



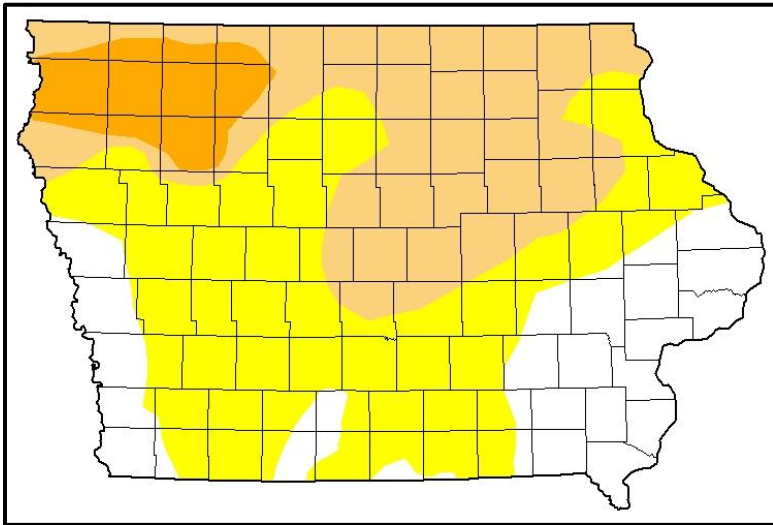
WATER SUMMARY UPDATE

Published Date April 8, 2021 | Issue 118

A snapshot of water resource trends for the month of April 2021

Drought Monitor - Conditions as of May 4, 2021

National Drought Mitigation Center and partners

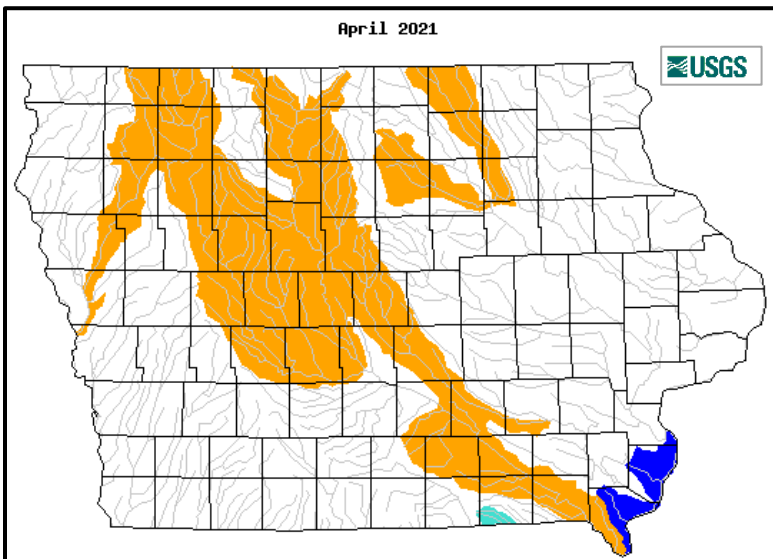


Intensity:

 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.

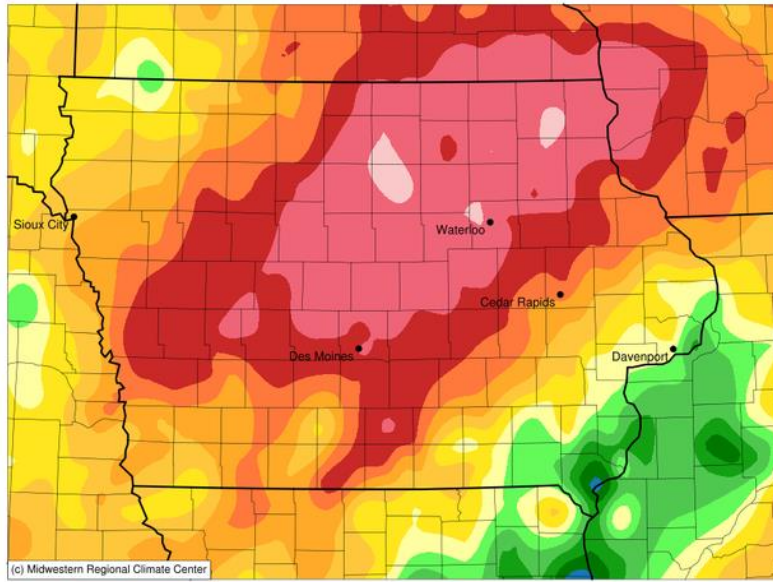
Stream Flow – April 2021



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

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

April 01, 2021 to April 30, 2021



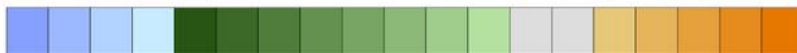
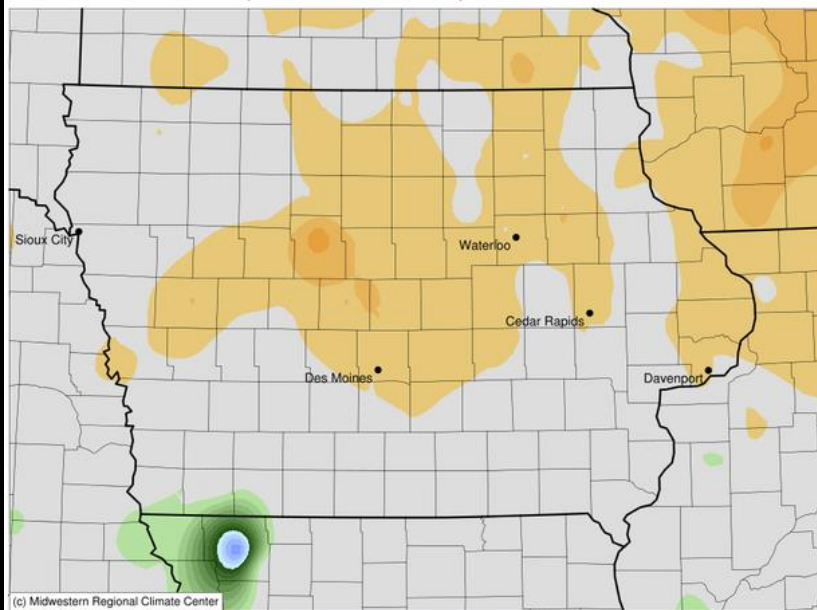
-3.5 -3 -2.5 -2 -1.5 -1 -0.5 0 0.5 1 1.5 2 2.5

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

April 01, 2021 to April 30, 2021



-12

-7

-2

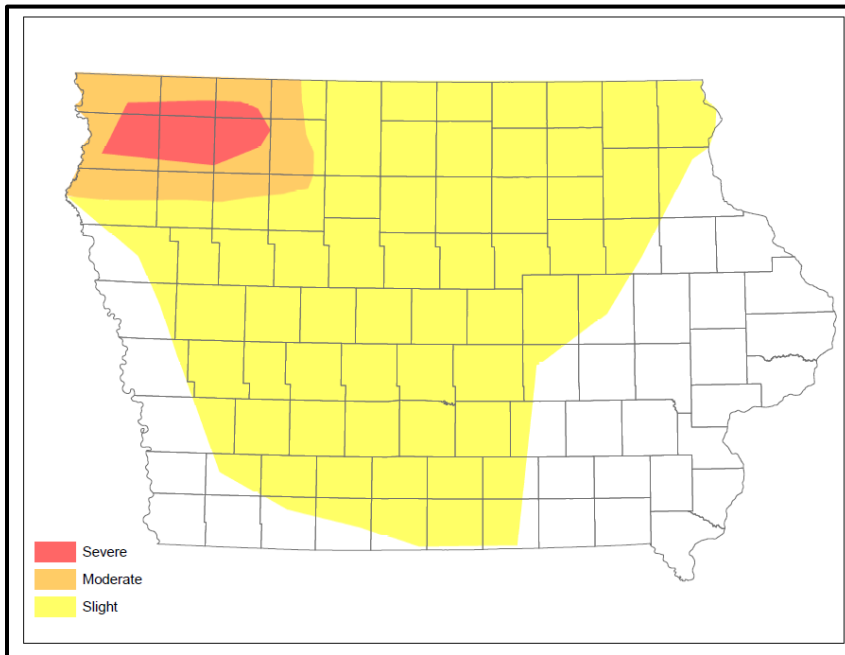
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Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI,

Midwestern Regional Climate Center
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Shallow Groundwater - Conditions for April 2021

Iowa DNR and IIHR-Hydroscience and Engineering



RECENT DEVELOPMENTS AND CHANGES

SUMMARY

In a normal year, April begins the important stretch of significant rainfall for Iowa. The five months from April through August bring nearly two-thirds of the annual rainfall to the state. In 2021, however, this period of time did not start well, with normal rainfall absent over most of the state. All the indicators used in this WSU are trending down. Streamflow is below normal in much of the state, and shallow groundwater supplies are of concern in northern and northwestern Iowa. The US Drought Monitor showed improvement early in the month, but conditions have deteriorated since mid-April. April precipitation ranked as nearly the driest on record for much of the state with the north-central, northeast, and central regions ranked nearly the driest Aprils on record.

DROUGHT MONITOR

The month of April saw an improvement, and then a decline in the conditions in Iowa. When March ended a small area of D3 – Extreme Drought was present in northwest Iowa. Conditions at the beginning of April showed 41% of the state covered in D0 (Abnormally Dry) to D3 (Extreme Drought). The largest share was D0 covered the northern one-third of Iowa, along the border with Minnesota and extending into southwestern Iowa. Extreme drought continued to cover around 3% of northwestern Iowa, though this region was upgraded to D2 (Severe Drought) after measurable precipitation fell over the state's northwestern corner. The drought depiction remained status quo until the week of April 27 when D0 conditions expanded in all directions, covering 55% of Iowa, up from 28% the previous week. A new region of D1 (Moderate Drought) was introduced in northeastern Iowa where rainfall deficits continued to stack up. As of the first week of May, D0-D2 categories now cover 78% of the state, the highest extent since mid-September 2020.

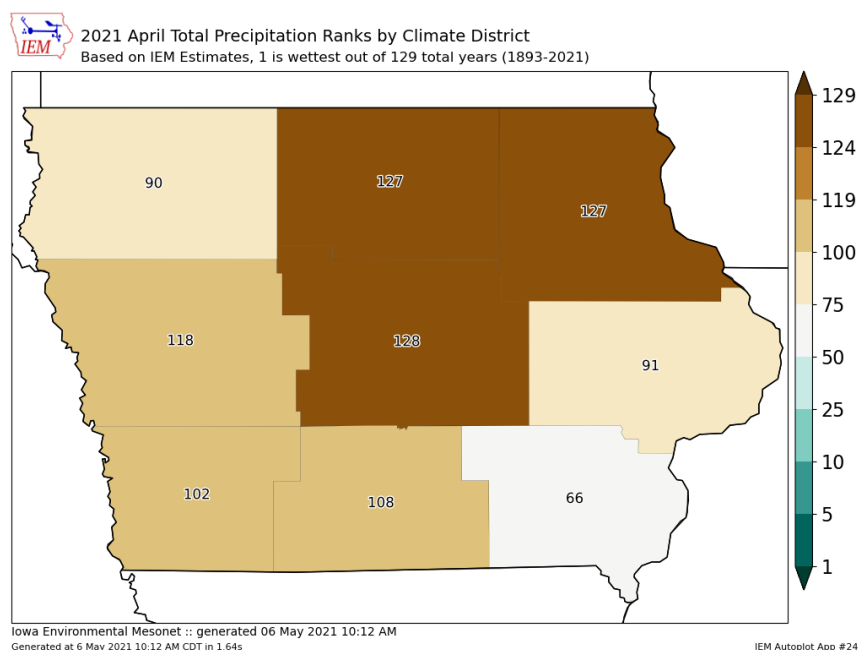
Conditions to the west of Iowa are much worse. Much of the western United States, especially the Dakotas and Montana, along with Colorado and the southwestern states are experiencing significant levels of D3 – Extreme Drought and D4 – Exceptional Drought. To put these numbers in perspective, D4 conditions are expected to occur less than two percent of the time, while D3 conditions are expected to occur three to five percent of the time.

APRIL PRECIPITATION AND TEMPERATURE

Preliminary statewide average precipitation totaled 1.61”, or 1.90” below normal, ranking April 2021 as one of the top 20 driest Aprils in 149 years of statewide records. A vast majority of the state’s National Weather Service co-op stations reported below-average totals during the month; stations from Polk County north to Winnebago County and over to the Iowa-Minnesota-Wisconsin border observed deficits of over three inches. Several stations with a period of observation beginning in the late 1800s reported their driest April. Extreme southeastern Iowa was the only section of the state to report above-average totals, on the order of one to two inches. Monthly precipitation totals ranged from 0.30” in Tripoli to 6.59” at Fort Madison. All stations across Iowa reported below-average snow with Iowa’s eastern third observing no measurable totals. The preliminary statewide average snowfall was 0.2”, 1.4” below normal, tying multiple years as the 39th least snowy April in 134 years of snowfall records; April 2017 saw less snow. Sibley measured the state’s highest accumulation of 4.0”.

While there were periods of cooler than average temperatures and warmer, windy days, the statewide average temperature was 49.3 degrees, slightly warmer than normal; a warmer April last occurring in 2017. Desoto reported the month’s high temperature of 93 degrees on the 26th, 26 degrees above average. Estherville Municipal Airport and Battle Creek reported the week’s low temperature of 11 degrees on the 1st, 19 degrees below normal.

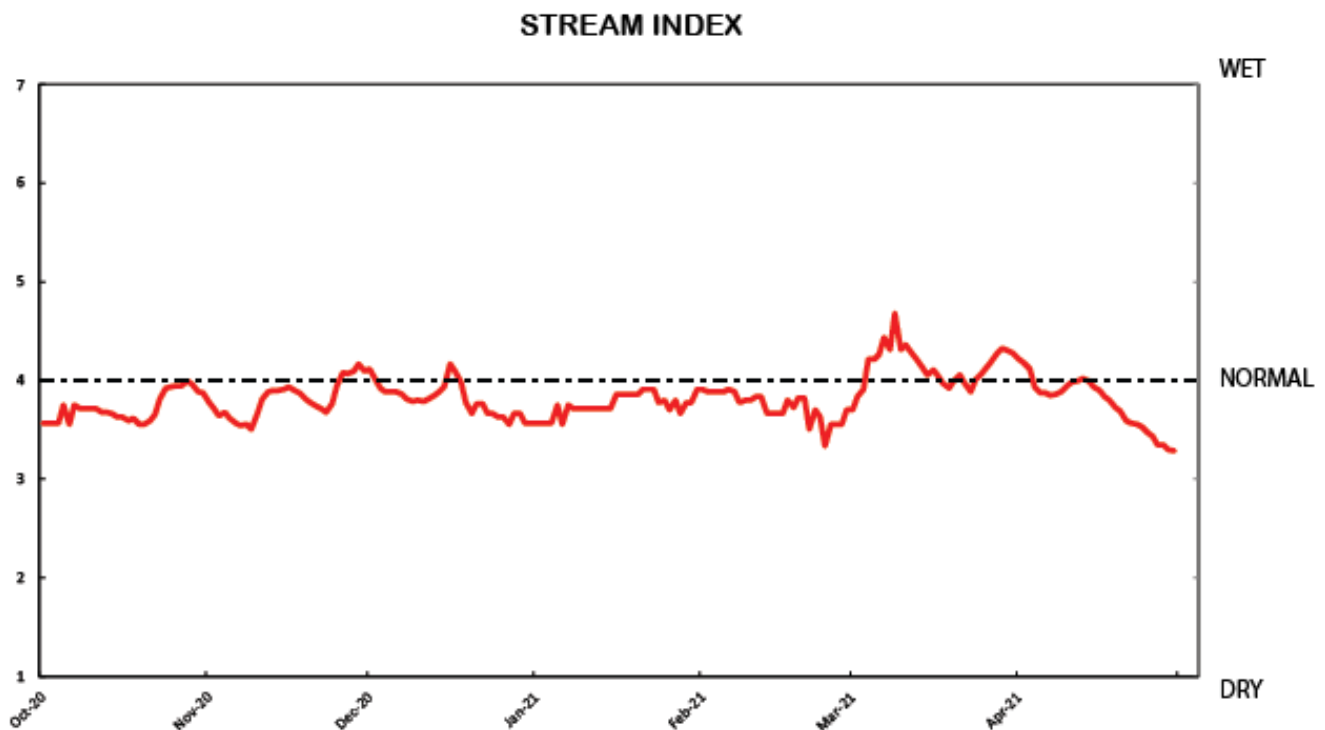
When divided into National Center for Environmental Information (NCEI) Climate Divisions (CD), April preliminary precipitation ranked as nearly the driest on record for much of the state, with CD 2 (North-central Iowa), CD 3 (Northeast Iowa) and CD 5 (Central Iowa) ranked as the 127th or 128th driest Aprils in the 129 years of National Weather Service records.



APRIL STREAM FLOW

Since the last water summary update, streamflow conditions across approximately a third of the state have moved into below normal conditions. The Skunk, Des Moines, Raccoon, West Fork Cedar Rivers, and a portion of the Cedar River basin have moved into the below normal condition since the last water summary update.

The Stream Index graph below shows how average stream flow across the state compares to normal flow for that time of the year. This graph shows the first half of the 2020-2021 Water Year (beginning on October 1, 2020), and the decline in average stream flow can be seen starting in late March 2021.



APRIL SHALLOW GROUNDWATER

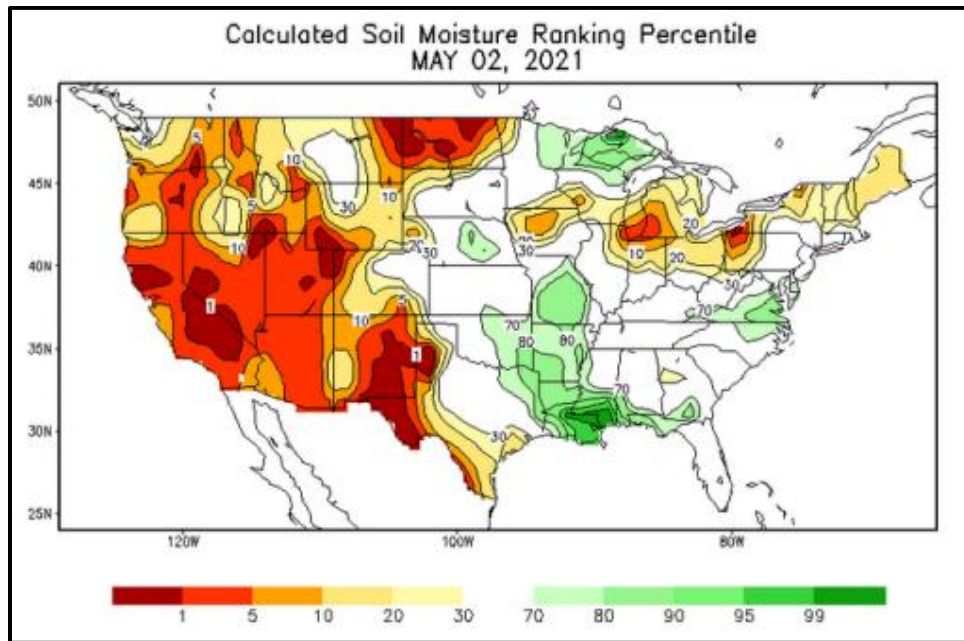
Shallow groundwater conditions continue to be well below normal in Northwest Iowa, especially in the Floyd, Little Sioux, and Ocheyedan River watersheds. Severe to moderate groundwater conditions exist in parts of Buena Vista, Cherokee, Clay, Emmet, Lyon, O’Brien, Osceola, Palo Alto, Plymouth, and Sioux counties. Central, North Central and parts of Northeast Iowa are seeing falling groundwater levels, and are groundwater concerns are classified as slight. Significant rainfall did occur across parts of northern and southern Iowa during the first week of May, but additional precipitation is needed across most of Iowa during the spring and early summer months to recharge Iowa’s shallow aquifers.

MISSOURI RIVER BASIN CONDITIONS

The US Army Corps of Engineers in their weekly update for May 4, 2021 notes that overall reservoir system storage is 55.3 Million Acre Feet (MAF), 0.2 MAF lower than last week. During this time of year, the amount of water stored is normally increasing. This year, however, the amount of water stored has been decreasing since March 23rd. April runoff into the upper basin was 44 percent of average, making April 2021 the 9th driest for the upper Missouri Basin in 123 years of record. As a result of current and projected conditions, the Corps has reduced their 2021 calendar year runoff forecast above Sioux City to 17.8 MAF, or only 69% of average. This

would be less than 30% of the quantity of runoff from either 2011 and 2019, and would rank 2021 as the 22nd lowest calendar year runoff volume.

Mountain snowpack has peaked in both reaches and is starting to melt. Soil moisture is dry in Montana and Wyoming and very dry in North Dakota.



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 515-452-6633
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