



# WATER SUMMARY UPDATE

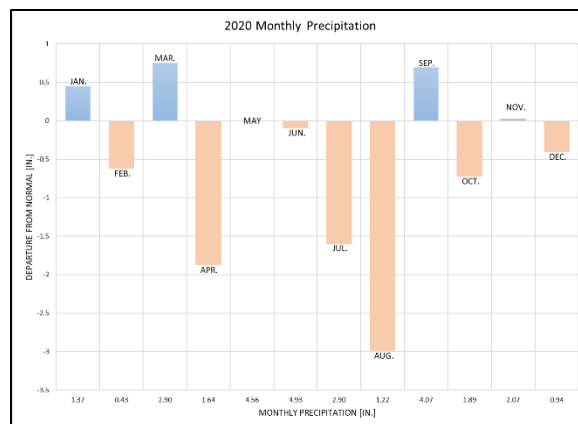
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## A review of water resource trends from 2020

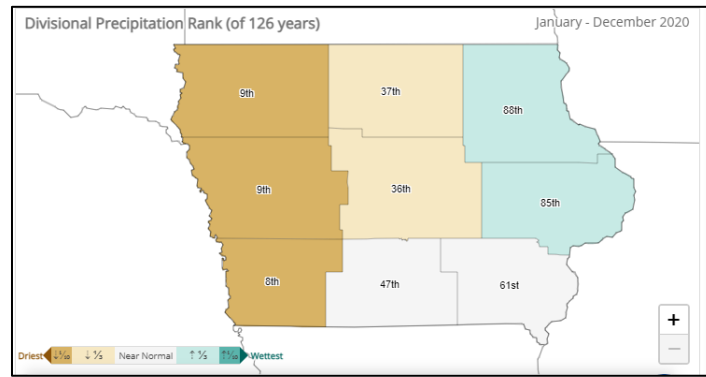
After record wet years in 2018 and 2019, Iowa experienced a reversal in conditions in 2020. 2019 was wet, but 2020 was dry – at least for some parts of Iowa. From January to December 2019 the state of Iowa received 28.9 inches of rain, more than 6 inches below normal, making 2020 the 36<sup>th</sup> driest year on record. The contrast between 2019 and 2020 is significant, with over a foot less precipitation in 2020 compared to 2019. 2020 also showed significant temperature changes from 2019. In 2019 the average temperature was 1.2 degrees cooler than normal, while in 2020 the average statewide temperature was 1.0 degree above normal. 2020 was the 33<sup>rd</sup> warmest year on record.

### PRECIPITATION FOR 2020

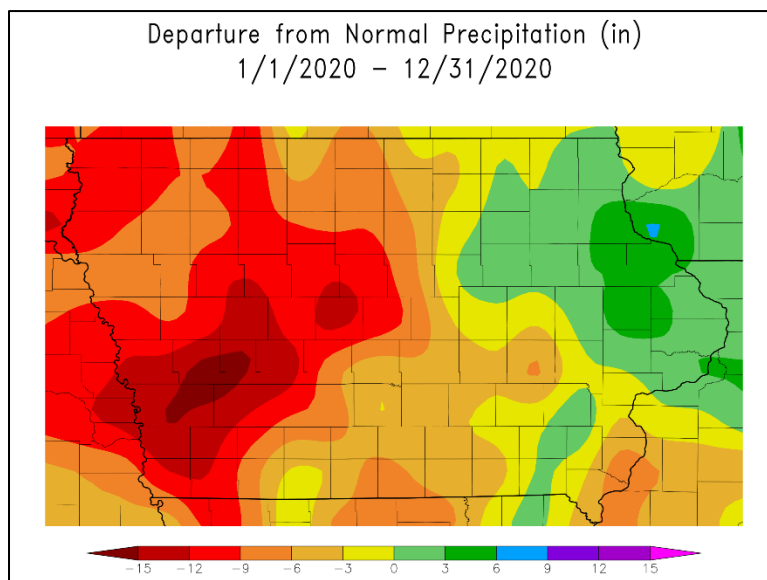
Based on 148 years of statewide observations, Iowa experienced its 36th driest year on record in 2020 with a statewide average precipitation accumulation of 28.92 inches, 6.18 inches below normal. A drier year last occurred in 2012. In 2020 precipitation was below normal for 8 of the 12 months of the year, and was significantly below normal during the summer months of July and August. The blue bars show above normal monthly precipitation, and the tan bars show below normal monthly precipitation.



In addition, in 2020 the distribution of precipitation was not uniform across Iowa. The western third of the state saw much below normal rainfall, with those areas experiencing top ten driest years. This stands in contrast to eastern Iowa, where conditions were wetter than normal. The map below shows the rankings of regions in Iowa for precipitation, with western Iowa having the 8<sup>th</sup> or 9<sup>th</sup> driest years in 126 years of records.



The map below shows the precipitation deficits for the year for Iowa, with western areas behind in precipitation by more than 12 inches for the year, and some areas of eastern Iowa showing more than 6 inches above normal rainfall for 2020.



### TEMPERATURE FOR 2020

Iowa temperatures averaged 49.2 degrees or 1.0 degree above normal tying 1908, 1928, 1944, 1977 and 2015 as the 33rd warmest year on record. A warmer year was last reported in 2017.

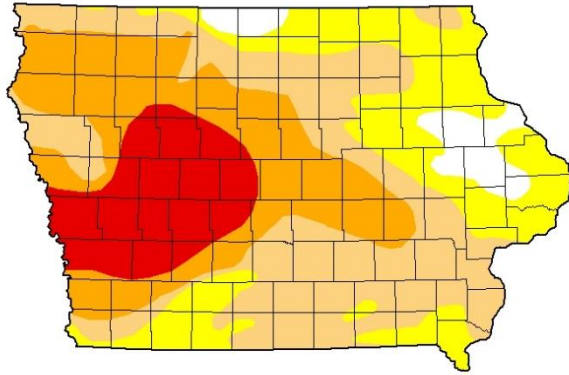
### DROUGHT MONITOR FOR 2020

Iowa began 2020 free from any drought or dryness. The first indication of dryness appeared in the US Drought Monitor on May 12, 2020. In early July the first D1 – Moderate Drought designation appeared, followed a week later by the first D2 – Severe Drought designation. The worst of the conditions were forming in west central Iowa, where the first D3 – Extreme Drought designation appeared in early August. By September 8, 2020 the state experienced its worst drought conditions of 2020, with almost 15 percent of the state designated as D3 – Extreme Drought. By early October the D3 designation had shifted to northwest Iowa, where about four percent of the state remained in extreme drought heading into 2021.



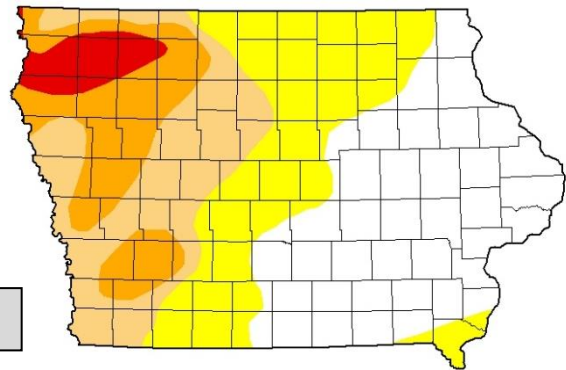
**Intensity:**  
 D0 Abnormally Dry    D3 Extreme Drought  
 D1 Moderate Drought    D4 Exceptional Drought  
 D2 Severe Drought

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



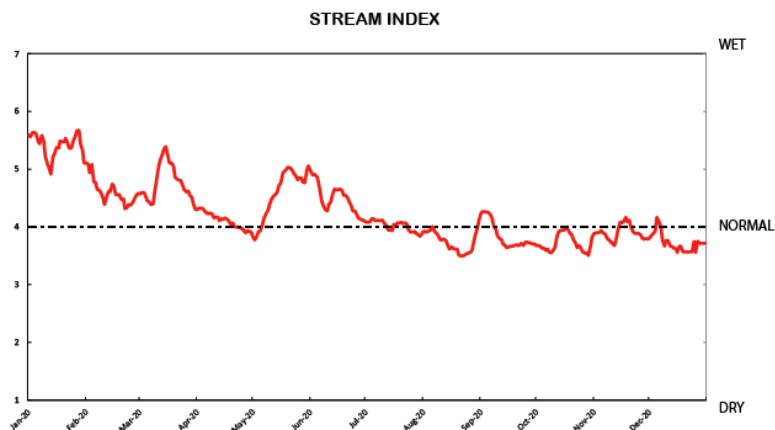
**Most Severe Conditions in 2020 – September 8**

**End of 2020 Conditions**



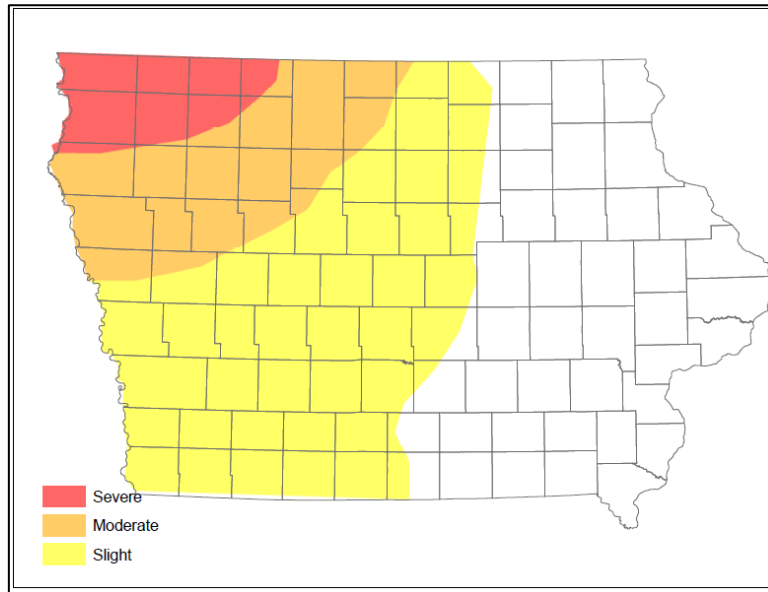
**2020 RUNOFF AND STREAMFLOW**

Stream Index is a measure of the average streamflow at any time when compared to normal flow for that same time. This allows for a snapshot of the overall streamflow conditions over the year. The Stream Index for 2020 reflects the wet conditions of 2019 carrying forward into the start of 2020, and then the gradual reduction in flows over the summer and fall. Toward the end of 2020 average streamflows in Iowa were slightly below normal. This is a reflection of the reduced rainfall that was experience across much of the state. Major flooding was a concern for the Missouri River as 2020 began, but the drying trend throughout the Missouri River Basin. By the end of 2020, runoff from the Missouri River Basin above Sioux City, Iowa, was 31.1 Million Acre Feet (MAF), or 121% of the average runoff of 25.8 MAF.



## 2020 SHALLOW GROUNDWATER

Shallow groundwater conditions were not a concern in 2019 due to the wetter than normal conditions. During 2020, however, the lack of rainfall in western Iowa has resulted in concern for shallow groundwater supplies. Declining groundwater levels were noted in May, and by June an area of west central Iowa was designated as an area of concern. Conditions continued to worsen over the rest of the year, with end of year groundwater conditions noted as moderate to severe in 20 percent of the state (northwest Iowa) and slight over another 40 percent of the state.



## Monthly Conditions: December 2020

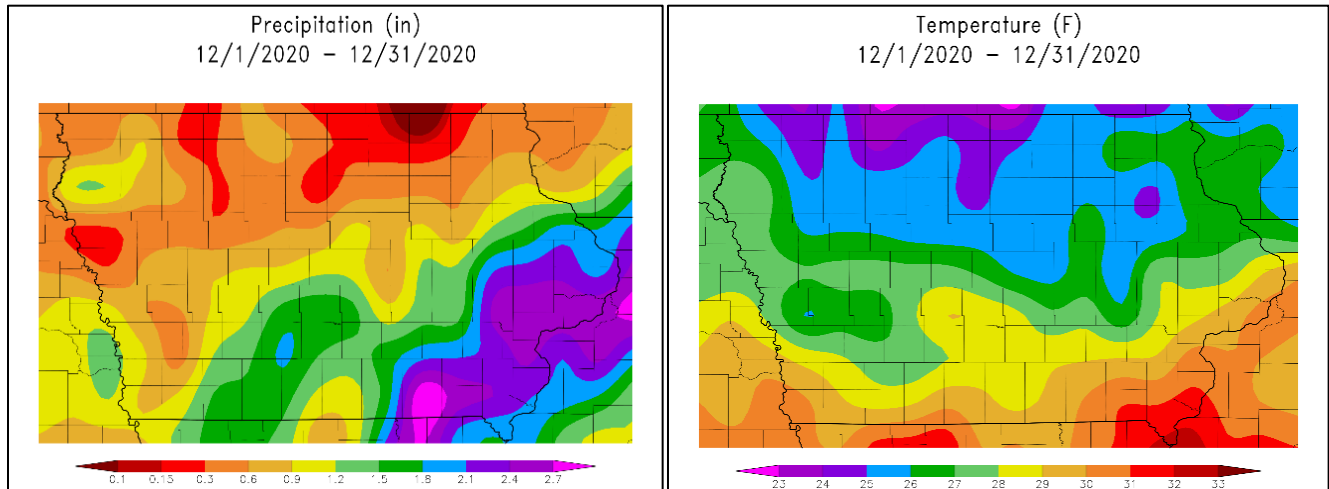
### DROUGHT MONITOR FOR DECEMBER 2020

Drought and abnormally dry conditions remain across Iowa with drought boundaries remaining status quo. As of the first week of January, 61% of Iowa was covered in D0-D3 conditions; northwest Iowa still remains the driest part of the state with 4% of D3 (Extreme Drought) still remaining.

### PRECIPITATION AND TEMPERATURE FOR DECEMBER 2020

Precipitation for the month averaged 0.94 inch or 0.40 inches less than normal, ranking it as the 54th driest December on record. Much of the northern half of Iowa experienced drier than normal conditions on the order of 0.50 inch to one inch; a few counties in northeast Iowa observed negative departures approaching 1.50 inches. Southern Iowa, in particular southeastern Iowa, reported above normal totals of similar magnitude. Multiple winter systems moved through Iowa leaving behind measurable snow statewide. Over the month, above average snow totals accumulated from Omaha northeast through Dubuque; portions of central and eastern Iowa measured totals of four to six inches above average. Monthly precipitation totals ranged from 0.12 inch at Ionia to 2.78 inches in Muscatine. The statewide average snowfall was 8.4 inches, which is 0.1 inch above normal liquid-equivalent totals.

Temperatures in December averaged 27.2 degrees or 4.3 degrees above normal, tying 1975 as the 48th warmest December on record, with northern Iowa reporting the warmest conditions. Lamoni reported the month's high temperature of 66 degrees on the 10th, while several locations across the state reported the month's low temperature of -7 degrees on the 25<sup>th</sup>.

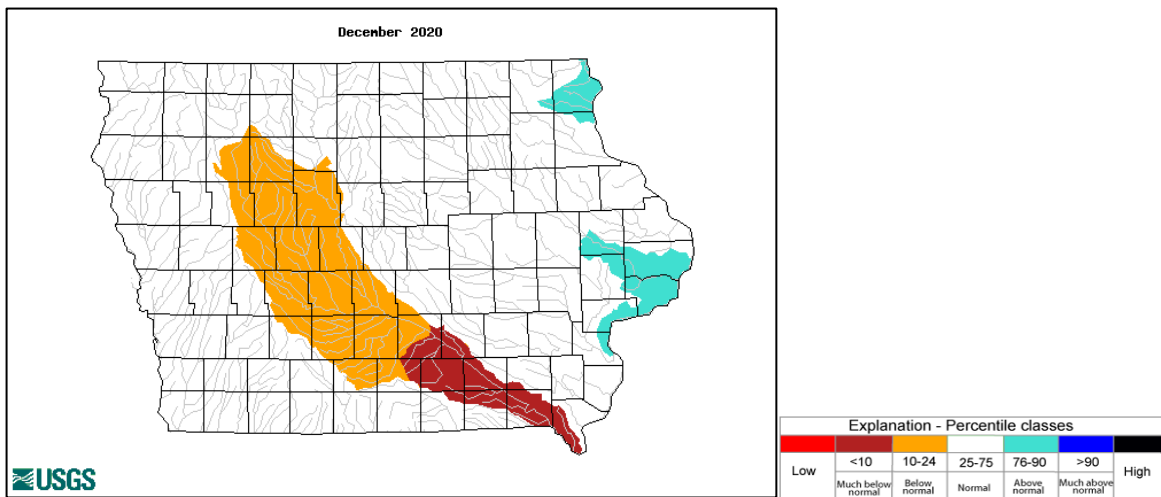


**SHALLOW GROUNDWATER FOR DECEMBER 2020**

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 Ocheyedan 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. Shallow groundwater conditions should remain fairly constant throughout the winter months.

**STREAMFLOW CONDITIONS FOR DECEMBER 2020**

Streamflow conditions across most of the state are in normal conditions. The Des Moines, and Raccoon River basins are still partially in the below and much below normal condition. Conditions across the state have been stable since the last water summary update.



**ADDITIONAL INFORMATION**

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

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