Ozone National Ambient Air Quality Standard Health Exceedances on June 21, 2016

Exceedance Locations and Levels

On Tuesday, June 21, 2016, there were no exceedances in New Jersey of the new 8-hour average ozone NAAQS of 70 ppb that became effective in December 2015. The highest 8-hour average ozone concentration recorded was 66 ppb at the Colliers Mills Station.

The highest 1-hour average ozone concentration recorded on June 21, 2016 in New Jersey was 77 ppb at the Camden Spruce Street and Colliers Mills stations, which is below the 1-hour ozone NAAQS of 120 ppb.

The number of days in 2016 on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in New Jersey remains at ten (10). By the 21st of June in 2015, there were a total of five (5) days on which ozone exceedances were measured in New Jersey (based on the former 75 ppb NAAQS of 2008), and there was one (1) day by this same date in 2014.

There is a group of monitoring stations in designated counties of five (5) states, New York, Connecticut, Pennsylvania, Delaware and Maryland, that are included in New Jersey's ozone nonattainment areas. From this group of stations in the other neighboring states, there were four (4) exceedances of the new 8-hour ozone NAAQS of 70 ppb recorded on Tuesday, June 21, 2016 (See Table 1):

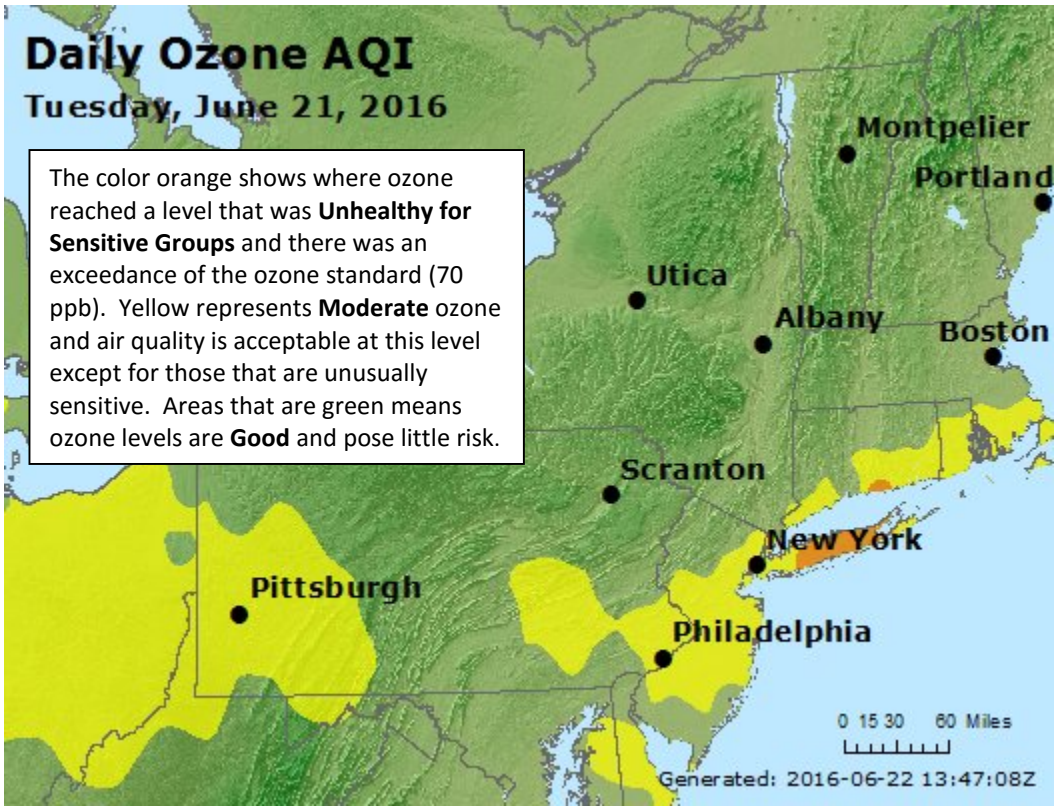
Table 2: Ozone NAAQS Exceedances at Other Monitoring Stations in New Jersey's Ozone Nonattainment Areas on June 21, 2016

STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Madison-Beach Road	71
NY	Babylon	73
NY	Holtsville	73
NY	Riverhead	71

The highest 1-hour average ozone concentration recorded was 90 ppb at the Riverhead station in New York, which is below the 1-hour ozone NAAQS of 120 ppb.

Tuesday marks the 10th day in 2016 on which an exceedance of the new 8-hour ozone NAAQS of 70 ppb was recorded in Connecticut, and the 9th day for New York. The number of days for Pennsylvania remains at six (6), and four (4) days for Delaware and Maryland.

Figure 1. Ozone Air Quality Index for June 21, 2016



Source: www.airnow.gov

For ozone terminology definitions see NJDEP Air Quality Planning's Glossary and Acronyms webpage: http://nj.gov/dep/baqp/glossary.html

Weather

Meteorological data from the Long Island Sound area showed temperatures reached the mid to high 80°F's, while winds were from the southwest. A weak cold front slowly moved southeast through the Mid-Atlantic and Northeast regions over the course of the day, sparking clouds and thunderstorms as it passed through. This limited ozone levels from climbing in most areas, except those in Long Island Sound, which were furthest from the front line. Skies remained mostly sunny in Long Island and coastal Connecticut. Abundant sunlight, southwest winds, and warm temperatures are all weather features commonly seen with ozone exceedances.

Where Did the Air Pollution that Caused Ozone Come From?

Figures 2, 3, and 4 show the back trajectories at different wind heights for selected monitored exceedances on June 21, 2016. The figures illustrate where the winds came from during the 48 hours preceding the high ozone event. The monitoring stations with the highest 8-hr ozone readings from each state were chosen to run back trajectories. The selected sites and the maximum 8-hr ozone levels recorded are listed in Table 2 below.

Table 3. Monitoring Stations with 8-hr Ozone Exceedances that Were Selected to Run 48-hr Back Trajectories

Agency	Site Name	Maximum 8-hr Ozone Conc. (ppb)
CT	Madison Beach Road	71
NY	Holtsville	73

Before reaching the Long Island Sound, the low level wind (Figure 2) traveled up along the I-95 corridor and through the New York City metropolitan area, where it picked up pollution from motor vehicles, industry, and a region that had ozone exceedances the prior day. Figure 5 displays where ozone exceedances occurred along the I-95 corridor on June 20, 2016, the day before the high ozone was recorded in the Long Island Sound area.

The 500 meter and 1500 meter winds (Figures 3 and 4) originated out of Canada and passed through the Great Lakes Region and New York on the way to the Long Island Sound, picking up additional pollution from mobile sources, industry, and a region that had ozone exceedances the prior day (See Figure 5).

The long-range transport of dirty air from distant locations that experienced ozone exceedances the prior day mixed with local emissions created by cars, trucks, and industry along the I-95 corridor and New York City to cause the ozone exceedance event that occurred in Long Island and coastal Connecticut on June 21, 2016.

Figure 2. 48-hour Back Trajectories for Jun 21, 2016 at 10 meters

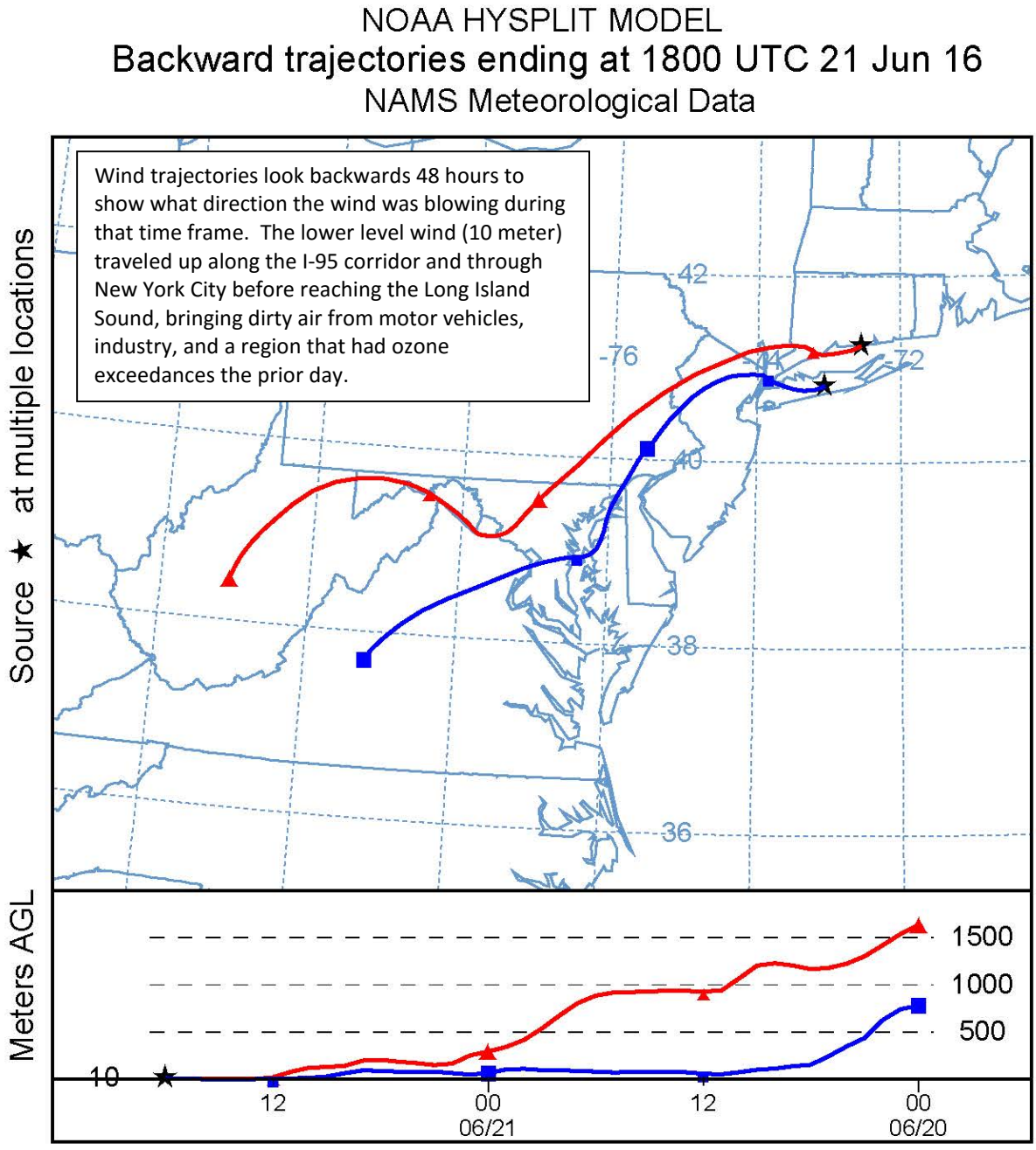


Figure 3. 48-hour Back Trajectories for June 21, 2016 at 500 meters

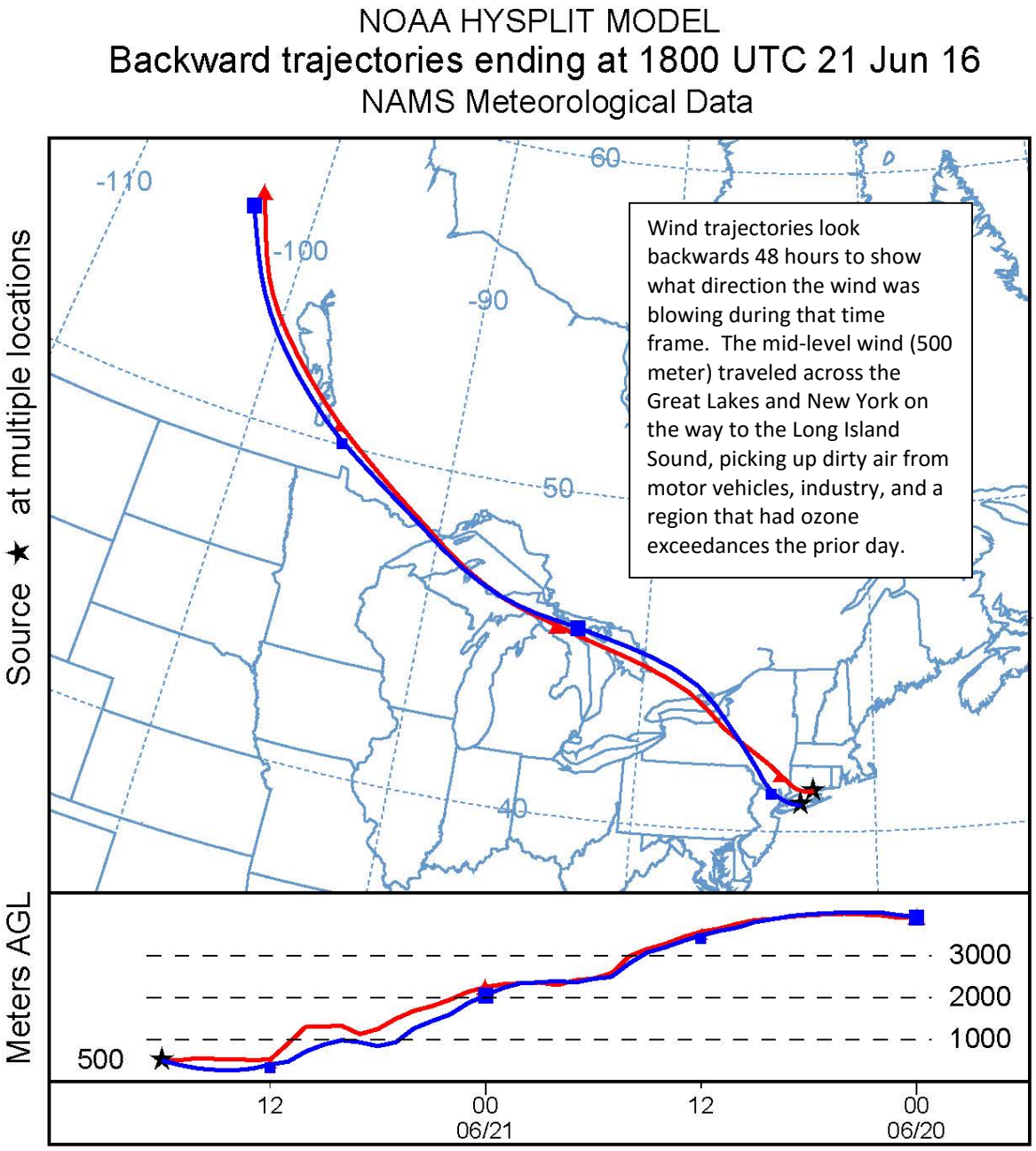


Figure 4. 48-hour Back Trajectories for June 21, 2016 at 1500 meters

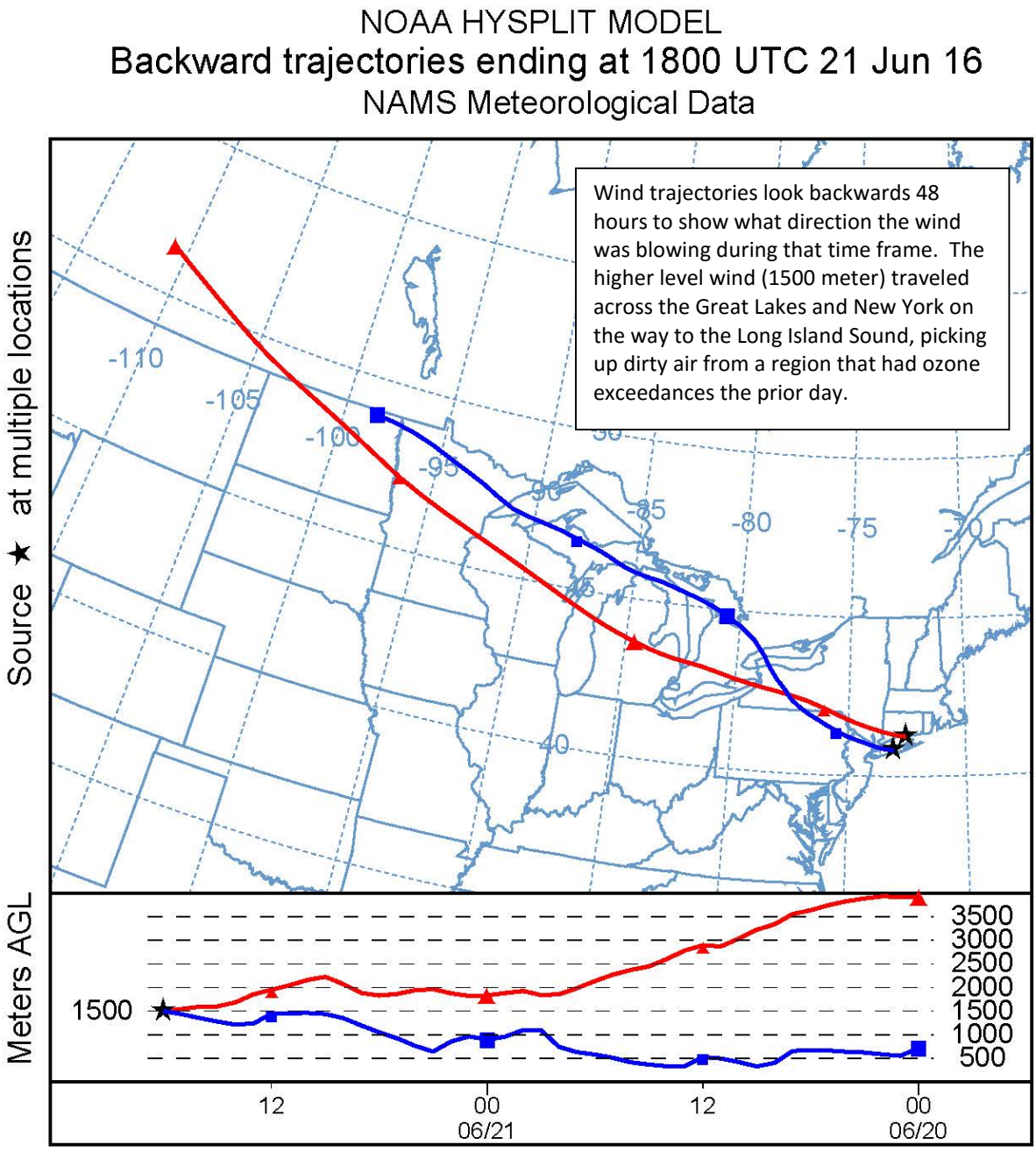
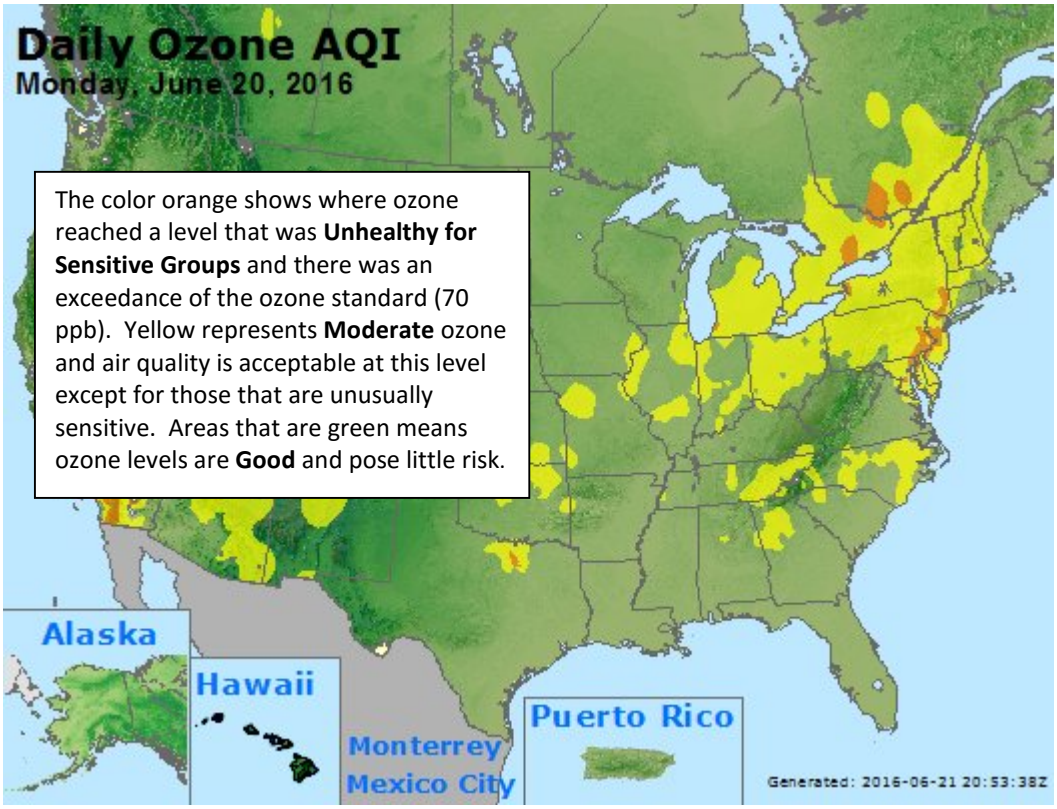


Figure 5. Ozone Exceedances across the United States on June 20, 2016



How is Smog Created?

Ground-level ozone, also known as smog, is an air pollutant known to cause a number of health effects and negatively impact air quality and the environment in the state of New Jersey. Smog is formed when oxides of nitrogen (NOx) and volatile organic compounds (VOCs) react in the presence of sunlight. Smog can irritate any set of lungs, but those with lung-related deficiencies should take extra precautions on bad ozone days.

Find Out About Air Quality Every Day

The "What's Your Air Quality Today?" page at http://www.nj.gov/dep/cleanairnj/ tells you how to sign up to receive notifications and find out when your local air has reached unhealthy ozone levels.