Utah Water Supply Outlook Report

January, 2015

Photo by Troy Brosten, NRCS – Franklin Basin, Dec 2014

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
January 1, 2015

SUMMARY
A short re-cap of the past few months – June was dry, July, August and September were very wet with precipitation in the 150% to 250% of average range which brought soil moisture way up and decreased irrigation demand. October was dry, November was OK and December was exceptionally warm but had a couple of decent storms at the end of the month– which brings us to water supply and current conditions. Due primarily to those few late December storms - snowpacks in the north range from 80% on the north slope of the Uintahs to 120% of median on the Bear. Central Utah snowpacks range between 100% and 170% of median and in southern Utah snowpacks are between 70% and 90% of median. Snowpacks across most of the state are in good shape – average or above and most of this snow came in the last week or so of December with a couple of good storms. Soil moisture is a bright spot in hydrologic conditions and is at or above normal for all areas across the state due mostly to late summer precipitation. December precipitation was average or above across the entire state with central Utah a big winner receiving amounts ranging from 140% to 190% of average. This brings seasonal precipitation (Oct-Dec) to 80% of average. Reservoir storage is a little more than last year (2%) at 60% of capacity. Reservoir levels would have been much lower if not for the above average summer/fall precipitation which decreased irrigation demand and somewhat increased river inflows. Overall, water supply conditions are near normal with the exception of southern Utah where they are below normal.

SNOWPACK
January first snowpacks as measured by the NRCS SNOTEL system range from near median across northern Utah to well above median in central Utah and then decline rapidly to below median in southern Utah.

PRECIPITATION
Mountain precipitation during December was above average across the entire state with central Utah receiving the most (140%-190%) which brings the seasonal accumulation (Oct-Dec) to about 80% of normal.

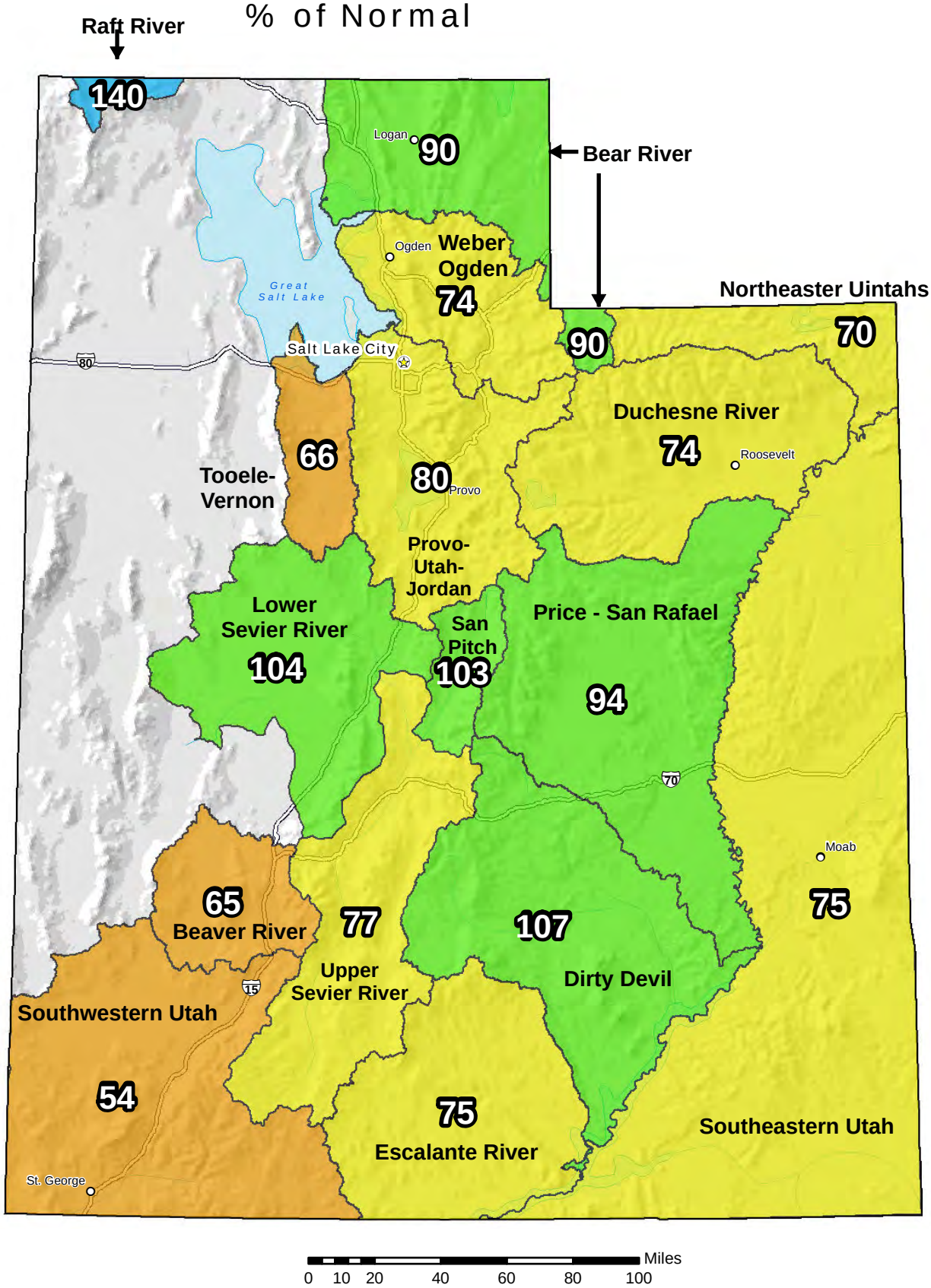
SOIL MOISTURE
Soil Moisture has improved substantially from summer lows and is much above normal in northern Utah and near to above normal in the south.

RESERVOIRS
Storage in 46 of Utah's key irrigation reservoirs is at 60% of capacity compared to 58% last year.

STREAMFLOW
Snowmelt stream flows are forecast to be below to near normal in northern Utah and below to near normal in southern Utah.

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

Jan 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*

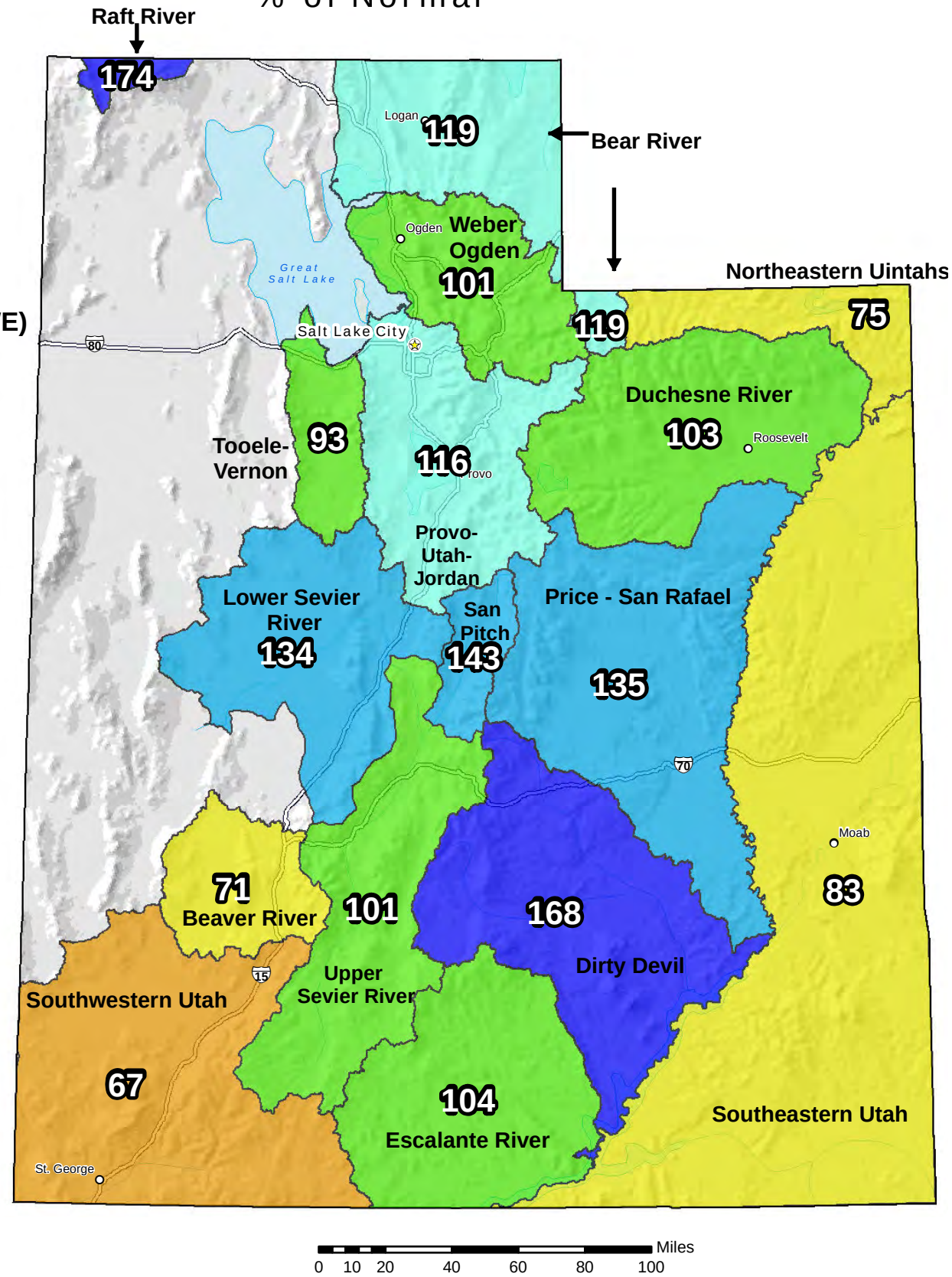
Provisional Data Subject to Revision

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

Jan 01, 2015



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

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- 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).

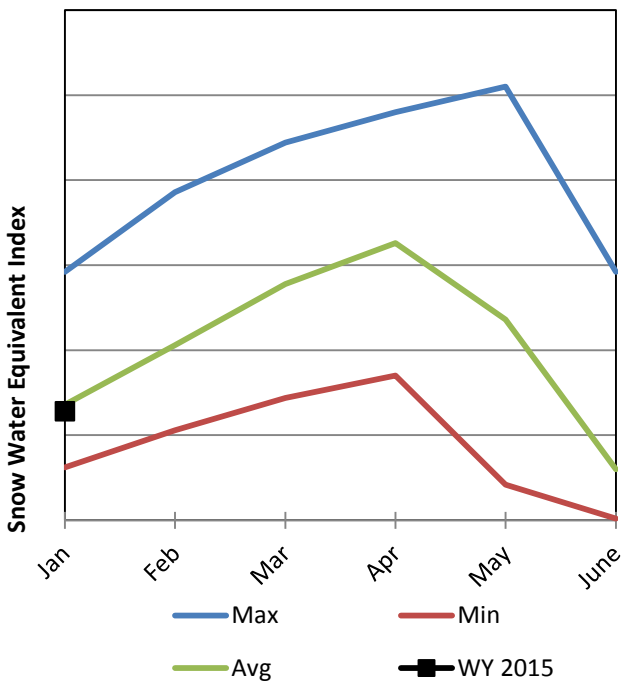
Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
http://www.wcc.nrcs.usda.gov

Statewide Utah

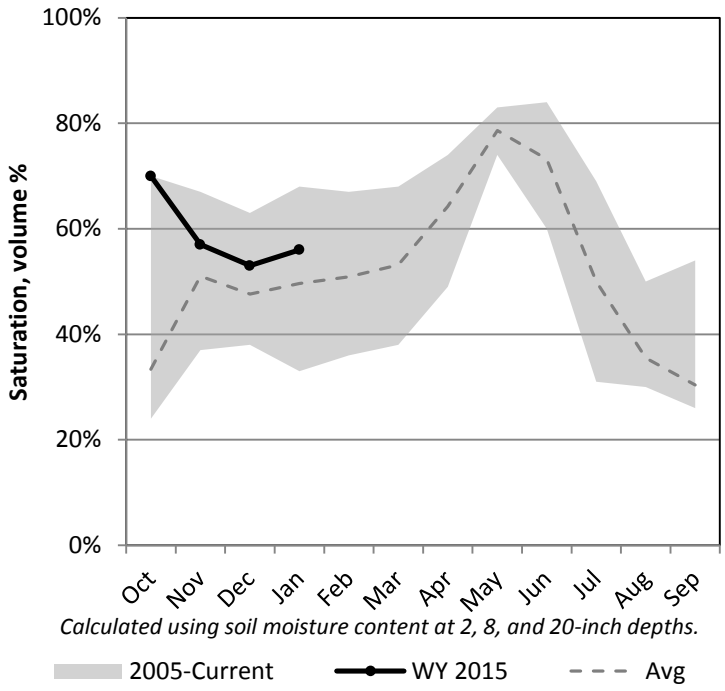
1/1/2015

Snowpack in Utah is near average at 109% of normal, compared to 84% last year. Precipitation in December was above average at 115%, which brings the seasonal accumulation (Oct-Dec) to 80% of average. Soil moisture is at 56% compared to 54% last year. Reservoir storage is at 60% of capacity, compared to 58% last year. Forecast streamflow volumes range from 28% to 116% of average.

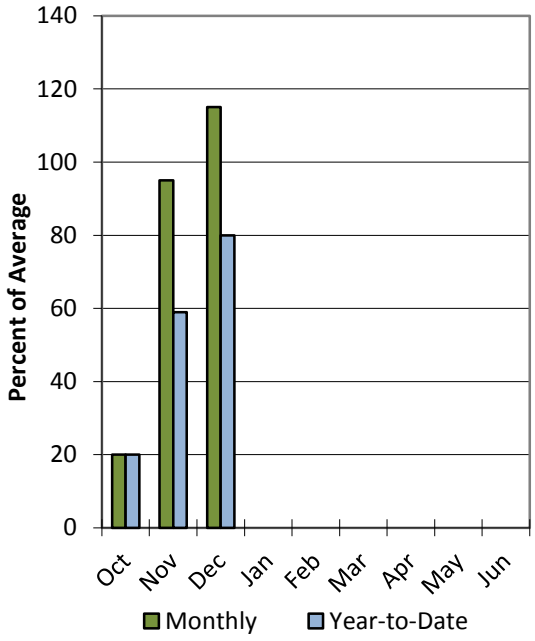
Snowpack



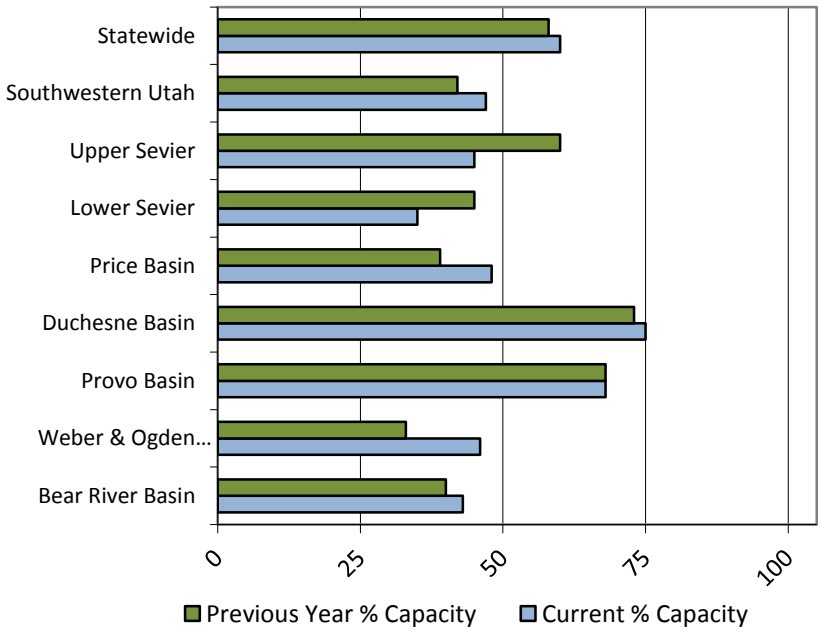
Soil Moisture



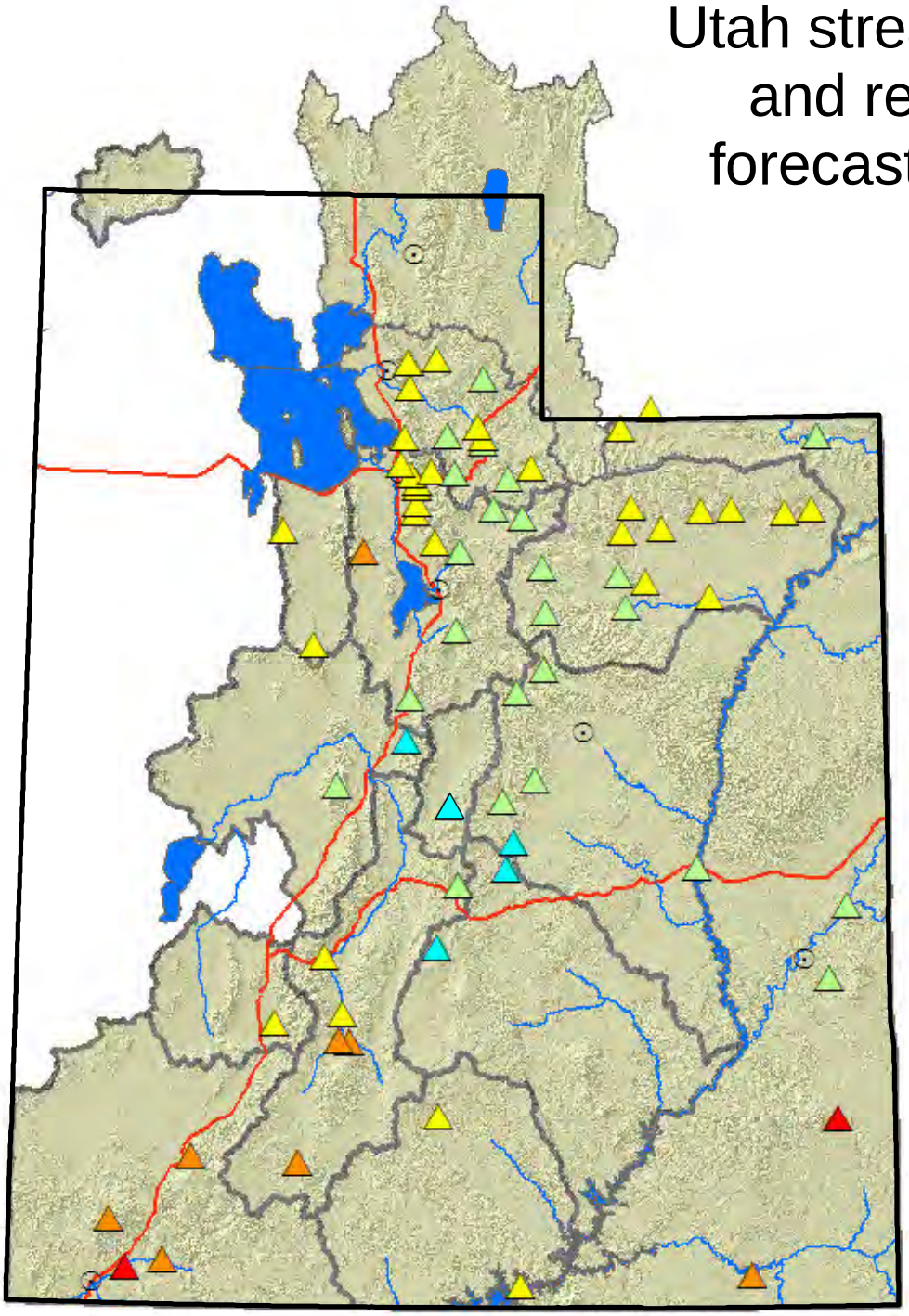
Precipitation



Reservoir Storage



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
Natural Resources Conservation Service

N

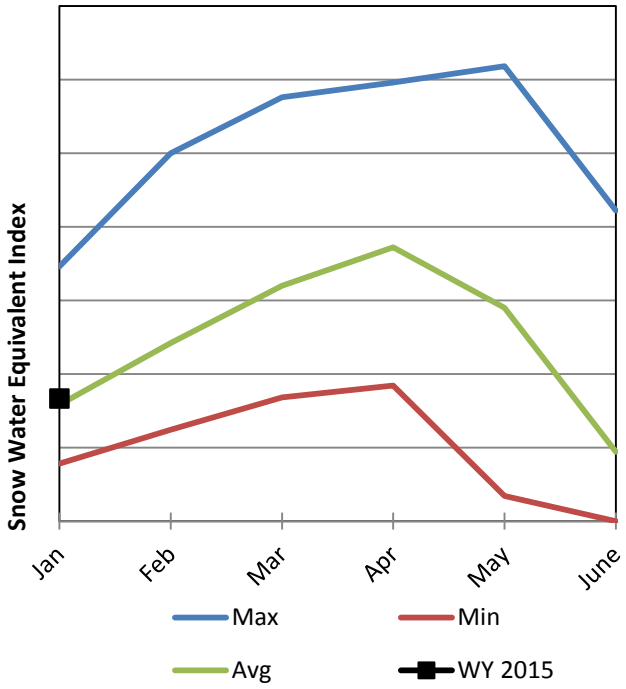
0 15 30 60 90 120
Miles

Bear River Basin

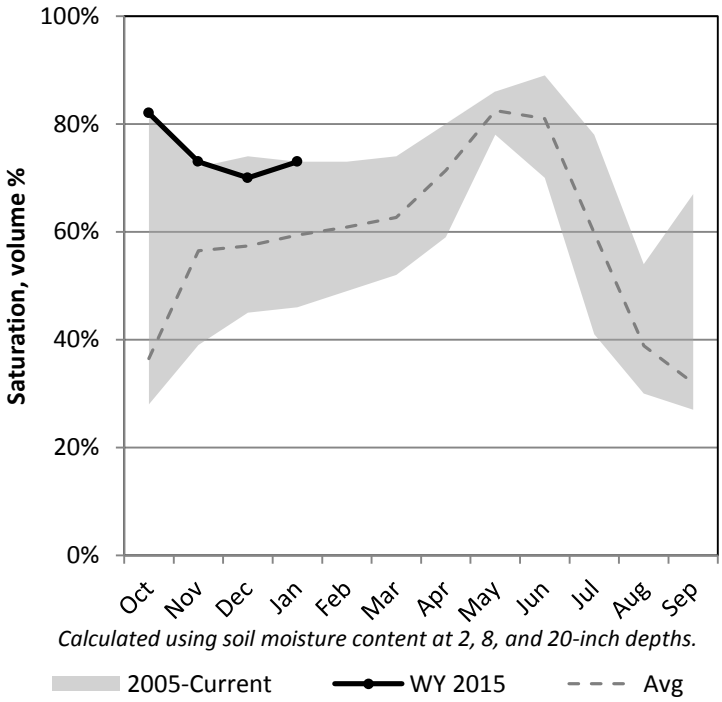
1/1/2015

Snowpack in the Bear River Basin is above average at 120% of normal, compared to 78% last year. Precipitation in December was near average at 97%, which brings the seasonal accumulation (Oct-Dec) to 89% of average. Soil moisture is at 73% compared to 57% last year. Reservoir storage is at 43% of capacity, compared to 40% last year. Forecast streamflow volumes range from 60% to 107% of average. The surface water supply index is 47% for the Bear River, 53% for the Woodruff Narrows, 50% for the Little Bear.

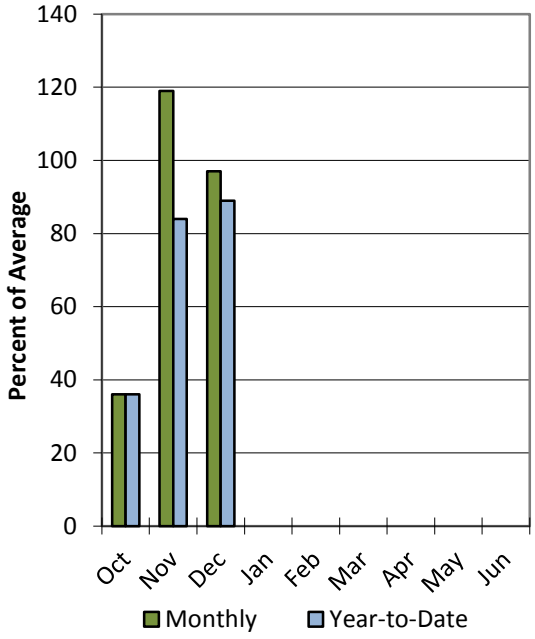
Snowpack



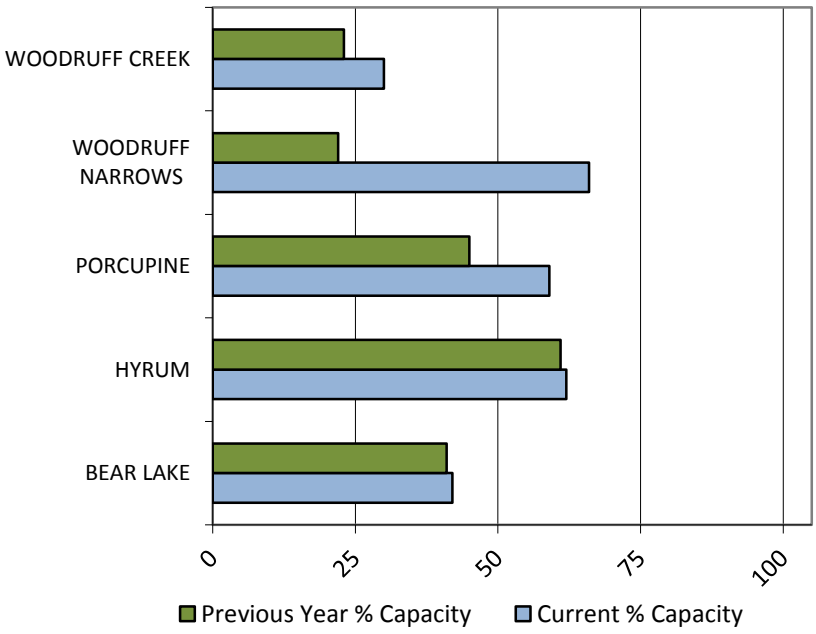
Soil Moisture



Precipitation



Reservoir Storage



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Bear River
Streamflow Forecasts - January 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	61	87	105	94%	123	149	112
	APR-SEP	67	95	115	93%	135	163	123
Bear R ab Resv nr Woodruff								
	APR-JUL	48	85	110	91%	135	172	121
	APR-SEP	52	90	115	90%	140	178	128
Big Ck nr Randolph								
	APR-JUL	0.86	2.4	3.5	92%	4.6	6.1	3.8
Smiths Fk nr Border								
	APR-JUL	58	80	95	107%	110	132	89
	APR-SEP	69	93	110	106%	127	151	104
Bear R bl Stewart Dam								
	APR-JUL	3.7	66	110	60%	194	287	183
	APR-SEP	6.2	48	120	59%	192	297	205
Little Bear at Paradise								
	APR-JUL	1.23	17.9	30	73%	42	60	41
Logan R nr Logan								
	APR-JUL	47	80	102	92%	124	157	111
Blacksmith Fk nr Hyrum								
	APR-JUL	13.9	29	40	93%	51	66	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 December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Bear Lake	542.1	531.6	580.6	1421.0
Hyrum Reservoir	9.5	9.3	10.1	15.3
Porcupine Reservoir	6.7	5.1	6.5	11.3
Woodruff Creek	1.2	0.9	2.1	4.0
Woodruff Narrows Reservoir	37.6	12.7	27.3	57.3
Basin-wide Total	597.0	559.6	626.6	1508.9
# of reservoirs	5	5	5	5

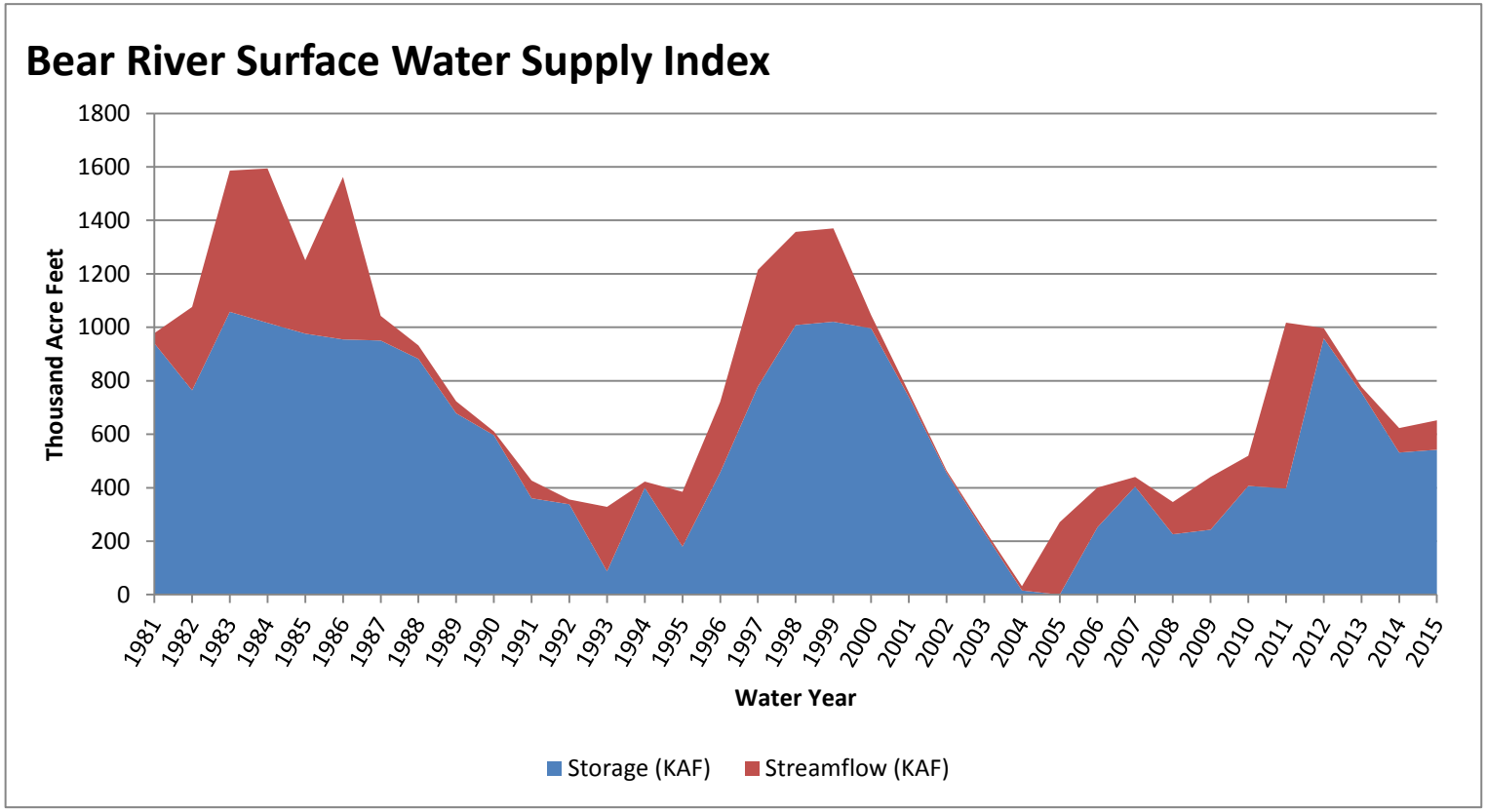
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Upper Bear	3	100%	85%
Middle Bear	7	129%	84%
Lower Bear	3	108%	58%
Logan	7	122%	76%

January, 1 2015

Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Bear River	**542.10**	**110.00**	**652.10**	**47**	**-0.23**	**90, 14, 96, 89**

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

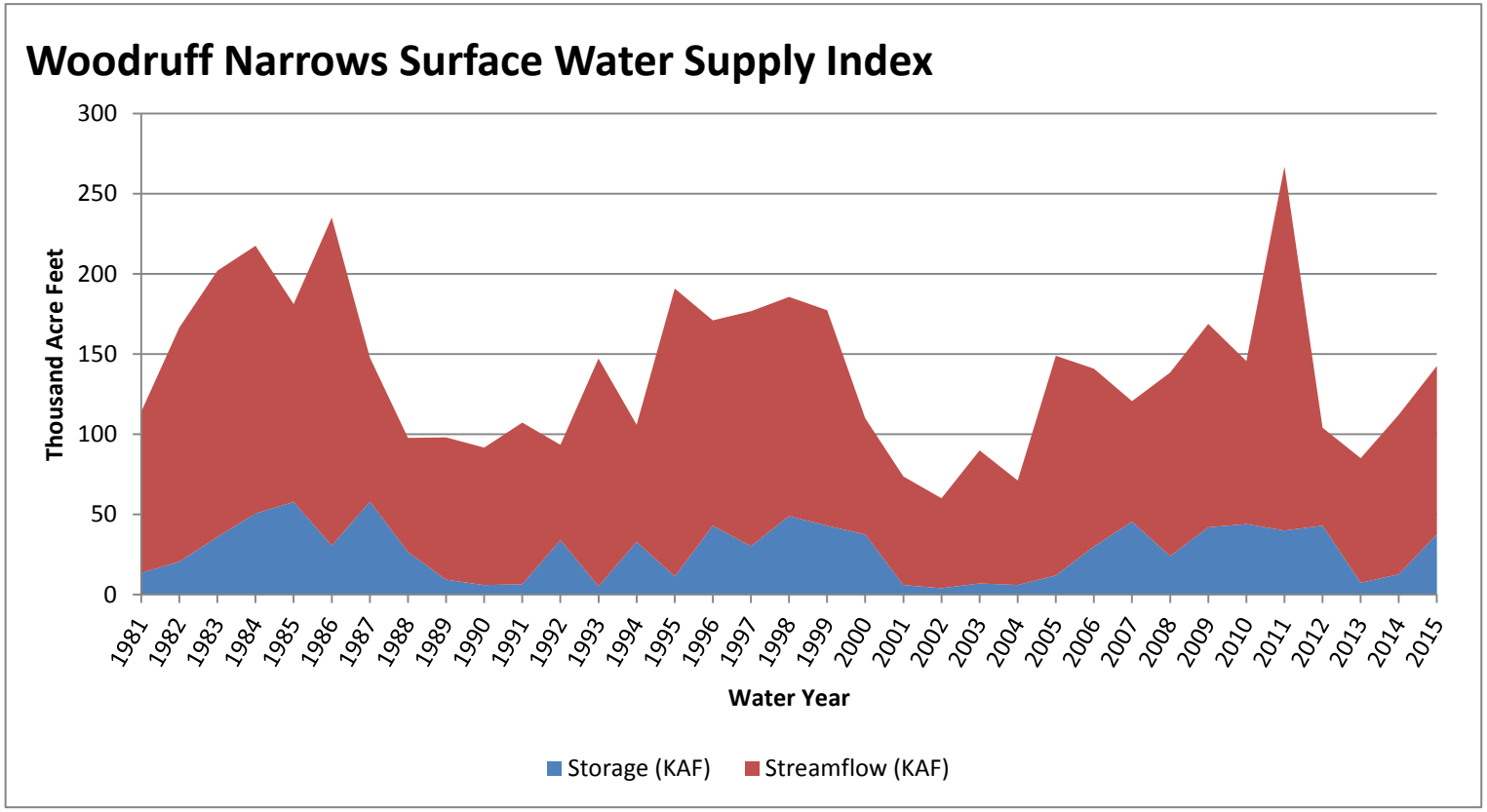


January, 1 2015

Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Woodruff Narrow	**37.57**	**105.00**	**142.57**	**53**	**0.23**	**08, 06, 10, 93**

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

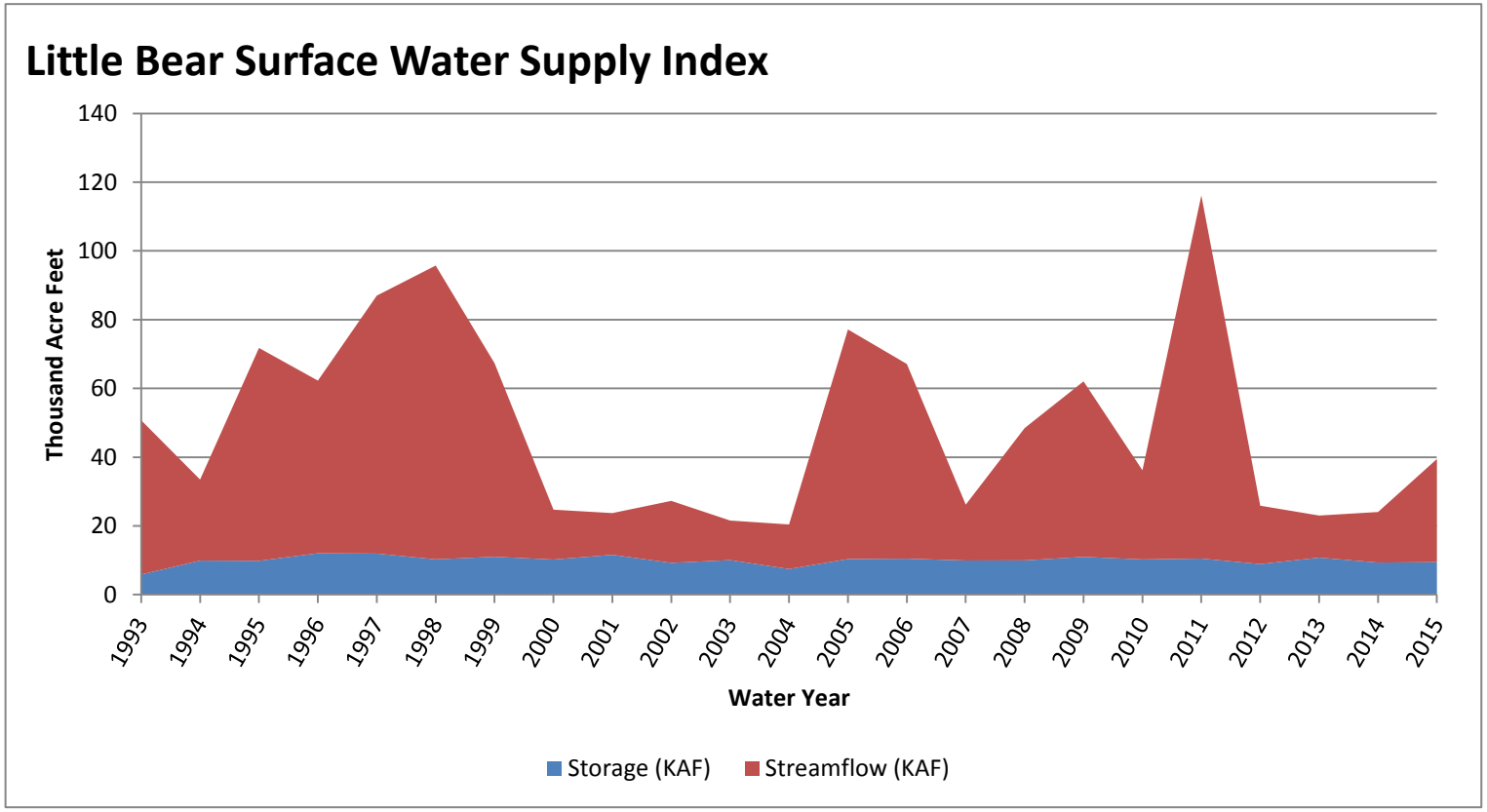


January, 1 2015

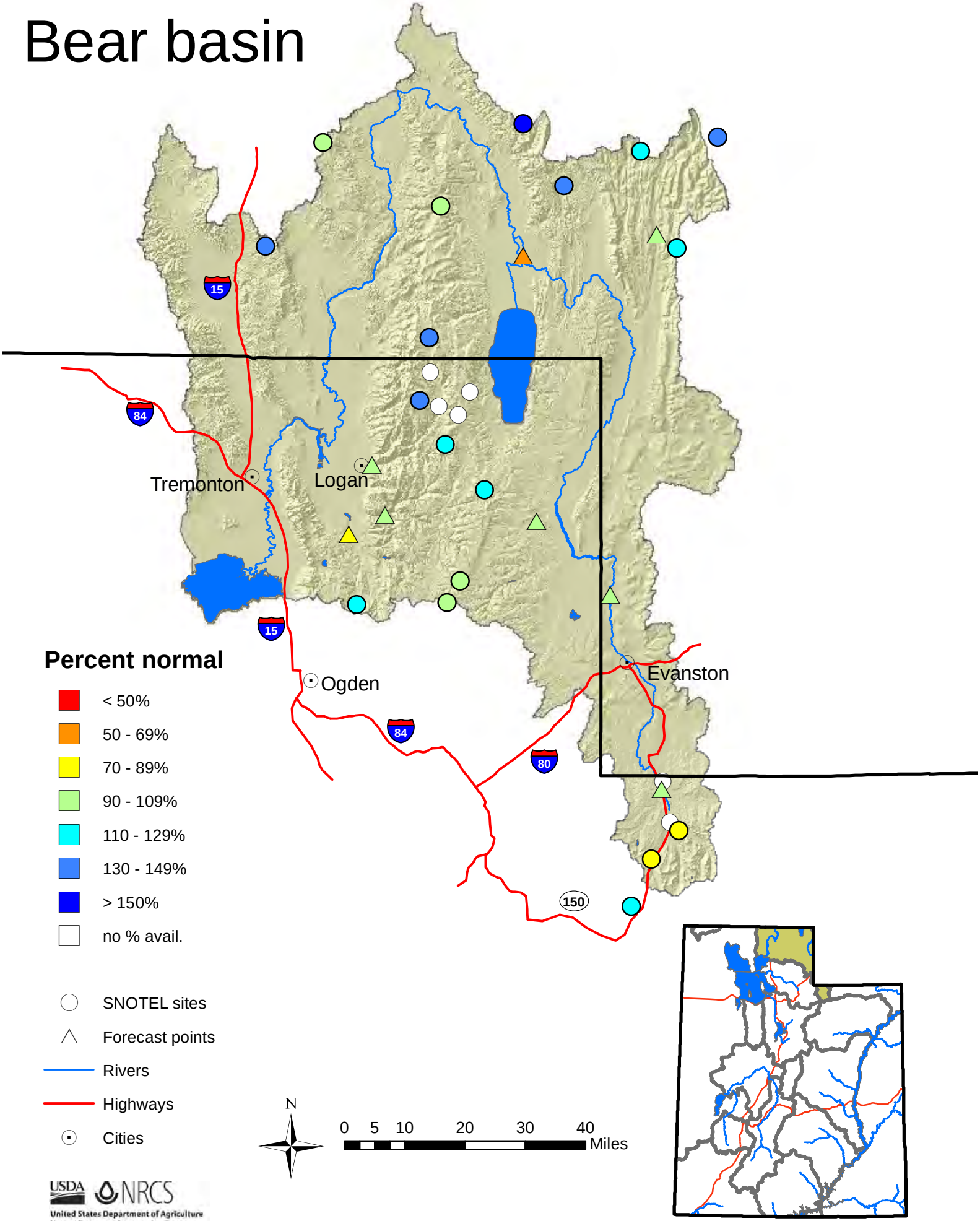
Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Little Bear	**9.46**	**30.00**	**39.46**	**50**	**0**	**94, 10, 08, 93**

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



Bear basin

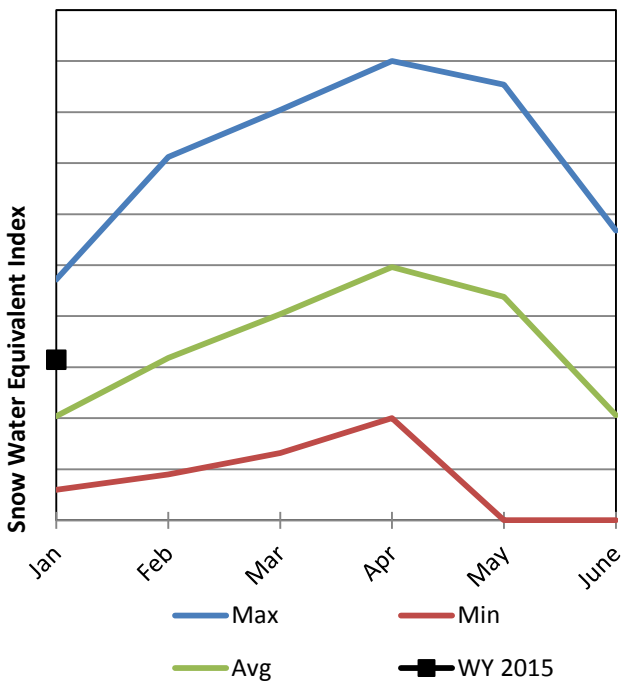

Tremonton
Logan
Ogden
Evanston
15
84
80
150
Percent normal
< 50%
50 - 69%
70 - 89%
90 - 109%
110 - 129%
130 - 149%
> 150%
no % avail.
SNOTEL sites
Forecast points
Rivers
Highways
Cities
N
0 5 10 20 30 40
Miles
USDA
NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Raft River Basin

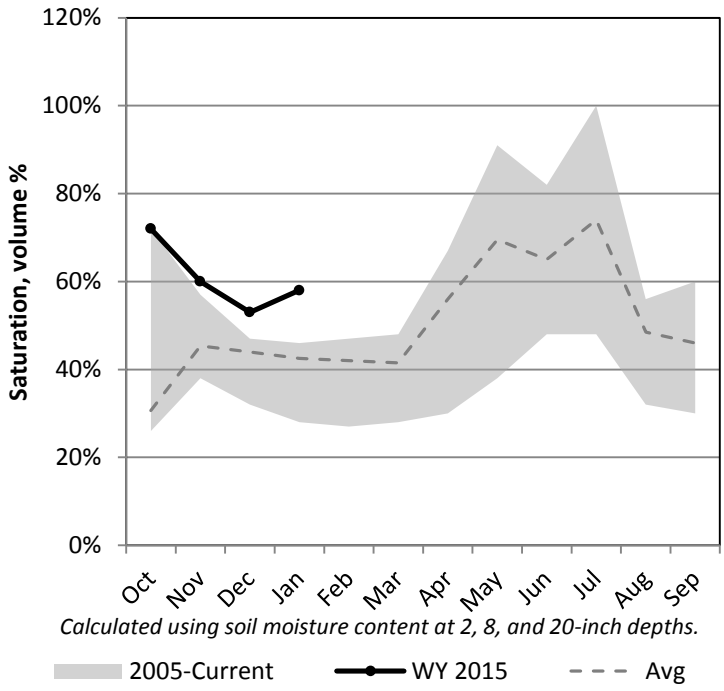
1/1/2015

Snowpack in the Raft River Basin is much above average at 174% of normal, compared to 51% last year. Precipitation in December was much above average at 152%, which brings the seasonal accumulation (Oct-Dec) to 140% of average. Soil moisture is at 58% compared to 28% last year. The forecast streamflow volume for Dunn Creek is 93% of average.

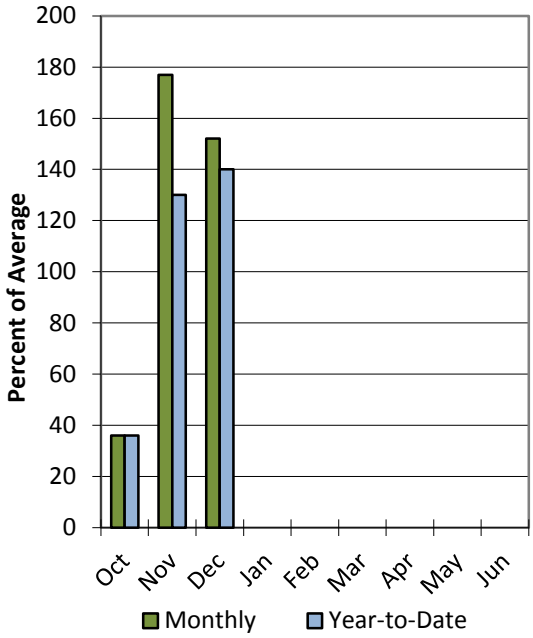
Snowpack



Soil Moisture



Precipitation



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Raft River

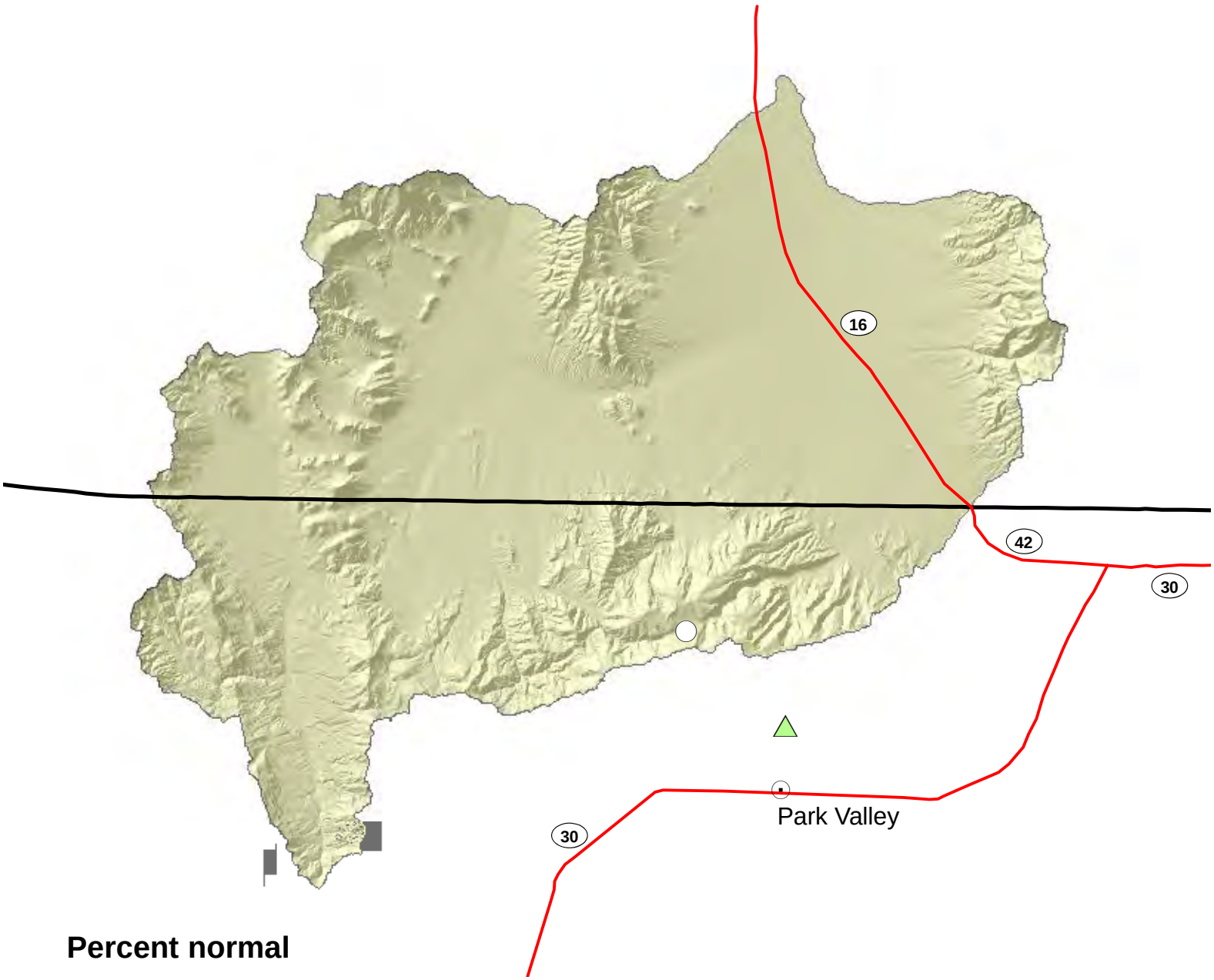
Streamflow Forecasts - January 1, 2015

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	0.6	1.9	2.7	93%	3.5	4.6	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 January 1, 2015	# of Sites	% Median	Last Year % Median
Raft	1	174%	51%

Raft basin



Percent normal

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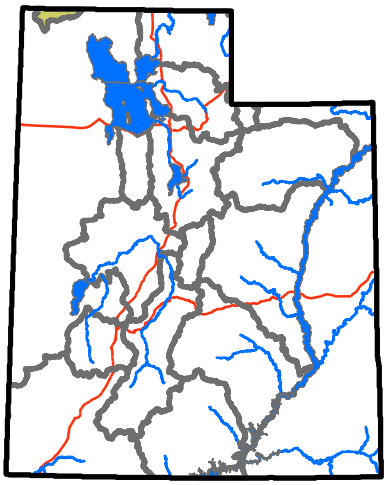
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

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



USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

N

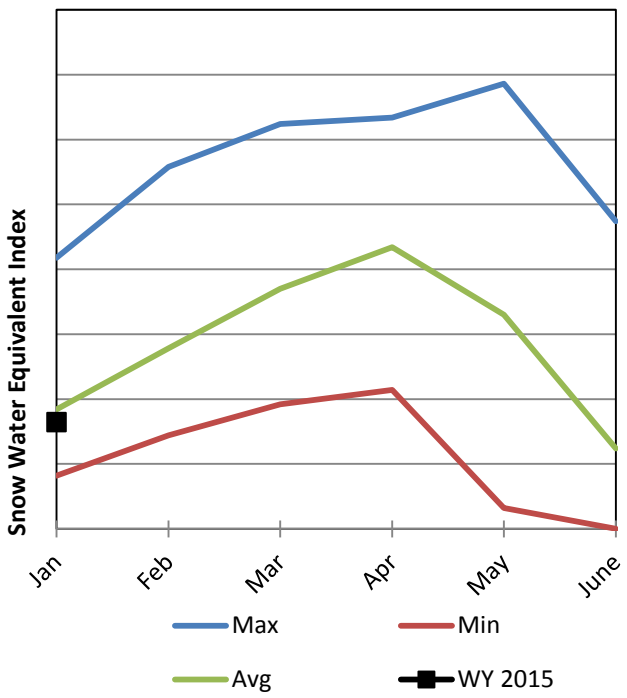
0 1.5 3 6 9 12 Miles

Weber & Ogden River Basins

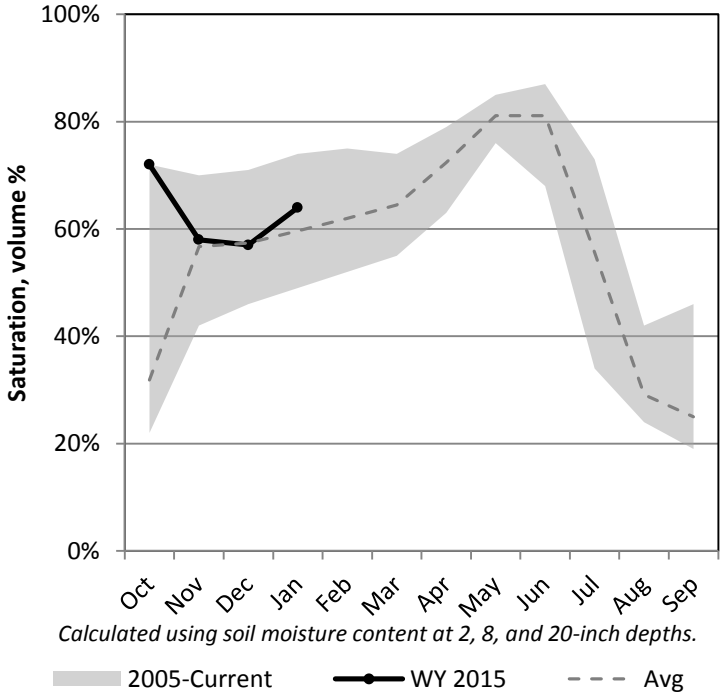
1/1/2015

Snowpack in the Weber & Ogden River Basins is near average at 105% of normal, compared to 80% last year. Precipitation in December was near average at 105%, which brings the seasonal accumulation (Oct-Dec) to 75% of average. Soil moisture is at 64% compared to 49% last year. Reservoir storage is at 46% of capacity, compared to 33% last year. Forecast streamflow volumes range from 74% to 96% of average. The surface water supply index is 47% for the Ogden River, 47% for the Weber River.

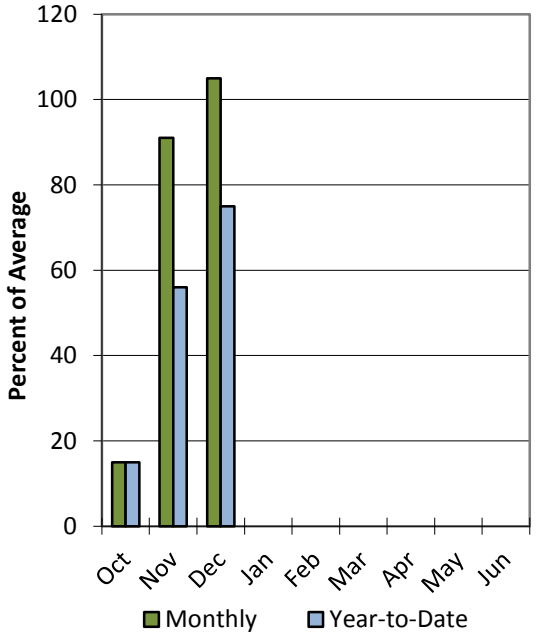
Snowpack



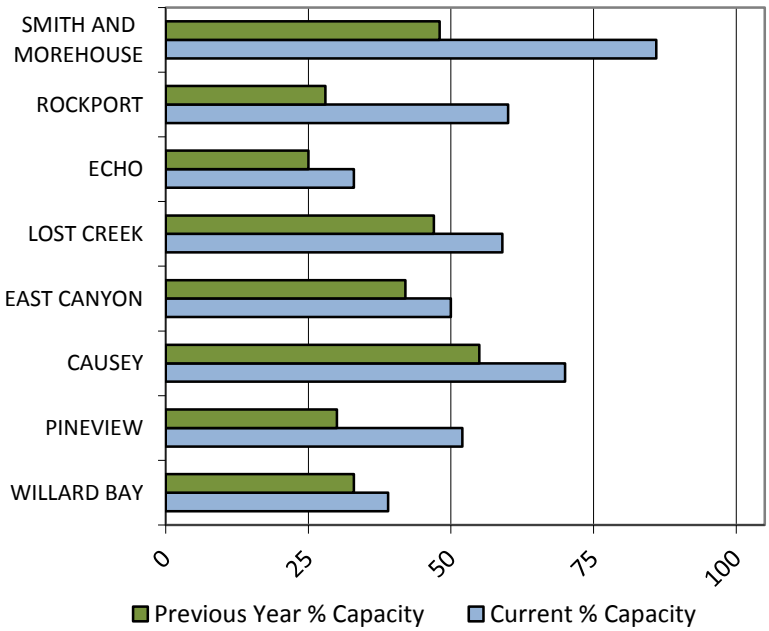
Soil Moisture



Precipitation



Reservoir Storage



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Weber Ogden Rivers
Streamflow Forecasts - January 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	18.7	25	30	88%	35	41	34
Weber R at Gateway	APR-JUL	78	198	280	89%	362	482	315
Weber R nr Coalville	APR-JUL	54	93	120	95%	147	186	126
Weber R nr Oakley	APR-JUL	58	89	110	94%	131	162	117
Rockport Reservoir Inflow	APR-JUL	50	89	115	93%	141	180	123
Chalk Ck at Coalville	APR-JUL	9.7	25	36	88%	47	62	41
Echo Reservoir Inflow	APR-JUL	71	115	145	87%	175	219	166
Lost Ck Reservoir Inflow	APR-JUL	0.36	6.3	11	91%	15.7	23	12.1
East Canyon Ck nr Jeremy Ranch	APR-JUL	1.47	7.7	14	92%	16.3	23	15.2
East Canyon Ck nr Morgan	APR-JUL	7.9	19.3	27	96%	35	46	28
SF Ogden R nr Huntsville	APR-JUL	10.9	32	47	84%	62	83	56
Pineview Reservoir Inflow	APR-JUL	2.6	37	73	85%	109	162	86
Wheeler Ck nr Huntsville	APR-JUL	0.97	3.4	5	79%	6.6	9	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 December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Causey Reservoir	5.0	3.9	3.1	7.1
East Canyon Reservoir	24.8	20.7	34.1	49.5
Echo Reservoir	24.2	18.8	44.3	73.9
Lost Creek Reservoir	13.4	10.5	12.4	22.5
Pineview Reservoir	57.2	33.0	52.4	110.1
Rockport Reservoir	36.3	17.1	34.8	60.9
Willard Bay	84.2	72.0	129.6	215.0
Smith And Morehouse Reservoir	7.0	3.9	3.8	81.0
Basin-wide Total	252.1	179.9	314.5	620.0
# of reservoirs	8	8	8	8

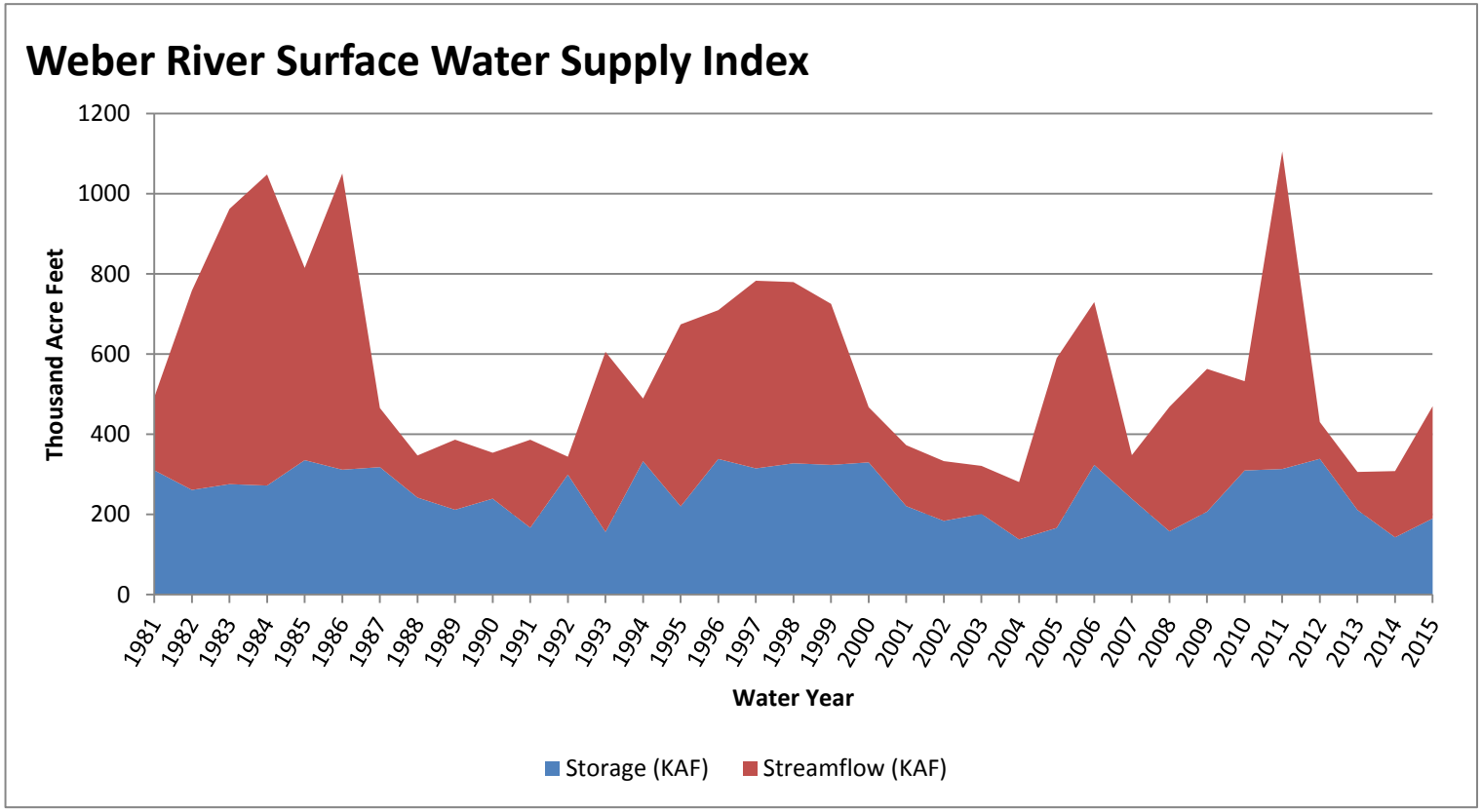
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Upper Weber	9	104%	85%
Lower Weber	7	113%	83%
Ogden	17	105%	80%
Lost Creek	17	105%	80%

January, 1 2015

Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Weber River	**189.91**	**280.00**	**469.91**	**47**	**-0.23**	**00, 08, 94, 81**

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

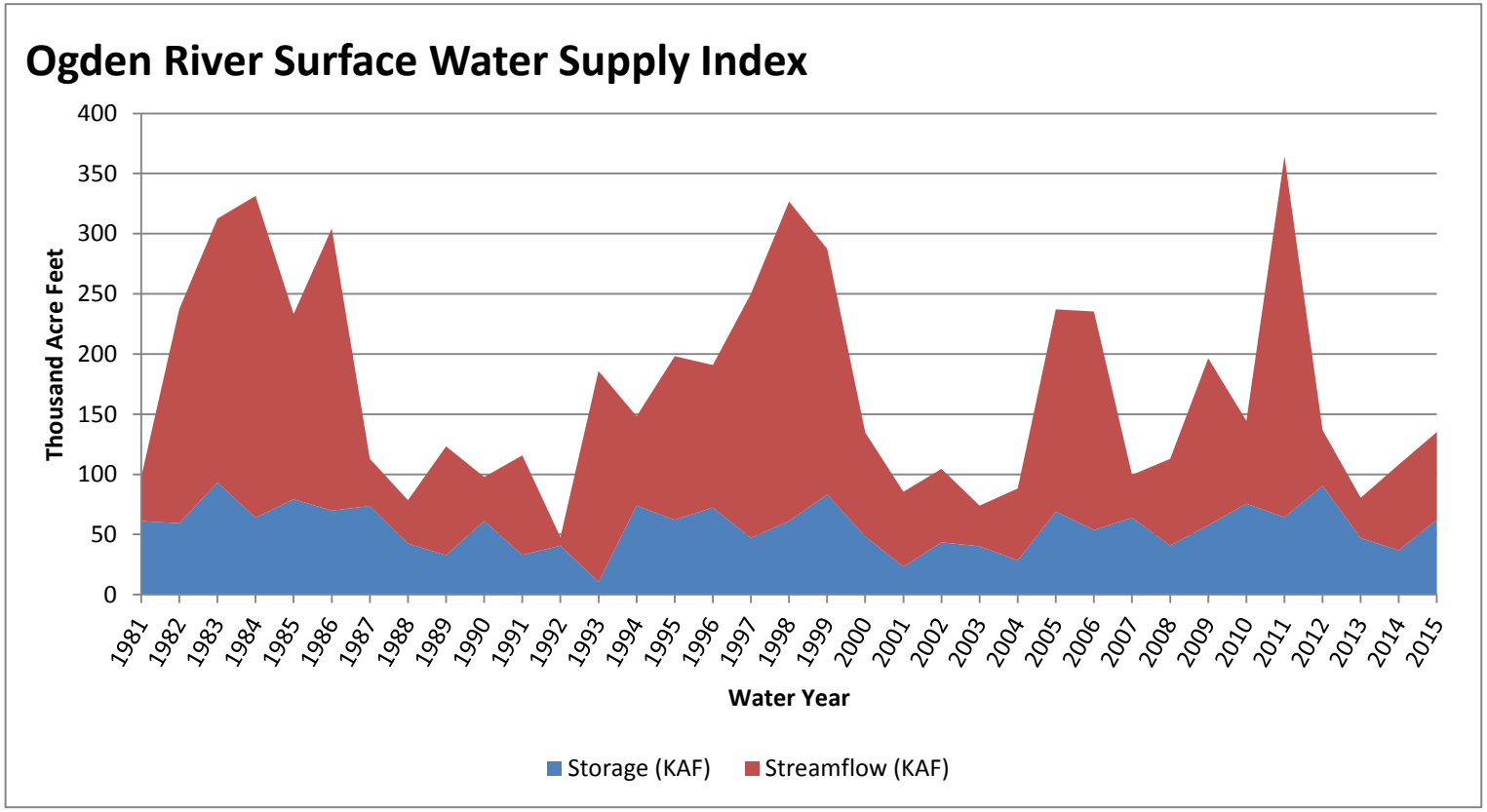


January, 1 2015

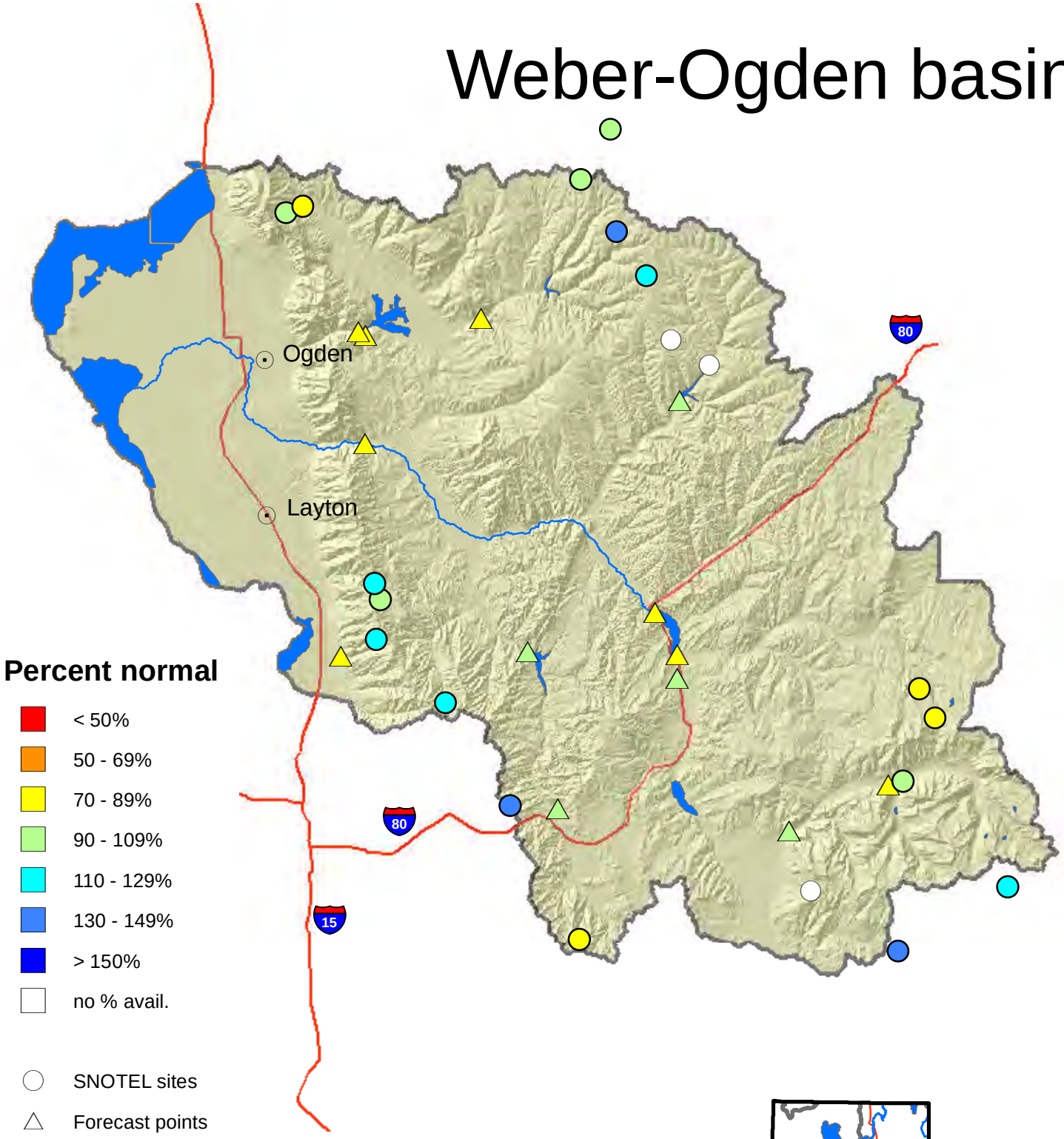
Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Ogden River	**62.21**	**73.00**	**135.21**	**47**	**-0.23**	**89, 00, 12, 10**

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



Weber-Ogden basin



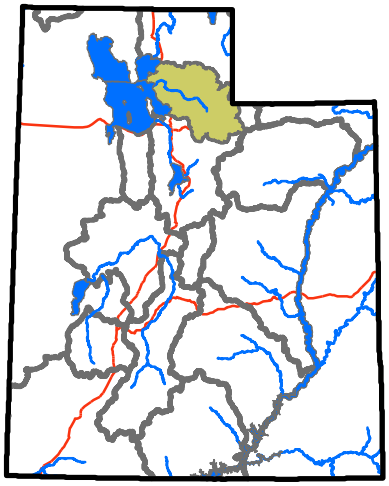
Percent normal

- < 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



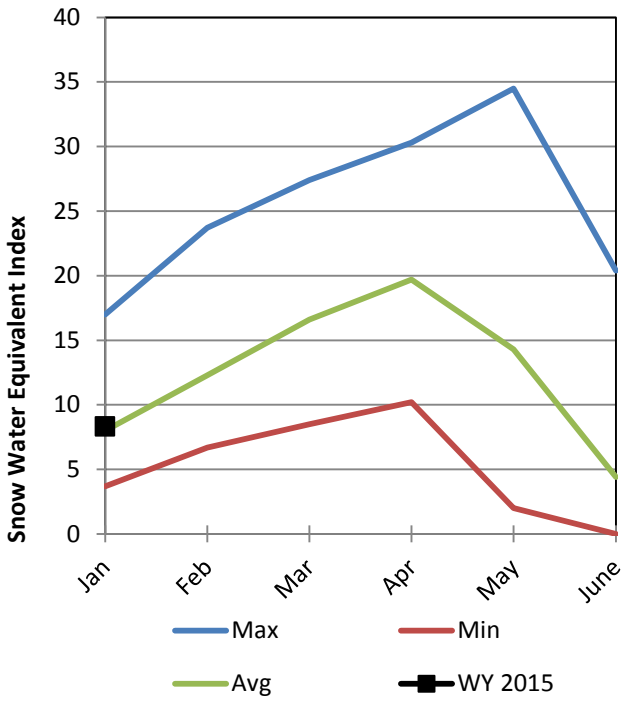
USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Provo & Jordan River Basins

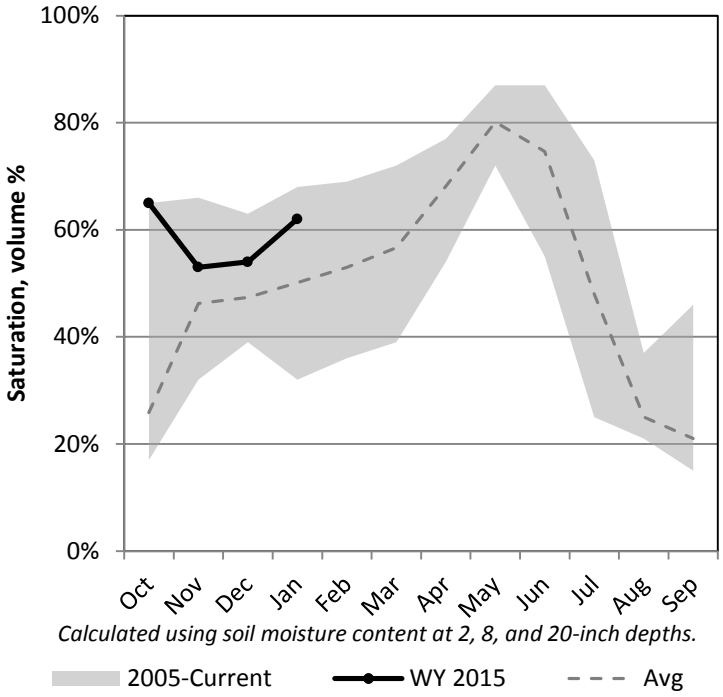
1/1/2015

Snowpack in the Provo & Jordan River Basins is above average at 119% of normal, compared to 78% last year. Precipitation in December was above average at 119%, which brings the seasonal accumulation (Oct-Dec) to 81% of average. Soil moisture is at 62% compared to 54% last year. Reservoir storage is at 68% of capacity, compared to 68% last year. Forecast streamflow volumes range from 78% to 99% of average. The surface water supply index is 27% for the Provo River.

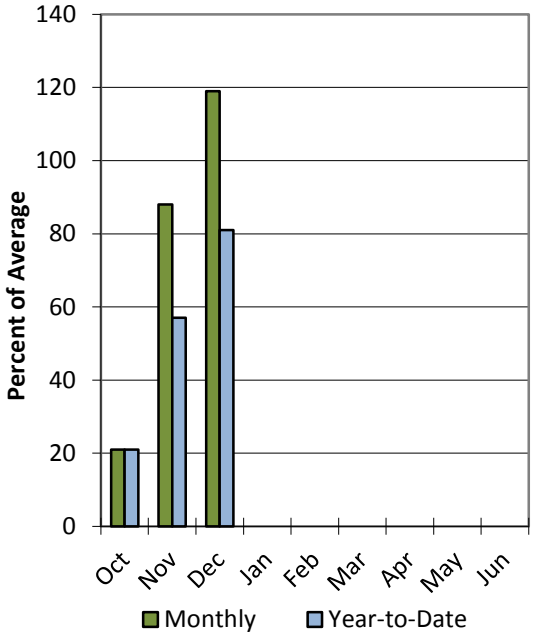
Snowpack



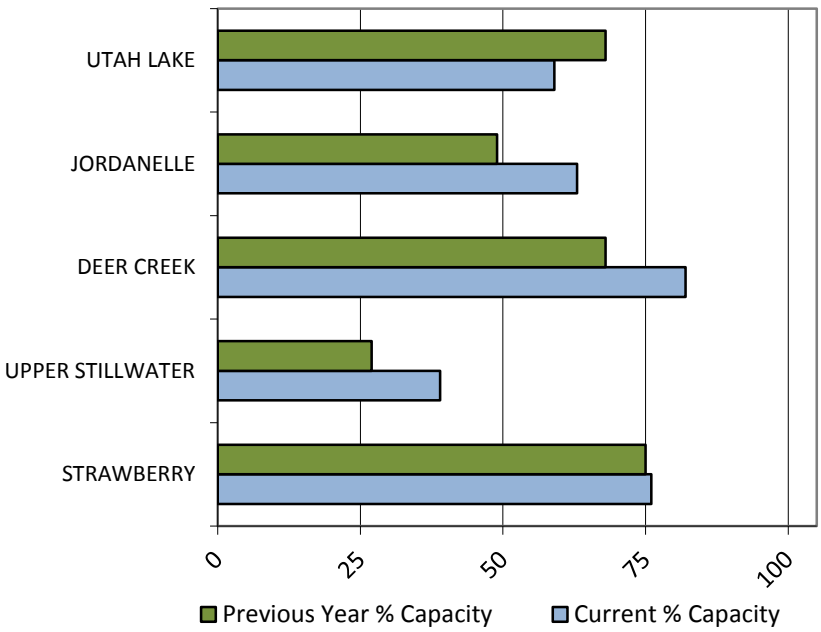
Soil Moisture



Precipitation



Reservoir Storage



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Provo R Utah Lake Jordan R
Streamflow Forecasts - January 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	1.39	5.7	8.7	92%	11.7	16	9.5
Spanish Fk at Castilla	APR-JUL	1.38	32	62	90%	92	136	69
Provo R at Woodland	APR-JUL	58	81	99	99%	120	154	100
Provo R at Hailstone	APR-JUL	64	89	106	98%	129	163	108
Provo R bl Deer Ck Dam	APR-JUL	45	87	115	99%	143	185	116
American Fk ab Upper Powerplant	APR-JUL	7.4	19.6	26	81%	36	49	32
Utah Lake Inflow	APR-JUL	72	130	230	87%	326	450	265
W Canyon Ck nr Cedar Fort	APR-JUL	0.07	0.59	1.2	68%	1.81	2.7	1.76
Little Cottonwood Ck nr SLC	APR-JUL	22	30	33	87%	42	53	38
Big Cottonwood Ck nr SLC	APR-JUL	17.9	25	30	83%	35	42	36
Mill Ck nr SLC	APR-JUL	2.4	4.2	5	78%	6.8	8.6	6.4
Parleys Ck nr SLC	APR-JUL	1.87	7.9	12	85%	16.1	22	14.2
Dell Fk nr SLC	APR-JUL	0.22	2.1	4.6	84%	7.1	10.8	5.5
Emigration Ck nr SLC	APR-JUL	0.16	1.8	3.3	83%	4.8	7	4
City Ck nr SLC	APR-JUL	1.18	4.1	6	78%	7.9	10.8	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 December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Deer Creek Reservoir	122.9	102.3	103.1	149.7
Strawberry Reservoir	838.8	830.8	657.4	1105.9
Utah Lake	510.5	592.8	726.5	870.9
Jordanelle Reservoir	201.0	158.2	244.5	320.0
Basin-wide Total	1673.2	1684.1	1731.5	2446.5
# of reservoirs	4	4	4	4

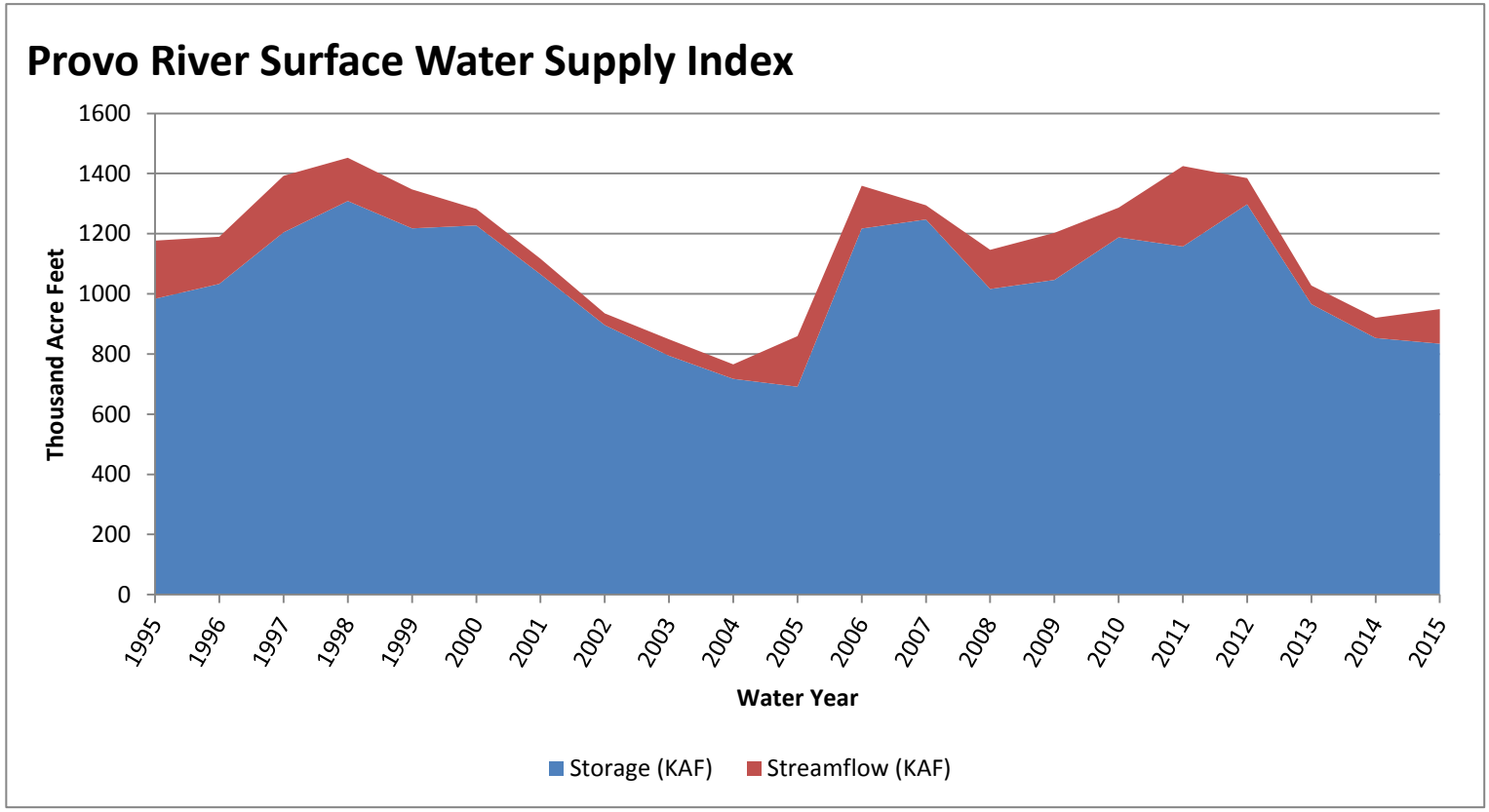
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Upper Provo	6	110%	74%
Jordan	15	119%	78%
Utah Lake	15	119%	78%
Spanish Fork	5	126%	72%
Six Creeks	13	108%	73%
Cottonwoods	7	107%	70%

January, 1 2015

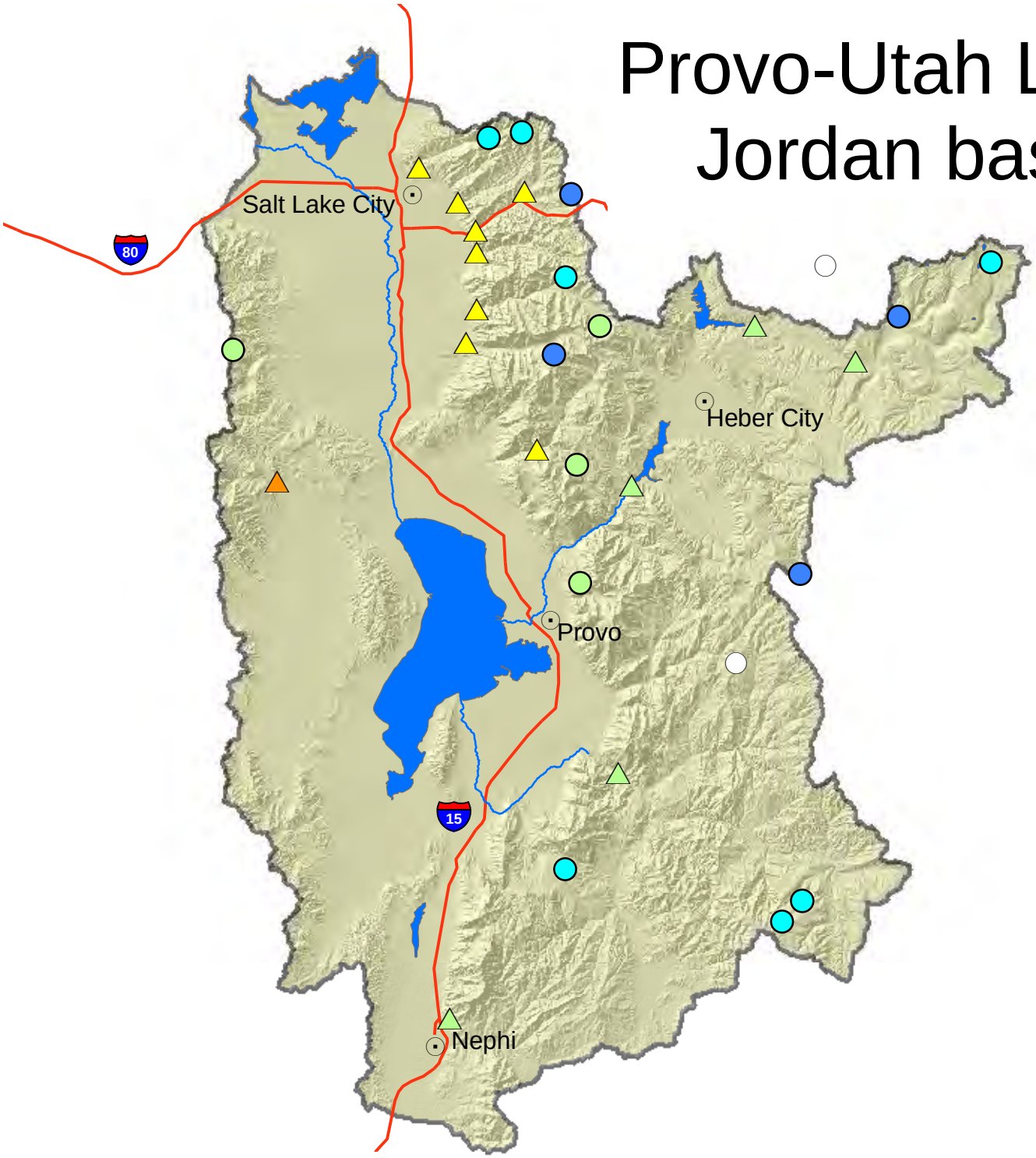
Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Provo River	**834.42**	**115.00**	**949.42**	**27**	**-1.89**	**14, 02, 13, 01**

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



Provo-Utah Lake-Jordan basin



Percent normal

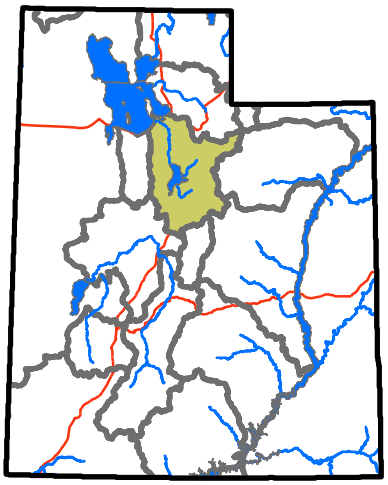
- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

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

N

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

0 2.5 5 10 15 20 Miles

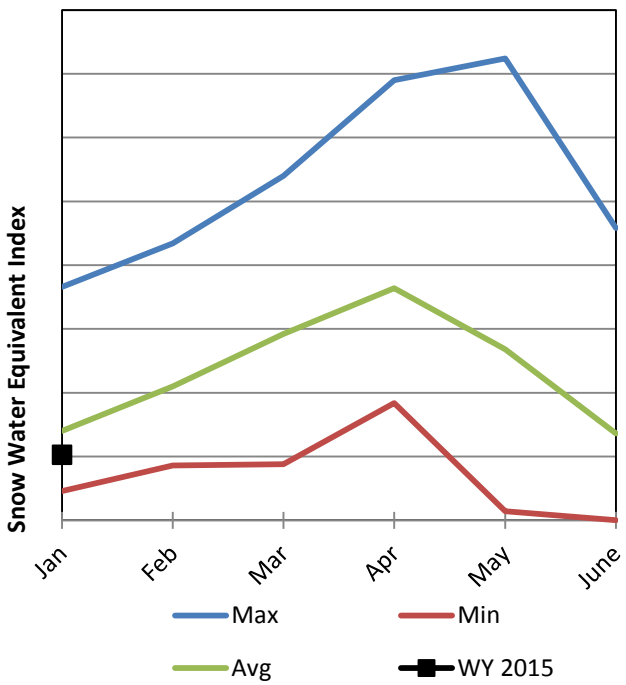


Tooele & Vernon Creek Basins

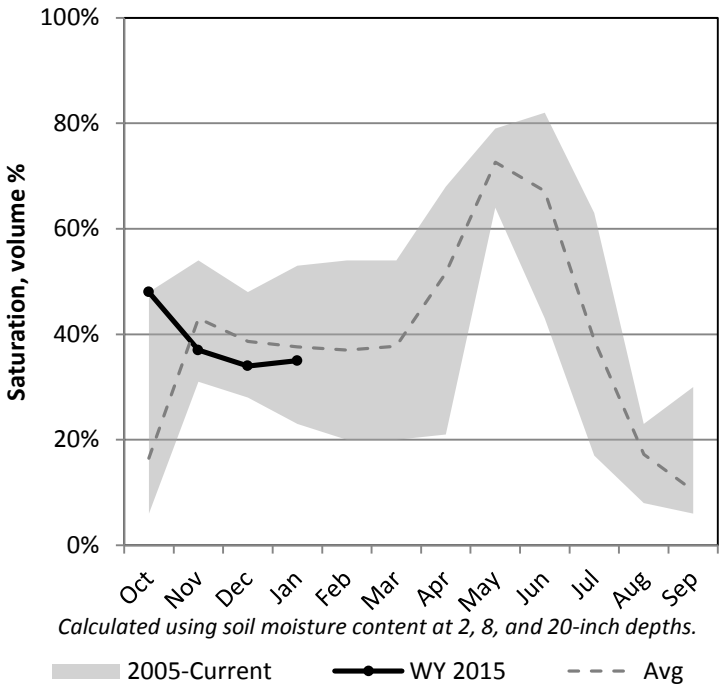
1/1/2015

Snowpack in the Tooele & Vernon Creek Basins is near average at 92% of normal, compared to 91% last year. Precipitation in December was much above average at 131%, which brings the seasonal accumulation (Oct-Dec) to 66% of average. Soil moisture is at 35% compared to 31% last year. Reservoir storage is at 27% of capacity, compared to 29% last year. Forecast streamflow volumes range from 68% to 79% of average.

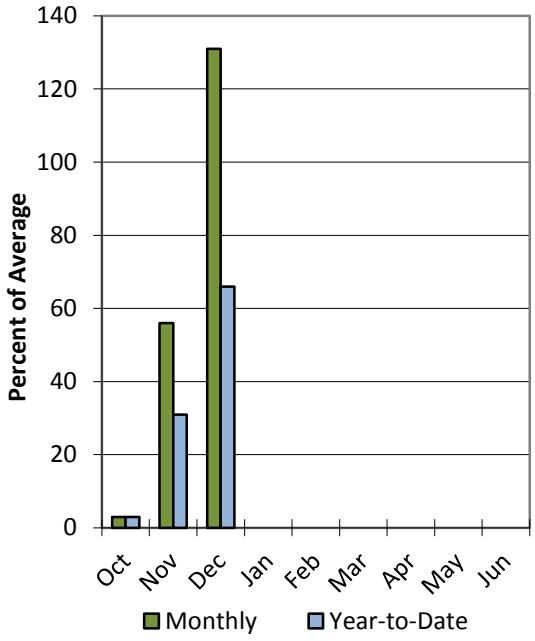
Snowpack



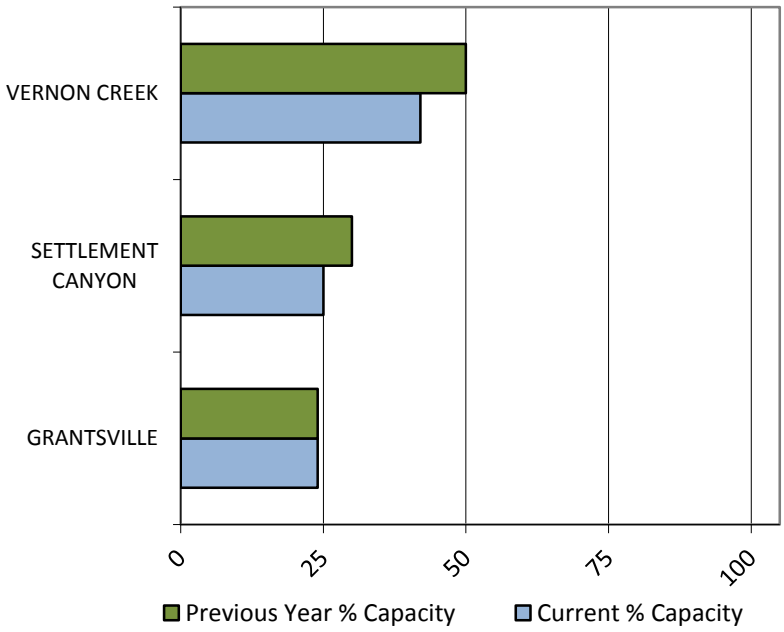
Soil Moisture



Precipitation



Reservoir Storage



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Tooele Valley Vernon Creek
Streamflow Forecasts - January 1, 2015

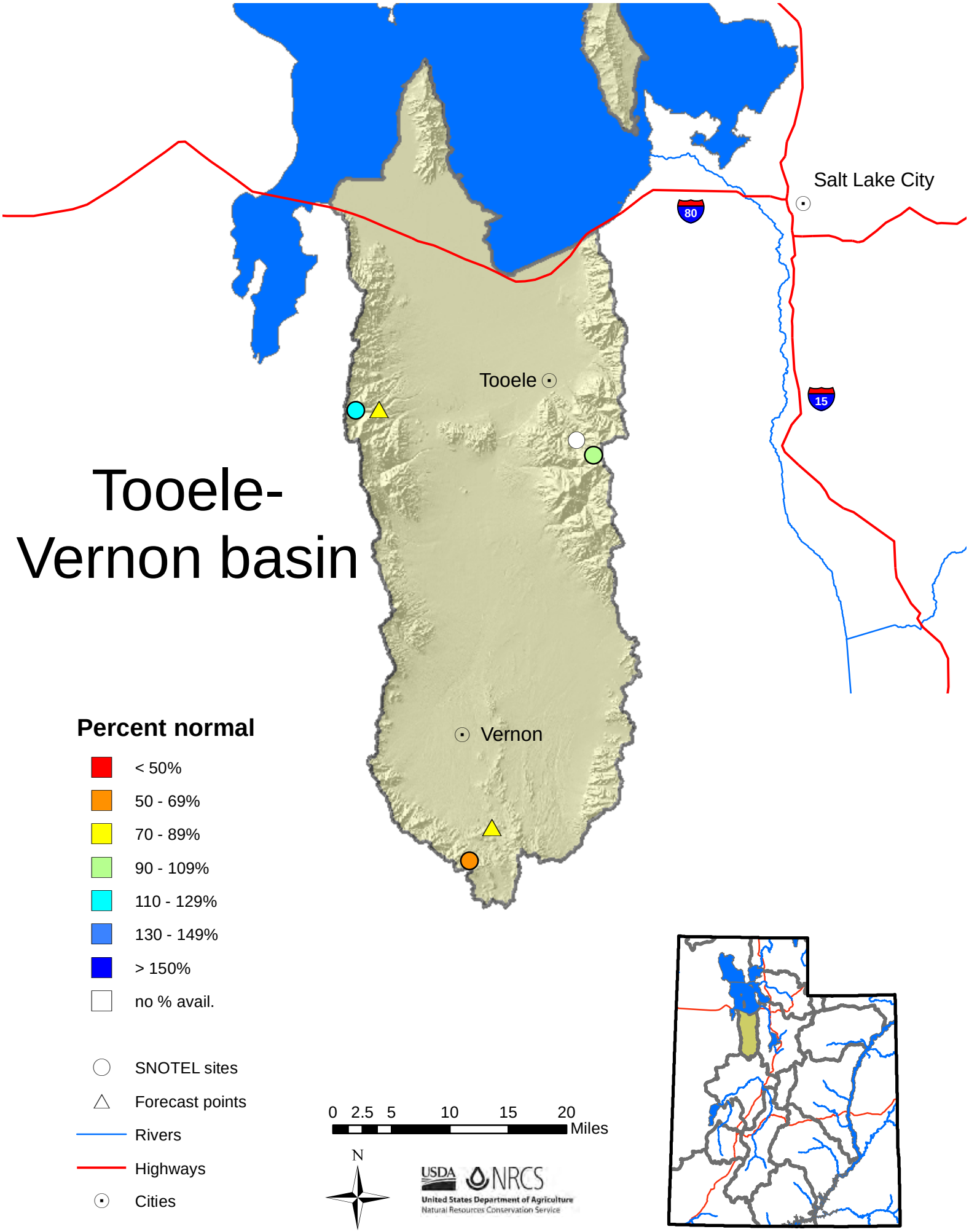
Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

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	0.028	0.55	1.1	79%	1.65	2.5	1.39
S Willow Ck nr Grantsville								
	APR-JUL	0.63	1.57	2.2	71%	2.8	3.8	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 December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Vernon Creek Reservoir	0.3	0.3	0.4	0.6
Settlement Canyon Reservoir	0.3	0.3	0.6	1.0
Grantsville Reservoir	0.8	0.8	1.5	3.3
Basin-wide Total	1.3	1.4	2.5	4.9
# of reservoirs	3	3	3	3

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Tooele	3	92%	91%
NW Utah	2	94%	100%

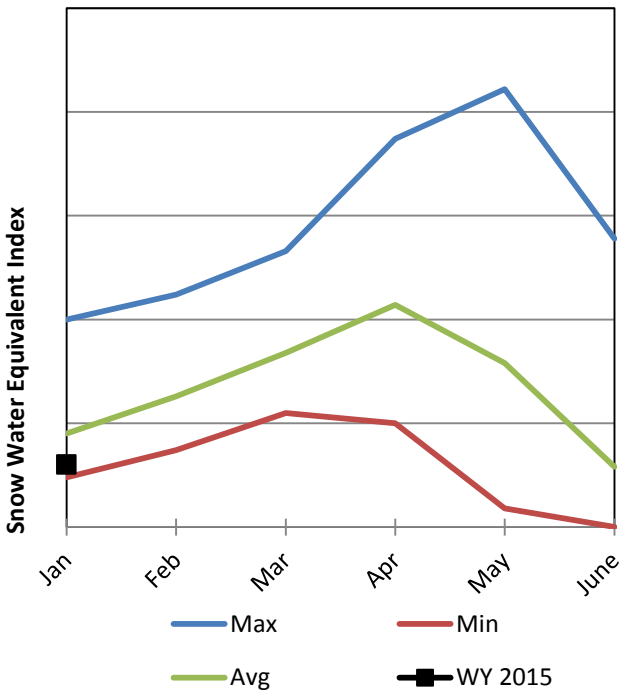

Tooele-
Vernon basin
Salt Lake City
80
15
Tooele
Vernon
Percent normal
< 50%
50 - 69%
70 - 89%
90 - 109%
110 - 129%
130 - 149%
> 150%
no % avail.
SNOTEL sites
Forecast points
Rivers
Highways
Cities
0 2.5 5 10 15 20
Miles
N
USDA
NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Northeastern Uintah Basin

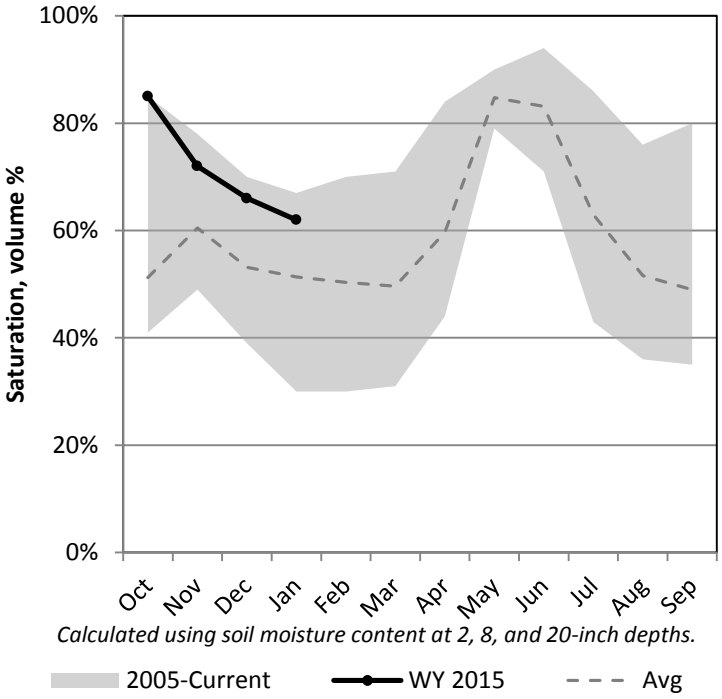
1/1/2015

Snowpack in the Northeastern Uintah Basin is below average at 78% of normal, compared to 91% last year. Precipitation in December was near average at 101%, which brings the seasonal accumulation (Oct-Dec) to 71% of average. Soil moisture is at 62% compared to 63% last year. Reservoir storage is at 87% of capacity, compared to 75% last year. Forecast streamflow volumes range from 84% to 98% of average. The surface water supply index is 48% for the Blacks Fork, 59% for the Smiths Creek.

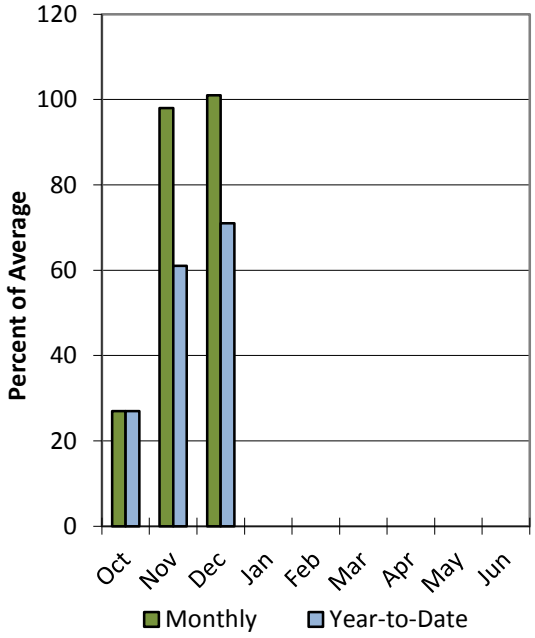
Snowpack



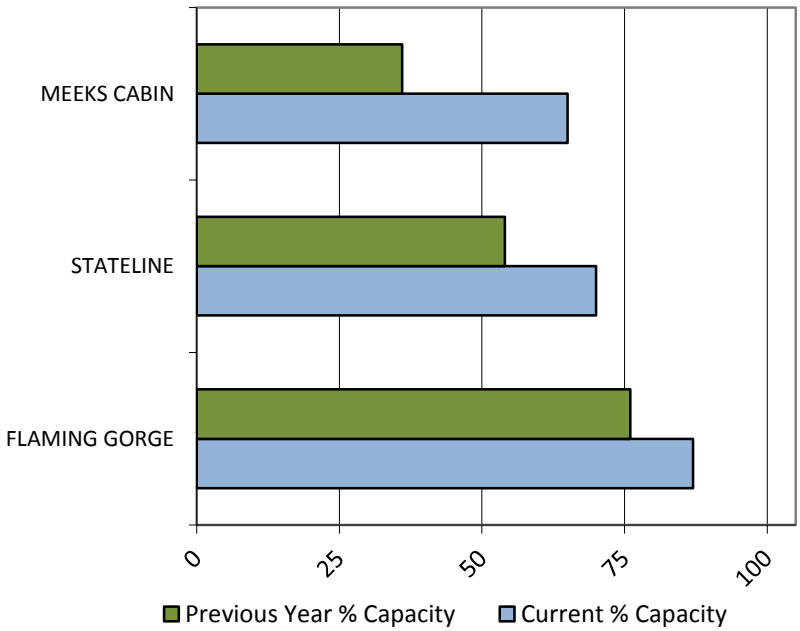
Soil Moisture



Precipitation



Reservoir Storage



Data Current as of: 1/6/2015 2:35:19 PM

Northeastern Uintahs
Streamflow Forecasts - January 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	46	62	75	84%	89	112	89
EF of Smiths Fork nr Robertson [2]	APR-JUL	13.9	19.1	23	85%	27	34	27
Flaming Gorge Reservoir Inflow [2]	APR-JUL	490	750	960	98%	1190	1580	980
Uinta R bl Powerplant Diversion nr Neola[2]	APR-JUL	23	42	57	77%	75	105	74
Whiterocks R nr Whiterocks	APR-JUL	19.4	30	39	72%	49	65	54
Ashley Ck nr Vernal	APR-JUL	19.1	29	36	72%	44	58	50
Big Brush Ck ab Red Fleet Reservoir	APR-JUL	6.1	11.4	15	71%	18.6	24	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 December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Flaming Gorge Reservoir	3261.5	2834.3	3091.0	3749.0
Stateline Reservoir	8.4	6.5	5.7	12.0
Meeks Cabin Reservoir	21.1	11.6	9.9	32.5
Basin-wide Total	3291.0	2852.3	3106.6	3793.5
# of reservoirs	3	3	3	3

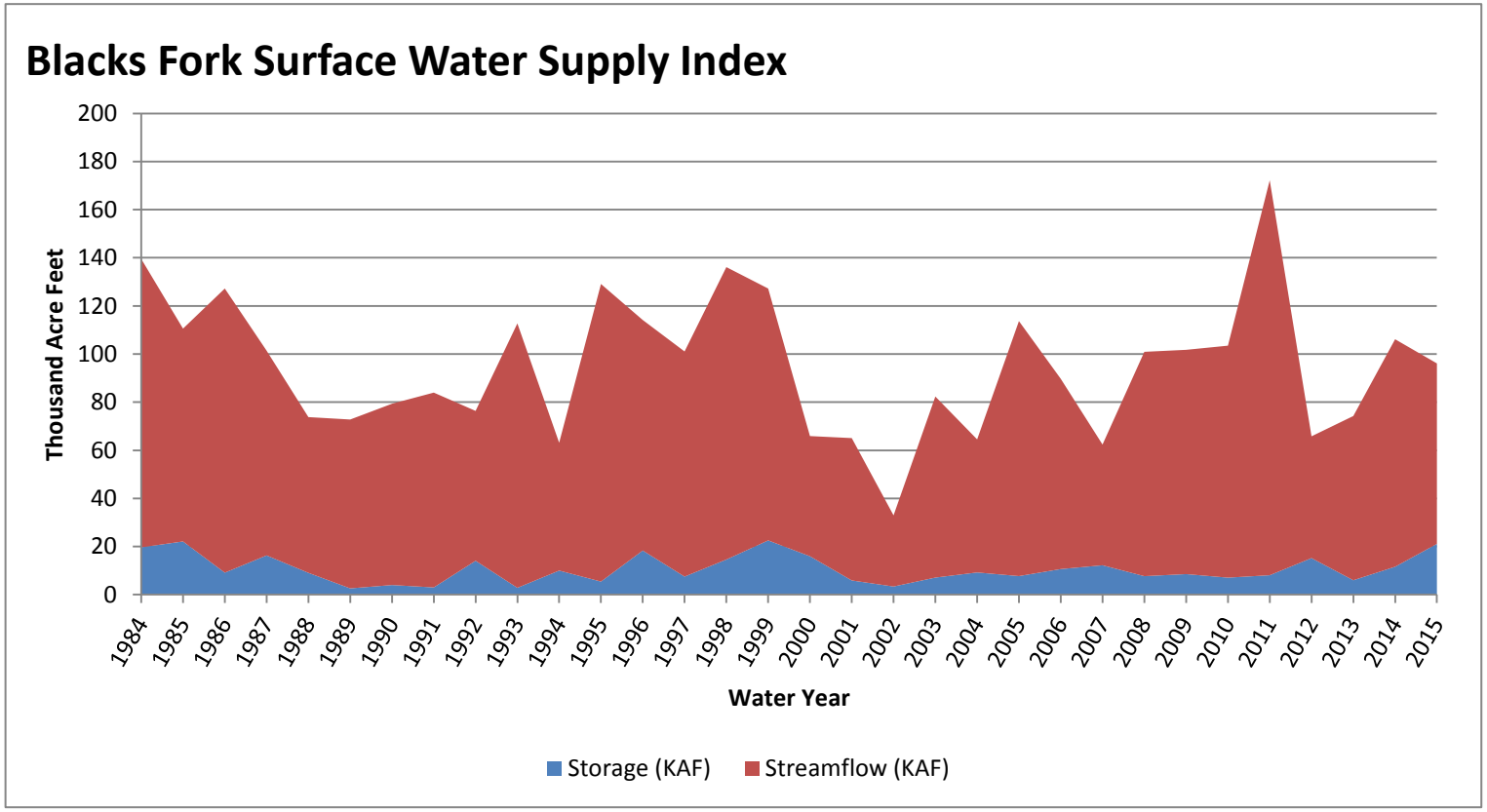
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Blacks Fk	3	88%	87%
Upper Green	2	107%	114%
Lower Green	2	94%	86%
Ashley Brush	4	60%	98%

January, 1 2015

Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Blacks Fork	**21.10**	**75.00**	**96.10**	**48**	**-0.13**	**91, 06, 08, 97**

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

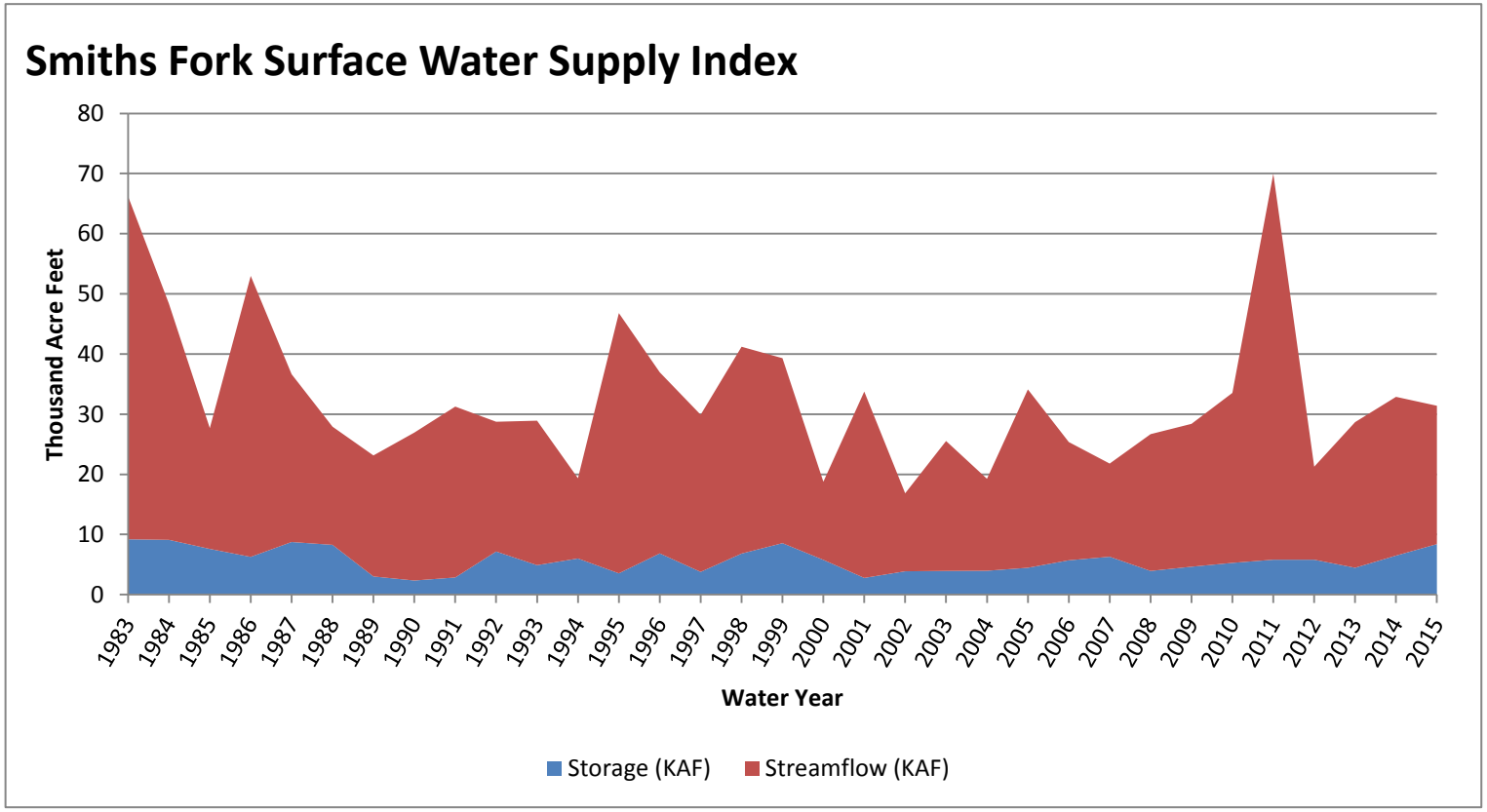


January, 1 2015

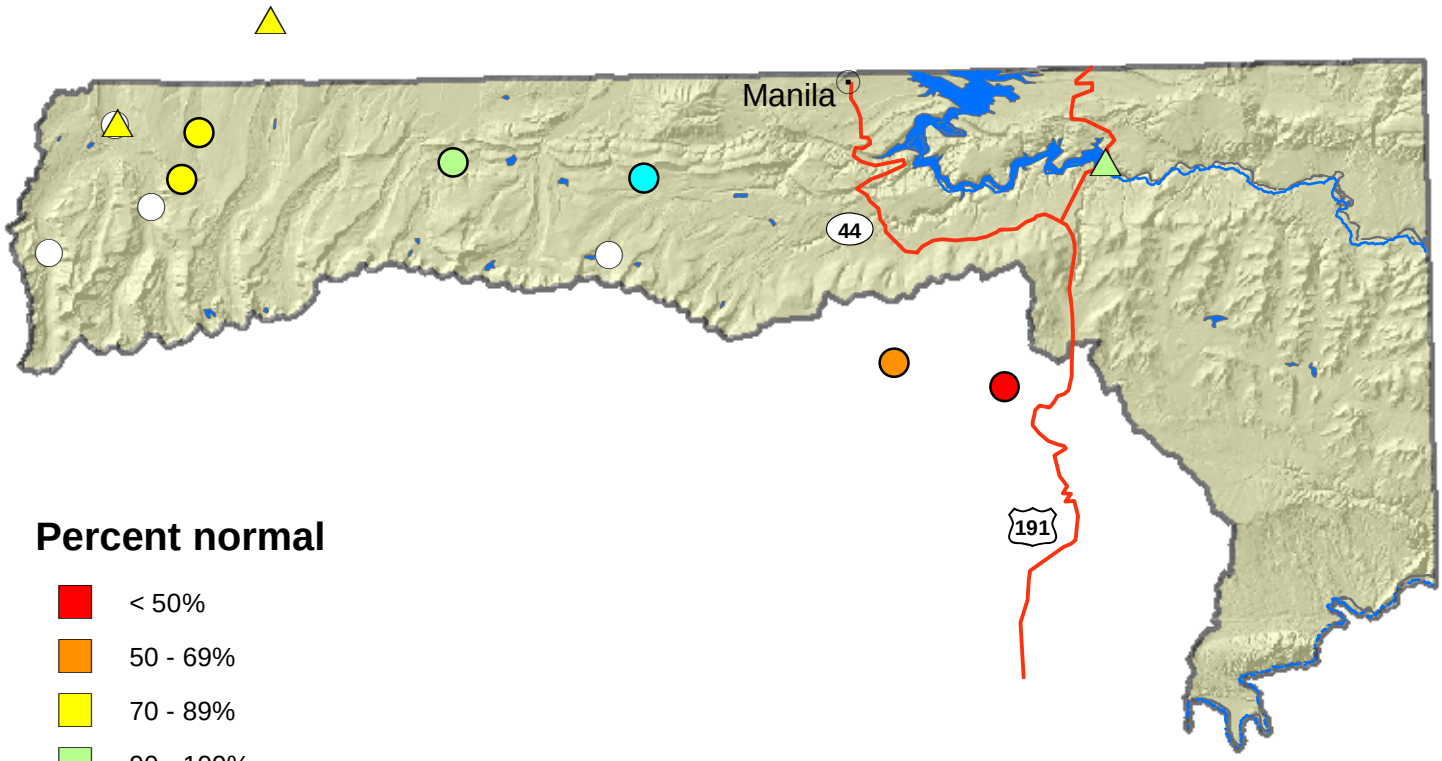
Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Smiths Fork	**8.40**	**23.00**	**31.40**	**59**	**0.74**	**97, 91, 14, 10**

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



Northeastern Utah



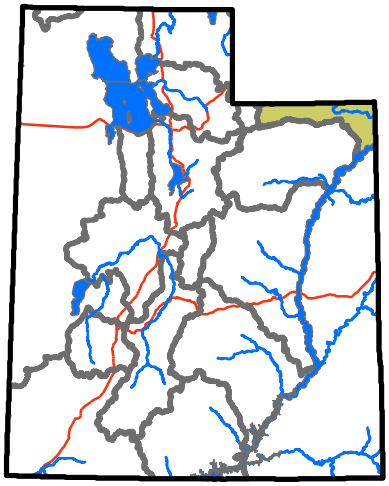
Percent normal

- < 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



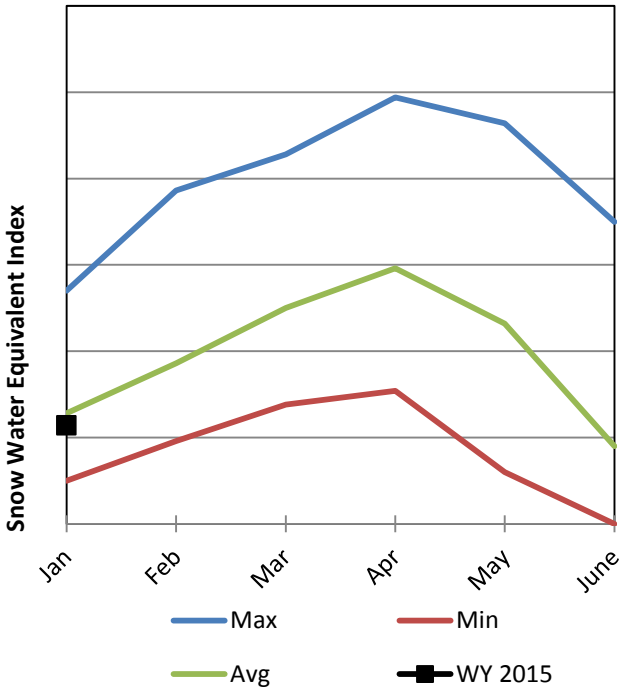
USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Duchesne River Basin

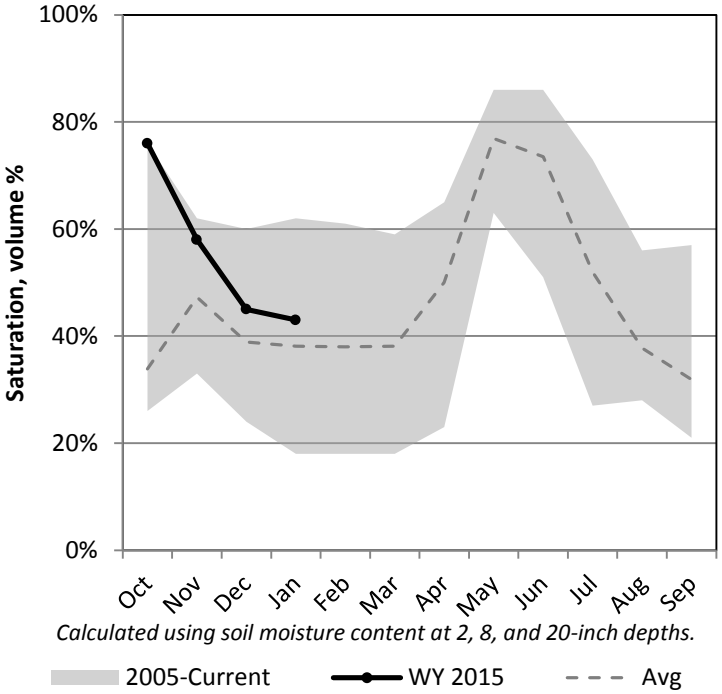
1/1/2015

Snowpack in the Duchesne River Basin is near average at 104% of normal, compared to 87% last year. Precipitation in December was near average at 108%, which brings the seasonal accumulation (Oct-Dec) to 73% of average. Soil moisture is at 43% compared to 42% last year. Reservoir storage is at 75% of capacity, compared to 73% last year. Forecast streamflow volumes range from 71% to 102% of average. The surface water supply index is 56% for the Western Uintahs, 22% for the Eastern Uintahs.

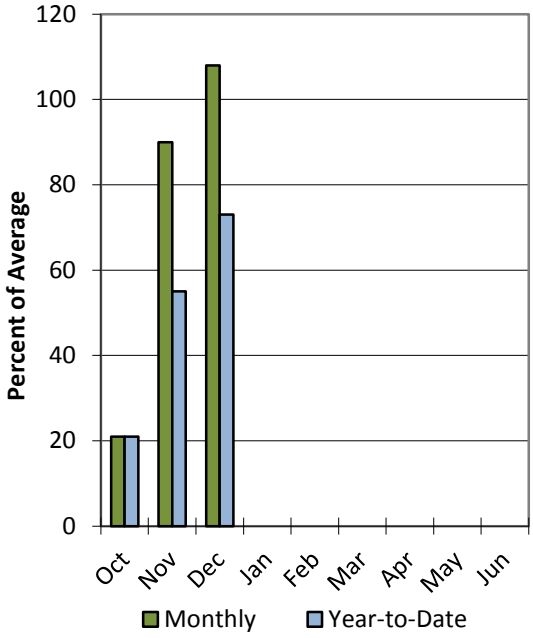
Snowpack



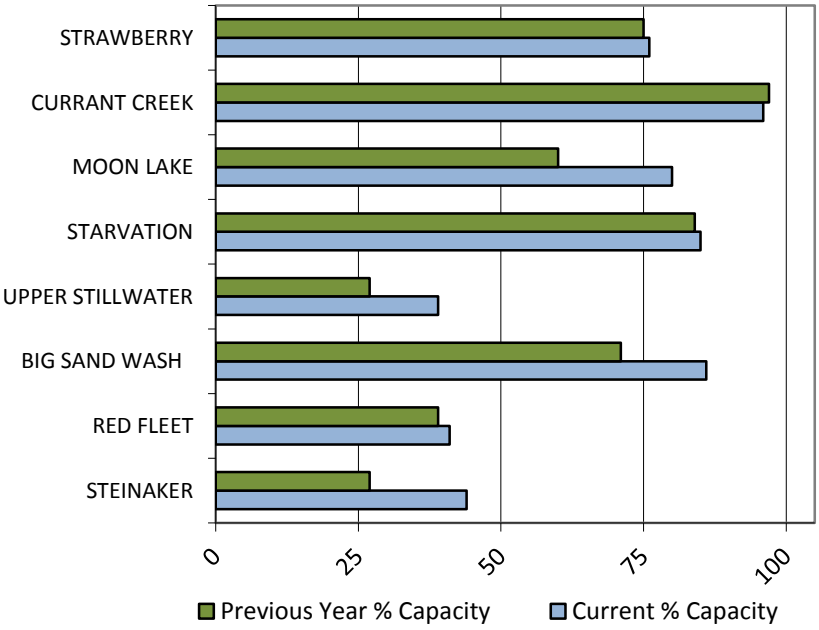
Soil Moisture



Precipitation



Reservoir Storage



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Duchesne River
Streamflow Forecasts - January 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	58	80	97	90%	116	146	108
Strawberry R nr Duchesne [2]	APR-JUL	46	83	114	102%	150	215	112
Strawberry R nr Soldier Springs [2]	APR-JUL	30	49	65	90%	83	113	72
Duchesne R at Myton [2]	APR-JUL	128	215	285	86%	365	505	330
Duchesne R nr Randlett [2]	APR-JUL	118	220	310	81%	415	595	385
Duchesne R ab Knight Diversion [2]	APR-JUL	107	144	173	89%	205	255	195
WF Duchesne R at VAT Diversion	APR-JUL	8.9	13	16.3	88%	19.9	26	18.6
Rock Ck nr Mountain Home [2]	APR-JUL	46	63	76	86%	90	114	88
Yellowstone R nr Altonah	APR-JUL	31	43	53	87%	64	81	61
Upper Stillwater Reservoir Inflow[2]	APR-JUL	38	53	64	86%	76	96	74
Lake Fk R Bl Moon Lk nr Mountain Home[2]	APR-JUL	35	48	58	88%	69	87	66
Lake Fork R ab Moon Lake Reservoir	APR-JUL	30	43	54	89%	65	85	61
Currant Ck Reservoir Inflow[2]	APR-JUL	8.1	13.5	18	90%	23	32	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 December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Steinaker Reservoir	14.7	9.2	20.0	33.4
Red Fleet Reservoir	10.6	10.1	17.5	25.7
Big Sand Wash Reservoir	22.1	18.3		25.7
Upper Stillwater Reservoir	12.8	8.8	10.0	32.5
Starvation Reservoir	139.9	138.5	134.1	165.3
Moon Lake Reservoir	28.7	21.5	22.4	35.8
Currant Creek Reservoir	15.0	15.0	14.9	15.5
Strawberry Reservoir	838.8	830.8	657.4	1105.9
Basin-wide Total	1060.3	1033.9	876.3	1414.1
# of reservoirs	7	7	7	7

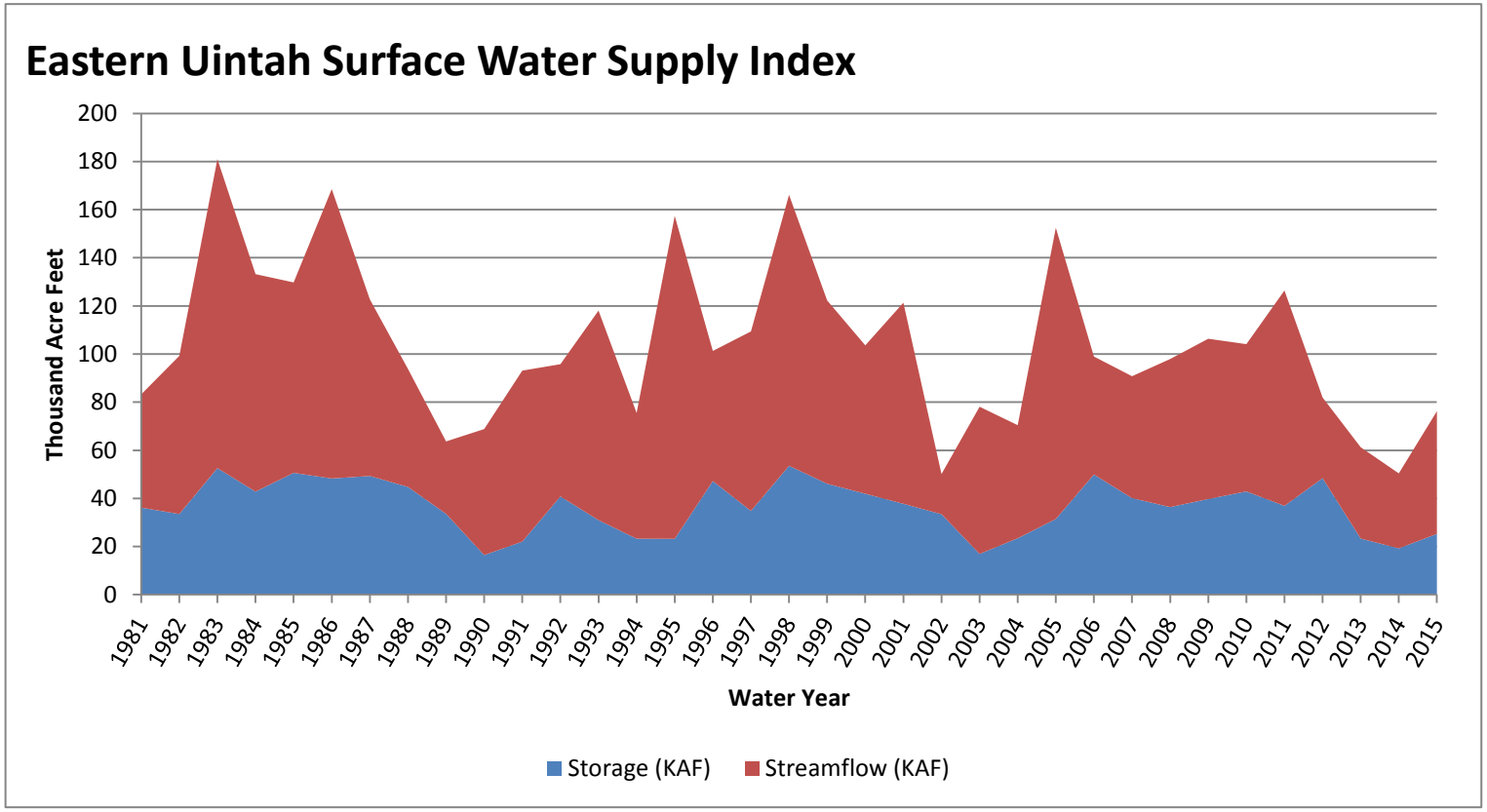
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Strawberry	15	119%	78%
Lakefork Yellowstone	6	101%	89%
Uintah Whiterocks	2	66%	108%

January, 1 2015

Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Eastern Uintah	**25.24**	**51.00**	**76.24**	**22**	**-2.31**	**04, 94, 03, 12**

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

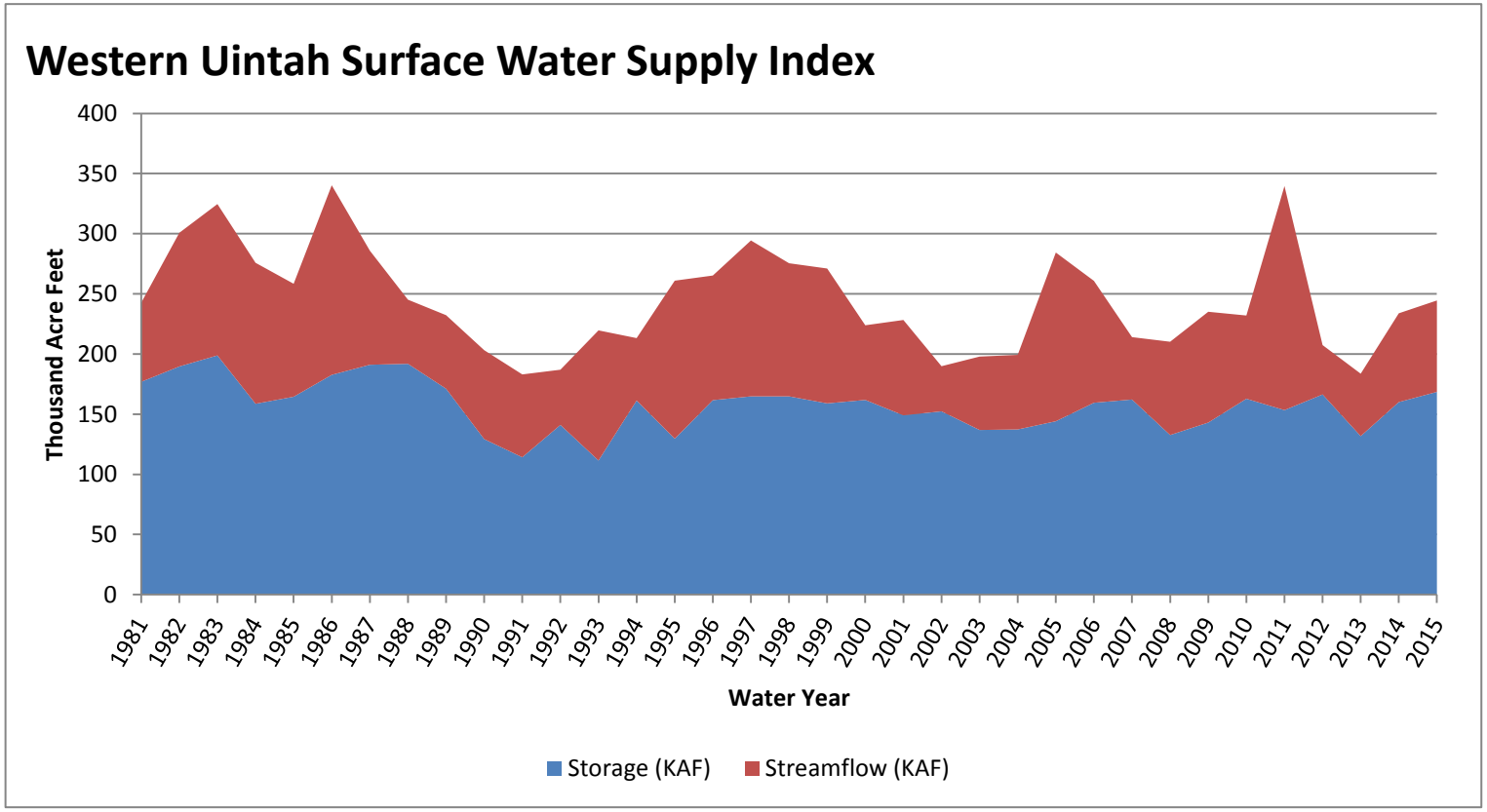


January, 1 2015

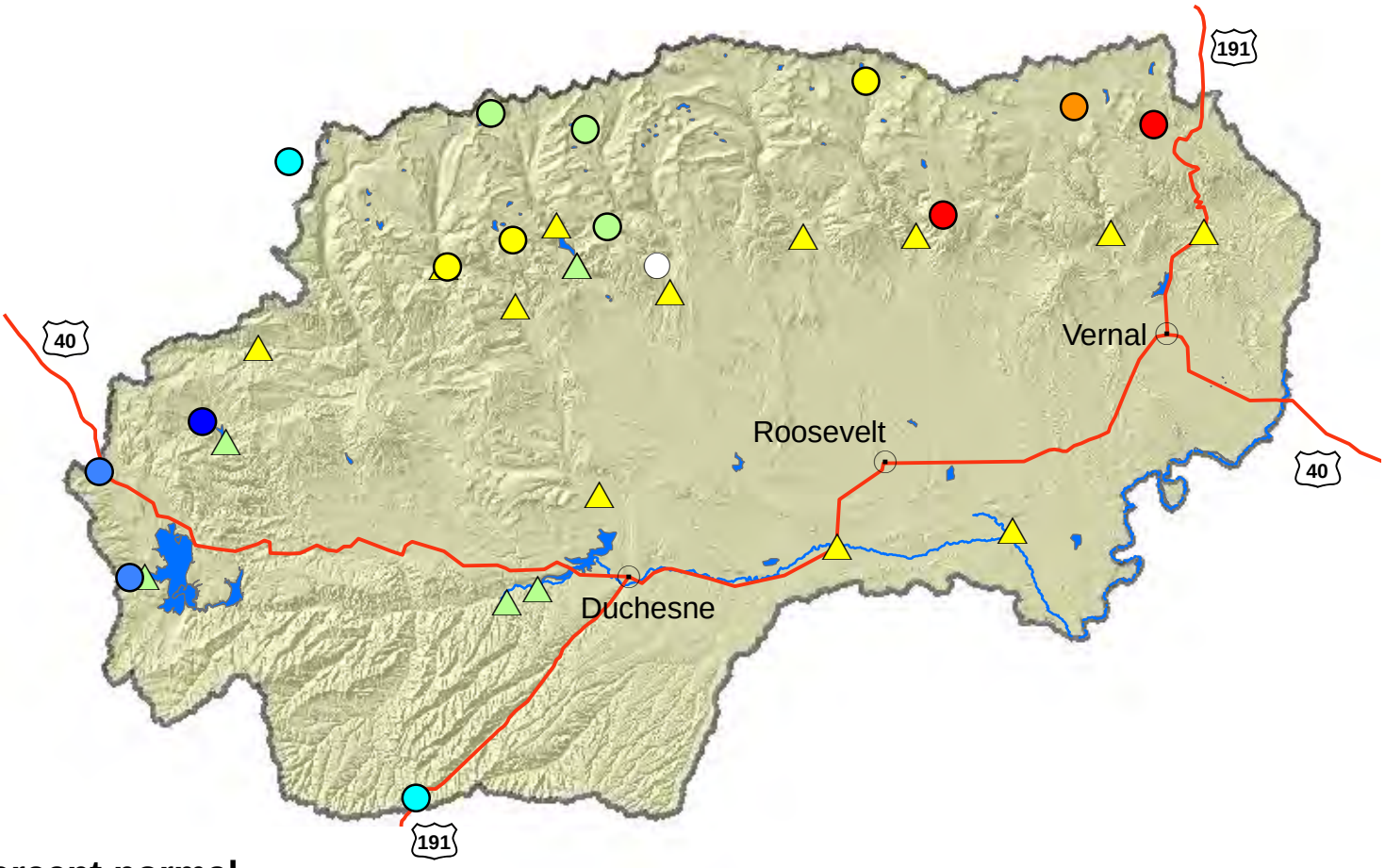
Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Western Uintah	**168.54**	**76.00**	**244.54**	**56**	**0.46**	**09, 81, 88, 85**

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



Duchesne basin



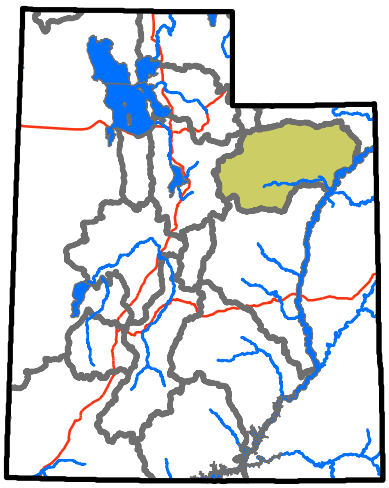
Percent normal

- < 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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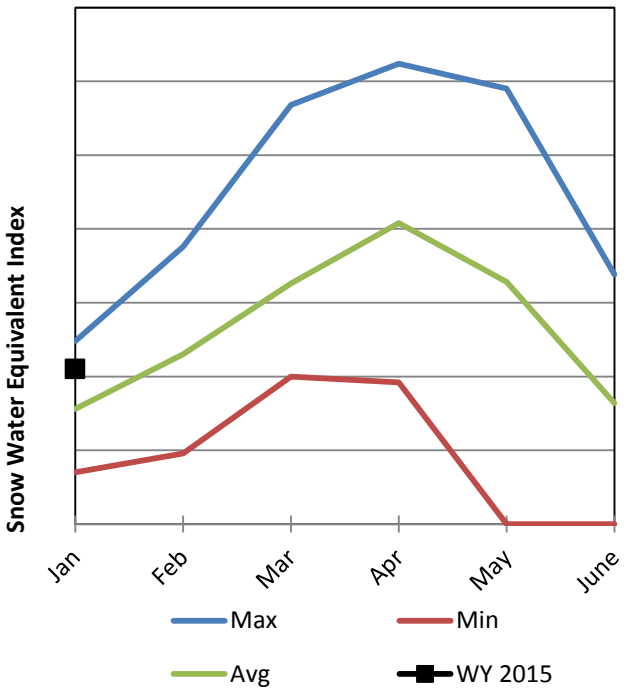
Lower Sevier River Basin

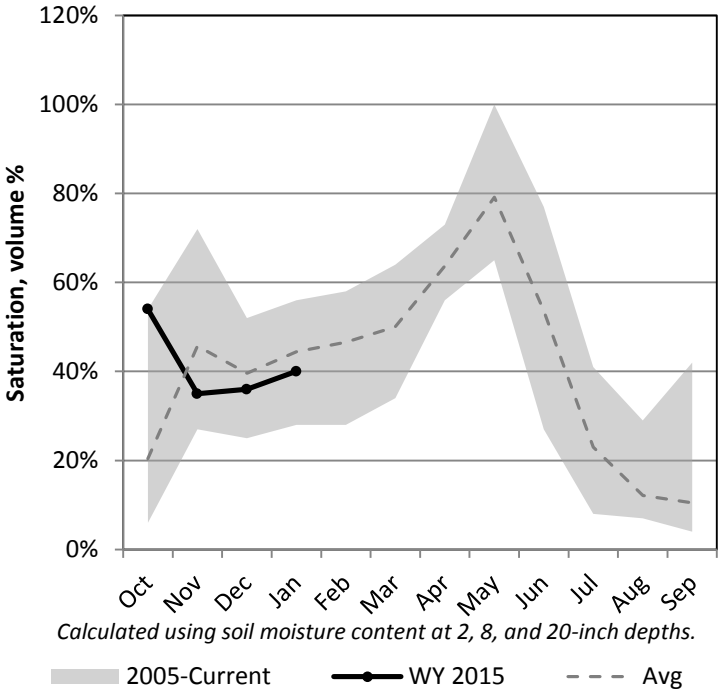
1/1/2015

Snowpack in the Lower Sevier River Basin is much above average at 136% of normal, compared to 60% last year. Precipitation in December was much above average at 196%, which brings the seasonal accumulation (Oct-Dec) to 104% of average. Soil moisture is at 40% compared to 35% last year. Reservoir storage is at 35% of capacity, compared to 45% last year. Forecast streamflow volumes range from 102% to 111% of average. The surface water supply index is 47% for the Lower Sevier.

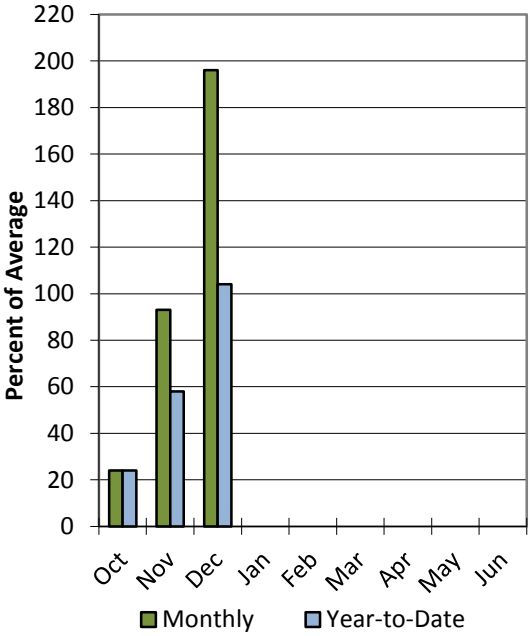
Snowpack



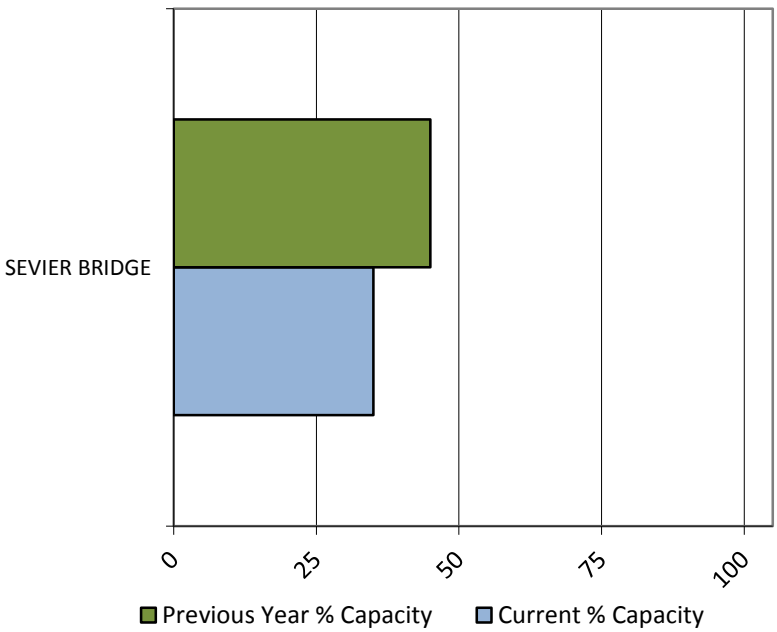
Soil Moisture



Precipitation



Reservoir Storage



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Lower Sevier River
Streamflow Forecasts - January 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	1.76	3.4	5	111%	7	10.8	4.5
Oak Ck nr Oak City								
	APR-JUL	0.9	1.35	1.7	102%	2.1	2.8	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 December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Sevier Bridge Reservoir	81.9	105.7	143.2	236.0
Basin-wide Total	81.9	105.7	143.2	236.0
# of reservoirs	1	1	1	1

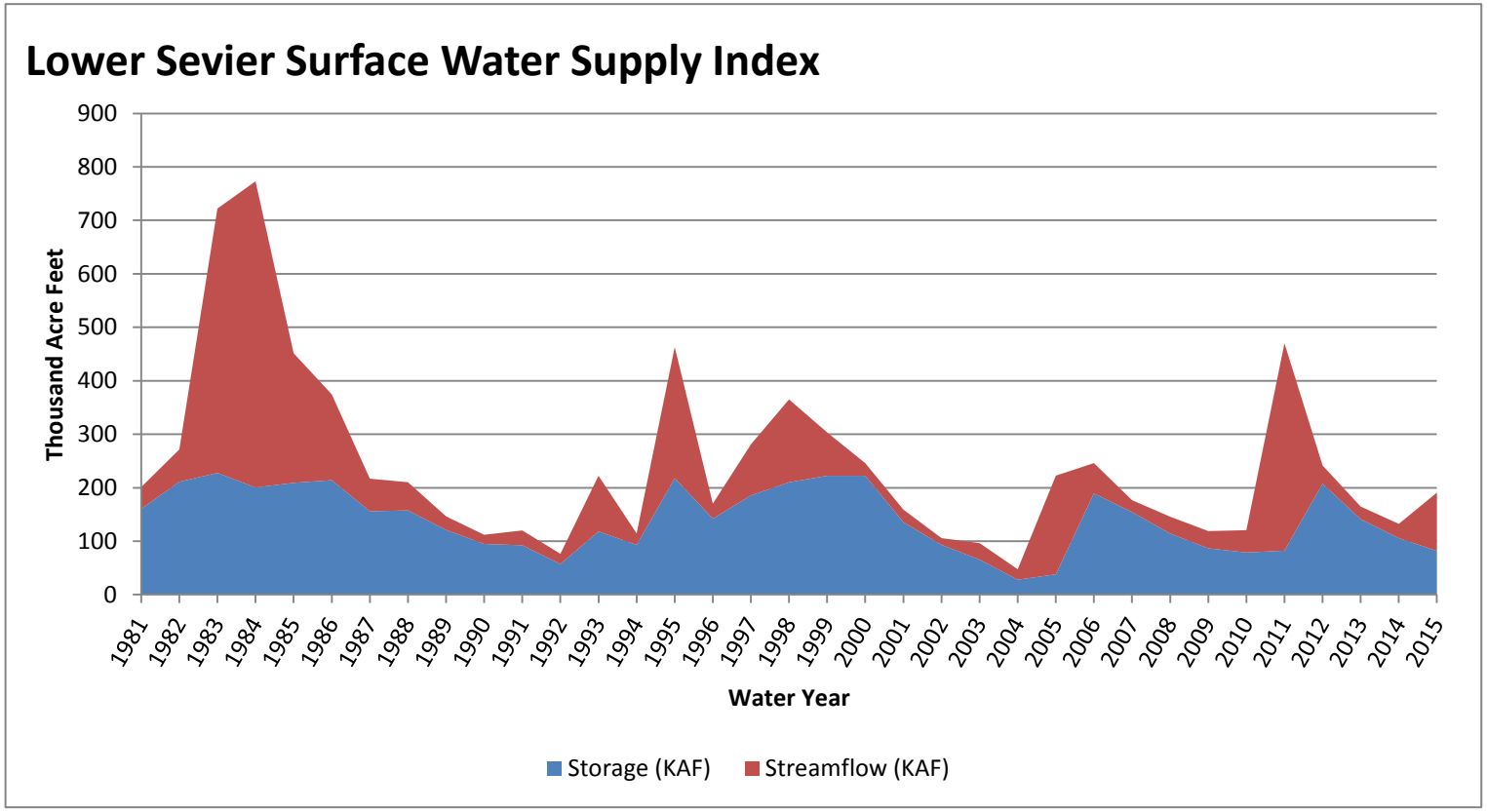
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Lower Sevier	1	136%	60%

January, 1 2015

Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Lower Sevier	**81.87**	**109.00**	**190.87**	**47**	**-0.23**	**96, 07, 81, 88**

*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

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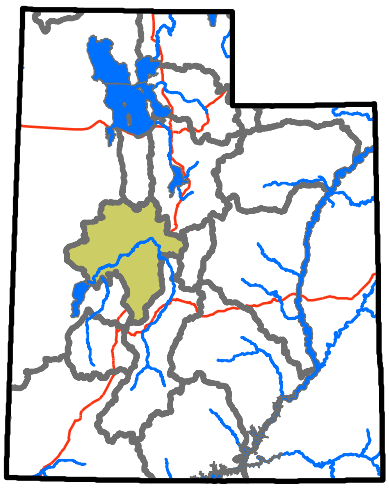
Natural Resources Conservation Service

0 2.5 5 10 15 20 Miles

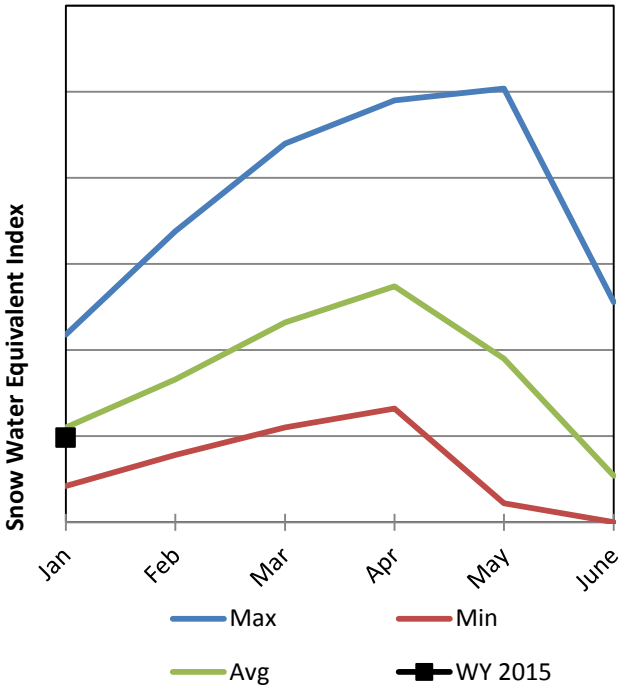


Upper Sevier River Basin

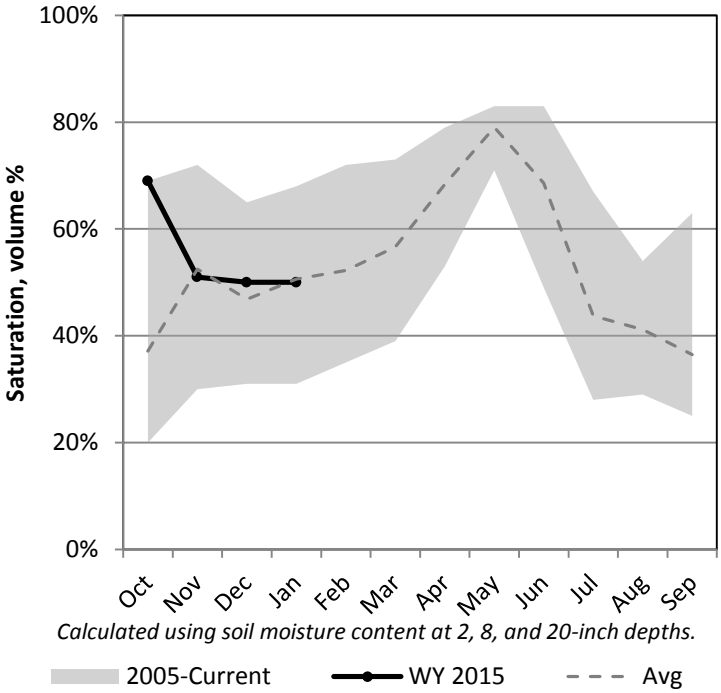
1/1/2015

Snowpack in the Upper Sevier River Basin is near average at 100% of normal, compared to 98% last year. Precipitation in December was much above average at 139%, which brings the seasonal accumulation (Oct-Dec) to 77% of average. Soil moisture is at 50% compared to 62% last year. Reservoir storage is at 45% of capacity, compared to 60% last year. Forecast streamflow volumes range from 63% to 103% of average. The surface water supply index is 19% for the Upper Sevier.

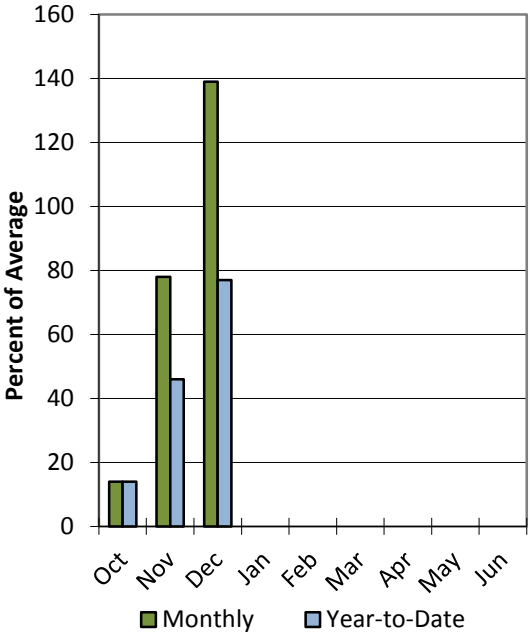
Snowpack



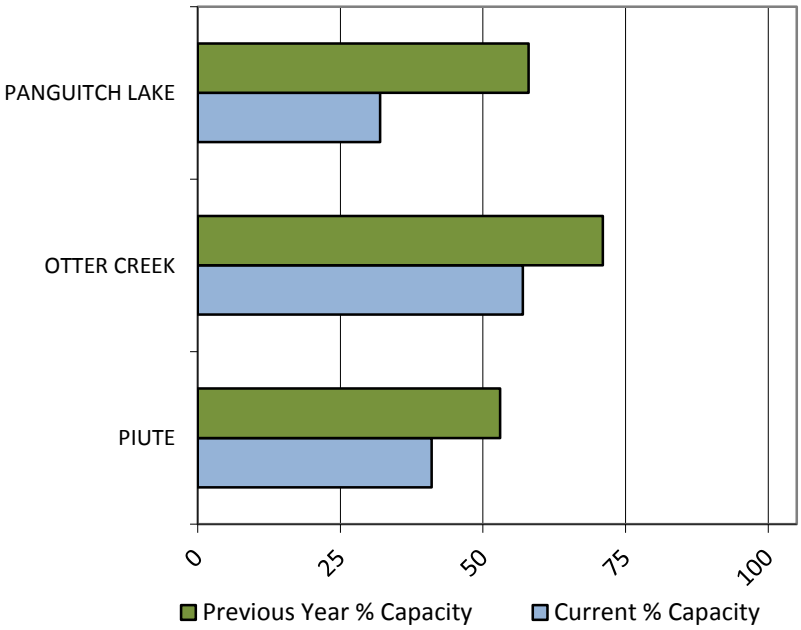
Soil Moisture



Precipitation



Reservoir Storage



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Upper Sevier River
Streamflow Forecasts - January 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	0.96	19.2	33	69%	47	67	48
EF Sevier R nr Kingston								
	APR-JUL	4.6	16.1	24	69%	32	43	35
Sevier R nr Kingston								
	APR-JUL	0.66	6.7	22	67%	37	60	33
Sevier R bl Piute Dam								
	APR-JUL	1.32	25	46	70%	67	99	66
Clear Ck ab Diversions nr Sevier								
	APR-JUL	5.3	12.3	17	81%	22	29	21
Salina Ck nr Emery								
	APR-JUL	2.6	5.9	8.1	103%	10.3	13.6	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 December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Piute Reservoir	29.6	37.8	42.0	71.8
Otter Creek Reservoir	29.8	37.3	32.1	52.5
Panguitch Lake	7.1	12.9	11.6	22.3
Basin-wide Total	66.4	88.0	85.7	146.6
# of reservoirs	3	3	3	3

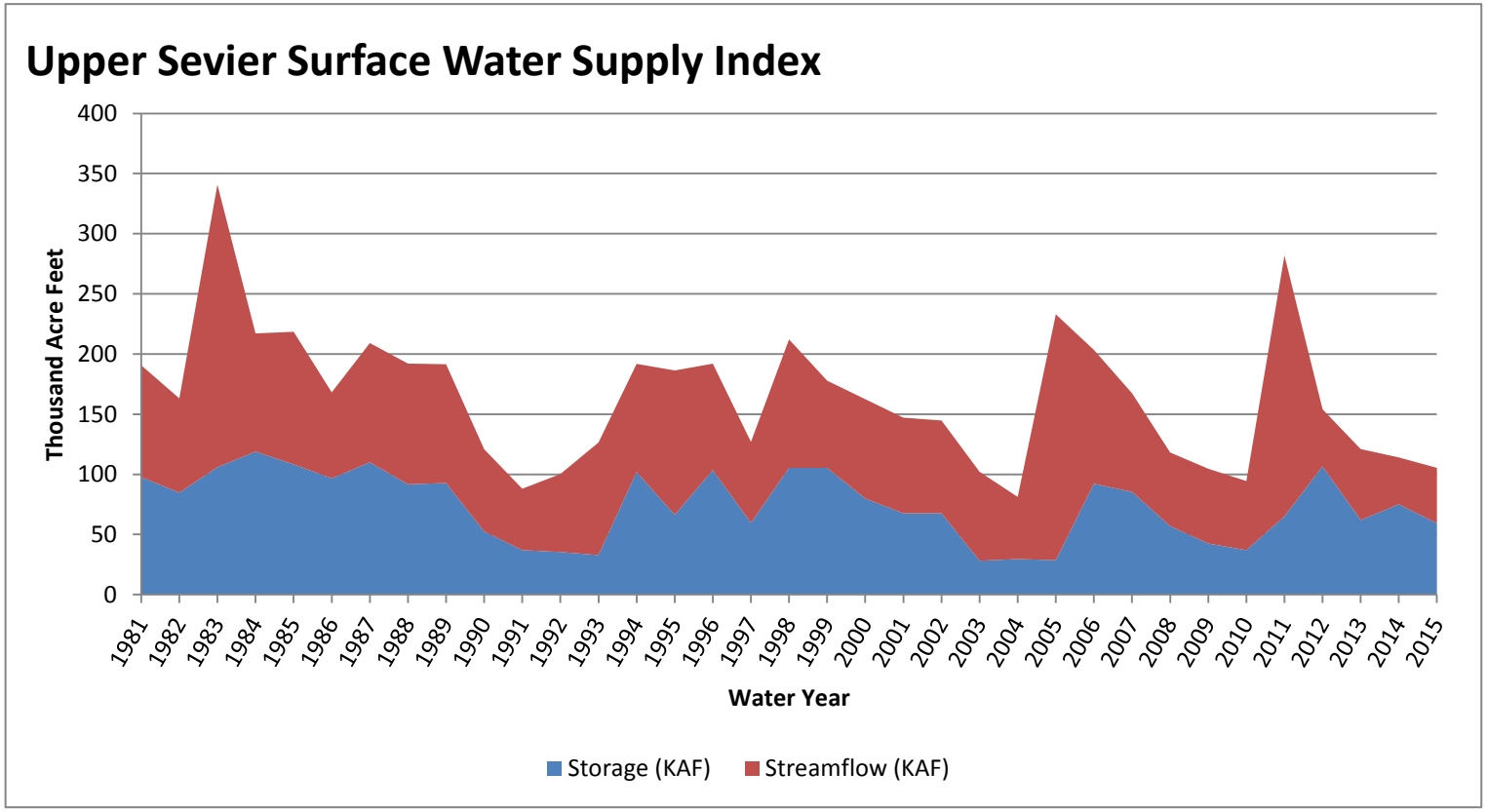
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Upper Sevier	13	100%	98%
Middle Sevier	8	118%	80%
E Fk Sevier	4	79%	128%

January, 1 2015

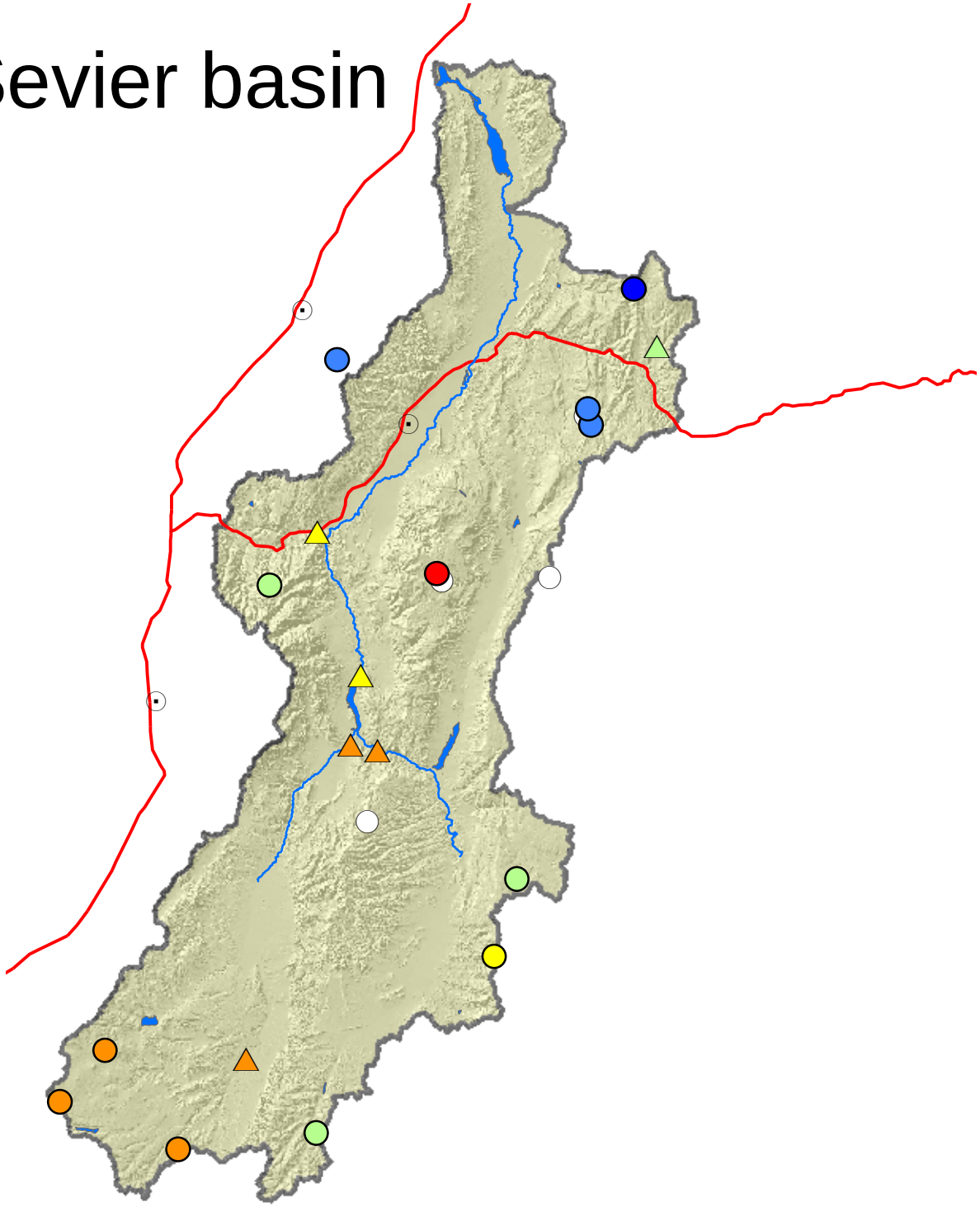
Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Upper Sevier	**59.37**	**46.00**	**105.37**	**19**	**-2.55**	**03, 09, 14, 08**

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



Upper Sevier basin



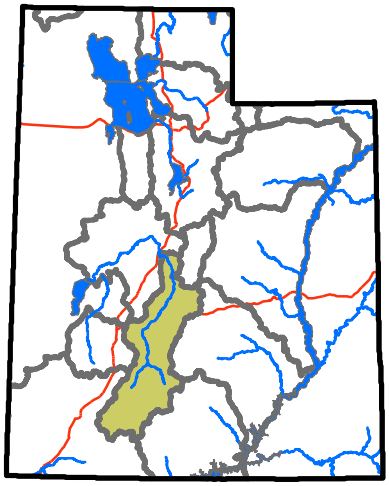
Percent normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 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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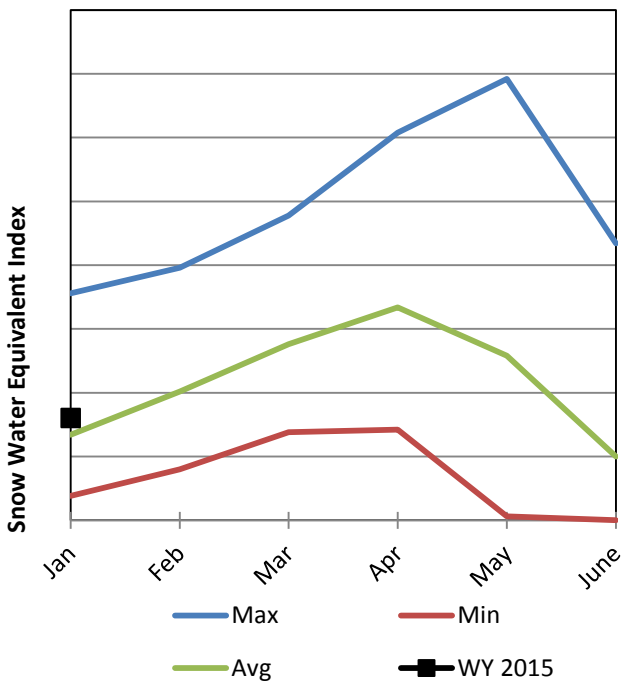
San Pitch River Basin

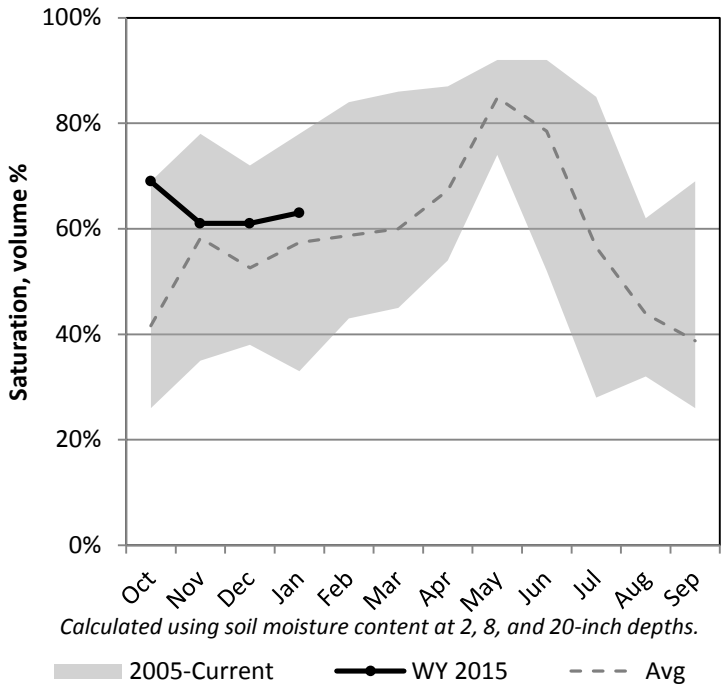
1/1/2015

Snowpack in the San Pitch River Basin is much above average at 141% of normal, compared to 80% last year. Precipitation in December was much above average at 176%, which brings the seasonal accumulation (Oct-Dec) to 103% of average. Soil moisture is at 63% compared to 64% last year. Reservoir storage is at 0% of capacity, compared to 1% last year. The forecast streamflow volume for Manti Creek is 112% of average. The surface water supply index is 49% for the San Pitch.

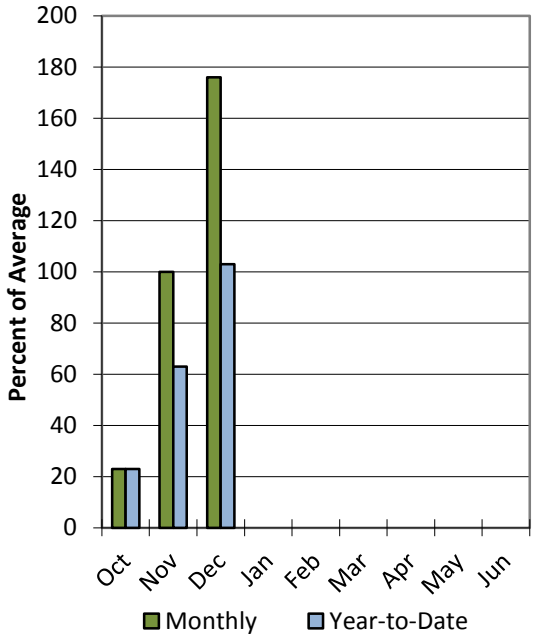
Snowpack



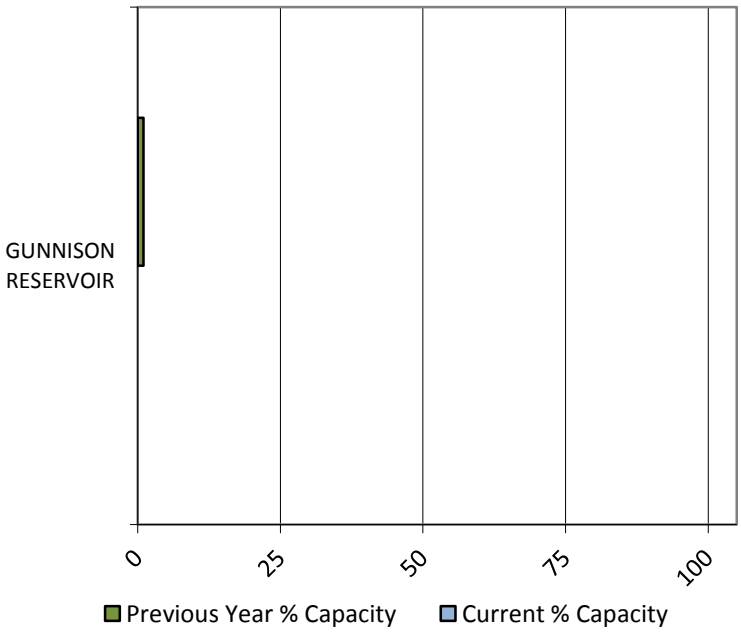
Soil Moisture



Precipitation



Reservoir Storage



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San Pitch River
Streamflow Forecasts - January 1, 2015

San Pitch 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						
Manti Ck bl Dugway Ck nr Manti								
	APR-JUL	11.3	15.5	18.7	112%	22	28	16.7
Sevier R nr Gunnison								
	APR-JUL	55	87	109	110%	131	163	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 December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Gunnison Reservoir	0.0	0.2	9.3	20.3
Basin-wide Total		0.2	9.3	20.3
# of reservoirs	1	1	1	1

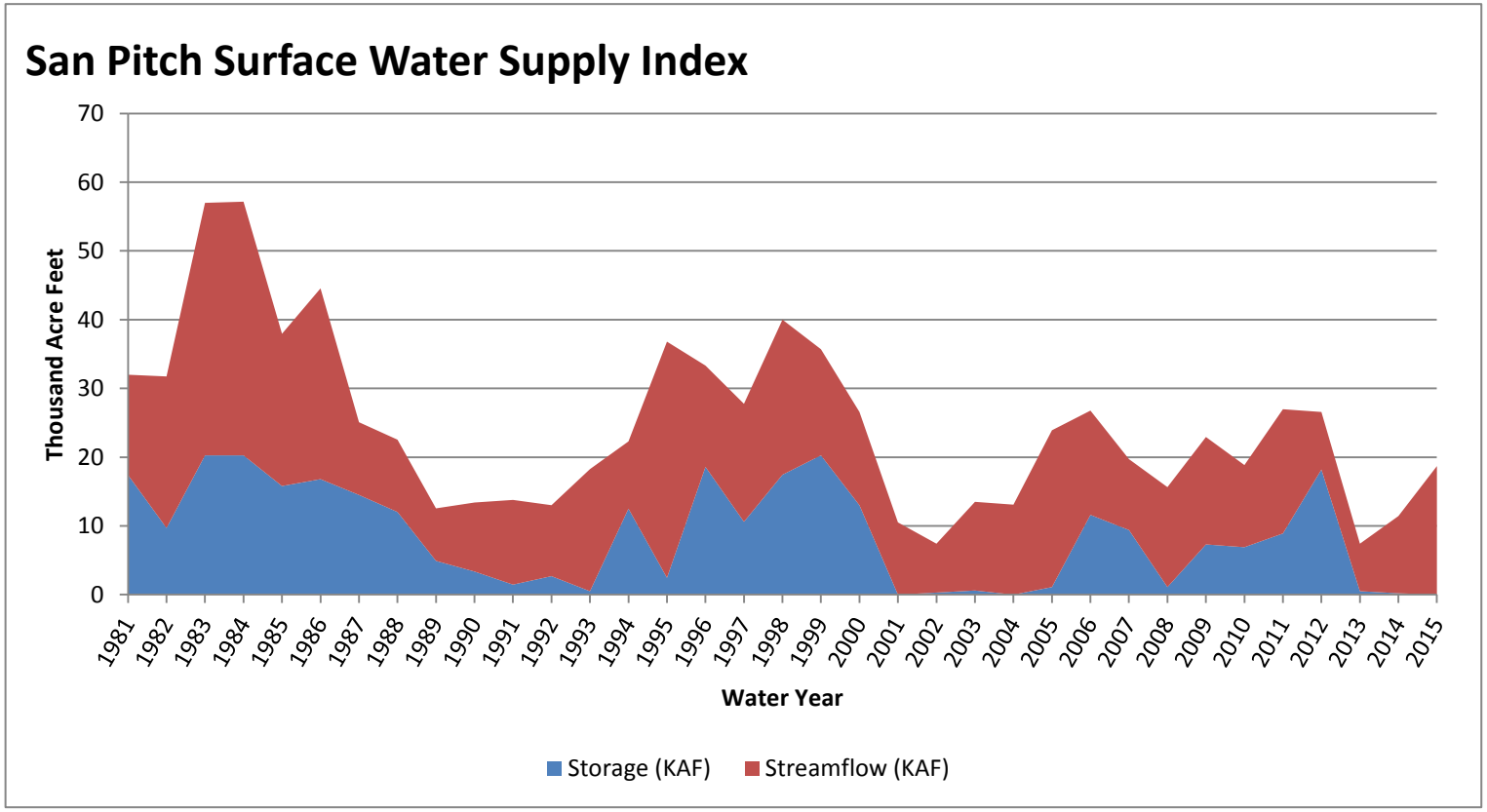
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Upper San Pitch	2	138%	72%
Lower San Pitch	5	149%	81%

January, 1 2015

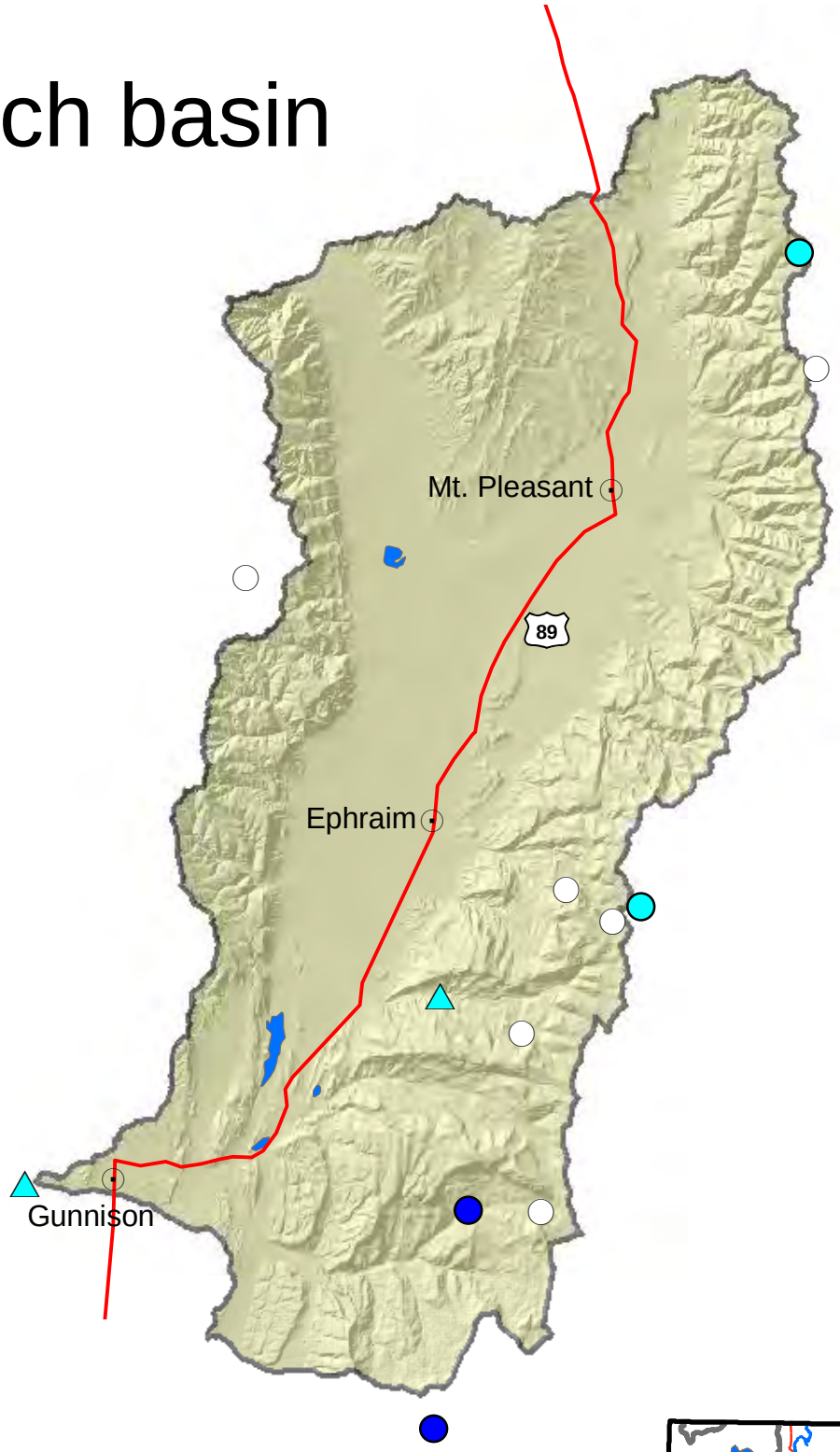
Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
San Pitch	**0.00**	**18.70**	**18.70**	**36**	**-1.16**	**08, 93, 10, 07**

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



San Pitch basin



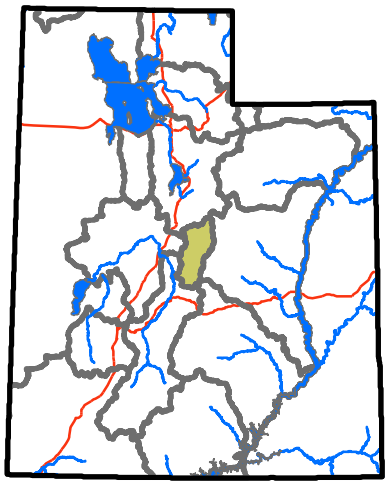
Percent normal

- < 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
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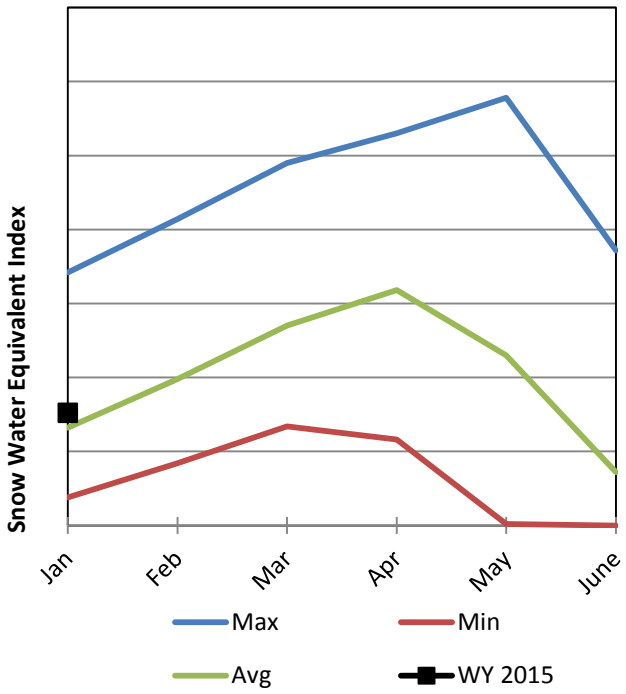
Natural Resources Conservation Service

Price & San Rafael Basins

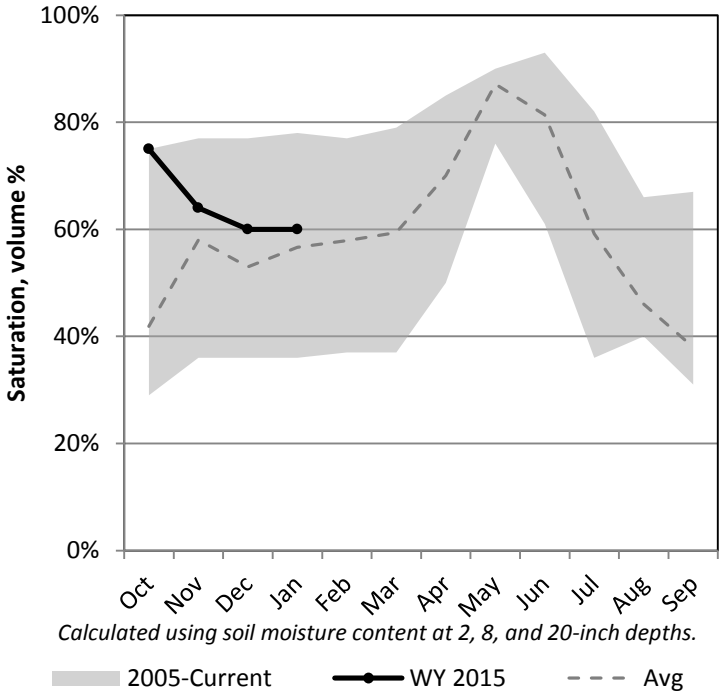
1/1/2015

Snowpack in the Price & San Rafael Basins is much above average at 133% of normal, compared to 76% last year. Precipitation in December was much above average at 155%, which brings the seasonal accumulation (Oct-Dec) to 93% of average. Soil moisture is at 60% compared to 62% last year. Reservoir storage is at 48% of capacity, compared to 39% last year. Forecast streamflow volumes range from 93% to 111% of average. The surface water supply index is 42% for the Price River, 61% for Joe's Valley, 67% for Ferron Creek.

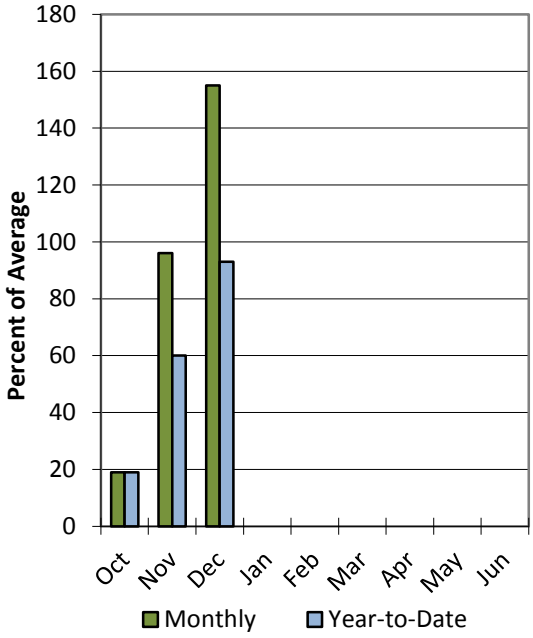
Snowpack



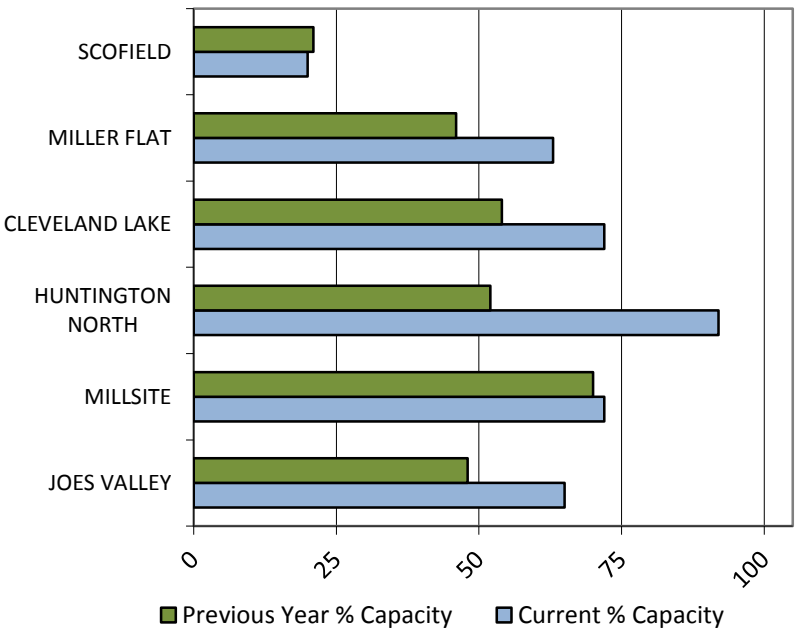
Soil Moisture



Precipitation



Reservoir Storage



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Price San Rafael
Streamflow Forecasts - January 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	16.7	24	30	100%	36	47	30
Price R nr Scofield Reservoir[2]	APR-JUL	21	33	42	102%	53	70	41
White R bl Tabbyune Creek	APR-JUL	6.9	11.9	16	103%	21	29	15.5
Green R at Green River, UT [2]	APR-JUL	1450	2170	2740	93%	3370	4430	2960
Electric Lake Inflow [2]	APR-JUL	7.1	10.9	14	105%	17.5	23	13.3
Huntington Ck nr Huntington [2]	APR-JUL	24	35	43	108%	52	68	40
Joes Valley Reservoir Inflow[2]	APR-JUL	38	50	60	107%	71	88	56
Ferron Ck (Upper Station) nr Ferron	APR-JUL	27	35	42	111%	48	59	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 December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Joes Valley Reservoir	40.3	29.3	39.7	61.6
Millsite	12.1	11.7	10.0	16.7
Huntington North Reservoir	3.9	2.2	2.3	4.2
Cleveland Lake	3.9	2.9		5.4
Miller Flat Reservoir	3.3	2.4		5.2
Scofield Reservoir	12.9	13.9	28.5	65.8
Basin-wide Total	69.1	57.1	80.5	148.3
# of reservoirs	4	4	4	4

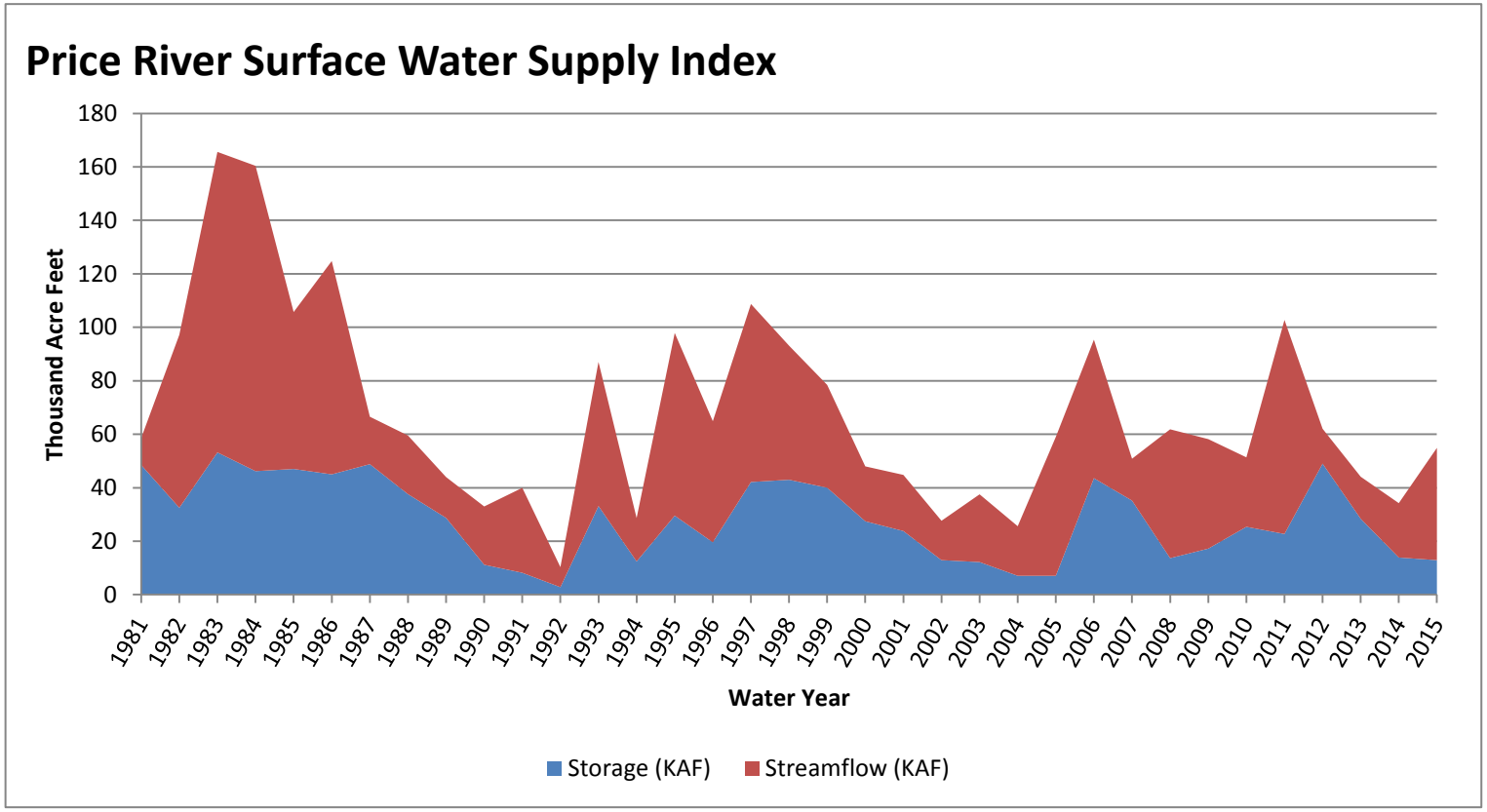
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Price	6	133%	76%
San Rafael	6	133%	76%

January, 1 2015

Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Price River	**12.90**	**42.00**	**54.90**	**42**	**-0.69**	**07, 10, 09, 81**

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

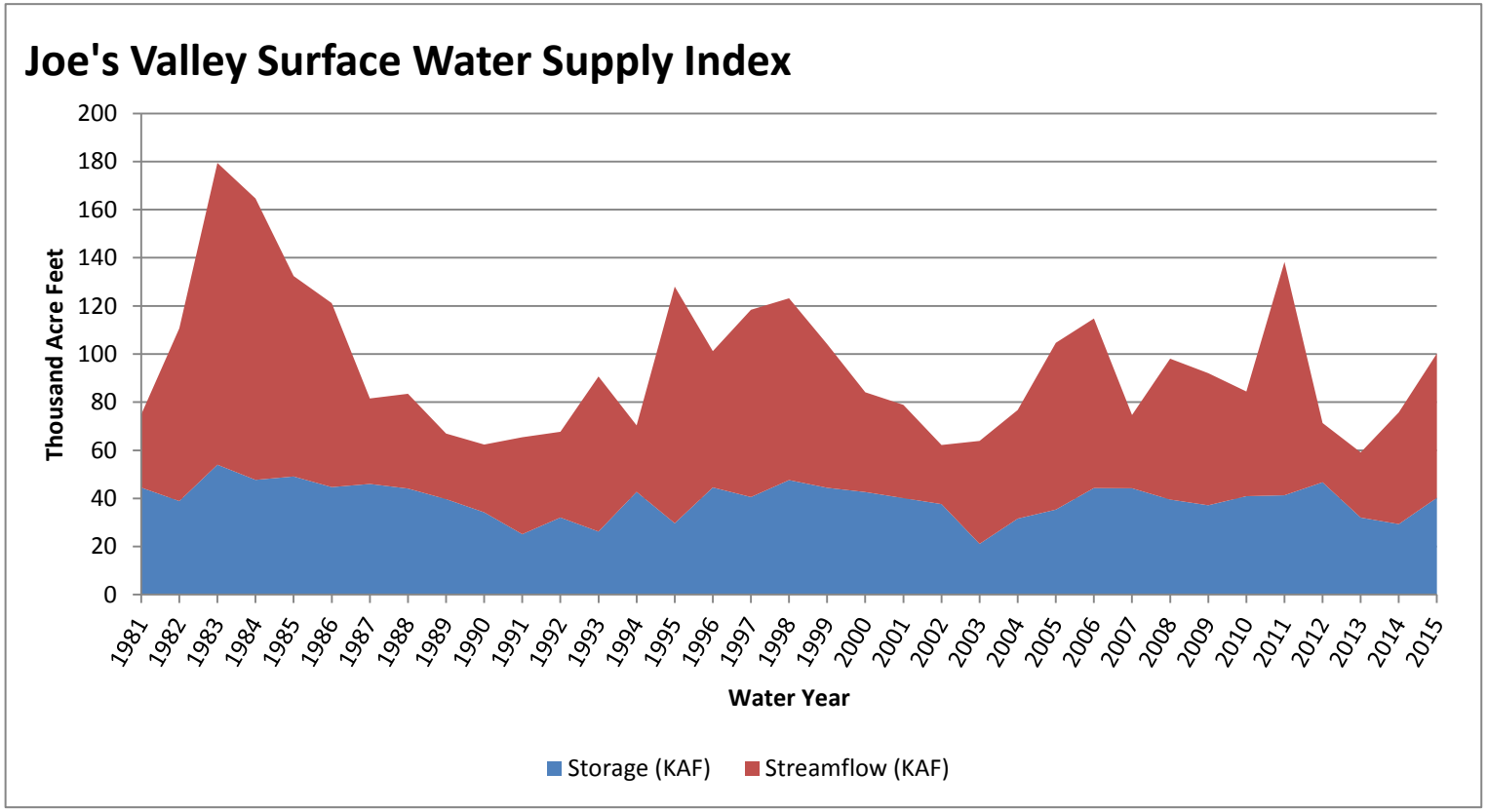


January, 1 2015

Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Joe's Valley	**40.25**	**60.00**	**100.25**	**61**	**0.93**	**09, 08, 96, 99**

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

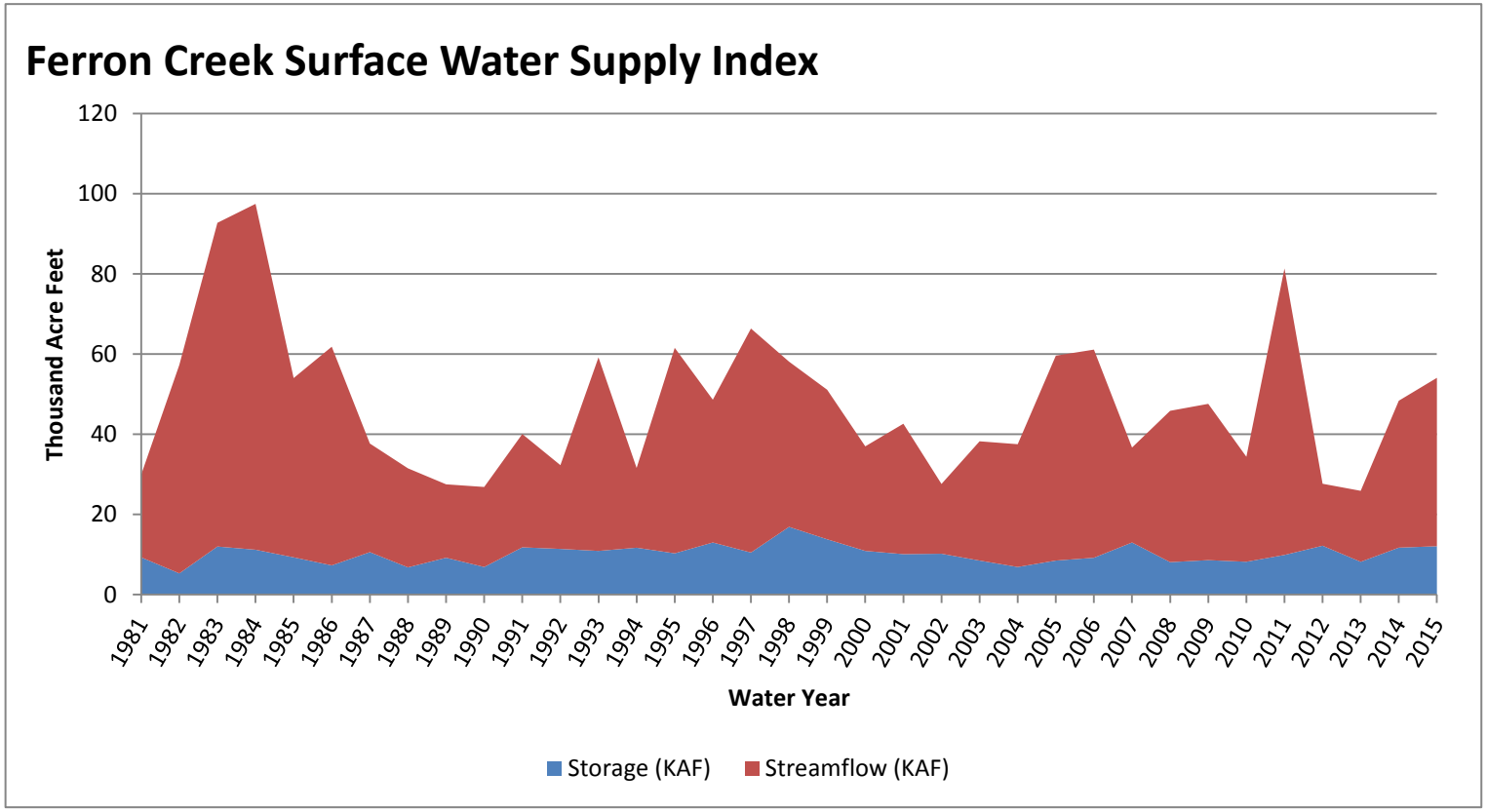


January, 1 2015

Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Ferron Creek	**12.07**	**42.00**	**54.07**	**67**	**1.39**	**99, 85, 82, 98**

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



Price-San Rafael basin

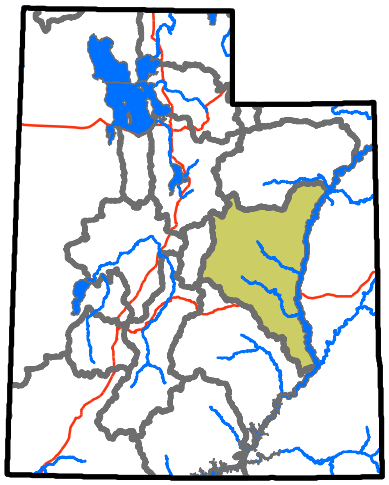
Percent normal

- < 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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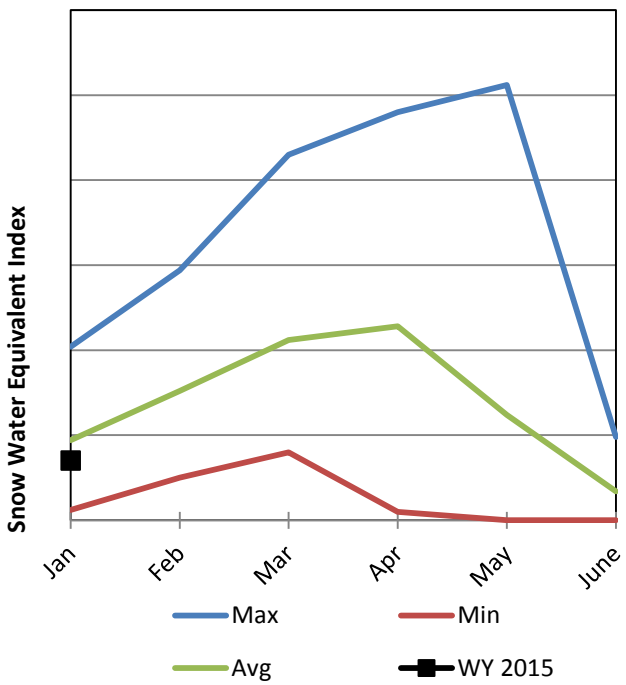
Southeastern Utah Basin

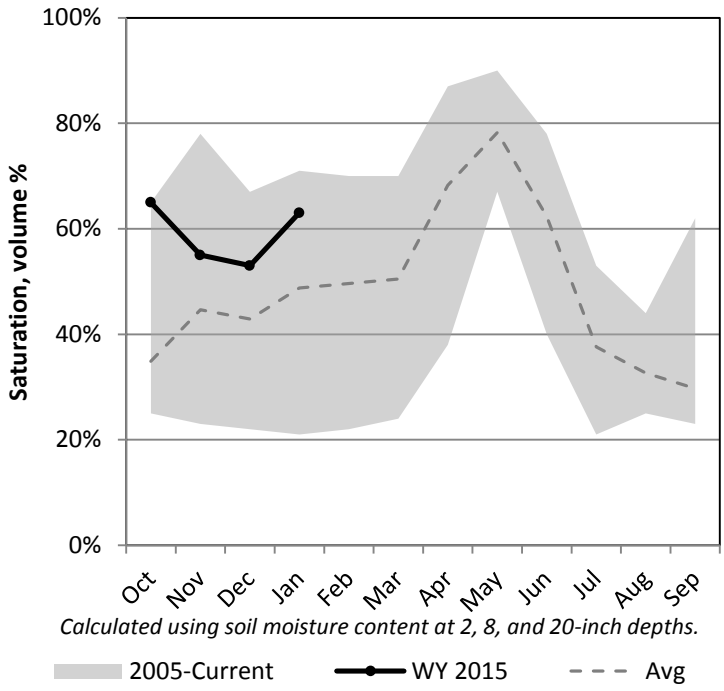
1/1/2015

Snowpack in the Southeastern Utah Basin is below average at 87% of normal, compared to 107% last year. Precipitation in December was above average at 117%, which brings the seasonal accumulation (Oct-Dec) to 73% of average. Soil moisture is at 63% compared to 63% last year. Reservoir storage is at 54% of capacity, compared to 43% last year. Forecast streamflow volumes range from 28% to 105% of average. The surface water supply index is 66% for Moab.

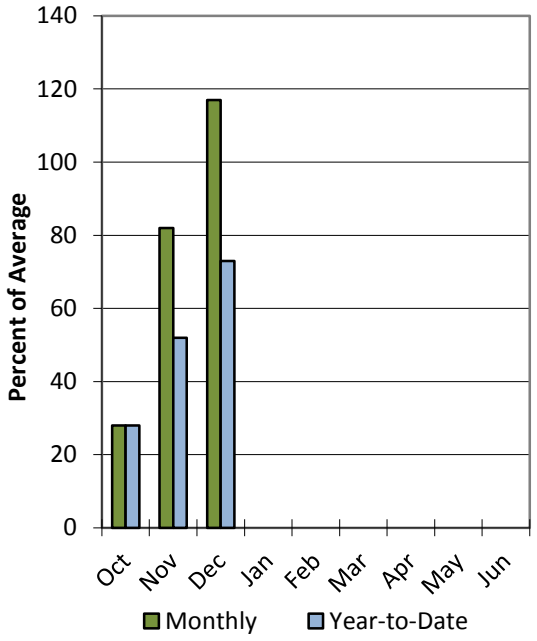
Snowpack



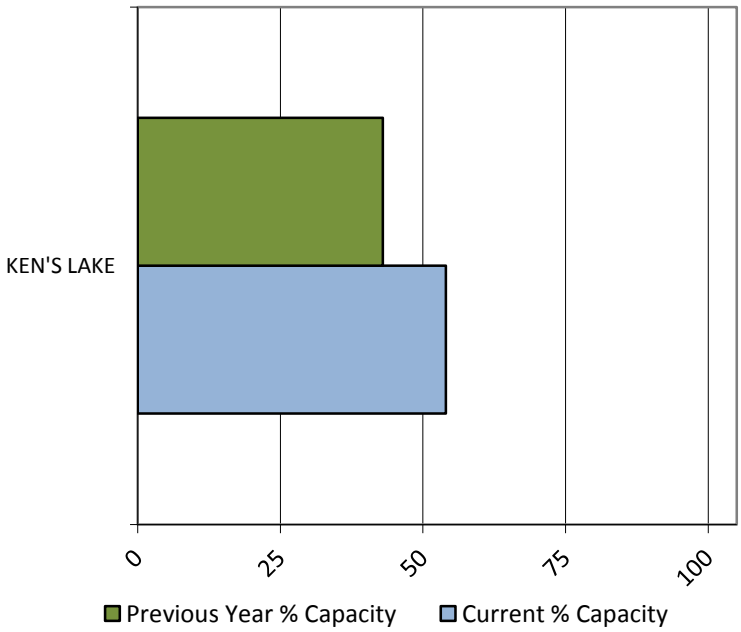
Soil Moisture



Precipitation



Reservoir Storage



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Southeastern Utah
Streamflow Forecasts - January 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	1.97	3.4	4.5	105%	5.9	8.1	4.3
South Ck ab Resv nr Monticello								
	MAR-JUL	0.01	0.12	0.3	28%	0.6	1.33	1.09
Colorado R nr Cisco [2]								
	APR-JUL	2330	3330	4120	96%	4980	6400	4280
San Juan R near Bluff [2]								
	APR-JUL	375	585	755	69%	945	1270	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 December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Ken's Lake	1.2	1.0	1.0	2.3
Basin-wide Total	1.2	1.0	1.0	2.3
# of reservoirs	1	1	1	1

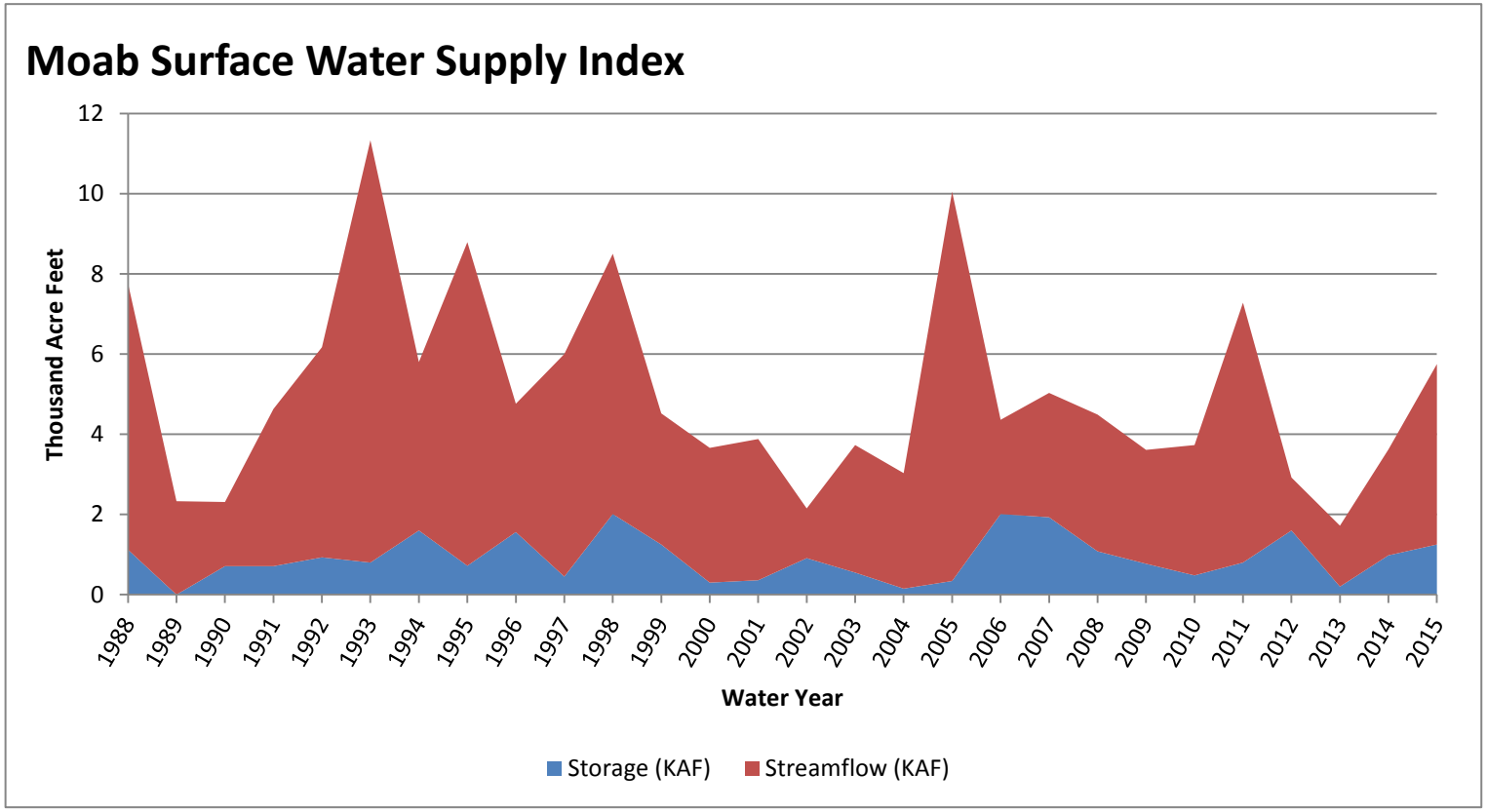
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Lasal Mtns	1	126%	98%
Lower San Juan	1	57%	116%
Lower Green	2	94%	86%

January, 1 2015

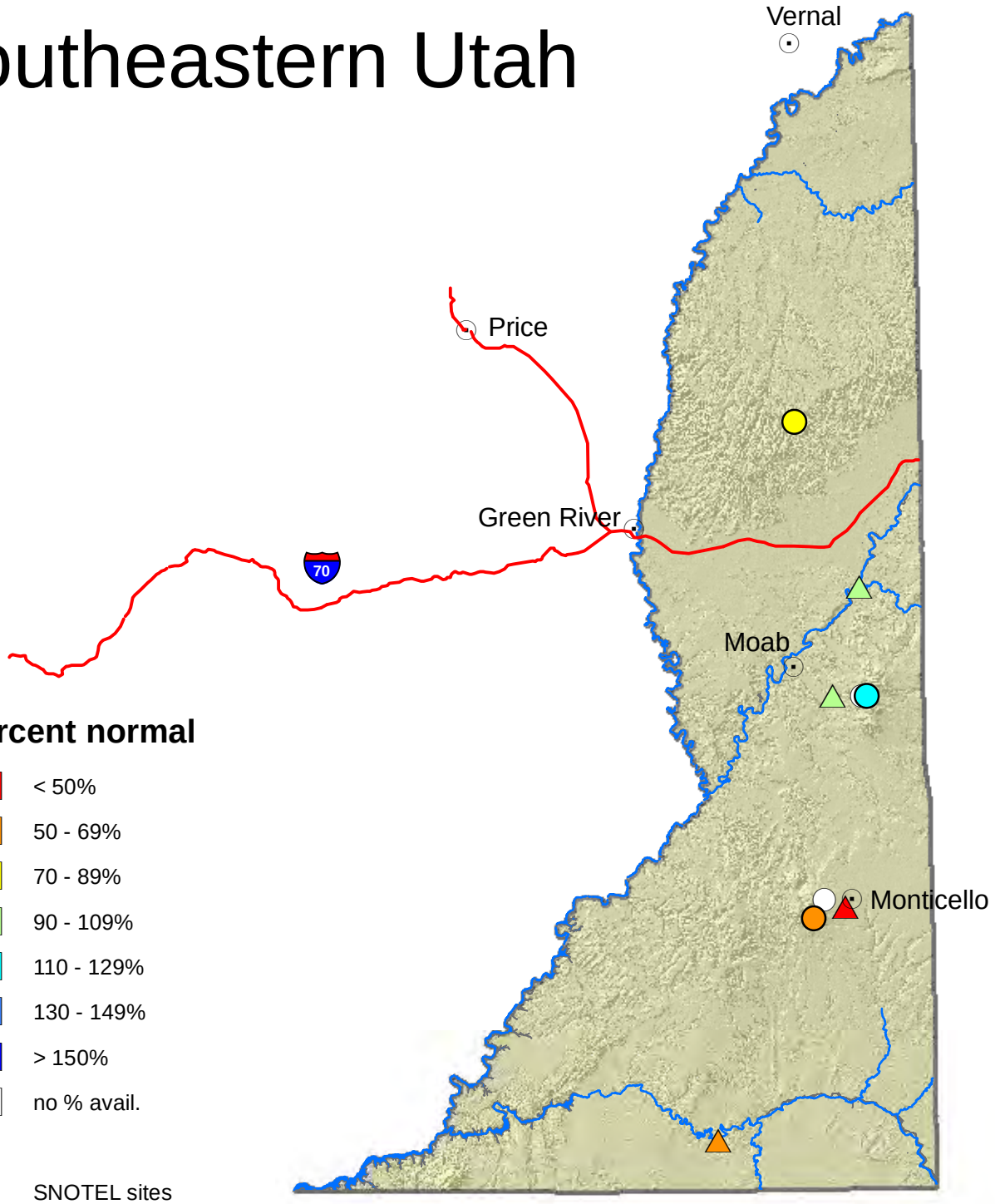
Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Moab	**1.25**	**4.50**	**5.75**	**66**	**1.29**	**96, 07, 94, 97**

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



Southeastern Utah



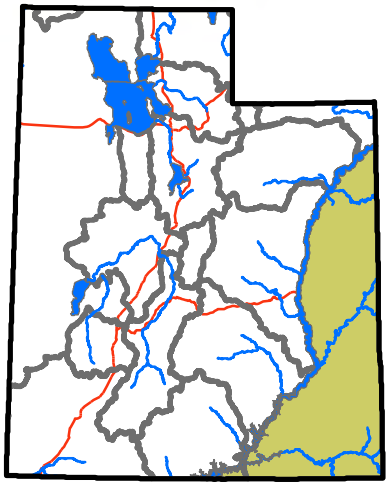
Percent normal

- < 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



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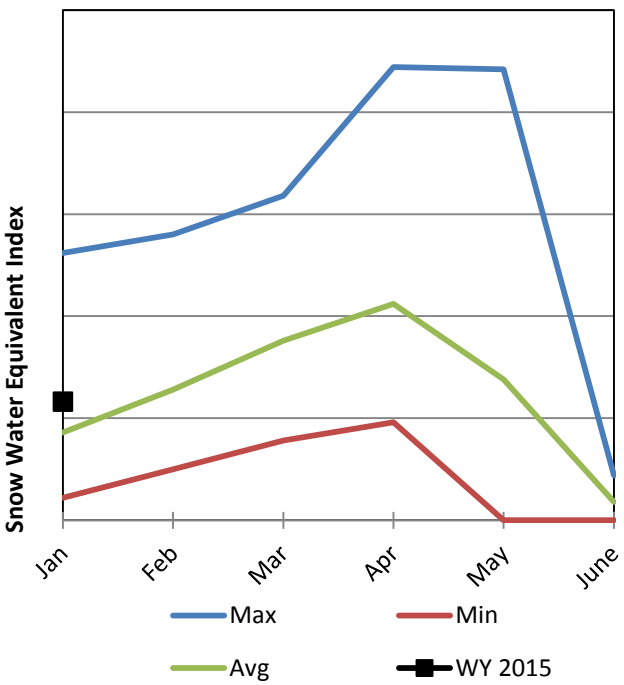
Dirty Devil Basin

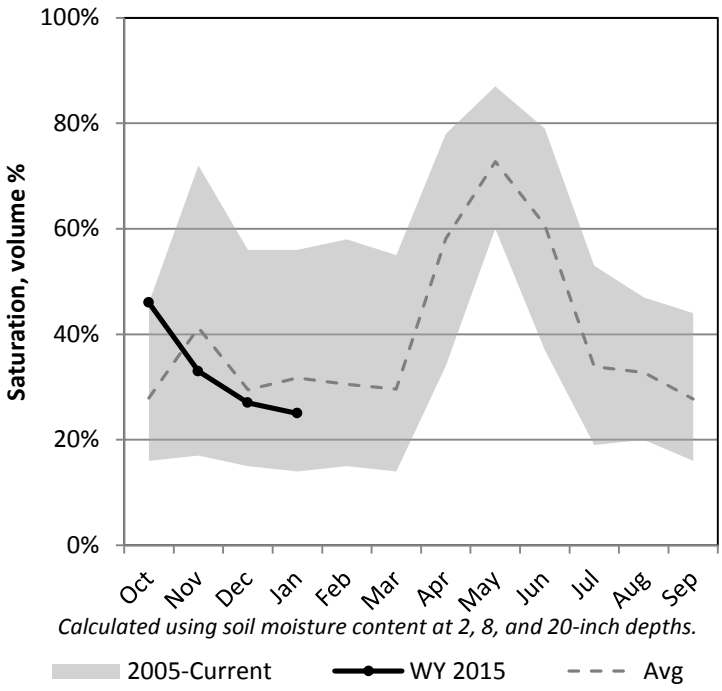
1/1/2015

Snowpack in the Dirty Devil Basin is much above average at 168% of normal, compared to 102% last year. Precipitation in December was much above average at 192%, which brings the seasonal accumulation (Oct-Dec) to 107% of average. Soil moisture is at 25% compared to 33% last year. Forecast streamflow volumes range from 111% to 116% of average.

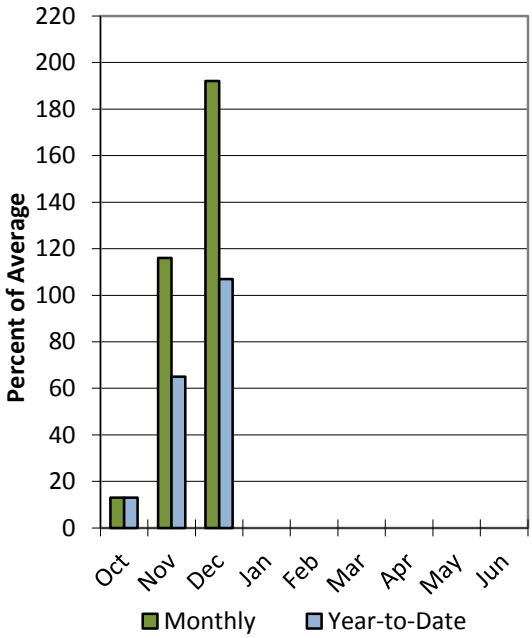
Snowpack



Soil Moisture



Precipitation



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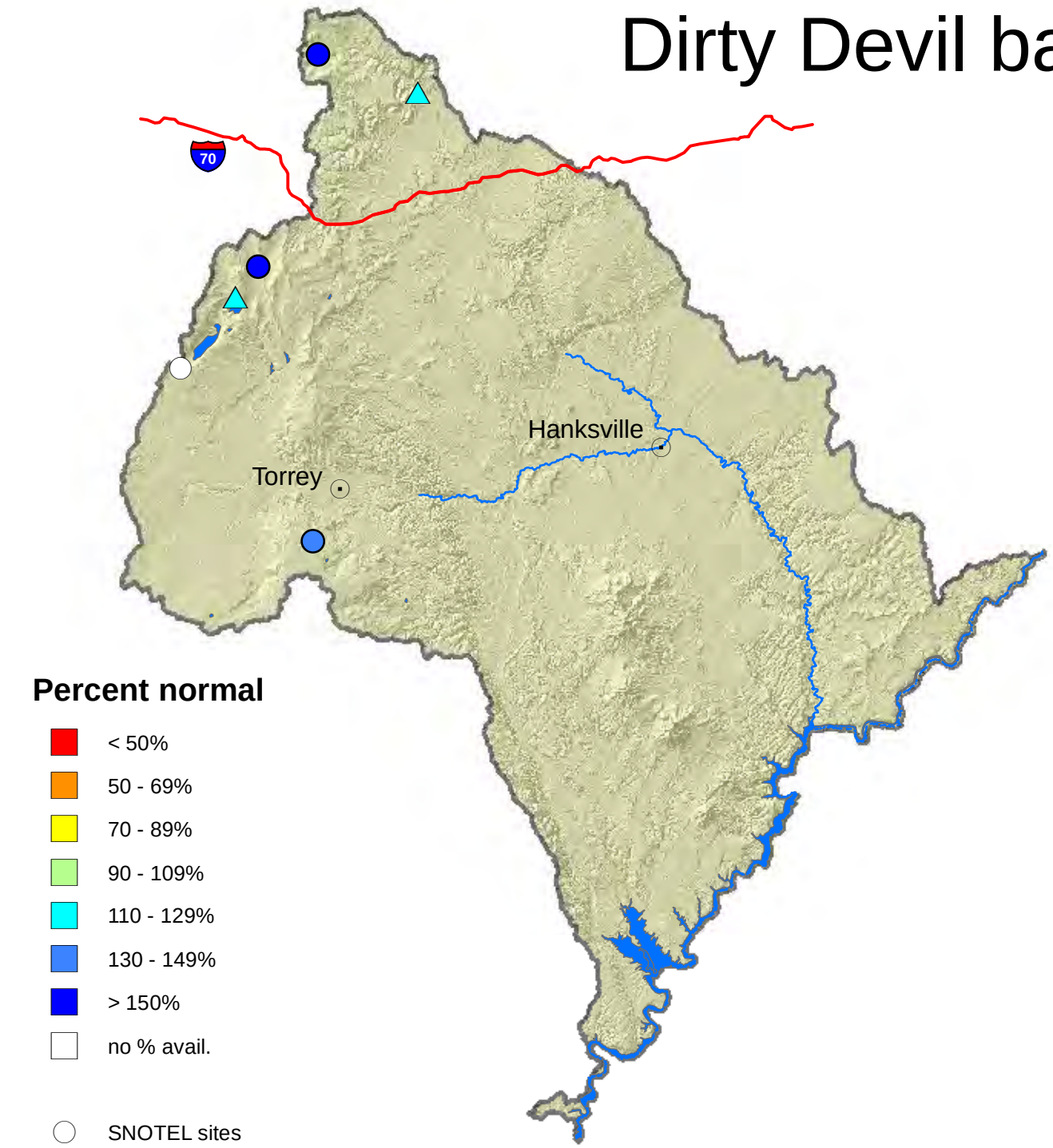
Dirty Devil
Streamflow Forecasts - January 1, 2015

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	12.3	17.7	22	111%	27	34	19.9
Seven Mile Ck nr Fish Lake								
	APR-JUL	5.5	7.2	8.5	116%	9.9	12.3	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 January 1, 2015	# of Sites	% Median	Last Year % Median
Muddy	3	154%	81%
Fremont	3	153%	101%

Dirty Devil basin



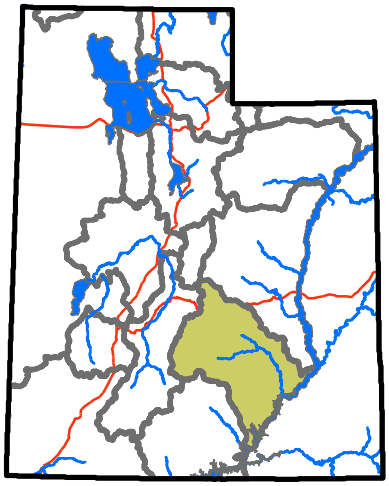
Percent normal

- < 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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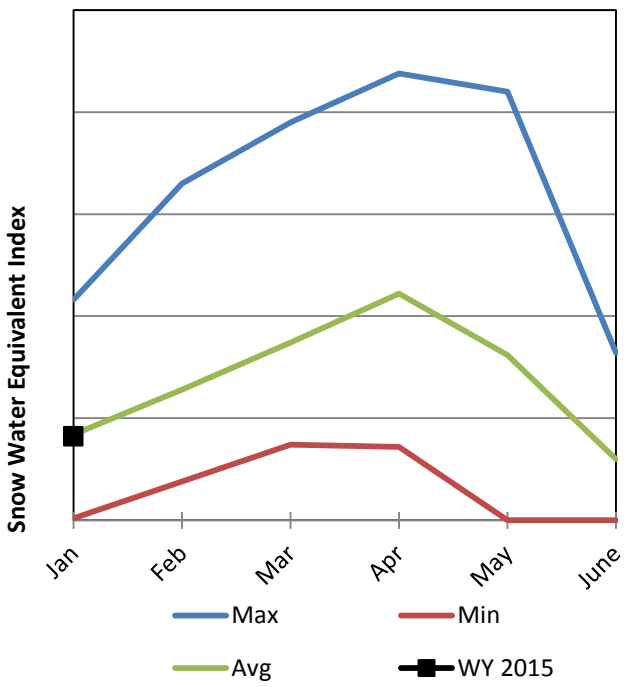
Escalante River Basin

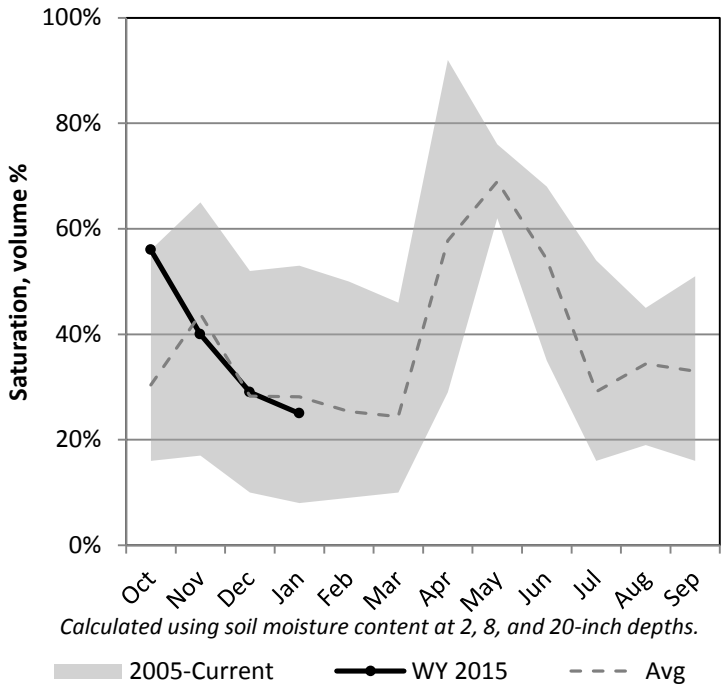
1/1/2015

Snowpack in the Escalante River Basin is near average at 104% of normal, compared to 145% last year. Precipitation in December was much above average at 147%, which brings the seasonal accumulation (Oct-Dec) to 75% of average. Soil moisture is at 25% compared to 40% last year. The forecast streamflow volume for Pine Creek is 83% of average.

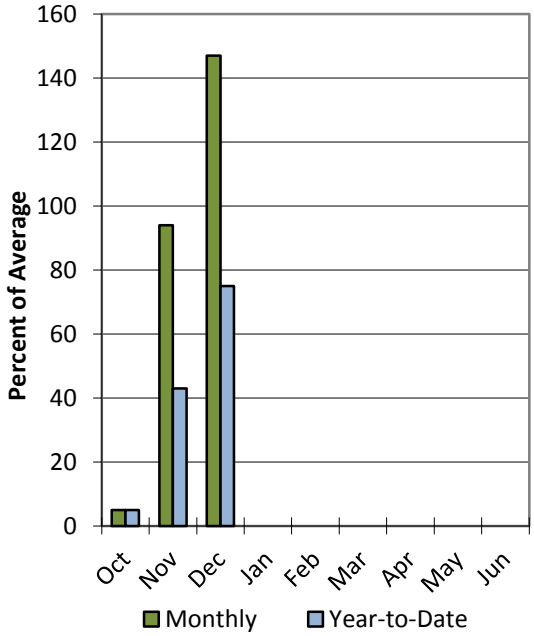
Snowpack



Soil Moisture



Precipitation



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Escalante River
Streamflow Forecasts - January 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	0.7	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 January 1, 2015	# of Sites	% Median	Last Year % Median
Escalante	3	104%	145%
Paria	2	84%	194%

Escalante basin

Percent normal

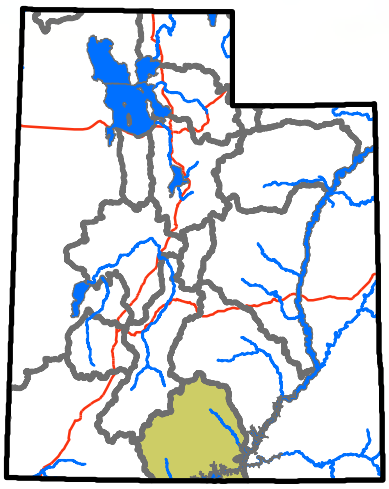
- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- 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

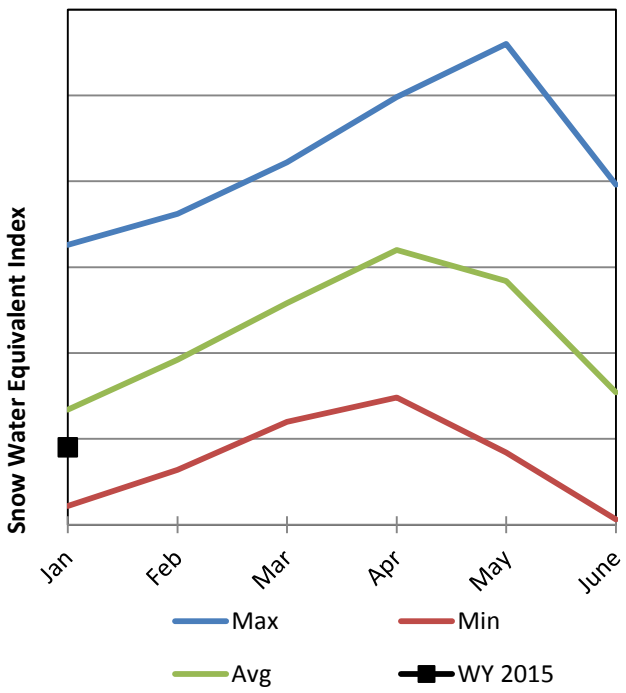


Beaver River Basin

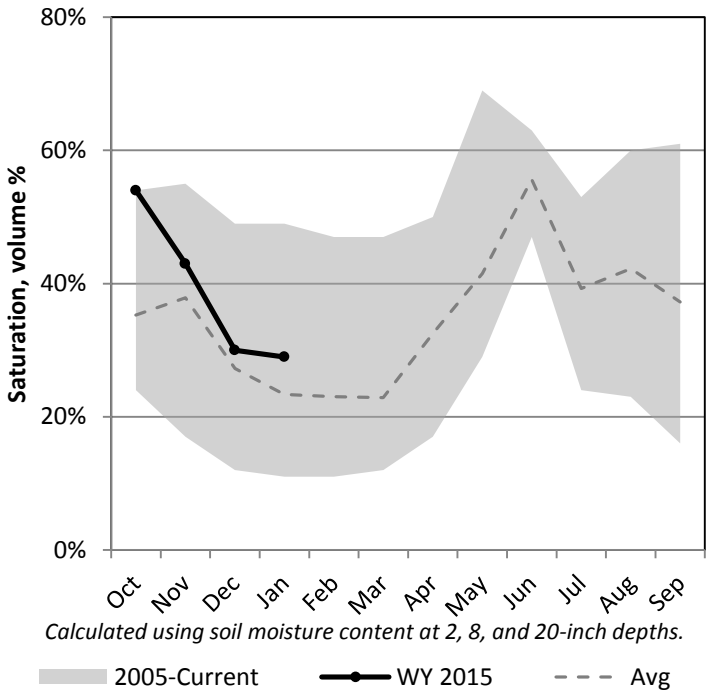
1/1/2015

Snowpack in the Beaver River Basin is below average at 71% of normal, compared to 98% last year. Precipitation in December was above average at 110%, which brings the seasonal accumulation (Oct-Dec) to 65% of average. Soil moisture is at 29% compared to 42% last year. Reservoir storage is at 30% of capacity, compared to 38% last year. The forecast streamflow volume for the Beaver River is 85% of average. The surface water supply index is 42% for the Beaver River.

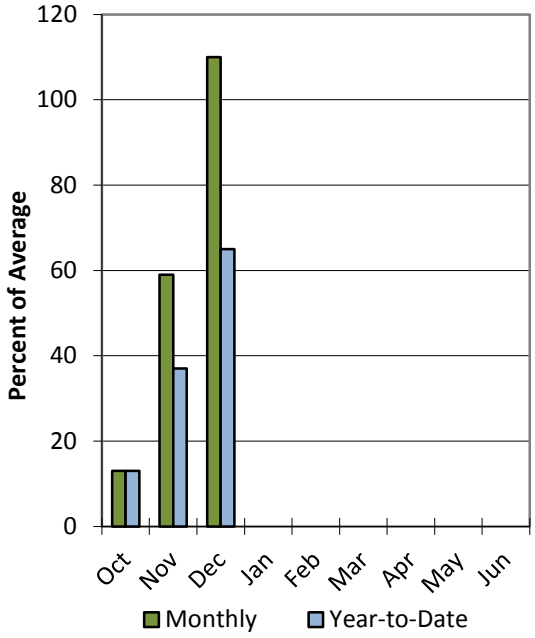
Snowpack



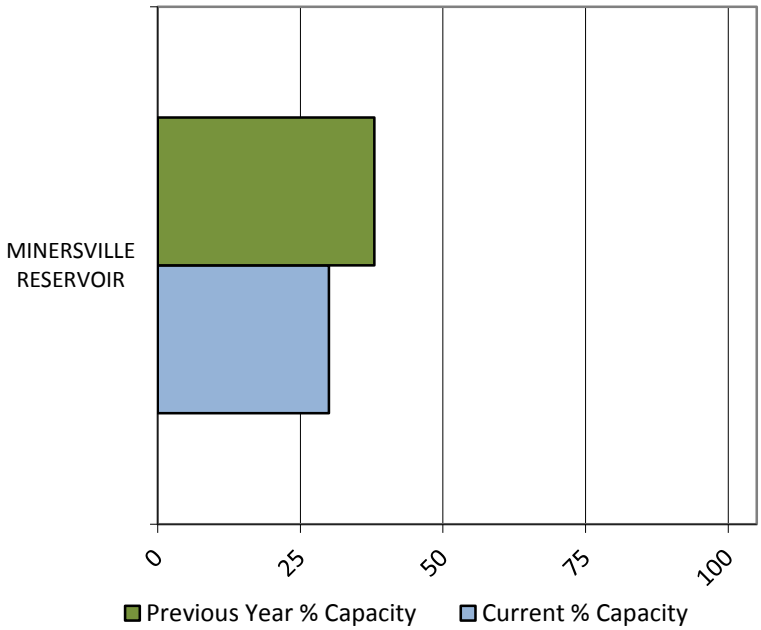
Soil Moisture



Precipitation



Reservoir Storage



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Beaver River
Streamflow Forecasts - January 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	5	15.1	22	85%	29	39	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 December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Minersville Reservoir	6.9	9.0	11.8	23.3
Basin-wide Total	6.9	9.0	11.8	23.3
# of reservoirs	1	1	1	1

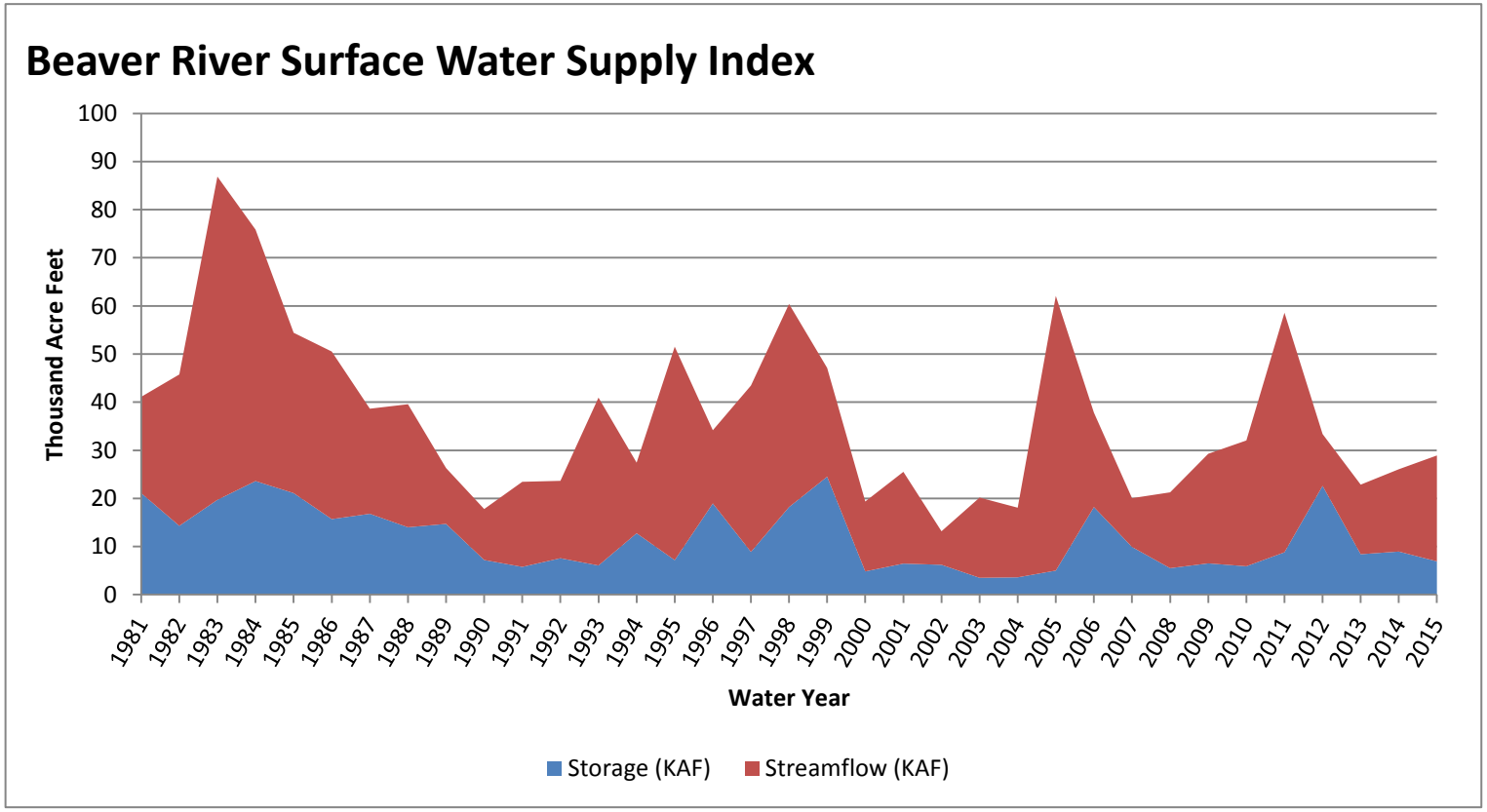
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Beaver	17	105%	80%

January, 1 2015

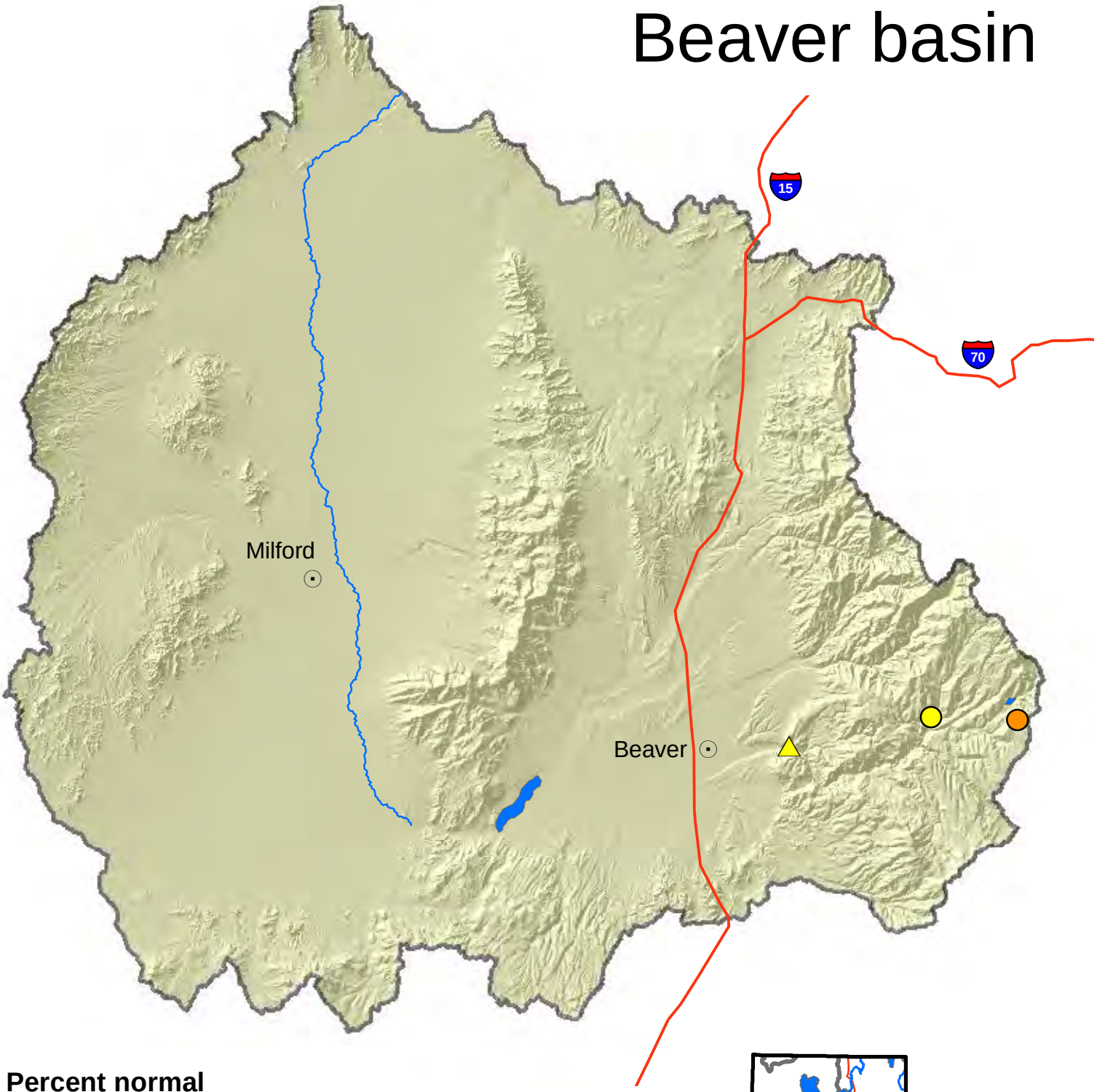
Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Beaver River	**6.92**	**22.00**	**28.92**	**42**	**-0.69**	**89, 94, 09, 10**

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



Beaver basin



Percent normal

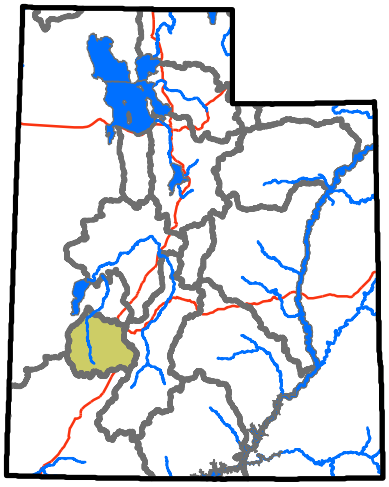
- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- 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

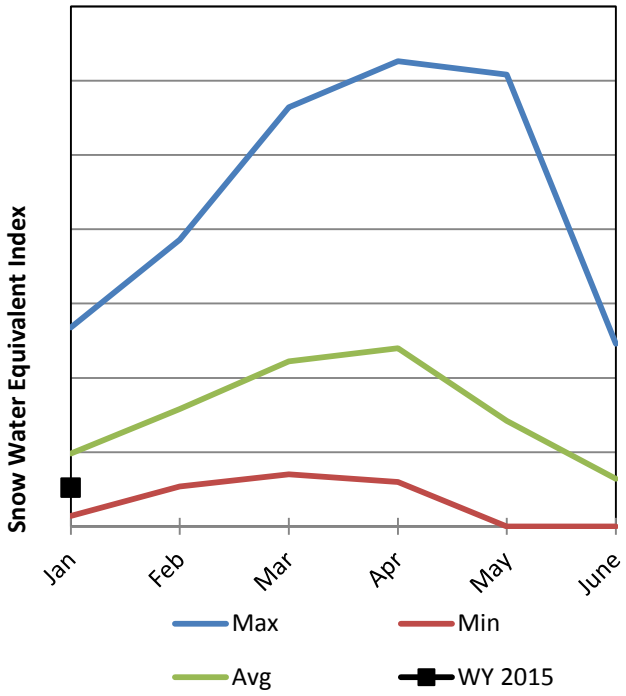


Southwestern Utah Basin

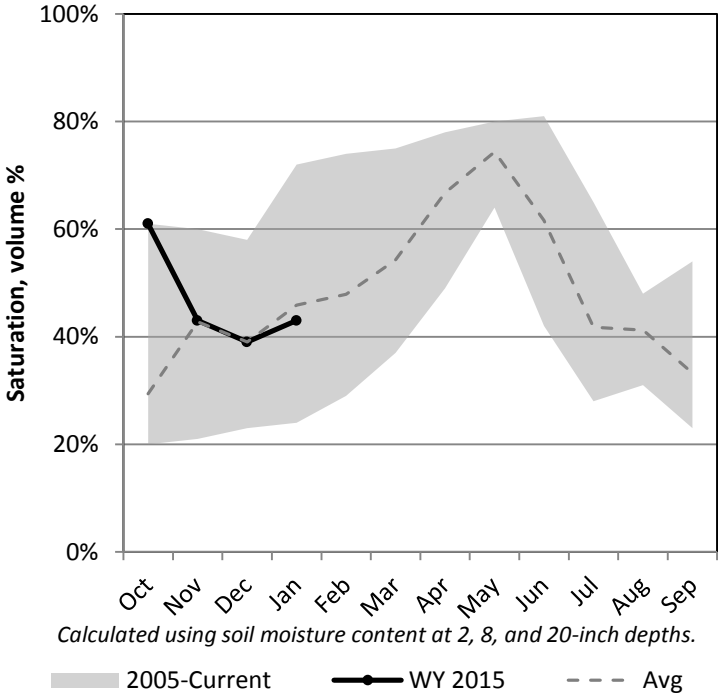
1/1/2015

Snowpack in the Southwestern Utah Basin is much below average at 68% of normal, compared to 103% last year. Precipitation in December was near average at 96%, which brings the seasonal accumulation (Oct-Dec) to 54% of average. Soil moisture is at 43% compared to 53% last year. Reservoir storage is at 47% of capacity, compared to 42% last year. Forecast streamflow volumes range from 37% to 89% of average. The surface water supply index is 35% for the Virgin River.

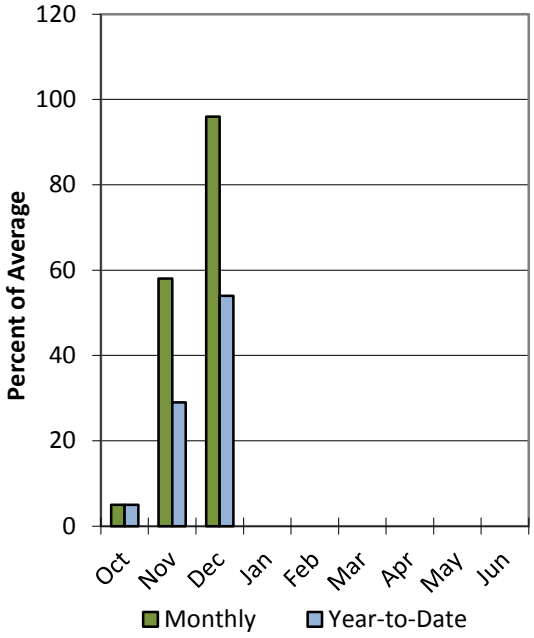
Snowpack



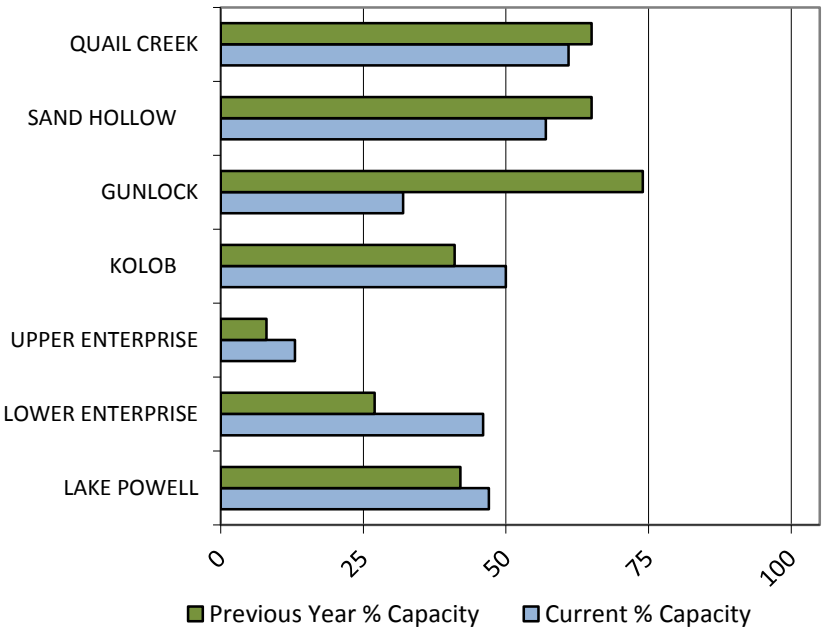
Soil Moisture



Precipitation



Reservoir Storage



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Southwestern Utah
Streamflow Forecasts - January 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	3130	4940	6400	89%	8050	10800	7160
Virgin R nr Hurricane								
	APR-JUL	14	15	23	37%	39	70	63
Virgin R at Virgin								
	APR-JUL	16	18.7	29	50%	43	66	58
Santa Clara R nr Pine Valley								
	APR-JUL	0.32	1.38	2.5	50%	4	6.8	5
Coal Ck nr Cedar City								
	APR-JUL	0.62	7.4	12	65%	16.6	23	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 December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lake Powell	11536.7	10307.1	17745.0	24322.0
Lower Enterprise	1.2	0.7	0.5	2.6
Upper Enterprise	1.3	0.8	2.8	10.0
Kolob Reservoir	2.8	2.3		5.6
Gunlock	3.3	7.6	6.2	10.4
Sand Hollow Reservoir	28.4	32.3		50.0
Quail Creek	24.2	26.0	25.3	40.0
Basin-wide Total	11566.8	10342.3	17779.8	24385.0
# of reservoirs	5	5	5	5

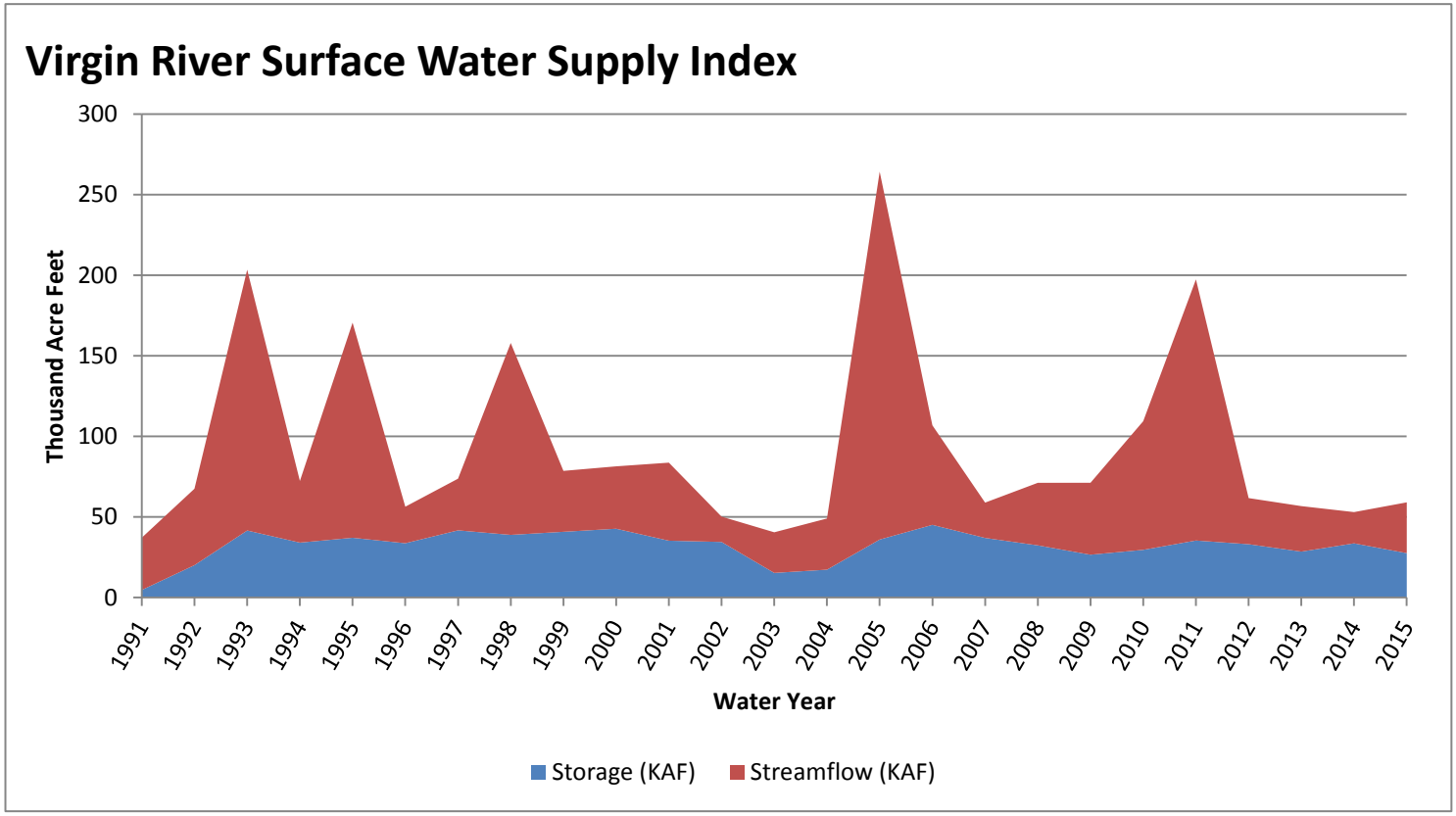
Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Upper Virgin	8	71%	111%
Lower Virgin	2	83%	111%
Cedar City Parowan	4	62%	87%

January, 1 2015

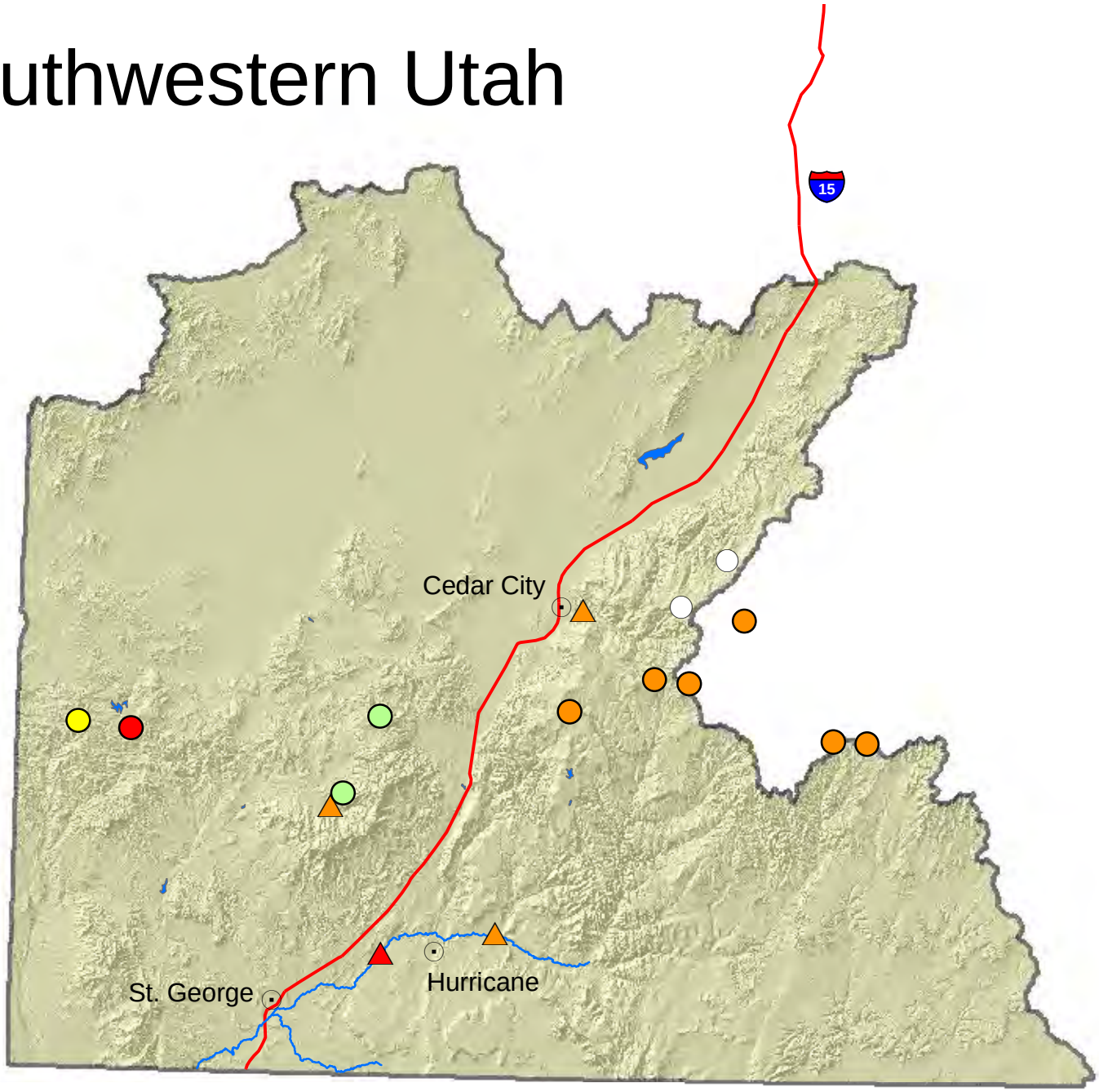
Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Virgin River	**27.57**	**31.50**	**59.07**	**35**	**-1.28**	**13, 07, 12, 92**

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



Southwestern Utah



Percent normal

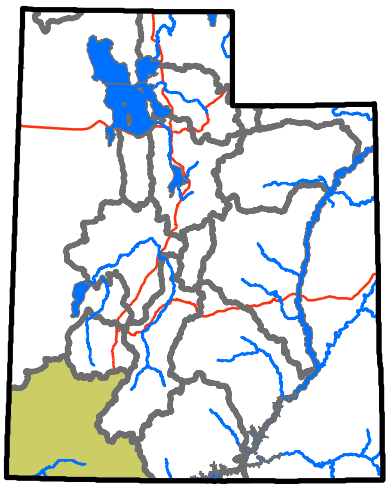
- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- no % avail.

- 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



January, 1 2015

Surface Water Supply Index

Basin or Region	Dec EOM* Storage	APR-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF ^	*KAF ^*	*KAF ^*	*%*		
Bear River	**542.1**	**110.0**	**652.1**	**47**	**-0.23**	**90, 14, 96, 89**
Woodruff Narrows	**37.6**	**105.0**	**142.6**	**53**	**0.23**	**08, 06, 10, 93**
Little Bear	**9.5**	**30.0**	**39.5**	**50**	**0**	**94, 10, 08, 93**
Ogden River	**62.2**	**73.0**	**135.2**	**47**	**-0.23**	**89, 00, 12, 10**
Weber River	**189.9**	**280.0**	**469.9**	**47**	**-0.23**	**00, 08, 94, 81**
Provo River	**834.4**	**115.0**	**949.4**	**27**	**-1.89**	**14, 02, 13, 01**
Western Uintah	**168.5**	**76.0**	**244.5**	**56**	**0.46**	**09, 81, 88, 85**
Eastern Uintah	**25.2**	**51.0**	**76.2**	**22**	**-2.31**	**04, 94, 03, 12**
Blacks Fork	**21.1**	**75.0**	**96.1**	**48**	**-0.13**	**91, 06, 08, 97**
Smiths Fork	**8.4**	**23.0**	**31.4**	**59**	**0.74**	**97, 91, 14, 10**
Price River	**12.9**	**42.0**	**54.9**	**42**	**-0.69**	**07, 10, 09, 81**
Joe's Valley	**40.3**	**60.0**	**100.3**	**61**	**0.93**	**09, 08, 96, 99**
Ferron Creek	**12.1**	**42.0**	**54.1**	**67**	**1.39**	**99, 85, 82, 98**
Moab	**1.3**	**4.5**	**5.8**	**66**	**1.29**	**96, 07, 94, 97**
Upper Sevier	**59.4**	**46.0**	**105.4**	**19**	**-2.55**	**03, 09, 14, 08**
Upper Sevier	**558.6**	**32.0**	**590.6**	**49**	**-0.12**	**11, 96, 90, 89**
Lower Sevier	**81.9**	**109.0**	**190.9**	**47**	**-0.23**	**96, 07, 81, 88**
Beaver River	**6.9**	**22.0**	**28.9**	**42**	**-0.69**	**89, 94, 09, 10**
Virgin River	**27.6**	**31.5**	**59.1**	**35**	**-1.28**	**13, 07, 12, 92**

**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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