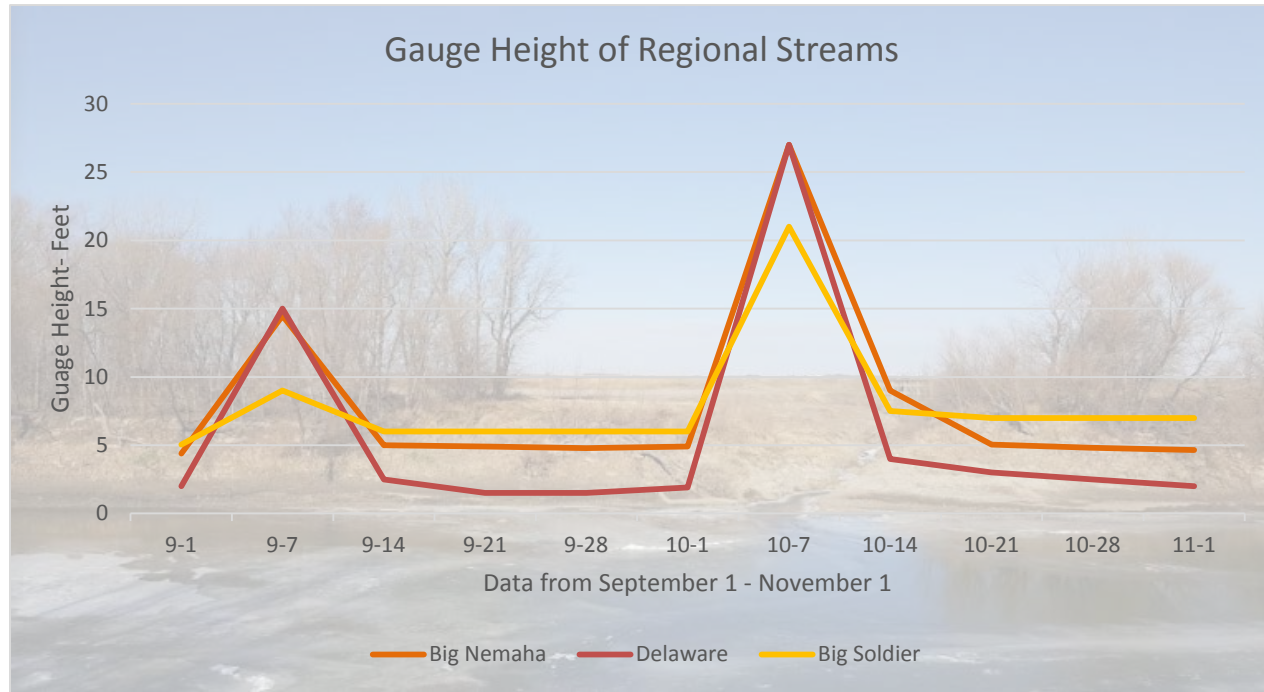




Streams

It is really interesting to see how the three gauged streams in our region behave on a seasonal basis. This Fall it appears that the stream heights are in sync with each other while that was not the case during the Spring and Summer. An explanation may be that the Fall precipitation fell in a wide regional pattern throughout the watersheds while the Spring and Summer events were smaller and more isolated events.



Data Generated Nov. 1 at <https://waterdata.usgs.gov/>



Water Planning and Management

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The Four Kansas Tribes are working with Haskell University under a BIA Water Planning Grant to create a set of tools that will allow our communities to better understand the resources we have and build resilience into the decision making process. Quarterly Climate Summaries use data from the High Plains Regional Climate Center, The Drought Mitigation Center, The Kansas Water Office, The 2014 National Climate Assessment, USGS Stream Flow, NOAA's Storm Prediction Center along with anecdotal evidence to create a snap shot of our environment and how we can best plan for the future.

Water Planning and Management

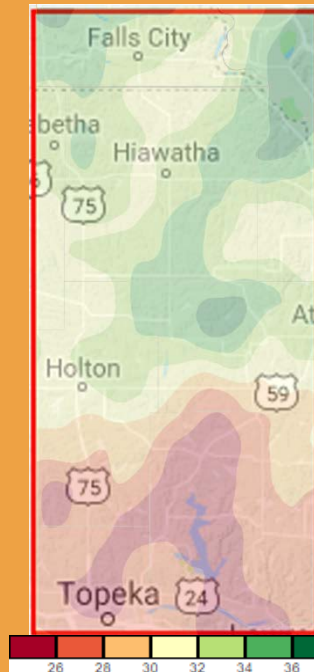
Understanding & using our resources

- Looking at our climate seasonally.
- Analyzing trends.
- Preparing for the future.
- Adapting to changes in the climate.
- Anticipating the future.

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Annual precipitation from Nov. 1, 2017 – Nov. 1, 2018



<http://scacis.rcc-acis.org/>

4 Kansas Tribes Climate Summary

Volume 1, Issue 3

Fall 2018

March of the Seasons

Fall arrived without much fanfare. The lack of late summer rains diminished the brilliance of the changing leaves and left the crops looking rather sickly for the most part as many farmers chose to not even harvest. September brought about the most significant precipitation however, in many cases it was too late to prevent some considerable losses. The soybean harvest is well underway and hopefully will produce some better results for our communities that that depend so much on the productivity of the land. The land itself relies not just on the moisture it receives but, on our management and stewardship techniques as well. As winter approaches the concept of using cover crops to help with soil health is one way we can mitigate the impacts of drought and climate change. Cover crops just might be the hardest working plants you'll ever grow. They suppress weeds, build productive soil, and help with pests. Cover crops include grasses like rye, legumes like clover or forbs like radishes and flax.

Go Forward with Courage

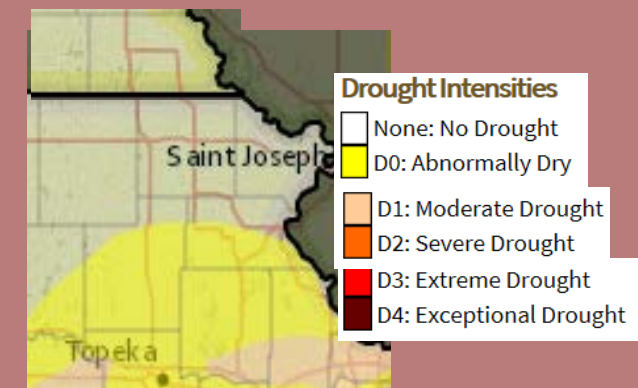
When you are in doubt, be still, and wait; when doubt no longer exists for you, then go forward with courage. So long as mists envelop you, be still; be still until the sunlight pours through and dispels the mists -- as it surely will. Then act with courage.

-Ponca Chief White Eagle

Climate Highlights

Late September rains did a great deal to improve the drought conditions throughout Northeastern Kansas. Many if not most of the ponds and reservoirs are now at or near capacity and only abnormally dry conditions and pockets of moderate drought persist in the region as of the end of October. This represents a 2 to 3 class improvement in the past month for the hardest hit areas in the 4 Tribes region. If you have accounts of how the drought impacted you or how you adapted and would like to share please contact us: mark.junker@sacfoxenviro.org

Oct 30, 2018



<https://www.drought.gov/drought/rcc/high-plains>

Rainfall

Rainfall for the month of September was truly a mixed bag. Measurements recorded ranged from nearly 8" in Topeka to barely trace in some pockets near Highland, KS. Overall, however the amount of moisture moved the region closer to what it normally receives over the course of the year.



September 2018 Recorded Rainfall

<http://scacis.rcc-acis.org/>

Mean Monthly Precipitation

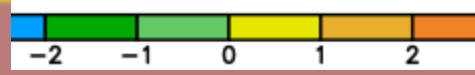
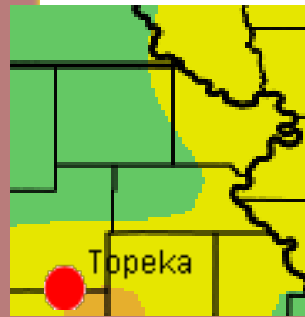
County	2018-01	2018-02	2018-03	2018-04	2018-05	2018-06	2018-07	2018-08	2018-09	2018-10	Annual
KS Brown	0.42	1.01	0.91	1.16	2.57	3.90	3.26	7.14	4.79	7.20	32.37
KS Jefferson	0.85	0.86	1.02	1.42	3.90	3.61	1.86	4.14	1.55	6.85	26.05

Seasonal summary is based on monthly values.

<http://scacis.rcc-acis.org/>

Temperature

Temperatures from September 1 through November 1, 2018 were trending near normal. The northern parts of the region were about one degree cooler while in the south and the east an up to two degree warming over the normal was experienced.



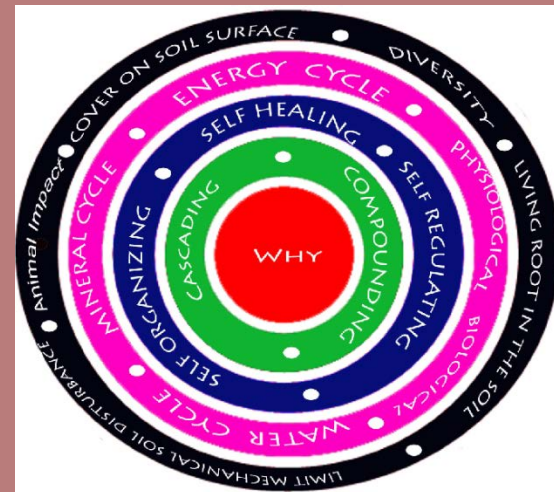
Variation from Normal Temperatures in Degrees

<http://hprcc.org>

Soil Health

The Sac and Fox Environmental Department hosted soil health expert Shane New from Soil Health Consultants, LLC at the park in Reserve, KS for a campfire talk. He spoke about Regenerative agriculture which aims to boost microbial activity, carbon retention, and water infiltration in soil so that plants can efficiently meet their needs. The best way to achieve this agricultural state of grace is to do less, not more. Examples of regenerative ag include reducing tilling, which destroys soil structure, inhibits water infiltration, and increases erosion; ending the use of synthetic fertilizers, pesticides, and fungicides, so that healthy microbial biodiversity can flourish underground; and planting cover crops in multispecies combinations to "armor" the soil, further preventing erosion and promoting the generation of organic matter.

Soil Health Cycles



Provided by Shane New

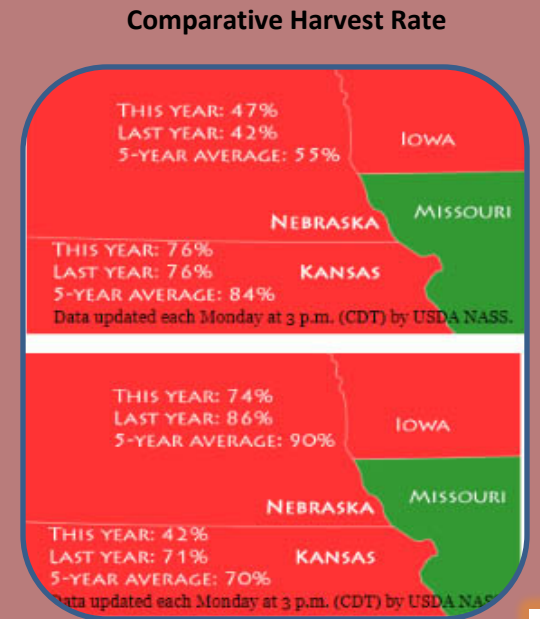
Upcoming Events

- Tribal GIS Conference, Albuquerque, NM Nov 5-9
- Kansas Water Conference, Manhattan, KS Nov 13-14
- Soil Health Workshop, White Cloud, KS Nov 17 (8-5)
- Region 7 RTOC, Lenexa, KS, January 15-17

Crops and Herds

The fall harvest is generally running a bit below what we would normally see in the upper Midwest. The September rains may have much to do with that. General observations from the Richardson County and Brown County highways suggest a higher percentage of corn has been taken from the field than the number generated on October 29, 2018. Soybeans seem to fall in line with numbers presented. Nebraska's corn harvest is at 47% and is usually about 55% complete by now.

Corn
Soybeans



USDA.gov

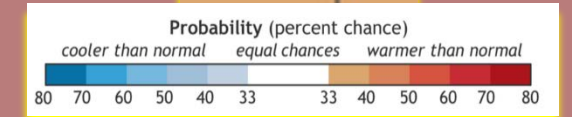
Winter Temperature Forecast

The average global temperature for September 2018 was 1.4 degrees above the 20th century average of 59°. This was the 4th highest global temperature for September in the 139 year record (1880-2018). September was the 405th month in a row of higher than average temperature. The impact locally can be seen on the map to the right where it is predicted that for our 4 Tribes region there is anywhere from a 33 to 40 % chance that our temperatures will be above average for the months December, January and February

Temperature outlook for NE Kansas-SE Nebraska: December 2018 February 2019 issued Oct 18, 2019.

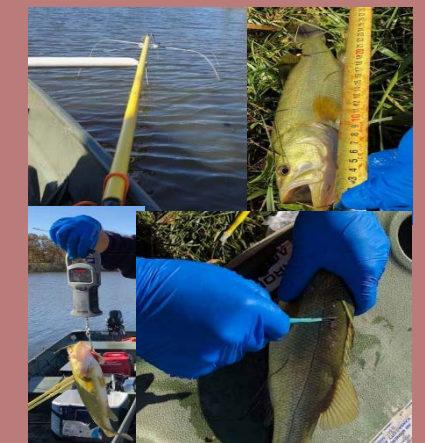


NOAA.gov



Fish Shocking:

Each Fall on the Kansas Reservations the Tribes' Water Quality Coordinators with the help of US EPA examine the fish to sample for mercury. Elevated mercury levels can be hazardous not just for people who consume the fish but can signal potential damaging environmental impacts. The fish are shocked and placed in a live well. Once landed they are measured and weighed. Finally, before being released a small section of scales is removed, a tissue sample about the size of a pencil tip is taken from the side and the fish gets a topical antibiotic to promote healing. The samples are packed in ice then sent to the EPA lab in Kansas City and we get our results in the Winter.



Kickapoo and Sac and Fox Water Coordinators Mickey Sigmon and Emily Sanagorski took tissue samples from fish caught in reservation waters. Photos by Mickey Sigmon