

Highest AQI Days For 2021

**159** August 7  
Baton Rouge  
Ozone

**156** July 28  
Lake Charles  
Ozone

**150** October 9  
Baton Rouge  
Ozone

**129** June 14  
Baton Rouge  
Ozone

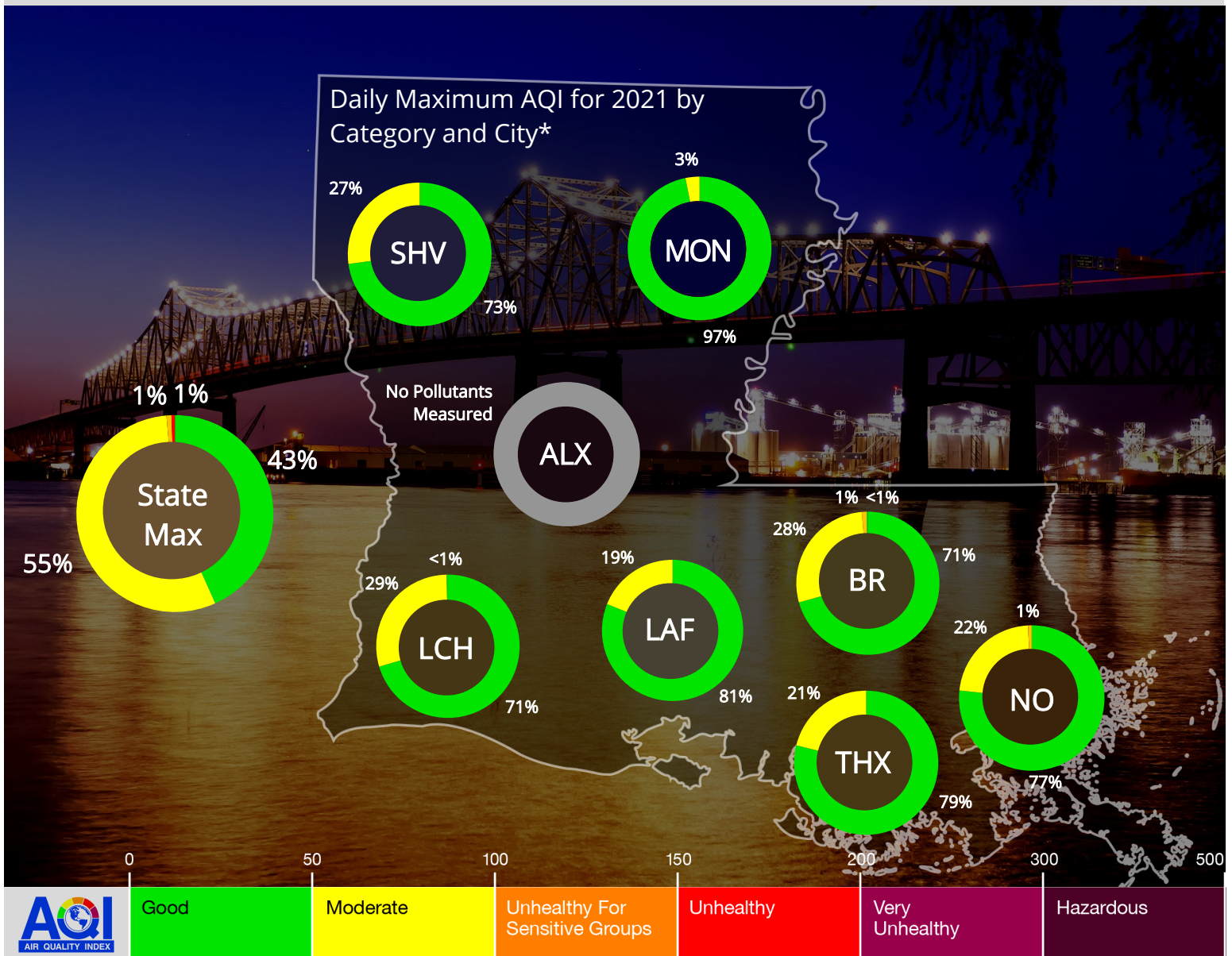
# Louisiana Air Quality Summary | 2021



Sonoma Technology meteorologists provide same-day, next-day, and two-day Air Quality Index (AQI) forecasts for ozone and particulate matter (PM<sub>2.5</sub>) in eight Louisiana cities. The graphs and charts shown below and on pages 2 through 8 summarize next-day AQI forecasts and observed AQI levels for 2021. Select high AQI days are discussed on pages 10 and 11.

Counts of observations and forecasts in each category are on pages 12 and 13, and forecast accuracy statistics are shown on page 14.

During the year, there were 3 days with Unhealthy for Sensitive Groups (USG) AQI levels and 2 days with Unhealthy AQI levels. These high ozone days were likely the result of enhanced ozone precursors from smoke.



Louisiana Department of Environmental Quality

602 N Fifth Street  
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(866) 896-LDEQ  
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\*BR - Baton Rouge  
NO - New Orleans  
SHV - Shreveport  
LCH - Lake Charles

LAF - Lafayette  
THX - Thibodaux  
MON - Monroe  
ALX - Alexandria

Highest Ozone  
AQI Days For  
Baton Rouge

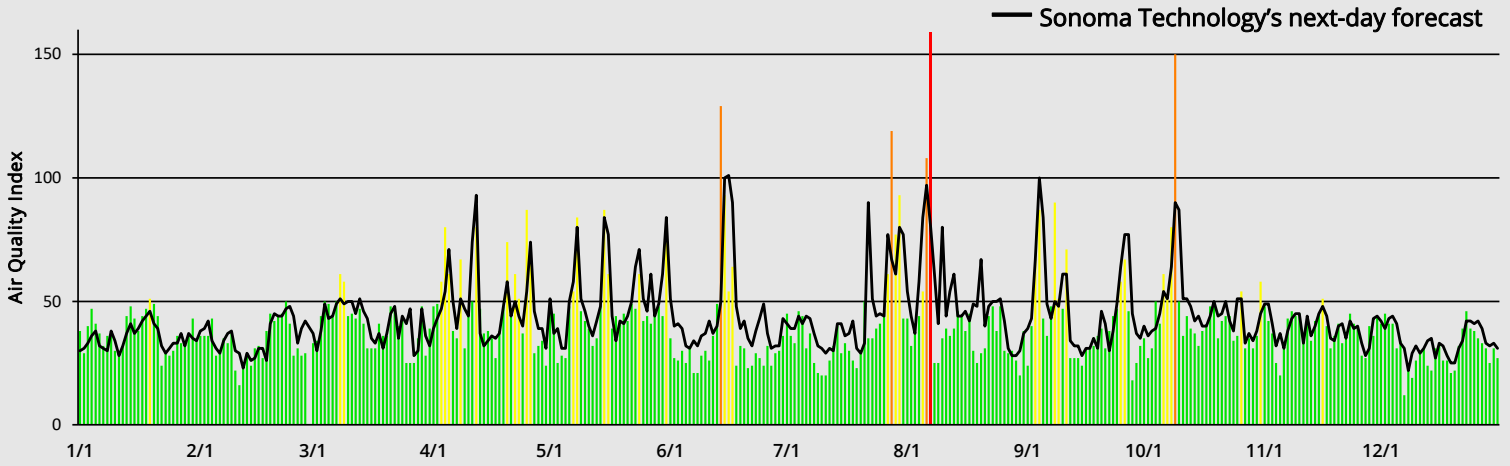
**159** August 7  
Capitol /  
Dutchtown  
Ozone

**150** October 9  
Port Allen  
Ozone

**129** June 14  
Carville  
Ozone

**119** July 28  
Dutchtown  
Ozone

## Baton Rouge Ozone



Highest PM<sub>2.5</sub>  
AQI Days For  
Baton Rouge

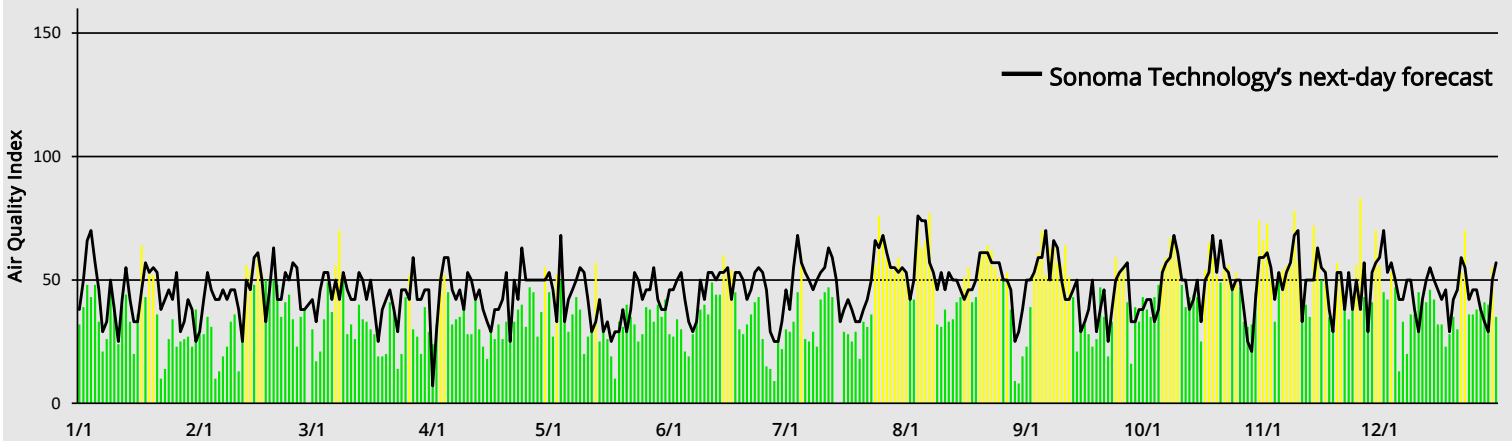
**83** November 26  
French  
Settlement  
PM<sub>2.5</sub>

**78** November 9  
French  
Settlement  
PM<sub>2.5</sub>

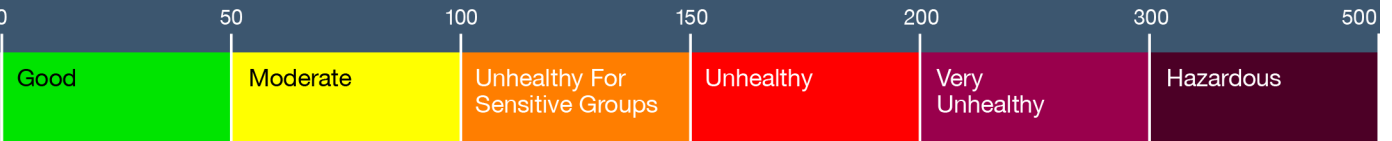
**77** August 7  
French  
Settlement  
PM<sub>2.5</sub>

**76** July 25  
French  
Settlement  
PM<sub>2.5</sub>

## Baton Rouge PM<sub>2.5</sub>



*No bars are shown for monitors or dates for which data were not available.*



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Highest Ozone  
AQI Days For  
Lafayette

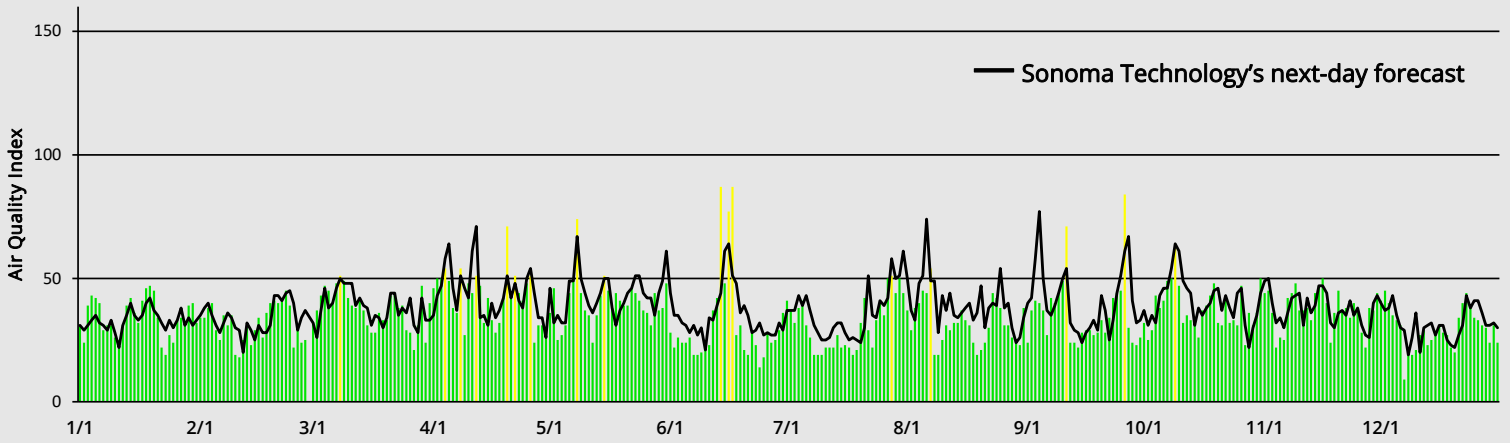
**87**  
Ozone  
June 14, 17  
St. Martinville  
and Lafayette

**84**  
Ozone  
September 26  
St. Martinville

**77**  
Ozone  
June 16  
St. Martinville

**74**  
Ozone  
May 8  
St. Martinville

## Lafayette Ozone



Highest PM<sub>2.5</sub>  
AQI Days For  
Lafayette

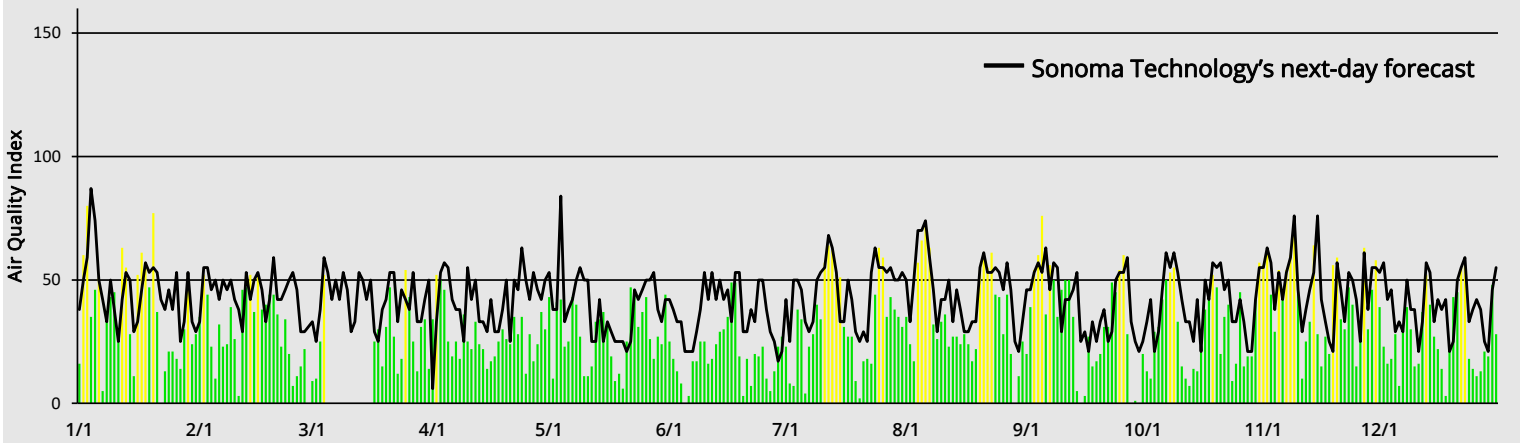
**80**  
PM<sub>2.5</sub>  
January 3  
Lafayette

**77**  
PM<sub>2.5</sub>  
January 20  
Lafayette

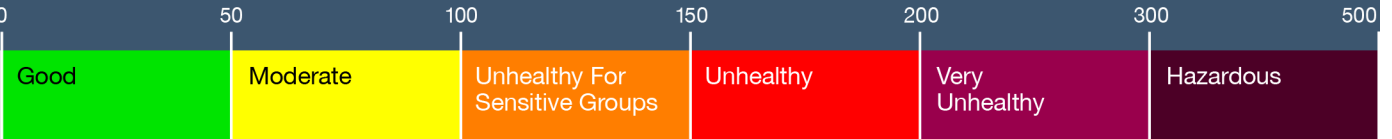
**76**  
PM<sub>2.5</sub>  
September 5  
Lafayette

**74**  
PM<sub>2.5</sub>  
August 6  
Lafayette

## Lafayette PM<sub>2.5</sub>



No bars are shown for monitors or dates for which data were not available.



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Highest Ozone  
AQI Days For  
Lake Charles

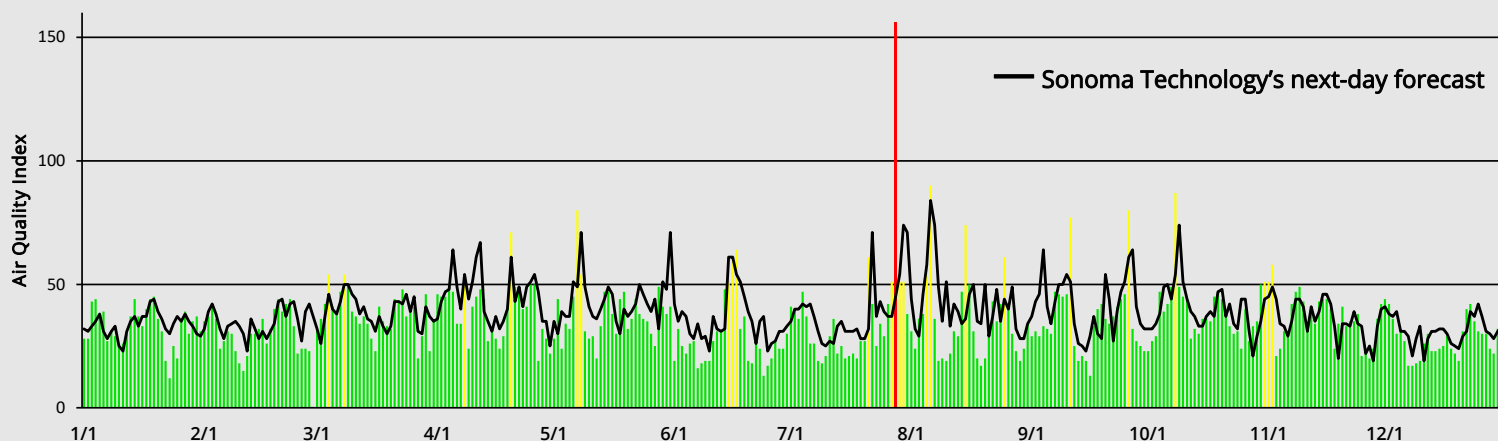
**156**  
Ozone  
July 28  
Carlyss

**90**  
Ozone  
August 6  
Vinton

**87**  
Ozone  
October 8  
Carlyss

**80**  
Ozone  
May 7, September 26  
Vinton

## Lake Charles Ozone



Highest PM<sub>2.5</sub>  
AQI Days For  
Lake Charles

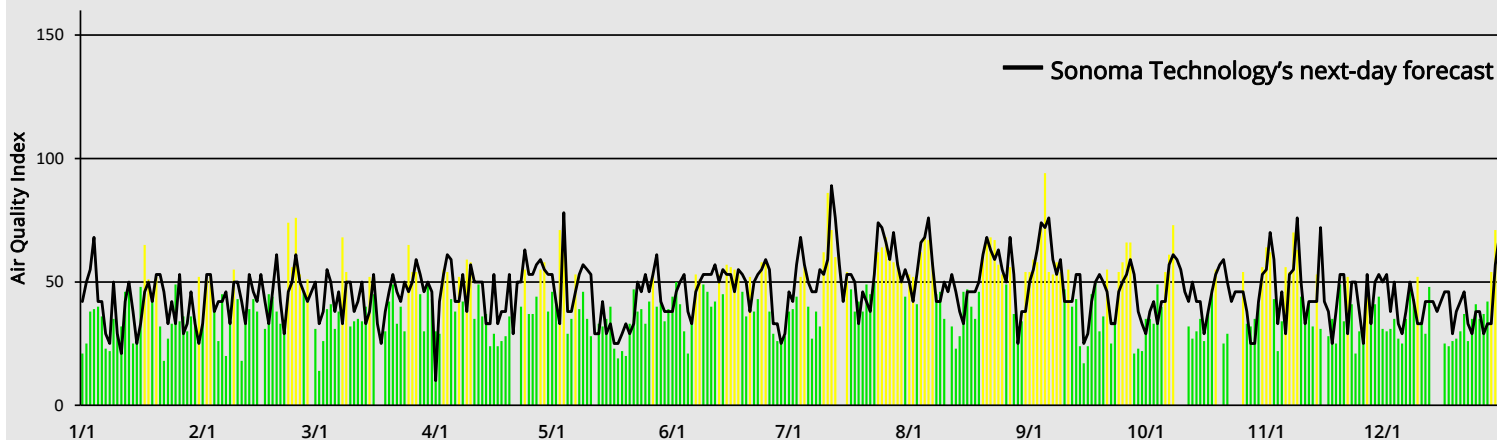
**94**  
PM<sub>2.5</sub>  
September 5  
Westlake

**86**  
PM<sub>2.5</sub>  
July 11  
Westlake

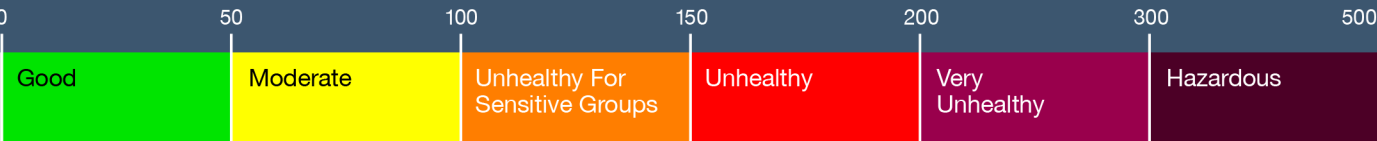
**76**  
PM<sub>2.5</sub>  
February 25  
Westlake

**74**  
PM<sub>2.5</sub>  
February 23  
Westlake

## Lake Charles PM<sub>2.5</sub>



No bars are shown for monitors or dates for which data were not available.



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Highest Ozone  
AQI Days For  
Monroe

87  
Ozone

June 15  
Monroe

74  
Ozone

June 17  
Monroe

64  
Ozone

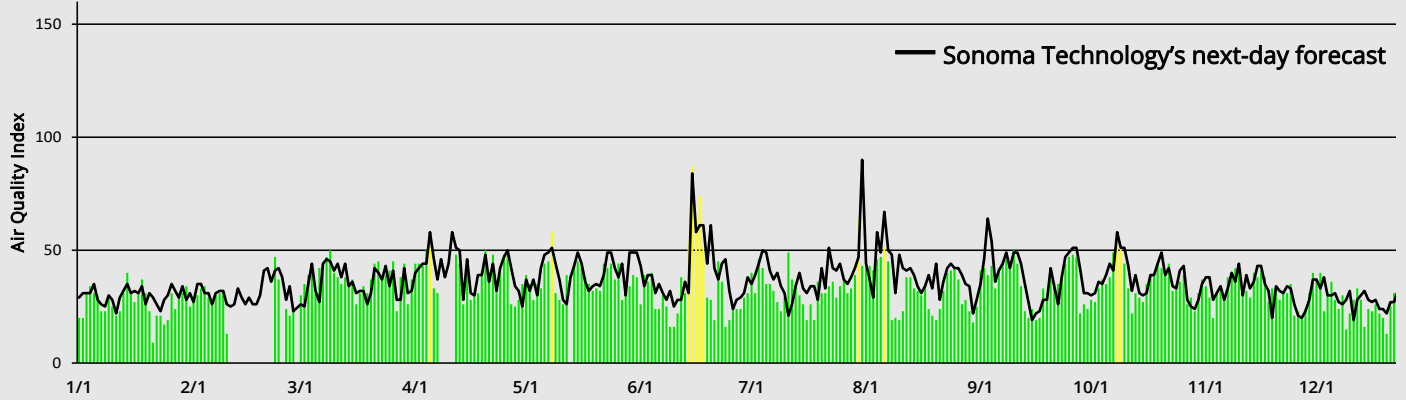
June 16, July 30  
Monroe

58  
Ozone

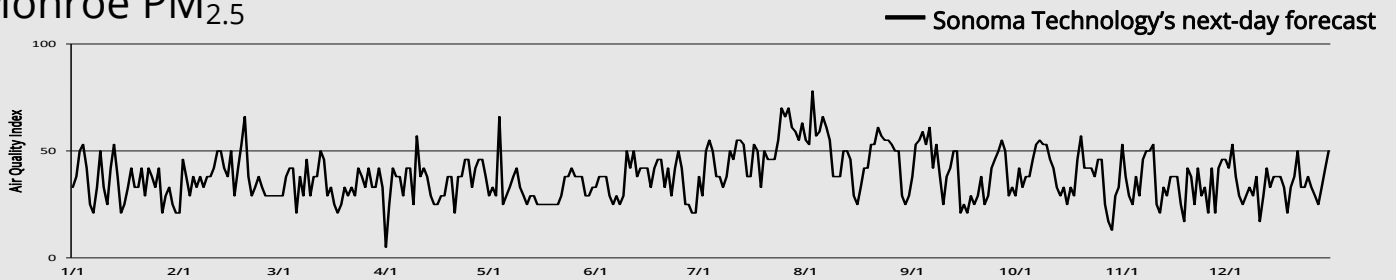
May 8  
Monroe

Observational PM<sub>2.5</sub> data are not measured for Monroe and Alexandria, and observational ozone data are not measured for Alexandria.

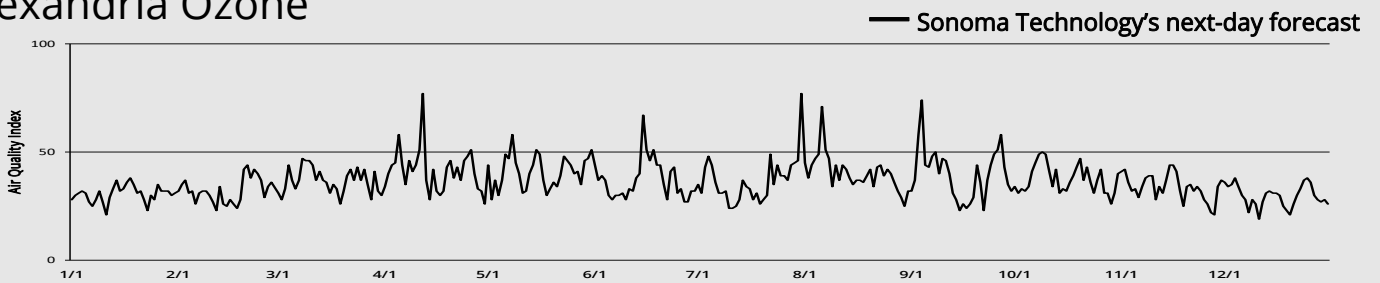
## Monroe Ozone



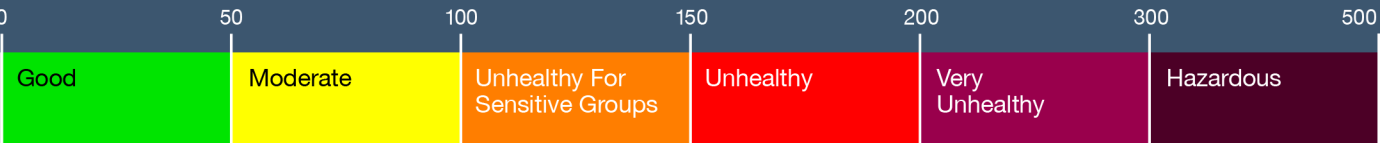
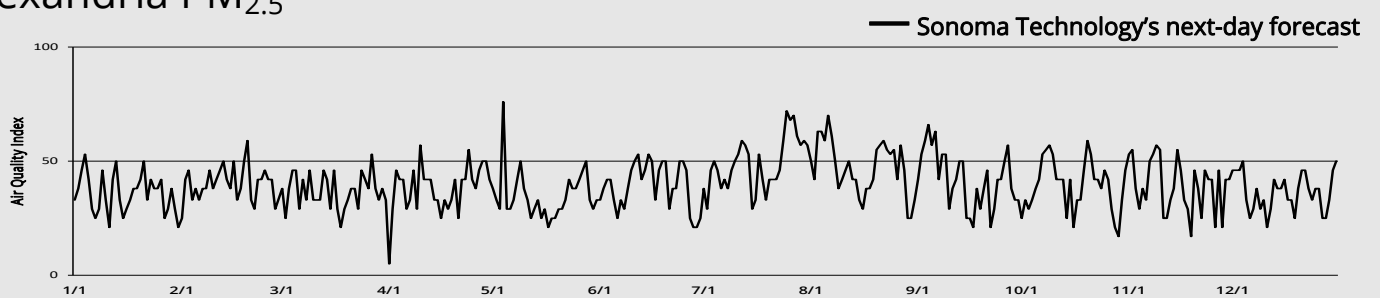
## Monroe PM<sub>2.5</sub>



## Alexandria Ozone



## Alexandria PM<sub>2.5</sub>



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Highest Ozone  
AQI Days For  
New Orleans

108  
Ozone

June 14  
Garyville

105  
Ozone

August 6, 7  
Kenner

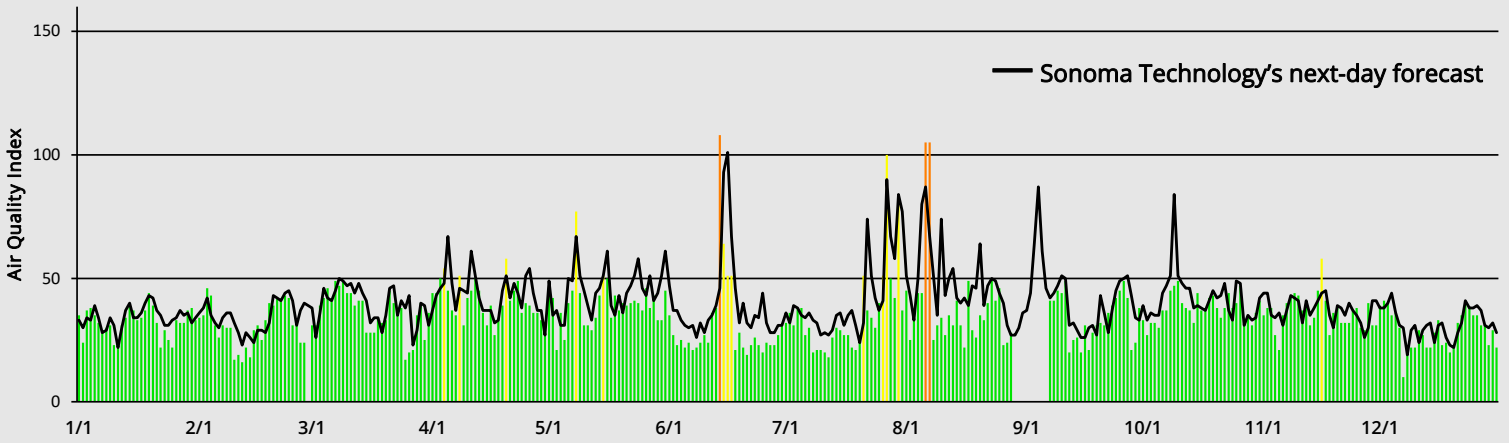
100  
Ozone

July 27  
Kenner

80  
Ozone

July 30  
Garyville

## New Orleans Ozone



Highest PM<sub>2.5</sub>  
AQI Days For  
New Orleans

77  
PM<sub>2.5</sub>

September 6  
Chalmette Vista

73  
PM<sub>2.5</sub>

September 8  
Chalmette Vista

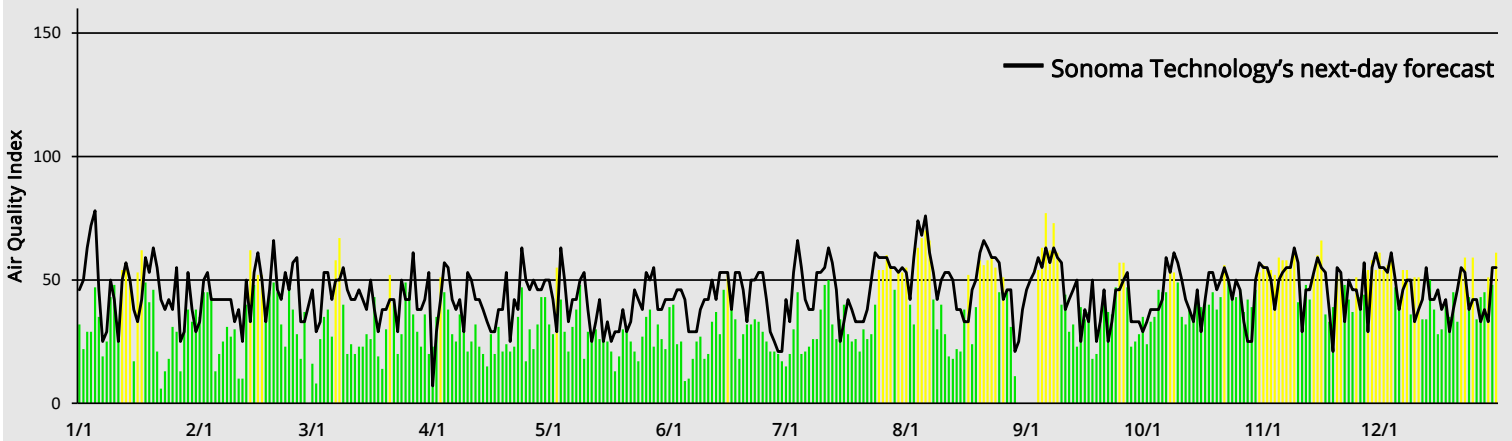
70  
PM<sub>2.5</sub>

August 6  
Chalmette Vista

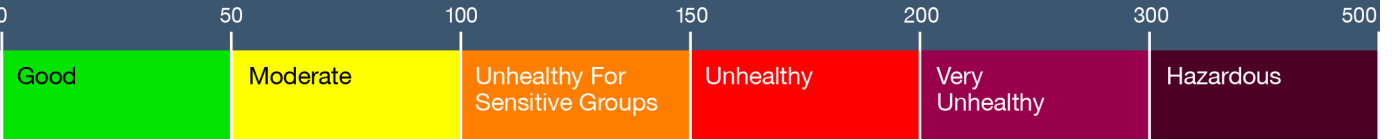
67  
PM<sub>2.5</sub>

March 8, August 5  
Chalmette Vista,  
Kenner

## New Orleans PM<sub>2.5</sub>



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Highest Ozone  
AQI Days For  
Shreveport

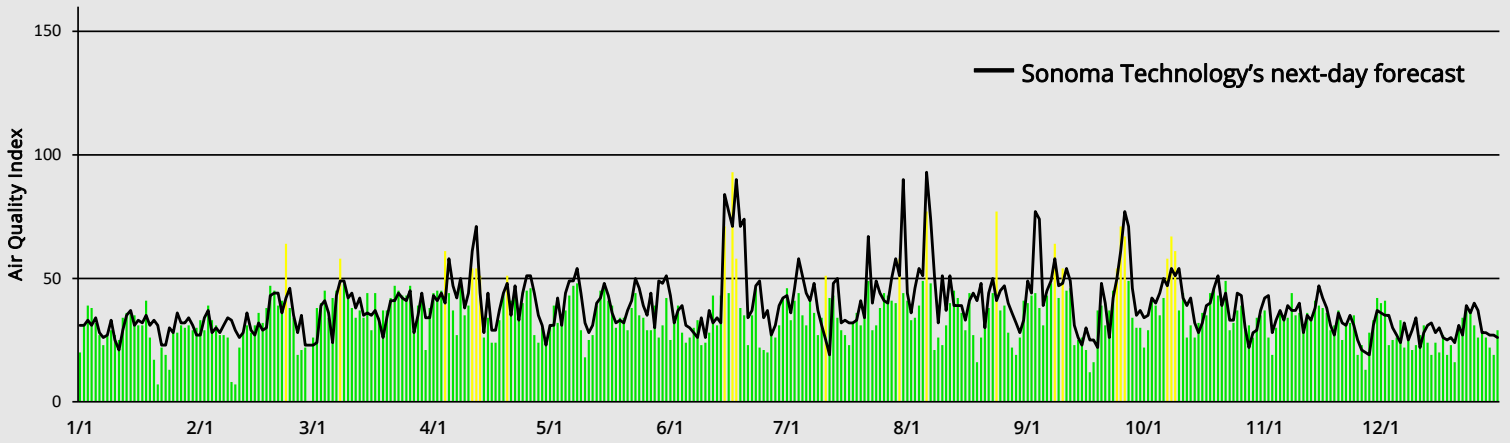
**93** June 17  
Dixie  
Ozone

**77** August 6, 24  
Dixie & Shreveport  
Airport  
Ozone

**71** June 15, September 25  
Dixie & Shreveport  
Airport  
Ozone

**67** September 26, October 8  
Dixie  
Ozone

## Shreveport Ozone



Highest PM<sub>2.5</sub>  
AQI Days For  
Shreveport

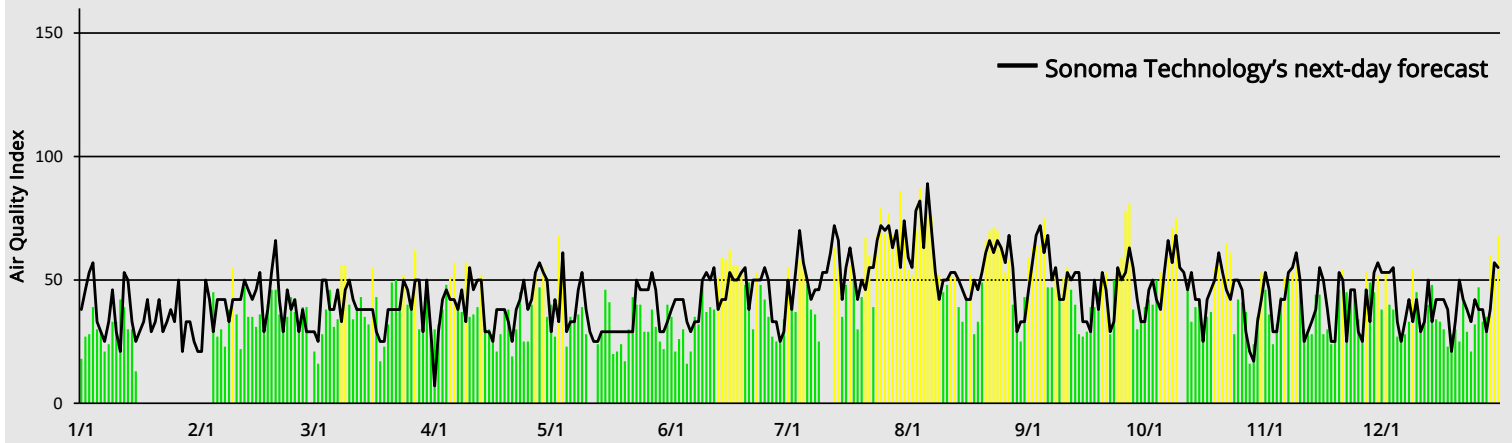
**87** August 4  
Shreveport  
Airport  
PM<sub>2.5</sub>

**86** July 30  
Shreveport  
Airport  
PM<sub>2.5</sub>

**81** September 27  
Shreveport  
Airport  
PM<sub>2.5</sub>

**79** July 25  
Shreveport  
Airport  
PM<sub>2.5</sub>

## Shreveport PM<sub>2.5</sub>



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Highest Ozone  
AQI Days For  
Thibodaux

84  
Ozone

May 7  
Thibodaux

71  
Ozone

September 26  
Thibodaux

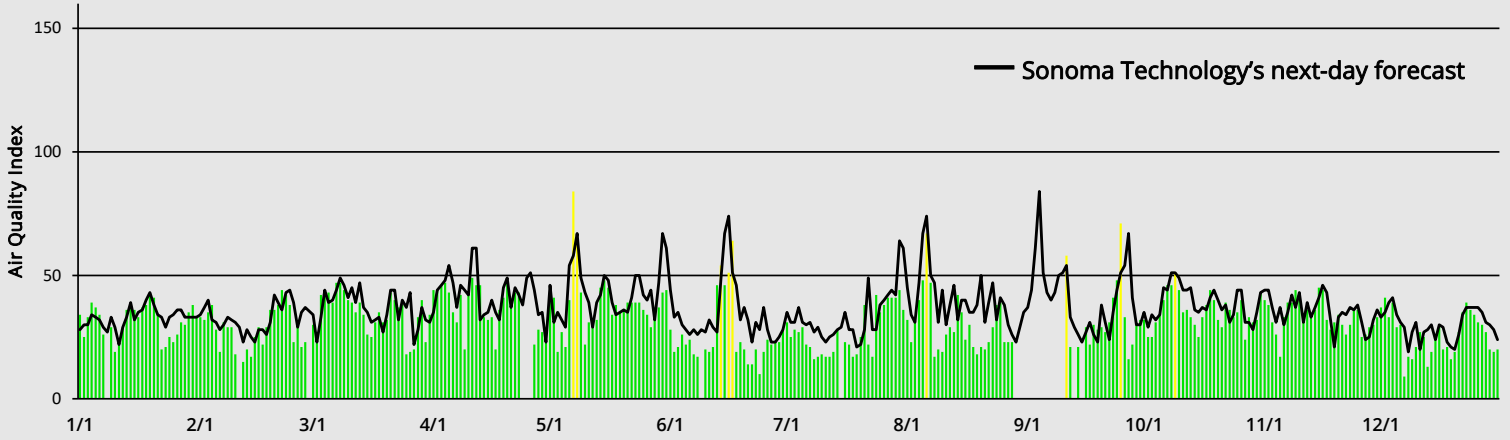
67  
Ozone

May 8, August 6  
Thibodaux

64  
Ozone

June 17  
Thibodaux

## Thibodaux Ozone



Highest PM<sub>2.5</sub>  
AQI Days For  
Thibodaux

73  
PM<sub>2.5</sub>

June 16  
Thibodaux

69  
PM<sub>2.5</sub>

August 6, 7  
Thibodaux

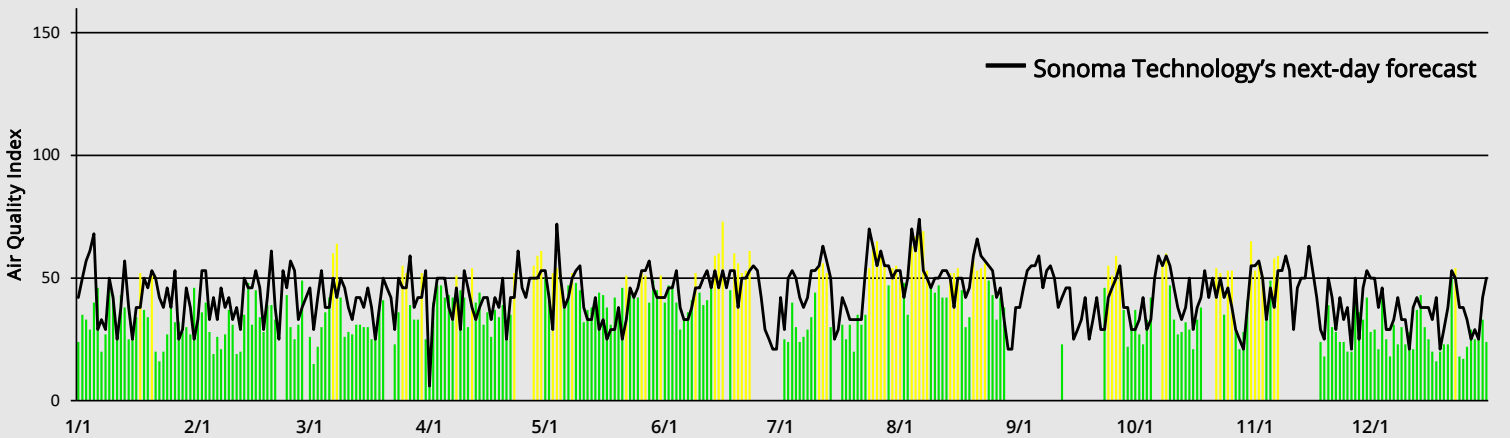
67  
PM<sub>2.5</sub>

August 5  
Thibodaux

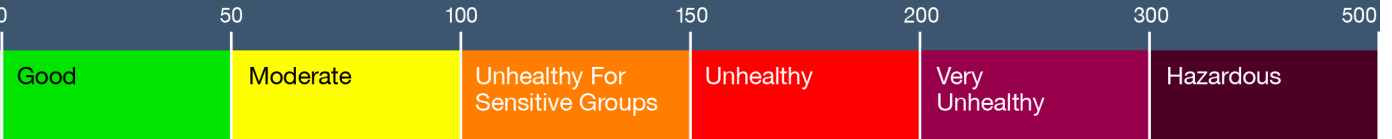
65  
PM<sub>2.5</sub>

July 26, October 31  
Thibodaux

## Thibodaux PM<sub>2.5</sub>



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# Meteorological Summary, 2021

2021	Alexandria	Baton Rouge	Lafayette	Lake Charles	Monroe	New Orleans	Shreveport	Thibodaux
Average temperature (°F)	68.1	68.6	69.7	70.0	66.8	71.7	67.9	69.6
Average Max temperature (°F)	78.3	78.5	78.8	79.0	77.4	79.4	78.6	78.7
Average Min temperature (°F)	57.9	58.7	60.7	60.9	56.3	63.9	57.2	60.6
Number of days above 90°F	86	51	60	57	76	58	96	54
Number of days above 95°F	25	0	7	6	19	16	30	4
Number of days below 32°F	19	11	8	7	20	2	15	6
Total Precipitation (inches)	54.56	79.87	79.44	72.26	45.77	86.08	46.13	86.37

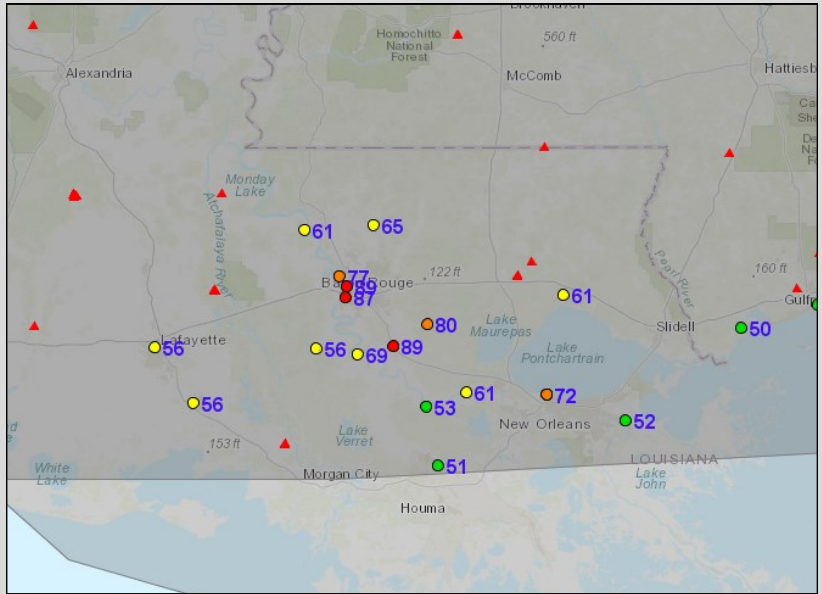
*Meteorological data courtesy of the National Weather Service.*



# High Ozone Days

## August 7, Baton Rouge: 159 AQI

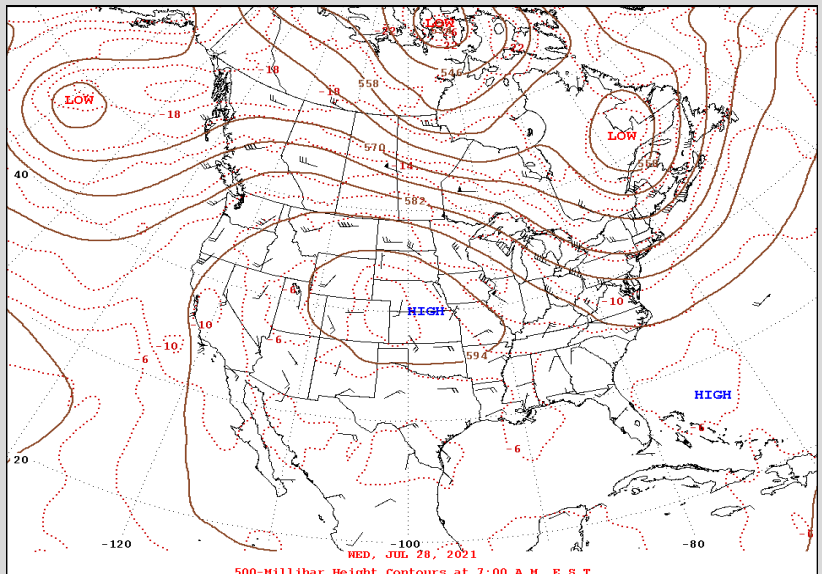
The highest observed AQI level of the year in Louisiana occurred on August 7 in Baton Rouge. On this day, a stationary front caused pollutants to converge over the Baton Rouge area. In addition, smoke from wildfires in the western U.S. and Canada contributed to ozone precursors across southeastern Louisiana, where PM<sub>2.5</sub> concentrations climbed above 30 ug/m<sup>3</sup> during the day. Furthermore, mostly sunny skies and highs in the low-90s enhanced ozone formation. These conditions, along with pollutant carryover from the previous day, resulted in an observed AQI reading of 159 at the Capitol and Dutchtown monitoring sites, which is in the Unhealthy category.



**August 7:** Daily maximum 8-hour ozone concentrations in ppb (dots), satellite fire detections (red triangles), and NOAA smoke plume analysis (gray). Smoke and other ozone precursors converged over Baton Rouge along a stalled front, allowing AQI levels to climb into the Unhealthy category (red dots) (Courtesy: AirNow-Tech).

## July 28, Lake Charles: 156 AQI

The second highest observed AQI of the year occurred on July 28 in Lake Charles, when a strong ridge of high pressure aloft limited atmospheric mixing and brought hot temperatures to the central and southern U.S. Similar to the August 7 event discussed above, wildfire smoke from the western U.S. and Canada contributed to ozone precursors as the upper-level high circulated a large plume of smoke into Louisiana. Dispersion was also limited on this day due to light and variable winds at the surface, while partly sunny skies and high temperatures in the low-90s aided ozone development. These conditions led to an Unhealthy AQI level of 156 at the Carlyss monitoring site.



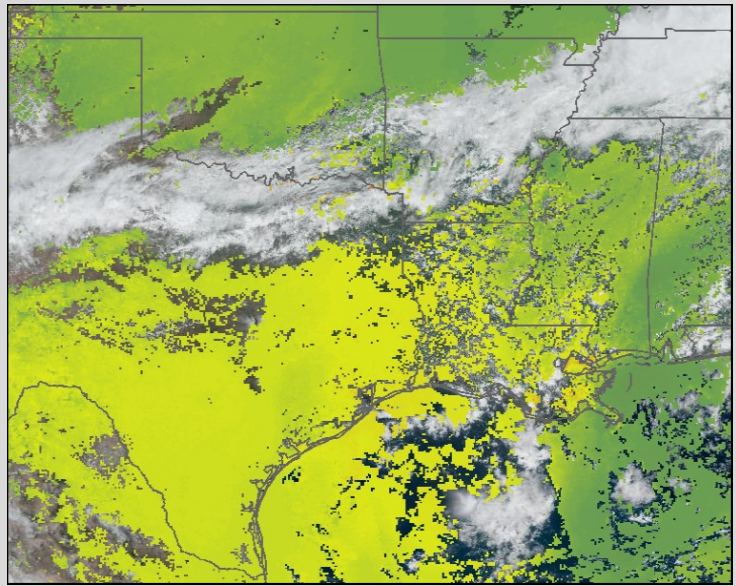
**July 28:** 500-mb analysis valid at 7:00 a.m. CDT. At this time, an upper-level high pressure system was the dominant weather feature across the central and southern U.S. Hot temperatures, limited mixing, and wildfire smoke rotating around the high pressure system led to Unhealthy AQI levels in Lake Charles (Courtesy: NOAA).



# High PM<sub>2.5</sub> Days

## September 5, Lake Charles: 94 AQI

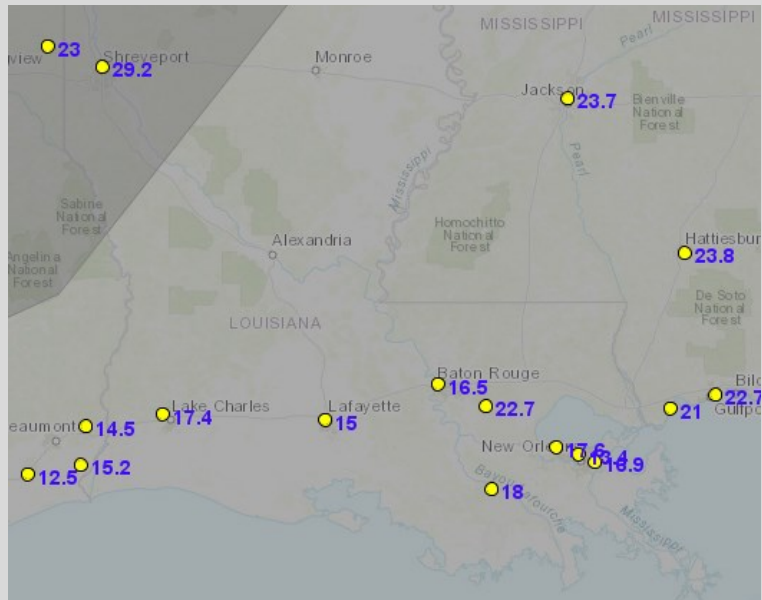
The year's highest levels of PM<sub>2.5</sub> in Louisiana occurred in Lake Charles on September 5, when an expansive area of high pressure aloft limited atmospheric mixing over the Bayou State. Meanwhile, light westerly winds at the surface were hindering dispersion and transporting a mixture of smoke and Saharan dust into the region. The smoke and dust created hazy conditions, reducing visibility down to 5 miles at times during the day. Despite isolated thunderstorms in Lake Charles during the evening, the 24-hour average concentration of PM<sub>2.5</sub> reached 32.4  $\mu\text{g}/\text{m}^3$ , which is in the high-Moderate category.



**September 5:** Satellite-derived PM<sub>2.5</sub> estimates from aerosol optical depth (AOD) show the broad area of smoke and Saharan dust (yellow shading) from Louisiana westward into Texas and southward into the western Gulf (Courtesy: NOAA).

## August 4, Shreveport: 87 AQI

The next highest PM<sub>2.5</sub> levels of 2021 occurred in Shreveport on August 4. On this day, light northeasterly winds limited dispersion and transported widespread wildfire smoke from Canada into Louisiana behind a cold front. Sinking air behind the front pushed aloft smoke to the surface, leading to increased particle levels across the Bayou State; AQI levels reached 87 in Shreveport, which is in the high-Moderate category. A surface high pressure system allowed the smoke to persist over Louisiana for several days before southerly winds finally improved dispersion on August 8.



**August 4:** Daily 24-hour PM<sub>2.5</sub> concentrations in  $\mu\text{g}/\text{m}^3$  (dots) and NOAA smoke plume analysis (gray). The smoke kept AQI levels in the Moderate category statewide through August 7 (Courtesy: AirNow-Tech).



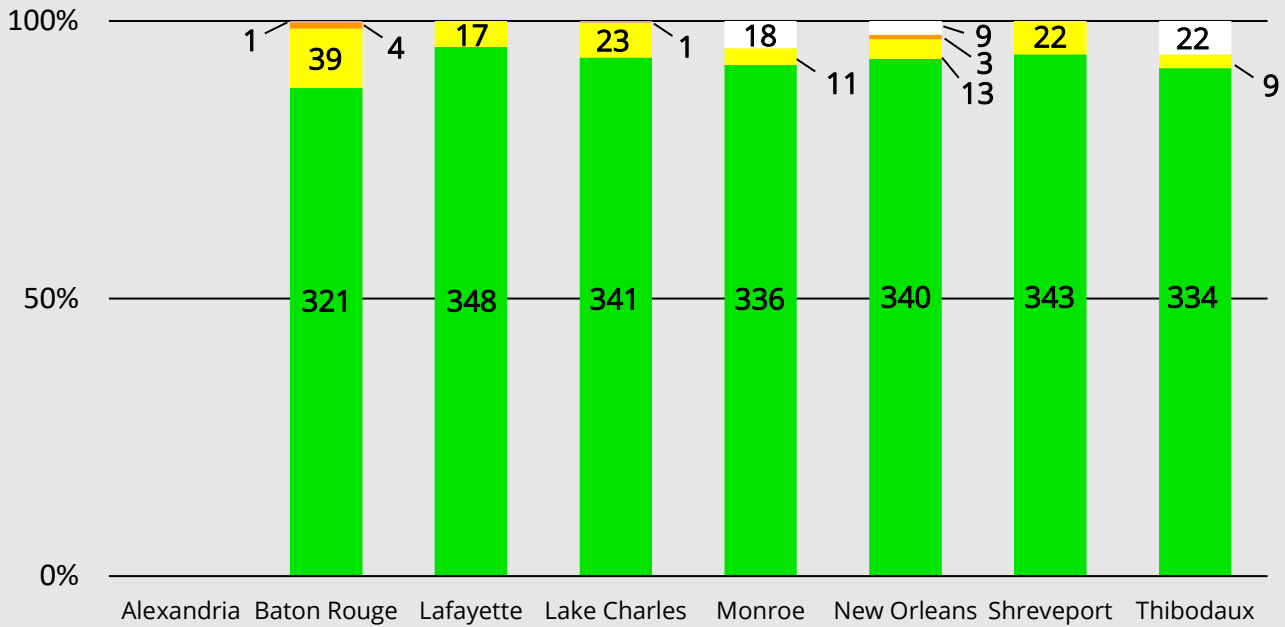
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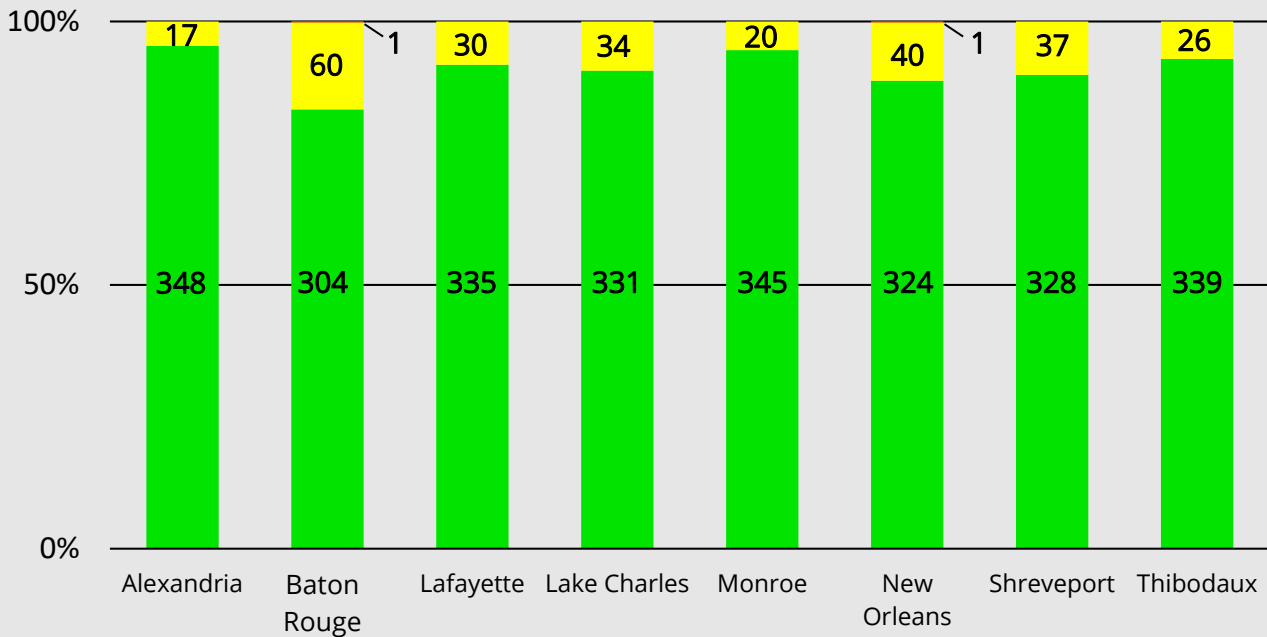
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# 2021 Ozone

## Count of Ozone Observations in Each AQI Category



## Count of Ozone Forecasts in Each AQI Category



Observational ozone data are not measured for Alexandria.



Missing

Good

Moderate

Unhealthy For Sensitive Groups

Unhealthy

Very Unhealthy

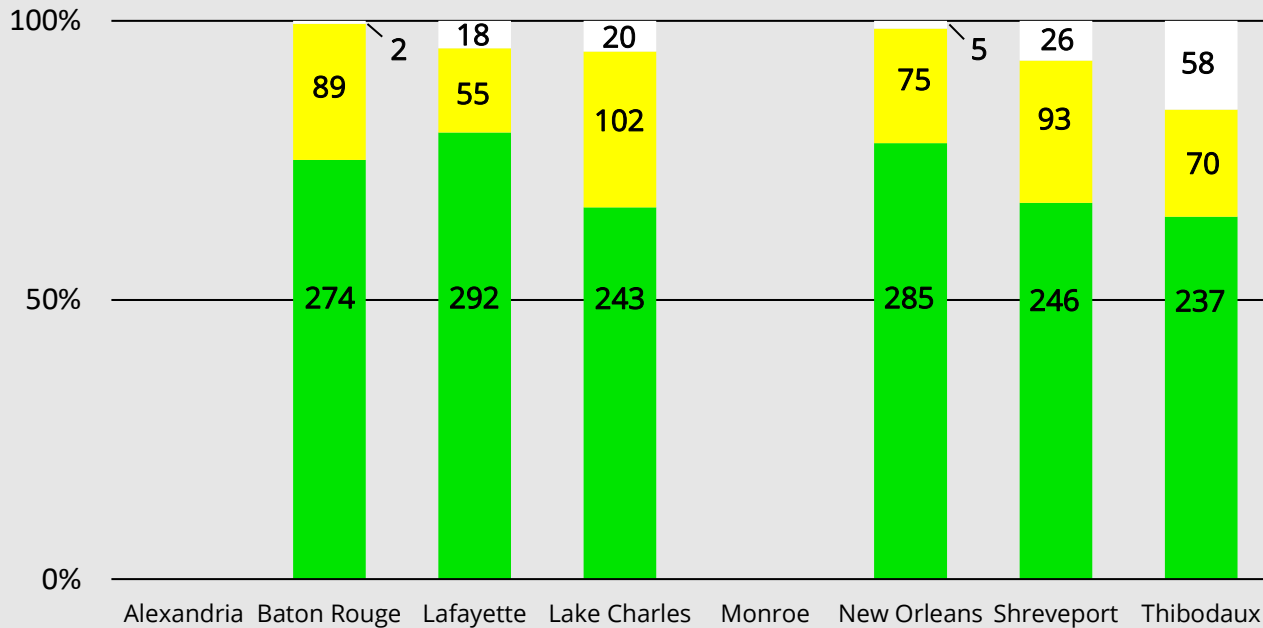
Hazardous

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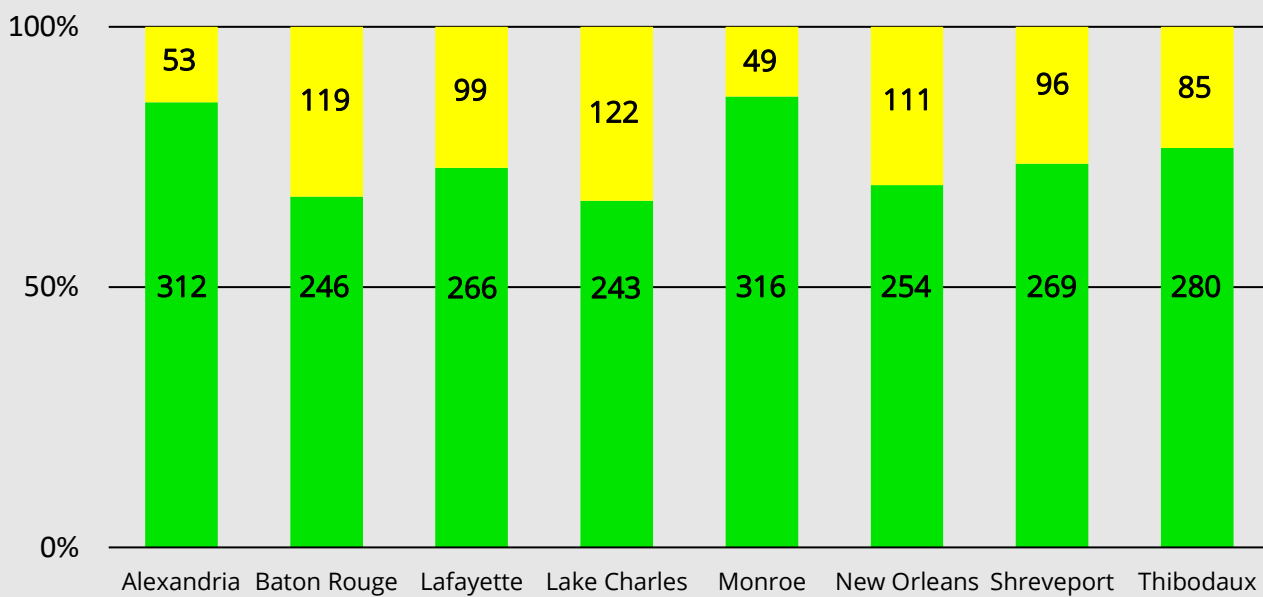
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## Count of PM<sub>2.5</sub> Observations in Each AQI Category



## Count of PM<sub>2.5</sub> Forecasts in Each AQI Category



*Observational PM<sub>2.5</sub> data are not measured for Monroe or Alexandria.*



Missing

Good

Moderate

Unhealthy For Sensitive Groups

Unhealthy

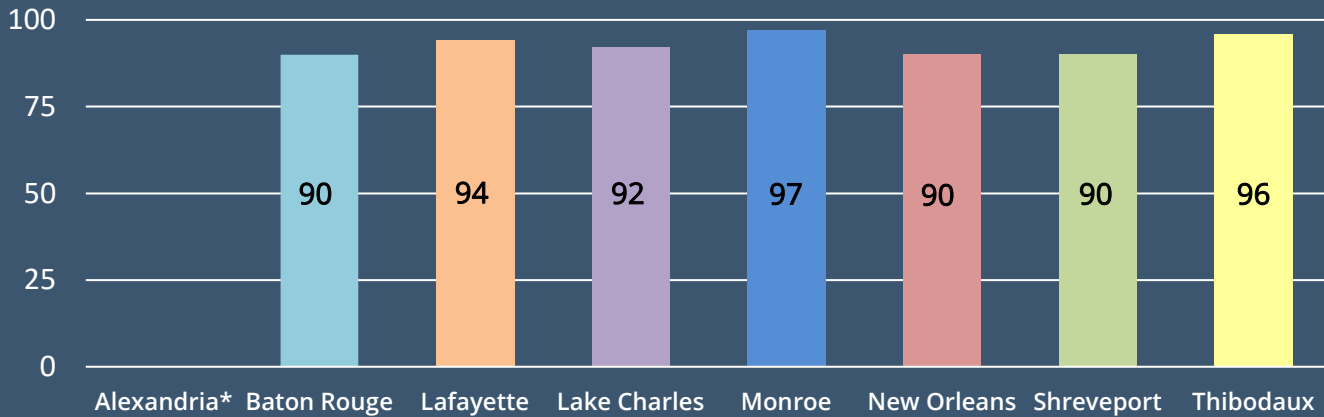
Very Unhealthy

Hazardous

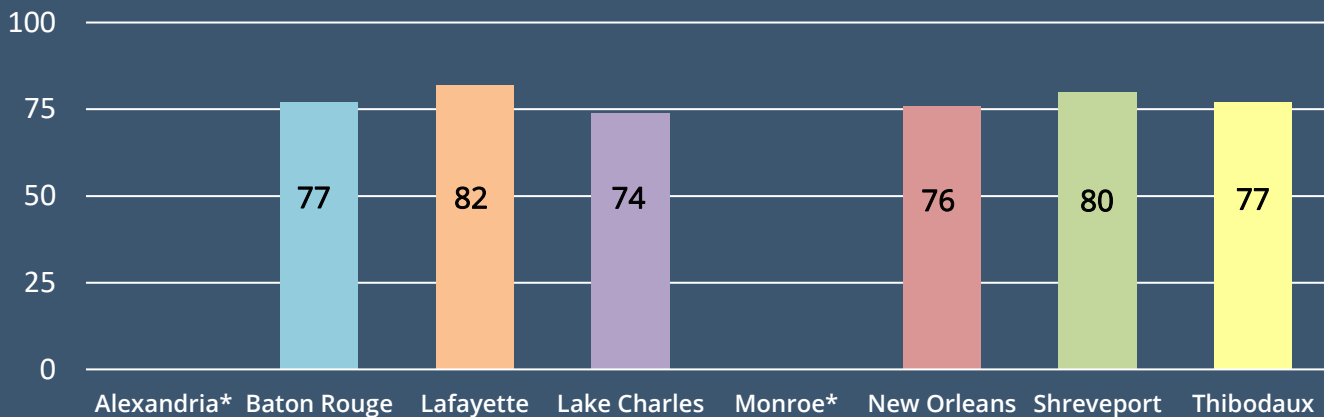
# 2021 Next-Day Forecast Statistics at the Good-to-Moderate Threshold

2021 next-day forecasting performance statistics are presented in the charts below. The statistics are calculated by comparing forecasted and observed AQI levels for the Good-to-Moderate threshold. Percent Correct indicates the percentage of forecasts that correctly predicted whether observations would be above or below a certain threshold. Because few USG days were predicted or observed in the Louisiana forecast cities in 2021, Moderate-to-USG forecast statistics are not shown.

## Percent Correct—Ozone



## Percent Correct—PM<sub>2.5</sub>



\*Observational PM<sub>2.5</sub> data are not measured for Monroe, and ozone and PM<sub>2.5</sub> data are not measured for Alexandria.

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