



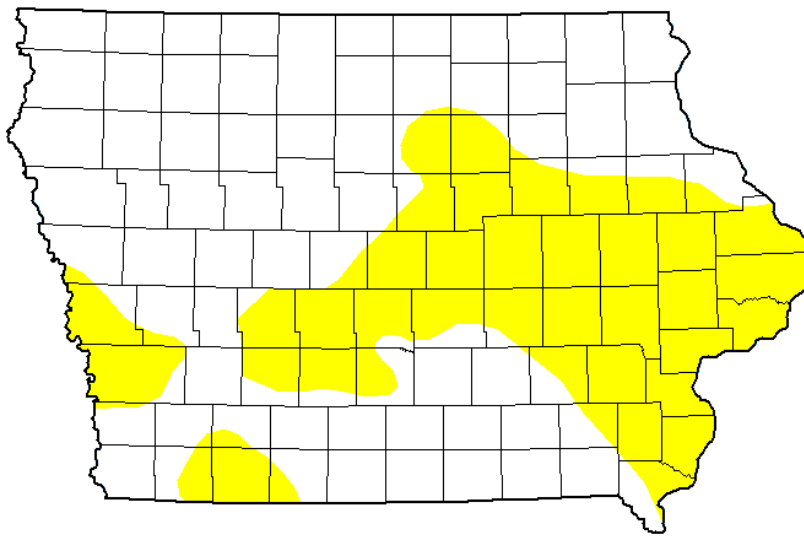
WATER SUMMARY UPDATE

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

Drought Monitor - Conditions as of August 6, 2019

National Drought Mitigation Center and partners



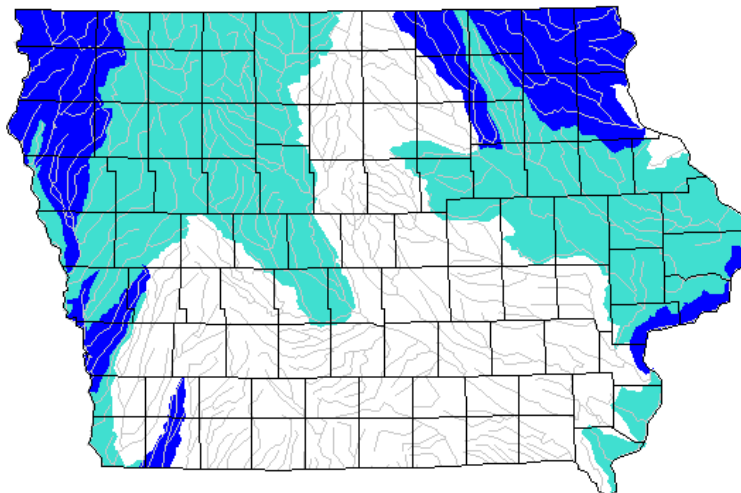
Intensity:

- 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 – July 2019

July 2019

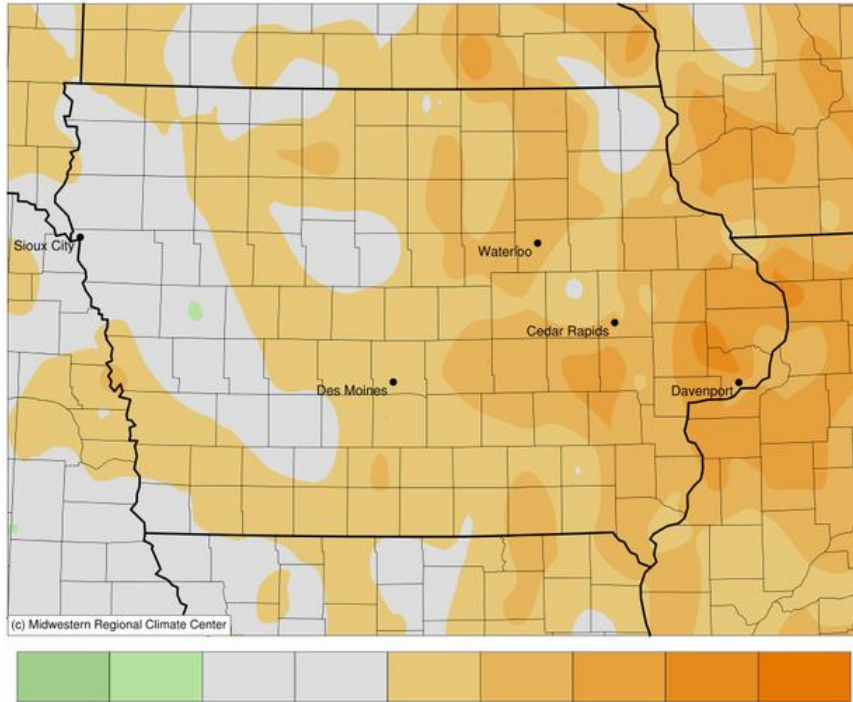


Explanation - Percentile classes						
<10	10-24	25-75	76-90	>90		
Low	Much below normal	Below normal	Normal	Above normal	Much above normal	High



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

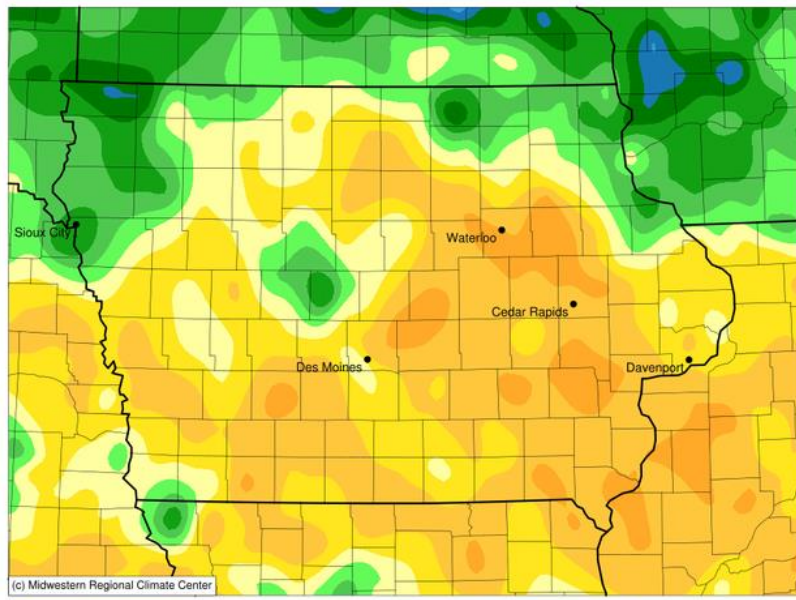
July 01, 2019 to July 31, 2019



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: 8/7/2019 1:30:56 PM CDT

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

July 01, 2019 to July 31, 2019



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: 8/7/2019 1:45:18 PM CDT

RECENT DEVELOPMENTS AND CHANGES

SUMMARY

June and July turned out to be consecutive months of below normal precipitation. July averaged 3.35 inches of rainfall around the state, which is 1.15 inches less than normal. June and July together were 2.3 inches below normal for rainfall. This is reflected in the current US Drought Monitor for Iowa, where over 36 percent of the state is rated as being abnormally dry. Streamflow continues to drop back closer to normal levels, and shallow groundwater remains unaffected by this dryness so far. Despite this recent dry weather, the previous 12 months were the 4th wettest on record.

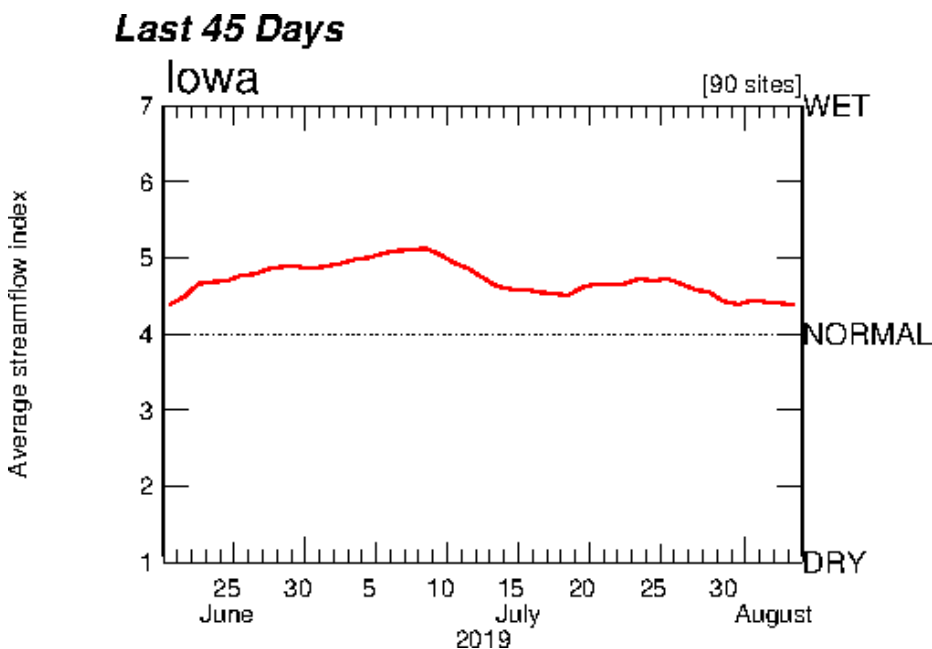
DROUGHT MONITOR

Abnormally dry conditions that were absent from Iowa since last October have returned. The current drought monitor map shows over 36 percent of the state rated as D0 – Abnormally Dry. This comes after nine months of no dryness or drought in the state. According to the National Drought Mitigation Center, the D0 classification means that conditions are favorable for drought development, and is shown by short-term dryness that slows growth of crops or pasture. In Iowa, the City of Storm Lake has requested voluntary conservation of water due to steadily increasing demand since the end of July. Voluntary conservation is the normal first step of any water conservation plan.

Nationally the worst drought conditions exist far from Iowa in the Pacific Northwest. There is a small area of D1 – Moderate Drought in northern North Dakota, and areas of D2 – Severe Drought in Oklahoma.

CURRENT STREAM FLOW

Streamflow conditions in the state continue to decrease, reflecting the recent dryer weather across Iowa. Basin wide flows moved from much above normal and high conditions in June to normal conditions across the state in July. There are a few areas that still have much above normal flow, and few areas that have decreased to above normal conditions. The statewide 7-day Streamflow Index, a measure of current flow compared to normal flow (averaged across the entire state) continues to drop, but remains just above normal flow. The last time this index was below the normal line was in early March of 2019.



JUNE PRECIPITATION AND TEMPERATURE

Iowa precipitation totaled 3.35 inches or 1.15 inches below normal in July, ranking as the 63rd driest on record; a drier July last occurred in 2017. Much of Iowa experienced below average precipitation during July with eastern Iowa reporting deficits between two and four inches. Above average totals were reported along the Iowa-South Dakota and Iowa-Minnesota border. Precipitation totals for the month varied from 0.55 inches at Fort Madison in Lee County to 8.17 inches in Rock Rapids in Lyon County.

Iowa temperatures averaged 75.1 degrees or 1.5 degrees above normal. This ranks as the 51st warmest July with a warmer July last occurring in 2012. Eastern Iowa was the warmest part of the state with temperatures two to four degrees above average. Western Iowa experienced near normal to slightly warmer conditions. The month's high temperature of 99 degrees was reported on the 19th in Little Sioux in Harrison County, which was 13 degrees above average for that date. Cresco in Howard County reported the month's low temperature of 48 degrees on the 31st, 11 degrees below average.

Despite below normal rainfall for June and July, the last 12 months have been the 4th wettest on record, with Iowa receiving 47 inches of rain from August 2018 through July 2019. This is 15 inches more than the average of 32 inches.

SHALLOW GROUNDWATER

Shallow groundwater conditions remain good across the entire state. Despite the recent dryer than normal conditions, the longer term wet conditions, (over the past year) have resulted in continued recharge to shallow groundwater systems across the state.

MISSOURI RIVER BASIN

Conditions continue to slowly improve in the Missouri River Basin. The US Army Corps of Engineers reports that storage in the reservoir system peaked on July 20, and is falling. The updated runoff forecast for the Missouri River Basin (above Sioux City, Iowa) is now estimated at 52.9 (MAF), more than twice the average annual runoff. 2019 will likely see the second highest runoff in 121 years of recordkeeping.

The reservoir system is currently storing 67.7 MAF of water, with about 29% of the flood control storage remaining. Gavins Point dam continues to release 70,000 cubic feet per second (cfs) of water, which is about double the amount normally released at this time of the year. This discharge rate is expected to remain at this level through most of the rest of the summer as the Corps empties 2019 floodwater in preparation for 2020.

ADDITIONAL INFORMATION

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

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