



2010 Air Quality Index Summary

New Jersey Department of Environmental Protection

WHAT IS THE AIR QUALITY INDEX (AQI)?

The Air Quality Index (AQI) is a national air quality rating system based on the National Ambient Air Quality Standards (NAAQS). Generally, an index value of 100 is equal to the primary, or health based, NAAQS for each pollutant. This allows for a direct comparison of each of the pollutants used in the AQI (carbon monoxide, nitrogen dioxide, particulate matter, ozone, and sulfur dioxide). The Nitrogen Dioxide and Sulfur Dioxide NAAQS were revised in 2010 because the U.S. Environmental Protection Agency (EPA) had determined that the old standard was not sufficiently protective of public health. On January 22, 2010, they set a revised standard of 100 ppb maximum daily 1-hour average for NO₂ and on June 2, 2010, they set a revised standard of 75 ppb maximum daily 1-hour standard for SO₂. The AQI rating for a reporting region is equal to the highest rating recorded for any pollutant within that region. In an effort to make the AQI easier to understand, a descriptive rating and a color code, based on the numerical rating are used (see Table 1). For more information on the AQI, visit EPA's web site at <http://www.airnow.gov>.

Table 1
Air Quality Index

Numerical AQI Rating	Descriptive Rating	AQI Color Code
0-50	Good	Green
51-100	Moderate	Yellow
101-150	Unhealthy for Sensitive Groups	Orange
151-200	Unhealthy	Red
201-300	Very Unhealthy	Purple

Every morning a forecast for the current and following day is prepared by NJDEP using the AQI format. The forecast is provided to EPA and is disseminated through the Enviroflash system (<http://www.enviroflash.info>) to those who subscribe to receive air quality forecast and alert emails. Those who are not subscribed to Enviroflash can view the forecast and current air quality conditions at EPA's AirNow website or on NJDEP's air monitoring webpage.

For purposes of reporting the AQI, the state is divided into 9 regions (see Figure 1). Table 2 shows the monitoring sites and parameters used in each reporting region to calculate the AQI values.

Figure 1
Air Quality Index Regions

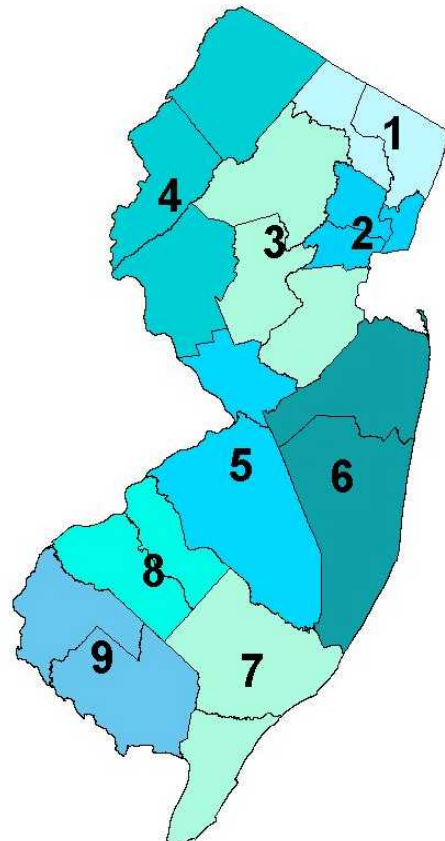


Table 2
Pollutants Monitored According to Air Quality Index Reporting Region - 2010

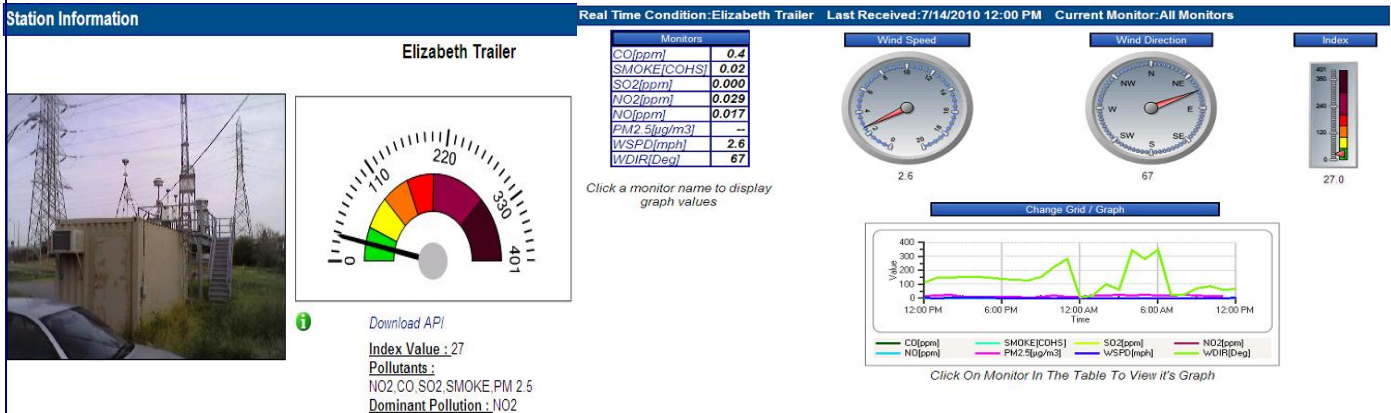
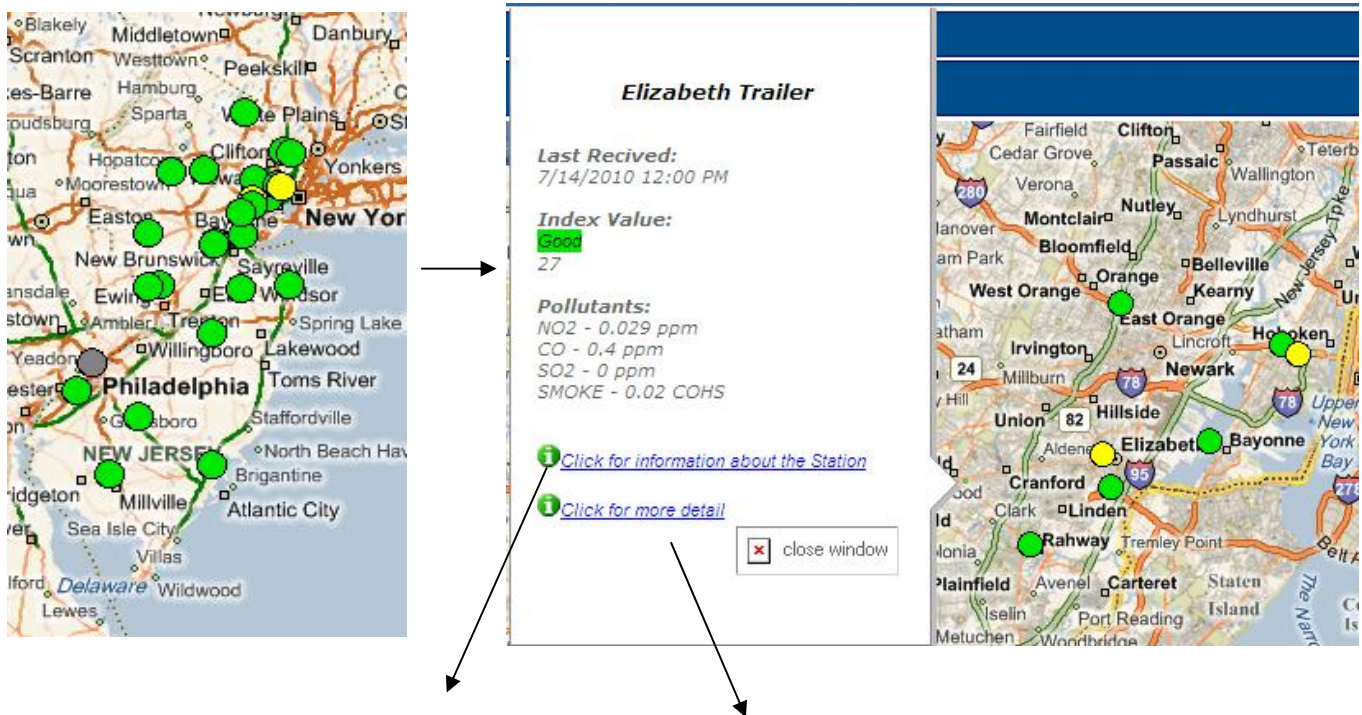
CO - Carbon Monoxide O₃ - Ozone
SO₂ - Sulfur Dioxide NO₂ - Nitrogen Dioxide
PM - Particulate Matter

Reporting Region	Monitoring Site	CO	SO ₂	PM	O ₃	NO ₂
1. Northern Metropolitan	Hackensack	X	X	X	---	---
	Leonia	---	---	---	X	X
	Ramapo	---	---	---	X	---
2. Southern Metropolitan	Bayonne	---	X	---	X	X
	East Orange	X	---	---	---	X
	Elizabeth	X	X	X	---	---
	Elizabeth Lab	X	X	X	---	X
	Jersey City	X	X	X	---	---
	Jersey City Firehouse	---	---	X	---	---
	Newark Firehouse	X	X	X	X	---
	Rahway	---	---	X	---	---
3. Suburban	Chester	---	X	---	X	X
	Morristown	X	---	X	---	---
	New Brunswick	---	---	X	---	---
	Perth Amboy	X	X	X	---	---
	Rutgers University	---	---	---	X	X
4. Northern Delaware Valley	Columbia WMA ^a	---	X	X	---	---
	Flemington	---	---	X	X	---
5. Central Delaware Valley	Ewing	---	---	X	---	---
	Rider University	---	---	---	X	X
6. Northern Coastal	Colliers Mills	---	---	---	X	---
	Freehold	X	---	X	---	---
	Monmouth University	---	---	---	X	---
7. Southern Coastal	Brigantine	---	X	X	X	---
8. Southern Delaware Valley	Ancora State Hospital	X	X	---	X	---
	Clarksboro	---	X	---	X	---
	South Camden	---	---	X	---	---
9. Delaware Bay	Millville	---	X	X	X	X

^a Monitoring at Columbia WMA began 9/23/2010

Along with the forecast, cautionary statements are provided for days when the air quality is expected to reach the unhealthy for sensitive groups range and above. These air quality alerts are issued through Enviroflash emails, displayed on the AirNow and NJDEP air monitoring websites, and can also be viewed on the National Weather Service page for the Philadelphia/Mount Holly area (<http://www.erh.noaa.gov/er/phi/>). Maps, charts and photos of the air quality information and sites from which data is collected are available on the NJDEP air monitoring web site as shown in Figure 2 below:

Figure 2
Examples of NJDEP's Air Monitoring Website



2010 AQI SUMMARY

A summary of the AQI ratings for New Jersey in 2010 is presented in the pie chart in Figure 3 below. In 2010, there were 188 "Good" days, 135 were "Moderate", 40 were rated "Unhealthy for Sensitive Groups", 2 were considered "Unhealthy", and zero were rated "Very Unhealthy". This indicates that air quality in New Jersey is considered good or moderate most of the time, but that pollution is still bad enough to adversely affect some people on about one day in nine. This may appear to be a substantial increase from 2009, however 2009 was an unusually cool and wet summer accounting for much lower concentrations of pollutants. In addition to the change in weather pattern, this is the first year with the revised NO₂ and SO₂ standards previously mentioned. Table 3 lists the dates when the AQI reached the "Unhealthy for Sensitive Groups" threshold at any monitoring location and shows which pollutant(s) were in that range or higher. Figure 4 shows the AQI ratings for the year broken down by AQI region (AQI data was not available for every day therefore some of the regions total day count does not add up to 365).

Figure 3
2010 Air Quality Summary by Days

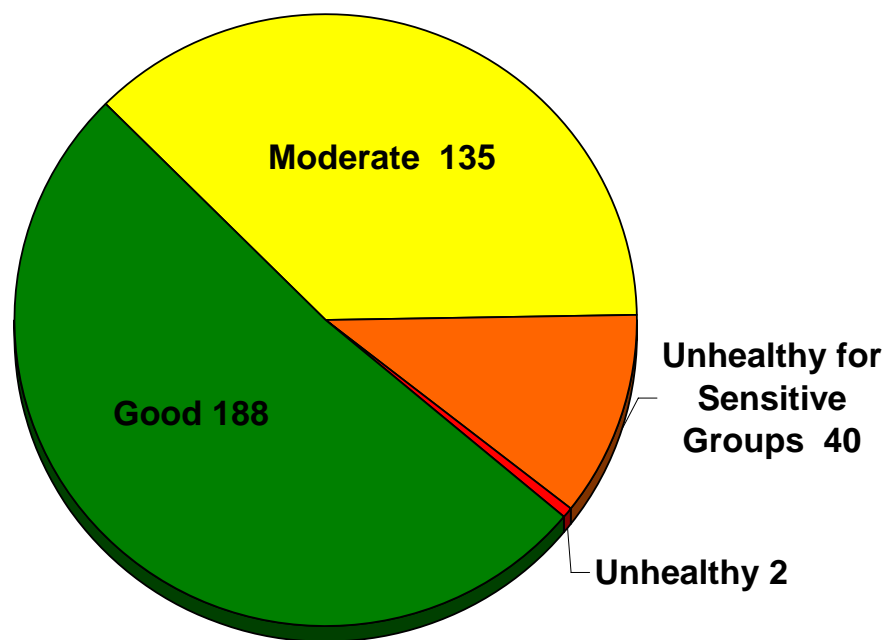


Table 3
Air Quality Index (AQI) Exceedances of 100 During 2010
Ratings Pollutants

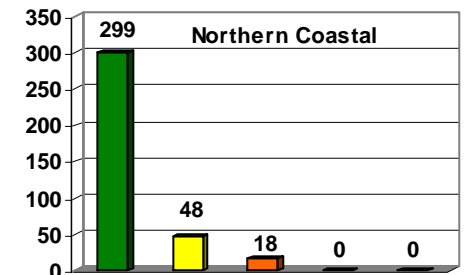
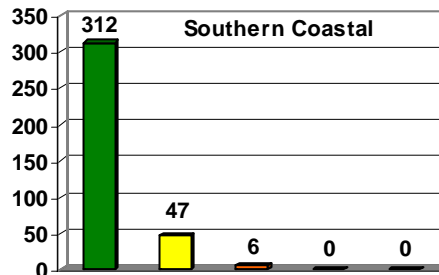
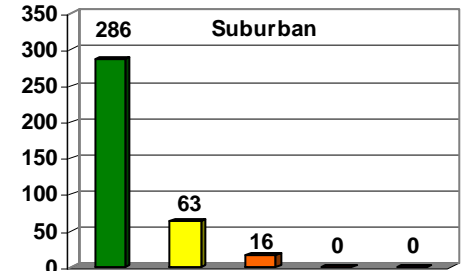
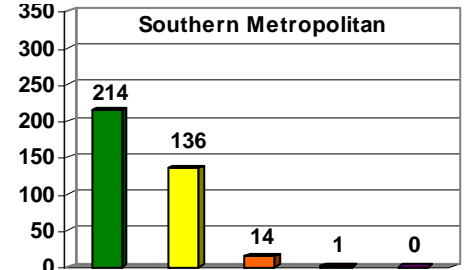
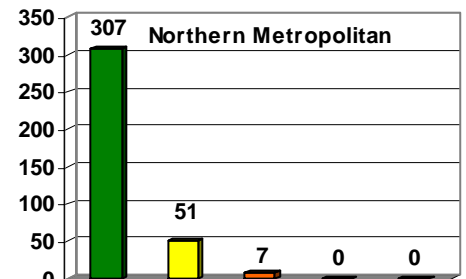
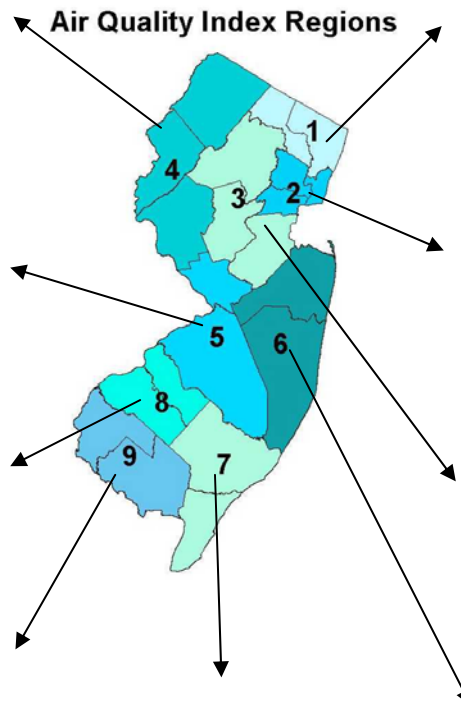
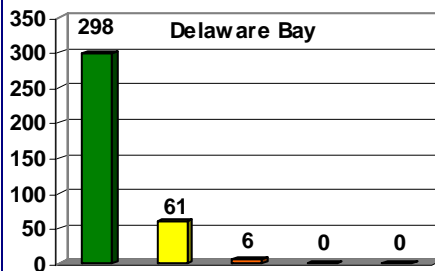
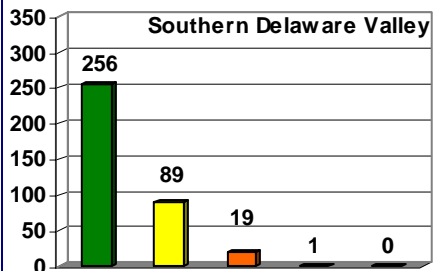
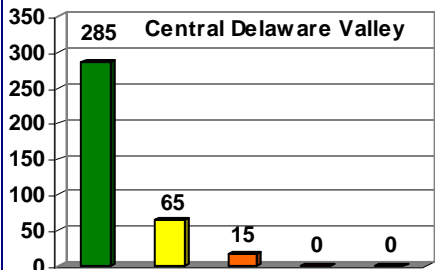
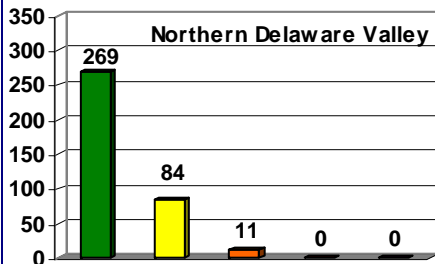
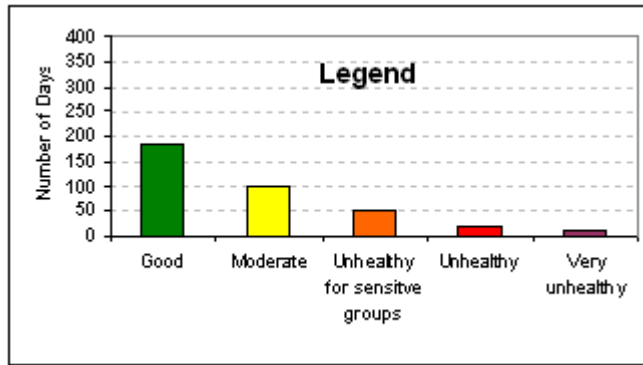
USG - Unhealthy for Sensitive Groups
 UH - Unhealthy
 VUH - Very Unhealthy

PM - Fine Particle Matter (11 Sites)
 O3 - Ozone (14 Sites)
 SO2 - Sulfur Dioxide (13 Sites)
 NO2 - Nitrogen Dioxide (8 Sites)

* Number in parentheses () indicates the total number of sites exceeding 100 by pollutant on the given day

Date	Highest Location	Highest AQI Value	Highest Pollutant	Highest Rating	Pollutant(s) with AQI above 100 *
March 25	Bayonne	102	NO2	USG	NO2 (1)
April 06	Elizabeth Lab	101	PM	USG	PM (1)
May 01	Rider University	106	O3	USG	O3 (2)
May 26	Millville	101	O3	USG	O3 (1)
May 31	Newark Firehouse	132	O3	USG	O3 (3)
June 02	Leonia	104	O3	USG	O3 (3)
June 03	Colliers Mills	111	O3	USG	O3 (1)
June 04	Rutgers University	106	O3	USG	O3 (1)
June 19	Rider University	124	O3	USG	O3 (3)
June 22	Clarksboro	106	O3	USG	O3 (3)
June 23	Ancora State Hospital	111	O3	USG	O3 (3)
June 25	Ancora State Hospital	101	O3	USG	O3 (1)
June 26	Colliers Mills	129	O3	USG	O3 (4)
June 27	Newark Firehouse	114	O3	USG	O3 (3)
June 28	Colliers Mills	104	O3	USG	O3 (1)
July 04	Colliers Mills	111	O3	USG	O3 (5)
July 05	Monmouth University	147	O3	USG	O3 (8)
July 06	Bayonne	190	O3	UH	O3 (7)
July 07	Rutgers University	147	O3	USG	O3 (14)
July 12	Newark Firehouse	104	O3	USG	O3 (1)
July 16	Rider / Rutgers University	109	O3	USG	O3 (3)
July 17	Colliers Mills	111	O3	USG	O3 (2)
July 21	Colliers Mills	106	O3	USG	O3 (1)
July 23	Flemington	114	O3	USG	O3 (3)
July 28	Rutgers University	119	O3	USG	O3 (2)
August 09	Rider University	129	O3	USG	O3 (2)
August 10	Clarksboro	154	O3	UH	O3 (6), PM(1)
August 11	Rutgers University	116	O3	USG	O3 (4)
August 17	Ancora State Hospital	127	O3	USG	O3 (2)
August 19	Rider University	150	O3	USG	O3 (11)
August 20	Ancora State Hospital / Monmouth University	106	O3	USG	O3 (2)
August 29	Ancora State Hospital	116	O3	USG	O3 (1)
August 30	Ancora State Hospital	132	O3	USG	O3 (5)
August 31	Monmouth University	150	O3	USG	O3 (2)
September 01	Colliers Mills	147	O3	USG	O3 (13)
September 02	Chester / Ramapo	147	O3	USG	O3 (7)
September 22	Rutgers University	116	O3	USG	O3 (2)
September 24	Columbia WMA	128	SO2	USG	SO2 (1)
September 29	Columbia WMA	108	SO2	USG	SO2 (1)
October 30	Columbia WMA	149	SO2	USG	SO2 (1)
December 15	Elizabeth Lab	102	NO2	USG	NO2(1)
December 30	South Camden	105	PM	USG	PM (1), SO2 (1)

Figure 4
2010 Air Quality Index Summary
Number of Days by Reporting Region



REFERENCES

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