Total	14699.9	14365.5	14652.9	21131.4
# of reservoirs	6	6	6	6

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
HEADWATERS MAINSTEM	9	171%	95%
SMITH-JUDITH-MUSSELSHELL	14	158%	95%
SUN-TETON-MARIAS	11	149%	89%
MAINSTEM ab FT PECK RES	35	159%	93%
MILK RIVER BASIN	3	161%	148%
MISSOURI MAINSTEM BASIN	38	159%	94%

Smith-Judith-Musselshell River Basins



Mother Nature has been very generous with storms in this region. The Smith-Judith-Musselshell Basins continue to see well above average snowpacks. The combined basins' percentages are 160 percent of normal and 167 percent of last year.

Mountain and valley precipitation for March in the Musselshell Drainage was well above average at 175 percent of average and 592 percent of last year. Last year, March mountain and valley precipitation in the Musselshell was only 27 percent of average. Precipitation in the Judith was 149 percent of average and 288 percent of last year. Precipitation in the Smith was 133 percent of average and 253 percent of last year. The combined basins' March mountain and valley precipitation was 150 percent of average and 306 percent of last year. Year to date precipitation is 129 percent of average and 128 percent of last year.

Reservoir storages in the basins are 115 percent of average and 104 percent of last year.

Streamflow forecasts are 215 percent of average and 420 percent of last year. This is assuming average precipitation April through July.

Smith-Judith-Musselshell Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

SMITH-JUDITH-MUSSELSHELL	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Sheep Ck nr White Sulphur Springs	APR-JUL	16	19.2	21	135%	24	27	15.5
	APR-SEP	18.1	22	25	136%	27	31	18.4
Smith R bl Eagle Ck ²	APR-JUL	119	150	171	161%	192	225	106
	APR-SEP	127	165	191	165%	215	255	116
NF Musselshell R nr Delpine	APR-JUL	4.2	5.3	6.1	179%	6.9	8	3.4
	APR-SEP	5	6.3	7.2	180%	8.1	9.4	4
SF Musselshell R ab Martinsdale	APR-JUL	33	49	60	171%	71	87	35
	APR-SEP	35	53	65	171%	77	95	38
Musselshell R at Harlowton ²	APR-JUL	91	121	142	249%	162	193	57
	APR-SEP	91	124	146	247%	169	200	59
Musselshell R nr Roundup ²	APR-JUL	106	169	210	313%	255	315	67
	APR-SEP	108	170	215	326%	255	315	66

1) 90% and 10% exceedance probabilities are actually 95% and 5%

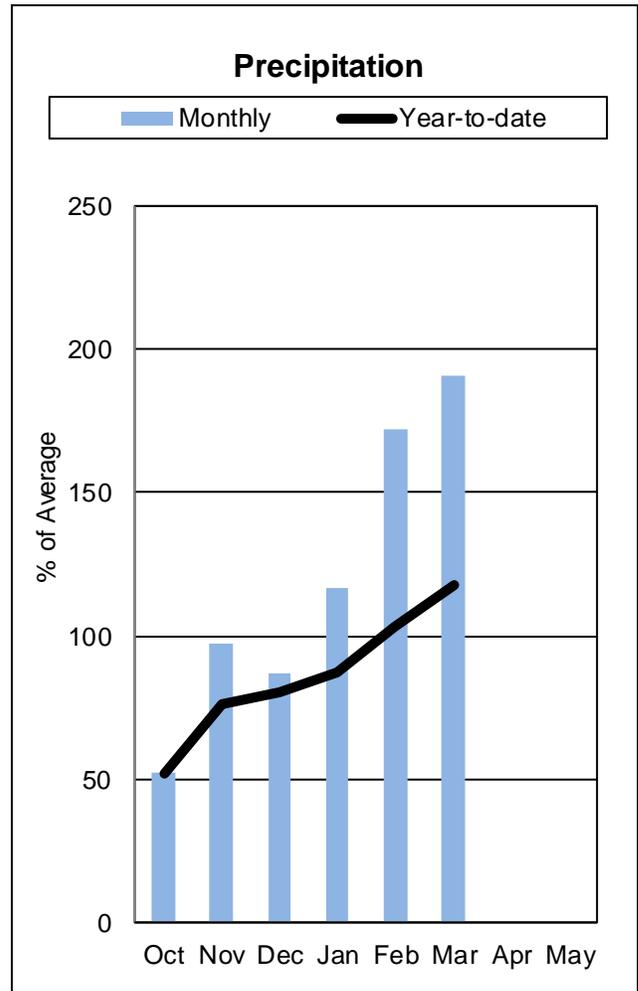
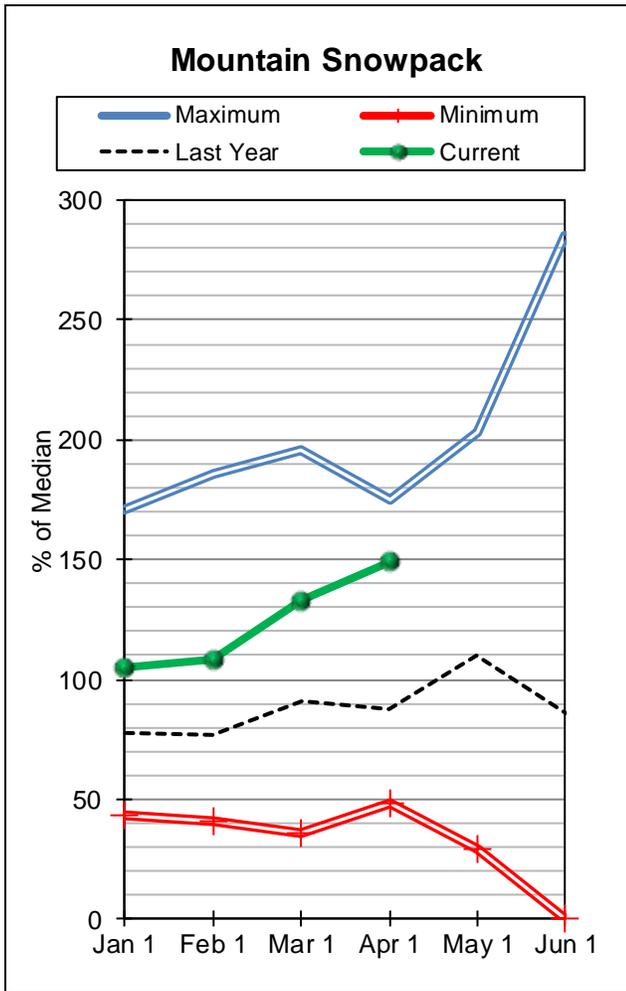
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
SMITH RIVER RES	8.1	7.5	6.7	10.6
ACKLEY LAKE	4.2	2.9	2.8	7.0
BAIR RES	3.8	4.5	3.7	7.0
MARTINSDALE RES	7.3	6.9	8.8	23.1
DEADMAN'S BASIN RES	56.4	54.8	47.5	72.2
Basin-wide Total	79.9	76.7	69.5	119.9
# of reservoirs	5	5	5	5

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
SMITH	7	149%	98%
HIGHWOOD	16	122%	108%
JUDITH	5	146%	94%
MUSSELSHELL	6	184%	92%
SMITH-JUDITH-MUSSELSHELL	14	158%	95%

Sun-Teton-Marias River Basins



March brought another round of moisture laden storms which increased the snowpacks approximately 15 percent. The Sun Drainage is leading the way with 156 percent of normal, the Teton Drainage is 147 percent of normal and the Marias Drainage is 141 percent of normal. The combined basins' snowpack on April 1 is 149 percent of normal and 167 percent of last year.

Mountain and valley precipitation for March was well above average at 178 percent of average and 232 percent of last year. Year to date precipitation is 113 percent of average and 102 percent of last year.

Reservoir storages range from well below average at 51 percent of average at Gibson Reservoir to 121 percent of average for Willow Creek. The combined storages for all the reservoirs in these basins are 94 percent of average and 96 percent of last year.

Assuming average April through July precipitation, the streamflow forecasts are 136 percent of average and 147 percent of last year.

Sun-Teton-Marias

Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

SUN-TETON-MARIAS	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Gibson Reservoir Inflow	APR-JUL	450	500	530	134%	565	615	395
	APR-SEP	490	545	580	132%	615	670	440
Two Medicine R nr Browning ²	APR-JUL	195	220	235	128%	250	275	183
	APR-SEP	205	230	250	129%	265	290	194
Badger Ck nr Browning	APR-JUL	88	101	110	125%	119	132	88
	APR-SEP	101	116	126	122%	136	151	103
Swift Reservoir Inflow ²	APR-JUL	52	63	71	125%	78	89	57
	APR-SEP	62	74	83	124%	91	104	67
Dupuyer Ck nr Valier	APR-JUL	3.3	10.4	15.2	137%	20	27	11.1
	APR-SEP	3.9	11.7	17	134%	22	30	12.7
Cut Bank Ck nr Browning	APR-JUL	63	75	83	120%	91	103	69
	APR-SEP	68	81	90	120%	99	112	75
Marias R nr Shelby ²	APR-JUL	340	435	500	145%	570	665	345
	APR-SEP	340	445	520	144%	595	700	360
Teton R nr Dutton	APR-JUL	27	53	71	169%	89	115	42
	APR-SEP	32	60	79	165%	98	127	48

1) 90% and 10% exceedance probabilities are actually 95% and 5%

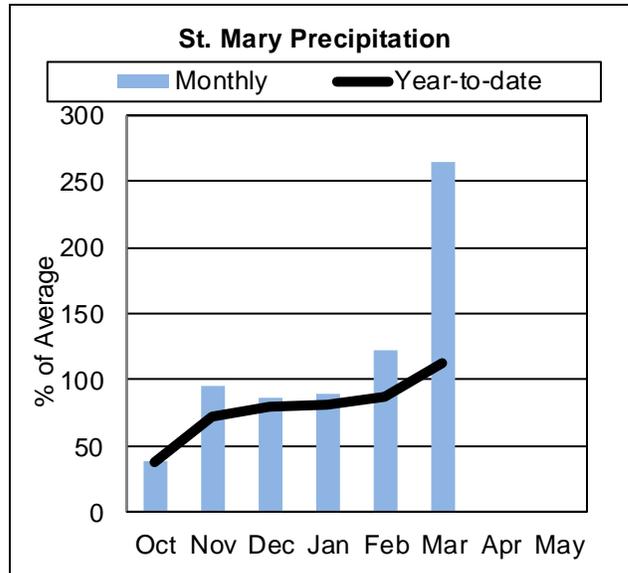
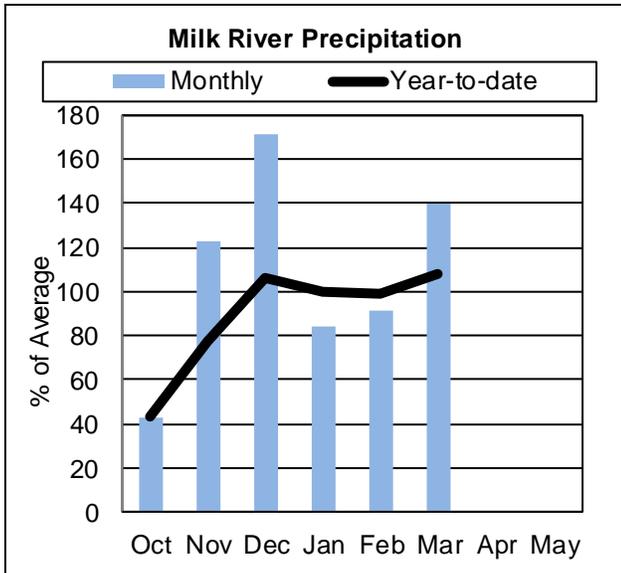
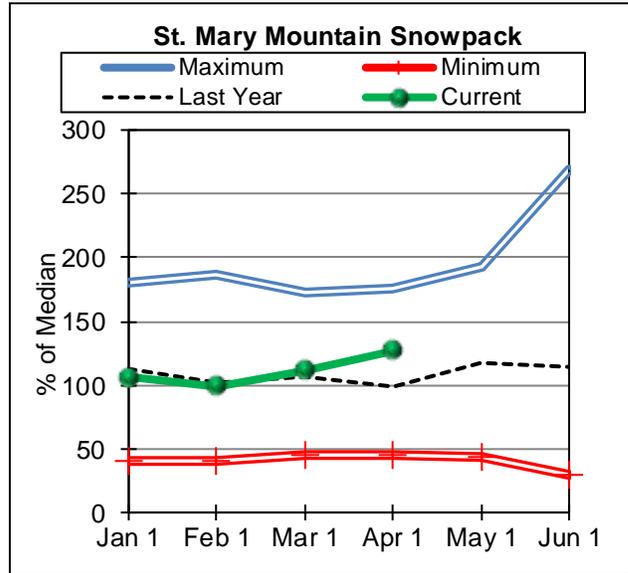
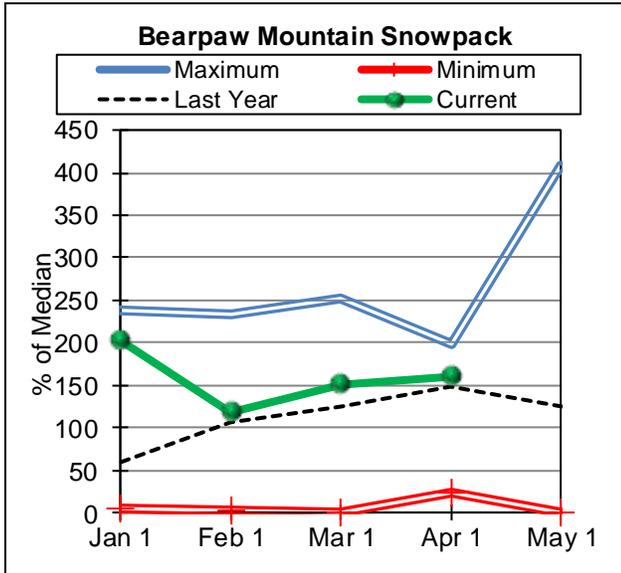
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
GIBSON RES	24.6	23.6	47.9	99.1
PISHKUN RES	6.1	1.8	18.2	32.0
WILLOW CREEK	28.8	27.7	23.8	32.2
LOWER TWO MEDICINE LAKE	6.3	3.2	9.0	11.9
FOUR HORNS LAKE	9.9	8.8	10.1	19.2
SWIFT RES	7.3	16.6	17.2	30.0
LAKE FRANCES	47.0	41.5	60.1	112.0
LAKE ELWELL (TIBER)	731.0	742.2	697.7	1347.0
Basin-wide Total	860.9	865.4	884.0	1683.4
# of reservoirs	8	8	8	8

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
SUN	16	122%	108%
TETON	4	147%	79%
MARIAS	5	138%	108%
SUN-TETON-MARIAS	11	149%	89%

St. Mary and Milk River Basins



Like the majority of the basins in Montana, April 1 snowpacks in the St. Mary and Milk River Basins are well above normal. The St. Mary snowpacks are at 127 percent of normal and 128 percent of last year. The Bear Paw Mountains have 161 percent of normal snowpacks. The overall Milk River snowpacks are 123 percent of average and 109 percent of last year. The basins' combined overall snowpack is 125 percent of normal and 124 percent of last year.

March mountain and valley precipitation was well above average for both the St. Mary and the Milk River Basins. The St. Mary which is based on the two SNOTEL sites within Glacier National Park was 264 percent of average and 193 percent of last year. The Milk River Basin mountain and valley precipitation for March was 141 percent of average and 177 percent of last year. The combined basin's mountain and valley precipitation for March is 112 percent of average and 84 percent of last year.

Reservoir storages in the basins are 106 percent of average and 117 percent of last year.

Assuming average precipitation for the April through July period, streamflow forecasts for the St. Mary River Basin are 112 percent of average and 103 percent of last year observed flow. Forecasts for the Milk River Basin are for 112 percent of average and 95 percent of last year again assuming average precipitation for the April through July period.

St. Mary & Milk Basins Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

ST. MARY & MILK BASINS	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Lake Sherburne Inflow	APR-JUL	97	105	111	114%	117	125	97
	APR-SEP	112	121	128	114%	135	144	112
St. Mary R nr Babb ²	APR-JUL	345	385	410	111%	435	475	370
	APR-SEP	400	445	475	112%	505	550	425
St. Mary R at Intl Boundary ²	APR-JUL	390	445	485	111%	525	580	435
	APR-SEP	465	525	565	112%	605	665	505
Milk R at Western Crossing of Intl Bndry, AB	APR-SEP	17.6	24	31	124%	45	56	25
Milk R at Eastern Crossing of Intl Bndry	APR-SEP	36	47	60	133%	73	124	45

1) 90% and 10% exceedance probabilities are actually 95% and 5%

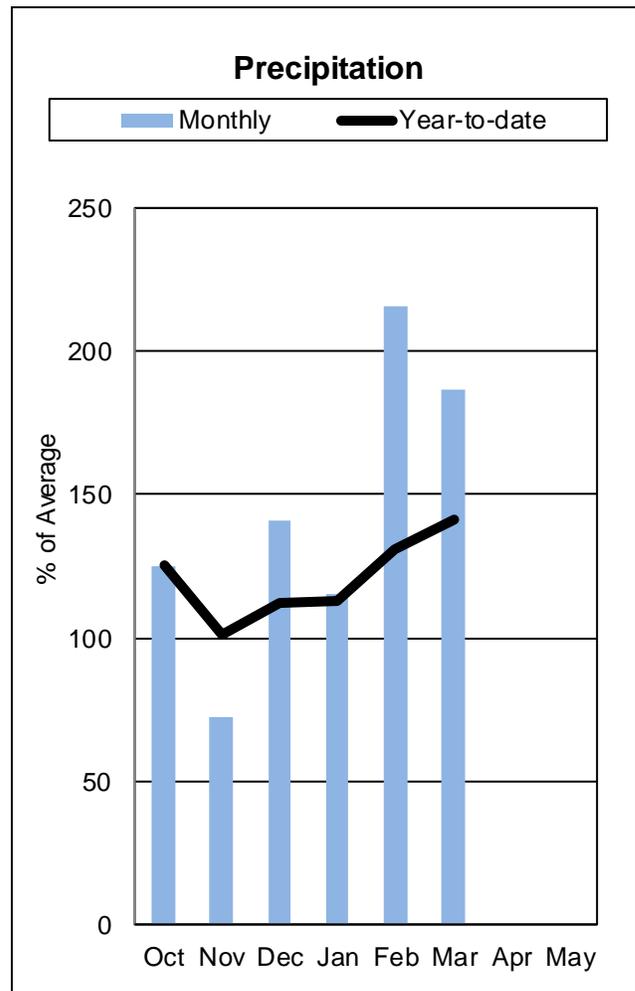
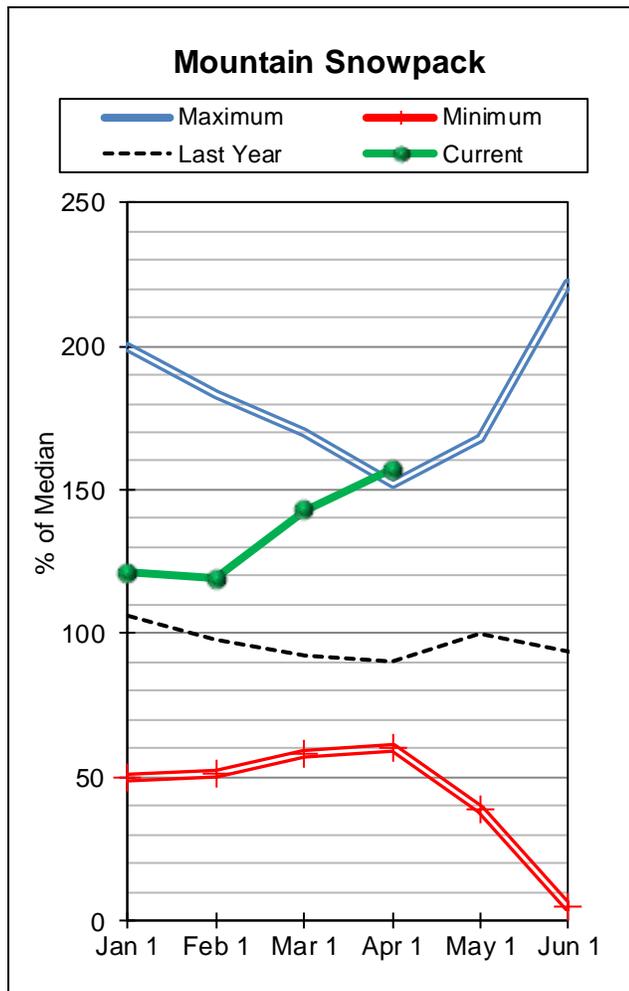
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
SHERBURNE LAKE RESERVOIR	34.9	47.1	26.4	64.3
FRESNO RES	77.0	64.2	58.6	127.0
NELSON RES	51.9	50.2	34.0	66.8
Basin-wide Total	163.8	161.5	119.0	258.1
# of reservoirs	3	3	3	3

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
ST. MARY	3	127%	99%
BEARPAW MOUNTAINS	3	161%	148%
CYPRESS HILLS, CANADA	0		
MILK RIVER BASIN	3	161%	148%
ST. MARY & MILK BASINS	6	131%	106%

Upper Yellowstone River Basin



Consistent snowfall this water year in the Upper Yellowstone continued through the month of March and resulted in the basin being 2nd ranked for the last 30 years for April 1st basin wide SWE. Certain sub basins in the Upper Yellowstone are seeing the highest April 1st SWE values this year. The Red Lodge-Rock Creek basin is currently ranked 1st for April 1st SWE, with the average of the SNOTEL and snowcourses being 203 percent. Since December, the Beartooth Range has seen an abundance of snow that has continued to deliver through the year. The Shields River basin is also doing very well this year, due in most part to the snowcover in the Northern Bridger Range and Northern Crazy Mountains and is currently 168 percent of normal. Looking forward there is still another month of potential accumulation in the mountains in this area which has significant high elevation terrain, so a close eye should be kept on what occurs during the month of April. The Upper Yellowstone is currently ranked 5th of the last 20 years for maximum basin SWE, and further storms could continue to elevate this number. As a whole the Upper Yellowstone River Basin has significant snowcover available for runoff this year, and is 158 percent of normal on April 1st, up 15 percent from last month on March 1st, and is 174 percent of last year at this time.

The Upper Yellowstone River basin has been in good standing throughout this water year since October 1st regarding precipitation and has continued this trend through March. Current data indicates 141 percent of the water year to date precipitation average on April 1st, up 10 percent from last month, and 141 percent of last year at this time.

Reservoir storage is currently 106 percent of average and 117 percent of last year.

Streamflow prospects are up again from last month and well above average for the April-July time period. Forecasts indicate 138 percent of average basin wide, up 20 percent from last month, and 176 percent of last year. The Shields River Basin and Red Lodge-Rock Creek Basins are the highest in the basin with 171 percent and 158 percent respectively.

Upper Yellowstone River Basin Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

UPPER YELLOWSTONE RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Yellowstone R at Yellowstone Lake Outlet	APR-JUL	620	675	715	124%	750	810	575
	APR-SEP	820	895	945	123%	995	1070	770
Yellowstone R at Corwin Springs	APR-JUL	1850	2010	2130	134%	2240	2410	1590
	APR-SEP	2150	2360	2500	133%	2640	2850	1880
Yellowstone R at Livingston	APR-JUL	2070	2290	2430	135%	2580	2790	1800
	APR-SEP	2420	2680	2850	133%	3030	3280	2140
Shields R nr Livingston	APR-JUL	154	194	220	171%	250	290	129
	APR-SEP	164	210	240	168%	270	315	143
Boulder R at Big Timber	APR-JUL	320	360	390	139%	415	455	280
	APR-SEP	350	395	425	142%	460	505	300
Mystic Lake Inflow ²	APR-JUL	60	64	67	114%	70	74	59
	APR-SEP	75	82	86	116%	90	97	74
Stillwater R nr Absarokee ²	APR-JUL	495	550	590	133%	630	685	445
	APR-SEP	580	650	695	134%	740	810	520
Clarks Fk Yellowstone R nr Belfry	APR-JUL	645	695	725	142%	760	810	510
	APR-SEP	710	765	805	146%	840	900	550
Cooney Reservoir Inflow	APR-JUL	41	52	60	158%	68	79	38
	APR-SEP	51	63	72	150%	80	93	48
Yellowstone R at Billings	APR-JUL	3830	4330	4670	145%	5010	5510	3230
	APR-SEP	4340	4940	5360	144%	5770	6370	3730

1) 90% and 10% exceedance probabilities are actually 95% and 5%

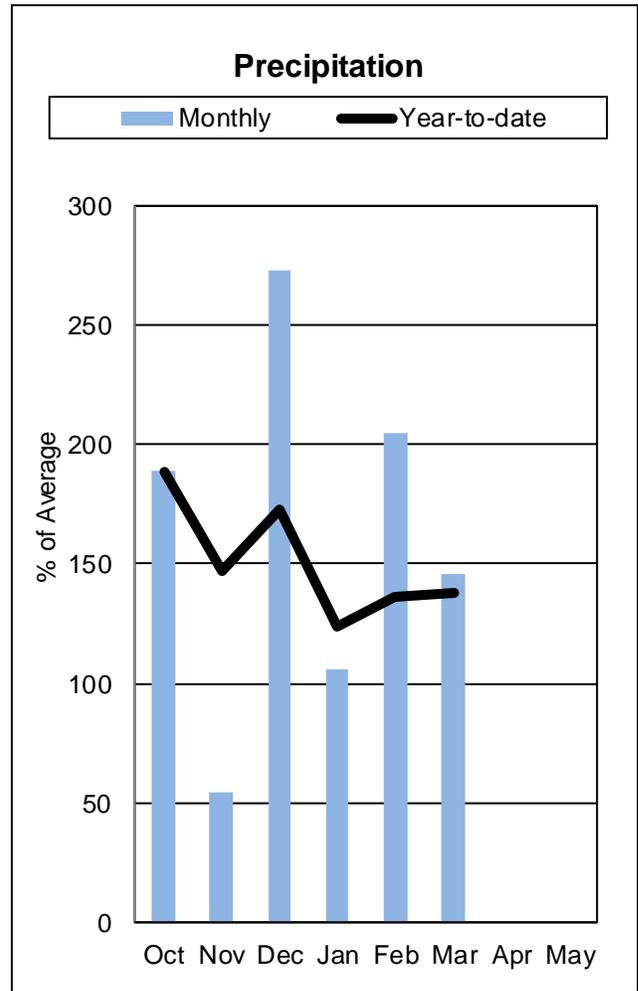
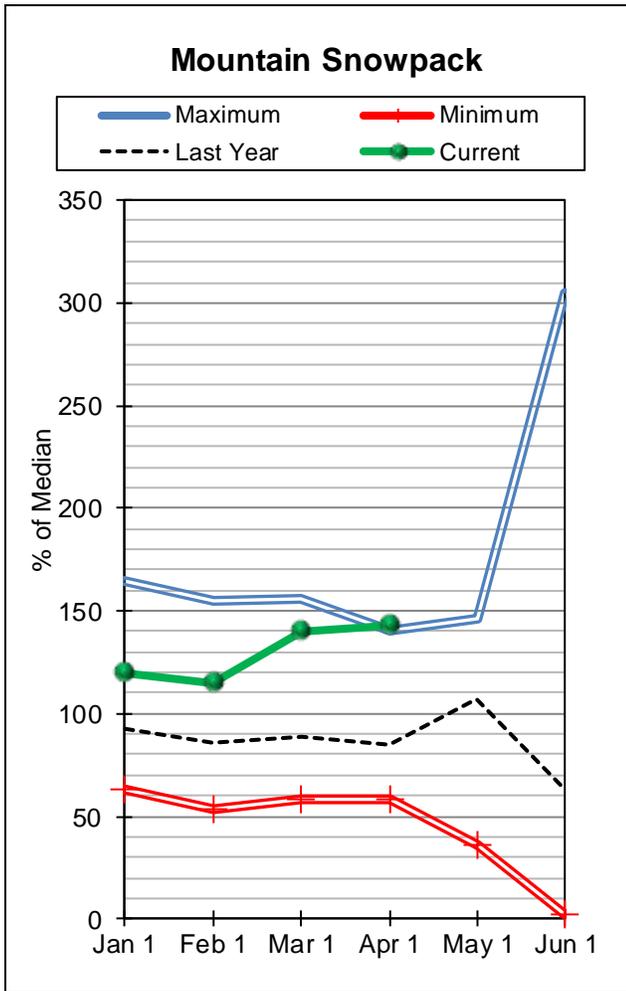
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
MYSTIC LAKE	0.9	0.0	1.0	21.0
COONEY RES	21.5	19.1	20.2	27.4
Basin-wide Total	22.4	19.1	21.2	48.4
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
YELLOWSTONE ab LIVINGSTON	11	144%	92%
SHIELDS	5	168%	86%
BOULDER-STILLWATER	3	159%	94%
RED LODGE-ROCK CREEK	5	203%	83%
CLARK'S FORK	7	155%	91%
UPPER YELLOWSTONE RIVER BASIN	28	158%	90%

Lower Yellowstone River Basin



The easternmost basins in the Bighorn Range feeding the Lower Yellowstone River basin are currently ranked highest for basin wide SWE for April 1st in both the Powder River basin and the Tongue River basin. Basins to the west also saw continued snowpack accumulation through the month, but not to the extent of the basins in the Northern and Southern Bighorn Range. In the Bighorn Range, monthly increments at SNOTEL sites indicate 165 to 181 percent of the normal March snowfall, which while impressive does not surpass by the February totals. The continued storm patterns which have favored this region ended the month with April 1st basin wide percentage of normal at 143 percent, up 3 percent from last month, and 169 percent of last year at this time. Basin-wide SWE totals are currently ranked 3rd of 34 years for April 1st. It is important to remember that the Bighorn range typically sees peak SWE values sometime during mid-April to mid-May, so continued gains will have an effect on this year's basin wide peak SWE in the coming month, which is currently ranked 7th of 34 years.

This year the Lower Yellowstone has had the most consistent precipitation in relation to water year average, where there was below average precipitation during the month of November. Mountain and valley precipitation during the month was slightly above average at 147 percent of the March average, and on April 1st is 138 percent of the water year to date average starting on October 1st, and 148 percent of last year at this time.

Reservoir storage is currently 105 percent of average and 94 percent of last year.

There looks to be plenty of water in the Lower Yellowstone River basin with April-July forecasts indicating 159 percent of average, up from 134 percent of average on March 1st, and 218 percent of last year.

Lower Yellowstone River Basin (Wyoming) Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

LOWER YELLOWSTONE RIVER BASIN (Wyoming)	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Bighorn R nr St. Xavier ²	APR-JUL	1700	2060	2310	167%	2550	2920	1380
	APR-SEP	1810	2230	2510	172%	2790	3210	1460
Little Bighorn R nr Hardin	APR-JUL	110	135	152	155%	169	193	98
	APR-SEP	122	149	168	151%	186	215	111
Tongue R nr Dayton ²	APR-JUL	92	109	120	140%	131	147	86
	APR-SEP	104	122	134	137%	146	164	98
Big Goose Ck nr Sheridan	APR-JUL	49	59	65	141%	71	81	46
	APR-SEP	61	70	77	143%	84	93	54
Little Goose Ck nr Bighorn	APR-JUL	34	40	44	142%	48	54	31
	APR-SEP	44	51	55	141%	59	66	39
Tongue River Reservoir Inflow ²	APR-JUL	197	255	295	153%	335	395	193
	APR-SEP	225	290	330	153%	375	435	215
Yellowstone R at Miles City ²	APR-JUL	5890	6740	7320	153%	7900	8760	4780
	APR-SEP	6520	7600	8340	153%	9070	10200	5450
Powder R at Moorehead	APR-JUL	230	300	345	195%	390	460	177
	APR-SEP	260	330	380	194%	430	500	196
Powder R nr Locate	APR-JUL	255	340	395	198%	450	535	199
	APR-SEP	290	380	440	200%	500	585	220
Yellowstone R nr Sidney ²	APR-JUL	6030	7030	7710	160%	8390	9390	4830
	APR-SEP	6590	7860	8720	161%	9590	10900	5430

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
BIGHORN LAKE	802.2	864.7	787.5	1356.0
TONGUE RIVER RES	60.6	54.0	32.3	79.1
Basin-wide Total	862.8	918.7	819.8	1435.1
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
WIND RIVER (Wyoming)	19	137%	79%
SHOSHONE RIVER (Wyoming)	4	146%	88%
BIGHORN RIVER (Wyoming)	18	147%	92%
LITTLE BIGHORN (Wyoming)	3	138%	78%
TONGUE RIVER (Wyoming)	9	141%	84%
POWDER RIVER (Wyoming)	9	160%	99%
LOWER YELLOWSTONE RIVER BASIN (Wyoming)	47	143%	85%

Montana Site Report

MONTANA	Network	Elevation	Depth (in)	SWE (in)	Median (in)	% Median	Last Year SWE (in)	Last Year % Median
ALBRO LAKE	SNOTEL	8300'	93	29.2	17.7	165%	14.5	82%
AMBROSE	SC	6480'	56	16.6	10.4	160%	9.9	95%
ARCH FALLS	SC	7350'	49	13.7	10.8	127%	8.5	79%
ASHLEY DIVIDE	SC	4820'	27	8.6	4.4	195%	2.8	64%
BADGER PASS	SNOTEL	6900'	104	41.7	29.8	140%	32.3	108%
BANFIELD MOUNTAIN	SNOTEL	5600'	69	20.9	17.2	122%	16.7	97%
BAREE CREEK	SC	5500'	112	44.7	34.9	128%	36.7	105%
BAREE MIDWAY	SC	4600'	91	33.8	27.8	122%	25.5	92%
BAREE TRAIL	SC	3800'	26	9.1	7.2	126%	7.8	108%
BARKER LAKES	SNOTEL	8250'	70	20.0	13.9	144%	12.0	86%
BASIN CREEK	SNOTEL	7180'	47	12.3	7.5	164%	6.0	80%
BASSOO PEAK	SC	5150'	36	12.6	7.8	162%	6.6	85%
BEAGLE SPRINGS	SNOTEL	8850'	41	10.1	8.8	115%	7.6	86%
BEAR BASIN	SC	8150'	76	24.8	17.7	140%	18.3	103%
BEAR MOUNTAIN	SNOTEL	5400'	142	55.9	54.3	103%	52.6	97%
BEARTOOTH LAKE	SNOTEL	9360'	105	31.0	21.0	148%	15.9	76%
BEAVER CREEK	SNOTEL	7850'	76	21.4	16.6	129%	16.8	101%
BIG SNOWY	SC	7150'	74	24.3	18.2	134%	15.8	87%
BISSON CREEK	SNOTEL	4920'	45	14.4	10.0	144%	5.8	58%
BLACK BEAR	SNOTEL	8170'	130	41.3	36.3	114%	33.7	93%
BLACK MOUNTAIN	SC	7750'	55	15.3	14.1	109%	11.3	80%
BLACK PINE	SNOTEL	7210'	55	17.9	9.6	186%	7.9	82%
BLACKTAIL	SC	5650'	47	15.7	12.0	131%	9.5	79%
BLACKTAIL MTN	SNOTEL	5650'	50	16.5			9.5	
BLOODY DICK	SNOTEL	7600'	56	17.0	10.9	156%	9.9	91%
BOTS SOTS	SC	7750'	45	14.4	7.0	206%	4.3	61%
BOULDER MOUNTAIN	SNOTEL	7950'	87	26.8	19.4	138%	18.0	93%
BOX CANYON	SNOTEL	6670'	47	15.0	8.6	174%	6.3	73%
BOXELDER CREEK	SC	5100'	26	7.5	7.1	106%	6.1	86%
BRACKETT CREEK	SNOTEL	7320'	90	32.1	19.0	169%	17.7	93%
BRISTOW CREEK	SC	3900'	35	12.7	7.0	181%	6.6	94%
BRUSH CREEK TIMBER	SC	5000'	50	19.7	6.1	323%	10.0	164%
BULL MOUNTAIN	SC	6600'	24	8.8	5.6	157%	6.1	109%
BURNT MTN	SNOTEL	5880'	44	11.5	4.4	261%	2.2	50%
CABIN CREEK	SC	5200'	24	8.6	5.0	172%	4.2	84%
CALVERT CREEK	SNOTEL	6430'	36	12.6	7.1	177%	4.4	62%
CAMP SENIA	SC	7890'	62	17.1	5.4	317%	7.9	146%
CANYON	SNOTEL	7870'	60	15.2	12.3	124%	10.6	86%
CARROT BASIN	SNOTEL	9000'	101	28.8	25.2	114%	24.5	97%
CARROT BASIN	SC	9000'					30.3	
CHESSMAN RESERVOIR	SC	6200'	33	10.0	2.6	385%	4.8	185%
CHICAGO RIDGE	SC	5800'	102	37.8			37.0	
CHICKEN CREEK	SC	4060'	59	20.5	13.8	149%	16.4	119%
CLOVER MEADOW	SNOTEL	8600'	64	17.5	15.6	112%	12.4	79%
COLE CREEK	SNOTEL	7850'	84	22.4	13.5	166%	9.6	71%
COMBINATION	SNOTEL	5600'	24	8.1	4.2	193%	2.8	67%
COPPER BOTTOM	SNOTEL	5200'	27	9.6			0.0	
COPPER CAMP	SNOTEL	6950'	123	49.6			34.6	
COPPER CAMP	SC	6950'						
COPPER MOUNTAIN	SC	7700'	44	12.9	9.9	130%	7.0	71%
COTTONWOOD CREEK	SC	6400'	32	9.1	7.3	125%	6.1	84%
COYOTE HILL	SC	4200'	32	12.7	7.0	181%	6.5	93%
CREVICE MOUNTAIN	SC	8400'	45	14.4	9.4	153%	11.4	121%

MONTANA	Network	Elevation	Depth (in)	SWE (in)	Median (in)	% Median	Last Year SWE (in)	Last Year % Median
CRYSTAL LAKE	SNOTEL	6050'	61	18.9	11.9	159%	12.1	102%
DAD CREEK LAKE	SC	8800'			13.4			
DAISY PEAK	SNOTEL	7600'	53	14.5	9.8	148%	7.8	80%
DALY CREEK	SNOTEL	5780'	52	17.5	9.6	182%	8.1	84%
DARKHORSE LAKE	SNOTEL	8600'	110	37.2	26.2	142%	26.5	101%
DEADMAN CREEK	SNOTEL	6450'	49	14.8	9.7	153%	9.4	97%
DESERT MOUNTAIN	SC	5600'	62	19.5	12.6	155%	13.2	105%
DISCOVERY BASIN	SC	7050'	45	13.6	9.2	148%	7.6	83%
DIVIDE	SNOTEL	7800'	47	10.8	9.8	110%	9.7	99%
DIX HILL	SC	6400'	46	15.2	9.1	167%	6.0	66%
DUPUYER CREEK	SNOTEL	5750'	43	11.9	8.6	138%	4.7	55%
EAGLE CREEK	SC	7000'	69	23.7	11.6	204%	11.3	97%
EAST BOULDER MINE	SNOTEL	6335'	42	10.3			2.9	
EL DORADO MINE	SC	7800'	54	17.8	17.4	102%	8.7	50%
ELK HORN SPRINGS	SC	7800'	42	12.5	8.0	156%	7.2	90%
ELK PEAK	SNOTEL	7600'	94	33.8			19.6	
ELK PEAK	SC	8000'	69	20.7	12.8	162%	12.2	95%
EMERY CREEK	SNOTEL	4350'	56	20.5	13.7	150%	13.3	97%
EMERY CREEK	SC	4350'						
FATTY CREEK	SC	5500'	99	34.6	21.2	163%	21.1	100%
FISH CREEK	SC	8000'	56	17.6	9.0	196%	7.3	81%
FISHER CREEK	SNOTEL	9100'	136	42.9	30.1	143%	29.4	98%
FLATTOP MTN.	SNOTEL	6300'	158	52.8	42.0	126%	48.1	115%
FLEECER RIDGE	SC	7500'	44	14.4	9.5	152%	7.8	82%
FOREST LAKE	SC	6400'	60	20.8	10.0	208%	9.7	97%
FOUR MILE	SC	6900'	38	11.8	7.0	169%	7.2	103%
FREIGHT CREEK	SC	6000'	51	17.0	11.9	143%	9.9	83%
FROHNER MEADOW	SNOTEL	6480'	51	13.8	7.4	186%	6.5	88%
GARVER CREEK	SNOTEL	4250'	36	10.2	9.1	112%	8.9	98%
GIBBONS PASS	SC	7100'	84	29.4	20.0	147%	15.8	79%
GOAT MOUNTAIN	SC	7000'	46	15.6	8.0	195%	7.2	90%
GOVERNMENT SADDLE	SC	5270'	95	34.8			32.0	
GRAVE CREEK	SNOTEL	4300'	60	21.9	13.8	159%	14.3	104%
GRIFFIN CREEK DIVIDE	SC	5150'	40	14.0	8.4	167%	6.3	75%
HAND CREEK	SNOTEL	5035'	44	15.0	11.1	135%	7.2	65%
HAWKINS LAKE	SNOTEL	6450'	89	27.8	23.4	119%	27.8	119%
HAYMAKER	SC	8050'	65	19.7	10.6	186%		
HEBGEN DAM	SC	6550'	34	9.2	9.8	94%	4.8	49%
HELL ROARING DIVIDE	SC	5770'	101	33.0	25.8	128%	26.1	101%
HERRIG JUNCTION	SC	4850'	88	31.0	24.1	129%	22.8	95%
HIGHWOOD DIVIDE	SC	5650'	30	8.7	6.8	128%	4.3	63%
HIGHWOOD STATION	SC	4600'	28	7.6	3.8	200%	4.2	111%
HOLBROOK	SC	4530'	30	10.7	6.8	157%	4.1	60%
HOODOO BASIN	SNOTEL	6050'	146	52.3	38.9	134%	36.6	94%
HUMBOLDT GULCH	SNOTEL	4250'	53	18.0	9.1	198%	9.5	104%
JAKES CANYON	SC	9040'	54	14.9	11.2	133%	11.8	105%
JOHNSON PARK	SC	6450'	32	8.6	4.2	205%	4.9	117%
KISHENEHN	SC	3890'	38	9.8	6.6	148%	7.2	109%
KRAFT CREEK	SNOTEL	4750'	50	22.4			9.6	
LAKE CAMP	SC	7780'			8.8			
LAKE CREEK	SC	6100'			6.3			
LAKEVIEW CANYON	SC	6930'	28	7.3	9.5	77%		
LAKEVIEW RIDGE	SNOTEL	7400'	35	8.8	10.4	85%	9.3	89%
LEMHI RIDGE	SNOTEL	8100'	49	13.7	9.7	141%	8.4	87%
LICK CREEK	SNOTEL	6860'	63	16.8	11.2	150%	9.9	88%

MONTANA	Network	Elevation	Depth (in)	SWE (in)	Median (in)	% Median	Last Year SWE (in)	Last Year % Median
LITTLE PARK	SC	7400'	59	18.6	13.7	136%	14.0	102%
LOGAN CREEK	SC	4300'	33	10.7	5.8	184%	4.2	72%
LOLO PASS	SNOTEL	5240'	111	39.0	27.1	144%	21.9	81%
LONE MOUNTAIN	SNOTEL	8880'	79	24.1	16.7	144%	16.7	100%
LOOKOUT	SNOTEL	5140'	85	32.4	26.2	124%	22.5	86%
LOWER TWIN	SNOTEL	7900'	83	25.0	16.6	151%	14.5	87%
LUBRECHT FLUME	SNOTEL	4680'	19	7.1	1.6	444%	0.0	0%
LUBRECHT FOREST NO 3	SC	5450'	26	8.4	4.6	183%	2.3	50%
LUBRECHT FOREST NO 4	SC	4650'	10	3.6	0.4	900%	0.0	0%
LUBRECHT FOREST NO 6	SC	4040'	15	5.6	0.6	933%	0.0	0%
LUBRECHT HYDROPLOT	SC	4200'	18	7.4	0.6	1233%	0.0	0%
LUPINE CREEK	SC	7380'	38	10.4	7.4	141%	7.0	95%
MADISON PLATEAU	SNOTEL	7750'	90	24.8	21.3	116%	20.0	94%
MANY GLACIER	SNOTEL	4900'	54	18.3	12.4	148%	10.0	81%
MARIAS PASS	SC	5250'	61	20.9	14.4	145%	14.2	99%
MINERAL CREEK	SC	4000'	49	17.2	15.4	112%	11.0	71%
MONUMENT PEAK	SNOTEL	8850'	98	28.6	18.8	152%	19.5	104%
MOSS PEAK	SNOTEL	6780'	138	46.4	35.1	132%	35.5	101%
MOULTON RESERVOIR	SC	6850'	34	10.6	6.3	168%	4.4	70%
MOUNT ALLEN NO 7	SC	5700'						
MOUNT LOCKHART	SNOTEL	6400'	80	28.3	18.4	154%	16.4	89%
MUDD LAKE	SC	7650'			17.2			
MULE CREEK	SNOTEL	8300'	73	21.5	13.8	156%	14.0	101%
N FK ELK CREEK	SNOTEL	6250'	57	17.0	10.6	160%	8.3	78%
NEVADA RIDGE	SNOTEL	7020'	73	22.1	13.9	159%	12.3	88%
NEW WORLD	SC	6900'	67	19.6	12.8	153%	12.1	95%
NEZ PERCE CAMP	SNOTEL	5650'	65	19.9	13.0	153%	11.9	92%
NOISY BASIN	SNOTEL	6040'	135	47.8	39.3	122%	40.9	104%
NORRIS BASIN	SC	7550'			8.8		7.0	80%
NORTH FORK JOCKO	SNOTEL	6330'	136	51.4	40.3	128%	39.3	98%
NORTHEAST ENTRANCE	SNOTEL	7350'	52	15.5	9.6	161%	6.4	67%
ONION PARK	SNOTEL	7410'	59	17.2	13.0	132%	12.0	92%
OPHIR PARK	SC	7150'	66	20.5	14.8	139%	9.6	65%
PARKER PEAK	SNOTEL	9400'	106	31.1	18.8	165%	19.5	104%
PETERSON MEADOWS	SNOTEL	7200'	54	14.9	9.6	155%	8.5	89%
PICKFOOT CREEK	SNOTEL	6650'	54	16.4	9.5	173%	9.8	103%
PIKE CREEK	SNOTEL	5930'	51	12.0			8.2	
PIPESTONE PASS	SC	7200'	30	8.2	4.6	178%	4.7	102%
PLACER BASIN	SNOTEL	8830'	101	26.3	16.6	158%	15.5	93%
POORMAN CREEK	SNOTEL	5100'	105	43.4	35.1	124%	32.7	93%
PORCUPINE	SNOTEL	6500'	36	11.5	5.9	195%	4.1	69%
POTOMAGETON PARK	SC	7150'	59	19.0	12.0	158%	8.5	71%
REVAIS	SC	4800'	5	2.1	0.2	1050%	0.0	0%
ROCK CREEK MDWS	SC	3400'	44	16.4			10.0	
ROCKER PEAK	SNOTEL	8000'	73	21.1	12.4	170%	10.8	87%
ROCKY BOY	SNOTEL	4700'	22	7.2	3.8	189%	5.5	145%
ROLAND SUMMIT	SC	5120'	109	47.1	31.0	152%	30.0	97%
S FORK SHIELDS	SNOTEL	8100'	74	22.1	15.3	144%	12.0	78%
SACAJAWEA	SNOTEL	6550'	62	22.7	14.8	153%	11.9	80%
SADDLE MTN.	SNOTEL	7940'	106	36.4	22.9	159%	20.1	88%
SHORT CREEK	SNOTEL	7000'	22	5.9	5.7	104%	5.8	102%
SHOWER FALLS	SNOTEL	8100'	104	28.8	20.7	139%	18.4	89%
SKALKAHO SUMMIT	SNOTEL	7250'	90	30.5	21.4	143%	17.9	84%
SLEEPING WOMAN	SNOTEL	6150'	66	21.8	13.9	157%	12.1	87%
SLIDE ROCK MOUNTAIN	SC	7100'	61	20.2	12.9	157%	13.6	105%

MONTANA	Network	Elevation	Depth (in)	SWE (in)	Median (in)	% Median	Last Year SWE (in)	Last Year % Median
SPOTTED BEAR MOUNTAIN	SC	7000'	56	18.8	12.2	154%	8.8	72%
SPUR PARK	SNOTEL	8100'	89	28.3	19.5	145%	19.9	102%
STAHL PEAK	SNOTEL	6030'	123	40.4	33.3	121%	34.5	104%
STAHL PEAK	SC	6030'						
STEMPLE PASS	SC	6600'	48	13.0	8.3	157%	8.1	98%
STORM LAKE	SC	7780'	54	15.5	12.6	123%	10.5	83%
STRINGER CREEK	SNOTEL	6550'	54	15.6	10.1	154%	11.0	109%
STRYKER BASIN	SC	6180'	110	40.4	28.2	143%	33.4	118%
STUART MOUNTAIN	SNOTEL	7400'	120	38.7	30.6	126%	29.6	97%
TAYLOR ROAD	SC	4080'	17	4.4	1.0	440%	6.0	600%
TEN MILE LOWER	SC	6600'	45	14.2	5.7	249%	7.6	133%
TEN MILE MIDDLE	SC	6800'	58	16.6	9.8	169%	8.8	90%
TEPEE CREEK	SNOTEL	8000'	48	12.7	13.3	95%	11.3	85%
TIMBERLINE CREEK	SC	8850'	66	20.5	12.1	169%	11.2	93%
TIZER BASIN	SNOTEL	6880'	49	14.5	9.4	154%	7.8	83%
TRINKUS LAKE	SC	6100'	138	51.0	37.2	137%	39.4	106%
TRUMAN CREEK	SC	4060'	0	0.0	2.5	0%	1.5	60%
TWELVEMILE CREEK	SNOTEL	5600'	66	25.5	14.5	176%	9.2	63%
TWENTY-ONE MILE	SC	7150'	51	15.2	14.7	103%	12.8	87%
TWIN LAKES	SNOTEL	6400'	132	54.5	35.4	154%	31.5	89%
UPPER HOLLAND LAKE	SC	6200'	116	40.8	29.6	138%	30.3	102%
WALDRON	SNOTEL	5600'	53	15.8	10.7	148%	8.3	78%
WARM SPRINGS	SNOTEL	7800'	98	28.3	19.0	149%	16.0	84%
WEASEL DIVIDE	SC	5450'	101	33.6	29.0	116%	27.5	95%
WEST YELLOWSTONE	SNOTEL	6700'	50	14.4	10.2	141%	8.5	83%
WHISKEY CREEK	SNOTEL	6800'	64	17.6	15.0	117%	10.3	69%
WHITE ELEPHANT	SNOTEL	7710'	87	27.3	25.7	106%	26.8	104%
WHITE MILL	SNOTEL	8700'	102	33.2	21.6	154%	20.3	94%
WOLVERINE	SNOTEL	7650'	54	15.7	9.1	173%	8.3	91%
WOOD CREEK	SNOTEL	5960'	45	13.5	8.5	159%	6.5	76%
WRONG CREEK	SC	5700'	45	14.9	10.2	146%	8.0	78%
WRONG RIDGE	SC	6800'	56	18.5	13.5	137%	11.4	84%
YOUNTS PEAK	SNOTEL	8350'			14.1		11.9	84%

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Montana
Water Supply Outlook
Report
Natural Resources Conservation Service

