

A photograph of a snow-covered forest. In the foreground, a large, rounded snowdrift is visible. In the background, a tall metal tower (SNOTEL) stands among the trees. The sky is overcast and grey.

Governor's Drought Advisory Committee Snowpack and Streamflow Update March 20th, 2018

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<http://www.nrcs.usda.gov/wps/portal/nrcs/main/mt/snow/>

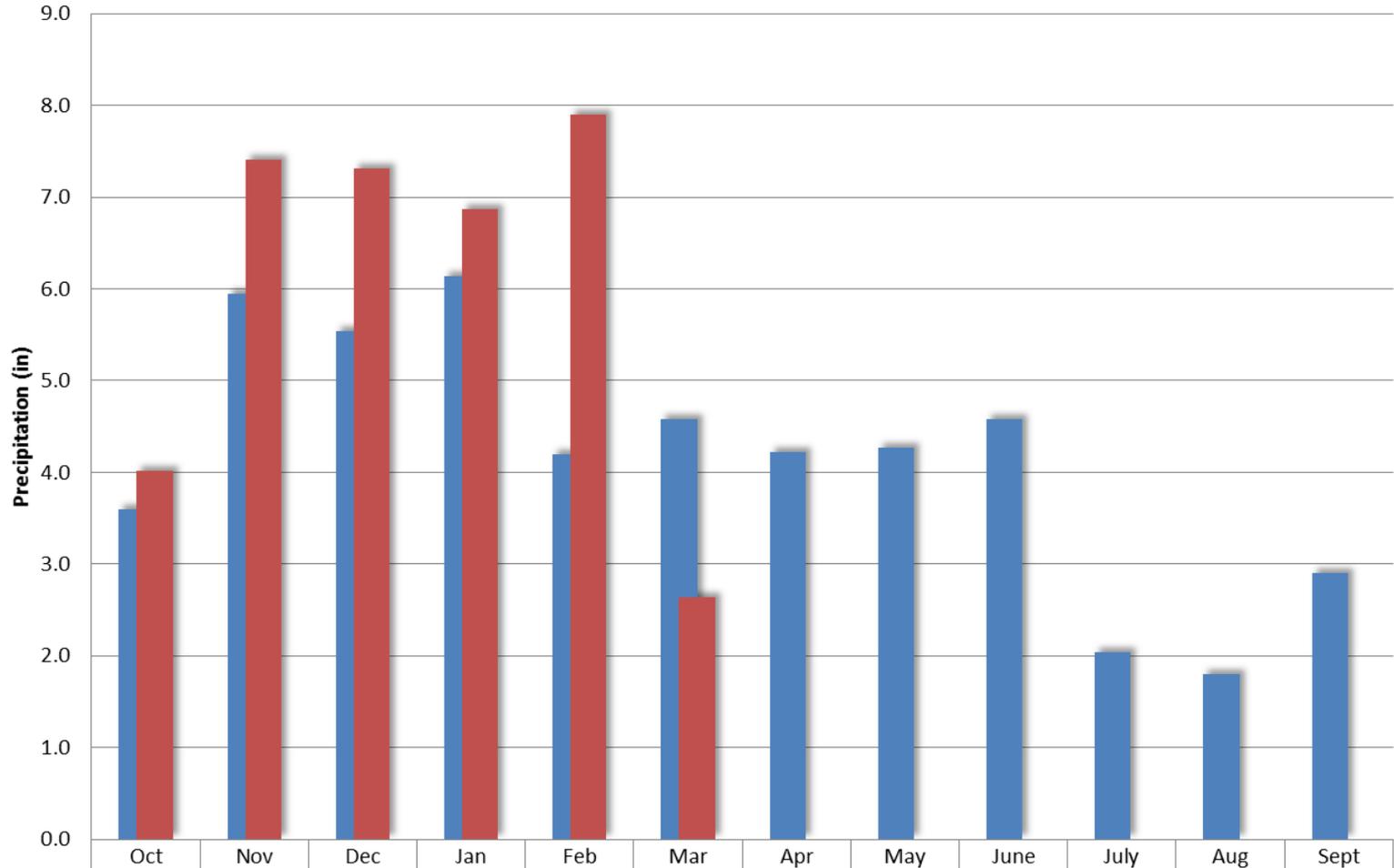
Nevada Ridge SNOTEL, northwest of Helena has received a LOT of snow this winter, record-breaking amounts. Note the capped precipitation gauge and buried ground truth markers.

Mountain Precipitation

Flathead River Basin

SNOTEL Monthly Precipitation

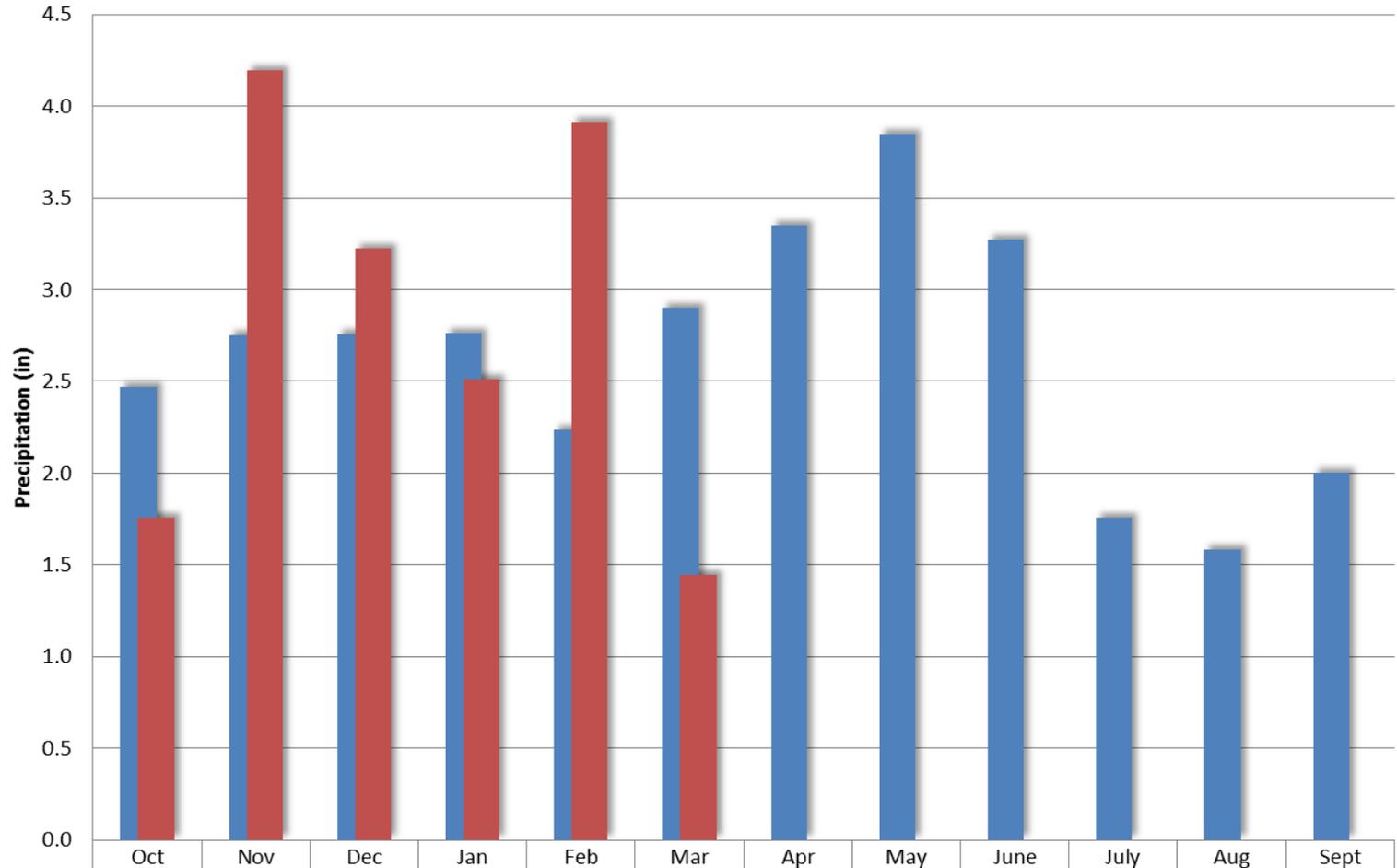
3/19/2018



■ Avg Monthly PCP (in)	3.6	6.0	5.5	6.1	4.2	4.6	4.2	4.3	4.6	2.0	1.8	2.9
■ Monthly PCP (in)	4.0	7.4	7.3	6.9	7.9	2.6	0.0	0.0	0.0	0.0	0.0	0.0

East of Divide

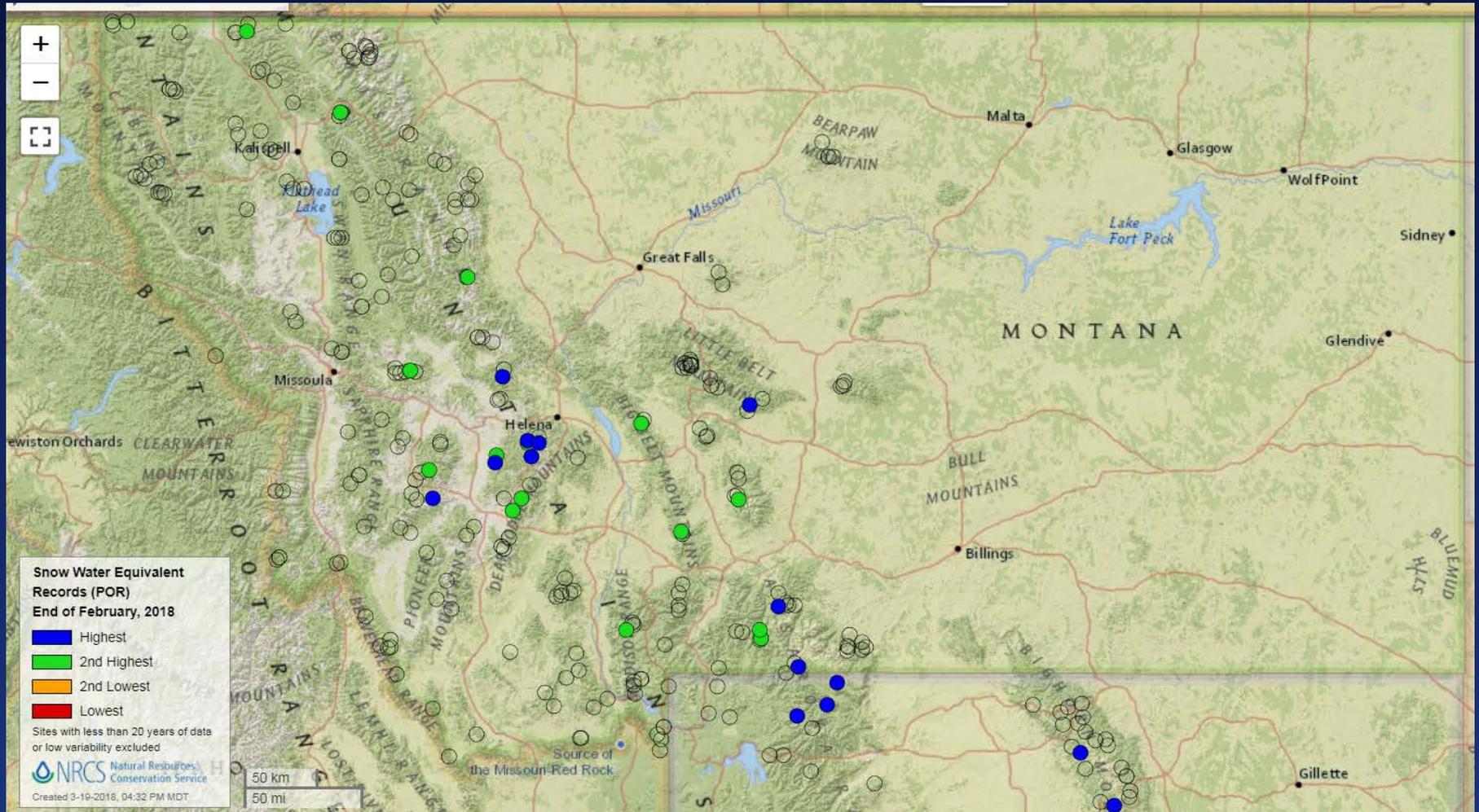
SNOTEL Monthly Precipitation
3/19/2018



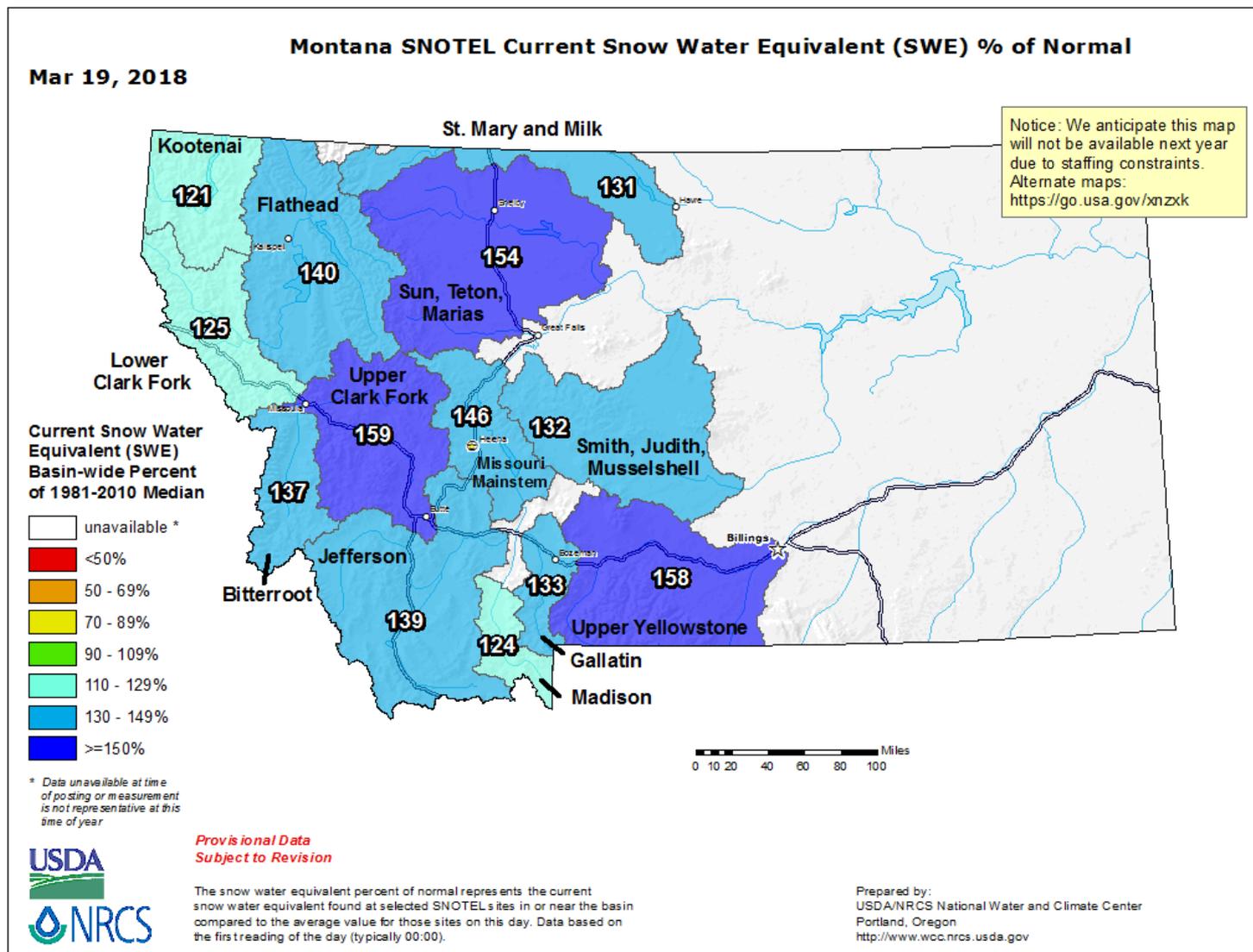
■ Avg Monthly PCP (in)	2.5	2.8	2.8	2.8	2.2	2.9	3.4	3.8	3.3	1.8	1.6	2.0
■ Monthly PCP (in)	1.8	4.2	3.2	2.5	3.9	1.4	0.0	0.0	0.0	0.0	0.0	0.0

Snowpack

Snowpack Records March 1st, 2017

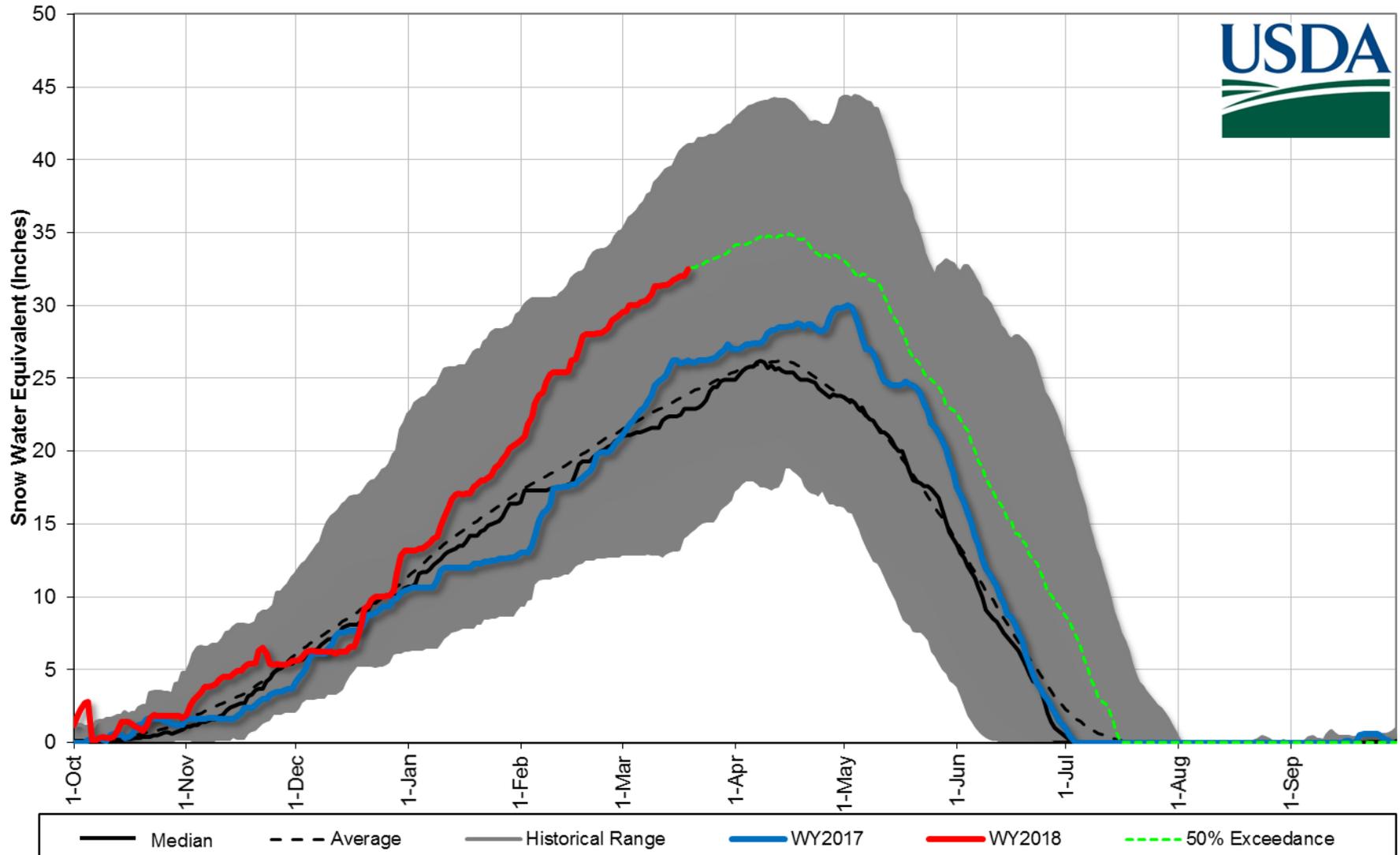


Snowpack Percentages March 22nd, 2017



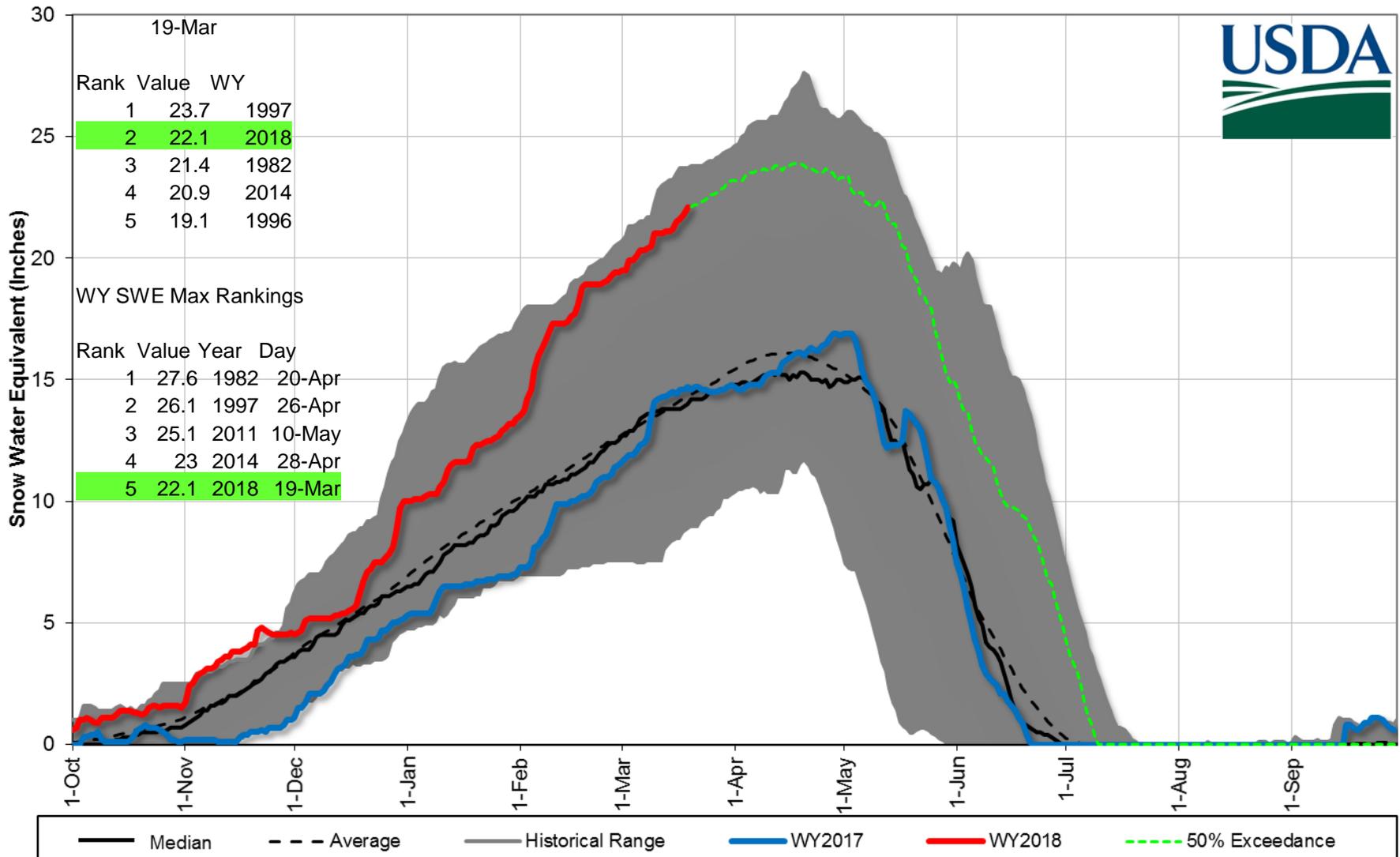
Flathead River Basin Snowpack with Non-Exceedence Projections

Based on provisional SNOTEL daily data as of 3/19/2018



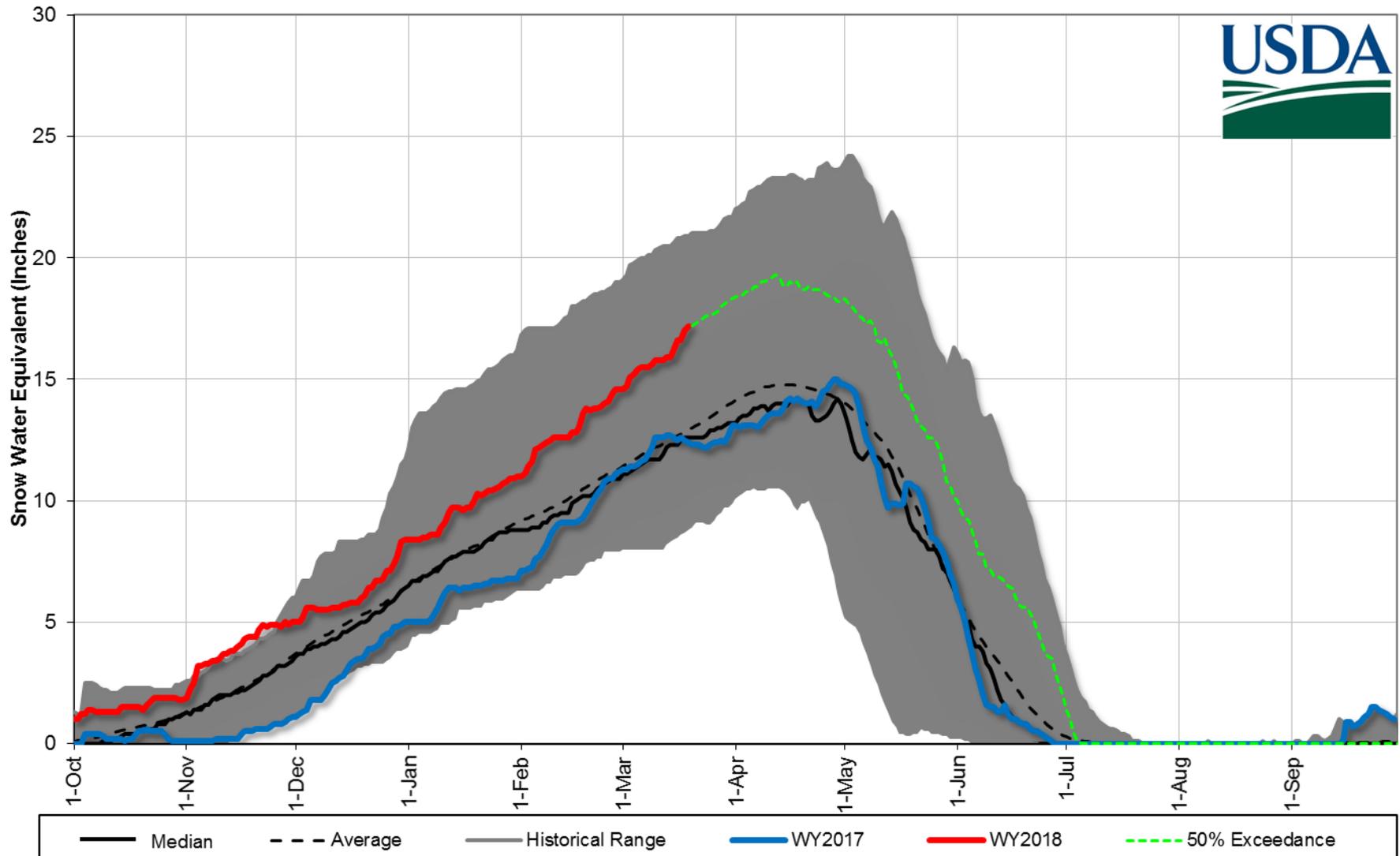
Upper Clark Fork River Basin Snowpack with Non-Exceedence Projections

Based on provisional SNOTEL daily data as of 3/19/2018

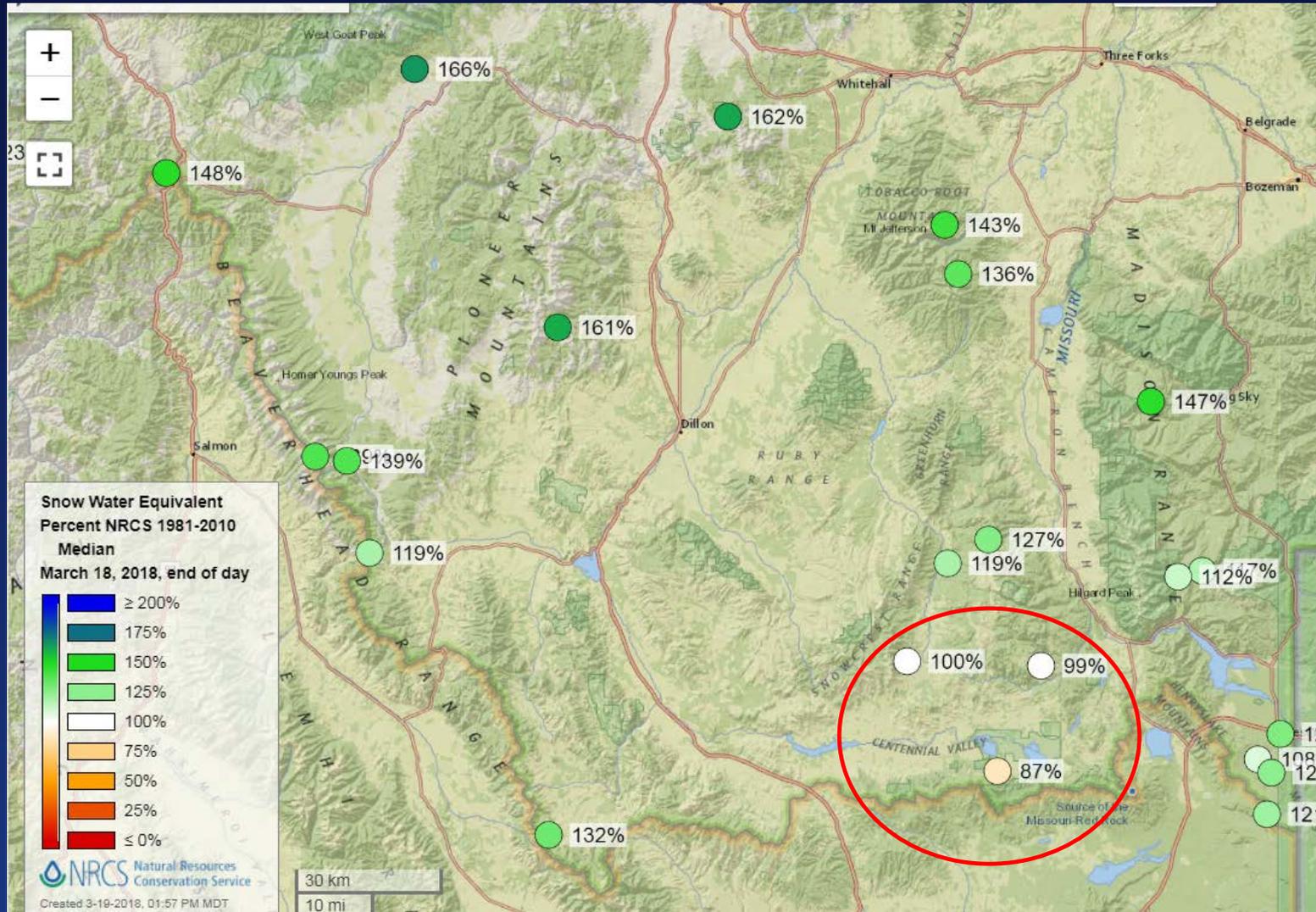


Jefferson River Basin Snowpack with Non-Exceedence Projections

Based on provisional SNOTEL daily data as of 3/19/2018

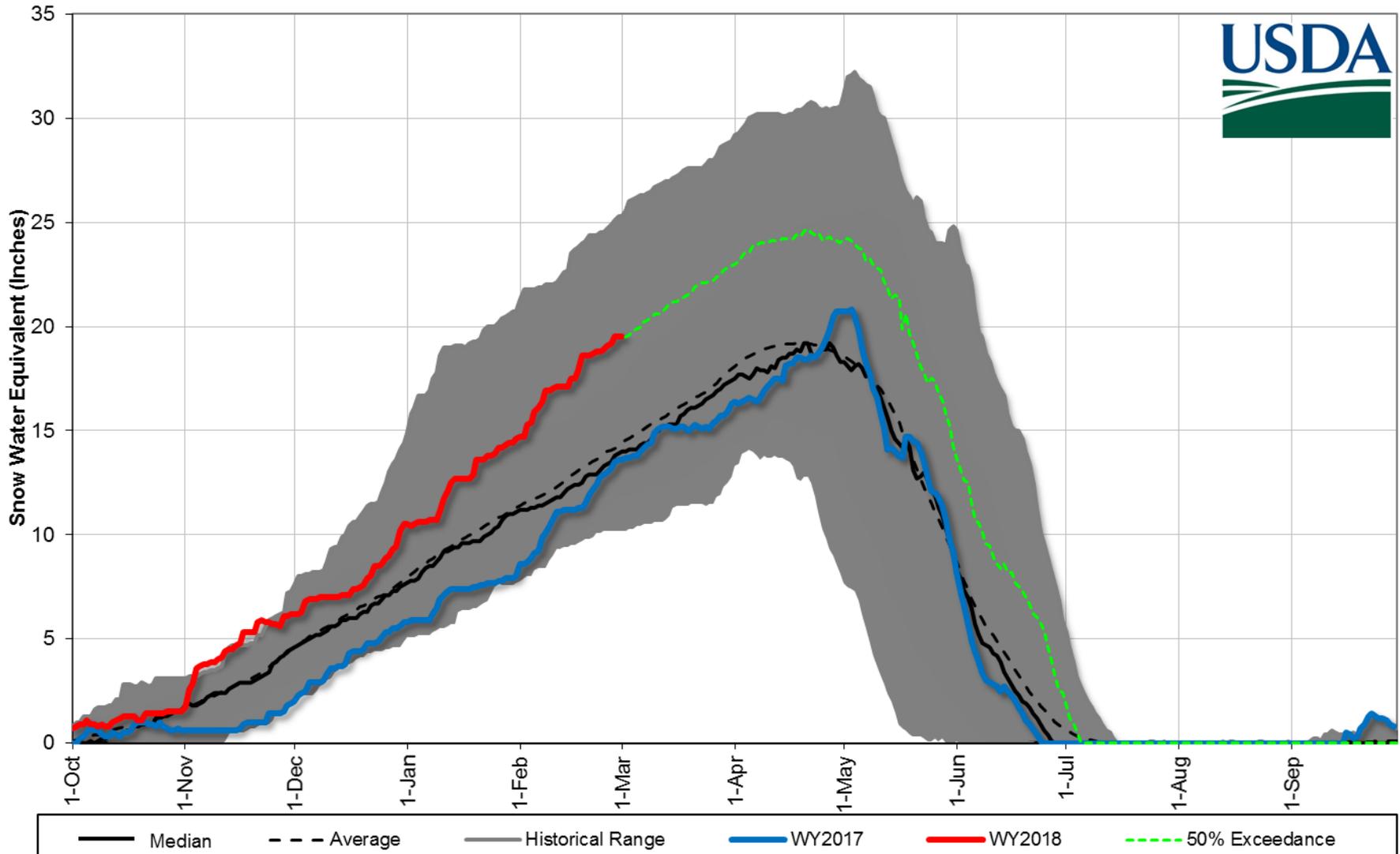


Jefferson Headwaters Snowpack March 20th, 2018



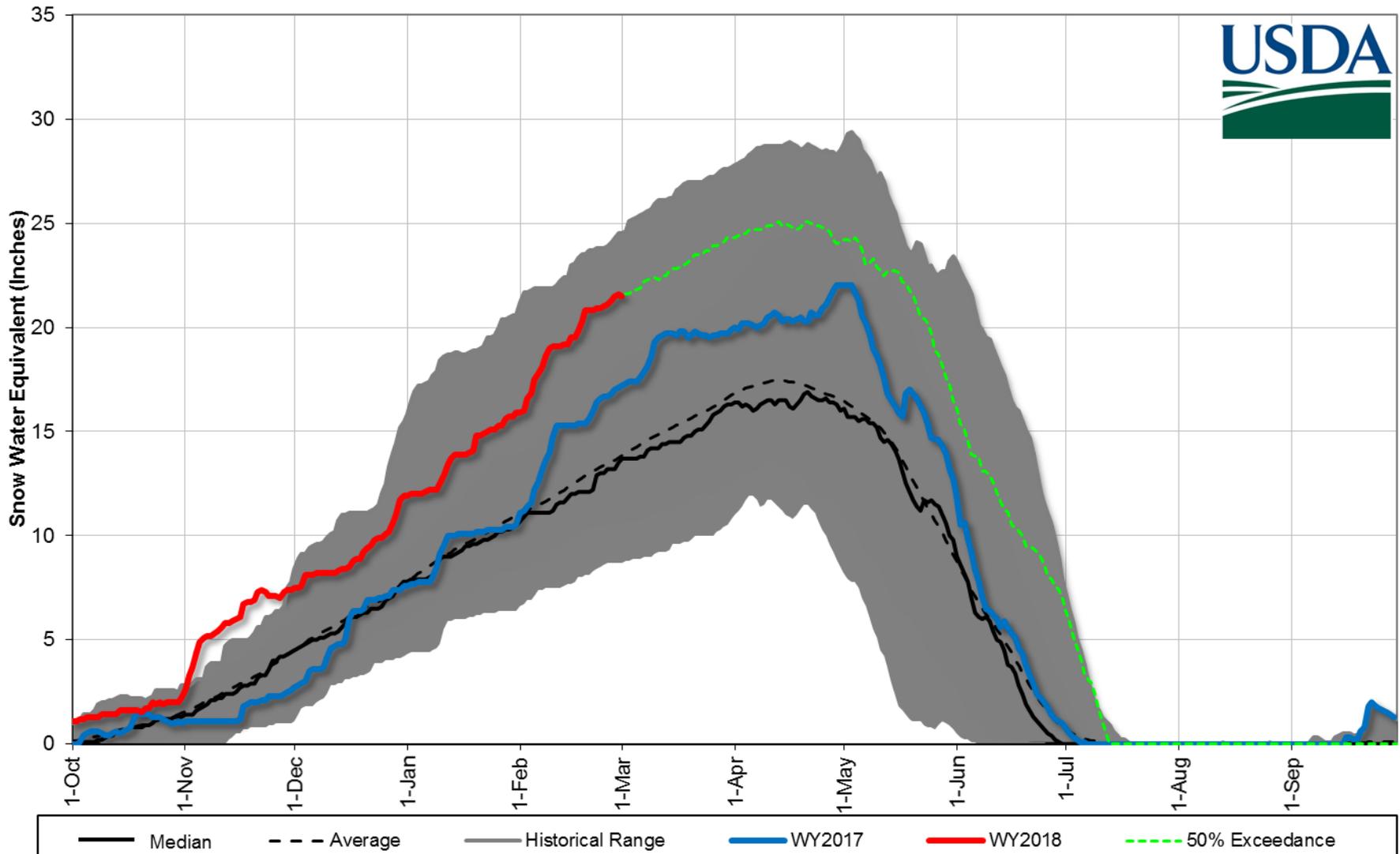
Gallatin River Basin Snowpack with Non-Exceedence Projections

Based on provisional SNOTEL daily data as of 3/19/2018



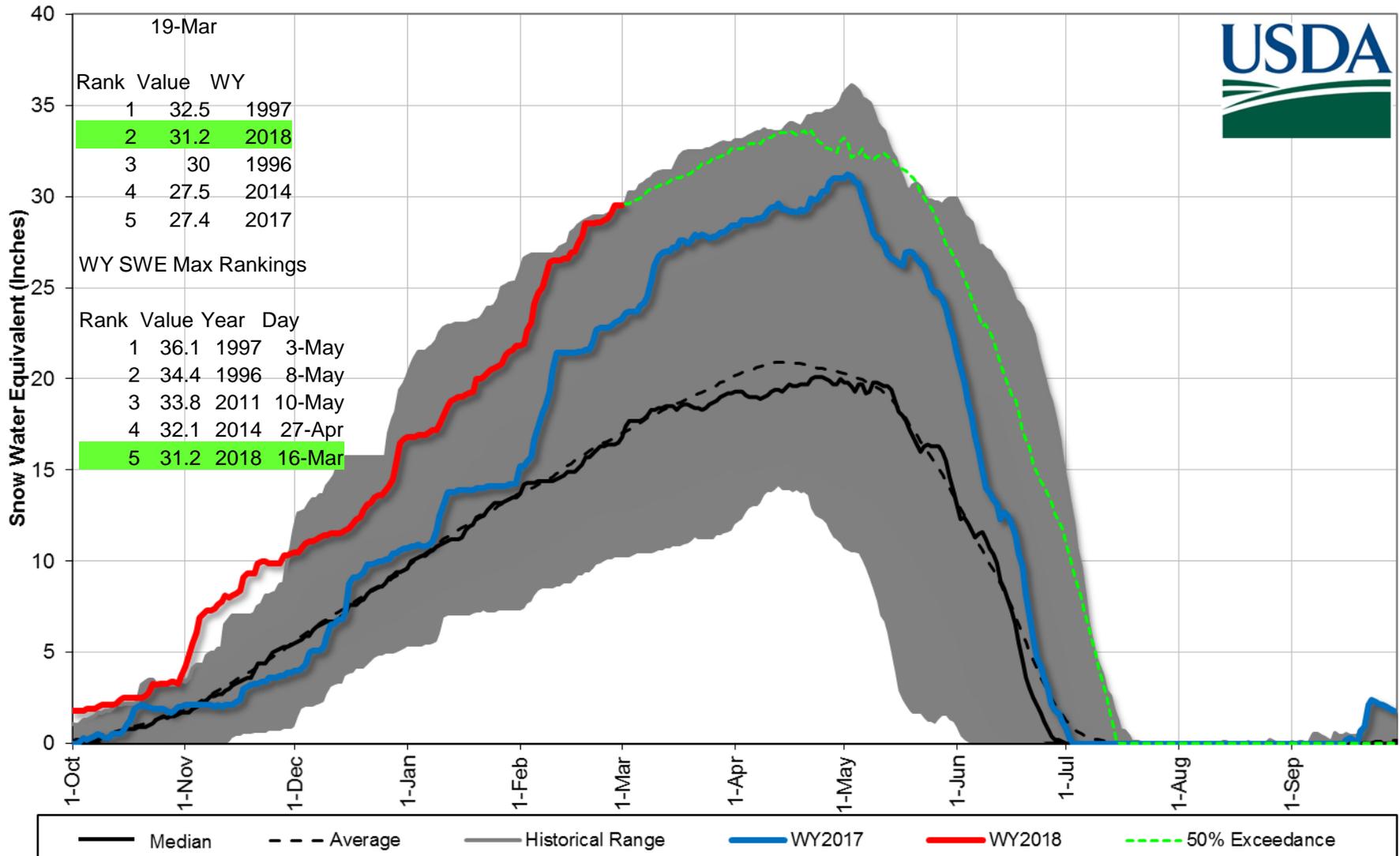
Upper Yellowstone River Basin Snowpack with Non-Exceedence Projections

Based on provisional SNOTEL daily data as of 3/19/2018

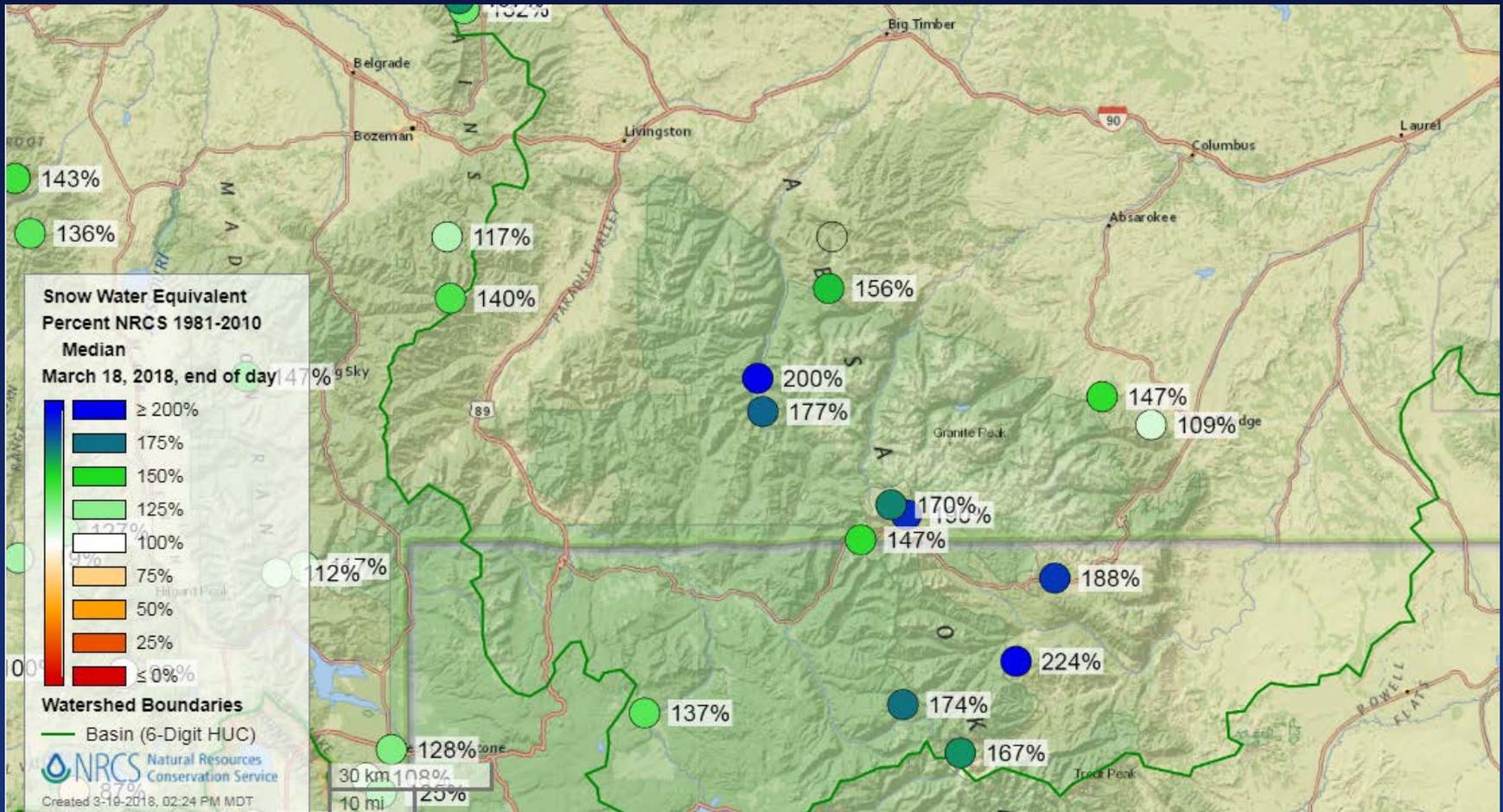


Clark's Fork of the Yellowstone River Basin Snowpack with Non-Exceedence Projections

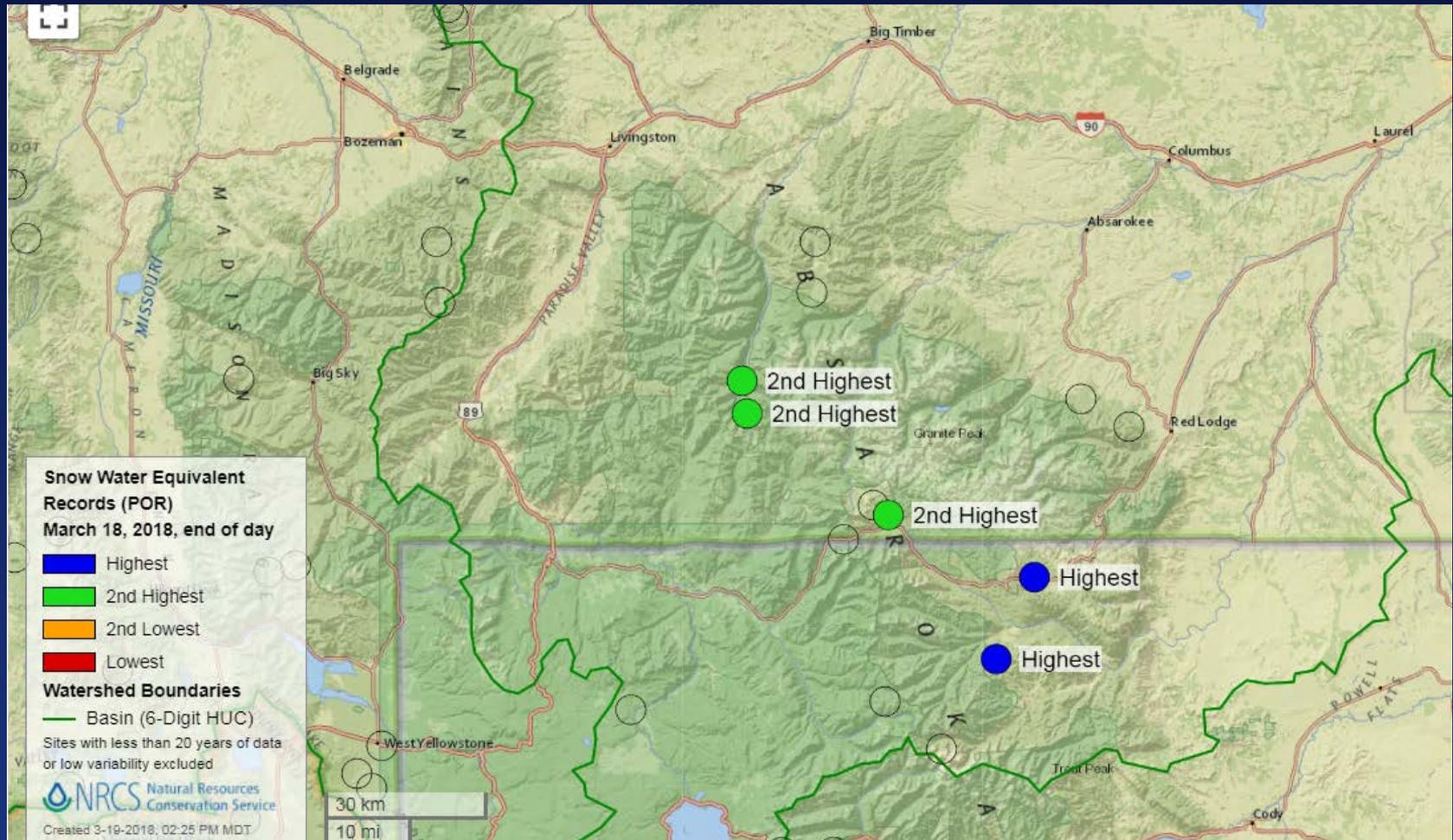
Based on provisional SNOTEL daily data as of 3/1/2018



Upper Yellowstone Snowpack March 19th, 2018

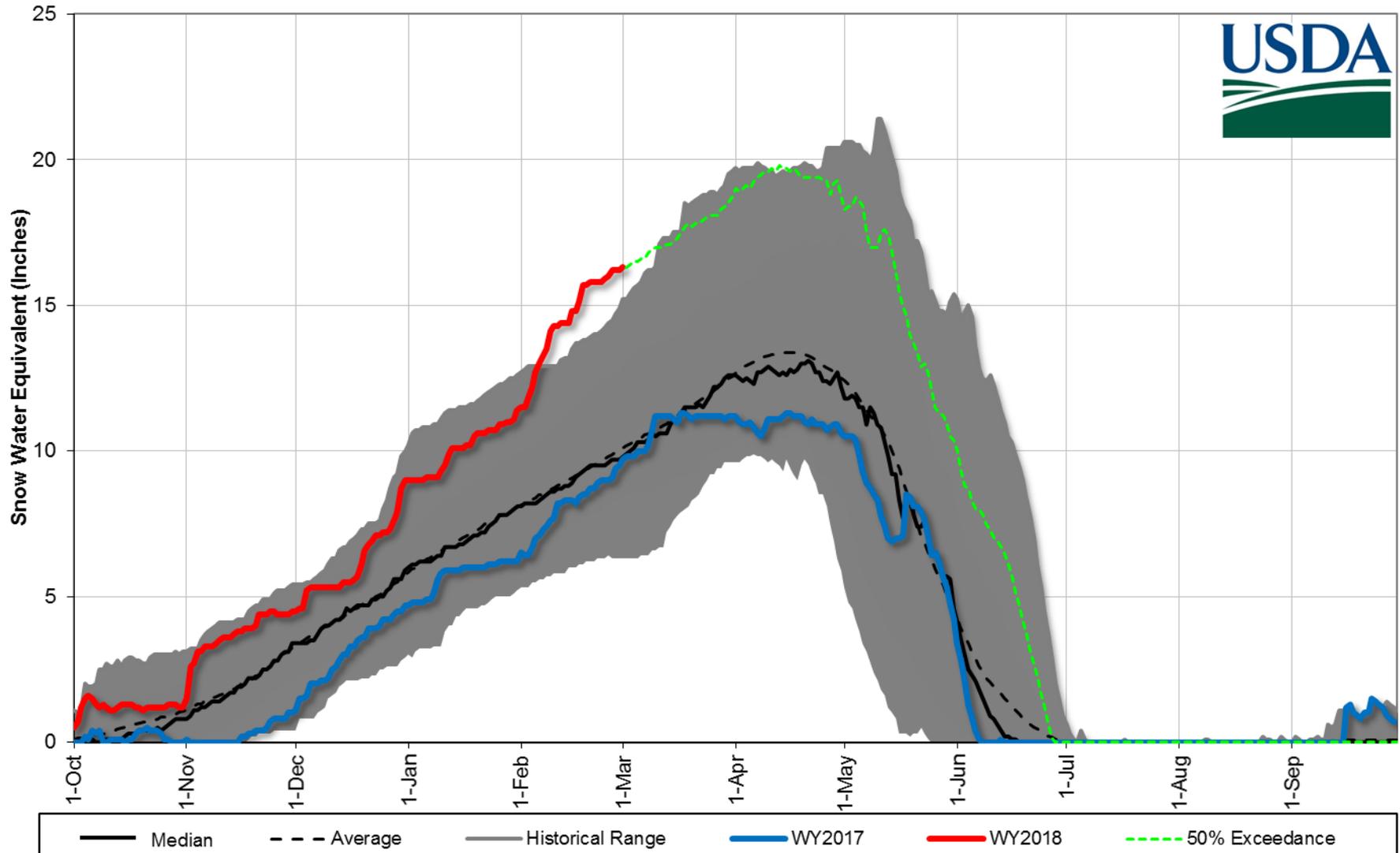


Upper Yellowstone Snowpack March 22nd, 2017

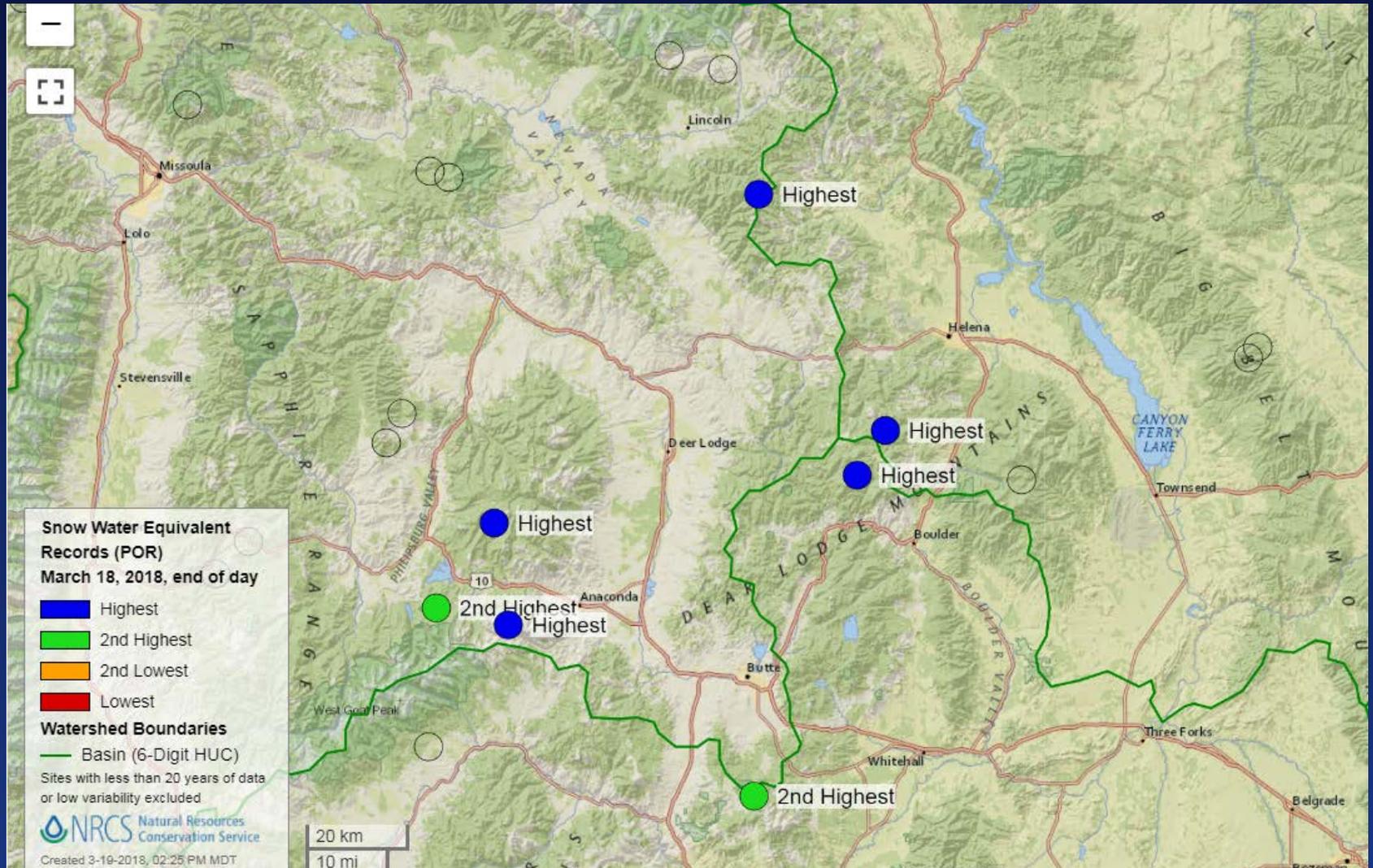


Missouri River Basin below Toston above Smith River Inflow Snowpack with Non-Exceedence Projections

Based on provisional SNOTEL daily data as of 3/19/2018

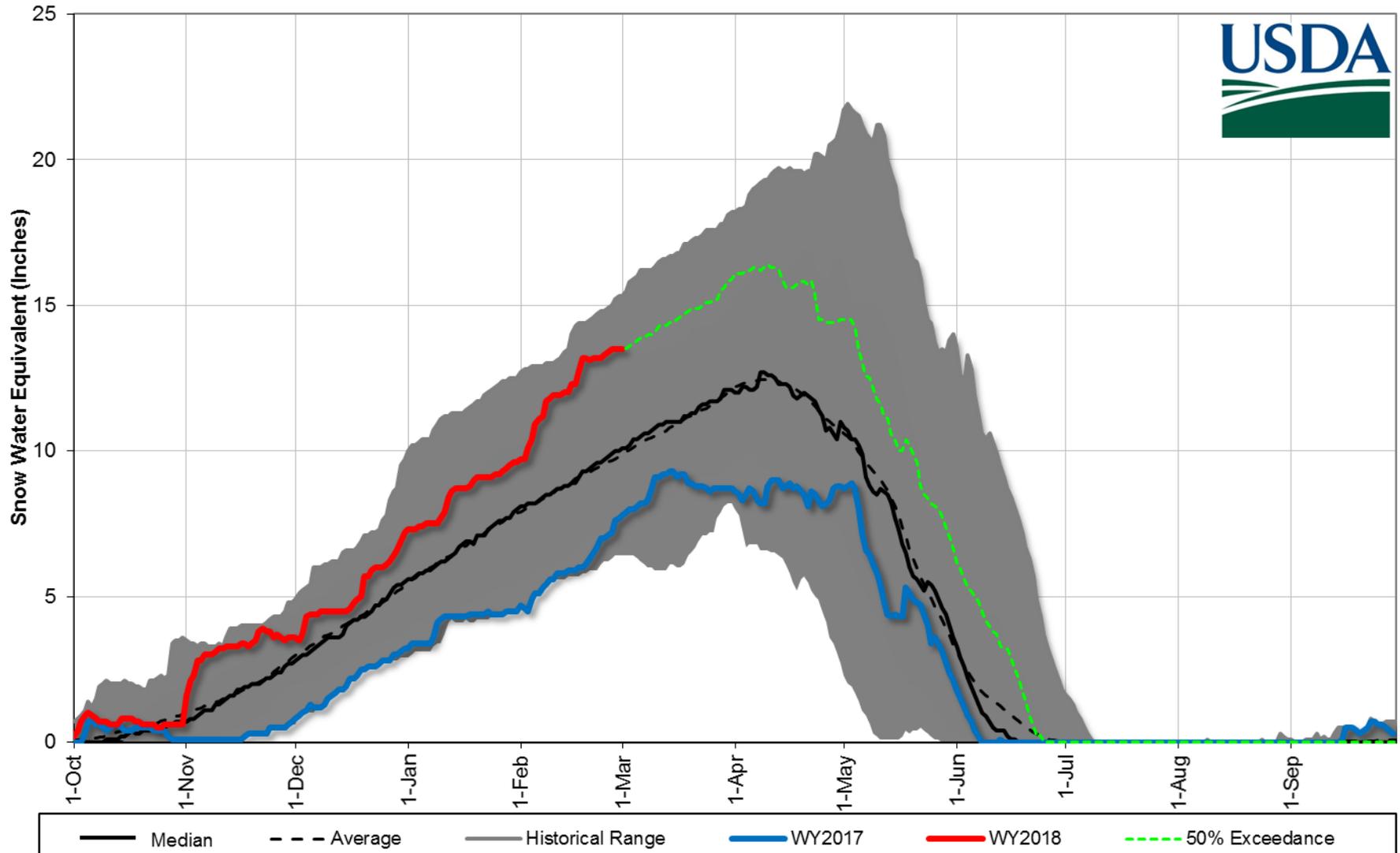


Mainstem and Upper Clark Snowpack March 19th, 2018



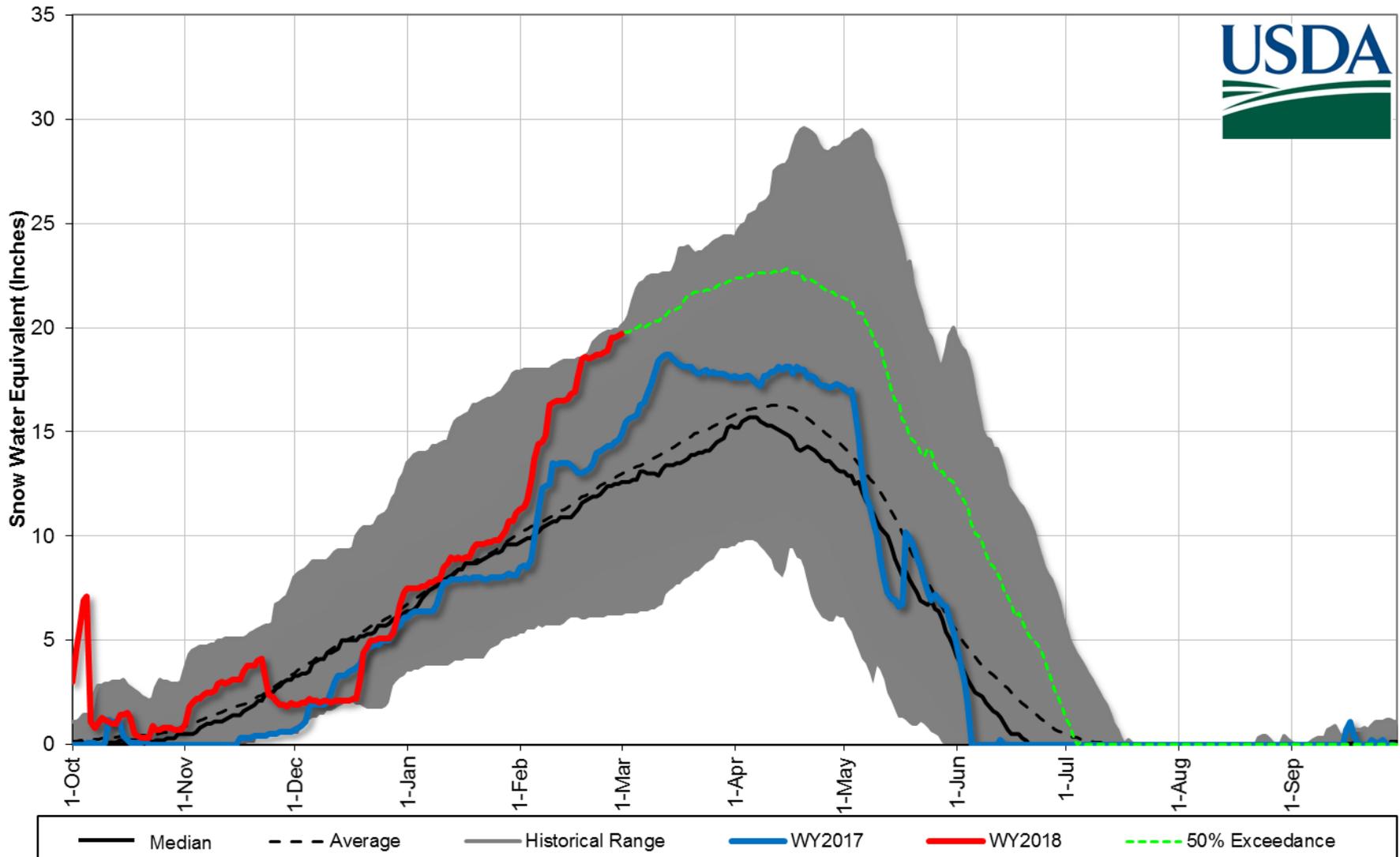
Smith-Judith-Musselshell River Basin Snowpack with Non-Exceedence Projections

Based on provisional SNOTEL daily data as of 3/19/2018



Sun-Teton-Marias River Basin Snowpack with Non-Exceedence Projections

Based on provisional SNOTEL daily data as of 3/19/2018



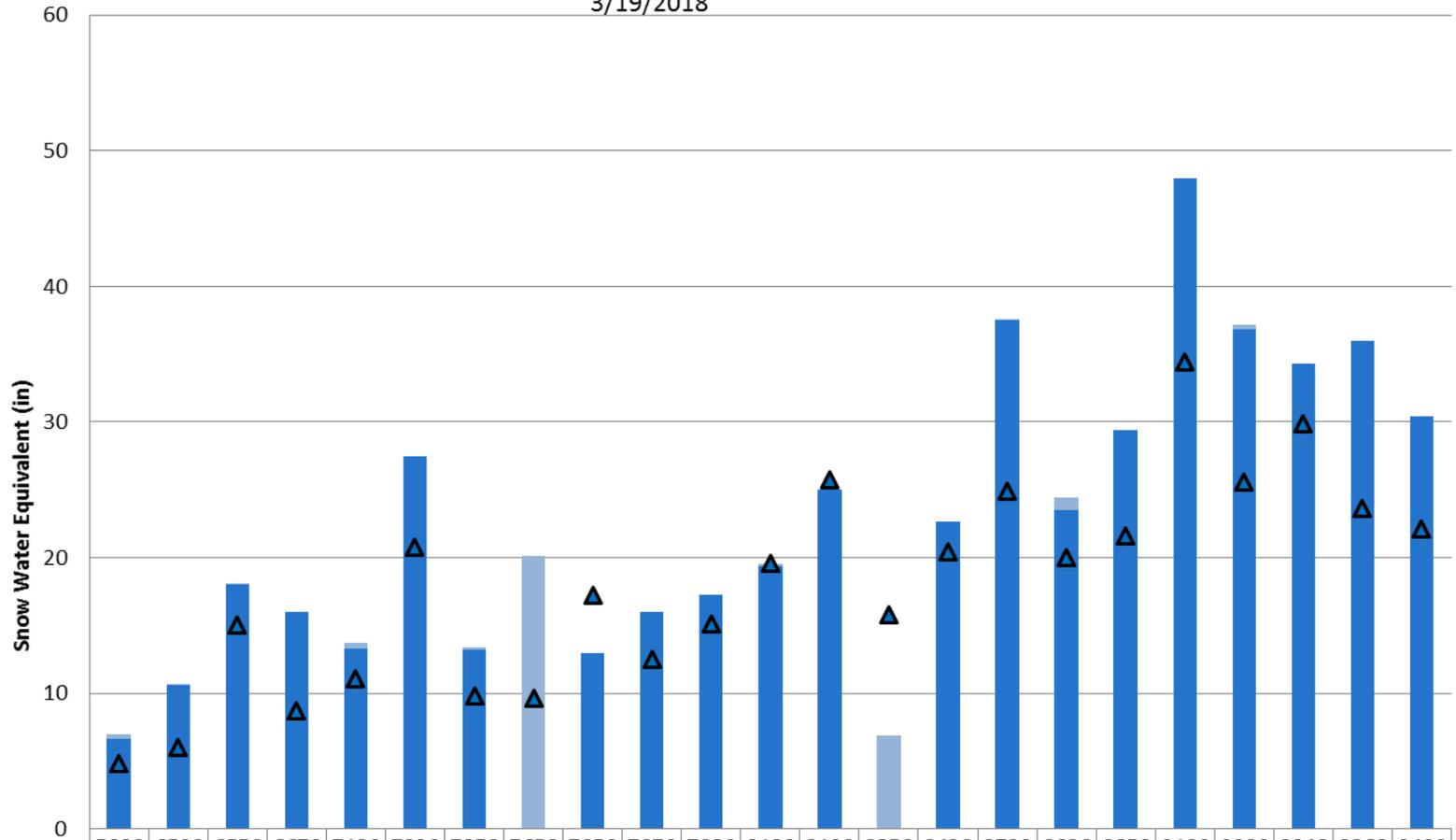
Montana Snow Survey



Upper Yellowstone

Percent Remaining Snowpack

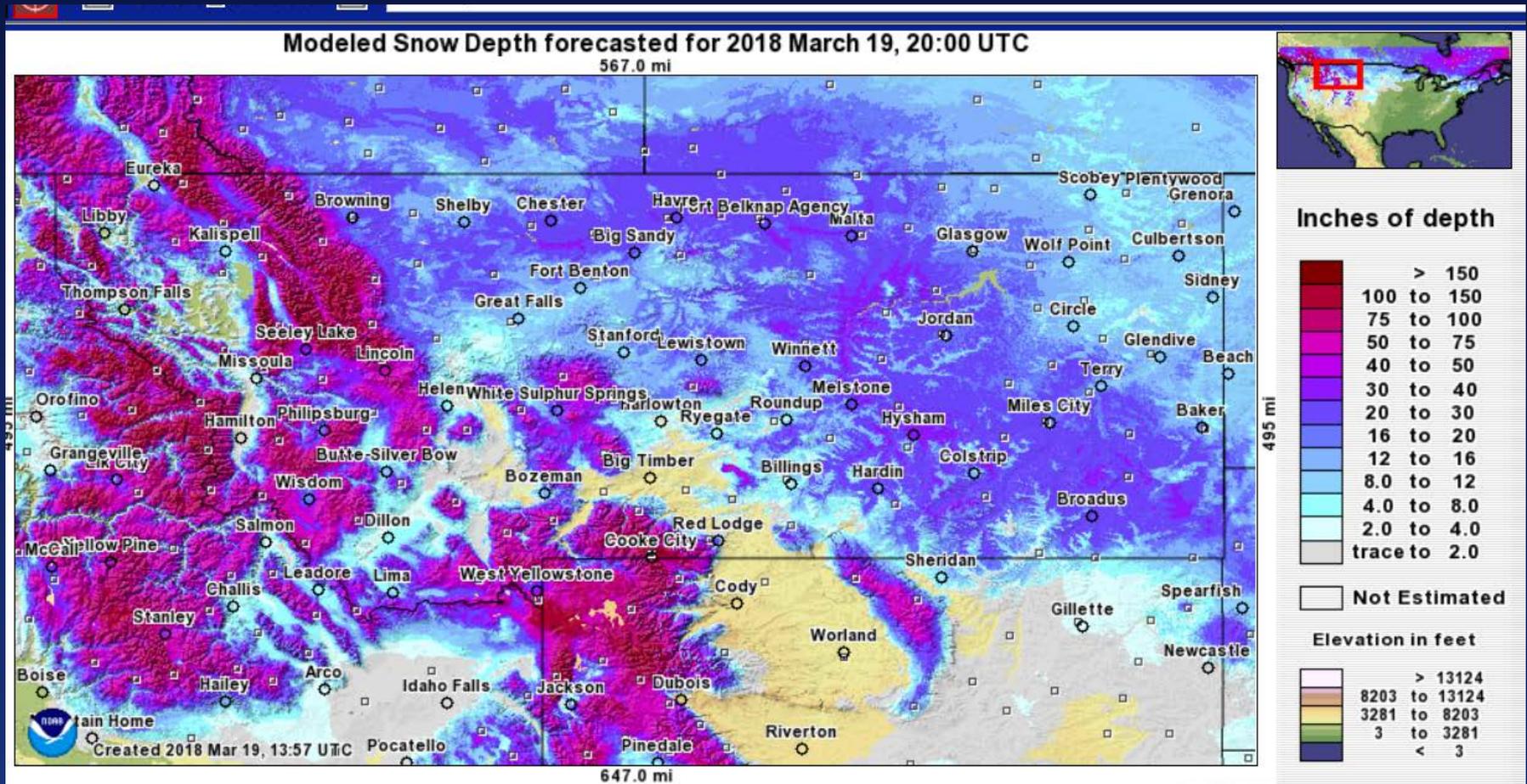
3/19/2018



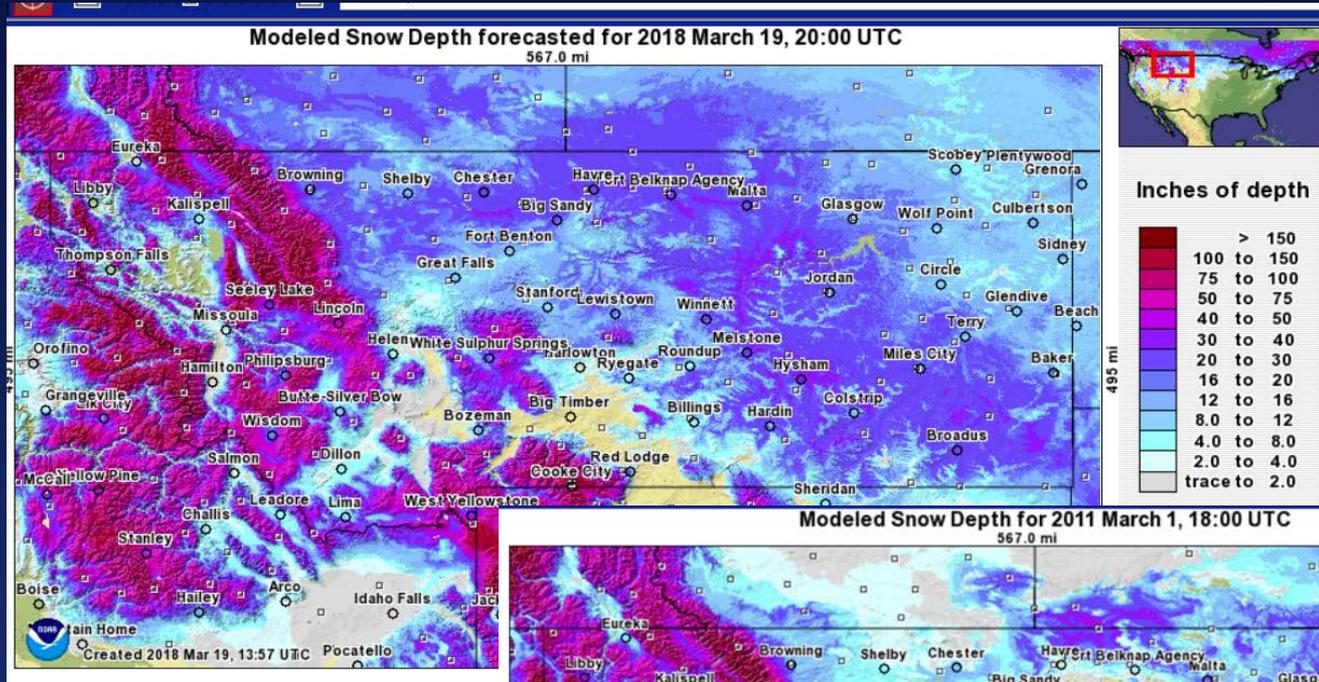
	5880	6500	6550	6670	7120	7320	7350	7650	7850	7870	7980	8100	8100	8350	8420	8700	8830	8850	9100	9200	9240	9360	9400
■ Peak SWE	7	10.7	18.1	16	13.7	27.5	13.4	20.1	13	16	17.3	19.5	25	6.9	22.7	37.6	24.4	29.4	48	37.2	34.3	36	30.4
■ Current SWE	6.6	10.6	18	16	13.3	27.5	13.2		13	16	17.3	19.4	25		22.7	37.5	23.5	29.4	48	36.8	34.3	36	30.4
▲ Normal Peak	4.8	6.0	15.0	8.7	11.1	20.8	9.8	9.6	17.2	12.5	15.1	19.6	25.7	15.8	20.4	24.9	20.0	21.6	34.4	25.6	29.9	23.6	22.1
Percent Remaining	94%	99%	99%	100%	97%	100%	99%		100%	100%	100%	99%	100%		100%	100%	96%	100%	100%	99%	100%	100%	100%
Percent of Normal	147%	177%	132%	200%	128%	167%	147%		109%	137%	124%	141%	140%		126%	190%	156%	177%	170%	167%	144%	188%	174%

Plains Snow Anamoly

Plains and Valley Snowcover - March 19th, 2018

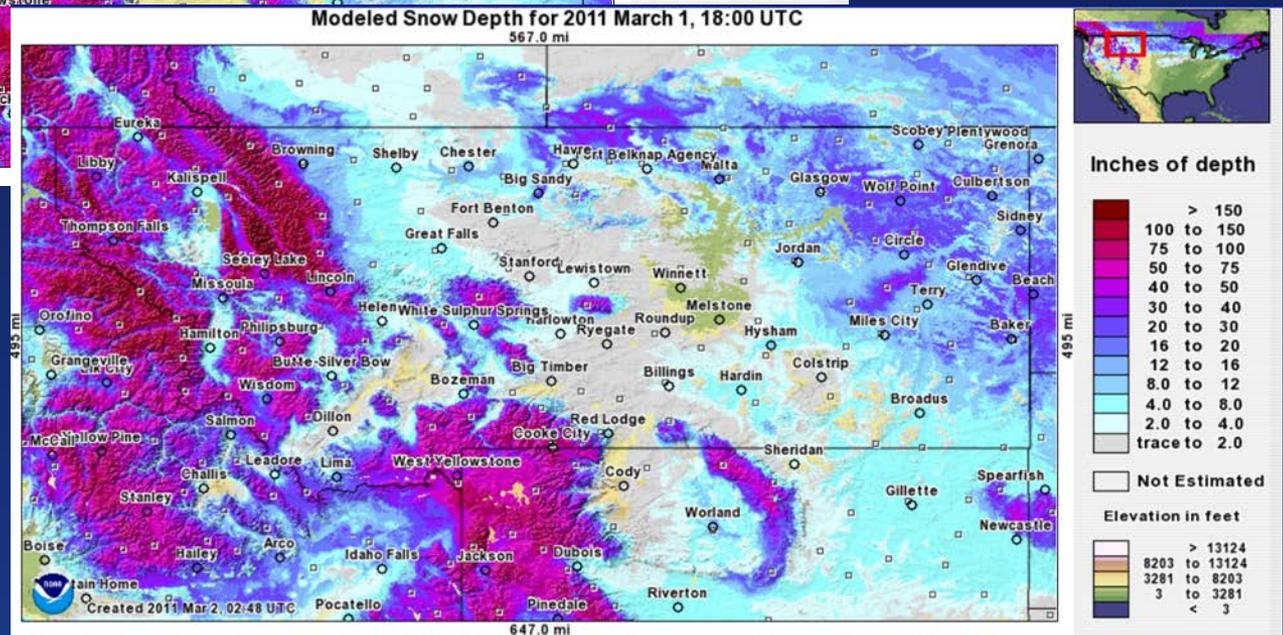


Plains and Valley Snowcover – 2011 vs 2018



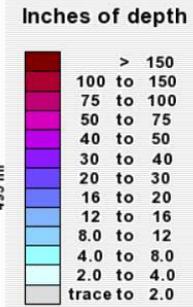
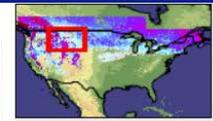
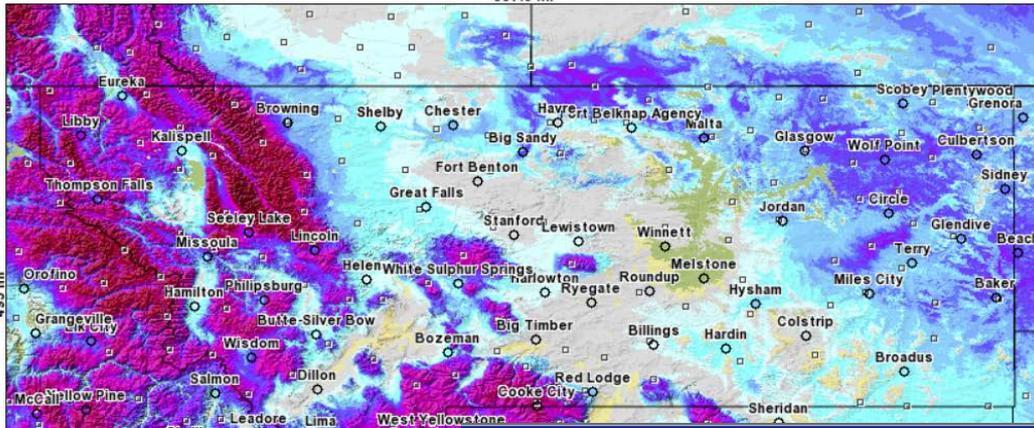
March 2011

March 2018



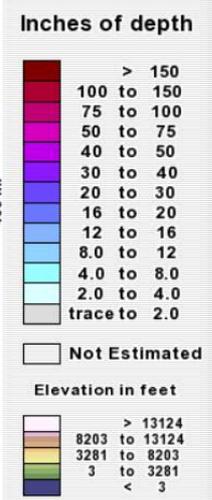
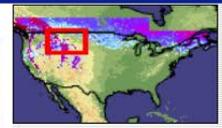
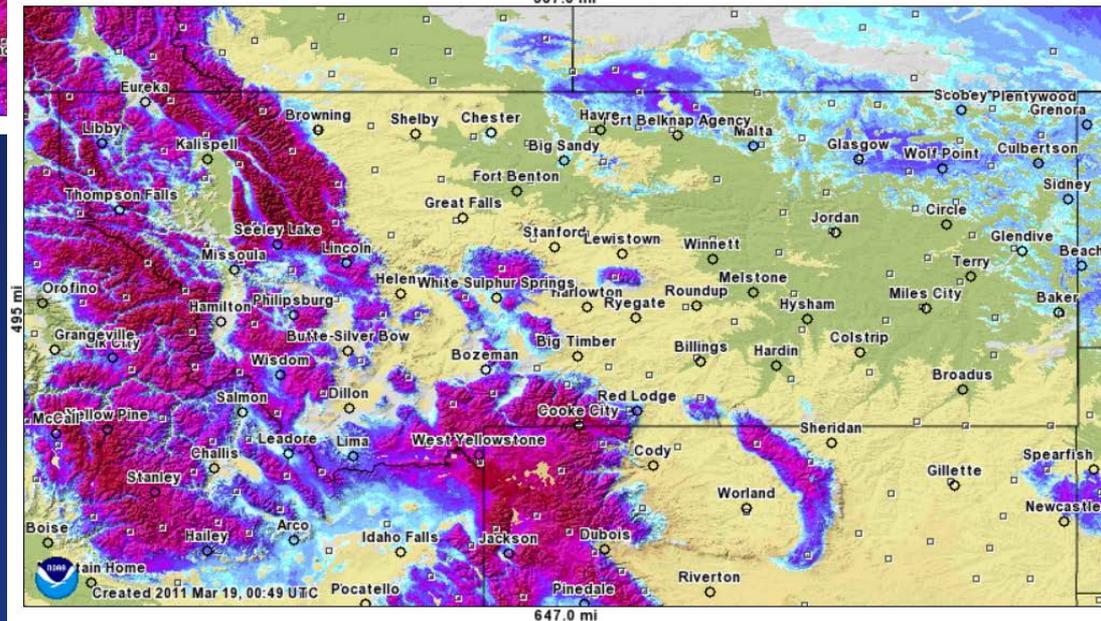
Plains and Valley Snowcover - March 2011

Modeled Snow Depth for 2011 March 1, 18:00 UTC

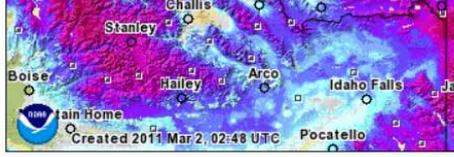


March 18th, 2011

Modeled Snow Depth for 2011 March 18, 18:00 UTC

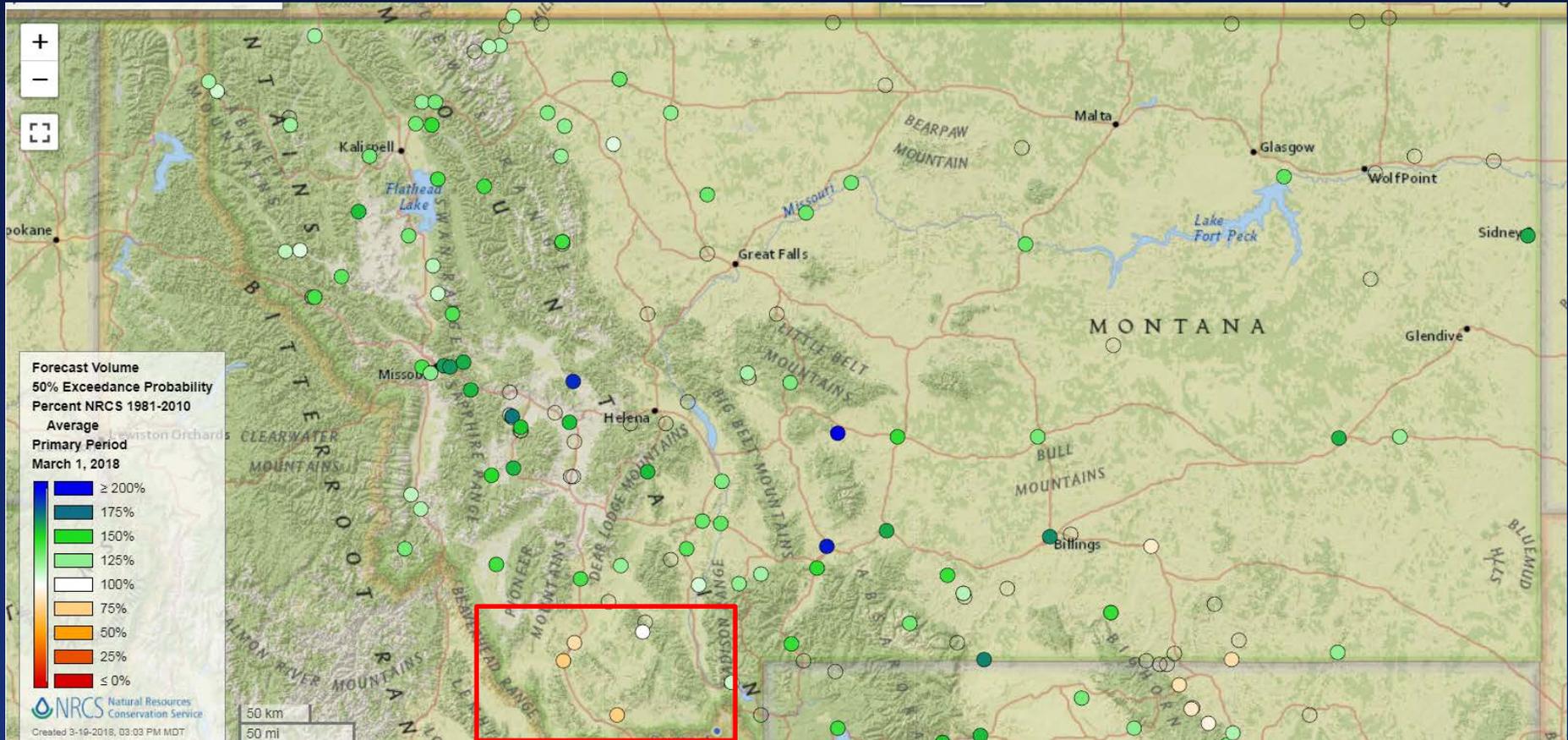


March 1st, 2011



Water Supply

Water Supply Forecasts: March 1st, 2018 April 1st – July 31st forecast period



GALLATIN RIVER BASIN Water Supply Forecasts March 1, 2018

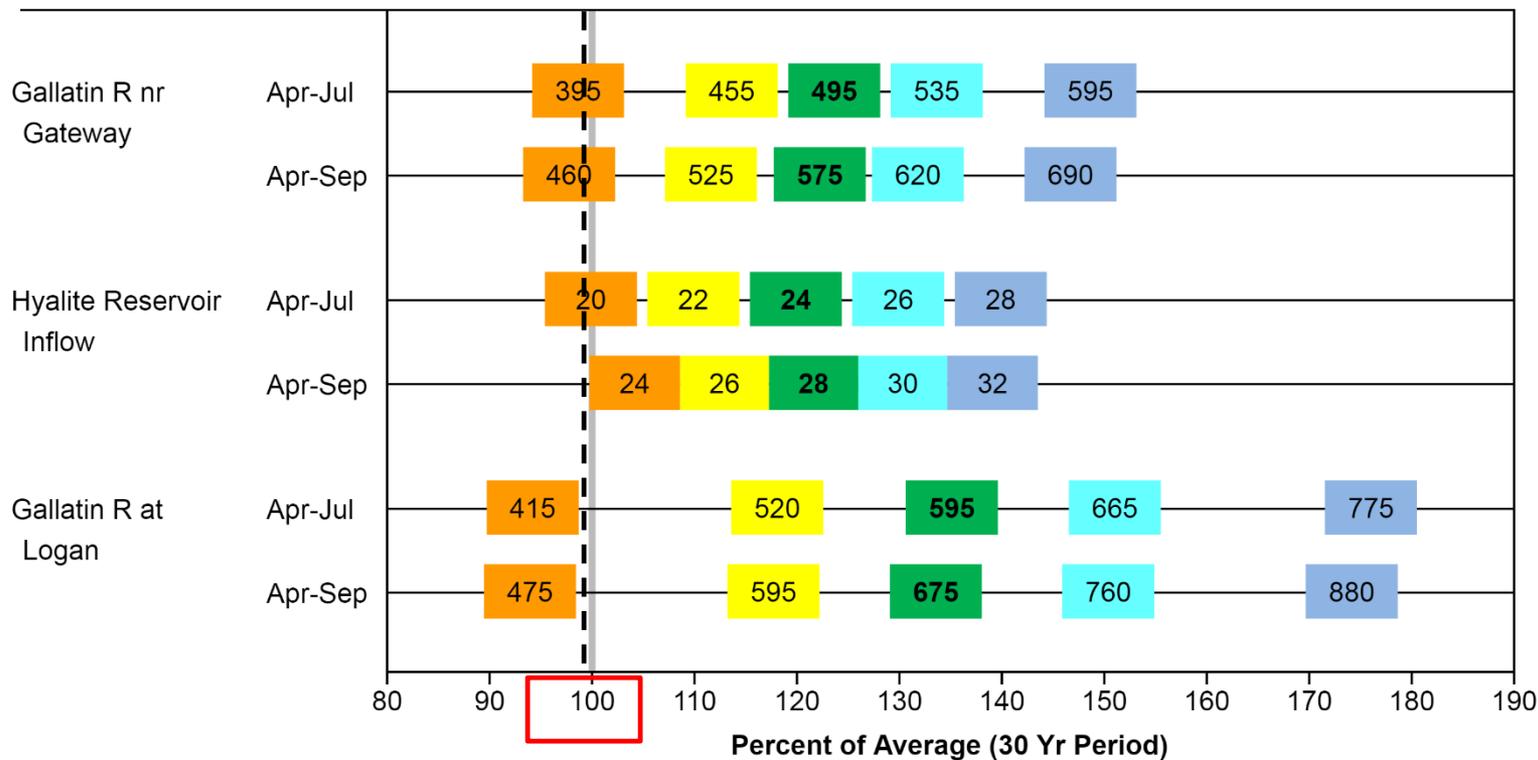
Forecast Exceedance Probabilities and Volumes

<----- Drier ----- Future Conditions ----- Wetter ----->

Forecast Point

Forecast Period

Box labels on chart are volumes of water in thousand acre-feet.



10% Exceedance Forecast (KAF)
5% Exceedance

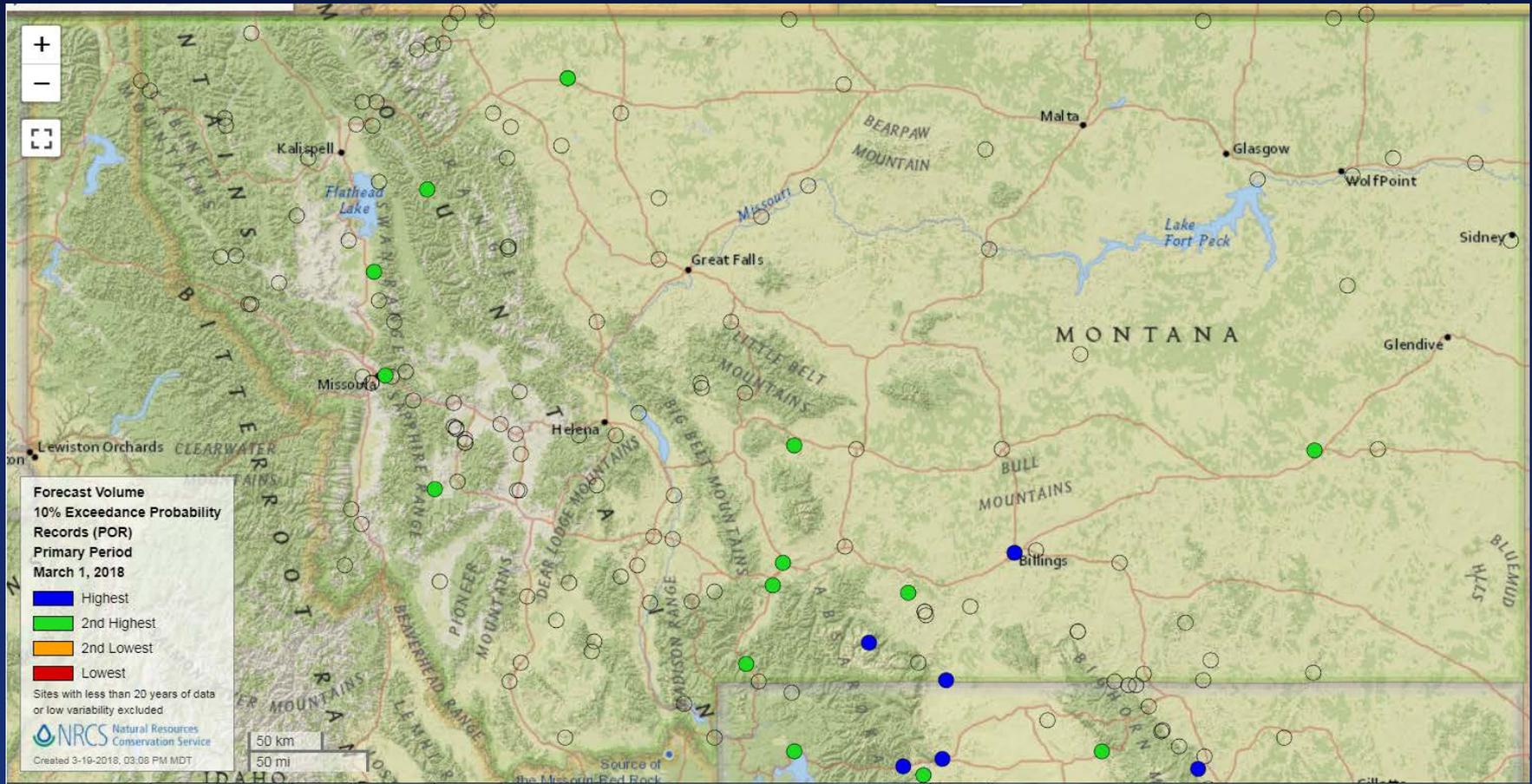
30% Exceedance Forecast (KAF)
There is a 30% chance that flows will exceed this volume.

50% Exceedance Forecast (KAF)
There is a 50% chance that flows will exceed this volume.

70% Exceedance Forecast (KAF)
There is a 70% chance that flows will exceed this volume.

90% Exceedance Forecast (KAF)
95% Exceedance

Water Supply Forecasts: March 1st, 2018 10% Exceedance Forecast April 1st – July 31st



***10% Exceedance Volumes reflect the high end of the range for a streamflow forecast point. A 10% exceedance might occur in 1 in 10 situations if wetter than average conditions occur during the forecasted period.

Summary

- Water year mountain precipitation (Oct 1st – Current) is above to well above average at most mountain locations across the state. Only the Red Rock River basin is slightly below average.
- Snowpack is well above normal for this time of year, and record breaking for this date in some river basins.
- Many river basins have already exceeded the normal peak snowpack that typically occurs in early April to early May, depending on the region of the state. These areas could expect at least normal water supply if average snowfall, precipitation and temperatures occur during spring.
- Streamflow forecasts as of March 1st indicate near to well above average seasonal river volumes for the April 1st – July 31st time period. Some forecasted values are approaching record flows for some river basins.
- The coming spring and summer months will be *critical* in determining the timing and volume of runoff this spring and summer.



**United States
Department of
Agriculture**

Natural Resources Conservation Service

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