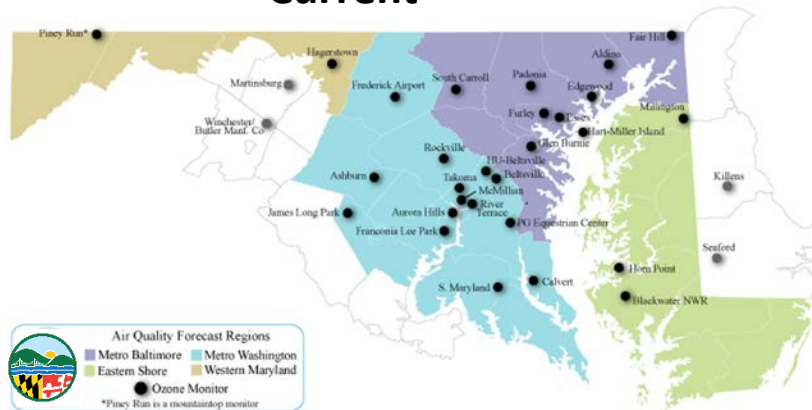




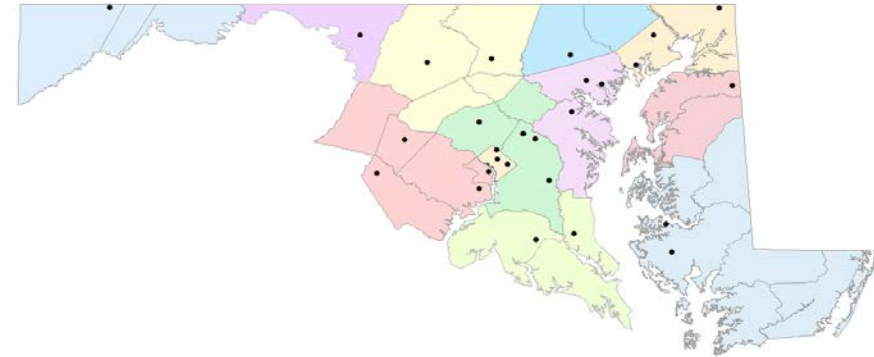
**Maryland**  
Department of  
the Environment

# Air Quality Forecasting Proposed Improvements for 2022

**Current**



**Future**



Joel Dreesen

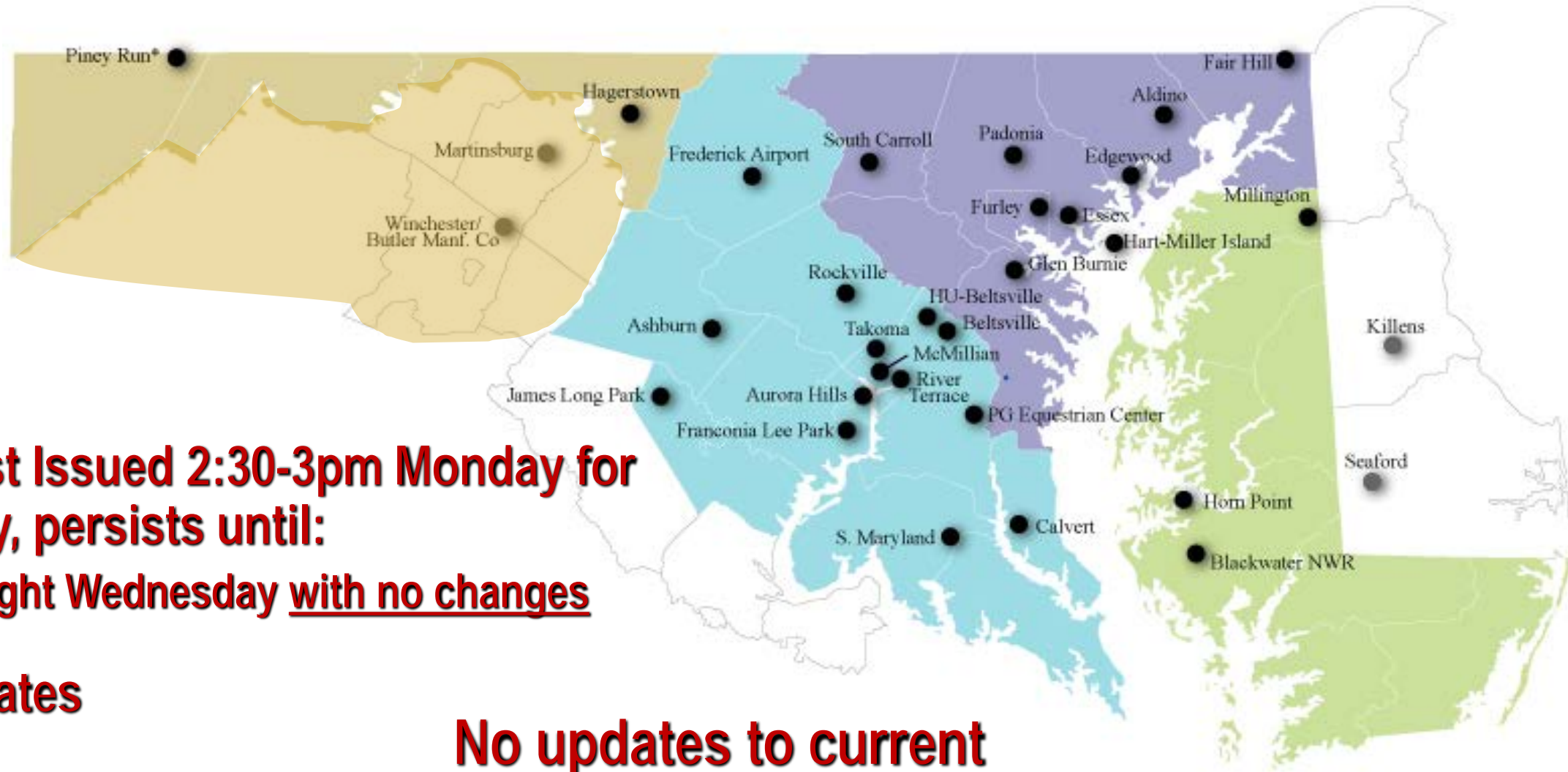
James Boyle

Mike Woodman

February 8, 2022



# Current Air Quality Forecasts



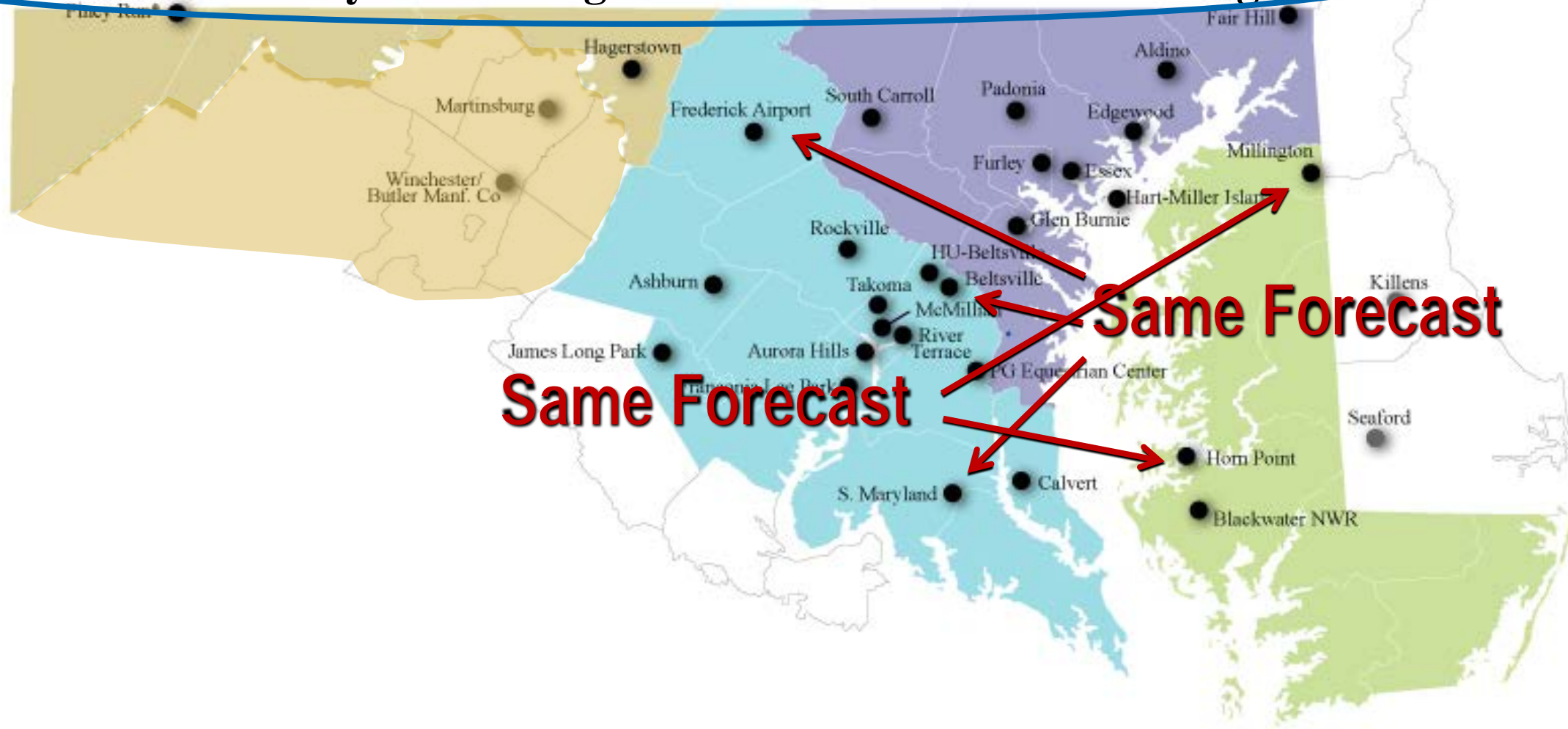
- **Forecast Issued 2:30-3pm Monday for Tuesday, persists until:**
  - **Midnight Wednesday with no changes**
- **No Updates**
- **No Cancellations**

**No updates to current system since 2006!!!!**



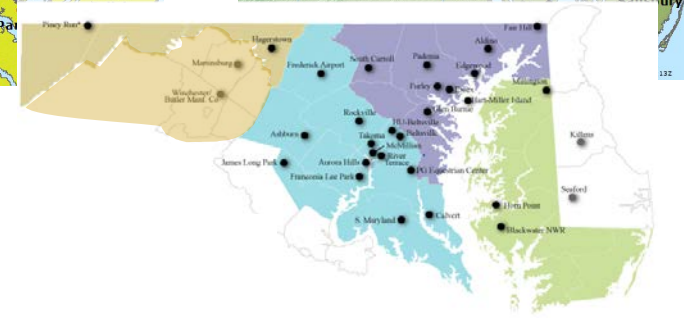
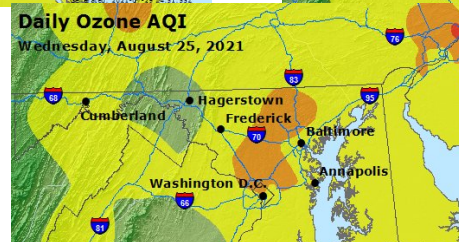
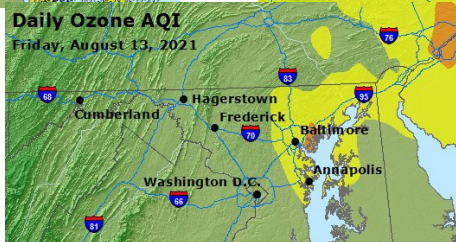
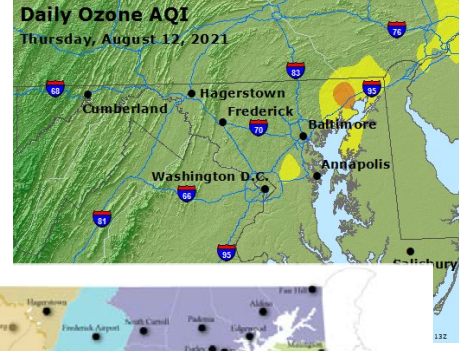
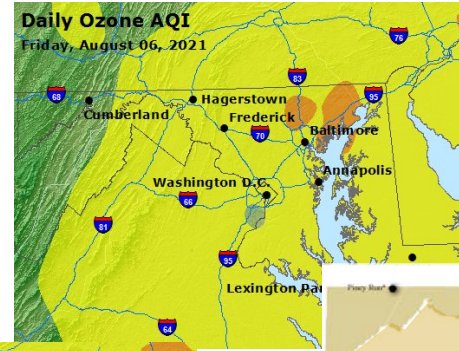
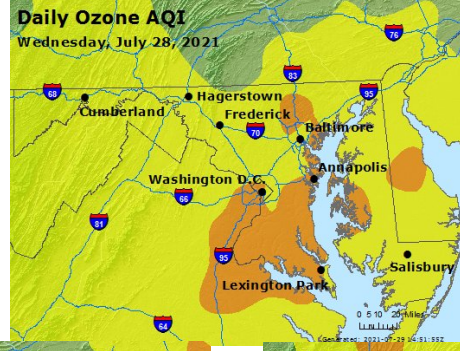
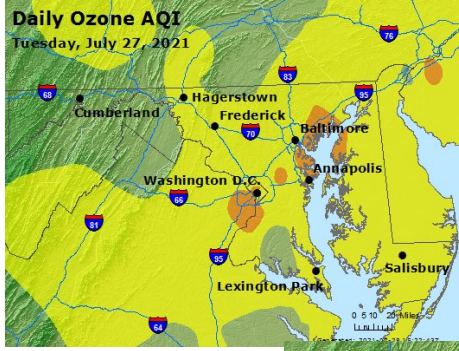
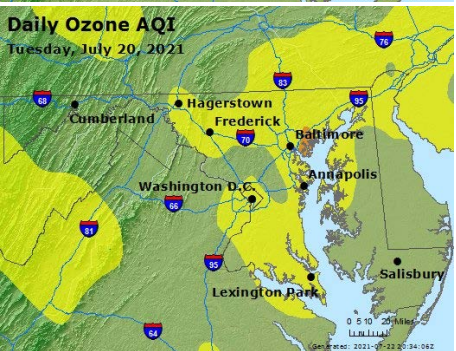
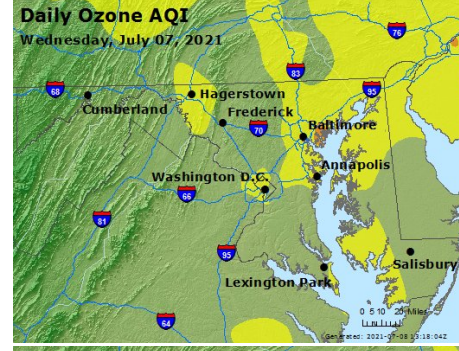
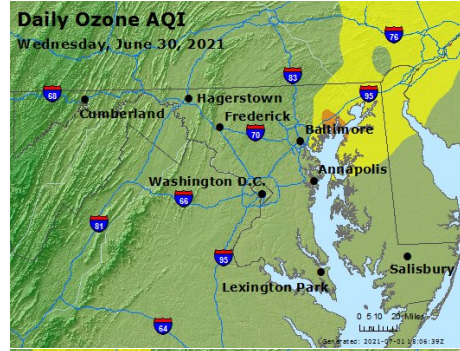
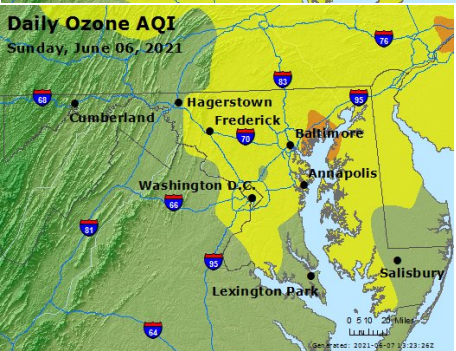
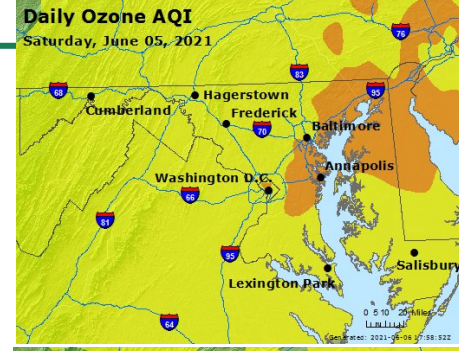
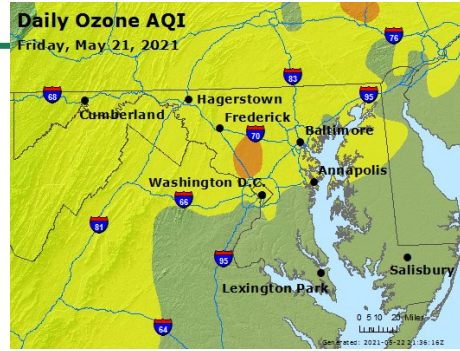
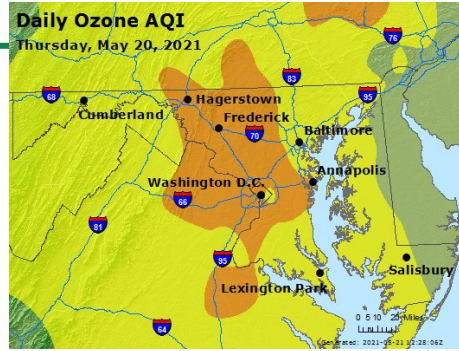
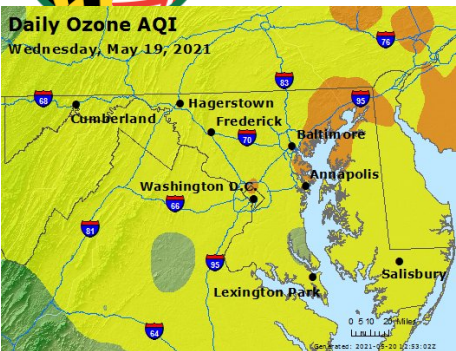
# Current Air Quality Forecasts

Forecasts are always for the highest monitor in each forecast region



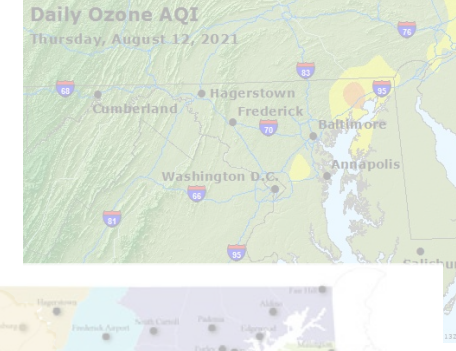
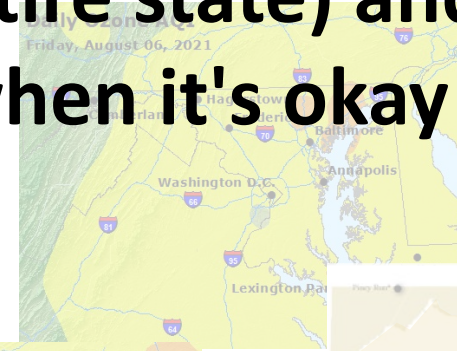
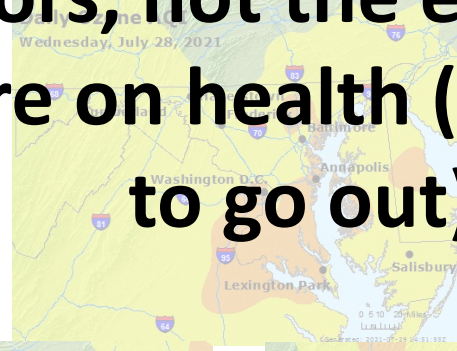
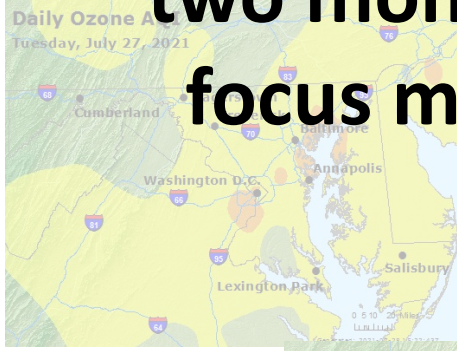
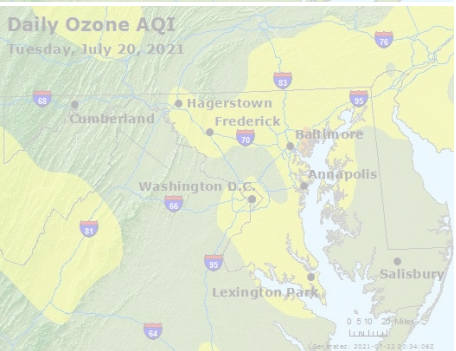
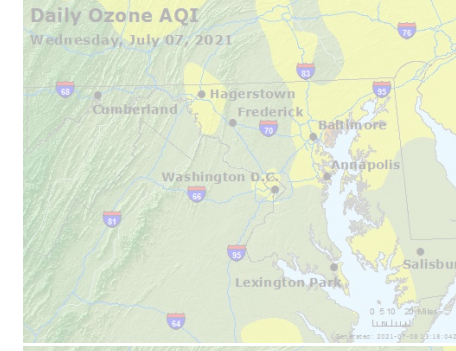
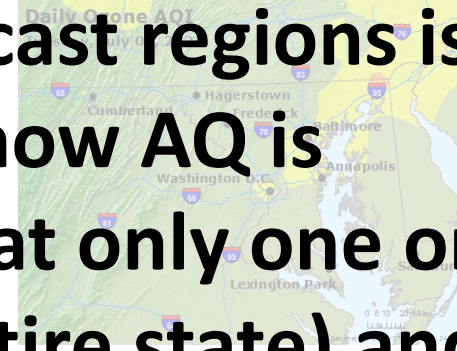
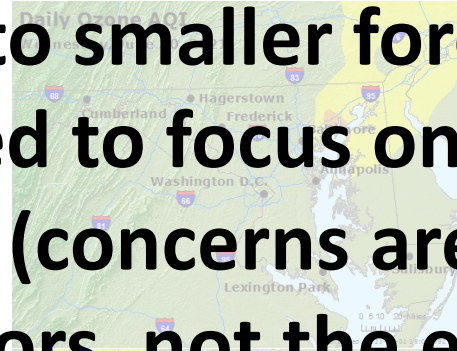
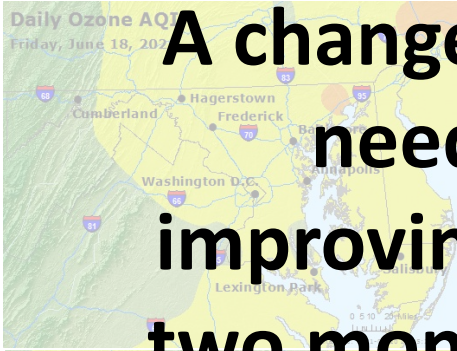
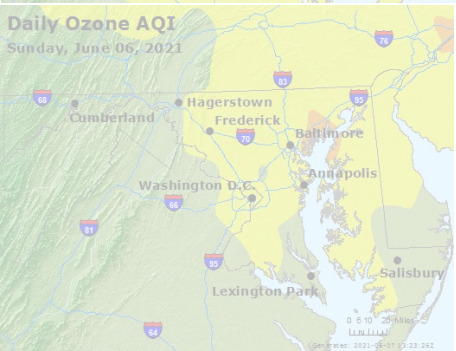
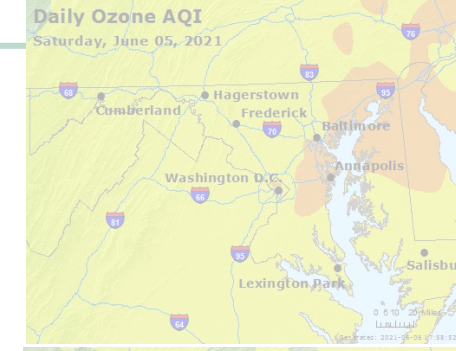
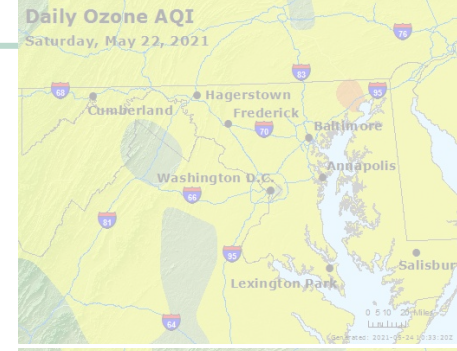
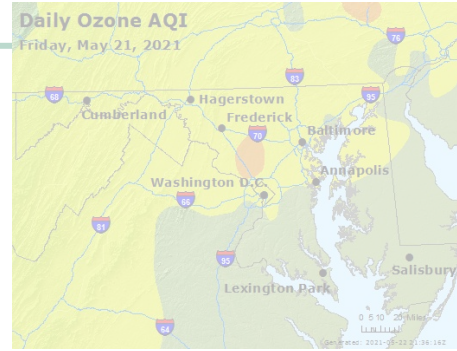
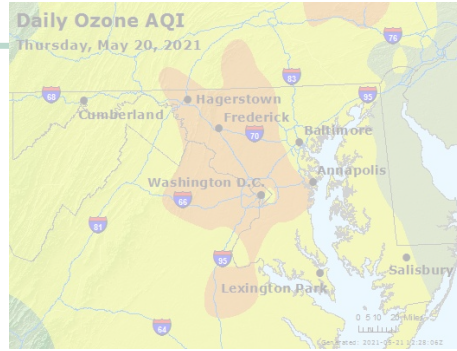
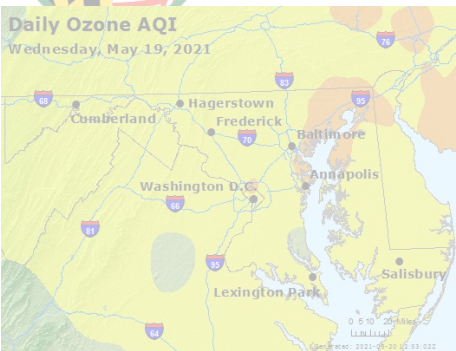


# Contemporary Ozone exceedances

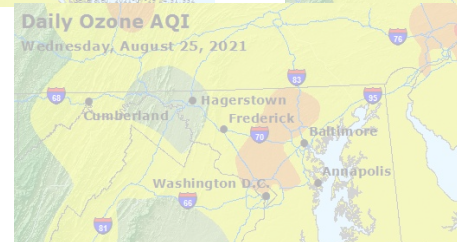




# Contemporary Ozone exceedances

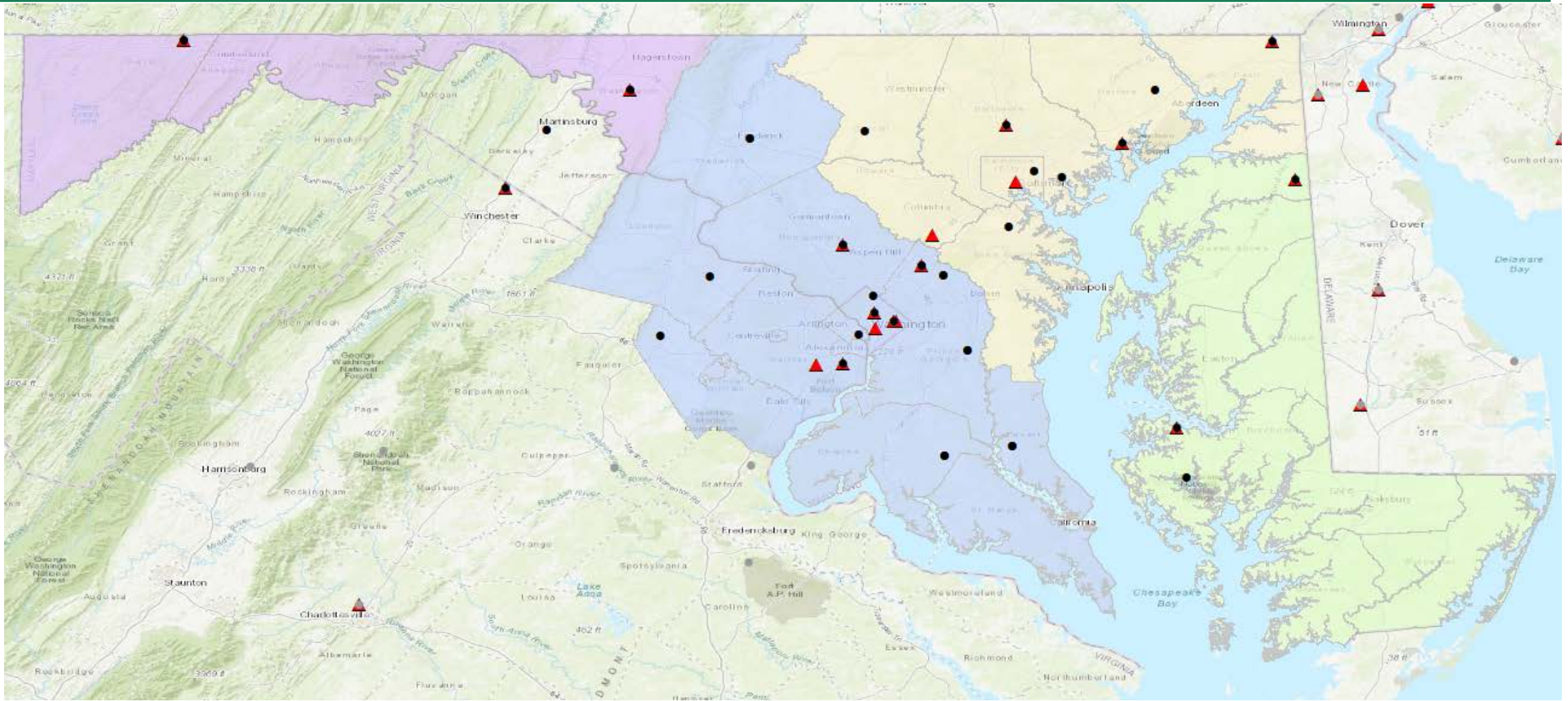


**A change to smaller forecast regions is needed to focus on how AQI is improving (concerns are at only one or two monitors, not the entire state) and focus more on health (when it's okay to go out).**



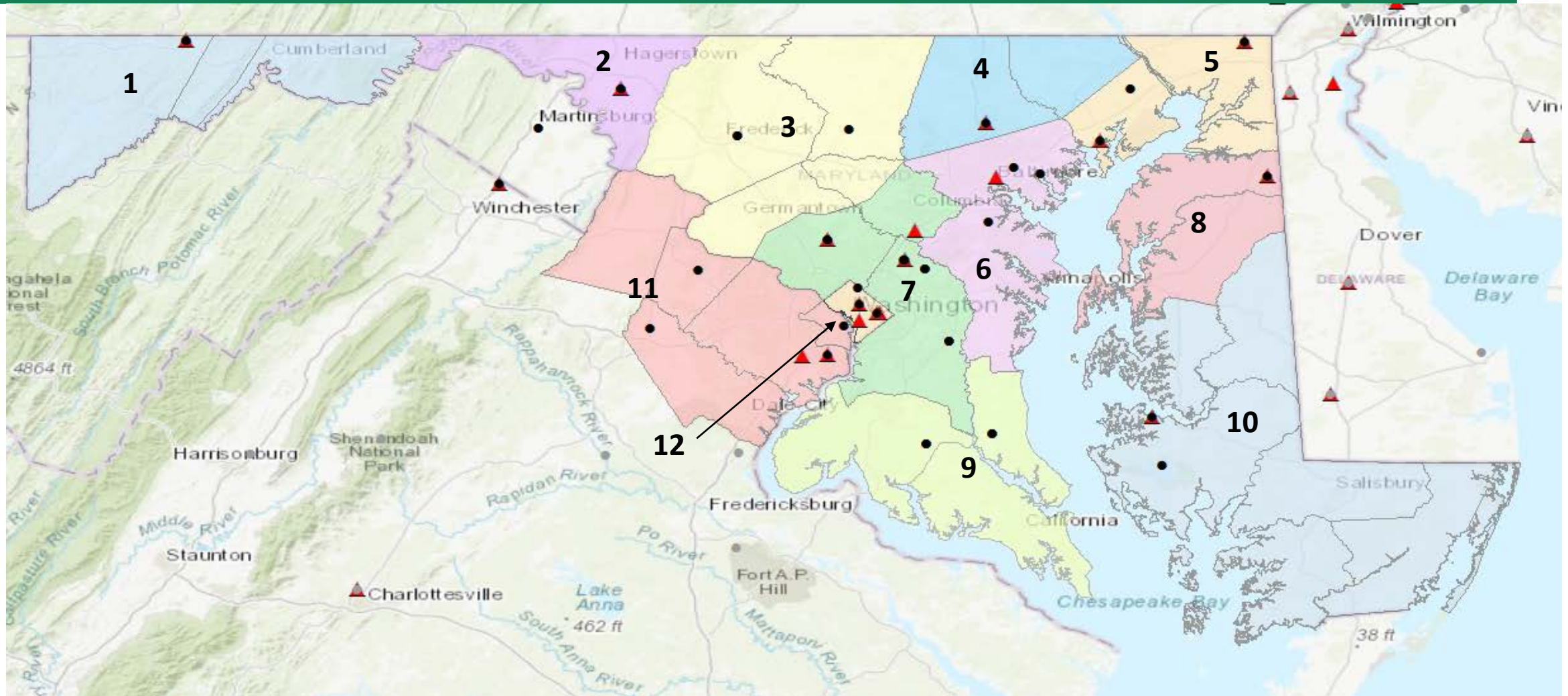


# Proposed Forecast Regions – Proposed changes





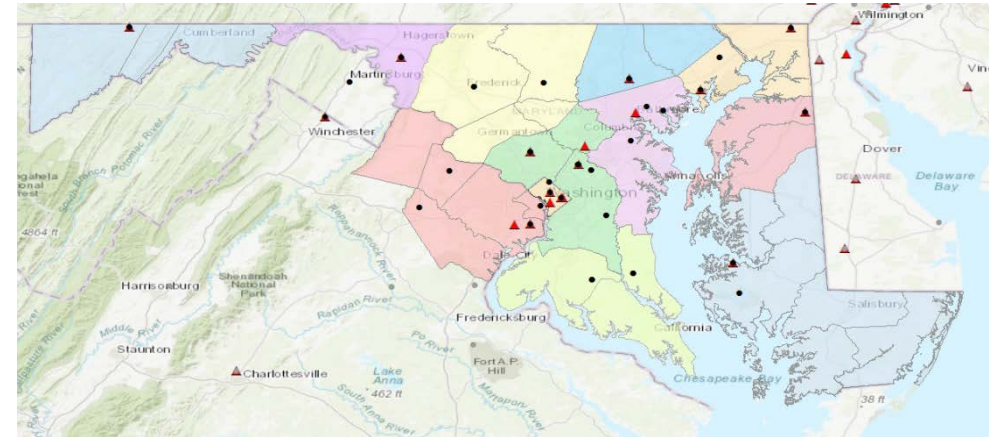
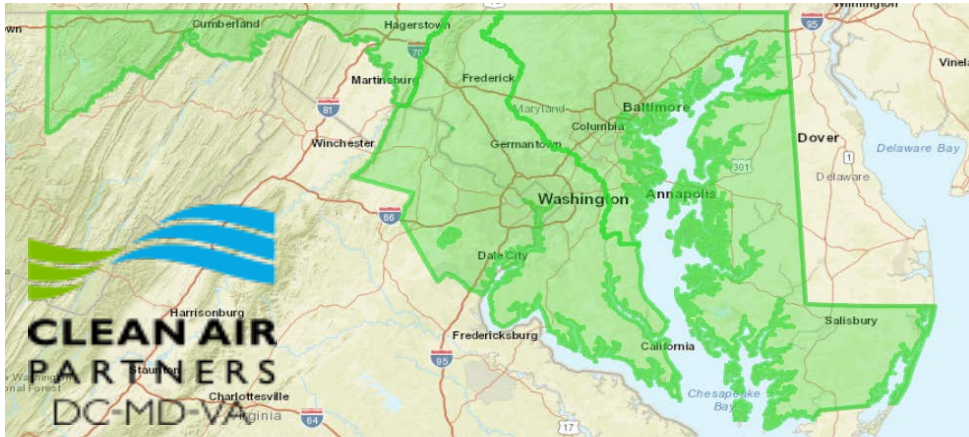
# Proposed Forecast Regions – Proposed changes





# Discussion/Next Steps

- Coordinate changes with
  - EPA Airnow
  - National Weather Service (NWS)







# Extra Material

---



# The Forecaster Dilemma

---

- Consider the following case:

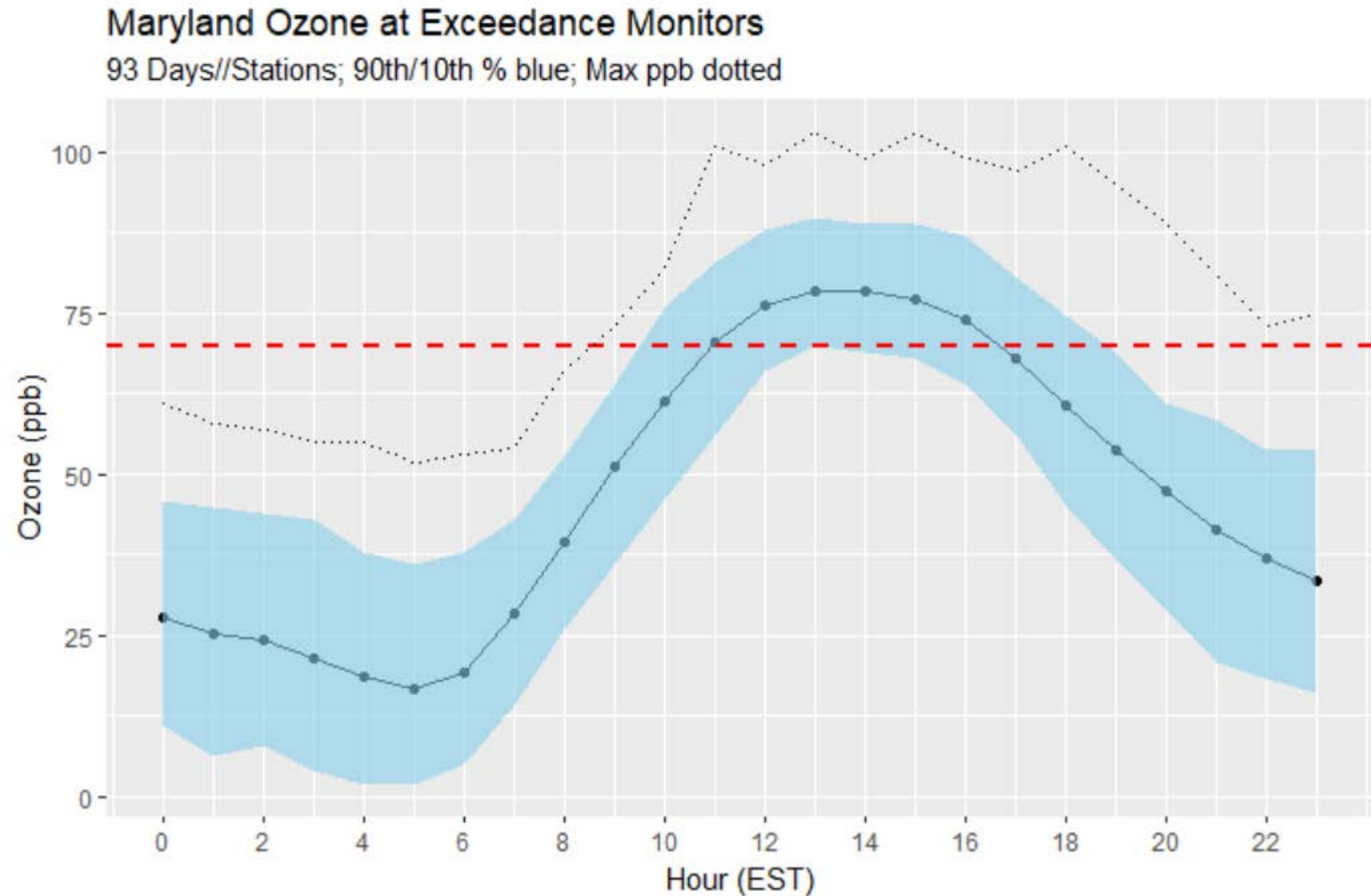
On a sunny July Wednesday, the high temperature is expected to be 95°F. Winds are weak from the Bay in the afternoon. Regional ozone is low (<50 ppbv regionally). The air quality models suggest max daily 8-hour average ozone of 71 ppb only near Essex. The max 8-hour at Padonia is expected to be 59 ppb, and 50 ppb in Carroll County.

***Should we issue a USG forecast for the Baltimore region when we know most areas are VERY low, or take a chance of missing a low-confidence, small spatial extent USG near Essex??***



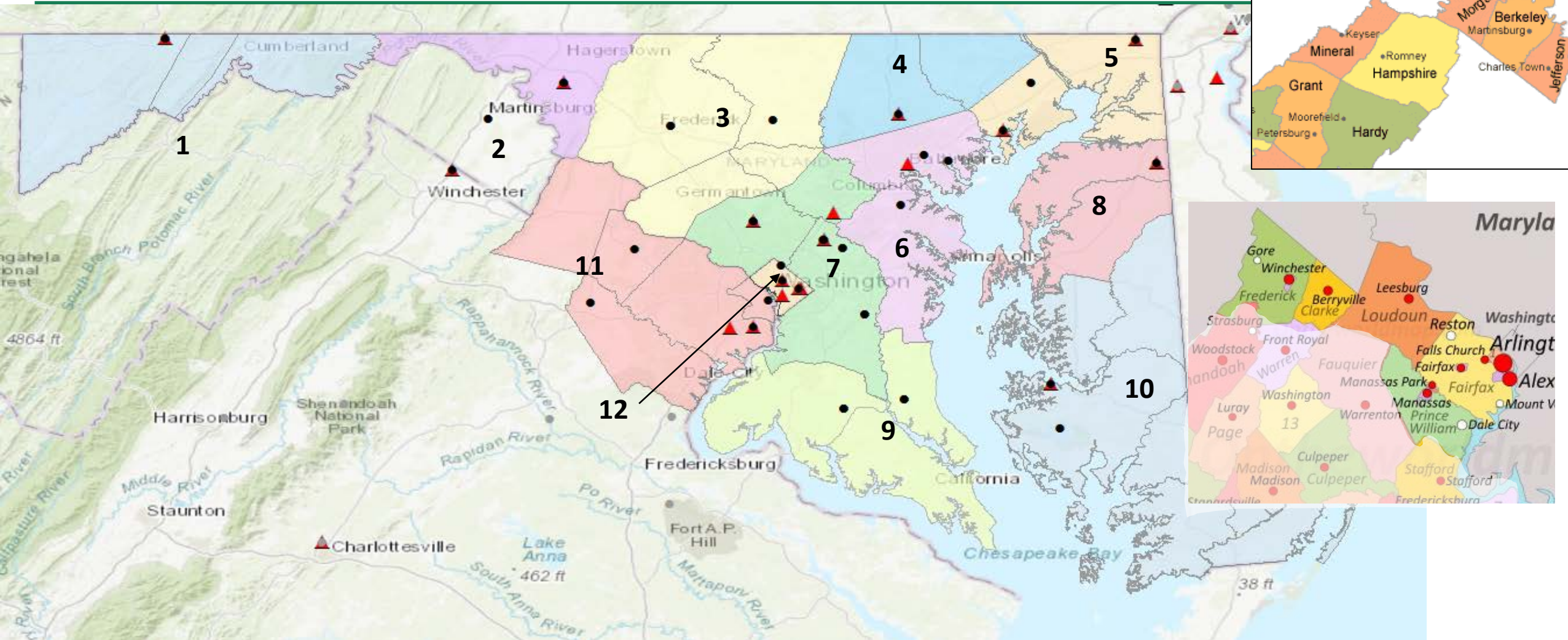
# Ozone Text and Alerts

- Sample Text:
- An air quality alert has been issued for Baltimore, for June 5, 2022 from 9am to 9pm for ground level ozone. Sensitive populations including young children, the elderly or those with chronic conditions should limit exposure to poor outdoor air quality during this period.
- PM<sub>2.5</sub> alerts are still valid midnight to midnight (issued directly after forecast).





# Proposed Forecast Regions – Proposed changes outside of Maryland





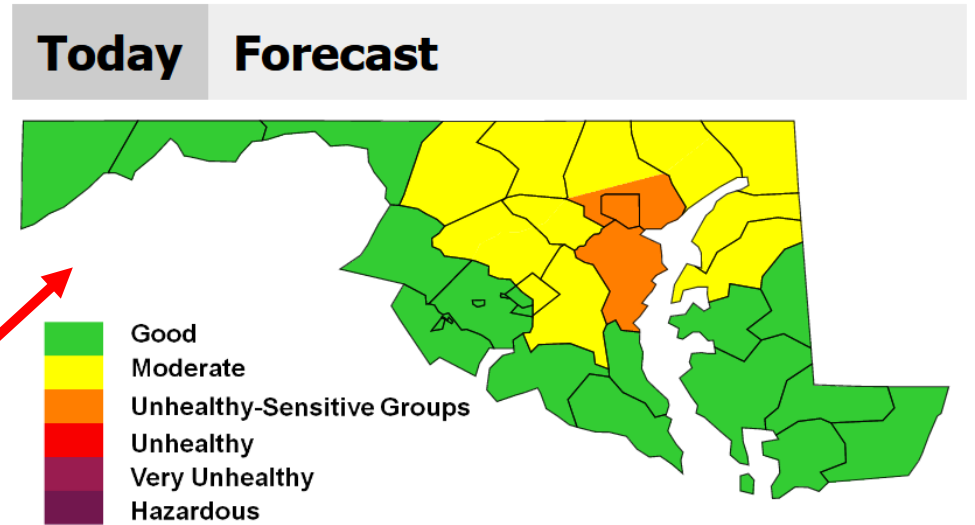
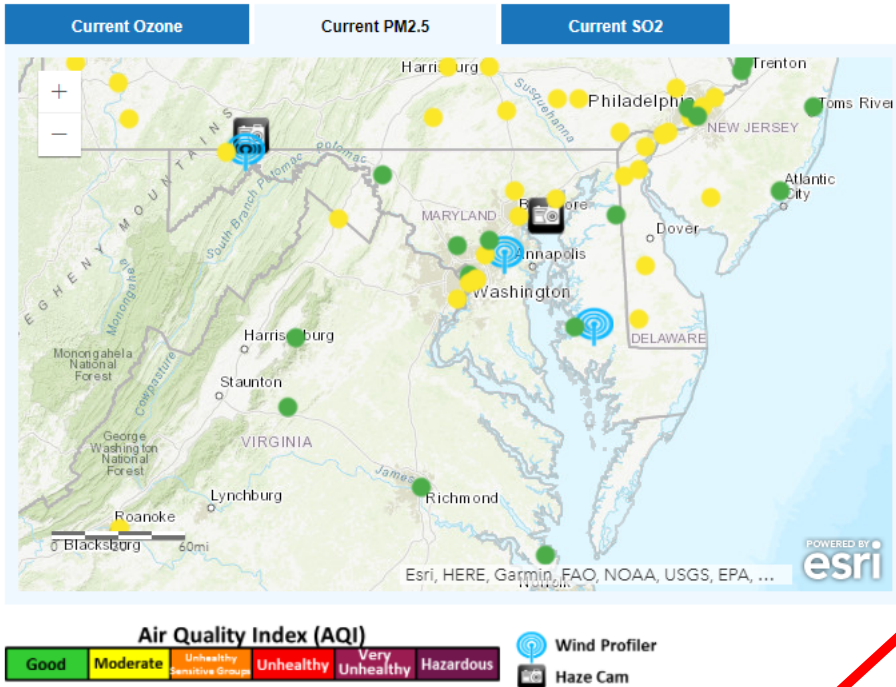
# Forecast Widget Update

## Air Monitoring

- Monitoring Network
- Air Quality Forecast
- Air Quality Facts
- Historical Data
- Quality of Air Summaries
- Seasonal Reports
- Air Monitoring Home

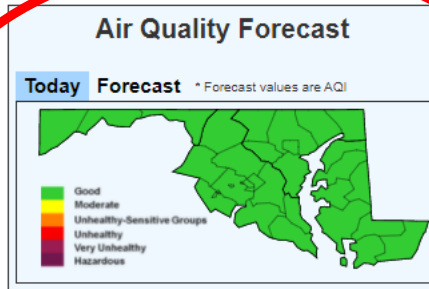
Lower Eastern Shore Ambient Air Quality Monitoring Project

## Current Air Quality Conditions



## Ambient Air Monitoring Program

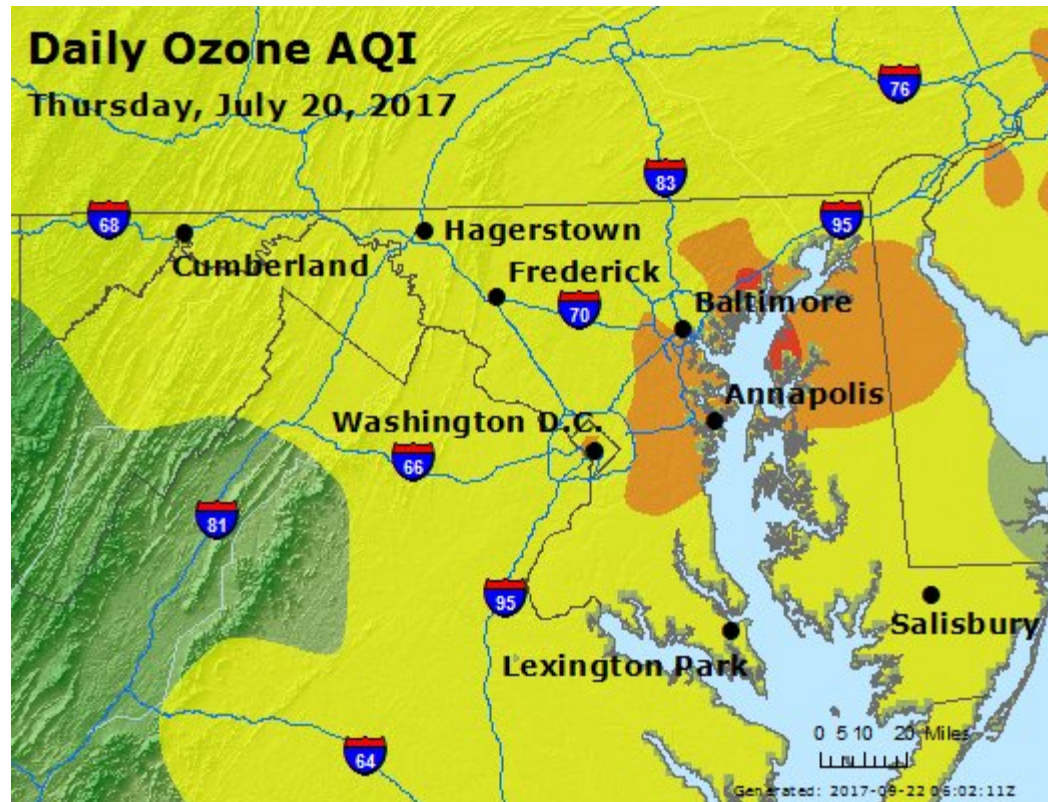
The Ambient Air Monitoring Program measures ground-level concentrations of criteria pollutants and air toxics, along with surface and aloft meteorological parameters. The Program also performs quality control, quality assurance, and analysis of the pollutant concentrations that are measured at each of the air monitoring stations located throughout Maryland. It is responsible for Air Quality Index (AQI) reporting and issuing daily air quality forecasts as well as coordination of 3D air-shed photochemical



Air Quality Forecast Discussion:



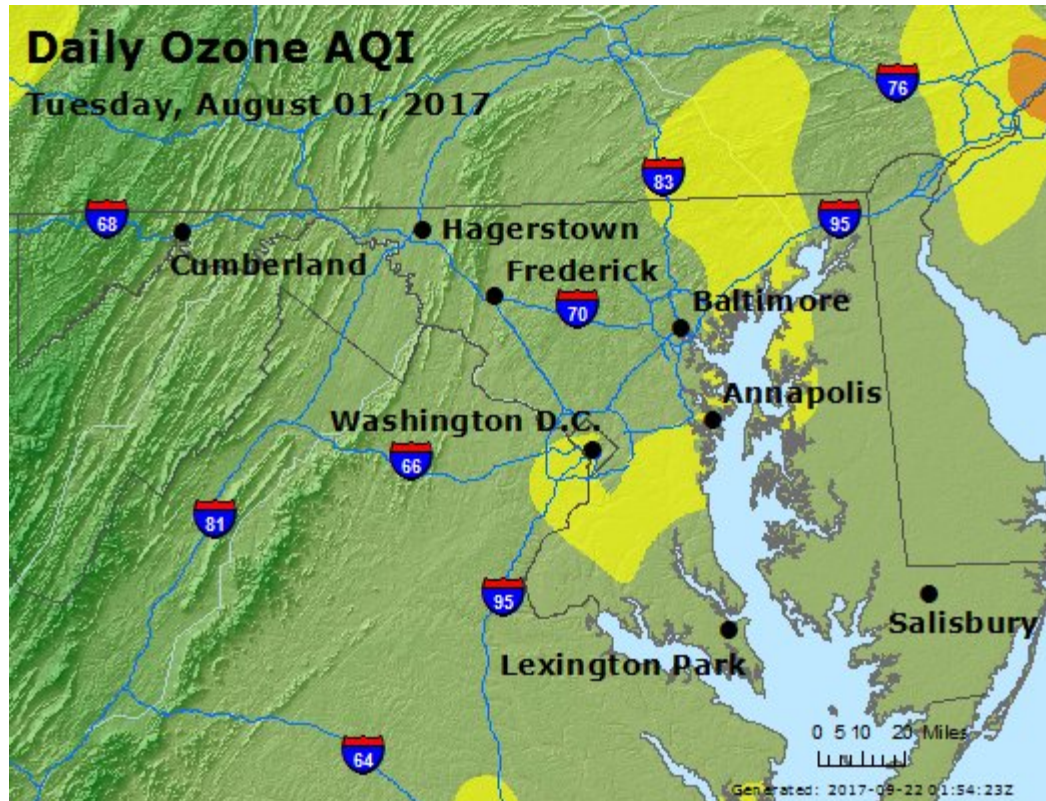
# July 20, 2017



- Wanted to go code Red for Edgewood but that would mean issuing it for the entire Baltimore area.
- Went Code Red – verified at Edgewood



# August 1, 2017



- Issue Code Orange ONLY for coastal sites near the Bay, northeast of Baltimore through APG
- HMI exceeded, Edgewood/Essex did not due to Thunderstorm



# May 28, 2016

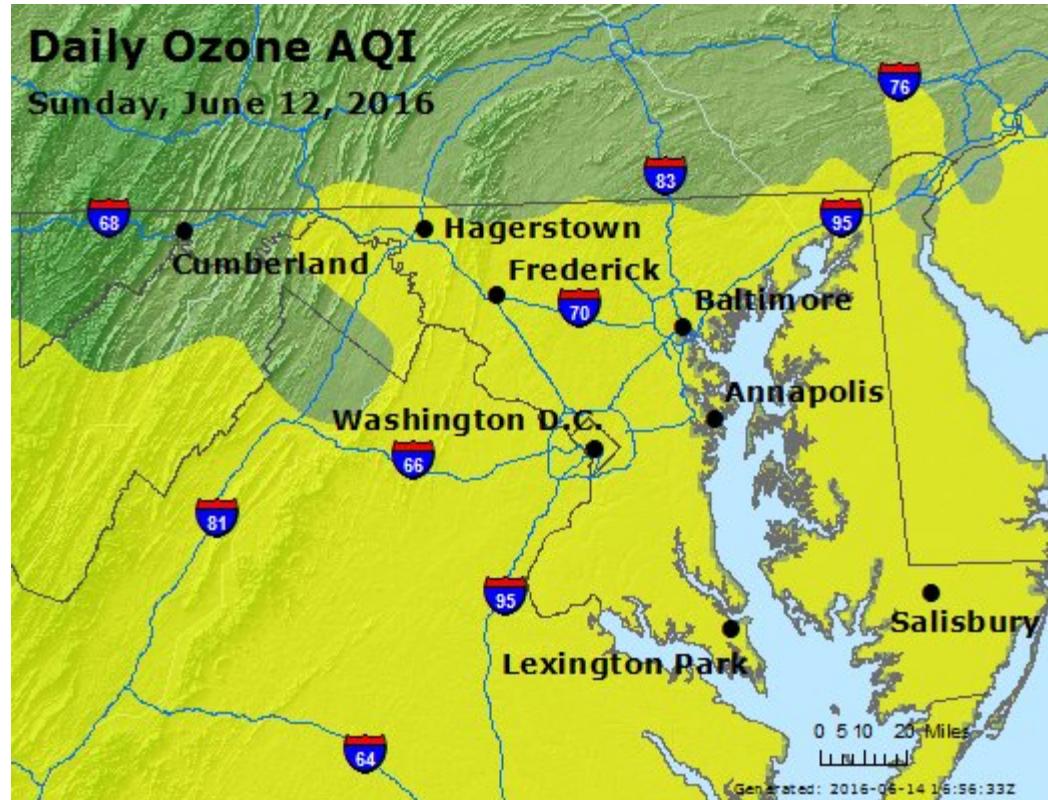


- Issue Code Orange for Padonia; Stay high Moderate elsewhere in Baltimore region.





# June 12, 2016



- Issue upper Moderate for Charles, St. Mary's and Calvert counties (70) while issuing lower Moderate elsewhere (60) in DC
- Calvert and S. Maryland monitors verified at 63ppb but were the highest monitors in the afternoon hours (62-67ppb)