NRCS
Natural Resources Conservation Service

Utah Climate and Water Report

March 2012

View near GBRC Meadows manual snow course. Feb. 27th 2012

Utah Climate and Water Report

The purpose of the Climate and Water Report is to provide a snapshot of current and immediate past climatic conditions and other information useful to agricultural and water user interests in Utah. The report utilizes data from several sources that represent specific parameters (streamflow data from the United States Geological Survey, reservoir data from the Bureau of Reclamation, and other sources), geography including high elevation United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Snowpack Telemetry (SNOTEL) data, and agriculturally important data from the USDA-NRCS Soil Climate Analysis Network (SCAN). Data on precipitation, soil moisture, soil temperature, reservoir storage, and streamflow are analyzed and presented. These data analyses can be used to increase irrigation efficiency and agricultural production. As with all data and analyses, there are limitations due to data quality, quantity, and spatial application.

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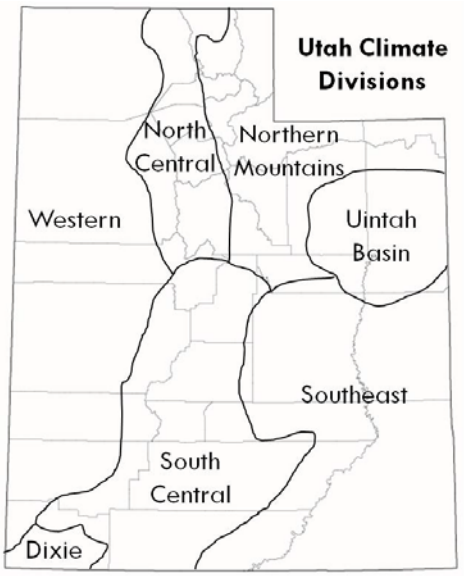
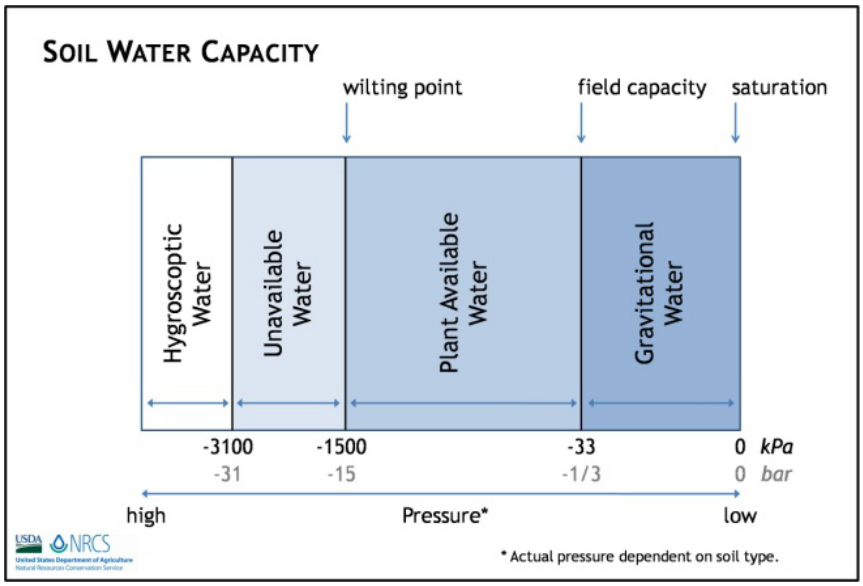
Climate and Water Information

Soil Climate Analysis Network

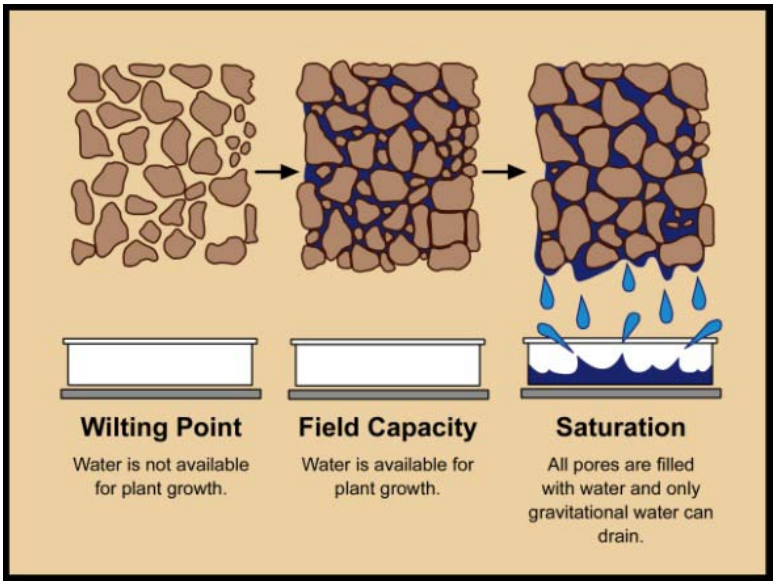
Soil Climate Analysis Network (SCAN) stations are primarily located on low- to mid-elevation, agriculturally important landscapes that maintain representative soils. Elevations range from 3,000 to 7,000 ft. The SCAN network provides real-time soil moisture and temperature data coupled with additional climate information for use in natural resource planning, drought assessment, water resource management, and resource inventory. Stations are situated on non-irrigated, native soils, are remotely located, and collect hourly atmospheric and soils data that are available to the public online.

In order to summarize SCAN data, the 35 sites in Utah are grouped by climate divisions (North Central, Northern Mountains, Uintah Basin, Southeast, South Central, Dixie, and Western).





Explanation of soil water capacity definitions. Field capacity (FC) and wilting point (WP) are calculated in the laboratory for each soil horizon. The amount of water held between field capacity and wilting point is plant available.



Visual explanation of soil water capacity definitions.

http://www.wcc.nrcs.usda.gov/scan/Utah/utah.html

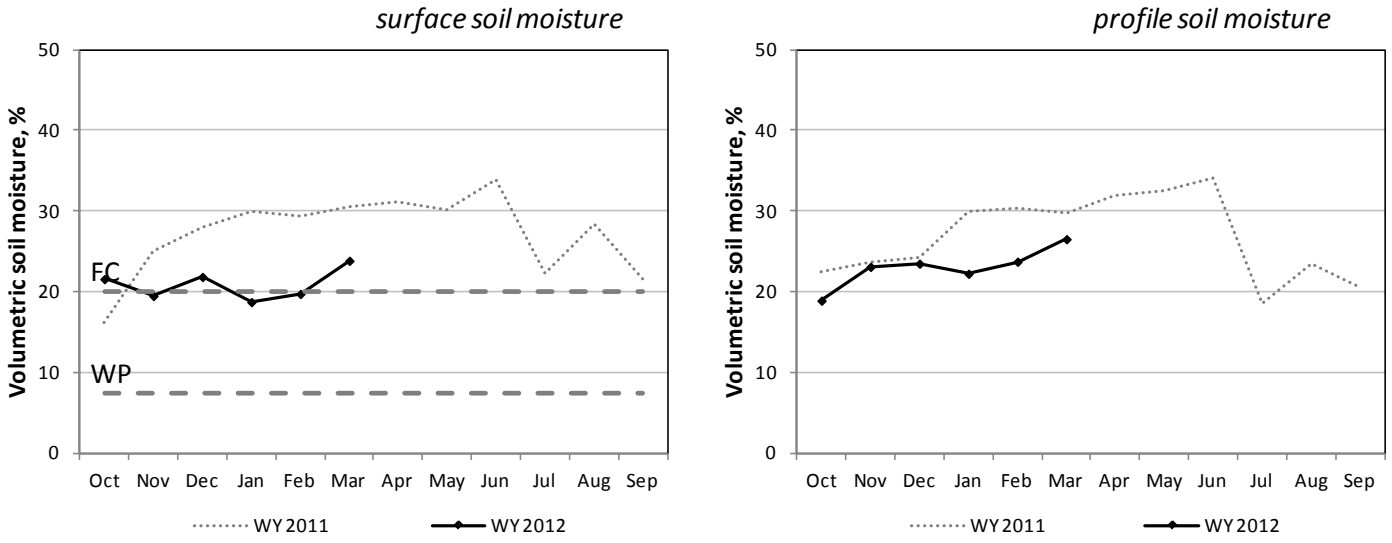
North Central

Soil Climate Analysis Network (SCAN)

Site name	Precip to Date*	Monthly Precip	Soil Moisture					Soil Temperature				
			2"	4"	8"	20"	40"	2"	4"	8"	20"	40"
	in.	*in.*	*volume %*					*^{o} F*				
NORTH CENTRAL												
Blue Creek	5.5	0.5	27	27	33	31	20	31	32	32	34	37
Cache Junction	6.8	0.6	21	22	29	33	32	31	32	32	35	37
Grantsville	3.9	0.7	16	3	23	28	24	38	39	40	42	47

* Precipitation since October 1 (beginning of the water year). Monthly Precip is the amount of precipitation accumulated in the past month. SCAN sites utilize tipping bucket rain gauges which do not accurately measure precipitation in the form of snowfall. Soil moisture and temperature values reflect conditions measured on the first of the month.

North Central



Surface soil moisture is the weighted mean of the water content measured at depths of 2, 4, and 8 inches. **FC** is the mean field capacity, **WP** is the mean permanent wilting point for the soil surface (0 to 12 inches) at SCAN sites within the region, and **WY** is the water year lasting October through September. *Profile soil moisture* is the weighted mean of water content measured at depths of 2, 4, 8, 20, and 40 inches.

Additional data available at the SCAN website, including: hourly air temperature, relative humidity, wind speed, wind direction, barometric pressure, precipitation, solar radiation, soil temperature, and soil moisture.

http://www.wcc.nrcs.usda.gov/scan/Utah/utah.html

Northern Mountains

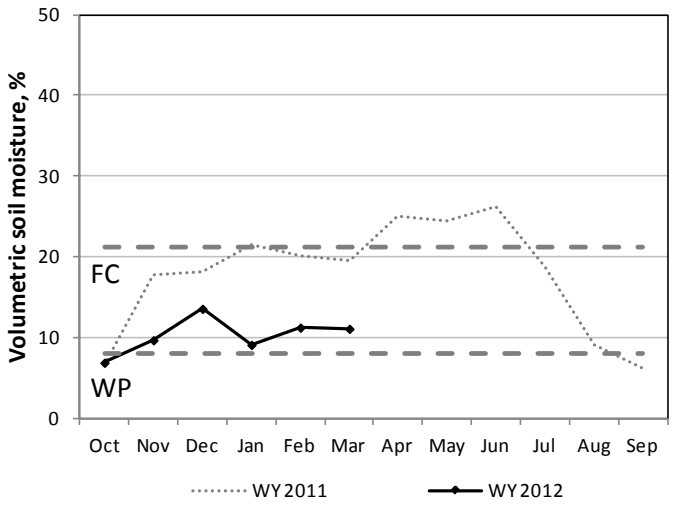
Soil Climate Analysis Network (SCAN)

Site name	Precip to Date*	Monthly Precip	Soil Moisture					Soil Temperature				
			2"	4"	8"	20"	40"	2"	4"	8"	20"	40"
	in.	*in.*	*volume %*					*^{o} F*				
NORTHERN MOUNTAINS												
Chicken Ridge	3.1	0.4	5	7	9	11	12	30	30	30	32	35
Buffalo Jump	2.9	0.5	7	8	8	8	-	29	29	29	32	-
Morgan	6.7	0.7	15	16	21	17	8	32	32	32	33	33

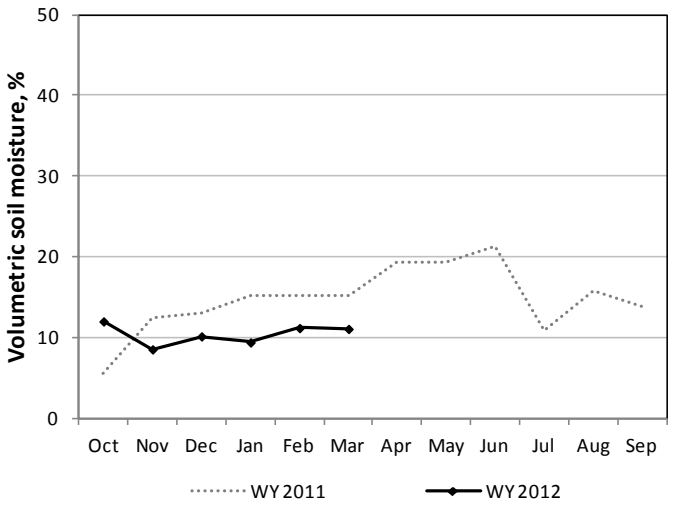
* Precipitation since October 1 (beginning of the water year). Monthly Precip is the amount of precipitation accumulated in the past month. SCAN sites utilize tipping bucket rain gauges which do not accurately measure precipitation in the form of snowfall. Soil moisture and temperature values reflect conditions measured on the first of the month.

Northern Mountains

surface soil moisture



profile soil moisture



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Additional data available at the SCAN website, including: hourly air temperature, relative humidity, wind speed, wind direction, barometric pressure, precipitation, solar radiation, soil temperature, and soil moisture.

http://www.wcc.nrcs.usda.gov/scan/Utah/utah.html

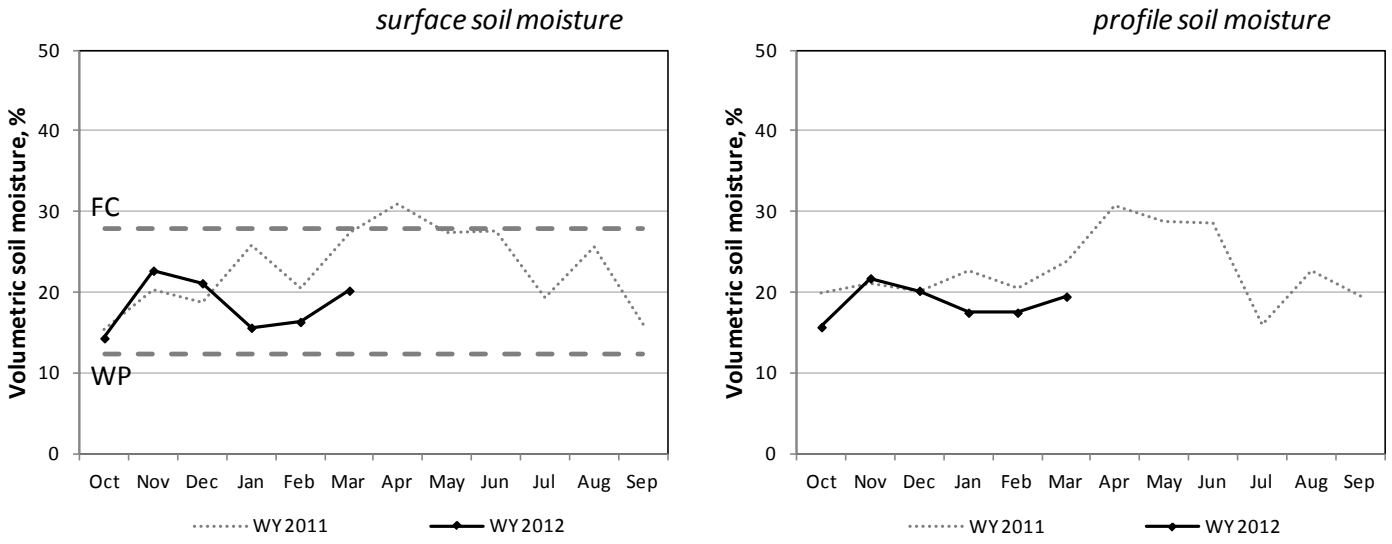
Uintah Basin

Soil Climate Analysis Network (SCAN)

Site name	Precip to Date*	Monthly Precip	Soil Moisture					Soil Temperature				
			2"	4"	8"	20"	40"	2"	4"	8"	20"	40"
	in.	*in.*	*volume %*					*^{o} F*				
UINTAH BASIN												
Mountain Home	3.6	0.5	17	25	24	18	11	31	31	32	34	36
Little Red Fox	2.6	0.2	4	23	26	30	36	33	35	35	35	36
Split Mountain	2.7	0.4	18	25	16	10	10	33	34	34	35	37

* Precipitation since October 1 (beginning of the water year). Monthly Precip is the amount of precipitation accumulated in the past month. SCAN sites utilize tipping bucket rain gauges which do not accurately measure precipitation in the form of snowfall. Soil moisture and temperature values reflect conditions measured on the first of the month.

Uintah Basin



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Additional data available at the SCAN website, including: hourly air temperature, relative humidity, wind speed, wind direction, barometric pressure, precipitation, solar radiation, soil temperature, and soil moisture.

http://www.wcc.nrcs.usda.gov/scan/Utah/utah.html

Southeast

Soil Climate Analysis Network (SCAN)

Site name	Precip to Date*	Monthly Precip	Soil Moisture					Soil Temperature				
			2"	4"	8"	20"	40"	2"	4"	8"	20"	40"
	in.	*in.*	*volume %*					*^{o} F*				
SOUTHEAST												
Price	2.9	0.6	9	18	18	14	16	34	35	36	37	39
Green River	2.2	0.7	14	14	9	4	6	38	39	41	40	42
Harm's Way	2.7	0.5	23	12	31	21	7	33	32	33	34	37
West Summit	2.9	0.4	17	20	24	13	17	32	32	32	32	35
Eastland	3.7	0.3	28	24	18	20	19	32	32	33	34	37
Alkali Mesa	5.1	0.9	20	31	20	16	12	31	31	32	34	36
McCracken Mesa	3.4	0.7	21	24	23	14	12	36	39	39	40	43

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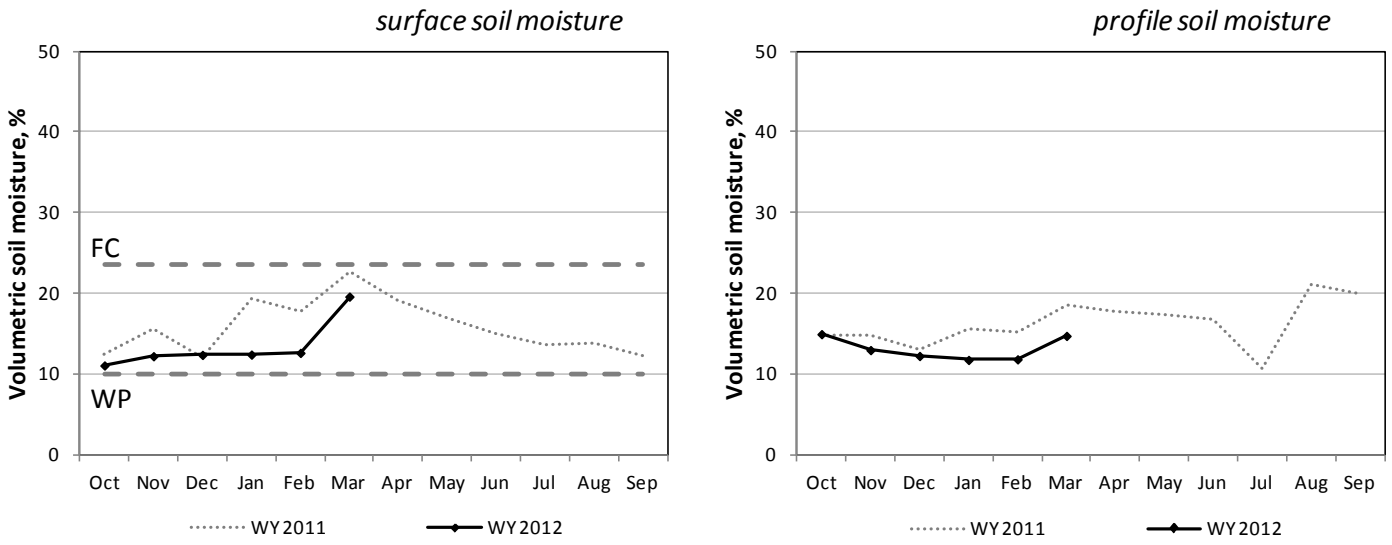
Southeast



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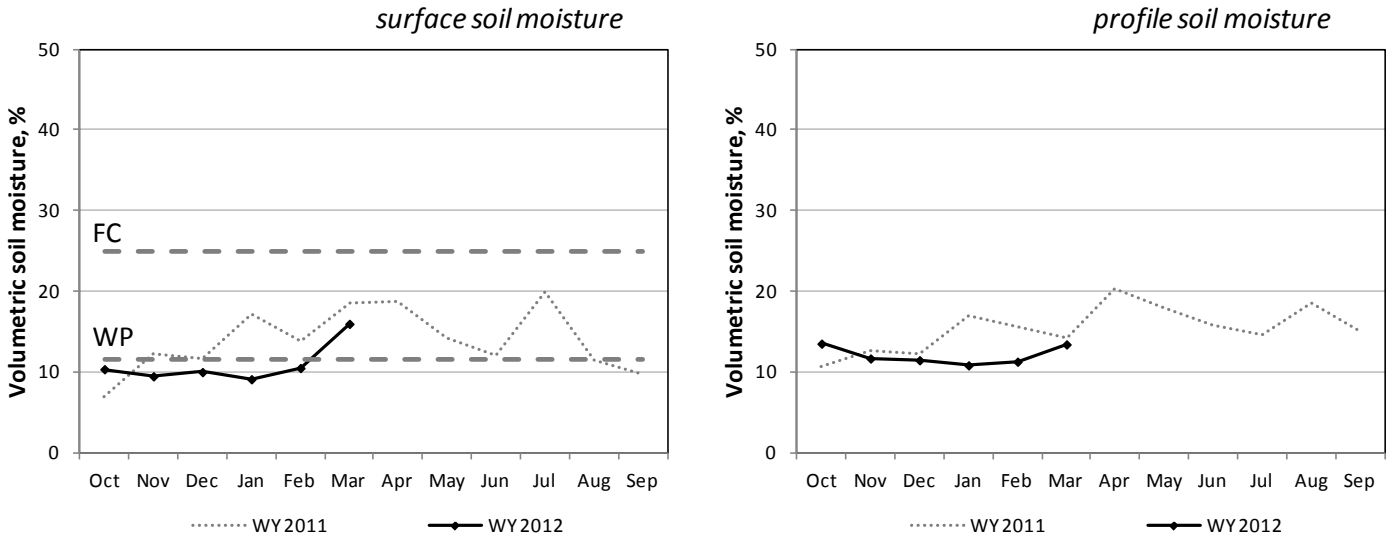
South Central

Soil Climate Analysis Network (SCAN)

Site name	Precip to Date*	Monthly Precip	Soil Moisture					Soil Temperature				
			2"	4"	8"	20"	40"	2"	4"	8"	20"	40"
	in.	*in.*	*volume %*					*^{o} F*				
SOUTH CENTRAL												
Nephi	6.4	2.0	34	36	33	15	0	35	35	35	36	38
Ephraim	3.2	0.9	23	21	27	15	33	32	32	33	35	38
Holden	3.1	0.6	11	12	8	12	12	37	38	38	37	41
Milford	2.8	0.9	30	34	15	25	16	37	38	38	39	42
Manderfield	4.0	0.9	21	31	21	10	5	32	32	32	34	37
Circleville	1.8	0.3	24	11	9	7	7	35	34	35	36	-23
Panguitch	2.6	0.8	15	20	16	19	34	31	31	31	34	38
Cave Valley	6.7	1.7	1	9	7	6	9	32	32	32	34	35
Vermillion	4.3	0.7	3	3	6	3	7	32	32	32	34	37
Spooky	3.0	0.0	5	6	3	13	2	42	41	42	42	44

* Precipitation since October 1 (beginning of the water year). Monthly Precip is the amount of precipitation accumulated in the past month. SCAN sites utilize tipping bucket rain gauges which do not accurately measure precipitation in the form of snowfall. Soil moisture and temperature values reflect conditions measured on the first of the month.

South Central



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Western and Dixie

Soil Climate Analysis Network (SCAN)

Site name	Precip to Date*	Monthly Precip	Soil Moisture					Soil Temperature				
			2"	4"	8"	20"	40"	2"	4"	8"	20"	40"
	in.	*in.*	*volume %*					*^{o} F*				
WESTERN												
Grouse Creek	4.0	0.3	9	22	21	15	15	32	32	33	35	37
Park Valley	3.3	0.1	7	14	21	27	25	33	33	35	37	40
Goshute	2.1	0.5	18	21	40	27	24	33	34	37	35	39
Dugway	2.7	0.1	21	31	34	46	12	37	38	39	39	40
Tule Valley	2.7	0.8	24	19	20	24	9	35	40	43	42	42
Hal's Canyon	2.5	0.4	1	10	11	9	8	39	41	42	40	42
Enterprise	3.4	0.7	10	32	22	14	15	34	36	37	39	41
DIXIE												
Sand Hollow	3.4	1.4	5	6	6	7	0	41	43	46	46	49

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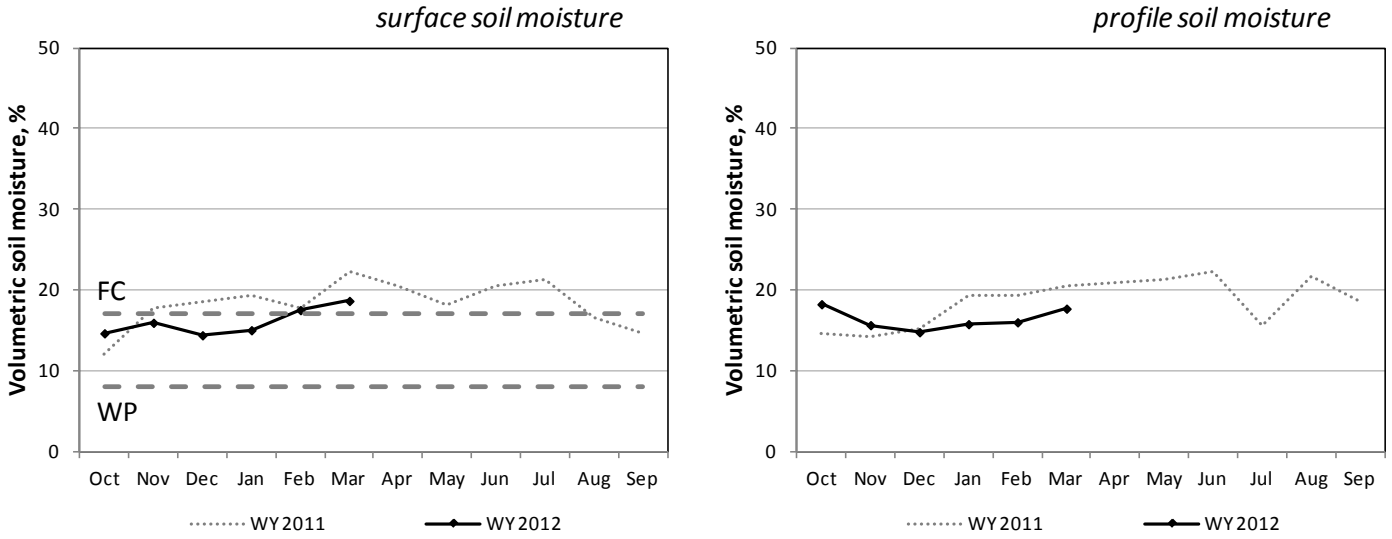
Western & Dixie



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http://www.wcc.nrcs.usda.gov/scan/Utah/utah.html

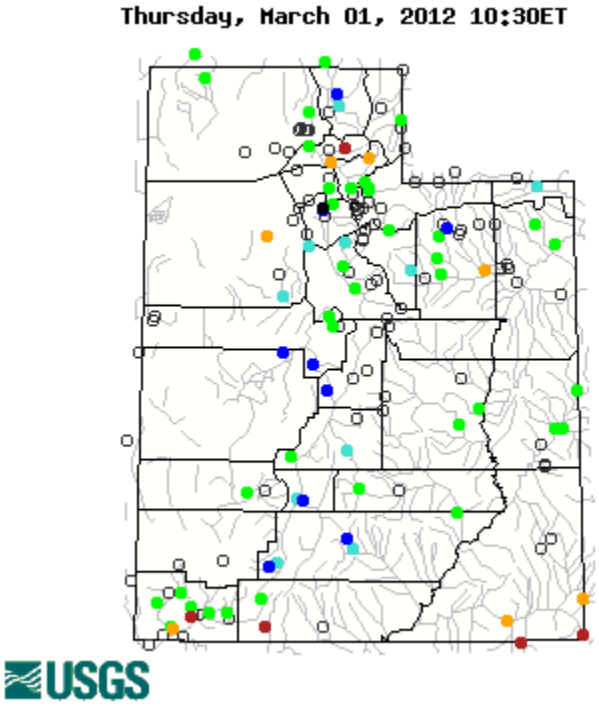
Utah Hydrologic Summary

March 1, 2012

Current Conditions

Soil moisture conditions are below normal in northern Utah and near average in the south. February precipitation was below normal in northern Utah (68%-83%), near normal over the Uintah Basin (103%) and below to near normal over southern Utah (77%-100%). Snowpack across the state are below to much below average. Reservoir storage is exceptionally high (87% of capacity) across the state. Expect poor snowmelt runoff conditions statewide this spring. Water supply conditions are balanced by excellent reservoir storage.

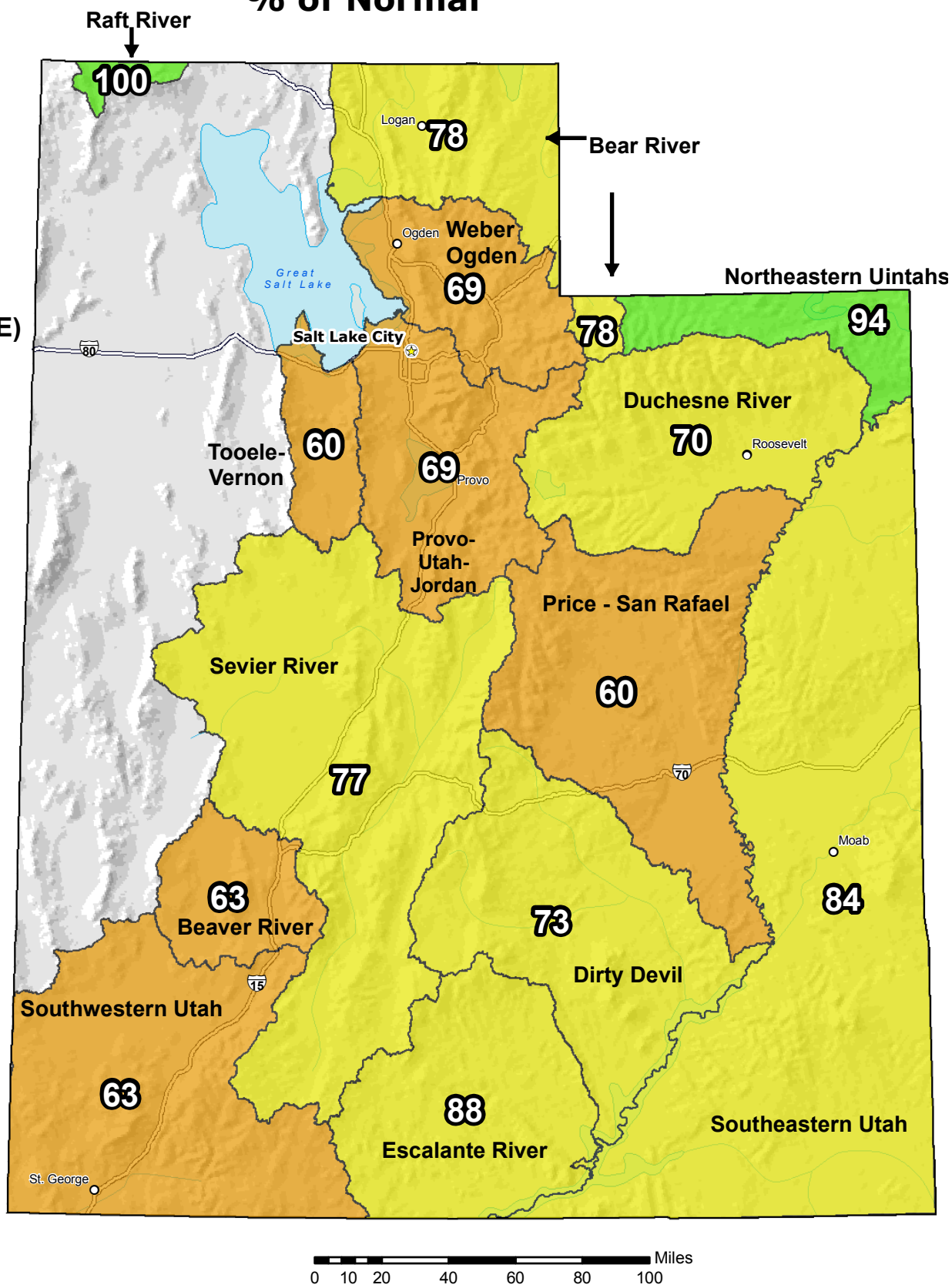
Current Utah Streamflow - Courtesy US Geological Survey



Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not ranked

Utah
SNOTEL Current Snow Water Equivalent (SWE)
% of Normal

Mar 01, 2012



Snow Water Equivalent (SWE) Basin-wide Percent of 1971-2000 Normal

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

* *Data unavailable at time of posting or measurement is not representative at this time of year*

Provisional Data Subject to Revision

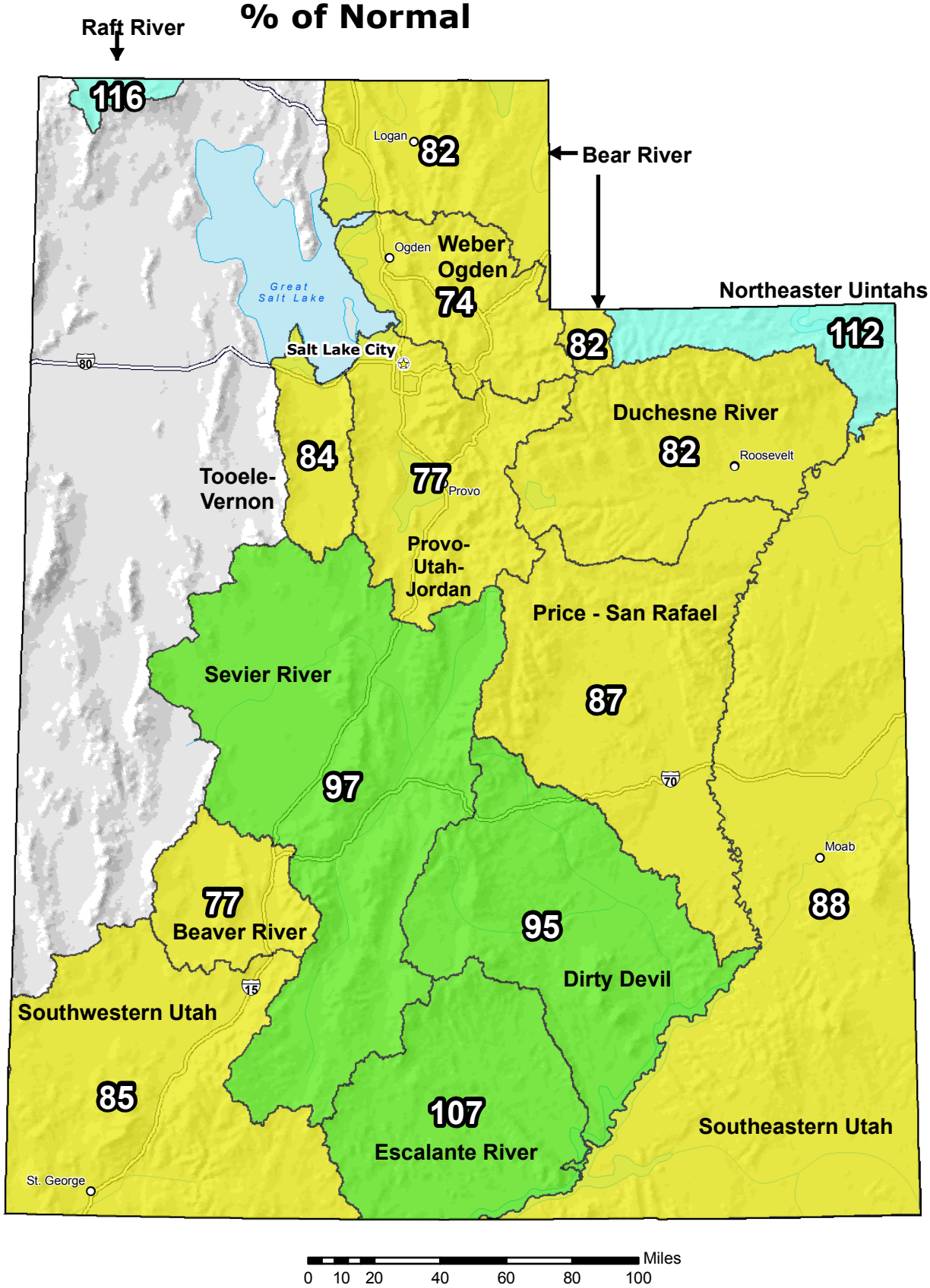
USDA NRCS

The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by the USDA/NRCS National Water and Climate Center
Portland, Oregon http://www.wcc.nrcs.usda.gov/gis/
Based on data from http://www.wcc.nrcs.usda.gov/reports/
Science contact: Jim.Marron@por.usda.gov 503 414 3047

Utah
SNOTEL Water Year (Oct 1) to Date Precipitation
% of Normal

Mar 02, 2012



Water Year (Oct 1) to Date Precipitation Basin-wide Percent of 1971-2000 Normal

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

* *Data unavailable at time of posting or measurement is not representative at this time of year*

Provisional Data Subject to Revision

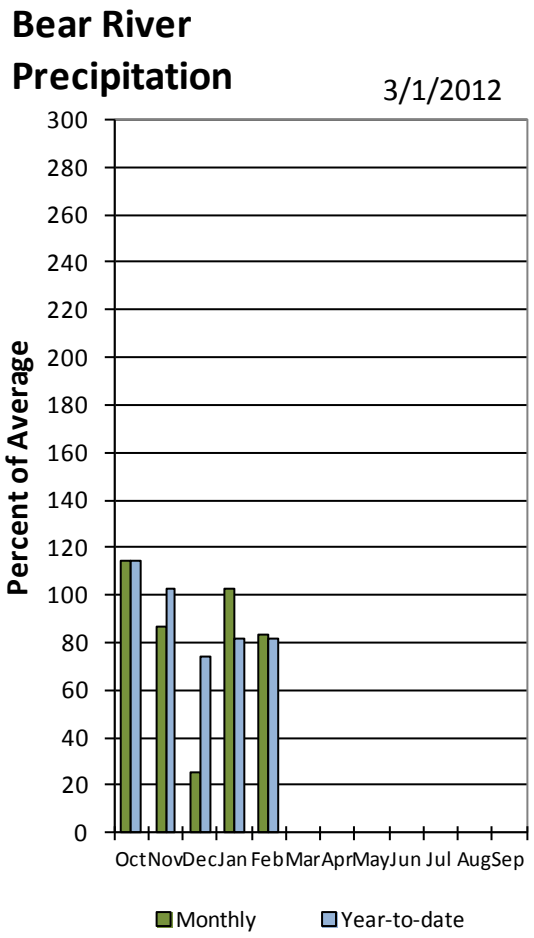
USDA NRCS

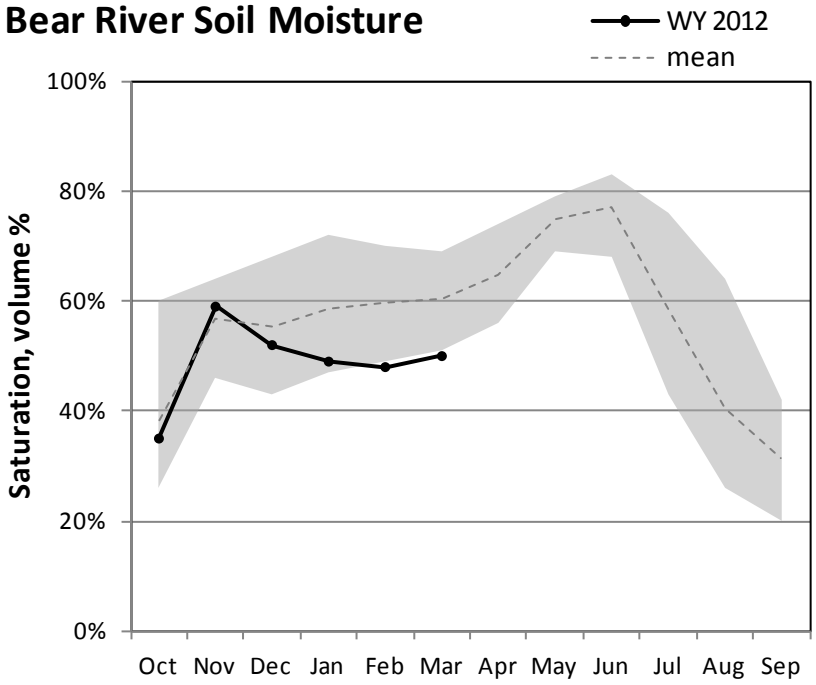
The water year to date precipitation percent of normal represents the accumulated precipitation found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by the USDA/NRCS National Water and Climate Center
Portland, Oregon http://www.wcc.nrcs.usda.gov/gis/
Based on data from http://www.wcc.nrcs.usda.gov/reports/
Science contact: Jim.Marron@por.usda.gov 503 414 3047

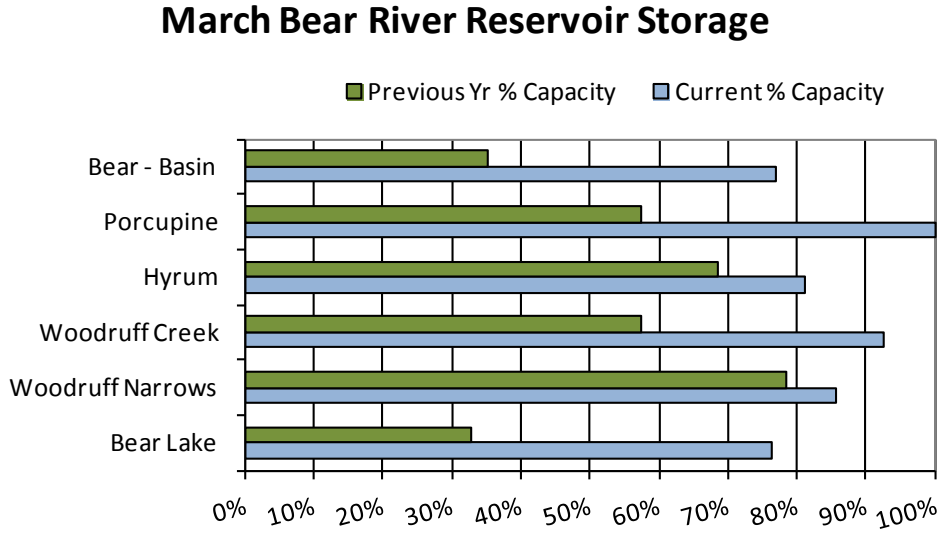
Bear River Basin
March 1, 2012

Precipitation in February was below average at 83% which brings the water year accumulation to 82%. Reservoir storage is high at 77% of capacity, which is 42% higher than this time last year. Soil moisture is at 50% compared to 69% last year.





Percent saturation is calculated using the weighted average of volumetric soil moisture content at 2, 8, and 20-inch depths. Saturation is estimated as 40% volumetric water content. The gray area represents the range in saturation values since 2005.

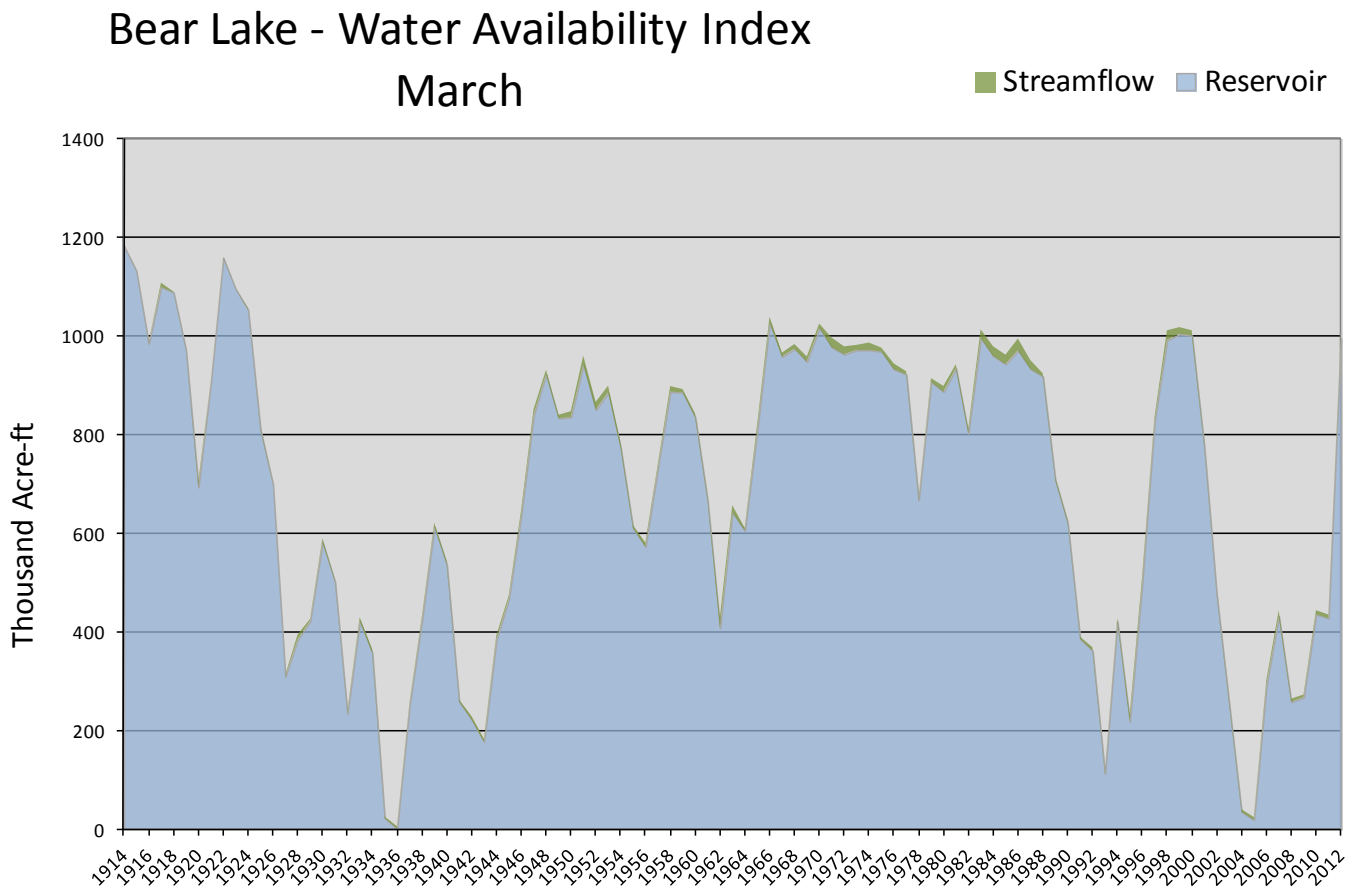


March 1, 2012

Water Availability Index

Basin or Region	February EOM* Bear Lake	February accumulated inflow to Bear Lake (*observed*)	Reservoir + Streamflow	WAI[#]	Percentile	Years with similar WAI
	*KAF^*	*KAF*	*KAF*		*%*	
Bear River	**994**	**8**	**1001**	**3.00**	**86**	**86, 71, 98, 00**

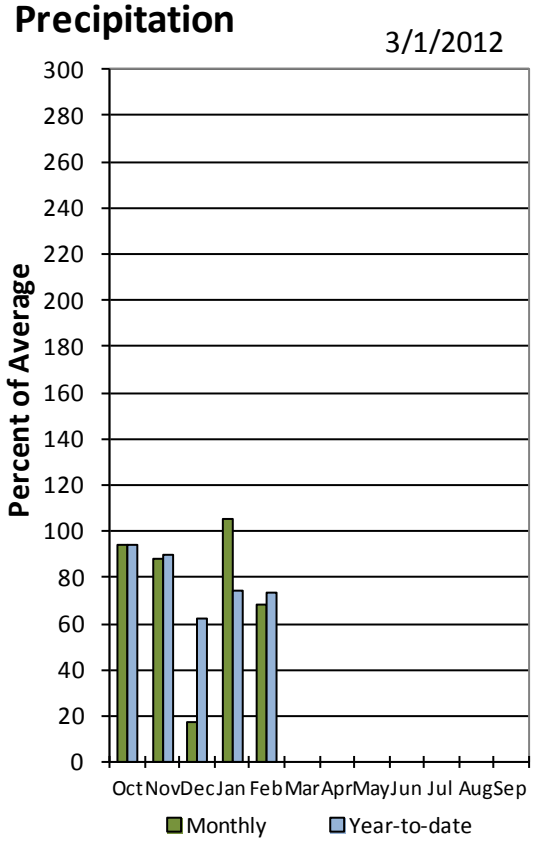
**EOM, end of month; [#] WAI, water availability index; ^KAF, thousand acre-feet.*



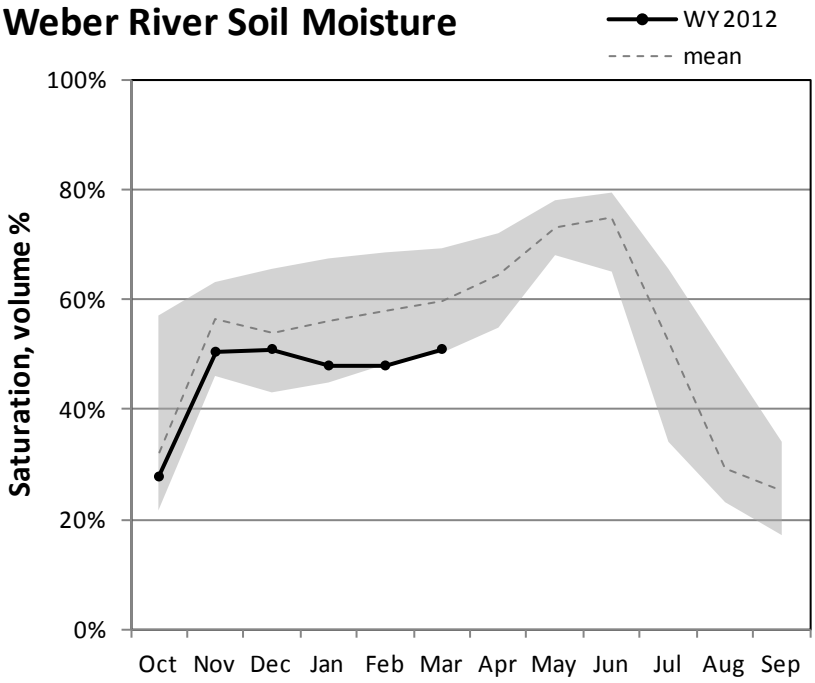
Weber and Ogden River Basin
March 1, 2012

Precipitation in February was much below average at 68% which brings the water year accumulation to 73%. Reservoir storage is at 82% of capacity, which is 10% higher than this time last year. Soil moisture is at 51% compared to 67% last year.

Weber River Precipitation

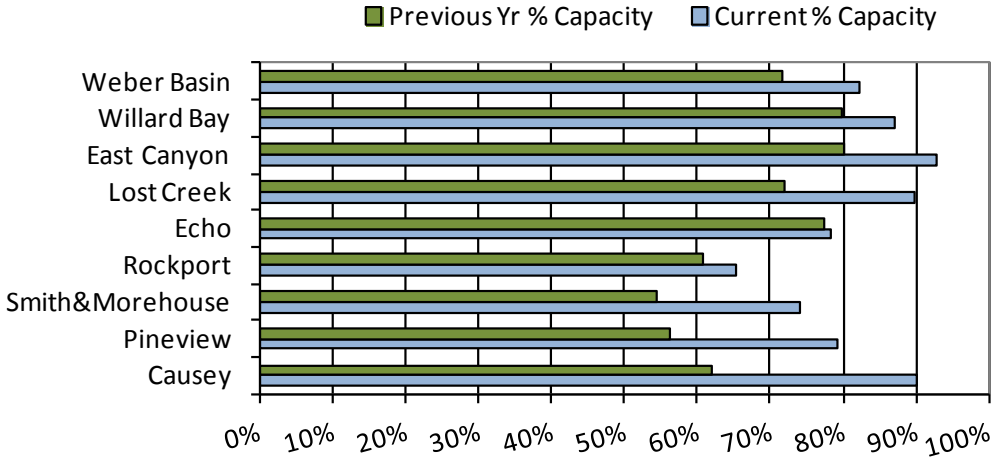


Weber River Soil Moisture



Percent saturation is calculated using the weighted average of volumetric soil moisture content at 2, 8, and 20-inch depths. Saturation is estimated as 40% volumetric water content. The gray area represents the range in saturation values since 2005.

March Weber Basin Reservoir Storage

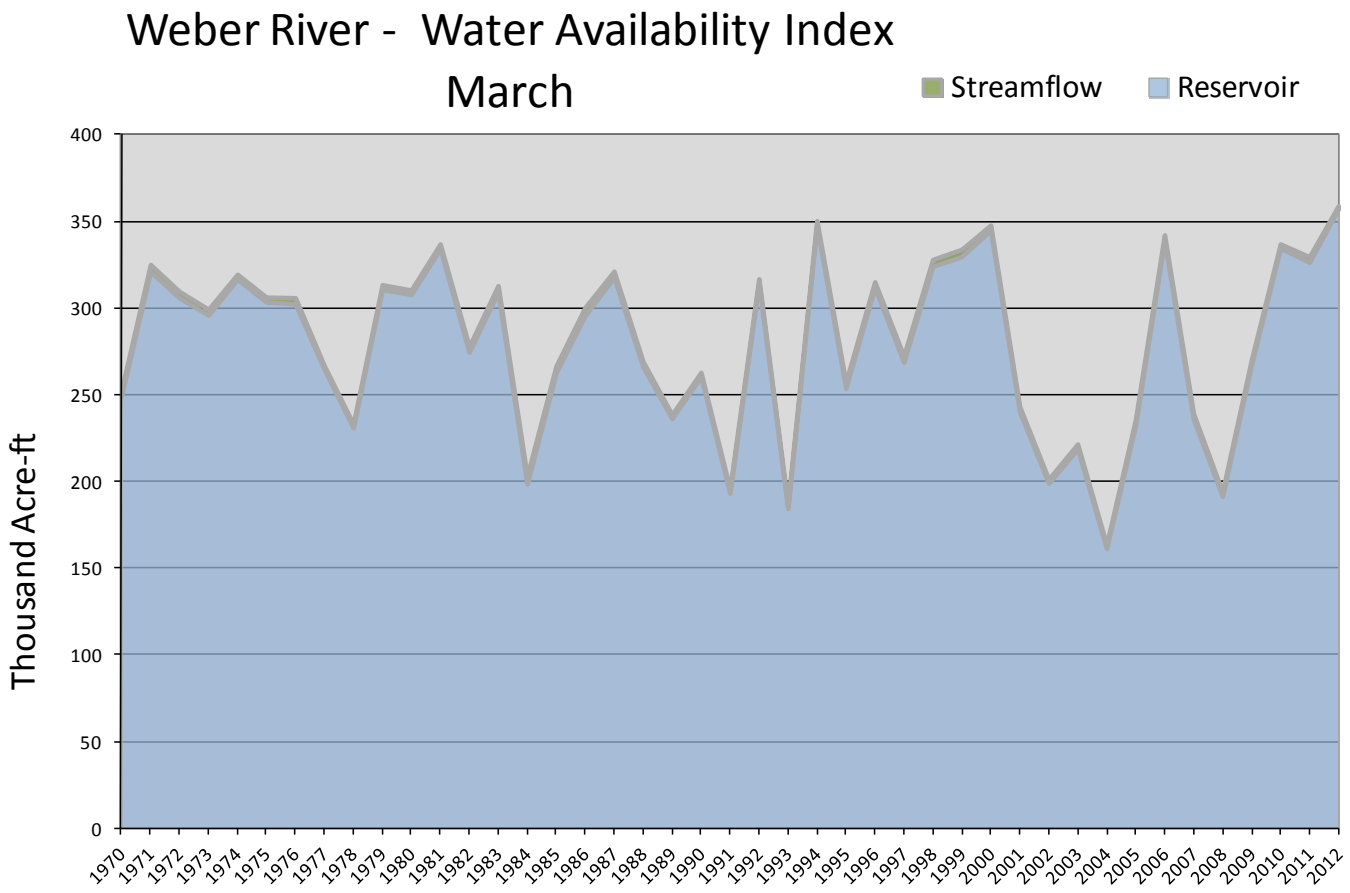


March 1, 2012

Water Availability Index

Basin or Region	February EOM* Reservoirs	February accumulated flow at Weber near Oakley (*observed*)	Reservoirs + Streamflow	WAI#	Percentile	Years with similar WAI
	*KAF^*	*KAF*	*KAF*		*%*	
Weber River	**357**	**2**	**359**	**3.98**	**98**	**00, 94**

**EOM, end of month; # WAI, water availability index; ^KAF, thousand acre-feet.*

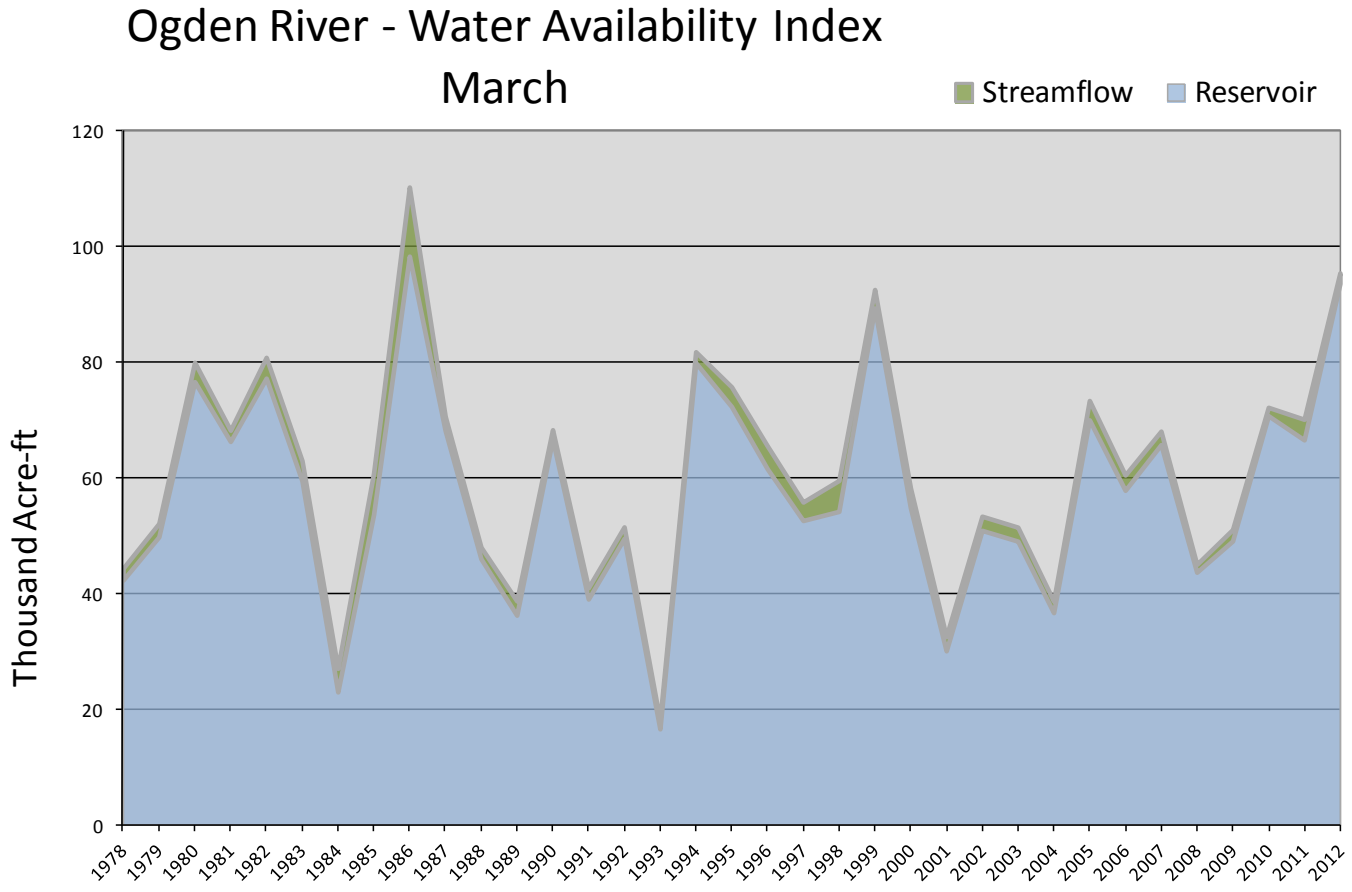


March 1, 2012

Water Availability Index

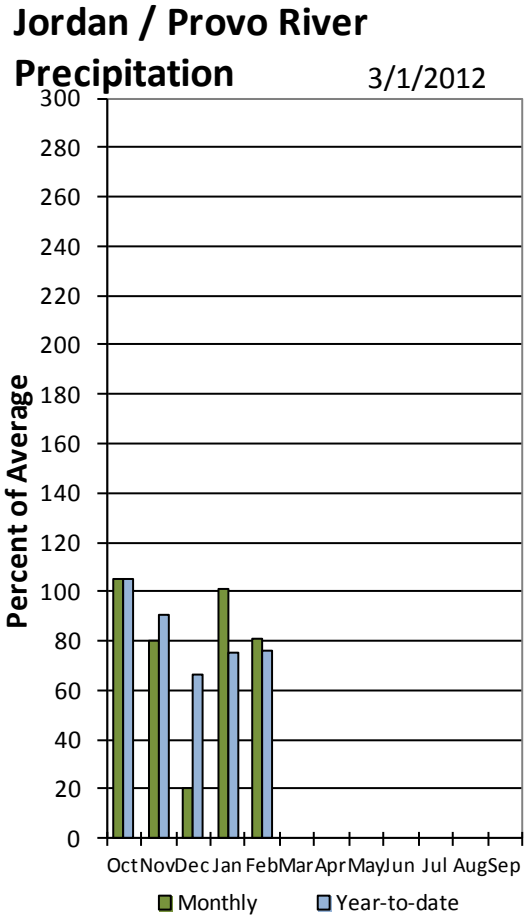
Basin or Region	February EOM* Pine View & Causey	February accumulated flow at South Fork Ogden (*observed*)	Reservoir + Streamflow	WAI#	Percentile	Years with similar WAI
	*KAF^*	*KAF*	*KAF*		*%*	
Ogden River	**93.7**	**1.8**	**95.5**	**3.70**	**94**	**94, 99,86**

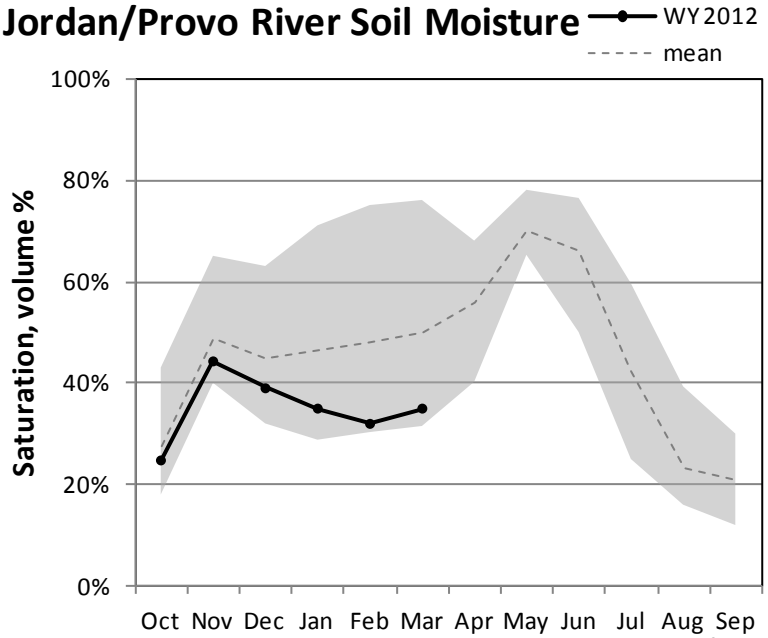
**EOM, end of month; # WAI, water availability index; ^KAF, thousand acre-feet.*



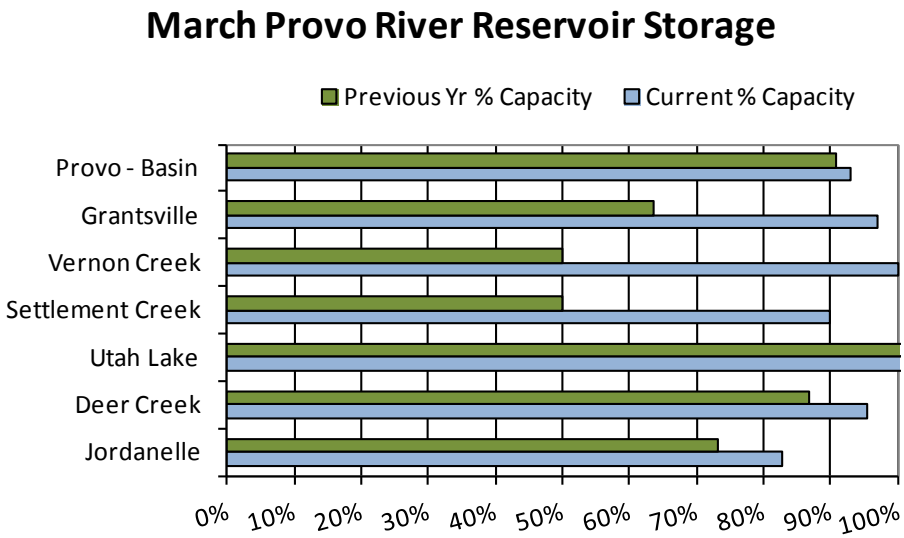
Utah Lake, Jordan River, & Tooele Valley Basins
March 1, 2012

Precipitation in February was below average at 81%, bringing water year accumulation to 76%. Reservoir storage is at 93% of capacity, which is 2% more than this time last year. Soil moisture is at 35% compared to 58% last year at this time.



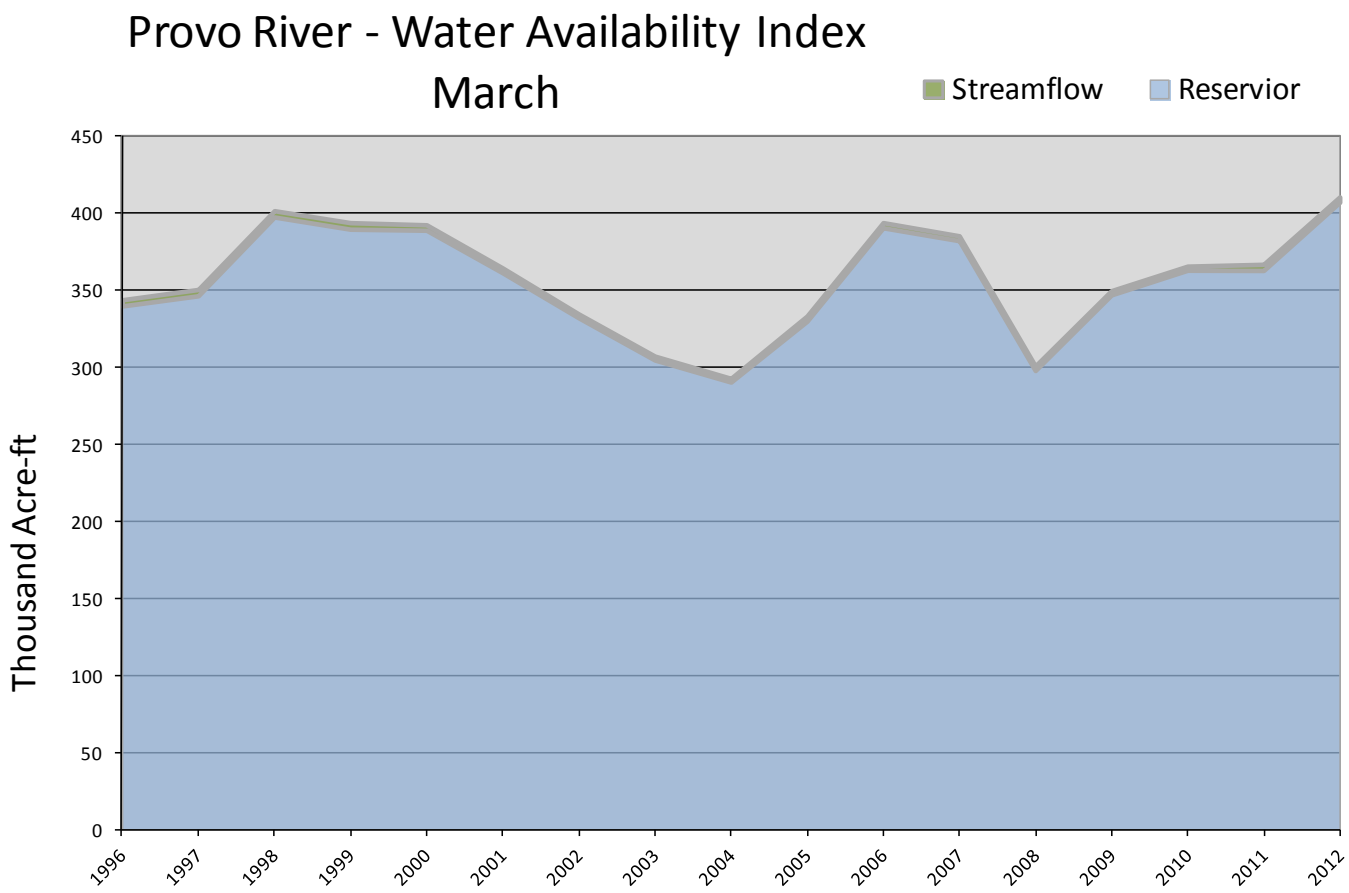


Percent saturation is calculated using the weighted average of volumetric soil moisture content at 2, 8, and 20-inch depths. Saturation is estimated as 40% volumetric water content. The gray area represents the range in saturation values since 2005.



March 1, 2012	**Water Availability Index**					
Basin or Region	February EOM* Deer Creek, Jordanelle	February accumulated flow Provo River at Woodland (*observed*)	Reservoir + Streamflow	WAI[#]	Percentile	Years with similar WAI
	*KAF^*	*KAF*	*KAF*		*%*	
Provo	**408**	**3.4**	**411**	**3.70**	**94%**	**98,06,99,00**

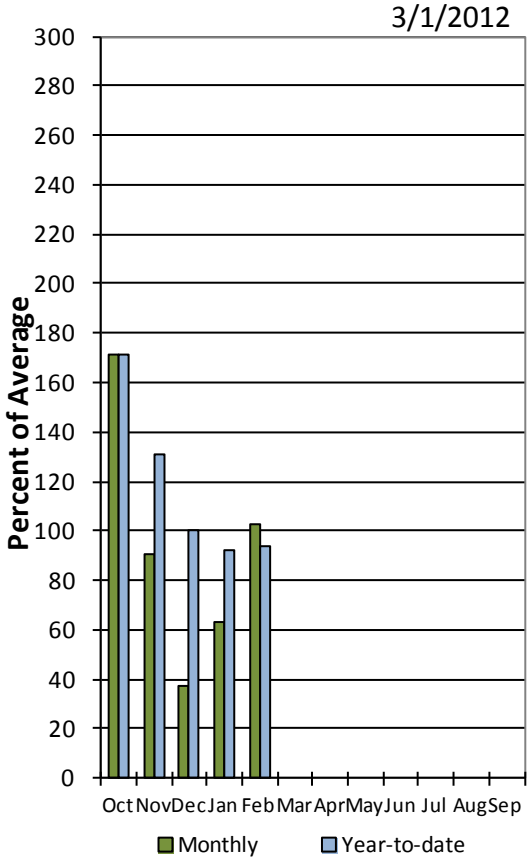
**EOM, end of month; [#] WAI, water availability index; ^KAF, thousand acre-feet.*



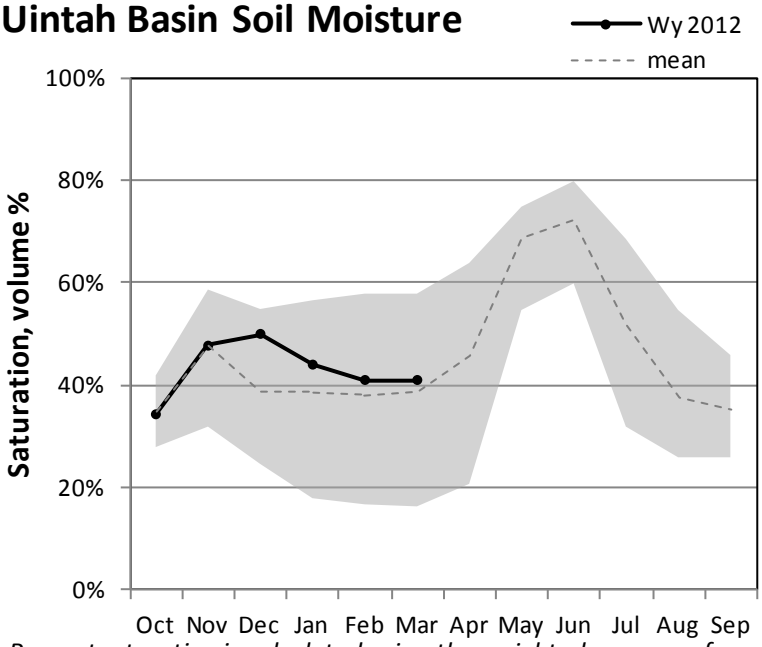
Uintah Basin and Dagget SCDs
March 1, 2012

Precipitation in February was average at 103%, bringing the water year accumulation to 94%. Reservoir storage is at 88% of capacity, which is 3% higher than at this time last year. Soil moisture is at 41% compared to 55% last year.

Uintah Precipitation

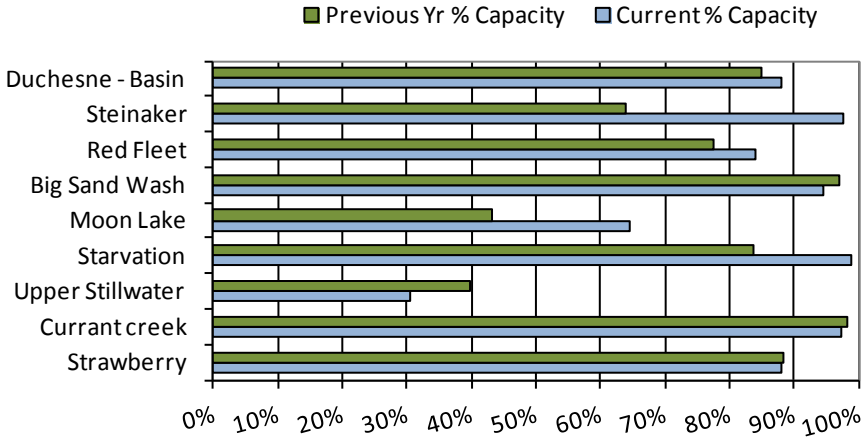


Uintah Basin Soil Moisture



Percent saturation is calculated using the weighted average of volumetric soil moisture content at 2, 8, and 20-inch depths. Saturation is estimated as 40% volumetric water content. The gray area represents the range in saturation values since 2005.

March Uintah Basin Reservoir Storage

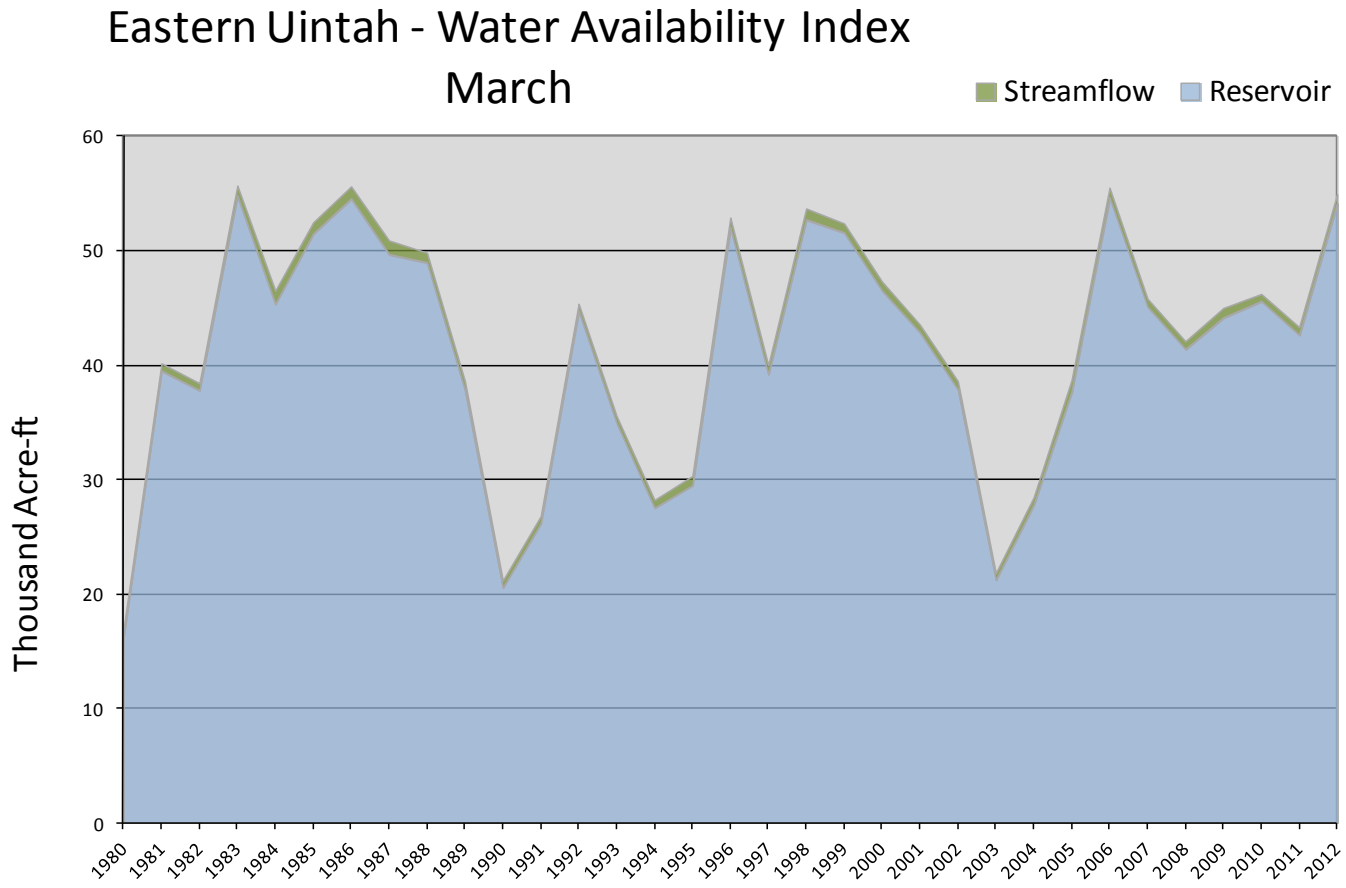


March 1, 2012

Water Availability Index

Basin or Region	February EOM* Red Fleet and Steinaker	February accumulated flow Big Brush Creek (*observed*)	Reservoir + Streamflow	WAI[#]	Percentile	Years with similar WAI
	*KAF^*	*KAF*	*KAF*		*%*	
Eastern Uintah	**54.2**	**0.7**	**54.9**	**3.19**	**88**	**96, 98, 06, 86**

**EOM, end of month; [#] WAI, water availability index; ^KAF, thousand acre-feet.*

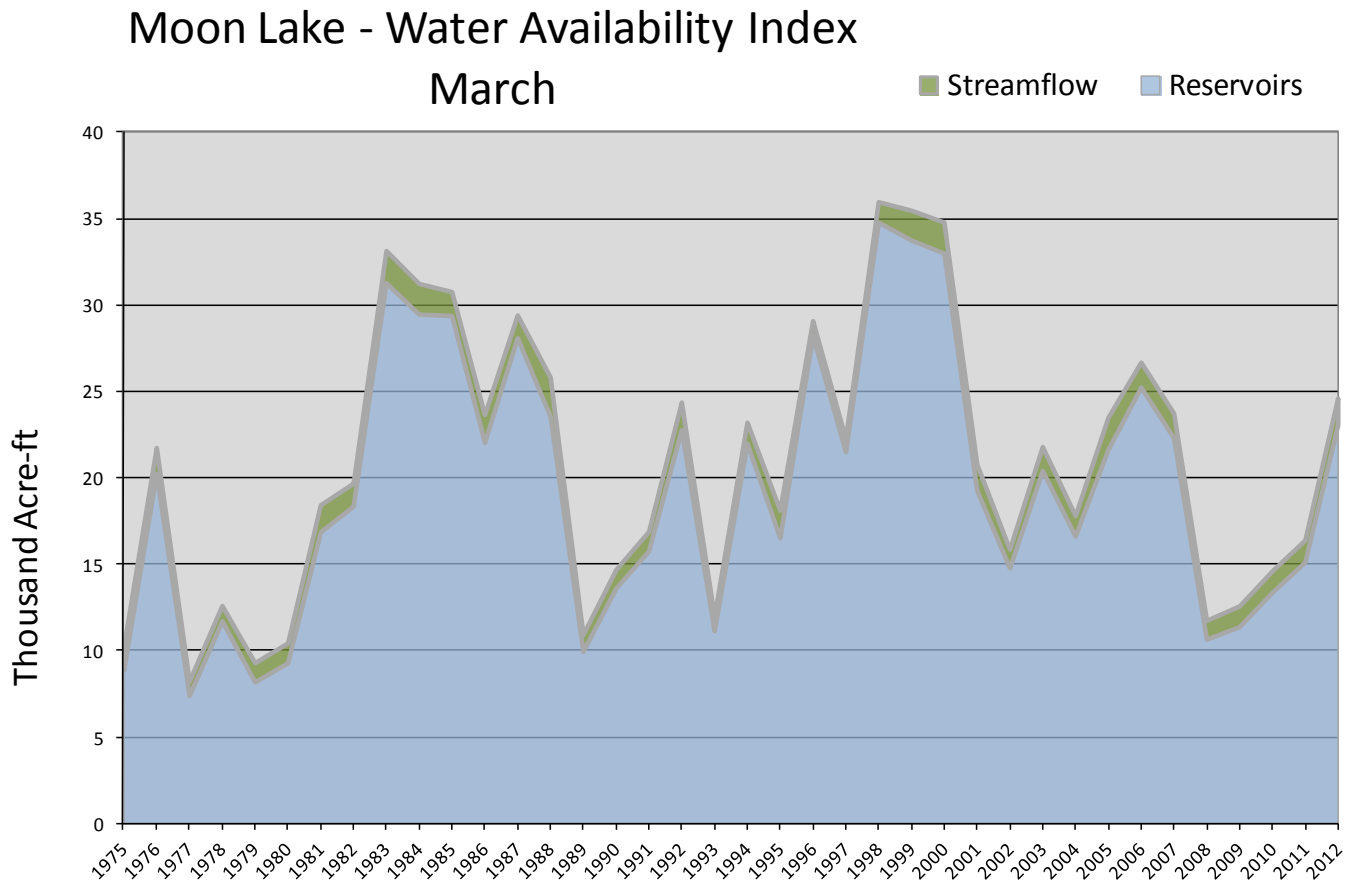


March 1, 2012

Water Availability Index

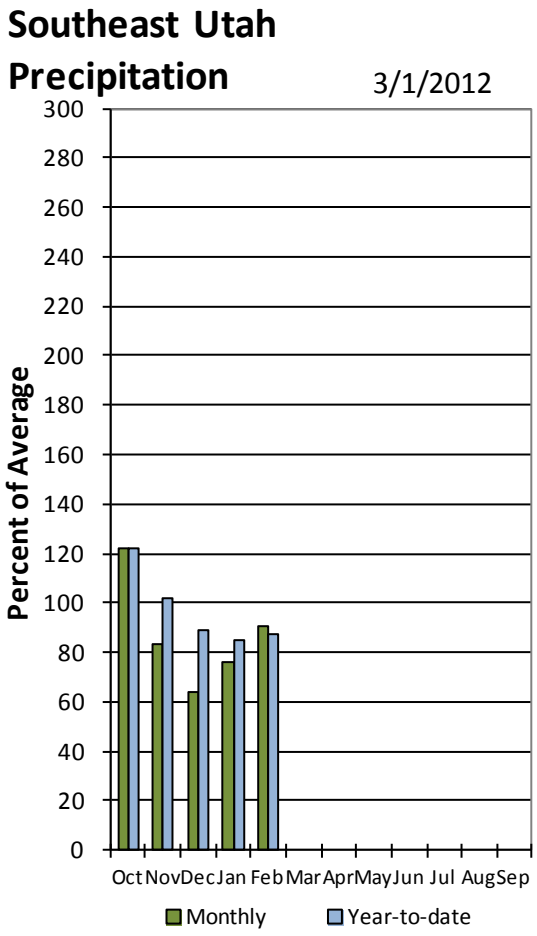
Basin or Region	February EOM* Moon Lake	February accumulated flow Lake Fork Creek above Moon Lake (*observed*)	Reservoir + Streamflow	WAI[#]	Percentile	Years with similar WAI
	*KAF^*	*KAF*	*KAF*		*%*	
Moon Lake	**23.1**	**1.6**	**24.7**	**1.82**	**72**	**07, 92, 88, 06**

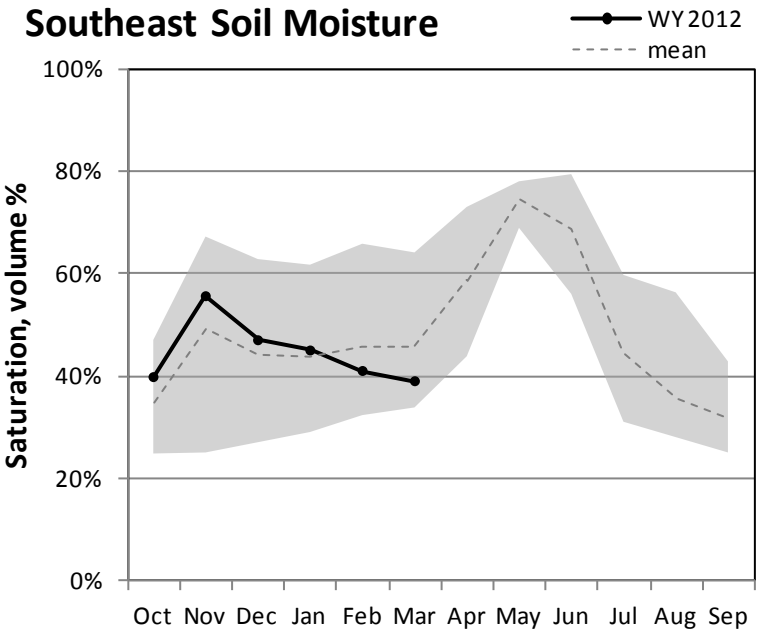
**EOM, end of month; [#] WAI, water availability index; ^KAF, thousand acre-feet.*



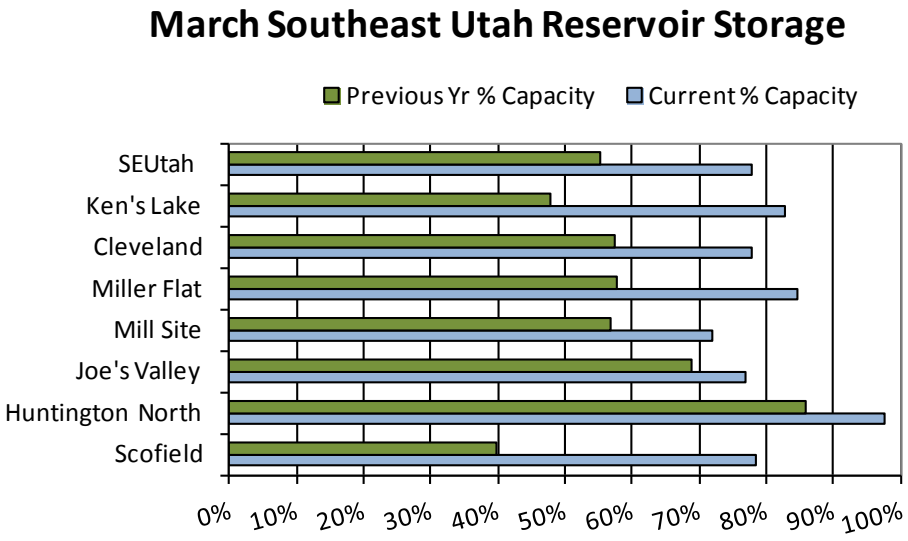
Southeast – Carbon, Emery, Wayne, Grand, and San Juan Counties
March 1, 2012

Precipitation in February was near average at 91%, bringing the water year accumulation to 87%. Reservoir storage is at 78% of capacity, which is 23% higher at this time than last year. Soil moisture is at 39% compared to 64% last year.





Percent saturation is calculated using the weighted average of volumetric soil moisture content at 2, 8, and 20-inch depths. Saturation is estimated as 40% volumetric water content. The gray area represents the range in saturation values since 2005.

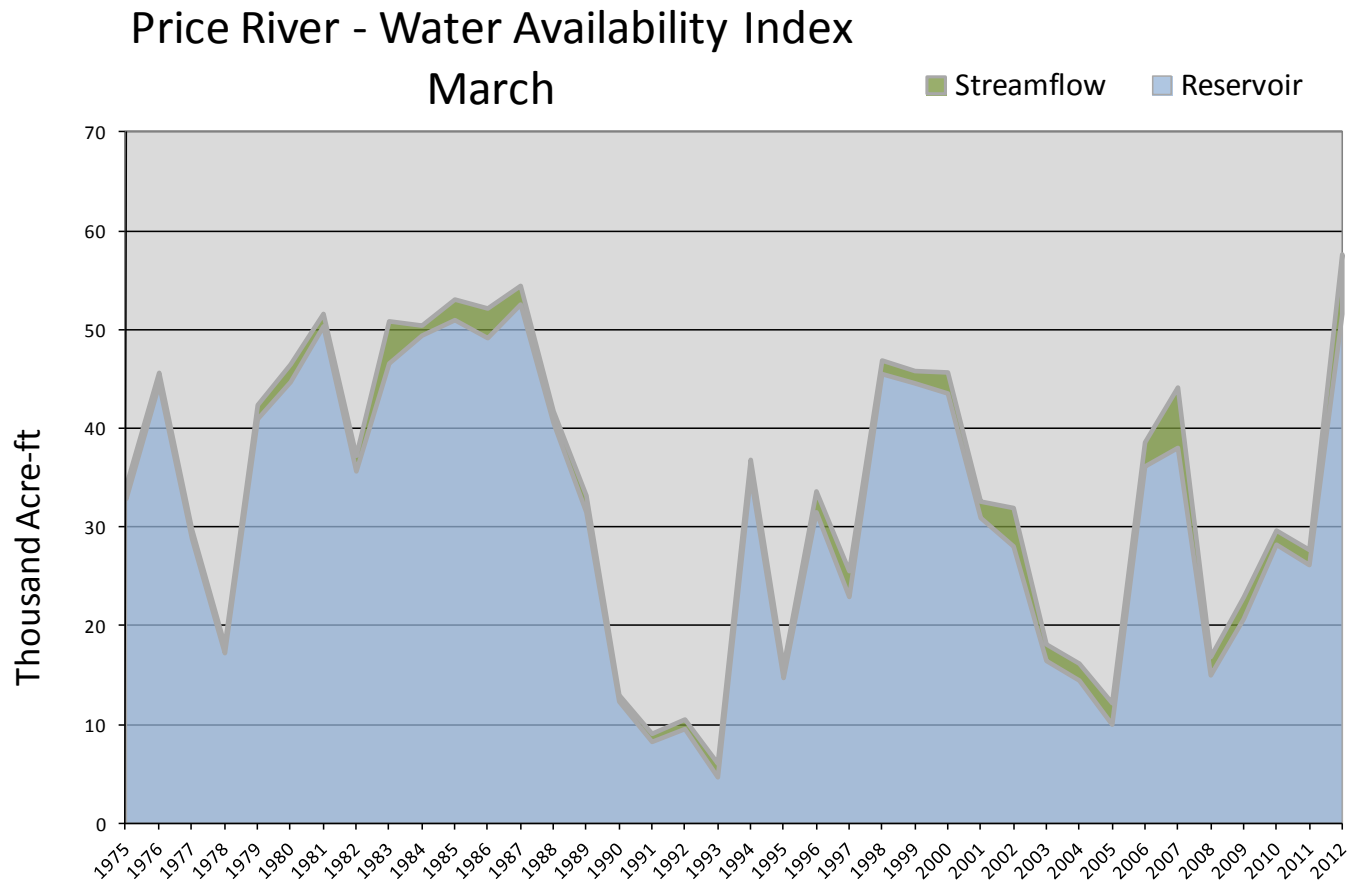


March 1, 2012

Water Availability Index

Basin or Region	February EOM* Scofield	February accumulated inflow to Scofield (*calculated*)	Reservoir + Streamflow	WAI#	Percentile	Years with similar WAI
	*KAF^*	*KAF*	*KAF*		*%*	
Price River	**51.6**	**6.0**	**57.6**	**3.95**	**97**	**85, 87**

**EOM, end of month; # WAI, water availability index; ^KAF, thousand acre-feet.*

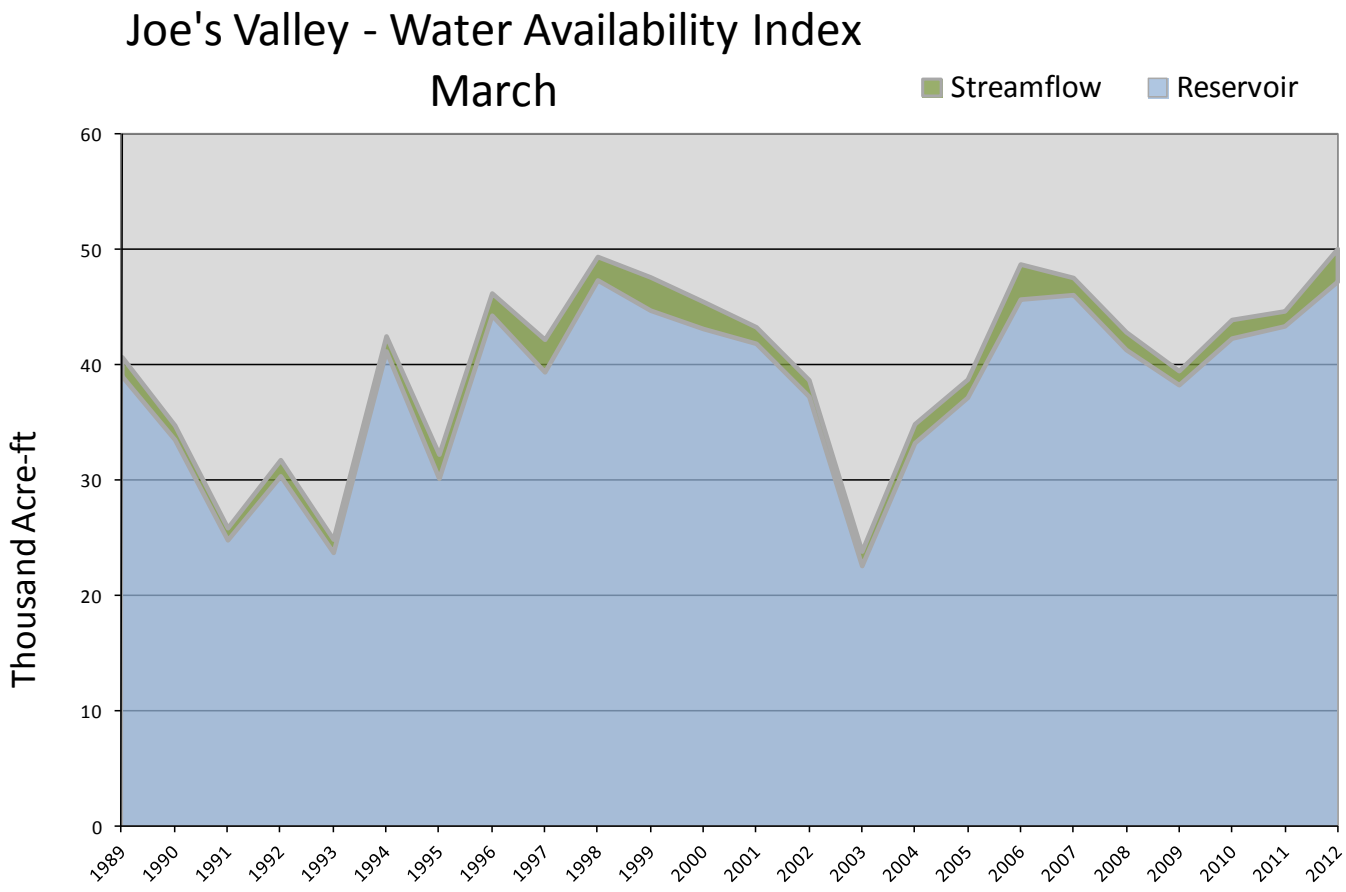


March 1, 2012

Water Availability Index

Basin or Region	February EOM* Joe's Valley	February accumulated inflow to Joe's Valley (*calculated*)	Reservoir + Streamflow	WAI#	Percentile	Years with similar WAI
	*KAF^*	*KAF*	*KAF*		*%*	
Joe's Valley	**43.4**	**1.3**	**44.7**	**3.83**	**96**	**06, 98**

**EOM, end of month; # WAI, water availability index; ^KAF, thousand acre-feet.*

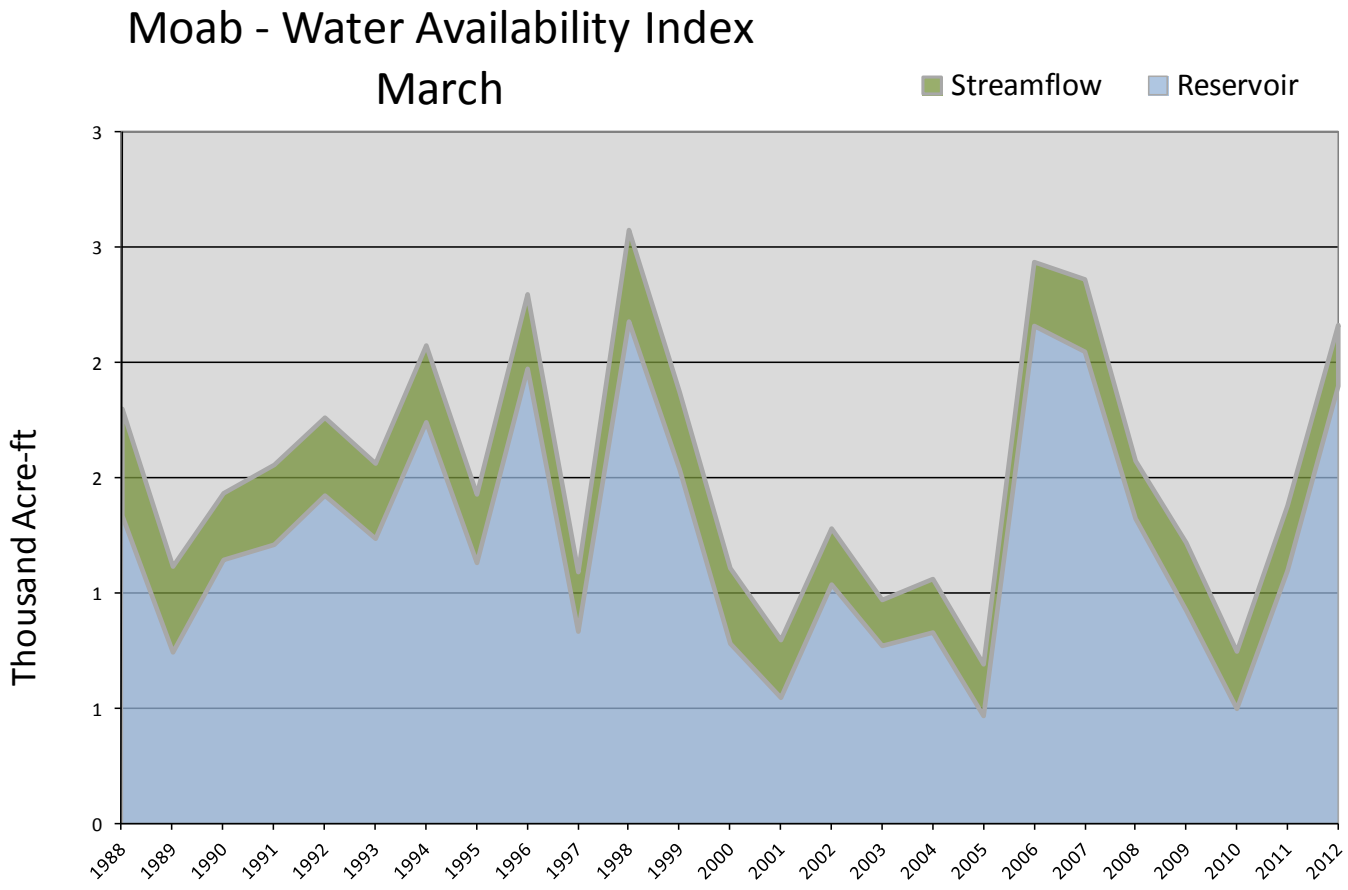


March 1, 2012

Water Availability Index

Basin or Region	February EOM* Ken's Lake Reservoir	February accumulated flow Mill Creek at Sheley (*observed*)	Reservoir + Streamflow	WAI#	Percentile	Years with similar WAI
	*KAF^*	*KAF*	*KAF*		*%*	
Moab	**1.9**	**0.3**	**2.2**	**2.56**	**81**	**99, 94, 96, 07**

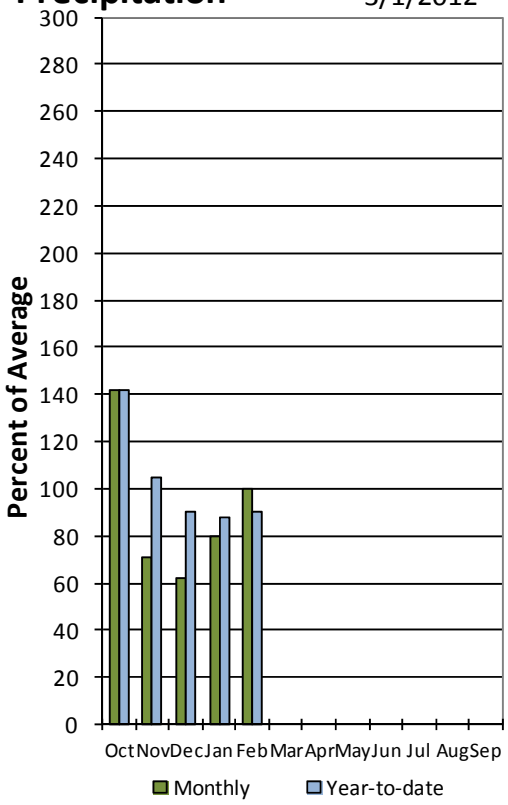
**EOM, end of month; # WAI, water availability index; ^KAF, thousand acre-feet.*



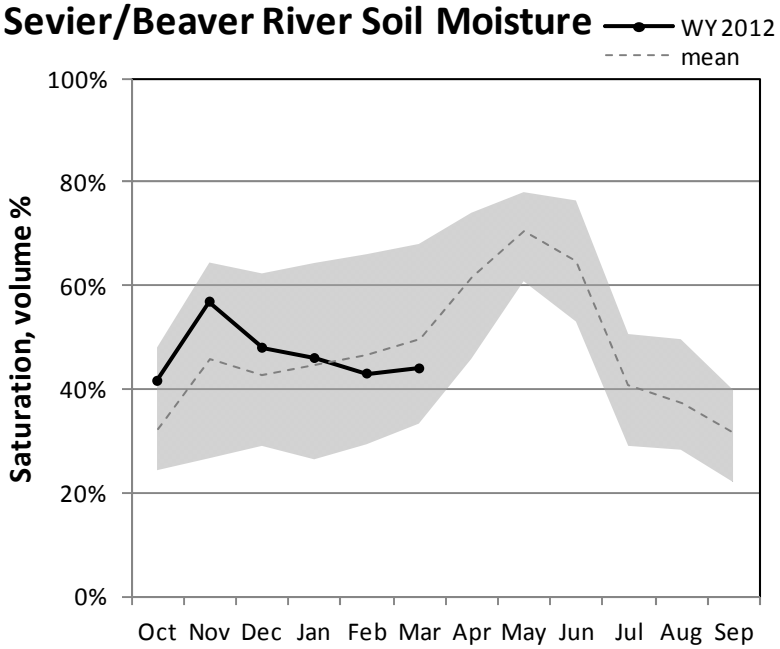
Sevier and Beaver River Basins
March 1, 2012

Precipitation in February was average at 100%, which brings the seasonal accumulation (Oct-Feb) to 90% of average. Reservoir storage is high at 93% of capacity, 34% more than last year. Soil moisture is at 44% compared to 43% last year.

Sevier /Beaver River Precipitation

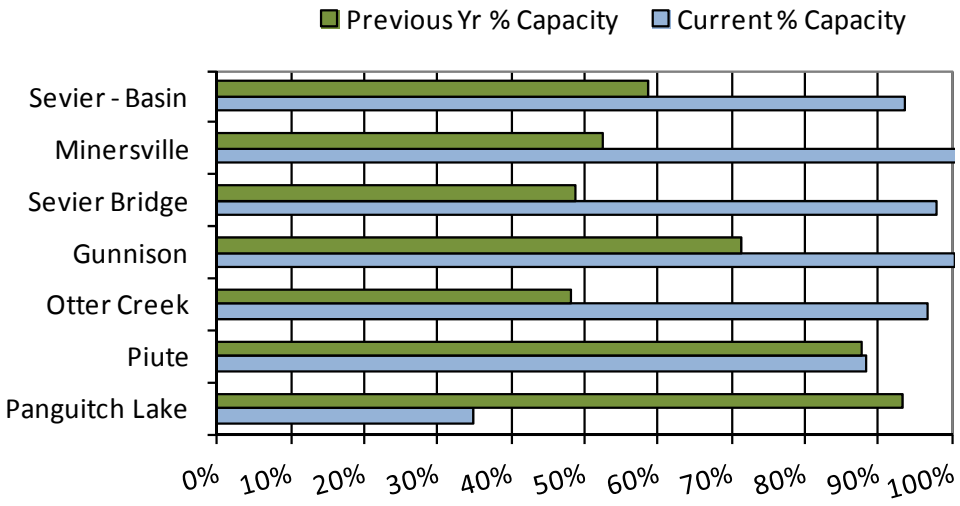


Sevier/Beaver River Soil Moisture



Percent saturation is calculated using the weighted average of volumetric soil moisture content at 2, 8, and 20-inch depths. Saturation is estimated as 40% volumetric water content. The gray area represents the range in saturation values since 2005.

March Sevier River Reservoir Storage

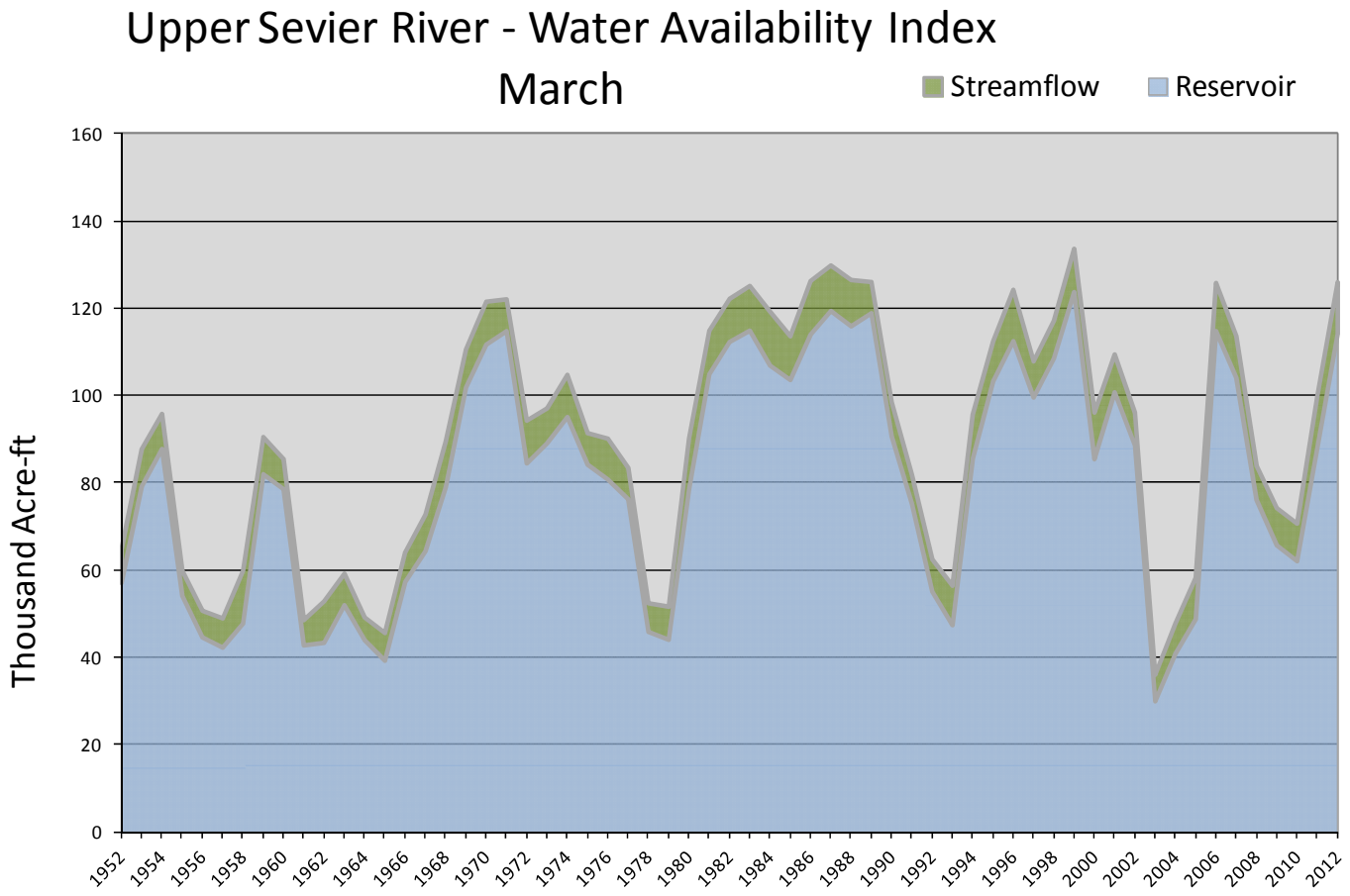


March 1, 2012

Water Availability Index

Basin or Region	February EOM* Otter Creek and Piute	February accumulated flow at Kingston (*observed*)	Reservoir + Streamflow	WAI[#]	Percentile	Years with similar WAI
	*KAF^*	*KAF*	*KAF*		*%*	
Upper Sevier River	**114.2**	**11.9**	**126.1**	**3.36**	**90**	**83,06,89,86**

**EOM, end of month; [#] WAI, water availability index; ^KAF, thousand acre-feet.*

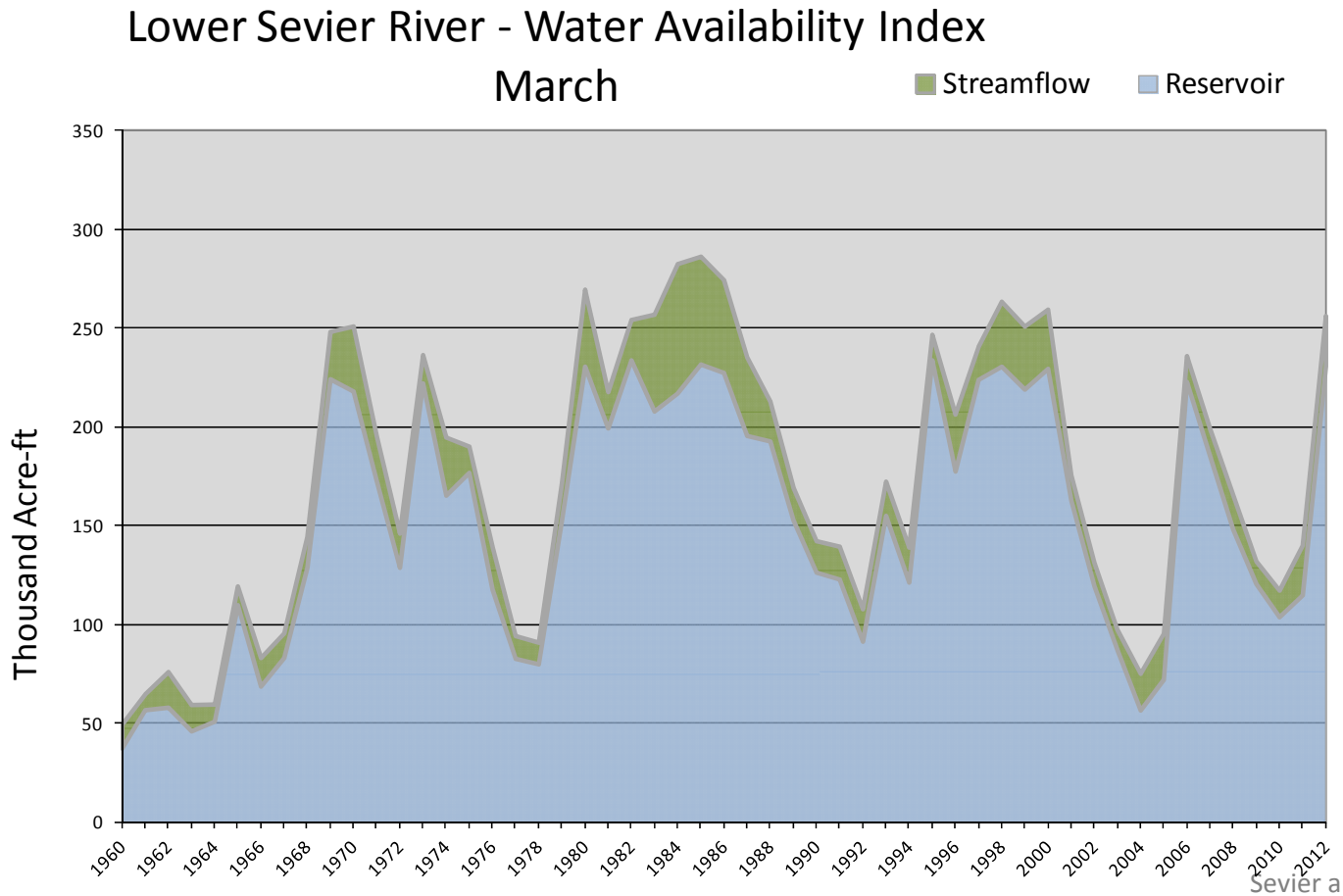


March 1, 2012

Water Availability Index

Basin or Region	February EOM* Sevier Bridge	February accumulated flow Sevier at Gunnsion (*observed*)	Reservoir + Streamflow	WAI#	Percentile	Years with similar WAI
	*KAF^*	*KAF*	*KAF*		*%*	
Lower Sevier River	**230.9**	**25.6**	**256.5**	**2.93**	**85**	**70,82,83,00**

**EOM, end of month; # WAI, water availability index; ^KAF, thousand acre-feet.*

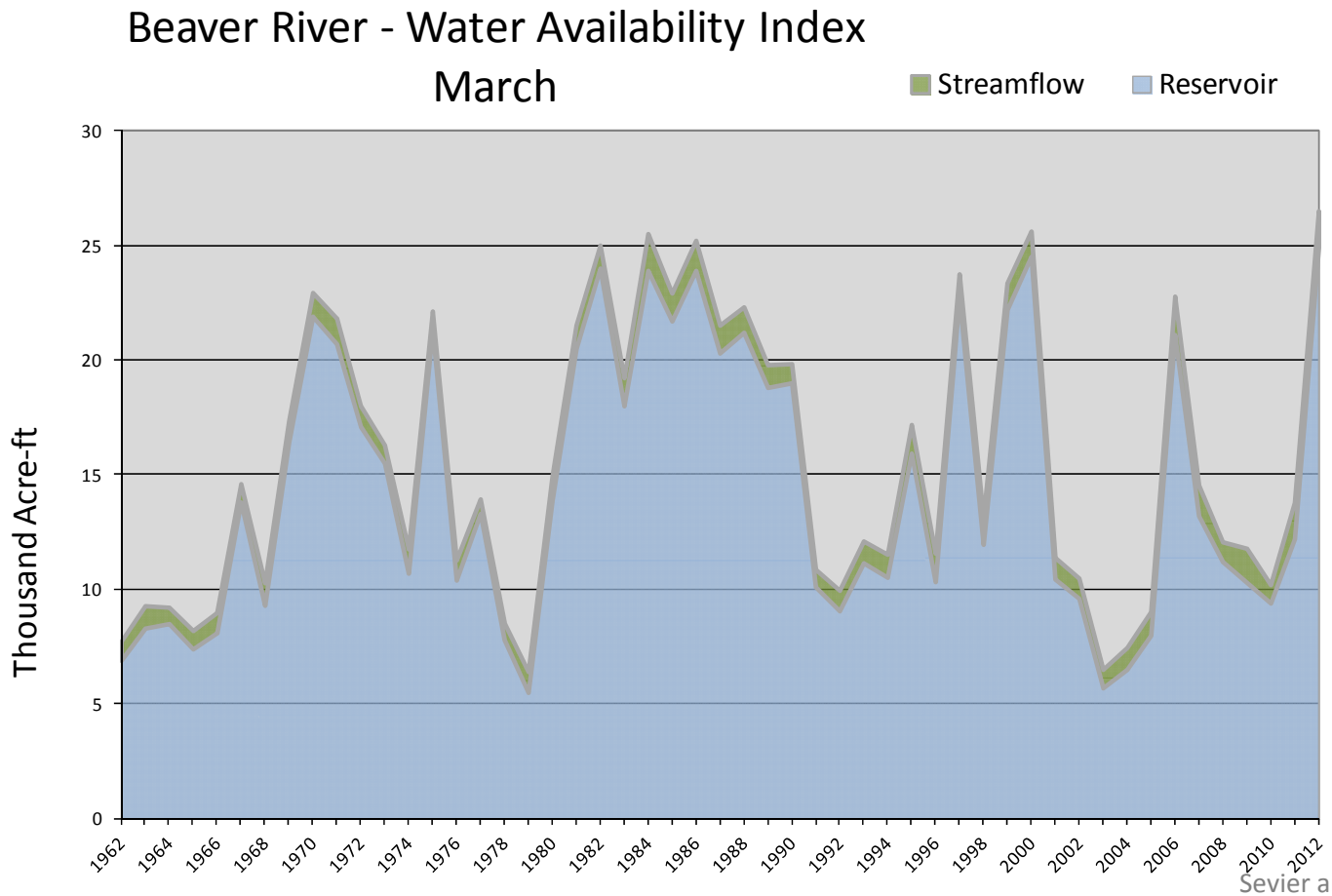


March 1, 2012

Water Availability Index

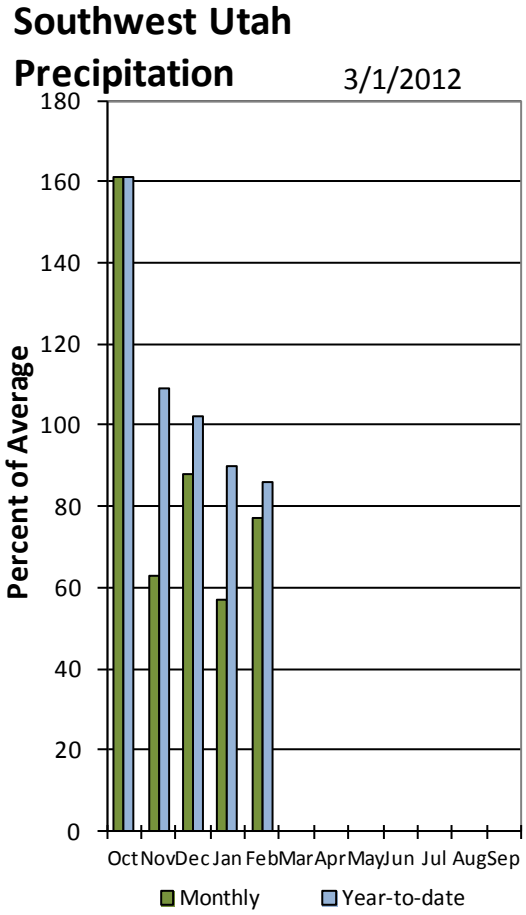
Basin or Region	February EOM* Minersville Reservoir	February accumulated flow Beaver River at Beaver (*observed*)	Reservoir + Streamflow	WAI[#]	Percentile	Years with similar WAI
	*KAF^*	*KAF*	*KAF*		*%*	
Beaver	**24.9**	**1.6**	**26.5**	**4.01**	**98**	**82,86,84,00**

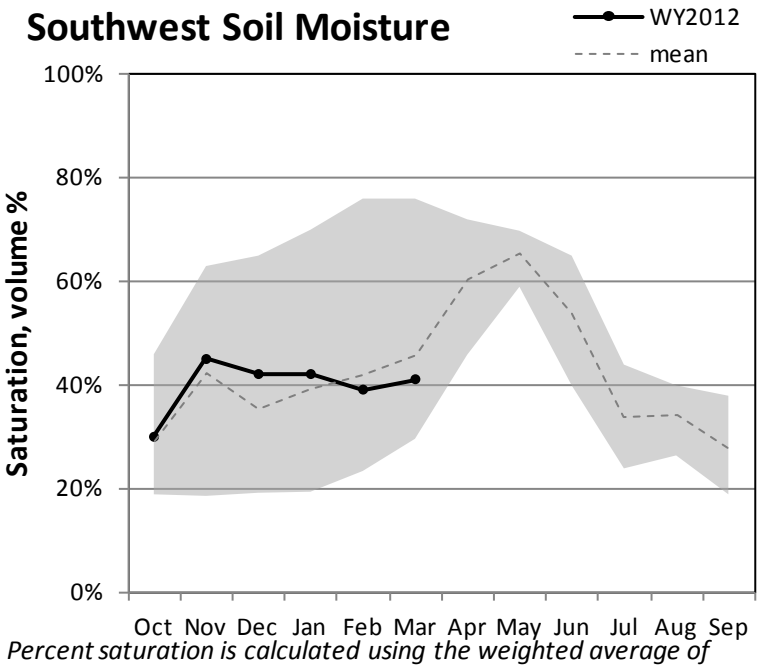
**EOM, end of month; [#] WAI, water availability index; ^KAF, thousand acre-feet.*



Southwest – E. Garfield, Kane, Washington, & Iron Counties
March 1, 2012

Precipitation in February was below average at 77%, bringing water year accumulation to 86%. Reservoir storage is at 82% of capacity, 6% lower than last year at this time. Soil moisture is at 41% compared to 56% at this time last year.





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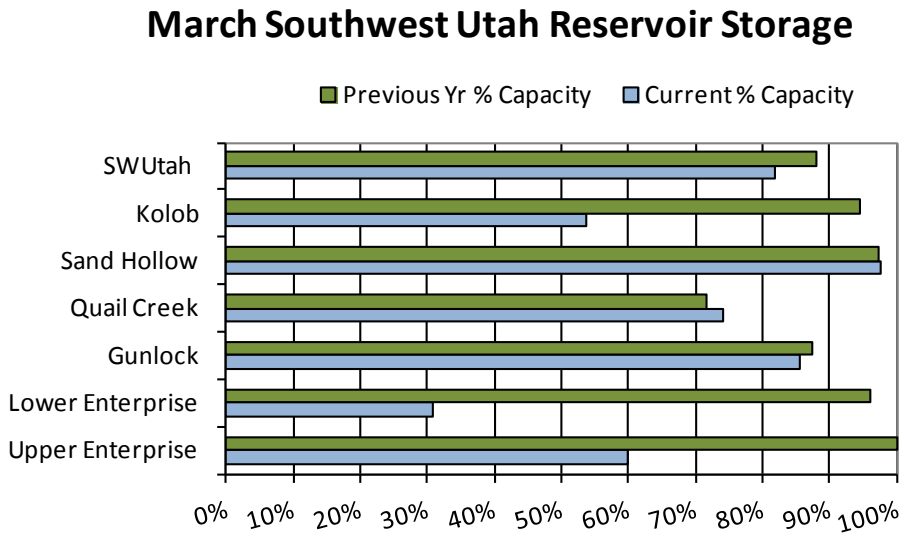
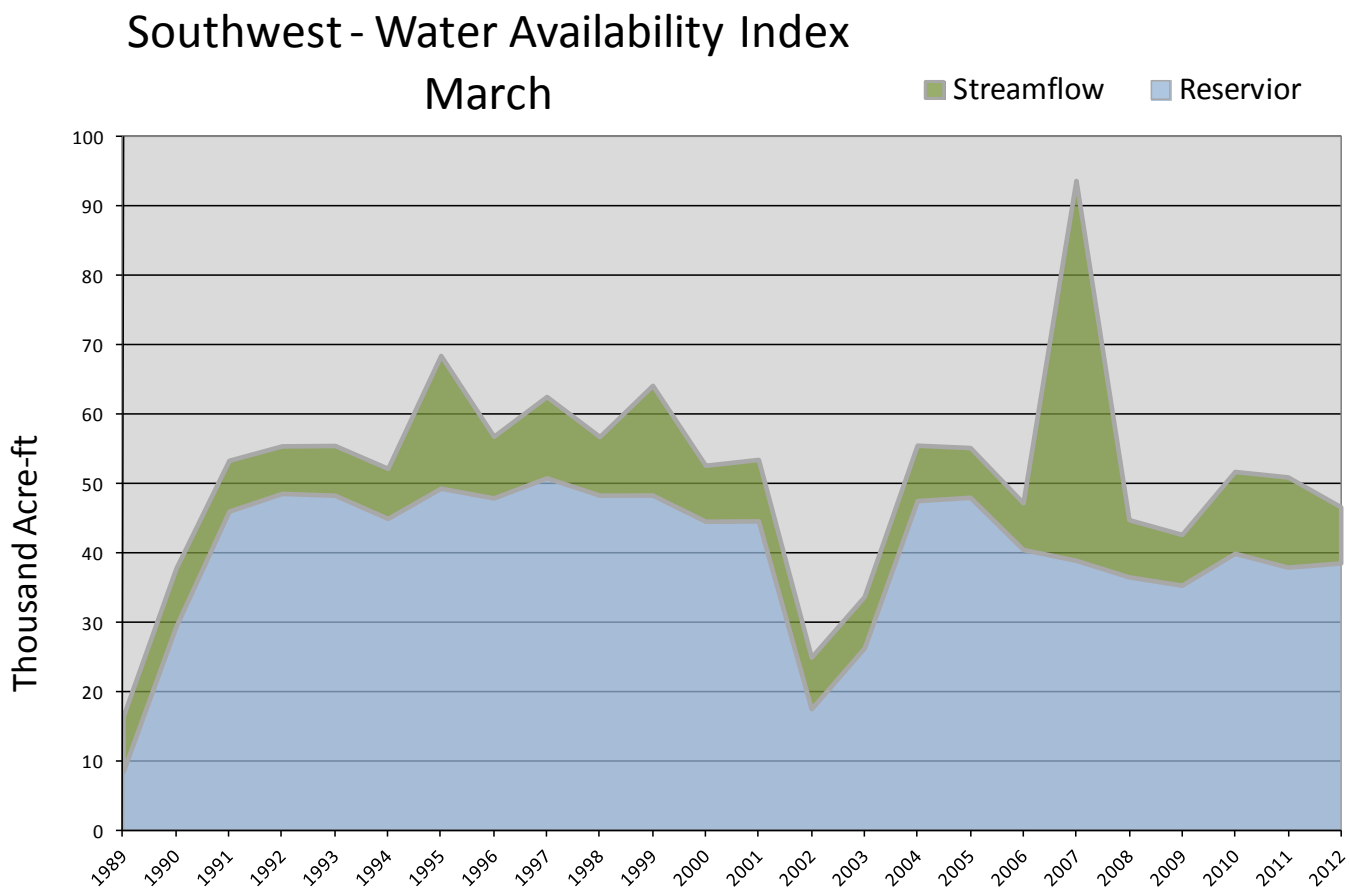


March 1, 2012	**Water Availability Index**					
Basin or Region	February EOM* Reservoir	February accumulated flow Virgin and Santa Clara Rivers (*observed*)	Reservoir + Streamflow	WAI[#]	Percentile	Years with similar WAI
	*KAF^*	*KAF*	*KAF*		*%*	
Southwest	**38.6**	**8.1**	**46.7**	**-1.83**	**28**	**11, 06, 08, 09**

**EOM, end of month; [#] WAI, water availability index; ^KAF, thousand acre-feet.*



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Utah Climate and Water Report

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