

Minnesota Air Quality Index (AQI) 2007 Summary

AQI Monitoring Network

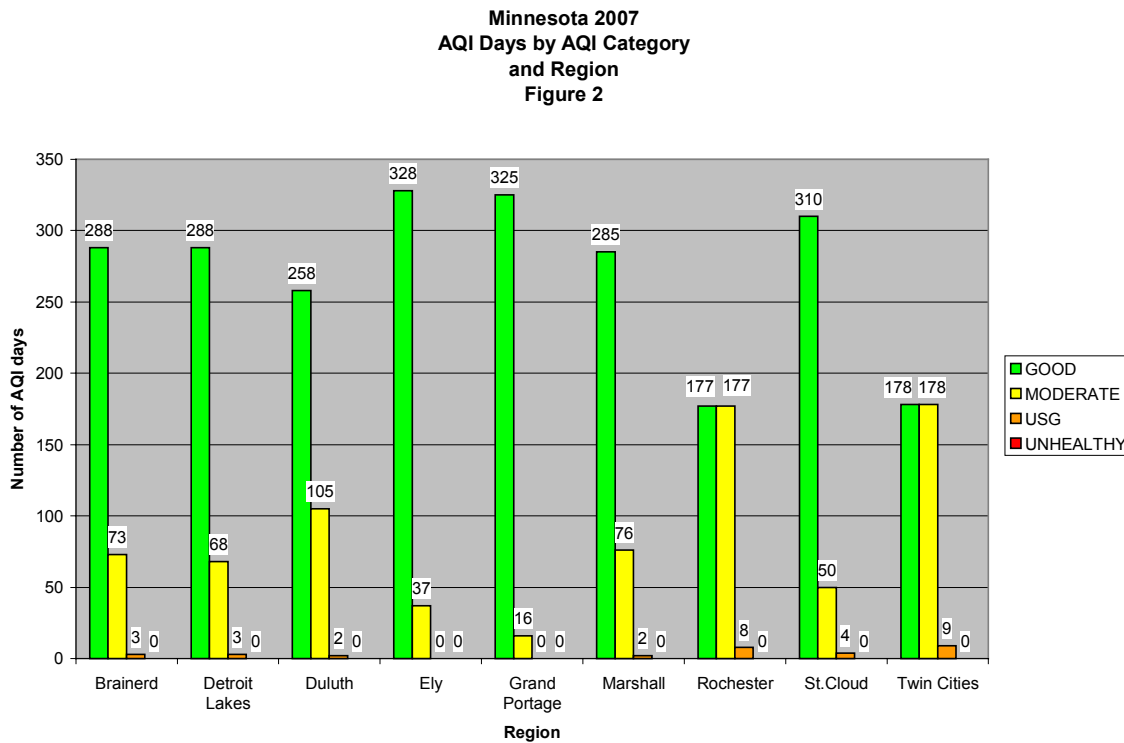
Figure 1 shows the network of air monitors the MPCA uses to collect data for the Air Quality Index (AQI). The number and type of monitors vary from region to region, with the most monitors in the Twin Cities Metro area. The 2007 monitoring network is the same network as was used for air monitoring during 2006.

Minnesota Pollution Control Agency Air Quality Index (AQI) 2007 Operational Network Figure 1						
REGION	SITES	MONITORS				Total
		O3	PM2.5	CO	SO2	
Brainerd	2	2	1			3
Detroit Lakes	1	1	1			2
Duluth	4	2	1	1		4
Ely	1	1	1			2
Grand Portage	1		1			1
Marshall	1	1	1			2
St. Cloud	2	1	1	1		3
Rochester	1	1	1			2
Twin Cities	12	6	5	3	2	16
TOTALS						
9	25	15	13	5	2	35

	O3 Ozone
	PM2.5 Particulate Matter
	CO Carbon Monoxide
	SO2 Sulfur Dioxide

2007 AQI Days by AQI Category and Region

Figure 2 summarizes the number of days in each of four health categories (Good, Moderate, Unhealthy for Sensitive Groups, and Unhealthy) in each of the nine current reporting regions (Brainerd, Detroit Lakes, Duluth, Ely, Grand Portage, Marshall, Rochester, St. Cloud, and the Twin Cities). Each day's AQI is calculated by using the highest hourly AQI value that day for all sites and measured pollutants in a particular region. Some regions do not show a total of 365 days because of monitoring problems or non operational days.



The variability of the AQI readings across the 9 regions is described below in terms of a ratio of Good/Moderate days, Annual Average AQI, and Annual Median AQI.

	Good/Moderate Ratio	Average AQI	Median AQI
Grand Portage	20.31	15.56	11
Ely	8.86	28.95	28
Saint Cloud	6.20	37.70	34
Detroit Lakes	4.23	40.09	38
Brainerd	3.94	38.20	36
Marshall	3.75	39.14	39
Duluth	2.46	42.96	39
Rochester	1.00	52.26	51
Twin Cities	1.00	52.61	51

2007 Days with an AQI Greater than 100.

Figure 3 shows the days the AQI reached a value over 100. Some AQI days are consecutive and grouped together: these days were usually part of one multi-day air pollution event, a result of the same set of environmental conditions.

Past experience tells us that incidents involving fine particulate matter (PM_{2.5}) may occur any time of the year. Ozone, however, forms in the summer in Minnesota, since it is created by a chemical reaction involving heat and sunshine.

The Twin Cities had the highest number of days with an AQI of more than 100 (9 days), followed by Rochester (8 days). All AQI high values were due to Fine Particulate Matter (PM_{2.5}), except for one day in the Twin Cities when ozone was the dominant pollutant.

Minnesota - 2007 Air Quality Index (AQI) Days with AQI > 100 Figure 3										
Date	Brainerd	Detroit Lakes	Duluth	Ely	Grand Portage	Marshall	Rochester	St. Cloud	Twin Cities	
2/12/2007							104			
3/08/2007						103			104	
3/09/2007			102			102			109	Legend
5/12/2007							101			Ozone
6/13/2007									106	PM2.5
11/19/2007							136		131	
11/20/2007							136		132	
12/18/2007							104	118	126	
12/19/2007	127	132					126	138	144	
12/20/2007	118	139					138	127	136	
12/21/2007	122	149	107				135	116	129	
Totals	3	3	2	0	0	2	8	4	9	

The MPCA issued the following Air Alerts and Advisories in 2007:

Air Quality Alert (AQI rose to 90 or above)

November 19, 2007 for the Twin Cities, Rochester, Marshall, and southern Minnesota.

Air Pollution Advisory (AQI forecast to rise to 90 or above)

March 8, 2007 for Marshall on 3/8/2007 (fine particles).

March 8, 2007 for the Twin Cities, Marshall, and Rochester for 3/8 and 3/9/2007 (fine Particles).

June 13, 2007 for the Twin Cities, Saint Cloud, Brainerd, and northern Minnesota for 6/13 and 6/14/2007 (ozone).

June 23, 2007 for the Twin Cities for 6/24 and 6/25/2007 (ozone).

July 20, 2007 for the Twin Cities for 7/22 through 7/25/2007 (ozone and fine particles).

December 18, 2007 for the Twin Cities Rochester, and southern two thirds of Minnesota for 12/18 through 12/21/2007 (fine particles).