## Ozone National Ambient Air Quality Standard Health Exceedances on June 23 & June 24, 2025

### Exceedance Locations and Levels

On Monday, June 23, 2025, there were three (3) exceedances in New Jersey of the National Ambient Air Quality Standard (NAAQS) and on Tuesday, June 24, 2025, there was one (1) exceedance of the NAAQS for ozone (daily maximum 8-hour average of 70 ppb). See Table 1.

**Table 1. New Jersey Ozone Concentrations on 6/23/2025 and 6/24/2025**

| | Site | 8-Hr Maximum Average (ppb) 6/23/2025 | 8-Hr Maximum Average (ppb) 6/24/2025 |
|---|---|---|---|
| 1 | Ancora | 66 | 63 |
| 2 | Bayonne | 77 | 53 |
| 3 | Brigantine | 72 | 62 |
| 4 | Chester | 57 | 51 |
| 5 | Clarksboro | 67 | 65 |
| 6 | Colliers Mills | 63 | 65 |
| 7 | Columbia | 48 | 46 |
| 8 | Flemington | 58 | 58 |
| 9 | Leonia | 69 | 49 |
| 10 | Millville | 68 | 66 |
| 11 | Monmouth University | 74 | 90 |
| 12 | Ramapo | 45 | 46 |
| 13 | Rider University | 63 | 64 |
| 14 | Rutgers University | 54 | 56 |
| 15 | South Camden | 61 | 58 |
| 16 | Washington Crossing* | 60 | 60 |

*The Washington Crossing station is operated and maintained by EPA as part of the nationwide Clean Air Status and Trends Network (CASTNET).

From the out-of-state stations within New Jersey's ozone nonattainment areas, there were seven (7) exceedances of the ozone NAAQS in Connecticut and New York on Monday, June 23, 2025 and five (5) exceedances of the ozone NAAQS in Connecticut, Delaware, and New York on Tuesday, June 24, 2025. See Table 2.

**Table 2. Ozone Concentrations at Out-of-State Monitoring Stations in New Jersey's Ozone Nonattainment Areas on 6/23/2025 and 6/24/2025**

| STATE | STATION | Daily Maximum 8-Hr Average (ppb) 6/23/2025 | Daily Maximum 8-Hr Average (ppb) 6/24/2025 |
|---|---|---|---|
| CT | Danbury | 66 | 56 |
| CT | Greenwich | 76 | 70 |
| CT | Madison-Beach Road | 60 | 84 |
| CT | Middletown-CVH-Shed | 63 | 55 |
| CT | New Haven | 52 | 58 |
| CT | Stratford | 62 | 79 |
| CT | Westport | 64 | 71 |
| DE | BCSP (New Castle Co.) | 58 | 58 |
| DE | BELLFNT2 (New Castle Co.) | 62 | 58 |
| DE | KILLENS (Kent Co.) | 62 | 62 |
| DE | LEWES (Sussex Co.) | 61 | 72 |
| DE | LUMS 2 (New Castle Co.) | 65 | 64 |
| DE | MLK (New Castle Co.) | 63 | 59 |
| DE | SEAFORD (Sussex Co.) | 63 | 65 |
| MD | Fair Hill | 63 | 63 |
| NY | Babylon | 54 | 69 |
| NY | Bronx - IS52 | 77 | 56 |
| NY | CCNY | 77 | 57 |
| NY | Flax Pond | 56 | 67 |
| NY | Fresh Kills | 79 | 57 |
| NY | Holtsville | 54 | 80 |
| NY | Pfizer Lab | 77 | 52 |
| NY | Queens | 72 | 64 |
| NY | Riverhead | 48 | 67 |
| NY | Rockland Cty | 46 | 46 |
| NY | White Plains | 72 | 55 |
| PA | BRIS (Bucks Co.) | 65 | 62 |
| PA | CHES (Delaware Co.) | 62 | 61 |
| PA | NEWG (Chester Co.) | 61 | 62 |
| PA | NORR (Montgomery Co.) | 60 | 60 |
| PA | LAB (Philadelphia Co.) | 54 | 58 |
| PA | NEA (Philadelphia Co.) | 55 | 56 |
| PA | NEW (Philadelphia Co.) | 63 | 61 |
| | TOTAL EXCEEDANCES | 7 | 5 |

The number of days in 2025 on which exceedances of the ozone NAAQS were recorded for all the states within New Jersey's ozone nonattainment areas is summarized in Table 3.

**Table 3. Number of Days Ozone NAAQS was Exceeded in NJ's Nonattainment Areas in 2025.**

| STATE | # of Days NAAQS was Exceeded January 1 – June, 2025 NAAQS = 70 ppb |
|---|---|
| Connecticut | 9 |
| Delaware | 3 |
| Maryland | 1 |
| New Jersey | 6 |
| New York | 7 |
| Pennsylvania | 4 |

**Figure 1. Ozone Air Quality Index for June 23, 2025**

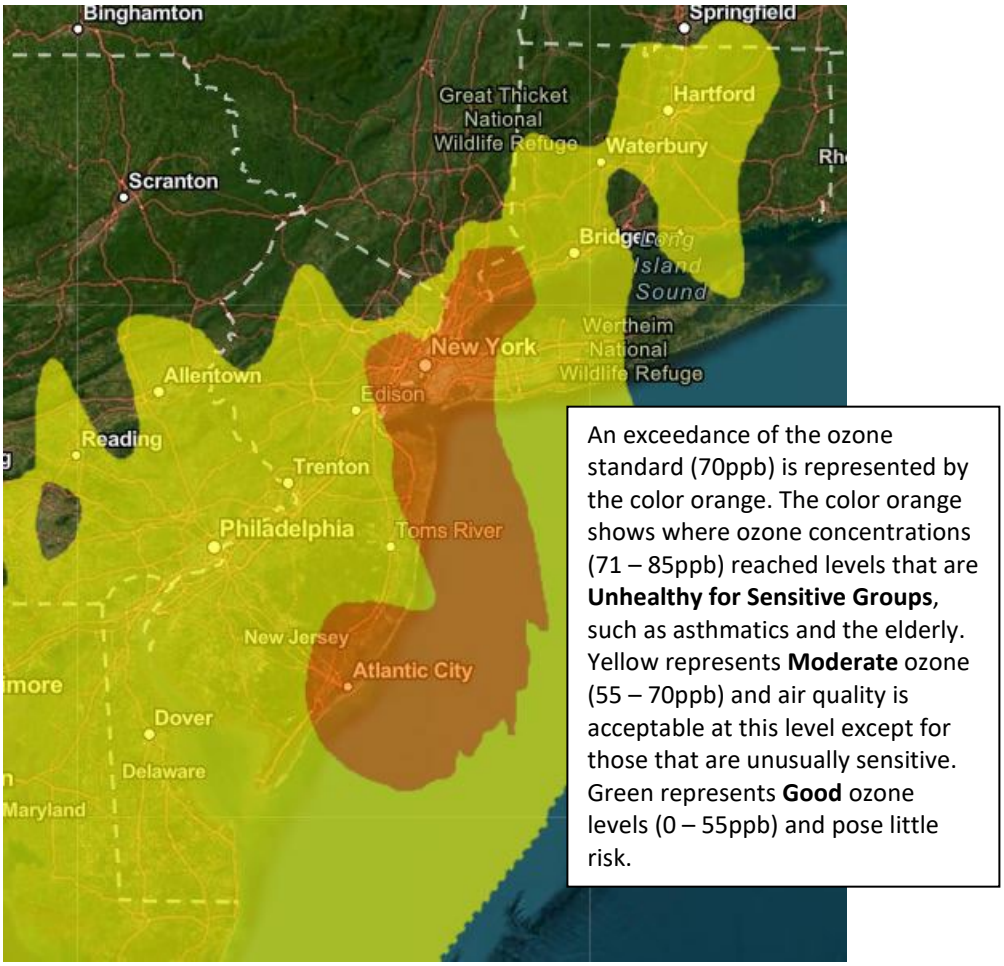
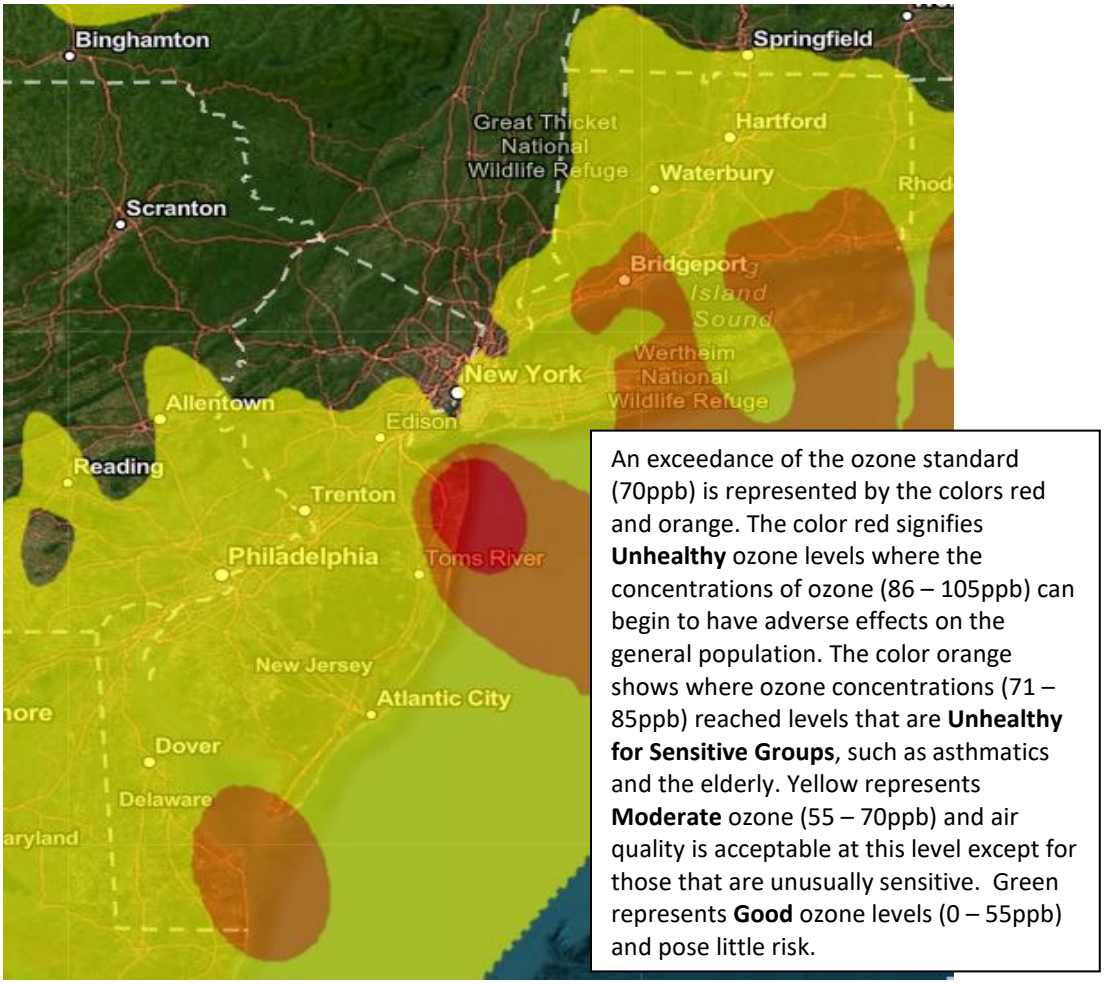


**Figure 2. Ozone Air Quality Index for June 24, 2025**




Source: www.airnow.gov

**For ozone terminology definitions see NJDEP Air Quality Planning's Glossary and Acronyms webpage:** https://www.nj.gov/dep/airmon/glossary.html

## Weather

On Monday June 23rd and Tuesday June 24th, numerous ozone exceedances were observed across the nonattainment area as the region was impacted by record high temperatures. On Monday June 23rd, strong high pressure anchored over the Mid-Atlantic and Southeastern U.S. remained in control of the weather pattern, allowing for sunny skies and persistent light winds out of the west-northwest. Surface temperatures rapidly rose into the mid to upper 90s by late morning with heat indices over 100 degrees, prompting Extreme Heat Warnings across the state. A sea-breeze front developed by early afternoon, allowing winds to shift out of the southeast along the coast and creating a convergence of air masses along eastern portions of the state. Additionally, a surface trough in place just east of the I-95 corridor likely aided in any localized/regional pollutants aloft mixing down to the surface. These conducive meteorological conditions caused coastal portions of New Jersey and the New York City metropolitan area to reach the Unhealthy for Sensitive Groups (USG) category on Monday.

On Tuesday June 24th, high pressure continued to dominate the regional weather pattern, providing little relief from elevated temperatures and stagnant air. Overnight low temperatures struggled to drop below 80 degrees, allowing for temperatures to quickly hit the upper 90s by mid-morning. By early afternoon, several portions of the state reached over 100 degrees as ample sunshine and light winds out of the north-northwest persisted. A sea-breeze front and surface trough were again in place just east of the I-95 corridor, allowing for a convergence of stagnant previously polluted air along the coastline. As a result, USG ozone exceedances were observed along the Connecticut coastline and Long Island NY, with an isolated area of Unhealthy ozone levels noted at the Monmouth University monitor in New Jersey.

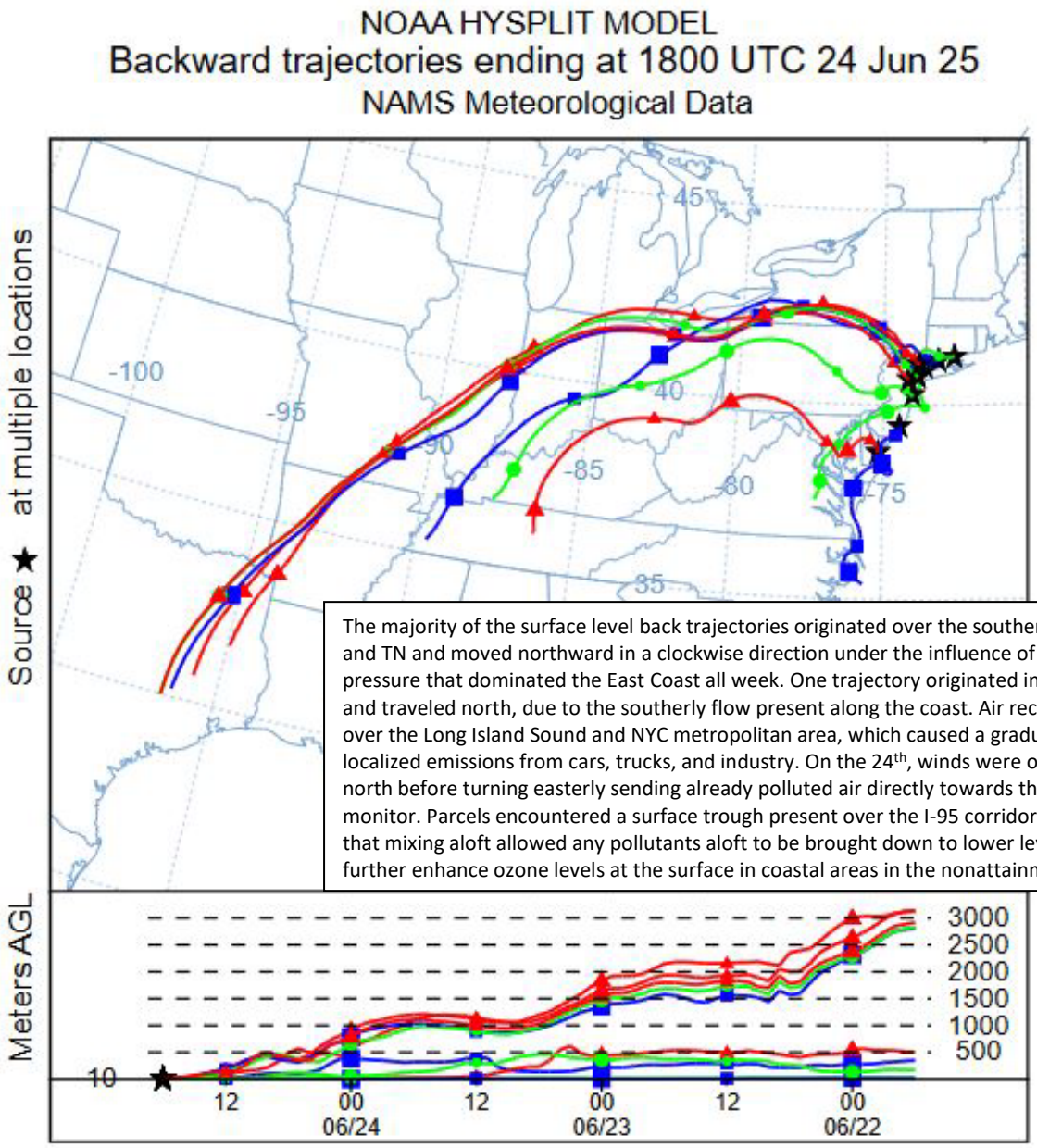
**Where Did the Air Pollution that Caused Ozone Come From?**

Figures 3, 4, and 5 show the back trajectories of different wind heights for the monitored exceedance(s) on this day. The figures illustrate where the air came from during the 72 hours preceding the 8-hour ozone standard exceedances. A transport analysis is provided with each figure shown below along with a map of the National Air Quality Index for the previous day (Figure 6 & 7). The monitoring station(s) that were chosen to model back trajectories are listed in Table 4.

**Table 4. Monitoring Stations with an 8-hr Ozone Exceedance that were selected to Run 72-hr Back Trajectories**

| STATE | DATE | STATION | Daily Maximum 8-Hr Average (ppb) |
|---|---|---|---|
| CT | 6/23 | Greenwich | 76 |
| CT | 6/24 | Stratford | 79 |
| CT | 6/24 | Madison-Beach Road | 84 |
| DE | 6/24 | LEWES (Sussex Co.) | 72 |
| NJ | 6/23 | Bayonne | 77 |
| NJ | 6/23 | Brigantine | 72 |
| NJ | 6/23, 6/24 | Monmouth | 74, 90 |
| NY | 6/23 | Pfizer Lab | 77 |
| NY | 6/23 | Queens | 72 |
| NY | 6/23 | White Plains | 72 |

**Figure 3. 72-hour Back Trajectories for June 24, 2025 at 10 meters**




The majority of the surface level back trajectories originated over the southern US in TX and TN and moved northward in a clockwise direction under the influence of high pressure that dominated the East Coast all week. One trajectory originated in eastern NC and traveled north, due to the southerly flow present along the coast. Air recirculated over the Long Island Sound and NYC metropolitan area, which caused a gradual buildup of localized emissions from cars, trucks, and industry. On the 24th, winds were out of the north before turning easterly sending already polluted air directly towards the Monmouth monitor. Parcels encountered a surface trough present over the I-95 corridor, indicating that mixing aloft allowed any pollutants aloft to be brought down to lower levels to further enhance ozone levels at the surface in coastal areas in the nonattainment area.

**Figure 4. 72-hour Back Trajectories for June 24, 2025 at 500 meters**

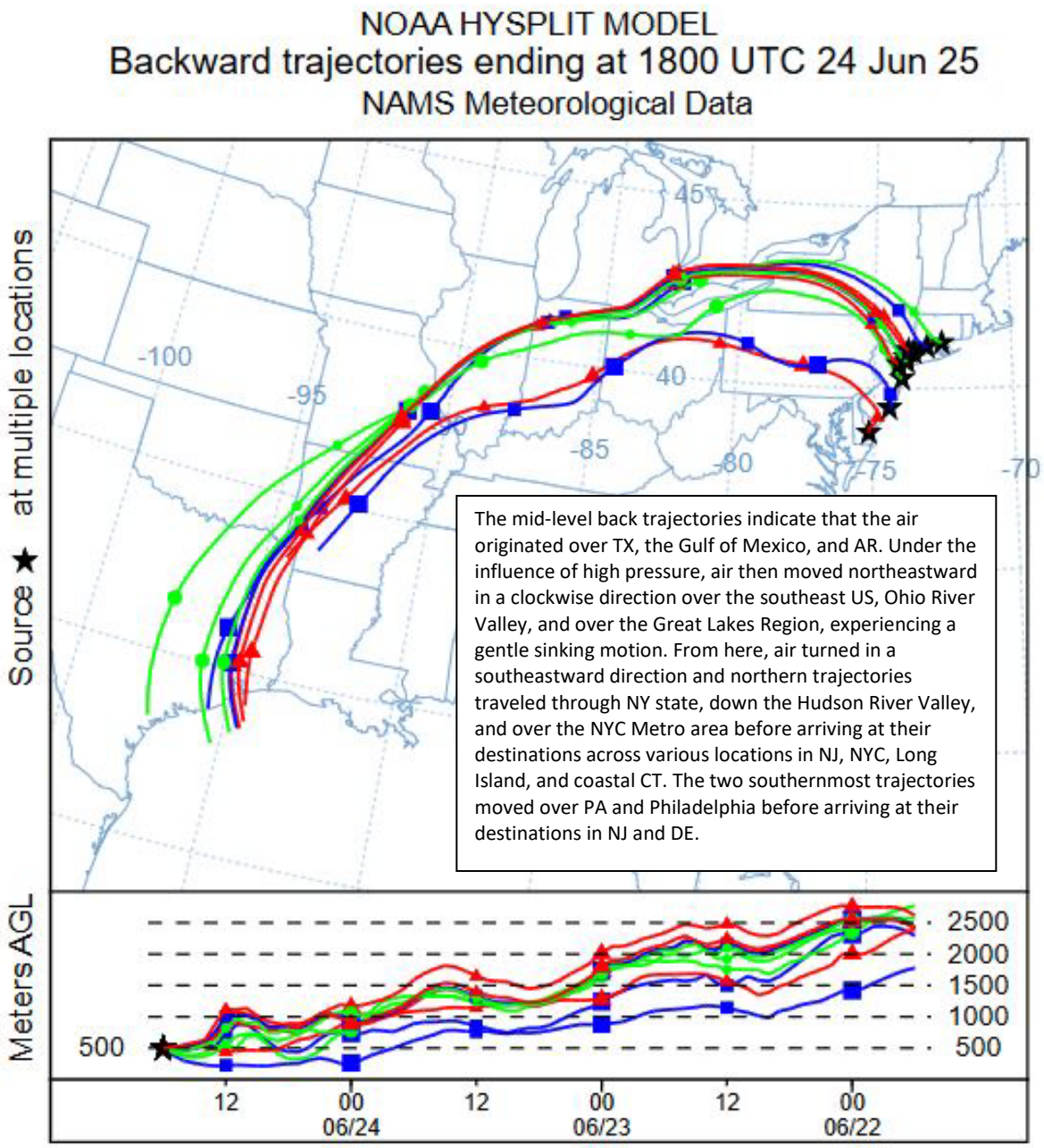
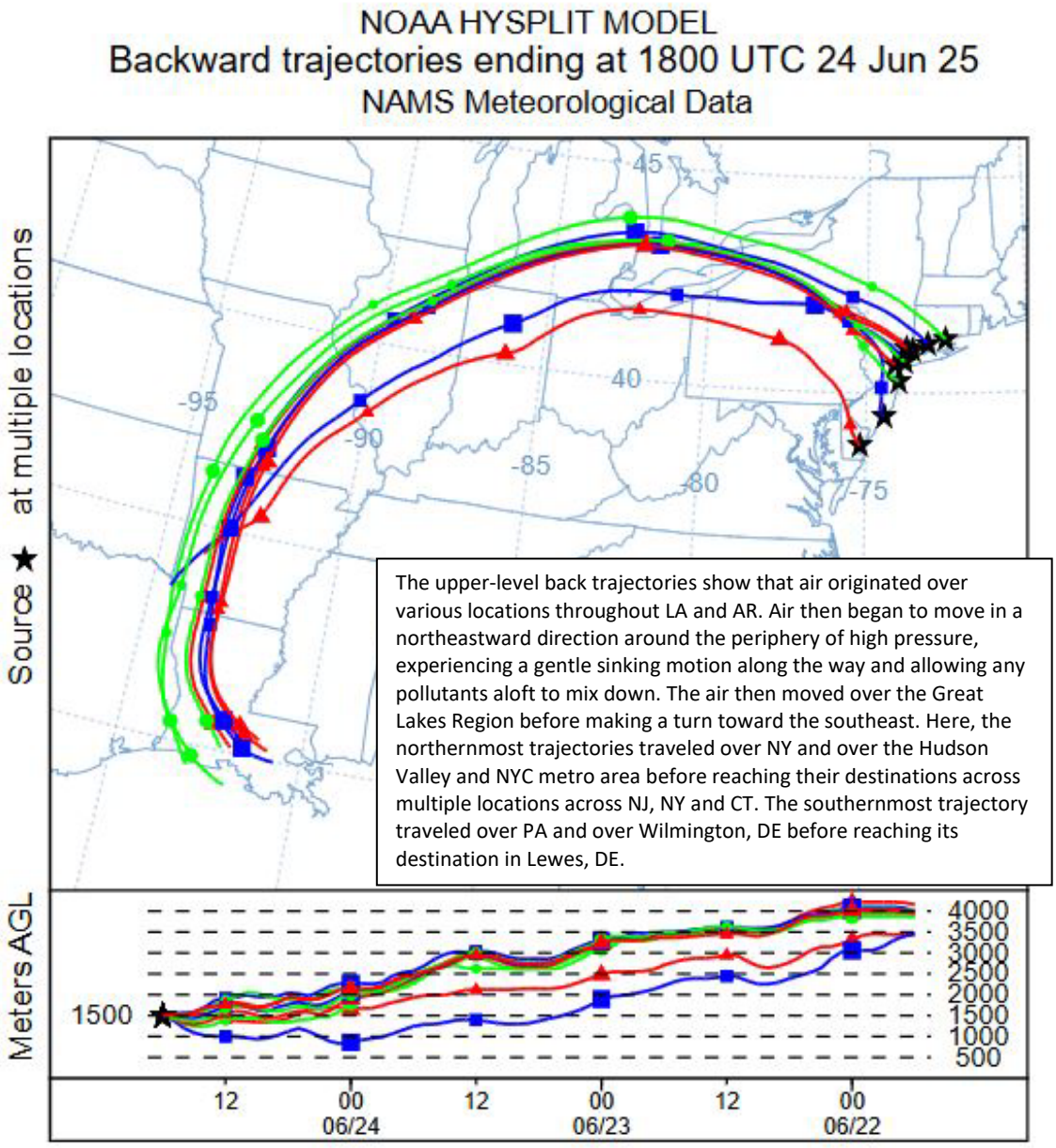


**Figure 5. 72-hour Back Trajectories for June 24, 2025 at 1500 meters**




The upper-level back trajectories show that air originated over various locations throughout LA and AR. Air then began to move in a northeastward direction around the periphery of high pressure, experiencing a gentle sinking motion along the way and allowing any pollutants aloft to mix down. The air then moved over the Great Lakes Region before making a turn toward the southeast. Here, the northernmost trajectories traveled over NY and over the Hudson Valley and NYC metro area before reaching their destinations across multiple locations across NJ, NY and CT. The southernmost trajectory traveled over PA and over Wilmington, DE before reaching its destination in Lewes, DE.

**Figure 6. Air Quality Index for the United States on June 22, 2025**

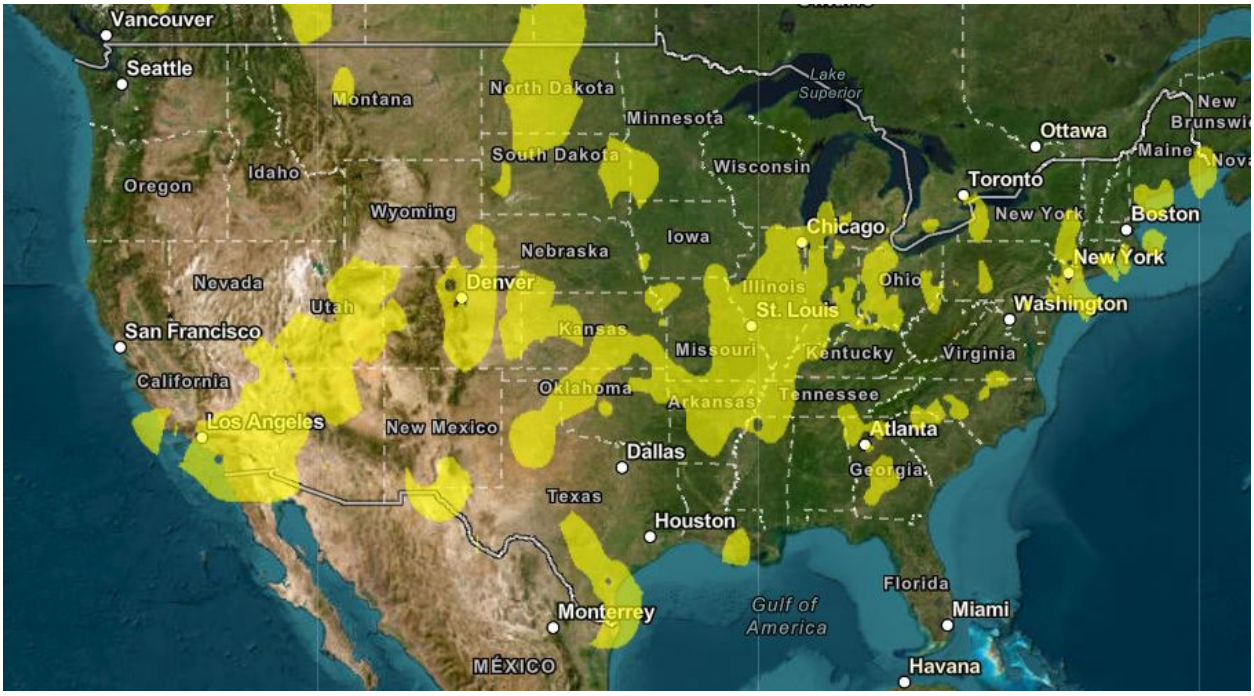
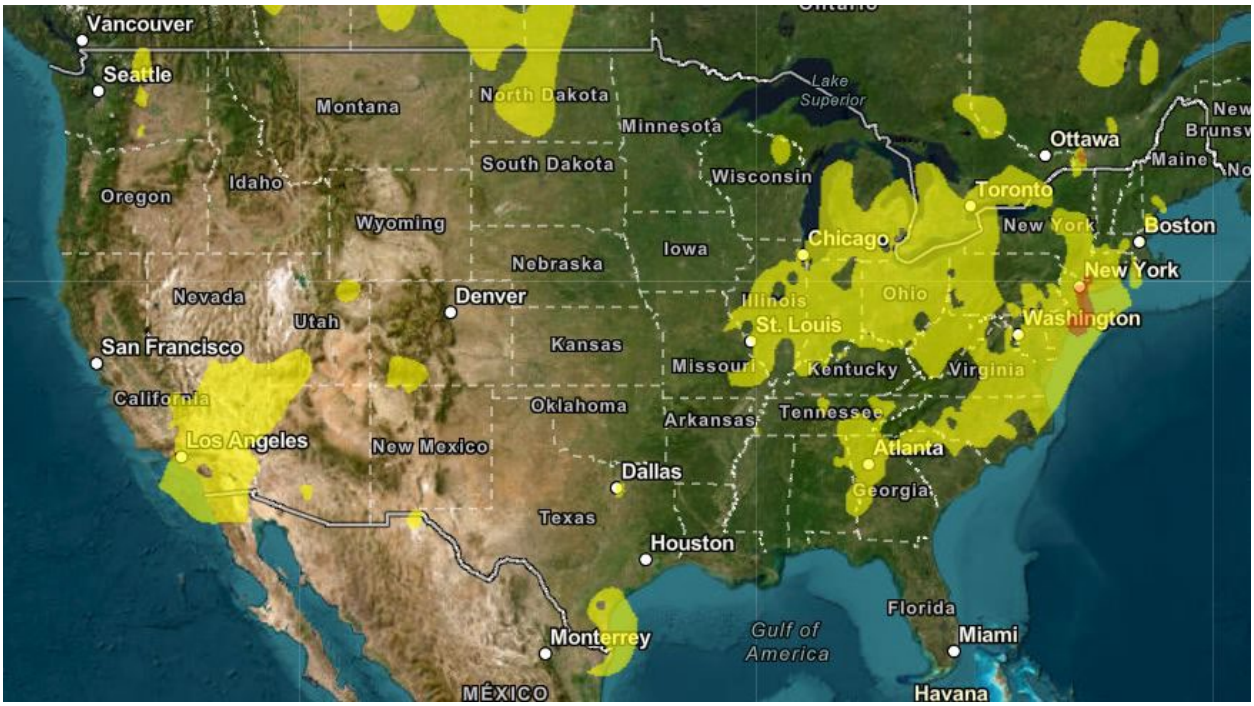



**Figure 7. Air Quality Index for the United States on June 23, 2025**




Source: www.airnow.gov

**How is Ozone Created?**

Ground-level ozone is an air pollutant known to cause several health effects and negatively impact air quality and the environment in New Jersey. Ozone is formed when oxides of nitrogen (NOx) and volatile organic compounds (VOCs) react in the presence of sunlight. Ozone can irritate any person's lungs, but the effect may be more pronounced for those with existing lung-related deficiencies, and therefore, one should take extra precautions on bad ozone days.

**Find Out About Air Quality Every Day**

Learn more about your local ozone air quality forecast by visiting the "What's Your Air Quality Today?" page at https://dep.nj.gov/airplanning/aqi-today/.