Air Quality Monitoring Results 2012 & 2013

HIGHLIGHTS

- Province-wide achievement of Canadian Ambient Air Quality Standards
- New Provincial Air Zones
- Continued Improvement on Acid Rain
- An overview of past special air quality studies

New Brunswick
Department of Environment
and Local Government

New Nouveau Brunswick

Contents

Air Quality Monitoring in New Brunswick

This report provides an overview of air quality in the province of New Brunswick. General information about air quality science and the province's monitoring networks is also provided.

Air quality monitoring in New Brunswick is a partnership between the Federal Government (Environment Canada) and the Provincial Department of Environment and Local Government (DELG). This partnership has been formalized under a long-standing National Air Pollution Surveillance (NAPS) Agreement.

Through the NAPS agreement, Environment Canada provides most of the necessary monitoring equipment and a centralized national database for the air quality information collected. It is the Province's responsibility to deploy and maintain the equipment, operate the stations, perform necessary calibrations, and otherwise ensure that the data is accurate.

Air quality monitoring equipment. A Volatile Organic Compound (VOC) sampler (left/near-field), and a Particulate Matter monitor ($PM_{2.5}$) (right/far-field).

A typical air quality monitoring station (Moncton).

The provincial network is comprised of 16 air quality monitoring stations. There are a total of 46 instruments (monitoring 74 parameters) operating at these stations at all times.

The stations and monitors have been established for a number of purposes:

- to detect and quantify impacts from regulated pollution sources;
- to assess and track ambient background levels of various pollutants;
- to monitor transboundary migration of pollution into New Brunswick; and,
- to provide real-time data to public health reporting systems such as the Air Quality Health Index.

The Province also requires the operators of large industrial facilities to participate in air quality monitoring. During the 2013 reporting year there were 30 industry-operated stations, with 48 instruments (monitoring 51 parameters), dedicated to continuously monitoring the ambient concentrations of industry-specific contaminants in nearby communities.

What We Measure

Each air quality monitoring station is different, with monitors set up to suit the pollution sources in that particular area. The most common parameters monitored are:

Ground Level Ozone
Nitrogen Dioxide
Volatile Organic Compounds
Carbon Monoxide
Particulate Matter
Wind Speed
Sulphur Dioxide
Total Reduced Sulphur
Wind Direction

Site maps and monitor inventories are provided on pages 5 and 6.

Understanding Air Pollution

Air quality is constantly changing from season to season, and is affected by a wide variety of factors, including the weather, long range movements of air from other parts of the world, natural events, industry cycles, and other human activities.

Below, we look at some of the more common air pollutants: what they are, where they come from, and how they can affect our environment and our health.

Overview of Key Air Pollutants - Sources and Effects		
Air Pollutant	**What is it?**	**What does it do?**
Sulphur Dioxide (SO_2)	A colourless gas with a sharp odour, like that of a struck match. It is produced by the burning of sulphur-bearing fuels such as oil and coal.	High concentrations can damage plants, and corrode metals. It can irritate the eyes, throat, and lungs. It also contributes to acid rain, which impacts sensitive lakes and rivers.
Total Reduced Sulphur (TRS) and Hydrogen Sulphide (H_2S)	A variety of gases with a characteristic "rotten egg" odour. It is produced by natural decomposition (e.g., in marshes and tidal flats), and certain industrial processes (e.g., kraft pulp mills, and oil refineries).	Causes nuisance odours. At very high concentrations it can cause respiratory irritation and related health concerns. It also contributes to acid rain.
Nitrogen Dioxide (NO_2)	A reddish-brown gas with a sharp odour. It is generated through combustion, especially motor vehicle exhaust and fossil fuel burning electrical power generation.	Similar effects as listed for SO_2. NO_2 also reacts with other pollutants to cause the formation of ground level ozone.
Fine Particulate Matter, 2.5 microns in diameter or less ($PM_{2.5}$)	Tiny (invisible) airborne specks of solid or liquid material (e.g., dust & soot). It is generated by natural sources (e.g. wind-blown dust and forest fires), and through fuel burning (especially fossil fuels and wood).	Causes and aggravates a variety of human cardiovascular ailments. It also contributes to haze.
Ground Level Ozone (O_3)	An invisible and odourless gas. Ozone is formed through chemical reactions between a variety of "ozone precursor" pollutants, which are released by industrial facilities and motor vehicles. Most of New Brunswick's ozone is carried here by air masses originating in the United States and central Canada.	Irritates the lungs and makes breathing difficult. Also damages plants, weakens rubber, and attacks metals and painted surfaces.
Volatile Organic Compounds (VOCs)	A group of carbon-containing chemicals. They are produced by evaporation of solvents (e.g., paint and gasoline), by a variety of industrial processes, and through combustion. Some VOCs are generated naturally by plants and animals.	Many act as "ozone precursors", and contribute to smog. Some VOCs can impact human health. Others are of interest in climate research.
In addition to the key pollutants described above, there are a variety of other air contaminants that are monitored on a case-by-case basis, depending on local emission sources.		

Provincial Air Quality Monitoring Networks

Provincially Operated Air Quality Monitoring Stations

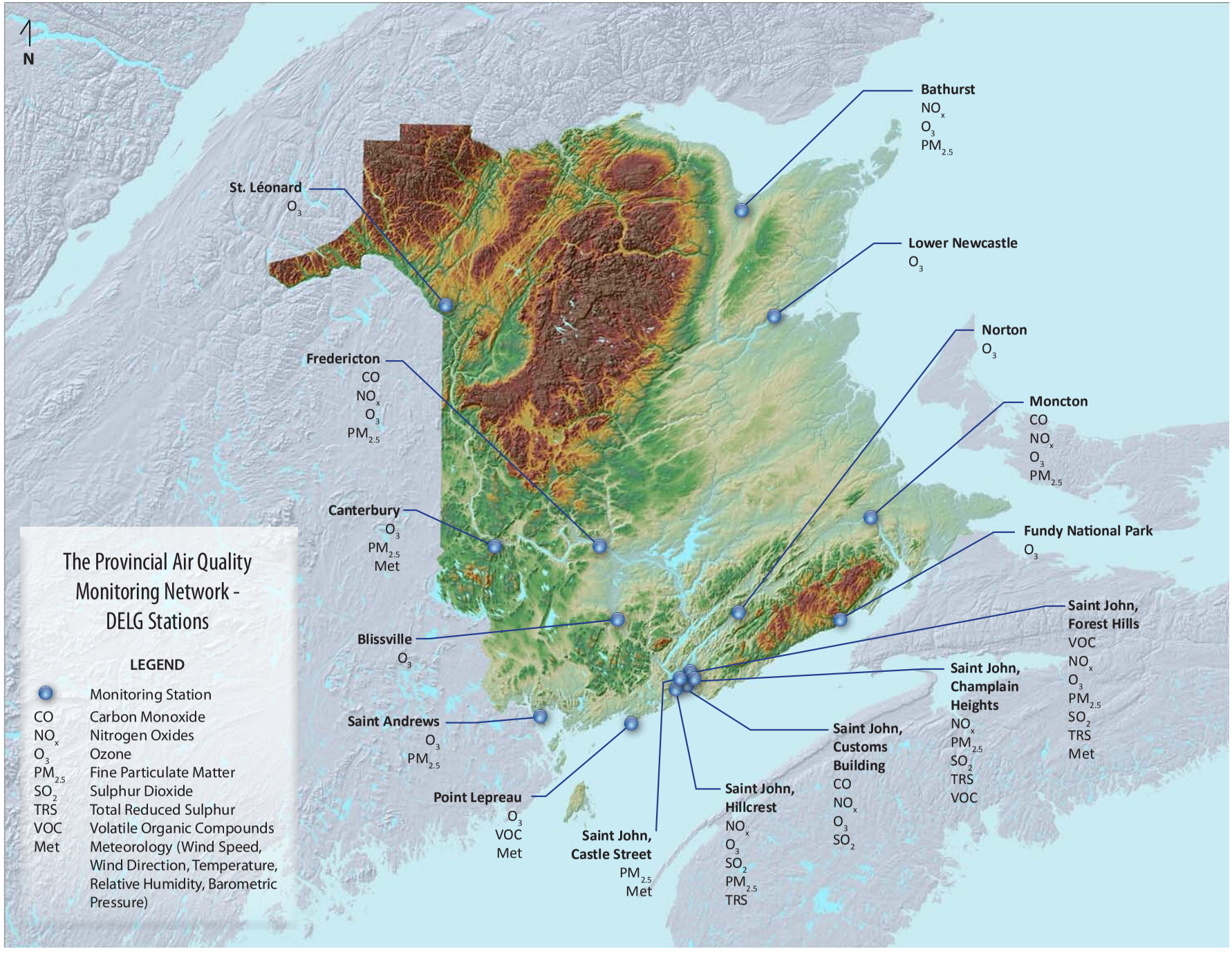
New Brunswick's 16 provincially operated air quality monitoring stations collect data continuously, year-round. Most monitors record a measurement every five minutes. Collectively, this generates over five million data points each year. The majority of this data is immediately transmitted to a central data management system. Operation and oversight of the network and data management system requires the constant attention of a team of dedicated air quality technicians.

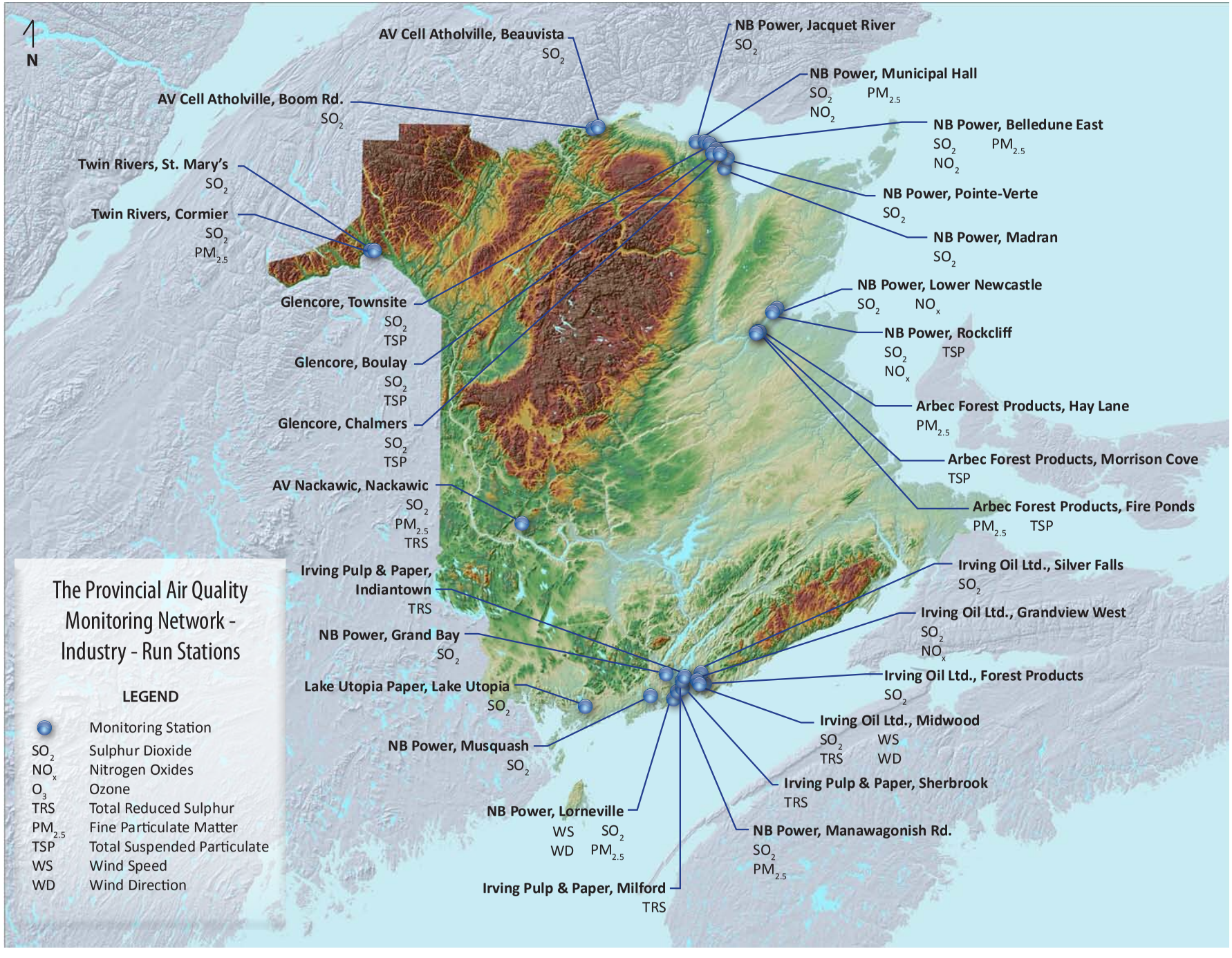
The stations are also audited by Environment Canada to ensure that monitors are appropriately maintained and data is accurate. Since the beginning of the program in the early 1970s these audits have consistently confirmed the high quality of the Province's reported data.

Industry-Operated Air Quality Monitoring Stations

As with provincial stations, New Brunswick's industry-operated stations are also operated continuously, year-round. This data is submitted annually to DELG.

DELG audits the industry-operated sites to ensure accuracy of the reported data.


N
Bathurst
NOx
O3
PM2.5
St. Léonard
O3
Lower Newcastle
O3
Norton
O3
Fredericton
CO
NOx
O3
PM2.5
Moncton
CO
NOx
O3
PM2.5
Canterbury
O3
PM2.5
Met
Fundy National Park
O3
Blissville
O3
Saint John, Forest Hills
VOC
NOx
O3
PM2.5
SO2
TRS
Met
Saint John, Champlain Heights
NOx
PM2.5
SO2
TRS
VOC
Saint Andrews
O3
PM2.5
Saint John, Customs Building
CO
NOx
O3
SO2
Point Lepreau
O3
VOC
Met
Saint John, Hillcrest
NOx
O3
SO2
PM2.5
TRS
Saint John, Castle Street
PM2.5
Met
The Provincial Air Quality Monitoring Network - DELG Stations
LEGEND
Monitoring Station
CO Carbon Monoxide
NOx Nitrogen Oxides
O3 Ozone
PM2.5 Fine Particulate Matter
SO2 Sulphur Dioxide
TRS Total Reduced Sulphur
VOC Volatile Organic Compounds
Met Meteorology (Wind Speed, Wind Direction, Temperature, Relative Humidity, Barometric Pressure)


N
AV Cell Atholville, Beauvista
SO2
NB Power, Jacquet River
SO2
AV Cell Atholville, Boom Rd.
SO2
NB Power, Municipal Hall
SO2 PM2.5
NO2
NB Power, Belledune East
SO2 PM2.5
NO2
Twin Rivers, St. Mary's
SO2
NB Power, Pointe-Verte
SO2
Twin Rivers, Cormier
SO2
PM2.5
NB Power, Madran
SO2
NB Power, Lower Newcastle
SO2 NOx
Glencore, Townsite
SO2
TSP
NB Power, Rockcliff
SO2 TSP
NOx
Glencore, Boulay
SO2
TSP
Arbec Forest Products, Hay Lane
PM2.5
Glencore, Chalmers
SO2
TSP
Arbec Forest Products, Morrison Cove
TSP
AV Nackawic, Nackawic
SO2
PM2.5
TRS
Arbec Forest Products, Fire Ponds
PM2.5 TSP
Irving Pulp & Paper,
Indiantown
TRS
Irving Oil Ltd., Silver Falls
SO2
Irving Oil Ltd., Grandview West
SO2
NOx
NB Power, Grand Bay
SO2
Irving Oil Ltd., Forest Products
SO2
Lake Utopia Paper, Lake Utopia
SO2
Irving Oil Ltd., Midwood
SO2 WS
TRS WD
NB Power, Musquash
SO2
Irving Pulp & Paper, Sherbrook
TRS
NB Power, Lorneville
WS SO2
WD PM2.5
NB Power, Manawagonish Rd.
SO2
PM2.5
Irving Pulp & Paper, Milford
TRS
The Provincial Air Quality Monitoring Network - Industry - Run Stations
LEGEND
Monitoring Station
SO2 Sulphur Dioxide
NOx Nitrogen Oxides
O3 Ozone
TRS Total Reduced Sulphur
PM2.5 Fine Particulate Matter
TSP Total Suspended Particulate
WS Wind Speed
WD Wind Direction

Provincial Air Quality Objectives

One of the main goals of this report is to describe the Province's success in achieving the provincial air quality objectives (listed below), which were established under the *Clean Air Act* in 1997.

New Brunswick Air Quality Objectives				
Pollutant	**Averaging Period**			
	1 Hour	**8 Hour**	**24 Hour**	**1 year**
Carbon Monoxide	35,000 µg/m^3 (30 ppm)	15,000 µg/m^3 (13 ppm)		
Hydrogen Sulphide	15 µg/m^3 (11 ppb)		5 µg/m^3 (3.5 ppb)	
Nitrogen Dioxide	400 µg/m^3 (210 ppb)		200 µg/m^3 (105 ppb)	100 µg/m^3 (52 ppb)
Sulphur Dioxide*	900 µg/m^3 (339 ppb)		300 µg/m^3 (113 ppb)	60 µg/m^3 (23 ppb)
Total Suspended Particulate			120 µg/m^3	70 µg/m^3

* The standard for sulphur dioxide is 50% lower in Saint John, Charlotte, and Kings counties.

About the Objectives

The provincial air quality objectives apply to **ambient air**. That is, the normal outdoor air that is generally available for use by people and the environment. They are not meant to apply indoors, nor directly at the end of a chimney or smokestack.

The air quality objectives are described in units of "micrograms" (i.e., millionths of a gram) per cubic meter (µg/m^3). In the table above, most are also provided in the somewhat more common "parts per million" (ppm) or "parts per billion" (ppb) units.

As reflected in the table above, there are two or more objectives for each pollutant, each with an associated "averaging period". This is to ensure that the objectives properly address maximum values for short term peaks, frequent exposure to moderate peaks, and long term exposure to lower levels (and potential combinations of the three).

Accomplishing Our Air Quality Objectives

The table below, and its counterpart on page 9, summarize the exceedances of the provincial air quality objectives that occurred in 2012 and 2013. Province-wide, there were 23 exceedance events in 2012 and 15 in 2013. Most events were very short-lived. The longer duration events were all odour related, involving relatively low concentrations of odorous reduced sulphur compounds that were likely due to unusual local weather conditions.

Air Quality Objective Statistics for 2012			
Parameter	**Number of Exceedances Events**	**Location**	**Comments**
Carbon Monoxide	0	-	None
Hydrogen Sulphide (as Total Reduced Sulphur)	3	Saint John, Champlain Heights	The one-hour average objective (11 ppb) was exceeded on three occasions (4 hours total) at the Champlain Heights (DELG) monitoring station. These exceedances were associated with a failed seal (now repaired) on a petroleum storage tank at the Irving Oil Refinery.
	6	Saint John, North End & West Side	The one-hour average objective (11 ppb) was exceeded once, and the 24-hour average objective (3.5 ppb) was exceeded on four occasions (78 hours total) at the Indiantown (Irving Pulp and Paper) monitoring station. The 24-hour average objective was also exceeded once (17 hours total) at the Sherbrook Street (Irving Pulp and Paper) monitoring station.
Nitrogen Dioxide	0	-	None
Sulphur Dioxide	3	Saint John, East	The one-hour objective for Saint John (169.5 ppb) was exceeded on two occasions (three hours total) at the Forest Hills (DELG) monitoring station. Both exceedances were associated with equipment malfunctions at the Irving Oil Refinery that were detected and immediately corrected. The objective was also exceeded once (one hour total) at the Grandview West (Irving Oil Ltd.) monitoring station.
	10	Belledune	The one-hour objective (339 ppb) was exceeded on three occasions (three hours total) at the Boulay (Glencore) monitoring station, and four times (four hours total) at the Townsite (Glencore) monitoring station. Three of these events resulted in temporary shut downs of the Glencore smelter to address the exceedance. The one-hour objective was also exceeded on two occasions (three hours total at the Municipal Hall (NB Power) monitoring station, and once (one hour total) at the Belledune East (NB Power) monitoring station. These exceedances are not associated with any known malfunctions or events at nearby facilities. It should also be noted that the NB Power generating station was offline during two of the exceedance events.
Total Suspended Particulate	1	Belledune	The 24-hour average objective (120 µg/m^3) was exceeded once at the Boulay (Glencore) monitoring station.

Air Quality Objective Statistics for 2013			
Parameter	**Number of Exceedances Events**	**Location**	**Comments**
Carbon Monoxide	0	-	None
Hydrogen Sulphide (as Total Reduced Sulphur)	5	Saint John, West Side	The 24-hour average objective (3.5 ppb) was exceeded on three occasions (91 hours total) at the Sherbrook (Irving Pulp and Paper) monitoring station. One of these events included exceedances of the one-hour objective (11 ppb) (3 hours total). There was one additional exceedance of the one-hour objective at this station (one hour total). The 24-hour average objective was exceeded on one occasion (4 hours total) at the Milford (Irving Pulp and Paper) monitoring station.
Nitrogen Dioxide	0	-	None
Sulphur Dioxide	4	Belledune	The one-hour objective (339 ppb) was exceeded on two occasions (two hours total) at the Boulay (Glencore) monitoring station, once (one hour total) at the Chalmers (Glencore) monitoring station, and once (one hour total) at the Townsite monitoring station. These exceedances are not associated with any known malfunctions or events at nearby facilities.
	1	Atholville	The one-hour objective (339 ppb) was exceeded once (one hour total) at the Boom Road (AV Cell) monitoring station. This exceedance was associated with an equipment malfunction at the AV Cell mill that was detected and immediately corrected.
	1	Edmundston	The one-hour objective (339 ppb) was exceeded on one occasion (two hours total) at the Cormier (Twin Rivers) monitoring station. This exceedance was associated with an operator error at the Twin Rivers mill that was detected and immediately corrected.
Total Suspended Particulate	2	Belledune	The 24-hour objective (120 µg/m^3) was exceeded on two occasions at the Townsite (Glencore) monitoring station. These exceedances are associated with forest fire smoke that was intermittently impacting this area during this period.
	2	Miramichi	The 24-hour objective (120 µg/m^3) was exceeded on two occasions at the Fire Ponds (Arbec) monitoring station. Further analysis of collected samples revealed the source to be road dust.

Canadian Ambient Air Quality Standards

In 2012, the Canadian Council of Ministers of Environment (CCME) adopted new Canadian Ambient Air Quality Standards (CAAQS) for tracking long-term trends for particulate matter and ground level ozone across Canada.

There are two CAAQS for fine particulate matter. One is for annual average conditions, and the other is a daily average standard based on the 98th percentile day (one of the poorest air quality days of the year). The ozone CAAQS is based on the fourth worst day of the year.

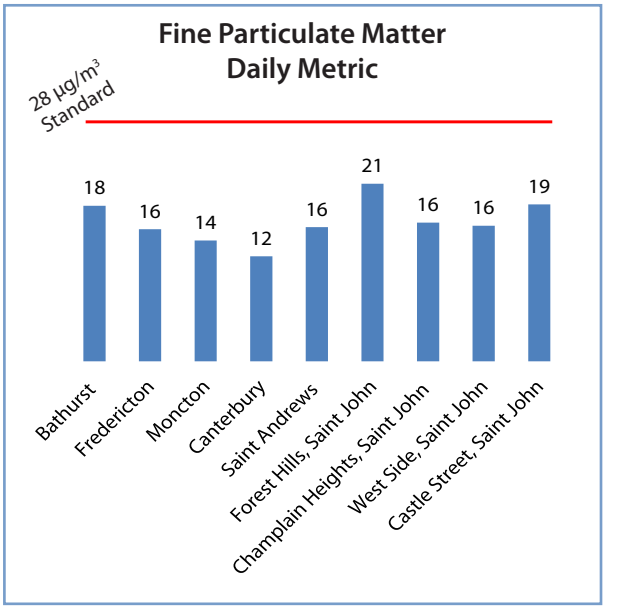
In all cases, the calculated annual statistic is averaged over a three year period.

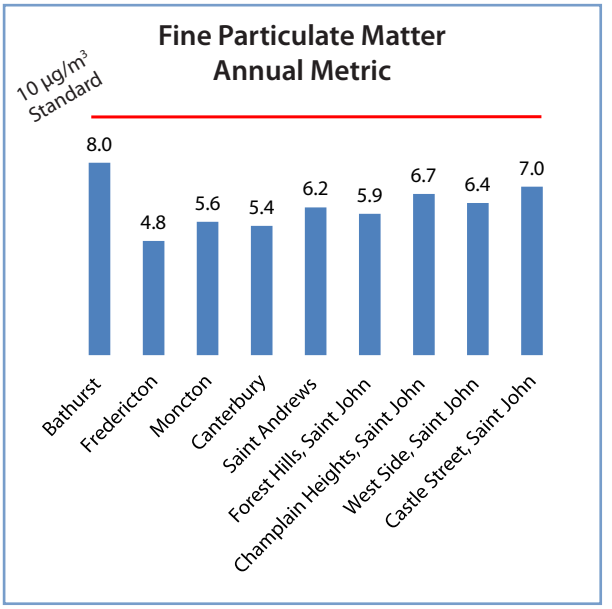
The CAAQS were designed to replace the previous system of "Canada-wide Standards" for these contaminants, which used a similar statistical approach.

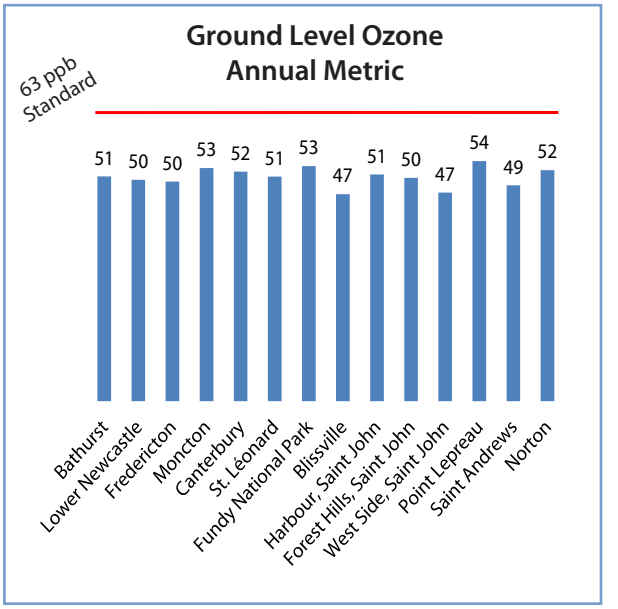
As illustrated below, New Brunswick has achieved its 2015 CAAQS target at all reporting sites. This is based on data collected in 2011, 2012, and 2013.

Early Achievement!

2015 Targets Reached in 2013







Air Zone Management

In addition to the Canadian Ambient Air Quality Standards that were adopted in 2012, the CCME has also created an accompanying Air Zone Management Framework (AZMF) to help guide air quality management actions within each province.

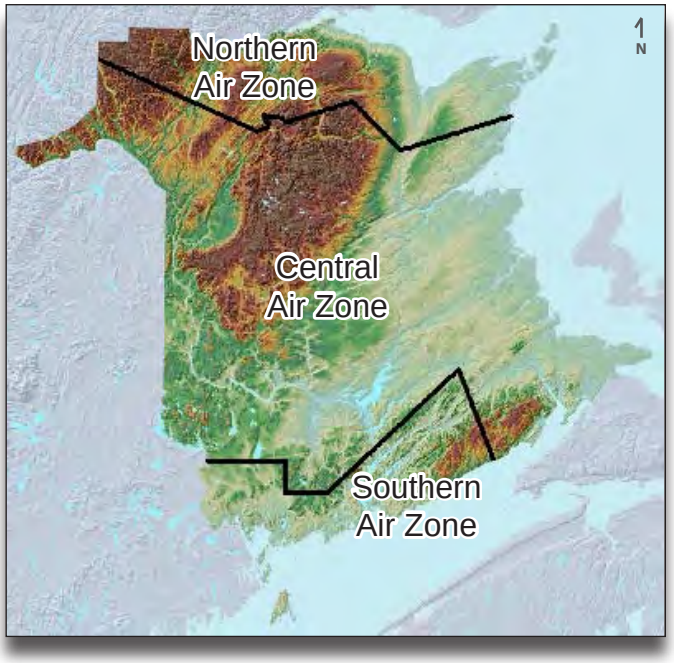
Under the AZMF, each province will establish "Air Zones", which are geographic areas that have similar air quality profiles and challenges. New Brunswick's air zones are illustrated right.

Each year, air quality within each Air Zone is graded against a colour-coded system of "Management Levels". The Management Levels and their thresholds are described in the table below.

Management Levels are based on the CAAQS metric values, but may be adjusted to remove the influence of exceptional events (e.g., forest fires).

New Brunswick's 2013 Management Levels for each provincial station are illustrated on page 10.

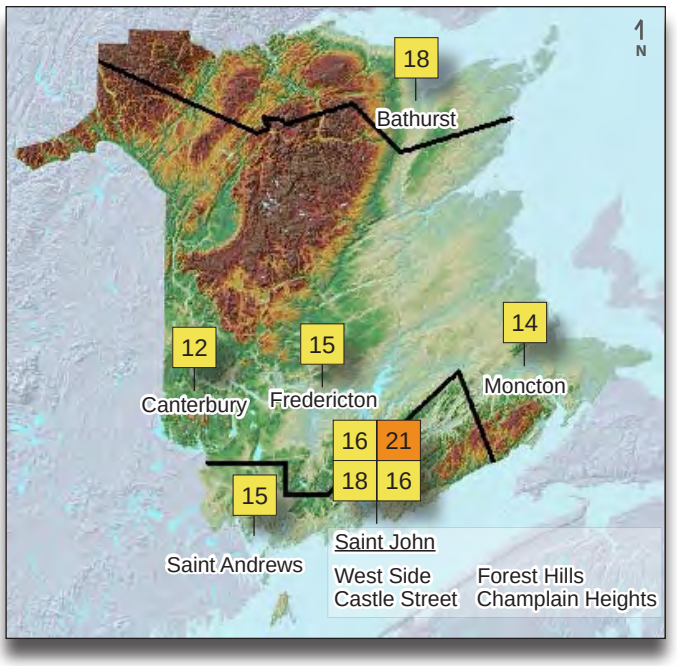
New Brunswick's Provincial Air Zones



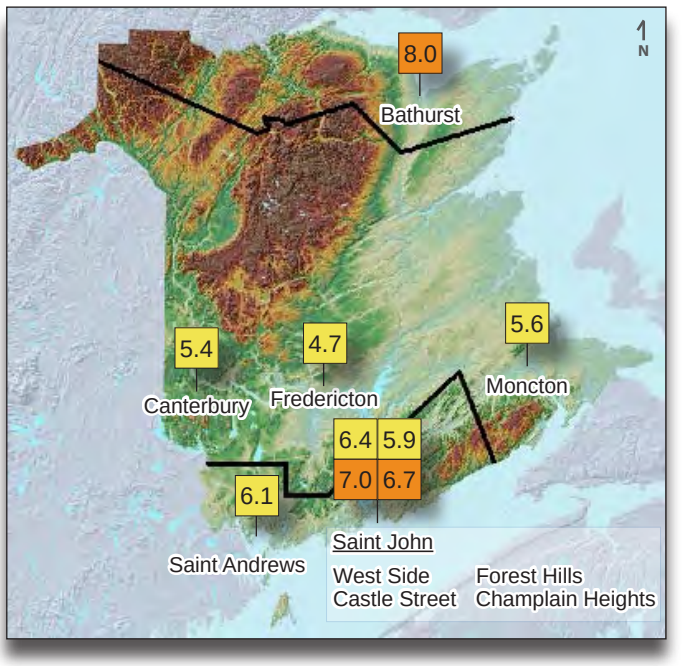
Air Zone Management Levels				
Management Level	Management Goal	Threshold Values		
		Fine Particulate Matter		Ozone (ppb)
		Daily (µg/m³)	Annual (µg/m³)	
Red (CAAQS non-acheivement)	CAAQS Achievement	>28	>10	>63
Orange	Prevent CAAQS non-achievement	>19 to 28	>6.4 to 10	>56 to 63
Yellow	Prevent air quality deterioration	>10 to 19	>4 to 6.4	>50 to 56
Green	Keep clean areas clean	0 to 10	0 to 4	0 to 50

2013 Air Zone Management Levels

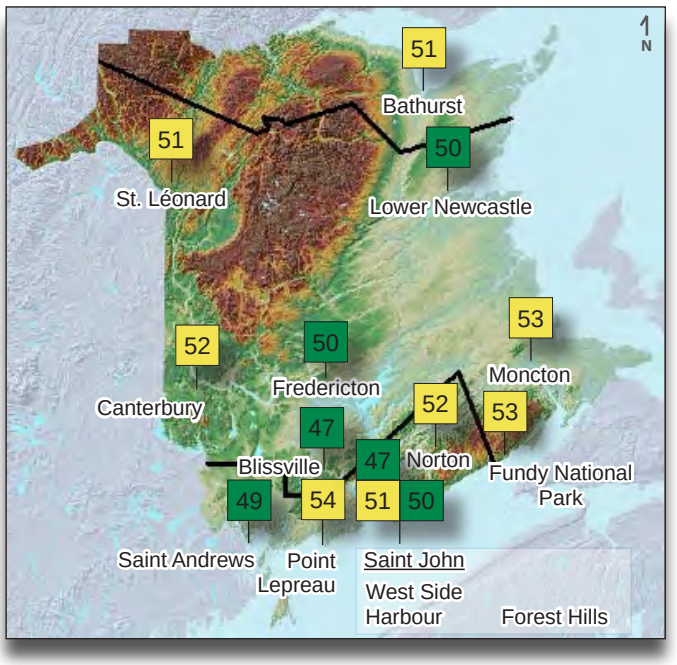
Fine Particulate Matter - Daily (µg/m³)



Fine Particulate Matter - Annual (µg/m³)



Ground Level Ozone (ppb)



Understanding the Levels

Each signpost in the three illustrations identifies the location of a monitoring station within the provincially operated air quality monitoring network that collects data for the CAAQS metric identified.

The number on each signpost represents the calculated 2013 Management Level value for that parameter at that location. The 2013 values excluded fine particulate matter data from a two day province-wide transboundary forest fire smoke event during the month of July.

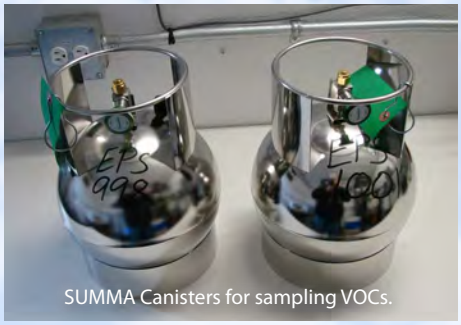
The colour of each signpost indicates the Air Zone Management Level associated with that location.

Each air zone is considered to have an overall management level that corresponds to the colour assigned to its poorest air quality station.

Volatile Organic Compounds in the Saint John Region

Volatile Organic Compounds (VOCs) have been monitored in the Saint John region since 1992. Within the city, VOC data is being collected in Forest Hills and Champlain Heights. Background reference data is also being collected at Point Lepreau. All samples are analyzed for more than 150 VOC compounds.

Unlike the other parameters in the provincial network, VOCs are not monitored continuously. Rather, air samples are periodically collected in stainless steel canisters, which are shipped to a laboratory for analysis. As a consequence, VOC data is not available in real-time.



SUMMA Canisters for sampling VOCs.

Key Pollutant: Benzene

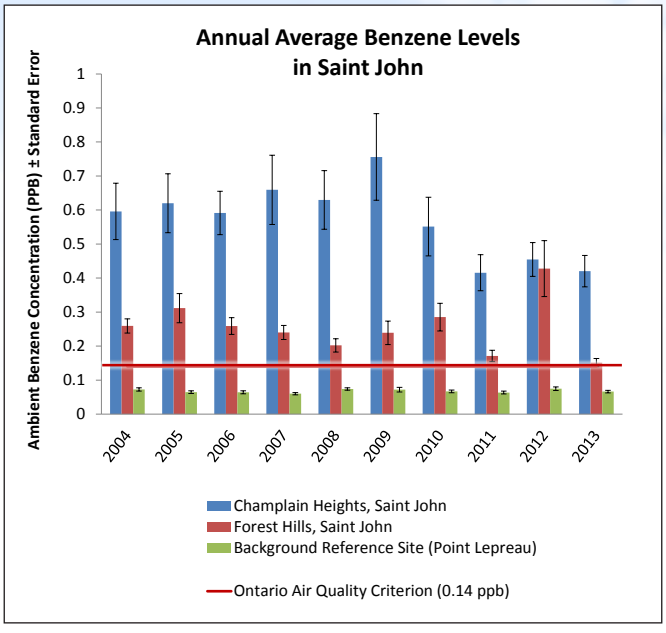
Benzene is one of the key VOCs that is monitored in Saint John. Major sources of benzene include evaporation and combustion of petroleum products (especially gasoline), as well as other types of combustion. Benzene is recognized as cancer-causing by the World Health Organization and the United States Environmental Protection Agency.

Although it cannot be entirely eliminated from the environment due to natural emission sources (e.g., volcanoes and forest fires), governments around the world are working to minimize exposure levels.

As New Brunswick does not typically experience high ambient benzene concentrations, no provincial ambient air quality standard has been developed for this pollutant. Similarly, there is no national air quality standard for benzene in Canada. However, in lieu of a local standard, results can be compared against standards that have been adopted elsewhere in the world. Illustrated below, the Saint John results have been compared against Ontario's provincial criterion for benzene, which is the most stringent currently available.

As indicated in the graph, benzene levels in Saint John are higher than the criterion value established for Ontario. Nevertheless, these values are quite low when compared to the next most stringent international standard (1.5 ppb for Sweden).

It is also notable that the annual average for Forest Hills increased substantially between 2011 and 2012. This was due to elevated levels that occurred during July and August of 2012. As no corresponding increase was observed at the Champlain Heights monitor during this period, it is likely that this was the result of a short-lived event near the Forest Hills station. The following year (2013) saw the lowest benzene levels on record for Forest Hills.



Note: the black error bars on the graph represent the "Standard Error" of the average. This is a statistical tool meant to illustrate the variability of the data that contributed to each average value. Wider error bars indicate a larger amount of variability.

Local Air Quality Information - *When You Need It*

Although daily fluctuations in ambient pollution levels may pass unnoticed by many, for people with reduced lung function from respiratory disease and other types of environmental sensitivity, such changes can have significant impacts on their daily lives. Recognizing this, tools have been developed to provide timely information to the public about current and forecasted pollution levels in different areas of the province.

Air Quality Advisories

Air quality data and pollution forecasts are continually monitored by DELG, the Department of Health, and Environment Canada. Whenever air quality objectives are exceeded or are forecasted to be exceeded, air quality and health advisories are issued to the media to provide timely notice to the public.

2012

There were no air quality advisories issued in 2012.

2013

There were four air quality advisories issued in 2013:

June 15, 2013
Forest fires in Quebec produced smoke plumes that impacted most of New Brunswick.

July 2, 2013
Forest fires between Labrador and James Bay produced smoke that impacted air quality in central and southern New Brunswick.

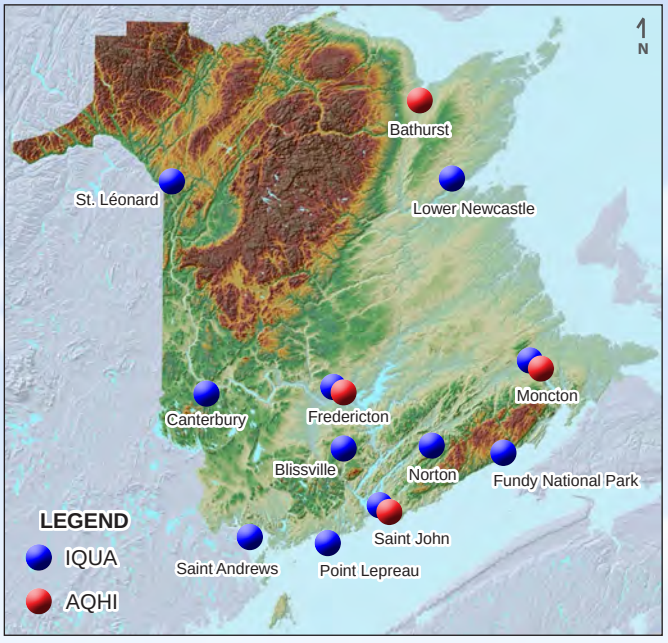
July 16 and 17, 2013
Smoke from forest fires in southern Quebec impacted air quality throughout most of New Brunswick.

August 20, 2013
Unusual wind patterns resulted in elevated ground level ozone concentrations in southern New Brunswick.

Air Quality Indices

New Brunswick currently reports air quality information to the public in real time through two air quality indices: the Index of the Quality of the Air (IQUA) and the Air Quality Health Index (AQHI). The IQUA has been used in New Brunswick since 1979 and is gradually being replaced by the AQHI, which was first introduced in New Brunswick in 2008. The AQHI is considered superior to the older IQUA as it is based on the latest science and focusses on the relationship between air quality conditions and associated health risks.

2013 IQUA and AQHI Coverage



Additional information and current IQUA and AQHI values are available via the following web sites:

www.gnb.ca/environment
www.gnb.ca/health

Current AQHI information is also available via the following national website *www.weather.gc.ca*. AQHI information is also reported through The Weather Network, and via privately developed Smartphone Apps.

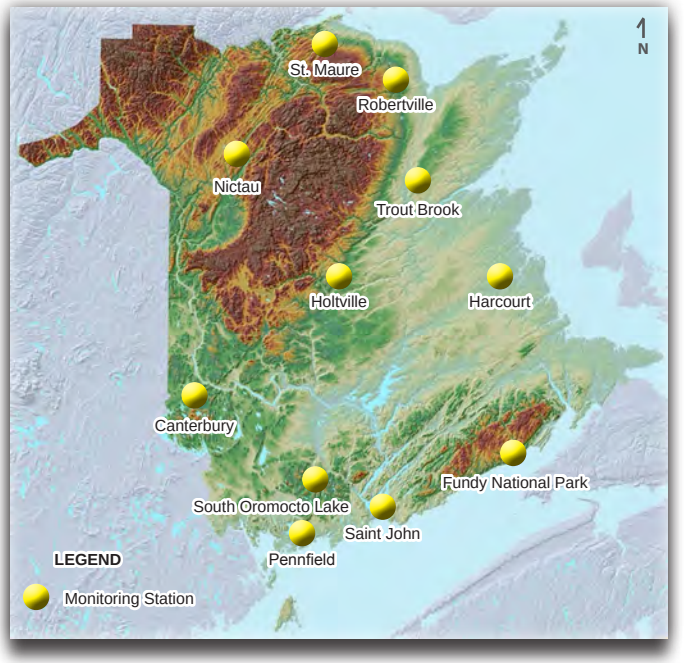
Acid Rain Monitoring

Some air pollutants can be transformed in the atmosphere into acidic particles that ultimately fall out as acid rain (or snow, hail, etc). The emissions that cause acid rain typically travel long distances, hundreds or even thousands of kilometers, before returning to the surface as rain or snow.

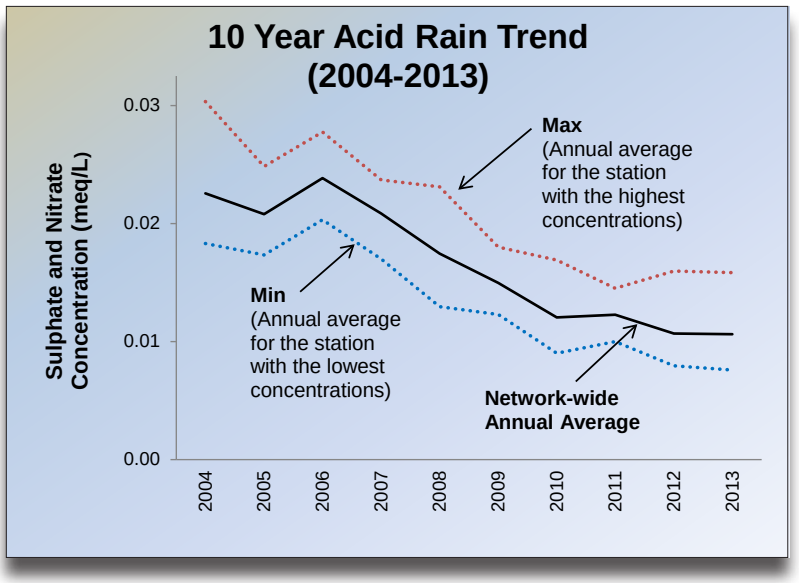
The adverse impacts of acid rain have been recognized since the early 1980s. Acid rain harms sensitive ecosystems by changing the chemistry of lakes, streams, and forest soils. It can also damage trees and agriculturally important plants. Infrastructure is also impacted by acid rain, as it can degrade paints and protective coatings, which accelerates corrosion.

Measures to reduce the emissions that contribute to acid rain have been undertaken in North America since the late 1980s. Most recently, this has included commitments to reduce emissions under the Canadian Council of Ministers of Environment's "Post-2000 Canada-wide Acid Rain Strategy". Over the past two decades emissions from major sources within New Brunswick have been reduced significantly.

2013 Acid Precipitation Network Map



In an effort to track the results of our pollution reduction efforts, DELG has operated an extensive acid precipitation (rain and snow) monitoring network in cooperation with NB Power since the early 1980s. The above map shows the location of the 11 acid precipitation monitoring sites in New Brunswick. Samples are collected at each of these sites by a local site operator every day, and sent to the DELG laboratory for analysis. DELG staff coordinate the monitoring program, perform data quality assurance, and maintain the official data archive.



The key indicators for acid rain are sulphate and nitrate concentration. Each of these parameters has a slightly different effect on acidity, but can be combined and expressed as "milliequivalents per litre" (meq/L). As reflected in the chart to the left, emission reduction strategies have significantly reduced sulphate and nitrate concentrations in precipitation over the past 10 years.

Although levels have declined, acid rain monitoring remains important for New Brunswick because sensitive areas are still being impacted. Continued efforts are required to reduce emissions and ensure that our most sensitive lakes and rivers are provided with long-term protection from acid damage.

Special Air Quality Studies

In addition to its fixed network of permanent air quality monitoring stations, since 2001 DELG has operated a mobile air quality monitoring unit that can be moved from place to place to carry out special monitoring projects.

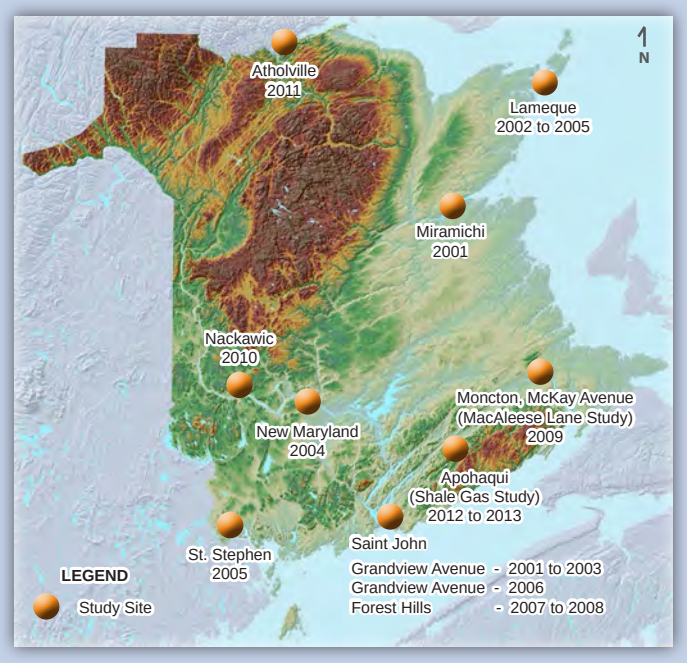
The mobile air quality monitoring unit is deployed as needs arise. Typical uses include:

- Assessing air quality near pollution sources.
- Evaluating potential sites for permanent monitoring stations.
- Verifying air quality modelling predictions.
- Measuring background (baseline) air quality levels prior to a development.

Results from special studies are reported in the annual air quality monitoring results for the year in question, or in separate stand-alone reports.

During 2012 and 2013 the unit was used to study the shale gas industry in the Penobsquis area. This study is being undertaken in partnership with Health Canada. Results are being published in a series of stand-alone reports.

Special Air Quality Study Sites (2001 - 2013)



The DELG mobile air quality monitoring unit (pictured above) is typically equipped with monitors for:

Common Study Parameters

- Sulphur dioxide
- Nitrogen oxides
- Ground level ozone
- Carbon monoxide
- Fine particulate matter
- Total reduced sulphur
- Meteorology (wind speed, wind direction, temperature, and barometric pressure)

The unit can also be equipped with a variety of other sensors and sampling equipment when needed (*e.g.*, total suspended particulate, volatile organic compounds, and metals).

Conclusion

As reflected in this report, air quality in New Brunswick is very good, and the province continues to benefit from air pollution reduction initiatives that have been implemented over the past decade.

The New Brunswick Department of Environment and Local Government remains committed to air quality surveillance throughout the province, and comprehensively reporting air quality information to New Brunswickers.

Learn More About Air Quality

In addition to this overview, complete site-specific monitoring results are available in the "Air Quality Monitoring Results - Supplementary Data 2012 - 13" companion document, which is available electronically via the DELG website:

www.gnb.ca/environment

Feedback...

We are interested in your feedback on this report. All suggestions will be considered, and if possible, incorporated in future reports. Please forward any comments to:

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