Utah Water Supply Outlook Report

March, 2015

Aerial View from Hobble Creek Snow Course, February 24, 2015

Photo by Troy Brosten, NRCS

Water Supply Outlook Reports
and Federal - State - Private Cooperative Snow Surveys

For more water supply and resource management information, contact: your local Natural Resources Conservation Service Office or:
Snow Surveys
245 N Jimmy Doolittle Rd, SLC Utah, 84116. Phone (801)524-5213
Internet Address: http://www.ut.nrcs.usda.gov/snow/

How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in statistical and simulation models to prepare runoff forecasts. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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Or call toll free at (866) 632-9992 (voice) to obtain additional information, the appropriate office or to request documents. Individuals who are deaf, hard of hearing, or have speech disabilities may contact USDA through the Federal Relay service at (800) 877-8339 or (800) 845-6136 (in Spanish). USDA is an equal opportunity provider, employer, and lender. Persons with disabilities who require alternative means for communication of program information (e.g., Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

STATE OF UTAH GENERAL OUTLOOK
March 1, 2015

SUMMARY

February 2015 will be one for the record books – exceptionally warm and exceptionally dry. Hard to believe we could have a month worse than January but somehow February made January look good. Snowpacks took a beating across the state declining as a percent of average: Bear down -21%, Weber -12%, Provo -24%, Duchesne -15%, Price -24%, South East – 17%, Sevier -15%, San Pitch -28% and the South West - down 36% and then back up 34% to end up down only 2% for the month. Much of the month had temperatures 10 to 20 degrees above average. Sunny, warm and dry conditions brought snow densities up to the 30%-40% range which is just short of melting. Many of the lower elevation SNOTEL sites showed active melt with some sites melting out completely. Snowpacks in general are 3 to 6 weeks ahead of schedule when it comes to melt potential. That is to say, it won't take much additional energy to begin snow melt in earnest and water managers can expect earlier than normal streamflow with lower peak flows, shorter flow durations and much less than normal April-July totals. South facing aspects in almost all areas of the state are bare of snow up to near the 9000 foot level and have been for some time. Any new snow accumulating on these areas is not likely to last very long as the soils have warmed substantially and will melt any new snow rapidly. Most areas have less than a 10% probability of getting sufficient snow accumulation in March to get back to average. Some areas would have to get 40% or more of their annual snowpack in the next 4 weeks to have average by April 1. February precipitation ranged from 25% over the Price River Basin to 70% over southwest Utah. This brings the statewide seasonal (Oct-Feb) total to 66% of normal. Soil moisture conditions are near normal for most of Utah. Reservoir storage continues to incrementally improve as water managers are storing as much as possible and is similar to last year. Surface Water Supply indexes are below average across the state. The water supply outlook is below to much below normal conditions for all areas of Utah even with the recent storms.

SNOWPACK

March first snow packs as measured by the NRCS SNOTEL system range from 60% of median in southwest Utah to 78% on the San Pitch and Bear River basins. Stations that are or are close to record lows for March 1 snowpack include: Little Bear, Ben Lomond Peak, Ben Lomond Trail, Dry Bread Pond, Parleys Summit, Thaynes Canyon, Brighton, Currant Creek, Steel Creek Park, Hayden Fork, Chepeta, Kings Cabin, Mining Fork, Rocky Basin, Vernon Creek, Payson RS, Clear Creek 2 and Merchant Valley. Most sites north of I 70 are in the bottom 25% of observed values with a significant number in the lowest 10%.

PRECIPITATION

Mountain precipitation during February ranged from 25% to about 70% of average. This brings the seasonal accumulation for the state (Oct-Feb) to 66% of normal.

SOIL MOISTURE

Soil Moisture conditions are at or near normal in the north and above normal in the south with 62% of saturation in southeast Utah.

RESERVOIRS

Storage in 46 of Utah's key irrigation reservoirs is at 63% of capacity compared to 62% last year.

STREAMFLOW

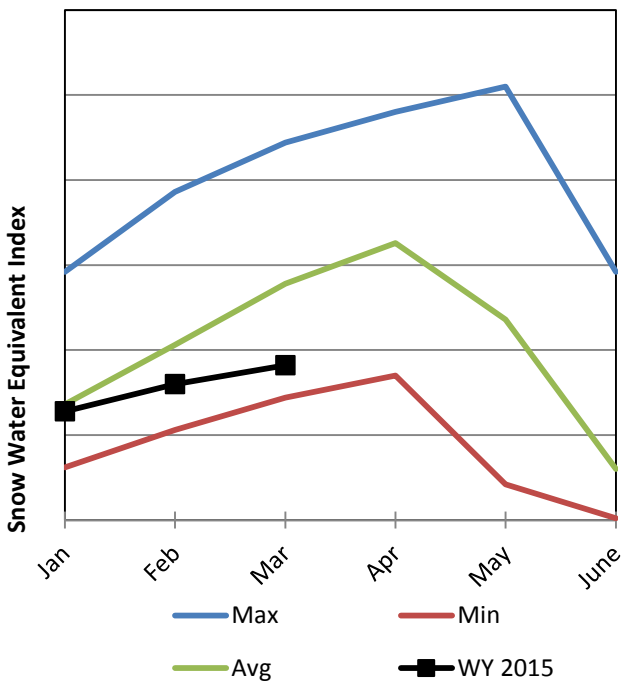
Snowmelt stream flows are forecast to be below to near normal across the state this year. Most flows are forecast to be in the 30% to 80% range.

Statewide Utah

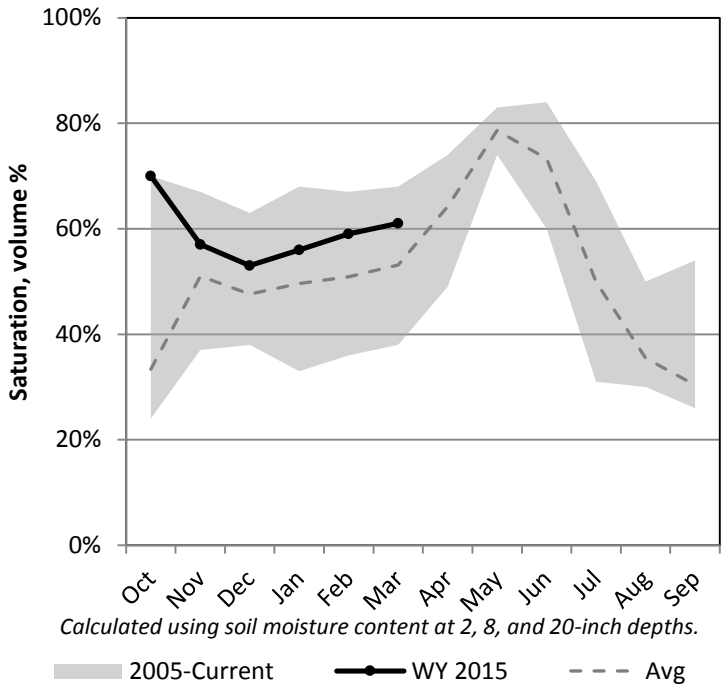
3/1/2015

Snowpack in Utah is much below average at 69% of normal, compared to 89% last year. Precipitation in February was much below average at 48%, which brings the seasonal accumulation (Oct-Feb) to 66% of average. Soil moisture is at 61% compared to 56% last year. Reservoir storage is at 63% of capacity, compared to 62% last year. Forecast streamflow volumes range from 24% to 78% of average.

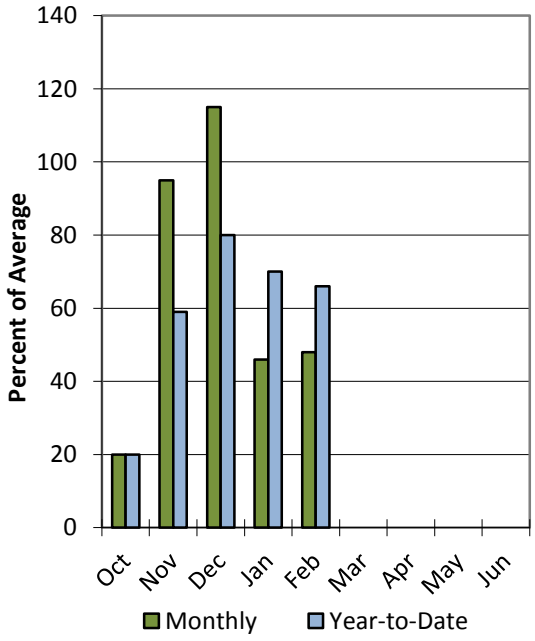
Snowpack



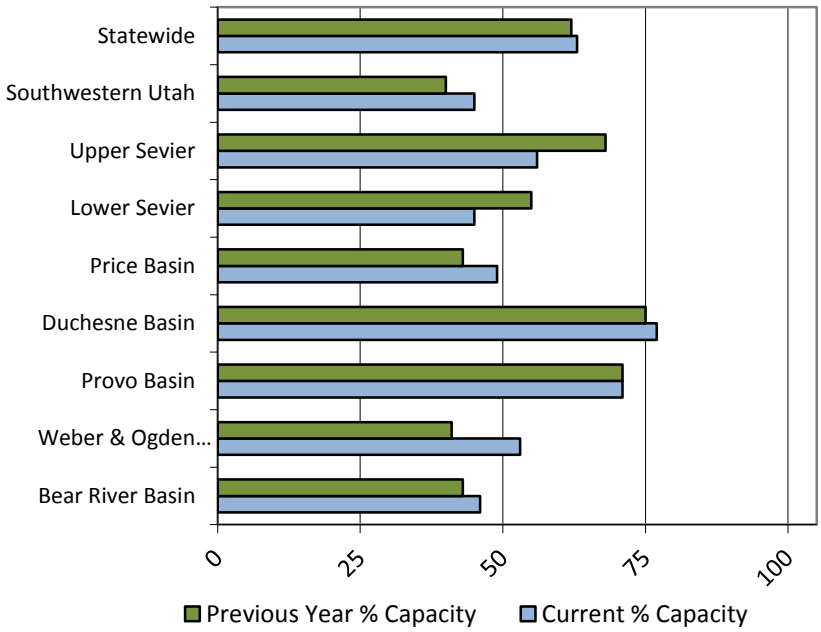
Soil Moisture



Precipitation

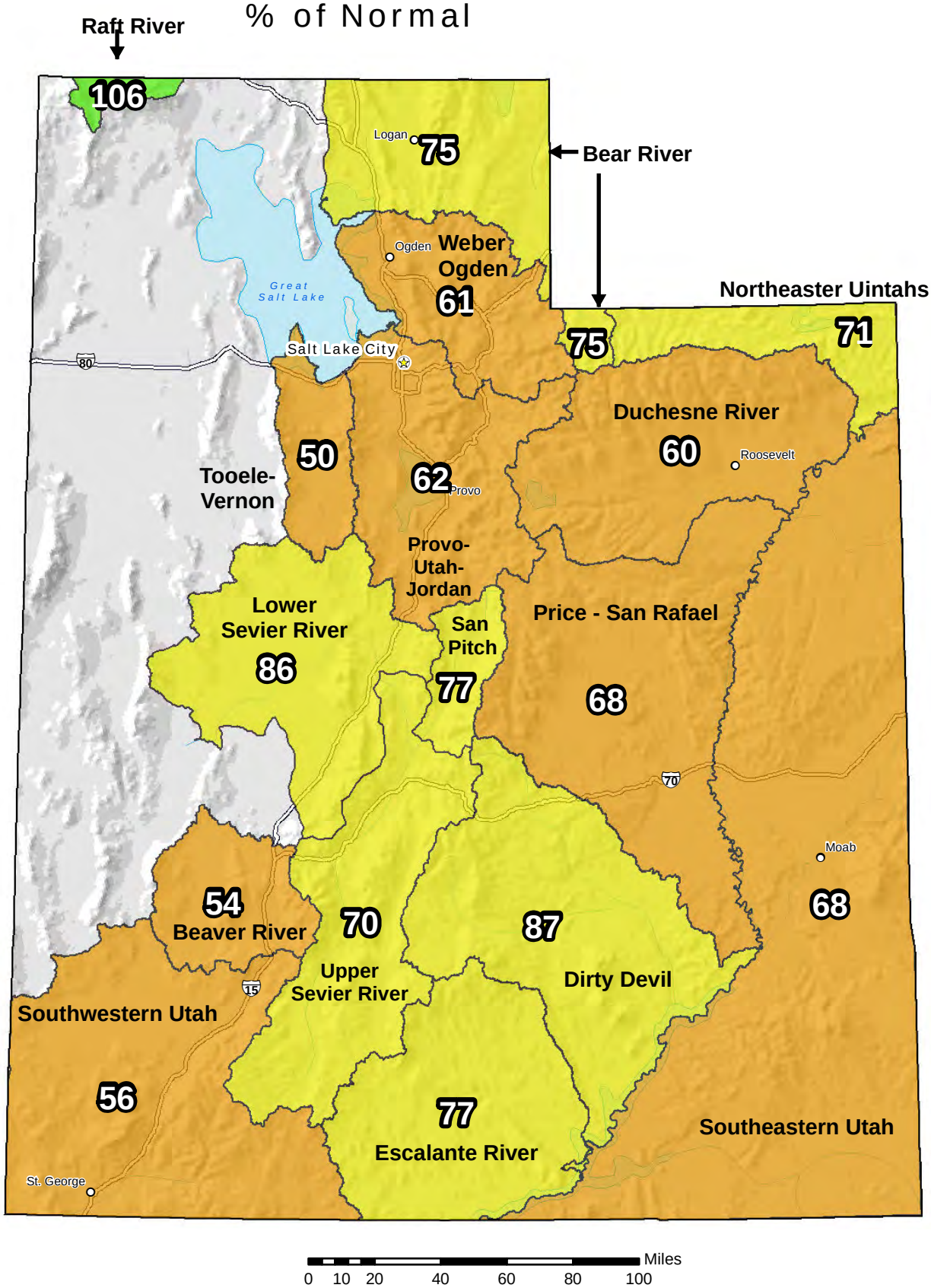


Reservoir Storage



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

Mar 01, 2015



Water Year (Oct 1) to Date Precipitation Basin-wide Percent of 1981-2010 Average

- 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*

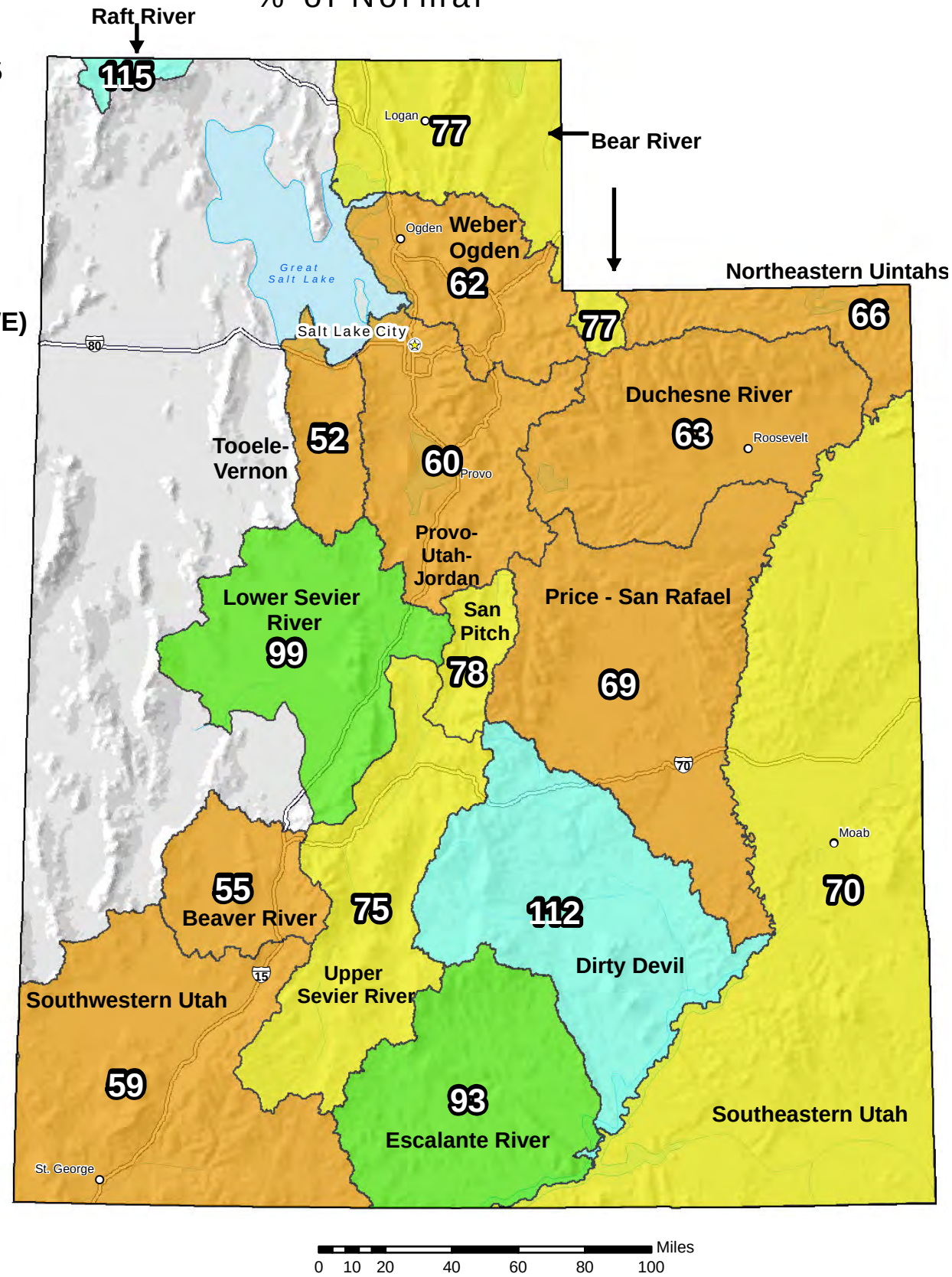
Provisional Data Subject to Revision

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:
USDA/NRCS National Water and Climate Center
Portland, Oregon
http://www.wcc.nrcs.usda.gov

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

Mar 01, 2015



Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median

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

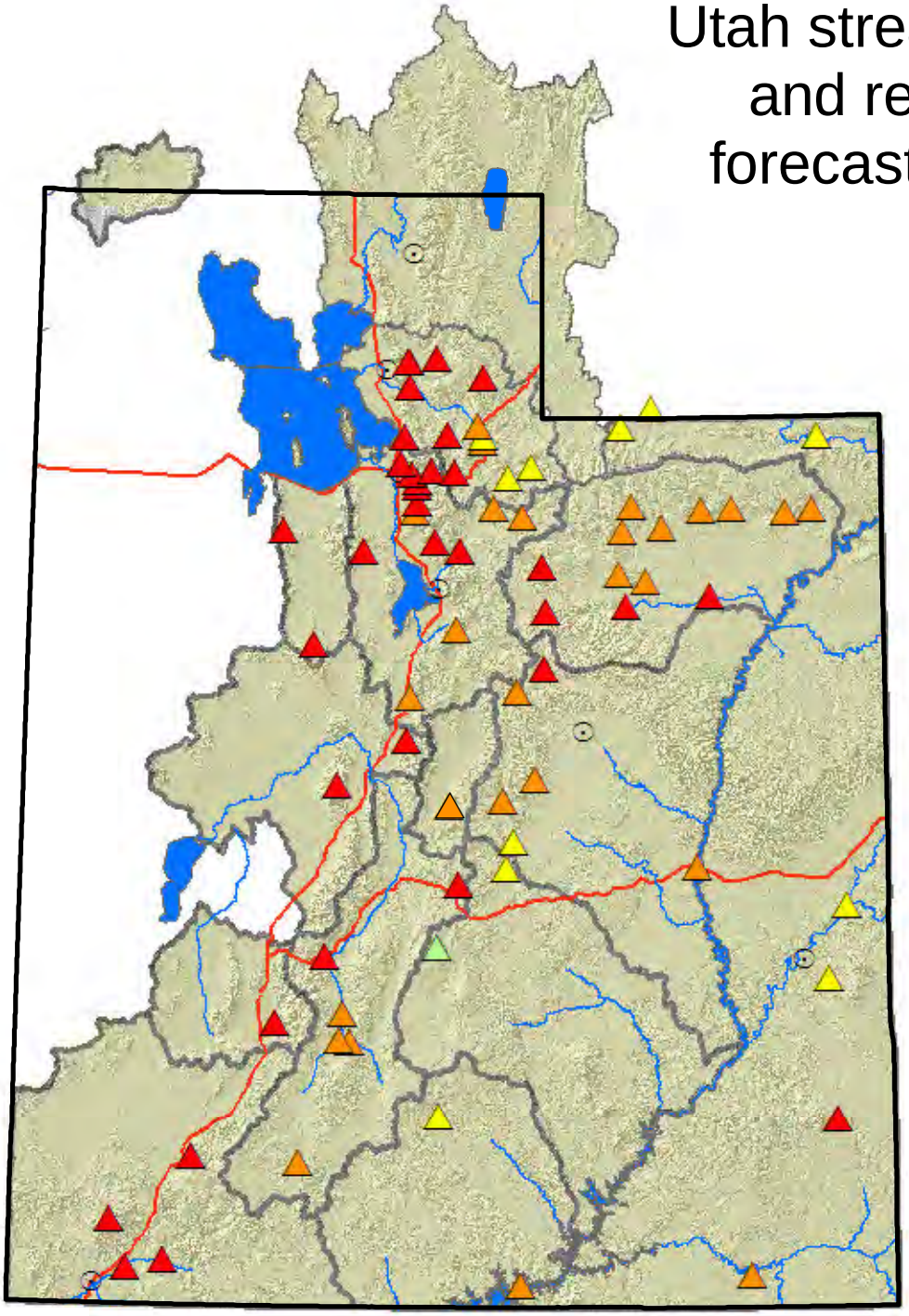
* *Data unavailable at time of posting or measurement is not representative at this time of year*

Provisional Data Subject to Revision

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:
USDA/NRCS National Water and Climate Center
Portland, Oregon
http://www.wcc.nrcs.usda.gov

Utah streamflow and reservoir forecast points



Percent normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- Forecast points
- Cities
- Rivers
- Highways

USDA NRCS
United States Department of Agriculture
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N

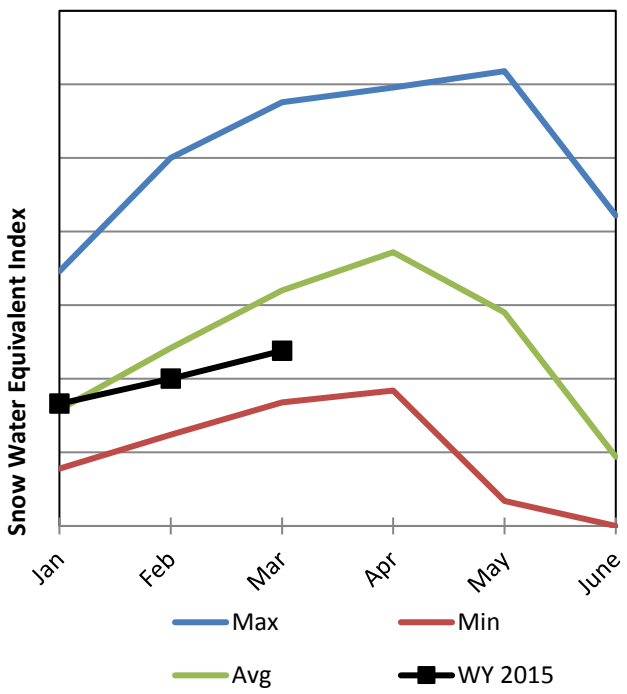
0 15 30 60 90 120
Miles

Bear River Basin

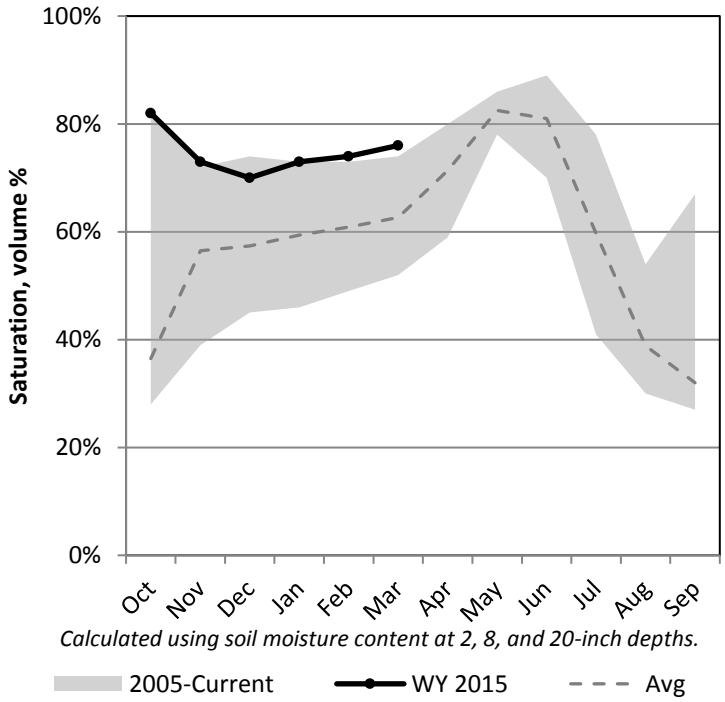
3/1/2015

Snowpack in the Bear River Basin is below average at 78% of normal, compared to 111% last year. Precipitation in February was much below average at 68%, which brings the seasonal accumulation (Oct-Feb) to 75% of average. Soil moisture is at 76% compared to 62% last year. Reservoir storage is at 46% of capacity, compared to 43% last year. Forecast streamflow volumes range from 24% to 78% of average. The surface water supply index is 44% for the Bear River, 39% for the Woodruff Narrows, 8% for the Little Bear.

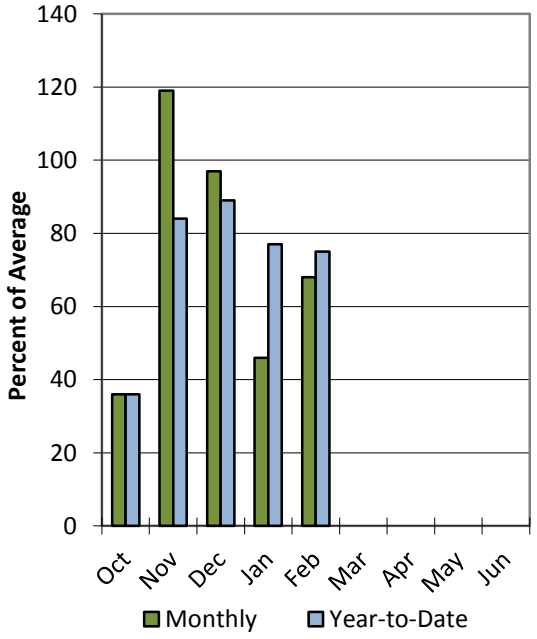
Snowpack



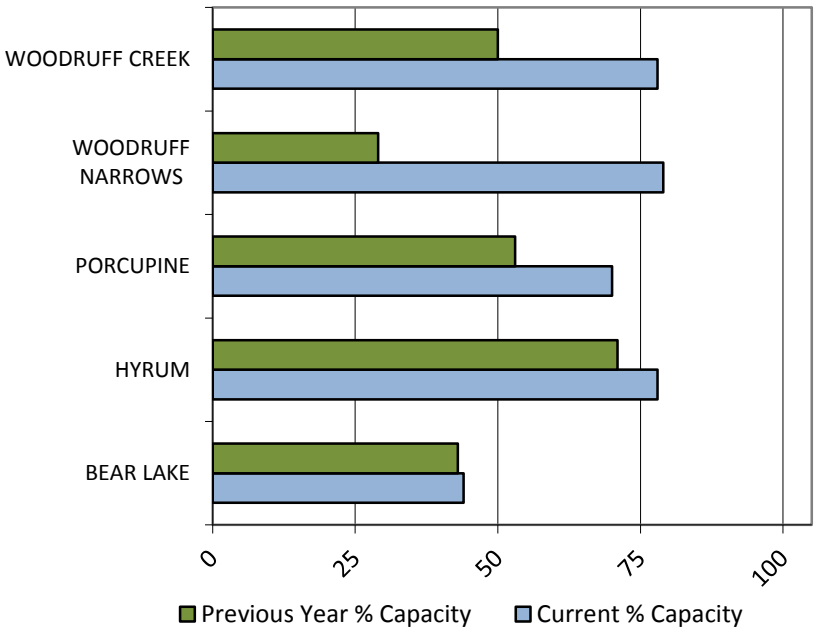
Soil Moisture



Precipitation



Reservoir Storage



Data Current as of: 3/4/2015 11:00:11 AM

Bear River
Streamflow Forecasts - March 1, 2015

Bear River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Bear R nr UT-WY State Line								
	APR-JUL	40	59	72	64%	85	104	112
	APR-SEP	43	65	80	65%	94	116	123
Bear R ab Resv nr Woodruff								
	APR-JUL	17.8	46	65	54%	84	112	121
	APR-SEP	22	50	70	55%	90	118	128
Big Ck nr Randolph								
	APR-JUL	0.152	1.01	1.8	47%	2.6	3.8	3.8
Smiths Fk nr Border								
	APR-JUL	42	58	69	78%	80	96	89
	APR-SEP	51	69	82	79%	95	113	104
Bear R bl Stewart Dam								
	MAR-JUL	4.1	38	88	43%	138	212	205
	MAR-SEP	6.9	43	100	43%	157	241	230
	APR-JUL	1.83	23	70	38%	117	186	183
	APR-SEP	4.1	26	80	39%	134	213	205
Little Bear at Paradise								
	APR-JUL	0.41	1.25	10	24%	18.7	32	41
Logan R nr Logan								
	APR-JUL	38	57	70	63%	83	102	111
Blacksmith Fk nr Hyrum								
	APR-JUL	0.43	14	24	56%	33	48	43

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 February, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Bear Lake	571.1	558.6	594.1	1302.0
Hyrum Reservoir	12.0	10.9	11.2	15.3
Porcupine Reservoir	7.9	6.0	7.0	11.3
Woodruff Creek	3.1	2.0	2.6	4.0
Woodruff Narrows Reservoir	45.1	16.6	31.6	57.3
Basin-wide Total	639.2	594.1	646.5	1389.9
# of reservoirs	5	5	5	5

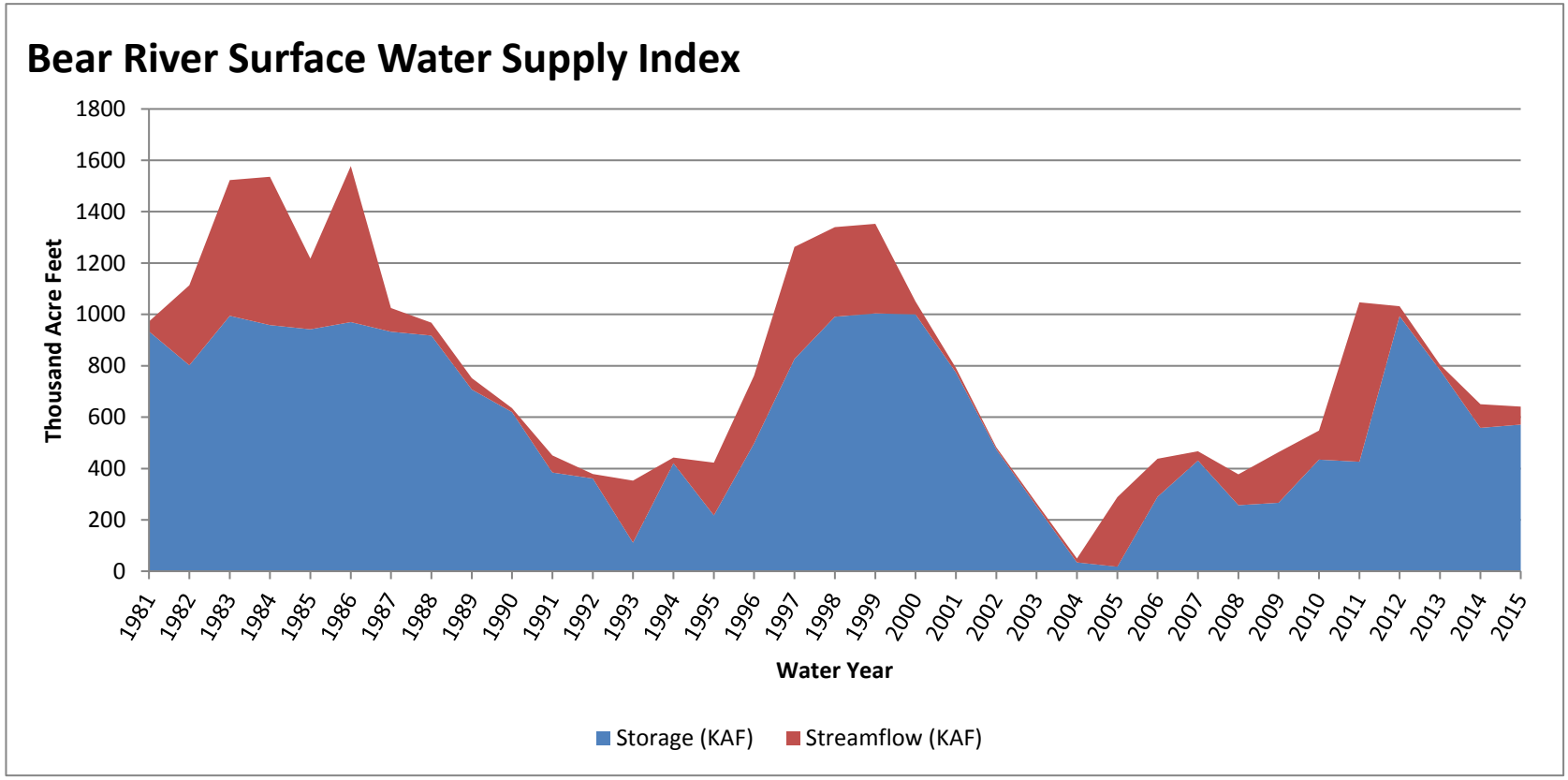
Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Upper Bear	5	64%	101%
Middle Bear	7	93%	131%
Lower Bear	3	63%	92%
Logan	9	73%	107%

March 1, 2015

Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Bear River	**571.12**	**70.00**	**641.12**	**44**	**-0.46**	**10, 90, 14, 89**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.

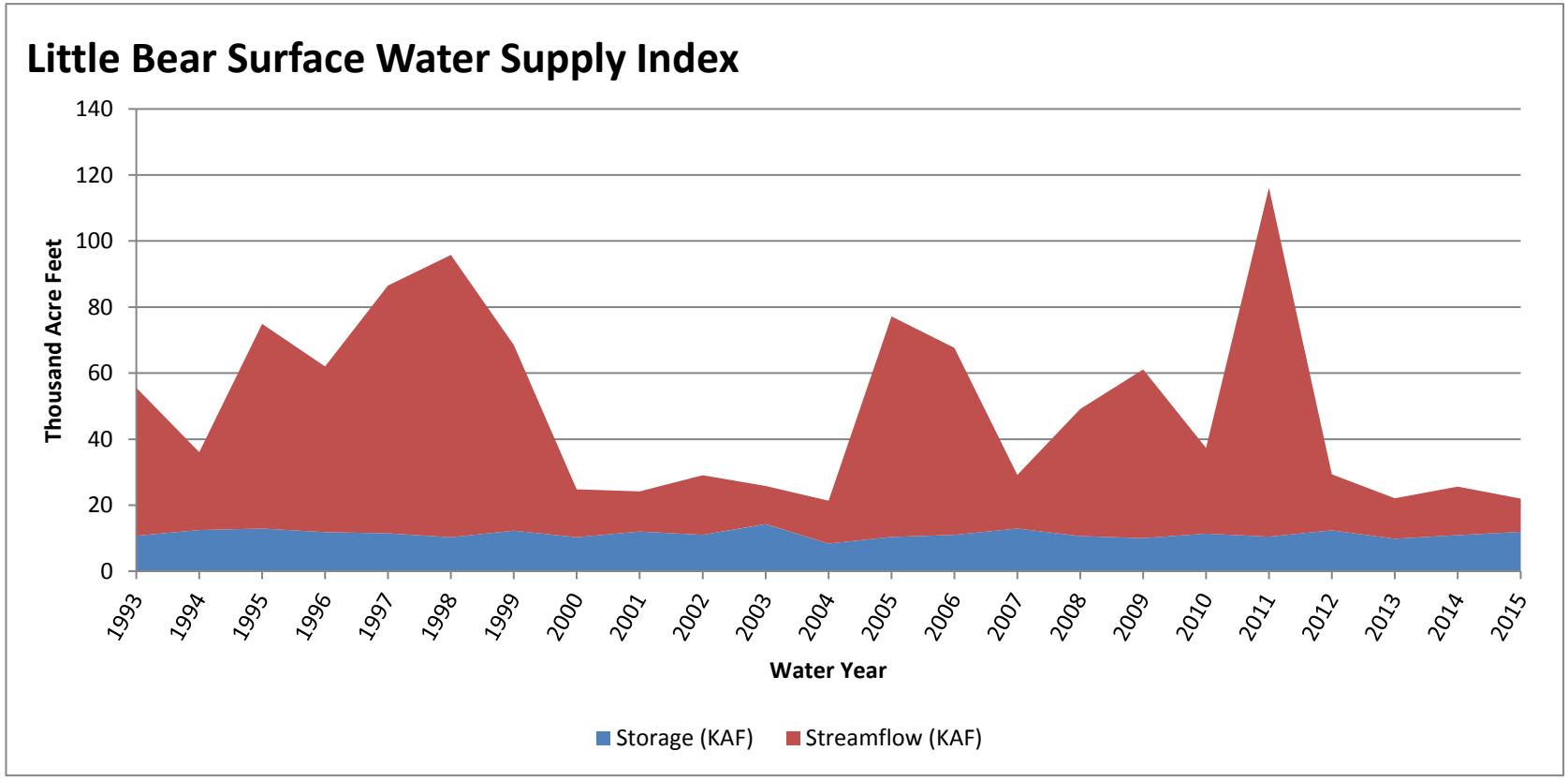


March 1, 2015

Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Little Bear	**11.96**	**10.00**	**21.96**	**8**	**-3.47**	**04, 13, 01, 00**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.

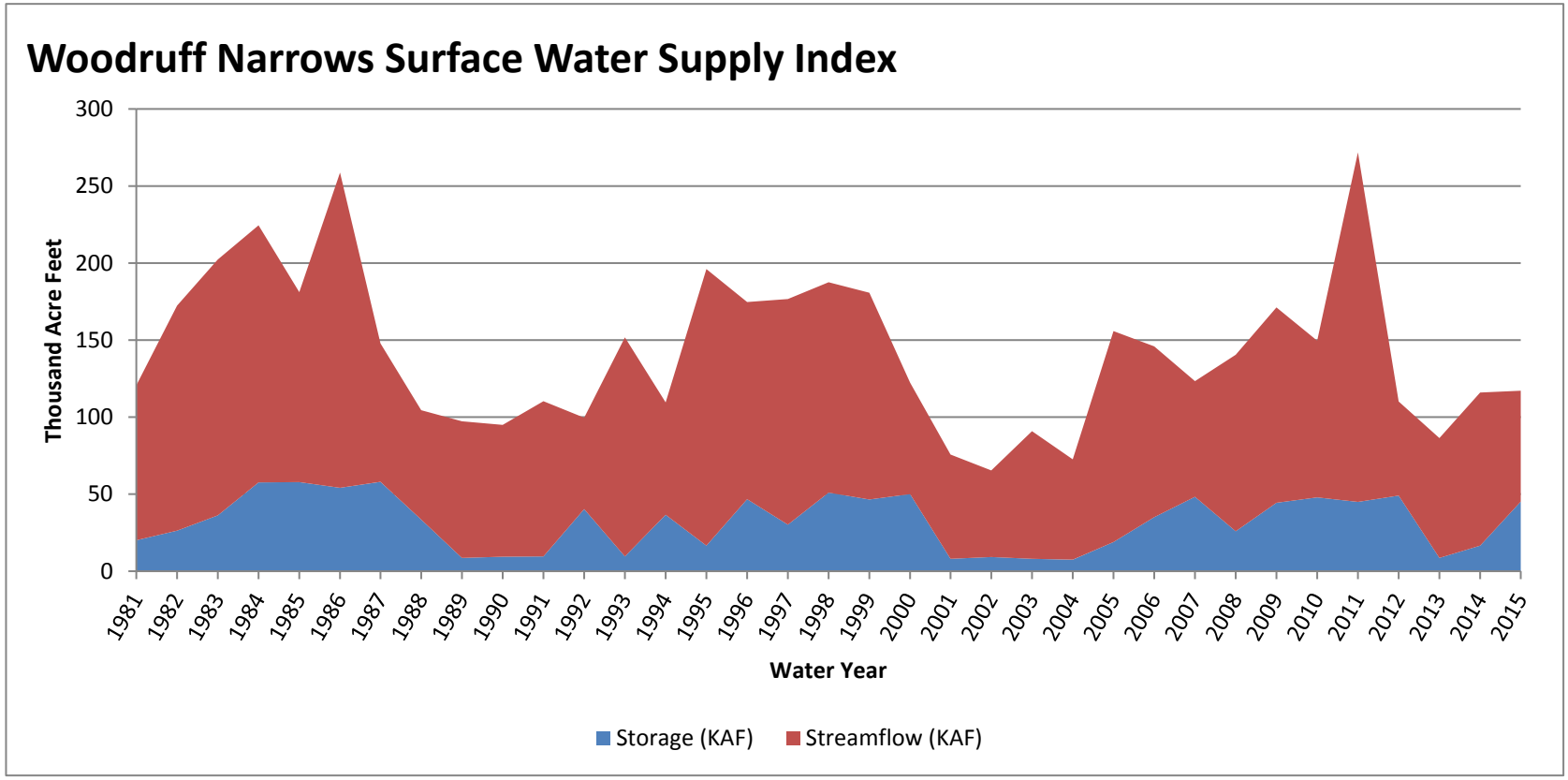


March 1, 2015

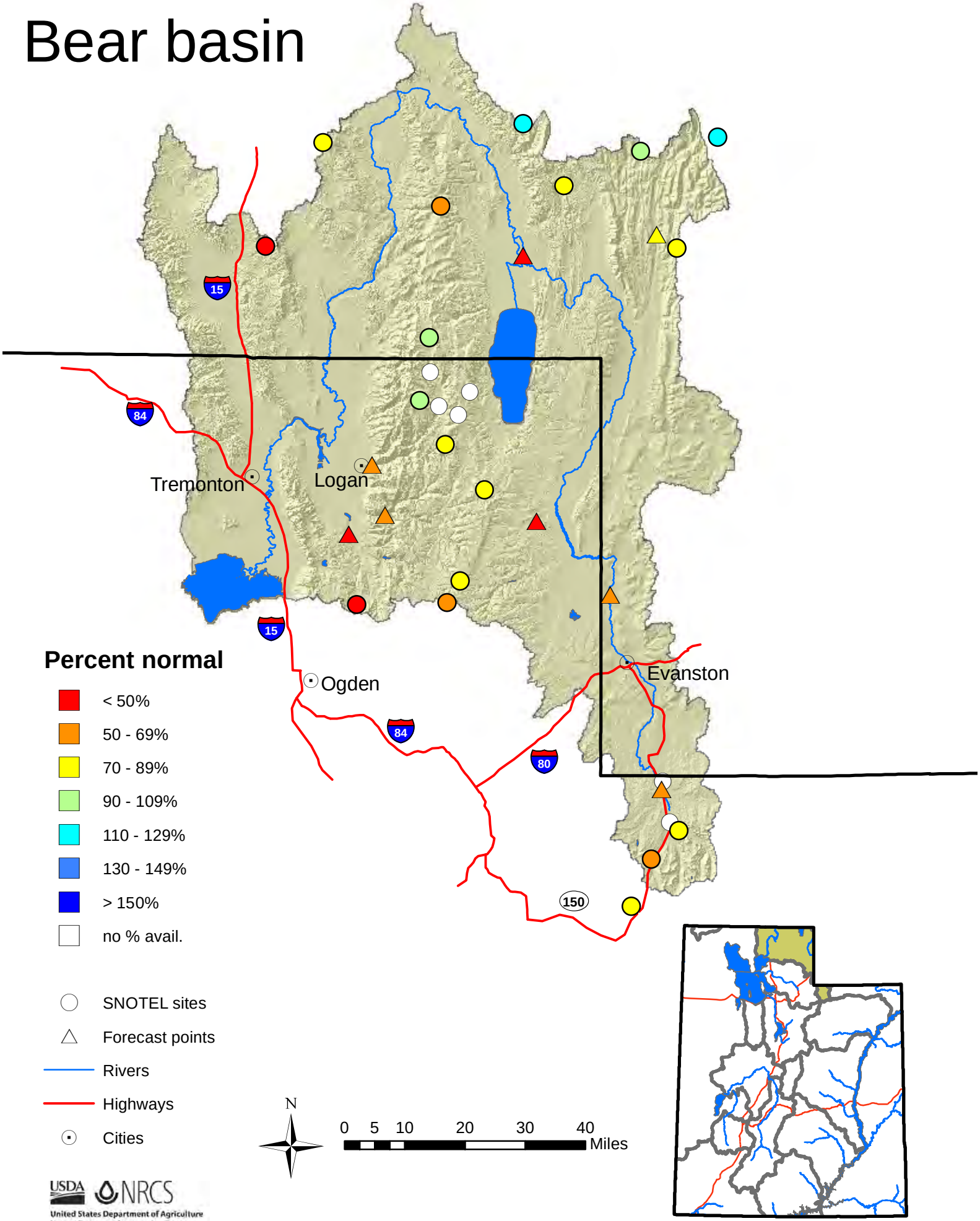
Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Woodruff Narrows	**45.13**	**72.00**	**117.13**	**39**	**-0.93**	**91, 14, 81, 00**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.



Bear basin

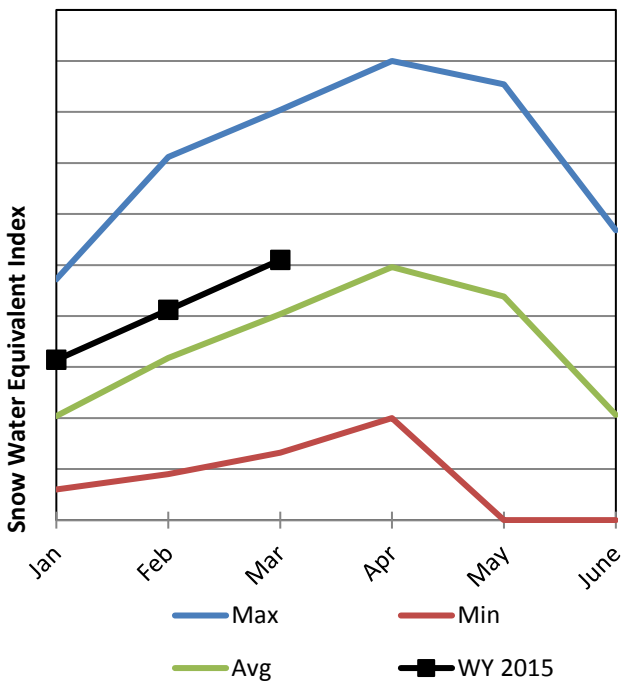

Tremonton
Logan
Ogden
Evanston
15
84
80
150
Percent normal
< 50%
50 - 69%
70 - 89%
90 - 109%
110 - 129%
130 - 149%
> 150%
no % avail.
SNOTEL sites
Forecast points
Rivers
Highways
Cities
N
0 5 10 20 30 40
Miles
USDA
NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Raft River Basin

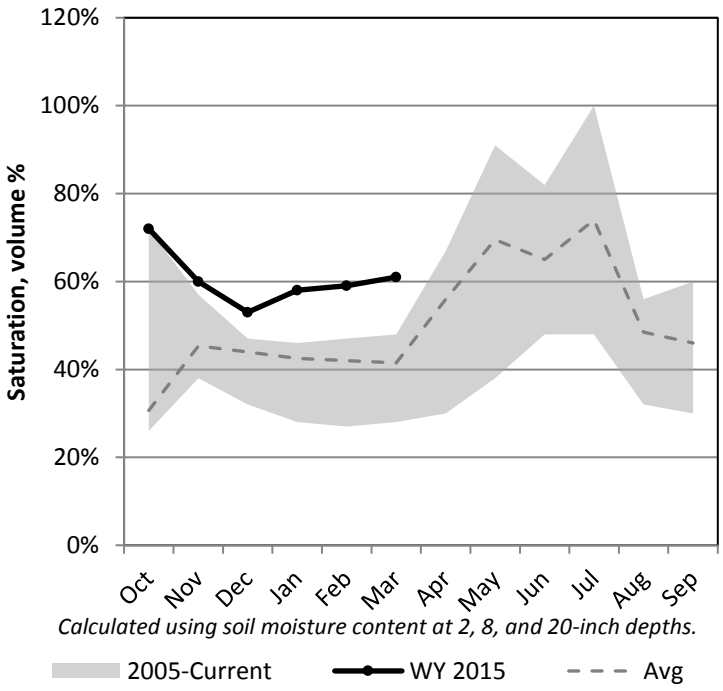
3/1/2015

Snowpack in the Raft River Basin is above average at 117% of normal, compared to 91% last year. Precipitation in February was below average at 88%, which brings the seasonal accumulation (Oct-Feb) to 106% of average. Soil moisture is at 61% compared to 28% last year. The forecast streamflow volume for Dunn Creek is 69% of average.

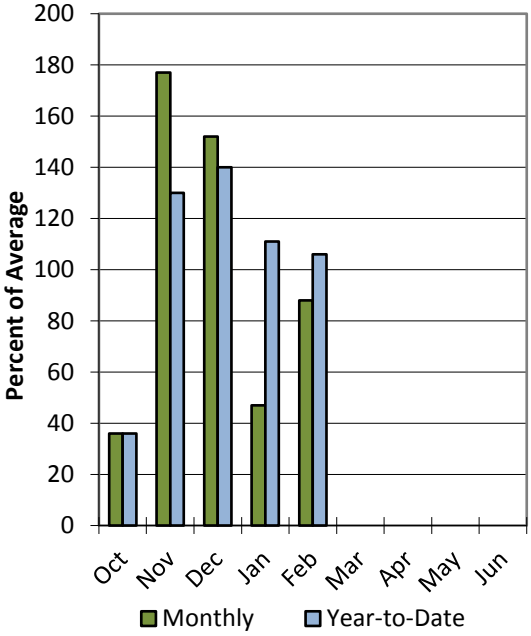
Snowpack



Soil Moisture



Precipitation



Data Current as of: 3/4/2015 11:00:08 AM

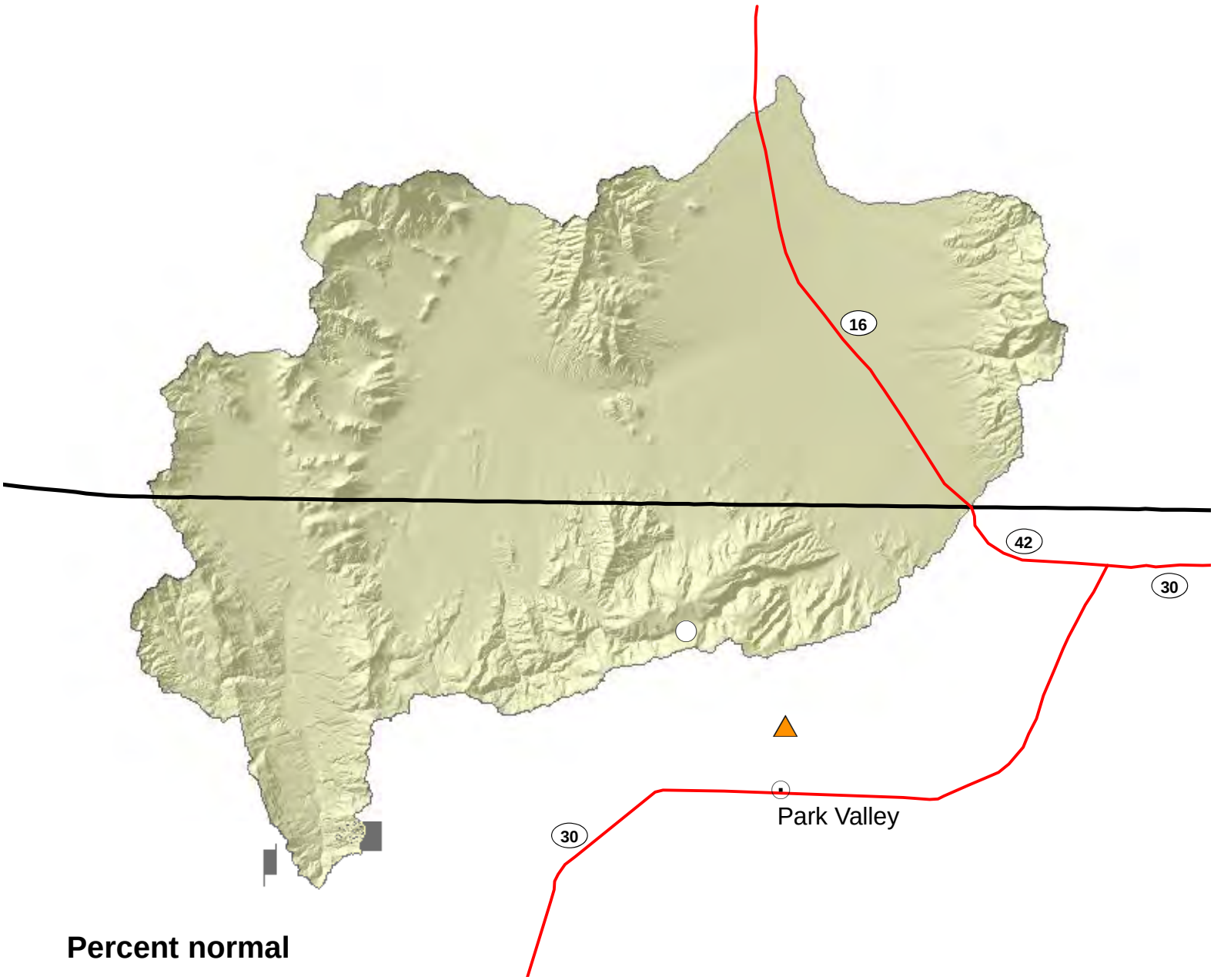
Raft River
Streamflow Forecasts - March 1, 2015

Raft River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Dunn Ck nr Park Valley								
	APR-JUL	0.4	1.2	2	69%	2.8	3.6	2.9

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

Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Raft	2	90%	81%

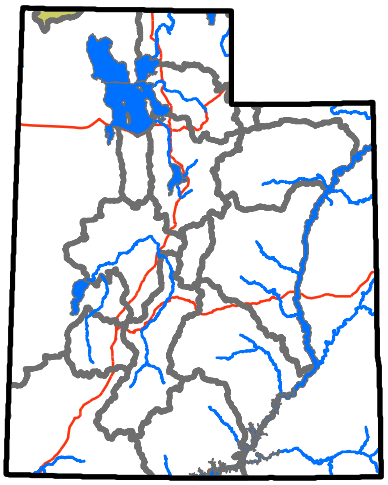
Raft basin



Percent normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
- Highways
- Cities



USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

N

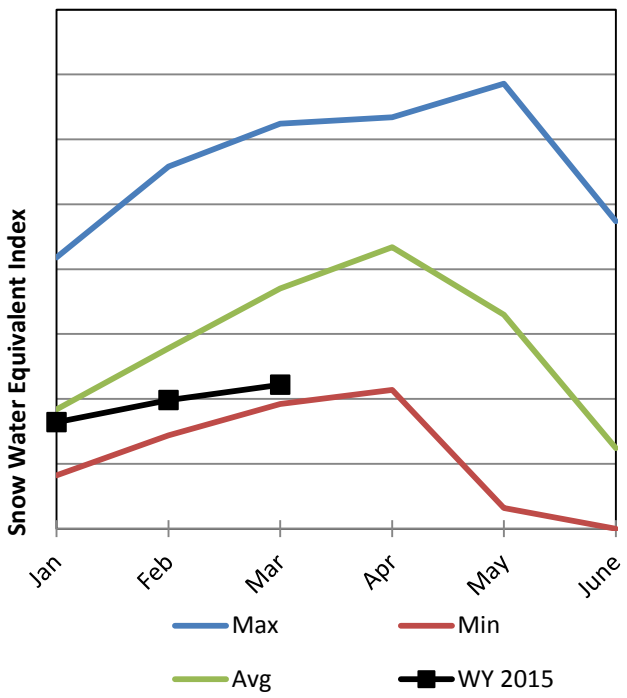
0 1.5 3 6 9 12 Miles

Weber & Ogden River Basins

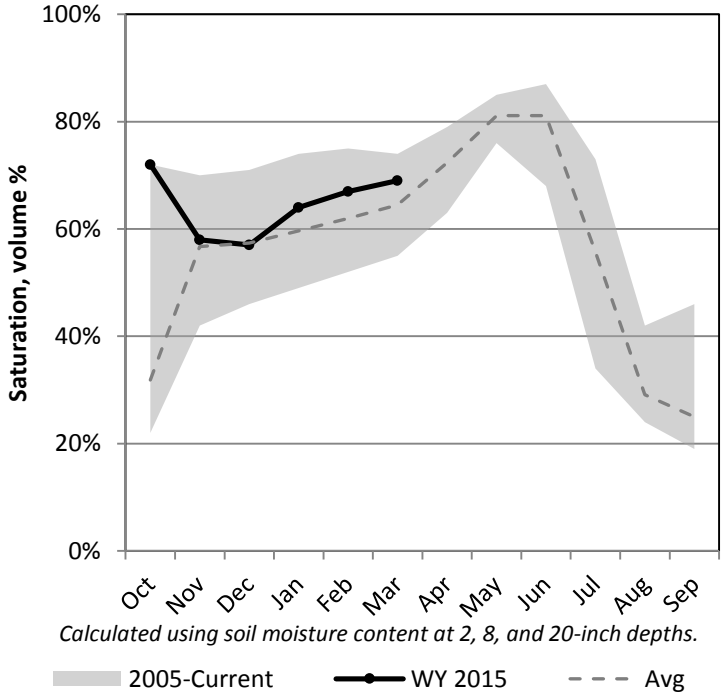
3/1/2015

Snowpack in the Weber & Ogden River Basins is much below average at 63% of normal, compared to 97% last year. Precipitation in February was much below average at 45%, which brings the seasonal accumulation (Oct-Feb) to 62% of average. Soil moisture is at 69% compared to 61% last year. Reservoir storage is at 53% of capacity, compared to 41% last year. Forecast streamflow volumes range from 28% to 78% of average. The surface water supply index is 19% for the Ogden River, 19% for the Weber River.

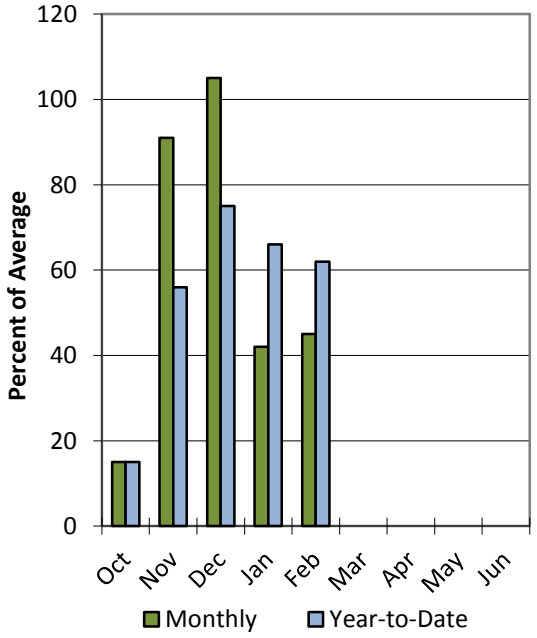
Snowpack



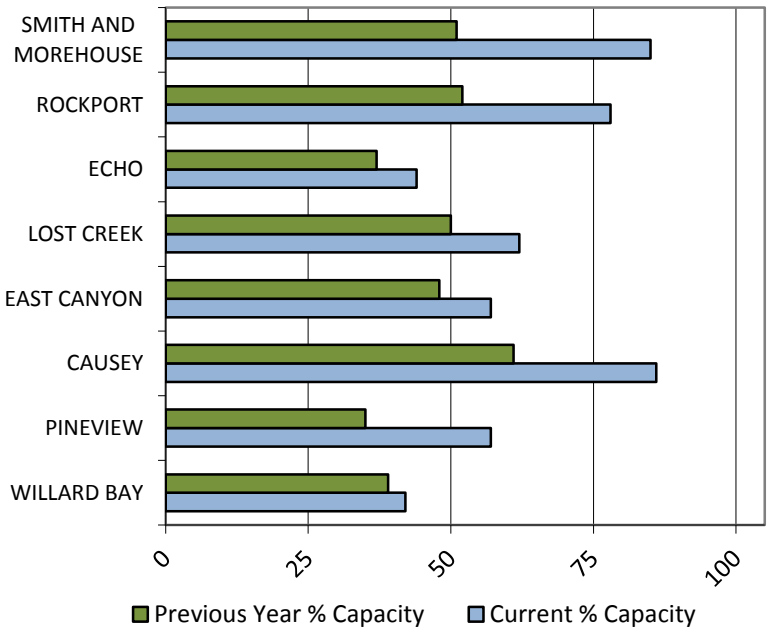
Soil Moisture



Precipitation



Reservoir Storage



Data Current as of: 3/4/2015 11:00:13 AM

Weber Ogden Rivers
Streamflow Forecasts - March 1, 2015

Weber Ogden Rivers	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Smith & Morehouse Resv Inflow	APR-JUL	17.6	22	25	74%	29	33	34
Weber R at Gateway	APR-JUL	6.3	57	140	44%	223	345	315
Weber R nr Coalville	APR-JUL	29	56	74	59%	92	119	126
Weber R nr Oakley	APR-JUL	62	79	90	77%	101	118	117
Rockport Reservoir Inflow	APR-JUL	53	75	90	73%	105	127	123
Chalk Ck at Coalville	APR-JUL	10.3	23	32	78%	40	53	41
Echo Reservoir Inflow	APR-JUL	11.1	59	92	55%	125	173	166
Lost Ck Reservoir Inflow	APR-JUL	0.121	1	4	33%	6.9	11.3	12.1
East Canyon Ck nr Jeremy Ranch	APR-JUL	0.15	1.82	4.3	28%	6.8	14.4	15.2
East Canyon Ck nr Morgan	APR-JUL	0.56	6.2	12.7	45%	19.2	29	28
SF Ogden R nr Huntsville	APR-JUL	1.12	12.5	21	38%	30	43	56
Pineview Reservoir Inflow	APR-JUL	0.86	9.4	31	36%	54	86	86
Wheeler Ck nr Huntsville	APR-JUL	0.126	1.23	2.6	41%	3.9	5.8	6.3

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 February, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Causey Reservoir	6.1	4.3	3.2	7.1
East Canyon Reservoir	28.3	23.7	34.9	49.5
Echo Reservoir	32.4	27.5	47.9	73.9
Lost Creek Reservoir	13.9	11.2	12.2	22.5
Pineview Reservoir	62.7	38.8	53.0	110.1
Rockport Reservoir	47.4	31.9	34.8	60.9
Willard Bay	89.8	84.0	138.4	215.0
Smith And Morehouse Reservoir	6.9	4.1	3.6	81.0
Basin-wide Total	287.5	225.5	328.0	620.0
# of reservoirs	8	8	8	8

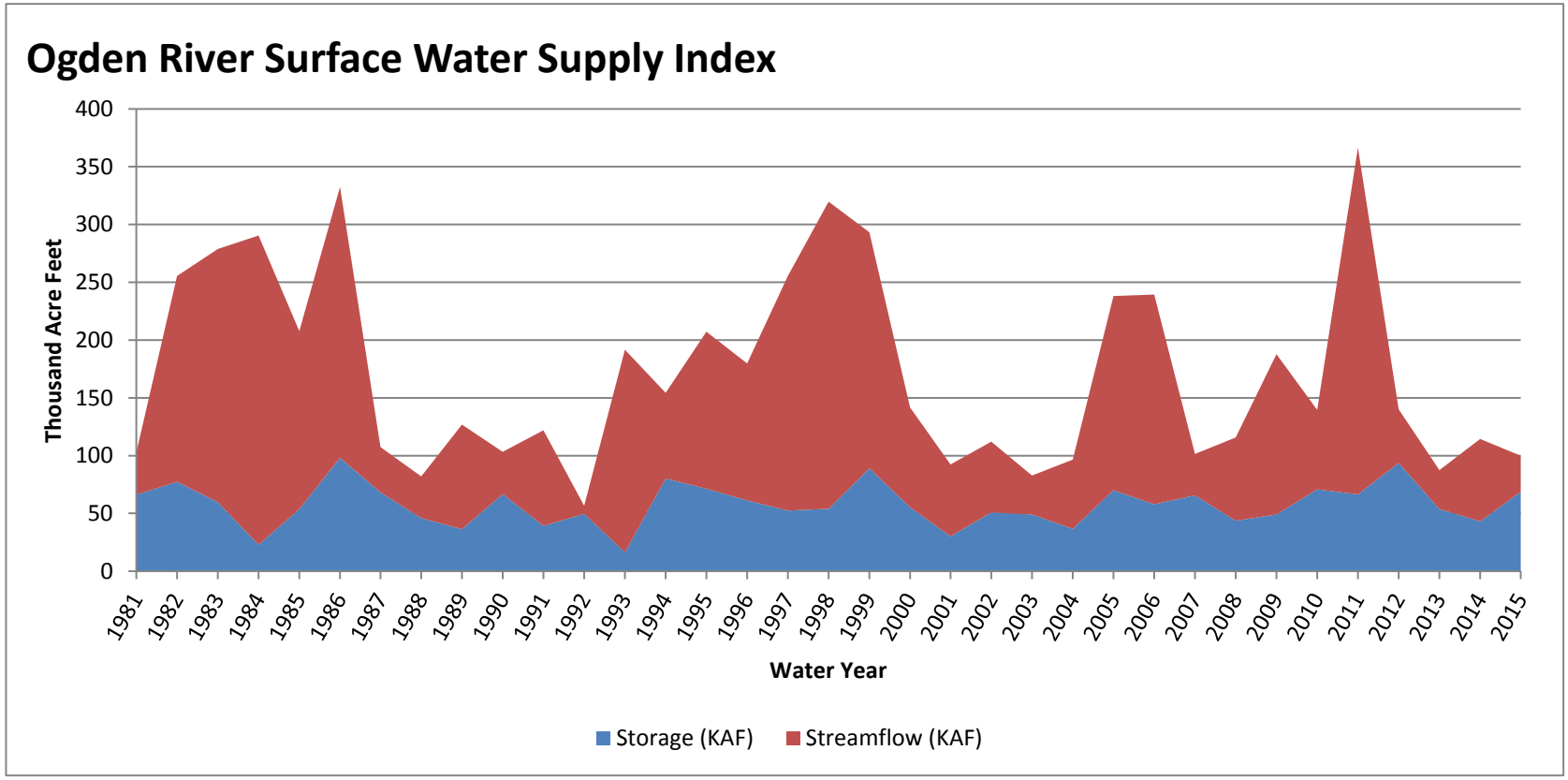
Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Upper Weber	11	70%	101%
Lower Weber	7	65%	94%
Ogden	5	55%	98%
Lost Creek	3	77%	116%

March 1, 2015

Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Ogden River	**68.83**	**31.00**	**99.83**	**19**	**-2.55**	**01, 04, 07, 81**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.

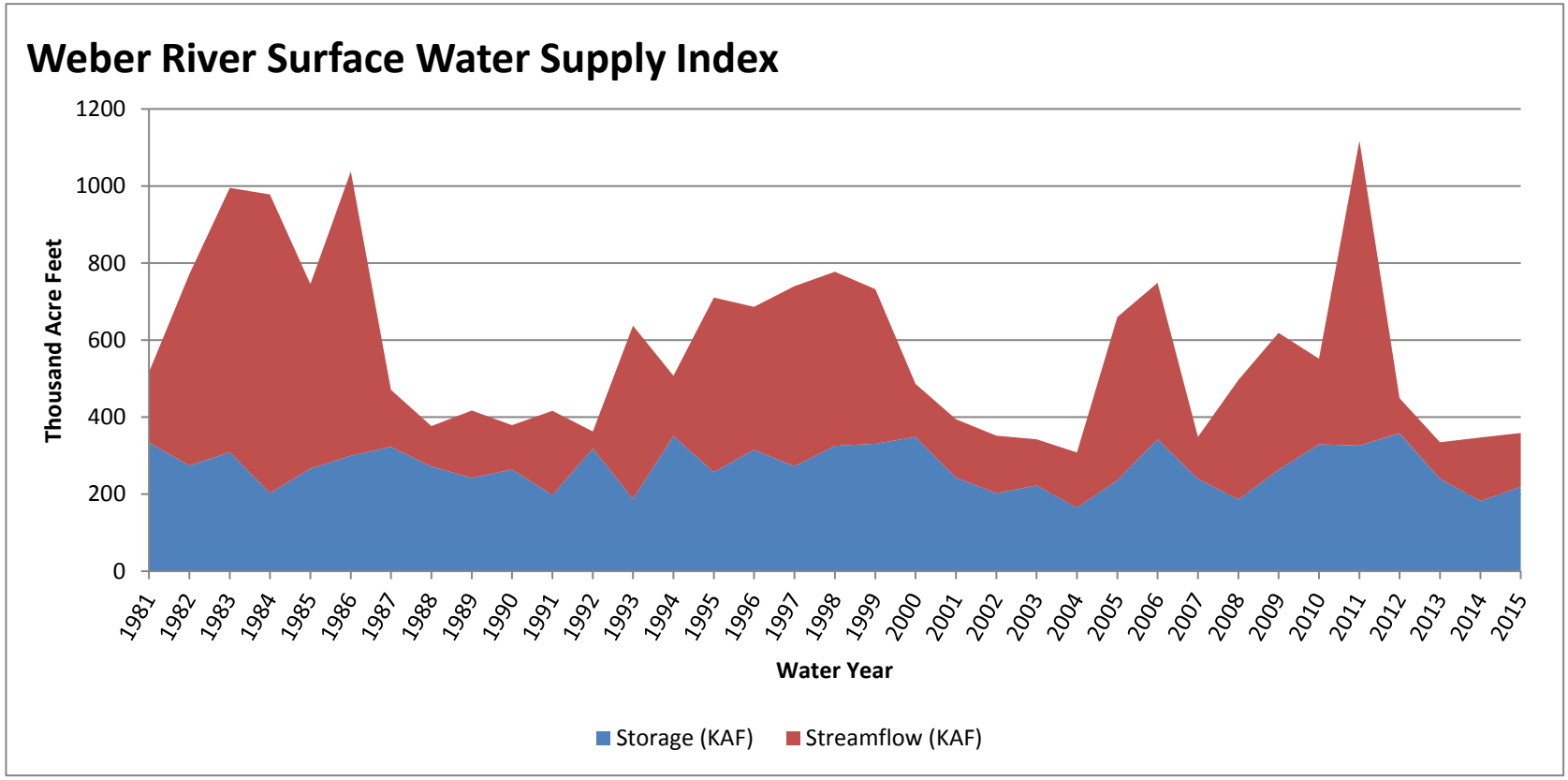


March 1, 2015

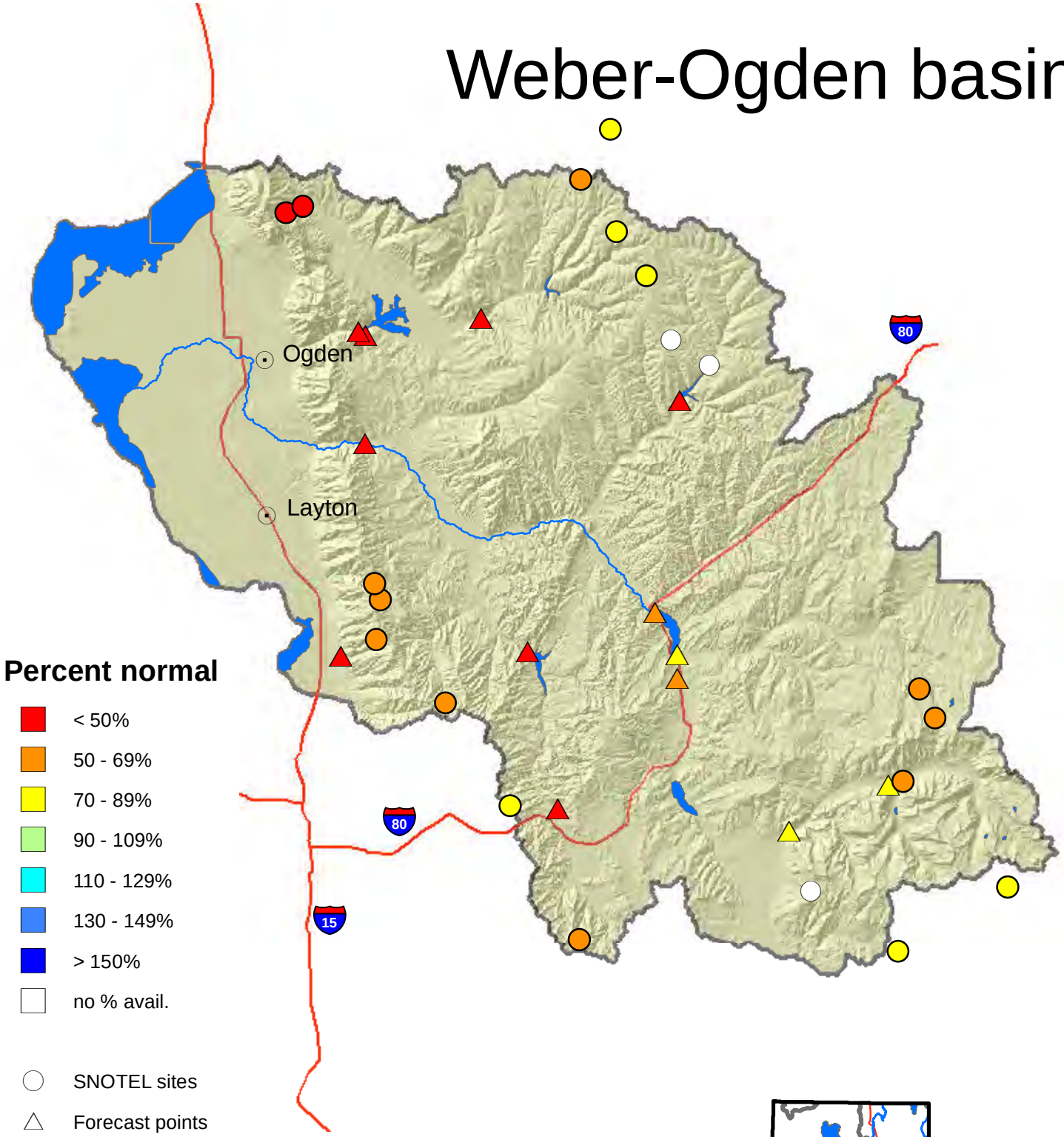
Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Weber River	**218.66**	**140.00**	**358.66**	**19**	**-2.55**	**07, 02, 92, 88**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.



Weber-Ogden basin



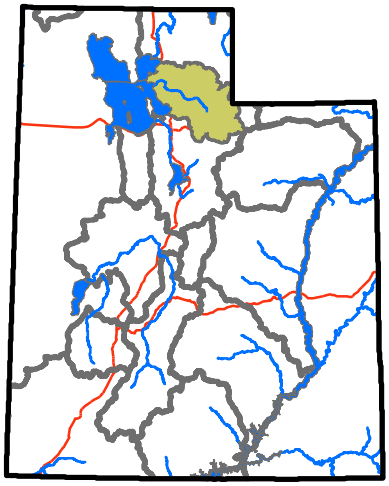
Percent normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
- Highways
- Cities

N

0 2.5 5 10 15 20 Miles



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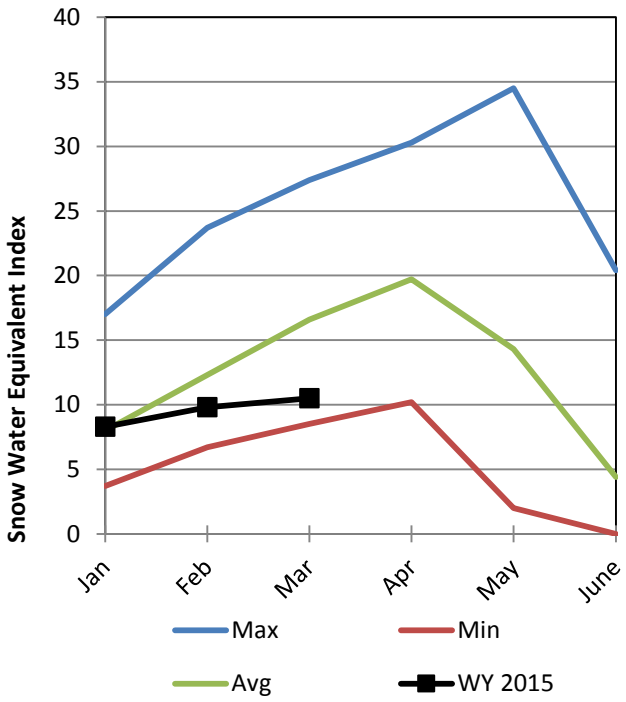
Provo & Jordan River Basins

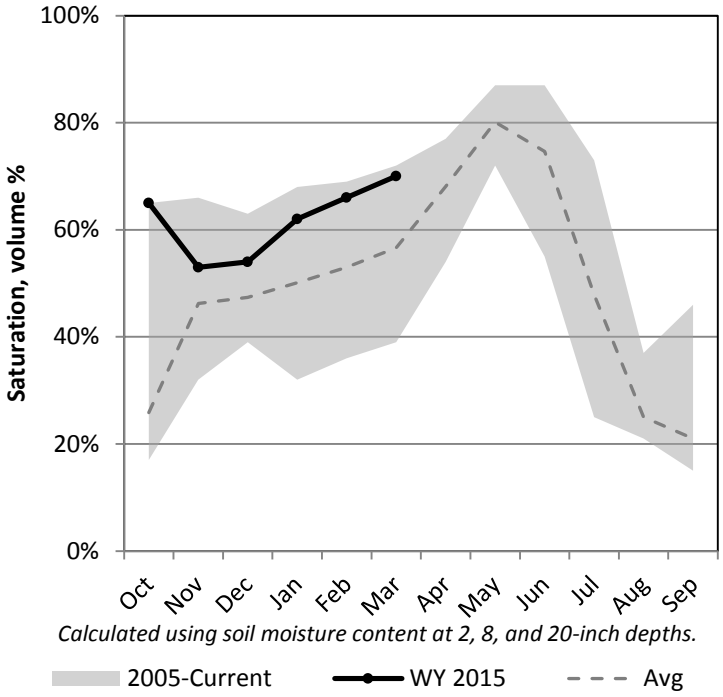
3/1/2015

Snowpack in the Provo & Jordan River Basins is much below average at 64% of normal, compared to 85% last year. Precipitation in February was much below average at 33%, which brings the seasonal accumulation (Oct-Feb) to 62% of average. Soil moisture is at 70% compared to 60% last year. Reservoir storage is at 71% of capacity, compared to 71% last year. Forecast streamflow volumes range from 33% to 68% of average. The surface water supply index is 14% for the Provo River.

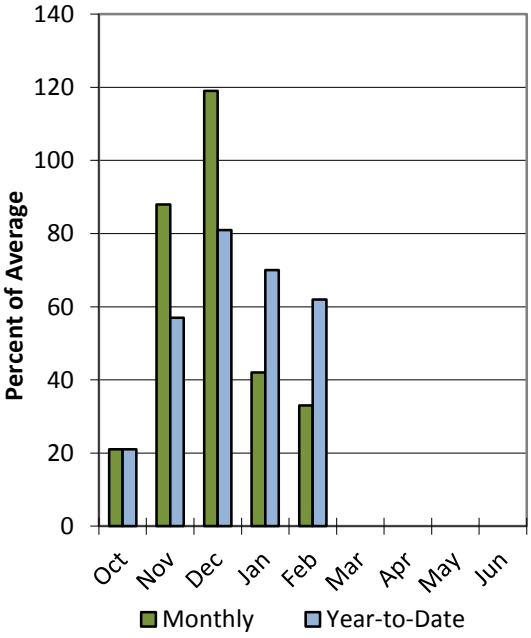
Snowpack



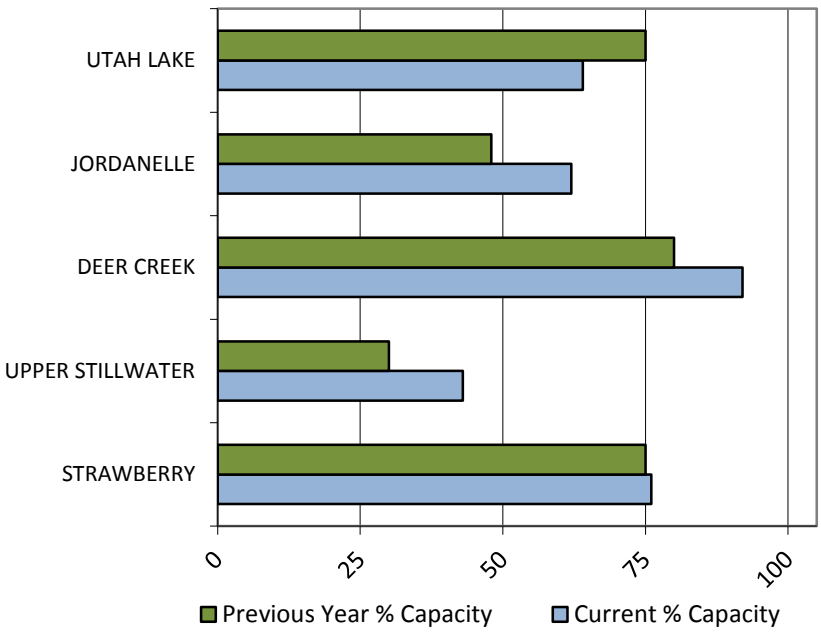
Soil Moisture



Precipitation



Reservoir Storage



Data Current as of: 3/4/2015 11:00:16 AM

Provo R Utah Lake Jordan R
Streamflow Forecasts - March 1, 2015

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

Provo R Utah Lake Jordan R	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Salt Ck at Nephi								
	APR-JUL	0.28	2.2	5.6	59%	9	13.9	9.5
Spanish Fk at Castilla								
	APR-JUL	1.38	12.5	47	68%	82	134	69
Provo R at Woodland								
	APR-JUL	38	55	68	68%	82	106	100
Provo R at Hailstone								
	APR-JUL	35	52	66	61%	81	107	108
Provo R bl Deer Ck Dam								
	APR-JUL	16.9	40	55	47%	70	93	116
American Fk ab Upper Powerplant								
	APR-JUL	0.96	7.8	13	41%	18.2	26	32
Utah Lake Inflow								
	APR-JUL	2.6	34	120	45%	210	321	265
W Canyon Ck nr Cedar Fort								
	APR-JUL	0.04	0.29	0.7	40%	1.11	1.7	1.76
Little Cottonwood Ck nr SLC								
	APR-JUL	11.8	15.9	19	50%	22	28	38
Big Cottonwood Ck nr SLC								
	APR-JUL	4.8	12.1	17	47%	22	29	36
Mill Ck nr SLC								
	APR-JUL	0.128	1.22	3	47%	4.3	6.5	6.4
Parleys Ck nr SLC								
	APR-JUL	0.14	0.39	5.8	41%	7.4	12.6	14.2
Dell Fk nr SLC								
	APR-JUL	0.06	0.6	2.1	38%	4.1	7.5	5.5
Emigration Ck nr SLC								
	APR-JUL	0.04	0.44	1.3	33%	2.3	3.8	4
City Ck nr SLC								
	APR-JUL	0.15	1.21	3	39%	4.8	7.4	7.7

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 February, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Deer Creek Reservoir	137.4	119.1	112.0	149.7
Strawberry Reservoir	835.5	832.3	660.5	1105.9
Utah Lake	561.0	655.5	785.8	870.9
Jordanelle Reservoir	199.8	154.0	239.4	320.0
Basin-wide Total	1733.7	1760.9	1797.7	2446.5
# of reservoirs	4	4	4	4

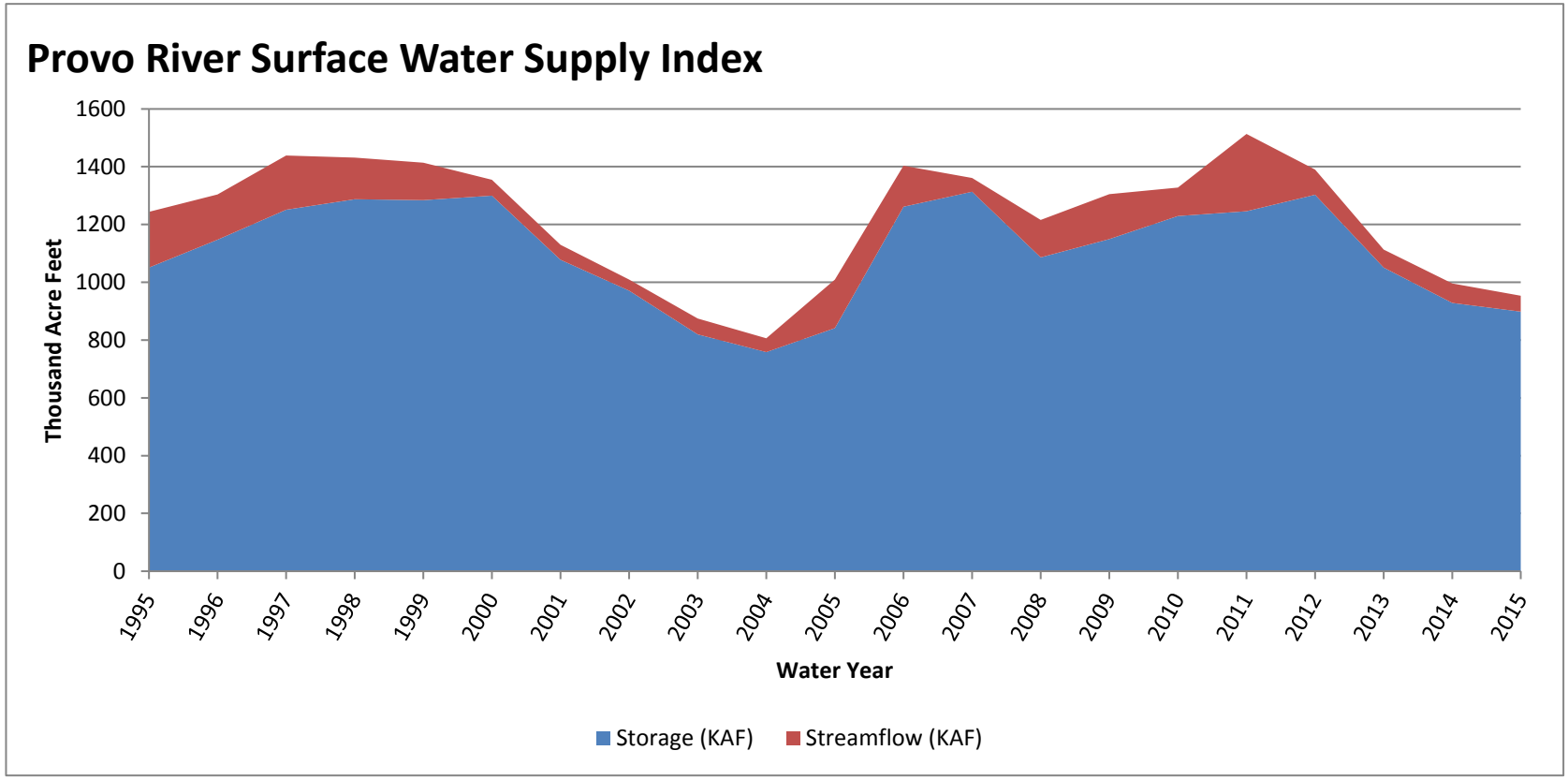
Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Upper Provo	7	62%	85%
Jordan	16	63%	88%
Utah Lake	13	64%	80%
Spanish Fork	7	50%	78%
Six Creeks	15	63%	88%
Cottonwoods	7	68%	89%

March 1, 2015

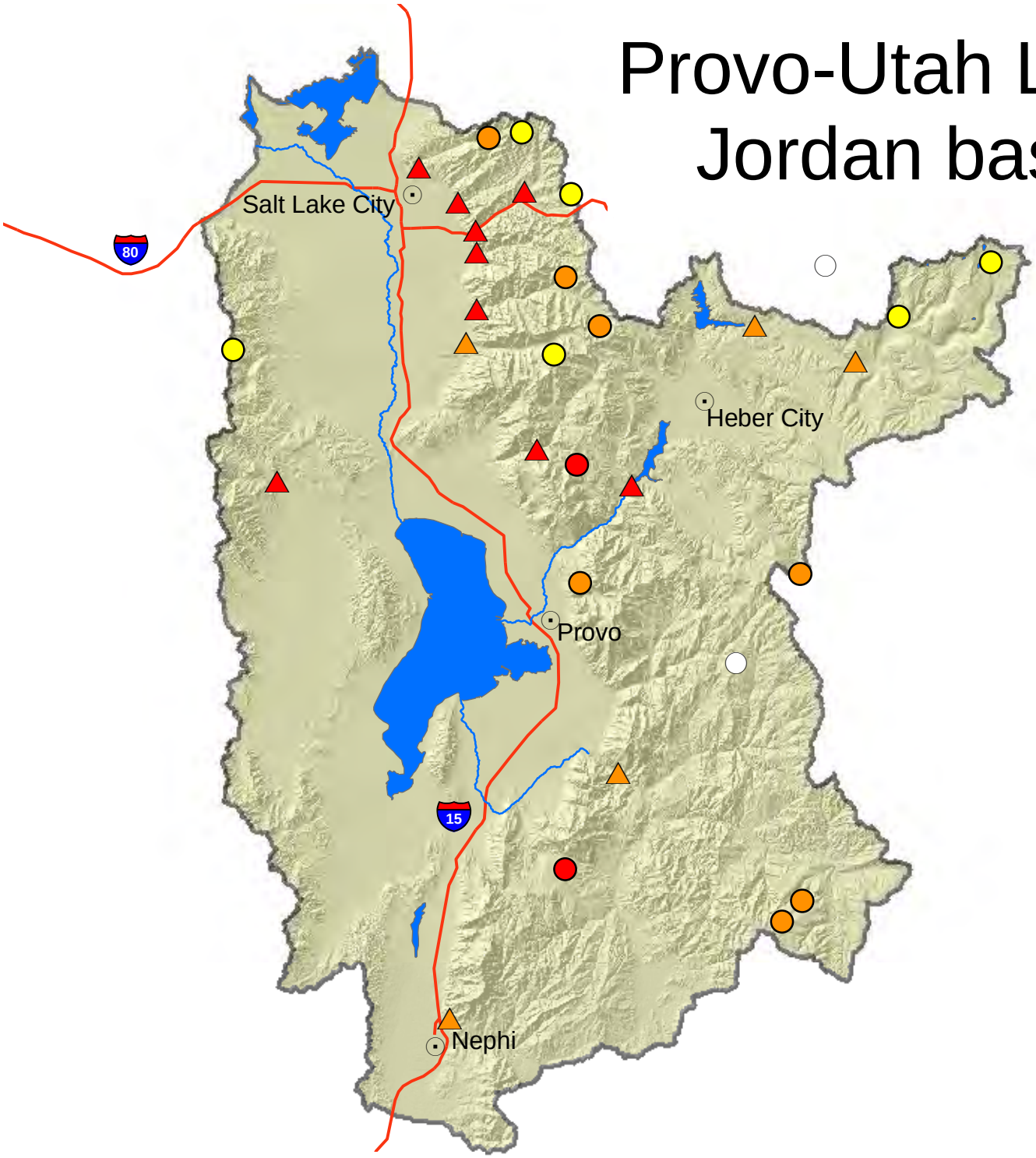
Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Provo River	**898.26**	**55.00**	**953.26**	**14**	**-3.03**	**04, 03, 14, 05**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.



Provo-Utah Lake-Jordan basin



Percent normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
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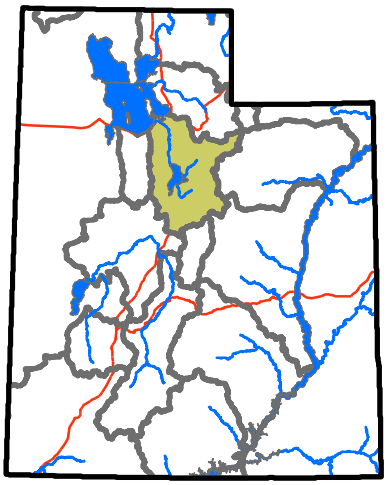
- Cities

N

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

0 2.5 5 10 15 20 Miles

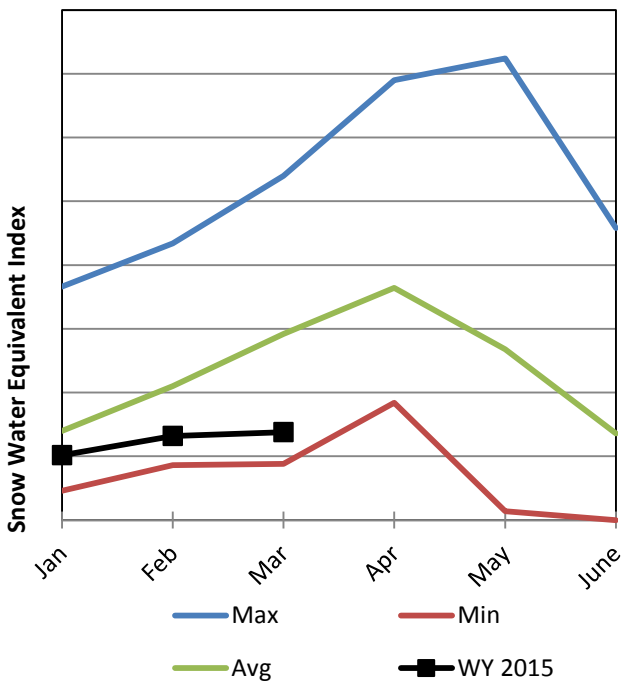


Tooele & Vernon Creek Basins

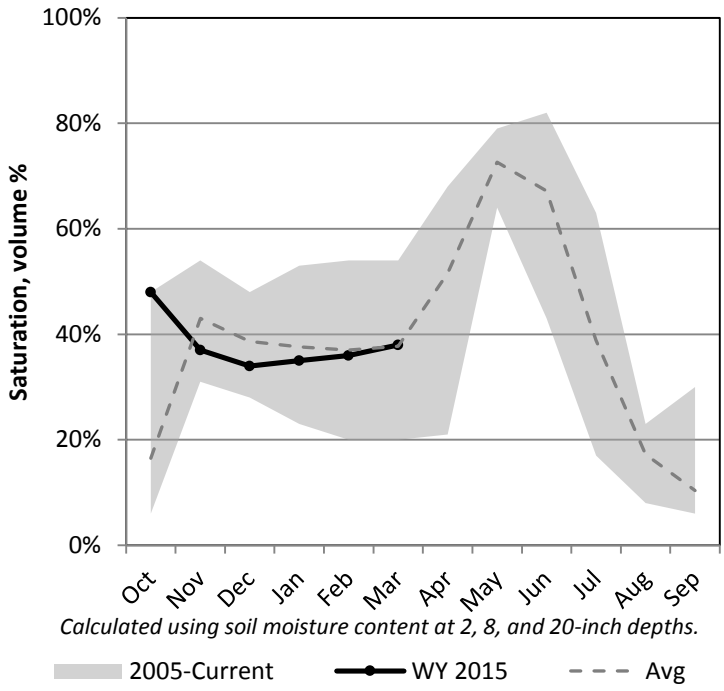
3/1/2015

Snowpack in the Tooele & Vernon Creek Basins is much below average at 53% of normal, compared to 85% last year. Precipitation in February was much below average at 18%, which brings the seasonal accumulation (Oct-Feb) to 50% of average. Soil moisture is at 38% compared to 38% last year. Reservoir storage is at 44% of capacity, compared to 56% last year. Forecast streamflow volumes range from 36% to 45% of average.

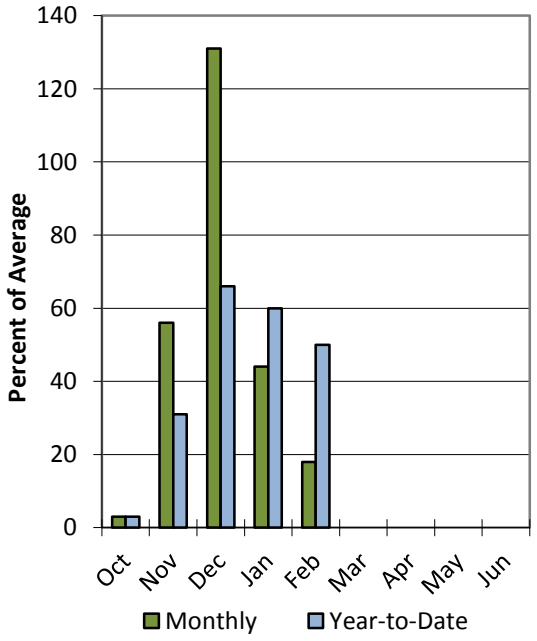
Snowpack



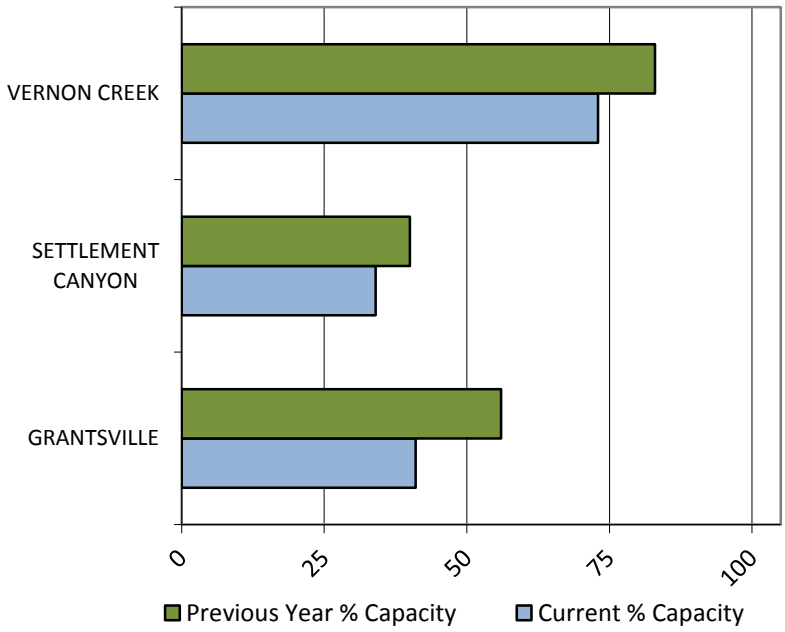
Soil Moisture



Precipitation



Reservoir Storage



Data Current as of: 3/4/2015 11:00:19 AM

Tooele Valley Vernon Creek
Streamflow Forecasts - March 1, 2015

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

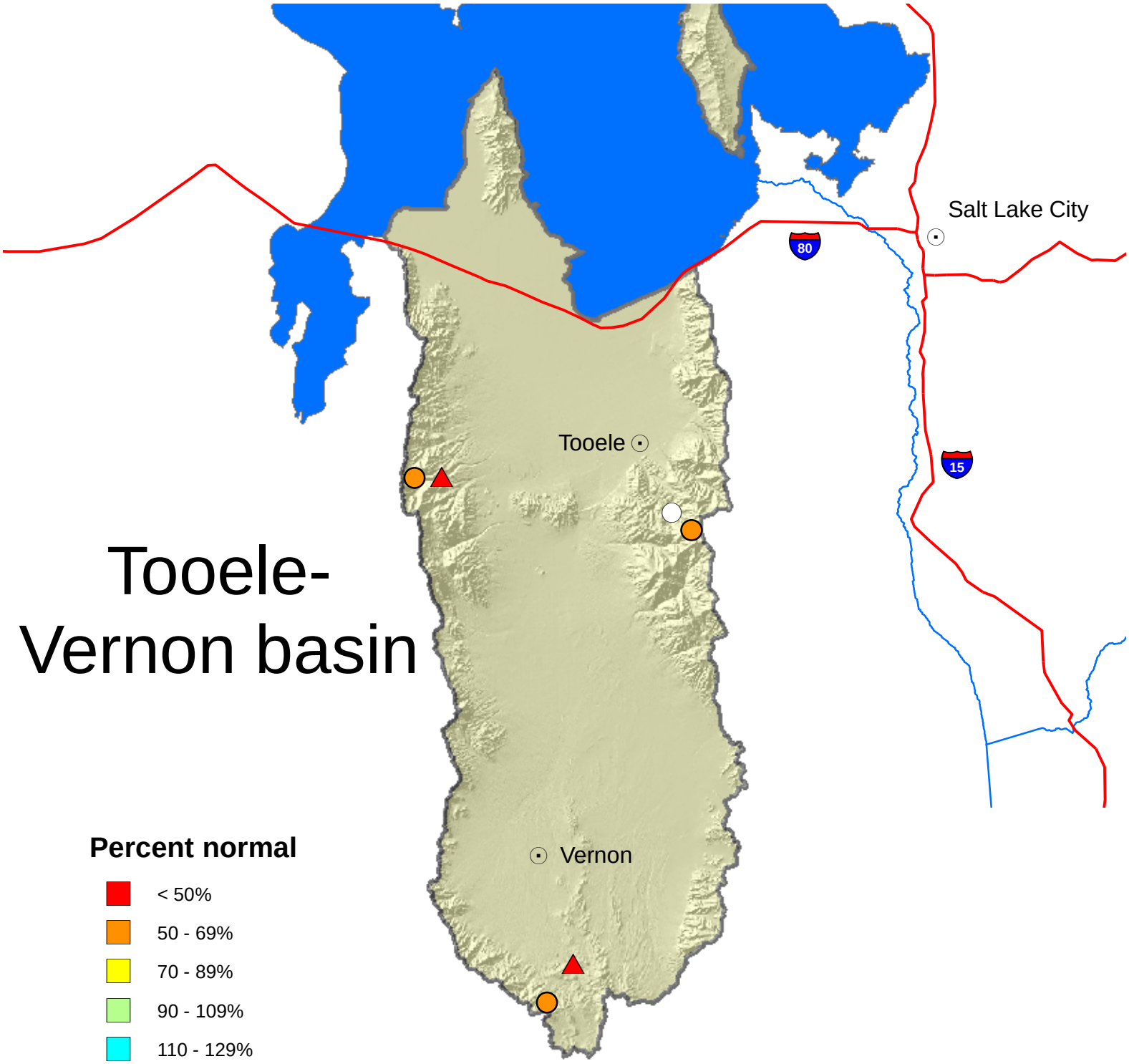
Tooele Valley Vernon Creek	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Vernon Ck nr Vernon								
	APR-JUL	0.01	0.13	0.5	36%	0.85	1.4	1.39
S Willow Ck nr Grantsville								
	APR-JUL	0.03	0.78	1.4	45%	2	2.9	3.1

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 February, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Vernon Creek Reservoir	0.4	0.5	0.5	0.6
Settlement Canyon Reservoir	0.3	0.4	0.7	1.0
Grantsville Reservoir	1.4	1.9	2.1	3.3
Basin-wide Total	2.1	2.8	3.3	4.9
# of reservoirs	3	3	3	3

Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Tooele	4	52%	81%
NW Utah	3	55%	81%

Tooele-Vernon basin



Percent normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
- Highways
- Cities

0 2.5 5 10 15 20 Miles

N

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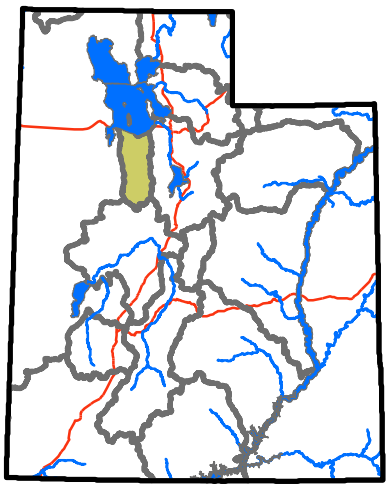
Natural Resources Conservation Service

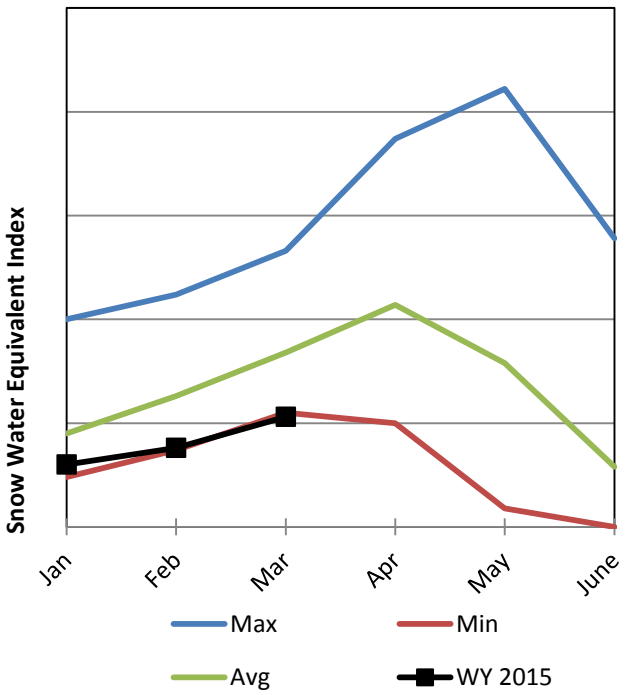


Northeastern Uintah Basin

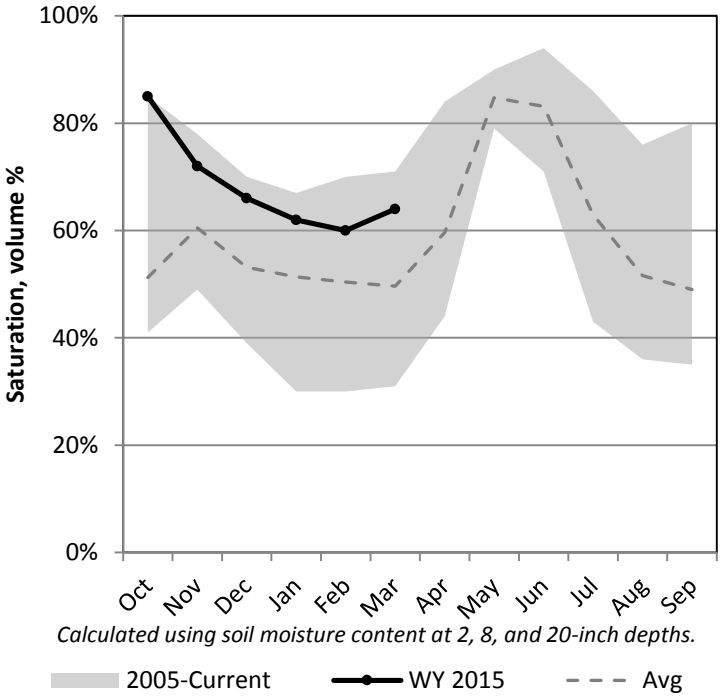
3/1/2015

Snowpack in the Northeastern Uintah Basin is much below average at 69% of normal, compared to 96% last year. Precipitation in February was below average at 73%, which brings the seasonal accumulation (Oct-Feb) to 66% of average. Soil moisture is at 64% compared to 56% last year. Reservoir storage is at 85% of capacity, compared to 76% last year. Forecast streamflow volumes range from 50% to 80% of average. The surface water supply index is 45% for the Blacks Fork, 47% for the Smiths Creek.

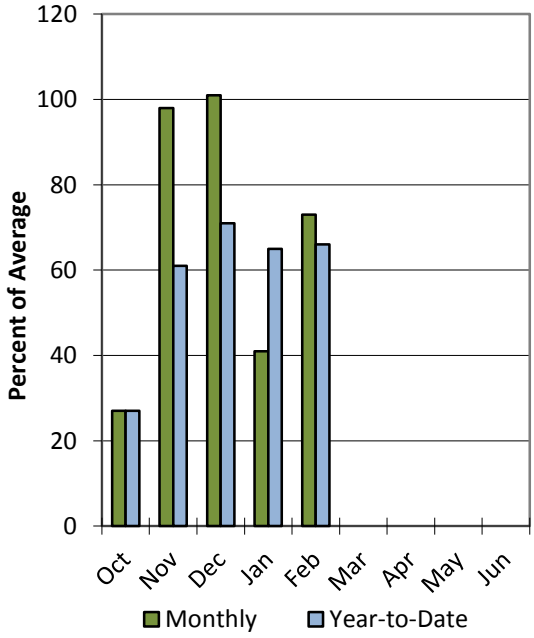
Snowpack



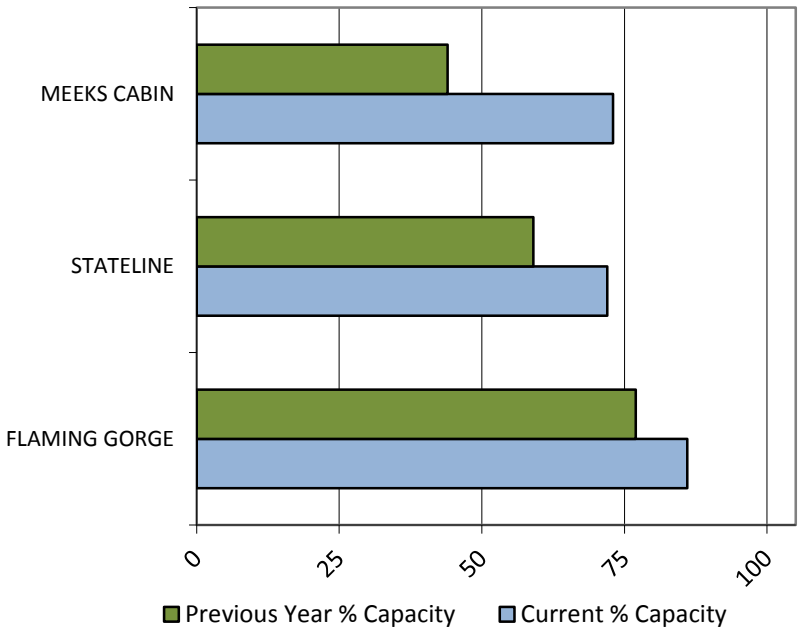
Soil Moisture



Precipitation



Reservoir Storage



Data Current as of: 3/4/2015 11:00:21 AM

Northeastern Uintahs
Streamflow Forecasts - March 1, 2015

Northeastern Uintahs	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Blacks Fk nr Robertson	APR-JUL	39	53	64	72%	76	95	89
EF of Smiths Fork nr Robertson [2]	APR-JUL	13	15.8	20	74%	25	32	27
Flaming Gorge Reservoir Inflow [2]	APR-JUL	415	620	780	80%	960	1260	980
Uinta R bl Powerplant Diversion nr Neola[2]	APR-JUL	20	26	37	50%	50	72	74
Whiterocks R nr Whiterocks	APR-JUL	14.3	24	31	57%	40	54	54
Ashley Ck nr Vernal	APR-JUL	11.9	19.7	26	52%	33	46	50
Big Brush Ck ab Red Fleet Reservoir	APR-JUL	6.5	8.5	12	57%	15.5	21	21

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 February, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Flaming Gorge Reservoir	3208.1	2868.5	3014.0	3749.0
Stateline Reservoir	8.6	7.1	5.2	12.0
Meeks Cabin Reservoir	23.7	14.4	11.9	32.5
Basin-wide Total	3240.5	2890.0	3031.1	3793.5
# of reservoirs	3	3	3	3

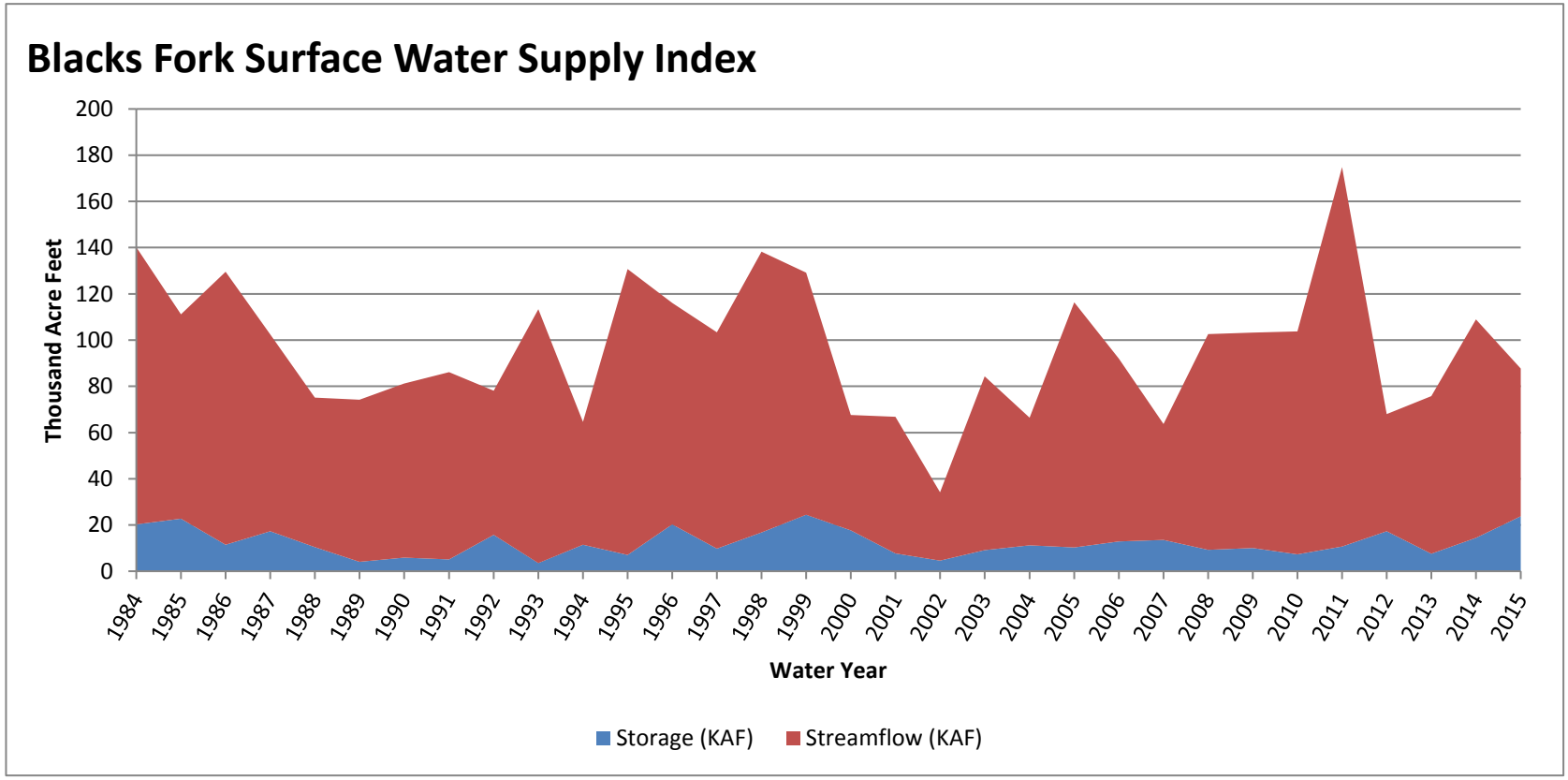
Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Blacks Fk	5	76%	111%
Upper Green	2	84%	102%
Lower Green	2	62%	75%
Ashley Brush	4	48%	71%

March 1, 2015

Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Blacks Fork	**23.74**	**64.00**	**87.74**	**45**	**-0.38**	**03, 91, 06, 87**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.

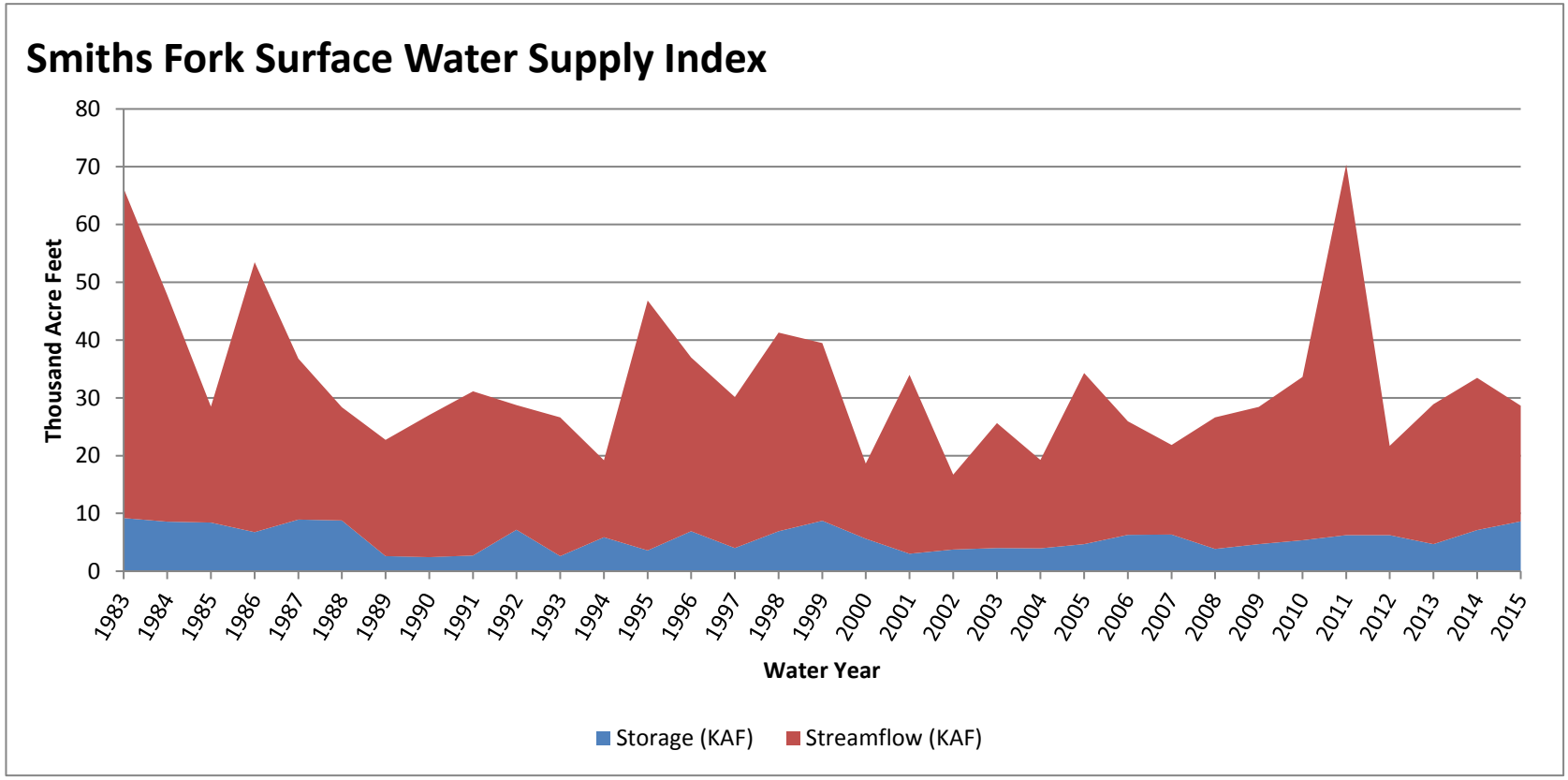


March 1, 2015

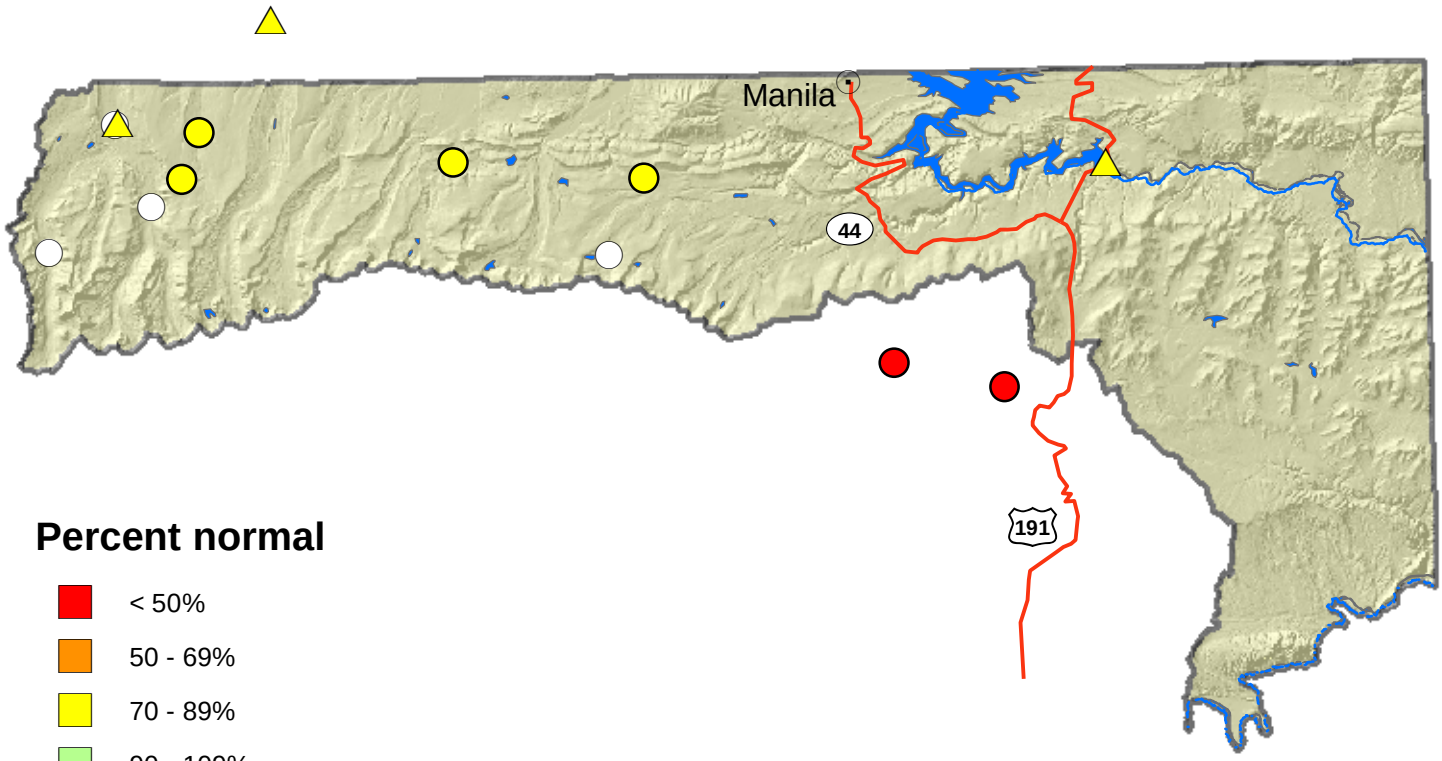
Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Smiths Fork	**8.64**	**20.00**	**28.64**	**47**	**-0.25**	**09, 85, 92, 13**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.



Northeastern Utah



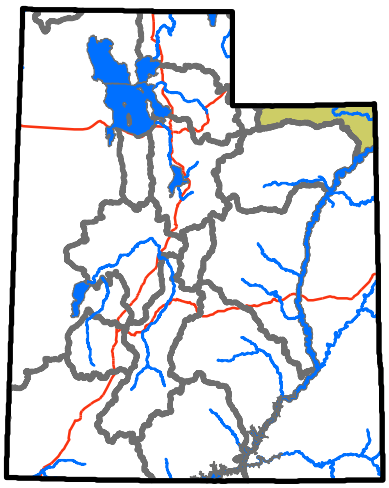
Percent normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
- Highways
- Cities

N

0 2.25 4.5 9 13.5 18 Miles



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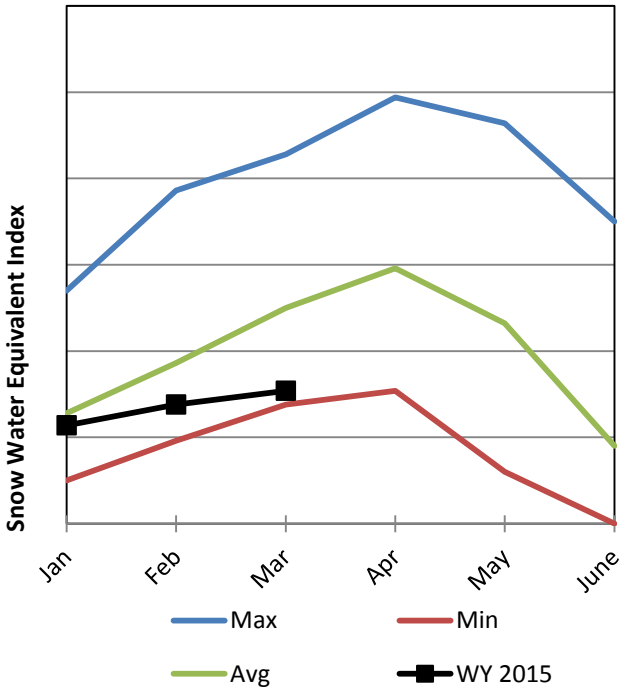
Natural Resources Conservation Service

Duchesne River Basin

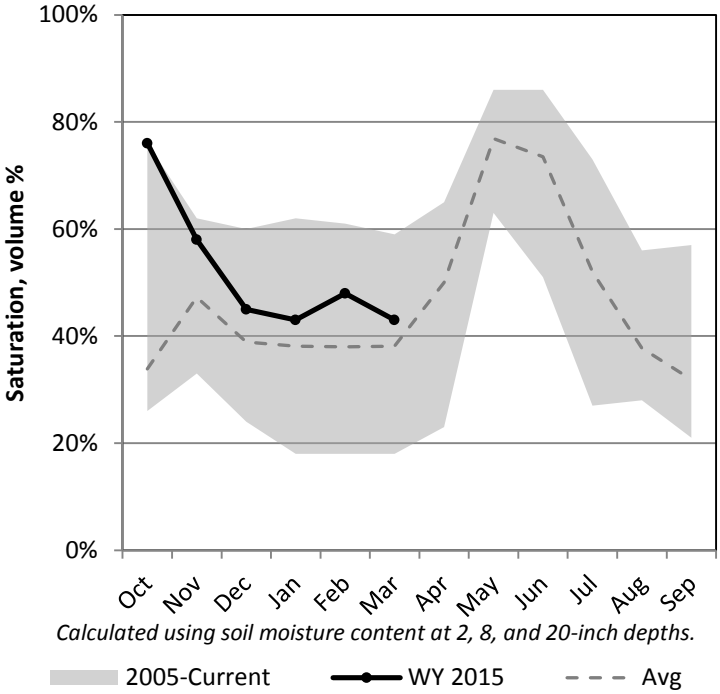
3/1/2015

Snowpack in the Duchesne River Basin is much below average at 64% of normal, compared to 91% last year. Precipitation in February was much below average at 35%, which brings the seasonal accumulation (Oct-Feb) to 58% of average. Soil moisture is at 43% compared to 38% last year. Reservoir storage is at 77% of capacity, compared to 75% last year. Forecast streamflow volumes range from 40% to 65% of average. The surface water supply index is 53% for the Western Uintahs, 11% for the Eastern Uintahs.

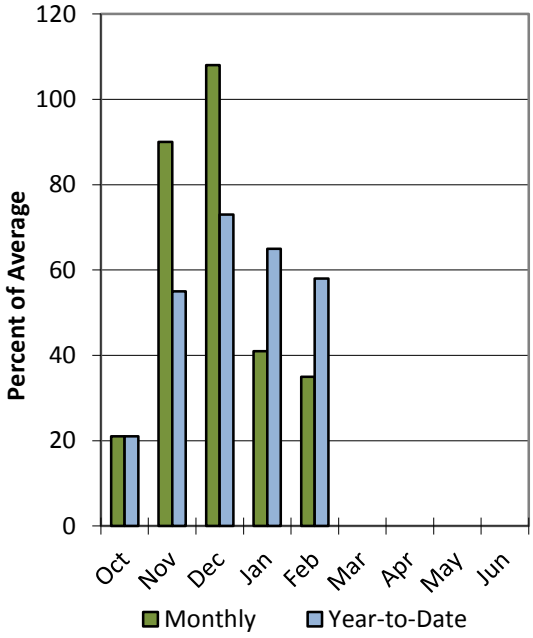
Snowpack



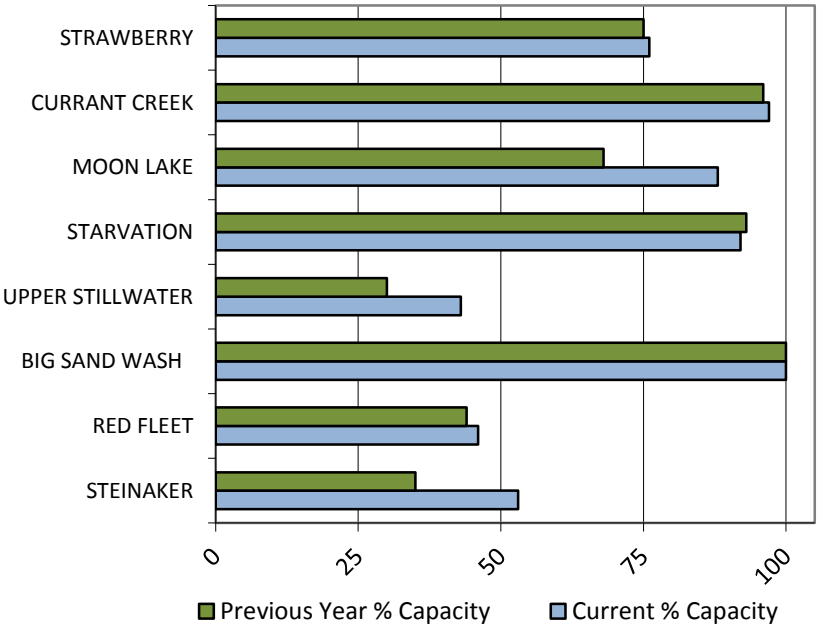
Soil Moisture



Precipitation



Reservoir Storage



Data Current as of: 3/4/2015 11:00:23 AM

Duchesne River
Streamflow Forecasts - March 1, 2015

Duchesne River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Duchesne R nr Tabiona [2]	APR-JUL	42	58	69	64%	82	103	108
Strawberry R nr Duchesne [2]	APR-JUL	13.7	30	45	40%	63	94	112
Strawberry R nr Soldier Springs [2]	APR-JUL	10	20	29	40%	39	57	72
Duchesne R at Myton [2]	APR-JUL	67	115	155	47%	200	280	330
Duchesne R nr Randlett [2]	APR-JUL	51	106	155	40%	215	320	385
Duchesne R ab Knight Diversion [2]	APR-JUL	82	107	127	65%	148	181	195
WF Duchesne R at VAT Diversion	APR-JUL	7.1	8.8	11.1	60%	13.8	18.2	18.6
Rock Ck nr Mountain Home [2]	APR-JUL	38	49	57	65%	66	80	88
Yellowstone R nr Altonah	APR-JUL	22	31	39	64%	47	61	61
Upper Stillwater Reservoir Inflow[2]	APR-JUL	32	41	48	65%	56	69	74
Lake Fk R Bl Moon Lk nr Mountain Home[2]	APR-JUL	27	36	43	65%	51	63	66
Lake Fork R ab Moon Lake Reservoir	APR-JUL	22	31	38	62%	46	60	61
Currant Ck Reservoir Inflow[2]	APR-JUL	4.7	6.6	9	45%	11.7	16.4	20

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 February, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Steinaker Reservoir	17.7	11.8	23.1	33.4
Red Fleet Reservoir	11.9	11.2	18.3	25.7
Big Sand Wash Reservoir	25.7	25.6		25.7
Upper Stillwater Reservoir	14.0	9.7	7.6	32.5
Starvation Reservoir	152.7	153.9	144.5	165.3
Moon Lake Reservoir	31.6	24.3	26.3	35.8
Currant Creek Reservoir	15.0	15.0	14.8	15.5
Strawberry Reservoir	835.5	832.3	660.5	1105.9
Basin-wide Total	1078.3	1058.2	895.1	1414.1
# of reservoirs	7	7	7	7

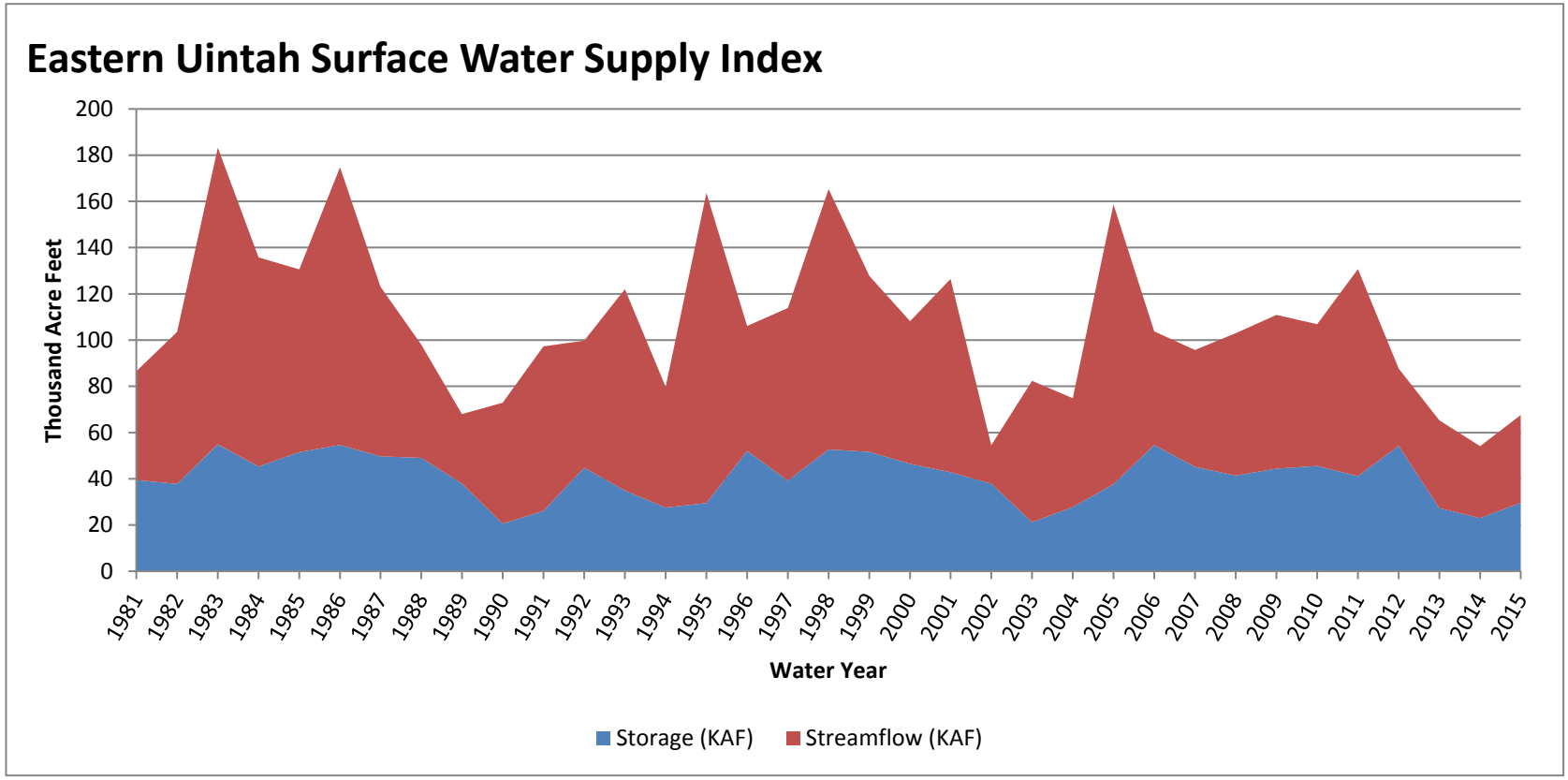
Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Strawberry	5	65%	89%
Lakefork Yellowstone	7	67%	95%
Uintah Whiterocks	2	53%	80%

March 1, 2015

Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Eastern Uintah	**29.55**	**38.00**	**67.55**	**11**	**-3.24**	**02, 13, 89, 90**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.

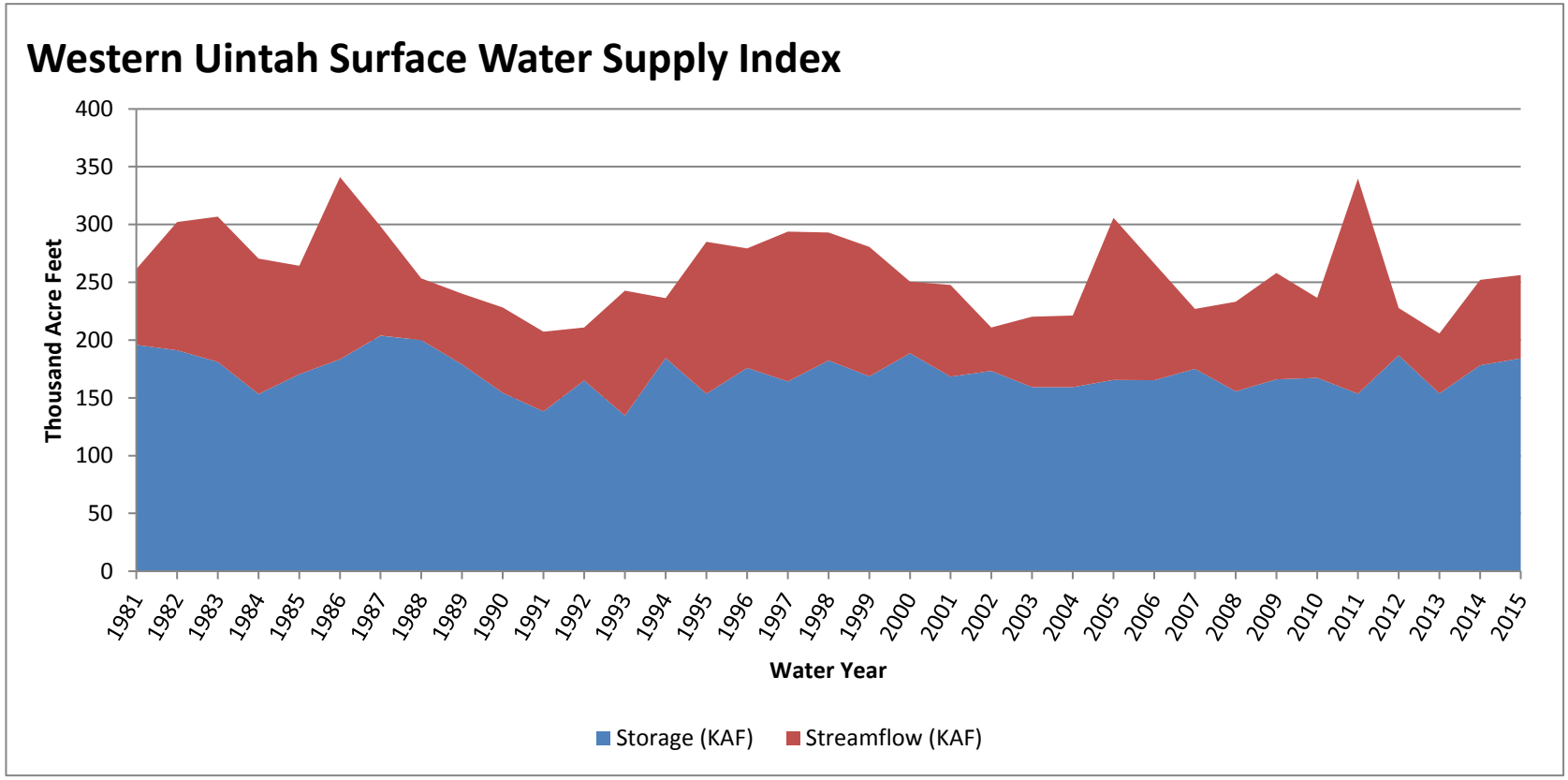


March 1, 2015

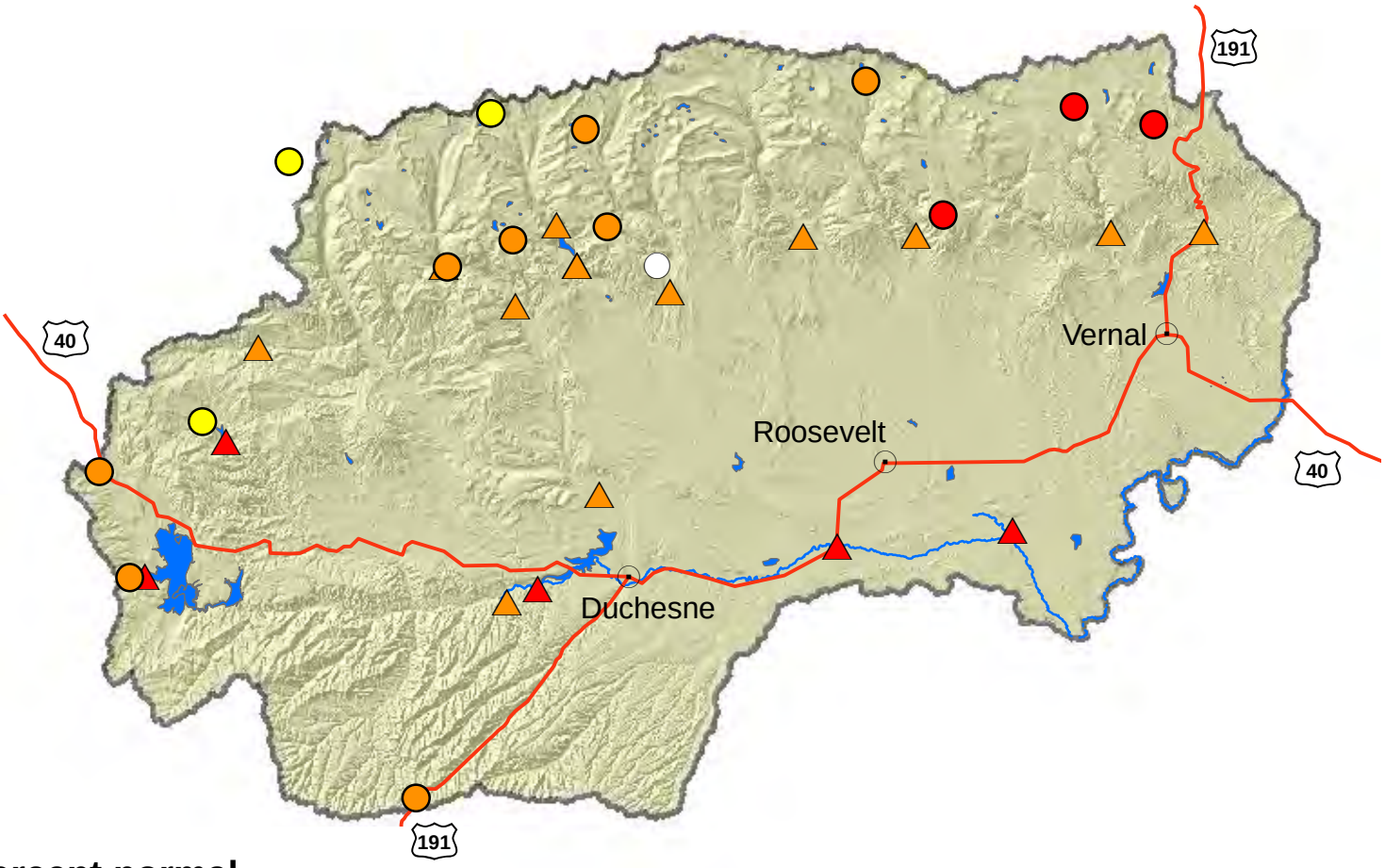
Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Western Uintah	**184.26**	**72.00**	**256.26**	**53**	**0.23**	**14, 88, 09, 81**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.



Duchesne basin



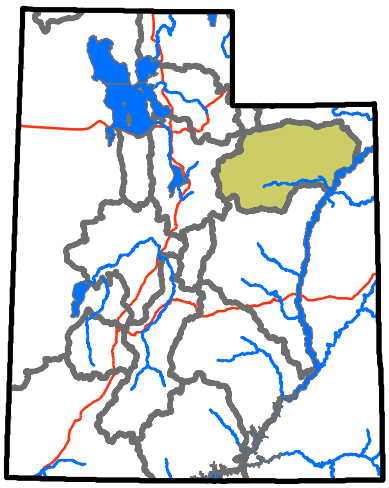
Percent normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
- Highways
- Cities

N

0 5 10 20 30 40 Miles



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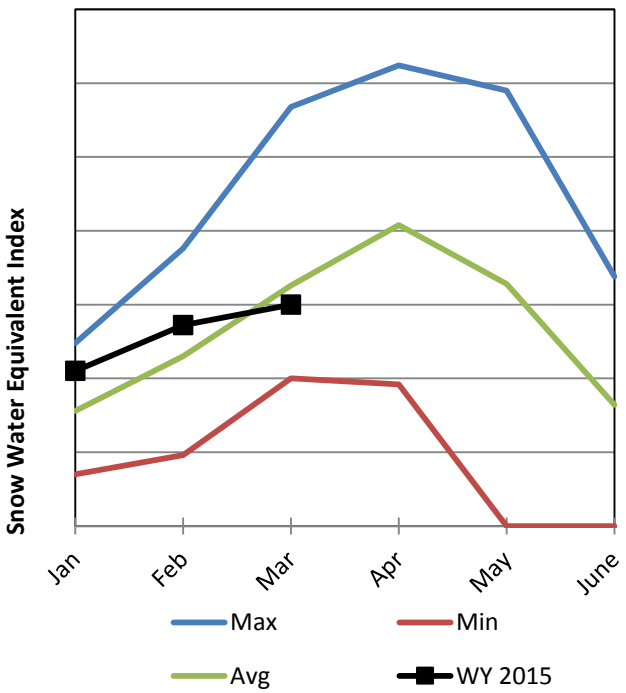
Lower Sevier River Basin

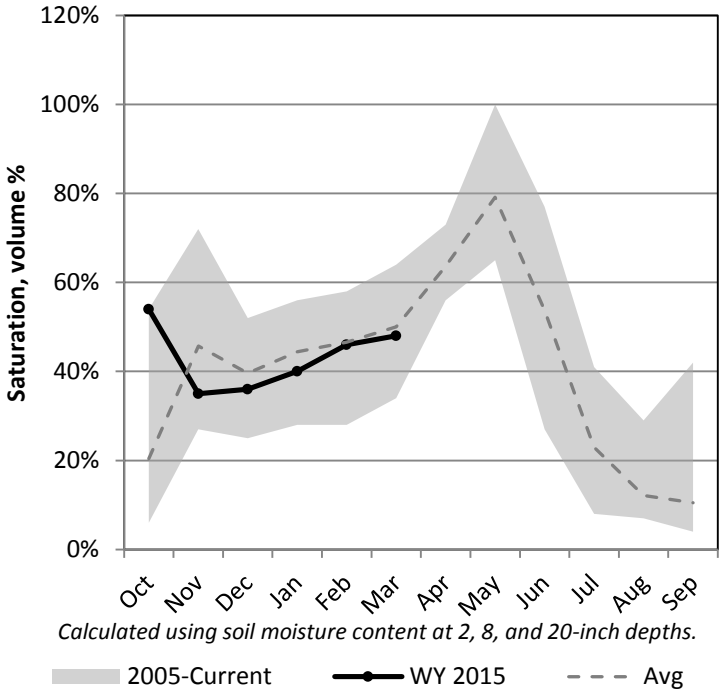
3/1/2015

Snowpack in the Lower Sevier River Basin is near average at 99% of normal, compared to 66% last year. Precipitation in February was much below average at 44%, which brings the seasonal accumulation (Oct-Feb) to 86% of average. Soil moisture is at 48% compared to 43% last year. Reservoir storage is at 45% of capacity, compared to 55% last year. Forecast streamflow volumes range from 33% to 36% of average. The surface water supply index is 31% for the Lower Sevier.

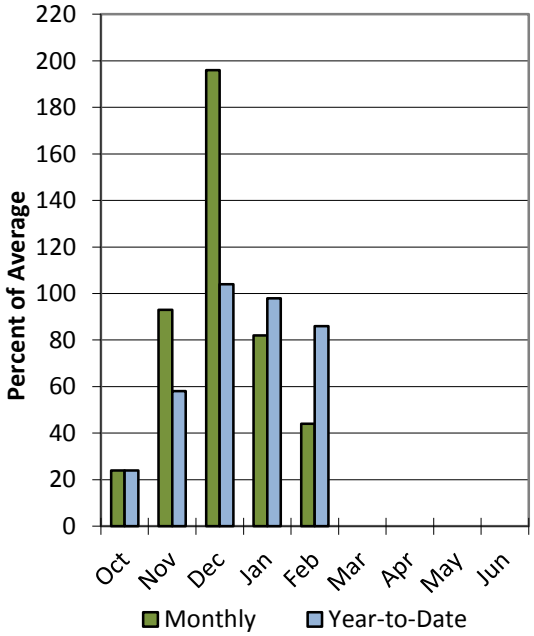
Snowpack



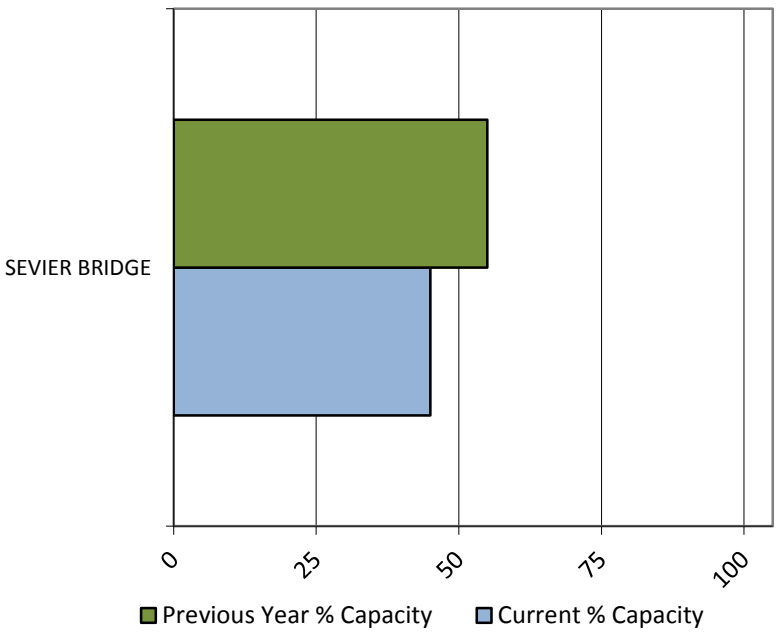
Soil Moisture



Precipitation



Reservoir Storage



Data Current as of: 3/4/2015 11:00:37 AM

Lower Sevier River
Streamflow Forecasts - March 1, 2015

Lower Sevier River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Chicken Ck nr Levan								
	APR-JUL	0.44	0.97	1.5	33%	2.2	3.6	4.5
Oak Ck nr Oak City								
	APR-JUL	0.23	0.43	0.6	36%	0.8	1.15	1.66

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 February, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Sevier Bridge Reservoir	105.8	129.9	169.0	236.0
Basin-wide Total	105.8	129.9	169.0	236.0
# of reservoirs	1	1	1	1

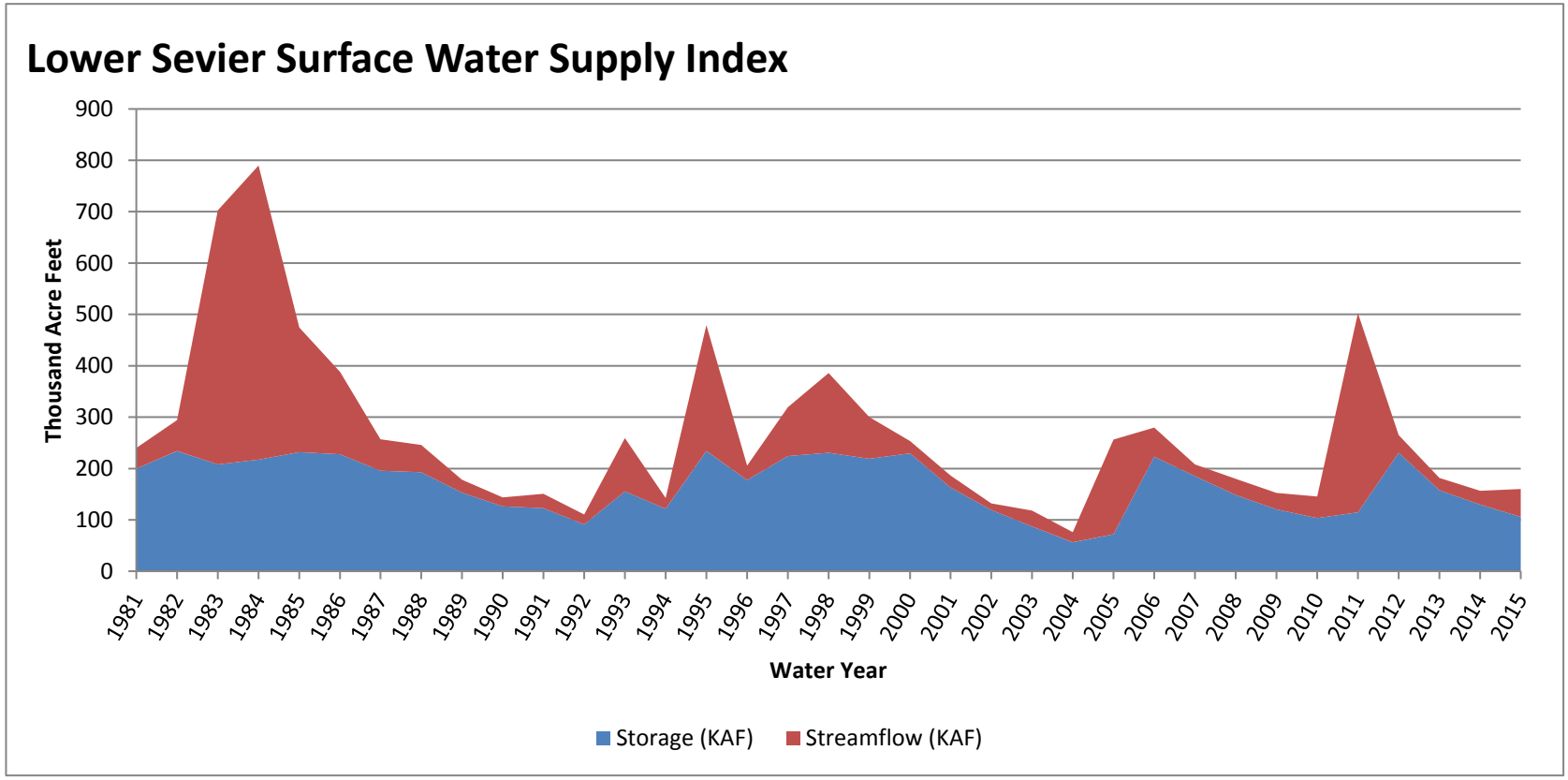
Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Lower Sevier	3	75%	74%

March 1, 2015

Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Lower Sevier	**105.84**	**54.00**	**159.84**	**31**	**-1.62**	**09, 14, 89, 08**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.



Lower Sevier basin

Percent normal

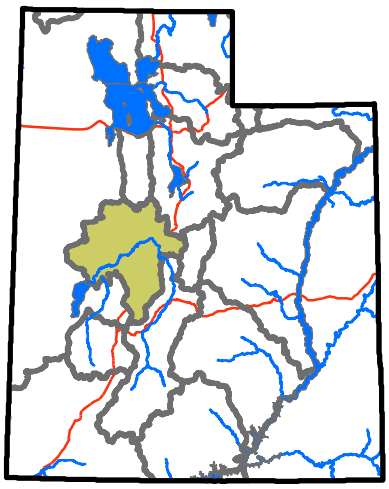
- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
- Highways
- Cities

N

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

0 2.5 5 10 15 20 Miles

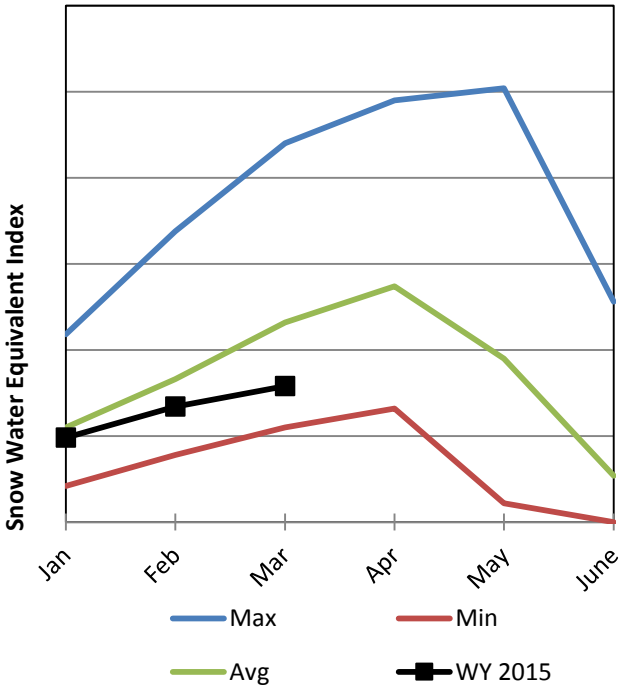


Upper Sevier River Basin

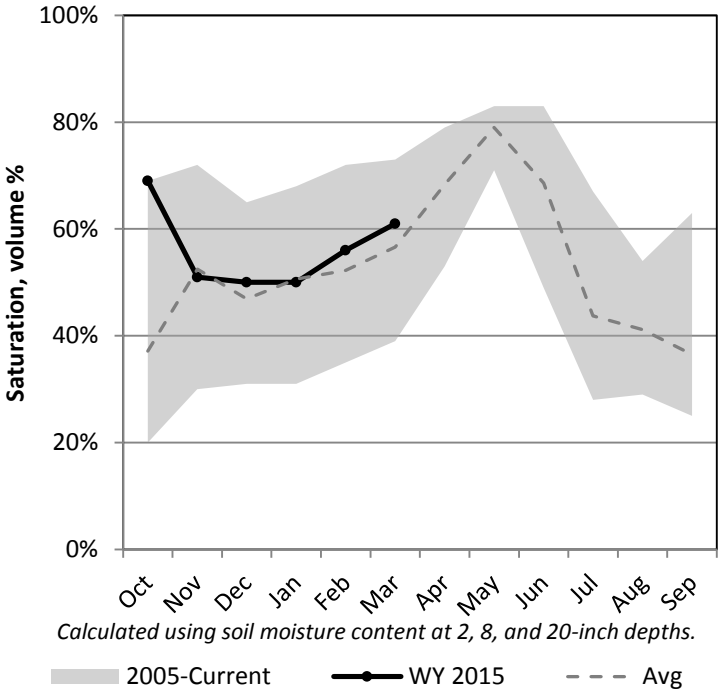
3/1/2015

Snowpack in the Upper Sevier River Basin is below average at 76% of normal, compared to 67% last year. Precipitation in February was much below average at 55%, which brings the seasonal accumulation (Oct-Feb) to 70% of average. Soil moisture is at 61% compared to 62% last year. Reservoir storage is at 56% of capacity, compared to 68% last year. Forecast streamflow volumes range from 43% to 54% of average. The surface water supply index is 17% for the Upper Sevier.

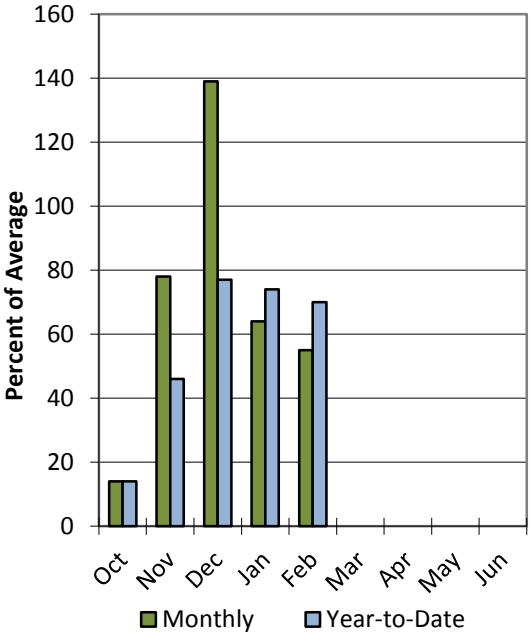
Snowpack



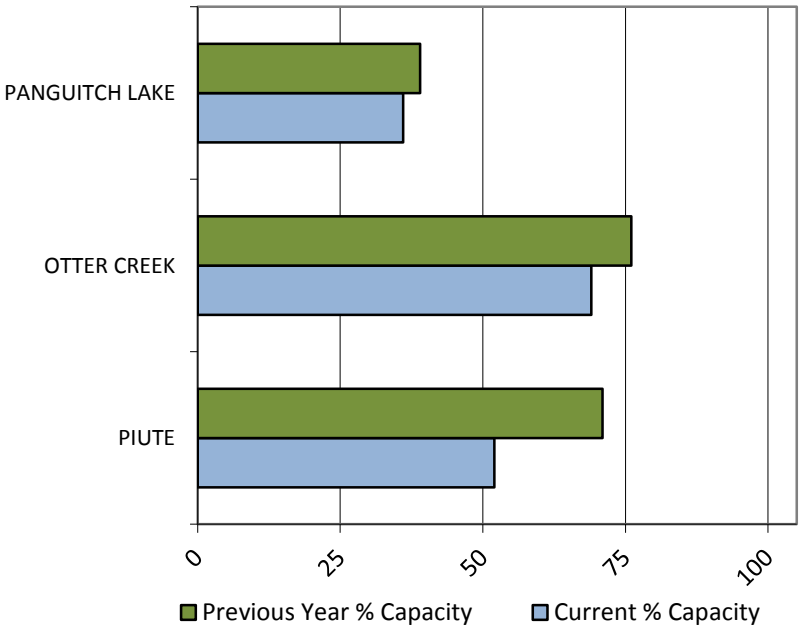
Soil Moisture



Precipitation



Reservoir Storage



Data Current as of: 3/4/2015 11:00:33 AM

Upper Sevier River
Streamflow Forecasts - March 1, 2015

Upper Sevier River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Sevier R at Hatch								
	APR-JUL	2.5	15.3	24	50%	33	46	48
EF Sevier R nr Kingston								
	APR-JUL	0.7	9.7	19	54%	28	42	35
Sevier R nr Kingston								
	APR-JUL	0.66	1.89	17	52%	29	41	33
Sevier R bl Piute Dam								
	APR-JUL	1.32	14.7	34	52%	57	89	66
Clear Ck ab Diversions nr Sevier								
	APR-JUL	0.42	4.3	9	43%	13.7	20	21
Salina Ck nr Emery								
	APR-JUL	0.158	1.38	3.9	49%	6.5	10.2	7.9

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 February, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Piute Reservoir	37.2	50.9	53.6	71.8
Otter Creek Reservoir	36.2	40.2	38.6	52.5
Panguitch Lake	8.1	8.7	13.7	22.3
Basin-wide Total	81.4	99.8	105.9	146.6
# of reservoirs	3	3	3	3

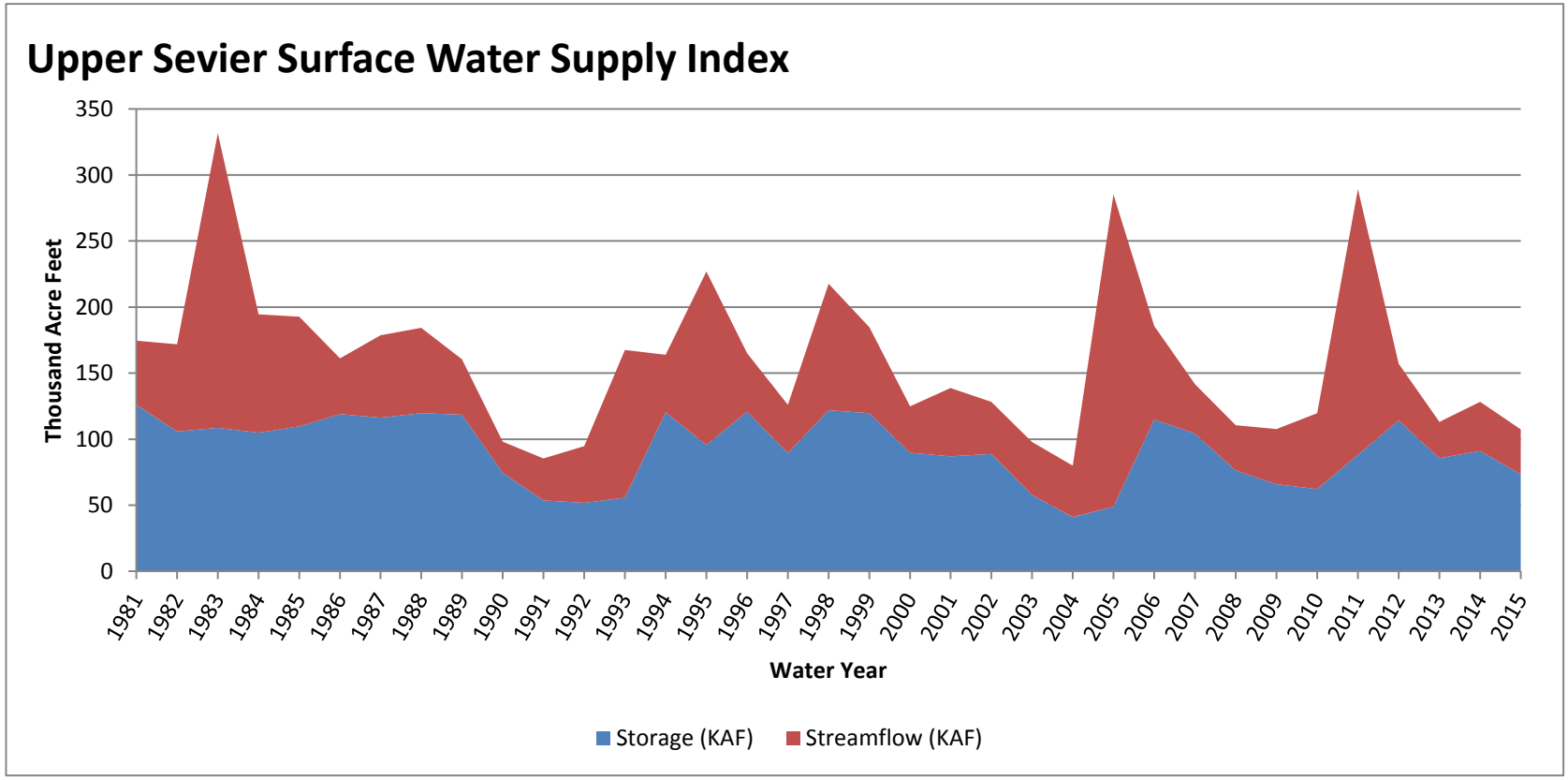
Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Upper Sevier	8	59%	54%
Middle Sevier	9	79%	75%
E Fk Sevier	6	72%	59%

March 1, 2015

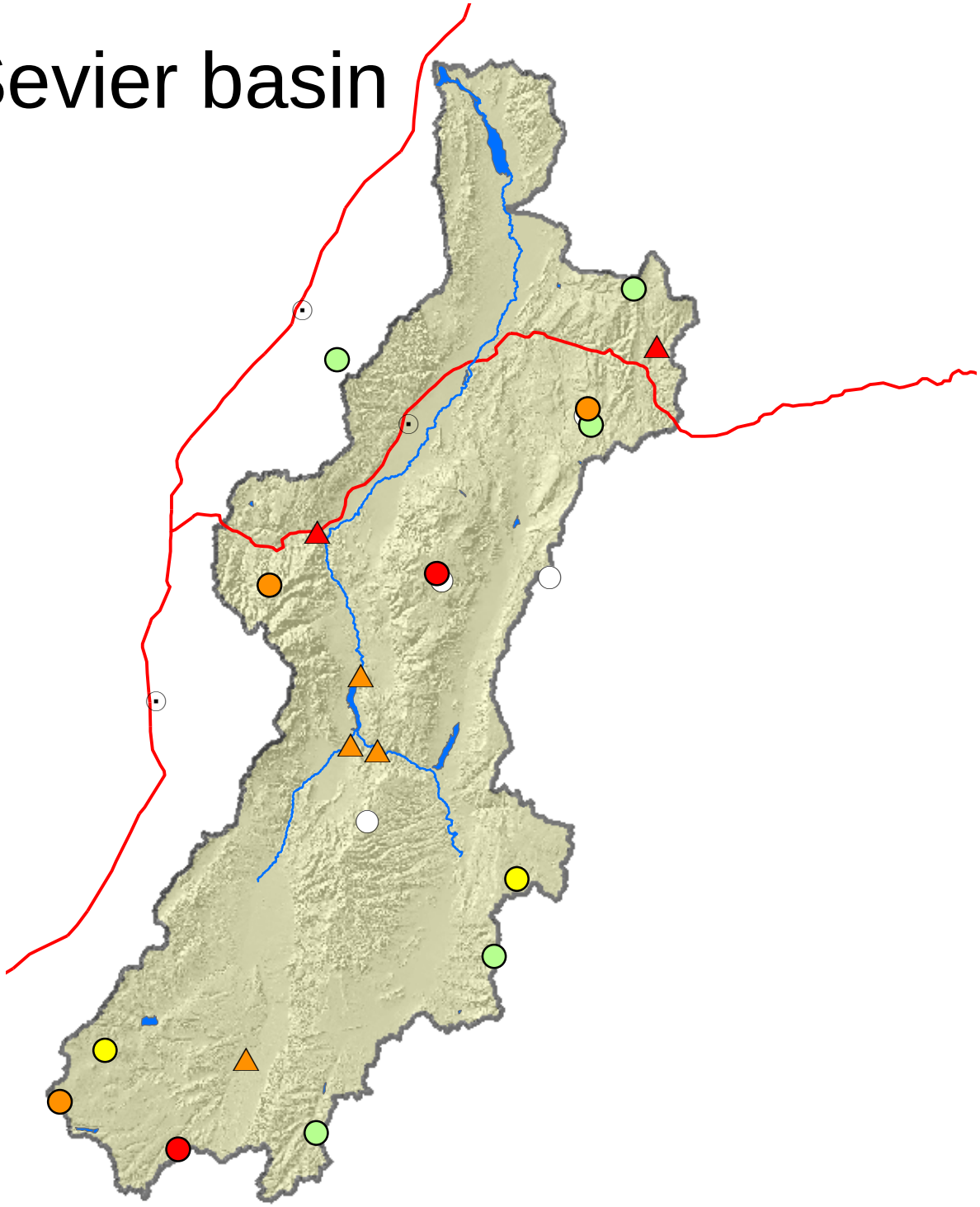
Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Upper Sevier	**73.36**	**34.00**	**107.36**	**17**	**-2.78**	**03, 90, 09, 08**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.



Upper Sevier basin



Percent normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
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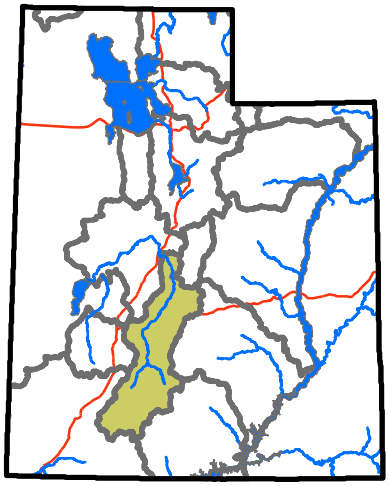
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
- Highways
- Cities

N

0 5 10 20 30 40 Miles



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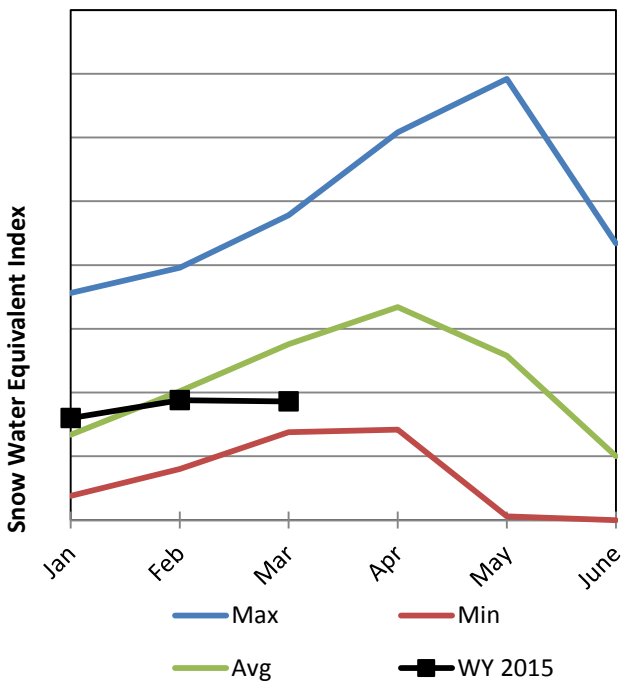
Natural Resources Conservation Service

San Pitch River Basin

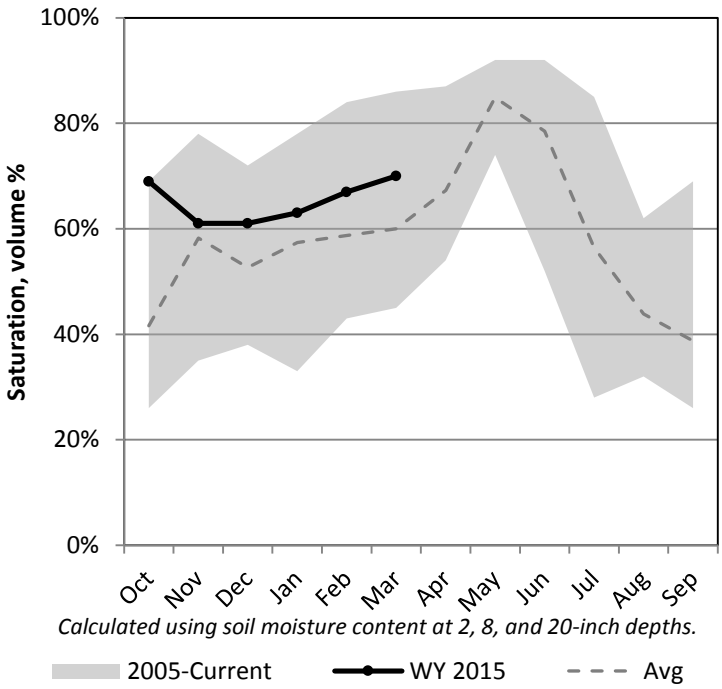
3/1/2015

Snowpack in the San Pitch River Basin is below average at 78% of normal, compared to 83% last year. Precipitation in February was much below average at 30%, which brings the seasonal accumulation (Oct-Feb) to 77% of average. Soil moisture is at 70% compared to 65% last year. Reservoir storage is at 7% of capacity, compared to 18% last year. The forecast streamflow volume for Manti Creek is 66% of average. The surface water supply index is 6% for the San Pitch.

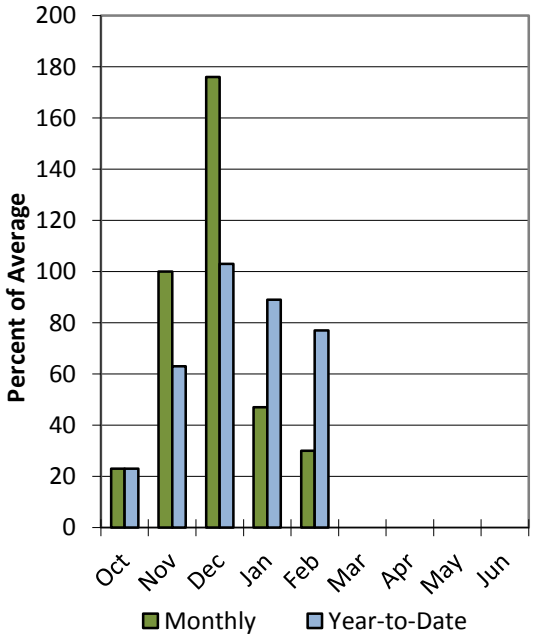
Snowpack



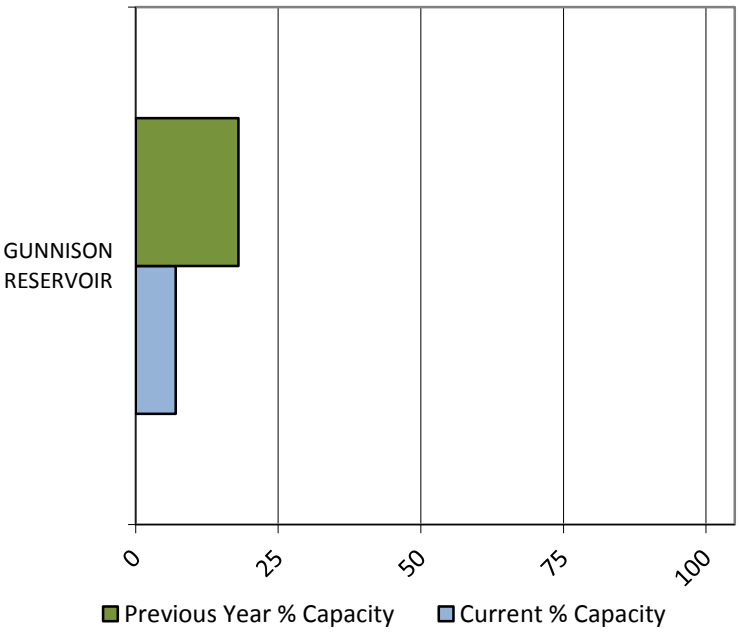
Soil Moisture



Precipitation



Reservoir Storage



Data Current as of: 3/4/2015 11:00:35 AM

San Pitch River
Streamflow Forecasts - March 1, 2015

		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
San Pitch River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Manti Ck bl Dugway Ck nr Manti								
	APR-JUL	6.1	8.8	11	66%	13.4	17.4	16.7
Sevier R nr Gunnison								
	APR-JUL	2.5	33	54	55%	75	105	99

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 February, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Gunnison Reservoir	1.3	3.6	13.0	20.3
Basin-wide Total	1.3	3.6	13.0	20.3
# of reservoirs	1	1	1	1

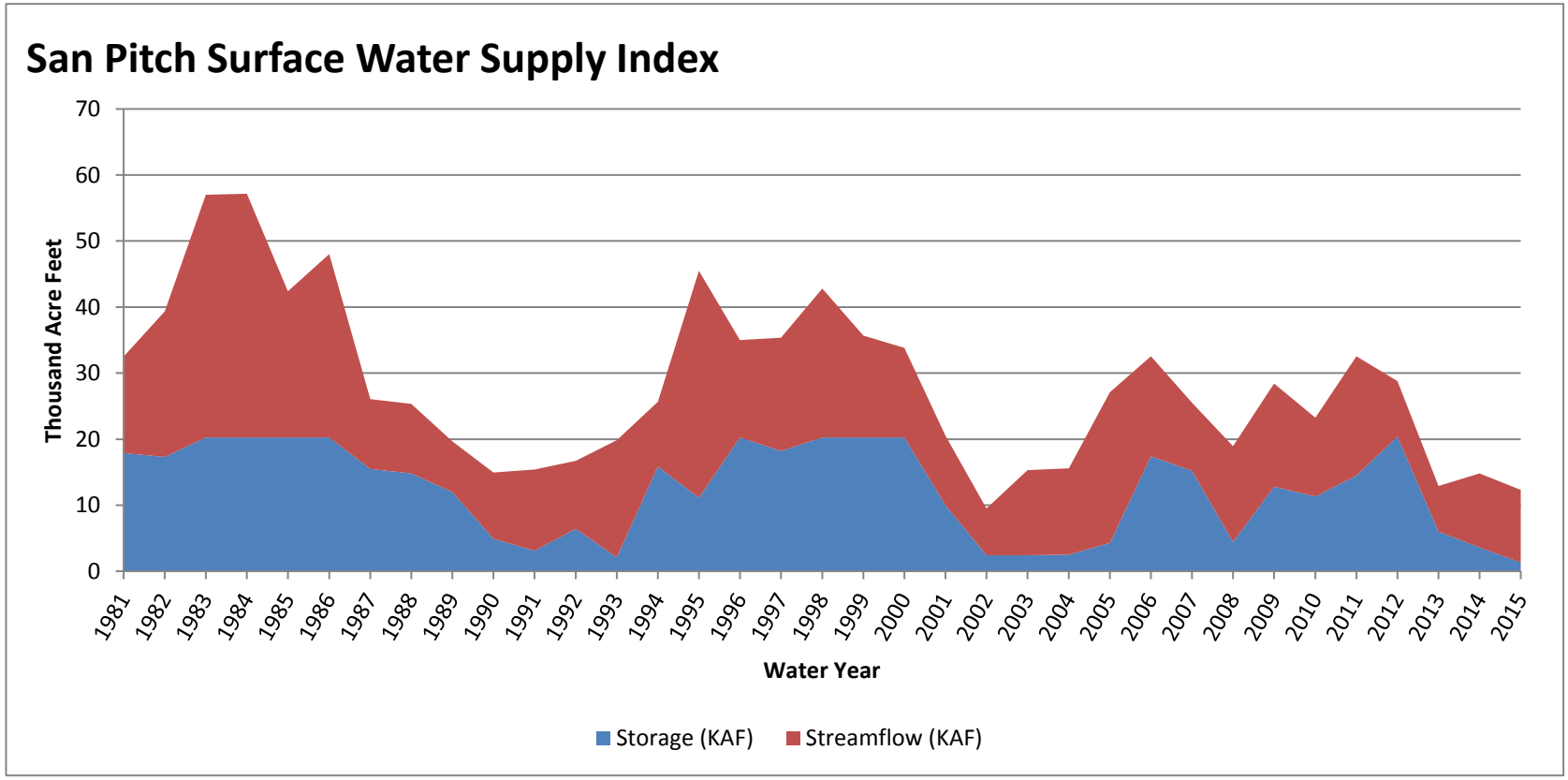
Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Upper San Pitch	4	62%	78%
Lower San Pitch	8	81%	82%

March 1, 2015

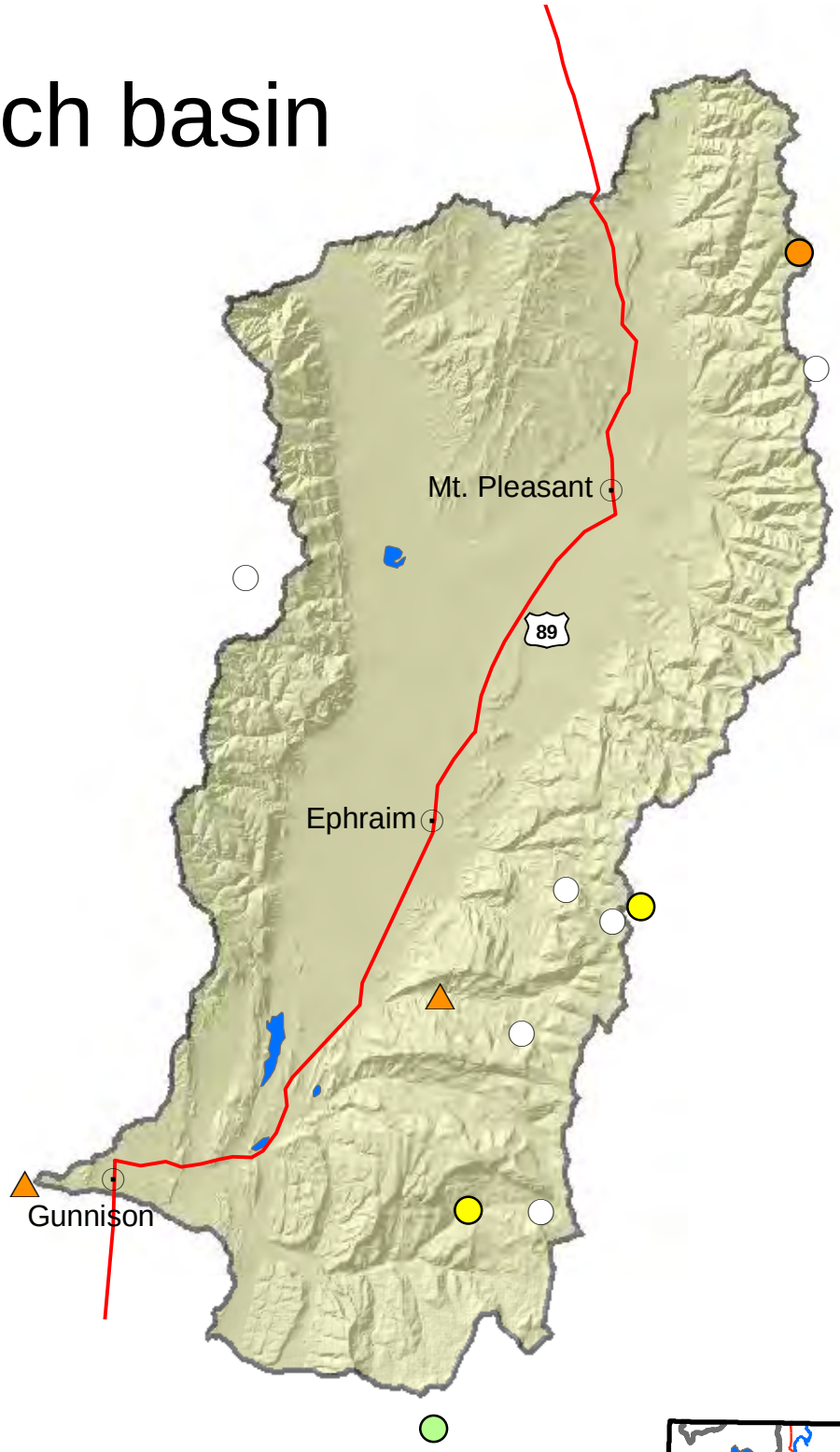
Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
San Pitch	**1.32**	**11.00**	**12.32**	**6**	**-3.7**	**02, 13, 14, 90**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.



San Pitch basin



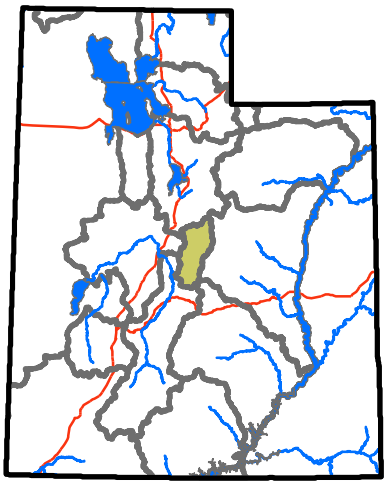
Percent normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
- Highways
- Cities

N

0 2.5 5 10 15 20 Miles



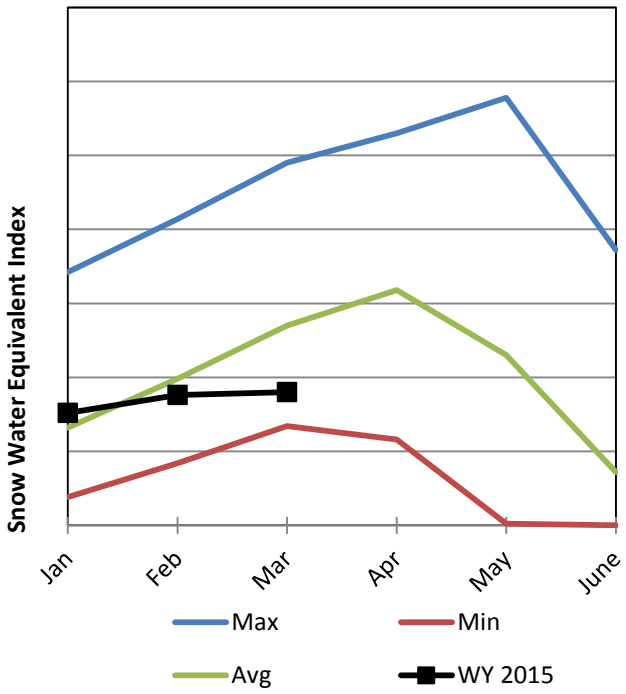
USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Price & San Rafael Basins

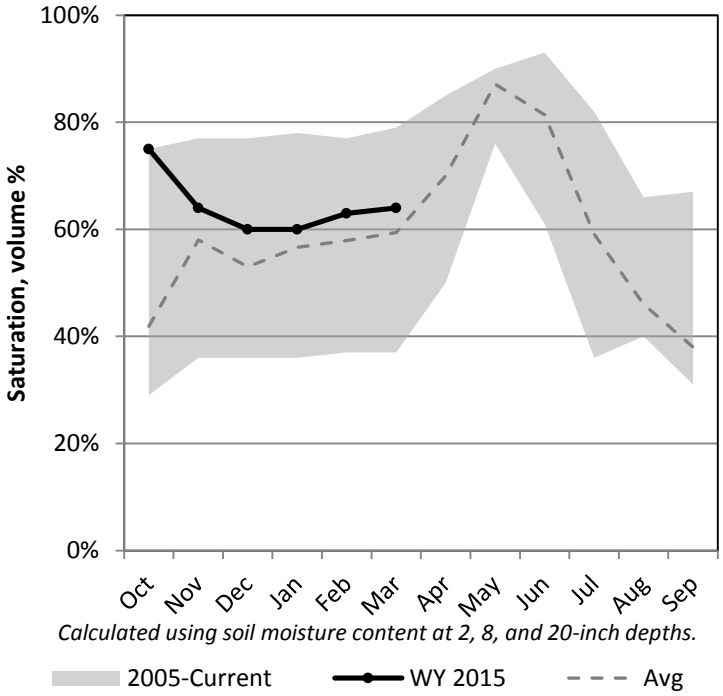
3/1/2015

Snowpack in the Price & San Rafael Basins is below average at 70% of normal, compared to 84% last year. Precipitation in February was much below average at 25%, which brings the seasonal accumulation (Oct-Feb) to 68% of average. Soil moisture is at 64% compared to 60% last year. Reservoir storage is at 49% of capacity, compared to 43% last year. Forecast streamflow volumes range from 39% to 74% of average. The surface water supply index is 6% for the Price River, 39% for Joe's Valley, 47% for Ferron Creek.

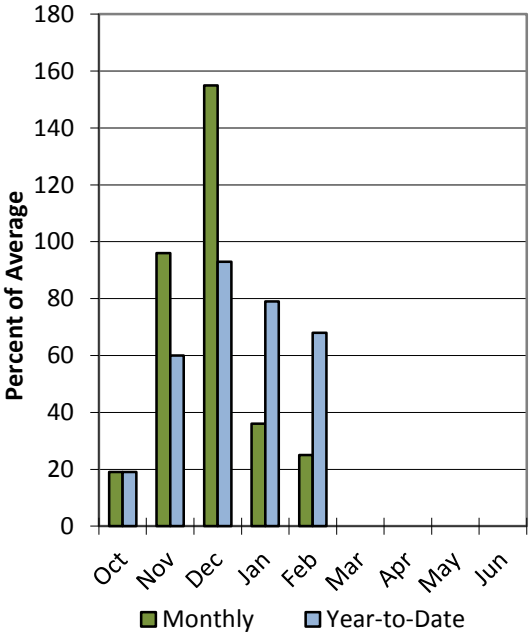
Snowpack



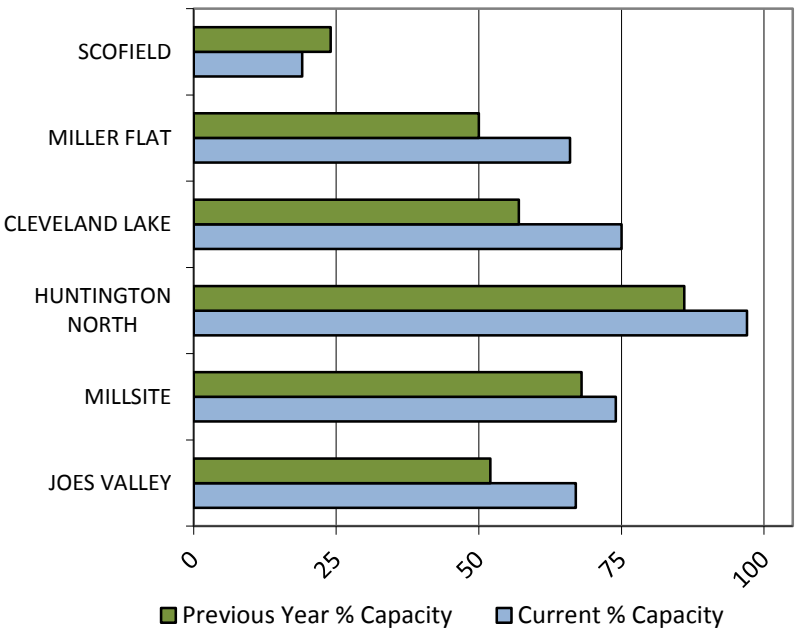
Soil Moisture



Precipitation



Reservoir Storage



Data Current as of: 3/4/2015 11:00:26 AM

Price San Rafael
Streamflow Forecasts - March 1, 2015

Price San Rafael	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Fish Ck ab Reservoir nr Scofield	APR-JUL	6.8	11.3	15	50%	19.2	26	30
Price R nr Scofield Reservoir[2]	APR-JUL	6	10.9	16	39%	22	33	41
White R bl Tabbyune Creek	APR-JUL	3.2	5.5	7.5	48%	9.8	13.7	15.5
Green R at Green River, UT [2]	APR-JUL	1080	1560	1940	66%	2360	3040	2960
Electric Lake Inflow [2]	APR-JUL	2.9	4.9	6.5	49%	8.3	11.5	13.3
Huntington Ck nr Huntington [2]	APR-JUL	14	17.6	22	55%	27	35	40
Joes Valley Reservoir Inflow[2]	APR-JUL	22	31	38	68%	46	58	56
Ferron Ck (Upper Station) nr Ferron	APR-JUL	18.8	24	28	74%	32	39	38

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 February, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Joes Valley Reservoir	41.1	32.2	40.0	61.6
Millsite	12.4	11.3	10.2	16.7
Huntington North Reservoir	4.1	3.6	3.3	4.2
Cleveland Lake	4.0	3.1		5.4
Miller Flat Reservoir	3.4	2.6		5.2
Scofield Reservoir	12.2	15.8	30.7	65.8
Basin-wide Total	69.8	62.9	84.2	148.3
# of reservoirs	4	4	4	4

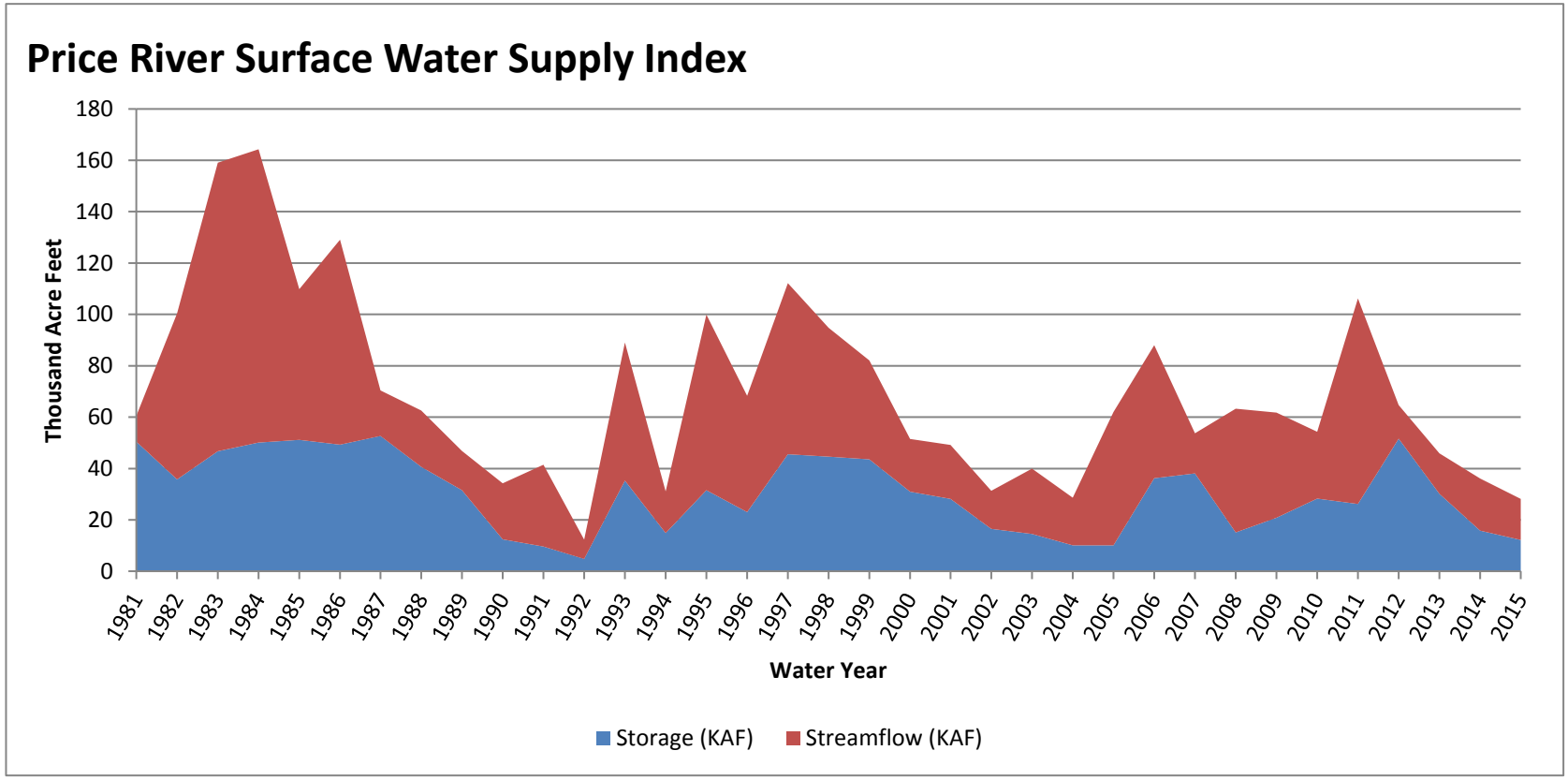
Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Price	6	55%	75%
San Rafael	8	70%	79%

March 1, 2015

Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Price River	**12.20**	**16.00**	**28.20**	**6**	**-3.7**	**92, 04, 94, 02**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.

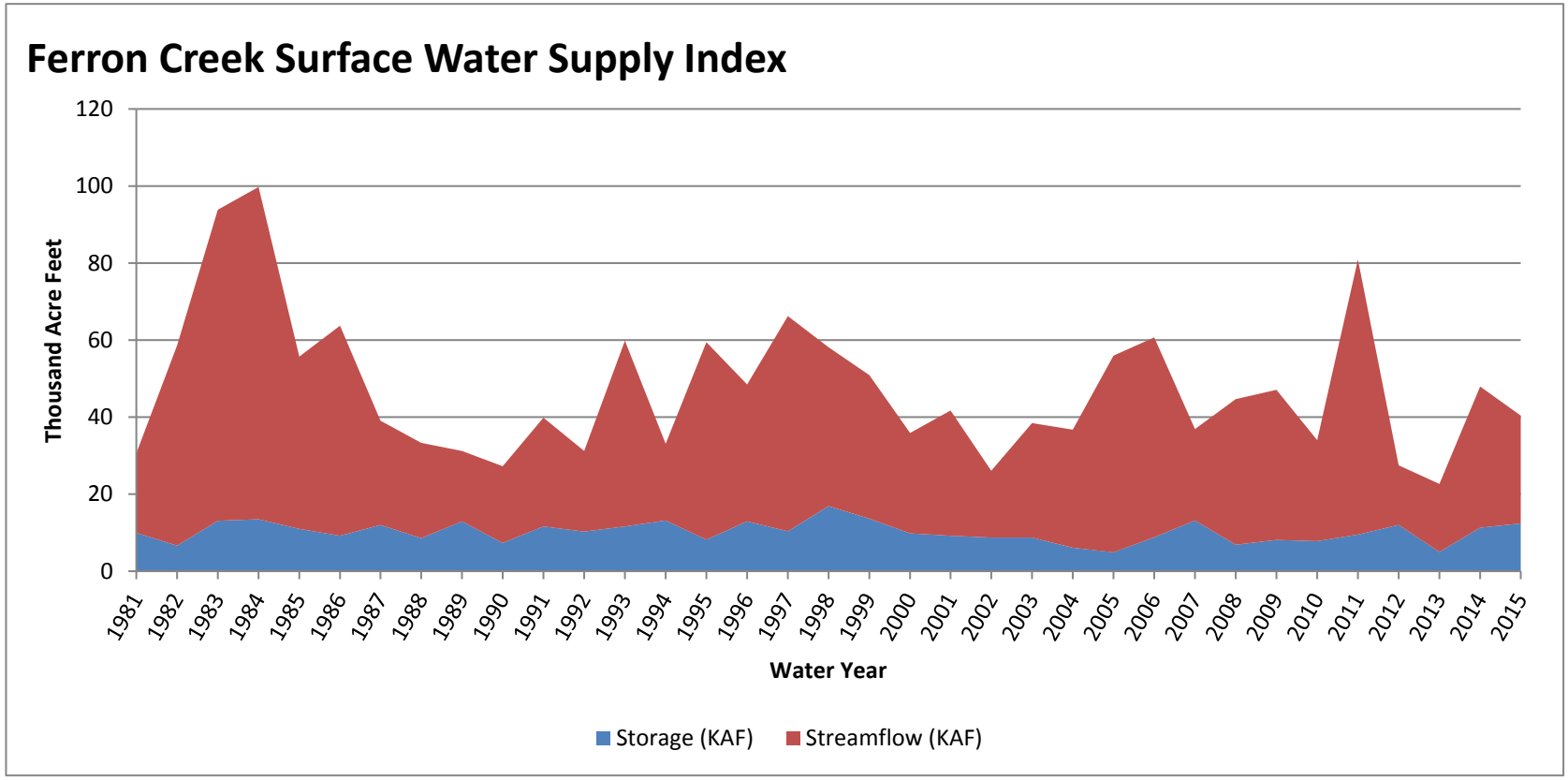


March 1, 2015

Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Ferron Creek	**12.43**	**28.00**	**40.43**	**47**	**-0.23**	**87, 91, 01, 08**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.

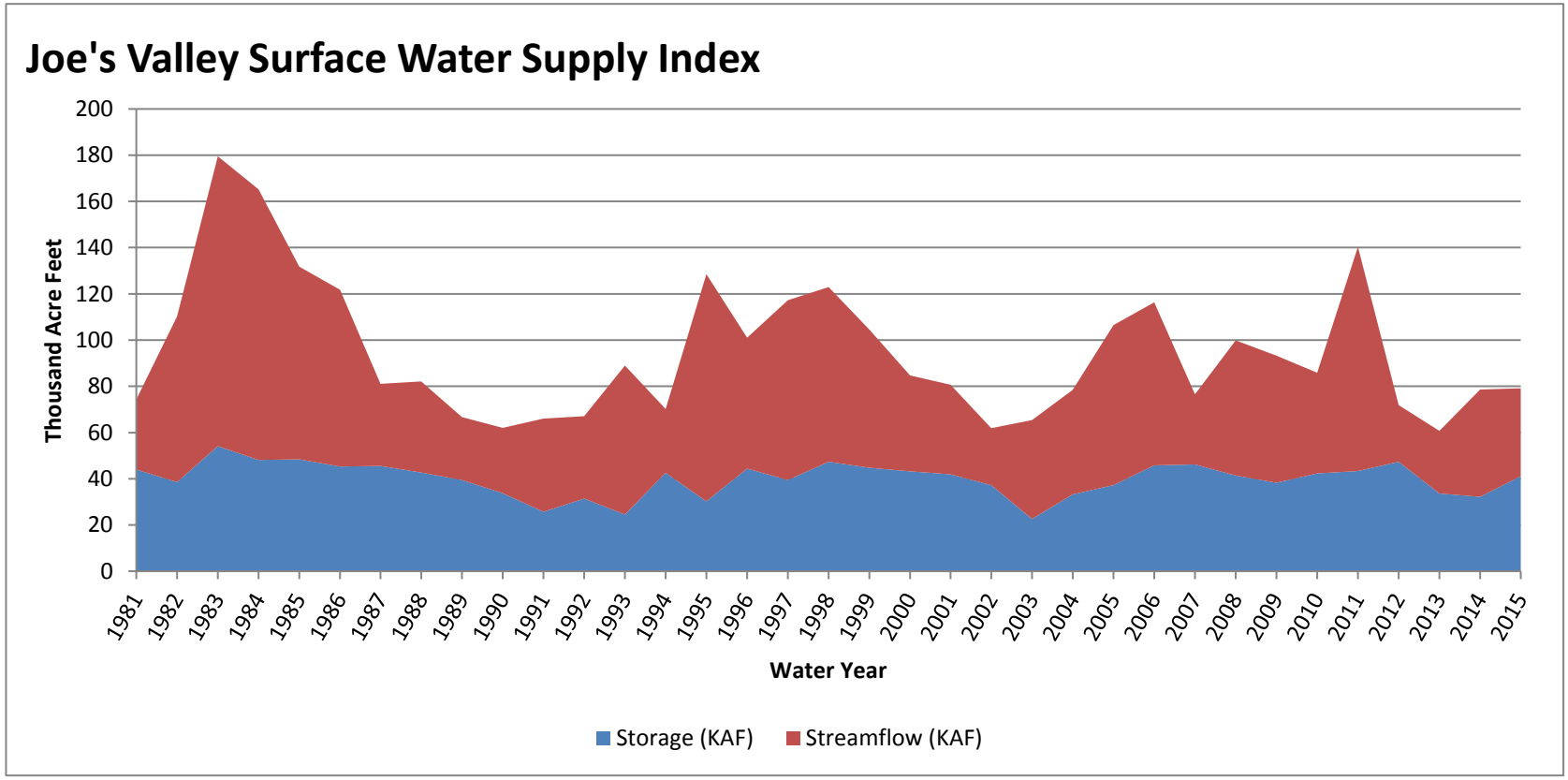


March 1, 2015

Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Joe's Valley	**41.08**	**38.00**	**79.08**	**39**	**-0.93**	**04, 14, 01, 87**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.



Price-San Rafael basin

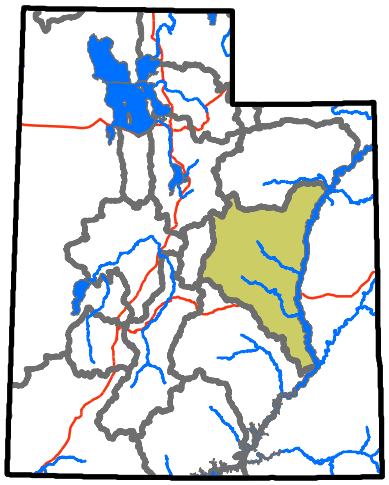
Percent normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
- Highways
- Cities

N

0 5 10 20 30 40 Miles



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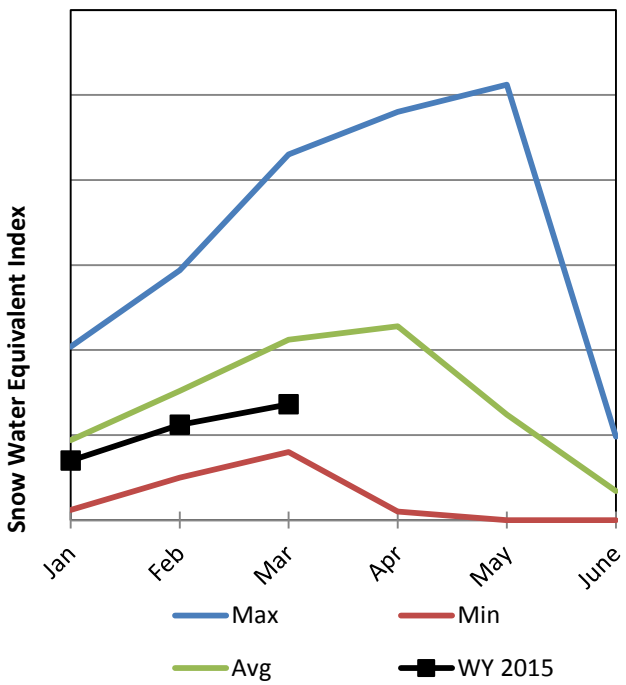
Southeastern Utah Basin

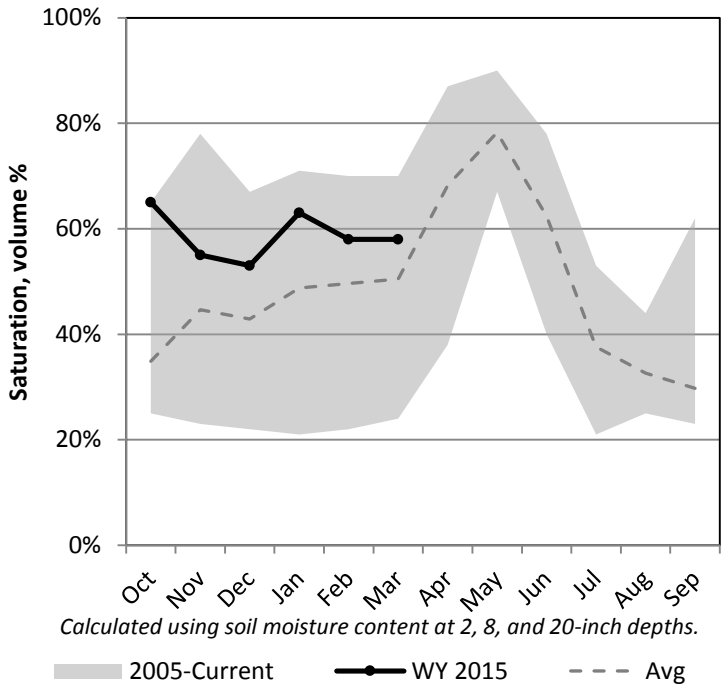
3/1/2015

Snowpack in the Southeastern Utah Basin is below average at 73% of normal, compared to 72% last year. Precipitation in February was much below average at 49%, which brings the seasonal accumulation (Oct-Feb) to 68% of average. Soil moisture is at 58% compared to 62% last year. Reservoir storage is at 61% of capacity, compared to 49% last year. Forecast streamflow volumes range from 37% to 82% of average. The surface water supply index is 45% for Moab.

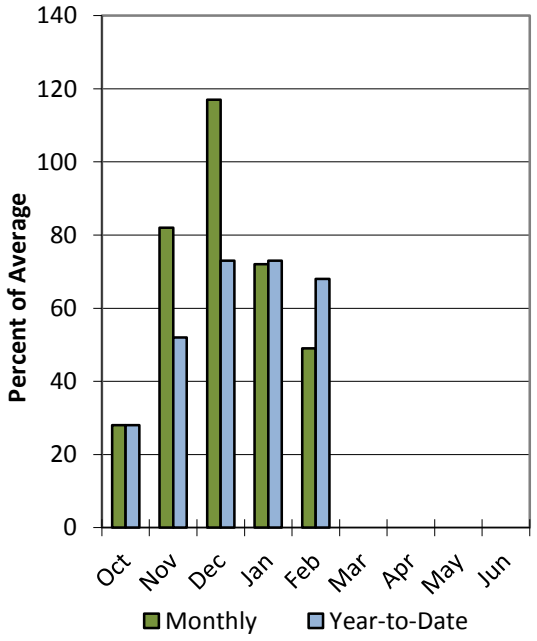
Snowpack



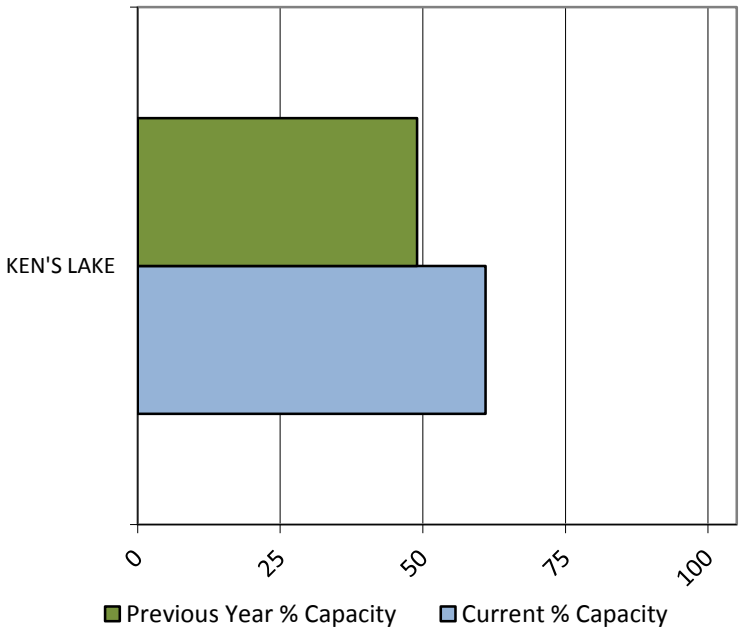
Soil Moisture



Precipitation



Reservoir Storage



Data Current as of: 3/4/2015 11:00:31 AM

Southeastern Utah
Streamflow Forecasts - March 1, 2015

Southeastern Utah	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Mill Ck at Sheley Tunnel nr Moab	APR-JUL	1.53	2.3	3	70%	3.7	5	4.3
South Ck ab Resv nr Monticello	MAR-JUL	0.09	0.24	0.4	37%	0.63	1.09	1.09
Colorado R nr Cisco [2]	APR-JUL	2360	3020	3520	82%	4050	4910	4280
San Juan R near Bluff [2]	APR-JUL	370	535	665	60%	810	1040	1100

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 February, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Ken's Lake	1.4	1.1	1.3	2.3
Basin-wide Total	1.4	1.1	1.3	2.3
# of reservoirs	1	1	1	1

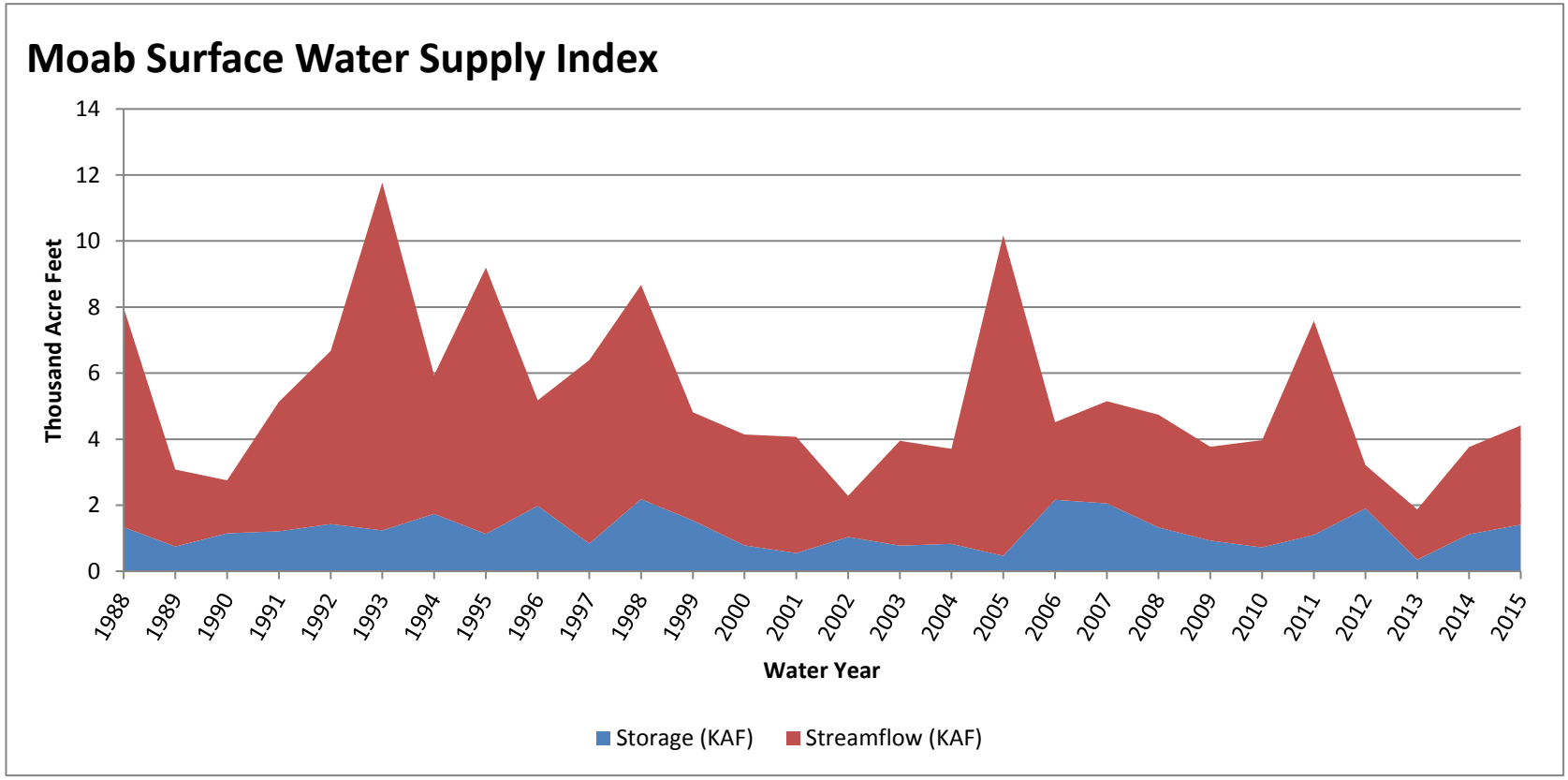
Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Lasal Mtns	2	70%	75%
Lower San Juan	2	73%	65%
Lower Green	2	62%	75%

March 1, 2015

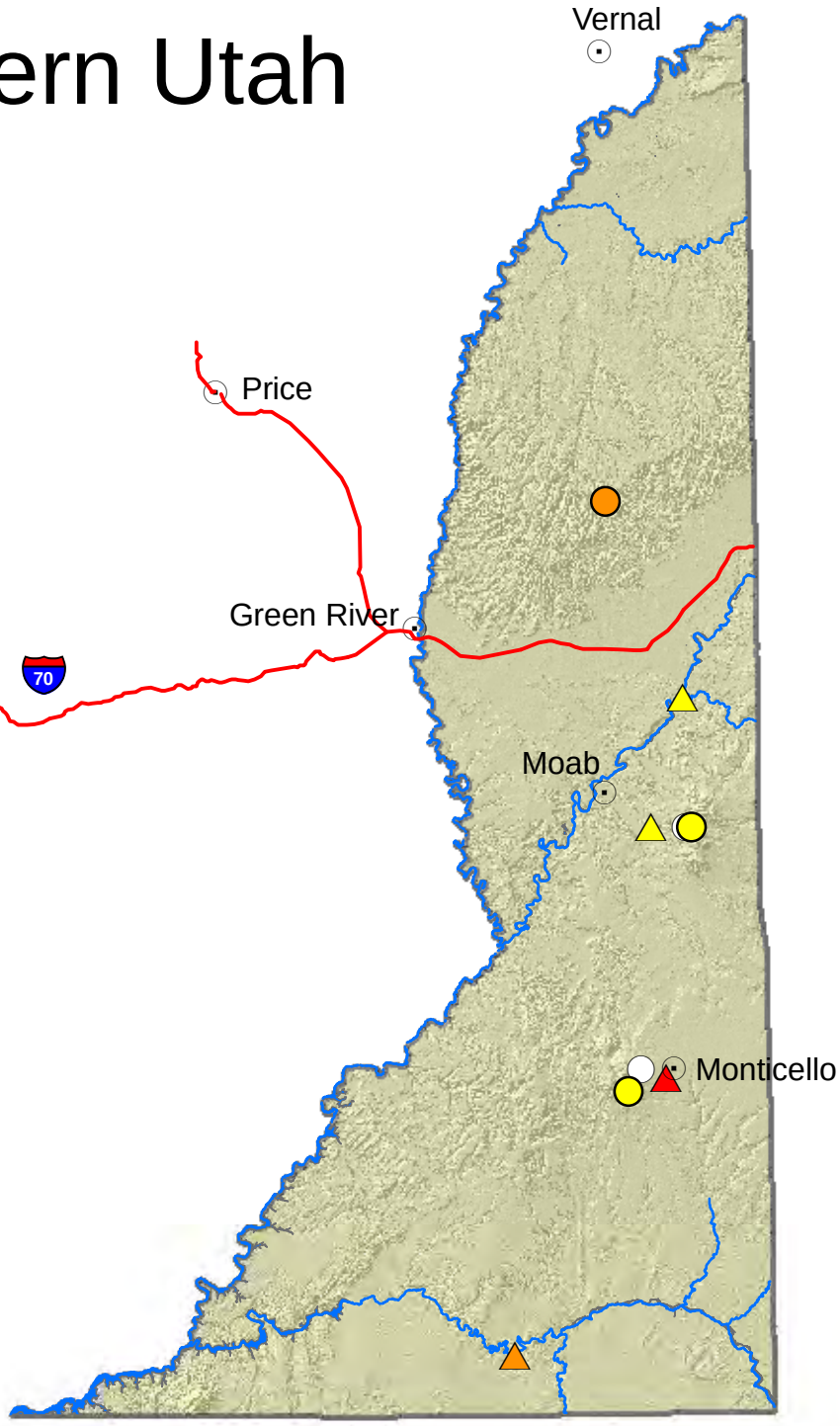
Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Moab	**1.41**	**3.00**	**4.41**	**45**	**-0.43**	**01, 00, 06, 08**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.



Southeastern Utah



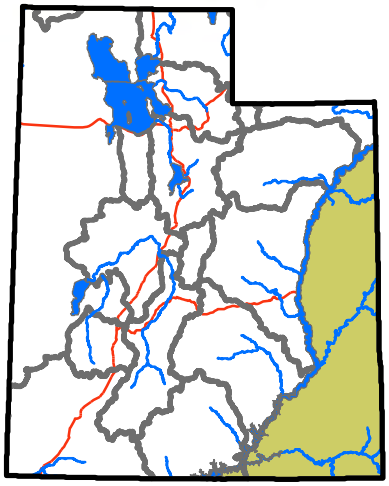
Percent normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
- Highways
- Cities

N

0 5 10 20 30 40 Miles



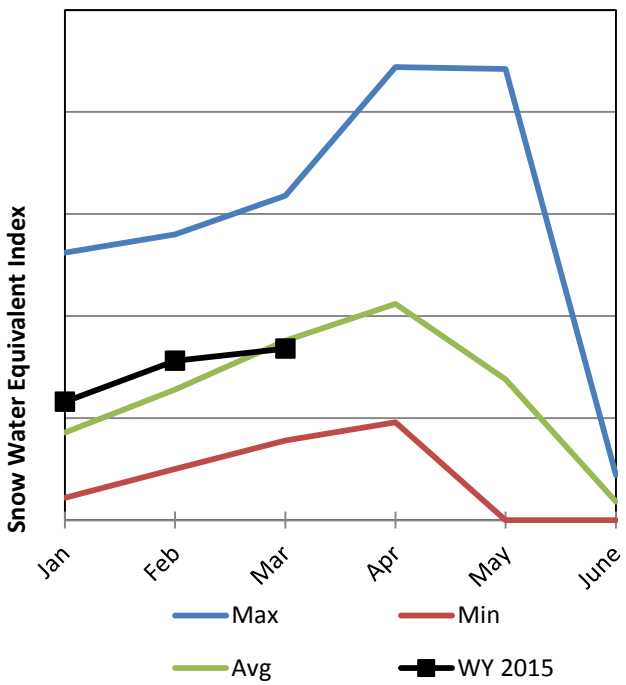
USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Dirty Devil Basin

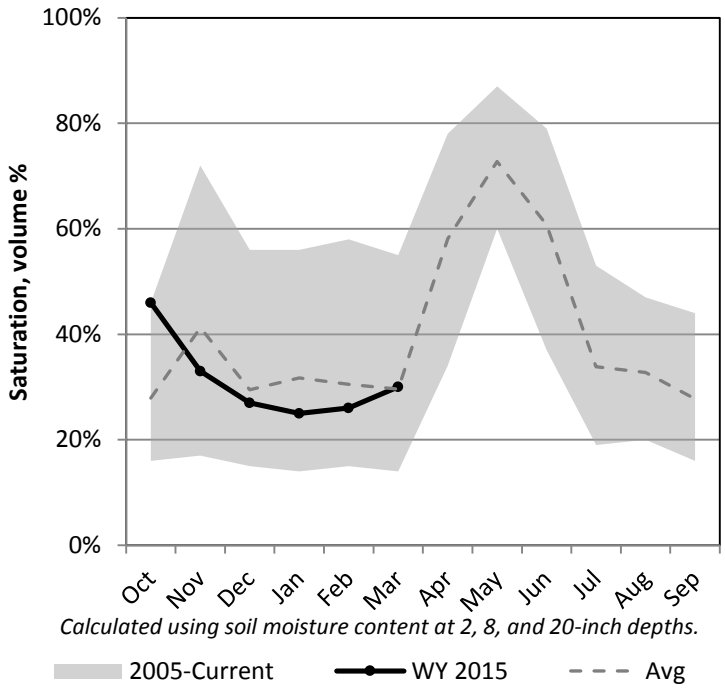
3/1/2015

Snowpack in the Dirty Devil Basin is above average at 114% of normal, compared to 97% last year. Precipitation in February was much below average at 39%, which brings the seasonal accumulation (Oct-Feb) to 87% of average. Soil moisture is at 30% compared to 29% last year. Forecast streamflow volumes range from 75% to 96% of average.

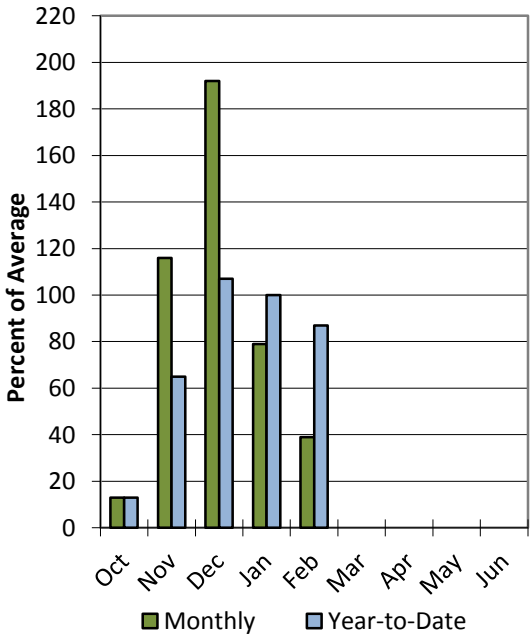
Snowpack



Soil Moisture



Precipitation



Data Current as of: 3/4/2015 11:00:28 AM

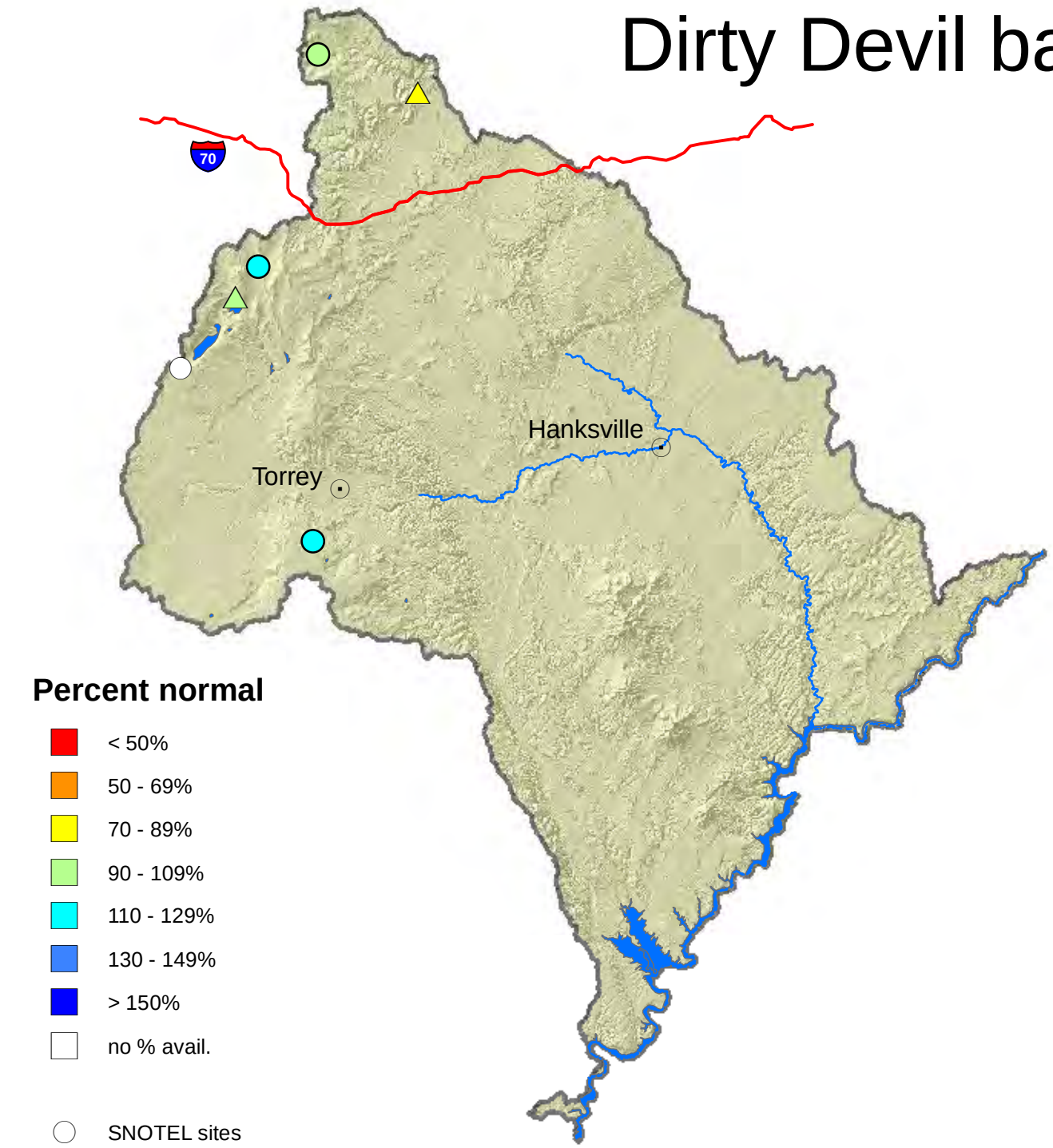
Dirty Devil
Streamflow Forecasts - March 1, 2015

Dirty Devil	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Muddy Ck nr Emery								
	APR-JUL	8.3	12.1	15	75%	18.3	24	19.9
Seven Mile Ck nr Fish Lake								
	APR-JUL	3.8	5.6	7	96%	8.6	11.2	7.3

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

Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Muddy	3	93%	89%
Fremont	4	104%	89%

Dirty Devil basin



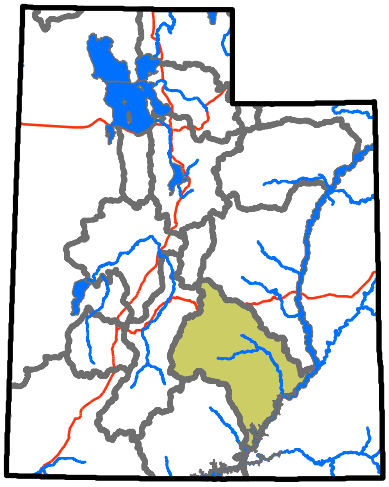
Percent normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
- Highways
- Cities

N

0 5 10 20 30 40 Miles



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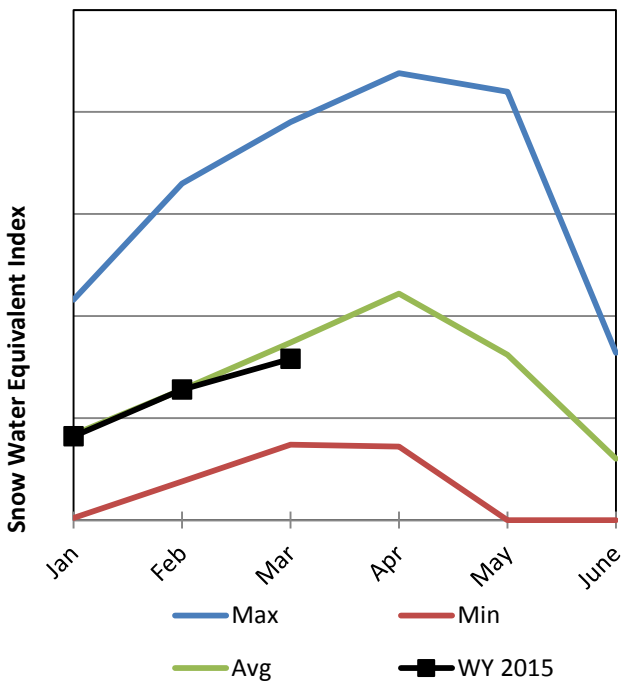
United States Department of Agriculture
Natural Resources Conservation Service

Escalante River Basin

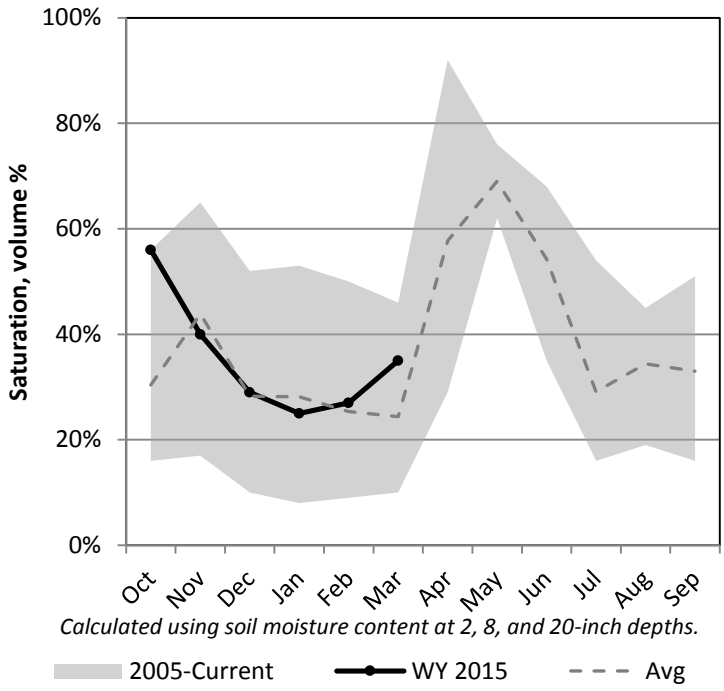
3/1/2015

Snowpack in the Escalante River Basin is near average at 93% of normal, compared to 89% last year. Precipitation in February was much below average at 59%, which brings the seasonal accumulation (Oct-Feb) to 77% of average. Soil moisture is at 35% compared to 37% last year. The forecast streamflow volume for Pine Creek is 83% of average.

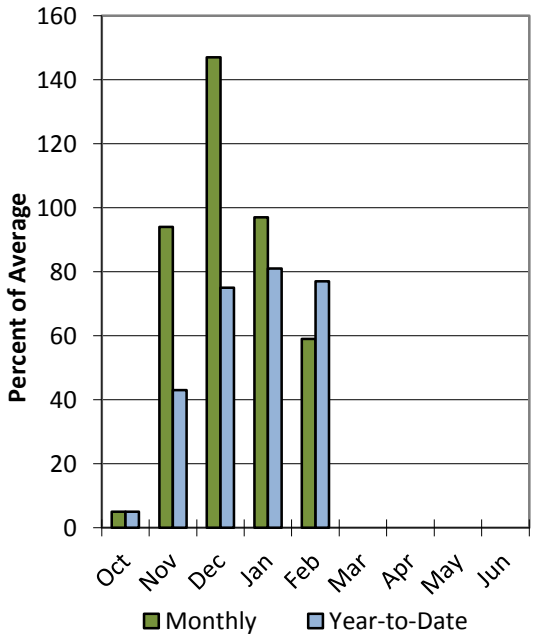
Snowpack



Soil Moisture



Precipitation



Data Current as of: 3/4/2015 11:00:42 AM

Escalante River
Streamflow Forecasts - March 1, 2015

Escalante River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Pine Ck nr Escalante								
	APR-JUL	0.69	1.39	2	83%	2.7	4	2.4

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

Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Escalante	3	93%	89%
Paria	3	82%	68%

Escalante basin

Percent normal

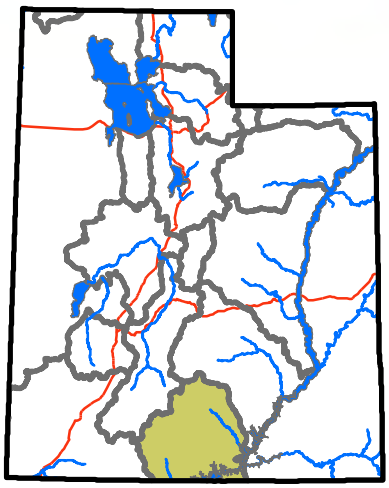
- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
- Highways
- Cities

N

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

0 2.5 5 10 15 20 Miles

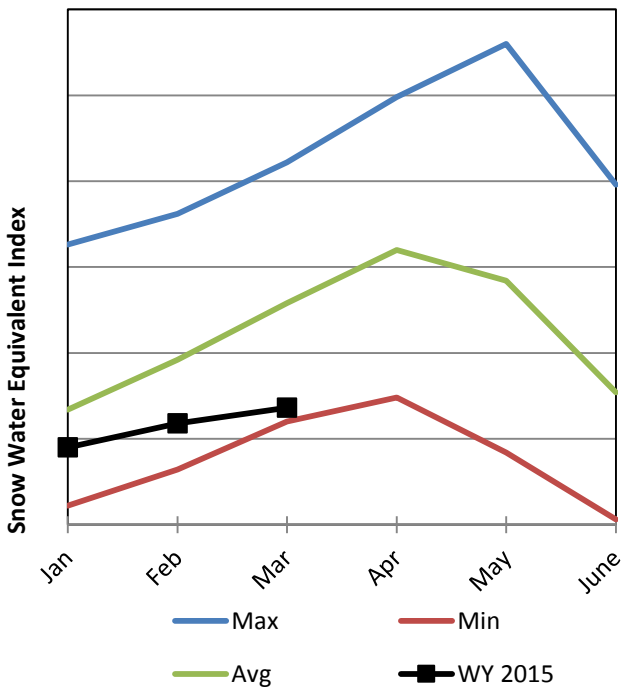


Beaver River Basin

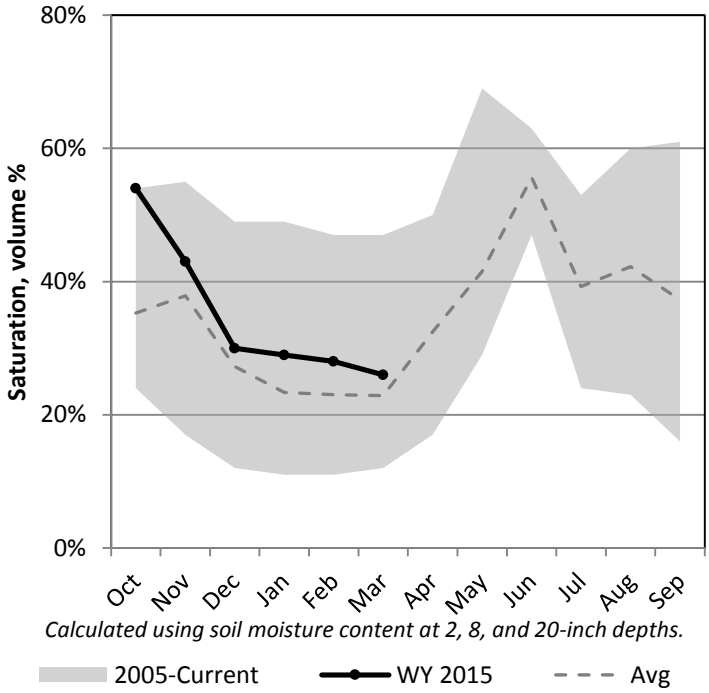
3/1/2015

Snowpack in the Beaver River Basin is much below average at 55% of normal, compared to 84% last year. Precipitation in February was much below average at 34%, which brings the seasonal accumulation (Oct-Feb) to 54% of average. Soil moisture is at 26% compared to 39% last year. Reservoir storage is at 45% of capacity, compared to 51% last year. The forecast streamflow volume for the Beaver River is 42% of average. The surface water supply index is 11% for the Beaver River.

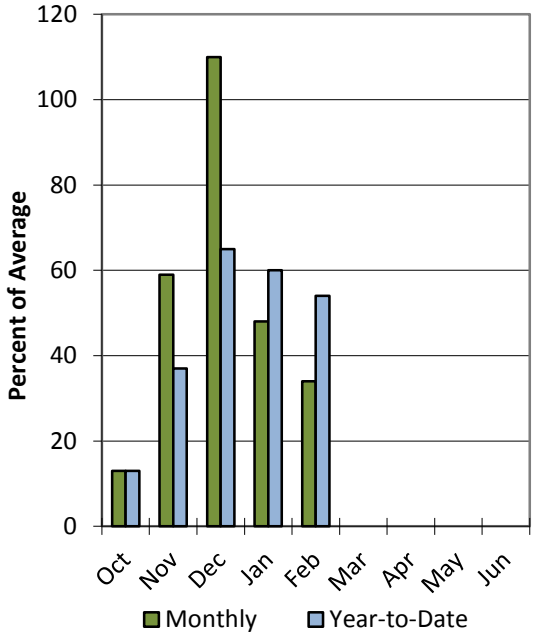
Snowpack



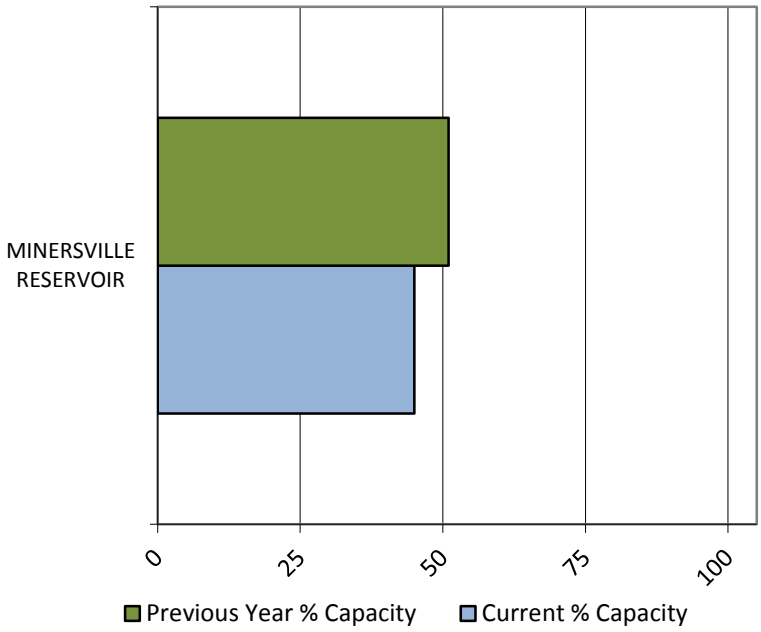
Soil Moisture



Precipitation



Reservoir Storage



Data Current as of: 3/4/2015 11:00:40 AM

Beaver River
Streamflow Forecasts - March 1, 2015

Beaver River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Beaver R nr Beaver								
	APR-JUL	0.52	5.1	11	42%	16.9	25	26

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 February, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Minersville Reservoir	10.6	11.8	15.1	23.3
Basin-wide Total	10.6	11.8	15.1	23.3
# of reservoirs	1	1	1	1

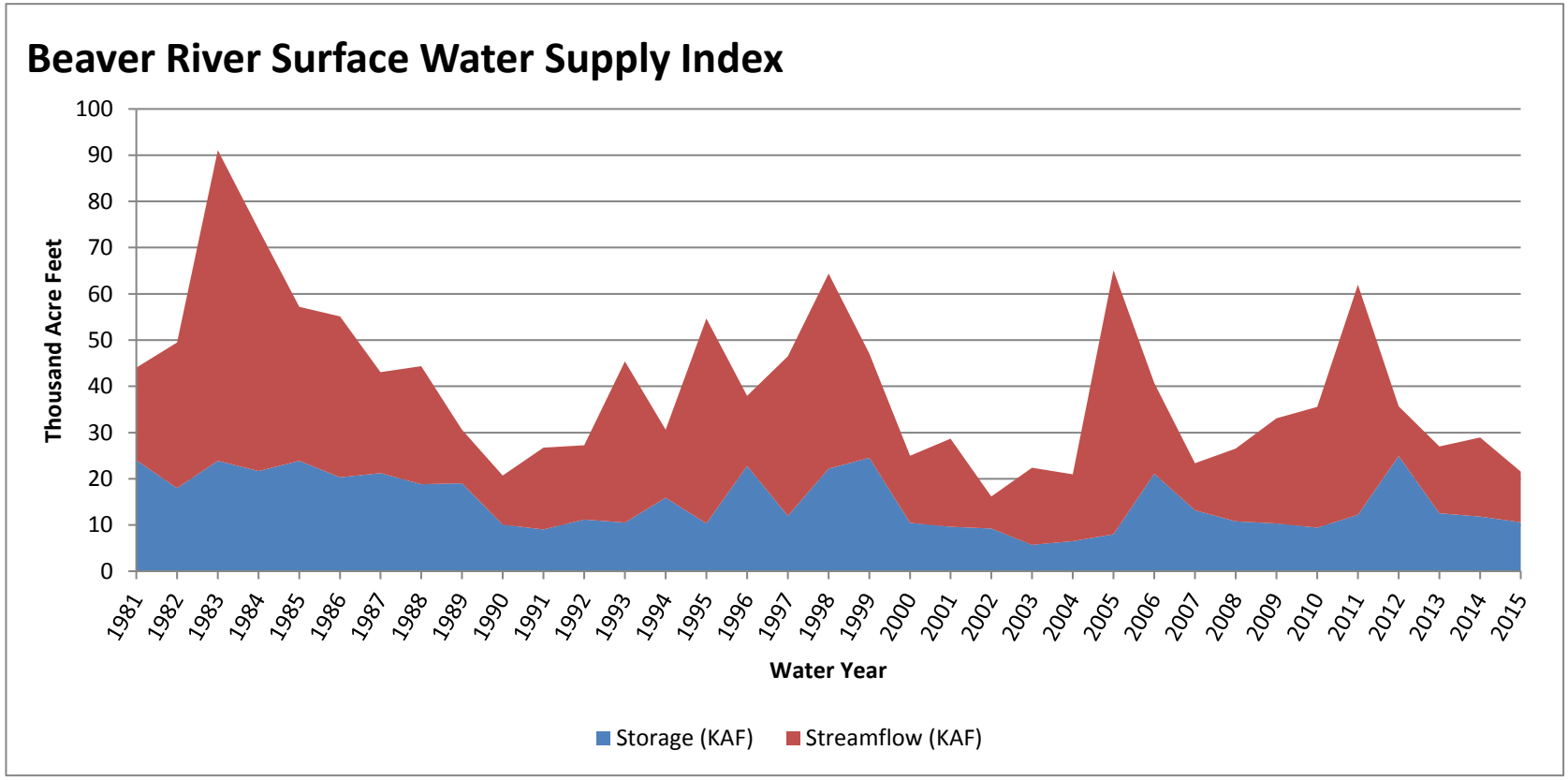
Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Beaver	3	58%	83%

March 1, 2015

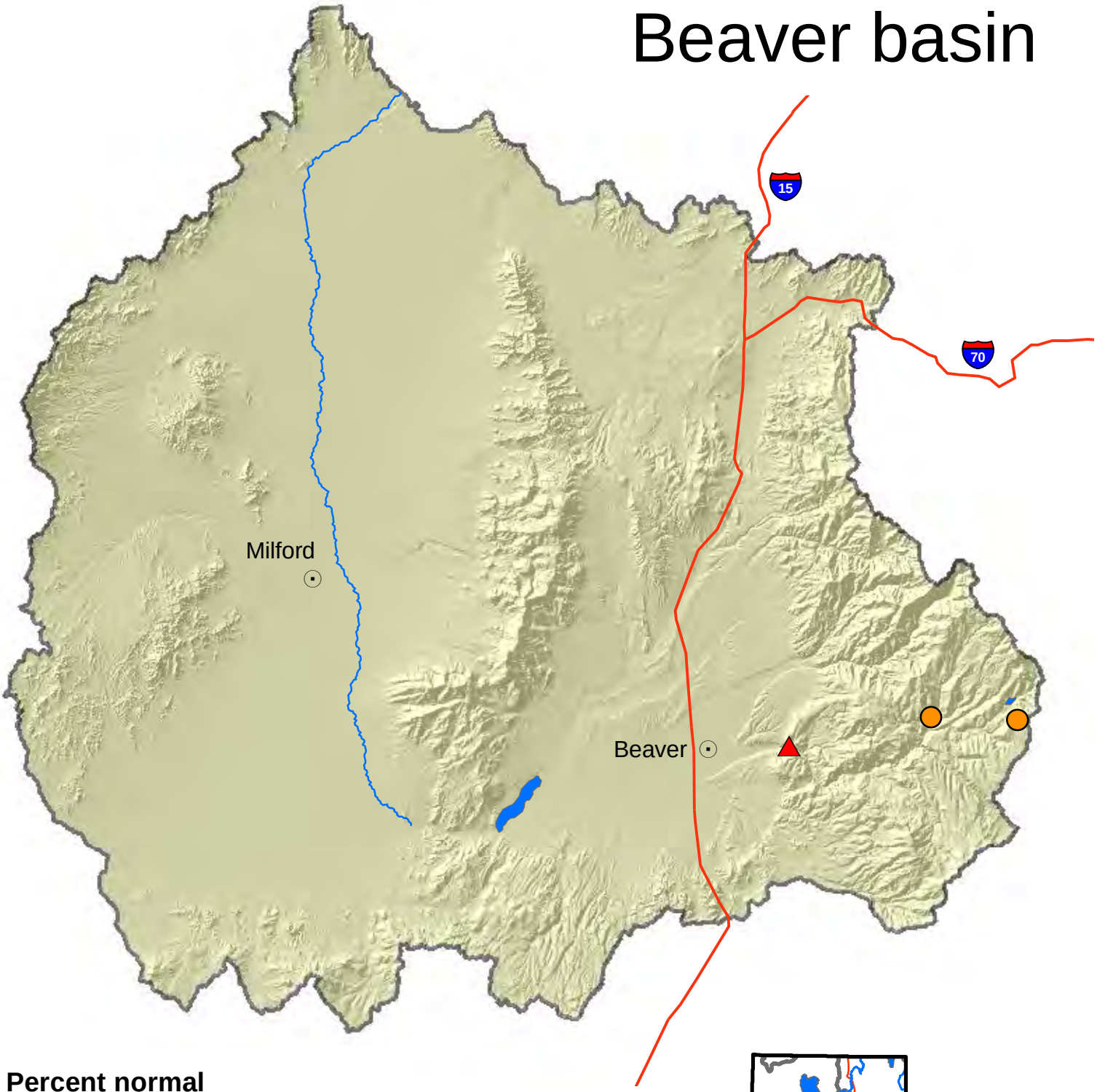
Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Beaver River	**10.57**	**11.00**	**21.57**	**11**	**-3.24**	**90, 04, 03, 07**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.



Beaver basin



Percent normal

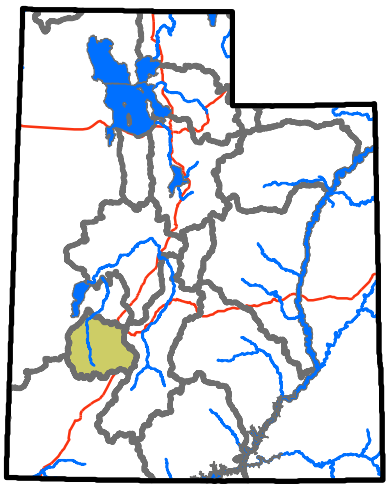
- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
- Highways
- Cities

0 1.5 3 6 9 12 Miles

N

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

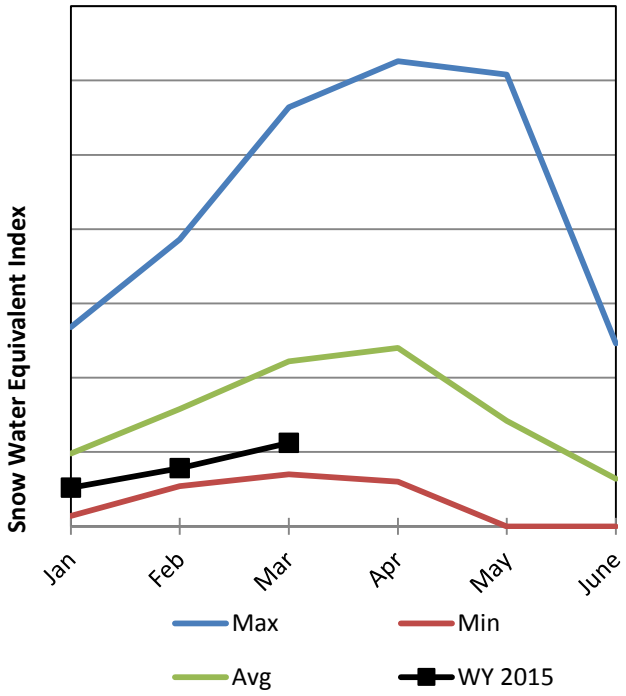


Southwestern Utah Basin

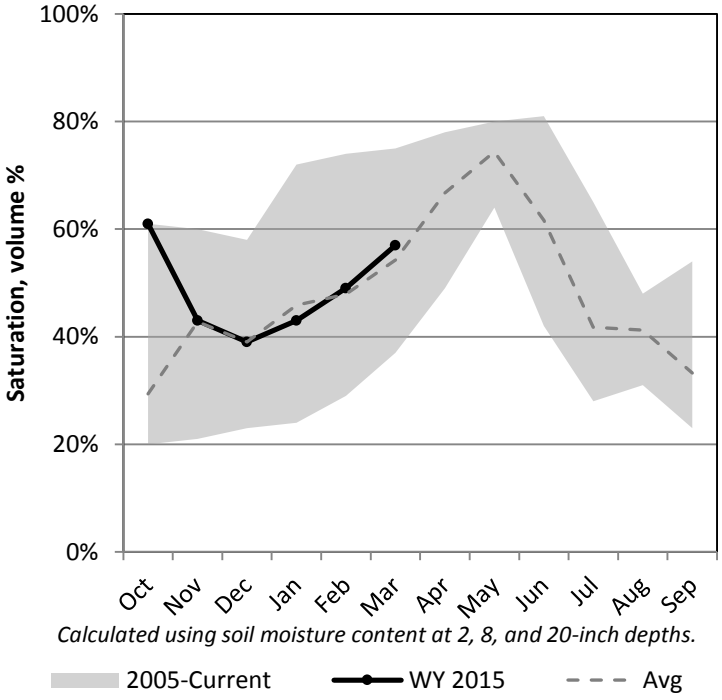
3/1/2015

Snowpack in the Southwestern Utah Basin is much below average at 60% of normal, compared to 46% last year. Precipitation in February was below average at 70%, which brings the seasonal accumulation (Oct-Feb) to 56% of average. Soil moisture is at 57% compared to 61% last year. Reservoir storage is at 45% of capacity, compared to 40% last year. Forecast streamflow volumes range from 35% to 48% of average. The surface water supply index is 35% for the Virgin River.

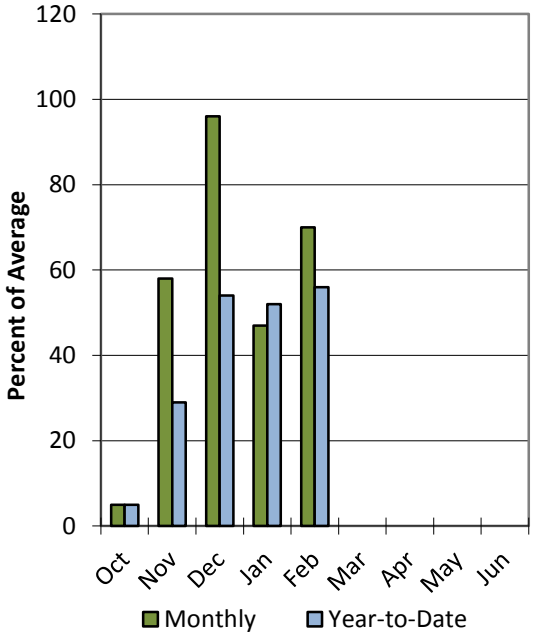
Snowpack



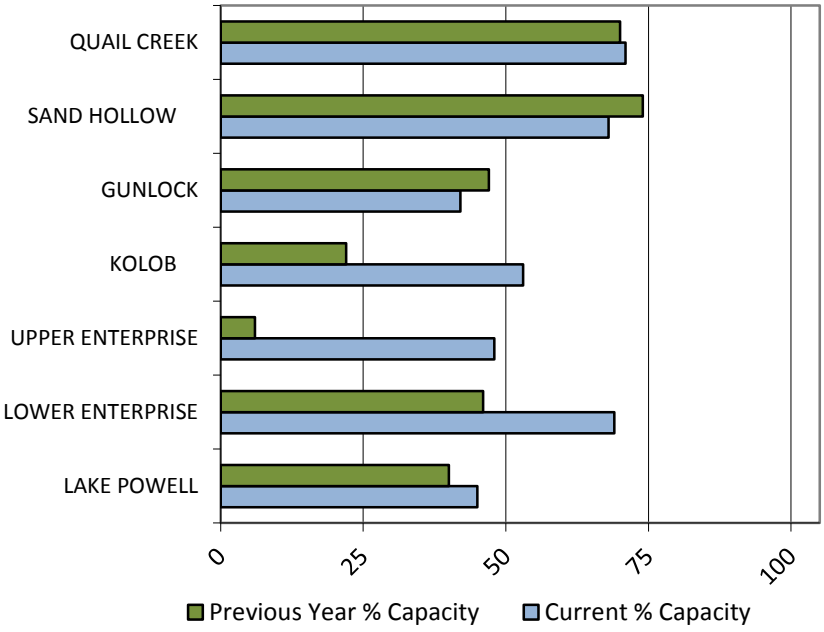
Soil Moisture



Precipitation



Reservoir Storage



Data Current as of: 3/4/2015 11:00:44 AM

Southwestern Utah
Streamflow Forecasts - March 1, 2015

Southwestern Utah	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Lake Powell Inflow [2]								
	APR-JUL	2750	3960	4900	68%	5940	7660	7160
Virgin R nr Hurricane								
	APR-JUL	3.5	12.6	22	35%	34	57	63
Virgin R at Virgin								
	APR-JUL	10.2	19.7	28	48%	38	55	58
Santa Clara R nr Pine Valley								
	APR-JUL	0.59	1.52	2.4	48%	3.5	5.4	5
Coal Ck nr Cedar City								
	APR-JUL	0.19	5.4	9	48%	12.6	17.8	18.6

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 February, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lake Powell	11036.4	9675.0	17055.0	24322.0
Lower Enterprise	1.8	1.2	1.0	2.6
Upper Enterprise	4.8	0.6	3.9	10.0
Kolob Reservoir	3.0	1.2		5.6
Gunlock	4.4	4.9	6.7	10.4
Sand Hollow Reservoir	33.8	37.0		50.0
Quail Creek	28.4	28.1	30.0	40.0
Basin-wide Total	11075.8	9709.8	17096.6	24385.0
# of reservoirs	5	5	5	5

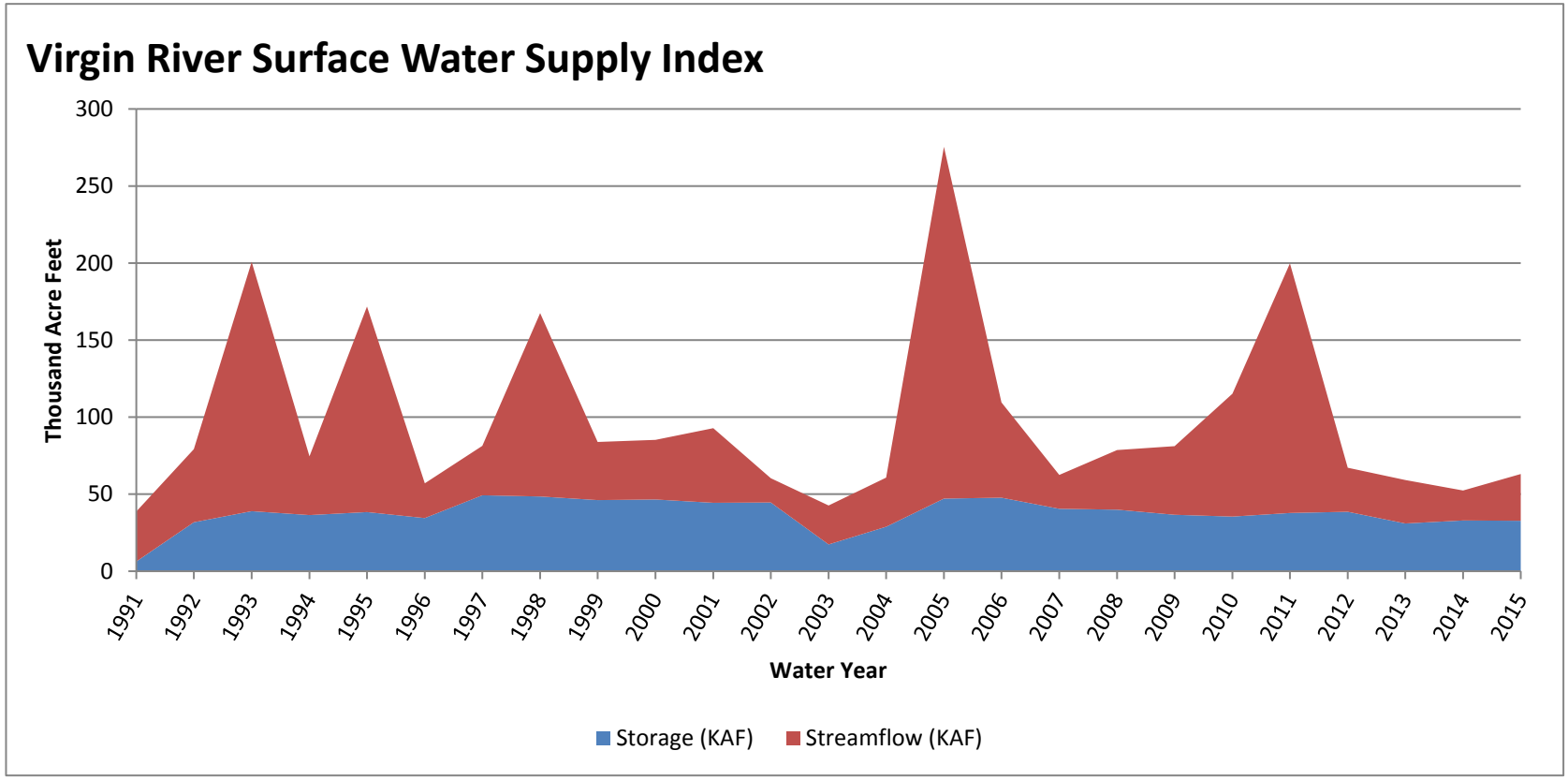
Watershed Snowpack Analysis March 1, 2015	# of Sites	% Median	Last Year % Median
Upper Virgin	8	57%	43%
Lower Virgin	2	37%	1%
Cedar City Parowan	9	62%	61%

March 1, 2015

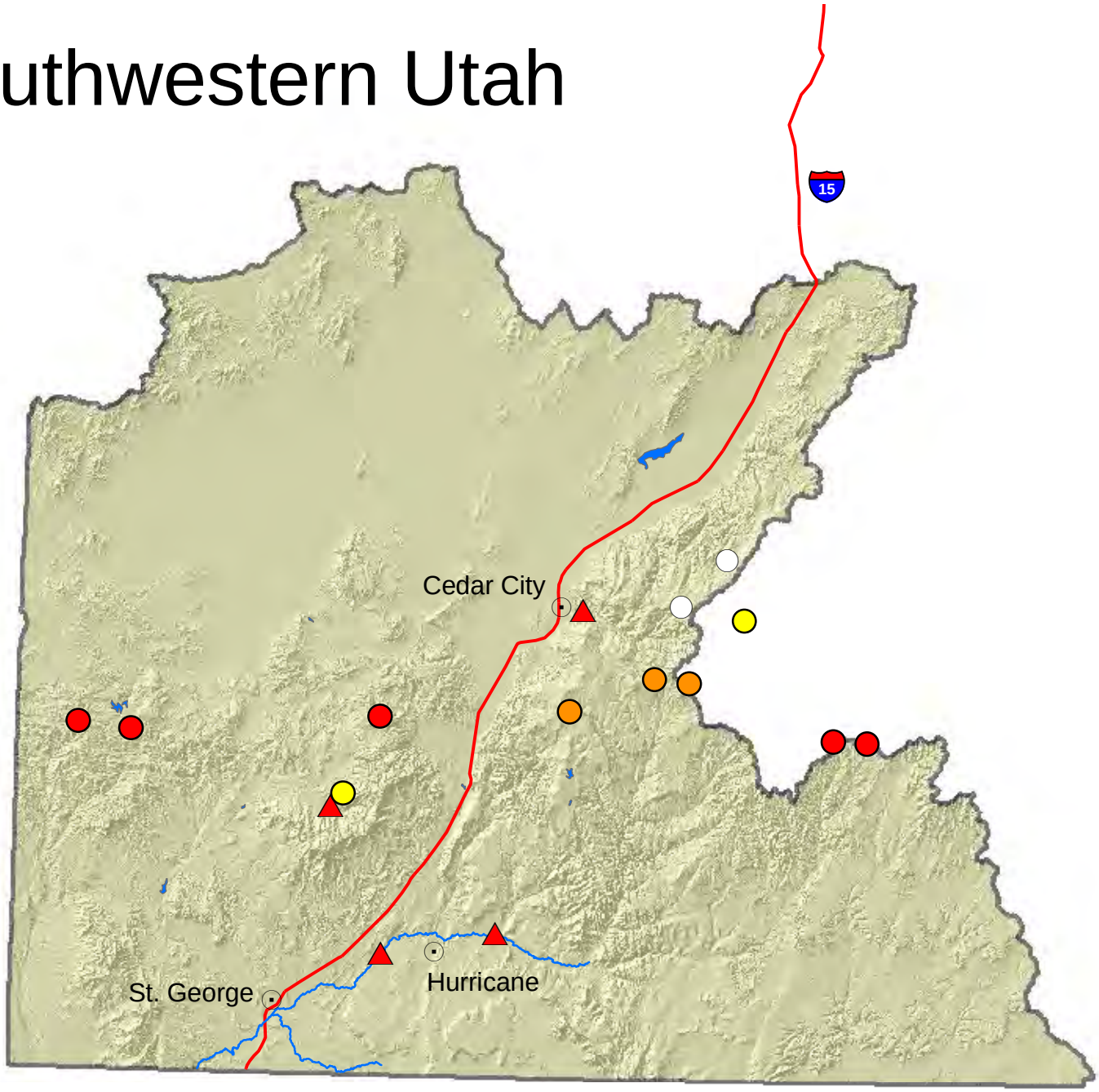
Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Virgin River	**32.74**	**30.40**	**63.14**	**35**	**-1.28**	**04, 07, 12, 94**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.



Southwestern Utah



Percent normal

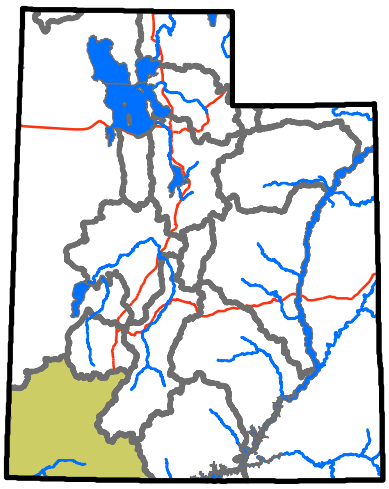
- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- SNOTEL sites
- Forecast points
- Rivers
- Highways
- Cities

N

0 2.5 5 10 15 20 Miles

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service



March 1, 2015

Surface Water Supply Index

Basin or Region	Feb EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF ^	*KAF ^*	*KAF ^*	*%*		
Bear River	**571.1**	**70.0**	**641.1**	**44**	**-0.46**	**10, 90, 14, 89**
Woodruff Narrows	**45.1**	**72.0**	**117.1**	**39**	**-0.93**	**91, 14, 81, 00**
Little Bear	**12.0**	**10.0**	**22.0**	**8**	**-3.47**	**04, 13, 01, 00**
Ogden River	**68.8**	**31.0**	**99.8**	**19**	**-2.55**	**01, 04, 07, 81**
Weber River	**218.7**	**140.0**	**358.7**	**19**	**-2.55**	**07, 02, 92, 88**
Provo River	**898.3**	**55.0**	**953.3**	**14**	**-3.03**	**04, 03, 14, 05**
Western Uintah	**184.3**	**72.0**	**256.3**	**53**	**0.23**	**14, 88, 09, 81**
Eastern Uintah	**29.6**	**38.0**	**67.6**	**11**	**-3.24**	**02, 13, 89, 90**
Blacks Fork	**23.7**	**64.0**	**87.7**	**45**	**-0.38**	**03, 91, 06, 87**
Smiths Fork	**8.6**	**20.0**	**28.6**	**47**	**-0.25**	**09, 85, 92, 13**
Price River	**12.2**	**16.0**	**28.2**	**6**	**-3.7**	**92, 04, 94, 02**
Joe's Valley	**41.1**	**38.0**	**79.1**	**39**	**-0.93**	**04, 14, 01, 87**
Ferron Creek	**12.4**	**28.0**	**40.4**	**47**	**-0.23**	**87, 91, 01, 08**
Moab	**1.4**	**3.0**	**4.4**	**45**	**-0.43**	**01, 00, 06, 08**
Upper Sevier	**73.4**	**34.0**	**107.4**	**17**	**-2.78**	**03, 90, 09, 08**
San Pitch	**1.3**	**11.0**	**12.3**	**6**	**-3.7**	**02, 13, 14, 90**
Lower Sevier	**105.8**	**54.0**	**159.8**	**31**	**-1.62**	**09, 14, 89, 08**
Beaver River	**10.6**	**11.0**	**21.6**	**11**	**-3.24**	**90, 04, 03, 07**
Virgin River	**32.7**	**30.4**	**63.1**	**35**	**-1.28**	**04, 07, 12, 94**

**EOM, end of month; # SWSI, surface water supply index; ^KAF, thousand acre-feet.*

What is a Surface Water Supply Index?

The Surface Water Supply Index (SWSI) is a predictive indicator of total surface water availability within a watershed for the spring and summer water use seasons. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow which are based on current snowpack and other hydrologic variables. SWSI values are scaled from +4.1 (abundant supply) to -4.1 (extremely dry) with a value of zero (0) indicating median water supply as compared to historical analysis. SWSI's are calculated in this fashion to be consistent with other hydroclimatic indicators such as the Palmer Drought Index and the Precipitation index.

Utah Snow Surveys has also chosen to display the SWSI value as well as a PERCENT CHANCE OF NON-EXCEEDANCE. While this is a cumbersome name, it has the simplest application. It can be best thought of as a scale of 1 to 99 with 1 being the drought of record (driest possible conditions) and 99 being the flood of record (wettest possible conditions) and a value of 50 representing average conditions. This rating scale is a percentile rating as well, for example a SWSI of 75% means that this years water supply is greater than 75% of all historical events and that only 25% of the time has it been exceeded. Conversely a SWSI of 10% means that 90% of historical events have been greater than this one and that only 10% have had less total water supply. This scale is comparable between basins: a SWSI of 50% means the same relative ranking on watershed A as it does on watershed B, which may not be strictly true of the +4 to -4 scale.

For more information on the SWSI go to: www.ut.nrcs.usda.gov/snow/ on the water supply page. The entire period of historical record for reservoir storage and streamflow is available.

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YOU MAY OBTAIN THIS PRODUCT AS WELL AS CURENT SNOW, PRECIPITATION, TEMPERATURE AND SOIL MOISTURE, RESERVOIR, SURFACE WATER SUPPLY INDEX, AND OTHER DATA BY VISITING OUR WEB SITE @: **http://www.ut.nrcs.usda.gov/snow/**

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Utah Climate and Water Report

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