NWS FORM E-5	**U.S. Department of Commerce** NOAA, NATIONAL WEATHER SERVICE	**HSA OFFICE:** **Grand Rapids, MI**
MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS		REPORT FOR (MONTH & YEAR): **June 2022**
TO:	NATIONAL WEATHER SERVICE (W/OS31) HYDROMETEOROLOGICAL INFO CENTER 1325 EAST-WEST HIGHWAY, RM 13468 SILVER SPRING, MD 20910	DATE: July 15, 2022
		SIGNATURE: Bruce Smith, MIC Andrew Dixon, Service Hydrologist

When no flooding occurs, include miscellaneous river conditions, such as significant rises, record low stages, ice conditions, snow cover, droughts, and hydrologic products issued (WSOM E-41).

X An **X** inside this box indicates that no flooding occurred within this hydrologic service area.

Summary

June 2022 was much drier than normal across Lower Michigan, with slightly warmer than normal temperatures. As is typical for the warm season, the rain that did occur was associated primarily with thunderstorms, resulting in a lot of variability in total rain amounts even across short distances. Added up for the whole month, most places received around half of the rain they typically would for this time of year. This allowed the beginning of early drought conditions to develop across portions of Lower Michigan. Drought in Michigan primarily impacts agriculture, so farmers in many areas are now hoping for some beneficial rains over the coming weeks to avoid impacts to quality and quantity of crops.

Flood Conditions

The major river basins in West Michigan (Muskegon, Grand, and Kalamazoo) spent most of the month at below-average levels, but still within a reasonably typical range. Looking at the percentiles of flow, this means that most of the larger rivers are currently between the 25th and 50th percentile - meaning that the water levels get this low this time of year 1 out of every 4 years. If drought conditions continue to spread across Michigan, we will see these numbers drop more significantly into more unusually low-water conditions. Unsurprisingly, no river flooding was experienced in June. The heaviest swaths of thunderstorm rains moved through the area on June 13-14, dropping a quick inch of two or rain in a few counties along the lakeshore and again along the I-94 corridor, and both were handled with short-duration flood advisories with no significant impacts reported.

Flood Stage Report

No forecast points exceeded flood stage during the month. Thus, the NWS Form E-3 "Flood Stage Report" was not issued.

River Conditions

The end of June percentage of normal flow for selected rivers is listed below:

Location	River	% of Normal
Scottville	Pere Marquette	93
Whitehall	White	75
Evart	Muskegon	70
Mt. Pleasant	Chippewa	72
Lansing	Grand	95
Grand Rapids	Grand	72
East Lansing	Red Cedar	81
Hastings	Thornapple	61
Battle Creek	Battle Creek	75
Battle Creek	Kalamazoo	81

General Hydrologic Information

June precipitation amounts for Grand Rapids, Lansing, and Muskegon, Michigan, were 1.42, 1.56, and 2.11 inches, respectively (Figure 1). Monthly departures were -2.52, -2.20, and -0.94 inches, respectively. Yearly departures were +0.85 +0.62 and -1.18 inches for Grand Rapids, Lansing and Muskegon respectively. Percent of mean precipitation for June 2022 is shown in Figure 2.

Temperatures for the month of June at Grand Rapids, Lansing and Muskegon were slightly warmer than normal. The monthly average temperature departures for these sites were +0.3, +3.0, and +0.4 degrees Fahrenheit, respectively.

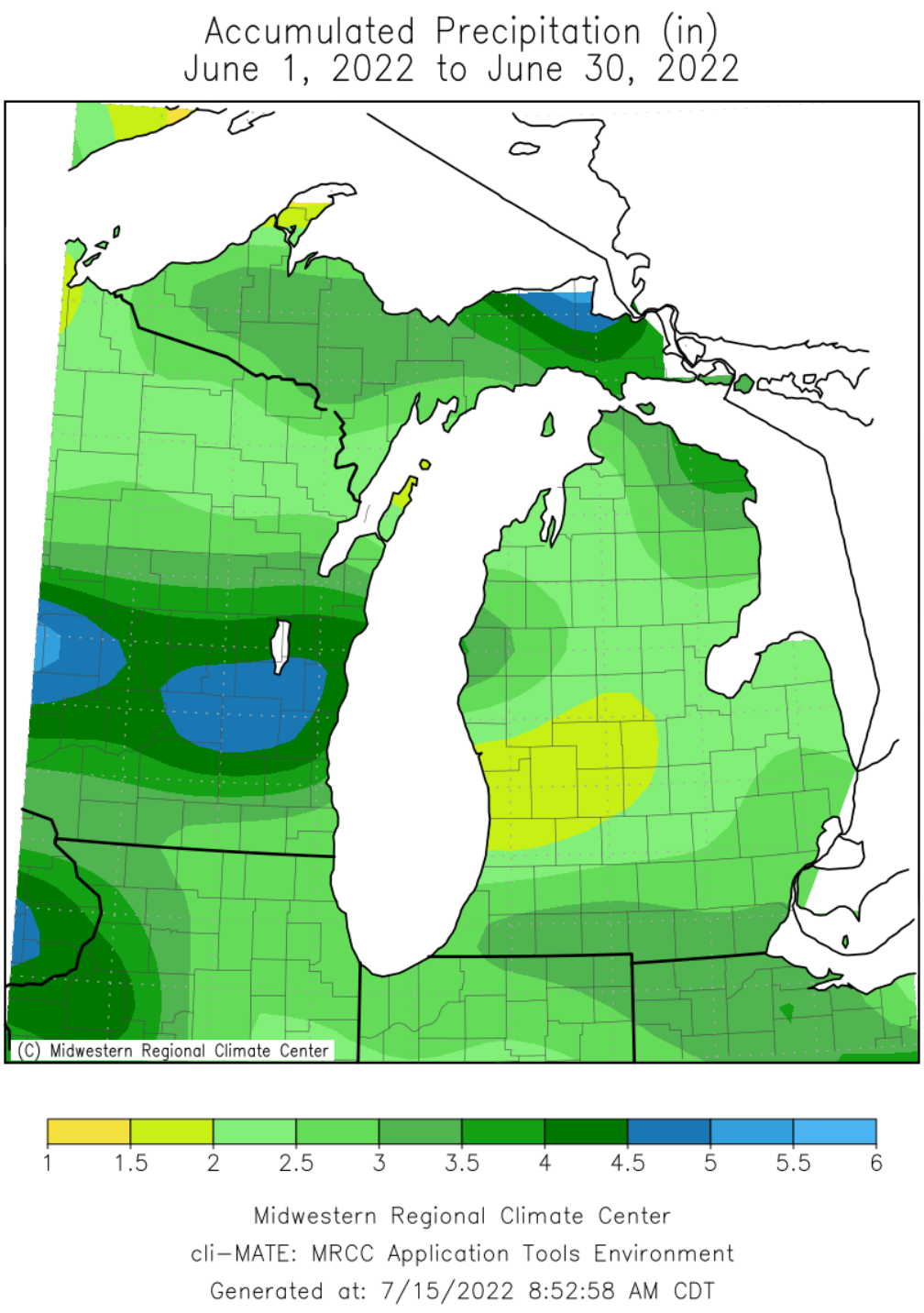

Figure 1. June 2022 Monthly Precipitation Totals.

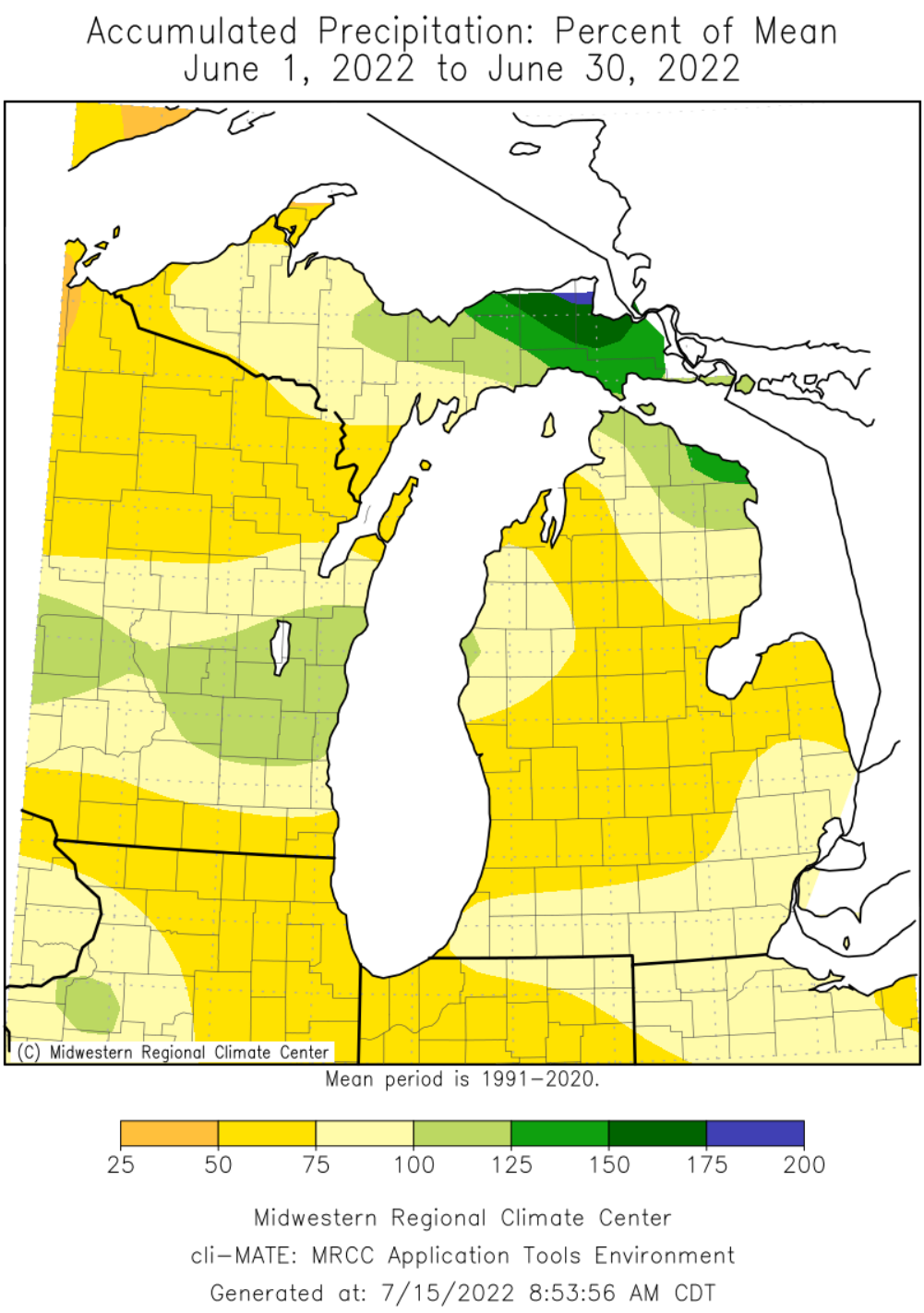

Figure 2. June 2022 Percent of Mean of Accumulated Precipitation.

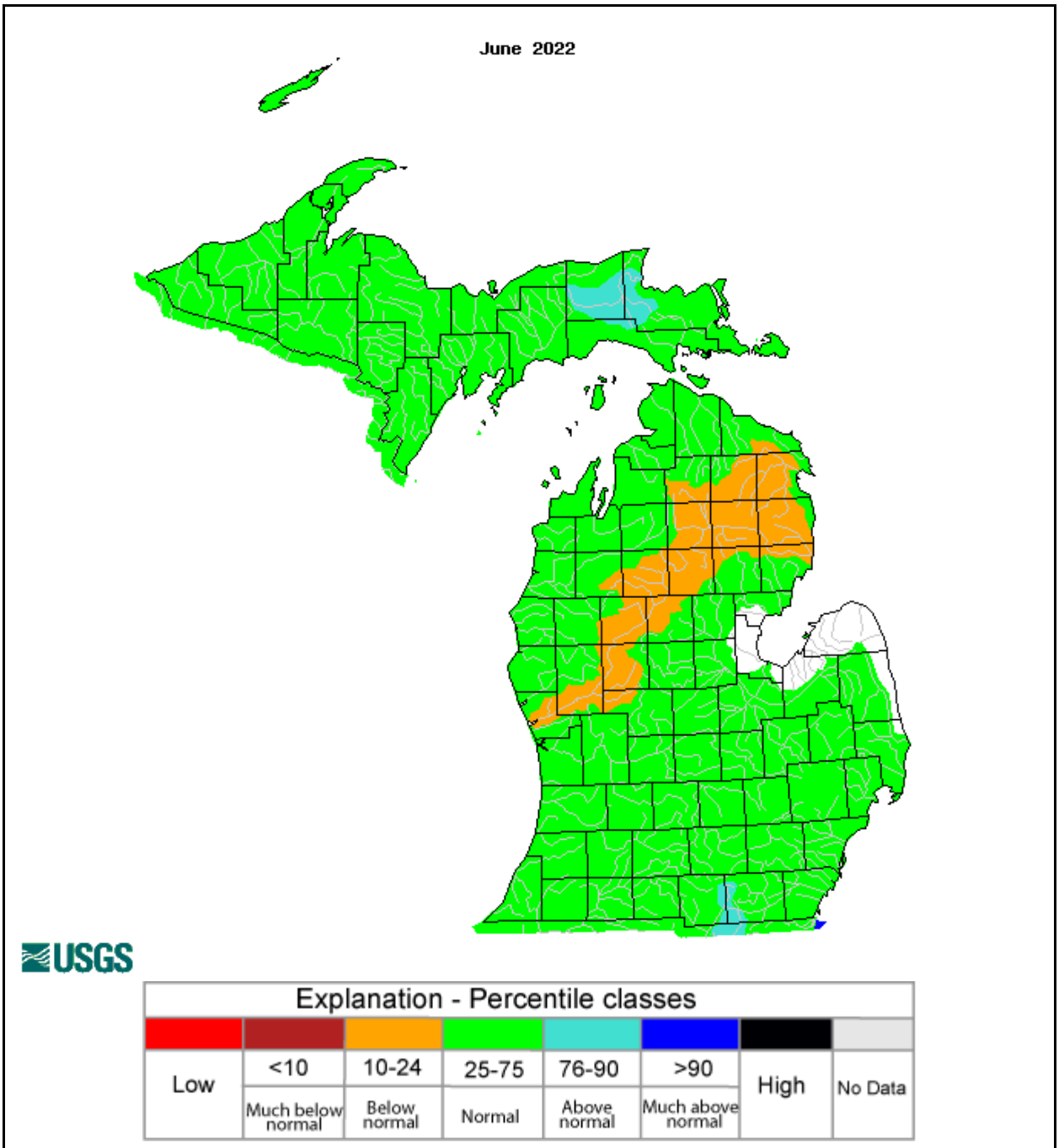

Figure 3. USGS monthly average streamflow for June, grouped by significant hydrologic units. Note streamflows within a typical range across most of Lower Michigan for this time of year, with the exception of the Muskegon Basin, where streamflows are notably lower than typical.

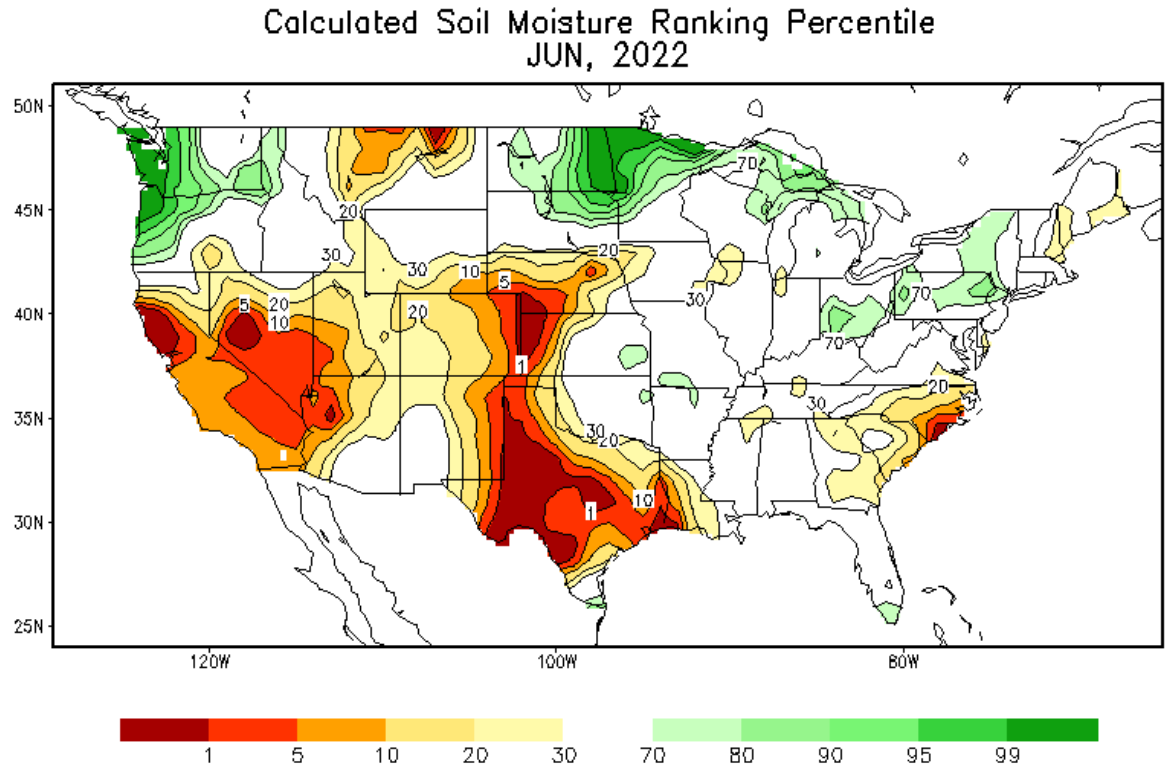

Figure 4. Chart of monthly values of soil moisture, by percentile ranking.

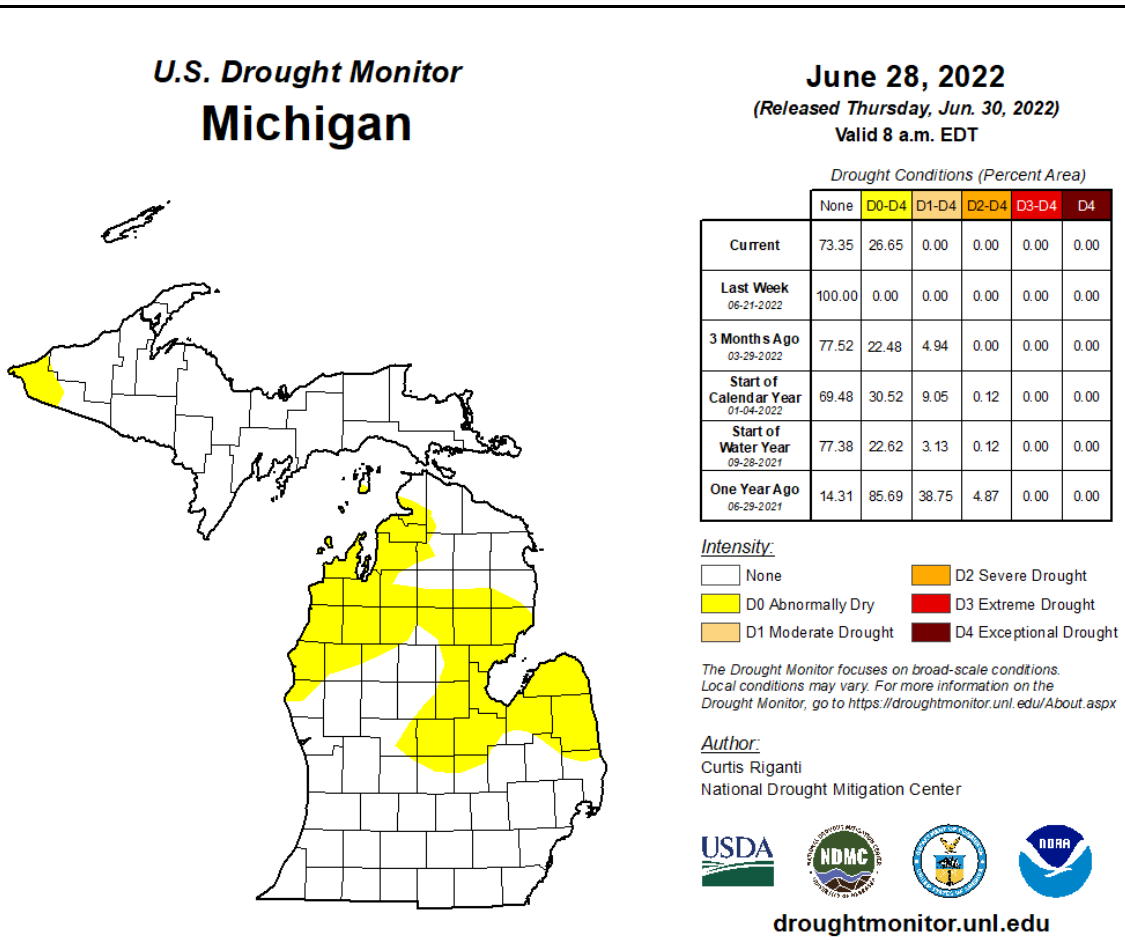

Figure 5. U.S. Drought Monitor depicting abnormally dry conditions develop by the end of June across Lower Michigan.

Hydrologic Products issued this month

30 Hydrologic Summaries (ARBRVAGRR)
1 Probabilistic Hydrologic Outlook (ARBESFGRR)
1 Event-driven Hydrologic Outlook (ARBESFGRR)
30 Daily River Forecasts (ARBRVDGRR)
2 Areal Flood Advisory Statements (ARBFLSGRR)
0 Flood Warning Statements (ARBFLWGRR)
0 Flood Watch Statements (ARBFFAGRR)
0 River Statements (ARBRVSGRR)

News Articles and Related Documentation

None