



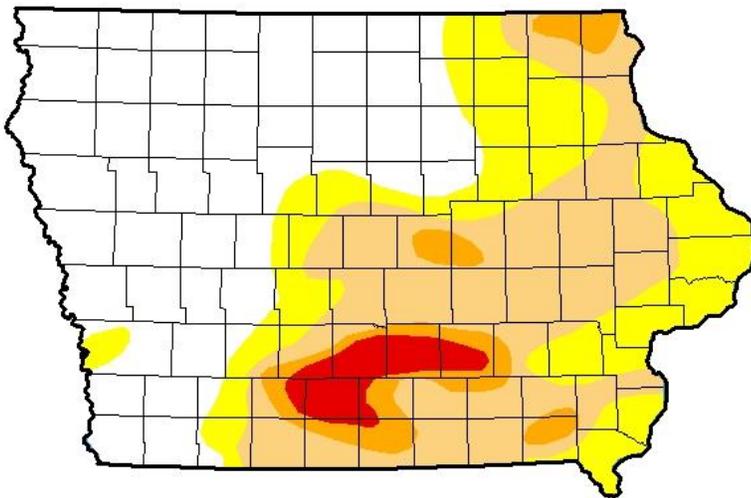
WATER SUMMARY UPDATE

Published Date October 9 | Issue 79

A snapshot of water resource trends from September 2017 and for the 2017 Water Year

Drought Monitor - Conditions as of October 3, 7 a.m.

National Drought Mitigation Center and partners



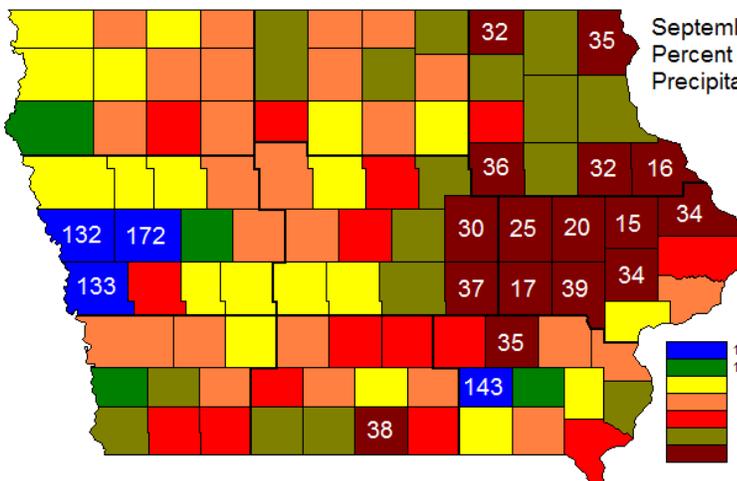
Intensity:

- 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.

Precipitation - Percent of normal precipitation for September 2017.

State Climatologist



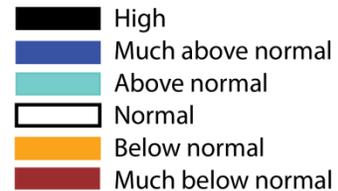
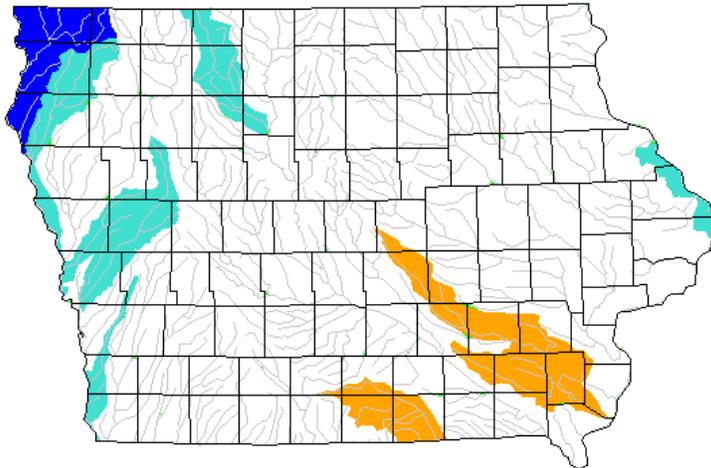
September 2017
Percent of Normal
Precipitation.

- 125 or more
- 100 to 125
- 85 to 100
- 70 to 85
- 55 to 70
- 40 to 55
- 40 or less

Stream Flow - Seven-day average stream flow ending October 5, 2017.

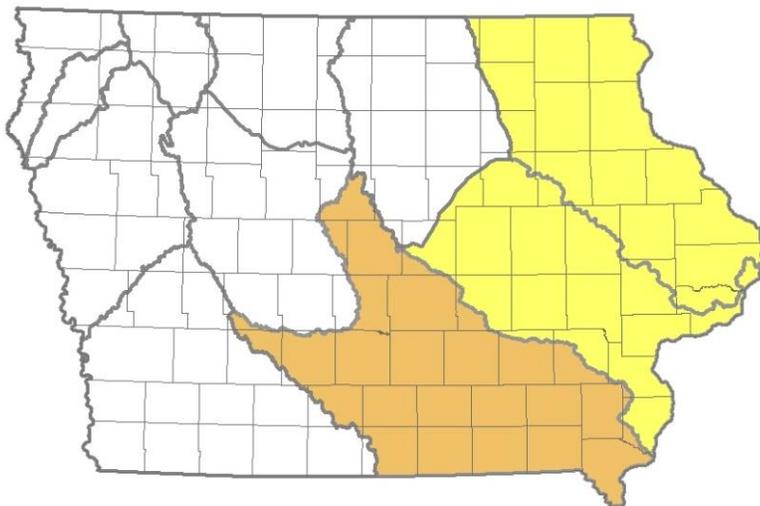
US Geological Survey

Thursday, October 05, 2017



Shallow Groundwater - Conditions for September 2017

Iowa DNR and IIHR-Hydroscience and Engineering



Recent Developments and Changes

SUMMARY

Although August started out very dry, the last week has seen conditions begin to turn wetter in many of the areas that have been in need of rain. Through the first three weeks of August rain totals were as high as 9.51 inches at Guthrie Center, with totals of six inches or more widespread over much of northwest, west central and southwest Iowa. Stream flows and shallow groundwater conditions have also improved. However, 2.2 percent of the state is still rated as being in D3-Extreme Drought. The largest area of these drought conditions is centered over Clarke County, with a smaller area in Wapello County. When the next Drought Monitor is

released on October 12 it is likely that the rain which fell over the first weekend in October will improve conditions in south central Iowa.

DROUGHT MONITOR

Over the last month conditions across the state have improved, but only slightly. Areas of dryness and drought persist over the south central part of Iowa, with about 3 percent of the state rated as being in a D3-Extreme Drought. Iowa is one of only four states that contain any D3 conditions – joining the Dakotas and Montana. Generally the eastern half of Iowa remains in some form of dryness or drought, while the northwestern part of the state – an area of concern during the summer months – has returned to normal conditions. For comparison, Montana continues to show the worst drought conditions in the United States, with over 10 percent of the state rated as D4-Exceptional Drought, and over 90 percent of that state rated in some form of dryness or drought.

CURRENT STREAM FLOW

Since the last water summary update, streamflow conditions in much of the state have remained in normal conditions. A portion of the Skunk and Chariton River basins moved to below normal conditions, improving from much below normal in the Skunk River basin. Streamflow conditions are above normal for several basins in the western part of the state including the Little Sioux, Boyer, and Floyd Rivers. The Rock River basin remains in the much above normal range.

SEPTEMBER PRECIPITATION

In September Iowa temperatures averaged 66.8 degrees or 3.6 degrees above normal while precipitation totaled 2.33 inches or 1.05 inches below normal. This ranks as the 15th warmest and 45th driest September among 145 years of records. The Iowa City Airport reported the highest temperature of the month with a 95 degree reading on the 23rd, while a low of 35 degrees was reported in Stanley on the 7th and Cresco on the 30th. The first half of the month was exceptionally dry, while the second one-half of the month brought above normal rain. By the end of September, however, the statewide average rainfall was below normal by just over an inch. Greatest rains during the month were concentrated over west central Iowa, however, torrential rains fell across small portions of southeastern Iowa with a location just south of Ottumwa picking up 7.75 inches of rain overnight on September 20. Monthly rain totals varied from only 0.05 inches just south of Burlington to 9.08 inches just south of Ottumwa. Two locations (Anamosa and the Dubuque Lock and Dam) recorded their driest Septembers on record.

SHALLOW GROUNDWATER

Substantial rainfall in the western two-thirds of Iowa during the month of September have improved shallow groundwater conditions in northwest and southwest Iowa. Shallow groundwater conditions in the Skunk and lower Des Moines River watersheds are still in a moderate drought classification, and east central and northeast Iowa were placed in a slight drought classification.

2017 Water Year Summary

OVERVIEW – WATER YEAR ENDS NORMAL FOR RAINFALL AND WARMER THAN USUAL

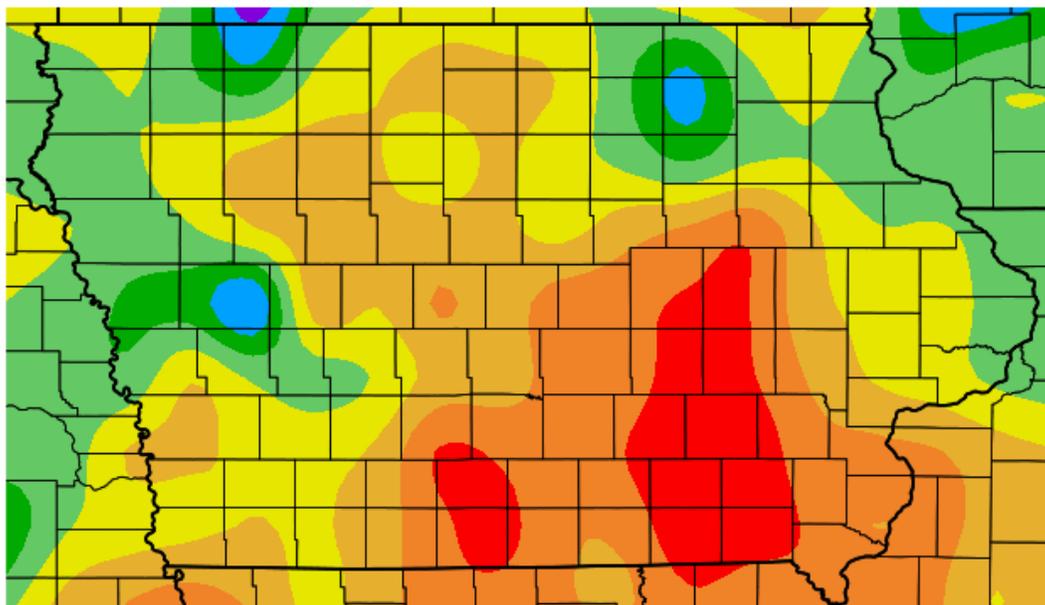
October 1 through September 30 is known as the "water year". This time period is used because snow accumulation after October 1 is the primary source of runoff to streams during the following calendar year in many parts of the country. The 2017 Water Year (ending September 30, 2017) brought a statewide precipitation average of 31.99 inches or 3.28 inches less than normal while temperatures averaged 50.7 degrees, or

2.6degrees above normal. This ranks 2017 about in the middle of the list for precipitation and as the 4th warmest water year among 144 years of records. Temperatures over this past water year averaged near normal for the growing season but well above normal for most of the winter season with the second warmest November and third warmest February recorded.

PRECIPITATION

Precipitation during this past water year was quite a contrast to much of the previous decade which was frequently very wet. Above normal precipitation totals for the 2017 water year were confined to the northwest and northeast corners of the state, plus portions of extreme eastern and far western Iowa. A drier weather pattern first began to develop in southeastern Iowa in late May 2017 and quickly spread with relatively warm and dry weather in both June and July. At its maximum extent in mid-August drought covered nearly one-half of the state from northwest, through central, to southeast Iowa. Rainfall became more frequent in mid-August over western Iowa and gradually eliminated drought conditions over the west one-third of the state by the end of September while dryness intensified over eastern Iowa in August and September. The figure below shows the percent of normal precipitation for the 2017 Water Year, and the areas of southeaster Iowa that received much lower than normal precipitation are clearly seen.

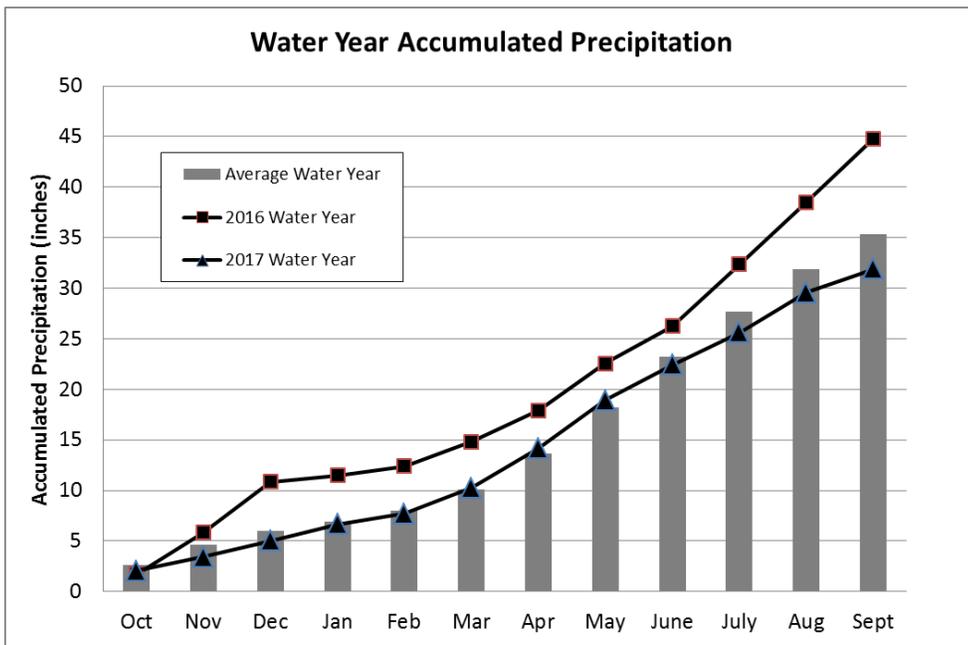
Percent of Normal Precipitation (%)
10/1/2016 – 9/30/2017



Generated 10/3/2017 at HPRCC using provisional data.

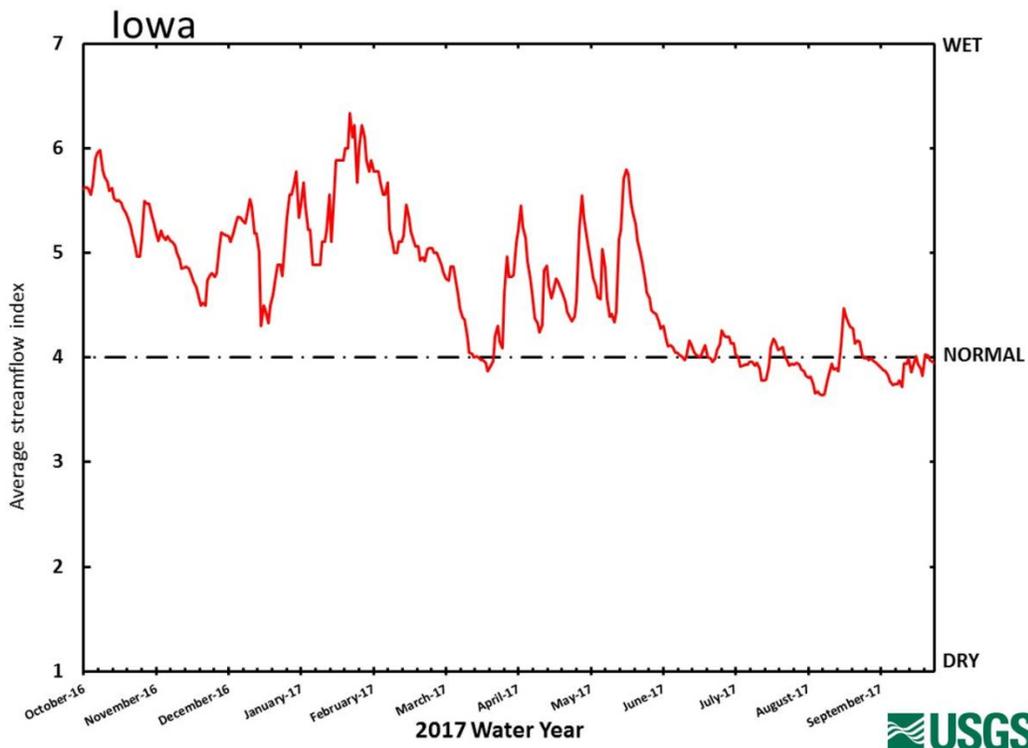
NOAA Regional Climate Centers

The graph below shows the contrast between the 2016 and 2017 water years. In 2016 precipitation was above normal in the winter and remained above normal right through the water year. In 2017, the accumulated precipitation was nearly normal until the summer months when it failed to keep pace with the normal expected rainfall.



STREAMFLOW

The Iowa Streamflow Index shows the average flow from all USGS gaging stations across Iowa, and is a good indication of general conditions. Since it shows average flow, however, very dry conditions can be present in one location, and flooding in another – but the average of the two will indicate normal conditions. The graph below reflects the wet fall and spring, and then shows a reflection of the dry summer conditions. It should be noted that even in the driest parts of the year in Iowa, average streamflow remained fairly close to the “Normal” line. This is in contrast to 2012 when the streamflow index was between 2 and 3.



ADDITIONAL INFORMATION

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

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