



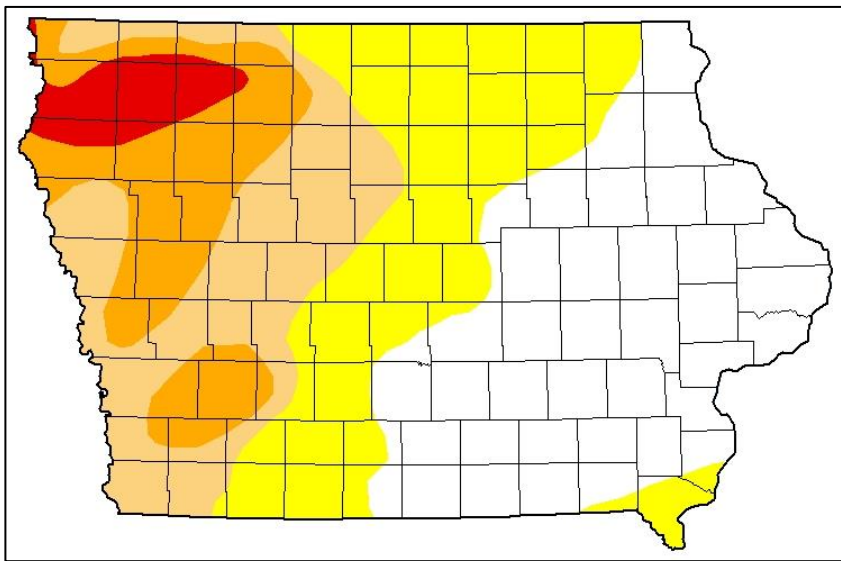
WATER SUMMARY UPDATE

Published Date December 10, 2020 | Issue 113

A snapshot of water resource trends for the month of November 2020

Drought Monitor - Conditions as of December 8, 2020

National Drought Mitigation Center and partners

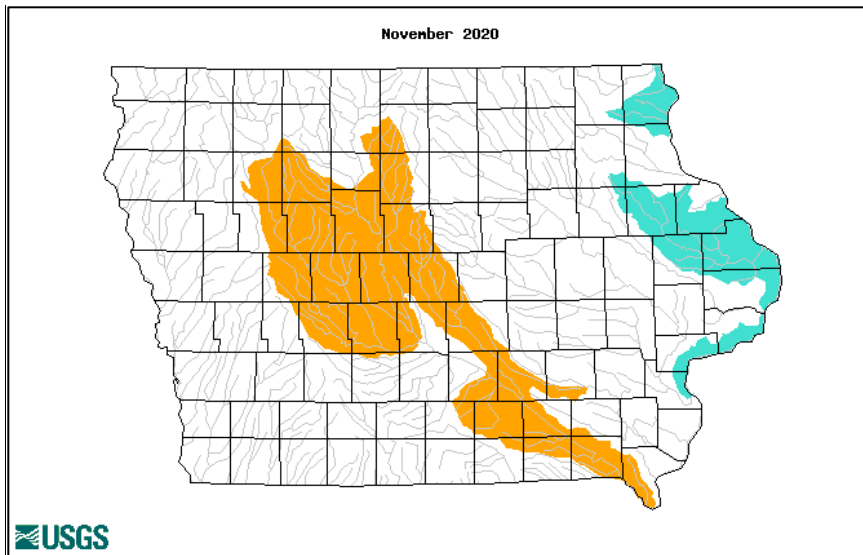


Intensity

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

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

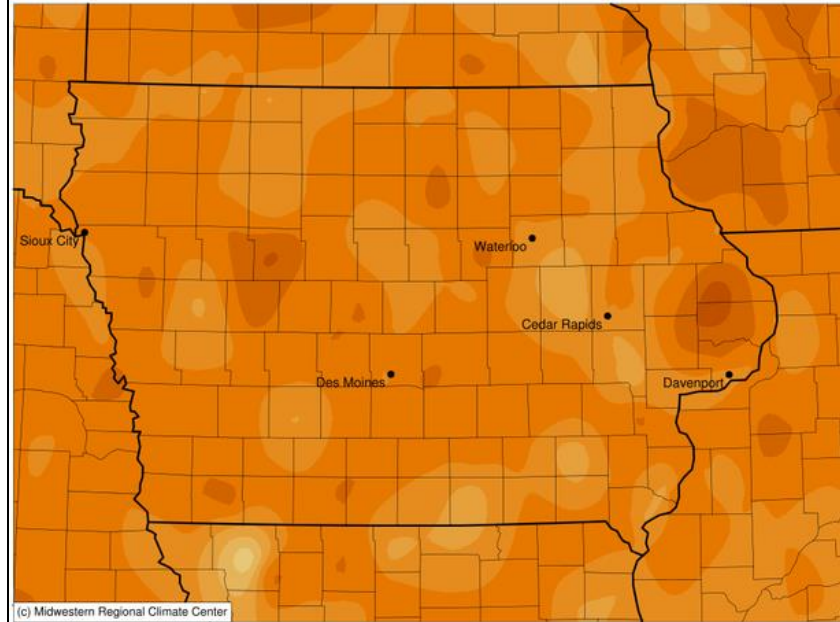
Stream Flow – November 2020



Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

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

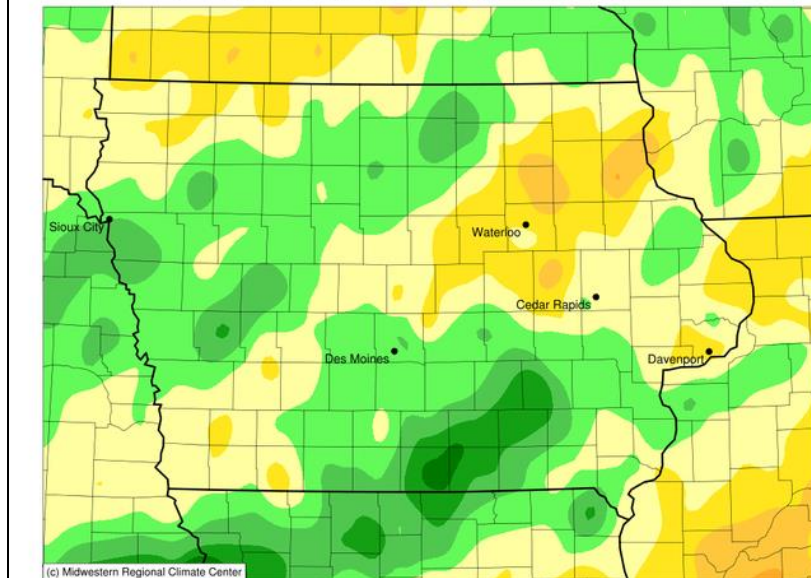
November 01, 2020 to November 30, 2020



0 1 2 3 4 5 6 7 8 9
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: 12/9/2020 12:14:23 AM CST

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

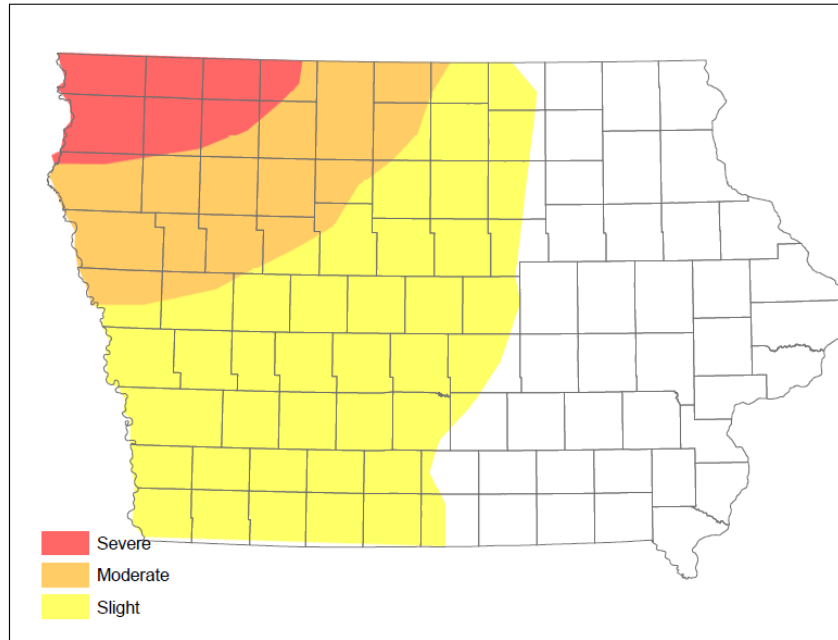
November 01, 2020 to November 30, 2020



-1.5 -1 -0.5 0 0.5 1 1.5 2 2.5 3 3.5
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: 12/9/2020 12:13:00 AM CST

Shallow Groundwater - Conditions for November 2020

Iowa DNR and IIHR-Hydroscience and Engineering



RECENT DEVELOPMENTS AND CHANGES

SUMMARY

Hydrologic conditions in Iowa remained generally steady in the month of November. Significant dryness and drought continue to be present over northwest and west central Iowa. Rainfall in November was slightly below average across the state, however, some areas of west-central and northwest Iowa received much needed above normal moisture. Temperatures averaged 42.1 degrees or 5.5 degrees above normal while precipitation totaled 1.88 inches or 0.17 inch below normal. November 2020 ranked as the 10th warmest on record with a warmer November last occurring in 2016. The month ranked as the 48th wettest November in 148 years of statewide records with a wetter one last occurring in 2015. Average precipitation in November is 2.05 inches, which drops to 1.35 in December. December, January, and February are the three lowest moisture months of the year, averaging a total of only 4.3 inches of precipitation. This average dryness, combined with frozen ground, makes it more difficult to overcome dry conditions during the winter months.

DROUGHT MONITOR

Drought conditions continued to cover western Iowa through November. At the beginning of November the drought conditions showed a large region of D2 (Severe Drought) covering 28% of western Iowa with a 4% region of D3 (Extreme Drought) in the northwest corner. Overall, 64% of Iowa was shown in some form of drought or dryness (D0 to D3). Though minor changes occurred during the month, the map remained generally the same through much of the rest of November. Wetter conditions across southern and eastern Iowa led to the removal of a majority of D0 area in that part of the state, with only a small extent in extreme southeast Iowa remaining. As of this report, D0 to D3 conditions cover 62% of Iowa.

OCTOBER PRECIPITATION AND TEMPERATURE

Unseasonably warm conditions blanketed Iowa during November with positive departures ranging from four to eight degrees statewide; eastern Iowa reported the warmest conditions. November's statewide average maximum temperature was 53.6 degrees, 7.4 degrees above normal while the average minimum temperature was 30.5 degrees, 3.6 degrees above normal. Shenandoah (Page County) reported the month's high temperature of 81 degrees on the 3rd, on average 24 degrees above normal. Estherville Municipal Airport (Emmet County) reported the month's low temperature of 2 degrees on the 13th, 23 degrees below normal.

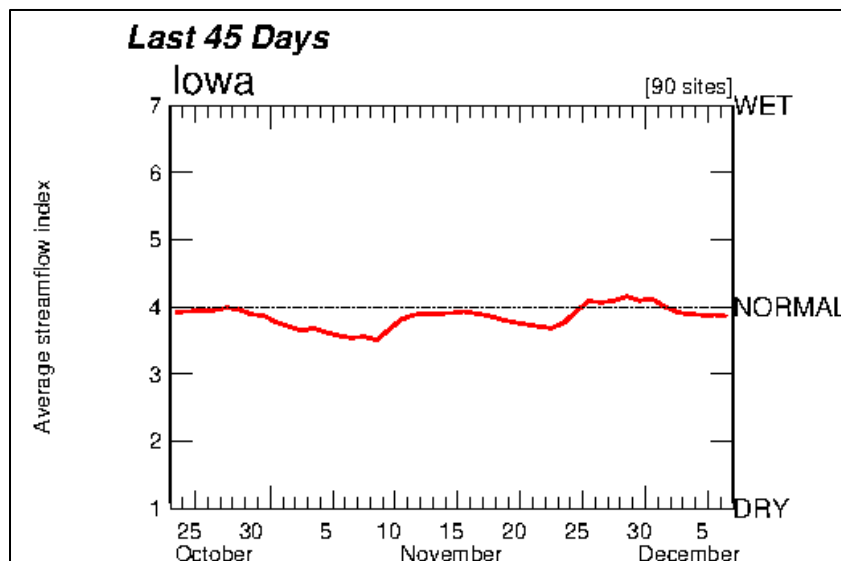
Portions of Iowa experienced both wetter and drier than normal conditions in November. Precipitation deficits of up to 1.50 inches were reported in northeastern Iowa while above normal totals on the same order were observed in southern Iowa; a band of positive departures was also observed from western Iowa through north-central Iowa. Monthly precipitation totals ranged from 0.58 inch at Lake Park (Dickinson County) to 4.33 inches at a rain gauge near Allerton (Wayne County). The statewide average snowfall was 1.1 inches, which is 1.6 inches below average.

FALL 2020 SUMMARY

The meteorological fall is considered to be the months of September, October, and November. For the fall of 2020, temperatures averaged 50.0 degrees or 0.2 degrees below normal while precipitation totaled 7.80 inches or 0.23 inches below normal. Fall 2020 was about in the middle of the historical fall seasons, tying 1974, 1986 and 1988 as the 51st coldest fall among the period of record. It was the 67th wettest fall on record. A colder and wetter fall occurred just last year.

CURRENT STREAM FLOW

Conditions across the state have been relatively stable since the last water summary update. Streamflow conditions across most of the state are in normal conditions. Flows in the Skunk, Des Moines, and Raccoon River basins are still partially below normal. The Maquoketa River flow remains above normal. It should be noted that during the winter season, USGS streamflow data may be impacted by ice formation and backwater. This information should be used as preliminary information only.

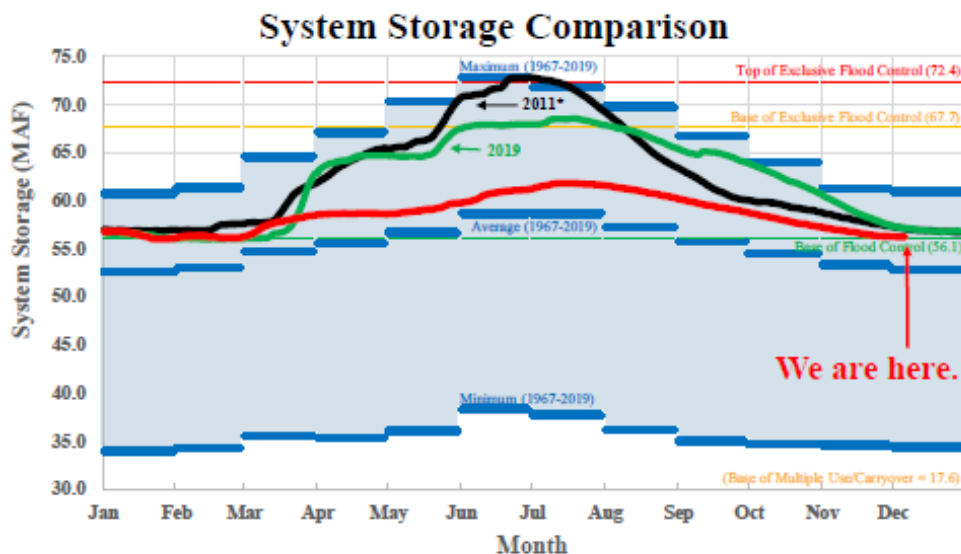


SHALLOW GROUNDWATER

Shallow groundwater conditions during November remain about the same as October throughout most of Iowa. Severe groundwater conditions continue to persist in Northwest and parts of Central and West Central Iowa. Moderate and slight groundwater conditions continue in parts of Northeast and South Central Iowa. Low groundwater levels are found throughout the state, especially along the Des Moines, Raccoon and Skunk rivers in Central and West Central Iowa, and along the Ocheyedon River in Northwest Iowa. Significant rainfall during the second week of November improved shallow groundwater levels in parts of western Iowa. The southeastern one-half of Iowa also had significant rainfall during the fourth week of November, which provided much needed groundwater recharge. Once frost enters the ground, groundwater conditions typically do not change significantly, so shallow groundwater conditions should remain fairly constant throughout the winter months.

MISSOURI RIVER BASIN CONDITIONS

In its December 8, 2020 conditions status, the US Army Corps of Engineers indicated that total system storage is 56.2 MAF, illustrated in the figure below. The red line in that figure provides an annual look at storage in the reservoir system in 2020 compared to the extremely wet years of 2011 and 2019. Total storage in the Missouri River Reservoir system is nearing the base of the flood control zone. This will allow for storage of the 2021 runoff as that season gets underway. Mountain snowpack has begun accumulating and is currently below average. Releases from the Gavins Point Reservoir are now at their winter release rate of 17,000 cfs.



ADDITIONAL INFORMATION

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

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