



**2021**

# **Air Quality Monitoring Results**

**Supplementary  
Data**



**New Brunswick Department of Environment and Local Government  
Environmental Reporting Series  
2022**

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This report provides detailed, site-specific air quality information, and is provided as a companion document to the Department of Environment and Local Government's "Air Quality Monitoring Results 2021" report, which is available electronically via the DELG website:

[www.gnb.ca/environment](http://www.gnb.ca/environment)

The information, graphics, and tables presented in this document are intended to illustratively summarize the data collected via New Brunswick's air quality monitoring networks in 2021. This information is provided without context or interpretation. Interpretation and background information related to key contaminants and datasets can be found in the "Air Quality Monitoring Results 2021" report. For background information about other air contaminants please refer to the following resource:

[Government of Canada - Toxic Substances List](#)

**Feedback**

We are interested in your feedback on this report. All suggestions will be considered, and if possible, incorporated in future reports. You may contact the Air and Water Sciences Branch, Department of Environment and Local Government (DELG) at [elg/egl-info@gnb.ca](mailto:elg/egl-info@gnb.ca) with any comments.

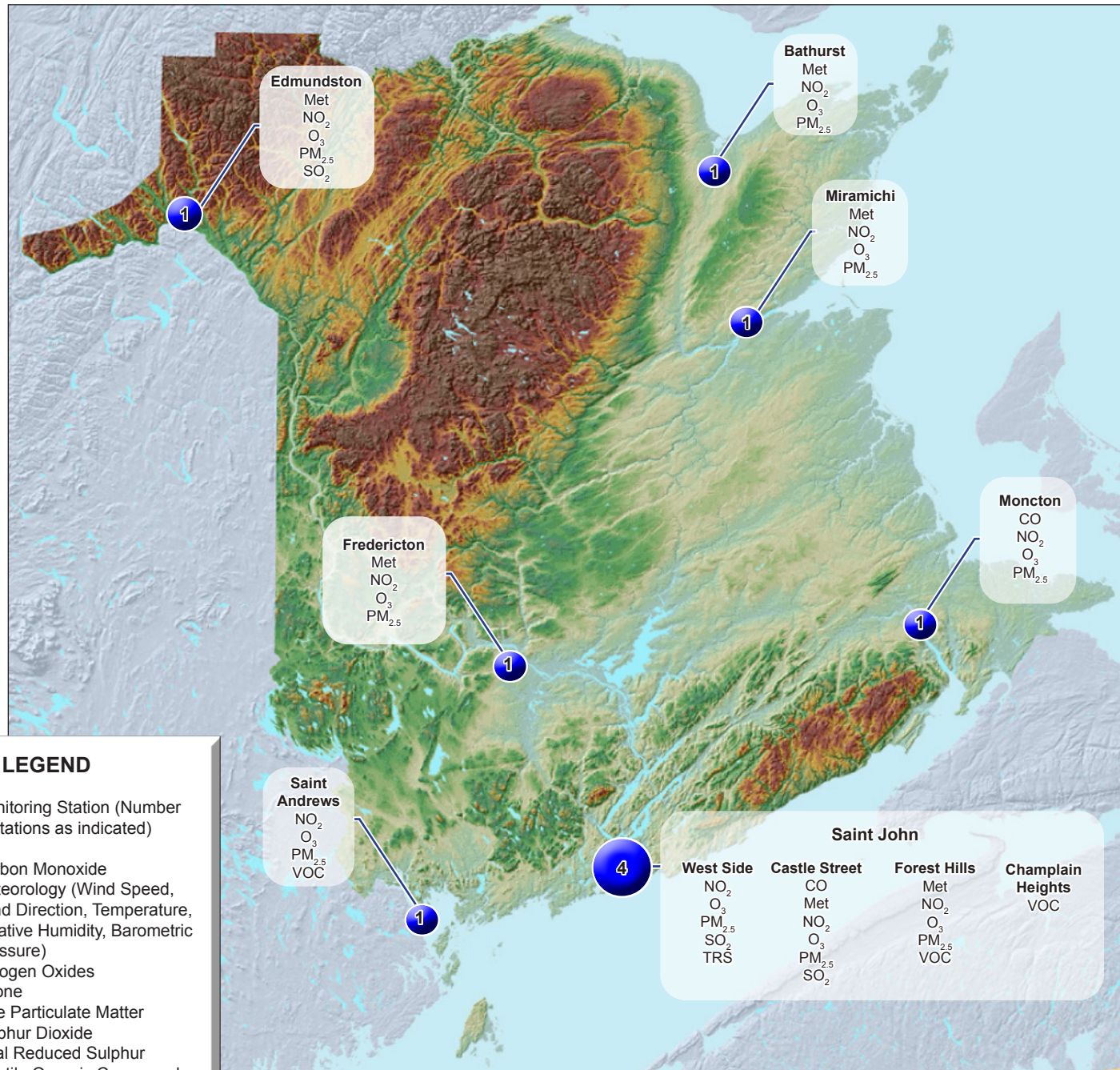
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## List of Acronyms and Abbreviations

CO	Carbon Monoxide
eq/ha/yr	Equivalents (molar equivalent acidity) per hectare per year
PM <sub>2.5</sub>	Fine Particulate Matter (less than 2.5 microns)
H <sub>2</sub> S	Hydrogen Sulphide
kg/ha/yr	Kilograms per hectare per year
Met	Meteorology (Wind Speed, Wind Direction, Temperature, Relative Humidity, Barometric pressure)
µg/m <sup>3</sup>	Micrograms per cubic meter
meq/L	Milliequivalents (molar equivalent acidity) per litre
mg/L	Milligrams per litre
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
O <sub>3</sub>	Ozone
ppb	Parts per billion
ppm	Parts per million
SO <sub>2</sub>	Sulphur Dioxide
TRS	Total Reduced Sulphur
TSP	Total Suspended Particulate
VOC	Volatile Organic Compound

**PART I:**  
**THE PROVINCIAL AIR QUALITY MONITORING NETWORK:**  
**STATIONS OPERATED BY THE PROVINCE**



**LEGEND**

Monitoring Station (Number of stations as indicated)

CO	Carbon Monoxide
Met	Meteorology (Wind Speed, Wind Direction, Temperature, Relative Humidity, Barometric Pressure)
NO <sub>x</sub>	Nitrogen Oxides
O <sub>3</sub>	Ozone
PM <sub>2.5</sub>	Fine Particulate Matter
SO <sub>2</sub>	Sulphur Dioxide
TRS	Total Reduced Sulphur
VOC	Volatile Organic Compounds

**Saint Andrews**  
 NO<sub>2</sub>  
 O<sub>3</sub>  
 PM<sub>2.5</sub>  
 VOC

**Edmundston**  
 Met  
 NO<sub>2</sub>  
 O<sub>3</sub>  
 PM<sub>2.5</sub>  
 SO<sub>2</sub>

**Fredericton**  
 Met  
 NO<sub>2</sub>  
 O<sub>3</sub>  
 PM<sub>2.5</sub>

**Bathurst**  
 Met  
 NO<sub>2</sub>  
 O<sub>3</sub>  
 PM<sub>2.5</sub>

**Miramichi**  
 Met  
 NO<sub>2</sub>  
 O<sub>3</sub>  
 PM<sub>2.5</sub>

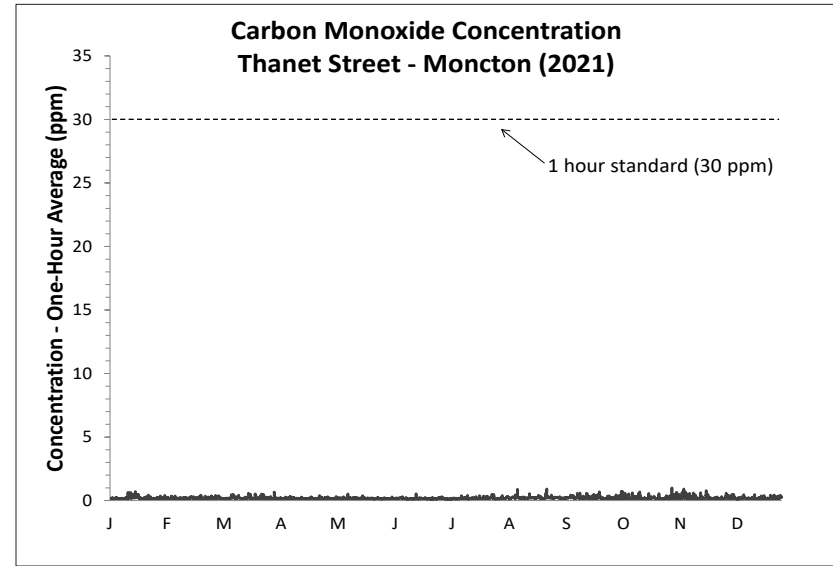
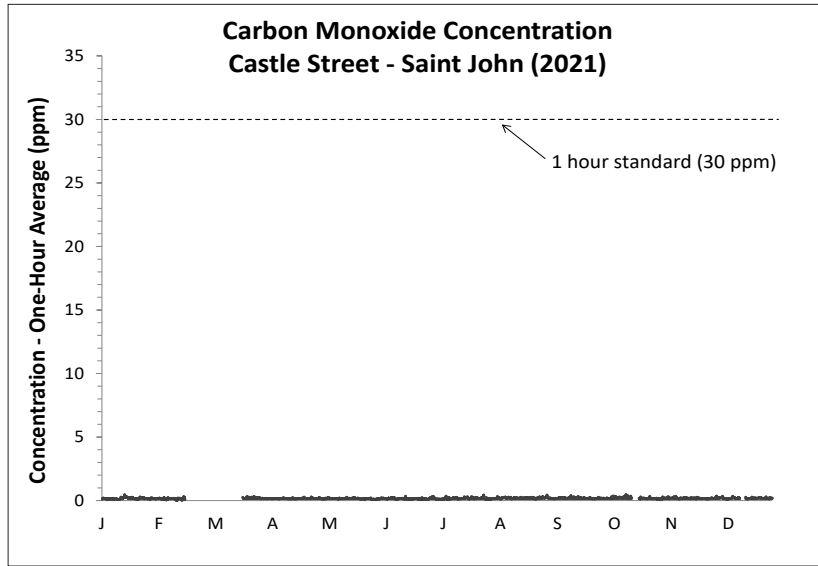
**Moncton**  
 CO  
 NO<sub>2</sub>  
 O<sub>3</sub>  
 PM<sub>2.5</sub>

**Saint John**

<b>West Side</b>	<b>Castle Street</b>	<b>Forest Hills</b>	<b>Champlain Heights</b>
NO <sub>2</sub>	CO	Met	VOC
O <sub>3</sub>	Met	NO <sub>2</sub>	
PM <sub>2.5</sub>	NO <sub>2</sub>	O <sub>3</sub>	
SO <sub>2</sub>	O <sub>3</sub>	PM <sub>2.5</sub>	
TRS	PM <sub>2.5</sub>	VOC	
	SO <sub>2</sub>		

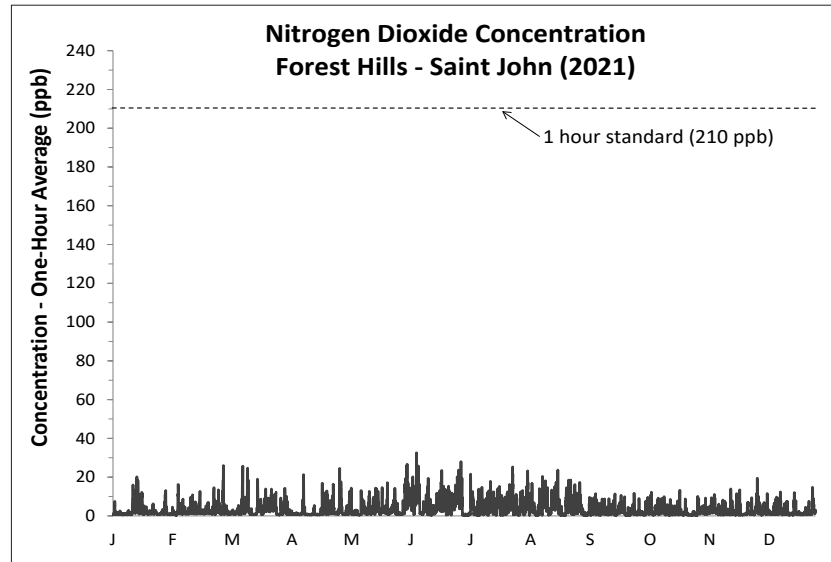
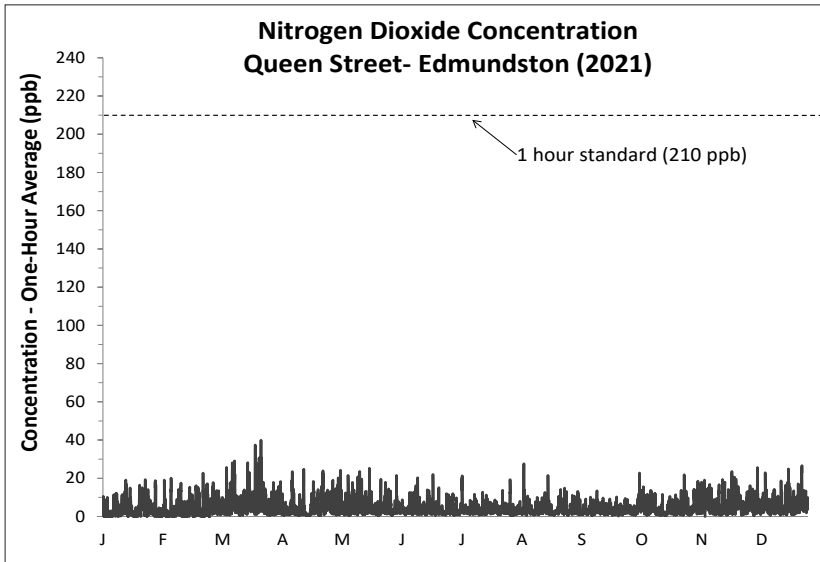
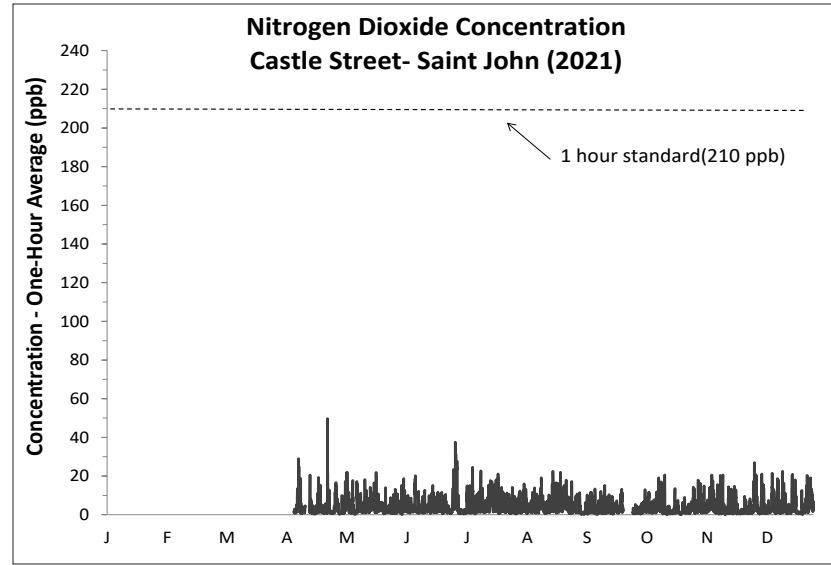
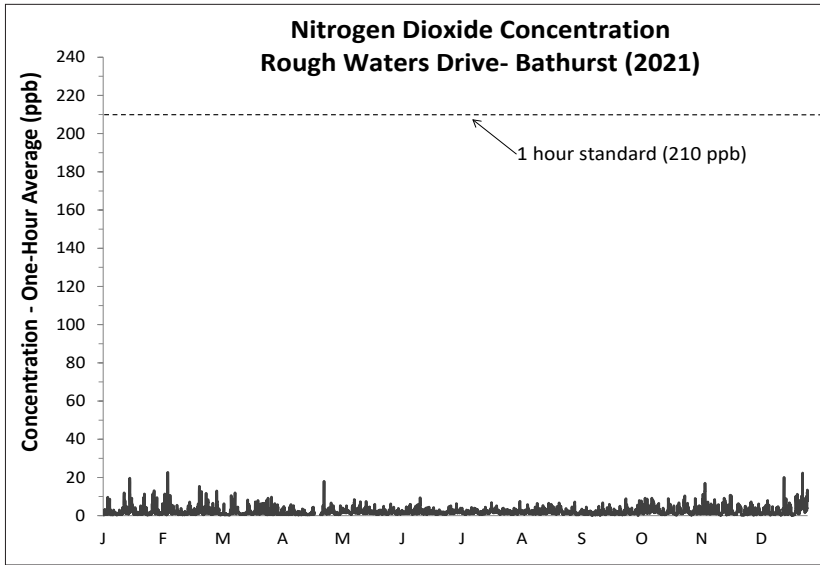
# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Carbon Monoxide



# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

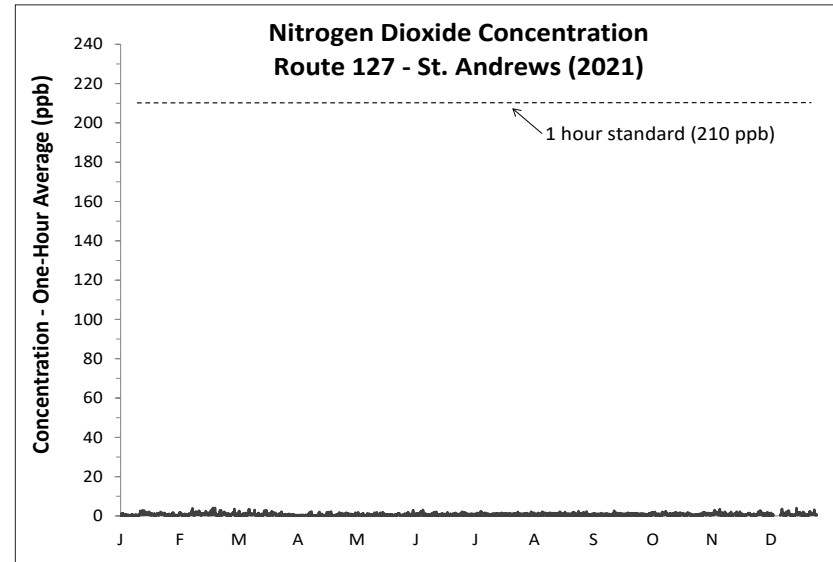
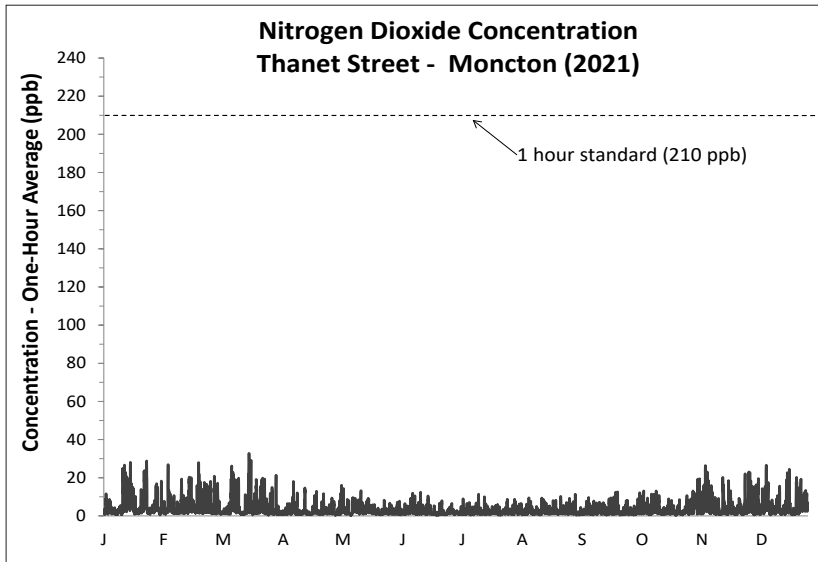
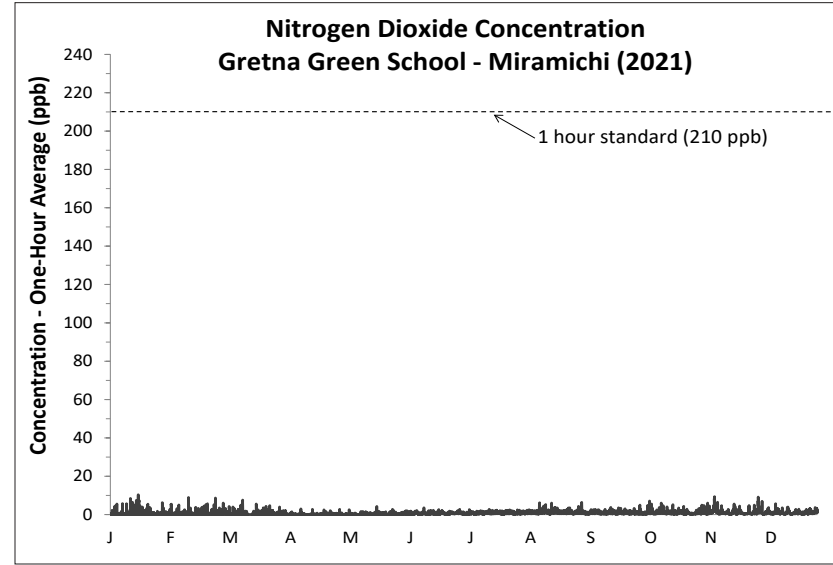
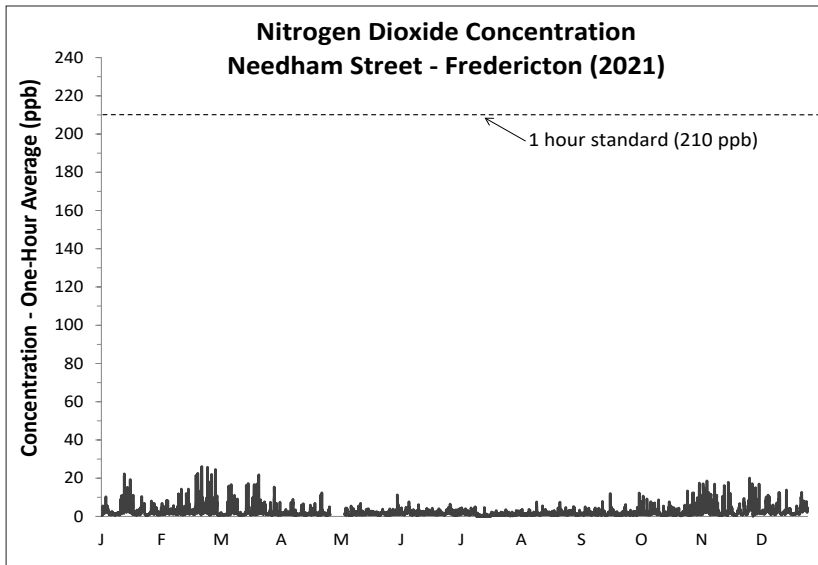
## Nitrogen Dioxide





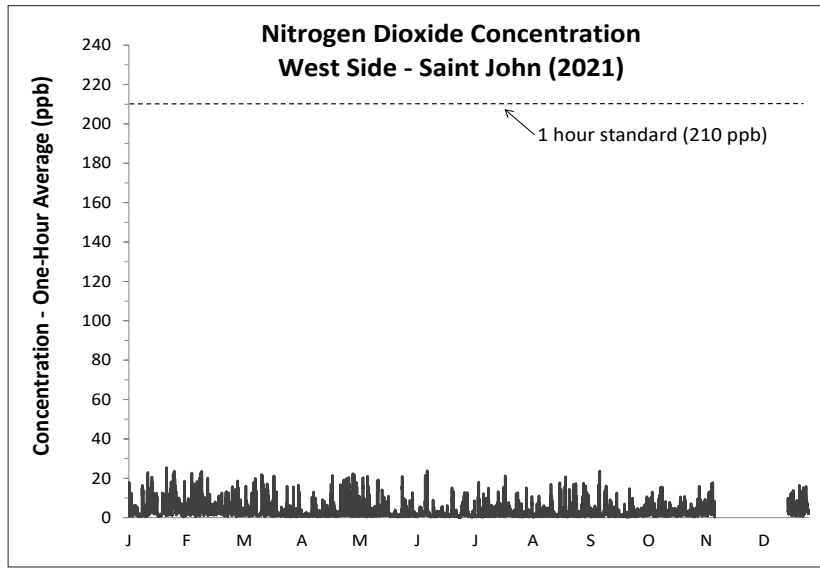
# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Nitrogen Dioxide



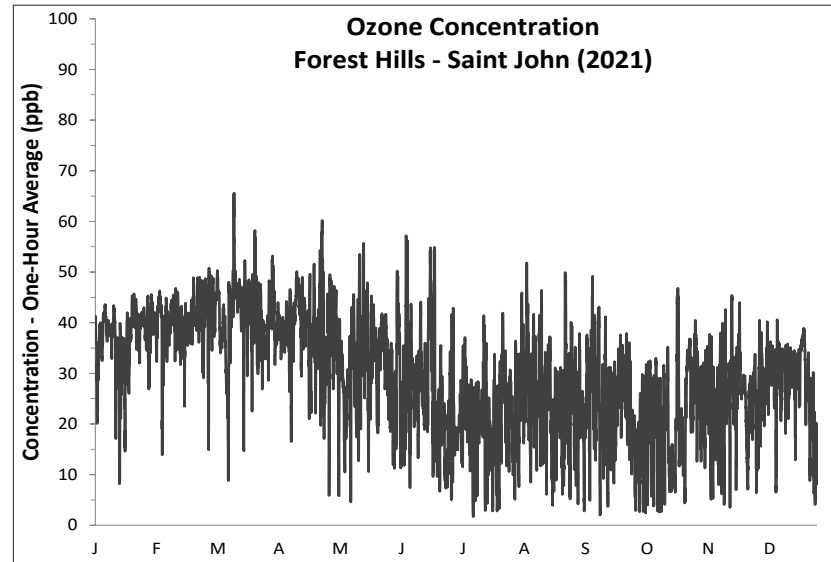
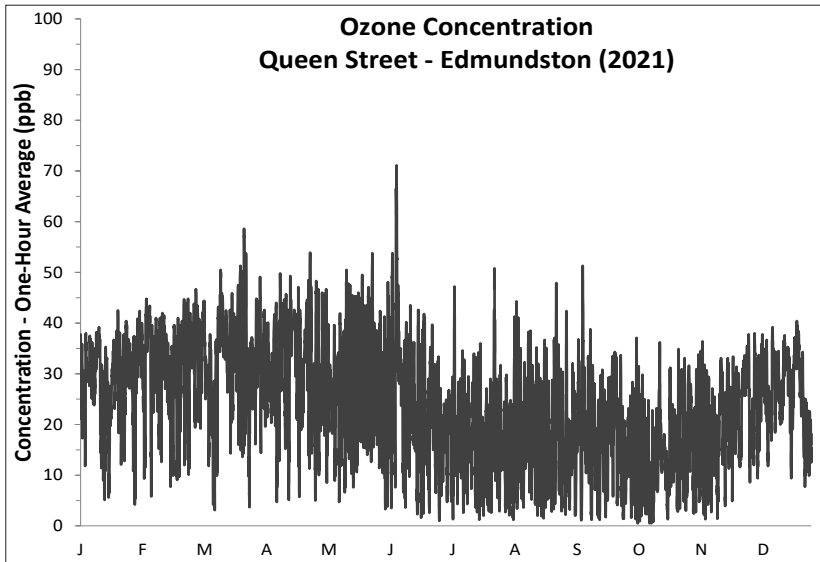
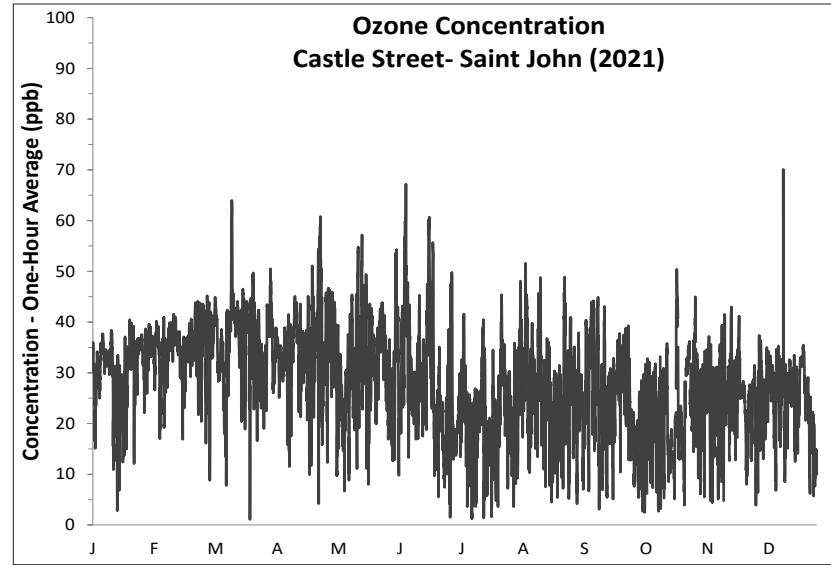
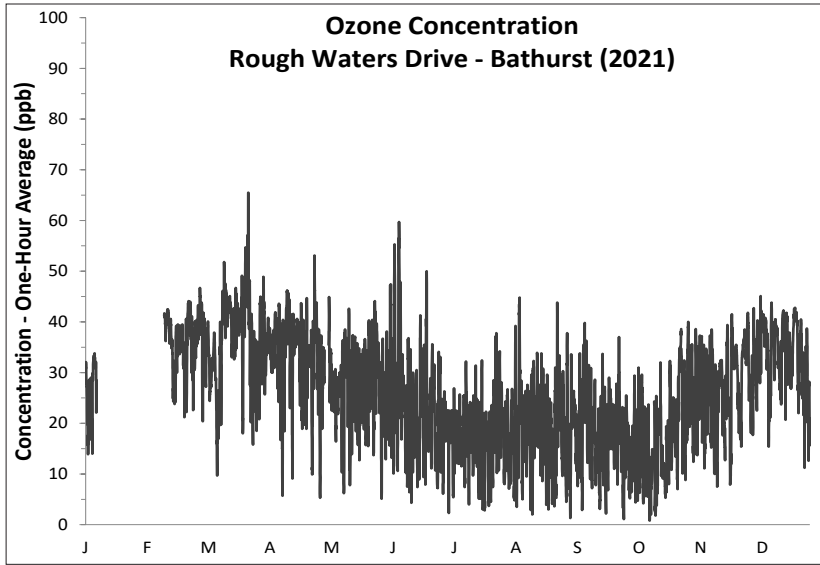
# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Nitrogen Dioxide



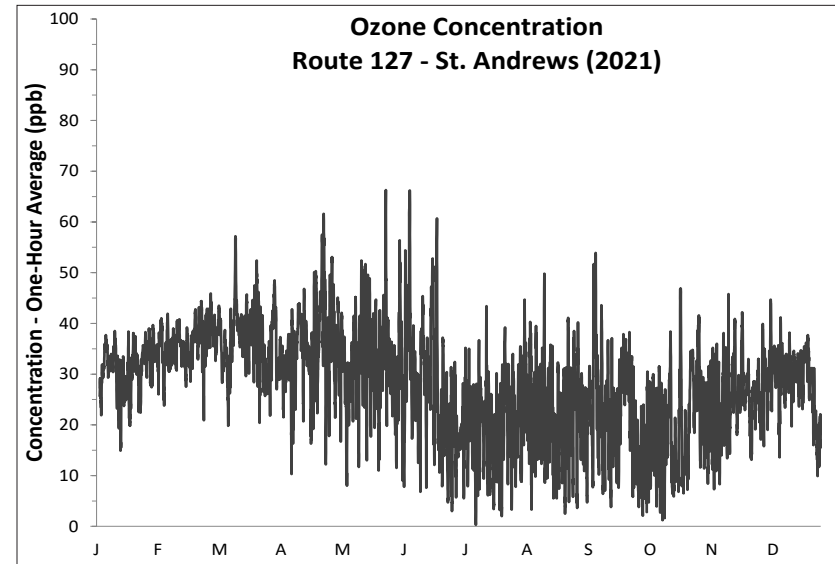
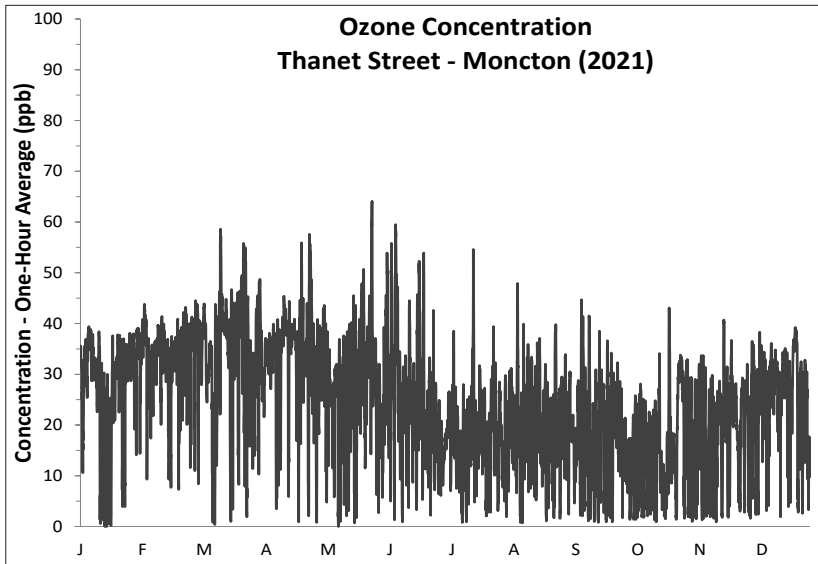
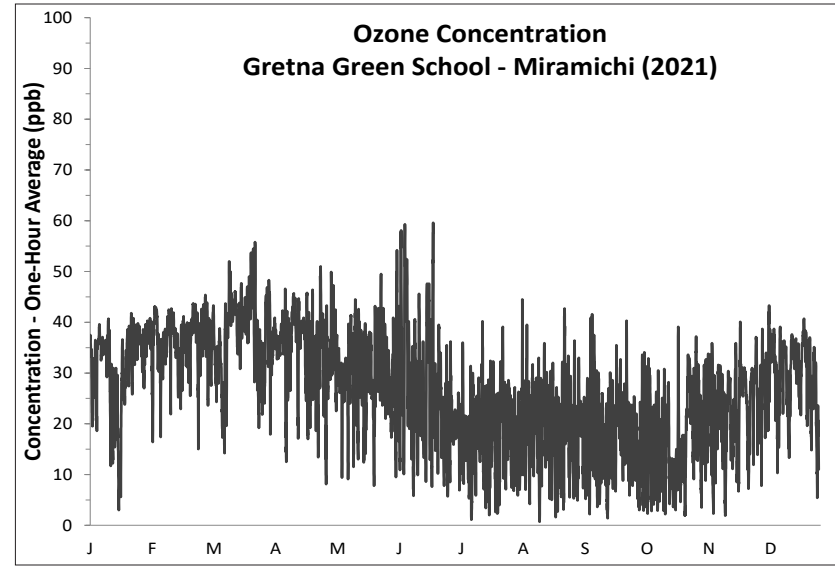
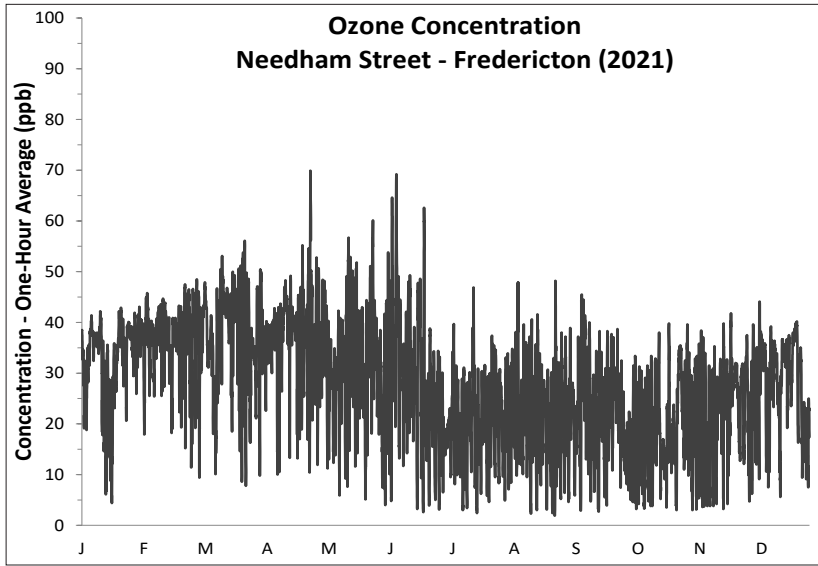
# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Ozone



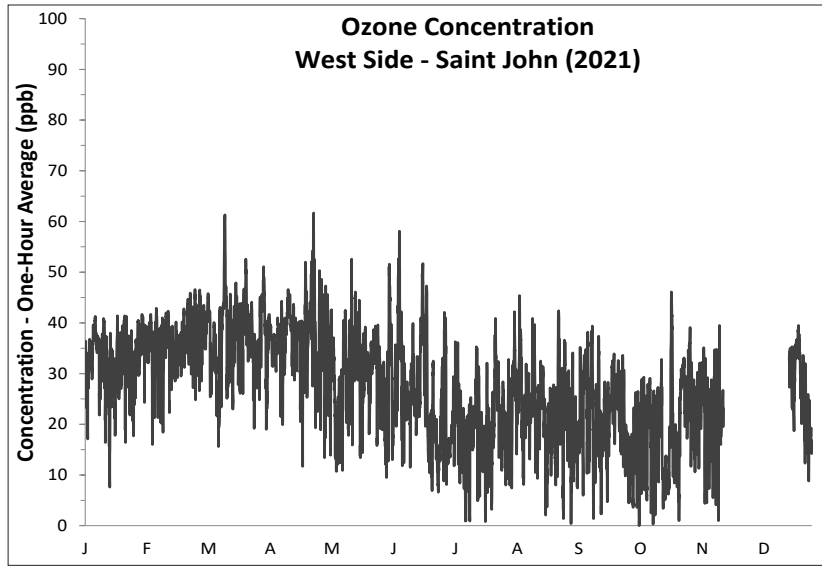
# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Ozone



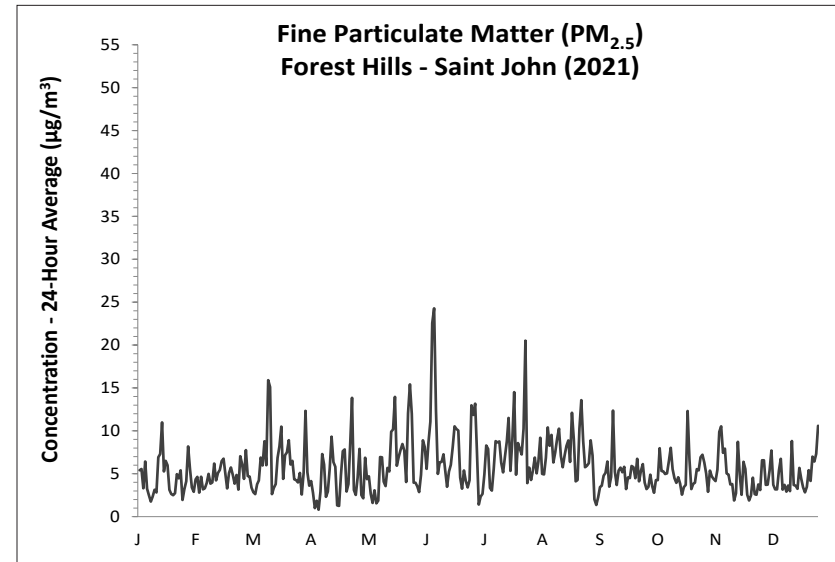
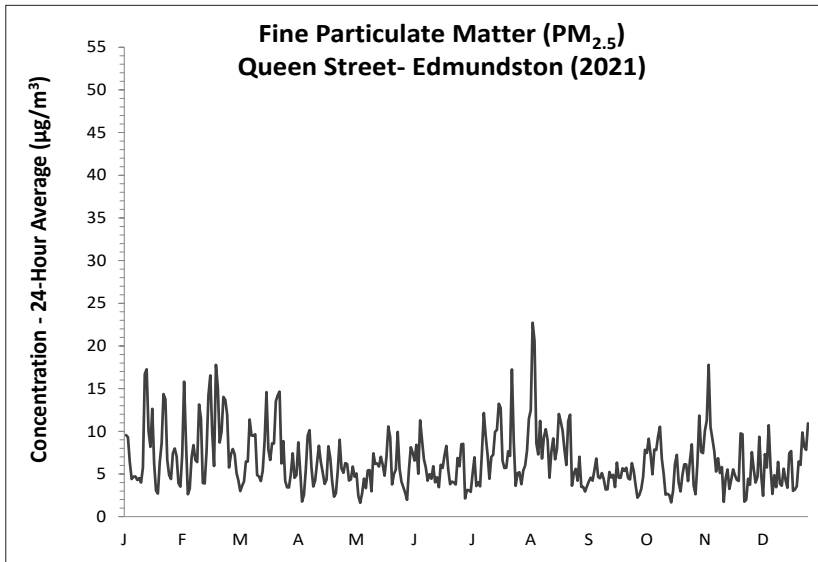
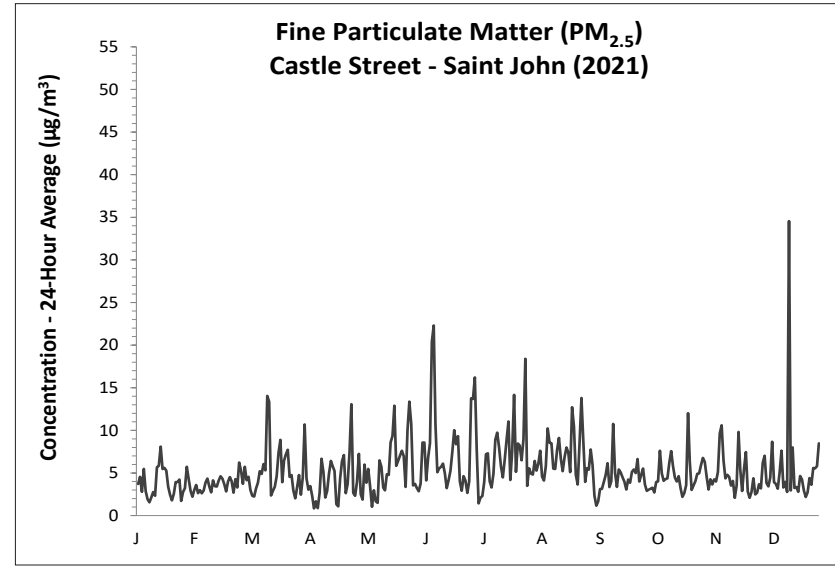
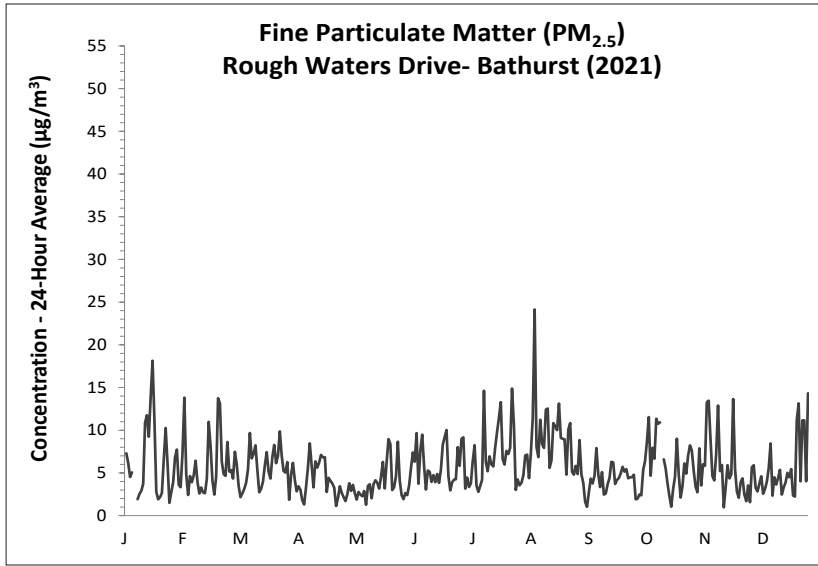
# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Ozone



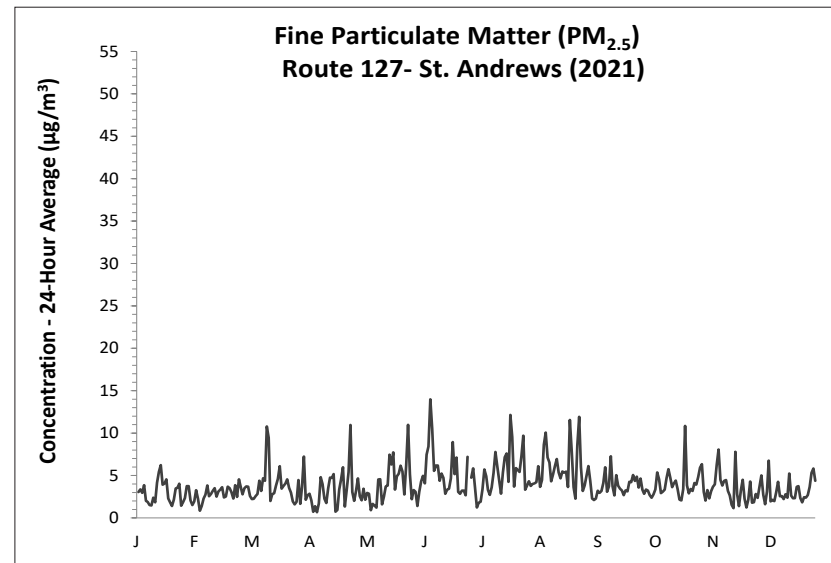
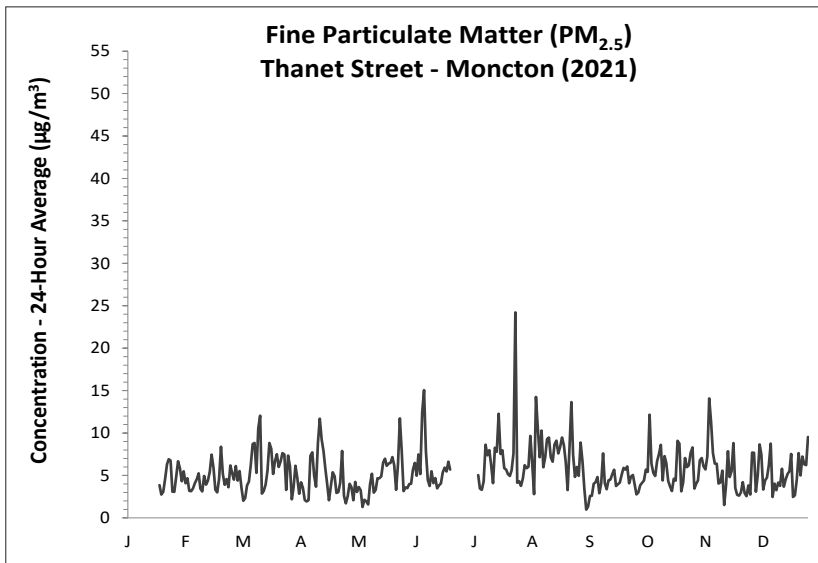
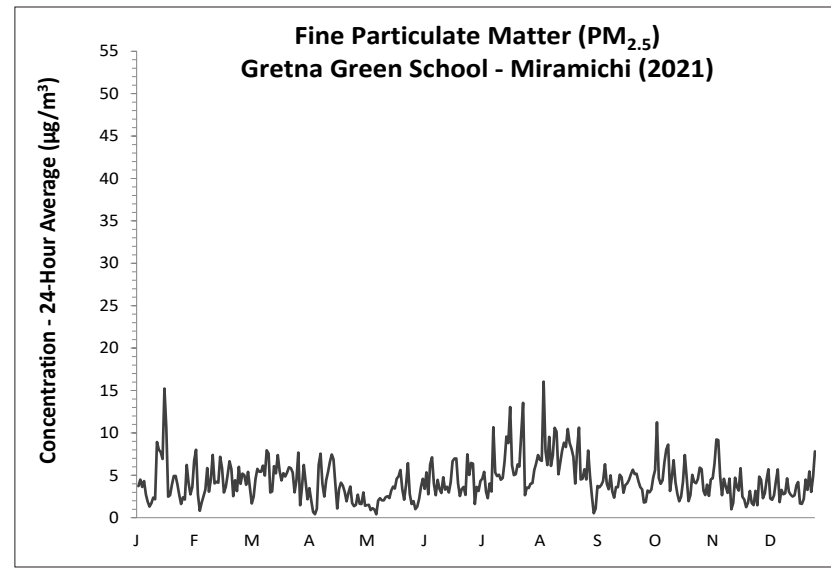
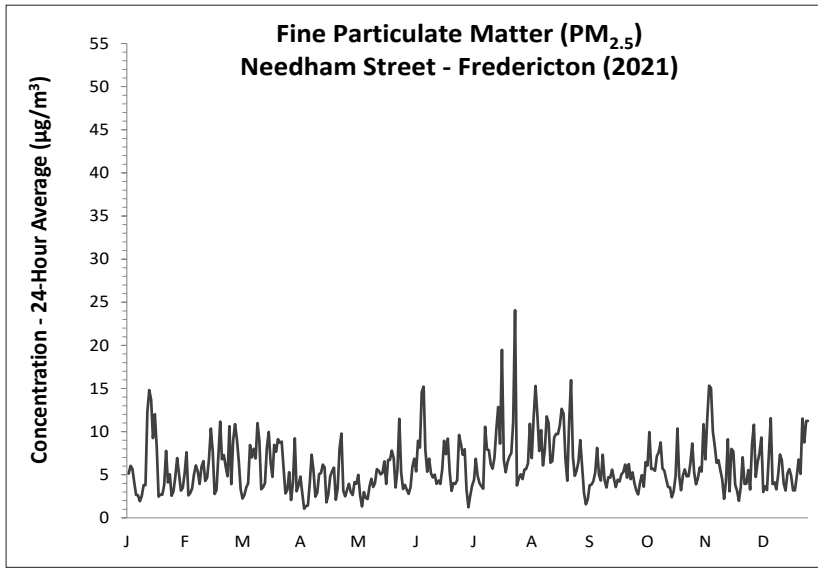
# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Fine Particulate Matter



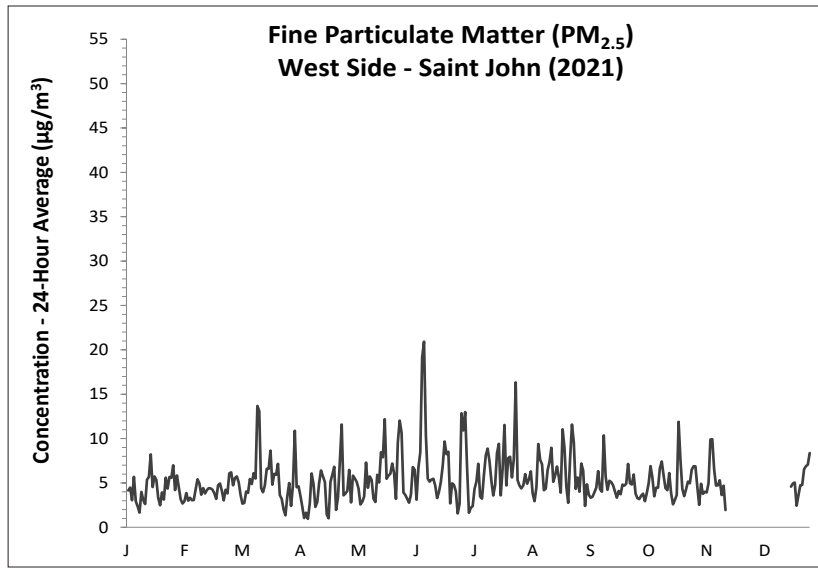
# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Fine Particulate Matter



## PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

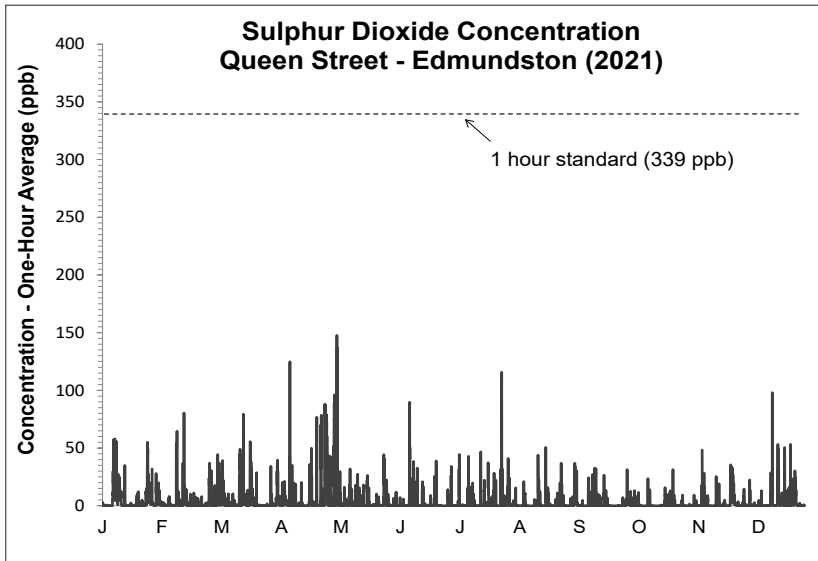
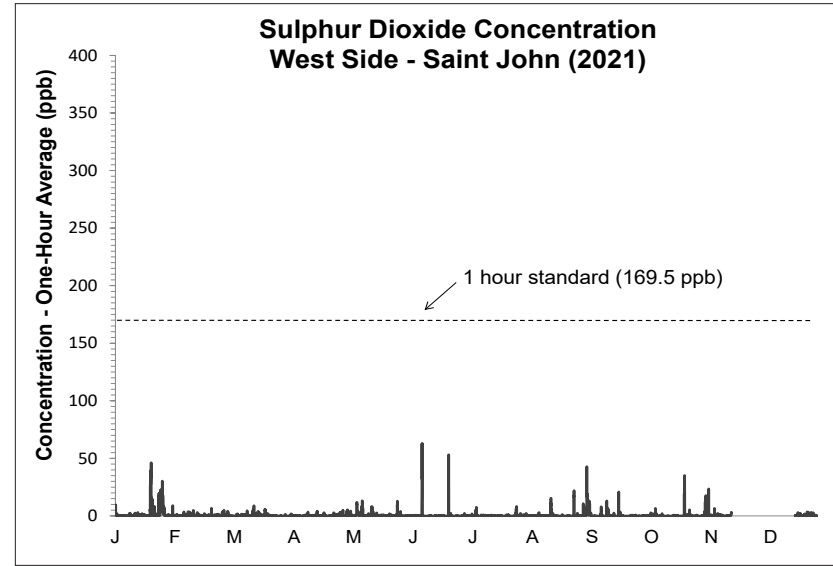
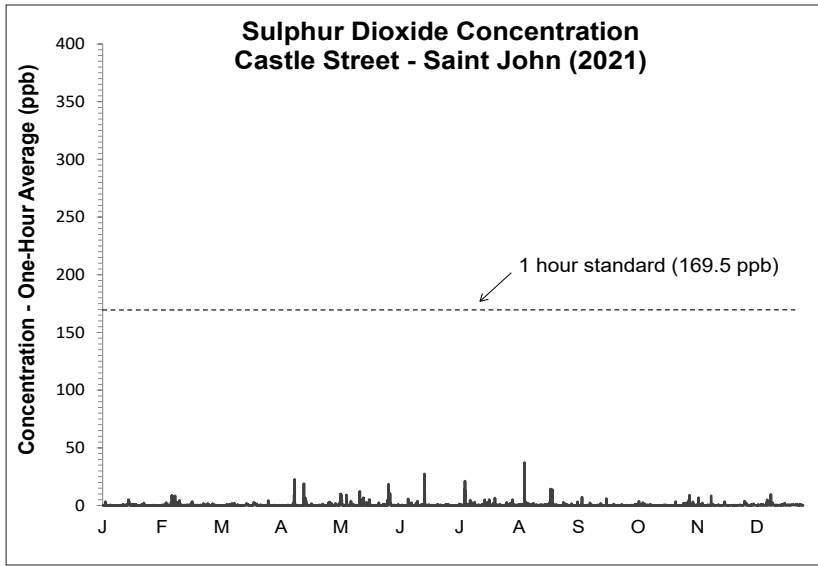
### Fine Particulate Matter





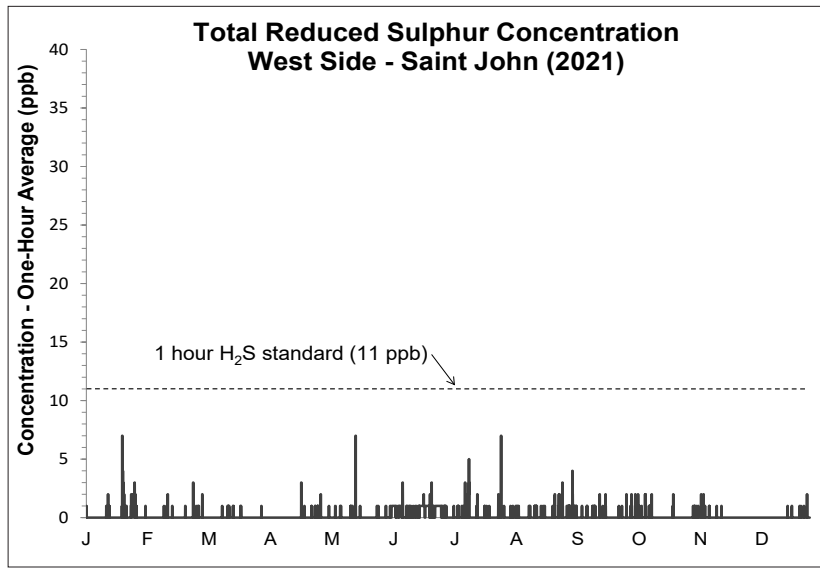
# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Sulphur Dioxide



# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Total Reduced Sulphur

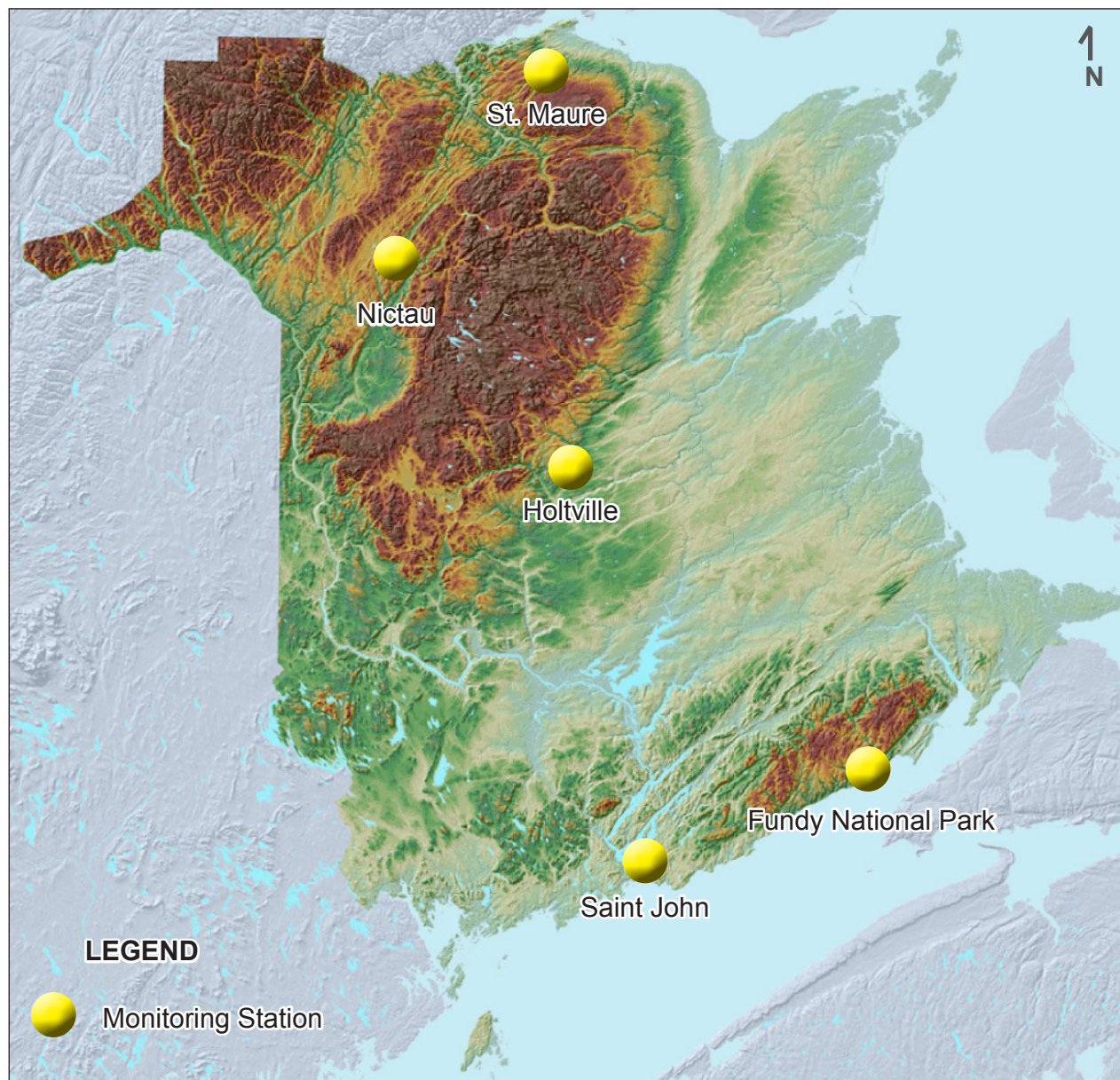


## PART I: STATIONS OPERATED BY THE PROVINCE - Volatile Organic Compounds, Saint John Region

The Volatile Organic Compounds monitoring program, in partnership with Environment and Climate Change Canada, continued to operate at a reduced capacity due to ongoing pandemic restrictions. However, results did not meet data completeness criteria for meaningful analysis and therefore are not included herein.

**PART II:**  
**ACID PRECIPITATION MONITORING NETWORK**

# 2021 Acid Precipitation Network Map



## PART II: ACID PRECIPITATION MONITORING NETWORK - Sulphate and Nitrate Deposition Trends

### Annual Sulphate and Nitrate Wet Deposition (eq/ha/yr) at New Brunswick Monitoring Sites, 2012-2021

Site	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
St. Maure	120.53	121.30	140.76	86.68	95.41	85.79*	108.07	104.44	63.16	97.8
Robertville	118.33	124.20	168.35	85.95	--	--	--	--	--	--
Nictau	96.50	108.13	119.96	80.73	71.17	81.29	59.98**	64.82	55.49	62.2
Trout Brook	101.20	100.78	116.05	65.07	--	--	--	--	--	--
Holtville	98.19	127.23	126.63	78.33	73.59	99.39	117.31	89.33	63.54	68.2
Harcourt	91.68	99.92	120.67	74.02	--	--	--	--	--	--
South Oromocto Lake	128.81	154.73	150.02	107.51	--	--	--	--	--	--
Pennfield	228.24	265.32	223.61	179.91	--	--	--	--	--	--
Lakewood Heights	169.58	193.66	164.38	144.65	173.21	134.98	203.97	219.52	155.0	145.1
Fundy	208.08	249.13	200.13	143.40	126.30	122.62	206.17	198.28	--	95.1

\*41 weeks of data

\*\*42 weeks of data

-- insufficient data

## PART II: ACID PRECIPITATION MONITORING NETWORK - Sulphate and Nitrate Deposition Trends

**Annual Sulphate Wet Deposition (kg/ha/yr) at New Brunswick Monitoring Sites, 2012-2021**

Site	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
St. Maure	5.17	5.06	5.92	3.60	3.97	3.58*	4.56	4.18	2.46	4.0
Robertville	4.92	5.17	7.13	3.51	--	--	--	--	--	--
Nictau	3.77	4.25	4.65	3.02	2.59	3.07	2.26**	2.40	2.06	2.2
Trout Brook	4.09	4.01	4.71	2.46	--	--	--	--	--	--
Holtville	3.88	5.02	5.00	2.92	2.79	3.86	4.43	3.33	2.42	2.5
Harcourt	3.67	3.92	4.82	2.77	--	--	--	--	--	--
South Oromocto Lake	5.16	6.24	5.96	4.00	--	--	--	--	--	--
Pennfield	9.65	11.28	9.31	7.30	--	--	--	--	--	--
Lakewood Heights	7.20	8.20	8.12	5.98	7.28	5.63	8.68	9.34	6.64	6.0
Fundy	8.86	10.64	8.21	5.82	5.14	5.09	8.52	8.31	--	3.7

\*41 weeks of data

\*\*42 weeks of data

-- insufficient data

## PART II: ACID PRECIPITATION MONITORING NETWORK - Sulphate and Nitrate Deposition Trends

**Annual Nitrate Wet Deposition (kg/ha/yr) at New Brunswick Monitoring Sites, 2012-2021**

Site	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
St. Maure	0.80	0.99	1.09	0.72	0.80	0.70*	0.81	1.08	0.74	0.91
Robertville	0.99	1.03	1.17	0.79	--	--	--	--	--	--
Nictau	1.12	1.23	1.44	1.11	1.07	1.08	0.80**	0.92	0.78	0.99
Trout Brook	1.00	1.07	1.11	0.86	--	--	--	--	--	--
Holtville	1.08	1.41	1.40	1.08	0.97	1.19	1.56	1.24	0.81	0.98
Harcourt	0.95	1.14	1.26	1.01	--	--	--	--	--	--
South Oromocto Lake	1.33	1.54	1.61	1.51	--	--	--	--	--	--
Pennfield	1.70	1.89	1.85	1.74	--	--	--	--	--	--
Lakewood Heights	1.22	1.42	1.57	1.25	1.34	1.10	1.44	1.56	1.04	1.21
Fundy	1.46	1.71	1.81	1.39	1.20	1.03	1.79	1.57	--	1.14

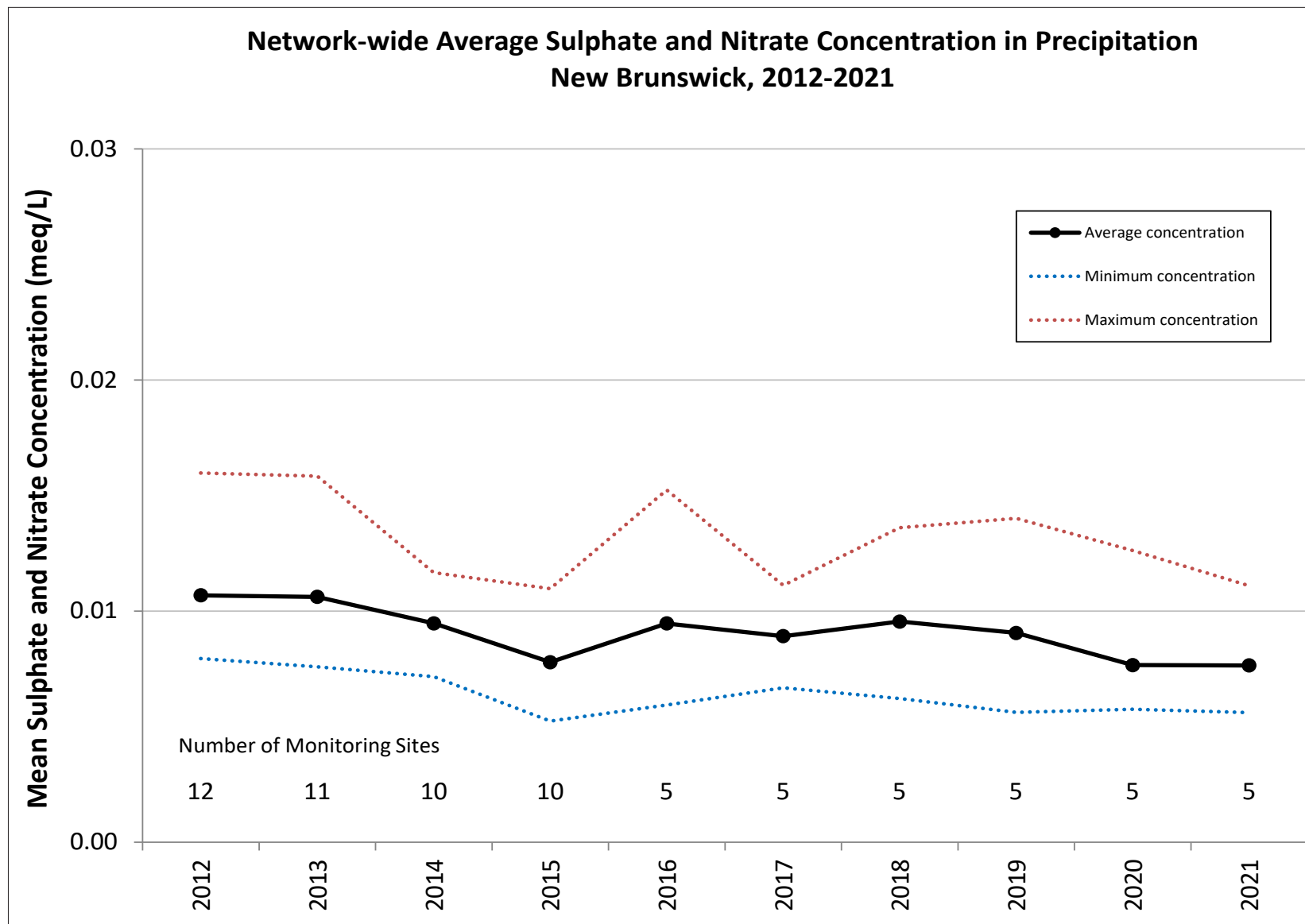
\*41 weeks of data

\*\*42 weeks of data

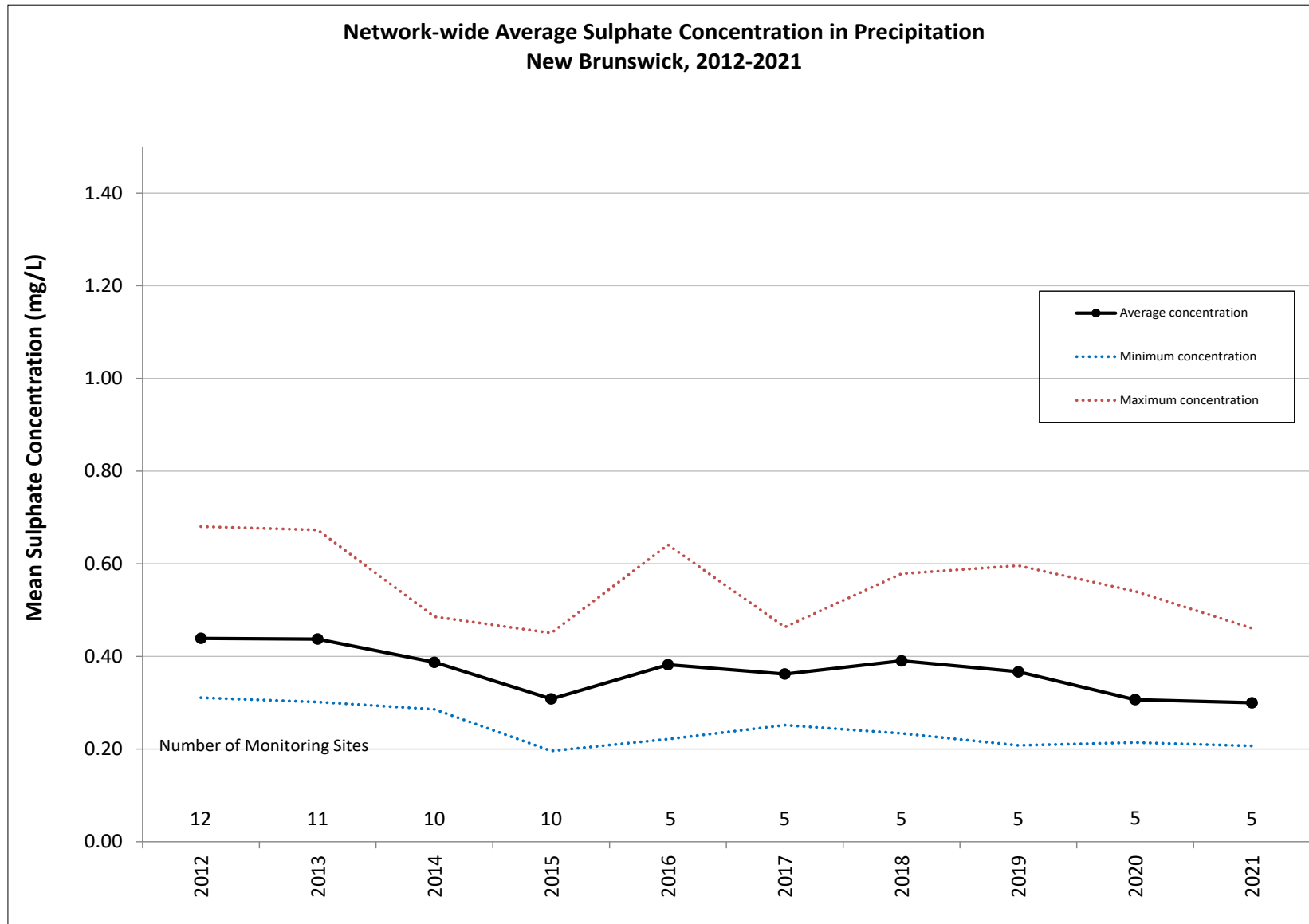
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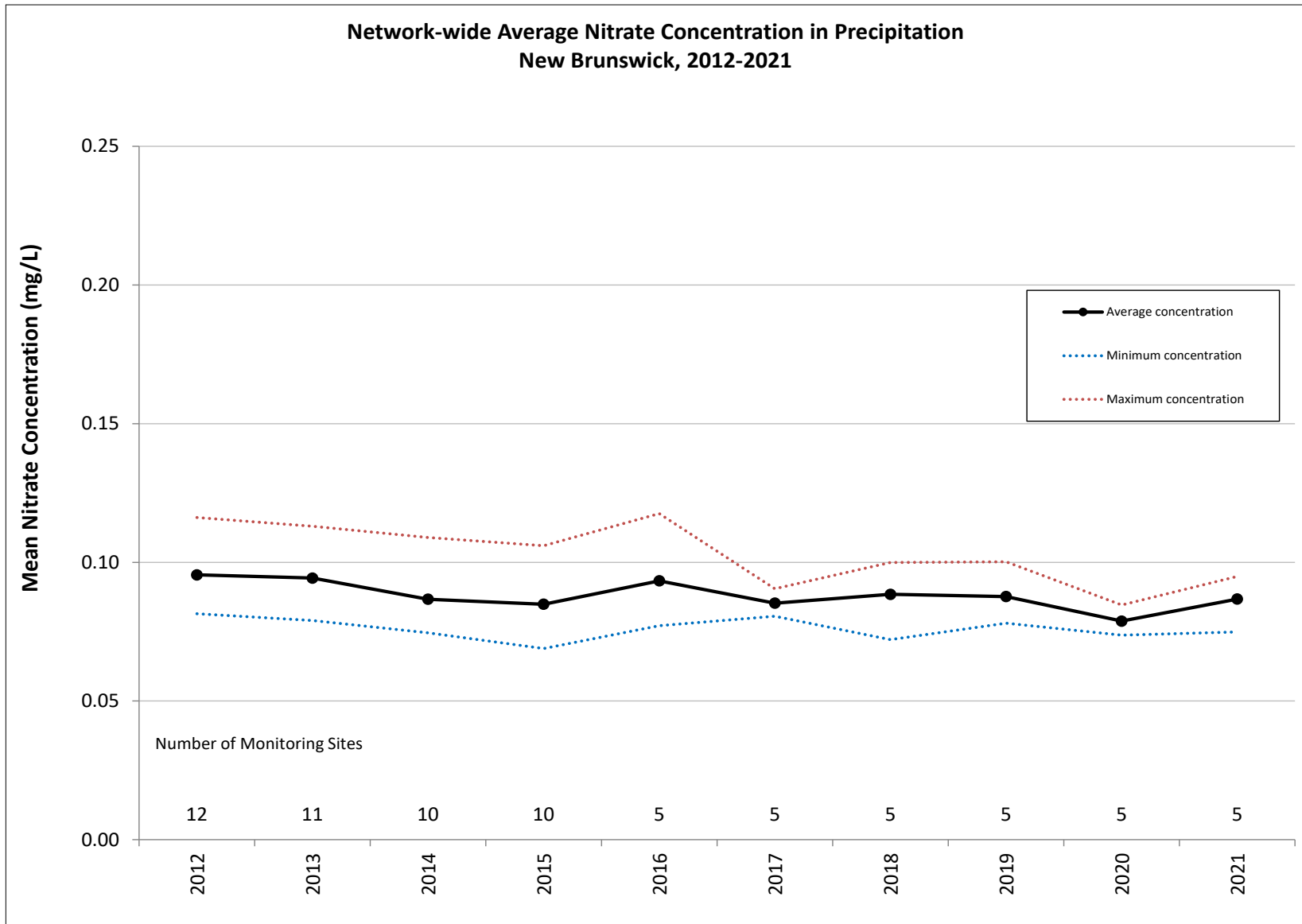
**PART II: ACID PRECIPITATION MONITORING NETWORK - Network-wide Annual Mean Sulphate and Nitrate Concentration Trends**



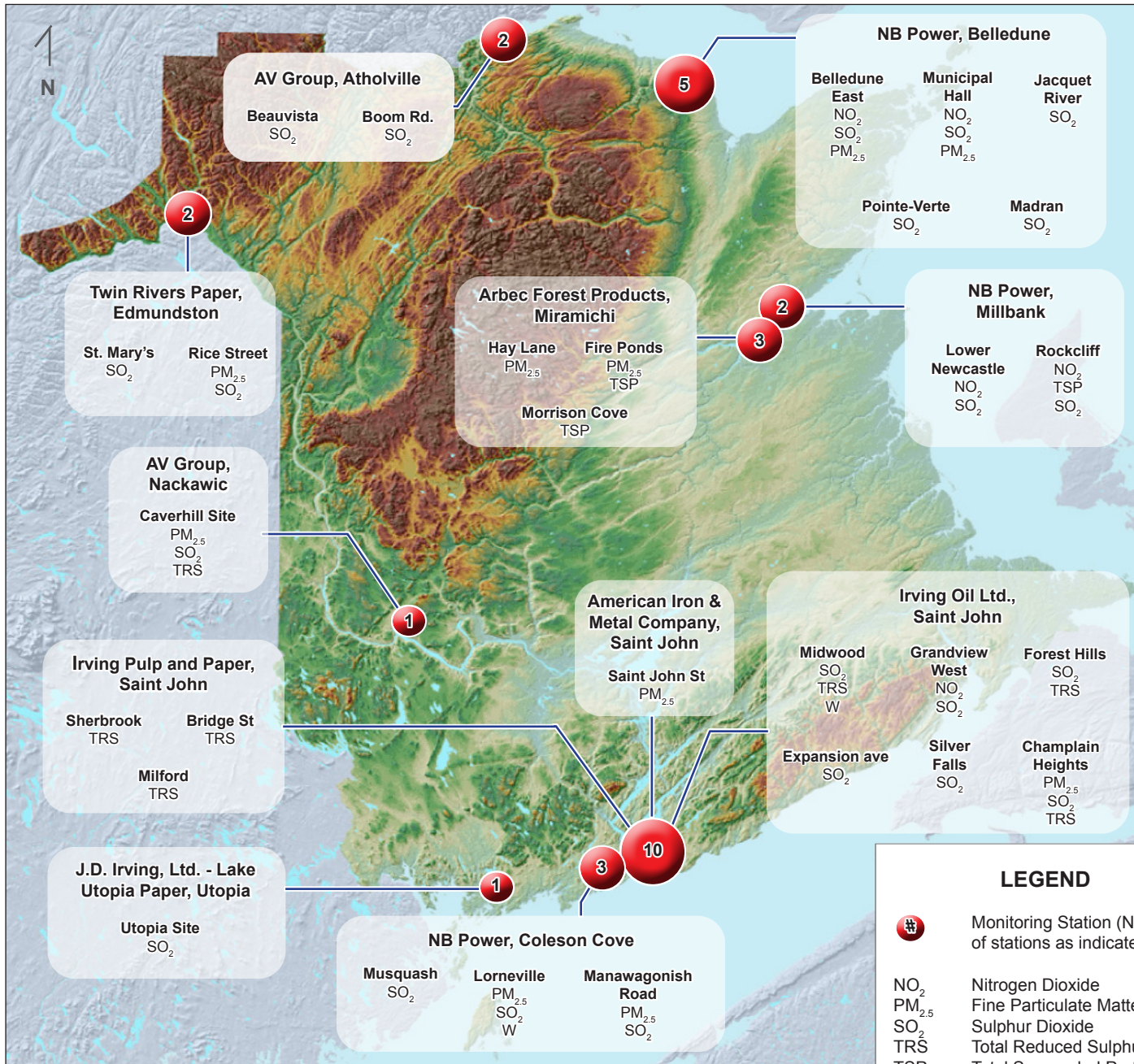
**PART II: ACID PRECIPITATION MONITORING NETWORK - Network-wide Annual Mean Sulphate and Nitrate Concentration Trends**



**PART II: ACID PRECIPITATION MONITORING NETWORK - Network-wide Annual Mean Sulphate and Nitrate Concentration Trends**



**PART III:**  
**THE PROVINCIAL AIR QUALITY MONITORING NETWORK:**  
**STATIONS OPERATED BY INDUSTRY**

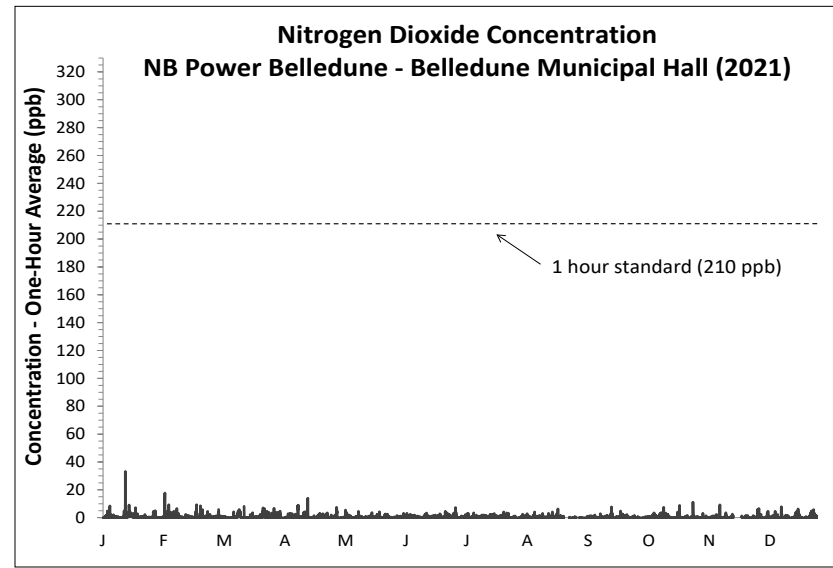
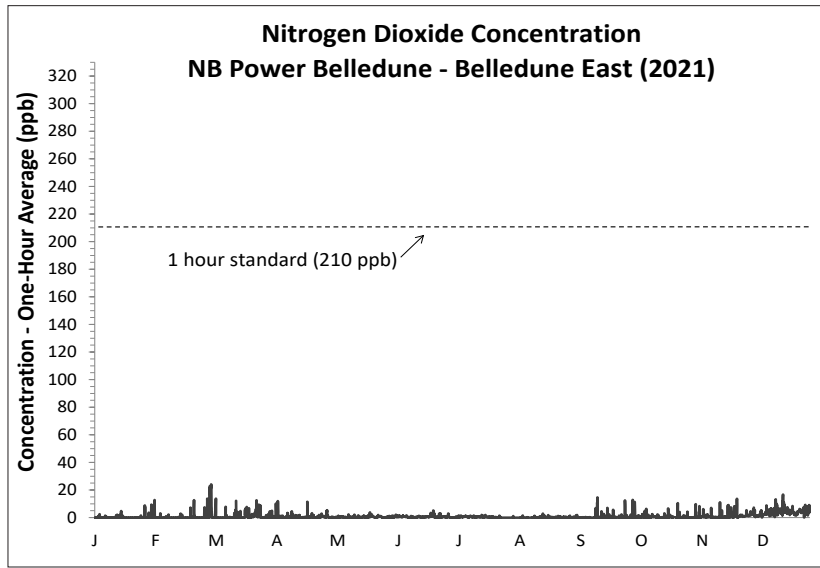


**LEGEND**

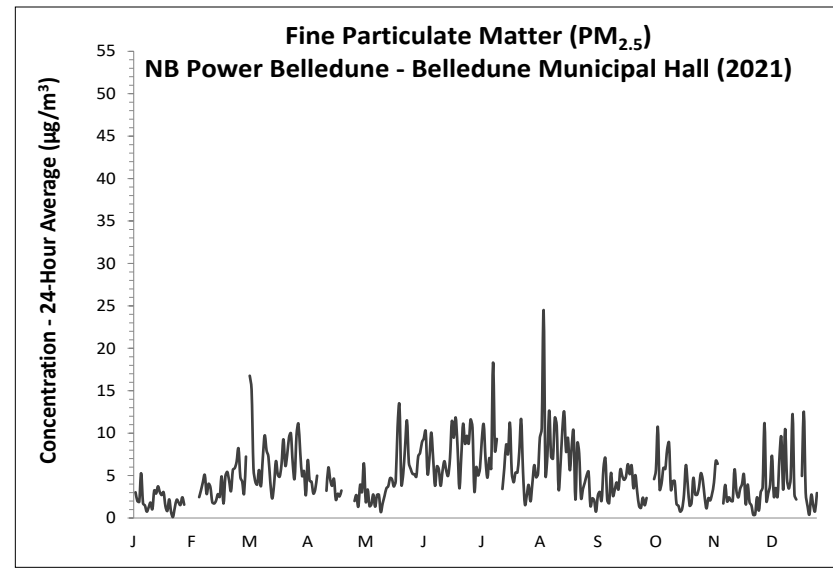
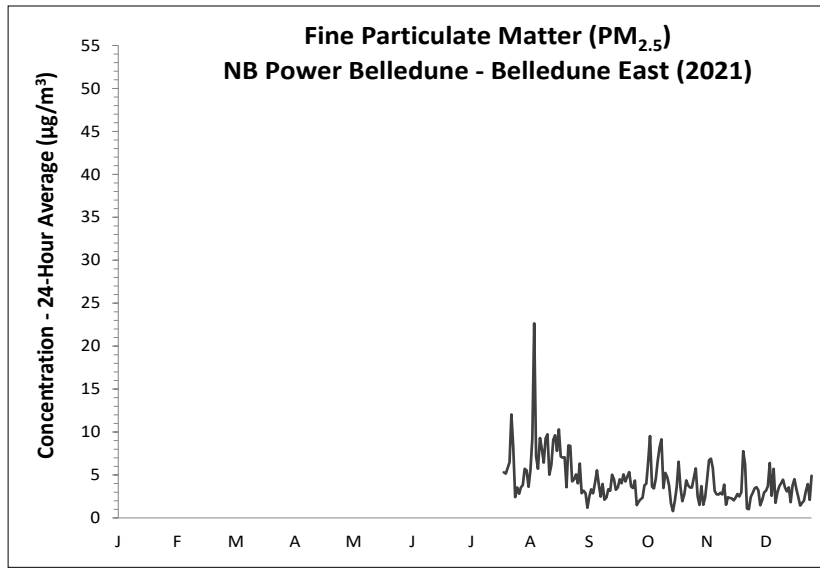
Monitoring Station (Number of stations as indicated)

NO<sub>2</sub> Nitrogen Dioxide  
 PM<sub>2.5</sub> Fine Particulate Matter  
 SO<sub>2</sub> Sulphur Dioxide  
 TRS Total Reduced Sulphur  
 TSP Total Suspended Particulate  
 W Wind Speed & Direction

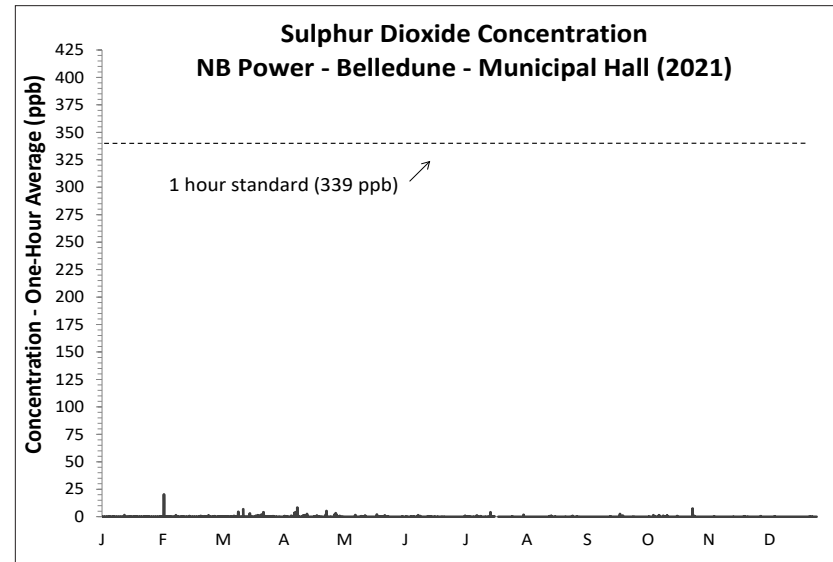
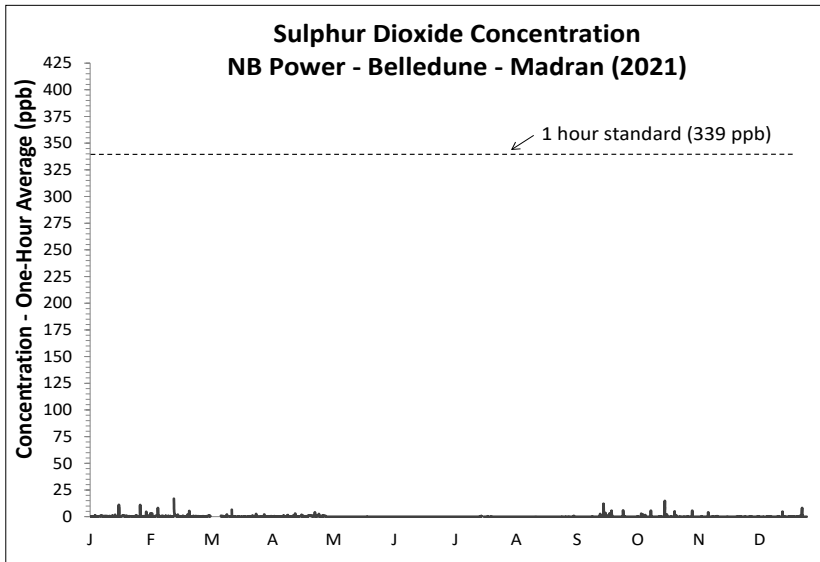
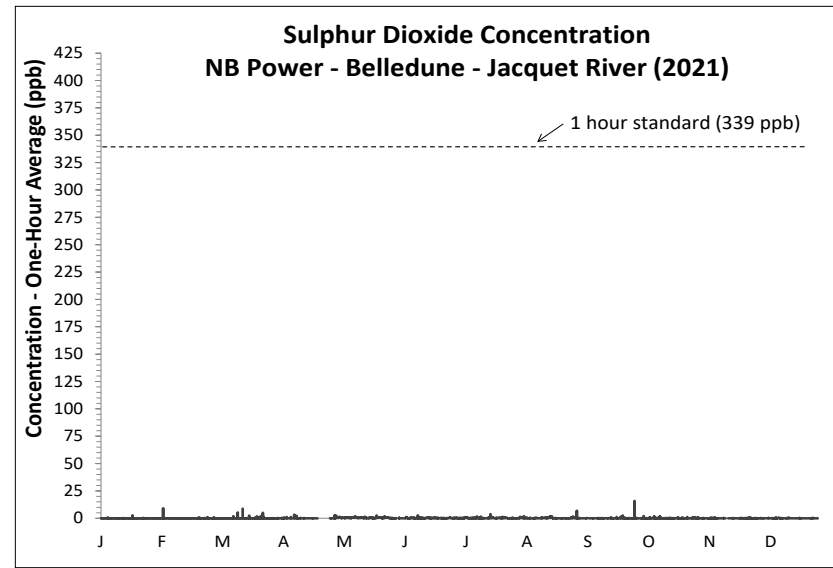
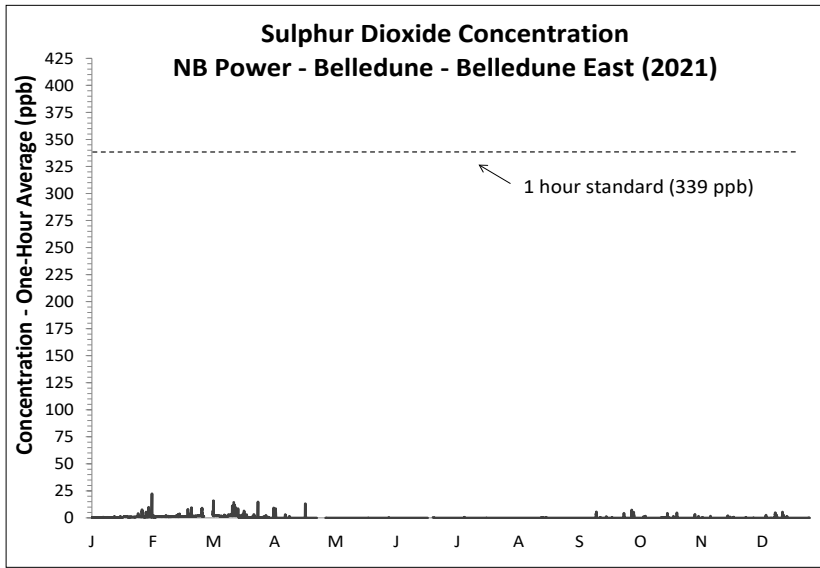
**PART III: STATIONS OPERATED BY INDUSTRY - NB Power, Belledune - Nitrogen Dioxide**



**PART III: STATIONS OPERATED BY INDUSTRY - NB Power, Belledune - Fine Particulate Matter**

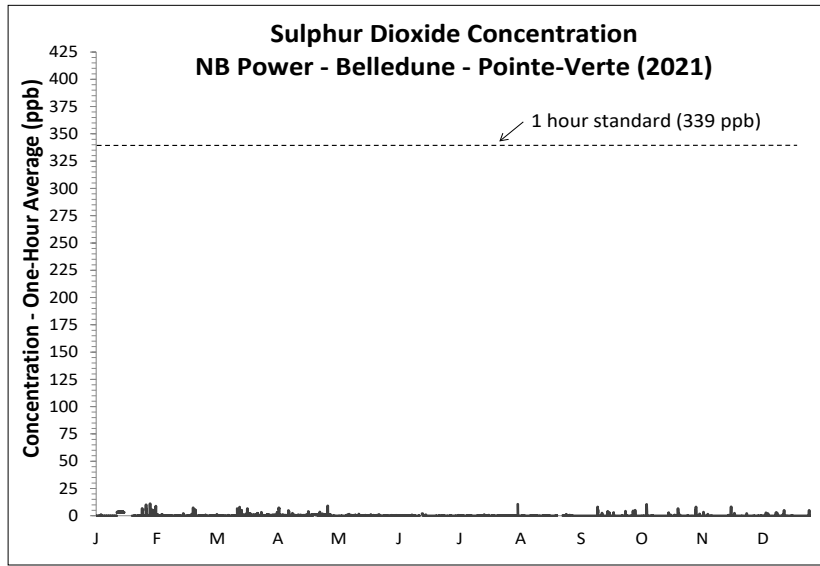


**PART III: STATIONS OPERATED BY INDUSTRY - NB Power, Belledune - Sulphur Dioxide**

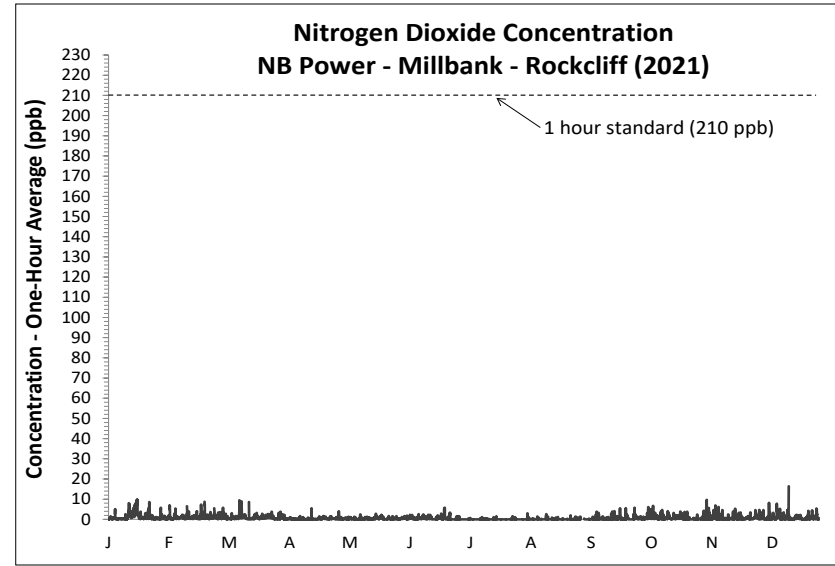
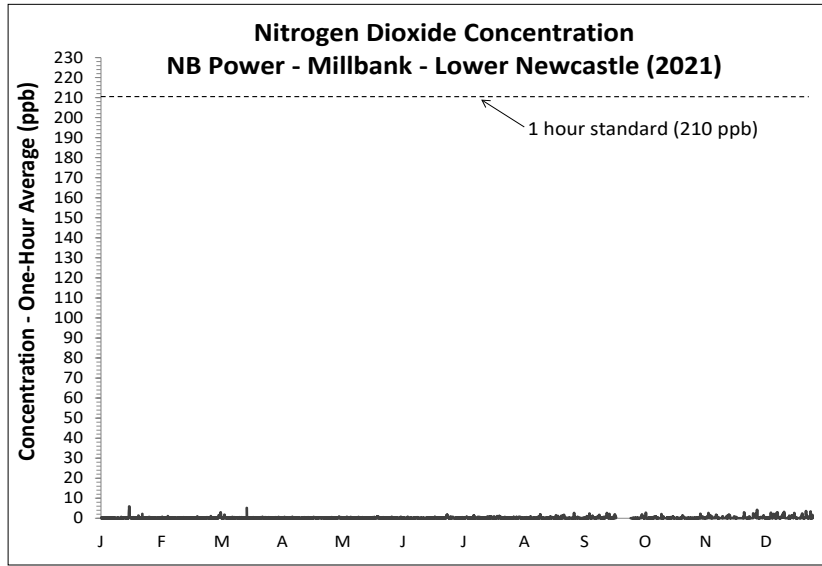




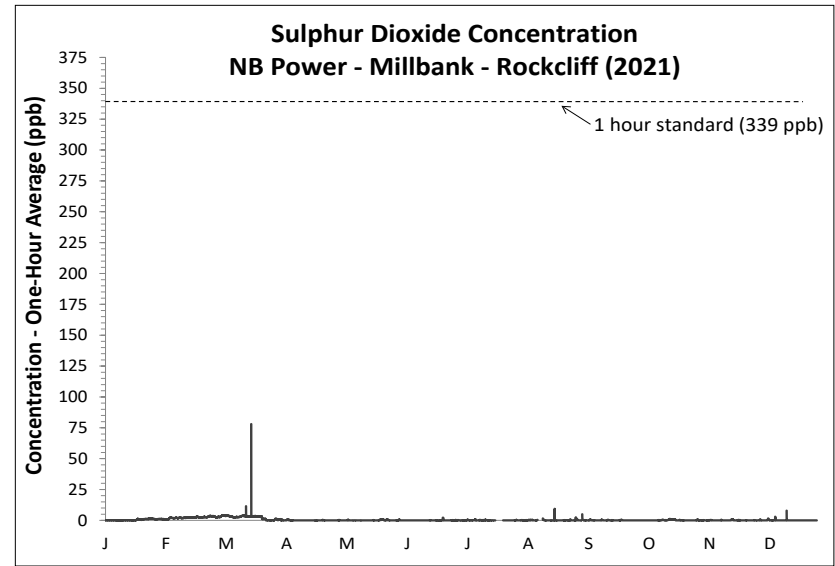
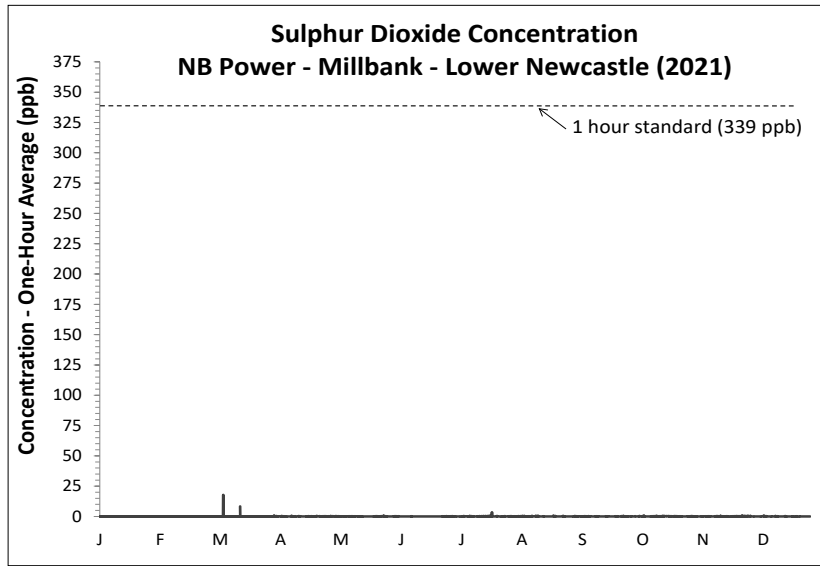
**PART III: STATIONS OPERATED BY INDUSTRY - NB Power, Belledune - Sulphur Dioxide**



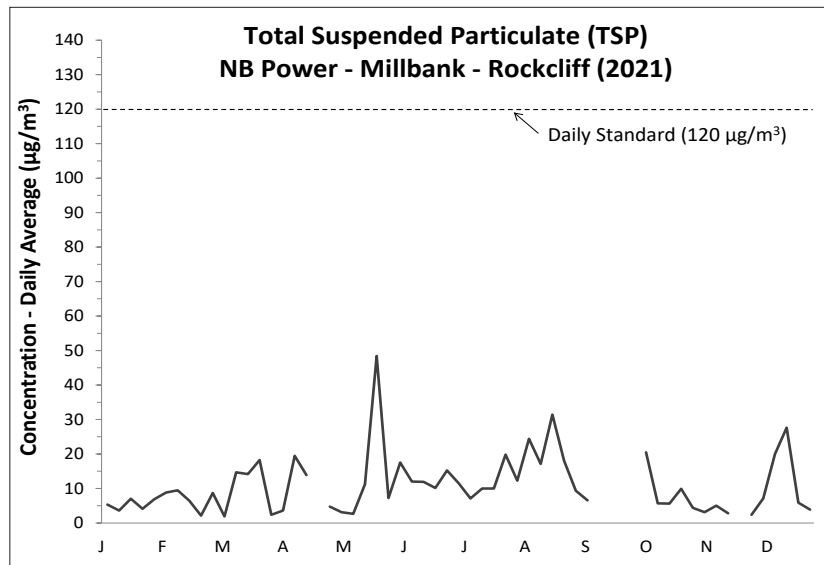
### PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Millbank - Nitrogen Dioxide



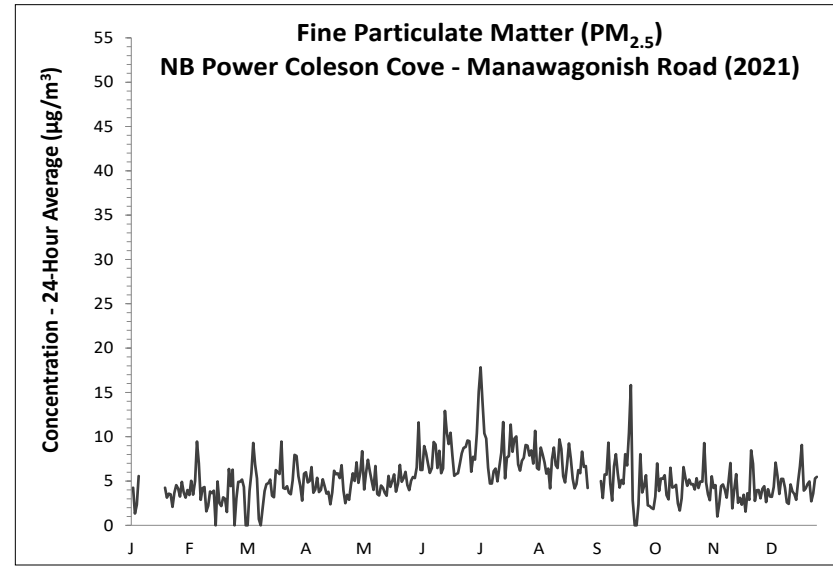
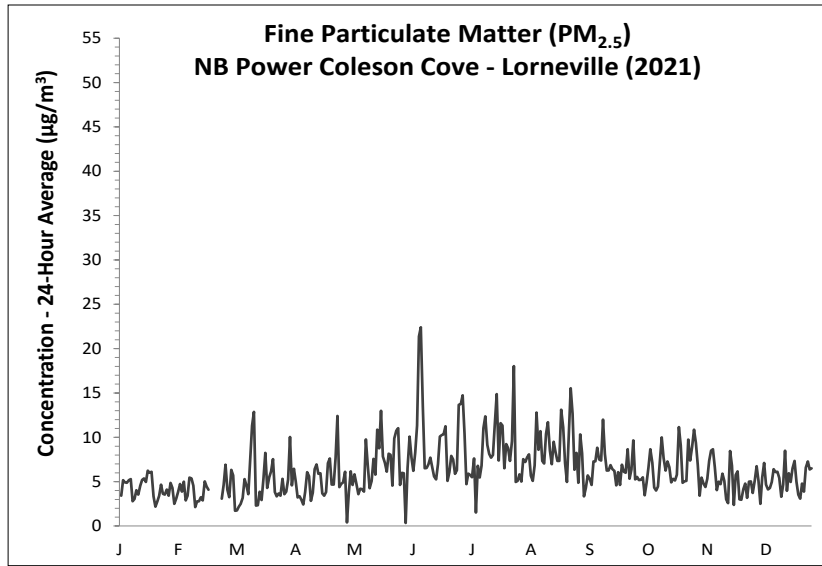
### PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Millbank - Sulphur Dioxide



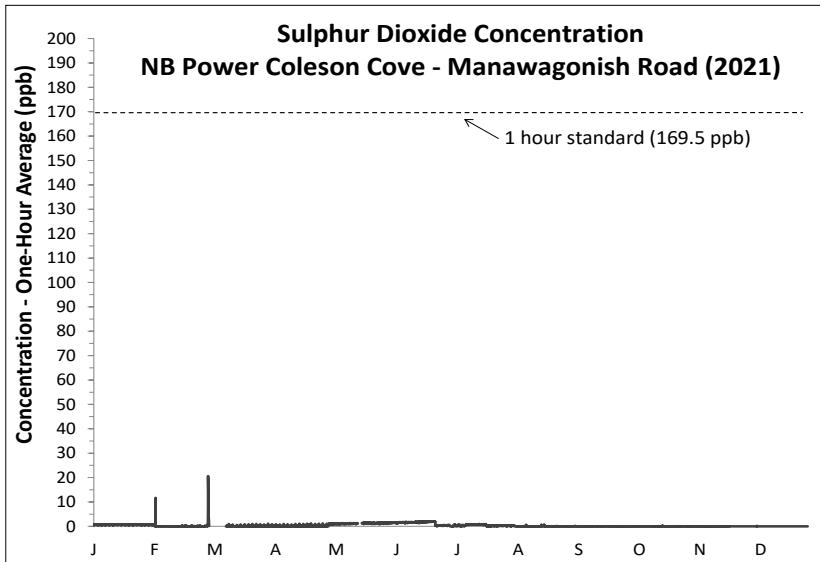
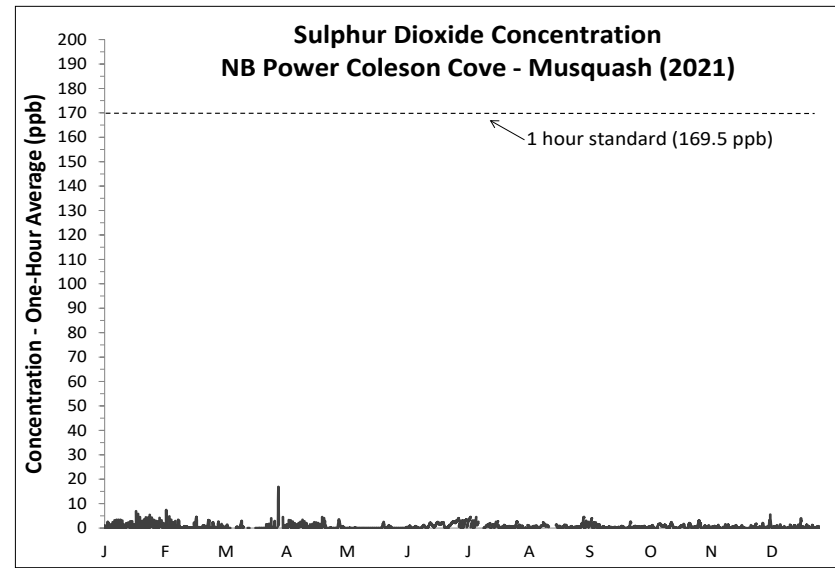
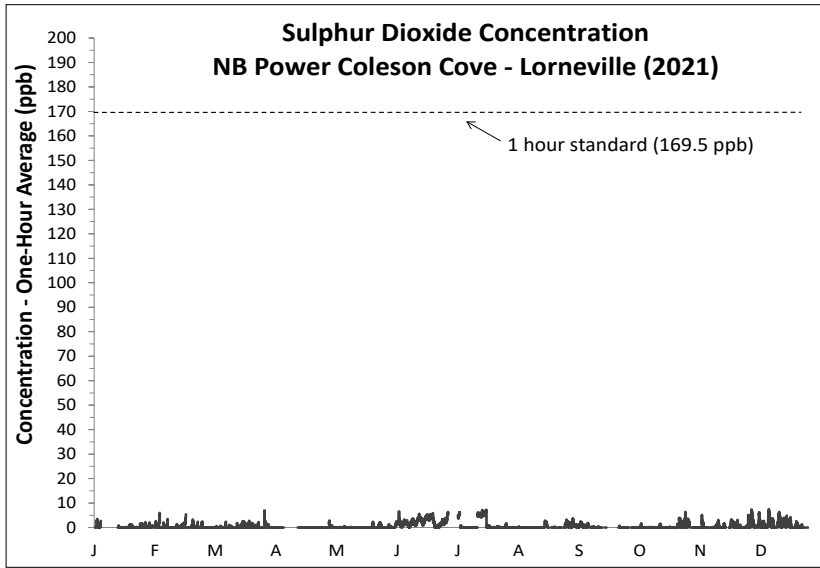
**PART III: STATIONS OPERATED BY INDUSTRY - NB Power, Millbank - Total Suspended Particulate**



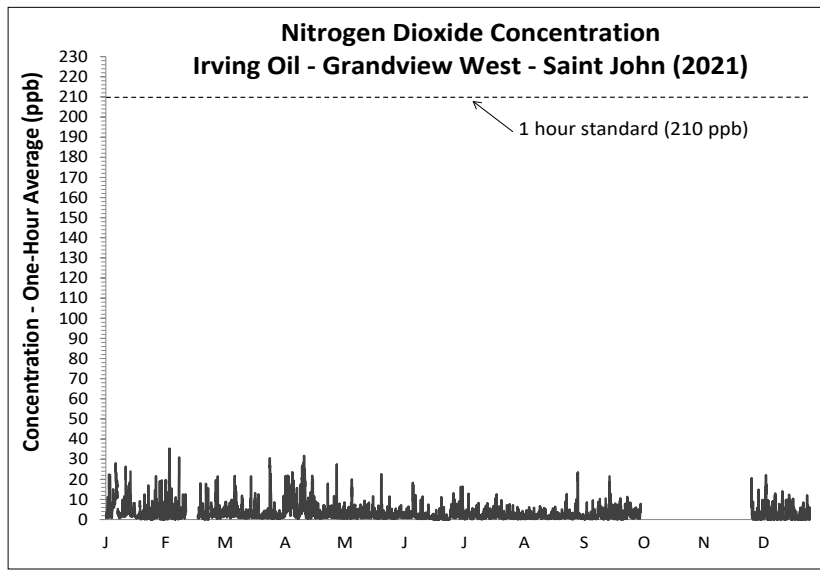
**PART III: STATIONS OPERATED BY INDUSTRY - NB Power, Coleson Cove - Fine Particulate Matter**



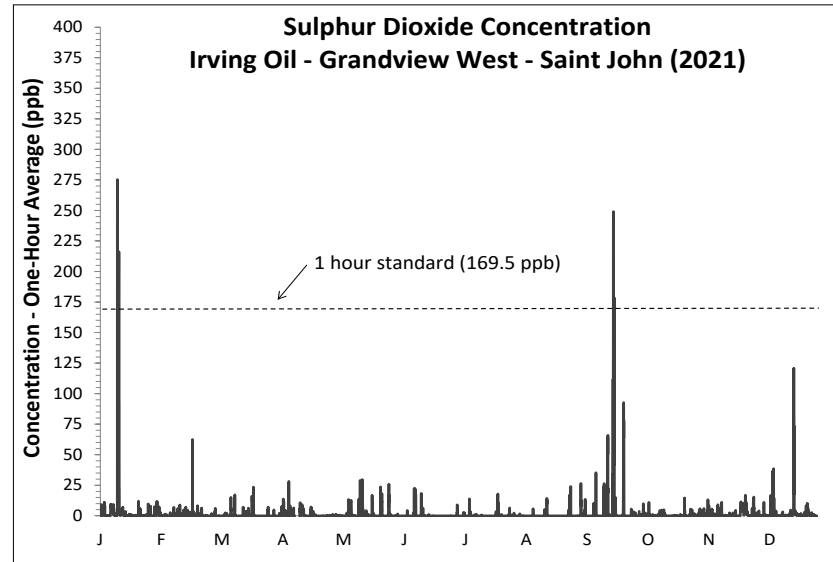
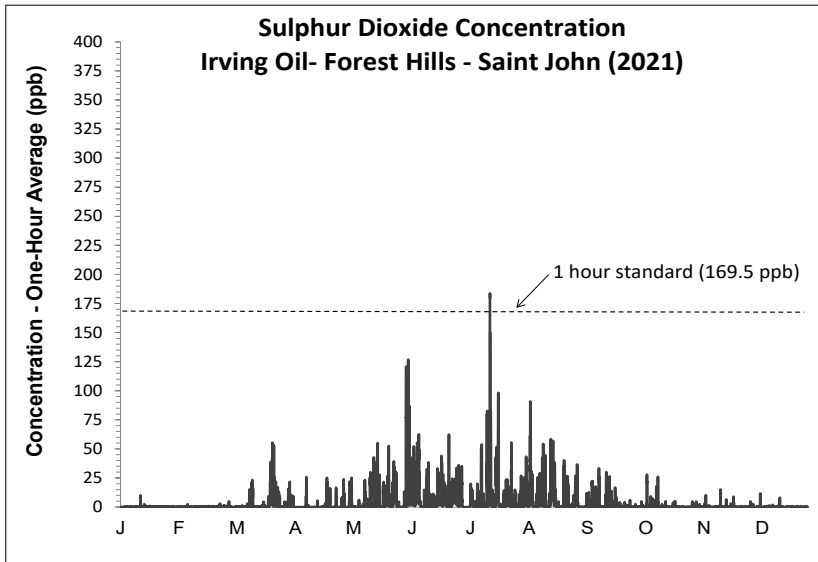
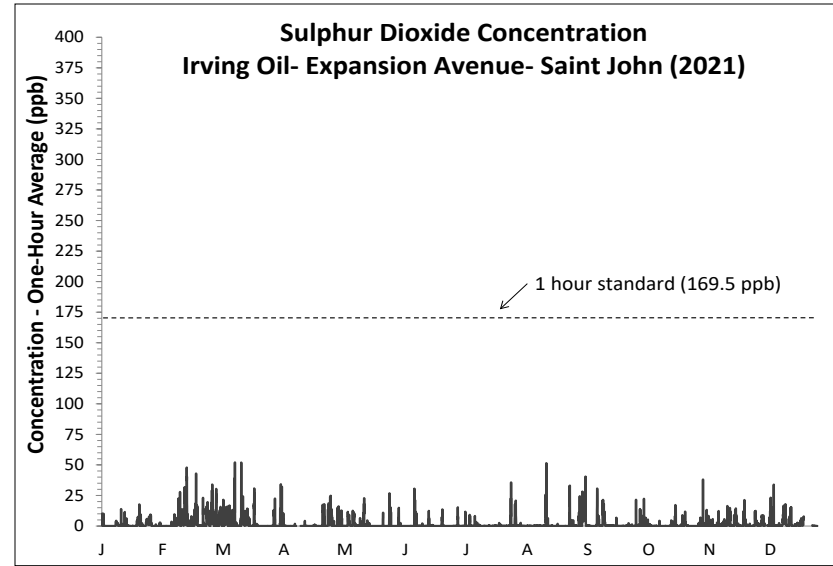
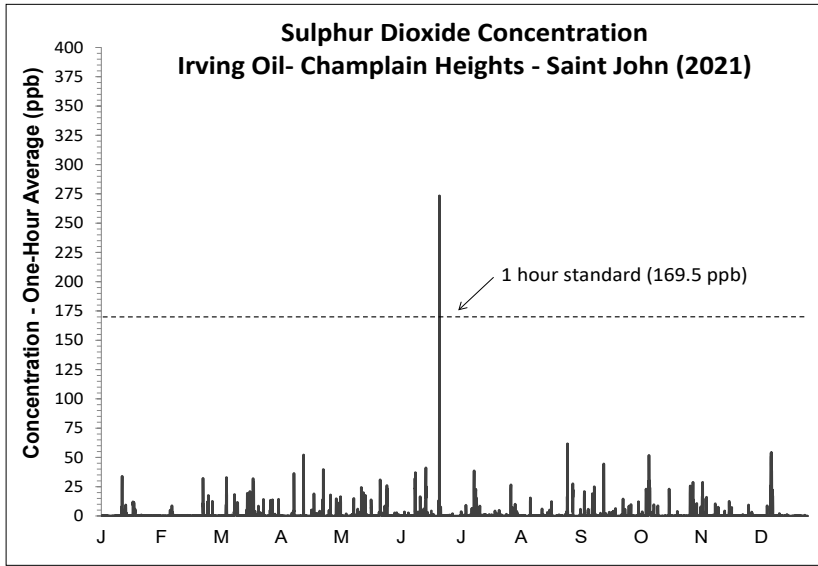
**PART III: STATIONS OPERATED BY INDUSTRY - NB Power, Coleson Cove - Sulphur Dioxide**



**PART III: STATIONS OPERATED BY INDUSTRY - Irving Oil Ltd., Saint John - Nitrogen Dioxide**

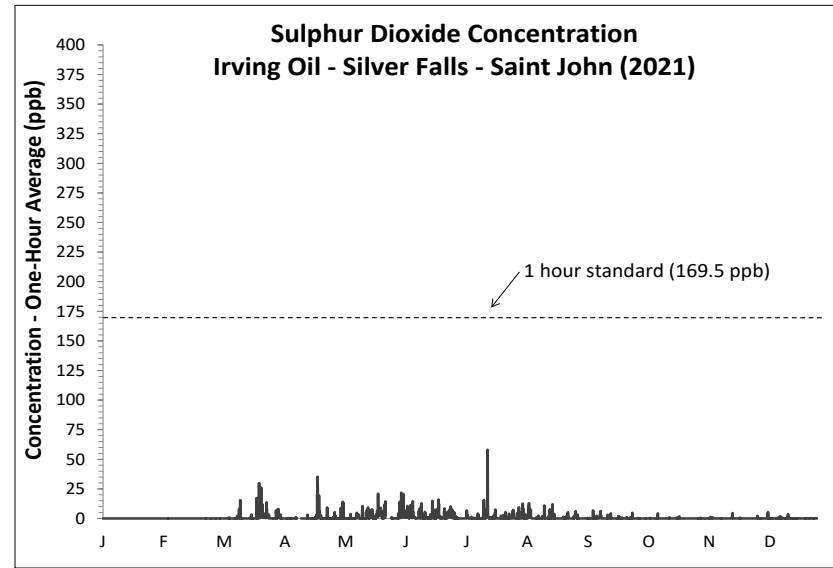
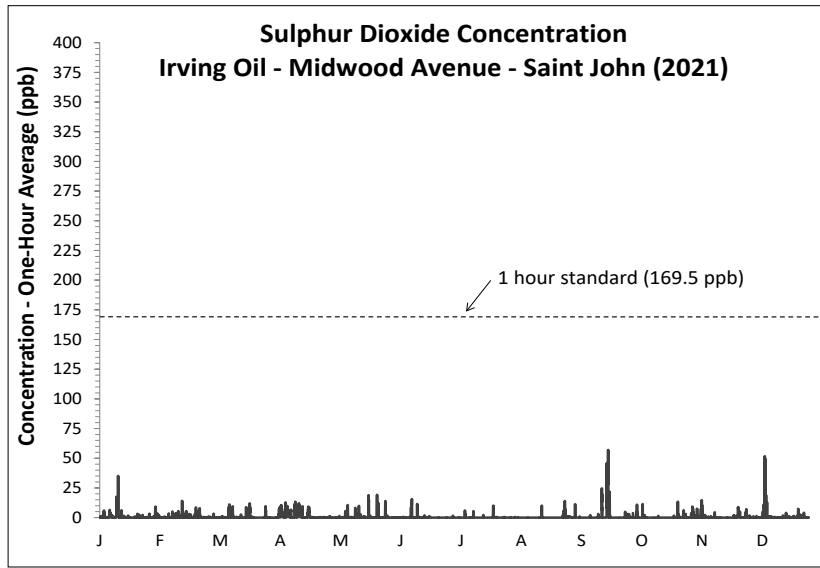


**PART III: STATIONS OPERATED BY INDUSTRY - Irving Oil Ltd., Saint John - Sulphur Dioxide**

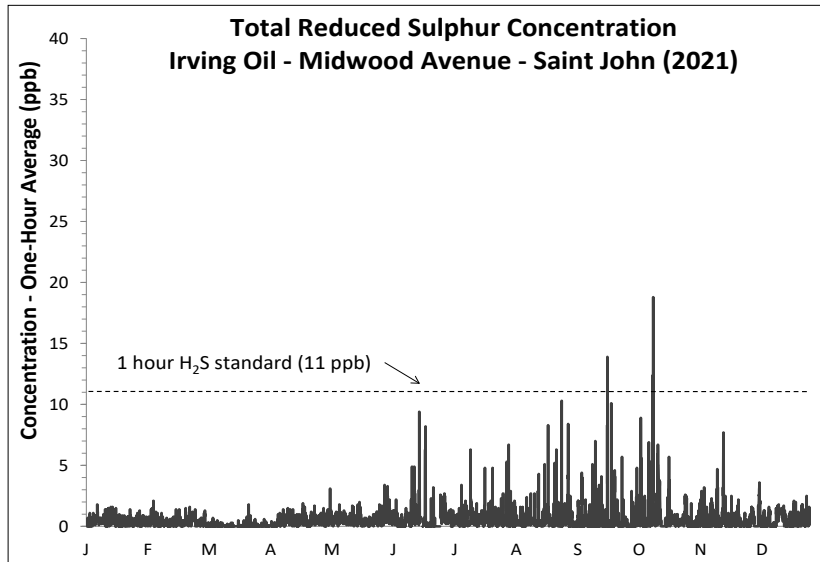
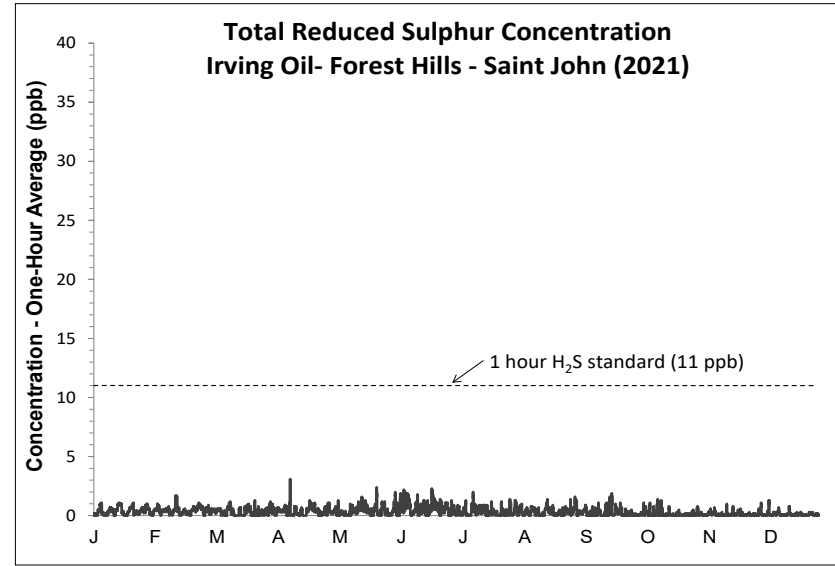
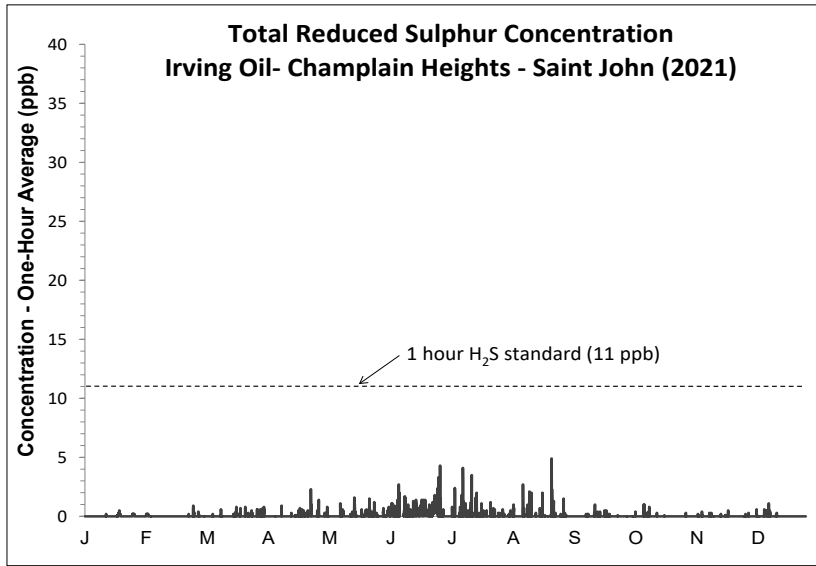




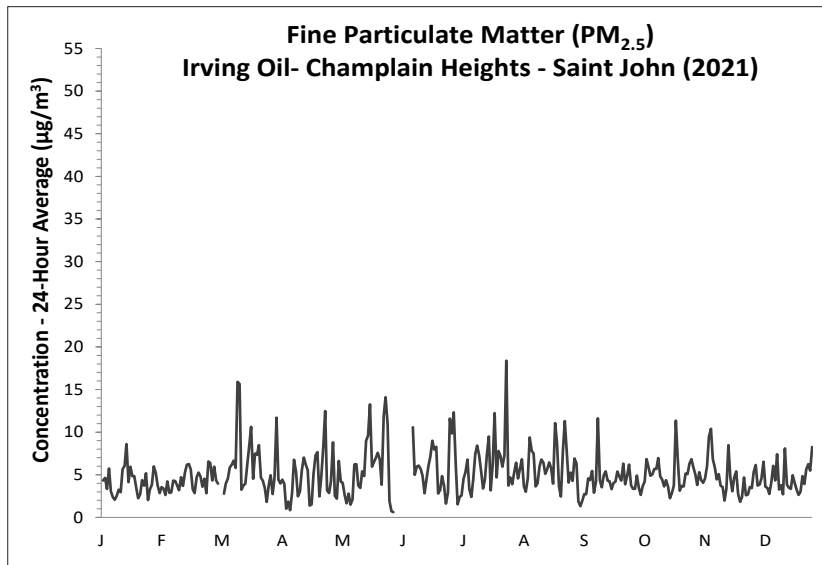
### PART III: STATIONS OPERATED BY INDUSTRY - Irving Oil Ltd., Saint John - Sulphur Dioxide



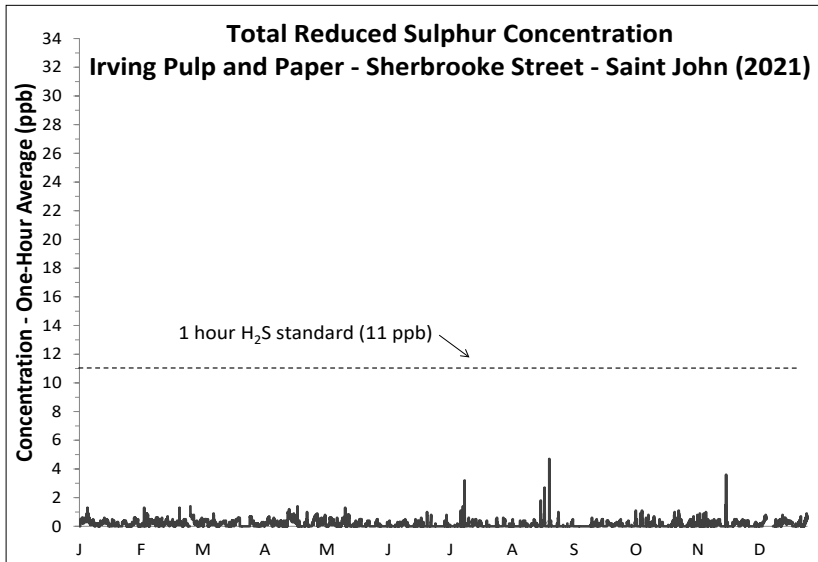
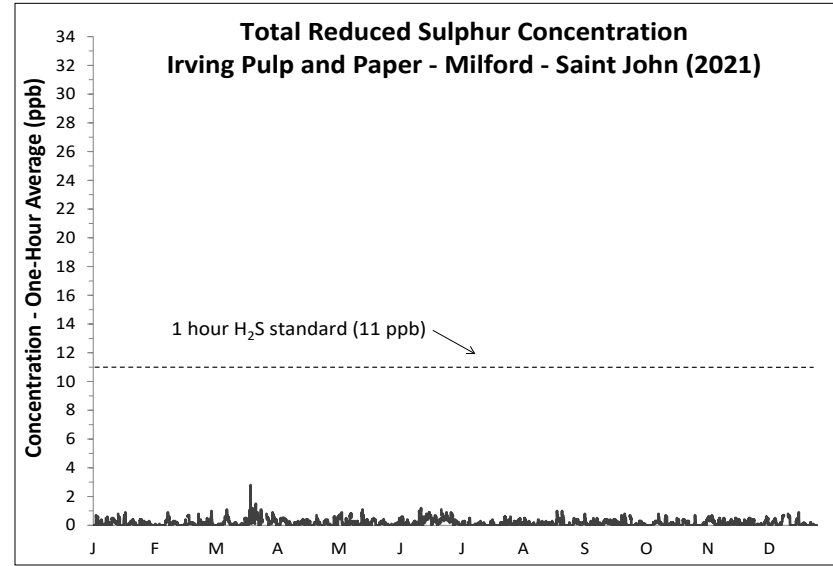
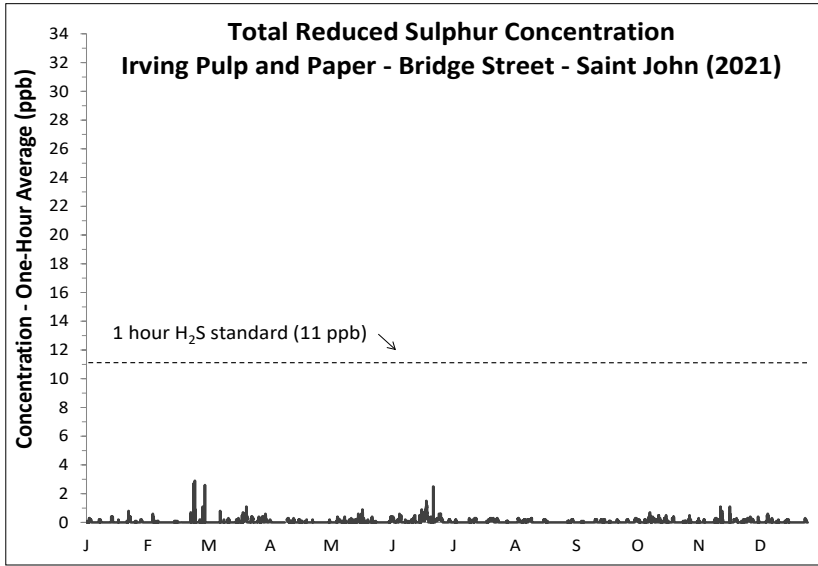
**PART III: STATIONS OPERATED BY INDUSTRY - Irving Oil Ltd., Saint John - Total Reduced Sulphur**



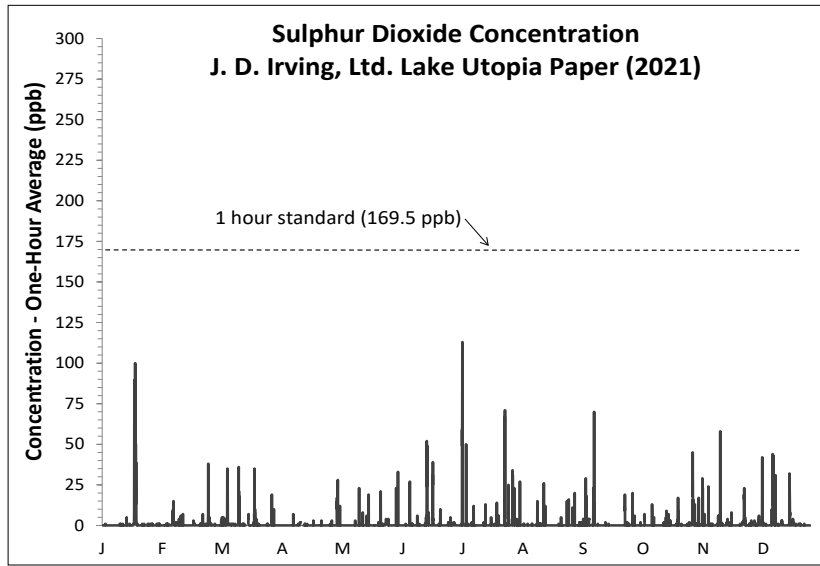
**PART III: STATIONS OPERATED BY INDUSTRY - Irving Oil Ltd., Saint John - Fine Particulate Matter**



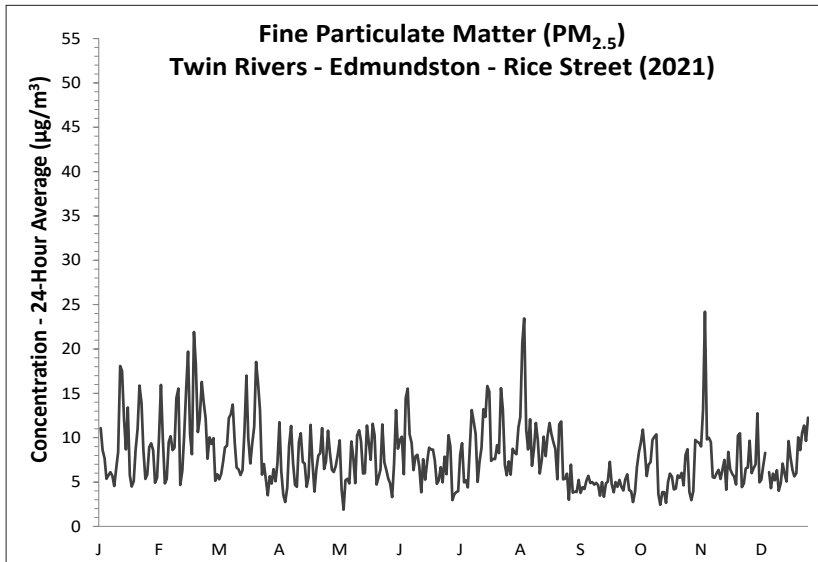
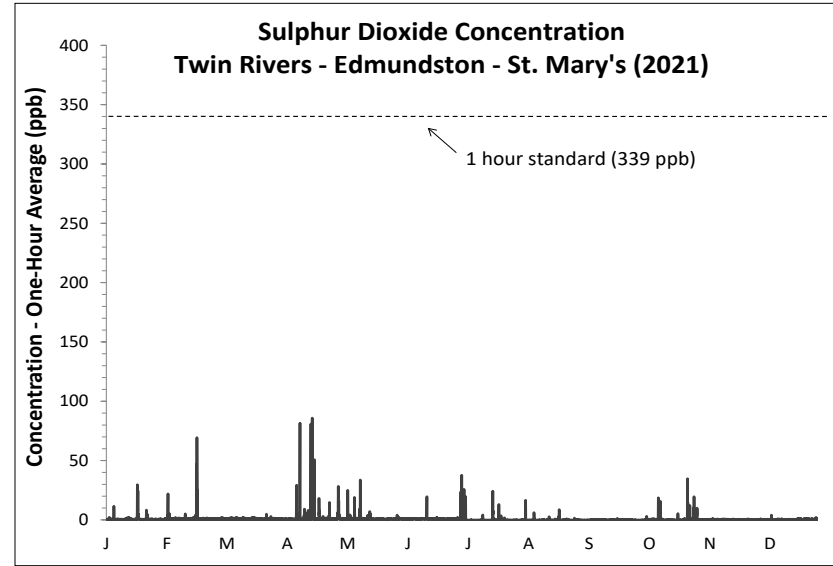
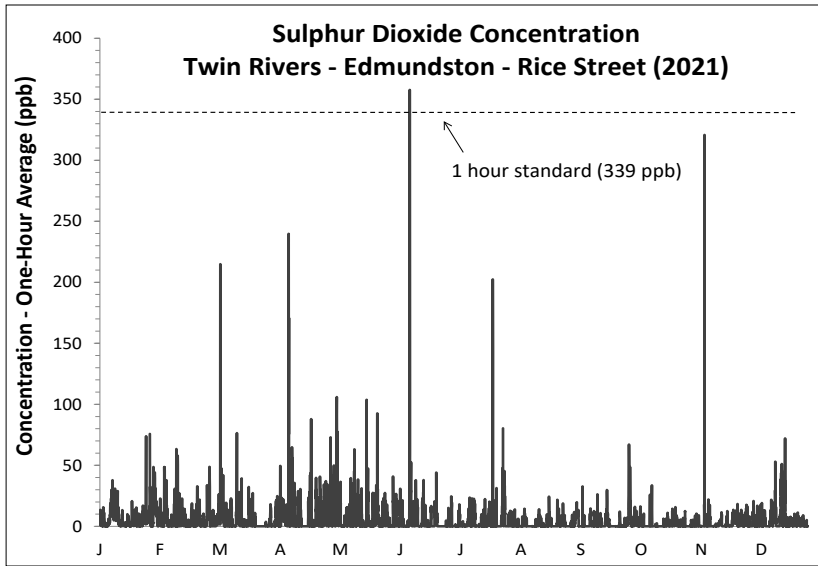
**PART III: STATIONS OPERATED BY INDUSTRY - Irving Pulp and Paper, Saint John - Total Reduced Sulphur**



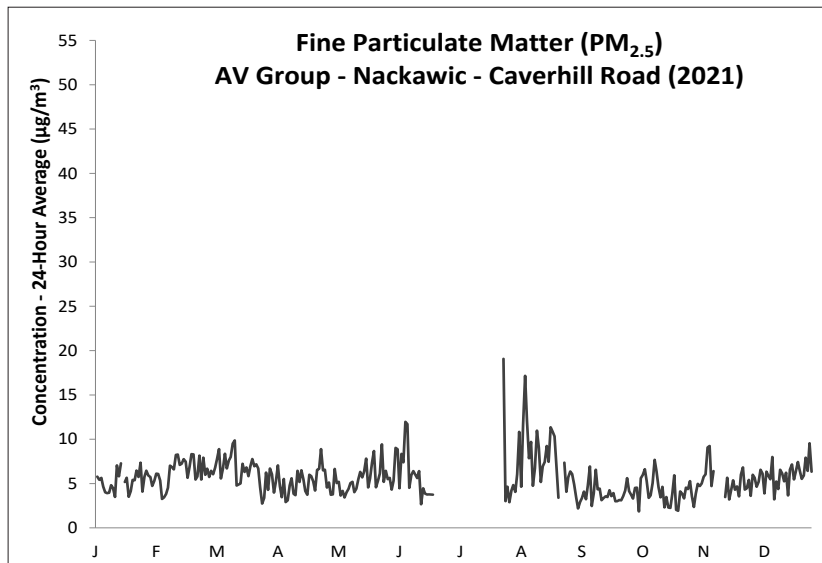
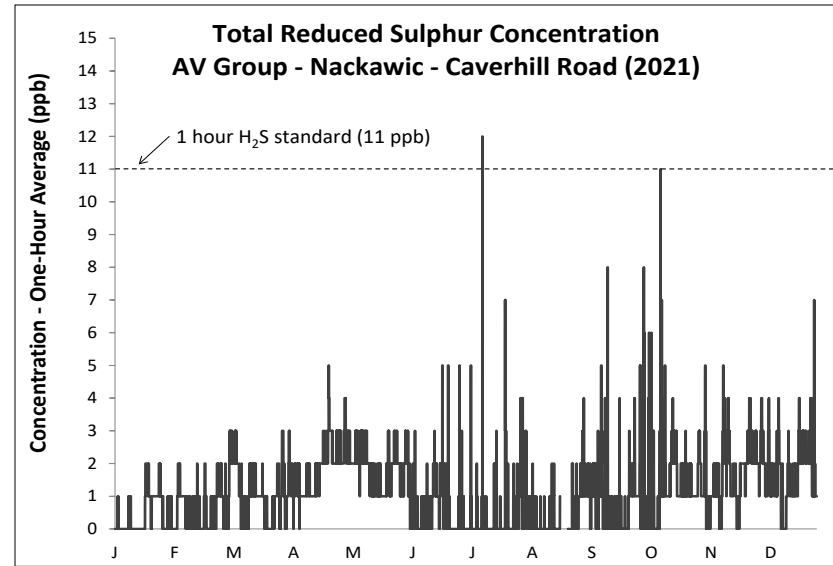
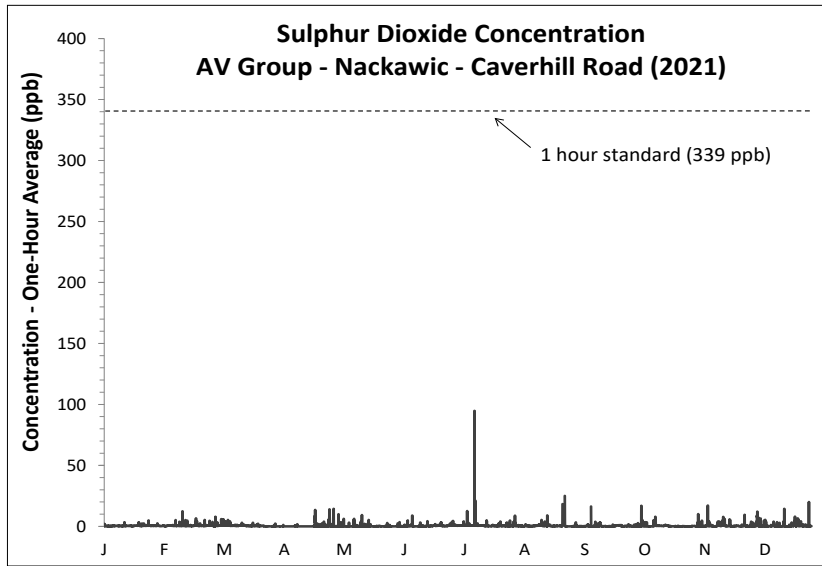
**PART III: STATIONS OPERATED BY INDUSTRY - J. D. Irving, Ltd. Lake Utopia Paper - Sulphur Dioxide**



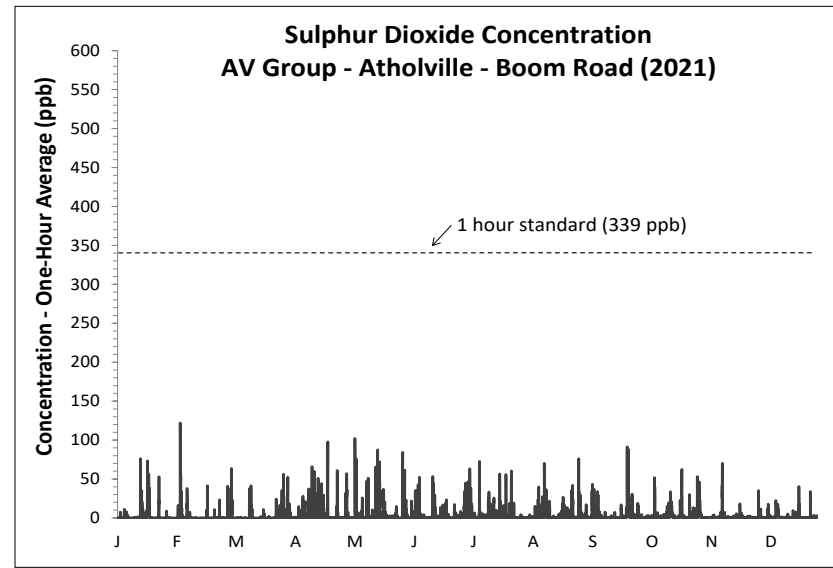
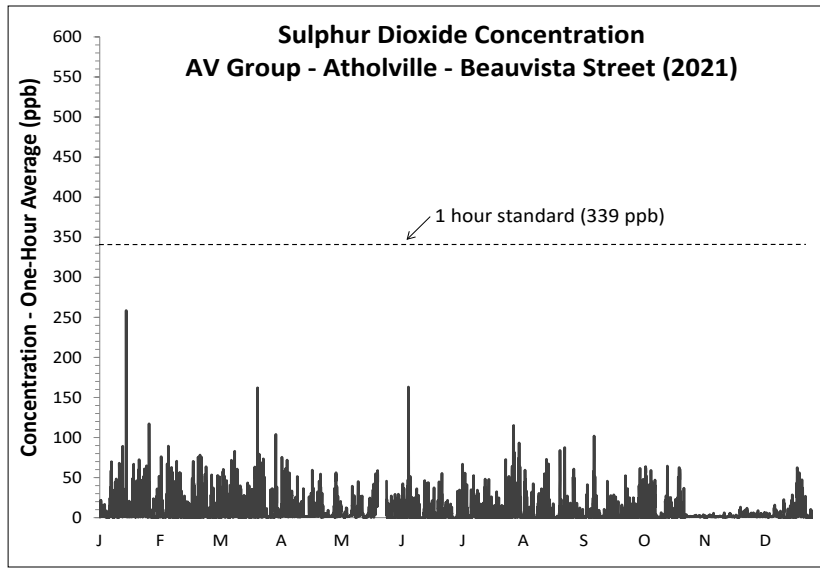
### PART III: STATIONS OPERATED BY INDUSTRY - Twin Rivers Paper Company, Edmundston - All Parameters



**PART III: STATIONS OPERATED BY INDUSTRY - AV Group - Nackawic - All Parameters**

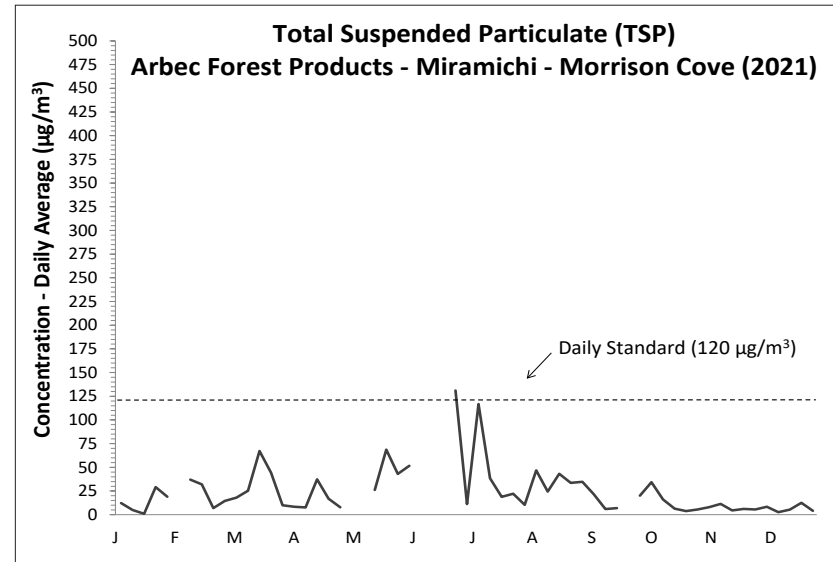
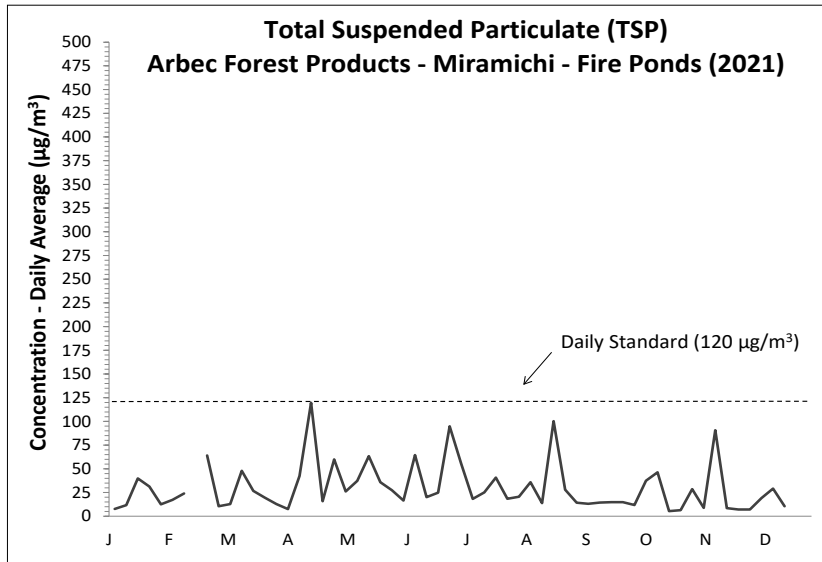
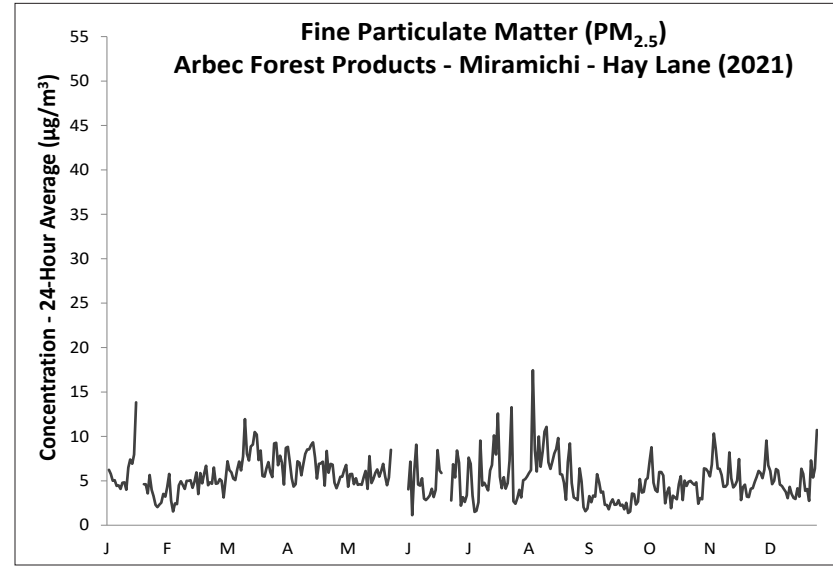
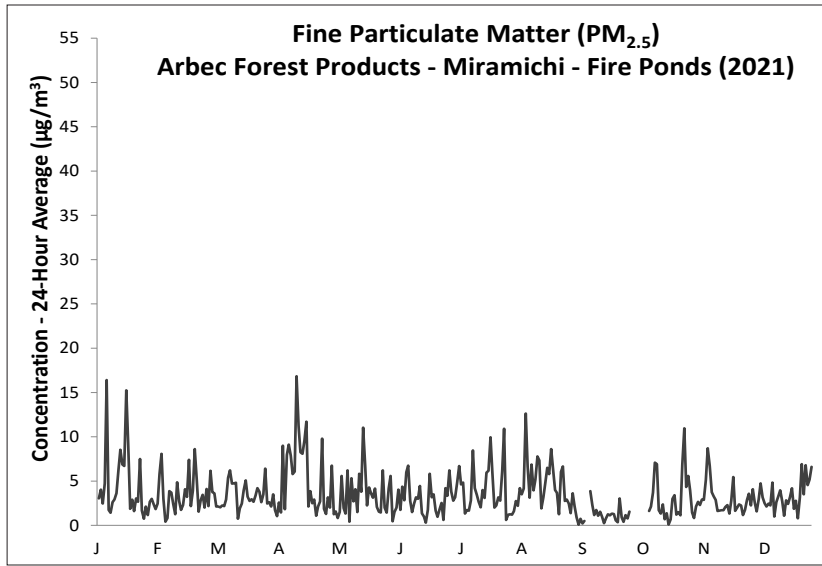


**PART III: STATIONS OPERATED BY INDUSTRY - AV Group - Atholville - Sulphur Dioxide**

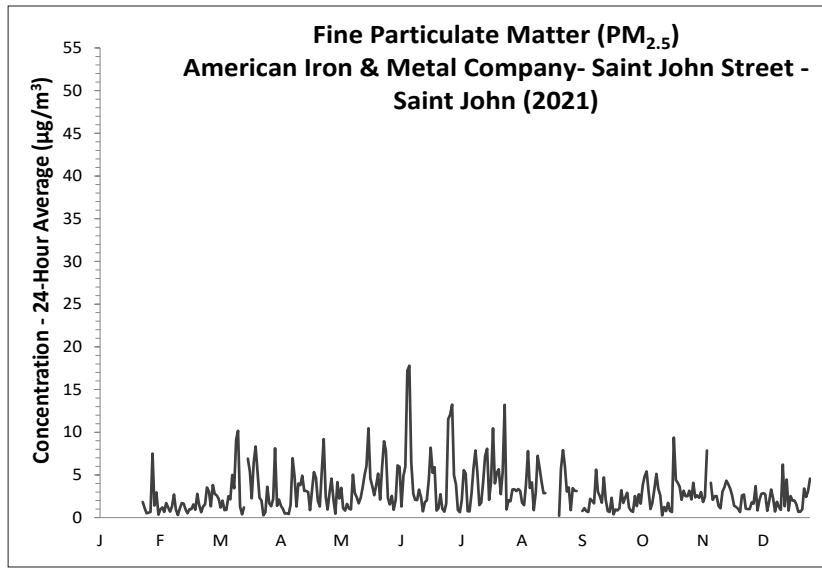




**PART III: STATIONS OPERATED BY INDUSTRY - Arbec Forest Products, Miramichi- All Parameters**



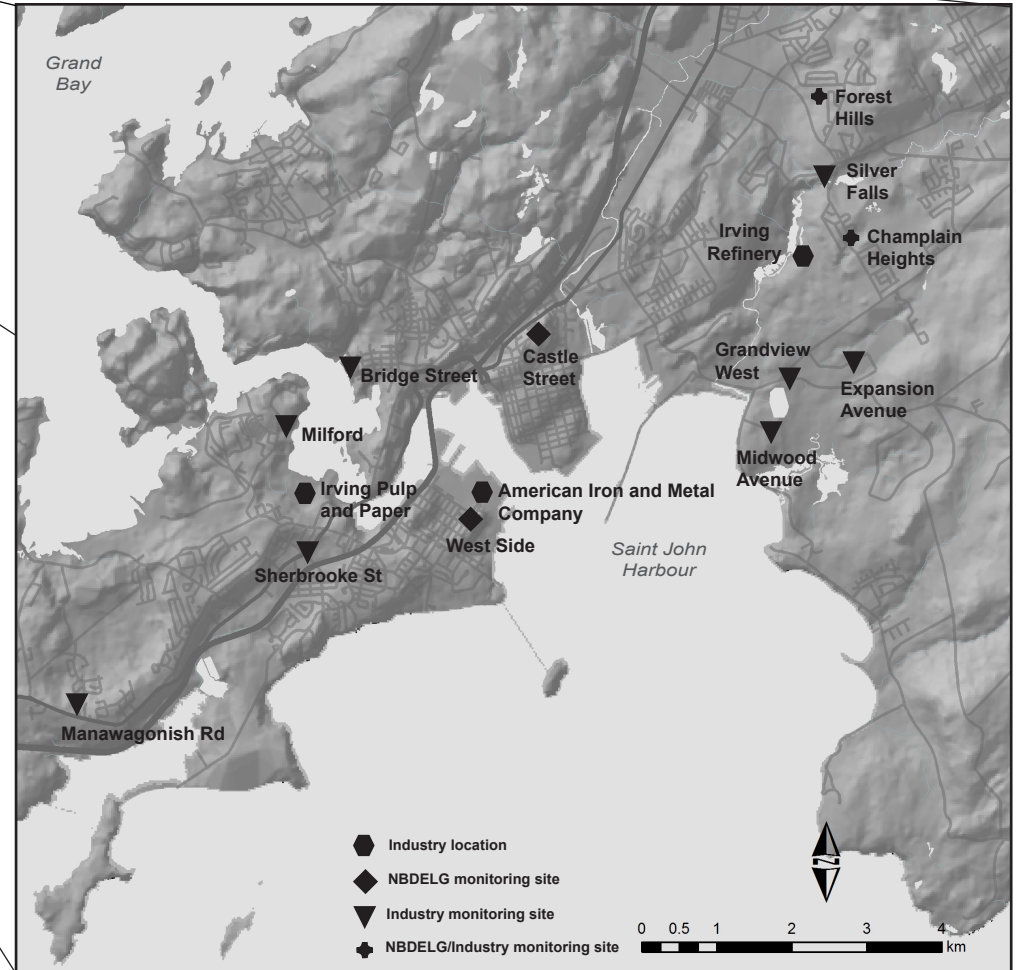
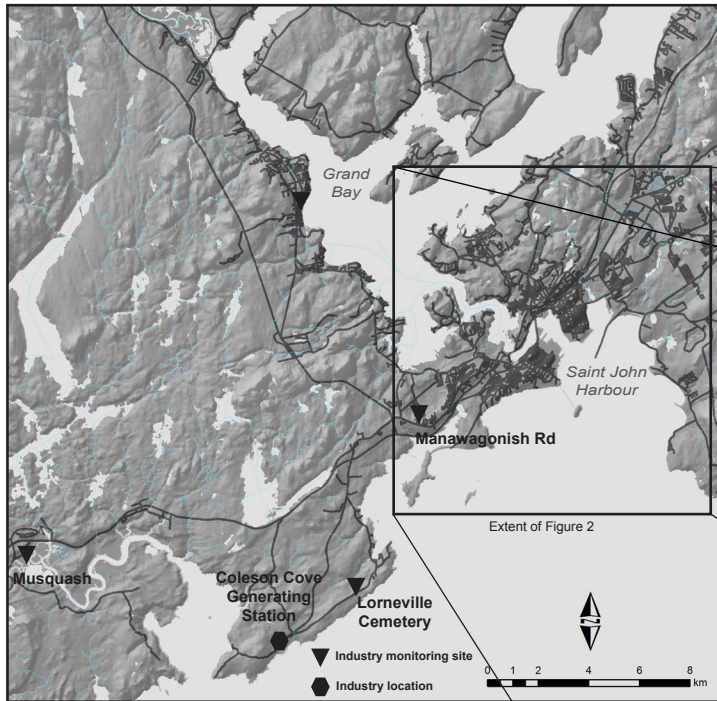
**PART III: STATIONS OPERATED BY INDUSTRY - American Iron & Metal Company- Saint John - Fine Particulate Matter**



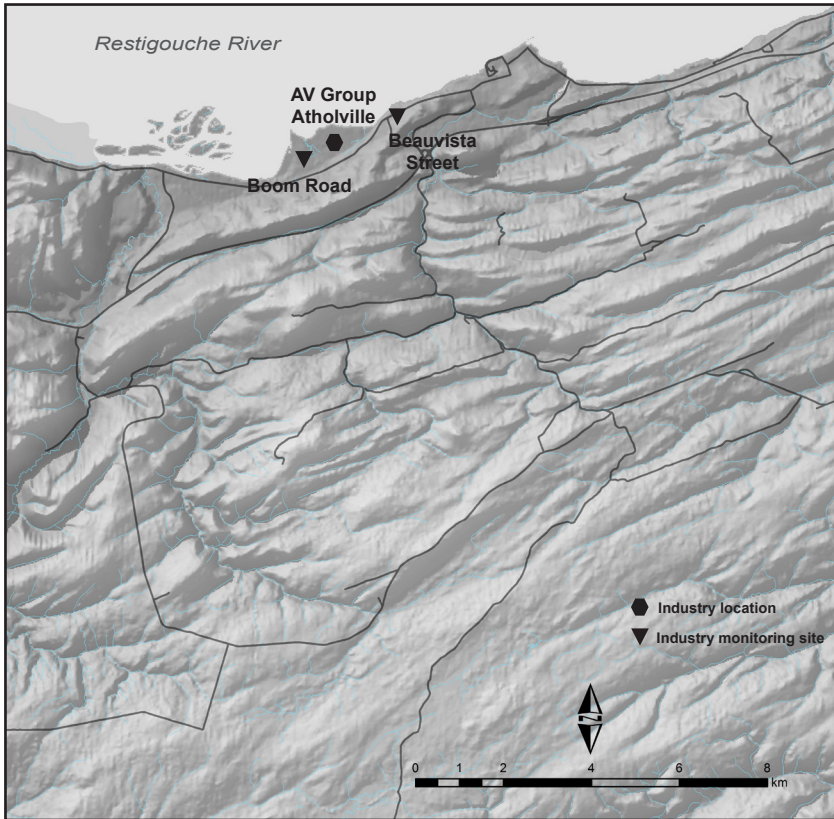
**PART IV:**  
**DETAILED STATION LOCATION MAPS**

**PART IV: DETAILED STATION LOCATION MAPS - Saint John Region**

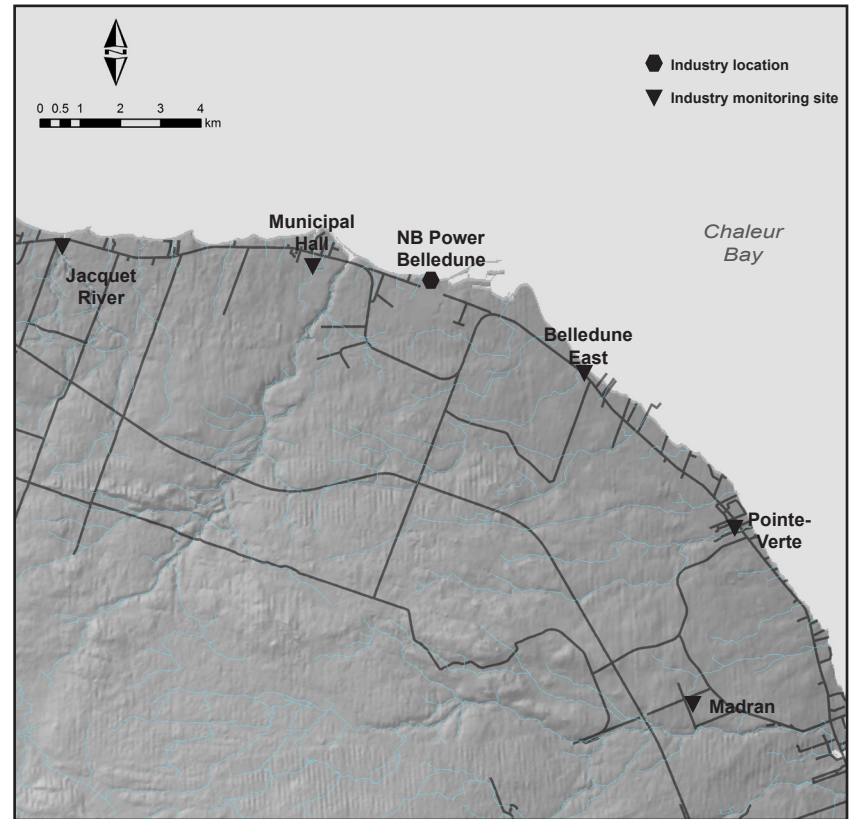
**Grand Bay/Musquash/Saint John Area**



**PART IV: DETAILED STATION LOCATION MAPS - Atholville and Belledune**

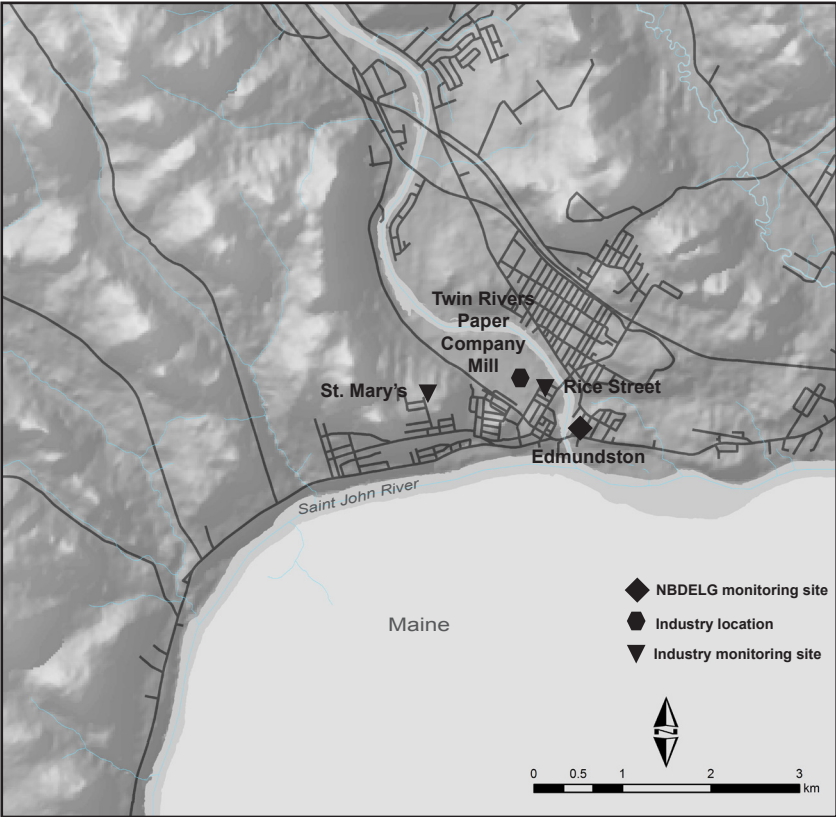


Atholville Area

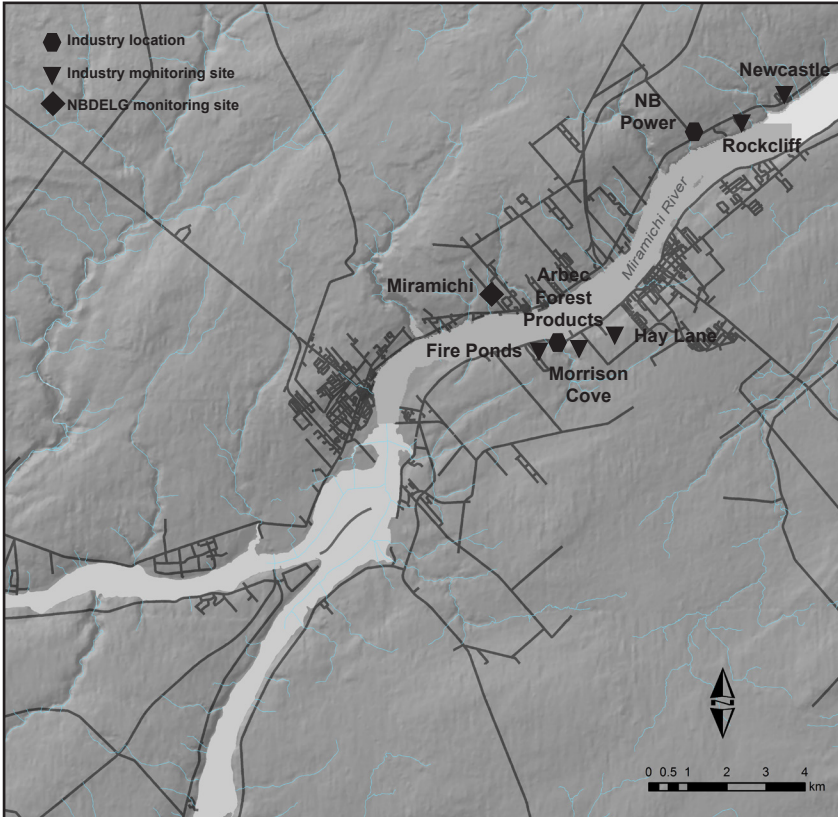


Belledune Area

**PART IV: DETAILED STATION LOCATION MAPS - Edmundston and Lower Newcastle**



Edmundston Area



Lower Newcastle