

NE Drought Conditions CARC Update: June 4, 2019

**Brian Fuchs
National Drought Mitigation Center
University of Nebraska-Lincoln
School of Natural Resources**

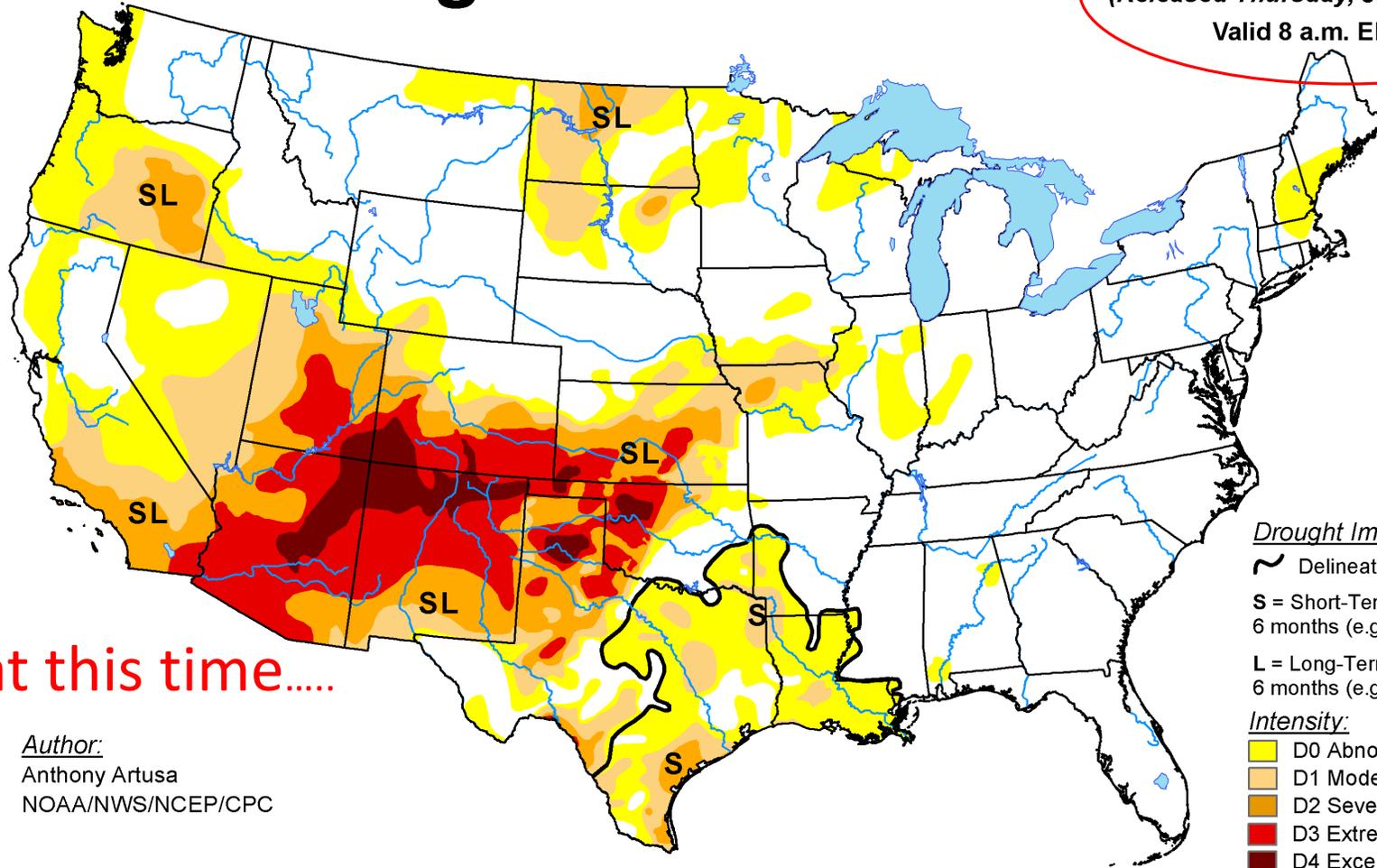


Regional Climatic and Drought Conditions...



U.S. Drought Monitor

June 5, 2018
(Released Thursday, Jun. 7, 2018)
Valid 8 a.m. EDT



Drought Impact Types:

- ~ Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

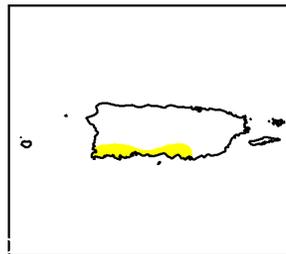
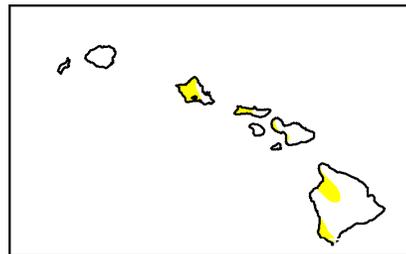
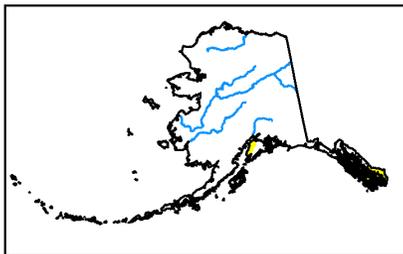
Intensity:

- Yellow: D0 Abnormally Dry
- Light Orange: D1 Moderate Drought
- Dark Orange: D2 Severe Drought
- Red: D3 Extreme Drought
- Dark Red: D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Last year at this time.....

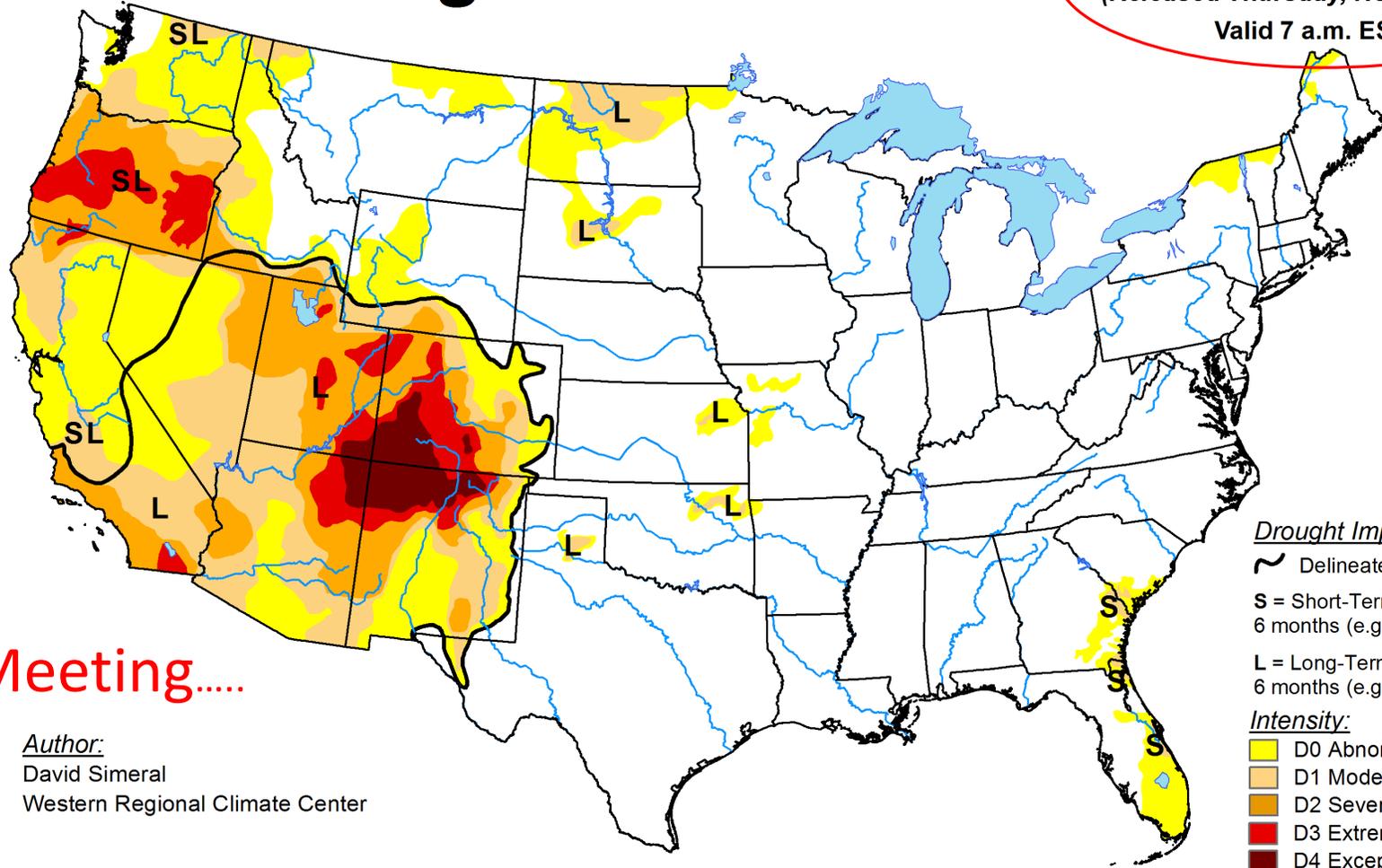
Author:
Anthony Artusa
NOAA/NWS/NCEP/CPC



<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor

November 13, 2018
 (Released Thursday, Nov. 15, 2018)
 Valid 7 a.m. EST



Drought Impact Types:
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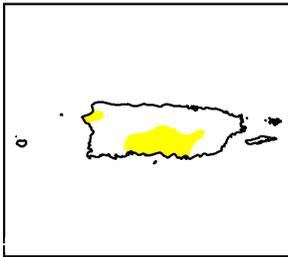
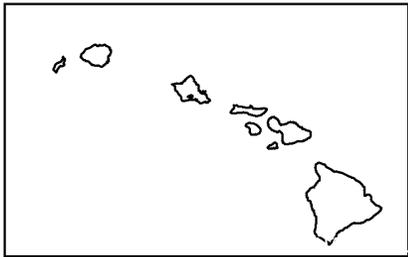
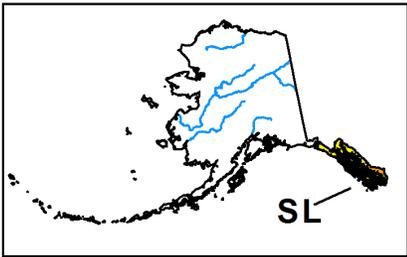
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Last CARC Meeting.....

Author:
 David Simeral
 Western Regional Climate Center

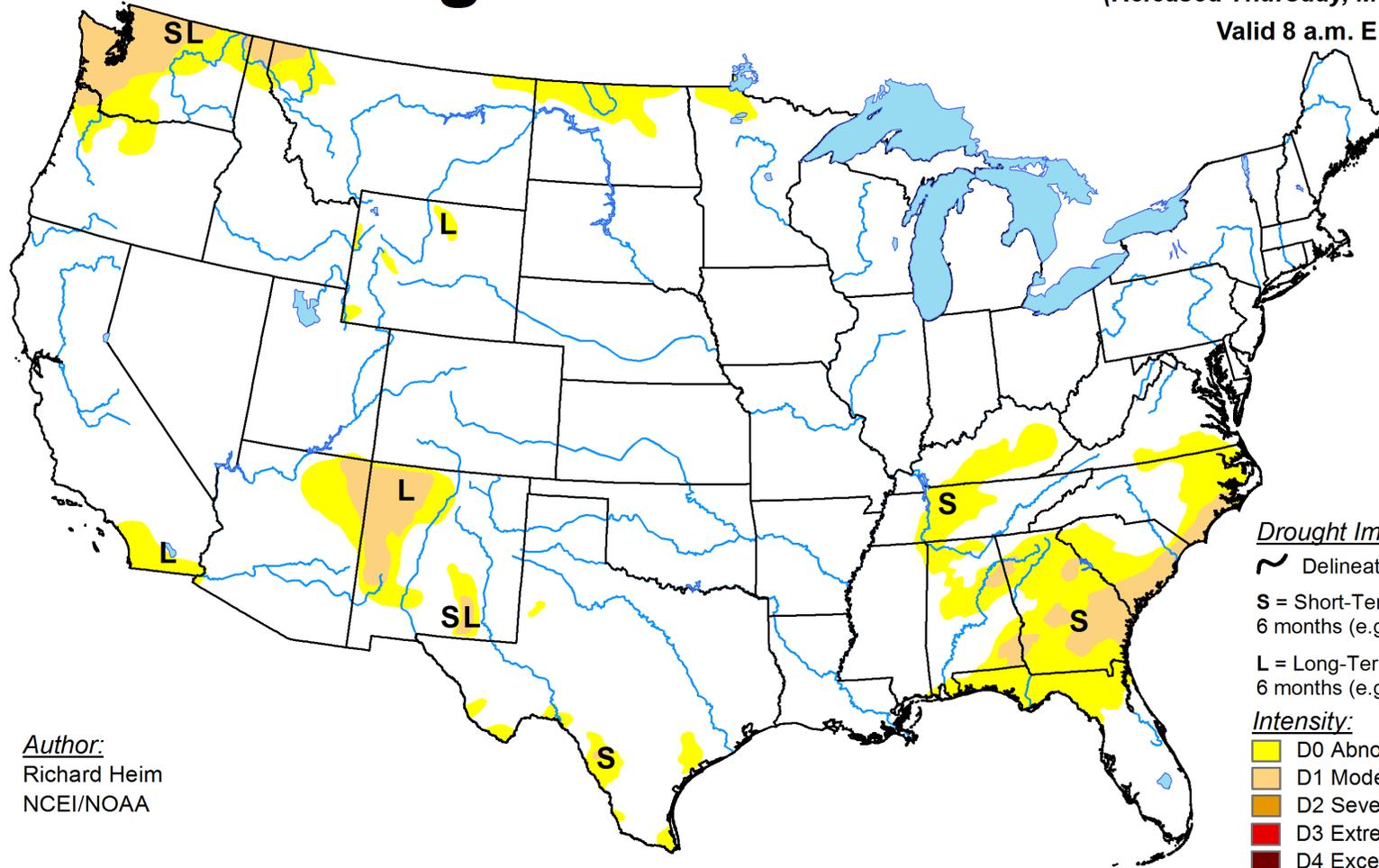


<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor

May 28, 2019
(Released Thursday, May. 30, 2019)

Valid 8 a.m. EDT



Author:
Richard Heim
NCEI/NOAA

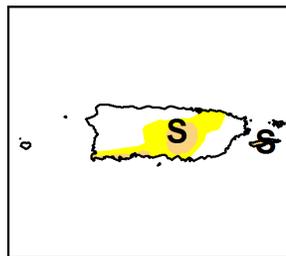
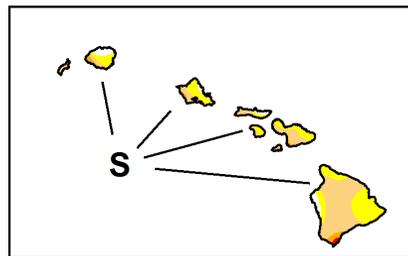
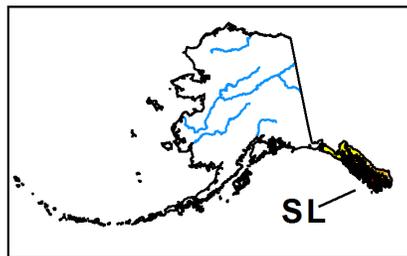
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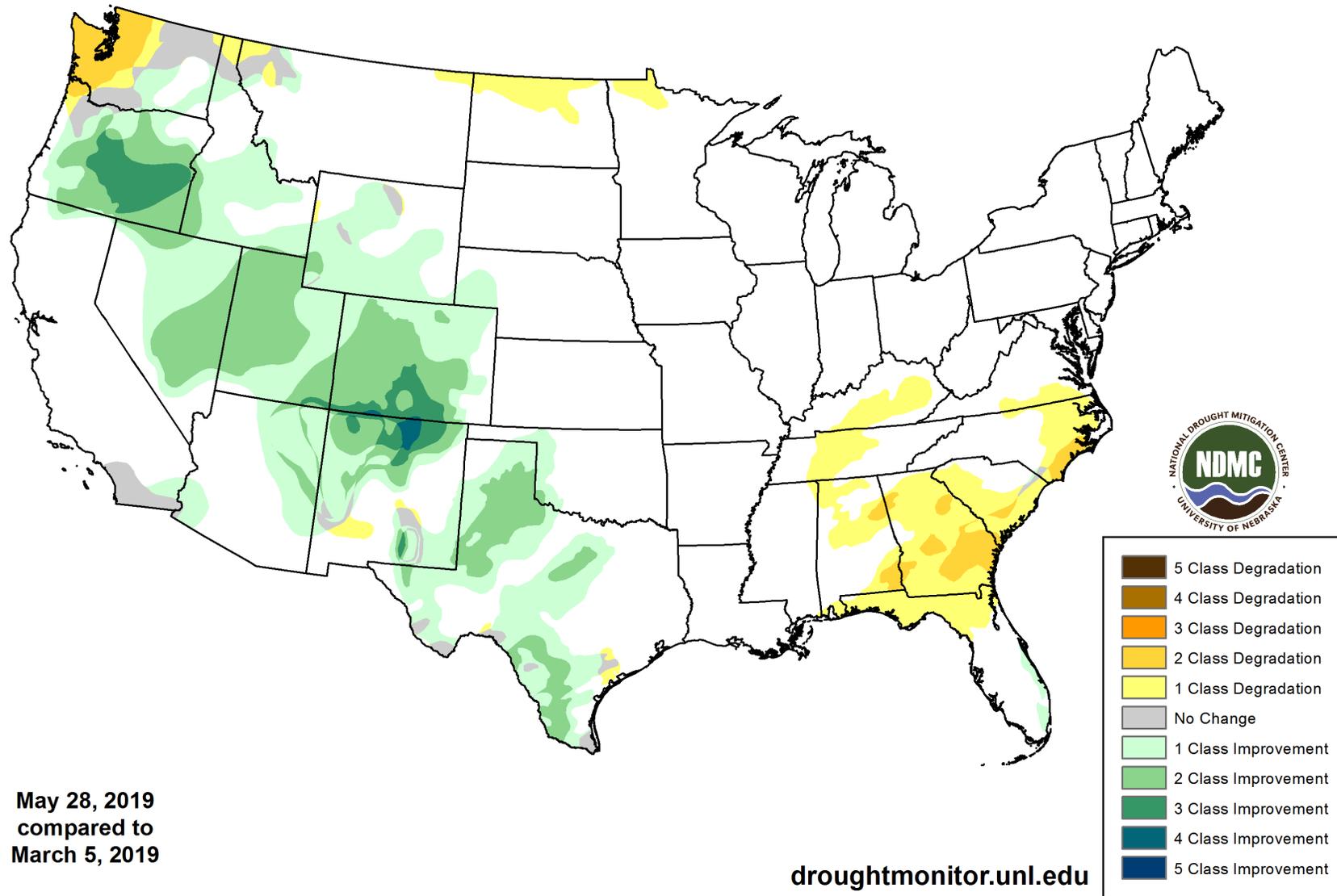
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<http://droughtmonitor.unl.edu/>

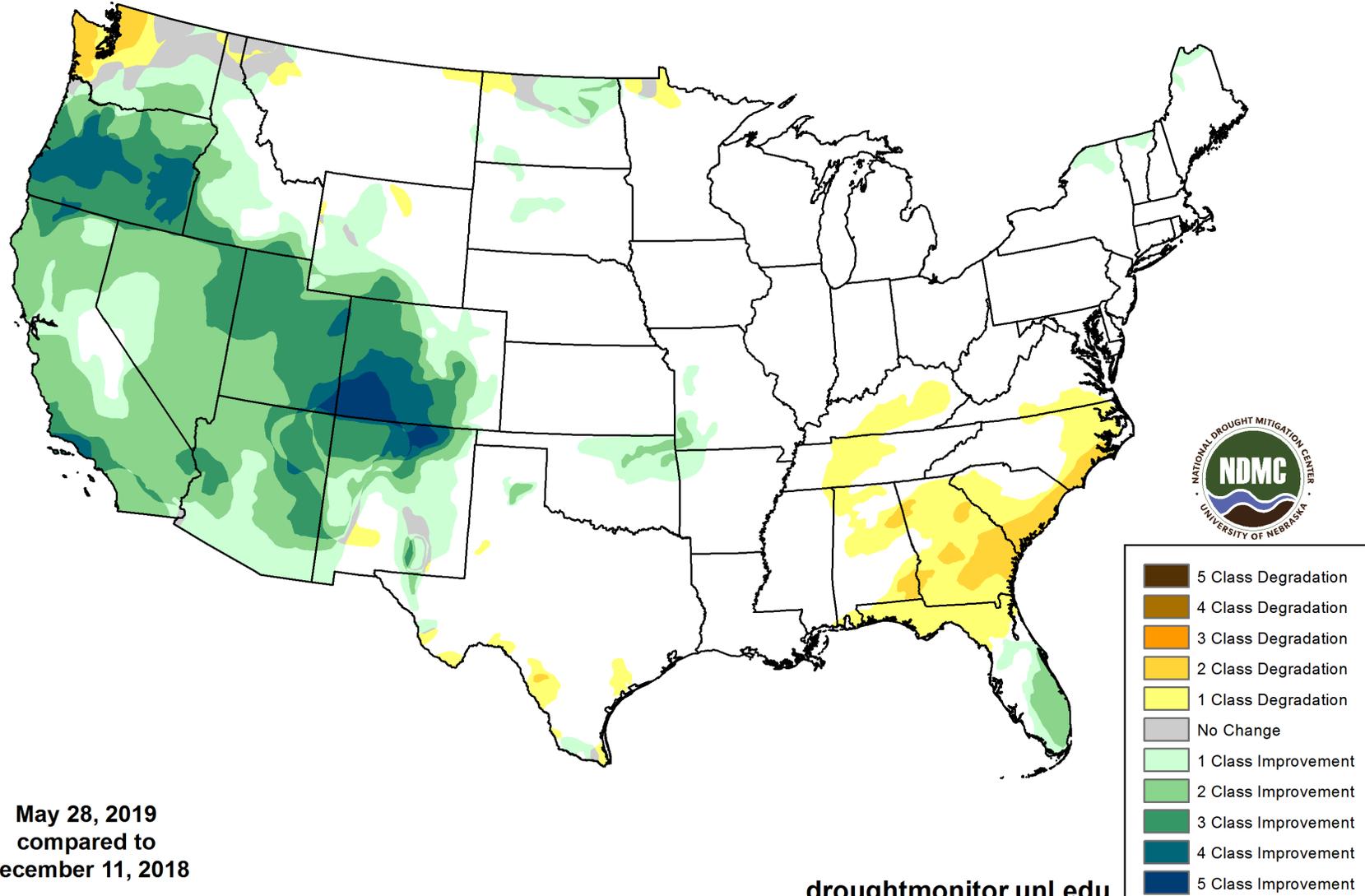
U.S. Drought Monitor Class Change - CONUS

3 Months



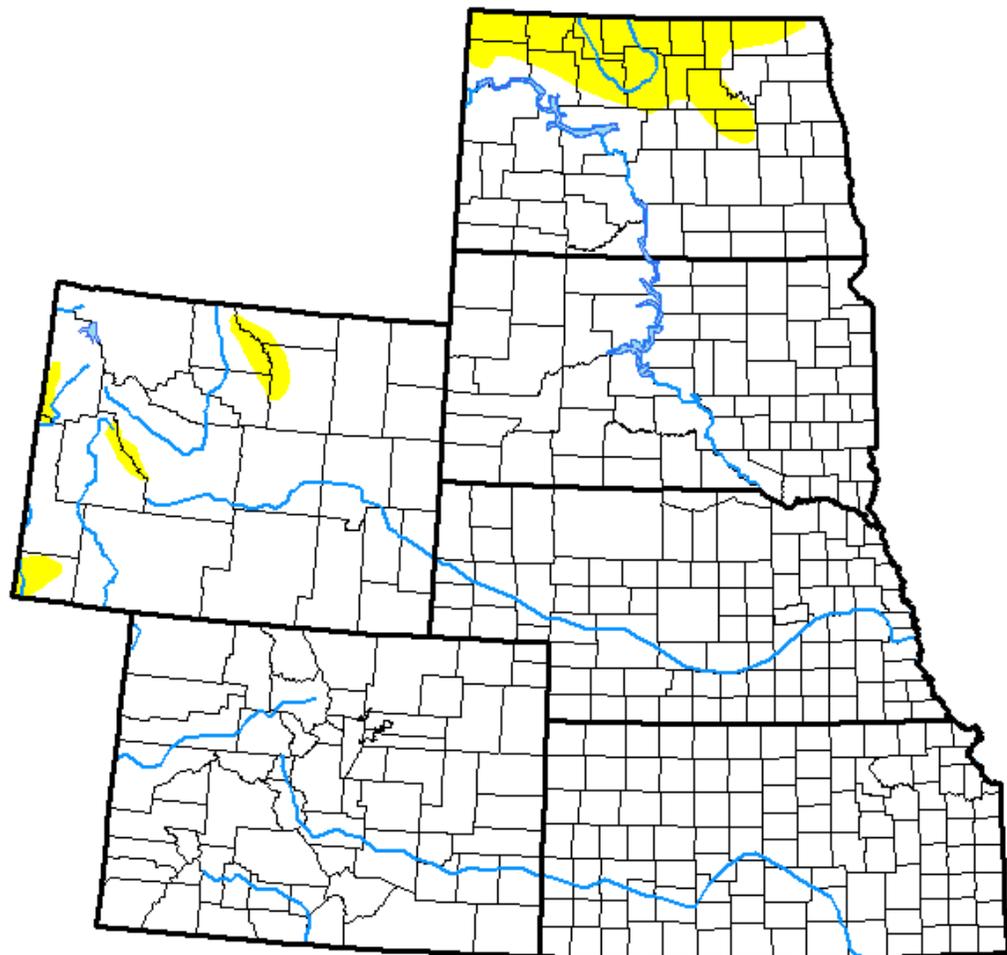
U.S. Drought Monitor Class Change - CONUS

6 Months



U.S. Drought Monitor High Plains

May 28, 2019
(Released Thursday, May. 30, 2019)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	95.78	4.22	0.00	0.00	0.00	0.00
Last Week <i>05-21-2019</i>	94.14	5.86	0.34	0.00	0.00	0.00
3 Months Ago <i>02-26-2019</i>	69.26	30.74	14.07	7.21	0.12	0.00
Start of Calendar Year <i>01-01-2019</i>	70.74	29.26	18.27	11.85	5.54	2.29
Start of Water Year <i>09-25-2018</i>	52.20	47.80	28.48	18.28	11.05	3.38
One Year Ago <i>05-29-2018</i>	47.84	52.16	36.18	19.70	9.44	1.83

Intensity:

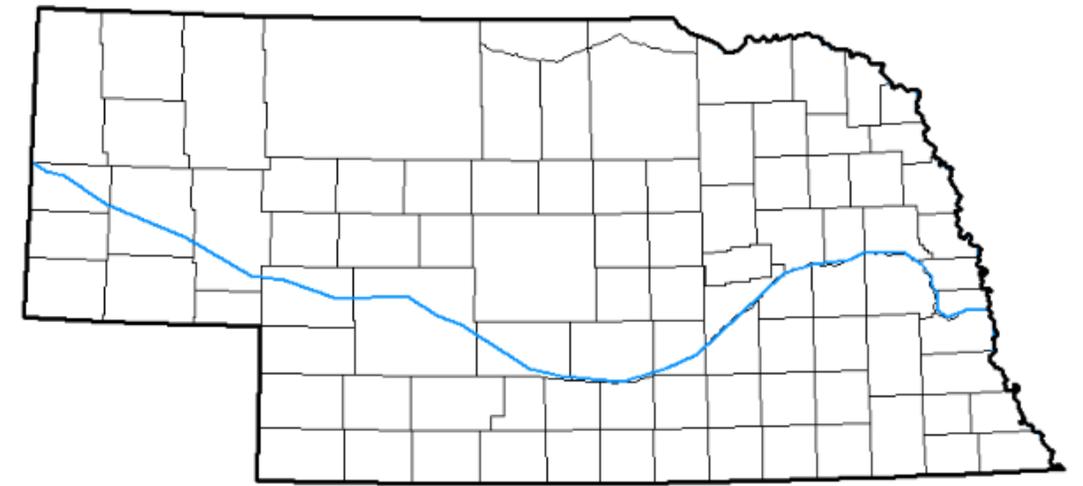
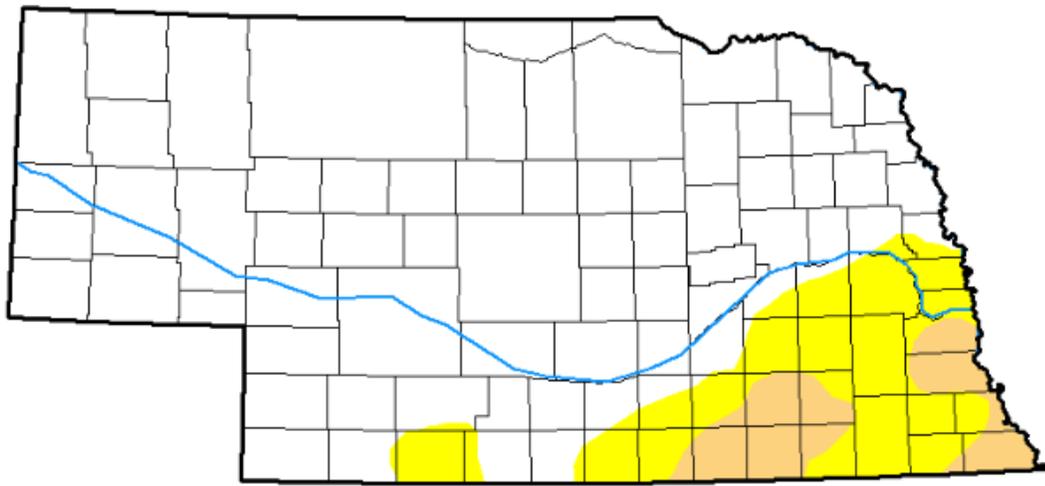
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Author:

Richard Heim
NCEI/NOAA





« May 29, 2018 »



« May 28, 2019 »

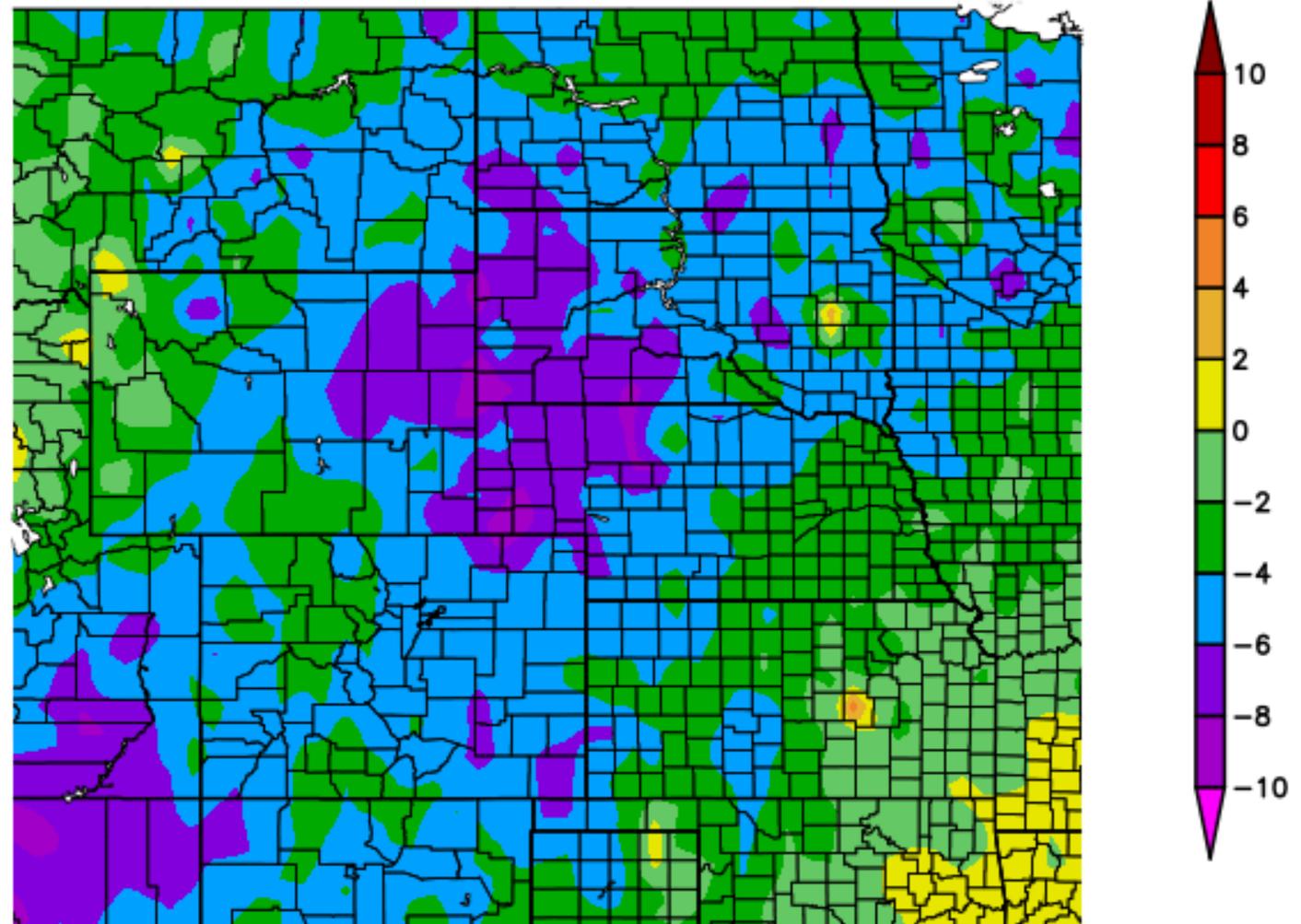


Statistics Comparison

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	DSCI
2018-05-29	81.90	18.10	5.37	0.00	0.00	0.00	23
2019-05-28	100.00	0.00	0.00	0.00	0.00	0.00	0
Change	18.10	-18.10	-5.37	0.00	0.00	0.00	-23

Departure from Normal
Temperatures over
the last 30 days

Departure from Normal Temperature (F)
5/4/2019 - 6/2/2019

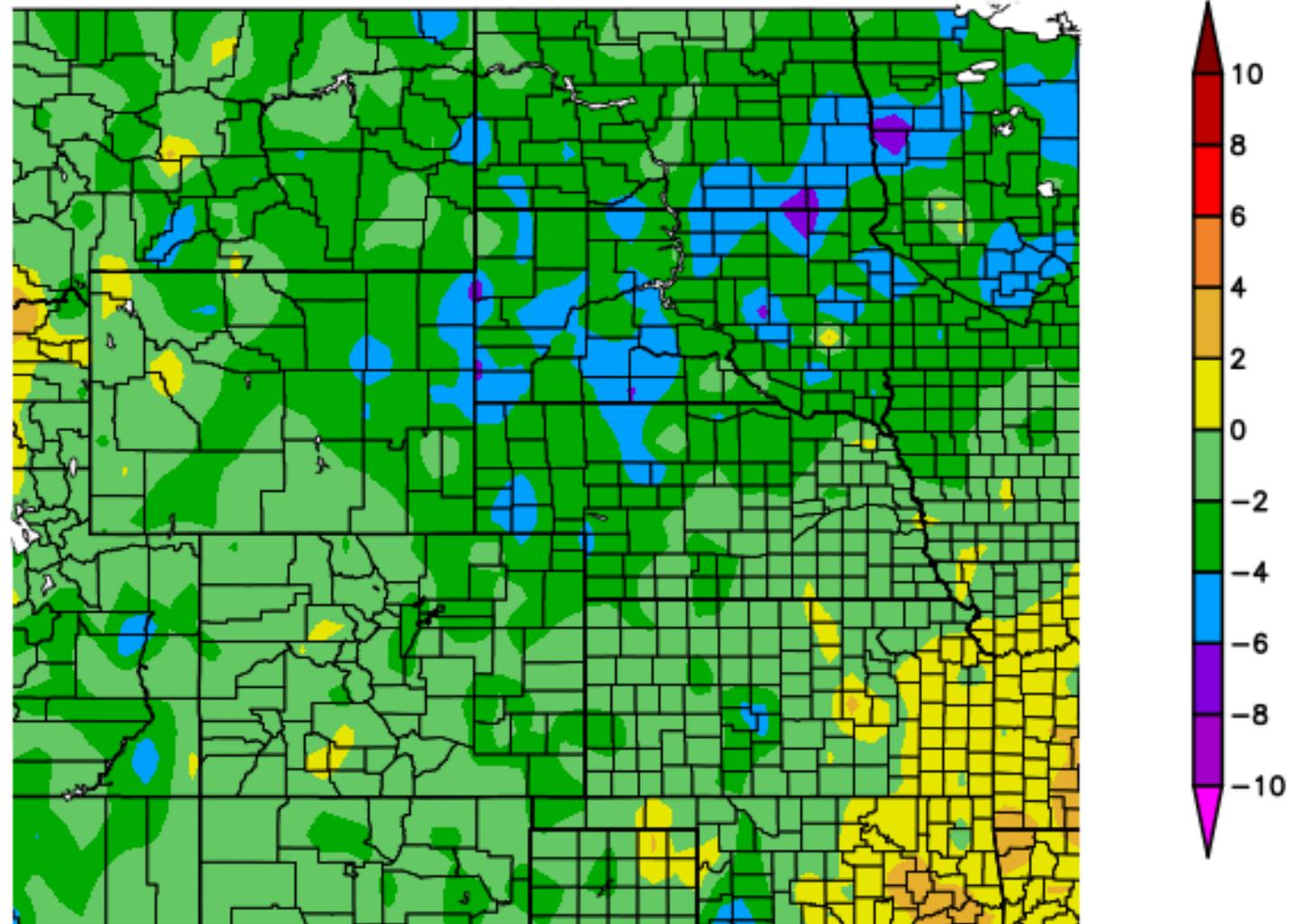


Generated 6/3/2019 at HPRCC using provisional data.

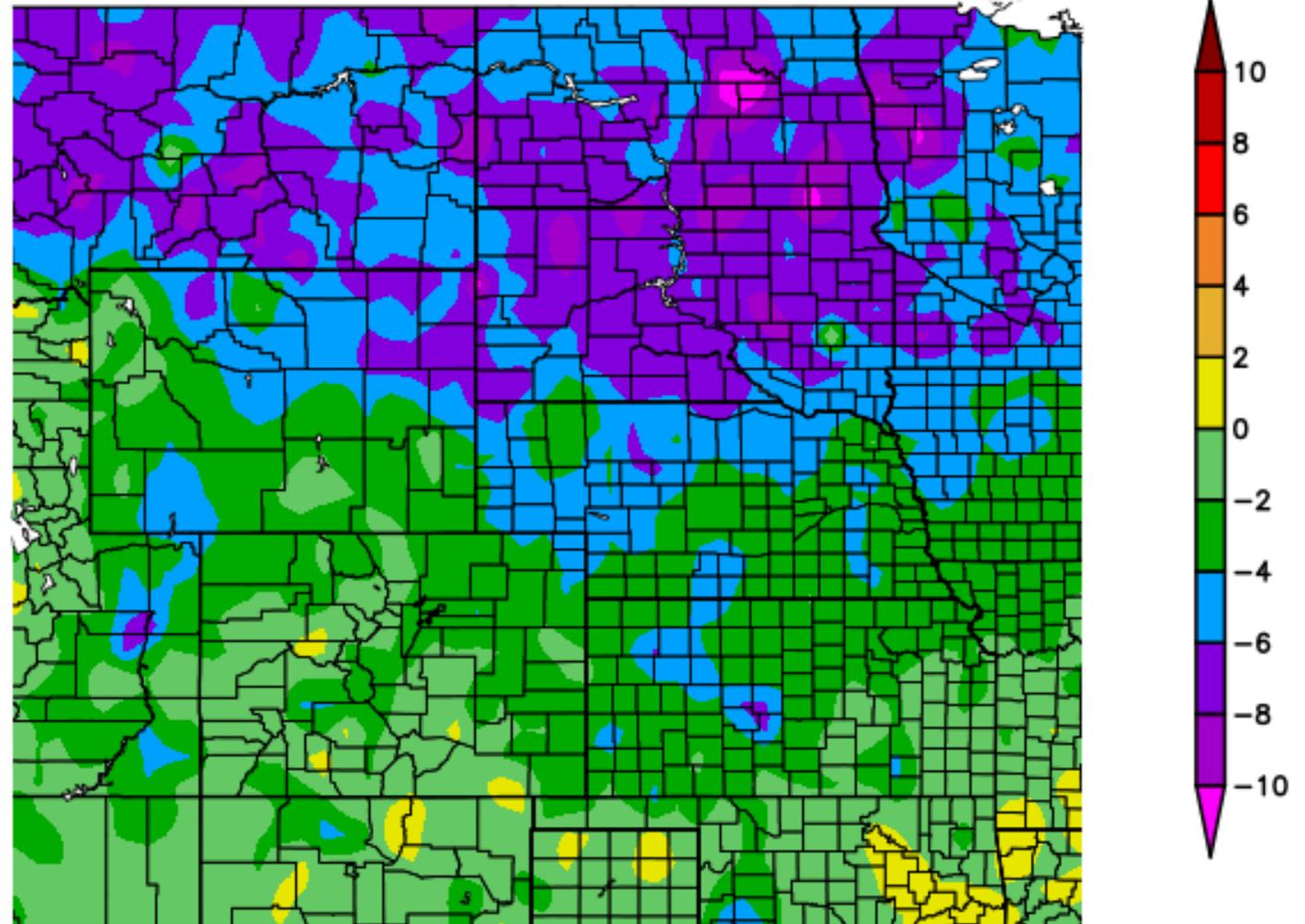
NOAA Regional Climate Centers

Departure from Normal Temperature (F) 4/4/2019 – 6/2/2019

Departure from
Normal
Temperatures over
the last 60 days



Departure from Normal Temperature (F) 1/1/2019 - 6/2/2019

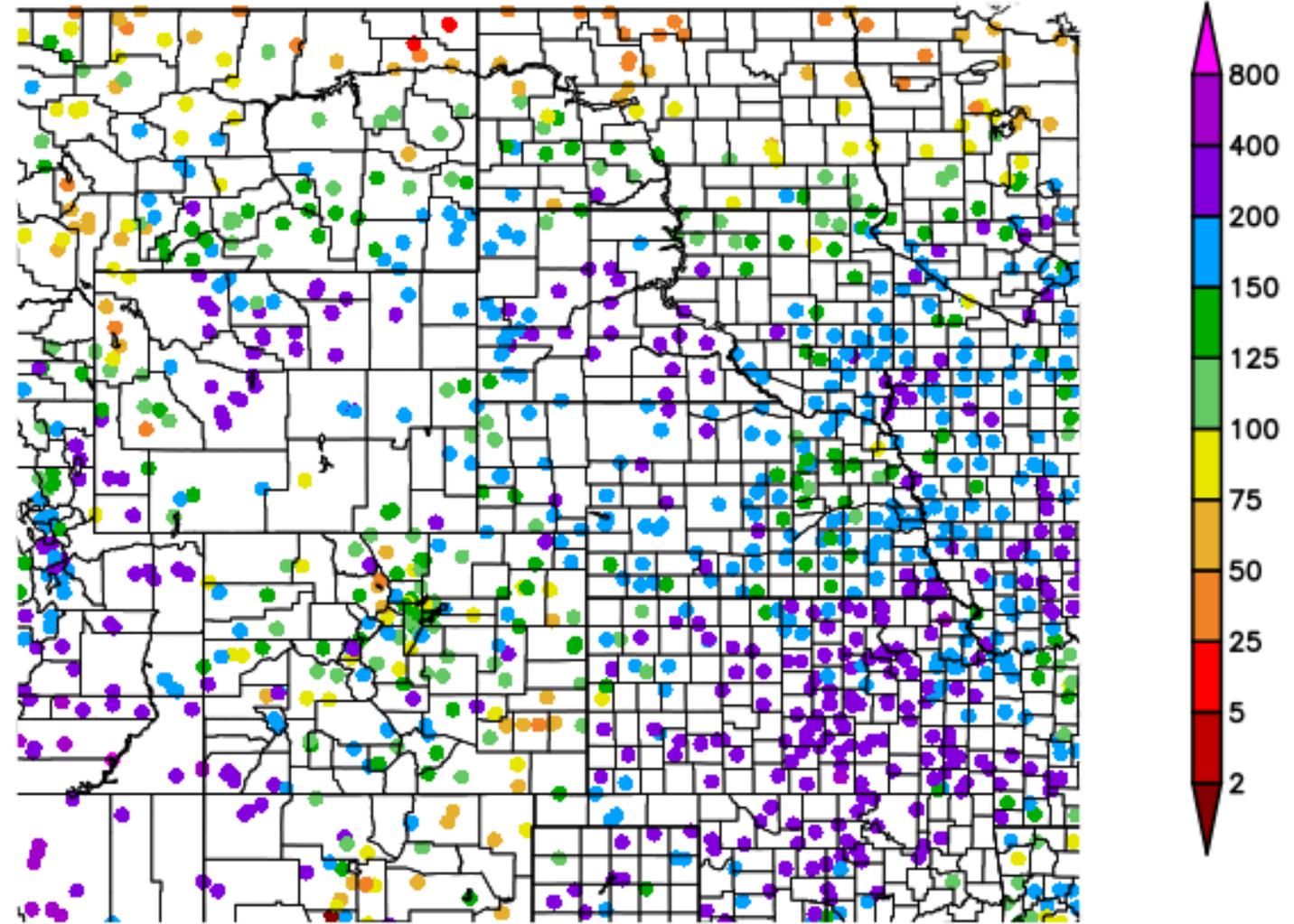


Departure from
Normal
Temperatures for the
Calendar Year

Generated 6/3/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

Percent of Normal Precipitation (%) 5/4/2019 – 6/2/2019



Percent of
Normal
Precipitation
over the last 30
days

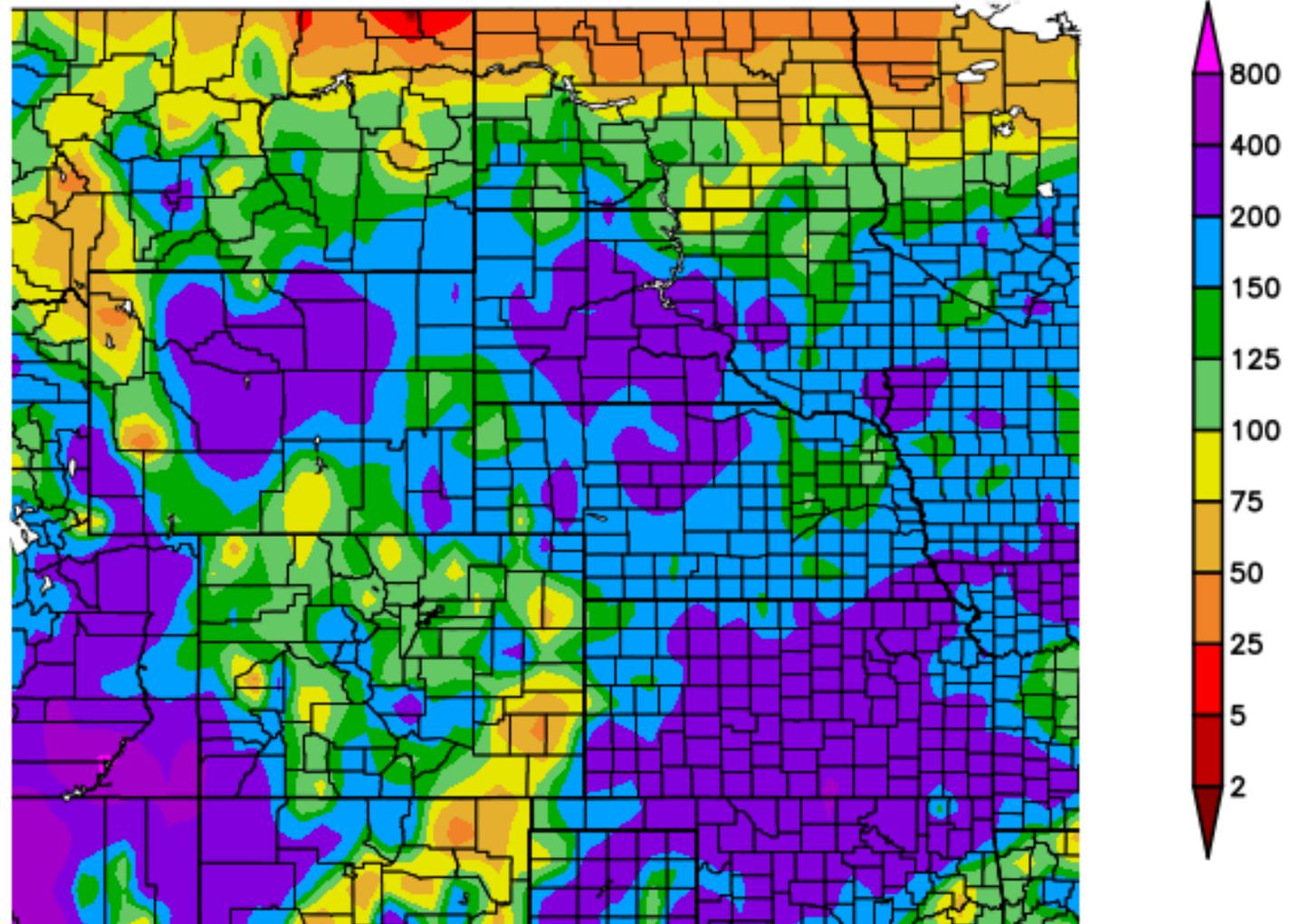
Generated 6/3/2019 at HPRCC using provisional data.

NATIONAL DROUGHT MITIGATION CENTER

NOAA Regional Climate Centers

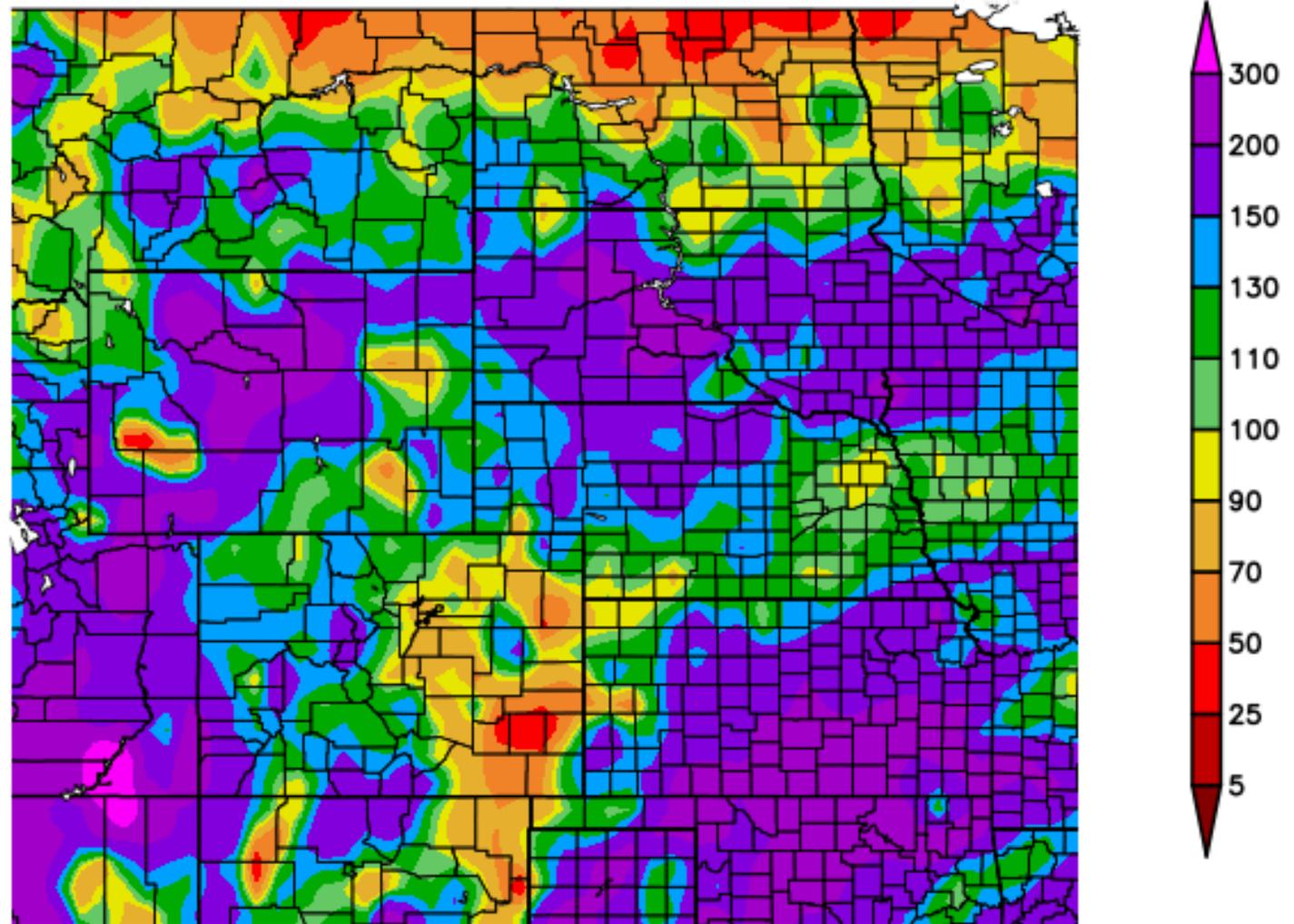
Percent of Normal Precipitation (%) 5/4/2019 – 6/2/2019

Percent of
Normal
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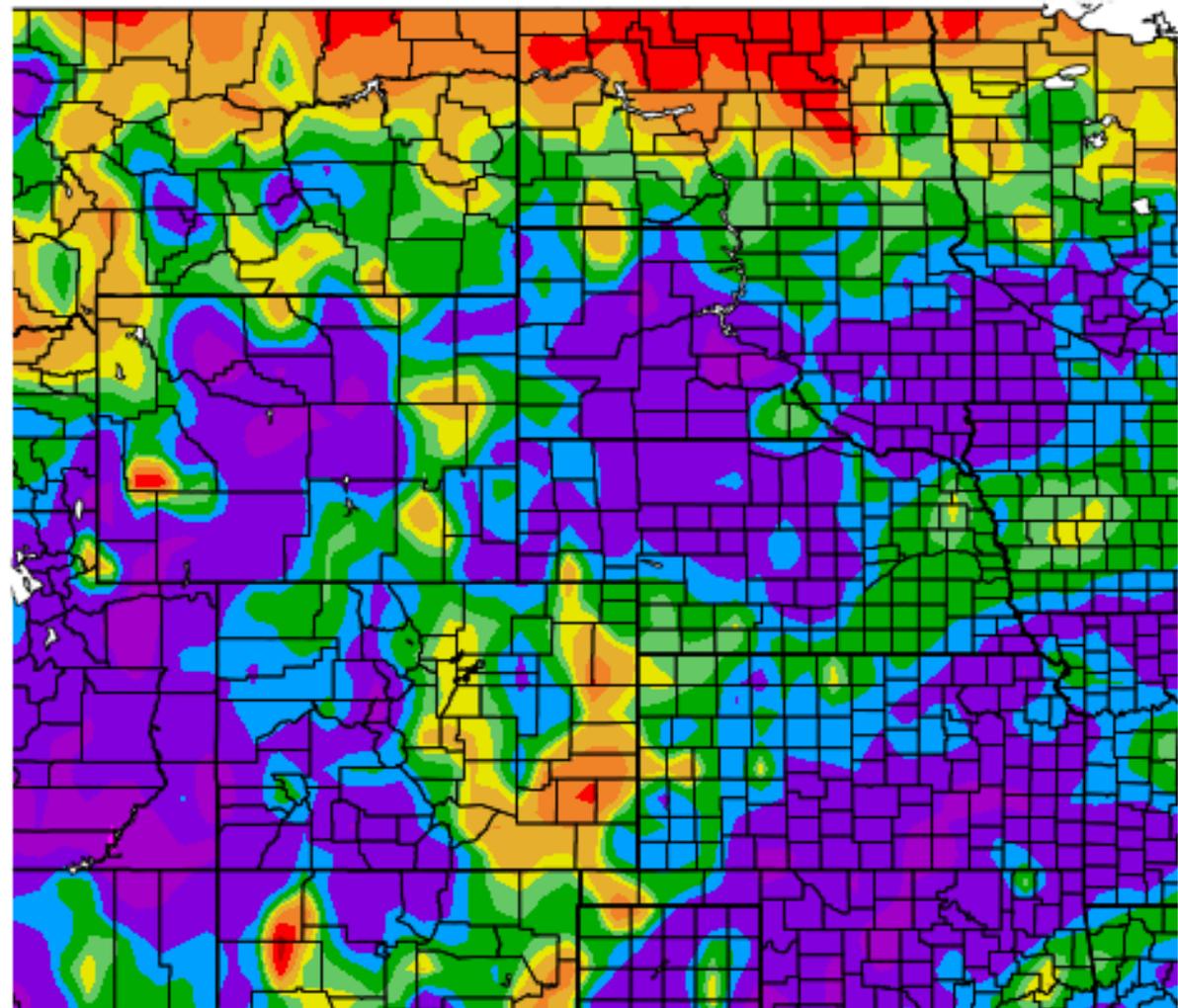


Percent of Normal Precipitation (%) 4/4/2019 – 6/2/2019

Percent of
Normal
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over the last 60
days



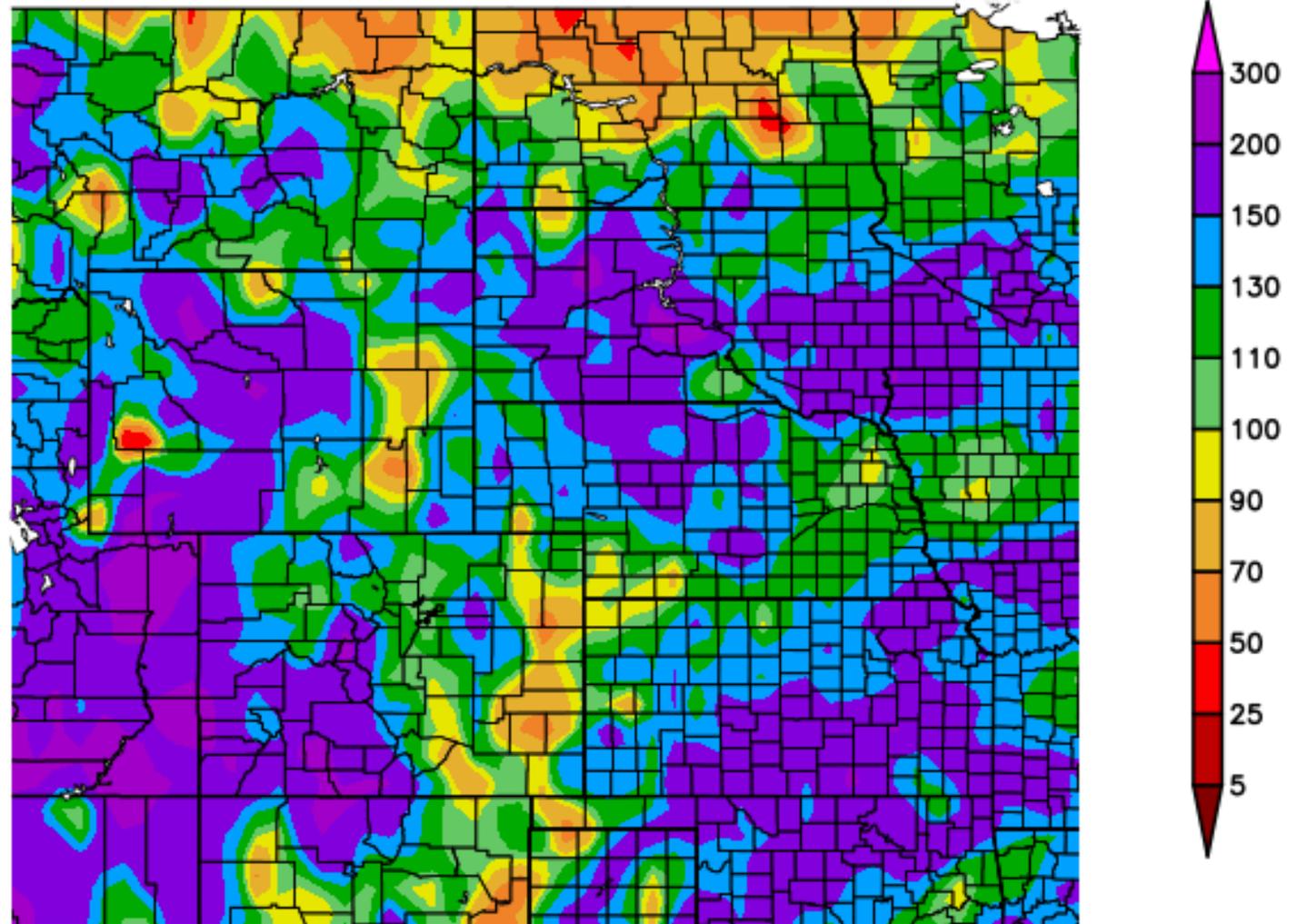
Percent of Normal Precipitation (%) 3/5/2019 – 6/2/2019



Percent of
Normal
Precipitation
over the last 90
days

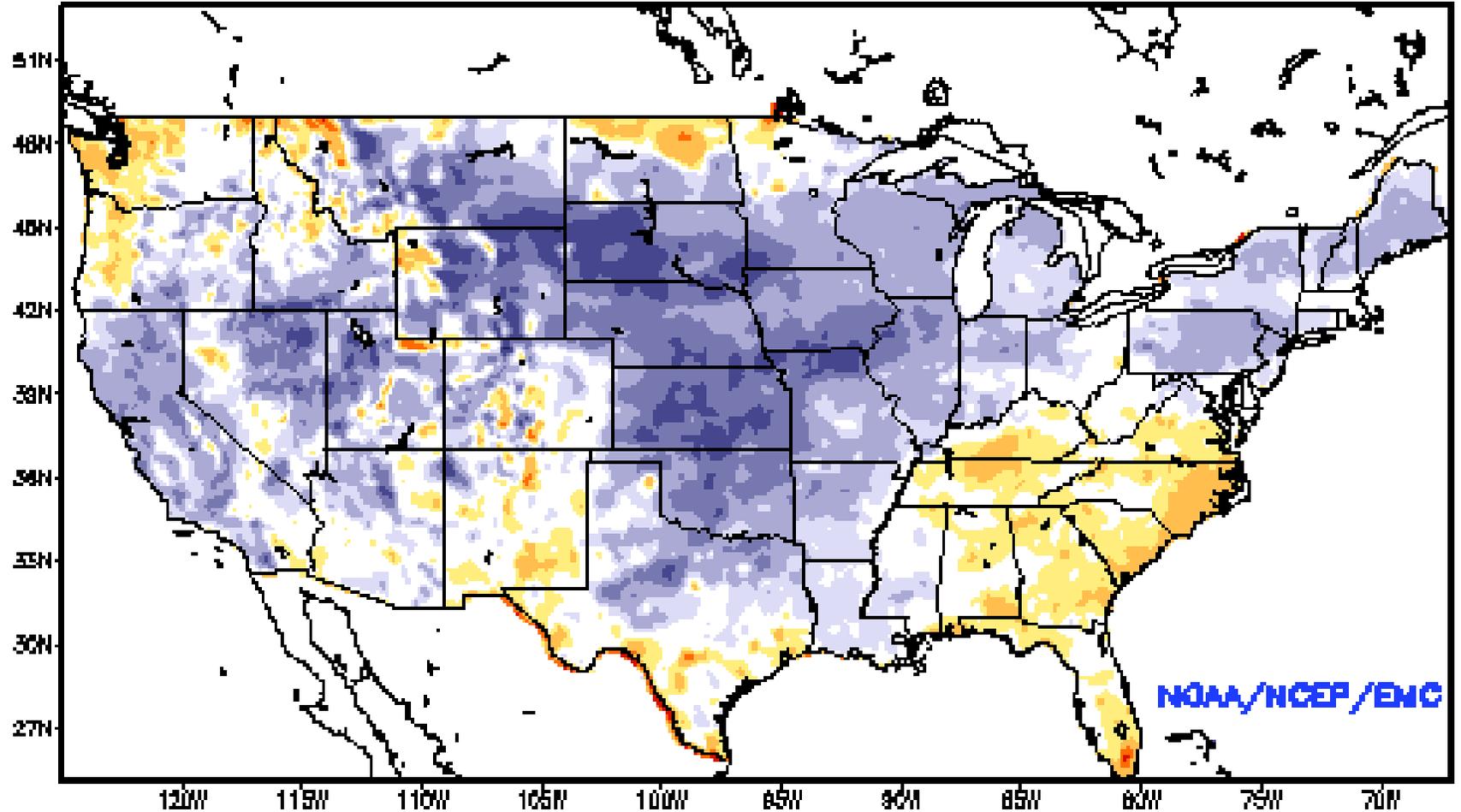
Percent of Normal Precipitation (%)

1/1/2019 – 6/2/2019



Percent of
Normal
Precipitation for
the calendar
year

Ensemble-Mean - Current Top 1M Soil Moisture Anomaly (mm)
NCEP NLDAS Products Valid: MAY 30, 2019



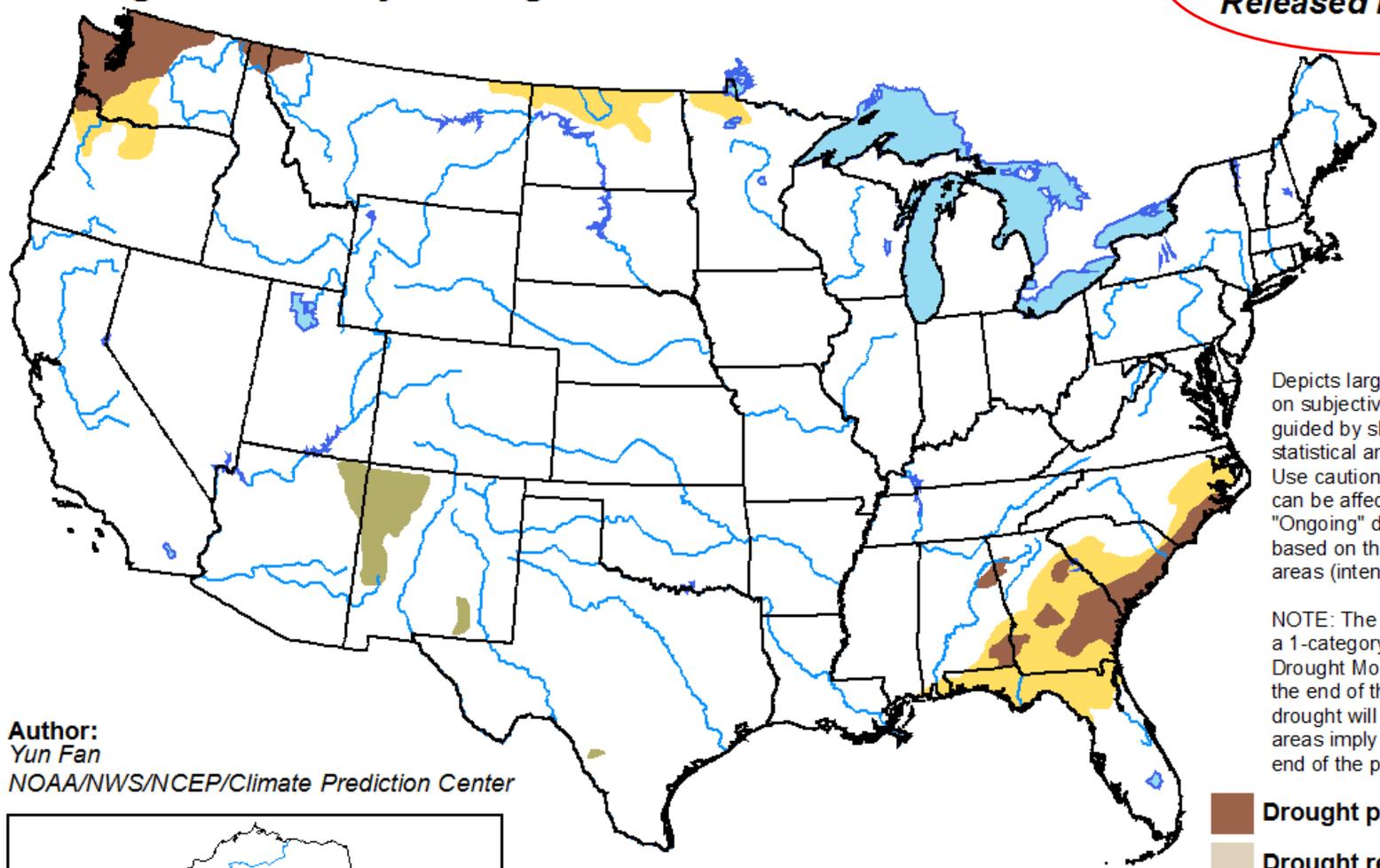
NATIONAL DROUGHT MITIGATION CENTER

NLDAS Soil
Moisture Model:
Current Soil
Moisture
Anomaly

U.S. Monthly Drought Outlook

Drought Tendency During the Valid Period

Valid for June 2019
Released May 31, 2019

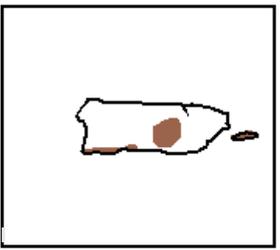
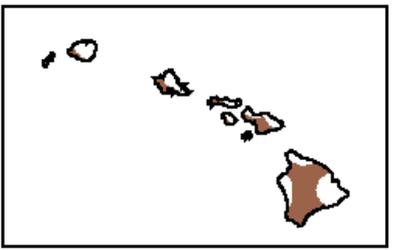
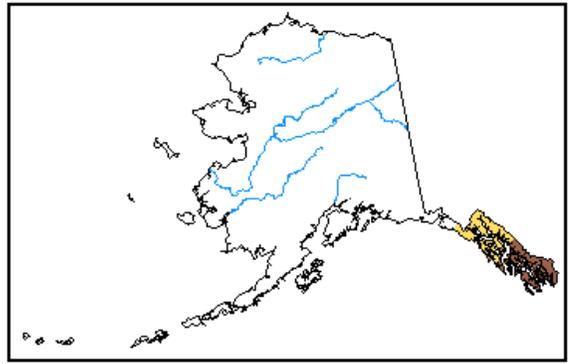


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:
Yun Fan
NOAA/NWS/NCEP/Climate Prediction Center

-  Drought persists
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely

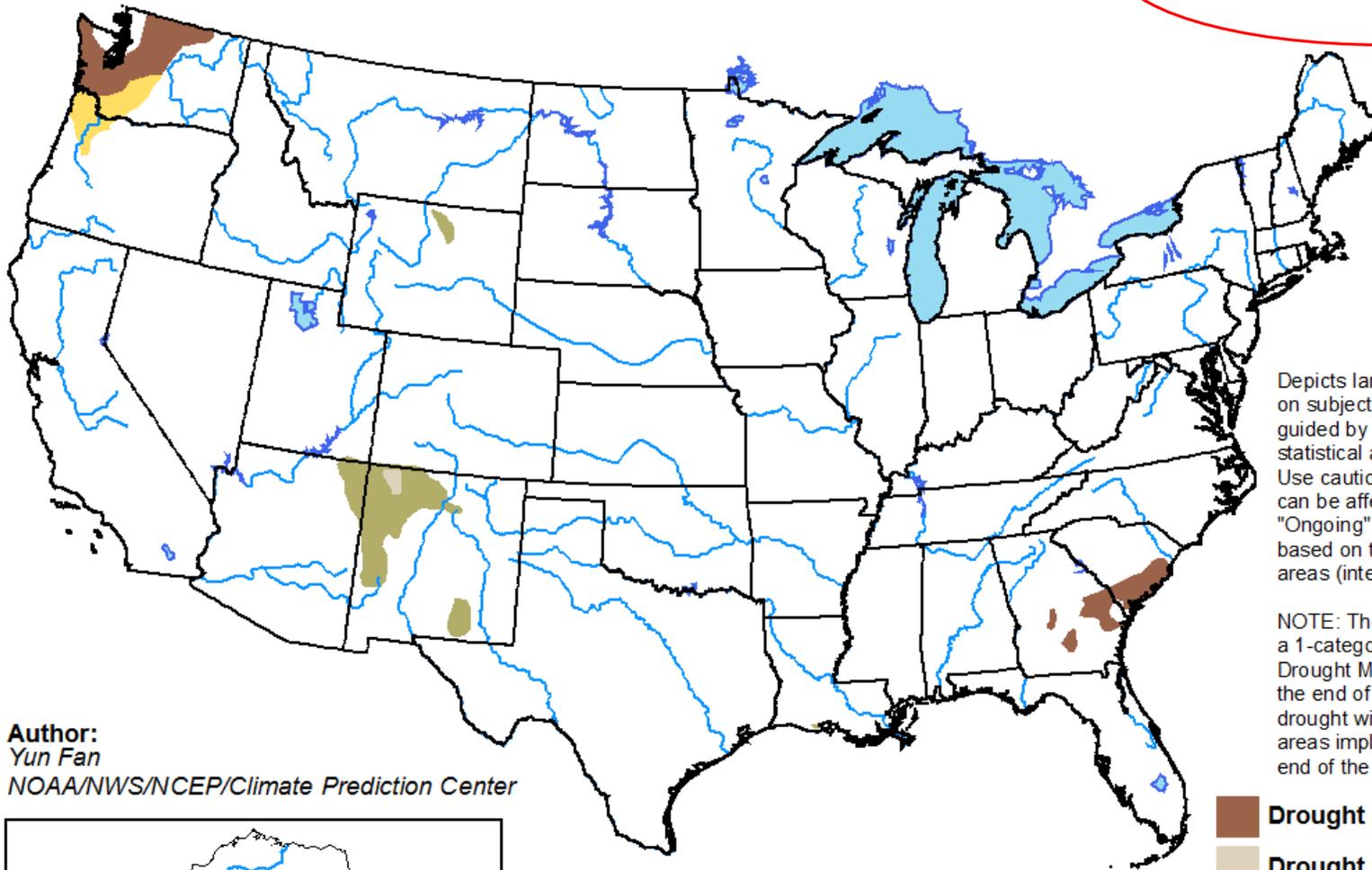


<http://go.usa.gov/3eZGd>

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

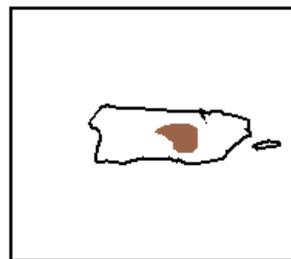
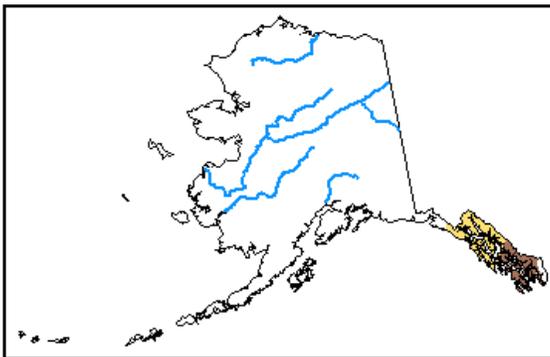
Valid for May 16 - August 31, 2019
Released May 16



Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

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-  Drought persists
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely



<http://go.usa.gov/3eZ73>

Climate/Drought Summary

- Cooler than normal conditions have dominated the state and region so far in 2019 with Nebraska averaging about 3-5 degrees F below normal.
- Almost the entire state of Nebraska has recorded above normal precipitation for this year so far with areas of northcentral Nebraska 3-6 inches above normal.
- During the spring (March-May), the entire region has been below normal for temperatures with the northern portions of the Plains 6-8 F below normal and the southern portions 2-4 F below normal.
- Nebraska is drought free and has been since early September 2018 and there has been no abnormal dryness being depicted since May. The last time Nebraska had 10% or more of the state in drought was August 2017.
- The seasonal drought outlooks do not show drought conditions developing in Nebraska through the end of August 2019.

Nebraska Water Supply Update...

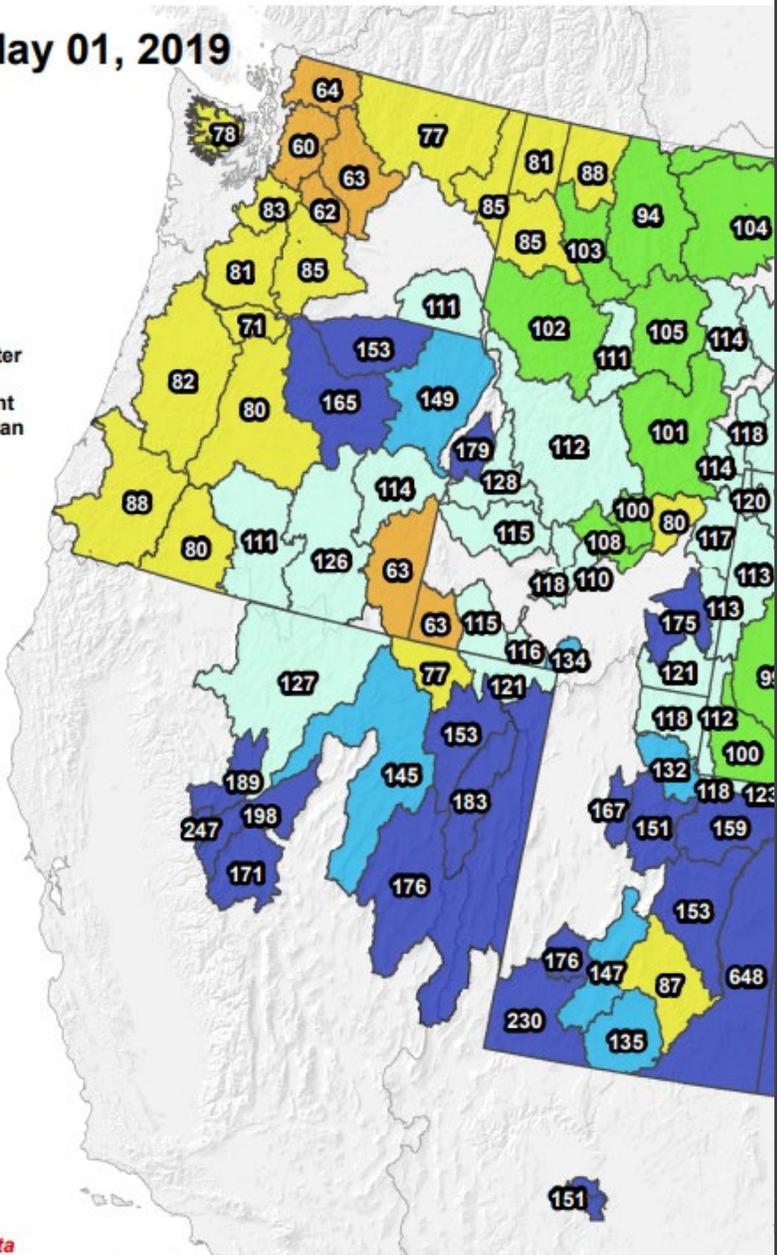
Westwide SNOTEL Current Snow Water Equivalent

May 01, 2019

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

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

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



Provisional data subject to revision

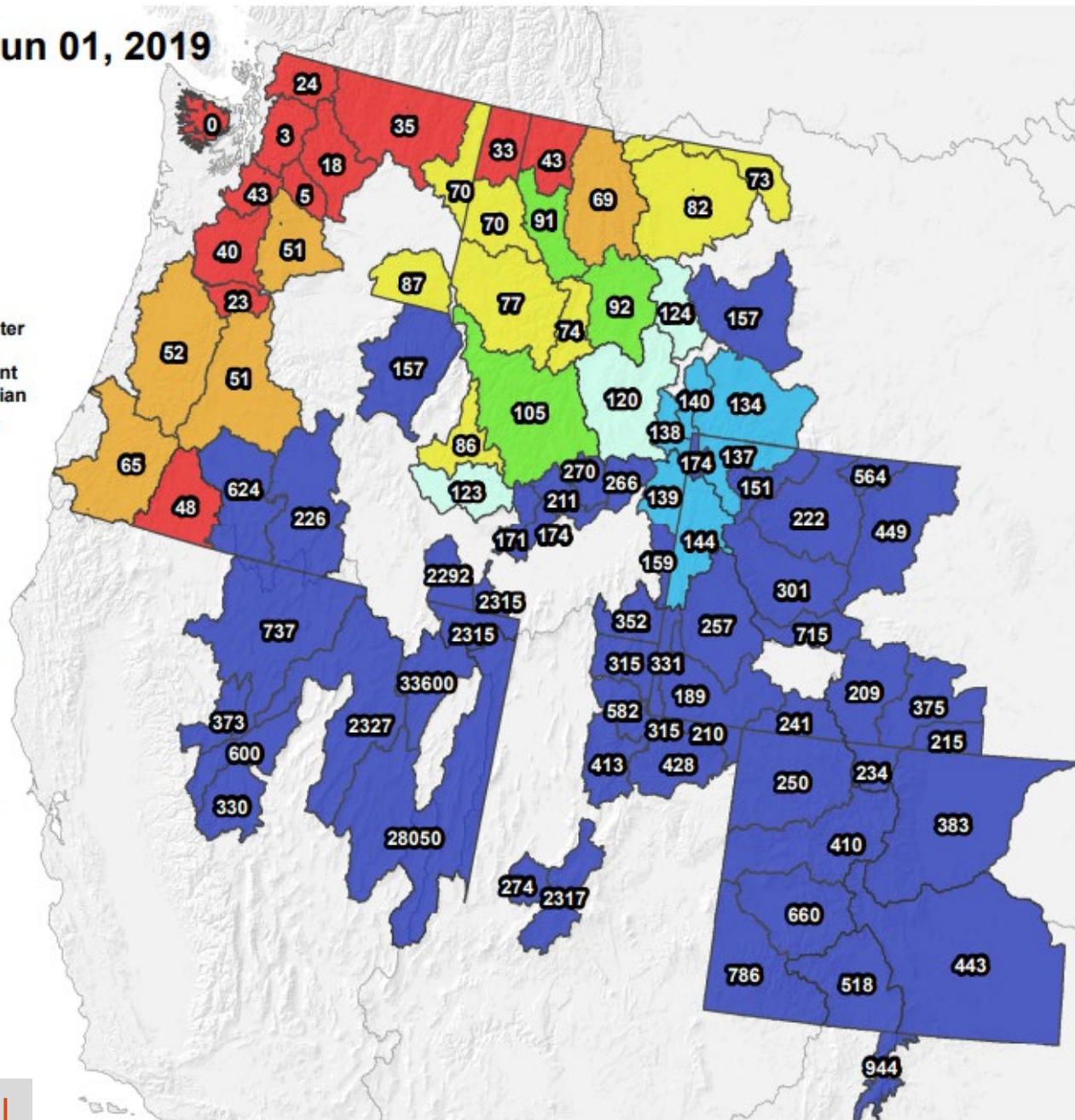
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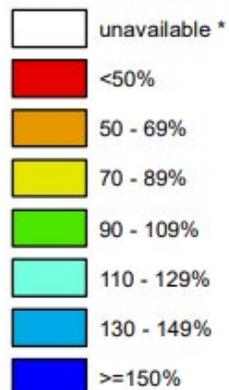
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SNOTEL Current

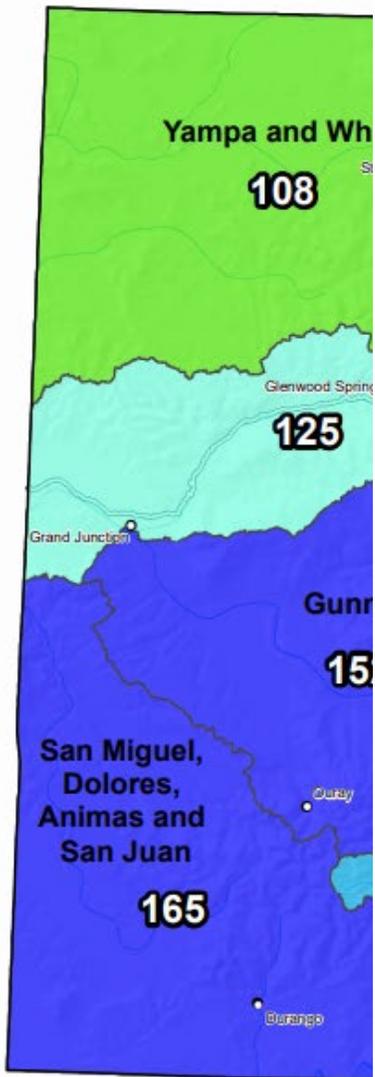
May 01, 2019

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Provisional Data Subject to Revision

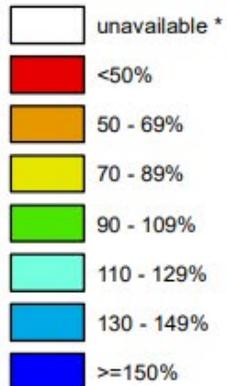


The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

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

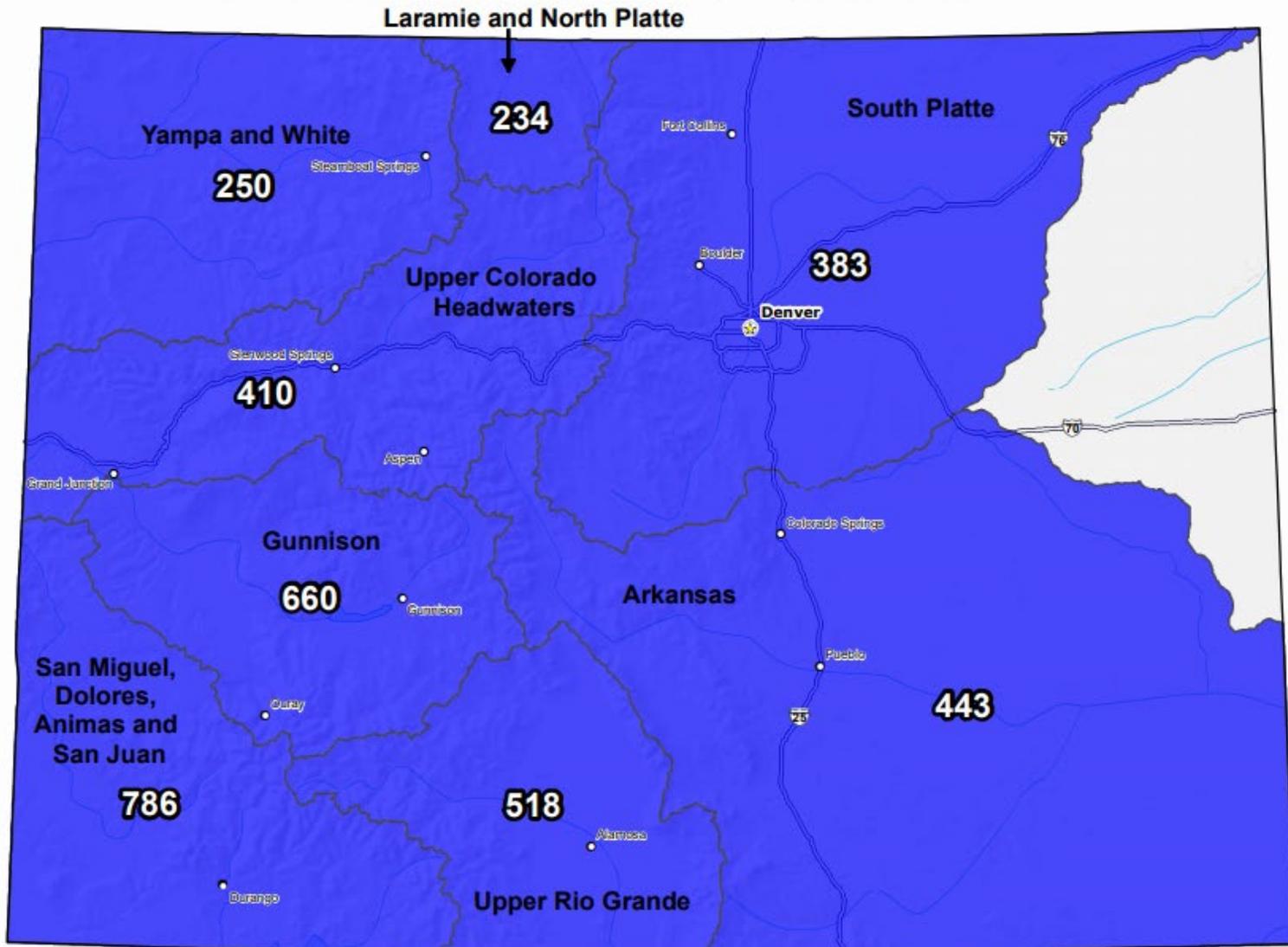
Jun 01, 2019

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Provisional Data Subject to Revision

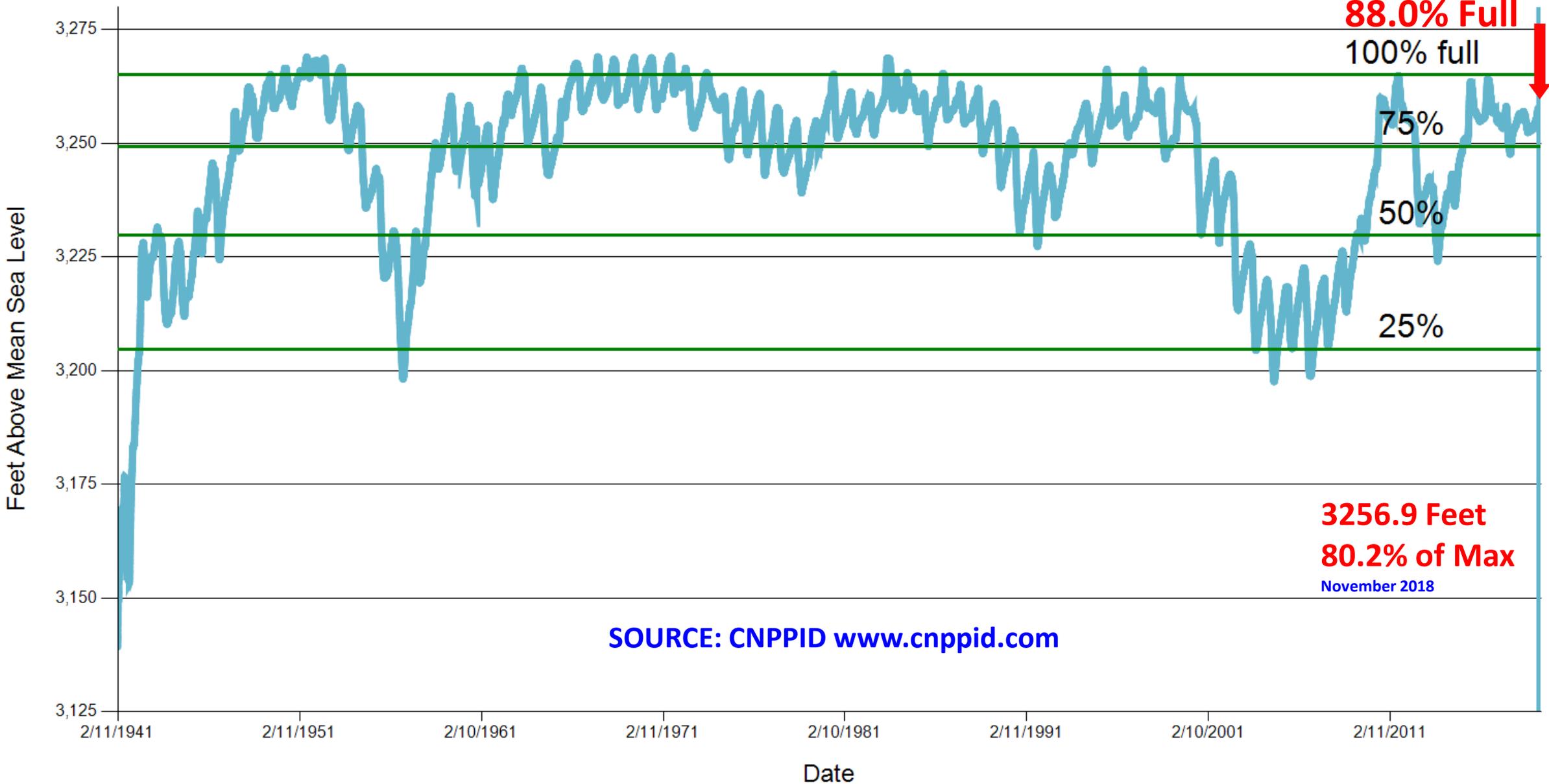


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Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

Lake McConaughy Elevation since 1941



3258 feet
88.0% Full
100% full

3256.9 Feet
80.2% of Max
November 2018

SOURCE: CNPPID www.cnppid.com

June 2019 CARC Meeting

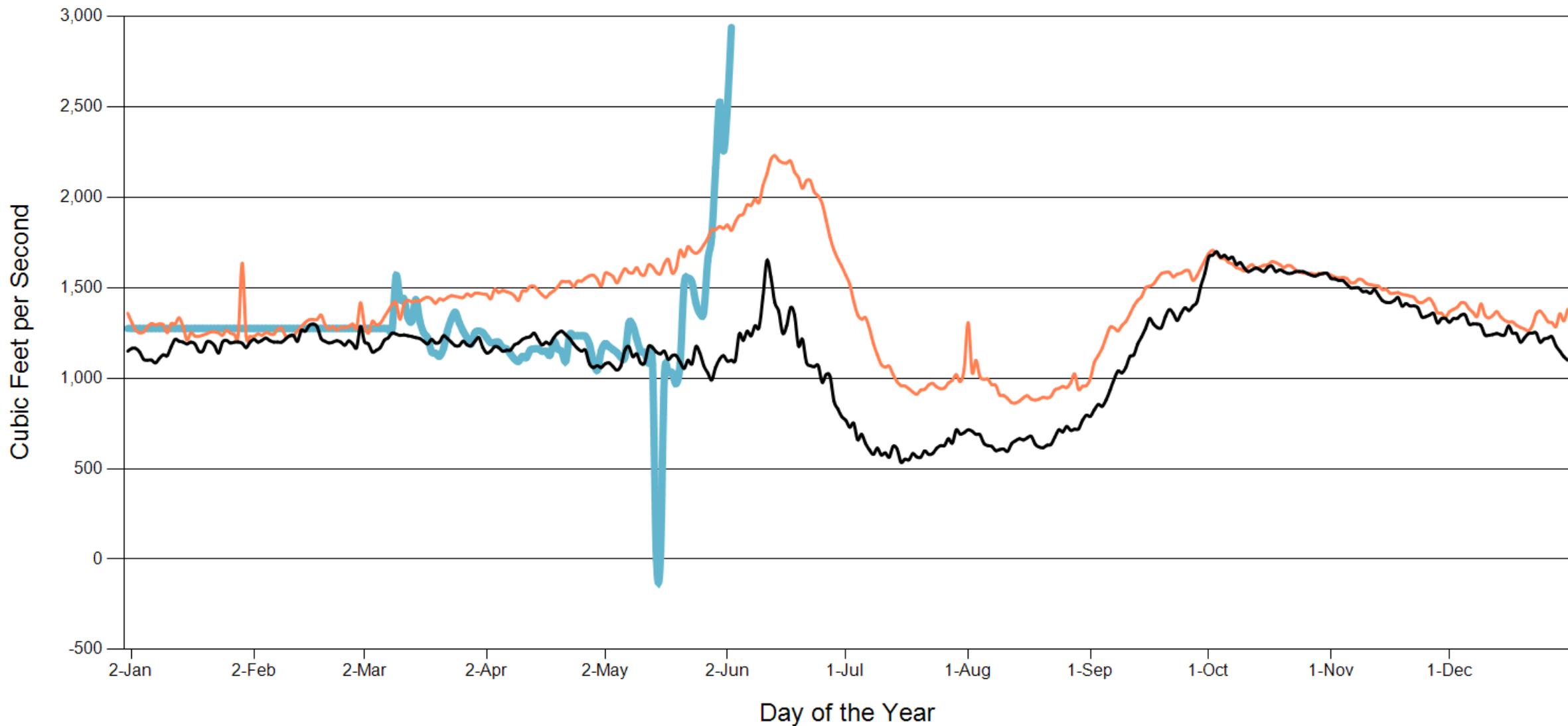


River & Canal Flows

Station	Today (Cubic Feet per Second)	1 Week Ago	1 Month Ago	1 Year Ago
Inflows to McConaughy	2,940	1,538	1,277	1,155
Total Outflows from McConaughy	1,607	1,607	1,622	896
North Platte at Keystone	30	30	28	41
Keystone Diversion	1,577	1,577	1,594	855
North Platte at North Platte	376	530	363	378
South Platte at Roscoe	930	320	188	956
South Platte at North Platte	633	679	339	1,046
Supply Canal Diversion	2,302	2,121	2,260	2,306
Platte at Overton	3,330	2,856	2,392	2,455
Platte at Kearney	4080	3420	2390	2420
Platte at Grand Island	4700	4660	2490	2890

SOURCE: CNPPID www.cnppid.com

Lake McConaughy Inflows



— This Year's Inflows — Historic Average (1941-Present) — Historic Median (1941-Present)

Lake McConaughy

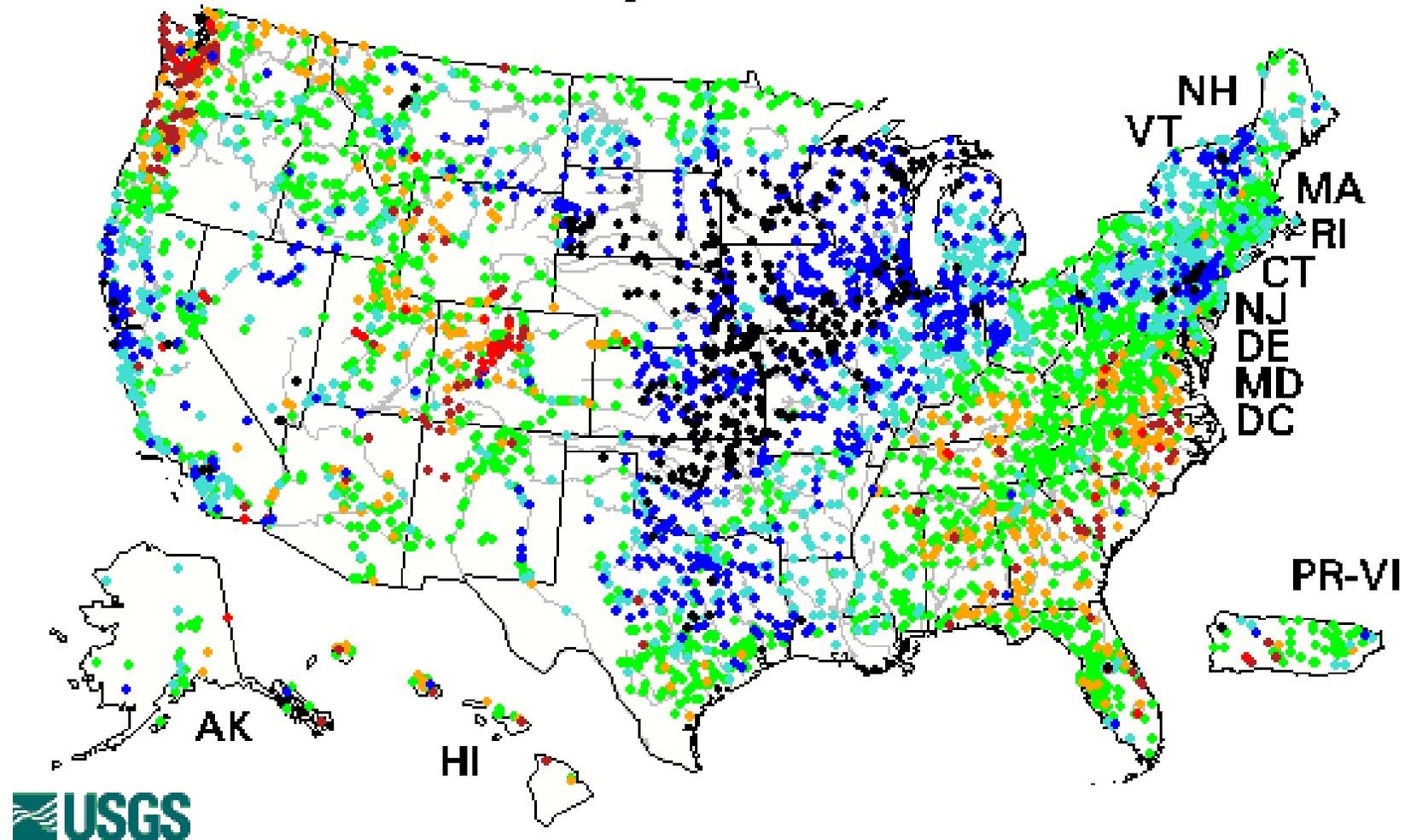
Civil Engineer Tyler Thulin reported that inflows to Lake McConaughy are currently 1,100 to 1,200 cubic feet per second. Lake McConaughy is currently at elevation 3257.1 feet above sea level with a storage volume of 1.51 million acre-feet (86.7 percent capacity). Thulin also reported that diversions into the Supply Canal are near capacity as Central continues to fill its canal system in preparation for irrigation season.

SOURCE: CNPPID News Release, May 5, 2019

www.cnppid.com

14-day average streamflow compared to historical streamflow for the day of year

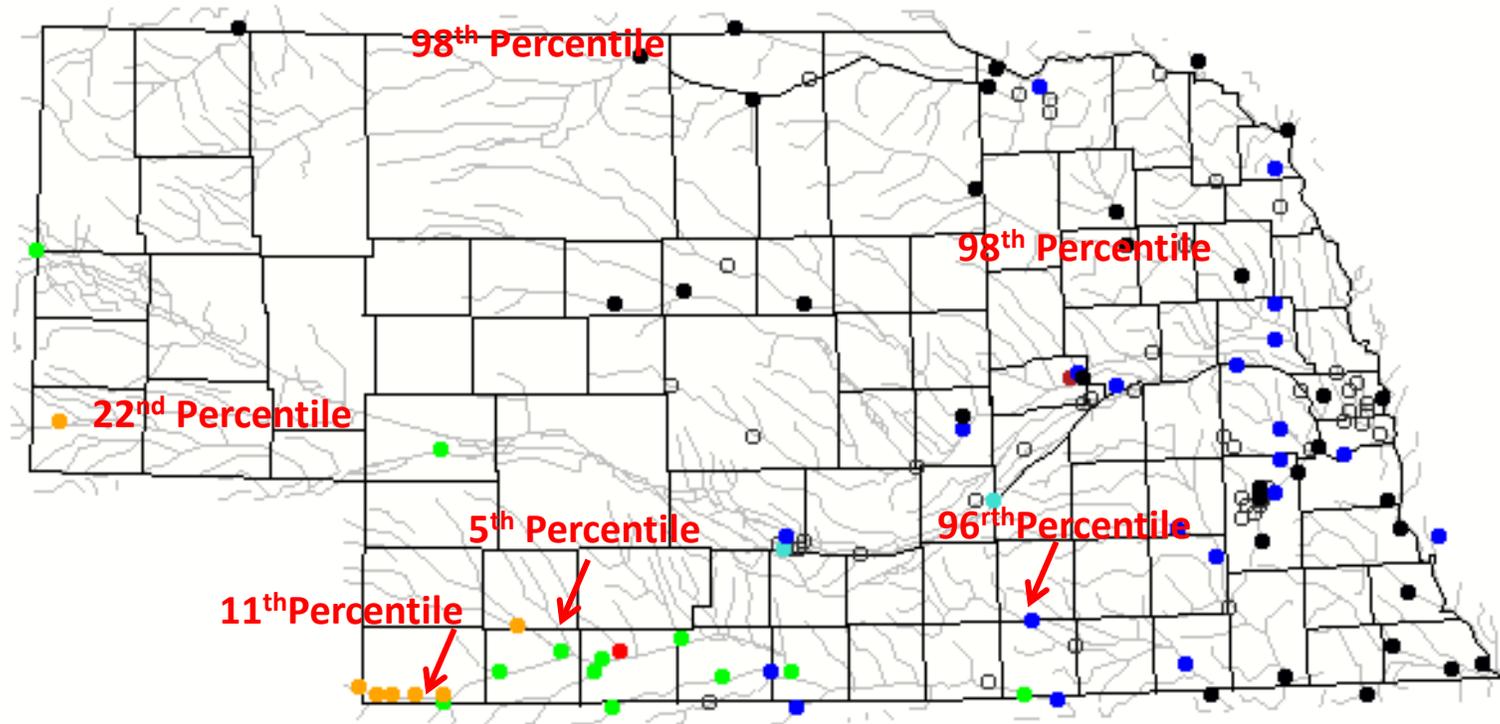
Sunday, June 02, 2019



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

14-day average streamflow compared to historical streamflow for the day of year

Sunday, June 02, 2019



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

Republican River Basin

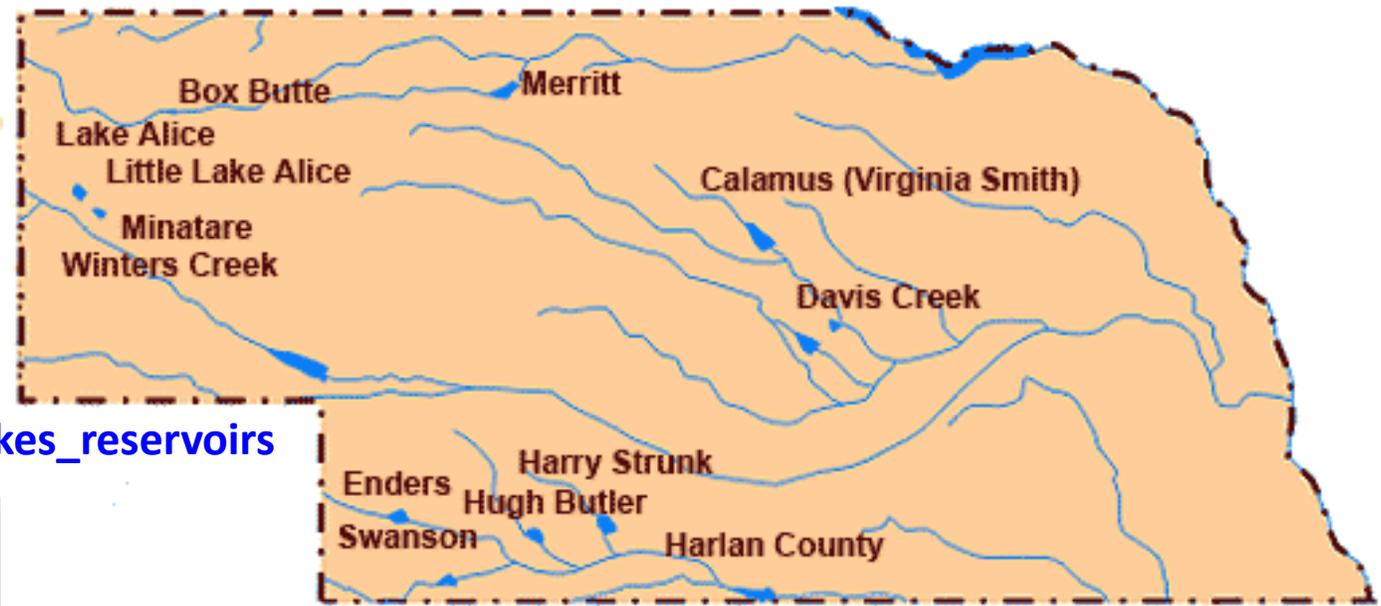
Hugh Butler: 63.5%(51.4%) of conservation pool

Enders: 24.2% (21.1%) of conservation pool

Harry Strunk: 100%(78.2%) of conservation pool

Swanson: 70.0% (49.6%) of conservation pool

*values in red are from the last
CARC meeting in November 2018.



Source: BOR http://www.usbr.gov/gp/lakes_reservoirs

Republican River Basin

Harlan County Current Conditions

*values in red are from the last
CARC meeting in November 2018.

- ✓ Conservation Pool is 100.00% full (74.9%)
- ✓ 388,347 Acre-Feet in storage compared to 223,625 Acre-Feet (AF) of water in storage during November 2018
- ✓ Last year at this time, 257,709 AF was in storage (June 2018)
- ✓ Historical average storage for this time of the year is 259,997 AF

Source: BOR http://www.usbr.gov/gp/lakes_reservoirs/

Water Supply Summary

- A significant amount of water is stored and still accumulating in the Rocky Mountains which will come through the Platte Basin yet this year.
- Lake McConaughy is currently 88.0 percent of capacity which is slightly higher compared to levels in November 2018 (last CARC meeting).
- The Republican River basin reservoirs are higher than in November as water levels increased due to the lack of irrigation and recharge taking place.
- Harlan County Reservoir is holding about 164,722 acre-feet more water now than in November 2018.
- Harlan County is holding about 130,638 acre-feet more water now than at this time last year and is about 128,350 acre-feet above average for this time of year.
- All reservoir levels and storage should hold steady until or even increase until the irrigation season begins.



DROUGHT.UNL.EDU

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 /NationalDroughtMitigationCenter

 @droughtcenter

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University of Nebraska-Lincoln