



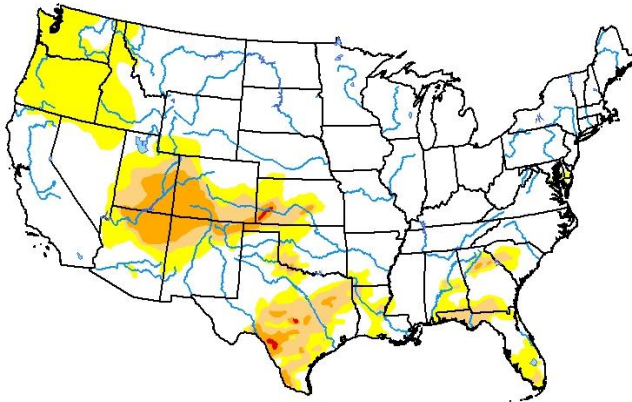
WATER SUMMARY UPDATE

Published Date December 12, 2019 | Issue 102

A snapshot of water resource trends for the month of November 2019

Drought Monitor - Conditions as of December 12, 2019

National Drought Mitigation Center and partners

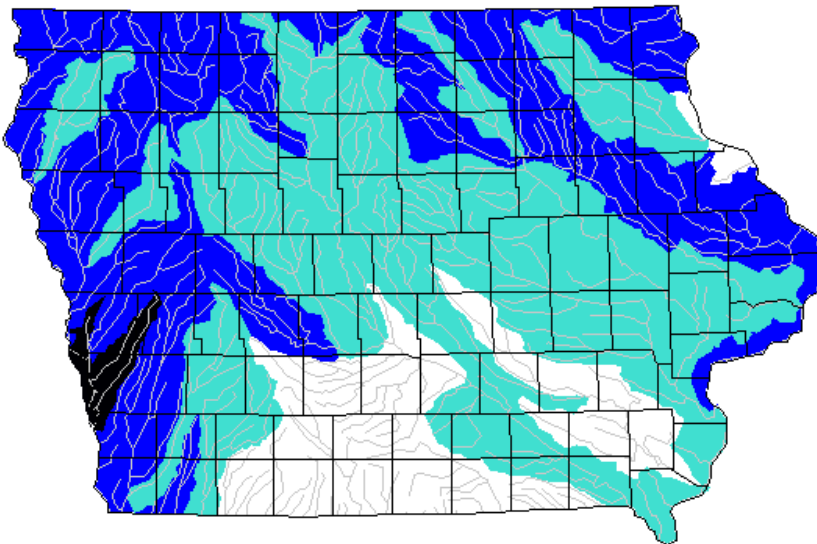


Intensity:

D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought
D2 Severe Drought	

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

Stream Flow – November 2019

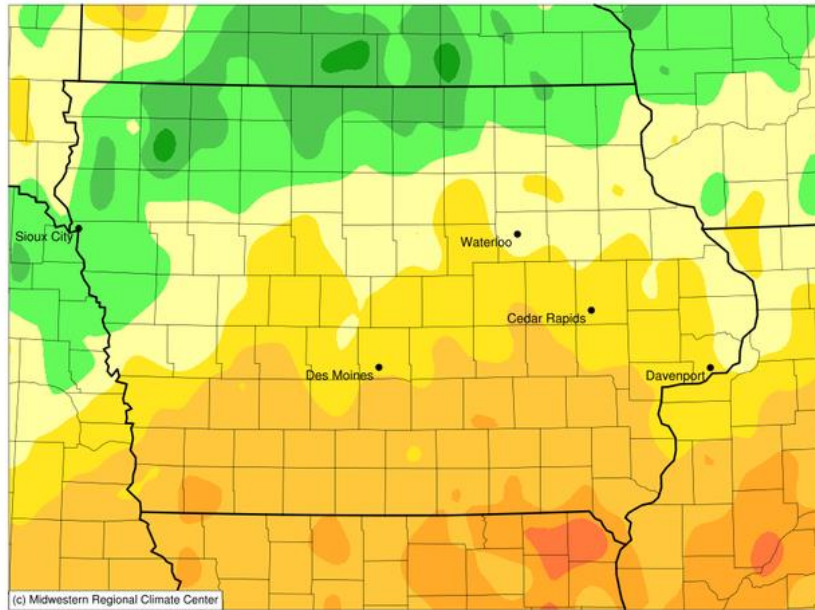


	High
	Much above normal
	Above normal
	Normal
	Below normal
	Much below normal



Accumulated Precipitation (in): Departure from 1981-2010 Normals

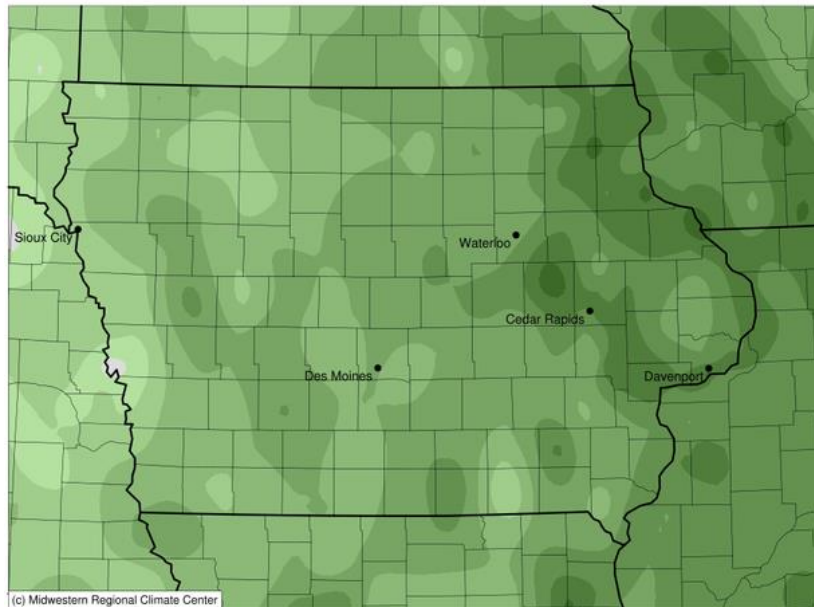
November 01, 2019 to November 30, 2019



-2.5 -2 -1.5 -1 -0.5 0 0.5 1
Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI, Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 12/11/2019 9:52:33 AM CST

Average Temperature (°F): Departure from 1981-2010 Normals

November 01, 2019 to November 30, 2019



-8 -7 -6 -5 -4 -3 -2 -1 0 1
Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI, Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 12/11/2019 9:50:41 AM CST

RECENT DEVELOPMENTS AND CHANGES

SUMMARY

The months of September, October, and November are considered the meteorological autumn. Over these three months the state has been cooler and wetter than normal. Temperatures over the three autumn months averaged 49.3 degrees or 0.9 degree below normal while precipitation totaled 12.33" or 4.30" above normal. Streamflow continues to be above normal for most of the state, while drought conditions are nonexistent.

DROUGHT MONITOR

With wet conditions through meteorological fall, Iowa is still free of drought and abnormally dry conditions. Nationally, there is very little drought across the country, with the exception being the four corners area of the southwest east into Kansas, and parts of Texas.

CURRENT STREAM FLOW

Streamflow conditions in the state have increased slightly since last month from normal streamflow to above normal and much above normal streamflow across the majority of the state. There are a few areas with high flow conditions along both the Missouri and Mississippi rivers. Overall streamflow levels typically begin dropping in November and December, with the winter months having the lowest normal streamflow of the year.

NOVEMBER PRECIPITATION AND TEMPERATURE

Statewide average precipitation totaled 1.43" or 0.62" below normal for November. Much of the southern three-quarters of Iowa received below average precipitation during November with departures in southern Iowa of up to two inches. Precipitation totals were slightly above average along the Iowa-Minnesota border. While total precipitation — accumulated rain plus the liquid equivalent of melted snow and ice — was below average, a majority of the state had above average snowfall with up to six inches above normal in northern Iowa. Monthly precipitation totals varied from 0.45" in Shenandoah (Page County) to 2.92" in Osage (Mitchell County). The statewide average snowfall for the month was 3.8" with St. Ansgar (Mitchell County) reporting 11.3" of snow.

Iowa temperatures averaged 32.5 degrees or 4.1 degrees below normal. This makes November 2019 the 23rd coldest on record, tying 1894 and 1947, with a colder one occurring just last year. November temperatures were below average statewide with eastern Iowa up to six degrees below normal. Little Sioux (Harrison County) reported the month's high temperature of 65 degrees on the 9th, 15 degrees warmer than normal. Rockwell City (Calhoun County) observed the month's overnight low temperature of -8 degrees on the 12th, 35 degrees below normal.

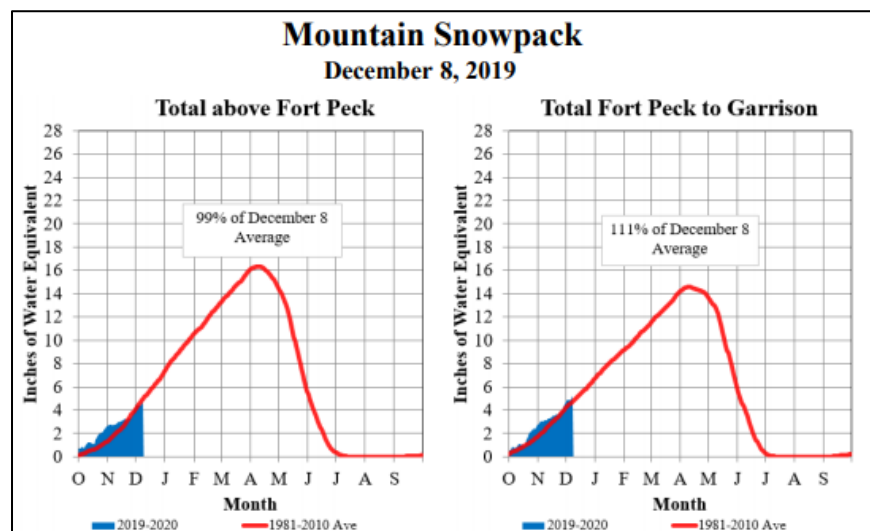
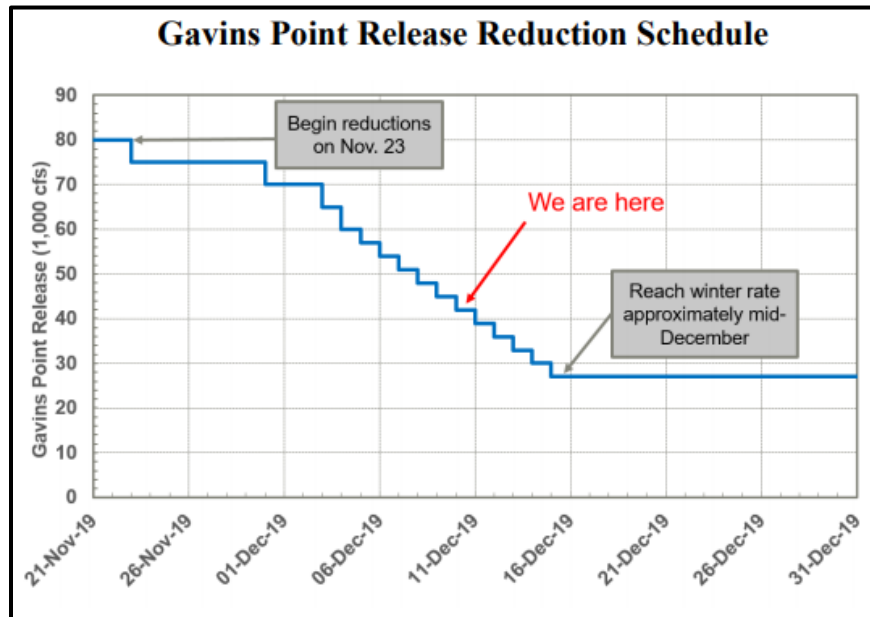
SHALLOW GROUNDWATER

Shallow groundwater conditions are stable headed into the winter, with good conditions existing across the state.

MISSOURI RIVER BASIN

After having exceptionally high flows for much of 2019, flows in the Missouri River are slowly being reduced. As of December 10, 2019 system storage in all of the reservoirs was 57.1 Million Acre Feet (MAF), with about 15 percent of the flood control remaining to be emptied of 2019 runoff. The Corps expects to have the remaining 2019 floodwater evacuated before the start of the 2020 runoff season. Mountain snowpack is accumulating at

near average rates. 42,000 cubic feet per second (cfs) is currently being released from the Gavins Point reservoir – down from the 80,000 cfs that has been released for much of the fall months. This release rate will be reduced by 3,000 cfs every day until the release rate of 27,000 cfs is reached later this month.



ADDITIONAL INFORMATION

For additional information on the information in this Water Summary Update please contact any of the following:

- General Information Tim.Hall@dnr.iowa.gov 515-725-8298
- Drought Monitor and Precipitation. Justin.Glisan@iowaagriculture.gov 515-281-8981
- Stream Flow. Daniel Christiansen, dechrist@usgs.gov 319-358-3639
- Stream Flow. Michael.Anderson@dnr.iowa.gov 515-725-0336
- Shallow Groundwater. mike-gannon@uiowa.edu 515-725-0336