GARBER-WELLINGTON ASSOCIATION

- PROPOSED GROUNDWATER RULE CHANGES
- DROUGHT UPDATE

NOVEMBER 2017

John Harrington
Water Resources Division Director

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PROPOSED GROUNDWATER RULE CHANGES

- Antidegradation rules for surface and groundwaters
- Groundwater attenuation rules

- **A NEW CHAPTER**
  - **Chapter 31:** Aquifer Storage and Recovery

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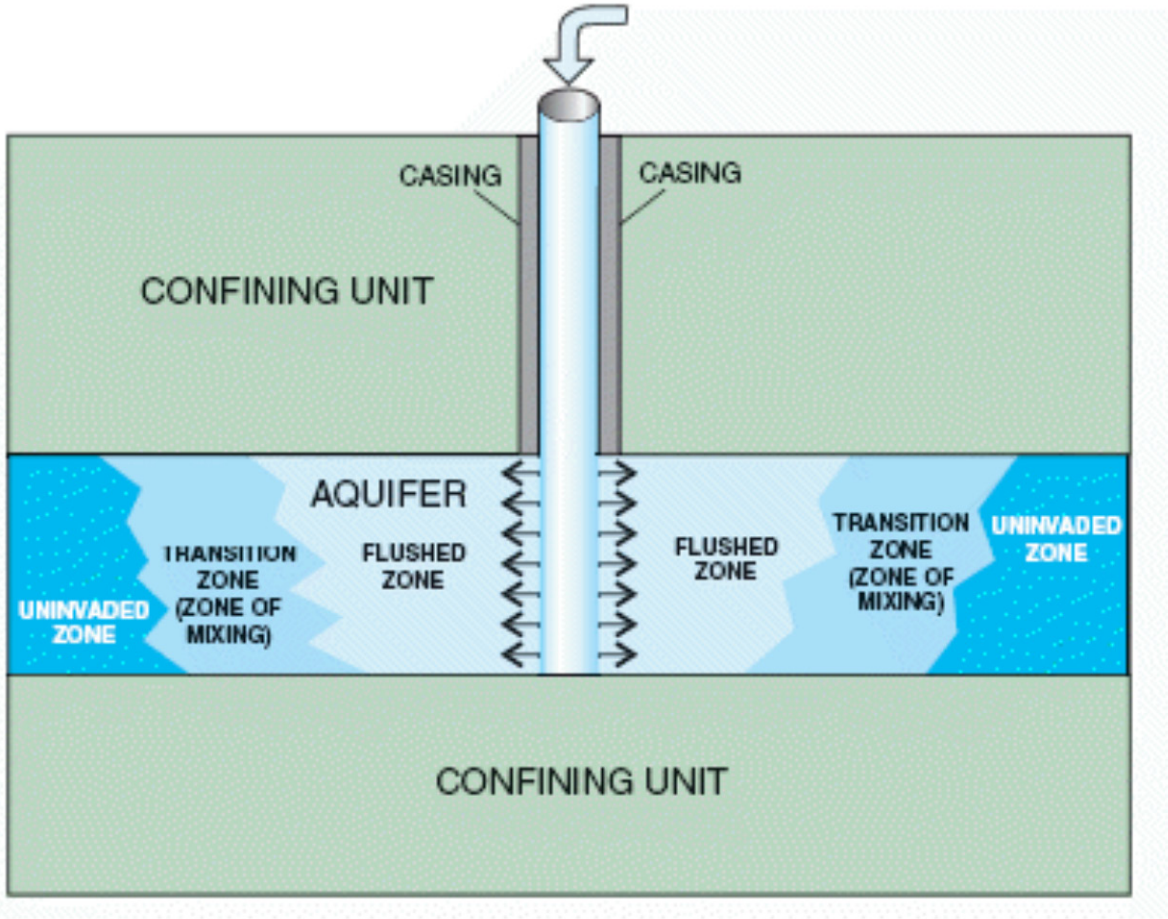
PROPOSED GROUNDWATER RULE CHANGES

- Aquifer storage and recovery (ASR) is the direct injection of surface water supplies such as potable water, reclaimed water, stormwater, or river water into an aquifer for later recovery and use.
- Objections to ASR include legal and physical limitations, the quality of the recovered water, cost-effectiveness and the potential for other pumpers to capture the utility's stored water



https://pubs.usgs.gov/fs/2004/3128/

Review of Aquifer Storage and Recovery in the Floridan Aquifer System of Southern Florida.

U.S. Department of the Interior
U.S. Geological Survey
Fact Sheet 2004-3128
November 2004

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PROPOSED GROUNDWATER RULE CHANGES

- Chapter 31 introduces the concept of assimilative capacity to Oklahoma groundwater.

  "Assimilative capacity refers to the ability of a body of water to cleanse itself; its capacity to receive waste waters or toxic substances *without deleterious effects and without damage* to aquatic life or humans who consume the water."

- New Category - Sensitive Water Supply – Reuse (SWS-R) Waters

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QUESTIONS?

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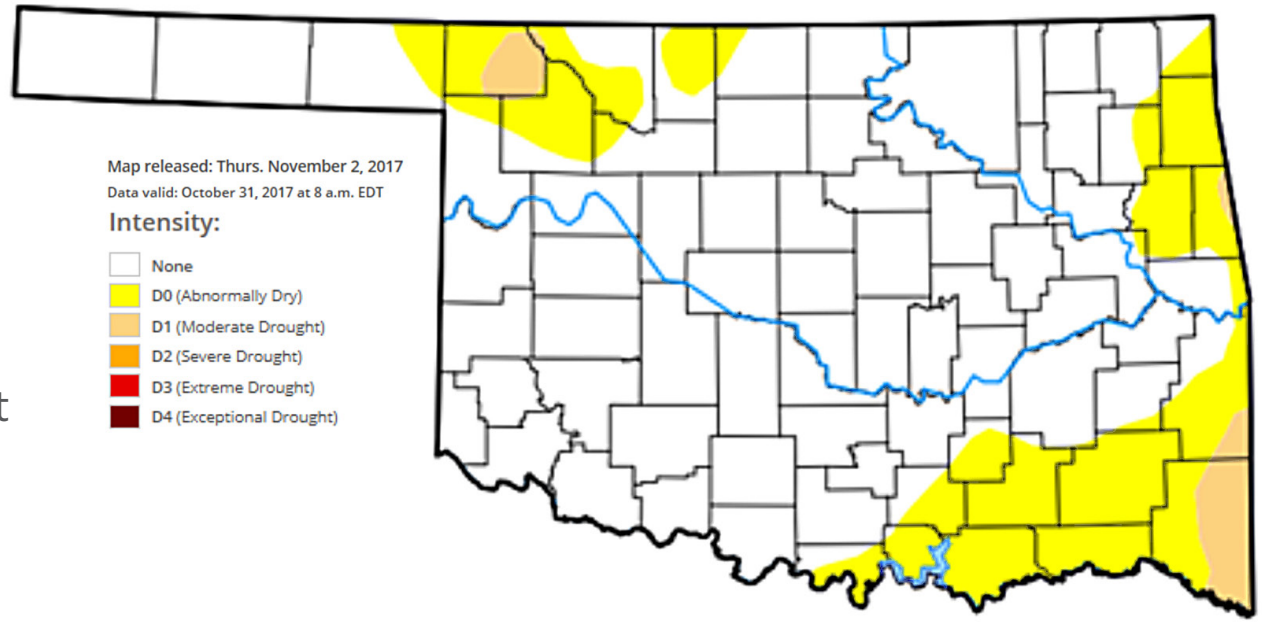
DROUGHT UPDATE

- Current surface conditions show abnormally dry conditions in SE Oklahoma and parts of NW Oklahoma.
- This is a significant improvement from a year ago.
- Only 2.75% of Oklahoma is in drought status.



Week	Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	DSCI
Current	2017-10-31	77.85	22.15	2.75	0.00	0.00	0.00	25
Last Week	2017-10-24	79.57	20.43	2.75	0.00	0.00	0.00	23
3 Months Ago	2017-08-01	51.19	48.81	18.51	3.65	0.00	0.00	71
Start of Calendar Year	2016-12-27	5.63	94.37	72.32	45.73	3.14	0.00	216
Start of Water Year	2017-09-26	64.46	35.54	0.77	0.00	0.00	0.00	36
One Year Ago	2016-11-01	42.61	57.39	36.44	7.90	0.00	0.00	102

http://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?OK

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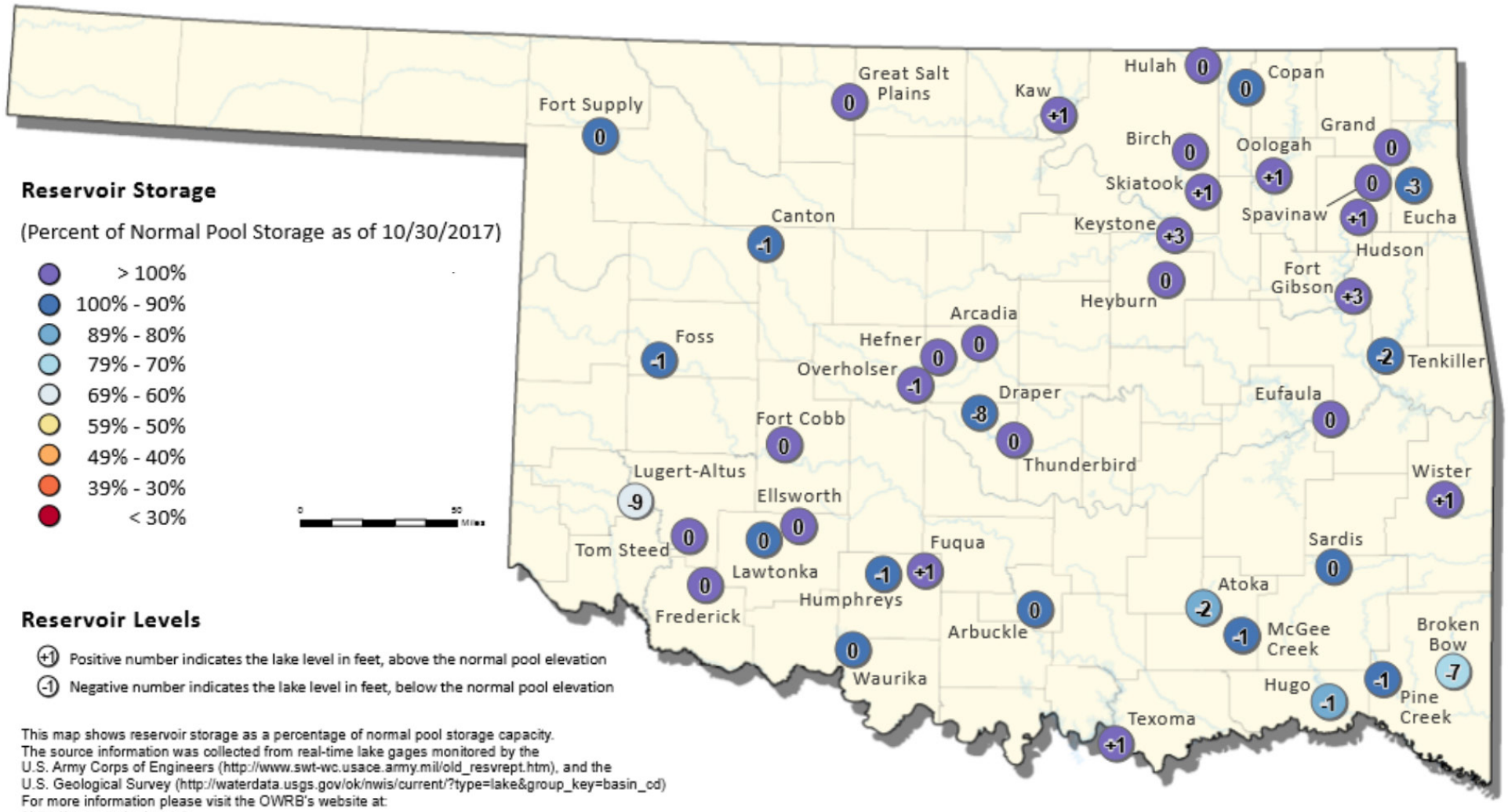
DROUGHT UPDATE

OKLAHOMA SURFACE WATER RESOURCES

RESERVOIR LEVELS AND STORAGE AS OF 10/30/2017



http://www.owrb.ok.gov/maps/pdf_map/Monthly%20Reservoir%20Storage.pdf

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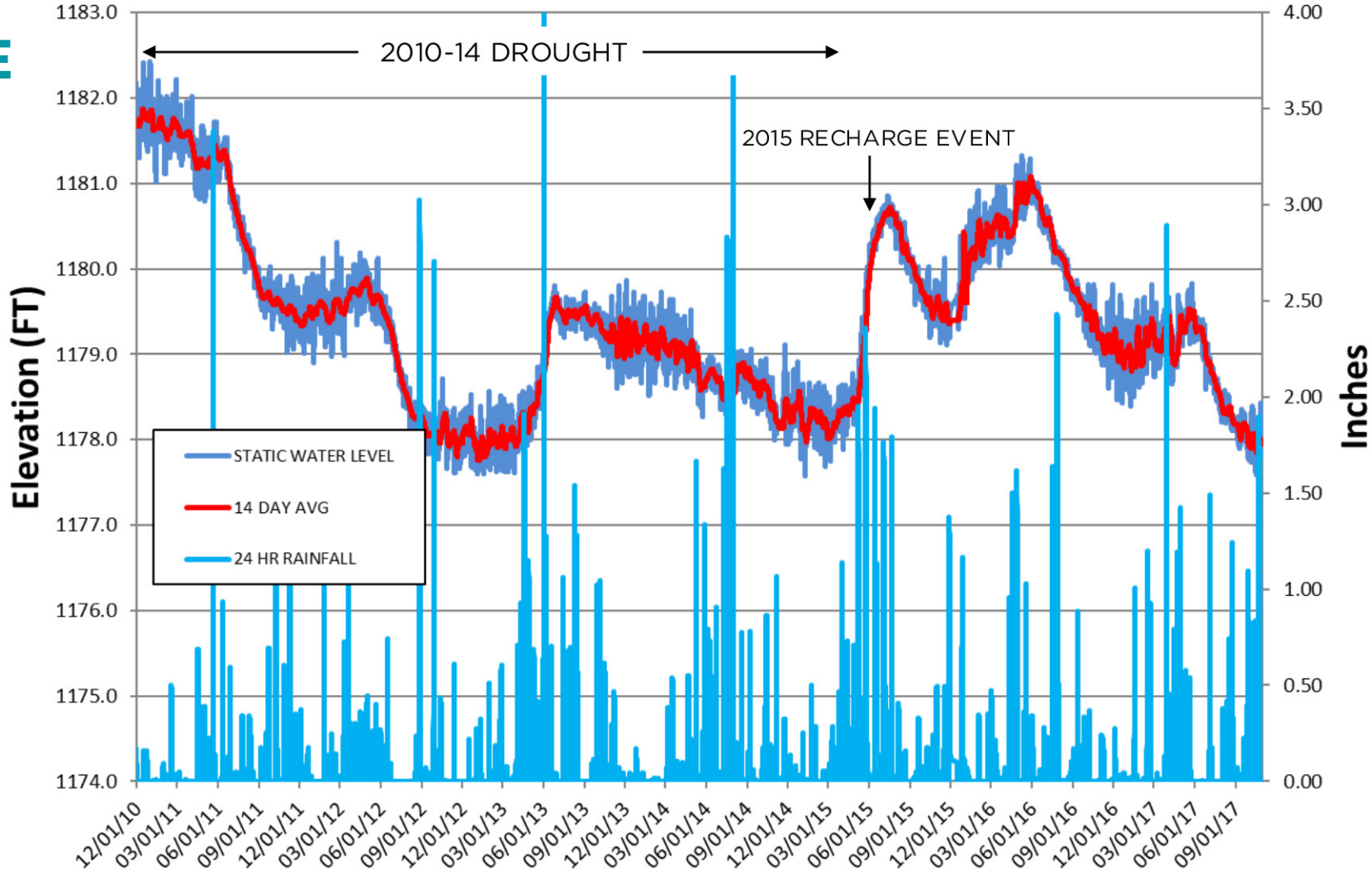
DROUGHT UPDATE

- Groundwater levels have never fully recovered from 2015
- Groundwater is now at the same levels as the depths of the 2010-14 drought!



SPENCER STATION, OKLAHOMA COUNTY

http://www.mesonet.org/index.php/weather/groundwater

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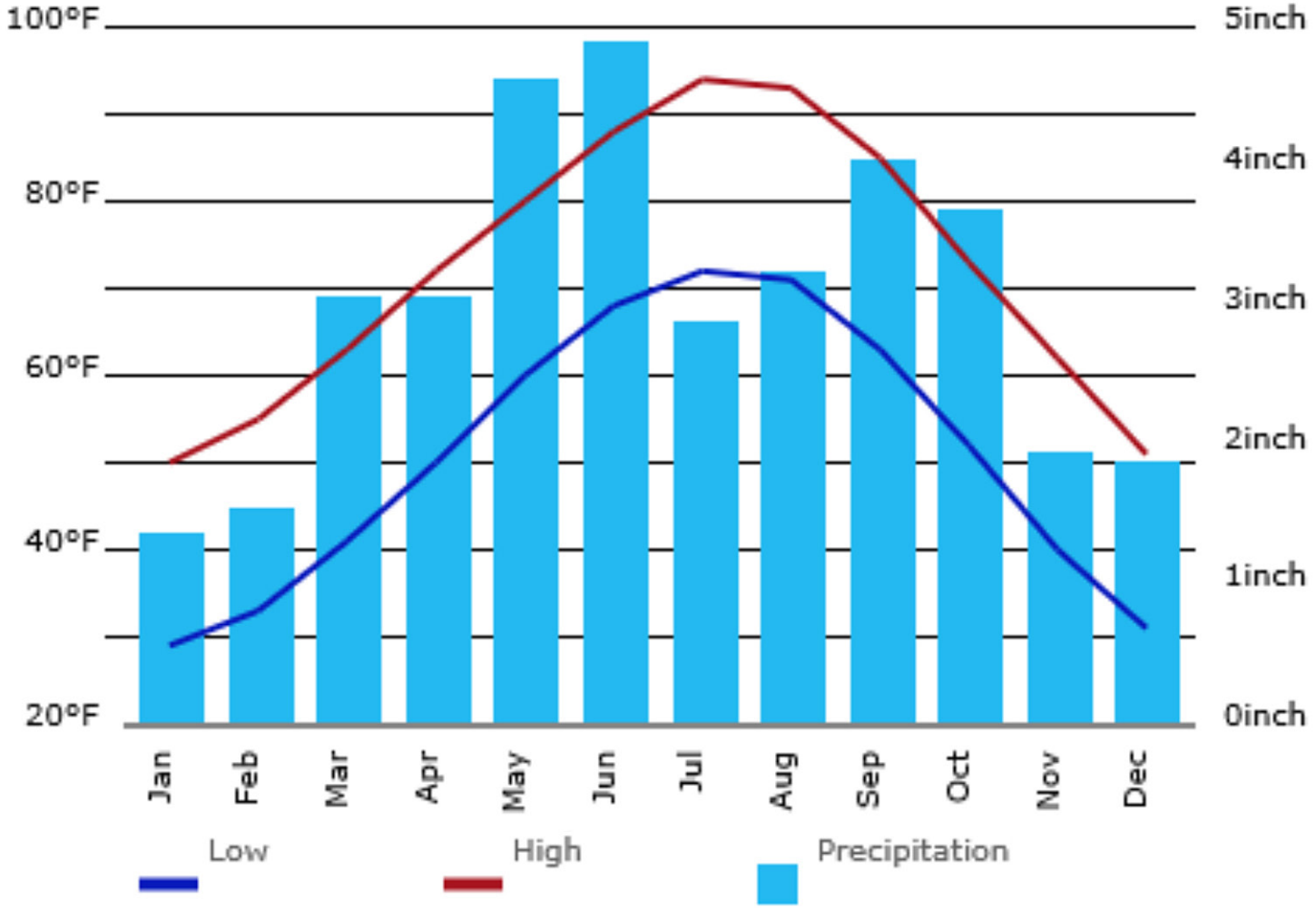
DROUGHT UPDATE

- Recharge to the aquifer is highly dependent on the time of year.
- Highest rainfall months also have high evaporation!
- Much of the storm events in the past two years are also during high evaporation months.

MOST LIKELY NOT A GOOD RECHARGE SEASON FOR THE AQUIFER.



OKLAHOMA CITY CLIMATE GRAPH

https://www.usclimatedata.com/climate/oklahoma/united-states/3206

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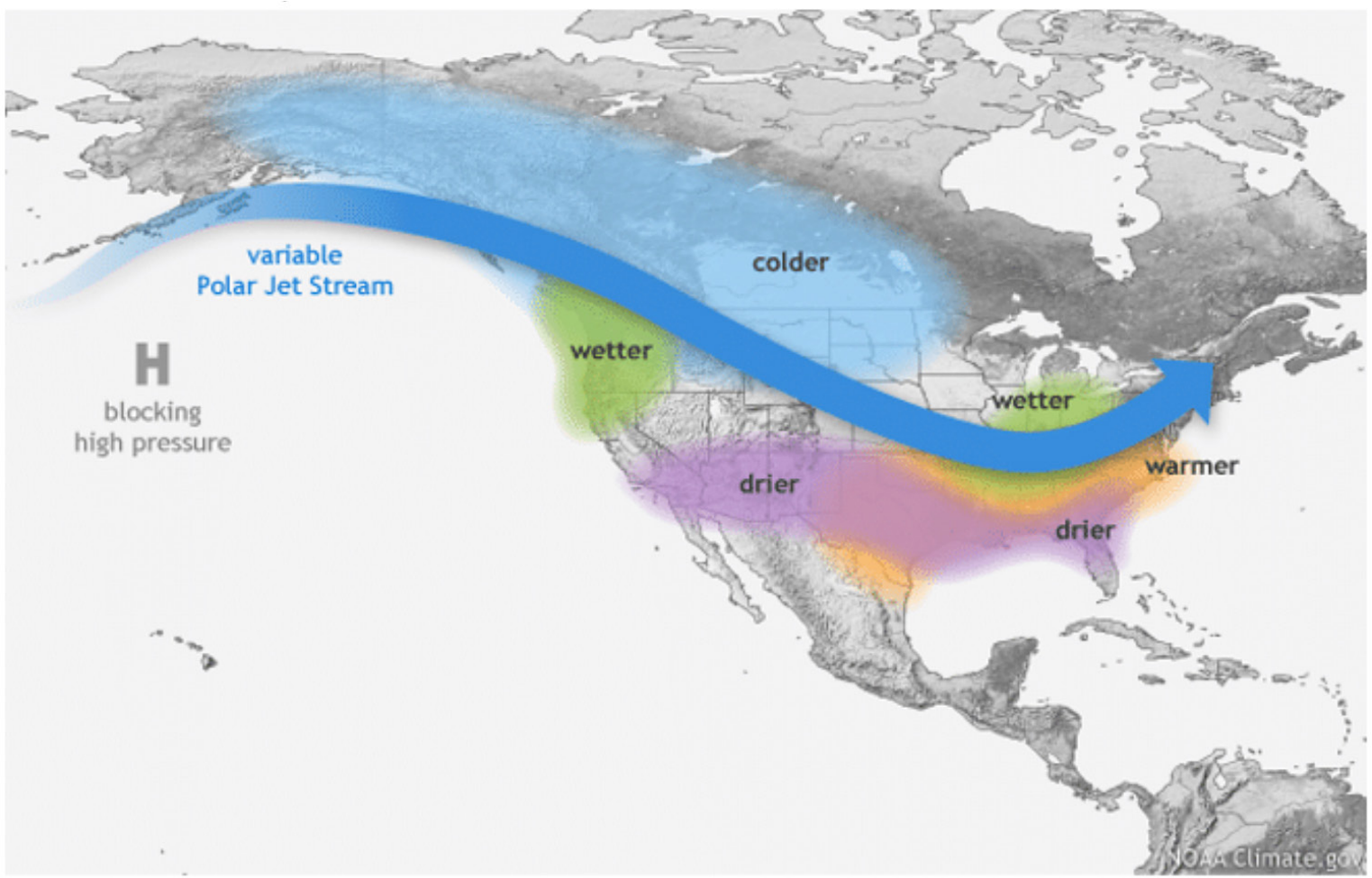
DROUGHT UPDATE

- Winter 2017-18 is likely to have a La Nina weather pattern.
- La Nina winters tend to be colder and drier.
- Aquifer levels may dip *below* levels seen in the 2010-14 drought!
- Aquifer storage and recovery could be an answer to recharge variability in the aquifer.



LA NIÑA WEATHER PATTERNS

http://www.noaa.gov/news/la-nina-moves-in-for-winter

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QUESTIONS?

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