

Air Quality Monitoring Results

Supplementary Data

2015

New Brunswick
Department of Environment
and Local Government



**New Brunswick Department of Environment and Local Government
Environmental Reporting Series
2017**

ISBN 978-1-4605-1411-5

ISSN 2368-9692

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 2015" report, 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. You may contact the State of the Environment Branch, Department of Environment and Local Government (DELG) at (506) 457- 4844, by fax at (506) 453-2265 or by e-mail at elg/egl-info@gnb.ca with any comments.

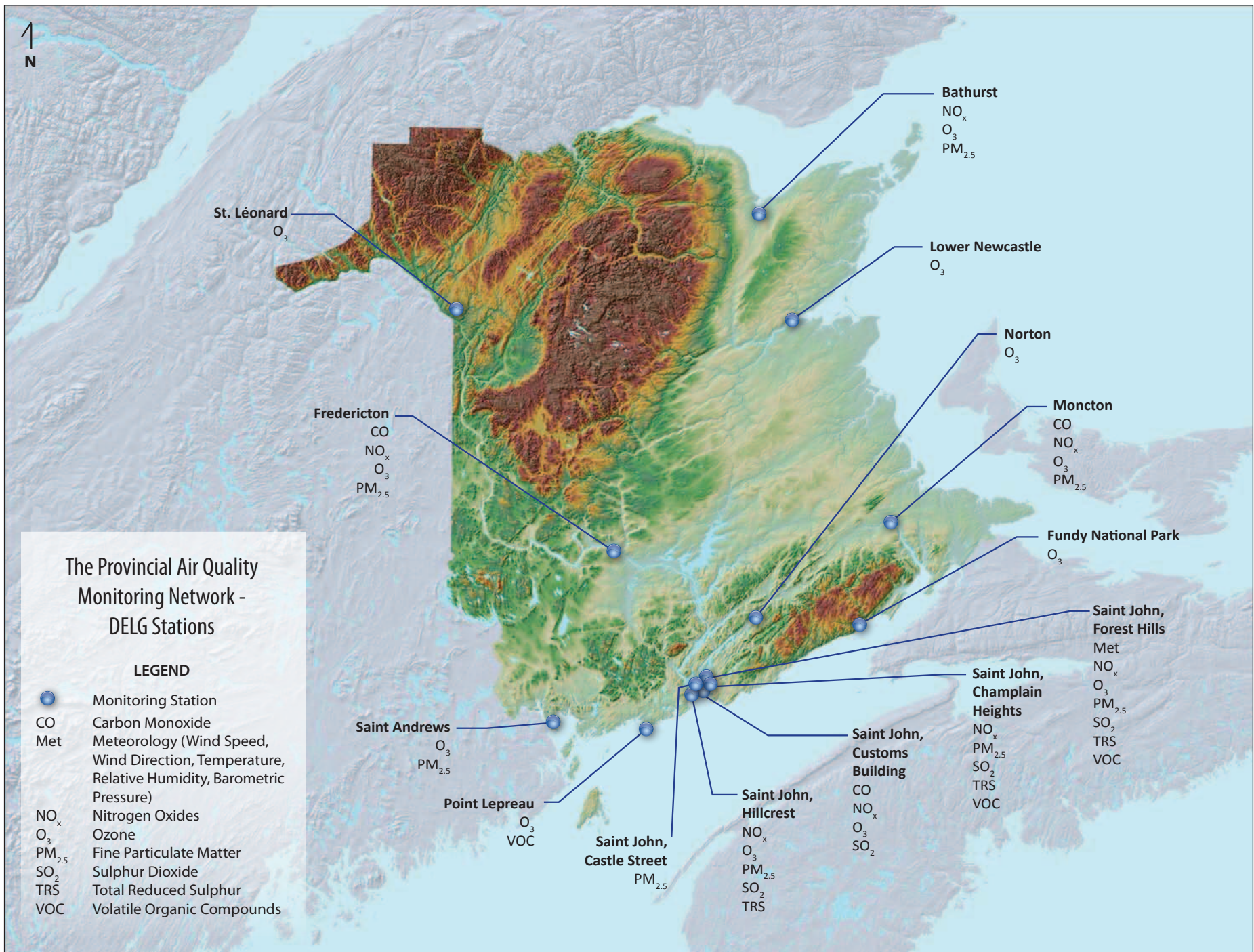
TABLE OF CONTENTS

PART I: PROVINCIALY OPERATED AIR QUALITY MONITORING NETWORKS.....	1
Network Map - New Brunswick Air Quality Monitoring Network, Provincially Operated Stations.....	2
Continuous Air Quality Monitoring Results.....	3
Carbon Monoxide.....	3
Nitrogen Dioxide.....	4
Ozone.....	6
Fine Particulate Matter.....	9
Sulphur Dioxide.....	11
Total Reduced Sulphur.....	12
Volatile Organic Compounds, Saint John Region.....	13
Air Toxics.....	13
Ozone Depleting Substances.....	14
Smog-Forming.....	15
PART II: ACID PRECIPITATION MONITORING NETWORK.....	16
Network Map - New Brunswick Acid Precipitation Monitoring Network.....	17
Sulphate and Nitrate Deposition Trends.....	18
Network-wide Annual Mean Sulphate and Nitrate Concentration Trends.....	20
PART III: INDUSTRY-OPERATED AIR QUALITY MONITORING NETWORKS.....	24
Network Map - New Brunswick Air Quality Monitoring Network, Industry Operated Stations.....	25
Industry-Operated Monitoring Network Results.....	26
Glencore, Belledune.....	26
NB Power, Belledune.....	28
NB Power, Millbank.....	32
NB Power, Coleson Cove.....	35
Irving Oil Ltd., Saint John.....	37
Irving Pulp and Paper, Saint John.....	40
Irving Pulp and Paper, Lake Utopia.....	41
Twin Rivers Paper Company, Edmundston.....	42
AV Nackawic, Nackawic.....	43
AV Cell, Atholville.....	44
Arbec Forest Products, Miramichi.....	45
PART IV: DETAILED STATION LOCATION MAPS.....	46
Saint John Region.....	47
Belledune.....	48
Edmundston and Lower Newcastle.....	49

List of Acronyms and Abbreviations

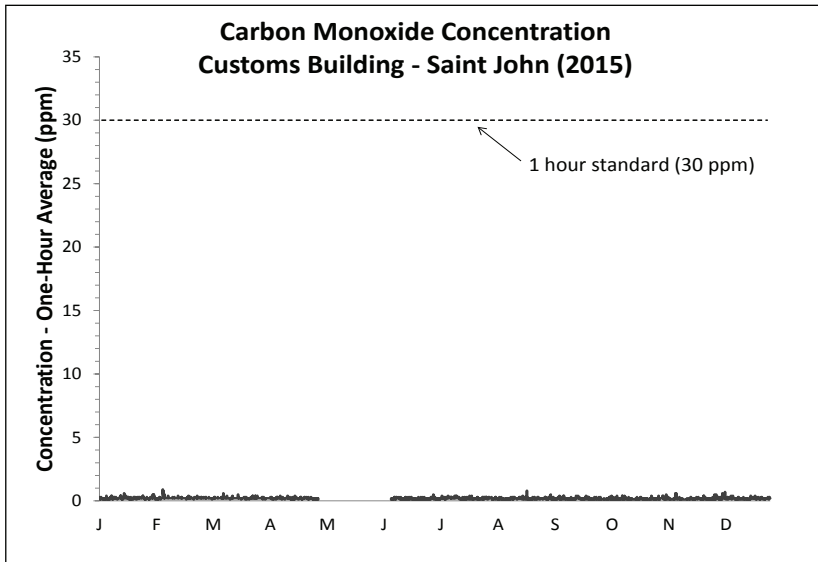
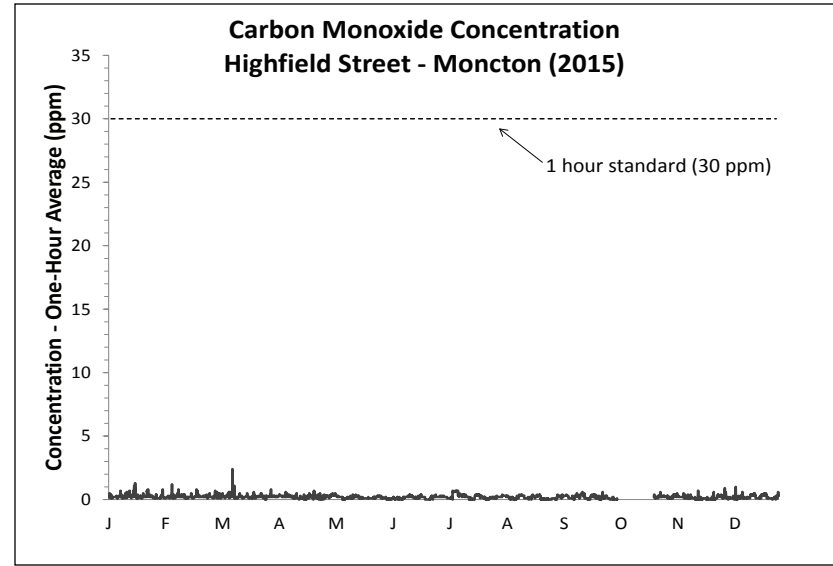
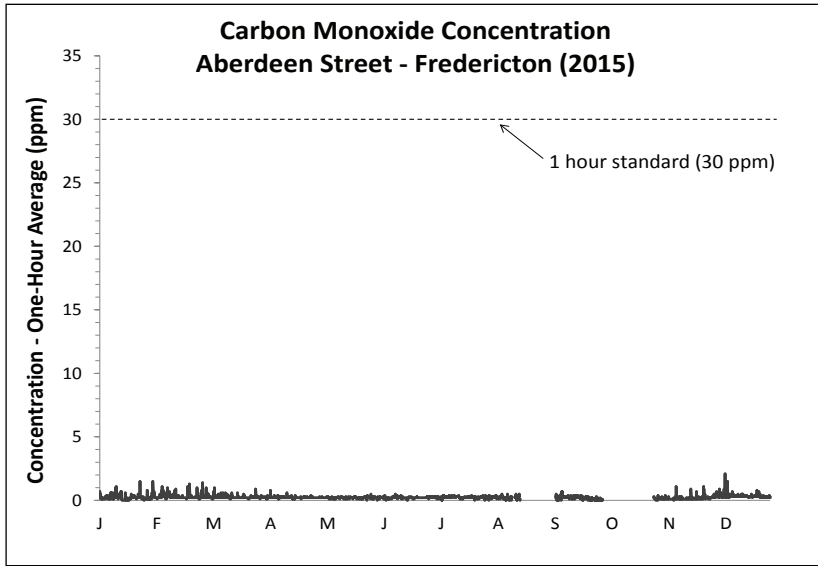
CO	Carbon Monoxide
eq/ha/yr	Equivalents (molar equivalent acidity) per hectare per year
PM _{2.5}	Fine Particulate Matter (less than 2.5 microns)
H ₂ S	Hydrogen Sulphide
kg/ha/yr	Kilograms per hectare per year
µg/m ³	Micrograms per cubic meter
meq/L	Milliequivalents (molar equivalent acidity) per litre
mg/L	Milligrams per litre
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
O ₃	Ozone
ppb	Parts per billion
ppm	Parts per million
SO ₂	Sulphur Dioxide
TRS	Total Reduced Sulphur
TSP	Total Suspended Particulate
VOC	Volatile Organic Compound

PART I:
PROVINCIALY OPERATED AIR QUALITY MONITORING NETWORKS



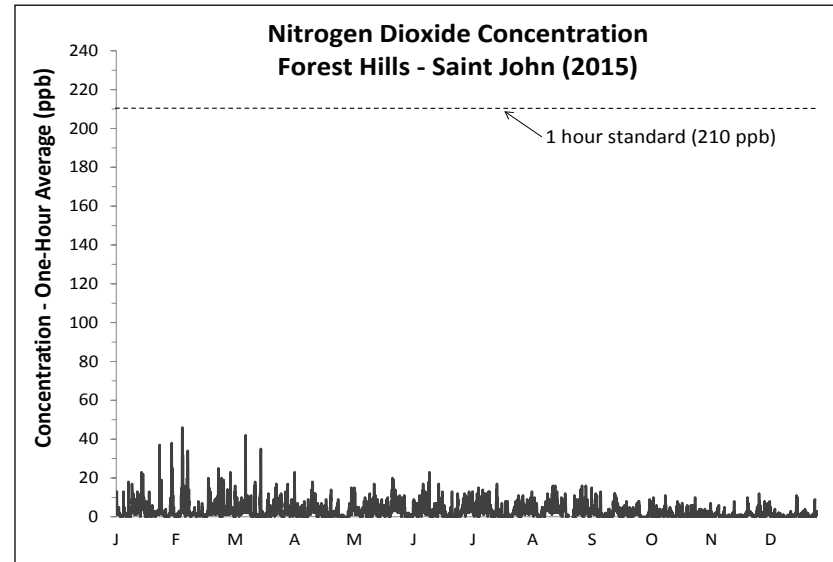
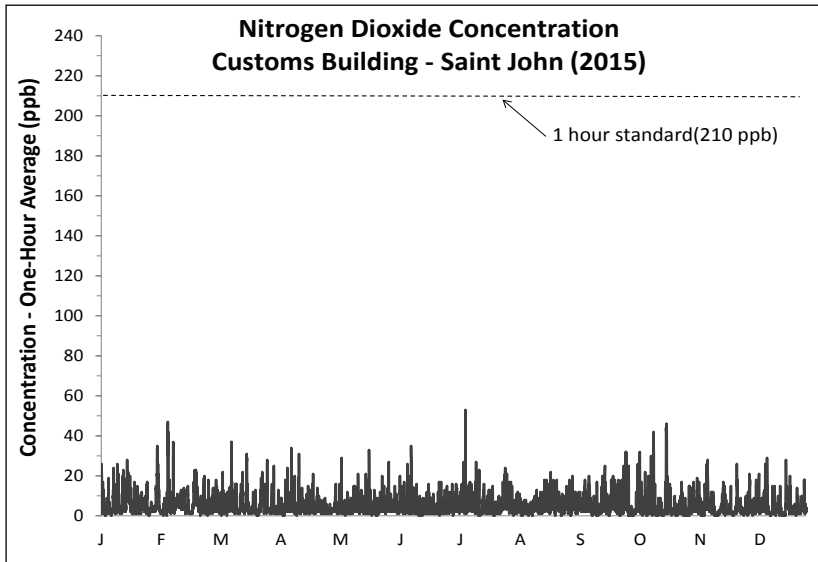
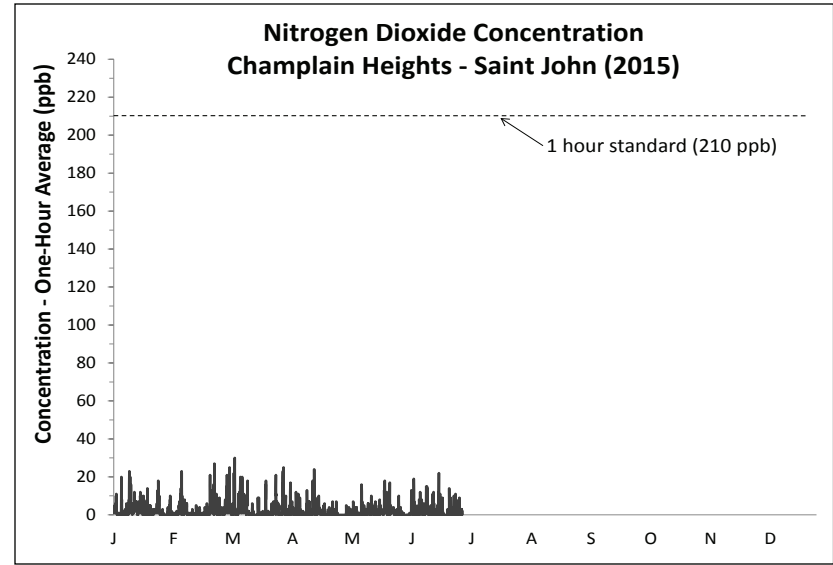
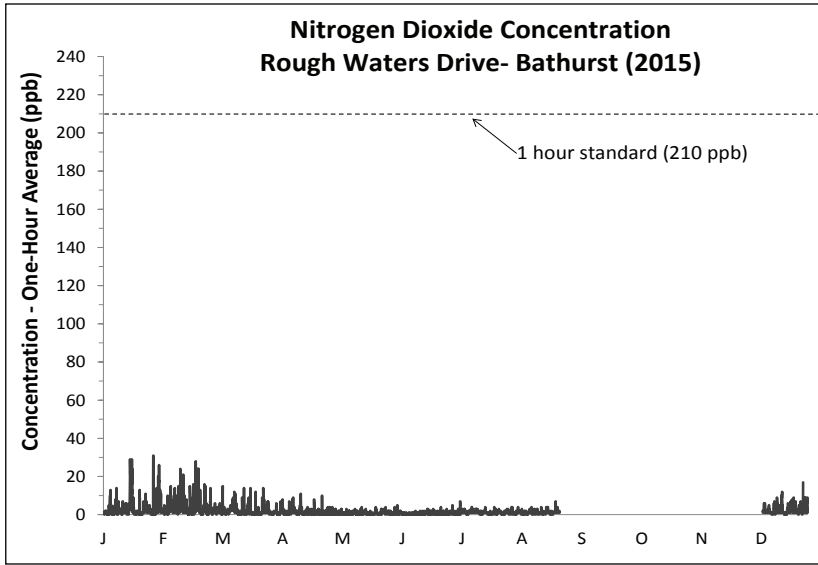
PART I: PROVINCIALY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Carbon Monoxide



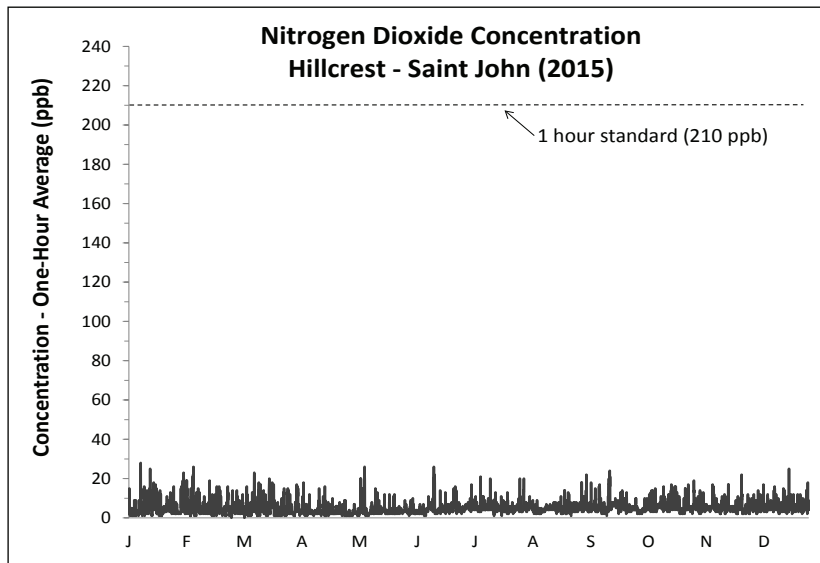
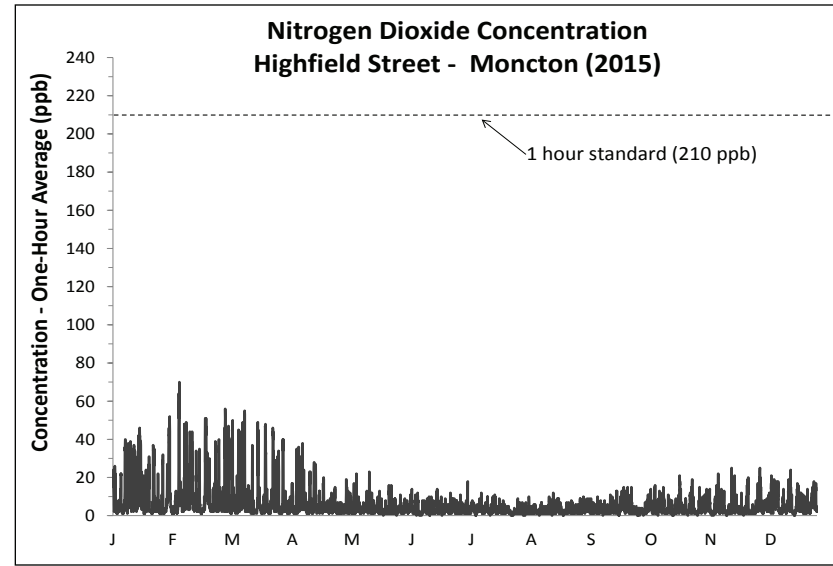
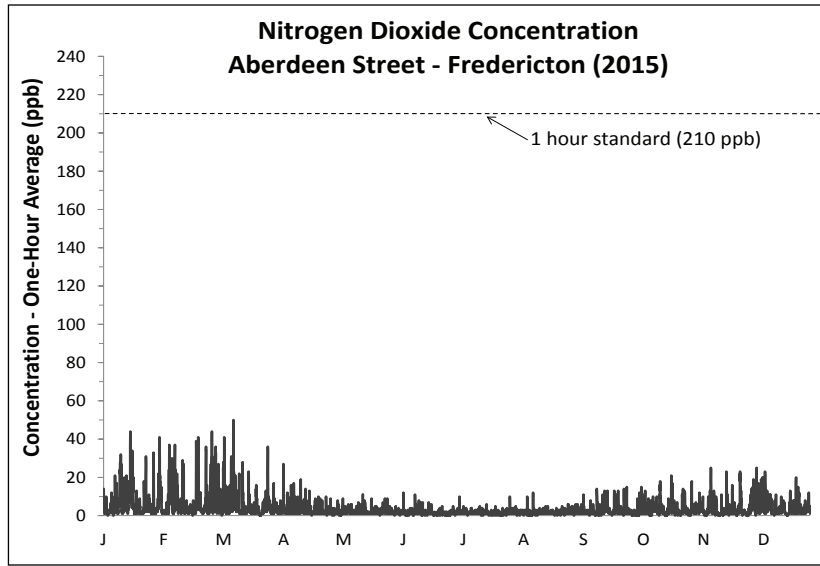
PART I: PROVINCIALY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Nitrogen Dioxide



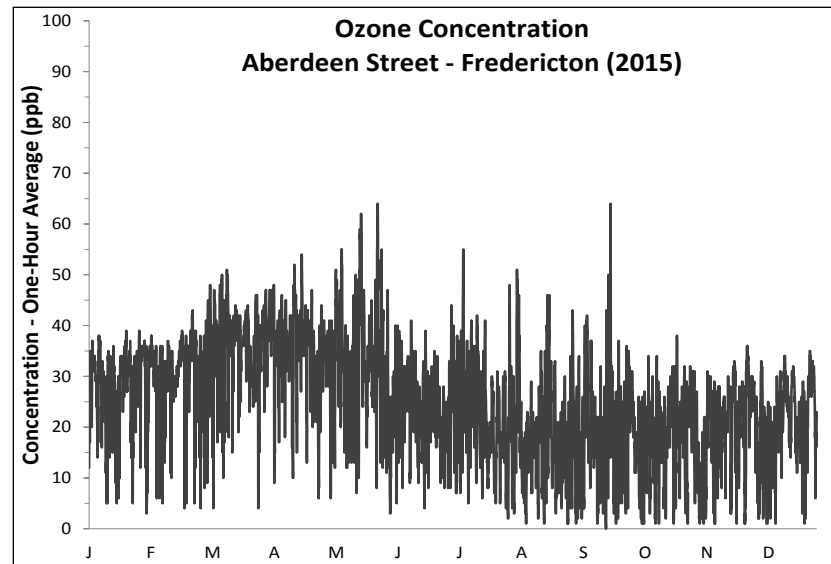
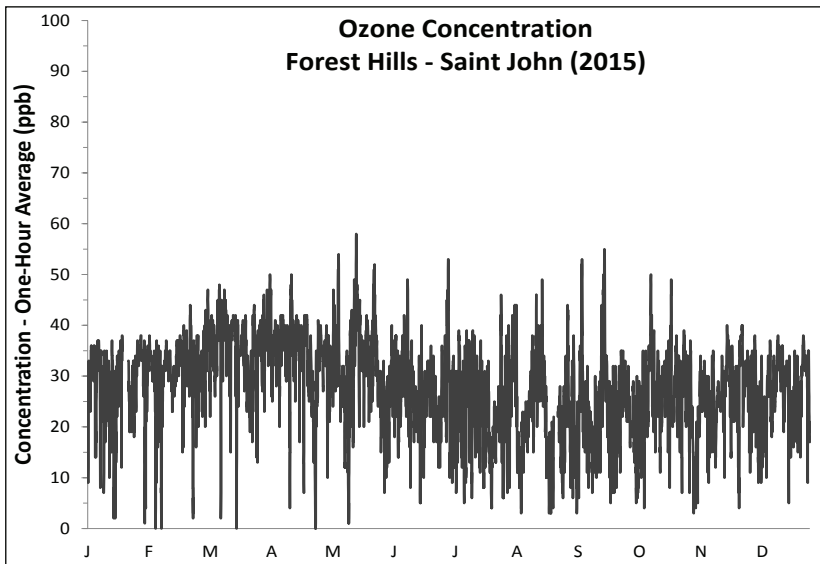
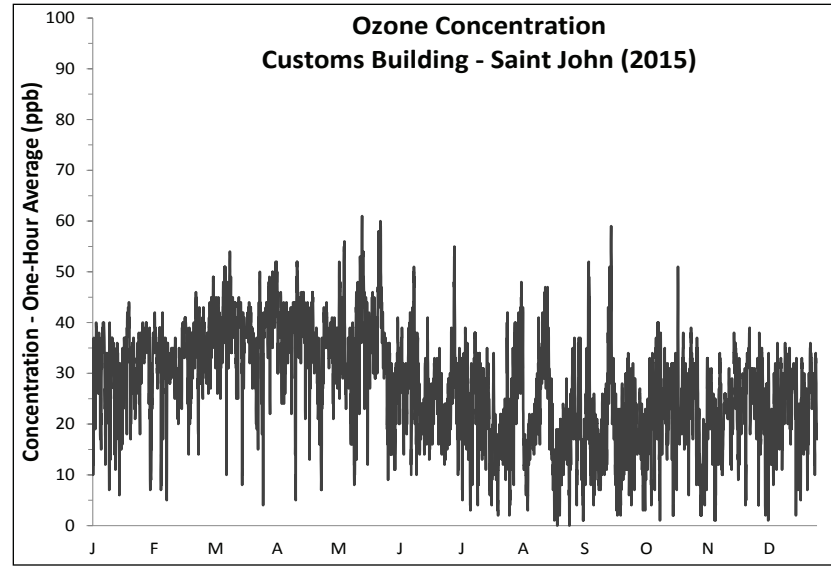
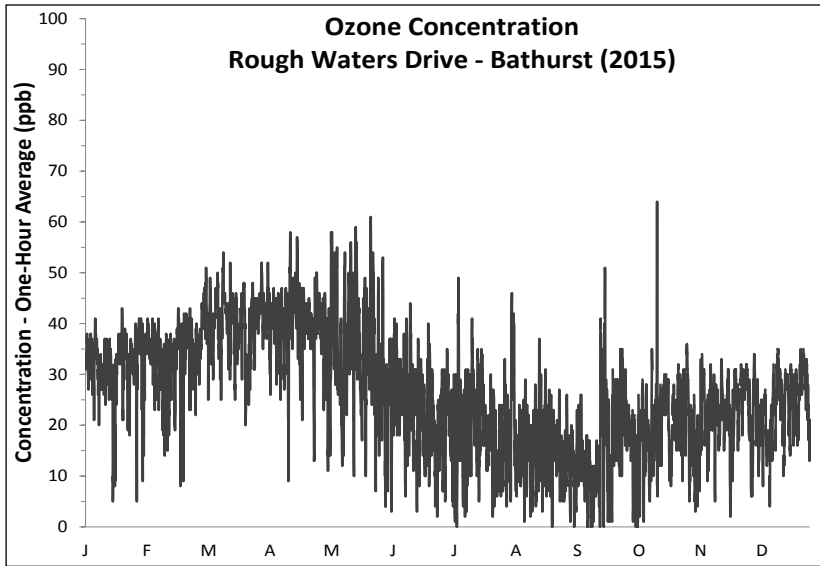
PART I: PROVINCIALY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Nitrogen Dioxide



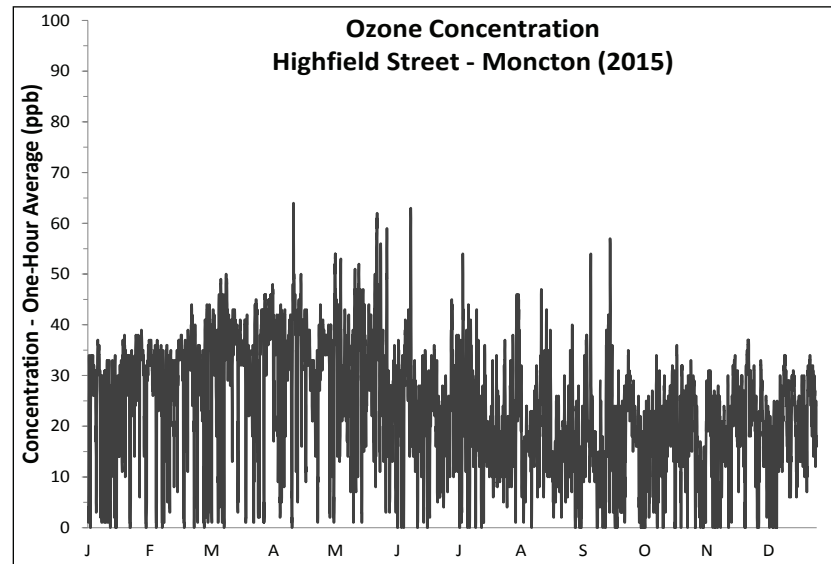
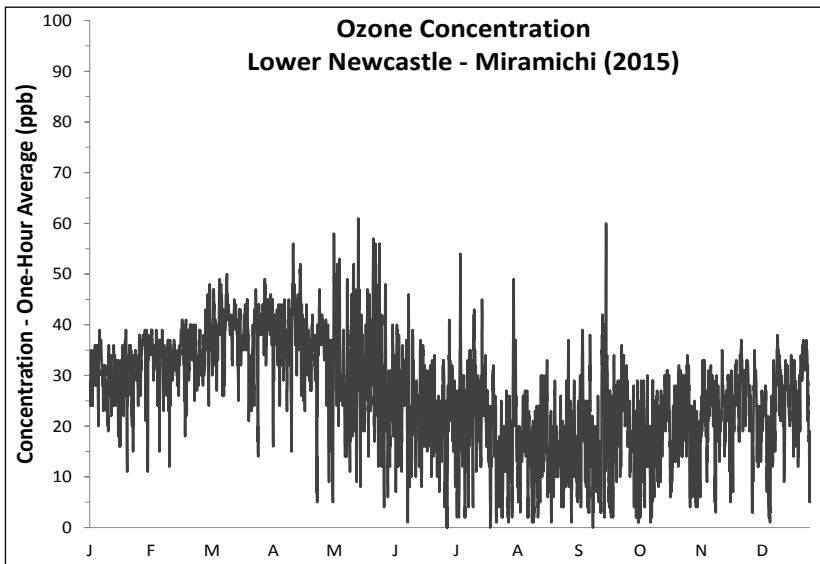
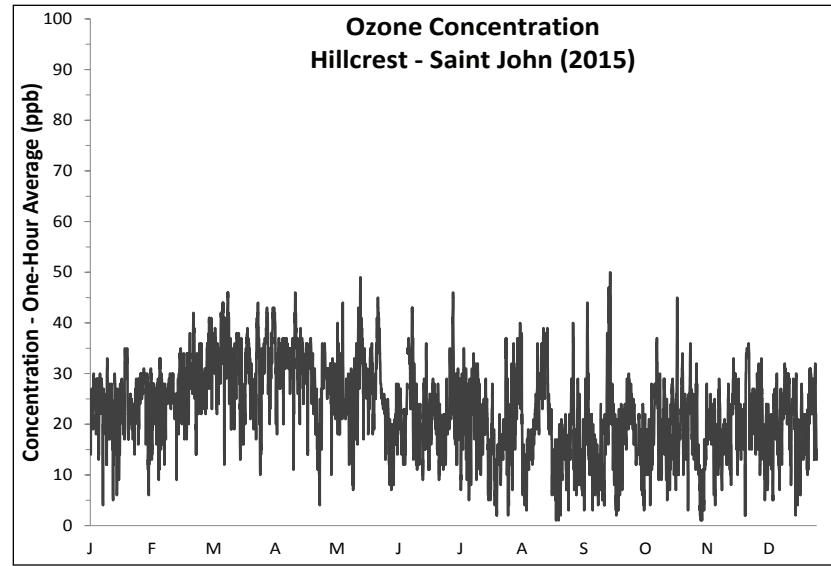
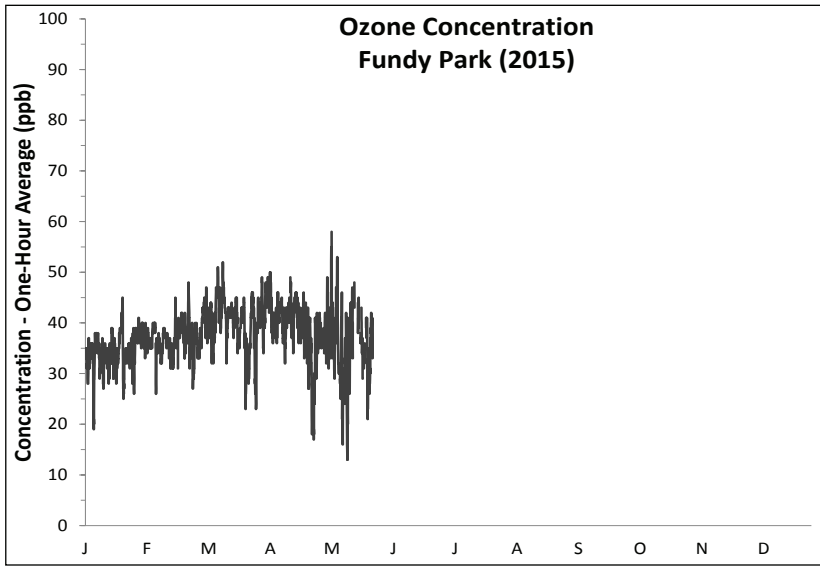
PART I: PROVINCIAL OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Ozone



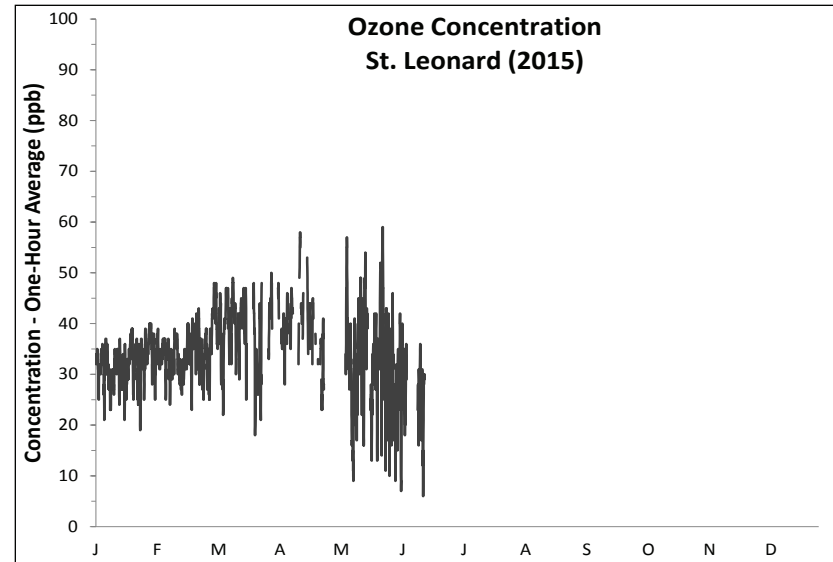
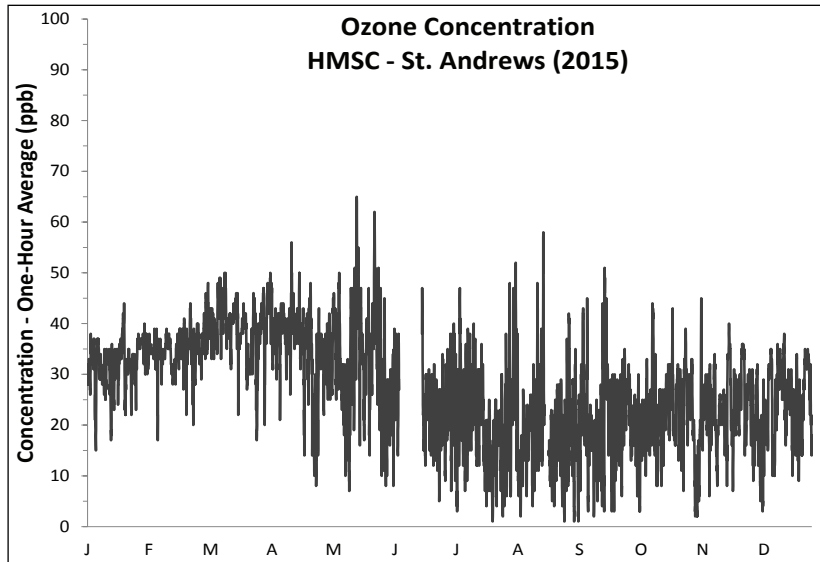
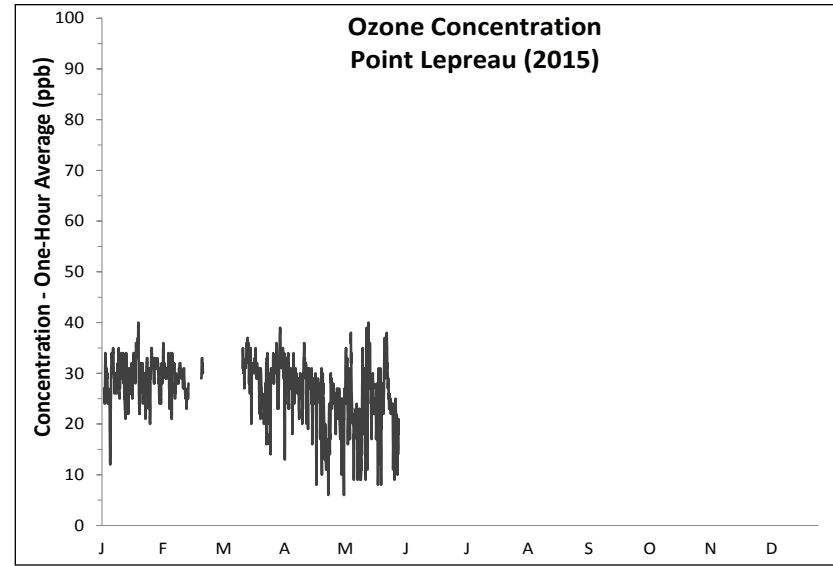
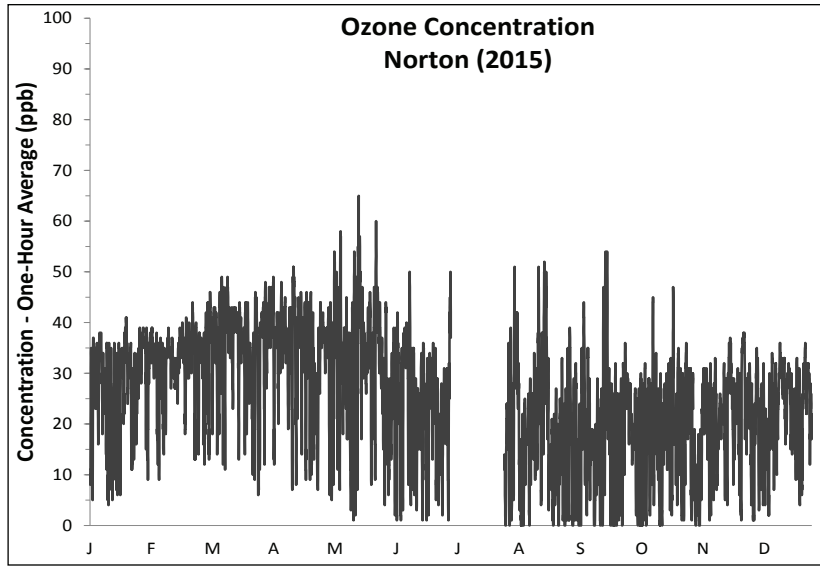
PART I: PROVINCIALY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Ozone



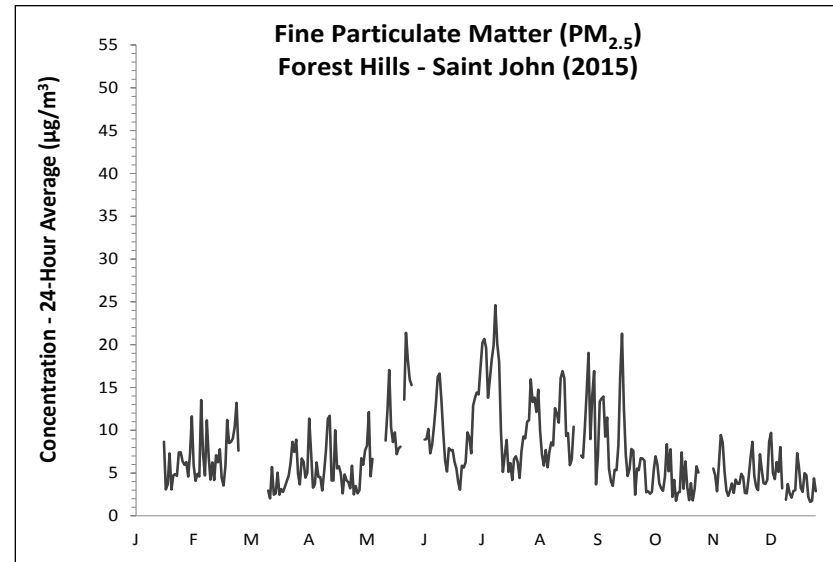
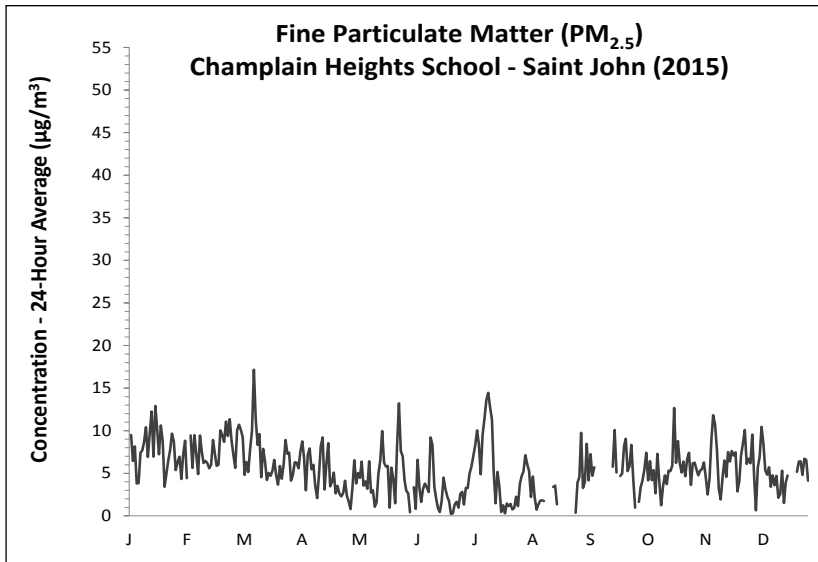
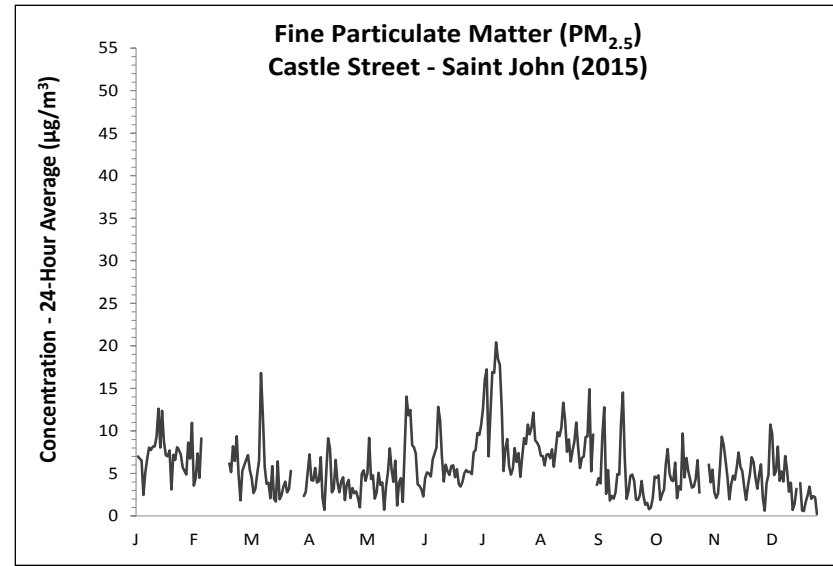
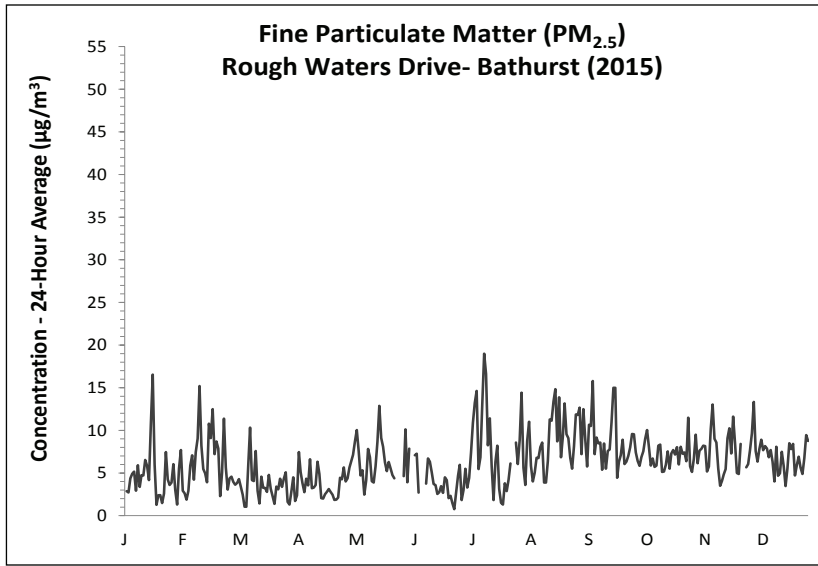
PART I: PROVINCIALY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Ozone



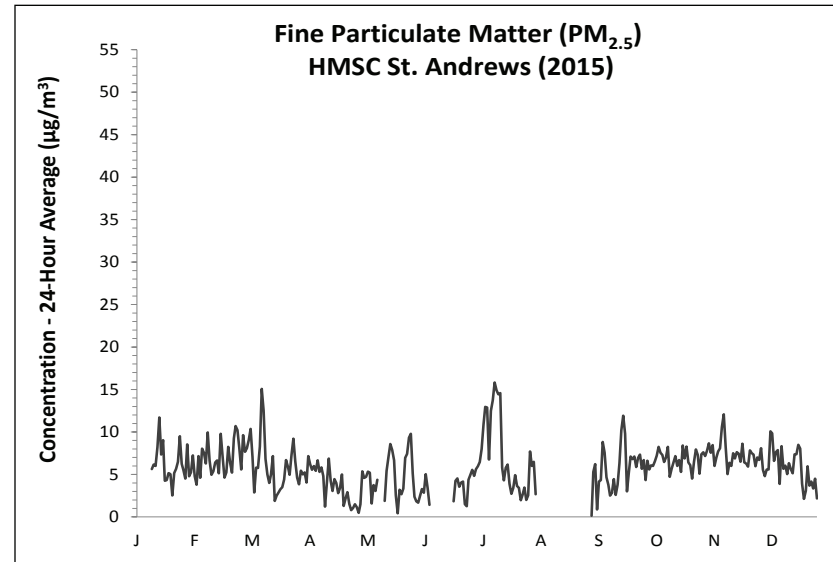
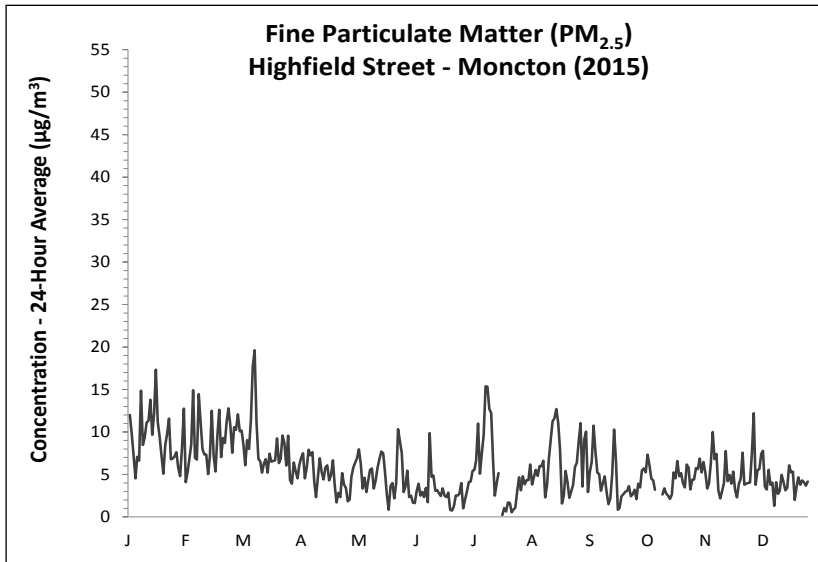
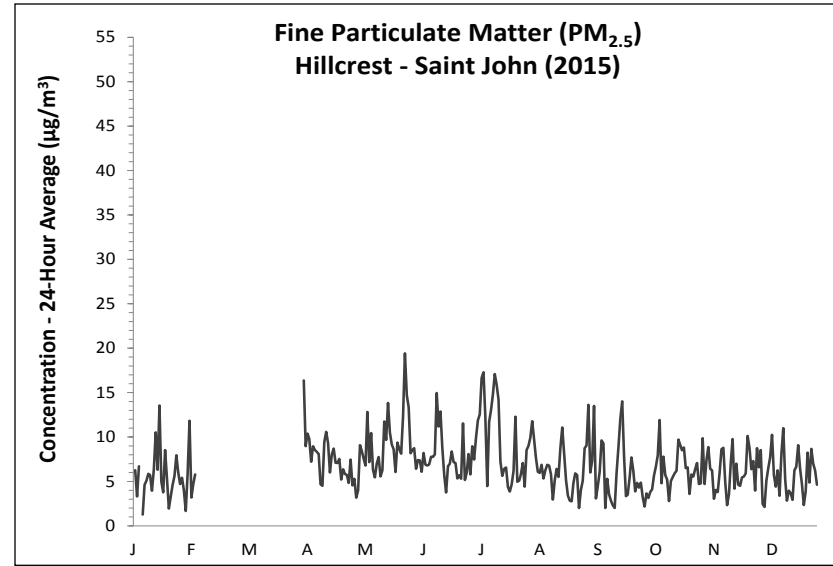
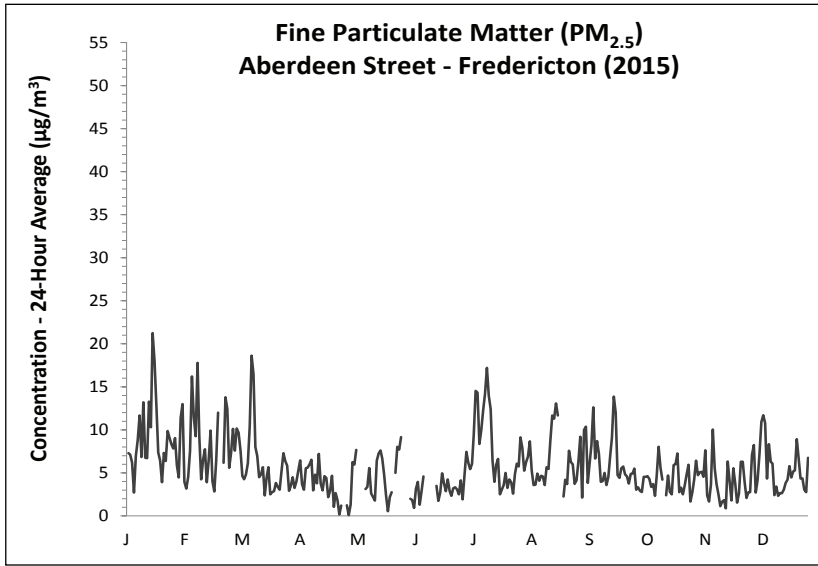
PART I: PROVINCIAL OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Fine Particulate Matter



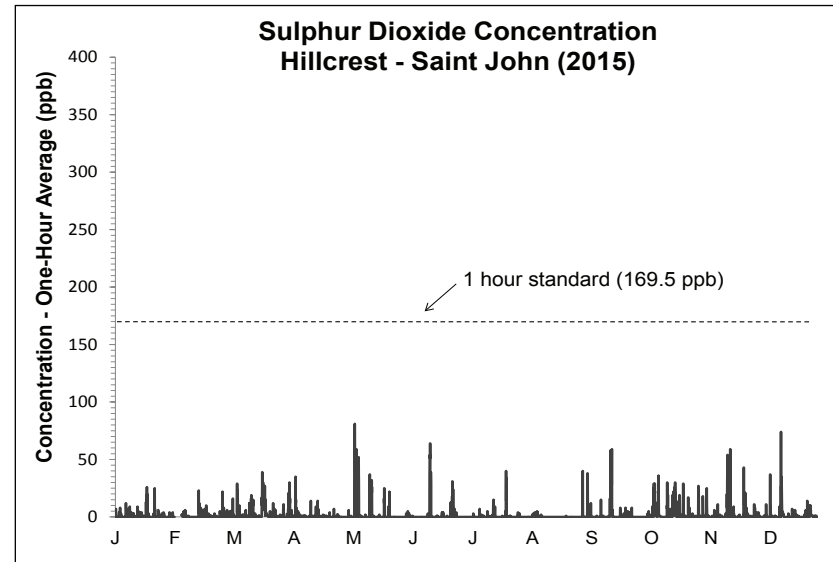
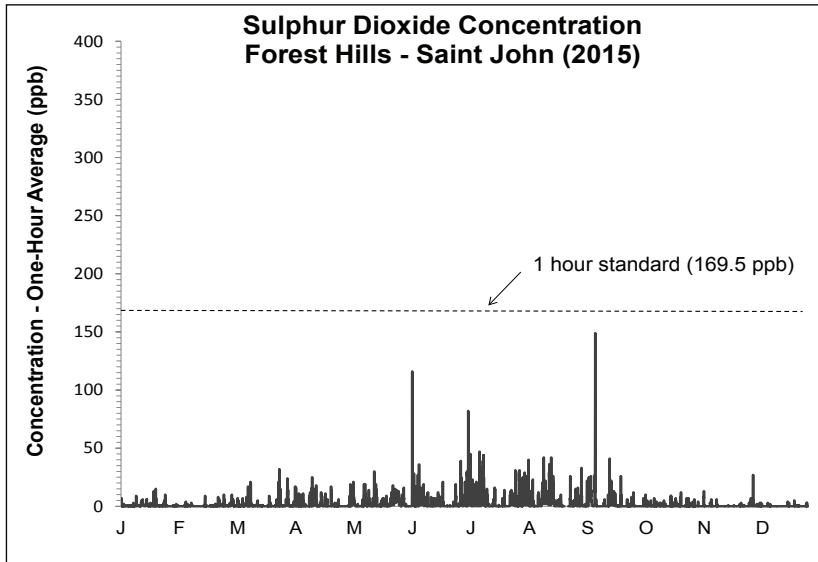
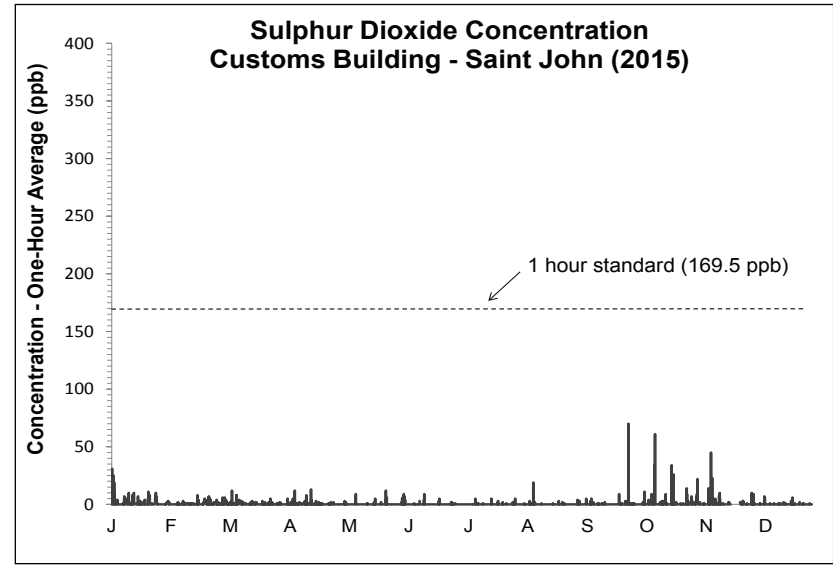
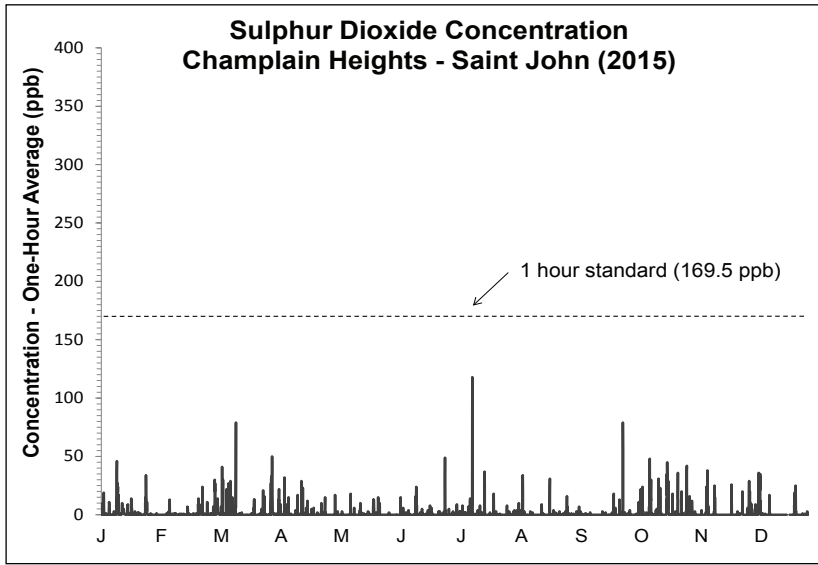
PART I: PROVINCIAL OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Fine Particulate Matter



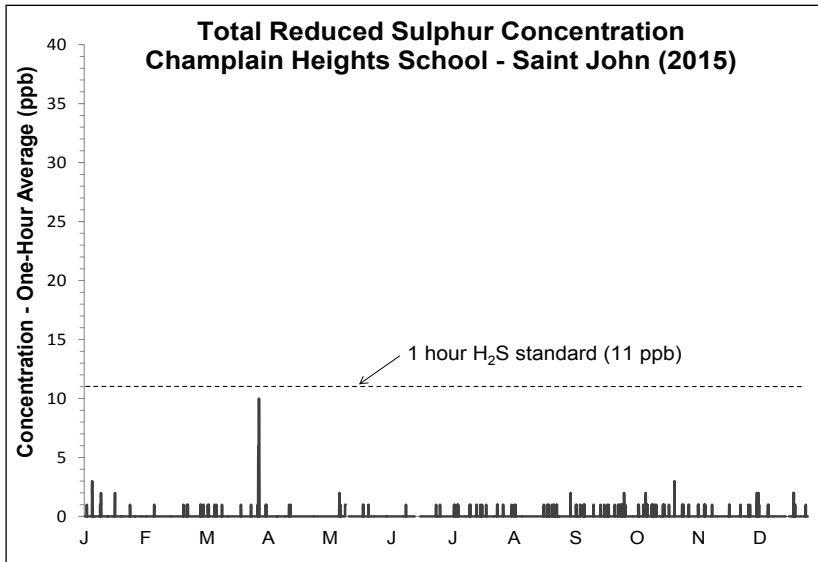
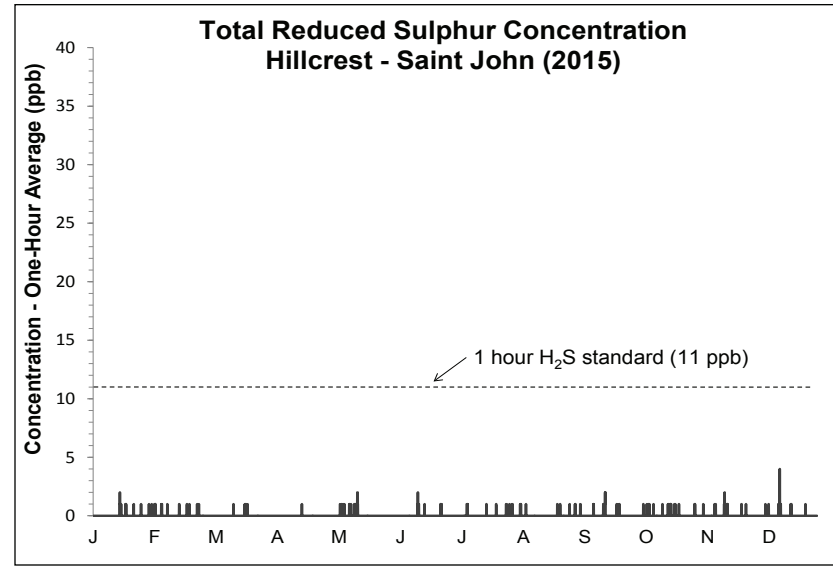
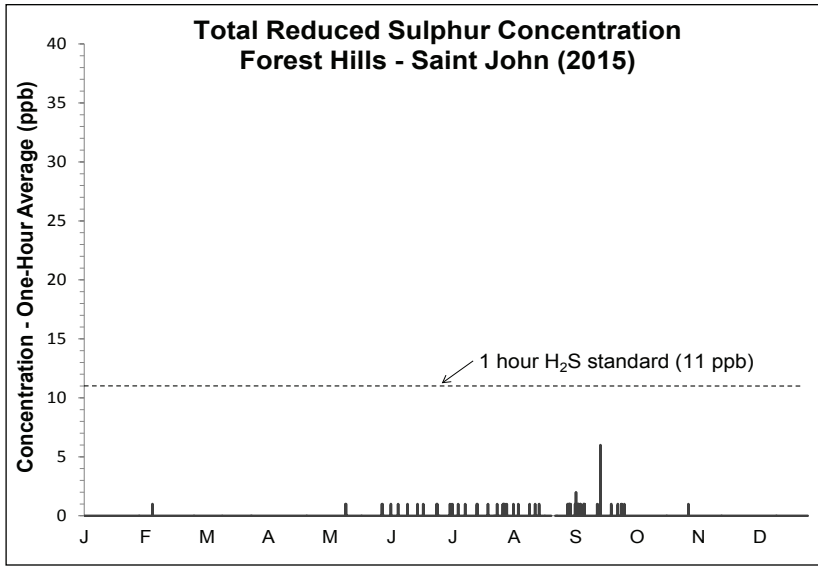
PART I: PROVINCIALY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Sulphur Dioxide



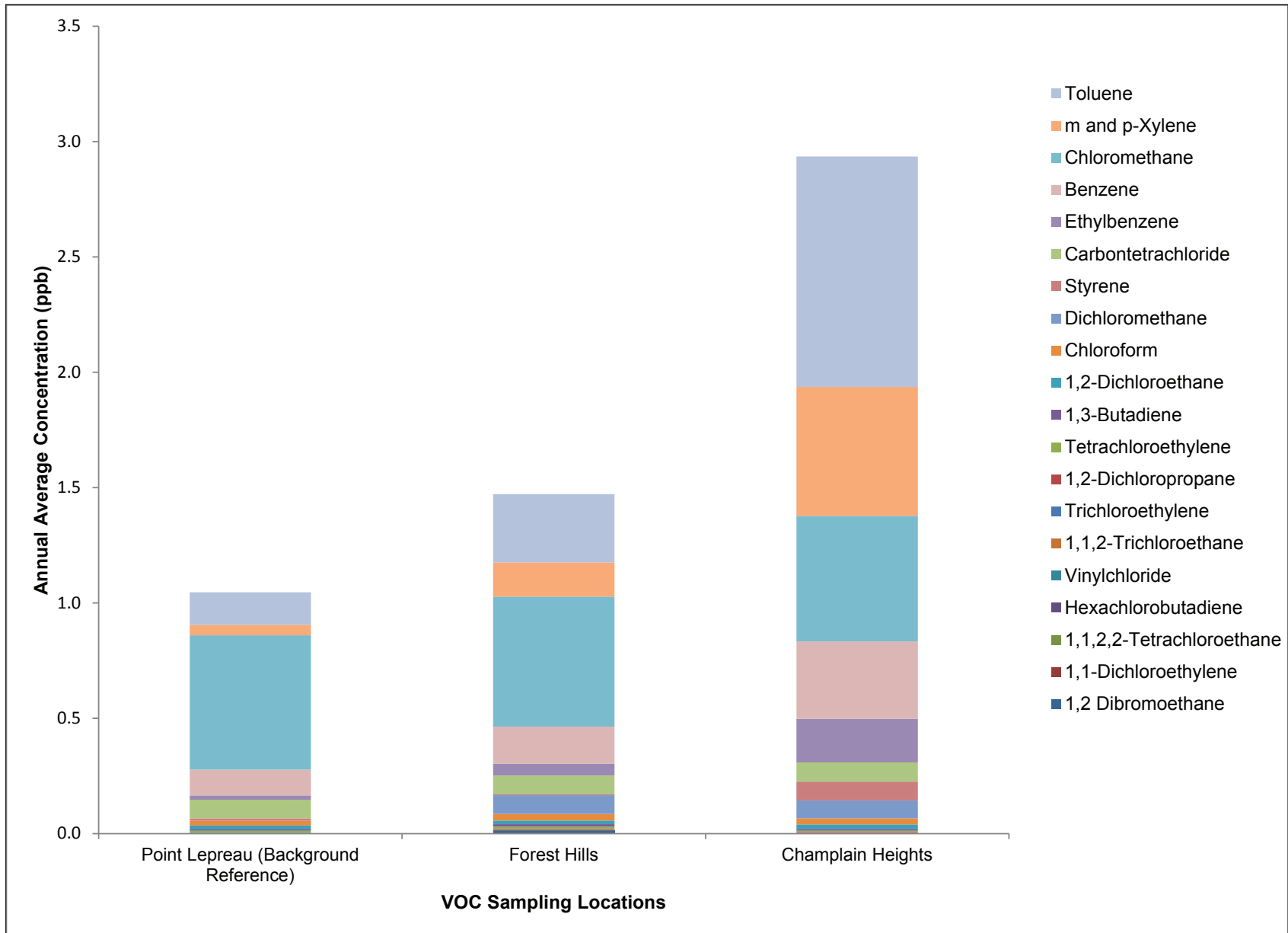
PART I: PROVINCIALLY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Total Reduced Sulphur

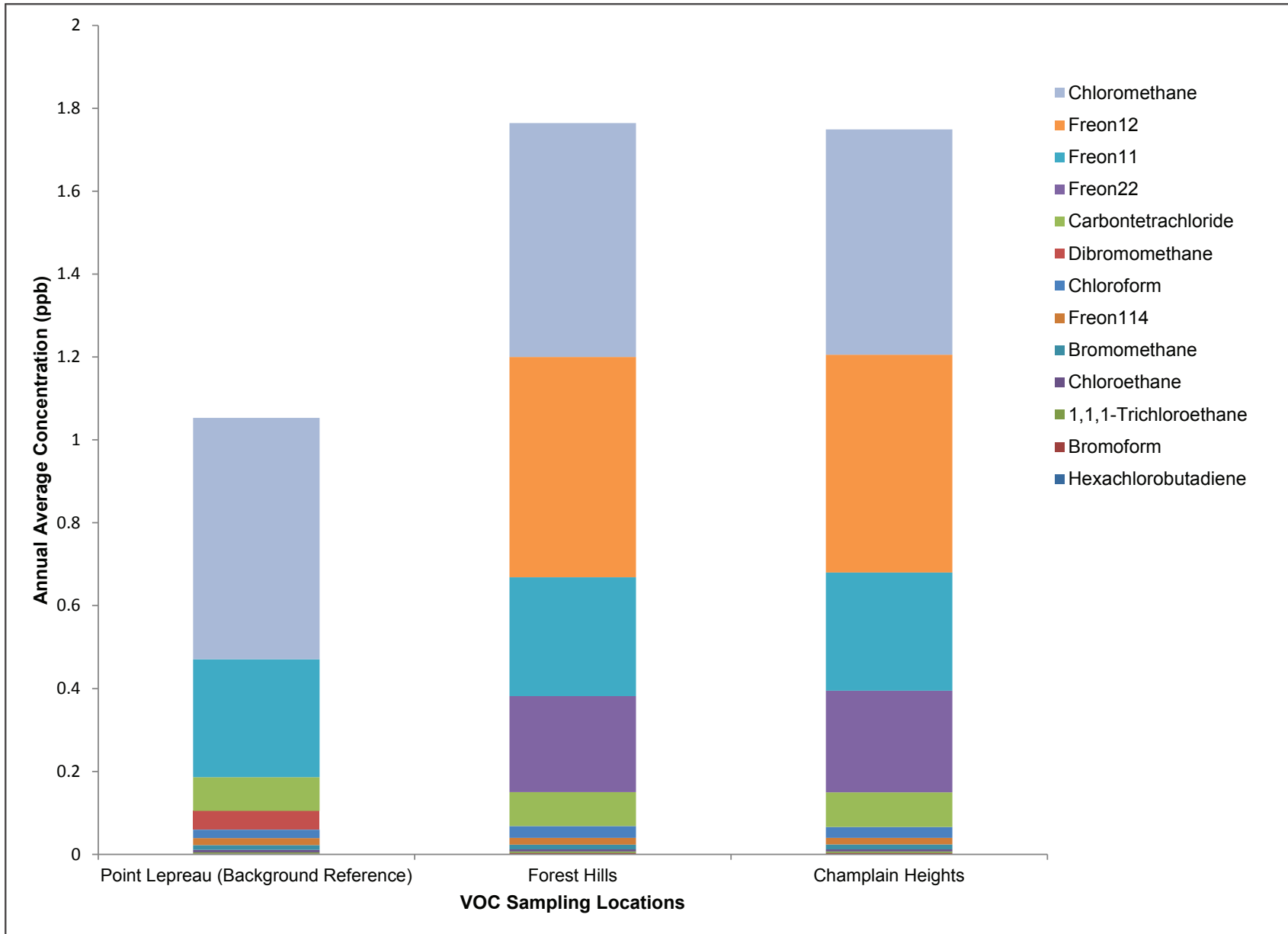


PART I: PROVINCIALLY OPERATED NETWORKS - Volatile Organic Compounds, Saint John Region

Air Toxics - 2015 Annual Average Concentration Range Chart

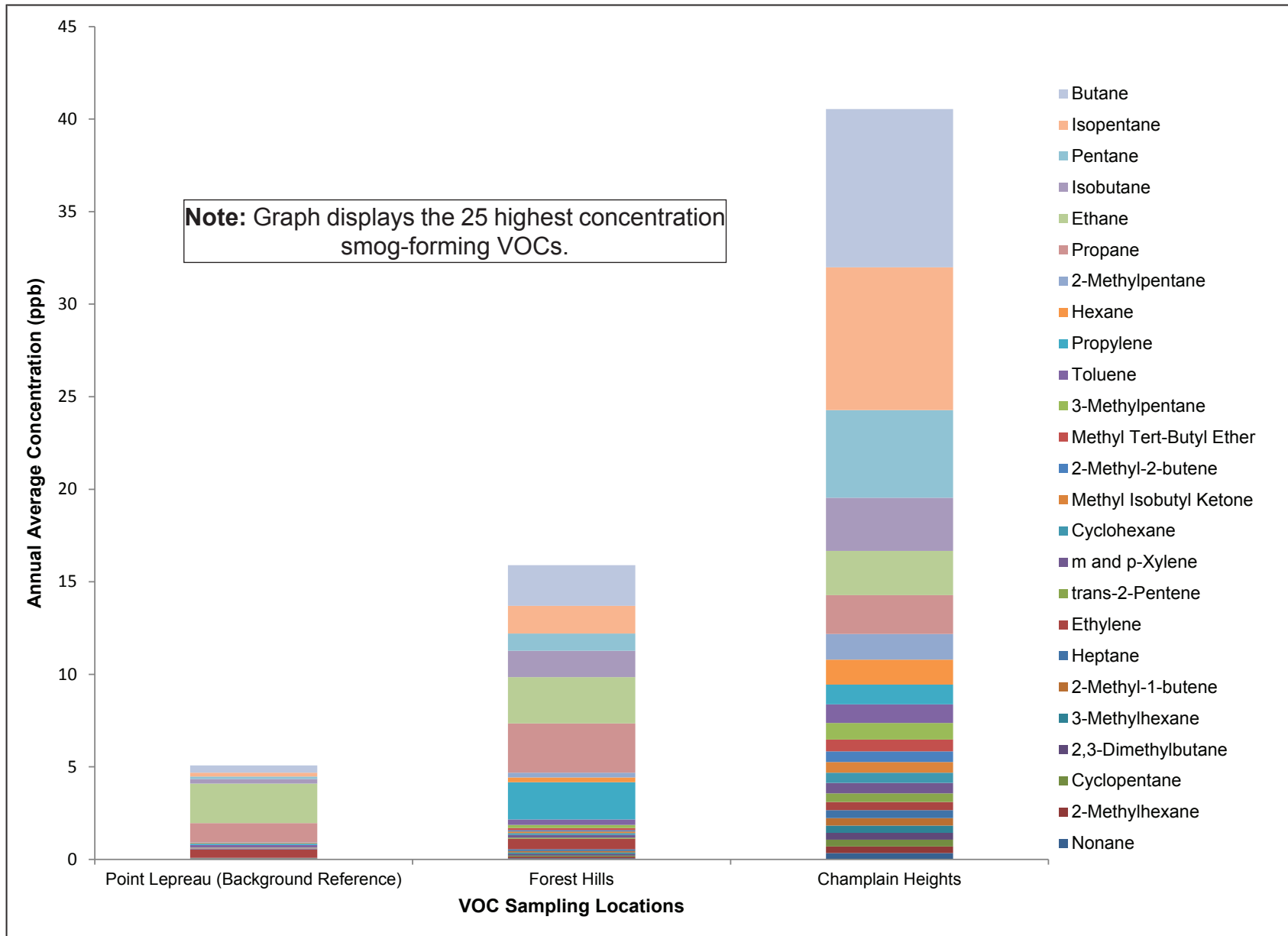


PART I: PROVINCIALLY OPERATED NETWORKS - Volatile Organic Compounds, Saint John Region
Ozone Depleting Substances - 2015 Annual Average Concentration Range Chart



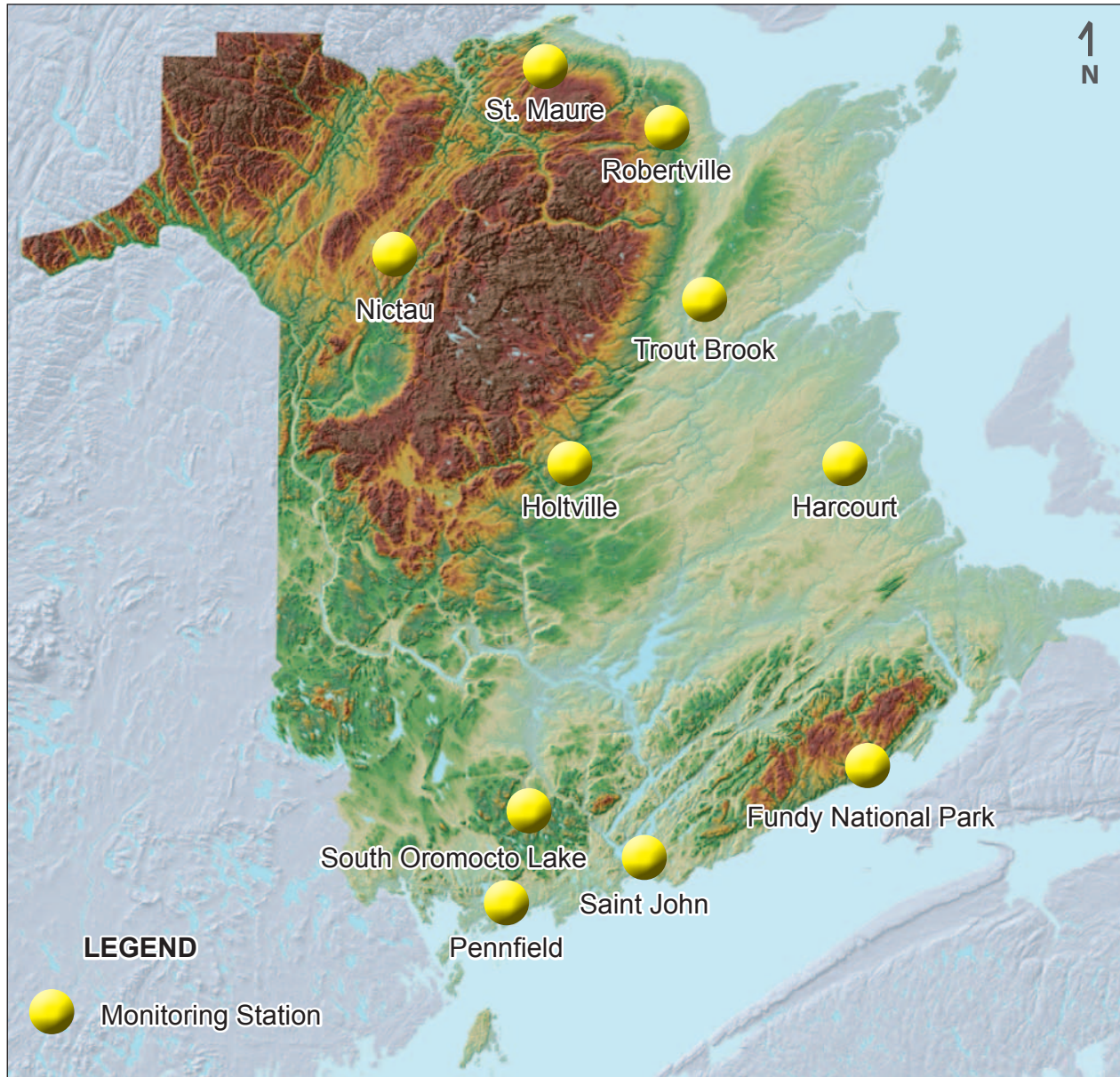
PART I: PROVINCIALLY OPERATED NETWORKS - Volatile Organic Compounds, Saint John Region

Smog-Forming VOCs - 2015 Annual Average Concentration Range Chart



PART II:
ACID PRECIPITATION MONITORING NETWORK

2015 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, 2006-2015

Site	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
St. Maure	251.96	244.51	253.52	176.43	177.00	168.80	120.53	121.30	140.76	86.68
Robertville	308.98	239.47	239.60	200.84	184.26	173.56	118.33	124.20	168.35	85.95
Nictau	274.52	184.48*	198.12	154.56	121.21	150.02	96.50	108.13	119.96	80.73
Trout Brook	262.48	210.02	195.52	163.08	135.17	134.02	101.20	100.78	116.05	65.07
Holtville	294.78	215.82	269.87	210.01	122.63	184.33	98.19	127.23	126.63	78.33
Harcourt	255.02	204.46	256.90	199.91	159.91	139.40	91.68	99.92	120.67	74.02
South Oromocto Lake	301.26	267.54	278.39	230.26	163.31	164.09	128.81	154.73	150.02	107.51
Pennfield	431.99	329.09	409.11	349.97	290.78	--	228.24	265.32	223.61	179.91
Lakewood Heights	383.18	302.87	357.59	310.16	194.27	--	169.58	193.66	164.38	144.65
Fundy	446.06	332.23	428.04	322.81	226.37	263.55	208.08	249.13	200.13	143.40

-- insufficient data

*49 Weeks

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

Annual Sulphate Wet Deposition (kg/ha/yr) at New Brunswick Monitoring Sites, 2006-2015

Site	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
St. Maure	10.89	10.62	11.02	7.67	7.80	7.19	5.17	5.06	5.92	3.60
Robertville	13.34	10.49	10.32	8.76	8.06	7.38	4.92	5.17	7.13	3.51
Nictau	11.72	7.91*	8.21	6.44	5.01	6.07	3.77	4.25	4.65	3.02
Trout Brook	11.28	9.17	8.26	6.91	5.69	5.49	4.09	4.01	4.71	2.46
Holtville	12.64	9.26	11.43	8.93	4.99	7.52	3.88	5.02	5.00	2.92
Harcourt	10.90	8.79	10.92	8.52	6.76	5.69	3.67	3.92	4.82	2.77
South Oromocto Lake	12.96	11.55	11.89	9.80	6.77	6.73	5.16	6.24	5.96	4.00
Pennfield	18.85	14.41	17.81	15.20	12.49	---	9.65	11.28	9.31	7.30
Lakewood Heights	16.64	13.32	15.67	13.48	8.29	---	7.20	8.20	8.12	5.98
Fundy	19.51	14.53	18.79	13.91	9.65	11.20	8.86	10.64	8.21	5.82

-- insufficient data

*49 Weeks

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

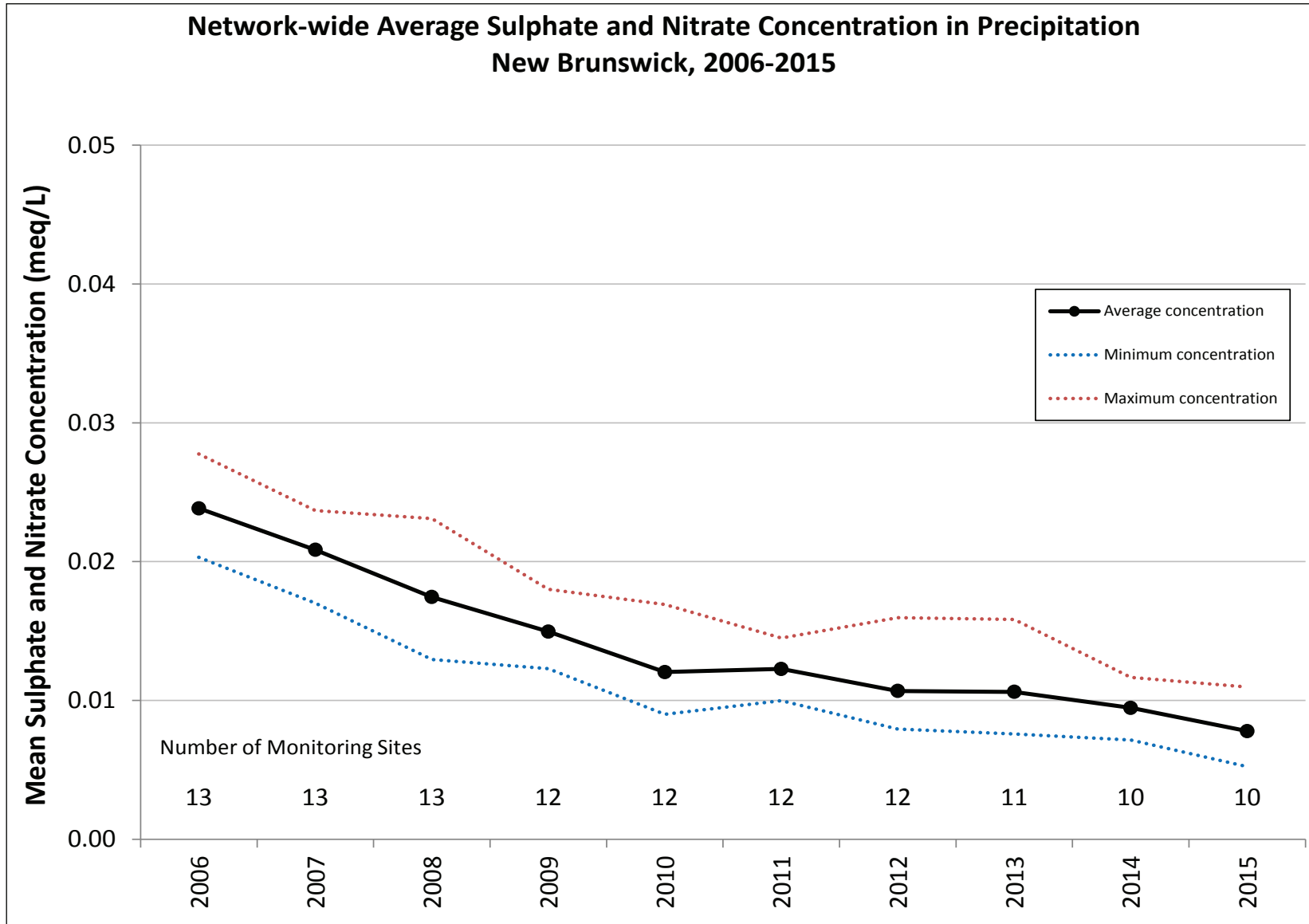
Annual Nitrate Wet Deposition (kg/ha/yr) at New Brunswick Monitoring Sites, 2006-2015

Site	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
St. Maure	1.56	1.45	1.50	1.03	0.90	1.18	0.80	0.99	1.09	0.72
Robertville	1.94	1.31	1.53	1.15	1.02	1.24	0.99	1.03	1.17	0.79
Nictau	1.90	1.23*	1.69	1.27	1.05	1.46	1.12	1.23	1.44	1.11
Trout Brook	1.71	1.18	1.47	1.19	1.04	1.23	1.00	1.07	1.11	0.86
Holtville	1.96	1.43	1.98	1.50	1.16	1.72	1.08	1.41	1.40	1.08
Harcourt	1.75	1.34	1.84	1.40	1.19	1.30	0.95	1.14	1.26	1.01
South Oromocto Lake	1.95	1.68	1.92	1.63	1.39	1.49	1.33	1.54	1.61	1.51
Pennfield	2.45	1.80	2.38	2.08	1.90	---	1.70	1.89	1.85	1.74
Lakewood Heights	2.27	1.59	1.95	1.84	1.35	---	1.22	1.42	1.57	1.25
Fundy	2.48	1.84	2.29	2.06	1.58	1.89	1.46	1.71	1.81	1.39

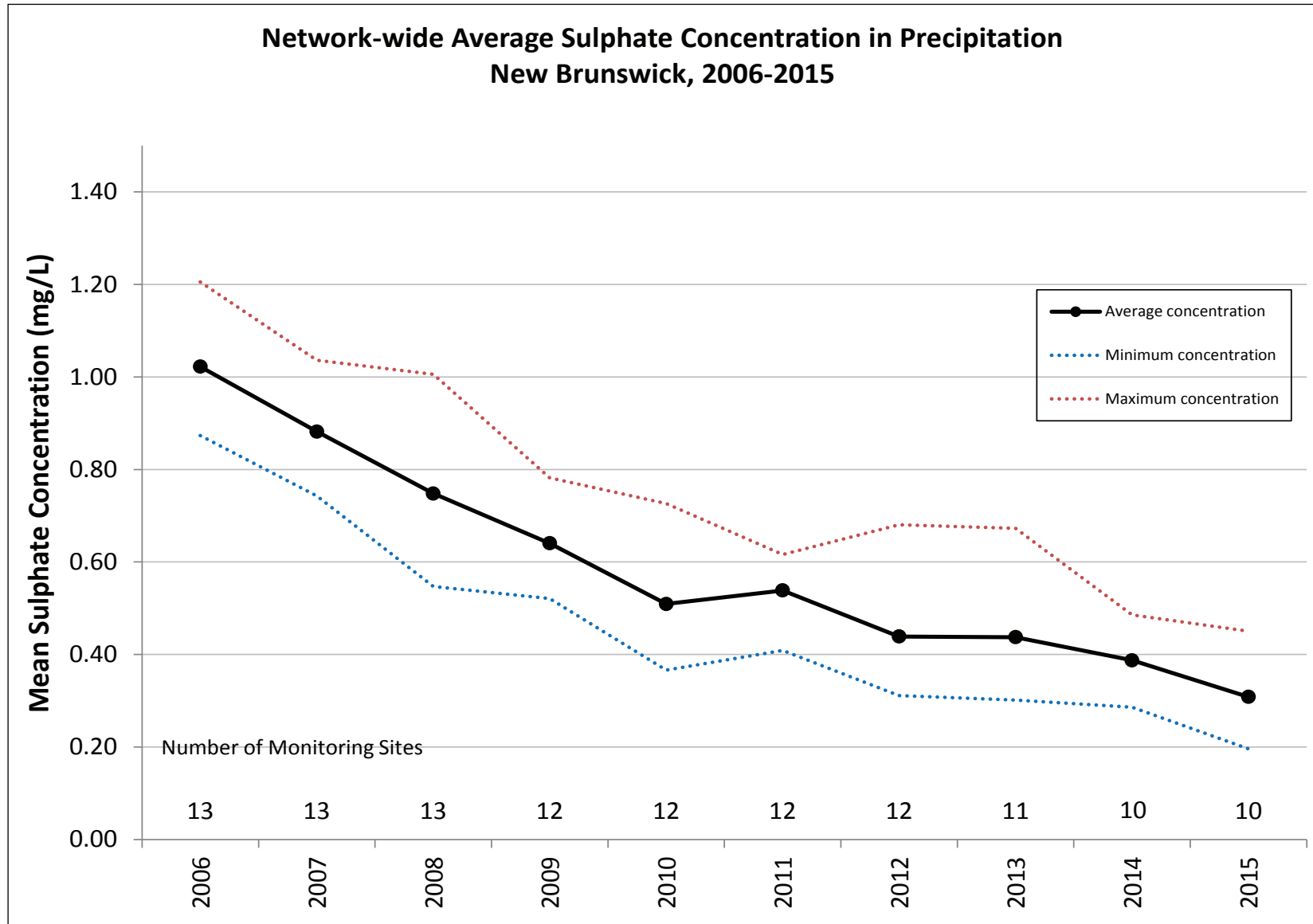
-- insufficient data

*49 Weeks

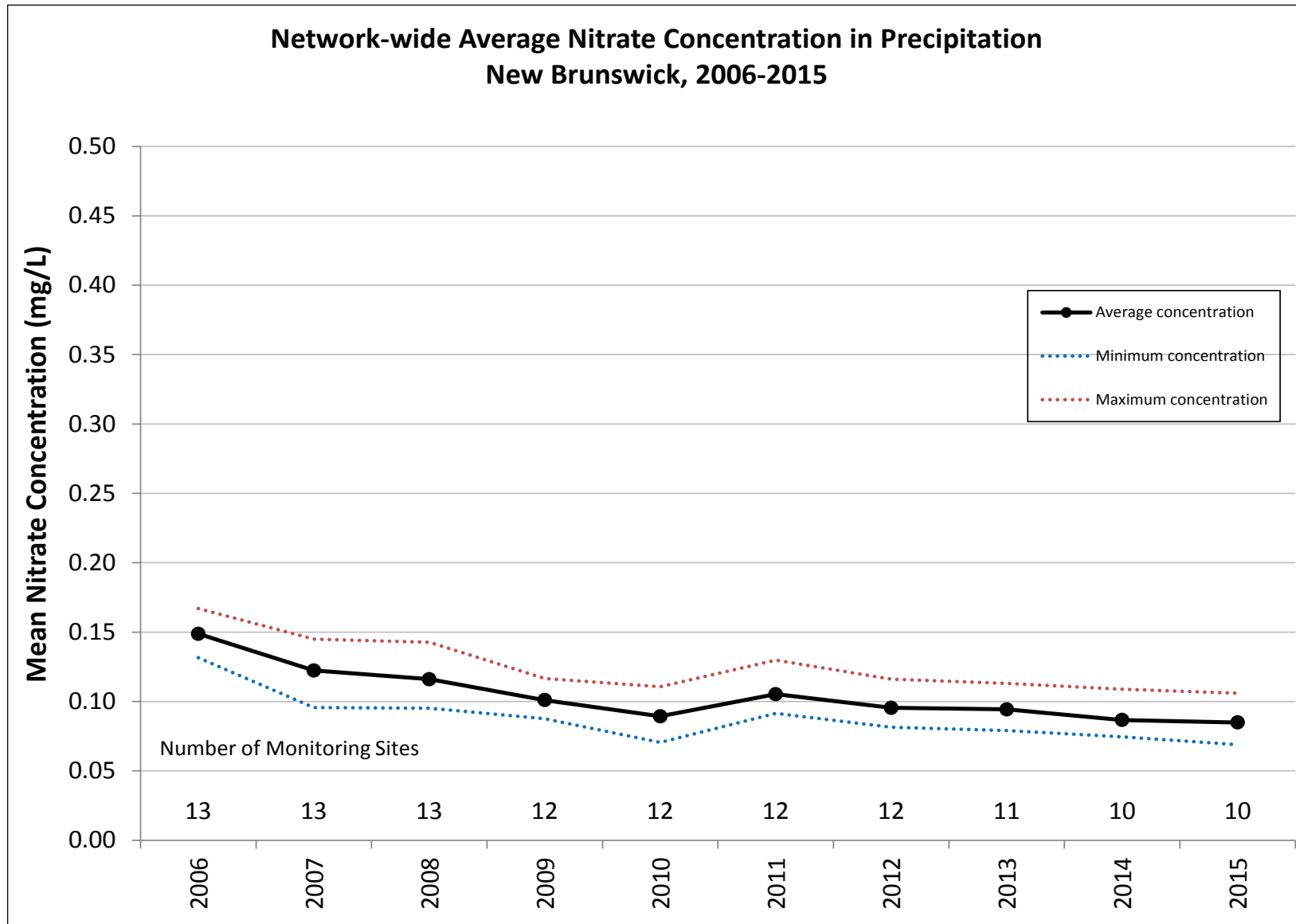
PART II: ACID PRECIPITATION MONITORING NETWORK - Network-wide Annual Mean Sulphate and Nitrate Concentration Trends



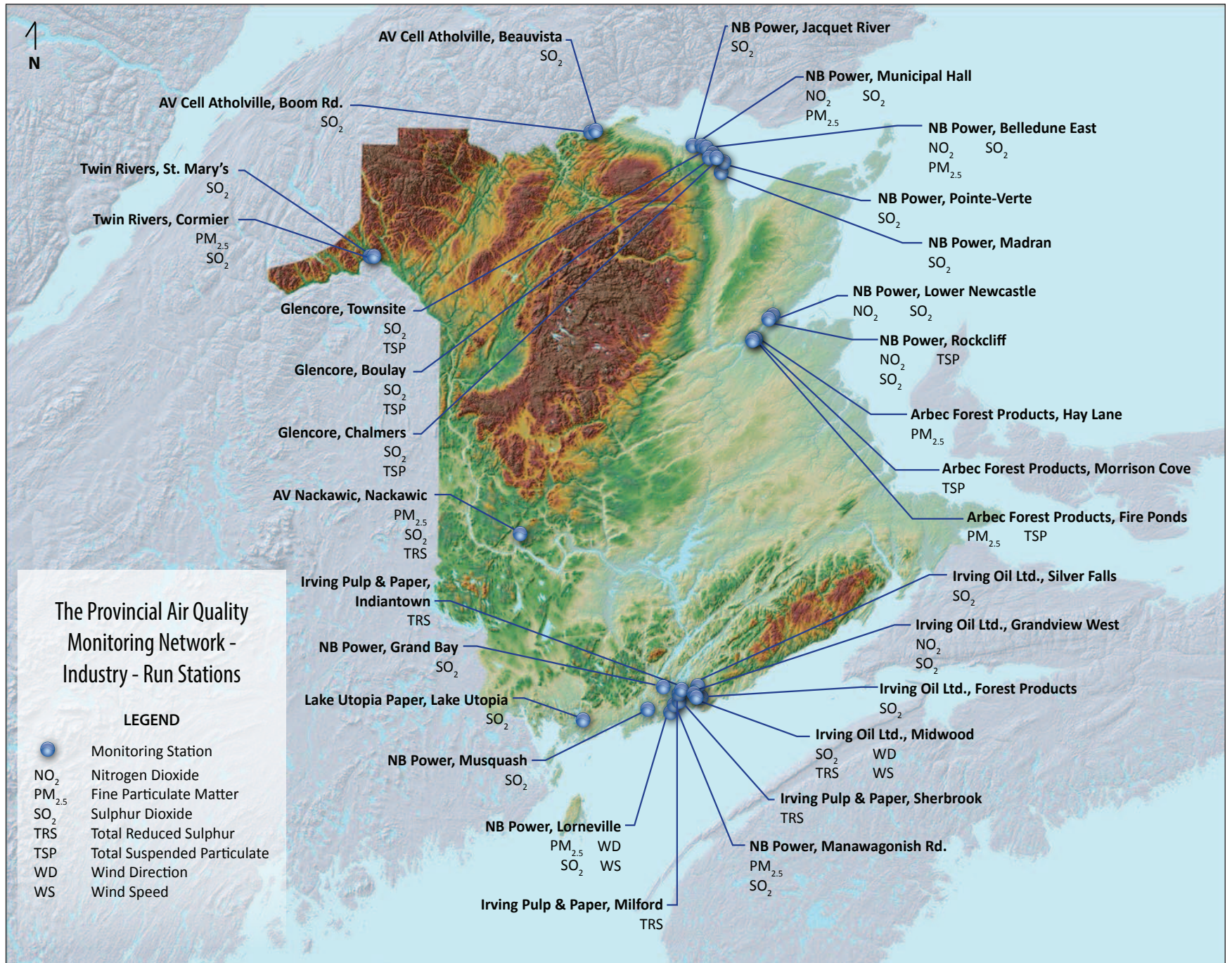
PART II: ACID PRECIPITATION MONITORING NETWORK - Network-wide Annual Mean Sulphate and Nitrate Concentration Trends



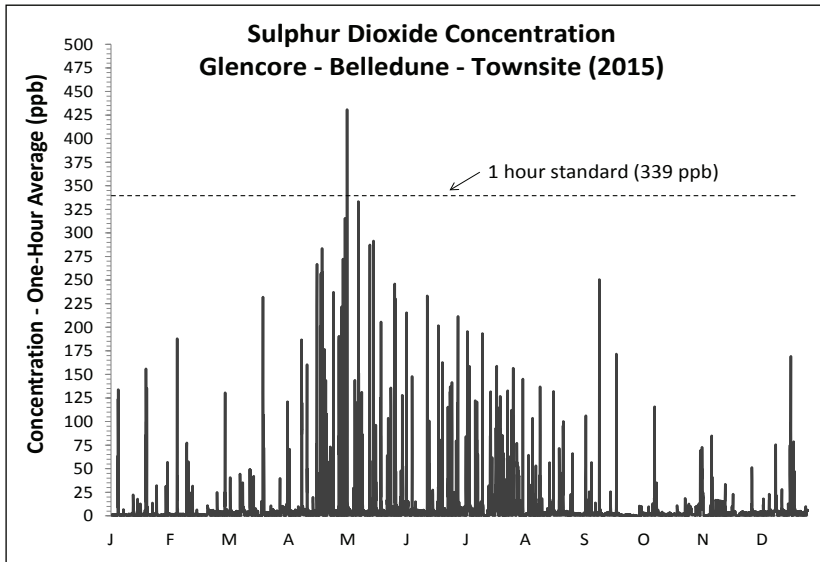
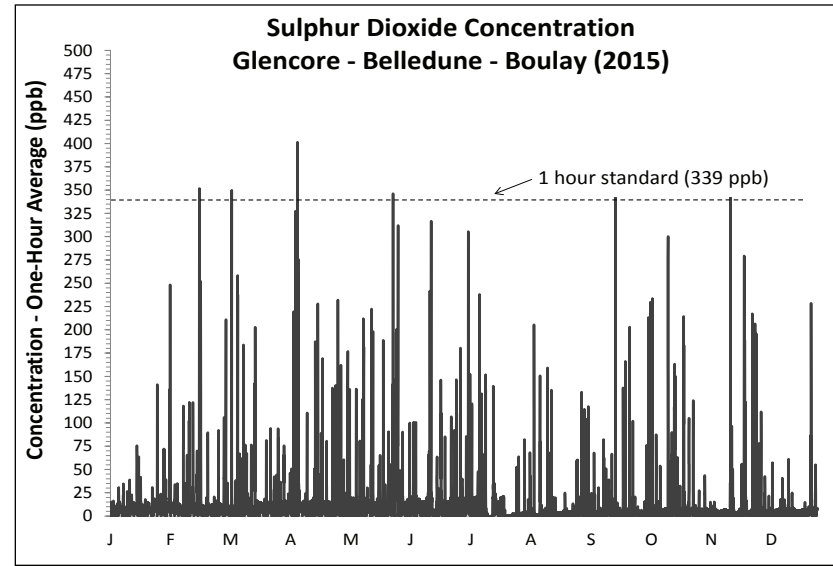
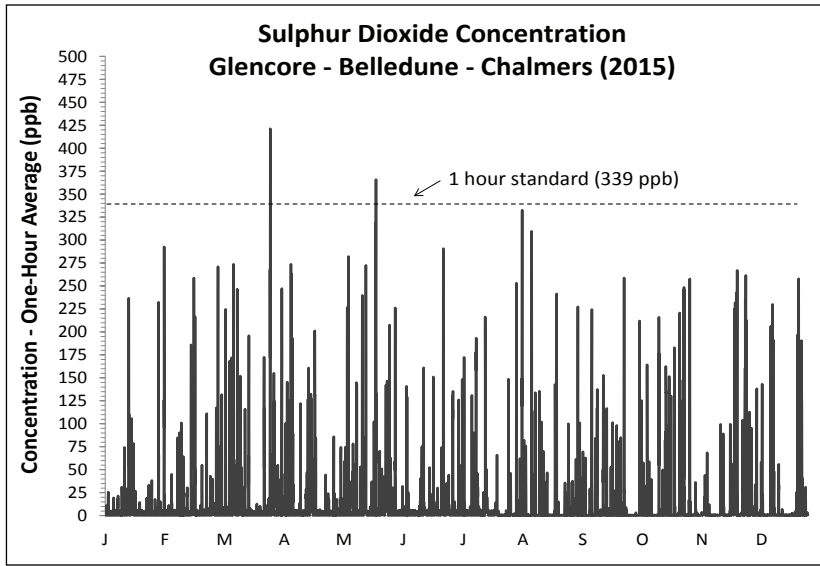
PART II: ACID PRECIPITATION MONITORING NETWORK - Network-wide Annual Mean Sulphate and Nitrate Concentration Trends



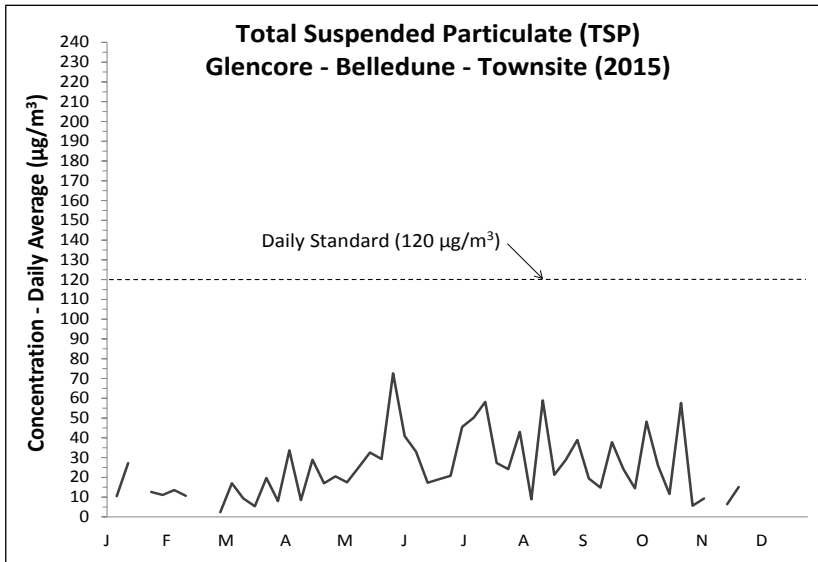
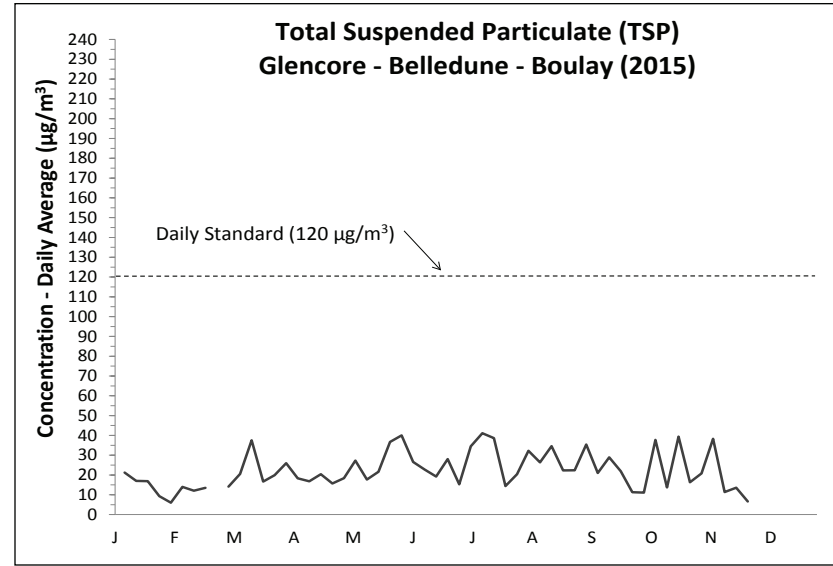
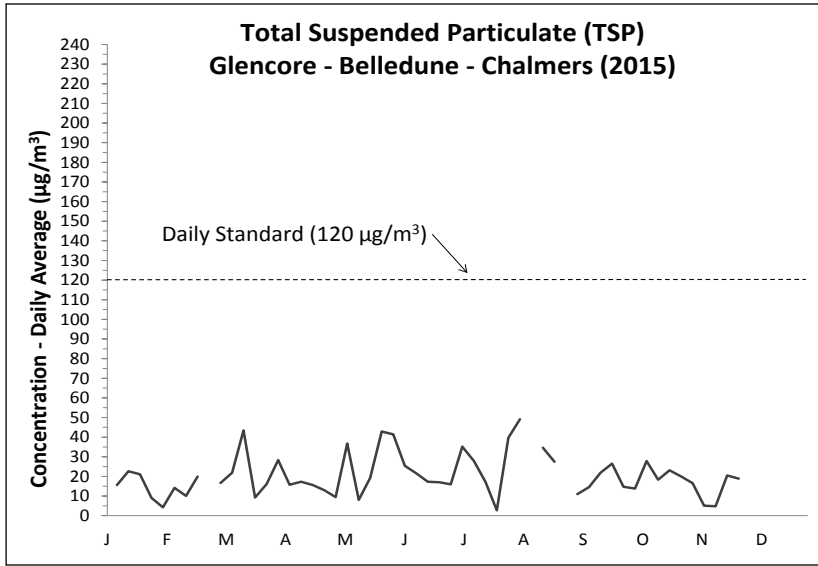
PART III:
INDUSTRY-OPERATED AIR QUALITY MONITORING NETWORKS



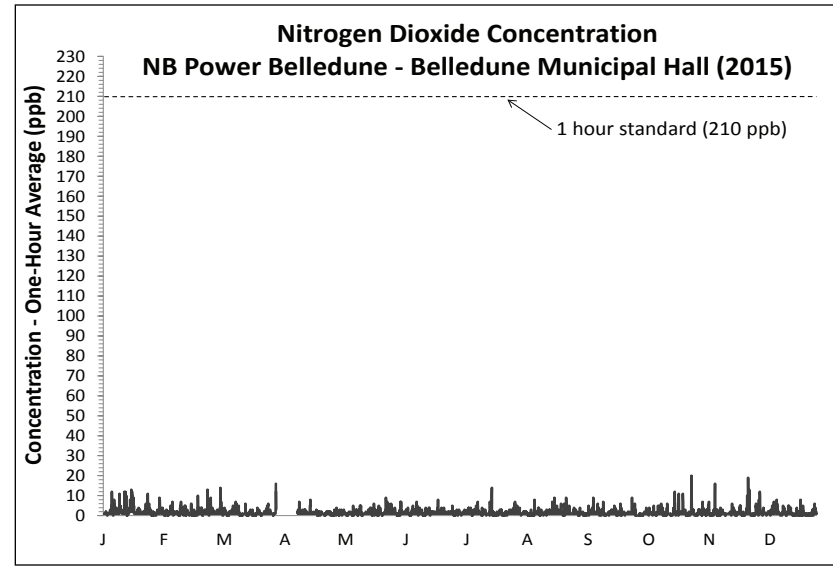
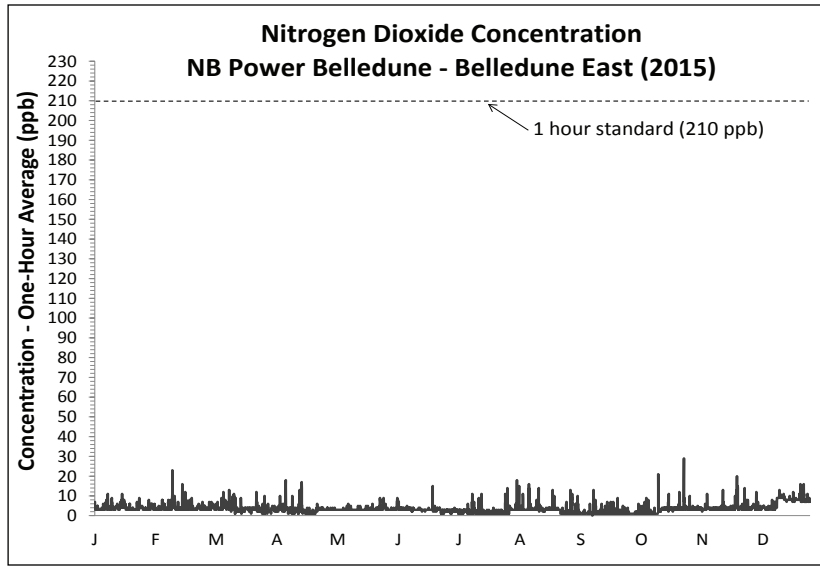
PART III: INDUSTRY-OPERATED NETWORKS - Glencore, Belledune - Sulphur Dioxide



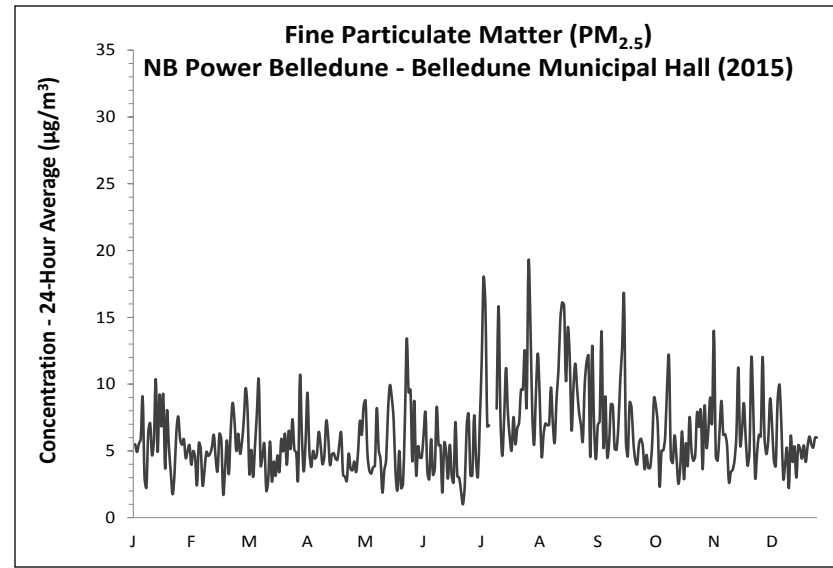
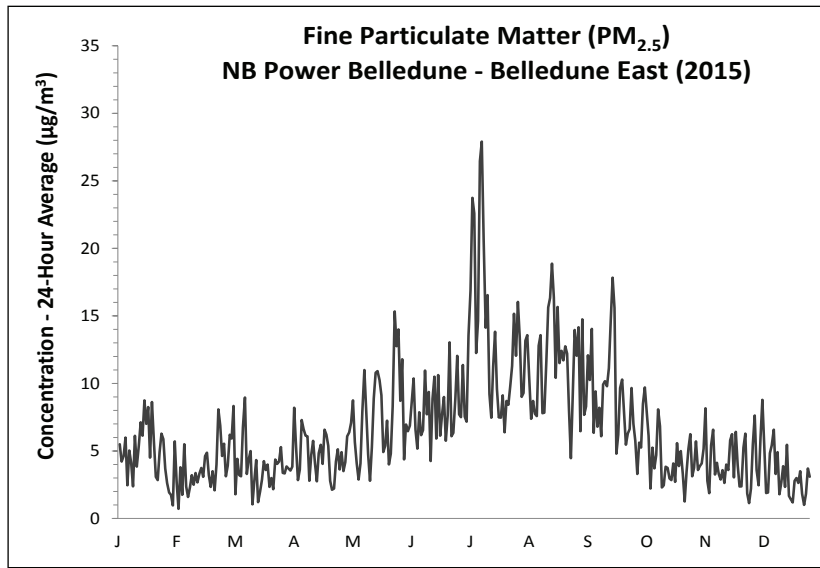
PART III: INDUSTRY-OPERATED NETWORKS - Glencore, Belledune - Total Suspended Particulate



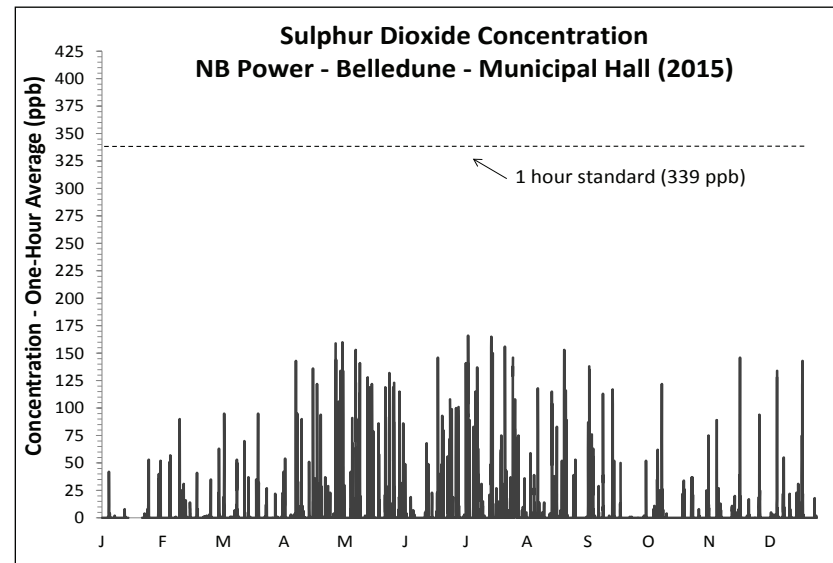
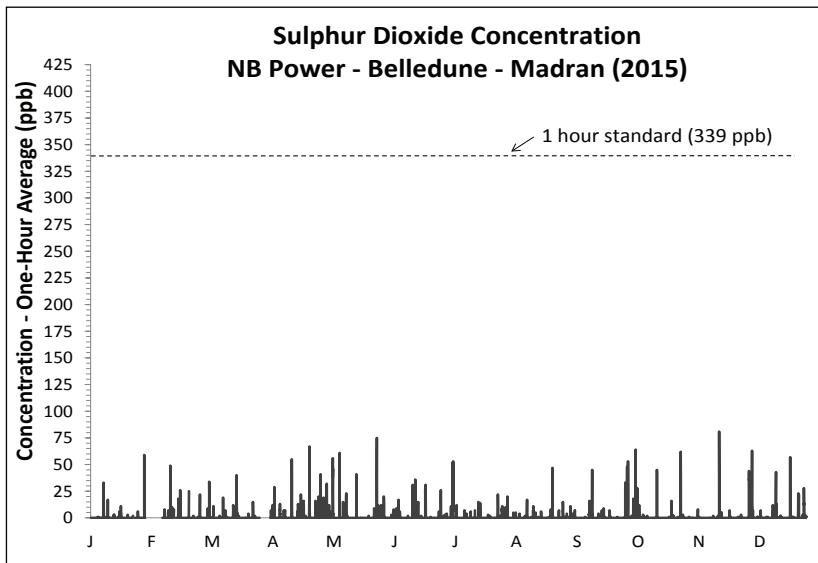
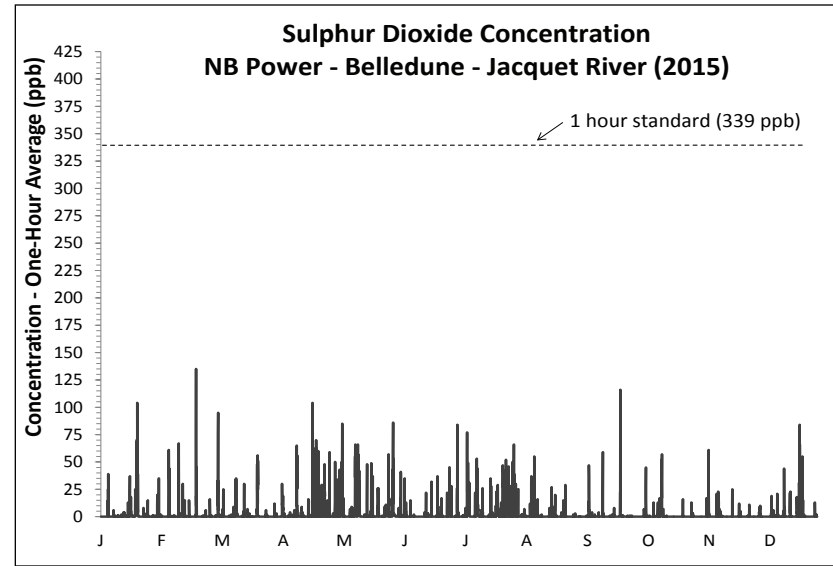
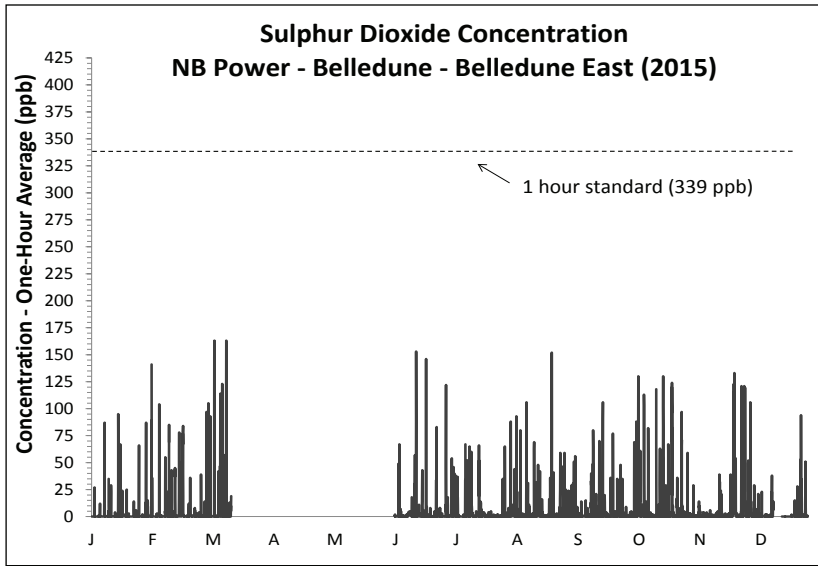
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Belledune - Nitrogen Dioxide



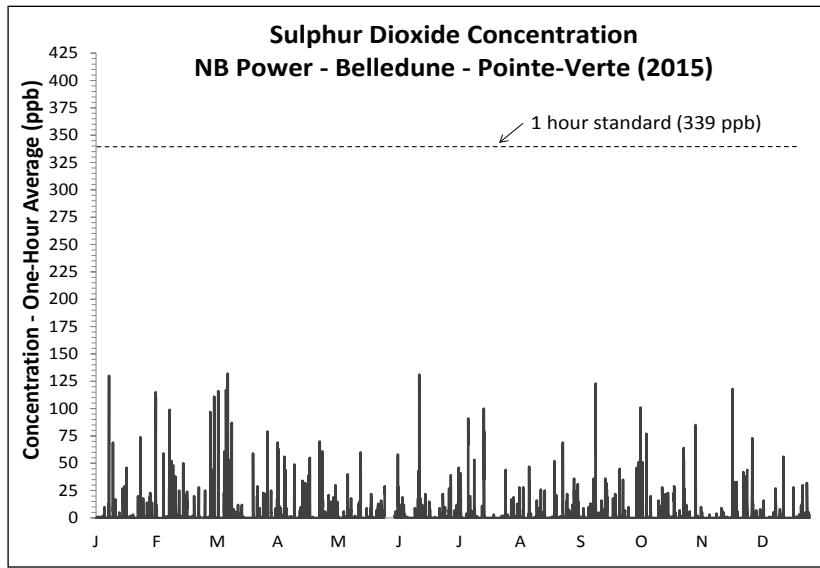
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Belledune - Fine Particulate Matter



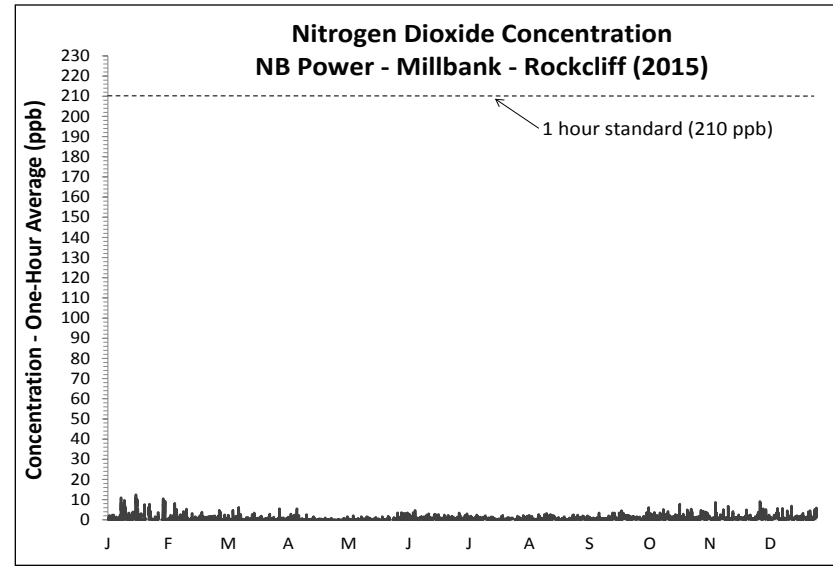
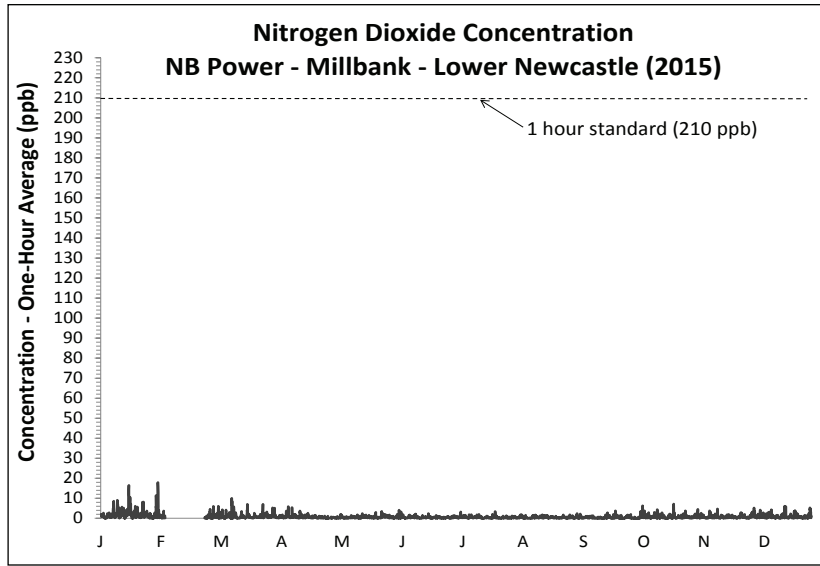
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Belledune - Sulphur Dioxide



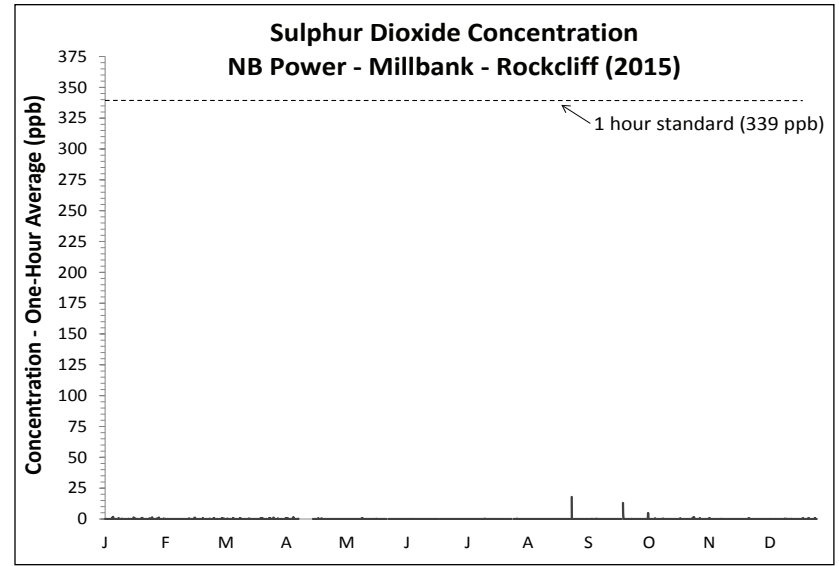
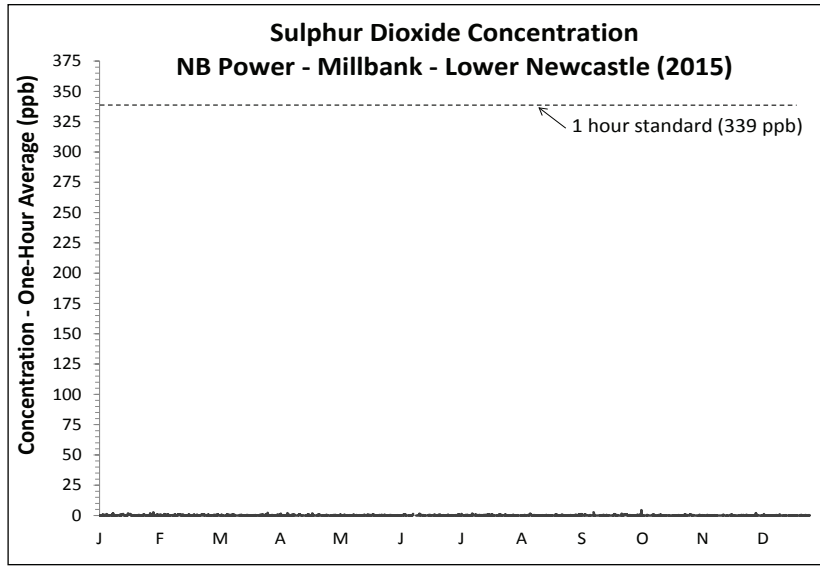
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Belledune - Sulphur Dioxide



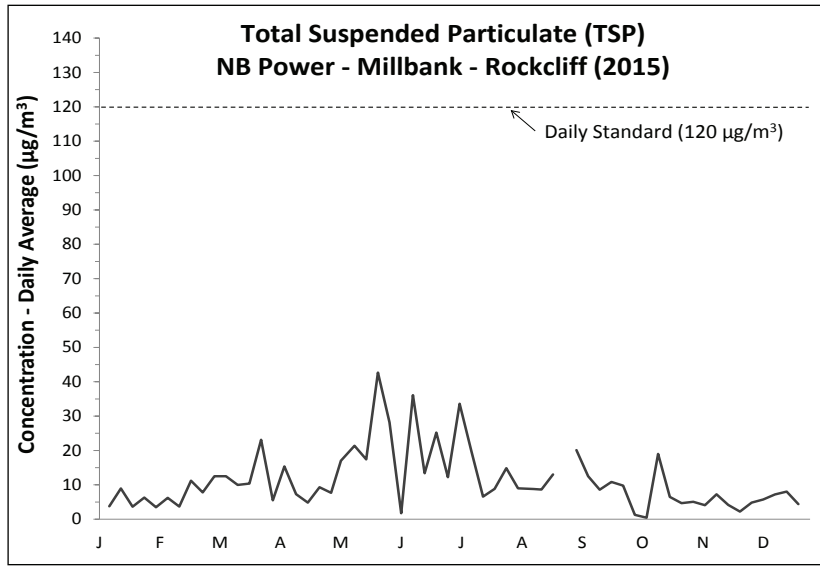
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Millbank - Nitrogen Dioxide



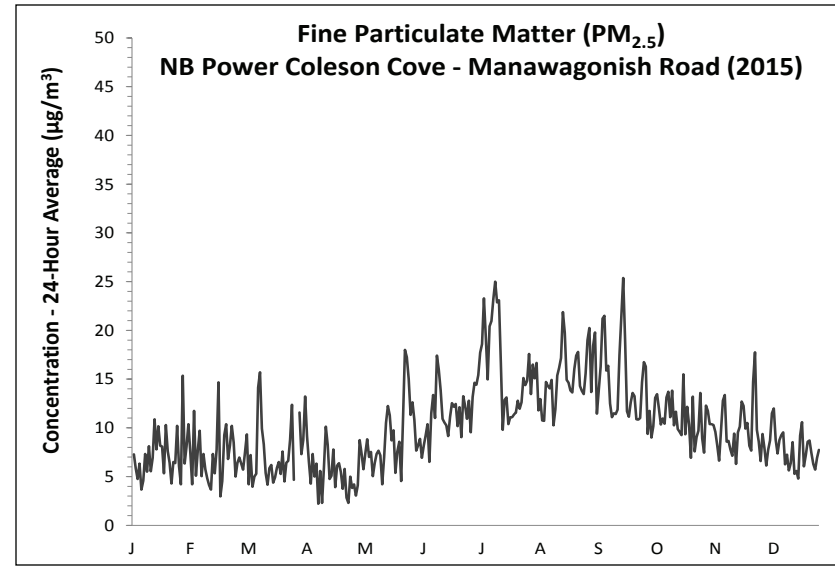
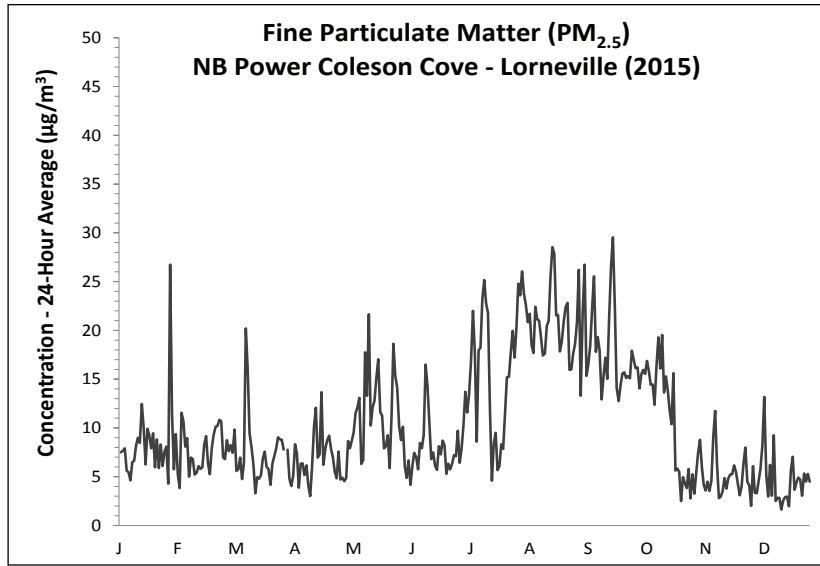
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Millbank - Sulphur Dioxide



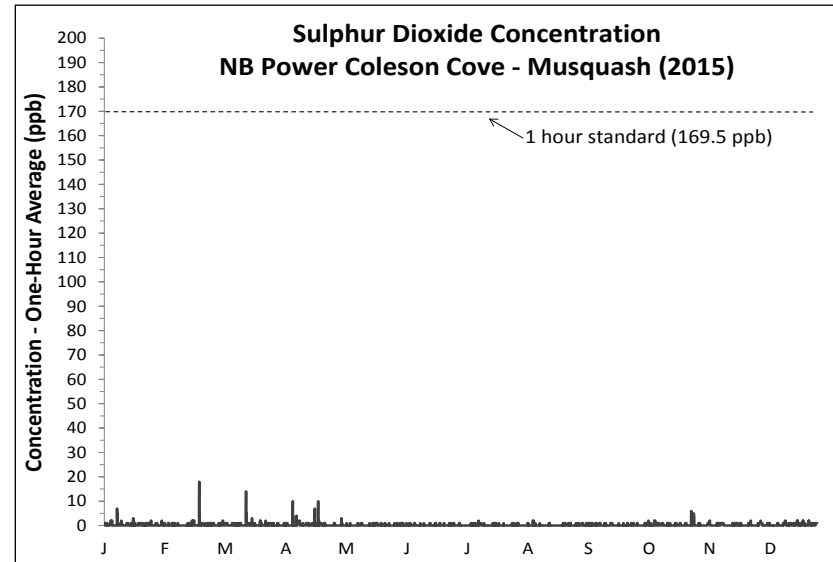
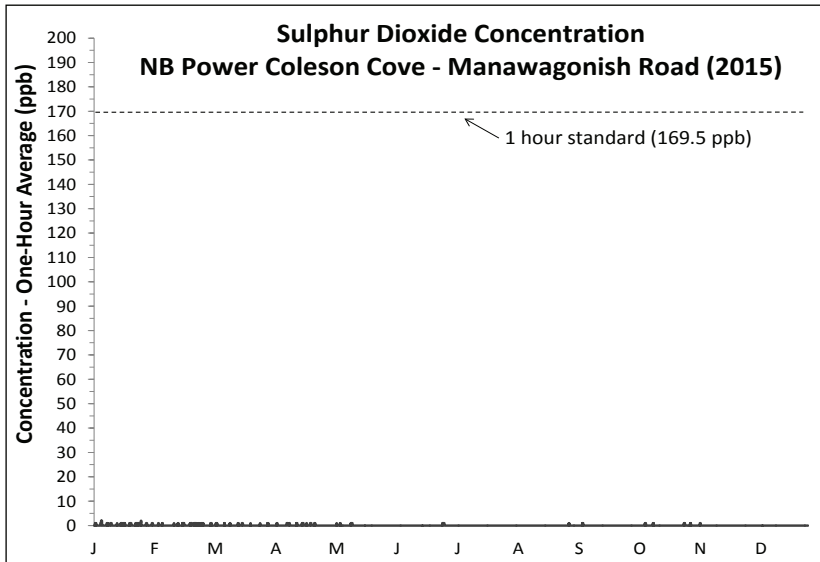
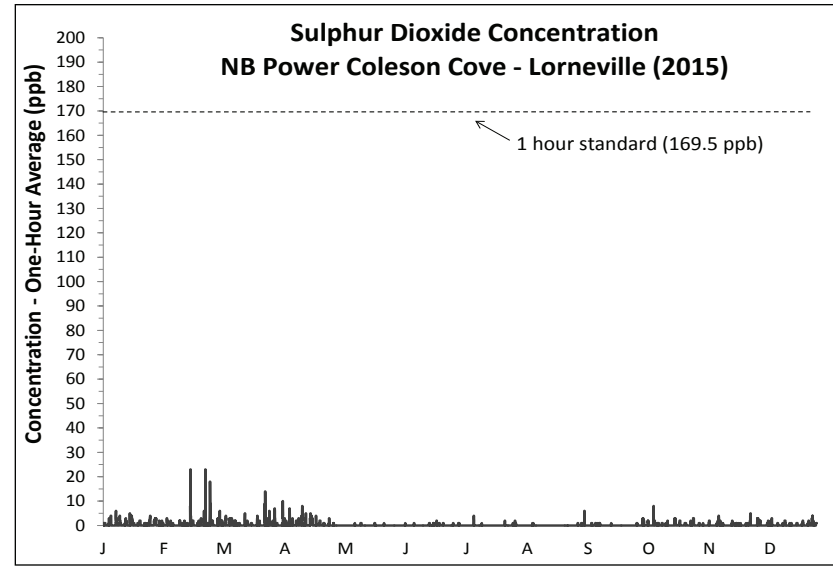
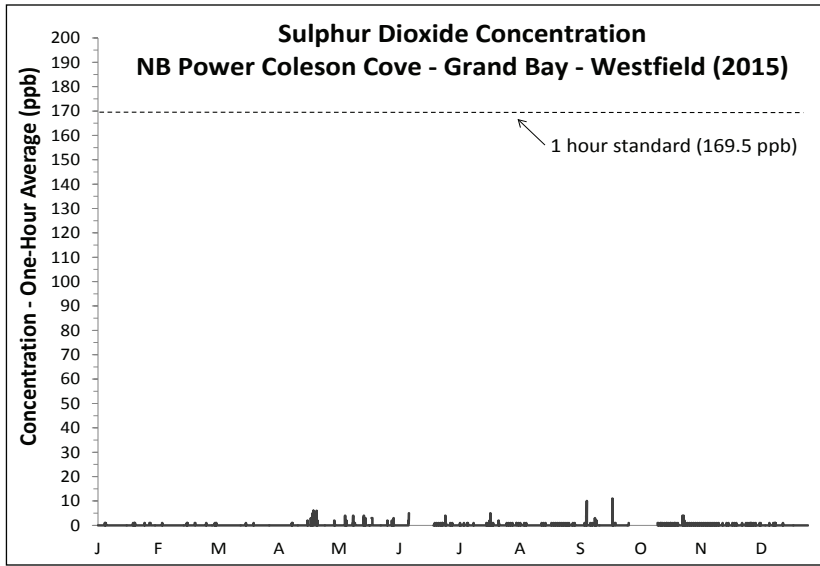
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Millbank - Total Suspended Particulate



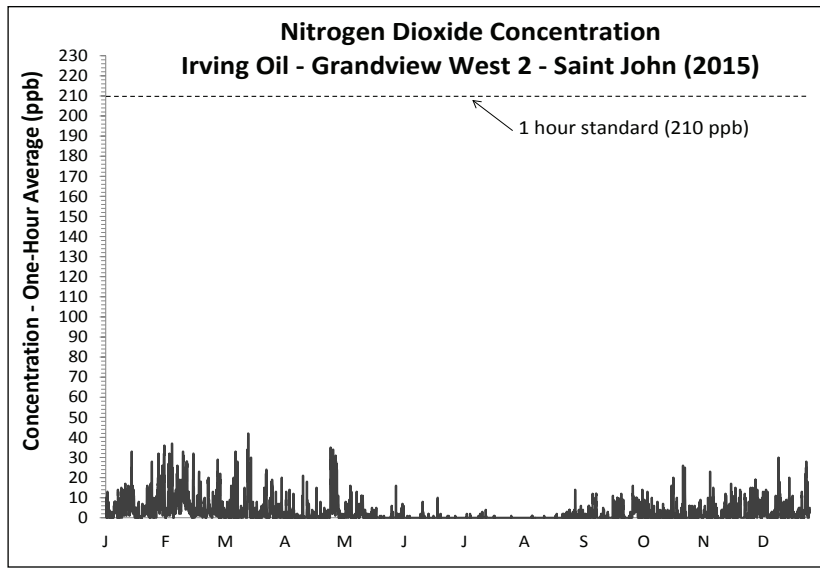
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Coleson Cove - Fine Particulate Matter



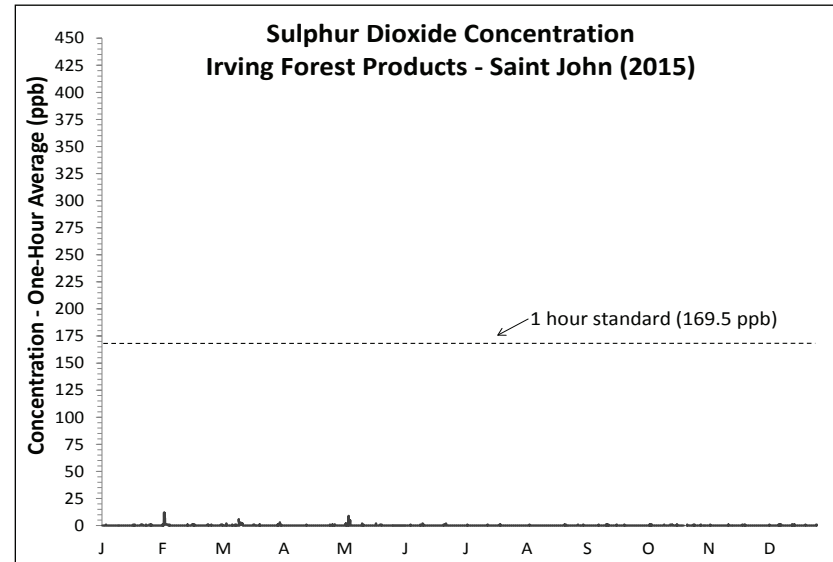
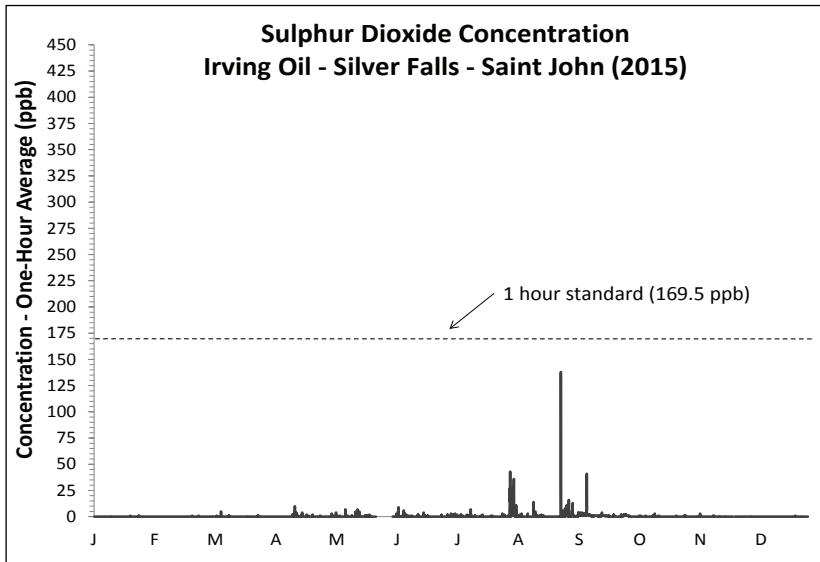
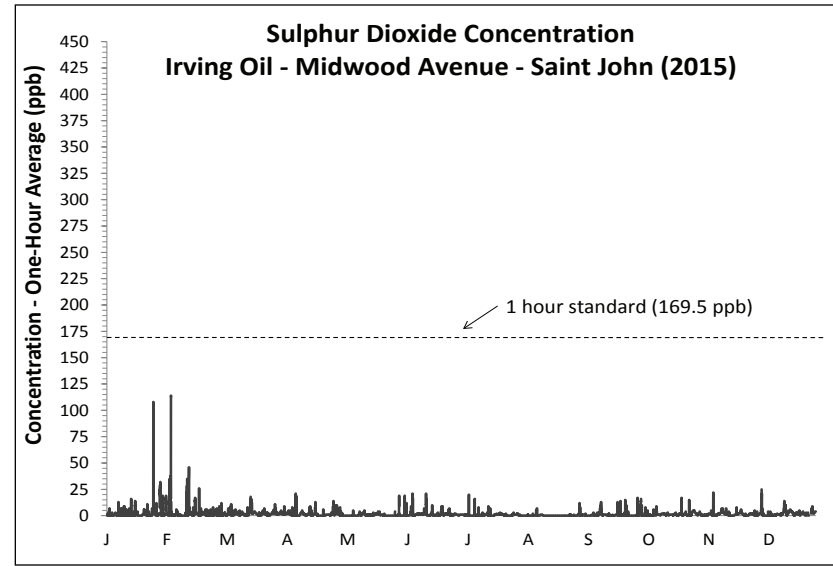
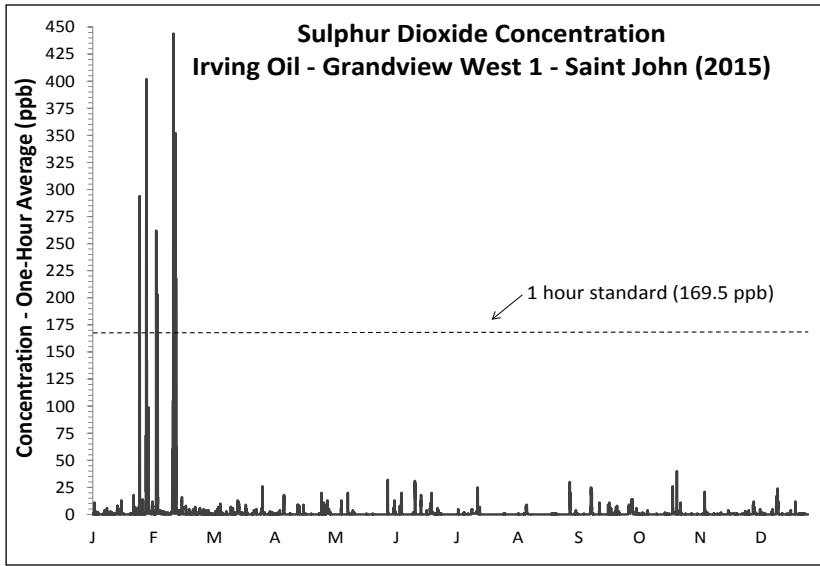
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Coleson Cove - Sulphur Dioxide



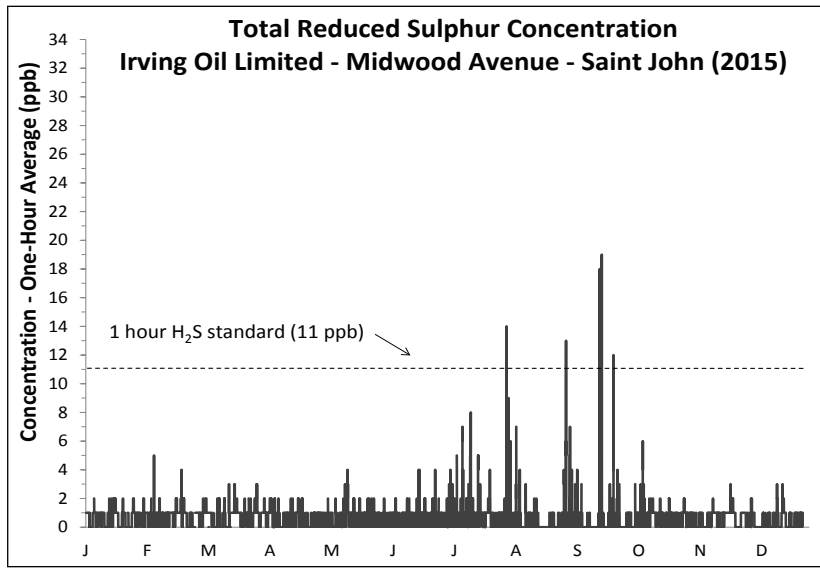
PART III: INDUSTRY-OPERATED NETWORKS - Irving Oil Ltd., Saint John - Nitrogen Dioxide



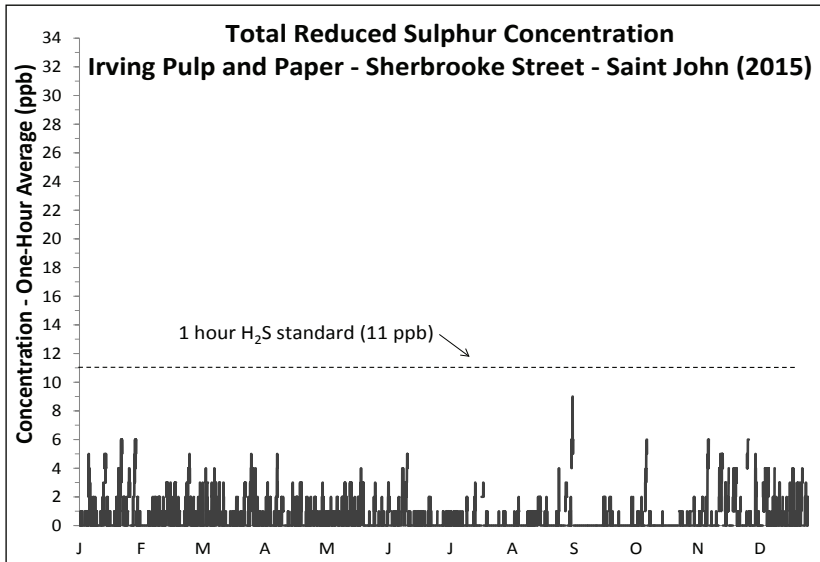
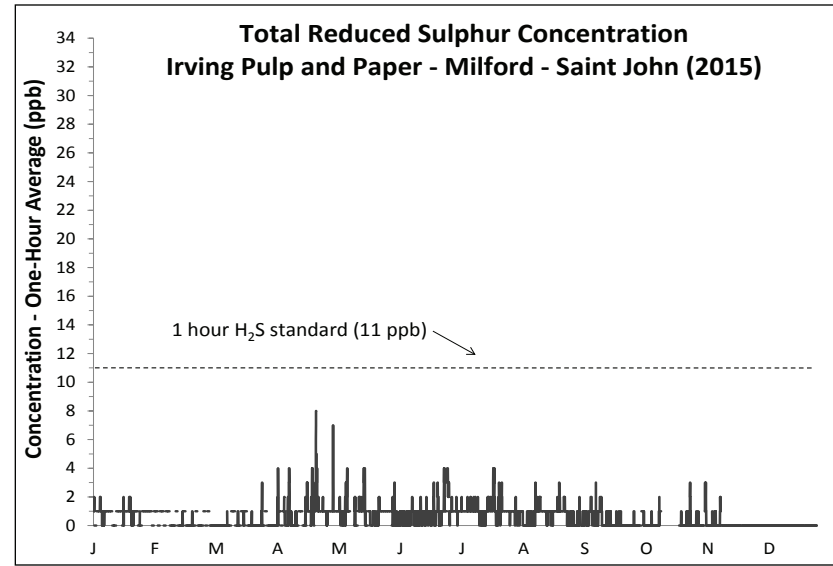
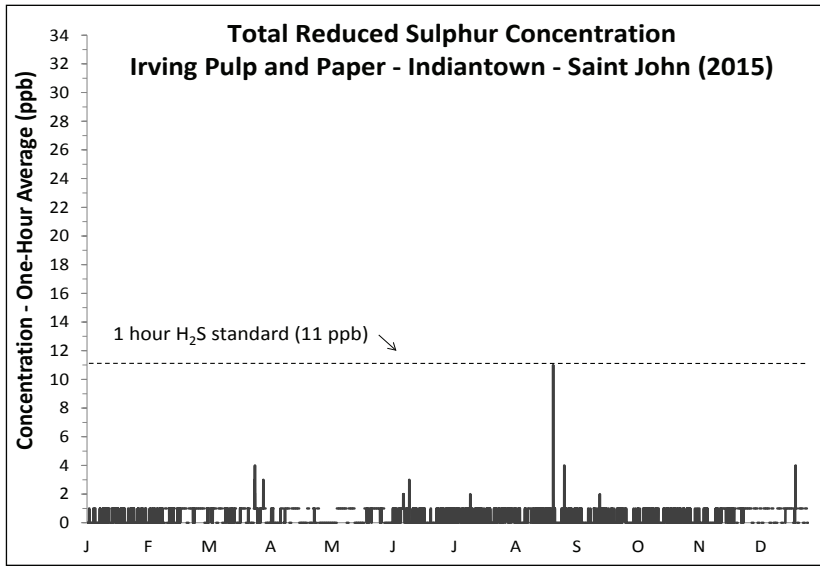
PART III: INDUSTRY-OPERATED NETWORKS - Irving Oil Ltd., Saint John - Sulphur Dioxide



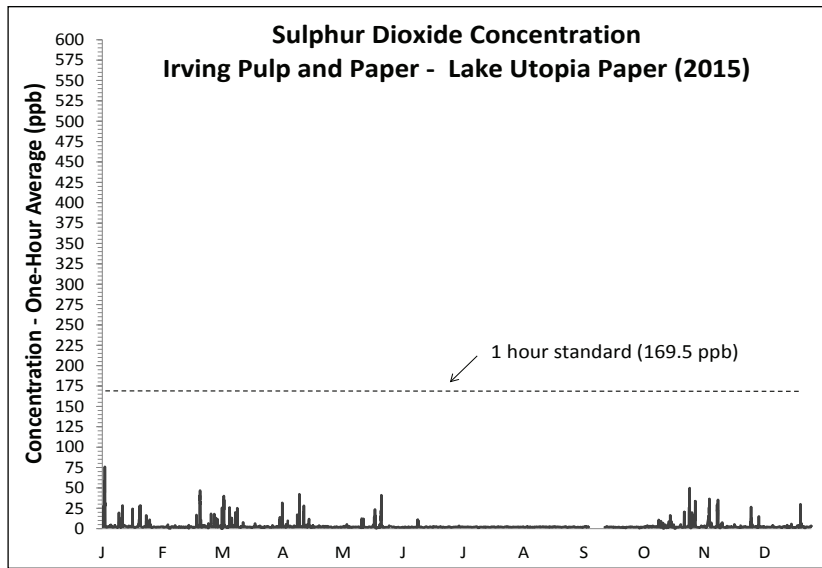
PART III: INDUSTRY-OPERATED NETWORKS - Irving Oil Ltd., Saint John - Total Reduced Sulphur



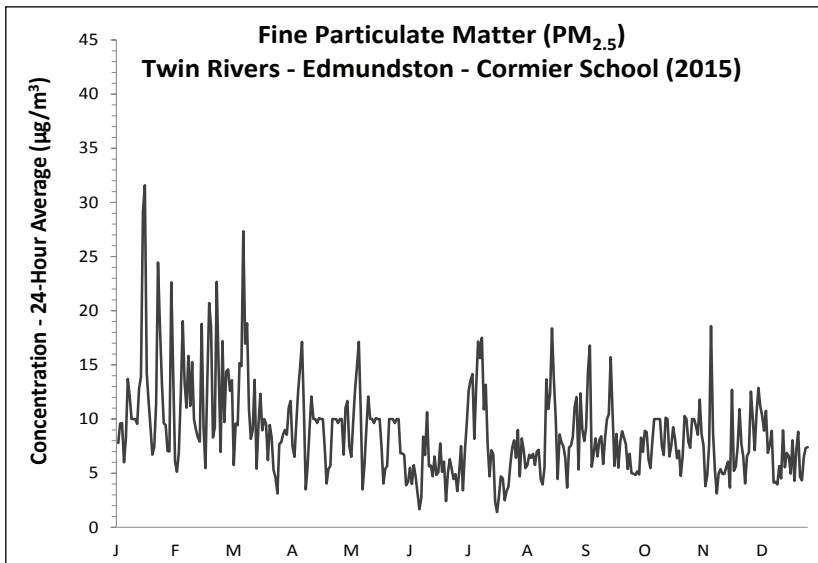
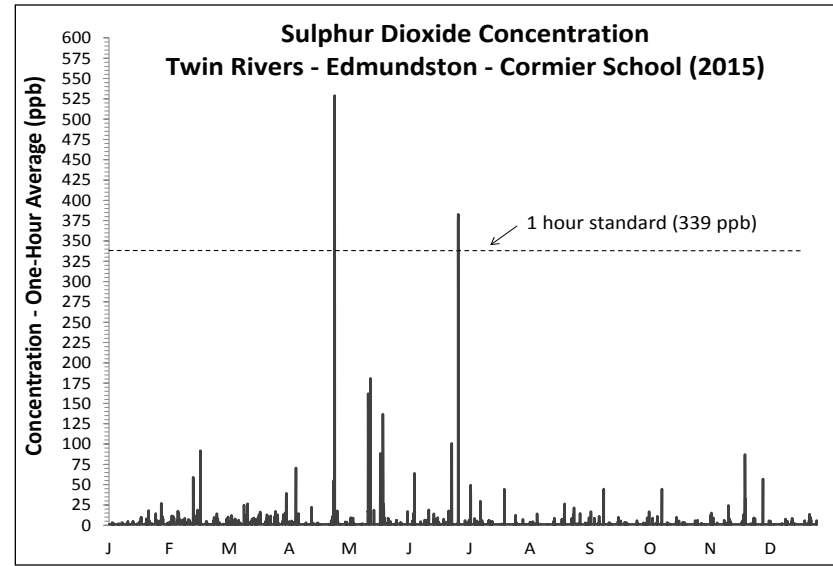
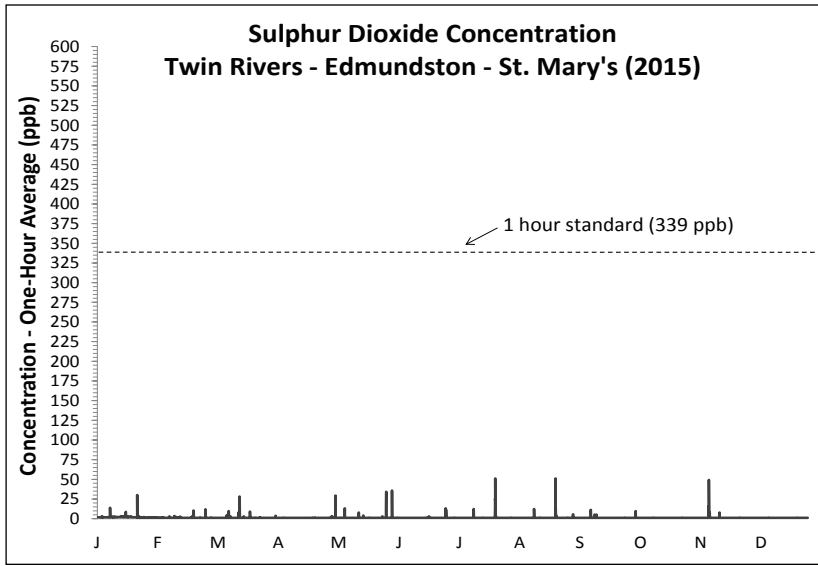
PART III: INDUSTRY-OPERATED NETWORKS - Irving Pulp and Paper, Saint John - Total Reduced Sulphur



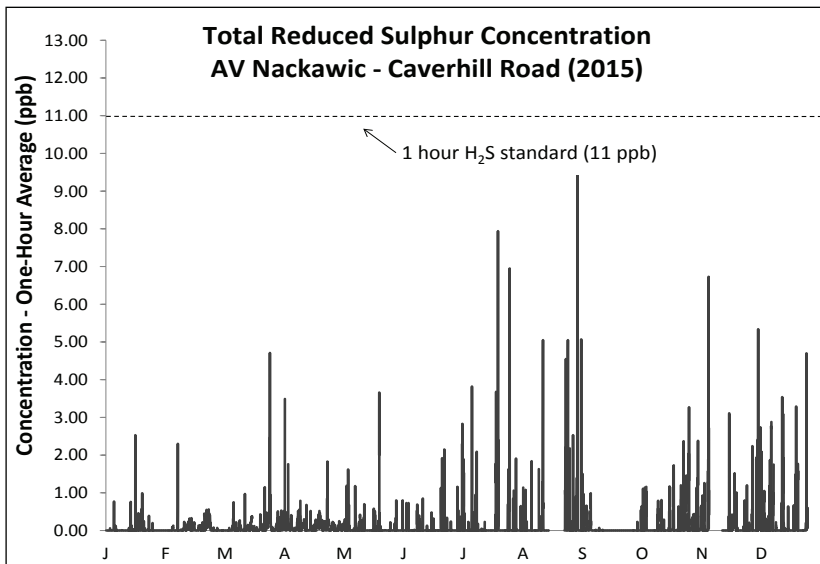
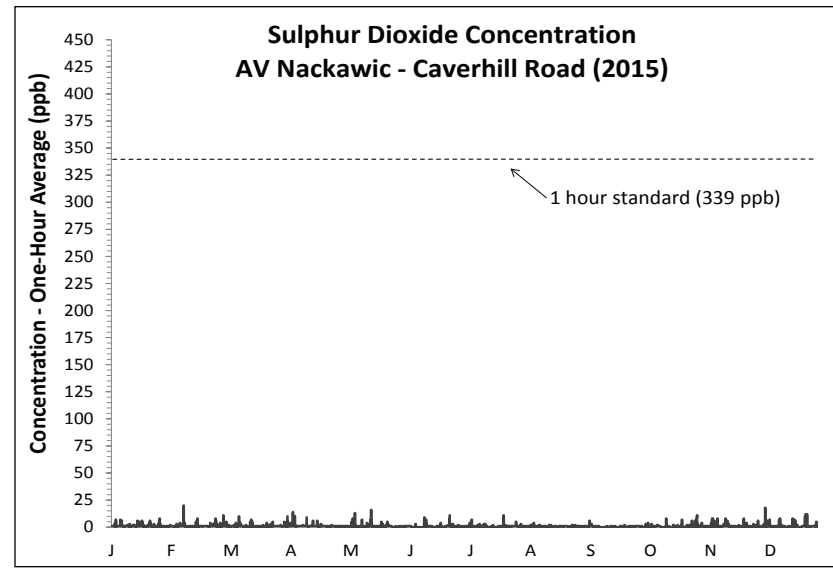
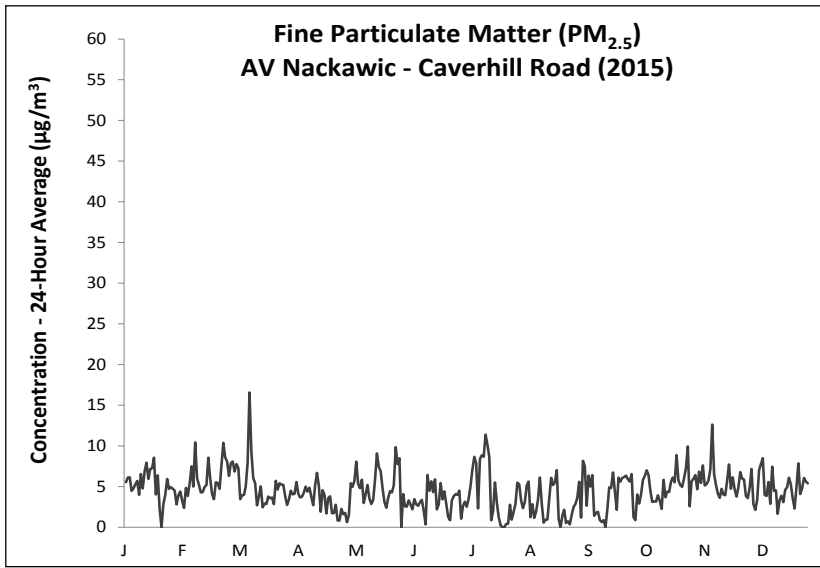
PART III: INDUSTRY-OPERATED NETWORKS - Irving Pulp and Paper, Lake Utopia - Sulphur Dioxide



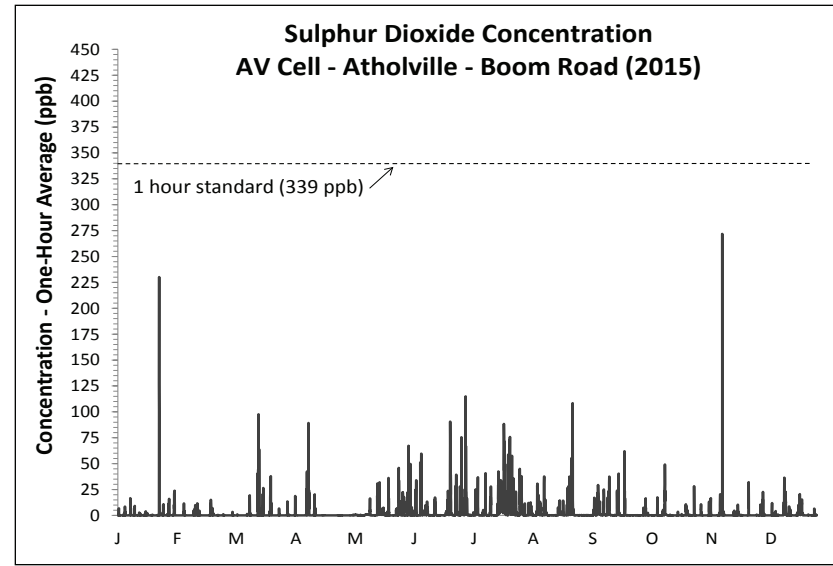
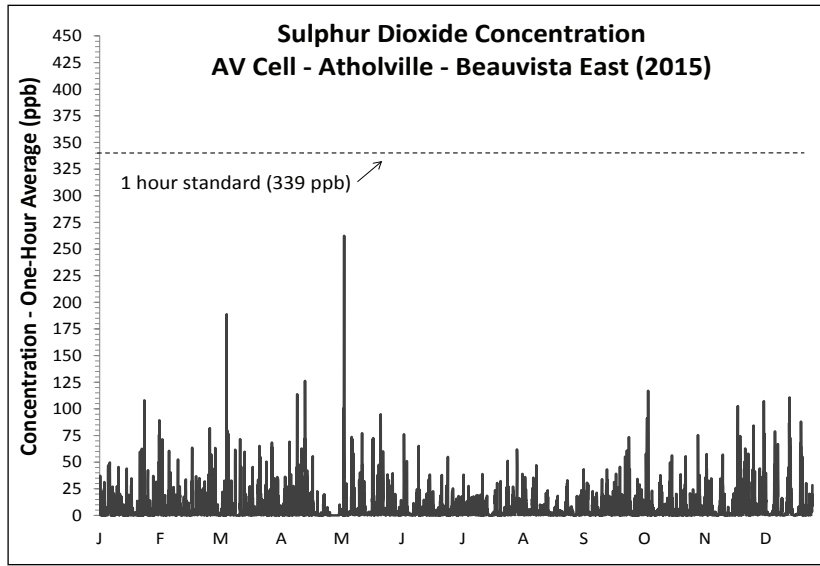
PART III: INDUSTRY-OPERATED NETWORKS - Twin Rivers Paper Company, Edmundston - All Parameters



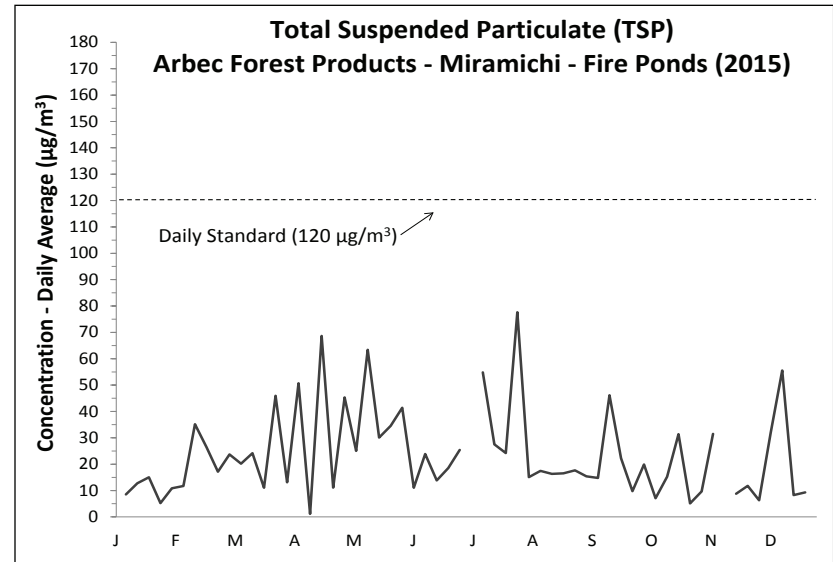
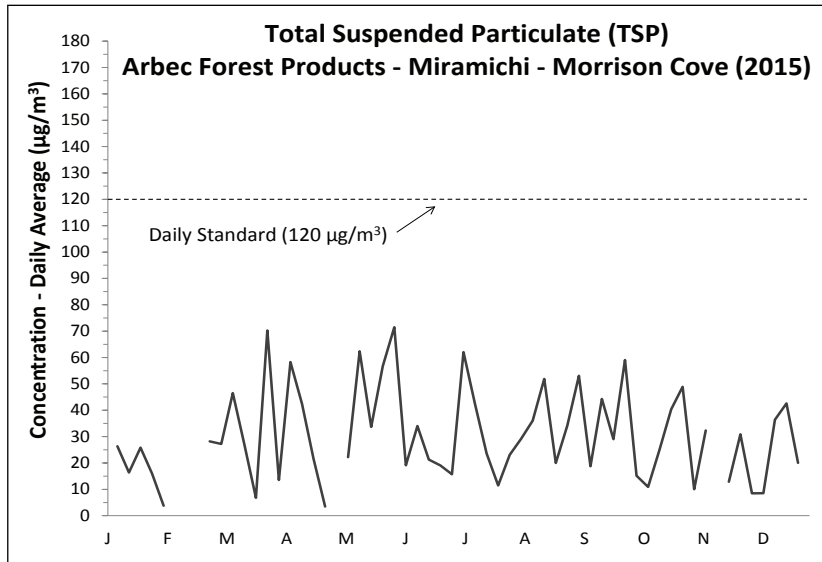
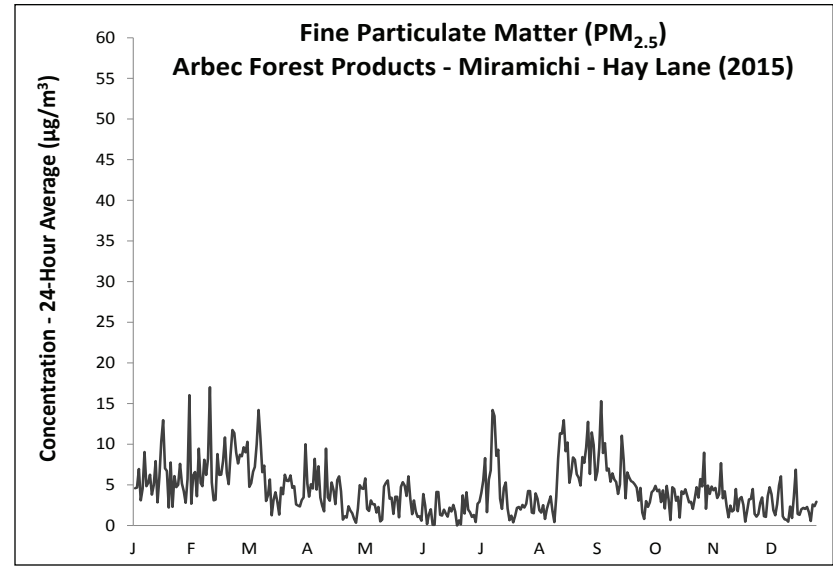
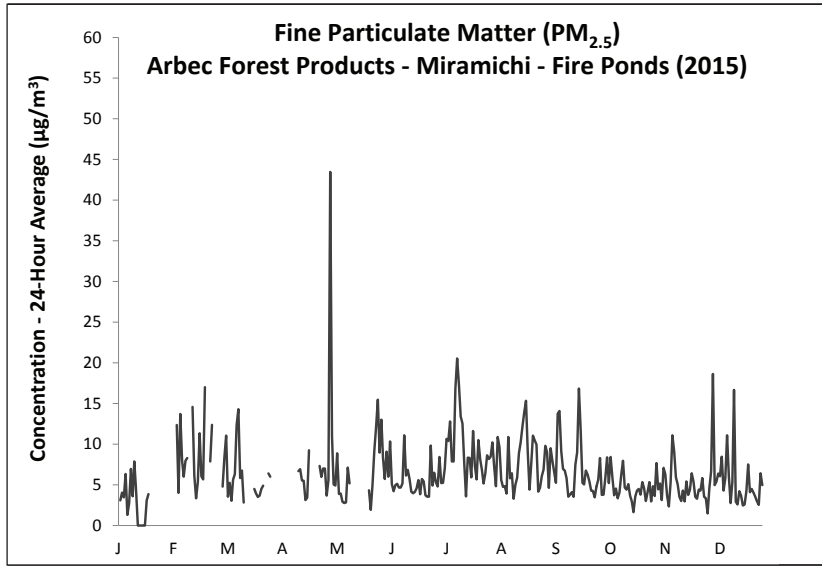
PART III: INDUSTRY-OPERATED NETWORKS - AV Nackawic, Nackawic - All Parameters



PART III: INDUSTRY-OPERATED NETWORKS - AV Cell, Atholville - Sulphur Dioxide



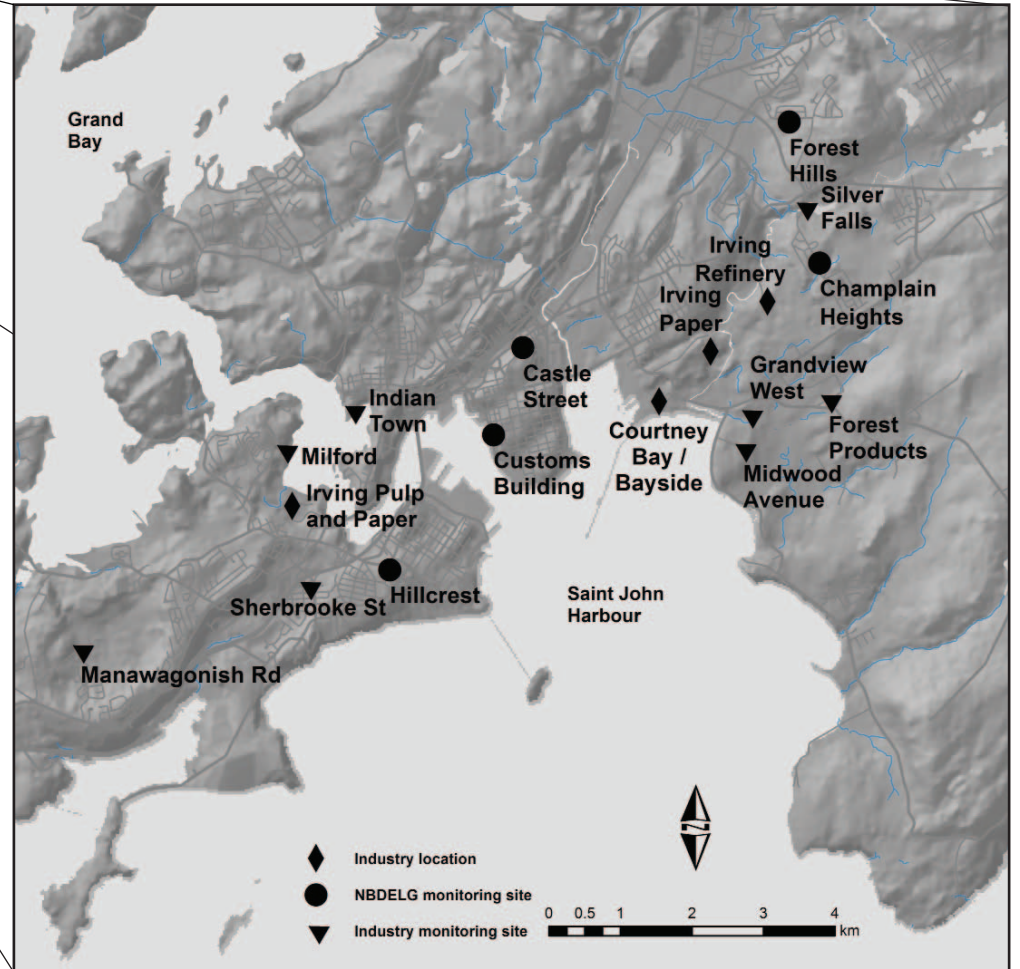
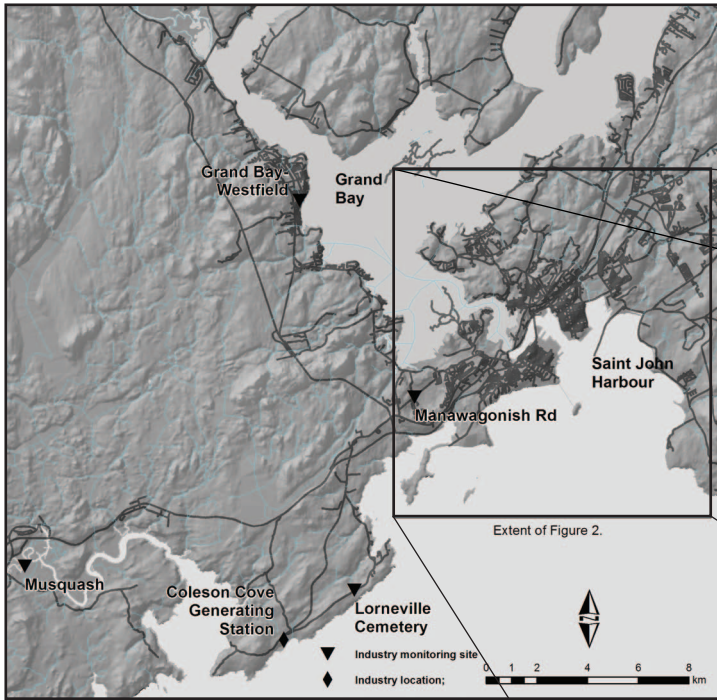
PART III: INDUSTRY-OPERATED NETWORKS - Arbec Forest Products, Miramichi- All Parameters



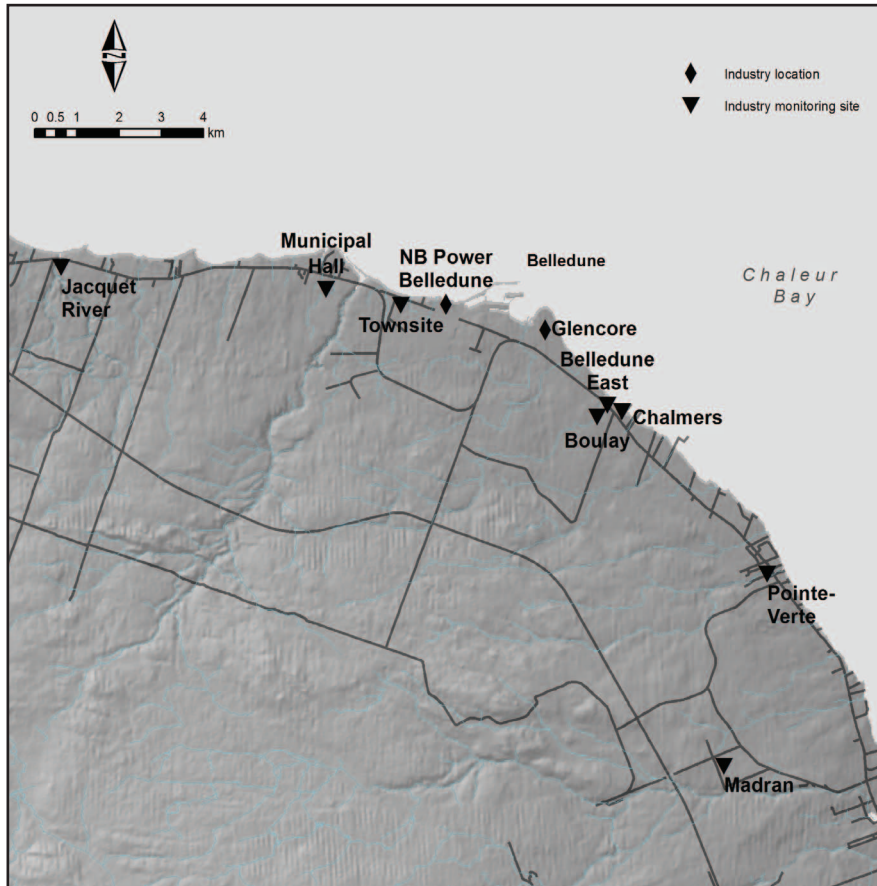
PART IV:
DETAILED STATION LOCATION MAPS

PART IV: DETAILED STATION LOCATION MAPS - Saint John Region

Grand Bay/Musquash/Saint John Area

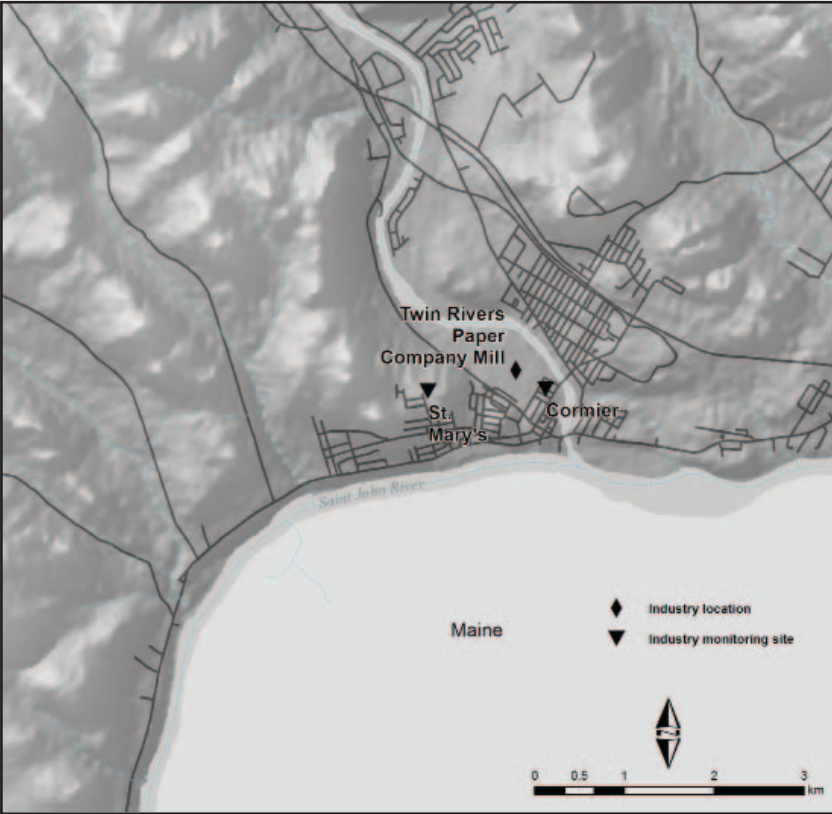


PART IV: DETAILED STATION LOCATION MAPS - Belledune

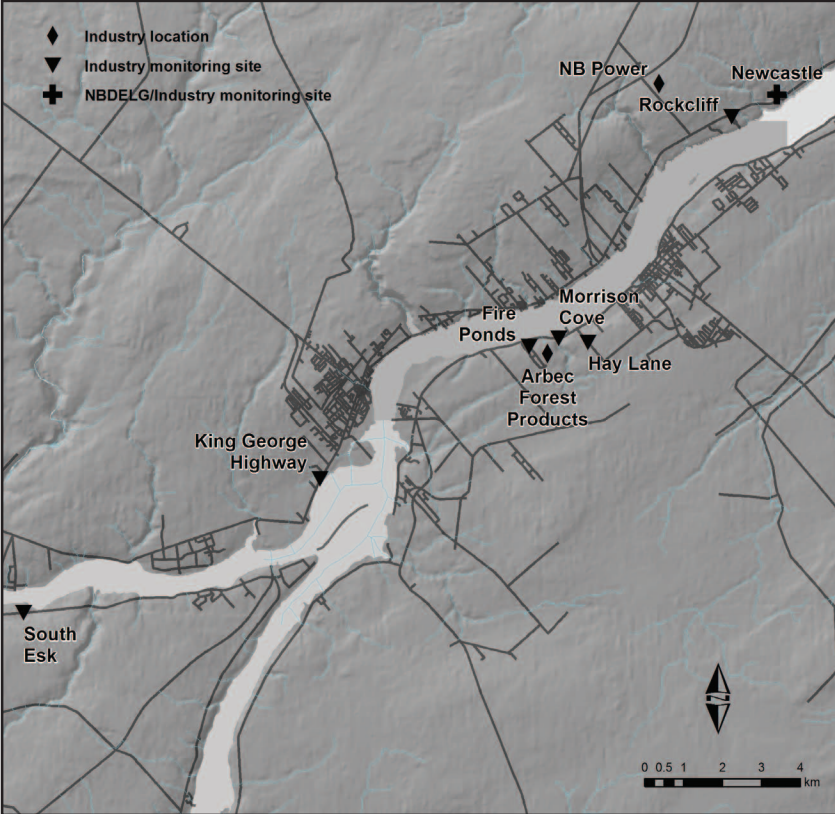


Belledune Area

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



Edmundston Area



Lower Newcastle