



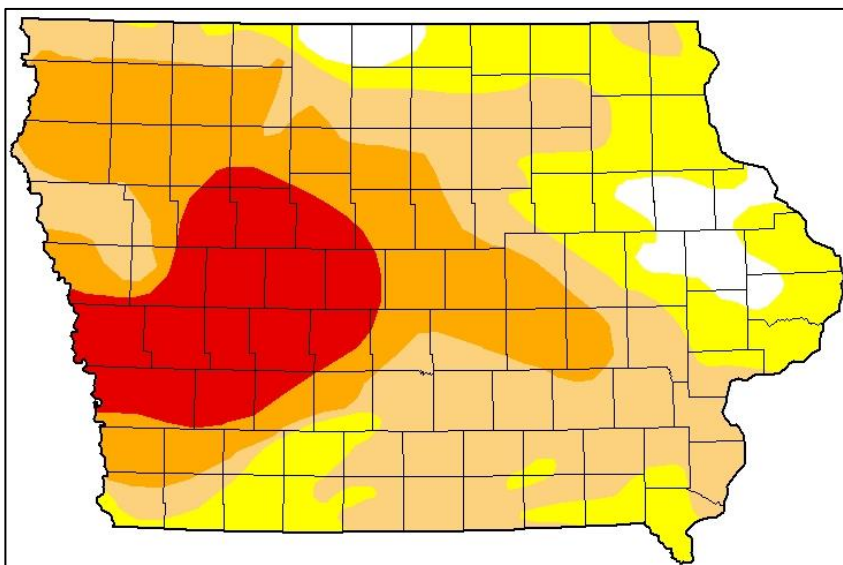
# WATER SUMMARY UPDATE

Published Date September 10, 2020 | Issue 111

## A snapshot of water resource trends for the month of August 2020

### Drought Monitor - Conditions as of September 8, 2020

National Drought Mitigation Center and partners

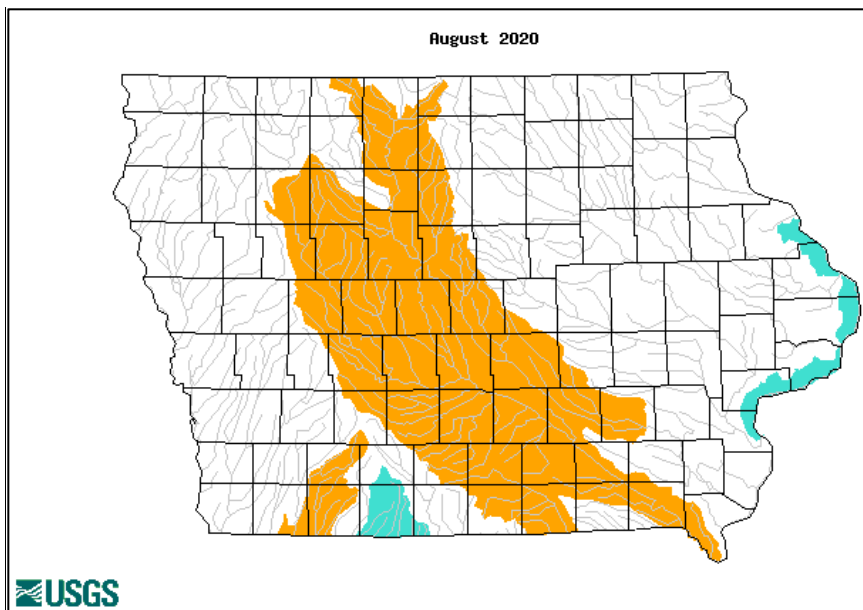


**Intensity:**

<span style="color: yellow;">■</span> D0 Abnormally Dry	<span style="color: red;">■</span> D3 Extreme Drought
<span style="color: orange;">■</span> D1 Moderate Drought	<span style="color: darkred;">■</span> D4 Exceptional Drought
<span style="color: lightorange;">■</span> D2 Severe Drought	

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

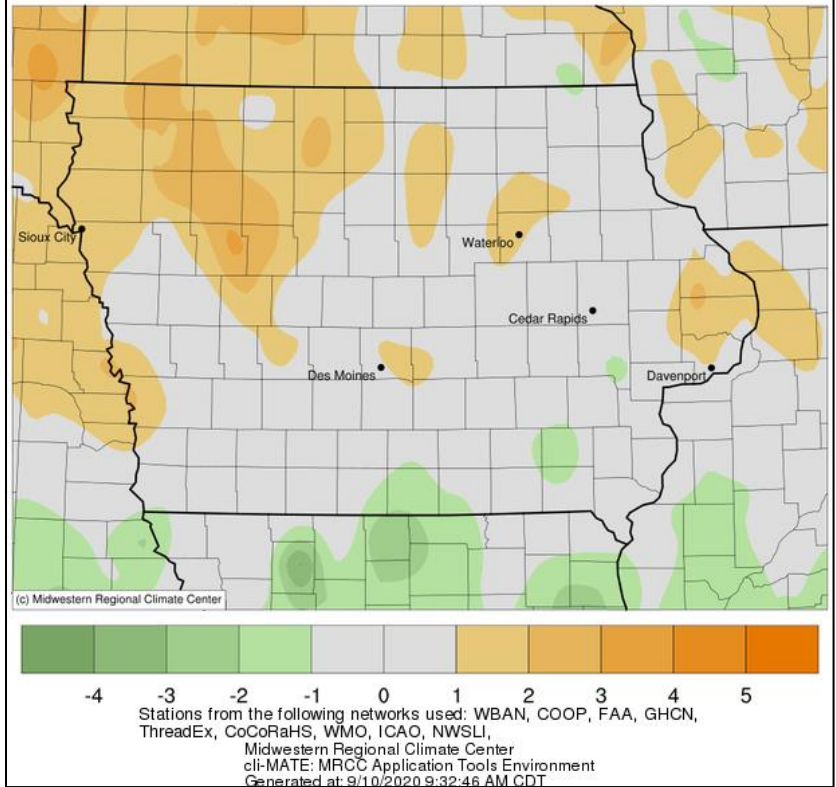
### Stream Flow – August 2020



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

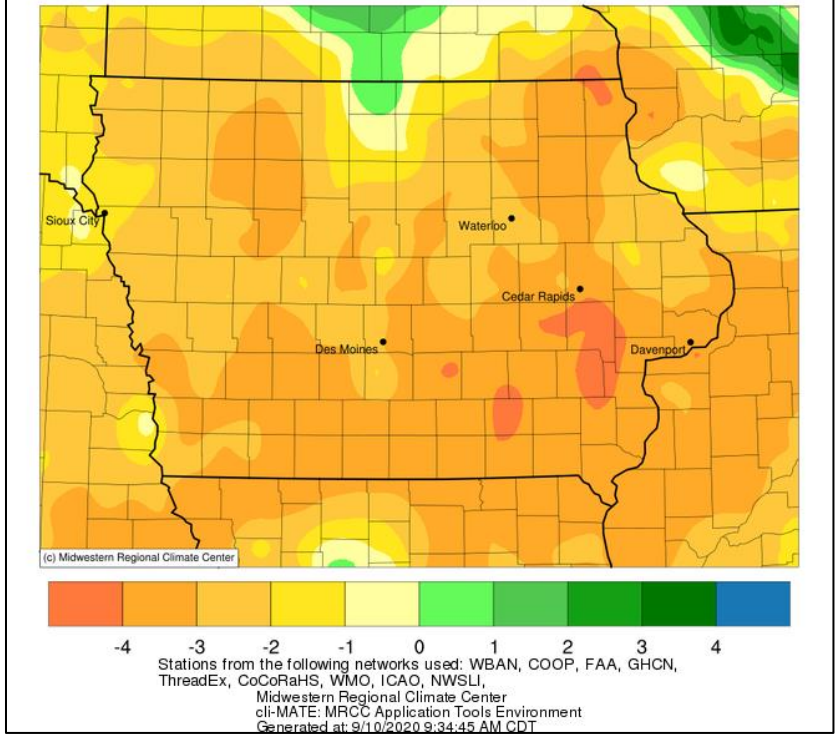
**Average Temperature (°F): Departure from 1981-2010 Normals**

August 01, 2020 to August 31, 2020



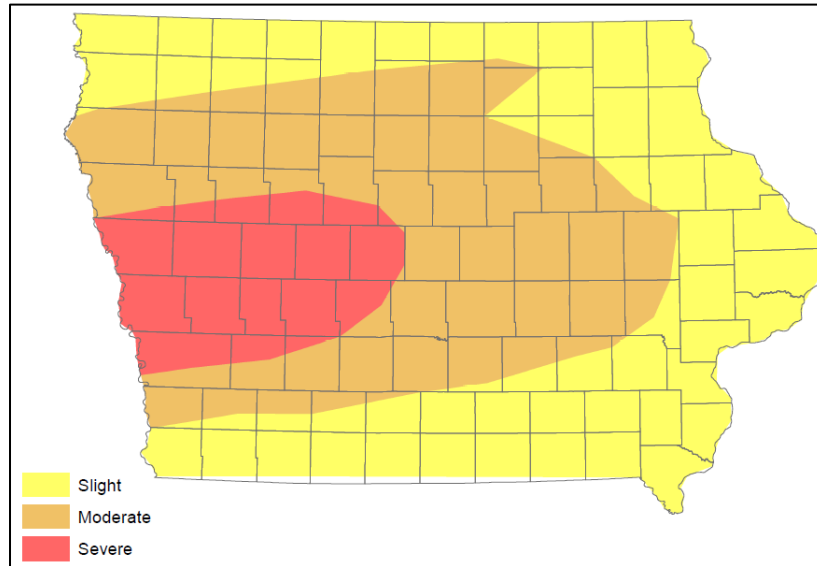
**Accumulated Precipitation (in): Departure from 1981-2010 Normals**

August 01, 2020 to August 31, 2020



## Shallow Groundwater - Conditions for August 2020

Iowa DNR and IIHR-Hydroscience and Engineering



## RECENT DEVELOPMENTS AND CHANGES

### SUMMARY

August 2020 was the 3rd driest August in 148 years of statewide records. Significant state-wide dryness throughout August 2020 caused an expansion of drought conditions, with nearly the entire state rated in some form of dryness or drought. Temperatures for the three summer months of June, July and August averaged 73.4, which is 1.8 degrees above normal. Precipitation totaled 8.97 inches or 4.74 inches below normal. Streamflow conditions worsened in August, but the rain of early September is beginning to improve those conditions. Groundwater conditions, which respond more slowly to rainfall, continue to be problematic in the west-central area of the state. The current pattern of widespread rainfall over a period of several days should help to improve conditions in September. The past several years the months of September and October have been wet, and a repeat of that pattern will help hydrologic conditions as Iowa heads into the fall months.

### DROUGHT MONITOR

At the beginning of August, D3 (Extreme Drought) conditions were introduced across several counties in west-central Iowa as timely rainfall had yet to materialize. This was the first D3 introduction since July 17th, 2018. Abnormal dryness also expanded across most of northeast Iowa. Drought conditions continue to expand from the west-central core in all directions. The last United States Drought Monitor depiction for August showed that 99 percent of Iowa was in the D0-D3 category which was the largest expanse since August 27th, 2013. Moderate Drought to Severe Drought (D2-D3) condition covered 37 percent of the state with D3 condition over 15 percent of Iowa.

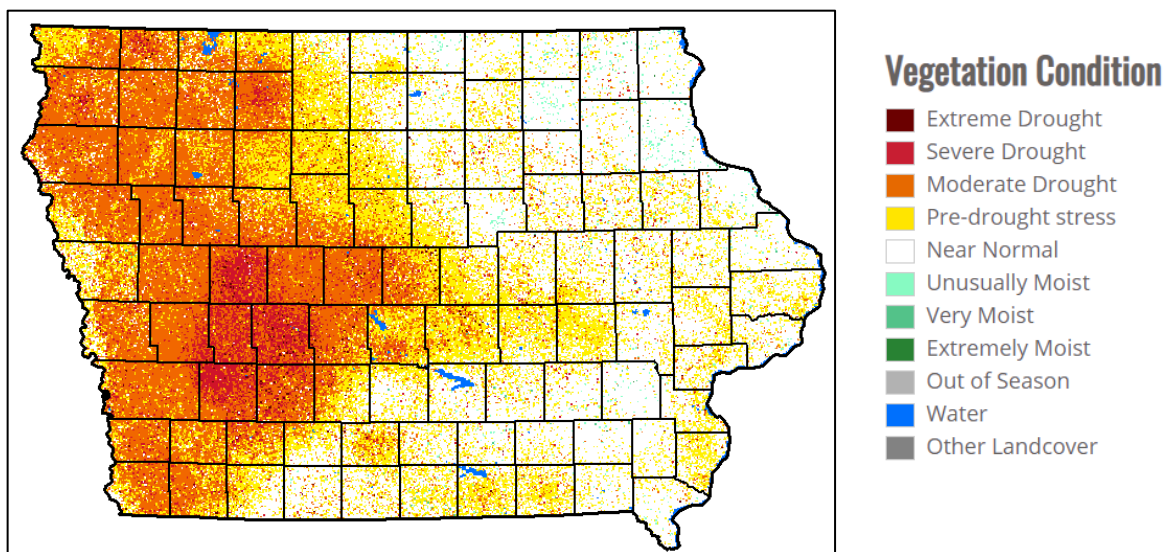
Any rainfall that occurs after 7:00 a.m. on a Tuesday is considered in the following weeks' map, so the widespread rainfall that occurred in Iowa this week will be considered for map issued next week. As a result of

this, the current conditions (as of Tuesday morning, September 8) show 95 percent of the state in some stage of dryness or drought, with nearly 15 percent of the state rated as being in extreme drought.

### OTHER DROUGHT INDICATORS

The Vegetation Drought Response Index, or VegDRI, is a weekly depiction of vegetation stress across the contiguous United States. Development of the VegDRI map and associated products is a joint effort by the National Drought Mitigation Center (NDMC), the U.S. Geological Survey's National Center for Earth Resources Observation and Science (EROS), and the High Plains Regional Climate Center (HPRCC). VegDRI maps are produced weekly and provide regional to sub-county scale information about drought's effects on vegetation. VegDRI calculations integrate satellite-based observations of vegetation conditions, climate data, and other biophysical information such as land cover/land use type, soil characteristics, and ecological setting. The current VegDRI map for is included below, and can be found at: <https://vegdi.unl.edu/Home/StateVegDRI.aspx?IA>

The stress to vegetation can be clearly seen in west central Iowa, as well as in other parts of the state. This map is dated August 30, prior to Iowa's recent rainfall.



### AUGUST PRECIPITATION AND TEMPERATURE

Compared to overall warm conditions in July, temperatures moderated across Iowa in August with a statewide average temperature of 71.9 degrees, 0.4 degrees above normal. August 2020 ties 1921 as the 72nd warmest on record with a warmer August last occurring in 2016.

For the month, positive departures of one to three degrees were reported across northwestern Iowa with near normal conditions across the rest of the state. August's statewide average maximum temperature was 84.2 degrees, 2.0 degrees above normal while the average minimum temperature was 59.6 degrees, 1.2 degrees below normal. Lake Park (Dickinson County) reported the month's high temperature of 100 degrees on the 24th, 18 degrees above normal. Mason City Municipal Airport (Cerro Gordo County) reported the month's low temperature of 44 degrees on the 4th, 17 degrees below normal.

Widespread, unseasonable dryness also continued through August 2020 with a statewide average precipitation total of 1.15 inches or 3.05 inches less than the 30-year climatological expectation. The month ranked as the 3rd

driest August in 148 years of statewide records with a drier one last occurring in 2003. Precipitation deficits of two to four inches were reported across much of Iowa during August leading to an intensification and expansion of dryness and drought. Some stations in southeastern Iowa observed deficits off over four inches. Monthly precipitation totals ranged from 0.11 inch at Salem 1 S (Henry County) to 5.31 inches at Lake Mills (Winnebago County).

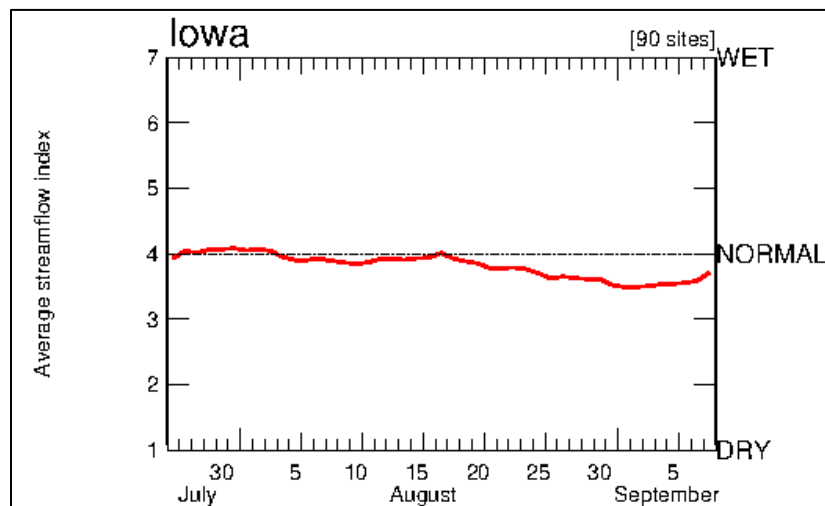
Temperatures for the three summer months of June, July and August averaged 73.4, which is 1.8 degrees above normal. Precipitation totaled 8.97 inches or 4.74 inches below normal. This ranks as the 17th driest and 31st warmest summer in 148 years of records. A warmer summer last occurred in 2012 while 2013 was drier.

### CURRENT STREAM FLOW

Streamflow conditions across much of the state are in normal conditions. The Des Moines, Skunk, Raccoon, Chariton, and East Fork 102 River basins have moved into the below normal condition since the last water summary update. Field crews have been out collecting low flow measurements.

Additional low flow measurements have been collected along the Raccoon River as there is concern with complying with water use permits by water providers. Additional low flow measurements have been collected at Pella due to low water and hydroelectric dam coming online.

The Streamflow index shows a continued drop in average streamflows during most of August, with an improvement coming over the last week. It is important to note that this is a representation of average conditions across the state, and some areas have extremely low flow due to the rainfall deficits.



The Iowa DNR has issued nearly 40 letters to irrigators indicating that low water levels require the end of irrigation. This has occurred in some locations along the South River, the Skunk River, the Boone River, the Raccoon River, White Breast Creek, and the Middle River.

### SHALLOW GROUNDWATER

Shallow groundwater conditions during August and early September continued to deteriorate throughout Iowa. Severe groundwater conditions now exist in West Central Iowa. Moderate and slight groundwater conditions exist in the remainder of Iowa. Low groundwater levels are found throughout the state, especially along the Raccoon and Skunk rivers in Central Iowa and along the Ocheyedan and Floyd rivers in Northwest Iowa. Rainfall

from September 6th through September 9th has improved shallow groundwater levels in many parts of Iowa. Much more precipitation is needed statewide this fall to recharge shallow groundwater before the winter season begins.

**ADDITIONAL INFORMATION**

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

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